Bryant Development and Review Committee Meeting

Boswell Municipal Complex - City Hall Conference Room

210 SW 3rd Street

Date: March 19, 2026 - **Time:** 9:00 AM

Call to Order

Old Business

New Business

1. 5318 Charles Ct - CUP for Short Term Rental

Requesting Recommendation for Approval of CUP for Short Term Rental

- 1020-APP-01.pdf
- 1020-LTR-01.pdf

2. 2913 Springhill Road - 2 Lots - Rezoning from R-M to C-1

Hope Consulting - Requesting Recommendation for Rezoning from R-M to C-1

- 1023-PUB-01.pdf
- 1023-APP-01.pdf
- 1023-LTR-01.pdf
- 1023-AFF-01.pdf

3. Goddard School - Christy Ln - Site Plan

PLE - Requesting Site Plan Approval

- 1021-PLN-01.pdf
- 1021-DRN-01.pdf
- 1021-ELV-01.pdf

4. Hilltop Manor Subdivision - Preliminary Plat

Richardson Engineering - Requesting Recommendation for Preliminary Plat Approval

- 1022-PLN-01r.pdf
- 1022-APP-01.pdf
- 1022-LTR-01.pdf
- 1022-DRN-01.pdf
- 1022-PLT-01.pdf

5. Elm Estates Subdivision - 203 SW 4th St - Final Plat

GarNat Engineering - Requesting Recommendation for Final Plat Approval

- 1024-BOA-01.pdf
- 1024-APP-01.pdf
- 1024-ASB-01.pdf

- 1024-PLT-01.pdf
- 1024-LTR-01.pdf

6. Woody Drive Addition - 2 Lot Commercial Subdivision

Zane Robbins - Requesting Recommendation for Plat Approval

- 1025-PLT-01.pdf

7. Whistling Pines Subdivision - Preliminary Plat

Michael Bolin - Requesting Recommendation for Approval of Preliminary Plat

- 1026-DRNPLN-01.pdf
- 1026-PLN-01.pdf

8. Fence Brokers - 25736 I-30 - Site Plan Addition

John Shelnutt - Requesting approval to replace metal pole barn that fell during the winter ice storms and also add an addtional one to the site.

- 1027-PLN-01.pdf

9. 711 W. Commerce Dr - Building Addition

Craig Betts - Requesting Discussion on Building Addition

- 1028-PLN-01.pdf
- 1028-EXISTING-01.pdf

Staff Approved

Permit Report

Adjournments

Planning & Development
210 SW 3rd Street, Bryant, AR 72022
501-943-0943 | comdev@cityofbryant.com

Conditional Use Permit Application

Applicants are advised to read the Conditional Use Permit section of Bryant Zoning Code prior to completing and signing this form. The Zoning Code is available at www.cityofbryant.com under the Planning and Development tab.

Date: 3/17/2026

Project Location:

Property Address: 5318 Charles Court, Bryant, Arkansas

Parcel Number(s): 840-05520-064 Zoning Classification: _____

Applicant or Designee:

Name: William or Shelley Mitchell

Address: 5318 Charles Court, Bryant, Arkansas

Phone: 501-650-0672 Email Address: _____

Property Owner (If different from Applicant):

Name: _____

Address: _____

Phone: _____ Email Address: _____

Additional Information:

Subdivision Lot and Block Number or Legal Description (Attach description if necessary)

KING'S CROSSING PH 2 BLOCK 64

Current Use of Property Personal Residence

Description of Conditional Use Request / Proposed Use of Property (Attach any necessary drawings or images)

Periodic short term rental of no more than 30 days and NTE 120 days total per year

Application Checklist

Requirements for Submission

- [X] Completed Conditional Use Application (Not required if submitting through online portal.)
- [X] Letter stating request of Conditional Use and reasoning for request
- [X] Submit Conditional Use Permit Application Fee ($125)
- [ ] Submit Copy of completed Public Notice [Attachment 1]
- [ ] Submit one (1) copy of the Development Plan (Site Plan) showing:
  - Location, size, and use of buildings/signs/land or improvements
  - Location, size, and arrangement of driveways and parking. Ingress/Egress
  - Existing topography and proposed grading
  - Proposed and existing lighting
  - Proposed landscaping and screening
  - Use of adjacent properties
  - Scale, North Arrow, Vicinity Map
  - Additional information that may be requested by the administrative official due to unique conditions of the site.
- [ ] Public Notice Requirements: **NOTE: Failure to provide notice in the following manners shall require delay of the public hearing until notice has been properly made.**
  - Publication: Public Notice shall be published at least one (1) time **fifteen (15) days prior to the public hearing** at which the conditional use request will be heard. A copy of the public notice is provided with the application. [Attachment 1] Once published, the proof of publication must be provided to the Planning and Development office.
  - Posting of Property: The city shall provide a sign to post on the property involved for the **fifteen (15) consecutive days leading up to the public hearing.** One (1) sign is required for every two hundred (200) feet of street frontage.

Once the application is received, the material will be reviewed to make sure all the required information is provided. The applicant will be notified if additional information is required. The application will then go before the Development and Review Committee (DRC) for a recommendation to the Planning Commission. A public hearing will be held at this meeting for comments on the Conditional Use. After the public hearing, the Planning Commission will make a decision on the use.

READ CAREFULLY BEFORE SIGNING

I Shelley Mitchell _____, do hereby certify that all information contained within this application is true and correct. I further certify that the owner of the property authorizes this proposed application. I understand that I must comply with all City Codes and that it is my responsibility to obtain all necessary permits required.

[Attachment 1]

SAMPLE NEWSPAPER NOTICE *- This notice is to be run in the legal notices section of the Saline Courier no less than fifteen (15) days prior to the public hearing.*

NOTICE OF PUBLIC HEARING

A public hearing will be held by the City of Bryant, AR Planning Commission on Monday, _____ at 6:00 P.M. at the Bryant City Office Complex, 210 SW 3rd Street, for the purpose of public comment on the application for _____(your name) to obtain a Conditional Use for the purpose of _____ _____(use requested) within a _____(current zoning) zone at _____ _____(address). A legal description of this property can be obtained by contacting the Bryant Planning and Development Department at 501-943-0488.

Shelley Mitchell
5318 Charles Court
Bryant, Arkansas 72022
March 17, 2026

This letter is provided to explain the basis for the conditional use of my residence at 5318 Charles Court, Bryant, Arkansas 72022 as a short-term rental during periods when the home is unoccupied.

I am semi-retired and travel frequently, often for extended periods of time, to visit family and for personal travel. During these times, my home remains vacant. Allowing short-term rental use while I am away ensures the property remains occupied, monitored, and actively maintained rather than sitting empty.

The use would be limited and owner-managed, occurring only when I am traveling and not residing in the home. I remain fully responsible for the property and its operation and am committed to maintaining it in a manner consistent with the character of the surrounding neighborhood. Guests would be required to comply with all local ordinances and clearly defined house rules related to noise, parking, occupancy, and overall conduct.

This conditional use supports responsible property stewardship by keeping the home in active use, helping offset ongoing homeownership expenses, and ensuring continued investment in the property's upkeep. Because the rental activity is intermittent, controlled, and tied directly to my travel schedule, it does not represent a permanent change in residential use and is compatible with the intent of conditional use standards.

Overall, this use provides a practical and reasonable solution for a home that would otherwise remain vacant, while maintaining neighborhood stability and compliance with applicable regulations.

Sincerely,

Shelley

Shelley Mitchell
(501) 650-0672

Order Receipt

Saline Courier

321 N. Market St.
Benton, AR 72015

Phone: 501-315-8228

URL: https://www.bentoncourier.com/

Melanie Gentry
Hope Consulting, Inc (28)
129 N. Main Street
Benton, AR 72015

Acct #: 01119461
Phone: (501)315-2626
Date: 03/10/2026
Ad #: 00198120
Salesperson: SCL Ad Taker: SC5

Class: 101

Ad Notes:

Sort Line: NOTICE Notice is hereby given

Description	Amount
AVDT LEGAL AFFIDAVIT	4.50
28 Saline Courier 2026-03-11	49.40

Ad Text:

NOTICE
Notice is hereby given that a hearing will be held by the Planning Commission of the City of Bryant, AR on the 13th day of April 2026 at 6:00 pm. This is located at the Boswell Municipal Complex at 210 SW Third St, Bryant, AR 72022. This will be for the petition of Ladonna Henry and Lonnie Humphries for Rezone Approval from R-X to C-1 on the following lands to wit:
Springhill Road and W. Robinhood Road, Bryant, AR 72022
LEGAL DESCRIPTION:
Parcels # 840-08850-021, 840-08850-022, 840-08850-023
Lots 12, 11, & the S 10' of Lot 10 Block 2 of Sherwood Park Subdivision.

Payment Reference:

Total:	53.90
Tax:	0.00
Net:	53.90
Prepaid:	0.00
Total Due	**53.90**

City of Bryant, Arkansas
Community Development
210 SW 3rd Street Bryant, AR 72022
501-943-0943

Rezoning Application

Applicants are advised to read the Amendments section of Bryant Zoning Code prior to completing and signing this form. The Zoning Code is available at www.cityofbryant.com under the Planning and Community Development tab.

Date: 2/24/24

Applicant or Designee:

Name Jonathan Hope
Address 129 N. Main St. Benton
Phone (501) 315-2626
Email Address jonathanhope@gmail

Property Owner (If different from Applicant):

Name Ladonna Henry + Lonnie Humphries
Address 209 Texas Ave. NLR
Phone (501) 281-3549
Email Address ldr0218@hotmail.com

Property Information:

Address Springhill Rd, Bryant, AR 72022
Parcel Number 840-08850-023, 840-08850-021, and 840-08850-022
Existing Zoning Classification R-X
Requested Zoning Classification C-1
Legal Description (If Acreage or Metes and Bounds description, please attach in a legible typed format)
South 10' of Lot 10, all of Lots 11 + 12, Blk 2, Sherwood Park

Application Submission Checklist:

- ☐ Letter stating request of zoning change from (Current Zoning) to (Requested Zoning) and to be placed on the Planning Commission Agenda
- ☐ Completed Rezoning Application
- ☐ Rezoning Application Fee ($40 fee for lot and black descriptions or $125 for acreage or metes and bound descriptions)
- ☐ If someone, other than the owner, will be handling the zoning process, we will require a

letter from the owner of said property, giving him or her authority to do so.

☐ Recent surveyed plat of the property including vicinity map

Additional Requirements:

*Items below **must be completed before the public hearing can occur**. Failure to provide notices in the following manners shall require delay of the public hearing until notice has been properly made.*

☐ Publication: Public Notice shall be published by the applicant at least one (1) time fifteen (15) days prior to the public hearing at which the rezoning application will be heard. Once published please provide a proof of publication to the Community Development office. (Sample notice attached below)

☐ Posting of Property: The city shall provide signs to post on the property involved for the fifteen (15) consecutive days leading up to Public hearing. One (1) sign is required for every two hundred (200) feet of street frontage.

☐ Notification of adjacent landowners: Applicant shall attempt to inform by certified letter, return receipt requested, all owners of land within three hundred (300) feet of any boundary of the subject property of the public hearing. (Sample letter attached below)

☐ Certified list of property owners, all return receipts, and a copy of the notice shall be provided to the Community Development Department at least five (5) days prior to the public hearing.

Note: that this is not an exhaustive guideline regarding the Conditional Use Permit Process. Additional information is available in the Bryant Zoning Ordinance.

READ CAREFULLY BEFORE SIGNING

I _____, do hereby certify that all information contained within this application is true and correct. I further certify that the owner of the property authorizes this proposed application. I understand that I must comply with all City Codes that pertain to this project and that it is my responsibility to obtain all necessary permits as needed.

HOPE
CONSULTING
ENGINEERS - SURVEYORS

February 23, 2026

Colton Leonard
City of Bryant
210 SW 3rd Street
Bryant, AR 72022

RE: Rezone Petition – S 10’ of Lot 10, All of Lot 11 & 12, Block 2, Sherwood Park

Colton,

On behalf of our client, Hope Consulting is formally requesting the City of Bryant Staff and Planning Commission begin the review and approval process for the Rezone of this property. This property, located on Springhill Road in Bryant, is currently zoned R-X and our client, Ladonna Henry & Lonny Humphries, is requesting to rezone it to C-1. We would like to be included in the April 13th Planning Commission Meeting. Please feel free to contact me with any questions, concerns, or if I can be of any further assistance.

Sincerely,

Jonathan Hope

129 N. Main St. Benton, AR 72015 * 501-315-2626 * Fax 501-315-0024

HOPE CONSULTING
ENGINEERS - SURVEYORS

February 24, 2026

Colton Leonard
City of Bryant
210 SW 3rd Street
Bryant, AR 72022

RE: Authorization Letter – Lots Pt Lot 10, 11, and Lot 12, Block 2, Sherwood Park (Parcel #: 840-08850-023, 840-08850-022, and 840-08850-021)

Colton,

I, LaDonna Henry and Lonnie Humphries, hereby authorize Hope Consulting, Inc to act on our behalf for the Rezone Process of our property located on Springhill Road, Bryant, AR. Thank you in advance for your assistance with this matter. Should you require any further information, we can be reached at the contact details below.

E-Mail: Ldy0218@hotmail.com Phone: 501-281-3549

Sincerely,

LaDonna Henry
Signature

02-24-2026
Date

Lonnie Humphries
Signature

02-24-2026
Date

Sheet List Table	
Sheet Number	Sheet Title
C1.0	COVER SHEET
C1.2	Site Plan
C1.3	Site Details
C1.4	GRADING PLAN
C1.5	Stormwater Plan
C1.6	Pre Drainage Plan
C1.7	Post Drainage Plan
C1.8	Overall Drainage Plan
C1.9	Overall Drainage Plan (2)
C1.10	Overall Drainage Plan (3)
C1.11	Utility Plan
C1.12	Landscape Plan
C1.13	Utility Details
C1.14	SWPPP Plan Phase I

SURVEY LEGEND

- GAS METER
- WATER METER
- GUY WIRE
- POWER/UTILITY POLE
- TELEPHONE PEDESTAL
- SEWER MANHOLE
- WATER VALVE
- FIRE HYDRANT
- SIGNS
- LIGHT POLE
- TELEPHONE MANHOLE
- SS SANITARY SEWER LINE
- W WATER LINE
- STORM SEWER PIPE
- ROADWAY CENTERLINE
- WATER & SEWER EASEMENT
- BUILDING SETBACK LINE
- R/W ROADWAY RIGHT-OF-WAY
- OHE OVERHEAD ELECTRIC LINES
- UGT UNDERGROUND TELEPHONE
- G UNDERGROUND GAS
- F.O. UNDERGROUND FIBER OPTIC
- X FENCE
- STEEL GUARD RAIL
- [100] SURFACE CONTOUR LINE & ELEVATION

N	NORTH
S	SOUTH
E	EAST
W	WEST
(M)	AS MEASURED
(D)	PER DEED
R/W	RIGHT-OF-WAY
L.A.	LANDSCAPED AREA
CR4	CAPPED 1/2" REBAR
CONC.	CONCRETE
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING
CMP	CORRUGATED METAL PIPE
RCP	REINFORCED CONCRETE PIPE
ESMT	EASEMENT
SUBD	SUBDIVISION
HDPE	HIGH DENSITY POLYETHYLENE
FDC	FIRE DEPARTMENT CONNECTION

- SET 1/2" REBAR w/ CAP #1853
- SET COTTON-PICKER SPINDLE
- FOUND MONUMENT (DESC. NOTED)
- △ COMPUTED CORNER (NOT SET)

THE GODDARD SCHOOL OF BRYANT

CHRISTY LANE
ALEXANDER, AR

Vicinity Map

SCALE 1" = 1000'

N

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

THE DUTY OF BRYANT TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

C. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE CITY OF BRYANT'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

F. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

G. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY BRYANT WATER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

H. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

811 Know what's **below.** **Call** before you dig.

DEVIATIONS/VARIANCES

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants

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

SITE PLAN

SCALE 1" = 20'

1. TOTAL NEW DEVELOPMENT AREA = (+/-) 2.18 ACRES
2. PROPERTY IS ZONED C-2
3. 41 PARKING SPACES PROVIDED INCLUDING 2 ADA ACCESSIBLE PARKING SPACES
4. ALL DIMENSIONS ARE TO THE BACK OF CURB AND/OR EDGE OF PAVEMENT
5. DAMAGE TO PUBLIC AND PRIVATE PROPERTY DUE TO HAULING OPERATIONS OR OPERATIONS OF CONSTRUCTION RELATED EQUIPMENT FROM A CONSTRUCTION SITE SHALL BE REPAIRED BY THE THE RESPONSIBLE PARTY PRIOR TO THE ISSUANCE OF A CERTIFICATE OF OCCUPANCY.
6. REPAIR, REPLACE, OR EXTEND EXISTING DAMAGED OR MISSING CURB AND GUTTER, SIDEWALK OR RAMPS WITHIN THE PUBLIC RIGHT OF WAY.
7. ALL SIGNAGE, PAVEMENT MARKING AND PARKING LOT STRIPING SHALL CONFORM TO REQUIREMENTS GIVEN IN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). MUTCD REQUIRES THAT PARKING SPACES BE MARKED IN WHITE.

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

THE DUTY OF BRYANT TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

C. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE CITY OF BRYANT'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

F. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

G. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY BRYANT WATER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

H. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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

REVISION:

THE GODDARD SCHOOL OF BRYANT
ALEXANDER, ARKANSAS

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

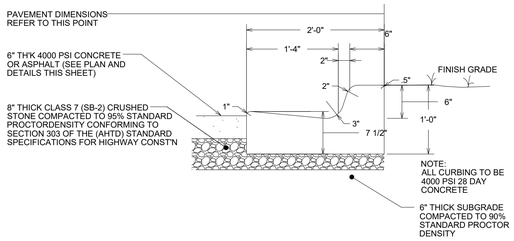
CERTIFICATE OF AUTHORIZATION
PHILLIP LEWIS ENGINEERING, INC.
No. 566
ARKANSAS ENGINEER

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

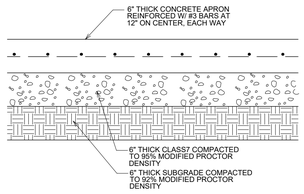
PAGE TITLE:
SITE PLAN

SHEET NUMBER:
C1.1



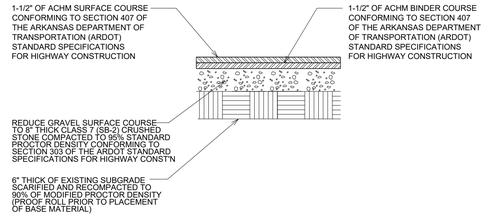
2'-0" CONCRETE CURB & GUTTER

NOT TO SCALE



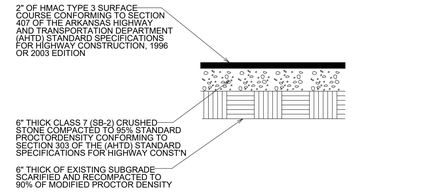
CONCRETE ENTRANCE DRIVE SECTION

NOT TO SCALE



HMAC ASPHALT SURFACE COURSE MEDIUM DUTY

NOT TO SCALE



HMAC ASPHALT SURFACE COURSE LIGHT DUTY

NOT TO SCALE

HANDICAP SIGN DETAIL

NOT TO SCALE

NOTE:
HANDICAP SIGNAGE SHALL BE IN STRICT COMPLIANCE WITH CURRENT FEDERAL AND LOCAL LAW REQUIREMENTS

TYPICAL ACCESSIBLE PARKING STALLS

DUMPSTER PAD/ENCLOSURE DETAIL

NOT TO SCALE

CONCRETE WALK SECTION

NOT TO SCALE

NOTE:
1. ALL SIDEWALK JOINTS TO BE STEEL TROWELED. ALL JOINT EDGES AND SHALL BE SPACED AT 5 FEET ON CENTER MAXIMUM IN ALL DIRECTIONS AND SHALL BE STEEL TROWELED ON A RADIUS NOT TO EXCEED ONE-HALF INCH.
2. SIDEWALK SHALL BE MIN 6" THICK THROUGH DRIVE APRON

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

REVISION:

THE GODDARD SCHOOL OF BRYANT

ALEXANDER, ARKANSAS

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

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
SITE DETAILS

SHEET NUMBER:
C1.2

GRADING PLAN

SCALE 1" = 20'

TC = TOP OF CURB ELEVATION
G = GUTTER ELEVATION
TOC = TOP OF CONCRETE ELEVATION
FG = FINAL GRADE ELEVATION
TP = TOP OF PAVEMENT ELEVATION
TOW = TOP OF WALL
BOW = BOTTOM OF WALL
EG = EXISTING GRADE ELEVATION

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

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C. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE CITY OF BRYANT'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

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J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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

REVISION:

THE GODDARD SCHOOL OF BRYANT

ALEXANDER, ARKANSAS

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

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
GRADING PLAN

SHEET NUMBER:
C1.3

N
0 20'
1" = 20'-0"

STORMWATER PLAN

SCALE 1" = 20'

GENERAL CONSTRUCTION NOTES

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CERTIFICATE OF AUTHORIZATION — PHILLIP LEWIS ENGINEERING, INC. — ARKANSAS—ENGINEER

STATE OF ARKANSAS — REGISTERED PROFESSIONAL ENGINEER — No. 9540 — PHILLIP W. LEWIS

PROJECT NUMBER:

SHEET ISSUE DATE: 03-11-2026

PAGE TITLE: STORMWATER PLAN

SHEET NUMBER: C1.4

N

0 20'

1" = 20'-0"

PRE DRAINAGE PLAN

SCALE 1" = 20'

GENERAL CONSTRUCTION NOTES

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No. 566
ARKANSAS—ENGINEER

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
PRE DRAINAGE PLAN

SHEET NUMBER:
C1.5

N
0 20'
1" = 20'-0"

DRAINAGE BASINS AREAS

DRAINAGE BASIN	PERVIOUS	IMPERVIOUS
B1	28,665	770
B2	4,916	14,577
B3	0	9,275
B4	0	1887
B5	12,580	8,589
B6	7,516	2,763
C1	6,135	14,202
C2	11,376	22,963
C3	0	3,480
C4	8,130	3,245
C5	1,634	5,061
C6	0	2,835
C7	0	1,597
C8	0	1,548
C9	4,456	9,361
C10	1,225	4,183
C11	2,876	3,307
C12	7,218	18,440
C13	2,240	9,873
C14	6,127	15,898
C15	0	13,450
C16	15,465	6,612
C17	40,914	15,835
C18	12,812	9,973
C19	15,129	2,880
C20	24,838	2,321
C21	1,234	919

OVERALL DRAINAGE PLAN

SCALE 1" = 20'

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

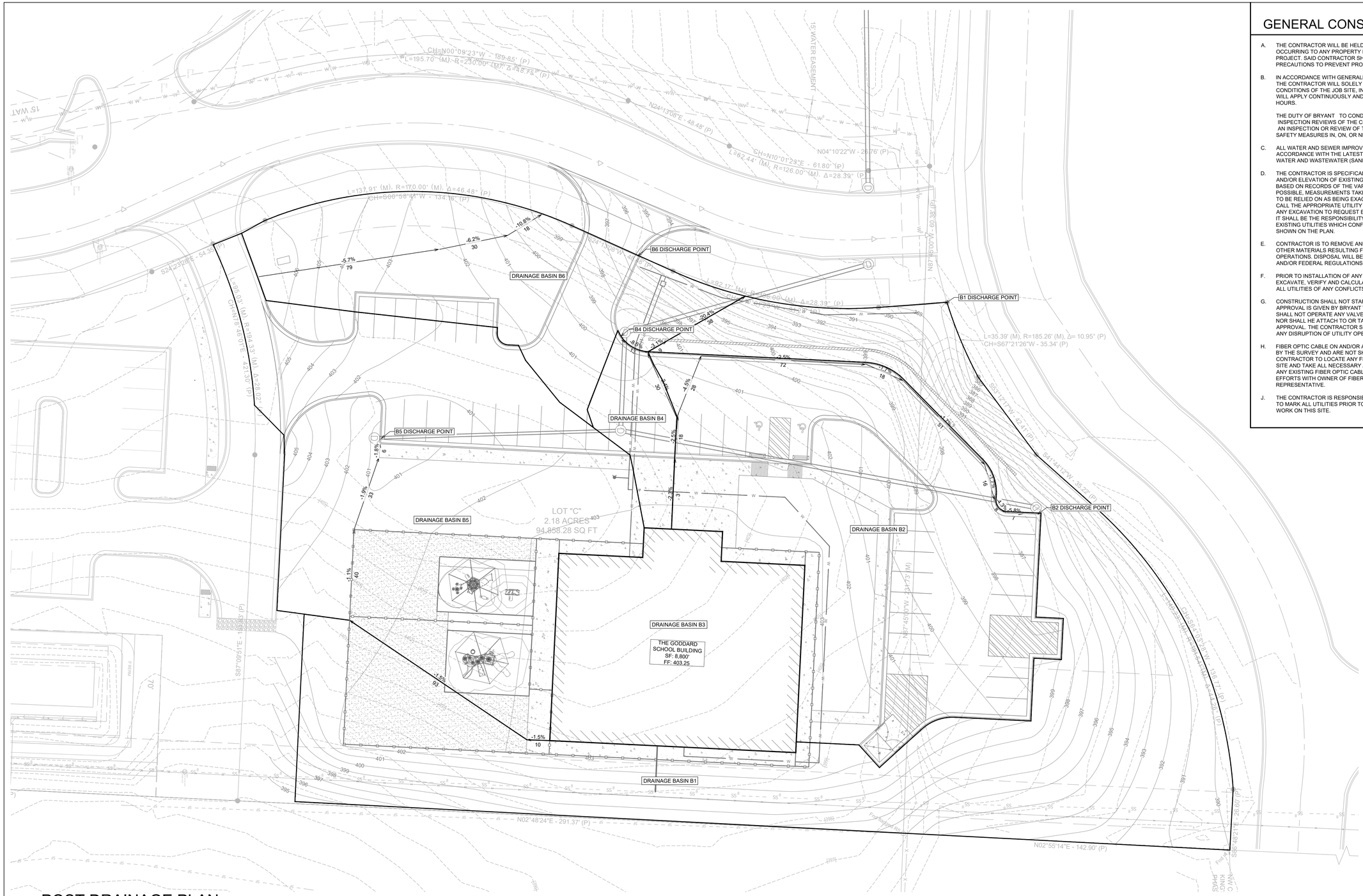
PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN

SHEET NUMBER:
C1.6

N
0 20'
1" = 20'-0"



POST DRAINAGE PLAN

SCALE 1" = 20'

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

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
POST DRAINAGE PLAN

SHEET NUMBER:
C1.7

N
0 20'
1" = 20'-0"

OVERALL DRAINAGE PLAN (2)

SCALE 1" = 20'

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REVISION:

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ALEXANDER, ARKANSAS

STATE OF ARKANSAS
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No. 9540
PHILLIP A. LEWIS

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No. 566
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PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN (2)

SHEET NUMBER:
C1.8

N
0 20'
1" = 20'-0"

OVERALL DRAINAGE PLAN (3)

SCALE 1" = 20'

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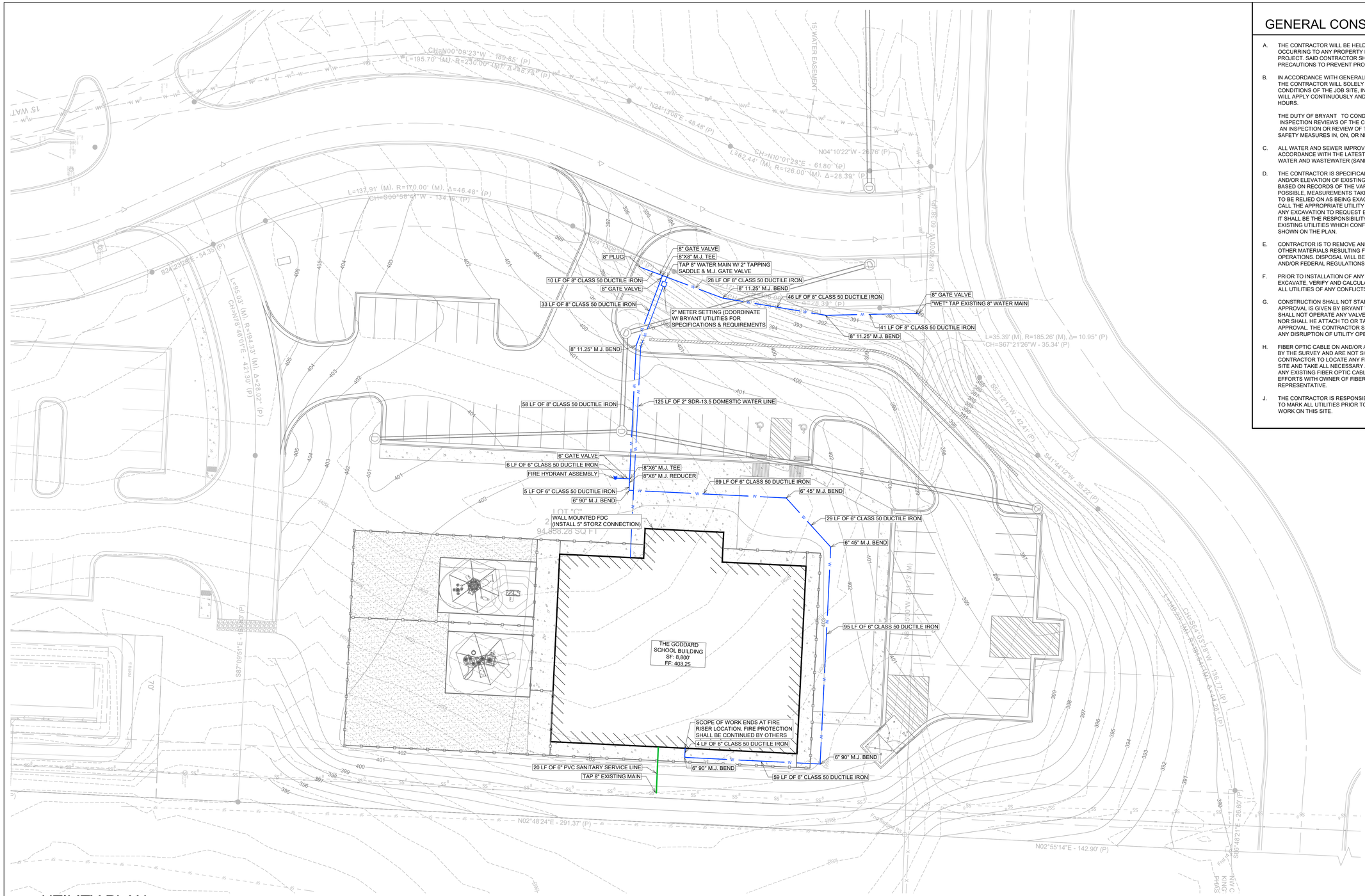
SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN (3)

SHEET NUMBER:
C1.9



UTILITY PLAN

SCALE 1" = 20'

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PHILLIP LEWIS

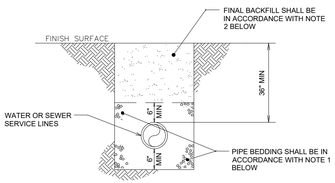
PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
UTILITY PLAN

SHEET NUMBER:
C1.10

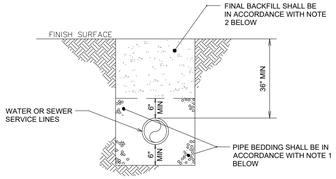
N
0 20'
1" = 20'-0"



WATER AND SEWER LINES BEDDING DETAIL

NOT TO SCALE

NOTES:
1. BEDDING SHALL BE "GRIT" PER ASTM 2774 OR ASTM D448 SIZE 67 A MINIMUM OF 6" ALL AROUND PIPE.
2. INITIAL BACKFILL NOT UNDER PAVED AREAS CAN BE CLASS III COMPACTED TO 90% STANDARD PROCTOR. ALL BACKFILL UNDER PAVED AREAS SHALL BE CLASS 7 CRUSHED STONE (SB-2) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
3. ALL MATERIALS ARE CLASSIFIED IN ACCORDANCE WITH ASTM D2321-89.
4. ALL MATERIALS SHALL BE INSTALLED IN MAXIMUM 8" LIFTS IN ACCORDANCE WITH ASTM D698. CLASS III AND IV-A MATERIALS SHALL BE COMPACTED TO NEAR OPTIMUM MOISTURE CONTENT.
6. FILL SALVAGED FROM EXCAVATION SHALL BE FREE OF DEBRIS, ORGANICS, AND ROCKS LARGER THAN 3".
7. ALL TRENCH EXCAVATIONS SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.



GAS LINE BEDDING DETAIL

NOT TO SCALE

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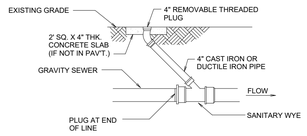
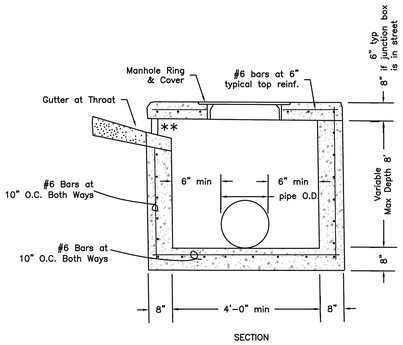
6. ALL TRENCH EXCAVATION SHALL BE SLOPED, SHORED, SHEETED, BRACED, OR OTHERWISE SUPPORTED IN COMPLIANCE WITH OSHA REGULATIONS AND LOCAL ORDINANCES.



THROUGH FLOW CLEANOUT

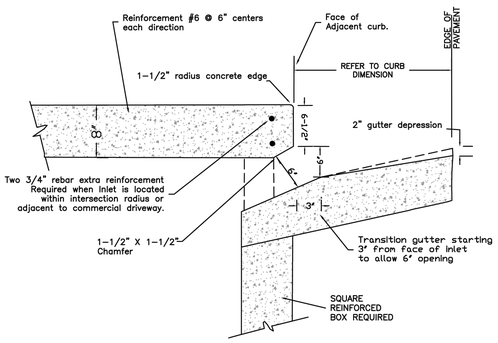
NOT TO SCALE



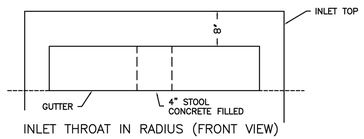
SECTION

TYPICAL CURB INLET JUNCTION BOX

NOT TO SCALE



INLET THROAT IN RADIUS (SIDE VIEW)



INLET THROAT IN RADIUS (FRONT VIEW)

PLACE 4" DIA. STOOLS AT CENTERLINE OF INLET, THEN SPACE ADDITIONAL STOOLS EQUAL DISTANCE FROM CENTERLINE NOT TO EXCEED 3'.

TYPICAL THROAT OPENING IN CURB RADIUS

NOT TO SCALE

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

REVISION:

THE GODDARD SCHOOL OF BRYANT
ALEXANDER, ARKANSAS

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

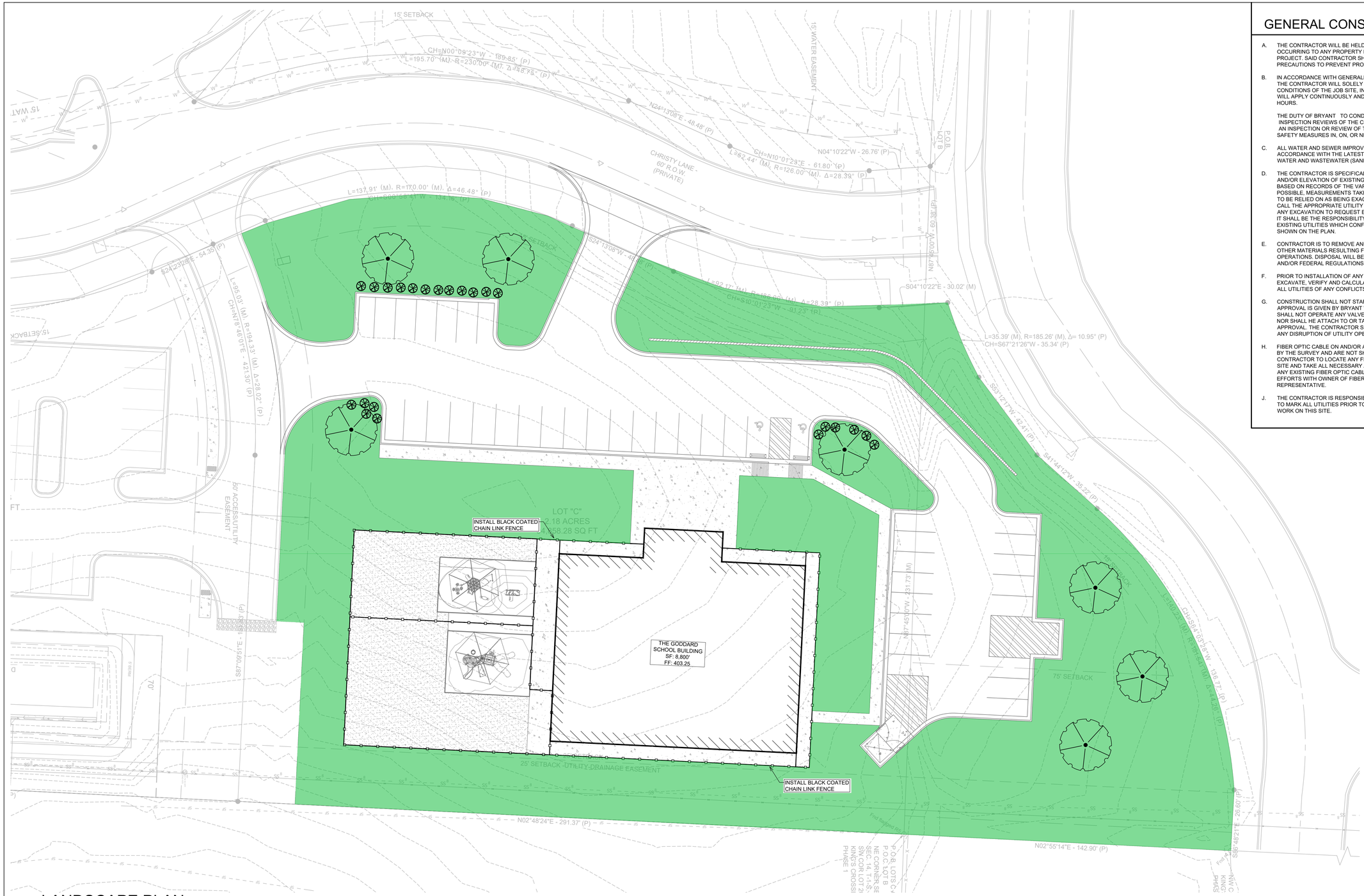
STATE OF ARKANSAS PHILLIP A. LEWIS REGISTERED PROFESSIONAL ENGINEER No. 9540

PROJECT NUMBER:

SHEET ISSUE DATE: 03-11-2026

PAGE TITLE: UTILITY DETAILS

SHEET NUMBER: C1.11



LANDSCAPE PLAN

SCALE 1" = 20'

PLANT SCHEDULE

PLANT TYPE	SYMBOL	CODE	QTY	COMMON SPECIES	SCIENTIFIC NAME	CAL / SIZE
TREES		WO	7	WILLOW OAK	QUERCUS PHELLOS	MIN. 3" DIAMETER @ BASE AND 12' TALL
SHRUBS		DN	23	DWARF NANDINA	N. DOMESTICA "HARBOUR DWARF"	3 GAL
GROUND COVER		BR		BERMUDA GRASS	CYNODON DACTYLON	

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

THE DUTY OF BRYANT TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

C. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE CITY OF BRYANT'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

F. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

G. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY BRYANT WATER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

H. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

PHILLIP LEWIS ENGINEERING, INC.
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23620 Interstate 30 | Bryant, Arkansas
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REVISION:

THE GODDARD SCHOOL OF BRYANT

ALEXANDER, ARKANSAS

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

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

PROJECT NUMBER:

SHEET ISSUE DATE:
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PAGE TITLE:
LANDSCAPE PLAN

SHEET NUMBER:
C1.12

N
0 20'
1" = 20'-0"

NOTES (GENERAL):

1. SEE EROSION CONTROL DETAILS IN SWPPP FOR EROSION CONTROL FACILITIES.
2. SEE SWPPP FOR INSTALLATION, MAINTENANCE, INSPECTION, AND RECORD KEEPING REQUIREMENTS.
3. CONTRACTOR SHALL SHOW EROSION CONTROL MEASURE ON SITE MAP.
4. EROSION AND SEDIMENT CONTROL STRUCTURES TO MEET SWPPP DETAILS - APPENDIX D
5. INSTALL ROCK DITCH, CHECK, OR SAND BAG CHECKS AS NECESSARY TO PREVENT SCOUR UNTIL LANDSCAPING IS ESTABLISHED.
6. CONTRACTOR MUST PLACE SEDIMENT BASIN WITH SEDIMENT FENCE OUTLET FOR ANY SEDIMENT CONTAMINATED DEWATERING DISCHARGE.
7. FINAL SLOPE WILL BE SAME DIRECTION AS EXISTING SLOPE.
8. TEMPORARY STABILIZATION PRACTICES WILL NOT BE REQUIRED. WORK WILL BE CONTINUOUS AND DISTURBED AREA REVEGITATED IN A TIMELY MANNER. SEE SWPPP FOR SEEDING MIXES.
9. PERMANENT STABILIZATION OF ALL DISTURBED AREAS ARE TO BE SEEDED, FERTILIZED, WATERED AND COVERED WITH STRAW UNLESS OTHERWISE NOTED ON PLANS TO BE HYDROSEEDED.
10. CONTRACTOR TO SHOW CONCRETE WASH OUT SUMP, ENTRANCE/EXIT PAD AND OTHER CONTROLS AS REQUIRED/NEEDED AS SWPPP SITE MAP IS UPDATED THROUGHOUT THE DURATION OF THE PROJECT.
11. STOCKPILING OF CONSTRUCTION SPOIL MATERIAL AT PARTICULAR LOCATIONS SHALL ONLY BE ALLOWED FOR A LIMITED TIME PERIOD, NOT TO EXCEED (6) MONTHS. PRIOR TO A FINAL INSPECTION OF THE GRADING PERMIT, THE FOLLOWING STANDARDS SHALL BE ACHIEVED FOR COMPLETION OF CONSTRUCTION:
    a) DEVELOPMENT AND GRADING WITHIN THE DISTURBED AREA IS COMPLETE AND MATCHES PLANS AS APPROVED BY THE PLANNING COMMISSION, AND
    b) THE DISTURBED SOIL AREA IS OBSERVED TO HAVE 80% GRASS COVERAGE AND 100% STABILITY, AND
    c) NO SLOPES STEEPER THAN A 3:1 PITCH UNLESS OTHERWISE APPROVED IN WRITING BY THE DIRECTOR OF ENGINEERING, AND
    d) NOTICE OF VIOLATIONS ISSUED HAVE ALL CORRECTIVE ACTIONS APPROVED WITH AN INSPECTION REPORT SIGNED BY A REPRESENTATIVE OF THE DIRECTOR OF ENGINEERING, AND
    e) ALL HEAVY EQUIPMENT, STOCKPILES, AND CONSTRUCTION SITE MATERIALS HAVE BEEN REMOVED FROM THE CONSTRUCTION SITE.

INSTALL & MAINTAIN SILT FENCE THROUGHOUT CONSTRUCTION

CONCRETE WASHOUT

SWPPP NOTICE AND RAIN GAUGE

TEMPORARY CONSTRUCTION ENTRANCE

TEMPORARY SANITARY FACILITIES

LOT "C"
2.18 ACRES
94,858.28 SQ.FT

THE GODDARD SCHOOL BUILDING
SF: 8,800f.
FF: 403.25

INSTALL & MAINTAIN SILT FENCE THROUGHOUT CONSTRUCTION

INSTALL & MAINTAIN SILT FENCE THROUGHOUT CONSTRUCTION

15' WATER EASEMENT

CH=N00°09'23"W - 189.85' (P)
L=195.70' (M), R=230.00' (M), Δ=48.75° (P)
N24°13'05"E - 48.48' (P)
N04°10'22"W - 26.76' (P)
CH=N10°01'23"E - 61.80' (P)
L=62.44' (M), R=126.00' (M), Δ=28.39° (P)
L=137.91' (M), R=170.00' (M), Δ=46.48° (P)
S24°23'28"E - 54.35' (P)
L=95.03' (M), R=194.33' (M), Δ=28.02° (P)
CH=N78°46'01"E
S87°09'51"E - 183.93' (P)
N02°48'24"E - 291.37' (P)
L=92.17' (M), R=180.00' (M), Δ=28.39° (P)
L=35.39' (M), R=185.26' (M), Δ= 10.95° (P)
CH=S67°21'26"W - 35.34' (P)
S61°41'12"W - 38.27' (P)
N02°55'14"E - 142.90' (P)
S55°48'21"E - 226.60' (P)
N43°39'09"E - 60.36' (P)
CH=N00°09'23"W - 189.85' (P)

SWPPP

SCALE 1" = 20'

LEGEND

- DISTURBED AREA
- UNDISTURBED AREA
- SEDIMENT FENCE WITH WIRE BACKING
- DRAINAGE DIRECTION

N

0 20'

1" = 20'-0"

PHILLIP LEWIS ENGINEERING, INC.
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REVISION:

THE GODDARD SCHOOL OF BRYANT
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PHILLIP LEWIS

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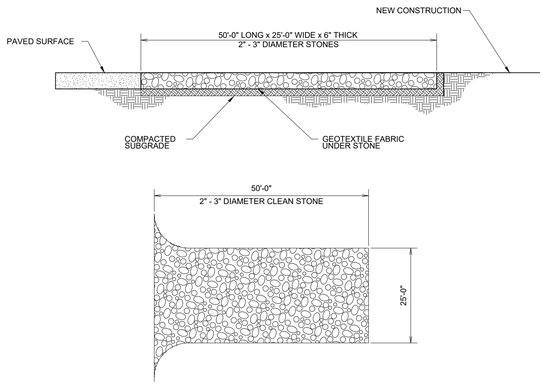
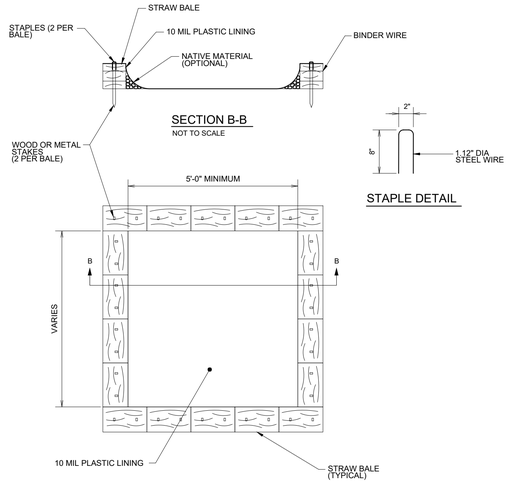
PAGE TITLE:
SWPPP

SHEET NUMBER:
C1.13



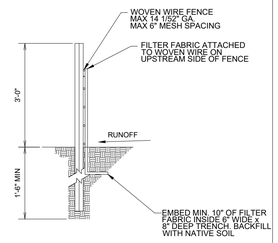
CONSTRUCTION ENTRANCE

NOT TO SCALE



CONCRETE WASHOUT

NOT TO SCALE

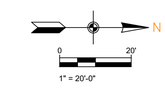


SILT FENCE

NOT TO SCALE

NOTES AND SPECIFICATIONS:

1. POSTS SHALL BE A MINIMUM OF 36 INCHES CONSTRUCTED OF EITHER OF THE FOLLOWING MATERIALS: STEEL "T" OR "U" TYPE, OR 2" x 2" HARDWOOD.
2. WOVEN WIRE USED AS ADDITIONAL FENCE SUPPORT SHALL BE MINIMUM 14.5 GA. WITH 6" MAXIMUM SPACING.
3. WOVEN WIRE SHALL BE PLACED ALONG THE UPHILL SIDE OF THE FENCE AND FASTENED WITH WIRE TIES OR 1" STAPLES ALONG THE UPHILL SIDE OF THE POSTS.
4. FILTER FABRIC SHALL BE FASTENED TO WOVEN WIRE ACCORDING TO MANUFACTURER'S RECOMMENDATION, OR WITH TIES EVERY 24" AT THE TOP AND MID-SECTIONS.
5. WHERE TWO PIECES OF FILTER FABRIC ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED BY 6 INCHES AND FOLDED TOGETHER.
6. WHERE TWO POSTS MEET TO JOIN FENCE SECTIONS, THE TOPS OF THE POSTS SHALL BE SECURED TOGETHER WITH WIRE.
7. THE FENCE SHALL BE CONSTRUCTED ALONG THE CONTOUR AS MUCH AS POSSIBLE.
8. ENDS OF FENCES SHALL BE EXTENDED UP THE SLOPE TO PRVENT RUNOFF FROM MIGRATING AROUND THE END OF THE FENCE.
9. INSPECTION OF THE FENCE SHALL BE PERFORMED WEEKLY, OR IMMEDIATELY AFTER A RAIN EVENT, OR WHEN BULGES APPEAR IN THE FENCE. ACCUMALTED SILT SHALL NOT BE ALLOWED TO EXCEED HALF THE HEIGHT OF THE FABRIC. REPAIR AND OR REPLACMENT OF DAMAGED FENCE SHALL BE COMPLETED PROMPTLY.
10. ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED SITE IN SUCH A MANNER THAT IT WILL NOT CONTRIBUTE TO OFF-SITE SILTATION.
11. ALL FENCING SHALL BE REMOVED WITH THE CONSTRUCTION SITE IS FULLY STABLIZED SO AS TO NOT IMPEDE STORM FLOW OR DRAINAGE.
12. PRE-FRABRICATED UNITS DO NOT REQUIRE THE USE OF WOVEN WIRE FENCE.



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REVISION:

THE GODDARD SCHOOL OF BRYANT

ALEXANDER, ARKANSAS

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SWPPP
DETAILS

SHEET NUMBER:
C1.14

GODDARD SCHOOL OF BRYANT

PRELIMINARY DRAINAGE REPORT

Date: **03-03-2026**

Located in: **Bryant, Arkansas**

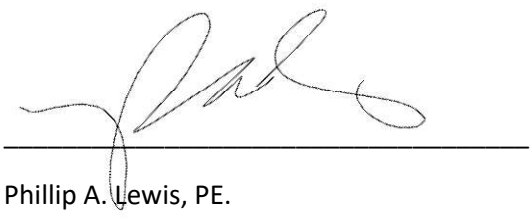
Prepared for:
City of Bryant, Arkansas

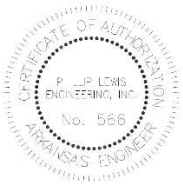
Prepared by:

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

CERTIFICATION

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





DATE: 03-03-2026

Phillip A. Lewis, PE.

PROJECT LOCATION MAP

DESCRIPTION OF PROPERTY

The proposed project is for the consruction of the Goddard School of Bryant located on Christy Lane, Alexander, AR. The proposed development is a 9,000 sq. ft. building, parking lot, and outdoor playground.

The intent of this drainage analysis is to reevaluate the previous drainage design and ensure that the completetion of this development still meets the design intent and capacity of the previous constructed onsite detention facility located at the corner of Henry Avenue and Bryant Parkway.

Per previous drainage calculations performed for the construction of the existing pond, 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 stormrunoff volume, flow rates, and design the outlet release structure. Hydraflow Express software was used to appropriately design and size all storm sewer inlets, pipes and channels.

Calculations were performed using the Rational Method, using NOAA rainfall data, and the pond volume and outlet structure was analyzed for the 100-year storm event while the outlet structure is expected to match or reduce pre-development flow rates for all storm events: 2-yr, 10-yr, 25-yr, and 100-yr storms.

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 8.5 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 construction phasing has evolved, some areas were not routed to this detention pond. Some of these areas ultimately discharge to locations that bypass the detention basin. Additionally, we believe that the current pond actually was intended to capture approximately 10 acres, which ecompasses the Goddard facility, Christy Lane, Summerwood Offices, and Genwealth Financial Services.

This drainage study is intended to account for these descrepencies and ensure that the detention basin is throttling appropriately for the current and proposed increases in runoff. Additionally, within this design, the intent is to capture open pipe discharges (intended for pond capture) and route them correctly through adequate storm sewer.

PROPOSED DRAINAGE SYSTEM

This develompent is designed to capture the majority of runoff within the parking lot curb and gutter, collecting stormwater with standard curb inlets and downspout collector pipes. New storm sewer onsite will connect to an existing storm junction box on Christy Lane, utimaley discharging into the existing detention pond. The detention pond will remain in place as constructed. This drainage analysis will provide supporting evidence to validate the previously constructed detention basin’s functionality.

The detention pond was designed to detain stromwater 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	13.31	11.94
5-yr	15.93	13.75
10-yr	17.95	15.03
25-yr	20.67	16.53
100-yr	24.60	18.73

Overall pre development and post development discharge rates are displayed in the following hydrographs. A final discharge link has been added to show one comparable discharge number.

PRE DEVELOPMENT HYDROGRAPH

Summary for Subcatchment PRE: Pre-Development Discharge

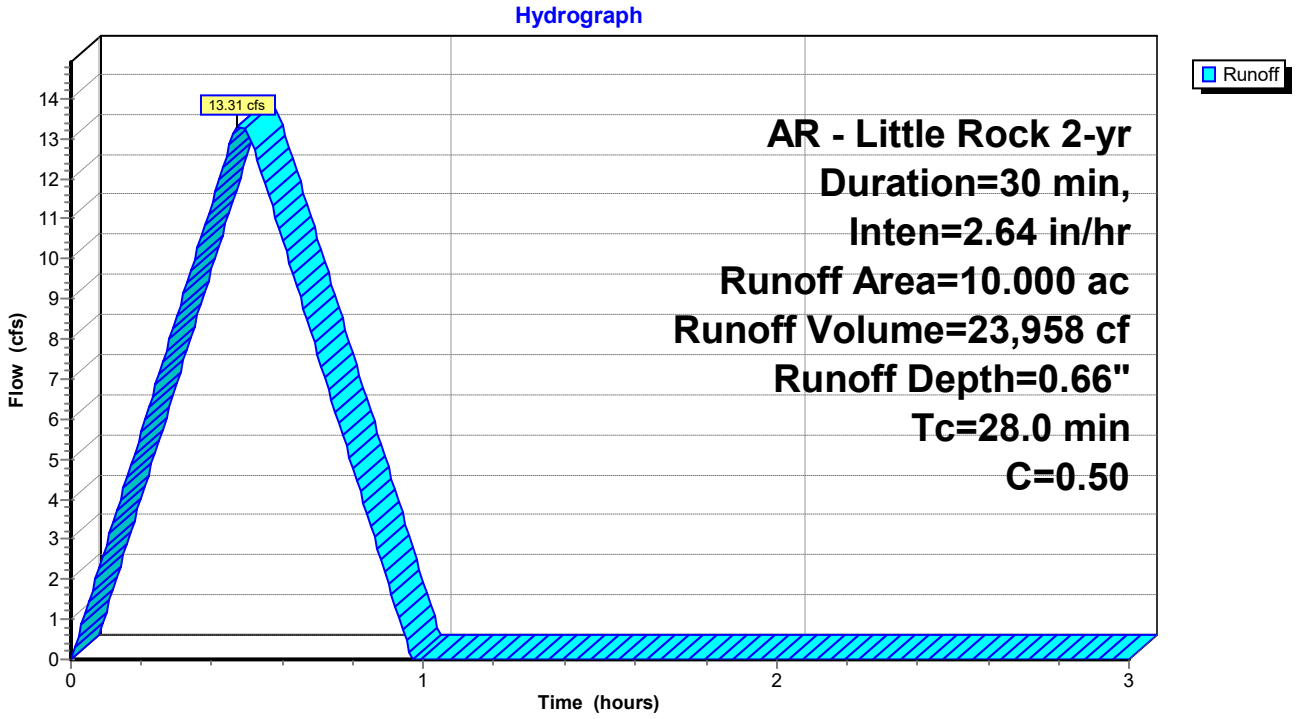
Runoff = 13.31 cfs @ 0.47 hrs, Volume= 23,958 cf, Depth= 0.66"

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=30 min, Inten=2.64 in/hr

Area (ac)	C	Description
10.000	0.50	Undeveloped
10.000		100.00% Pervious Area

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

Subcatchment PRE: Pre-Development Discharge



Summary for Subcatchment PRE: Pre-Development Discharge

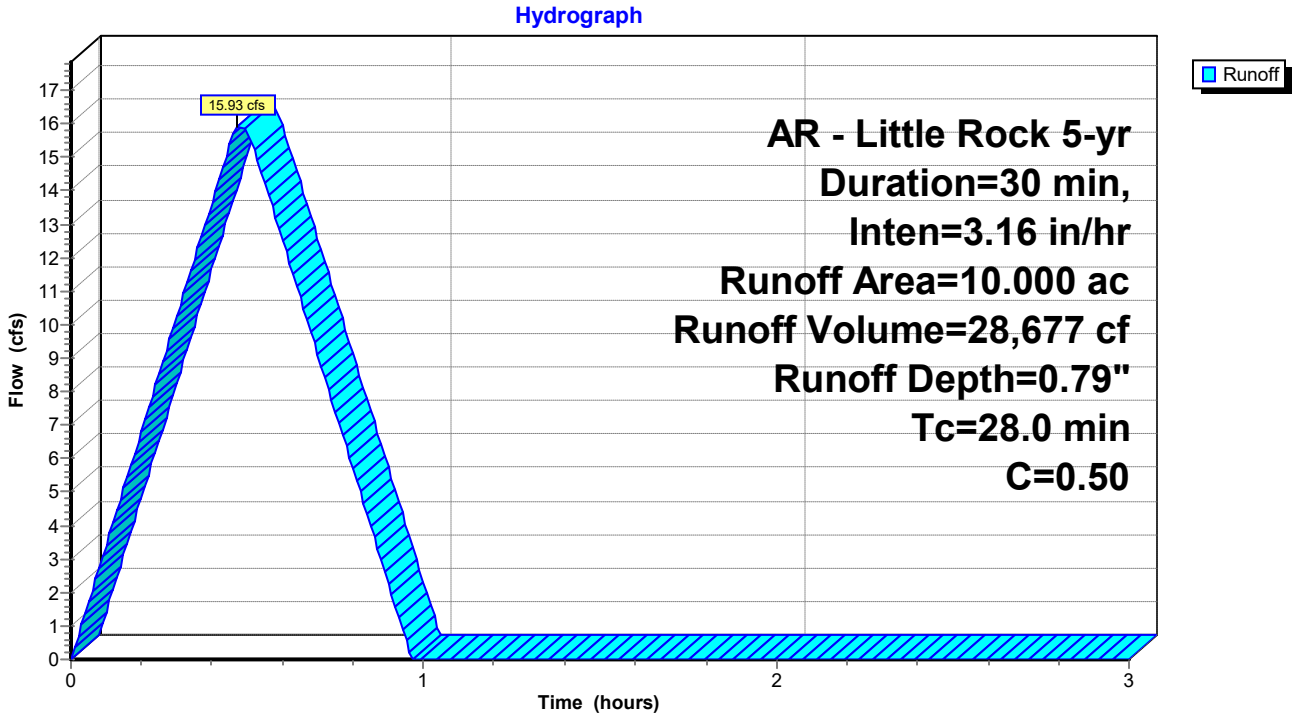
Runoff = 15.93 cfs @ 0.47 hrs, Volume= 28,677 cf, Depth= 0.79"

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=30 min, Inten=3.16 in/hr

Area (ac)	C	Description
10.000	0.50	Undeveloped
10.000		100.00% Pervious Area

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

Subcatchment PRE: Pre-Development Discharge



Summary for Subcatchment PRE: Pre-Development Discharge

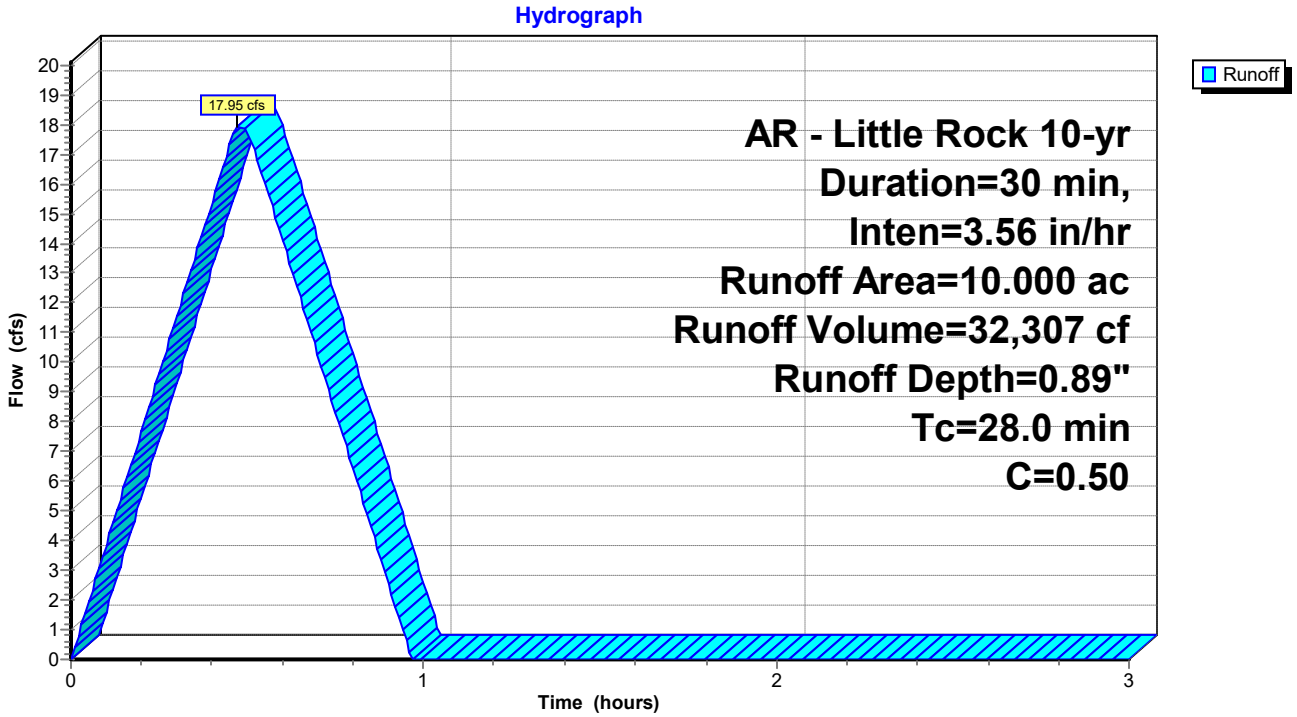
Runoff = 17.95 cfs @ 0.47 hrs, Volume= 32,307 cf, Depth= 0.89"

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=30 min, Inten=3.56 in/hr

Area (ac)	C	Description
10.000	0.50	Undeveloped
10.000		100.00% Pervious Area

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

Subcatchment PRE: Pre-Development Discharge



Summary for Subcatchment PRE: Pre-Development Discharge

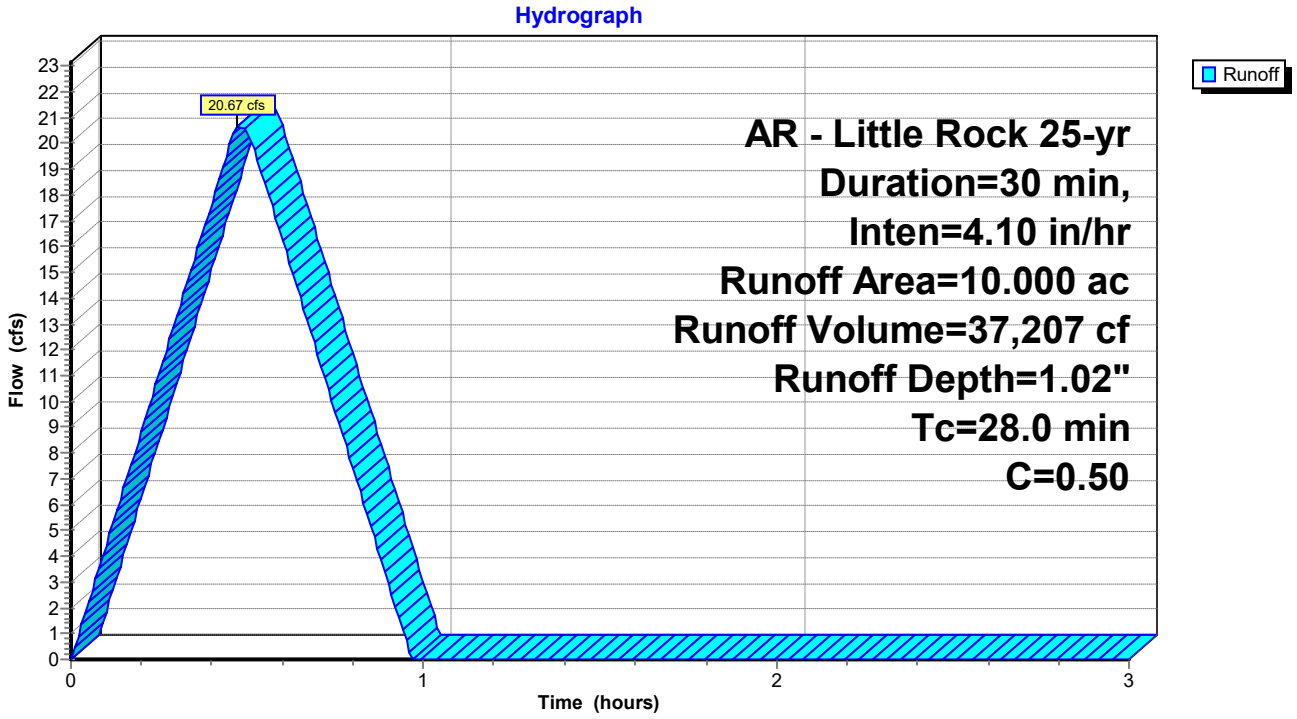
Runoff = 20.67 cfs @ 0.47 hrs, Volume= 37,207 cf, Depth= 1.02"

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=30 min, Inten=4.10 in/hr

Area (ac)	C	Description
10.000	0.50	Undeveloped
10.000		100.00% Pervious Area

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

Subcatchment PRE: Pre-Development Discharge



Summary for Subcatchment PRE: Pre-Development Discharge

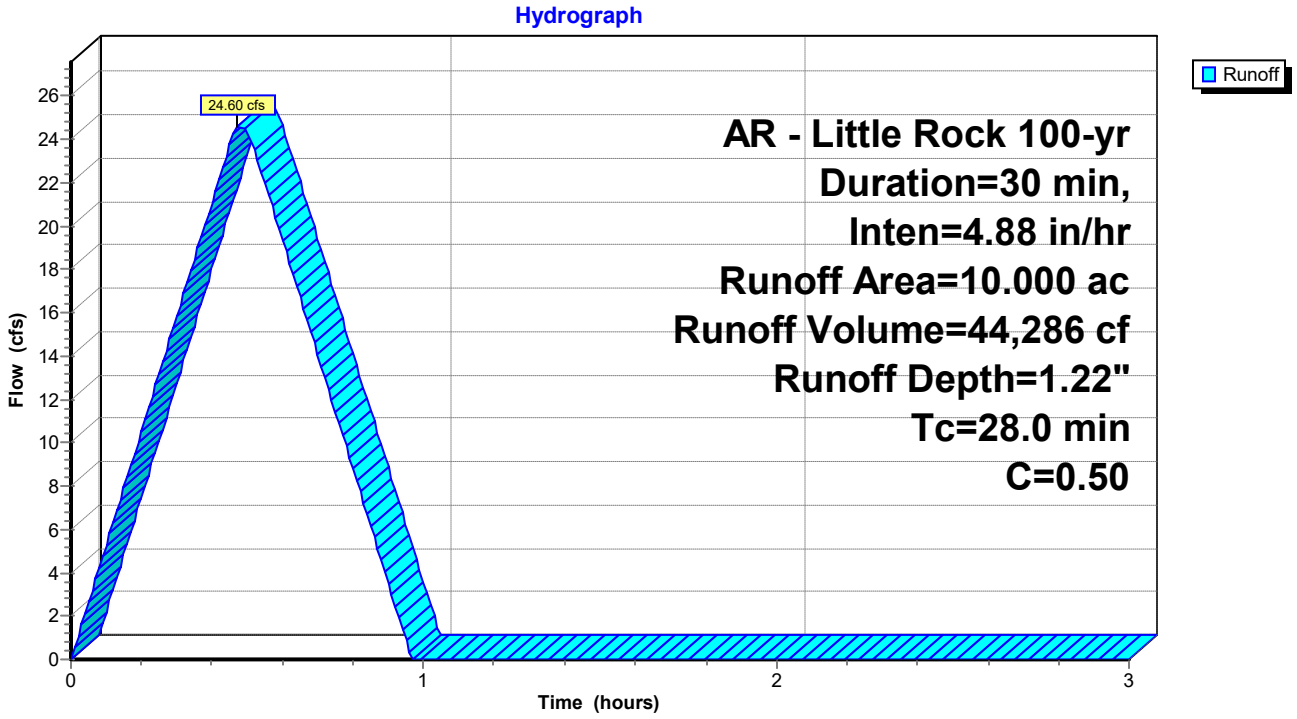
Runoff = 24.60 cfs @ 0.47 hrs, Volume= 44,286 cf, Depth= 1.22"

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=30 min, Inten=4.88 in/hr

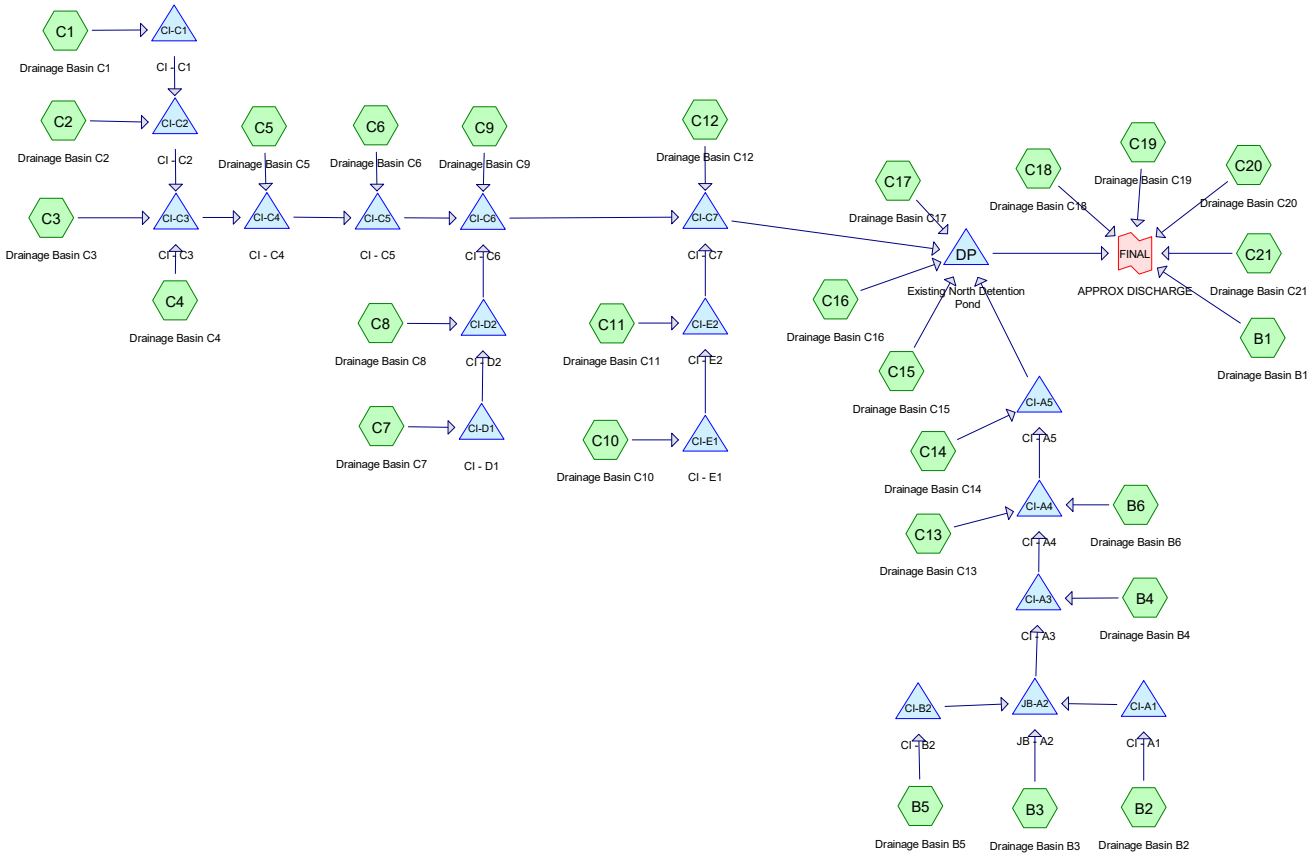
Area (ac)	C	Description
10.000	0.50	Undeveloped
10.000		100.00% Pervious Area

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

Subcatchment PRE: Pre-Development Discharge



POST DEVELOPMENT HYDROGRAPHS



Subcat Reach Pond Link

Routing Diagram for Goddard

Prepared by Phillip Lewis Engineering, Printed 3/11/2026

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Summary for Subcatchment B1: Drainage Basin B1

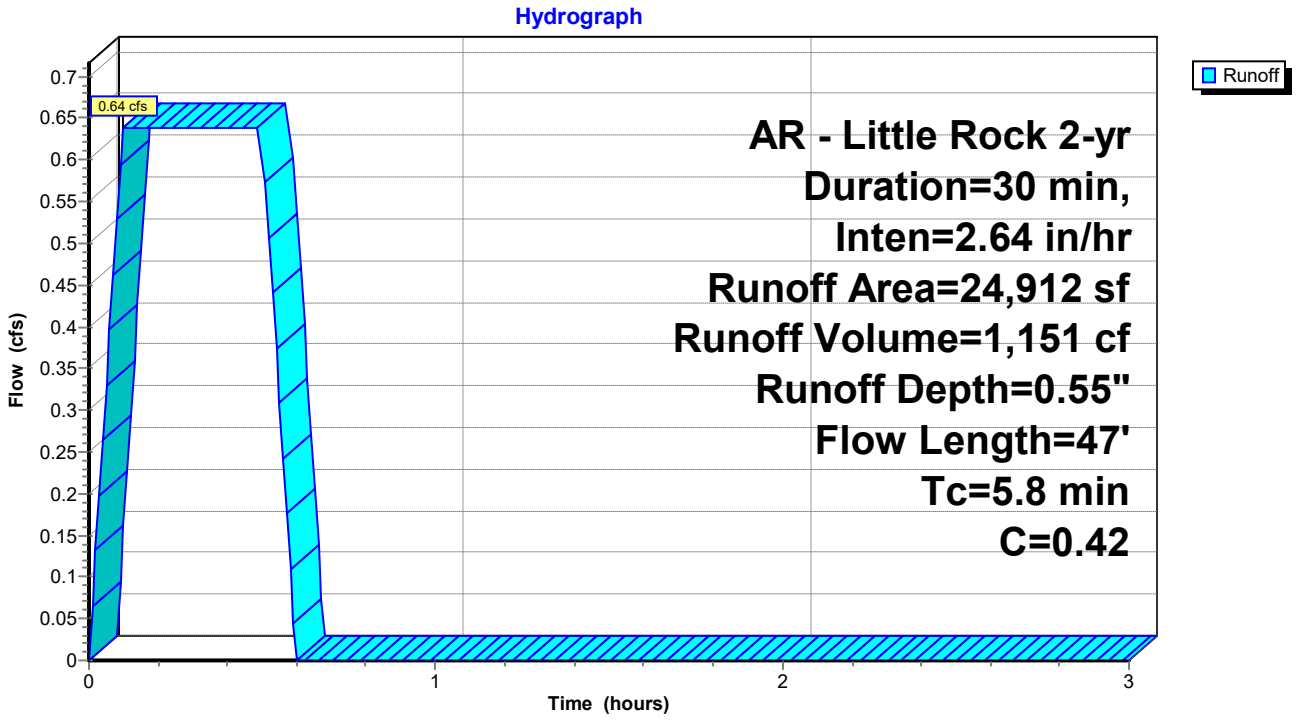
Runoff = 0.64 cfs @ 0.10 hrs, Volume= 1,151 cf, Depth= 0.55"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
24,091	0.40	Sod Yard
821	0.95	Paving, Sidewalks
24,912	0.42	Weighted Average
24,091		96.70% Pervious Area
821		3.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	9	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	38	0.2040	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
5.8	47	Total			

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

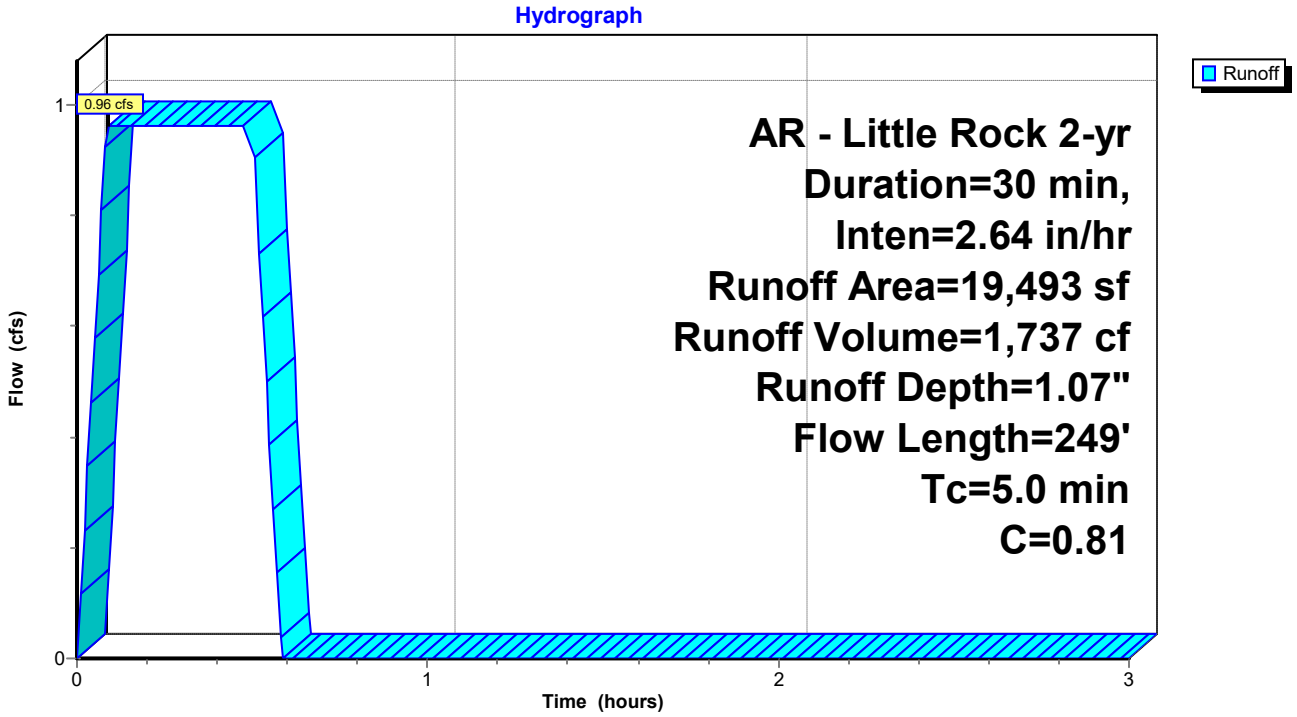
Runoff = 0.96 cfs @ 0.09 hrs, Volume= 1,737 cf, Depth= 1.07"
Routed to Pond CI-A1 : CI - A1

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
4,903	0.40	Sod Yard
14,590	0.95	Paving, Sidewalks
19,493	0.81	Weighted Average
4,903		25.15% Pervious Area
14,590		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	28	0.0450	1.69		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	72	0.0250	3.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	51	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	16	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	8	0.0430	4.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	7	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.2					**Direct Entry, Overland Concentrated Flow (Min)**
5.0	249	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

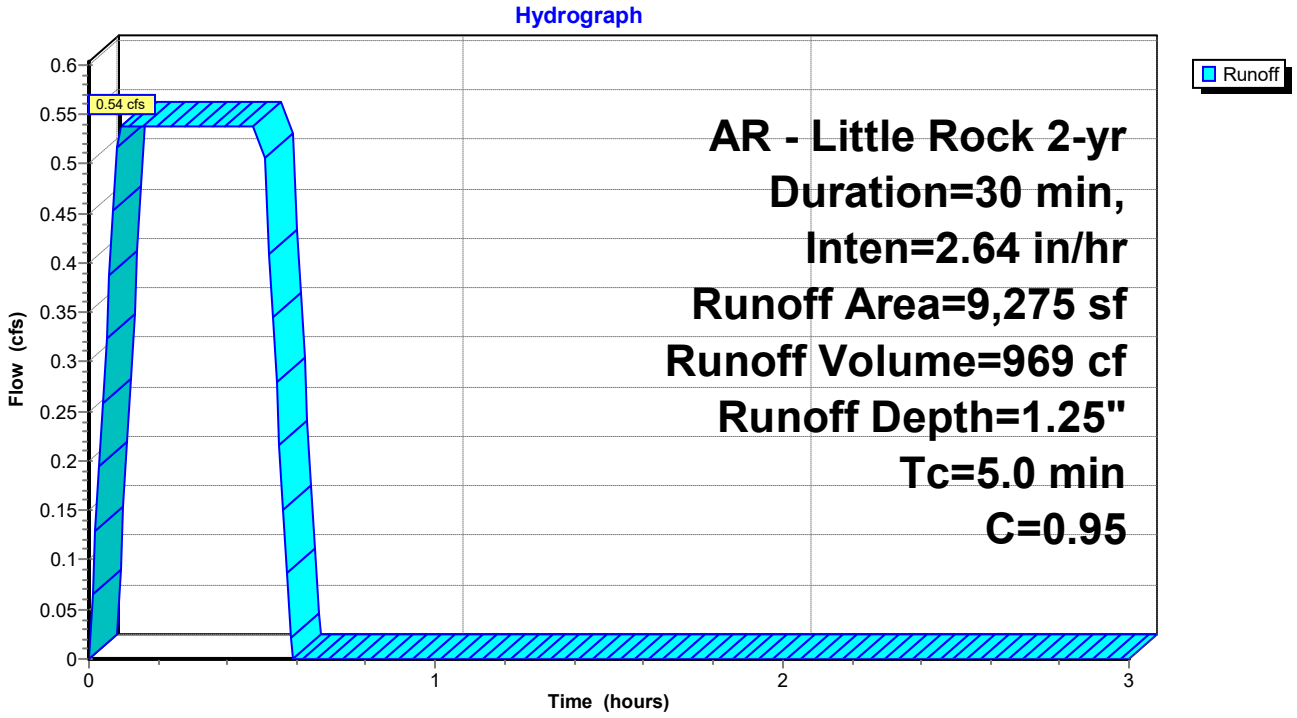
Runoff = 0.54 cfs @ 0.09 hrs, Volume= 969 cf, Depth= 1.25"
Routed to Pond JB-A2 : JB - A2

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
9,275	0.95	Roof
9,275		100.00% Impervious Area

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

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

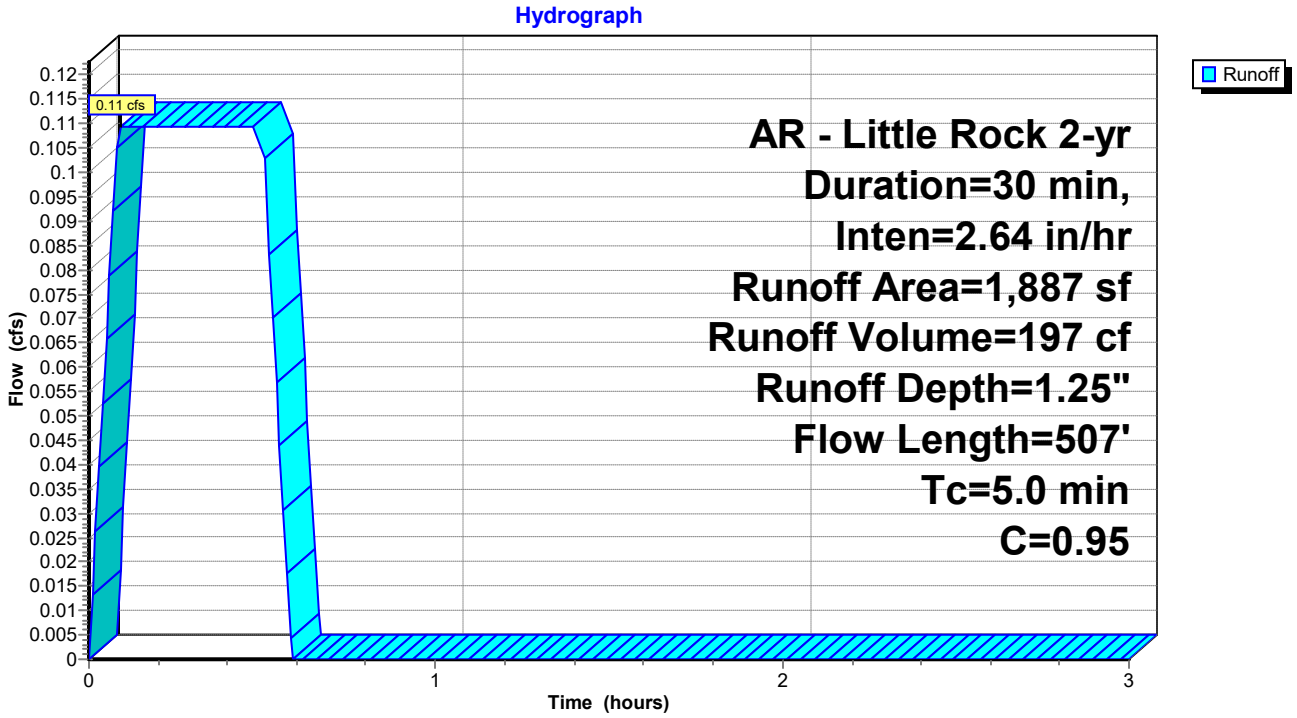
Runoff = 0.11 cfs @ 0.09 hrs, Volume= 197 cf, Depth= 1.25"
Routed to Pond CI-A3 : CI - A3

