SPRINGHILL RETAIL

DRAINAGE NARRATIVE

Date: **05-21-2024**

Located in: **Bryant, Arkansas**

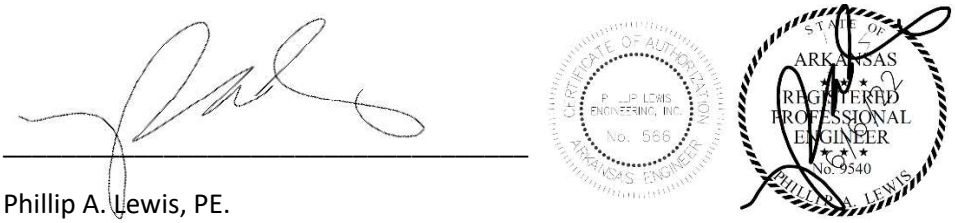
Prepared for:
City of Bryant, Arkansas

Prepared by:

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

CERTIFICATION

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



DATE: 05-21-2024

Phillip A. Lewis, PE.

PROJECT LOCATION MAP



Vicinity Map

SCALE 1" = 500'

DESCRIPTION OF PROPERTY

The proposed project is for the consruction of a retail center located on Springhill Road, south of the existing Merchants & Farmers Bank. The proposed development if for a 8,000 square foot building.

The intent of this drainage analysis is to evaluate the current drainage conditions coming through the site and adequately address the drainage increase created by this development.

The existing ground coverage for the entire development drainage basin consisted of poor condition grass, less than 50% covered.

According to FEMA Flood Insurance Rate Map, Panel 05125C0360E, this property lies within Zone X, areas determined to be outside the 0.2% annual chance floodplain. A copy of the map can be found in the appendix.

DRAINAGE OBSERVATIONS

On May 16th 2024, member of Phillip Lewis Engineering and The City of Bryant Stormwater Division met onsite to discuss current stormwater condition revolving around this site and the intended solutions going forward. The existing conditions are listed below:

- A 42” RCP culvert is located north of the proposed site, discharging stormwater from the Highway 5 storm sewer system. This discharge travels along the western edge of this project site.
- The existing Merchants & Farmers Bank has a 18” culvert discharging within this ditch flow line, located at the NW corner of this site.
- Roof and yard runoff from both wester adjacent property also discharge into this drainage ditch at various locations
- Downstream there is an existing “ponding area” throttle by (1) 24” culvert with an additional ARDOT 24” culvert to the east within the ARDOT right of way
- Existing ponding area located at the south corner of this site is approximately 8,000 to 9,000 cubic feet.
- Existing site conditions for this project is little to no grass cover, mainly clay ground cover with obvious signs of existing ground runoff.

PROPOSED DRAINAGE SOLUTIONS

After speaking with the Bryant Stormwater team, the below listed solutions have been designed. The main intent is to create more “ponding area” along the south of this project site to increase the “regional detention” volume that is located within this area.

- A 38” x 60” elliptical RCP culvert is proposed along the west property line to relay stormwater through the site without an open ditch.
- The capture and release of this culvert will be through standard flared end sections.
- The south pond area will be excavated and incresed to 11,000 cubic feet.
- The 2,000 to 3,000 cubit feet of volume increase will account for the 1,500 cubic feet of volume increase caused by the development of this facility. This increase if shown in the attached hydrographs
- The existing 24” CMP culvert will remain as the “outlet control structure”, and the existing ARDOT 24” RCP culvert will aid as an overflow oulet.
- The existing curb cut at elevation 405.69’ will serve as an overflow spillway if water is to rise that high or if outlet clogging occures.
- The 18” culvert from M&F Bank will be tied into the new elliptical culvert with a 7’ junction box.
- The western property runoff will be captured and collected into the elliptical culvert through a 24” RCP culvert and tied in with a 7’ junction box.

The Springhill Retail pre-development hydrographs are shown in the attached, along with an overall approximate look at post-developed conditions. General assumptions were made for off-site stormwater conditions.

PRE DEVELOPMENT HYDROGRAPHS

POST DEVELOPMENT HYDROGRAPHS

Summary for Subcatchment PRE: Springhill Retail Pre

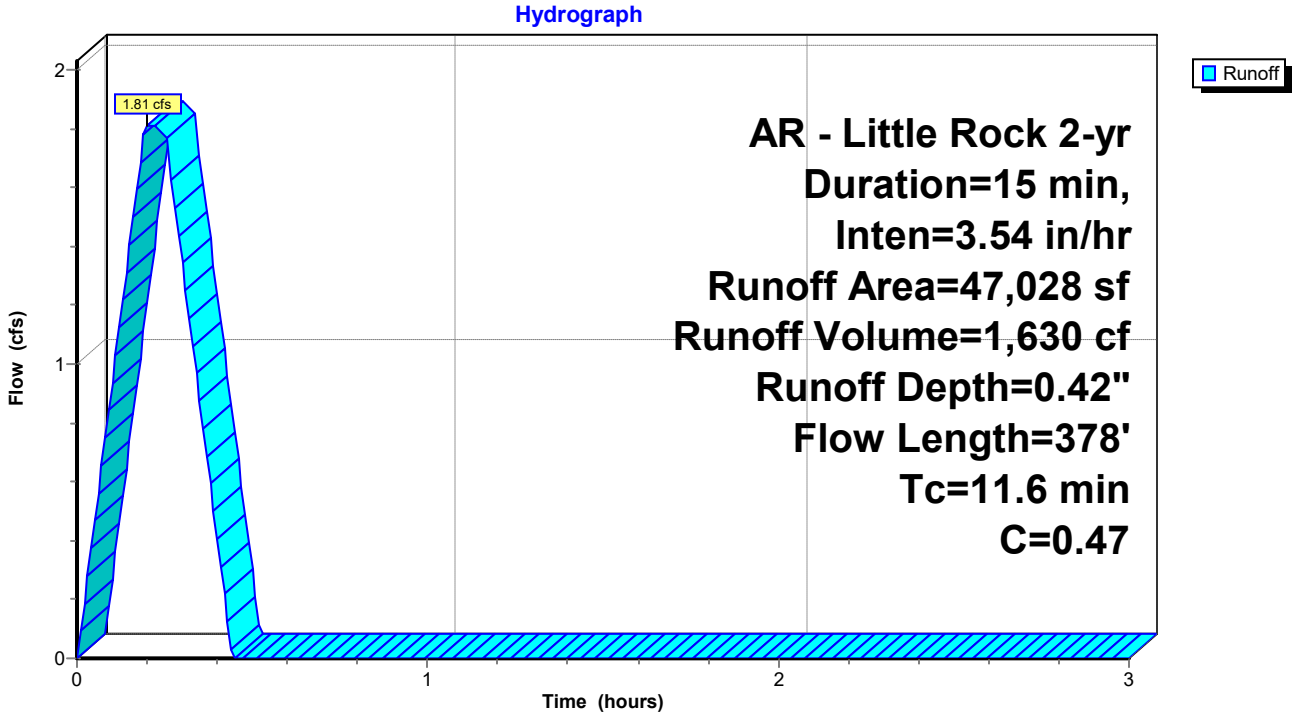
Runoff = 1.81 cfs @ 0.20 hrs, Volume= 1,630 cf, Depth= 0.42"

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
1,511	0.86	Existing Drive
45,517	0.46	Poor Condition Grass < 50%
47,028	0.47	Weighted Average
47,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	185	0.0510	0.32		**Sheet Flow, Overland Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	193	0.0110	1.57		**Shallow Concentrated Flow, Open Channel** Grassed Waterway Kv= 15.0 fps
11.6	378	Total			

Subcatchment PRE: Springhill Retail Pre



Summary for Subcatchment PRE: Springhill Retail Pre

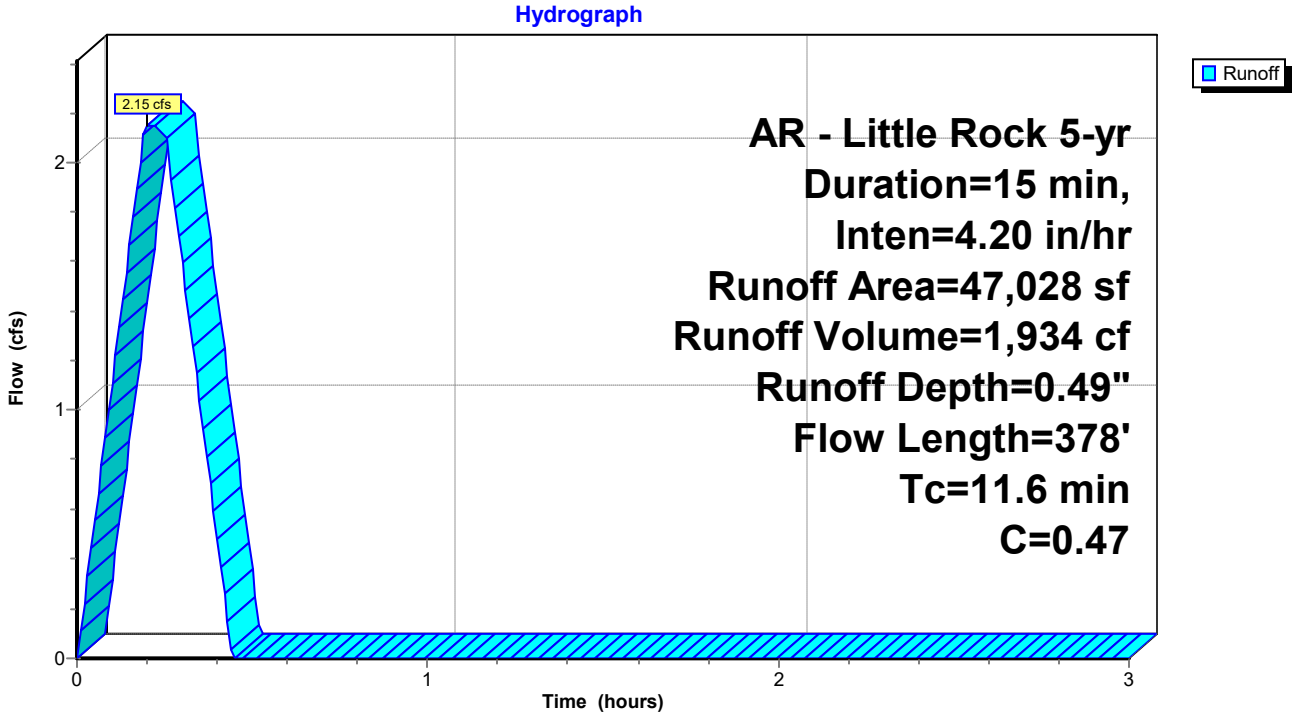
Runoff = 2.15 cfs @ 0.20 hrs, Volume= 1,934 cf, Depth= 0.49"

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
1,511	0.86	Existing Drive
45,517	0.46	Poor Condition Grass < 50%
47,028	0.47	Weighted Average
47,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	185	0.0510	0.32		**Sheet Flow, Overland Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	193	0.0110	1.57		**Shallow Concentrated Flow, Open Channel** Grassed Waterway Kv= 15.0 fps
11.6	378	Total			

Subcatchment PRE: Springhill Retail Pre



Summary for Subcatchment PRE: Springhill Retail Pre

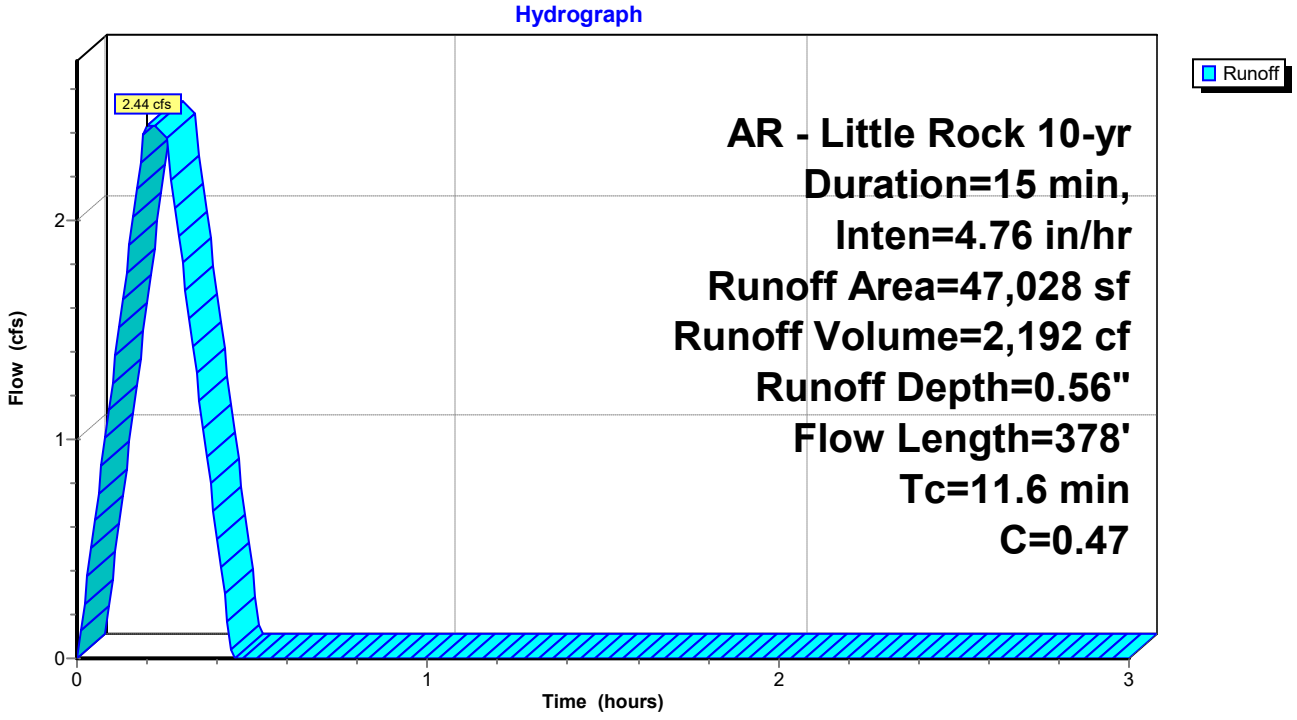
Runoff = 2.44 cfs @ 0.20 hrs, Volume= 2,192 cf, Depth= 0.56"

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
1,511	0.86	Existing Drive
45,517	0.46	Poor Condition Grass < 50%
47,028	0.47	Weighted Average
47,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	185	0.0510	0.32		**Sheet Flow, Overland Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	193	0.0110	1.57		**Shallow Concentrated Flow, Open Channel** Grassed Waterway Kv= 15.0 fps
11.6	378	Total			

Subcatchment PRE: Springhill Retail Pre



Summary for Subcatchment PRE: Springhill Retail Pre

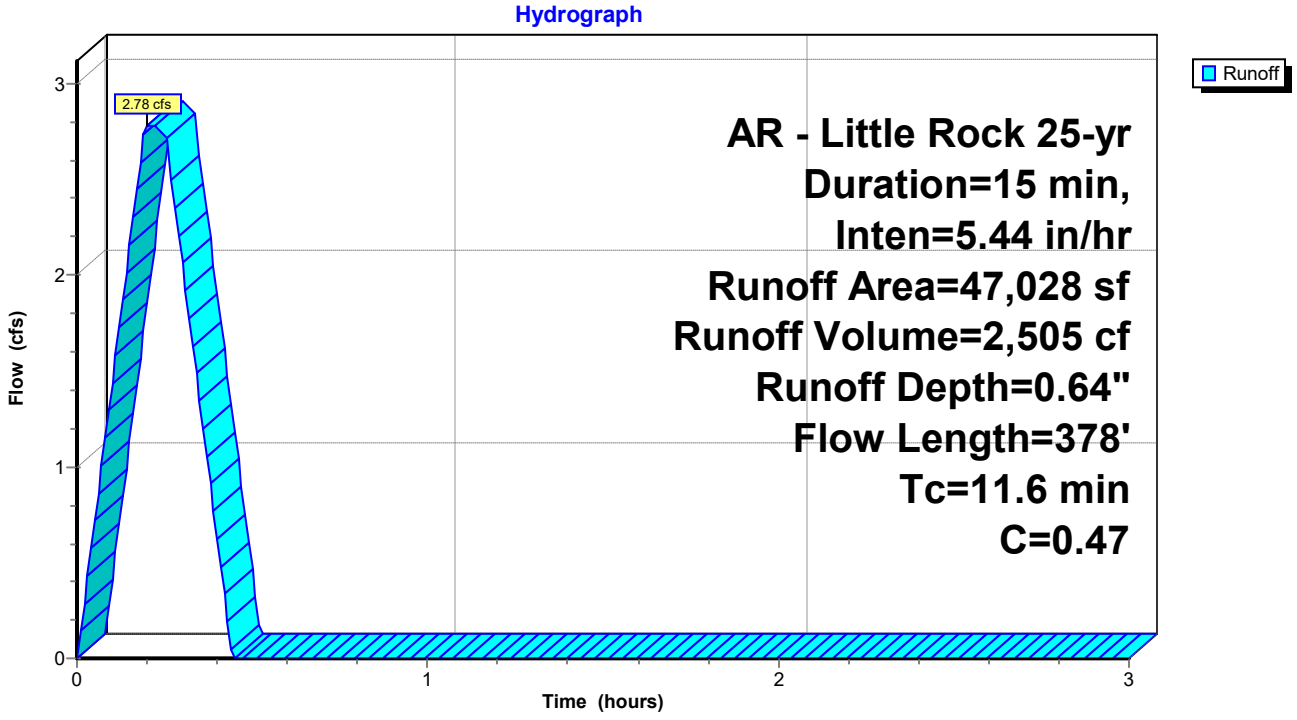
Runoff = 2.78 cfs @ 0.20 hrs, Volume= 2,505 cf, Depth= 0.64"

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
1,511	0.86	Existing Drive
45,517	0.46	Poor Condition Grass < 50%
47,028	0.47	Weighted Average
47,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	185	0.0510	0.32		**Sheet Flow, Overland Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	193	0.0110	1.57		**Shallow Concentrated Flow, Open Channel** Grassed Waterway Kv= 15.0 fps
11.6	378	Total			

Subcatchment PRE: Springhill Retail Pre



Summary for Subcatchment PRE: Springhill Retail Pre

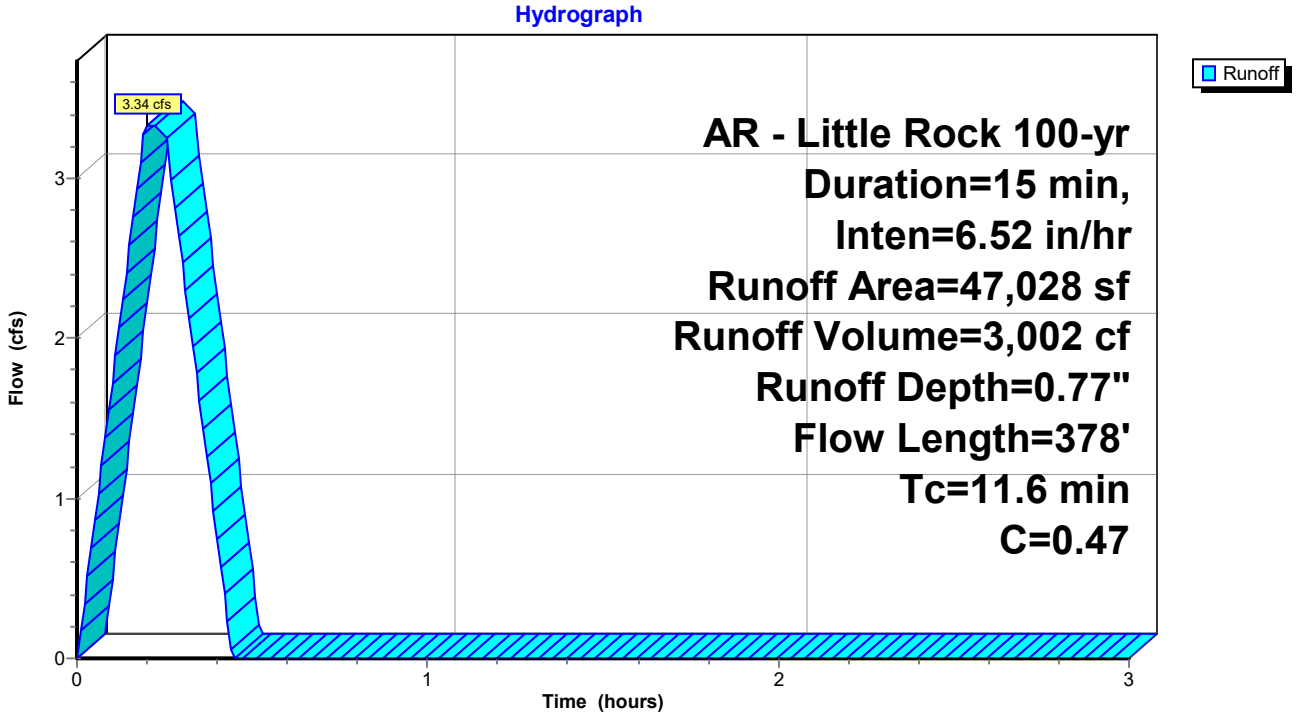
Runoff = 3.34 cfs @ 0.20 hrs, Volume= 3,002 cf, Depth= 0.77"

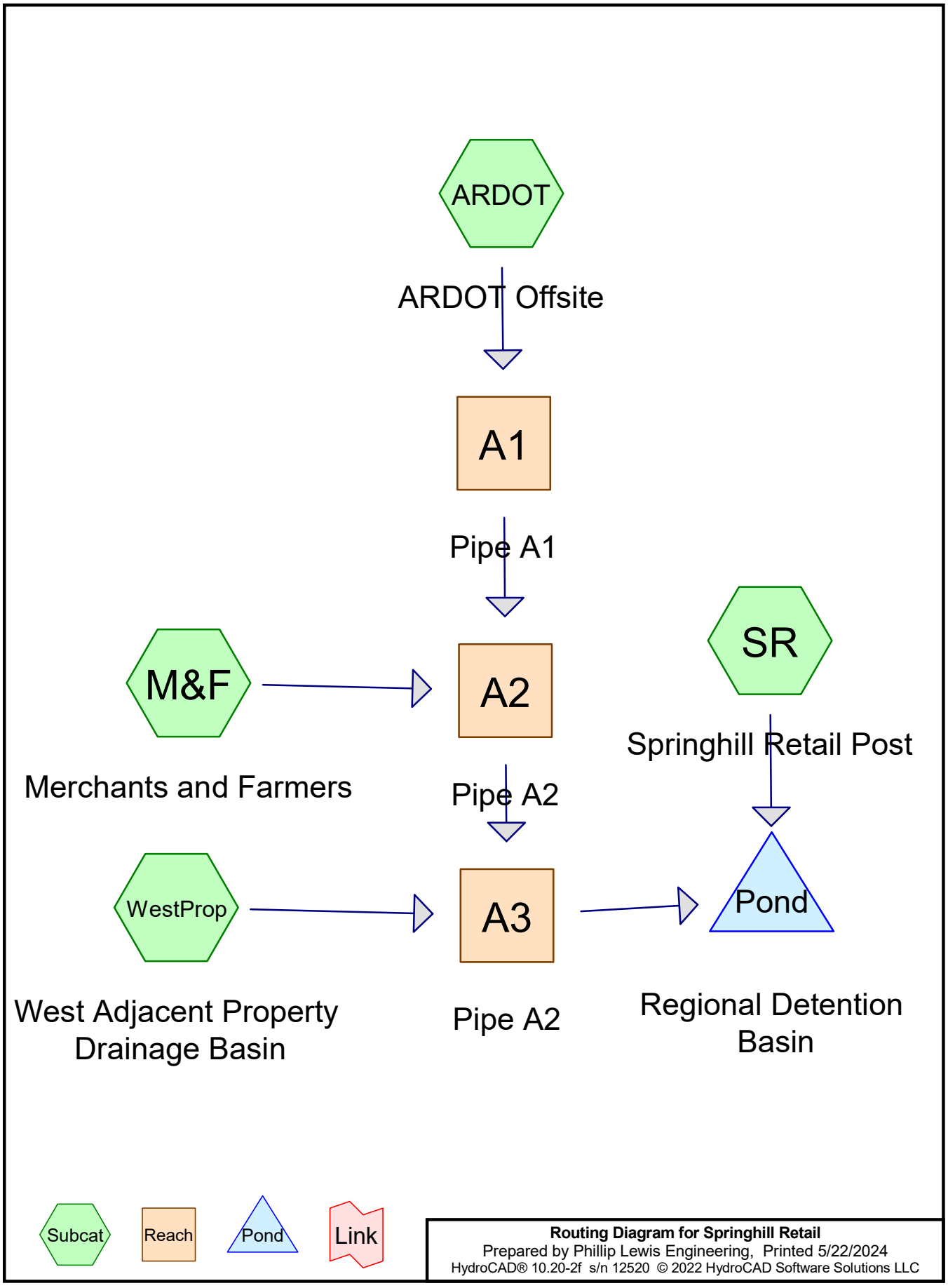
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
1,511	0.86	Existing Drive
45,517	0.46	Poor Condition Grass < 50%
47,028	0.47	Weighted Average
47,028		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.6	185	0.0510	0.32		**Sheet Flow, Overland Flow** Grass: Short n= 0.150 P2= 4.19"
2.0	193	0.0110	1.57		**Shallow Concentrated Flow, Open Channel** Grassed Waterway Kv= 15.0 fps
11.6	378	Total			

Subcatchment PRE: Springhill Retail Pre





Routing Diagram for Springhill Retail
Prepared by Phillip Lewis Engineering, Printed 5/22/2024
HydroCAD® 10.20-2f s/n 12520 © 2022 HydroCAD Software Solutions LLC

Summary for Subcatchment ARDOT: ARDOT Offsite

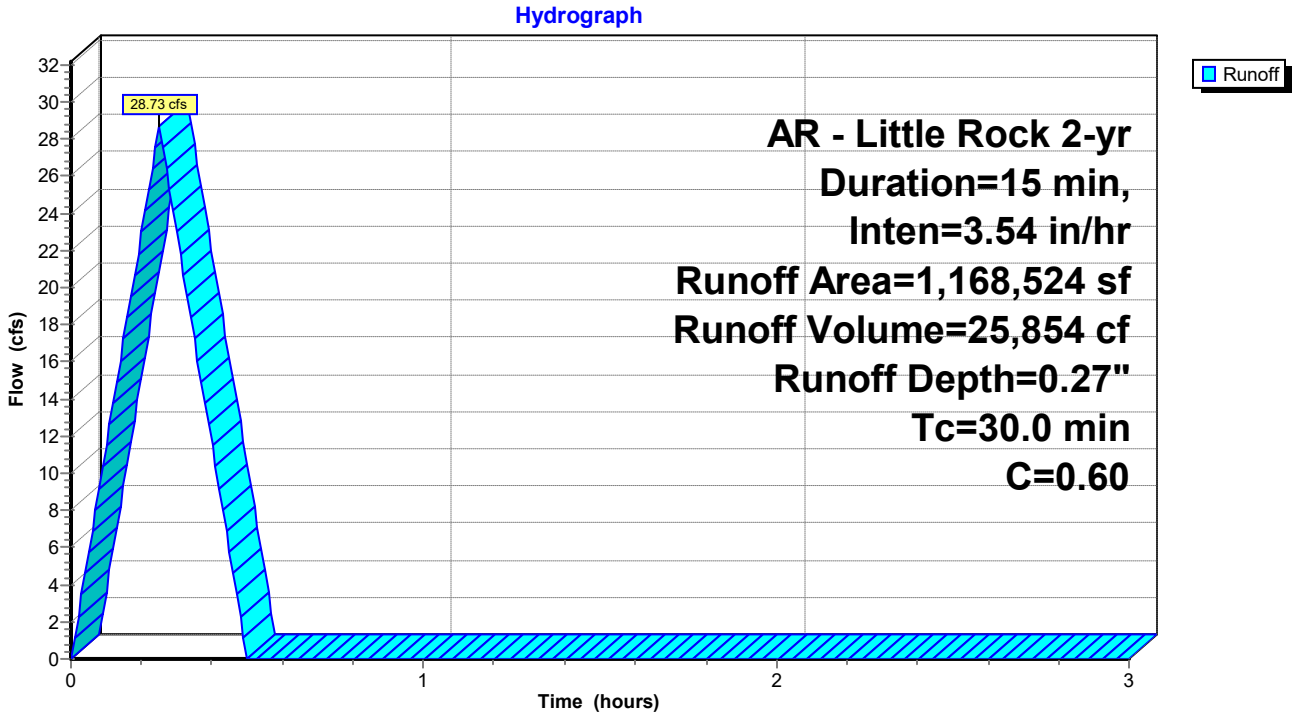
Runoff = 28.73 cfs @ 0.25 hrs, Volume= 25,854 cf, Depth= 0.27"
Routed to Reach A1 : Pipe A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
1,168,524	0.60	
1,168,524		100.00% Pervious Area

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

Subcatchment ARDOT: ARDOT Offsite



Summary for Subcatchment M&F: Merchants and Farmers

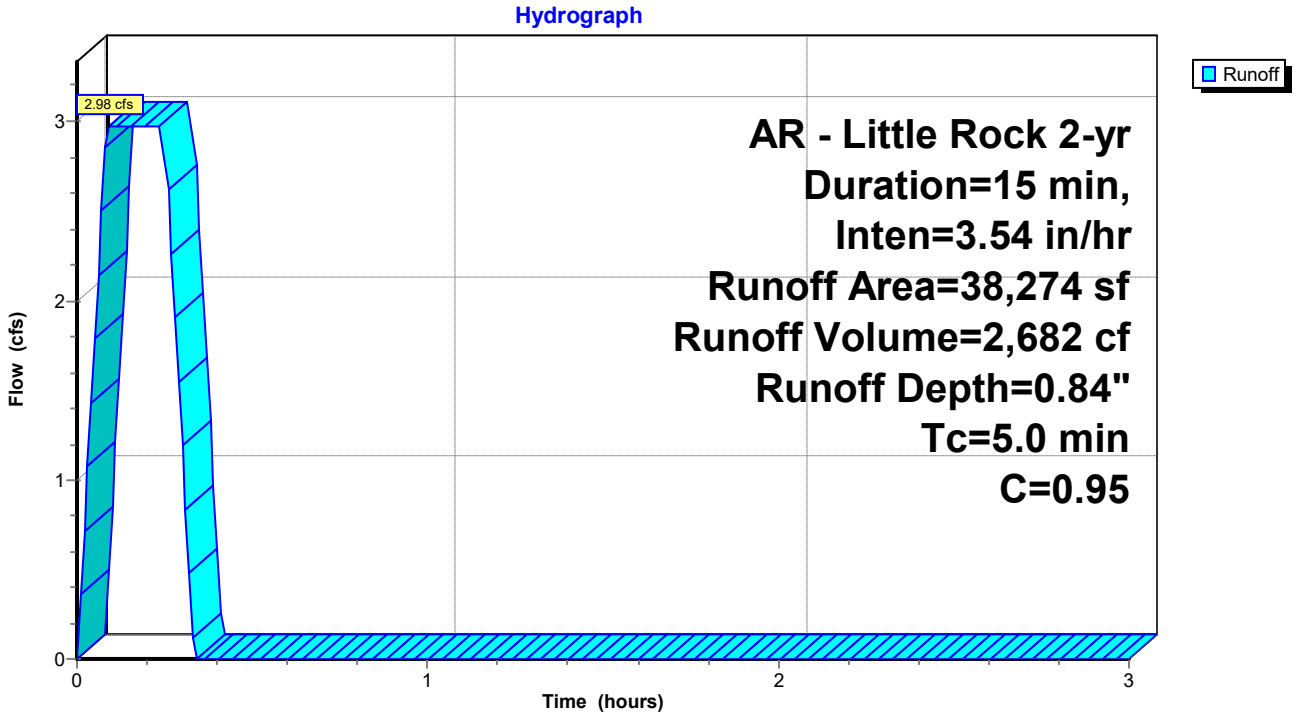
Runoff = 2.98 cfs @ 0.09 hrs, Volume= 2,682 cf, Depth= 0.84"
Routed to Reach A2 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
38,274	0.95	Developed Site
38,274		100.00% Impervious Area

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

Subcatchment M&F: Merchants and Farmers



Summary for Subcatchment SR: Springhill Retail Post

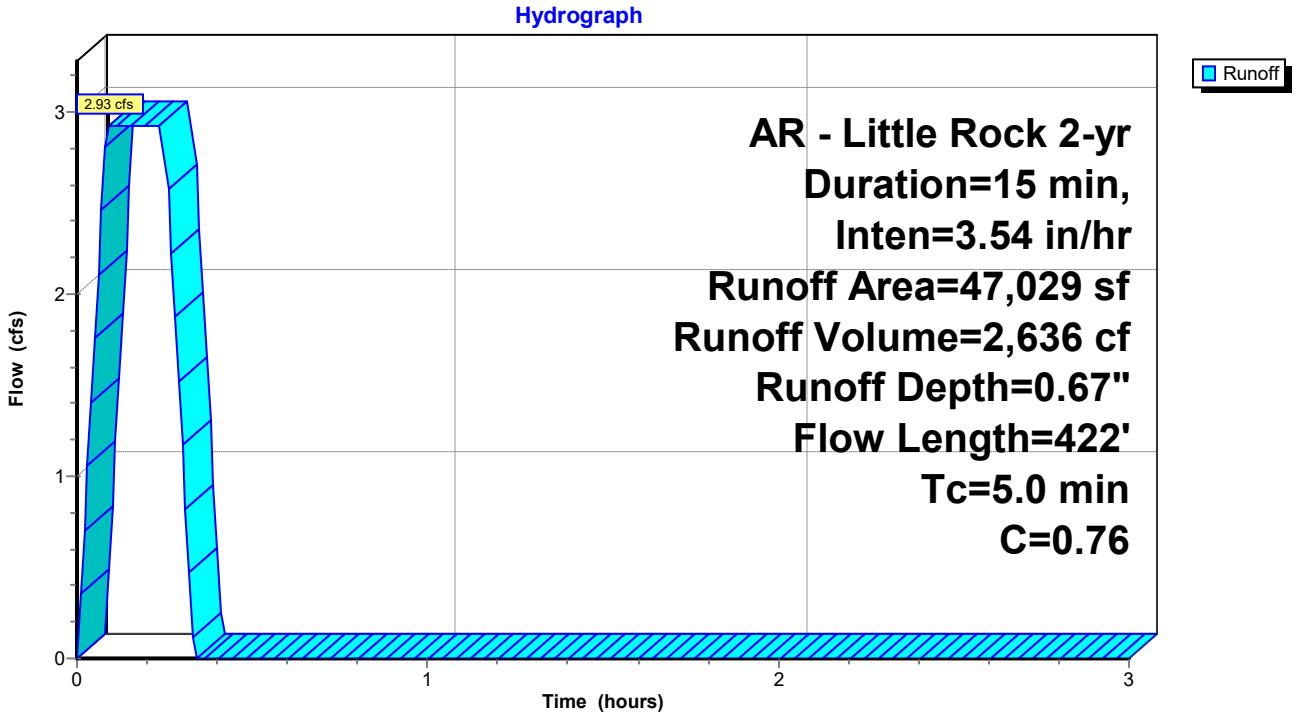
Runoff = 2.93 cfs @ 0.09 hrs, Volume= 2,636 cf, Depth= 0.67"
Routed to Pond Pond : Regional Detention Basin

