

SUMMERWOOD SPORTS GYM #3

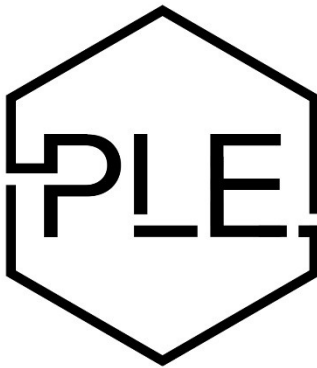
DRAINAGE REPORT

Date: 01-10-2024

Located in: Bryant, Arkansas

Prepared for:
City of Bryant, Arkansas

Prepared by:



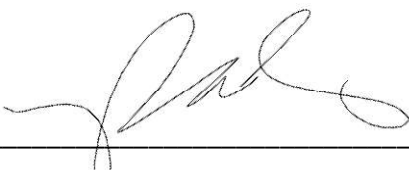
PHILLIP LEWIS ENGINEERING

Structural + Civil Consultants

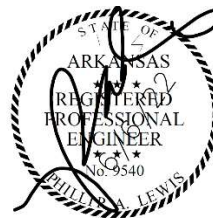
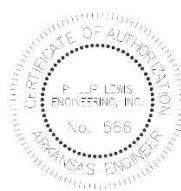
23620 Interstate 30 | Bryant, AR
PH: 501-350-9840

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.

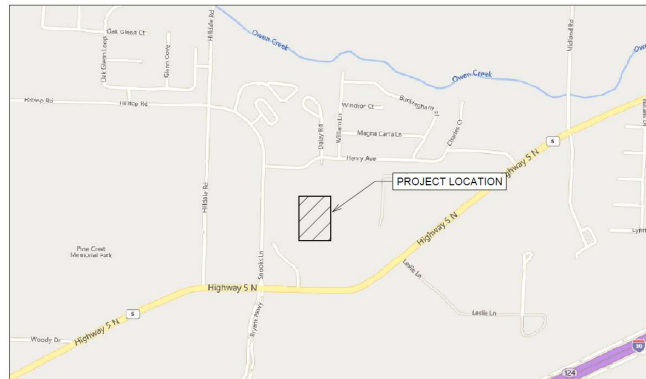


Phillip A. Lewis, PE.



DATE: 01-10-2024

PROJECT LOCATION MAP



DESCRIPTION OF PROPERTY

The proposed project is for the construction of the third gymnasium of the Summerwood Sports Complex located along Bryant Parkway and Hwy 5. The proposed development is a 19,000 sq. ft. building and parking lot.

The intent of this drainage analysis is to reevaluate the previous drainage design and ensure that the completion of this development still meets the design intent and capacity of the previous constructed onsite detention facilities.

The existing ground coverage for the entire development drainage basin consisted of and partially still consists of natural vegetation (3%-8% slope), hydrologic soil group C/D ($C = 0.50$).

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

DRAINAGE CRITERIA

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

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

Calculations were performed using the Rational Method, using NOAA rainfall data, and the pond volume and outlet structure was determined by the 100-year storm event while

the outlet structure is designed to match or reduce pre-development flow rates for all storm events: 2-yr, 10-yr, 25-yr, and 100-yr storms.

Detention Basin Design Specifications:

- *3:1 maximum side slopes*
- *Outlet structures designed to reduce flow rate to match or reduce the pre-development runoff rates for the 2-yr, 5-yr, 10-yr, 25-yr and 100-yr storms.*
- *The pond bottom and side is to be solid sod to prevent erosion*
- *The basins are located and designed to allow access for continued maintenance after construction is completed*

DESCRIPTION OF PREVIOUS DETENTION FACILITIES

Phillip Lewis Engineering has evaluated the previously supplied drainage analysis and made site investigations to fully understand the current drainage situation.

The previous drainage analysis studied the pre vs. post scenarios as a single 6 acre node. Post development was studied as one node routing through the detention pond that is now constructed on the site. Due to the nature of how phase one construction evolved, some areas were not routed to this detention pond. Some of these areas ultimately discharge to other detention facilities located elsewhere on the site, and some are freely discharged to the adjacent eastern parcel.

This drainage study is intended to account for these discrepancies and ensure that the detention basin is throttling appropriately to offset the free discharges from the previous phase and this new proposed phase.

PROPOSED DRAINAGE SYSTEM

This development is designed to capture the majority of runoff within the parking lot curb and gutter, collecting stormwater with “Nyloplast” area inlets, and downspout collector pipes. The existing storm sewer network will remain, with the addition of two area grates along the frontage of gym #3. The existing detention basin that was constructed for the first two gymnasiums will remain as planned previously with the development of gym 1 and 2. This drainage analysis will provide supporting evidence to validate the previously constructed detention basin’s functionality.

While the pond footprint will remain as constructed, current design plans detail for this pond rim to be reestablished at the intended 400.00’ elevation, and for adequate trickle channels to be constructed within the pond bottom (per city of Bryant Requirements).

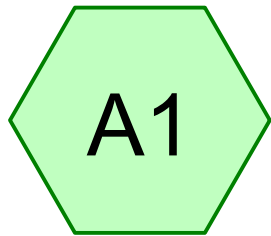
The detention pond was designed to detain stormwater volumes based off the 100-yr storm events with a concrete overflow spillway to release water if a rainfall event were to exceed the 100-yr storm event. The outlet control structures are detailed within this report.

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

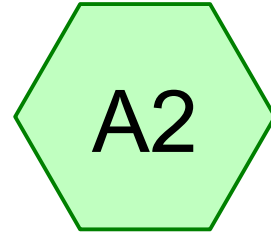
Storm Event	Pre-development Discharge (cfs)	Post-development Discharge (cfs)
2-yr	10.33	10.14
5-yr	12.27	12.27
10-yr	13.82	13.74
25-yr	15.94	15.69
100-yr	18.93	18.25

Overall pre development and post development discharge rates are displayed in the following hydrographs. A final discharge link has been added to each to show one comparable discharge number. This final discharge will verify that the design detention basin should offset any bypassing watershed within the development.

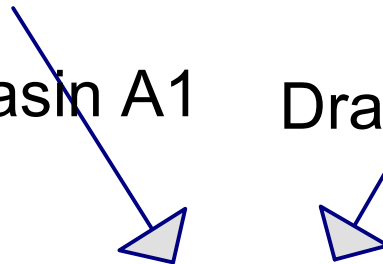
PRE DEVELOPMENT HYDROGRAPHS



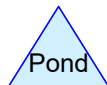
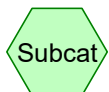
Drainage Basin A1



Drainage Basin A2



Pre Dev Runoff



Routing Diagram for Summerwood Gym 3

Prepared by Phillip Lewis Engineering, Printed 1/11/2024
HydroCAD® 10.20-2f s/n 12520 © 2022 HydroCAD Software Solutions LLC

Summerwood Gym 3

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Printed 1/11/2024

Summary for Subcatchment A1: Drainage Basin A1

Runoff = 5.31 cfs @ 0.17 hrs, Volume= 3,242 cf, Depth= 0.36"
Routed to Link Pre-Dev : Pre Dev Runoff

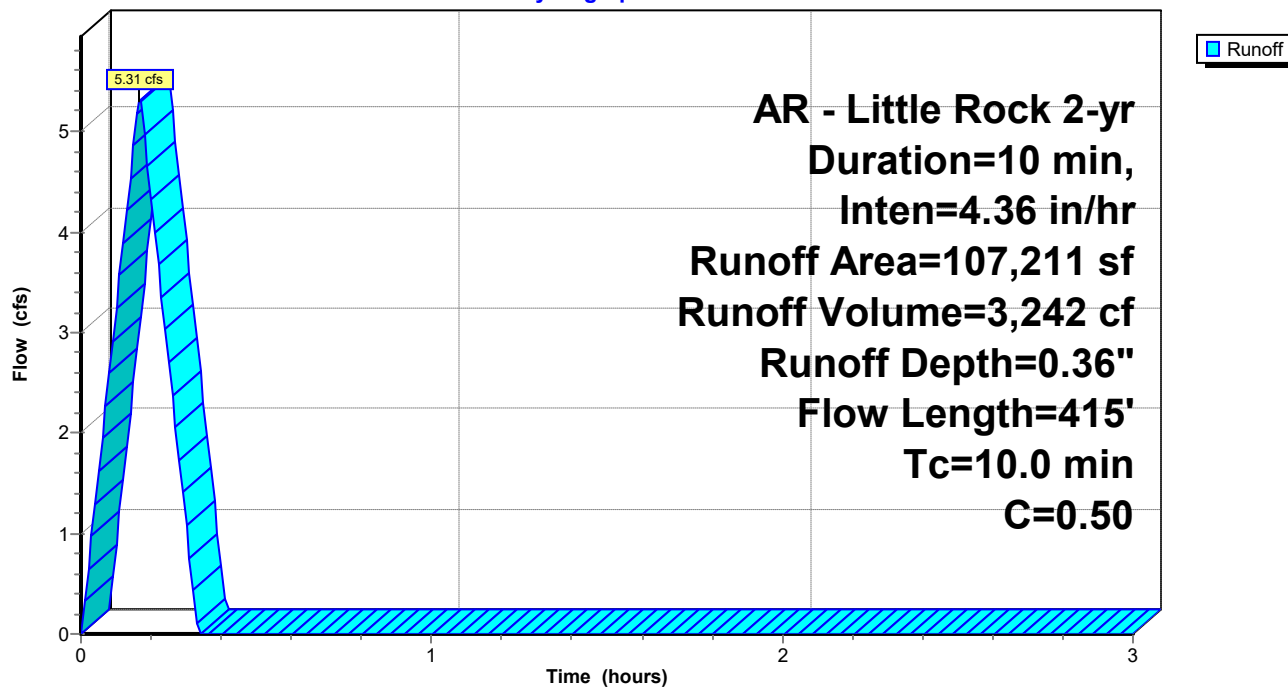
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
107,211	0.50	Existing Natural Vegetation
107,211		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A1: Drainage Basin A1

Hydrograph



Summerwood Gym 3

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment A2: Drainage Basin A2

Runoff = 5.02 cfs @ 0.17 hrs, Volume= 3,065 cf, Depth= 0.36"
Routed to Link Pre-Dev : Pre Dev Runoff

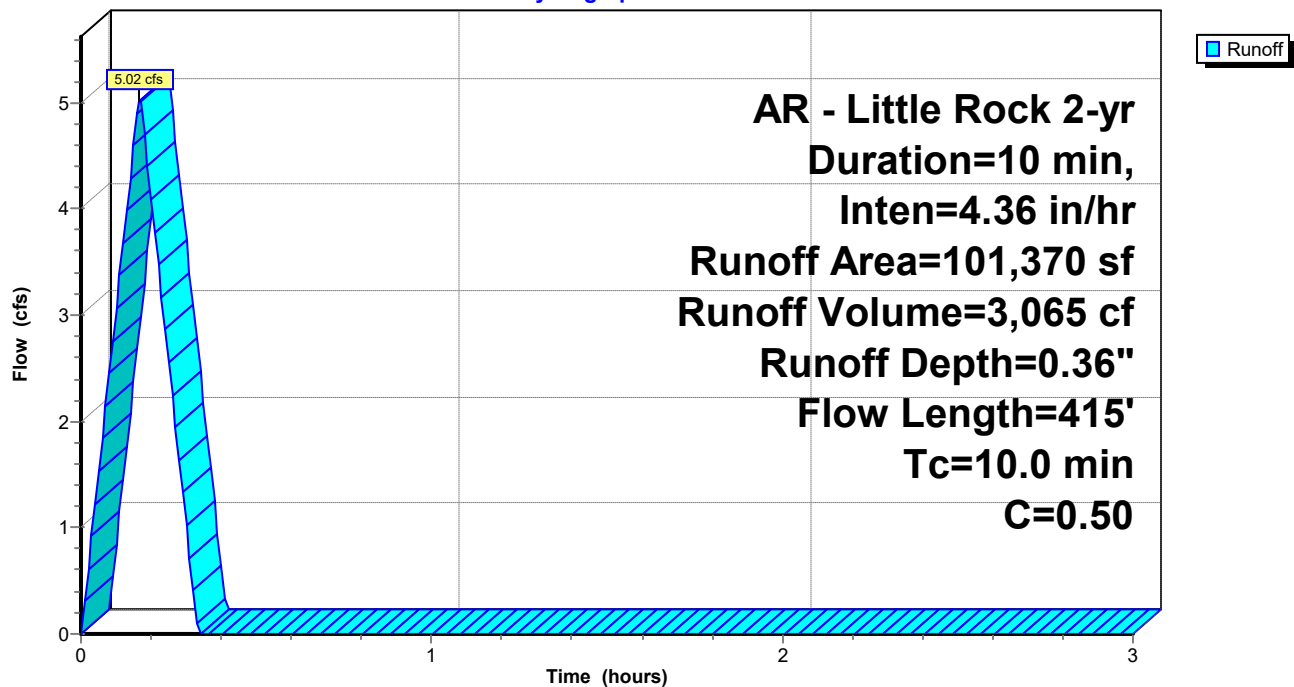
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
101,370	0.50	Existing Natural Vegetation
101,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A2: Drainage Basin A2

Hydrograph



Summerwood Gym 3

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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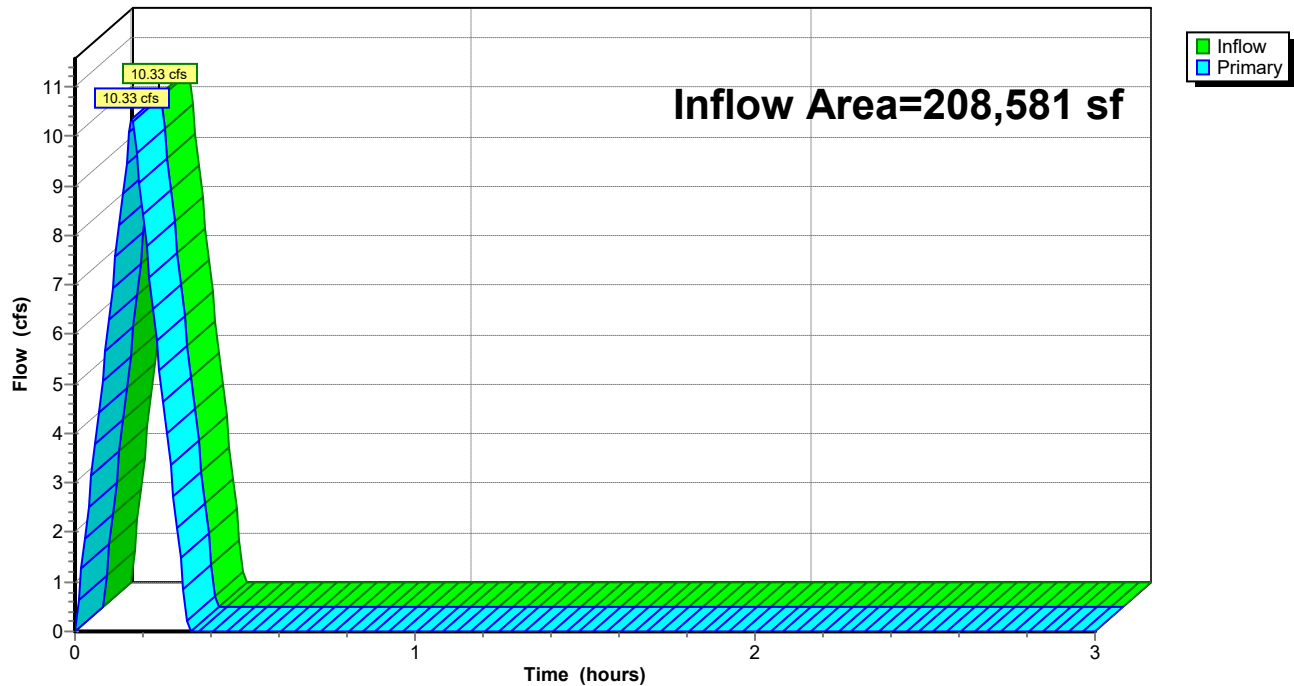
Summary for Link Pre-Dev: Pre Dev Runoff

Inflow Area = 208,581 sf, 0.00% Impervious, Inflow Depth = 0.36" for 2-yr event
Inflow = 10.33 cfs @ 0.17 hrs, Volume= 6,307 cf
Primary = 10.33 cfs @ 0.17 hrs, Volume= 6,307 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre-Dev: Pre Dev Runoff

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment A1: Drainage Basin A1

Runoff = 6.31 cfs @ 0.17 hrs, Volume= 3,849 cf, Depth= 0.43"
Routed to Link Pre-Dev : Pre Dev Runoff

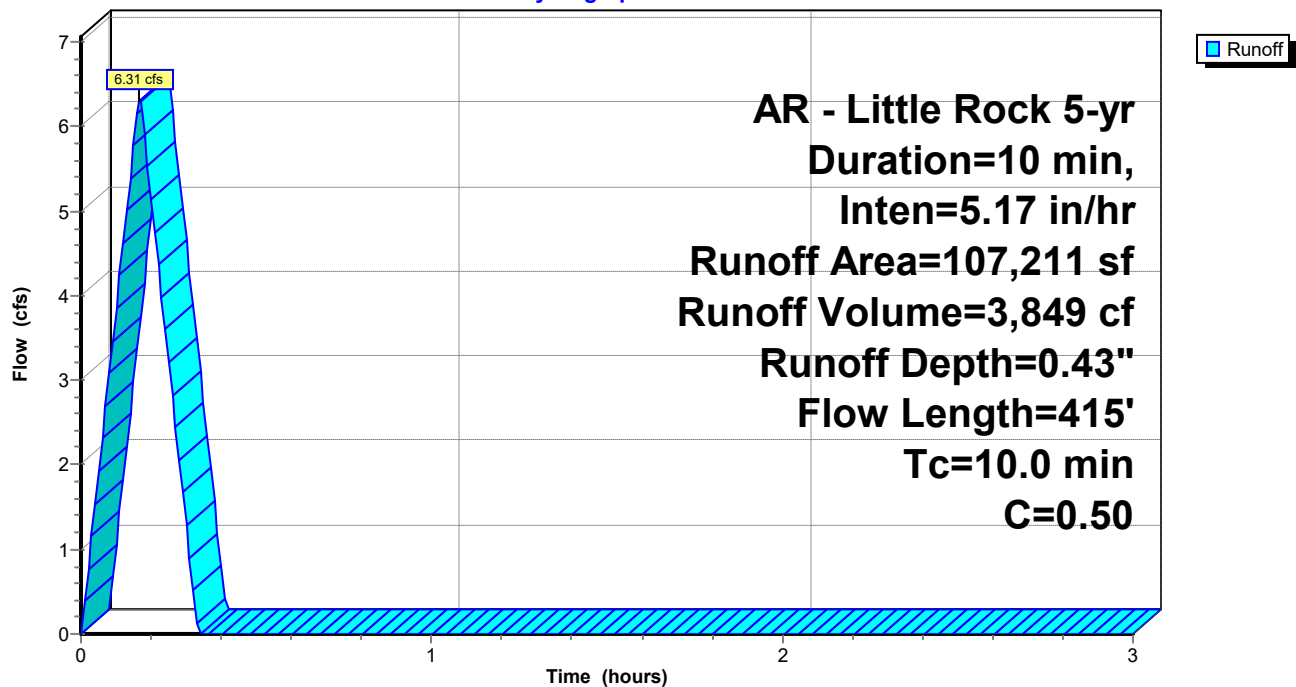
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
107,211	0.50	Existing Natural Vegetation
107,211		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A1: Drainage Basin A1

Hydrograph



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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment A2: Drainage Basin A2

Runoff = 5.96 cfs @ 0.17 hrs, Volume= 3,639 cf, Depth= 0.43"
Routed to Link Pre-Dev : Pre Dev Runoff

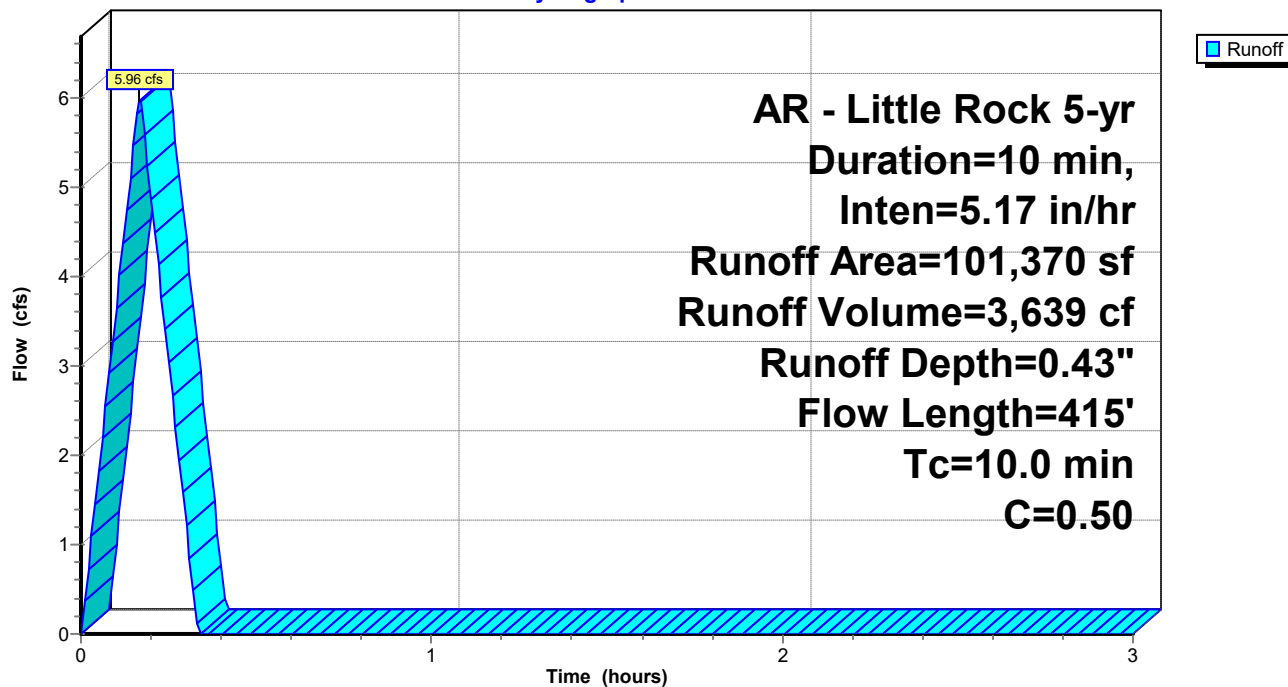
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
101,370	0.50	Existing Natural Vegetation
101,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A2: Drainage Basin A2

Hydrograph



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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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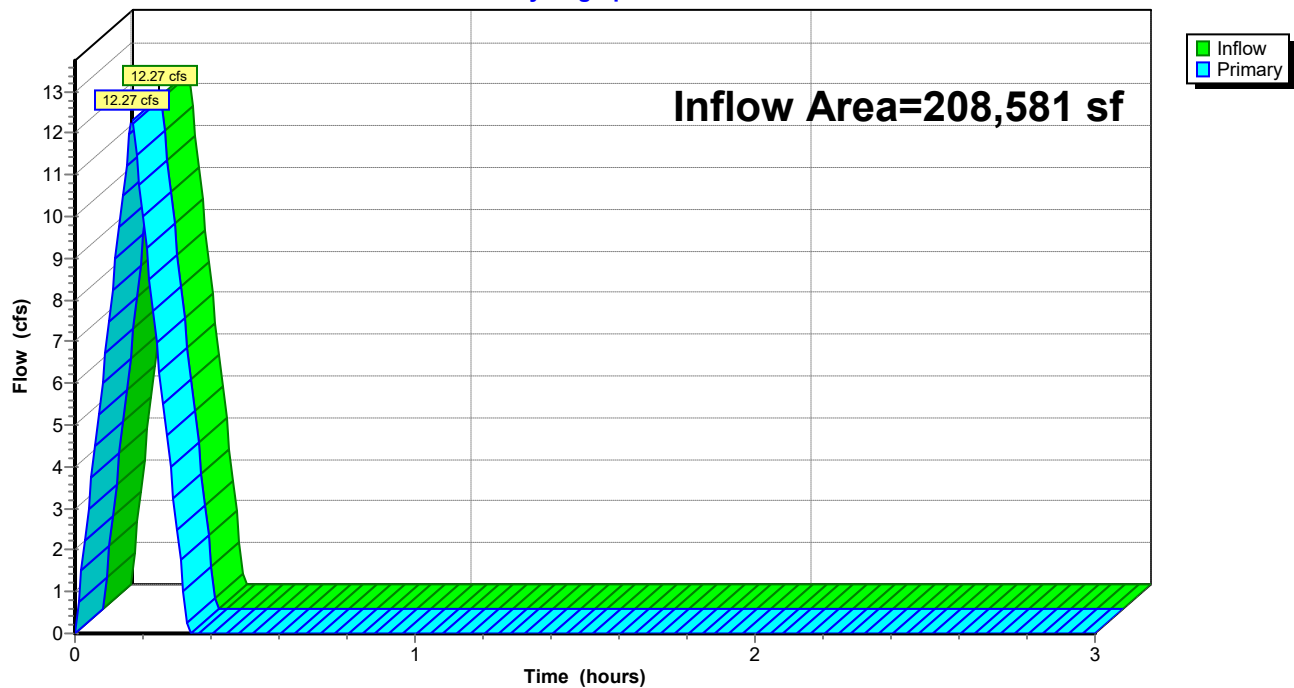
Summary for Link Pre-Dev: Pre Dev Runoff

Inflow Area = 208,581 sf, 0.00% Impervious, Inflow Depth = 0.43" for 5-yr event
Inflow = 12.27 cfs @ 0.17 hrs, Volume= 7,489 cf
Primary = 12.27 cfs @ 0.17 hrs, Volume= 7,489 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre-Dev: Pre Dev Runoff

Hydrograph



Summerwood Gym 3

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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment A1: Drainage Basin A1

Runoff = 7.10 cfs @ 0.17 hrs, Volume= 4,336 cf, Depth= 0.49"
Routed to Link Pre-Dev : Pre Dev Runoff

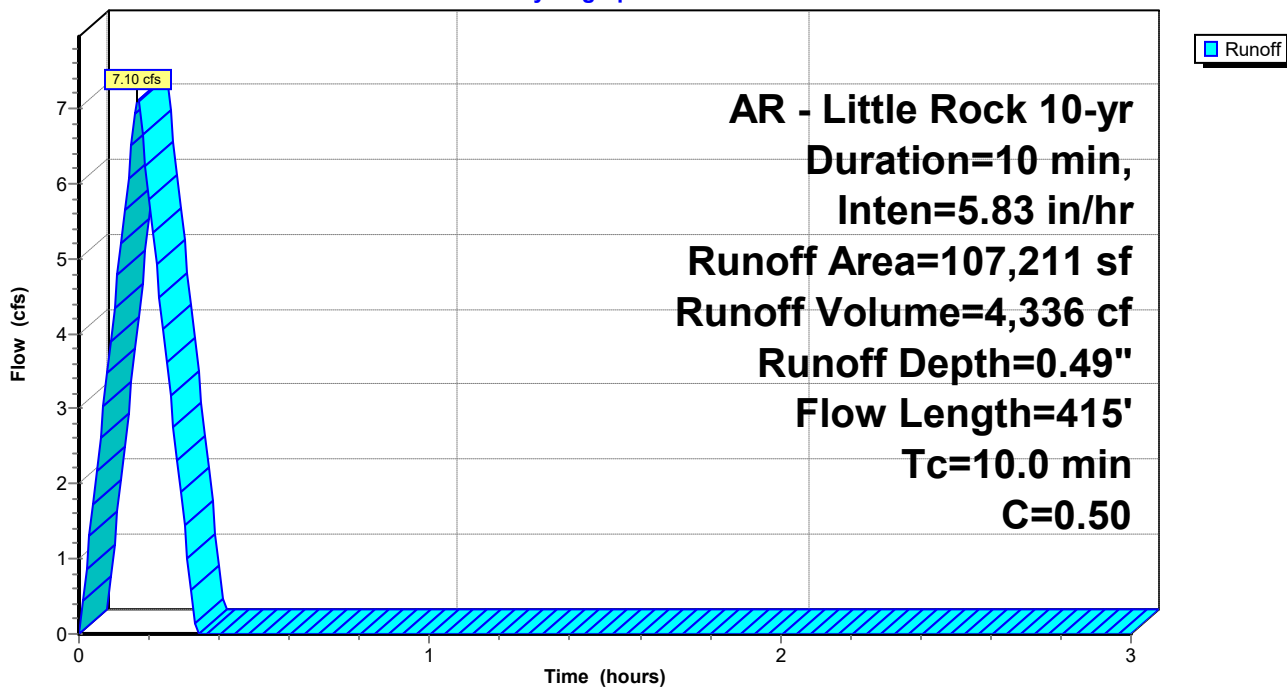
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
107,211	0.50	Existing Natural Vegetation
107,211		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A1: Drainage Basin A1

Hydrograph



Summerwood Gym 3

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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment A2: Drainage Basin A2

Runoff = 6.72 cfs @ 0.17 hrs, Volume= 4,100 cf, Depth= 0.49"
Routed to Link Pre-Dev : Pre Dev Runoff

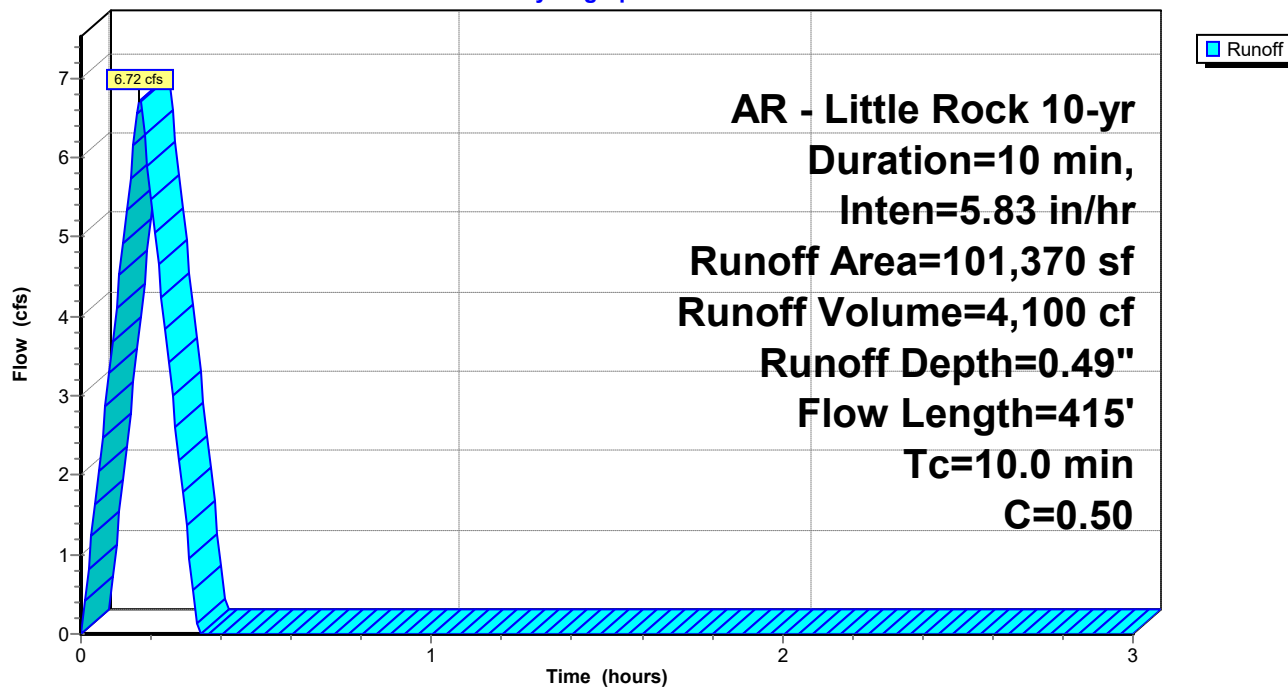
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
101,370	0.50	Existing Natural Vegetation
101,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A2: Drainage Basin A2

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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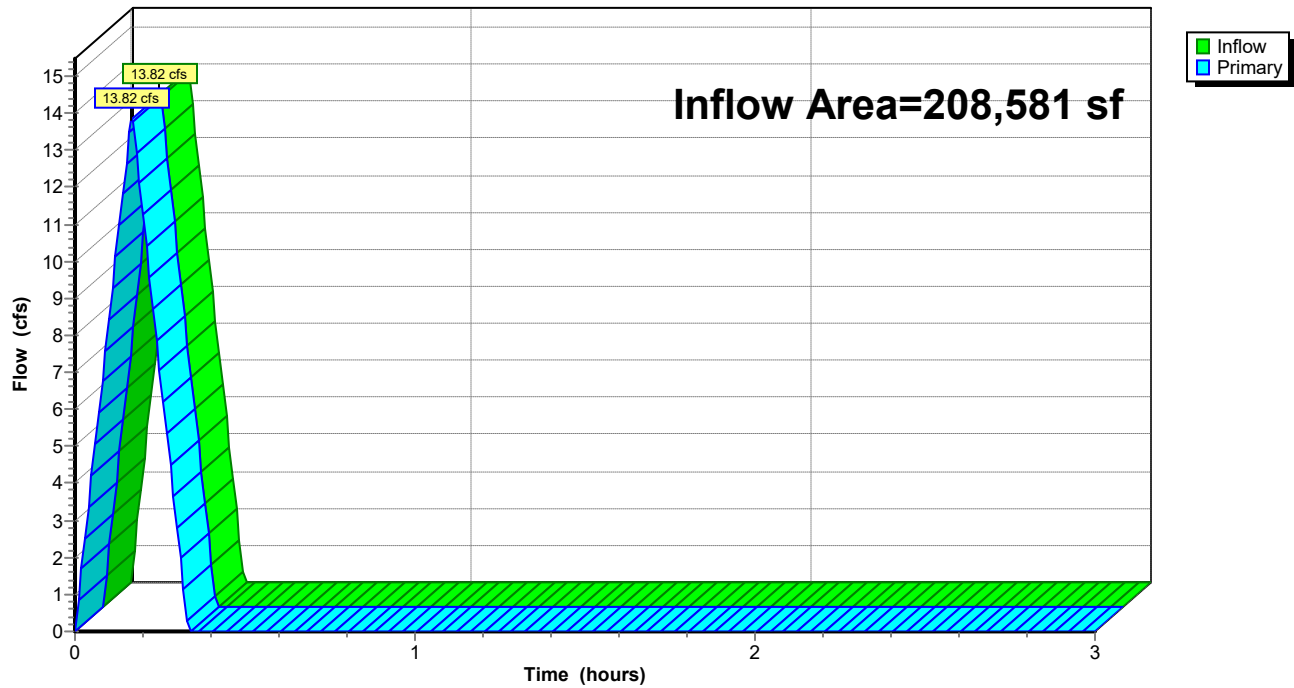
Summary for Link Pre-Dev: Pre Dev Runoff

Inflow Area = 208,581 sf, 0.00% Impervious, Inflow Depth = 0.49" for 10-yr event
Inflow = 13.82 cfs @ 0.17 hrs, Volume= 8,435 cf
Primary = 13.82 cfs @ 0.17 hrs, Volume= 8,435 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre-Dev: Pre Dev Runoff

Hydrograph



Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment A1: Drainage Basin A1

Runoff = 8.19 cfs @ 0.17 hrs, Volume= 5,001 cf, Depth= 0.56"
Routed to Link Pre-Dev : Pre Dev Runoff

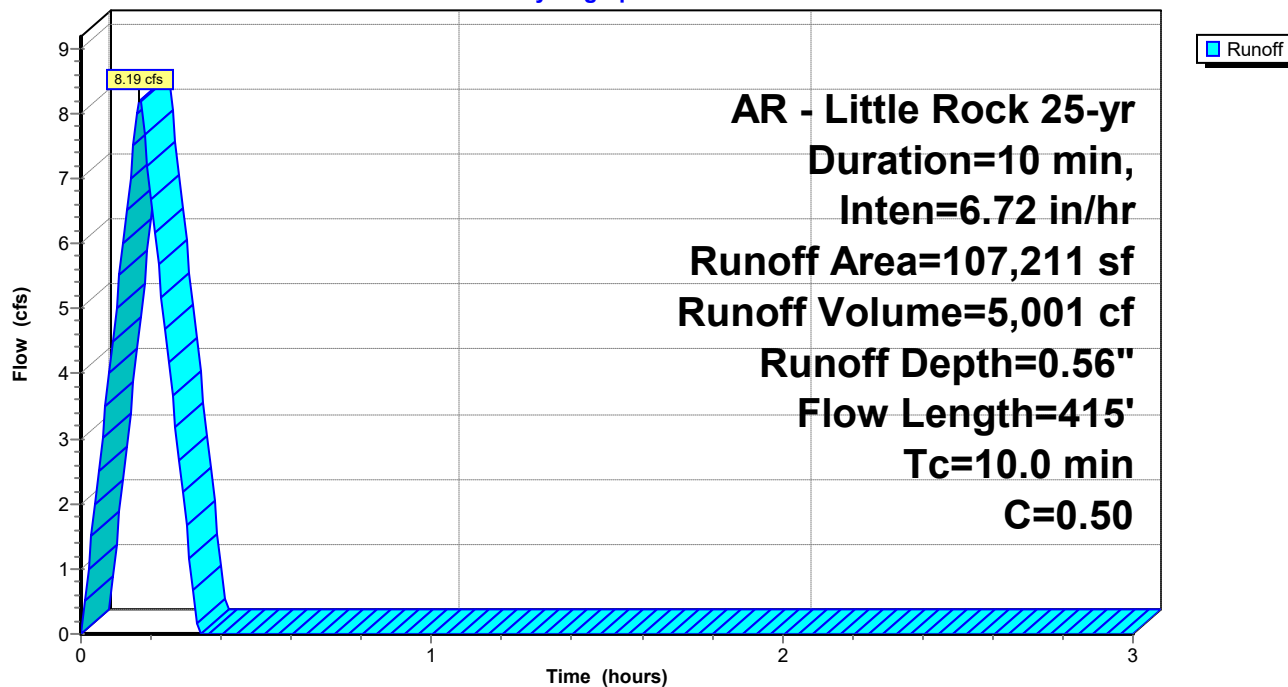
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
107,211	0.50	Existing Natural Vegetation
107,211		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A1: Drainage Basin A1

Hydrograph



Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment A2: Drainage Basin A2

Runoff = 7.75 cfs @ 0.17 hrs, Volume= 4,729 cf, Depth= 0.56"
Routed to Link Pre-Dev : Pre Dev Runoff

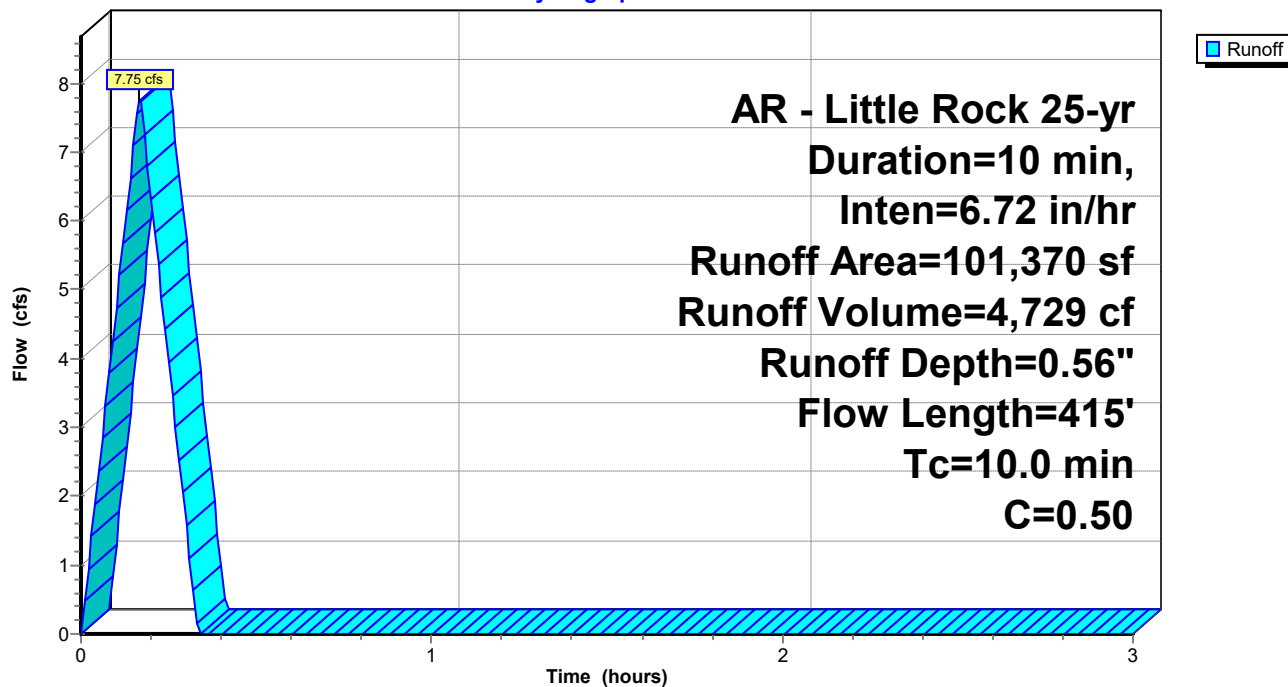
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
101,370	0.50	Existing Natural Vegetation
101,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A2: Drainage Basin A2

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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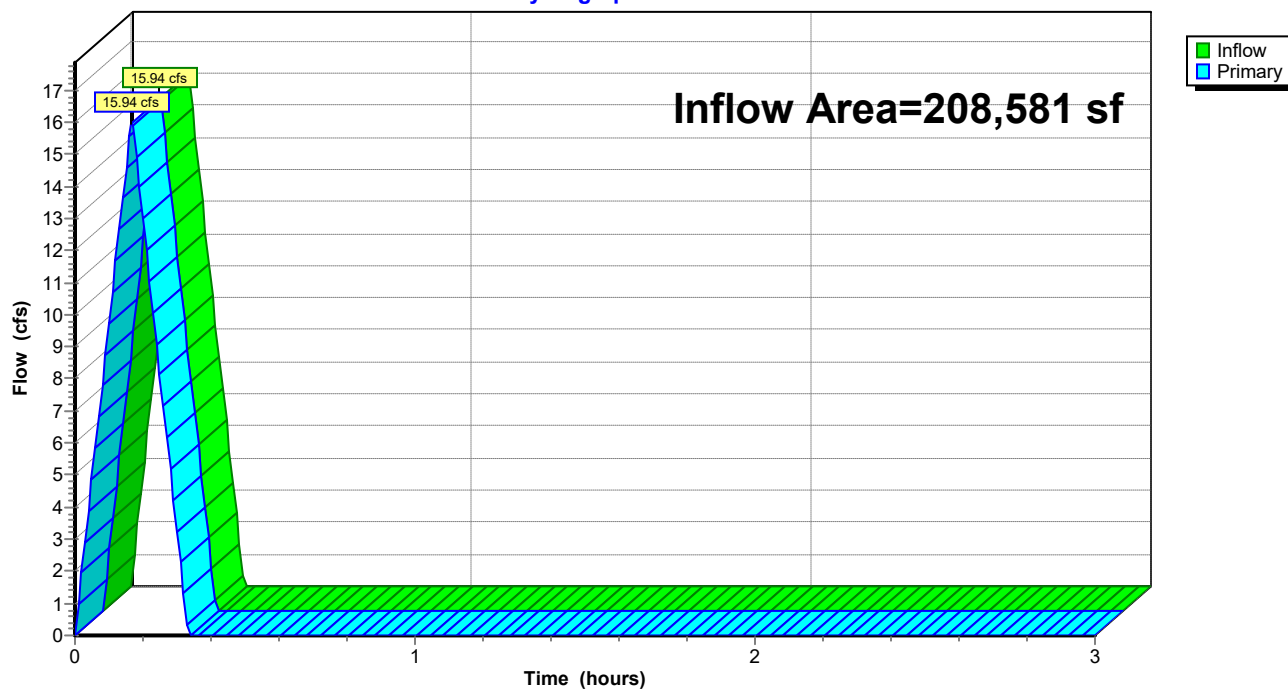
Summary for Link Pre-Dev: Pre Dev Runoff

Inflow Area = 208,581 sf, 0.00% Impervious, Inflow Depth = 0.56" for 25-yr event
Inflow = 15.94 cfs @ 0.17 hrs, Volume= 9,730 cf
Primary = 15.94 cfs @ 0.17 hrs, Volume= 9,730 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre-Dev: Pre Dev Runoff

Hydrograph



Summerwood Gym 3

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment A1: Drainage Basin A1

Runoff = 9.73 cfs @ 0.17 hrs, Volume= 5,939 cf, Depth= 0.66"
Routed to Link Pre-Dev : Pre Dev Runoff

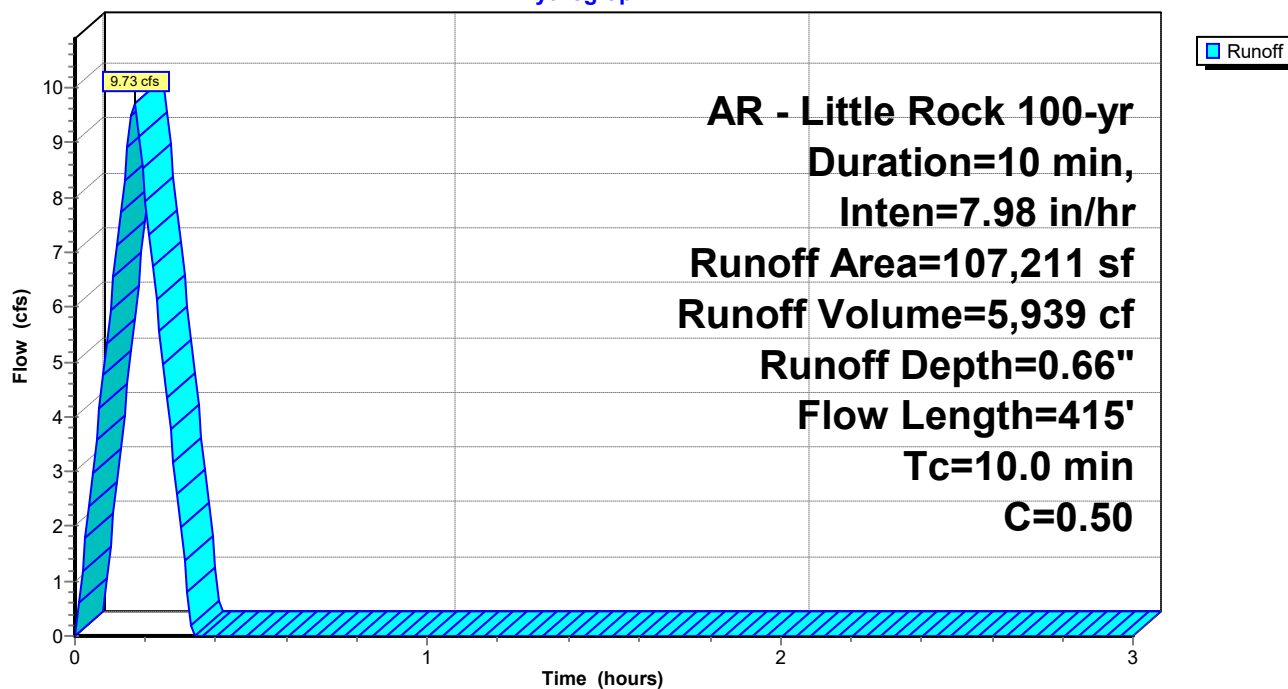
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
107,211	0.50	Existing Natural Vegetation
107,211		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A1: Drainage Basin A1

Hydrograph



Summerwood Gym 3

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Printed 1/11/2024

Summary for Subcatchment A2: Drainage Basin A2

Runoff = 9.20 cfs @ 0.17 hrs, Volume= 5,615 cf, Depth= 0.66"
Routed to Link Pre-Dev : Pre Dev Runoff

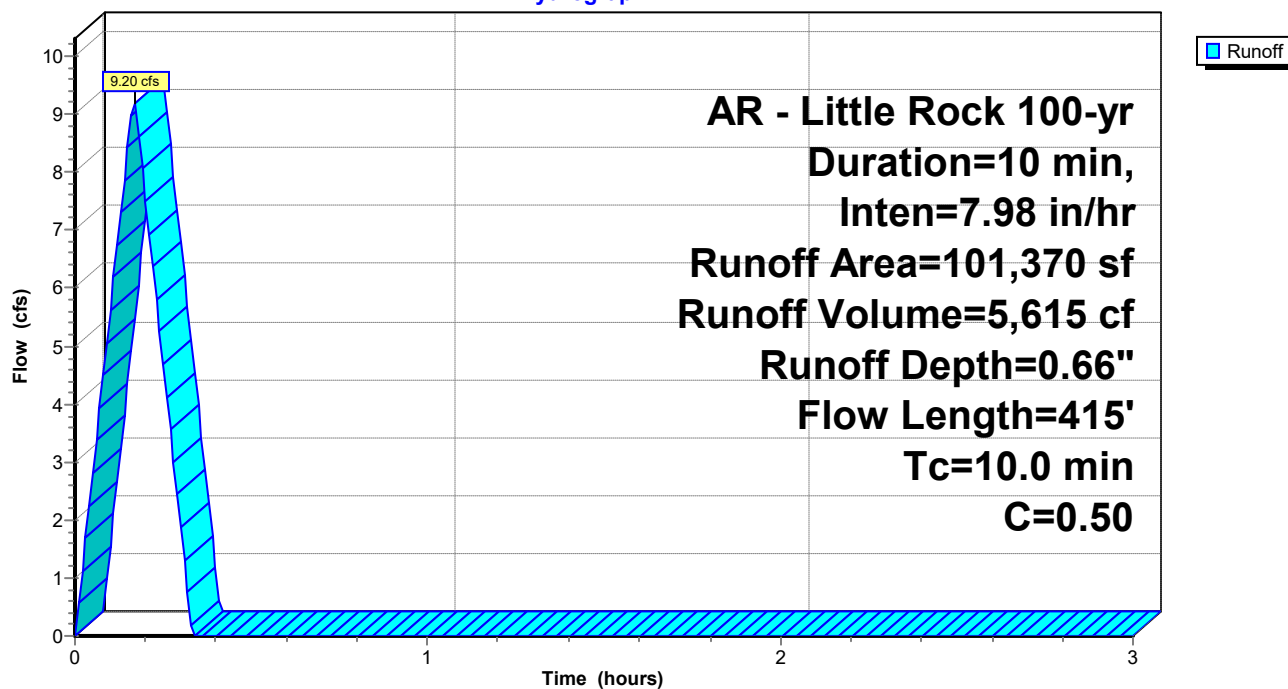
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
101,370	0.50	Existing Natural Vegetation
101,370		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment A2: Drainage Basin A2

Hydrograph



Summerwood Gym 3

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Printed 1/11/2024

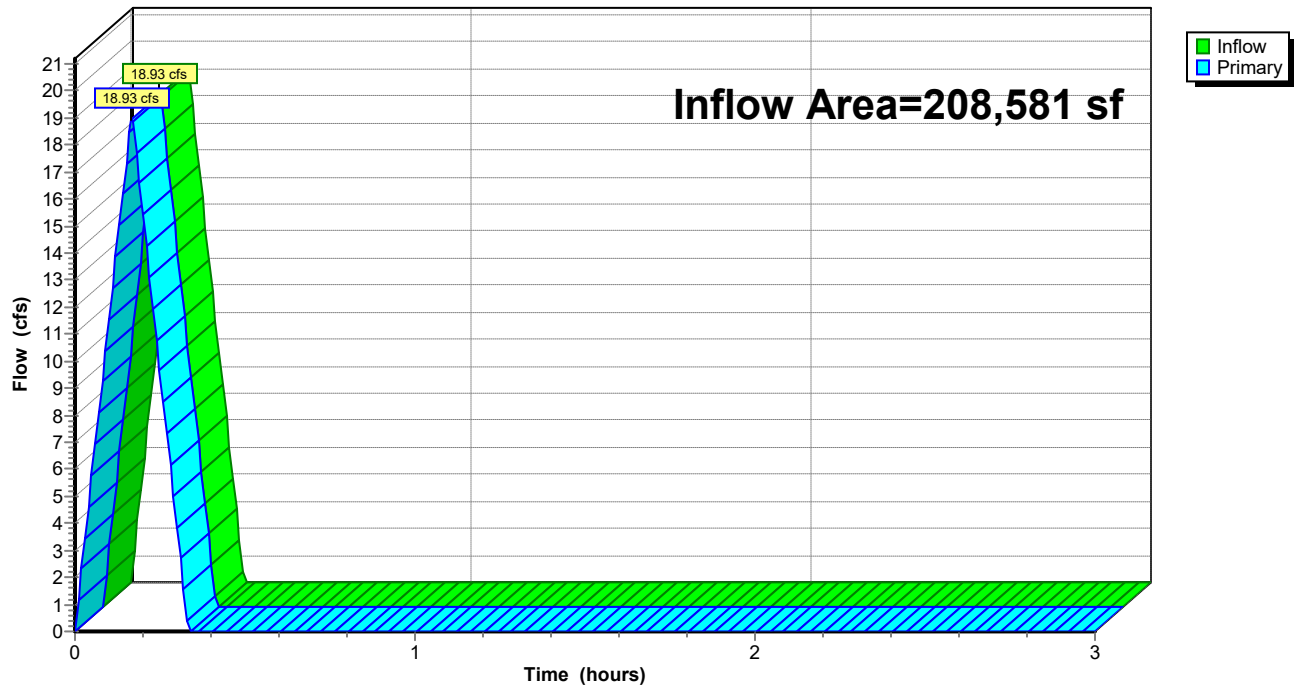
Summary for Link Pre-Dev: Pre Dev Runoff

Inflow Area = 208,581 sf, 0.00% Impervious, Inflow Depth = 0.66" for 100-yr event
Inflow = 18.93 cfs @ 0.17 hrs, Volume= 11,554 cf
Primary = 18.93 cfs @ 0.17 hrs, Volume= 11,554 cf, Atten= 0%, Lag= 0.0 min

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

Link Pre-Dev: Pre Dev Runoff

Hydrograph



POST DEVELOPMENT HYDROGRAPHS

Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D1: Drainage Basin D1

Runoff = 4.32 cfs @ 0.09 hrs, Volume= 2,586 cf, Depth= 0.64"
Routed to Link Post-Dev : APPROX DISCHARGE

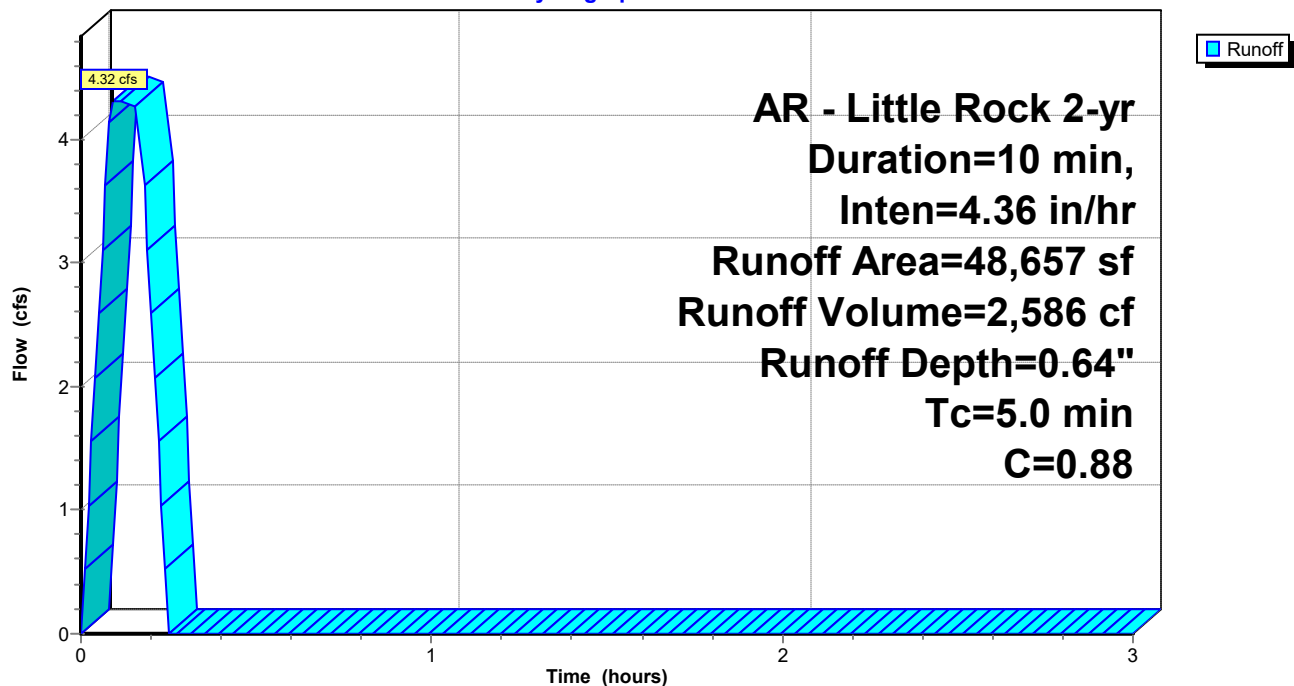
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
3,421	0.40	Sod Yard
45,236	0.92	Road, Drives, Sidewalks
48,657	0.88	Weighted Average
48,657		100.00% Pervious Area