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,887	0.95	Paving, Sidewalks
1,887	0.95	Weighted Average
1,887		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	30	0.0240	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	13	0.0860	5.95		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	507	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

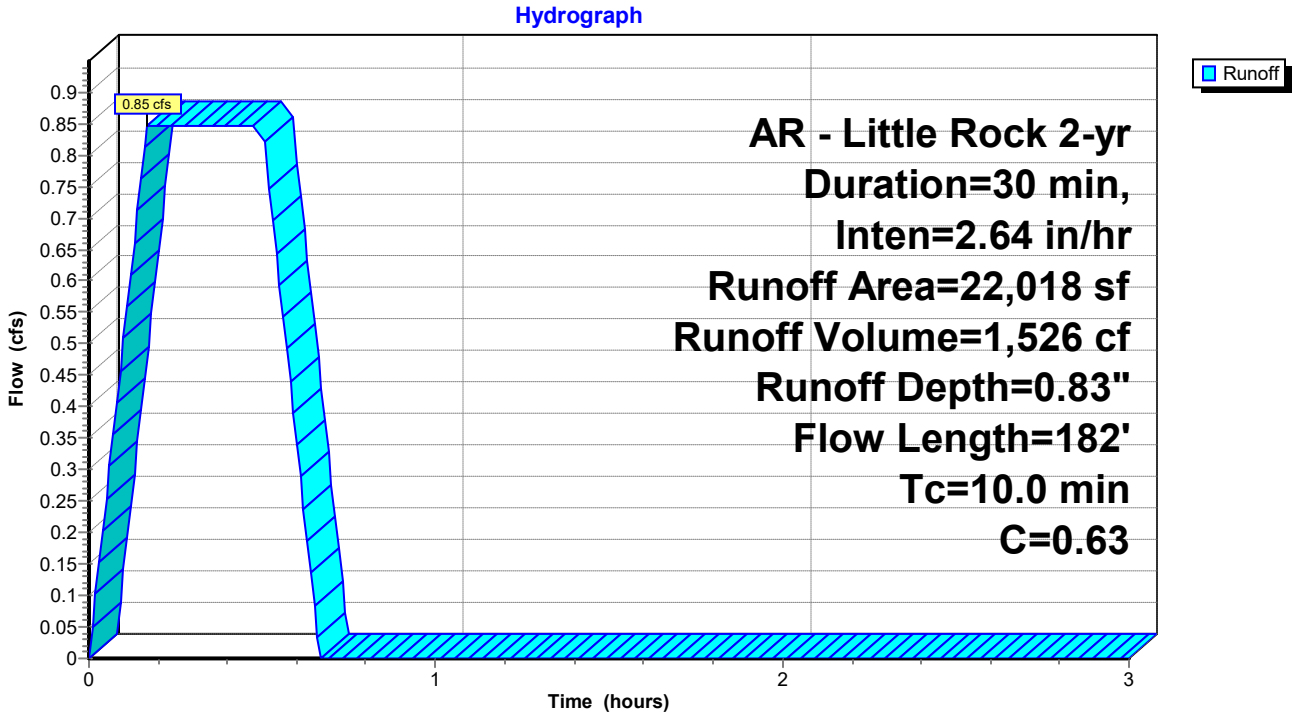
Runoff = 0.85 cfs @ 0.17 hrs, Volume= 1,526 cf, Depth= 0.83"
Routed to Pond CI-B2 : CI - B2

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
12,753	0.40	Sod Yard
9,265	0.95	Paving, Sidewalks
22,018	0.63	Weighted Average
12,753		57.92% Pervious Area
9,265		42.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.89		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
9.1	93	0.0150	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.4	40	0.0110	1.57		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	33	0.0190	2.07		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	6	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0	182	Total			

Subcatchment B5: Drainage Basin B5



Summary for Subcatchment B6: Drainage Basin B6

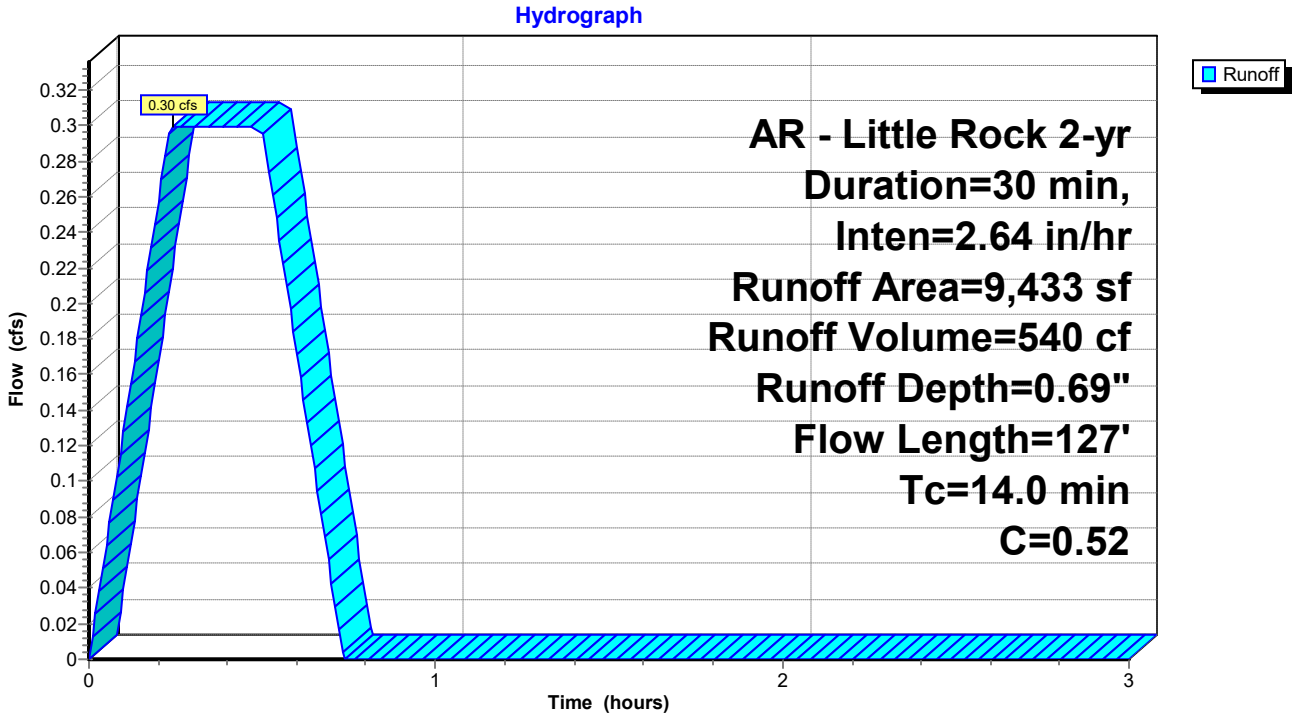
Runoff = 0.30 cfs @ 0.24 hrs, Volume= 540 cf, Depth= 0.69"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
7,346	0.40	Sod Yard
2,087	0.95	Paving, Sidewalks
9,433	0.52	Weighted Average
7,346		77.88% Pervious Area
2,087		22.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	79	0.0570	0.13		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	21	0.0620	0.10		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.0	9	0.0620	3.73		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	18	0.1080	4.93		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
14.0	127	Total			

Subcatchment B6: Drainage Basin B6



Summary for Subcatchment C1: Drainage Basin C1

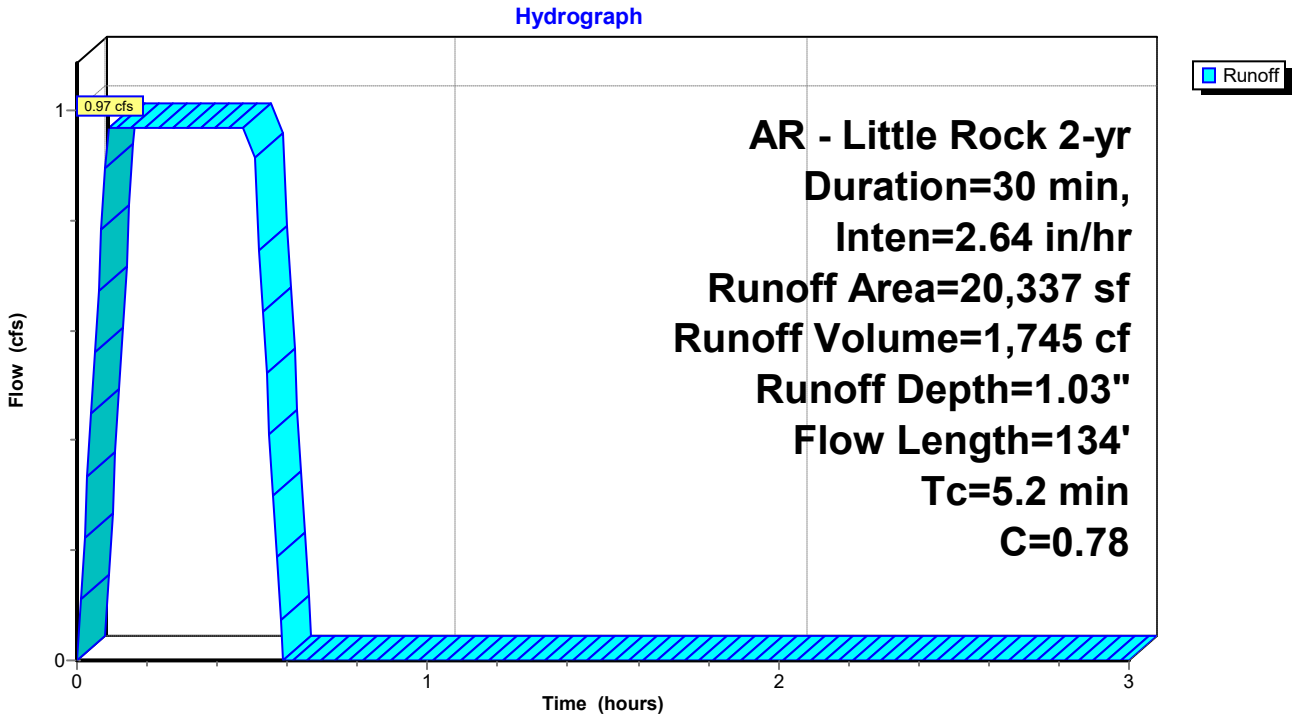
Runoff = 0.97 cfs @ 0.09 hrs, Volume= 1,745 cf, Depth= 1.03"
Routed to Pond CI-C1 : CI - C1

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
6,135	0.40	Sod Yard
14,202	0.95	Paving, Sidewalks
20,337	0.78	Weighted Average
6,135		30.17% Pervious Area
14,202		69.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.4	102	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.2	134	Total			

Subcatchment C1: Drainage Basin C1



Summary for Subcatchment C10: Drainage Basin C10

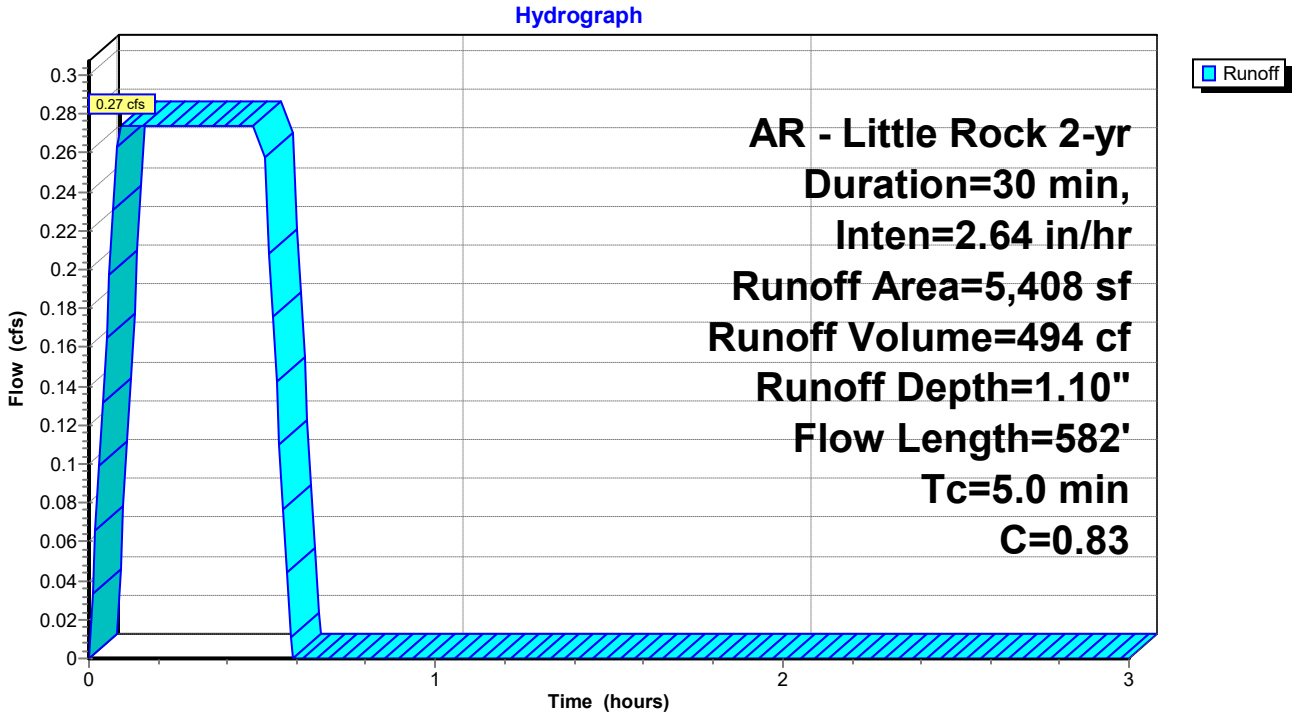
Runoff = 0.27 cfs @ 0.09 hrs, Volume= 494 cf, Depth= 1.10"
Routed to Pond CI-E1 : CI - E1

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
1,225	0.40	Sod Yard
4,183	0.95	Paving, Sidewalks
5,408	0.83	Weighted Average
1,225		22.65% Pervious Area
4,183		77.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	29	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	36	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	48	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	13	0.0350	3.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.9	415		1.77		**Direct Entry, Concentrated Flow (Min)**
5.0	582	Total			

Subcatchment C10: Drainage Basin C10



Summary for Subcatchment C11: Drainage Basin C11

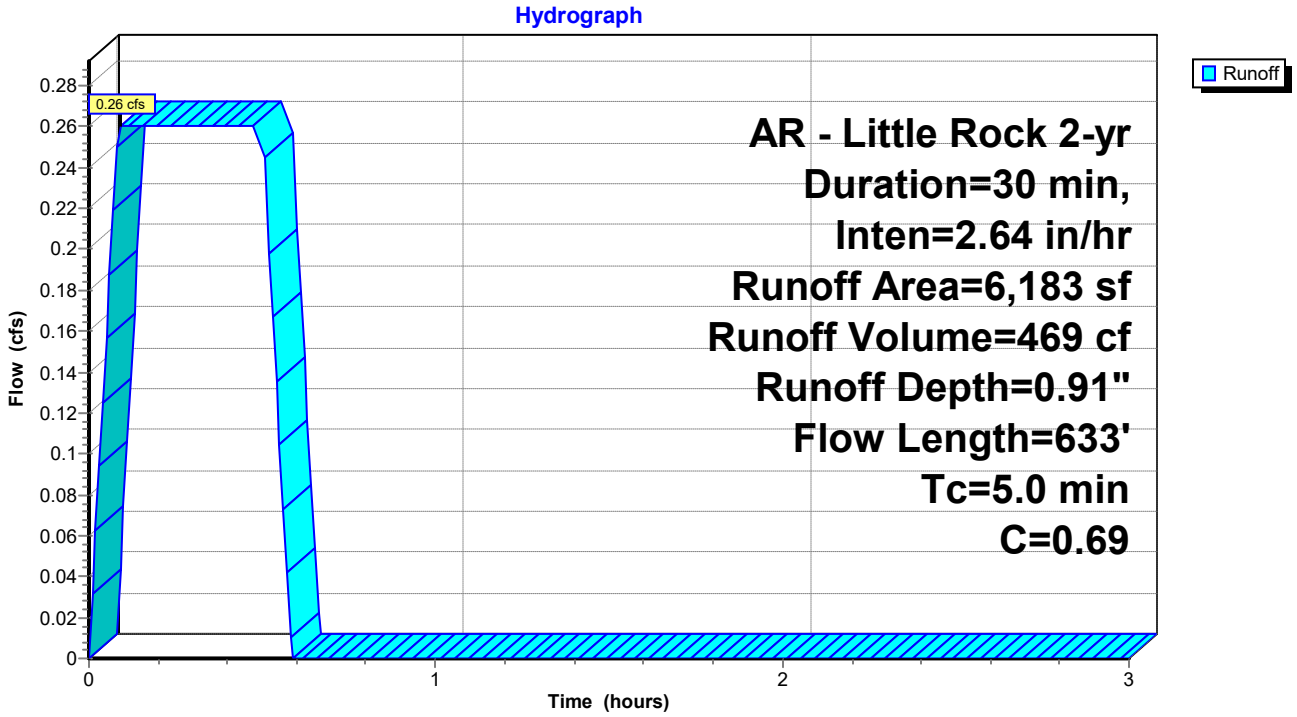
Runoff = 0.26 cfs @ 0.09 hrs, Volume= 469 cf, Depth= 0.91"
Routed to Pond CI-E2 : CI - E2

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
2,876	0.40	Sod Yard
3,307	0.95	Paving, Sidewalks
6,183	0.69	Weighted Average
2,876		46.51% Pervious Area
3,307		53.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0200	1.19		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	33	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	37	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	633	Total			

Subcatchment C11: Drainage Basin C11



Summary for Subcatchment C12: Drainage Basin C12

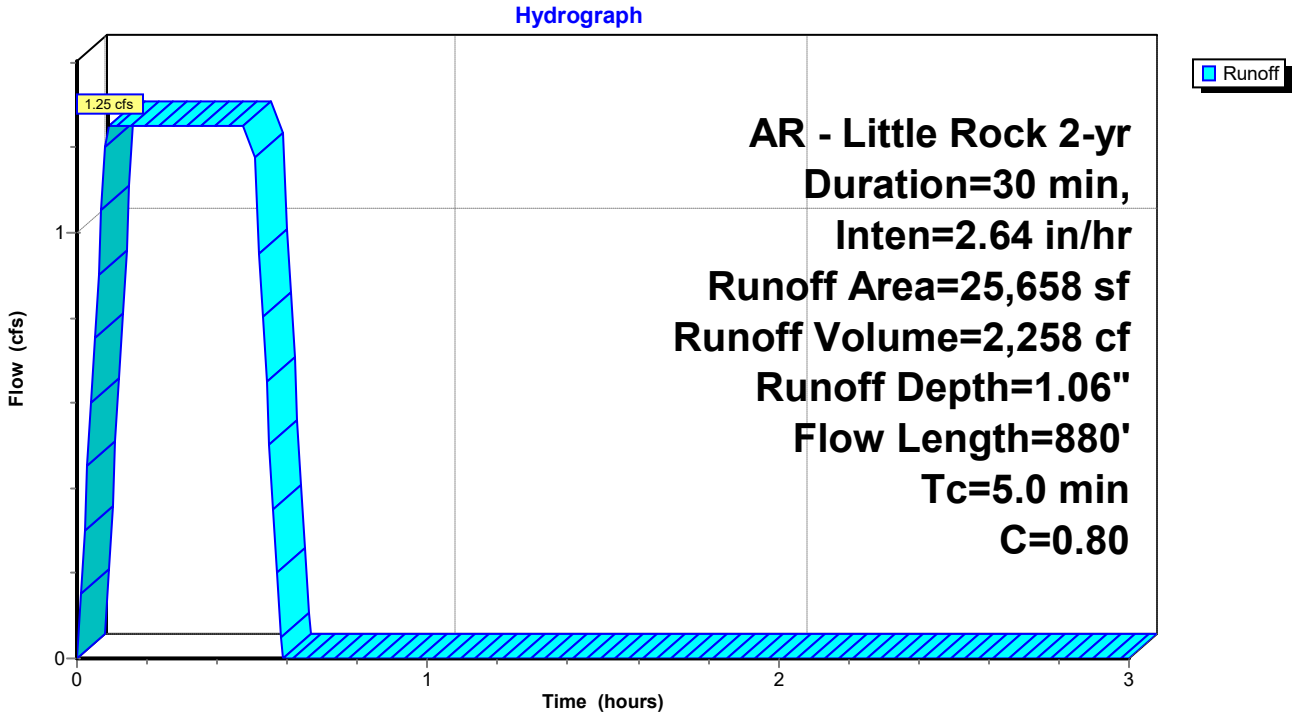
Runoff = 1.25 cfs @ 0.09 hrs, Volume= 2,258 cf, Depth= 1.06"
Routed to Pond CI-C7 : CI - C7

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
7,218	0.40	Sod Yard
18,440	0.95	Paving, Sidewalks
25,658	0.80	Weighted Average
7,218		28.13% Pervious Area
18,440		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0360	1.50		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0190	0.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.9	49	0.0020	0.91		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	96	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	94	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	25	0.0450	4.31		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	39	0.0490	4.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0460	4.35		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	11	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0440	4.26		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.3	415		3.01		**Direct Entry, Concentrated Flow (Min)**
5.0	880	Total			

Subcatchment C12: Drainage Basin C12



Summary for Subcatchment C13: Drainage Basin C13

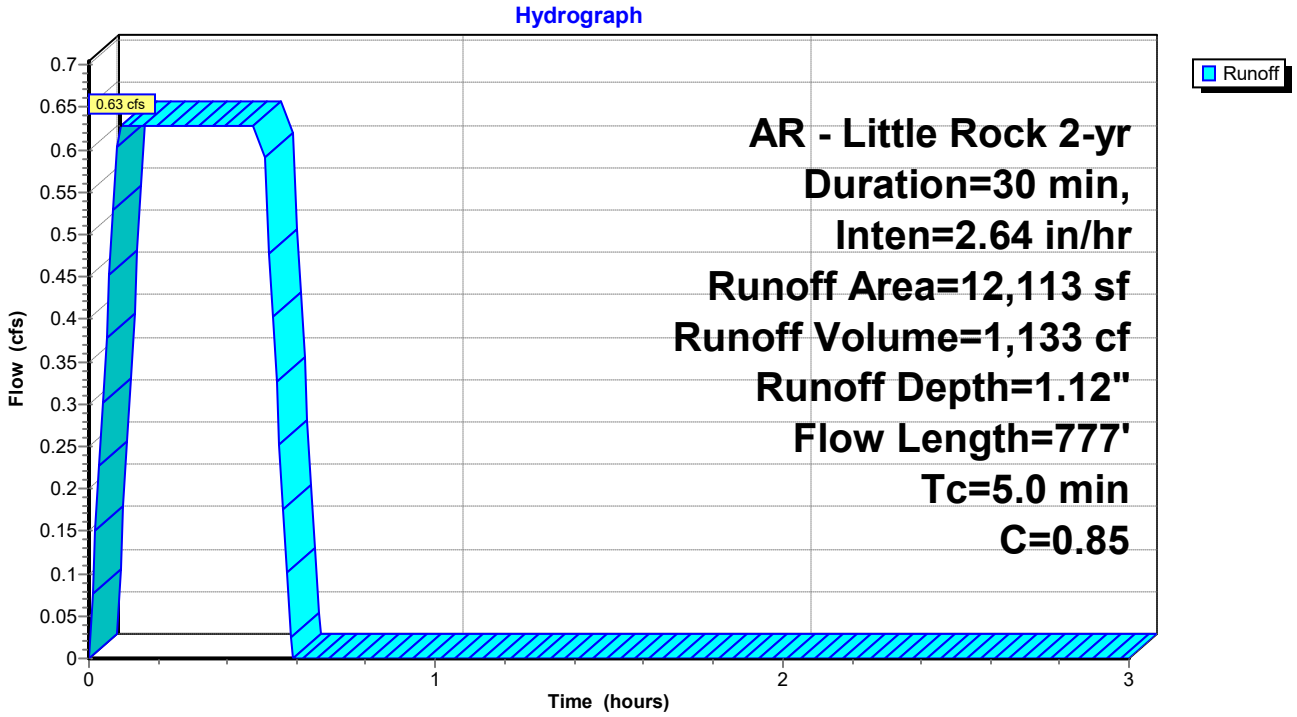
Runoff = 0.63 cfs @ 0.09 hrs, Volume= 1,133 cf, Depth= 1.12"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
2,240	0.40	Sod Yard
9,873	0.95	Paving, Sidewalks
12,113	0.85	Weighted Average
2,240		18.49% Pervious Area
9,873		81.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	75	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	42	0.0730	5.48		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	74	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	32	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.6	415		1.92		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	777	Total			

Subcatchment C13: Drainage Basin C13



Summary for Subcatchment C14: Drainage Basin C14

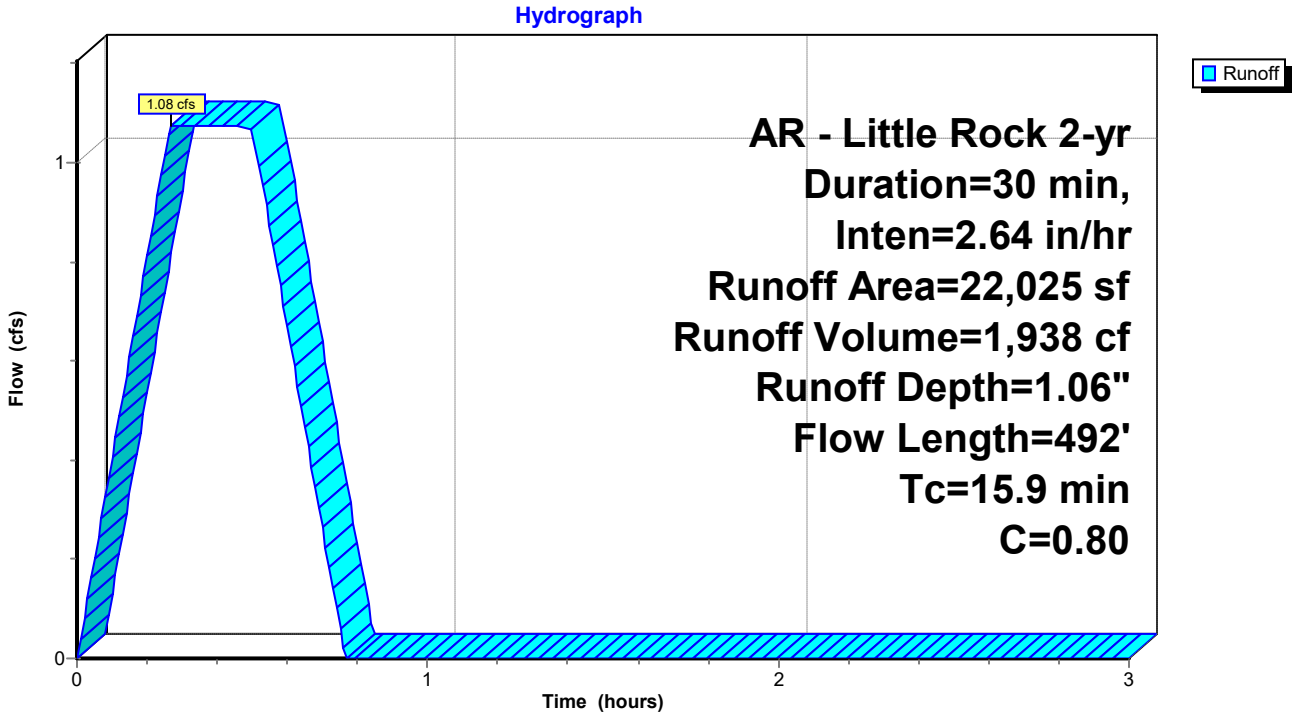
Runoff = 1.08 cfs @ 0.27 hrs, Volume= 1,938 cf, Depth= 1.06"
Routed to Pond CI-A5 : CI - A5

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
6,127	0.40	Sod Yard
15,898	0.95	Paving, Sidewalks
22,025	0.80	Weighted Average
6,127		27.82% Pervious Area
15,898		72.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	5	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
9.2	45	0.0250	0.08		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.8	41	0.1940	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	6	0.0100	0.68		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	51	0.0870	5.99		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0310	3.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0270	3.34		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	20	0.0400	4.06		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	34	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	58	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	49	0.0840	5.88		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
15.9	492	Total			

Subcatchment C14: Drainage Basin C14



Summary for Subcatchment C15: Drainage Basin C15

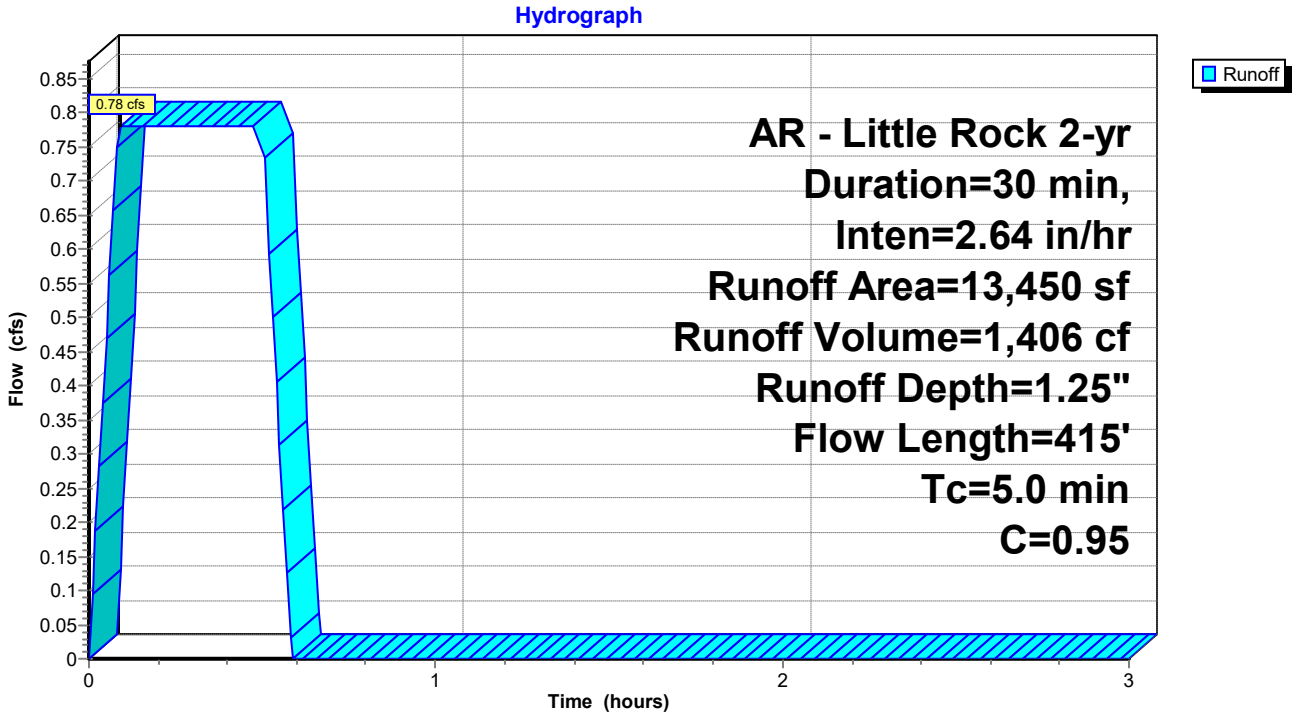
Runoff = 0.78 cfs @ 0.09 hrs, Volume= 1,406 cf, Depth= 1.25"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
13,450	0.95	Paving, Sidewalks
13,450	0.95	Weighted Average
13,450		100.00% 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 C15: Drainage Basin C15



Summary for Subcatchment C16: Drainage Basin C16

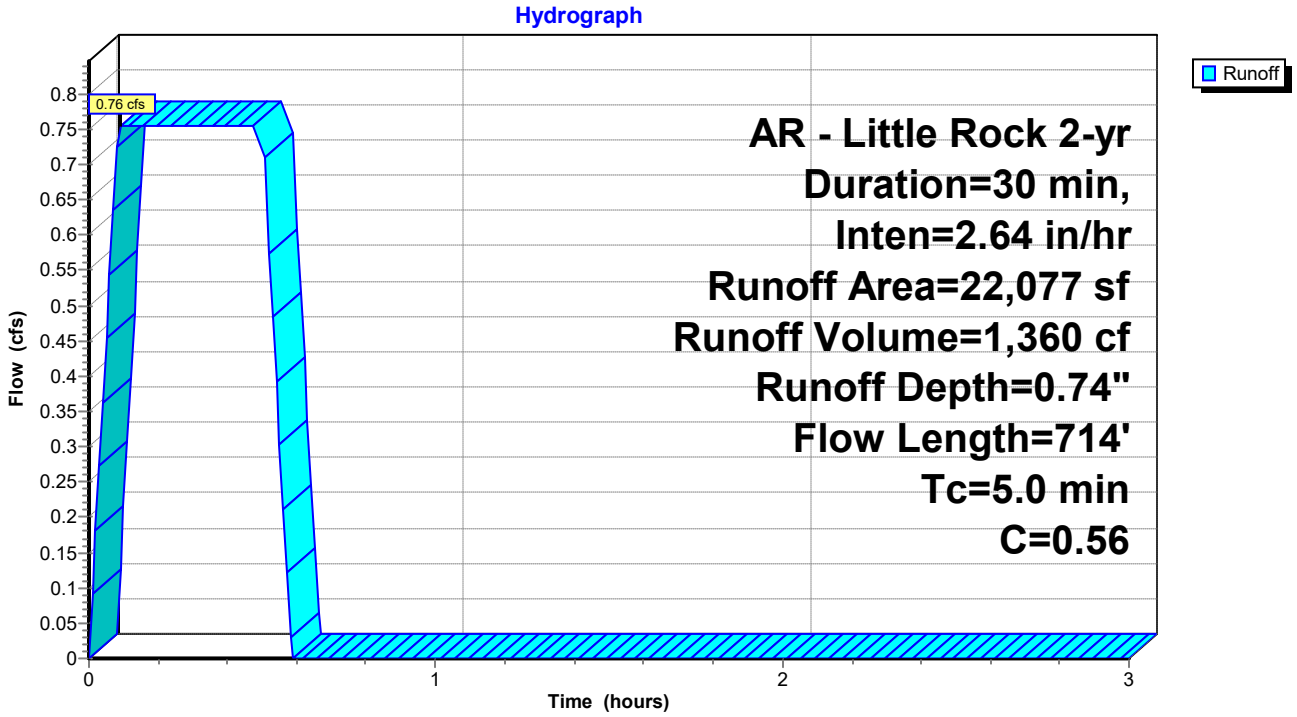
Runoff = 0.76 cfs @ 0.09 hrs, Volume= 1,360 cf, Depth= 0.74"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
15,465	0.40	Sod Yard
6,612	0.95	Paving, Sidewalks
22,077	0.56	Weighted Average
15,465		70.05% Pervious Area
6,612		29.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0190	1.18		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0100	0.66		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	51	0.0500	1.98		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	12	0.1540	2.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	50	0.1330	7.40		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.1	50	0.1170	6.94		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0430	4.21		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.3	59	0.0370	3.90		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
3.3	415		2.10		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	714	Total			

Subcatchment C16: Drainage Basin C16



Summary for Subcatchment C17: Drainage Basin C17

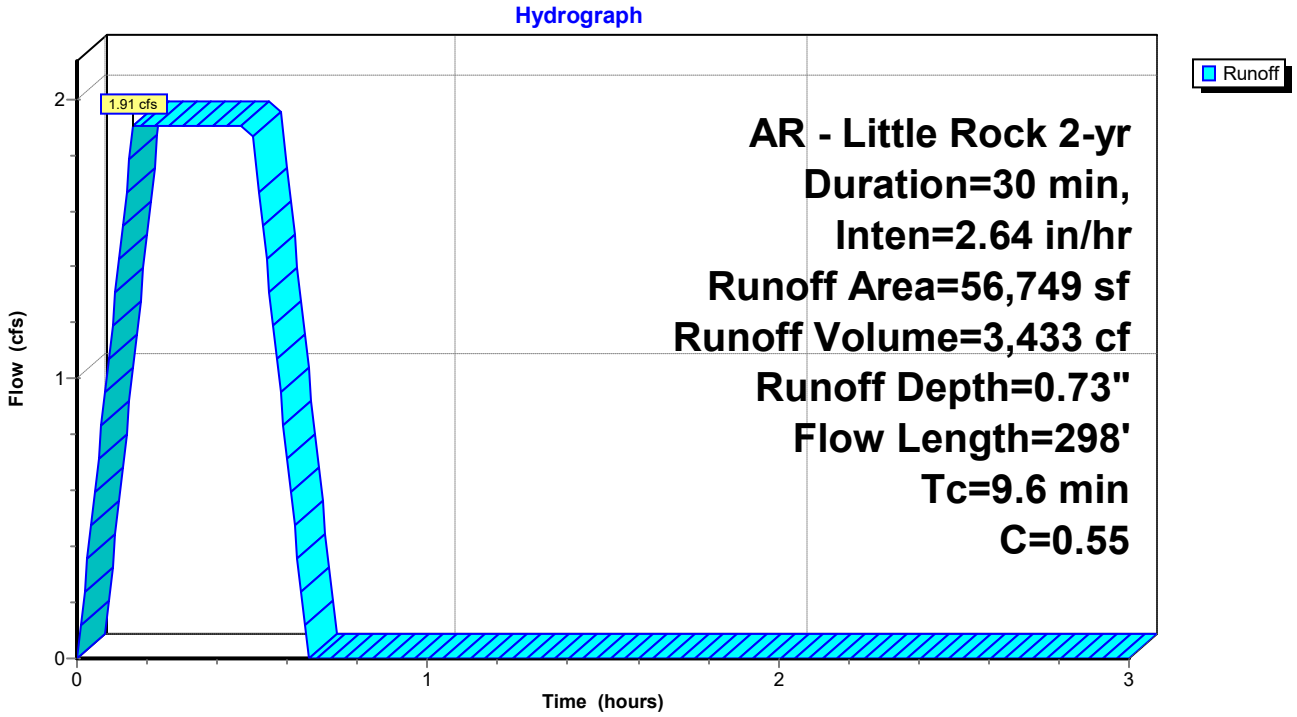
Runoff = 1.91 cfs @ 0.16 hrs, Volume= 3,433 cf, Depth= 0.73"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
40,914	0.40	Sod Yard
15,835	0.95	Paving, Sidewalks
56,749	0.55	Weighted Average
40,914		72.10% Pervious Area
15,835		27.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	43	0.0410	0.15		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.9	43	0.0690	0.19		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	41	0.0980	4.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	61	0.0730	4.05		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0570	3.58		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	64	0.0450	3.18		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
9.6	298	Total			

Subcatchment C17: Drainage Basin C17



Summary for Subcatchment C18: Drainage Basin C18

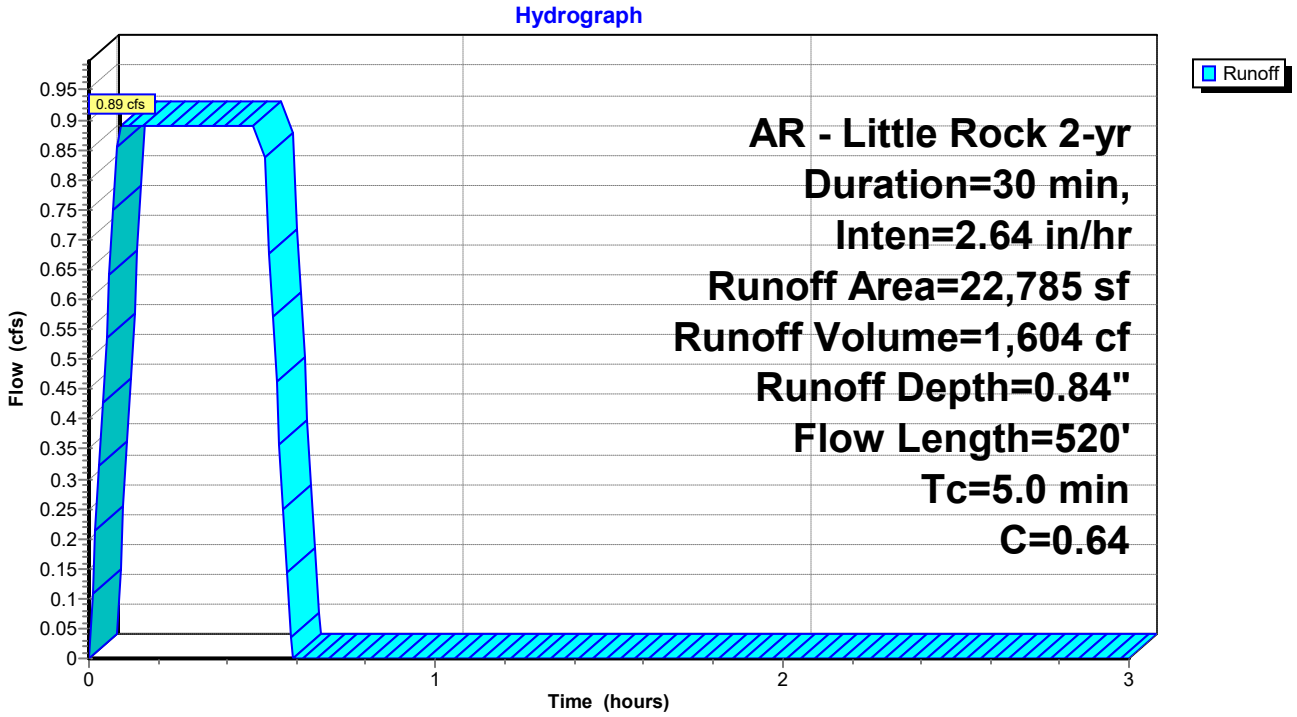
Runoff = 0.89 cfs @ 0.09 hrs, Volume= 1,604 cf, Depth= 0.84"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
12,812	0.40	Sod Yard
9,973	0.95	Paving, Sidewalks
22,785	0.64	Weighted Average
12,812		56.23% Pervious Area
9,973		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2980	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.3	8	0.0100	0.04		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	80	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	415		17.29		**Direct Entry, Concentrated Flow (Min)**
5.0	520	Total			

Subcatchment C18: Drainage Basin C18



Summary for Subcatchment C19: Drainage Basin C19

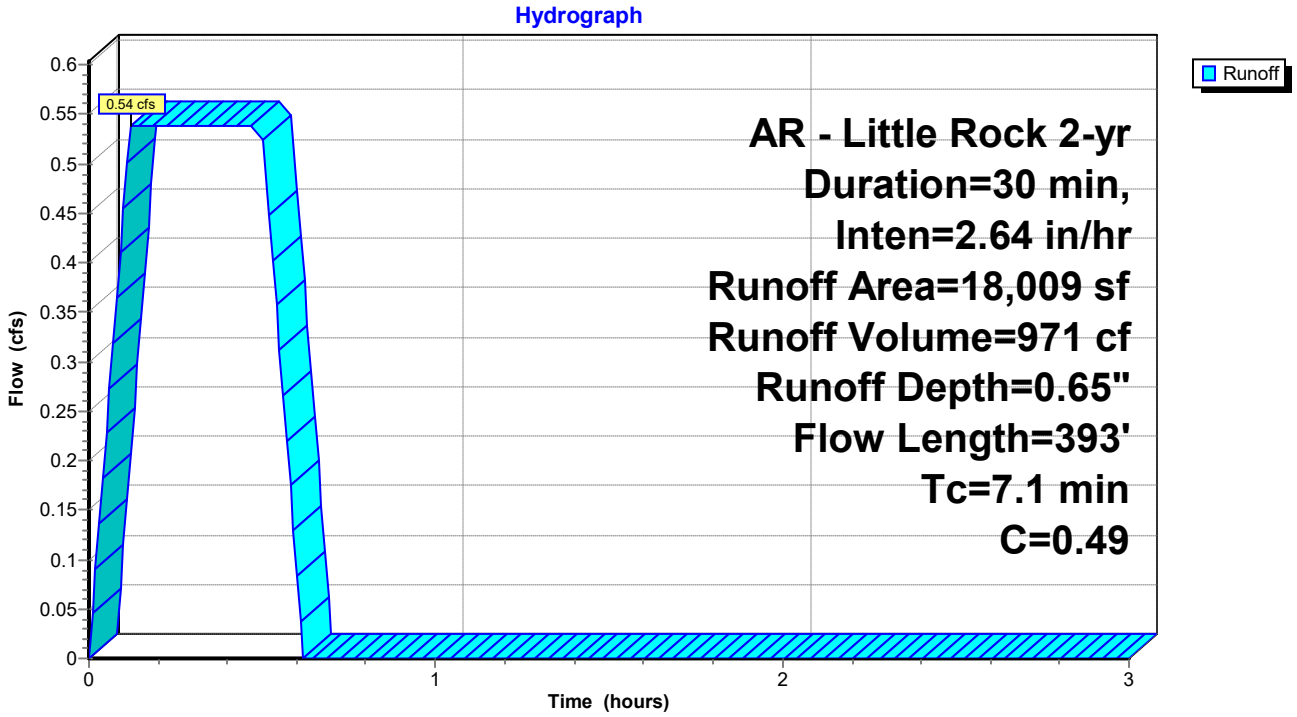
Runoff = 0.54 cfs @ 0.12 hrs, Volume= 971 cf, Depth= 0.65"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
15,129	0.40	Sod Yard
2,880	0.95	Paving, Sidewalks
18,009	0.49	Weighted Average
15,129		84.01% Pervious Area
2,880		15.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	34	0.1110	0.21		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.3	66	0.2450	0.34		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.0	9	0.2450	7.42		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.5	106	0.0610	3.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0800	4.24		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	41	0.0960	4.65		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	66	0.0680	3.91		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	19	0.1070	6.64		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
7.1	393	Total			

Subcatchment C19: Drainage Basin C19



Summary for Subcatchment C2: Drainage Basin C2

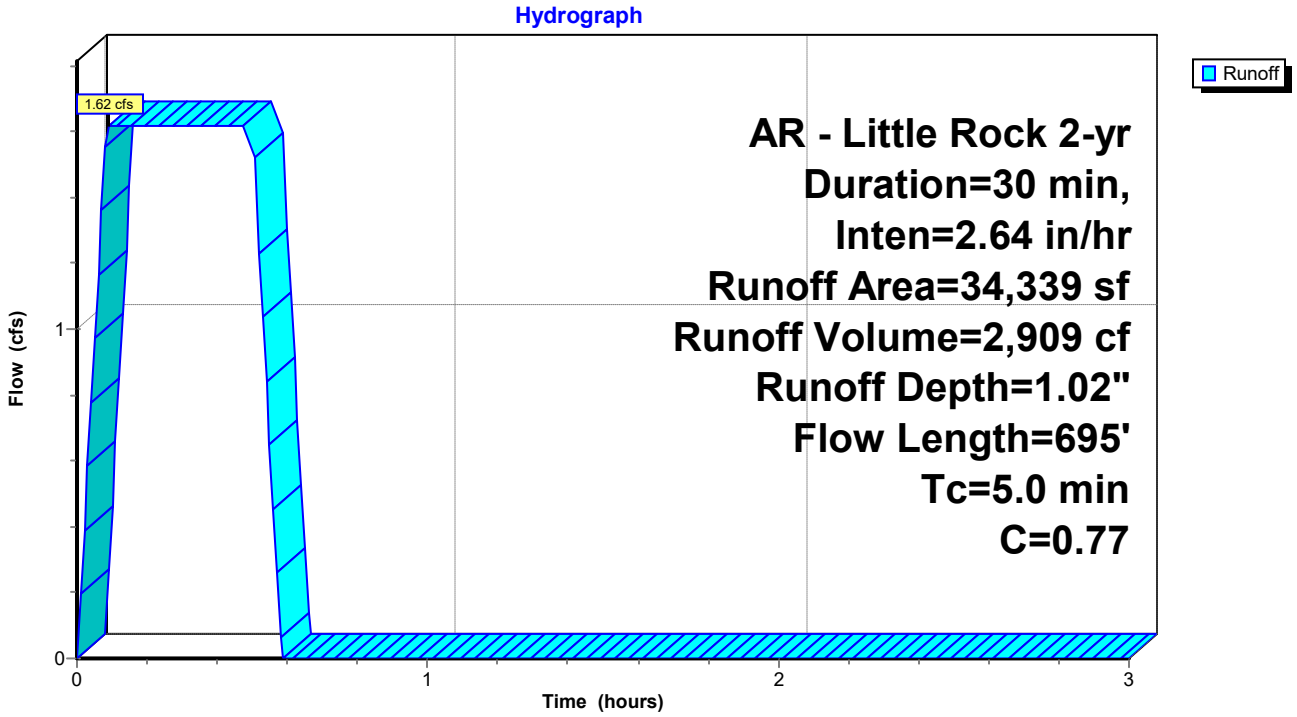
Runoff = 1.62 cfs @ 0.09 hrs, Volume= 2,909 cf, Depth= 1.02"
Routed to Pond CI-C2 : CI - C2

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
11,376	0.40	Sod Yard
22,963	0.95	Roof, Paving, Sidewalks
34,339	0.77	Weighted Average
11,376		33.13% Pervious Area
22,963		66.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.14		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	74	0.0240	3.14		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	21	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	148	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.5	415		1.98		**Direct Entry, Concentrated Flow (Min)**
5.0	695	Total			

Subcatchment C2: Drainage Basin C2



Summary for Subcatchment C20: Drainage Basin C20

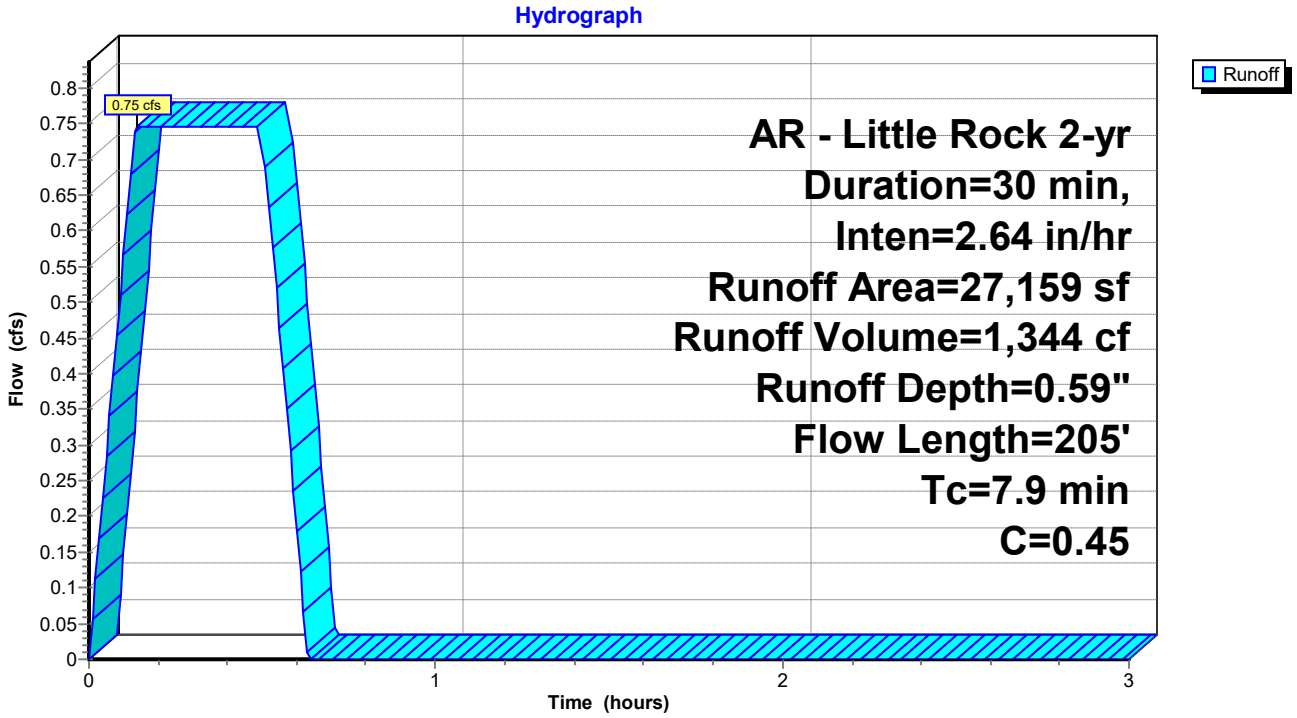
Runoff = 0.75 cfs @ 0.14 hrs, Volume= 1,344 cf, Depth= 0.59"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
24,838	0.40	Sod Yard
2,321	0.95	Paving, Sidewalks
27,159	0.45	Weighted Average
24,838		91.45% Pervious Area
2,321		8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	45	0.1430	0.25		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
4.5	55	0.0780	0.20		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	37	0.0780	4.19		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	68	0.0710	4.00		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
7.9	205	Total			

Subcatchment C20: Drainage Basin C20



Summary for Subcatchment C21: Drainage Basin C21

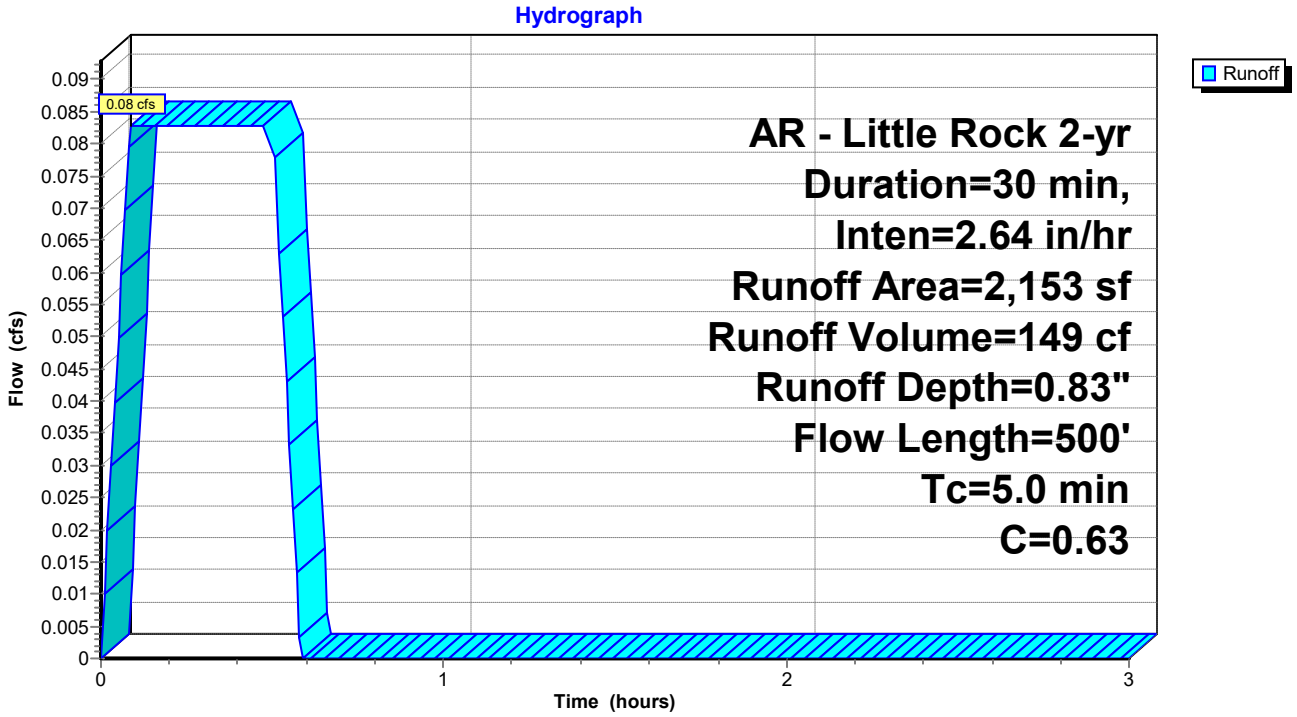
Runoff = 0.08 cfs @ 0.09 hrs, Volume= 149 cf, Depth= 0.83"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
1,234	0.40	Sod Yard
919	0.95	Paving, Sidewalks
2,153	0.63	Weighted Average
1,234		57.32% Pervious Area
919		42.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	2	0.2500	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.3	33	0.0520	1.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.8	24	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	26	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.5	415		13.83		**Direct Entry, Concentrated Flow (Min)**
5.0	500	Total			

Subcatchment C21: Drainage Basin C21



Summary for Subcatchment C3: Drainage Basin C3

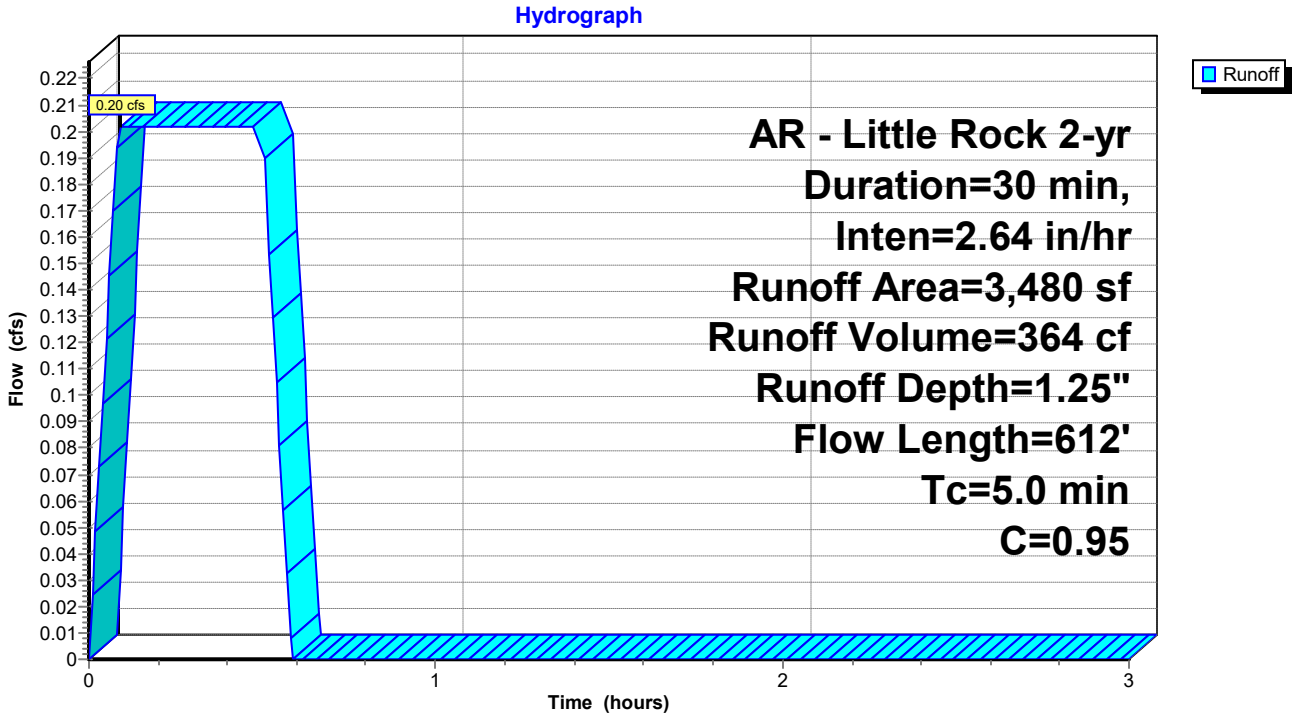
Runoff = 0.20 cfs @ 0.09 hrs, Volume= 364 cf, Depth= 1.25"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
3,480	0.95	Paving, Sidewalks
3,480	0.95	Weighted Average
3,480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	10	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	147	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	612	Total			

Subcatchment C3: Drainage Basin C3



Summary for Subcatchment C4: Drainage Basin C4

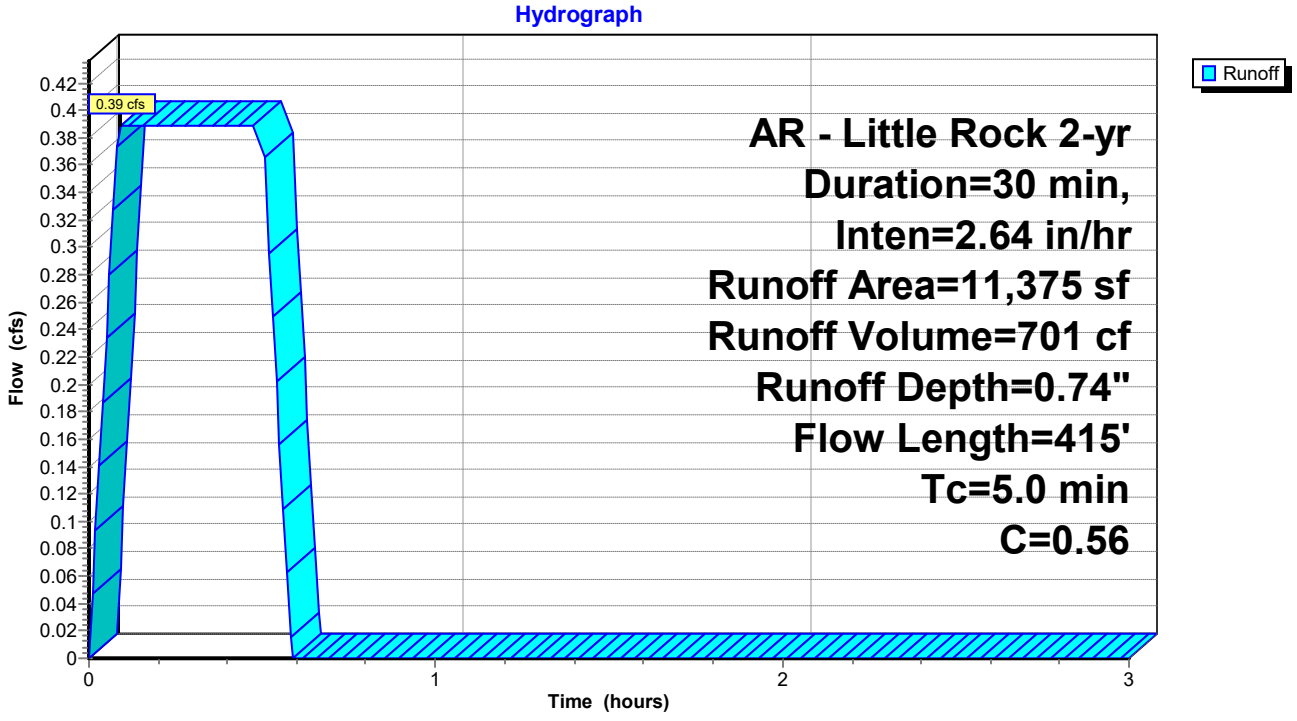
Runoff = 0.39 cfs @ 0.09 hrs, Volume= 701 cf, Depth= 0.74"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
8,130	0.40	Sod Yard
3,245	0.95	Paving, Sidewalks
11,375	0.56	Weighted Average
8,130		71.47% Pervious Area
3,245		28.53% Impervious Area

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

Subcatchment C4: Drainage Basin C4



Summary for Subcatchment C5: Drainage Basin C5

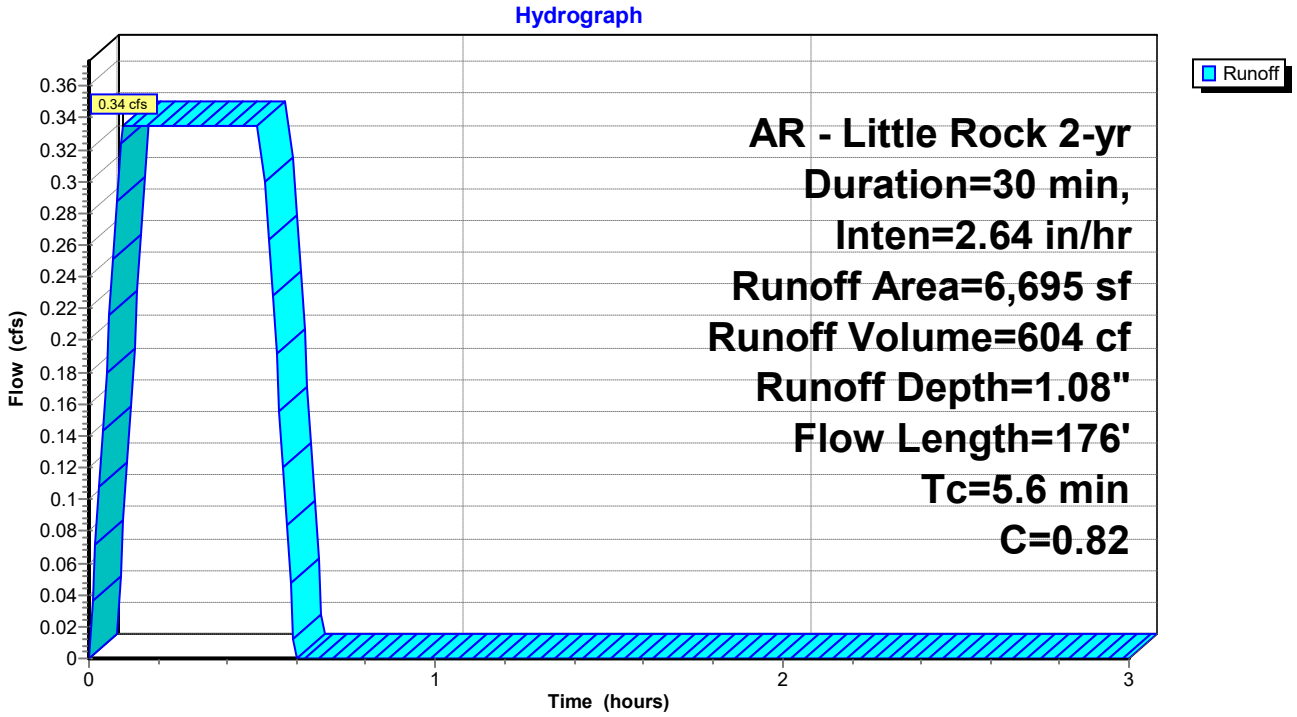
Runoff = 0.34 cfs @ 0.10 hrs, Volume= 604 cf, Depth= 1.08"
Routed to Pond CI-C4 : CI - C4

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
1,634	0.40	Sod Yard
5,061	0.95	Paving, Sidewalks
6,695	0.82	Weighted Average
1,634		24.41% Pervious Area
5,061		75.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2990	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.9	8	0.0070	0.03		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	58	0.0080	1.82		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	14	0.0280	3.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0370	3.90		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0940	6.22		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	30	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.6	176	Total			

Subcatchment C5: Drainage Basin C5



Summary for Subcatchment C6: Drainage Basin C6

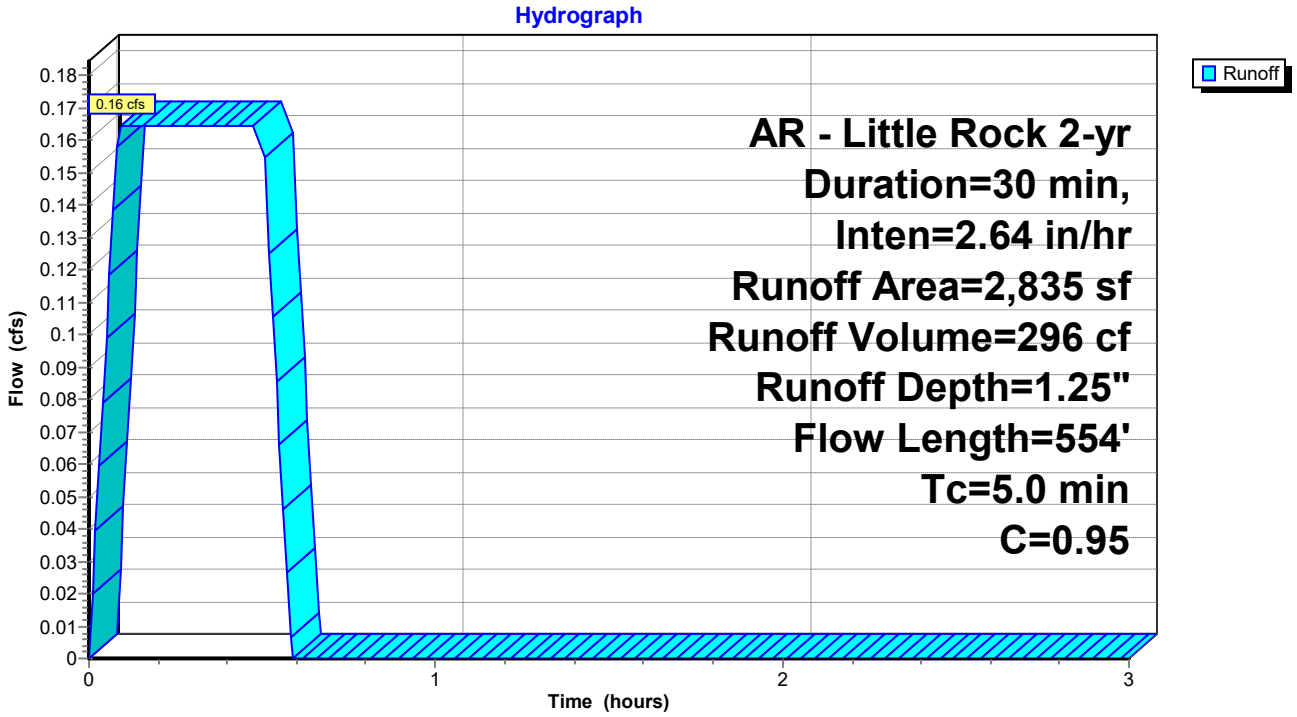
Runoff = 0.16 cfs @ 0.09 hrs, Volume= 296 cf, Depth= 1.25"
Routed to Pond CI-C5 : CI - C5

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
2,835	0.95	Paving, Sidewalks
2,835	0.95	Weighted Average
2,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0360	3.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	27	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.1	415		1.69		**Direct Entry, Concentrated Flow (Min)**
5.0	554	Total			

Subcatchment C6: Drainage Basin C6



Summary for Subcatchment C7: Drainage Basin C7

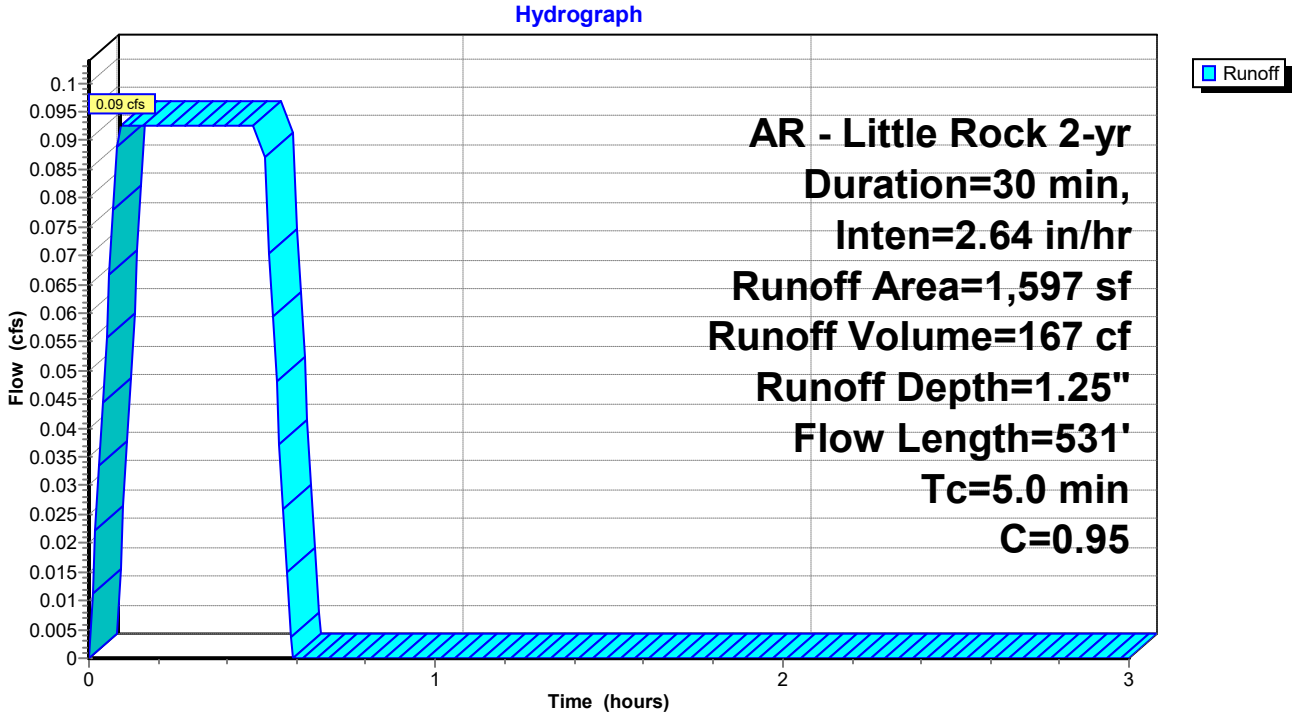
Runoff = 0.09 cfs @ 0.09 hrs, Volume= 167 cf, Depth= 1.25"
Routed to Pond CI-D1 : CI - D1

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,597	0.95	Paving, Sidewalks
1,597	0.95	Weighted Average
1,597		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	16	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	81	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.3	415		1.61		**Direct Entry, Concentrated Flow (Min)**
5.0	531	Total			

Subcatchment C7: Drainage Basin C7



Summary for Subcatchment C8: Drainage Basin C8

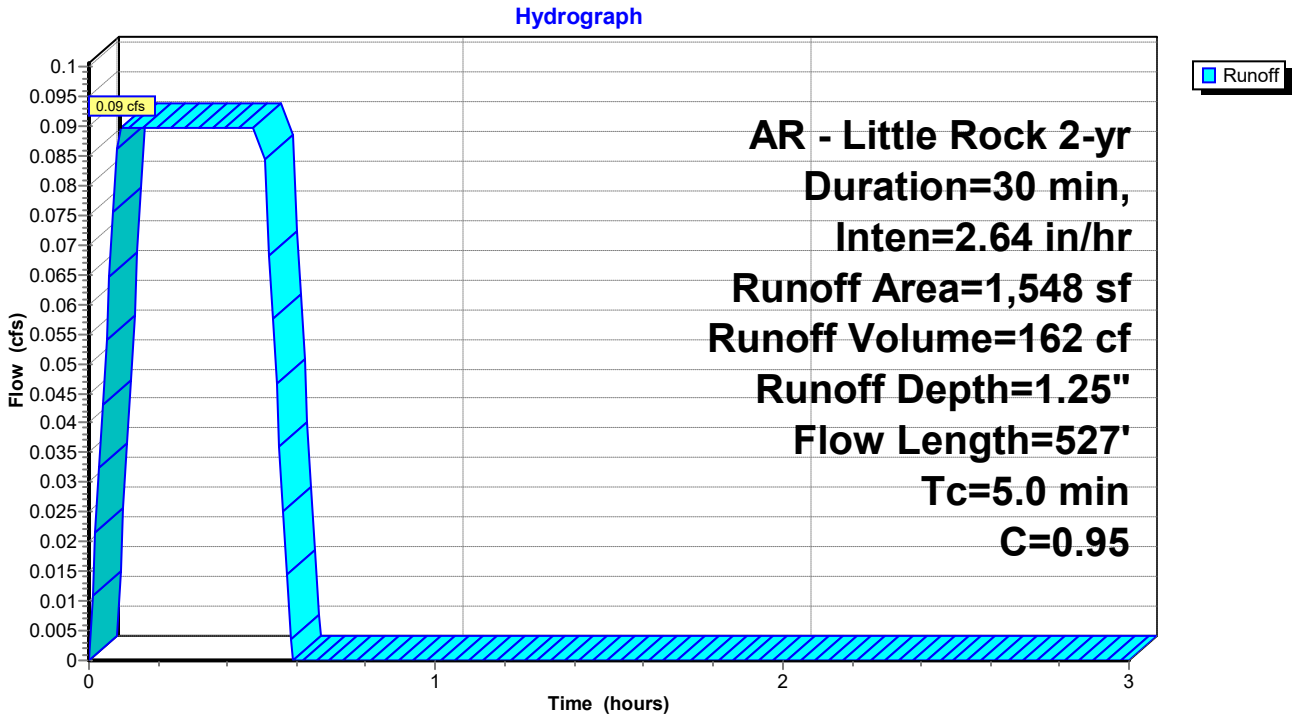
Runoff = 0.09 cfs @ 0.09 hrs, Volume= 162 cf, Depth= 1.25"
Routed to Pond CI-D2 : CI - D2

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,548	0.95	Paving, Sidewalks
1,548	0.95	Weighted Average
1,548		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	94	0.0610	5.01		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
4.4	415		1.57		**Direct Entry, Concentrated Flow (Min)**
5.0	527	Total			

Subcatchment C8: Drainage Basin C8



Summary for Subcatchment C9: Drainage Basin C9

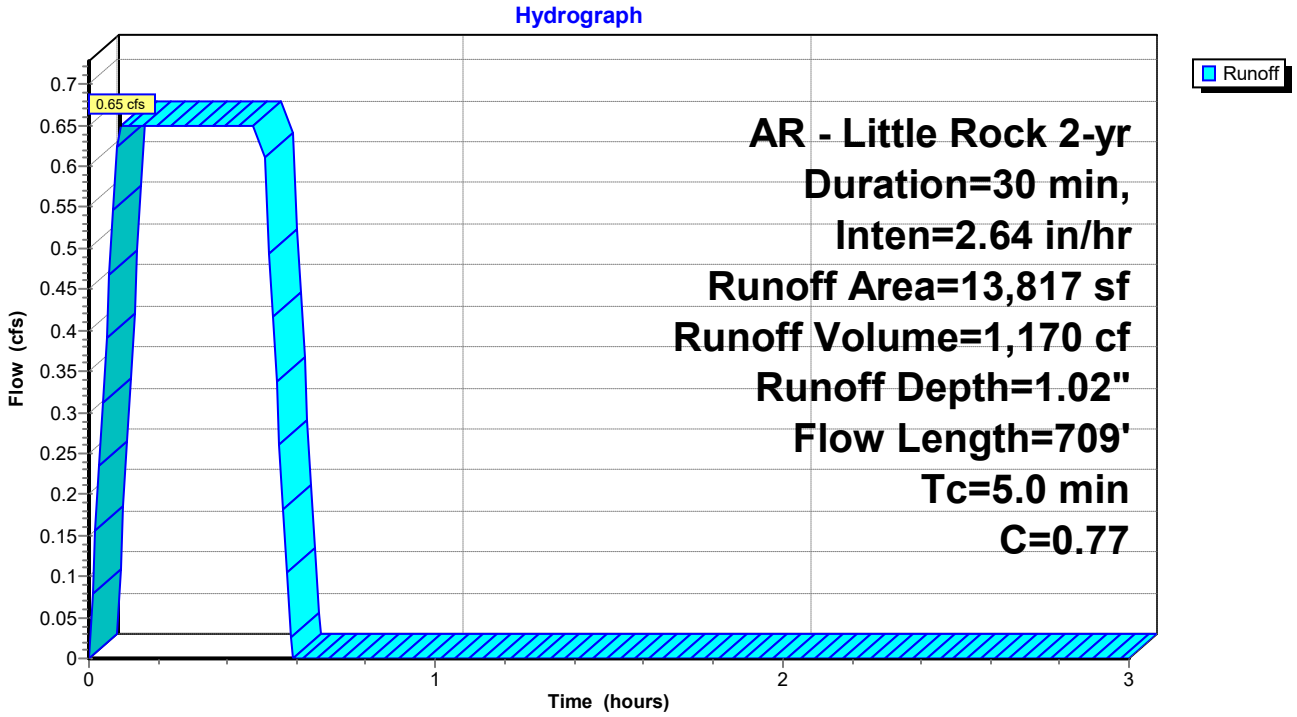
Runoff = 0.65 cfs @ 0.09 hrs, Volume= 1,170 cf, Depth= 1.02"
Routed to Pond CI-C6 : CI - C6

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=30 min, Inten=2.64 in/hr

Area (sf)	C	Description
4,456	0.40	Sod Yard
9,361	0.95	Paving, Sidewalks
13,817	0.77	Weighted Average
4,456		32.25% Pervious Area
9,361		67.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0140	1.36		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	13	0.0150	2.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0160	2.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	7	0.0050	1.44		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	8	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	41	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	41	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	61	0.0520	4.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.9	415		2.39		**Direct Entry, Concentrated Flow (Min)**
5.0	709	Total			

Subcatchment C9: Drainage Basin C9

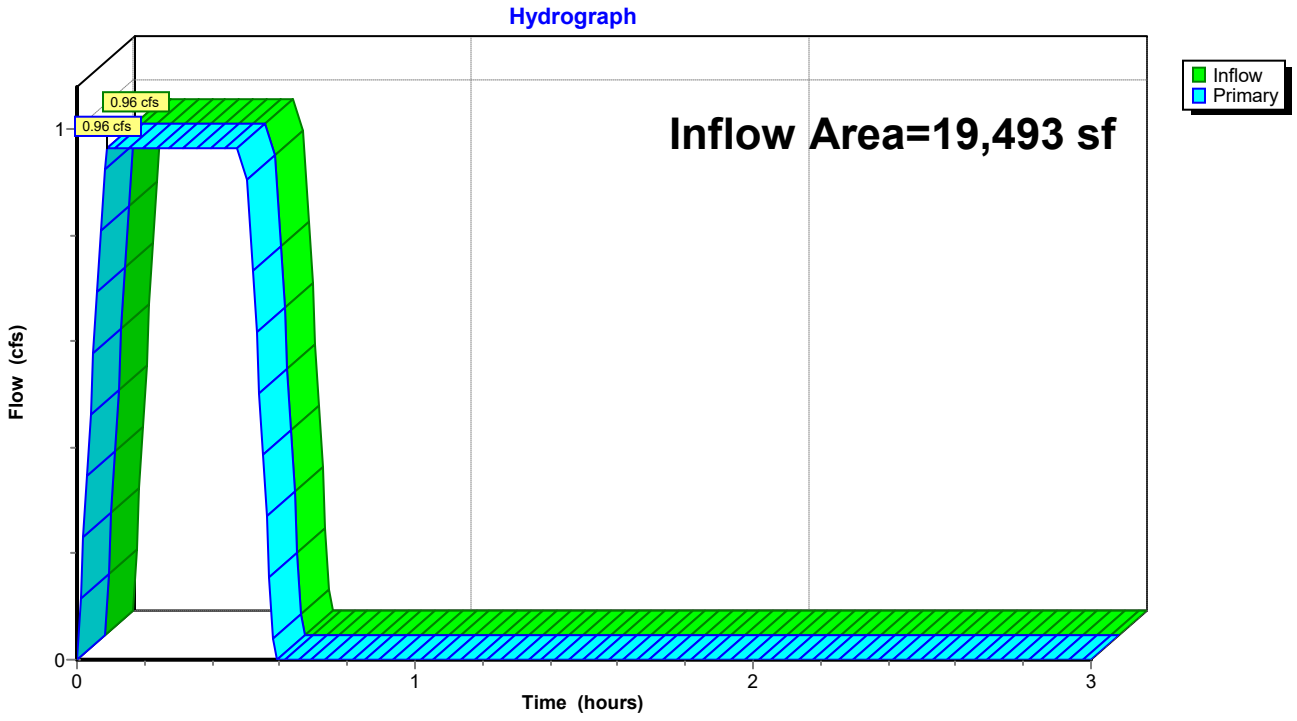


Summary for Pond CI-A1: CI - A1

Inflow Area = 19,493 sf, 74.85% Impervious, Inflow Depth = 1.07" for 2-yr event
Inflow = 0.96 cfs @ 0.09 hrs, Volume= 1,737 cf
Primary = 0.96 cfs @ 0.09 hrs, Volume= 1,737 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-A1: CI - A1

