NEW BEGINNINGS

PRELIMINARY DRAINAGE REPORT

Date: **07-15-2025**

Located in: **Bryant, Arkansas**

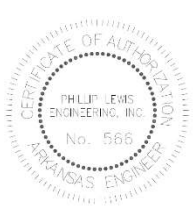
Prepared for:
City of Bryant, Arkansas

Prepared by:

PHILLIP LEWIS ENGINEERING
Structural + Civil Consultants
23620 Interstate 30 | Bryant, AR
PH: 501-350-9840

CERTIFICATION

I hereby state that this Final Drainage has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community of professional engineers. The analysis has been prepared utilizing procedures and practices by the City of Bryant and within the standard accepted practices.



DATE: 07-15-2024

Phillip A. Lewis, PE.

PROJECT LOCATION MAP

DESCRIPTION OF PROPERTY

The proposed project is for the consruction of a new pregnancy center located along Highway 5, directly adjacent to the current ongoing seminary project. The proposed development is a 5,900 sq. ft. building and parking lot.

The intent of this drainage analysis is to adequately size the storm sewer system and summarize pre and post runoff conditions.

The existing ground coverage for the entire development drainage basin consists of and natural vegetation (2%-7% slope), hydrologic soil group B/C.

According to FEMA Flood Insurance Rate Map, Panel 05125C0240E, this property lies within Zone X, areas determined to be outside the 0.2% annual chance floodplain. A copy of the map can be found in the appendix.

DRAINAGE CRITERIA

In accordance with the requirements of the City of Bryant, the proposed developments drainage plan and this drainage report were developed with the criteria established in the Bryant Stormwater Management & Drainage Manual provided on cityofbryant.com.

All drainage calculations were performed using HydroCAD software to determine and analyze the changes in stormrunoff volume, flow rates, and design the outlet release structure. Hydraflow Express software was used to appropriately design and size all storm sewer inlets, pipes and channels.

Calculations were performed using the Rational Method, using NOAA rainfall data, Runoff Coefficient table (Bryant Stormwater Management & Drainage Manual, Table 400-2) and the pipe and intlet structure sizes were determined by the 25-year storm event.

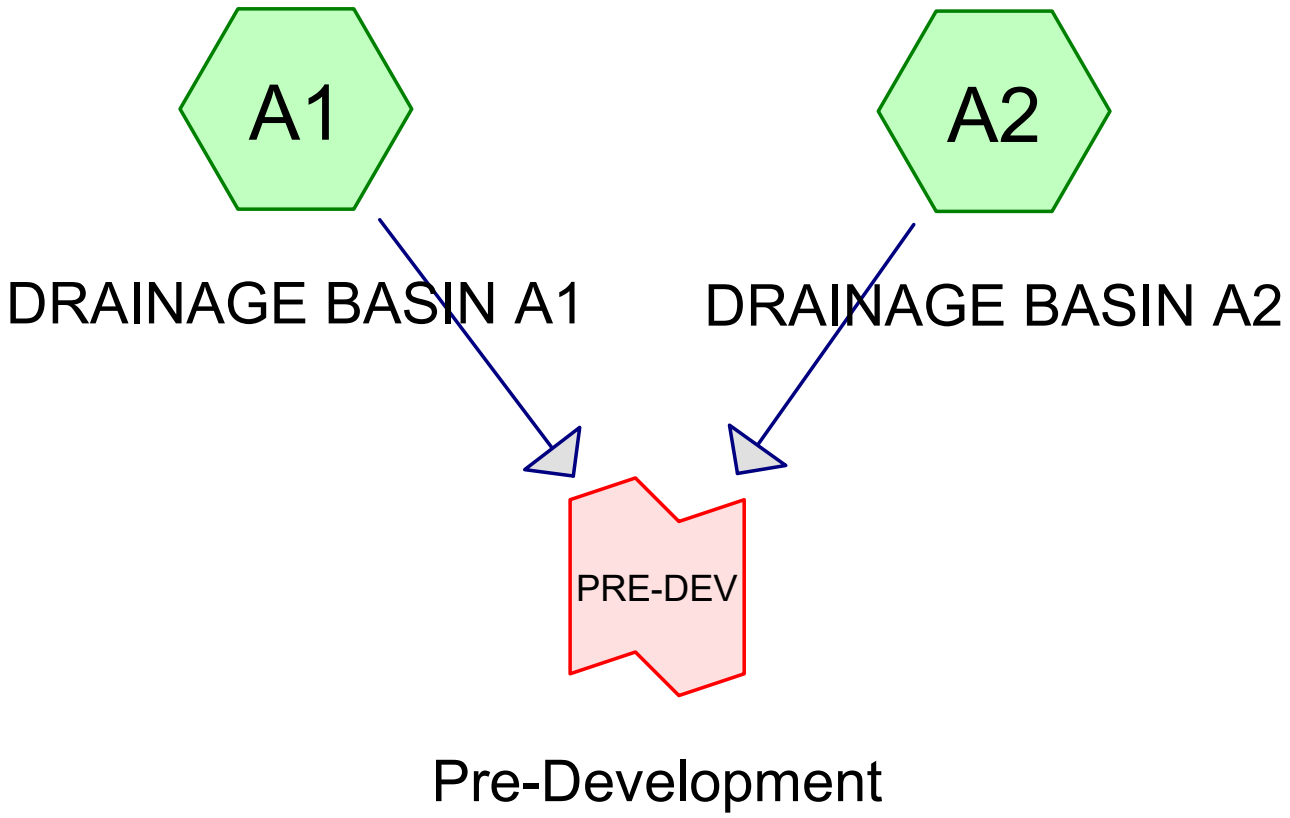
PROPOSED DRAINAGE SYSTEM

This develompent is designed to capture the majority of runoff within the parking lot curb and gutter. The storm sewer system will consist of standard concrete curb inlets. These inlets were sized based on there independent drainage basin flow rate and the slope that the inlets will be placed at.

Overall Pre-development and Post-development runoff/discharge rates are compared below:

Storm Event	Pre-development Discharge (cfs)	Post-development Discharge (cfs)
2-yr	1.30	3.94
5-yr	1.54	4.73
10-yr	1.74	5.28
25-yr	2.01	6.08
100-yr	2.38	7.24

PRE DEVELOPMENT HYDROGRAPHS



Pre-Development

Subcat Reach Pond Link

Routing Diagram for New Beginnings Drainage
Prepared by Phillip Lewis Engineering, Printed 7/15/2025

Summary for Subcatchment A1: DRAINAGE BASIN A1

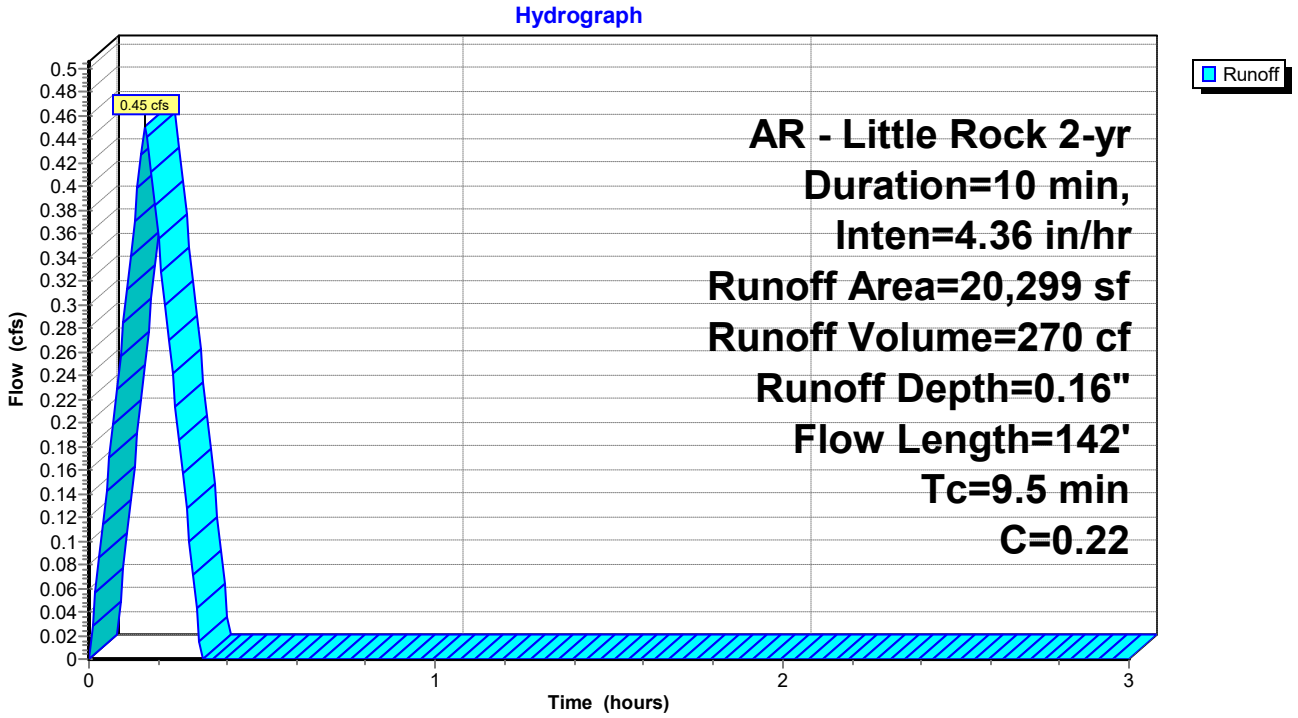
Runoff = 0.45 cfs @ 0.16 hrs, Volume= 270 cf, Depth= 0.16"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
20,299	0.22	Sandy Soil 2-7% per manual (undeveloped)
20,299		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0430	0.18		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.3	42	0.1410	2.63		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.5	142	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

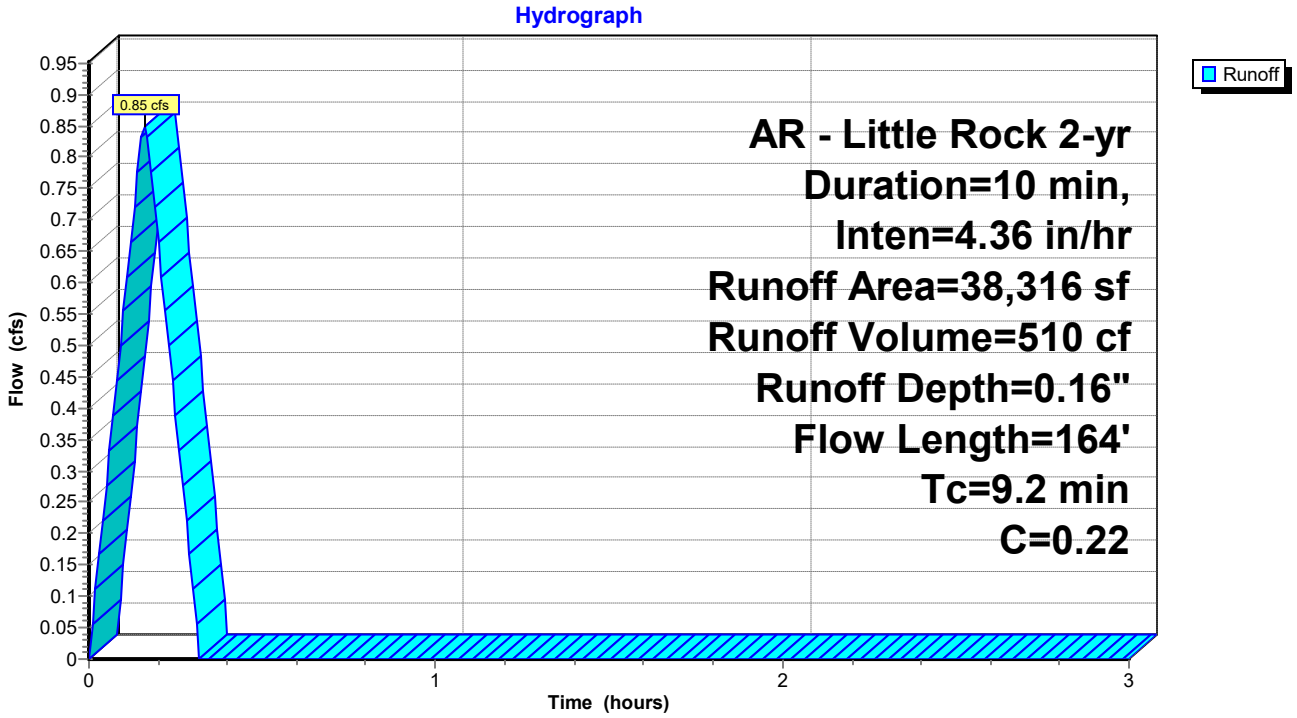
Runoff = 0.85 cfs @ 0.16 hrs, Volume= 510 cf, Depth= 0.16"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
38,316	0.22	Sandy Soil 2-7% per manual (undeveloped)
38,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0560	0.20		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.9	64	0.0320	1.25		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.2	164	Total			

Subcatchment A2: DRAINAGE BASIN A2

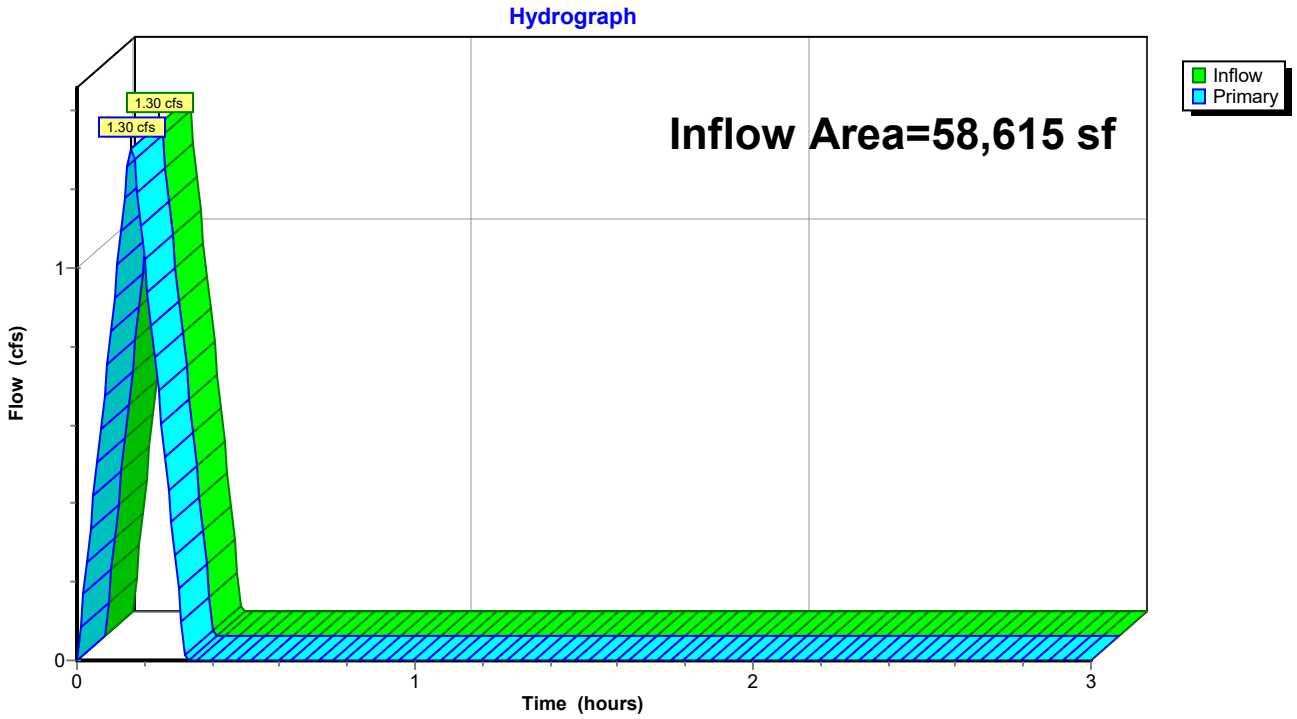


Summary for Link PRE-DEV: Pre-Development

Inflow Area = 58,615 sf, 0.00% Impervious, Inflow Depth = 0.16" for 2-yr event
Inflow = 1.30 cfs @ 0.16 hrs, Volume= 780 cf
Primary = 1.30 cfs @ 0.16 hrs, Volume= 780 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

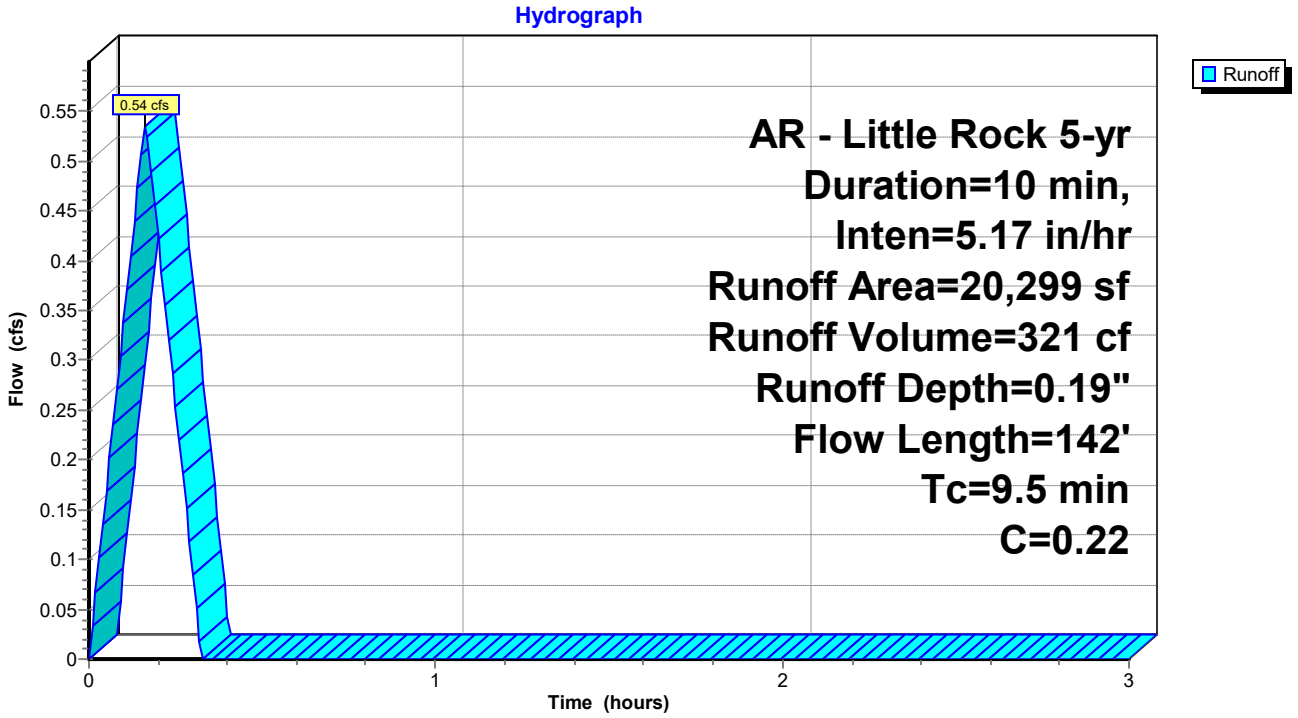
Runoff = 0.54 cfs @ 0.16 hrs, Volume= 321 cf, Depth= 0.19"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
20,299	0.22	Sandy Soil 2-7% per manual (undeveloped)
20,299		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0430	0.18		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.3	42	0.1410	2.63		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.5	142	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

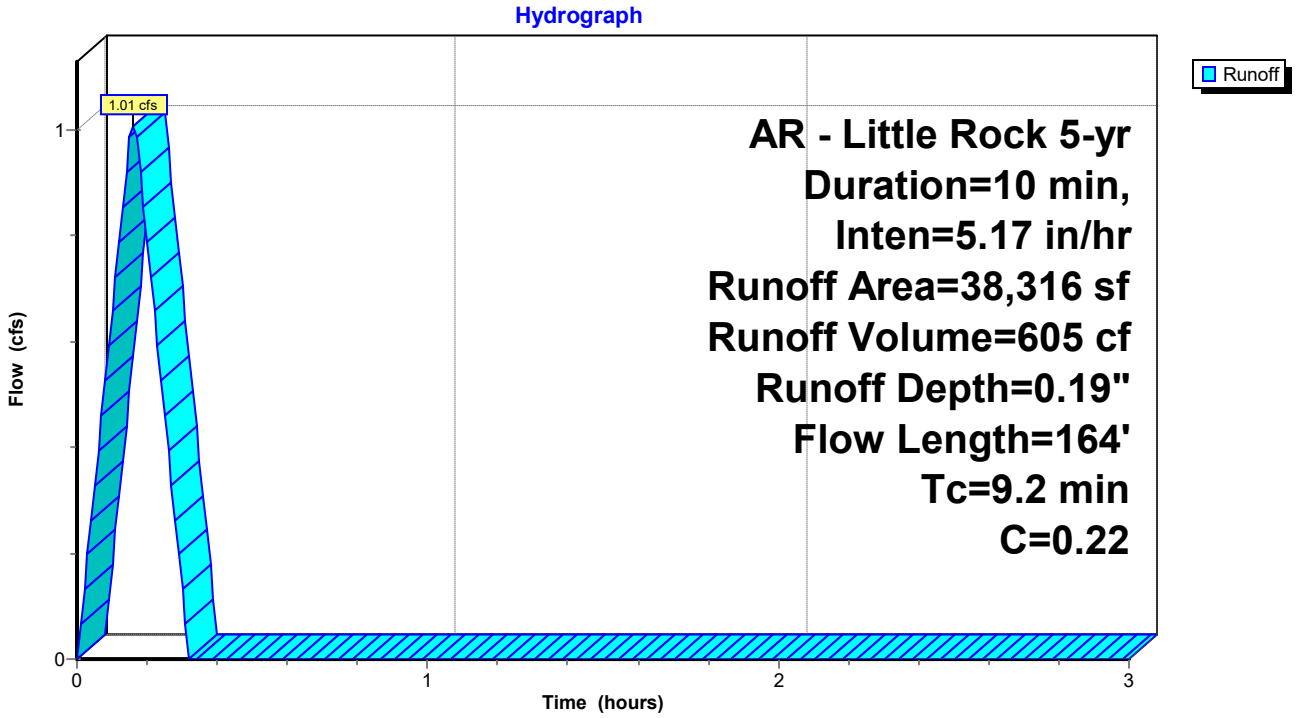
Runoff = 1.01 cfs @ 0.16 hrs, Volume= 605 cf, Depth= 0.19"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
38,316	0.22	Sandy Soil 2-7% per manual (undeveloped)
38,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0560	0.20		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.9	64	0.0320	1.25		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.2	164	Total			

Subcatchment A2: DRAINAGE BASIN A2

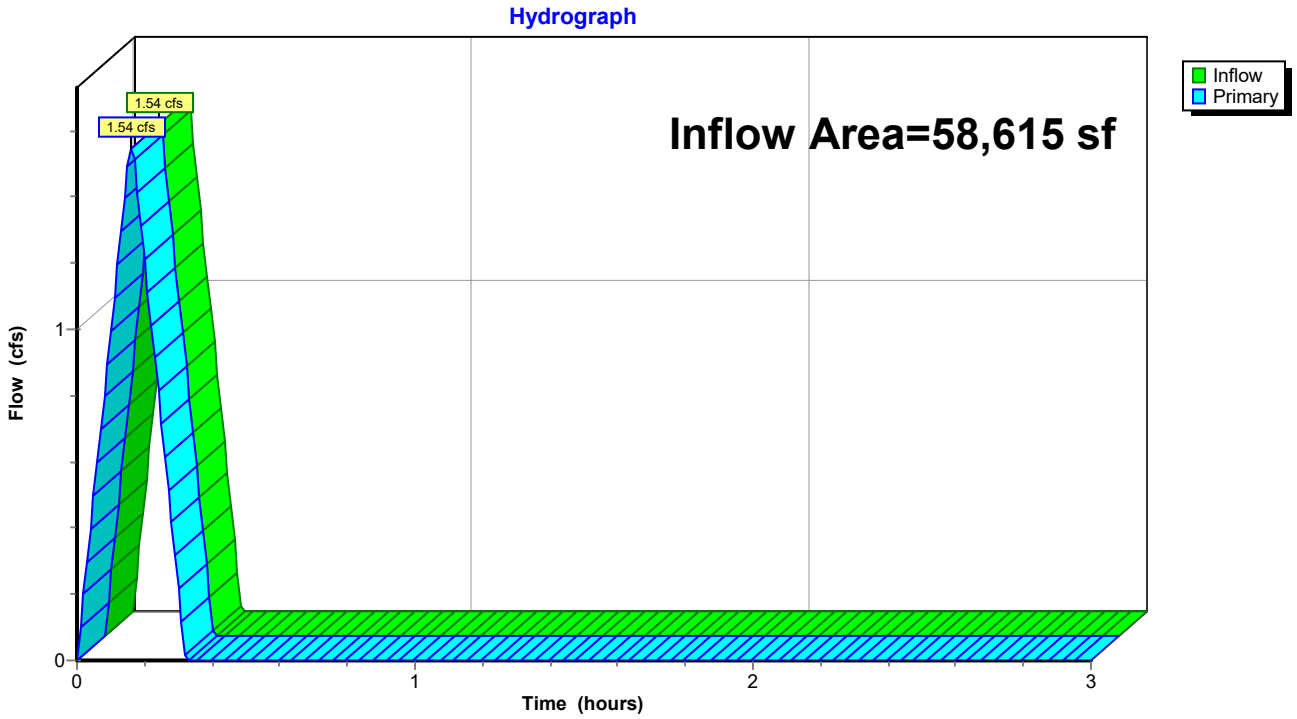


Summary for Link PRE-DEV: Pre-Development

Inflow Area = 58,615 sf, 0.00% Impervious, Inflow Depth = 0.19" for 5-yr event
Inflow = 1.54 cfs @ 0.16 hrs, Volume= 926 cf
Primary = 1.54 cfs @ 0.16 hrs, Volume= 926 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

