SUMMERWOOD SPORTS GYM #3

DRAINAGE REPORT

LOCATED IN
BRYANT, ARKANSAS

Prepared by:

PHILLIP LEWIS ENGINEERING
Structural + Civil Consultants
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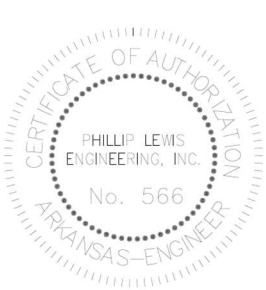
PH: 501-350-9840



PROJECT LOCATION MAP

PROJECT SUMMARY

The proposed project is for the consruction of the third gymnasium of the Summerwood Sports Complex located along Bryant Parkway and Hwy 5.

The proposed development is for a 30,000 sq. ft. building and parking lot that will utilize curb/gutter and concrete/asphalt to direct stormwater to the designated catch basins. The existing detention basin that was constructed for the first two gymnasiums will be abanoned to construct the new proposed gymnasium. A regional detention basin will be installed in the northeast corner of the remaining parcel to serve the entirety of the current complex property.

The existing storm sewer network will be interupted with new storm sewer and routed to the new detention basin. This regional detention basin is designed to allow the future to be developed at a rate of 80% impervious.

Stormwater analysis was completed for the development using HydroCAD software. Stormwater calculations were compiled and completed for the 2, 5, 10, 25, 50, and 100-year storm event using the rational method.

The detention pond is designed with a total ponding volume of 64,647 cubic feet. The final release rate of the detention pond is controlled by a 6” orificace cast into a concrete outlet structure, including an open top that allows flow to increase past the 2’ ponding depth in the pond. Ponding past the 2’ depth is then controlled by a single 24” rcp releasing at the east adjacent property line.

Post-development runoff rates were held to below pre-development runoff rates.

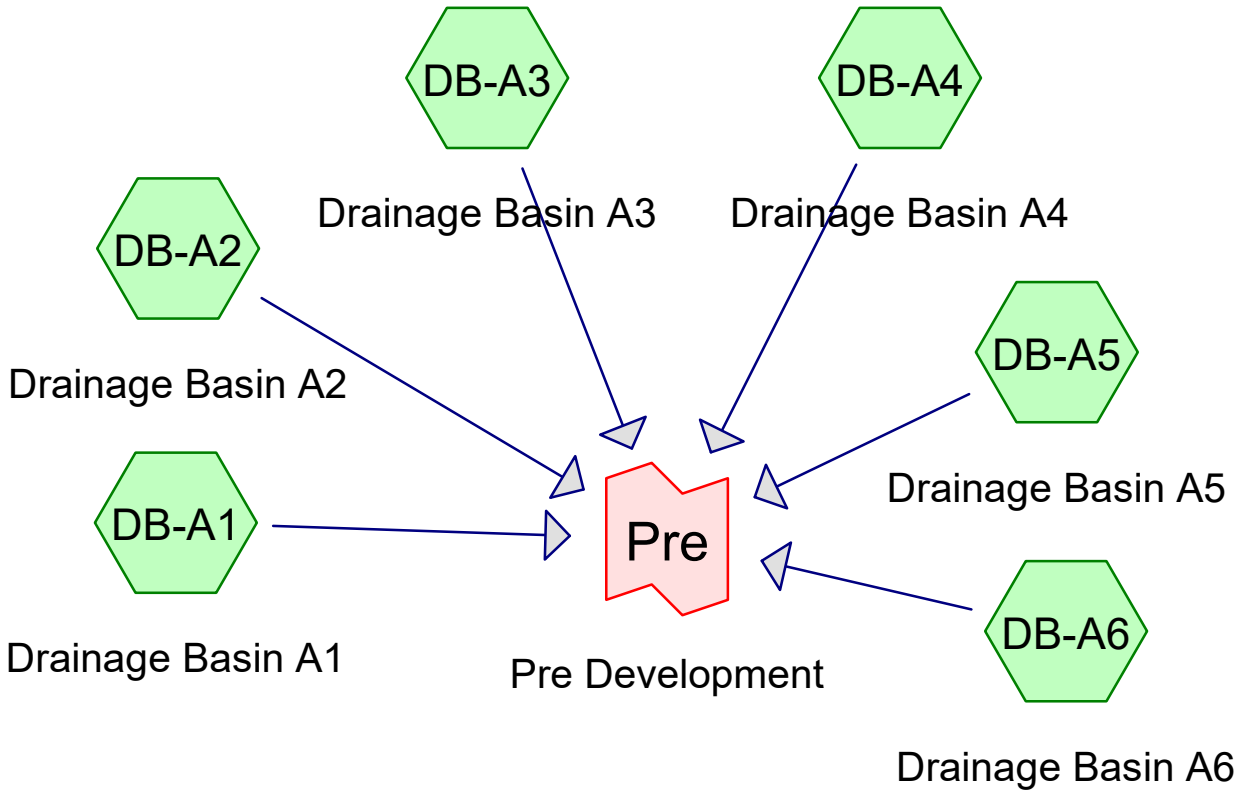
The results of the analysis for both pre-development and post-development, including the change in runoff volume and runoff rate, are shown below within the attached report.

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

Storm Event	Pre-development Discharge (cfs)	Post-development Discharge (cfs)
2-yr	44.01	24.50
5-yr	52.21	26.47
10-yr	59.17	28.12
25-yr	67.62	30.07
50-yr	74.58	36.41
100-yr	81.05	45.04

The pre/post development hydrographs, outlet structure details, and soils report are as follows:

PRE-DEVELOPMENT HYDROGRAPHS



Subcat Reach Pond Link

Routing Diagram for Summerwood Gym 3
Prepared by Phillip Lewis Engineering, Printed 10/2/2023

Summary for Subcatchment DB-A1: Drainage Basin A1

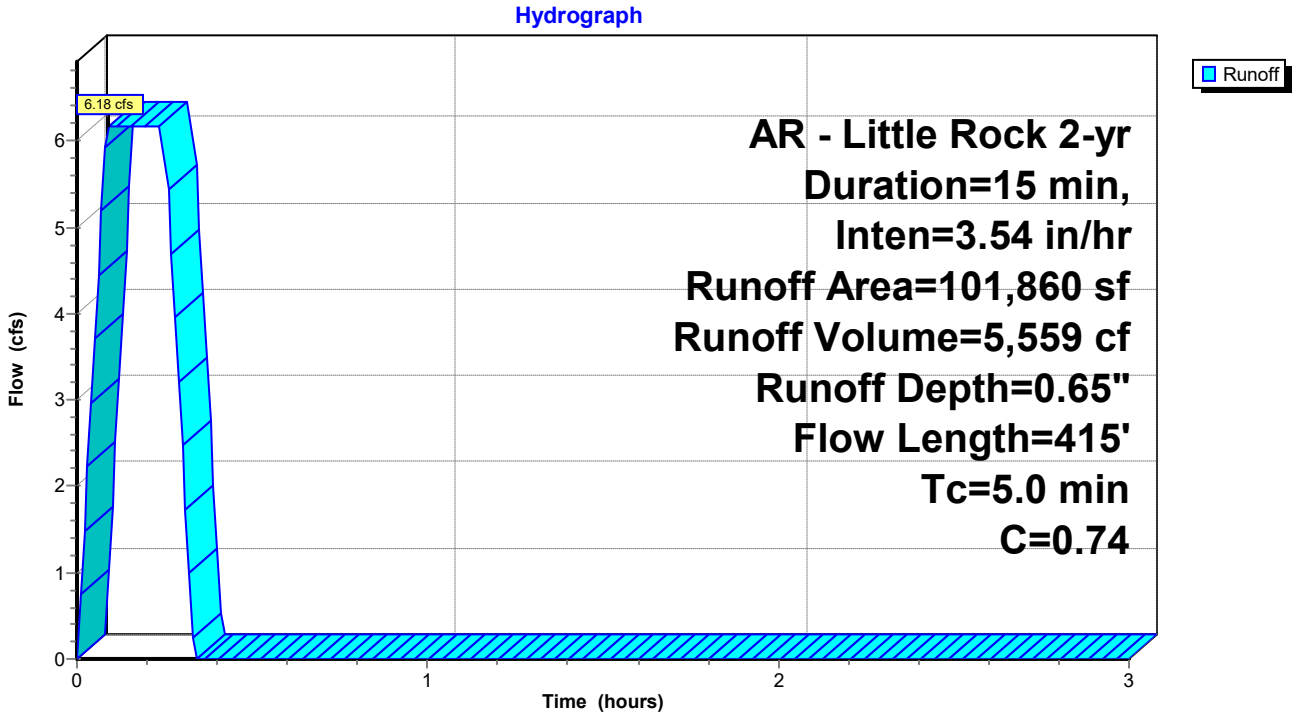
Runoff = 6.18 cfs @ 0.09 hrs, Volume= 5,559 cf, Depth= 0.65"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

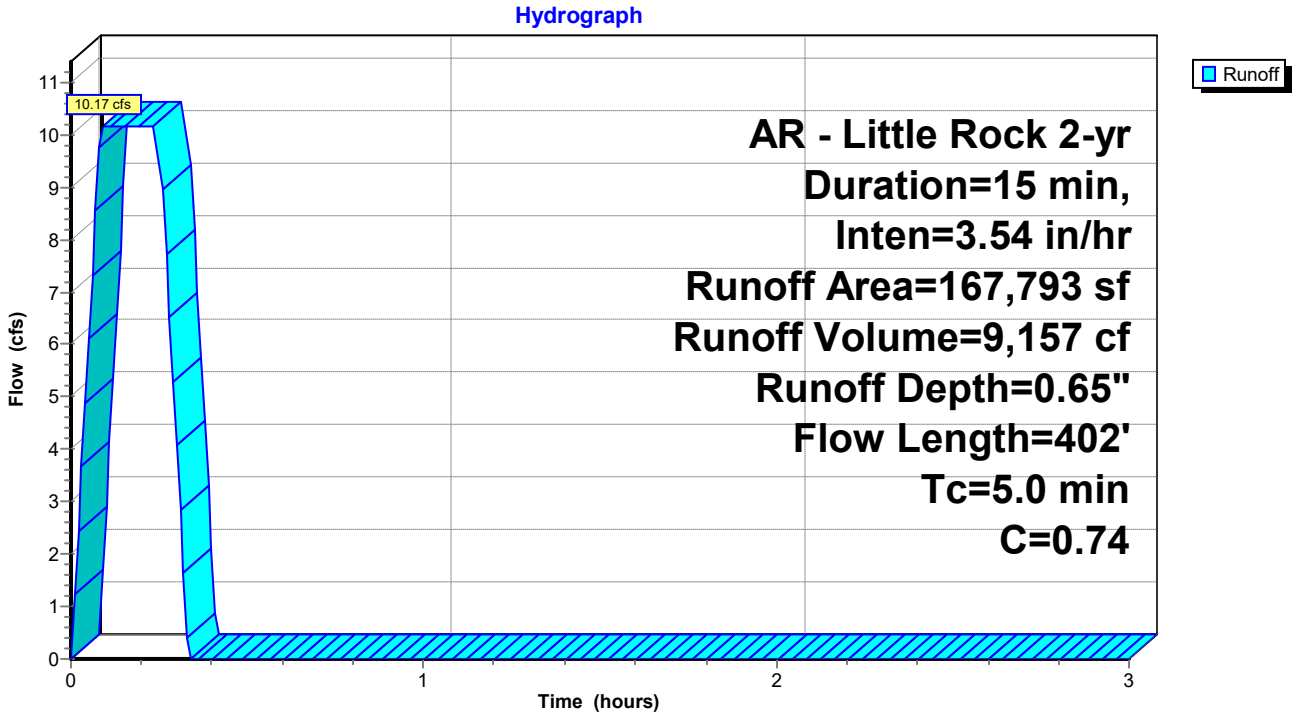
Runoff = 10.17 cfs @ 0.09 hrs, Volume= 9,157 cf, Depth= 0.65"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

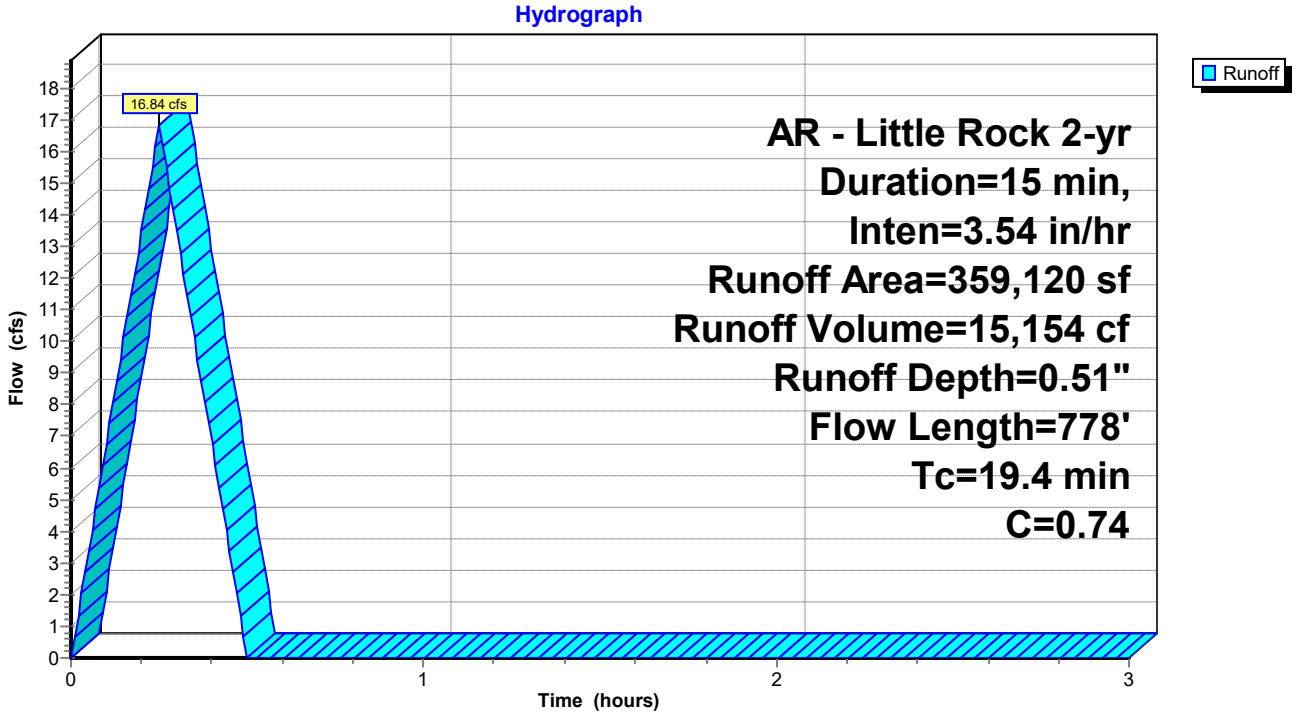
Runoff = 16.84 cfs @ 0.25 hrs, Volume= 15,154 cf, Depth= 0.51"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

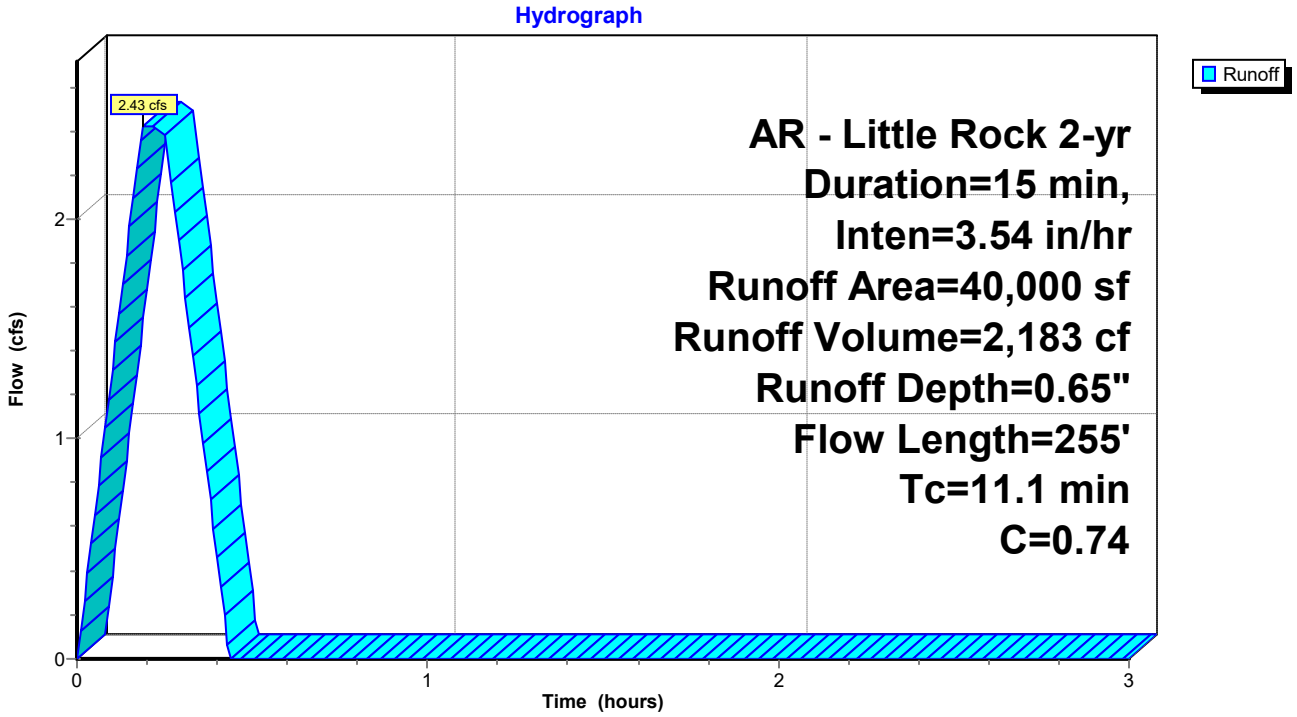
Runoff = 2.43 cfs @ 0.19 hrs, Volume= 2,183 cf, Depth= 0.65"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

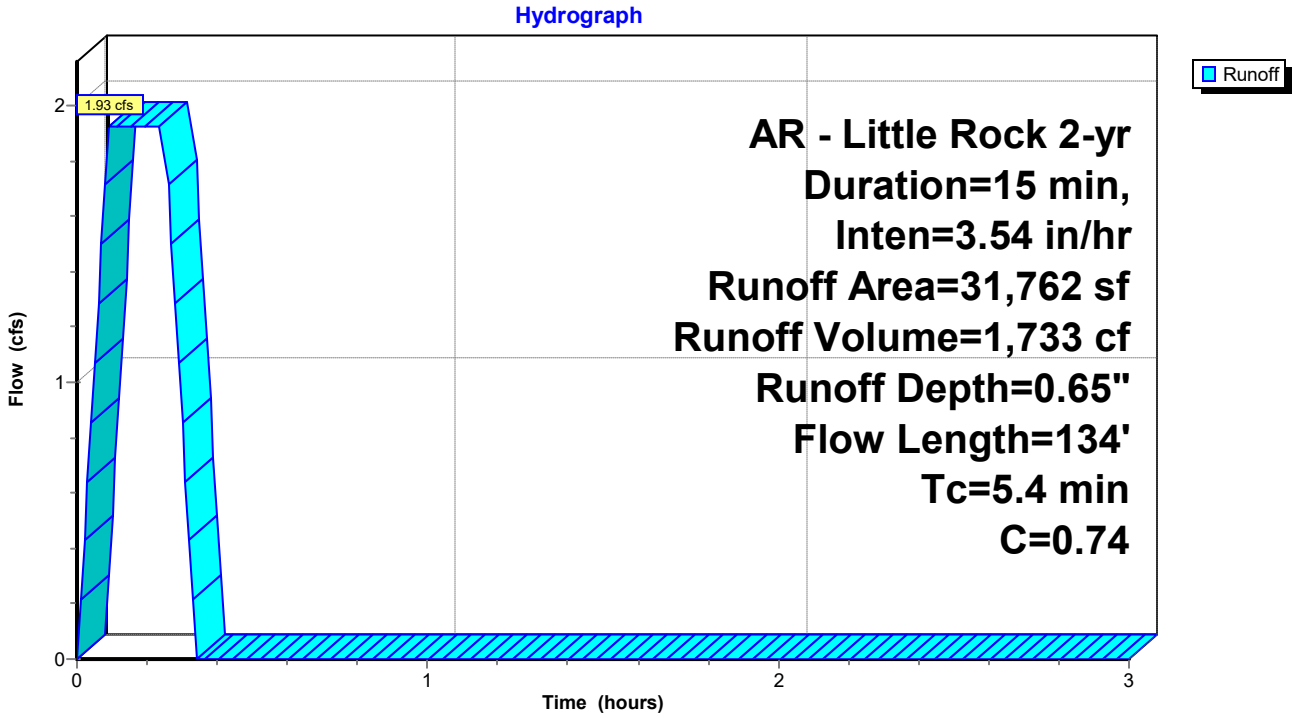
Runoff = 1.93 cfs @ 0.09 hrs, Volume= 1,733 cf, Depth= 0.65"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

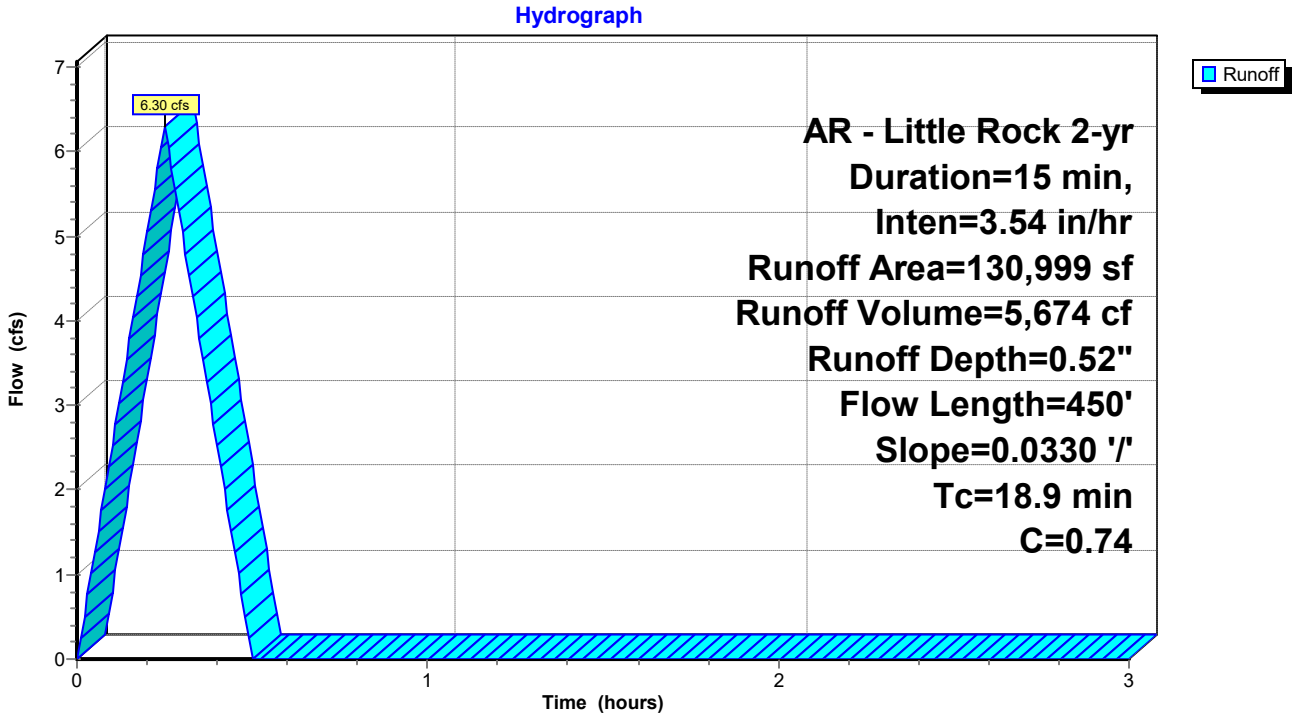
Runoff = 6.30 cfs @ 0.25 hrs, Volume= 5,674 cf, Depth= 0.52"
Routed to Link Pre : Pre Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

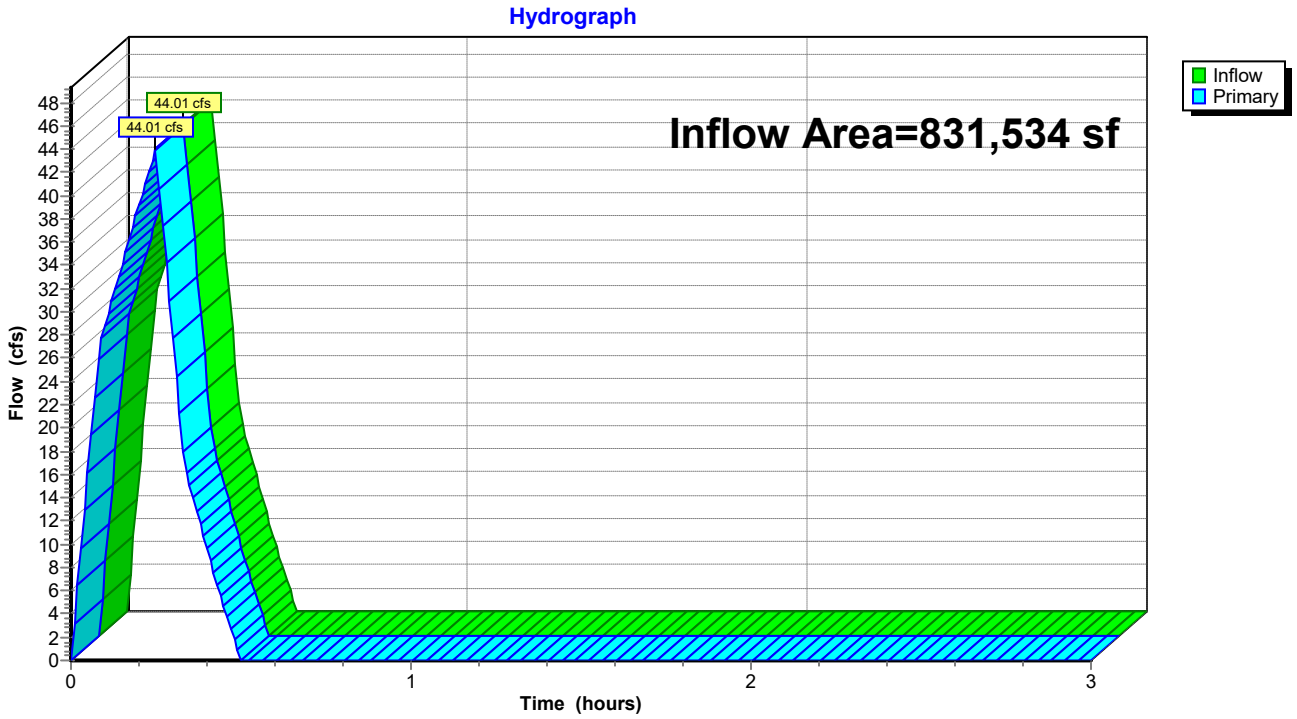


Summary for Link Pre: Pre Development

Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 0.57" for 2-yr event
Inflow = 44.01 cfs @ 0.25 hrs, Volume= 39,461 cf
Primary = 44.01 cfs @ 0.25 hrs, Volume= 39,461 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



Summary for Subcatchment DB-A1: Drainage Basin A1

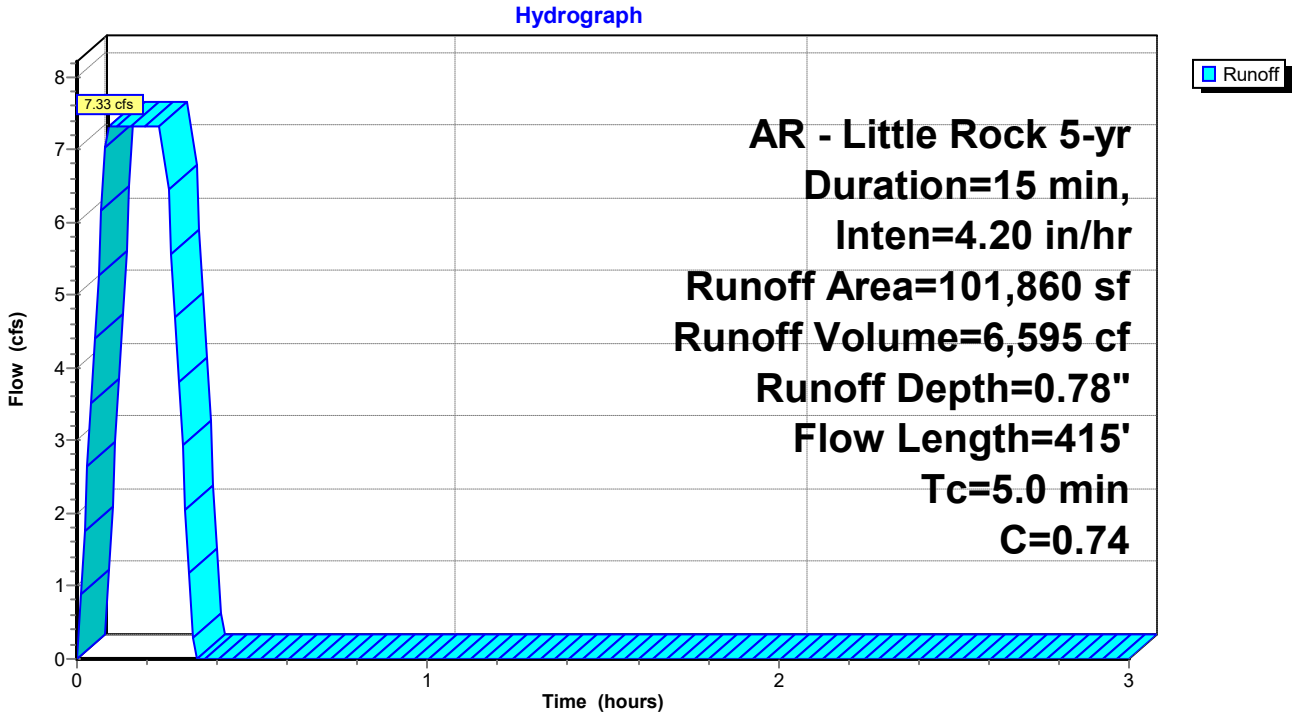
Runoff = 7.33 cfs @ 0.09 hrs, Volume= 6,595 cf, Depth= 0.78"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

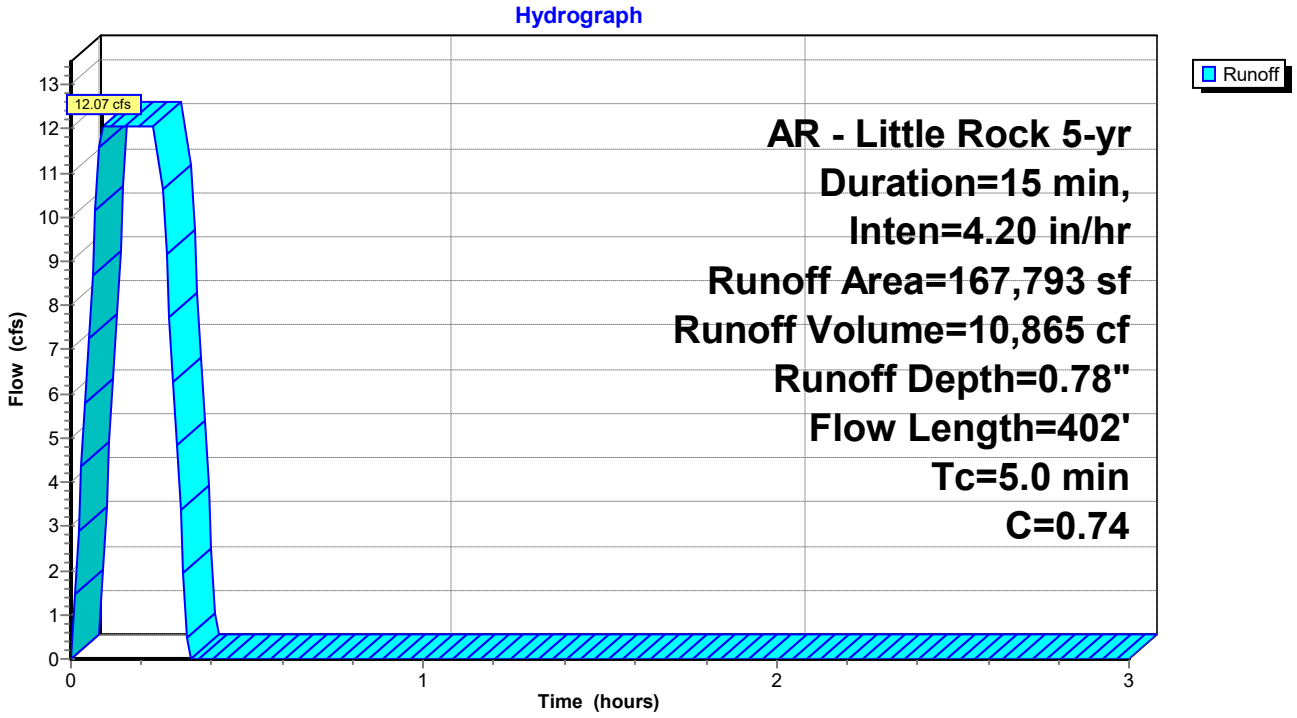
Runoff = 12.07 cfs @ 0.09 hrs, Volume= 10,865 cf, Depth= 0.78"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

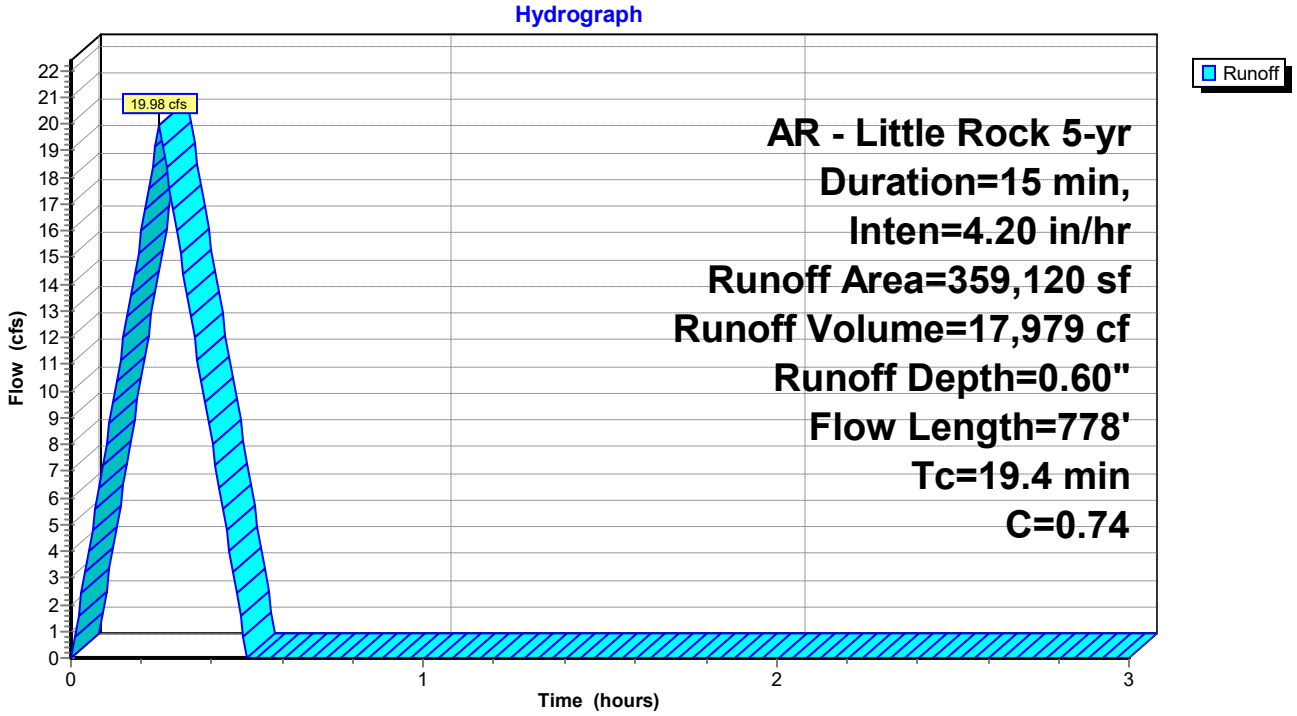
Runoff = 19.98 cfs @ 0.25 hrs, Volume= 17,979 cf, Depth= 0.60"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