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
1,511	0.86	Existing Drive
33,632	0.92	Drives, Roof, Sidewalks
11,886	0.30	Landscaped Areas
47,029	0.76	Weighted Average
47,029		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	82	0.0290	1.76		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.8	87	0.0080	1.82		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.1	19	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Pavement Flow** Paved Kv= 20.3 fps
1.0	197	0.0250	3.21		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	37	0.0130	2.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.0					**Direct Entry, Minimum adjustment**
5.0	422	Total			

Subcatchment SR: Springhill Retail Post



Summary for Subcatchment WestProp: West Adjacent Property Drainage Basin

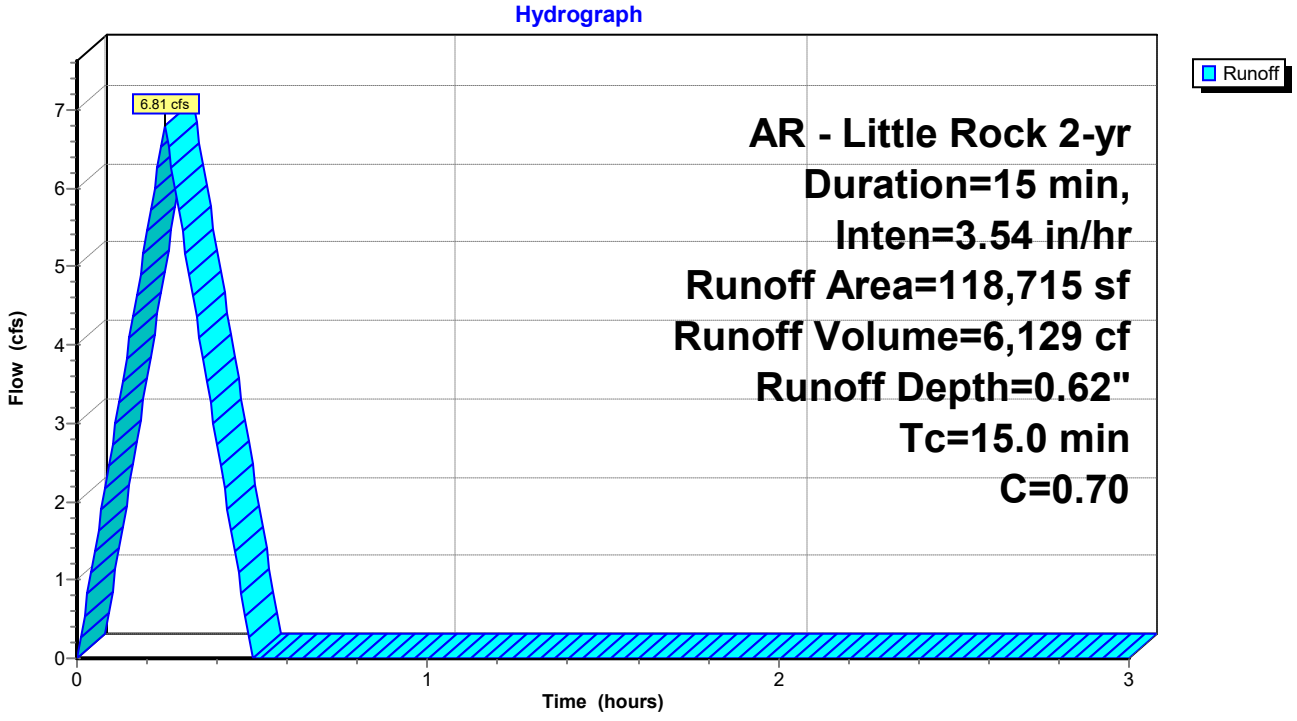
Runoff = 6.81 cfs @ 0.25 hrs, Volume= 6,129 cf, Depth= 0.62"
Routed to Reach A3 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=15 min, Inten=3.54 in/hr

Area (sf)	C	Description
65,063	0.50	Pervious Areas
53,652	0.95	Rooftop/Paving
118,715	0.70	Weighted Average
65,063		54.81% Pervious Area
53,652		45.19% Impervious Area

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

Subcatchment WestProp: West Adjacent Property Drainage Basin



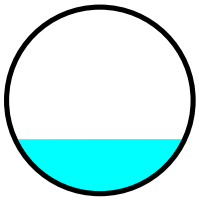
Summary for Reach A1: Pipe A1

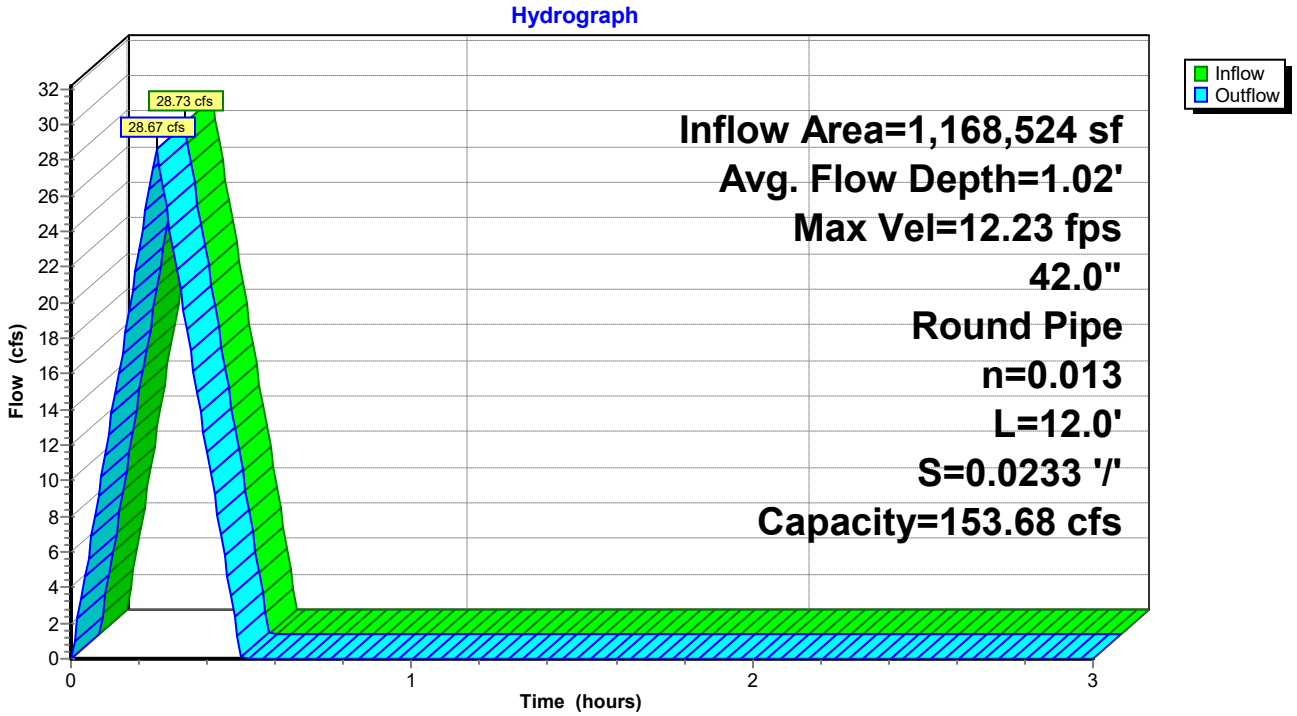
Inflow Area = 1,168,524 sf, 0.00% Impervious, Inflow Depth = 0.27" for 2-yr event
Inflow = 28.73 cfs @ 0.25 hrs, Volume= 25,854 cf
Outflow = 28.67 cfs @ 0.25 hrs, Volume= 25,855 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.23 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 9.46 fps, Avg. Travel Time= 0.0 min

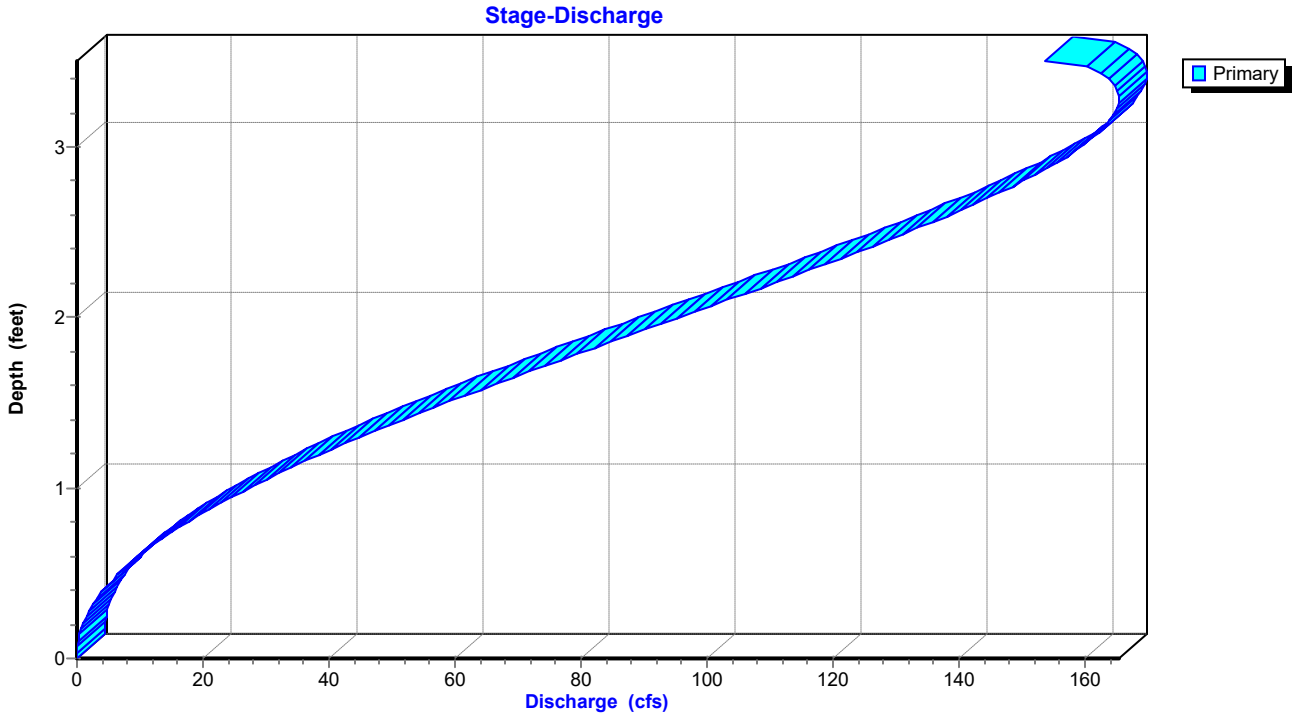
Peak Storage= 28 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.02' , Surface Width= 3.18'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 153.68 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 413.00', Outlet Invert= 412.72'





Reach A1: Pipe A1



Stage-Area-Storage for Reach A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
413.00	0.0	0
413.05	0.0	0
413.10	0.1	1
413.15	0.1	2
413.20	0.2	3
413.25	0.3	4
413.30	0.4	5
413.35	0.5	6
413.40	0.6	7
413.45	0.7	9
413.50	0.8	10
413.55	1.0	12
413.60	1.1	13
413.65	1.2	15
413.70	1.4	16
413.75	1.5	18
413.80	1.7	20
413.85	1.8	22
413.90	2.0	23
413.95	2.1	25
414.00	2.3	27
414.05	2.4	29
414.10	2.6	31
414.15	2.8	33
414.20	2.9	35
414.25	3.1	37
414.30	3.3	39
414.35	3.4	41
414.40	3.6	43
414.45	3.8	45
414.50	3.9	47
414.55	4.1	49
414.60	4.3	51
414.65	4.5	54
414.70	4.6	56
414.75	4.8	58
414.80	5.0	60
414.85	5.2	62
414.90	5.3	64
414.95	5.5	66
415.00	5.7	68
415.05	5.9	70
415.10	6.0	72
415.15	6.2	74
415.20	6.4	76
415.25	6.5	78
415.30	6.7	80
415.35	6.9	82
415.40	7.0	84
415.45	7.2	86
415.50	7.4	88
415.55	7.5	90
415.60	7.7	92
415.65	7.8	94
415.70	8.0	96
415.75	8.1	97
415.80	8.3	99
415.85	8.4	101
415.90	8.5	102
415.95	8.7	104
416.00	8.8	105
416.05	8.9	107
416.10	9.0	108
416.15	9.1	109
416.20	9.2	111
416.25	9.3	112
416.30	9.4	113
416.35	9.5	114
416.40	9.5	115
416.45	9.6	115
416.50	**9.6**	**115**

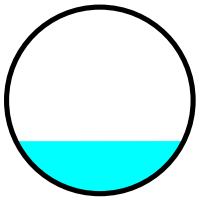
Summary for Reach A2: Pipe A2

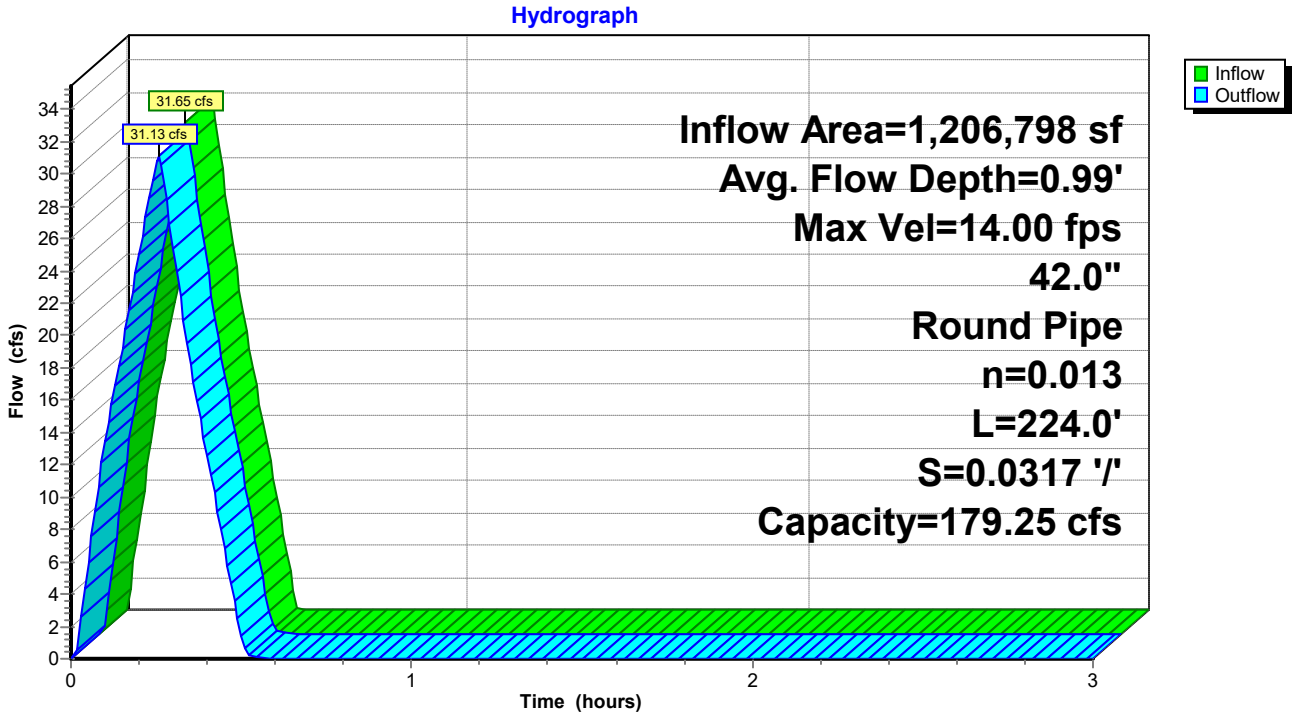
Inflow Area = 1,206,798 sf, 3.17% Impervious, Inflow Depth = 0.28" for 2-yr event
Inflow = 31.65 cfs @ 0.25 hrs, Volume= 28,536 cf
Outflow = 31.13 cfs @ 0.26 hrs, Volume= 28,536 cf, Atten= 2%, Lag= 0.5 min
Routed to Reach A3 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.00 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 7.95 fps, Avg. Travel Time= 0.5 min

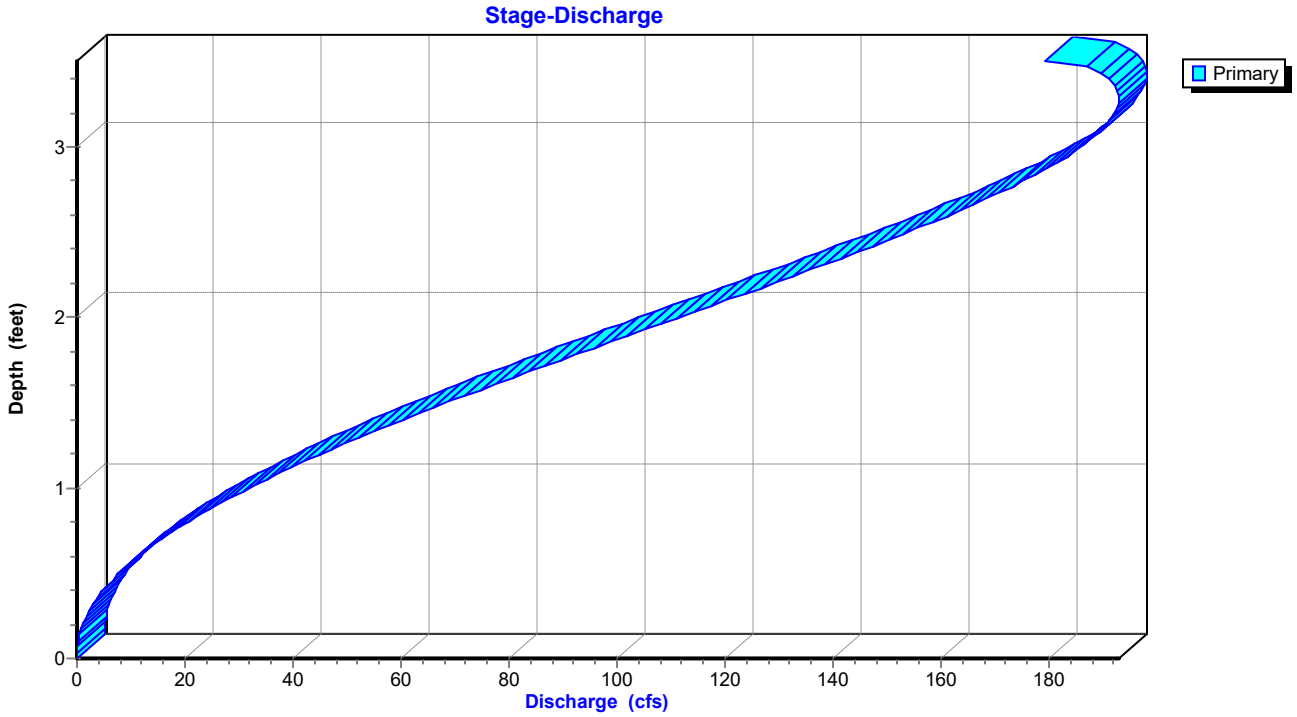
Peak Storage= 501 cf @ 0.25 hrs
Average Depth at Peak Storage= 0.99' , Surface Width= 3.15'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 179.25 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 224.0' Slope= 0.0317 '/'
Inlet Invert= 412.52', Outlet Invert= 405.41'





Reach A2: Pipe A2



Stage-Area-Storage for Reach A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
412.52	0.0	0
412.57	0.0	6
412.62	0.1	18
412.67	0.1	32
412.72	0.2	49
412.77	0.3	68
412.82	0.4	90
412.87	0.5	112
412.92	0.6	136
412.97	0.7	162
413.02	0.8	189
413.07	1.0	217
413.12	1.1	246
413.17	1.2	276
413.22	1.4	307
413.27	1.5	339
413.32	1.7	371
413.37	1.8	404
413.42	2.0	438
413.47	2.1	473
413.52	2.3	508
413.57	2.4	544
413.62	2.6	580
413.67	2.8	617
413.72	2.9	654
413.77	3.1	691
413.82	3.3	729
413.87	3.4	767
413.92	3.6	805
413.97	3.8	844
414.02	3.9	882
414.07	4.1	921
414.12	4.3	960
414.17	4.5	999
414.22	4.6	1,038
414.27	4.8	1,078
414.32	5.0	1,117
414.37	5.2	1,156
414.42	5.3	1,195
414.47	5.5	1,234
414.52	5.7	1,273
414.57	5.9	1,312
414.62	6.0	1,350
414.67	6.2	1,388
414.72	6.4	1,426
414.77	6.5	1,464
414.82	6.7	1,502
414.87	6.9	1,539
414.92	7.0	1,575
414.97	7.2	1,611
415.02	7.4	1,647
415.07	7.5	1,682
415.12	7.7	1,717
415.17	7.8	1,751
415.22	8.0	1,784
415.27	8.1	1,816
415.32	8.3	1,848
415.37	8.4	1,879
415.42	8.5	1,909
415.47	8.7	1,938
415.52	8.8	1,966
415.57	8.9	1,993
415.62	9.0	2,019
415.67	9.1	2,043
415.72	9.2	2,066
415.77	9.3	2,087
415.82	9.4	2,106
415.87	9.5	2,123
415.92	9.5	2,138
415.97	9.6	2,149
416.02	**9.6**	**2,155**

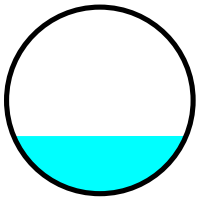
Summary for Reach A3: Pipe A2

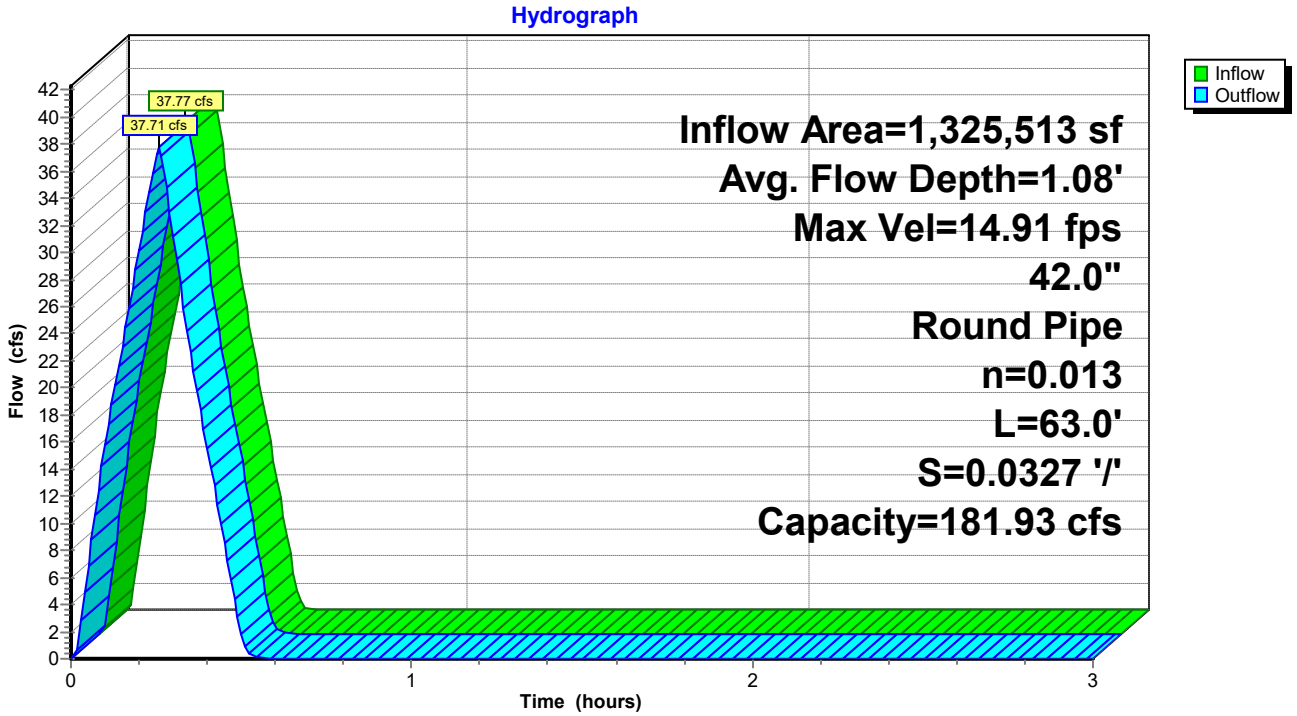
Inflow Area = 1,325,513 sf, 6.94% Impervious, Inflow Depth = 0.31" for 2-yr event
Inflow = 37.77 cfs @ 0.26 hrs, Volume= 34,665 cf
Outflow = 37.71 cfs @ 0.26 hrs, Volume= 34,665 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond Pond : Regional Detention Basin

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.91 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 8.41 fps, Avg. Travel Time= 0.1 min

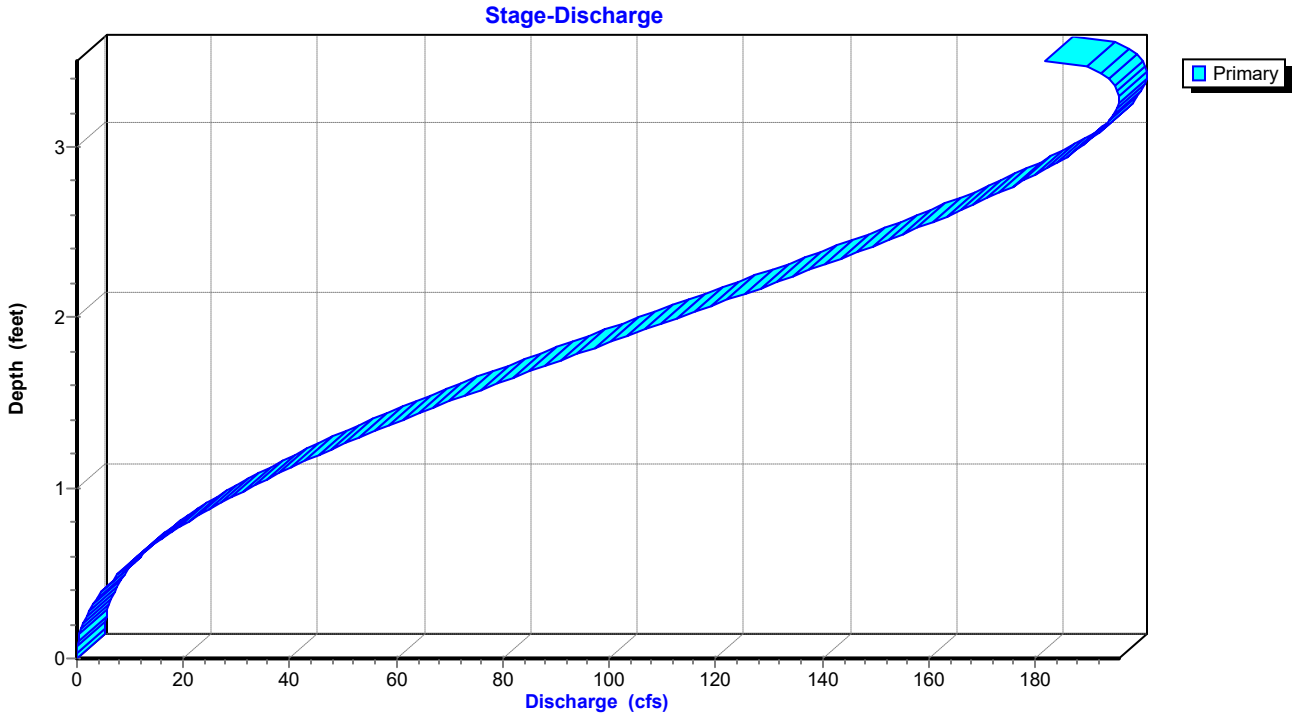
Peak Storage= 160 cf @ 0.26 hrs
Average Depth at Peak Storage= 1.08' , Surface Width= 3.24'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 181.93 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 63.0' Slope= 0.0327 '/'
Inlet Invert= 405.31', Outlet Invert= 403.25'





Reach A3: Pipe A2



Stage-Area-Storage for Reach A3: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
405.31	0.0	0
405.36	0.0	2
405.41	0.1	5
405.46	0.1	9
405.51	0.2	14
405.56	0.3	19
405.61	0.4	25
405.66	0.5	32
405.71	0.6	38
405.76	0.7	46
405.81	0.8	53
405.86	1.0	61
405.91	1.1	69
405.96	1.2	78
406.01	1.4	86
406.06	1.5	95
406.11	1.7	104
406.16	1.8	114
406.21	2.0	123
406.26	2.1	133
406.31	2.3	143
406.36	2.4	153
406.41	2.6	163
406.46	2.8	173
406.51	2.9	184
406.56	3.1	194
406.61	3.3	205
406.66	3.4	216
406.71	3.6	226
406.76	3.8	237
406.81	3.9	248
406.86	4.1	259
406.91	4.3	270
406.96	4.5	281
407.01	4.6	292
407.06	4.8	303
407.11	5.0	314
407.16	5.2	325
407.21	5.3	336
407.26	5.5	347
407.31	5.7	358
407.36	5.9	369
407.41	6.0	380
407.46	6.2	390
407.51	6.4	401
407.56	6.5	412
407.61	6.7	422
407.66	6.9	433
407.71	7.0	443
407.76	7.2	453
407.81	7.4	463
407.86	7.5	473
407.91	7.7	483
407.96	7.8	492
408.01	8.0	502
408.06	8.1	511
408.11	8.3	520
408.16	8.4	529
408.21	8.5	537
408.26	8.7	545
408.31	8.8	553
408.36	8.9	561
408.41	9.0	568
408.46	9.1	575
408.51	9.2	581
408.56	9.3	587
408.61	9.4	592
408.66	9.5	597
408.71	9.5	601
408.76	9.6	604
408.81	**9.6**	**606**

Summary for Pond Pond: Regional Detention Basin

Inflow Area = 1,372,542 sf, 6.70% Impervious, Inflow Depth = 0.33" for 2-yr event
Inflow = 40.42 cfs @ 0.26 hrs, Volume= 37,301 cf
Outflow = 34.70 cfs @ 0.29 hrs, Volume= 37,302 cf, Atten= 14%, Lag= 2.1 min
Primary = 34.70 cfs @ 0.29 hrs, Volume= 37,302 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 404.26' @ 0.29 hrs Storage= 3,846 cf

Plug-Flow detention time= 1.2 min calculated for 37,178 cf (100% of inflow)
Center-of-Mass det. time= 1.2 min (16.1 - 14.9)

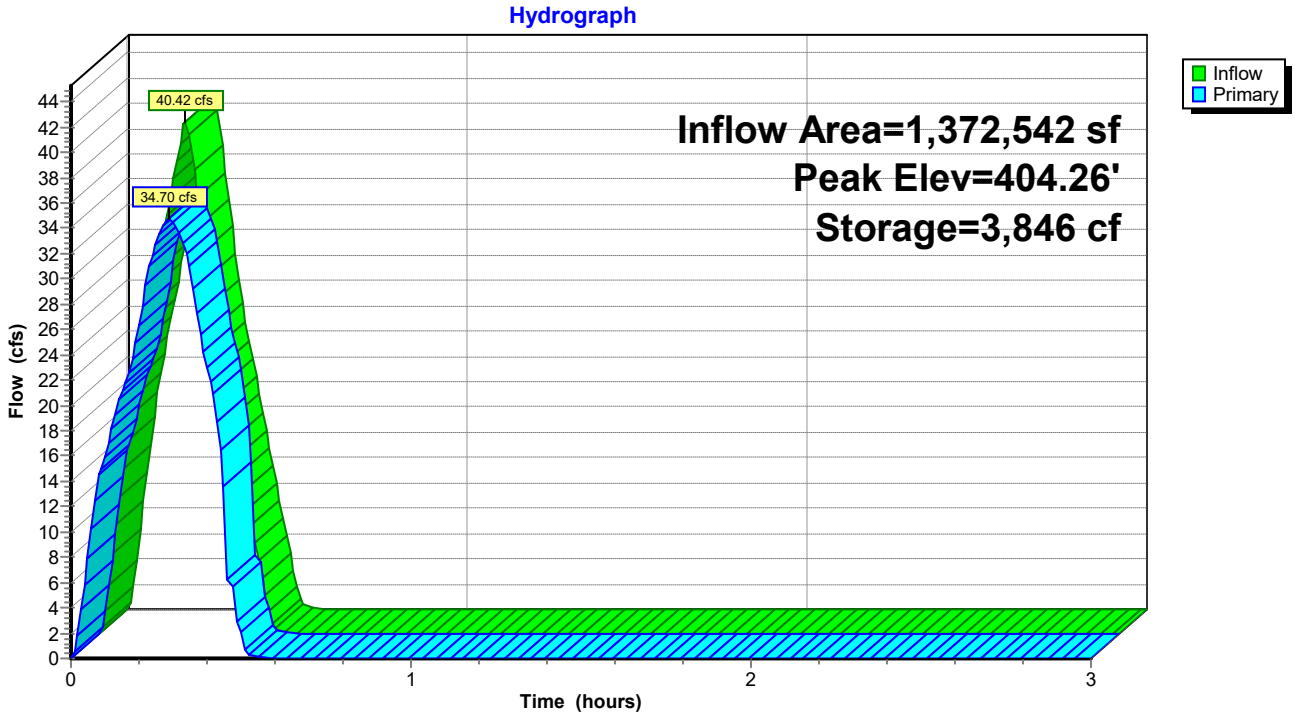
Volume	Invert	Avail.Storage	Storage Description
#1	401.00'	12,812 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
401.00	0
402.00	103
403.00	803
404.00	2,704
405.00	7,038
406.00	12,812