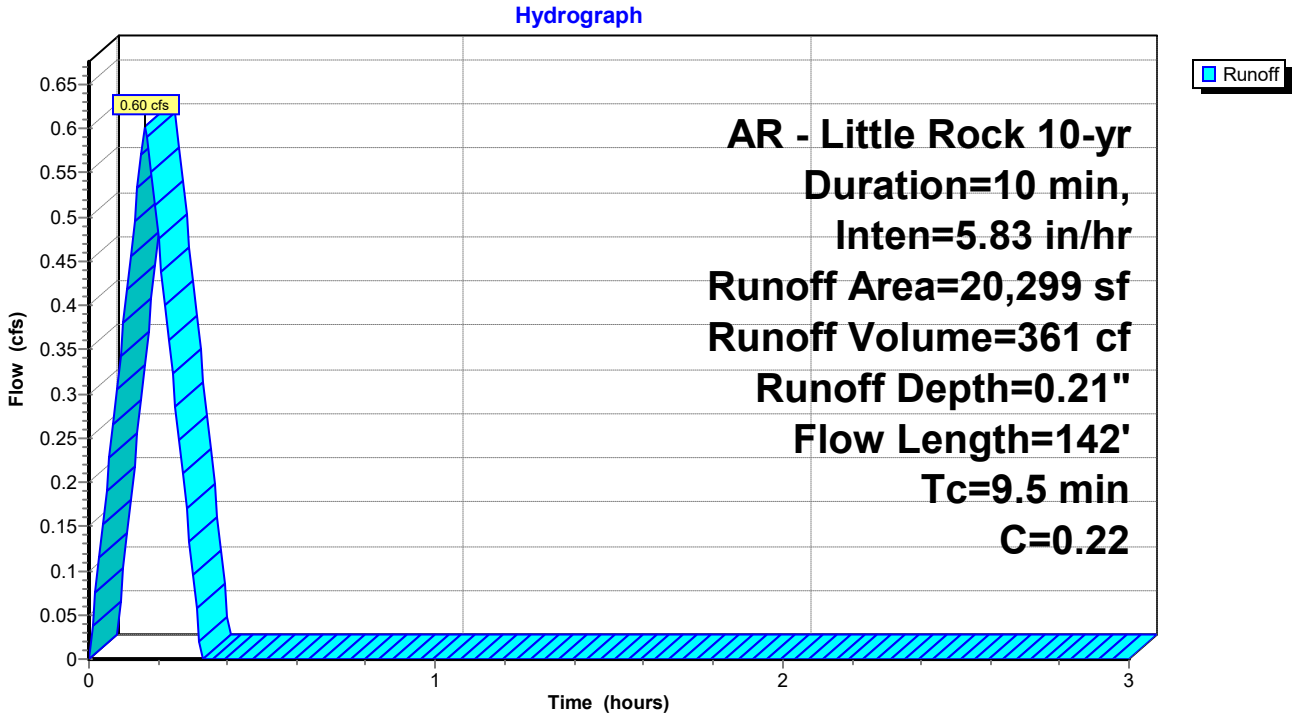
Runoff = 0.60 cfs @ 0.16 hrs, Volume= 361 cf, Depth= 0.21"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
20,299	0.22	Sandy Soil 2-7% per manual (undeveloped)
20,299		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0430	0.18		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.3	42	0.1410	2.63		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.5	142	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

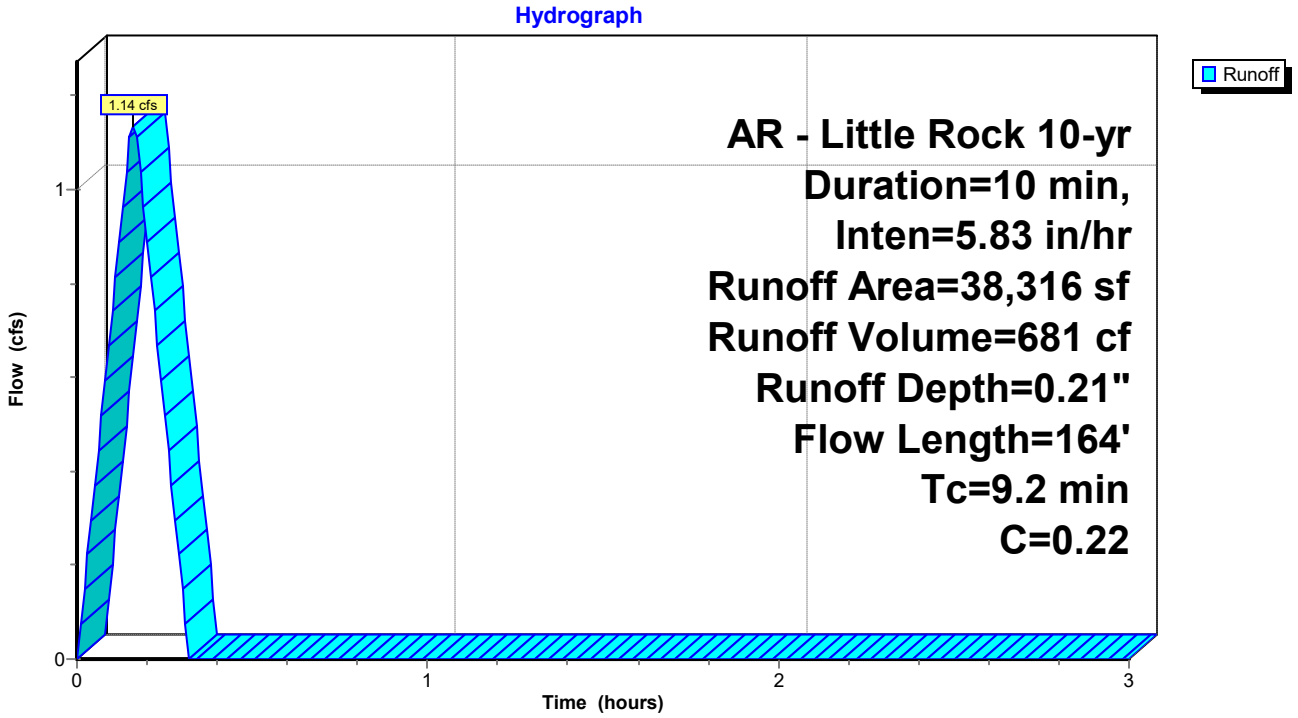
Runoff = 1.14 cfs @ 0.16 hrs, Volume= 681 cf, Depth= 0.21"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
38,316	0.22	Sandy Soil 2-7% per manual (undeveloped)
38,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0560	0.20		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.9	64	0.0320	1.25		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.2	164	Total			

Subcatchment A2: DRAINAGE BASIN A2

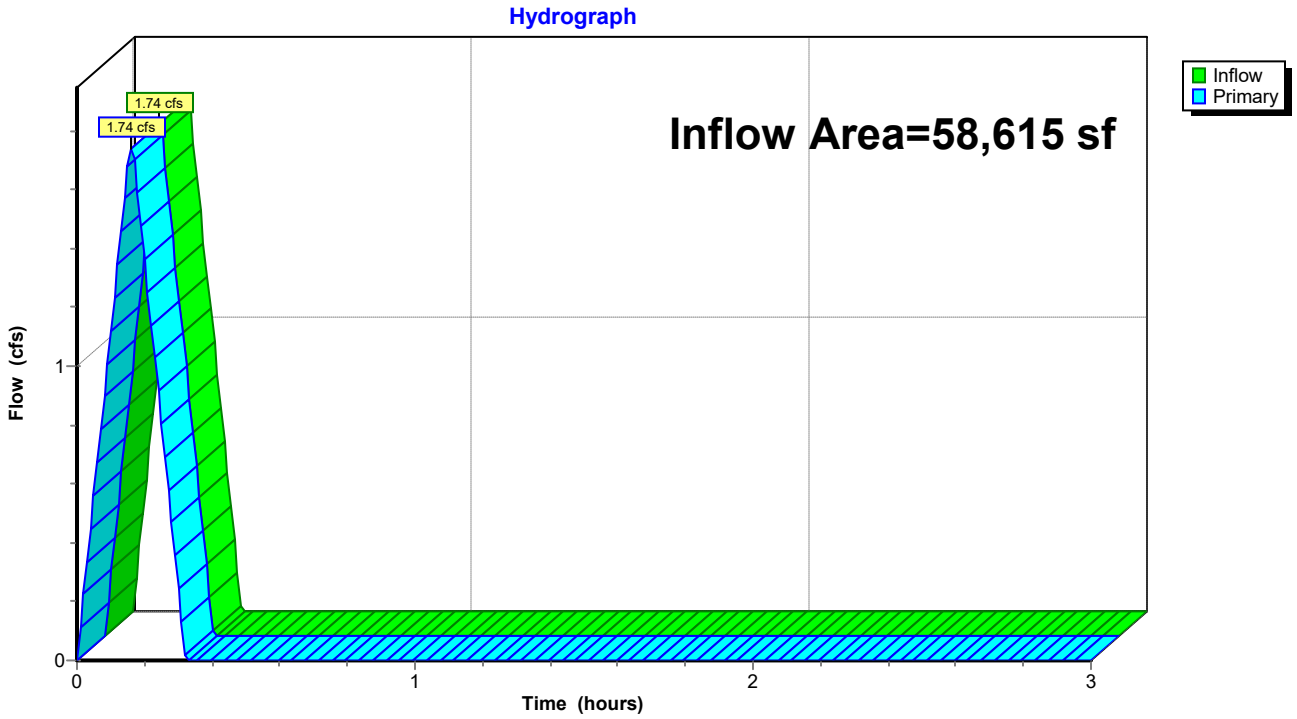


Summary for Link PRE-DEV: Pre-Development

Inflow Area = 58,615 sf, 0.00% Impervious, Inflow Depth = 0.21" for 10-yr event
Inflow = 1.74 cfs @ 0.16 hrs, Volume= 1,043 cf
Primary = 1.74 cfs @ 0.16 hrs, Volume= 1,043 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

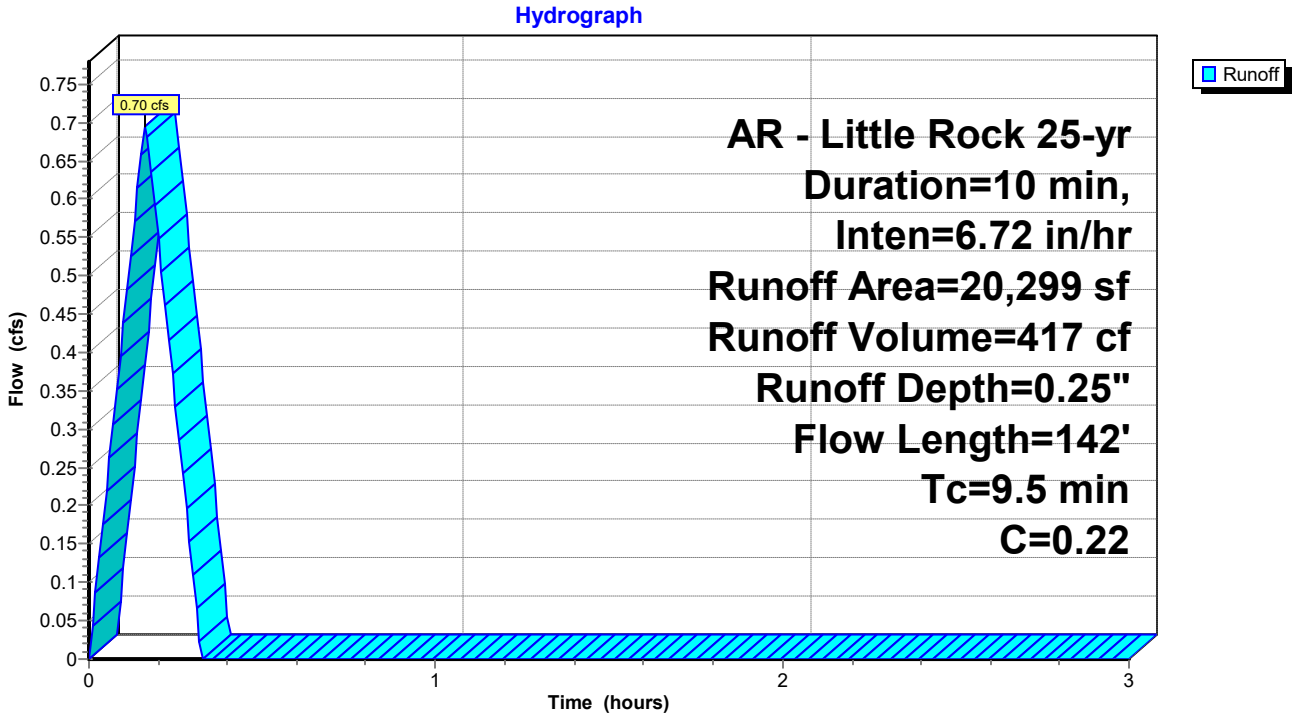
Runoff = 0.70 cfs @ 0.16 hrs, Volume= 417 cf, Depth= 0.25"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
20,299	0.22	Sandy Soil 2-7% per manual (undeveloped)
20,299		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0430	0.18		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.3	42	0.1410	2.63		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.5	142	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

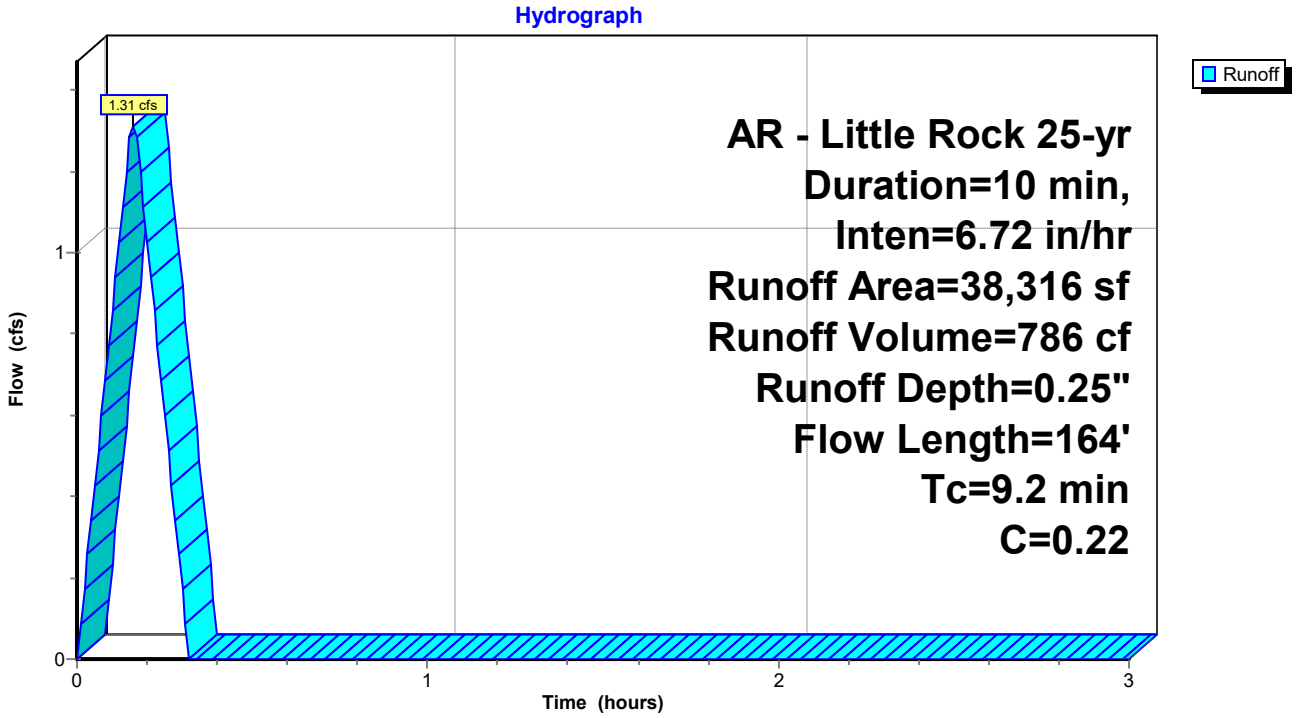
Runoff = 1.31 cfs @ 0.16 hrs, Volume= 786 cf, Depth= 0.25"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
38,316	0.22	Sandy Soil 2-7% per manual (undeveloped)
38,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0560	0.20		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.9	64	0.0320	1.25		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.2	164	Total			

Subcatchment A2: DRAINAGE BASIN A2

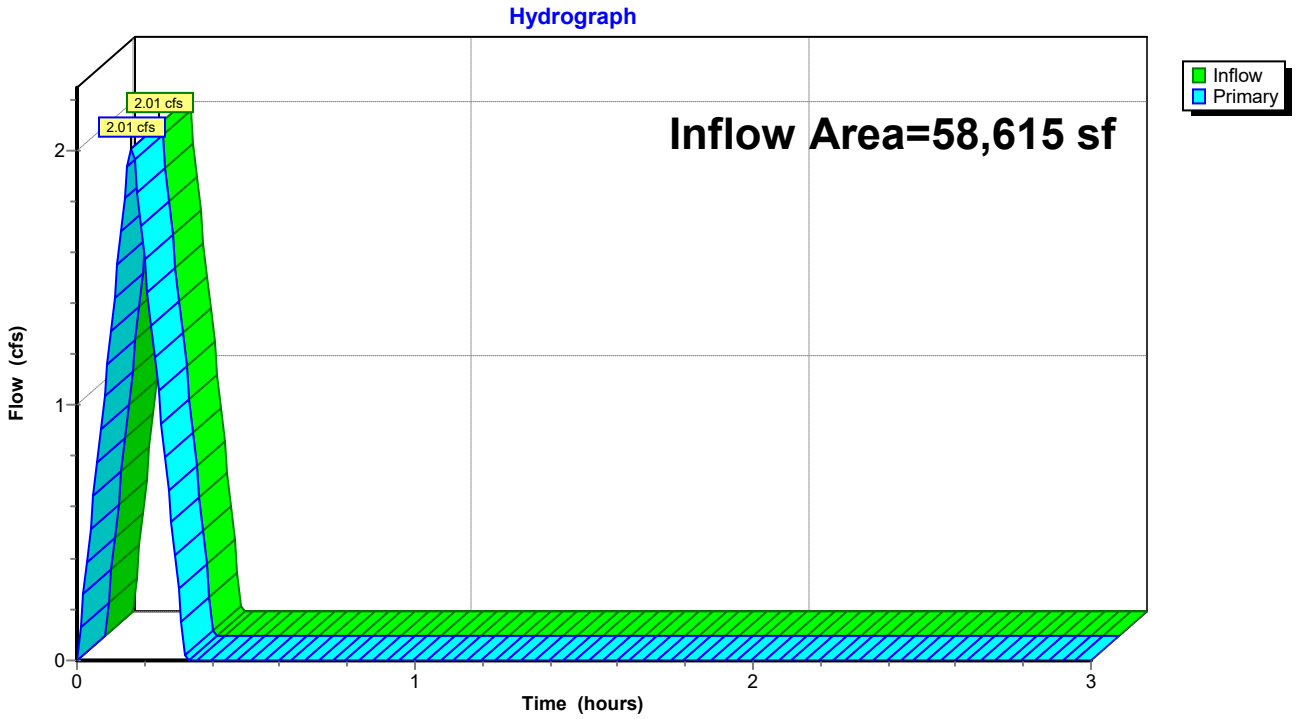


Summary for Link PRE-DEV: Pre-Development

Inflow Area = 58,615 sf, 0.00% Impervious, Inflow Depth = 0.25" for 25-yr event
Inflow = 2.01 cfs @ 0.16 hrs, Volume= 1,203 cf
Primary = 2.01 cfs @ 0.16 hrs, Volume= 1,203 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



Summary for Subcatchment A1: DRAINAGE BASIN A1

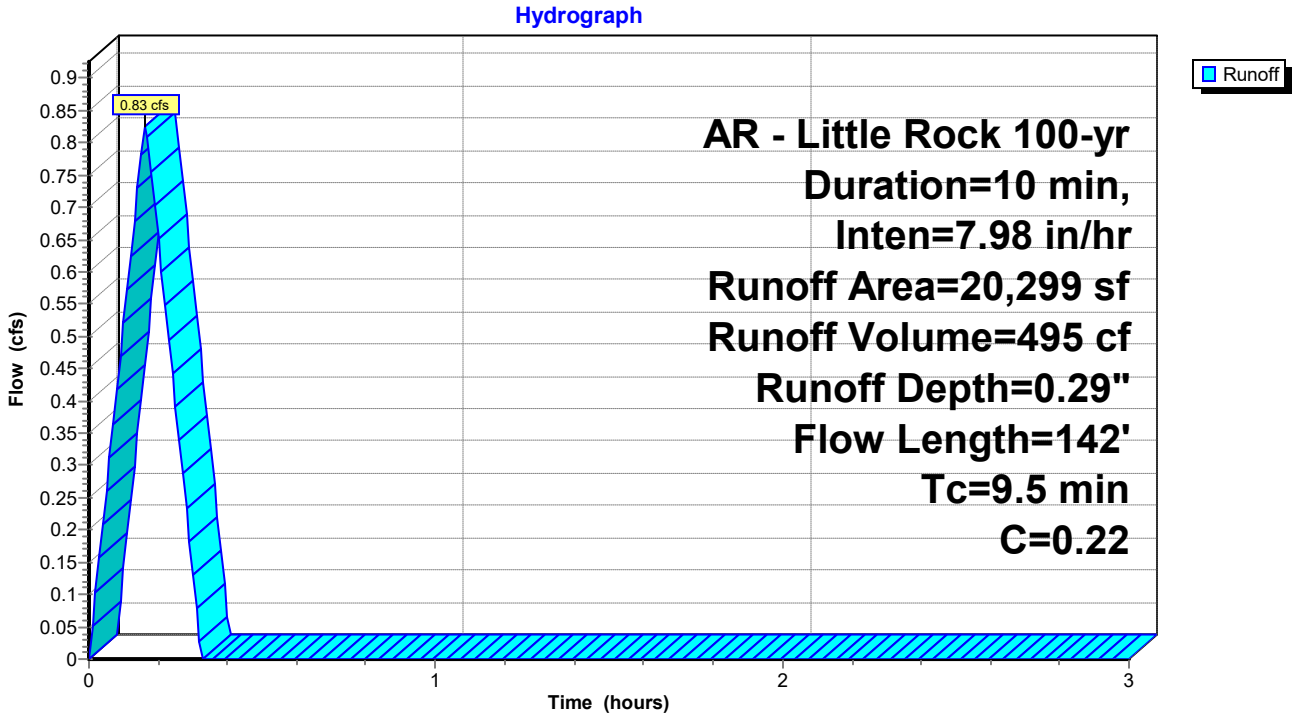
Runoff = 0.83 cfs @ 0.16 hrs, Volume= 495 cf, Depth= 0.29"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
20,299	0.22	Sandy Soil 2-7% per manual (undeveloped)
20,299		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.2	100	0.0430	0.18		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.3	42	0.1410	2.63		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.5	142	Total			

Subcatchment A1: DRAINAGE BASIN A1



Summary for Subcatchment A2: DRAINAGE BASIN A2

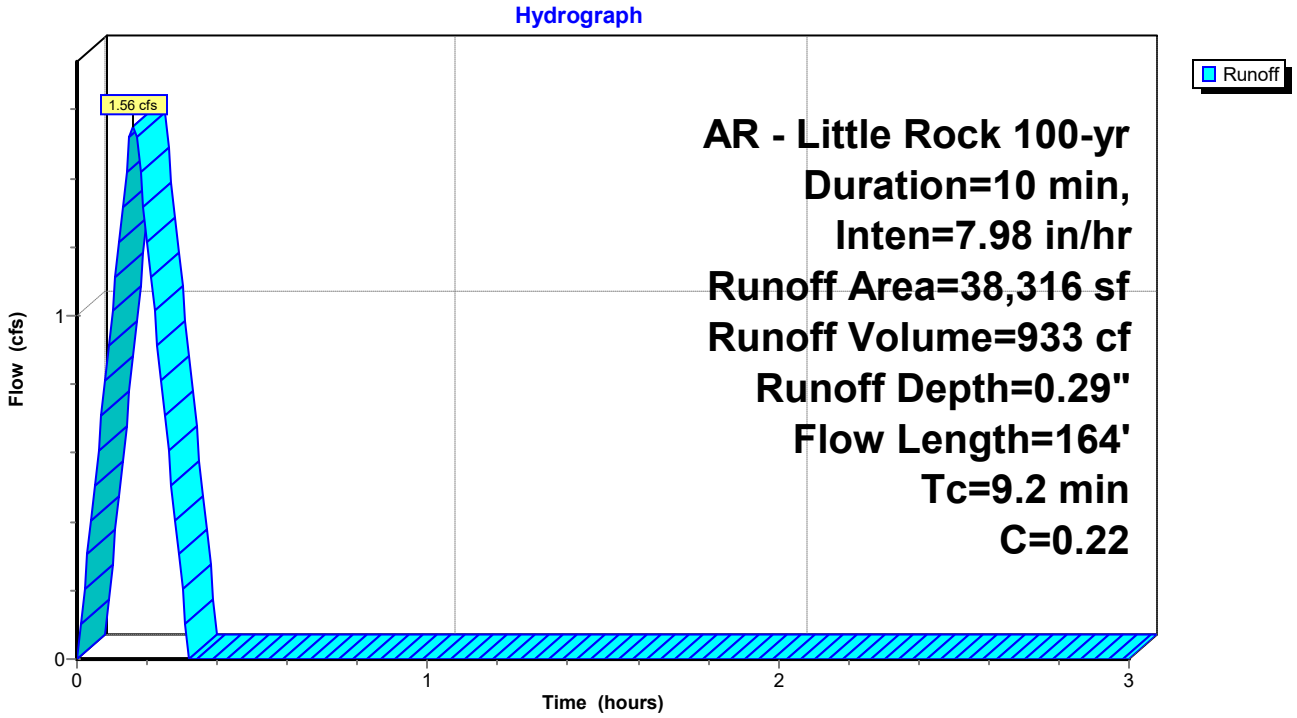
Runoff = 1.56 cfs @ 0.16 hrs, Volume= 933 cf, Depth= 0.29"
Routed to Link PRE-DEV : Pre-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
38,316	0.22	Sandy Soil 2-7% per manual (undeveloped)
38,316		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.3	100	0.0560	0.20		**Sheet Flow, Overland Sheet flow** Grass: Dense n= 0.240 P2= 4.20"
0.9	64	0.0320	1.25		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
9.2	164	Total			