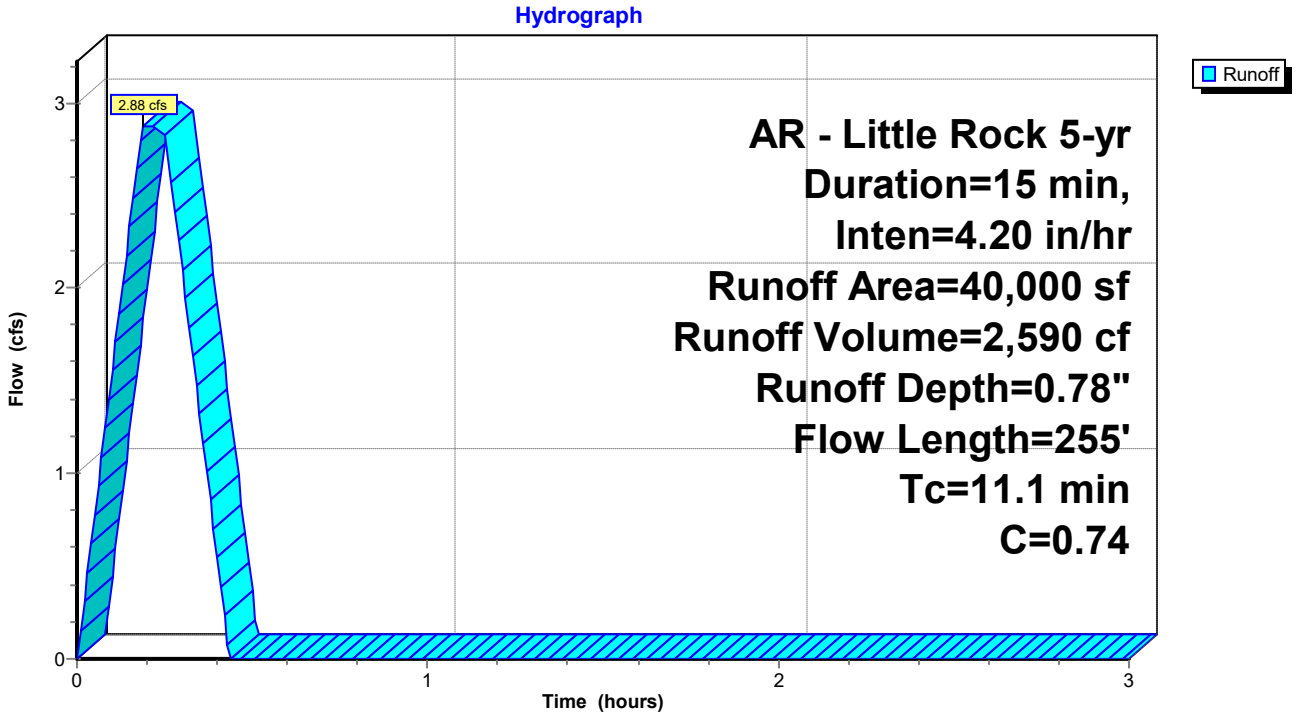
Runoff = 2.88 cfs @ 0.19 hrs, Volume= 2,590 cf, Depth= 0.78"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

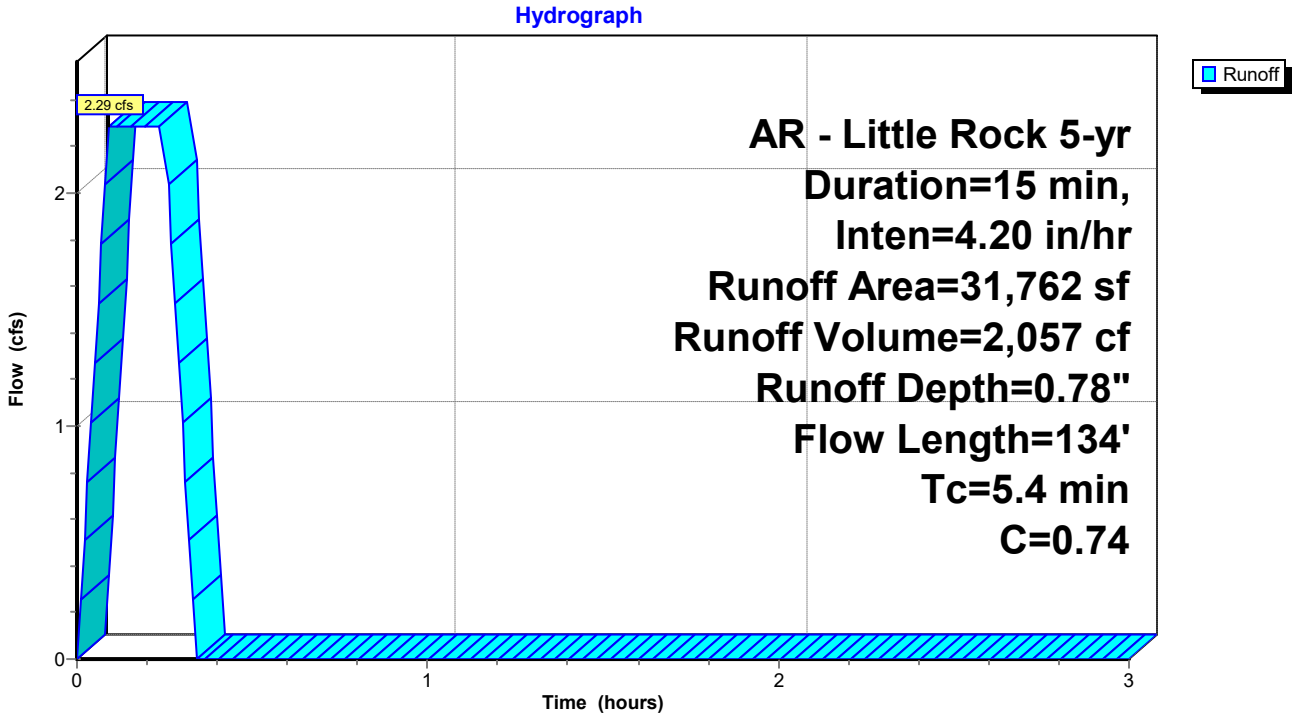
Runoff = 2.29 cfs @ 0.09 hrs, Volume= 2,057 cf, Depth= 0.78"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

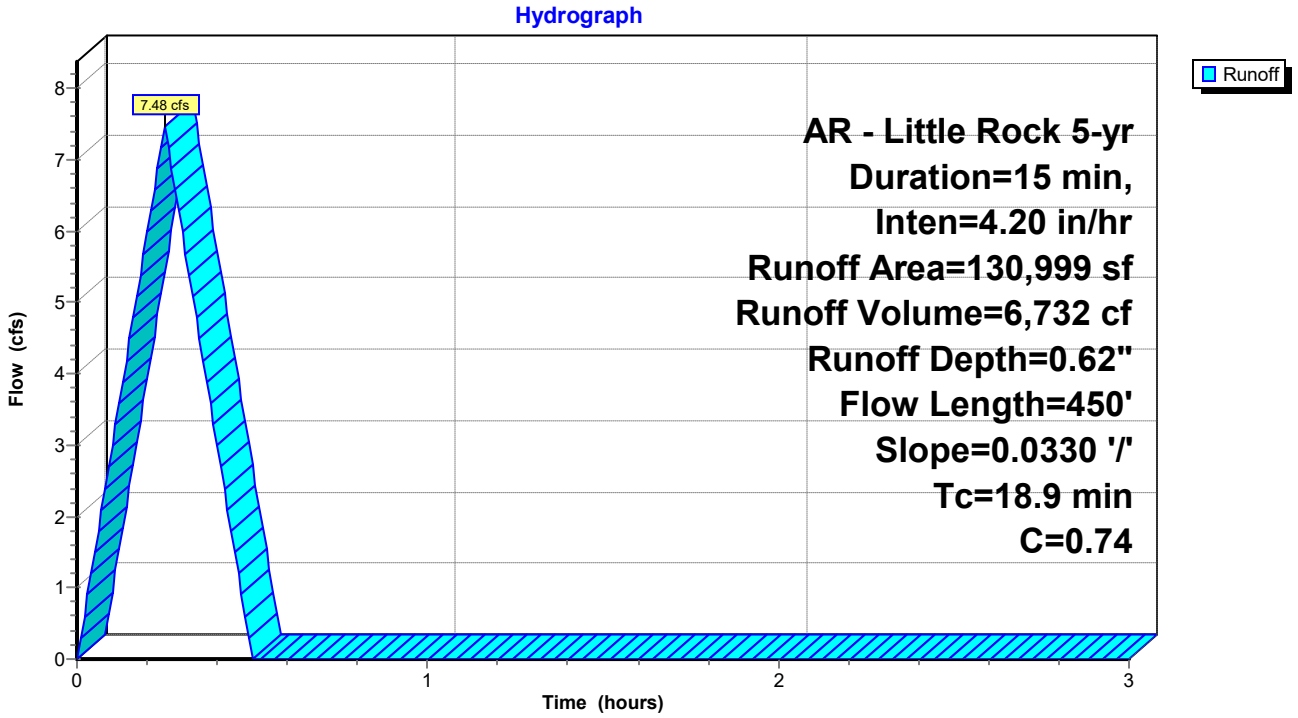
Runoff = 7.48 cfs @ 0.25 hrs, Volume= 6,732 cf, Depth= 0.62"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

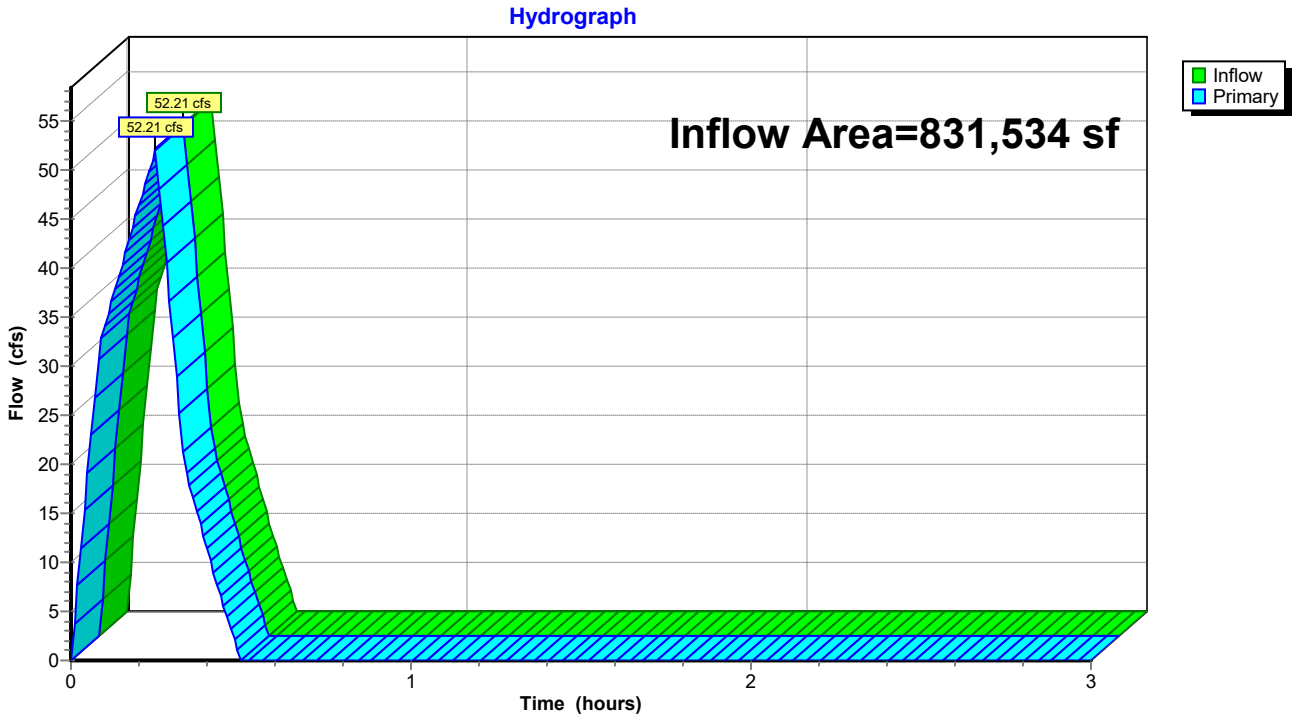


Summary for Link Pre: Pre Development

Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 0.68" for 5-yr event
Inflow = 52.21 cfs @ 0.25 hrs, Volume= 46,818 cf
Primary = 52.21 cfs @ 0.25 hrs, Volume= 46,818 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



Summary for Subcatchment DB-A1: Drainage Basin A1

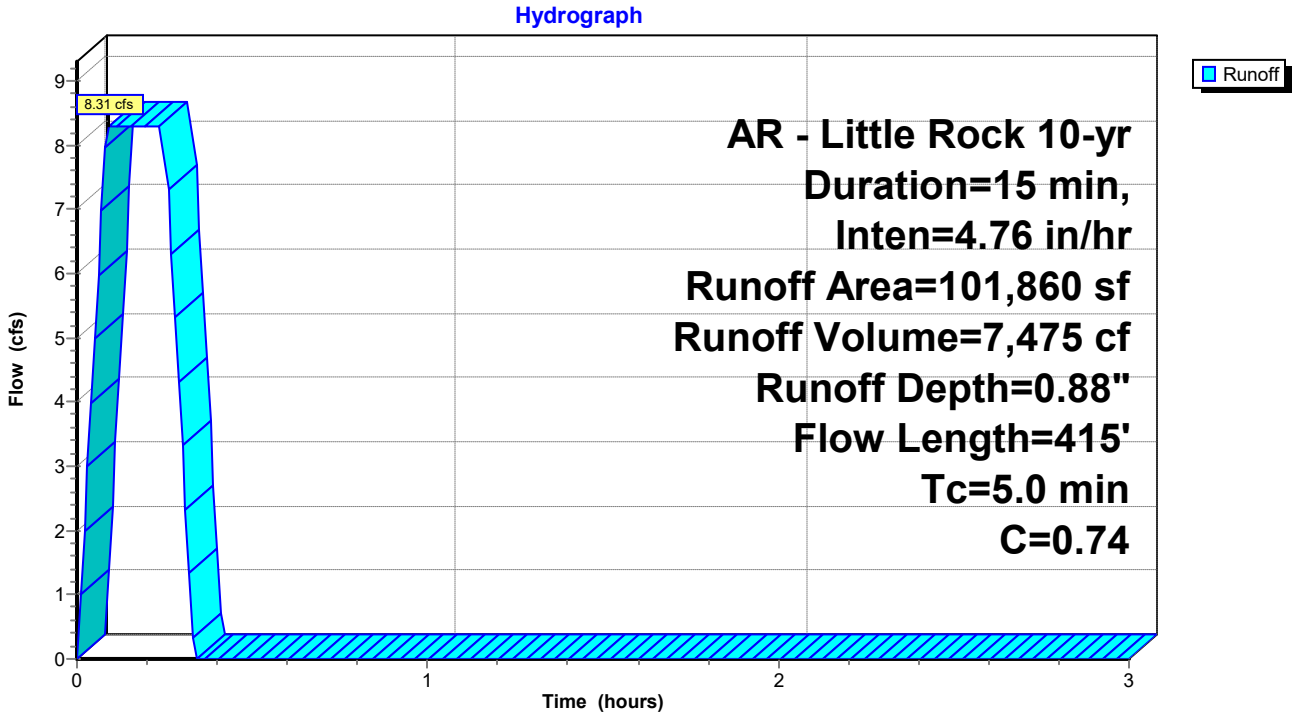
Runoff = 8.31 cfs @ 0.09 hrs, Volume= 7,475 cf, Depth= 0.88"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

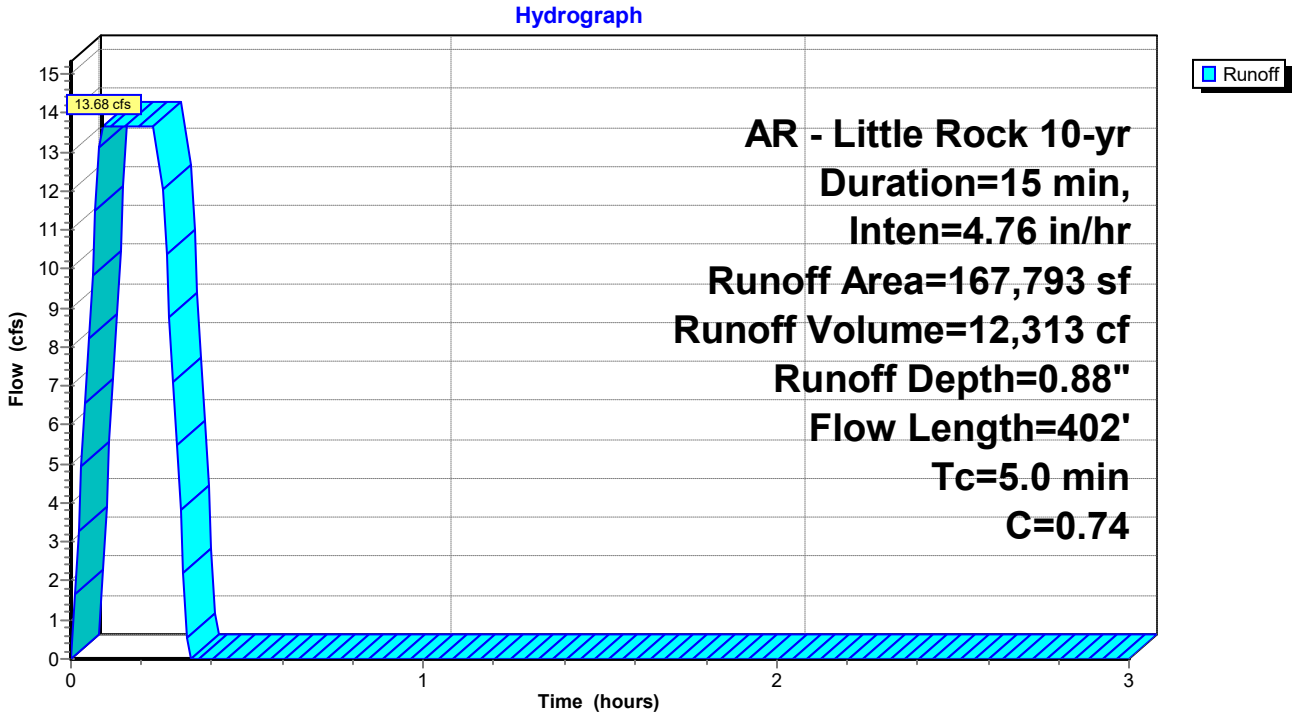
Runoff = 13.68 cfs @ 0.09 hrs, Volume= 12,313 cf, Depth= 0.88"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

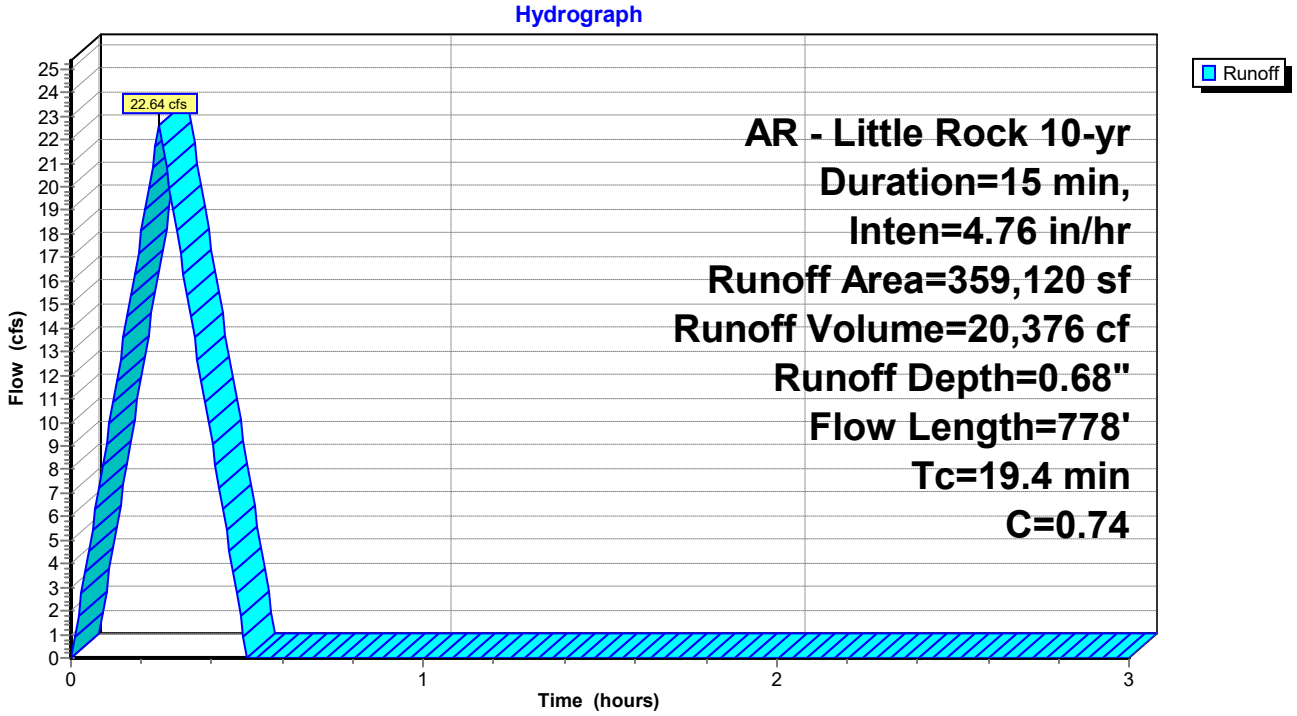
Runoff = 22.64 cfs @ 0.25 hrs, Volume= 20,376 cf, Depth= 0.68"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

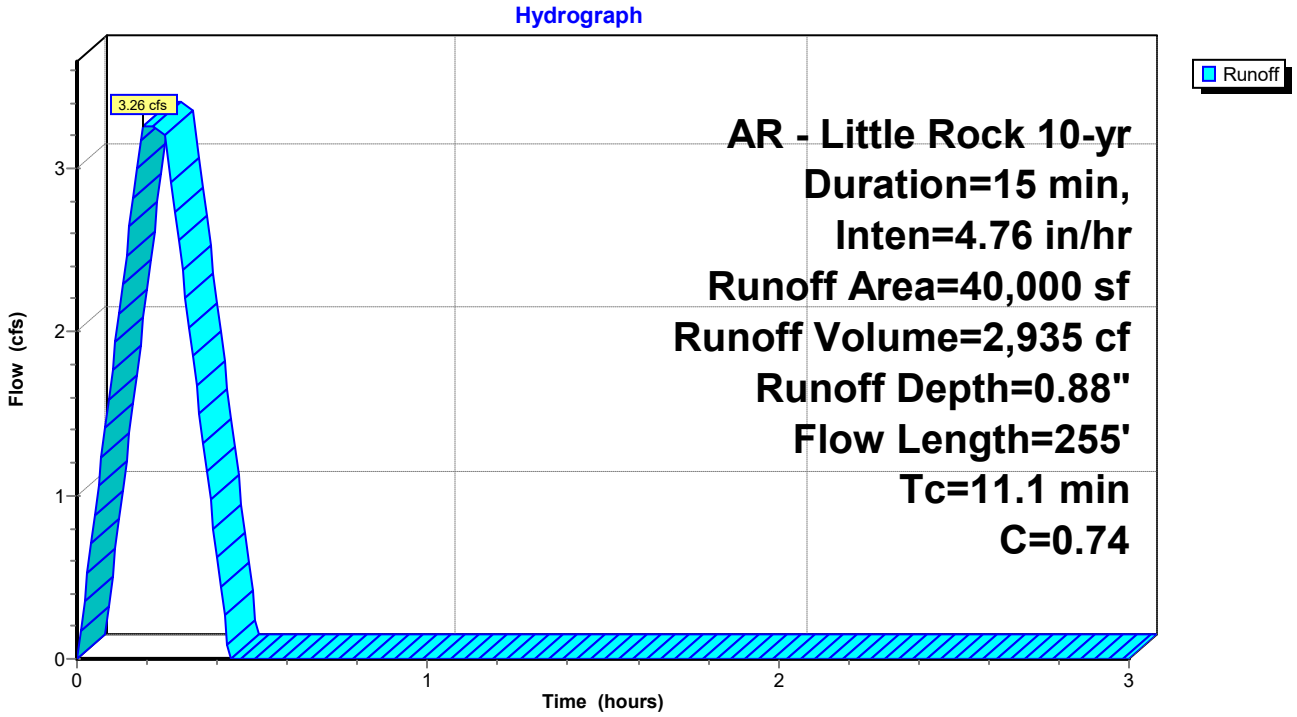
Runoff = 3.26 cfs @ 0.19 hrs, Volume= 2,935 cf, Depth= 0.88"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

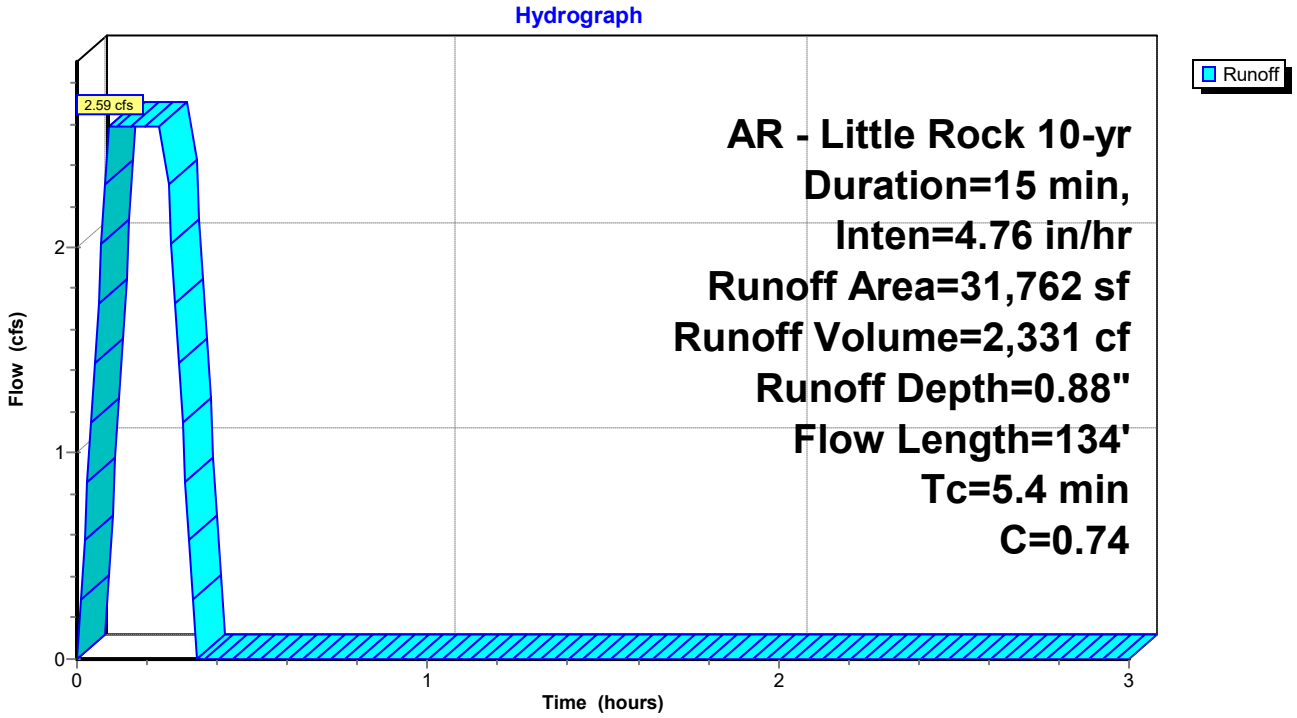
Runoff = 2.59 cfs @ 0.09 hrs, Volume= 2,331 cf, Depth= 0.88"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

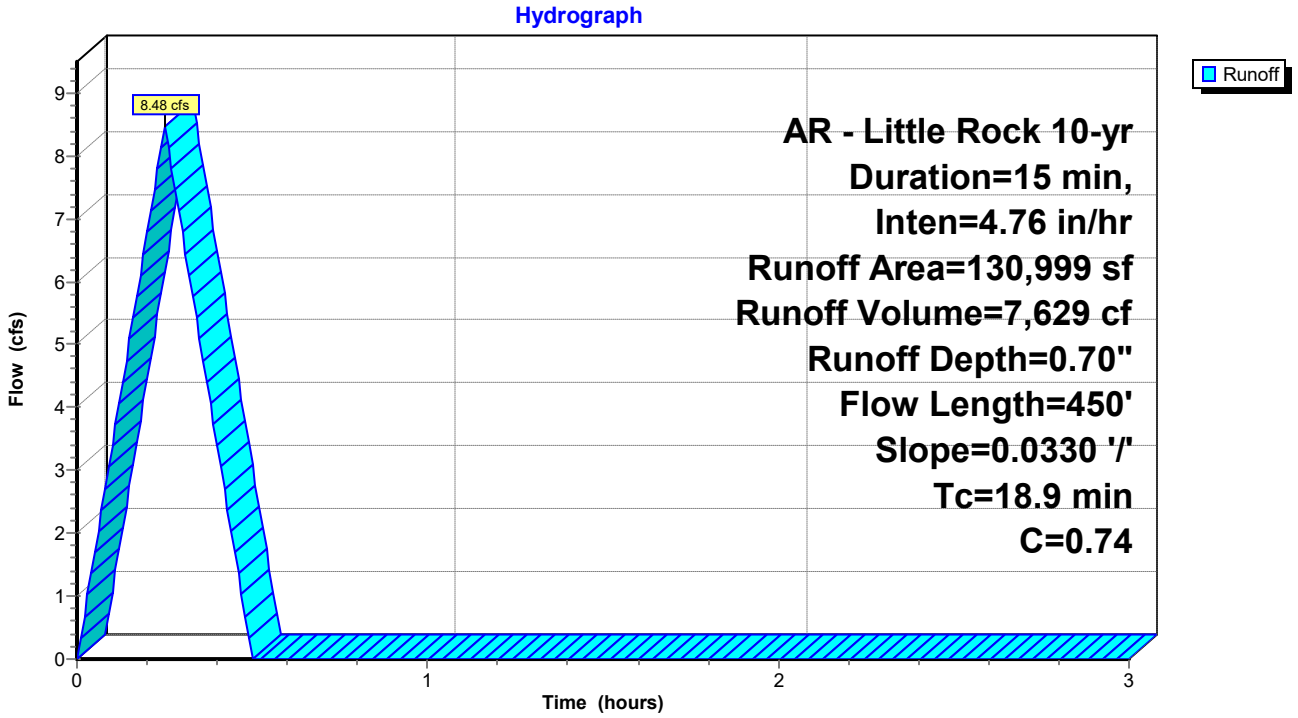
Runoff = 8.48 cfs @ 0.25 hrs, Volume= 7,629 cf, Depth= 0.70"
Routed to Link Pre : Pre Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

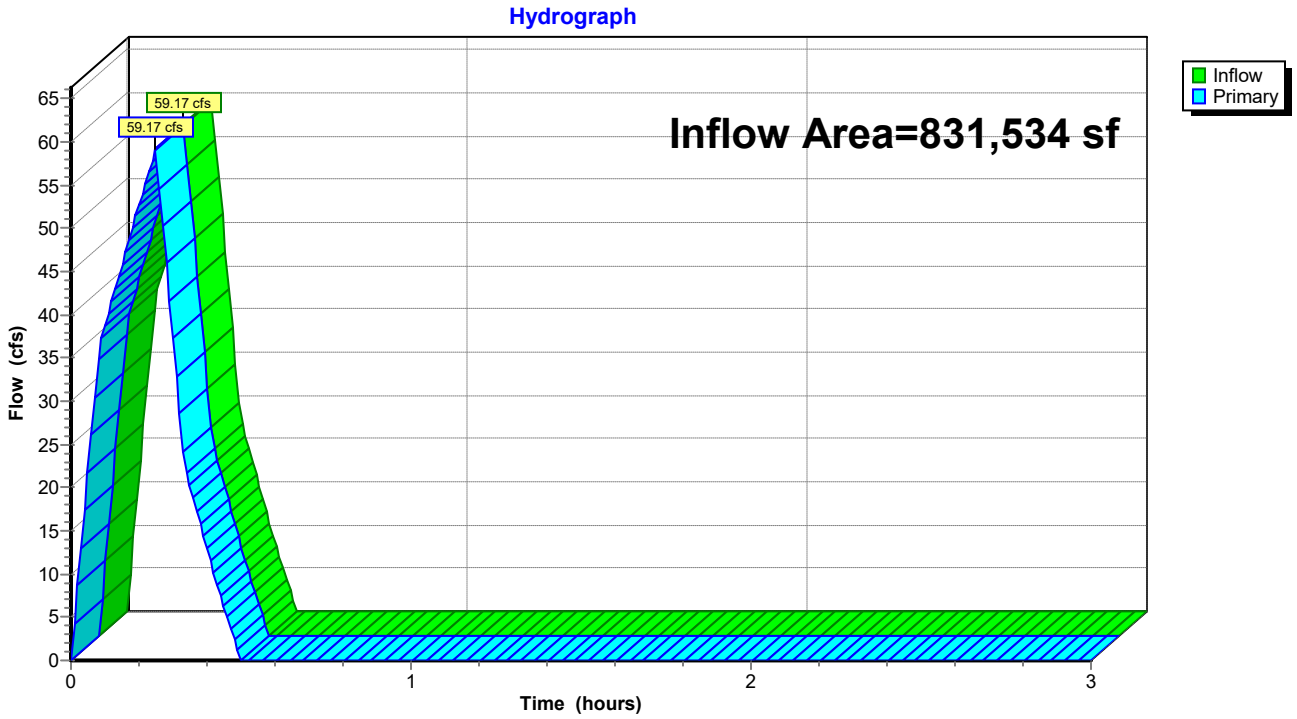


Summary for Link Pre: Pre Development

Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 0.77" for 10-yr event
Inflow = 59.17 cfs @ 0.25 hrs, Volume= 53,060 cf
Primary = 59.17 cfs @ 0.25 hrs, Volume= 53,060 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