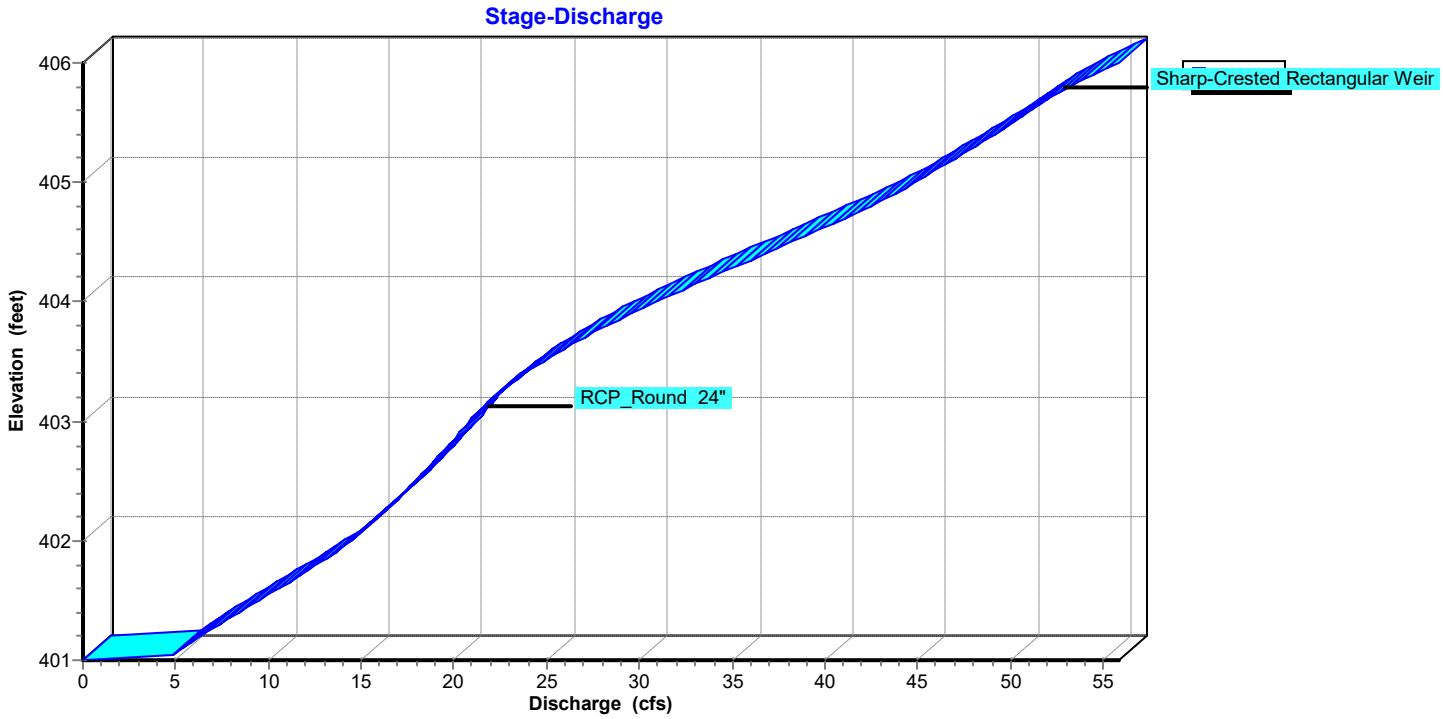
Device	Routing	Invert	Outlet Devices
#1	Primary	400.10'	**24.0" Round RCP_Round 24"** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 400.10' / 397.97' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	403.02'	**24.0" Round RCP_Round 24"** L= 35.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 403.02' / 401.73' S= 0.0369 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Primary	405.69'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=34.69 cfs @ 0.29 hrs HW=404.26' (Free Discharge)
- **1=RCP_Round 24"** (Inlet Controls 26.90 cfs @ 8.56 fps)
- **2=RCP_Round 24"** (Inlet Controls 7.79 cfs @ 3.80 fps)
- **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Pond: Regional Detention Basin



Pond Pond: Regional Detention Basin



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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
401.00	0	403.60	1,944
401.05	5	403.65	2,039
401.10	10	403.70	2,134
401.15	15	403.75	2,229
401.20	21	403.80	2,324
401.25	26	403.85	2,419
401.30	31	403.90	2,514
401.35	36	403.95	2,609
401.40	41	404.00	2,704
401.45	46	404.05	2,921
401.50	52	404.10	3,137
401.55	57	404.15	3,354
401.60	62	404.20	3,571
401.65	67	404.25	3,788
401.70	72	404.30	4,004
401.75	77	404.35	4,221
401.80	82	404.40	4,438
401.85	88	404.45	4,654
401.90	93	404.50	4,871
401.95	98	404.55	5,088
402.00	103	404.60	5,304
402.05	138	404.65	5,521
402.10	173	404.70	5,738
402.15	208	404.75	5,955
402.20	243	404.80	6,171
402.25	278	404.85	6,388
402.30	313	404.90	6,605
402.35	348	404.95	6,821
402.40	383	405.00	7,038
402.45	418	405.05	7,327
402.50	453	405.10	7,615
402.55	488	405.15	7,904
402.60	523	405.20	8,193
402.65	558	405.25	8,482
402.70	593	405.30	8,770
402.75	628	405.35	9,059
402.80	663	405.40	9,348
402.85	698	405.45	9,636
402.90	733	405.50	9,925
402.95	768	405.55	10,214
403.00	803	405.60	10,502
403.05	898	405.65	10,791
403.10	993	405.70	11,080
403.15	1,088	405.75	11,369
403.20	1,183	405.80	11,657
403.25	1,278	405.85	11,946
403.30	1,373	405.90	12,235
403.35	1,468	405.95	12,523
403.40	1,563	406.00	**12,812**
403.45	1,658		
403.50	1,754		
403.55	1,849		

Summary for Subcatchment ARDOT: ARDOT Offsite

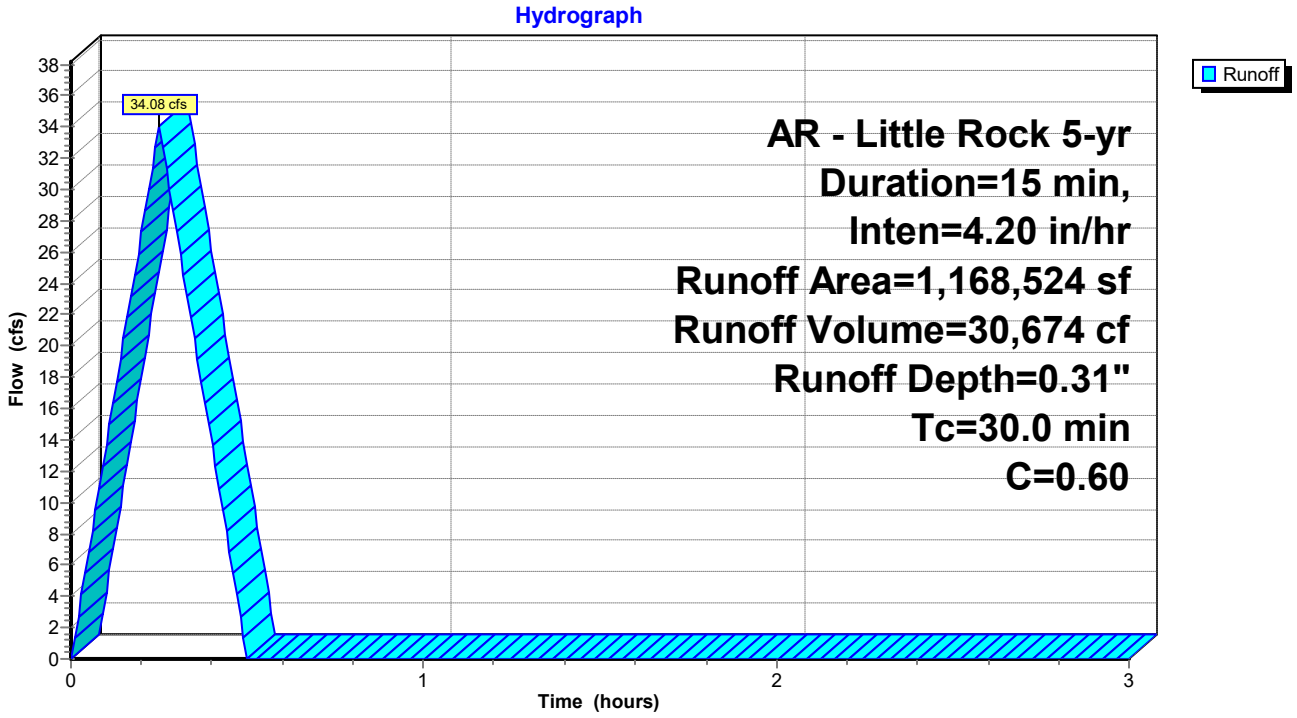
Runoff = 34.08 cfs @ 0.25 hrs, Volume= 30,674 cf, Depth= 0.31"
Routed to Reach A1 : Pipe A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
1,168,524	0.60	
1,168,524		100.00% Pervious Area

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

Subcatchment ARDOT: ARDOT Offsite



Summary for Subcatchment M&F: Merchants and Farmers

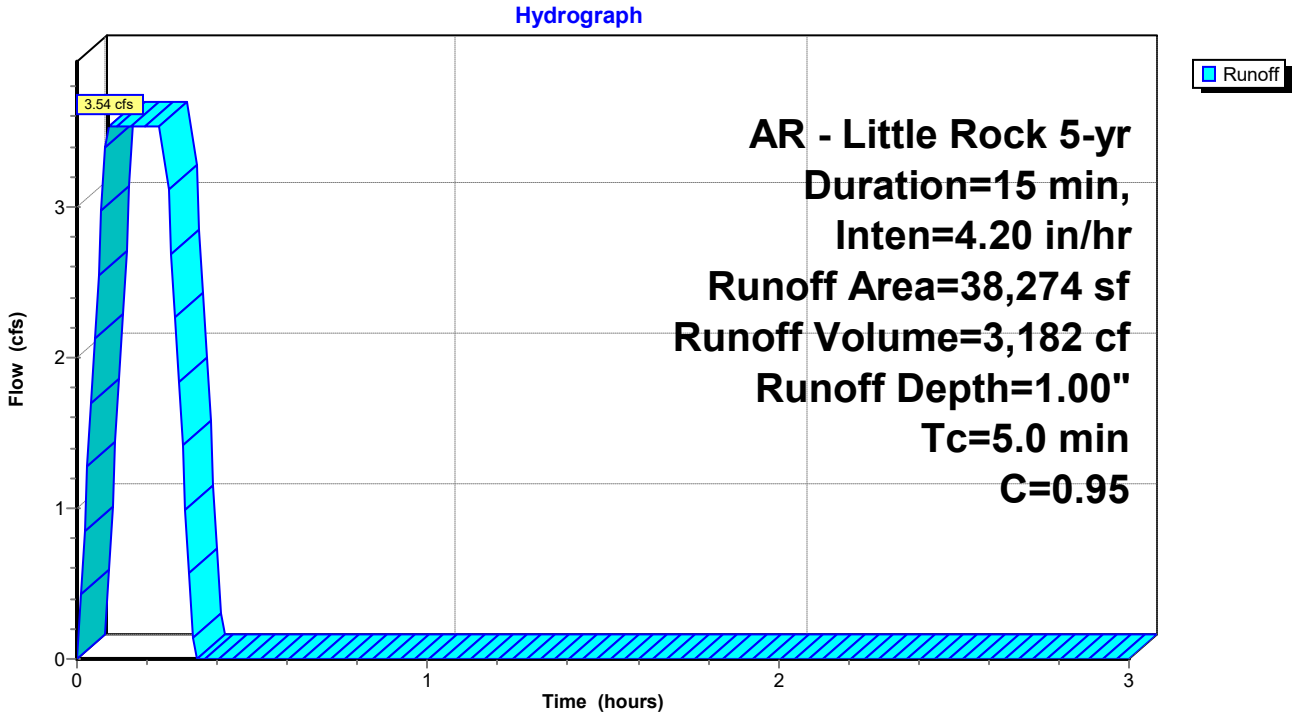
Runoff = 3.54 cfs @ 0.09 hrs, Volume= 3,182 cf, Depth= 1.00"
Routed to Reach A2 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
38,274	0.95	Developed Site
38,274		100.00% Impervious Area

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

Subcatchment M&F: Merchants and Farmers



Summary for Subcatchment SR: Springhill Retail Post

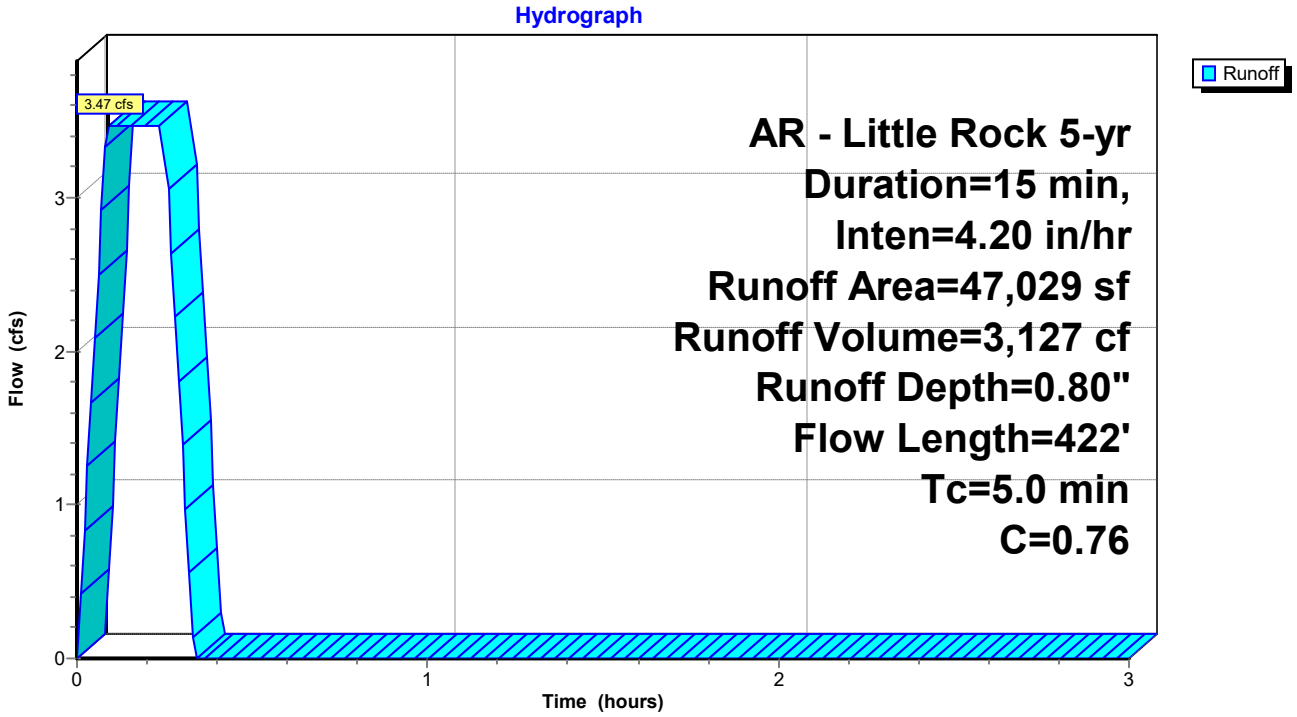
Runoff = 3.47 cfs @ 0.09 hrs, Volume= 3,127 cf, Depth= 0.80"
Routed to Pond Pond : Regional Detention Basin

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
1,511	0.86	Existing Drive
33,632	0.92	Drives, Roof, Sidewalks
11,886	0.30	Landscaped Areas
47,029	0.76	Weighted Average
47,029		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	82	0.0290	1.76		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.8	87	0.0080	1.82		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.1	19	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Pavement Flow** Paved Kv= 20.3 fps
1.0	197	0.0250	3.21		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	37	0.0130	2.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.0					**Direct Entry, Minimum adjustment**
5.0	422	Total			

Subcatchment SR: Springhill Retail Post



Summary for Subcatchment WestProp: West Adjacent Property Drainage Basin

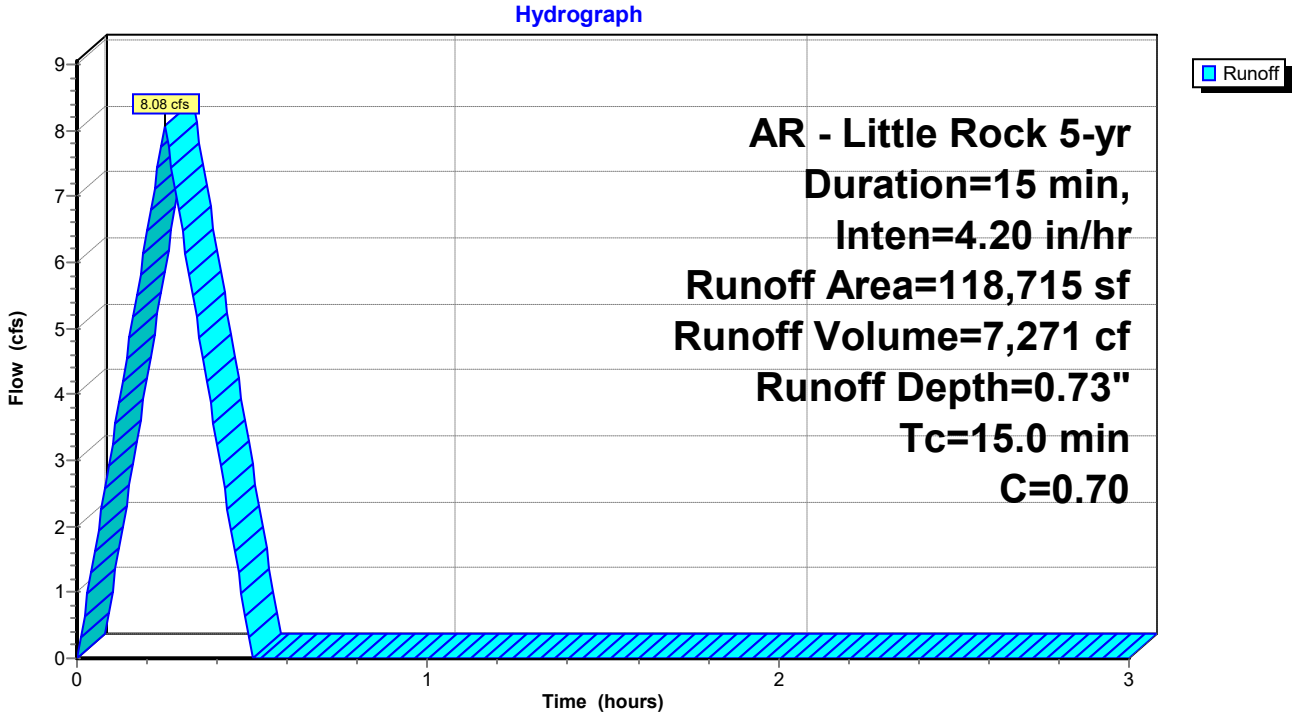
Runoff = 8.08 cfs @ 0.25 hrs, Volume= 7,271 cf, Depth= 0.73"
Routed to Reach A3 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=15 min, Inten=4.20 in/hr

Area (sf)	C	Description
65,063	0.50	Pervious Areas
53,652	0.95	Rooftop/Paving
118,715	0.70	Weighted Average
65,063		54.81% Pervious Area
53,652		45.19% Impervious Area

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

Subcatchment WestProp: West Adjacent Property Drainage Basin



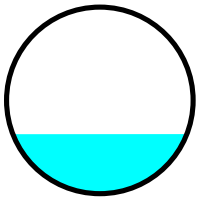
Summary for Reach A1: Pipe A1

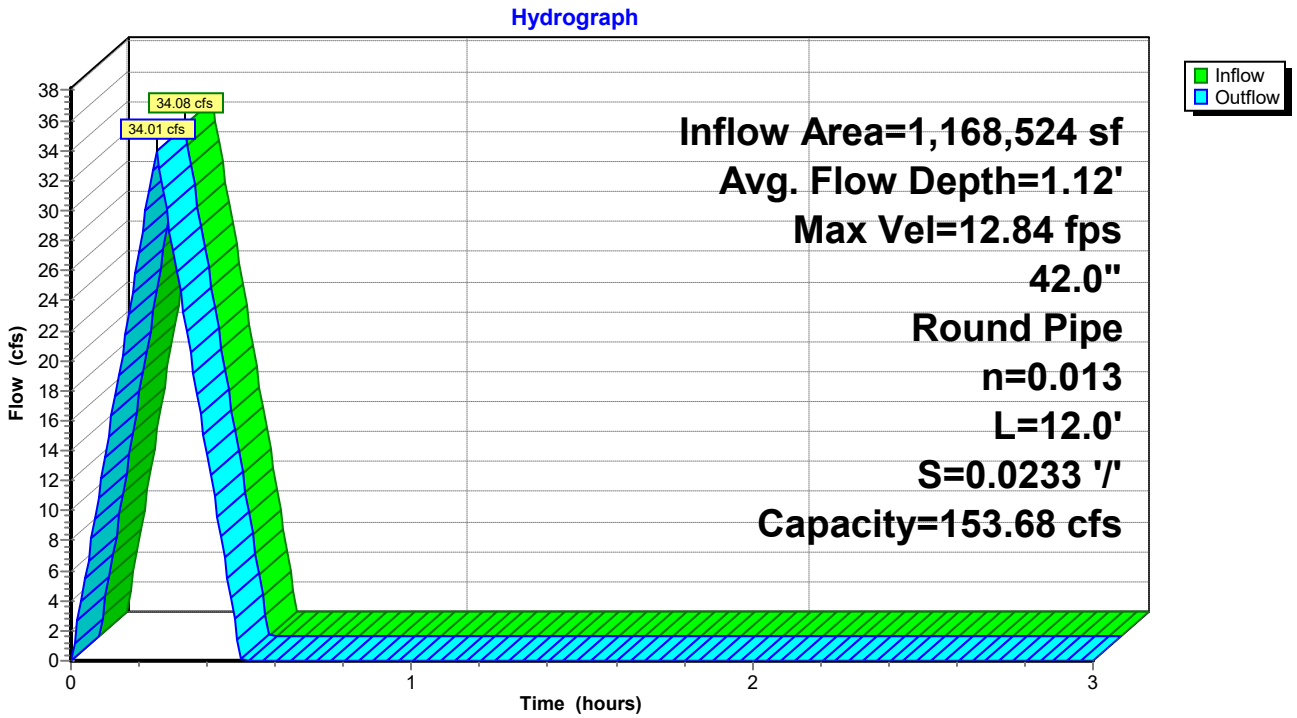
Inflow Area = 1,168,524 sf, 0.00% Impervious, Inflow Depth = 0.31" for 5-yr event
Inflow = 34.08 cfs @ 0.25 hrs, Volume= 30,674 cf
Outflow = 34.01 cfs @ 0.25 hrs, Volume= 30,675 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 12.84 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 9.94 fps, Avg. Travel Time= 0.0 min

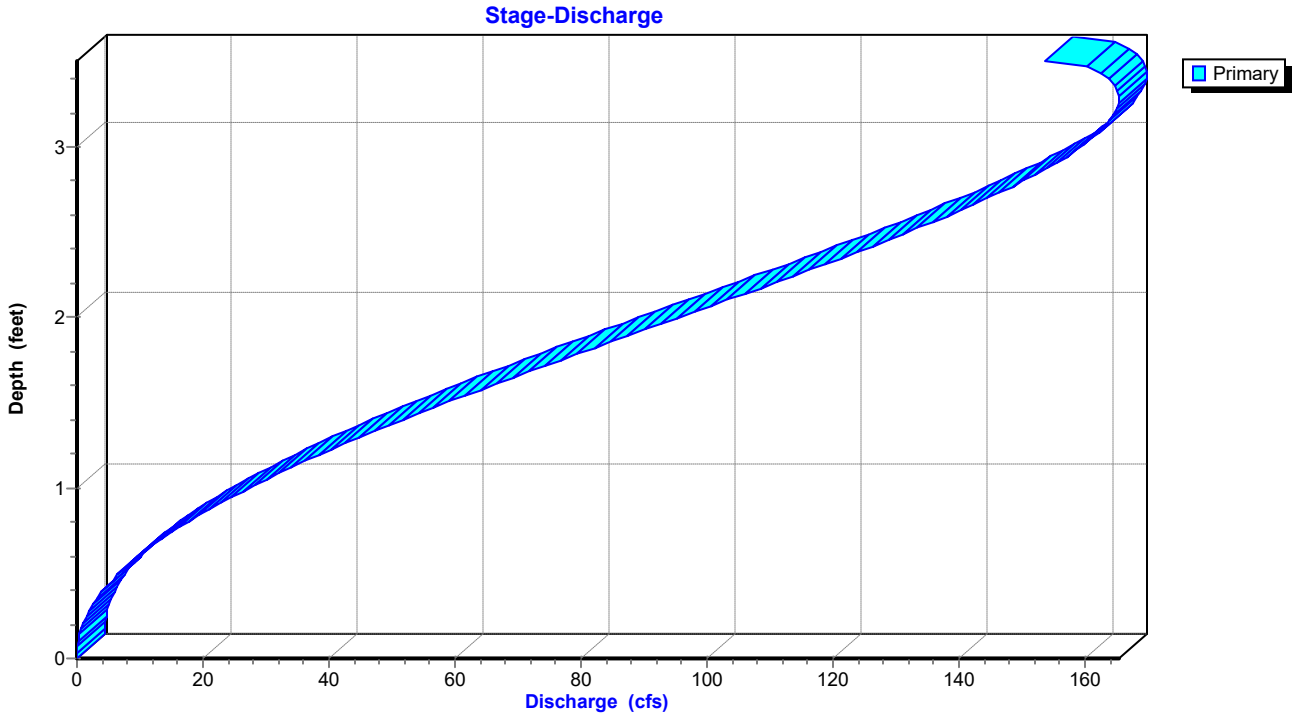
Peak Storage= 32 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.12' , Surface Width= 3.26'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 153.68 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 413.00', Outlet Invert= 412.72'





Reach A1: Pipe A1



Stage-Area-Storage for Reach A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
413.00	0.0	0
413.05	0.0	0
413.10	0.1	1
413.15	0.1	2
413.20	0.2	3
413.25	0.3	4
413.30	0.4	5
413.35	0.5	6
413.40	0.6	7
413.45	0.7	9
413.50	0.8	10
413.55	1.0	12
413.60	1.1	13
413.65	1.2	15
413.70	1.4	16
413.75	1.5	18
413.80	1.7	20
413.85	1.8	22
413.90	2.0	23
413.95	2.1	25
414.00	2.3	27
414.05	2.4	29
414.10	2.6	31
414.15	2.8	33
414.20	2.9	35
414.25	3.1	37
414.30	3.3	39
414.35	3.4	41
414.40	3.6	43
414.45	3.8	45
414.50	3.9	47
414.55	4.1	49
414.60	4.3	51
414.65	4.5	54
414.70	4.6	56
414.75	4.8	58
414.80	5.0	60
414.85	5.2	62
414.90	5.3	64
414.95	5.5	66
415.00	5.7	68
415.05	5.9	70
415.10	6.0	72
415.15	6.2	74
415.20	6.4	76
415.25	6.5	78
415.30	6.7	80
415.35	6.9	82
415.40	7.0	84
415.45	7.2	86
415.50	7.4	88
415.55	7.5	90
415.60	7.7	92
415.65	7.8	94
415.70	8.0	96
415.75	8.1	97
415.80	8.3	99
415.85	8.4	101
415.90	8.5	102
415.95	8.7	104
416.00	8.8	105
416.05	8.9	107
416.10	9.0	108
416.15	9.1	109
416.20	9.2	111
416.25	9.3	112
416.30	9.4	113
416.35	9.5	114
416.40	9.5	115
416.45	9.6	115
416.50	**9.6**	**115**

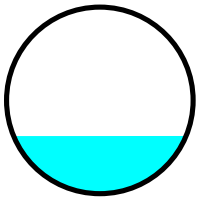
Summary for Reach A2: Pipe A2

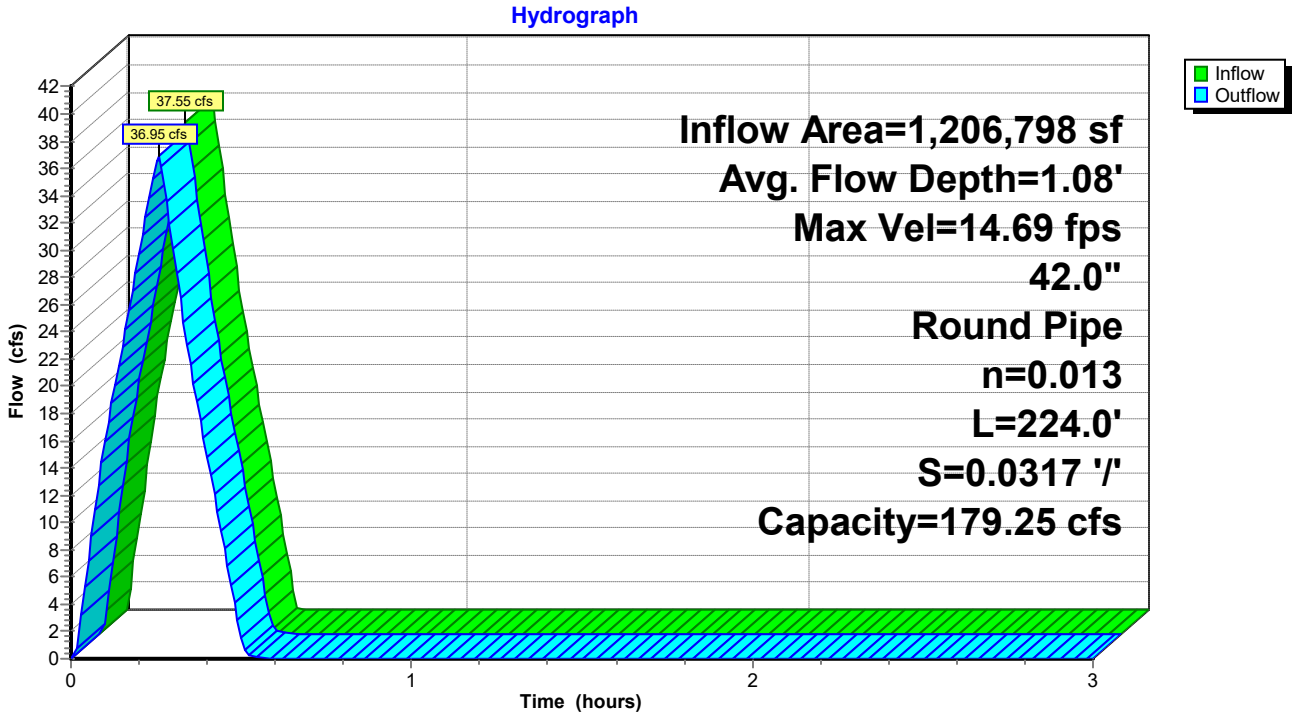
Inflow Area = 1,206,798 sf, 3.17% Impervious, Inflow Depth = 0.34" for 5-yr event
Inflow = 37.55 cfs @ 0.25 hrs, Volume= 33,857 cf
Outflow = 36.95 cfs @ 0.26 hrs, Volume= 33,857 cf, Atten= 2%, Lag= 0.4 min
Routed to Reach A3 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.69 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 8.33 fps, Avg. Travel Time= 0.4 min