Subcatchment A2: DRAINAGE BASIN A2

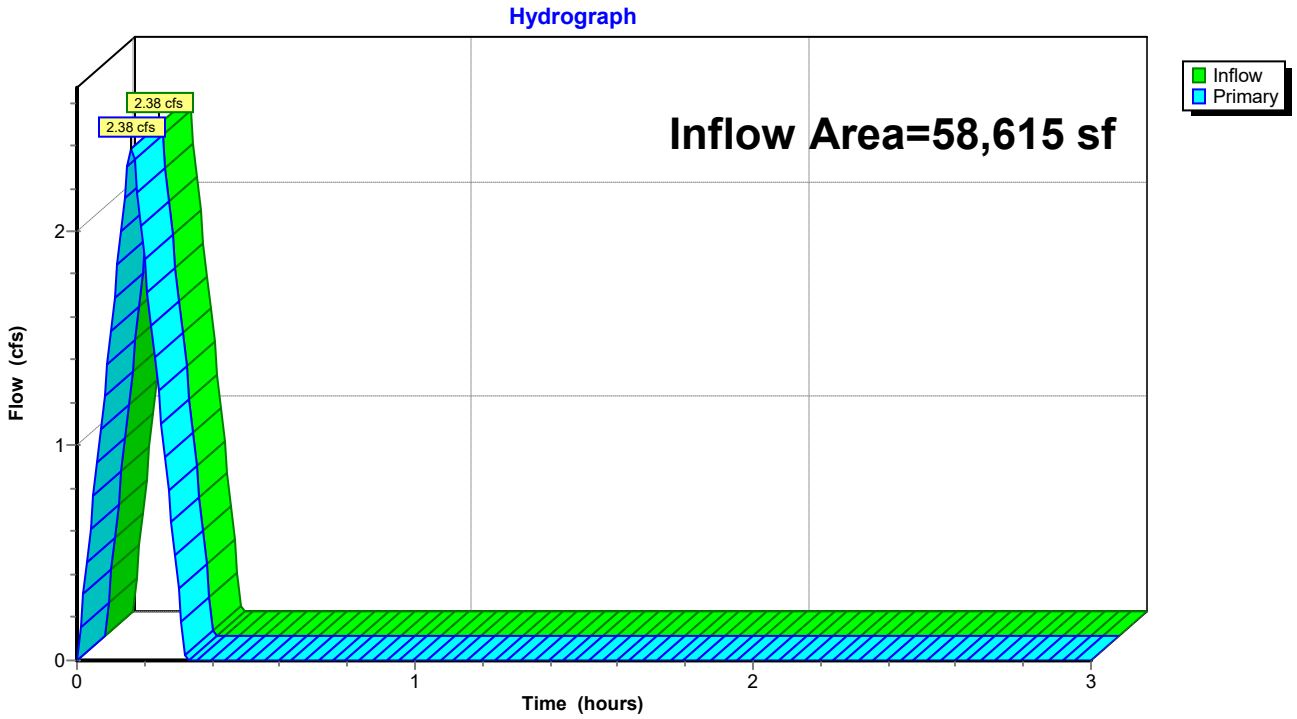


Summary for Link PRE-DEV: Pre-Development

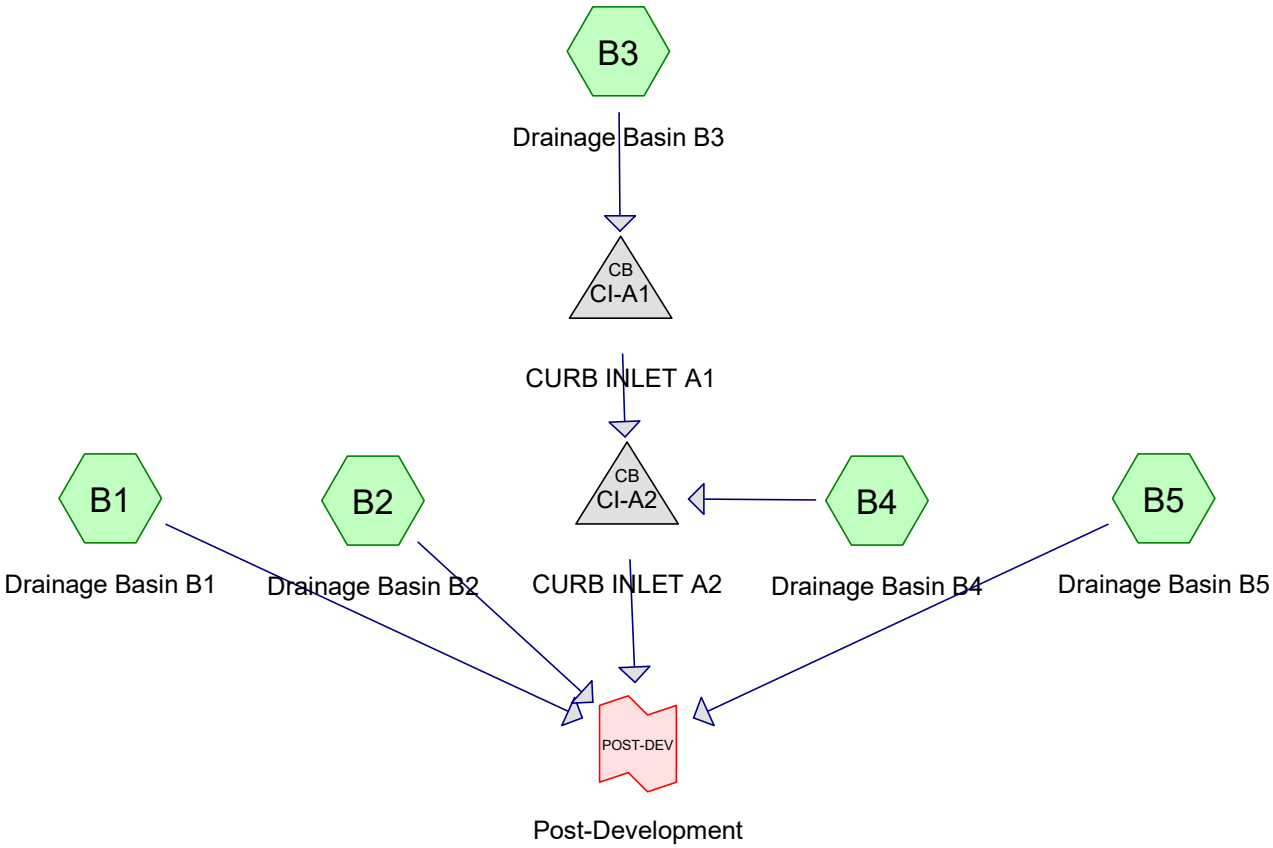
Inflow Area = 58,615 sf, 0.00% Impervious, Inflow Depth = 0.29" for 100-yr event
Inflow = 2.38 cfs @ 0.16 hrs, Volume= 1,428 cf
Primary = 2.38 cfs @ 0.16 hrs, Volume= 1,428 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link PRE-DEV: Pre-Development



POST DEVELOPMENT HYDROGRAPHS



Subcat Reach Pond Link

Routing Diagram for New Beginnings Drainage
Prepared by Phillip Lewis Engineering, Printed 7/15/2025

Summary for Subcatchment B1: Drainage Basin B1

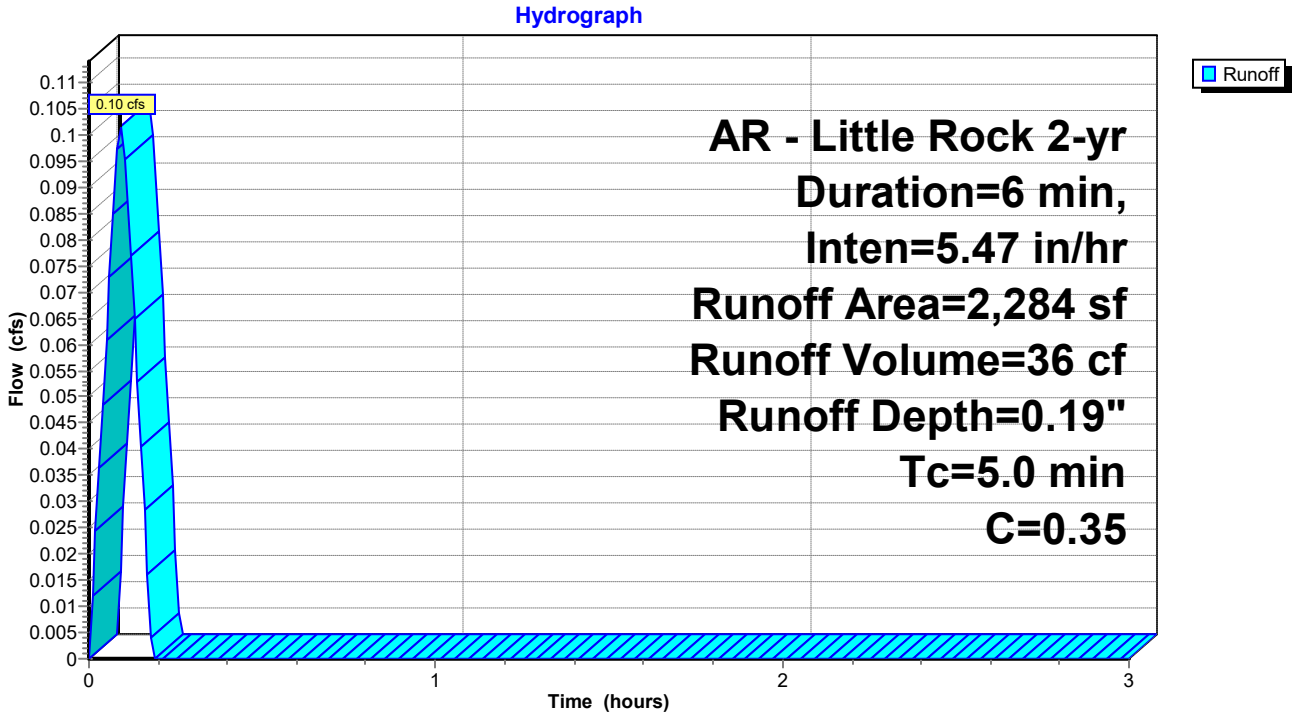
Runoff = 0.10 cfs @ 0.09 hrs, Volume= 36 cf, Depth= 0.19"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=6 min, Inten=5.47 in/hr

Area (sf)	C	Description
2,284	0.35	Sandy Soil 2-7% per manual
0	0.92	Paved Areas
2,284	0.35	Weighted Average
2,284		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum Adjustment**

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

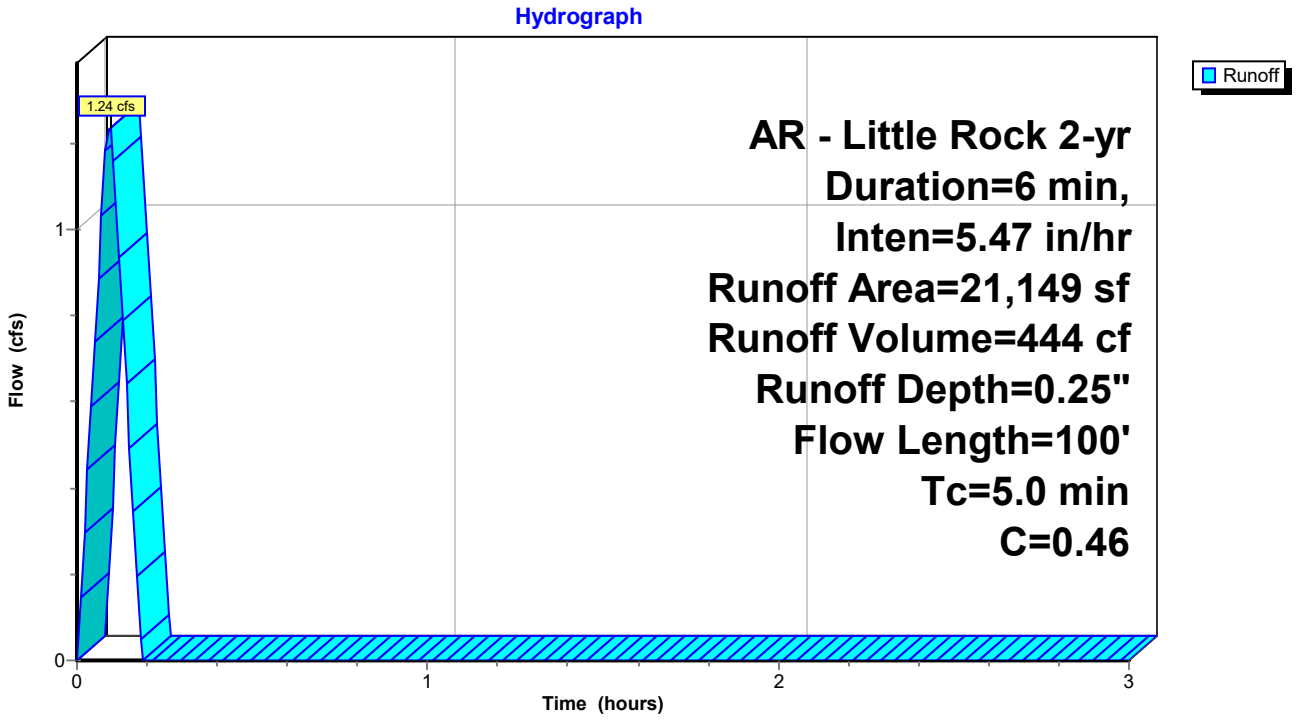
Runoff = 1.24 cfs @ 0.09 hrs, Volume= 444 cf, Depth= 0.25"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=6 min, Inten=5.47 in/hr

Area (sf)	C	Description
16,931	0.35	Sandy Soil 2-7% per manual
4,218	0.92	Paved Areas
21,149	0.46	Weighted Average
21,149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	42	0.1667	3.09		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.5	58	0.0500	2.04		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
4.3					**Direct Entry, Minimum Adjustment**
5.0	100	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

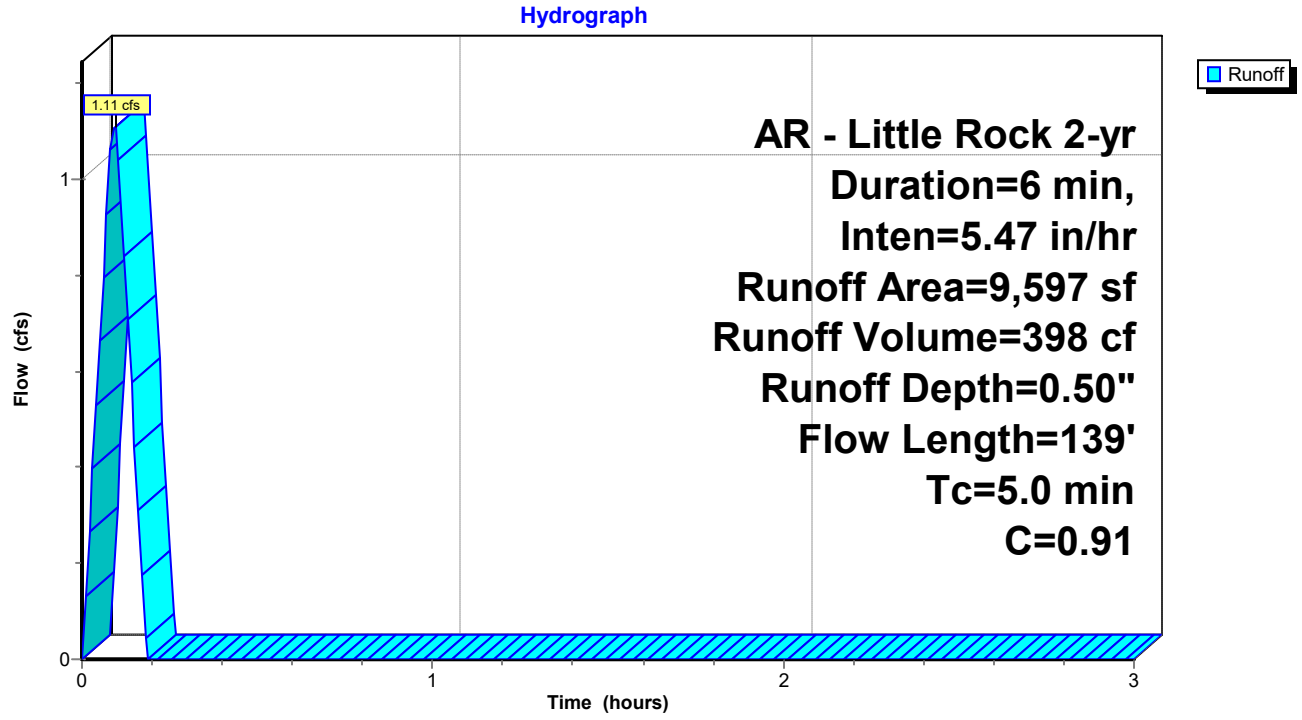
Runoff = 1.11 cfs @ 0.09 hrs, Volume= 398 cf, Depth= 0.50"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=6 min, Inten=5.47 in/hr

Area (sf)	C	Description
155	0.35	Sandy Soil 2-7% per manual
9,442	0.92	Paved Areas
9,597	0.91	Weighted Average
9,597		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	28	0.1667	2.85		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	30	0.0160	1.13		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.4	41	0.0520	1.93		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.2	40	0.0360	3.85		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	139	Total			

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

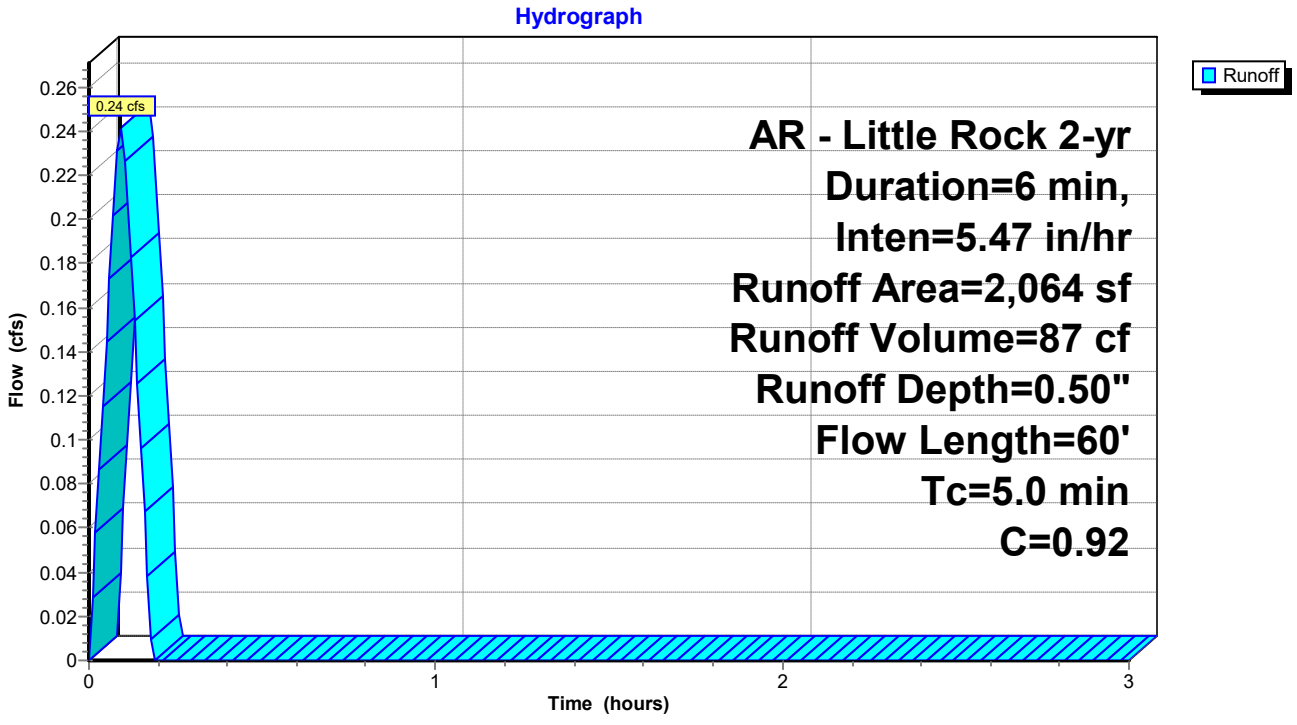
Runoff = 0.24 cfs @ 0.09 hrs, Volume= 87 cf, Depth= 0.50"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=6 min, Inten=5.47 in/hr

Area (sf)	C	Description
0	0.35	Sandy Soil 2-7% per manual
2,064	0.92	Paved Areas
2,064	0.92	Weighted Average
2,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0170	1.26		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.0	15	0.0840	5.88		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	60	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

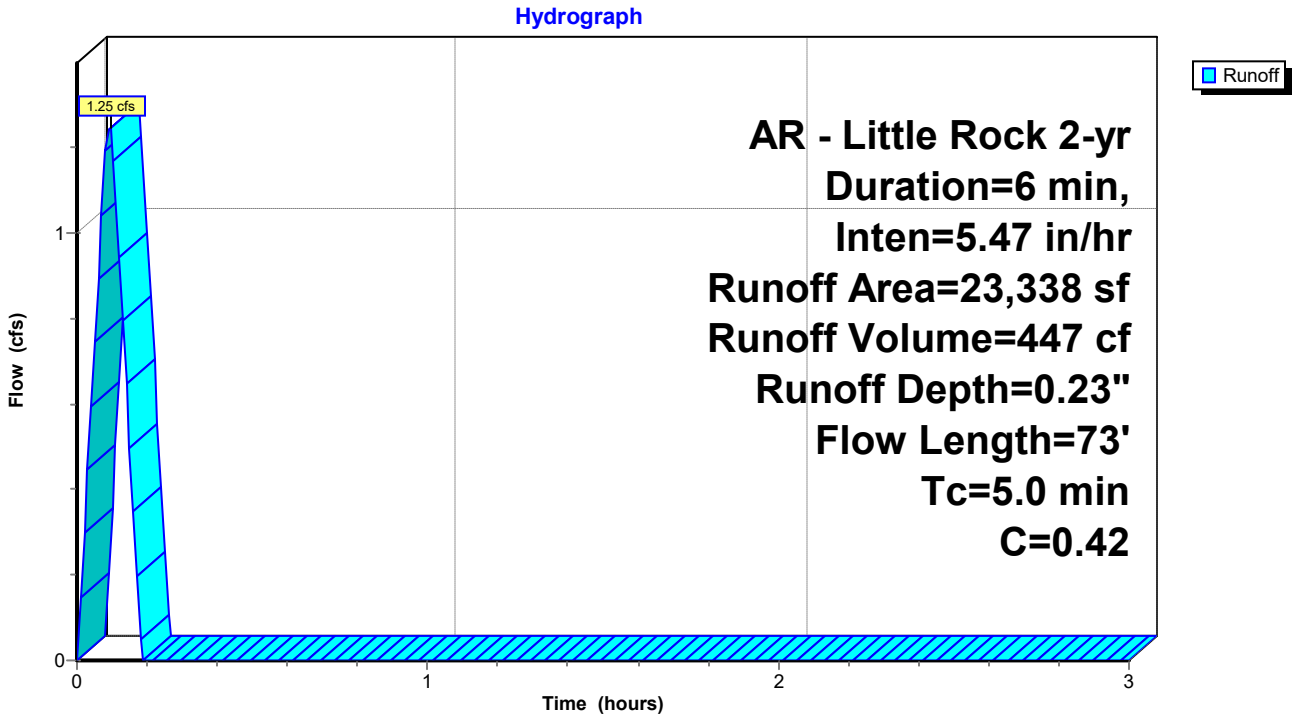
Runoff = 1.25 cfs @ 0.09 hrs, Volume= 447 cf, Depth= 0.23"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=6 min, Inten=5.47 in/hr

Area (sf)	C	Description
20,627	0.35	Sandy Soil 2-7% per manual
2,711	0.92	Paved Areas
23,338	0.42	Weighted Average
23,338		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	0.1667	2.61		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	55	0.0860	2.05		**Shallow Concentrated Flow, Overland Concentrated** Short Grass Pasture Kv= 7.0 fps
4.5					**Direct Entry, Minimum Adjustment**
5.0	73	Total			

Subcatchment B5: Drainage Basin B5



Summary for Pond CI-A1: CURB INLET A1

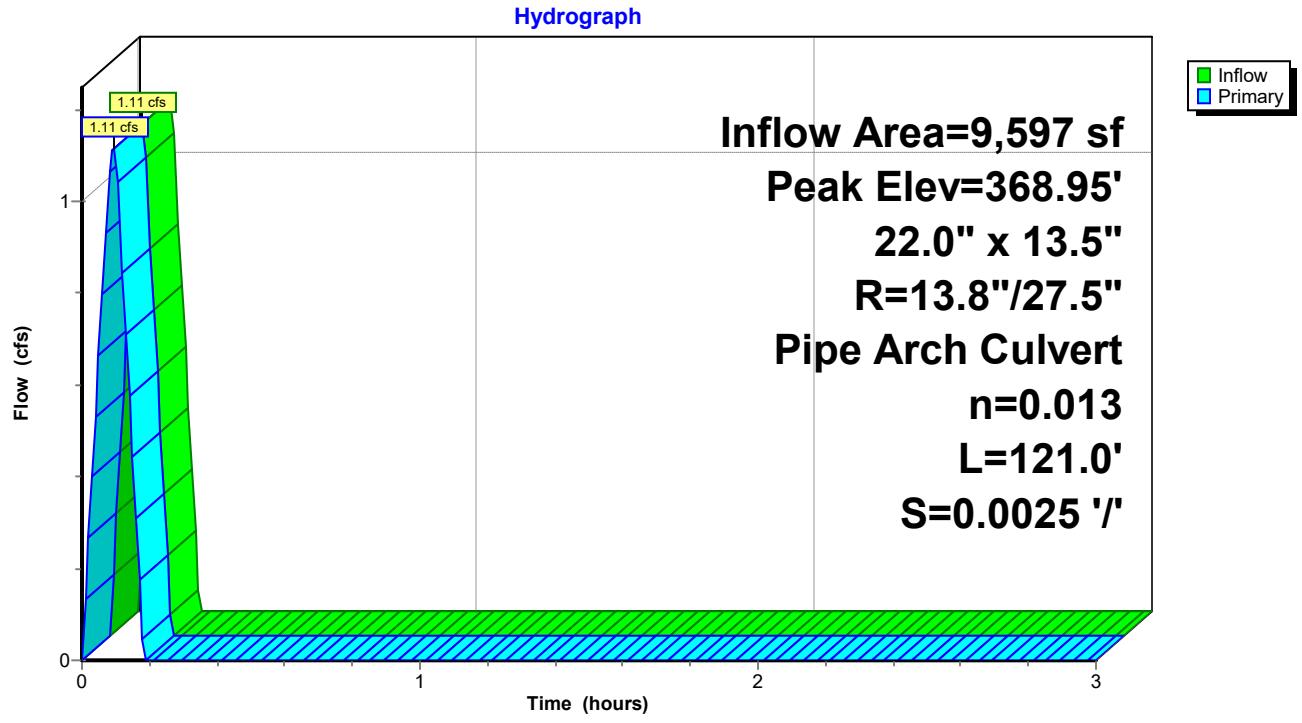
Inflow Area = 9,597 sf, 0.00% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 1.11 cfs @ 0.09 hrs, Volume= 398 cf
Outflow = 1.11 cfs @ 0.09 hrs, Volume= 398 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 0.09 hrs, Volume= 398 cf
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 368.95' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**22.0" W x 13.5" H, R=13.8"/27.5" Pipe Arch RCP_Arch 22x14** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.65 sf

Primary OutFlow Max=1.11 cfs @ 0.09 hrs HW=368.95' (Free Discharge)
1=RCP_Arch 22x14 (Barrel Controls 1.11 cfs @ 2.28 fps)

Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

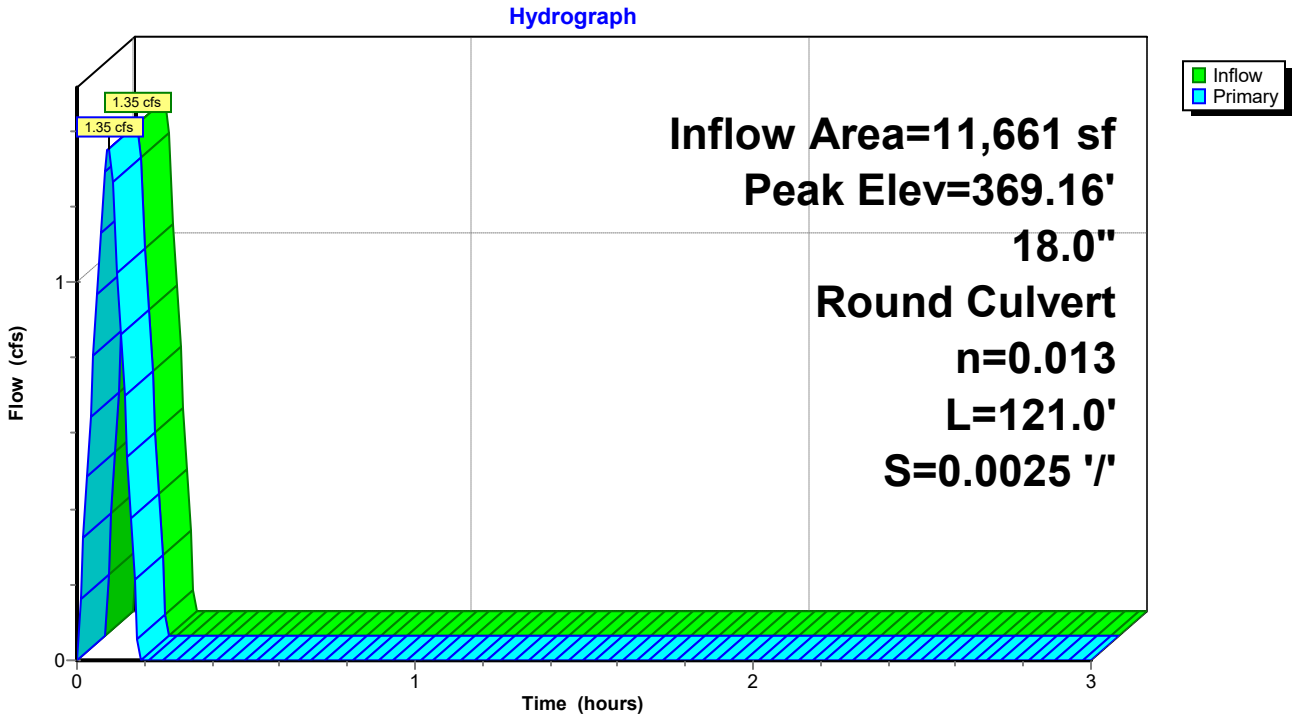
Inflow Area = 11,661 sf, 0.00% Impervious, Inflow Depth = 0.50" for 2-yr event
Inflow = 1.35 cfs @ 0.09 hrs, Volume= 485 cf
Outflow = 1.35 cfs @ 0.09 hrs, Volume= 485 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.35 cfs @ 0.09 hrs, Volume= 485 cf
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.16' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**18.0" Round RCP_Round 18"** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.35 cfs @ 0.09 hrs HW=369.16' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 1.35 cfs @ 2.62 fps)