Summary for Subcatchment DB-A1: Drainage Basin A1

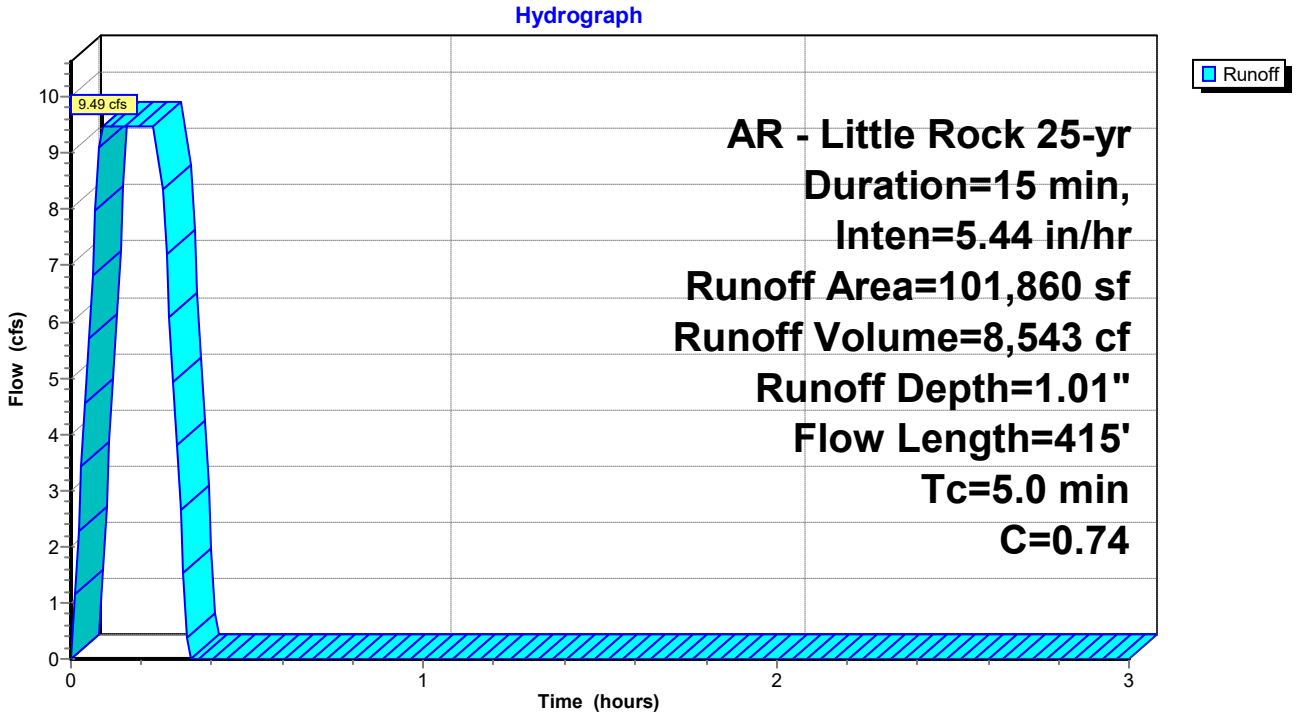
Runoff = 9.49 cfs @ 0.09 hrs, Volume= 8,543 cf, Depth= 1.01"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

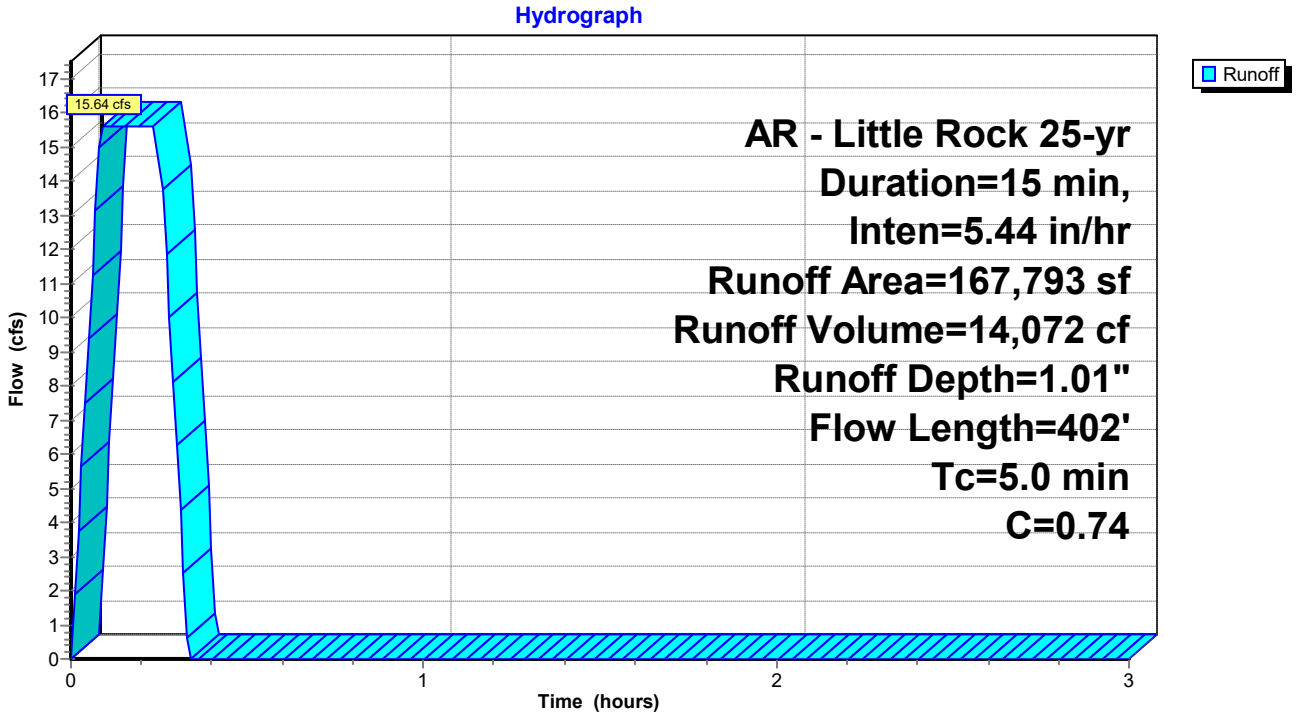
Runoff = 15.64 cfs @ 0.09 hrs, Volume= 14,072 cf, Depth= 1.01"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

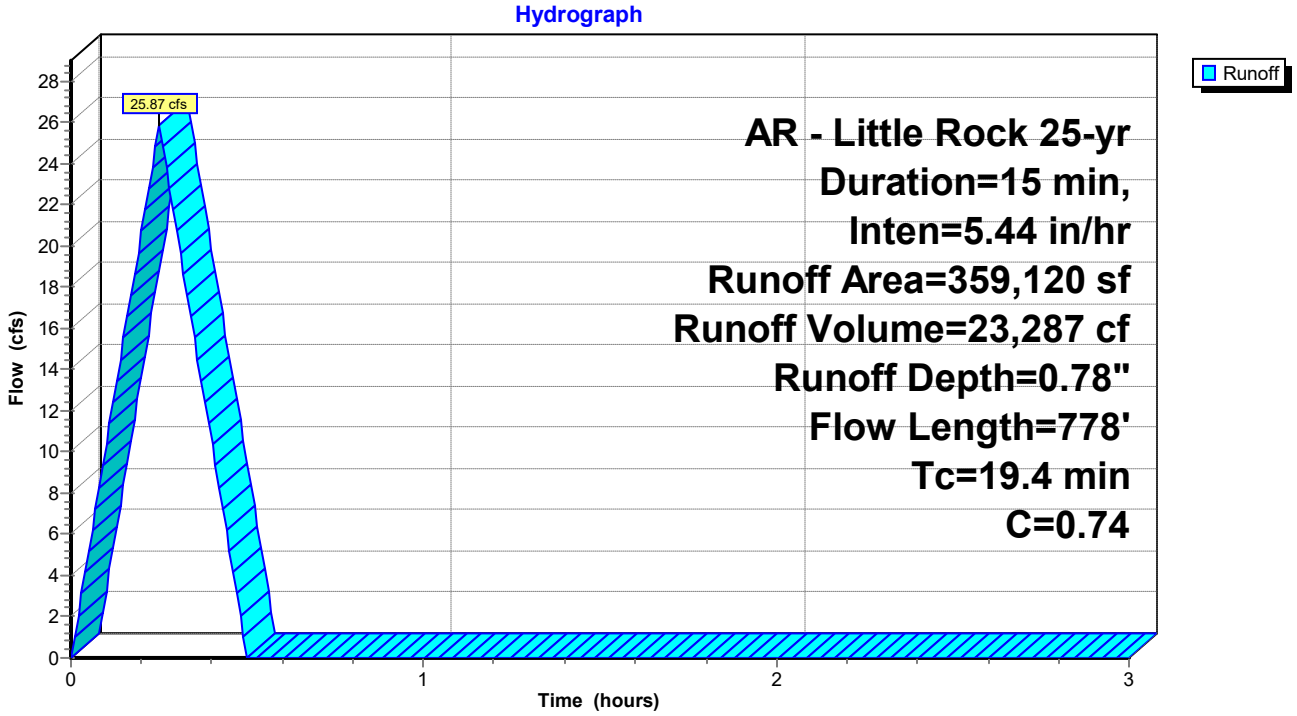
Runoff = 25.87 cfs @ 0.25 hrs, Volume= 23,287 cf, Depth= 0.78"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

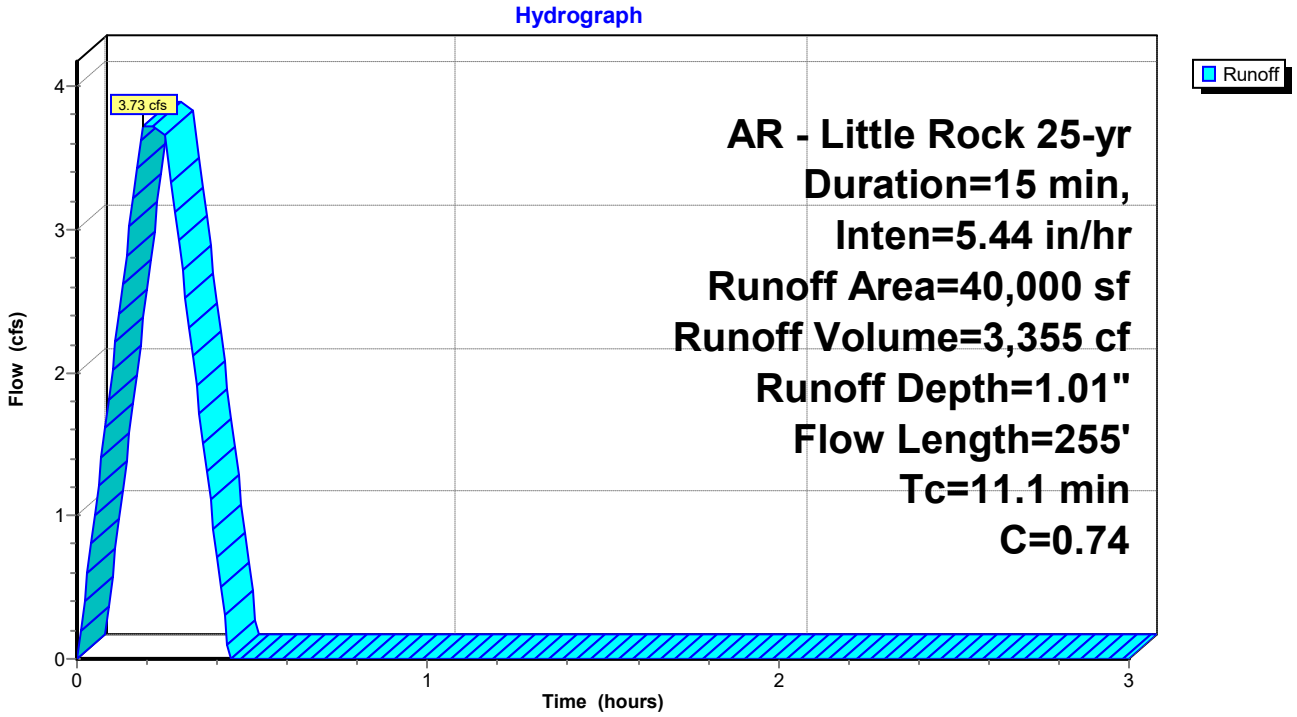
Runoff = 3.73 cfs @ 0.19 hrs, Volume= 3,355 cf, Depth= 1.01"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

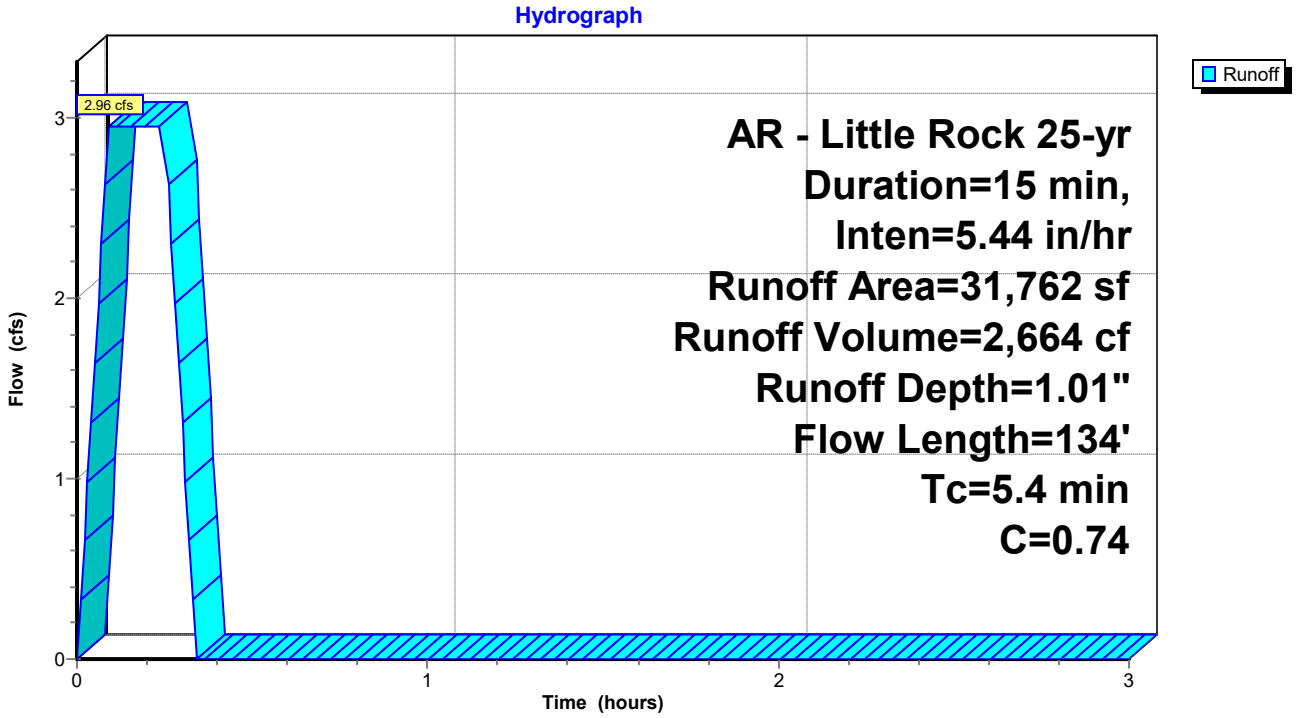
Runoff = 2.96 cfs @ 0.09 hrs, Volume= 2,664 cf, Depth= 1.01"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

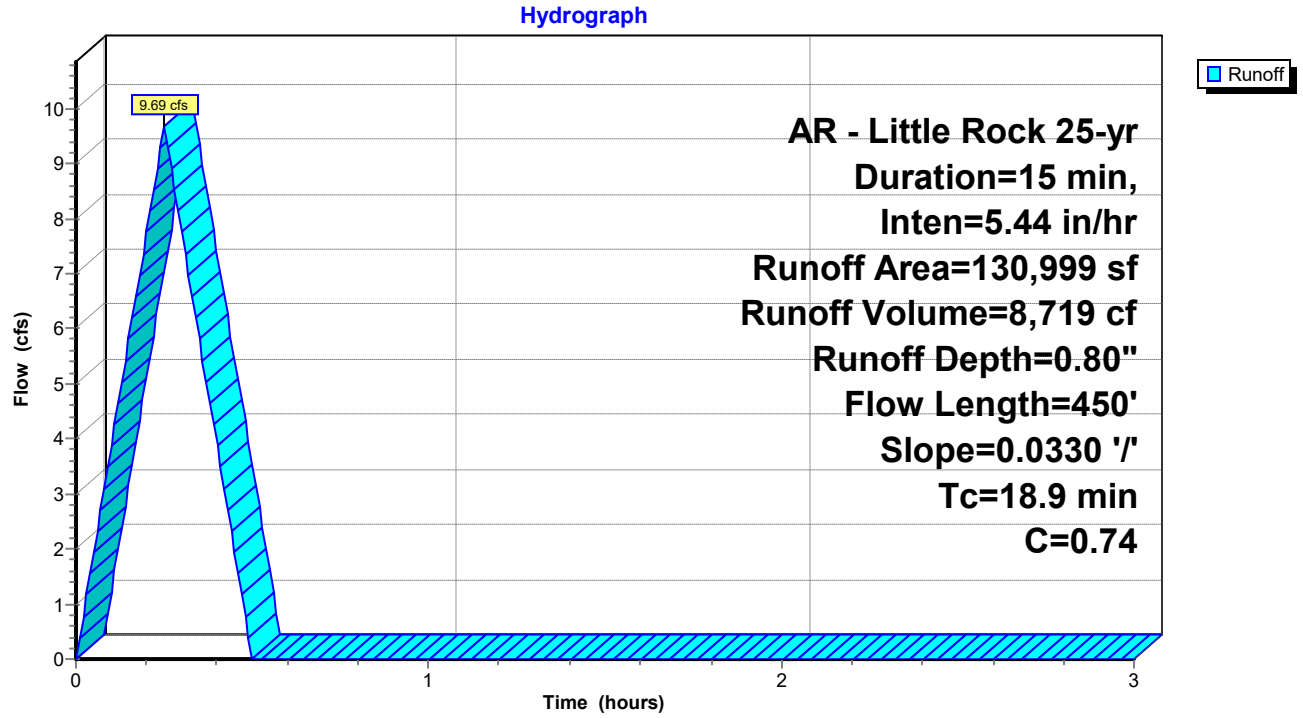
Runoff = 9.69 cfs @ 0.25 hrs, Volume= 8,719 cf, Depth= 0.80"
Routed to Link Pre : Pre Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

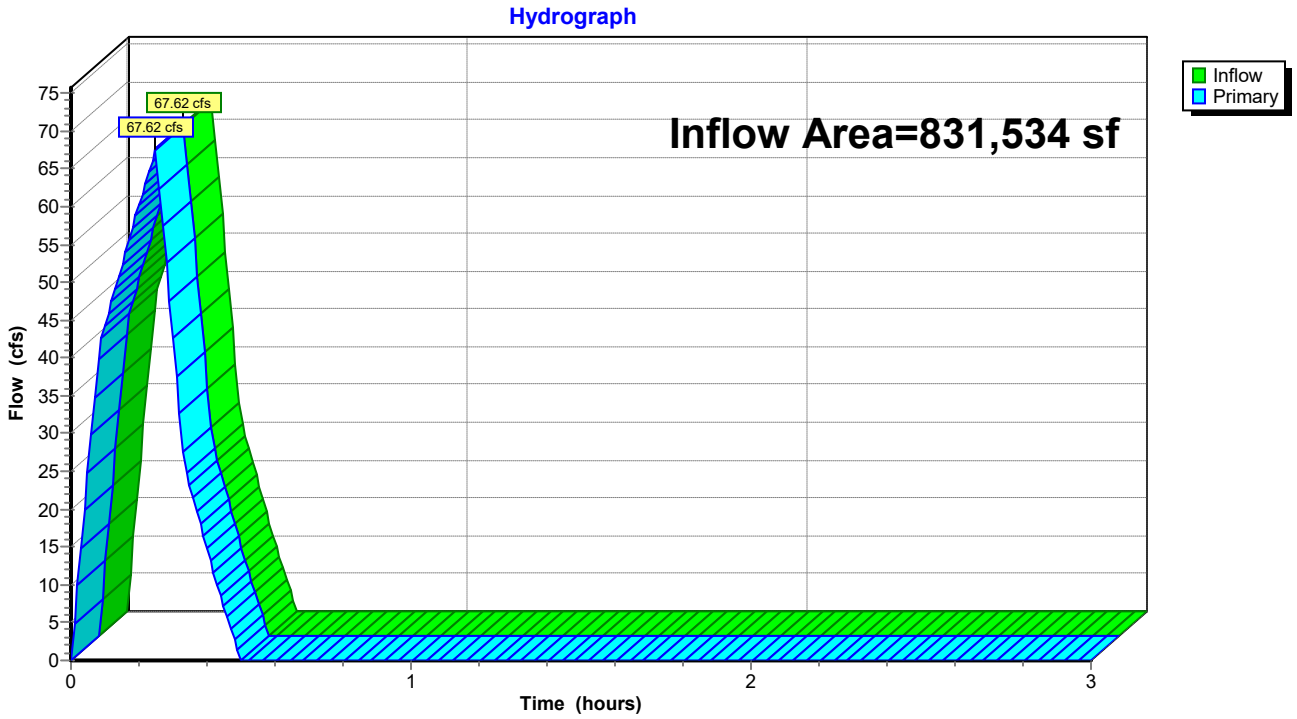


Summary for Link Pre: Pre Development

Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 0.88" for 25-yr event
Inflow = 67.62 cfs @ 0.25 hrs, Volume= 60,640 cf
Primary = 67.62 cfs @ 0.25 hrs, Volume= 60,640 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



Summary for Subcatchment DB-A1: Drainage Basin A1

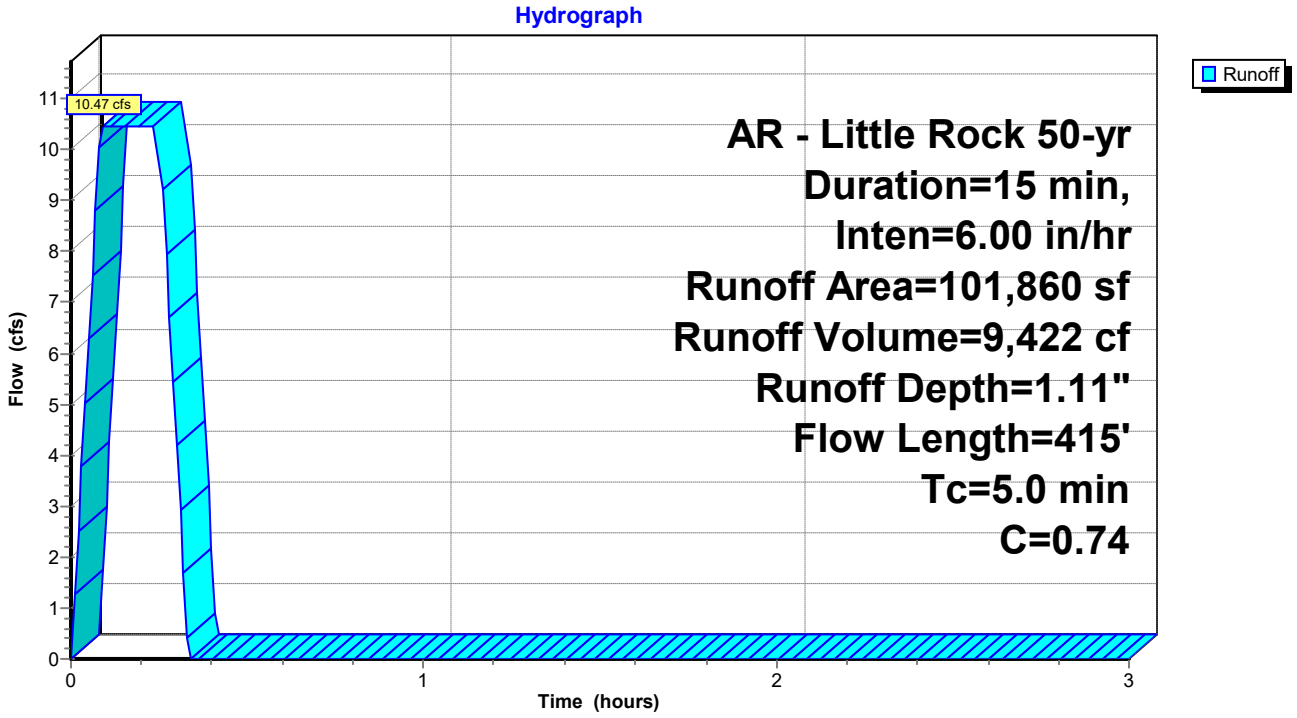
Runoff = 10.47 cfs @ 0.09 hrs, Volume= 9,422 cf, Depth= 1.11"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

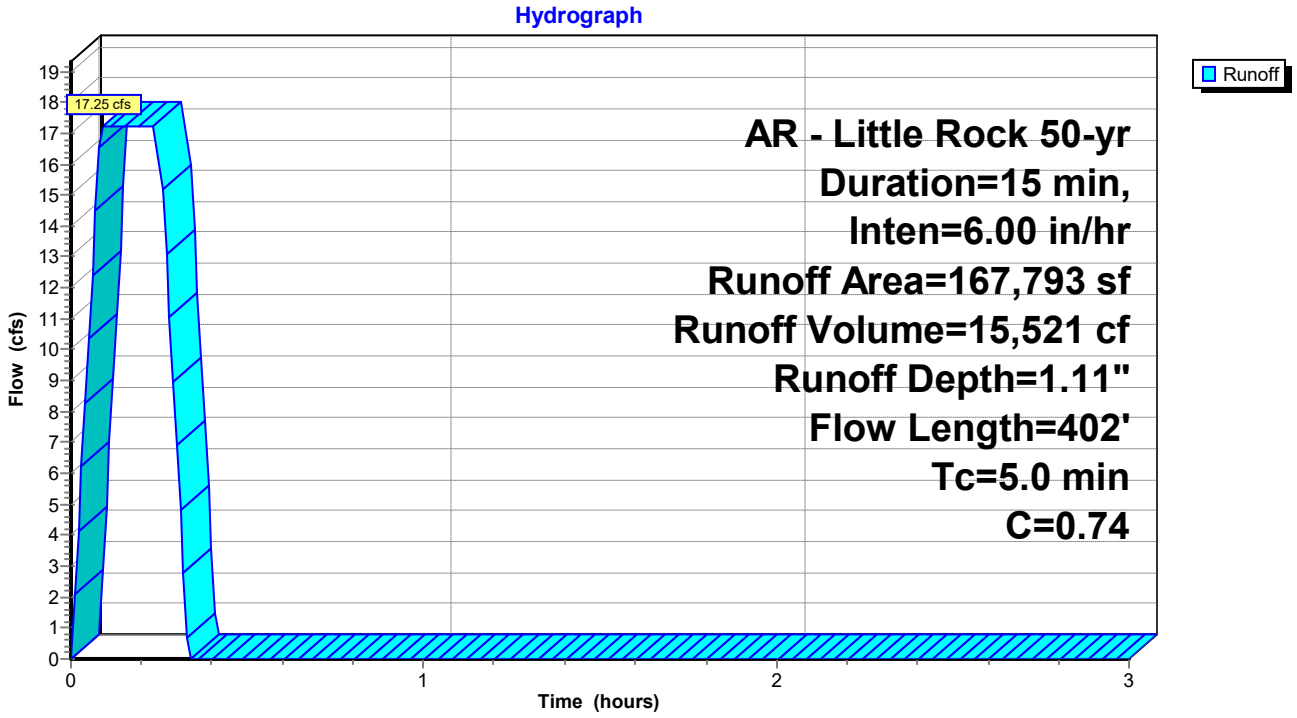
Runoff = 17.25 cfs @ 0.09 hrs, Volume= 15,521 cf, Depth= 1.11"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

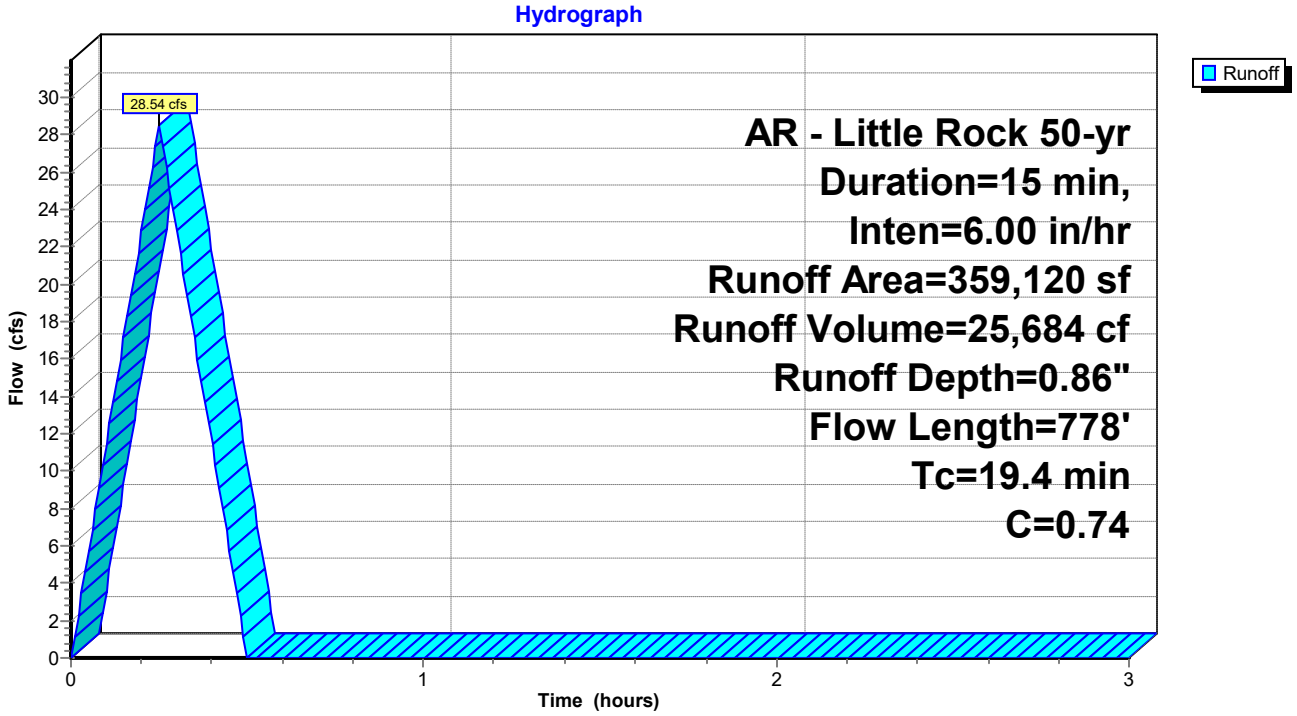
Runoff = 28.54 cfs @ 0.25 hrs, Volume= 25,684 cf, Depth= 0.86"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

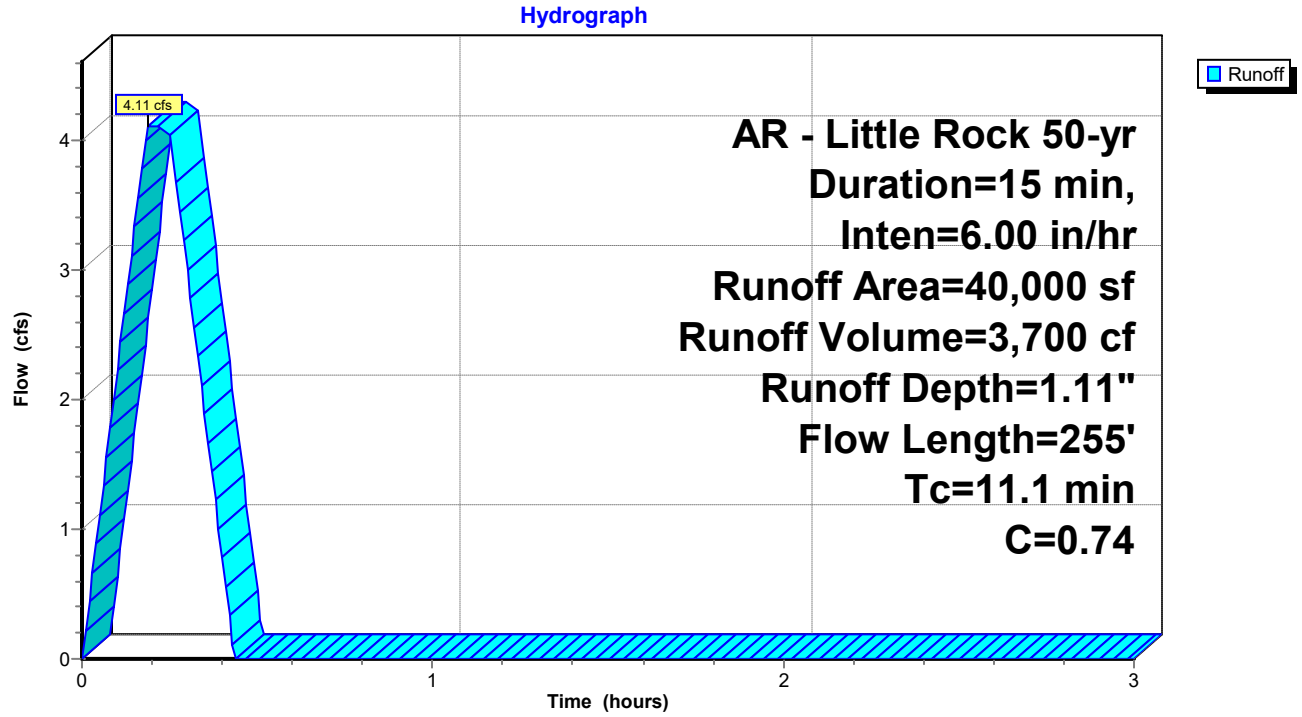
Runoff = 4.11 cfs @ 0.19 hrs, Volume= 3,700 cf, Depth= 1.11"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

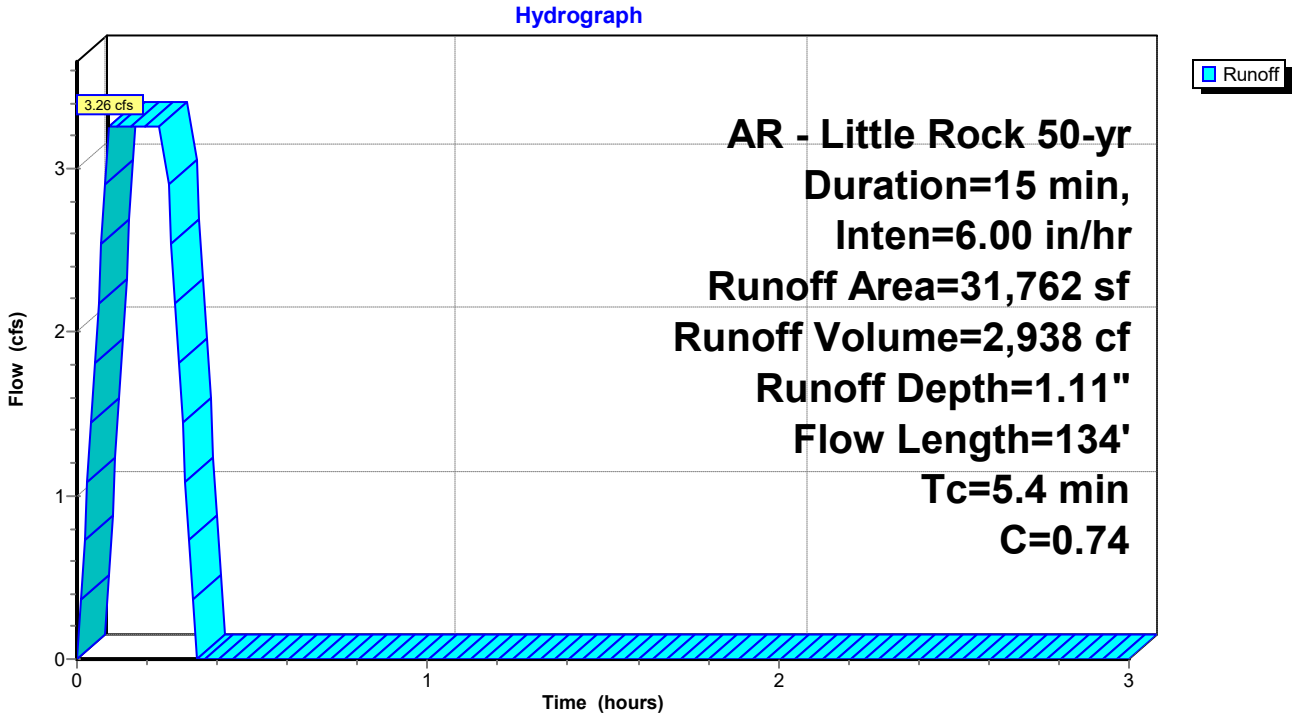
Runoff = 3.26 cfs @ 0.09 hrs, Volume= 2,938 cf, Depth= 1.11"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