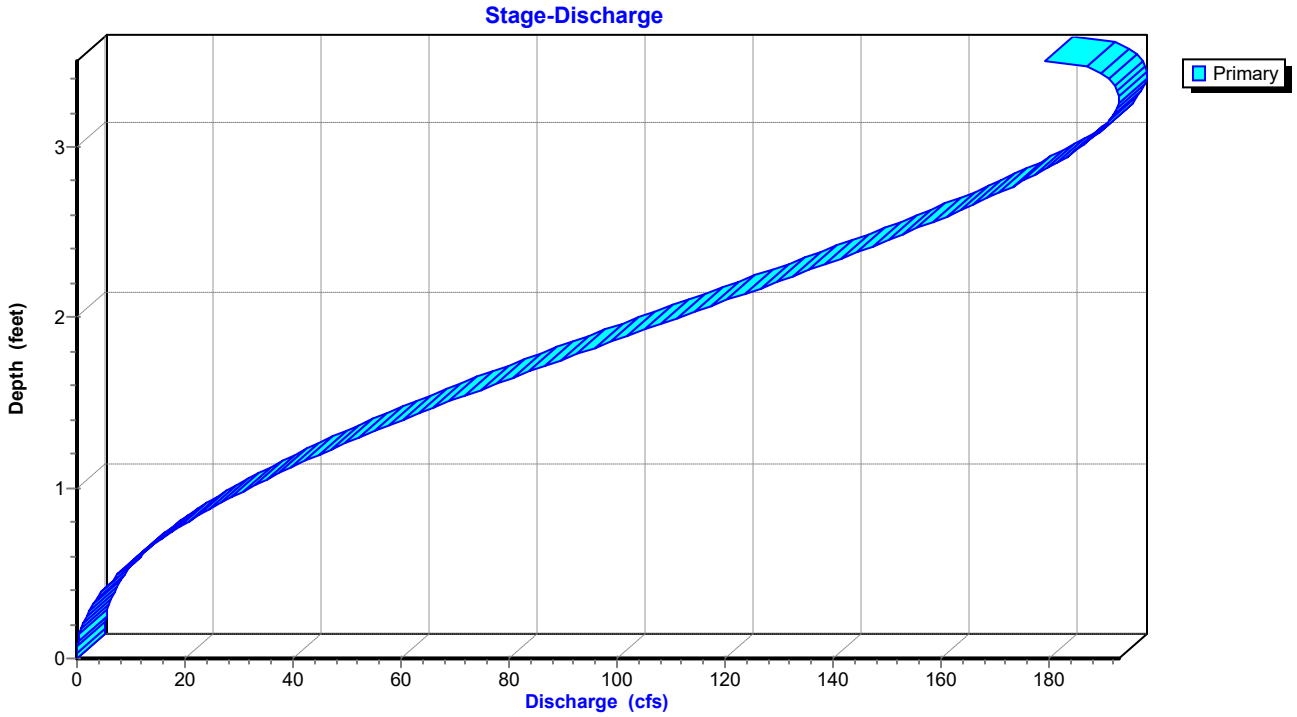
Peak Storage= 567 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.08' , Surface Width= 3.23'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 179.25 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 224.0' Slope= 0.0317 '/'
Inlet Invert= 412.52', Outlet Invert= 405.41'





Reach A2: Pipe A2



Stage-Area-Storage for Reach A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
412.52	0.0	0
412.57	0.0	6
412.62	0.1	18
412.67	0.1	32
412.72	0.2	49
412.77	0.3	68
412.82	0.4	90
412.87	0.5	112
412.92	0.6	136
412.97	0.7	162
413.02	0.8	189
413.07	1.0	217
413.12	1.1	246
413.17	1.2	276
413.22	1.4	307
413.27	1.5	339
413.32	1.7	371
413.37	1.8	404
413.42	2.0	438
413.47	2.1	473
413.52	2.3	508
413.57	2.4	544
413.62	2.6	580
413.67	2.8	617
413.72	2.9	654
413.77	3.1	691
413.82	3.3	729
413.87	3.4	767
413.92	3.6	805
413.97	3.8	844
414.02	3.9	882
414.07	4.1	921
414.12	4.3	960
414.17	4.5	999
414.22	4.6	1,038
414.27	4.8	1,078
414.32	5.0	1,117
414.37	5.2	1,156
414.42	5.3	1,195
414.47	5.5	1,234
414.52	5.7	1,273
414.57	5.9	1,312
414.62	6.0	1,350
414.67	6.2	1,388
414.72	6.4	1,426
414.77	6.5	1,464
414.82	6.7	1,502
414.87	6.9	1,539
414.92	7.0	1,575
414.97	7.2	1,611
415.02	7.4	1,647
415.07	7.5	1,682
415.12	7.7	1,717
415.17	7.8	1,751
415.22	8.0	1,784
415.27	8.1	1,816
415.32	8.3	1,848
415.37	8.4	1,879
415.42	8.5	1,909
415.47	8.7	1,938
415.52	8.8	1,966
415.57	8.9	1,993
415.62	9.0	2,019
415.67	9.1	2,043
415.72	9.2	2,066
415.77	9.3	2,087
415.82	9.4	2,106
415.87	9.5	2,123
415.92	9.5	2,138
415.97	9.6	2,149
416.02	**9.6**	**2,155**

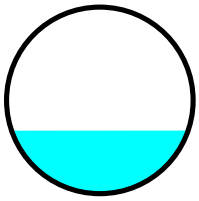
Summary for Reach A3: Pipe A2

Inflow Area = 1,325,513 sf, 6.94% Impervious, Inflow Depth = 0.37" for 5-yr event
Inflow = 44.84 cfs @ 0.25 hrs, Volume= 41,128 cf
Outflow = 44.77 cfs @ 0.26 hrs, Volume= 41,128 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond Pond : Regional Detention Basin

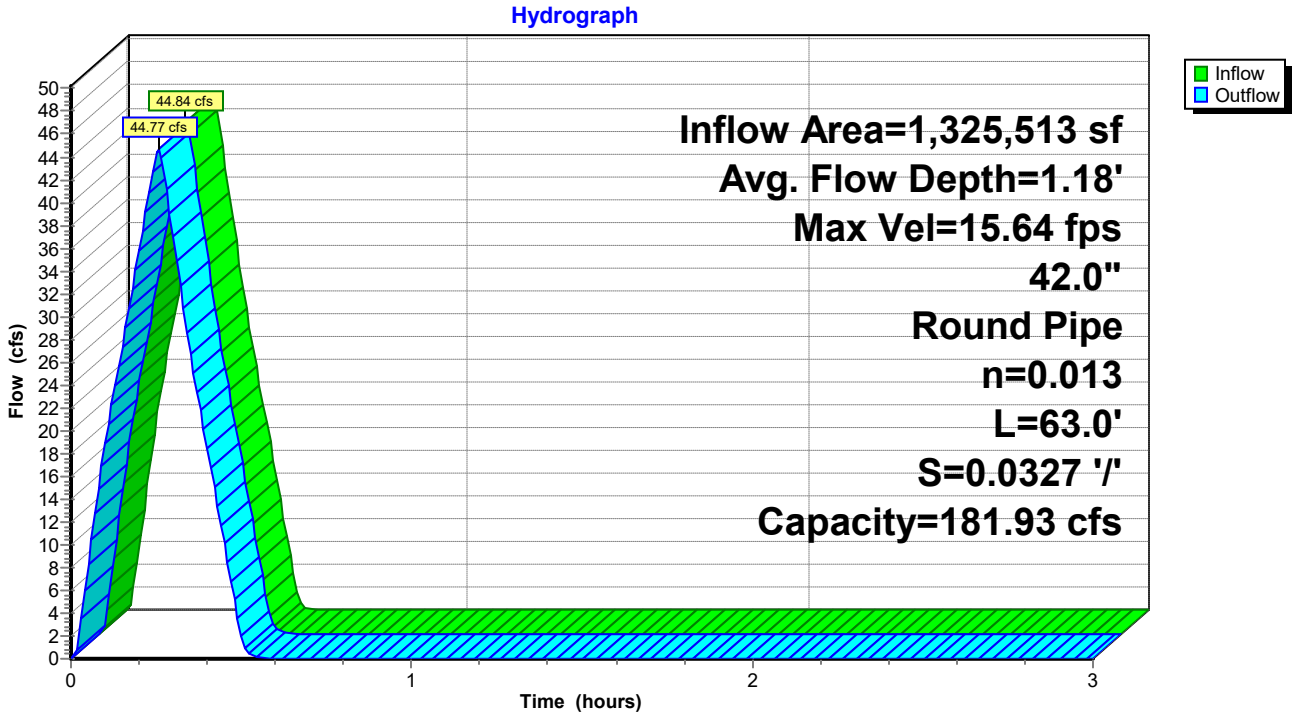
Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.64 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 8.81 fps, Avg. Travel Time= 0.1 min

Peak Storage= 180 cf @ 0.26 hrs
Average Depth at Peak Storage= 1.18' , Surface Width= 3.31'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 181.93 cfs

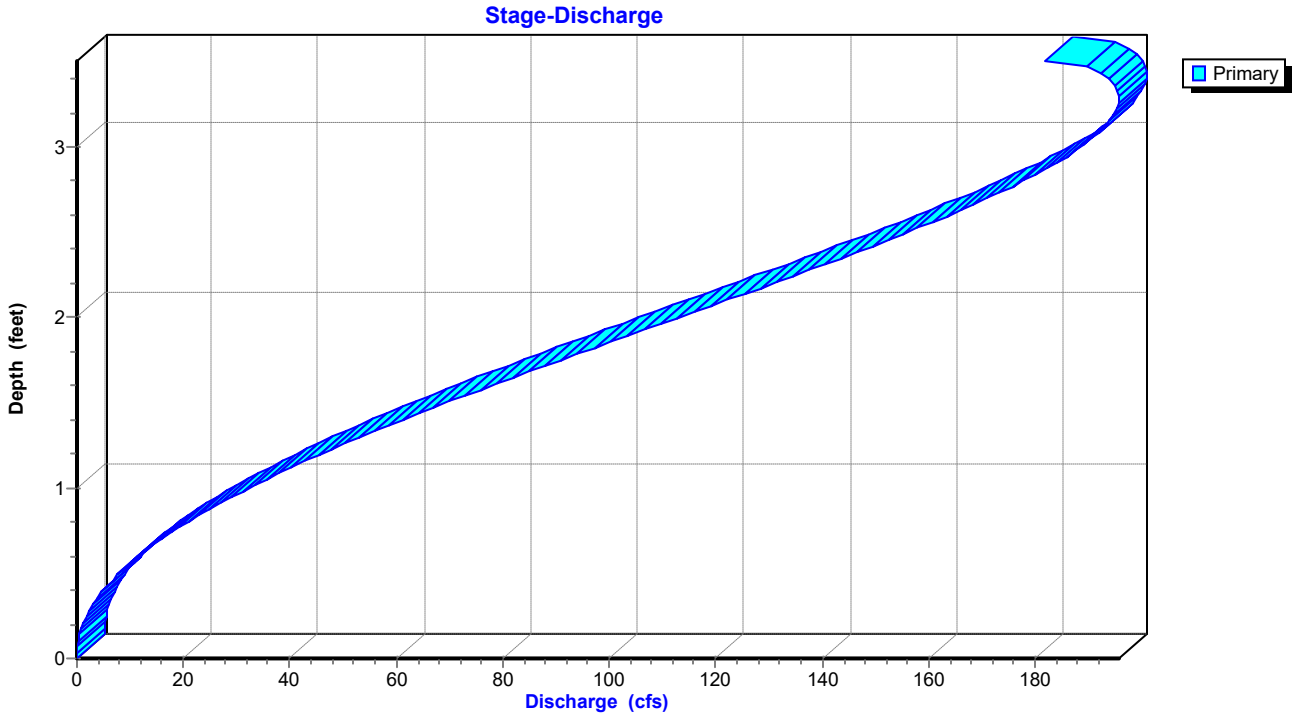
42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 63.0' Slope= 0.0327 '/'
Inlet Invert= 405.31', Outlet Invert= 403.25'



Reach A3: Pipe A2



Reach A3: Pipe A2



Stage-Area-Storage for Reach A3: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
405.31	0.0	0
405.36	0.0	2
405.41	0.1	5
405.46	0.1	9
405.51	0.2	14
405.56	0.3	19
405.61	0.4	25
405.66	0.5	32
405.71	0.6	38
405.76	0.7	46
405.81	0.8	53
405.86	1.0	61
405.91	1.1	69
405.96	1.2	78
406.01	1.4	86
406.06	1.5	95
406.11	1.7	104
406.16	1.8	114
406.21	2.0	123
406.26	2.1	133
406.31	2.3	143
406.36	2.4	153
406.41	2.6	163
406.46	2.8	173
406.51	2.9	184
406.56	3.1	194
406.61	3.3	205
406.66	3.4	216
406.71	3.6	226
406.76	3.8	237
406.81	3.9	248
406.86	4.1	259
406.91	4.3	270
406.96	4.5	281
407.01	4.6	292
407.06	4.8	303
407.11	5.0	314
407.16	5.2	325
407.21	5.3	336
407.26	5.5	347
407.31	5.7	358
407.36	5.9	369
407.41	6.0	380
407.46	6.2	390
407.51	6.4	401
407.56	6.5	412
407.61	6.7	422
407.66	6.9	433
407.71	7.0	443
407.76	7.2	453
407.81	7.4	463
407.86	7.5	473
407.91	7.7	483
407.96	7.8	492
408.01	8.0	502
408.06	8.1	511
408.11	8.3	520
408.16	8.4	529
408.21	8.5	537
408.26	8.7	545
408.31	8.8	553
408.36	8.9	561
408.41	9.0	568
408.46	9.1	575
408.51	9.2	581
408.56	9.3	587
408.61	9.4	592
408.66	9.5	597
408.71	9.5	601
408.76	9.6	604
408.81	**9.6**	**606**

Summary for Pond Pond: Regional Detention Basin

Inflow Area = 1,372,542 sf, 6.70% Impervious, Inflow Depth = 0.39" for 5-yr event
Inflow = 47.99 cfs @ 0.25 hrs, Volume= 44,255 cf
Outflow = 40.22 cfs @ 0.29 hrs, Volume= 44,270 cf, Atten= 16%, Lag= 2.3 min
Primary = 40.22 cfs @ 0.29 hrs, Volume= 44,270 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 404.64' @ 0.29 hrs Storage= 5,463 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.5 min (16.4 - 14.9)

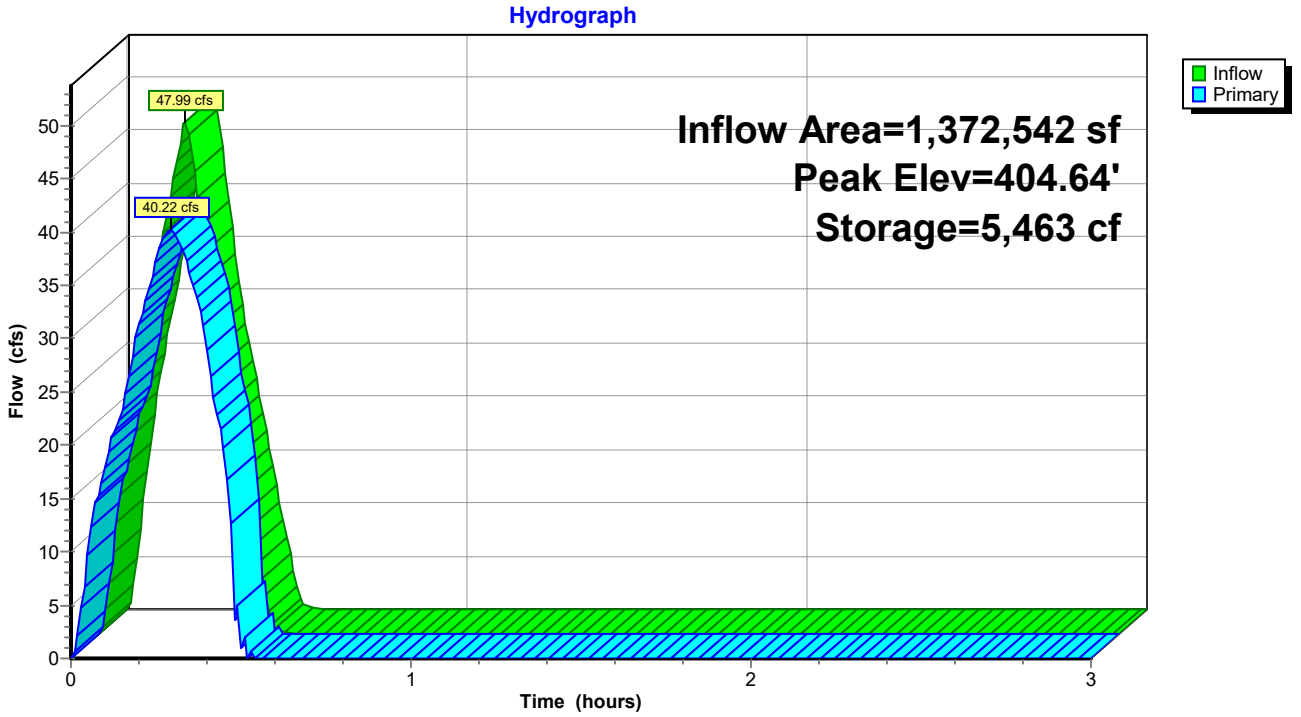
Volume	Invert	Avail.Storage	Storage Description
#1	401.00'	12,812 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
401.00	0
402.00	103
403.00	803
404.00	2,704
405.00	7,038
406.00	12,812

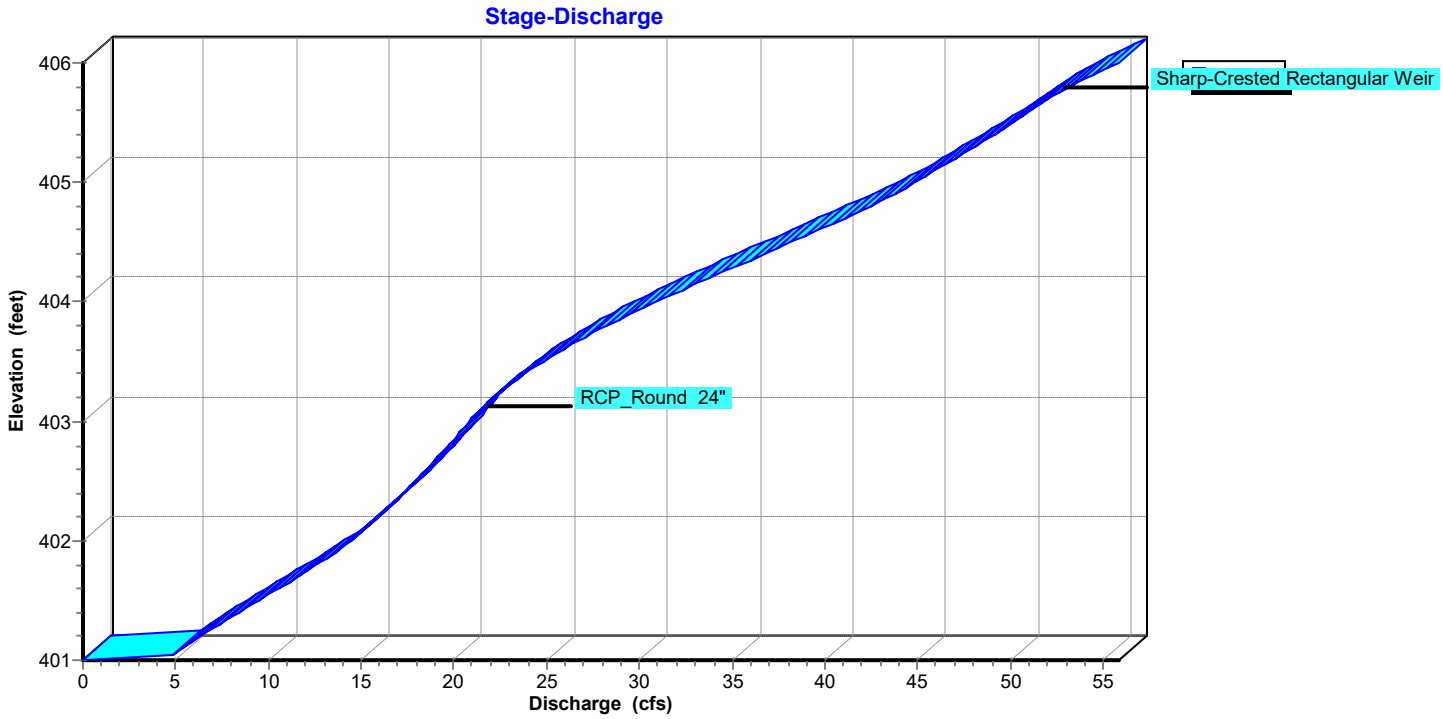
Device	Routing	Invert	Outlet Devices
#1	Primary	400.10'	**24.0" Round RCP_Round 24"** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 400.10' / 397.97' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	403.02'	**24.0" Round RCP_Round 24"** L= 35.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 403.02' / 401.73' S= 0.0369 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Primary	405.69'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=40.19 cfs @ 0.29 hrs HW=404.63' (Free Discharge)
- **1=RCP_Round 24"** (Inlet Controls 28.44 cfs @ 9.05 fps)
- **2=RCP_Round 24"** (Inlet Controls 11.75 cfs @ 4.33 fps)
- **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Pond: Regional Detention Basin



Pond Pond: Regional Detention Basin



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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
401.00	0	403.60	1,944
401.05	5	403.65	2,039
401.10	10	403.70	2,134
401.15	15	403.75	2,229
401.20	21	403.80	2,324
401.25	26	403.85	2,419
401.30	31	403.90	2,514
401.35	36	403.95	2,609
401.40	41	404.00	2,704
401.45	46	404.05	2,921
401.50	52	404.10	3,137
401.55	57	404.15	3,354
401.60	62	404.20	3,571
401.65	67	404.25	3,788
401.70	72	404.30	4,004
401.75	77	404.35	4,221
401.80	82	404.40	4,438
401.85	88	404.45	4,654
401.90	93	404.50	4,871
401.95	98	404.55	5,088
402.00	103	404.60	5,304
402.05	138	404.65	5,521
402.10	173	404.70	5,738
402.15	208	404.75	5,955
402.20	243	404.80	6,171
402.25	278	404.85	6,388
402.30	313	404.90	6,605
402.35	348	404.95	6,821
402.40	383	405.00	7,038
402.45	418	405.05	7,327
402.50	453	405.10	7,615
402.55	488	405.15	7,904
402.60	523	405.20	8,193
402.65	558	405.25	8,482
402.70	593	405.30	8,770
402.75	628	405.35	9,059
402.80	663	405.40	9,348
402.85	698	405.45	9,636
402.90	733	405.50	9,925
402.95	768	405.55	10,214
403.00	803	405.60	10,502
403.05	898	405.65	10,791
403.10	993	405.70	11,080
403.15	1,088	405.75	11,369
403.20	1,183	405.80	11,657
403.25	1,278	405.85	11,946
403.30	1,373	405.90	12,235
403.35	1,468	405.95	12,523
403.40	1,563	406.00	**12,812**
403.45	1,658		
403.50	1,754		
403.55	1,849		

Summary for Subcatchment ARDOT: ARDOT Offsite

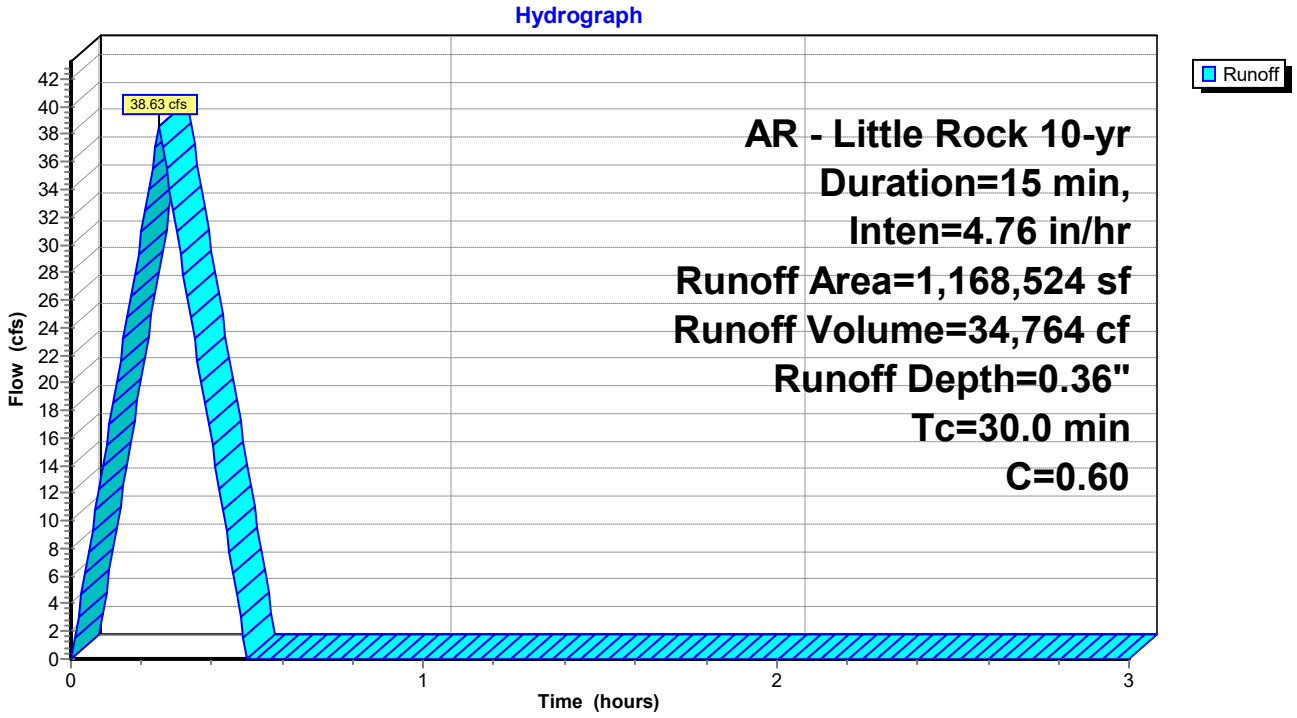
Runoff = 38.63 cfs @ 0.25 hrs, Volume= 34,764 cf, Depth= 0.36"
Routed to Reach A1 : Pipe A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
1,168,524	0.60	
1,168,524		100.00% Pervious Area

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

Subcatchment ARDOT: ARDOT Offsite



Summary for Subcatchment M&F: Merchants and Farmers

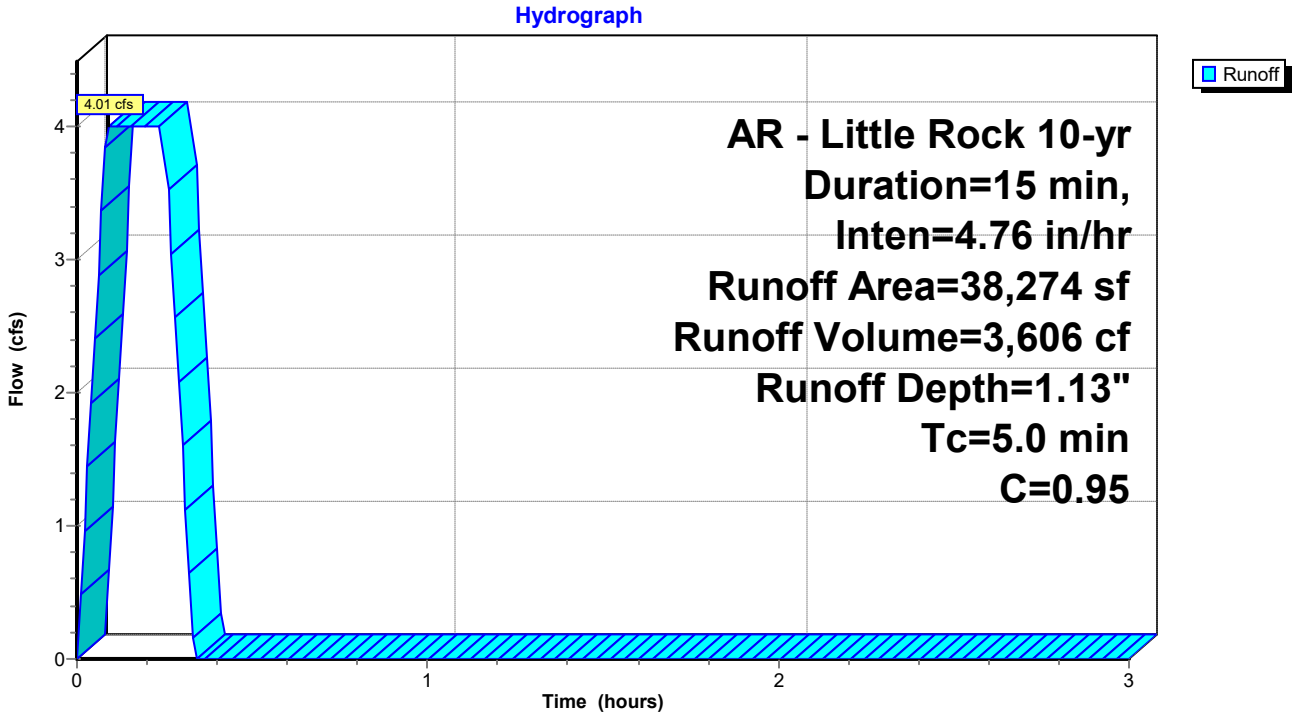
Runoff = 4.01 cfs @ 0.09 hrs, Volume= 3,606 cf, Depth= 1.13"
Routed to Reach A2 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
38,274	0.95	Developed Site
38,274		100.00% Impervious Area

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

Subcatchment M&F: Merchants and Farmers



Summary for Subcatchment SR: Springhill Retail Post

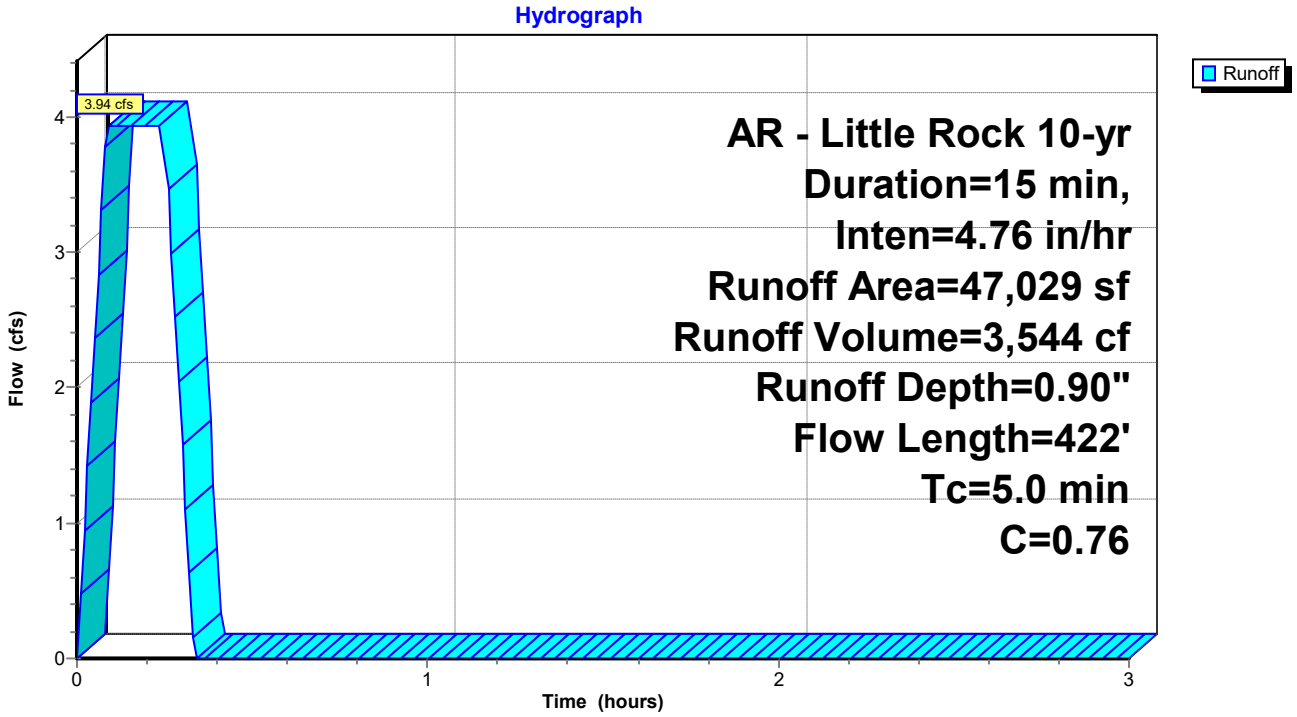
Runoff = 3.94 cfs @ 0.09 hrs, Volume= 3,544 cf, Depth= 0.90"
Routed to Pond Pond : Regional Detention Basin

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
1,511	0.86	Existing Drive
33,632	0.92	Drives, Roof, Sidewalks
11,886	0.30	Landscaped Areas
47,029	0.76	Weighted Average
47,029		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	82	0.0290	1.76		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.8	87	0.0080	1.82		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.1	19	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Pavement Flow** Paved Kv= 20.3 fps
1.0	197	0.0250	3.21		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	37	0.0130	2.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.0					**Direct Entry, Minimum adjustment**
5.0	422	Total			

Subcatchment SR: Springhill Retail Post



Summary for Subcatchment WestProp: West Adjacent Property Drainage Basin

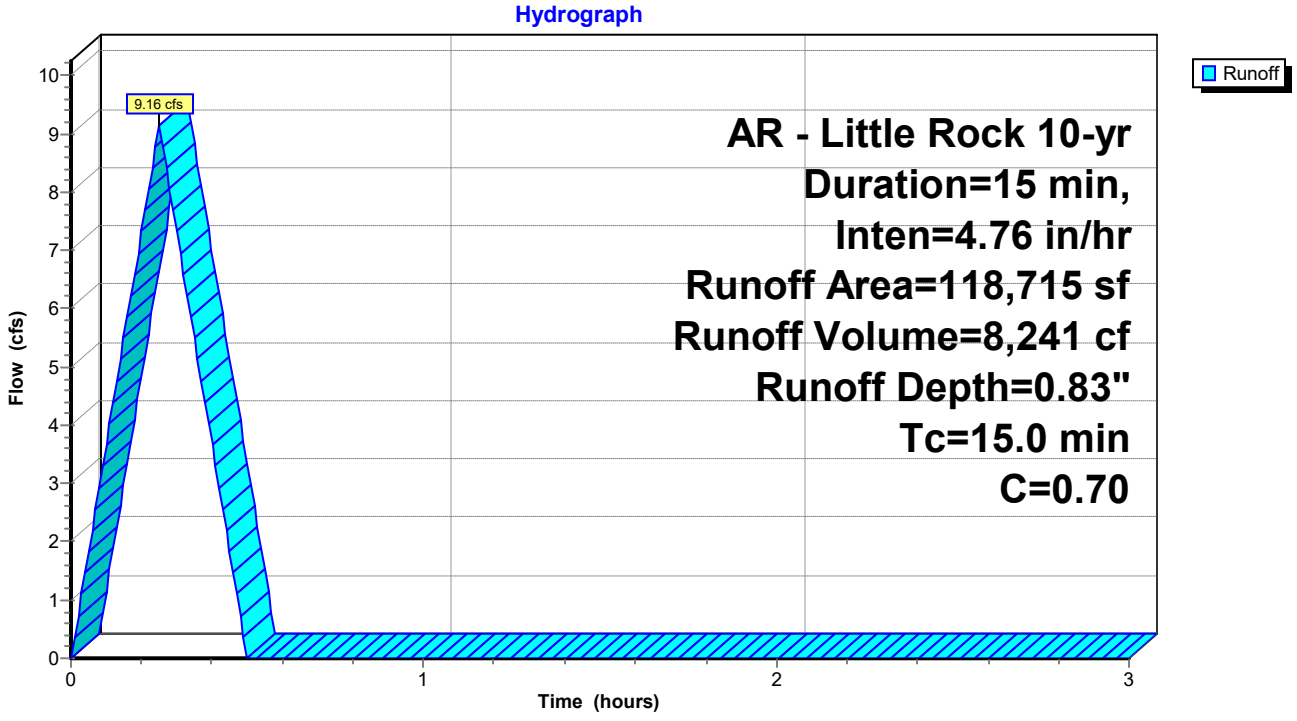
Runoff = 9.16 cfs @ 0.25 hrs, Volume= 8,241 cf, Depth= 0.83"
Routed to Reach A3 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=15 min, Inten=4.76 in/hr