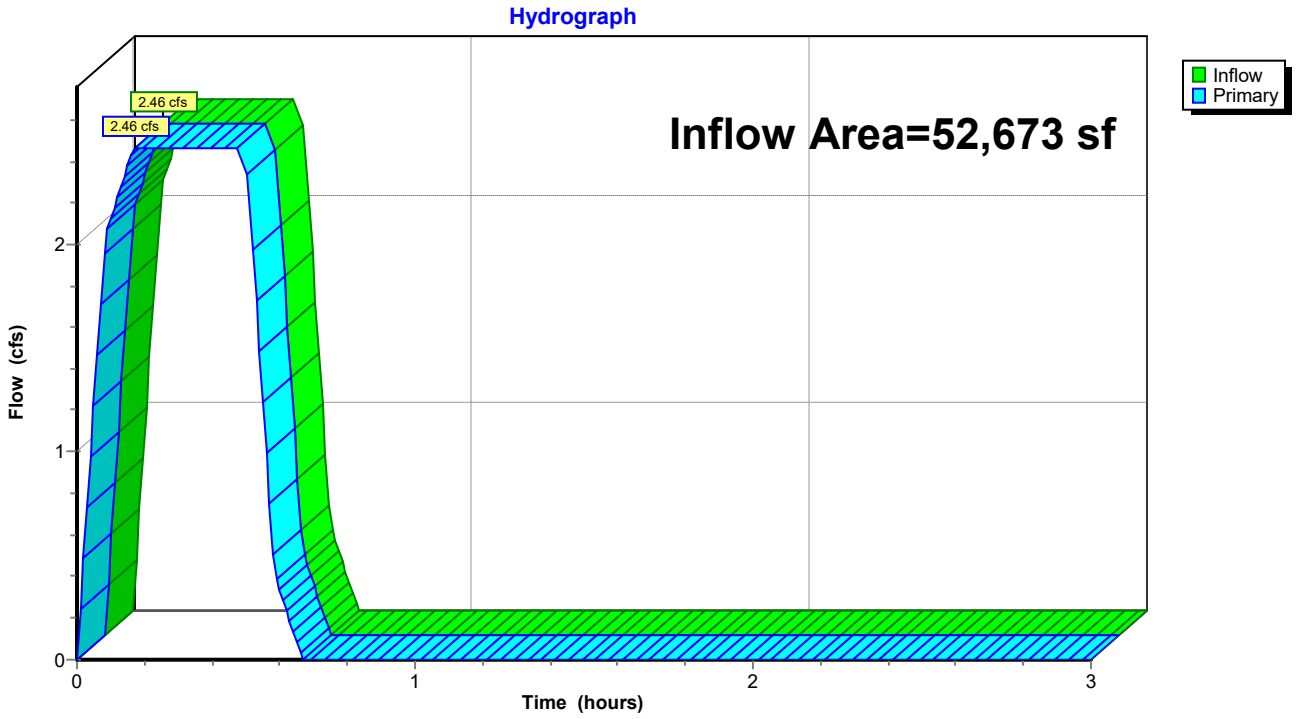


Summary for Pond CI-A3: CI - A3

Inflow Area = 52,673 sf, 66.48% Impervious, Inflow Depth = 1.01" for 2-yr event
Inflow = 2.46 cfs @ 0.17 hrs, Volume= 4,429 cf
Primary = 2.46 cfs @ 0.17 hrs, Volume= 4,429 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A4 : CI - A4

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

Pond CI-A3: CI - A3

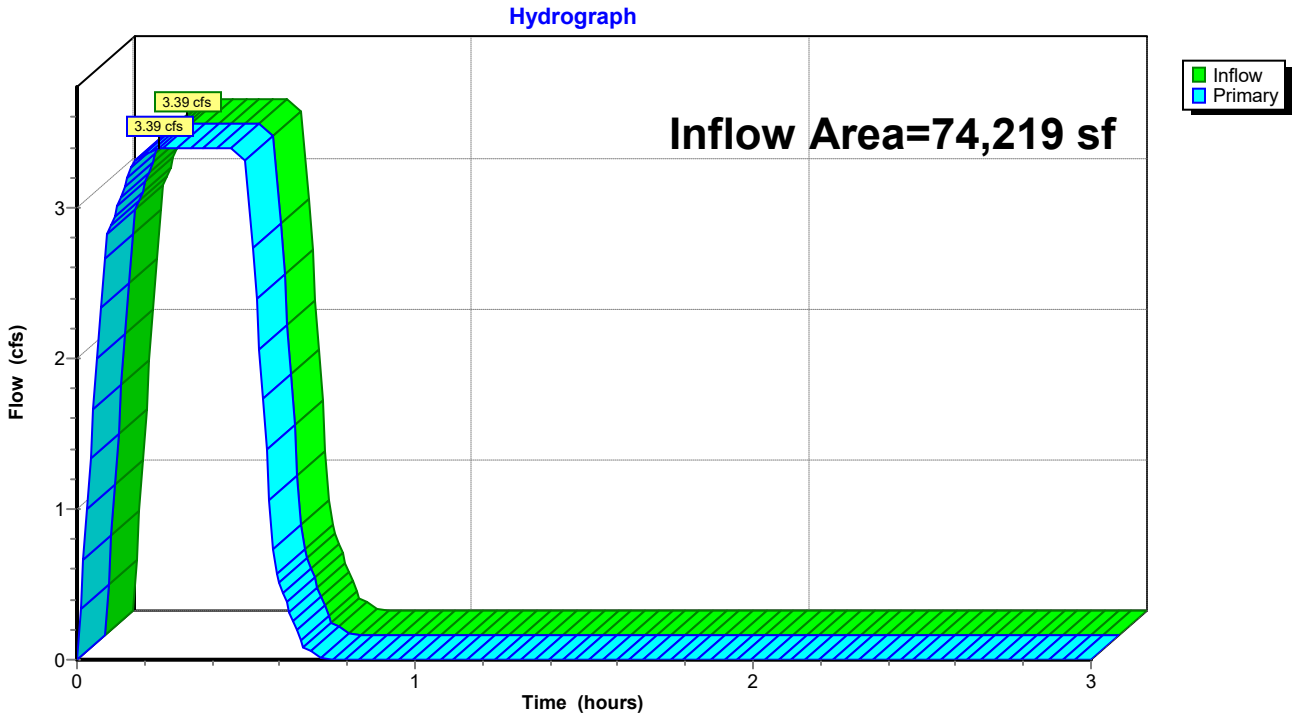


Summary for Pond CI-A4: CI - A4

Inflow Area = 74,219 sf, 63.30% Impervious, Inflow Depth = 0.99" for 2-yr event
Inflow = 3.39 cfs @ 0.24 hrs, Volume= 6,101 cf
Primary = 3.39 cfs @ 0.24 hrs, Volume= 6,101 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A5 : CI - A5

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

Pond CI-A4: CI - A4

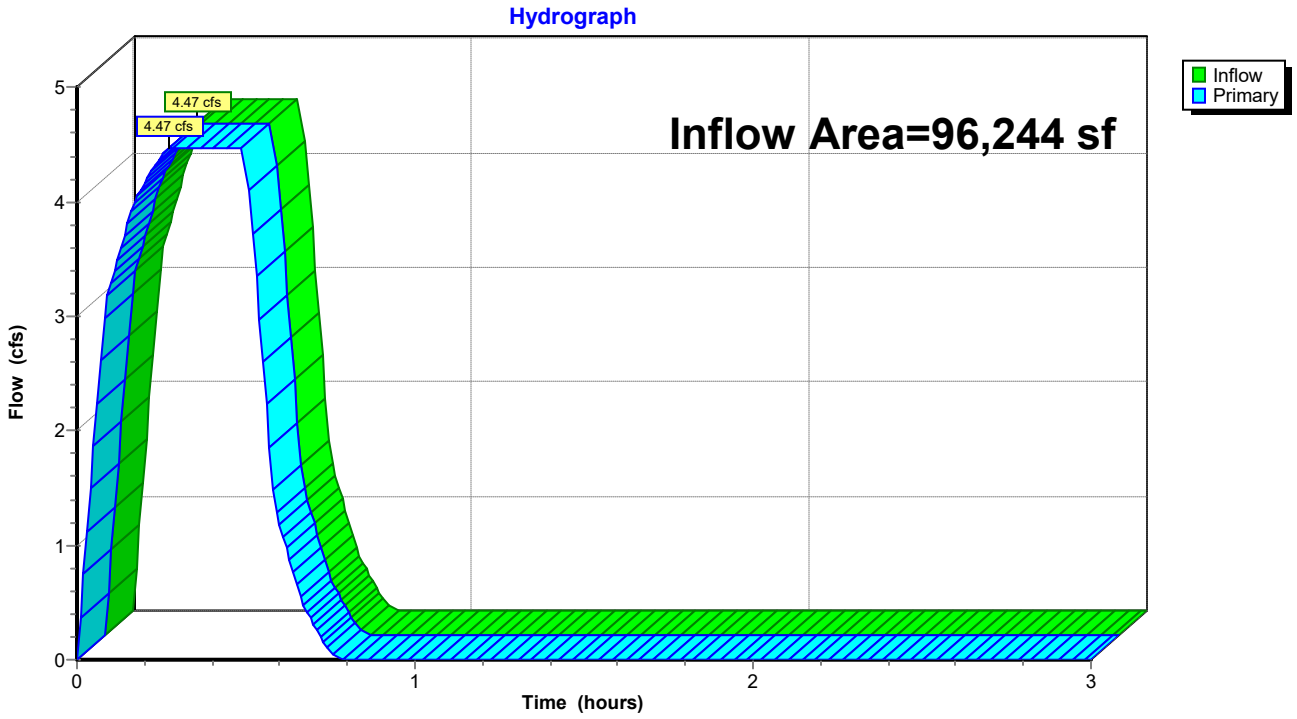


Summary for Pond CI-A5: CI - A5

Inflow Area = 96,244 sf, 65.33% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 4.47 cfs @ 0.27 hrs, Volume= 8,039 cf
Primary = 4.47 cfs @ 0.27 hrs, Volume= 8,039 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-A5: CI - A5

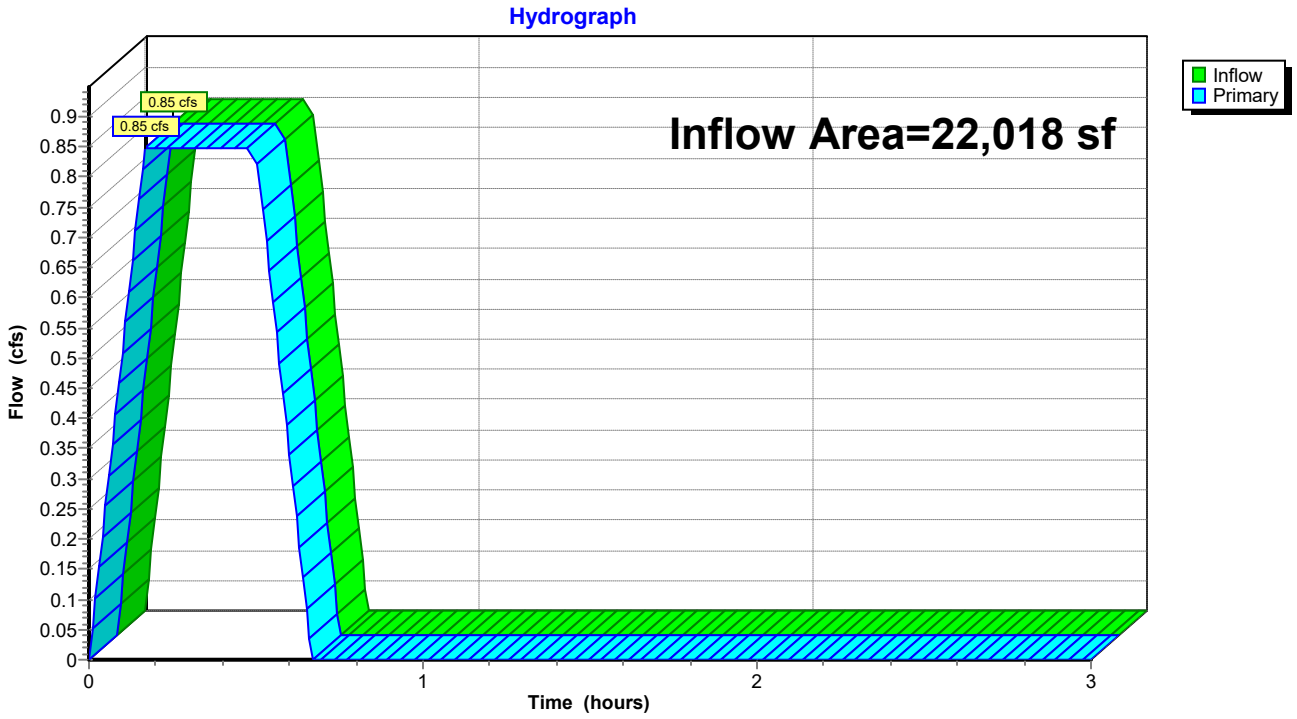


Summary for Pond CI-B2: CI - B2

Inflow Area = 22,018 sf, 42.08% Impervious, Inflow Depth = 0.83" for 2-yr event
Inflow = 0.85 cfs @ 0.17 hrs, Volume= 1,526 cf
Primary = 0.85 cfs @ 0.17 hrs, Volume= 1,526 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-B2: CI - B2

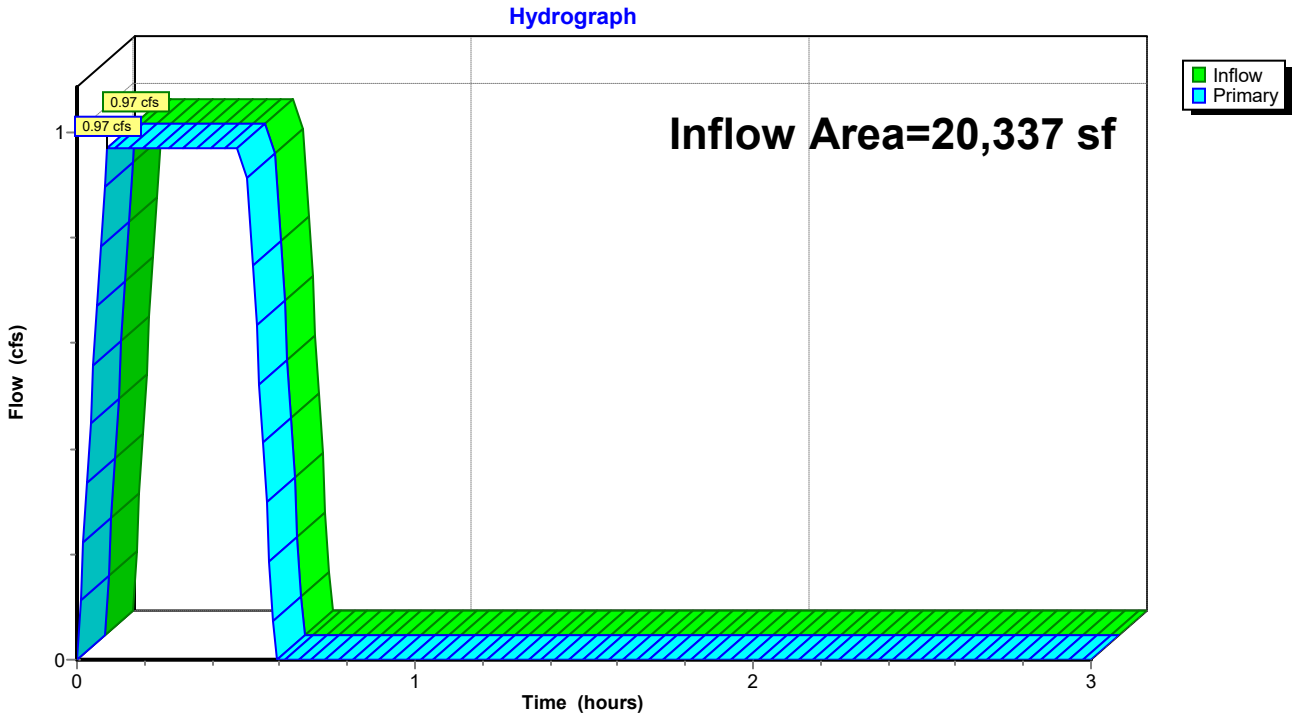


Summary for Pond CI-C1: CI - C1

Inflow Area = 20,337 sf, 69.83% Impervious, Inflow Depth = 1.03" for 2-yr event
Inflow = 0.97 cfs @ 0.09 hrs, Volume= 1,745 cf
Primary = 0.97 cfs @ 0.09 hrs, Volume= 1,745 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C2 : CI - C2

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

Pond CI-C1: CI - C1

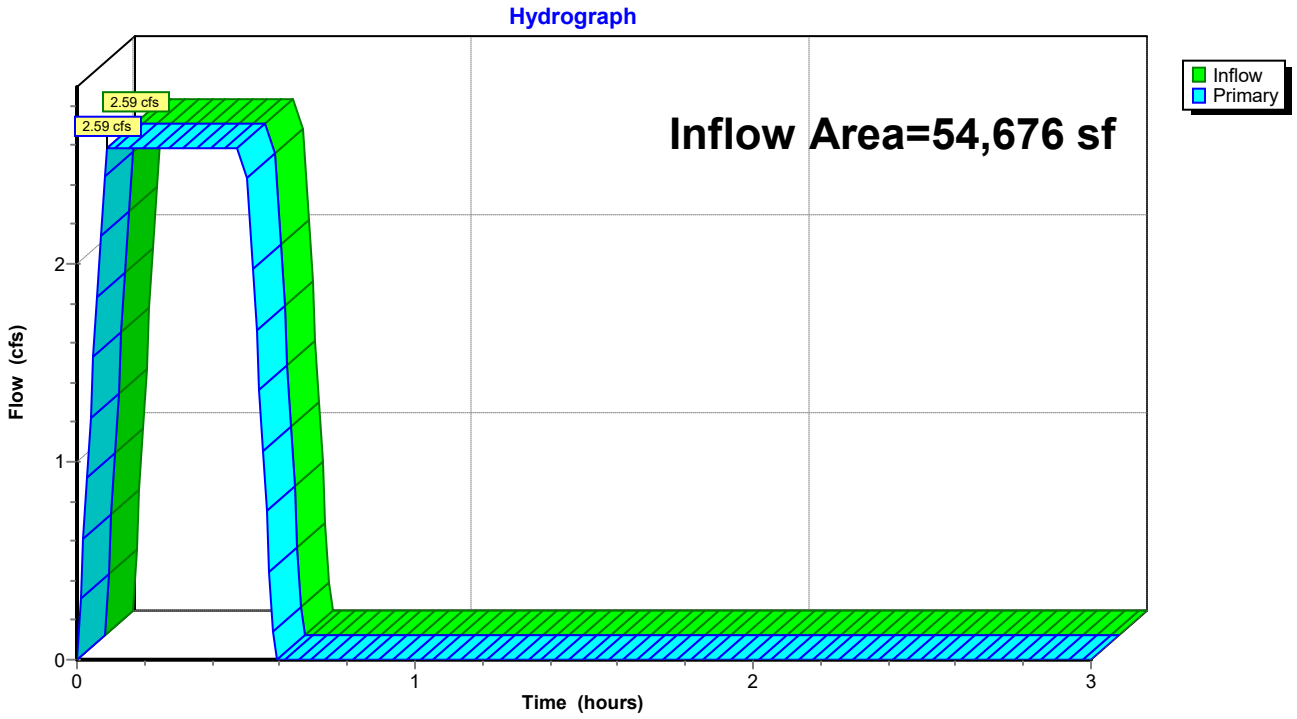


Summary for Pond CI-C2: CI - C2

Inflow Area = 54,676 sf, 67.97% Impervious, Inflow Depth = 1.02" for 2-yr event
Inflow = 2.59 cfs @ 0.09 hrs, Volume= 4,653 cf
Primary = 2.59 cfs @ 0.09 hrs, Volume= 4,653 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C3 : CI - C3

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

Pond CI-C2: CI - C2

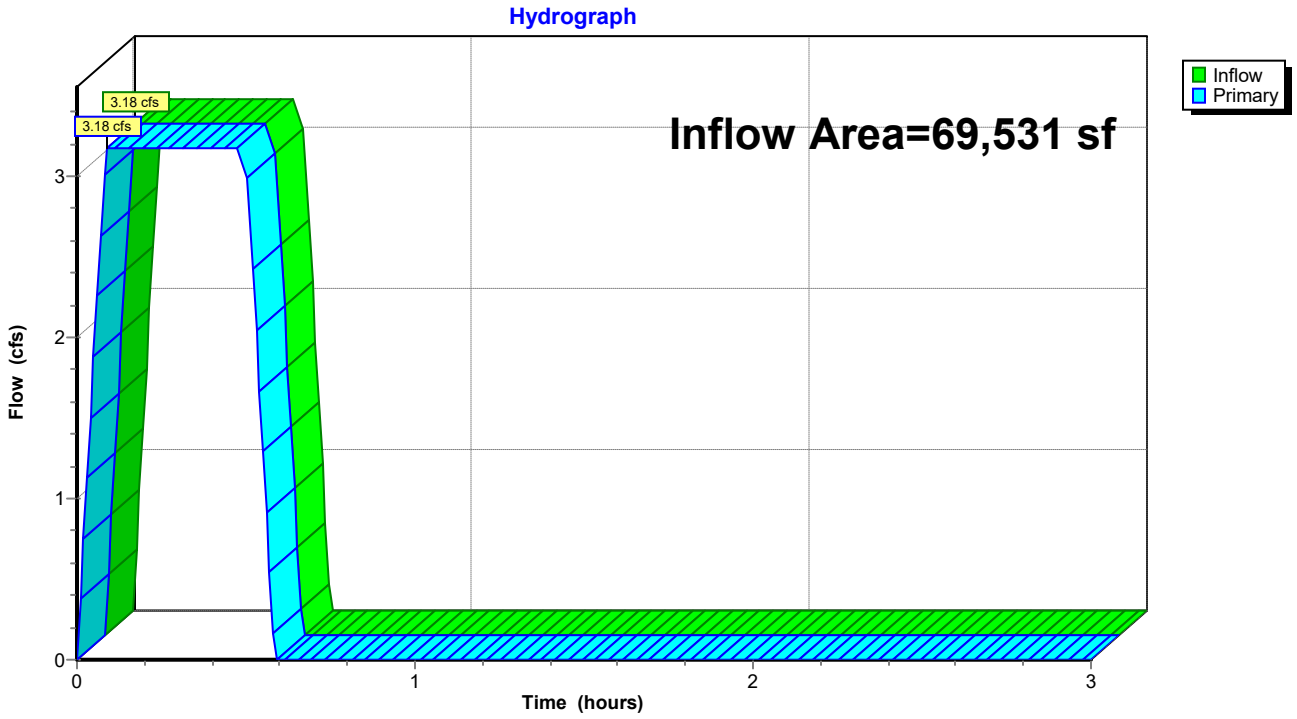


Summary for Pond CI-C3: CI - C3

Inflow Area = 69,531 sf, 63.12% Impervious, Inflow Depth = 0.99" for 2-yr event
Inflow = 3.18 cfs @ 0.09 hrs, Volume= 5,718 cf
Primary = 3.18 cfs @ 0.09 hrs, Volume= 5,718 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C4 : CI - C4

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

Pond CI-C3: CI - C3

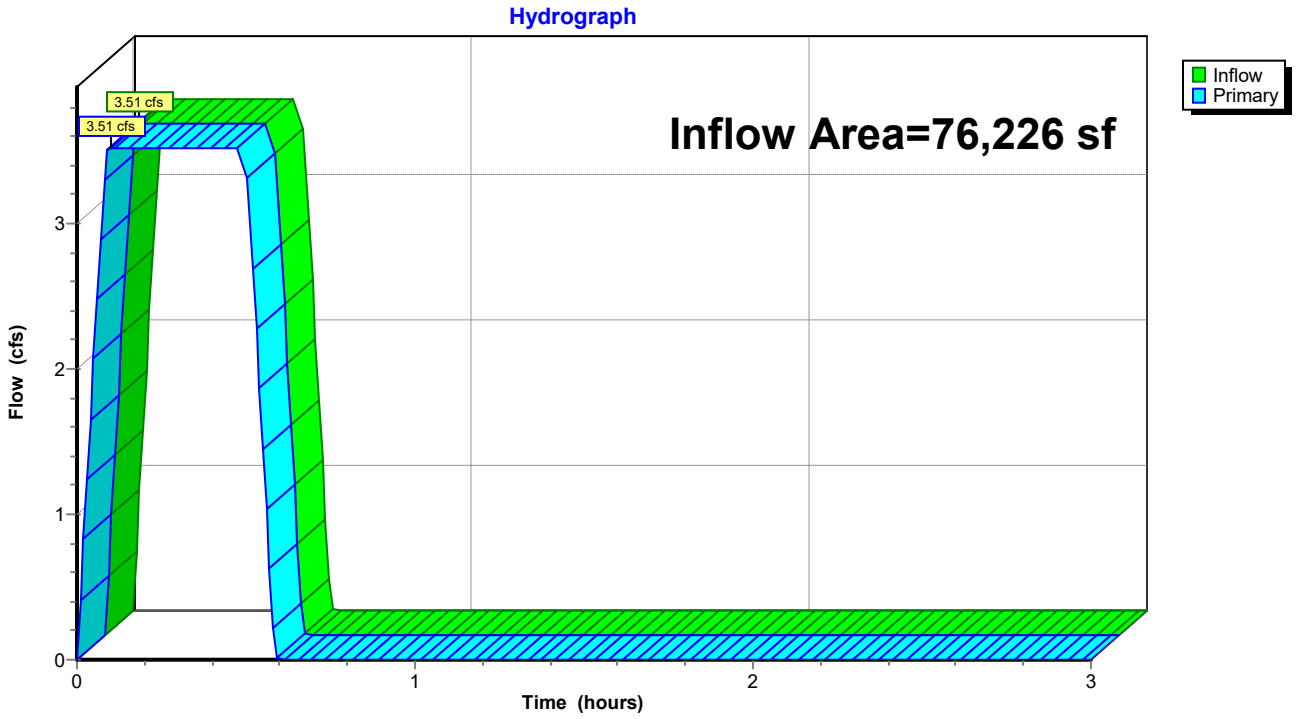


Summary for Pond CI-C4: CI - C4

Inflow Area = 76,226 sf, 64.22% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 3.51 cfs @ 0.10 hrs, Volume= 6,322 cf
Primary = 3.51 cfs @ 0.10 hrs, Volume= 6,322 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C5 : CI - C5

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

Pond CI-C4: CI - C4

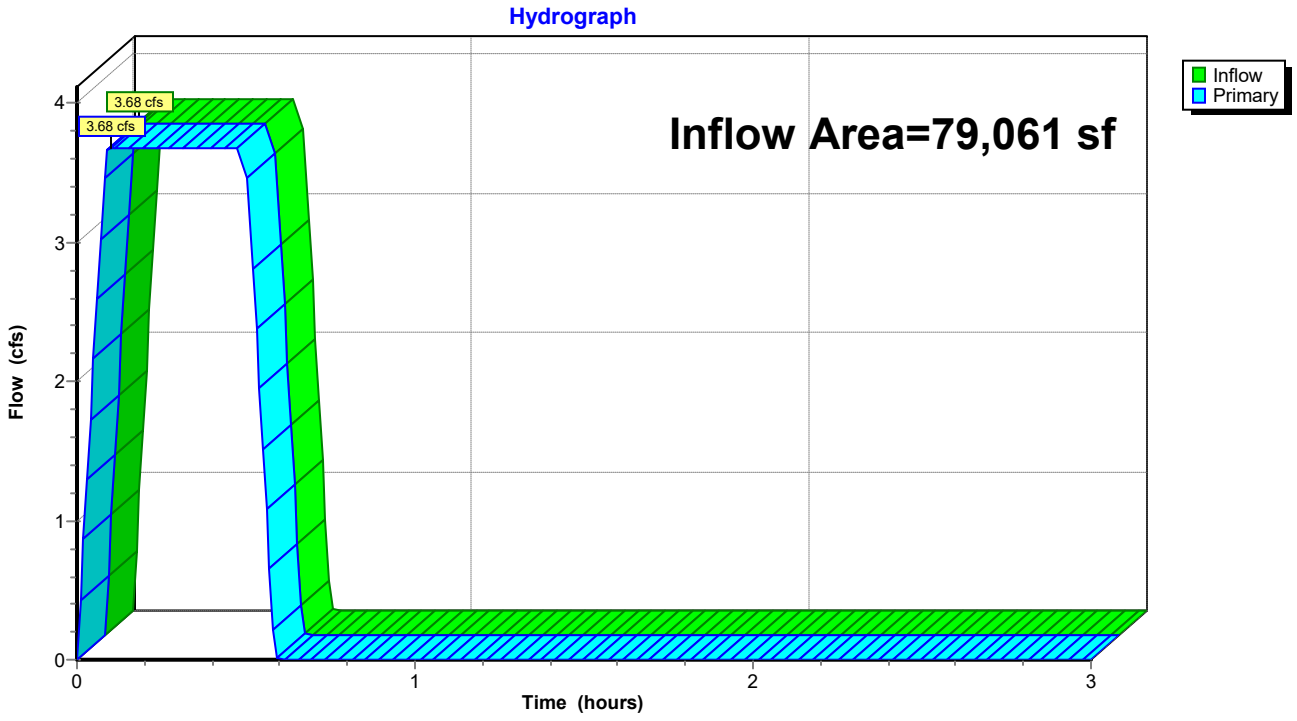


Summary for Pond CI-C5: CI - C5

Inflow Area = 79,061 sf, 65.50% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 3.68 cfs @ 0.10 hrs, Volume= 6,618 cf
Primary = 3.68 cfs @ 0.10 hrs, Volume= 6,618 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-C5: CI - C5

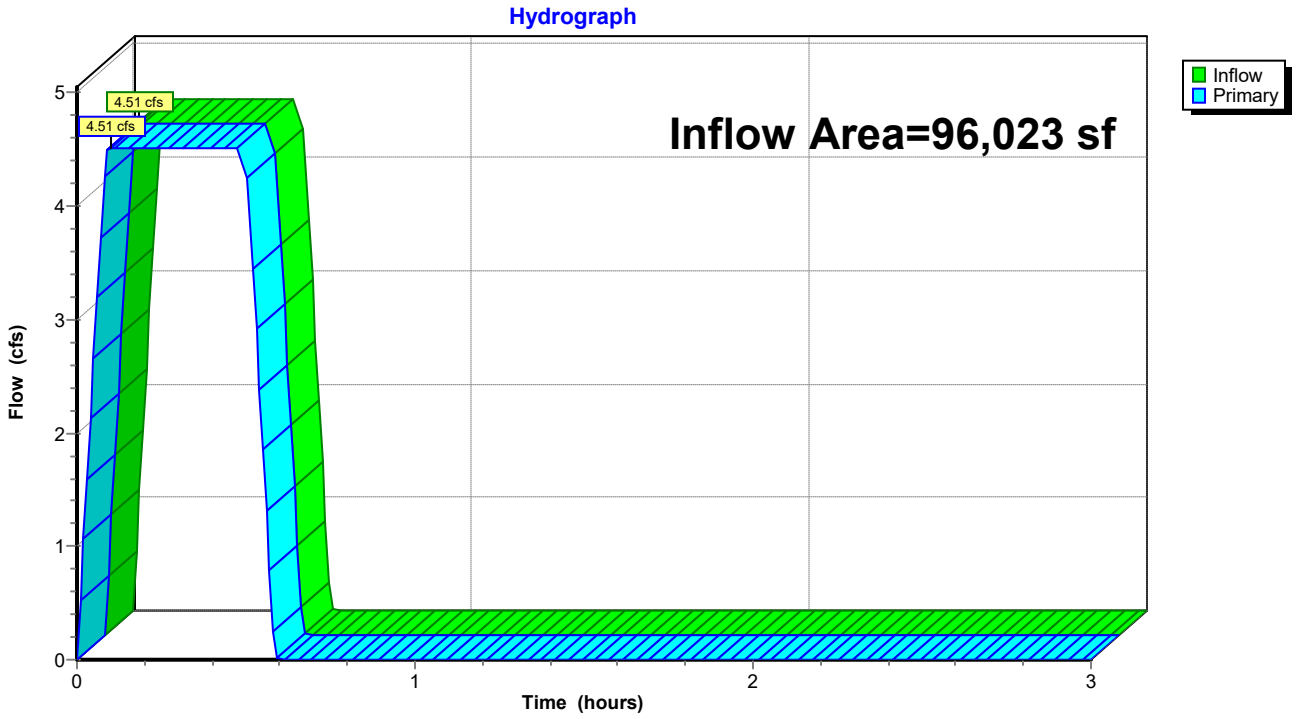


Summary for Pond CI-C6: CI - C6

Inflow Area = 96,023 sf, 66.95% Impervious, Inflow Depth = 1.01" for 2-yr event
Inflow = 4.51 cfs @ 0.10 hrs, Volume= 8,117 cf
Primary = 4.51 cfs @ 0.10 hrs, Volume= 8,117 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-C6: CI - C6

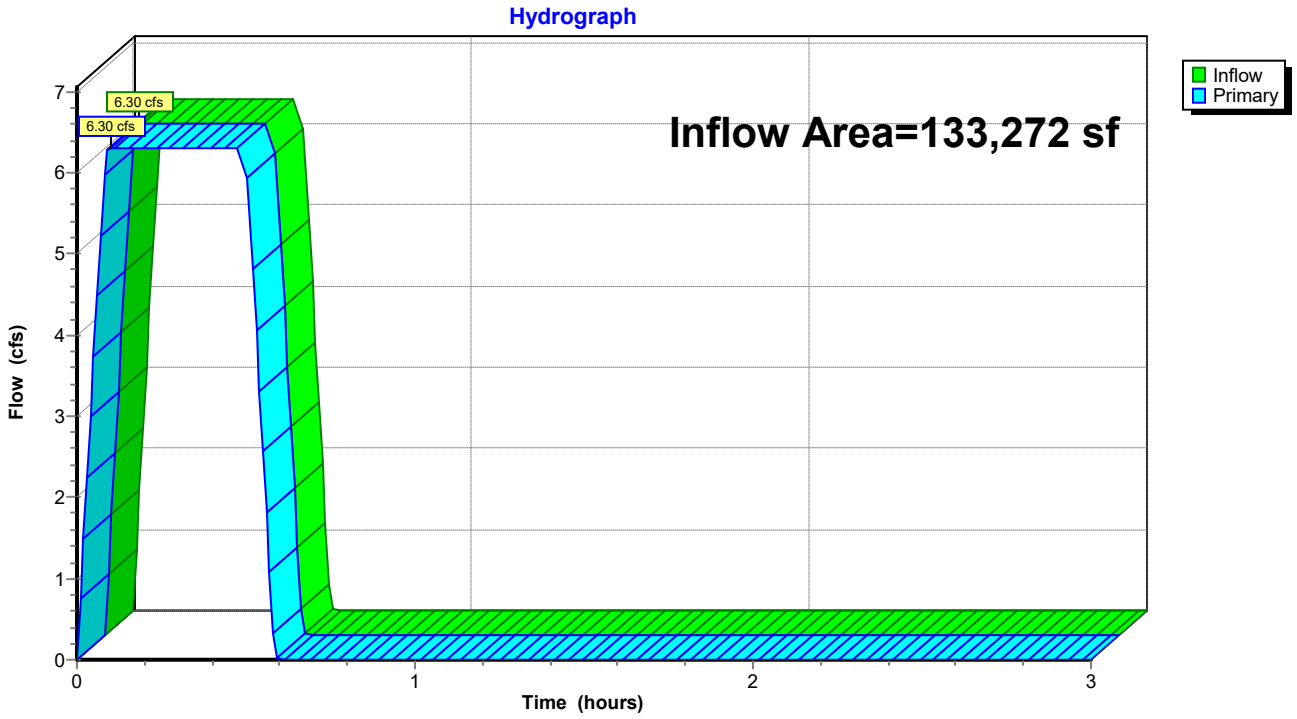


Summary for Pond CI-C7: CI - C7

Inflow Area = 133,272 sf, 67.70% Impervious, Inflow Depth = 1.02" for 2-yr event
Inflow = 6.30 cfs @ 0.10 hrs, Volume= 11,338 cf
Primary = 6.30 cfs @ 0.10 hrs, Volume= 11,338 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-C7: CI - C7

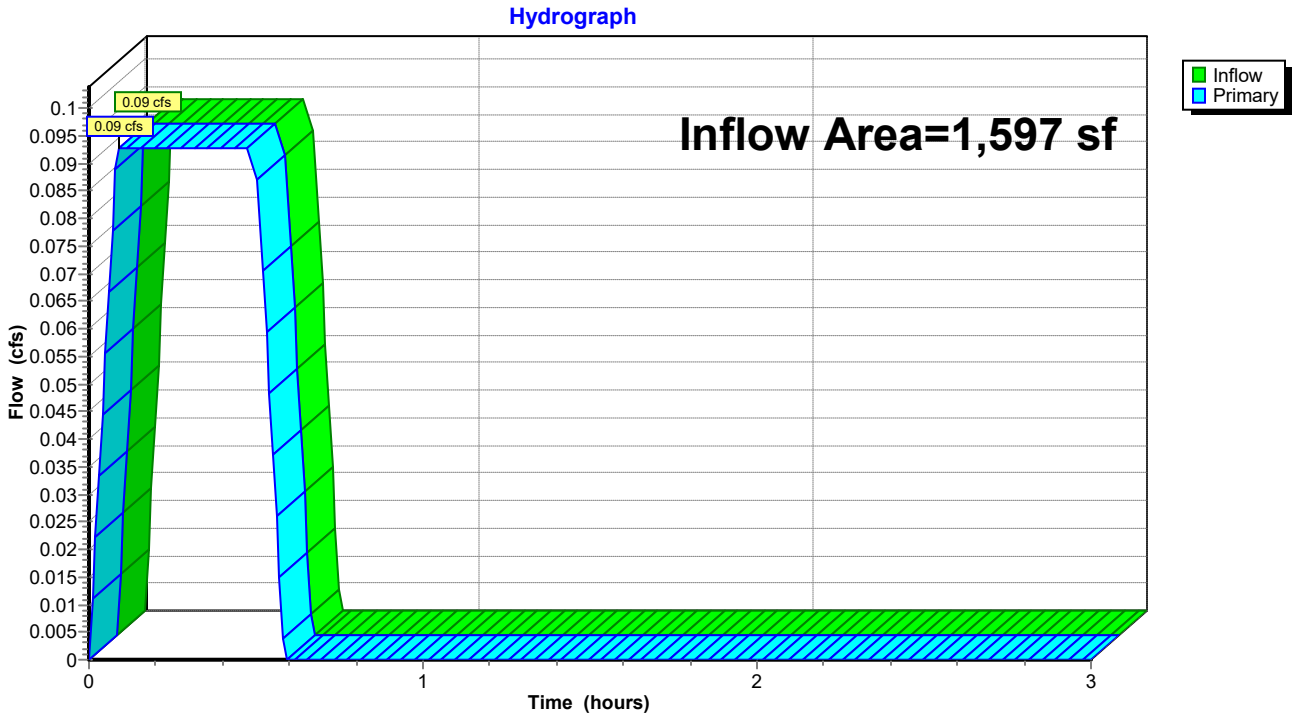


Summary for Pond CI-D1: CI - D1

Inflow Area = 1,597 sf,100.00% Impervious, Inflow Depth = 1.25" for 2-yr event
Inflow = 0.09 cfs @ 0.09 hrs, Volume= 167 cf
Primary = 0.09 cfs @ 0.09 hrs, Volume= 167 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-D2 : CI - D2

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

Pond CI-D1: CI - D1

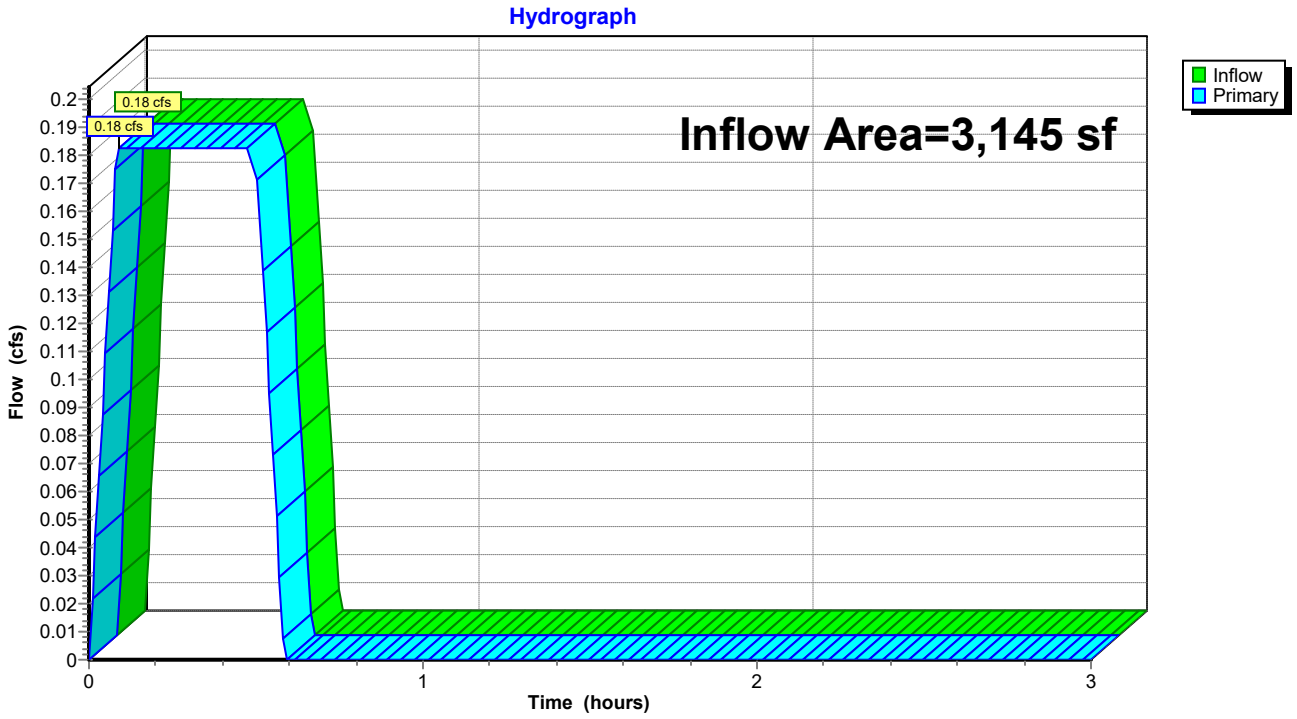


Summary for Pond CI-D2: CI - D2

Inflow Area = 3,145 sf,100.00% Impervious, Inflow Depth = 1.25" for 2-yr event
Inflow = 0.18 cfs @ 0.09 hrs, Volume= 329 cf
Primary = 0.18 cfs @ 0.09 hrs, Volume= 329 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-D2: CI - D2

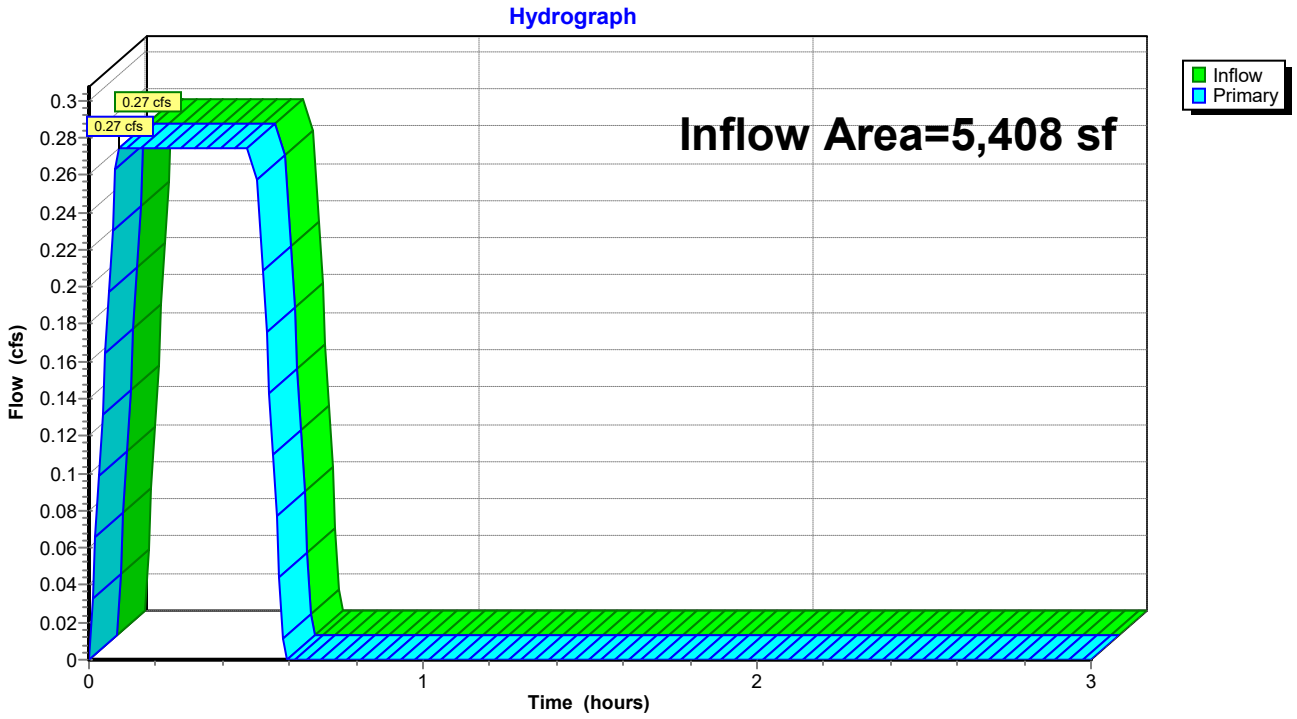


Summary for Pond CI-E1: CI - E1

Inflow Area = 5,408 sf, 77.35% Impervious, Inflow Depth = 1.10" for 2-yr event
Inflow = 0.27 cfs @ 0.09 hrs, Volume= 494 cf
Primary = 0.27 cfs @ 0.09 hrs, Volume= 494 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-E2 : CI - E2

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

Pond CI-E1: CI - E1

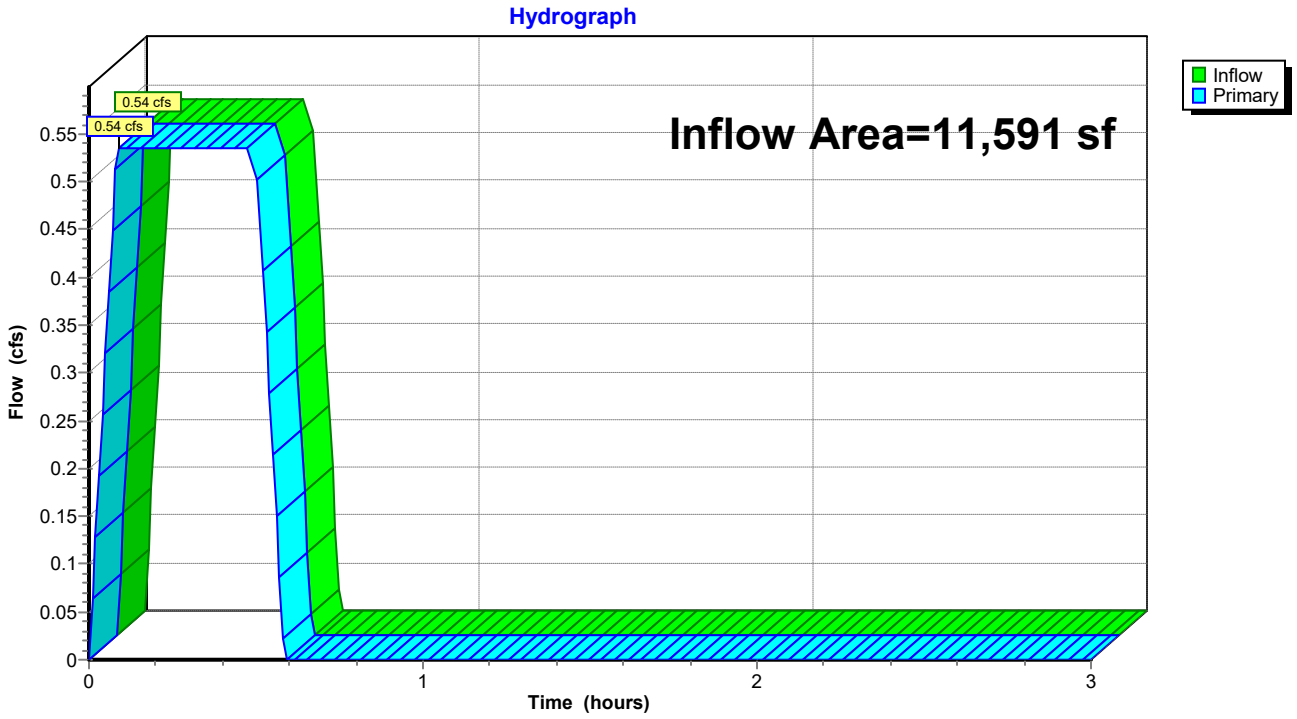


Summary for Pond CI-E2: CI - E2

Inflow Area = 11,591 sf, 64.62% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 0.54 cfs @ 0.09 hrs, Volume= 963 cf
Primary = 0.54 cfs @ 0.09 hrs, Volume= 963 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-E2: CI - E2



Summary for Pond DP: Existing North Detention Pond

Inflow Area = 321,792 sf, 58.73% Impervious, Inflow Depth = 0.95" for 2-yr event
Inflow = 14.21 cfs @ 0.27 hrs, Volume= 25,576 cf
Outflow = 9.16 cfs @ 0.54 hrs, Volume= 25,576 cf, Atten= 36%, Lag= 15.9 min
Primary = 9.16 cfs @ 0.54 hrs, Volume= 25,576 cf
Routed to Link FINAL : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 382.77' @ 0.54 hrs Storage= 12,374 cf

Plug-Flow detention time= 17.0 min calculated for 25,576 cf (100% of inflow)
Center-of-Mass det. time= 16.9 min (35.3 - 18.5)

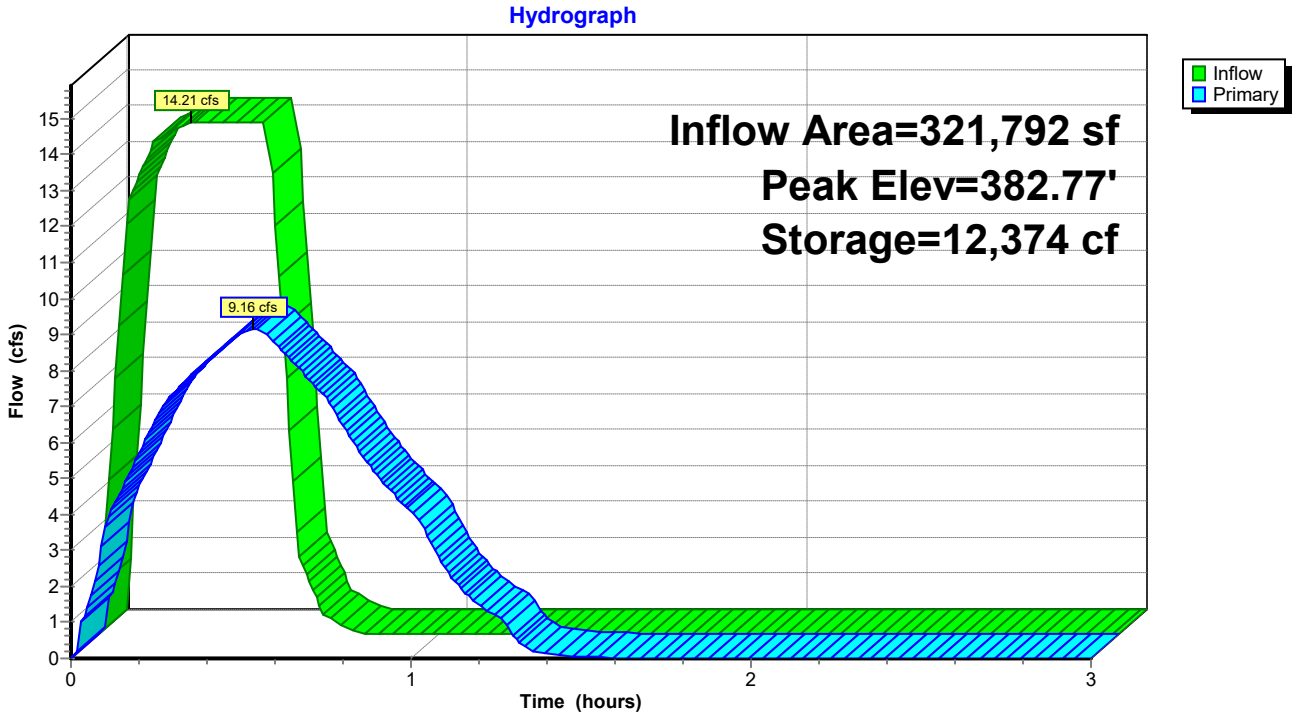
Volume	Invert	Avail.Storage	Storage Description
#1	381.17'	72,742 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.17	0	0
381.50	200	200
382.00	1,825	2,025
382.50	5,265	7,290
383.00	9,300	16,590
383.50	13,733	30,323
384.00	18,578	48,901
384.50	23,841	72,742

Device	Routing	Invert	Outlet Devices
#1	Primary	384.16'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	381.17'	**1.7' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=9.15 cfs @ 0.54 hrs HW=382.77' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 9.15 cfs @ 4.14 fps)

Pond DP: Existing North Detention Pond

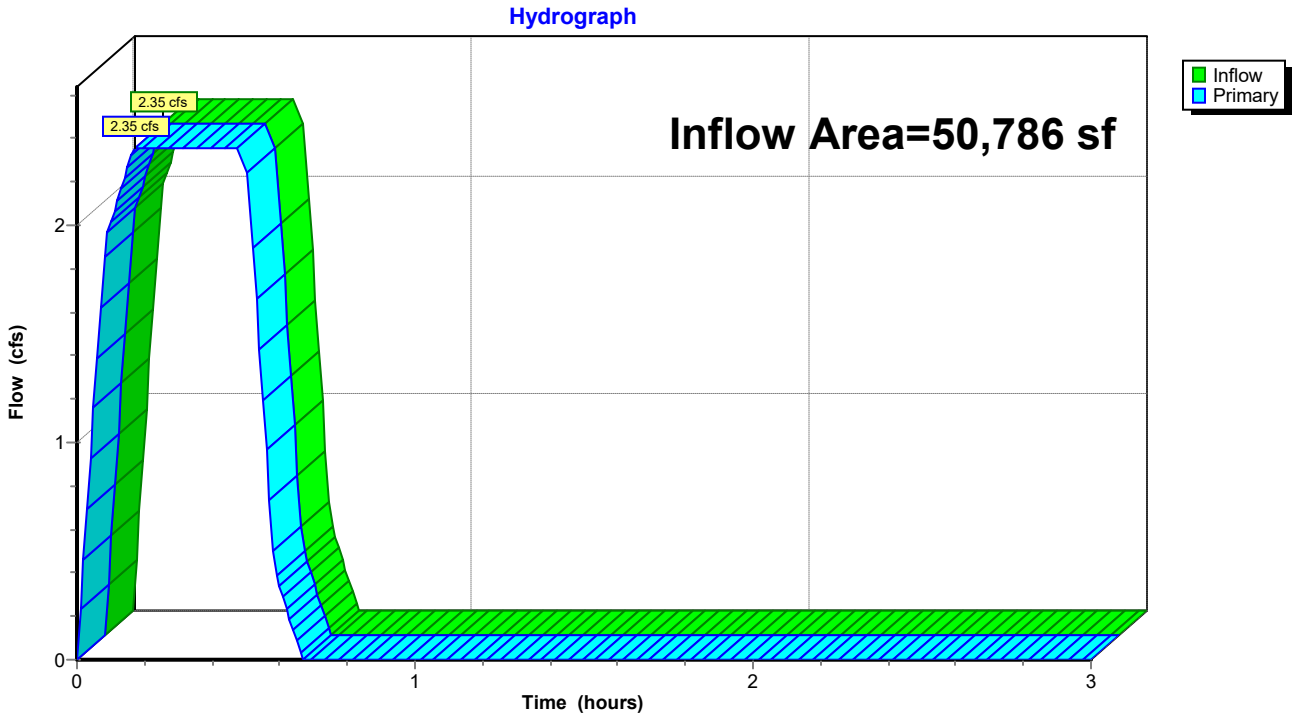


Summary for Pond JB-A2: JB - A2

Inflow Area = 50,786 sf, 65.23% Impervious, Inflow Depth = 1.00" for 2-yr event
Inflow = 2.35 cfs @ 0.17 hrs, Volume= 4,232 cf
Primary = 2.35 cfs @ 0.17 hrs, Volume= 4,232 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A3 : CI - A3

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

Pond JB-A2: JB - A2

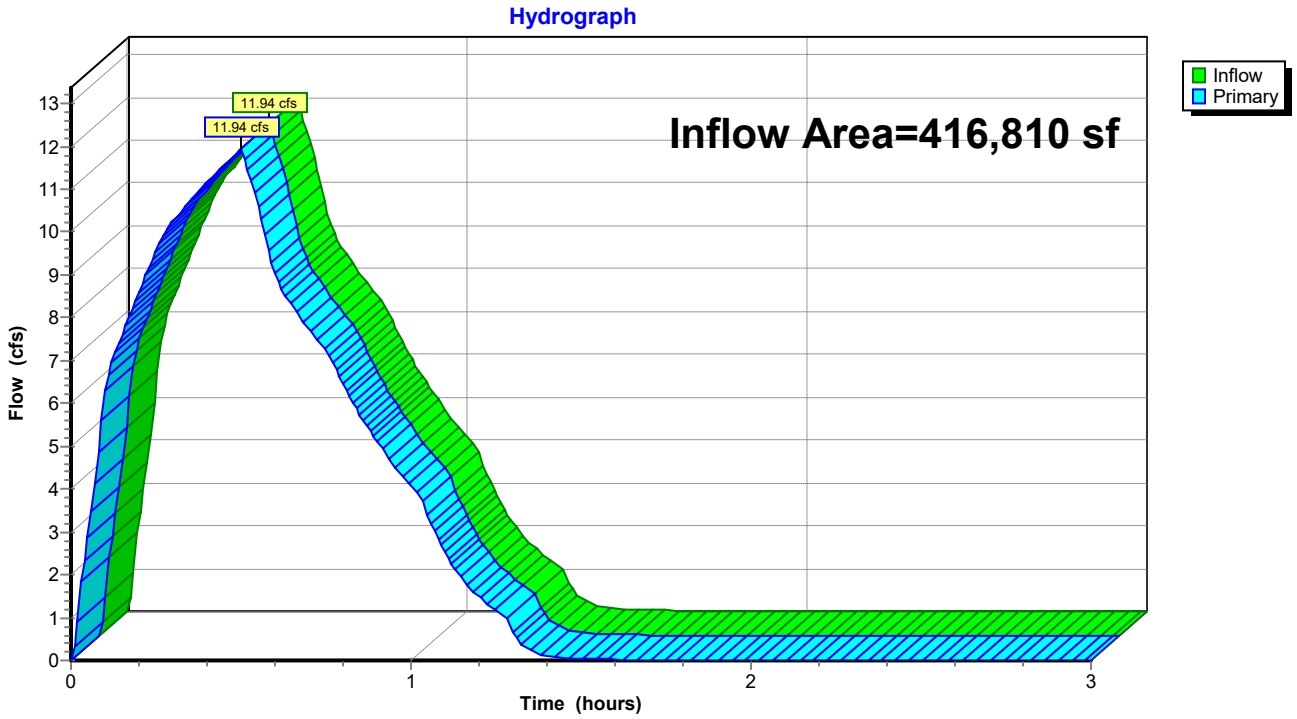


Summary for Link FINAL: APPROX DISCHARGE

Inflow Area = 416,810 sf, 49.40% Impervious, Inflow Depth = 0.89" for 2-yr event
Inflow = 11.94 cfs @ 0.50 hrs, Volume= 30,795 cf
Primary = 11.94 cfs @ 0.50 hrs, Volume= 30,795 cf, Atten= 0%, Lag= 0.0 min

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

Link FINAL: APPROX DISCHARGE



Summary for Subcatchment B1: Drainage Basin B1

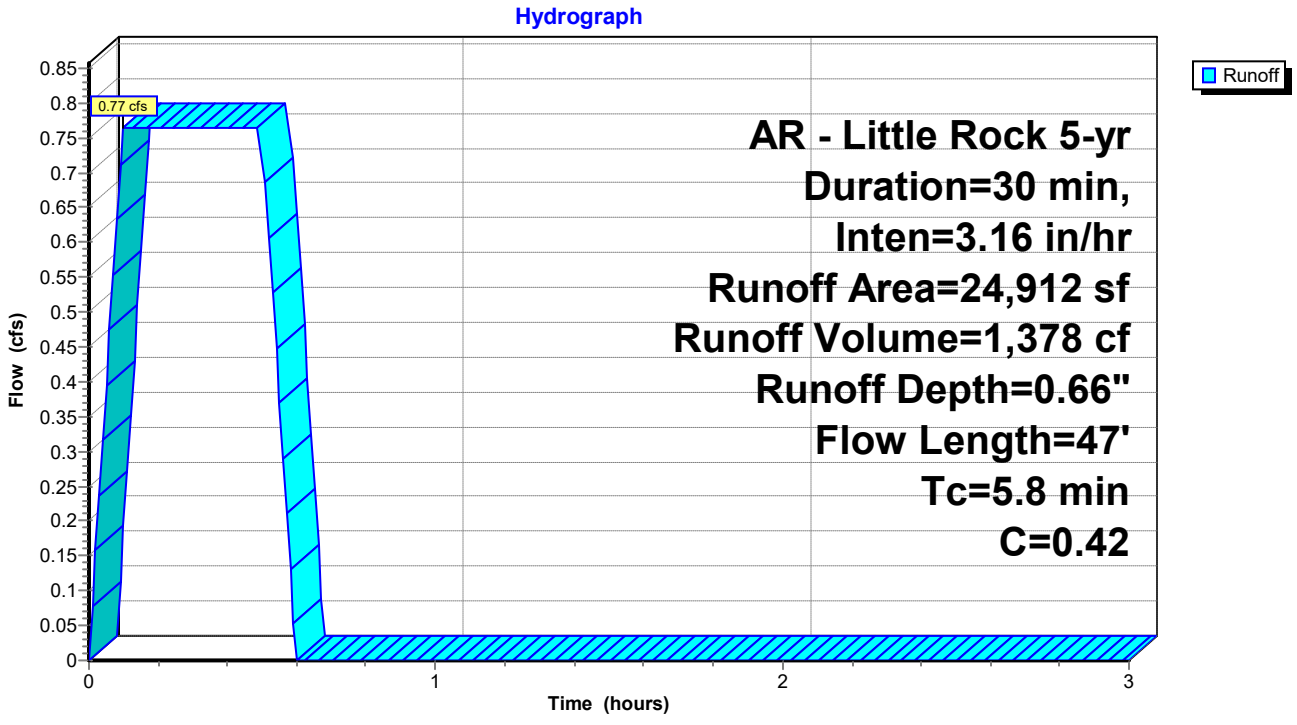
Runoff = 0.77 cfs @ 0.10 hrs, Volume= 1,378 cf, Depth= 0.66"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
24,091	0.40	Sod Yard
821	0.95	Paving, Sidewalks
24,912	0.42	Weighted Average
24,091		96.70% Pervious Area
821		3.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	9	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	38	0.2040	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
5.8	47	Total			

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

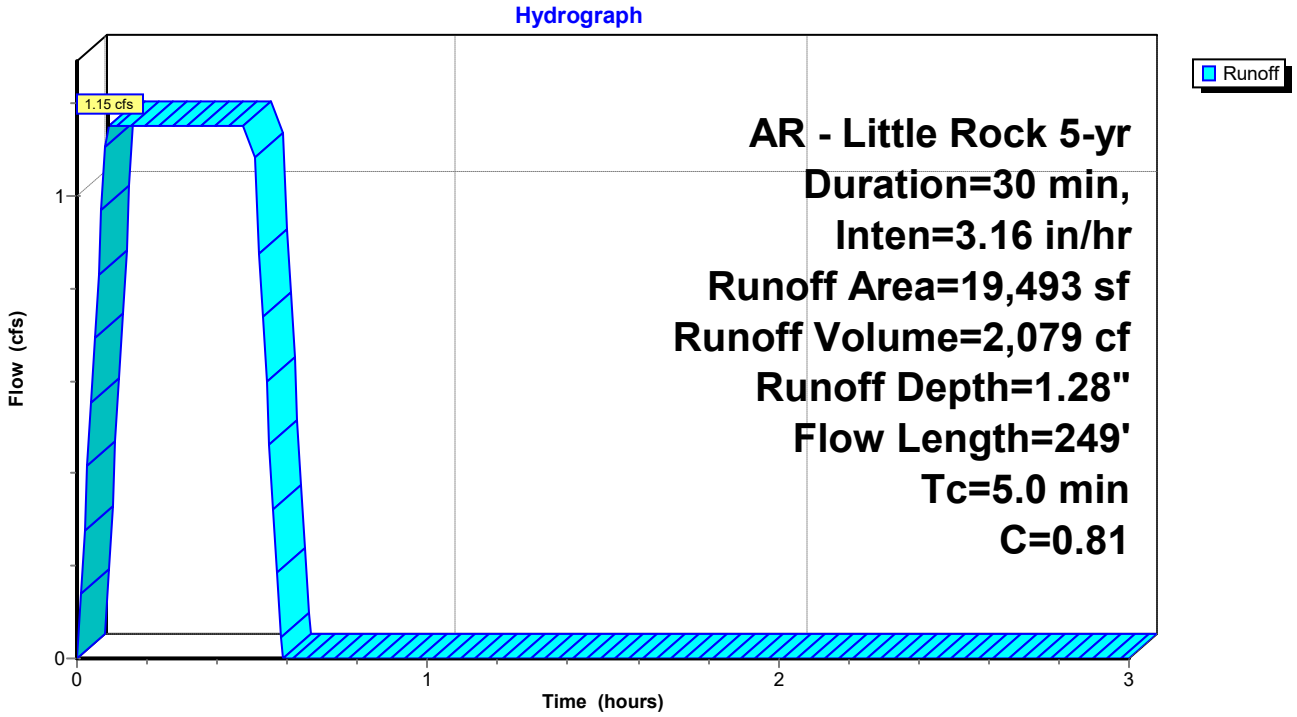
Runoff = 1.15 cfs @ 0.09 hrs, Volume= 2,079 cf, Depth= 1.28"
Routed to Pond CI-A1 : CI - A1

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
4,903	0.40	Sod Yard
14,590	0.95	Paving, Sidewalks
19,493	0.81	Weighted Average
4,903		25.15% Pervious Area
14,590		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	28	0.0450	1.69		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	72	0.0250	3.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	51	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	16	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	8	0.0430	4.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	7	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.2					**Direct Entry, Overland Concentrated Flow (Min)**
5.0	249	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

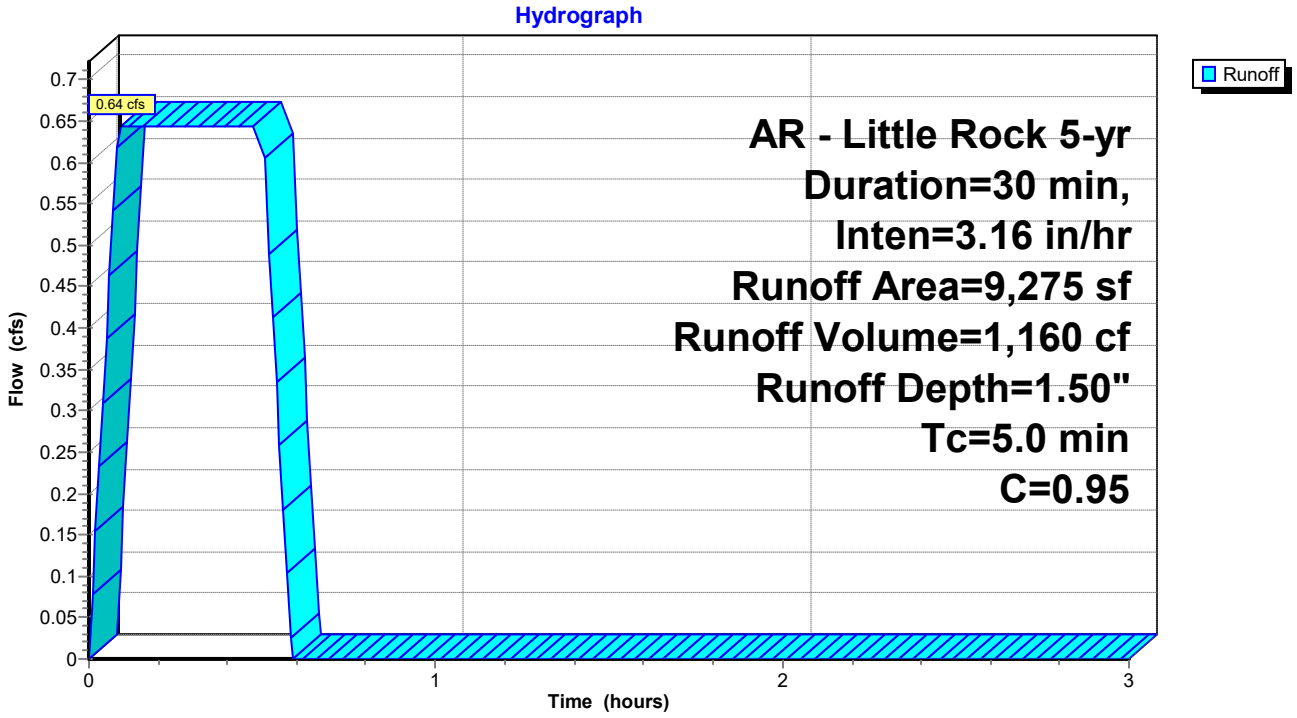
Runoff = 0.64 cfs @ 0.09 hrs, Volume= 1,160 cf, Depth= 1.50"
Routed to Pond JB-A2 : JB - A2

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
9,275	0.95	Roof
9,275		100.00% Impervious Area

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

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

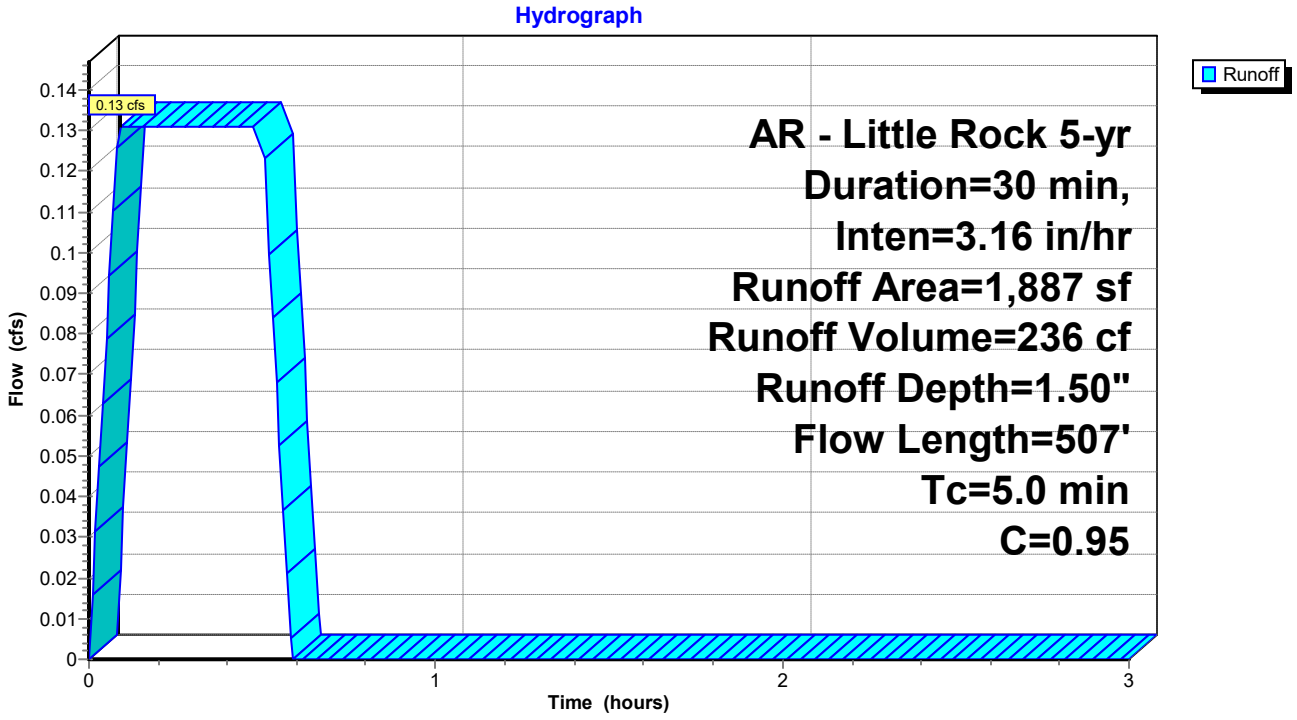
Runoff = 0.13 cfs @ 0.09 hrs, Volume= 236 cf, Depth= 1.50"
Routed to Pond CI-A3 : CI - A3

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,887	0.95	Paving, Sidewalks
1,887	0.95	Weighted Average
1,887		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	30	0.0240	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	13	0.0860	5.95		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	507	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

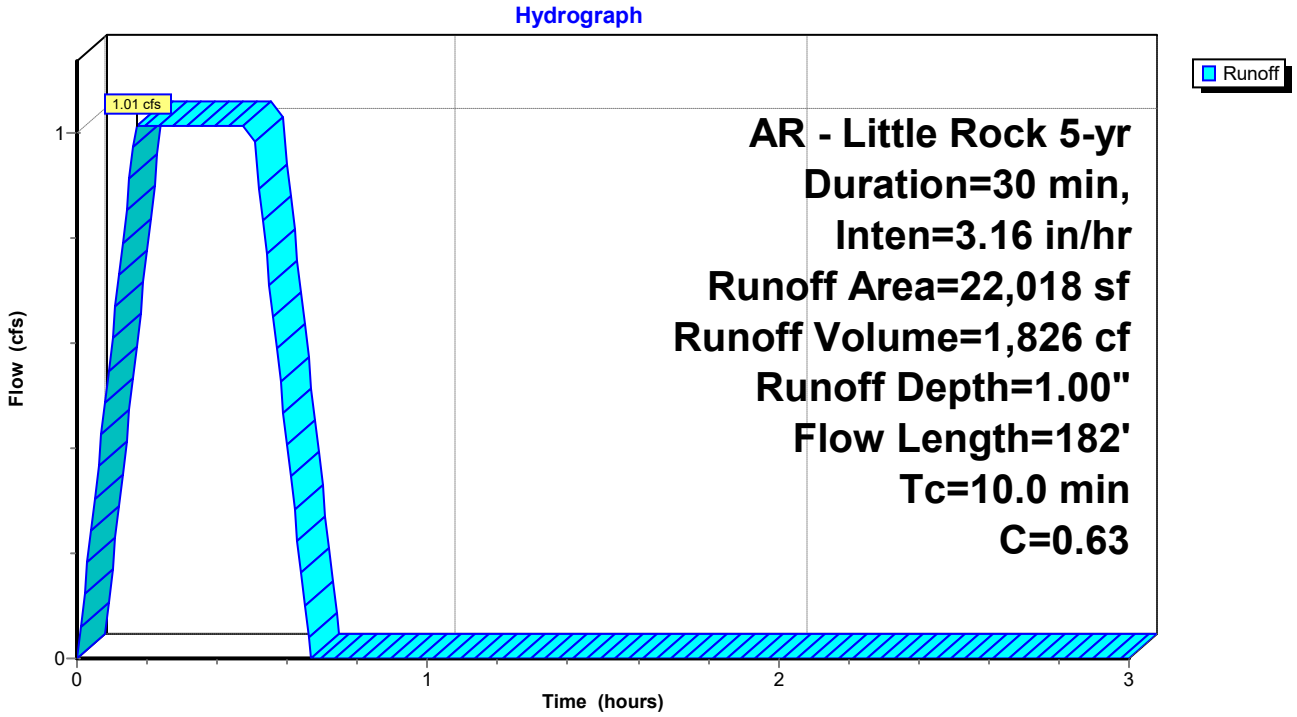
Runoff = 1.01 cfs @ 0.17 hrs, Volume= 1,826 cf, Depth= 1.00"
Routed to Pond CI-B2 : CI - B2

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
12,753	0.40	Sod Yard
9,265	0.95	Paving, Sidewalks
22,018	0.63	Weighted Average
12,753		57.92% Pervious Area
9,265		42.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.89		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
9.1	93	0.0150	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.4	40	0.0110	1.57		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	33	0.0190	2.07		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	6	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0	182	Total			

Subcatchment B5: Drainage Basin B5



Summary for Subcatchment B6: Drainage Basin B6

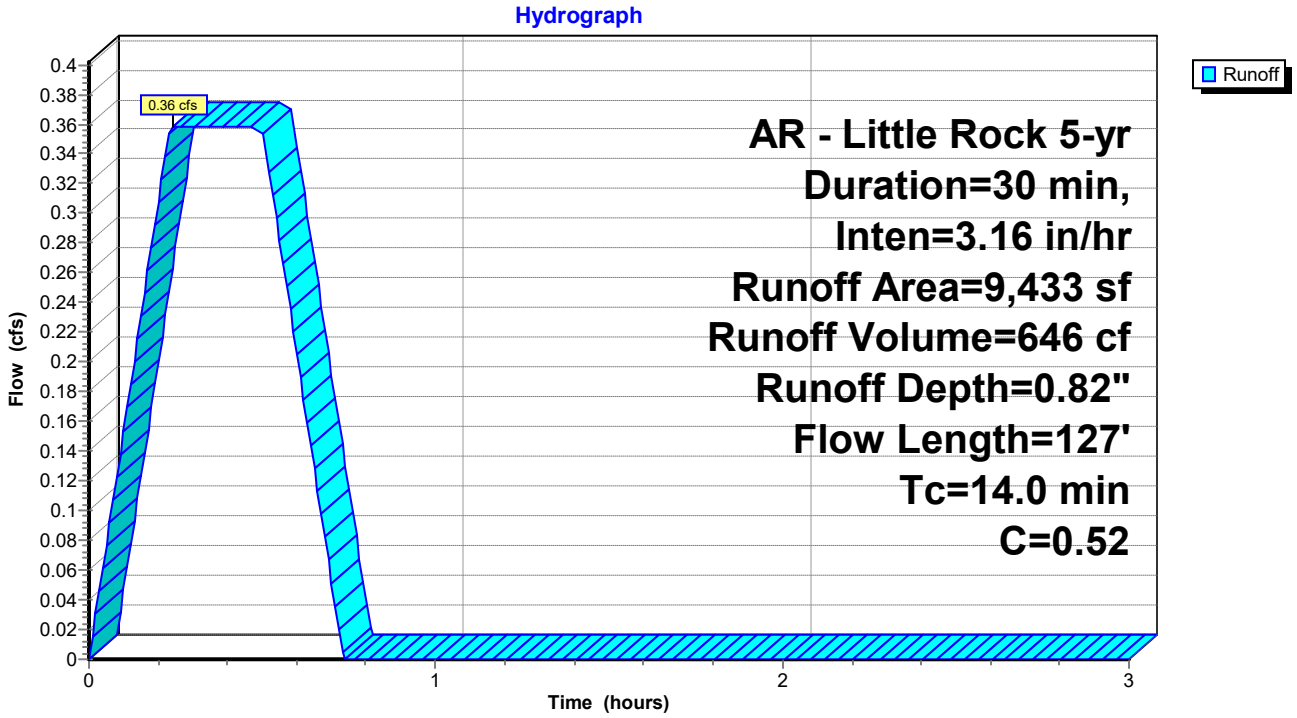
Runoff = 0.36 cfs @ 0.24 hrs, Volume= 646 cf, Depth= 0.82"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
7,346	0.40	Sod Yard
2,087	0.95	Paving, Sidewalks
9,433	0.52	Weighted Average
7,346		77.88% Pervious Area
2,087		22.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	79	0.0570	0.13		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	21	0.0620	0.10		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.0	9	0.0620	3.73		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	18	0.1080	4.93		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
14.0	127	Total			

Subcatchment B6: Drainage Basin B6



Summary for Subcatchment C1: Drainage Basin C1

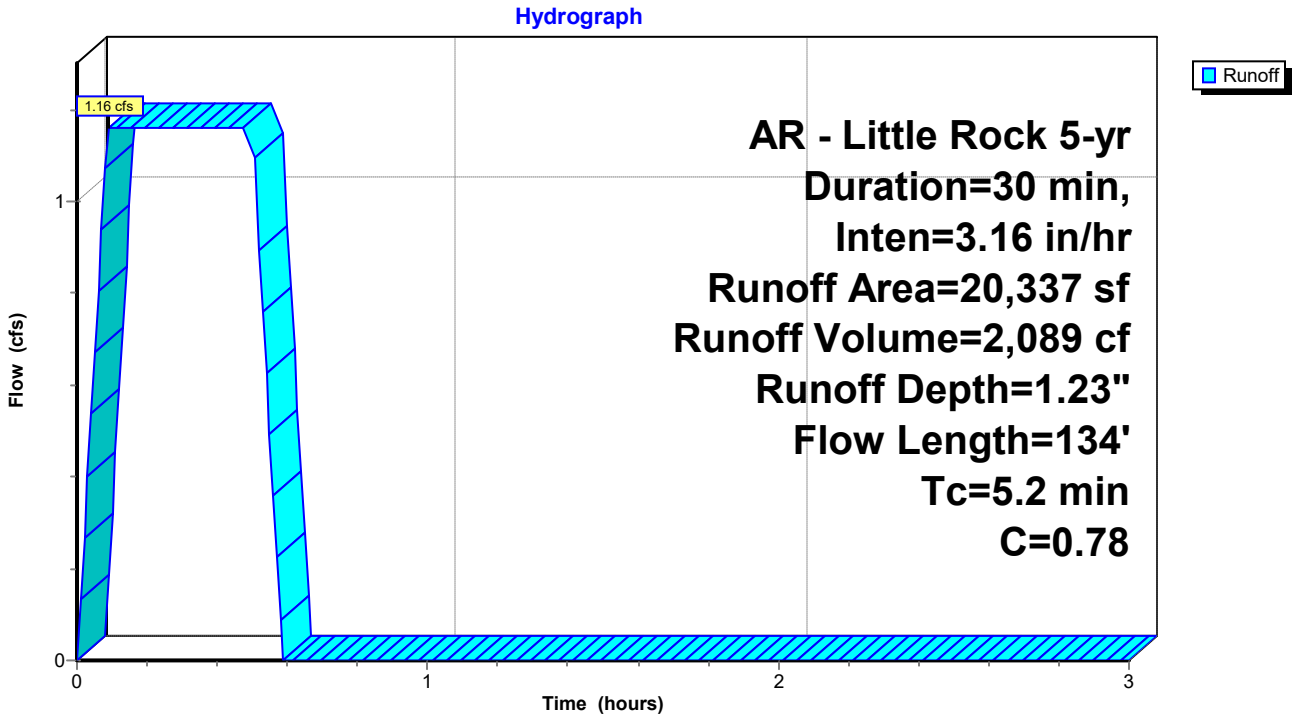
Runoff = 1.16 cfs @ 0.09 hrs, Volume= 2,089 cf, Depth= 1.23"
Routed to Pond CI-C1 : CI - C1

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
6,135	0.40	Sod Yard
14,202	0.95	Paving, Sidewalks
20,337	0.78	Weighted Average
6,135		30.17% Pervious Area
14,202		69.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.4	102	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.2	134	Total			

Subcatchment C1: Drainage Basin C1



Summary for Subcatchment C10: Drainage Basin C10

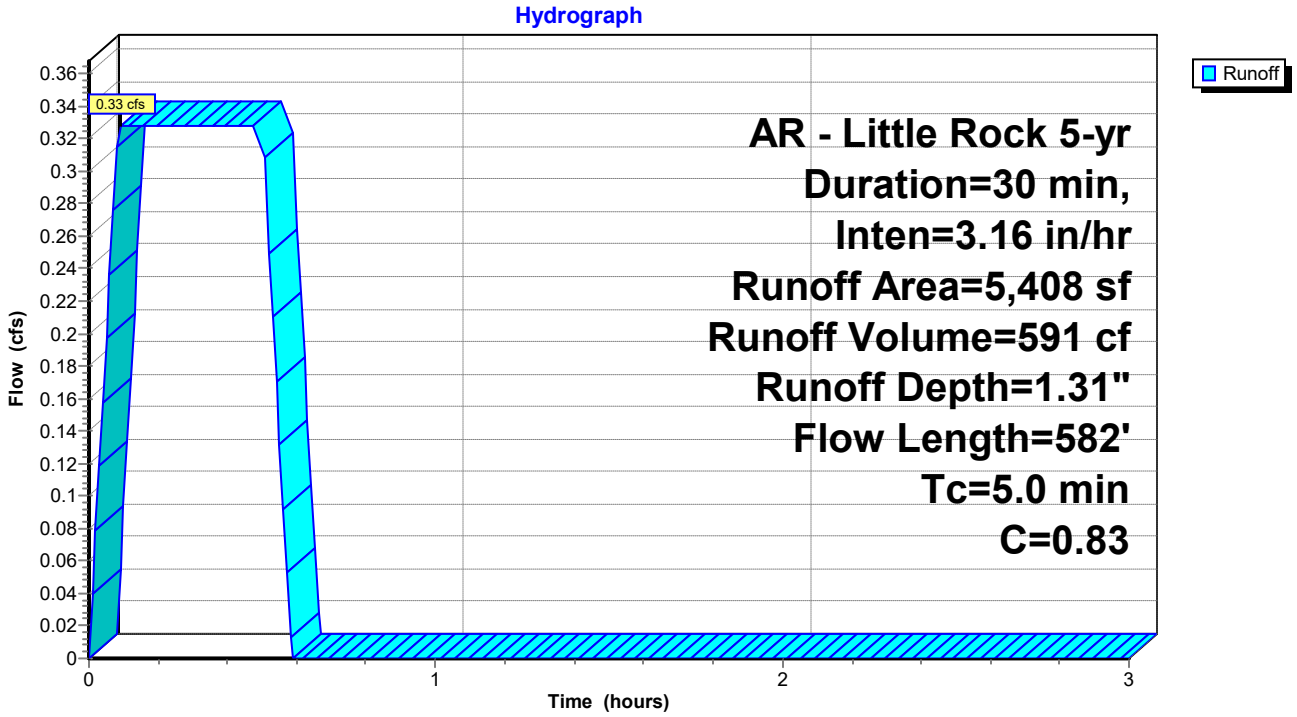
Runoff = 0.33 cfs @ 0.09 hrs, Volume= 591 cf, Depth= 1.31"
Routed to Pond CI-E1 : CI - E1