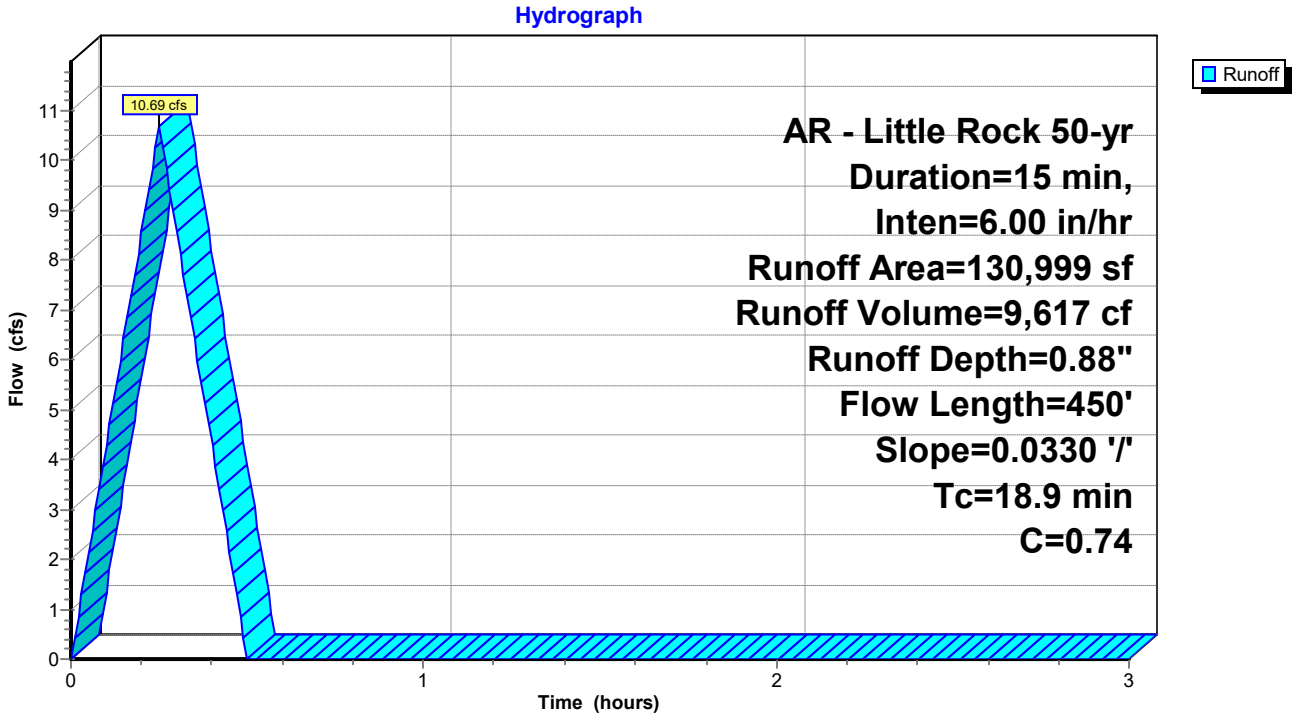
Runoff = 10.69 cfs @ 0.25 hrs, Volume= 9,617 cf, Depth= 0.88"
Routed to Link Pre : Pre Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

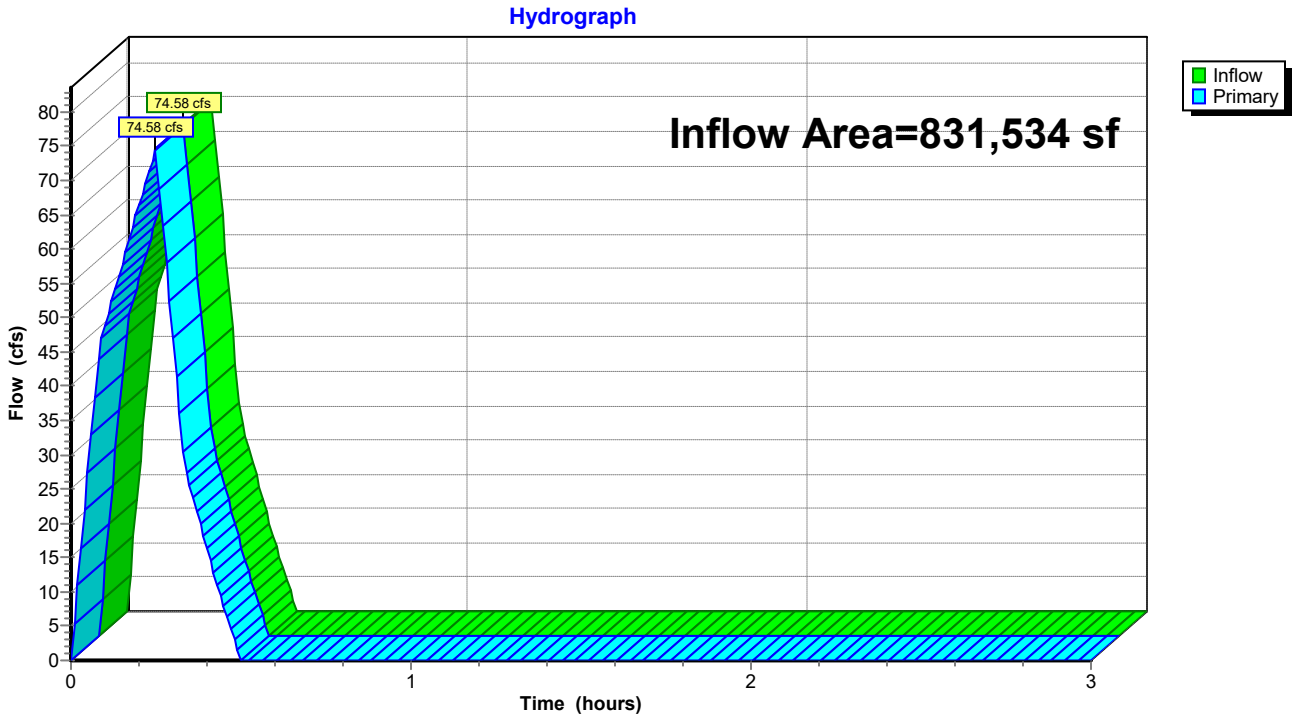


Summary for Link Pre: Pre Development

Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 0.97" for 50-yr event
Inflow = 74.58 cfs @ 0.25 hrs, Volume= 66,882 cf
Primary = 74.58 cfs @ 0.25 hrs, Volume= 66,882 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



Summary for Subcatchment DB-A1: Drainage Basin A1

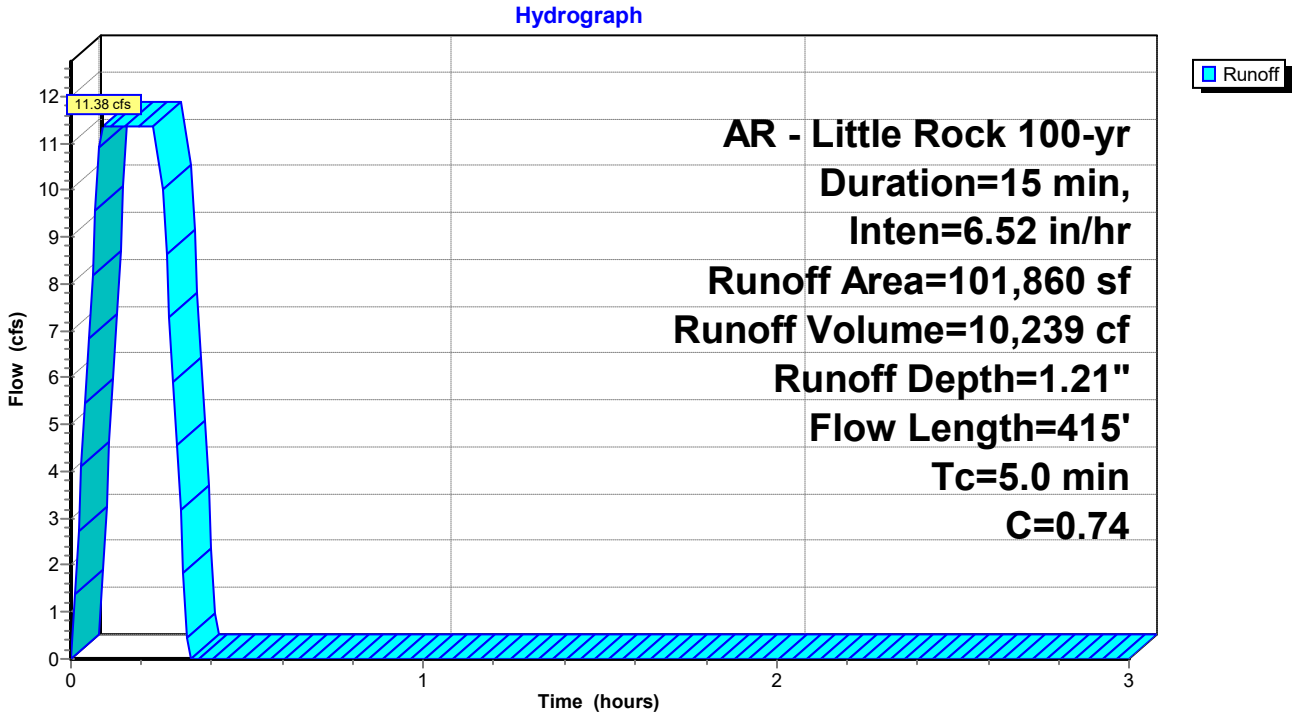
Runoff = 11.38 cfs @ 0.09 hrs, Volume= 10,239 cf, Depth= 1.21"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
101,860	0.74	
101,860		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	415		1.38		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A1: Drainage Basin A1



Summary for Subcatchment DB-A2: Drainage Basin A2

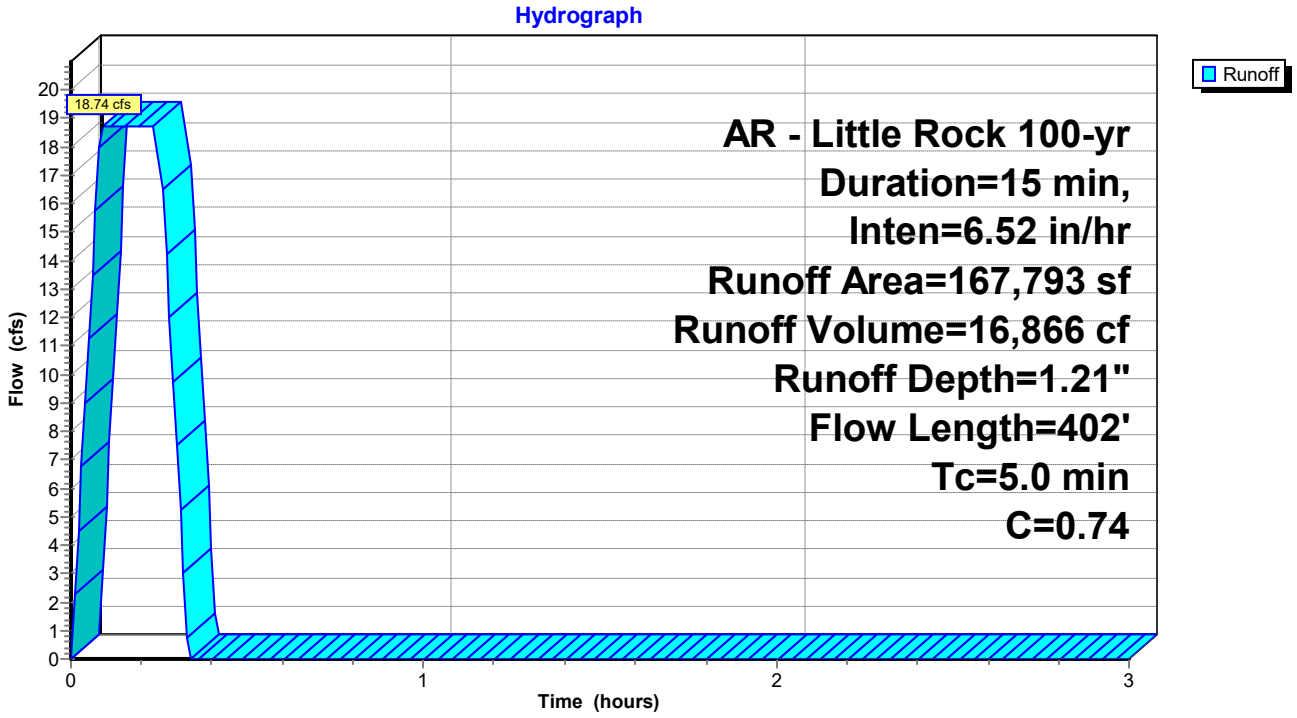
Runoff = 18.74 cfs @ 0.09 hrs, Volume= 16,866 cf, Depth= 1.21"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
167,793	0.74	
167,793		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	402		1.34		**Direct Entry, Overland Concentrated Flow (Min)**

Subcatchment DB-A2: Drainage Basin A2



Summary for Subcatchment DB-A3: Drainage Basin A3

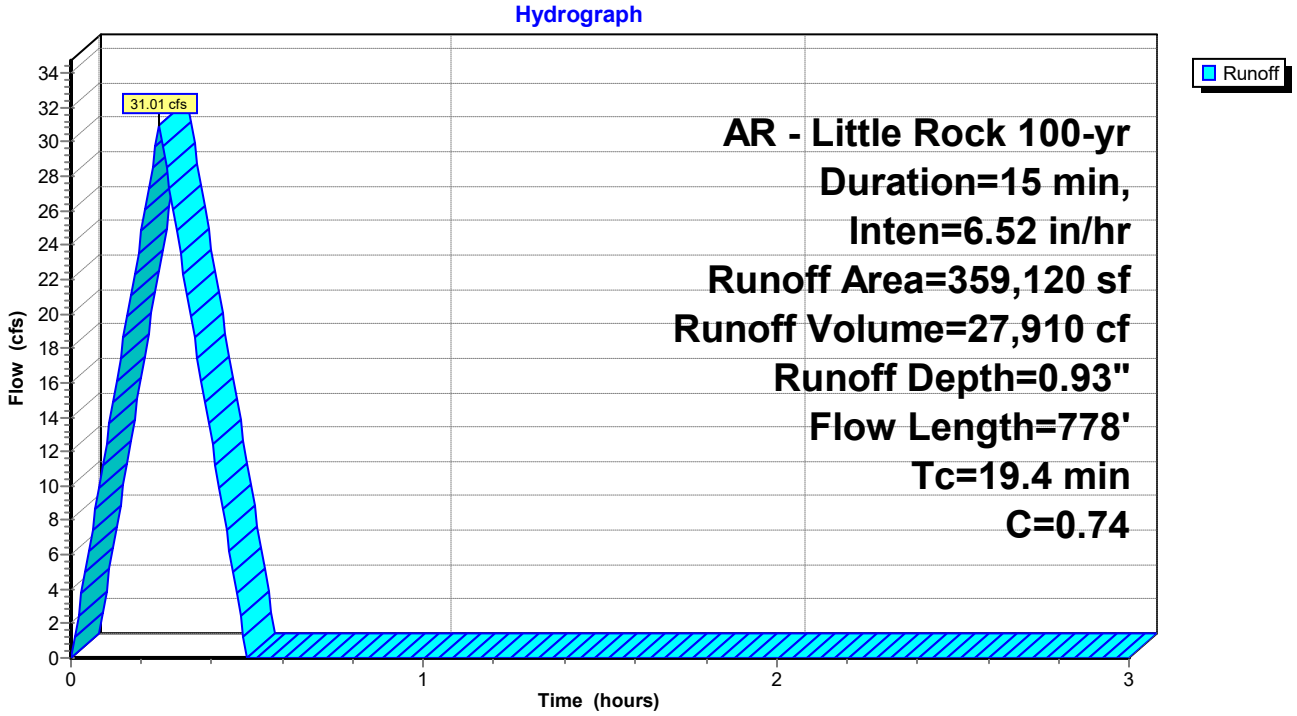
Runoff = 31.01 cfs @ 0.25 hrs, Volume= 27,910 cf, Depth= 0.93"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
359,120	0.74	
359,120		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.7	300	0.0420	0.37		**Sheet Flow, Overland Sheet Flow** Range n= 0.130 P2= 4.19"
1.2	103	0.0430	1.45		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
1.7	150	0.0460	1.50		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
2.8	225	0.0360	1.33		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
19.4	778	Total			

Subcatchment DB-A3: Drainage Basin A3



Summary for Subcatchment DB-A4: Drainage Basin A4

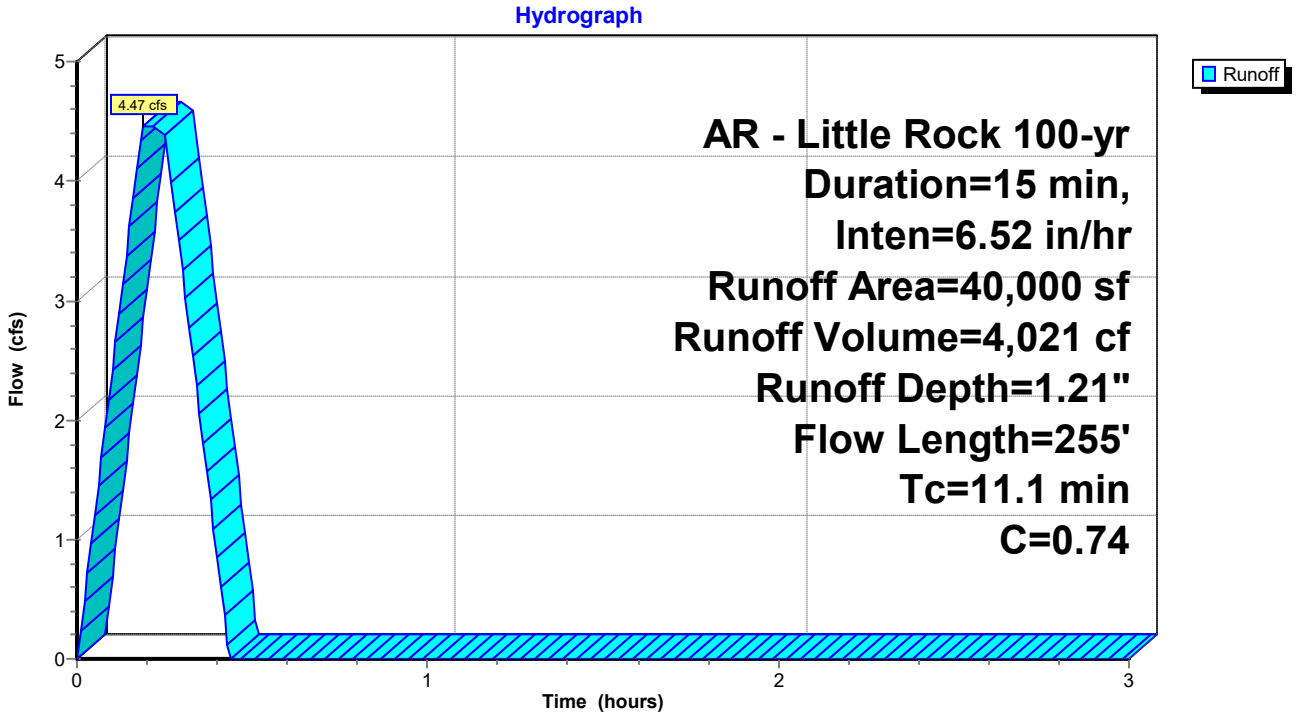
Runoff = 4.47 cfs @ 0.19 hrs, Volume= 4,021 cf, Depth= 1.21"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
40,000	0.74	
40,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.8	50	0.0390	0.22		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
6.4	114	0.0530	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.9	91	0.0600	1.71		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
11.1	255	Total			

Subcatchment DB-A4: Drainage Basin A4



Summary for Subcatchment DB-A5: Drainage Basin A5

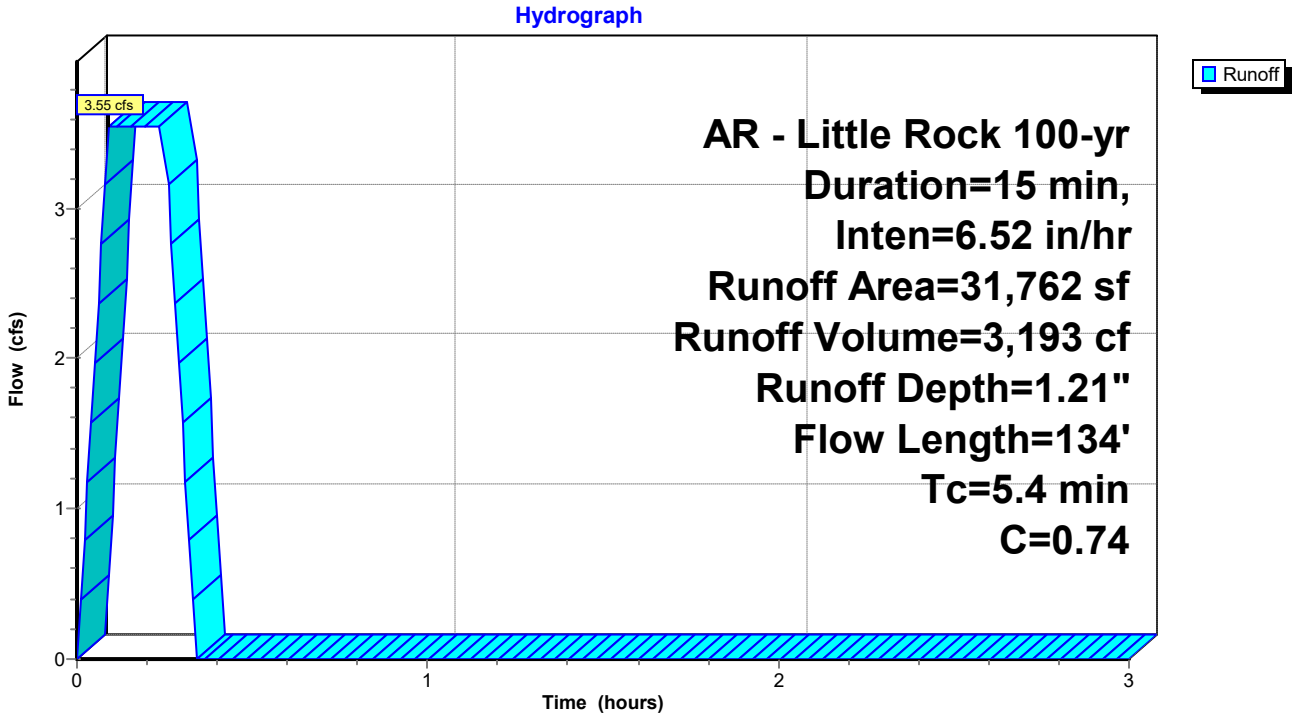
Runoff = 3.55 cfs @ 0.09 hrs, Volume= 3,193 cf, Depth= 1.21"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
31,762	0.74	
31,762		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	111	0.0850	0.35		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.2	23	0.0680	1.91		**Sheet Flow, Overland Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
5.4	134	Total			

Subcatchment DB-A5: Drainage Basin A5



Summary for Subcatchment DB-A6: Drainage Basin A6

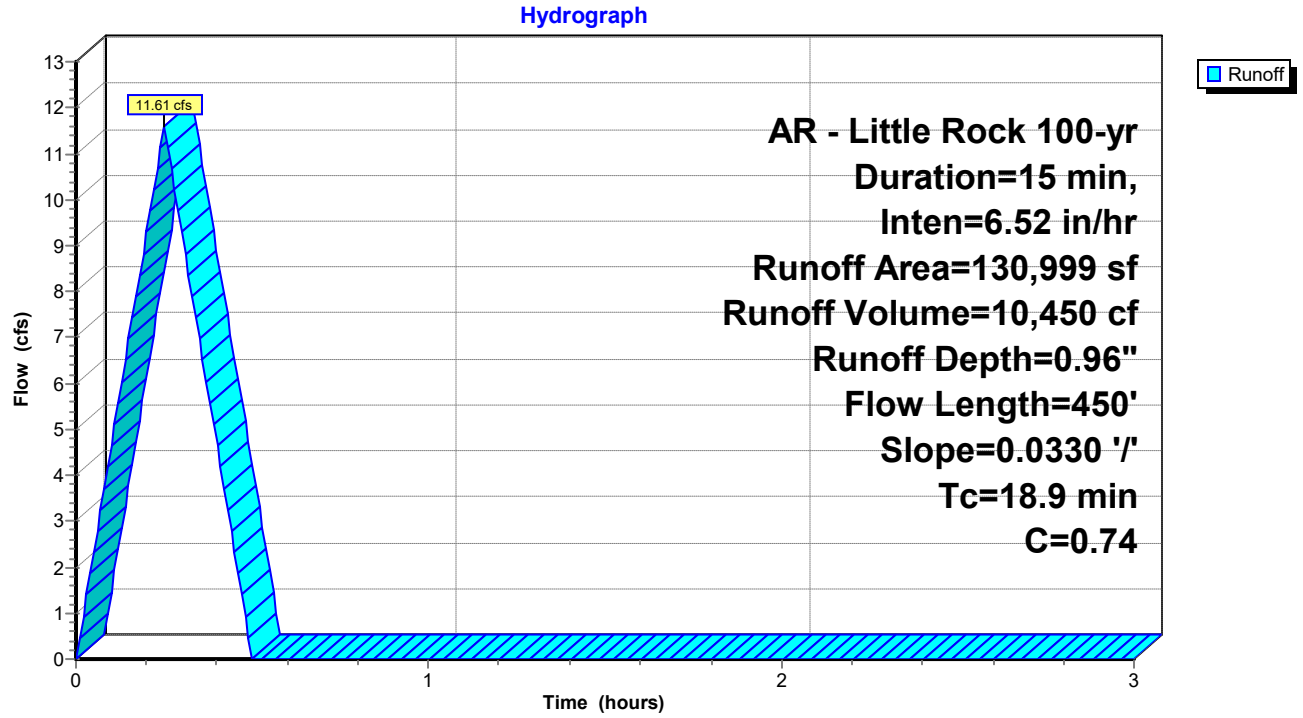
Runoff = 11.61 cfs @ 0.25 hrs, Volume= 10,450 cf, Depth= 0.96"
Routed to Link Pre : Pre Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
130,999	0.74	
130,999		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
16.9	300	0.0330	0.30		**Sheet Flow, Overland Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	150	0.0330	1.27		**Shallow Concentrated Flow, Overland Concentrated Flow** Short Grass Pasture Kv= 7.0 fps
18.9	450	Total			

Subcatchment DB-A6: Drainage Basin A6

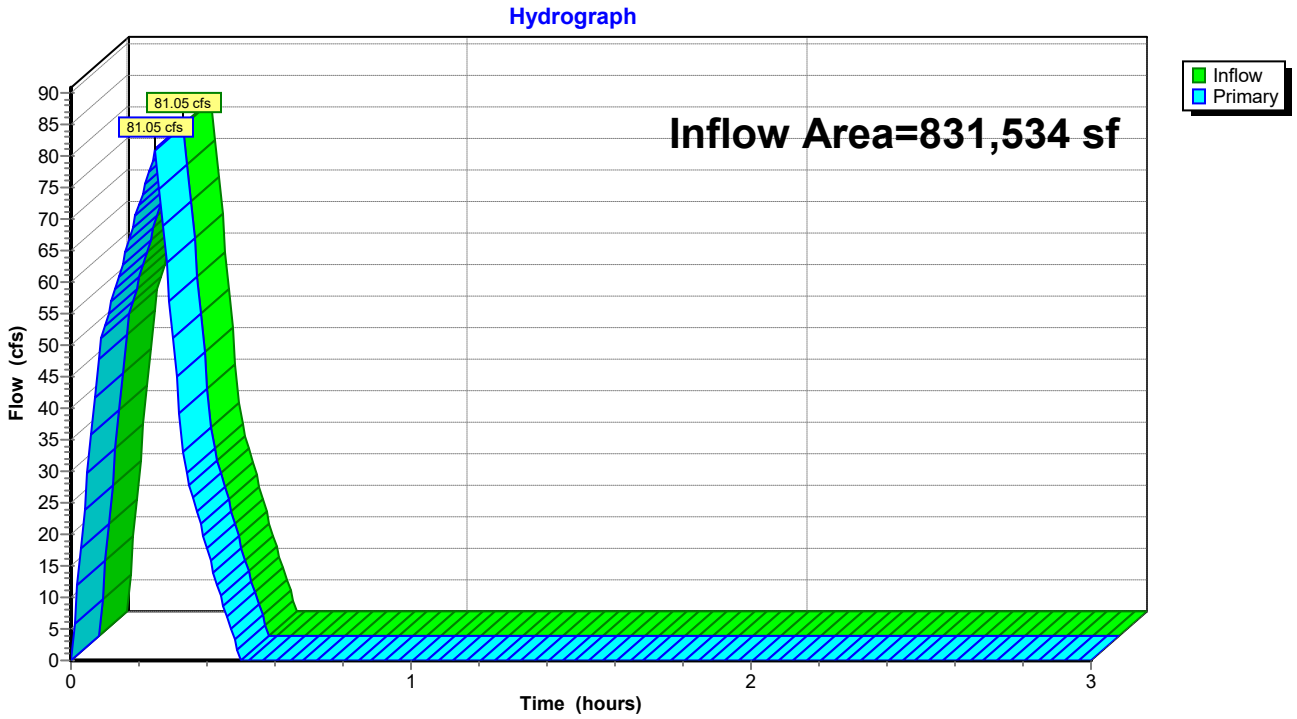


Summary for Link Pre: Pre Development

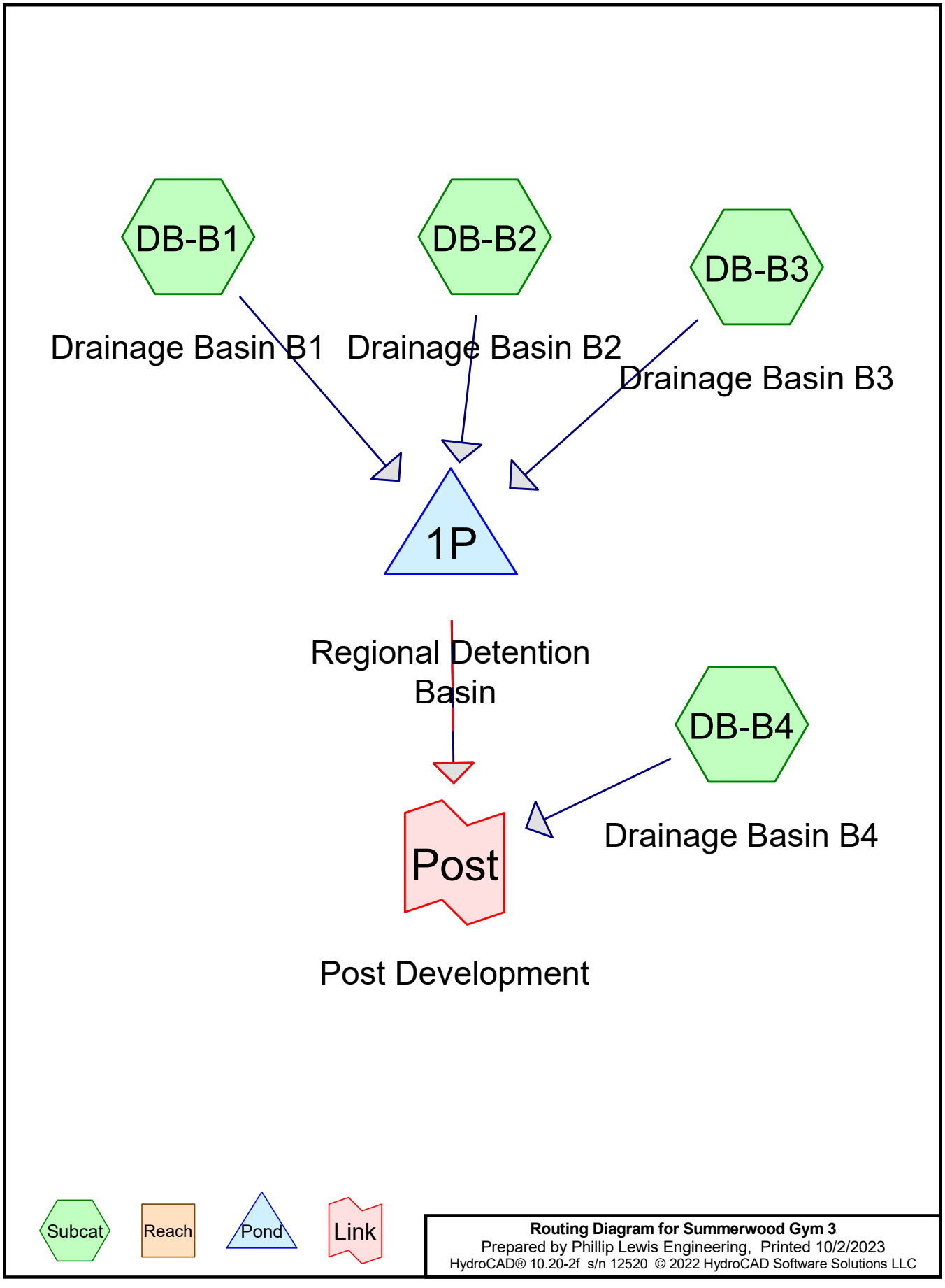
Inflow Area = 831,534 sf, 0.00% Impervious, Inflow Depth = 1.05" for 100-yr event
Inflow = 81.05 cfs @ 0.25 hrs, Volume= 72,679 cf
Primary = 81.05 cfs @ 0.25 hrs, Volume= 72,679 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre: Pre Development



POST-DEVELOPMENT HYDROGRAPHS



Routing Diagram for Summerwood Gym 3
Prepared by Phillip Lewis Engineering, Printed 10/2/2023

Summary for Subcatchment DB-B1: Drainage Basin B1

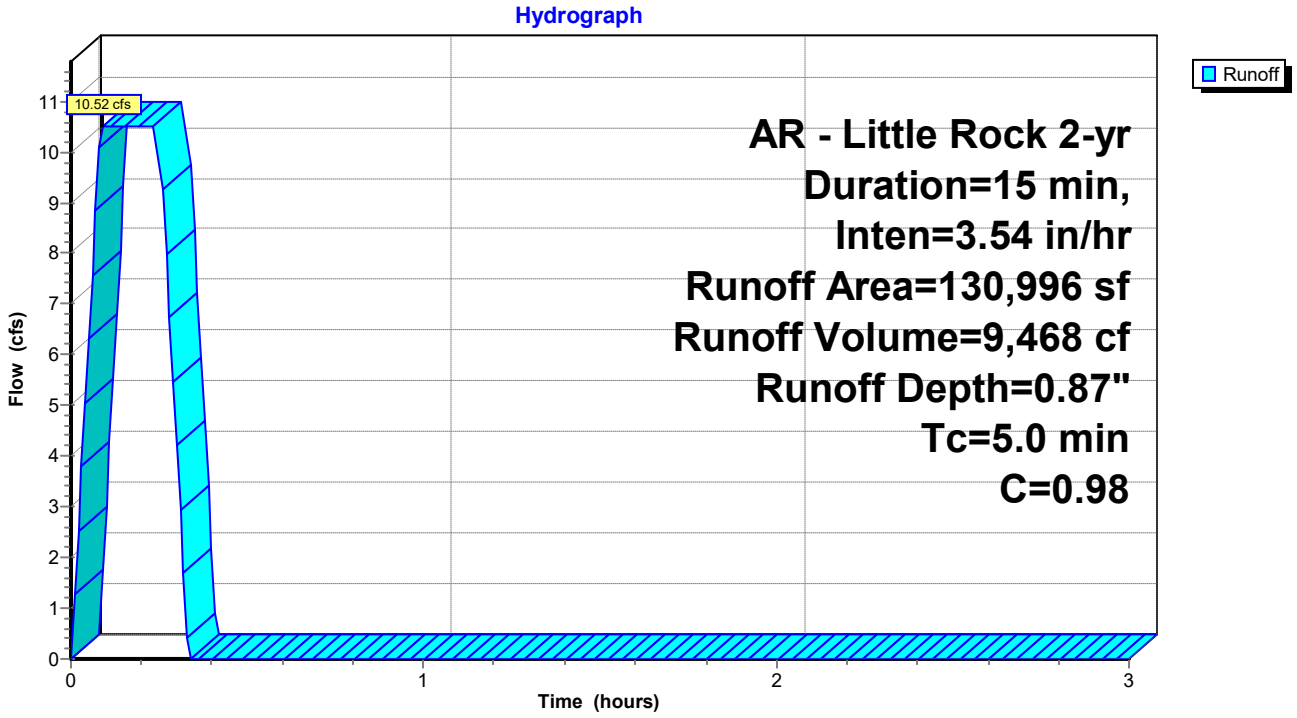
Runoff = 10.52 cfs @ 0.09 hrs, Volume= 9,468 cf, Depth= 0.87"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