Area (sf)	C	Description
65,063	0.50	Pervious Areas
53,652	0.95	Rooftop/Paving
118,715	0.70	Weighted Average
65,063		54.81% Pervious Area
53,652		45.19% Impervious Area

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

Subcatchment WestProp: West Adjacent Property Drainage Basin



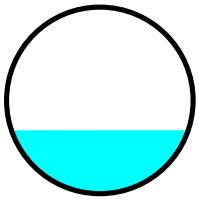
Summary for Reach A1: Pipe A1

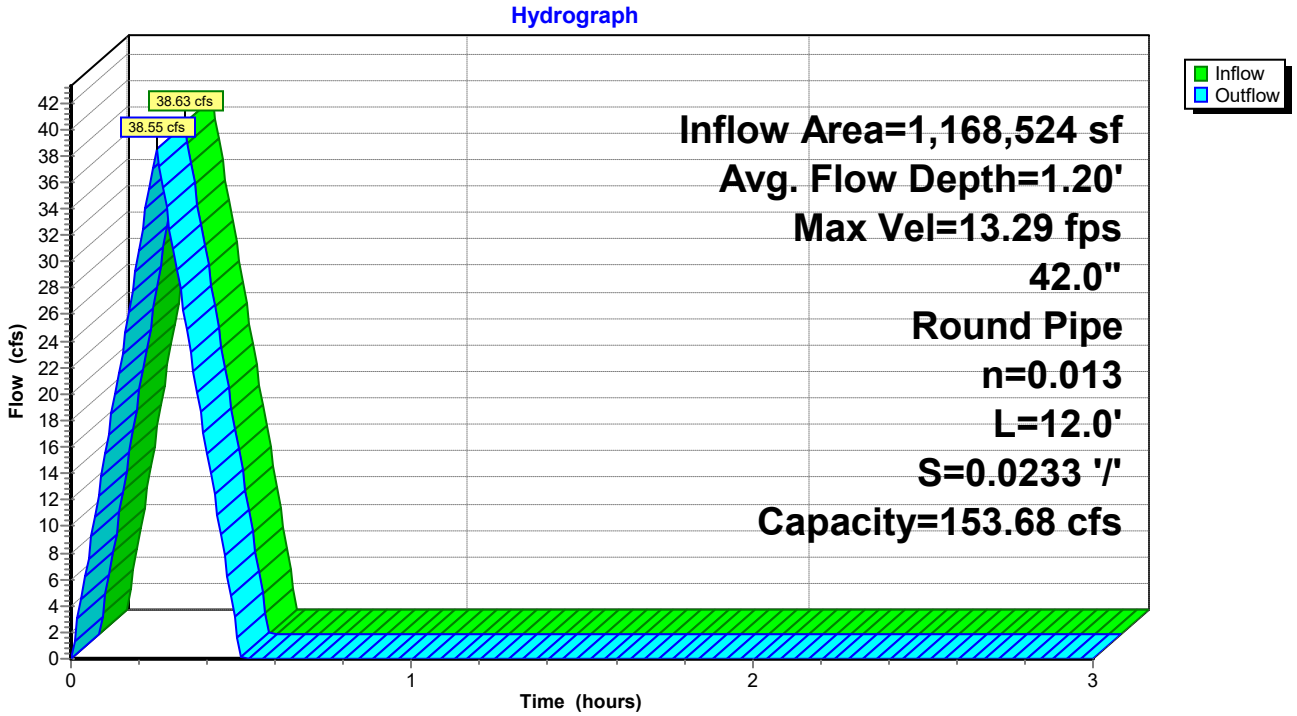
Inflow Area = 1,168,524 sf, 0.00% Impervious, Inflow Depth = 0.36" for 10-yr event
Inflow = 38.63 cfs @ 0.25 hrs, Volume= 34,764 cf
Outflow = 38.55 cfs @ 0.25 hrs, Volume= 34,765 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.29 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 10.31 fps, Avg. Travel Time= 0.0 min

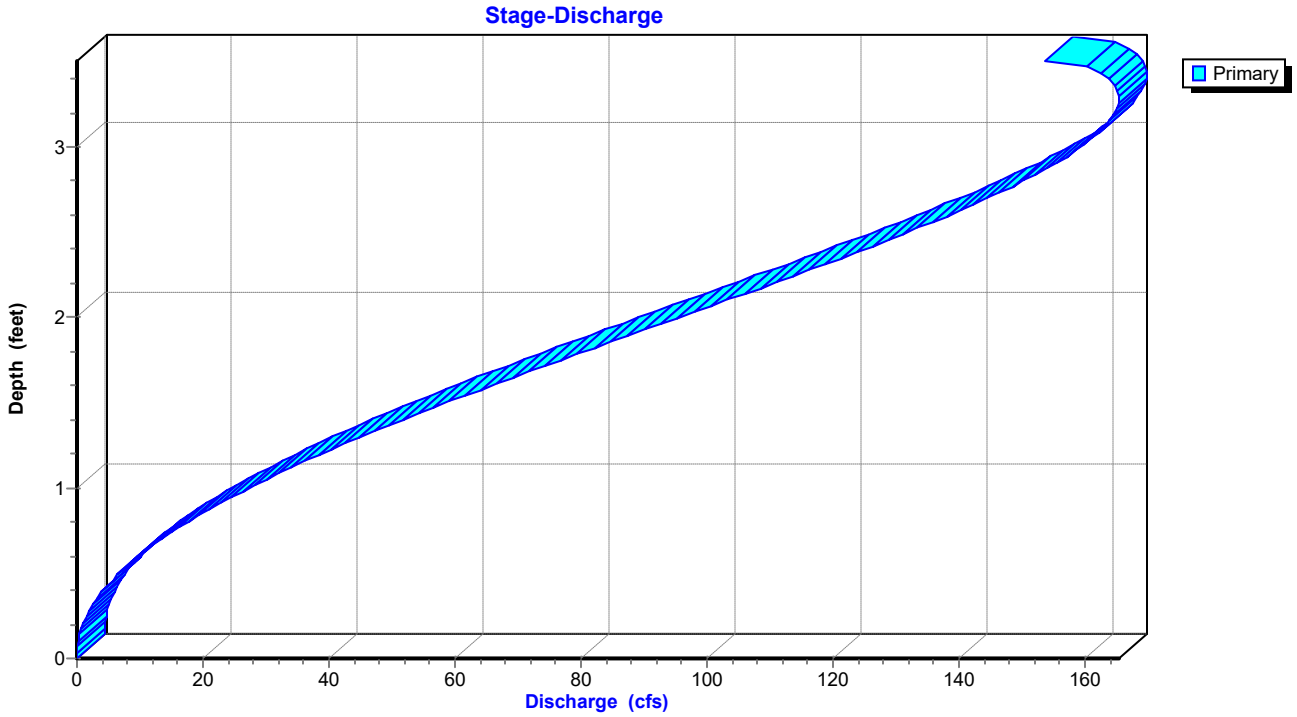
Peak Storage= 35 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.20' , Surface Width= 3.32'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 153.68 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 413.00', Outlet Invert= 412.72'





Reach A1: Pipe A1



Stage-Area-Storage for Reach A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
413.00	0.0	0
413.05	0.0	0
413.10	0.1	1
413.15	0.1	2
413.20	0.2	3
413.25	0.3	4
413.30	0.4	5
413.35	0.5	6
413.40	0.6	7
413.45	0.7	9
413.50	0.8	10
413.55	1.0	12
413.60	1.1	13
413.65	1.2	15
413.70	1.4	16
413.75	1.5	18
413.80	1.7	20
413.85	1.8	22
413.90	2.0	23
413.95	2.1	25
414.00	2.3	27
414.05	2.4	29
414.10	2.6	31
414.15	2.8	33
414.20	2.9	35
414.25	3.1	37
414.30	3.3	39
414.35	3.4	41
414.40	3.6	43
414.45	3.8	45
414.50	3.9	47
414.55	4.1	49
414.60	4.3	51
414.65	4.5	54
414.70	4.6	56
414.75	4.8	58
414.80	5.0	60
414.85	5.2	62
414.90	5.3	64
414.95	5.5	66
415.00	5.7	68
415.05	5.9	70
415.10	6.0	72
415.15	6.2	74
415.20	6.4	76
415.25	6.5	78
415.30	6.7	80
415.35	6.9	82
415.40	7.0	84
415.45	7.2	86
415.50	7.4	88
415.55	7.5	90
415.60	7.7	92
415.65	7.8	94
415.70	8.0	96
415.75	8.1	97
415.80	8.3	99
415.85	8.4	101
415.90	8.5	102
415.95	8.7	104
416.00	8.8	105
416.05	8.9	107
416.10	9.0	108
416.15	9.1	109
416.20	9.2	111
416.25	9.3	112
416.30	9.4	113
416.35	9.5	114
416.40	9.5	115
416.45	9.6	115
416.50	**9.6**	**115**

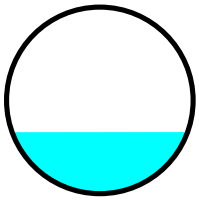
Summary for Reach A2: Pipe A2

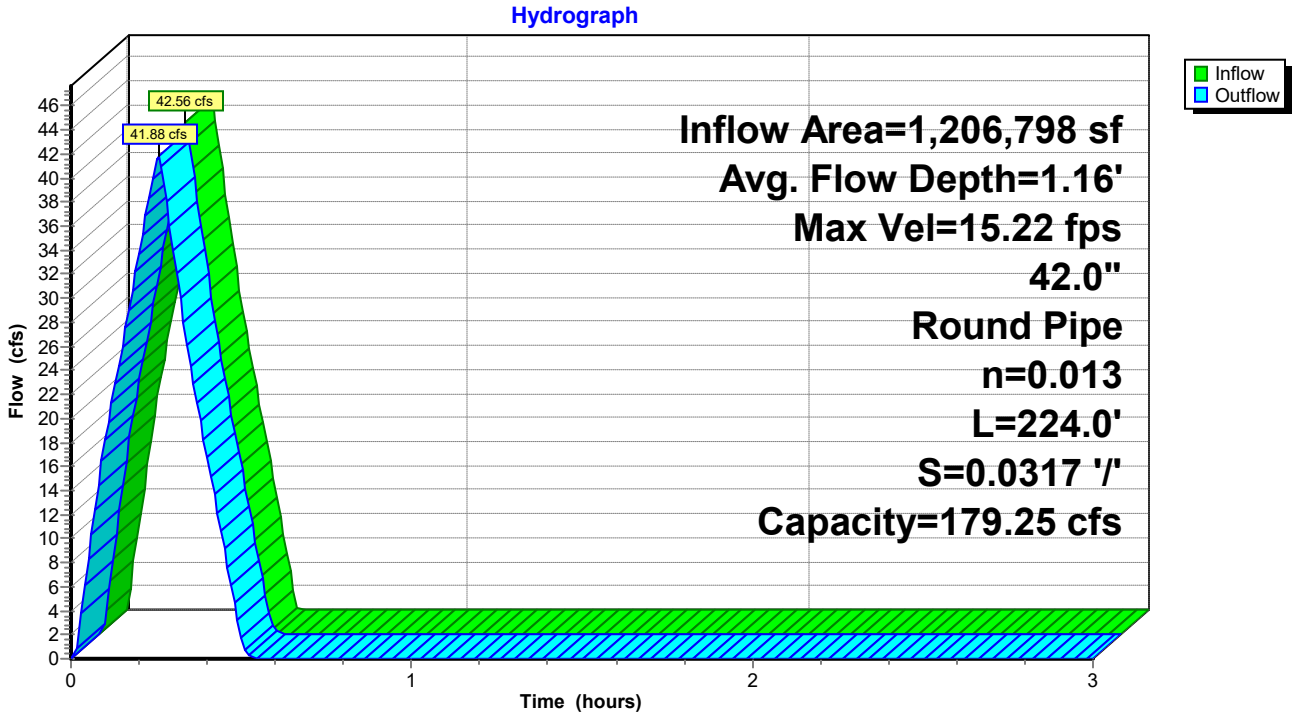
Inflow Area = 1,206,798 sf, 3.17% Impervious, Inflow Depth = 0.38" for 10-yr event
Inflow = 42.56 cfs @ 0.25 hrs, Volume= 38,371 cf
Outflow = 41.88 cfs @ 0.26 hrs, Volume= 38,371 cf, Atten= 2%, Lag= 0.4 min
Routed to Reach A3 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.22 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 8.62 fps, Avg. Travel Time= 0.4 min

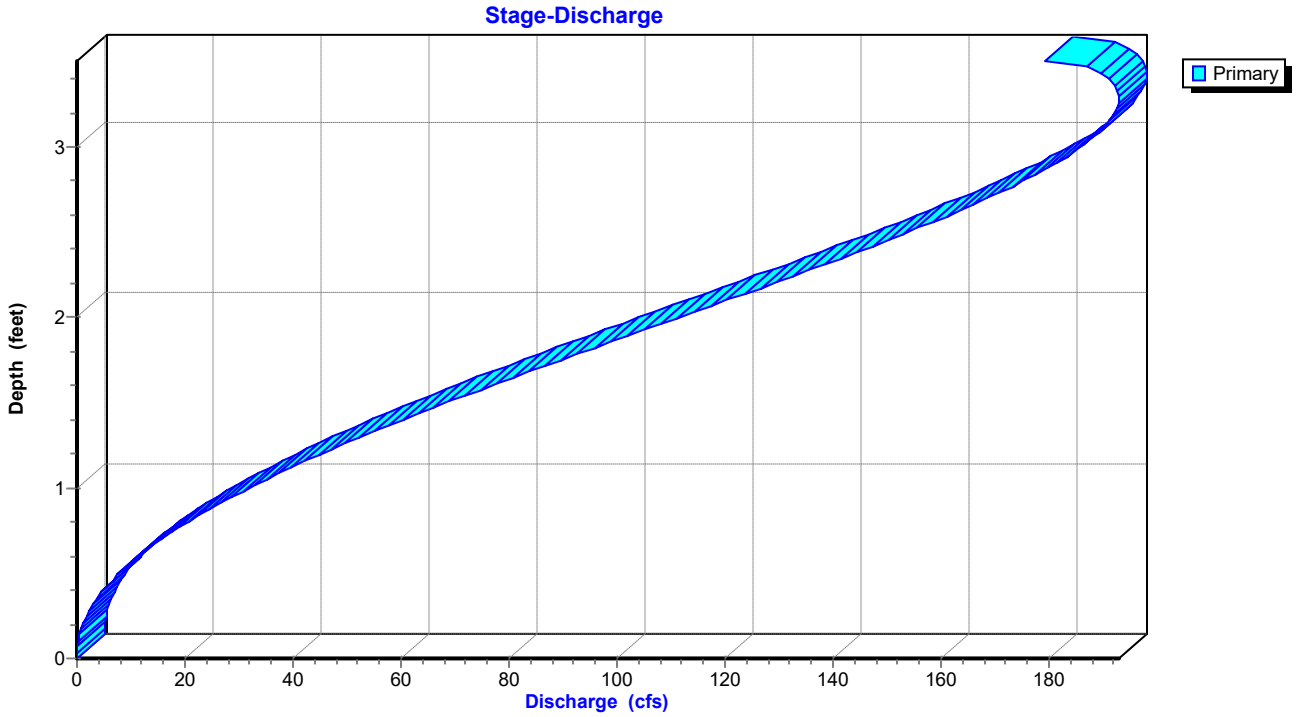
Peak Storage= 620 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.16' , Surface Width= 3.29'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 179.25 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 224.0' Slope= 0.0317 '/'
Inlet Invert= 412.52', Outlet Invert= 405.41'





Reach A2: Pipe A2



Stage-Area-Storage for Reach A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
412.52	0.0	0
412.57	0.0	6
412.62	0.1	18
412.67	0.1	32
412.72	0.2	49
412.77	0.3	68
412.82	0.4	90
412.87	0.5	112
412.92	0.6	136
412.97	0.7	162
413.02	0.8	189
413.07	1.0	217
413.12	1.1	246
413.17	1.2	276
413.22	1.4	307
413.27	1.5	339
413.32	1.7	371
413.37	1.8	404
413.42	2.0	438
413.47	2.1	473
413.52	2.3	508
413.57	2.4	544
413.62	2.6	580
413.67	2.8	617
413.72	2.9	654
413.77	3.1	691
413.82	3.3	729
413.87	3.4	767
413.92	3.6	805
413.97	3.8	844
414.02	3.9	882
414.07	4.1	921
414.12	4.3	960
414.17	4.5	999
414.22	4.6	1,038
414.27	4.8	1,078
414.32	5.0	1,117
414.37	5.2	1,156
414.42	5.3	1,195
414.47	5.5	1,234
414.52	5.7	1,273
414.57	5.9	1,312
414.62	6.0	1,350
414.67	6.2	1,388
414.72	6.4	1,426
414.77	6.5	1,464
414.82	6.7	1,502
414.87	6.9	1,539
414.92	7.0	1,575
414.97	7.2	1,611
415.02	7.4	1,647
415.07	7.5	1,682
415.12	7.7	1,717
415.17	7.8	1,751
415.22	8.0	1,784
415.27	8.1	1,816
415.32	8.3	1,848
415.37	8.4	1,879
415.42	8.5	1,909
415.47	8.7	1,938
415.52	8.8	1,966
415.57	8.9	1,993
415.62	9.0	2,019
415.67	9.1	2,043
415.72	9.2	2,066
415.77	9.3	2,087
415.82	9.4	2,106
415.87	9.5	2,123
415.92	9.5	2,138
415.97	9.6	2,149
416.02	**9.6**	**2,155**

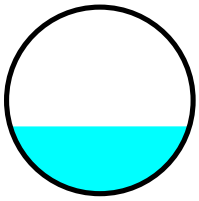
Summary for Reach A3: Pipe A2

Inflow Area = 1,325,513 sf, 6.94% Impervious, Inflow Depth = 0.42" for 10-yr event
Inflow = 50.84 cfs @ 0.25 hrs, Volume= 46,612 cf
Outflow = 50.76 cfs @ 0.26 hrs, Volume= 46,612 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond Pond : Regional Detention Basin

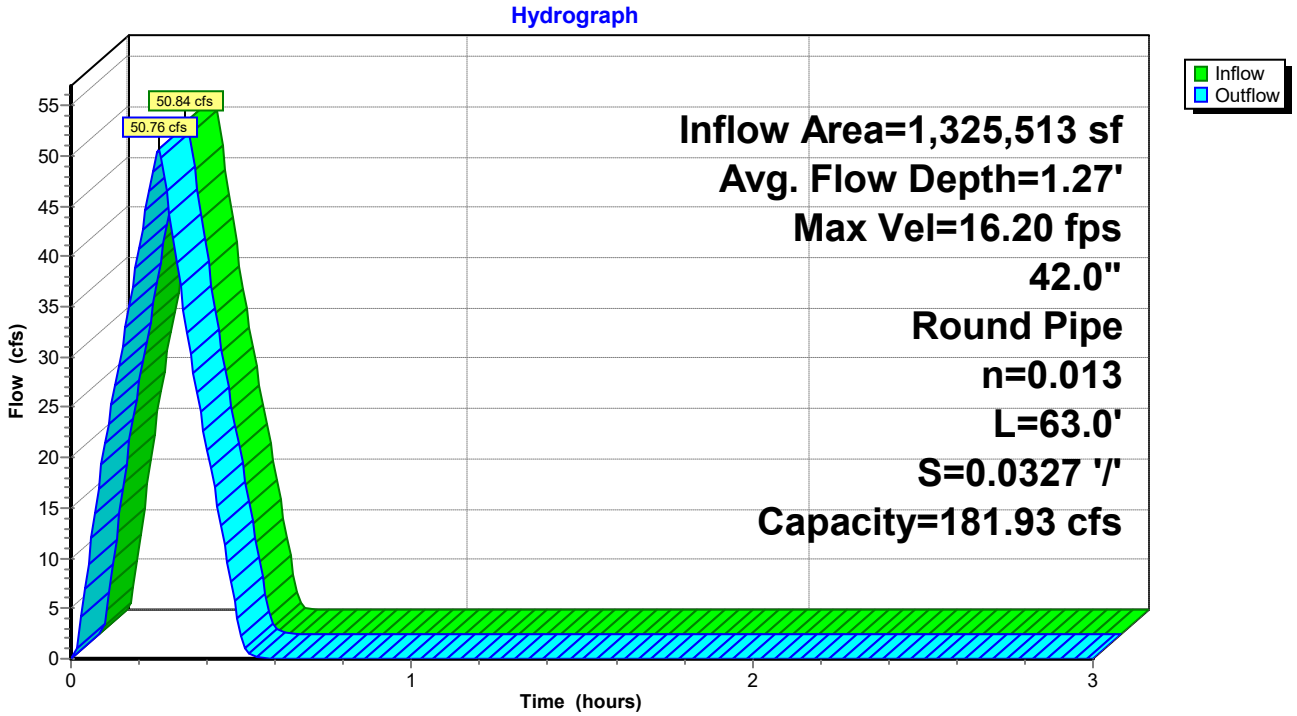
Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 16.20 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 9.11 fps, Avg. Travel Time= 0.1 min

Peak Storage= 198 cf @ 0.26 hrs
Average Depth at Peak Storage= 1.27' , Surface Width= 3.36'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 181.93 cfs

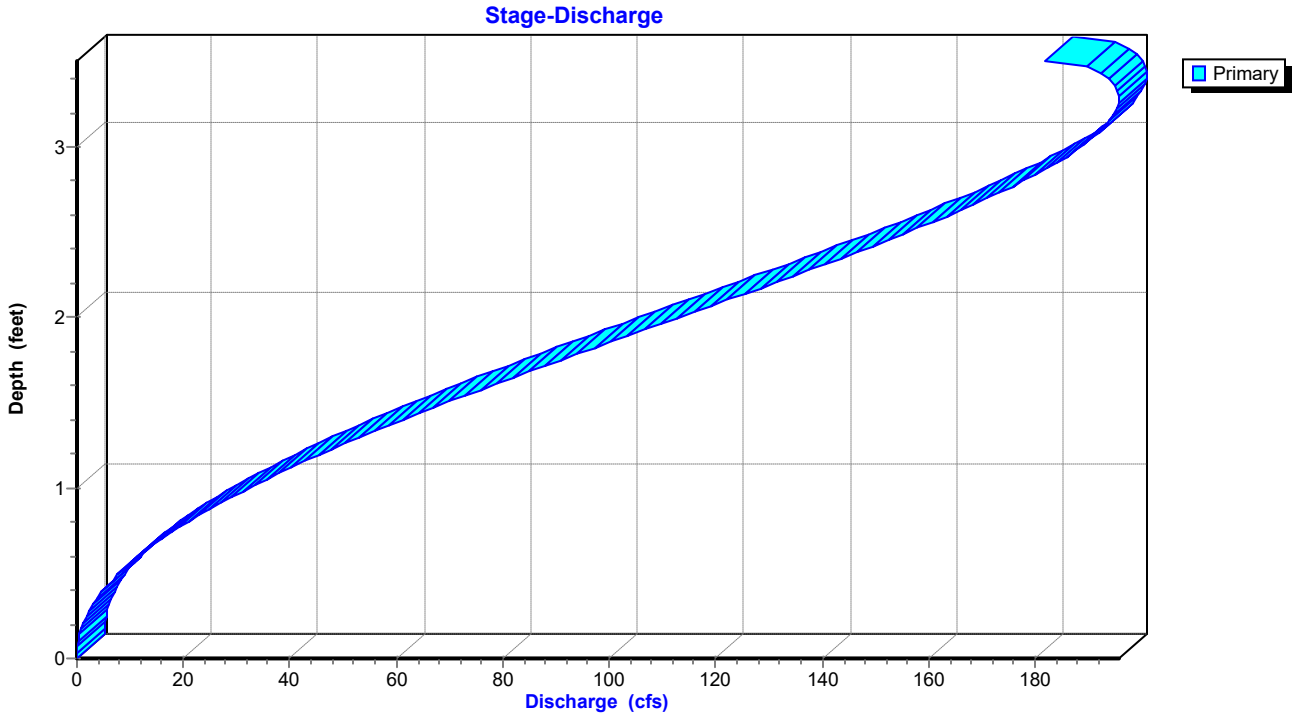
42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 63.0' Slope= 0.0327 '/'
Inlet Invert= 405.31', Outlet Invert= 403.25'



Reach A3: Pipe A2



Reach A3: Pipe A2



Stage-Area-Storage for Reach A3: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
405.31	0.0	0
405.36	0.0	2
405.41	0.1	5
405.46	0.1	9
405.51	0.2	14
405.56	0.3	19
405.61	0.4	25
405.66	0.5	32
405.71	0.6	38
405.76	0.7	46
405.81	0.8	53
405.86	1.0	61
405.91	1.1	69
405.96	1.2	78
406.01	1.4	86
406.06	1.5	95
406.11	1.7	104
406.16	1.8	114
406.21	2.0	123
406.26	2.1	133
406.31	2.3	143
406.36	2.4	153
406.41	2.6	163
406.46	2.8	173
406.51	2.9	184
406.56	3.1	194
406.61	3.3	205
406.66	3.4	216
406.71	3.6	226
406.76	3.8	237
406.81	3.9	248
406.86	4.1	259
406.91	4.3	270
406.96	4.5	281
407.01	4.6	292
407.06	4.8	303
407.11	5.0	314
407.16	5.2	325
407.21	5.3	336
407.26	5.5	347
407.31	5.7	358
407.36	5.9	369
407.41	6.0	380
407.46	6.2	390
407.51	6.4	401
407.56	6.5	412
407.61	6.7	422
407.66	6.9	433
407.71	7.0	443
407.76	7.2	453
407.81	7.4	463
407.86	7.5	473
407.91	7.7	483
407.96	7.8	492
408.01	8.0	502
408.06	8.1	511
408.11	8.3	520
408.16	8.4	529
408.21	8.5	537
408.26	8.7	545
408.31	8.8	553
408.36	8.9	561
408.41	9.0	568
408.46	9.1	575
408.51	9.2	581
408.56	9.3	587
408.61	9.4	592
408.66	9.5	597
408.71	9.5	601
408.76	9.6	604
408.81	**9.6**	**606**

Summary for Pond Pond: Regional Detention Basin

Inflow Area = 1,372,542 sf, 6.70% Impervious, Inflow Depth = 0.44" for 10-yr event
Inflow = 54.42 cfs @ 0.25 hrs, Volume= 50,156 cf
Outflow = 44.67 cfs @ 0.30 hrs, Volume= 50,169 cf, Atten= 18%, Lag= 2.5 min
Primary = 44.67 cfs @ 0.30 hrs, Volume= 50,169 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 404.98' @ 0.30 hrs Storage= 6,943 cf

Plug-Flow detention time= 1.8 min calculated for 50,002 cf (100% of inflow)
Center-of-Mass det. time= 1.8 min (16.6 - 14.8)

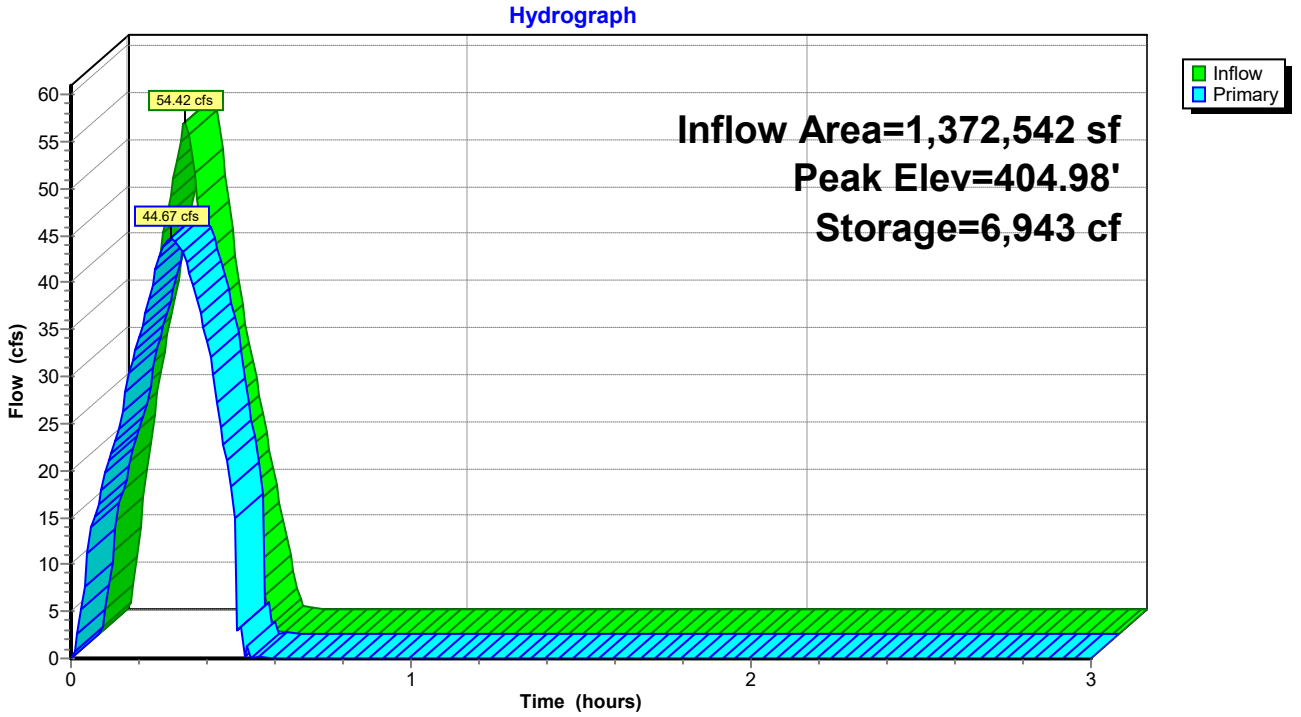
Volume	Invert	Avail.Storage	Storage Description
#1	401.00'	12,812 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
401.00	0
402.00	103
403.00	803
404.00	2,704
405.00	7,038
406.00	12,812

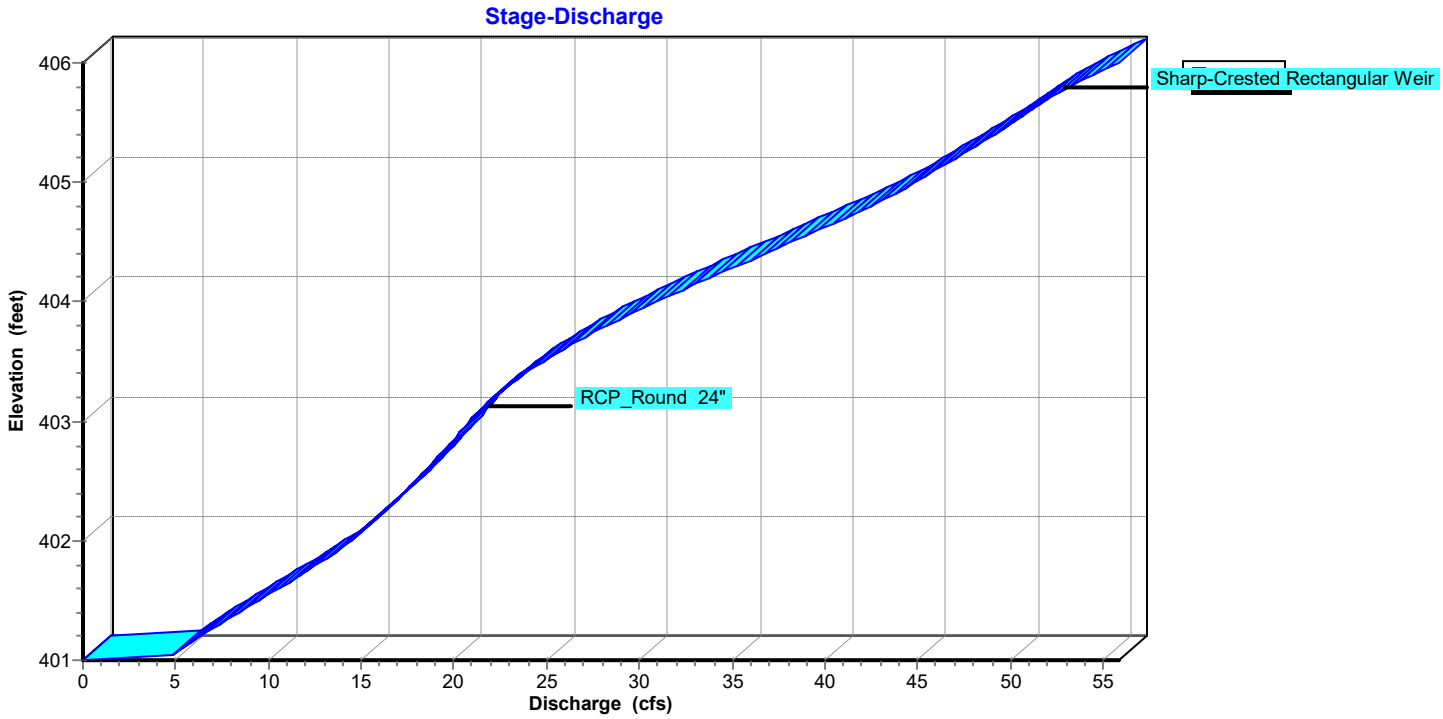
Device	Routing	Invert	Outlet Devices
#1	Primary	400.10'	**24.0" Round RCP_Round 24"** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 400.10' / 397.97' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	403.02'	**24.0" Round RCP_Round 24"** L= 35.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 403.02' / 401.73' S= 0.0369 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Primary	405.69'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=44.65 cfs @ 0.30 hrs HW=404.98' (Free Discharge)
- **1=RCP_Round 24"** (Inlet Controls 29.78 cfs @ 9.48 fps)
- **2=RCP_Round 24"** (Inlet Controls 14.87 cfs @ 4.76 fps)
- **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Pond: Regional Detention Basin