Pond CI-A2: CURB INLET A2

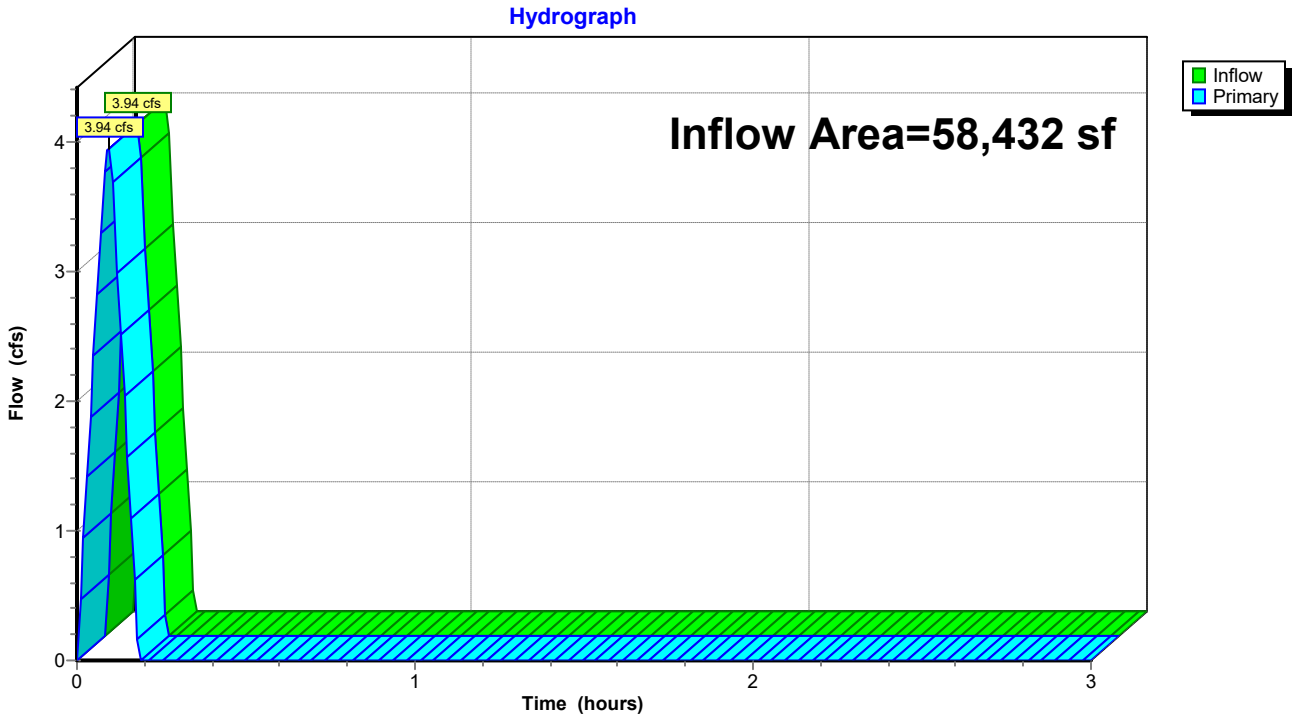


Summary for Link POST-DEV: Post-Development

Inflow Area = 58,432 sf, 0.00% Impervious, Inflow Depth = 0.29" for 2-yr event
Inflow = 3.94 cfs @ 0.09 hrs, Volume= 1,413 cf
Primary = 3.94 cfs @ 0.09 hrs, Volume= 1,413 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment B1: Drainage Basin B1

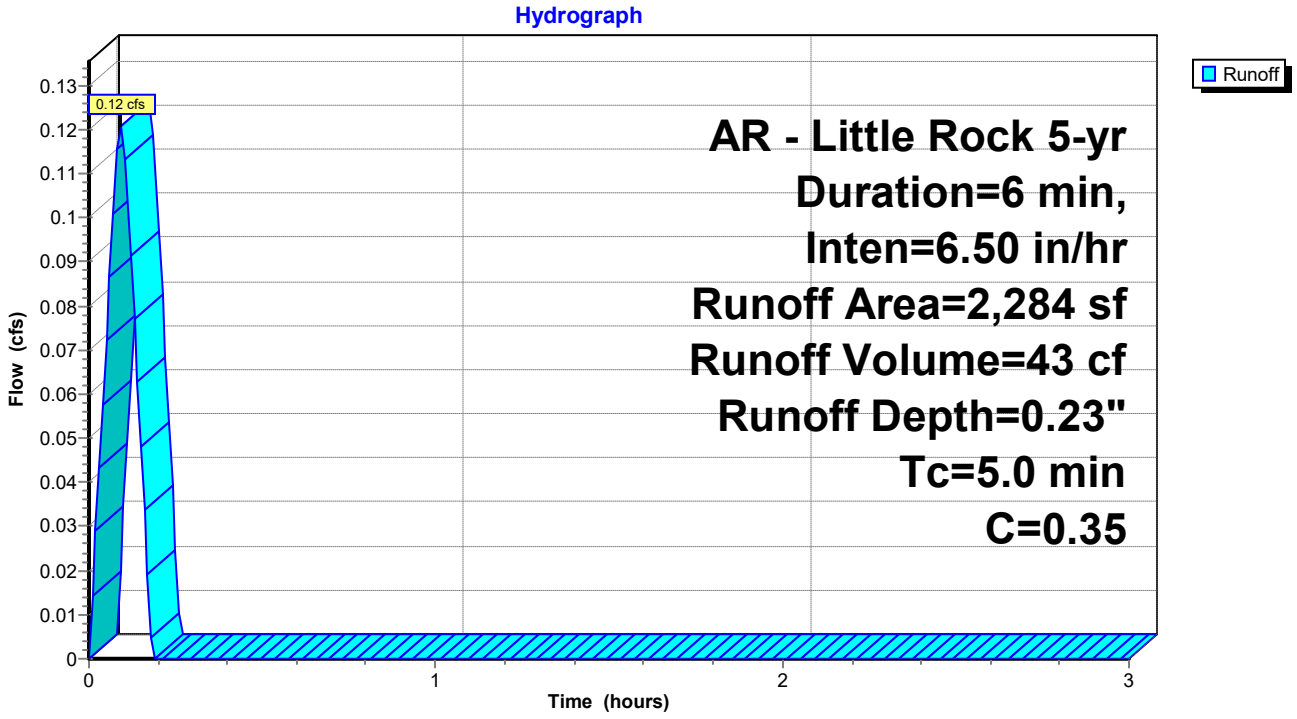
Runoff = 0.12 cfs @ 0.09 hrs, Volume= 43 cf, Depth= 0.23"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=6 min, Inten=6.50 in/hr

Area (sf)	C	Description
2,284	0.35	Sandy Soil 2-7% per manual
0	0.92	Paved Areas
2,284	0.35	Weighted Average
2,284		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum Adjustment**

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

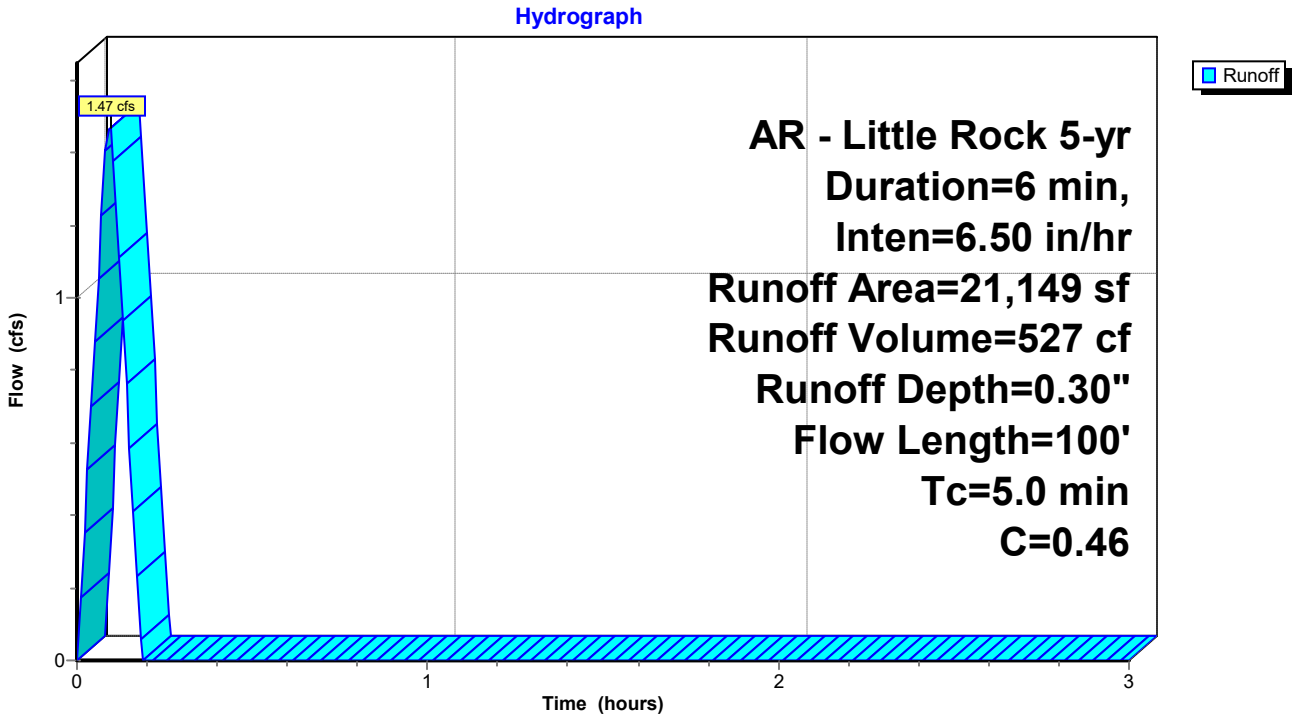
Runoff = 1.47 cfs @ 0.09 hrs, Volume= 527 cf, Depth= 0.30"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=6 min, Inten=6.50 in/hr

Area (sf)	C	Description
16,931	0.35	Sandy Soil 2-7% per manual
4,218	0.92	Paved Areas
21,149	0.46	Weighted Average
21,149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	42	0.1667	3.09		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.5	58	0.0500	2.04		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
4.3					**Direct Entry, Minimum Adjustment**
5.0	100	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

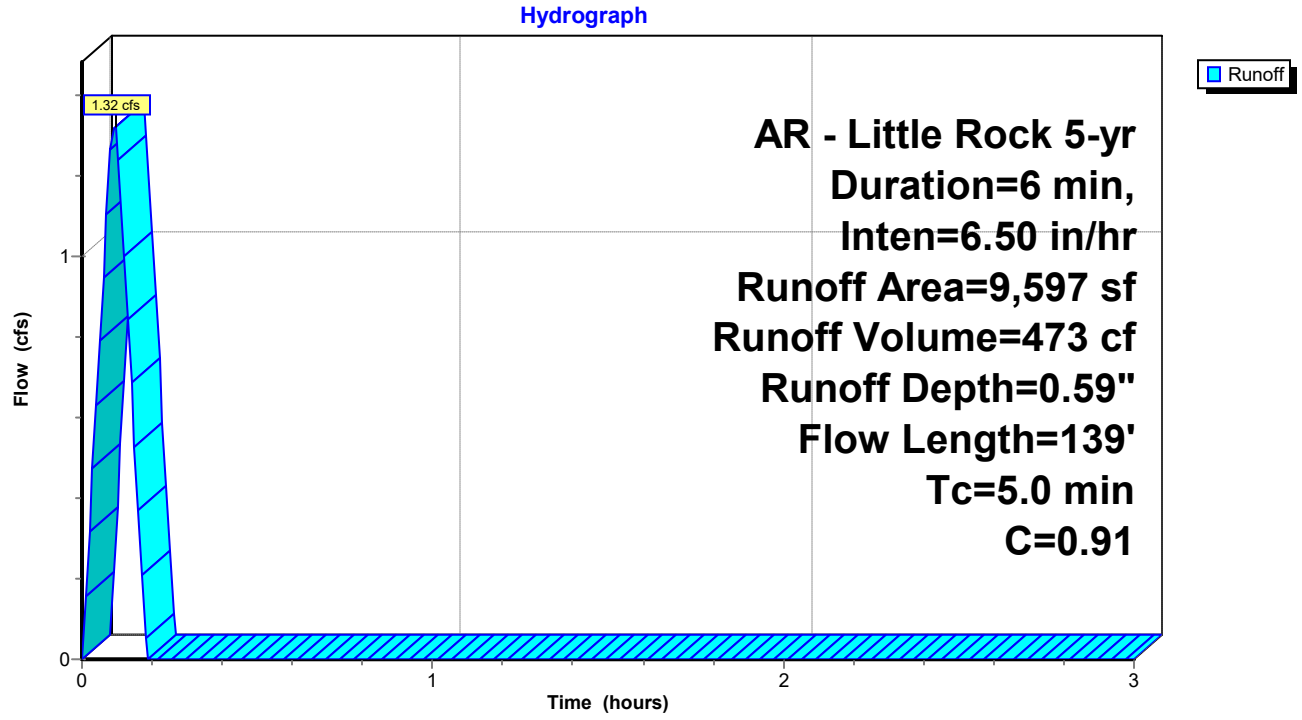
Runoff = 1.32 cfs @ 0.09 hrs, Volume= 473 cf, Depth= 0.59"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=6 min, Inten=6.50 in/hr

Area (sf)	C	Description
155	0.35	Sandy Soil 2-7% per manual
9,442	0.92	Paved Areas
9,597	0.91	Weighted Average
9,597		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	28	0.1667	2.85		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	30	0.0160	1.13		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.4	41	0.0520	1.93		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.2	40	0.0360	3.85		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	139	Total			

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

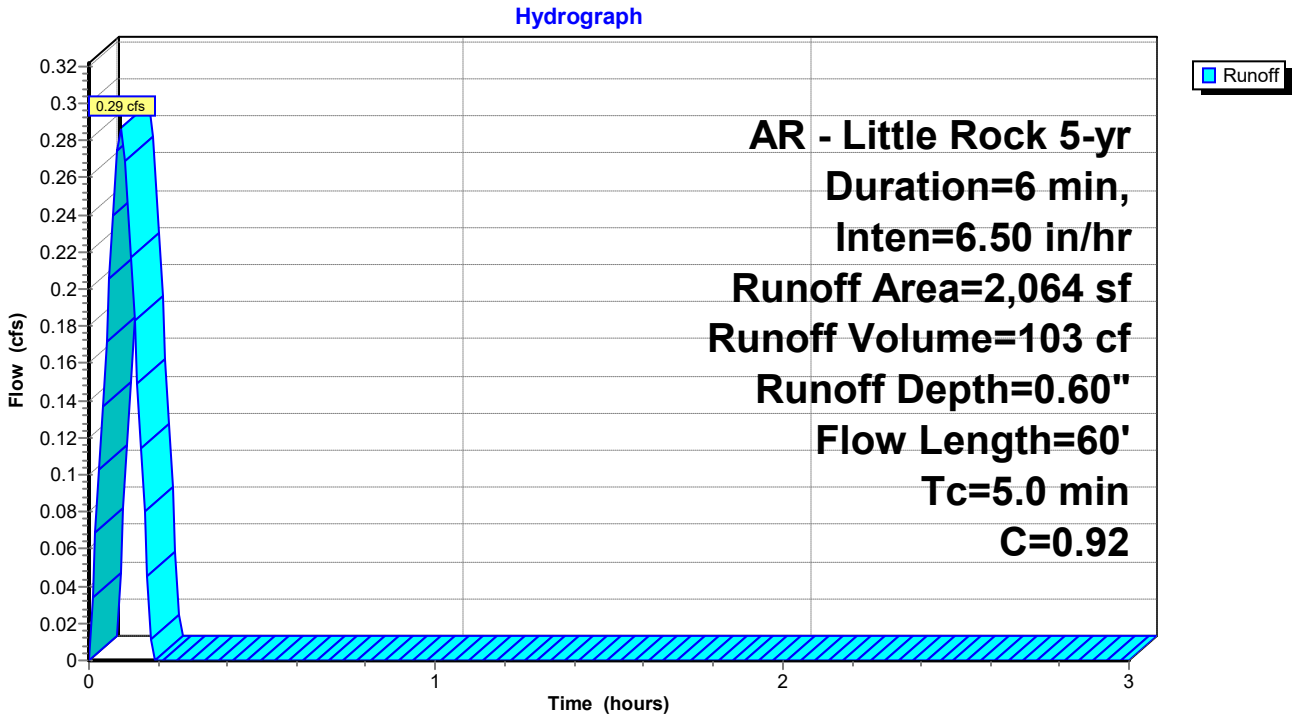
Runoff = 0.29 cfs @ 0.09 hrs, Volume= 103 cf, Depth= 0.60"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=6 min, Inten=6.50 in/hr

Area (sf)	C	Description
0	0.35	Sandy Soil 2-7% per manual
2,064	0.92	Paved Areas
2,064	0.92	Weighted Average
2,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0170	1.26		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.0	15	0.0840	5.88		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	60	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

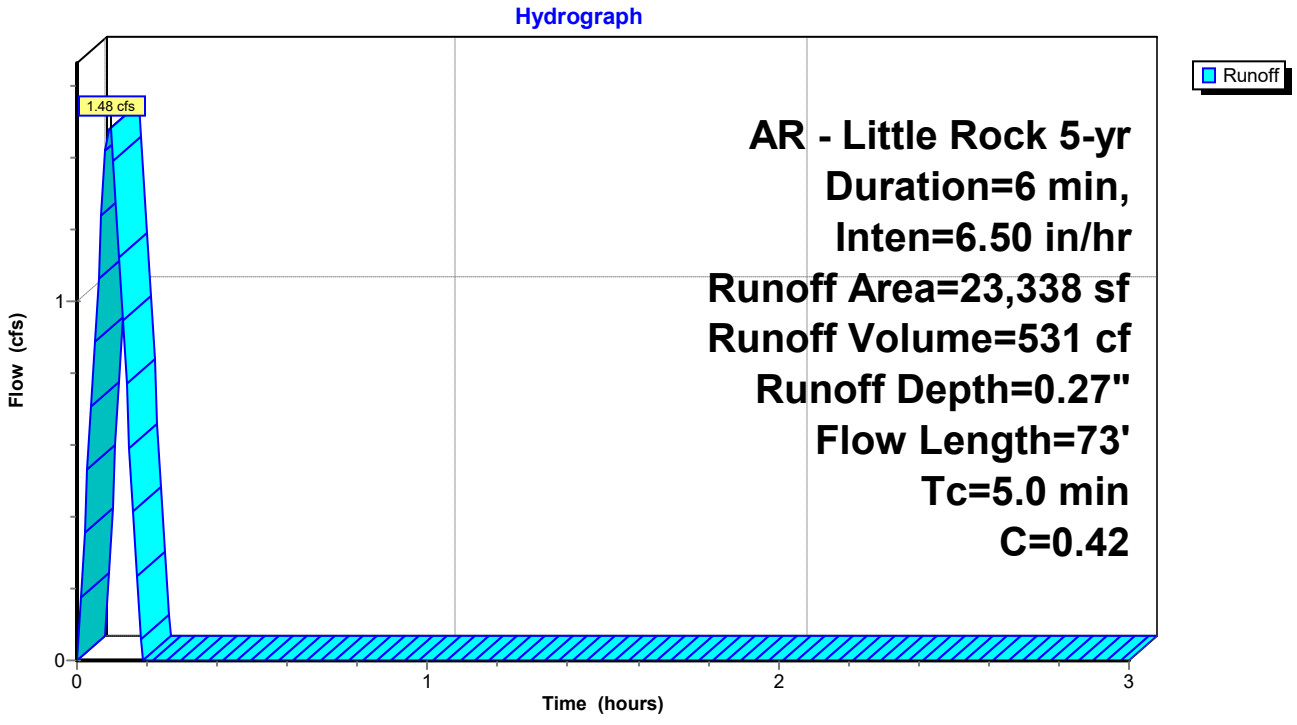
Runoff = 1.48 cfs @ 0.09 hrs, Volume= 531 cf, Depth= 0.27"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=6 min, Inten=6.50 in/hr

Area (sf)	C	Description
20,627	0.35	Sandy Soil 2-7% per manual
2,711	0.92	Paved Areas
23,338	0.42	Weighted Average
23,338		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	0.1667	2.61		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	55	0.0860	2.05		**Shallow Concentrated Flow, Overland Concentrated** Short Grass Pasture Kv= 7.0 fps
4.5					**Direct Entry, Minimum Adjustment**
5.0	73	Total			

Subcatchment B5: Drainage Basin B5



Summary for Pond CI-A1: CURB INLET A1

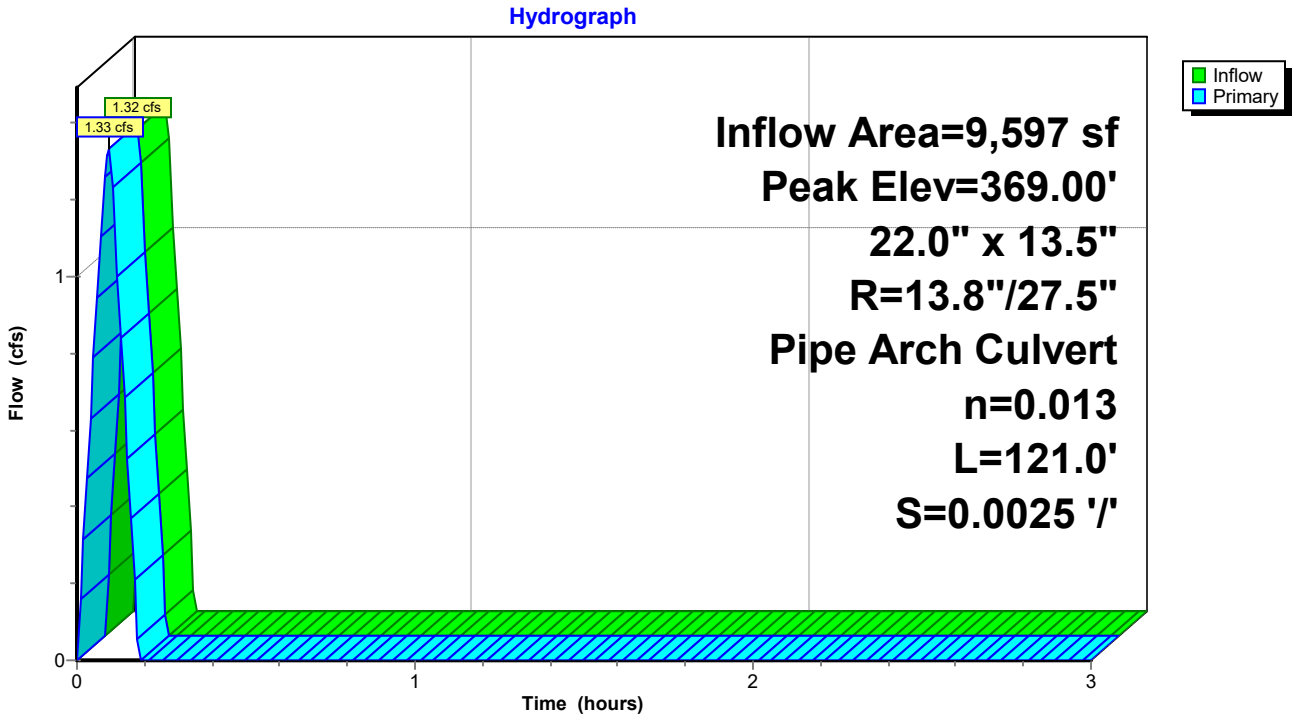
Inflow Area = 9,597 sf, 0.00% Impervious, Inflow Depth = 0.59" for 5-yr event
Inflow = 1.32 cfs @ 0.09 hrs, Volume= 473 cf
Outflow = 1.33 cfs @ 0.10 hrs, Volume= 473 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.33 cfs @ 0.10 hrs, Volume= 473 cf
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.00' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**22.0" W x 13.5" H, R=13.8"/27.5" Pipe Arch RCP_Arch 22x14** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.65 sf

Primary OutFlow Max=1.31 cfs @ 0.10 hrs HW=369.00' (Free Discharge)
1=RCP_Arch 22x14 (Barrel Controls 1.31 cfs @ 2.41 fps)

Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

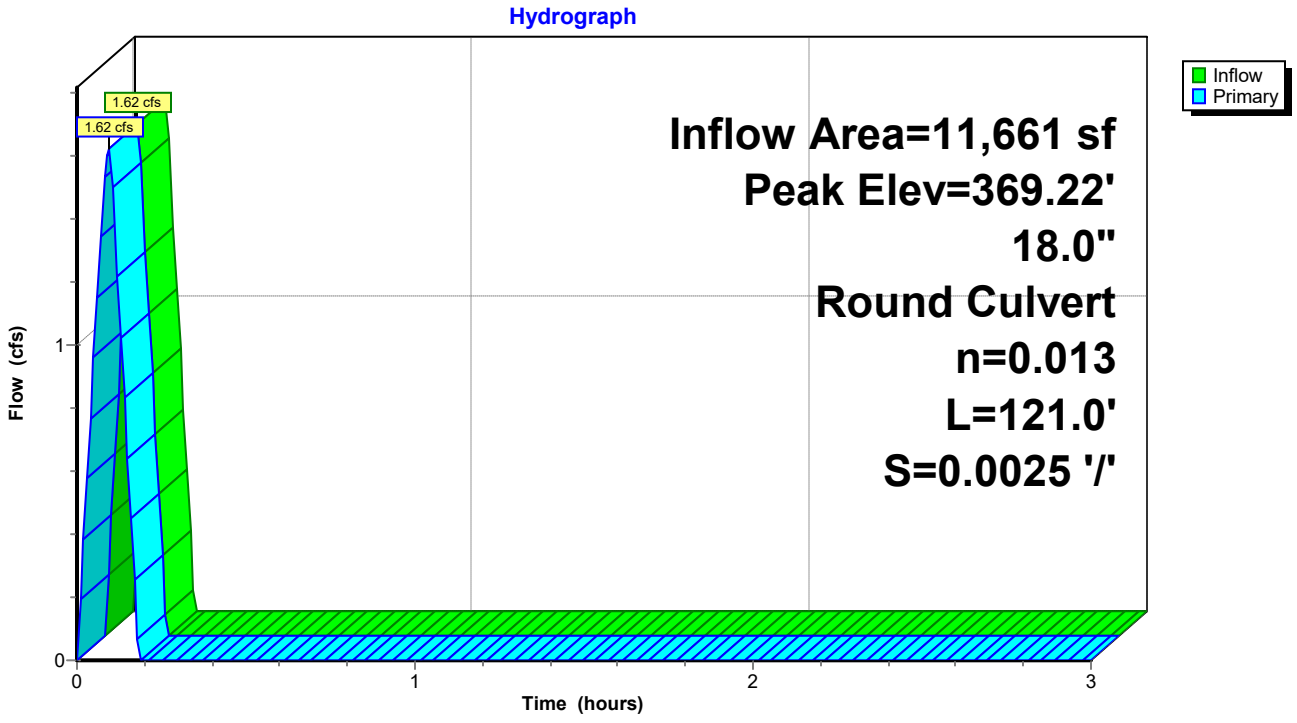
Inflow Area = 11,661 sf, 0.00% Impervious, Inflow Depth = 0.59" for 5-yr event
Inflow = 1.62 cfs @ 0.10 hrs, Volume= 576 cf
Outflow = 1.62 cfs @ 0.10 hrs, Volume= 576 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.62 cfs @ 0.10 hrs, Volume= 576 cf
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.22' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**18.0" Round RCP_Round 18"** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.60 cfs @ 0.10 hrs HW=369.22' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 1.60 cfs @ 2.75 fps)