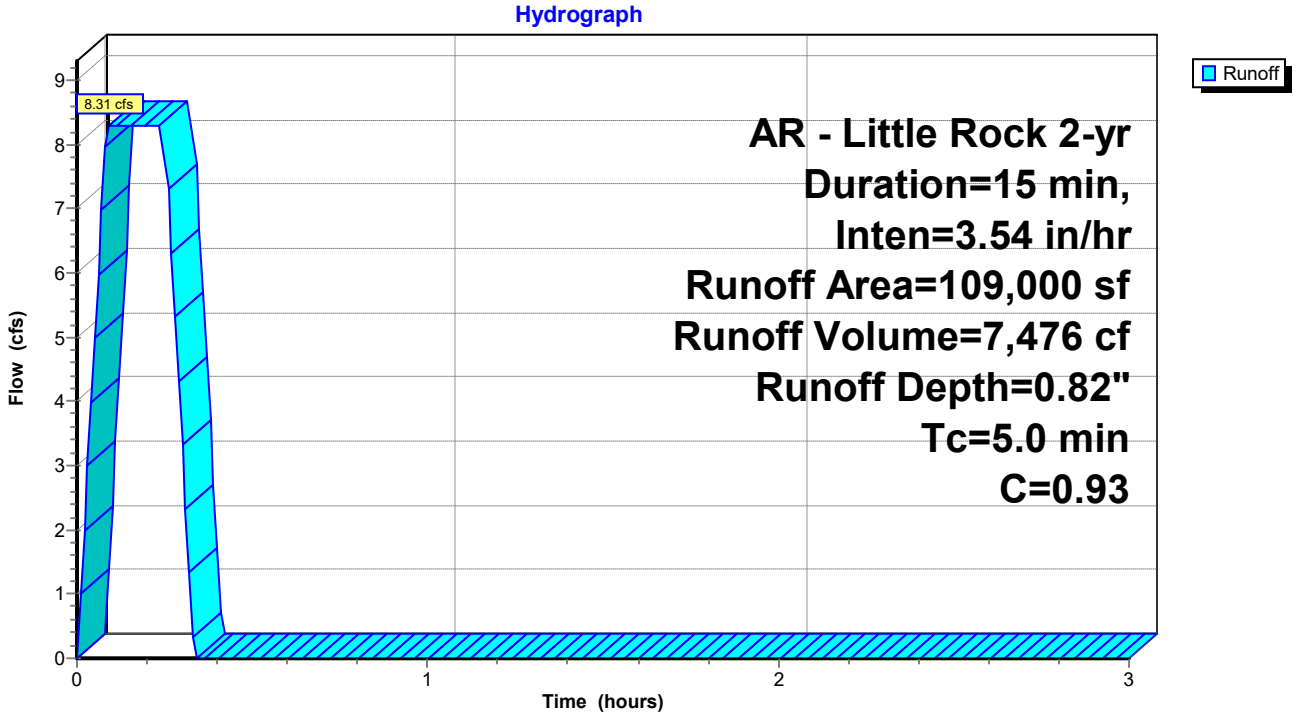
Runoff = 8.31 cfs @ 0.09 hrs, Volume= 7,476 cf, Depth= 0.82"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

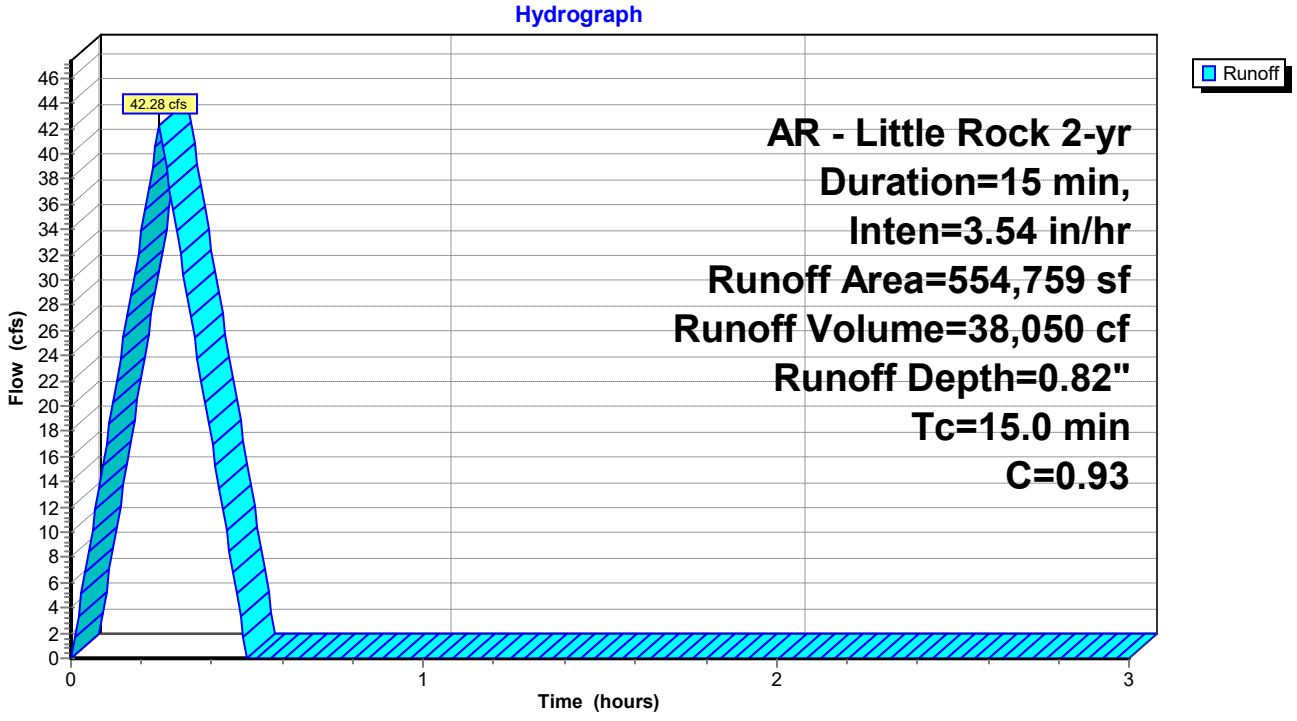
Runoff = 42.28 cfs @ 0.25 hrs, Volume= 38,050 cf, Depth= 0.82"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

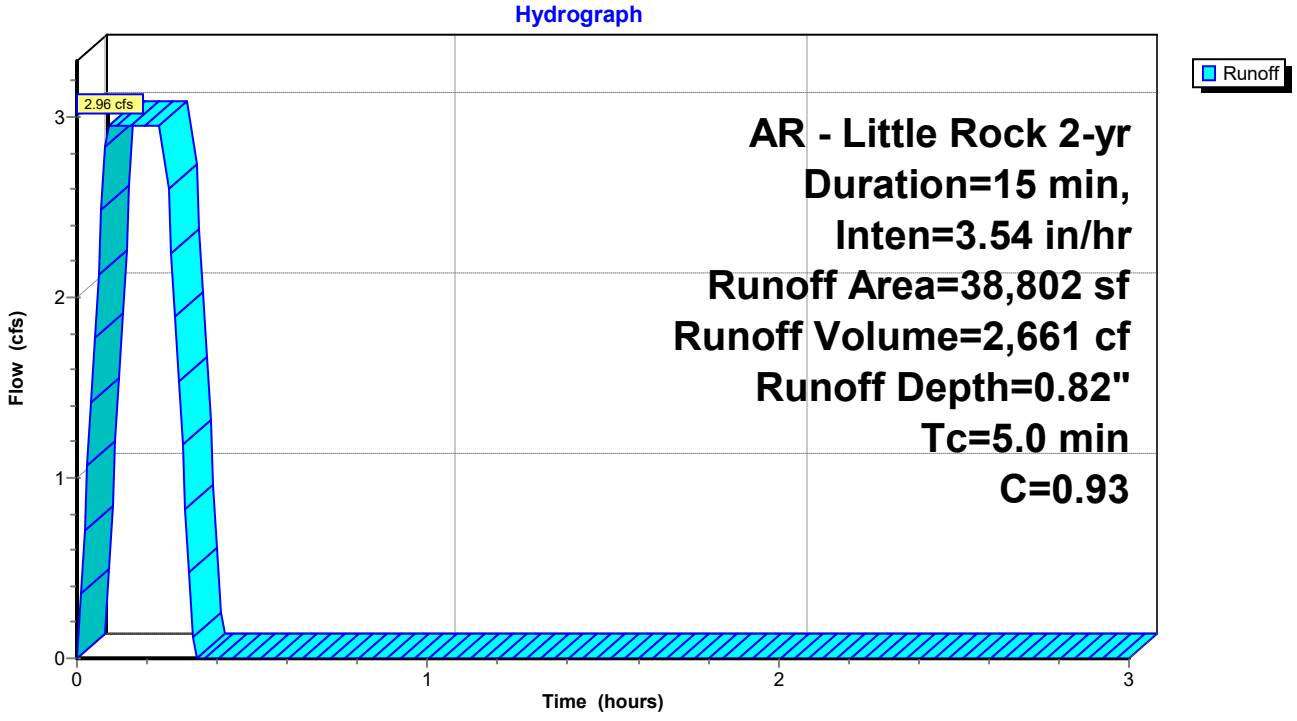
Runoff = 2.96 cfs @ 0.09 hrs, Volume= 2,661 cf, Depth= 0.82"
Routed to Link Post : Post Development

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=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 0.83" for 2-yr event
Inflow = 61.22 cfs @ 0.25 hrs, Volume= 54,993 cf
Outflow = 23.46 cfs @ 0.36 hrs, Volume= 51,539 cf, Atten= 62%, Lag= 6.8 min
Primary = 23.46 cfs @ 0.36 hrs, Volume= 51,539 cf
Routed to Link Post : Post Development
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 385.41' @ 0.36 hrs Storage= 33,126 cf

Plug-Flow detention time= 27.2 min calculated for 51,368 cf (93% of inflow)
Center-of-Mass det. time= 26.8 min (40.3 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

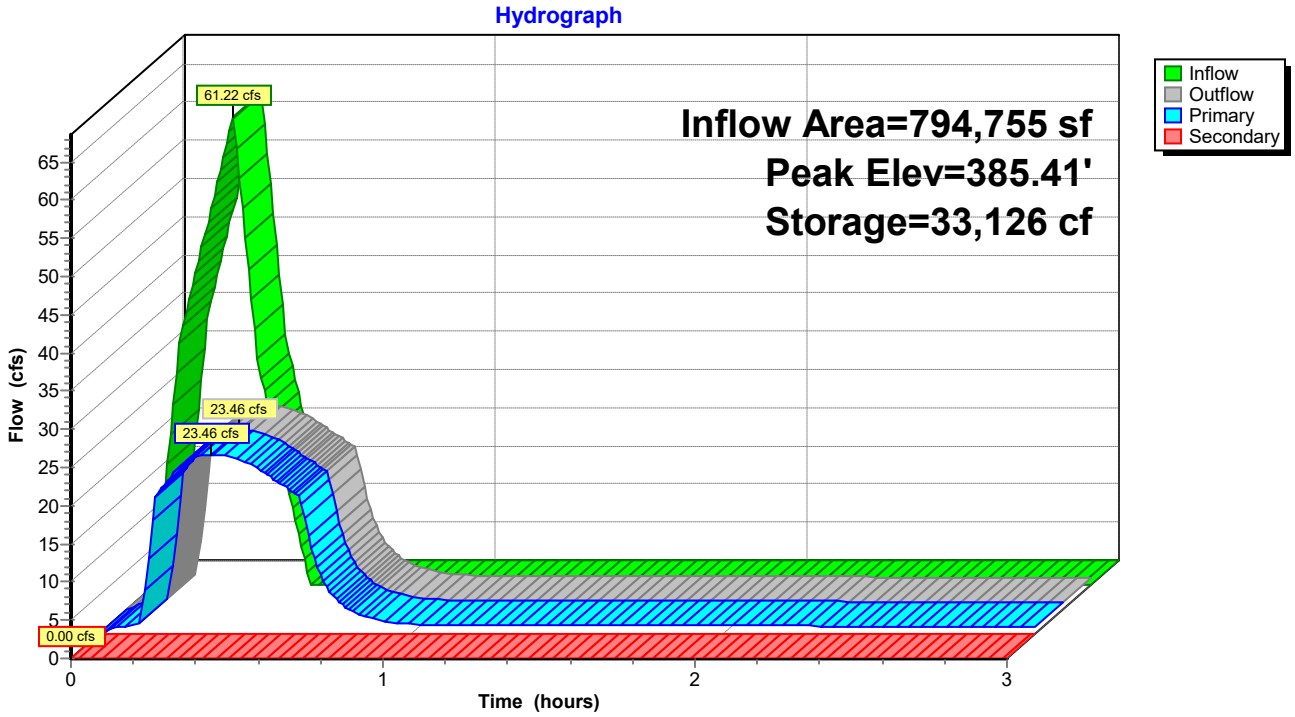
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

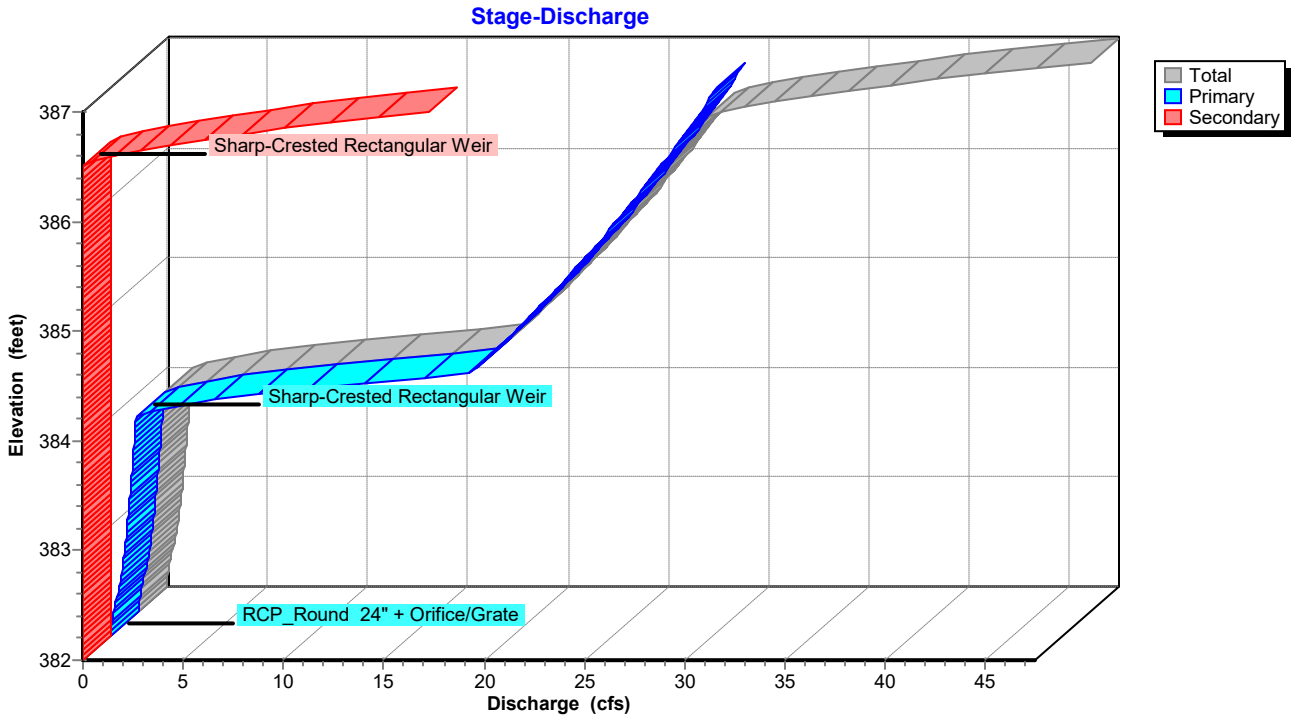
Primary OutFlow Max=23.46 cfs @ 0.36 hrs HW=385.41' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 23.46 cfs @ 7.47 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 133.85 cfs potential flow)
└**4=Orifice/Grate** (Passes < 1.68 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=382.00' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

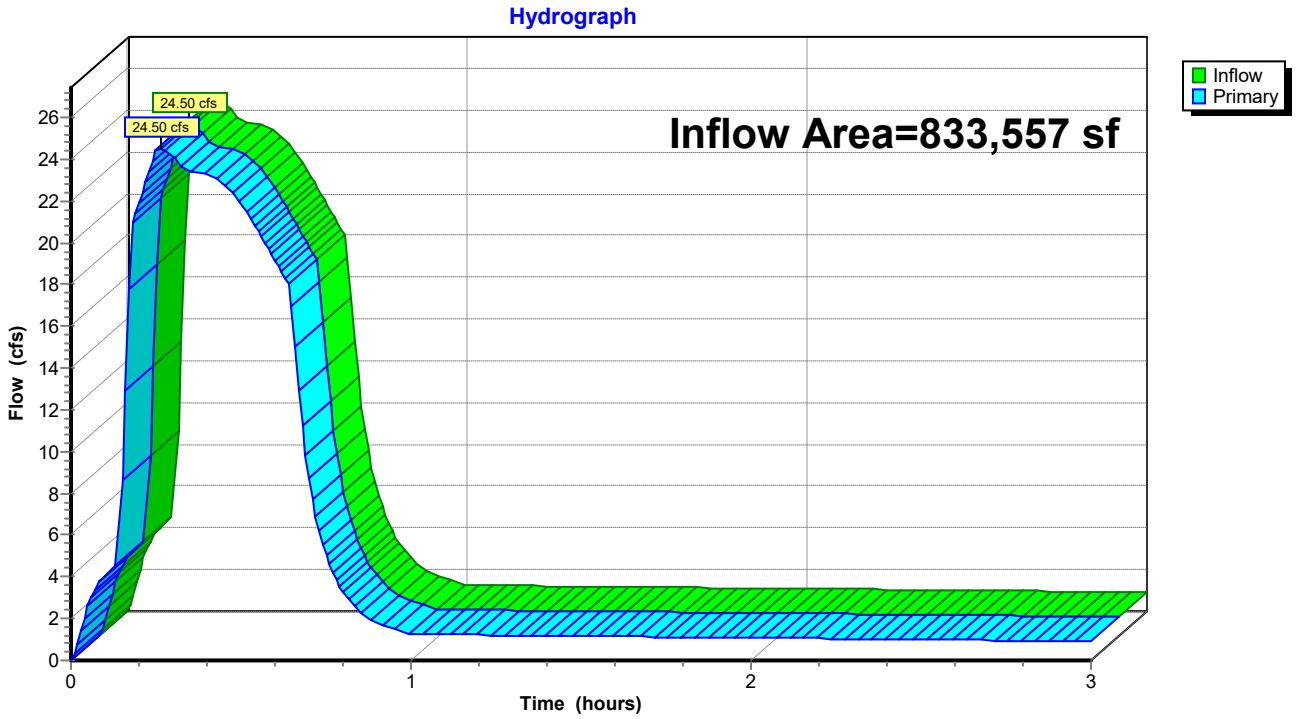
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 0.78" for 2-yr event
Inflow = 24.50 cfs @ 0.26 hrs, Volume= 54,200 cf
Primary = 24.50 cfs @ 0.26 hrs, Volume= 54,200 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



Summary for Subcatchment DB-B1: Drainage Basin B1

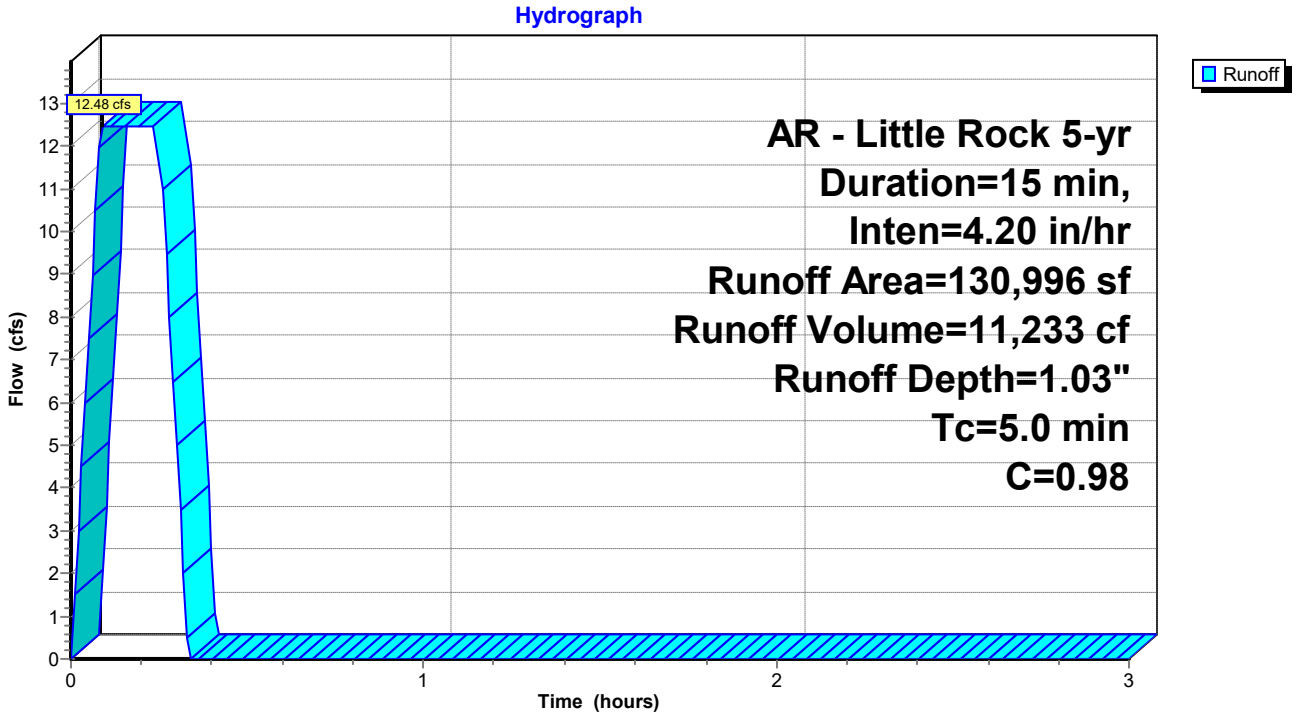
Runoff = 12.48 cfs @ 0.09 hrs, Volume= 11,233 cf, Depth= 1.03"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

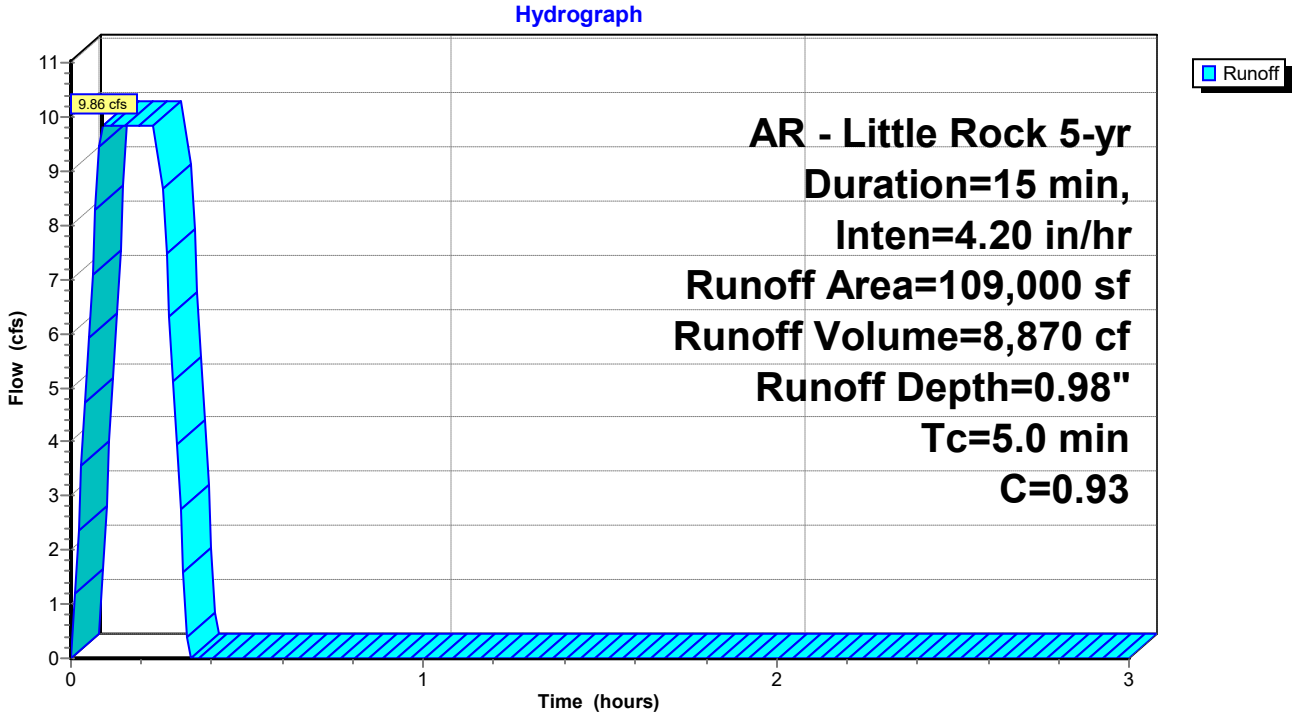
Runoff = 9.86 cfs @ 0.09 hrs, Volume= 8,870 cf, Depth= 0.98"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

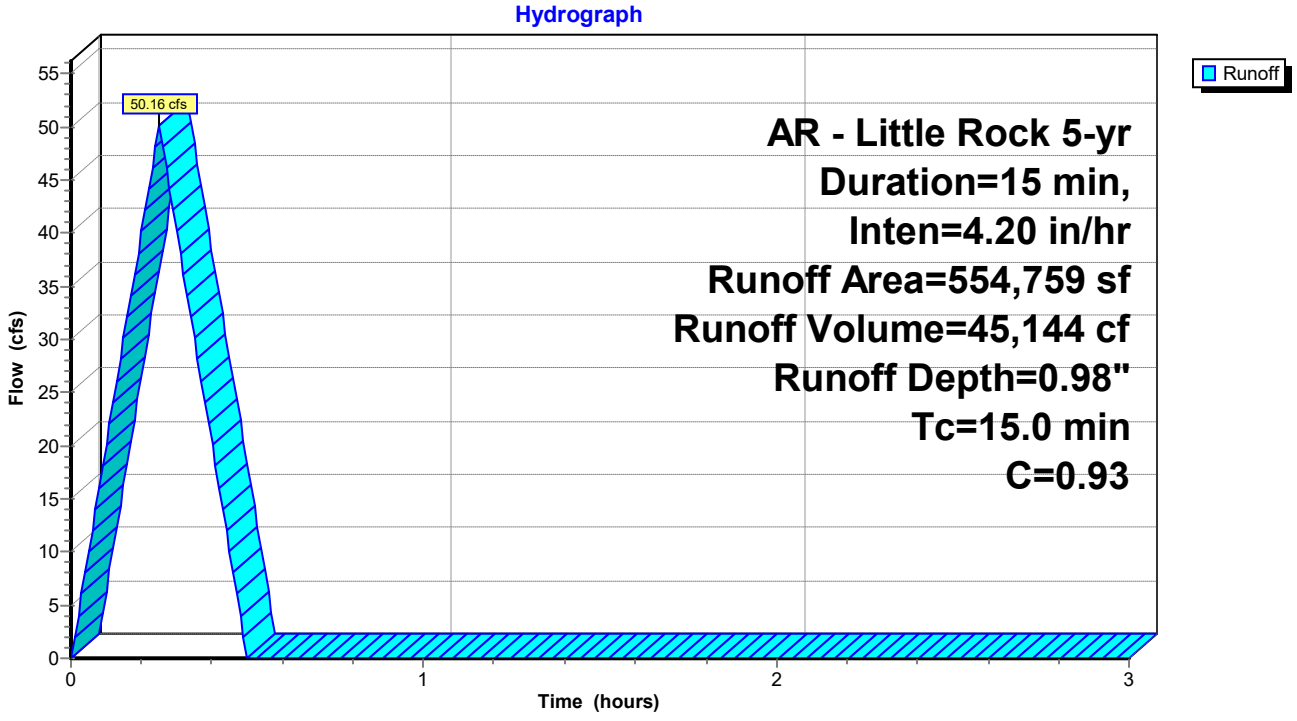
Runoff = 50.16 cfs @ 0.25 hrs, Volume= 45,144 cf, Depth= 0.98"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

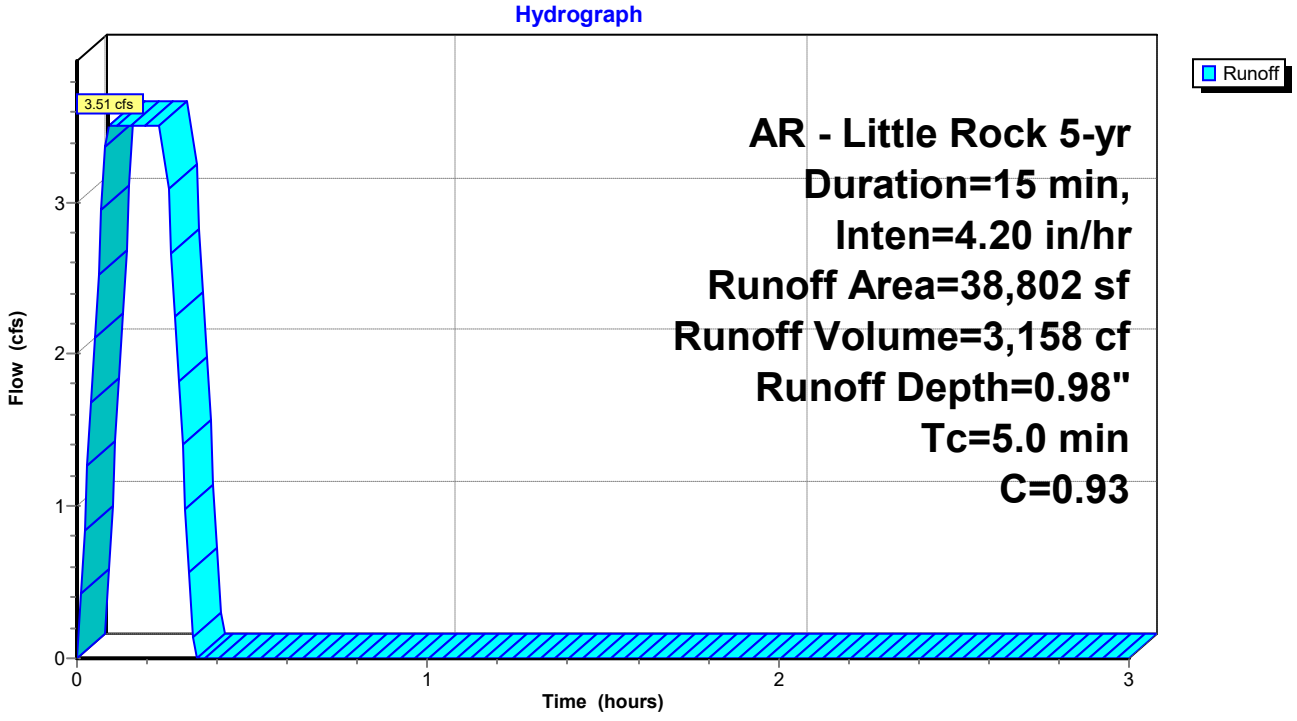
Runoff = 3.51 cfs @ 0.09 hrs, Volume= 3,158 cf, Depth= 0.98"
Routed to Link Post : Post Development

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=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 0.99" for 5-yr event
Inflow = 72.63 cfs @ 0.25 hrs, Volume= 65,246 cf
Outflow = 25.38 cfs @ 0.37 hrs, Volume= 61,501 cf, Atten= 65%, Lag= 7.5 min
Primary = 25.38 cfs @ 0.37 hrs, Volume= 61,501 cf
Routed to Link Post : Post Development
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 385.81' @ 0.37 hrs Storage= 40,310 cf

Plug-Flow detention time= 26.5 min calculated for 61,297 cf (94% of inflow)
Center-of-Mass det. time= 26.2 min (39.6 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

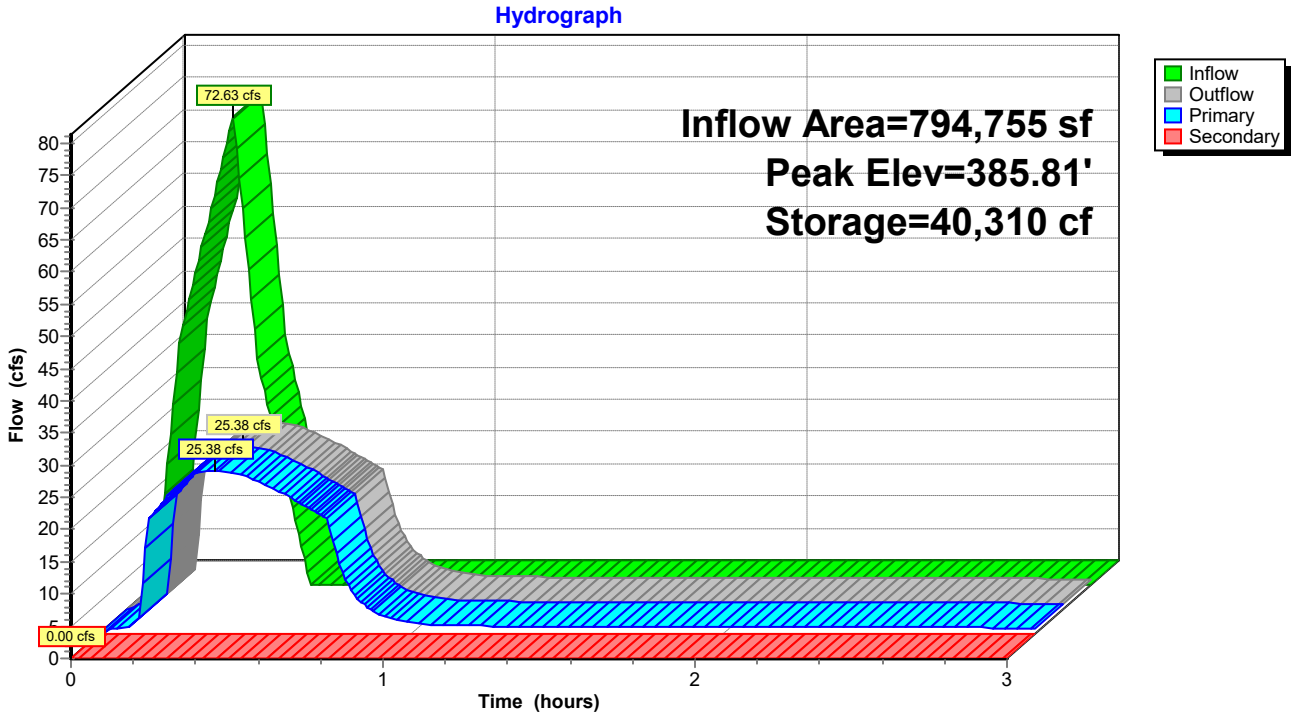
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