Pond Pond: Regional Detention Basin



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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
401.00	0	403.60	1,944
401.05	5	403.65	2,039
401.10	10	403.70	2,134
401.15	15	403.75	2,229
401.20	21	403.80	2,324
401.25	26	403.85	2,419
401.30	31	403.90	2,514
401.35	36	403.95	2,609
401.40	41	404.00	2,704
401.45	46	404.05	2,921
401.50	52	404.10	3,137
401.55	57	404.15	3,354
401.60	62	404.20	3,571
401.65	67	404.25	3,788
401.70	72	404.30	4,004
401.75	77	404.35	4,221
401.80	82	404.40	4,438
401.85	88	404.45	4,654
401.90	93	404.50	4,871
401.95	98	404.55	5,088
402.00	103	404.60	5,304
402.05	138	404.65	5,521
402.10	173	404.70	5,738
402.15	208	404.75	5,955
402.20	243	404.80	6,171
402.25	278	404.85	6,388
402.30	313	404.90	6,605
402.35	348	404.95	6,821
402.40	383	405.00	7,038
402.45	418	405.05	7,327
402.50	453	405.10	7,615
402.55	488	405.15	7,904
402.60	523	405.20	8,193
402.65	558	405.25	8,482
402.70	593	405.30	8,770
402.75	628	405.35	9,059
402.80	663	405.40	9,348
402.85	698	405.45	9,636
402.90	733	405.50	9,925
402.95	768	405.55	10,214
403.00	803	405.60	10,502
403.05	898	405.65	10,791
403.10	993	405.70	11,080
403.15	1,088	405.75	11,369
403.20	1,183	405.80	11,657
403.25	1,278	405.85	11,946
403.30	1,373	405.90	12,235
403.35	1,468	405.95	12,523
403.40	1,563	406.00	**12,812**
403.45	1,658		
403.50	1,754		
403.55	1,849		

Summary for Subcatchment ARDOT: ARDOT Offsite

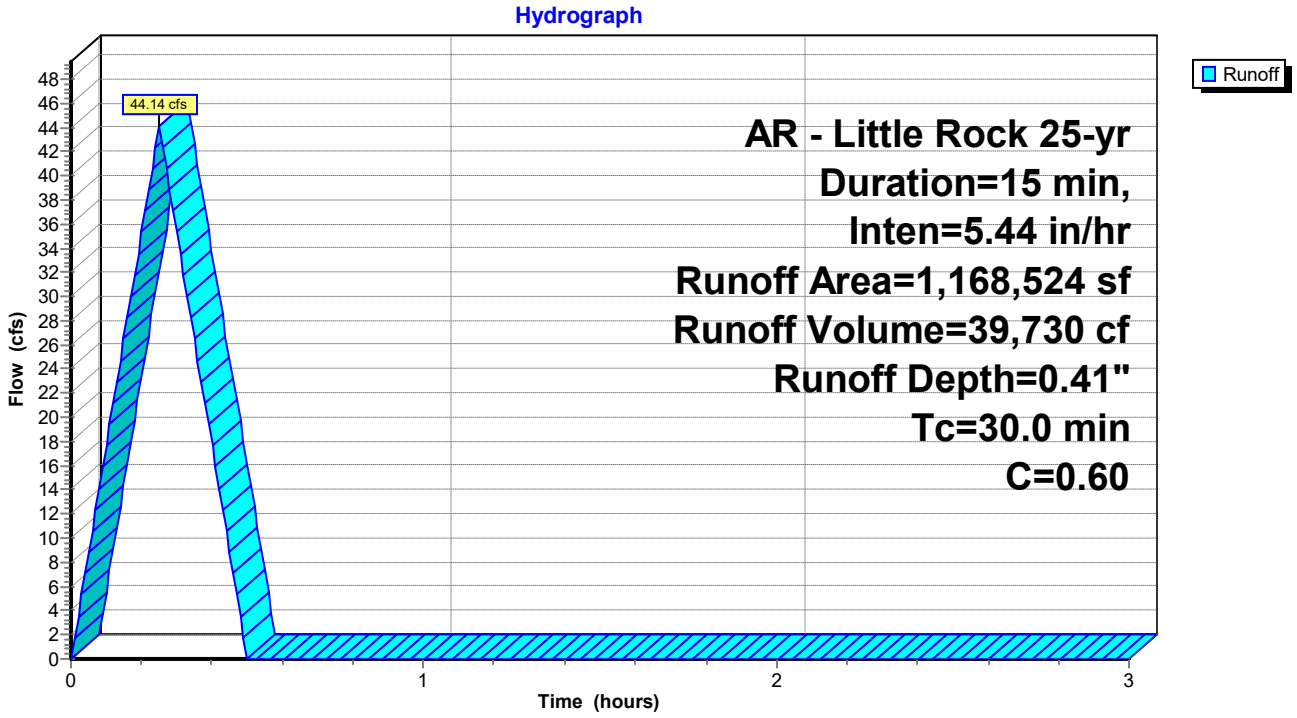
Runoff = 44.14 cfs @ 0.25 hrs, Volume= 39,730 cf, Depth= 0.41"
Routed to Reach A1 : Pipe A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
1,168,524	0.60	
1,168,524		100.00% Pervious Area

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

Subcatchment ARDOT: ARDOT Offsite



Summary for Subcatchment M&F: Merchants and Farmers

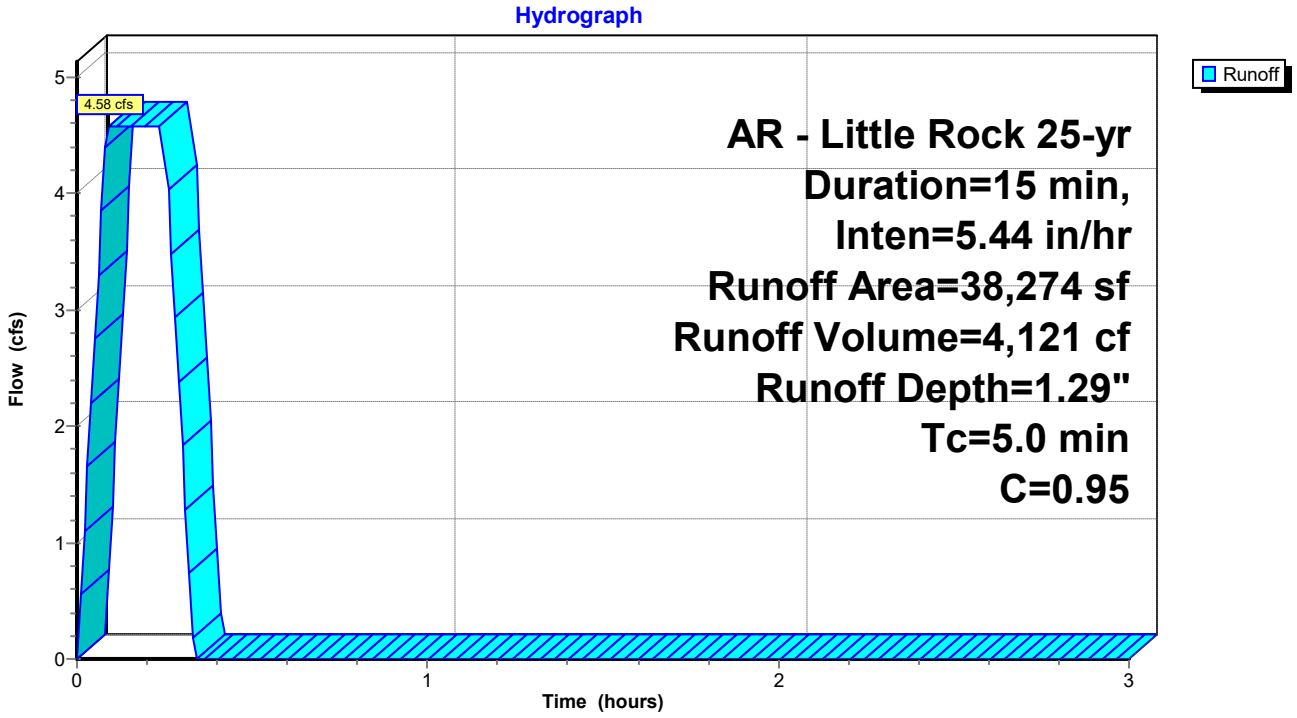
Runoff = 4.58 cfs @ 0.09 hrs, Volume= 4,121 cf, Depth= 1.29"
Routed to Reach A2 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
38,274	0.95	Developed Site
38,274		100.00% Impervious Area

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

Subcatchment M&F: Merchants and Farmers



Summary for Subcatchment SR: Springhill Retail Post

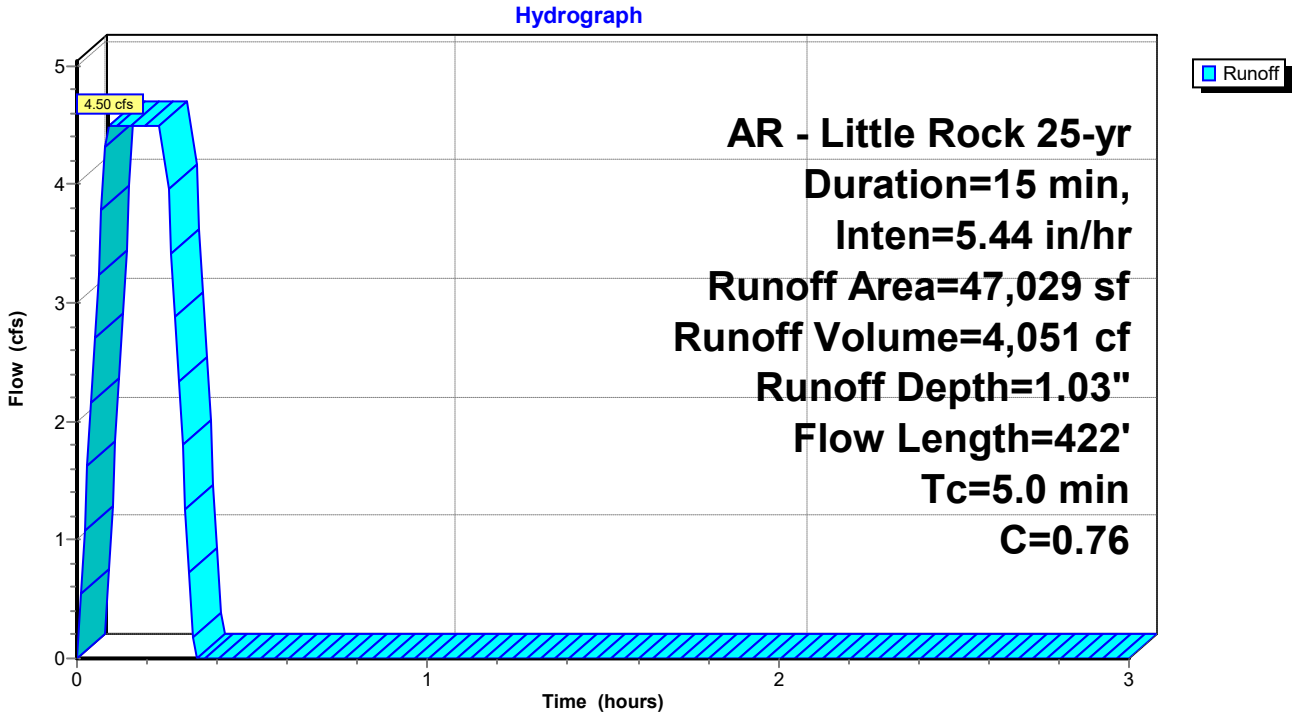
Runoff = 4.50 cfs @ 0.09 hrs, Volume= 4,051 cf, Depth= 1.03"
Routed to Pond Pond : Regional Detention Basin

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
1,511	0.86	Existing Drive
33,632	0.92	Drives, Roof, Sidewalks
11,886	0.30	Landscaped Areas
47,029	0.76	Weighted Average
47,029		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	82	0.0290	1.76		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.8	87	0.0080	1.82		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.1	19	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Pavement Flow** Paved Kv= 20.3 fps
1.0	197	0.0250	3.21		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	37	0.0130	2.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.0					**Direct Entry, Minimum adjustment**
5.0	422	Total			

Subcatchment SR: Springhill Retail Post



Summary for Subcatchment WestProp: West Adjacent Property Drainage Basin

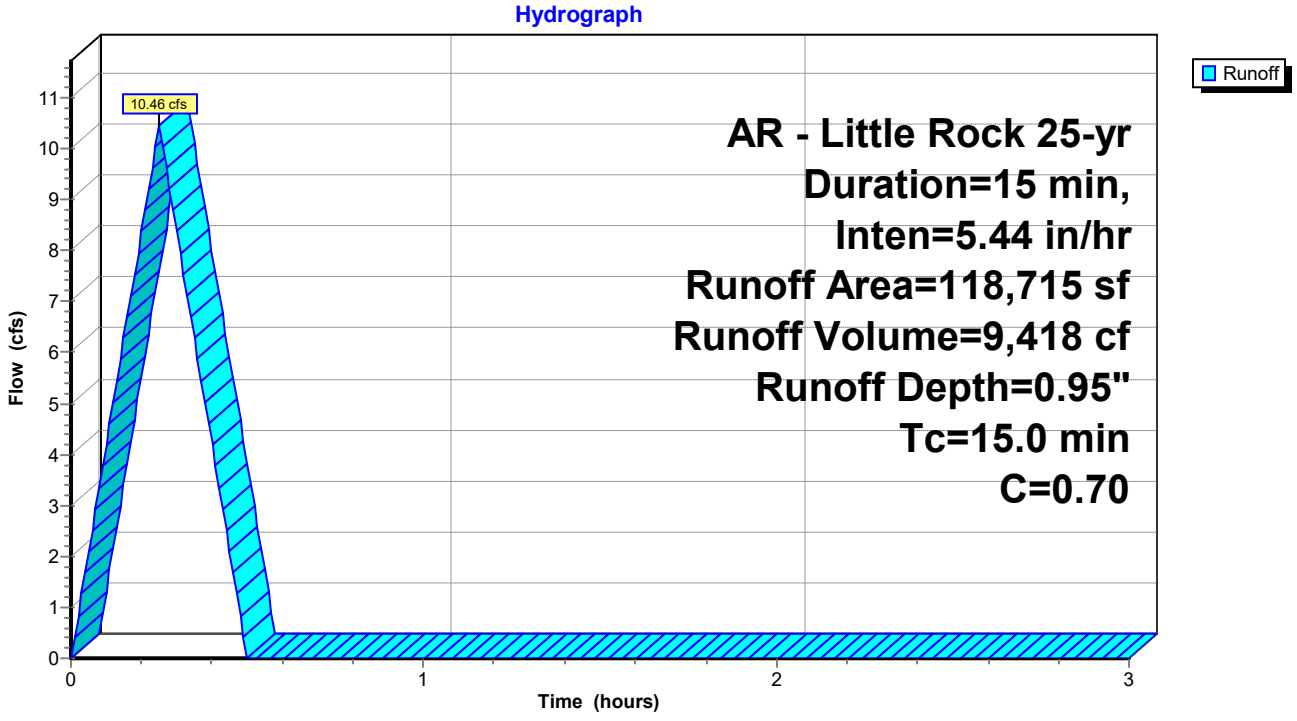
Runoff = 10.46 cfs @ 0.25 hrs, Volume= 9,418 cf, Depth= 0.95"
Routed to Reach A3 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=15 min, Inten=5.44 in/hr

Area (sf)	C	Description
65,063	0.50	Pervious Areas
53,652	0.95	Rooftop/Paving
118,715	0.70	Weighted Average
65,063		54.81% Pervious Area
53,652		45.19% Impervious Area

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

Subcatchment WestProp: West Adjacent Property Drainage Basin



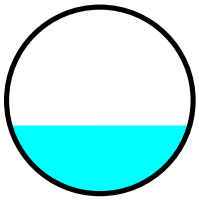
Summary for Reach A1: Pipe A1

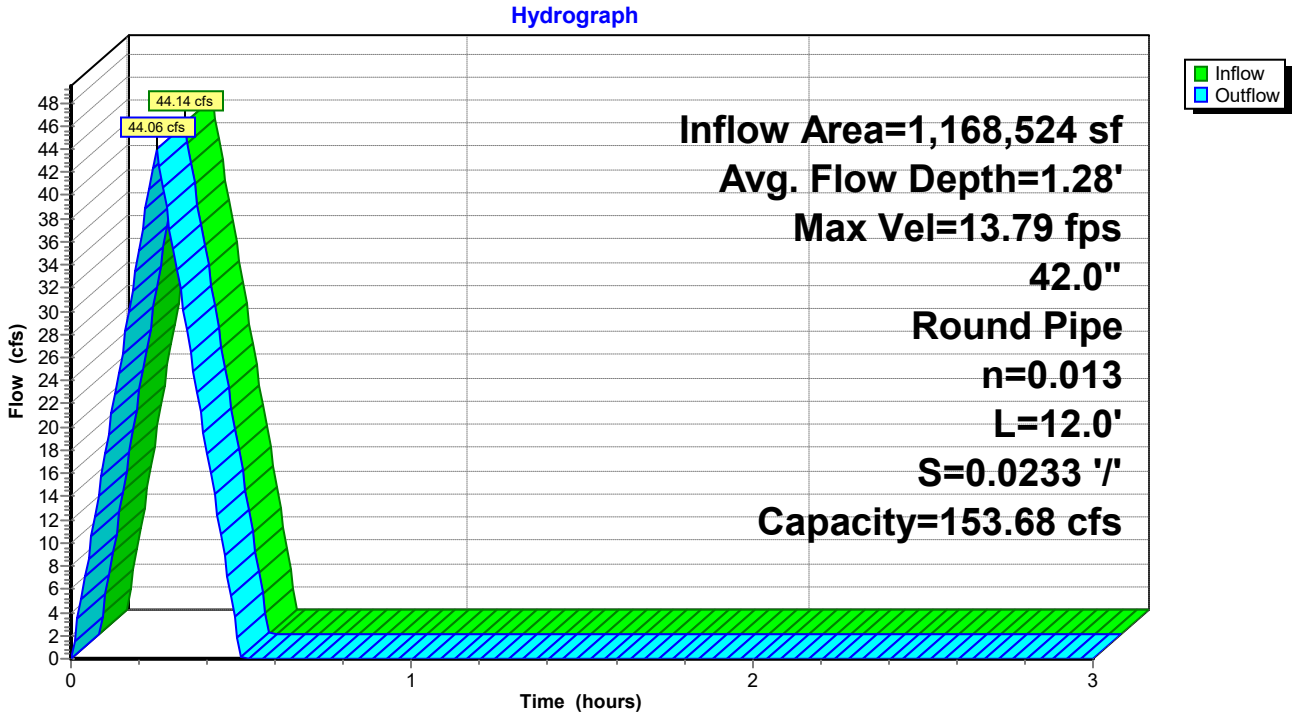
Inflow Area = 1,168,524 sf, 0.00% Impervious, Inflow Depth = 0.41" for 25-yr event
Inflow = 44.14 cfs @ 0.25 hrs, Volume= 39,730 cf
Outflow = 44.06 cfs @ 0.25 hrs, Volume= 39,731 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 13.79 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 10.71 fps, Avg. Travel Time= 0.0 min

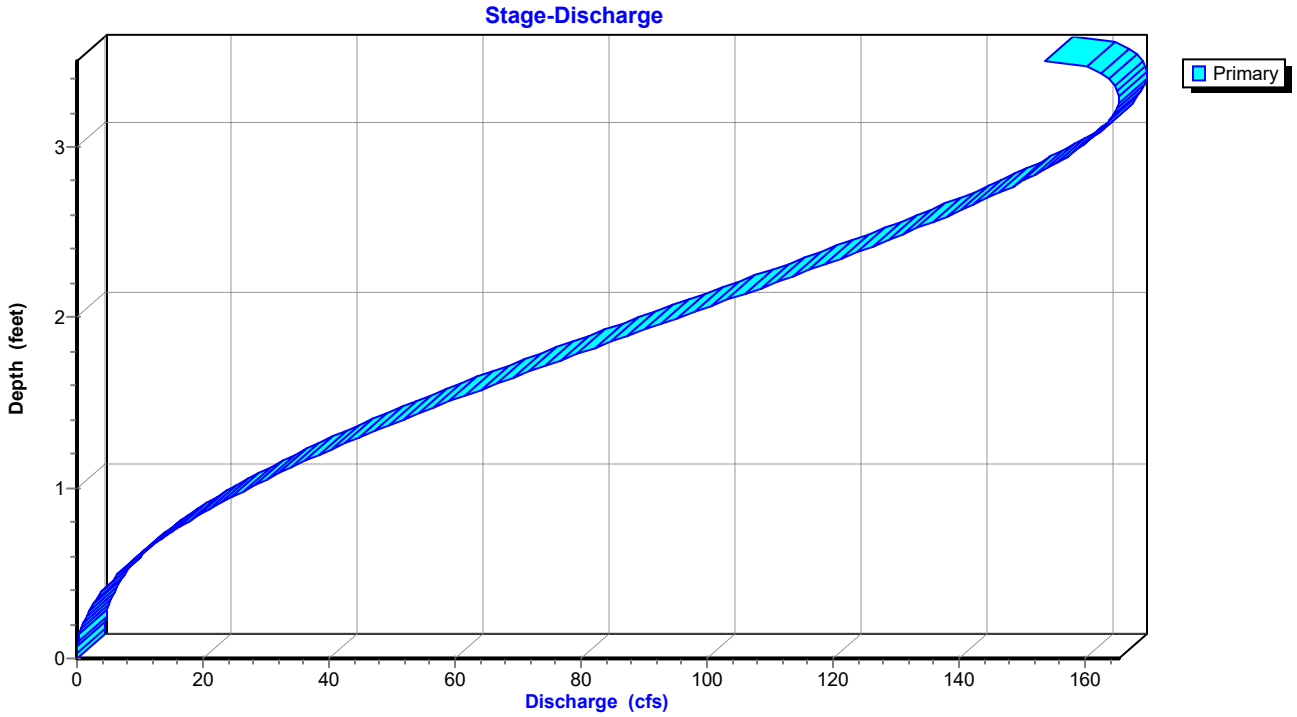
Peak Storage= 38 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.28' , Surface Width= 3.37'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 153.68 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 413.00', Outlet Invert= 412.72'





Reach A1: Pipe A1



Stage-Area-Storage for Reach A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
413.00	0.0	0
413.05	0.0	0
413.10	0.1	1
413.15	0.1	2
413.20	0.2	3
413.25	0.3	4
413.30	0.4	5
413.35	0.5	6
413.40	0.6	7
413.45	0.7	9
413.50	0.8	10
413.55	1.0	12
413.60	1.1	13
413.65	1.2	15
413.70	1.4	16
413.75	1.5	18
413.80	1.7	20
413.85	1.8	22
413.90	2.0	23
413.95	2.1	25
414.00	2.3	27
414.05	2.4	29
414.10	2.6	31
414.15	2.8	33
414.20	2.9	35
414.25	3.1	37
414.30	3.3	39
414.35	3.4	41
414.40	3.6	43
414.45	3.8	45
414.50	3.9	47
414.55	4.1	49
414.60	4.3	51
414.65	4.5	54
414.70	4.6	56
414.75	4.8	58
414.80	5.0	60
414.85	5.2	62
414.90	5.3	64
414.95	5.5	66
415.00	5.7	68
415.05	5.9	70
415.10	6.0	72
415.15	6.2	74
415.20	6.4	76
415.25	6.5	78
415.30	6.7	80
415.35	6.9	82
415.40	7.0	84
415.45	7.2	86
415.50	7.4	88
415.55	7.5	90
415.60	7.7	92
415.65	7.8	94
415.70	8.0	96
415.75	8.1	97
415.80	8.3	99
415.85	8.4	101
415.90	8.5	102
415.95	8.7	104
416.00	8.8	105
416.05	8.9	107
416.10	9.0	108
416.15	9.1	109
416.20	9.2	111
416.25	9.3	112
416.30	9.4	113
416.35	9.5	114
416.40	9.5	115
416.45	9.6	115
416.50	**9.6**	**115**

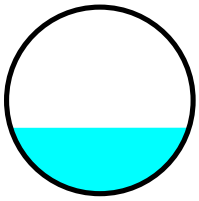
Summary for Reach A2: Pipe A2

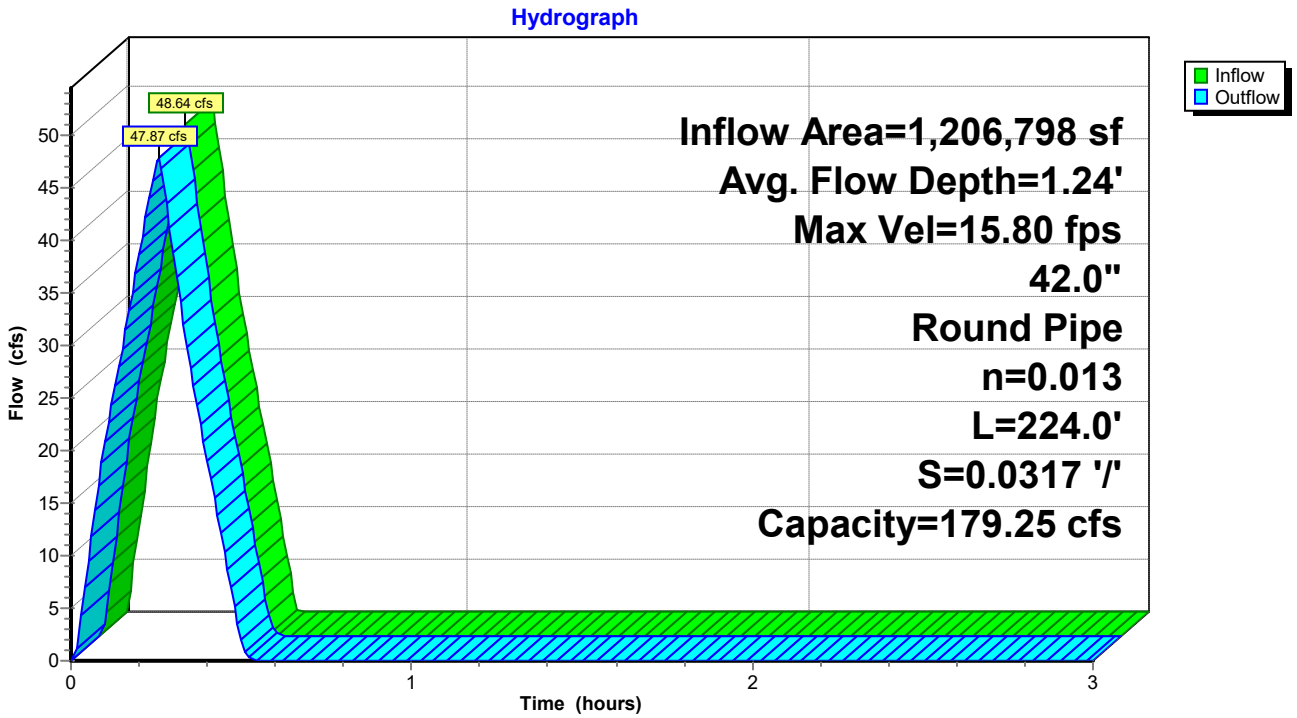
Inflow Area = 1,206,798 sf, 3.17% Impervious, Inflow Depth = 0.44" for 25-yr event
Inflow = 48.64 cfs @ 0.25 hrs, Volume= 43,852 cf
Outflow = 47.87 cfs @ 0.26 hrs, Volume= 43,852 cf, Atten= 2%, Lag= 0.4 min
Routed to Reach A3 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 15.80 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 8.94 fps, Avg. Travel Time= 0.4 min

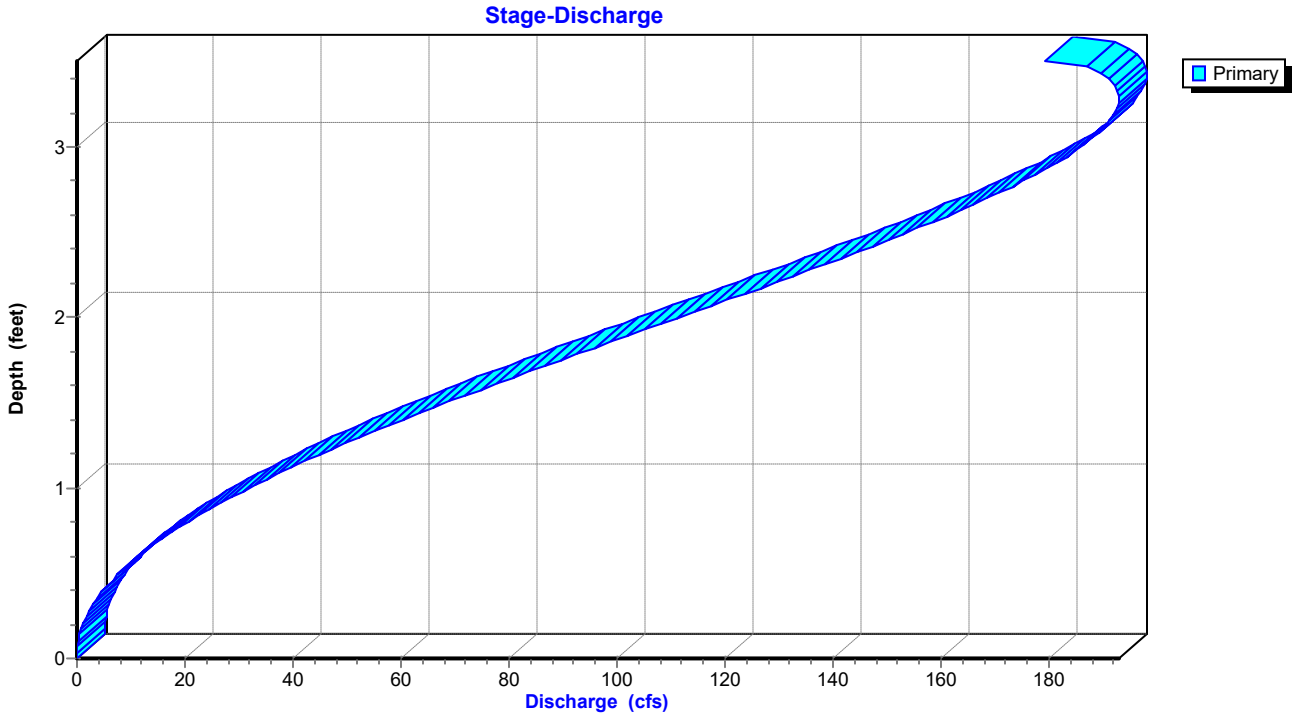
Peak Storage= 683 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.24' , Surface Width= 3.35'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 179.25 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 224.0' Slope= 0.0317 '/'
Inlet Invert= 412.52', Outlet Invert= 405.41'





Reach A2: Pipe A2



Stage-Area-Storage for Reach A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
412.52	0.0	0
412.57	0.0	6
412.62	0.1	18
412.67	0.1	32
412.72	0.2	49
412.77	0.3	68
412.82	0.4	90
412.87	0.5	112
412.92	0.6	136
412.97	0.7	162
413.02	0.8	189
413.07	1.0	217
413.12	1.1	246
413.17	1.2	276
413.22	1.4	307
413.27	1.5	339
413.32	1.7	371
413.37	1.8	404
413.42	2.0	438
413.47	2.1	473
413.52	2.3	508
413.57	2.4	544
413.62	2.6	580
413.67	2.8	617
413.72	2.9	654
413.77	3.1	691
413.82	3.3	729
413.87	3.4	767
413.92	3.6	805
413.97	3.8	844
414.02	3.9	882
414.07	4.1	921
414.12	4.3	960
414.17	4.5	999
414.22	4.6	1,038
414.27	4.8	1,078
414.32	5.0	1,117
414.37	5.2	1,156
414.42	5.3	1,195
414.47	5.5	1,234
414.52	5.7	1,273
414.57	5.9	1,312
414.62	6.0	1,350
414.67	6.2	1,388
414.72	6.4	1,426
414.77	6.5	1,464
414.82	6.7	1,502
414.87	6.9	1,539
414.92	7.0	1,575
414.97	7.2	1,611
415.02	7.4	1,647
415.07	7.5	1,682
415.12	7.7	1,717
415.17	7.8	1,751
415.22	8.0	1,784
415.27	8.1	1,816
415.32	8.3	1,848
415.37	8.4	1,879
415.42	8.5	1,909
415.47	8.7	1,938
415.52	8.8	1,966
415.57	8.9	1,993
415.62	9.0	2,019
415.67	9.1	2,043
415.72	9.2	2,066
415.77	9.3	2,087
415.82	9.4	2,106
415.87	9.5	2,123
415.92	9.5	2,138
415.97	9.6	2,149
416.02	**9.6**	**2,155**