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

Subcatchment D1: Drainage Basin D1

Hydrograph



Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D2: Drainage Basin D2

Runoff = 1.85 cfs @ 0.09 hrs, Volume= 1,106 cf, Depth= 0.54"

Routed to Reach P-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

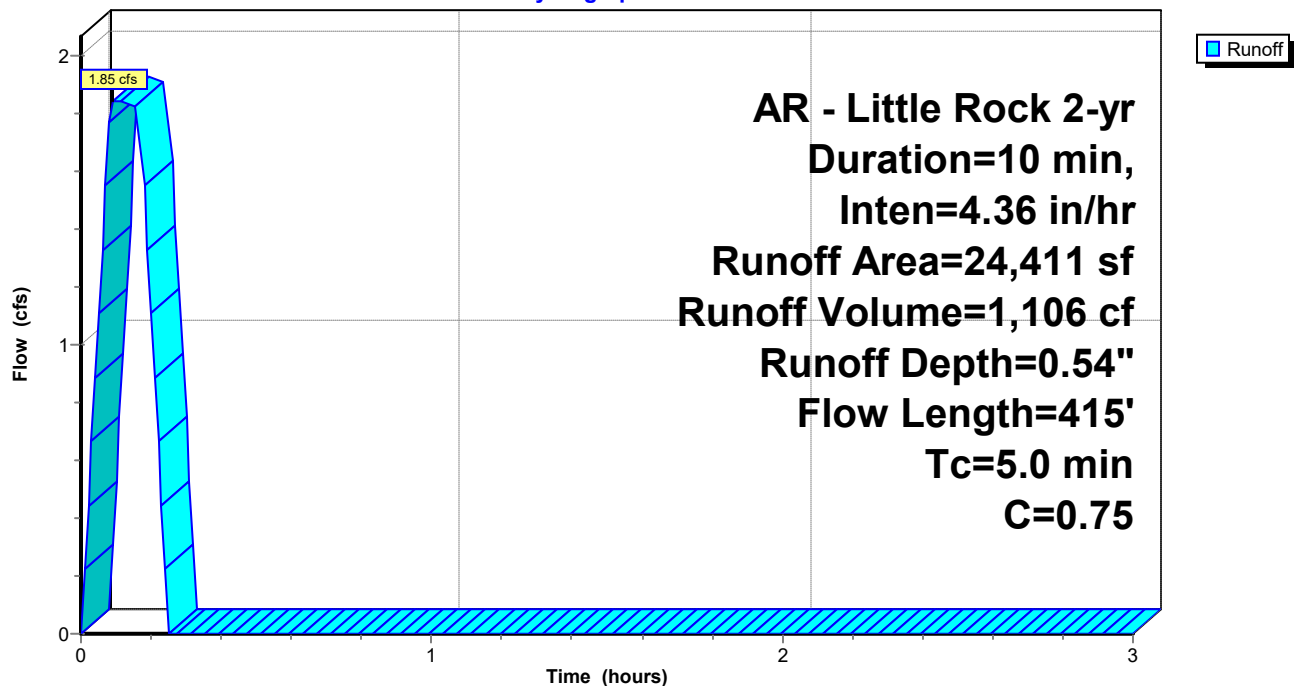
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
8,845	0.45	Rip Rap Embankment
15,566	0.92	Roof, Drives, Sidewalks
24,411	0.75	Weighted Average
24,411		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 D2: Drainage Basin D2

Hydrograph



Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D3: Drainage Basin D3

Runoff = 1.36 cfs @ 0.09 hrs, Volume= 813 cf, Depth= 0.64"
Routed to Reach P-A2 : Pipe A2

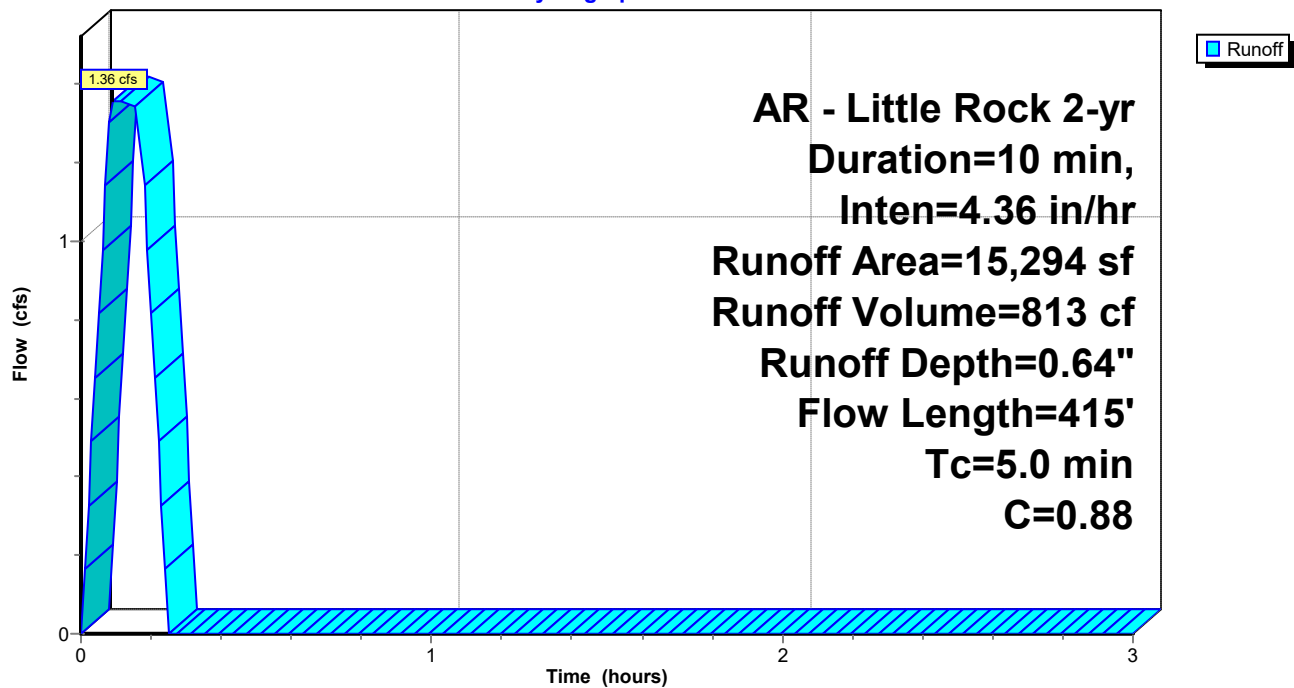
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
1,065	0.40	Sod Yard
14,229	0.92	Paving, Sidewalks
15,294	0.88	Weighted Average
15,294		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 D3: Drainage Basin D3

Hydrograph



Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D4: Drainage Basin D4

Runoff = 1.91 cfs @ 0.17 hrs, Volume= 1,163 cf, Depth= 0.44"

Routed to Reach P-A3 : Pipe A3

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

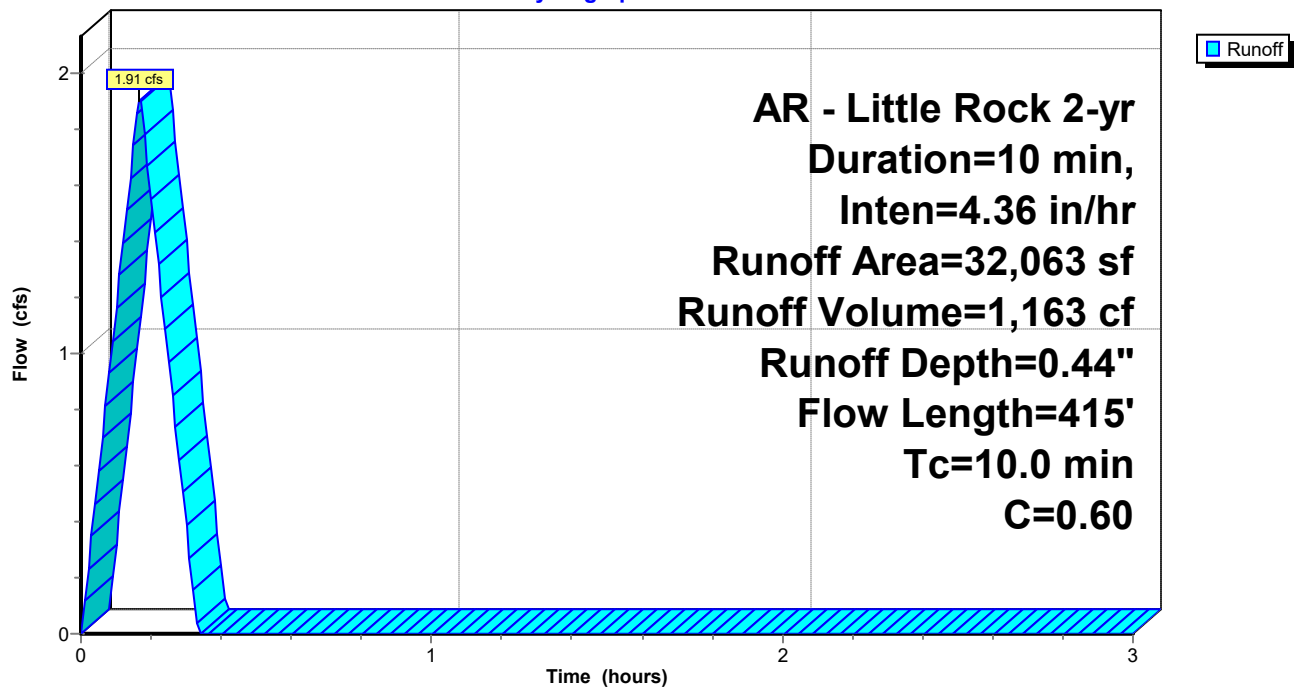
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
20,032	0.40	
12,031	0.92	
32,063	0.60	Weighted Average
32,063		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment D4: Drainage Basin D4

Hydrograph



Summerwood Gym 3 2-yr

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D5: Drainage Basin D5

Runoff = 2.77 cfs @ 0.09 hrs, Volume= 1,660 cf, Depth= 0.48"
Routed to Pond DP1 : Re-Established East Pond

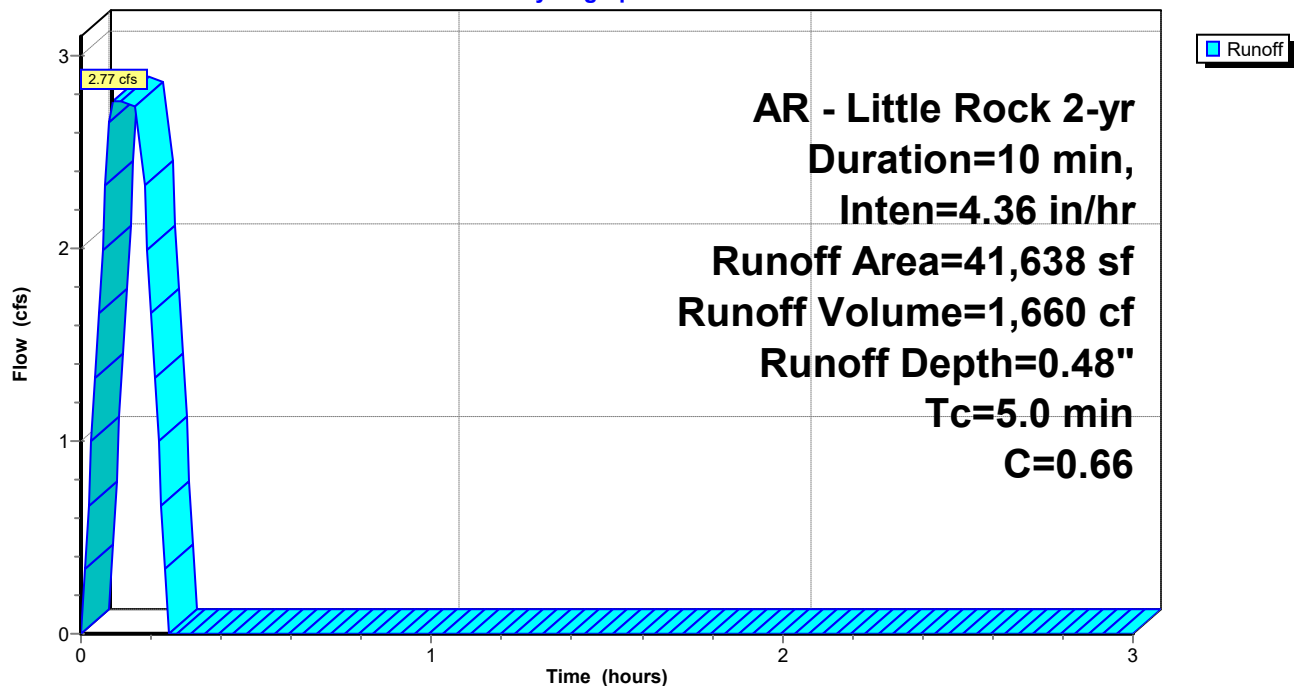
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
21,201	0.40	Sod Yard, Natural Vegetation
20,437	0.92	Paving, Sidewalks
41,638	0.66	Weighted Average
41,638		100.00% Pervious Area

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

Subcatchment D5: Drainage Basin D5

Hydrograph



Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D6: Drainage Basin D6

Runoff = 1.77 cfs @ 0.09 hrs, Volume= 1,062 cf, Depth= 0.67"
Routed to Pond DP1 : Re-Established East Pond

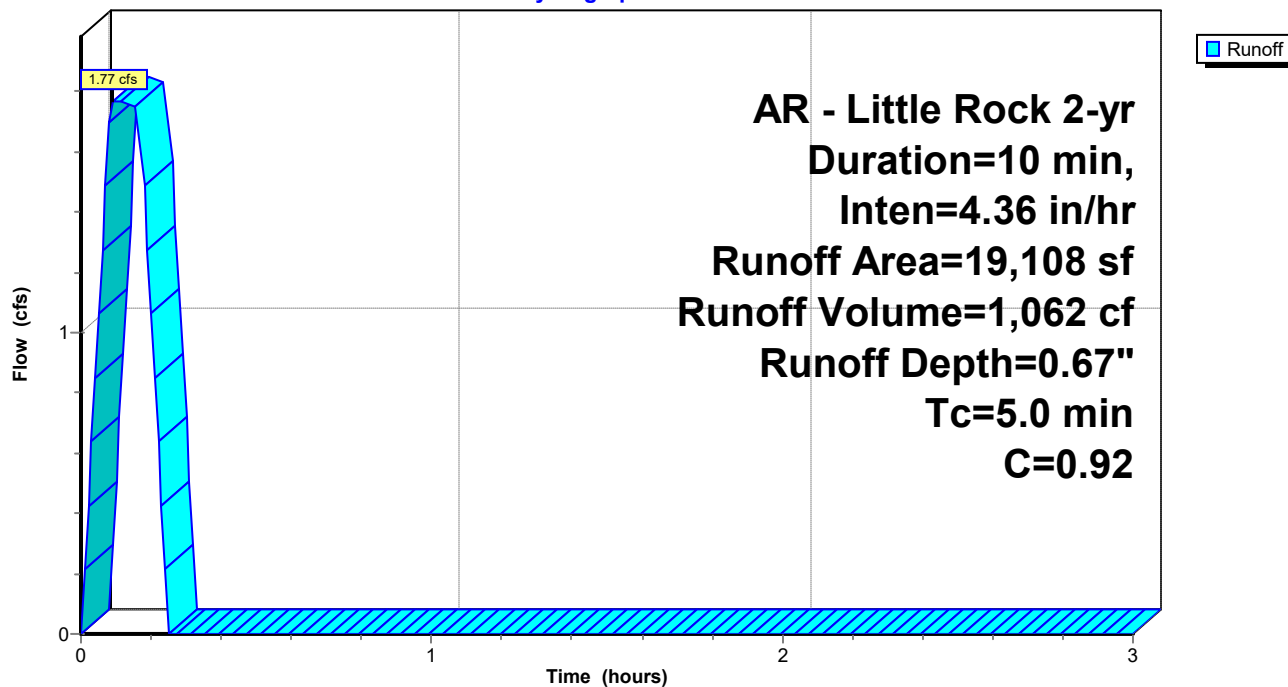
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
19,108	0.92	Roof
19,108		100.00% Pervious Area

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

Subcatchment D6: Drainage Basin D6

Hydrograph



Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Subcatchment D7: Drainage Basin D7

Runoff = 1.34 cfs @ 0.09 hrs, Volume= 800 cf, Depth= 0.38"
Routed to Link Post-Dev : APPROX DISCHARGE

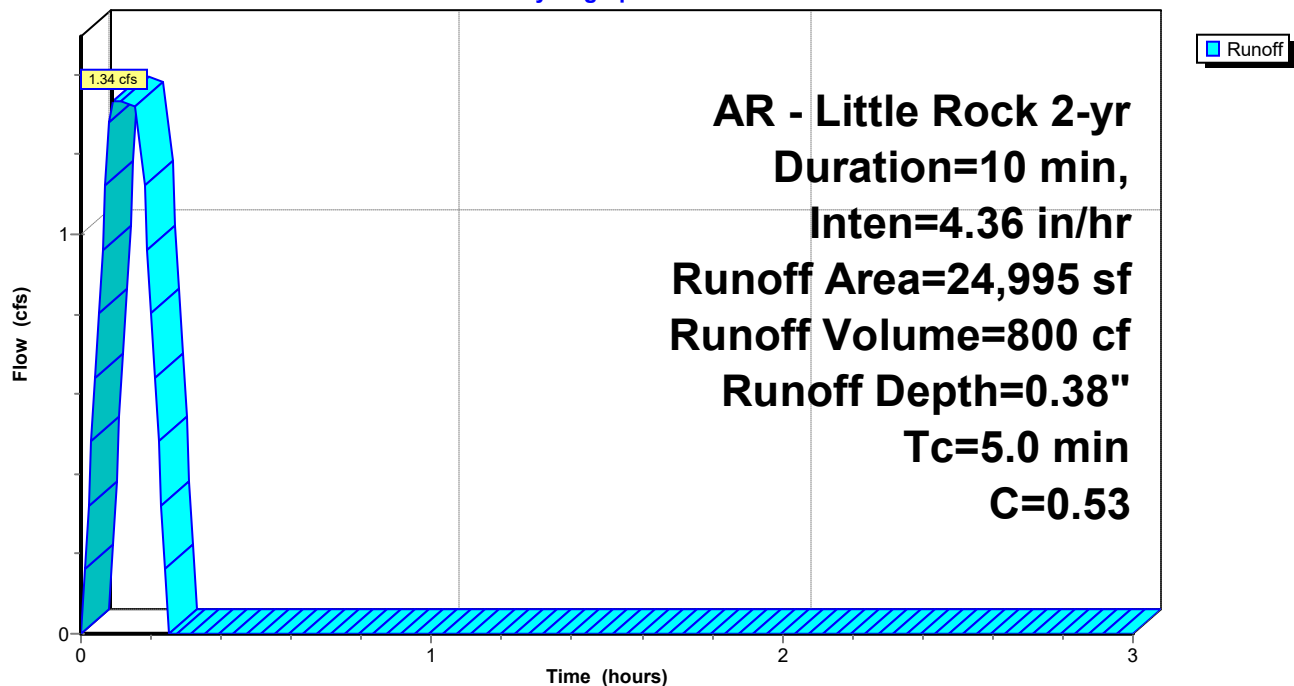
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Area (sf)	C	Description
18,798	0.40	Sod Yard, Natural Vegetation
6,197	0.92	Paving, Sidewalks
24,995	0.53	Weighted Average
24,995		100.00% Pervious Area

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

Subcatchment D7: Drainage Basin D7

Hydrograph



Summerwood Gym 3 2-yr

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Reach P-A1: Pipe A1

Inflow Area = 24,411 sf, 0.00% Impervious, Inflow Depth = 0.54" for 2-yr event
Inflow = 1.85 cfs @ 0.09 hrs, Volume= 1,106 cf
Outflow = 1.85 cfs @ 0.11 hrs, Volume= 1,106 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach P-A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.38 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 4.53 fps, Avg. Travel Time= 0.2 min

Peak Storage= 15 cf @ 0.09 hrs

Average Depth at Peak Storage= 0.33', Surface Width= 1.24'

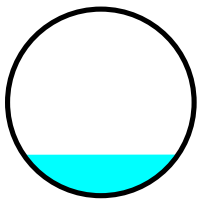
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.28 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

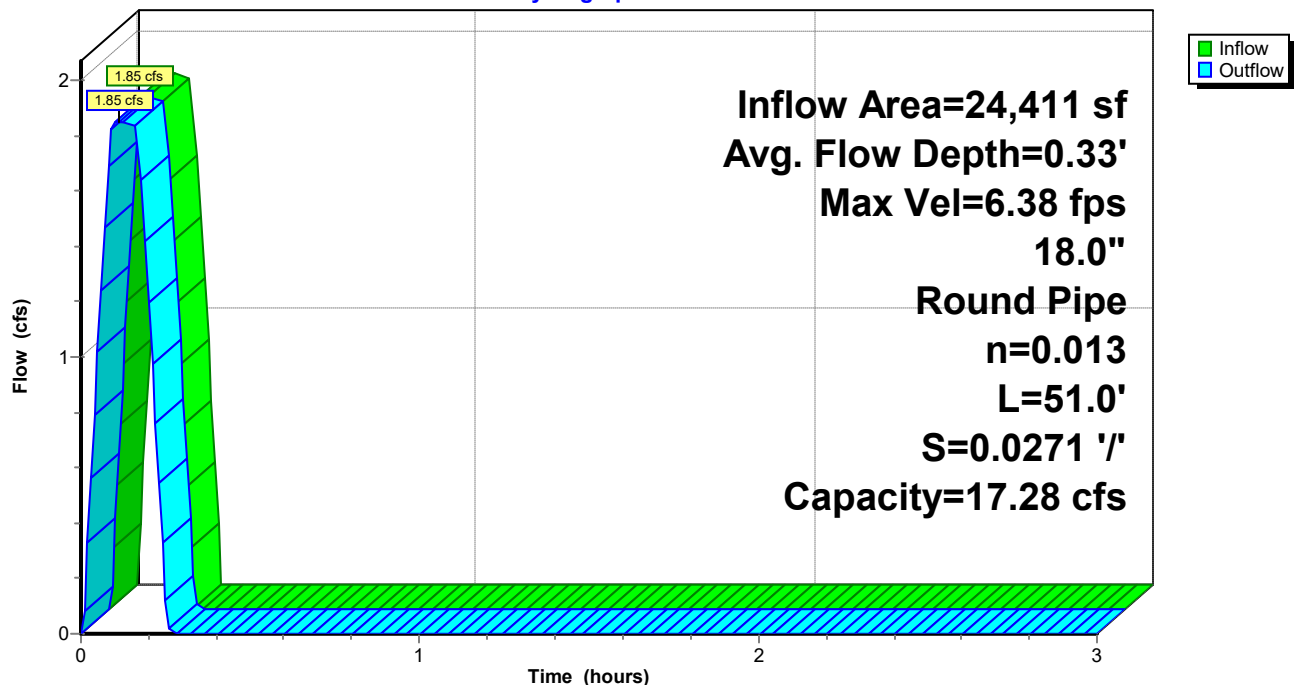
Length= 51.0' Slope= 0.0271 '/

Inlet Invert= 408.33', Outlet Invert= 406.95'



Reach P-A1: Pipe A1

Hydrograph



Summerwood Gym 3 2-yr

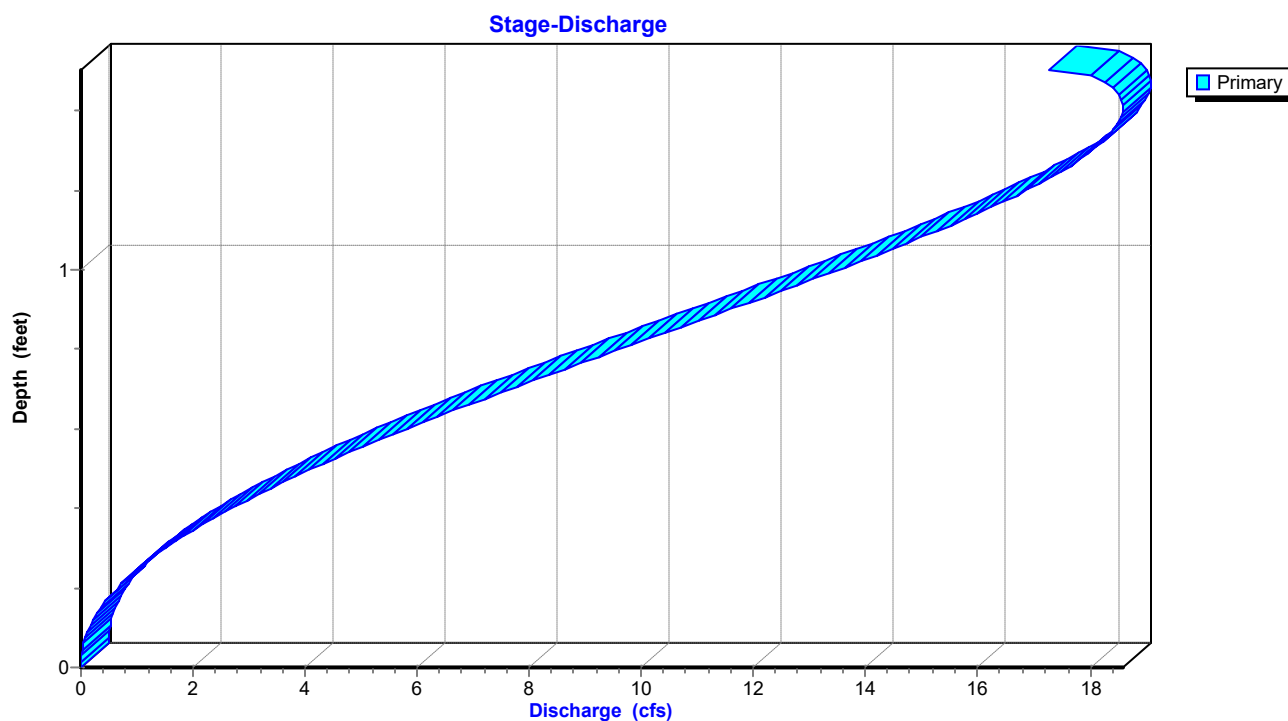
Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Reach P-A1: Pipe A1



Summerwood Gym 3 2-yr*AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr*

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Stage-Area-Storage for Reach P-A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
408.33	0.0	0	409.37	1.3	67
408.35	0.0	0	409.39	1.3	68
408.37	0.0	1	409.41	1.4	69
408.39	0.0	1	409.43	1.4	71
408.41	0.0	2	409.45	1.4	72
408.43	0.1	3	409.47	1.4	73
408.45	0.1	3	409.49	1.5	75
408.47	0.1	4	409.51	1.5	76
408.49	0.1	5	409.53	1.5	77
408.51	0.1	6	409.55	1.5	78
408.53	0.1	7	409.57	1.6	80
408.55	0.2	8	409.59	1.6	81
408.57	0.2	9	409.61	1.6	82
408.59	0.2	10	409.63	1.6	83
408.61	0.2	12	409.65	1.6	84
408.63	0.3	13	409.67	1.7	85
408.65	0.3	14	409.69	1.7	86
408.67	0.3	15	409.71	1.7	87
408.69	0.3	17	409.73	1.7	88
408.71	0.4	18	409.75	1.7	88
408.73	0.4	19	409.77	1.7	89
408.75	0.4	21	409.79	1.8	89
408.77	0.4	22	409.81	1.8	90
408.79	0.5	23	409.83	1.8	90
408.81	0.5	25			
408.83	0.5	26			
408.85	0.5	28			
408.87	0.6	29			
408.89	0.6	31			
408.91	0.6	32			
408.93	0.7	34			
408.95	0.7	35			
408.97	0.7	37			
408.99	0.7	38			
409.01	0.8	40			
409.03	0.8	41			
409.05	0.8	43			
409.07	0.9	44			
409.09	0.9	46			
409.11	0.9	47			
409.13	1.0	49			
409.15	1.0	50			
409.17	1.0	52			
409.19	1.0	53			
409.21	1.1	55			
409.23	1.1	56			
409.25	1.1	58			
409.27	1.2	59			
409.29	1.2	61			
409.31	1.2	62			
409.33	1.3	64			
409.35	1.3	65			

Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

Printed 1/11/2024

Summary for Reach P-A2: Pipe A2

Inflow Area = 39,705 sf, 0.00% Impervious, Inflow Depth = 0.58" for 2-yr event
Inflow = 3.20 cfs @ 0.11 hrs, Volume= 1,919 cf
Outflow = 3.20 cfs @ 0.16 hrs, Volume= 1,919 cf, Atten= 0%, Lag= 3.0 min
Routed to Reach P-A3 : Pipe A3

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 5.73 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 2.32 fps, Avg. Travel Time= 1.3 min

Peak Storage= 99 cf @ 0.16 hrs

Average Depth at Peak Storage= 0.53', Surface Width= 1.43'

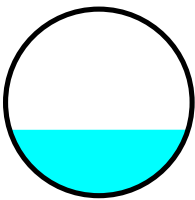
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.95 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

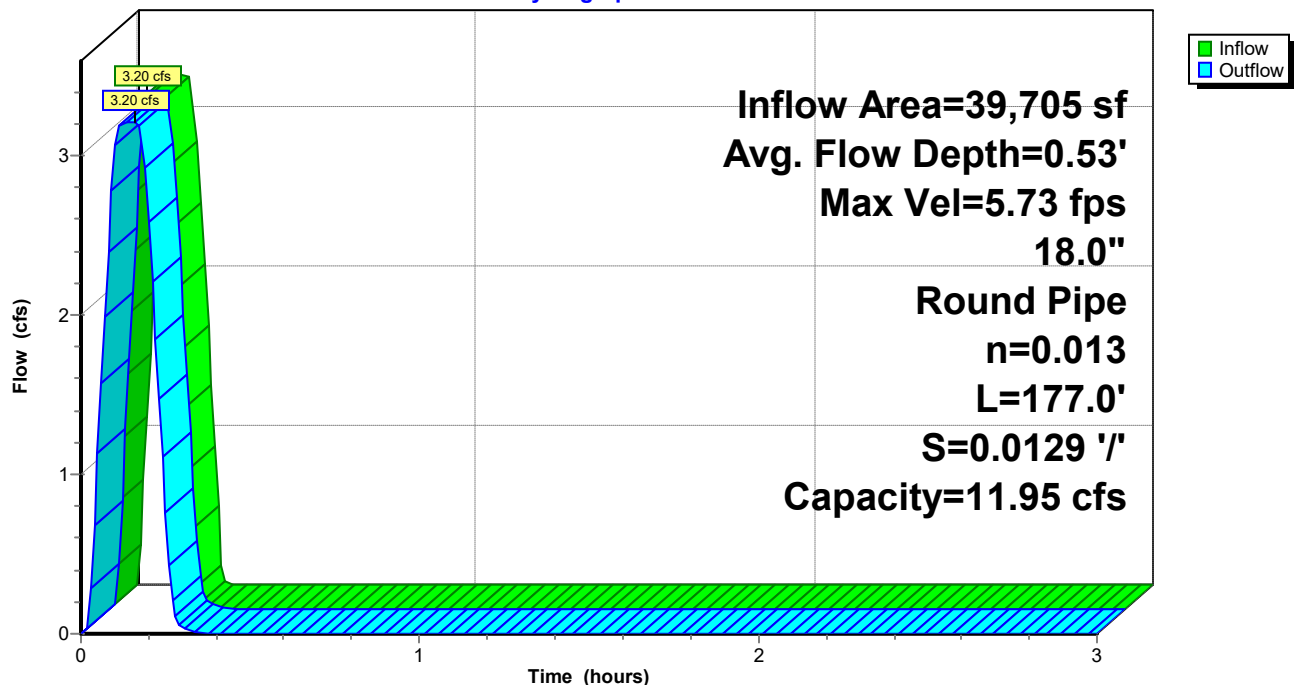
Length= 177.0' Slope= 0.0129 '/'

Inlet Invert= 406.85', Outlet Invert= 404.56'



Reach P-A2: Pipe A2

Hydrograph



Summerwood Gym 3 2-yr

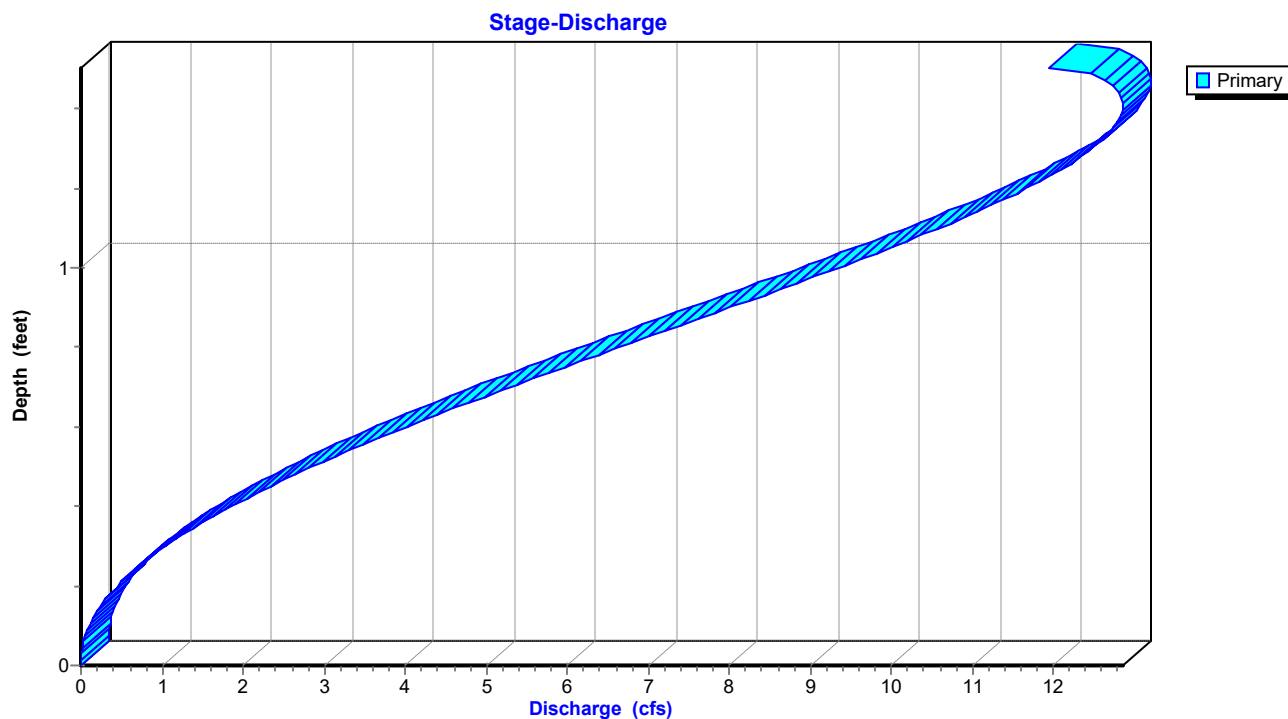
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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Reach P-A2: Pipe A2



Summerwood Gym 3 2-yr*AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr*

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Stage-Area-Storage for Reach P-A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
406.85	0.0	0	407.89	1.3	231
406.87	0.0	1	407.91	1.3	236
406.89	0.0	2	407.93	1.4	241
406.91	0.0	4	407.95	1.4	246
406.93	0.0	6	407.97	1.4	250
406.95	0.1	9	407.99	1.4	255
406.97	0.1	12	408.01	1.5	260
406.99	0.1	15	408.03	1.5	264
407.01	0.1	18	408.05	1.5	268
407.03	0.1	21	408.07	1.5	272
407.05	0.1	25	408.09	1.6	277
407.07	0.2	28	408.11	1.6	280
407.09	0.2	32	408.13	1.6	284
407.11	0.2	36	408.15	1.6	288
407.13	0.2	40	408.17	1.6	292
407.15	0.3	45	408.19	1.7	295
407.17	0.3	49	408.21	1.7	298
407.19	0.3	53	408.23	1.7	301
407.21	0.3	58	408.25	1.7	304
407.23	0.4	62	408.27	1.7	306
407.25	0.4	67	408.29	1.7	309
407.27	0.4	72	408.31	1.8	310
407.29	0.4	76	408.33	1.8	312
407.31	0.5	81	408.35	1.8	313
407.33	0.5	86			
407.35	0.5	91			
407.37	0.5	96			
407.39	0.6	101			
407.41	0.6	106			
407.43	0.6	112			
407.45	0.7	117			
407.47	0.7	122			
407.49	0.7	127			
407.51	0.7	133			
407.53	0.8	138			
407.55	0.8	143			
407.57	0.8	148			
407.59	0.9	154			
407.61	0.9	159			
407.63	0.9	164			
407.65	1.0	170			
407.67	1.0	175			
407.69	1.0	180			
407.71	1.0	185			
407.73	1.1	191			
407.75	1.1	196			
407.77	1.1	201			
407.79	1.2	206			
407.81	1.2	211			
407.83	1.2	216			
407.85	1.3	222			
407.87	1.3	226			

Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Reach P-A3: Pipe A3

Inflow Area = 71,768 sf, 0.00% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 5.11 cfs @ 0.17 hrs, Volume= 3,082 cf
Outflow = 5.07 cfs @ 0.17 hrs, Volume= 3,082 cf, Atten= 1%, Lag= 0.3 min
Routed to Reach P-A4 : Pipe A4

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 8.64 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.61 fps, Avg. Travel Time= 0.5 min

Peak Storage= 70 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.55', Surface Width= 1.45'

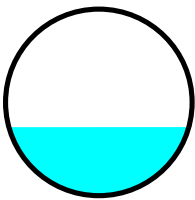
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.65 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

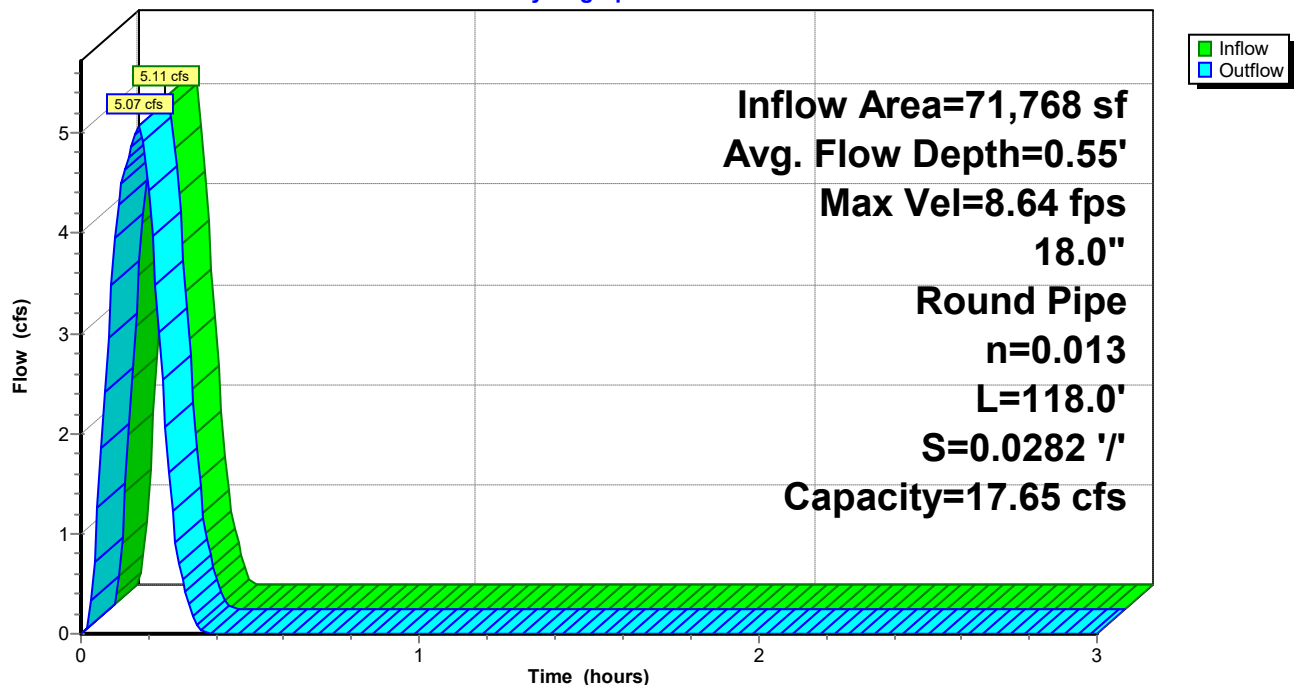
Length= 118.0' Slope= 0.0282 '/

Inlet Invert= 404.46', Outlet Invert= 401.13'



Reach P-A3: Pipe A3

Hydrograph



Summerwood Gym 3 2-yr

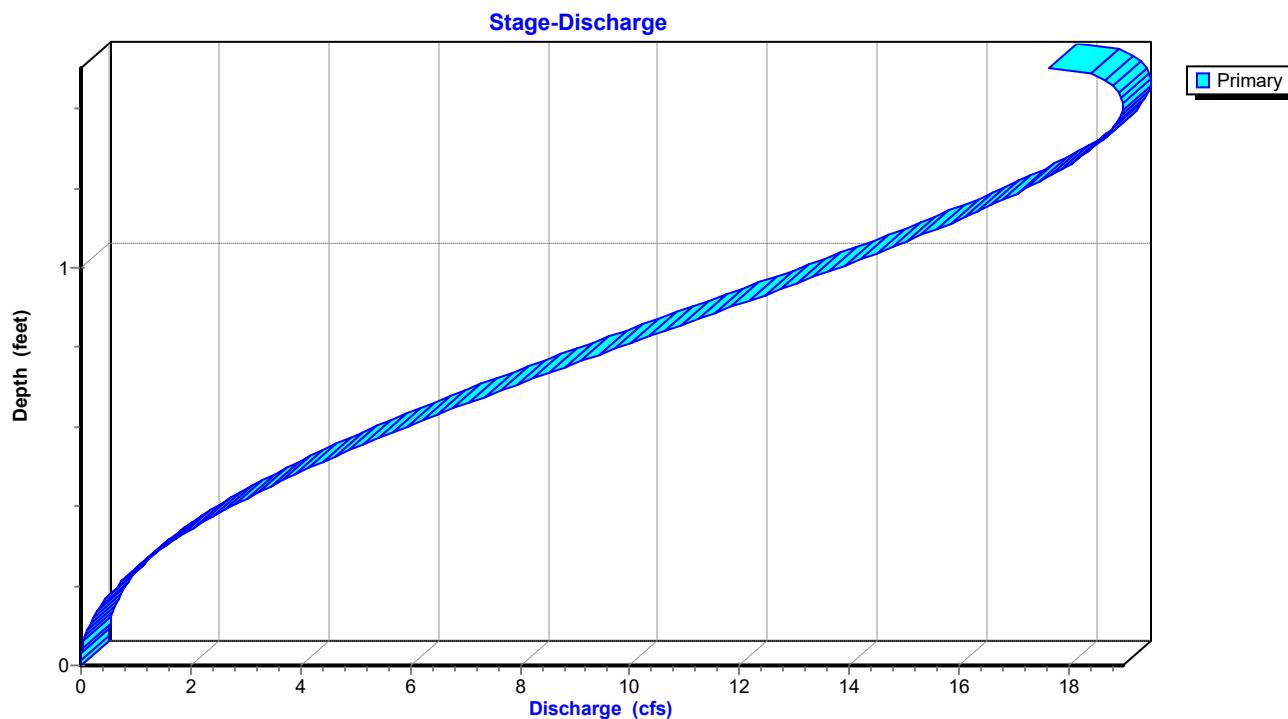
Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Reach P-A3: Pipe A3



Summerwood Gym 3 2-yr*AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr*

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Stage-Area-Storage for Reach P-A3: Pipe A3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
404.46	0.0	0	405.50	1.3	154
404.48	0.0	1	405.52	1.3	158
404.50	0.0	2	405.54	1.4	161
404.52	0.0	3	405.56	1.4	164
404.54	0.0	4	405.58	1.4	167
404.56	0.1	6	405.60	1.4	170
404.58	0.1	8	405.62	1.5	173
404.60	0.1	10	405.64	1.5	176
404.62	0.1	12	405.66	1.5	179
404.64	0.1	14	405.68	1.5	182
404.66	0.1	17	405.70	1.6	184
404.68	0.2	19	405.72	1.6	187
404.70	0.2	22	405.74	1.6	190
404.72	0.2	24	405.76	1.6	192
404.74	0.2	27	405.78	1.6	194
404.76	0.3	30	405.80	1.7	197
404.78	0.3	33	405.82	1.7	199
404.80	0.3	35	405.84	1.7	201
404.82	0.3	38	405.86	1.7	203
404.84	0.4	42	405.88	1.7	204
404.86	0.4	45	405.90	1.7	206
404.88	0.4	48	405.92	1.8	207
404.90	0.4	51	405.94	1.8	208
404.92	0.5	54	405.96	1.8	209
404.94	0.5	58			
404.96	0.5	61			
404.98	0.5	64			
405.00	0.6	68			
405.02	0.6	71			
405.04	0.6	74			
405.06	0.7	78			
405.08	0.7	81			
405.10	0.7	85			
405.12	0.7	88			
405.14	0.8	92			
405.16	0.8	95			
405.18	0.8	99			
405.20	0.9	102			
405.22	0.9	106			
405.24	0.9	110			
405.26	1.0	113			
405.28	1.0	117			
405.30	1.0	120			
405.32	1.0	124			
405.34	1.1	127			
405.36	1.1	131			
405.38	1.1	134			
405.40	1.2	138			
405.42	1.2	141			
405.44	1.2	144			
405.46	1.3	148			
405.48	1.3	151			

Summerwood Gym 3 2-yr

Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Reach P-A4: Pipe A4

Inflow Area = 71,768 sf, 0.00% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 5.07 cfs @ 0.17 hrs, Volume= 3,082 cf
Outflow = 5.05 cfs @ 0.18 hrs, Volume= 3,082 cf, Atten= 0%, Lag= 0.4 min
Routed to Pond DP1 : Re-Established East Pond

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 8.62 fps, Min. Travel Time= 0.3 min

Avg. Velocity= 3.43 fps, Avg. Travel Time= 0.6 min

Peak Storage= 77 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.55', Surface Width= 1.45'

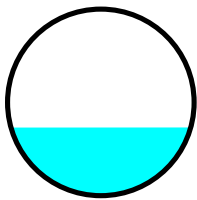
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.66 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

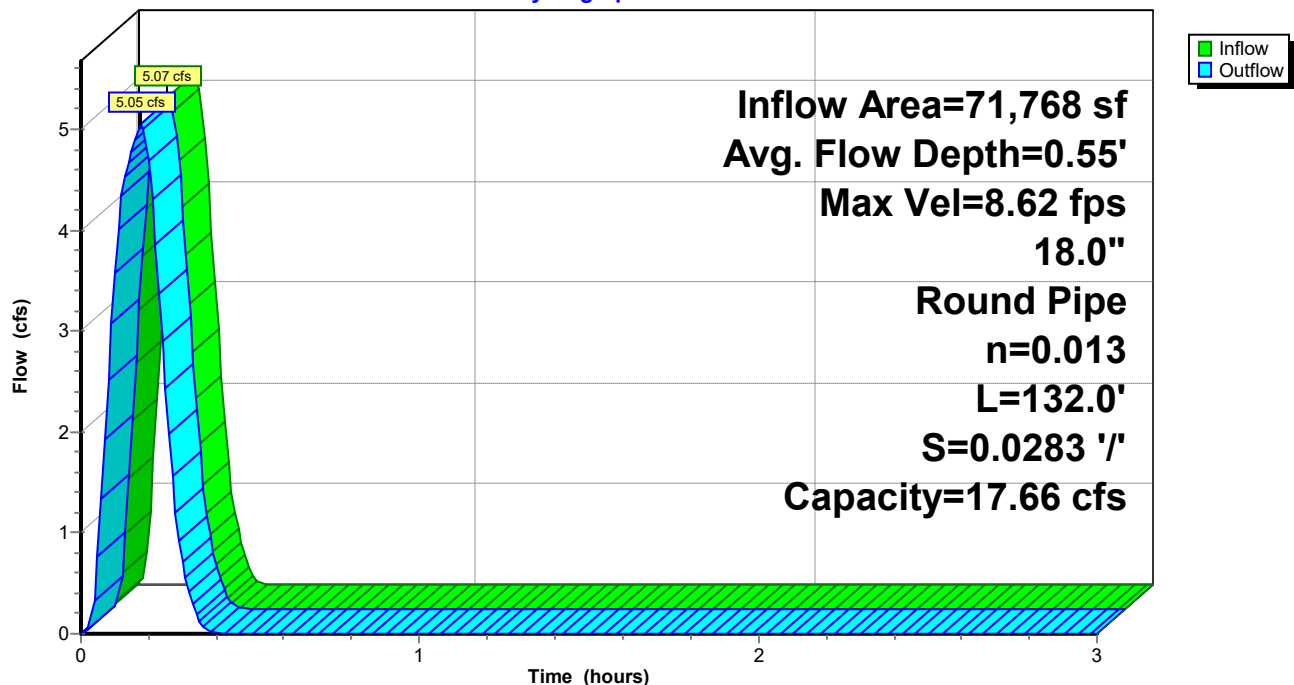
Length= 132.0' Slope= 0.0283 '/'

Inlet Invert= 401.03', Outlet Invert= 397.30'



Reach P-A4: Pipe A4

Hydrograph



Summerwood Gym 3 2-yr

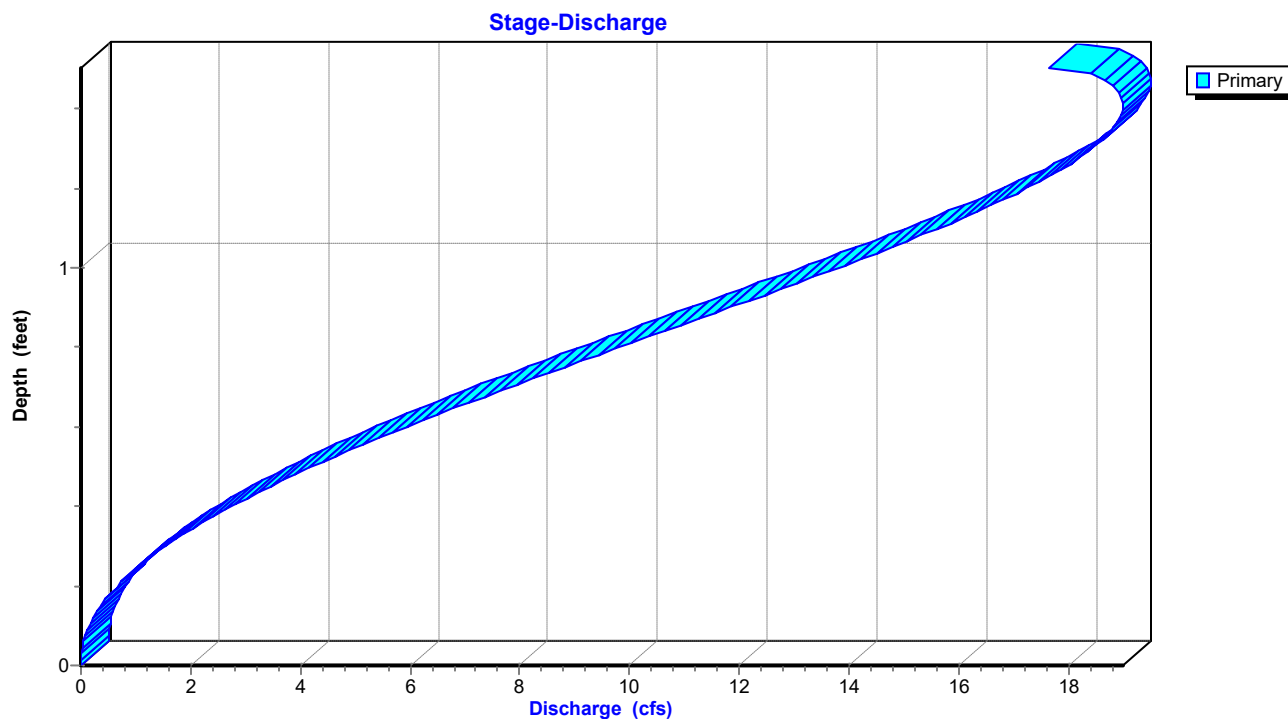
Prepared by Phillip Lewis Engineering

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Reach P-A4: Pipe A4



Summerwood Gym 3 2-yr*AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr*

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Stage-Area-Storage for Reach P-A4: Pipe A4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
401.03	0.0	0	402.07	1.3	173
401.05	0.0	1	402.09	1.3	176
401.07	0.0	2	402.11	1.4	180
401.09	0.0	3	402.13	1.4	183
401.11	0.0	5	402.15	1.4	187
401.13	0.1	7	402.17	1.4	190
401.15	0.1	9	402.19	1.5	194
401.17	0.1	11	402.21	1.5	197
401.19	0.1	13	402.23	1.5	200
401.21	0.1	16	402.25	1.5	203
401.23	0.1	18	402.27	1.6	206
401.25	0.2	21	402.29	1.6	209
401.27	0.2	24	402.31	1.6	212
401.29	0.2	27	402.33	1.6	215
401.31	0.2	30	402.35	1.6	217
401.33	0.3	33	402.37	1.7	220
401.35	0.3	36	402.39	1.7	222
401.37	0.3	40	402.41	1.7	225
401.39	0.3	43	402.43	1.7	227
401.41	0.4	46	402.45	1.7	228
401.43	0.4	50	402.47	1.7	230
401.45	0.4	53	402.49	1.8	232
401.47	0.4	57	402.51	1.8	233
401.49	0.5	61	402.53	1.8	233
401.51	0.5	64			
401.53	0.5	68			
401.55	0.5	72			
401.57	0.6	76			
401.59	0.6	79			
401.61	0.6	83			
401.63	0.7	87			
401.65	0.7	91			
401.67	0.7	95			
401.69	0.7	99			
401.71	0.8	103			
401.73	0.8	107			
401.75	0.8	111			
401.77	0.9	115			
401.79	0.9	119			
401.81	0.9	123			
401.83	1.0	127			
401.85	1.0	130			
401.87	1.0	134			
401.89	1.0	138			
401.91	1.1	142			
401.93	1.1	146			
401.95	1.1	150			
401.97	1.2	154			
401.99	1.2	158			
402.01	1.2	161			
402.03	1.3	165			
402.05	1.3	169			

Summerwood Gym 3 2-yr

AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Summary for Pond DP1: Re-Established East Pond

Inflow Area = 132,514 sf, 0.00% Impervious, Inflow Depth = 0.53" for 2-yr event
 Inflow = 9.45 cfs @ 0.16 hrs, Volume= 5,804 cf
 Outflow = 5.39 cfs @ 0.22 hrs, Volume= 5,804 cf, Atten= 43%, Lag= 3.6 min
 Primary = 5.39 cfs @ 0.22 hrs, Volume= 5,804 cf
 Routed to Link Post-Dev : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 397.63' @ 0.22 hrs Storage= 2,855 cf

Plug-Flow detention time= 7.8 min calculated for 5,804 cf (100% of inflow)

Center-of-Mass det. time= 7.7 min (16.7 - 9.0)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	8,557 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	0	0
396.50	250	250
397.00	1,092	1,342
398.00	2,387	3,729
399.00	2,405	6,134
400.00	2,423	8,557