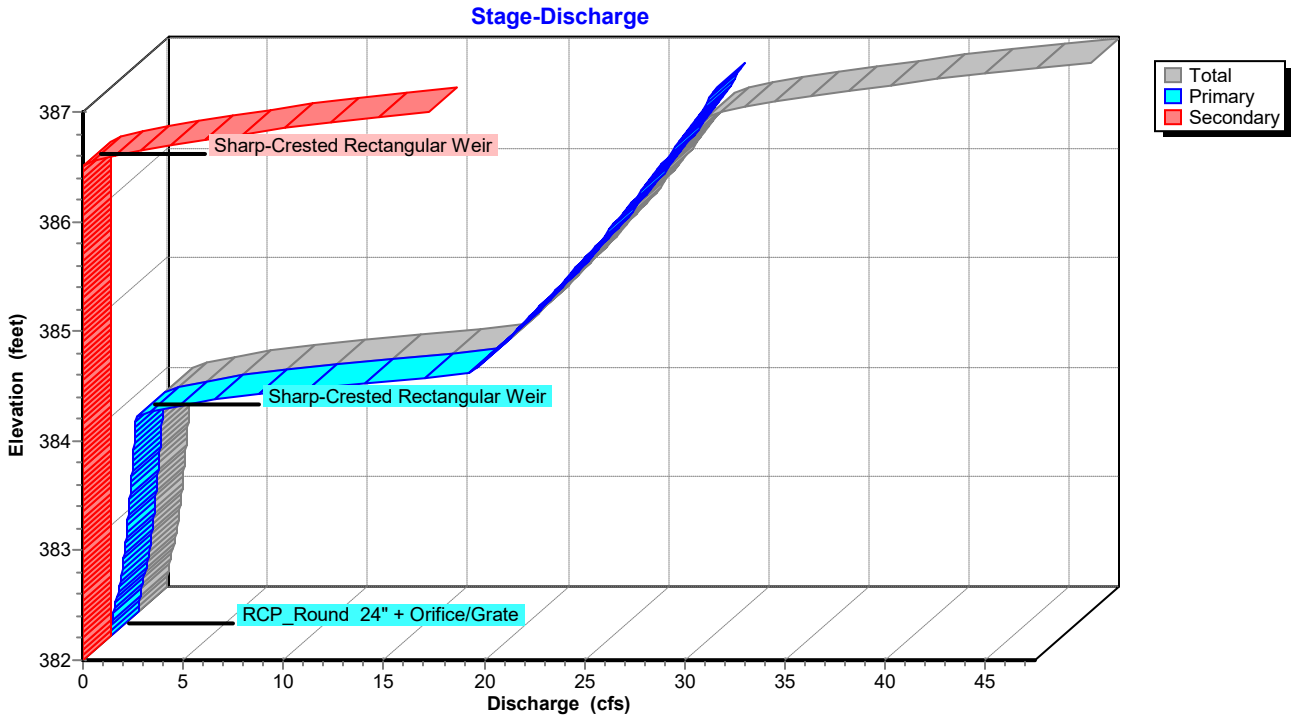
Primary OutFlow Max=25.37 cfs @ 0.37 hrs HW=385.81' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 25.37 cfs @ 8.08 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 206.62 cfs potential flow)
└**4=Orifice/Grate** (Passes < 1.78 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=382.00' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

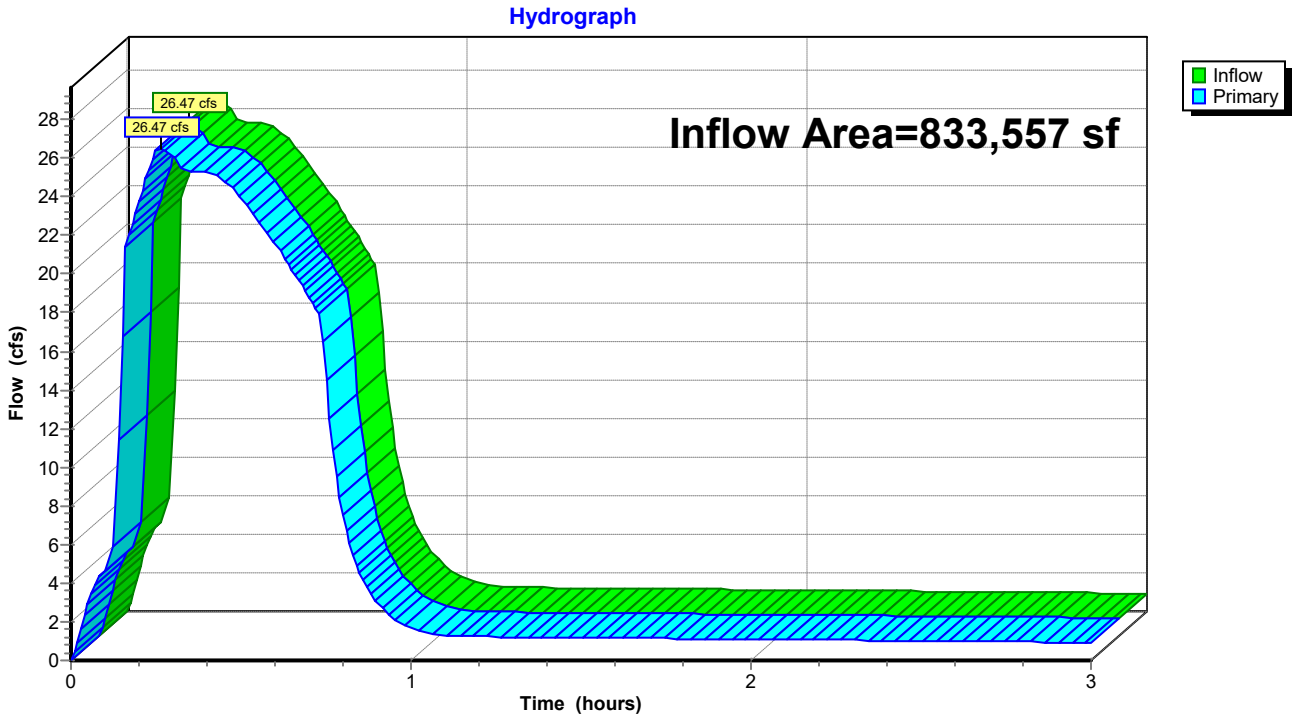
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 0.93" for 5-yr event
Inflow = 26.47 cfs @ 0.26 hrs, Volume= 64,659 cf
Primary = 26.47 cfs @ 0.26 hrs, Volume= 64,659 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



Summary for Subcatchment DB-B1: Drainage Basin B1

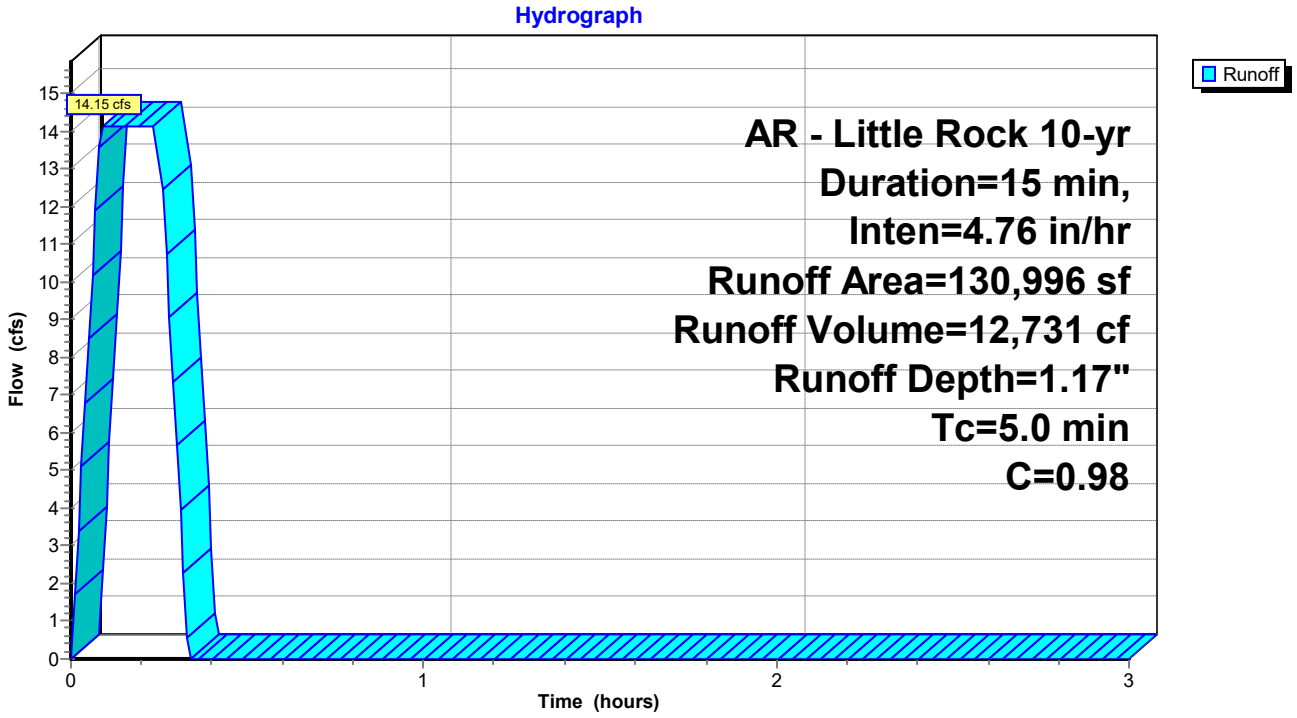
Runoff = 14.15 cfs @ 0.09 hrs, Volume= 12,731 cf, Depth= 1.17"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

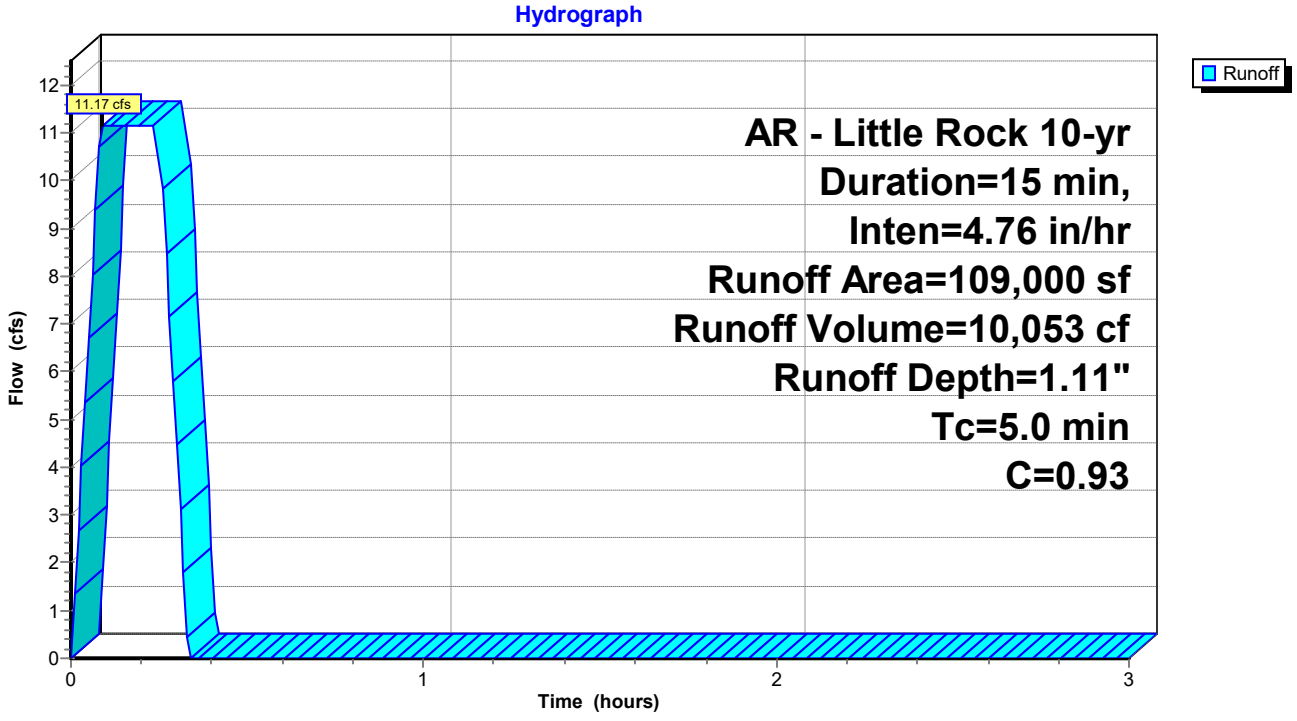
Runoff = 11.17 cfs @ 0.09 hrs, Volume= 10,053 cf, Depth= 1.11"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

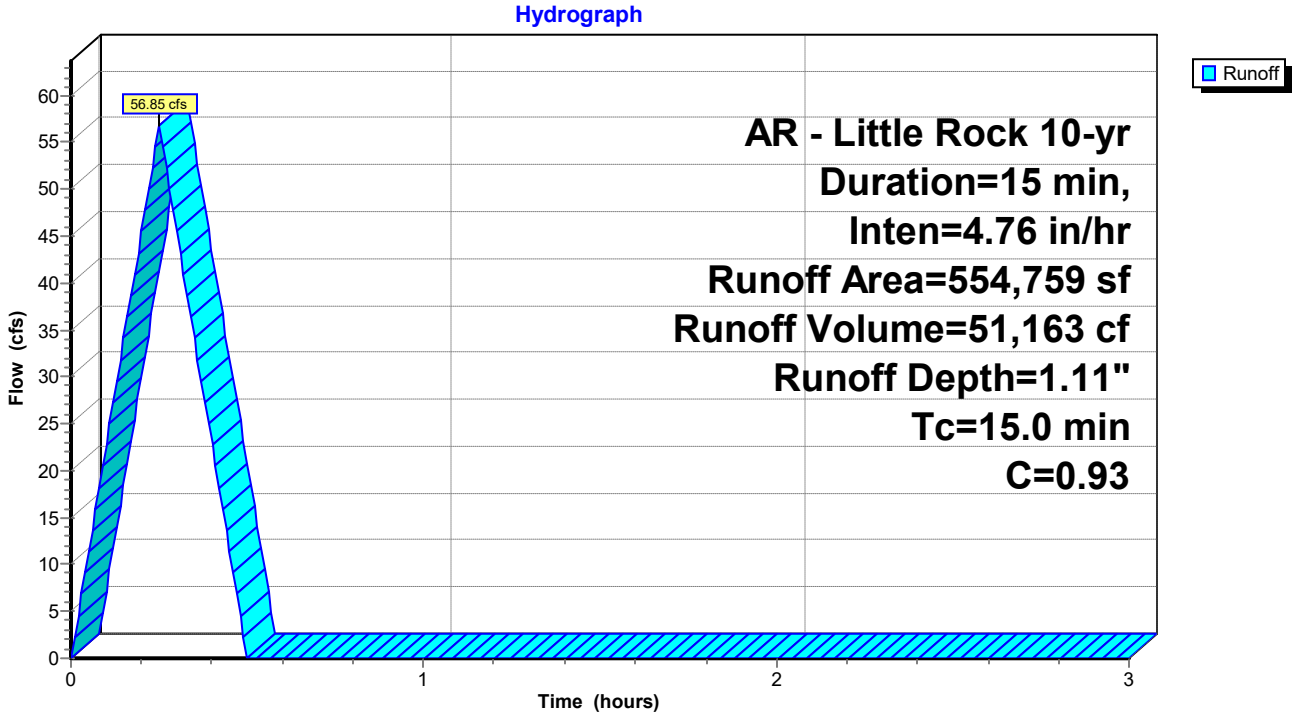
Runoff = 56.85 cfs @ 0.25 hrs, Volume= 51,163 cf, Depth= 1.11"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

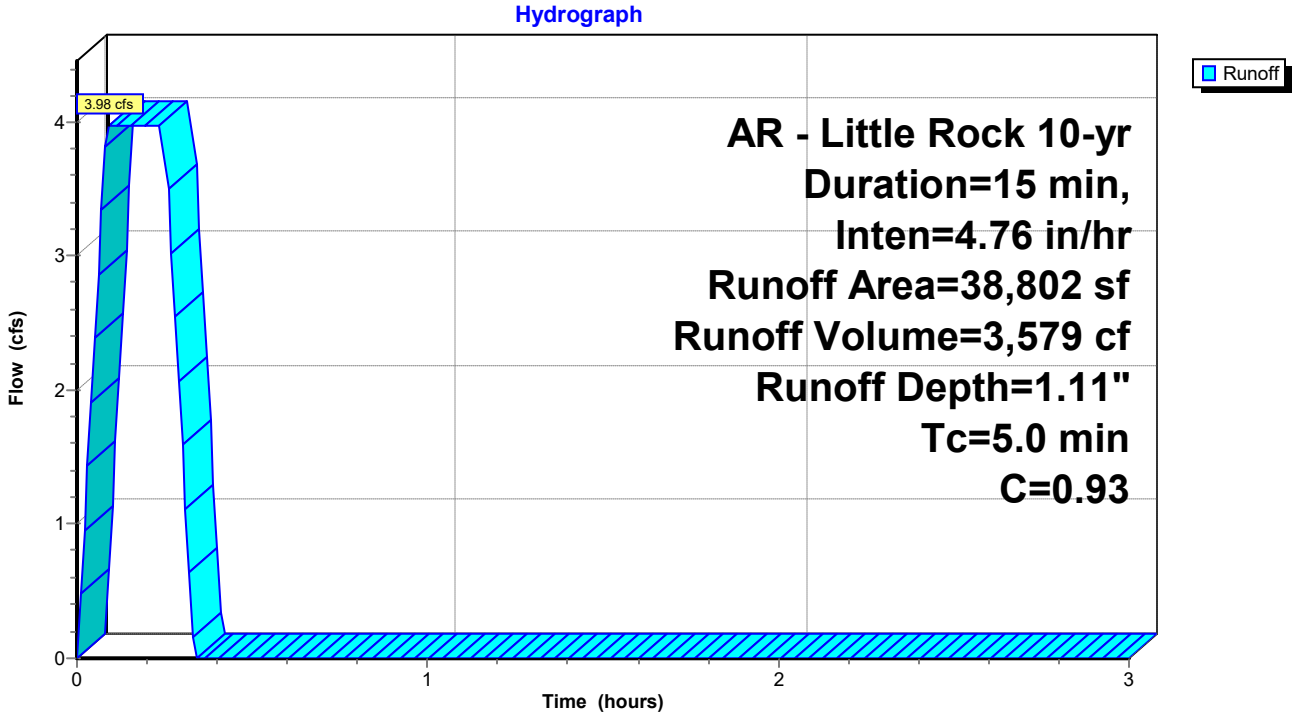
Runoff = 3.98 cfs @ 0.09 hrs, Volume= 3,579 cf, Depth= 1.11"
Routed to Link Post : Post Development

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=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 1.12" for 10-yr event
Inflow = 82.31 cfs @ 0.25 hrs, Volume= 73,946 cf
Outflow = 26.84 cfs @ 0.38 hrs, Volume= 69,960 cf, Atten= 67%, Lag= 8.0 min
Primary = 26.84 cfs @ 0.38 hrs, Volume= 69,960 cf
Routed to Link Post : Post Development
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 386.15' @ 0.38 hrs Storage= 46,681 cf

Plug-Flow detention time= 26.9 min calculated for 69,960 cf (95% of inflow)
Center-of-Mass det. time= 26.2 min (39.6 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

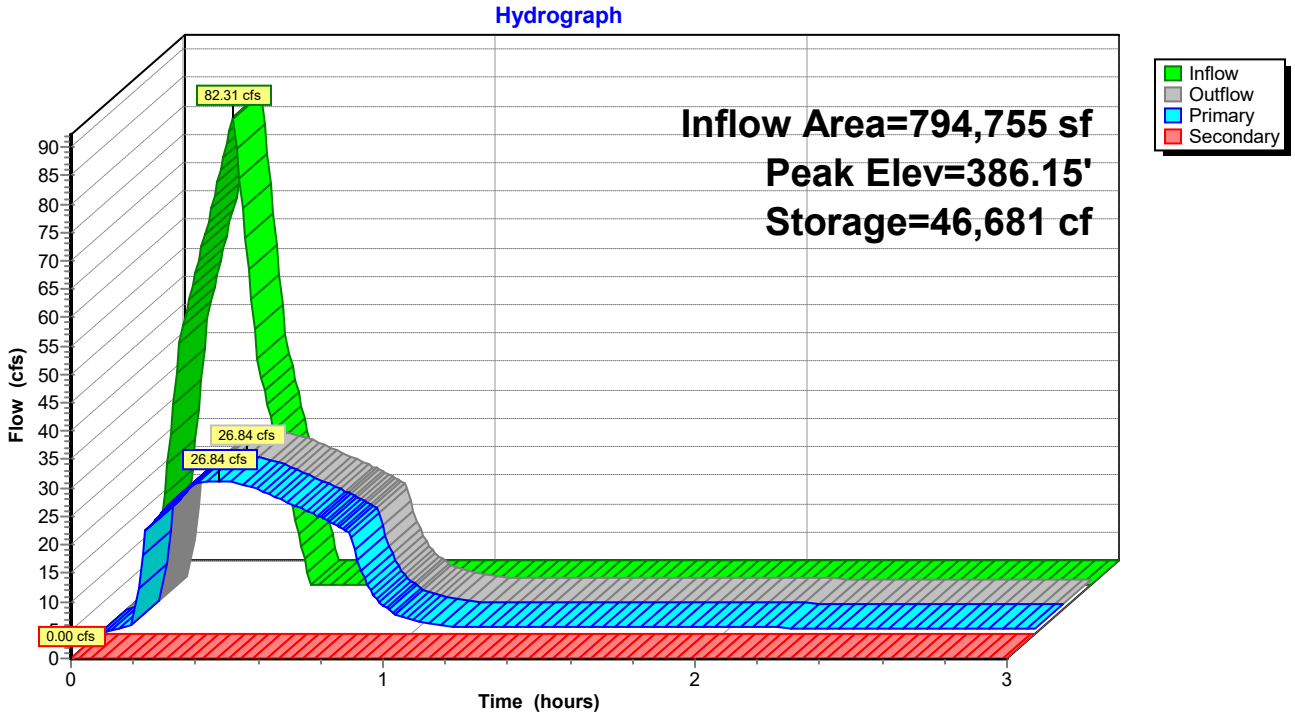
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

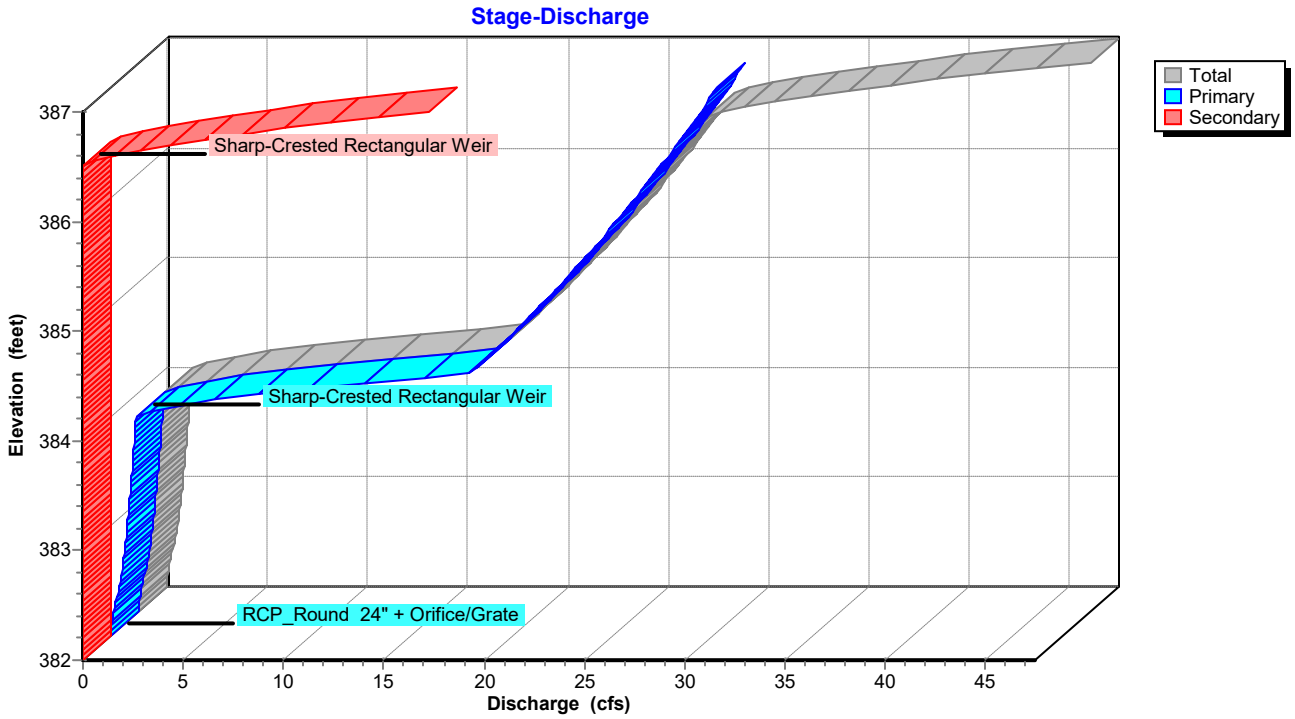
Primary OutFlow Max=26.84 cfs @ 0.38 hrs HW=386.15' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 26.84 cfs @ 8.54 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 276.91 cfs potential flow)
└**4=Orifice/Grate** (Passes < 1.87 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=382.00' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

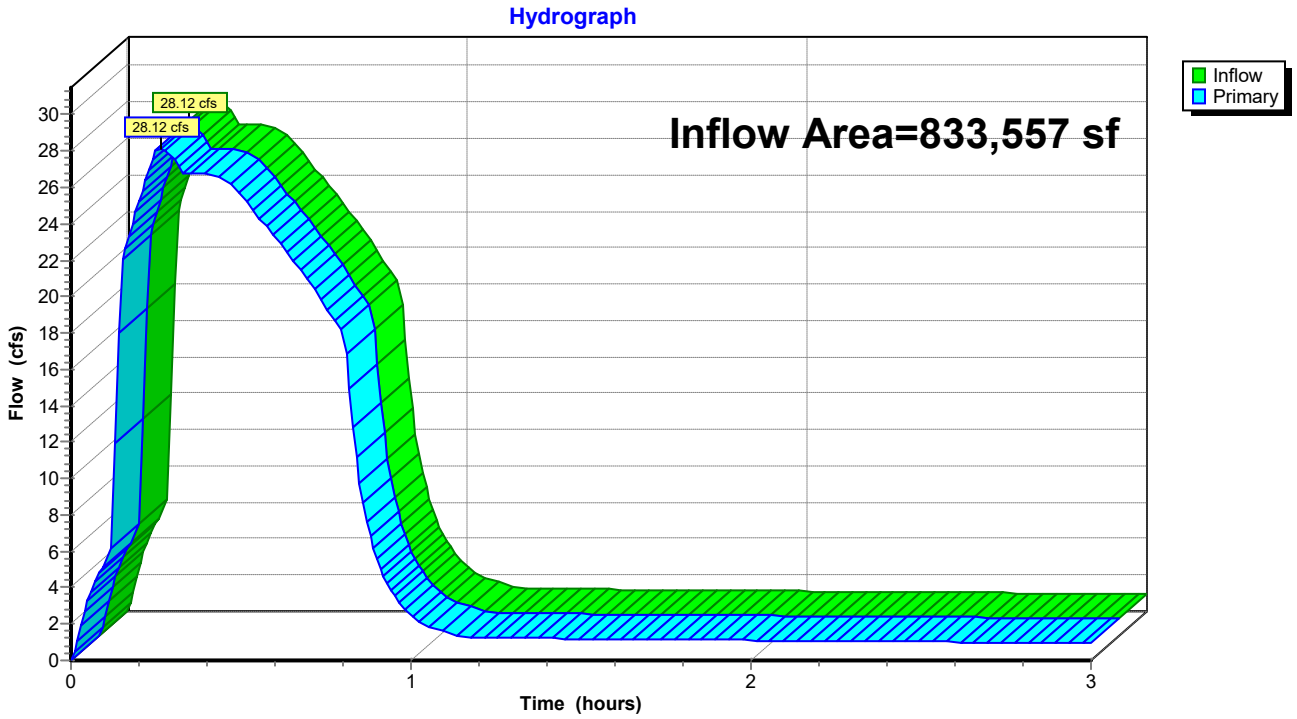
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 1.06" for 10-yr event
Inflow = 28.12 cfs @ 0.26 hrs, Volume= 73,538 cf
Primary = 28.12 cfs @ 0.26 hrs, Volume= 73,538 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



Summary for Subcatchment DB-B1: Drainage Basin B1

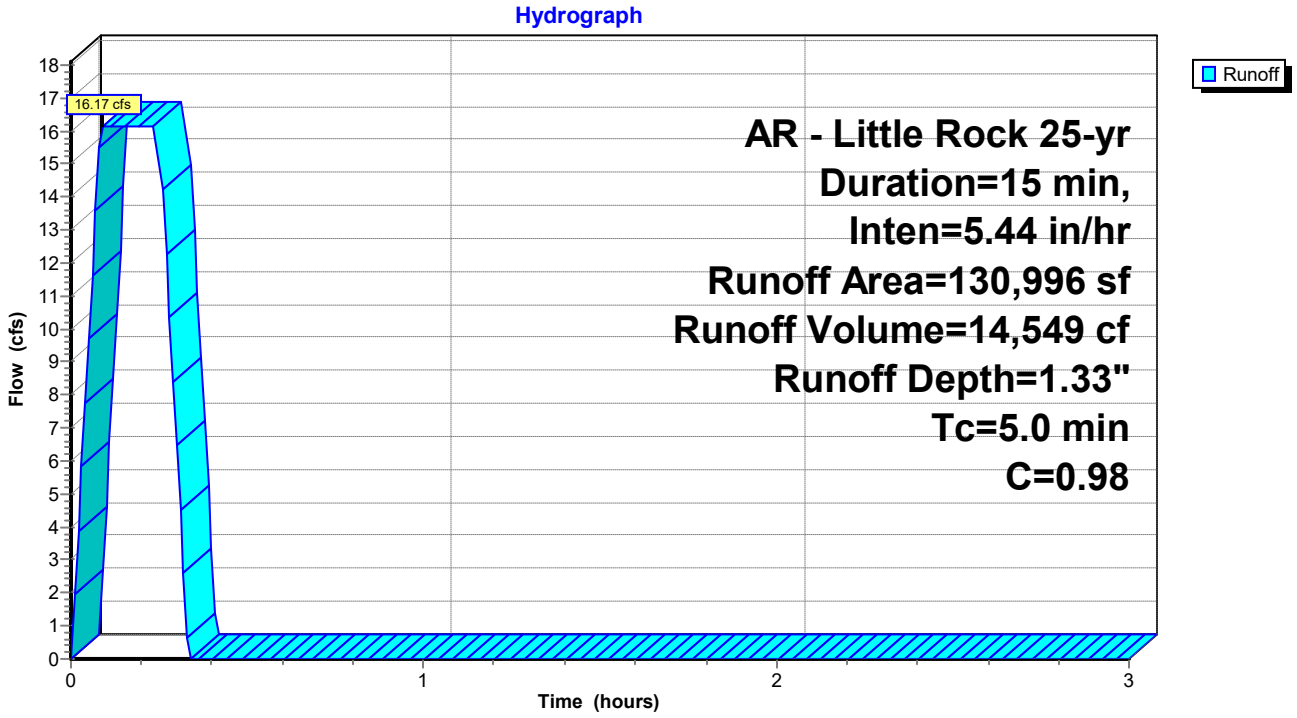
Runoff = 16.17 cfs @ 0.09 hrs, Volume= 14,549 cf, Depth= 1.33"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

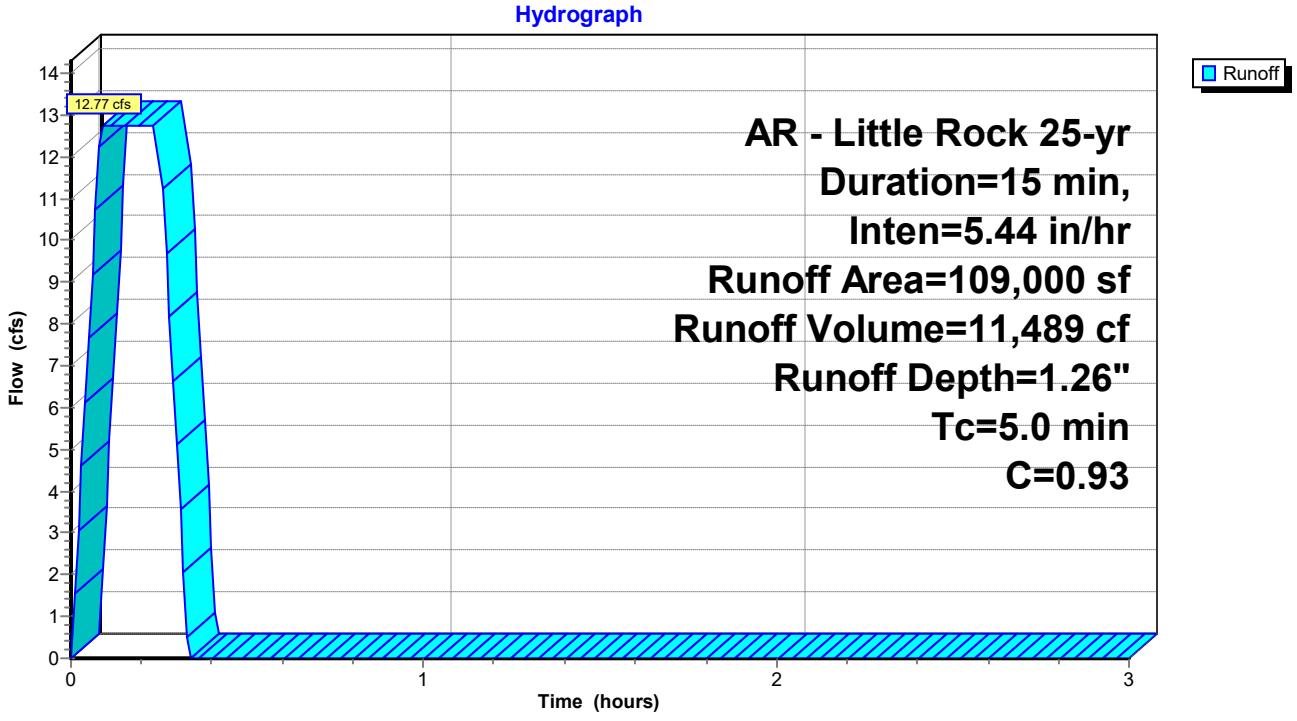
Runoff = 12.77 cfs @ 0.09 hrs, Volume= 11,489 cf, Depth= 1.26"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

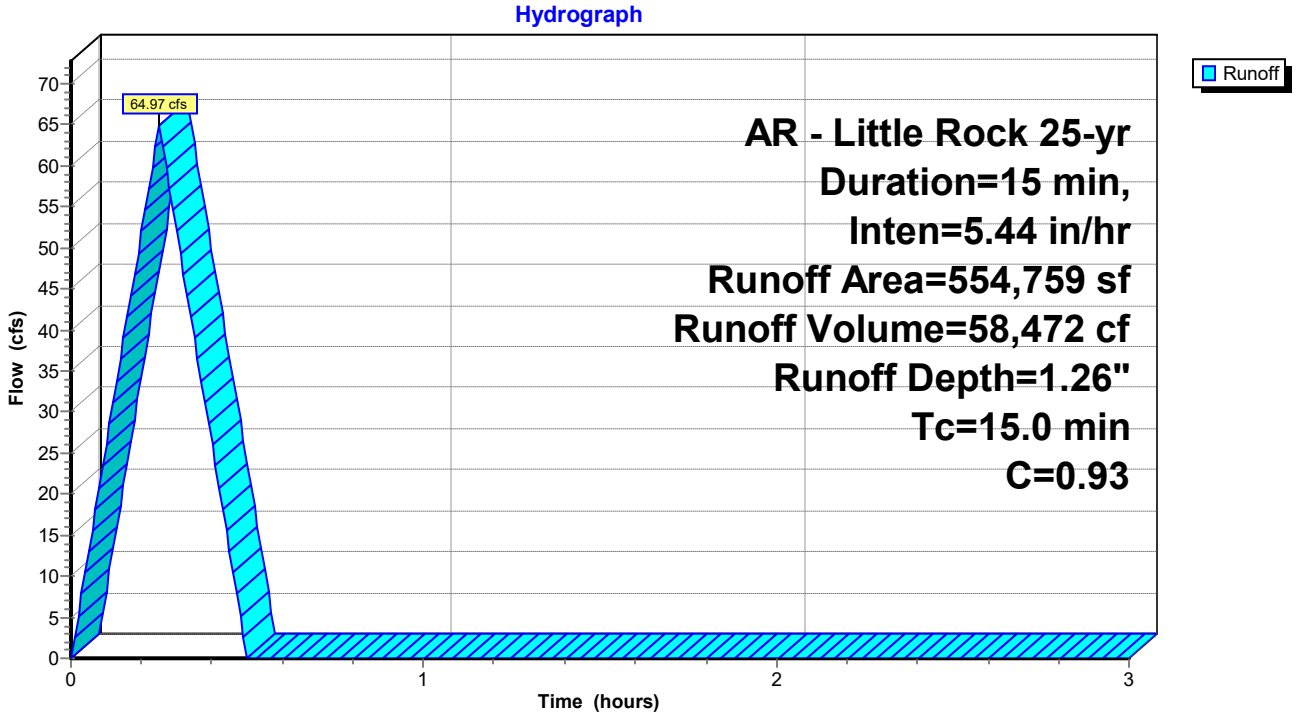
Runoff = 64.97 cfs @ 0.25 hrs, Volume= 58,472 cf, Depth= 1.26"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