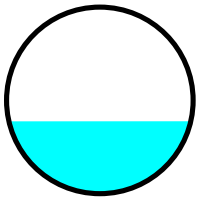
Summary for Reach A3: Pipe A2

Inflow Area = 1,325,513 sf, 6.94% Impervious, Inflow Depth = 0.48" for 25-yr event
Inflow = 58.14 cfs @ 0.25 hrs, Volume= 53,270 cf
Outflow = 58.03 cfs @ 0.26 hrs, Volume= 53,270 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond Pond : Regional Detention Basin

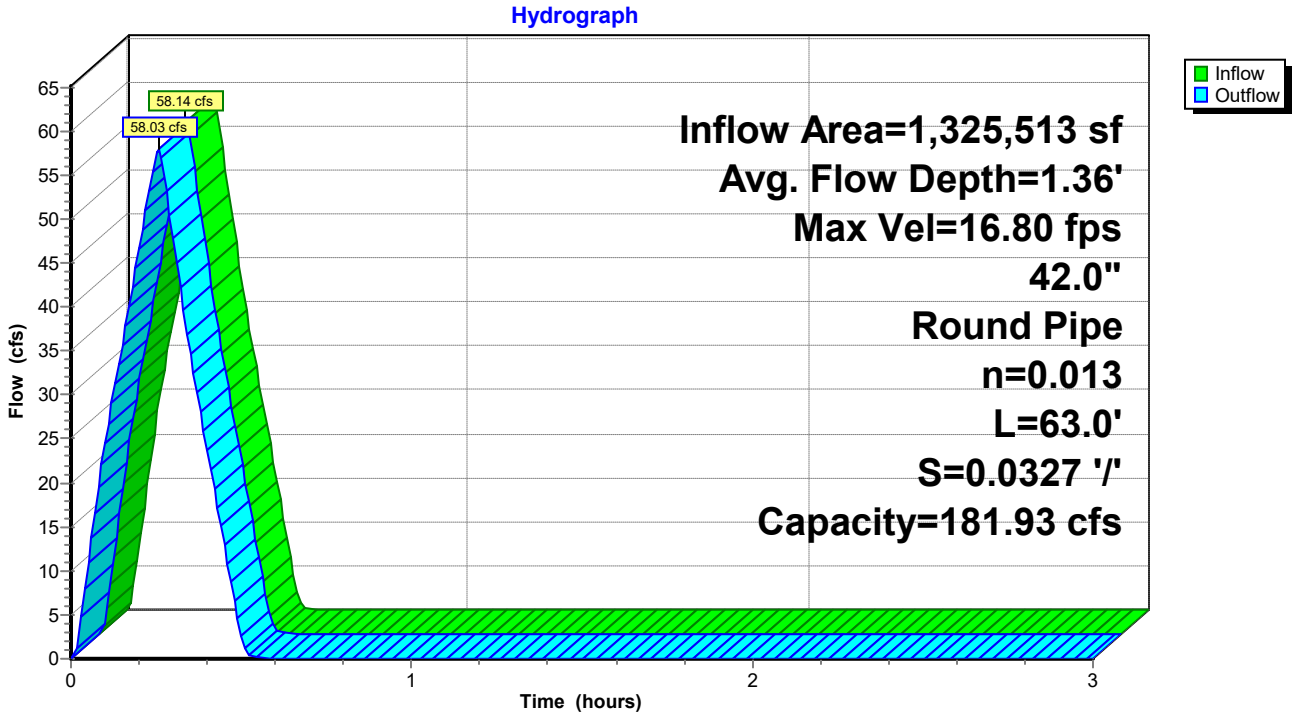
Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 16.80 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 9.35 fps, Avg. Travel Time= 0.1 min

Peak Storage= 218 cf @ 0.26 hrs
Average Depth at Peak Storage= 1.36' , Surface Width= 3.41'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 181.93 cfs

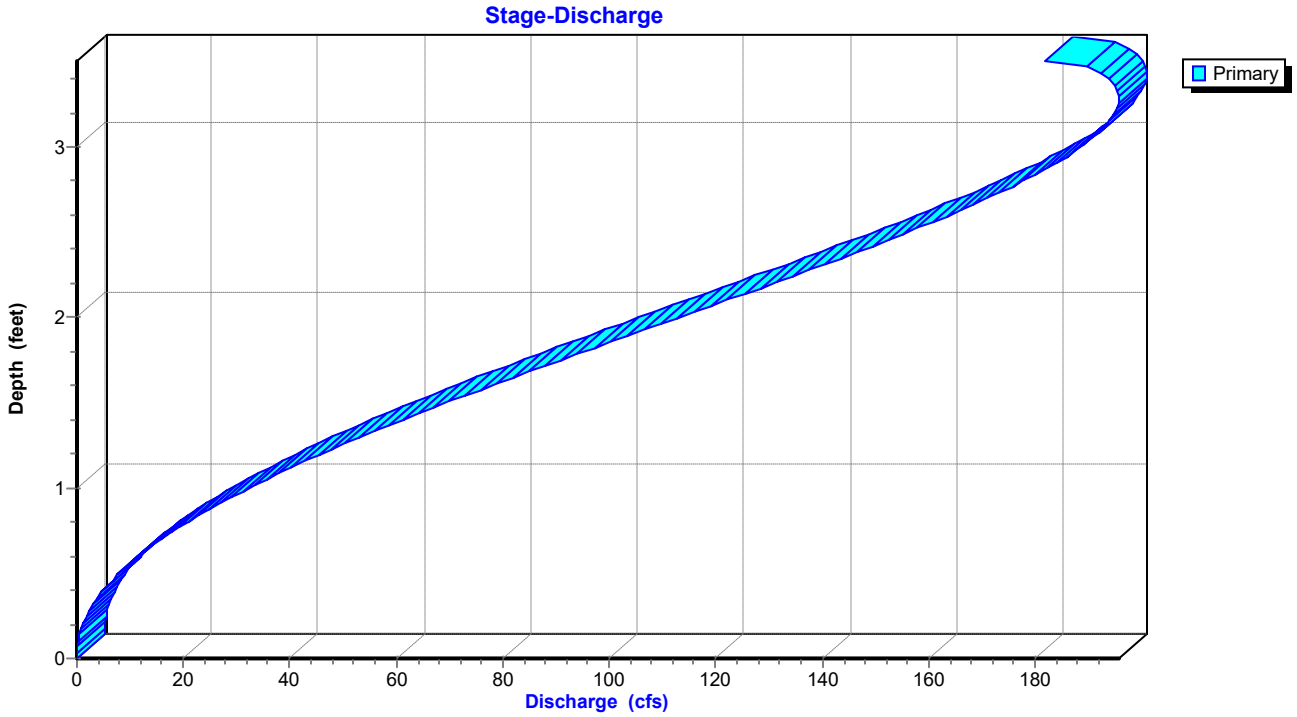
42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 63.0' Slope= 0.0327 '/'
Inlet Invert= 405.31', Outlet Invert= 403.25'



Reach A3: Pipe A2



Reach A3: Pipe A2



Stage-Area-Storage for Reach A3: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
405.31	0.0	0
405.36	0.0	2
405.41	0.1	5
405.46	0.1	9
405.51	0.2	14
405.56	0.3	19
405.61	0.4	25
405.66	0.5	32
405.71	0.6	38
405.76	0.7	46
405.81	0.8	53
405.86	1.0	61
405.91	1.1	69
405.96	1.2	78
406.01	1.4	86
406.06	1.5	95
406.11	1.7	104
406.16	1.8	114
406.21	2.0	123
406.26	2.1	133
406.31	2.3	143
406.36	2.4	153
406.41	2.6	163
406.46	2.8	173
406.51	2.9	184
406.56	3.1	194
406.61	3.3	205
406.66	3.4	216
406.71	3.6	226
406.76	3.8	237
406.81	3.9	248
406.86	4.1	259
406.91	4.3	270
406.96	4.5	281
407.01	4.6	292
407.06	4.8	303
407.11	5.0	314
407.16	5.2	325
407.21	5.3	336
407.26	5.5	347
407.31	5.7	358
407.36	5.9	369
407.41	6.0	380
407.46	6.2	390
407.51	6.4	401
407.56	6.5	412
407.61	6.7	422
407.66	6.9	433
407.71	7.0	443
407.76	7.2	453
407.81	7.4	463
407.86	7.5	473
407.91	7.7	483
407.96	7.8	492
408.01	8.0	502
408.06	8.1	511
408.11	8.3	520
408.16	8.4	529
408.21	8.5	537
408.26	8.7	545
408.31	8.8	553
408.36	8.9	561
408.41	9.0	568
408.46	9.1	575
408.51	9.2	581
408.56	9.3	587
408.61	9.4	592
408.66	9.5	597
408.71	9.5	601
408.76	9.6	604
408.81	**9.6**	**606**

Summary for Pond Pond: Regional Detention Basin

Inflow Area = 1,372,542 sf, 6.70% Impervious, Inflow Depth = 0.50" for 25-yr event
Inflow = 62.24 cfs @ 0.25 hrs, Volume= 57,321 cf
Outflow = 48.70 cfs @ 0.30 hrs, Volume= 57,371 cf, Atten= 22%, Lag= 2.9 min
Primary = 48.70 cfs @ 0.30 hrs, Volume= 57,371 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 405.36' @ 0.30 hrs Storage= 9,099 cf

Plug-Flow detention time= 2.1 min calculated for 57,180 cf (100% of inflow)
Center-of-Mass det. time= 2.1 min (17.0 - 14.8)

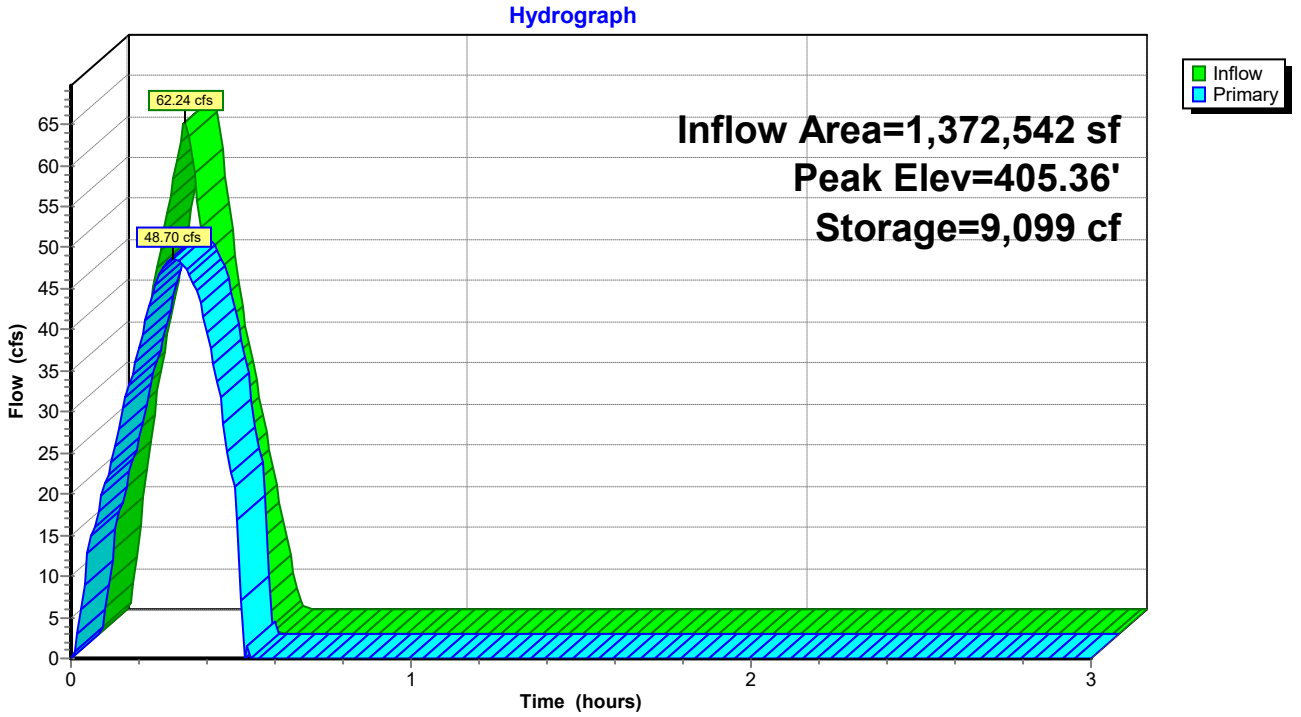
Volume	Invert	Avail.Storage	Storage Description
#1	401.00'	12,812 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
401.00	0
402.00	103
403.00	803
404.00	2,704
405.00	7,038
406.00	12,812

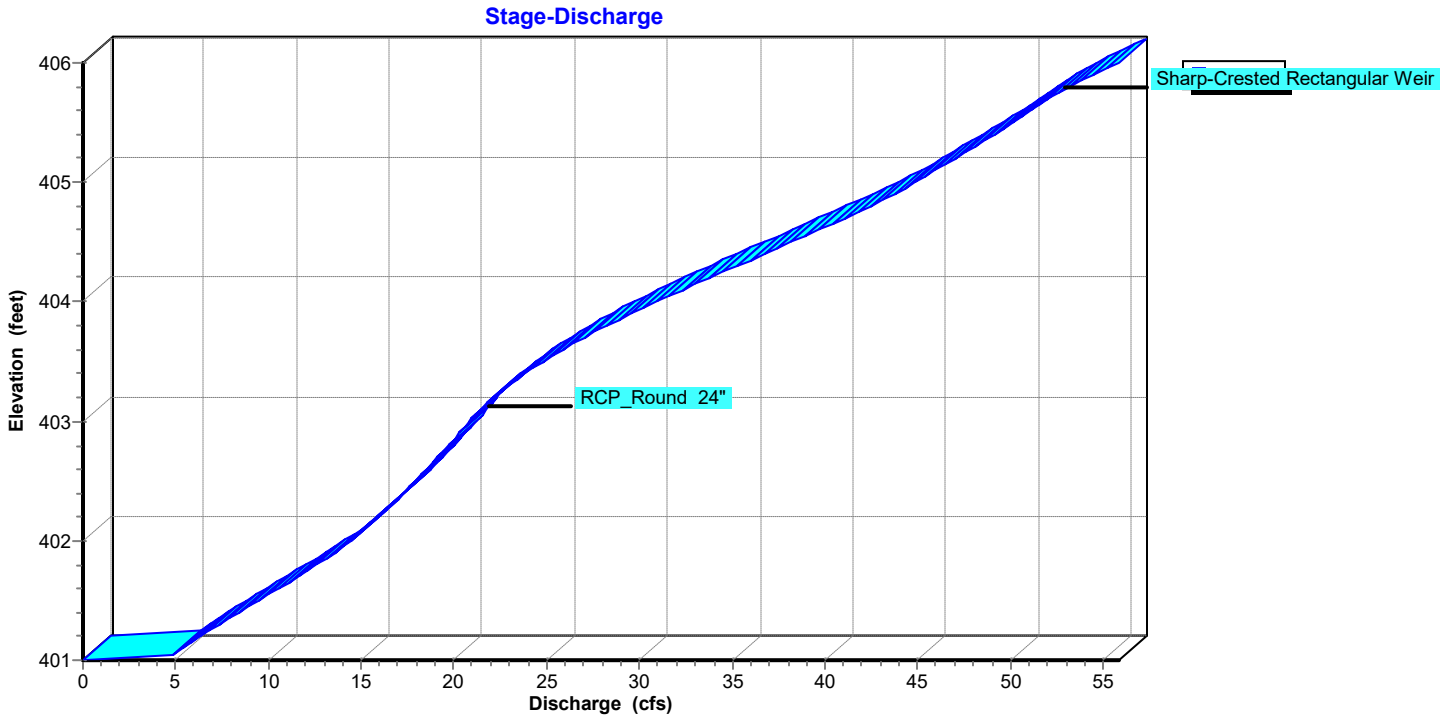
Device	Routing	Invert	Outlet Devices
#1	Primary	400.10'	**24.0" Round RCP_Round 24"** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 400.10' / 397.97' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	403.02'	**24.0" Round RCP_Round 24"** L= 35.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 403.02' / 401.73' S= 0.0369 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Primary	405.69'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=48.68 cfs @ 0.30 hrs HW=405.35' (Free Discharge)
- **1=RCP_Round 24"** (Inlet Controls 31.20 cfs @ 9.93 fps)
- **2=RCP_Round 24"** (Inlet Controls 17.48 cfs @ 5.56 fps)
- **3=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Pond: Regional Detention Basin



Pond Pond: Regional Detention Basin



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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
401.00	0	403.60	1,944
401.05	5	403.65	2,039
401.10	10	403.70	2,134
401.15	15	403.75	2,229
401.20	21	403.80	2,324
401.25	26	403.85	2,419
401.30	31	403.90	2,514
401.35	36	403.95	2,609
401.40	41	404.00	2,704
401.45	46	404.05	2,921
401.50	52	404.10	3,137
401.55	57	404.15	3,354
401.60	62	404.20	3,571
401.65	67	404.25	3,788
401.70	72	404.30	4,004
401.75	77	404.35	4,221
401.80	82	404.40	4,438
401.85	88	404.45	4,654
401.90	93	404.50	4,871
401.95	98	404.55	5,088
402.00	103	404.60	5,304
402.05	138	404.65	5,521
402.10	173	404.70	5,738
402.15	208	404.75	5,955
402.20	243	404.80	6,171
402.25	278	404.85	6,388
402.30	313	404.90	6,605
402.35	348	404.95	6,821
402.40	383	405.00	7,038
402.45	418	405.05	7,327
402.50	453	405.10	7,615
402.55	488	405.15	7,904
402.60	523	405.20	8,193
402.65	558	405.25	8,482
402.70	593	405.30	8,770
402.75	628	405.35	9,059
402.80	663	405.40	9,348
402.85	698	405.45	9,636
402.90	733	405.50	9,925
402.95	768	405.55	10,214
403.00	803	405.60	10,502
403.05	898	405.65	10,791
403.10	993	405.70	11,080
403.15	1,088	405.75	11,369
403.20	1,183	405.80	11,657
403.25	1,278	405.85	11,946
403.30	1,373	405.90	12,235
403.35	1,468	405.95	12,523
403.40	1,563	406.00	**12,812**
403.45	1,658		
403.50	1,754		
403.55	1,849		

Summary for Subcatchment ARDOT: ARDOT Offsite

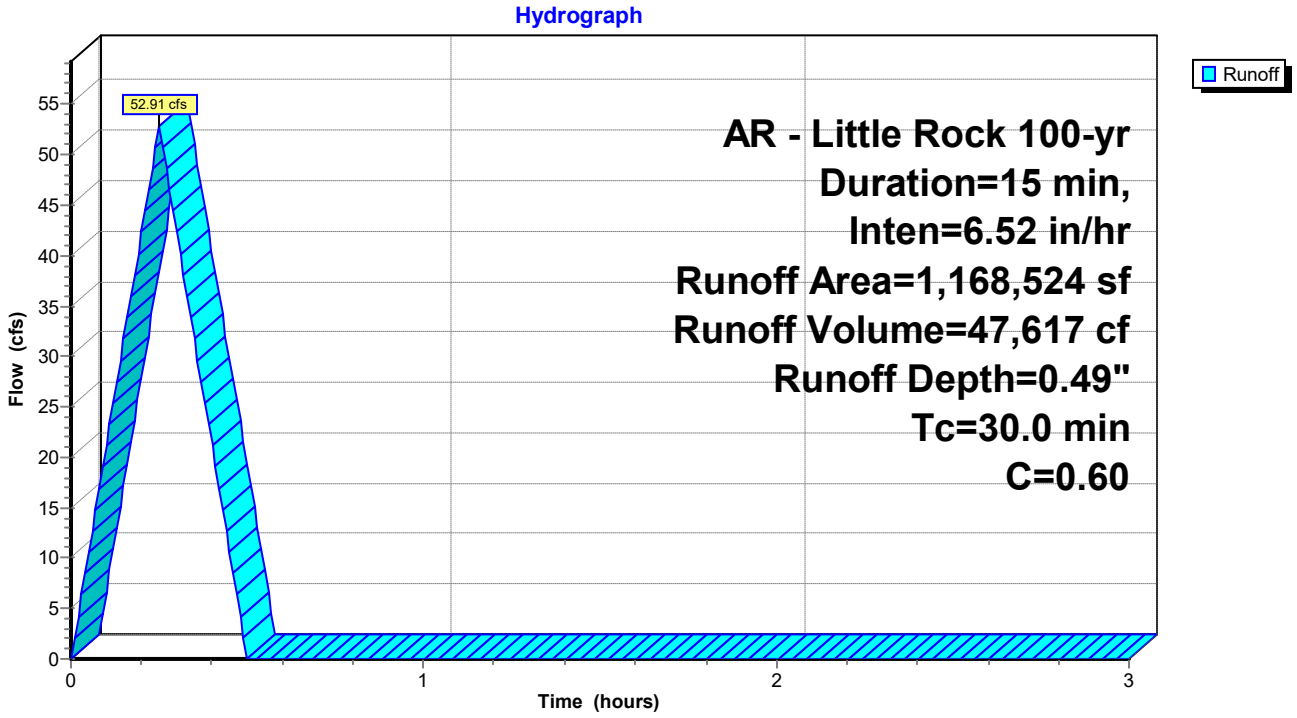
Runoff = 52.91 cfs @ 0.25 hrs, Volume= 47,617 cf, Depth= 0.49"
Routed to Reach A1 : Pipe A1

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
1,168,524	0.60	
1,168,524		100.00% Pervious Area

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

Subcatchment ARDOT: ARDOT Offsite



Summary for Subcatchment M&F: Merchants and Farmers

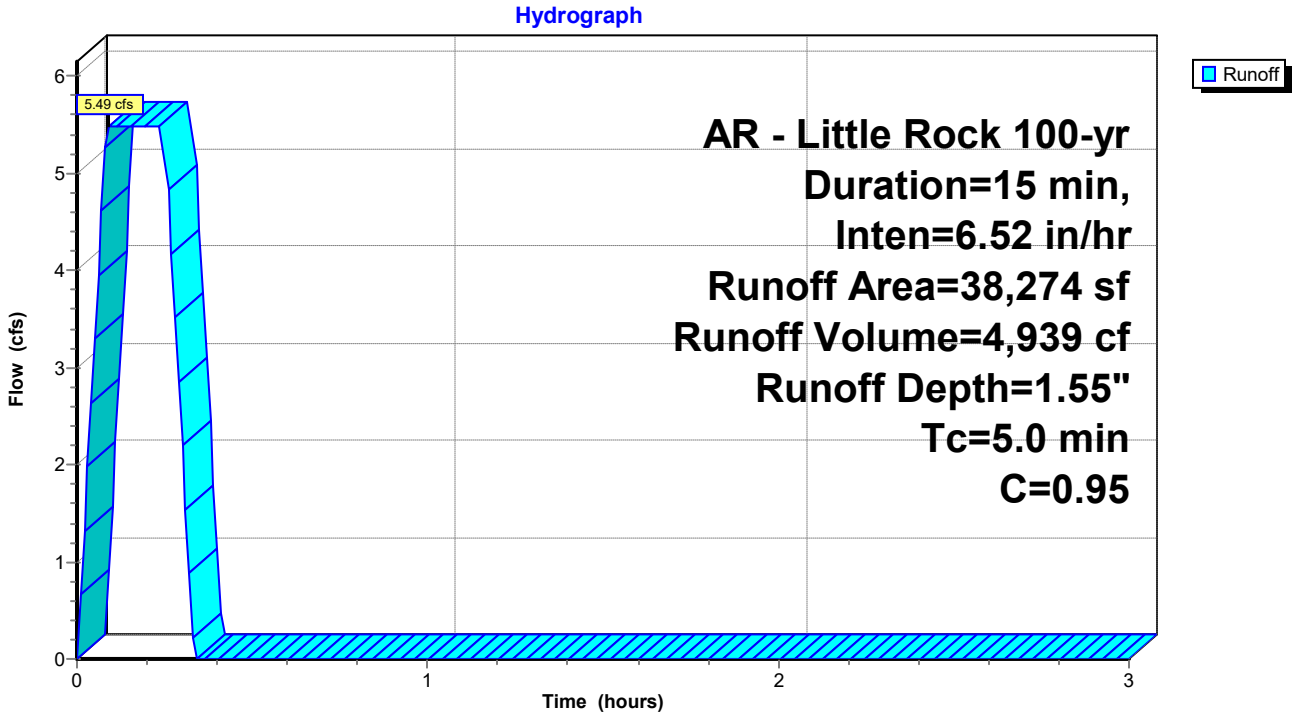
Runoff = 5.49 cfs @ 0.09 hrs, Volume= 4,939 cf, Depth= 1.55"
Routed to Reach A2 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
38,274	0.95	Developed Site
38,274		100.00% Impervious Area

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

Subcatchment M&F: Merchants and Farmers



Summary for Subcatchment SR: Springhill Retail Post

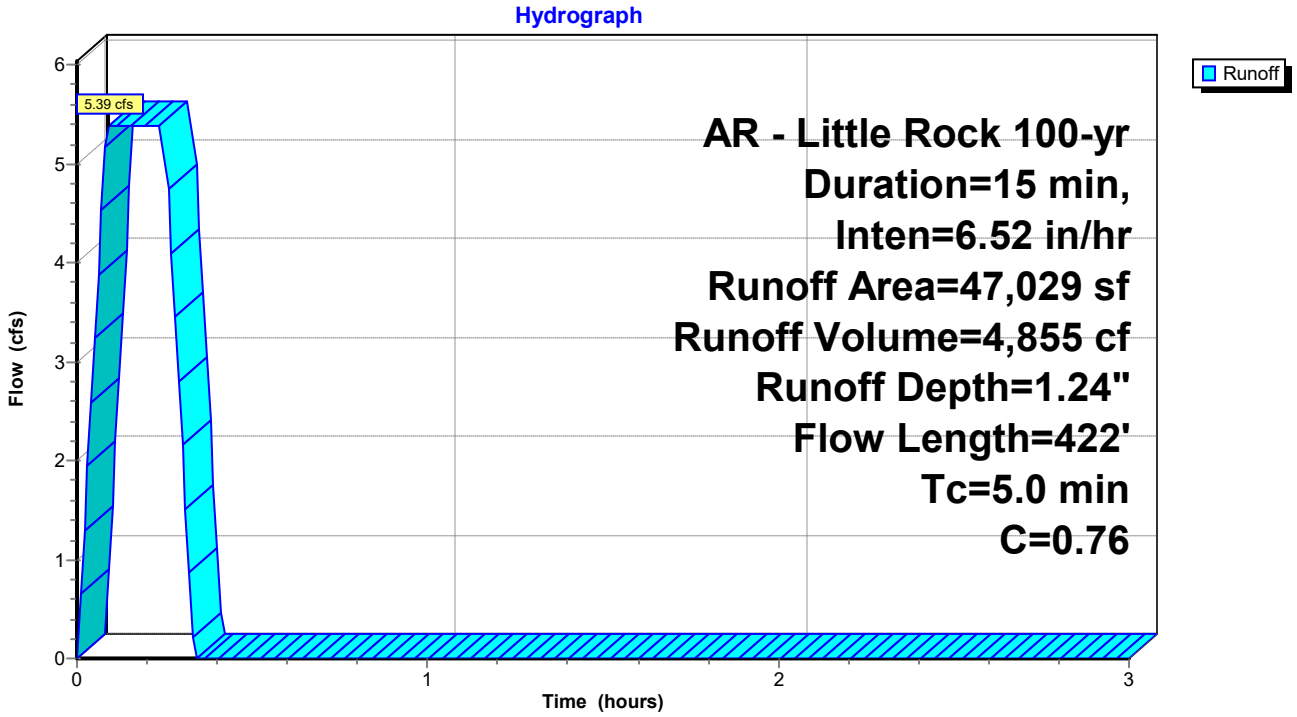
Runoff = 5.39 cfs @ 0.09 hrs, Volume= 4,855 cf, Depth= 1.24"
Routed to Pond Pond : Regional Detention Basin

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
1,511	0.86	Existing Drive
33,632	0.92	Drives, Roof, Sidewalks
11,886	0.30	Landscaped Areas
47,029	0.76	Weighted Average
47,029		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.8	82	0.0290	1.76		**Sheet Flow, Asphalt Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.8	87	0.0080	1.82		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.1	19	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Pavement Flow** Paved Kv= 20.3 fps
1.0	197	0.0250	3.21		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
0.3	37	0.0130	2.31		**Shallow Concentrated Flow, Gutter** Paved Kv= 20.3 fps
2.0					**Direct Entry, Minimum adjustment**
5.0	422	Total			

Subcatchment SR: Springhill Retail Post



Summary for Subcatchment WestProp: West Adjacent Property Drainage Basin

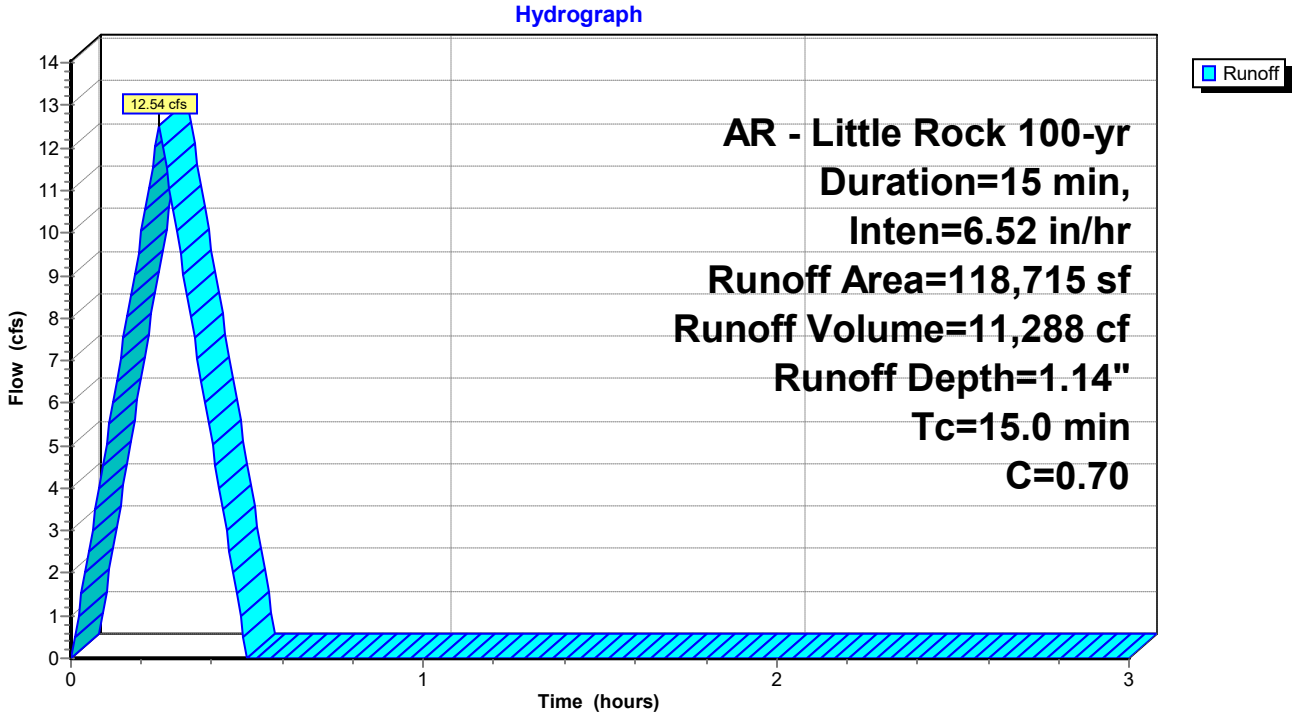
Runoff = 12.54 cfs @ 0.25 hrs, Volume= 11,288 cf, Depth= 1.14"
Routed to Reach A3 : Pipe A2

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=15 min, Inten=6.52 in/hr

Area (sf)	C	Description
65,063	0.50	Pervious Areas
53,652	0.95	Rooftop/Paving
118,715	0.70	Weighted Average
65,063		54.81% Pervious Area
53,652		45.19% Impervious Area

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

Subcatchment WestProp: West Adjacent Property Drainage Basin



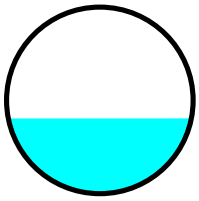
Summary for Reach A1: Pipe A1

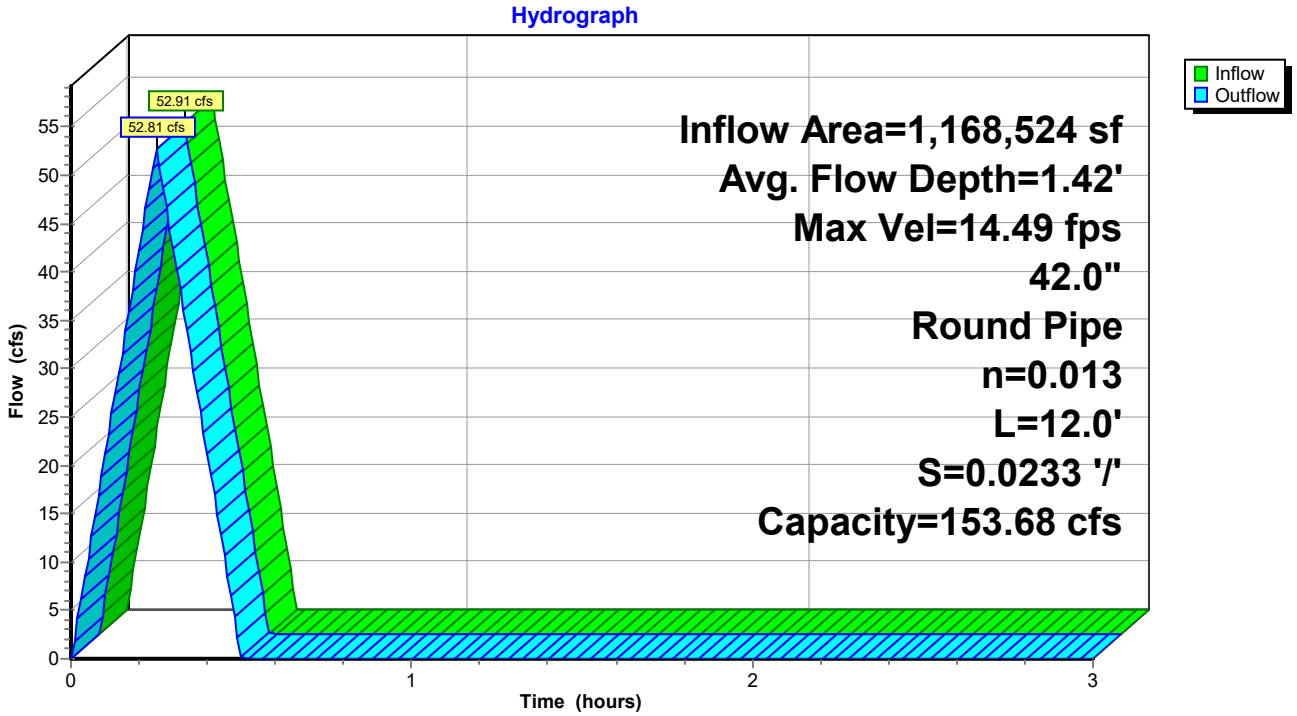
Inflow Area = 1,168,524 sf, 0.00% Impervious, Inflow Depth = 0.49" for 100-yr event
Inflow = 52.91 cfs @ 0.25 hrs, Volume= 47,617 cf
Outflow = 52.81 cfs @ 0.25 hrs, Volume= 47,619 cf, Atten= 0%, Lag= 0.0 min
Routed to Reach A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 14.49 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 11.28 fps, Avg. Travel Time= 0.0 min