Pond CI-A2: CURB INLET A2

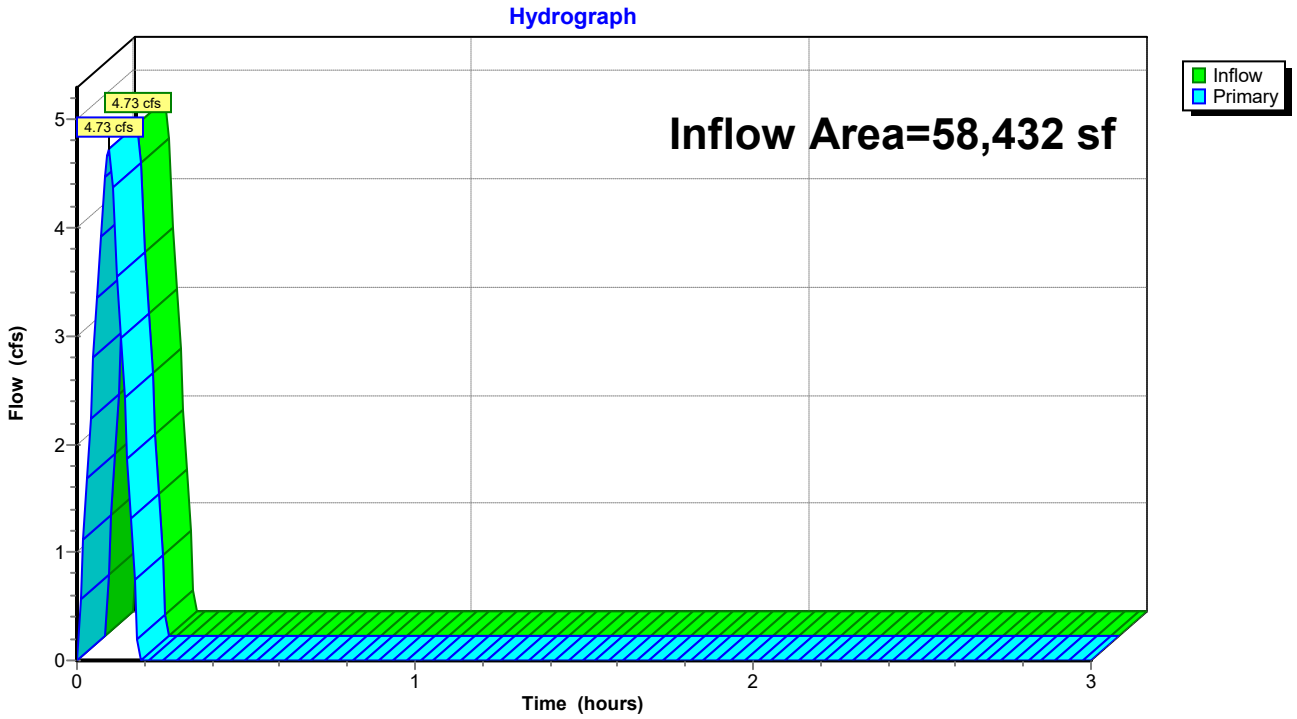


Summary for Link POST-DEV: Post-Development

Inflow Area = 58,432 sf, 0.00% Impervious, Inflow Depth = 0.34" for 5-yr event
Inflow = 4.73 cfs @ 0.10 hrs, Volume= 1,678 cf
Primary = 4.73 cfs @ 0.10 hrs, Volume= 1,678 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment B1: Drainage Basin B1

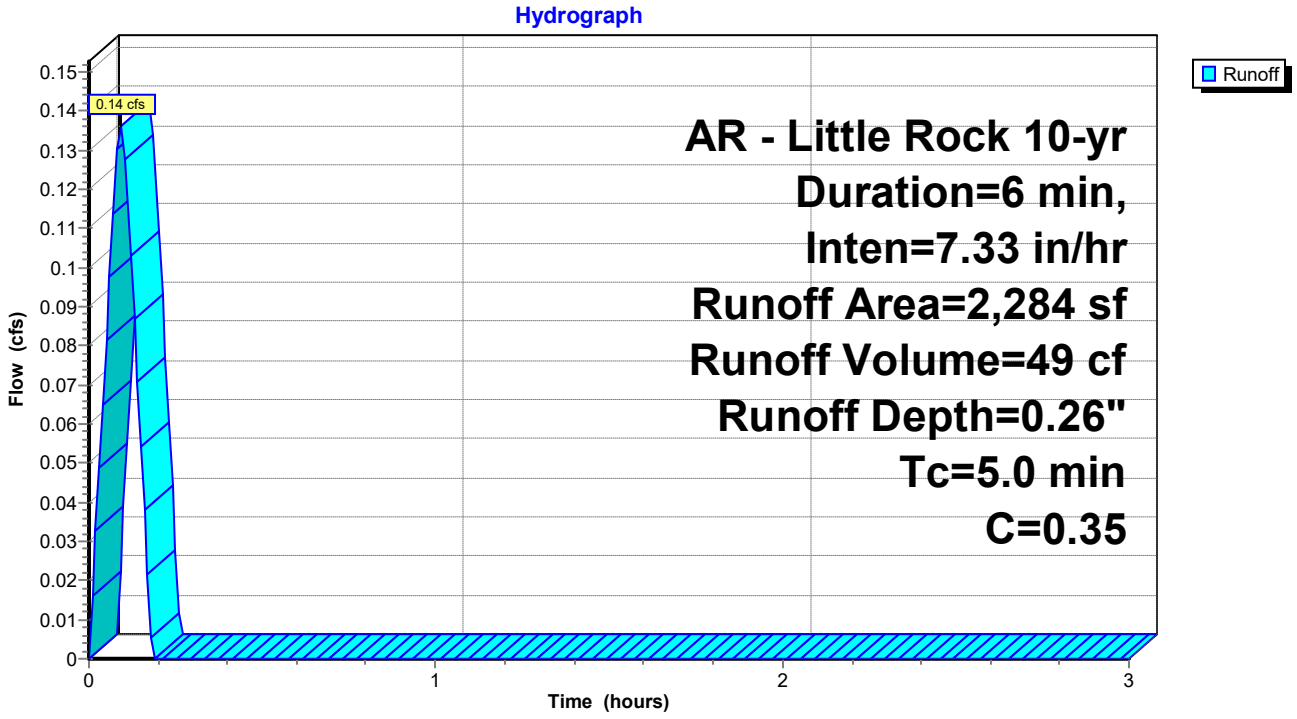
Runoff = 0.14 cfs @ 0.09 hrs, Volume= 49 cf, Depth= 0.26"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=6 min, Inten=7.33 in/hr

Area (sf)	C	Description
2,284	0.35	Sandy Soil 2-7% per manual
0	0.92	Paved Areas
2,284	0.35	Weighted Average
2,284		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum Adjustment**

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

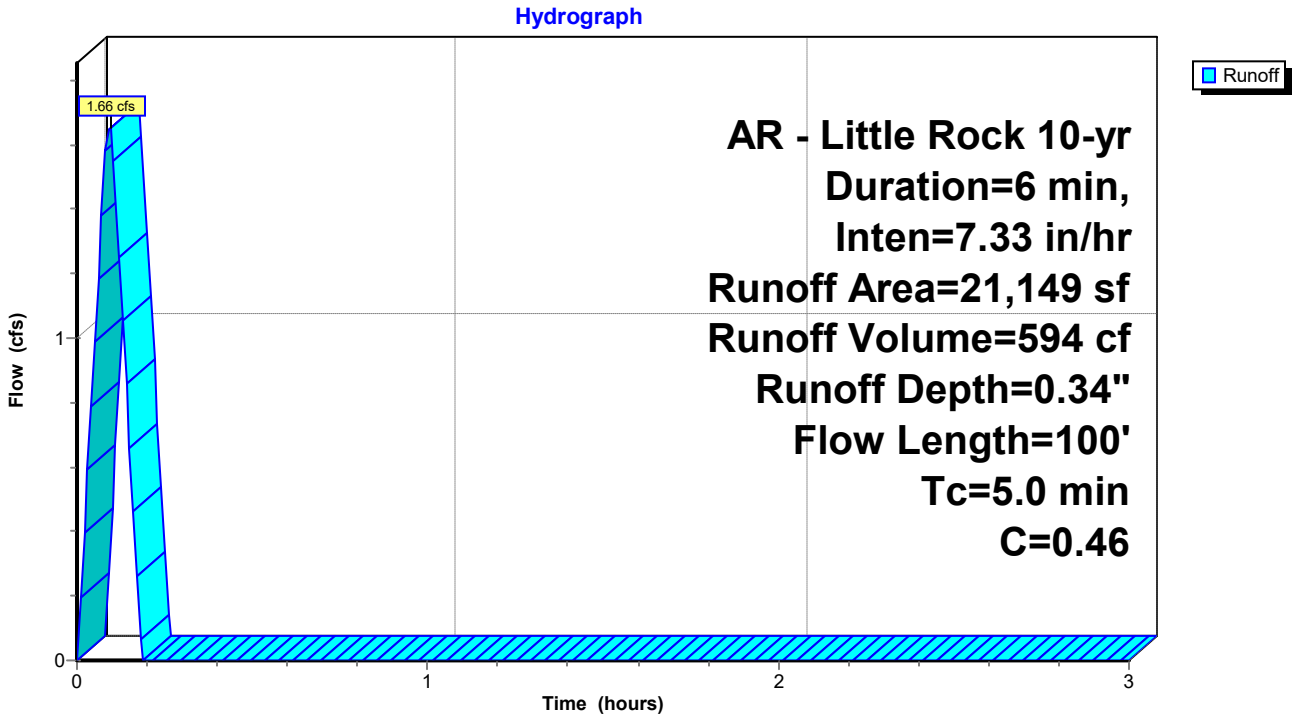
Runoff = 1.66 cfs @ 0.09 hrs, Volume= 594 cf, Depth= 0.34"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=6 min, Inten=7.33 in/hr

Area (sf)	C	Description
16,931	0.35	Sandy Soil 2-7% per manual
4,218	0.92	Paved Areas
21,149	0.46	Weighted Average
21,149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	42	0.1667	3.09		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.5	58	0.0500	2.04		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
4.3					**Direct Entry, Minimum Adjustment**
5.0	100	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

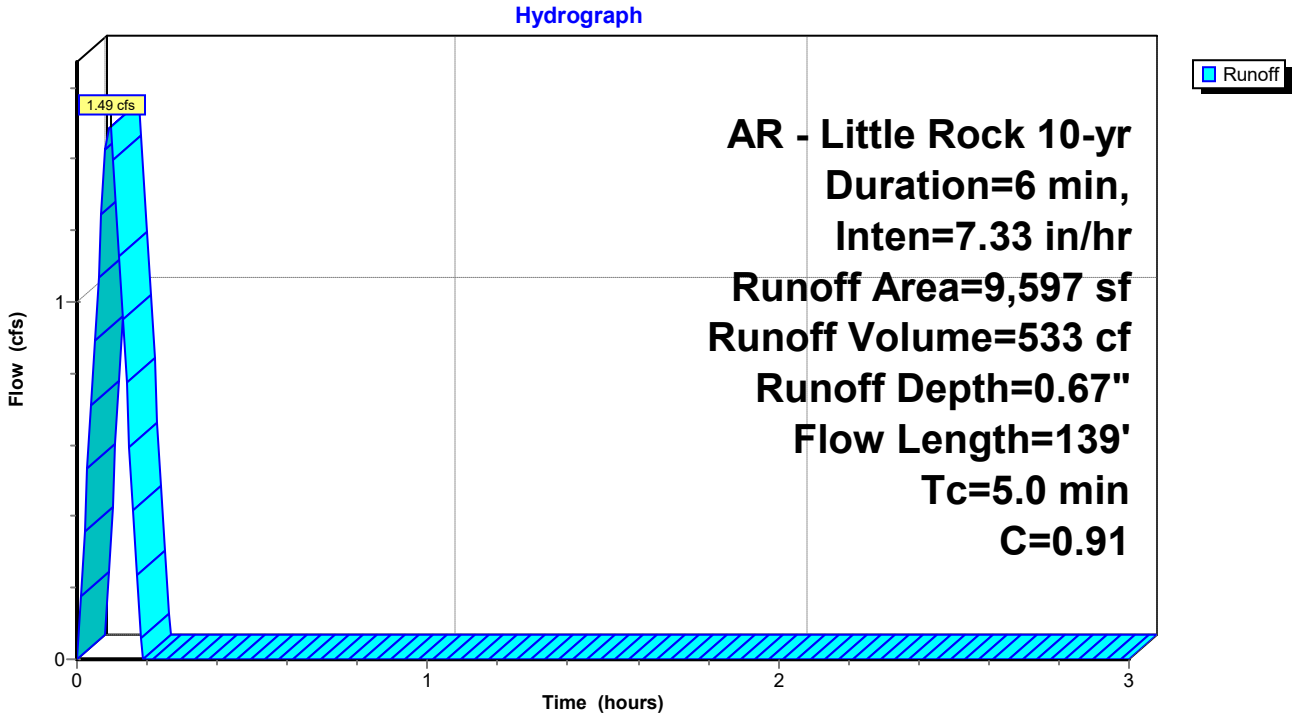
Runoff = 1.49 cfs @ 0.10 hrs, Volume= 533 cf, Depth= 0.67"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=6 min, Inten=7.33 in/hr

Area (sf)	C	Description
155	0.35	Sandy Soil 2-7% per manual
9,442	0.92	Paved Areas
9,597	0.91	Weighted Average
9,597		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	28	0.1667	2.85		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	30	0.0160	1.13		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.4	41	0.0520	1.93		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.2	40	0.0360	3.85		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	139	Total			

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

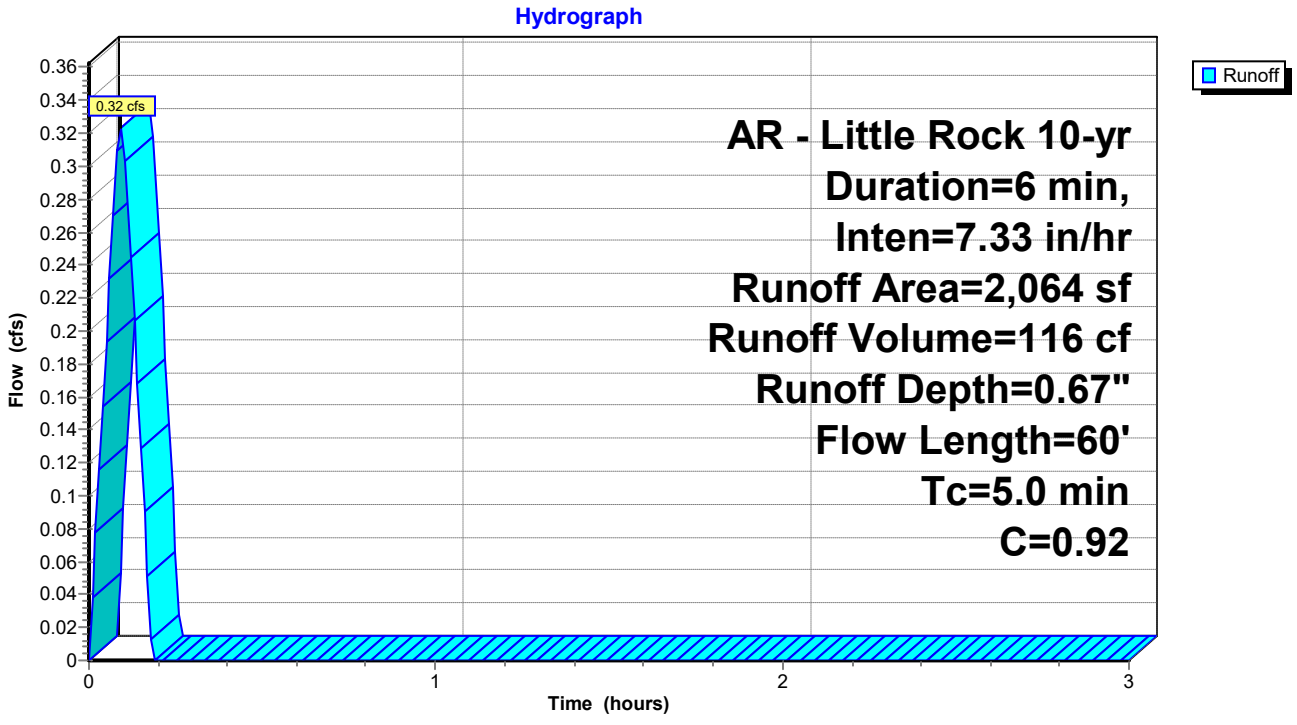
Runoff = 0.32 cfs @ 0.09 hrs, Volume= 116 cf, Depth= 0.67"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=6 min, Inten=7.33 in/hr

Area (sf)	C	Description
0	0.35	Sandy Soil 2-7% per manual
2,064	0.92	Paved Areas
2,064	0.92	Weighted Average
2,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0170	1.26		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.0	15	0.0840	5.88		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	60	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

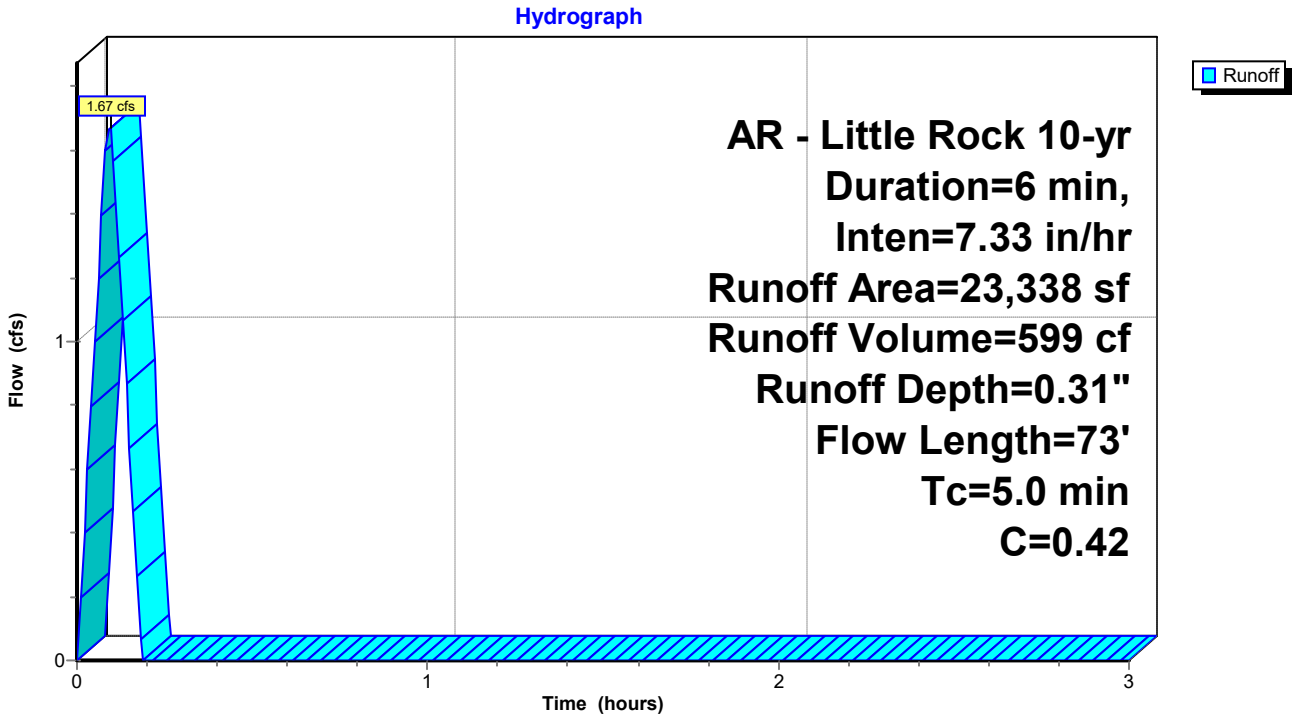
Runoff = 1.67 cfs @ 0.10 hrs, Volume= 599 cf, Depth= 0.31"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=6 min, Inten=7.33 in/hr

Area (sf)	C	Description
20,627	0.35	Sandy Soil 2-7% per manual
2,711	0.92	Paved Areas
23,338	0.42	Weighted Average
23,338		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	0.1667	2.61		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	55	0.0860	2.05		**Shallow Concentrated Flow, Overland Concentrated** Short Grass Pasture Kv= 7.0 fps
4.5					**Direct Entry, Minimum Adjustment**
5.0	73	Total			

Subcatchment B5: Drainage Basin B5



Summary for Pond CI-A1: CURB INLET A1

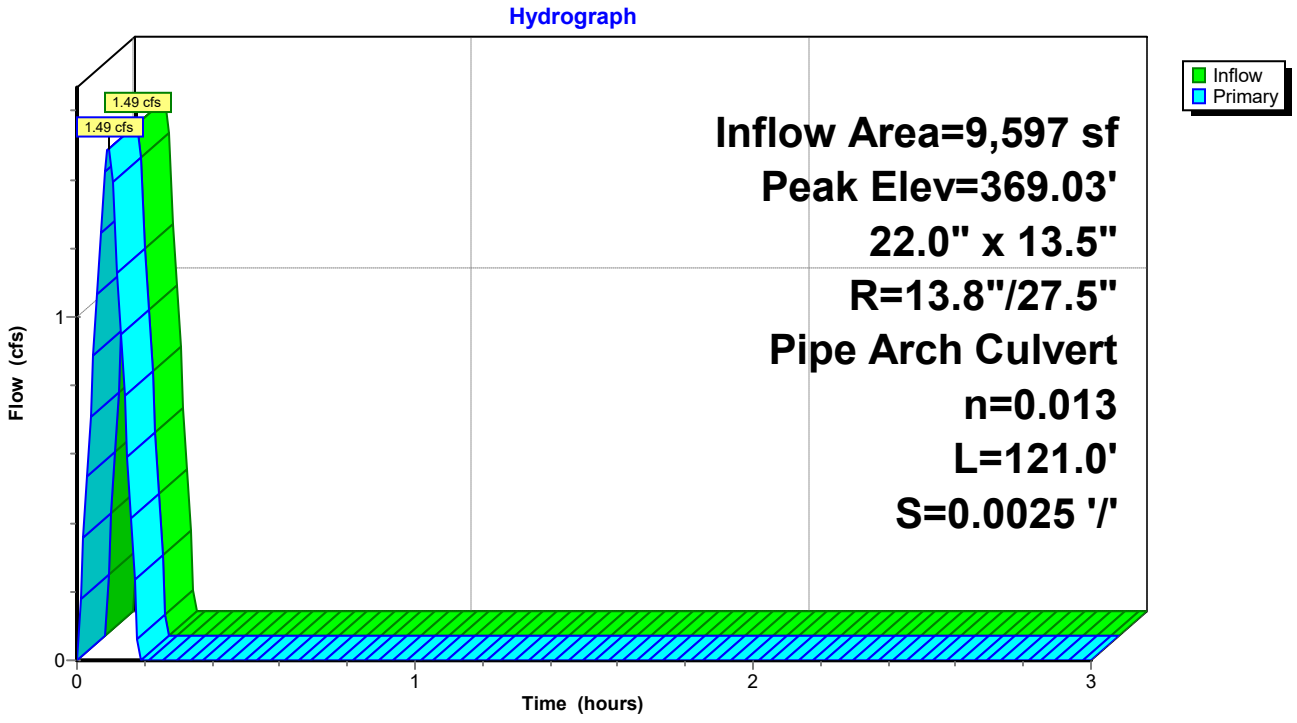
Inflow Area = 9,597 sf, 0.00% Impervious, Inflow Depth = 0.67" for 10-yr event
Inflow = 1.49 cfs @ 0.10 hrs, Volume= 533 cf
Outflow = 1.49 cfs @ 0.09 hrs, Volume= 533 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.49 cfs @ 0.09 hrs, Volume= 533 cf
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.03' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**22.0" W x 13.5" H, R=13.8"/27.5" Pipe Arch RCP_Arch 22x14** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.65 sf

Primary OutFlow Max=1.48 cfs @ 0.09 hrs HW=369.03' (Free Discharge)
1=RCP_Arch 22x14 (Barrel Controls 1.48 cfs @ 2.51 fps)

Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

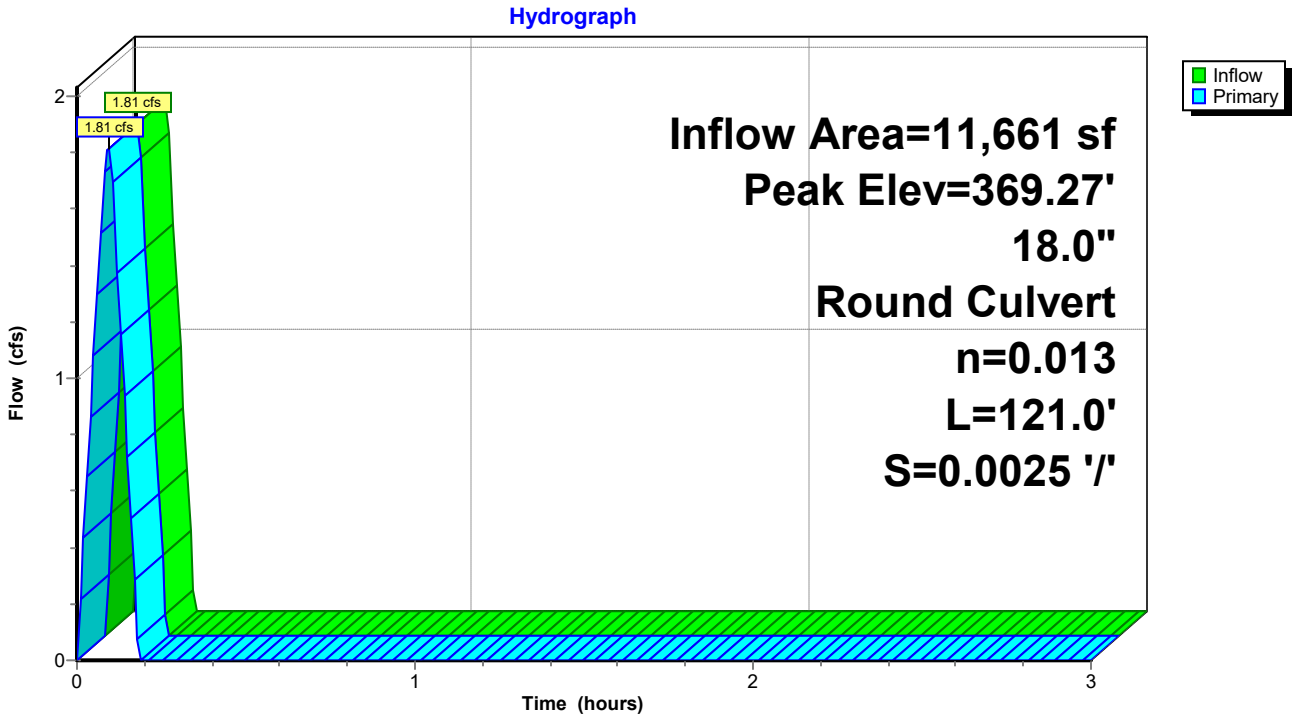
Inflow Area = 11,661 sf, 0.00% Impervious, Inflow Depth = 0.67" for 10-yr event
Inflow = 1.81 cfs @ 0.09 hrs, Volume= 649 cf
Outflow = 1.81 cfs @ 0.09 hrs, Volume= 649 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.81 cfs @ 0.09 hrs, Volume= 649 cf
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.27' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**18.0" Round RCP_Round 18"** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=1.80 cfs @ 0.09 hrs HW=369.26' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 1.80 cfs @ 2.85 fps)