Device	Routing	Invert	Outlet Devices
#1	Primary	399.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	396.00'	1.1' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 10.0' Crest Height

Primary OutFlow Max=5.38 cfs @ 0.22 hrs HW=397.63' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Weir Controls 5.38 cfs @ 4.26 fps)

Summerwood Gym 3 2-yr

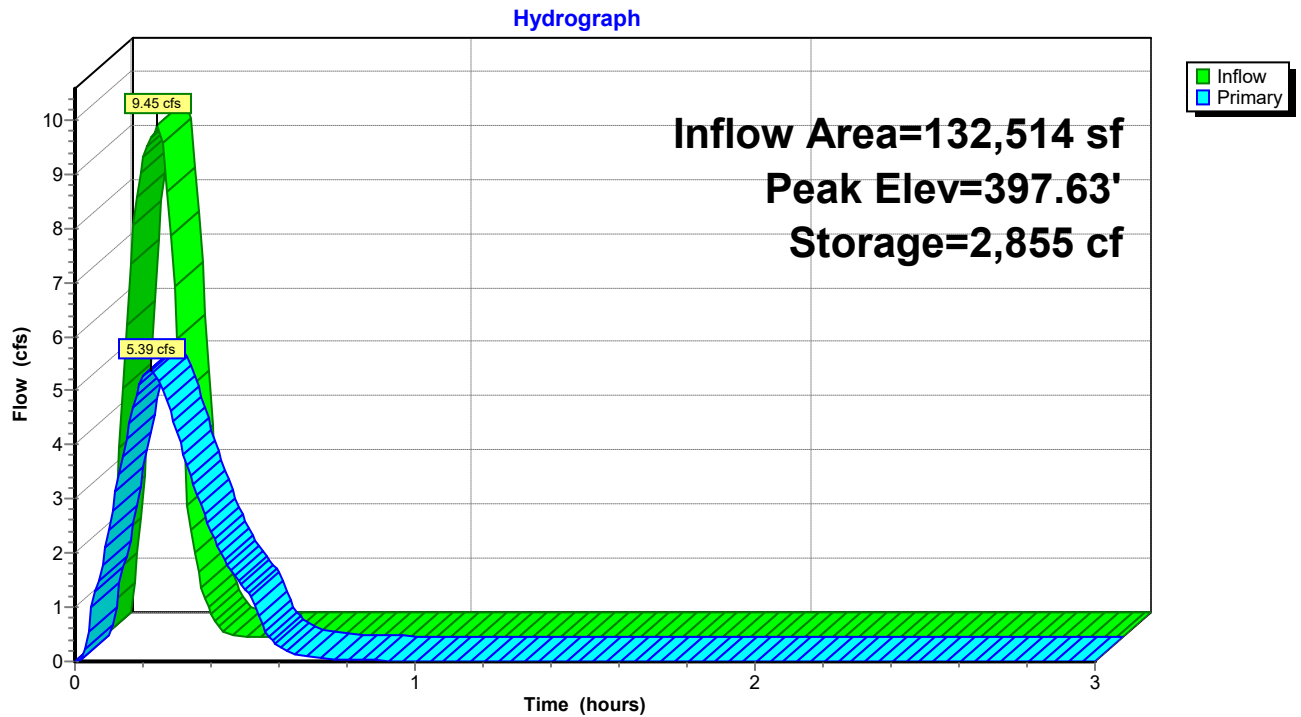
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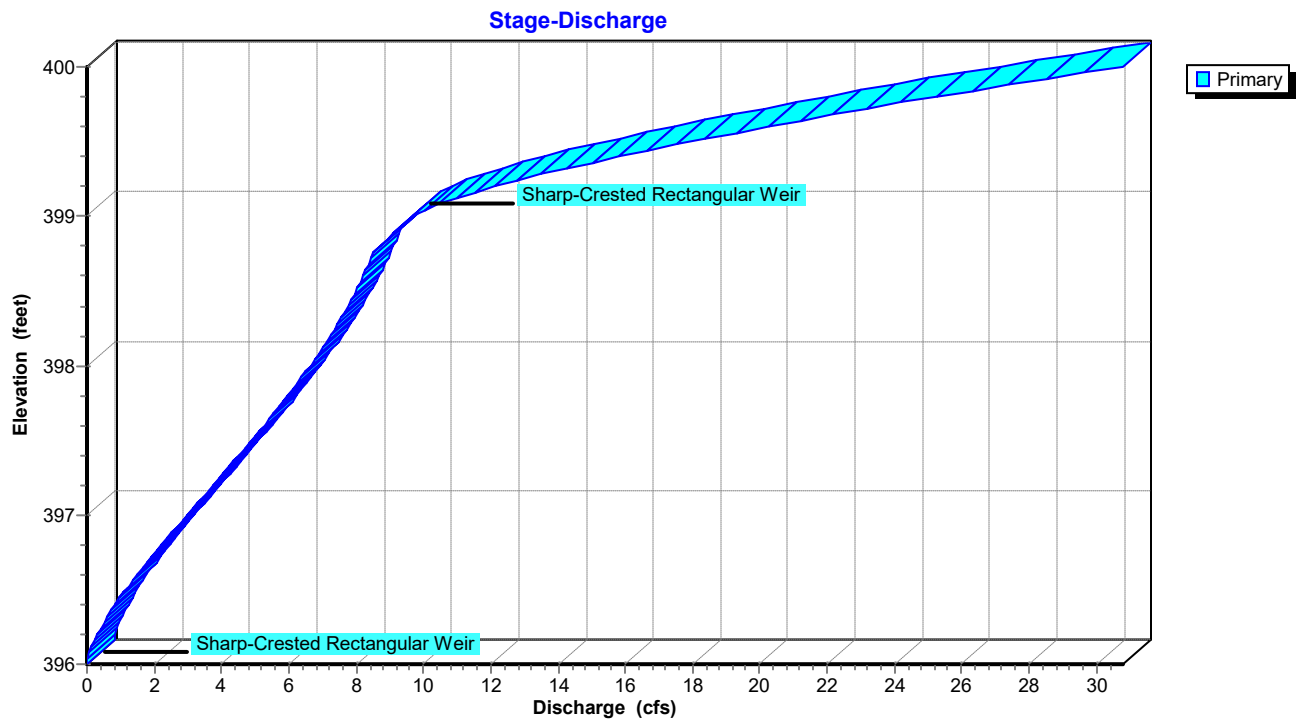
AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

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Pond DP1: Re-Established East Pond



Pond DP1: Re-Established East Pond



Summerwood Gym 3 2-yr*AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr*

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Stage-Area-Storage for Pond DP1: Re-Established East Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
396.00	0	398.60	5,172
396.05	25	398.65	5,292
396.10	50	398.70	5,412
396.15	75	398.75	5,533
396.20	100	398.80	5,653
396.25	125	398.85	5,773
396.30	150	398.90	5,893
396.35	175	398.95	6,014
396.40	200	399.00	6,134
396.45	225	399.05	6,255
396.50	250	399.10	6,376
396.55	359	399.15	6,497
396.60	468	399.20	6,619
396.65	578	399.25	6,740
396.70	687	399.30	6,861
396.75	796	399.35	6,982
396.80	905	399.40	7,103
396.85	1,014	399.45	7,224
396.90	1,124	399.50	7,346
396.95	1,233	399.55	7,467
397.00	1,342	399.60	7,588
397.05	1,461	399.65	7,709
397.10	1,581	399.70	7,830
397.15	1,700	399.75	7,951
397.20	1,819	399.80	8,072
397.25	1,939	399.85	8,194
397.30	2,058	399.90	8,315
397.35	2,177	399.95	8,436
397.40	2,297	400.00	8,557
397.45	2,416		
397.50	2,536		
397.55	2,655		
397.60	2,774		
397.65	2,894		
397.70	3,013		
397.75	3,132		
397.80	3,252		
397.85	3,371		
397.90	3,490		
397.95	3,610		
398.00	3,729		
398.05	3,849		
398.10	3,970		
398.15	4,090		
398.20	4,210		
398.25	4,330		
398.30	4,451		
398.35	4,571		
398.40	4,691		
398.45	4,811		
398.50	4,932		
398.55	5,052		

Summerwood Gym 3 2-yr

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AR - Little Rock 2-yr Duration=10 min, Inten=4.36 in/hr

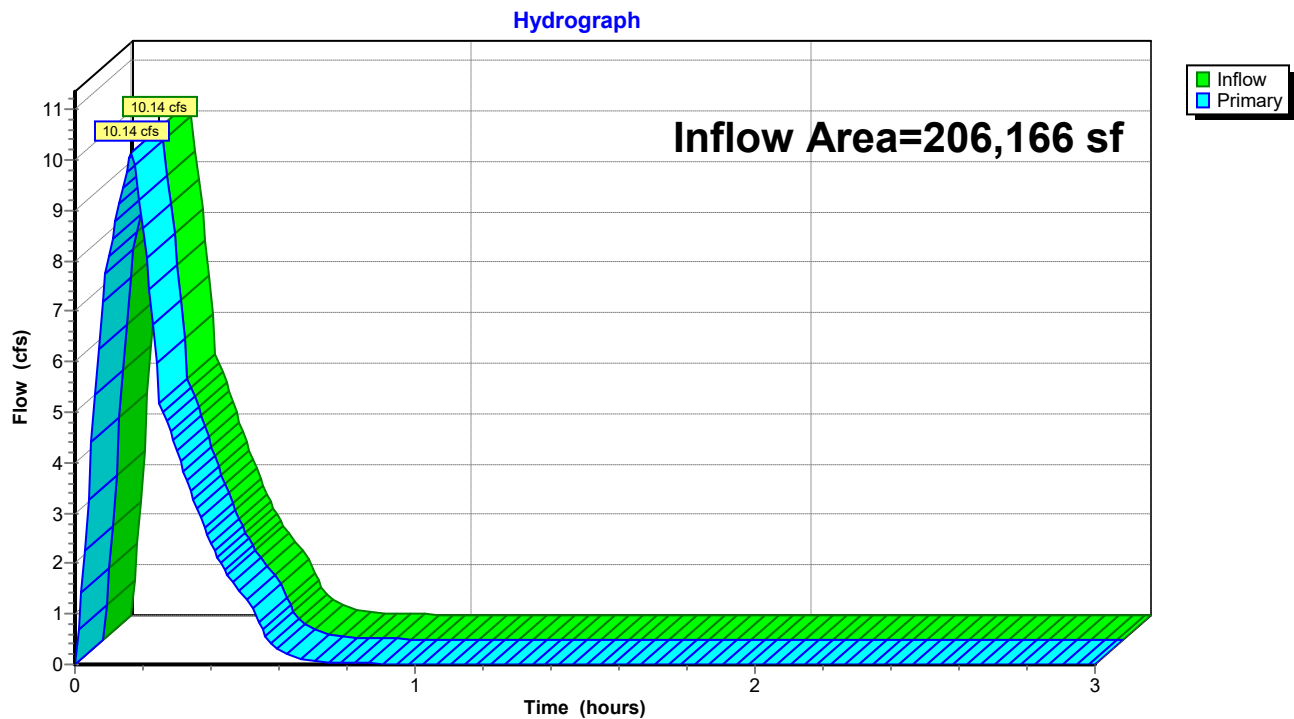
Printed 1/11/2024

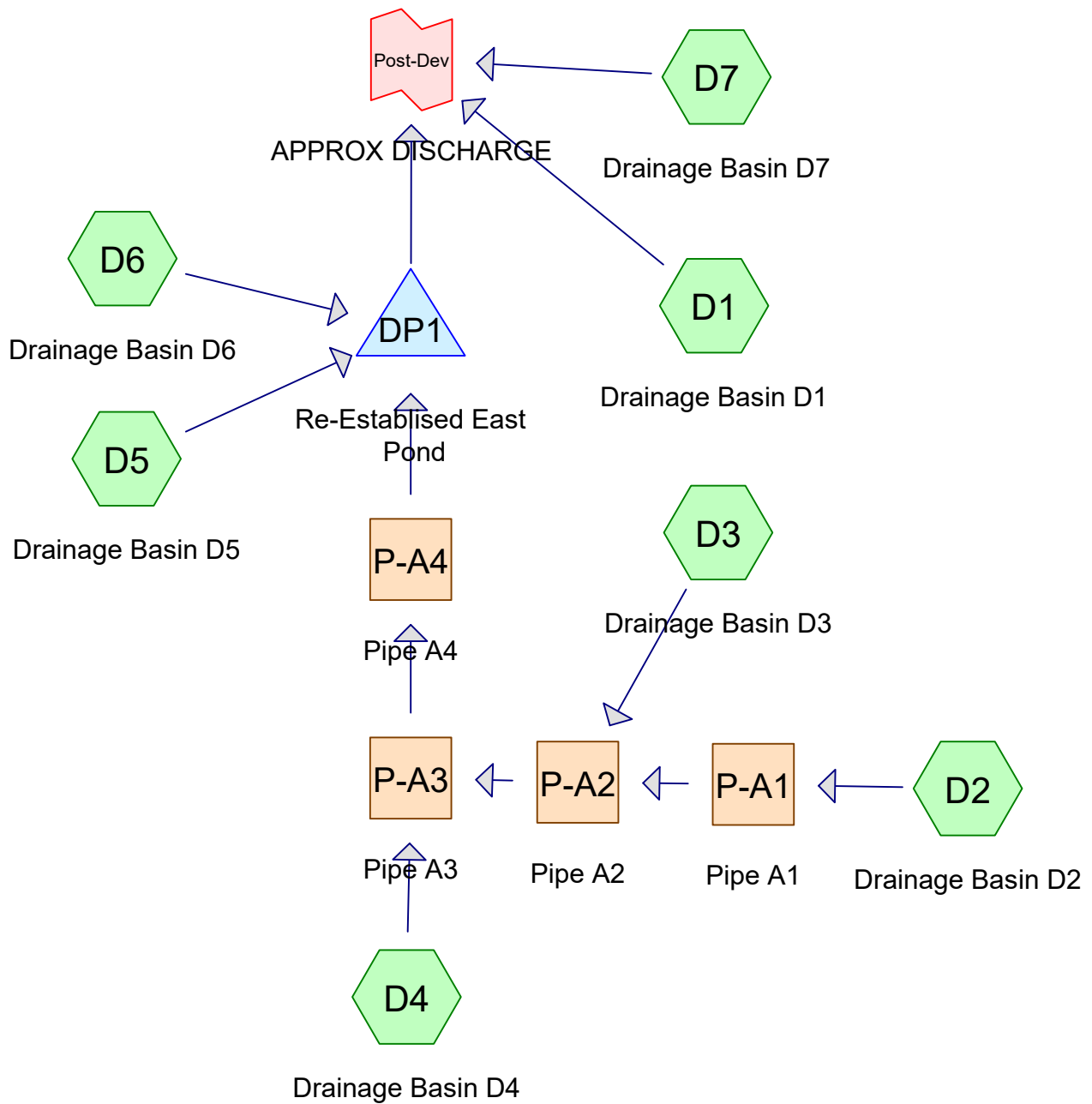
Summary for Link Post-Dev: APPROX DISCHARGE

Inflow Area = 206,166 sf, 0.00% Impervious, Inflow Depth = 0.53" for 2-yr event
Inflow = 10.14 cfs @ 0.17 hrs, Volume= 9,191 cf
Primary = 10.14 cfs @ 0.17 hrs, Volume= 9,191 cf, Atten= 0%, Lag= 0.0 min

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

Link Post-Dev: APPROX DISCHARGE





Routing Diagram for Summerwood Gym 3

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Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D1: Drainage Basin D1

Runoff = 5.30 cfs @ 0.09 hrs, Volume= 3,176 cf, Depth= 0.78"
Routed to Link Post-Dev : APPROX DISCHARGE

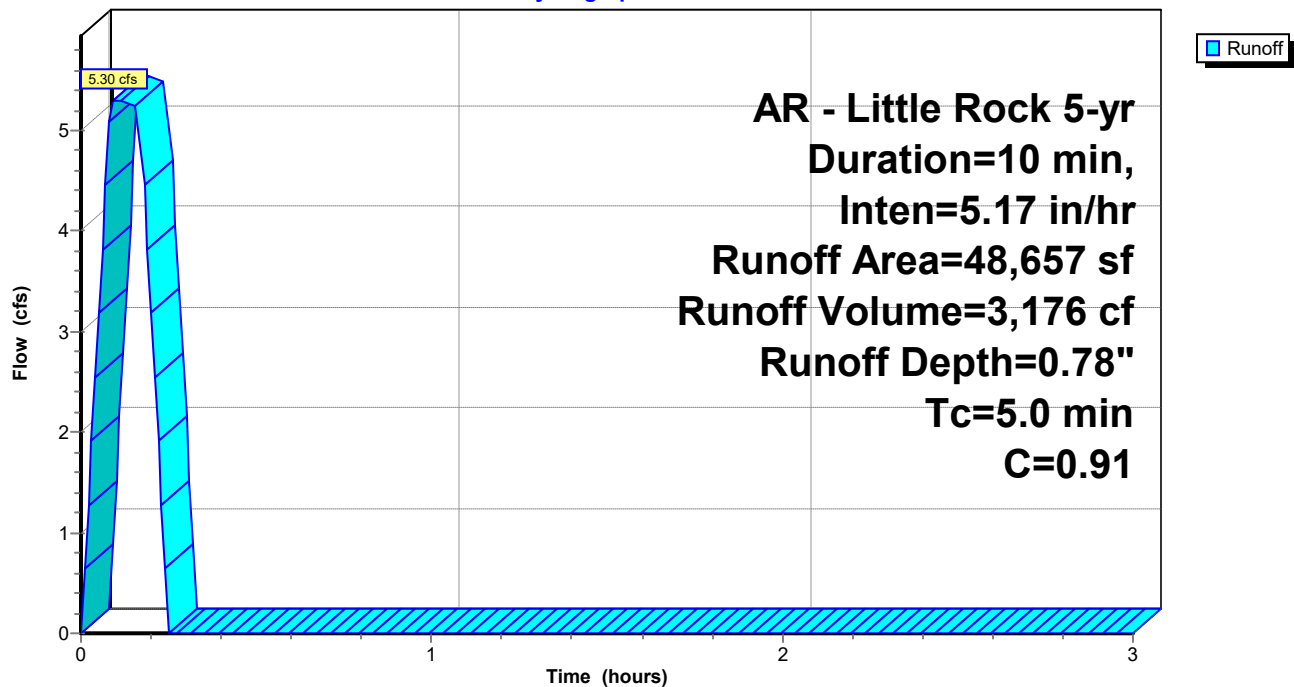
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
3,421	0.40	Sod Yard
45,236	0.95	Road, Drives, Sidewalks
48,657	0.91	Weighted Average
3,421		7.03% Pervious Area
45,236		92.97% Impervious Area

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

Subcatchment D1: Drainage Basin D1

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D2: Drainage Basin D2

Runoff = 2.25 cfs @ 0.09 hrs, Volume= 1,348 cf, Depth= 0.66"

Routed to Reach P-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

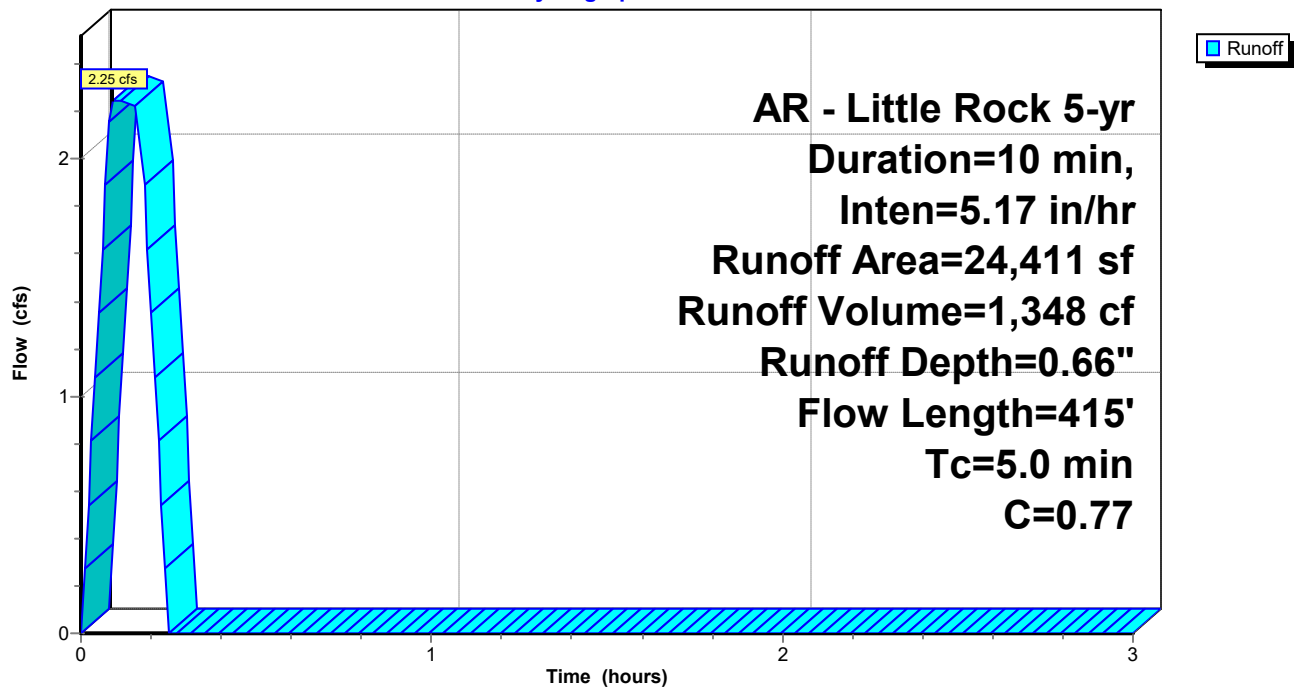
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
8,845	0.45	Rip Rap Embankment
15,566	0.95	Roof, Drives, Sidewalks
24,411	0.77	Weighted Average
8,845		36.23% Pervious Area
15,566		63.77% Impervious 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 D2: Drainage Basin D2

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D3: Drainage Basin D3

Runoff = 1.67 cfs @ 0.09 hrs, Volume= 998 cf, Depth= 0.78"
Routed to Reach P-A2 : Pipe A2

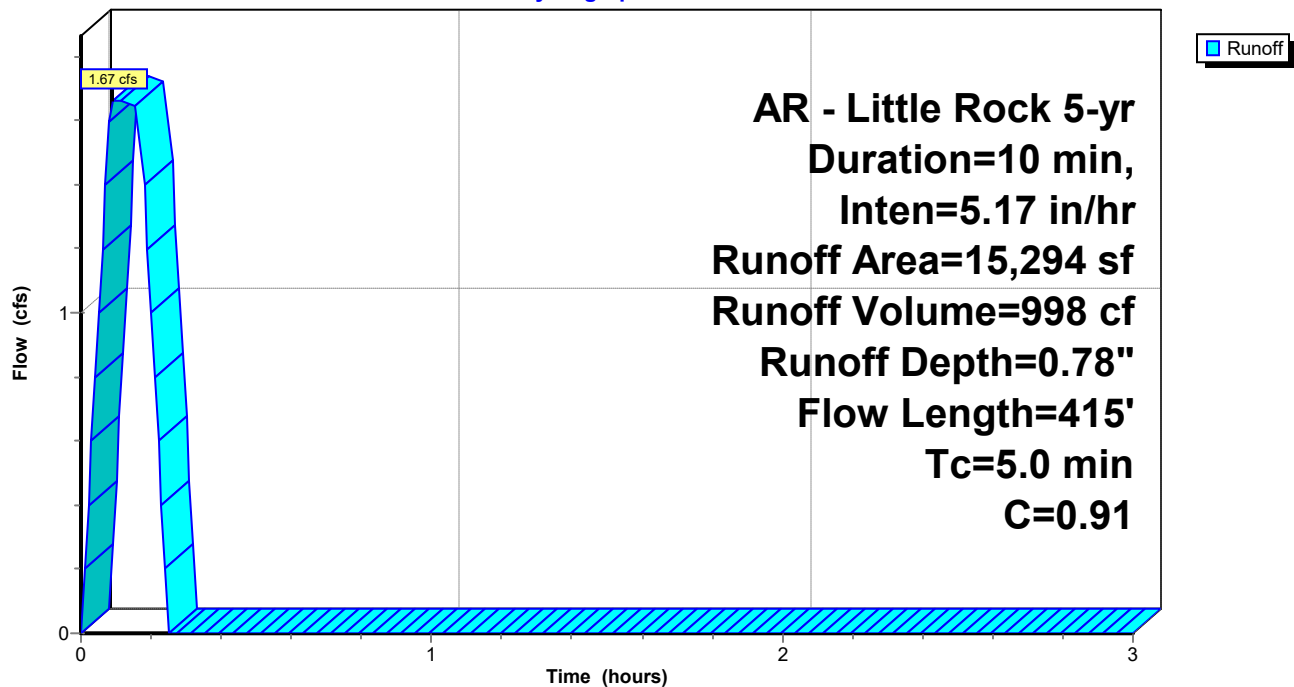
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
1,065	0.40	Sod Yard
14,229	0.95	Paving, Sidewalks
15,294	0.91	Weighted Average
1,065		6.96% Pervious Area
14,229		93.04% Impervious 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 D3: Drainage Basin D3

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D4: Drainage Basin D4

Runoff = 2.30 cfs @ 0.17 hrs, Volume= 1,404 cf, Depth= 0.53"
Routed to Reach P-A3 : Pipe A3

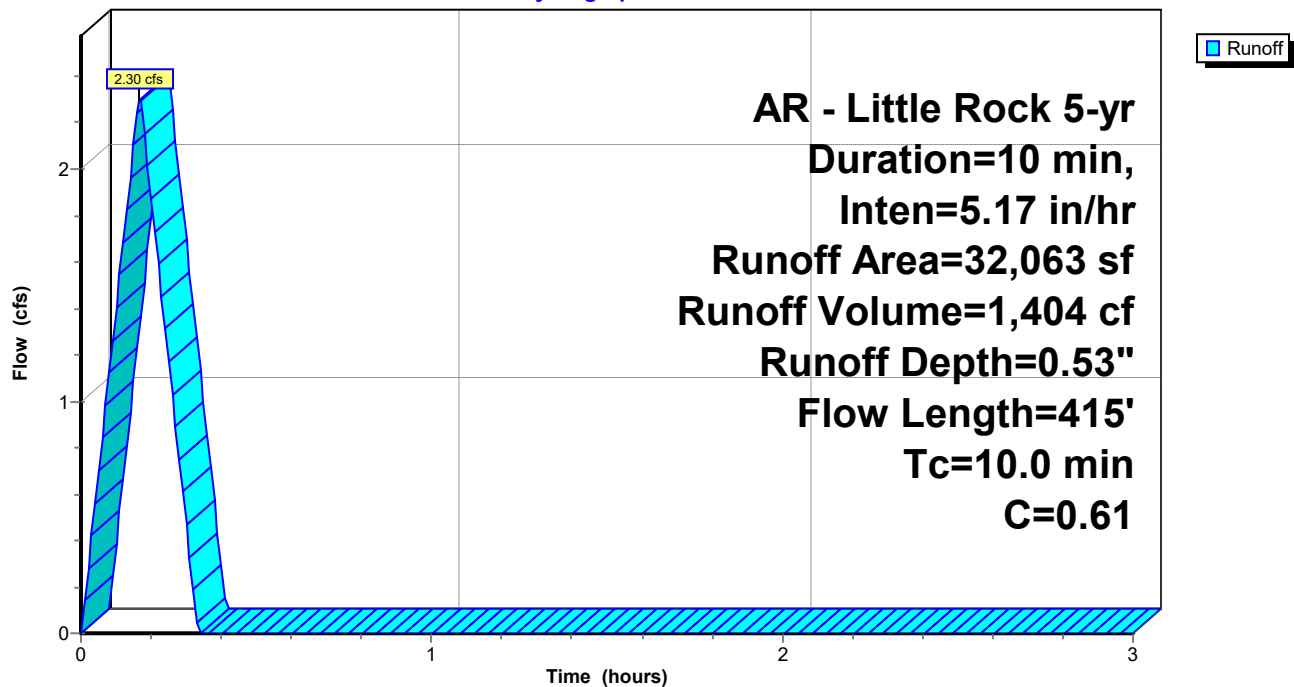
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
20,032	0.40	
12,031	0.95	
32,063	0.61	Weighted Average
20,032		62.48% Pervious Area
12,031		37.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment D4: Drainage Basin D4

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D5: Drainage Basin D5

Runoff = 3.34 cfs @ 0.09 hrs, Volume= 2,001 cf, Depth= 0.58"
Routed to Pond DP1 : Re-Established East Pond

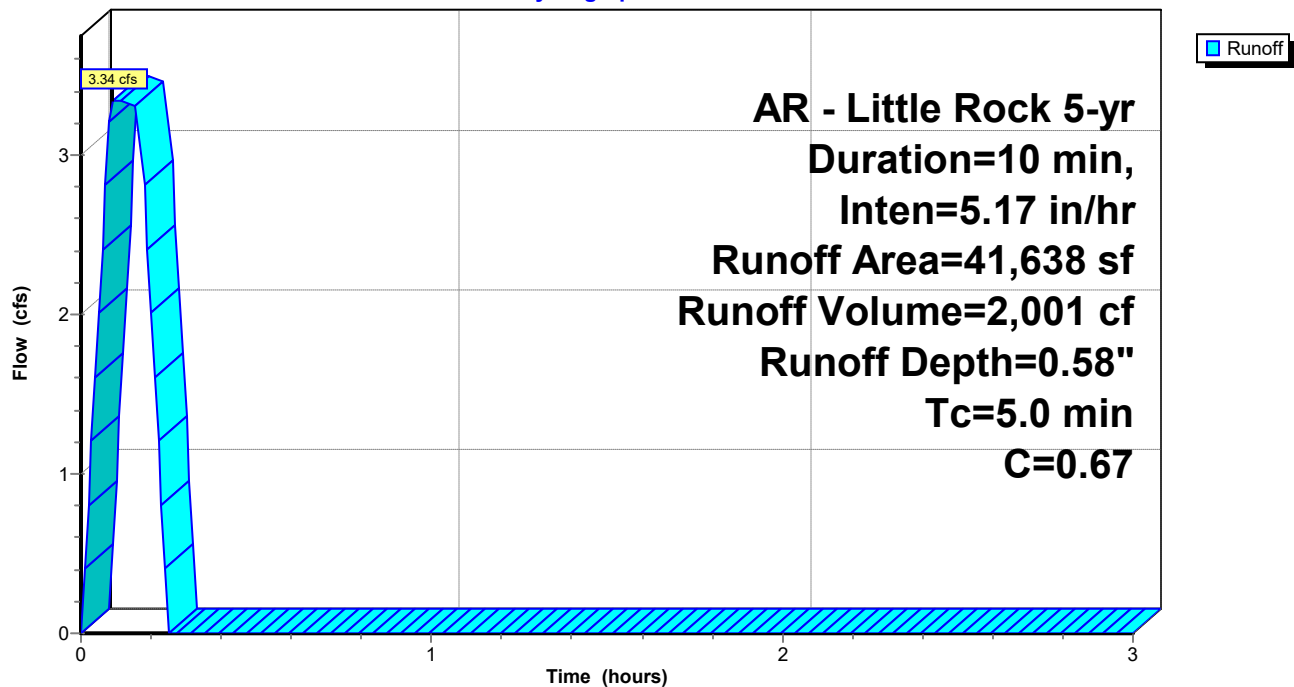
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
21,201	0.40	Sod Yard, Natural Vegetation
20,437	0.95	Paving, Sidewalks
41,638	0.67	Weighted Average
21,201		50.92% Pervious Area
20,437		49.08% Impervious Area

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

Subcatchment D5: Drainage Basin D5

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D6: Drainage Basin D6

Runoff = 2.17 cfs @ 0.09 hrs, Volume= 1,302 cf, Depth= 0.82"
Routed to Pond DP1 : Re-Established East Pond

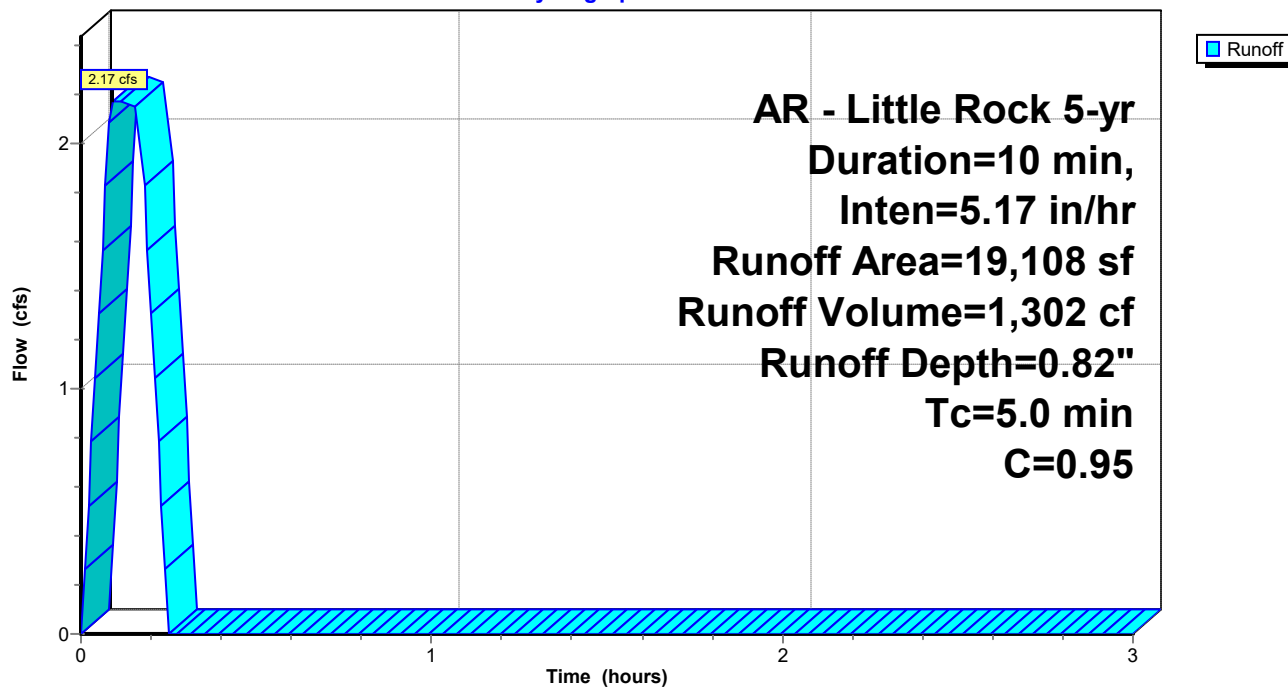
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
19,108	0.95	Roof
19,108		100.00% Impervious Area

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

Subcatchment D6: Drainage Basin D6

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Subcatchment D7: Drainage Basin D7

Runoff = 1.62 cfs @ 0.09 hrs, Volume= 968 cf, Depth= 0.46"
Routed to Link Post-Dev : APPROX DISCHARGE

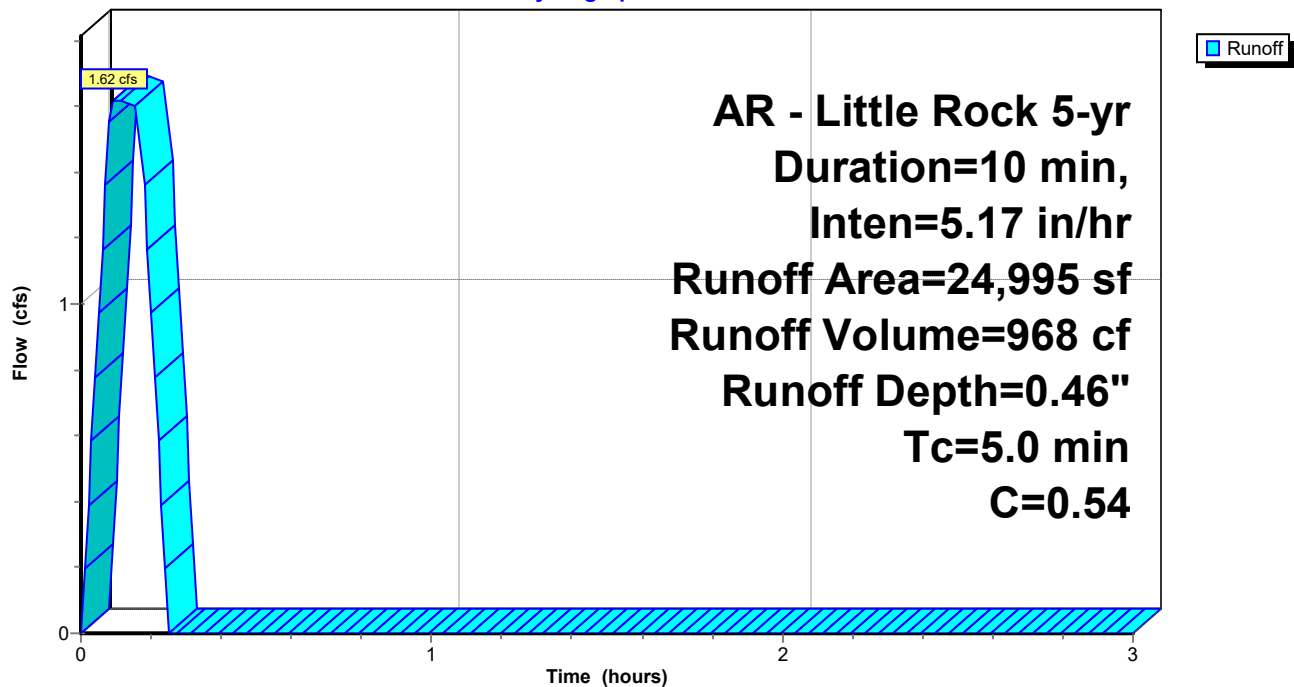
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Area (sf)	C	Description
18,798	0.40	Sod Yard, Natural Vegetation
6,197	0.95	Paving, Sidewalks
24,995	0.54	Weighted Average
18,798		75.21% Pervious Area
6,197		24.79% Impervious Area

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

Subcatchment D7: Drainage Basin D7

Hydrograph



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Reach P-A1: Pipe A1

Inflow Area = 24,411 sf, 63.77% Impervious, Inflow Depth = 0.66" for 5-yr event
Inflow = 2.25 cfs @ 0.09 hrs, Volume= 1,348 cf
Outflow = 2.25 cfs @ 0.11 hrs, Volume= 1,348 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach P-A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.75 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 4.79 fps, Avg. Travel Time= 0.2 min

Peak Storage= 17 cf @ 0.09 hrs

Average Depth at Peak Storage= 0.37', Surface Width= 1.29'

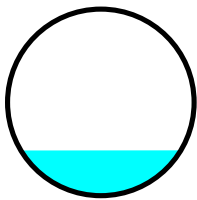
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.28 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

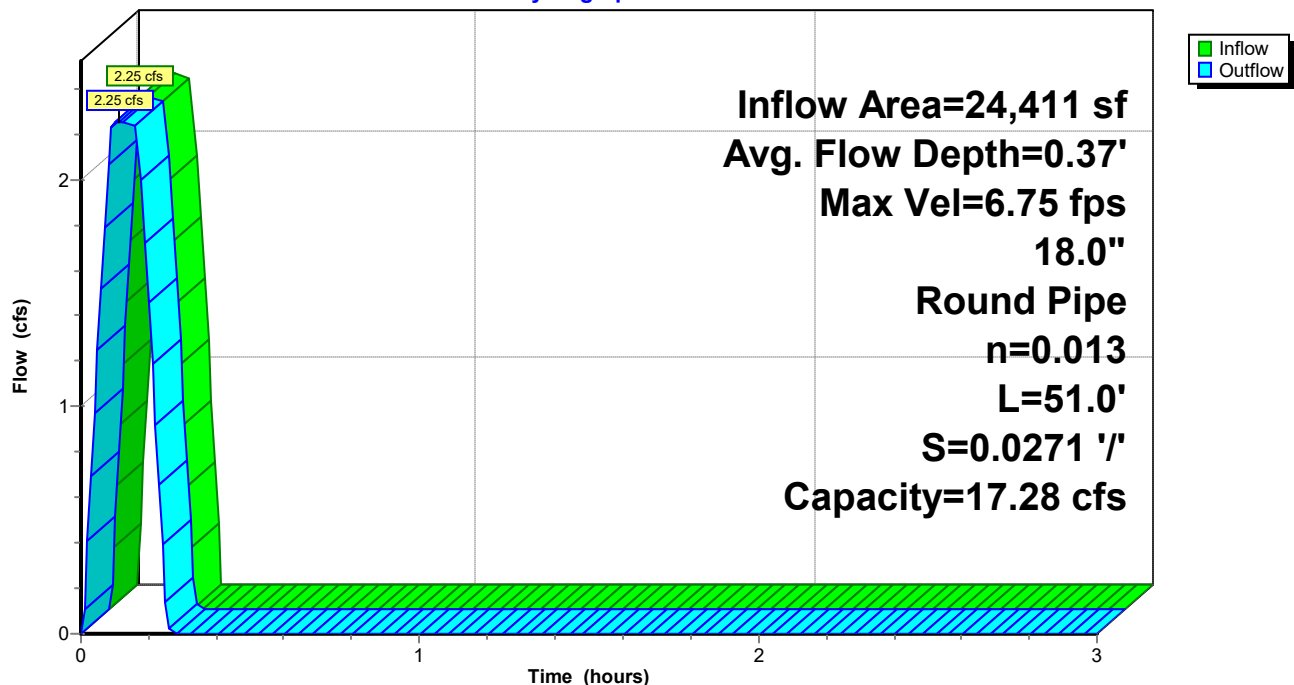
Length= 51.0' Slope= 0.0271 '/

Inlet Invert= 408.33', Outlet Invert= 406.95'



Reach P-A1: Pipe A1

Hydrograph



Summerwood Gym 3

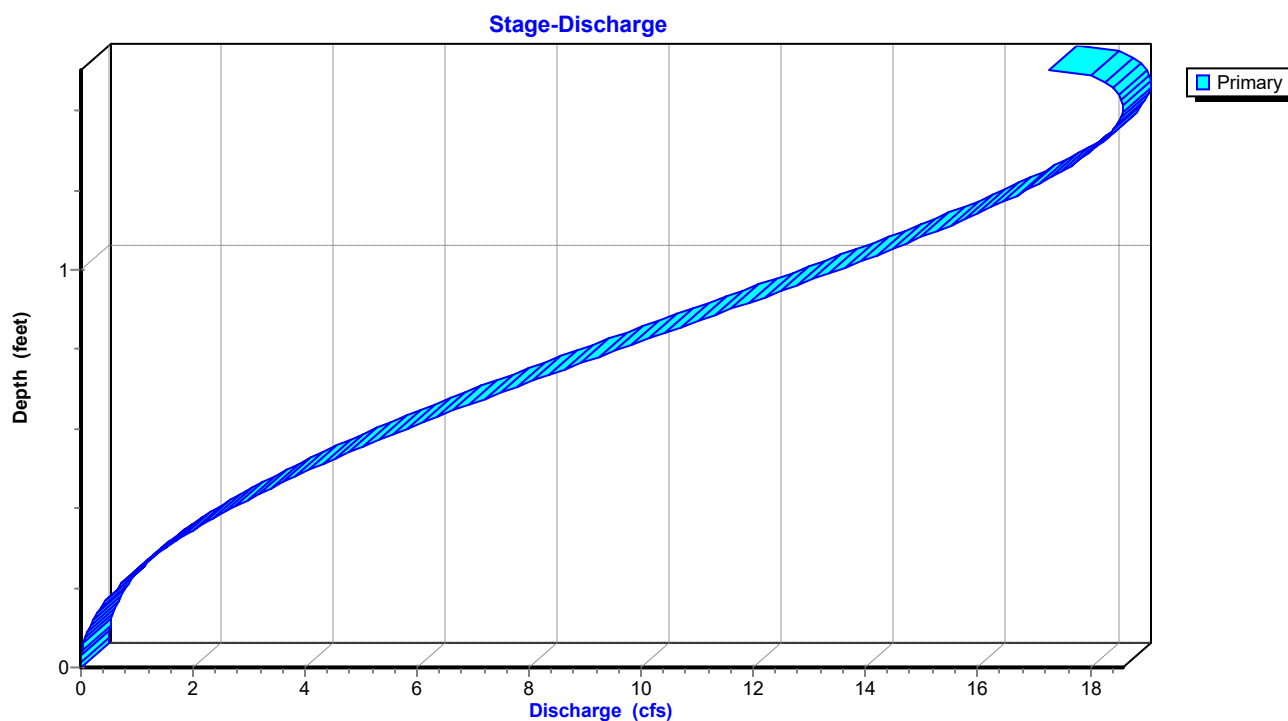
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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Reach P-A1: Pipe A1



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Stage-Area-Storage for Reach P-A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
408.33	0.0	0	409.37	1.3	67
408.35	0.0	0	409.39	1.3	68
408.37	0.0	1	409.41	1.4	69
408.39	0.0	1	409.43	1.4	71
408.41	0.0	2	409.45	1.4	72
408.43	0.1	3	409.47	1.4	73
408.45	0.1	3	409.49	1.5	75
408.47	0.1	4	409.51	1.5	76
408.49	0.1	5	409.53	1.5	77
408.51	0.1	6	409.55	1.5	78
408.53	0.1	7	409.57	1.6	80
408.55	0.2	8	409.59	1.6	81
408.57	0.2	9	409.61	1.6	82
408.59	0.2	10	409.63	1.6	83
408.61	0.2	12	409.65	1.6	84
408.63	0.3	13	409.67	1.7	85
408.65	0.3	14	409.69	1.7	86
408.67	0.3	15	409.71	1.7	87
408.69	0.3	17	409.73	1.7	88
408.71	0.4	18	409.75	1.7	88
408.73	0.4	19	409.77	1.7	89
408.75	0.4	21	409.79	1.8	89
408.77	0.4	22	409.81	1.8	90
408.79	0.5	23	409.83	1.8	90
408.81	0.5	25			
408.83	0.5	26			
408.85	0.5	28			
408.87	0.6	29			
408.89	0.6	31			
408.91	0.6	32			
408.93	0.7	34			
408.95	0.7	35			
408.97	0.7	37			
408.99	0.7	38			
409.01	0.8	40			
409.03	0.8	41			
409.05	0.8	43			
409.07	0.9	44			
409.09	0.9	46			
409.11	0.9	47			
409.13	1.0	49			
409.15	1.0	50			
409.17	1.0	52			
409.19	1.0	53			
409.21	1.1	55			
409.23	1.1	56			
409.25	1.1	58			
409.27	1.2	59			
409.29	1.2	61			
409.31	1.2	62			
409.33	1.3	64			
409.35	1.3	65			

Summerwood Gym 3

Prepared by Phillip Lewis Engineering

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Reach P-A2: Pipe A2

Inflow Area = 39,705 sf, 75.04% Impervious, Inflow Depth = 0.71" for 5-yr event
Inflow = 3.92 cfs @ 0.11 hrs, Volume= 2,346 cf
Outflow = 3.92 cfs @ 0.15 hrs, Volume= 2,346 cf, Atten= 0%, Lag= 2.4 min
Routed to Reach P-A3 : Pipe A3

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.05 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 2.43 fps, Avg. Travel Time= 1.2 min

Peak Storage= 114 cf @ 0.14 hrs

Average Depth at Peak Storage= 0.59' , Surface Width= 1.47'

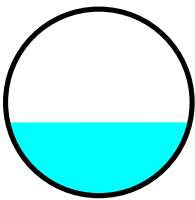
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.95 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

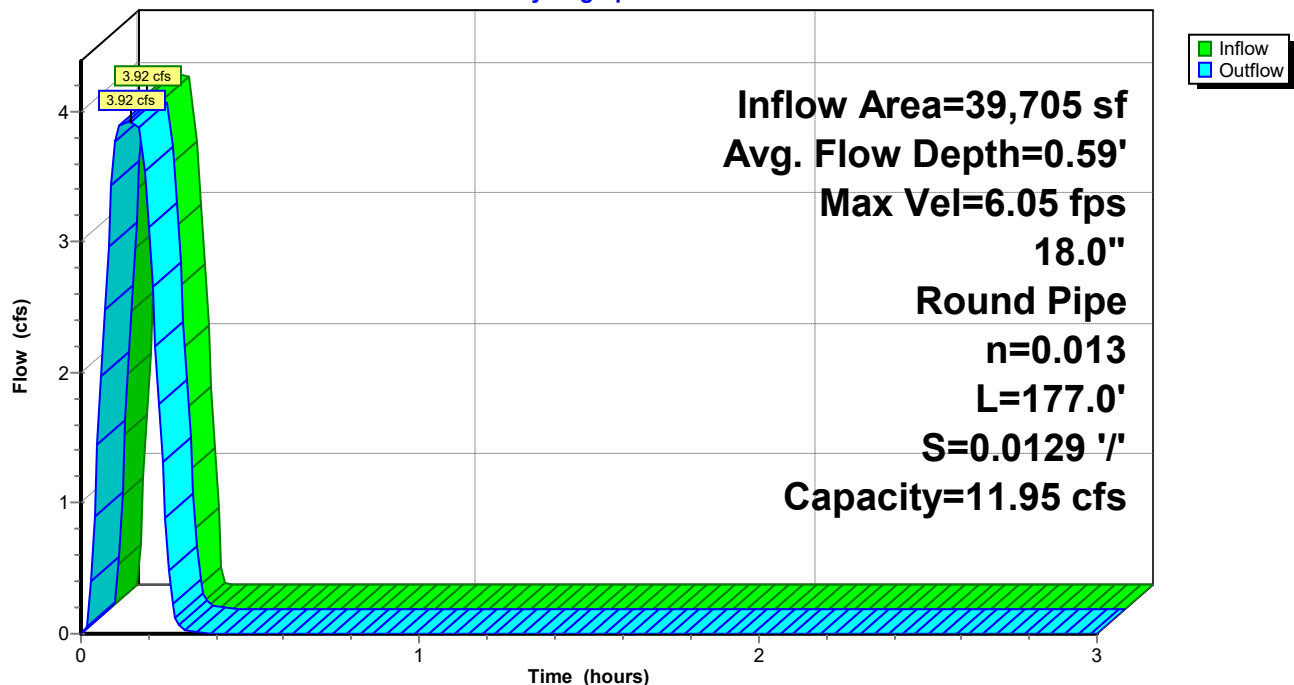
Length= 177.0' Slope= 0.0129 '/'

Inlet Invert= 406.85', Outlet Invert= 404.56'



Reach P-A2: Pipe A2

Hydrograph



Summerwood Gym 3

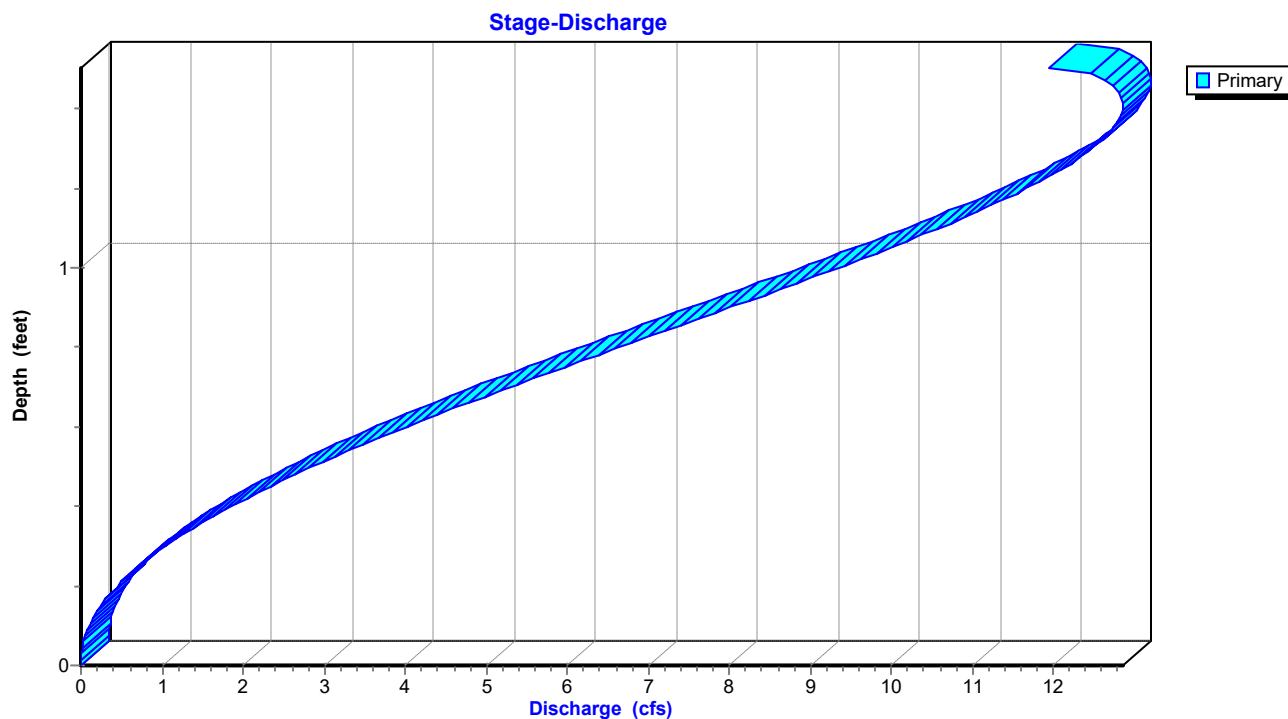
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Reach P-A2: Pipe A2



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Stage-Area-Storage for Reach P-A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
406.85	0.0	0	407.89	1.3	231
406.87	0.0	1	407.91	1.3	236
406.89	0.0	2	407.93	1.4	241
406.91	0.0	4	407.95	1.4	246
406.93	0.0	6	407.97	1.4	250
406.95	0.1	9	407.99	1.4	255
406.97	0.1	12	408.01	1.5	260
406.99	0.1	15	408.03	1.5	264
407.01	0.1	18	408.05	1.5	268
407.03	0.1	21	408.07	1.5	272
407.05	0.1	25	408.09	1.6	277
407.07	0.2	28	408.11	1.6	280
407.09	0.2	32	408.13	1.6	284
407.11	0.2	36	408.15	1.6	288
407.13	0.2	40	408.17	1.6	292
407.15	0.3	45	408.19	1.7	295
407.17	0.3	49	408.21	1.7	298
407.19	0.3	53	408.23	1.7	301
407.21	0.3	58	408.25	1.7	304
407.23	0.4	62	408.27	1.7	306
407.25	0.4	67	408.29	1.7	309
407.27	0.4	72	408.31	1.8	310
407.29	0.4	76	408.33	1.8	312
407.31	0.5	81	408.35	1.8	313
407.33	0.5	86			
407.35	0.5	91			
407.37	0.5	96			
407.39	0.6	101			
407.41	0.6	106			
407.43	0.6	112			
407.45	0.7	117			
407.47	0.7	122			
407.49	0.7	127			
407.51	0.7	133			
407.53	0.8	138			
407.55	0.8	143			
407.57	0.8	148			
407.59	0.9	154			
407.61	0.9	159			
407.63	0.9	164			
407.65	1.0	170			
407.67	1.0	175			
407.69	1.0	180			
407.71	1.0	185			
407.73	1.1	191			
407.75	1.1	196			
407.77	1.1	201			
407.79	1.2	206			
407.81	1.2	211			
407.83	1.2	216			
407.85	1.3	222			
407.87	1.3	226			

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Reach P-A3: Pipe A3

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.63" for 5-yr event
Inflow = 6.22 cfs @ 0.17 hrs, Volume= 3,751 cf
Outflow = 6.17 cfs @ 0.17 hrs, Volume= 3,751 cf, Atten= 1%, Lag= 0.3 min
Routed to Reach P-A4 : Pipe A4

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.11 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.79 fps, Avg. Travel Time= 0.5 min

Peak Storage= 80 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.61', Surface Width= 1.48'

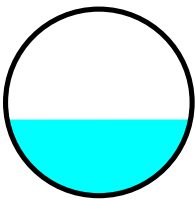
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.65 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