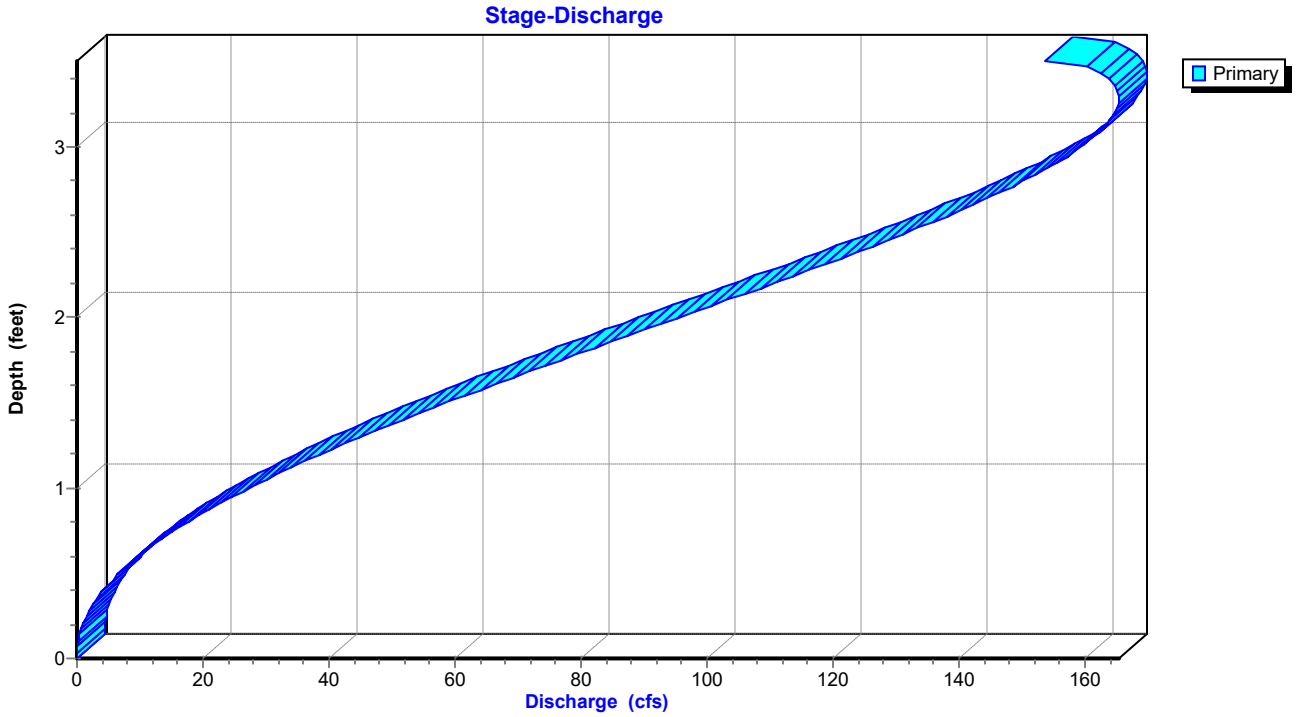
Peak Storage= 44 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.42' , Surface Width= 3.44'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 153.68 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 12.0' Slope= 0.0233 '/'
Inlet Invert= 413.00', Outlet Invert= 412.72'





Reach A1: Pipe A1



Stage-Area-Storage for Reach A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
413.00	0.0	0
413.05	0.0	0
413.10	0.1	1
413.15	0.1	2
413.20	0.2	3
413.25	0.3	4
413.30	0.4	5
413.35	0.5	6
413.40	0.6	7
413.45	0.7	9
413.50	0.8	10
413.55	1.0	12
413.60	1.1	13
413.65	1.2	15
413.70	1.4	16
413.75	1.5	18
413.80	1.7	20
413.85	1.8	22
413.90	2.0	23
413.95	2.1	25
414.00	2.3	27
414.05	2.4	29
414.10	2.6	31
414.15	2.8	33
414.20	2.9	35
414.25	3.1	37
414.30	3.3	39
414.35	3.4	41
414.40	3.6	43
414.45	3.8	45
414.50	3.9	47
414.55	4.1	49
414.60	4.3	51
414.65	4.5	54
414.70	4.6	56
414.75	4.8	58
414.80	5.0	60
414.85	5.2	62
414.90	5.3	64
414.95	5.5	66
415.00	5.7	68
415.05	5.9	70
415.10	6.0	72
415.15	6.2	74
415.20	6.4	76
415.25	6.5	78
415.30	6.7	80
415.35	6.9	82
415.40	7.0	84
415.45	7.2	86
415.50	7.4	88
415.55	7.5	90
415.60	7.7	92
415.65	7.8	94
415.70	8.0	96
415.75	8.1	97
415.80	8.3	99
415.85	8.4	101
415.90	8.5	102
415.95	8.7	104
416.00	8.8	105
416.05	8.9	107
416.10	9.0	108
416.15	9.1	109
416.20	9.2	111
416.25	9.3	112
416.30	9.4	113
416.35	9.5	114
416.40	9.5	115
416.45	9.6	115
416.50	**9.6**	**115**

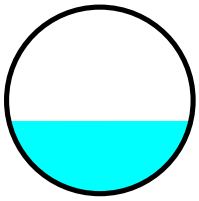
Summary for Reach A2: Pipe A2

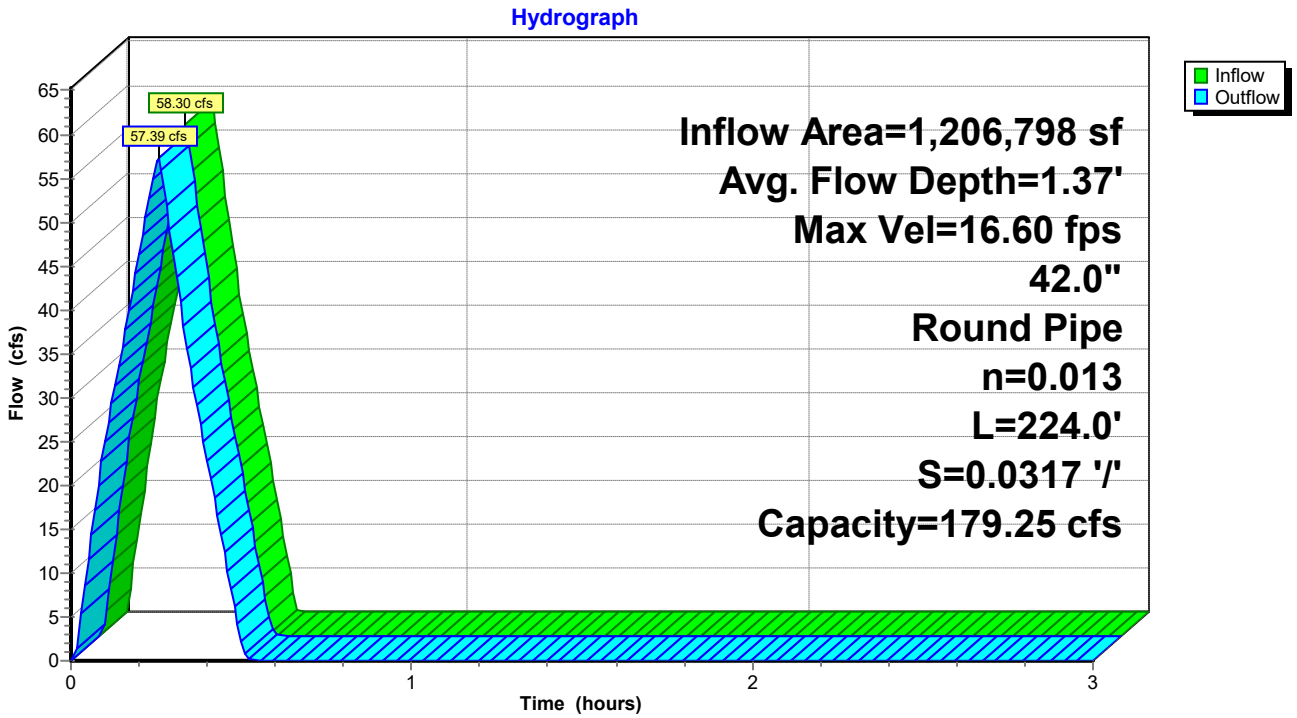
Inflow Area = 1,206,798 sf, 3.17% Impervious, Inflow Depth = 0.52" for 100-yr event
Inflow = 58.30 cfs @ 0.25 hrs, Volume= 52,558 cf
Outflow = 57.39 cfs @ 0.26 hrs, Volume= 52,558 cf, Atten= 2%, Lag= 0.4 min
Routed to Reach A3 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 16.60 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 9.39 fps, Avg. Travel Time= 0.4 min

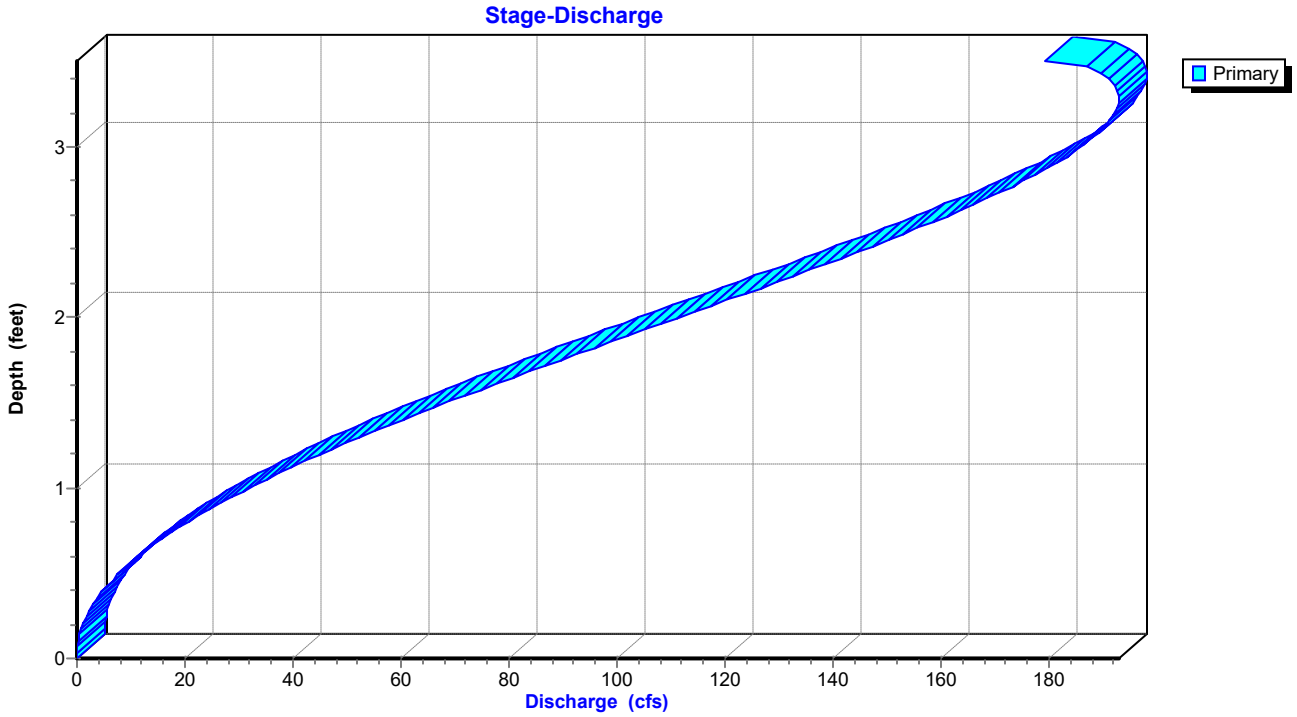
Peak Storage= 779 cf @ 0.25 hrs
Average Depth at Peak Storage= 1.37' , Surface Width= 3.42'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 179.25 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 224.0' Slope= 0.0317 '/'
Inlet Invert= 412.52', Outlet Invert= 405.41'





Reach A2: Pipe A2



Stage-Area-Storage for Reach A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
412.52	0.0	0
412.57	0.0	6
412.62	0.1	18
412.67	0.1	32
412.72	0.2	49
412.77	0.3	68
412.82	0.4	90
412.87	0.5	112
412.92	0.6	136
412.97	0.7	162
413.02	0.8	189
413.07	1.0	217
413.12	1.1	246
413.17	1.2	276
413.22	1.4	307
413.27	1.5	339
413.32	1.7	371
413.37	1.8	404
413.42	2.0	438
413.47	2.1	473
413.52	2.3	508
413.57	2.4	544
413.62	2.6	580
413.67	2.8	617
413.72	2.9	654
413.77	3.1	691
413.82	3.3	729
413.87	3.4	767
413.92	3.6	805
413.97	3.8	844
414.02	3.9	882
414.07	4.1	921
414.12	4.3	960
414.17	4.5	999
414.22	4.6	1,038
414.27	4.8	1,078
414.32	5.0	1,117
414.37	5.2	1,156
414.42	5.3	1,195
414.47	5.5	1,234
414.52	5.7	1,273
414.57	5.9	1,312
414.62	6.0	1,350
414.67	6.2	1,388
414.72	6.4	1,426
414.77	6.5	1,464
414.82	6.7	1,502
414.87	6.9	1,539
414.92	7.0	1,575
414.97	7.2	1,611
415.02	7.4	1,647
415.07	7.5	1,682
415.12	7.7	1,717
415.17	7.8	1,751
415.22	8.0	1,784
415.27	8.1	1,816
415.32	8.3	1,848
415.37	8.4	1,879
415.42	8.5	1,909
415.47	8.7	1,938
415.52	8.8	1,966
415.57	8.9	1,993
415.62	9.0	2,019
415.67	9.1	2,043
415.72	9.2	2,066
415.77	9.3	2,087
415.82	9.4	2,106
415.87	9.5	2,123
415.92	9.5	2,138
415.97	9.6	2,149
416.02	**9.6**	**2,155**

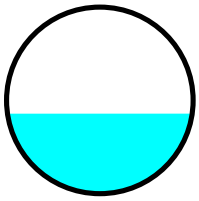
Summary for Reach A3: Pipe A2

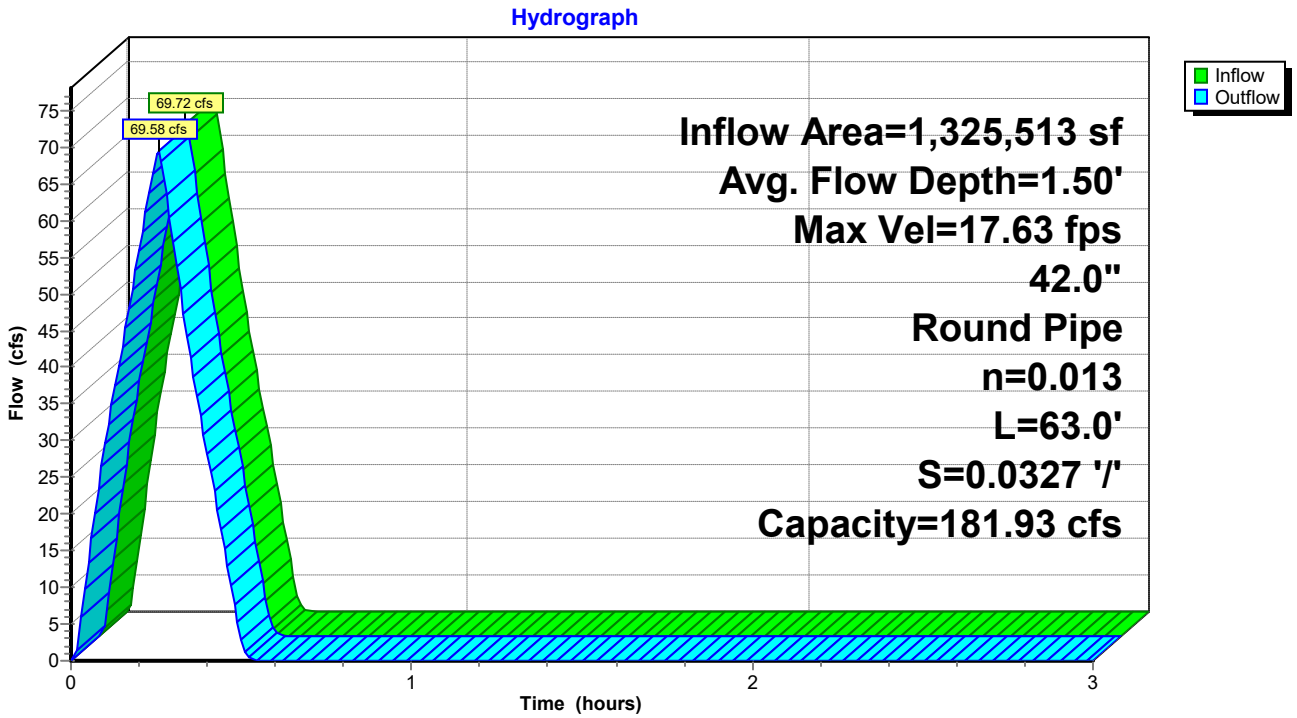
Inflow Area = 1,325,513 sf, 6.94% Impervious, Inflow Depth = 0.58" for 100-yr event
Inflow = 69.72 cfs @ 0.25 hrs, Volume= 63,846 cf
Outflow = 69.58 cfs @ 0.26 hrs, Volume= 63,846 cf, Atten= 0%, Lag= 0.1 min
Routed to Pond Pond : Regional Detention Basin

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Max. Velocity= 17.63 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 9.81 fps, Avg. Travel Time= 0.1 min

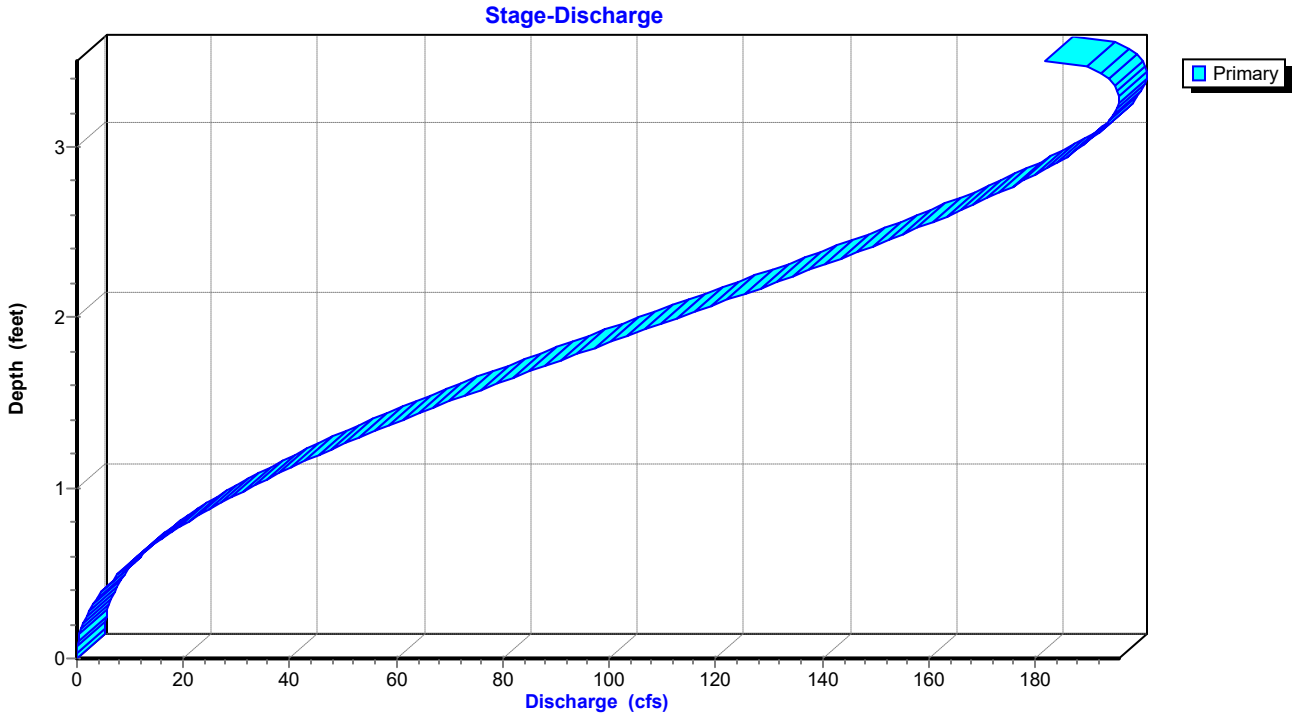
Peak Storage= 249 cf @ 0.26 hrs
Average Depth at Peak Storage= 1.50' , Surface Width= 3.46'
Bank-Full Depth= 3.50' Flow Area= 9.6 sf, Capacity= 181.93 cfs

42.0" Round Pipe
n= 0.013 Concrete pipe, bends & connections
Length= 63.0' Slope= 0.0327 '/'
Inlet Invert= 405.31', Outlet Invert= 403.25'





Reach A3: Pipe A2



Stage-Area-Storage for Reach A3: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
405.31	0.0	0
405.36	0.0	2
405.41	0.1	5
405.46	0.1	9
405.51	0.2	14
405.56	0.3	19
405.61	0.4	25
405.66	0.5	32
405.71	0.6	38
405.76	0.7	46
405.81	0.8	53
405.86	1.0	61
405.91	1.1	69
405.96	1.2	78
406.01	1.4	86
406.06	1.5	95
406.11	1.7	104
406.16	1.8	114
406.21	2.0	123
406.26	2.1	133
406.31	2.3	143
406.36	2.4	153
406.41	2.6	163
406.46	2.8	173
406.51	2.9	184
406.56	3.1	194
406.61	3.3	205
406.66	3.4	216
406.71	3.6	226
406.76	3.8	237
406.81	3.9	248
406.86	4.1	259
406.91	4.3	270
406.96	4.5	281
407.01	4.6	292
407.06	4.8	303
407.11	5.0	314
407.16	5.2	325
407.21	5.3	336
407.26	5.5	347
407.31	5.7	358
407.36	5.9	369
407.41	6.0	380
407.46	6.2	390
407.51	6.4	401
407.56	6.5	412
407.61	6.7	422
407.66	6.9	433
407.71	7.0	443
407.76	7.2	453
407.81	7.4	463
407.86	7.5	473
407.91	7.7	483
407.96	7.8	492
408.01	8.0	502
408.06	8.1	511
408.11	8.3	520
408.16	8.4	529
408.21	8.5	537
408.26	8.7	545
408.31	8.8	553
408.36	8.9	561
408.41	9.0	568
408.46	9.1	575
408.51	9.2	581
408.56	9.3	587
408.61	9.4	592
408.66	9.5	597
408.71	9.5	601
408.76	9.6	604
408.81	**9.6**	**606**

Summary for Pond Pond: Regional Detention Basin

Inflow Area = 1,372,542 sf, 6.70% Impervious, Inflow Depth = 0.60" for 100-yr event
Inflow = 74.65 cfs @ 0.25 hrs, Volume= 68,701 cf
Outflow = 59.88 cfs @ 0.30 hrs, Volume= 68,780 cf, Atten= 20%, Lag= 2.8 min
Primary = 59.88 cfs @ 0.30 hrs, Volume= 68,780 cf

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 406.27' @ 0.30 hrs Storage= 12,812 cf

Plug-Flow detention time= 2.7 min calculated for 68,552 cf (100% of inflow)
Center-of-Mass det. time= 2.7 min (17.5 - 14.8)

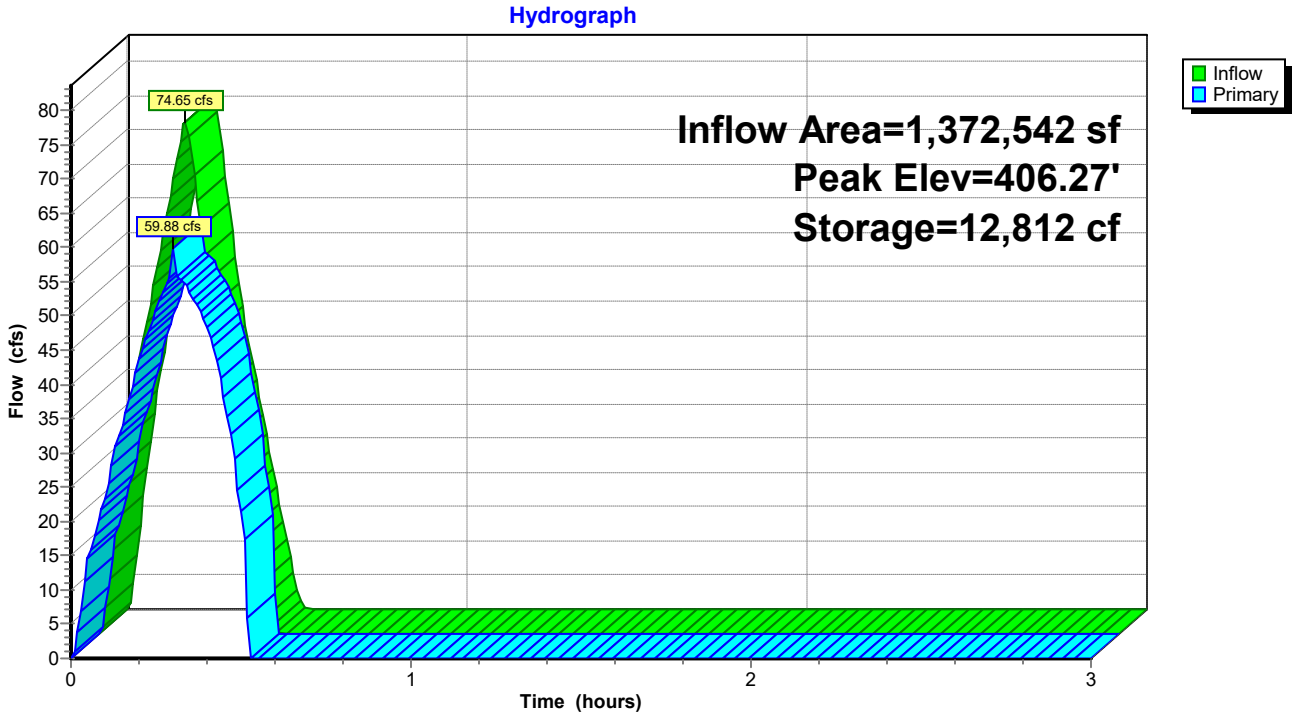
Volume	Invert	Avail.Storage	Storage Description
#1	401.00'	12,812 cf	**Custom Stage Data** Listed below

Elevation (feet)	Cum.Store (cubic-feet)
401.00	0
402.00	103
403.00	803
404.00	2,704
405.00	7,038
406.00	12,812

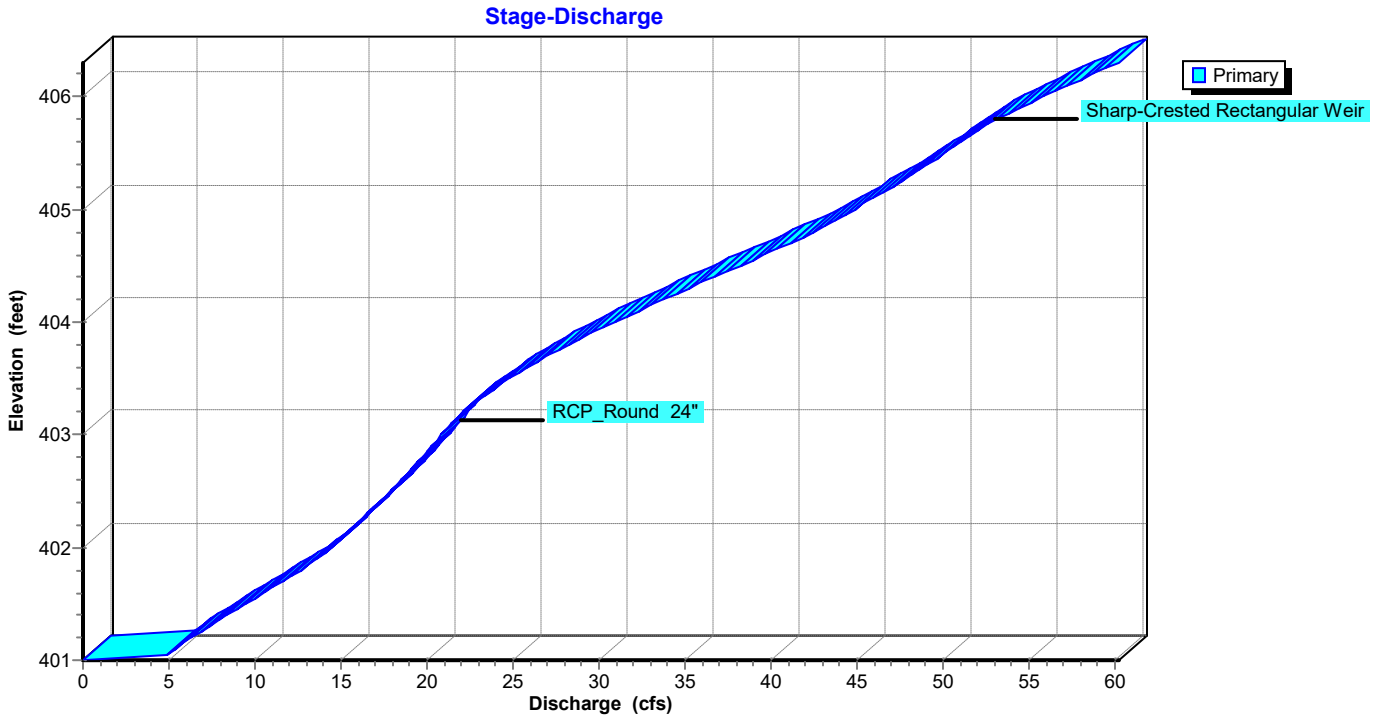
Device	Routing	Invert	Outlet Devices
#1	Primary	400.10'	**24.0" Round RCP_Round 24"** L= 100.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 400.10' / 397.97' S= 0.0213 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 3.14 sf
#2	Primary	403.02'	**24.0" Round RCP_Round 24"** L= 35.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 403.02' / 401.73' S= 0.0369 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf
#3	Primary	405.69'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=59.82 cfs @ 0.30 hrs HW=406.27' (Free Discharge)
- **1=RCP_Round 24"** (Inlet Controls 34.40 cfs @ 10.95 fps)
- **2=RCP_Round 24"** (Inlet Controls 22.69 cfs @ 7.22 fps)
- **3=Sharp-Crested Rectangular Weir** (Weir Controls 2.73 cfs @ 2.49 fps)

Pond Pond: Regional Detention Basin



Pond Pond: Regional Detention Basin



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

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
401.00	0	403.60	1,944	406.20	12,812
401.05	5	403.65	2,039	406.25	12,812
401.10	10	403.70	2,134	406.30	12,812
401.15	15	403.75	2,229		
401.20	21	403.80	2,324		
401.25	26	403.85	2,419		
401.30	31	403.90	2,514		
401.35	36	403.95	2,609		
401.40	41	404.00	2,704		
401.45	46	404.05	2,921		
401.50	52	404.10	3,137		
401.55	57	404.15	3,354		
401.60	62	404.20	3,571		
401.65	67	404.25	3,788		
401.70	72	404.30	4,004		
401.75	77	404.35	4,221		
401.80	82	404.40	4,438		
401.85	88	404.45	4,654		
401.90	93	404.50	4,871		
401.95	98	404.55	5,088		
402.00	103	404.60	5,304		
402.05	138	404.65	5,521		
402.10	173	404.70	5,738		
402.15	208	404.75	5,955		
402.20	243	404.80	6,171		
402.25	278	404.85	6,388		
402.30	313	404.90	6,605		
402.35	348	404.95	6,821		
402.40	383	405.00	7,038		
402.45	418	405.05	7,327		
402.50	453	405.10	7,615		
402.55	488	405.15	7,904		
402.60	523	405.20	8,193		
402.65	558	405.25	8,482		
402.70	593	405.30	8,770		
402.75	628	405.35	9,059		
402.80	663	405.40	9,348		
402.85	698	405.45	9,636		
402.90	733	405.50	9,925		
402.95	768	405.55	10,214		
403.00	803	405.60	10,502		
403.05	898	405.65	10,791		
403.10	993	405.70	11,080		
403.15	1,088	405.75	11,369		
403.20	1,183	405.80	11,657		
403.25	1,278	405.85	11,946		
403.30	1,373	405.90	12,235		
403.35	1,468	405.95	12,523		
403.40	1,563	406.00	**12,812**		
403.45	1,658	406.05	12,812		
403.50	1,754	406.10	12,812		
403.55	1,849	406.15	12,812		