Pond CI-A2: CURB INLET A2

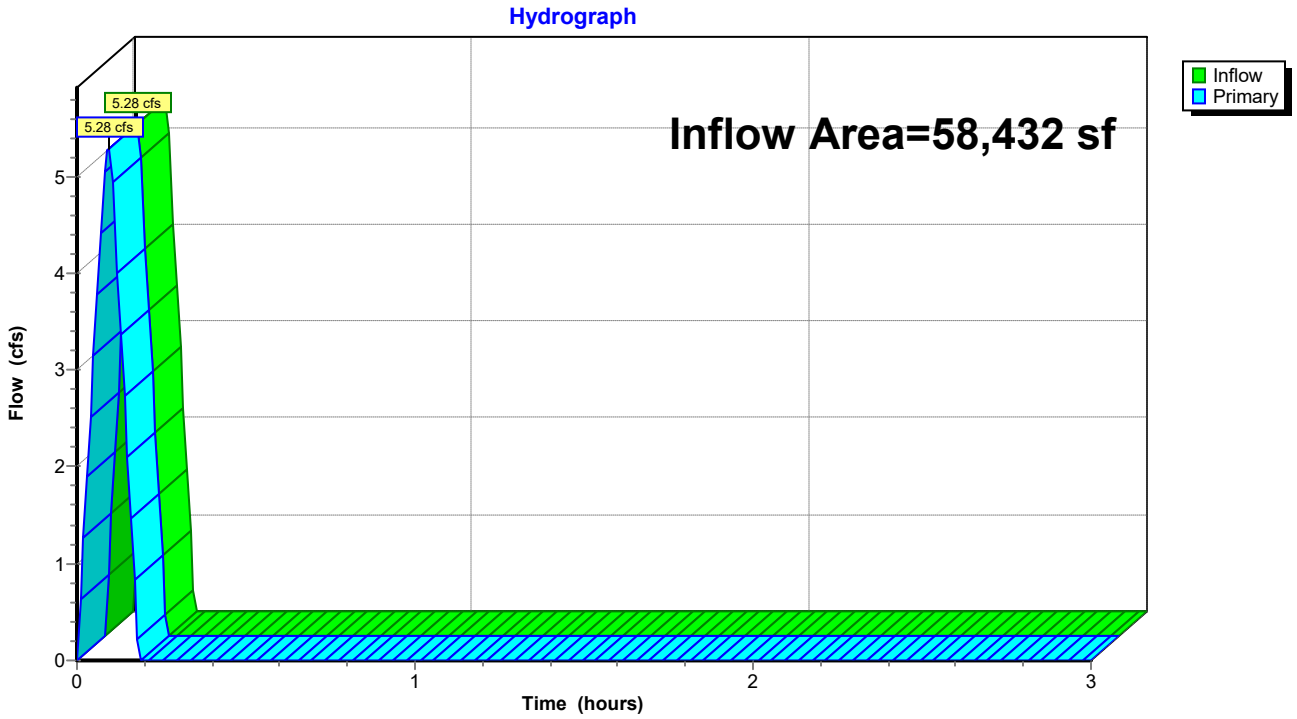


Summary for Link POST-DEV: Post-Development

Inflow Area = 58,432 sf, 0.00% Impervious, Inflow Depth = 0.39" for 10-yr event
Inflow = 5.28 cfs @ 0.09 hrs, Volume= 1,891 cf
Primary = 5.28 cfs @ 0.09 hrs, Volume= 1,891 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment B1: Drainage Basin B1

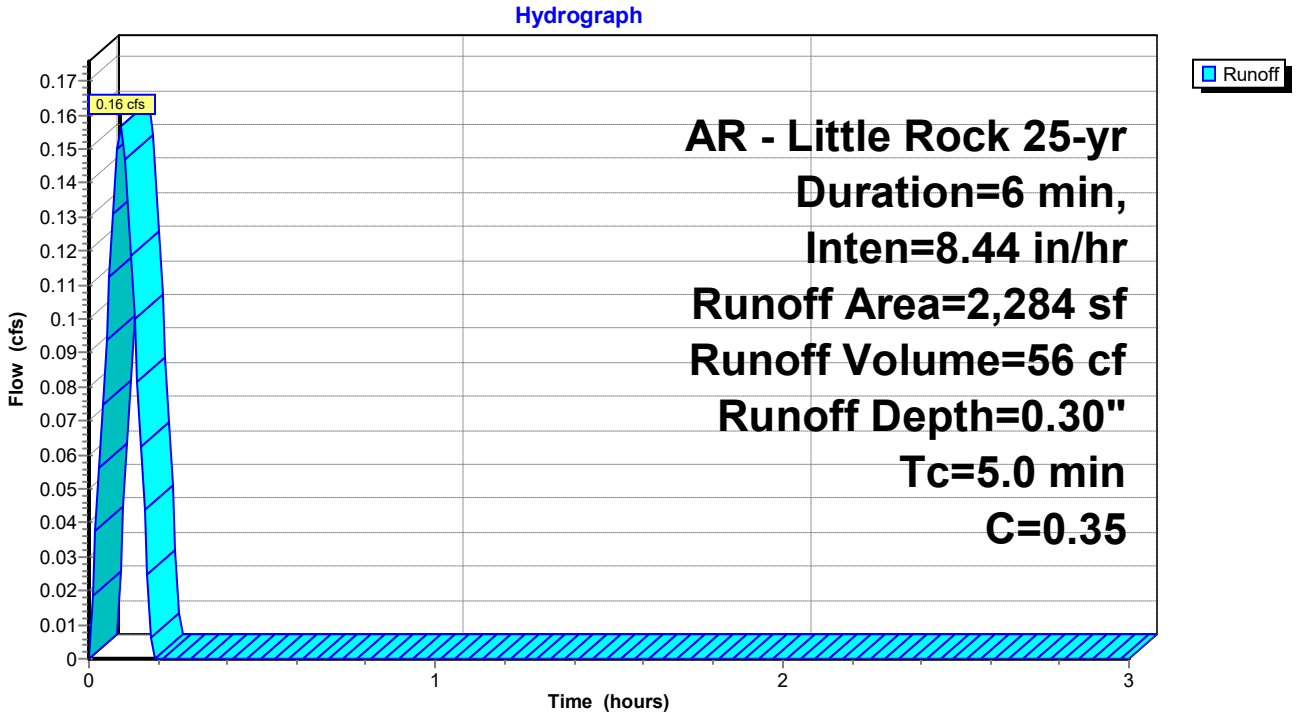
Runoff = 0.16 cfs @ 0.09 hrs, Volume= 56 cf, Depth= 0.30"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=6 min, Inten=8.44 in/hr

Area (sf)	C	Description
2,284	0.35	Sandy Soil 2-7% per manual
0	0.92	Paved Areas
2,284	0.35	Weighted Average
2,284		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum Adjustment**

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

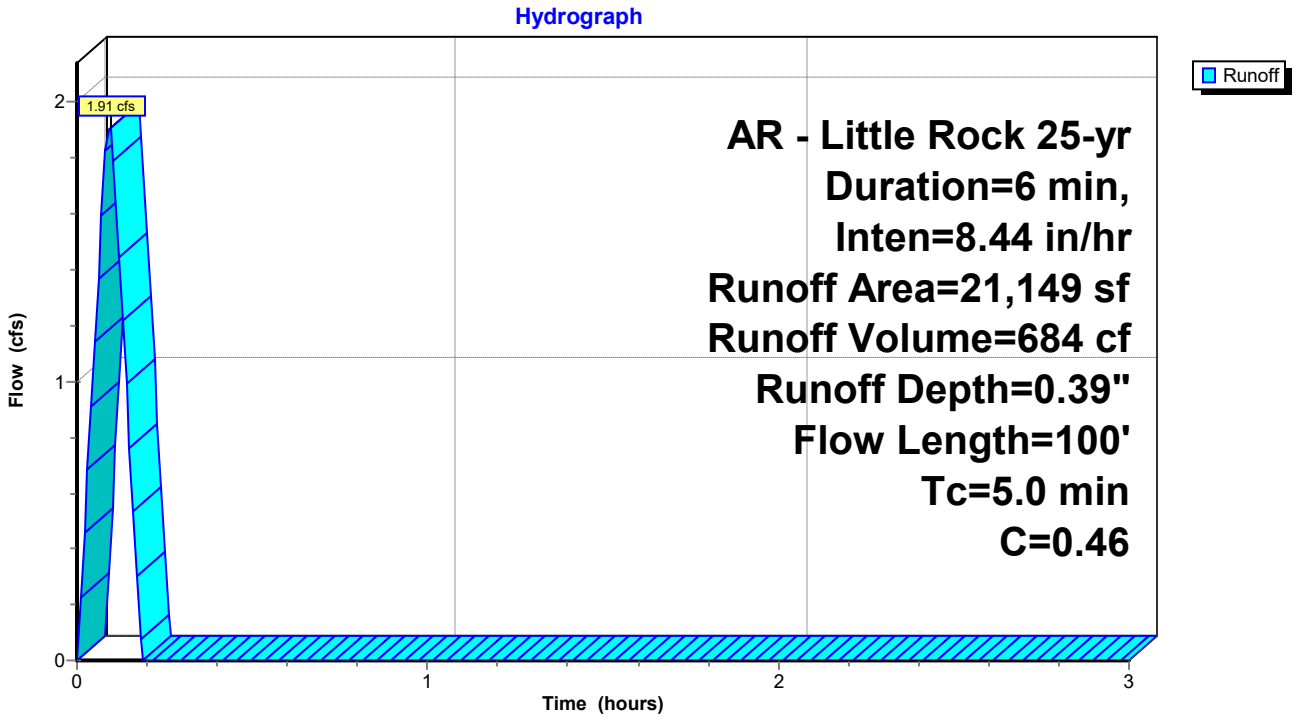
Runoff = 1.91 cfs @ 0.09 hrs, Volume= 684 cf, Depth= 0.39"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=6 min, Inten=8.44 in/hr

Area (sf)	C	Description
16,931	0.35	Sandy Soil 2-7% per manual
4,218	0.92	Paved Areas
21,149	0.46	Weighted Average
21,149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	42	0.1667	3.09		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.5	58	0.0500	2.04		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
4.3					**Direct Entry, Minimum Adjustment**
5.0	100	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

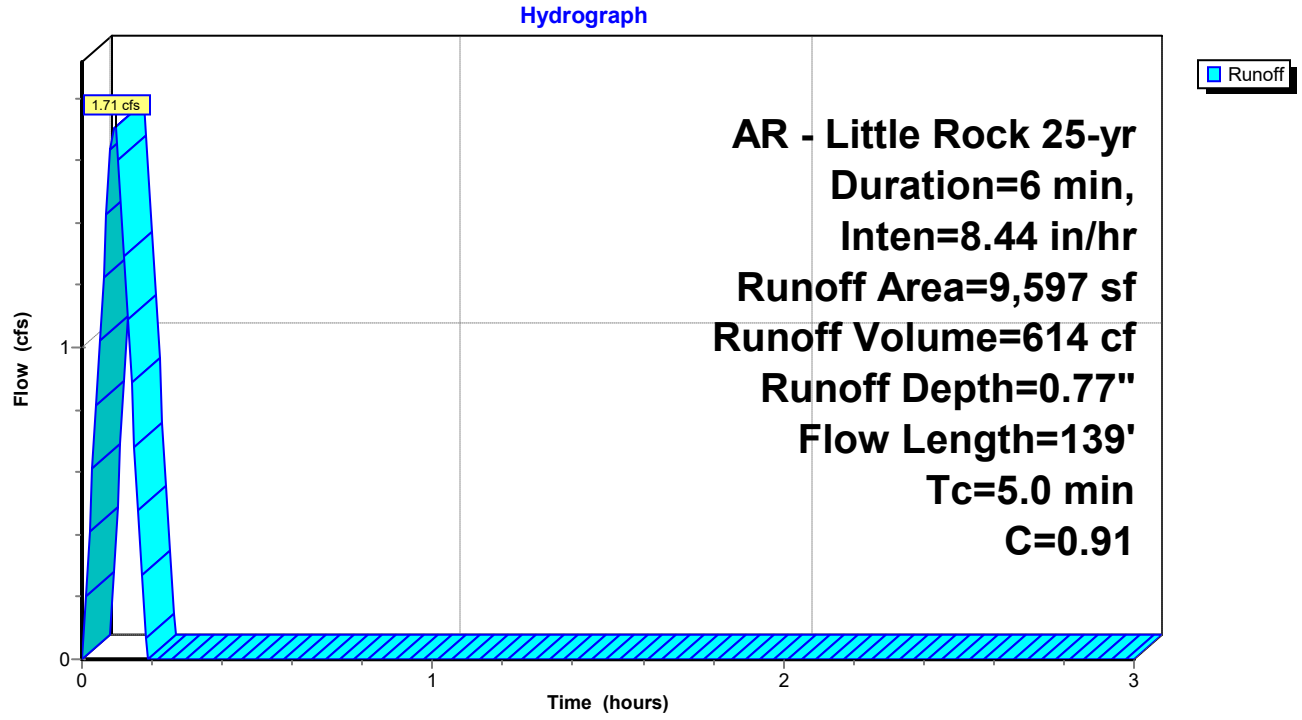
Runoff = 1.71 cfs @ 0.09 hrs, Volume= 614 cf, Depth= 0.77"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=6 min, Inten=8.44 in/hr

Area (sf)	C	Description
155	0.35	Sandy Soil 2-7% per manual
9,442	0.92	Paved Areas
9,597	0.91	Weighted Average
9,597		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	28	0.1667	2.85		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	30	0.0160	1.13		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.4	41	0.0520	1.93		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.2	40	0.0360	3.85		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	139	Total			

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

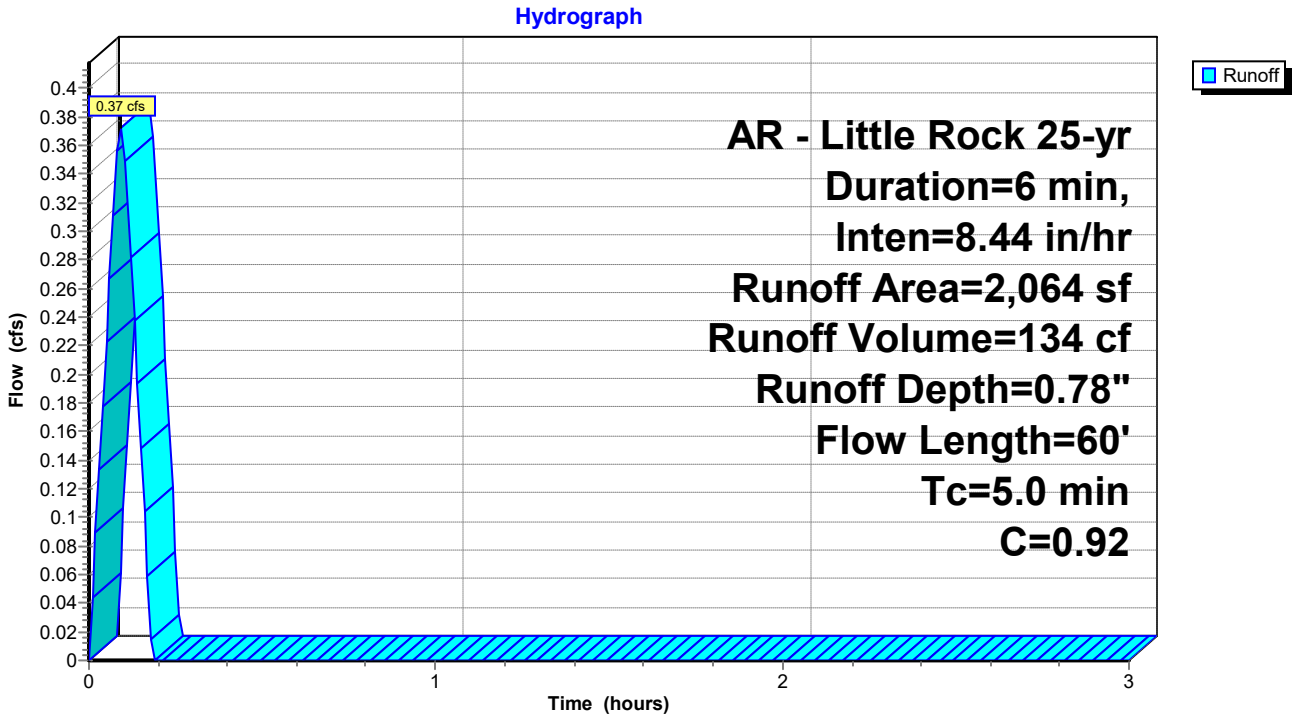
Runoff = 0.37 cfs @ 0.09 hrs, Volume= 134 cf, Depth= 0.78"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=6 min, Inten=8.44 in/hr

Area (sf)	C	Description
0	0.35	Sandy Soil 2-7% per manual
2,064	0.92	Paved Areas
2,064	0.92	Weighted Average
2,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0170	1.26		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.0	15	0.0840	5.88		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	60	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

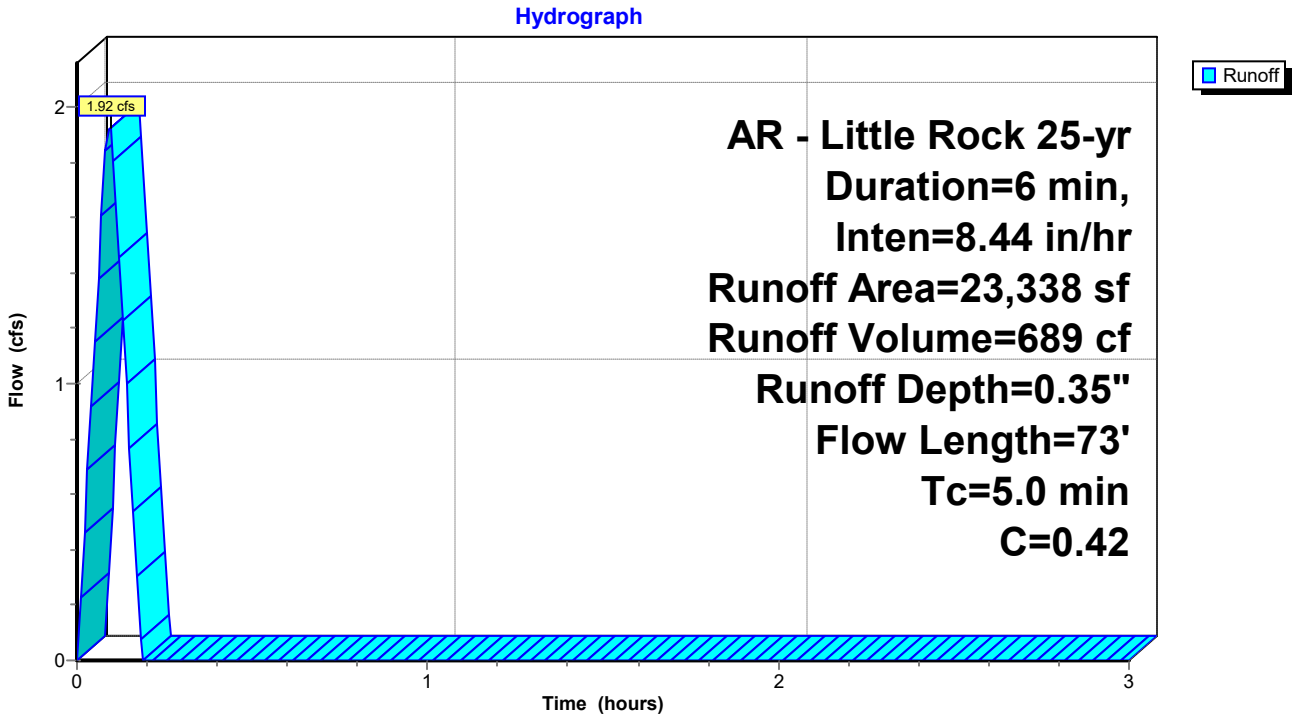
Runoff = 1.92 cfs @ 0.09 hrs, Volume= 689 cf, Depth= 0.35"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=6 min, Inten=8.44 in/hr

Area (sf)	C	Description
20,627	0.35	Sandy Soil 2-7% per manual
2,711	0.92	Paved Areas
23,338	0.42	Weighted Average
23,338		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	0.1667	2.61		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	55	0.0860	2.05		**Shallow Concentrated Flow, Overland Concentrated** Short Grass Pasture Kv= 7.0 fps
4.5					**Direct Entry, Minimum Adjustment**
5.0	73	Total			

Subcatchment B5: Drainage Basin B5



Summary for Pond CI-A1: CURB INLET A1

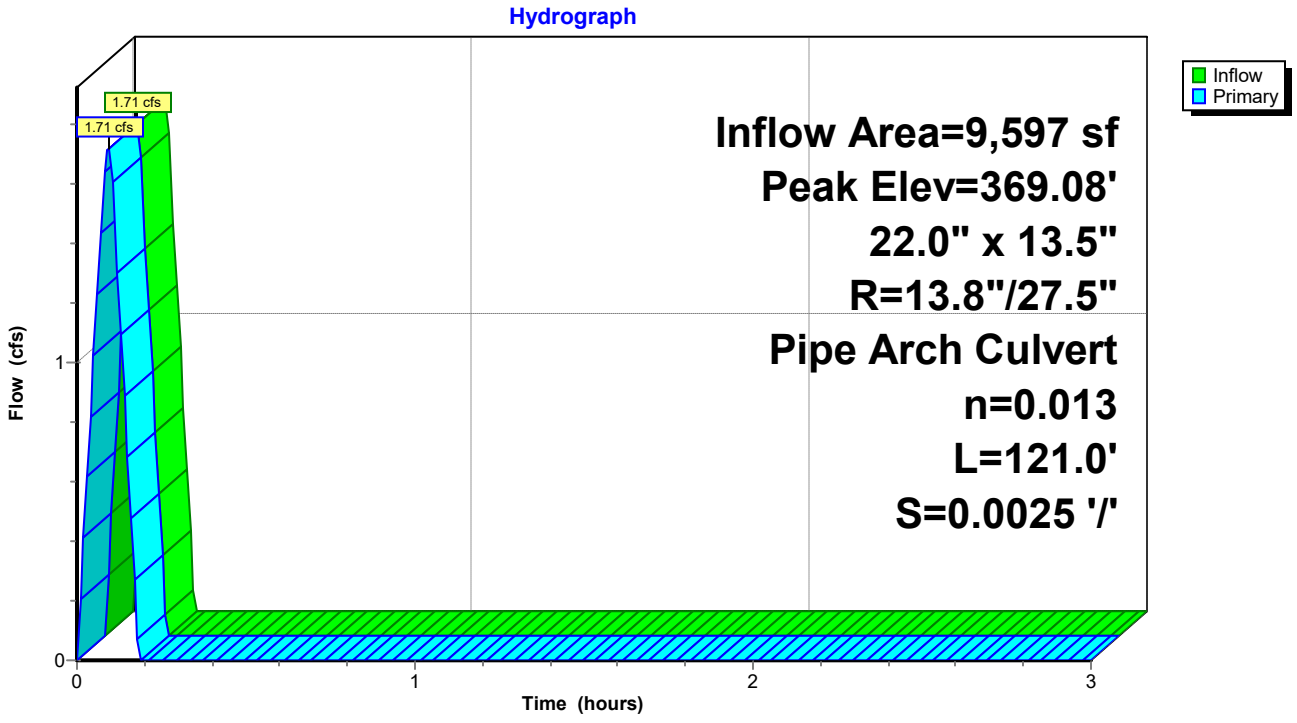
Inflow Area = 9,597 sf, 0.00% Impervious, Inflow Depth = 0.77" for 25-yr event
Inflow = 1.71 cfs @ 0.09 hrs, Volume= 614 cf
Outflow = 1.71 cfs @ 0.09 hrs, Volume= 614 cf, Atten= 0%, Lag= 0.0 min
Primary = 1.71 cfs @ 0.09 hrs, Volume= 614 cf
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.08' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**22.0" W x 13.5" H, R=13.8"/27.5" Pipe Arch RCP_Arch 22x14** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.65 sf

Primary OutFlow Max=1.71 cfs @ 0.09 hrs HW=369.07' (Free Discharge)
1=RCP_Arch 22x14 (Barrel Controls 1.71 cfs @ 2.62 fps)

Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

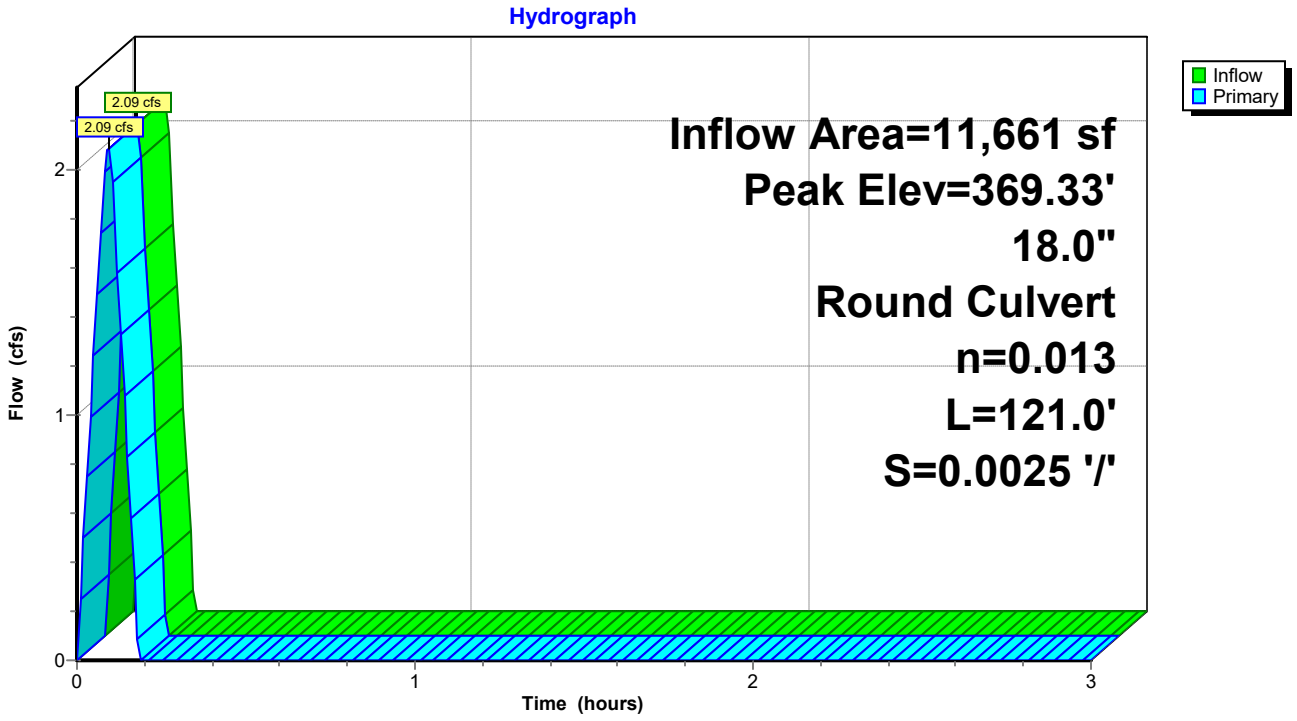
Inflow Area = 11,661 sf, 0.00% Impervious, Inflow Depth = 0.77" for 25-yr event
Inflow = 2.09 cfs @ 0.09 hrs, Volume= 748 cf
Outflow = 2.09 cfs @ 0.09 hrs, Volume= 748 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.09 cfs @ 0.09 hrs, Volume= 748 cf
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.33' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**18.0" Round RCP_Round 18"** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.08 cfs @ 0.09 hrs HW=369.32' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 2.08 cfs @ 2.97 fps)

Pond CI-A2: CURB INLET A2

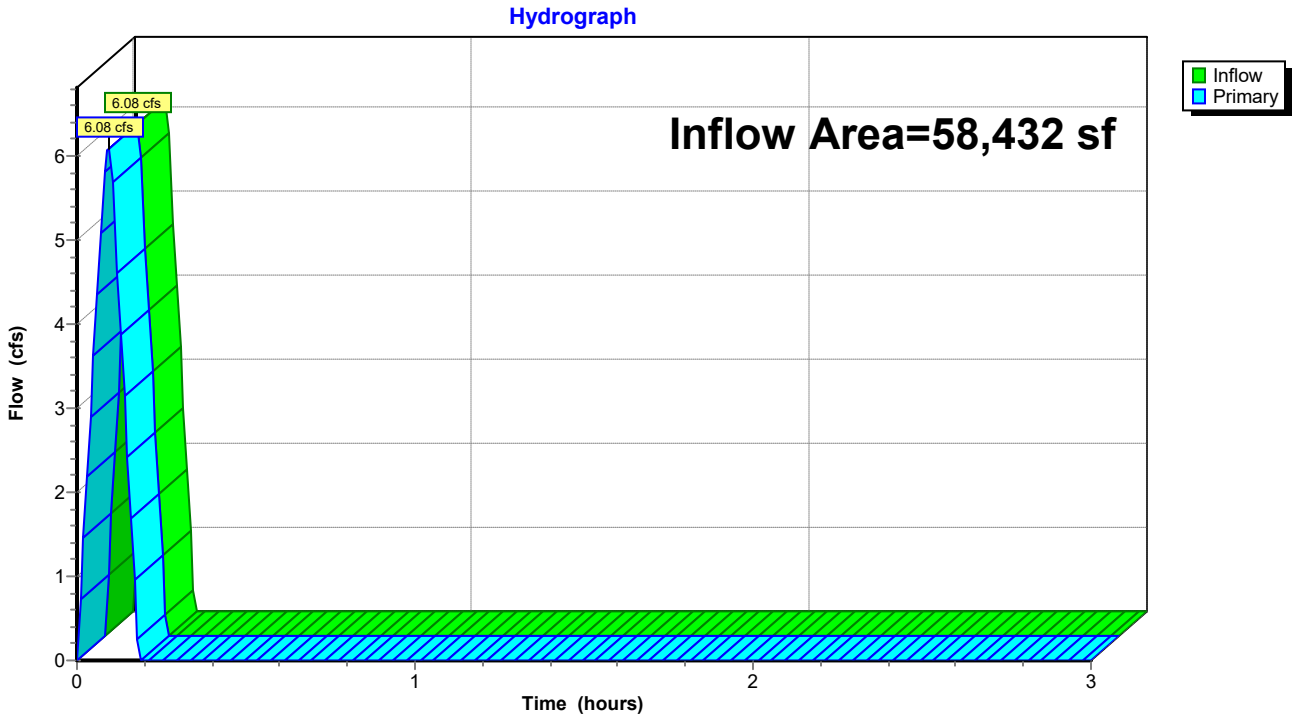


Summary for Link POST-DEV: Post-Development

Inflow Area = 58,432 sf, 0.00% Impervious, Inflow Depth = 0.45" for 25-yr event
Inflow = 6.08 cfs @ 0.10 hrs, Volume= 2,178 cf
Primary = 6.08 cfs @ 0.10 hrs, Volume= 2,178 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



Summary for Subcatchment B1: Drainage Basin B1

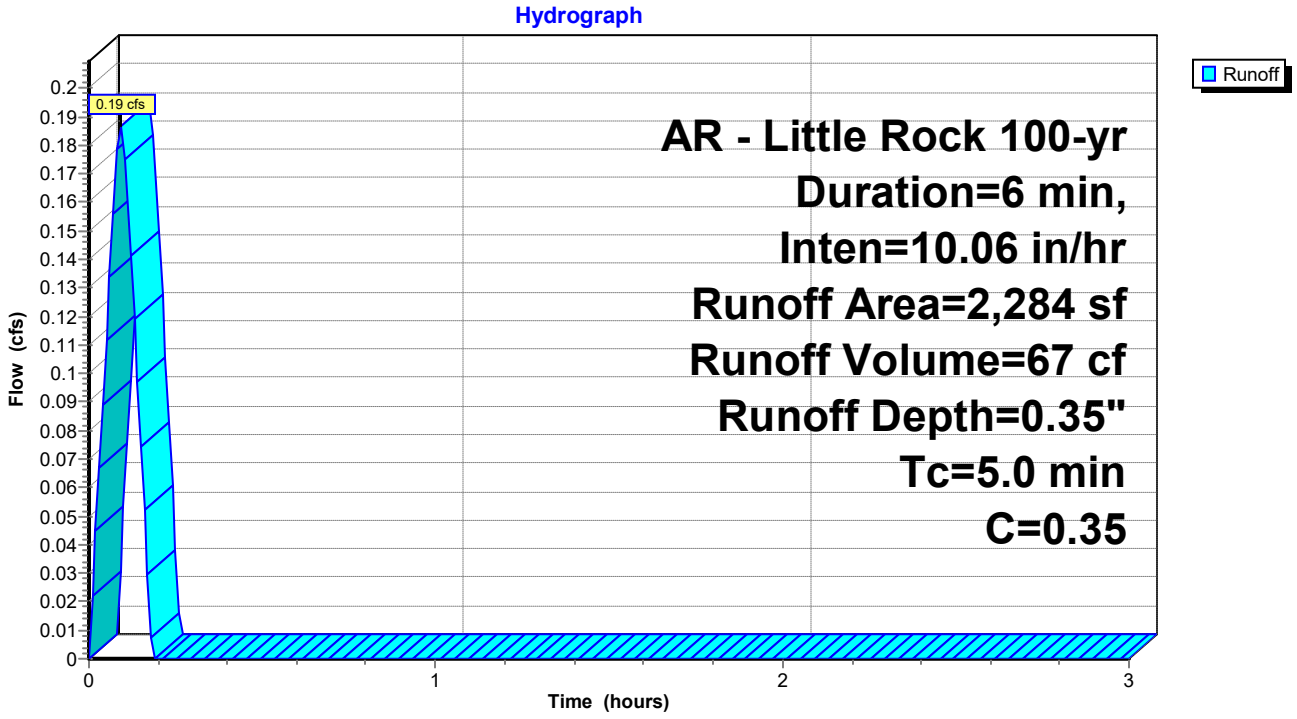
Runoff = 0.19 cfs @ 0.09 hrs, Volume= 67 cf, Depth= 0.35"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=6 min, Inten=10.06 in/hr

Area (sf)	C	Description
2,284	0.35	Sandy Soil 2-7% per manual
0	0.92	Paved Areas
2,284	0.35	Weighted Average
2,284		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, Minimum Adjustment**

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

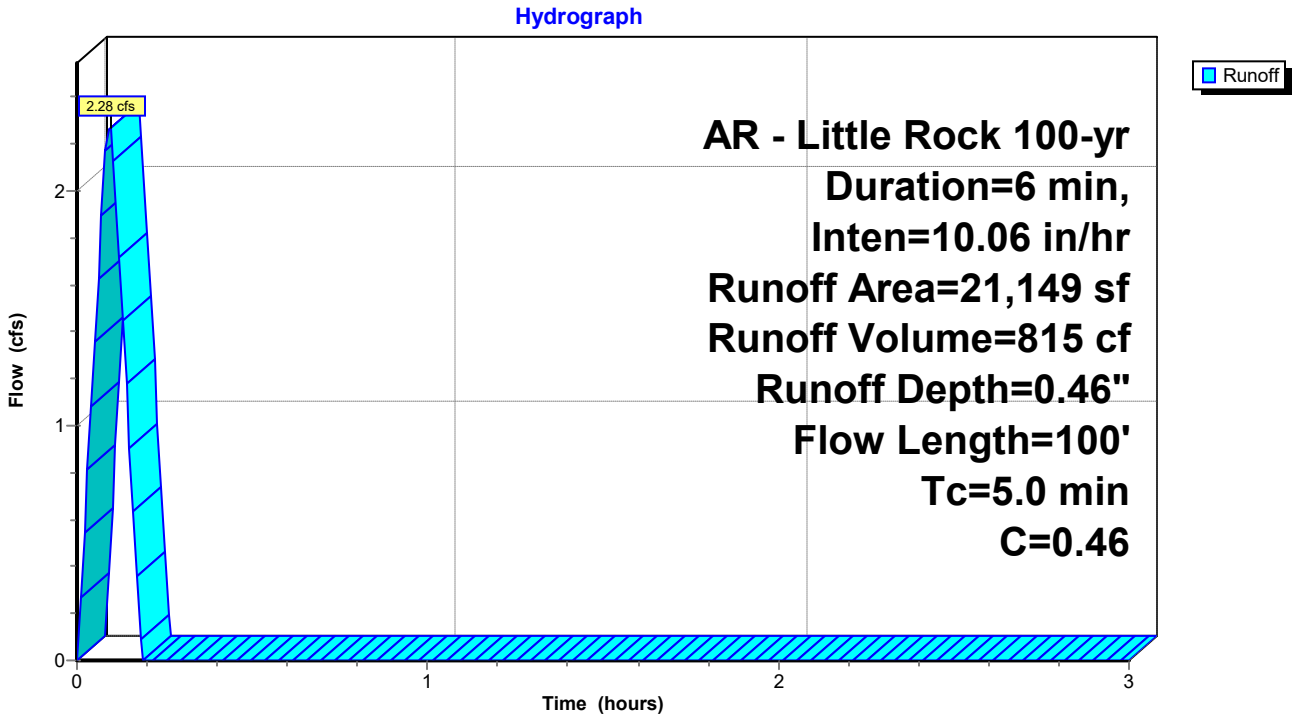
Runoff = 2.28 cfs @ 0.09 hrs, Volume= 815 cf, Depth= 0.46"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=6 min, Inten=10.06 in/hr

Area (sf)	C	Description
16,931	0.35	Sandy Soil 2-7% per manual
4,218	0.92	Paved Areas
21,149	0.46	Weighted Average
21,149		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	42	0.1667	3.09		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.5	58	0.0500	2.04		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
4.3					**Direct Entry, Minimum Adjustment**
5.0	100	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

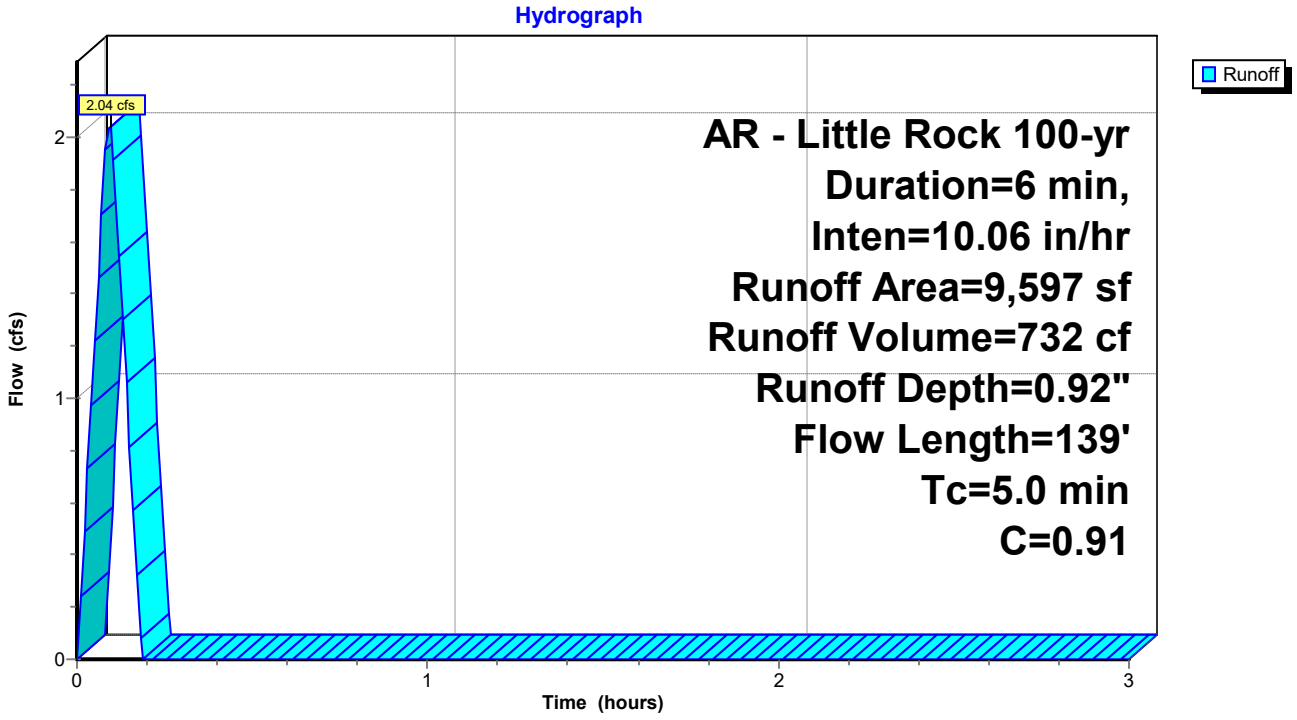
Runoff = 2.04 cfs @ 0.09 hrs, Volume= 732 cf, Depth= 0.92"
Routed to Pond CI-A1 : CURB INLET A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=6 min, Inten=10.06 in/hr

Area (sf)	C	Description
155	0.35	Sandy Soil 2-7% per manual
9,442	0.92	Paved Areas
9,597	0.91	Weighted Average
9,597		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	28	0.1667	2.85		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	30	0.0160	1.13		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.4	41	0.0520	1.93		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.2	40	0.0360	3.85		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
3.8					**Direct Entry, Minimum Adjustment**
5.0	139	Total			

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

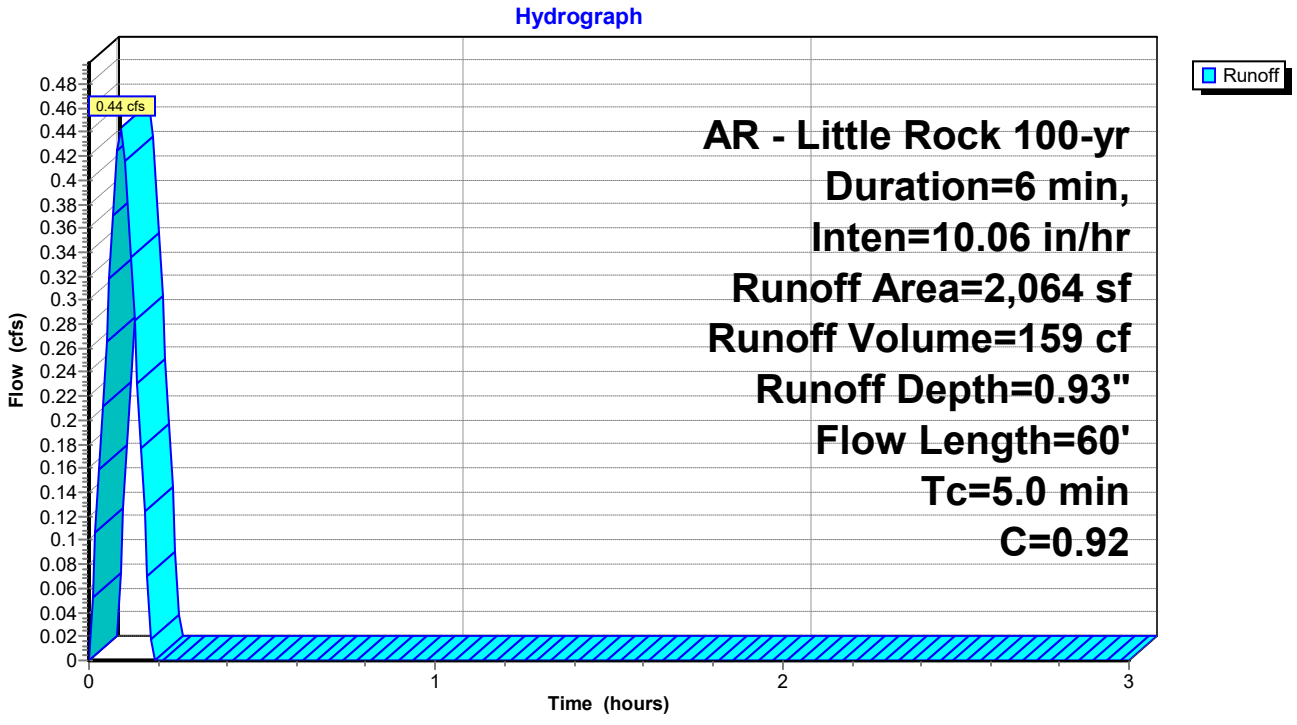
Runoff = 0.44 cfs @ 0.09 hrs, Volume= 159 cf, Depth= 0.93"
Routed to Pond CI-A2 : CURB INLET A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=6 min, Inten=10.06 in/hr

Area (sf)	C	Description
0	0.35	Sandy Soil 2-7% per manual
2,064	0.92	Paved Areas
2,064	0.92	Weighted Average
2,064		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	45	0.0170	1.26		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.20"
0.0	15	0.0840	5.88		**Shallow Concentrated Flow, Gutter Flow** Paved Kv= 20.3 fps
4.4					**Direct Entry, Minimum Adjustment**
5.0	60	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

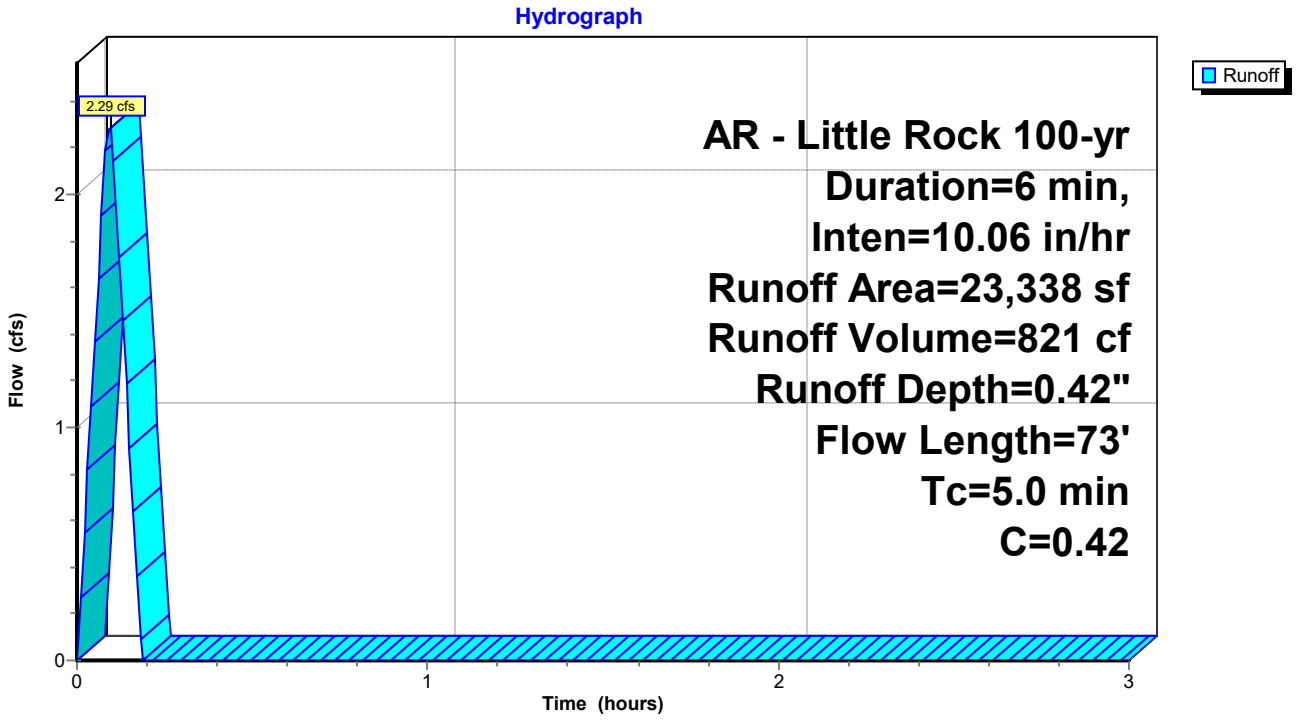
Runoff = 2.29 cfs @ 0.09 hrs, Volume= 821 cf, Depth= 0.42"
Routed to Link POST-DEV : Post-Development

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=6 min, Inten=10.06 in/hr

Area (sf)	C	Description
20,627	0.35	Sandy Soil 2-7% per manual
2,711	0.92	Paved Areas
23,338	0.42	Weighted Average
23,338		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.1	18	0.1667	2.61		**Sheet Flow, Rooftop** Smooth surfaces n= 0.011 P2= 4.20"
0.4	55	0.0860	2.05		**Shallow Concentrated Flow, Overland Concentrated** Short Grass Pasture Kv= 7.0 fps
4.5					**Direct Entry, Minimum Adjustment**
5.0	73	Total			

Subcatchment B5: Drainage Basin B5



Summary for Pond CI-A1: CURB INLET A1

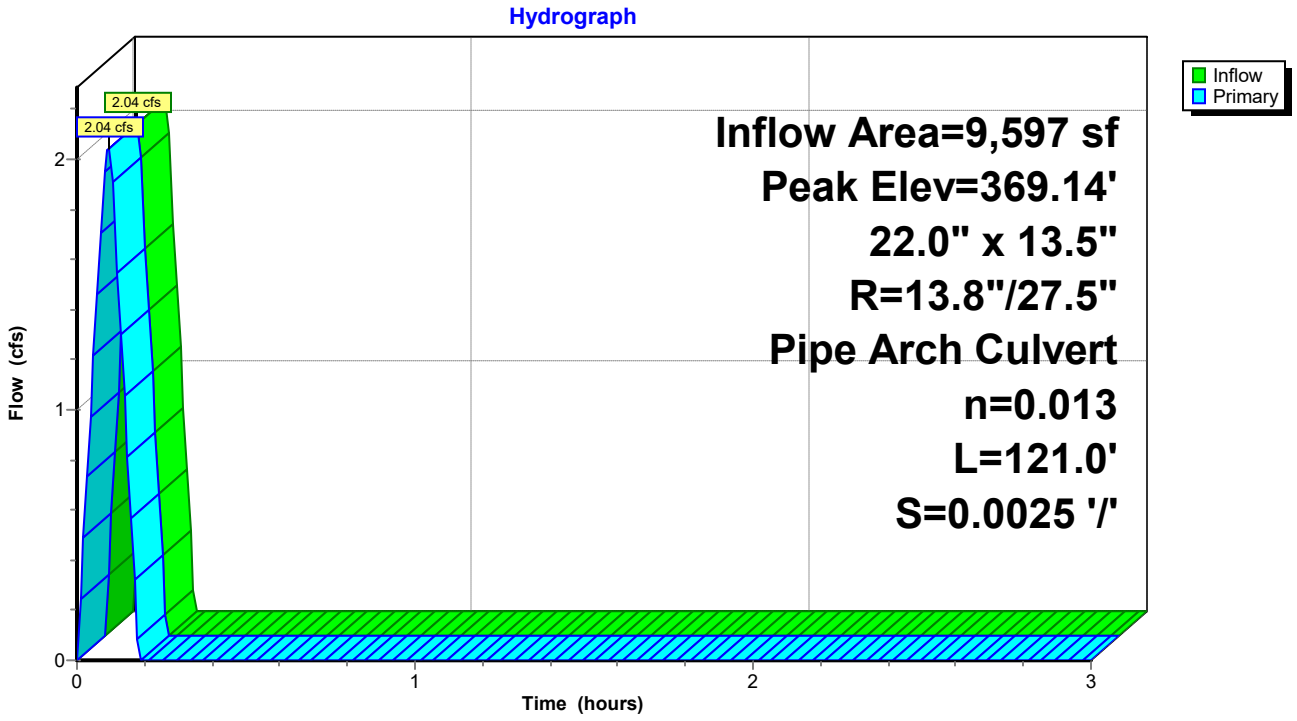
Inflow Area = 9,597 sf, 0.00% Impervious, Inflow Depth = 0.92" for 100-yr event
Inflow = 2.04 cfs @ 0.09 hrs, Volume= 732 cf
Outflow = 2.04 cfs @ 0.09 hrs, Volume= 732 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 0.09 hrs, Volume= 732 cf
Routed to Pond CI-A2 : CURB INLET A2

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.14' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**22.0" W x 13.5" H, R=13.8"/27.5" Pipe Arch RCP_Arch 22x14** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.65 sf

Primary OutFlow Max=2.03 cfs @ 0.09 hrs HW=369.13' (Free Discharge)
1=RCP_Arch 22x14 (Barrel Controls 2.03 cfs @ 2.77 fps)