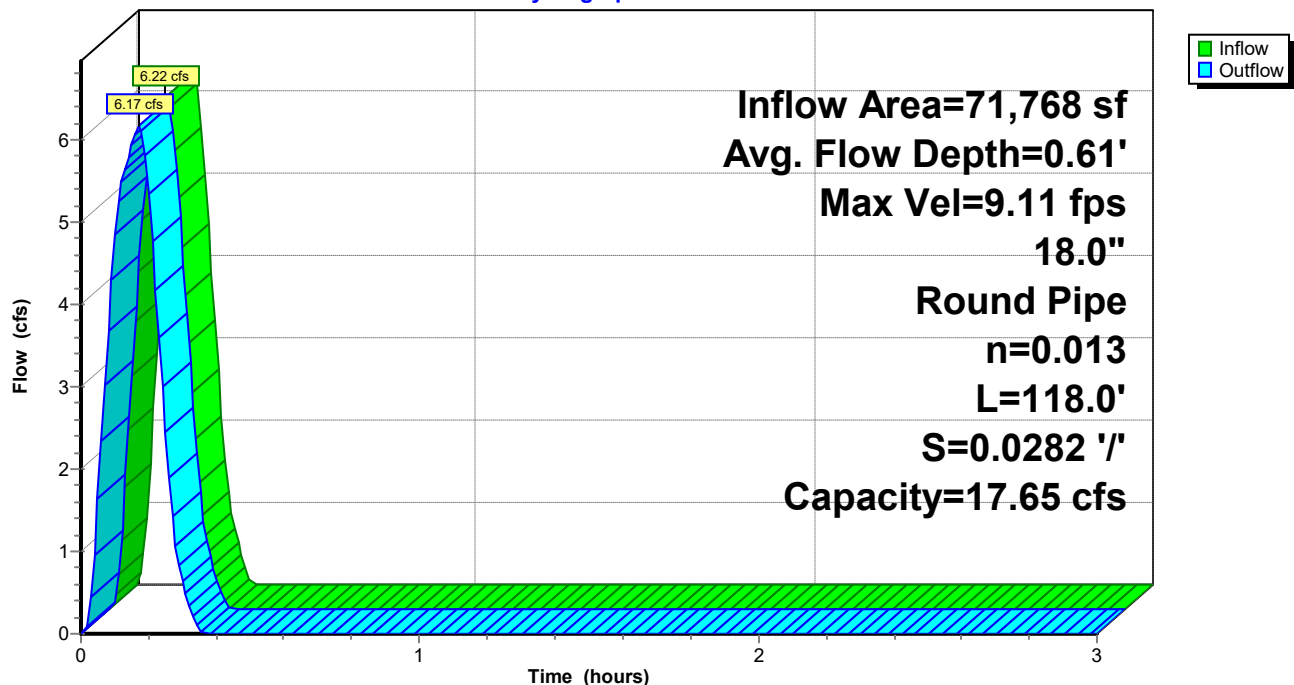
Length= 118.0' Slope= 0.0282 '/'

Inlet Invert= 404.46', Outlet Invert= 401.13'



Reach P-A3: Pipe A3

Hydrograph



Summerwood Gym 3

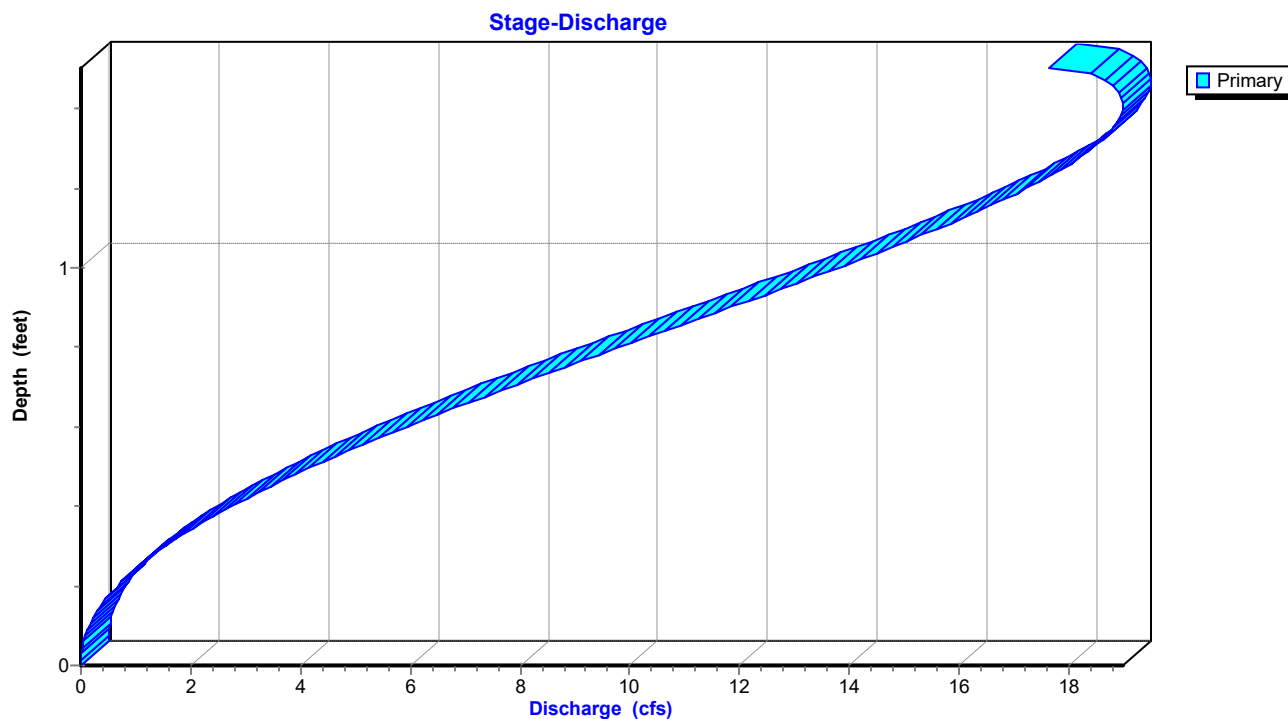
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Reach P-A3: Pipe A3



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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Stage-Area-Storage for Reach P-A3: Pipe A3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
404.46	0.0	0	405.50	1.3	154
404.48	0.0	1	405.52	1.3	158
404.50	0.0	2	405.54	1.4	161
404.52	0.0	3	405.56	1.4	164
404.54	0.0	4	405.58	1.4	167
404.56	0.1	6	405.60	1.4	170
404.58	0.1	8	405.62	1.5	173
404.60	0.1	10	405.64	1.5	176
404.62	0.1	12	405.66	1.5	179
404.64	0.1	14	405.68	1.5	182
404.66	0.1	17	405.70	1.6	184
404.68	0.2	19	405.72	1.6	187
404.70	0.2	22	405.74	1.6	190
404.72	0.2	24	405.76	1.6	192
404.74	0.2	27	405.78	1.6	194
404.76	0.3	30	405.80	1.7	197
404.78	0.3	33	405.82	1.7	199
404.80	0.3	35	405.84	1.7	201
404.82	0.3	38	405.86	1.7	203
404.84	0.4	42	405.88	1.7	204
404.86	0.4	45	405.90	1.7	206
404.88	0.4	48	405.92	1.8	207
404.90	0.4	51	405.94	1.8	208
404.92	0.5	54	405.96	1.8	209
404.94	0.5	58			
404.96	0.5	61			
404.98	0.5	64			
405.00	0.6	68			
405.02	0.6	71			
405.04	0.6	74			
405.06	0.7	78			
405.08	0.7	81			
405.10	0.7	85			
405.12	0.7	88			
405.14	0.8	92			
405.16	0.8	95			
405.18	0.8	99			
405.20	0.9	102			
405.22	0.9	106			
405.24	0.9	110			
405.26	1.0	113			
405.28	1.0	117			
405.30	1.0	120			
405.32	1.0	124			
405.34	1.1	127			
405.36	1.1	131			
405.38	1.1	134			
405.40	1.2	138			
405.42	1.2	141			
405.44	1.2	144			
405.46	1.3	148			
405.48	1.3	151			

Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Summary for Reach P-A4: Pipe A4

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.63" for 5-yr event
Inflow = 6.17 cfs @ 0.17 hrs, Volume= 3,751 cf
Outflow = 6.15 cfs @ 0.18 hrs, Volume= 3,751 cf, Atten= 0%, Lag= 0.4 min
Routed to Pond DP1 : Re-Established East Pond

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.09 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.60 fps, Avg. Travel Time= 0.6 min

Peak Storage= 89 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.61', Surface Width= 1.47'

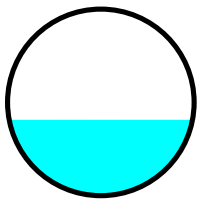
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.66 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

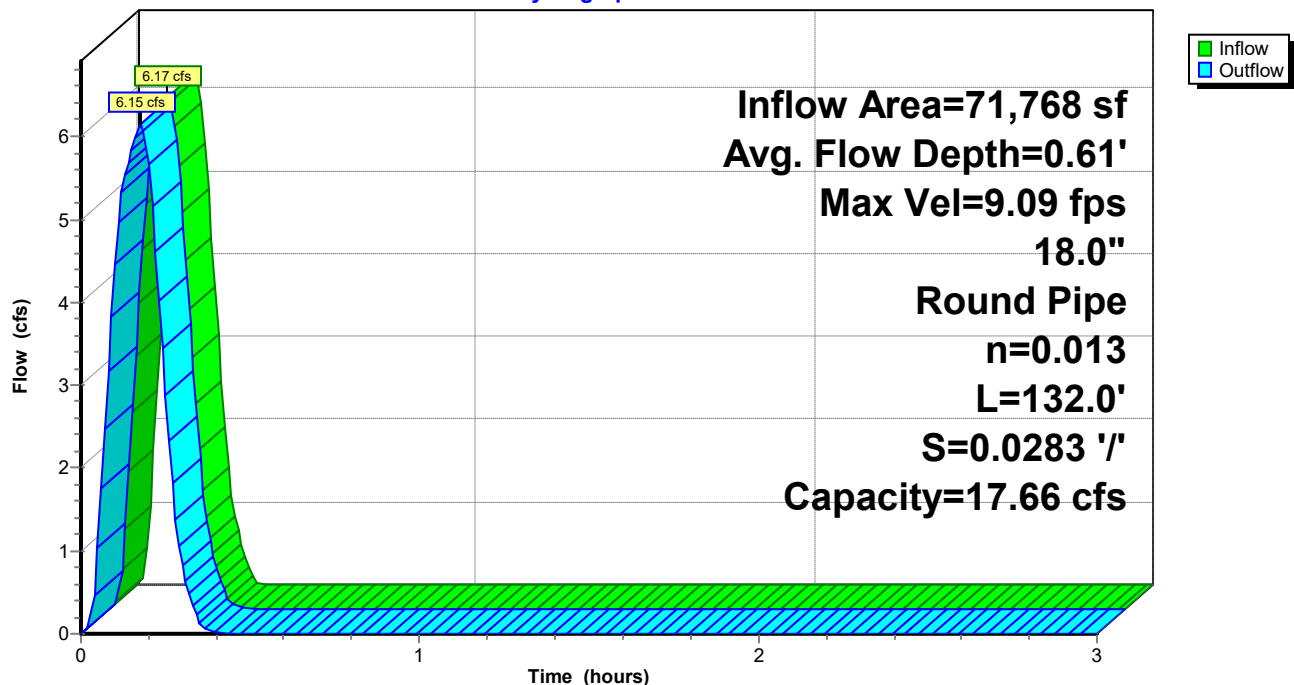
Length= 132.0' Slope= 0.0283 '/'

Inlet Invert= 401.03', Outlet Invert= 397.30'



Reach P-A4: Pipe A4

Hydrograph



Summerwood Gym 3

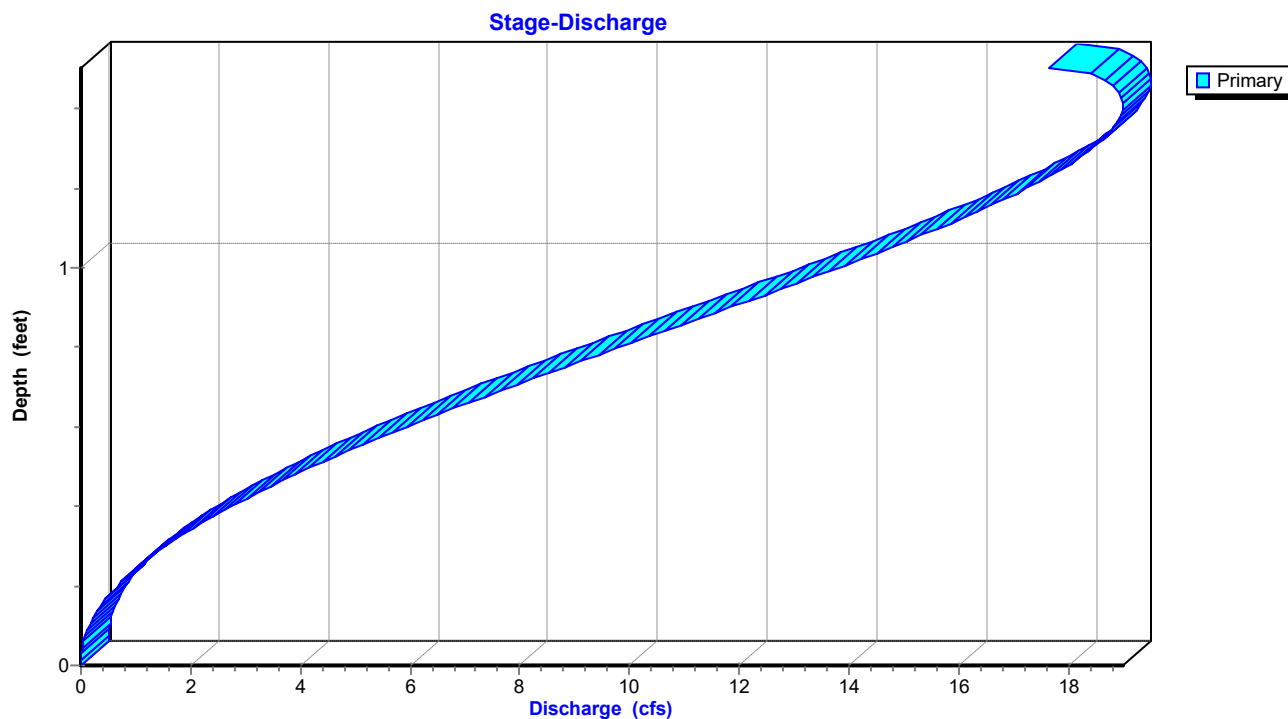
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Reach P-A4: Pipe A4



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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Stage-Area-Storage for Reach P-A4: Pipe A4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
401.03	0.0	0	402.07	1.3	173
401.05	0.0	1	402.09	1.3	176
401.07	0.0	2	402.11	1.4	180
401.09	0.0	3	402.13	1.4	183
401.11	0.0	5	402.15	1.4	187
401.13	0.1	7	402.17	1.4	190
401.15	0.1	9	402.19	1.5	194
401.17	0.1	11	402.21	1.5	197
401.19	0.1	13	402.23	1.5	200
401.21	0.1	16	402.25	1.5	203
401.23	0.1	18	402.27	1.6	206
401.25	0.2	21	402.29	1.6	209
401.27	0.2	24	402.31	1.6	212
401.29	0.2	27	402.33	1.6	215
401.31	0.2	30	402.35	1.6	217
401.33	0.3	33	402.37	1.7	220
401.35	0.3	36	402.39	1.7	222
401.37	0.3	40	402.41	1.7	225
401.39	0.3	43	402.43	1.7	227
401.41	0.4	46	402.45	1.7	228
401.43	0.4	50	402.47	1.7	230
401.45	0.4	53	402.49	1.8	232
401.47	0.4	57	402.51	1.8	233
401.49	0.5	61	402.53	1.8	233
401.51	0.5	64			
401.53	0.5	68			
401.55	0.5	72			
401.57	0.6	76			
401.59	0.6	79			
401.61	0.6	83			
401.63	0.7	87			
401.65	0.7	91			
401.67	0.7	95			
401.69	0.7	99			
401.71	0.8	103			
401.73	0.8	107			
401.75	0.8	111			
401.77	0.9	115			
401.79	0.9	119			
401.81	0.9	123			
401.83	1.0	127			
401.85	1.0	130			
401.87	1.0	134			
401.89	1.0	138			
401.91	1.1	142			
401.93	1.1	146			
401.95	1.1	150			
401.97	1.2	154			
401.99	1.2	158			
402.01	1.2	161			
402.03	1.3	165			
402.05	1.3	169			

Summerwood Gym 3

AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

Prepared by Phillip Lewis Engineering

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Summary for Pond DP1: Re-Established East Pond

Inflow Area = 132,514 sf, 61.41% Impervious, Inflow Depth = 0.64" for 5-yr event
 Inflow = 11.49 cfs @ 0.16 hrs, Volume= 7,053 cf
 Outflow = 6.40 cfs @ 0.22 hrs, Volume= 7,053 cf, Atten= 44%, Lag= 3.6 min
 Primary = 6.40 cfs @ 0.22 hrs, Volume= 7,053 cf
 Routed to Link Post-Dev : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 397.93' @ 0.22 hrs Storage= 3,558 cf

Plug-Flow detention time= 8.2 min calculated for 7,053 cf (100% of inflow)

Center-of-Mass det. time= 8.1 min (17.0 - 8.9)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	8,557 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	0	0
396.50	250	250
397.00	1,092	1,342
398.00	2,387	3,729
399.00	2,405	6,134
400.00	2,423	8,557

Device	Routing	Invert	Outlet Devices
#1	Primary	399.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	396.00'	1.1' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 10.0' Crest Height

Primary OutFlow Max=6.40 cfs @ 0.22 hrs HW=397.93' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Weir Controls 6.40 cfs @ 4.65 fps)

Summerwood Gym 3

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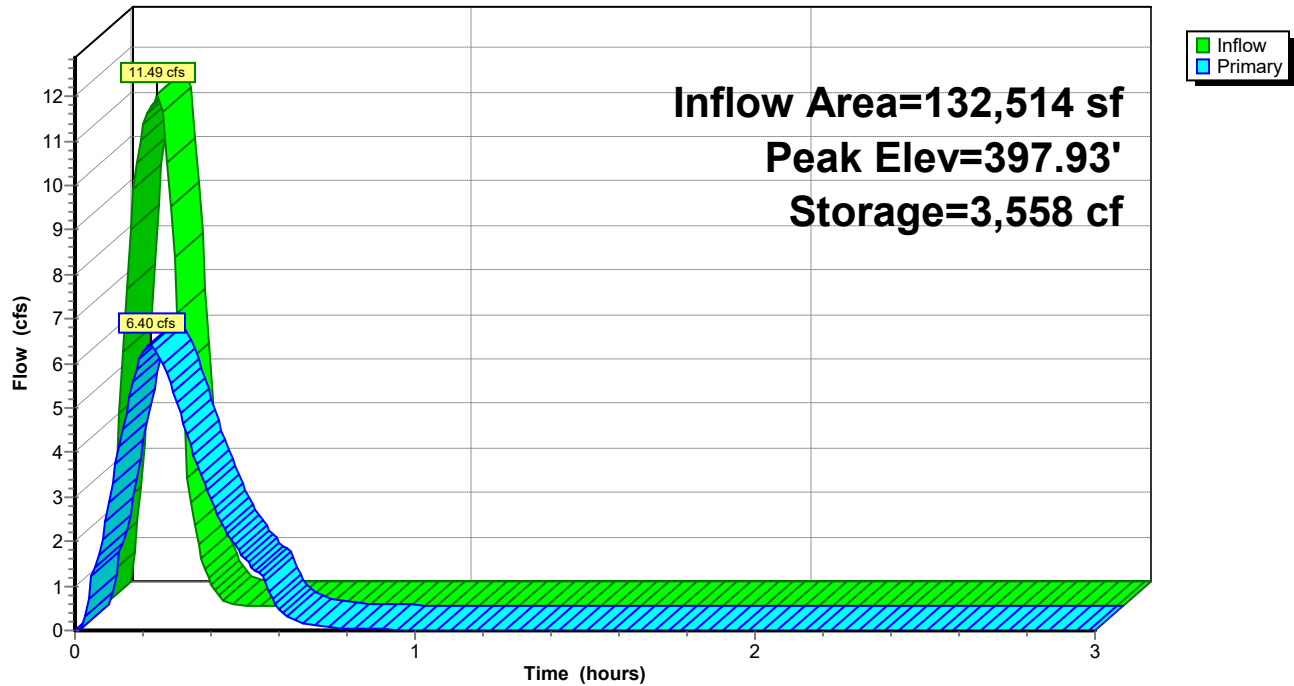
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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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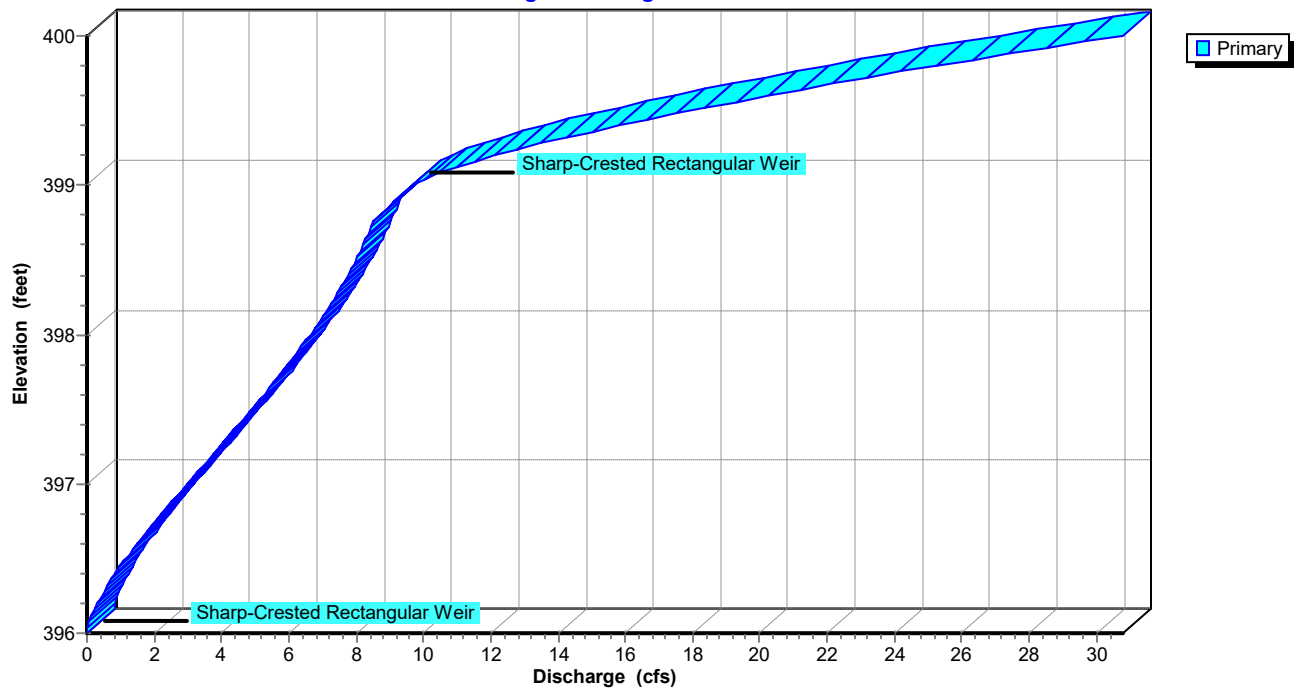
Pond DP1: Re-Established East Pond

Hydrograph



Pond DP1: Re-Established East Pond

Stage-Discharge



Summerwood Gym 3

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

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Stage-Area-Storage for Pond DP1: Re-Established East Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
396.00	0	398.60	5,172
396.05	25	398.65	5,292
396.10	50	398.70	5,412
396.15	75	398.75	5,533
396.20	100	398.80	5,653
396.25	125	398.85	5,773
396.30	150	398.90	5,893
396.35	175	398.95	6,014
396.40	200	399.00	6,134
396.45	225	399.05	6,255
396.50	250	399.10	6,376
396.55	359	399.15	6,497
396.60	468	399.20	6,619
396.65	578	399.25	6,740
396.70	687	399.30	6,861
396.75	796	399.35	6,982
396.80	905	399.40	7,103
396.85	1,014	399.45	7,224
396.90	1,124	399.50	7,346
396.95	1,233	399.55	7,467
397.00	1,342	399.60	7,588
397.05	1,461	399.65	7,709
397.10	1,581	399.70	7,830
397.15	1,700	399.75	7,951
397.20	1,819	399.80	8,072
397.25	1,939	399.85	8,194
397.30	2,058	399.90	8,315
397.35	2,177	399.95	8,436
397.40	2,297	400.00	8,557
397.45	2,416		
397.50	2,536		
397.55	2,655		
397.60	2,774		
397.65	2,894		
397.70	3,013		
397.75	3,132		
397.80	3,252		
397.85	3,371		
397.90	3,490		
397.95	3,610		
398.00	3,729		
398.05	3,849		
398.10	3,970		
398.15	4,090		
398.20	4,210		
398.25	4,330		
398.30	4,451		
398.35	4,571		
398.40	4,691		
398.45	4,811		
398.50	4,932		
398.55	5,052		

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AR - Little Rock 5-yr Duration=10 min, Inten=5.17 in/hr

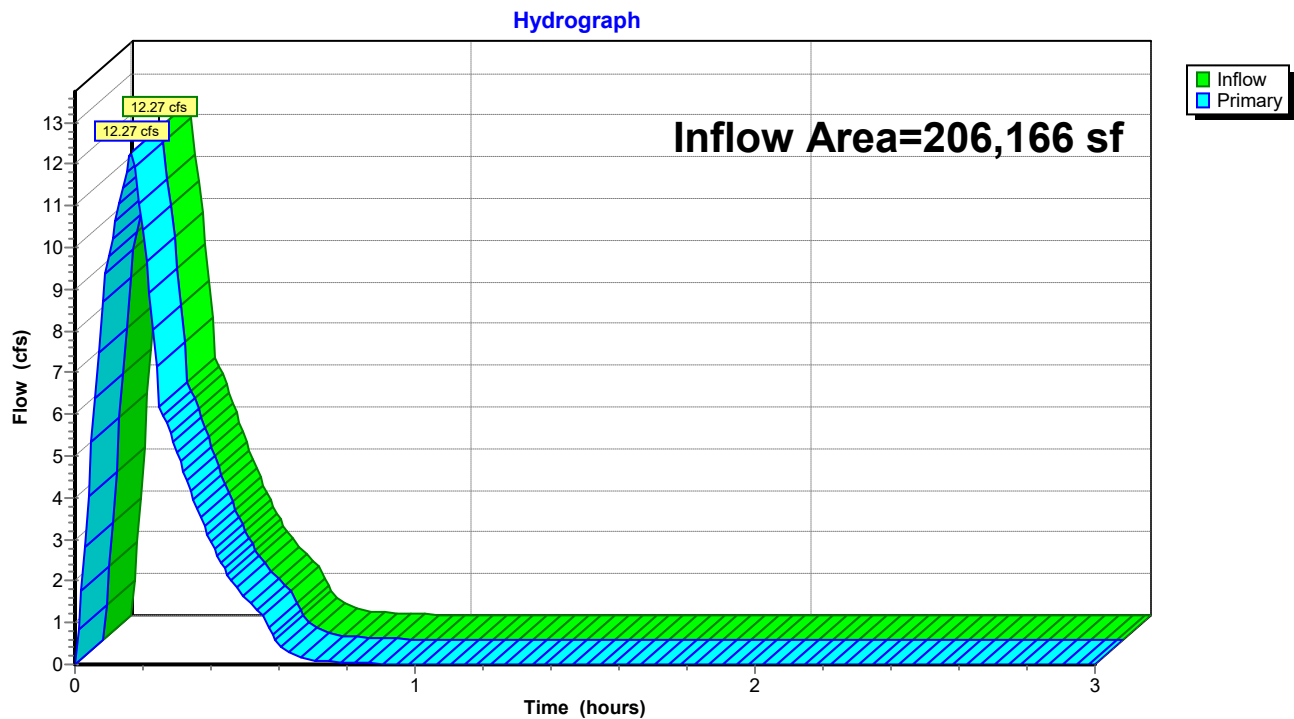
Printed 1/11/2024

Summary for Link Post-Dev: APPROX DISCHARGE

Inflow Area = 206,166 sf, 64.42% Impervious, Inflow Depth = 0.65" for 5-yr event
Inflow = 12.27 cfs @ 0.17 hrs, Volume= 11,197 cf
Primary = 12.27 cfs @ 0.17 hrs, Volume= 11,197 cf, Atten= 0%, Lag= 0.0 min

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

Link Post-Dev: APPROX DISCHARGE



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D1: Drainage Basin D1

Runoff = 5.97 cfs @ 0.09 hrs, Volume= 3,577 cf, Depth= 0.88"

Routed to Link Post-Dev : APPROX DISCHARGE

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

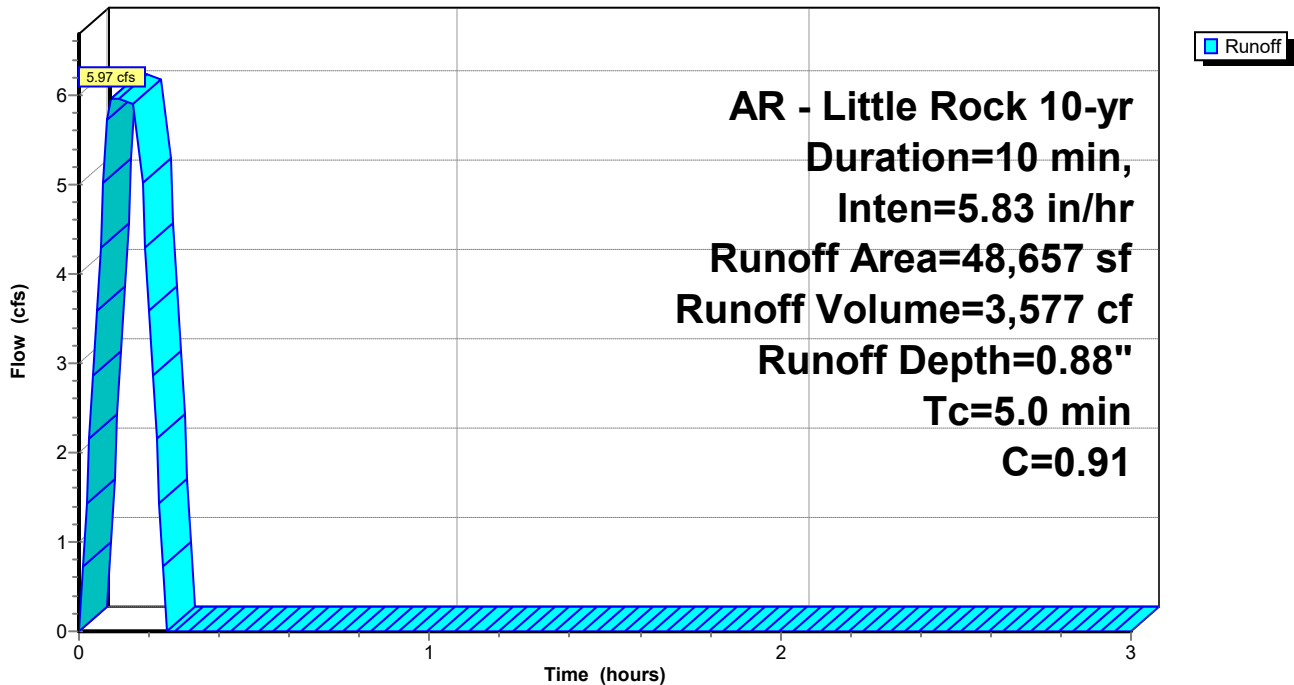
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
3,421	0.40	Sod Yard
45,236	0.95	Rood, Drives, Sidewalks
48,657	0.91	Weighted Average
3,421		7.03% Pervious Area
45,236		92.97% Impervious Area

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

Subcatchment D1: Drainage Basin D1

Hydrograph



Summerwood Gym 3

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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D2: Drainage Basin D2

Runoff = 2.53 cfs @ 0.09 hrs, Volume= 1,519 cf, Depth= 0.75"
Routed to Reach P-A1 : Pipe A1

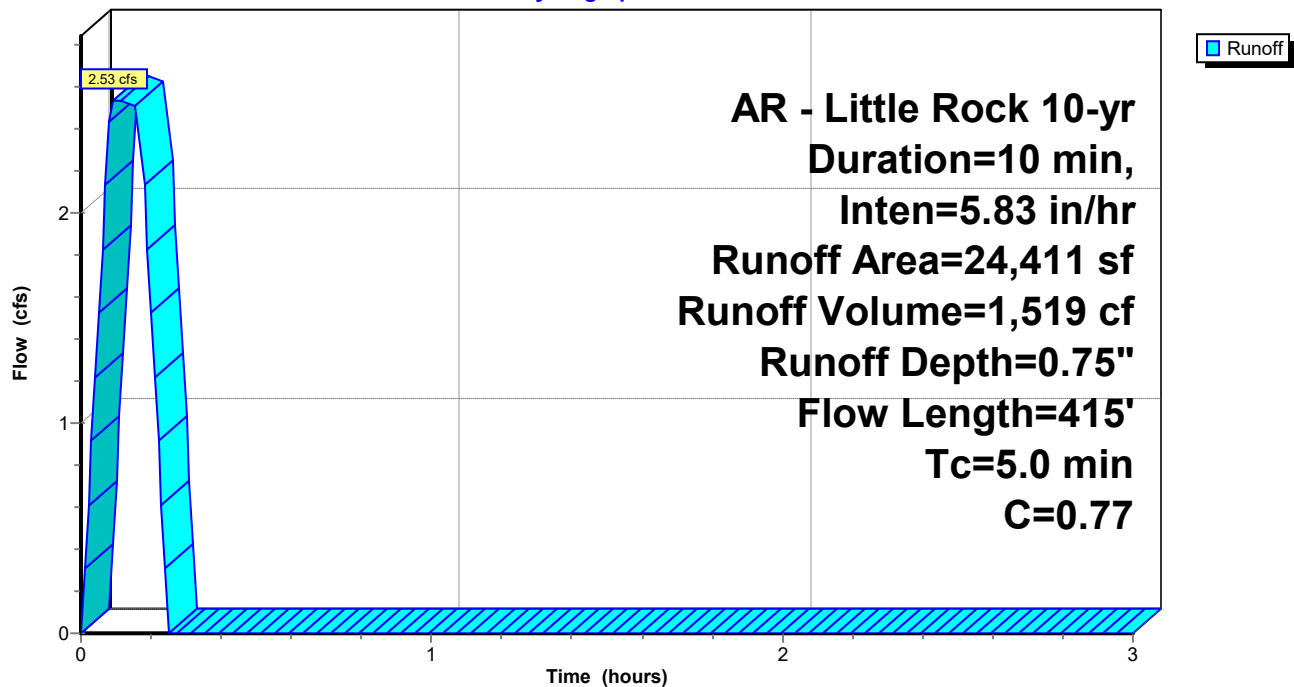
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
8,845	0.45	Rip Rap Embankment
15,566	0.95	Roof, Drives, Sidewalks
24,411	0.77	Weighted Average
8,845		36.23% Pervious Area
15,566		63.77% Impervious 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 D2: Drainage Basin D2

Hydrograph



Summerwood Gym 3

Prepared by Phillip Lewis Engineering

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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D3: Drainage Basin D3

Runoff = 1.88 cfs @ 0.09 hrs, Volume= 1,124 cf, Depth= 0.88"
Routed to Reach P-A2 : Pipe A2

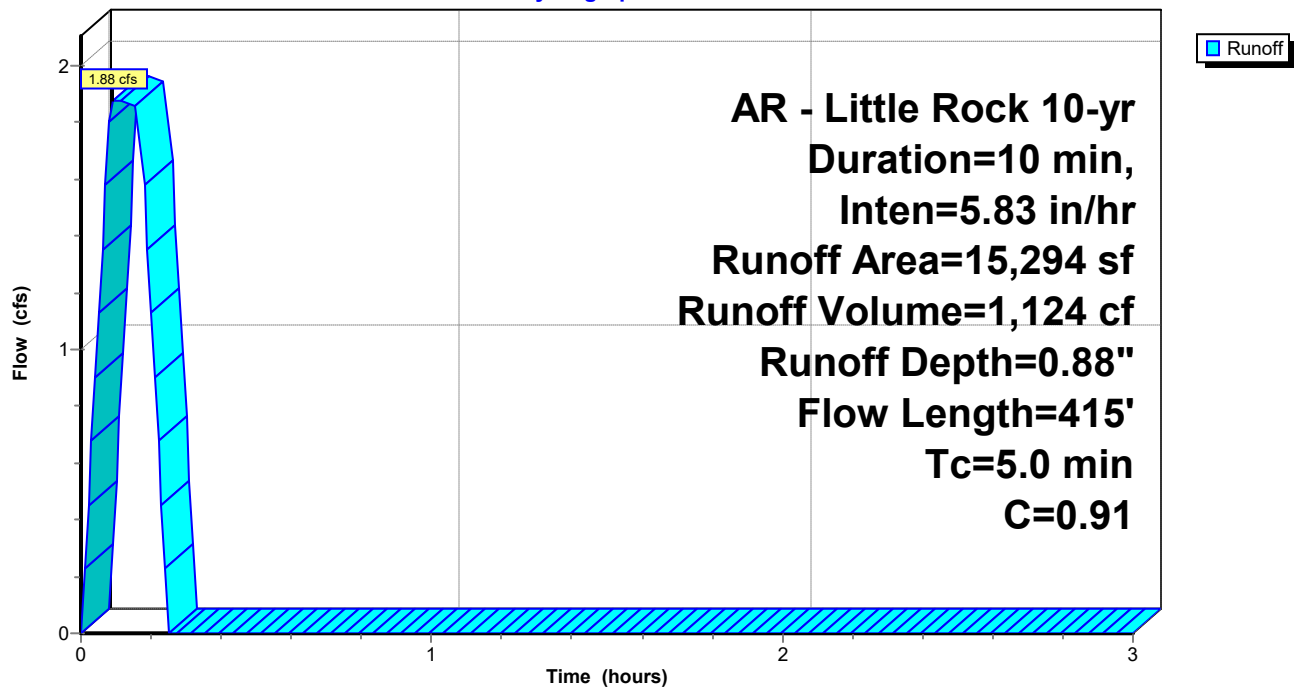
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
1,065	0.40	Sod Yard
14,229	0.95	Paving, Sidewalks
15,294	0.91	Weighted Average
1,065		6.96% Pervious Area
14,229		93.04% Impervious 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 D3: Drainage Basin D3

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D4: Drainage Basin D4

Runoff = 2.59 cfs @ 0.17 hrs, Volume= 1,582 cf, Depth= 0.59"
Routed to Reach P-A3 : Pipe A3

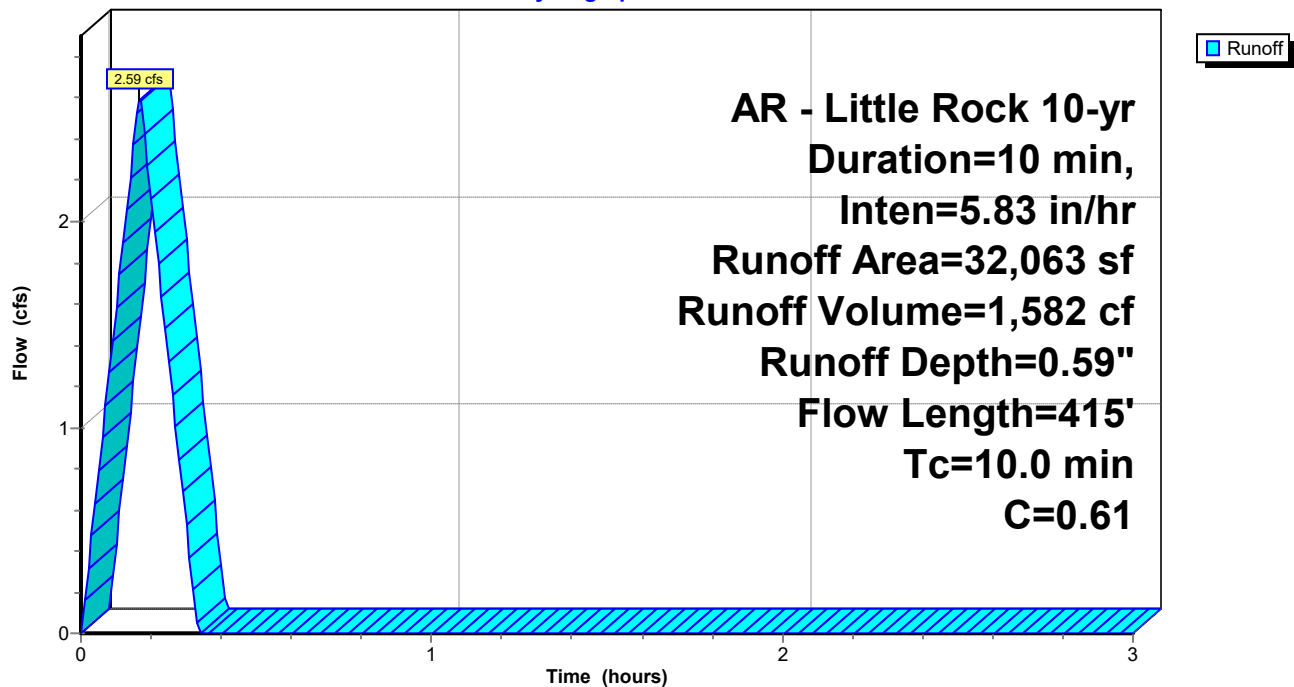
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
20,032	0.40	
12,031	0.95	
32,063	0.61	Weighted Average
20,032		62.48% Pervious Area
12,031		37.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment D4: Drainage Basin D4

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D5: Drainage Basin D5

Runoff = 3.76 cfs @ 0.09 hrs, Volume= 2,254 cf, Depth= 0.65"
Routed to Pond DP1 : Re-Established East Pond

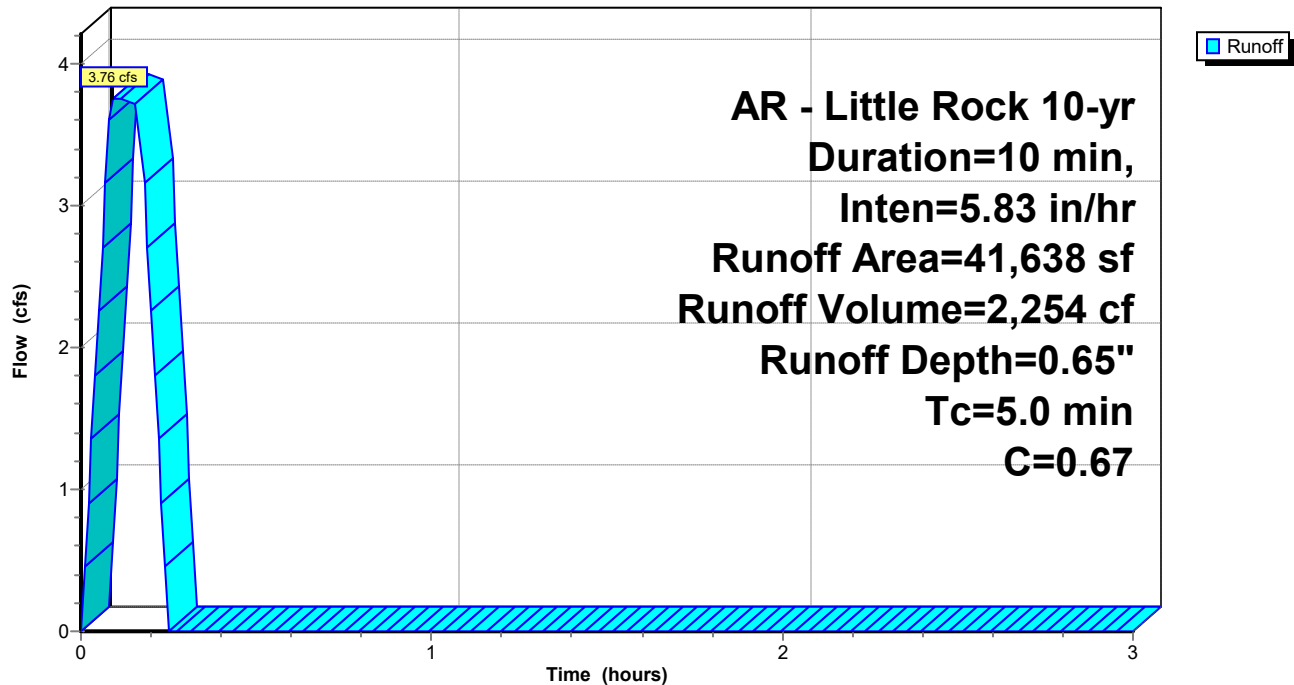
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
21,201	0.40	Sod Yard, Natural Vegetation
20,437	0.95	Paving, Sidewalks
41,638	0.67	Weighted Average
21,201		50.92% Pervious Area
20,437		49.08% Impervious Area

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

Subcatchment D5: Drainage Basin D5

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D6: Drainage Basin D6

Runoff = 2.45 cfs @ 0.09 hrs, Volume= 1,466 cf, Depth= 0.92"
Routed to Pond DP1 : Re-Established East Pond

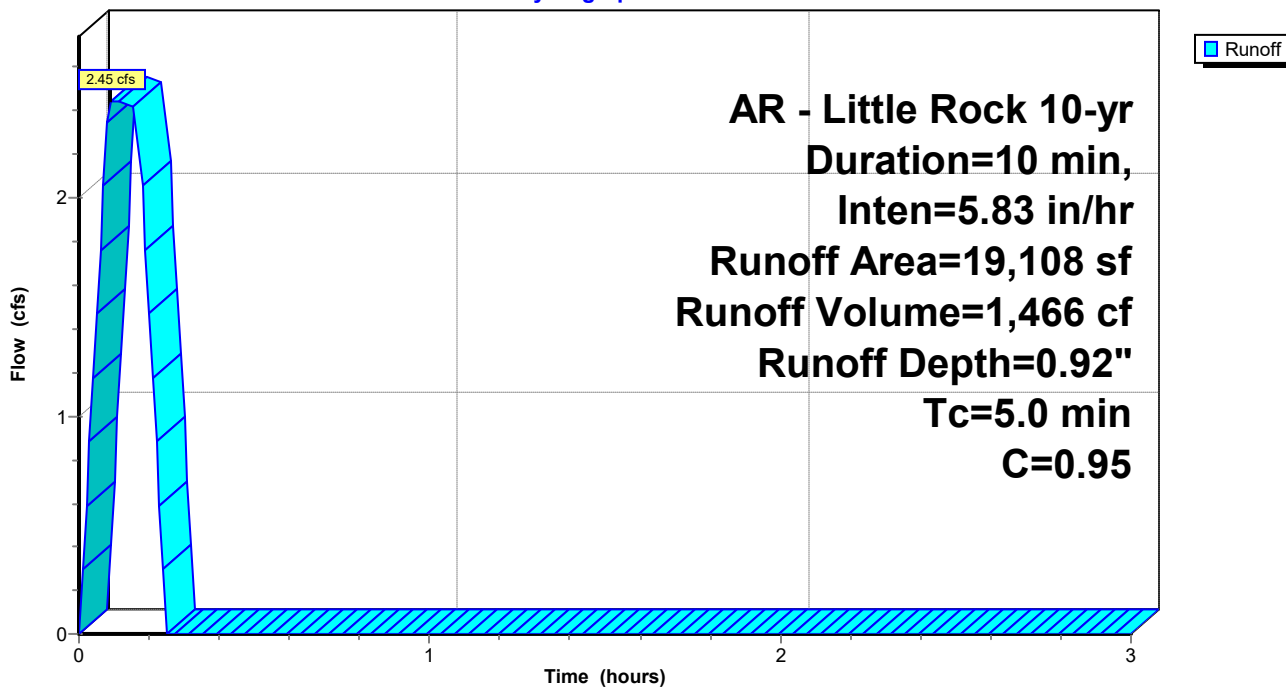
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
19,108	0.95	Roof
19,108		100.00% Impervious Area

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

Subcatchment D6: Drainage Basin D6

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Subcatchment D7: Drainage Basin D7

Runoff = 1.82 cfs @ 0.09 hrs, Volume= 1,090 cf, Depth= 0.52"
Routed to Link Post-Dev : APPROX DISCHARGE

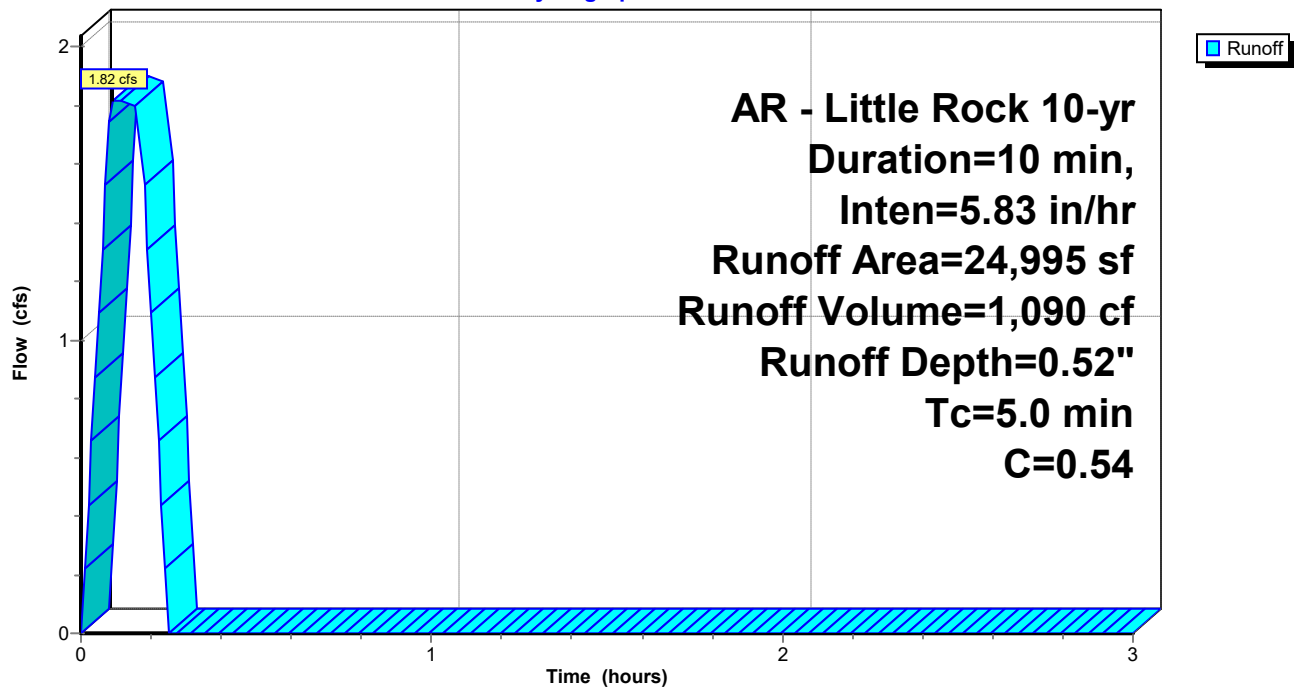
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

Area (sf)	C	Description
18,798	0.40	Sod Yard, Natural Vegetation
6,197	0.95	Paving, Sidewalks
24,995	0.54	Weighted Average
18,798		75.21% Pervious Area
6,197		24.79% Impervious Area

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

Subcatchment D7: Drainage Basin D7

Hydrograph



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Reach P-A1: Pipe A1

Inflow Area = 24,411 sf, 63.77% Impervious, Inflow Depth = 0.75" for 10-yr event
Inflow = 2.53 cfs @ 0.09 hrs, Volume= 1,519 cf
Outflow = 2.54 cfs @ 0.11 hrs, Volume= 1,519 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach P-A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.99 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 5.09 fps, Avg. Travel Time= 0.2 min

Peak Storage= 19 cf @ 0.09 hrs

Average Depth at Peak Storage= 0.39' , Surface Width= 1.31'

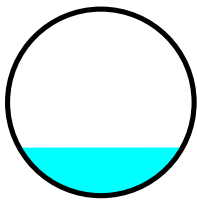
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.28 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

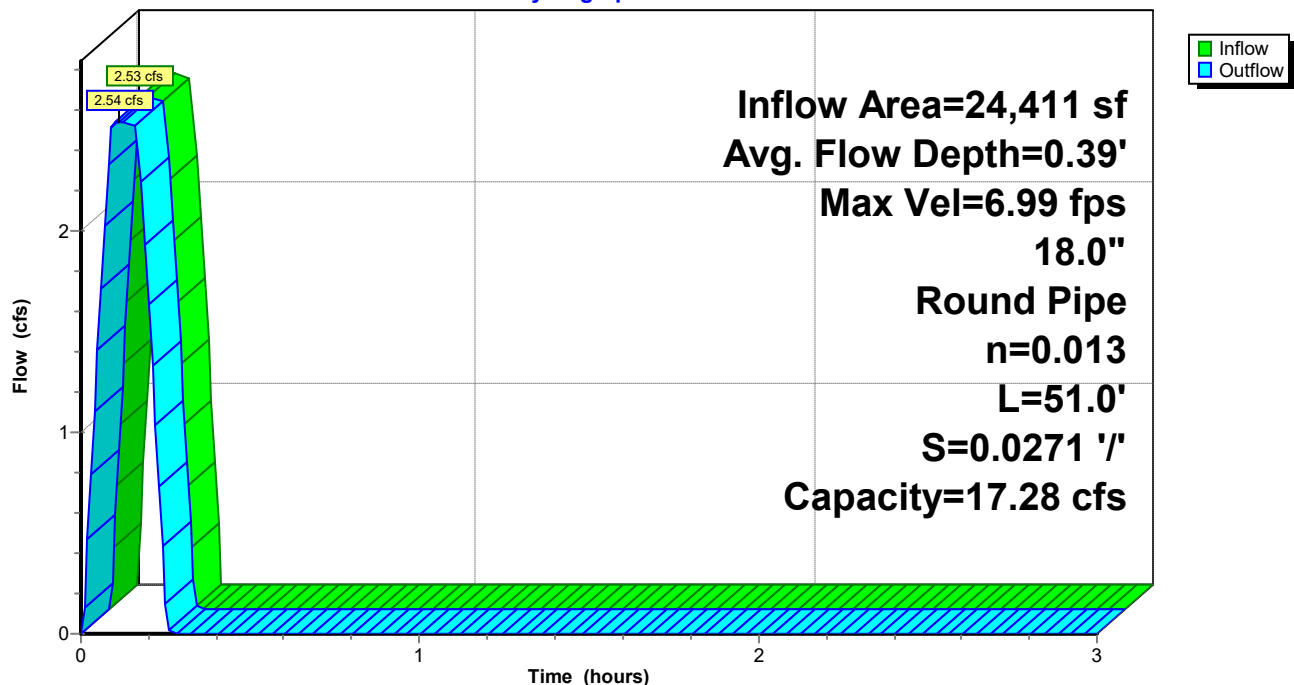
Length= 51.0' Slope= 0.0271 '/

Inlet Invert= 408.33', Outlet Invert= 406.95'