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
1,225	0.40	Sod Yard
4,183	0.95	Paving, Sidewalks
5,408	0.83	Weighted Average
1,225		22.65% Pervious Area
4,183		77.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	29	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	36	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	48	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	13	0.0350	3.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.9	415		1.77		**Direct Entry, Concentrated Flow (Min)**
5.0	582	Total			

Subcatchment C10: Drainage Basin C10



Summary for Subcatchment C11: Drainage Basin C11

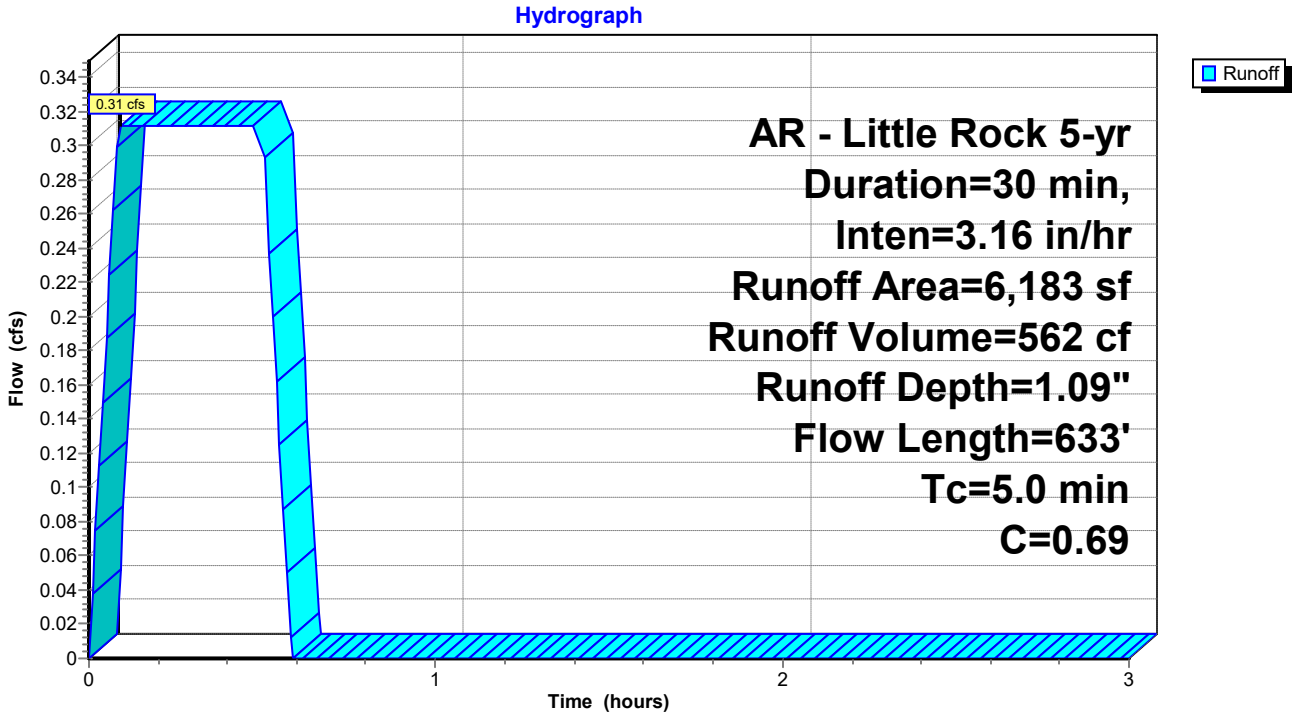
Runoff = 0.31 cfs @ 0.09 hrs, Volume= 562 cf, Depth= 1.09"
Routed to Pond CI-E2 : CI - E2

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
2,876	0.40	Sod Yard
3,307	0.95	Paving, Sidewalks
6,183	0.69	Weighted Average
2,876		46.51% Pervious Area
3,307		53.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0200	1.19		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	33	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	37	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	633	Total			

Subcatchment C11: Drainage Basin C11



Summary for Subcatchment C12: Drainage Basin C12

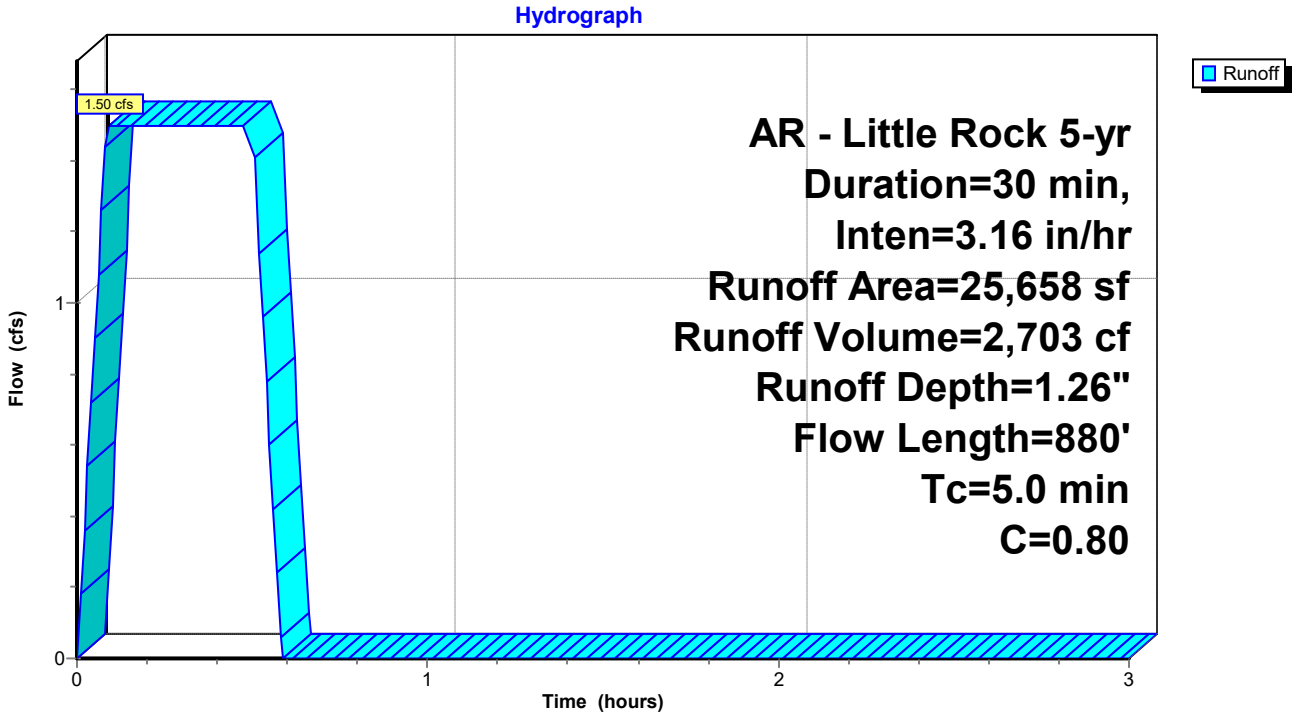
Runoff = 1.50 cfs @ 0.09 hrs, Volume= 2,703 cf, Depth= 1.26"
Routed to Pond CI-C7 : CI - C7

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
7,218	0.40	Sod Yard
18,440	0.95	Paving, Sidewalks
25,658	0.80	Weighted Average
7,218		28.13% Pervious Area
18,440		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0360	1.50		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0190	0.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.9	49	0.0020	0.91		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	96	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	94	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	25	0.0450	4.31		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	39	0.0490	4.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0460	4.35		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	11	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0440	4.26		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.3	415		3.01		**Direct Entry, Concentrated Flow (Min)**
5.0	880	Total			

Subcatchment C12: Drainage Basin C12



Summary for Subcatchment C13: Drainage Basin C13

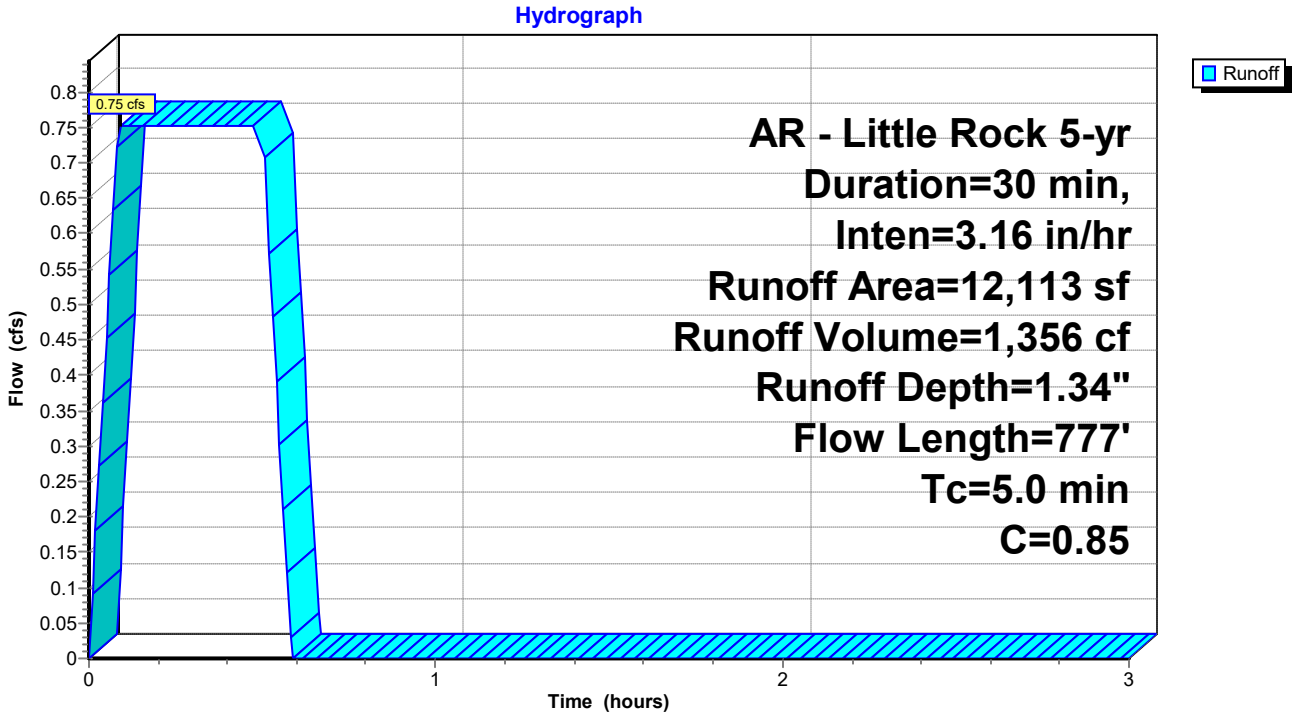
Runoff = 0.75 cfs @ 0.09 hrs, Volume= 1,356 cf, Depth= 1.34"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
2,240	0.40	Sod Yard
9,873	0.95	Paving, Sidewalks
12,113	0.85	Weighted Average
2,240		18.49% Pervious Area
9,873		81.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	75	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	42	0.0730	5.48		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	74	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	32	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.6	415		1.92		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	777	Total			

Subcatchment C13: Drainage Basin C13



Summary for Subcatchment C14: Drainage Basin C14

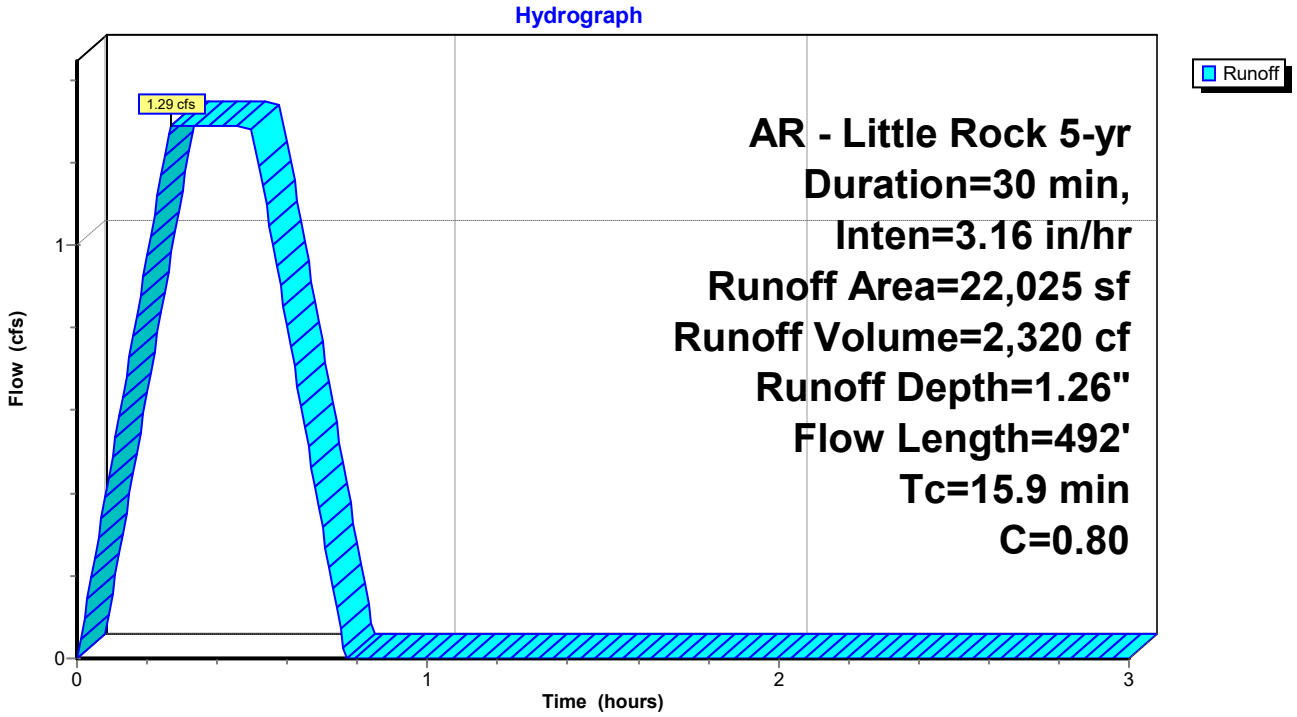
Runoff = 1.29 cfs @ 0.27 hrs, Volume= 2,320 cf, Depth= 1.26"
Routed to Pond CI-A5 : CI - A5

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
6,127	0.40	Sod Yard
15,898	0.95	Paving, Sidewalks
22,025	0.80	Weighted Average
6,127		27.82% Pervious Area
15,898		72.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	5	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
9.2	45	0.0250	0.08		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.8	41	0.1940	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	6	0.0100	0.68		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	51	0.0870	5.99		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0310	3.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0270	3.34		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	20	0.0400	4.06		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	34	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	58	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	49	0.0840	5.88		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
15.9	492	Total			

Subcatchment C14: Drainage Basin C14



Summary for Subcatchment C15: Drainage Basin C15

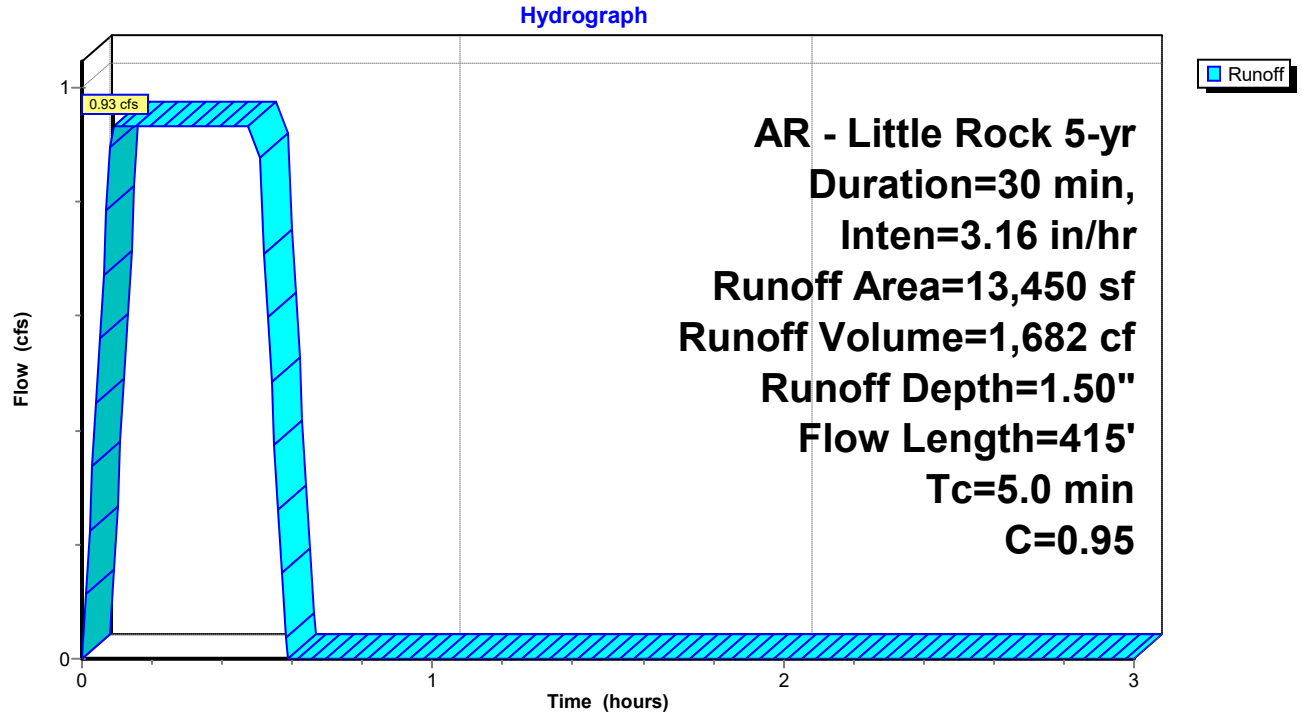
Runoff = 0.93 cfs @ 0.09 hrs, Volume= 1,682 cf, Depth= 1.50"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
13,450	0.95	Paving, Sidewalks
13,450	0.95	Weighted Average
13,450		100.00% 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 C15: Drainage Basin C15



Summary for Subcatchment C16: Drainage Basin C16

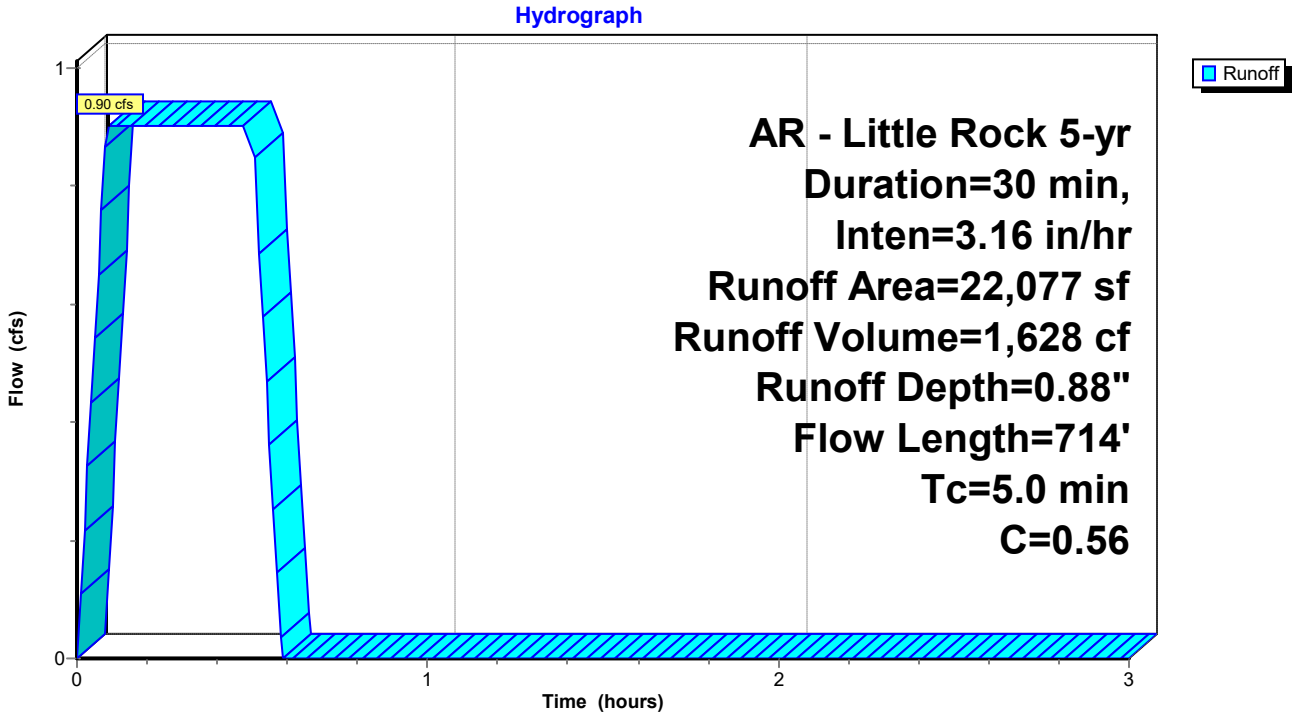
Runoff = 0.90 cfs @ 0.09 hrs, Volume= 1,628 cf, Depth= 0.88"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
15,465	0.40	Sod Yard
6,612	0.95	Paving, Sidewalks
22,077	0.56	Weighted Average
15,465		70.05% Pervious Area
6,612		29.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0190	1.18		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0100	0.66		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	51	0.0500	1.98		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	12	0.1540	2.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	50	0.1330	7.40		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.1	50	0.1170	6.94		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0430	4.21		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.3	59	0.0370	3.90		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
3.3	415		2.10		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	714	Total			

Subcatchment C16: Drainage Basin C16



Summary for Subcatchment C17: Drainage Basin C17

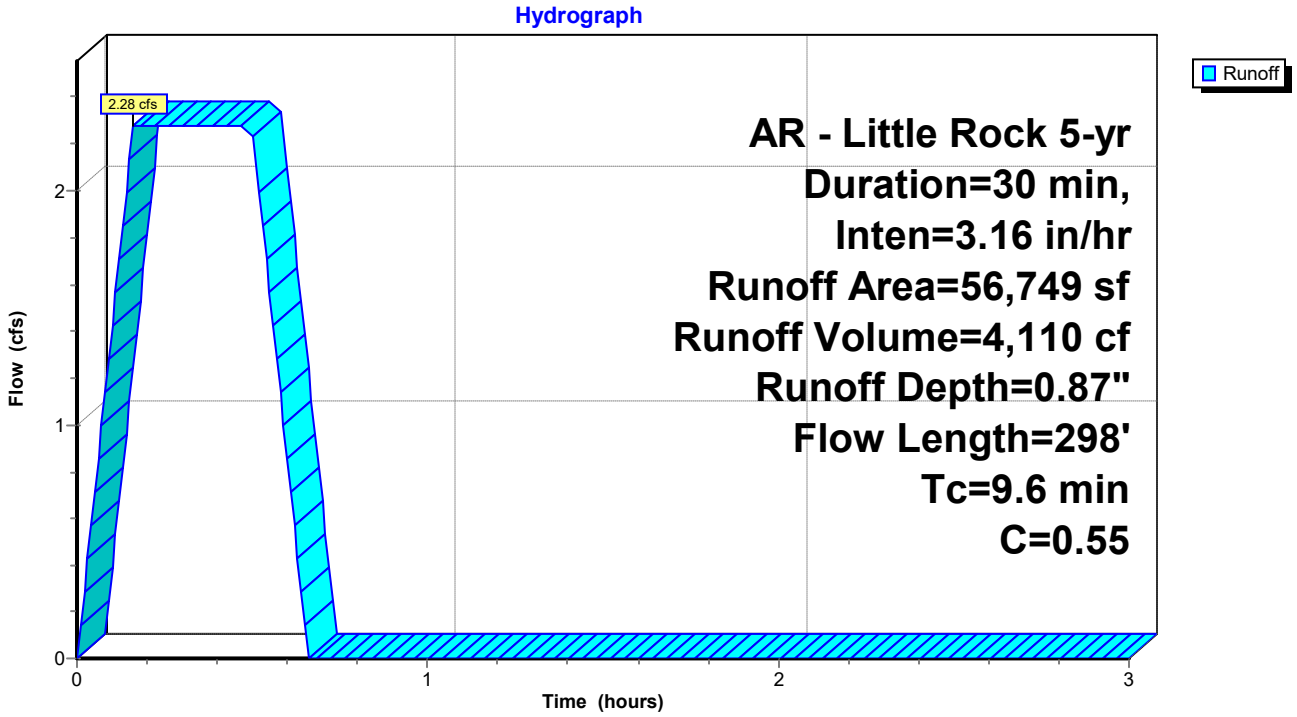
Runoff = 2.28 cfs @ 0.16 hrs, Volume= 4,110 cf, Depth= 0.87"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
40,914	0.40	Sod Yard
15,835	0.95	Paving, Sidewalks
56,749	0.55	Weighted Average
40,914		72.10% Pervious Area
15,835		27.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	43	0.0410	0.15		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.9	43	0.0690	0.19		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	41	0.0980	4.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	61	0.0730	4.05		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0570	3.58		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	64	0.0450	3.18		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
9.6	298	Total			

Subcatchment C17: Drainage Basin C17



Summary for Subcatchment C18: Drainage Basin C18

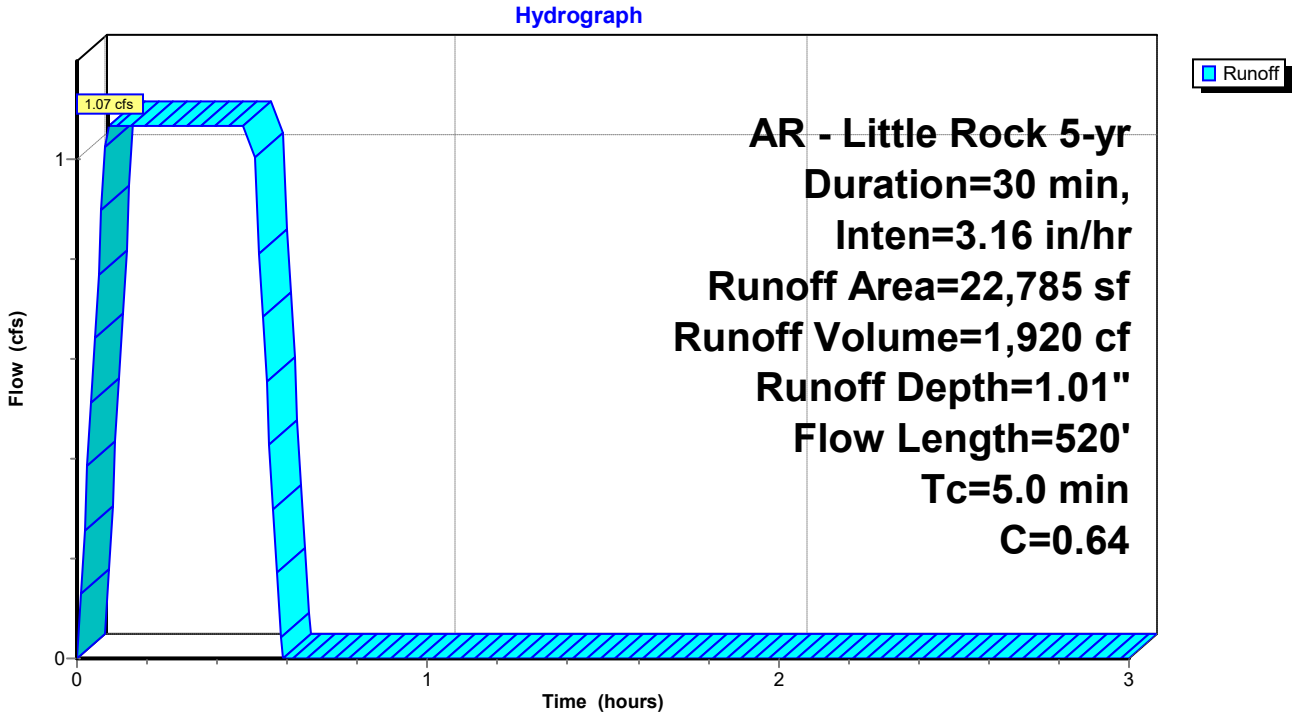
Runoff = 1.07 cfs @ 0.09 hrs, Volume= 1,920 cf, Depth= 1.01"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
12,812	0.40	Sod Yard
9,973	0.95	Paving, Sidewalks
22,785	0.64	Weighted Average
12,812		56.23% Pervious Area
9,973		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2980	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.3	8	0.0100	0.04		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	80	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	415		17.29		**Direct Entry, Concentrated Flow (Min)**
5.0	520	Total			

Subcatchment C18: Drainage Basin C18



Summary for Subcatchment C19: Drainage Basin C19

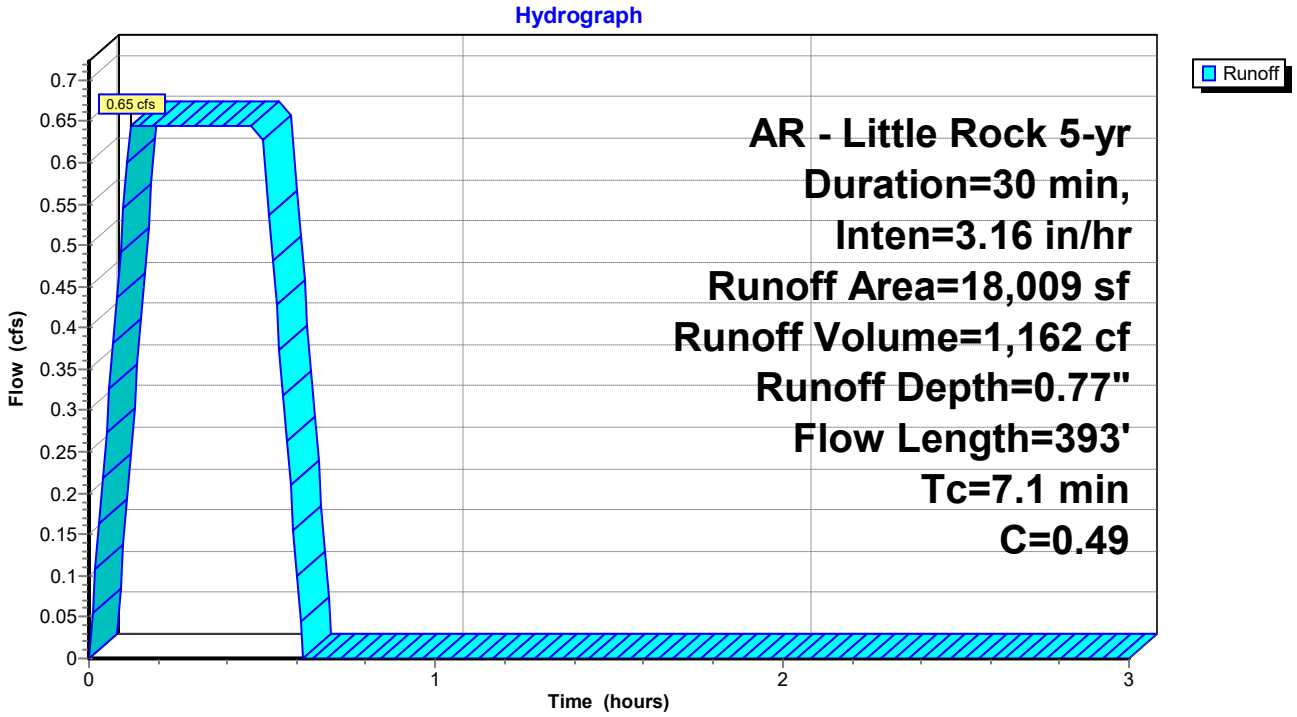
Runoff = 0.65 cfs @ 0.12 hrs, Volume= 1,162 cf, Depth= 0.77"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
15,129	0.40	Sod Yard
2,880	0.95	Paving, Sidewalks
18,009	0.49	Weighted Average
15,129		84.01% Pervious Area
2,880		15.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	34	0.1110	0.21		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.3	66	0.2450	0.34		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.0	9	0.2450	7.42		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.5	106	0.0610	3.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0800	4.24		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	41	0.0960	4.65		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	66	0.0680	3.91		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	19	0.1070	6.64		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
7.1	393	Total			

Subcatchment C19: Drainage Basin C19



Summary for Subcatchment C2: Drainage Basin C2

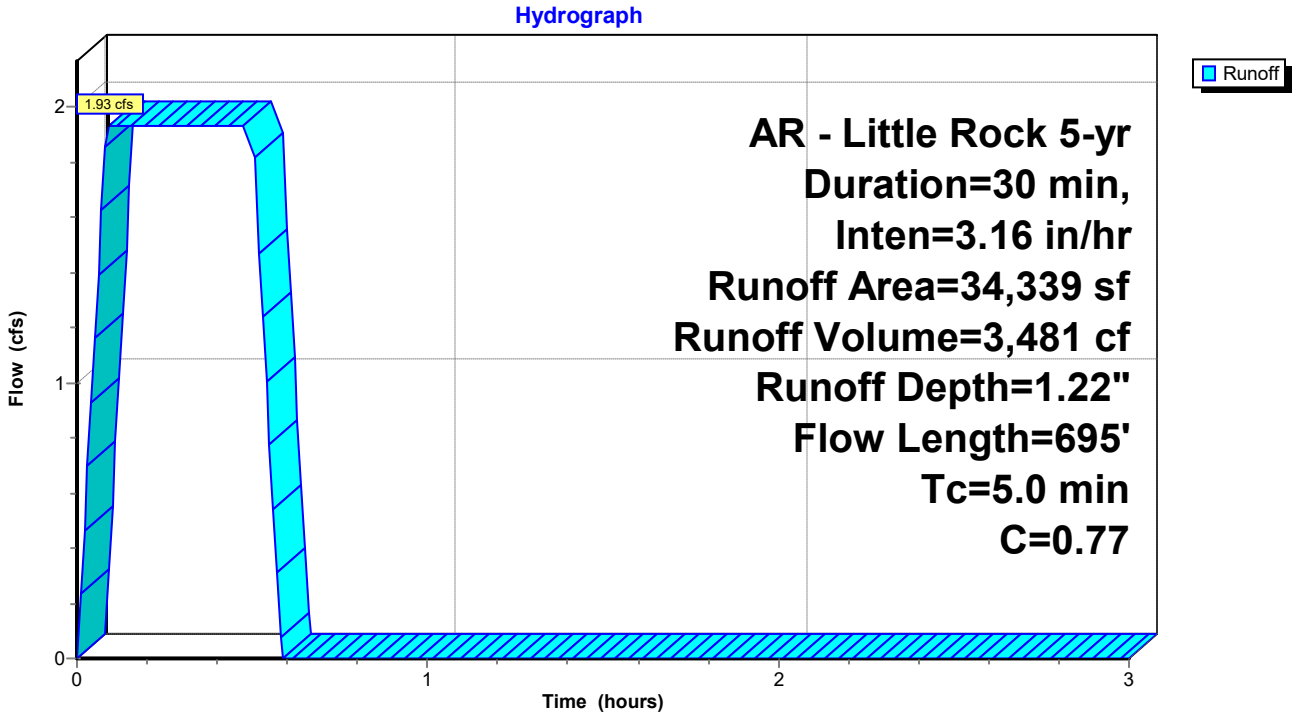
Runoff = 1.93 cfs @ 0.09 hrs, Volume= 3,481 cf, Depth= 1.22"
Routed to Pond CI-C2 : CI - C2

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
11,376	0.40	Sod Yard
22,963	0.95	Roof, Paving, Sidewalks
34,339	0.77	Weighted Average
11,376		33.13% Pervious Area
22,963		66.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.14		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	74	0.0240	3.14		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	21	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	148	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.5	415		1.98		**Direct Entry, Concentrated Flow (Min)**
5.0	695	Total			

Subcatchment C2: Drainage Basin C2



Summary for Subcatchment C20: Drainage Basin C20

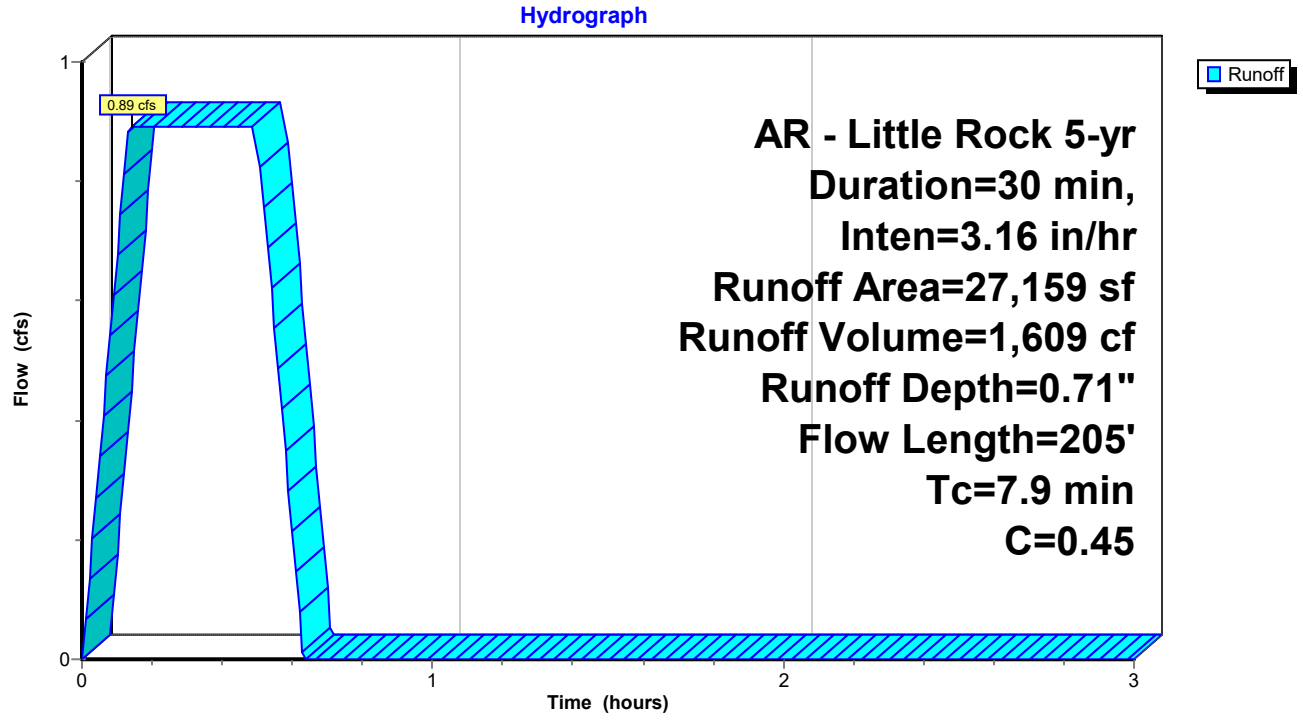
Runoff = 0.89 cfs @ 0.14 hrs, Volume= 1,609 cf, Depth= 0.71"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
24,838	0.40	Sod Yard
2,321	0.95	Paving, Sidewalks
27,159	0.45	Weighted Average
24,838		91.45% Pervious Area
2,321		8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	45	0.1430	0.25		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
4.5	55	0.0780	0.20		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	37	0.0780	4.19		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	68	0.0710	4.00		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
7.9	205	Total			

Subcatchment C20: Drainage Basin C20



Summary for Subcatchment C21: Drainage Basin C21

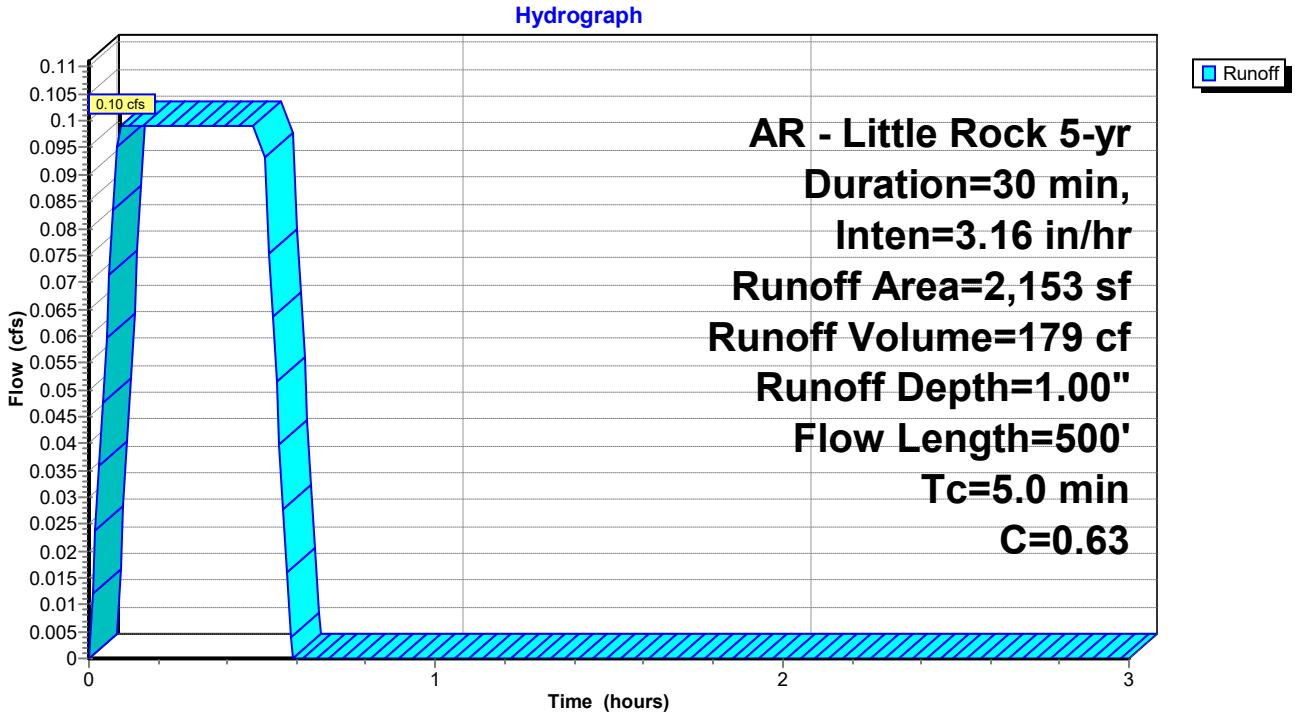
Runoff = 0.10 cfs @ 0.09 hrs, Volume= 179 cf, Depth= 1.00"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
1,234	0.40	Sod Yard
919	0.95	Paving, Sidewalks
2,153	0.63	Weighted Average
1,234		57.32% Pervious Area
919		42.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	2	0.2500	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.3	33	0.0520	1.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.8	24	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	26	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.5	415		13.83		**Direct Entry, Concentrated Flow (Min)**
5.0	500	Total			

Subcatchment C21: Drainage Basin C21



Summary for Subcatchment C3: Drainage Basin C3

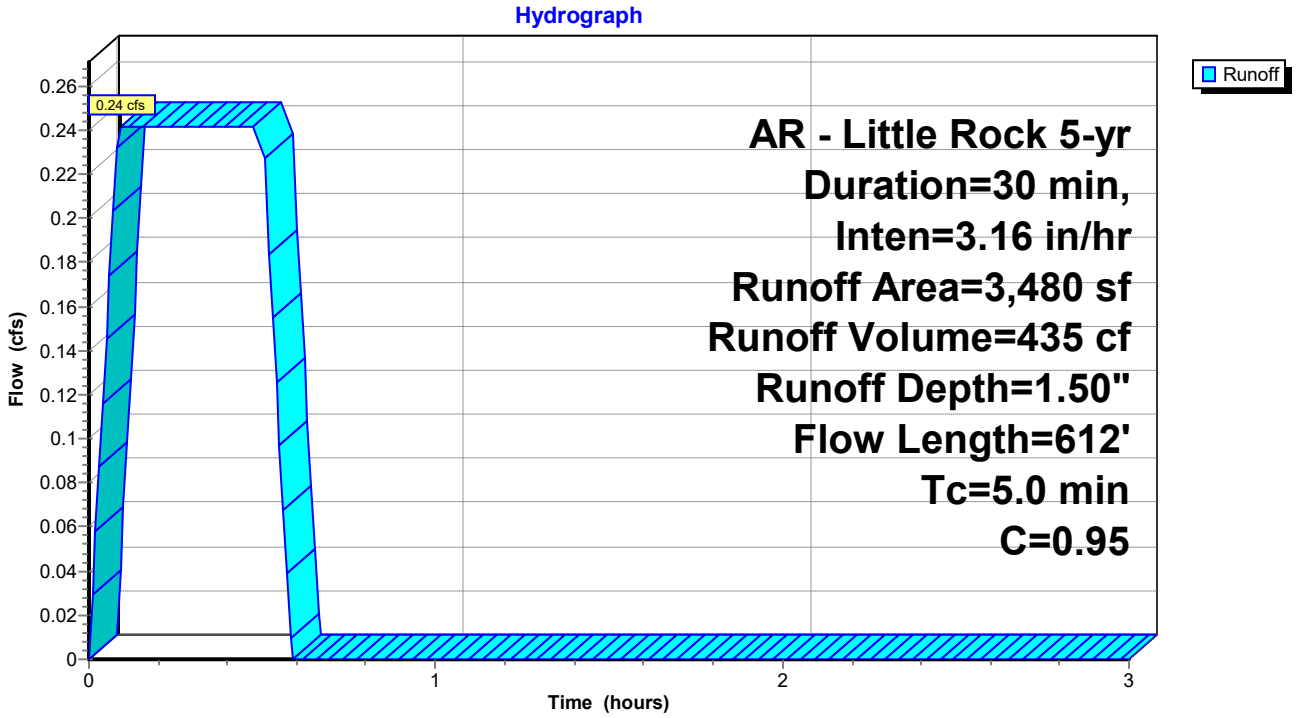
Runoff = 0.24 cfs @ 0.09 hrs, Volume= 435 cf, Depth= 1.50"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
3,480	0.95	Paving, Sidewalks
3,480	0.95	Weighted Average
3,480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	10	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	147	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	612	Total			

Subcatchment C3: Drainage Basin C3



Summary for Subcatchment C4: Drainage Basin C4

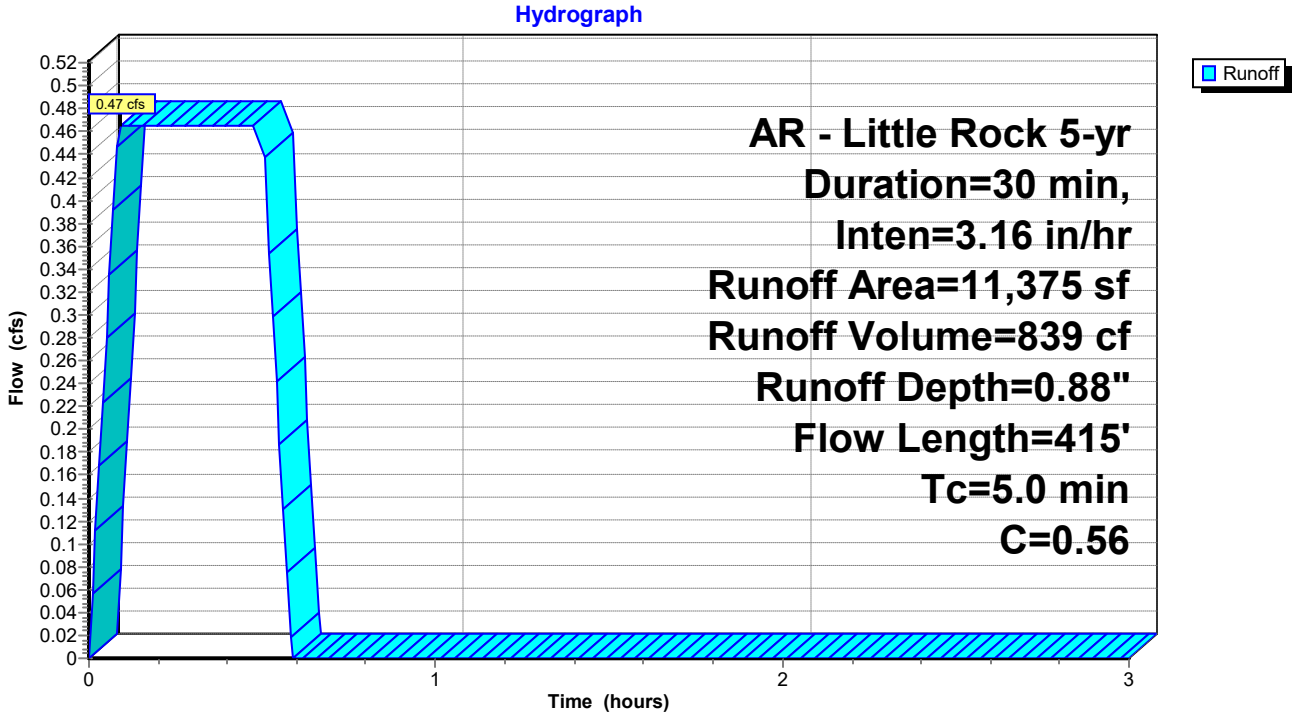
Runoff = 0.47 cfs @ 0.09 hrs, Volume= 839 cf, Depth= 0.88"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
8,130	0.40	Sod Yard
3,245	0.95	Paving, Sidewalks
11,375	0.56	Weighted Average
8,130		71.47% Pervious Area
3,245		28.53% Impervious Area

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

Subcatchment C4: Drainage Basin C4



Summary for Subcatchment C5: Drainage Basin C5

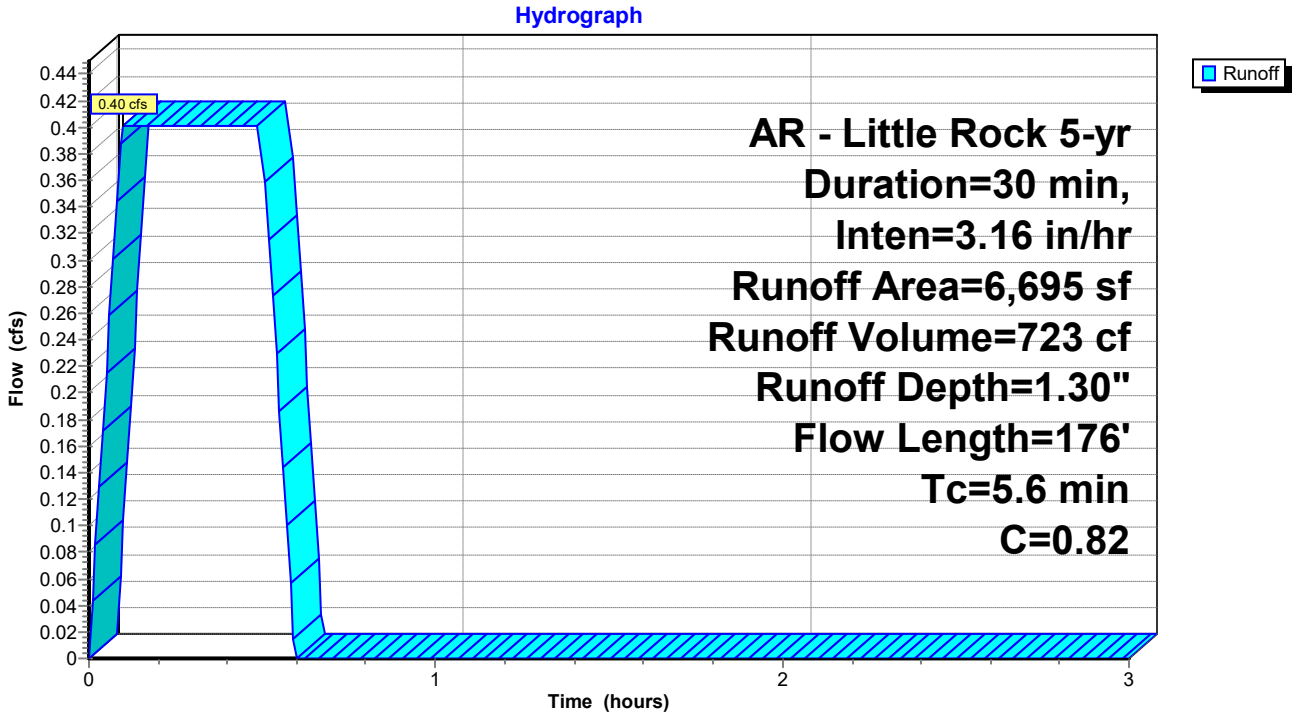
Runoff = 0.40 cfs @ 0.10 hrs, Volume= 723 cf, Depth= 1.30"
Routed to Pond CI-C4 : CI - C4

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
1,634	0.40	Sod Yard
5,061	0.95	Paving, Sidewalks
6,695	0.82	Weighted Average
1,634		24.41% Pervious Area
5,061		75.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2990	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.9	8	0.0070	0.03		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	58	0.0080	1.82		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	14	0.0280	3.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0370	3.90		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0940	6.22		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	30	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.6	176	Total			

Subcatchment C5: Drainage Basin C5



Summary for Subcatchment C6: Drainage Basin C6

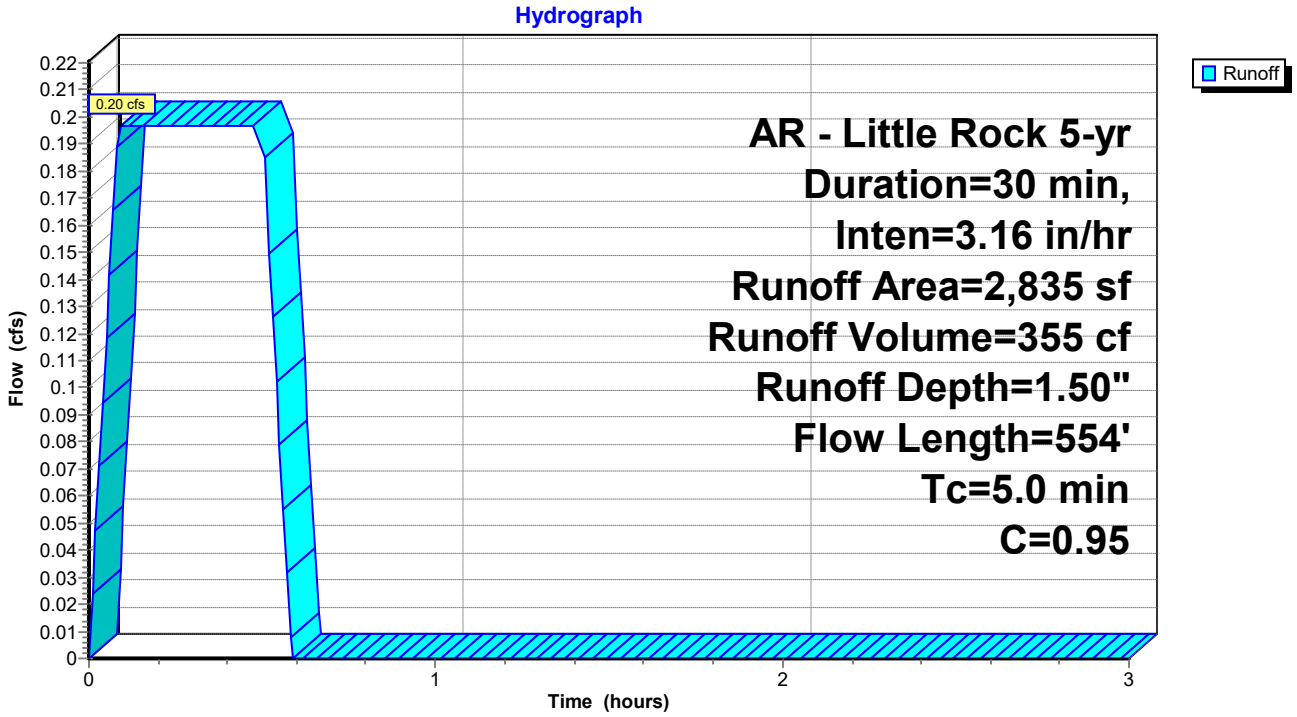
Runoff = 0.20 cfs @ 0.09 hrs, Volume= 355 cf, Depth= 1.50"
Routed to Pond CI-C5 : CI - C5

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
2,835	0.95	Paving, Sidewalks
2,835	0.95	Weighted Average
2,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0360	3.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	27	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.1	415		1.69		**Direct Entry, Concentrated Flow (Min)**
5.0	554	Total			

Subcatchment C6: Drainage Basin C6



Summary for Subcatchment C7: Drainage Basin C7

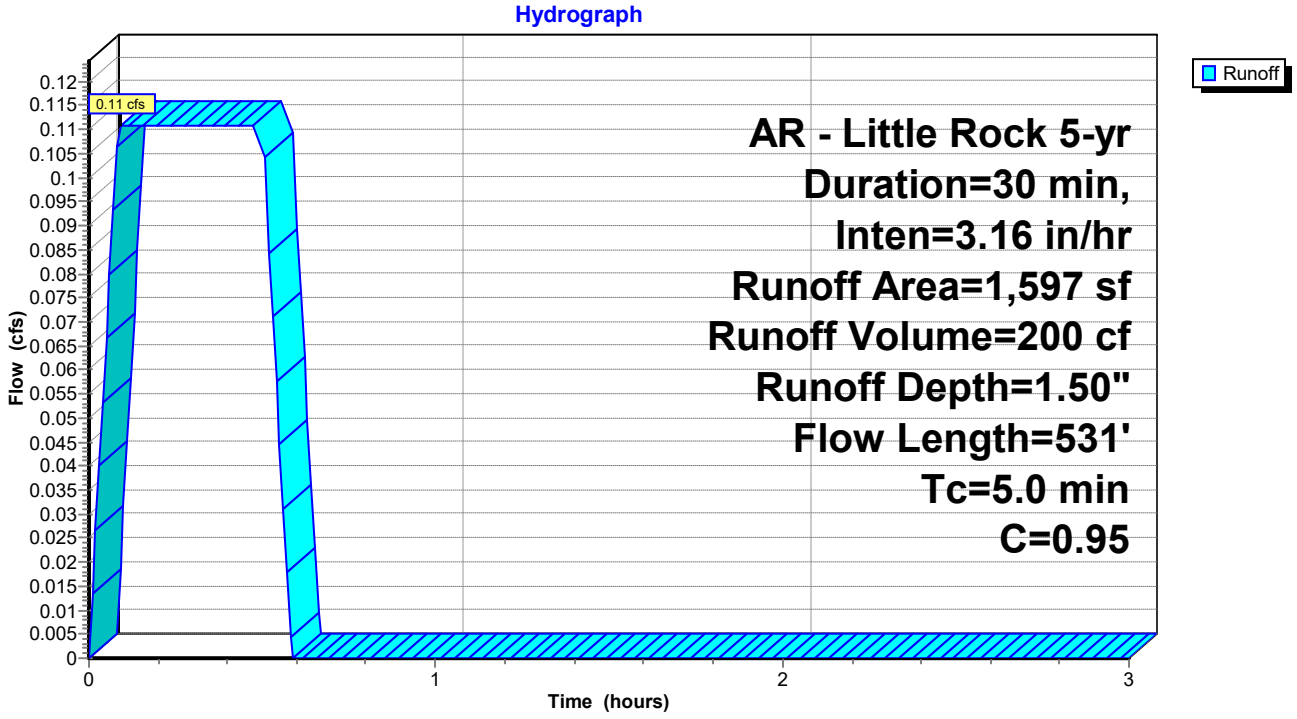
Runoff = 0.11 cfs @ 0.09 hrs, Volume= 200 cf, Depth= 1.50"
Routed to Pond CI-D1 : CI - D1

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,597	0.95	Paving, Sidewalks
1,597	0.95	Weighted Average
1,597		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	16	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	81	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.3	415		1.61		**Direct Entry, Concentrated Flow (Min)**
5.0	531	Total			

Subcatchment C7: Drainage Basin C7



Summary for Subcatchment C8: Drainage Basin C8

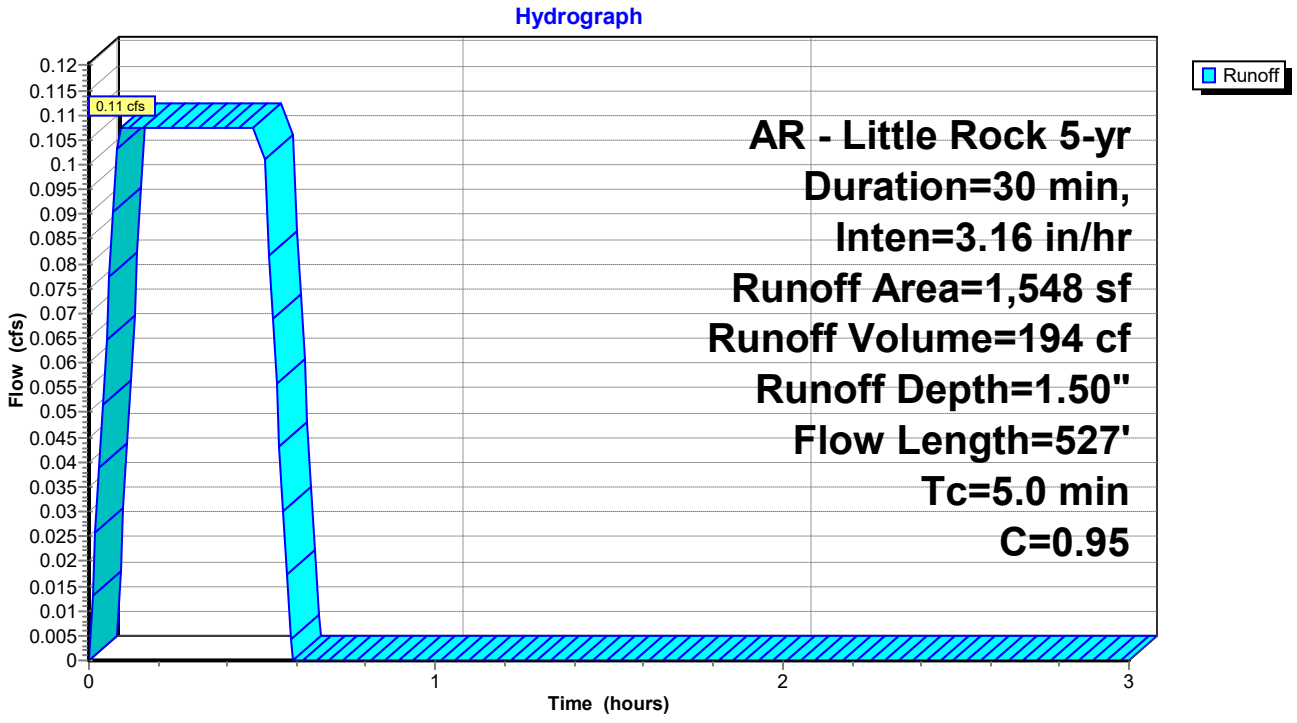
Runoff = 0.11 cfs @ 0.09 hrs, Volume= 194 cf, Depth= 1.50"
Routed to Pond CI-D2 : CI - D2

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,548	0.95	Paving, Sidewalks
1,548	0.95	Weighted Average
1,548		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	94	0.0610	5.01		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
4.4	415		1.57		**Direct Entry, Concentrated Flow (Min)**
5.0	527	Total			

Subcatchment C8: Drainage Basin C8



Summary for Subcatchment C9: Drainage Basin C9

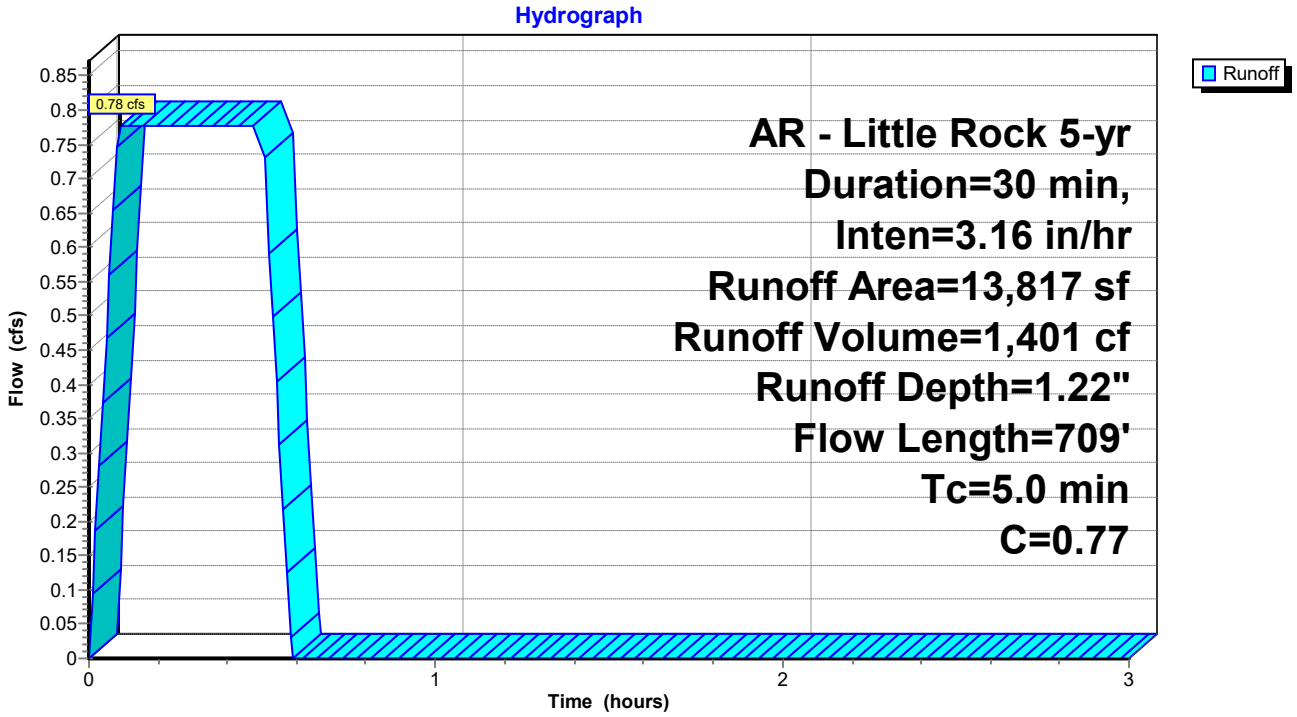
Runoff = 0.78 cfs @ 0.09 hrs, Volume= 1,401 cf, Depth= 1.22"
Routed to Pond CI-C6 : CI - C6

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=30 min, Inten=3.16 in/hr

Area (sf)	C	Description
4,456	0.40	Sod Yard
9,361	0.95	Paving, Sidewalks
13,817	0.77	Weighted Average
4,456		32.25% Pervious Area
9,361		67.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0140	1.36		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	13	0.0150	2.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0160	2.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	7	0.0050	1.44		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	8	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	41	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	41	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	61	0.0520	4.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.9	415		2.39		**Direct Entry, Concentrated Flow (Min)**
5.0	709	Total			

Subcatchment C9: Drainage Basin C9

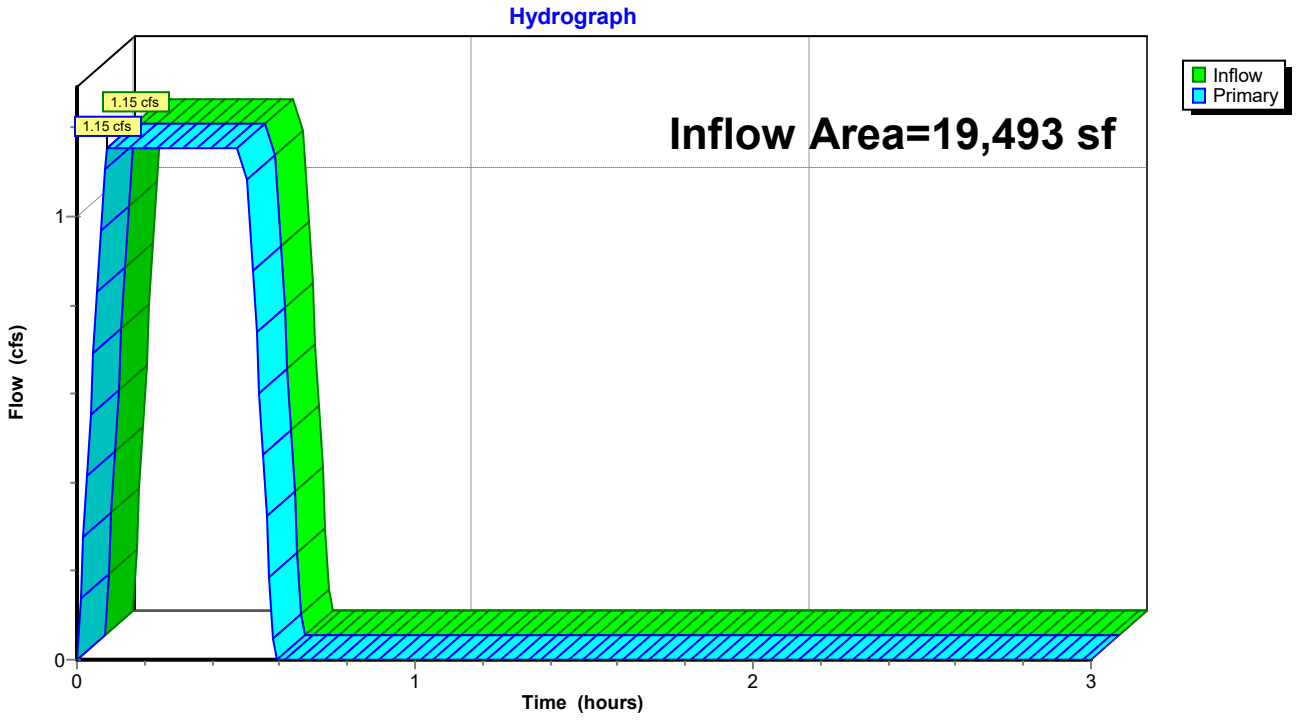


Summary for Pond CI-A1: CI - A1

Inflow Area = 19,493 sf, 74.85% Impervious, Inflow Depth = 1.28" for 5-yr event
Inflow = 1.15 cfs @ 0.09 hrs, Volume= 2,079 cf
Primary = 1.15 cfs @ 0.09 hrs, Volume= 2,079 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-A1: CI - A1

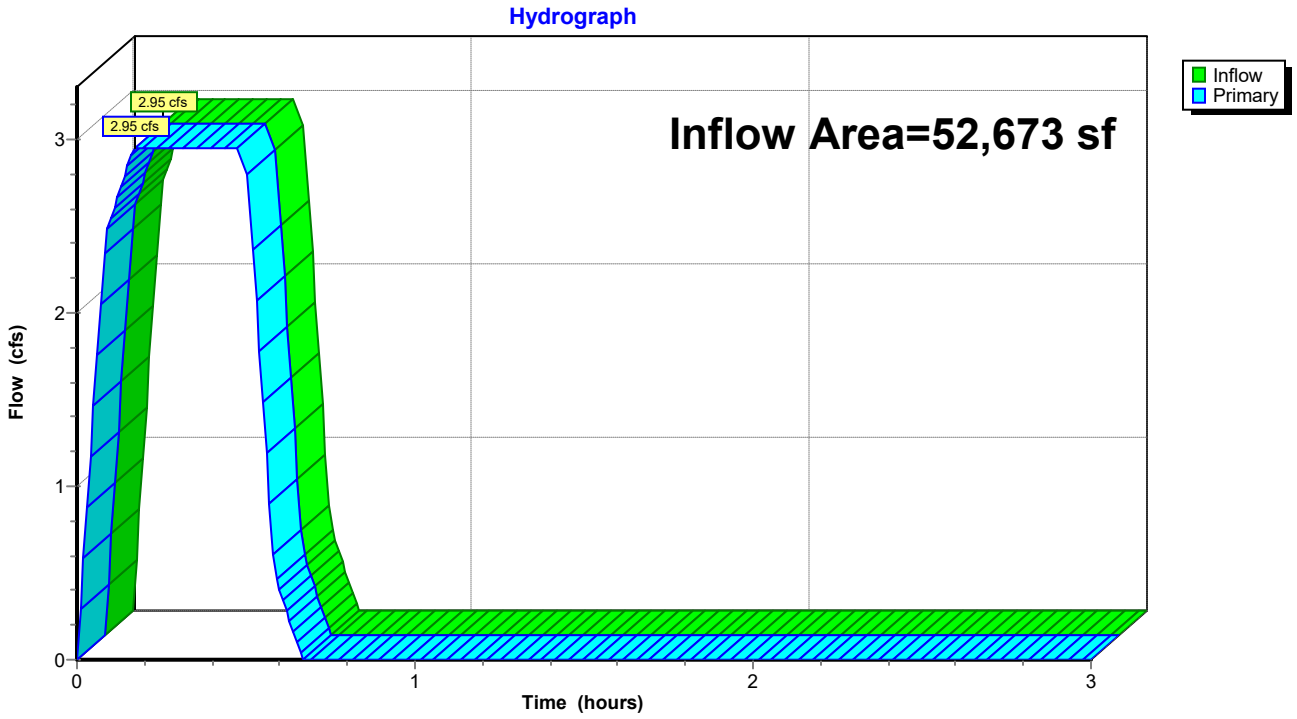


Summary for Pond CI-A3: CI - A3

Inflow Area = 52,673 sf, 66.48% Impervious, Inflow Depth = 1.21" for 5-yr event
Inflow = 2.95 cfs @ 0.17 hrs, Volume= 5,302 cf
Primary = 2.95 cfs @ 0.17 hrs, Volume= 5,302 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A4 : CI - A4

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

Pond CI-A3: CI - A3

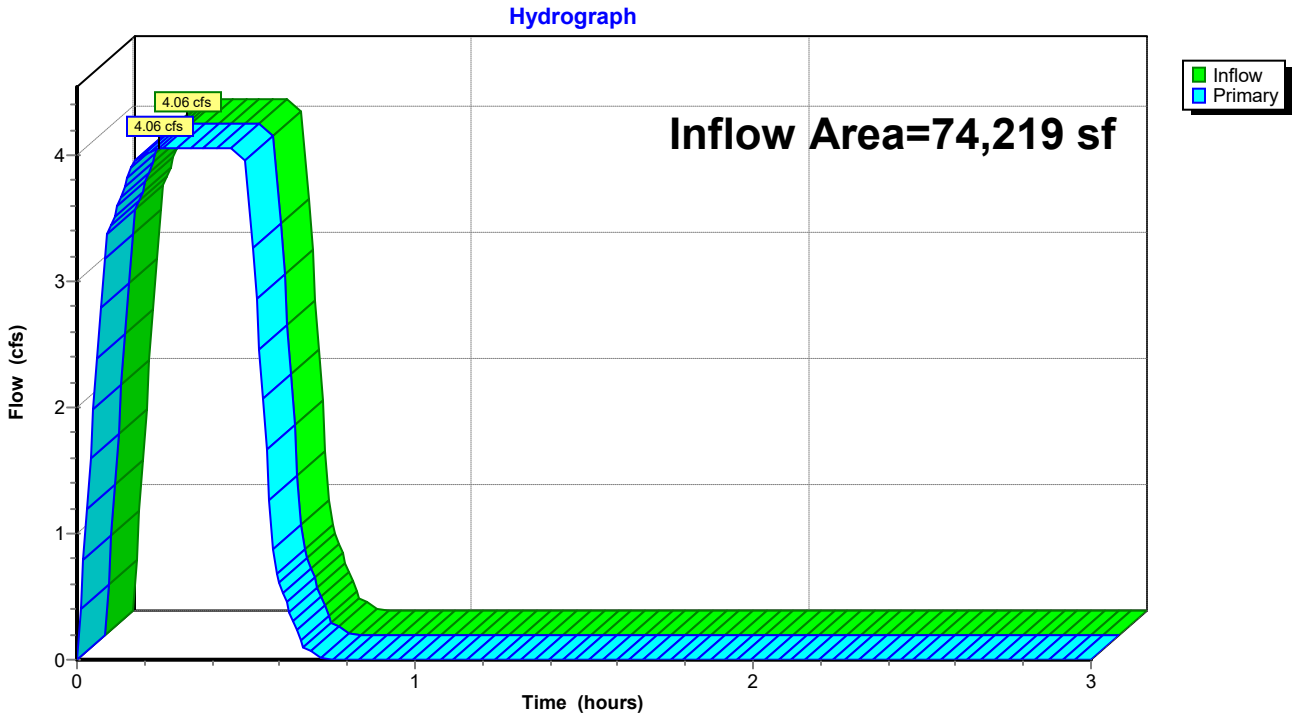


Summary for Pond CI-A4: CI - A4

Inflow Area = 74,219 sf, 63.30% Impervious, Inflow Depth = 1.18" for 5-yr event
Inflow = 4.06 cfs @ 0.24 hrs, Volume= 7,303 cf
Primary = 4.06 cfs @ 0.24 hrs, Volume= 7,303 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A5 : CI - A5

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

Pond CI-A4: CI - A4

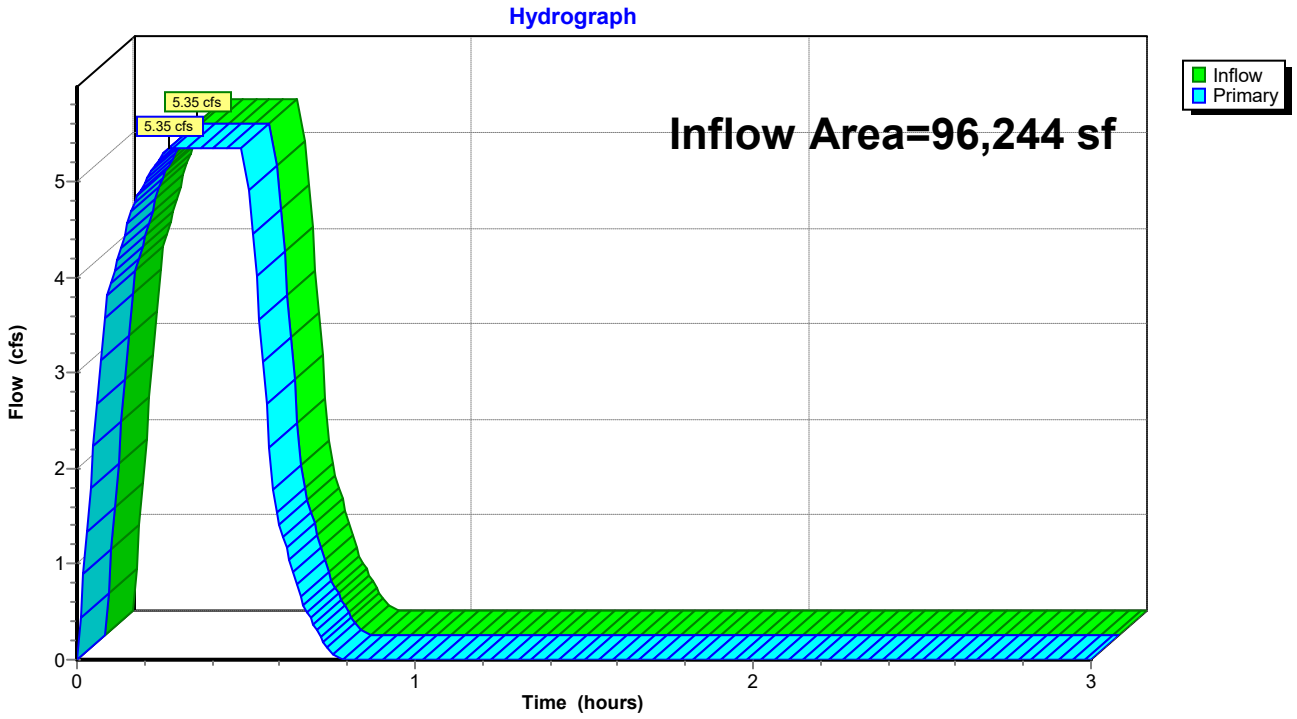


Summary for Pond CI-A5: CI - A5

Inflow Area = 96,244 sf, 65.33% Impervious, Inflow Depth = 1.20" for 5-yr event
Inflow = 5.35 cfs @ 0.27 hrs, Volume= 9,623 cf
Primary = 5.35 cfs @ 0.27 hrs, Volume= 9,623 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-A5: CI - A5

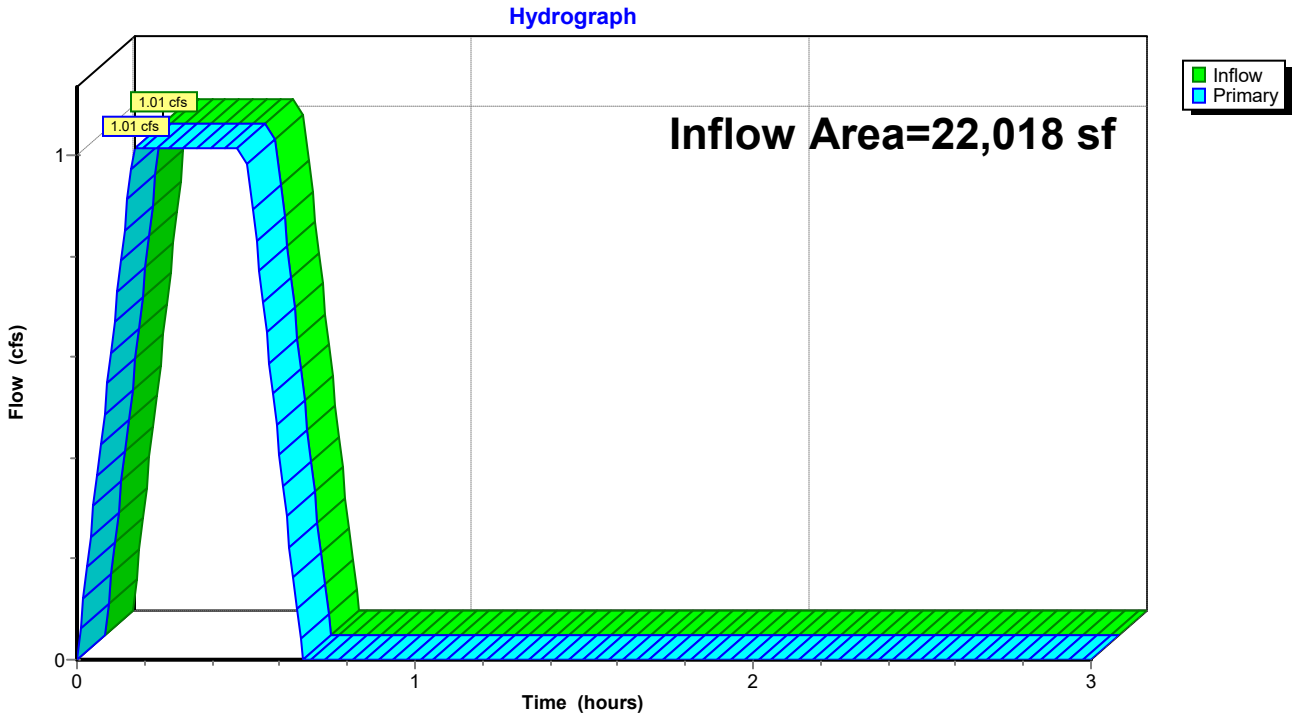


Summary for Pond CI-B2: CI - B2

Inflow Area = 22,018 sf, 42.08% Impervious, Inflow Depth = 1.00" for 5-yr event
Inflow = 1.01 cfs @ 0.17 hrs, Volume= 1,826 cf
Primary = 1.01 cfs @ 0.17 hrs, Volume= 1,826 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-B2: CI - B2

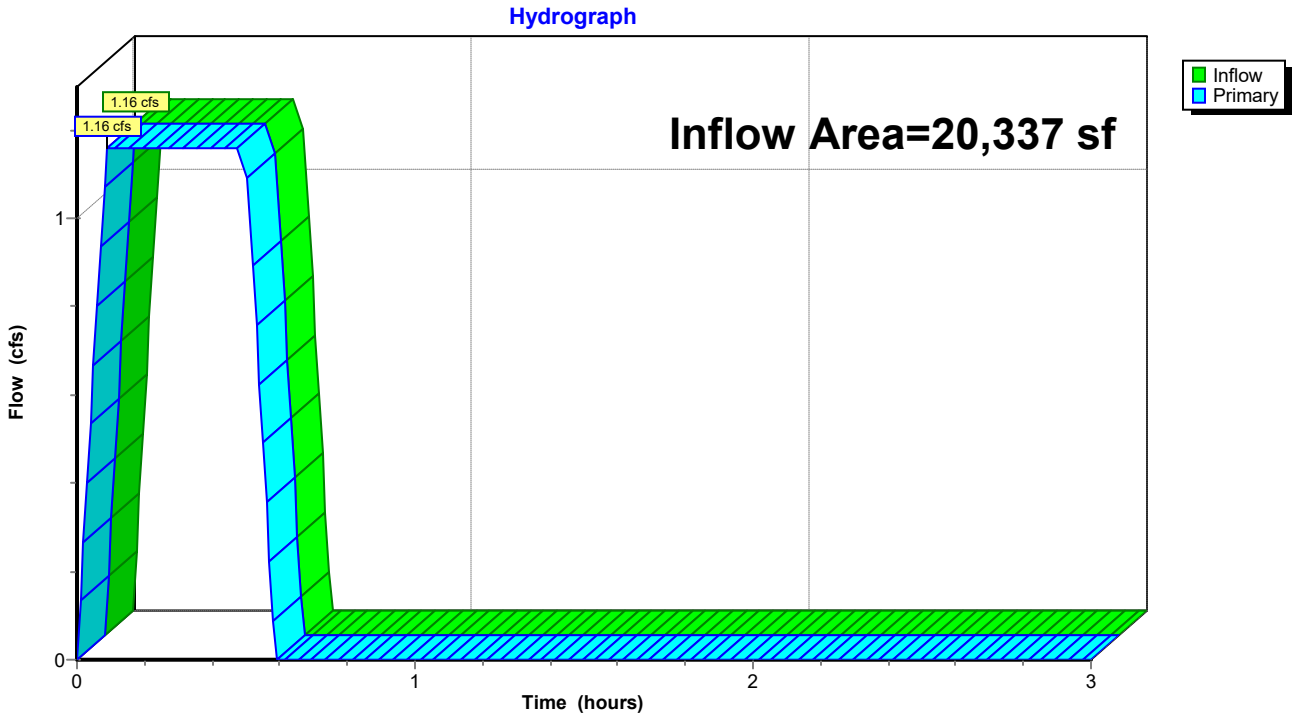


Summary for Pond CI-C1: CI - C1

Inflow Area = 20,337 sf, 69.83% Impervious, Inflow Depth = 1.23" for 5-yr event
Inflow = 1.16 cfs @ 0.09 hrs, Volume= 2,089 cf
Primary = 1.16 cfs @ 0.09 hrs, Volume= 2,089 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C2 : CI - C2