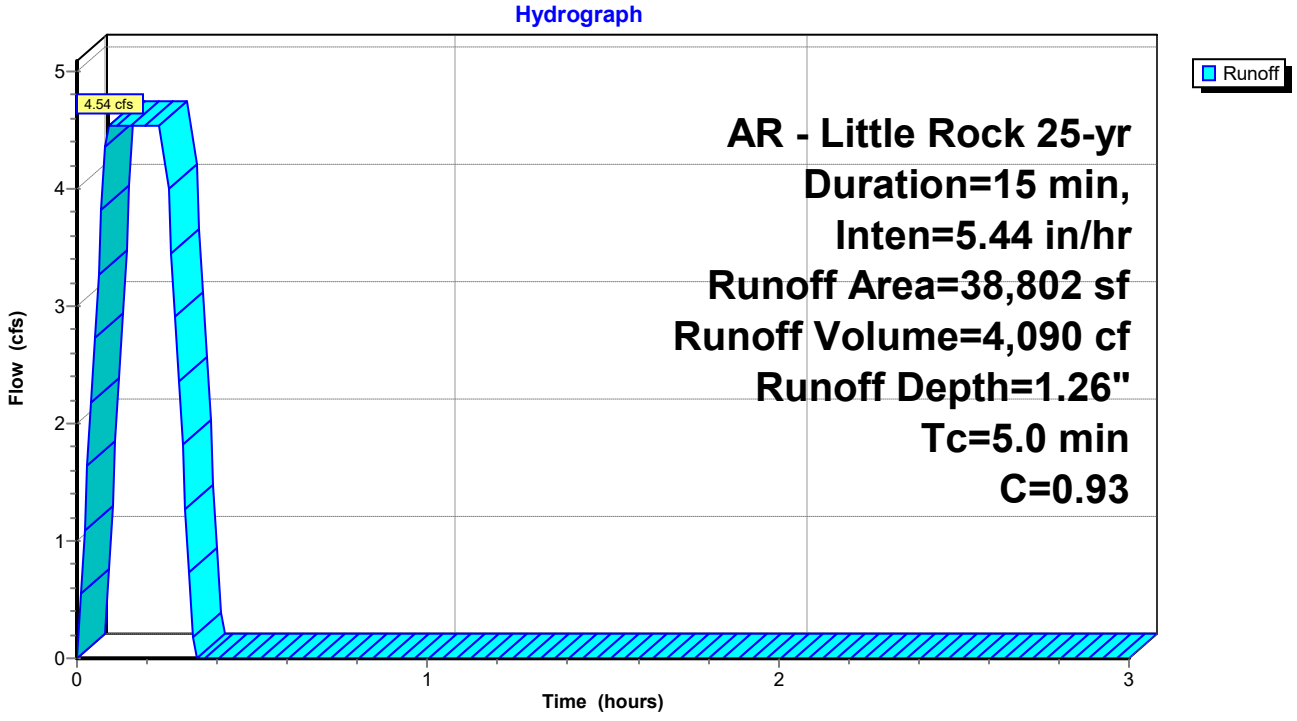
Runoff = 4.54 cfs @ 0.09 hrs, Volume= 4,090 cf, Depth= 1.26"
Routed to Link Post : Post Development

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=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 1.28" for 25-yr event
Inflow = 94.07 cfs @ 0.25 hrs, Volume= 84,509 cf
Outflow = 28.71 cfs @ 0.39 hrs, Volume= 80,236 cf, Atten= 69%, Lag= 8.5 min
Primary = 28.41 cfs @ 0.39 hrs, Volume= 80,184 cf
Routed to Link Post : Post Development
Secondary = 0.30 cfs @ 0.39 hrs, Volume= 52 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 386.53' @ 0.39 hrs Storage= 54,689 cf

Plug-Flow detention time= 26.8 min calculated for 79,969 cf (95% of inflow)
Center-of-Mass det. time= 26.6 min (40.0 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

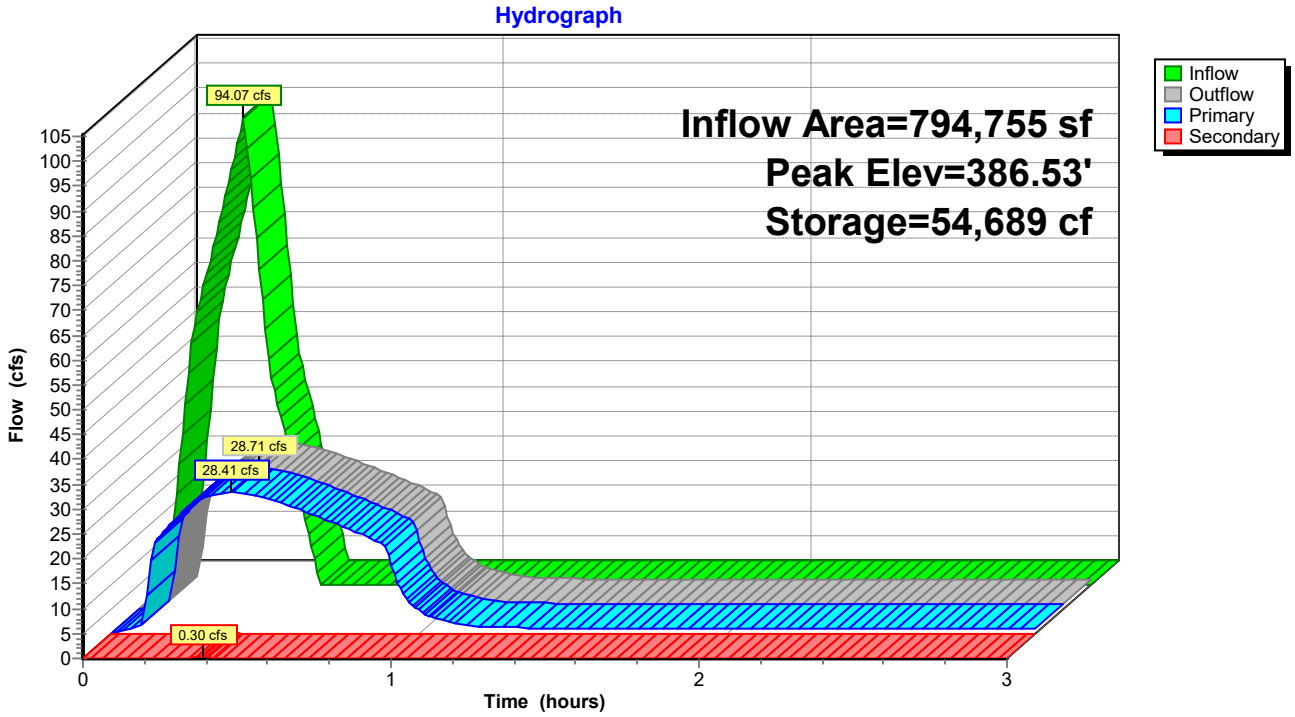
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

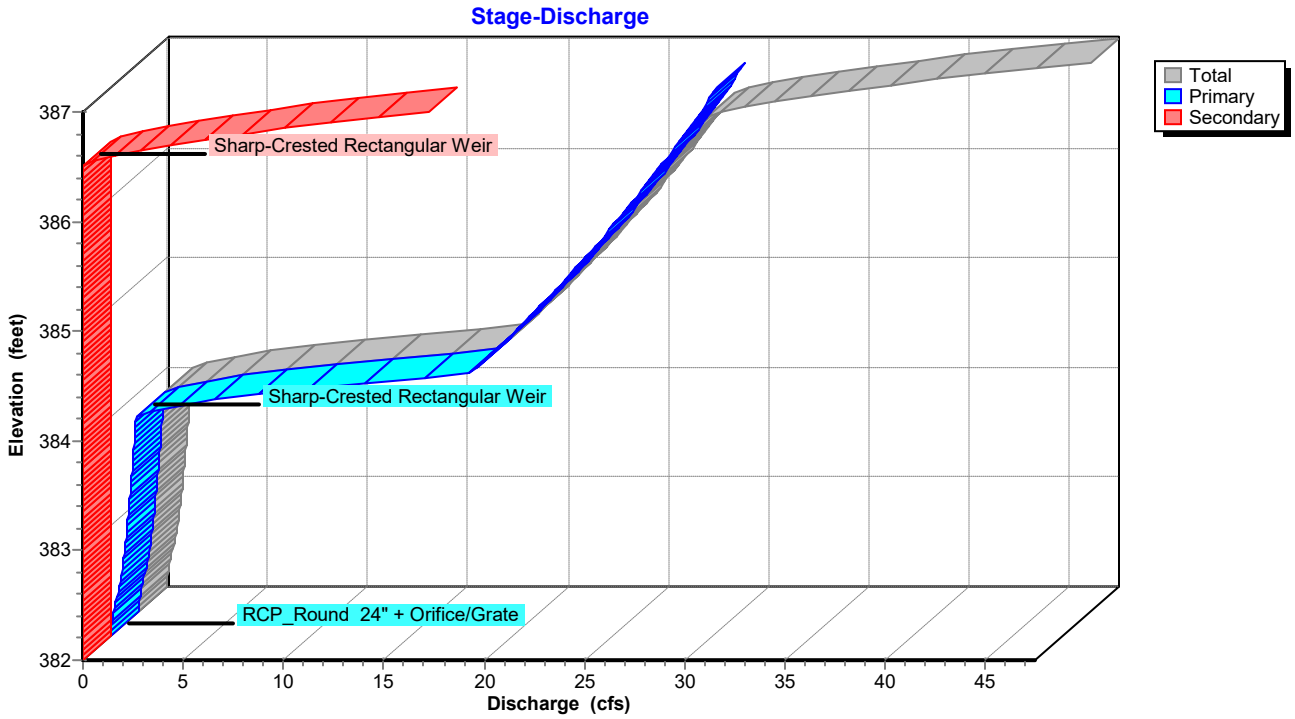
Primary OutFlow Max=28.41 cfs @ 0.39 hrs HW=386.53' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 28.41 cfs @ 9.04 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 369.27 cfs potential flow)
└**4=Orifice/Grate** (Passes < 1.96 cfs potential flow)

Secondary OutFlow Max=0.22 cfs @ 0.39 hrs HW=386.53' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.22 cfs @ 0.54 fps)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

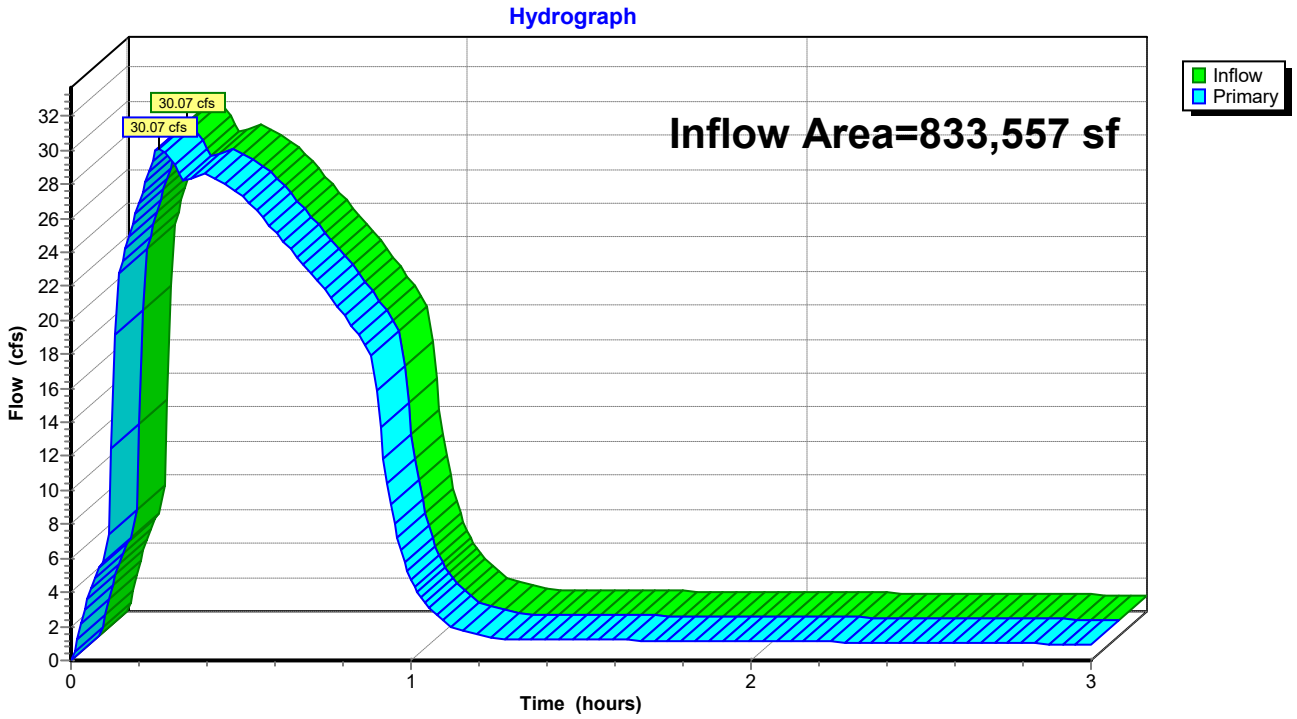
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 1.21" for 25-yr event
Inflow = 30.07 cfs @ 0.26 hrs, Volume= 84,325 cf
Primary = 30.07 cfs @ 0.26 hrs, Volume= 84,325 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



Summary for Subcatchment DB-B1: Drainage Basin B1

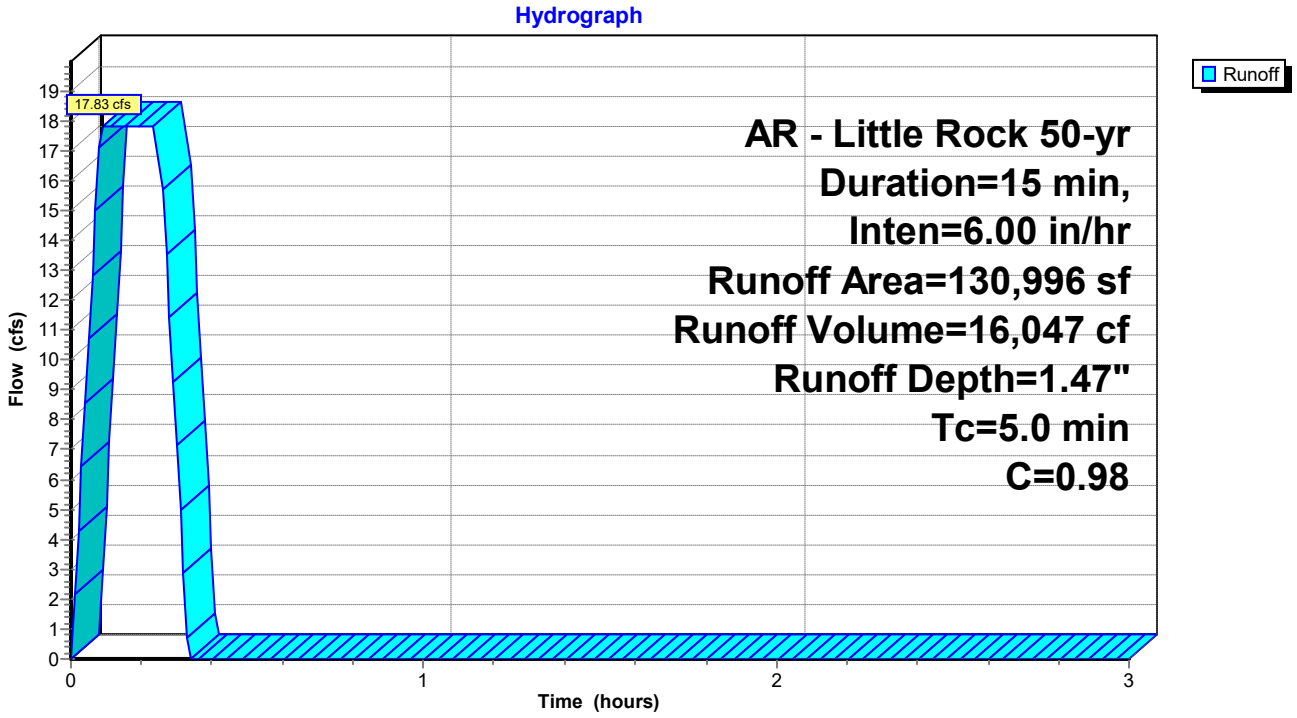
Runoff = 17.83 cfs @ 0.09 hrs, Volume= 16,047 cf, Depth= 1.47"
Routed to Pond 1P : Regional Detention Basin

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

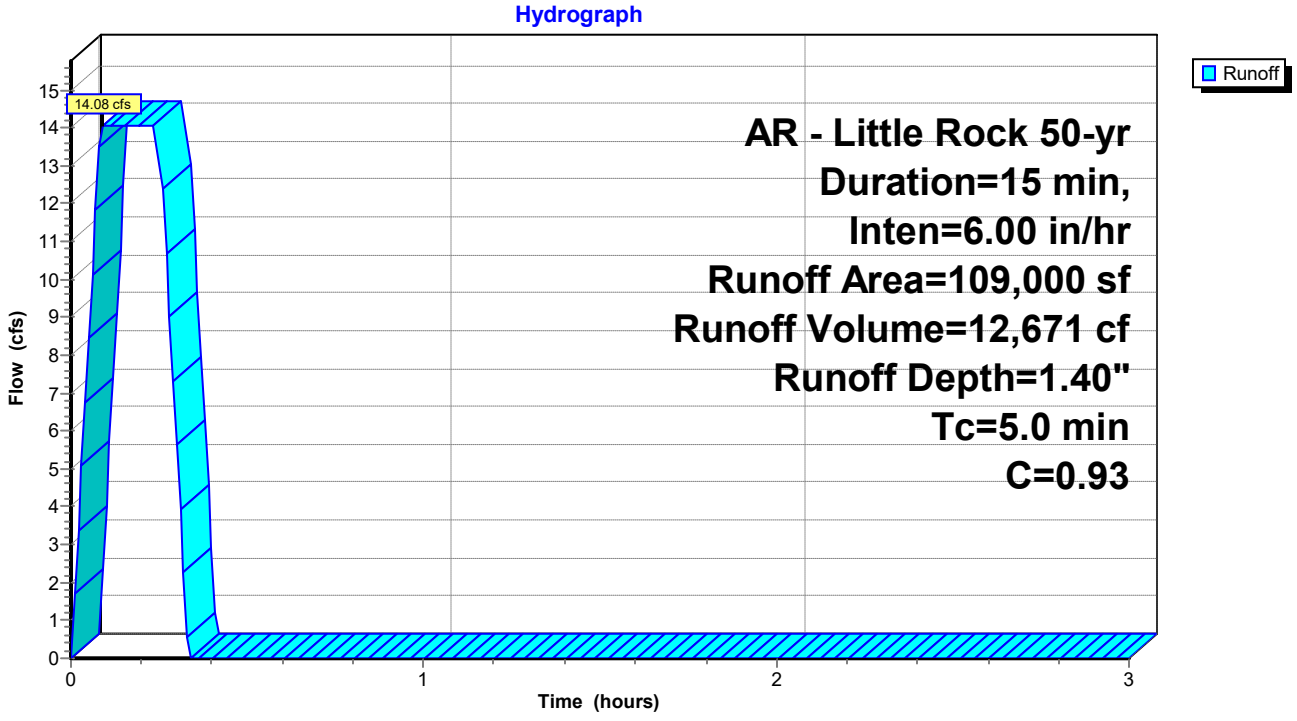
Runoff = 14.08 cfs @ 0.09 hrs, Volume= 12,671 cf, Depth= 1.40"
Routed to Pond 1P : Regional Detention Basin

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

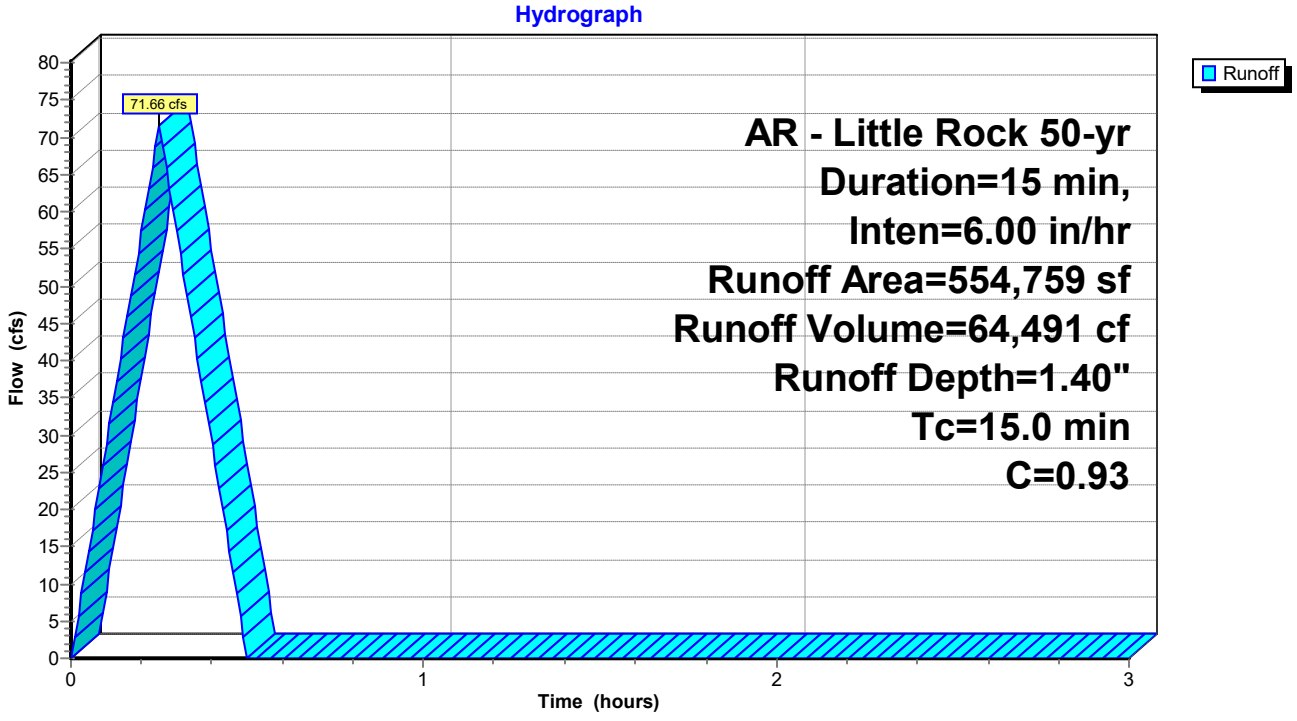
Runoff = 71.66 cfs @ 0.25 hrs, Volume= 64,491 cf, Depth= 1.40"
Routed to Pond 1P : Regional Detention Basin

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

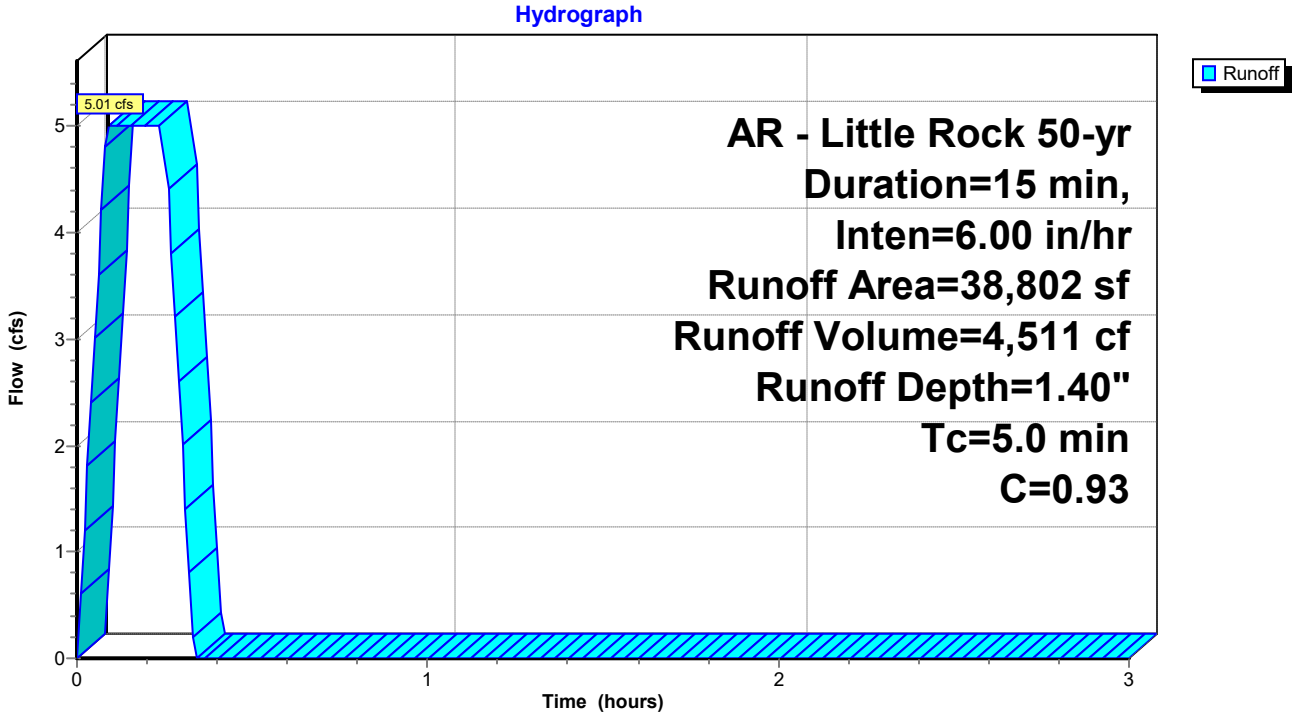
Runoff = 5.01 cfs @ 0.09 hrs, Volume= 4,511 cf, Depth= 1.40"
Routed to Link Post : Post Development

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 50-yr Duration=15 min, Inten=6.00 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 1.41" for 50-yr event
Inflow = 103.76 cfs @ 0.25 hrs, Volume= 93,209 cf
Outflow = 36.41 cfs @ 0.37 hrs, Volume= 88,796 cf, Atten= 65%, Lag= 7.5 min
Primary = 29.39 cfs @ 0.37 hrs, Volume= 85,720 cf
Routed to Link Post : Post Development
Secondary = 7.02 cfs @ 0.37 hrs, Volume= 3,076 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 386.77' @ 0.37 hrs Storage= 59,877 cf

Plug-Flow detention time= 26.8 min calculated for 88,796 cf (95% of inflow)
Center-of-Mass det. time= 26.2 min (39.6 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

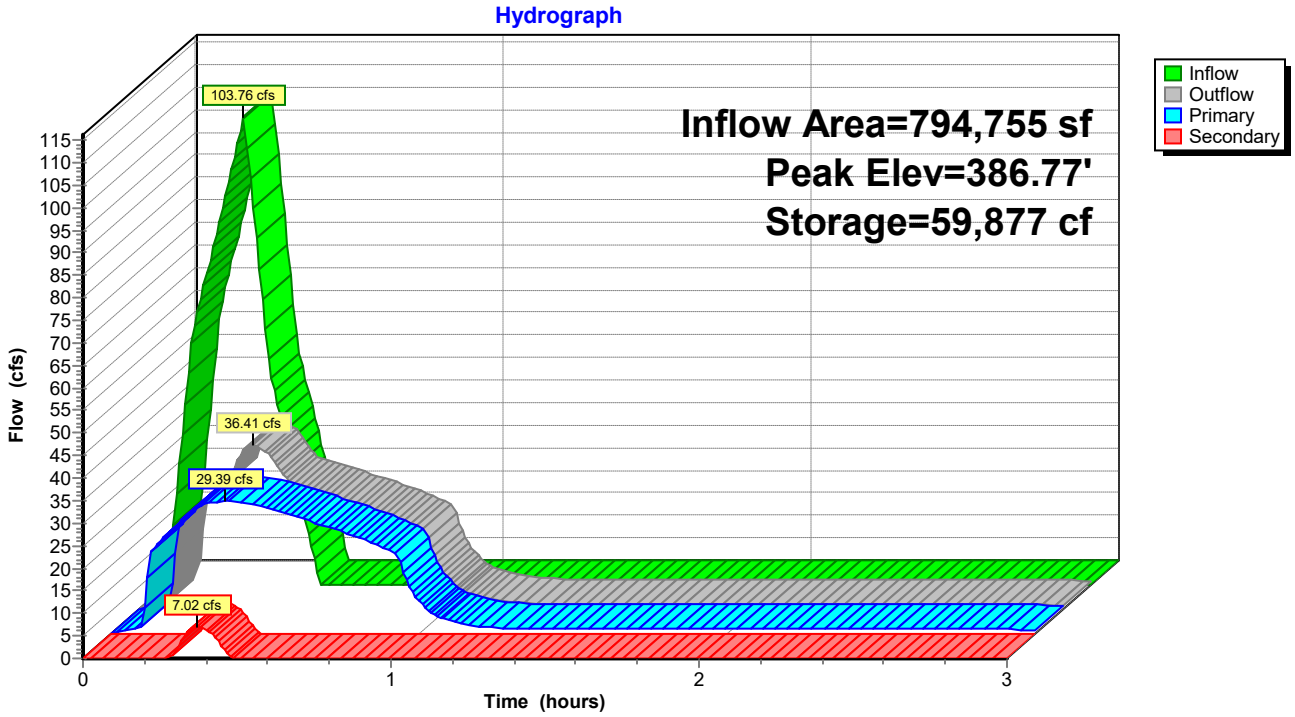
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

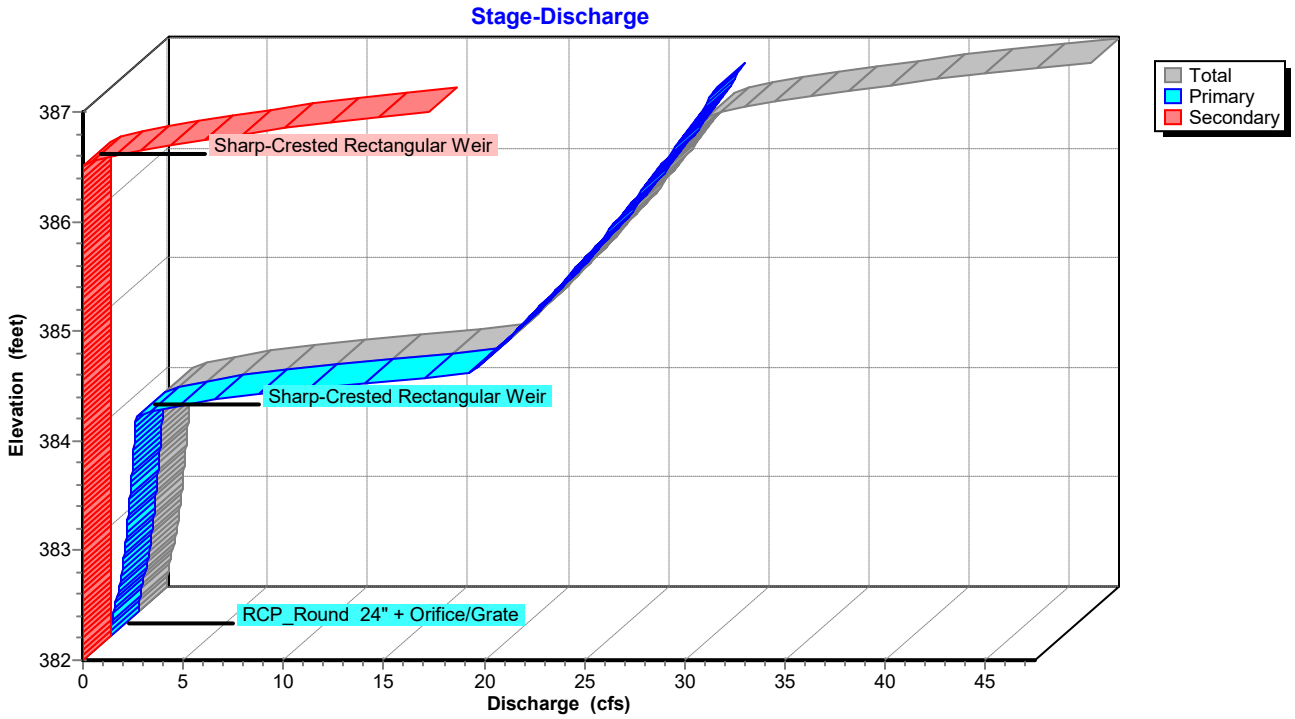
Primary OutFlow Max=29.38 cfs @ 0.37 hrs HW=386.77' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 29.38 cfs @ 9.35 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 435.96 cfs potential flow)
└**4=Orifice/Grate** (Passes < 2.01 cfs potential flow)

Secondary OutFlow Max=6.98 cfs @ 0.37 hrs HW=386.77' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 6.98 cfs @ 1.71 fps)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

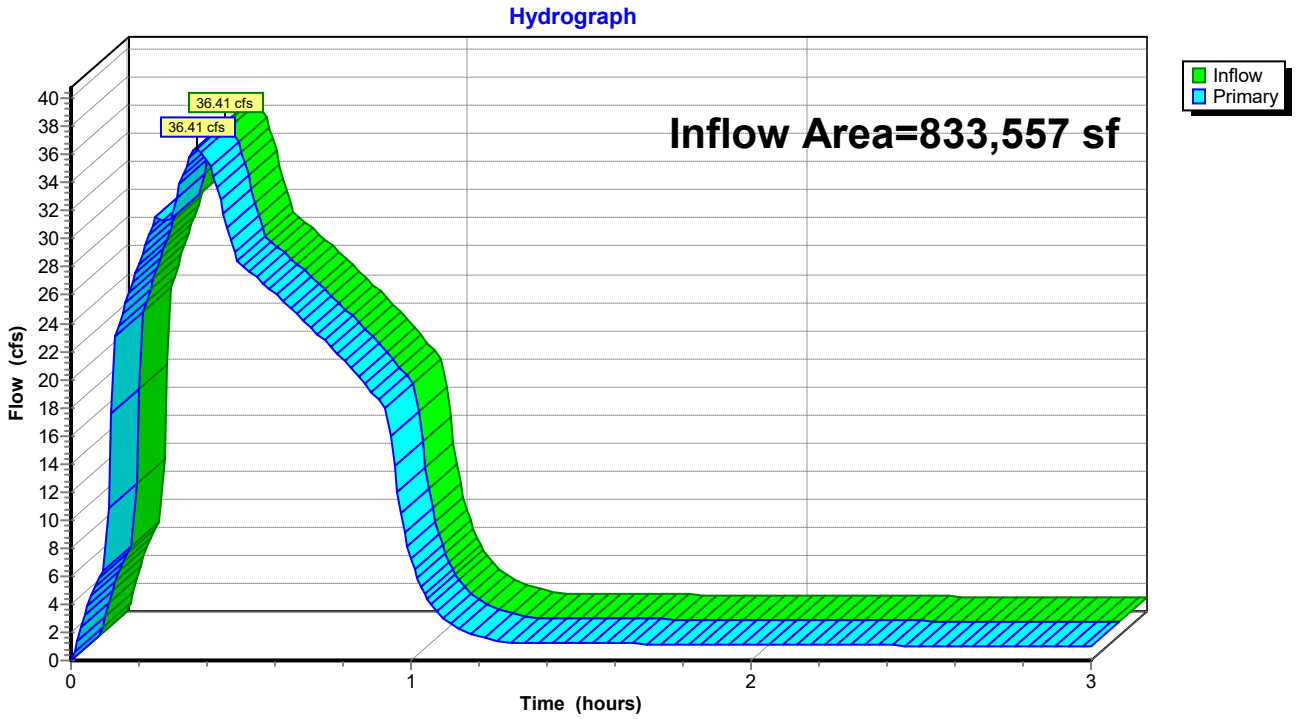
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 1.34" for 50-yr event
Inflow = 36.41 cfs @ 0.37 hrs, Volume= 93,307 cf
Primary = 36.41 cfs @ 0.37 hrs, Volume= 93,307 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