Reach P-A1: Pipe A1

Hydrograph



Summerwood Gym 3

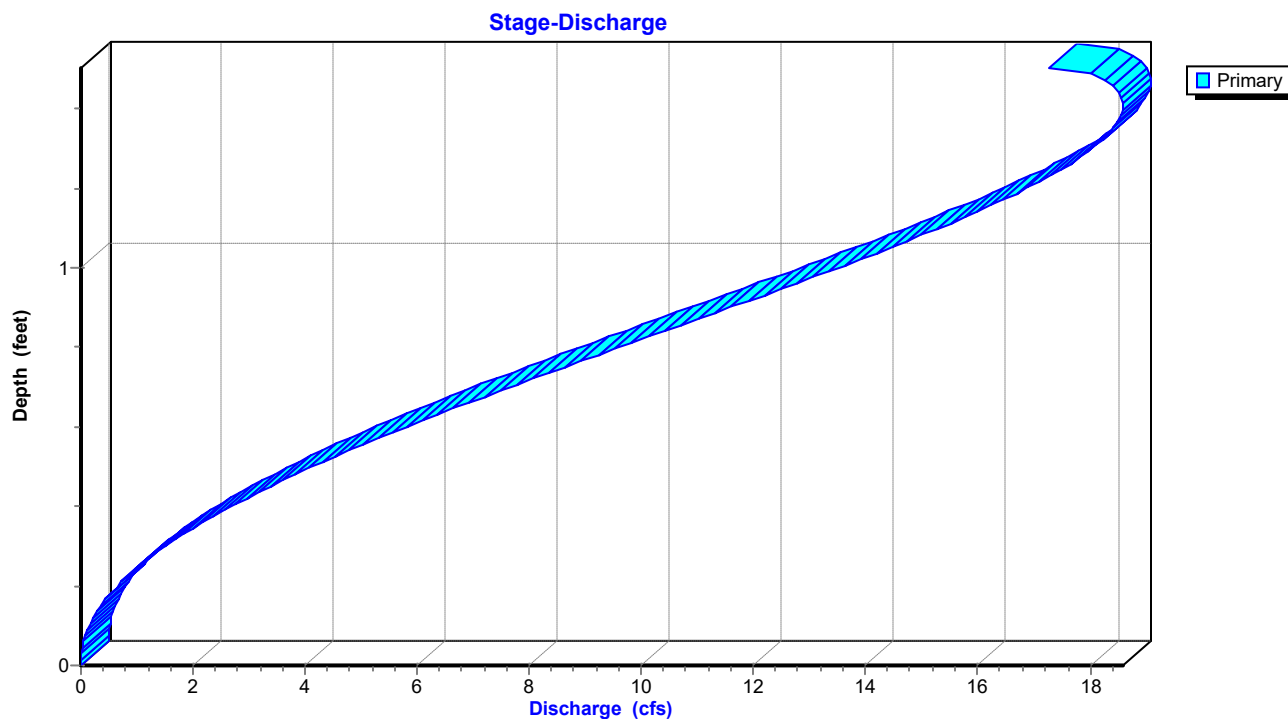
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Reach P-A1: Pipe A1



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Stage-Area-Storage for Reach P-A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
408.33	0.0	0	409.37	1.3	67
408.35	0.0	0	409.39	1.3	68
408.37	0.0	1	409.41	1.4	69
408.39	0.0	1	409.43	1.4	71
408.41	0.0	2	409.45	1.4	72
408.43	0.1	3	409.47	1.4	73
408.45	0.1	3	409.49	1.5	75
408.47	0.1	4	409.51	1.5	76
408.49	0.1	5	409.53	1.5	77
408.51	0.1	6	409.55	1.5	78
408.53	0.1	7	409.57	1.6	80
408.55	0.2	8	409.59	1.6	81
408.57	0.2	9	409.61	1.6	82
408.59	0.2	10	409.63	1.6	83
408.61	0.2	12	409.65	1.6	84
408.63	0.3	13	409.67	1.7	85
408.65	0.3	14	409.69	1.7	86
408.67	0.3	15	409.71	1.7	87
408.69	0.3	17	409.73	1.7	88
408.71	0.4	18	409.75	1.7	88
408.73	0.4	19	409.77	1.7	89
408.75	0.4	21	409.79	1.8	89
408.77	0.4	22	409.81	1.8	90
408.79	0.5	23	409.83	1.8	90
408.81	0.5	25			
408.83	0.5	26			
408.85	0.5	28			
408.87	0.6	29			
408.89	0.6	31			
408.91	0.6	32			
408.93	0.7	34			
408.95	0.7	35			
408.97	0.7	37			
408.99	0.7	38			
409.01	0.8	40			
409.03	0.8	41			
409.05	0.8	43			
409.07	0.9	44			
409.09	0.9	46			
409.11	0.9	47			
409.13	1.0	49			
409.15	1.0	50			
409.17	1.0	52			
409.19	1.0	53			
409.21	1.1	55			
409.23	1.1	56			
409.25	1.1	58			
409.27	1.2	59			
409.29	1.2	61			
409.31	1.2	62			
409.33	1.3	64			
409.35	1.3	65			

Summerwood Gym 3

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Summary for Reach P-A2: Pipe A2

Inflow Area = 39,705 sf, 75.04% Impervious, Inflow Depth = 0.80" for 10-yr event
Inflow = 4.41 cfs @ 0.11 hrs, Volume= 2,643 cf
Outflow = 4.41 cfs @ 0.15 hrs, Volume= 2,643 cf, Atten= 0%, Lag= 2.4 min
Routed to Reach P-A3 : Pipe A3

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.25 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 2.50 fps, Avg. Travel Time= 1.2 min

Peak Storage= 125 cf @ 0.14 hrs

Average Depth at Peak Storage= 0.63' , Surface Width= 1.48'

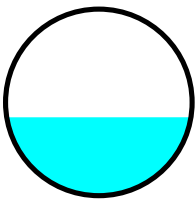
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.95 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

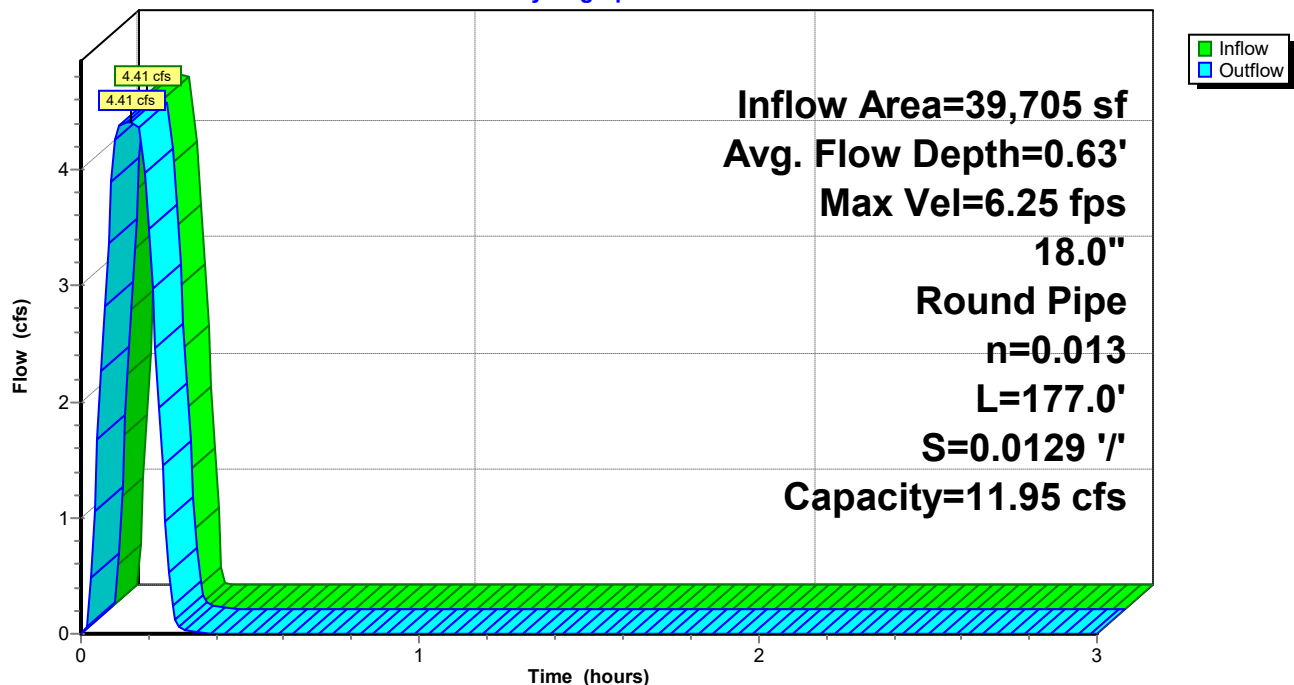
Length= 177.0' Slope= 0.0129 '/'

Inlet Invert= 406.85', Outlet Invert= 404.56'



Reach P-A2: Pipe A2

Hydrograph



Summerwood Gym 3

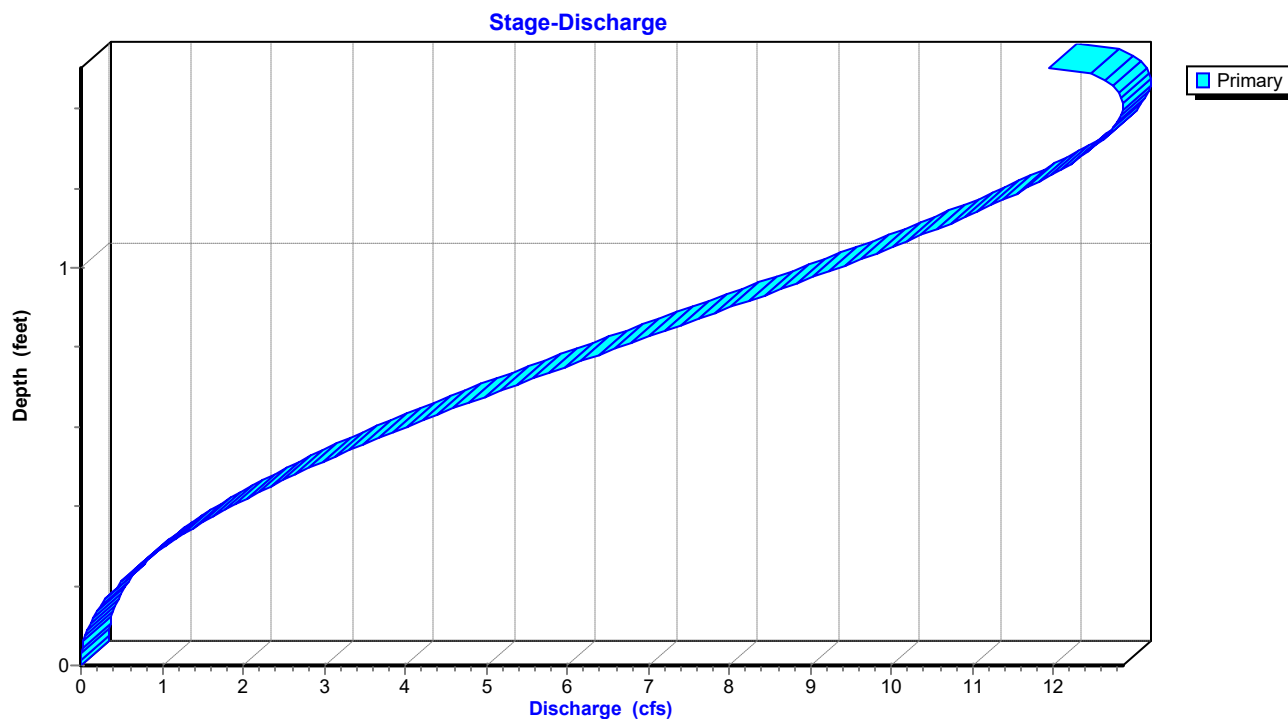
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Reach P-A2: Pipe A2



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Stage-Area-Storage for Reach P-A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
406.85	0.0	0	407.89	1.3	231
406.87	0.0	1	407.91	1.3	236
406.89	0.0	2	407.93	1.4	241
406.91	0.0	4	407.95	1.4	246
406.93	0.0	6	407.97	1.4	250
406.95	0.1	9	407.99	1.4	255
406.97	0.1	12	408.01	1.5	260
406.99	0.1	15	408.03	1.5	264
407.01	0.1	18	408.05	1.5	268
407.03	0.1	21	408.07	1.5	272
407.05	0.1	25	408.09	1.6	277
407.07	0.2	28	408.11	1.6	280
407.09	0.2	32	408.13	1.6	284
407.11	0.2	36	408.15	1.6	288
407.13	0.2	40	408.17	1.6	292
407.15	0.3	45	408.19	1.7	295
407.17	0.3	49	408.21	1.7	298
407.19	0.3	53	408.23	1.7	301
407.21	0.3	58	408.25	1.7	304
407.23	0.4	62	408.27	1.7	306
407.25	0.4	67	408.29	1.7	309
407.27	0.4	72	408.31	1.8	310
407.29	0.4	76	408.33	1.8	312
407.31	0.5	81	408.35	1.8	313
407.33	0.5	86			
407.35	0.5	91			
407.37	0.5	96			
407.39	0.6	101			
407.41	0.6	106			
407.43	0.6	112			
407.45	0.7	117			
407.47	0.7	122			
407.49	0.7	127			
407.51	0.7	133			
407.53	0.8	138			
407.55	0.8	143			
407.57	0.8	148			
407.59	0.9	154			
407.61	0.9	159			
407.63	0.9	164			
407.65	1.0	170			
407.67	1.0	175			
407.69	1.0	180			
407.71	1.0	185			
407.73	1.1	191			
407.75	1.1	196			
407.77	1.1	201			
407.79	1.2	206			
407.81	1.2	211			
407.83	1.2	216			
407.85	1.3	222			
407.87	1.3	226			

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Summary for Reach P-A3: Pipe A3

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.71" for 10-yr event
Inflow = 7.00 cfs @ 0.17 hrs, Volume= 4,225 cf
Outflow = 6.96 cfs @ 0.17 hrs, Volume= 4,225 cf, Atten= 1%, Lag= 0.3 min
Routed to Reach P-A4 : Pipe A4

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.40 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.90 fps, Avg. Travel Time= 0.5 min

Peak Storage= 88 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.66' , Surface Width= 1.49'

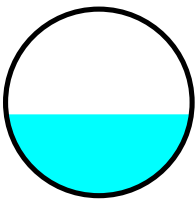
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.65 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

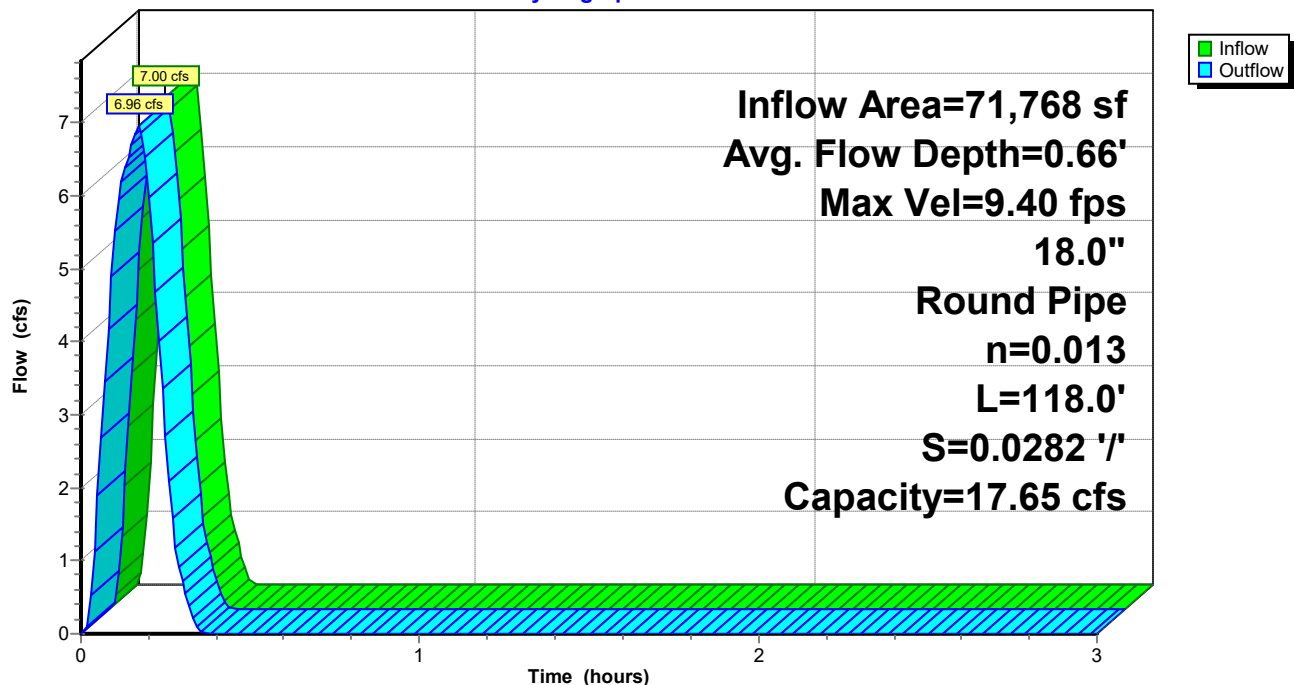
Length= 118.0' Slope= 0.0282 '/'

Inlet Invert= 404.46', Outlet Invert= 401.13'



Reach P-A3: Pipe A3

Hydrograph



Summerwood Gym 3

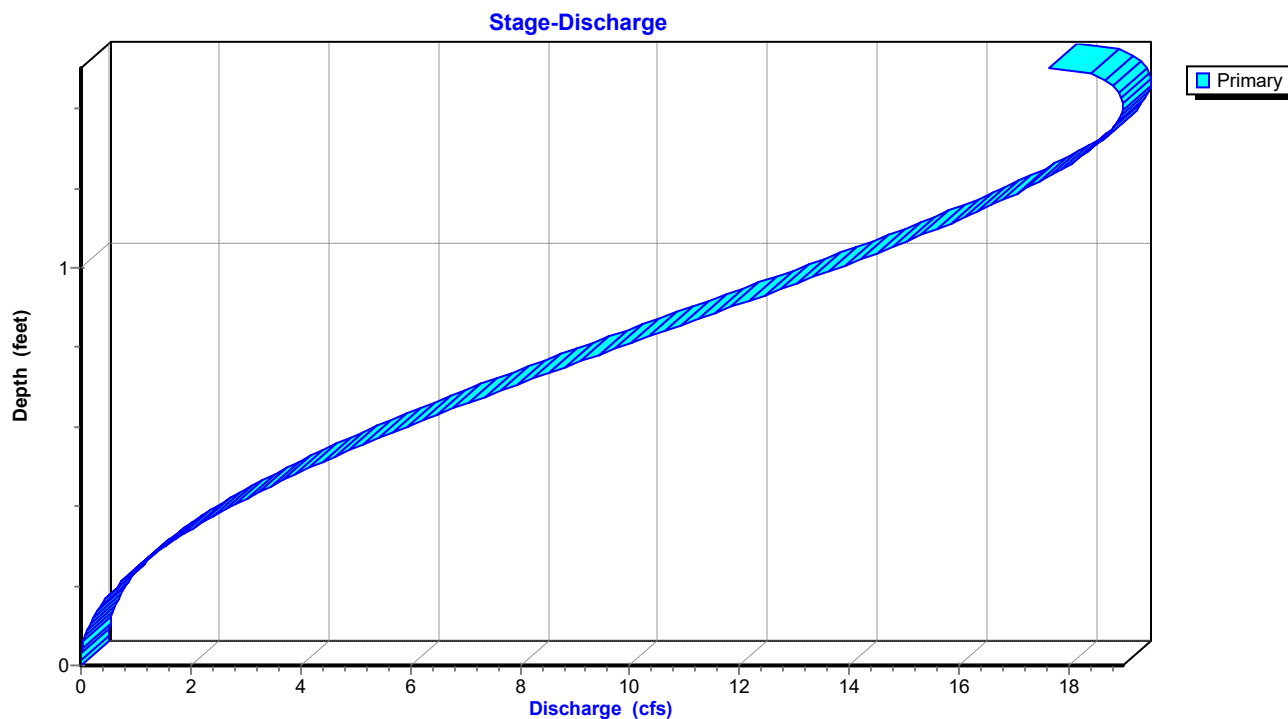
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Reach P-A3: Pipe A3



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Stage-Area-Storage for Reach P-A3: Pipe A3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
404.46	0.0	0	405.50	1.3	154
404.48	0.0	1	405.52	1.3	158
404.50	0.0	2	405.54	1.4	161
404.52	0.0	3	405.56	1.4	164
404.54	0.0	4	405.58	1.4	167
404.56	0.1	6	405.60	1.4	170
404.58	0.1	8	405.62	1.5	173
404.60	0.1	10	405.64	1.5	176
404.62	0.1	12	405.66	1.5	179
404.64	0.1	14	405.68	1.5	182
404.66	0.1	17	405.70	1.6	184
404.68	0.2	19	405.72	1.6	187
404.70	0.2	22	405.74	1.6	190
404.72	0.2	24	405.76	1.6	192
404.74	0.2	27	405.78	1.6	194
404.76	0.3	30	405.80	1.7	197
404.78	0.3	33	405.82	1.7	199
404.80	0.3	35	405.84	1.7	201
404.82	0.3	38	405.86	1.7	203
404.84	0.4	42	405.88	1.7	204
404.86	0.4	45	405.90	1.7	206
404.88	0.4	48	405.92	1.8	207
404.90	0.4	51	405.94	1.8	208
404.92	0.5	54	405.96	1.8	209
404.94	0.5	58			
404.96	0.5	61			
404.98	0.5	64			
405.00	0.6	68			
405.02	0.6	71			
405.04	0.6	74			
405.06	0.7	78			
405.08	0.7	81			
405.10	0.7	85			
405.12	0.7	88			
405.14	0.8	92			
405.16	0.8	95			
405.18	0.8	99			
405.20	0.9	102			
405.22	0.9	106			
405.24	0.9	110			
405.26	1.0	113			
405.28	1.0	117			
405.30	1.0	120			
405.32	1.0	124			
405.34	1.1	127			
405.36	1.1	131			
405.38	1.1	134			
405.40	1.2	138			
405.42	1.2	141			
405.44	1.2	144			
405.46	1.3	148			
405.48	1.3	151			

Summerwood Gym 3

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Summary for Reach P-A4: Pipe A4

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.71" for 10-yr event
Inflow = 6.96 cfs @ 0.17 hrs, Volume= 4,225 cf
Outflow = 6.93 cfs @ 0.18 hrs, Volume= 4,225 cf, Atten= 0%, Lag= 0.4 min
Routed to Pond DP1 : Re-Established East Pond

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.39 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.71 fps, Avg. Travel Time= 0.6 min

Peak Storage= 98 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.65' , Surface Width= 1.49'

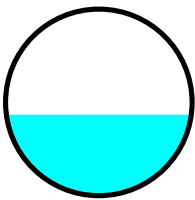
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.66 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

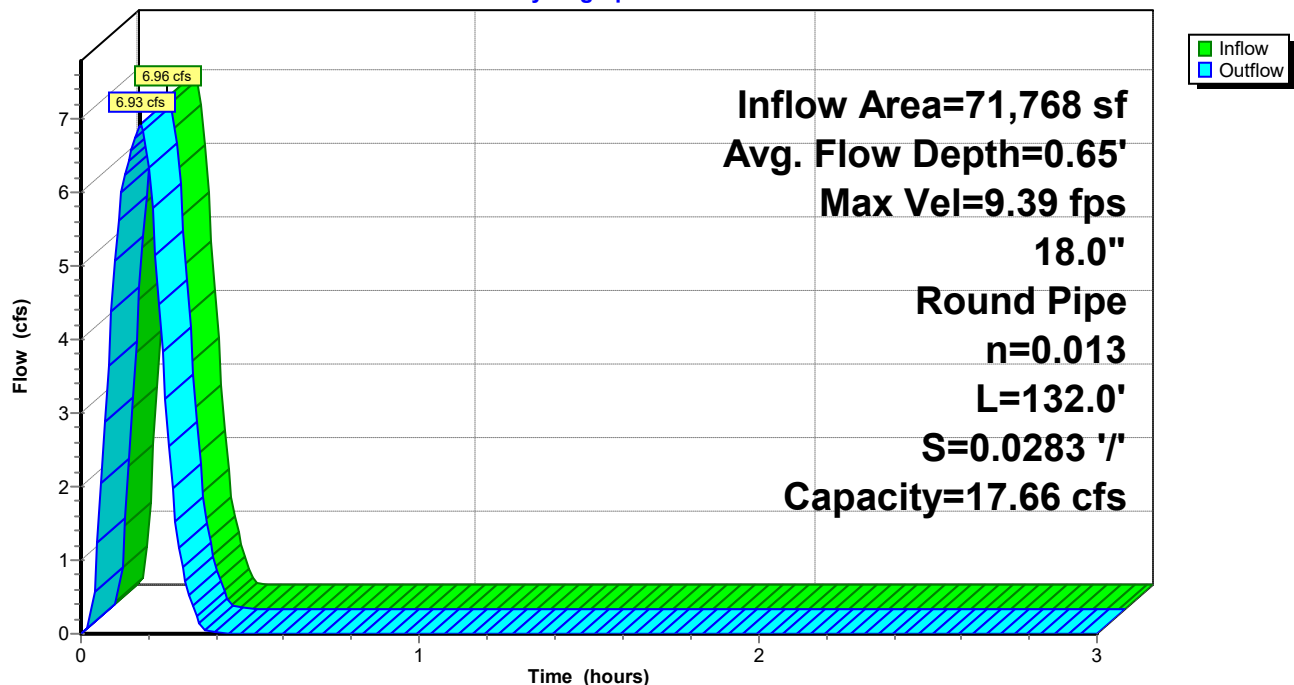
Length= 132.0' Slope= 0.0283 '/'

Inlet Invert= 401.03', Outlet Invert= 397.30'



Reach P-A4: Pipe A4

Hydrograph



Summerwood Gym 3

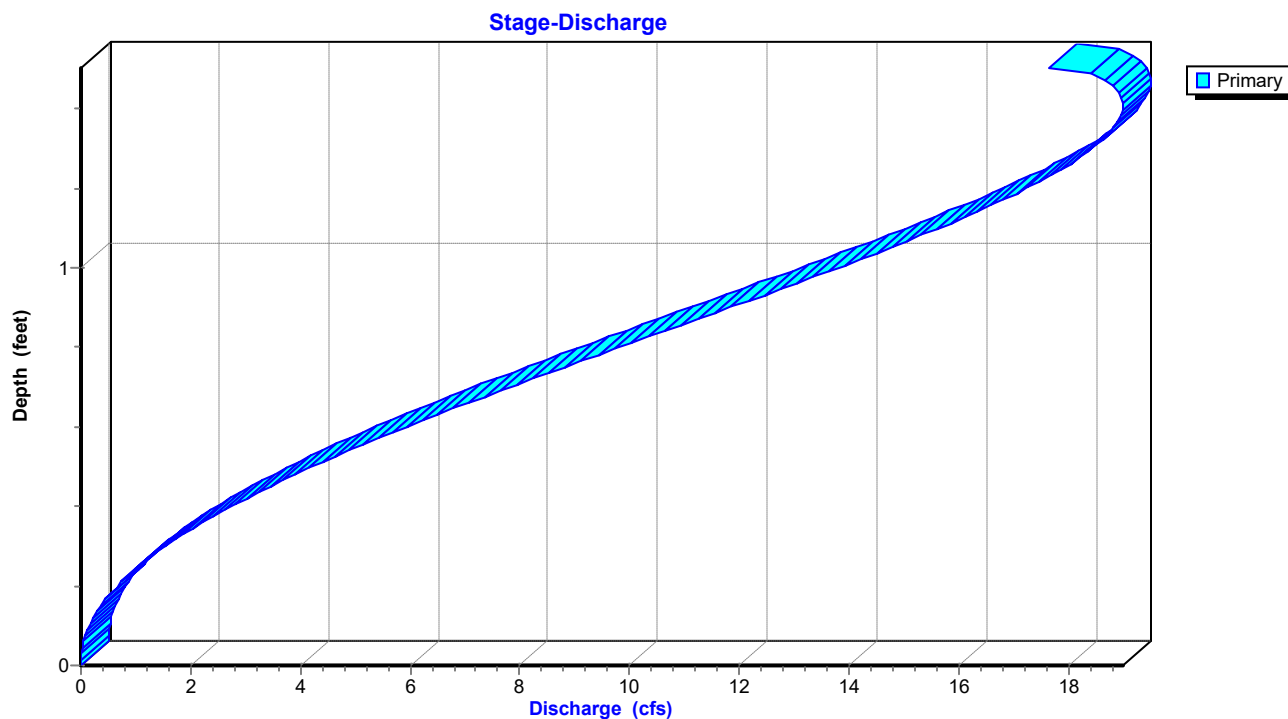
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Reach P-A4: Pipe A4



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Stage-Area-Storage for Reach P-A4: Pipe A4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
401.03	0.0	0	402.07	1.3	173
401.05	0.0	1	402.09	1.3	176
401.07	0.0	2	402.11	1.4	180
401.09	0.0	3	402.13	1.4	183
401.11	0.0	5	402.15	1.4	187
401.13	0.1	7	402.17	1.4	190
401.15	0.1	9	402.19	1.5	194
401.17	0.1	11	402.21	1.5	197
401.19	0.1	13	402.23	1.5	200
401.21	0.1	16	402.25	1.5	203
401.23	0.1	18	402.27	1.6	206
401.25	0.2	21	402.29	1.6	209
401.27	0.2	24	402.31	1.6	212
401.29	0.2	27	402.33	1.6	215
401.31	0.2	30	402.35	1.6	217
401.33	0.3	33	402.37	1.7	220
401.35	0.3	36	402.39	1.7	222
401.37	0.3	40	402.41	1.7	225
401.39	0.3	43	402.43	1.7	227
401.41	0.4	46	402.45	1.7	228
401.43	0.4	50	402.47	1.7	230
401.45	0.4	53	402.49	1.8	232
401.47	0.4	57	402.51	1.8	233
401.49	0.5	61	402.53	1.8	233
401.51	0.5	64			
401.53	0.5	68			
401.55	0.5	72			
401.57	0.6	76			
401.59	0.6	79			
401.61	0.6	83			
401.63	0.7	87			
401.65	0.7	91			
401.67	0.7	95			
401.69	0.7	99			
401.71	0.8	103			
401.73	0.8	107			
401.75	0.8	111			
401.77	0.9	115			
401.79	0.9	119			
401.81	0.9	123			
401.83	1.0	127			
401.85	1.0	130			
401.87	1.0	134			
401.89	1.0	138			
401.91	1.1	142			
401.93	1.1	146			
401.95	1.1	150			
401.97	1.2	154			
401.99	1.2	158			
402.01	1.2	161			
402.03	1.3	165			
402.05	1.3	169			

Summerwood Gym 3

AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Summary for Pond DP1: Re-Established East Pond

Inflow Area = 132,514 sf, 61.41% Impervious, Inflow Depth = 0.72" for 10-yr event
 Inflow = 12.95 cfs @ 0.16 hrs, Volume= 7,945 cf
 Outflow = 7.07 cfs @ 0.22 hrs, Volume= 7,945 cf, Atten= 45%, Lag= 3.7 min
 Primary = 7.07 cfs @ 0.22 hrs, Volume= 7,945 cf
 Routed to Link Post-Dev : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 398.14' @ 0.22 hrs Storage= 4,074 cf

Plug-Flow detention time= 8.2 min calculated for 7,919 cf (100% of inflow)

Center-of-Mass det. time= 8.3 min (17.2 - 8.9)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	8,557 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	0	0
396.50	250	250
397.00	1,092	1,342
398.00	2,387	3,729
399.00	2,405	6,134
400.00	2,423	8,557

Device	Routing	Invert	Outlet Devices
#1	Primary	399.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	396.00'	1.1' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 10.0' Crest Height

Primary OutFlow Max=7.06 cfs @ 0.22 hrs HW=398.14' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Weir Controls 7.06 cfs @ 4.91 fps)

Summerwood Gym 3

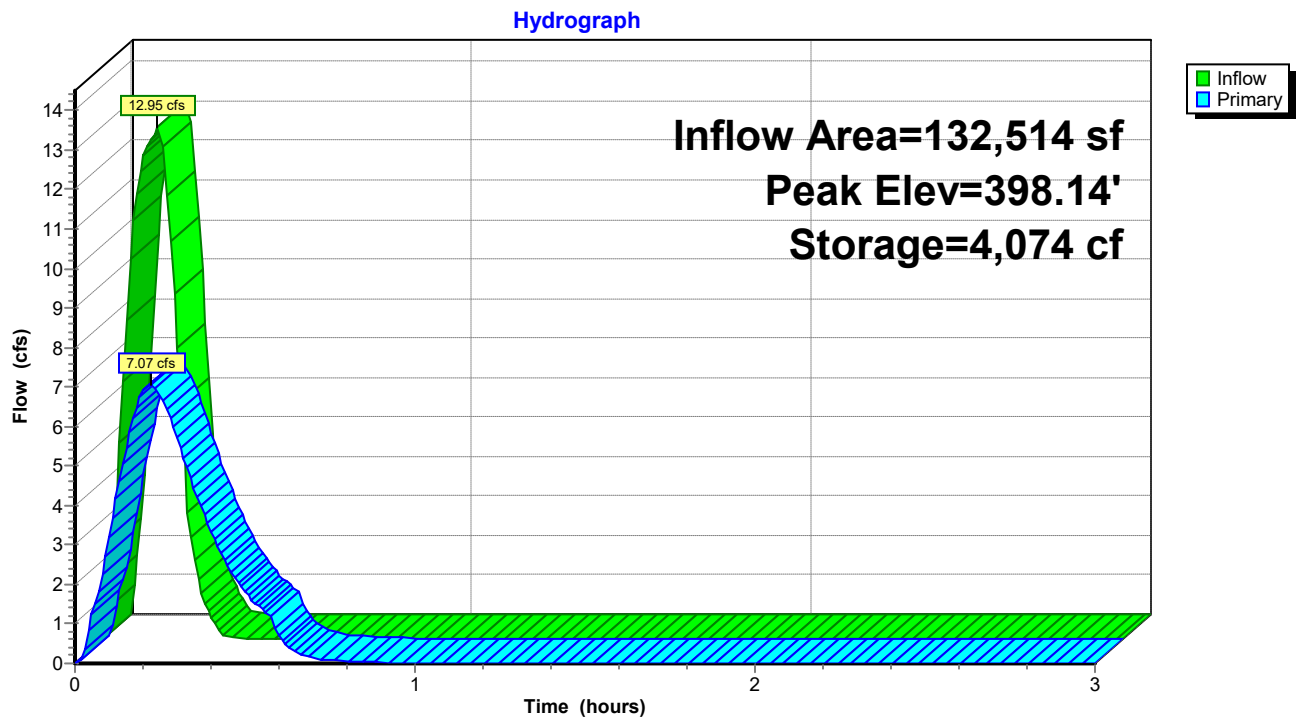
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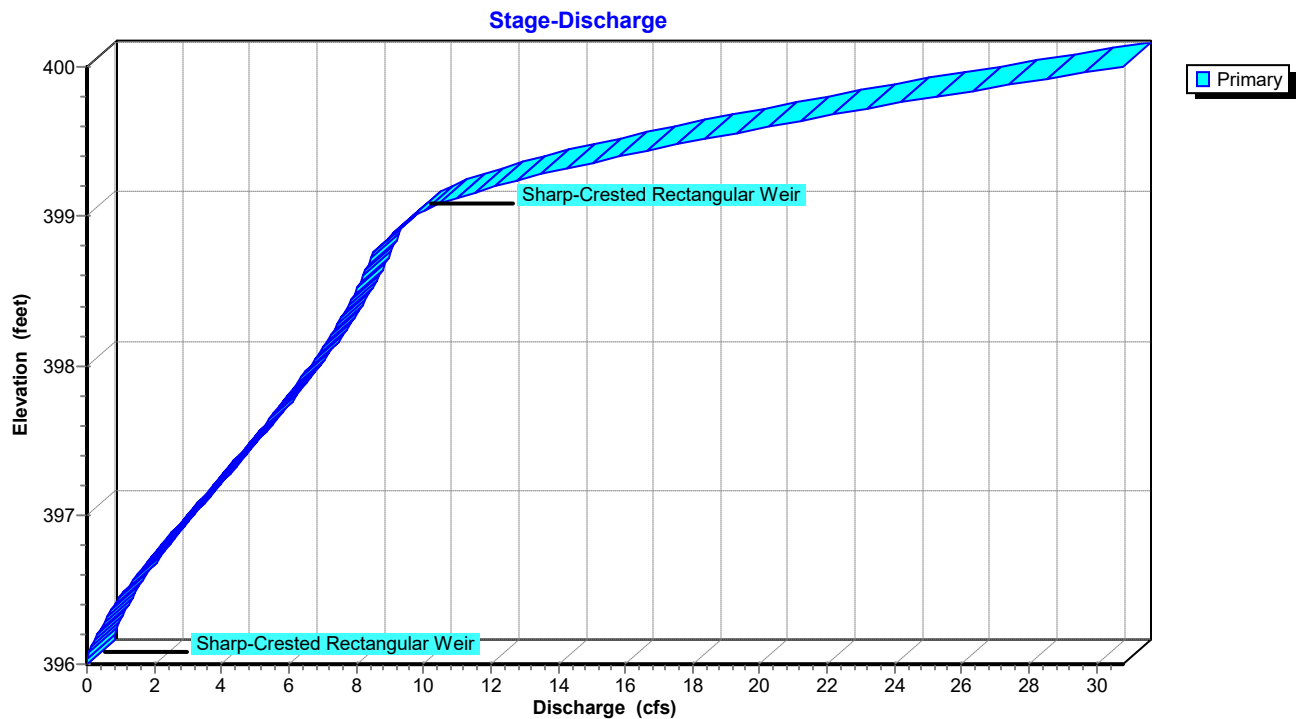
AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Pond DP1: Re-Established East Pond



Pond DP1: Re-Established East Pond



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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

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Stage-Area-Storage for Pond DP1: Re-Established East Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
396.00	0	398.60	5,172
396.05	25	398.65	5,292
396.10	50	398.70	5,412
396.15	75	398.75	5,533
396.20	100	398.80	5,653
396.25	125	398.85	5,773
396.30	150	398.90	5,893
396.35	175	398.95	6,014
396.40	200	399.00	6,134
396.45	225	399.05	6,255
396.50	250	399.10	6,376
396.55	359	399.15	6,497
396.60	468	399.20	6,619
396.65	578	399.25	6,740
396.70	687	399.30	6,861
396.75	796	399.35	6,982
396.80	905	399.40	7,103
396.85	1,014	399.45	7,224
396.90	1,124	399.50	7,346
396.95	1,233	399.55	7,467
397.00	1,342	399.60	7,588
397.05	1,461	399.65	7,709
397.10	1,581	399.70	7,830
397.15	1,700	399.75	7,951
397.20	1,819	399.80	8,072
397.25	1,939	399.85	8,194
397.30	2,058	399.90	8,315
397.35	2,177	399.95	8,436
397.40	2,297	400.00	8,557
397.45	2,416		
397.50	2,536		
397.55	2,655		
397.60	2,774		
397.65	2,894		
397.70	3,013		
397.75	3,132		
397.80	3,252		
397.85	3,371		
397.90	3,490		
397.95	3,610		
398.00	3,729		
398.05	3,849		
398.10	3,970		
398.15	4,090		
398.20	4,210		
398.25	4,330		
398.30	4,451		
398.35	4,571		
398.40	4,691		
398.45	4,811		
398.50	4,932		
398.55	5,052		

Summerwood Gym 3

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AR - Little Rock 10-yr Duration=10 min, Inten=5.83 in/hr

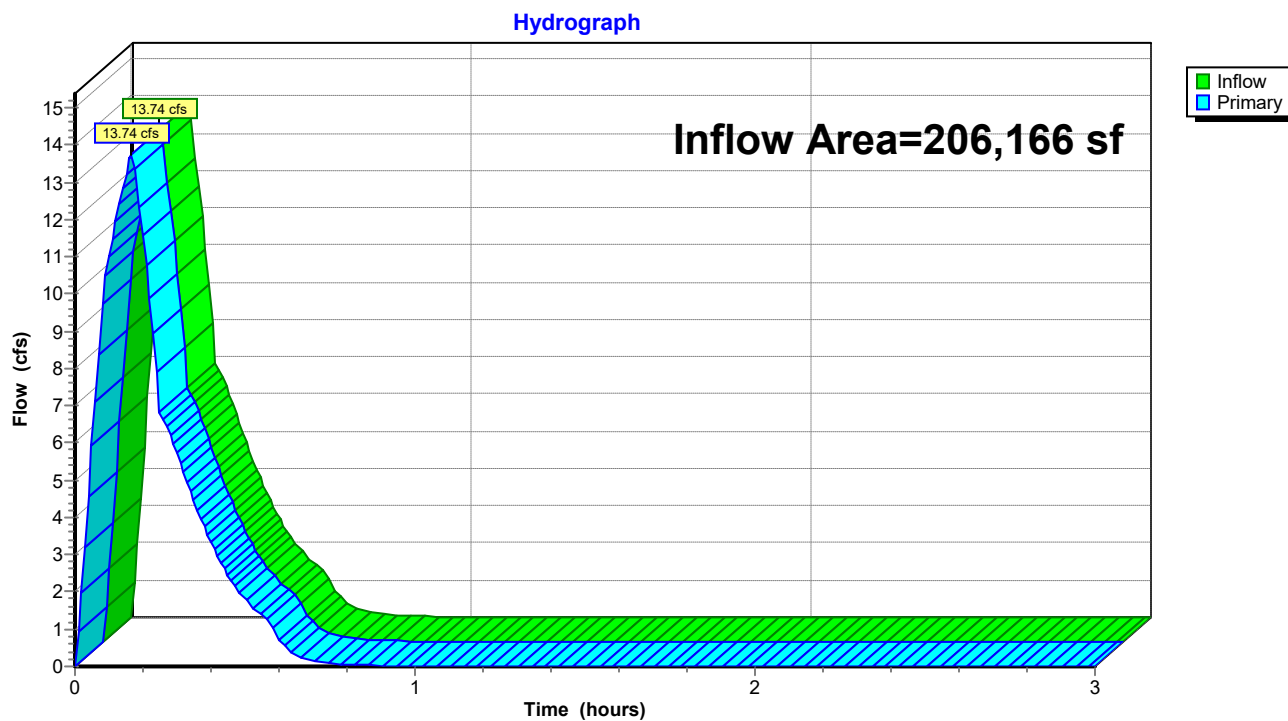
Printed 1/11/2024

Summary for Link Post-Dev: APPROX DISCHARGE

Inflow Area = 206,166 sf, 64.42% Impervious, Inflow Depth = 0.73" for 10-yr event
Inflow = 13.74 cfs @ 0.17 hrs, Volume= 12,613 cf
Primary = 13.74 cfs @ 0.17 hrs, Volume= 12,613 cf, Atten= 0%, Lag= 0.0 min

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

Link Post-Dev: APPROX DISCHARGE



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D1: Drainage Basin D1

Runoff = 6.89 cfs @ 0.09 hrs, Volume= 4,126 cf, Depth= 1.02"
Routed to Link Post-Dev : APPROX DISCHARGE

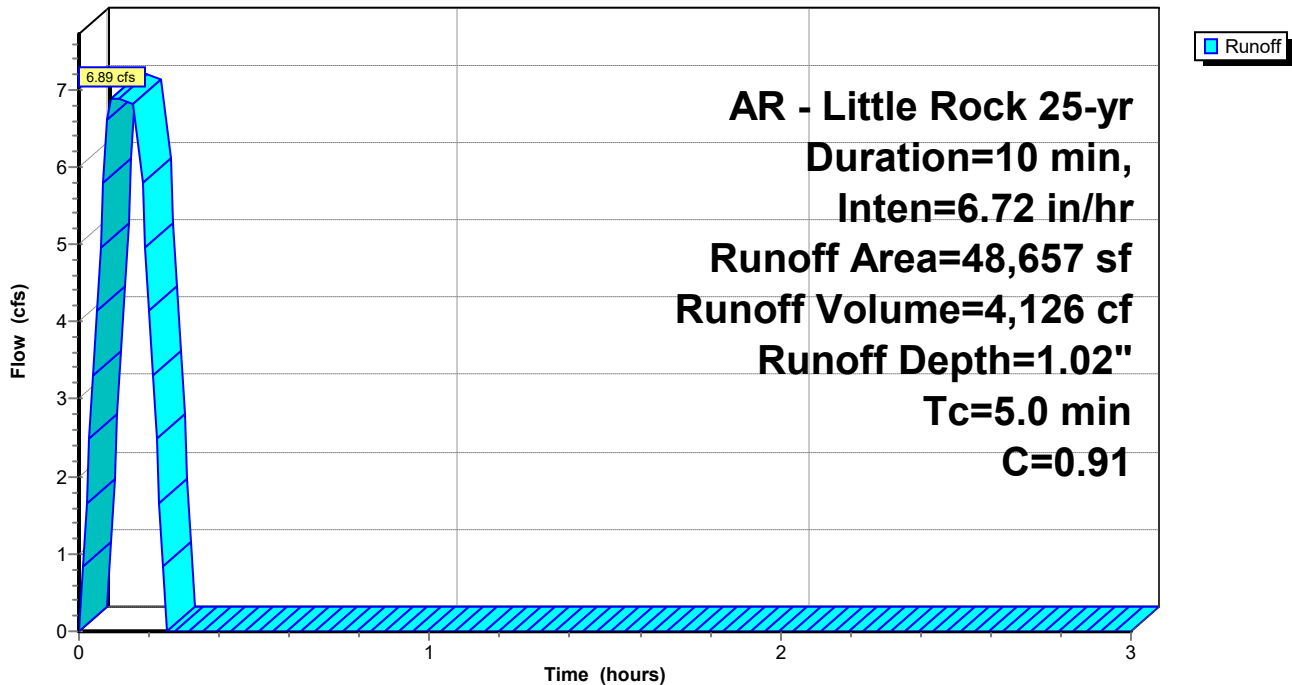
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
3,421	0.40	Sod Yard
45,236	0.95	Rood, Drives, Sidewalks
48,657	0.91	Weighted Average
3,421		7.03% Pervious Area
45,236		92.97% Impervious Area

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

Subcatchment D1: Drainage Basin D1

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D2: Drainage Basin D2

Runoff = 2.92 cfs @ 0.09 hrs, Volume= 1,752 cf, Depth= 0.86"
Routed to Reach P-A1 : Pipe A1

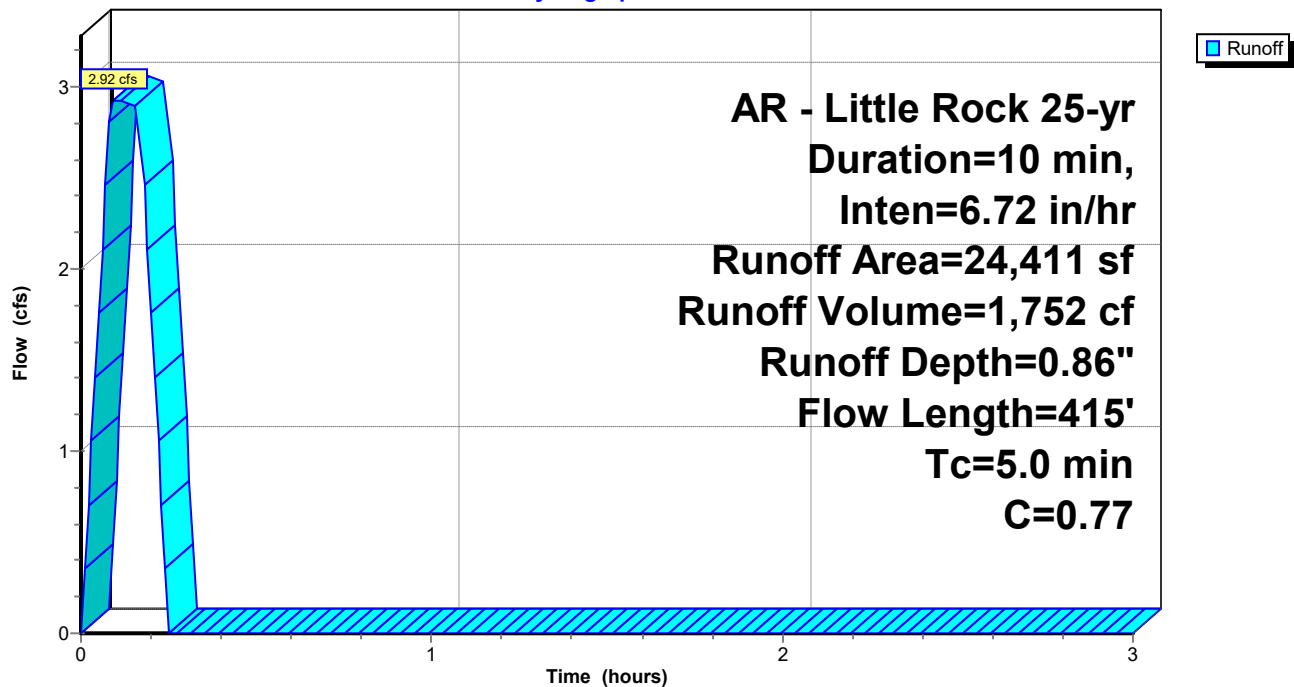
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
8,845	0.45	Rip Rap Embankment
15,566	0.95	Roof, Drives, Sidewalks
24,411	0.77	Weighted Average
8,845		36.23% Pervious Area
15,566		63.77% Impervious 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 D2: Drainage Basin D2

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D3: Drainage Basin D3

Runoff = 2.16 cfs @ 0.09 hrs, Volume= 1,297 cf, Depth= 1.02"
Routed to Reach P-A2 : Pipe A2

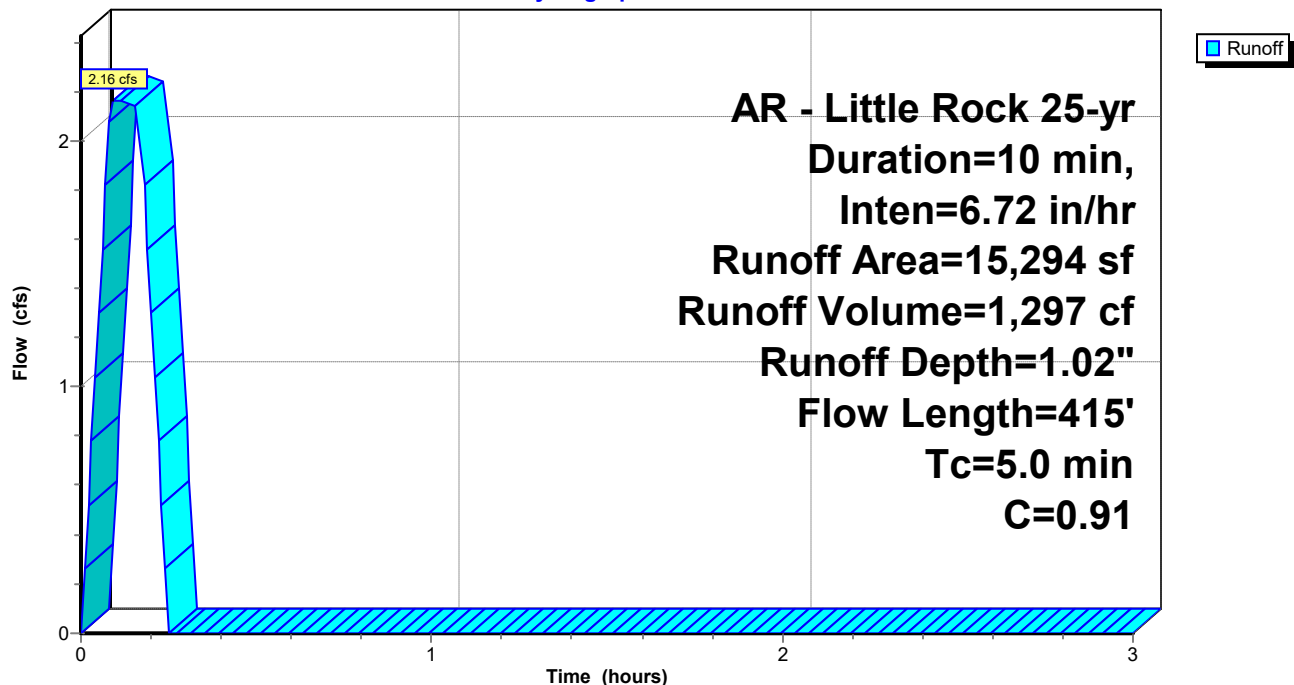
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
1,065	0.40	Sod Yard
14,229	0.95	Paving, Sidewalks
15,294	0.91	Weighted Average
1,065		6.96% Pervious Area
14,229		93.04% Impervious 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 D3: Drainage Basin D3

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D4: Drainage Basin D4

Runoff = 2.99 cfs @ 0.17 hrs, Volume= 1,825 cf, Depth= 0.68"
Routed to Reach P-A3 : Pipe A3

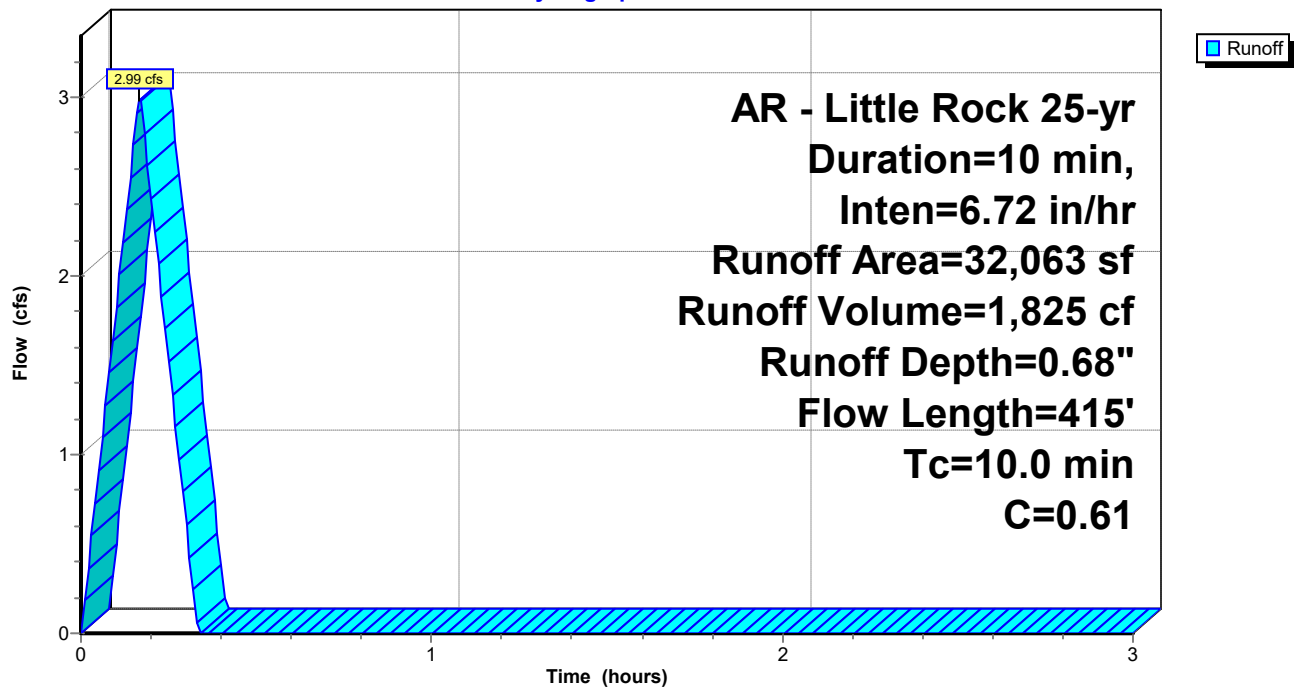
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
20,032	0.40	
12,031	0.95	
32,063	0.61	Weighted Average
20,032		62.48% Pervious Area
12,031		37.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment D4: Drainage Basin D4

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D5: Drainage Basin D5

Runoff = 4.34 cfs @ 0.09 hrs, Volume= 2,600 cf, Depth= 0.75"
Routed to Pond DP1 : Re-Established East Pond

Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

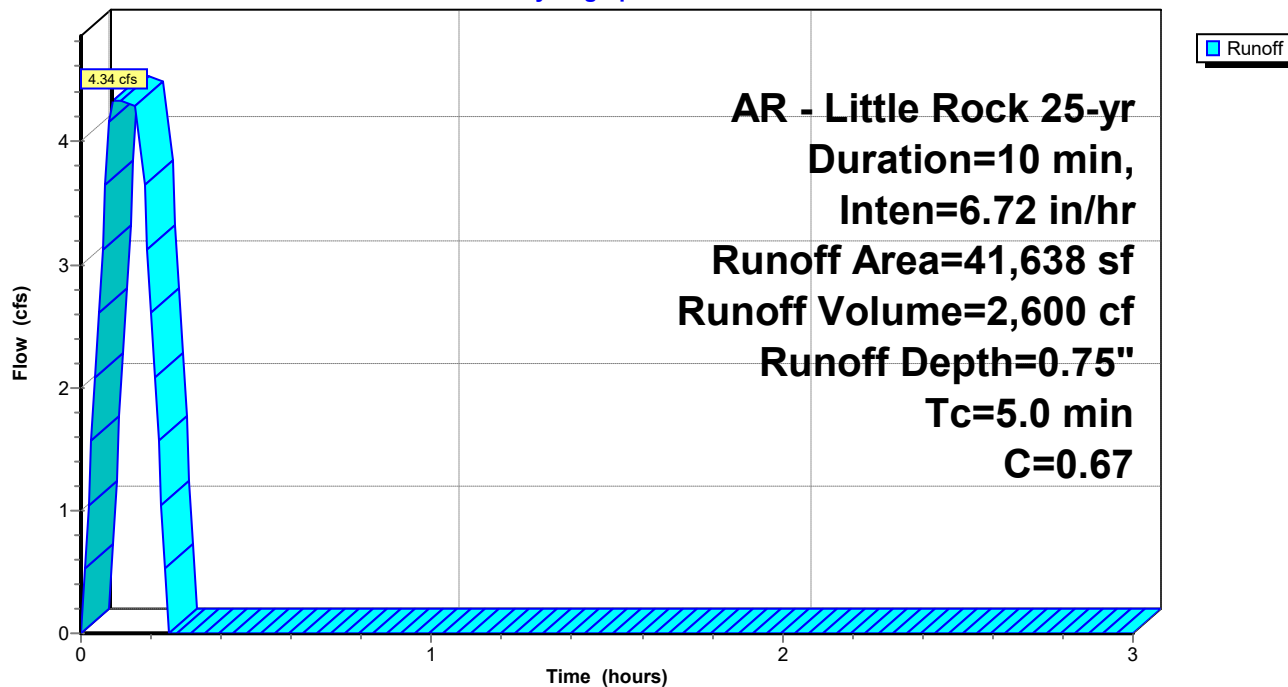
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
21,201	0.40	Sod Yard, Natural Vegetation
20,437	0.95	Paving, Sidewalks
41,638	0.67	Weighted Average
21,201		50.92% Pervious Area
20,437		49.08% Impervious Area

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

Subcatchment D5: Drainage Basin D5

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D6: Drainage Basin D6

Runoff = 2.82 cfs @ 0.09 hrs, Volume= 1,692 cf, Depth= 1.06"
Routed to Pond DP1 : Re-Established East Pond

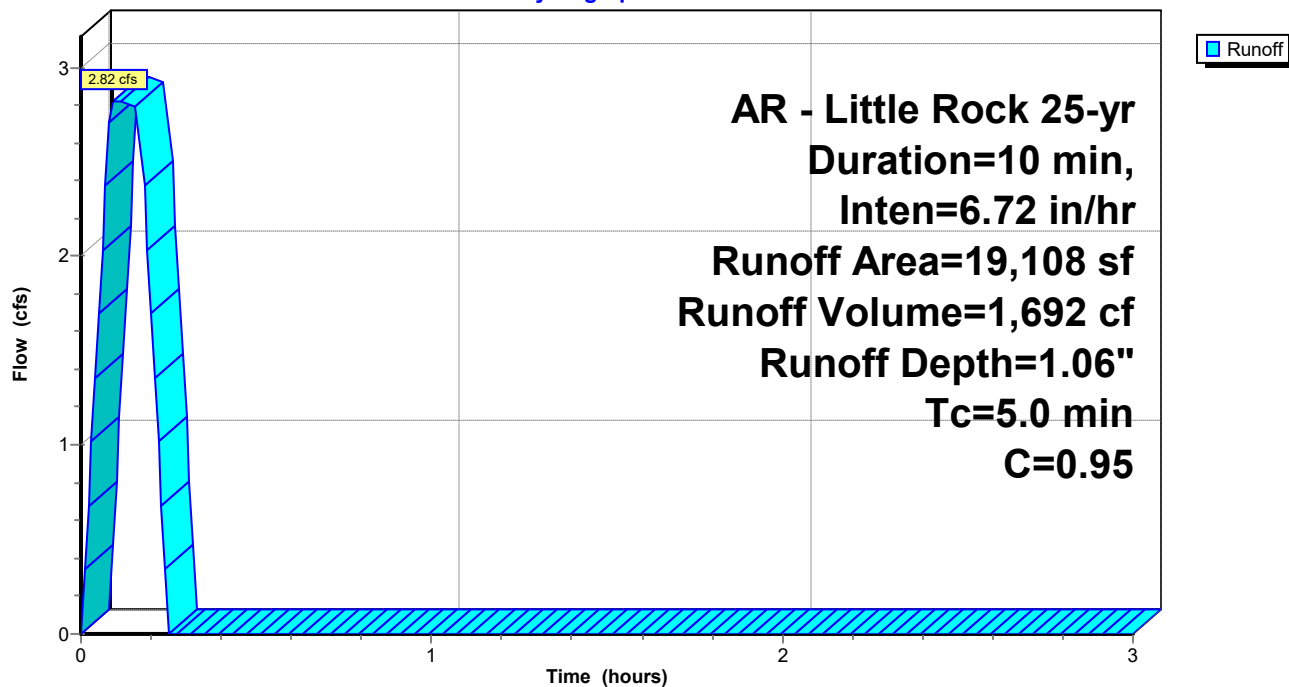
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
19,108	0.95	Roof
19,108		100.00% Impervious Area

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

Subcatchment D6: Drainage Basin D6

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Subcatchment D7: Drainage Basin D7

Runoff = 2.10 cfs @ 0.09 hrs, Volume= 1,258 cf, Depth= 0.60"
Routed to Link Post-Dev : APPROX DISCHARGE

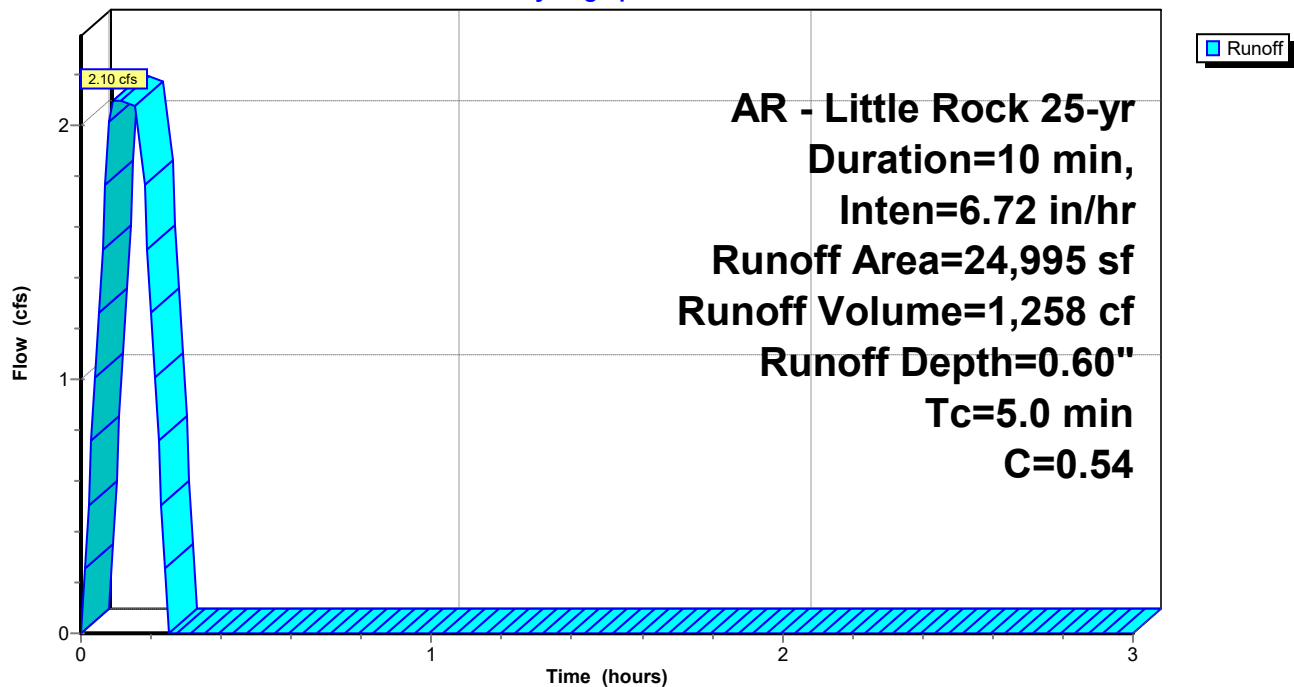
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

Area (sf)	C	Description
18,798	0.40	Sod Yard, Natural Vegetation
6,197	0.95	Paving, Sidewalks
24,995	0.54	Weighted Average
18,798		75.21% Pervious Area
6,197		24.79% Impervious Area

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

Subcatchment D7: Drainage Basin D7

Hydrograph



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Reach P-A1: Pipe A1

Inflow Area = 24,411 sf, 63.77% Impervious, Inflow Depth = 0.86" for 25-yr event
Inflow = 2.92 cfs @ 0.09 hrs, Volume= 1,752 cf
Outflow = 2.92 cfs @ 0.11 hrs, Volume= 1,752 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach P-A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 7.28 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 5.29 fps, Avg. Travel Time= 0.2 min

Peak Storage= 20 cf @ 0.09 hrs

Average Depth at Peak Storage= 0.42', Surface Width= 1.34'

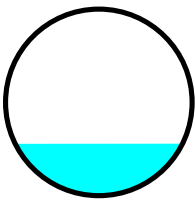
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.28 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

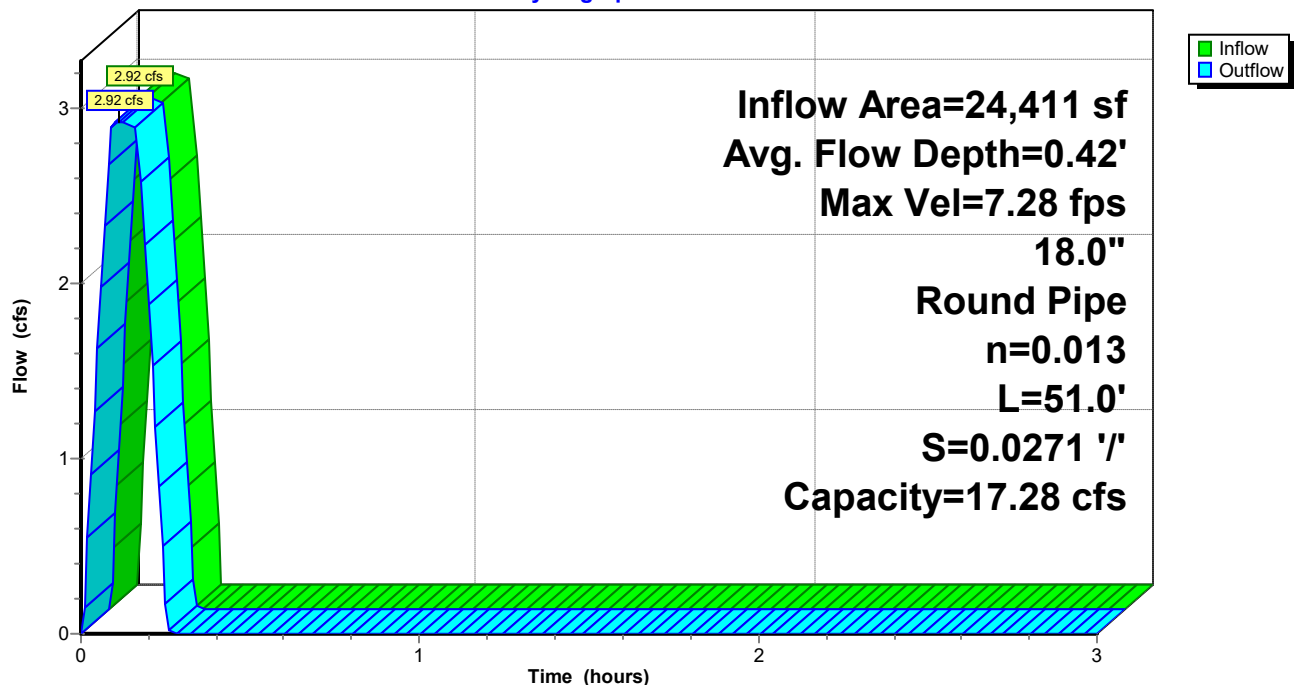
Length= 51.0' Slope= 0.0271 '/

Inlet Invert= 408.33', Outlet Invert= 406.95'



Reach P-A1: Pipe A1

Hydrograph



Summerwood Gym 3

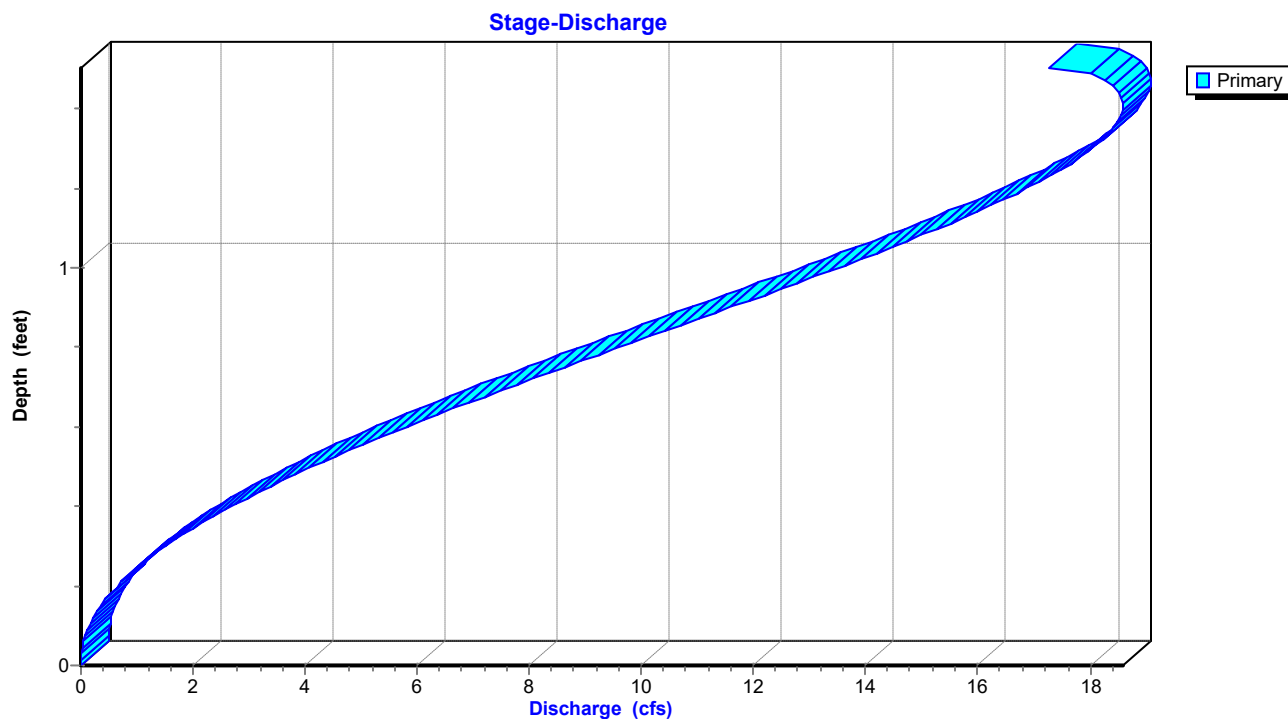
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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Reach P-A1: Pipe A1



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Stage-Area-Storage for Reach P-A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
408.33	0.0	0	409.37	1.3	67
408.35	0.0	0	409.39	1.3	68
408.37	0.0	1	409.41	1.4	69
408.39	0.0	1	409.43	1.4	71
408.41	0.0	2	409.45	1.4	72
408.43	0.1	3	409.47	1.4	73
408.45	0.1	3	409.49	1.5	75
408.47	0.1	4	409.51	1.5	76
408.49	0.1	5	409.53	1.5	77
408.51	0.1	6	409.55	1.5	78
408.53	0.1	7	409.57	1.6	80
408.55	0.2	8	409.59	1.6	81
408.57	0.2	9	409.61	1.6	82
408.59	0.2	10	409.63	1.6	83
408.61	0.2	12	409.65	1.6	84
408.63	0.3	13	409.67	1.7	85
408.65	0.3	14	409.69	1.7	86
408.67	0.3	15	409.71	1.7	87
408.69	0.3	17	409.73	1.7	88
408.71	0.4	18	409.75	1.7	88
408.73	0.4	19	409.77	1.7	89
408.75	0.4	21	409.79	1.8	89
408.77	0.4	22	409.81	1.8	90
408.79	0.5	23	409.83	1.8	90
408.81	0.5	25			
408.83	0.5	26			
408.85	0.5	28			
408.87	0.6	29			
408.89	0.6	31			
408.91	0.6	32			
408.93	0.7	34			
408.95	0.7	35			
408.97	0.7	37			
408.99	0.7	38			
409.01	0.8	40			
409.03	0.8	41			
409.05	0.8	43			
409.07	0.9	44			
409.09	0.9	46			
409.11	0.9	47			
409.13	1.0	49			
409.15	1.0	50			
409.17	1.0	52			
409.19	1.0	53			
409.21	1.1	55			
409.23	1.1	56			
409.25	1.1	58			
409.27	1.2	59			
409.29	1.2	61			
409.31	1.2	62			
409.33	1.3	64			
409.35	1.3	65			

Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Reach P-A2: Pipe A2

Inflow Area = 39,705 sf, 75.04% Impervious, Inflow Depth = 0.92" for 25-yr event
Inflow = 5.09 cfs @ 0.11 hrs, Volume= 3,048 cf
Outflow = 5.09 cfs @ 0.15 hrs, Volume= 3,048 cf, Atten= 0%, Lag= 2.4 min
Routed to Reach P-A3 : Pipe A3

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.49 fps, Min. Travel Time= 0.5 min

Avg. Velocity= 2.58 fps, Avg. Travel Time= 1.1 min

Peak Storage= 139 cf @ 0.14 hrs

Average Depth at Peak Storage= 0.68' , Surface Width= 1.49'

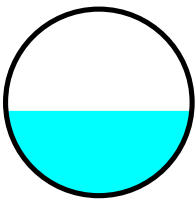
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.95 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

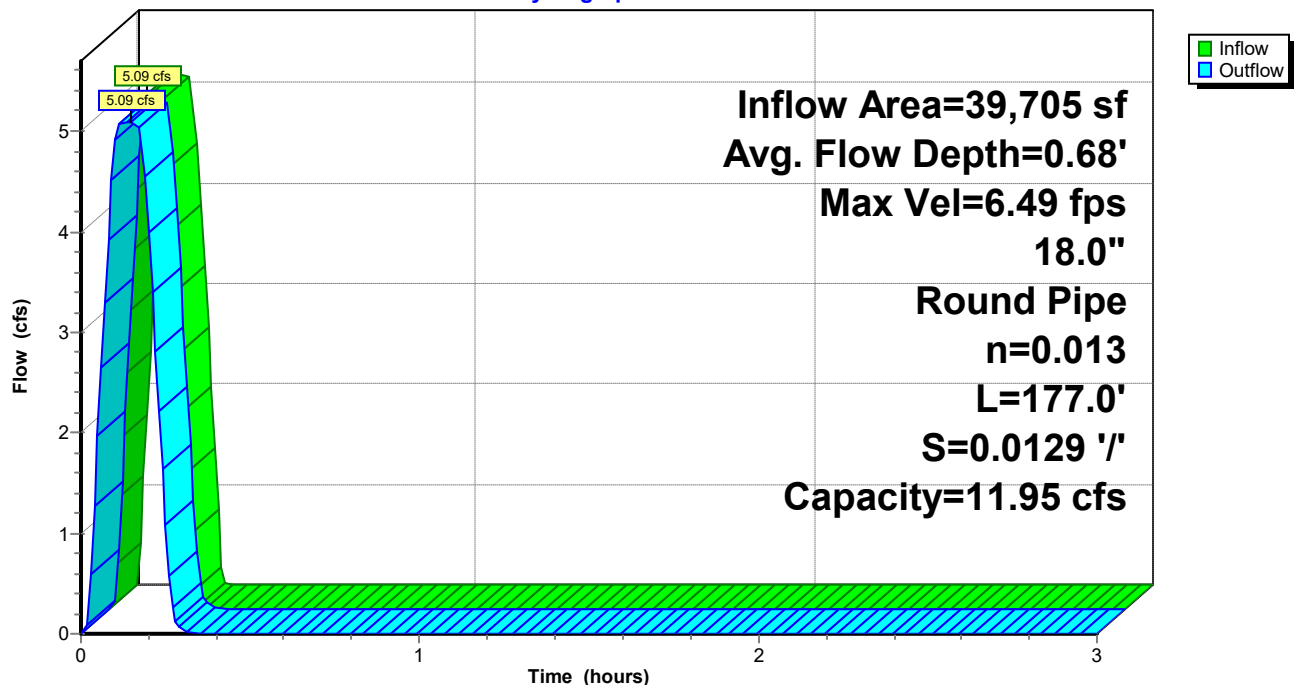
Length= 177.0' Slope= 0.0129 '/'

Inlet Invert= 406.85', Outlet Invert= 404.56'



Reach P-A2: Pipe A2

Hydrograph



Summerwood Gym 3

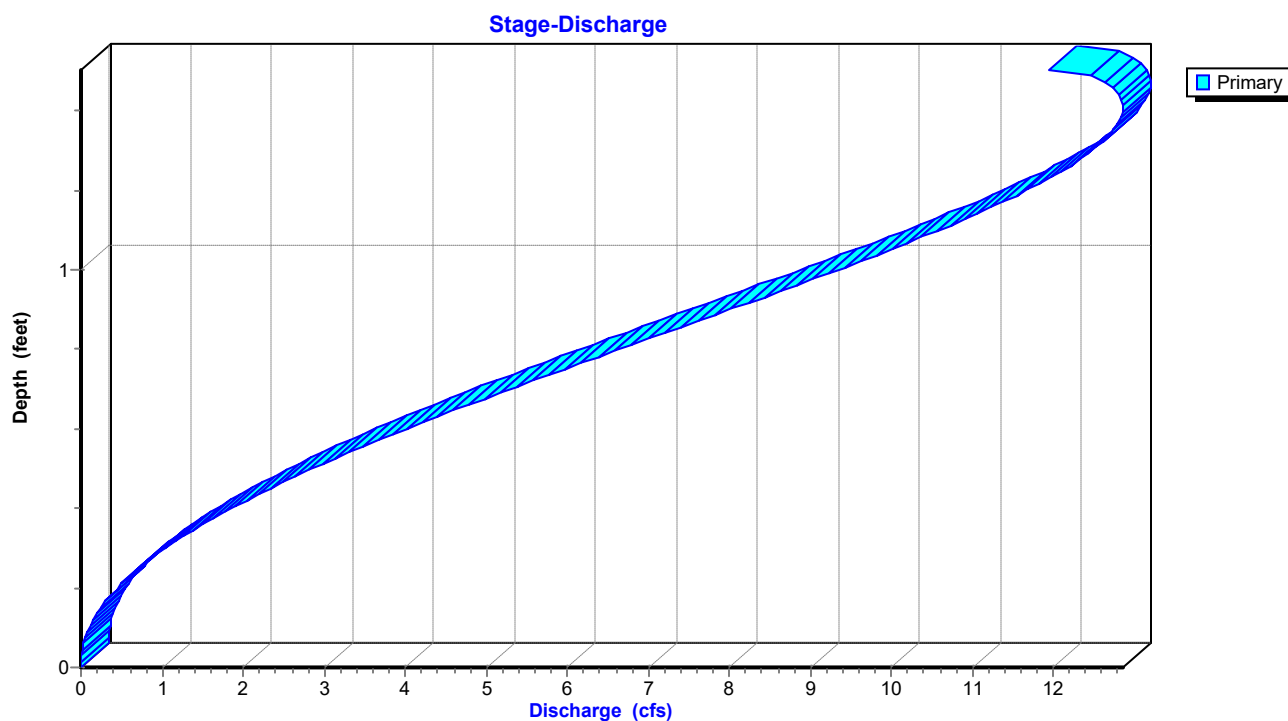
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Reach P-A2: Pipe A2



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Stage-Area-Storage for Reach P-A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
406.85	0.0	0	407.89	1.3	231
406.87	0.0	1	407.91	1.3	236
406.89	0.0	2	407.93	1.4	241
406.91	0.0	4	407.95	1.4	246
406.93	0.0	6	407.97	1.4	250
406.95	0.1	9	407.99	1.4	255
406.97	0.1	12	408.01	1.5	260
406.99	0.1	15	408.03	1.5	264
407.01	0.1	18	408.05	1.5	268
407.03	0.1	21	408.07	1.5	272
407.05	0.1	25	408.09	1.6	277
407.07	0.2	28	408.11	1.6	280
407.09	0.2	32	408.13	1.6	284
407.11	0.2	36	408.15	1.6	288
407.13	0.2	40	408.17	1.6	292
407.15	0.3	45	408.19	1.7	295
407.17	0.3	49	408.21	1.7	298
407.19	0.3	53	408.23	1.7	301
407.21	0.3	58	408.25	1.7	304
407.23	0.4	62	408.27	1.7	306
407.25	0.4	67	408.29	1.7	309
407.27	0.4	72	408.31	1.8	310
407.29	0.4	76	408.33	1.8	312
407.31	0.5	81	408.35	1.8	313
407.33	0.5	86			
407.35	0.5	91			
407.37	0.5	96			
407.39	0.6	101			
407.41	0.6	106			
407.43	0.6	112			
407.45	0.7	117			
407.47	0.7	122			
407.49	0.7	127			
407.51	0.7	133			
407.53	0.8	138			
407.55	0.8	143			
407.57	0.8	148			
407.59	0.9	154			
407.61	0.9	159			
407.63	0.9	164			
407.65	1.0	170			
407.67	1.0	175			
407.69	1.0	180			
407.71	1.0	185			
407.73	1.1	191			
407.75	1.1	196			
407.77	1.1	201			
407.79	1.2	206			
407.81	1.2	211			
407.83	1.2	216			
407.85	1.3	222			
407.87	1.3	226			

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Summary for Reach P-A3: Pipe A3

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.81" for 25-yr event
Inflow = 8.08 cfs @ 0.17 hrs, Volume= 4,873 cf
Outflow = 8.02 cfs @ 0.17 hrs, Volume= 4,873 cf, Atten= 1%, Lag= 0.2 min
Routed to Reach P-A4 : Pipe A4

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.76 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 4.04 fps, Avg. Travel Time= 0.5 min

Peak Storage= 97 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.71', Surface Width= 1.50'

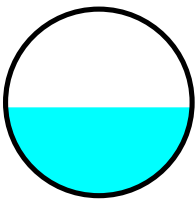
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.65 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

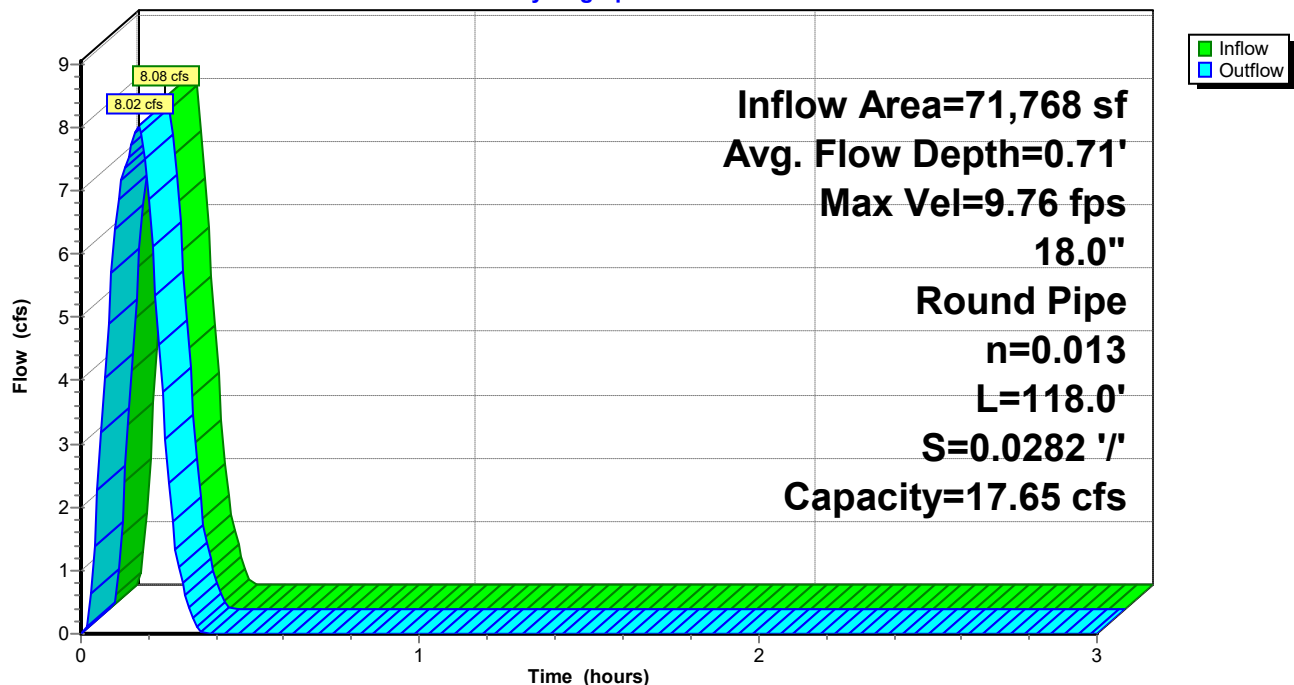
Length= 118.0' Slope= 0.0282 '/'

Inlet Invert= 404.46', Outlet Invert= 401.13'



Reach P-A3: Pipe A3

Hydrograph



Summerwood Gym 3

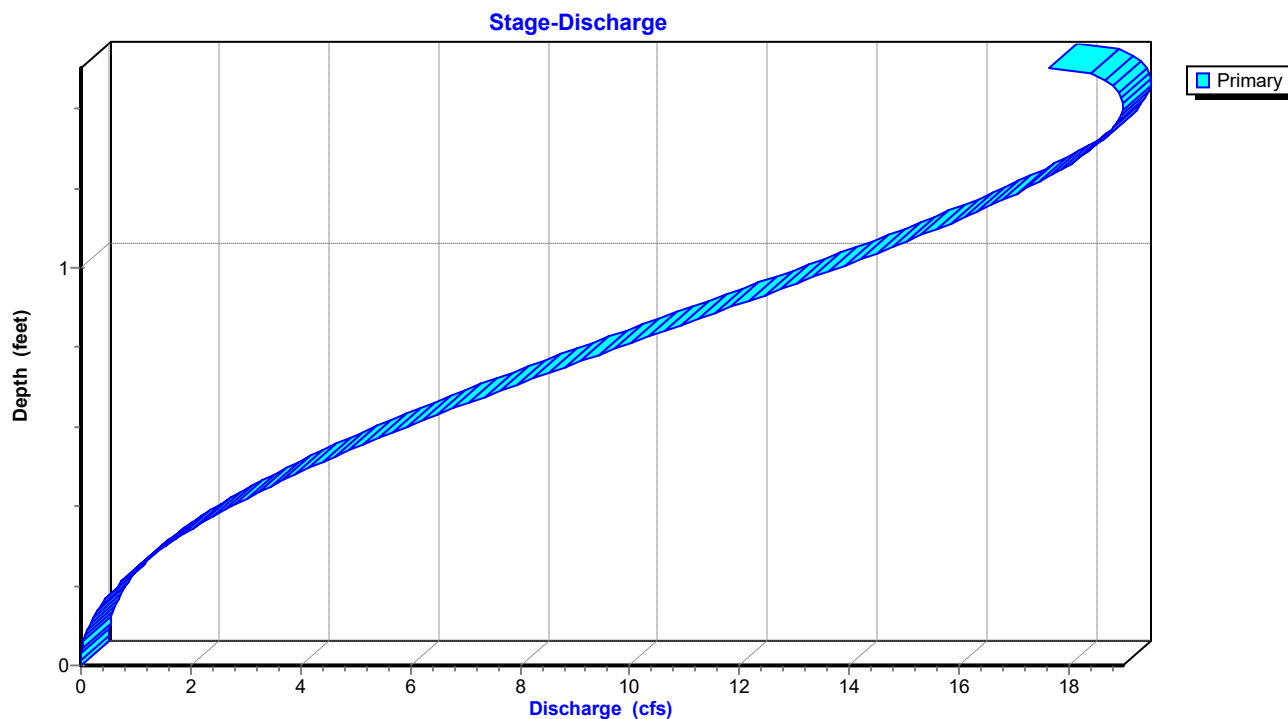
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Reach P-A3: Pipe A3



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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Stage-Area-Storage for Reach P-A3: Pipe A3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
404.46	0.0	0	405.50	1.3	154
404.48	0.0	1	405.52	1.3	158
404.50	0.0	2	405.54	1.4	161
404.52	0.0	3	405.56	1.4	164
404.54	0.0	4	405.58	1.4	167
404.56	0.1	6	405.60	1.4	170
404.58	0.1	8	405.62	1.5	173
404.60	0.1	10	405.64	1.5	176
404.62	0.1	12	405.66	1.5	179
404.64	0.1	14	405.68	1.5	182
404.66	0.1	17	405.70	1.6	184
404.68	0.2	19	405.72	1.6	187
404.70	0.2	22	405.74	1.6	190
404.72	0.2	24	405.76	1.6	192
404.74	0.2	27	405.78	1.6	194
404.76	0.3	30	405.80	1.7	197
404.78	0.3	33	405.82	1.7	199
404.80	0.3	35	405.84	1.7	201
404.82	0.3	38	405.86	1.7	203
404.84	0.4	42	405.88	1.7	204
404.86	0.4	45	405.90	1.7	206
404.88	0.4	48	405.92	1.8	207
404.90	0.4	51	405.94	1.8	208
404.92	0.5	54	405.96	1.8	209
404.94	0.5	58			
404.96	0.5	61			
404.98	0.5	64			
405.00	0.6	68			
405.02	0.6	71			
405.04	0.6	74			
405.06	0.7	78			
405.08	0.7	81			
405.10	0.7	85			
405.12	0.7	88			
405.14	0.8	92			
405.16	0.8	95			
405.18	0.8	99			
405.20	0.9	102			
405.22	0.9	106			
405.24	0.9	110			
405.26	1.0	113			
405.28	1.0	117			
405.30	1.0	120			
405.32	1.0	124			
405.34	1.1	127			
405.36	1.1	131			
405.38	1.1	134			
405.40	1.2	138			
405.42	1.2	141			
405.44	1.2	144			
405.46	1.3	148			
405.48	1.3	151			

Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Reach P-A4: Pipe A4

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.81" for 25-yr event
Inflow = 8.02 cfs @ 0.17 hrs, Volume= 4,873 cf
Outflow = 7.99 cfs @ 0.18 hrs, Volume= 4,873 cf, Atten= 0%, Lag= 0.4 min
Routed to Pond DP1 : Re-Established East Pond

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 9.74 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 3.84 fps, Avg. Travel Time= 0.6 min

Peak Storage= 108 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.71', Surface Width= 1.50'

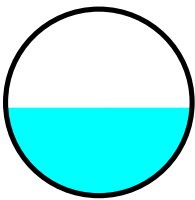
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.66 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

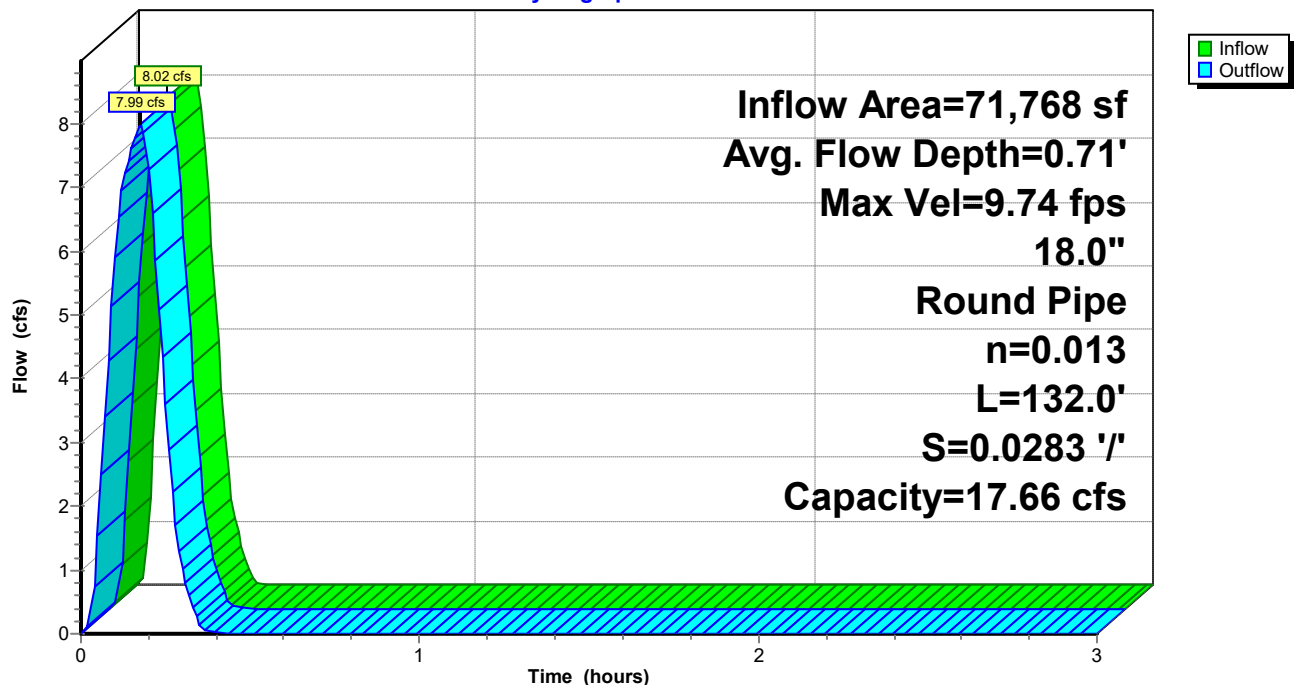
Length= 132.0' Slope= 0.0283 '/'

Inlet Invert= 401.03', Outlet Invert= 397.30'



Reach P-A4: Pipe A4

Hydrograph



Summerwood Gym 3

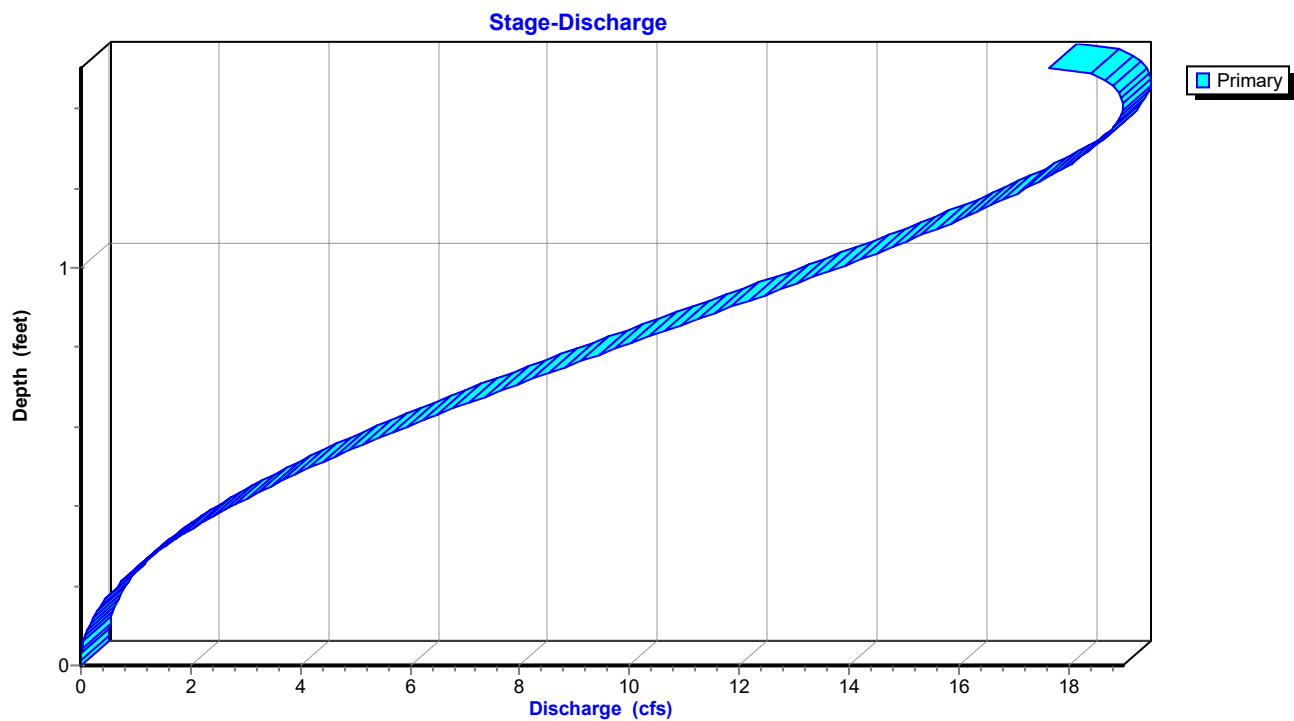
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Reach P-A4: Pipe A4



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Stage-Area-Storage for Reach P-A4: Pipe A4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
401.03	0.0	0	402.07	1.3	173
401.05	0.0	1	402.09	1.3	176
401.07	0.0	2	402.11	1.4	180
401.09	0.0	3	402.13	1.4	183
401.11	0.0	5	402.15	1.4	187
401.13	0.1	7	402.17	1.4	190
401.15	0.1	9	402.19	1.5	194
401.17	0.1	11	402.21	1.5	197
401.19	0.1	13	402.23	1.5	200
401.21	0.1	16	402.25	1.5	203
401.23	0.1	18	402.27	1.6	206
401.25	0.2	21	402.29	1.6	209
401.27	0.2	24	402.31	1.6	212
401.29	0.2	27	402.33	1.6	215
401.31	0.2	30	402.35	1.6	217
401.33	0.3	33	402.37	1.7	220
401.35	0.3	36	402.39	1.7	222
401.37	0.3	40	402.41	1.7	225
401.39	0.3	43	402.43	1.7	227
401.41	0.4	46	402.45	1.7	228
401.43	0.4	50	402.47	1.7	230
401.45	0.4	53	402.49	1.8	232
401.47	0.4	57	402.51	1.8	233
401.49	0.5	61	402.53	1.8	233
401.51	0.5	64			
401.53	0.5	68			
401.55	0.5	72			
401.57	0.6	76			
401.59	0.6	79			
401.61	0.6	83			
401.63	0.7	87			
401.65	0.7	91			
401.67	0.7	95			
401.69	0.7	99			
401.71	0.8	103			
401.73	0.8	107			
401.75	0.8	111			
401.77	0.9	115			
401.79	0.9	119			
401.81	0.9	123			
401.83	1.0	127			
401.85	1.0	130			
401.87	1.0	134			
401.89	1.0	138			
401.91	1.1	142			
401.93	1.1	146			
401.95	1.1	150			
401.97	1.2	154			
401.99	1.2	158			
402.01	1.2	161			
402.03	1.3	165			
402.05	1.3	169			

Summerwood Gym 3

AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Summary for Pond DP1: Re-Established East Pond

Inflow Area = 132,514 sf, 61.41% Impervious, Inflow Depth = 0.83" for 25-yr event
 Inflow = 14.95 cfs @ 0.16 hrs, Volume= 9,164 cf
 Outflow = 7.87 cfs @ 0.22 hrs, Volume= 9,164 cf, Atten= 47%, Lag= 3.8 min
 Primary = 7.87 cfs @ 0.22 hrs, Volume= 9,164 cf
 Routed to Link Post-Dev : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 398.45' @ 0.22 hrs Storage= 4,803 cf

Plug-Flow detention time= 8.8 min calculated for 9,164 cf (100% of inflow)

Center-of-Mass det. time= 8.7 min (17.5 - 8.8)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	8,557 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	0	0
396.50	250	250
397.00	1,092	1,342
398.00	2,387	3,729
399.00	2,405	6,134
400.00	2,423	8,557

Device	Routing	Invert	Outlet Devices
#1	Primary	399.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	396.00'	1.1' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 10.0' Crest Height

Primary OutFlow Max=7.86 cfs @ 0.22 hrs HW=398.44' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Weir Controls 7.86 cfs @ 5.26 fps)

Summerwood Gym 3

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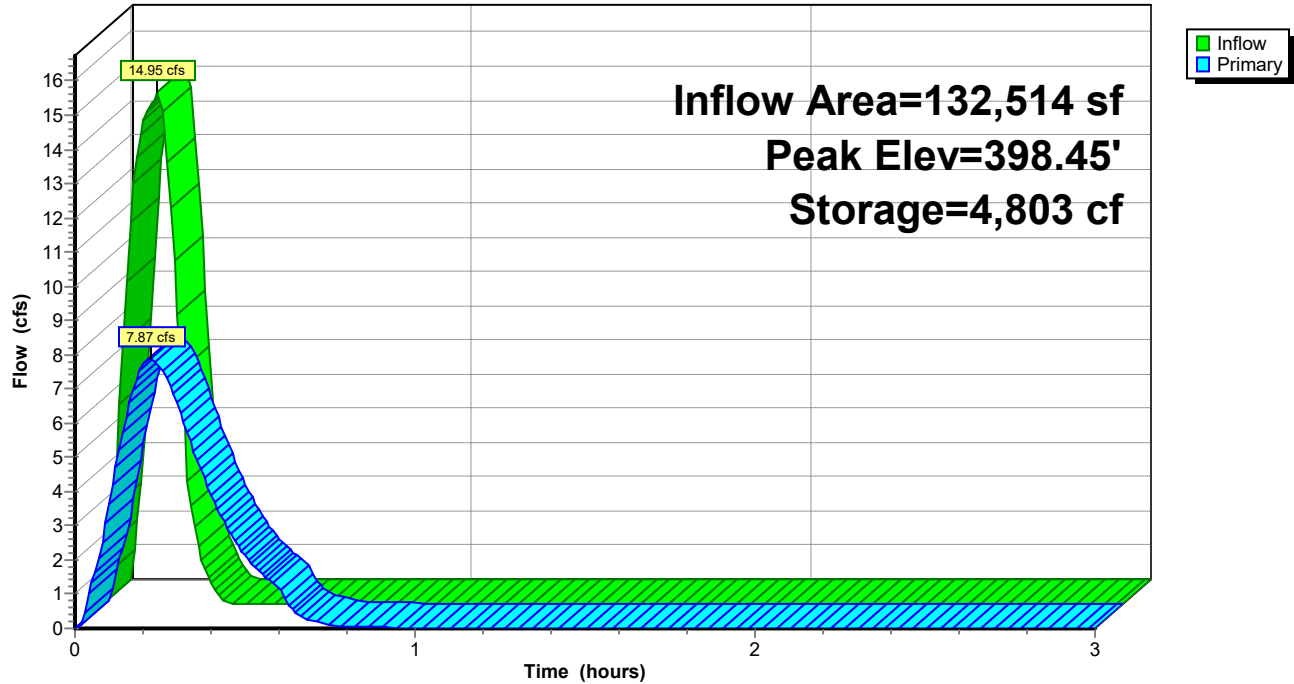
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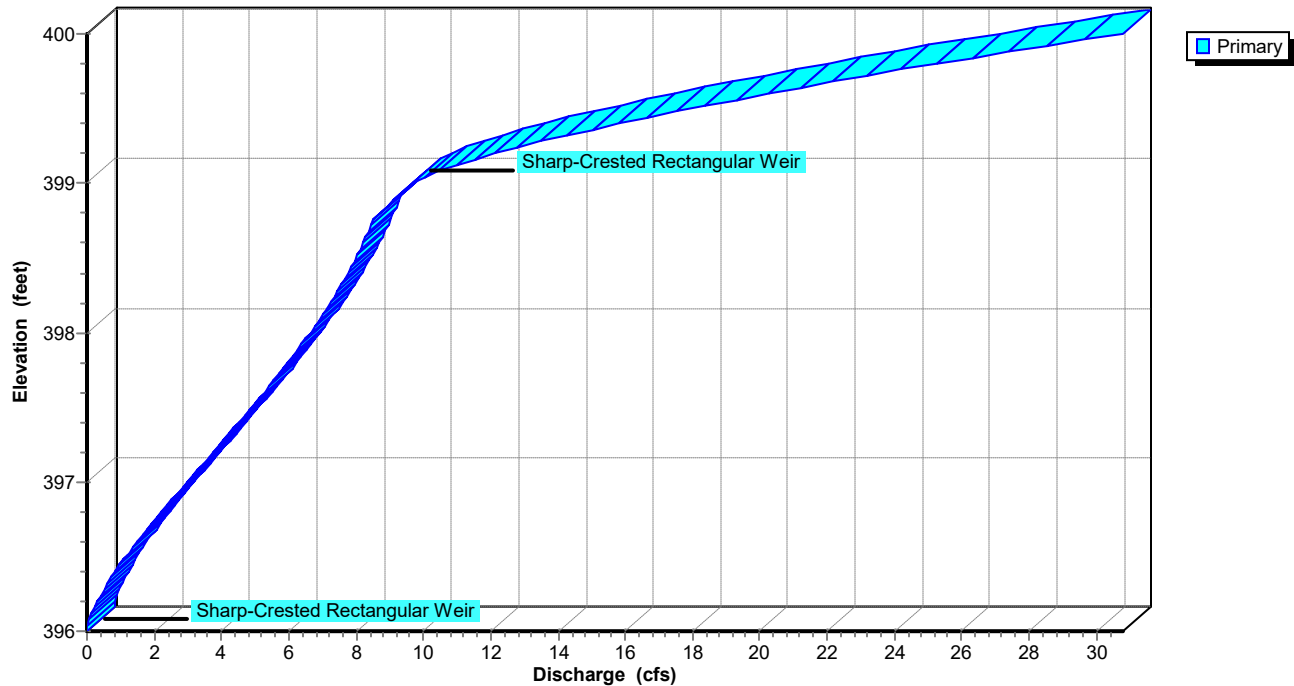
Pond DP1: Re-Established East Pond

Hydrograph



Pond DP1: Re-Established East Pond

Stage-Discharge



Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

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Stage-Area-Storage for Pond DP1: Re-Established East Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
396.00	0	398.60	5,172
396.05	25	398.65	5,292
396.10	50	398.70	5,412
396.15	75	398.75	5,533
396.20	100	398.80	5,653
396.25	125	398.85	5,773
396.30	150	398.90	5,893
396.35	175	398.95	6,014
396.40	200	399.00	6,134
396.45	225	399.05	6,255
396.50	250	399.10	6,376
396.55	359	399.15	6,497
396.60	468	399.20	6,619
396.65	578	399.25	6,740
396.70	687	399.30	6,861
396.75	796	399.35	6,982
396.80	905	399.40	7,103
396.85	1,014	399.45	7,224
396.90	1,124	399.50	7,346
396.95	1,233	399.55	7,467
397.00	1,342	399.60	7,588
397.05	1,461	399.65	7,709
397.10	1,581	399.70	7,830
397.15	1,700	399.75	7,951
397.20	1,819	399.80	8,072
397.25	1,939	399.85	8,194
397.30	2,058	399.90	8,315
397.35	2,177	399.95	8,436
397.40	2,297	400.00	8,557
397.45	2,416		
397.50	2,536		
397.55	2,655		
397.60	2,774		
397.65	2,894		
397.70	3,013		
397.75	3,132		
397.80	3,252		
397.85	3,371		
397.90	3,490		
397.95	3,610		
398.00	3,729		
398.05	3,849		
398.10	3,970		
398.15	4,090		
398.20	4,210		
398.25	4,330		
398.30	4,451		
398.35	4,571		
398.40	4,691		
398.45	4,811		
398.50	4,932		
398.55	5,052		

Summerwood Gym 3

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AR - Little Rock 25-yr Duration=10 min, Inten=6.72 in/hr

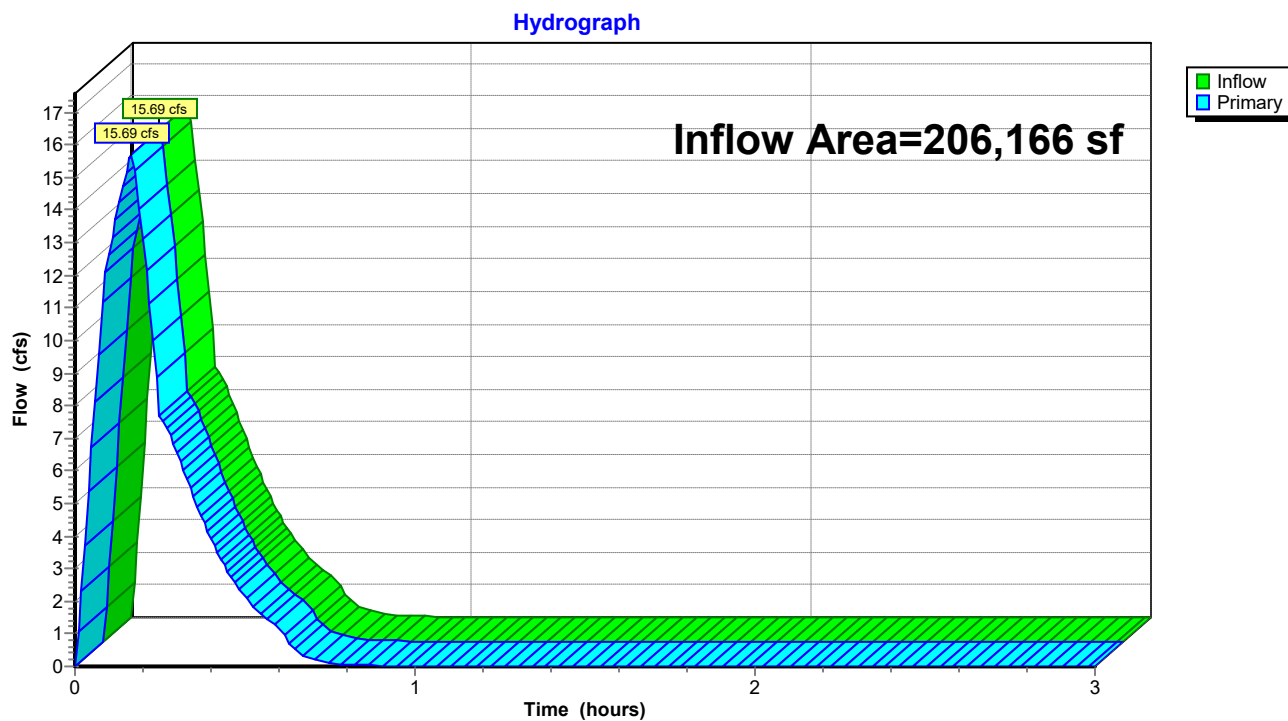
Printed 1/11/2024

Summary for Link Post-Dev: APPROX DISCHARGE

Inflow Area = 206,166 sf, 64.42% Impervious, Inflow Depth = 0.85" for 25-yr event
Inflow = 15.69 cfs @ 0.17 hrs, Volume= 14,548 cf
Primary = 15.69 cfs @ 0.17 hrs, Volume= 14,548 cf, Atten= 0%, Lag= 0.0 min

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

Link Post-Dev: APPROX DISCHARGE



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D1: Drainage Basin D1

Runoff = 8.18 cfs @ 0.09 hrs, Volume= 4,900 cf, Depth= 1.21"
Routed to Link Post-Dev : APPROX DISCHARGE