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

Pond CI-C1: CI - C1

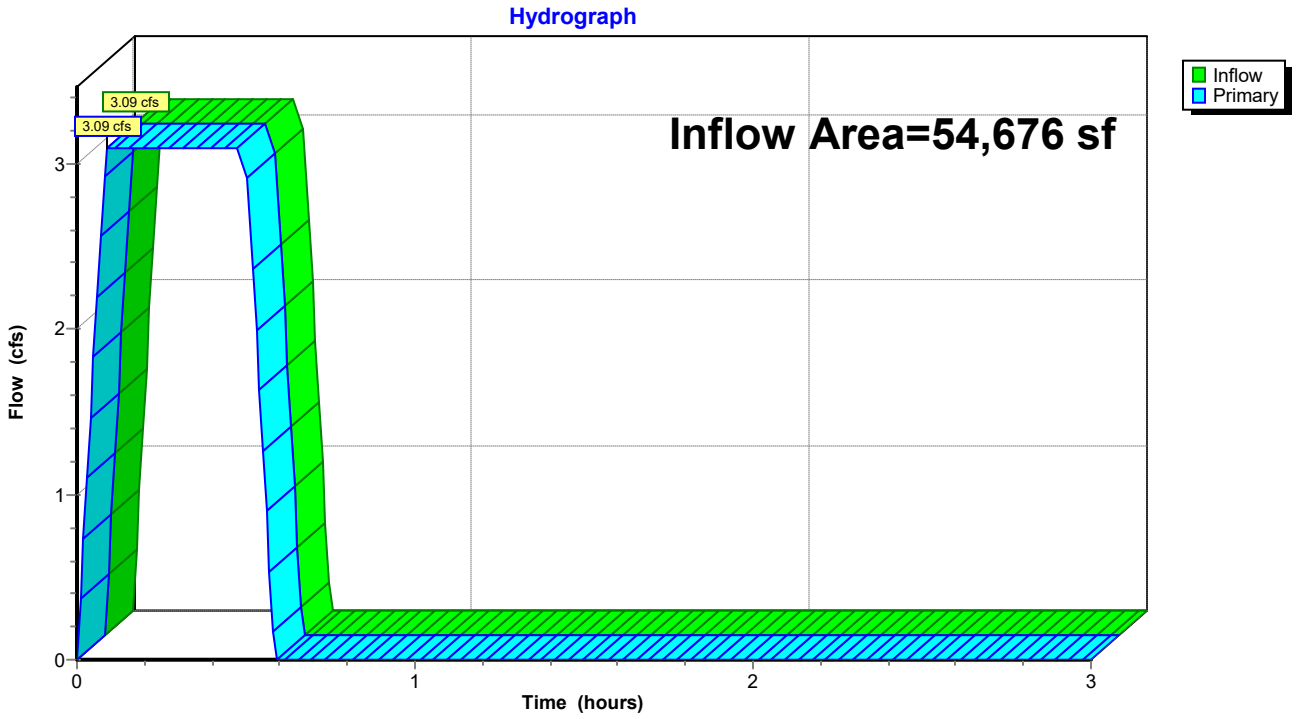


Summary for Pond CI-C2: CI - C2

Inflow Area = 54,676 sf, 67.97% Impervious, Inflow Depth = 1.22" for 5-yr event
Inflow = 3.09 cfs @ 0.09 hrs, Volume= 5,570 cf
Primary = 3.09 cfs @ 0.09 hrs, Volume= 5,570 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C3 : CI - C3

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

Pond CI-C2: CI - C2

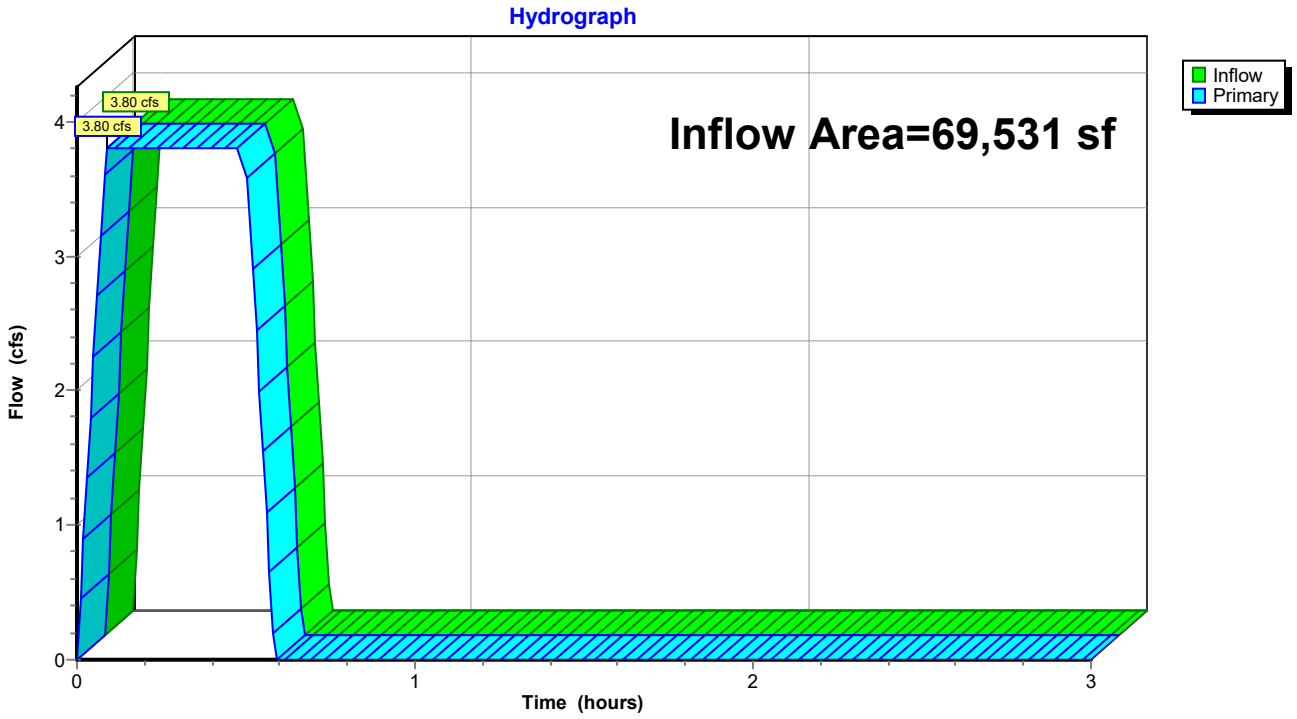


Summary for Pond CI-C3: CI - C3

Inflow Area = 69,531 sf, 63.12% Impervious, Inflow Depth = 1.18" for 5-yr event
Inflow = 3.80 cfs @ 0.09 hrs, Volume= 6,844 cf
Primary = 3.80 cfs @ 0.09 hrs, Volume= 6,844 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C4 : CI - C4

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

Pond CI-C3: CI - C3

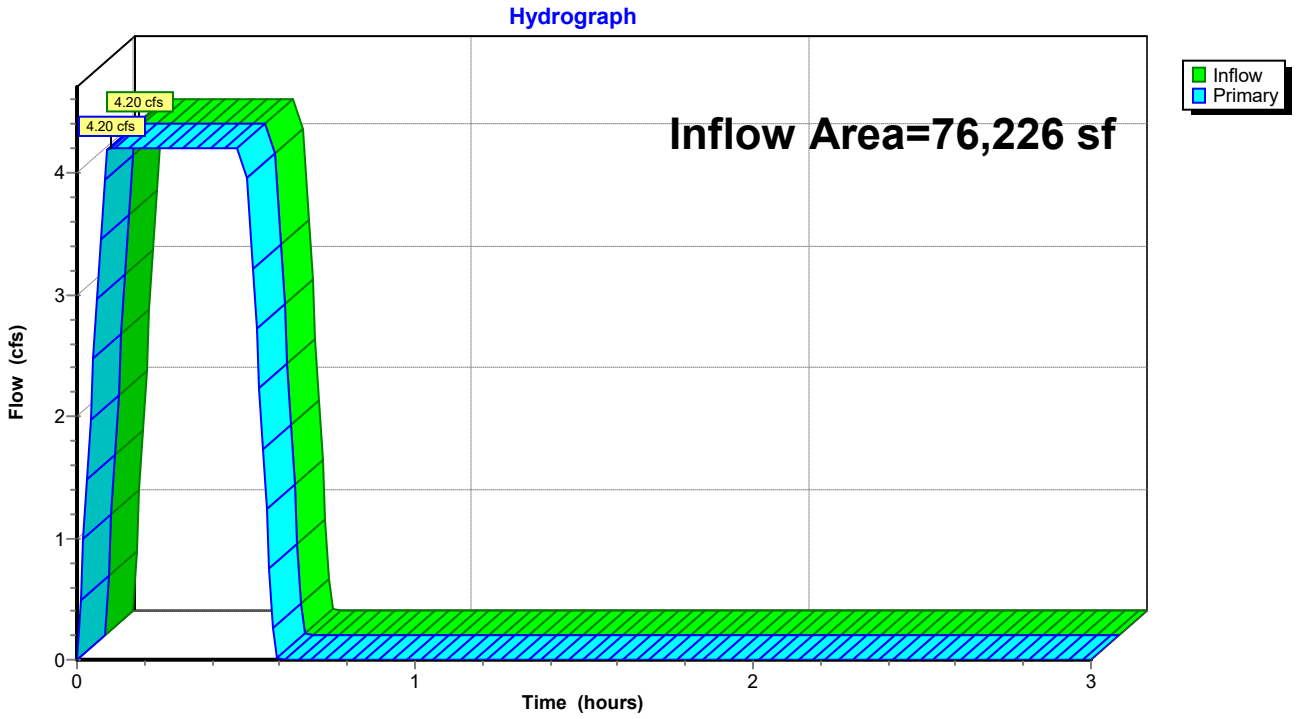


Summary for Pond CI-C4: CI - C4

Inflow Area = 76,226 sf, 64.22% Impervious, Inflow Depth = 1.19" for 5-yr event
Inflow = 4.20 cfs @ 0.10 hrs, Volume= 7,567 cf
Primary = 4.20 cfs @ 0.10 hrs, Volume= 7,567 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C5 : CI - C5

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

Pond CI-C4: CI - C4

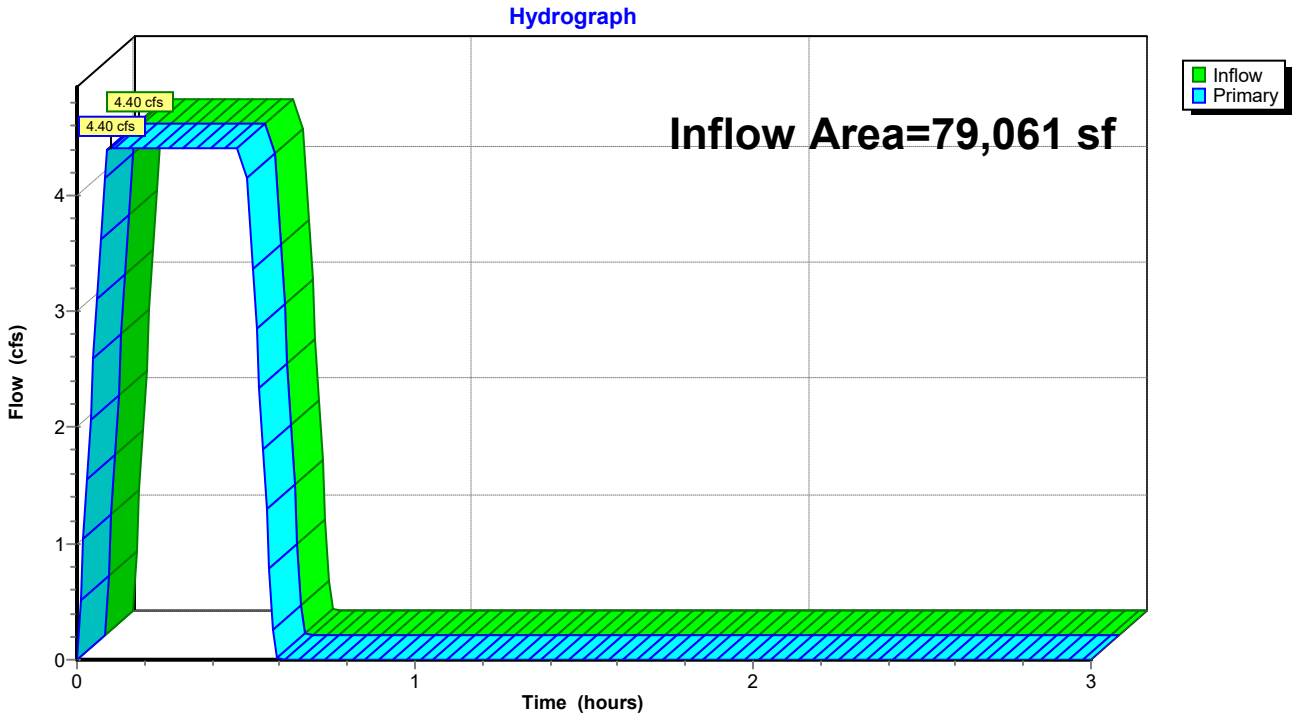


Summary for Pond CI-C5: CI - C5

Inflow Area = 79,061 sf, 65.50% Impervious, Inflow Depth = 1.20" for 5-yr event
Inflow = 4.40 cfs @ 0.10 hrs, Volume= 7,921 cf
Primary = 4.40 cfs @ 0.10 hrs, Volume= 7,921 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-C5: CI - C5

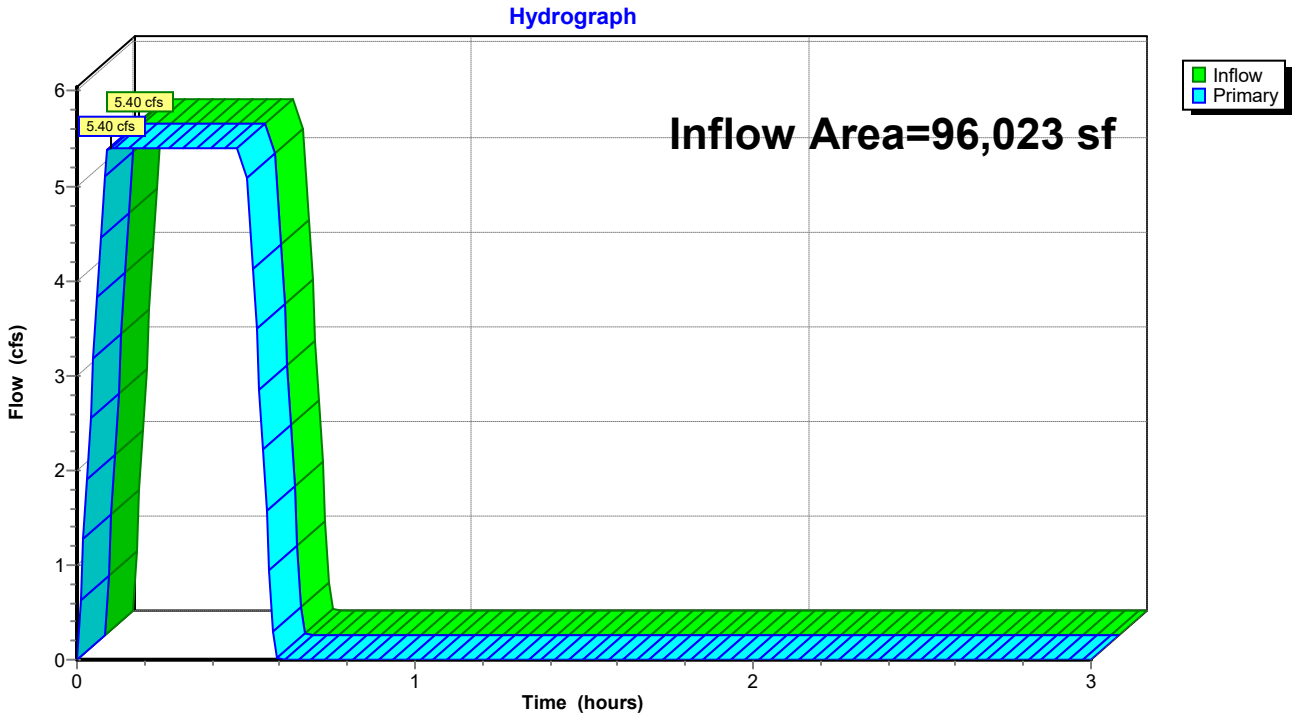


Summary for Pond CI-C6: CI - C6

Inflow Area = 96,023 sf, 66.95% Impervious, Inflow Depth = 1.21" for 5-yr event
Inflow = 5.40 cfs @ 0.10 hrs, Volume= 9,716 cf
Primary = 5.40 cfs @ 0.10 hrs, Volume= 9,716 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-C6: CI - C6

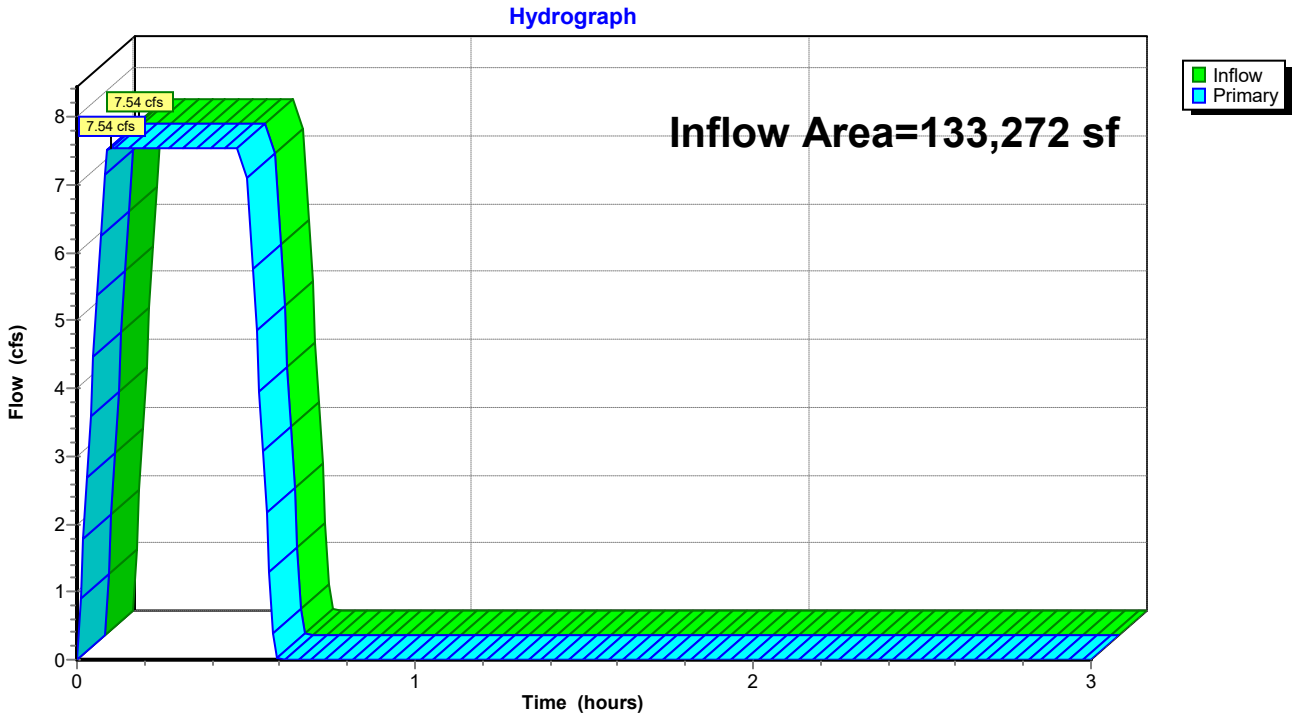


Summary for Pond CI-C7: CI - C7

Inflow Area = 133,272 sf, 67.70% Impervious, Inflow Depth = 1.22" for 5-yr event
Inflow = 7.54 cfs @ 0.10 hrs, Volume= 13,571 cf
Primary = 7.54 cfs @ 0.10 hrs, Volume= 13,571 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-C7: CI - C7

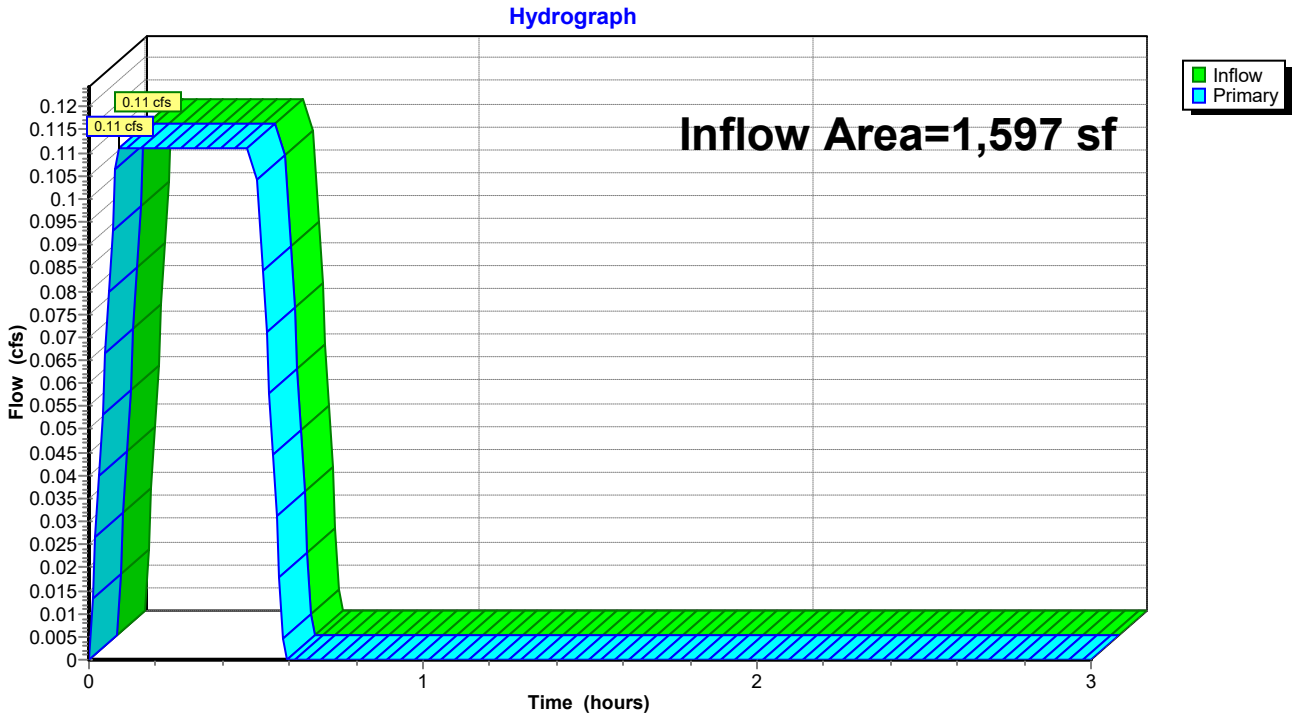


Summary for Pond CI-D1: CI - D1

Inflow Area = 1,597 sf,100.00% Impervious, Inflow Depth = 1.50" for 5-yr event
Inflow = 0.11 cfs @ 0.09 hrs, Volume= 200 cf
Primary = 0.11 cfs @ 0.09 hrs, Volume= 200 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-D2 : CI - D2

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

Pond CI-D1: CI - D1

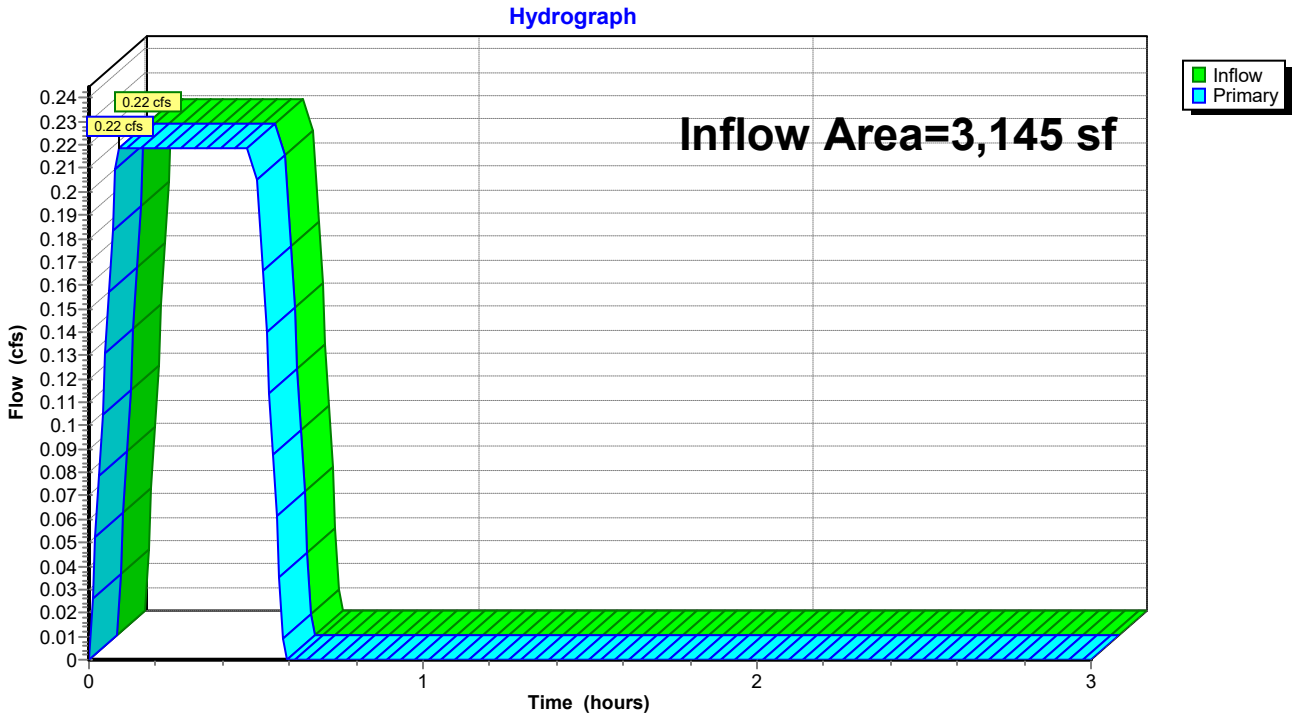


Summary for Pond CI-D2: CI - D2

Inflow Area = 3,145 sf,100.00% Impervious, Inflow Depth = 1.50" for 5-yr event
Inflow = 0.22 cfs @ 0.09 hrs, Volume= 393 cf
Primary = 0.22 cfs @ 0.09 hrs, Volume= 393 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-D2: CI - D2

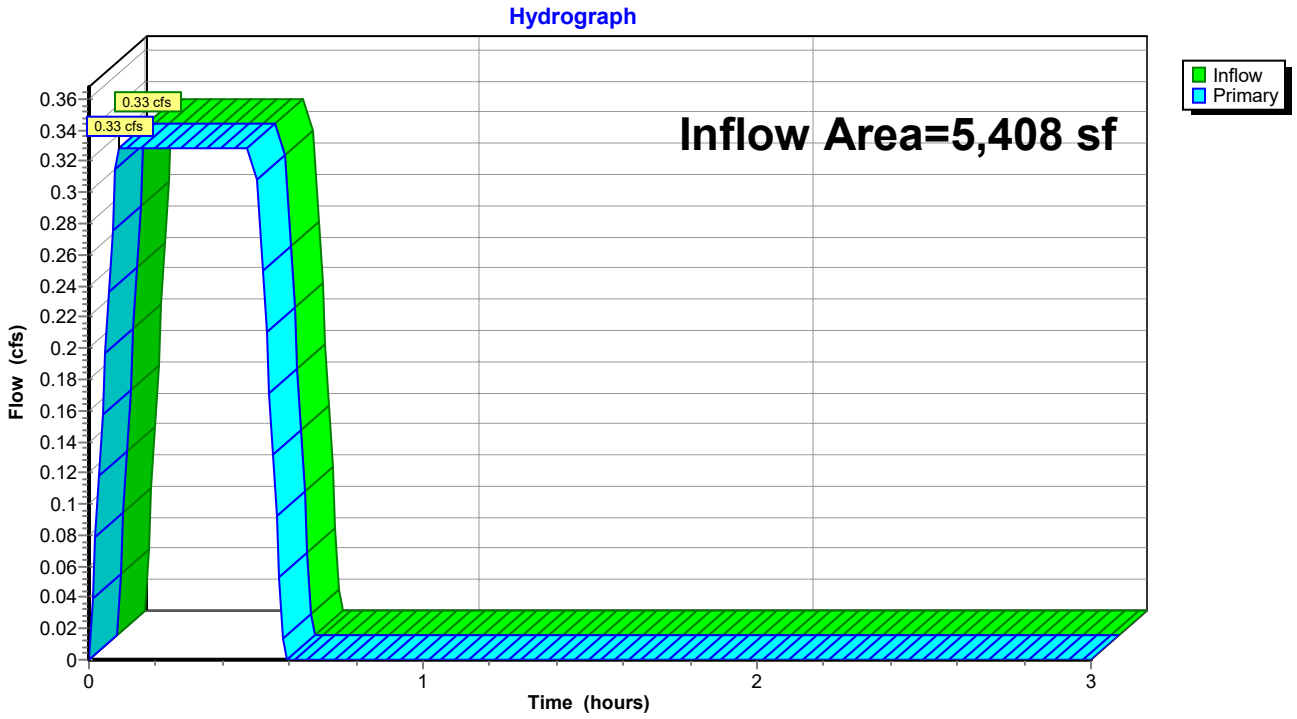


Summary for Pond CI-E1: CI - E1

Inflow Area = 5,408 sf, 77.35% Impervious, Inflow Depth = 1.31" for 5-yr event
Inflow = 0.33 cfs @ 0.09 hrs, Volume= 591 cf
Primary = 0.33 cfs @ 0.09 hrs, Volume= 591 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-E2 : CI - E2

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

Pond CI-E1: CI - E1

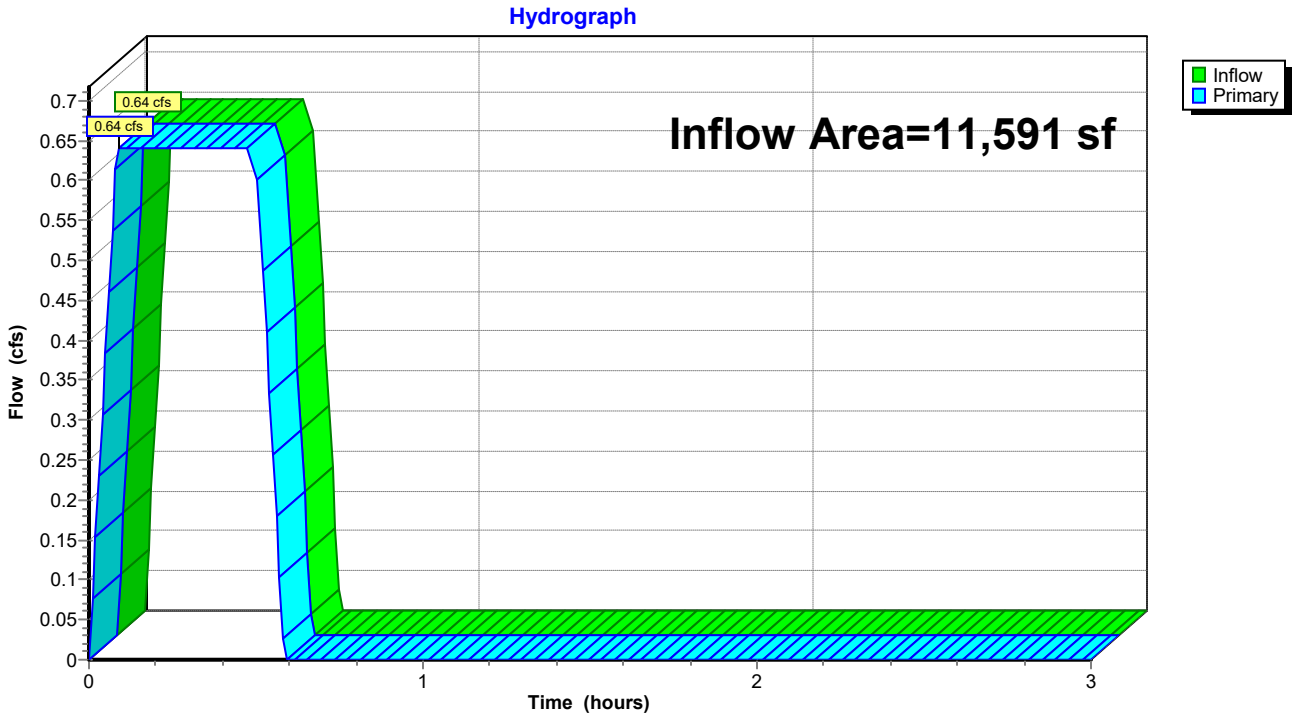


Summary for Pond CI-E2: CI - E2

Inflow Area = 11,591 sf, 64.62% Impervious, Inflow Depth = 1.19" for 5-yr event
Inflow = 0.64 cfs @ 0.09 hrs, Volume= 1,153 cf
Primary = 0.64 cfs @ 0.09 hrs, Volume= 1,153 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-E2: CI - E2



Summary for Pond DP: Existing North Detention Pond

Inflow Area = 321,792 sf, 58.73% Impervious, Inflow Depth = 1.14" for 5-yr event
Inflow = 17.01 cfs @ 0.27 hrs, Volume= 30,614 cf
Outflow = 10.45 cfs @ 0.54 hrs, Volume= 30,614 cf, Atten= 39%, Lag= 16.1 min
Primary = 10.45 cfs @ 0.54 hrs, Volume= 30,614 cf
Routed to Link FINAL : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 382.95' @ 0.54 hrs Storage= 15,693 cf

Plug-Flow detention time= 18.9 min calculated for 30,614 cf (100% of inflow)
Center-of-Mass det. time= 18.7 min (37.2 - 18.5)

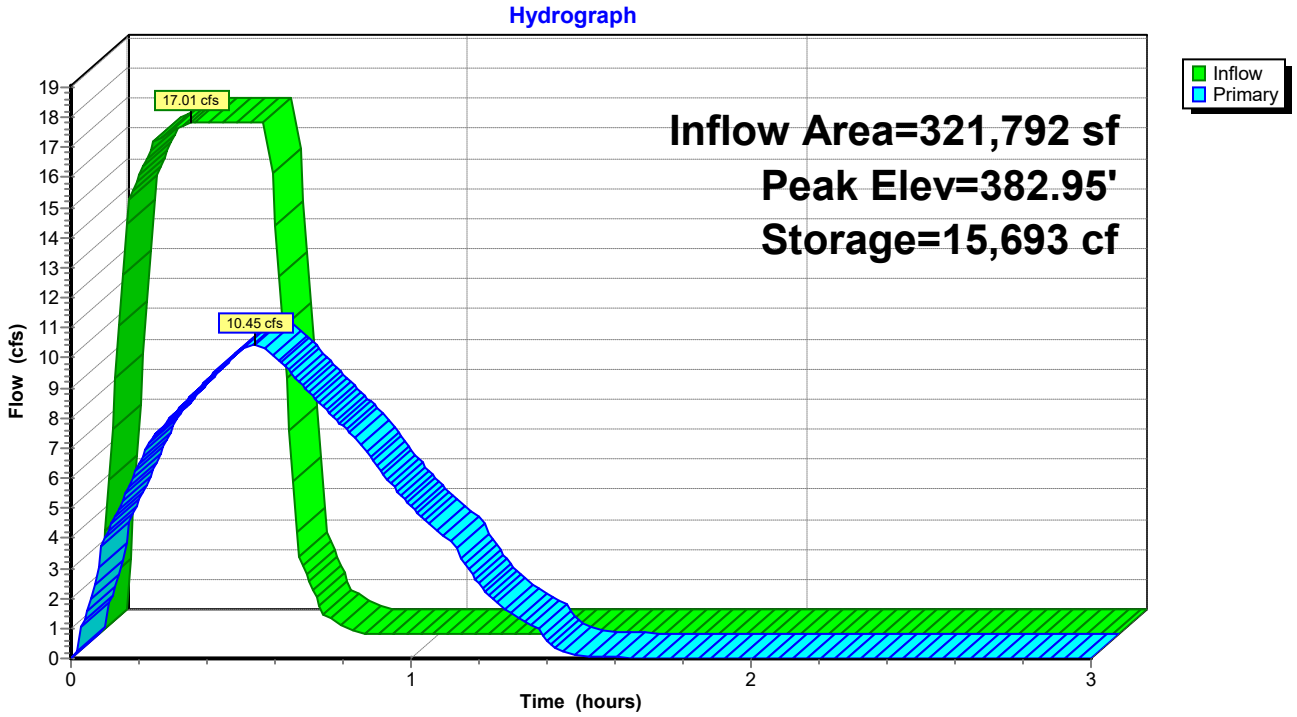
Volume	Invert	Avail.Storage	Storage Description
#1	381.17'	72,742 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.17	0	0
381.50	200	200
382.00	1,825	2,025
382.50	5,265	7,290
383.00	9,300	16,590
383.50	13,733	30,323
384.00	18,578	48,901
384.50	23,841	72,742

Device	Routing	Invert	Outlet Devices
#1	Primary	384.16'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	381.17'	**1.7' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=10.45 cfs @ 0.54 hrs HW=382.95' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 10.45 cfs @ 4.36 fps)

Pond DP: Existing North Detention Pond

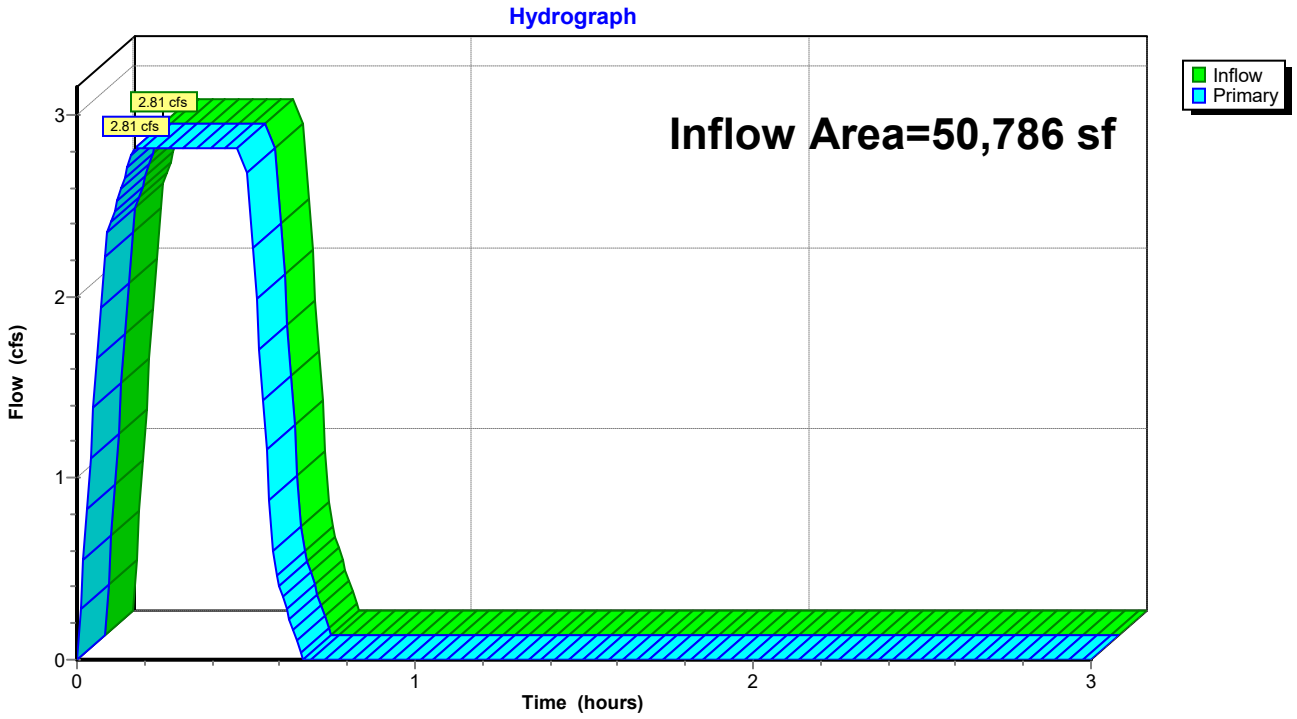


Summary for Pond JB-A2: JB - A2

Inflow Area = 50,786 sf, 65.23% Impervious, Inflow Depth = 1.20" for 5-yr event
Inflow = 2.81 cfs @ 0.17 hrs, Volume= 5,065 cf
Primary = 2.81 cfs @ 0.17 hrs, Volume= 5,065 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A3 : CI - A3

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

Pond JB-A2: JB - A2

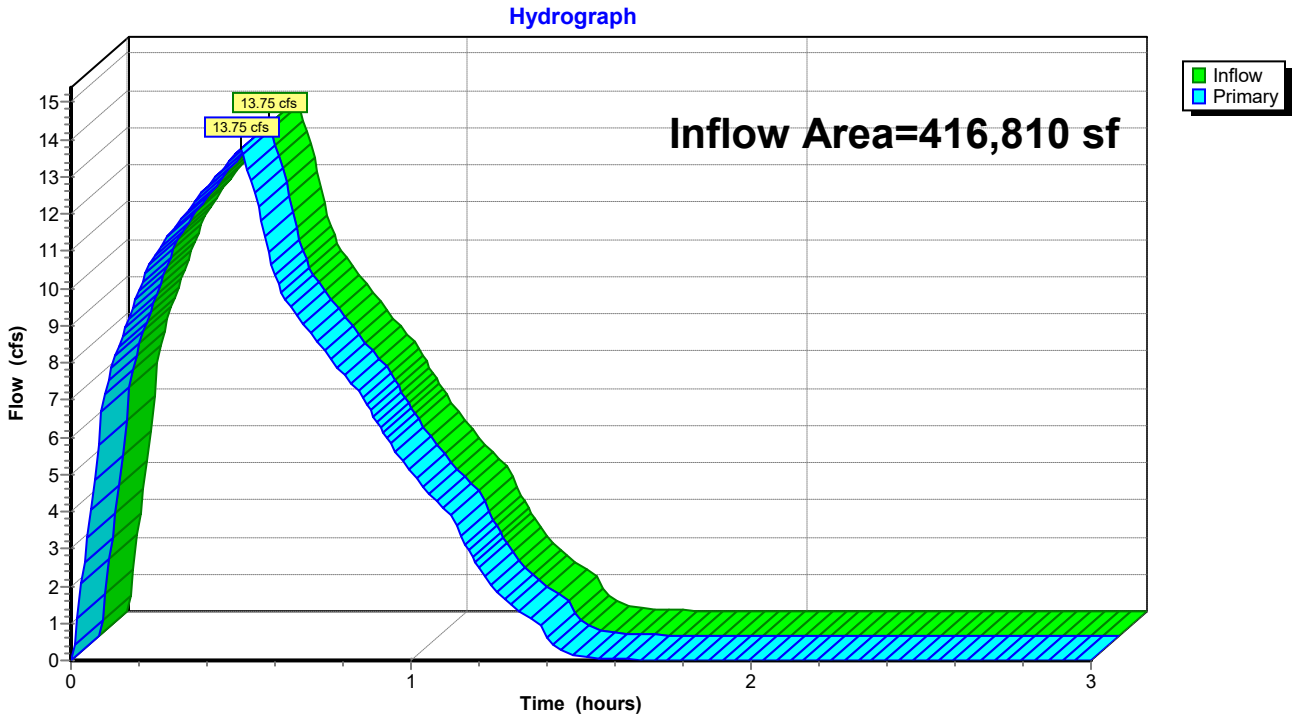


Summary for Link FINAL: APPROX DISCHARGE

Inflow Area = 416,810 sf, 49.40% Impervious, Inflow Depth = 1.06" for 5-yr event
Inflow = 13.75 cfs @ 0.50 hrs, Volume= 36,861 cf
Primary = 13.75 cfs @ 0.50 hrs, Volume= 36,861 cf, Atten= 0%, Lag= 0.0 min

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

Link FINAL: APPROX DISCHARGE



Summary for Subcatchment B1: Drainage Basin B1

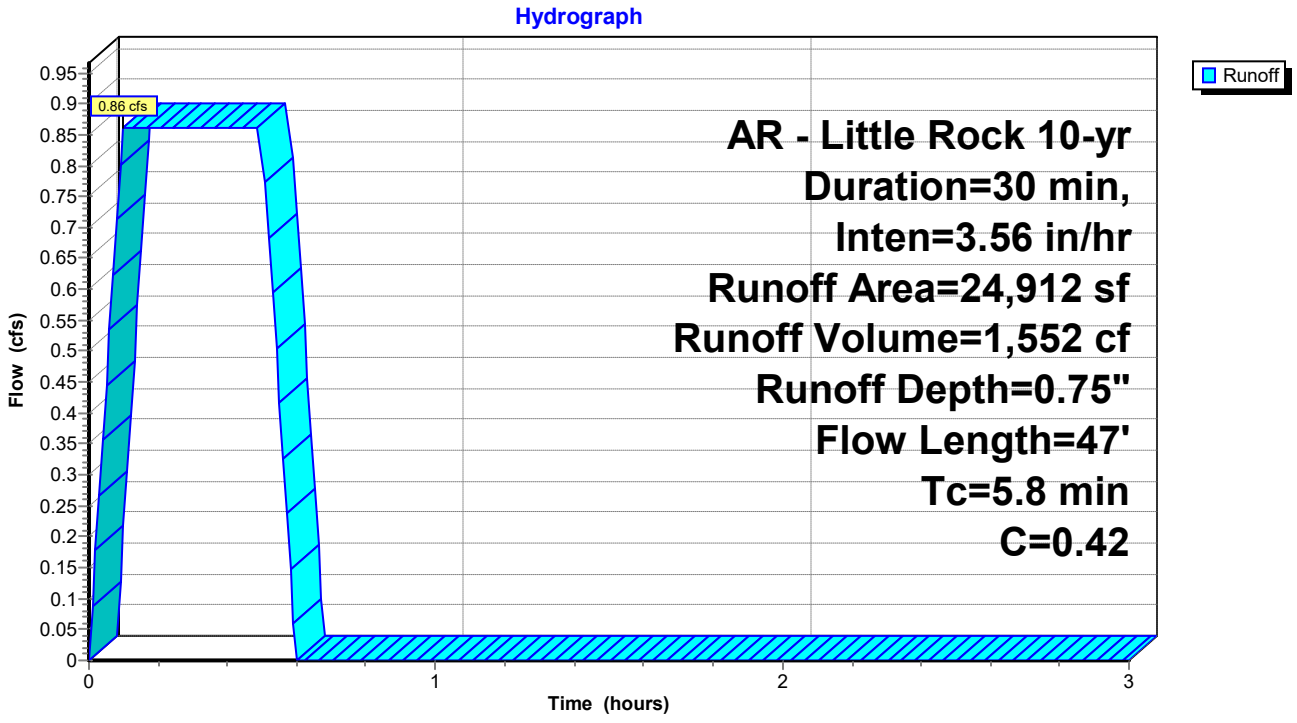
Runoff = 0.86 cfs @ 0.10 hrs, Volume= 1,552 cf, Depth= 0.75"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
24,091	0.40	Sod Yard
821	0.95	Paving, Sidewalks
24,912	0.42	Weighted Average
24,091		96.70% Pervious Area
821		3.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	9	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	38	0.2040	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
5.8	47	Total			

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

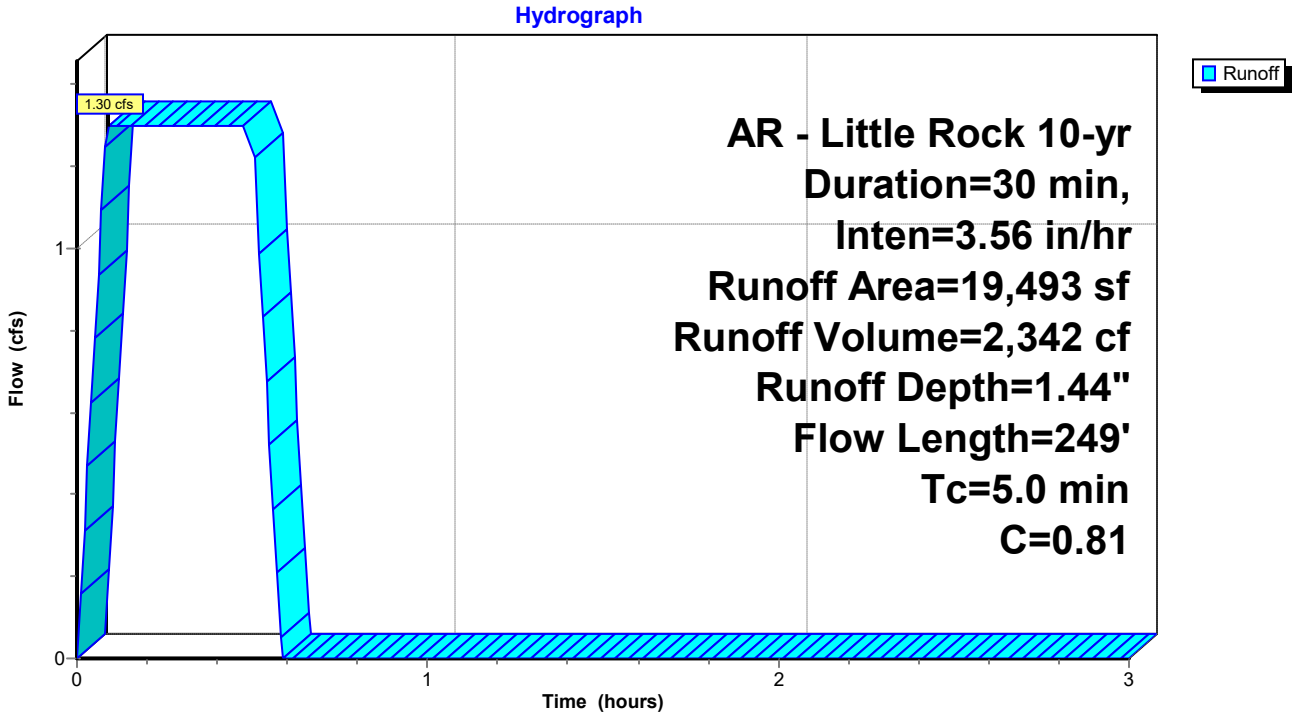
Runoff = 1.30 cfs @ 0.09 hrs, Volume= 2,342 cf, Depth= 1.44"
Routed to Pond CI-A1 : CI - A1

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
4,903	0.40	Sod Yard
14,590	0.95	Paving, Sidewalks
19,493	0.81	Weighted Average
4,903		25.15% Pervious Area
14,590		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	28	0.0450	1.69		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	72	0.0250	3.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	51	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	16	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	8	0.0430	4.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	7	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.2					**Direct Entry, Overland Concentrated Flow (Min)**
5.0	249	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

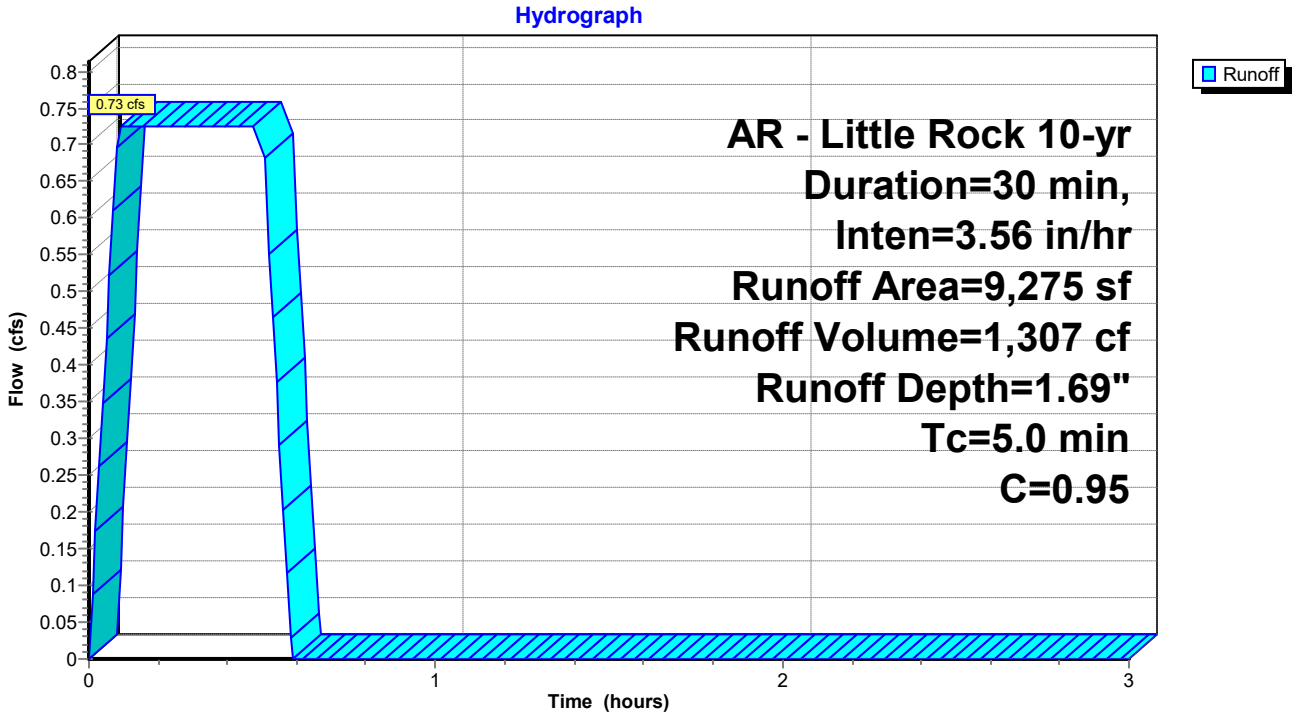
Runoff = 0.73 cfs @ 0.09 hrs, Volume= 1,307 cf, Depth= 1.69"
Routed to Pond JB-A2 : JB - A2

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
9,275	0.95	Roof
9,275		100.00% Impervious Area

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

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

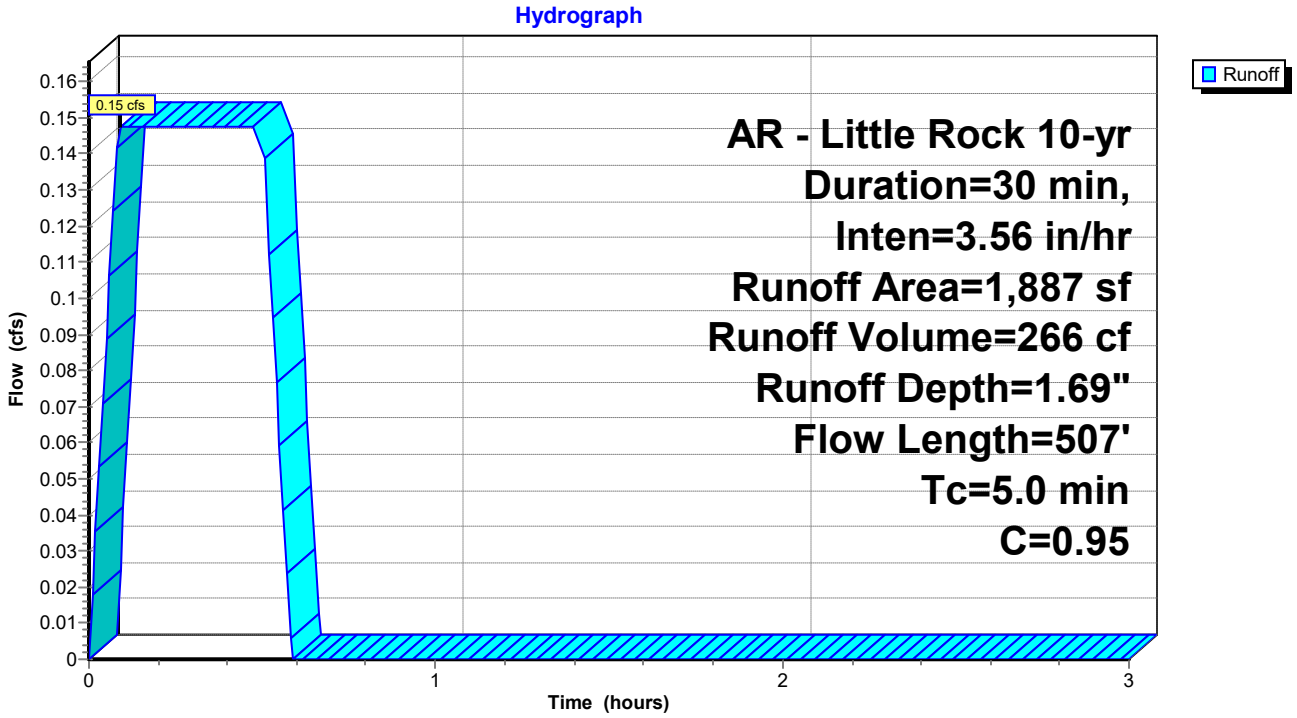
Runoff = 0.15 cfs @ 0.09 hrs, Volume= 266 cf, Depth= 1.69"
Routed to Pond CI-A3 : CI - A3

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,887	0.95	Paving, Sidewalks
1,887	0.95	Weighted Average
1,887		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	30	0.0240	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	13	0.0860	5.95		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	507	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

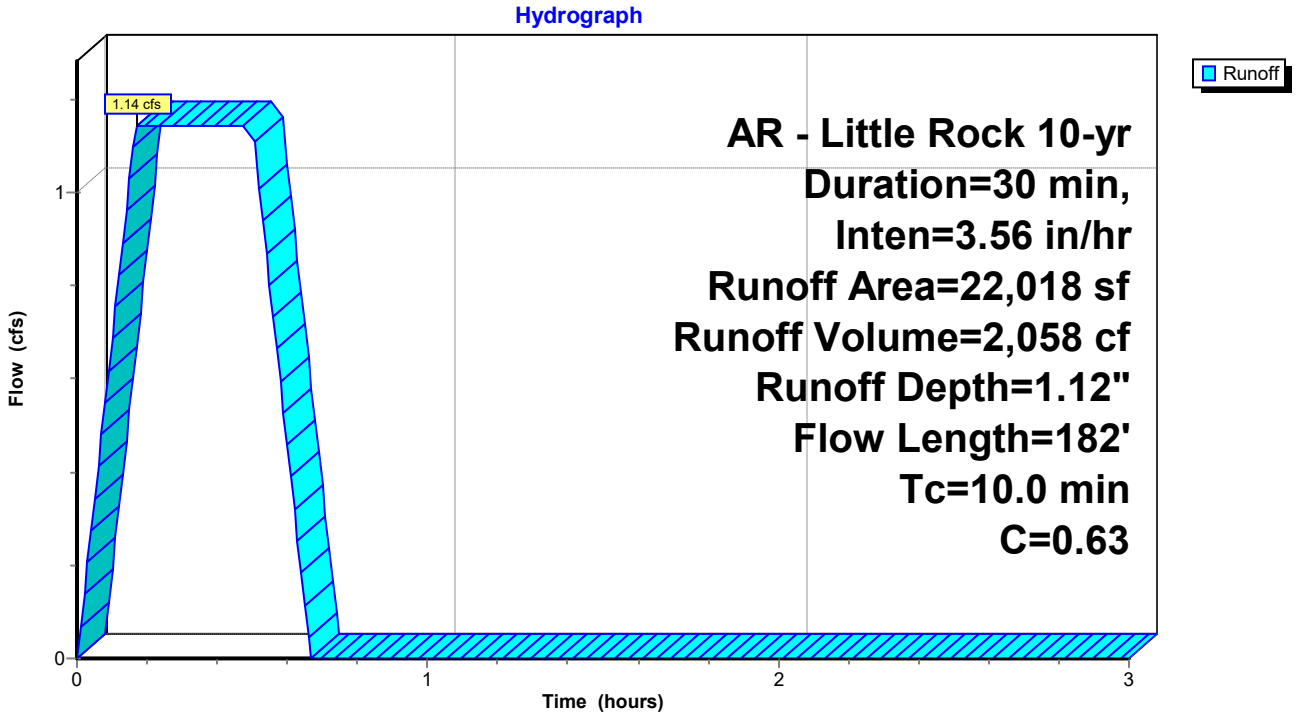
Runoff = 1.14 cfs @ 0.17 hrs, Volume= 2,058 cf, Depth= 1.12"
Routed to Pond CI-B2 : CI - B2

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
12,753	0.40	Sod Yard
9,265	0.95	Paving, Sidewalks
22,018	0.63	Weighted Average
12,753		57.92% Pervious Area
9,265		42.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.89		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
9.1	93	0.0150	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.4	40	0.0110	1.57		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	33	0.0190	2.07		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	6	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0	182	Total			

Subcatchment B5: Drainage Basin B5



Summary for Subcatchment B6: Drainage Basin B6

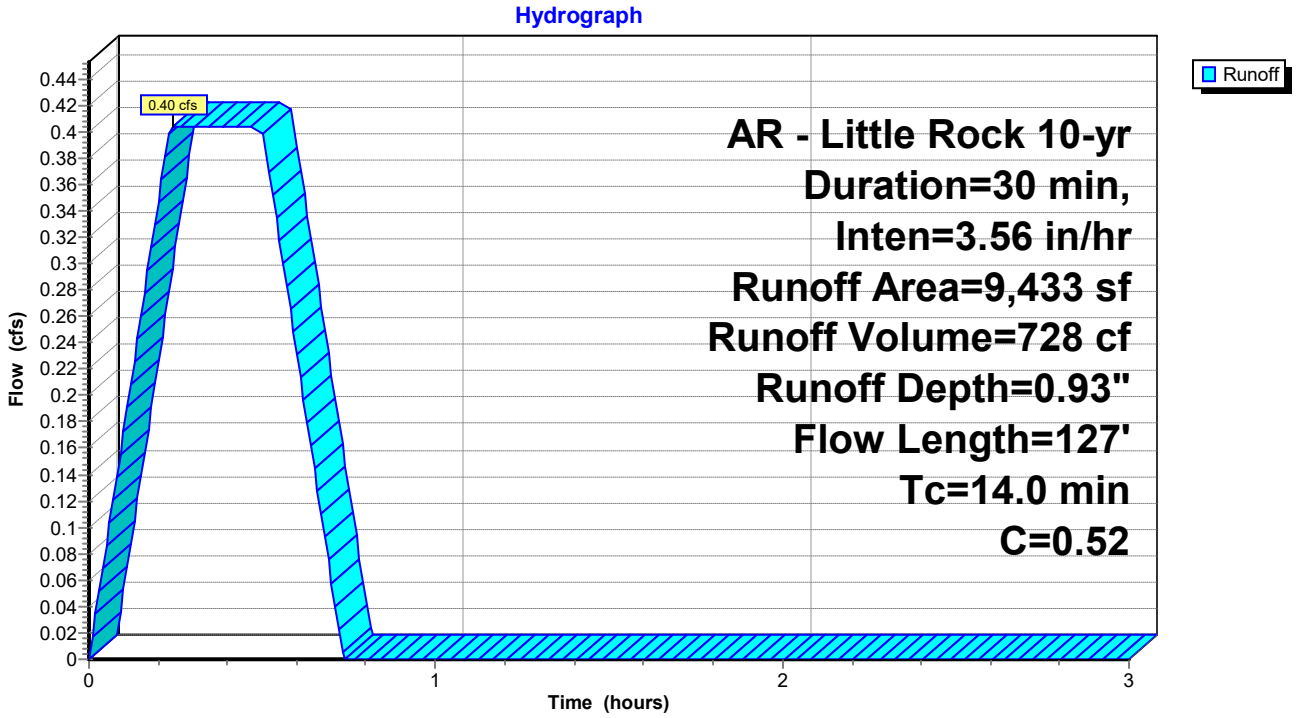
Runoff = 0.40 cfs @ 0.24 hrs, Volume= 728 cf, Depth= 0.93"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
7,346	0.40	Sod Yard
2,087	0.95	Paving, Sidewalks
9,433	0.52	Weighted Average
7,346		77.88% Pervious Area
2,087		22.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	79	0.0570	0.13		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	21	0.0620	0.10		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.0	9	0.0620	3.73		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	18	0.1080	4.93		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
14.0	127	Total			

Subcatchment B6: Drainage Basin B6



Summary for Subcatchment C1: Drainage Basin C1

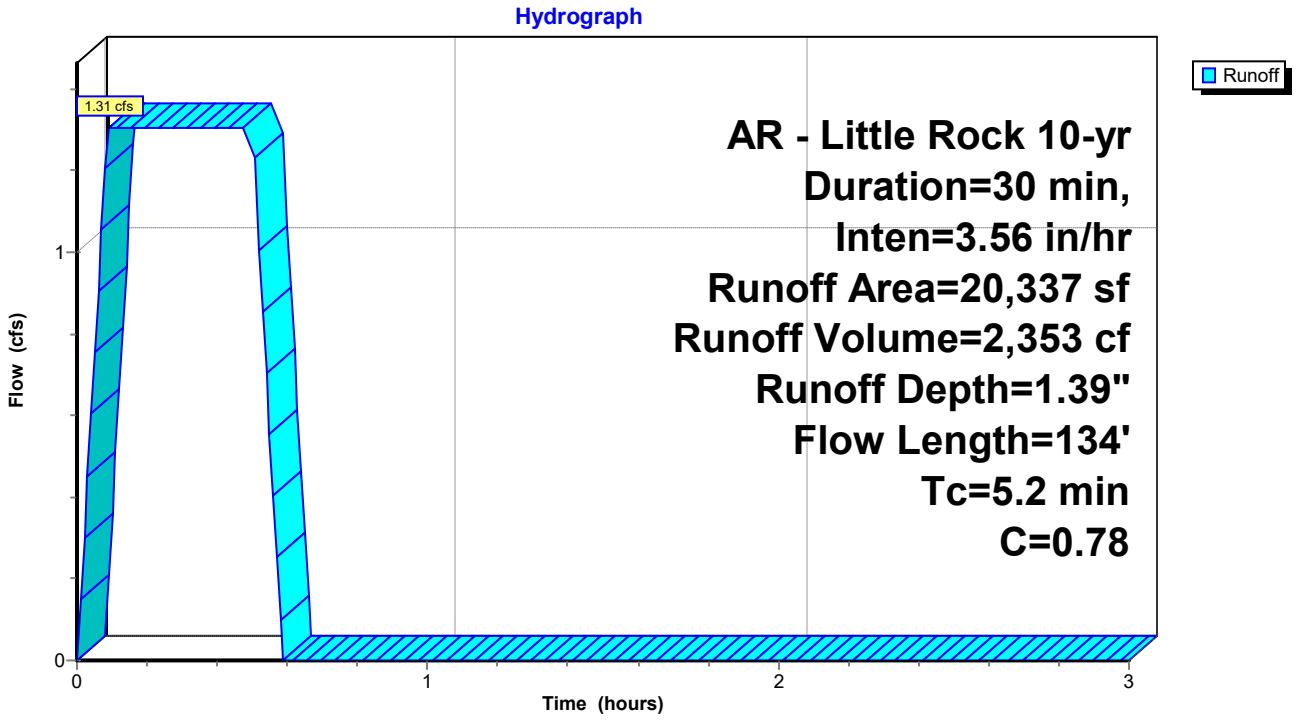
Runoff = 1.31 cfs @ 0.09 hrs, Volume= 2,353 cf, Depth= 1.39"
Routed to Pond CI-C1 : CI - C1

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
6,135	0.40	Sod Yard
14,202	0.95	Paving, Sidewalks
20,337	0.78	Weighted Average
6,135		30.17% Pervious Area
14,202		69.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.4	102	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.2	134	Total			

Subcatchment C1: Drainage Basin C1



Summary for Subcatchment C10: Drainage Basin C10

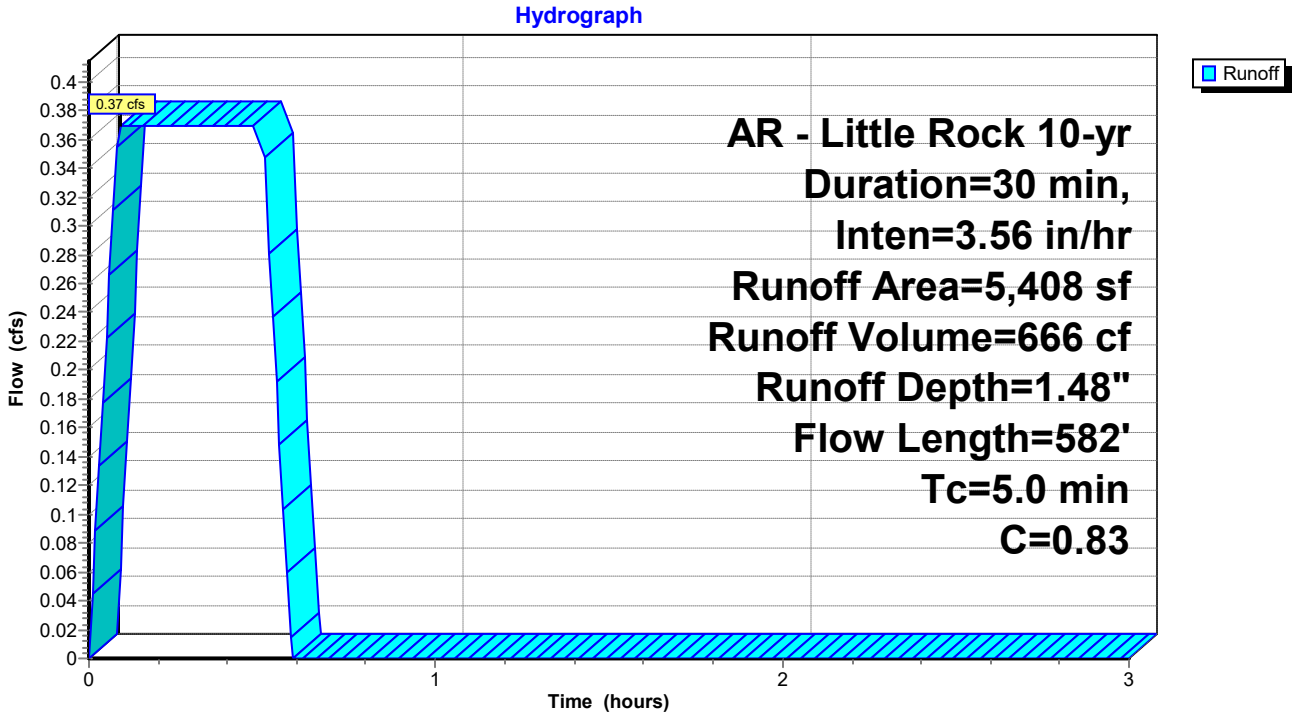
Runoff = 0.37 cfs @ 0.09 hrs, Volume= 666 cf, Depth= 1.48"
Routed to Pond CI-E1 : CI - E1

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
1,225	0.40	Sod Yard
4,183	0.95	Paving, Sidewalks
5,408	0.83	Weighted Average
1,225		22.65% Pervious Area
4,183		77.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	29	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	36	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	48	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	13	0.0350	3.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.9	415		1.77		**Direct Entry, Concentrated Flow (Min)**
5.0	582	Total			

Subcatchment C10: Drainage Basin C10



Summary for Subcatchment C11: Drainage Basin C11

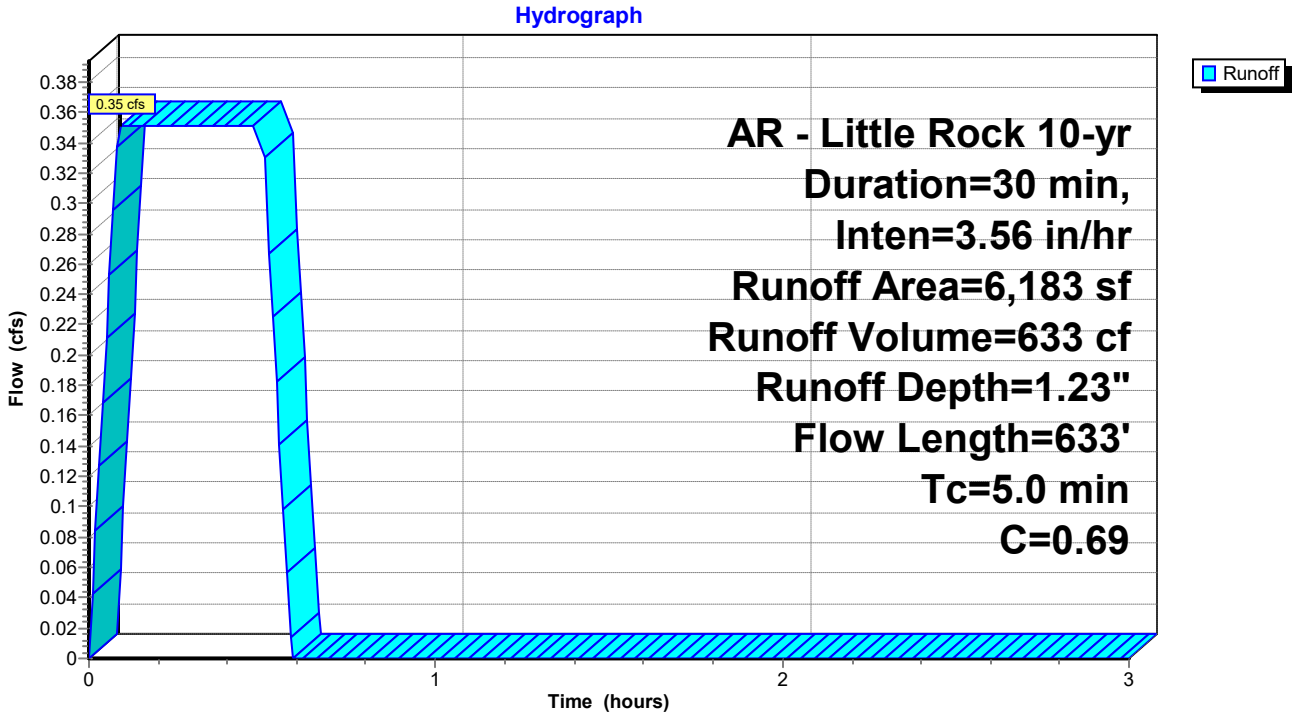
Runoff = 0.35 cfs @ 0.09 hrs, Volume= 633 cf, Depth= 1.23"
Routed to Pond CI-E2 : CI - E2

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
2,876	0.40	Sod Yard
3,307	0.95	Paving, Sidewalks
6,183	0.69	Weighted Average
2,876		46.51% Pervious Area
3,307		53.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0200	1.19		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	33	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	37	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	633	Total			

Subcatchment C11: Drainage Basin C11



Summary for Subcatchment C12: Drainage Basin C12

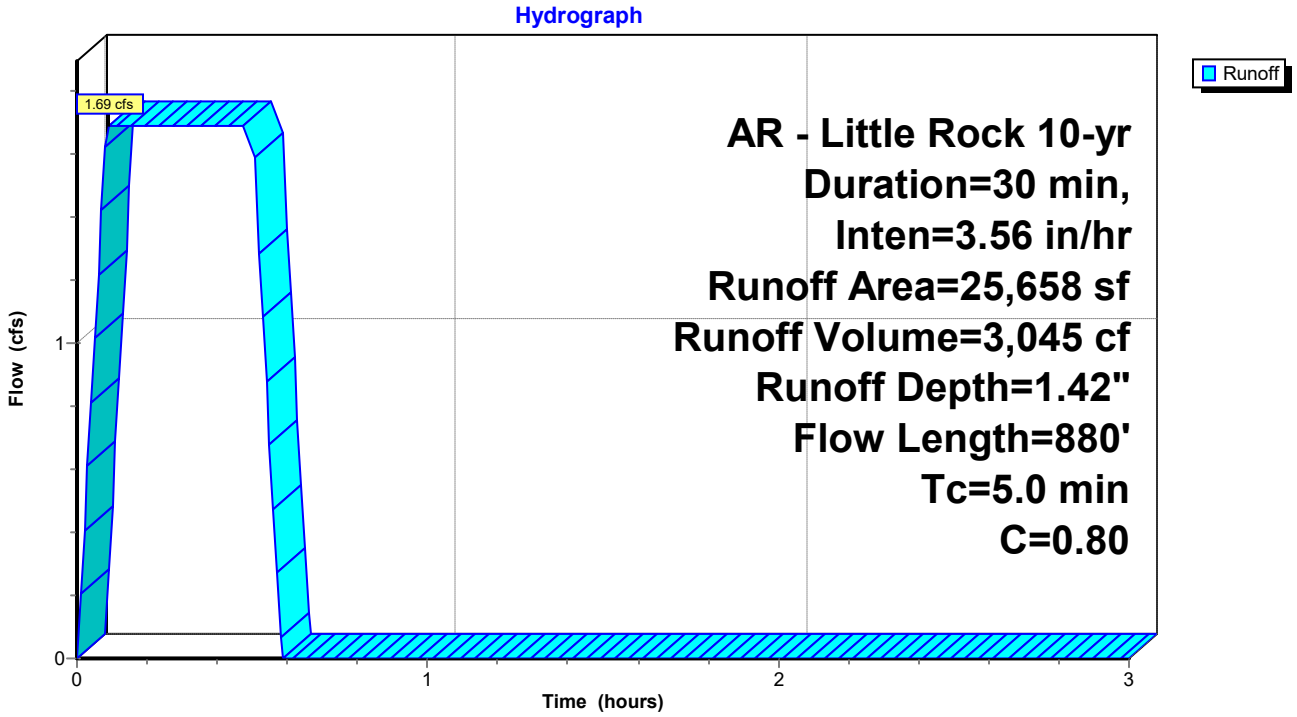
Runoff = 1.69 cfs @ 0.09 hrs, Volume= 3,045 cf, Depth= 1.42"
Routed to Pond CI-C7 : CI - C7

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
7,218	0.40	Sod Yard
18,440	0.95	Paving, Sidewalks
25,658	0.80	Weighted Average
7,218		28.13% Pervious Area
18,440		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0360	1.50		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0190	0.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.9	49	0.0020	0.91		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	96	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	94	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	25	0.0450	4.31		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	39	0.0490	4.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0460	4.35		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	11	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0440	4.26		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.3	415		3.01		**Direct Entry, Concentrated Flow (Min)**
5.0	880	Total			

Subcatchment C12: Drainage Basin C12



Summary for Subcatchment C13: Drainage Basin C13

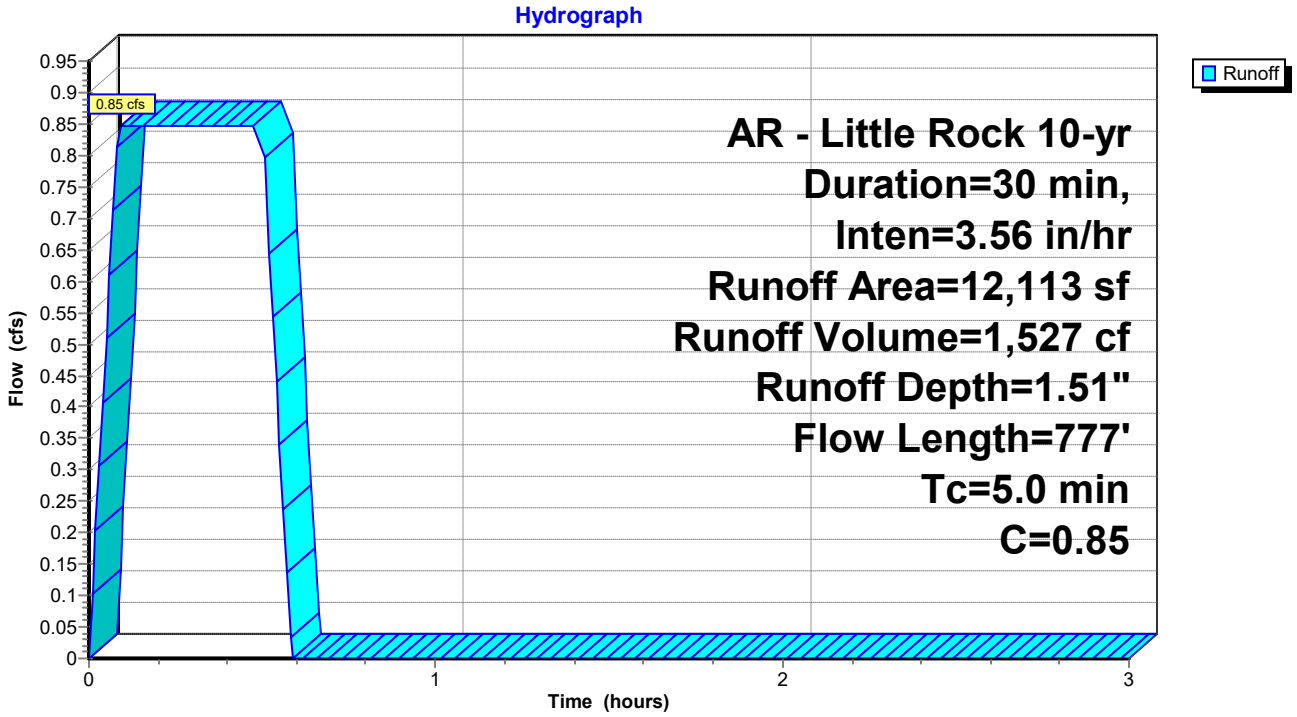
Runoff = 0.85 cfs @ 0.09 hrs, Volume= 1,527 cf, Depth= 1.51"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
2,240	0.40	Sod Yard
9,873	0.95	Paving, Sidewalks
12,113	0.85	Weighted Average
2,240		18.49% Pervious Area
9,873		81.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	75	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	42	0.0730	5.48		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	74	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	32	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.6	415		1.92		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	777	Total			

Subcatchment C13: Drainage Basin C13



Summary for Subcatchment C14: Drainage Basin C14

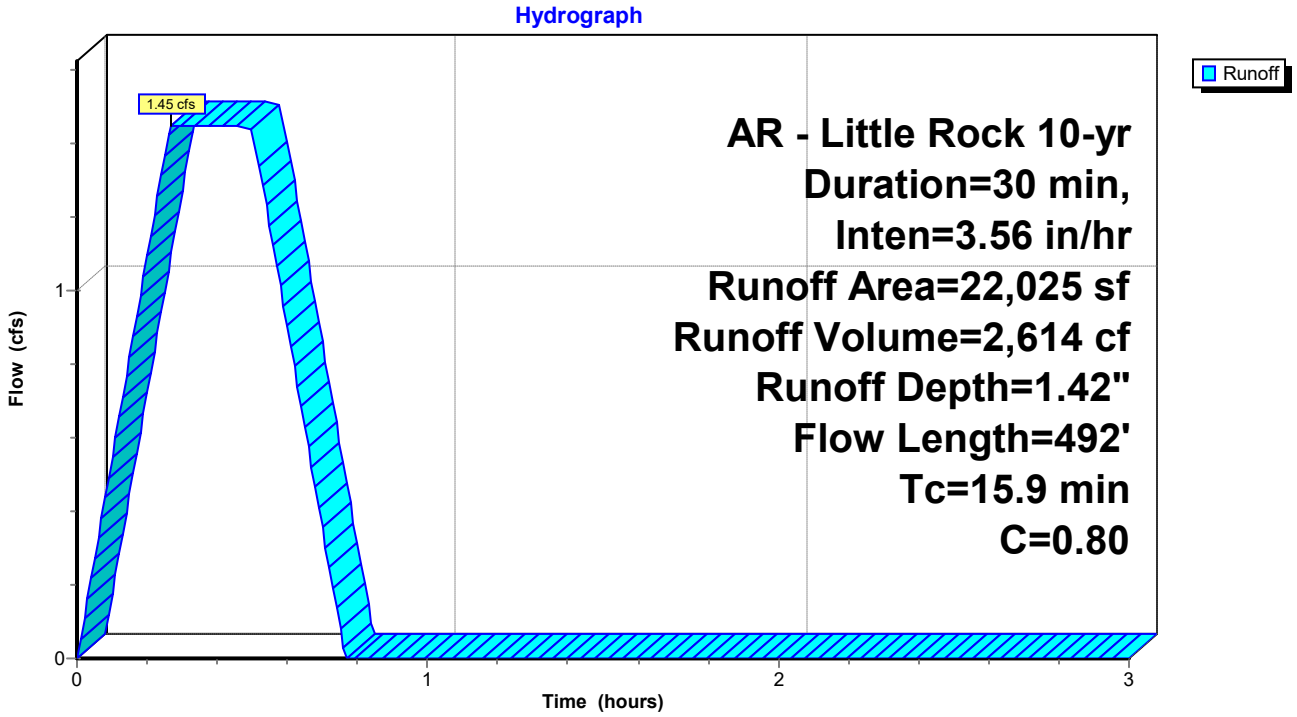
Runoff = 1.45 cfs @ 0.27 hrs, Volume= 2,614 cf, Depth= 1.42"
Routed to Pond CI-A5 : CI - A5