Summary for Subcatchment DB-B1: Drainage Basin B1

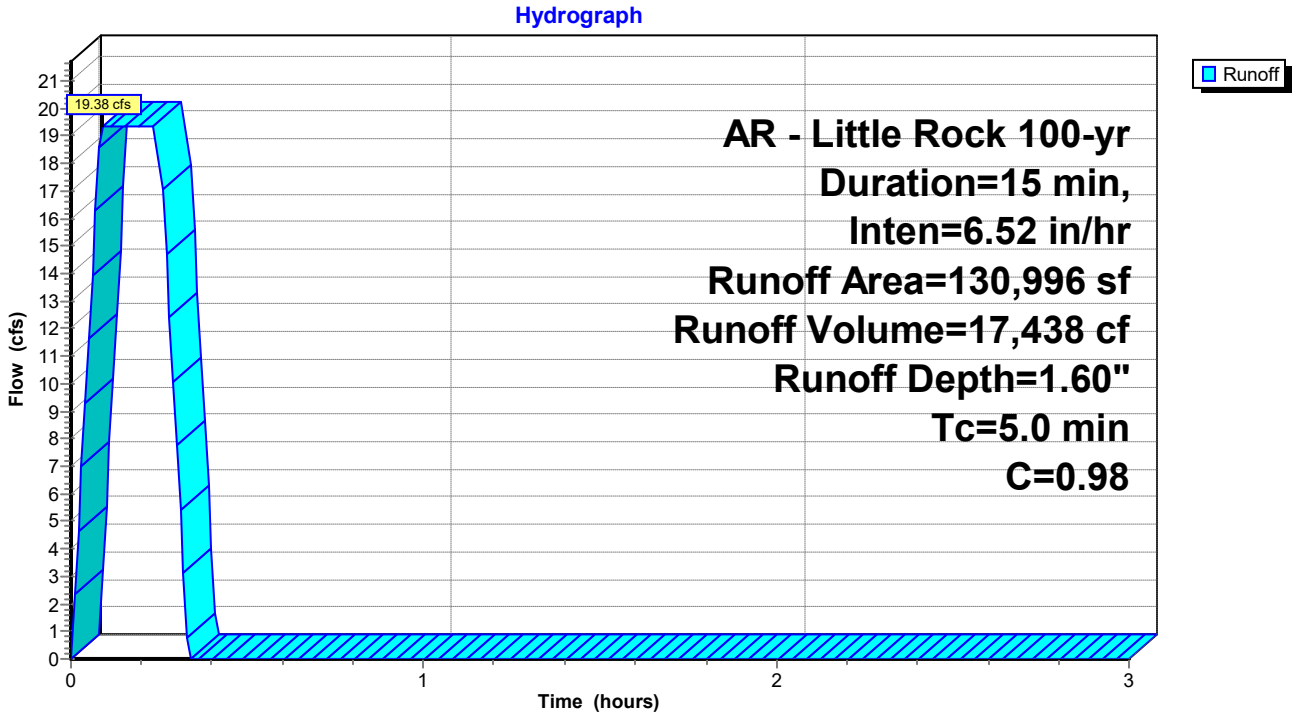
Runoff = 19.38 cfs @ 0.09 hrs, Volume= 17,438 cf, Depth= 1.60"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
130,996	0.98	
130,996		100.00% Impervious Area

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

Subcatchment DB-B1: Drainage Basin B1



Summary for Subcatchment DB-B2: Drainage Basin B2

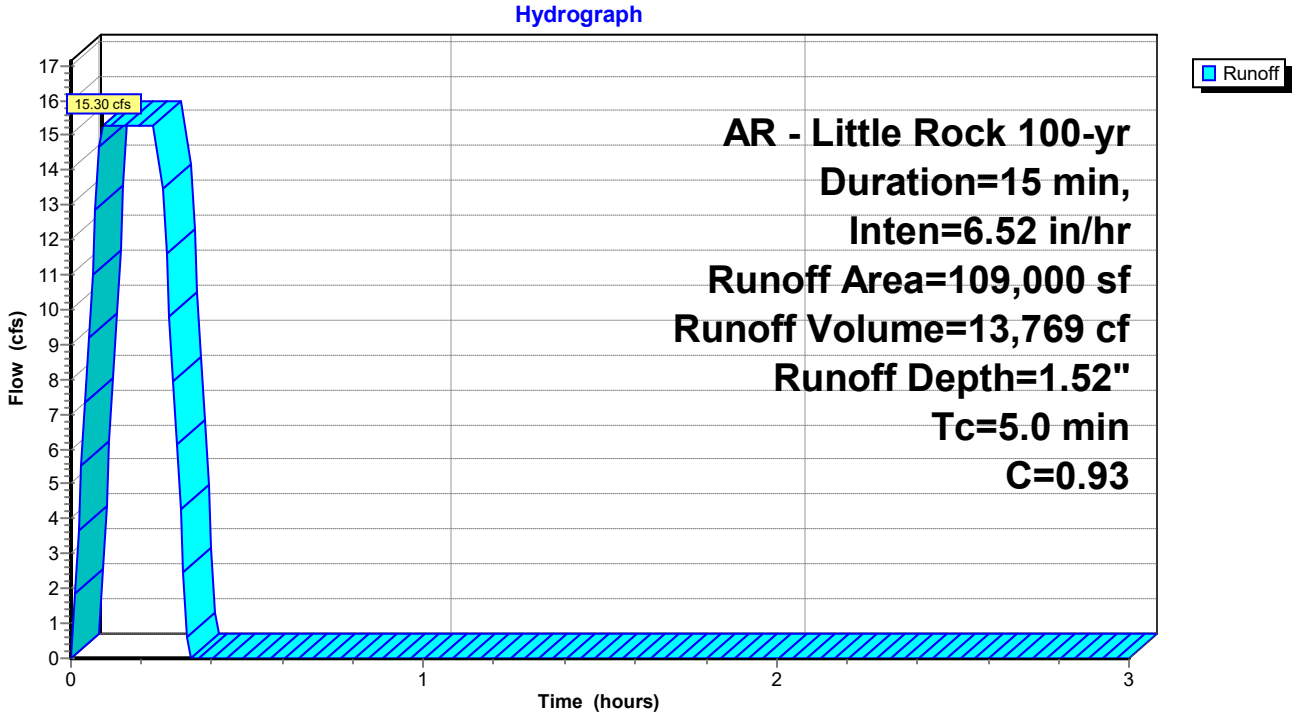
Runoff = 15.30 cfs @ 0.09 hrs, Volume= 13,769 cf, Depth= 1.52"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
87,200	0.98	
21,800	0.74	
109,000	0.93	Weighted Average
21,800		20.00% Pervious Area
87,200		80.00% Impervious Area

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

Subcatchment DB-B2: Drainage Basin B2



Summary for Subcatchment DB-B3: Drainage Basin B3

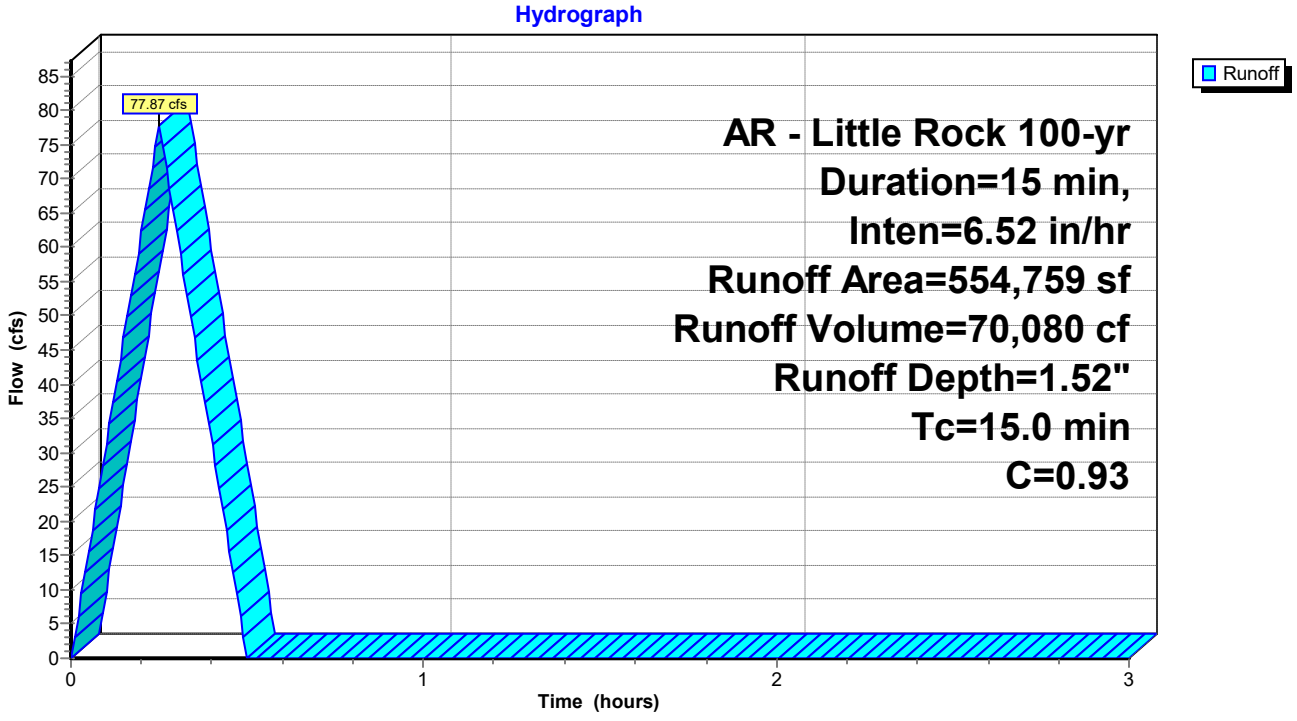
Runoff = 77.87 cfs @ 0.25 hrs, Volume= 70,080 cf, Depth= 1.52"
Routed to Pond 1P : Regional Detention Basin

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
443,807	0.98	
110,952	0.74	
554,759	0.93	Weighted Average
110,952		20.00% Pervious Area
443,807		80.00% Impervious Area

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

Subcatchment DB-B3: Drainage Basin B3



Summary for Subcatchment DB-B4: Drainage Basin B4

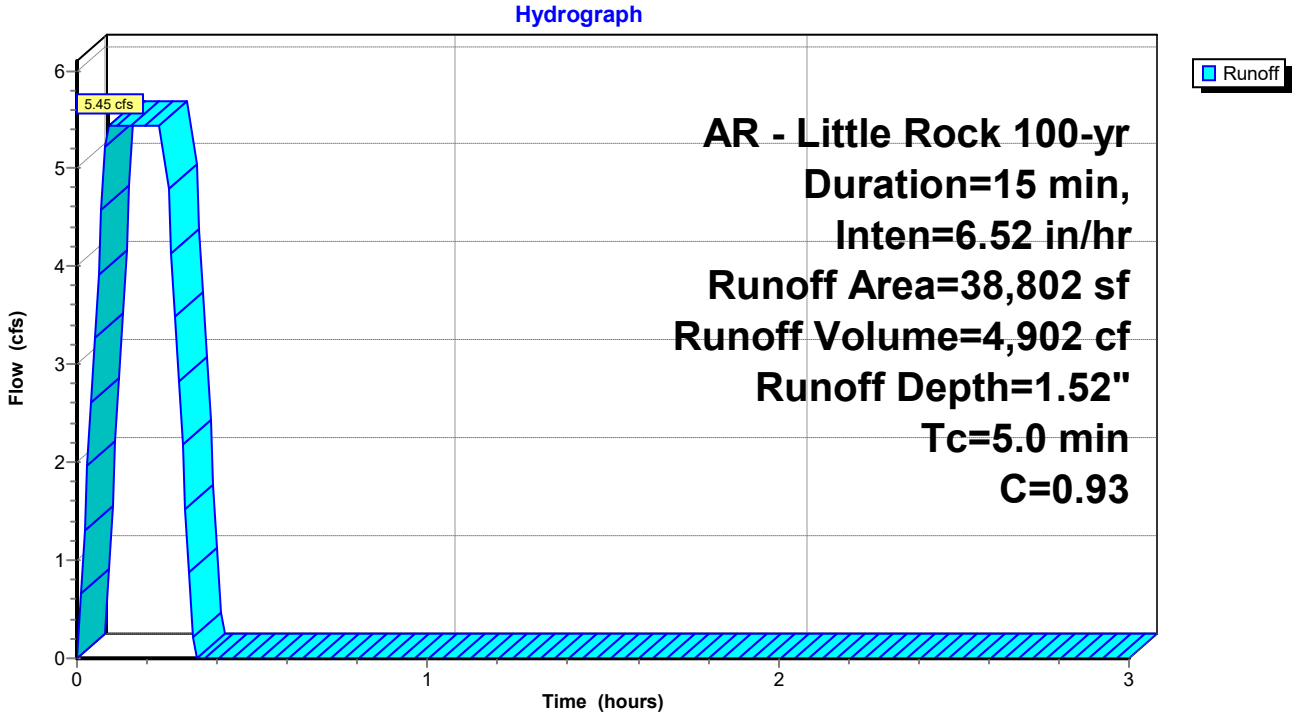
Runoff = 5.45 cfs @ 0.09 hrs, Volume= 4,902 cf, Depth= 1.52"
Routed to Link Post : Post Development

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=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
31,042	0.98	
7,760	0.74	
38,802	0.93	Weighted Average
7,760		20.00% Pervious Area
31,042		80.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry, 15**

Subcatchment DB-B4: Drainage Basin B4



Summary for Pond 1P: Regional Detention Basin

Inflow Area = 794,755 sf, 83.30% Impervious, Inflow Depth = 1.53" for 100-yr event
Inflow = 112.75 cfs @ 0.25 hrs, Volume= 101,287 cf
Outflow = 45.04 cfs @ 0.36 hrs, Volume= 96,804 cf, Atten= 60%, Lag= 6.5 min
Primary = 30.08 cfs @ 0.36 hrs, Volume= 88,991 cf
Routed to Link Post : Post Development
Secondary = 14.96 cfs @ 0.36 hrs, Volume= 7,813 cf
Routed to Link Post : Post Development

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 386.95' @ 0.36 hrs Storage= 63,693 cf

Plug-Flow detention time= 25.5 min calculated for 96,482 cf (95% of inflow)
Center-of-Mass det. time= 25.3 min (38.8 - 13.5)

Volume	Invert	Avail.Storage	Storage Description
#1	382.00'	64,645 cf	**Custom Stage Data** Listed below

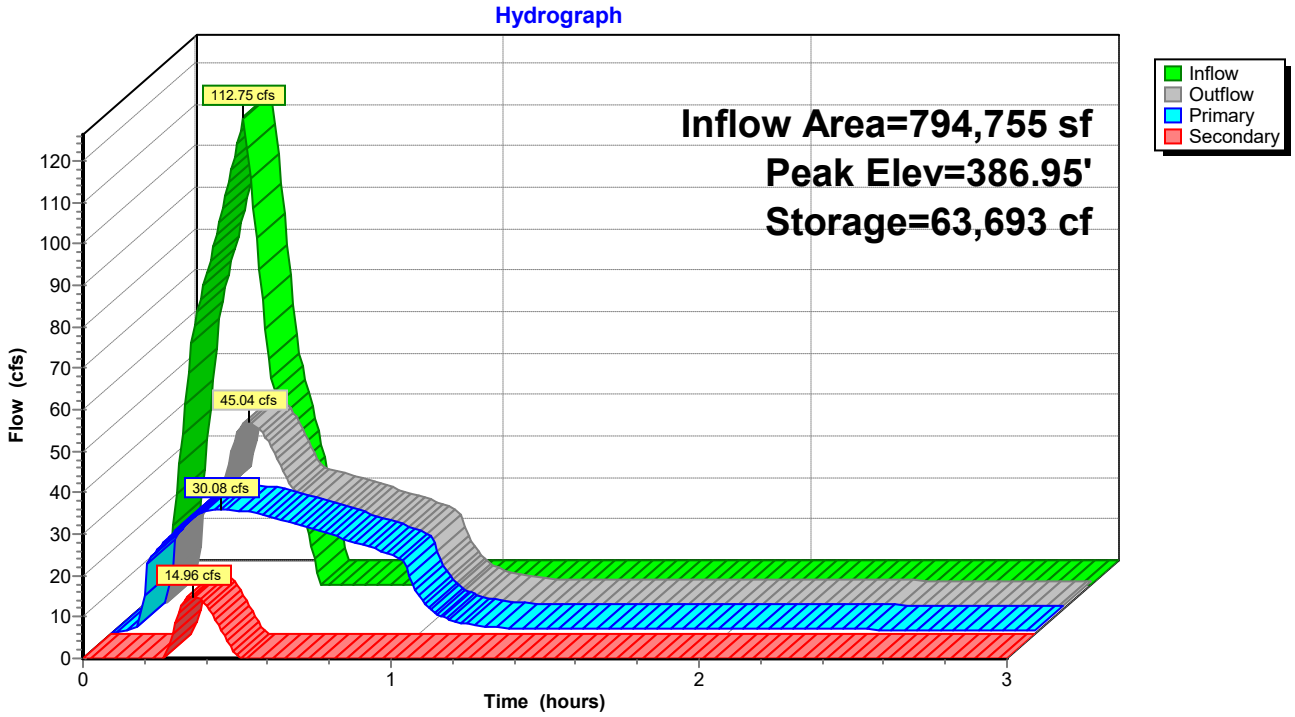
Elevation (feet)	Cum.Store (cubic-feet)
382.00	0
383.00	1,712
384.00	11,261
385.00	25,991
386.00	43,572
387.00	64,645

Device	Routing	Invert	Outlet Devices
#1	Primary	382.00'	**24.0" Round RCP_Round 24"** L= 20.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 382.00' / 381.00' S= 0.0500 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#2	Secondary	386.50'	**15.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Device 1	384.00'	**20.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s) 0.7' Crest Height
#4	Device 1	382.00'	**6.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

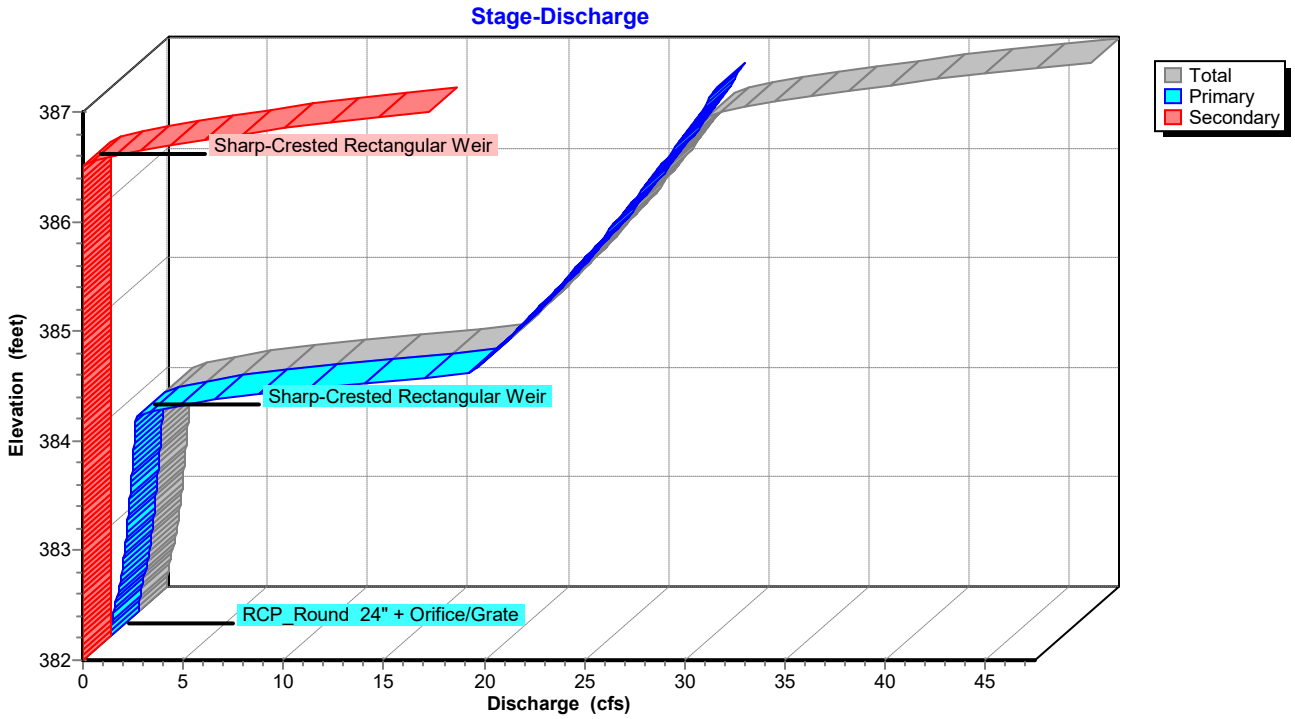
Primary OutFlow Max=30.08 cfs @ 0.36 hrs HW=386.95' (Free Discharge)
└**1=RCP_Round 24"** (Inlet Controls 30.08 cfs @ 9.57 fps)
├**3=Sharp-Crested Rectangular Weir** (Passes < 488.63 cfs potential flow)
└**4=Orifice/Grate** (Passes < 2.05 cfs potential flow)

Secondary OutFlow Max=14.92 cfs @ 0.36 hrs HW=386.95' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 14.92 cfs @ 2.20 fps)

Pond 1P: Regional Detention Basin



Pond 1P: Regional Detention Basin



Stage-Area-Storage for Pond 1P: Regional Detention Basin

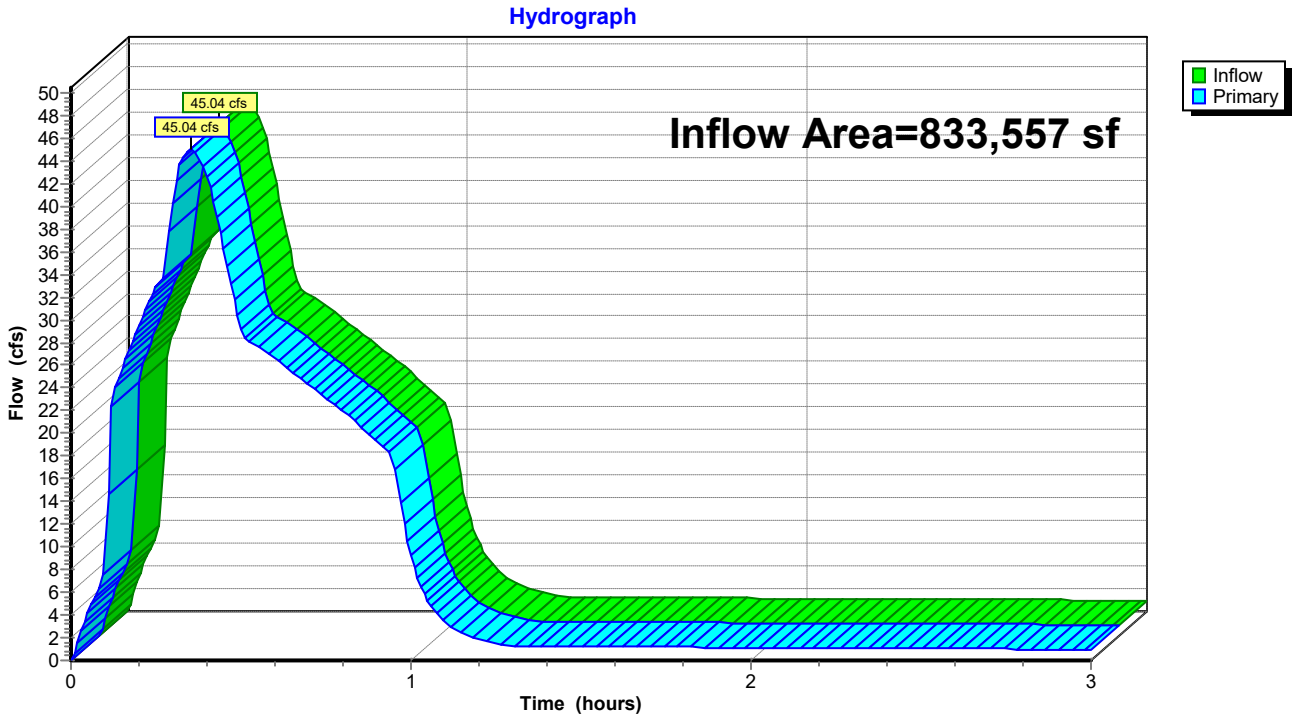
Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
382.00	0	384.60	20,099
382.05	86	384.65	20,835
382.10	171	384.70	21,572
382.15	257	384.75	22,309
382.20	342	384.80	23,045
382.25	428	384.85	23,782
382.30	514	384.90	24,518
382.35	599	384.95	25,254
382.40	685	385.00	25,991
382.45	770	385.05	26,870
382.50	856	385.10	27,749
382.55	942	385.15	28,628
382.60	1,027	385.20	29,507
382.65	1,113	385.25	30,386
382.70	1,198	385.30	31,265
382.75	1,284	385.35	32,144
382.80	1,370	385.40	33,023
382.85	1,455	385.45	33,902
382.90	1,541	385.50	34,782
382.95	1,626	385.55	35,661
383.00	1,712	385.60	36,540
383.05	2,189	385.65	37,419
383.10	2,667	385.70	38,298
383.15	3,144	385.75	39,177
383.20	3,622	385.80	40,056
383.25	4,099	385.85	40,935
383.30	4,577	385.90	41,814
383.35	5,054	385.95	42,693
383.40	5,532	386.00	43,572
383.45	6,009	386.05	44,626
383.50	6,487	386.10	45,679
383.55	6,964	386.15	46,733
383.60	7,441	386.20	47,787
383.65	7,919	386.25	48,840
383.70	8,396	386.30	49,894
383.75	8,874	386.35	50,948
383.80	9,351	386.40	52,001
383.85	9,829	386.45	53,055
383.90	10,306	386.50	54,109
383.95	10,784	386.55	55,162
384.00	11,261	386.60	56,216
384.05	11,998	386.65	57,269
384.10	12,734	386.70	58,323
384.15	13,470	386.75	59,377
384.20	14,207	386.80	60,430
384.25	14,944	386.85	61,484
384.30	15,680	386.90	62,538
384.35	16,417	386.95	63,591
384.40	17,153	387.00	**64,645**
384.45	17,889		
384.50	18,626		
384.55	19,363		

Summary for Link Post: Post Development

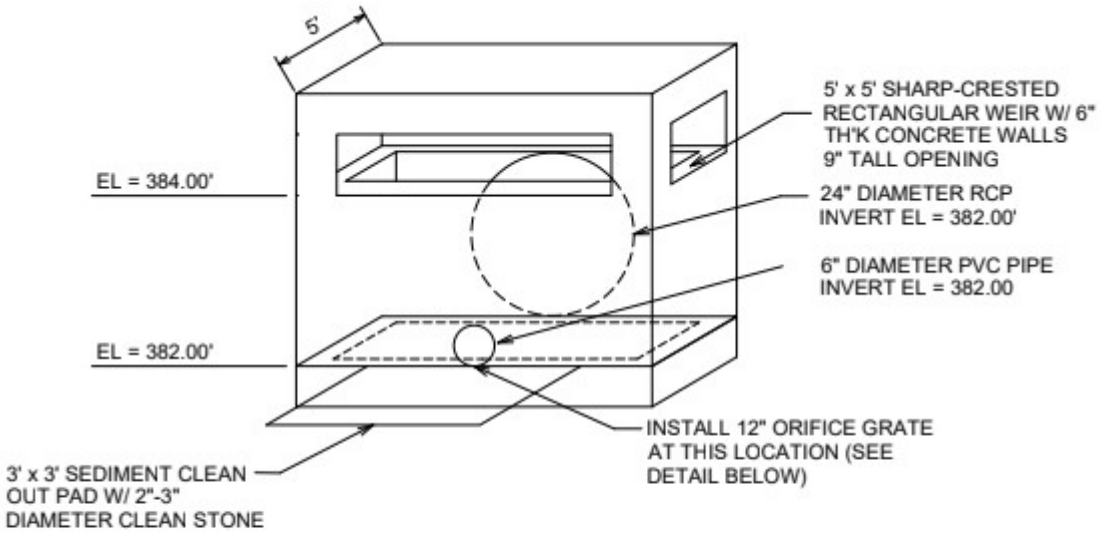
Inflow Area = 833,557 sf, 83.14% Impervious, Inflow Depth > 1.46" for 100-yr event
Inflow = 45.04 cfs @ 0.36 hrs, Volume= 101,706 cf
Primary = 45.04 cfs @ 0.36 hrs, Volume= 101,706 cf, Atten= 0%, Lag= 0.0 min

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

Link Post: Post Development



OUTLET STRUCTURE



DETENTION POND OUTLET STRUCTURE DETAIL NOT TO SCALE

USDA Soil Map

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

May 22, 2023

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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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

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.

Map Scale: 1:2,250 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 30 60 120 180

Feet: 0 100 200 400 600

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 19, Sep 12, 2022

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	9.4	100.0%
Totals for Area of Interest		**9.4**	**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

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

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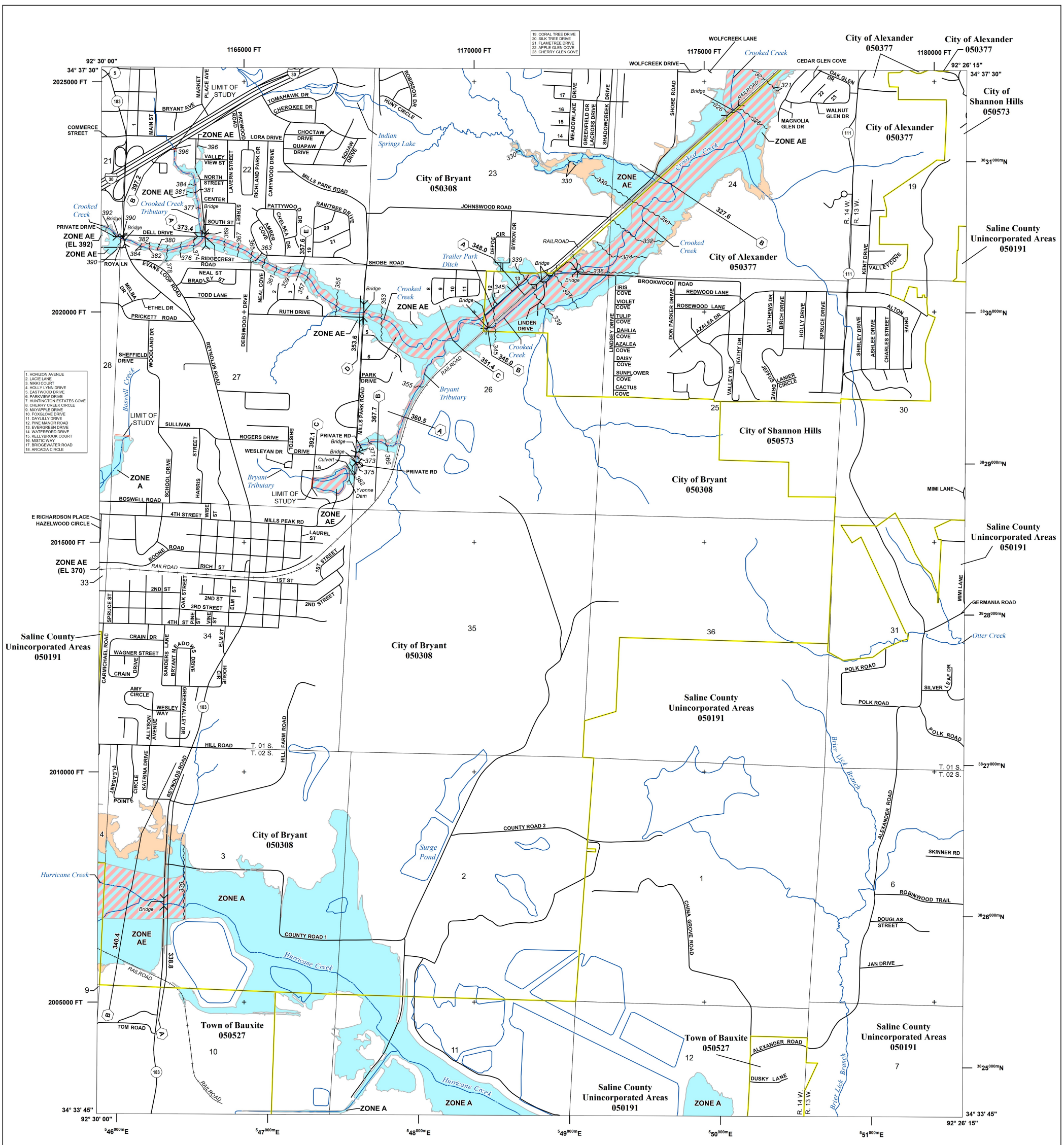
FEMA FIRMETTE



FLOOD HAZARD INFORMATION

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

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT

HTTPS://MSC.FEMA.GOV

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*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	E 18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
	8 Coastal Transect
	Coastal Transect Baseline
OTHER FEATURES	Profile Baseline
	Hydrographic Feature
	513 Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this Flood Insurance Rate Map (FIRM), available products associated with this FIRM, including historic versions, the current map date for each FIRM panel, how to order products, or the National Flood Insurance Program (NFIP) in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA Flood Map Service Center website at https://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website.

Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM Index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in the community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was derived from U.S. Census Bureau TIGER files, dated 2015, and digital data provided by the Arkansas Geographic Information Office, dated 2015.

SCALE

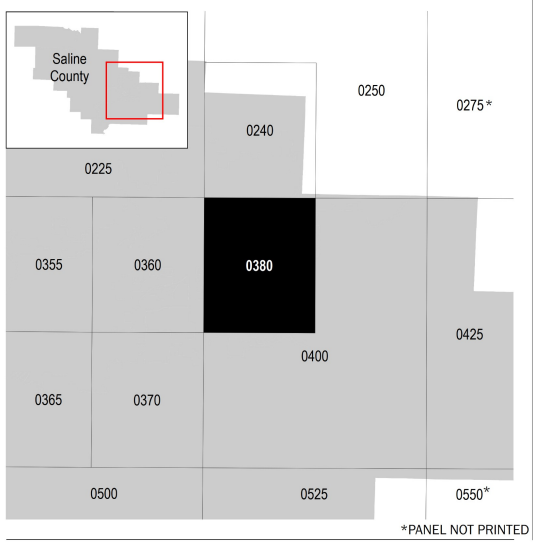
Map Projection:
State Plane Lambert Conformal Conic Arkansas South FIPS Zone 0302;
North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

1 inch = 1,000 feet 1:12,000

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

PANEL LOCATOR



*PANEL NOT PRINTED

FEMA National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM
FLOOD INSURANCE RATE MAP

SALINE COUNTY, ARKANSAS
and Incorporated Areas

PANEL **380** OF **575**

FEMA

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
ALEXANDER, CITY OF	050377	0380	E
BAUXITE, TOWN OF	050527	0380	E
BRYANT, CITY OF	050308	0380	E
SALINE COUNTY	050191	0380	E
SHANNON HILLS, CITY OF	050573	0380	E

VERSION NUMBER
2.3.3.2

MAP NUMBER
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JUNE 5, 2020