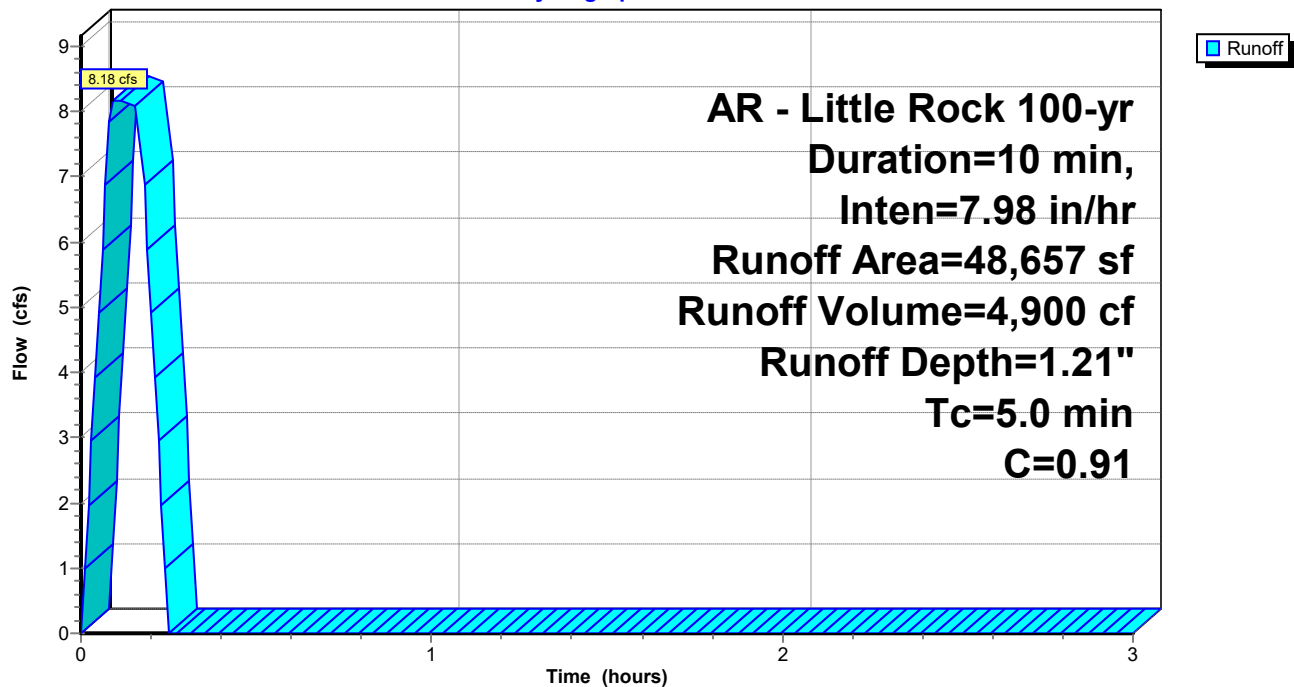
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
3,421	0.40	Sod Yard
45,236	0.95	Road, Drives, Sidewalks
48,657	0.91	Weighted Average
3,421		7.03% Pervious Area
45,236		92.97% Impervious Area

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

Subcatchment D1: Drainage Basin D1

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D2: Drainage Basin D2

Runoff = 3.47 cfs @ 0.09 hrs, Volume= 2,080 cf, Depth= 1.02"
Routed to Reach P-A1 : Pipe A1

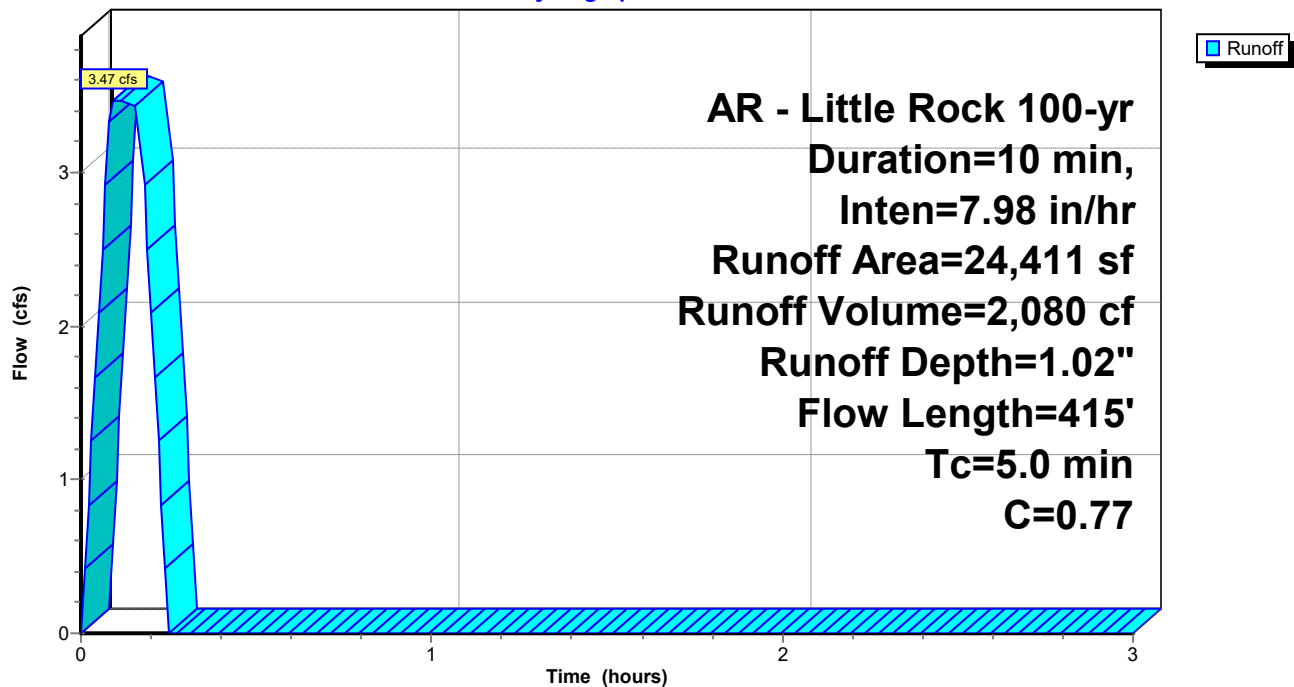
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
8,845	0.45	Rip Rap Embankment
15,566	0.95	Roof, Drives, Sidewalks
24,411	0.77	Weighted Average
8,845		36.23% Pervious Area
15,566		63.77% Impervious 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 D2: Drainage Basin D2

Hydrograph



Summerwood Gym 3

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D3: Drainage Basin D3

Runoff = 2.57 cfs @ 0.09 hrs, Volume= 1,540 cf, Depth= 1.21"

Routed to Reach P-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

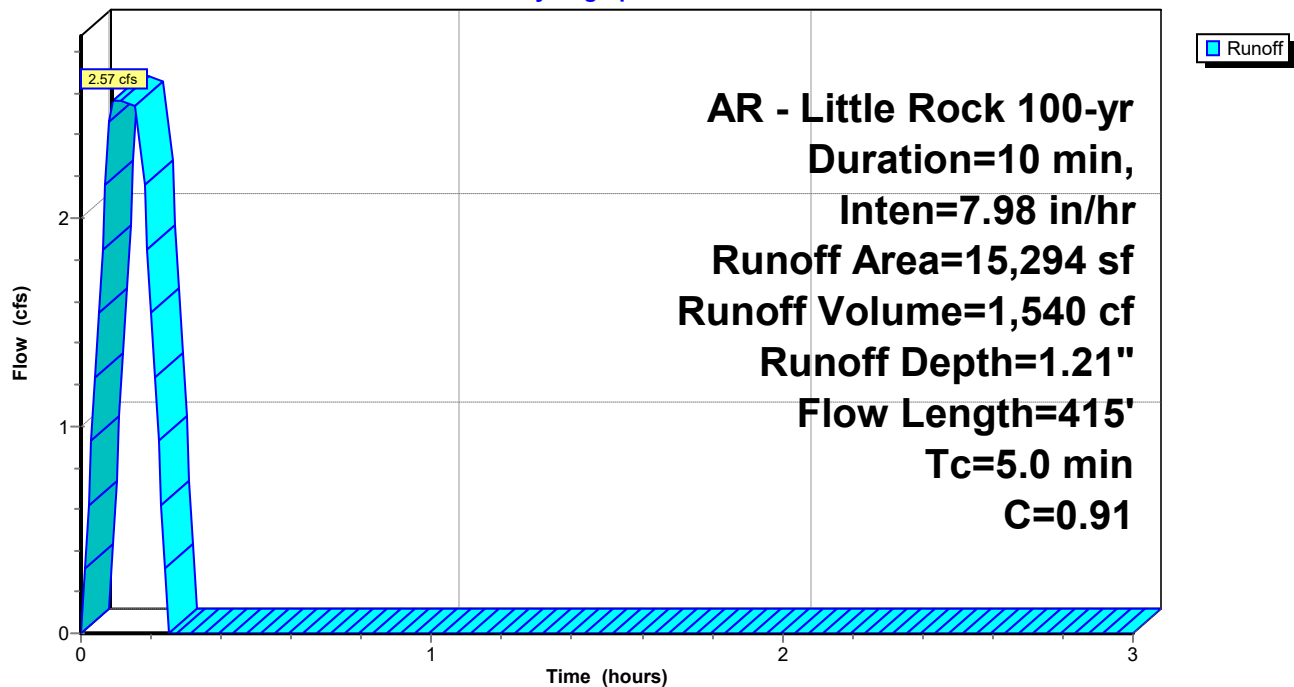
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
1,065	0.40	Sod Yard
14,229	0.95	Paving, Sidewalks
15,294	0.91	Weighted Average
1,065		6.96% Pervious Area
14,229		93.04% Impervious 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 D3: Drainage Basin D3

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D4: Drainage Basin D4

Runoff = 3.55 cfs @ 0.17 hrs, Volume= 2,167 cf, Depth= 0.81"
Routed to Reach P-A3 : Pipe A3

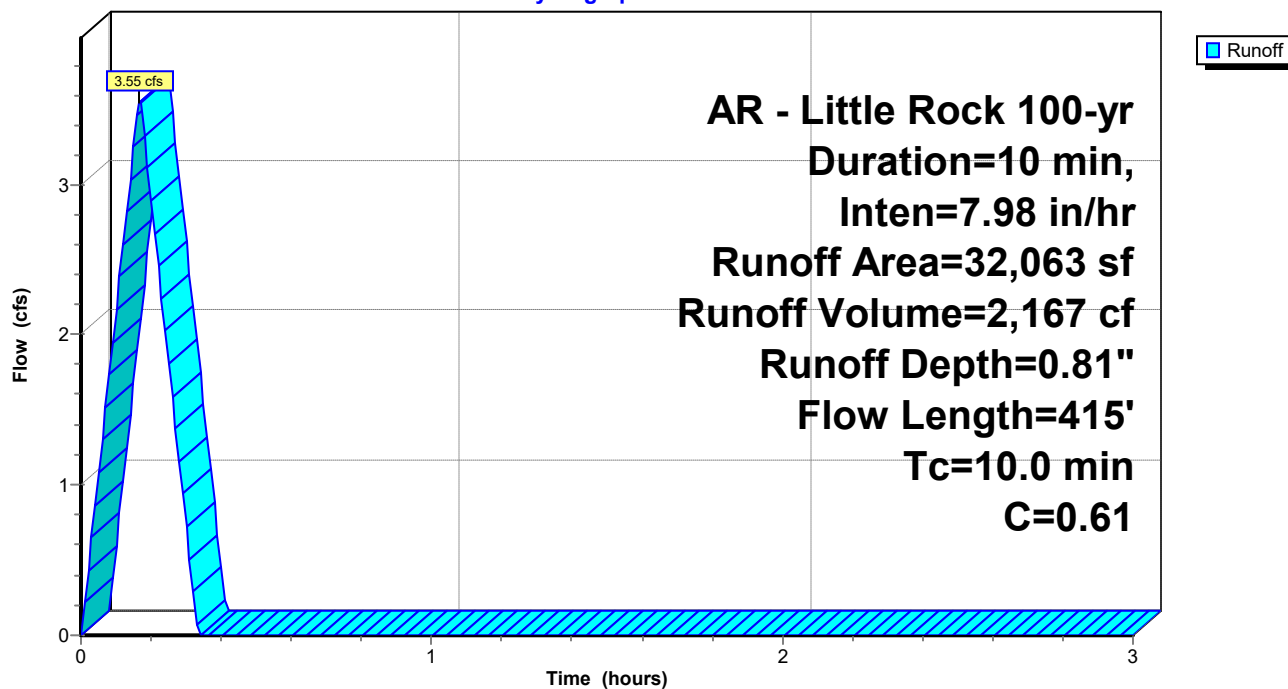
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
20,032	0.40	
12,031	0.95	
32,063	0.61	Weighted Average
20,032		62.48% Pervious Area
12,031		37.52% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0	415		0.69		Direct Entry, Overland Concentrated Flow (Min)

Subcatchment D4: Drainage Basin D4

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D5: Drainage Basin D5

Runoff = 5.15 cfs @ 0.09 hrs, Volume= 3,087 cf, Depth= 0.89"
Routed to Pond DP1 : Re-Established East Pond

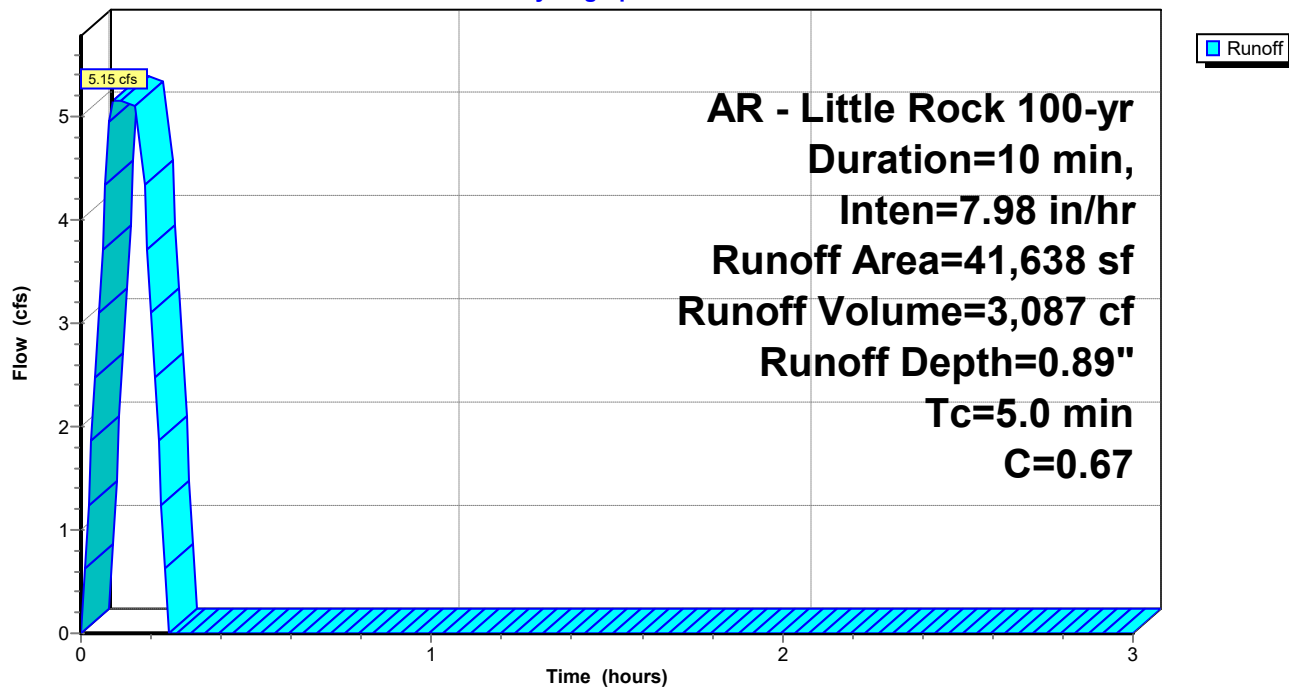
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
21,201	0.40	Sod Yard, Natural Vegetation
20,437	0.95	Paving, Sidewalks
41,638	0.67	Weighted Average
21,201		50.92% Pervious Area
20,437		49.08% Impervious Area

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

Subcatchment D5: Drainage Basin D5

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D6: Drainage Basin D6

Runoff = 3.35 cfs @ 0.09 hrs, Volume= 2,009 cf, Depth= 1.26"
Routed to Pond DP1 : Re-Established East Pond

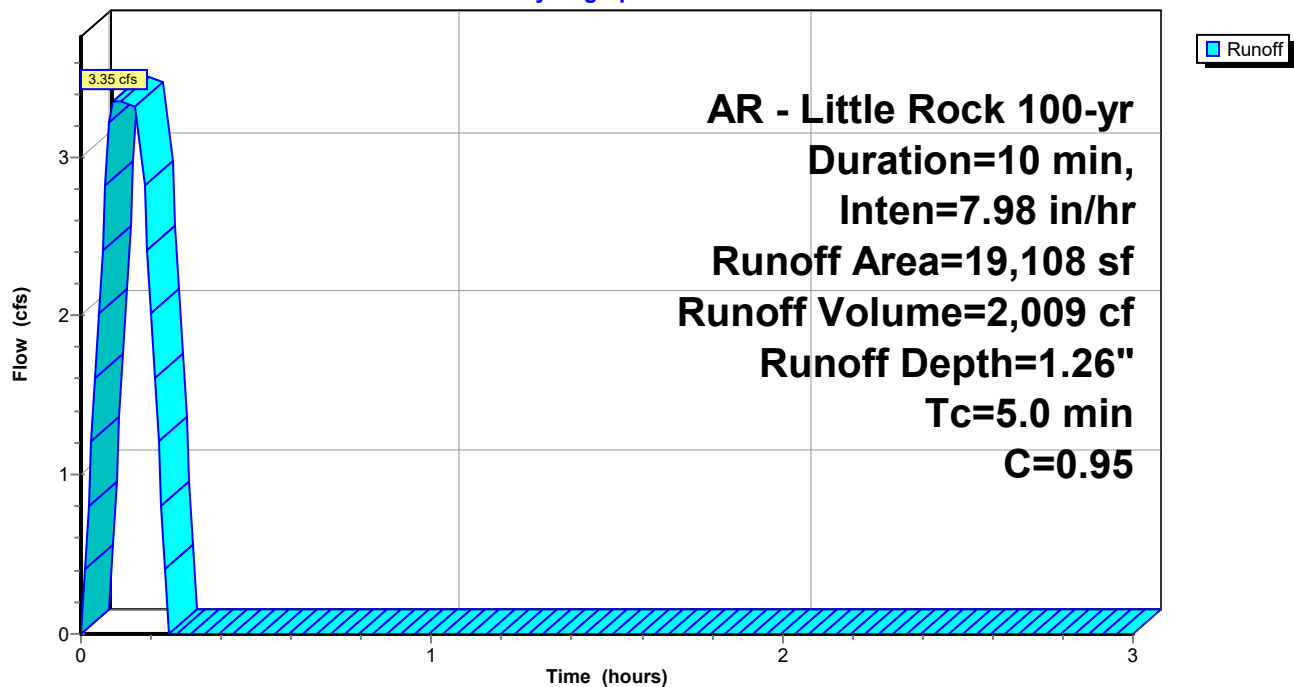
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
19,108	0.95	Roof
19,108		100.00% Impervious Area

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

Subcatchment D6: Drainage Basin D6

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Subcatchment D7: Drainage Basin D7

Runoff = 2.49 cfs @ 0.09 hrs, Volume= 1,494 cf, Depth= 0.72"
Routed to Link Post-Dev : APPROX DISCHARGE

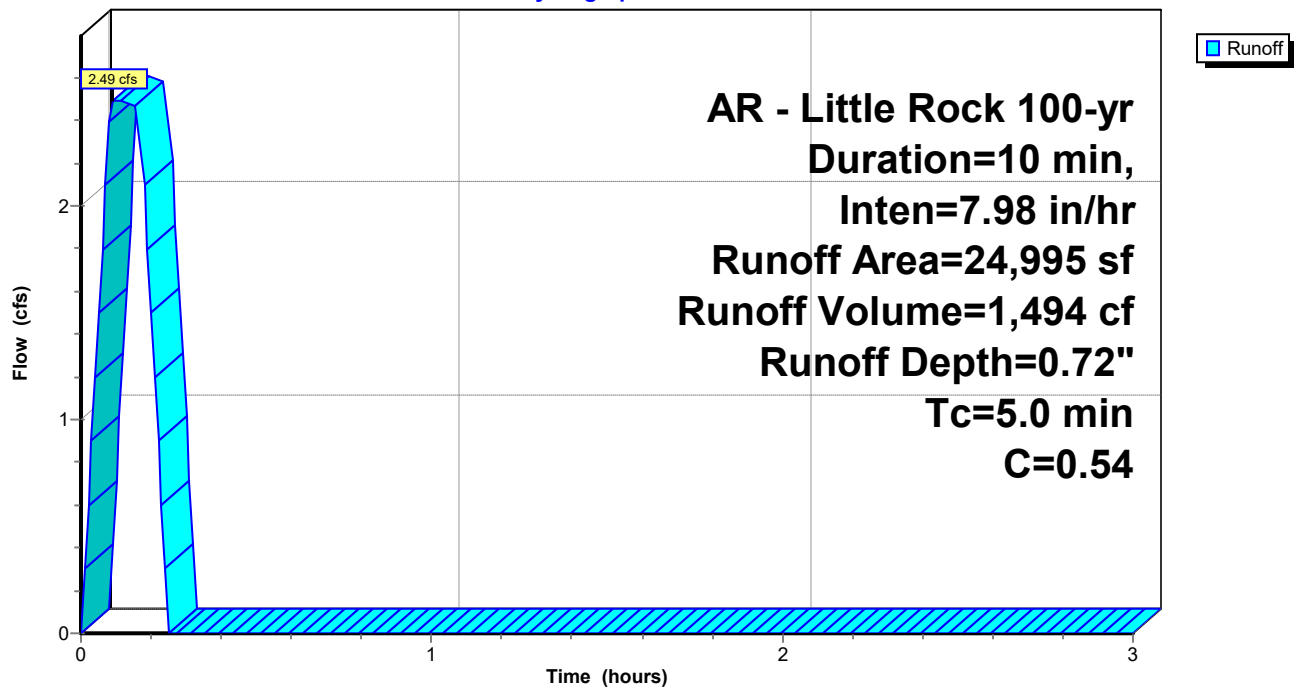
Runoff by Rational method, Rise/Fall=1.0/1.0 xTc, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Area (sf)	C	Description
18,798	0.40	Sod Yard, Natural Vegetation
6,197	0.95	Paving, Sidewalks
24,995	0.54	Weighted Average
18,798		75.21% Pervious Area
6,197		24.79% Impervious Area

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

Subcatchment D7: Drainage Basin D7

Hydrograph



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Reach P-A1: Pipe A1

Inflow Area = 24,411 sf, 63.77% Impervious, Inflow Depth = 1.02" for 100-yr event
Inflow = 3.47 cfs @ 0.09 hrs, Volume= 2,080 cf
Outflow = 3.47 cfs @ 0.11 hrs, Volume= 2,080 cf, Atten= 0%, Lag= 1.2 min
Routed to Reach P-A2 : Pipe A2

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 7.65 fps, Min. Travel Time= 0.1 min

Avg. Velocity= 6.08 fps, Avg. Travel Time= 0.1 min

Peak Storage= 23 cf @ 0.09 hrs

Average Depth at Peak Storage= 0.46' , Surface Width= 1.38'

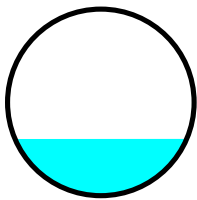
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.28 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

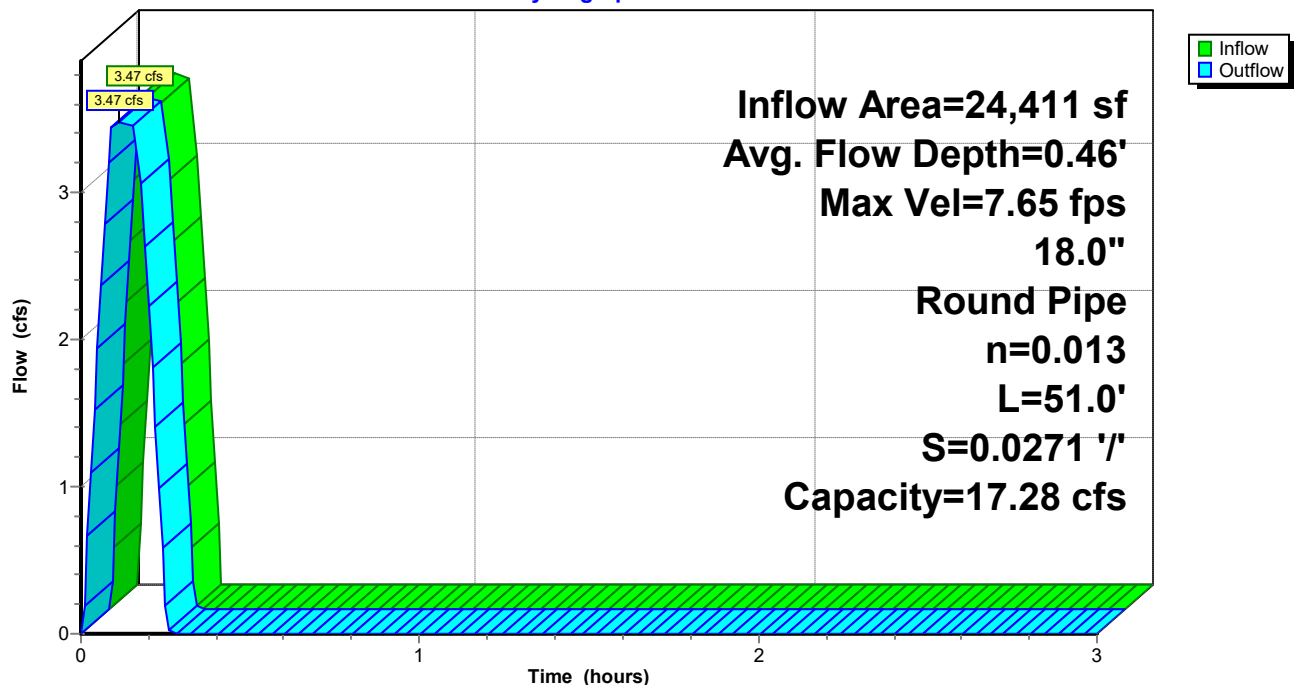
Length= 51.0' Slope= 0.0271 '/'

Inlet Invert= 408.33', Outlet Invert= 406.95'



Reach P-A1: Pipe A1

Hydrograph



Summerwood Gym 3

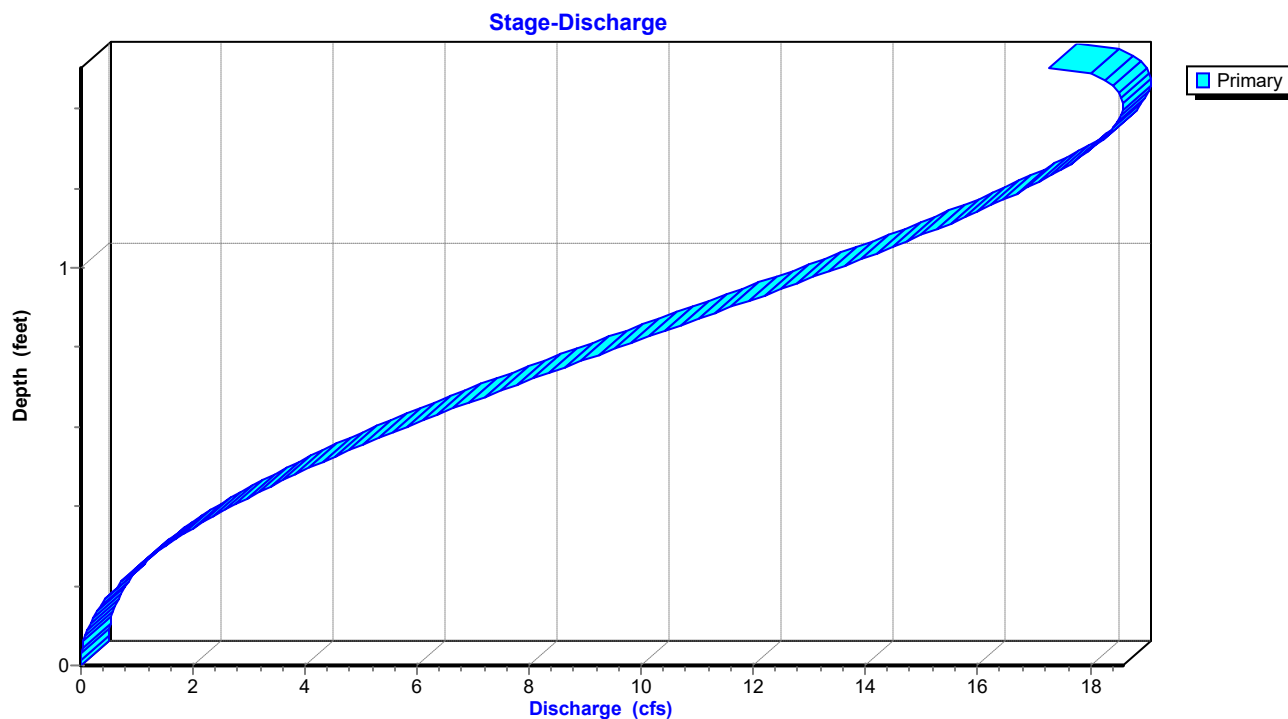
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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Reach P-A1: Pipe A1



Summerwood Gym 3*AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr*

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Stage-Area-Storage for Reach P-A1: Pipe A1

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
408.33	0.0	0	409.37	1.3	67
408.35	0.0	0	409.39	1.3	68
408.37	0.0	1	409.41	1.4	69
408.39	0.0	1	409.43	1.4	71
408.41	0.0	2	409.45	1.4	72
408.43	0.1	3	409.47	1.4	73
408.45	0.1	3	409.49	1.5	75
408.47	0.1	4	409.51	1.5	76
408.49	0.1	5	409.53	1.5	77
408.51	0.1	6	409.55	1.5	78
408.53	0.1	7	409.57	1.6	80
408.55	0.2	8	409.59	1.6	81
408.57	0.2	9	409.61	1.6	82
408.59	0.2	10	409.63	1.6	83
408.61	0.2	12	409.65	1.6	84
408.63	0.3	13	409.67	1.7	85
408.65	0.3	14	409.69	1.7	86
408.67	0.3	15	409.71	1.7	87
408.69	0.3	17	409.73	1.7	88
408.71	0.4	18	409.75	1.7	88
408.73	0.4	19	409.77	1.7	89
408.75	0.4	21	409.79	1.8	89
408.77	0.4	22	409.81	1.8	90
408.79	0.5	23	409.83	1.8	90
408.81	0.5	25			
408.83	0.5	26			
408.85	0.5	28			
408.87	0.6	29			
408.89	0.6	31			
408.91	0.6	32			
408.93	0.7	34			
408.95	0.7	35			
408.97	0.7	37			
408.99	0.7	38			
409.01	0.8	40			
409.03	0.8	41			
409.05	0.8	43			
409.07	0.9	44			
409.09	0.9	46			
409.11	0.9	47			
409.13	1.0	49			
409.15	1.0	50			
409.17	1.0	52			
409.19	1.0	53			
409.21	1.1	55			
409.23	1.1	56			
409.25	1.1	58			
409.27	1.2	59			
409.29	1.2	61			
409.31	1.2	62			
409.33	1.3	64			
409.35	1.3	65			

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Summary for Reach P-A2: Pipe A2

Inflow Area = 39,705 sf, 75.04% Impervious, Inflow Depth = 1.09" for 100-yr event
Inflow = 6.04 cfs @ 0.11 hrs, Volume= 3,620 cf
Outflow = 6.04 cfs @ 0.15 hrs, Volume= 3,620 cf, Atten= 0%, Lag= 2.4 min
Routed to Reach P-A3 : Pipe A3

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 6.78 fps, Min. Travel Time= 0.4 min

Avg. Velocity= 2.68 fps, Avg. Travel Time= 1.1 min

Peak Storage= 158 cf @ 0.12 hrs

Average Depth at Peak Storage= 0.76' , Surface Width= 1.50'

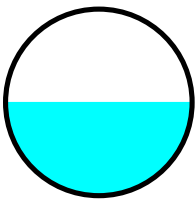
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 11.95 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

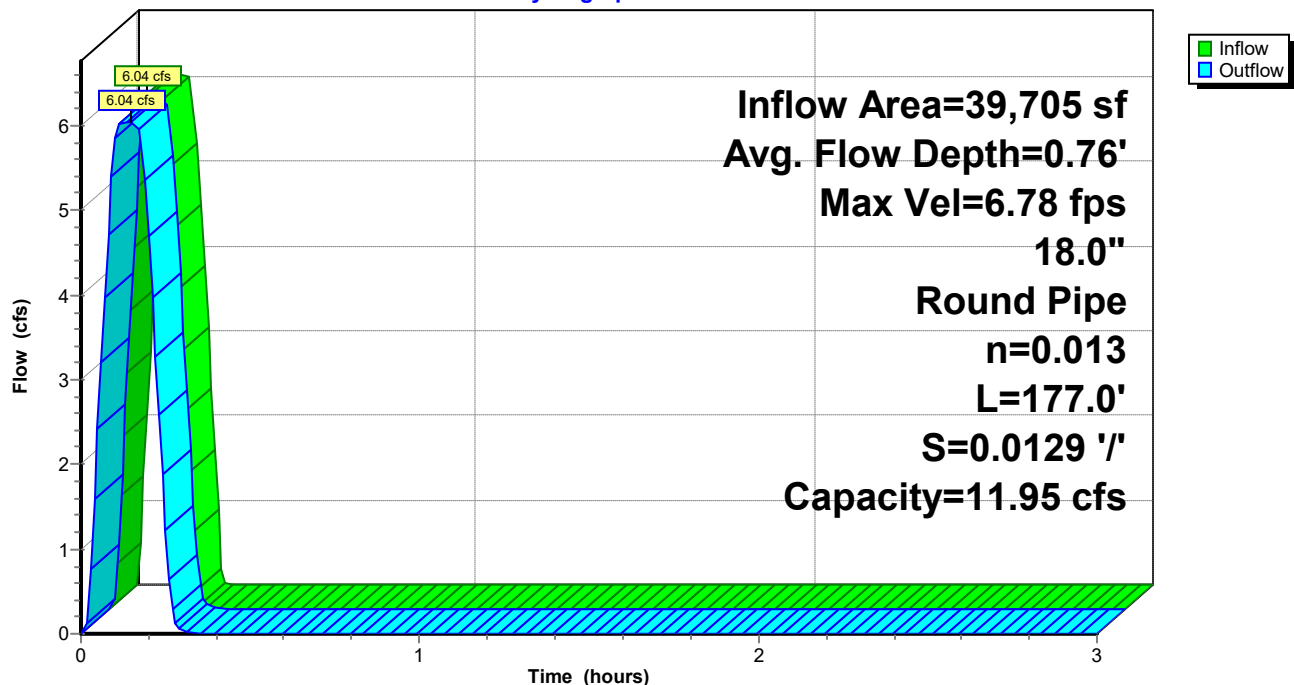
Length= 177.0' Slope= 0.0129 '/'

Inlet Invert= 406.85', Outlet Invert= 404.56'



Reach P-A2: Pipe A2

Hydrograph



Summerwood Gym 3

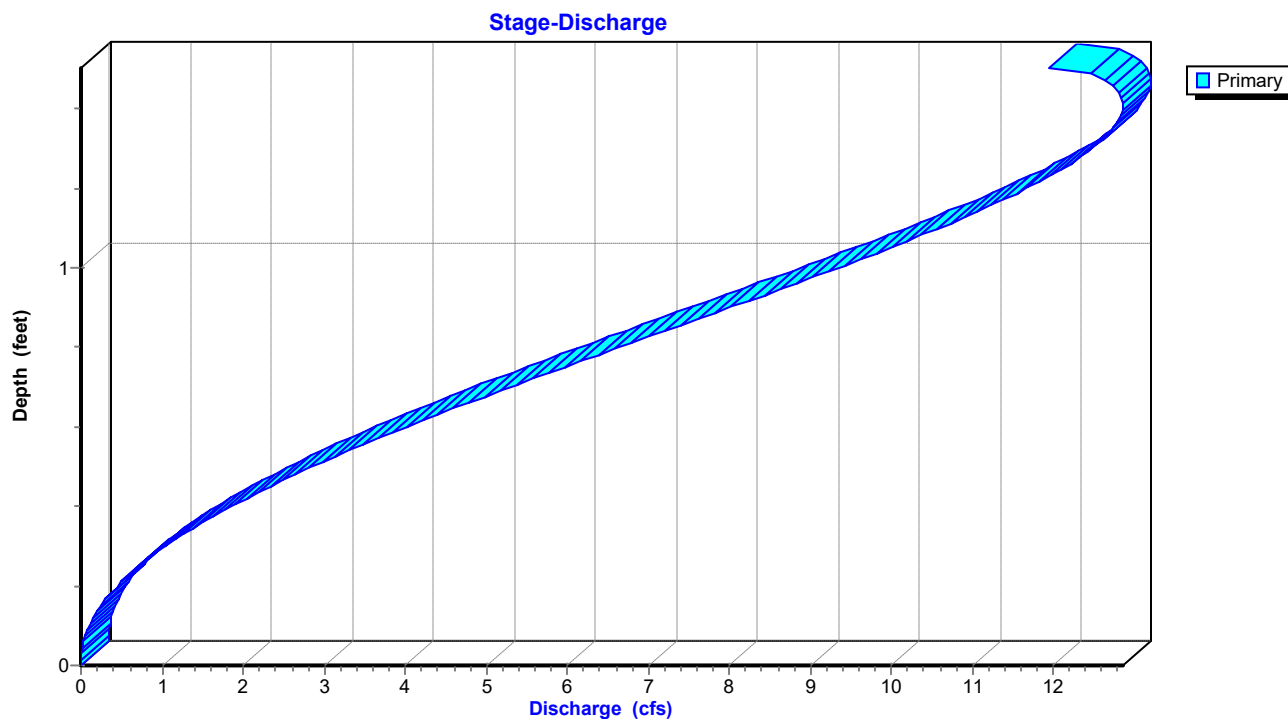
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Reach P-A2: Pipe A2



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Stage-Area-Storage for Reach P-A2: Pipe A2

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
406.85	0.0	0	407.89	1.3	231
406.87	0.0	1	407.91	1.3	236
406.89	0.0	2	407.93	1.4	241
406.91	0.0	4	407.95	1.4	246
406.93	0.0	6	407.97	1.4	250
406.95	0.1	9	407.99	1.4	255
406.97	0.1	12	408.01	1.5	260
406.99	0.1	15	408.03	1.5	264
407.01	0.1	18	408.05	1.5	268
407.03	0.1	21	408.07	1.5	272
407.05	0.1	25	408.09	1.6	277
407.07	0.2	28	408.11	1.6	280
407.09	0.2	32	408.13	1.6	284
407.11	0.2	36	408.15	1.6	288
407.13	0.2	40	408.17	1.6	292
407.15	0.3	45	408.19	1.7	295
407.17	0.3	49	408.21	1.7	298
407.19	0.3	53	408.23	1.7	301
407.21	0.3	58	408.25	1.7	304
407.23	0.4	62	408.27	1.7	306
407.25	0.4	67	408.29	1.7	309
407.27	0.4	72	408.31	1.8	310
407.29	0.4	76	408.33	1.8	312
407.31	0.5	81	408.35	1.8	313
407.33	0.5	86			
407.35	0.5	91			
407.37	0.5	96			
407.39	0.6	101			
407.41	0.6	106			
407.43	0.6	112			
407.45	0.7	117			
407.47	0.7	122			
407.49	0.7	127			
407.51	0.7	133			
407.53	0.8	138			
407.55	0.8	143			
407.57	0.8	148			
407.59	0.9	154			
407.61	0.9	159			
407.63	0.9	164			
407.65	1.0	170			
407.67	1.0	175			
407.69	1.0	180			
407.71	1.0	185			
407.73	1.1	191			
407.75	1.1	196			
407.77	1.1	201			
407.79	1.2	206			
407.81	1.2	211			
407.83	1.2	216			
407.85	1.3	222			
407.87	1.3	226			

Summerwood Gym 3

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Summary for Reach P-A3: Pipe A3

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.97" for 100-yr event
Inflow = 9.59 cfs @ 0.17 hrs, Volume= 5,787 cf
Outflow = 9.53 cfs @ 0.17 hrs, Volume= 5,787 cf, Atten= 1%, Lag= 0.2 min
Routed to Reach P-A4 : Pipe A4

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 10.19 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 4.21 fps, Avg. Travel Time= 0.5 min

Peak Storage= 111 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.79' , Surface Width= 1.50'

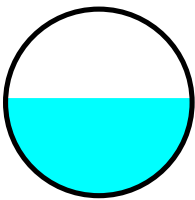
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.65 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

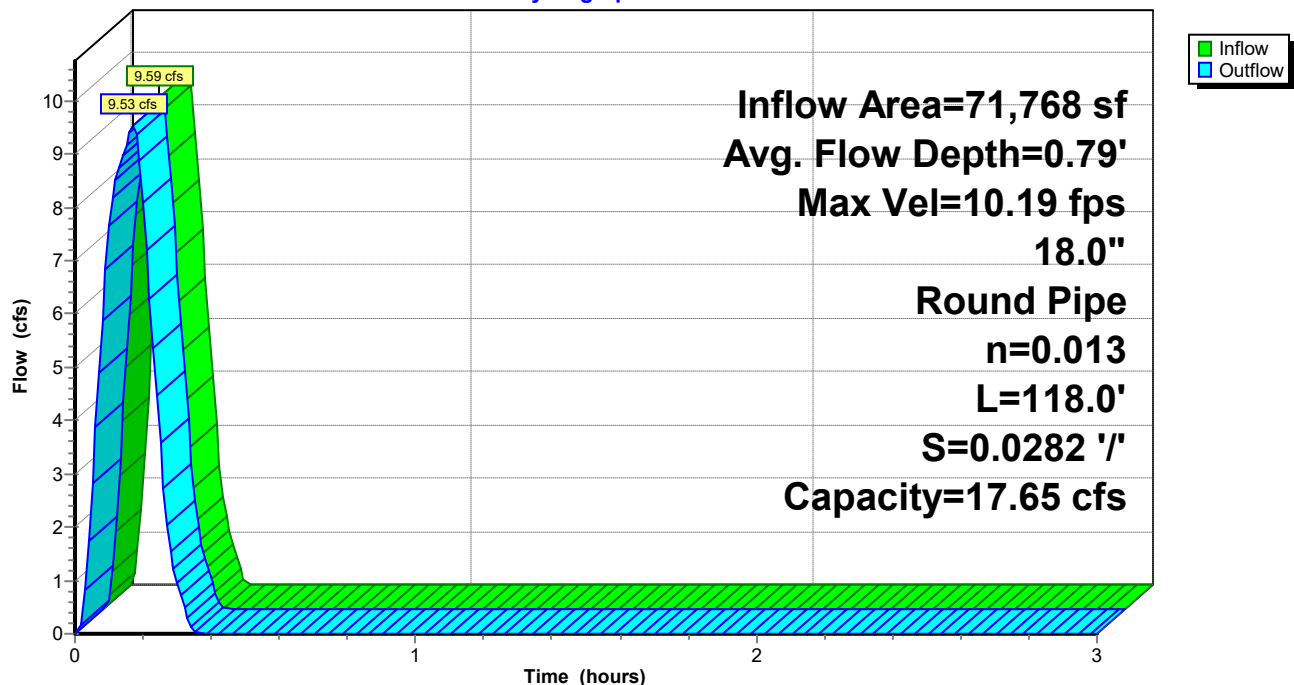
Length= 118.0' Slope= 0.0282 '/'

Inlet Invert= 404.46', Outlet Invert= 401.13'



Reach P-A3: Pipe A3

Hydrograph



Summerwood Gym 3

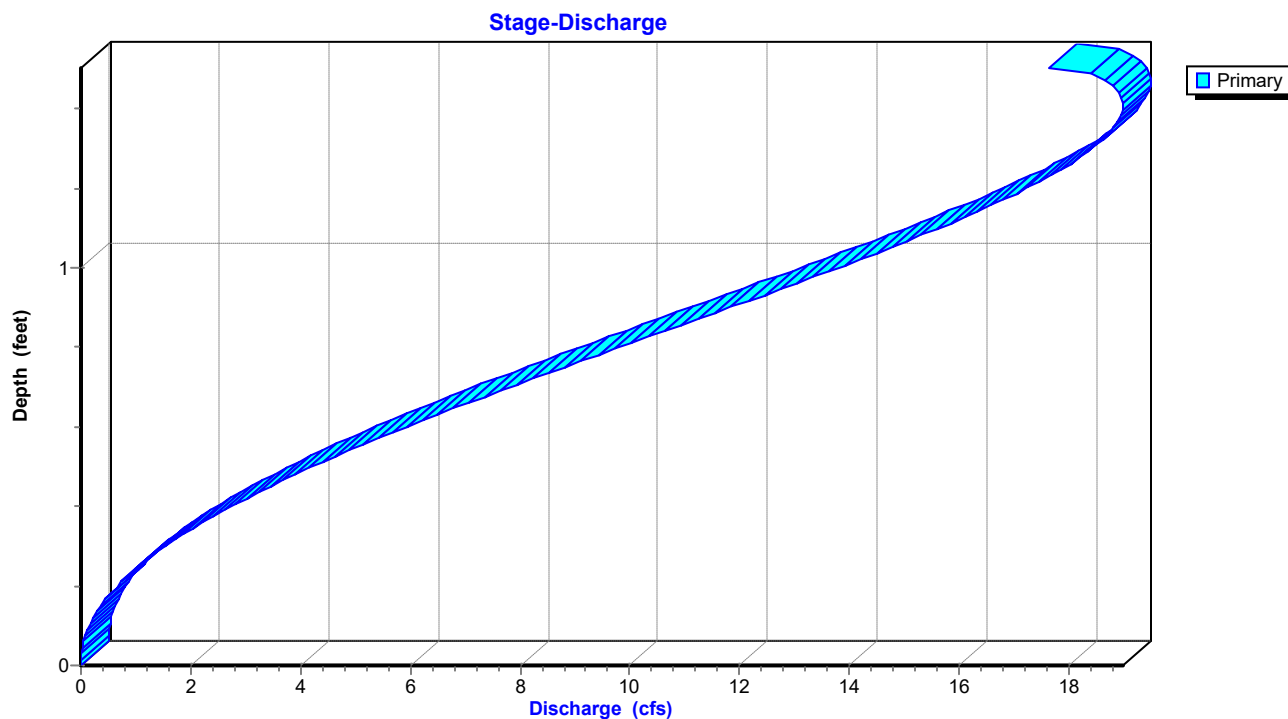
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Reach P-A3: Pipe A3



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Stage-Area-Storage for Reach P-A3: Pipe A3

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
404.46	0.0	0	405.50	1.3	154
404.48	0.0	1	405.52	1.3	158
404.50	0.0	2	405.54	1.4	161
404.52	0.0	3	405.56	1.4	164
404.54	0.0	4	405.58	1.4	167
404.56	0.1	6	405.60	1.4	170
404.58	0.1	8	405.62	1.5	173
404.60	0.1	10	405.64	1.5	176
404.62	0.1	12	405.66	1.5	179
404.64	0.1	14	405.68	1.5	182
404.66	0.1	17	405.70	1.6	184
404.68	0.2	19	405.72	1.6	187
404.70	0.2	22	405.74	1.6	190
404.72	0.2	24	405.76	1.6	192
404.74	0.2	27	405.78	1.6	194
404.76	0.3	30	405.80	1.7	197
404.78	0.3	33	405.82	1.7	199
404.80	0.3	35	405.84	1.7	201
404.82	0.3	38	405.86	1.7	203
404.84	0.4	42	405.88	1.7	204
404.86	0.4	45	405.90	1.7	206
404.88	0.4	48	405.92	1.8	207
404.90	0.4	51	405.94	1.8	208
404.92	0.5	54	405.96	1.8	209
404.94	0.5	58			
404.96	0.5	61			
404.98	0.5	64			
405.00	0.6	68			
405.02	0.6	71			
405.04	0.6	74			
405.06	0.7	78			
405.08	0.7	81			
405.10	0.7	85			
405.12	0.7	88			
405.14	0.8	92			
405.16	0.8	95			
405.18	0.8	99			
405.20	0.9	102			
405.22	0.9	106			
405.24	0.9	110			
405.26	1.0	113			
405.28	1.0	117			
405.30	1.0	120			
405.32	1.0	124			
405.34	1.1	127			
405.36	1.1	131			
405.38	1.1	134			
405.40	1.2	138			
405.42	1.2	141			
405.44	1.2	144			
405.46	1.3	148			
405.48	1.3	151			

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Summary for Reach P-A4: Pipe A4

Inflow Area = 71,768 sf, 58.28% Impervious, Inflow Depth = 0.97" for 100-yr event
Inflow = 9.53 cfs @ 0.17 hrs, Volume= 5,787 cf
Outflow = 9.49 cfs @ 0.18 hrs, Volume= 5,787 cf, Atten= 0%, Lag= 0.4 min
Routed to Pond DP1 : Re-Established East Pond

Routing by Stor-Ind+Trans method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Max. Velocity= 10.17 fps, Min. Travel Time= 0.2 min

Avg. Velocity= 4.00 fps, Avg. Travel Time= 0.6 min

Peak Storage= 123 cf @ 0.17 hrs

Average Depth at Peak Storage= 0.78' , Surface Width= 1.50'

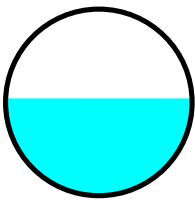
Bank-Full Depth= 1.50' Flow Area= 1.8 sf, Capacity= 17.66 cfs

18.0" Round Pipe

n= 0.013 Corrugated PE, smooth interior

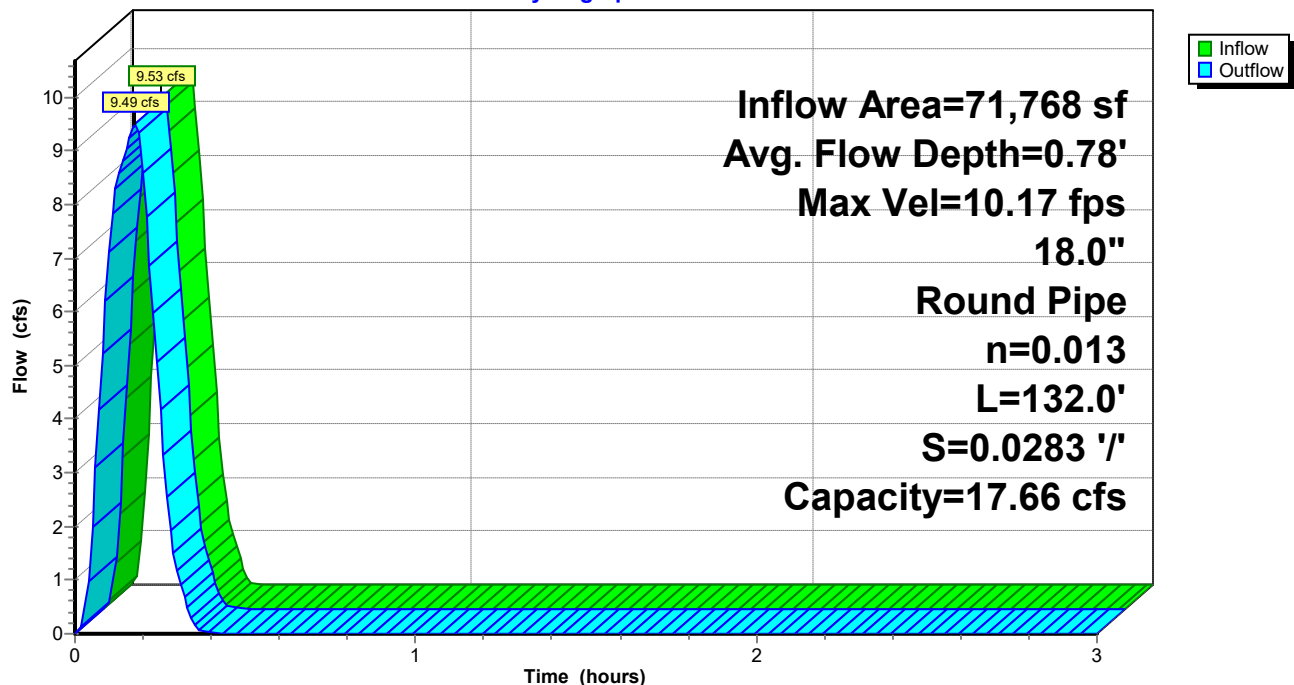
Length= 132.0' Slope= 0.0283 '/'

Inlet Invert= 401.03', Outlet Invert= 397.30'



Reach P-A4: Pipe A4

Hydrograph



Summerwood Gym 3

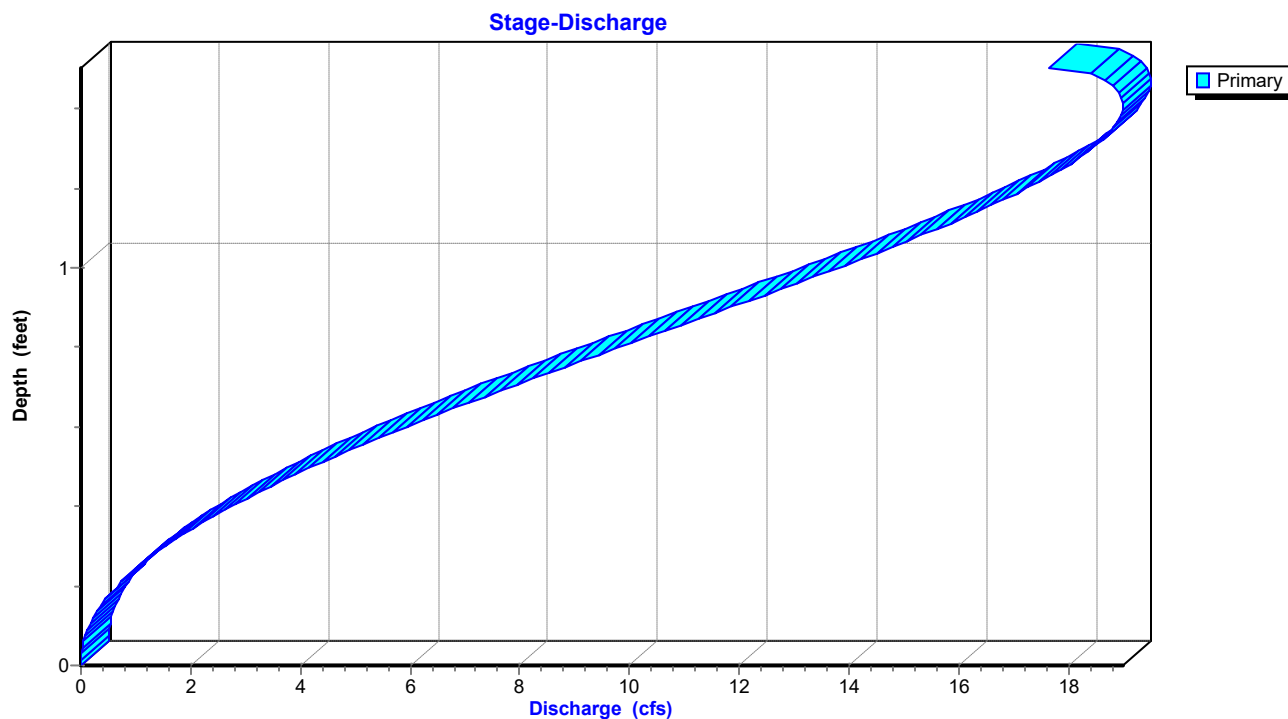
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Reach P-A4: Pipe A4



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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

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Stage-Area-Storage for Reach P-A4: Pipe A4

Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)	Elevation (feet)	End-Area (sq-ft)	Storage (cubic-feet)
401.03	0.0	0	402.07	1.3	173
401.05	0.0	1	402.09	1.3	176
401.07	0.0	2	402.11	1.4	180
401.09	0.0	3	402.13	1.4	183
401.11	0.0	5	402.15	1.4	187
401.13	0.1	7	402.17	1.4	190
401.15	0.1	9	402.19	1.5	194
401.17	0.1	11	402.21	1.5	197
401.19	0.1	13	402.23	1.5	200
401.21	0.1	16	402.25	1.5	203
401.23	0.1	18	402.27	1.6	206
401.25	0.2	21	402.29	1.6	209
401.27	0.2	24	402.31	1.6	212
401.29	0.2	27	402.33	1.6	215
401.31	0.2	30	402.35	1.6	217
401.33	0.3	33	402.37	1.7	220
401.35	0.3	36	402.39	1.7	222
401.37	0.3	40	402.41	1.7	225
401.39	0.3	43	402.43	1.7	227
401.41	0.4	46	402.45	1.7	228
401.43	0.4	50	402.47	1.7	230
401.45	0.4	53	402.49	1.8	232
401.47	0.4	57	402.51	1.8	233
401.49	0.5	61	402.53	1.8	233
401.51	0.5	64			
401.53	0.5	68			
401.55	0.5	72			
401.57	0.6	76			
401.59	0.6	79			
401.61	0.6	83			
401.63	0.7	87			
401.65	0.7	91			
401.67	0.7	95			
401.69	0.7	99			
401.71	0.8	103			
401.73	0.8	107			
401.75	0.8	111			
401.77	0.9	115			
401.79	0.9	119			
401.81	0.9	123			
401.83	1.0	127			
401.85	1.0	130			
401.87	1.0	134			
401.89	1.0	138			
401.91	1.1	142			
401.93	1.1	146			
401.95	1.1	150			
401.97	1.2	154			
401.99	1.2	158			
402.01	1.2	161			
402.03	1.3	165			
402.05	1.3	169			