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
6,127	0.40	Sod Yard
15,898	0.95	Paving, Sidewalks
22,025	0.80	Weighted Average
6,127		27.82% Pervious Area
15,898		72.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	5	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
9.2	45	0.0250	0.08		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.8	41	0.1940	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	6	0.0100	0.68		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	51	0.0870	5.99		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0310	3.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0270	3.34		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	20	0.0400	4.06		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	34	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	58	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	49	0.0840	5.88		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
15.9	492	Total			

Subcatchment C14: Drainage Basin C14



Summary for Subcatchment C15: Drainage Basin C15

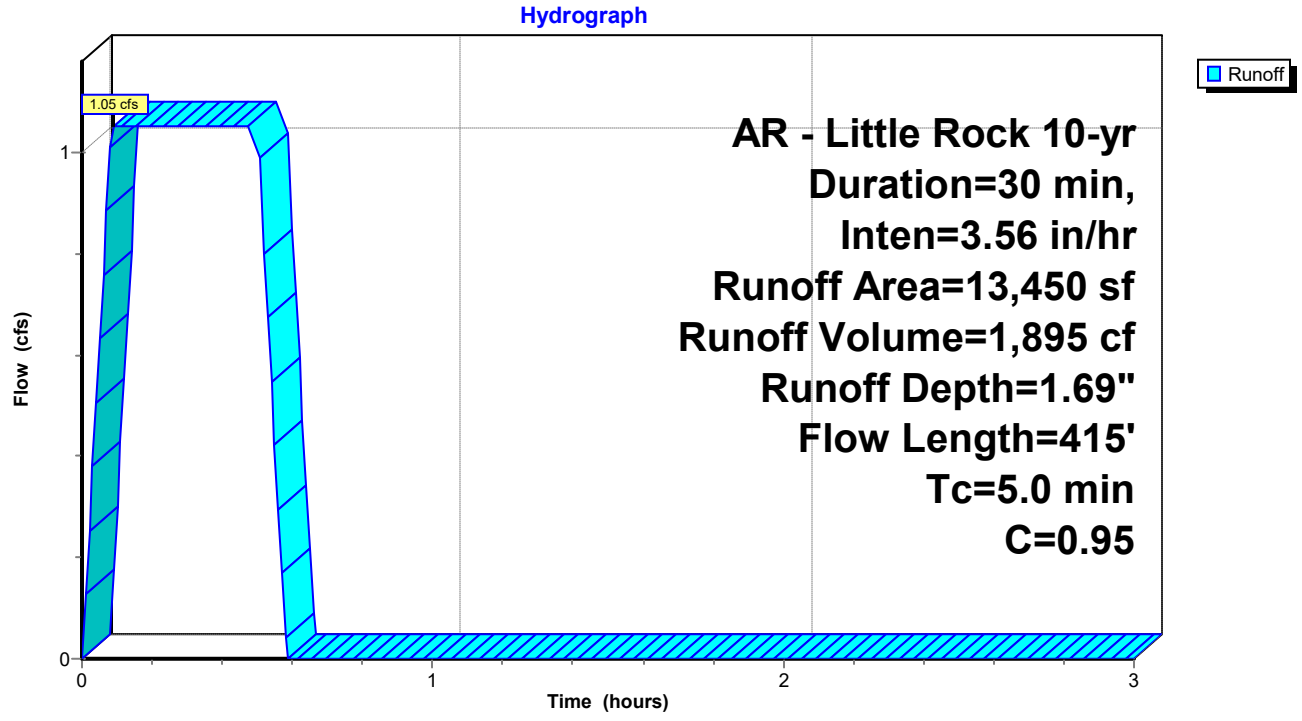
Runoff = 1.05 cfs @ 0.09 hrs, Volume= 1,895 cf, Depth= 1.69"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
13,450	0.95	Paving, Sidewalks
13,450	0.95	Weighted Average
13,450		100.00% 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 C15: Drainage Basin C15



Summary for Subcatchment C16: Drainage Basin C16

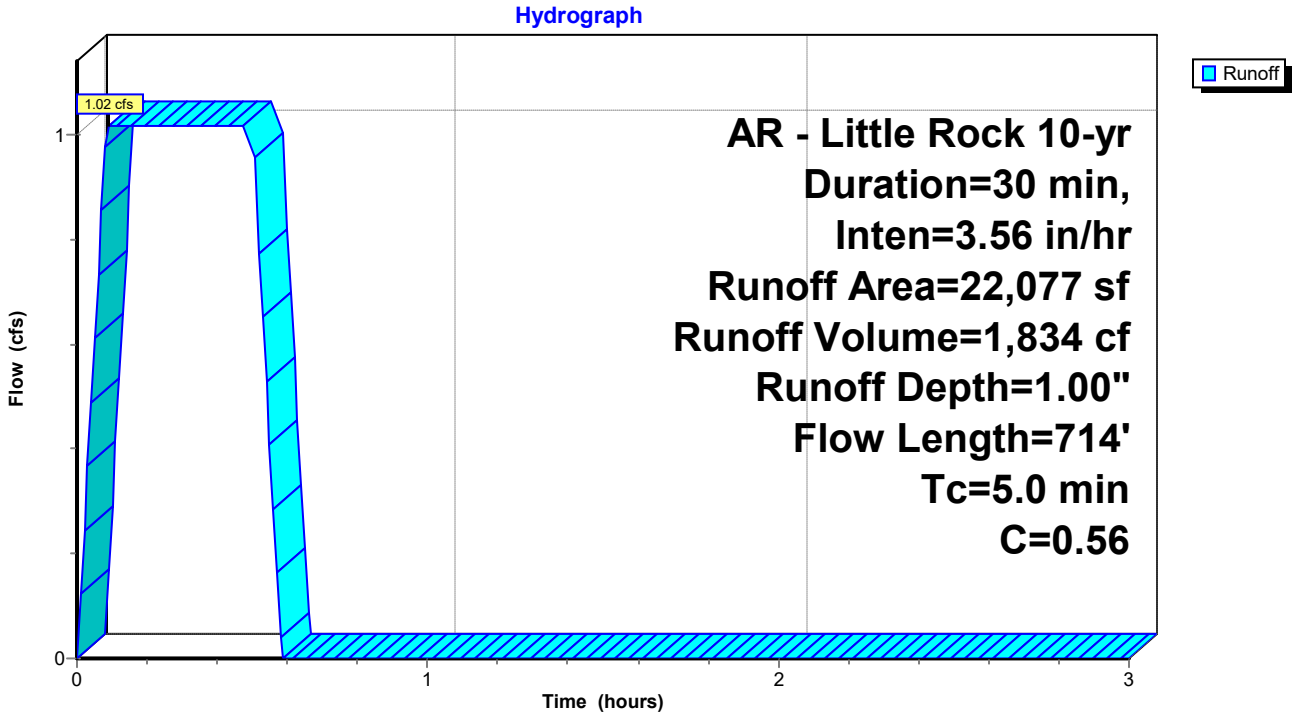
Runoff = 1.02 cfs @ 0.09 hrs, Volume= 1,834 cf, Depth= 1.00"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
15,465	0.40	Sod Yard
6,612	0.95	Paving, Sidewalks
22,077	0.56	Weighted Average
15,465		70.05% Pervious Area
6,612		29.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0190	1.18		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0100	0.66		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	51	0.0500	1.98		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	12	0.1540	2.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	50	0.1330	7.40		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.1	50	0.1170	6.94		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0430	4.21		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.3	59	0.0370	3.90		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
3.3	415		2.10		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	714	Total			

Subcatchment C16: Drainage Basin C16



Summary for Subcatchment C17: Drainage Basin C17

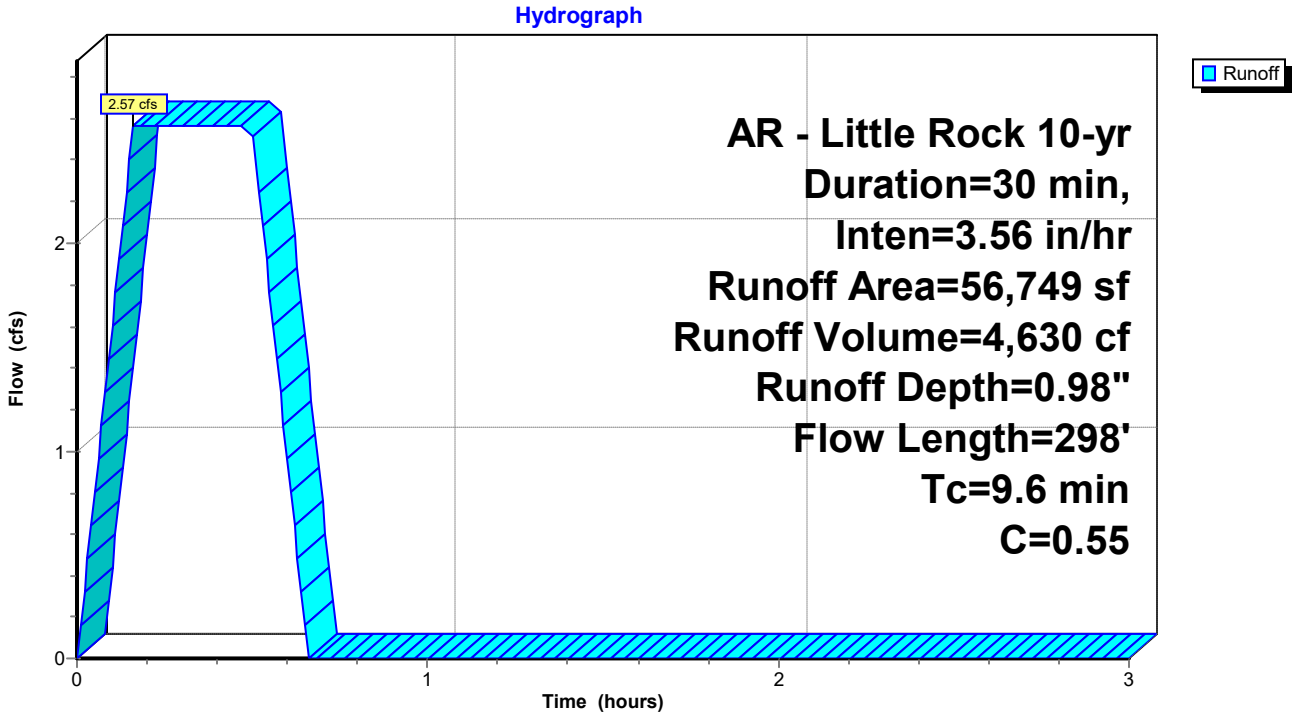
Runoff = 2.57 cfs @ 0.16 hrs, Volume= 4,630 cf, Depth= 0.98"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
40,914	0.40	Sod Yard
15,835	0.95	Paving, Sidewalks
56,749	0.55	Weighted Average
40,914		72.10% Pervious Area
15,835		27.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	43	0.0410	0.15		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.9	43	0.0690	0.19		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	41	0.0980	4.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	61	0.0730	4.05		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0570	3.58		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	64	0.0450	3.18		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
9.6	298	Total			

Subcatchment C17: Drainage Basin C17



Summary for Subcatchment C18: Drainage Basin C18

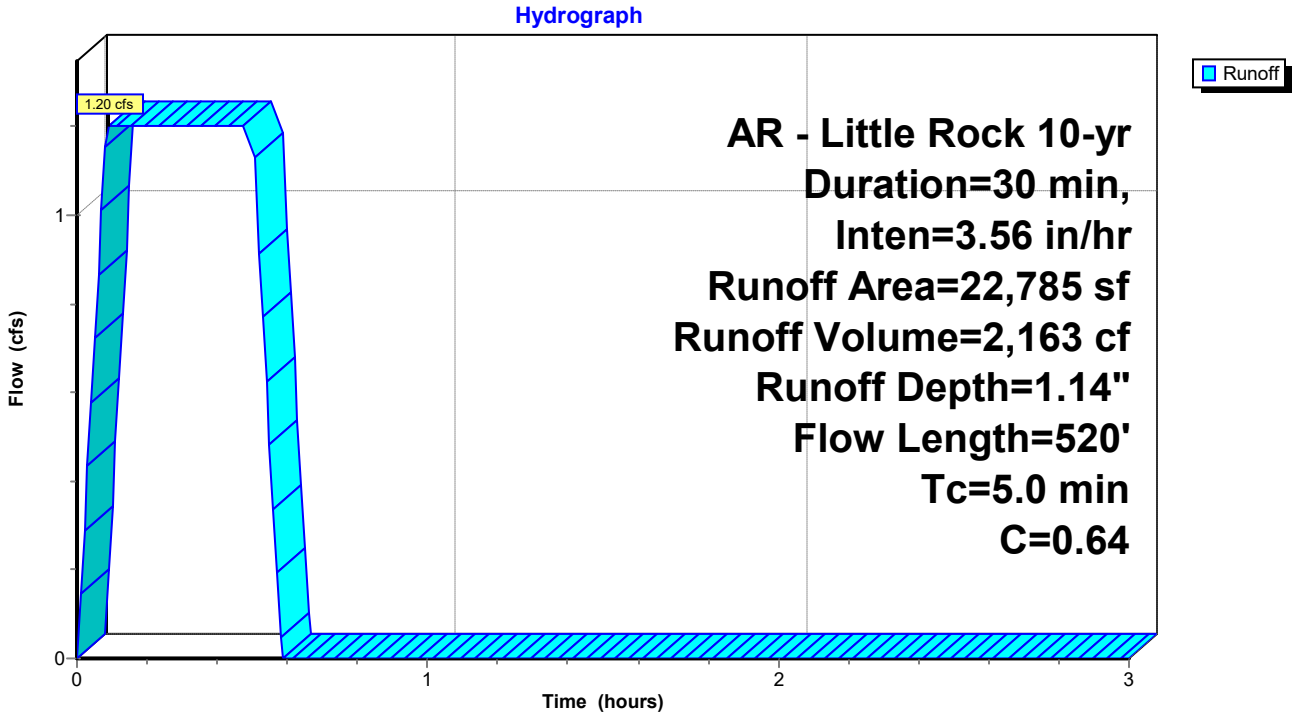
Runoff = 1.20 cfs @ 0.09 hrs, Volume= 2,163 cf, Depth= 1.14"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
12,812	0.40	Sod Yard
9,973	0.95	Paving, Sidewalks
22,785	0.64	Weighted Average
12,812		56.23% Pervious Area
9,973		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2980	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.3	8	0.0100	0.04		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	80	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	415		17.29		**Direct Entry, Concentrated Flow (Min)**
5.0	520	Total			

Subcatchment C18: Drainage Basin C18



Summary for Subcatchment C19: Drainage Basin C19

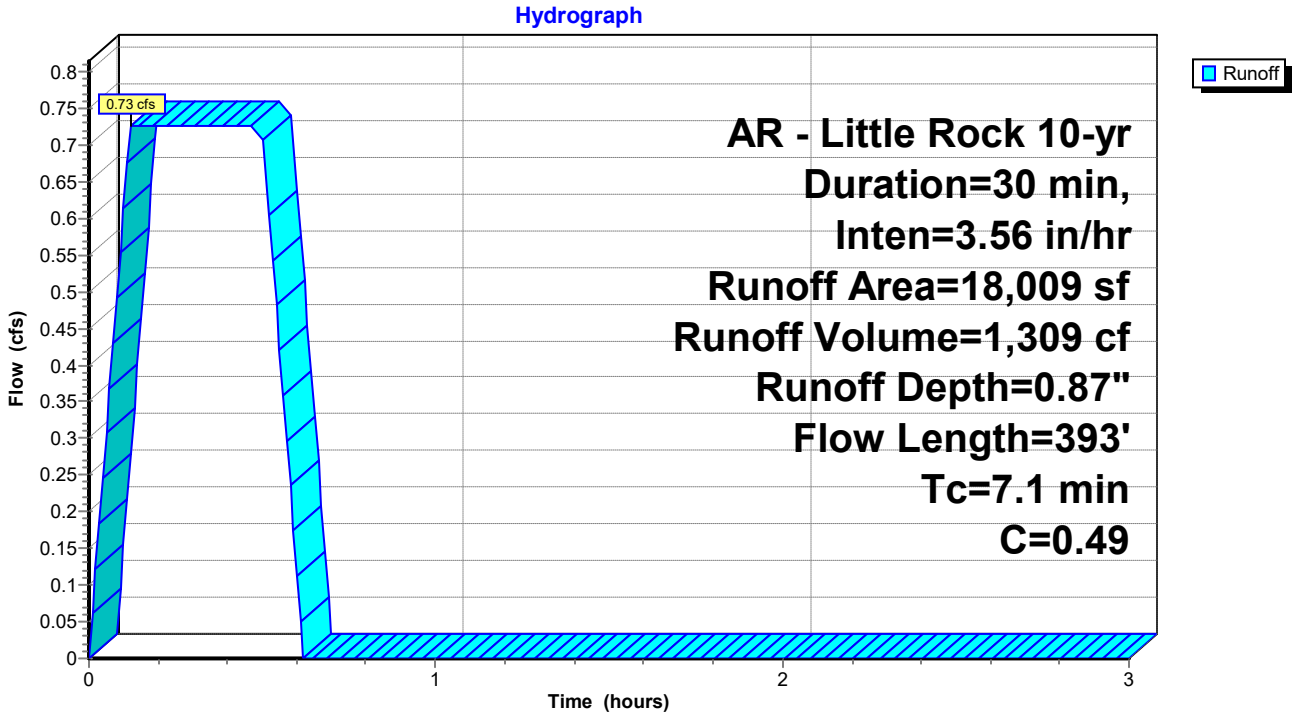
Runoff = 0.73 cfs @ 0.12 hrs, Volume= 1,309 cf, Depth= 0.87"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
15,129	0.40	Sod Yard
2,880	0.95	Paving, Sidewalks
18,009	0.49	Weighted Average
15,129		84.01% Pervious Area
2,880		15.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	34	0.1110	0.21		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.3	66	0.2450	0.34		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.0	9	0.2450	7.42		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.5	106	0.0610	3.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0800	4.24		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	41	0.0960	4.65		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	66	0.0680	3.91		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	19	0.1070	6.64		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
7.1	393	Total			

Subcatchment C19: Drainage Basin C19



Summary for Subcatchment C2: Drainage Basin C2

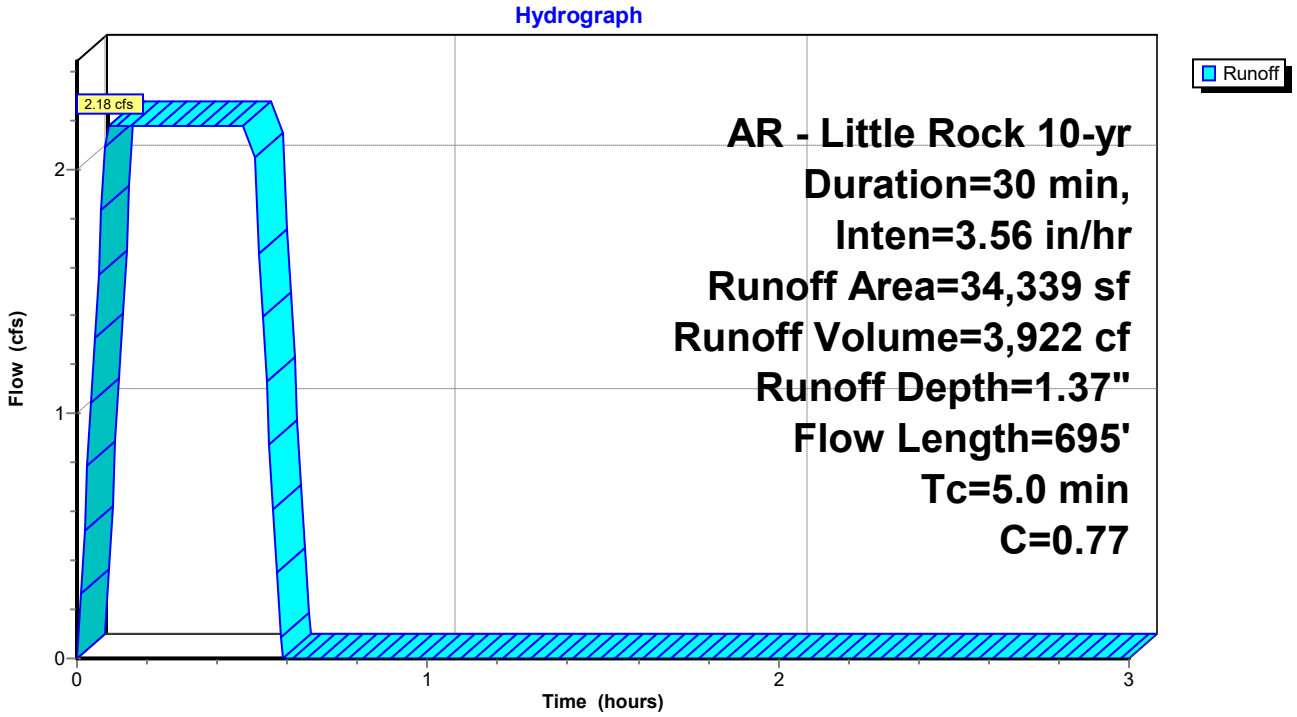
Runoff = 2.18 cfs @ 0.09 hrs, Volume= 3,922 cf, Depth= 1.37"
Routed to Pond CI-C2 : CI - C2

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
11,376	0.40	Sod Yard
22,963	0.95	Roof, Paving, Sidewalks
34,339	0.77	Weighted Average
11,376		33.13% Pervious Area
22,963		66.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.14		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	74	0.0240	3.14		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	21	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	148	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.5	415		1.98		**Direct Entry, Concentrated Flow (Min)**
5.0	695	Total			

Subcatchment C2: Drainage Basin C2



Summary for Subcatchment C20: Drainage Basin C20

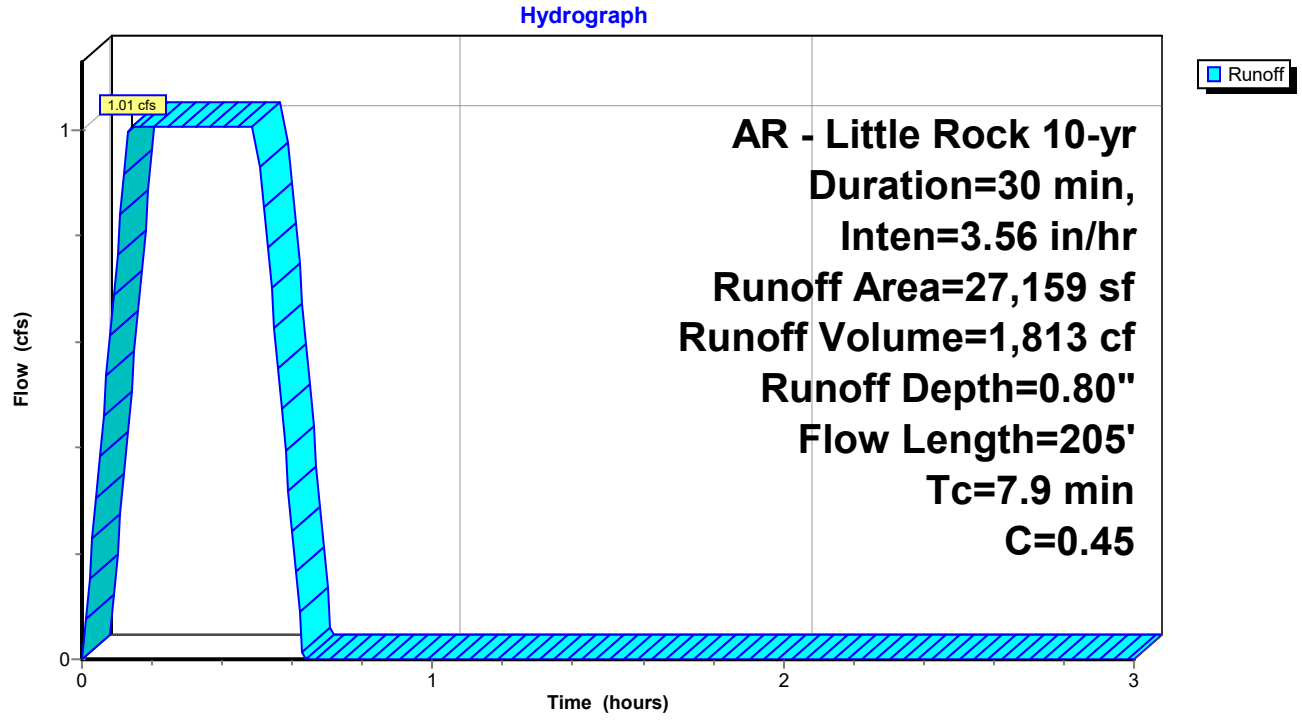
Runoff = 1.01 cfs @ 0.14 hrs, Volume= 1,813 cf, Depth= 0.80"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
24,838	0.40	Sod Yard
2,321	0.95	Paving, Sidewalks
27,159	0.45	Weighted Average
24,838		91.45% Pervious Area
2,321		8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	45	0.1430	0.25		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
4.5	55	0.0780	0.20		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	37	0.0780	4.19		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	68	0.0710	4.00		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
7.9	205	Total			

Subcatchment C20: Drainage Basin C20



Summary for Subcatchment C21: Drainage Basin C21

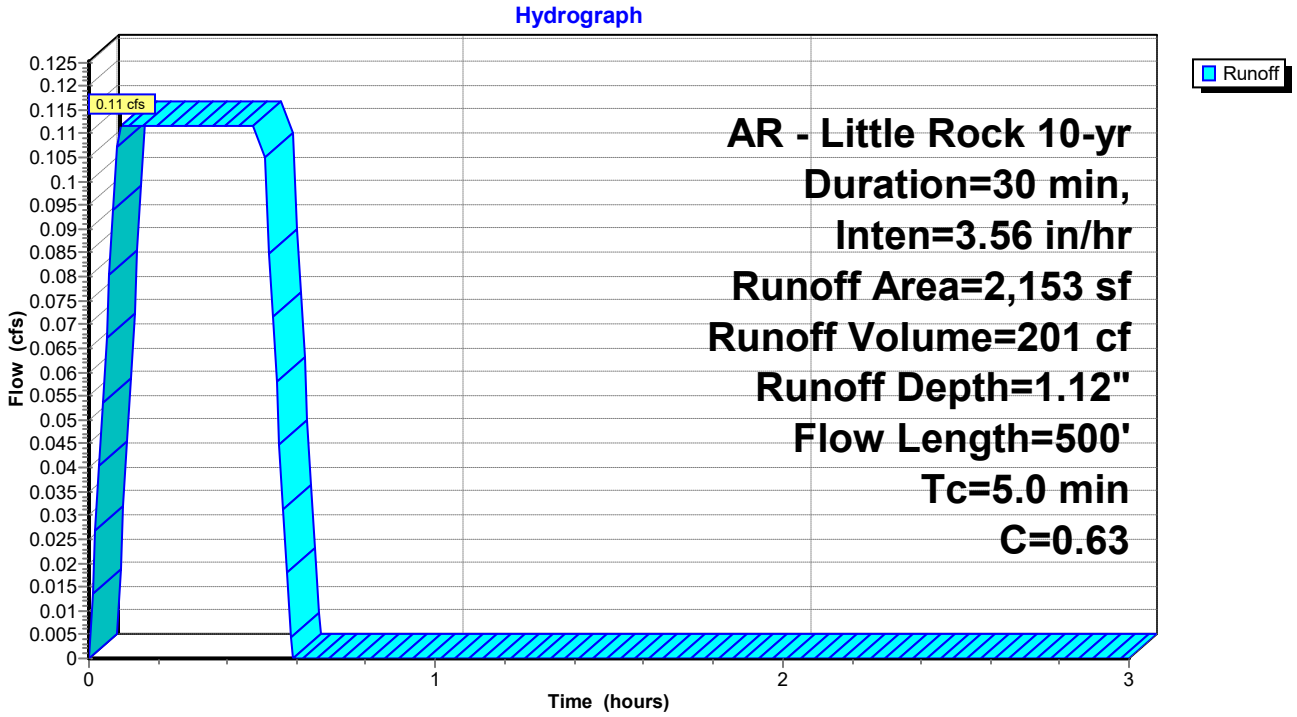
Runoff = 0.11 cfs @ 0.09 hrs, Volume= 201 cf, Depth= 1.12"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
1,234	0.40	Sod Yard
919	0.95	Paving, Sidewalks
2,153	0.63	Weighted Average
1,234		57.32% Pervious Area
919		42.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	2	0.2500	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.3	33	0.0520	1.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.8	24	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	26	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.5	415		13.83		**Direct Entry, Concentrated Flow (Min)**
5.0	500	Total			

Subcatchment C21: Drainage Basin C21



Summary for Subcatchment C3: Drainage Basin C3

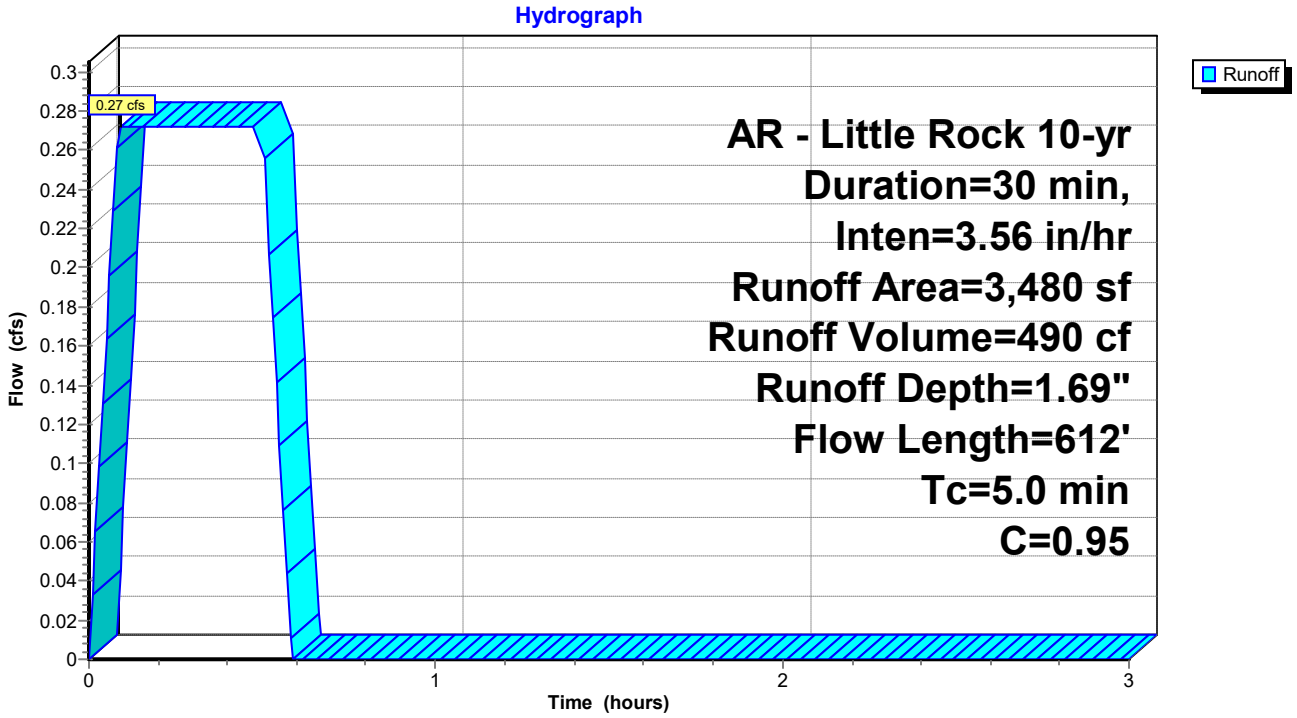
Runoff = 0.27 cfs @ 0.09 hrs, Volume= 490 cf, Depth= 1.69"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
3,480	0.95	Paving, Sidewalks
3,480	0.95	Weighted Average
3,480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	10	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	147	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	612	Total			

Subcatchment C3: Drainage Basin C3



Summary for Subcatchment C4: Drainage Basin C4

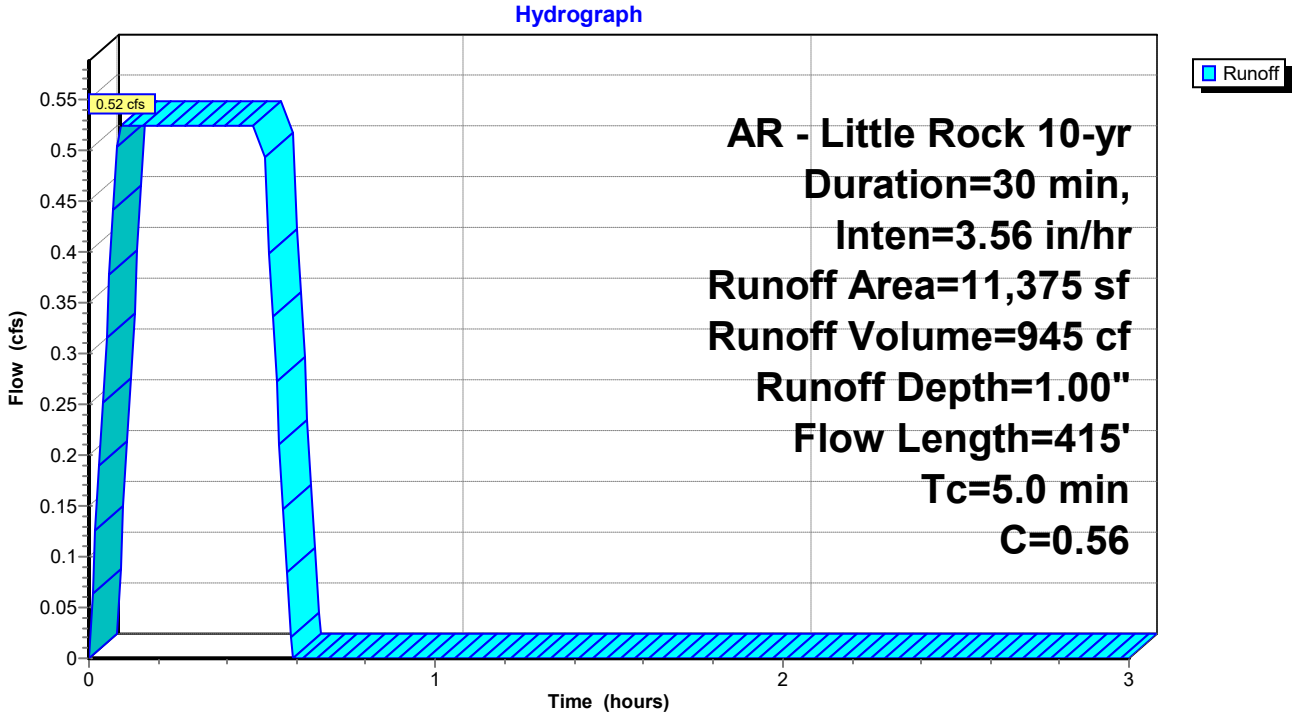
Runoff = 0.52 cfs @ 0.09 hrs, Volume= 945 cf, Depth= 1.00"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
8,130	0.40	Sod Yard
3,245	0.95	Paving, Sidewalks
11,375	0.56	Weighted Average
8,130		71.47% Pervious Area
3,245		28.53% Impervious Area

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

Subcatchment C4: Drainage Basin C4



Summary for Subcatchment C5: Drainage Basin C5

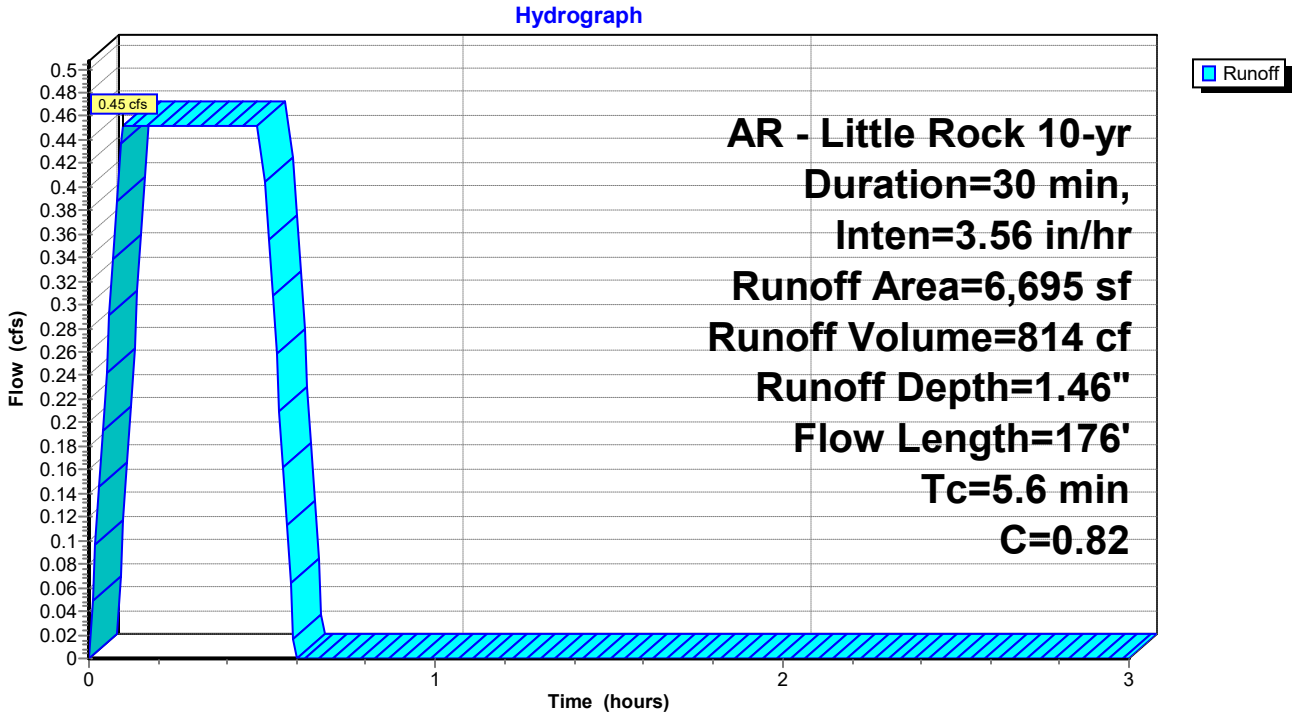
Runoff = 0.45 cfs @ 0.10 hrs, Volume= 814 cf, Depth= 1.46"
Routed to Pond CI-C4 : CI - C4

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
1,634	0.40	Sod Yard
5,061	0.95	Paving, Sidewalks
6,695	0.82	Weighted Average
1,634		24.41% Pervious Area
5,061		75.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2990	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.9	8	0.0070	0.03		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	58	0.0080	1.82		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	14	0.0280	3.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0370	3.90		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0940	6.22		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	30	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.6	176	Total			

Subcatchment C5: Drainage Basin C5



Summary for Subcatchment C6: Drainage Basin C6

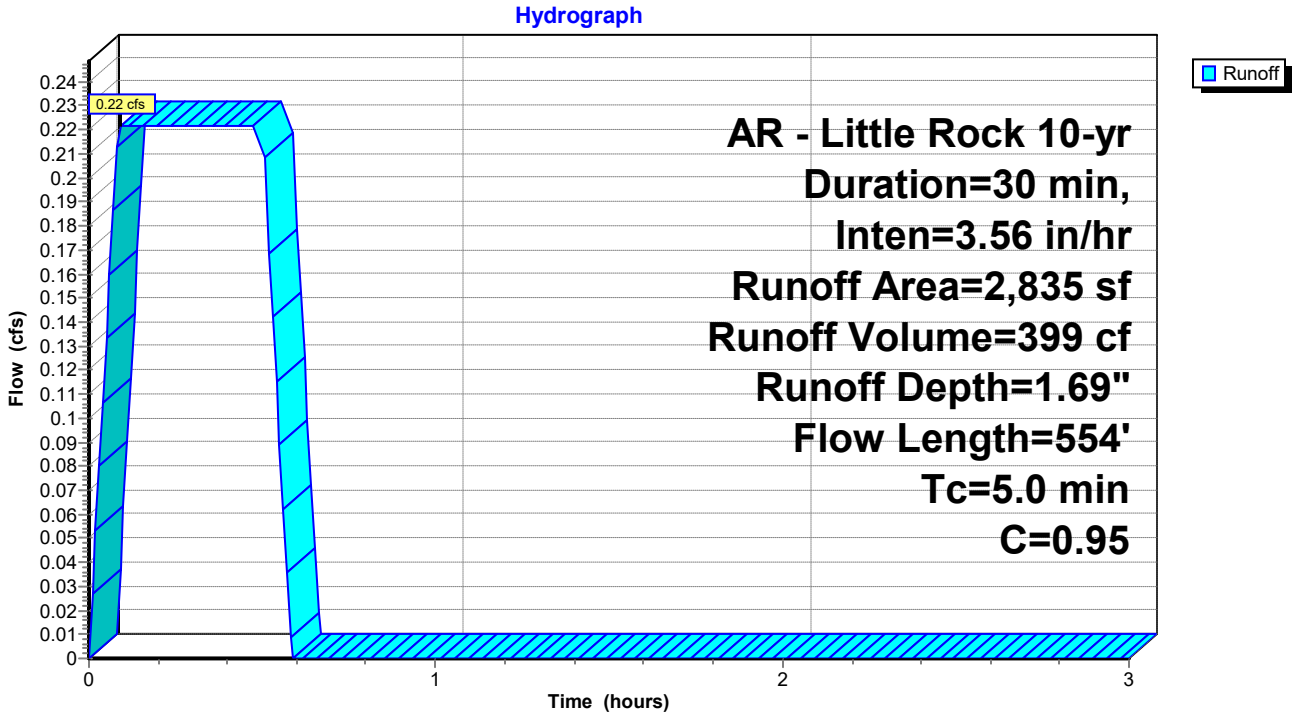
Runoff = 0.22 cfs @ 0.09 hrs, Volume= 399 cf, Depth= 1.69"
Routed to Pond CI-C5 : CI - C5

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
2,835	0.95	Paving, Sidewalks
2,835	0.95	Weighted Average
2,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0360	3.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	27	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.1	415		1.69		**Direct Entry, Concentrated Flow (Min)**
5.0	554	Total			

Subcatchment C6: Drainage Basin C6



Summary for Subcatchment C7: Drainage Basin C7

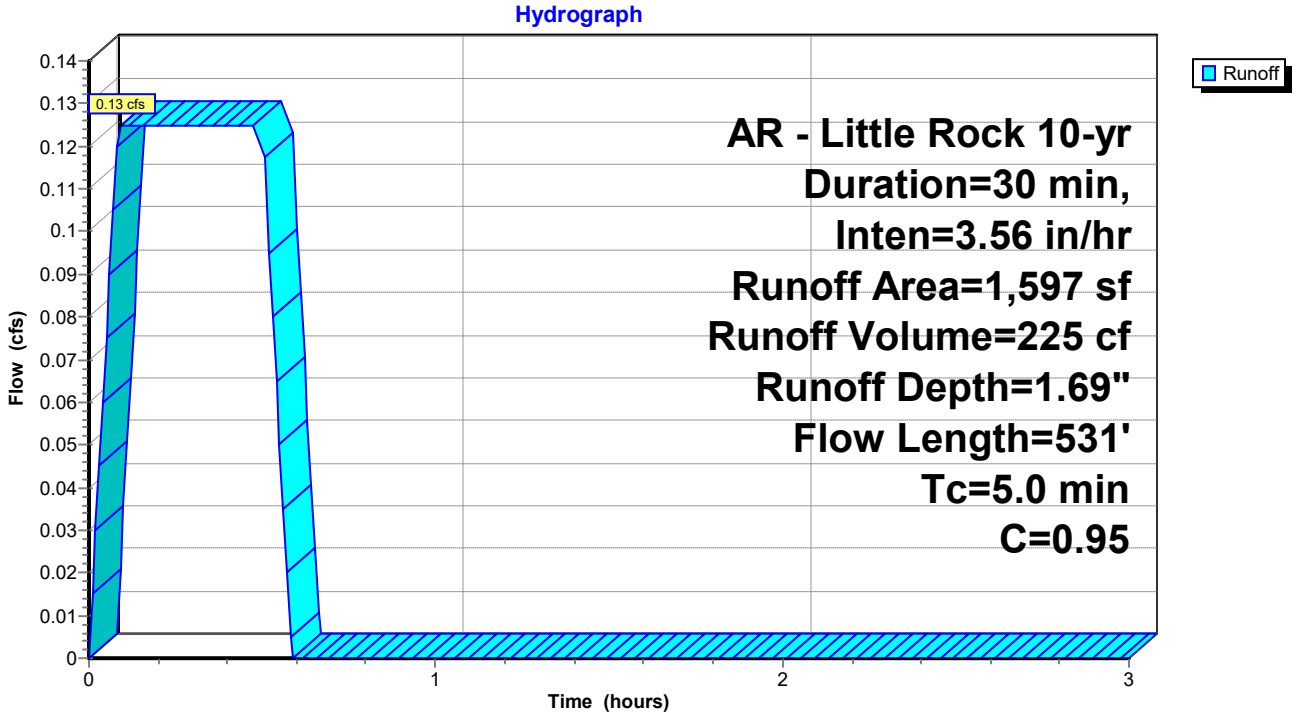
Runoff = 0.13 cfs @ 0.09 hrs, Volume= 225 cf, Depth= 1.69"
Routed to Pond CI-D1 : CI - D1

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,597	0.95	Paving, Sidewalks
1,597	0.95	Weighted Average
1,597		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	16	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	81	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.3	415		1.61		**Direct Entry, Concentrated Flow (Min)**
5.0	531	Total			

Subcatchment C7: Drainage Basin C7



Summary for Subcatchment C8: Drainage Basin C8

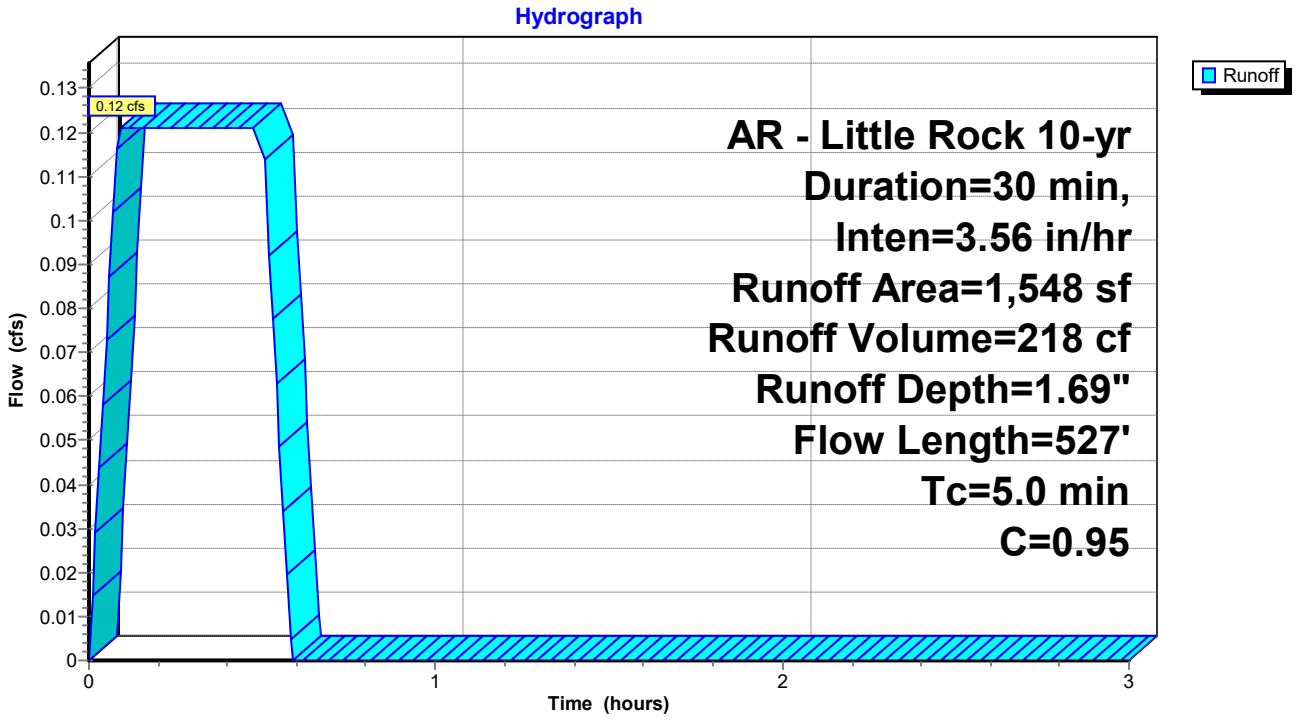
Runoff = 0.12 cfs @ 0.09 hrs, Volume= 218 cf, Depth= 1.69"
Routed to Pond CI-D2 : CI - D2

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,548	0.95	Paving, Sidewalks
1,548	0.95	Weighted Average
1,548		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	94	0.0610	5.01		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
4.4	415		1.57		**Direct Entry, Concentrated Flow (Min)**
5.0	527	Total			

Subcatchment C8: Drainage Basin C8



Summary for Subcatchment C9: Drainage Basin C9

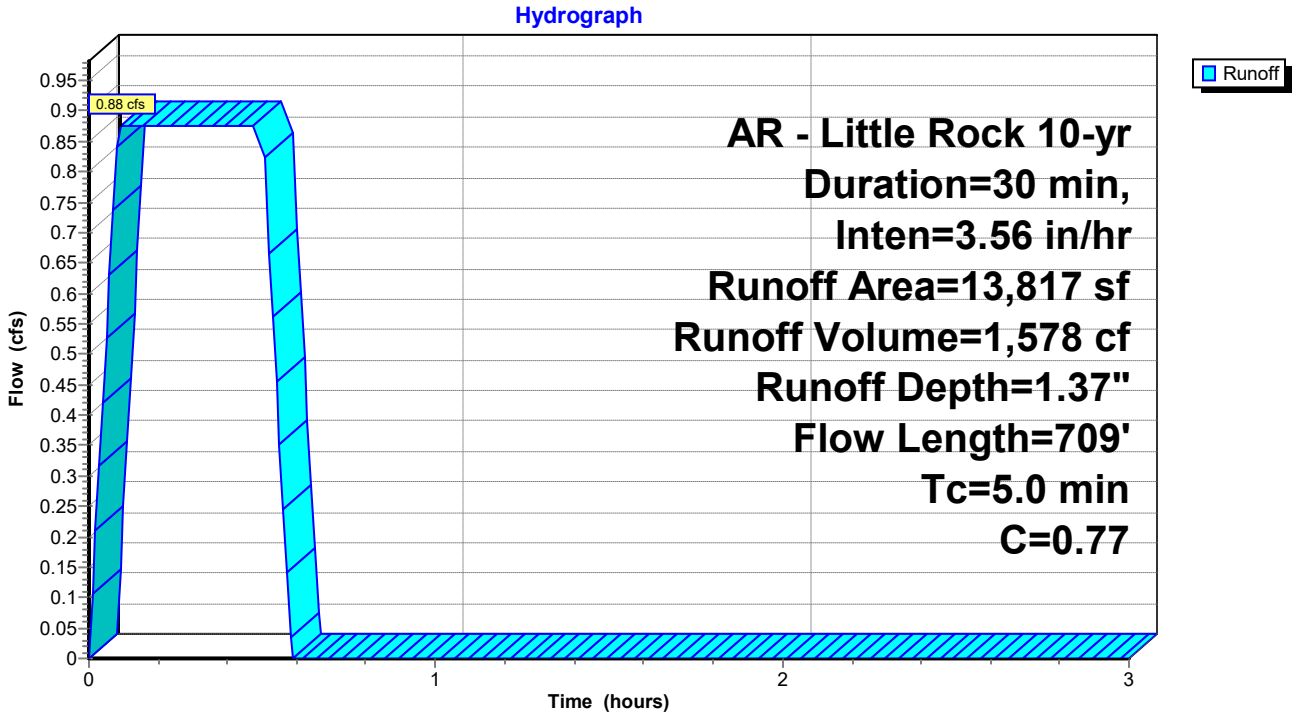
Runoff = 0.88 cfs @ 0.09 hrs, Volume= 1,578 cf, Depth= 1.37"
Routed to Pond CI-C6 : CI - C6

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=30 min, Inten=3.56 in/hr

Area (sf)	C	Description
4,456	0.40	Sod Yard
9,361	0.95	Paving, Sidewalks
13,817	0.77	Weighted Average
4,456		32.25% Pervious Area
9,361		67.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0140	1.36		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	13	0.0150	2.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0160	2.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	7	0.0050	1.44		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	8	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	41	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	41	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	61	0.0520	4.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.9	415		2.39		**Direct Entry, Concentrated Flow (Min)**
5.0	709	Total			

Subcatchment C9: Drainage Basin C9

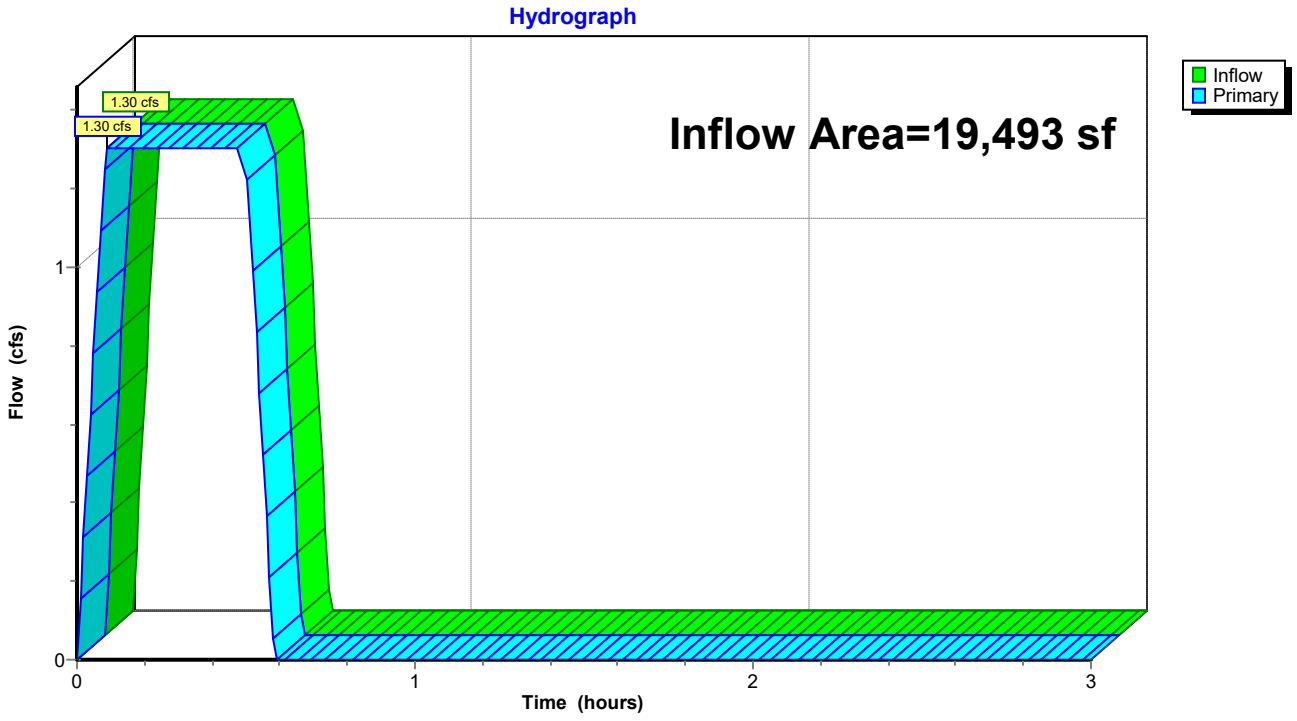


Summary for Pond CI-A1: CI - A1

Inflow Area = 19,493 sf, 74.85% Impervious, Inflow Depth = 1.44" for 10-yr event
Inflow = 1.30 cfs @ 0.09 hrs, Volume= 2,342 cf
Primary = 1.30 cfs @ 0.09 hrs, Volume= 2,342 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-A1: CI - A1

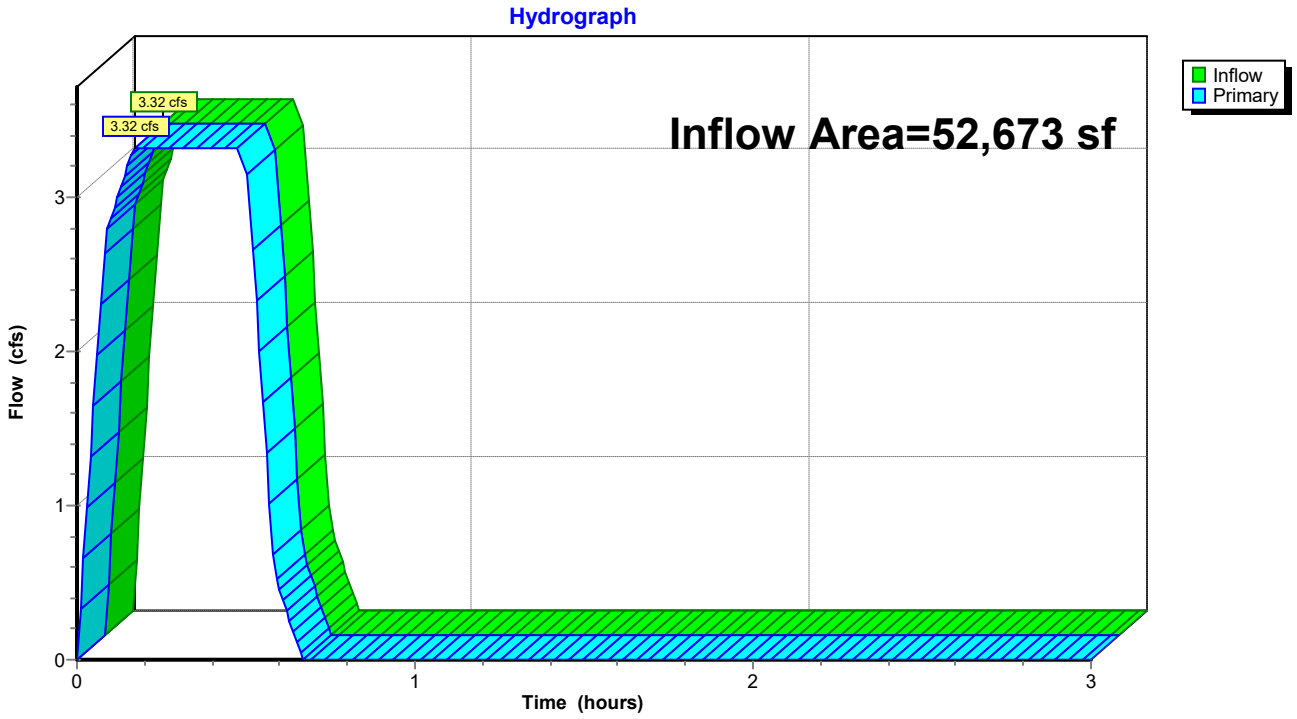


Summary for Pond CI-A3: CI - A3

Inflow Area = 52,673 sf, 66.48% Impervious, Inflow Depth = 1.36" for 10-yr event
Inflow = 3.32 cfs @ 0.17 hrs, Volume= 5,973 cf
Primary = 3.32 cfs @ 0.17 hrs, Volume= 5,973 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A4 : CI - A4

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

Pond CI-A3: CI - A3

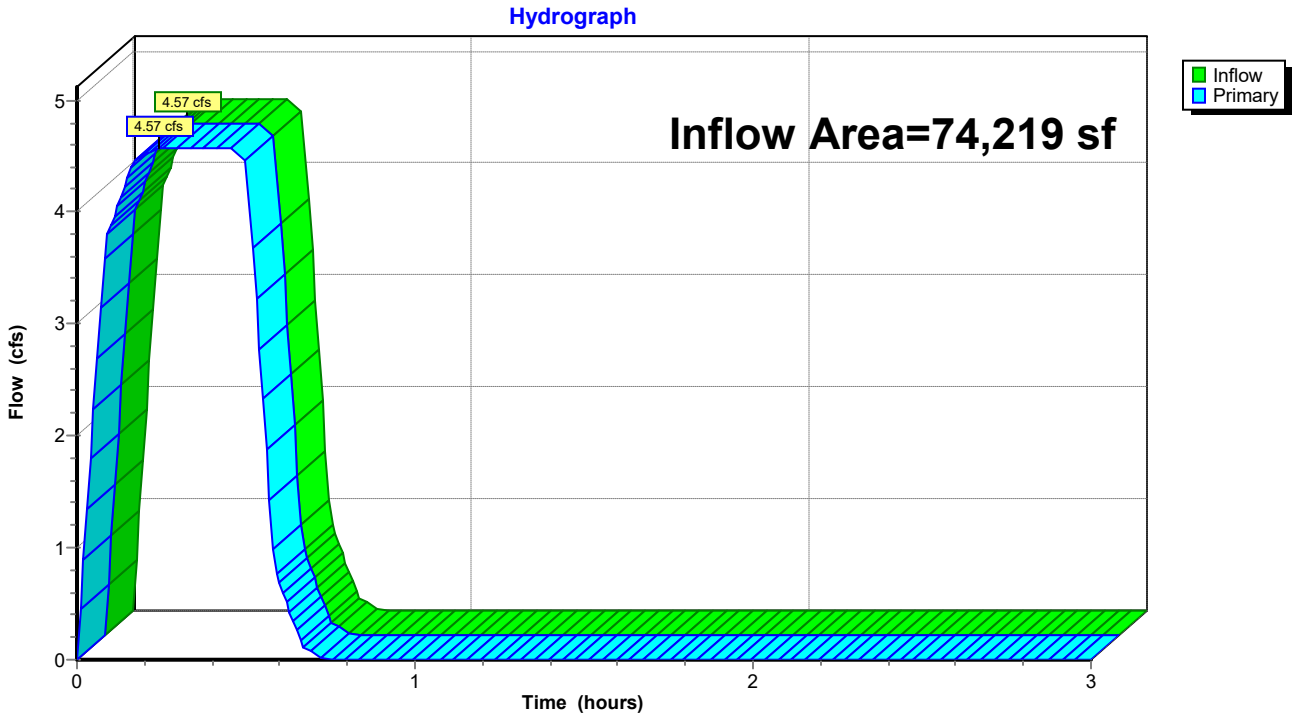


Summary for Pond CI-A4: CI - A4

Inflow Area = 74,219 sf, 63.30% Impervious, Inflow Depth = 1.33" for 10-yr event
Inflow = 4.57 cfs @ 0.24 hrs, Volume= 8,227 cf
Primary = 4.57 cfs @ 0.24 hrs, Volume= 8,227 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A5 : CI - A5

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

Pond CI-A4: CI - A4

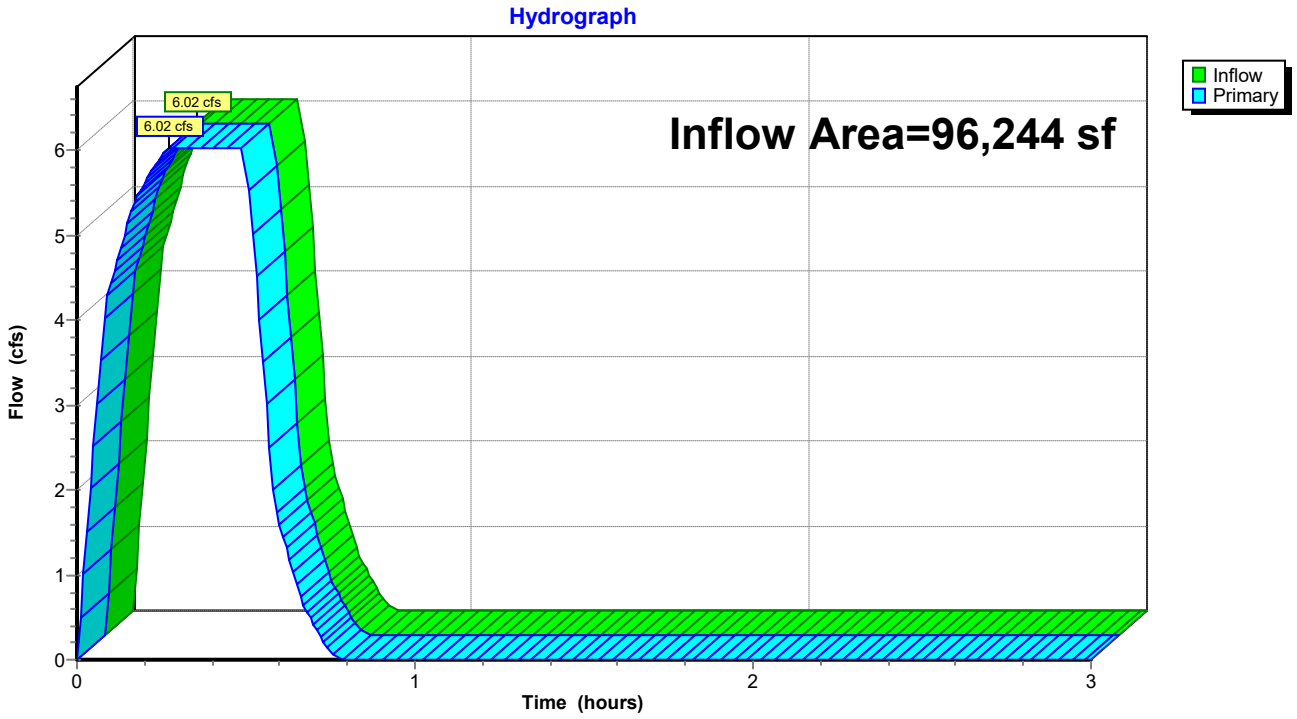


Summary for Pond CI-A5: CI - A5

Inflow Area = 96,244 sf, 65.33% Impervious, Inflow Depth = 1.35" for 10-yr event
Inflow = 6.02 cfs @ 0.27 hrs, Volume= 10,841 cf
Primary = 6.02 cfs @ 0.27 hrs, Volume= 10,841 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-A5: CI - A5

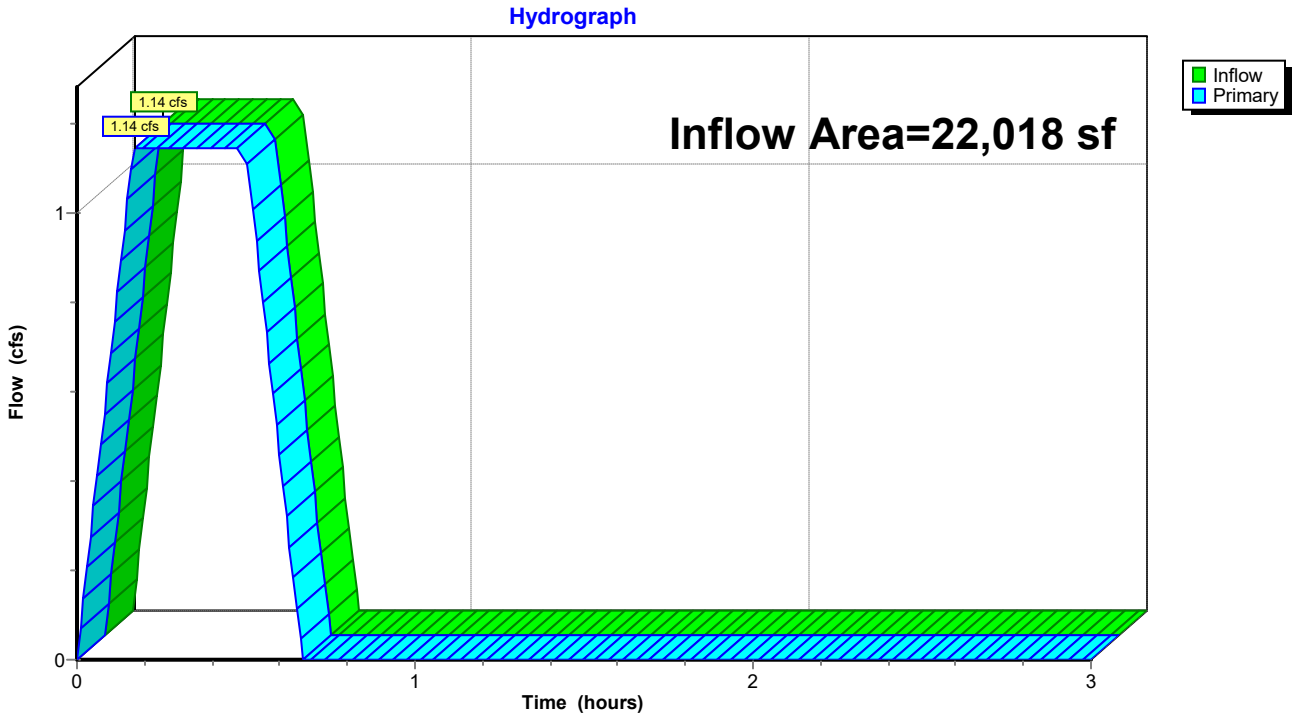


Summary for Pond CI-B2: CI - B2

Inflow Area = 22,018 sf, 42.08% Impervious, Inflow Depth = 1.12" for 10-yr event
Inflow = 1.14 cfs @ 0.17 hrs, Volume= 2,058 cf
Primary = 1.14 cfs @ 0.17 hrs, Volume= 2,058 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-B2: CI - B2

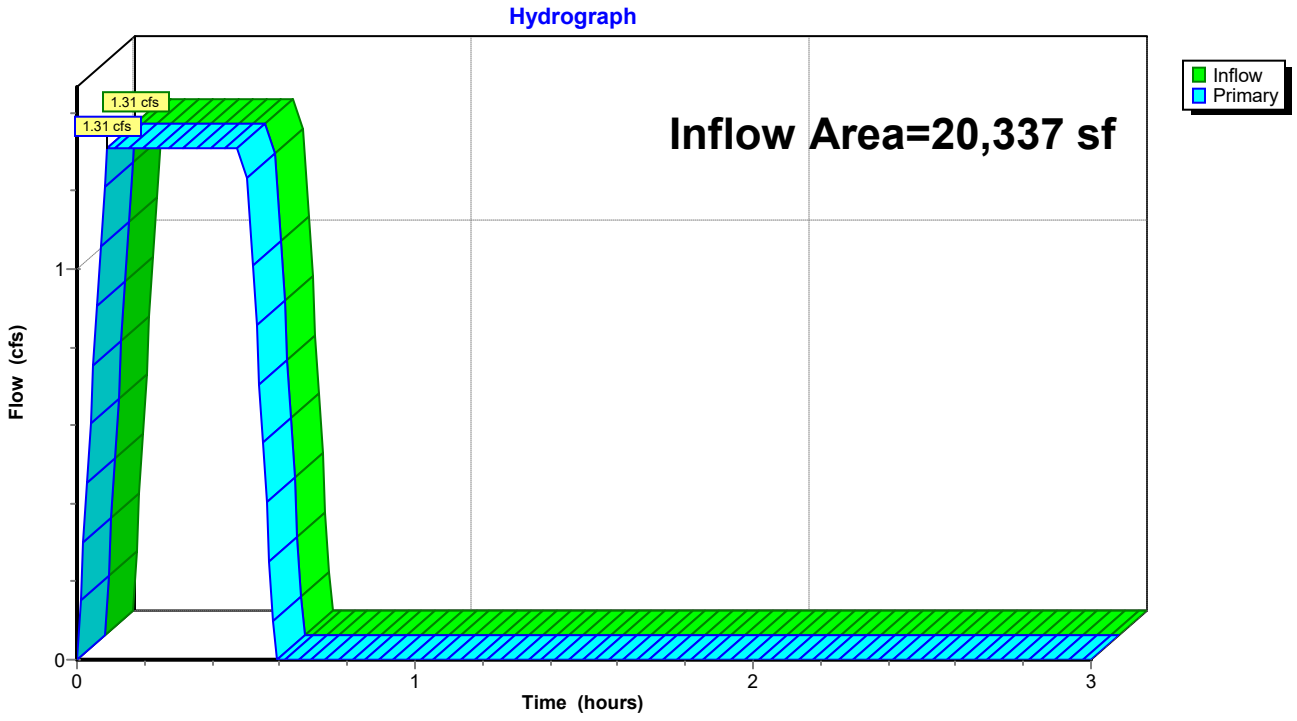


Summary for Pond CI-C1: CI - C1

Inflow Area = 20,337 sf, 69.83% Impervious, Inflow Depth = 1.39" for 10-yr event
Inflow = 1.31 cfs @ 0.09 hrs, Volume= 2,353 cf
Primary = 1.31 cfs @ 0.09 hrs, Volume= 2,353 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C2 : CI - C2

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

Pond CI-C1: CI - C1

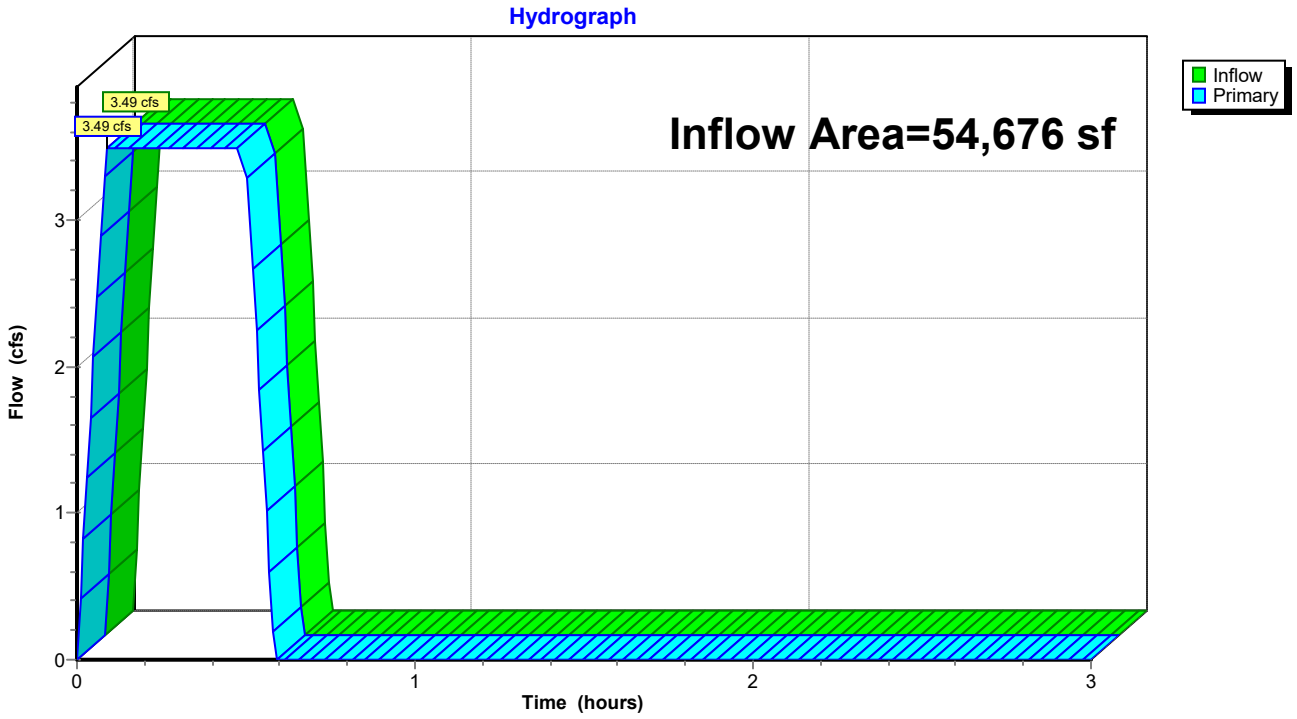


Summary for Pond CI-C2: CI - C2

Inflow Area = 54,676 sf, 67.97% Impervious, Inflow Depth = 1.38" for 10-yr event
Inflow = 3.49 cfs @ 0.09 hrs, Volume= 6,275 cf
Primary = 3.49 cfs @ 0.09 hrs, Volume= 6,275 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C3 : CI - C3

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

Pond CI-C2: CI - C2

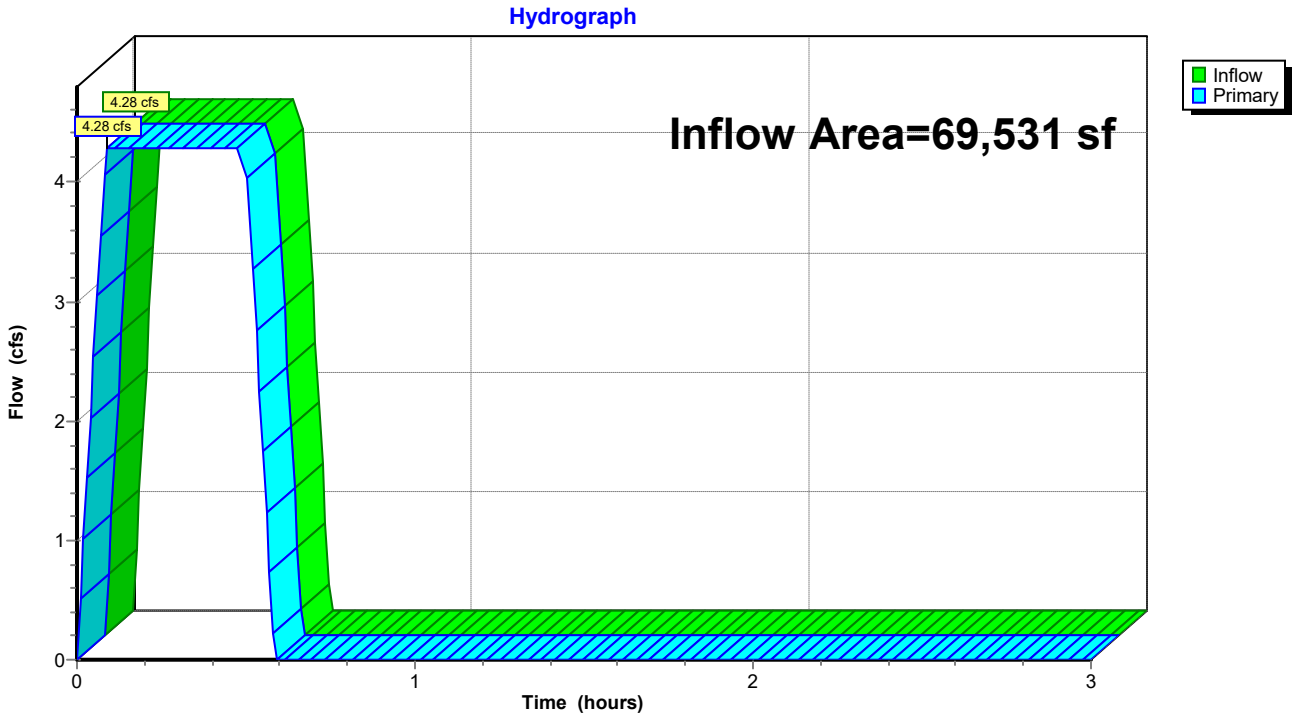


Summary for Pond CI-C3: CI - C3

Inflow Area = 69,531 sf, 63.12% Impervious, Inflow Depth = 1.33" for 10-yr event
Inflow = 4.28 cfs @ 0.09 hrs, Volume= 7,710 cf
Primary = 4.28 cfs @ 0.09 hrs, Volume= 7,710 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C4 : CI - C4

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

Pond CI-C3: CI - C3

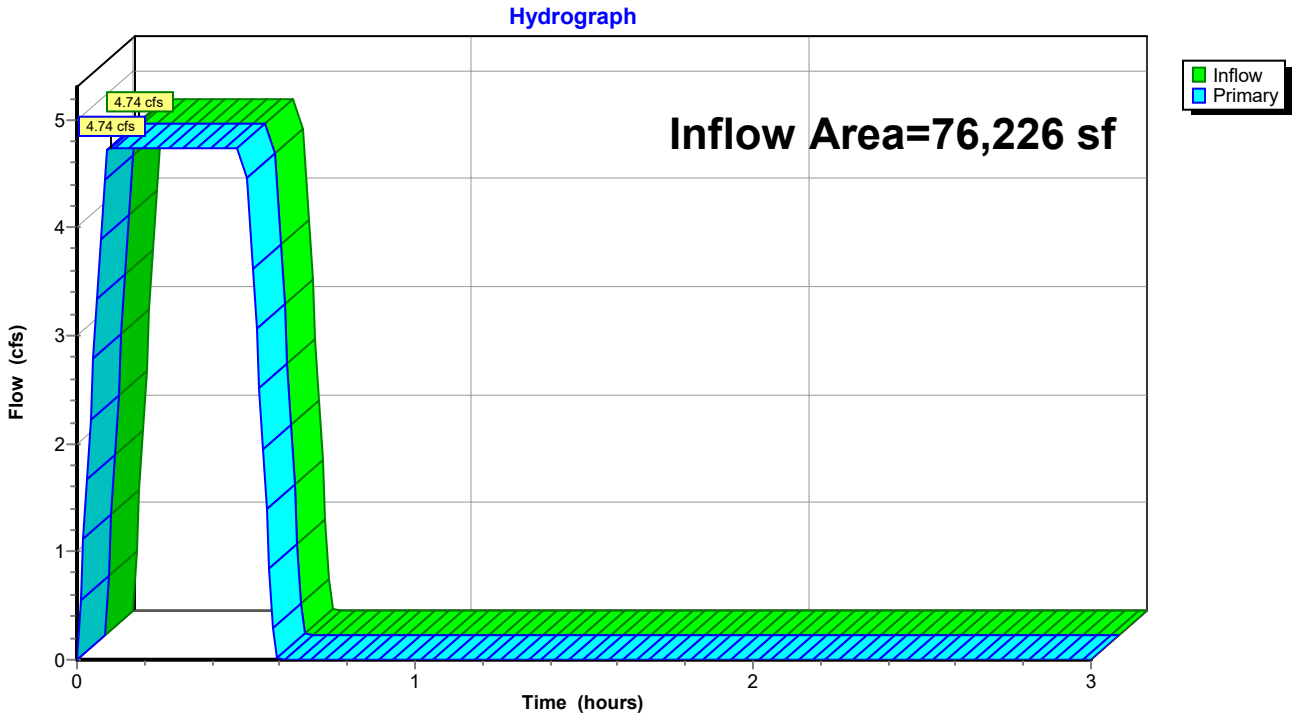


Summary for Pond CI-C4: CI - C4

Inflow Area = 76,226 sf, 64.22% Impervious, Inflow Depth = 1.34" for 10-yr event
Inflow = 4.74 cfs @ 0.10 hrs, Volume= 8,525 cf
Primary = 4.74 cfs @ 0.10 hrs, Volume= 8,525 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C5 : CI - C5

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

Pond CI-C4: CI - C4

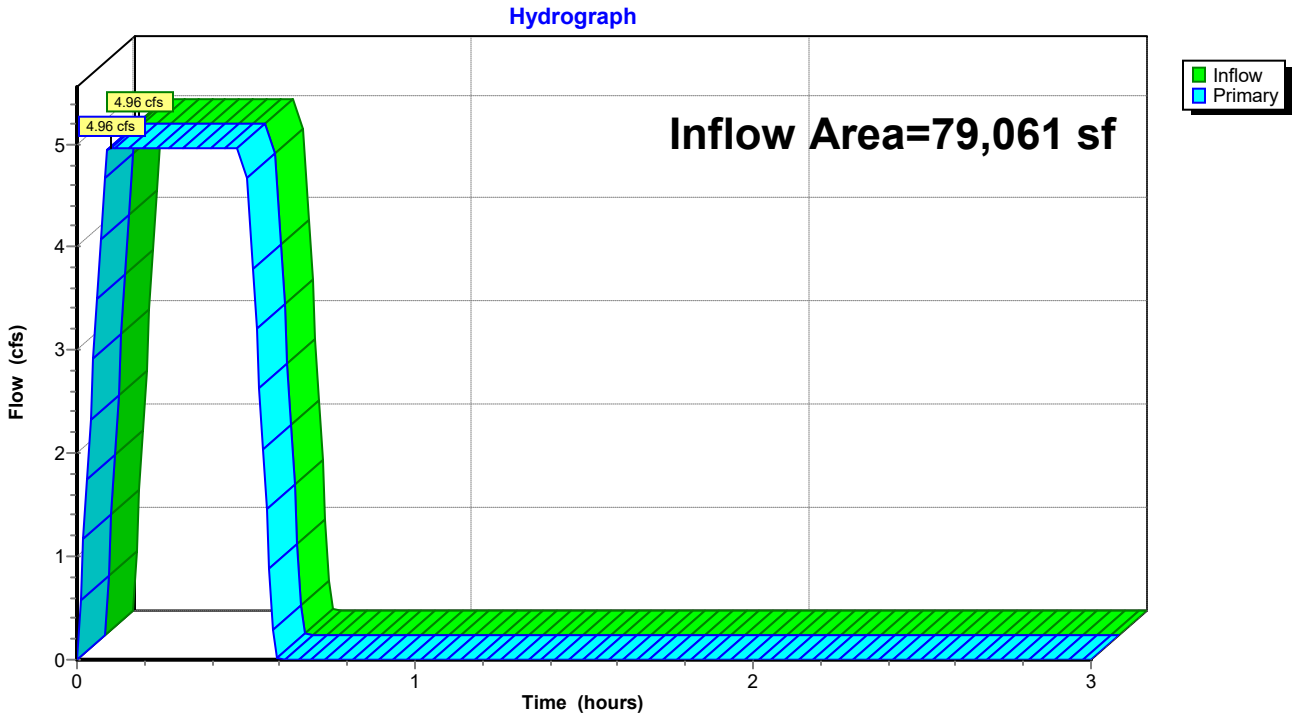


Summary for Pond CI-C5: CI - C5

Inflow Area = 79,061 sf, 65.50% Impervious, Inflow Depth = 1.35" for 10-yr event
Inflow = 4.96 cfs @ 0.10 hrs, Volume= 8,924 cf
Primary = 4.96 cfs @ 0.10 hrs, Volume= 8,924 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-C5: CI - C5