Pond CI-A1: CURB INLET A1



Summary for Pond CI-A2: CURB INLET A2

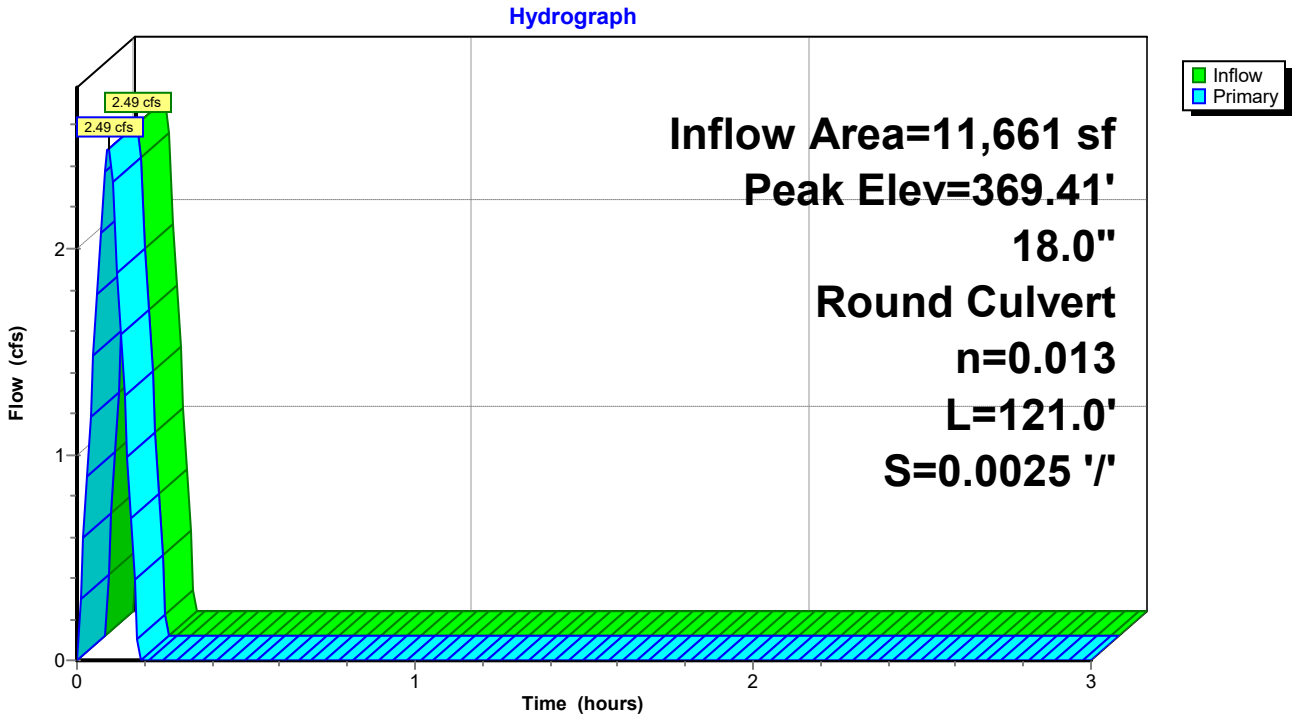
Inflow Area = 11,661 sf, 0.00% Impervious, Inflow Depth = 0.92" for 100-yr event
Inflow = 2.49 cfs @ 0.09 hrs, Volume= 891 cf
Outflow = 2.49 cfs @ 0.09 hrs, Volume= 891 cf, Atten= 0%, Lag= 0.0 min
Primary = 2.49 cfs @ 0.09 hrs, Volume= 891 cf
Routed to Link POST-DEV : Post-Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 369.41' @ 0.09 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	368.49'	**18.0" Round RCP_Round 18"** L= 121.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 368.49' / 368.19' S= 0.0025 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=2.47 cfs @ 0.09 hrs HW=369.41' (Free Discharge)
1=RCP_Round 18" (Barrel Controls 2.47 cfs @ 3.13 fps)

Pond CI-A2: CURB INLET A2

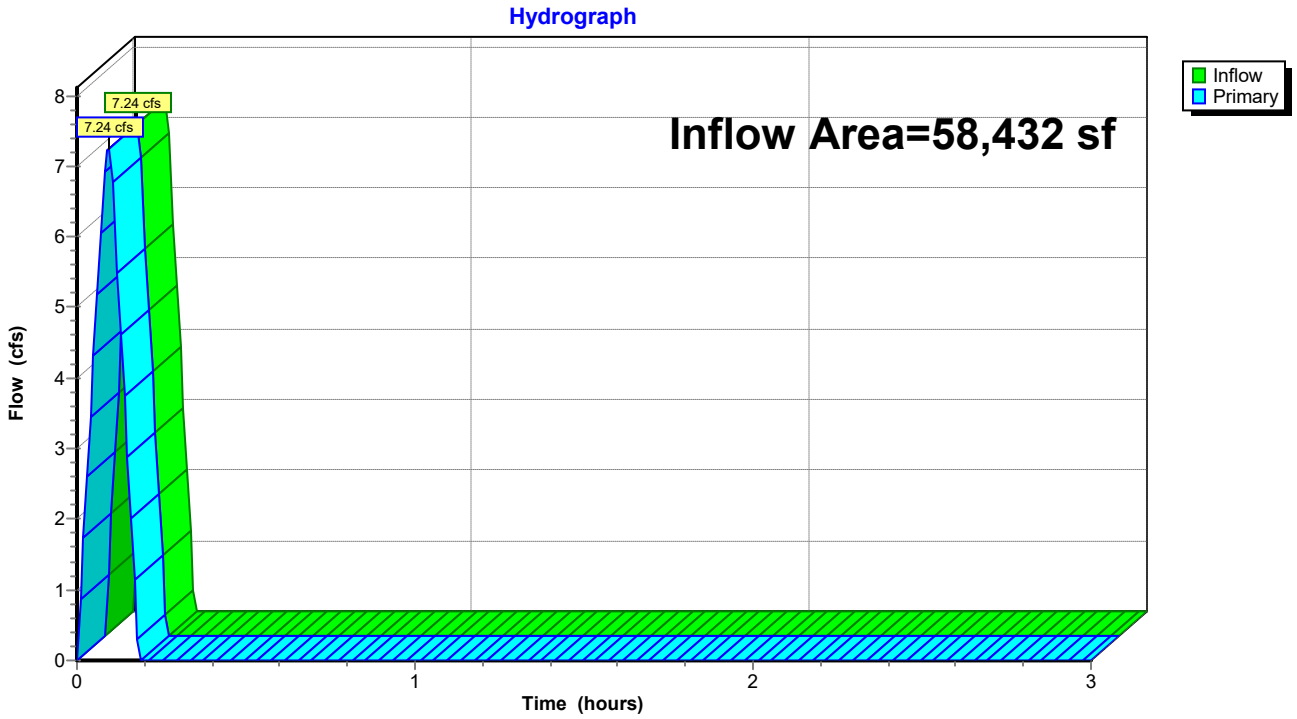


Summary for Link POST-DEV: Post-Development

Inflow Area = 58,432 sf, 0.00% Impervious, Inflow Depth = 0.53" for 100-yr event
Inflow = 7.24 cfs @ 0.09 hrs, Volume= 2,594 cf
Primary = 7.24 cfs @ 0.09 hrs, Volume= 2,594 cf, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Link POST-DEV: Post-Development



STORM SEWER SIZING

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 15 2025

PIPE A1 (25 YR)

Circular

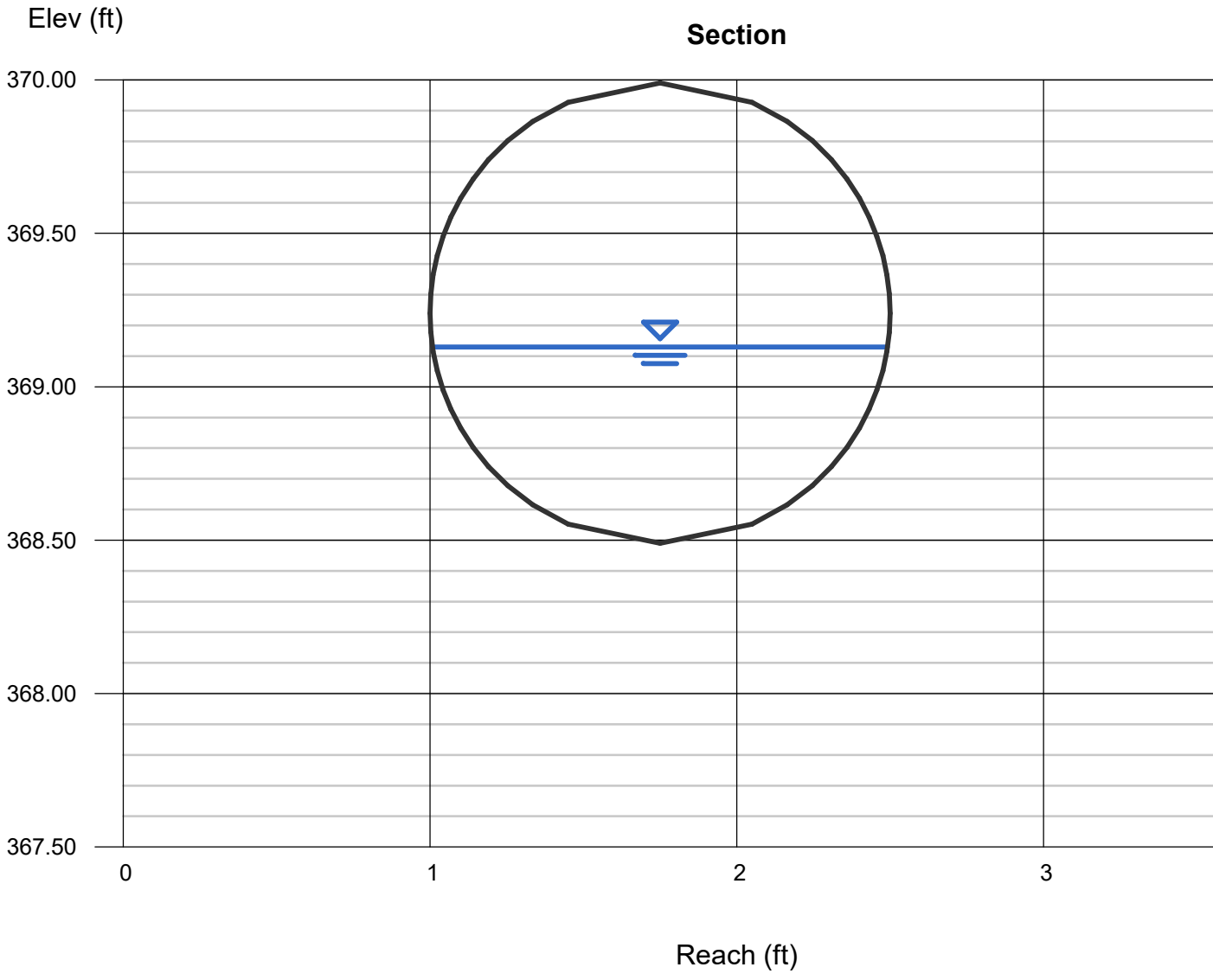
Diameter (ft)	= 1.50
Invert Elev (ft)	= 368.49
Slope (%)	= 0.25
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.71

Highlighted

Depth (ft)	= 0.64
Q (cfs)	= 1.710
Area (sqft)	= 0.72
Velocity (ft/s)	= 2.37
Wetted Perim (ft)	= 2.14
Crit Depth, Yc (ft)	= 0.49
Top Width (ft)	= 1.48
EGL (ft)	= 0.73



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Jul 15 2025

PIPE A2 (25 YR)

Circular

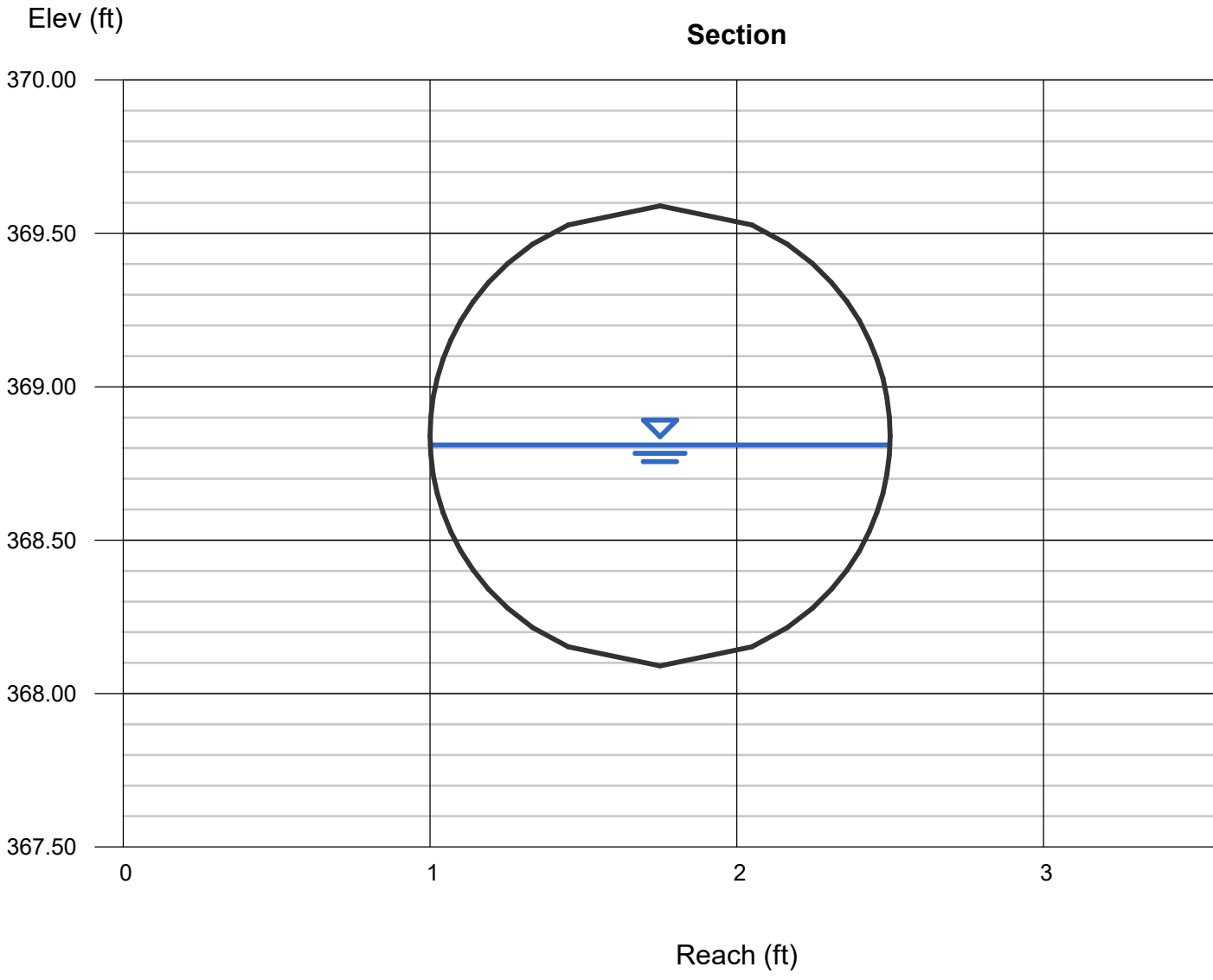
Diameter (ft)	= 1.50
Invert Elev (ft)	= 368.09
Slope (%)	= 0.25
N-Value	= 0.015

Calculations

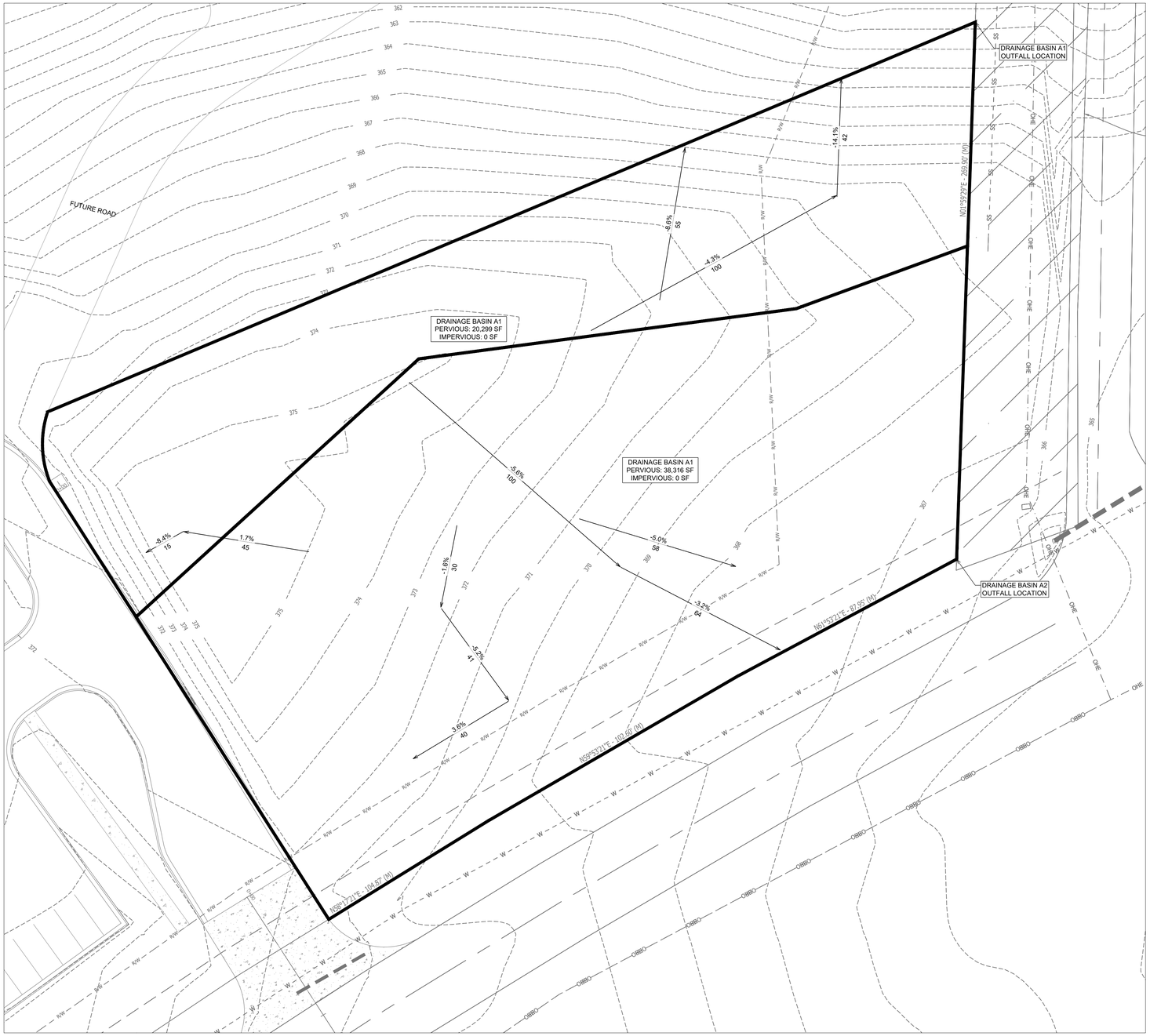
Compute by:	Known Q
Known Q (cfs)	= 2.09

Highlighted

Depth (ft)	= 0.72
Q (cfs)	= 2.090
Area (sqft)	= 0.84
Velocity (ft/s)	= 2.48
Wetted Perim (ft)	= 2.30
Crit Depth, Yc (ft)	= 0.55
Top Width (ft)	= 1.50
EGL (ft)	= 0.82



DRAINAGE BASIN MAPS



PRE-DEVELOPMENT DRAINAGE BASIN PLAN

SCALE 1" = 20'

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

NEW BEGININGS
HIGHWAY 5
BRYANT, ARKANSAS

CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP A. LEWIS

N

0 20'

1" = 20'-0"

PROJECT NUMBER:

SHEET ISSUE DATE:

PAGE TITLE:
PRE-DEV DRAINAGE

SHEET NUMBER:
C1.10

POST-DEV DRAINAGE

SCALE 1" = 20'

GENERAL SITE NOTES

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 1.4 ACRES
2. PROPERTY IS ZONED C-2
3. 21 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

N

0 10'

1" = 10'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

NEW BEGINNINGS
HIGHWAY 5
BRYANT, ARKANSAS

PROJECT NUMBER:

SHEET ISSUE DATE:

PAGE TITLE:
POST-DEV DRAINAGE

SHEET NUMBER:
C1.11

SOIL CLASSIFICATION MAPS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Saline County, Arkansas

August 30, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

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 20, Sep 12, 2023

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
16	Ouachita silt loam, 0 to 1 percent slopes, frequently flooded	3.6	25.0%
22	Savannah fine sandy loam, 3 to 8 percent slopes	2.5	17.8%
27	Smithdale loamy sand, 8 to 12 percent slopes	4.9	34.4%
29	Tiak silt loam, 3 to 8 percent slopes	3.3	22.9%
Totals for Area of Interest		**14.2**	**100.0%**

Map Unit Descriptions

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, 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.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Saline County, Arkansas

16—Ouachita silt loam, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 30g3t
Elevation: 120 to 250 feet
Mean annual precipitation: 48 to 64 inches
Mean annual air temperature: 52 to 75 degrees F
Frost-free period: 225 to 290 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Ouachita, frequently flooded, brief duration, and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ouachita, Frequently Flooded, Brief Duration

Setting

Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 4 inches: silt loam
Bw - 4 to 42 inches: silt loam
2C - 42 to 80 inches: very fine sandy loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: Frequent
Frequency of ponding: None
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: C
Ecological site: F133BY017TX - Loamy Bottomland
Hydric soil rating: No

Minor Components

Ouachita, frequently flooded, long duration

Percent of map unit: 5 percent
Landform: Flood plains

Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY017TX - Loamy Bottomland
Hydric soil rating: Yes

Aquents, frequently flooded
Percent of map unit: 5 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Convex
Ecological site: F133BY012TX - Wet Terrace
Hydric soil rating: Yes

Una, frequently flooded
Percent of map unit: 3 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY018TX - Clayey Bottomland
Hydric soil rating: Yes

Guyton, frequently flooded
Percent of map unit: 2 percent
Landform: Flood plains
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F133BY017TX - Loamy Bottomland
Hydric soil rating: Yes

22—Savannah fine sandy loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2tzrt
Elevation: 50 to 250 feet
Mean annual precipitation: 38 to 61 inches
Mean annual air temperature: 52 to 73 degrees F
Frost-free period: 220 to 260 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Savannah and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Savannah

Setting

Landform: Interfluves
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy marine deposits

Typical profile

Ap - 0 to 9 inches: fine sandy loam
Bt - 9 to 24 inches: loam
Btx - 24 to 59 inches: loam
BC - 59 to 72 inches: sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 16 to 32 inches to fragipan
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: About 16 to 30 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

Minor Components

Amy

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F133BY017TX - Loamy Bottomland
Hydric soil rating: Yes

27—Smithdale loamy sand, 8 to 12 percent slopes

Map Unit Setting

National map unit symbol: m06n
Elevation: 70 to 620 feet

Mean annual precipitation: 44 to 61 inches
Mean annual air temperature: 49 to 74 degrees F
Frost-free period: 185 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition
Smithdale and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Smithdale

Setting
Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy marine deposits

Typical profile
A - 0 to 6 inches: loamy sand
BA - 6 to 15 inches: fine sandy loam
Bt1 - 15 to 26 inches: sandy clay loam
Bt2 - 26 to 102 inches: fine sandy loam
BC - 102 to 123 inches: loamy fine sand

Properties and qualities
Slope: 8 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F133BY005TX - Loamy Upland
Hydric soil rating: No

29—Tiak silt loam, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: m06q
Elevation: 70 to 570 feet
Mean annual precipitation: 44 to 61 inches
Mean annual air temperature: 49 to 74 degrees F
Frost-free period: 185 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Tiak and similar soils: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Tiak

Setting

Landform: Interfluves
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Loamy and clayey marine deposits

Typical profile

A - 0 to 7 inches: silt loam
E - 7 to 9 inches: loam
Bt1 - 9 to 32 inches: clay
Bt2 - 32 to 72 inches: clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F133BY002TX - Seasonally Wet Upland
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

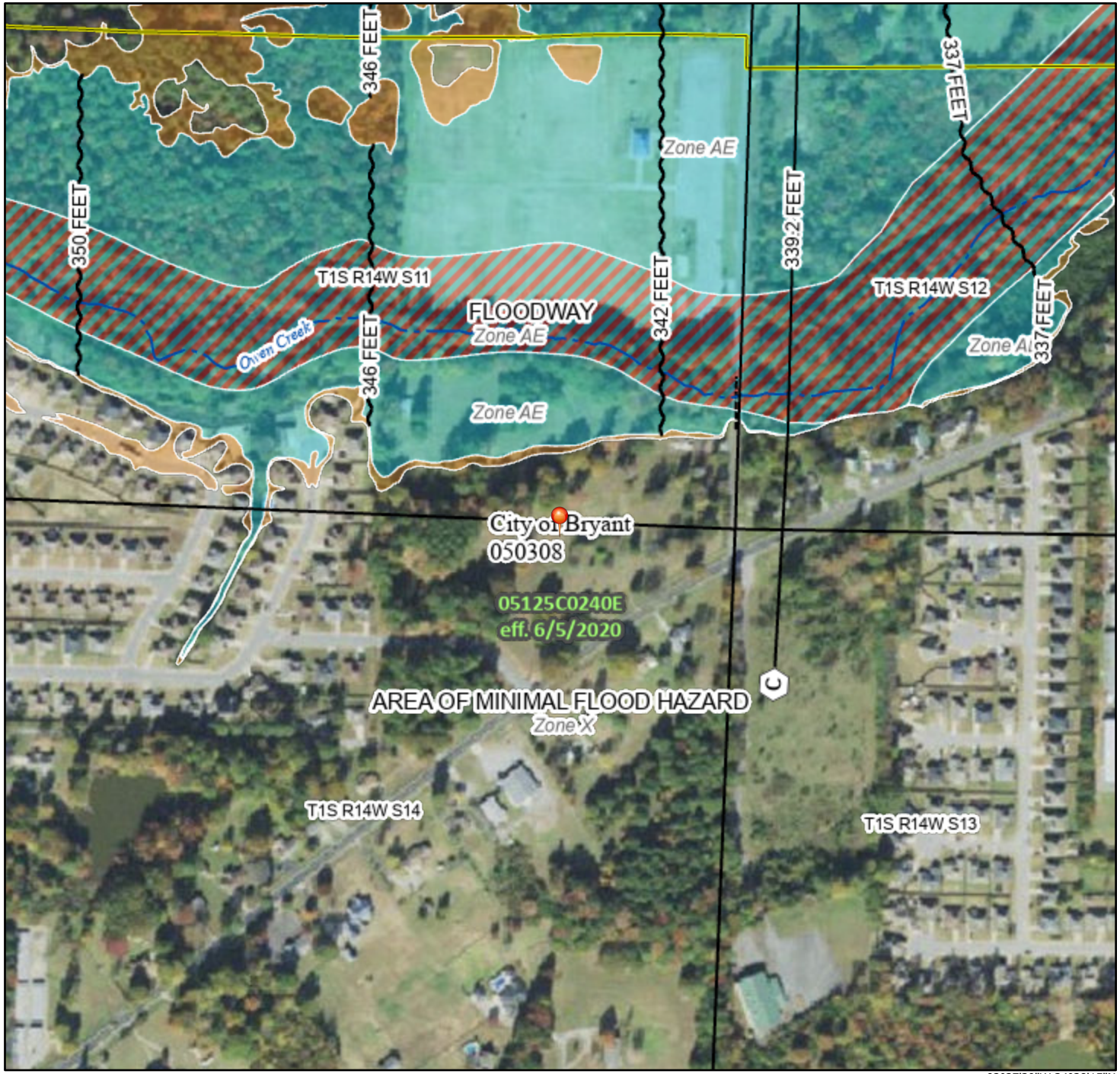
United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

FEMA FLOOD INSURANCE RATE MAP

National Flood Hazard Layer FIRMette

FEMA

92°28'7"W 34°38'45"N



92°27'30"W 34°38'15"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 10/9/2024 at 5:29 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.