Summerwood Gym 3

AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Prepared by Phillip Lewis Engineering

Printed 1/11/2024

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Summary for Pond DP1: Re-Established East Pond

Inflow Area = 132,514 sf, 61.41% Impervious, Inflow Depth = 0.99" for 100-yr event
 Inflow = 17.76 cfs @ 0.16 hrs, Volume= 10,883 cf
 Outflow = 9.14 cfs @ 0.22 hrs, Volume= 10,883 cf, Atten= 49%, Lag= 3.8 min
 Primary = 9.14 cfs @ 0.22 hrs, Volume= 10,883 cf
 Routed to Link Post-Dev : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs

Peak Elev= 398.89' @ 0.22 hrs Storage= 5,867 cf

Plug-Flow detention time= 9.3 min calculated for 10,883 cf (100% of inflow)

Center-of-Mass det. time= 9.1 min (18.0 - 8.8)

Volume	Invert	Avail.Storage	Storage Description
#1	396.00'	8,557 cf	Custom Stage Data Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
396.00	0	0
396.50	250	250
397.00	1,092	1,342
398.00	2,387	3,729
399.00	2,405	6,134
400.00	2,423	8,557

Device	Routing	Invert	Outlet Devices
#1	Primary	399.00'	5.0' long Sharp-Crested Rectangular Weir 2 End Contraction(s)
#2	Primary	396.00'	1.1' long Sharp-Crested Rectangular Weir 2 End Contraction(s) 10.0' Crest Height

Primary OutFlow Max=9.13 cfs @ 0.22 hrs HW=398.89' (Free Discharge)

1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

2=Sharp-Crested Rectangular Weir (Weir Controls 9.13 cfs @ 5.75 fps)

Summerwood Gym 3

Prepared by Phillip Lewis Engineering

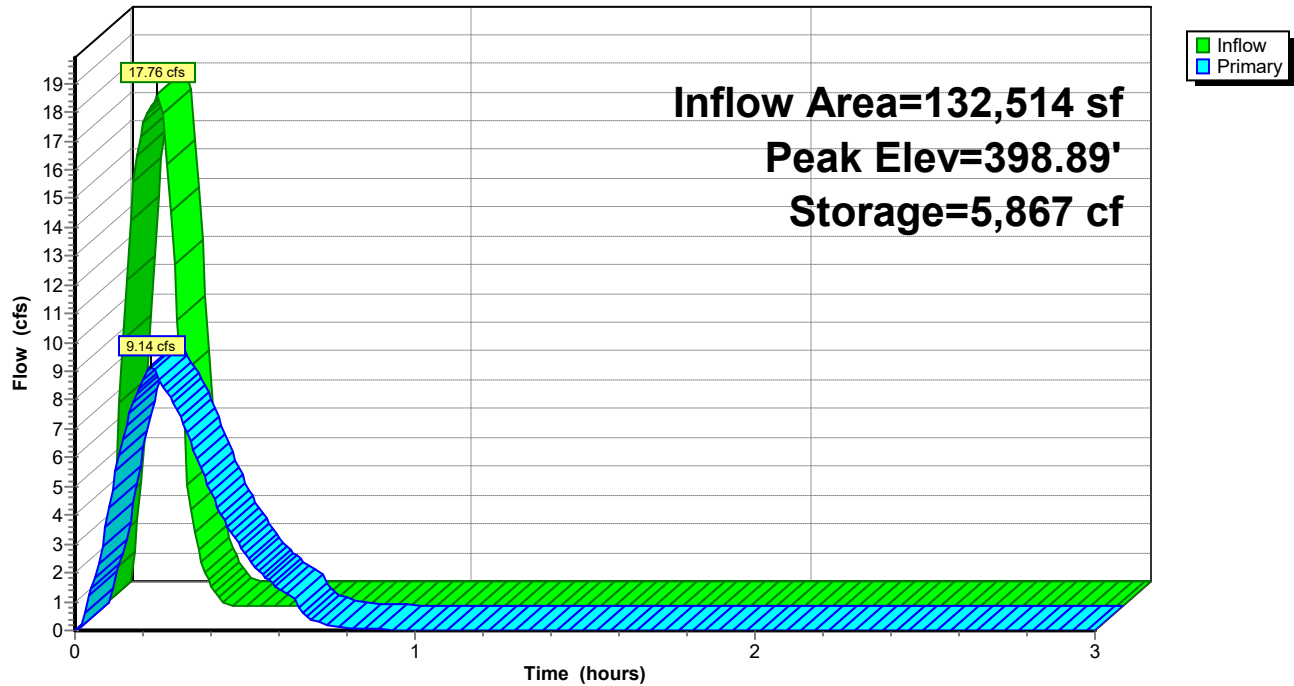
HydroCAD® 10.20-2f s/n 12520 © 2022 HydroCAD Software Solutions LLC

AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

Printed 1/11/2024

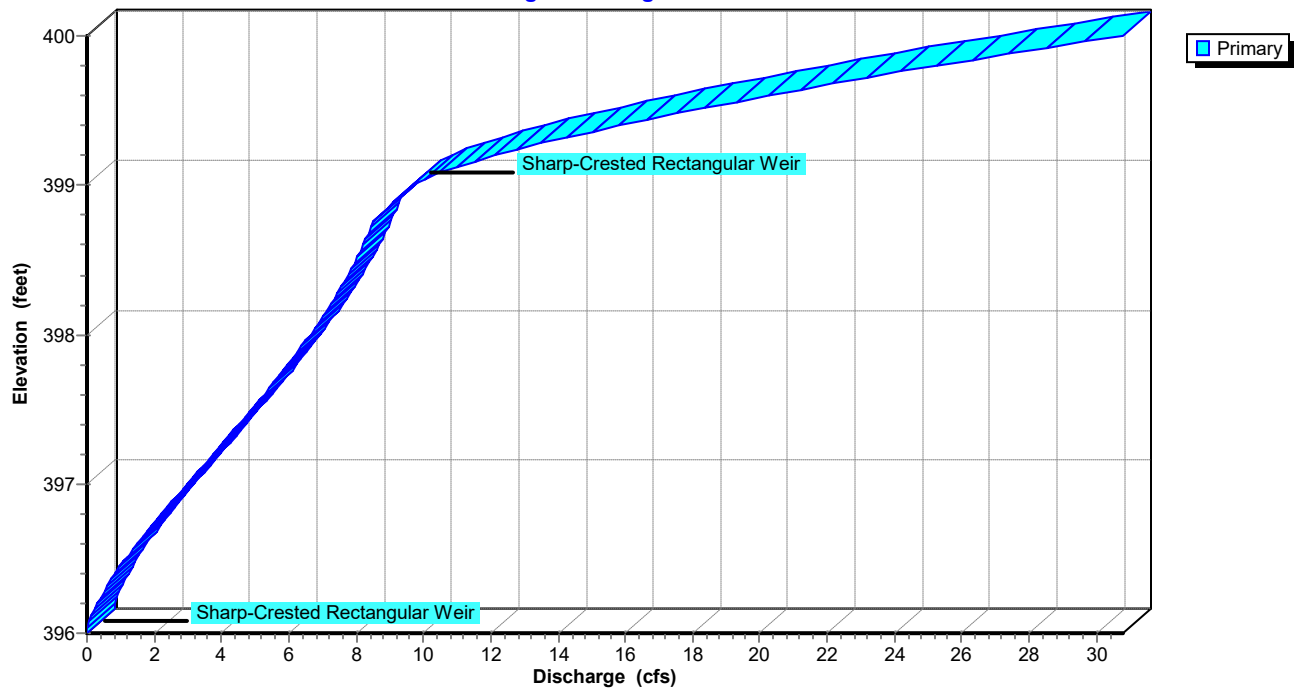
Pond DP1: Re-Established East Pond

Hydrograph



Pond DP1: Re-Established East Pond

Stage-Discharge



Summerwood Gym 3*AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr*

Prepared by Phillip Lewis Engineering

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Stage-Area-Storage for Pond DP1: Re-Established East Pond

Elevation (feet)	Storage (cubic-feet)	Elevation (feet)	Storage (cubic-feet)
396.00	0	398.60	5,172
396.05	25	398.65	5,292
396.10	50	398.70	5,412
396.15	75	398.75	5,533
396.20	100	398.80	5,653
396.25	125	398.85	5,773
396.30	150	398.90	5,893
396.35	175	398.95	6,014
396.40	200	399.00	6,134
396.45	225	399.05	6,255
396.50	250	399.10	6,376
396.55	359	399.15	6,497
396.60	468	399.20	6,619
396.65	578	399.25	6,740
396.70	687	399.30	6,861
396.75	796	399.35	6,982
396.80	905	399.40	7,103
396.85	1,014	399.45	7,224
396.90	1,124	399.50	7,346
396.95	1,233	399.55	7,467
397.00	1,342	399.60	7,588
397.05	1,461	399.65	7,709
397.10	1,581	399.70	7,830
397.15	1,700	399.75	7,951
397.20	1,819	399.80	8,072
397.25	1,939	399.85	8,194
397.30	2,058	399.90	8,315
397.35	2,177	399.95	8,436
397.40	2,297	400.00	8,557
397.45	2,416		
397.50	2,536		
397.55	2,655		
397.60	2,774		
397.65	2,894		
397.70	3,013		
397.75	3,132		
397.80	3,252		
397.85	3,371		
397.90	3,490		
397.95	3,610		
398.00	3,729		
398.05	3,849		
398.10	3,970		
398.15	4,090		
398.20	4,210		
398.25	4,330		
398.30	4,451		
398.35	4,571		
398.40	4,691		
398.45	4,811		
398.50	4,932		
398.55	5,052		

Summerwood Gym 3

Prepared by Phillip Lewis Engineering

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AR - Little Rock 100-yr Duration=10 min, Inten=7.98 in/hr

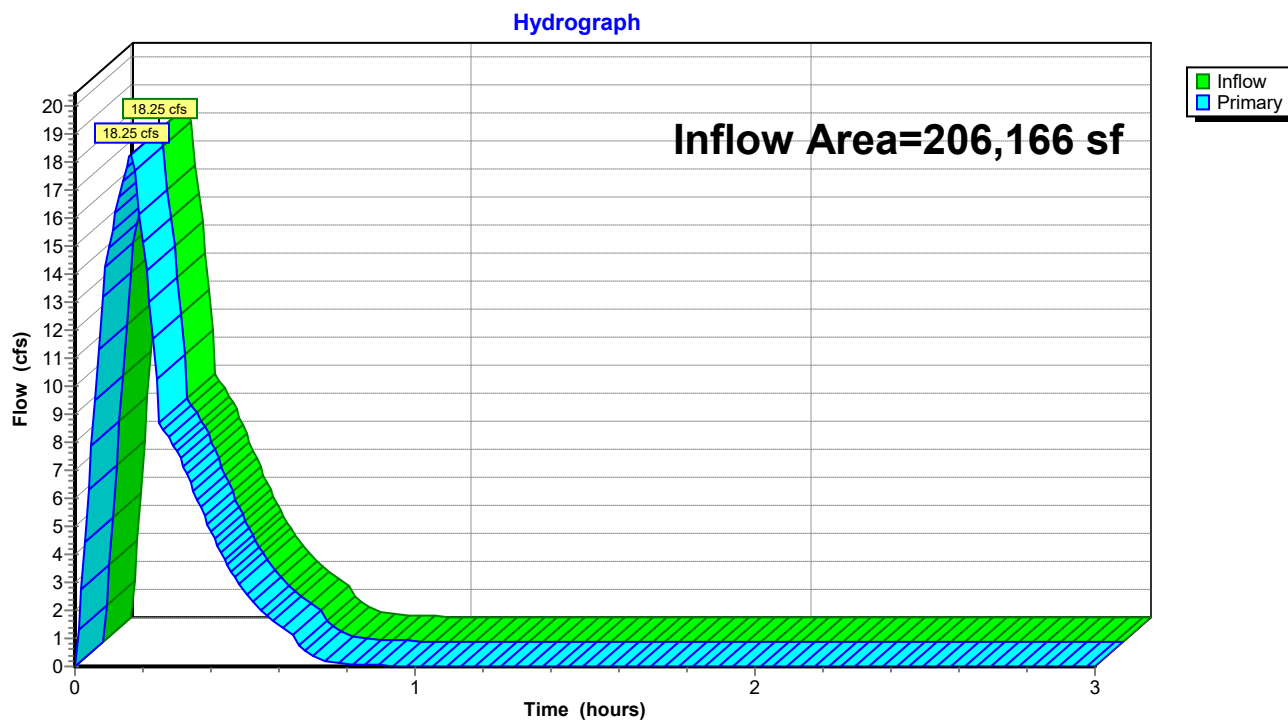
Printed 1/11/2024

Summary for Link Post-Dev: APPROX DISCHARGE

Inflow Area = 206,166 sf, 64.42% Impervious, Inflow Depth = 1.01" for 100-yr event
Inflow = 18.25 cfs @ 0.16 hrs, Volume= 17,276 cf
Primary = 18.25 cfs @ 0.16 hrs, Volume= 17,276 cf, Atten= 0%, Lag= 0.0 min

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

Link Post-Dev: APPROX DISCHARGE



STROM SEWER SIZING

Inlet Report

AI-A2

Drop Grate Inlet

Location	= Sag
Curb Length (ft)	= -0-
Throat Height (in)	= -0-
Grate Area (sqft)	= 2.00
Grate Width (ft)	= 2.00
Grate Length (ft)	= 2.00

Gutter

Slope, Sw (ft/ft)	= 0.050
Slope, Sx (ft/ft)	= 0.050
Local Depr (in)	= -0-
Gutter Width (ft)	= 2.00
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

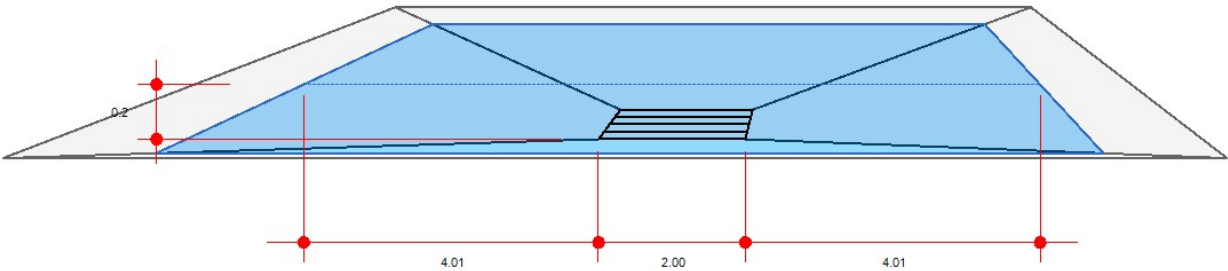
Calculations

Compute by:	Known Q
Q (cfs)	= 2.16

Highlighted

Q Total (cfs)	= 2.16
Q Capt (cfs)	= 2.16
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 2.41
Efficiency (%)	= 100
Gutter Spread (ft)	= 10.03
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-

All dimensions in feet



Inlet Report

AI-A3

Drop Grate Inlet

Location	= Sag
Curb Length (ft)	= -0-
Throat Height (in)	= -0-
Grate Area (sqft)	= 2.00
Grate Width (ft)	= 2.00
Grate Length (ft)	= 2.00

Gutter

Slope, Sw (ft/ft)	= 0.050
Slope, Sx (ft/ft)	= 0.050
Local Depr (in)	= -0-
Gutter Width (ft)	= 2.00
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

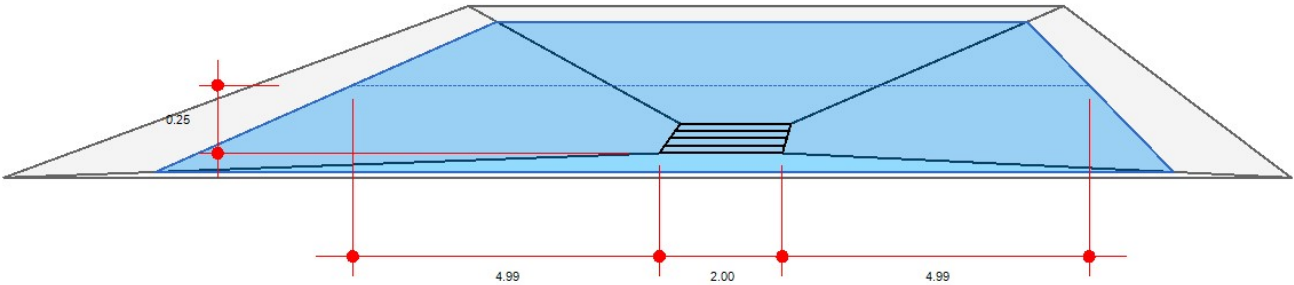
Calculations

Compute by:	Known Q
Q (cfs)	= 2.99

Highlighted

Q Total (cfs)	= 2.99
Q Capt (cfs)	= 2.99
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 2.99
Efficiency (%)	= 100
Gutter Spread (ft)	= 11.97
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-

All dimensions in feet



Channel Report

Pipe A1

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 408.33

Slope (%) = 2.70

N-Value = 0.015

Calculations

Compute by: Known Q

Known Q (cfs) = 2.92

Highlighted

Depth (ft) = 0.45

Q (cfs) = 2.920

Area (sqft) = 0.45

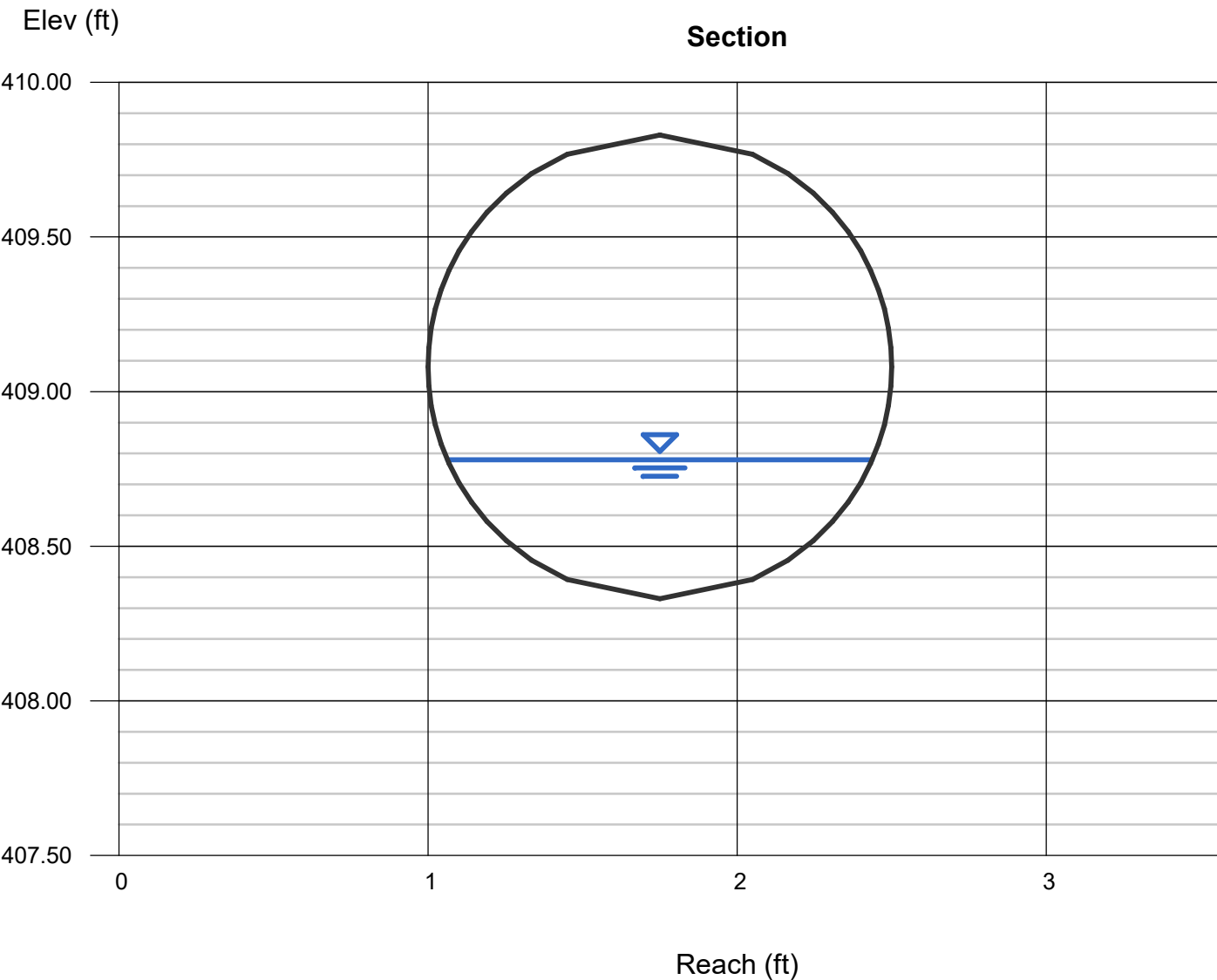
Velocity (ft/s) = 6.54

Wetted Perim (ft) = 1.74

Crit Depth, Yc (ft) = 0.65

Top Width (ft) = 1.38

EGL (ft) = 1.11



Channel Report

Pipe A2

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 406.85

Slope (%) = 1.30

N-Value = 0.015

Calculations

Compute by: Known Q

Known Q (cfs) = 5.09

Highlighted

Depth (ft) = 0.74

Q (cfs) = 5.090

Area (sqft) = 0.87

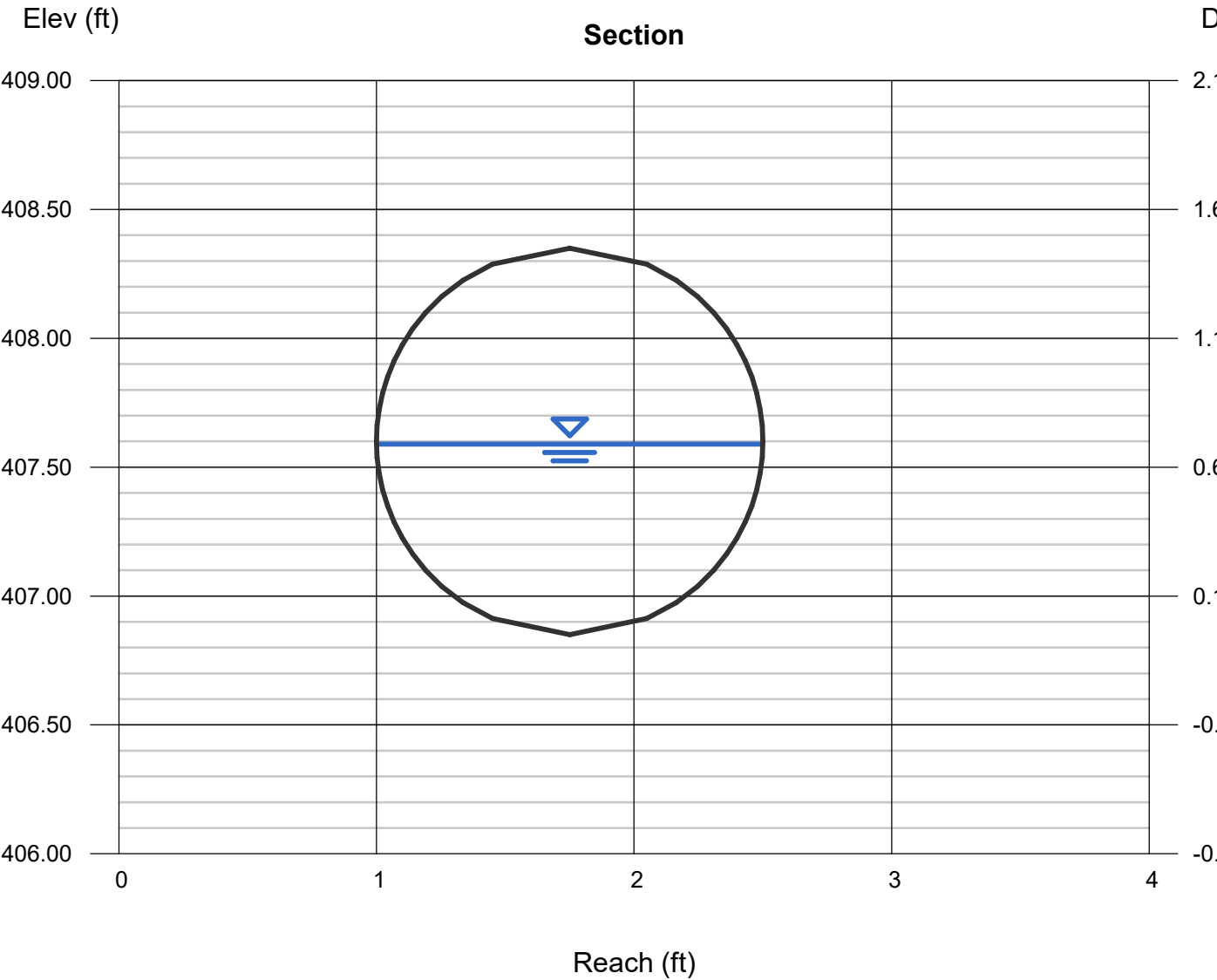
Velocity (ft/s) = 5.84

Wetted Perim (ft) = 2.34

Crit Depth, Yc (ft) = 0.87

Top Width (ft) = 1.50

EGL (ft) = 1.27



Channel Report

Pipe A3

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 404.46

Slope (%) = 2.80

N-Value = 0.015

Calculations

Compute by: Known Q

Known Q (cfs) = 8.02

Highlighted

Depth (ft) = 0.78

Q (cfs) = 8.020

Area (sqft) = 0.93

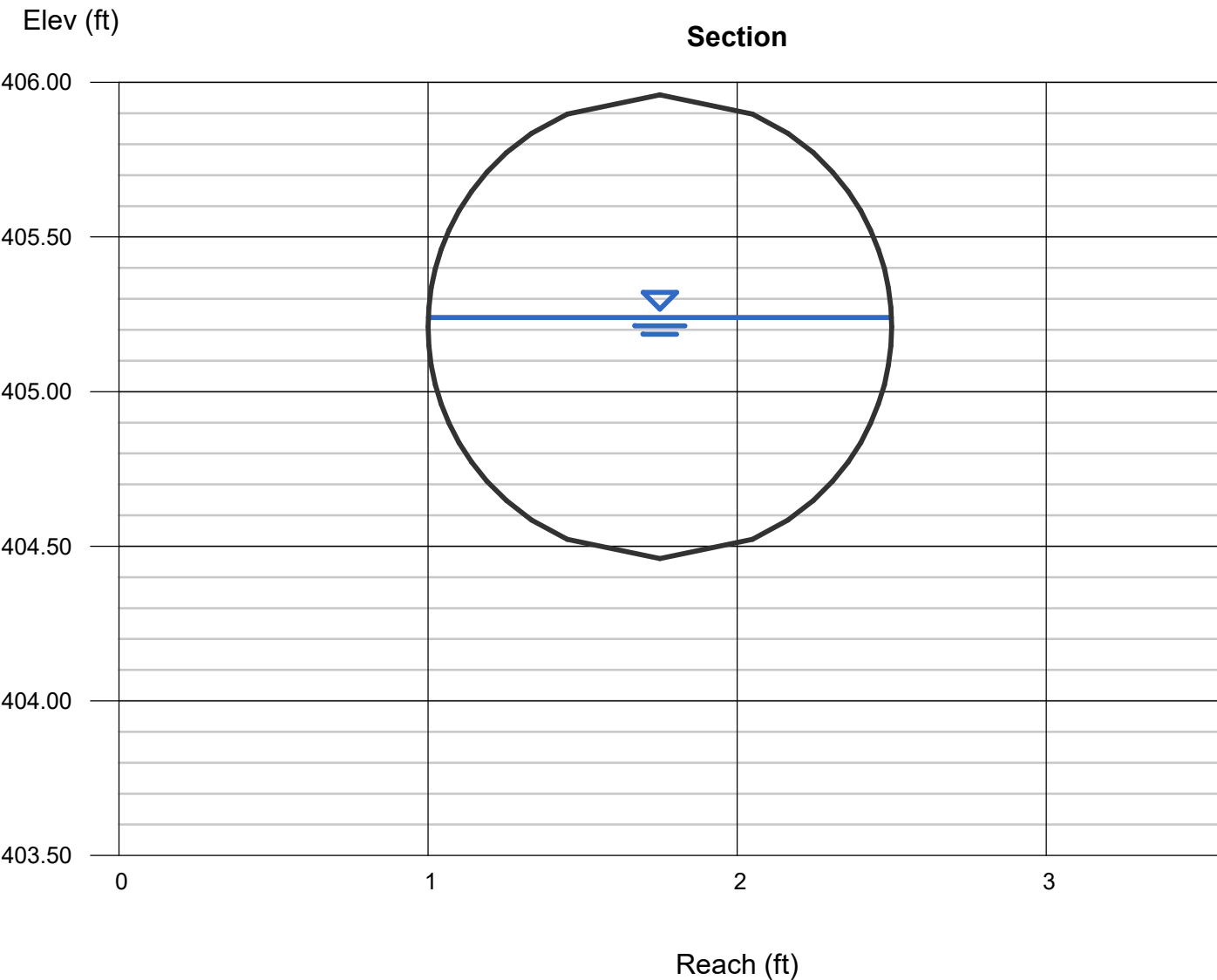
Velocity (ft/s) = 8.59

Wetted Perim (ft) = 2.42

Crit Depth, Yc (ft) = 1.10

Top Width (ft) = 1.50

EGL (ft) = 1.93



Channel Report

Pipe A4

Circular

Diameter (ft) = 1.50

Invert Elev (ft) = 401.03

Slope (%) = 2.83

N-Value = 0.013

Calculations

Compute by: Known Q

Known Q (cfs) = 8.02

Highlighted

Depth (ft) = 0.71

Q (cfs) = 8.020

Area (sqft) = 0.83

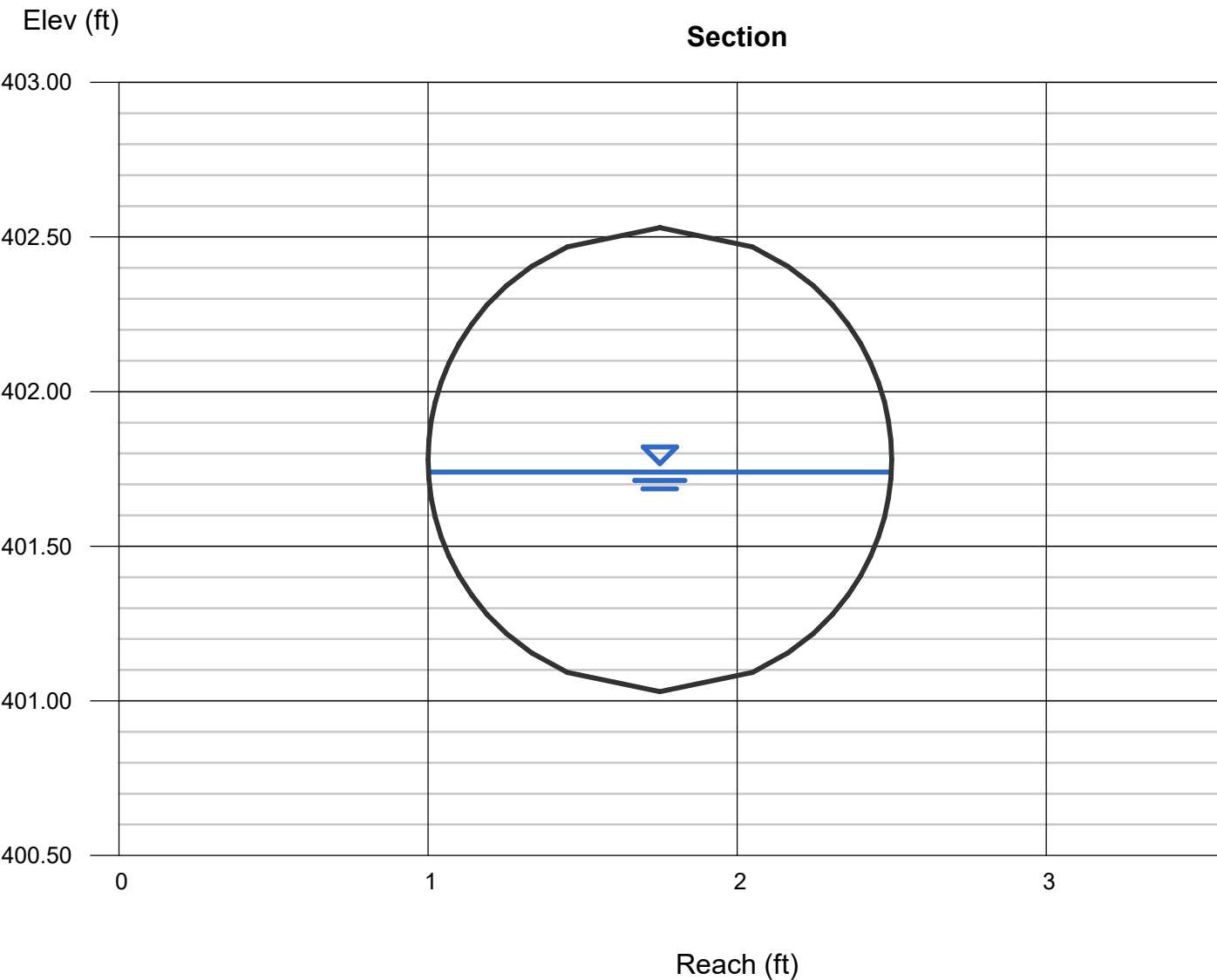
Velocity (ft/s) = 9.70

Wetted Perim (ft) = 2.28

Crit Depth, Yc (ft) = 1.10

Top Width (ft) = 1.50

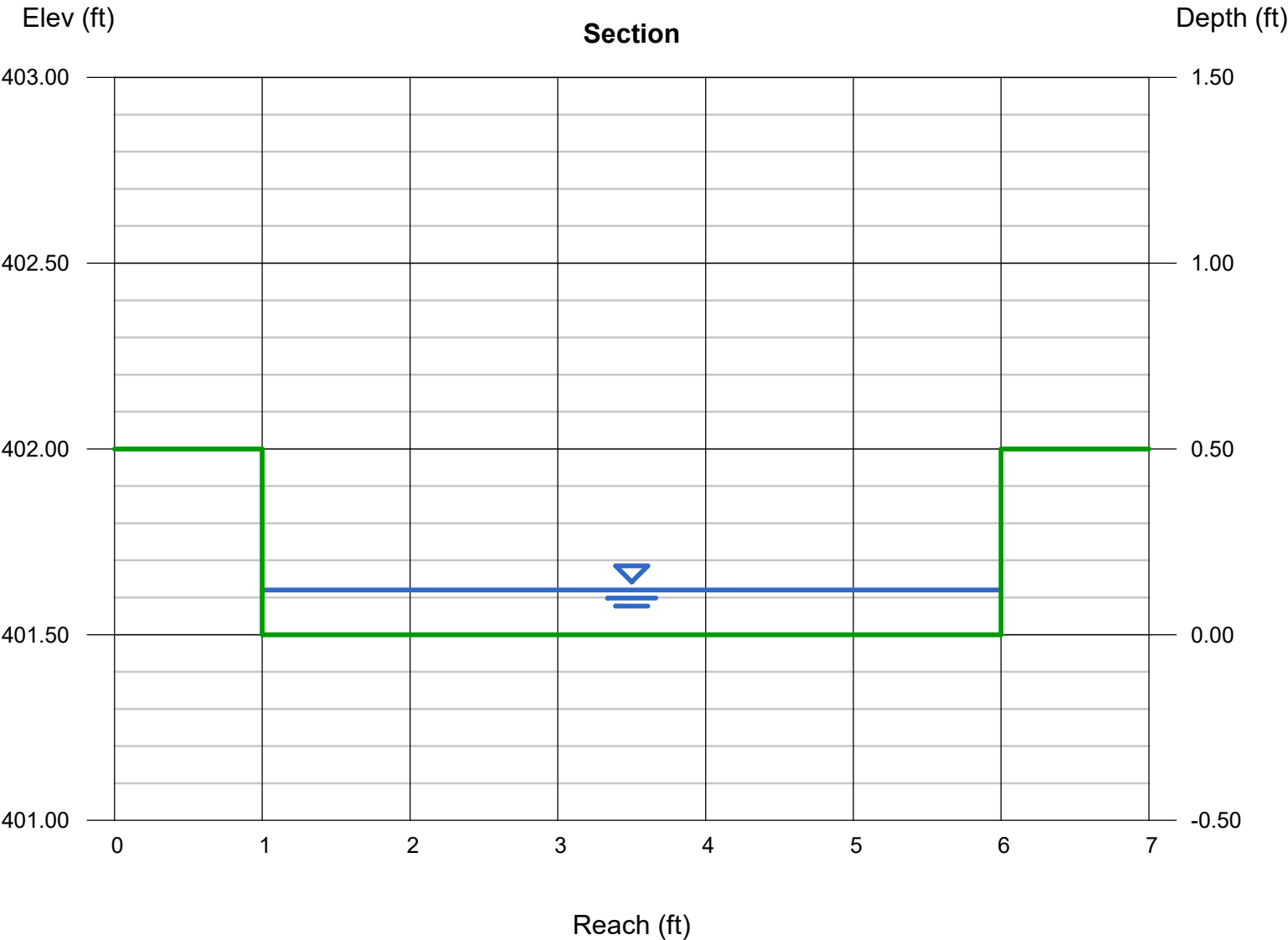
EGL (ft) = 2.17



Channel Report

5' Curb Cut & Flume to Pond

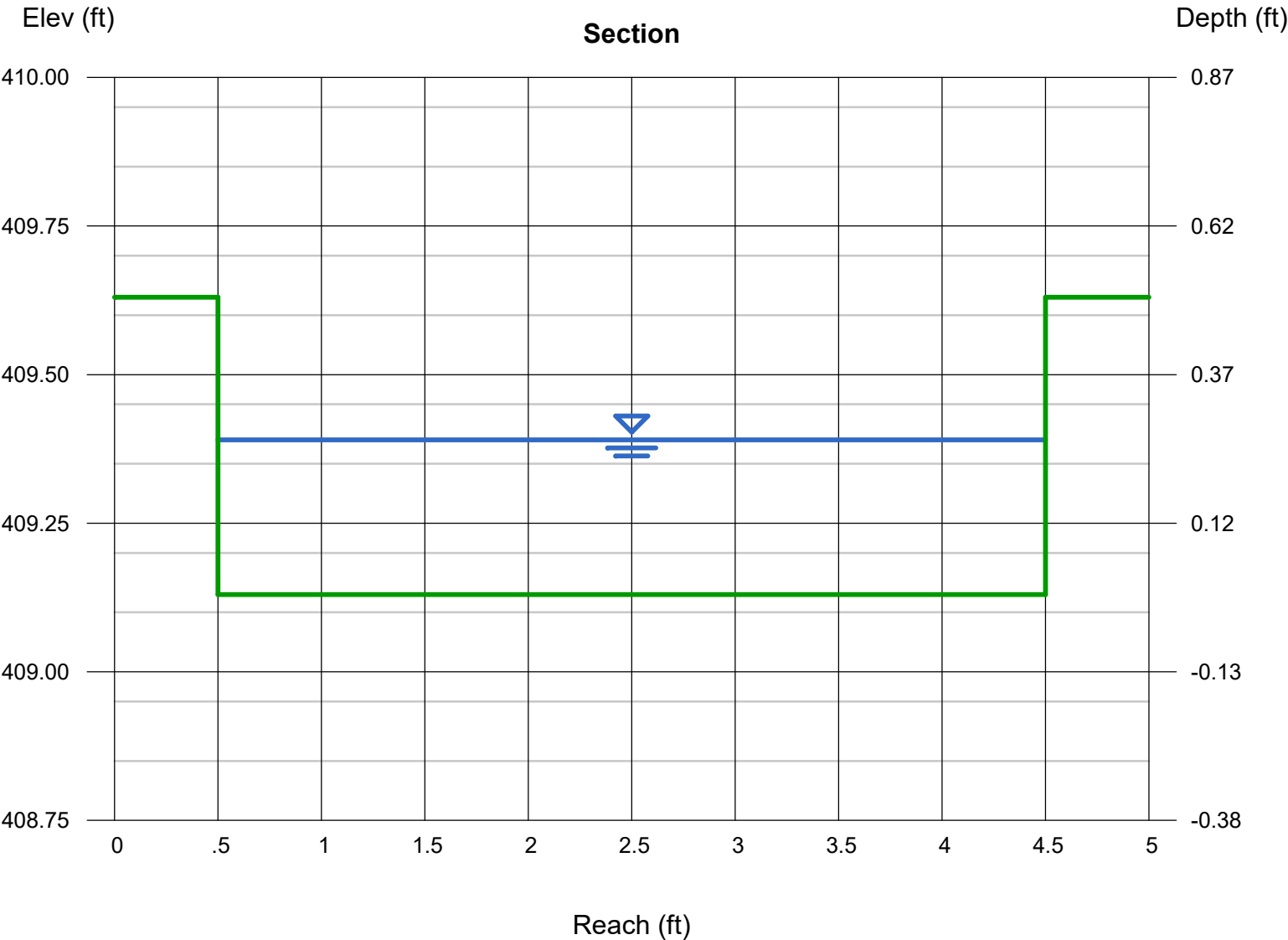
Rectangular		Highlighted	
Bottom Width (ft)	= 5.00	Depth (ft)	= 0.12
Total Depth (ft)	= 0.50	Q (cfs)	= 5.150
		Area (sqft)	= 0.60
Invert Elev (ft)	= 401.50	Velocity (ft/s)	= 8.58
Slope (%)	= 15.00	Wetted Perim (ft)	= 5.24
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.33
		Top Width (ft)	= 5.00
		EGL (ft)	= 1.27
Calculations			
Compute by:	Known Q		
Known Q (cfs)	= 5.15		



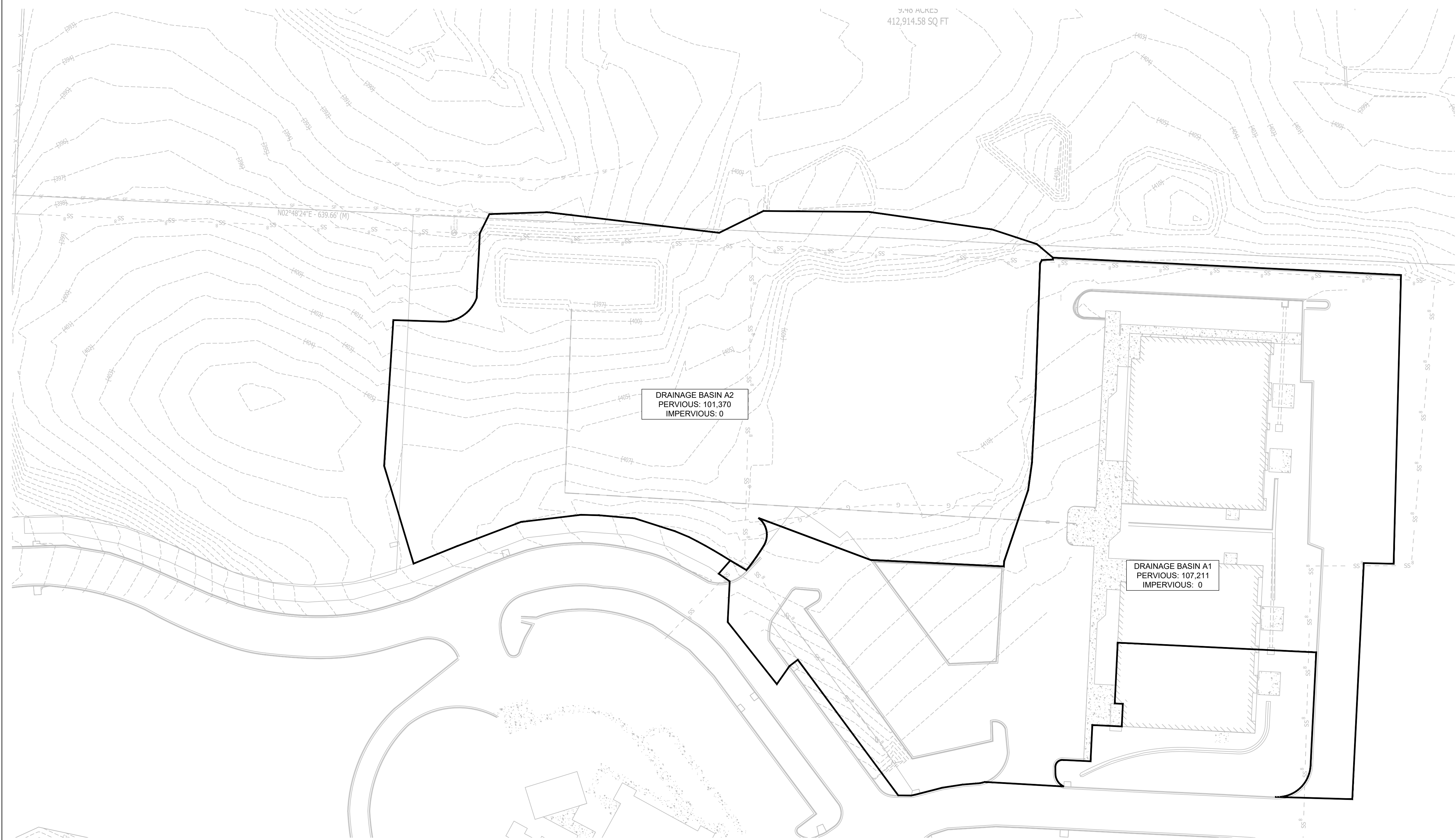
Channel Report

Curb Cut by Dumpster Pad

Rectangular		Highlighted	
Bottom Width (ft)	= 4.00	Depth (ft)	= 0.26
Total Depth (ft)	= 0.50	Q (cfs)	= 8.180
		Area (sqft)	= 1.04
Invert Elev (ft)	= 409.13	Velocity (ft/s)	= 7.87
Slope (%)	= 5.00	Wetted Perim (ft)	= 4.52
N-Value	= 0.015	Crit Depth, Yc (ft)	= 0.50
		Top Width (ft)	= 4.00
		EGL (ft)	= 1.22
Calculations			
Compute by:	Known Q		
Known Q (cfs)	= 8.18		

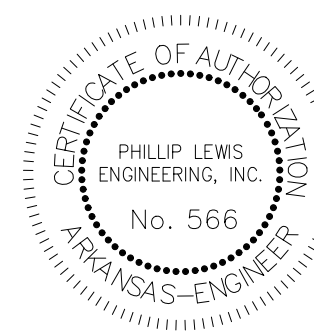
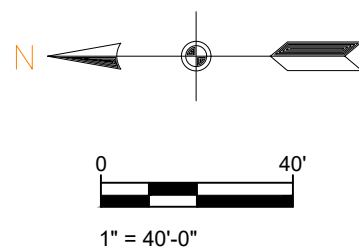


DRAINAGE BASIN MAPS



PRE DRAINAGE MAP

SCALE 1" = 40'



PROJECT NUMBER:

SHEET ISSUE DATE:
1/10/2024

PAGE TITLE:

PRE DRAINAGE
MAP

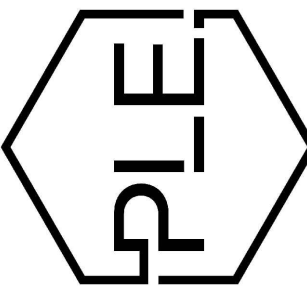
SHEET NUMBER:

C1.5

SUMMERWOOD SPORTS
GYMNASIUM #3

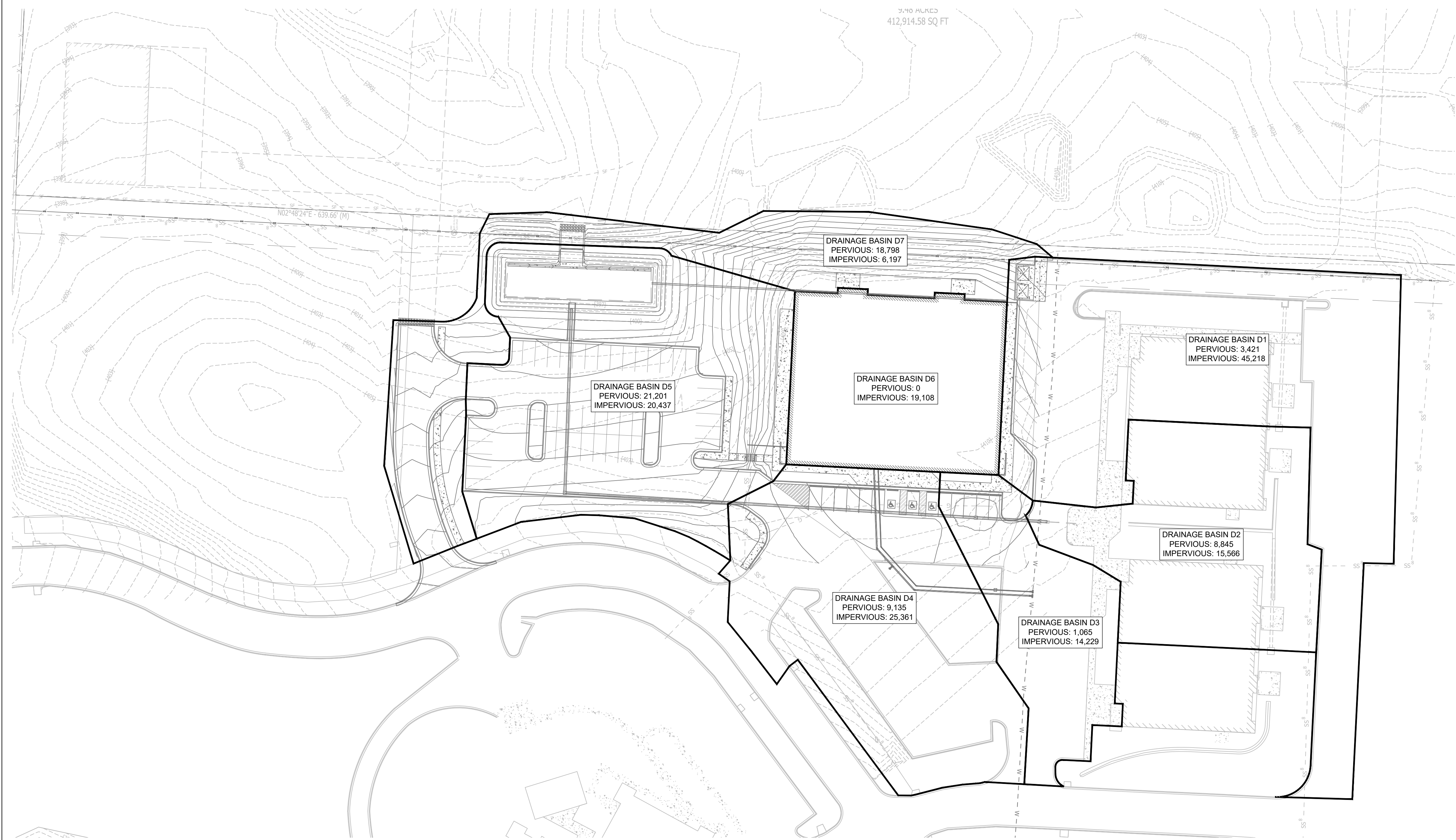
7817 Hwy 5 N
Bryant, Arkansas

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants



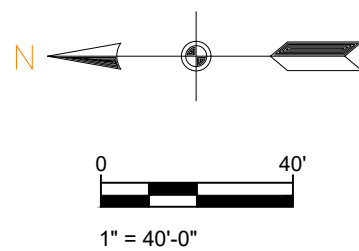
23620 Interstate 30 | Bryant, Arkansas
PH: 501-350-9840

REVISION:

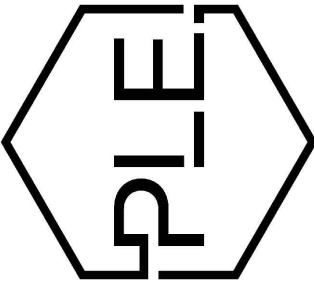


POST DRAINAGE MAP

SCALE 1" = 40'



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PH: 501-350-9840



REVISION:

SUMMERWOOD SPORTS
GYMNASIUM #3
7817 Hwy 5 N
Bryant, Arkansas



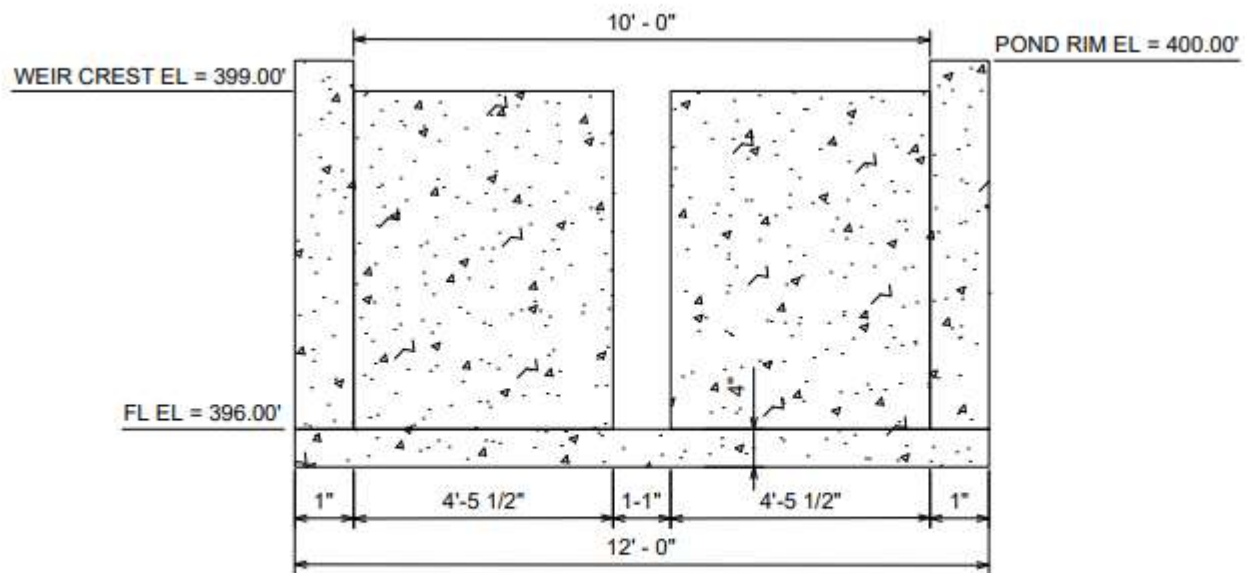
PROJECT NUMBER:

SHEET ISSUE DATE:
1/10/2024

PAGE TITLE:
POST DRAINAGE
MAP

SHEET NUMBER:
C1.6

DETENTION BASIN OUTLET STRUCTURES



EXISTING DETENTION POND OUTLET STRUCTURE DETAIL

NOT TO SCALE

SOIL CLASSIFICATION MAPS

Custom Soil Resource Report Soil Map



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

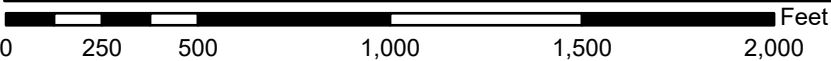
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C/D
Ecological site: F133BY002TX - Seasonally Wet Upland
Hydric soil rating: No

FEMA FLOOD INSURANCE RATE MAP

National Flood Hazard Layer FIRMMette



92°28'37"W 34°38'34"N



1:6,000

92°28'W 34°38'4"N

Basemap Imagery Source: USGS National Map 2023

Legend

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

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99
		With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee. See Notes. Zone X
		Area with Flood Risk due to Levee Zone D
OTHER AREAS		NO SCREEN Area of Minimal Flood Hazard Zone X
		Effective LOMRs
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
OTHER FEATURES		20.2 Cross Sections with 1% Annual Chance Water Surface Elevation
		17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
		Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



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

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

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on **1/10/2024 at 5:31 PM** and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

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