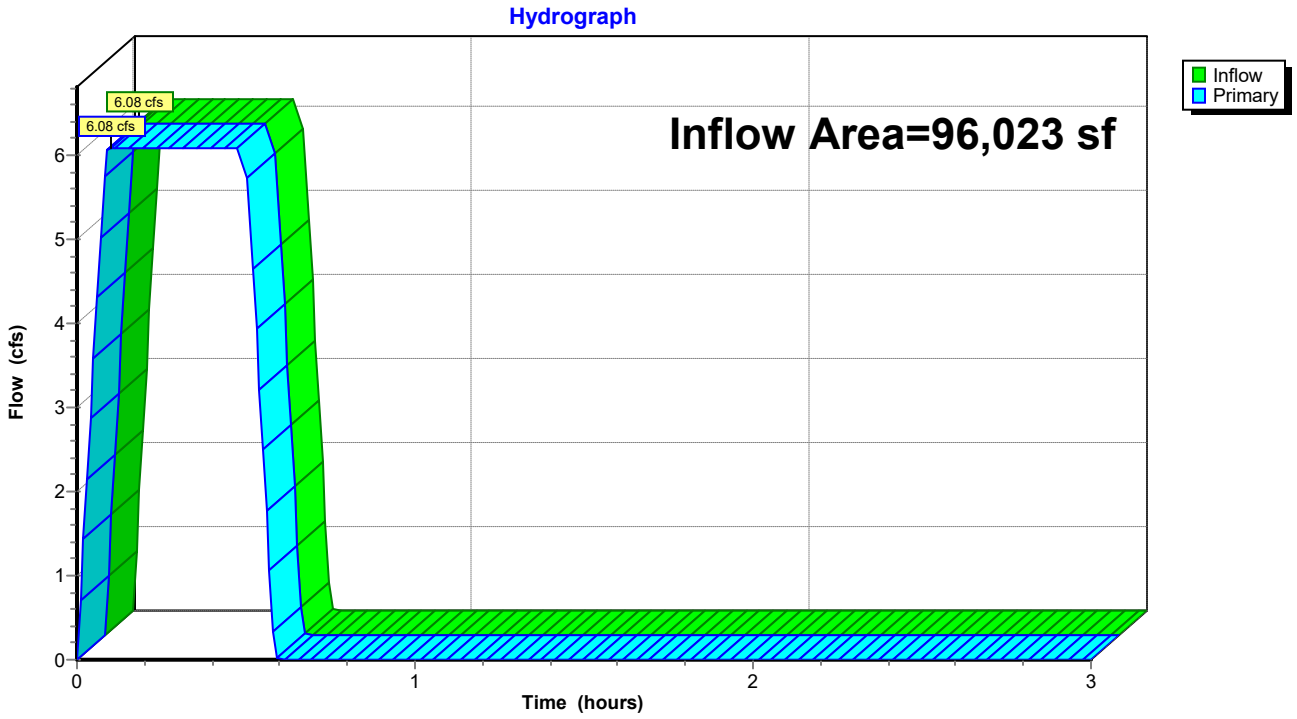


Summary for Pond CI-C6: CI - C6

Inflow Area = 96,023 sf, 66.95% Impervious, Inflow Depth = 1.37" for 10-yr event
Inflow = 6.08 cfs @ 0.10 hrs, Volume= 10,945 cf
Primary = 6.08 cfs @ 0.10 hrs, Volume= 10,945 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-C6: CI - C6

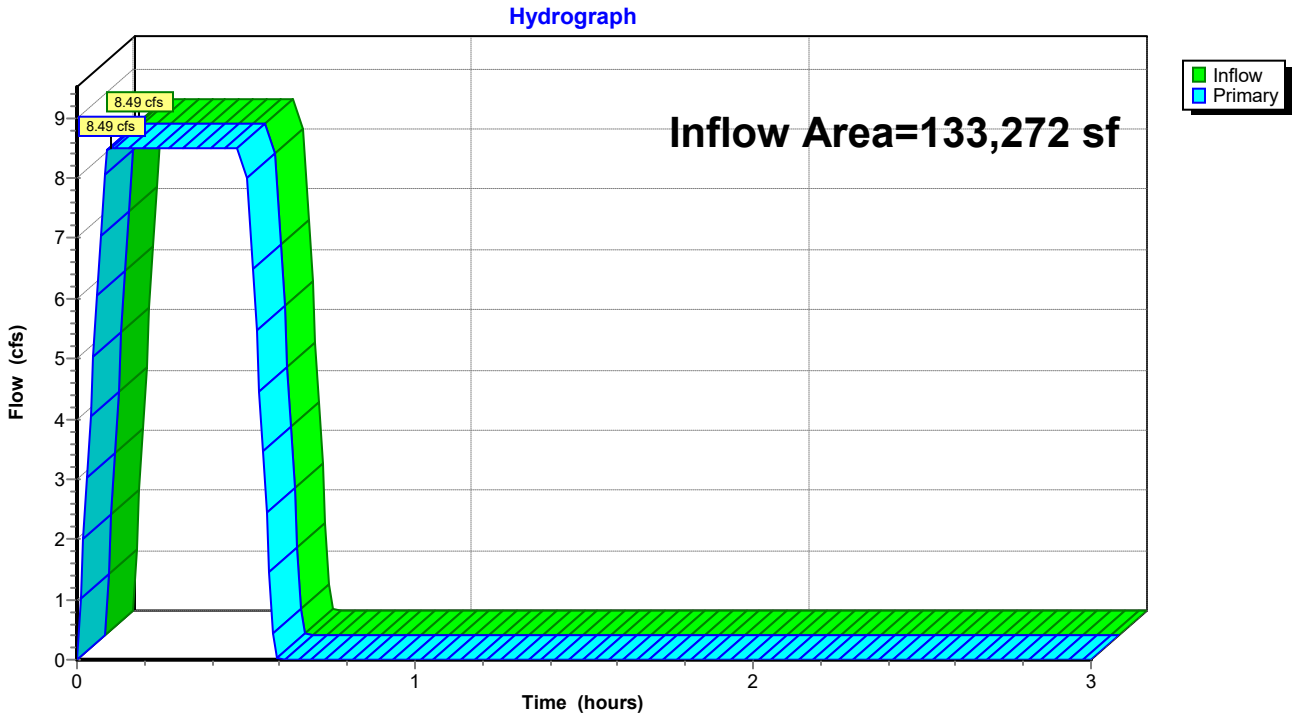


Summary for Pond CI-C7: CI - C7

Inflow Area = 133,272 sf, 67.70% Impervious, Inflow Depth = 1.38" for 10-yr event
Inflow = 8.49 cfs @ 0.10 hrs, Volume= 15,289 cf
Primary = 8.49 cfs @ 0.10 hrs, Volume= 15,289 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-C7: CI - C7

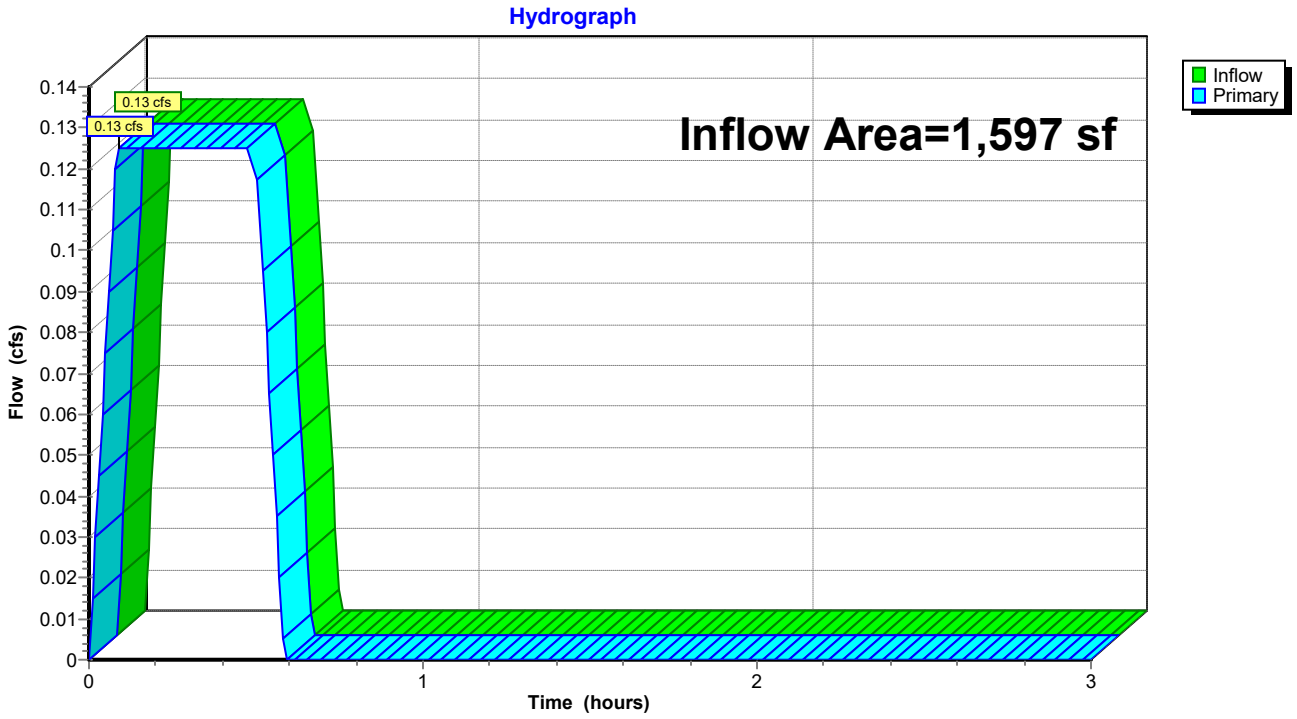


Summary for Pond CI-D1: CI - D1

Inflow Area = 1,597 sf,100.00% Impervious, Inflow Depth = 1.69" for 10-yr event
Inflow = 0.13 cfs @ 0.09 hrs, Volume= 225 cf
Primary = 0.13 cfs @ 0.09 hrs, Volume= 225 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-D2 : CI - D2

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

Pond CI-D1: CI - D1

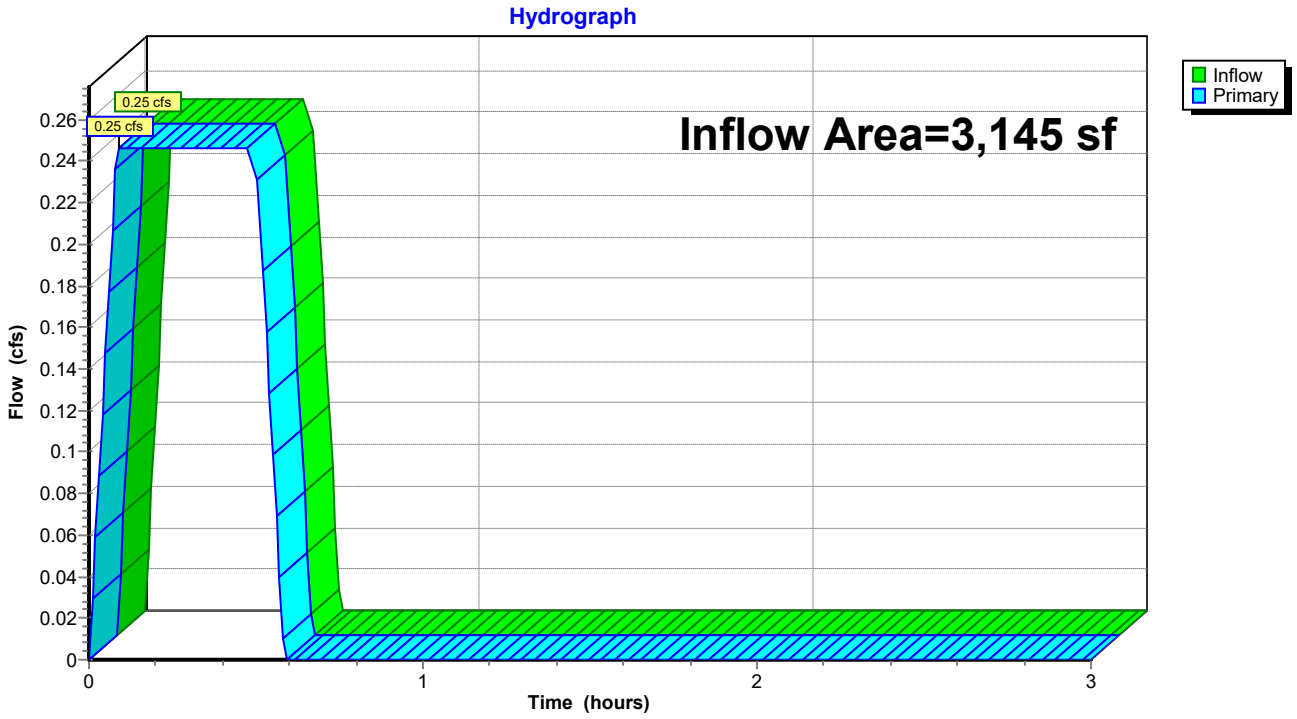


Summary for Pond CI-D2: CI - D2

Inflow Area = 3,145 sf,100.00% Impervious, Inflow Depth = 1.69" for 10-yr event
Inflow = 0.25 cfs @ 0.09 hrs, Volume= 443 cf
Primary = 0.25 cfs @ 0.09 hrs, Volume= 443 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-D2: CI - D2

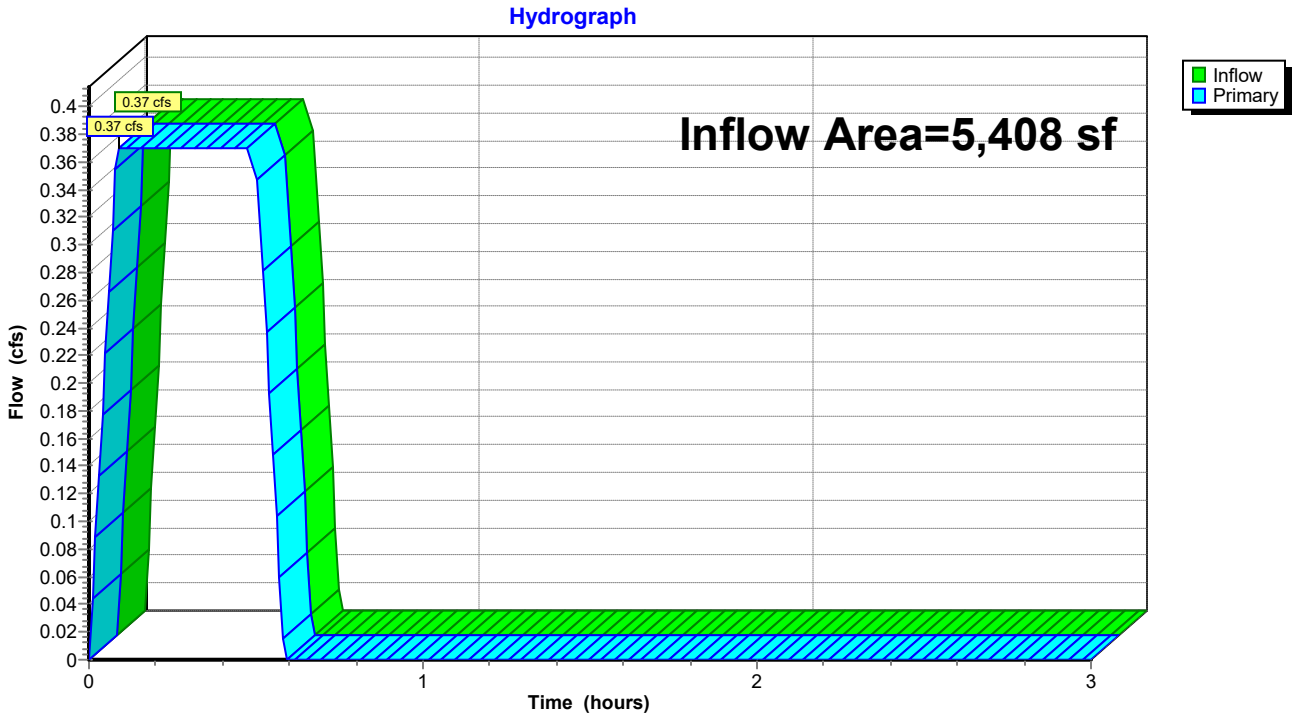


Summary for Pond CI-E1: CI - E1

Inflow Area = 5,408 sf, 77.35% Impervious, Inflow Depth = 1.48" for 10-yr event
Inflow = 0.37 cfs @ 0.09 hrs, Volume= 666 cf
Primary = 0.37 cfs @ 0.09 hrs, Volume= 666 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-E2 : CI - E2

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

Pond CI-E1: CI - E1

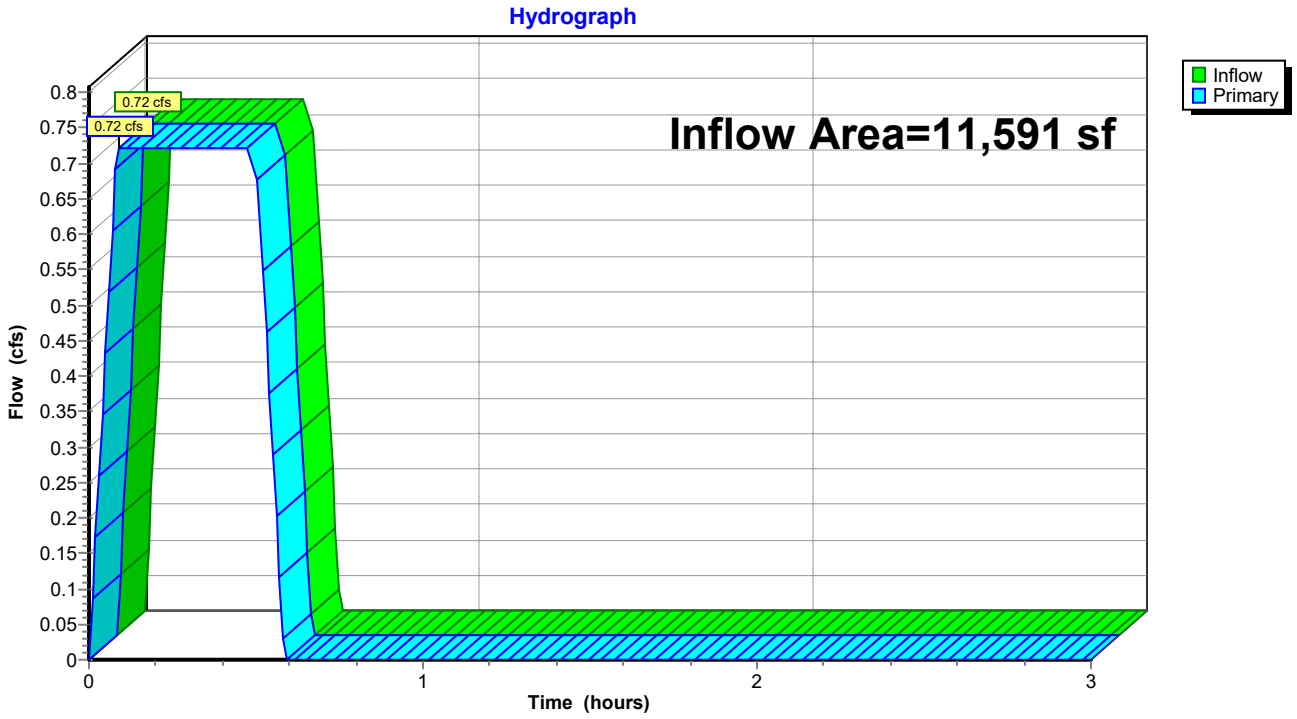


Summary for Pond CI-E2: CI - E2

Inflow Area = 11,591 sf, 64.62% Impervious, Inflow Depth = 1.34" for 10-yr event
Inflow = 0.72 cfs @ 0.09 hrs, Volume= 1,299 cf
Primary = 0.72 cfs @ 0.09 hrs, Volume= 1,299 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-E2: CI - E2



Summary for Pond DP: Existing North Detention Pond

Inflow Area = 321,792 sf, 58.73% Impervious, Inflow Depth = 1.29" for 10-yr event
Inflow = 19.16 cfs @ 0.27 hrs, Volume= 34,489 cf
Outflow = 11.25 cfs @ 0.54 hrs, Volume= 34,489 cf, Atten= 41%, Lag= 16.3 min
Primary = 11.25 cfs @ 0.54 hrs, Volume= 34,489 cf
Routed to Link FINAL : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 383.06' @ 0.54 hrs Storage= 18,315 cf

Plug-Flow detention time= 20.2 min calculated for 34,489 cf (100% of inflow)
Center-of-Mass det. time= 20.1 min (38.6 - 18.5)

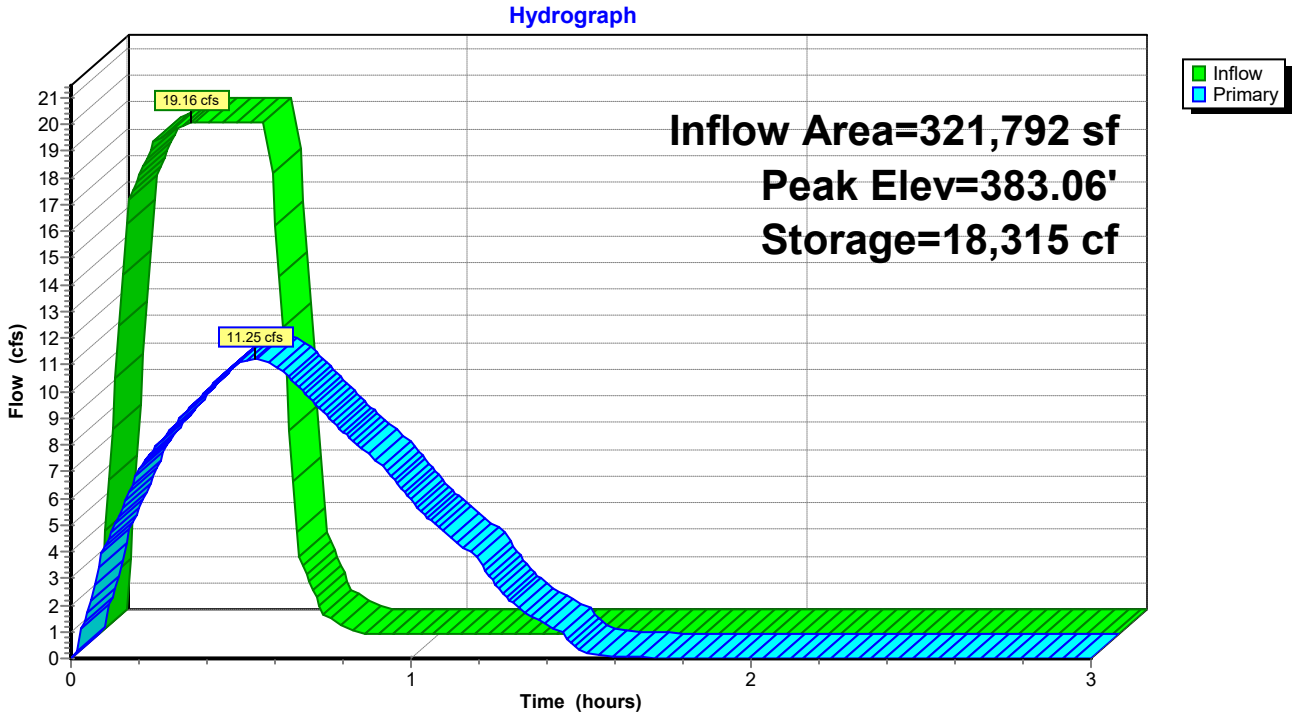
Volume	Invert	Avail.Storage	Storage Description
#1	381.17'	72,742 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.17	0	0
381.50	200	200
382.00	1,825	2,025
382.50	5,265	7,290
383.00	9,300	16,590
383.50	13,733	30,323
384.00	18,578	48,901
384.50	23,841	72,742

Device	Routing	Invert	Outlet Devices
#1	Primary	384.16'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	381.17'	**1.7' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=11.25 cfs @ 0.54 hrs HW=383.06' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 11.25 cfs @ 4.50 fps)

Pond DP: Existing North Detention Pond

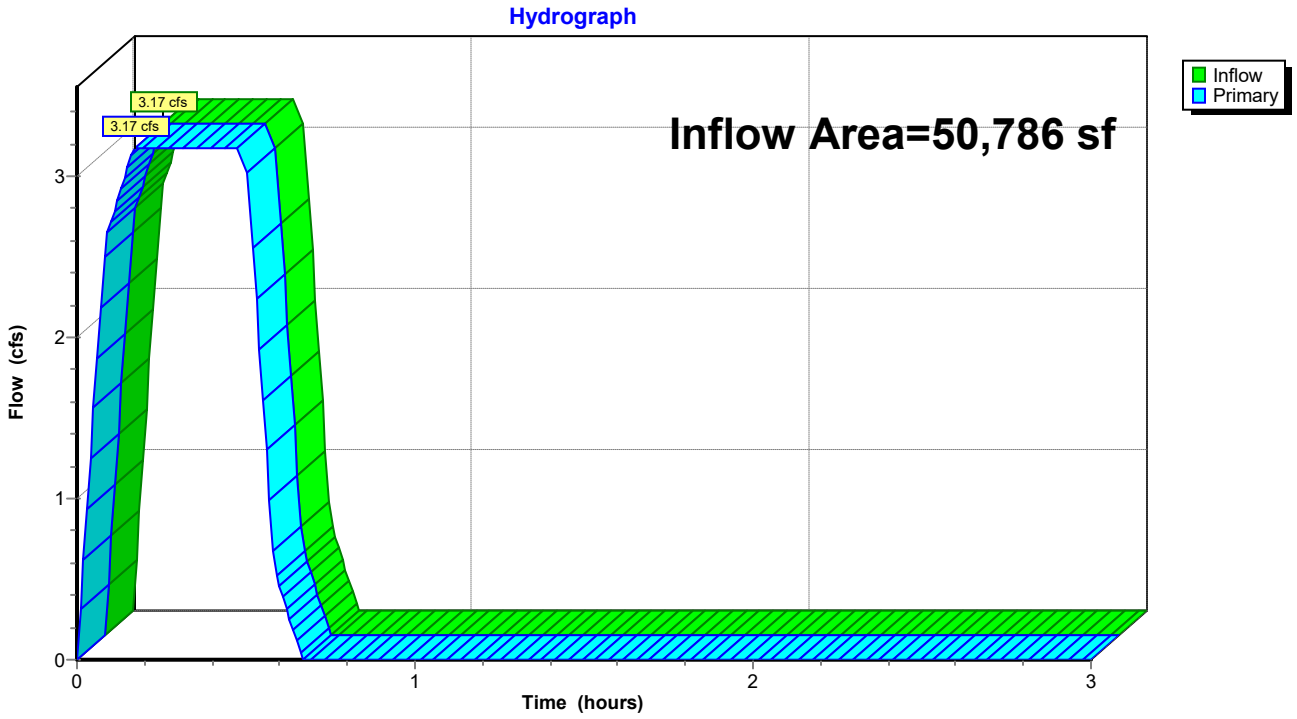


Summary for Pond JB-A2: JB - A2

Inflow Area = 50,786 sf, 65.23% Impervious, Inflow Depth = 1.35" for 10-yr event
Inflow = 3.17 cfs @ 0.17 hrs, Volume= 5,707 cf
Primary = 3.17 cfs @ 0.17 hrs, Volume= 5,707 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A3 : CI - A3

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

Pond JB-A2: JB - A2

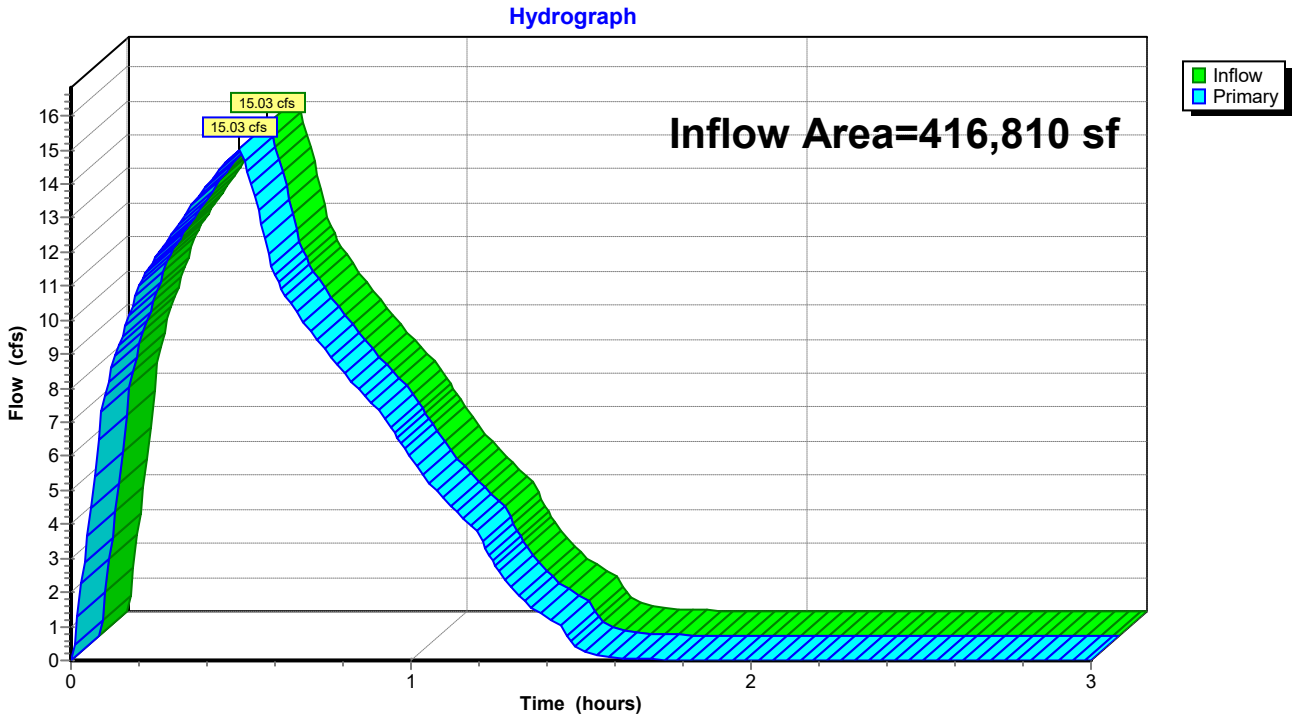


Summary for Link FINAL: APPROX DISCHARGE

Inflow Area = 416,810 sf, 49.40% Impervious, Inflow Depth = 1.20" for 10-yr event
Inflow = 15.03 cfs @ 0.50 hrs, Volume= 41,527 cf
Primary = 15.03 cfs @ 0.50 hrs, Volume= 41,527 cf, Atten= 0%, Lag= 0.0 min

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

Link FINAL: APPROX DISCHARGE



Summary for Subcatchment B1: Drainage Basin B1

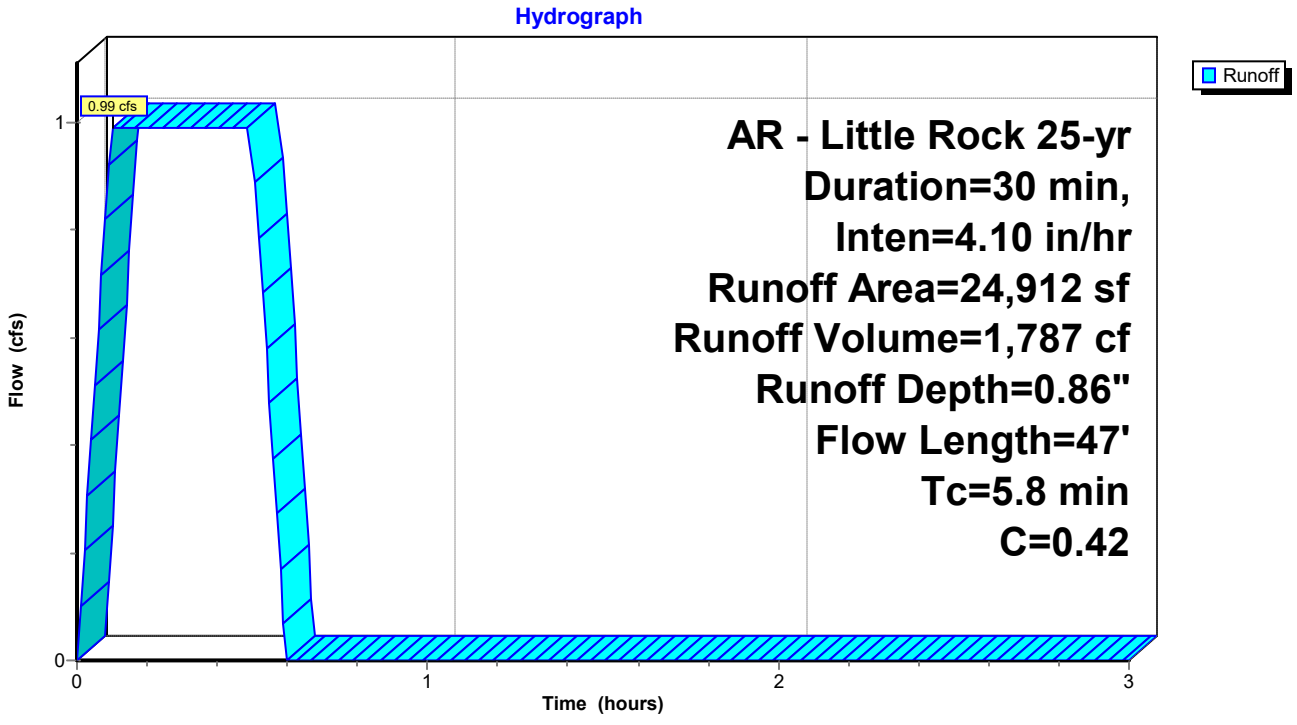
Runoff = 0.99 cfs @ 0.10 hrs, Volume= 1,787 cf, Depth= 0.86"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
24,091	0.40	Sod Yard
821	0.95	Paving, Sidewalks
24,912	0.42	Weighted Average
24,091		96.70% Pervious Area
821		3.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	9	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	38	0.2040	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
5.8	47	Total			

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

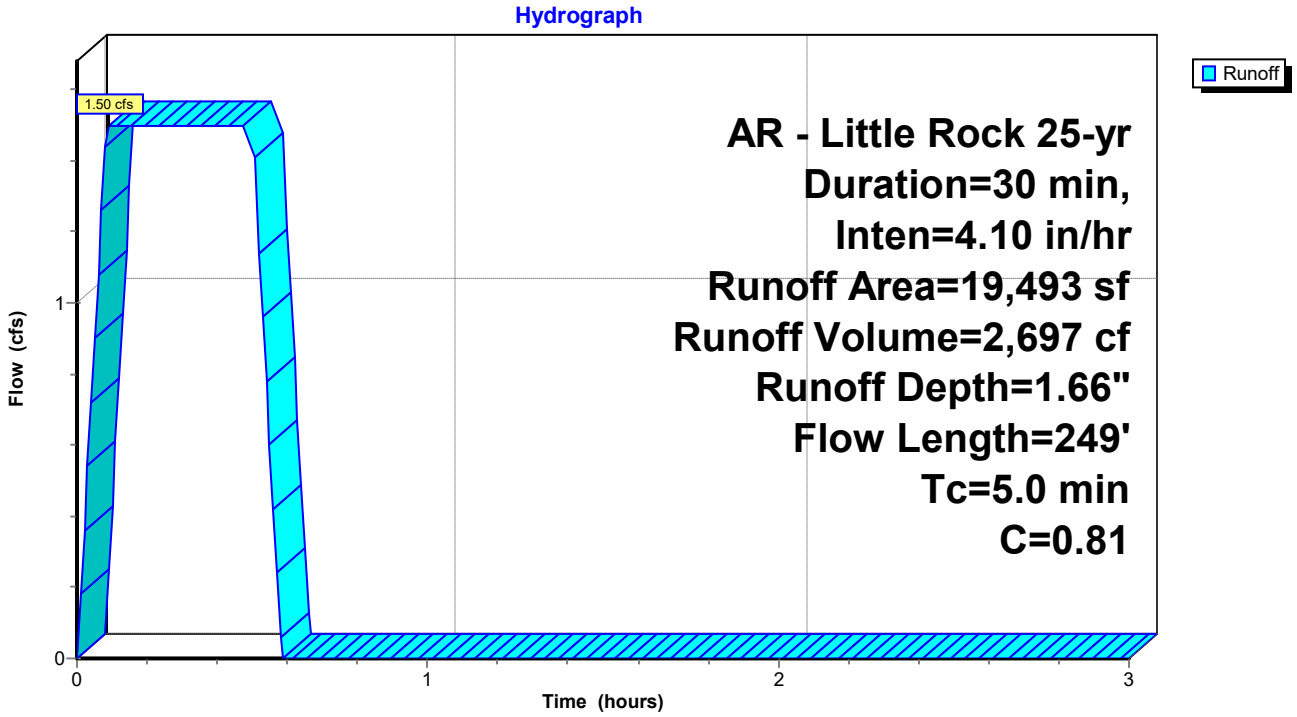
Runoff = 1.50 cfs @ 0.09 hrs, Volume= 2,697 cf, Depth= 1.66"
Routed to Pond CI-A1 : CI - A1

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
4,903	0.40	Sod Yard
14,590	0.95	Paving, Sidewalks
19,493	0.81	Weighted Average
4,903		25.15% Pervious Area
14,590		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	28	0.0450	1.69		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	72	0.0250	3.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	51	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	16	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	8	0.0430	4.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	7	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.2					**Direct Entry, Overland Concentrated Flow (Min)**
5.0	249	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

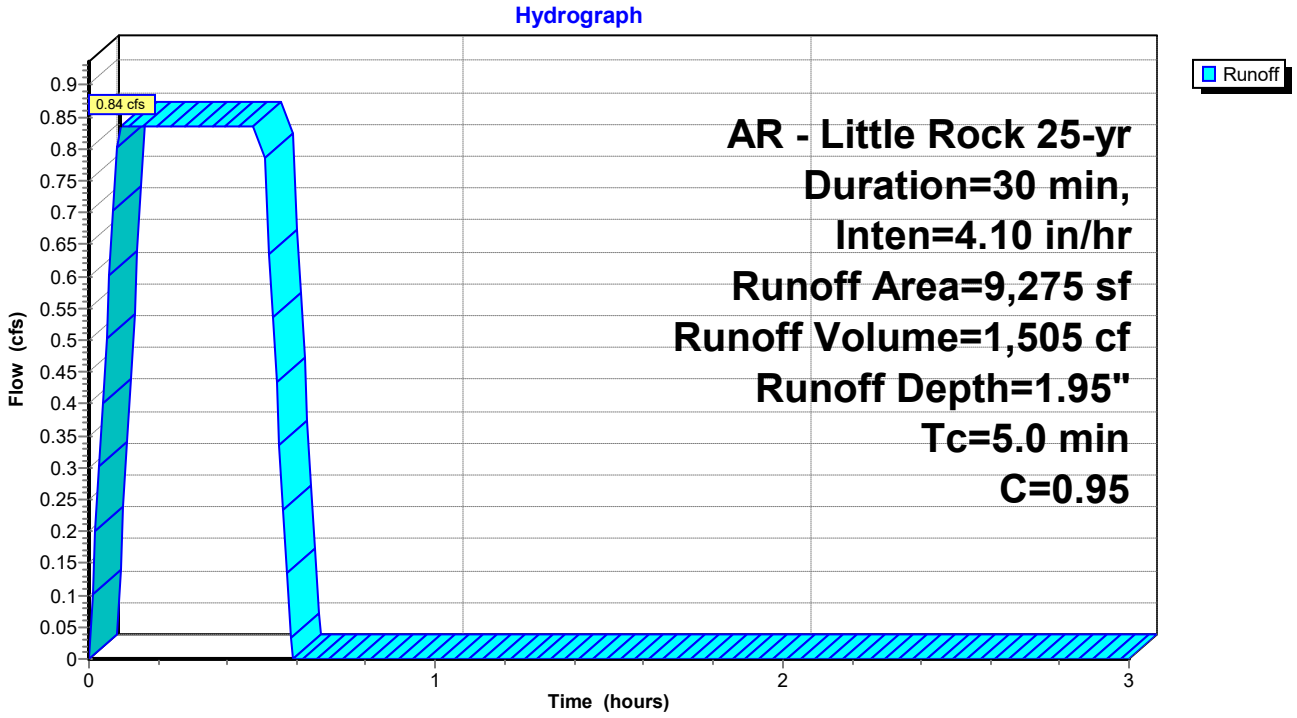
Runoff = 0.84 cfs @ 0.09 hrs, Volume= 1,505 cf, Depth= 1.95"
Routed to Pond JB-A2 : JB - A2

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
9,275	0.95	Roof
9,275		100.00% Impervious Area

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

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

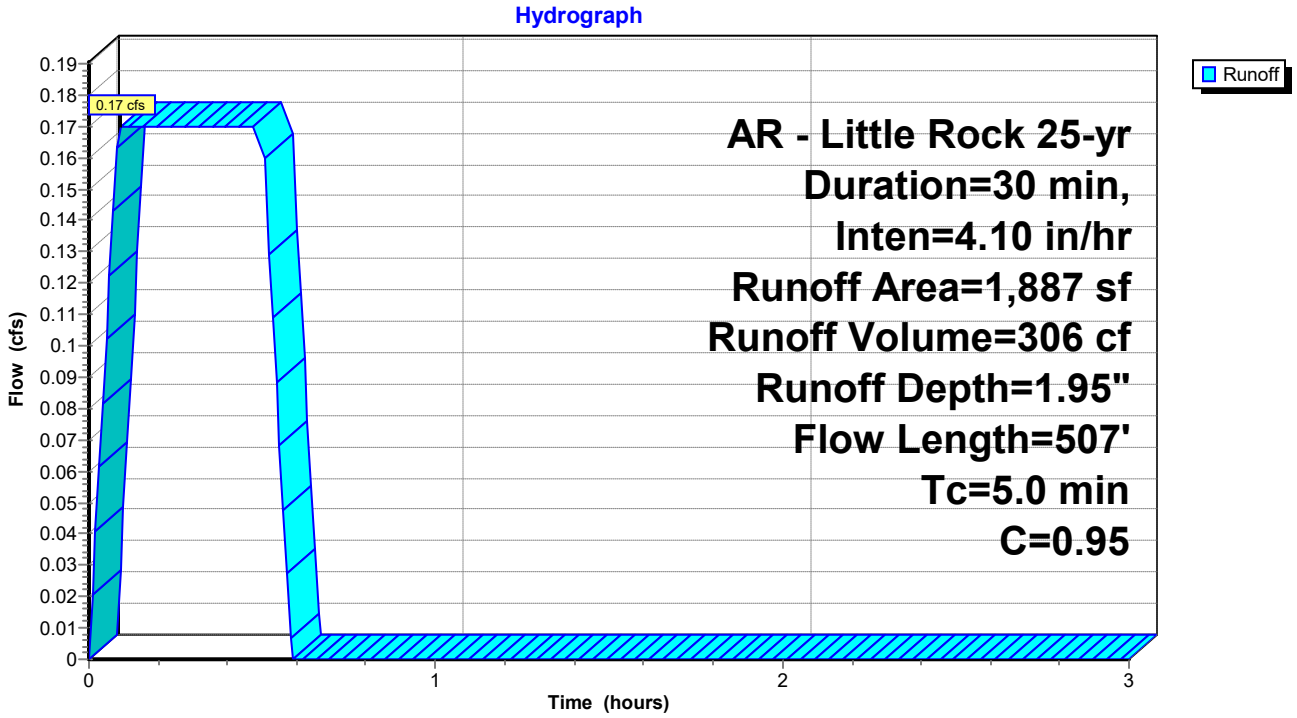
Runoff = 0.17 cfs @ 0.09 hrs, Volume= 306 cf, Depth= 1.95"
Routed to Pond CI-A3 : CI - A3

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,887	0.95	Paving, Sidewalks
1,887	0.95	Weighted Average
1,887		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	30	0.0240	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	13	0.0860	5.95		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	507	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

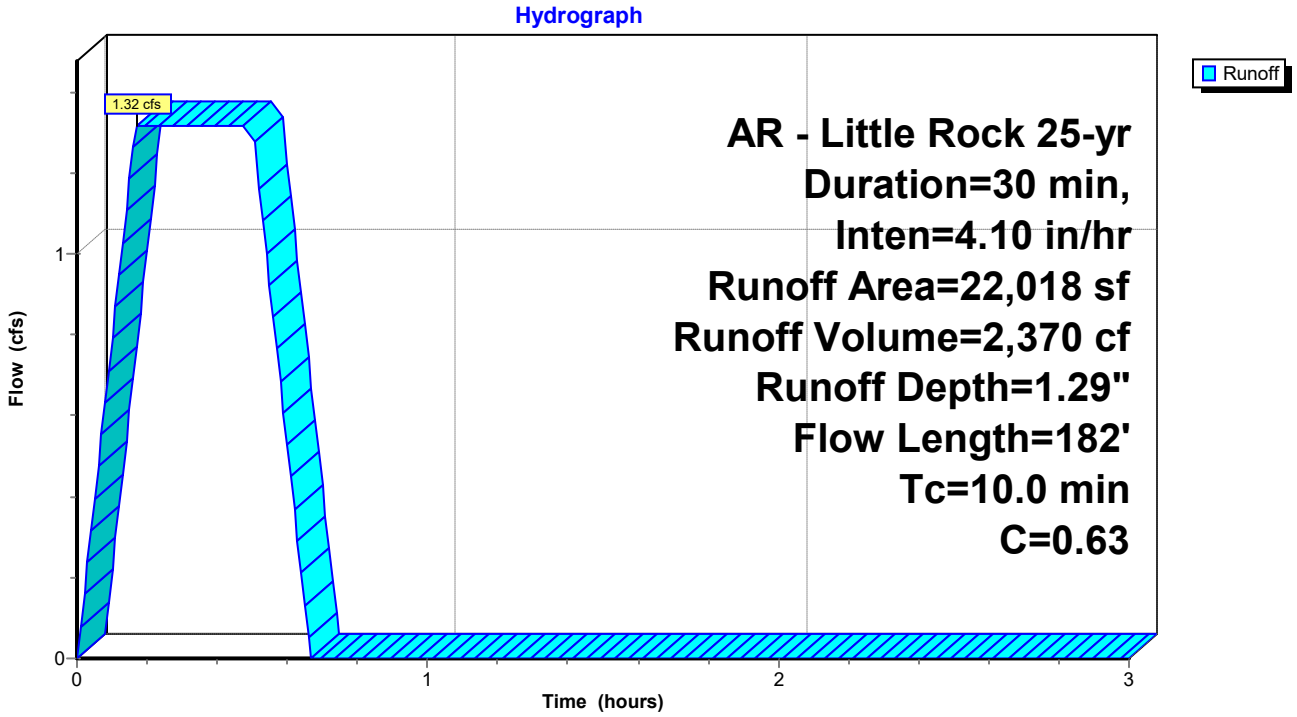
Runoff = 1.32 cfs @ 0.17 hrs, Volume= 2,370 cf, Depth= 1.29"
Routed to Pond CI-B2 : CI - B2

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
12,753	0.40	Sod Yard
9,265	0.95	Paving, Sidewalks
22,018	0.63	Weighted Average
12,753		57.92% Pervious Area
9,265		42.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.89		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
9.1	93	0.0150	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.4	40	0.0110	1.57		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	33	0.0190	2.07		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	6	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0	182	Total			

Subcatchment B5: Drainage Basin B5



Summary for Subcatchment B6: Drainage Basin B6

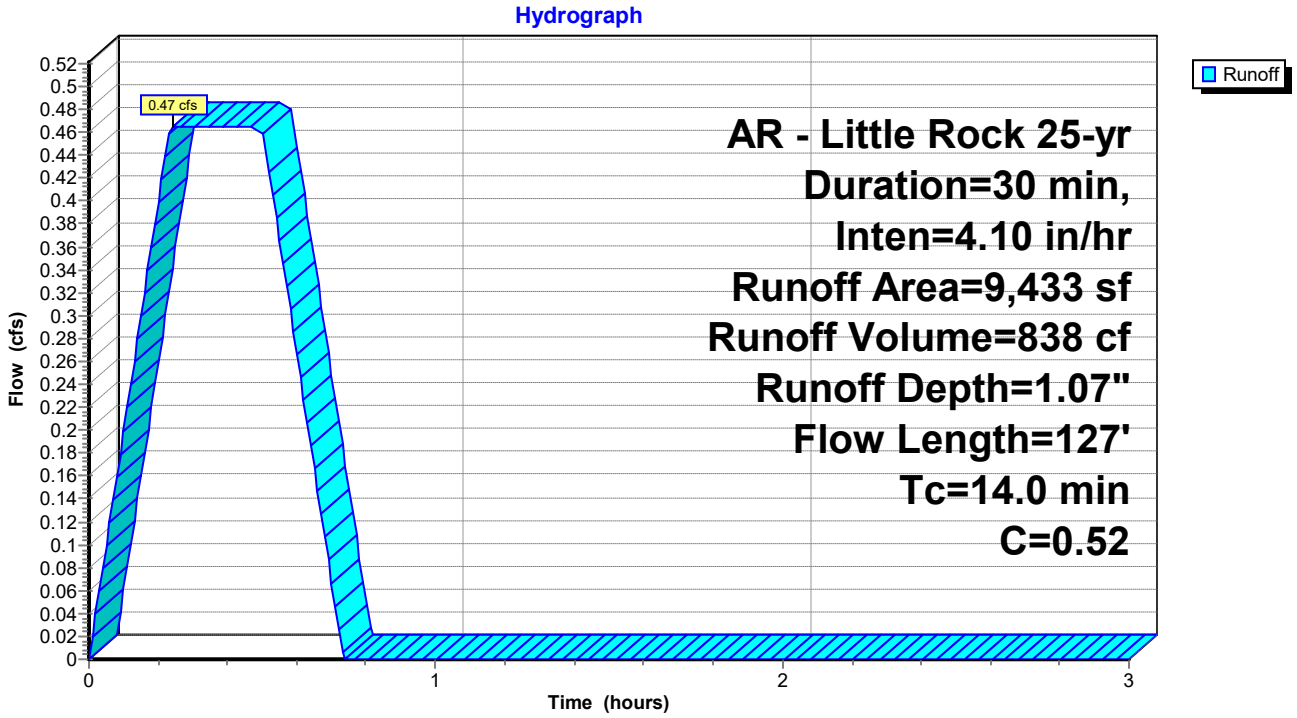
Runoff = 0.47 cfs @ 0.24 hrs, Volume= 838 cf, Depth= 1.07"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
7,346	0.40	Sod Yard
2,087	0.95	Paving, Sidewalks
9,433	0.52	Weighted Average
7,346		77.88% Pervious Area
2,087		22.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	79	0.0570	0.13		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	21	0.0620	0.10		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.0	9	0.0620	3.73		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	18	0.1080	4.93		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
14.0	127	Total			

Subcatchment B6: Drainage Basin B6



Summary for Subcatchment C1: Drainage Basin C1

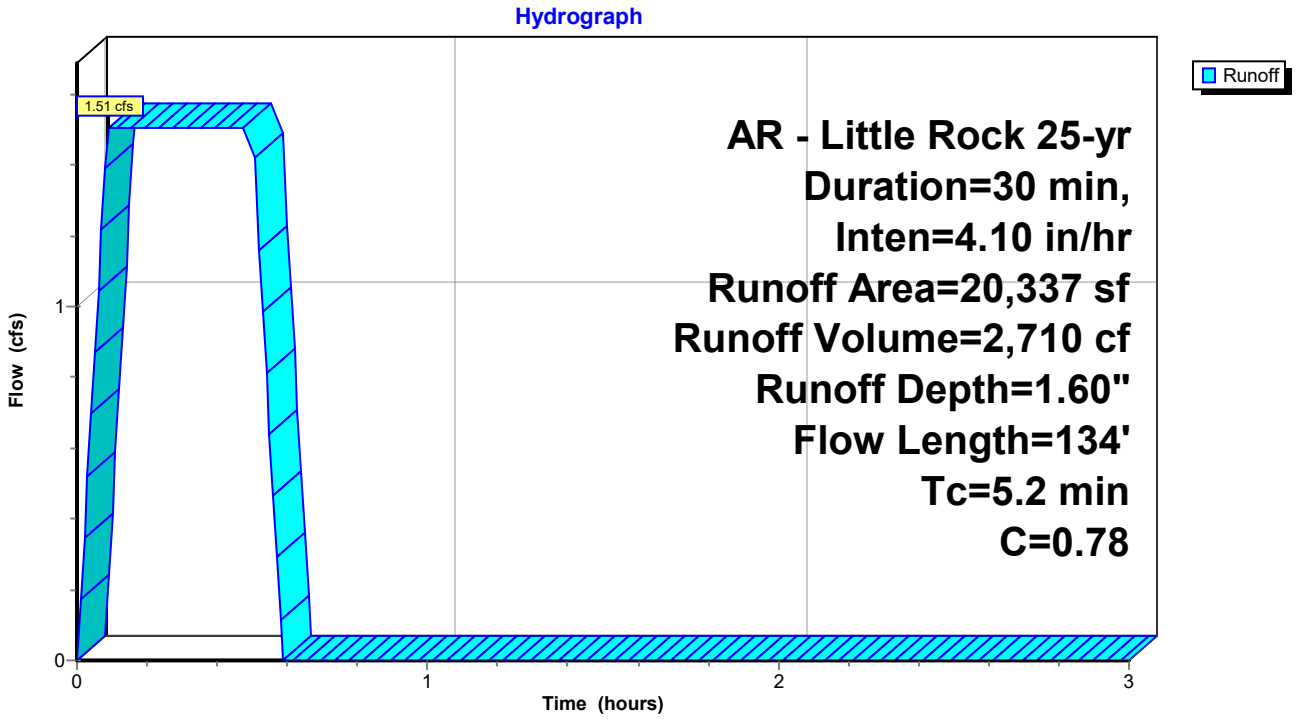
Runoff = 1.51 cfs @ 0.09 hrs, Volume= 2,710 cf, Depth= 1.60"
Routed to Pond CI-C1 : CI - C1

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
6,135	0.40	Sod Yard
14,202	0.95	Paving, Sidewalks
20,337	0.78	Weighted Average
6,135		30.17% Pervious Area
14,202		69.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.4	102	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.2	134	Total			

Subcatchment C1: Drainage Basin C1



Summary for Subcatchment C10: Drainage Basin C10

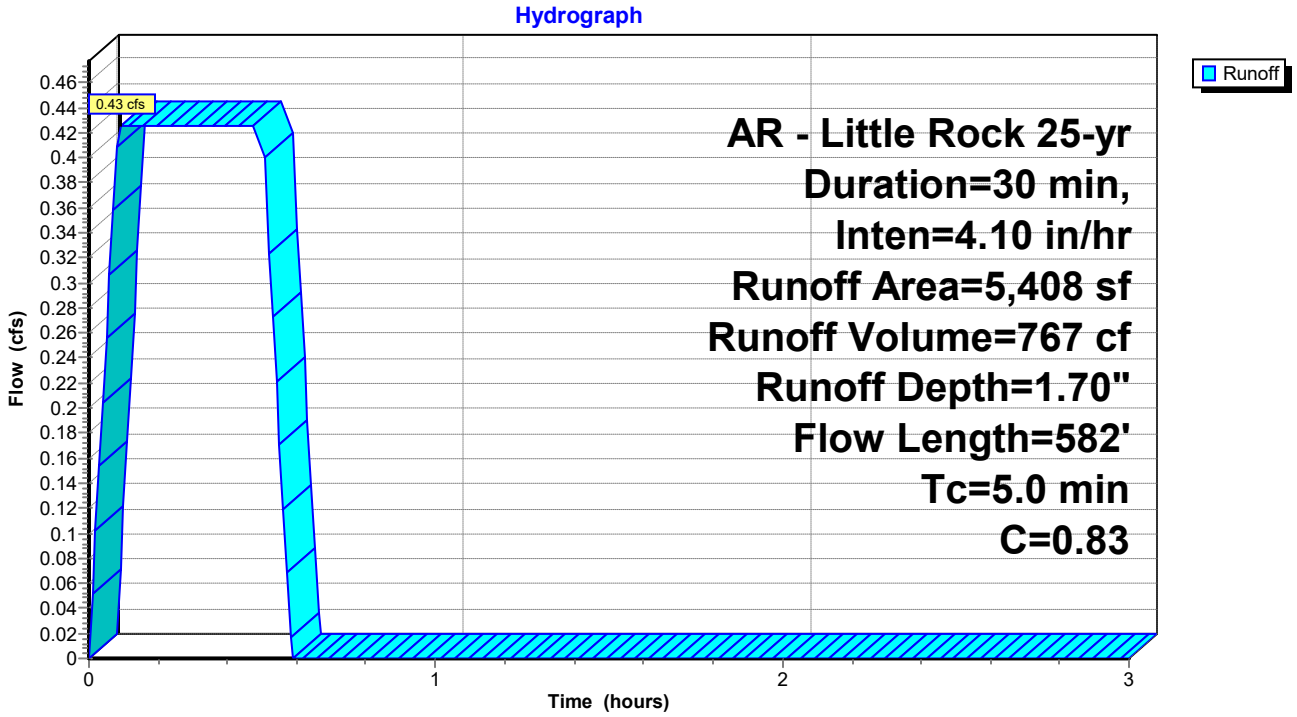
Runoff = 0.43 cfs @ 0.09 hrs, Volume= 767 cf, Depth= 1.70"
Routed to Pond CI-E1 : CI - E1

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
1,225	0.40	Sod Yard
4,183	0.95	Paving, Sidewalks
5,408	0.83	Weighted Average
1,225		22.65% Pervious Area
4,183		77.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	29	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	36	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	48	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	13	0.0350	3.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.9	415		1.77		**Direct Entry, Concentrated Flow (Min)**
5.0	582	Total			

Subcatchment C10: Drainage Basin C10



Summary for Subcatchment C11: Drainage Basin C11

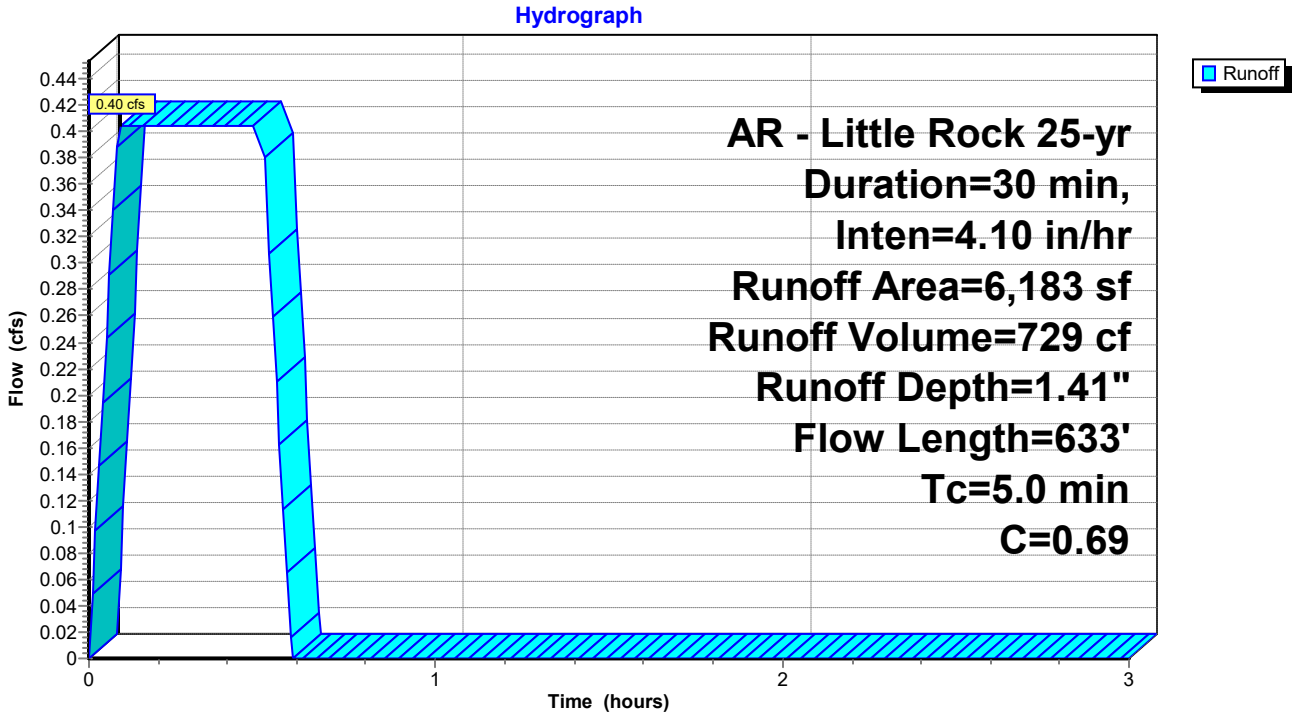
Runoff = 0.40 cfs @ 0.09 hrs, Volume= 729 cf, Depth= 1.41"
Routed to Pond CI-E2 : CI - E2

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
2,876	0.40	Sod Yard
3,307	0.95	Paving, Sidewalks
6,183	0.69	Weighted Average
2,876		46.51% Pervious Area
3,307		53.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0200	1.19		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	33	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	37	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	633	Total			

Subcatchment C11: Drainage Basin C11



Summary for Subcatchment C12: Drainage Basin C12

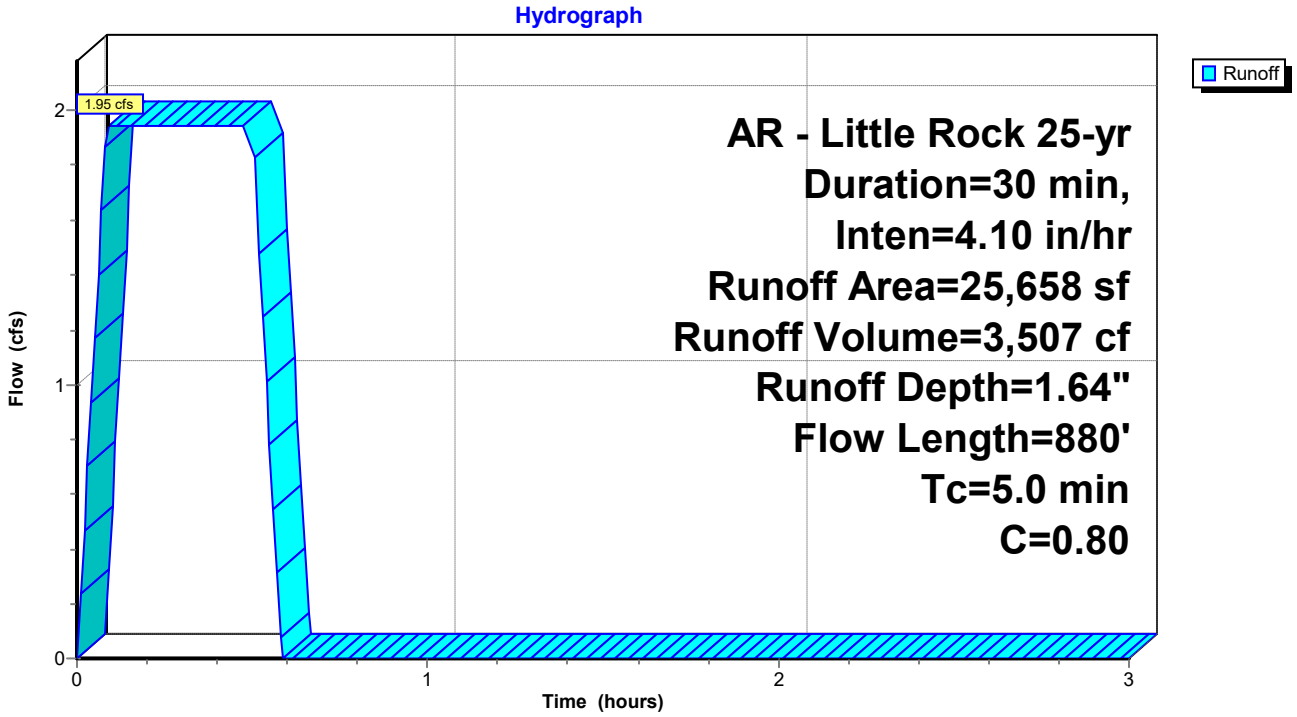
Runoff = 1.95 cfs @ 0.09 hrs, Volume= 3,507 cf, Depth= 1.64"
Routed to Pond CI-C7 : CI - C7

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
7,218	0.40	Sod Yard
18,440	0.95	Paving, Sidewalks
25,658	0.80	Weighted Average
7,218		28.13% Pervious Area
18,440		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0360	1.50		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0190	0.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.9	49	0.0020	0.91		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	96	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	94	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	25	0.0450	4.31		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	39	0.0490	4.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0460	4.35		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	11	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0440	4.26		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.3	415		3.01		**Direct Entry, Concentrated Flow (Min)**
5.0	880	Total			

Subcatchment C12: Drainage Basin C12



Summary for Subcatchment C13: Drainage Basin C13

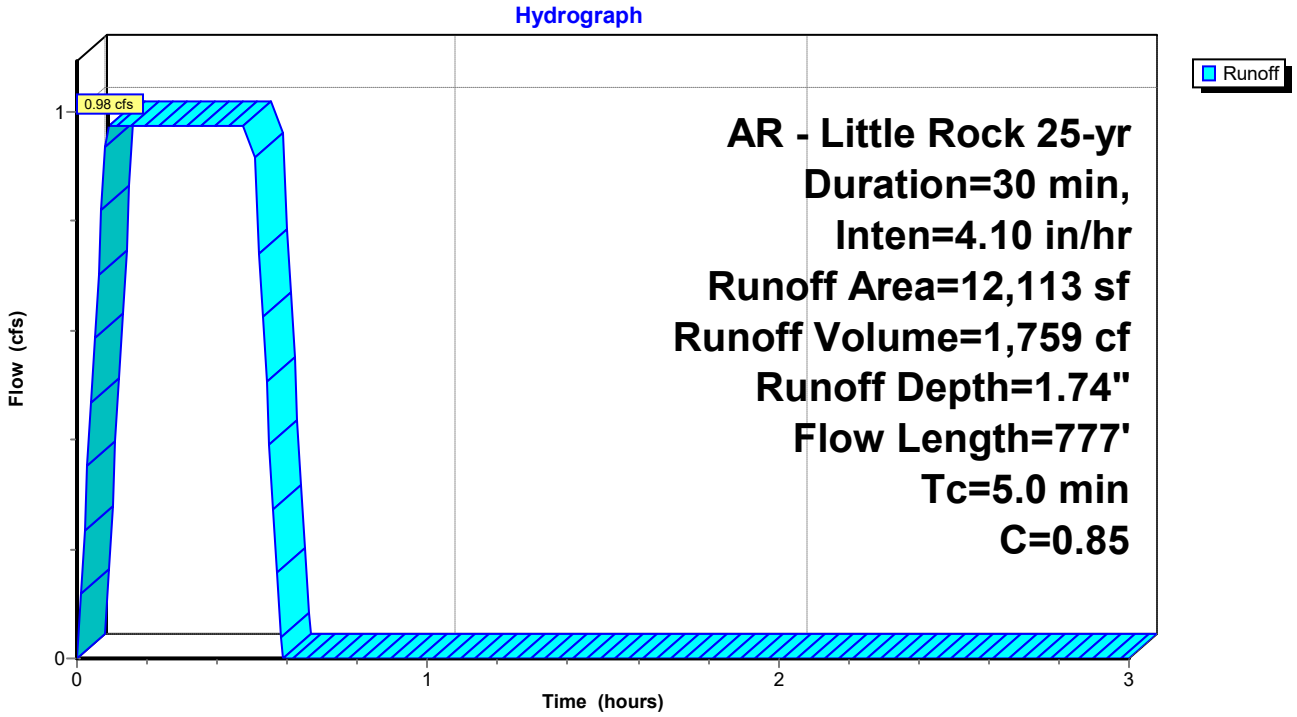
Runoff = 0.98 cfs @ 0.09 hrs, Volume= 1,759 cf, Depth= 1.74"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
2,240	0.40	Sod Yard
9,873	0.95	Paving, Sidewalks
12,113	0.85	Weighted Average
2,240		18.49% Pervious Area
9,873		81.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	75	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	42	0.0730	5.48		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	74	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	32	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.6	415		1.92		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	777	Total			

Subcatchment C13: Drainage Basin C13



Summary for Subcatchment C14: Drainage Basin C14

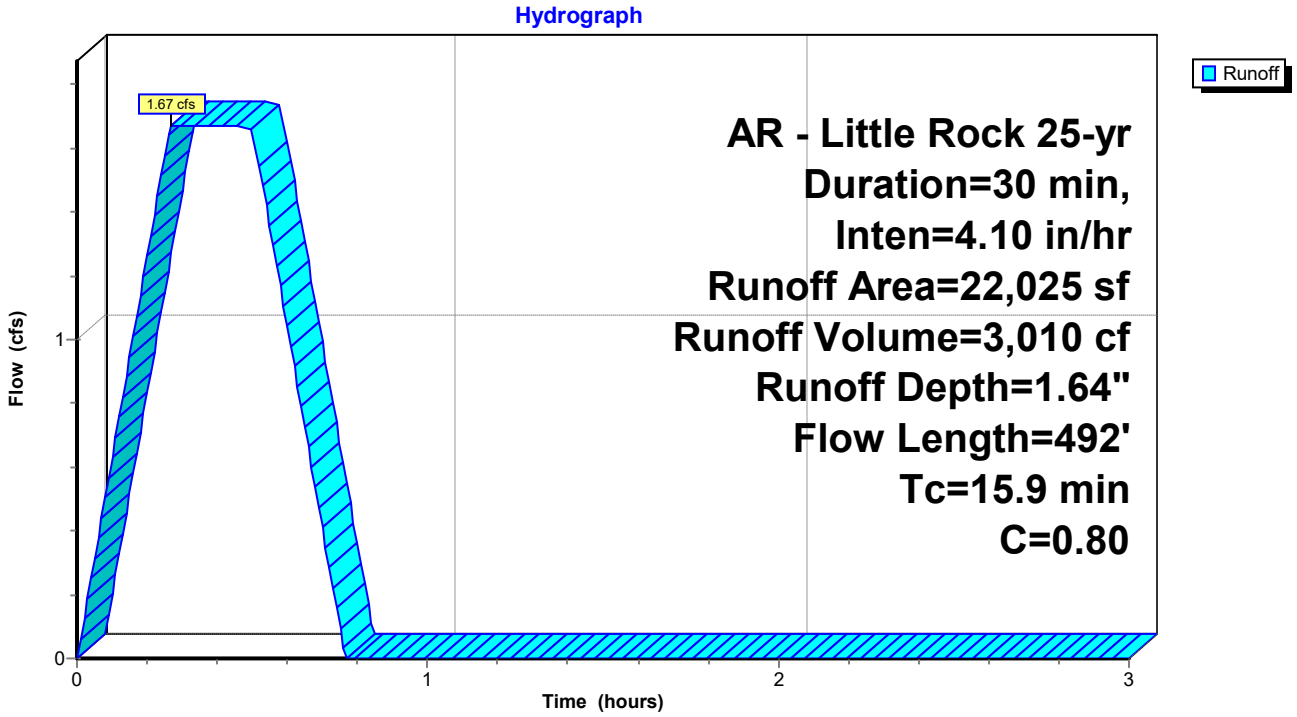
Runoff = 1.67 cfs @ 0.27 hrs, Volume= 3,010 cf, Depth= 1.64"
Routed to Pond CI-A5 : CI - A5

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
6,127	0.40	Sod Yard
15,898	0.95	Paving, Sidewalks
22,025	0.80	Weighted Average
6,127		27.82% Pervious Area
15,898		72.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	5	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
9.2	45	0.0250	0.08		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.8	41	0.1940	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	6	0.0100	0.68		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	51	0.0870	5.99		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0310	3.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0270	3.34		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	20	0.0400	4.06		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	34	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	58	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	49	0.0840	5.88		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
15.9	492	Total			

Subcatchment C14: Drainage Basin C14



Summary for Subcatchment C15: Drainage Basin C15

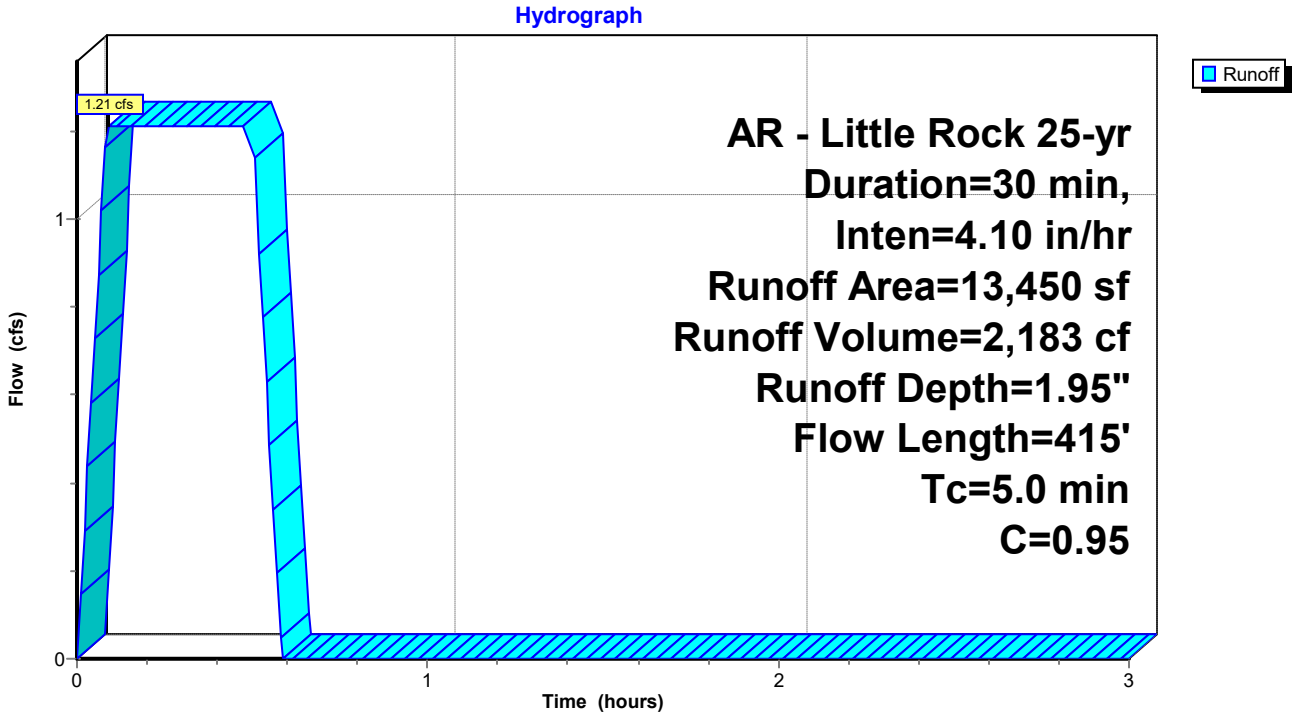
Runoff = 1.21 cfs @ 0.09 hrs, Volume= 2,183 cf, Depth= 1.95"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
13,450	0.95	Paving, Sidewalks
13,450	0.95	Weighted Average
13,450		100.00% 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 C15: Drainage Basin C15



Summary for Subcatchment C16: Drainage Basin C16

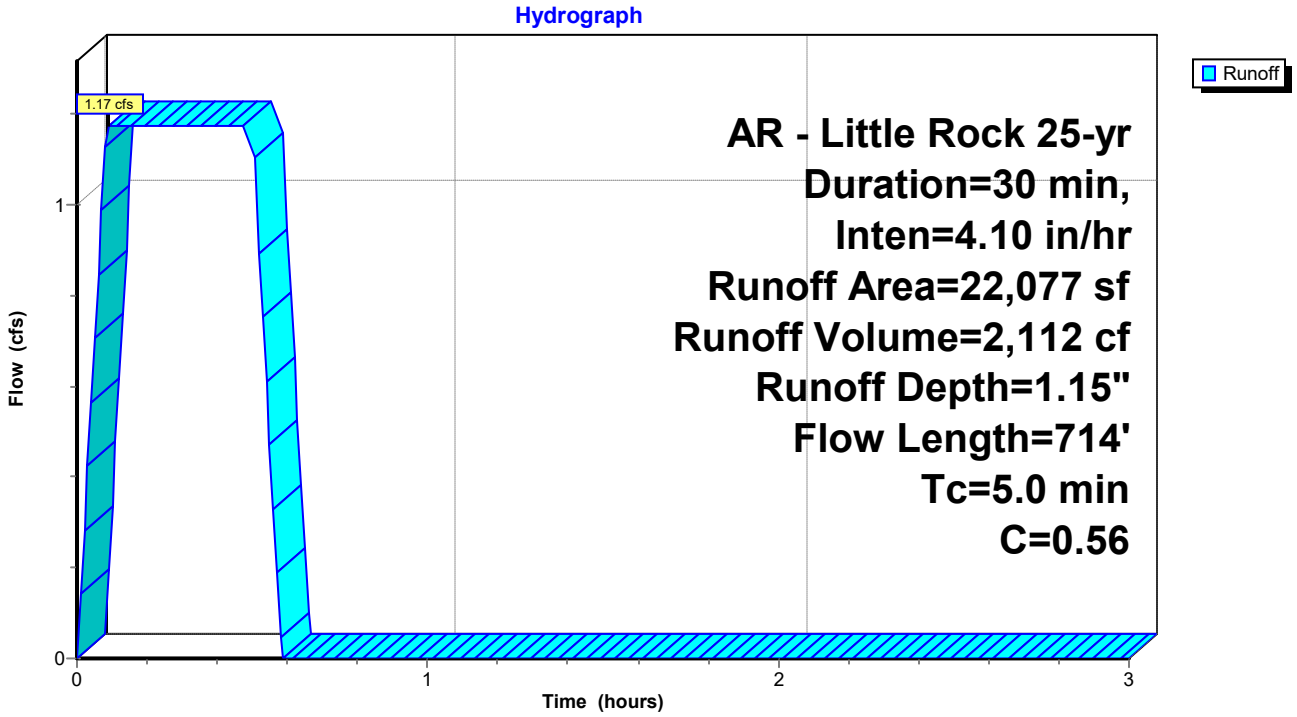
Runoff = 1.17 cfs @ 0.09 hrs, Volume= 2,112 cf, Depth= 1.15"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
15,465	0.40	Sod Yard
6,612	0.95	Paving, Sidewalks
22,077	0.56	Weighted Average
15,465		70.05% Pervious Area
6,612		29.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0190	1.18		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0100	0.66		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	51	0.0500	1.98		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	12	0.1540	2.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	50	0.1330	7.40		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.1	50	0.1170	6.94		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0430	4.21		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.3	59	0.0370	3.90		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
3.3	415		2.10		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	714	Total			

Subcatchment C16: Drainage Basin C16



Summary for Subcatchment C17: Drainage Basin C17

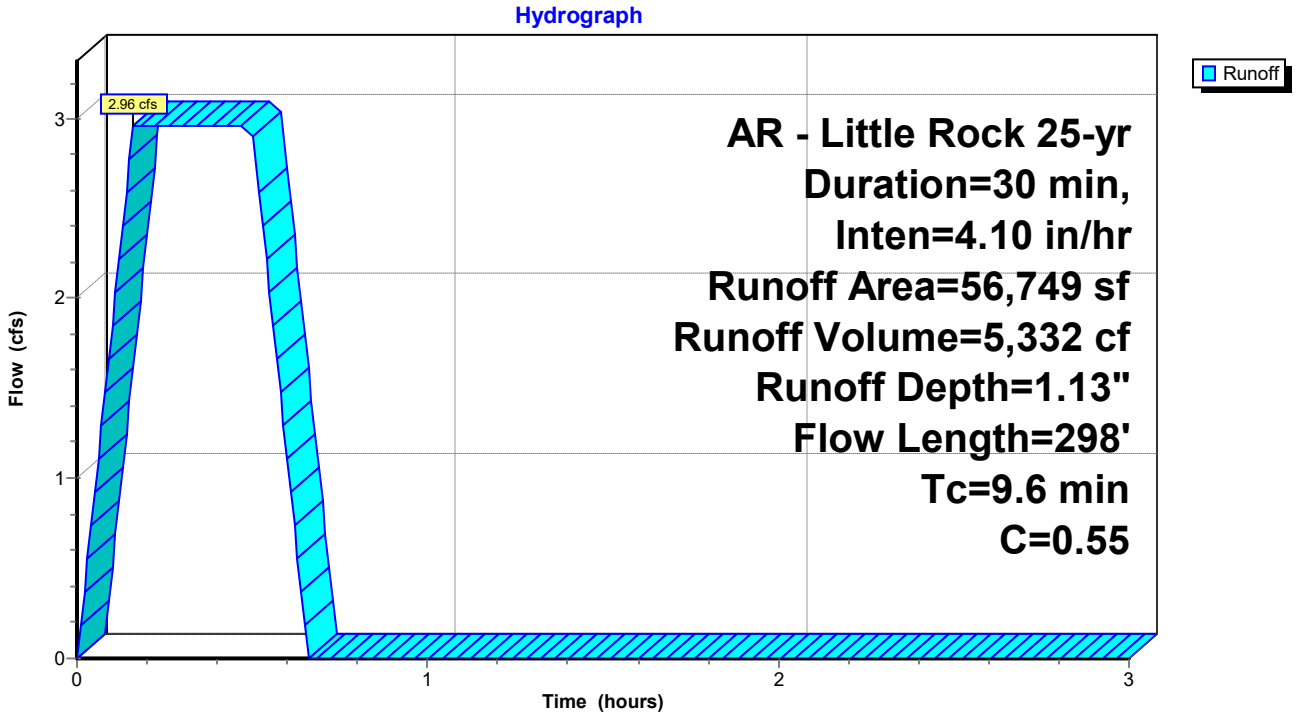
Runoff = 2.96 cfs @ 0.16 hrs, Volume= 5,332 cf, Depth= 1.13"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
40,914	0.40	Sod Yard
15,835	0.95	Paving, Sidewalks
56,749	0.55	Weighted Average
40,914		72.10% Pervious Area
15,835		27.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	43	0.0410	0.15		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.9	43	0.0690	0.19		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	41	0.0980	4.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	61	0.0730	4.05		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0570	3.58		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	64	0.0450	3.18		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
9.6	298	Total			

Subcatchment C17: Drainage Basin C17



Summary for Subcatchment C18: Drainage Basin C18

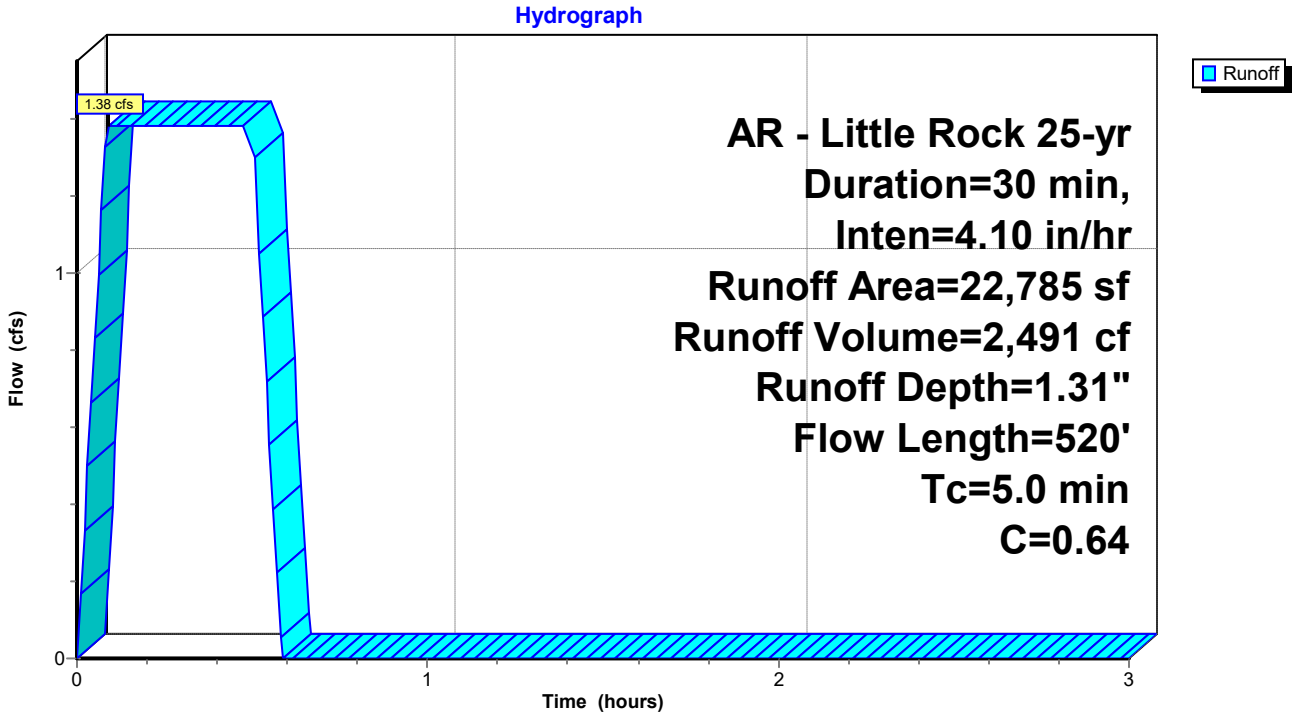
Runoff = 1.38 cfs @ 0.09 hrs, Volume= 2,491 cf, Depth= 1.31"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
12,812	0.40	Sod Yard
9,973	0.95	Paving, Sidewalks
22,785	0.64	Weighted Average
12,812		56.23% Pervious Area
9,973		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2980	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.3	8	0.0100	0.04		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	80	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	415		17.29		**Direct Entry, Concentrated Flow (Min)**
5.0	520	Total			

Subcatchment C18: Drainage Basin C18



Summary for Subcatchment C19: Drainage Basin C19

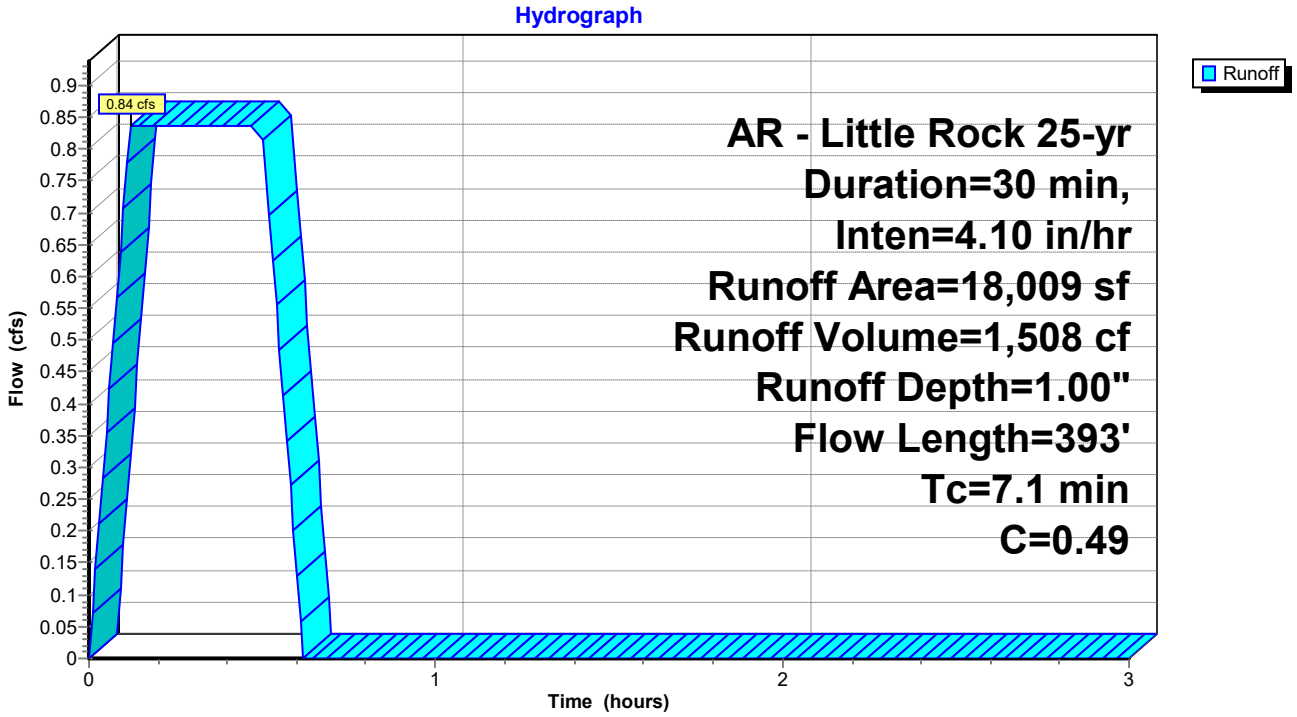
Runoff = 0.84 cfs @ 0.12 hrs, Volume= 1,508 cf, Depth= 1.00"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
15,129	0.40	Sod Yard
2,880	0.95	Paving, Sidewalks
18,009	0.49	Weighted Average
15,129		84.01% Pervious Area
2,880		15.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	34	0.1110	0.21		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.3	66	0.2450	0.34		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.0	9	0.2450	7.42		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.5	106	0.0610	3.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0800	4.24		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	41	0.0960	4.65		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	66	0.0680	3.91		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	19	0.1070	6.64		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
7.1	393	Total			

Subcatchment C19: Drainage Basin C19



Summary for Subcatchment C2: Drainage Basin C2

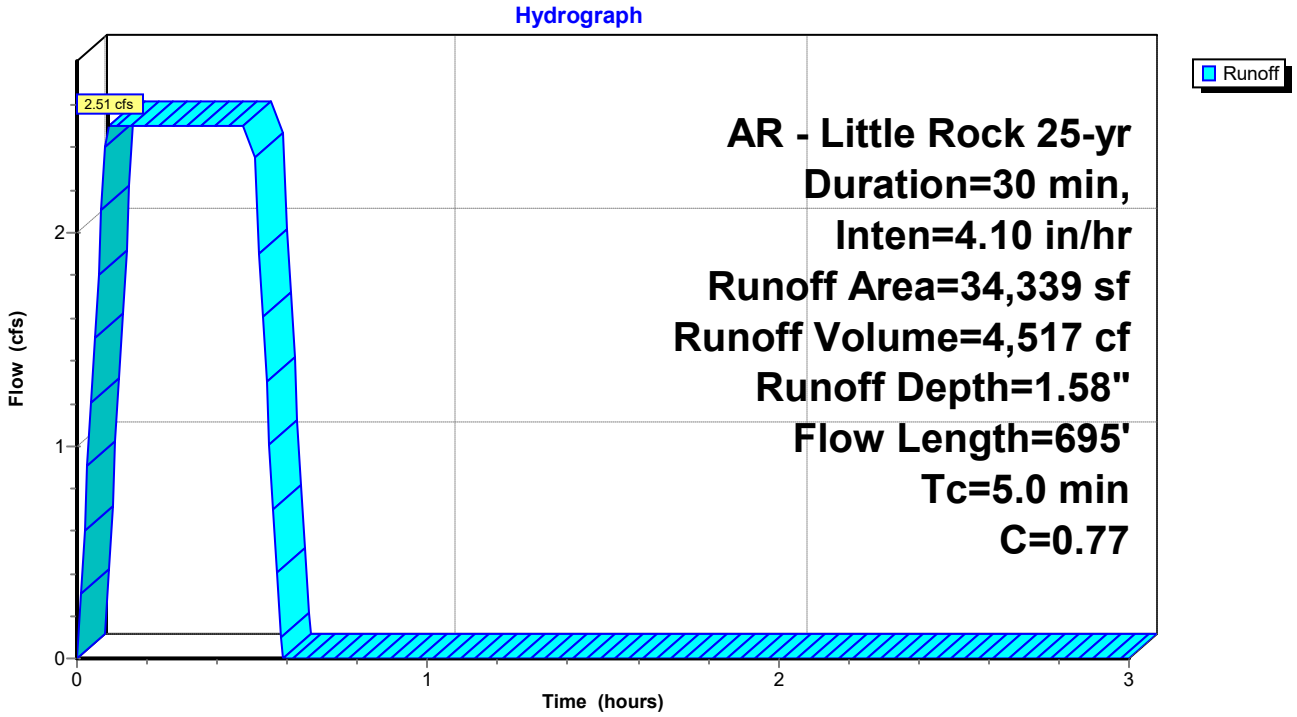
Runoff = 2.51 cfs @ 0.09 hrs, Volume= 4,517 cf, Depth= 1.58"
Routed to Pond CI-C2 : CI - C2

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
11,376	0.40	Sod Yard
22,963	0.95	Roof, Paving, Sidewalks
34,339	0.77	Weighted Average
11,376		33.13% Pervious Area
22,963		66.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.14		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	74	0.0240	3.14		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	21	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	148	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.5	415		1.98		**Direct Entry, Concentrated Flow (Min)**
5.0	695	Total			

Subcatchment C2: Drainage Basin C2



Summary for Subcatchment C20: Drainage Basin C20

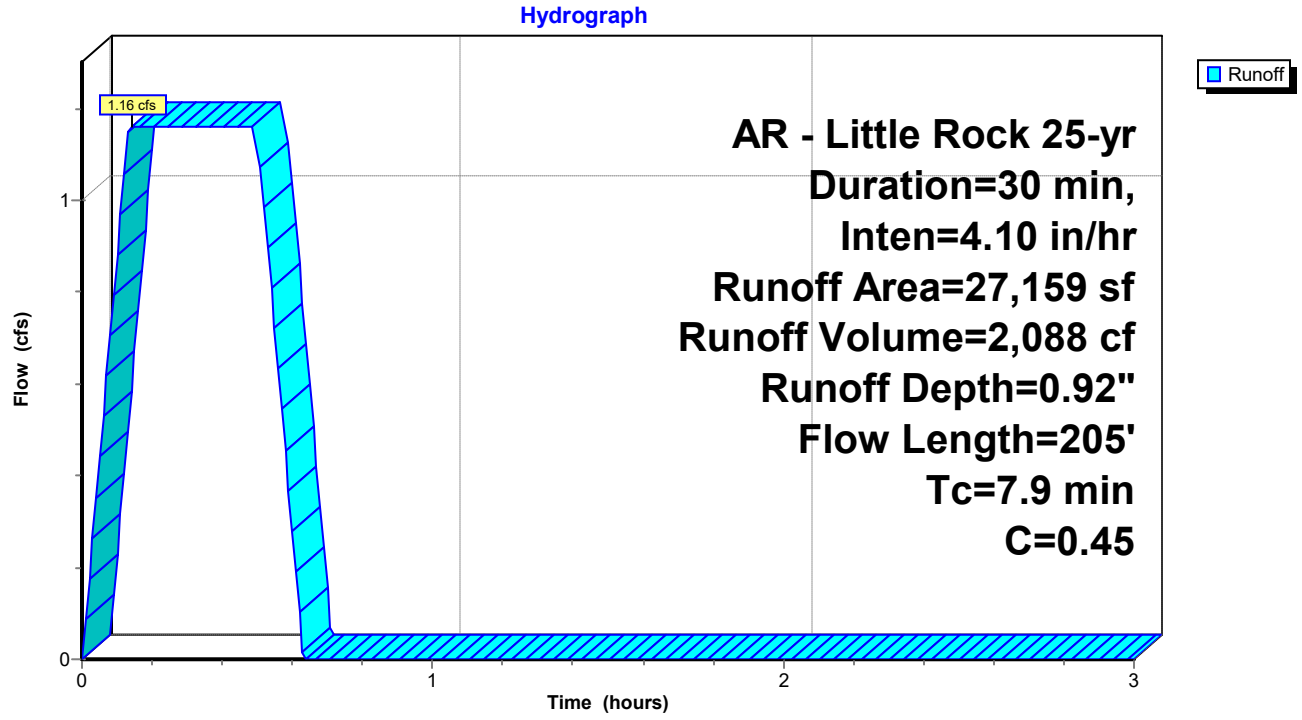
Runoff = 1.16 cfs @ 0.14 hrs, Volume= 2,088 cf, Depth= 0.92"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
24,838	0.40	Sod Yard
2,321	0.95	Paving, Sidewalks
27,159	0.45	Weighted Average
24,838		91.45% Pervious Area
2,321		8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	45	0.1430	0.25		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
4.5	55	0.0780	0.20		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	37	0.0780	4.19		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	68	0.0710	4.00		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
7.9	205	Total			

Subcatchment C20: Drainage Basin C20



Summary for Subcatchment C21: Drainage Basin C21

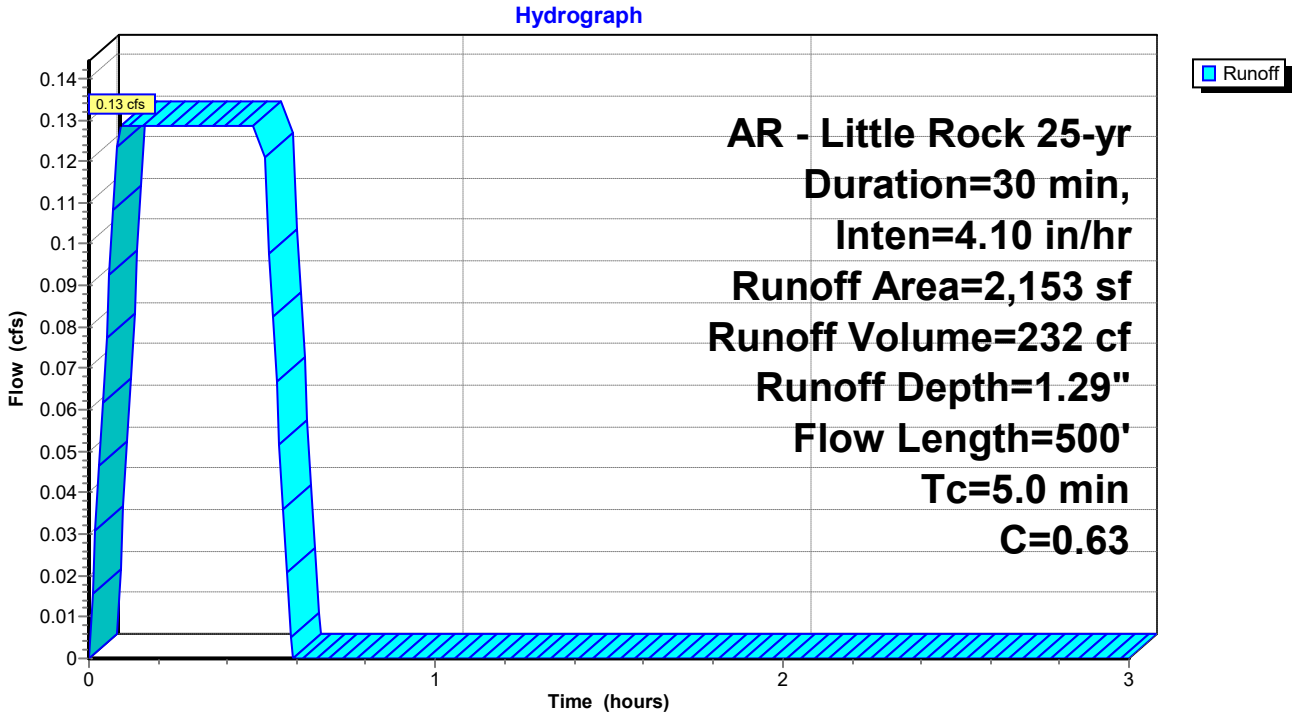
Runoff = 0.13 cfs @ 0.09 hrs, Volume= 232 cf, Depth= 1.29"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
1,234	0.40	Sod Yard
919	0.95	Paving, Sidewalks
2,153	0.63	Weighted Average
1,234		57.32% Pervious Area
919		42.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	2	0.2500	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.3	33	0.0520	1.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.8	24	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	26	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.5	415		13.83		**Direct Entry, Concentrated Flow (Min)**
5.0	500	Total			

Subcatchment C21: Drainage Basin C21



Summary for Subcatchment C3: Drainage Basin C3

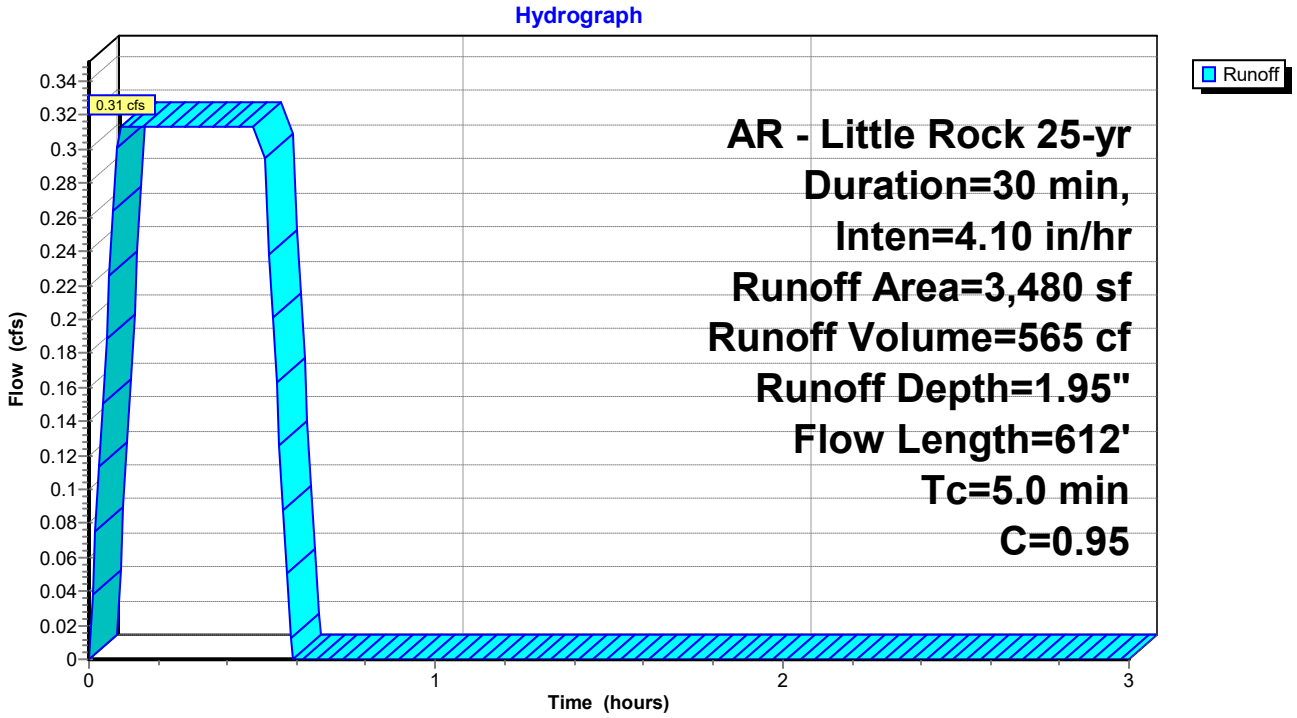
Runoff = 0.31 cfs @ 0.09 hrs, Volume= 565 cf, Depth= 1.95"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
3,480	0.95	Paving, Sidewalks
3,480	0.95	Weighted Average
3,480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	10	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	147	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	612	Total			

Subcatchment C3: Drainage Basin C3



Summary for Subcatchment C4: Drainage Basin C4

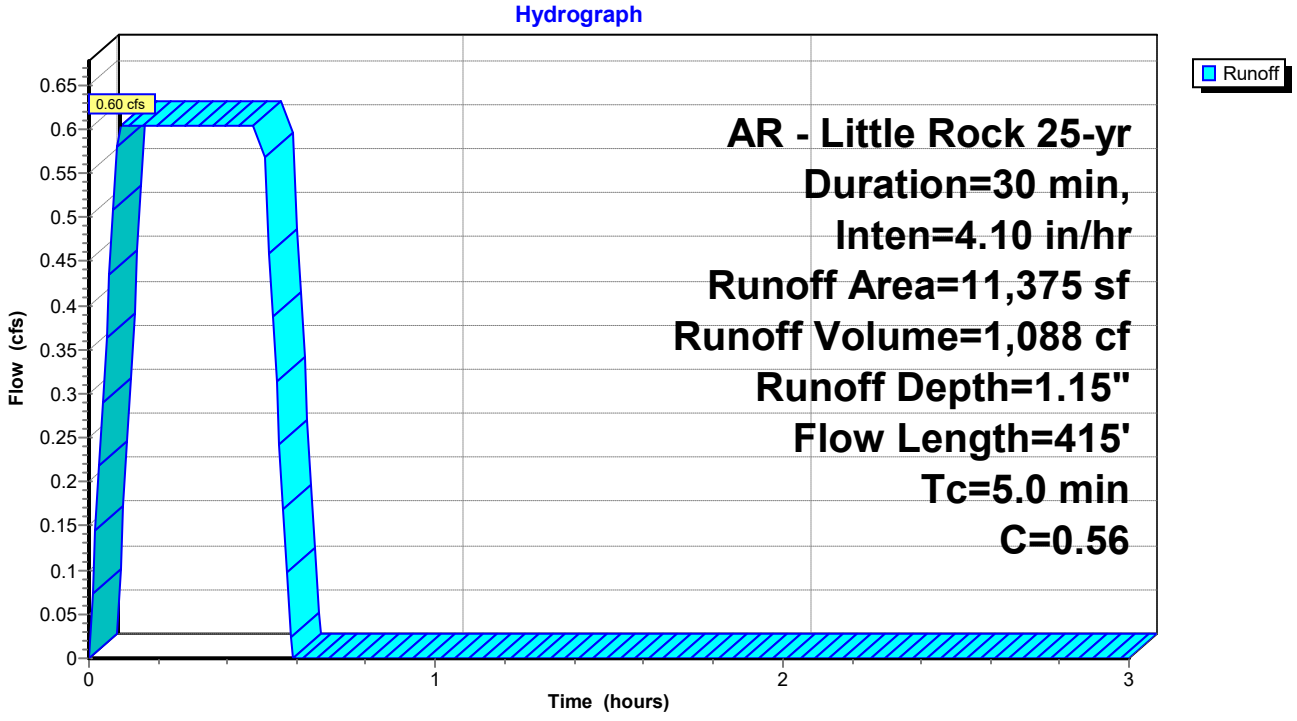
Runoff = 0.60 cfs @ 0.09 hrs, Volume= 1,088 cf, Depth= 1.15"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
8,130	0.40	Sod Yard
3,245	0.95	Paving, Sidewalks
11,375	0.56	Weighted Average
8,130		71.47% Pervious Area
3,245		28.53% Impervious Area

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

Subcatchment C4: Drainage Basin C4



Summary for Subcatchment C5: Drainage Basin C5

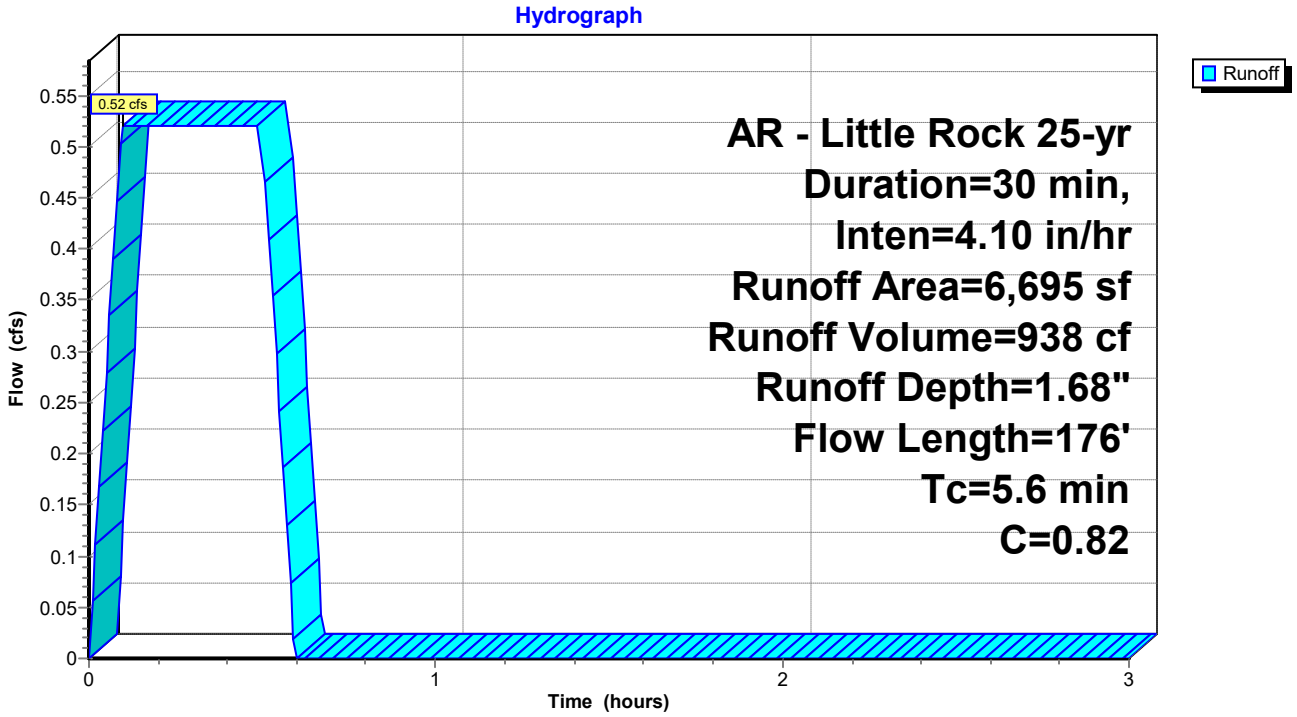
Runoff = 0.52 cfs @ 0.10 hrs, Volume= 938 cf, Depth= 1.68"
Routed to Pond CI-C4 : CI - C4

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
1,634	0.40	Sod Yard
5,061	0.95	Paving, Sidewalks
6,695	0.82	Weighted Average
1,634		24.41% Pervious Area
5,061		75.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2990	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.9	8	0.0070	0.03		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	58	0.0080	1.82		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	14	0.0280	3.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0370	3.90		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0940	6.22		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	30	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.6	176	Total			

Subcatchment C5: Drainage Basin C5



Summary for Subcatchment C6: Drainage Basin C6

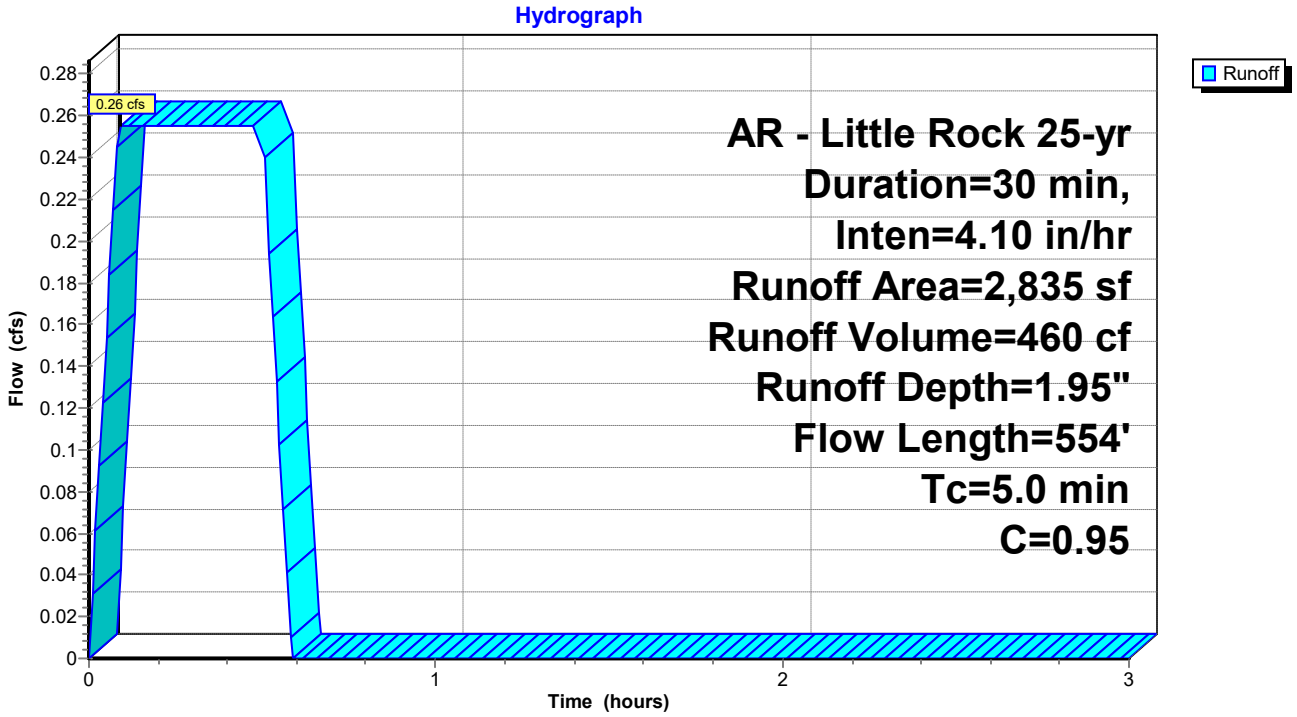
Runoff = 0.26 cfs @ 0.09 hrs, Volume= 460 cf, Depth= 1.95"
Routed to Pond CI-C5 : CI - C5

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
2,835	0.95	Paving, Sidewalks
2,835	0.95	Weighted Average
2,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0360	3.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	27	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.1	415		1.69		**Direct Entry, Concentrated Flow (Min)**
5.0	554	Total			

Subcatchment C6: Drainage Basin C6



Summary for Subcatchment C7: Drainage Basin C7

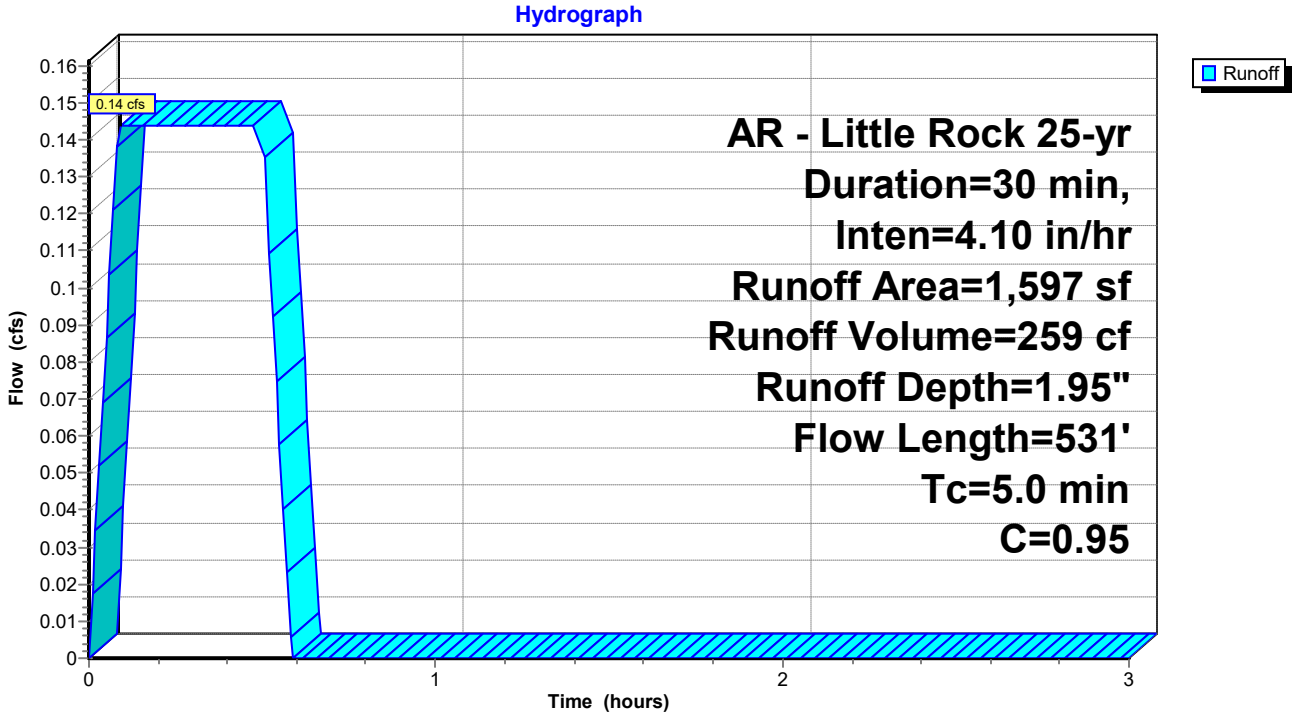
Runoff = 0.14 cfs @ 0.09 hrs, Volume= 259 cf, Depth= 1.95"
Routed to Pond CI-D1 : CI - D1

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,597	0.95	Paving, Sidewalks
1,597	0.95	Weighted Average
1,597		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	16	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	81	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.3	415		1.61		**Direct Entry, Concentrated Flow (Min)**
5.0	531	Total			

Subcatchment C7: Drainage Basin C7



Summary for Subcatchment C8: Drainage Basin C8

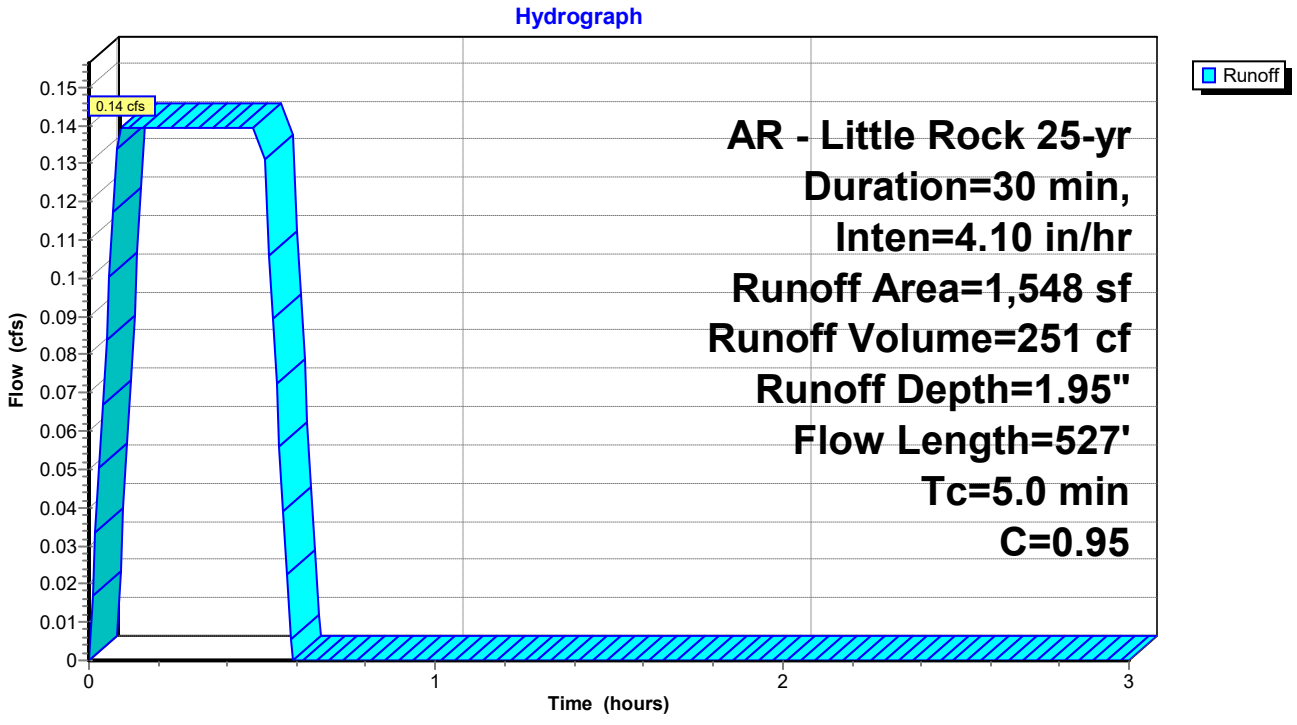
Runoff = 0.14 cfs @ 0.09 hrs, Volume= 251 cf, Depth= 1.95"
Routed to Pond CI-D2 : CI - D2

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,548	0.95	Paving, Sidewalks
1,548	0.95	Weighted Average
1,548		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	94	0.0610	5.01		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
4.4	415		1.57		**Direct Entry, Concentrated Flow (Min)**
5.0	527	Total			

Subcatchment C8: Drainage Basin C8



Summary for Subcatchment C9: Drainage Basin C9

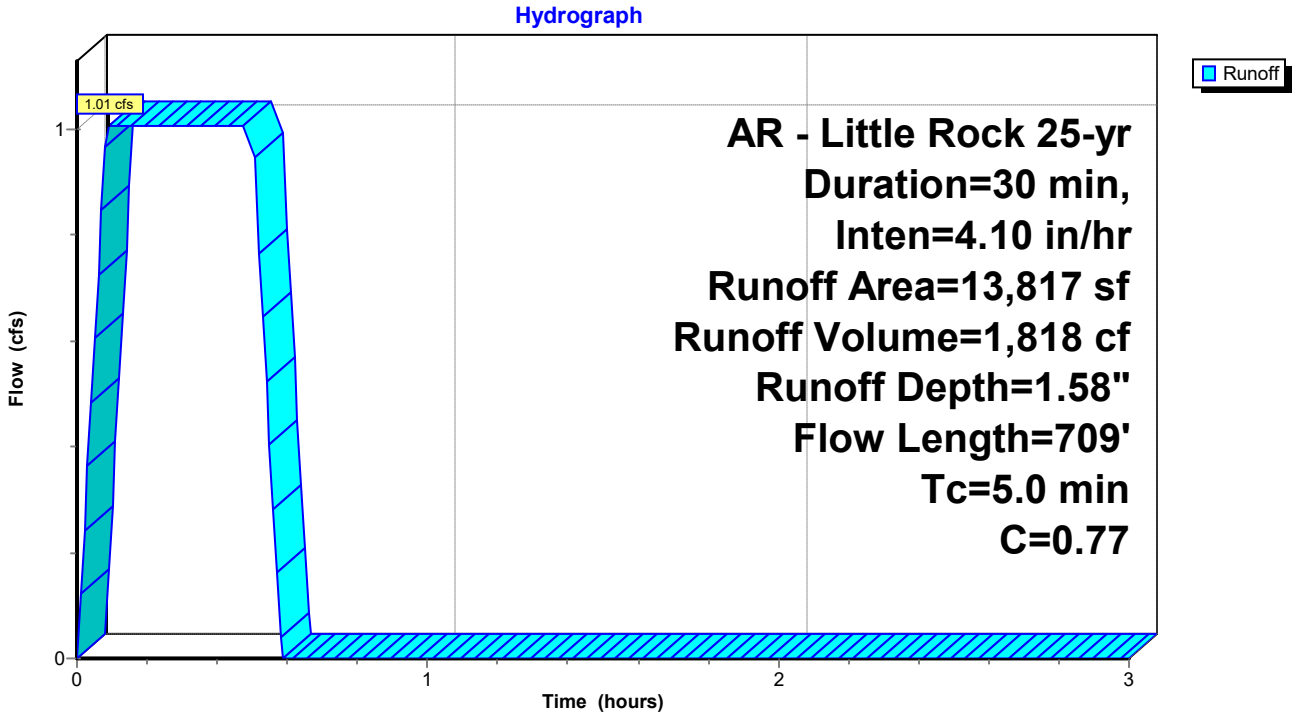
Runoff = 1.01 cfs @ 0.09 hrs, Volume= 1,818 cf, Depth= 1.58"
Routed to Pond CI-C6 : CI - C6

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=30 min, Inten=4.10 in/hr

Area (sf)	C	Description
4,456	0.40	Sod Yard
9,361	0.95	Paving, Sidewalks
13,817	0.77	Weighted Average
4,456		32.25% Pervious Area
9,361		67.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0140	1.36		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	13	0.0150	2.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0160	2.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	7	0.0050	1.44		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	8	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	41	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	41	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	61	0.0520	4.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.9	415		2.39		**Direct Entry, Concentrated Flow (Min)**
5.0	709	Total			

Subcatchment C9: Drainage Basin C9

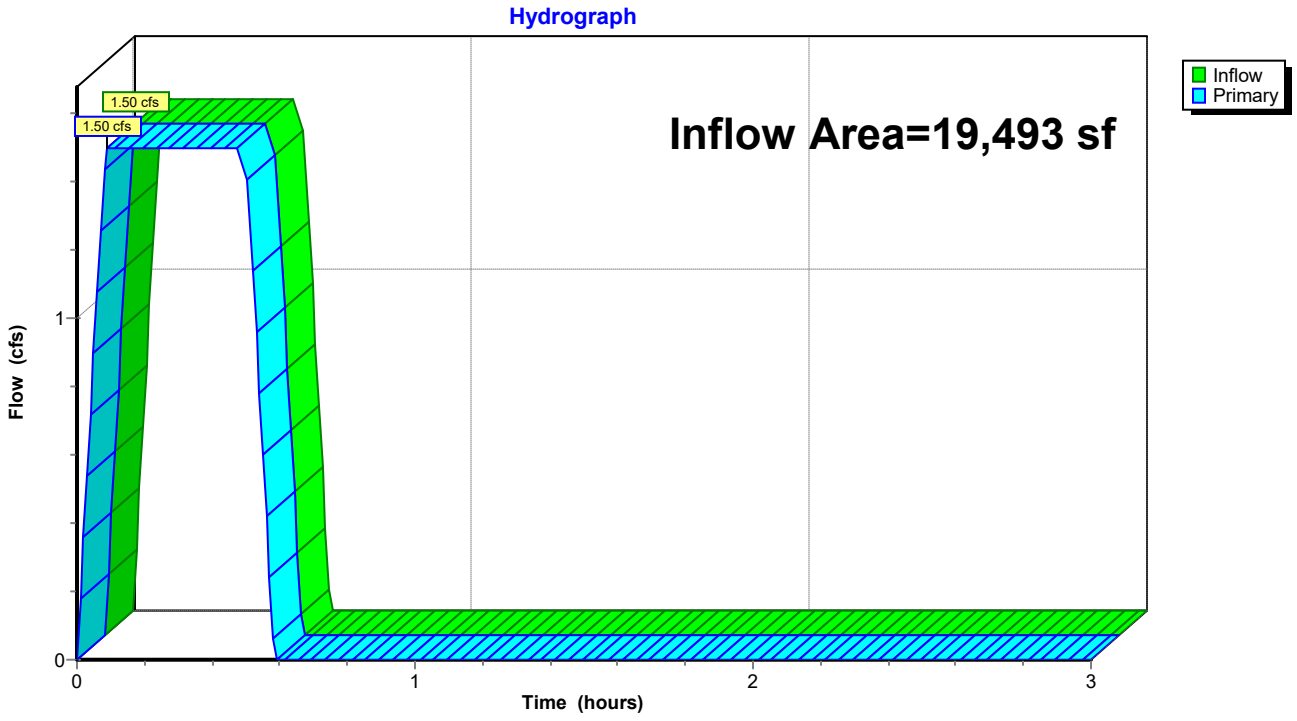


Summary for Pond CI-A1: CI - A1

Inflow Area = 19,493 sf, 74.85% Impervious, Inflow Depth = 1.66" for 25-yr event
Inflow = 1.50 cfs @ 0.09 hrs, Volume= 2,697 cf
Primary = 1.50 cfs @ 0.09 hrs, Volume= 2,697 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-A1: CI - A1

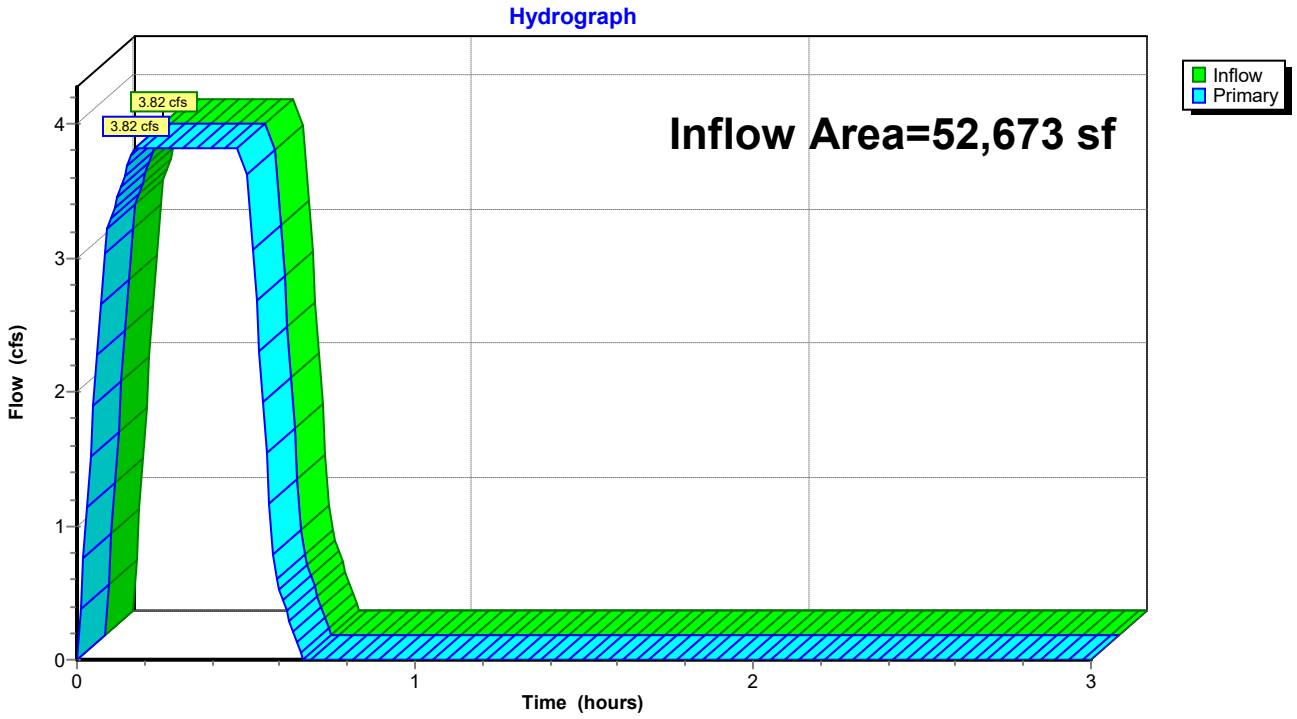


Summary for Pond CI-A3: CI - A3

Inflow Area = 52,673 sf, 66.48% Impervious, Inflow Depth = 1.57" for 25-yr event
Inflow = 3.82 cfs @ 0.17 hrs, Volume= 6,879 cf
Primary = 3.82 cfs @ 0.17 hrs, Volume= 6,879 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A4 : CI - A4

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

Pond CI-A3: CI - A3

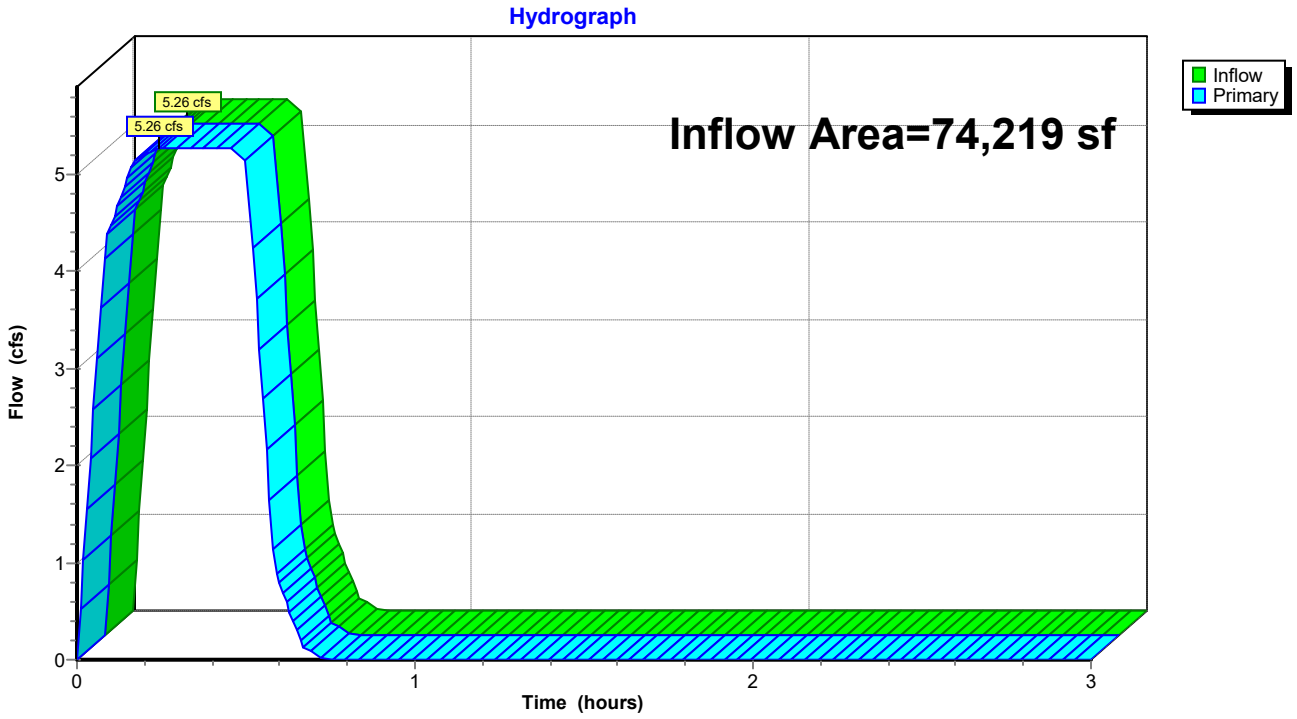


Summary for Pond CI-A4: CI - A4

Inflow Area = 74,219 sf, 63.30% Impervious, Inflow Depth = 1.53" for 25-yr event
Inflow = 5.26 cfs @ 0.24 hrs, Volume= 9,475 cf
Primary = 5.26 cfs @ 0.24 hrs, Volume= 9,475 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A5 : CI - A5

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

Pond CI-A4: CI - A4

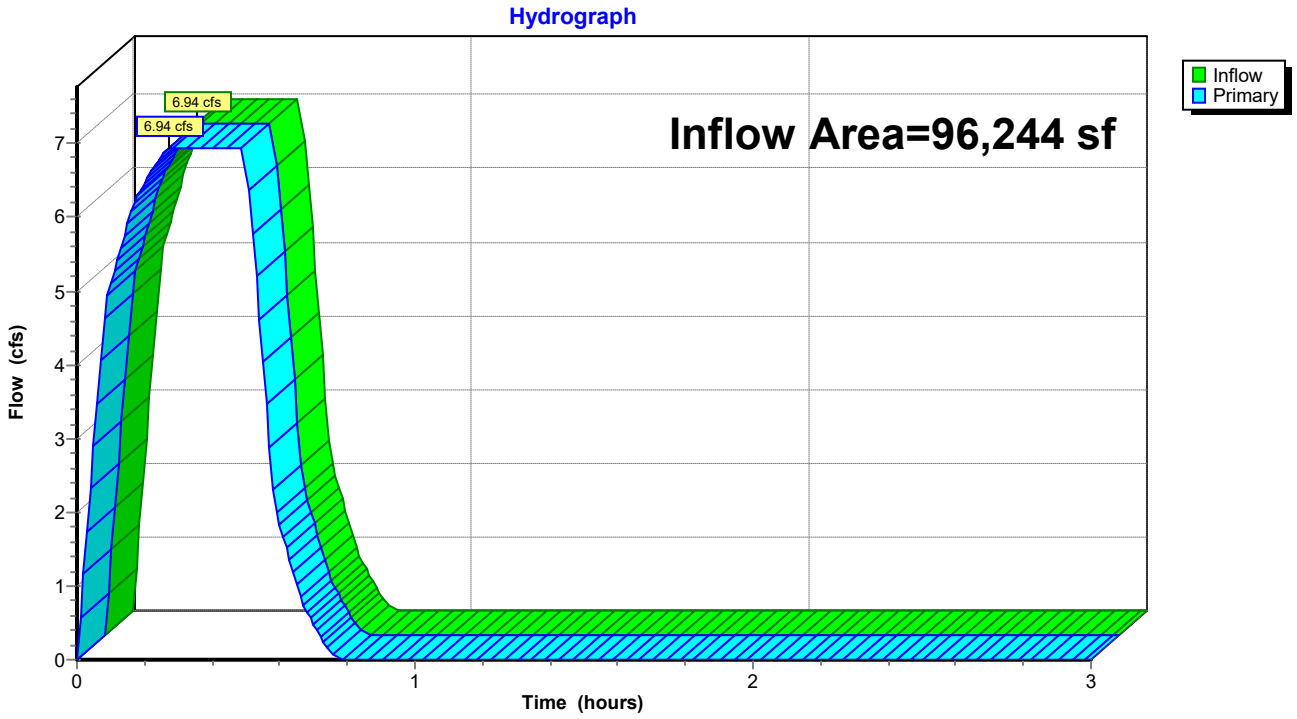


Summary for Pond CI-A5: CI - A5

Inflow Area = 96,244 sf, 65.33% Impervious, Inflow Depth = 1.56" for 25-yr event
Inflow = 6.94 cfs @ 0.27 hrs, Volume= 12,485 cf
Primary = 6.94 cfs @ 0.27 hrs, Volume= 12,485 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-A5: CI - A5

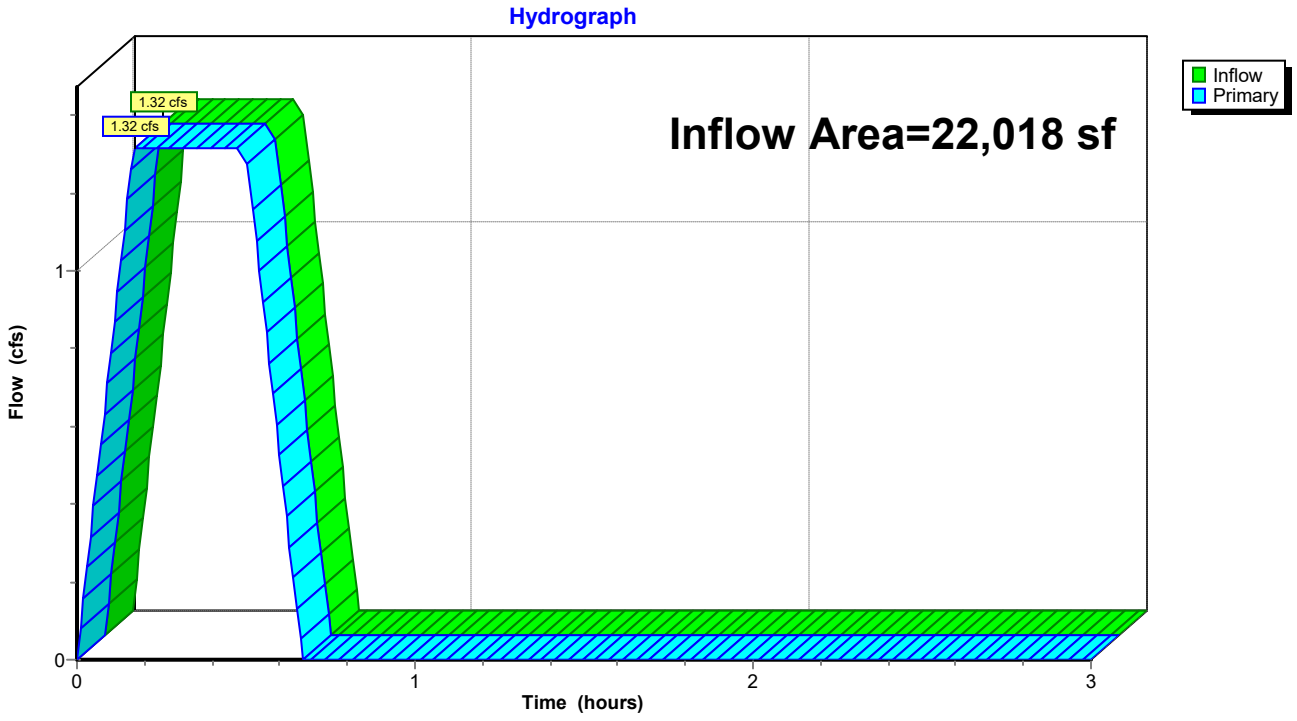


Summary for Pond CI-B2: CI - B2

Inflow Area = 22,018 sf, 42.08% Impervious, Inflow Depth = 1.29" for 25-yr event
Inflow = 1.32 cfs @ 0.17 hrs, Volume= 2,370 cf
Primary = 1.32 cfs @ 0.17 hrs, Volume= 2,370 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-B2: CI - B2

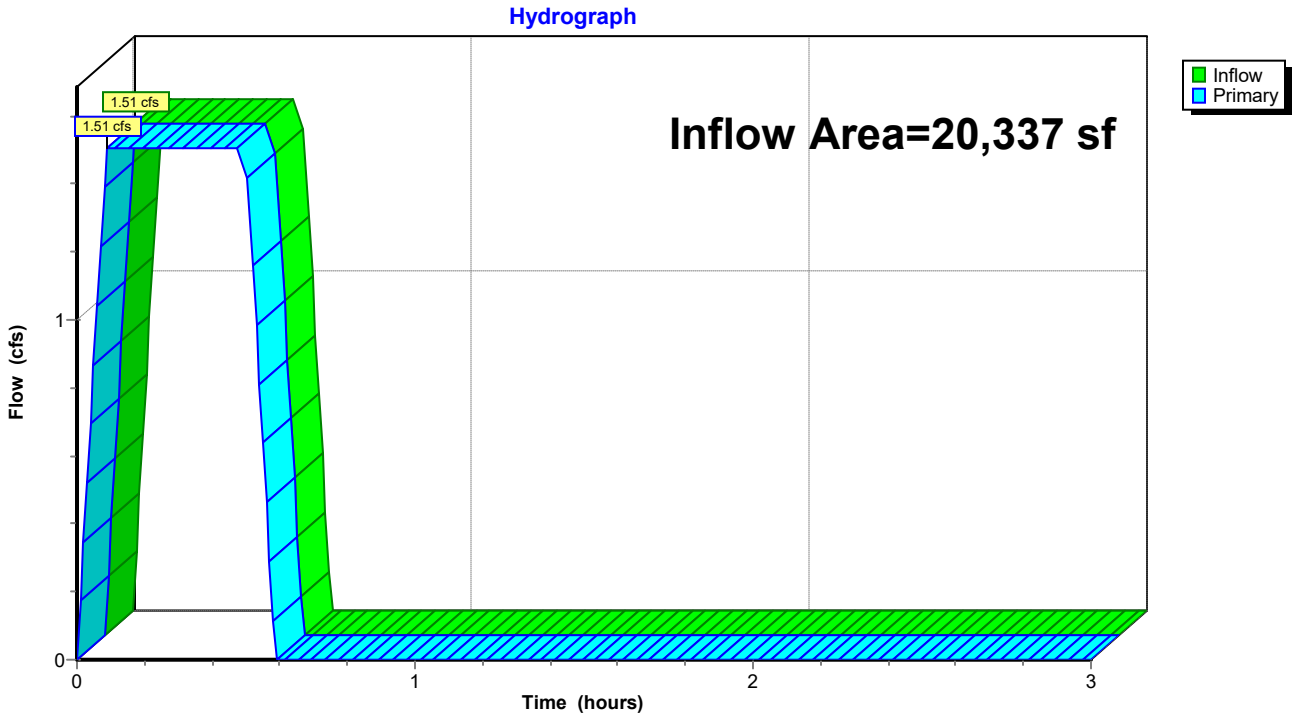


Summary for Pond CI-C1: CI - C1

Inflow Area = 20,337 sf, 69.83% Impervious, Inflow Depth = 1.60" for 25-yr event
Inflow = 1.51 cfs @ 0.09 hrs, Volume= 2,710 cf
Primary = 1.51 cfs @ 0.09 hrs, Volume= 2,710 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C2 : CI - C2

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

Pond CI-C1: CI - C1

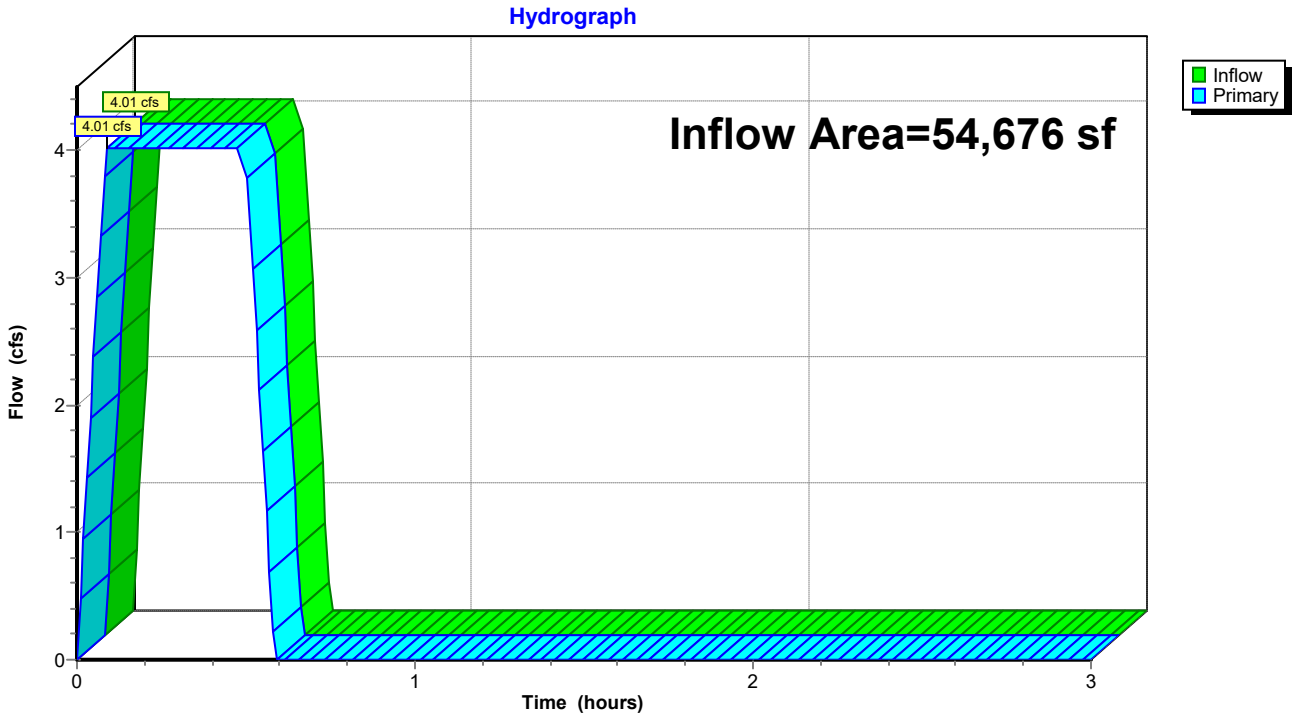


Summary for Pond CI-C2: CI - C2

Inflow Area = 54,676 sf, 67.97% Impervious, Inflow Depth = 1.59" for 25-yr event
Inflow = 4.01 cfs @ 0.09 hrs, Volume= 7,227 cf
Primary = 4.01 cfs @ 0.09 hrs, Volume= 7,227 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C3 : CI - C3

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

Pond CI-C2: CI - C2

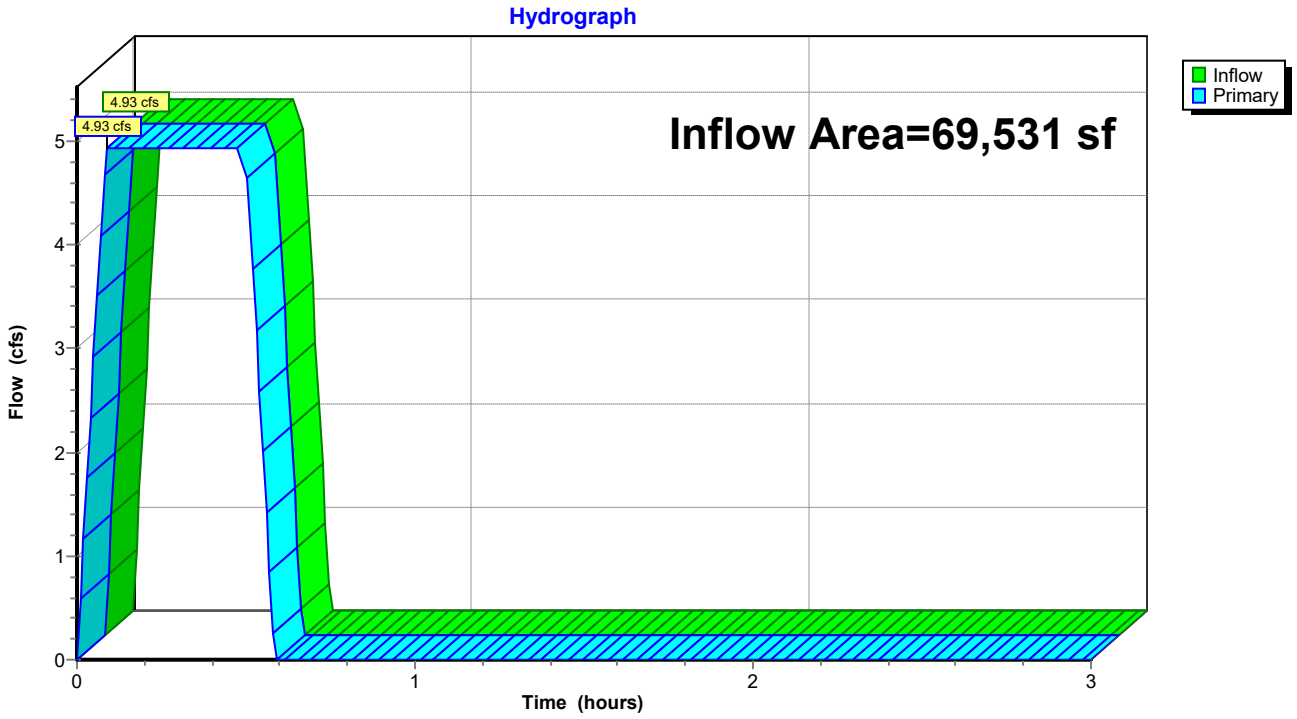


Summary for Pond CI-C3: CI - C3

Inflow Area = 69,531 sf, 63.12% Impervious, Inflow Depth = 1.53" for 25-yr event
Inflow = 4.93 cfs @ 0.09 hrs, Volume= 8,880 cf
Primary = 4.93 cfs @ 0.09 hrs, Volume= 8,880 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C4 : CI - C4

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

Pond CI-C3: CI - C3

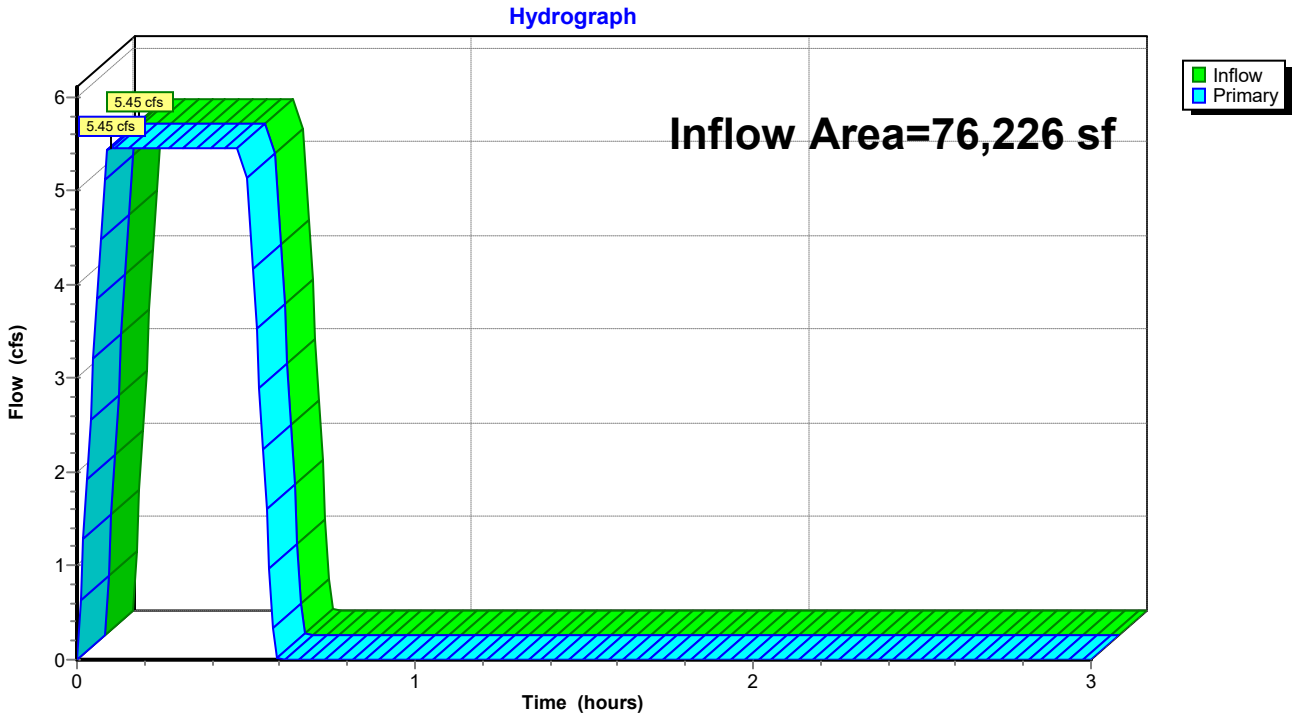


Summary for Pond CI-C4: CI - C4

Inflow Area = 76,226 sf, 64.22% Impervious, Inflow Depth = 1.55" for 25-yr event
Inflow = 5.45 cfs @ 0.10 hrs, Volume= 9,818 cf
Primary = 5.45 cfs @ 0.10 hrs, Volume= 9,818 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C5 : CI - C5

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

Pond CI-C4: CI - C4

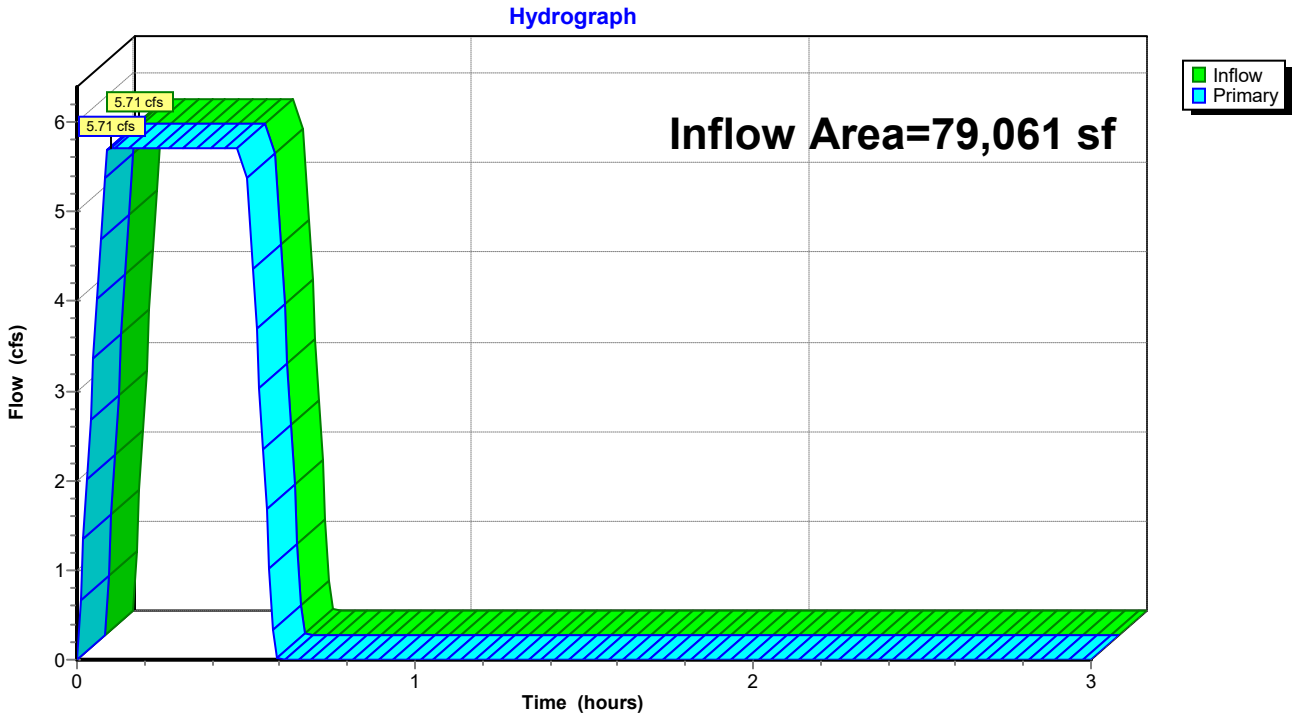


Summary for Pond CI-C5: CI - C5

Inflow Area = 79,061 sf, 65.50% Impervious, Inflow Depth = 1.56" for 25-yr event
Inflow = 5.71 cfs @ 0.10 hrs, Volume= 10,278 cf
Primary = 5.71 cfs @ 0.10 hrs, Volume= 10,278 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-C5: CI - C5

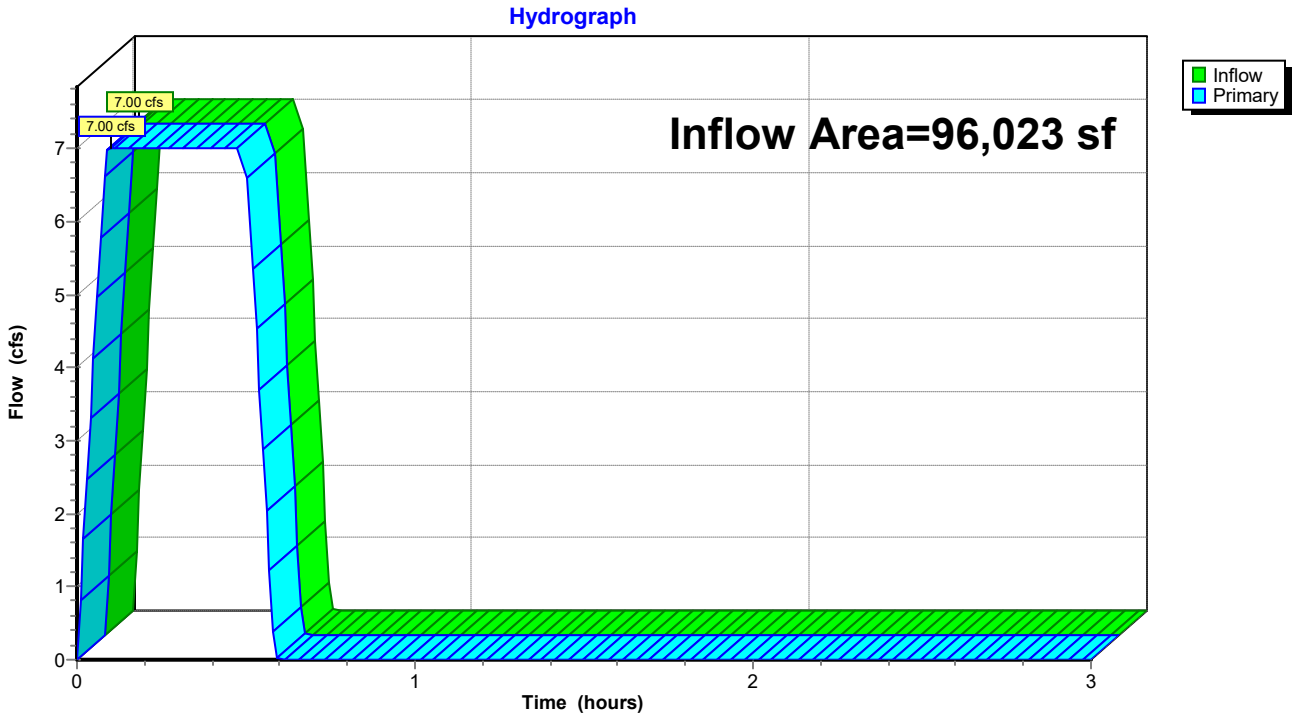


Summary for Pond CI-C6: CI - C6

Inflow Area = 96,023 sf, 66.95% Impervious, Inflow Depth = 1.58" for 25-yr event
Inflow = 7.00 cfs @ 0.10 hrs, Volume= 12,606 cf
Primary = 7.00 cfs @ 0.10 hrs, Volume= 12,606 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-C6: CI - C6

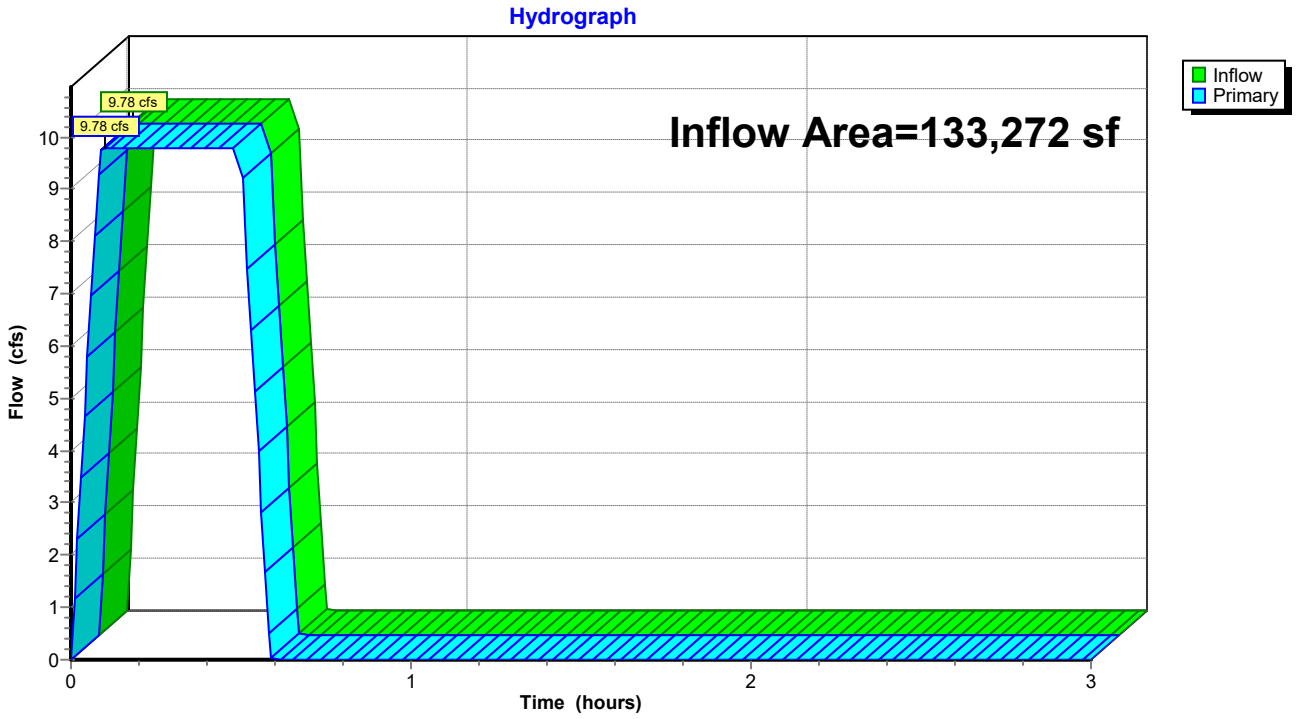


Summary for Pond CI-C7: CI - C7

Inflow Area = 133,272 sf, 67.70% Impervious, Inflow Depth = 1.59" for 25-yr event
Inflow = 9.78 cfs @ 0.10 hrs, Volume= 17,608 cf
Primary = 9.78 cfs @ 0.10 hrs, Volume= 17,608 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-C7: CI - C7

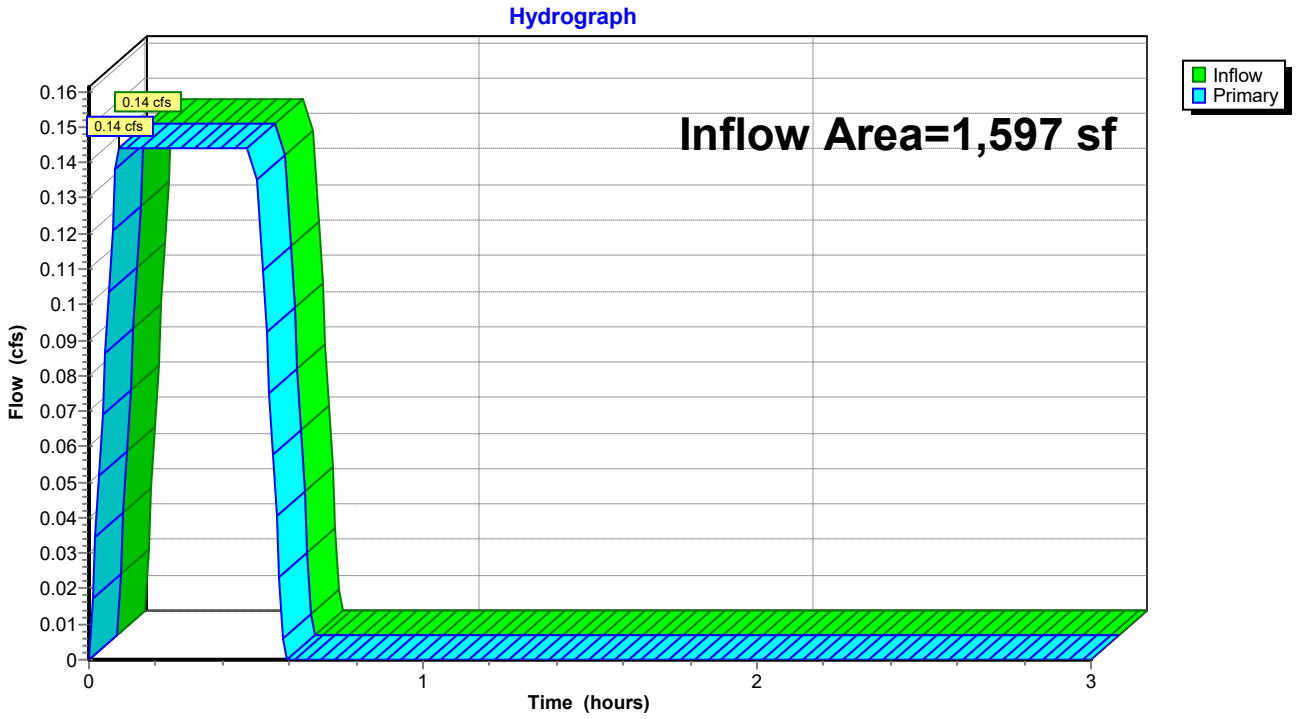


Summary for Pond CI-D1: CI - D1

Inflow Area = 1,597 sf,100.00% Impervious, Inflow Depth = 1.95" for 25-yr event
Inflow = 0.14 cfs @ 0.09 hrs, Volume= 259 cf
Primary = 0.14 cfs @ 0.09 hrs, Volume= 259 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-D2 : CI - D2

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

Pond CI-D1: CI - D1

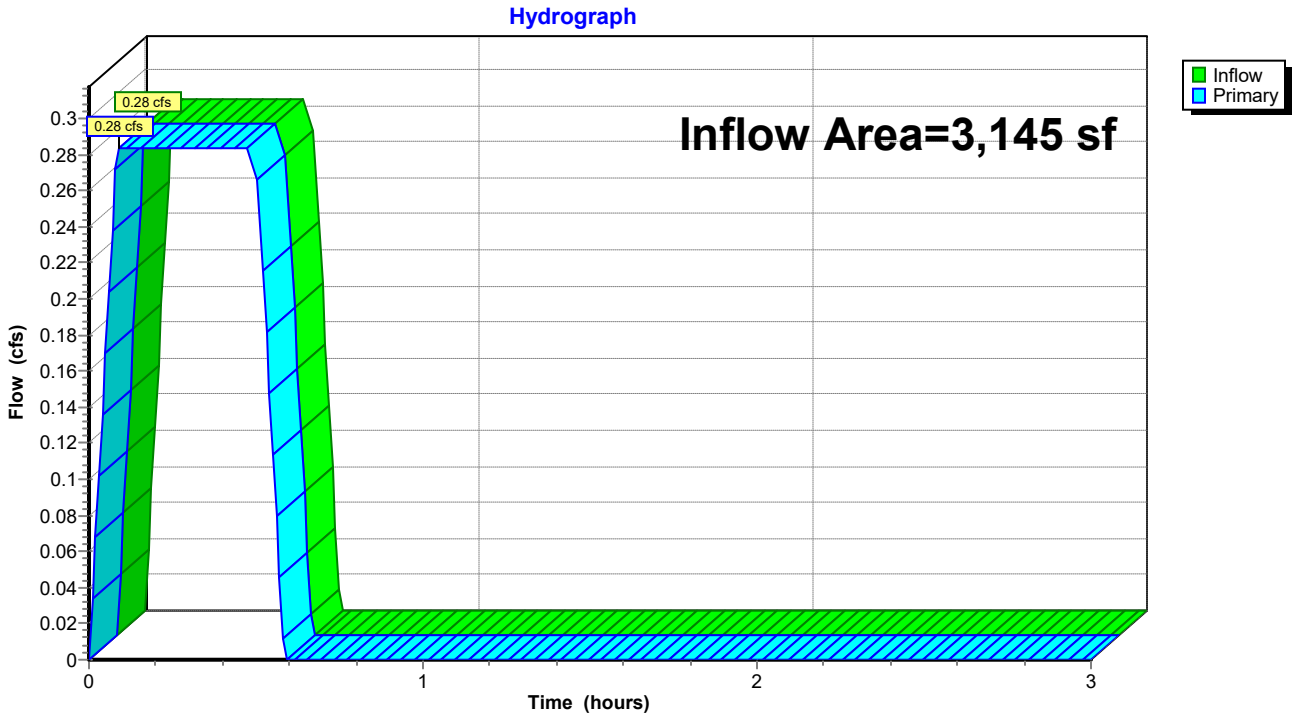


Summary for Pond CI-D2: CI - D2

Inflow Area = 3,145 sf,100.00% Impervious, Inflow Depth = 1.95" for 25-yr event
Inflow = 0.28 cfs @ 0.09 hrs, Volume= 510 cf
Primary = 0.28 cfs @ 0.09 hrs, Volume= 510 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-D2: CI - D2

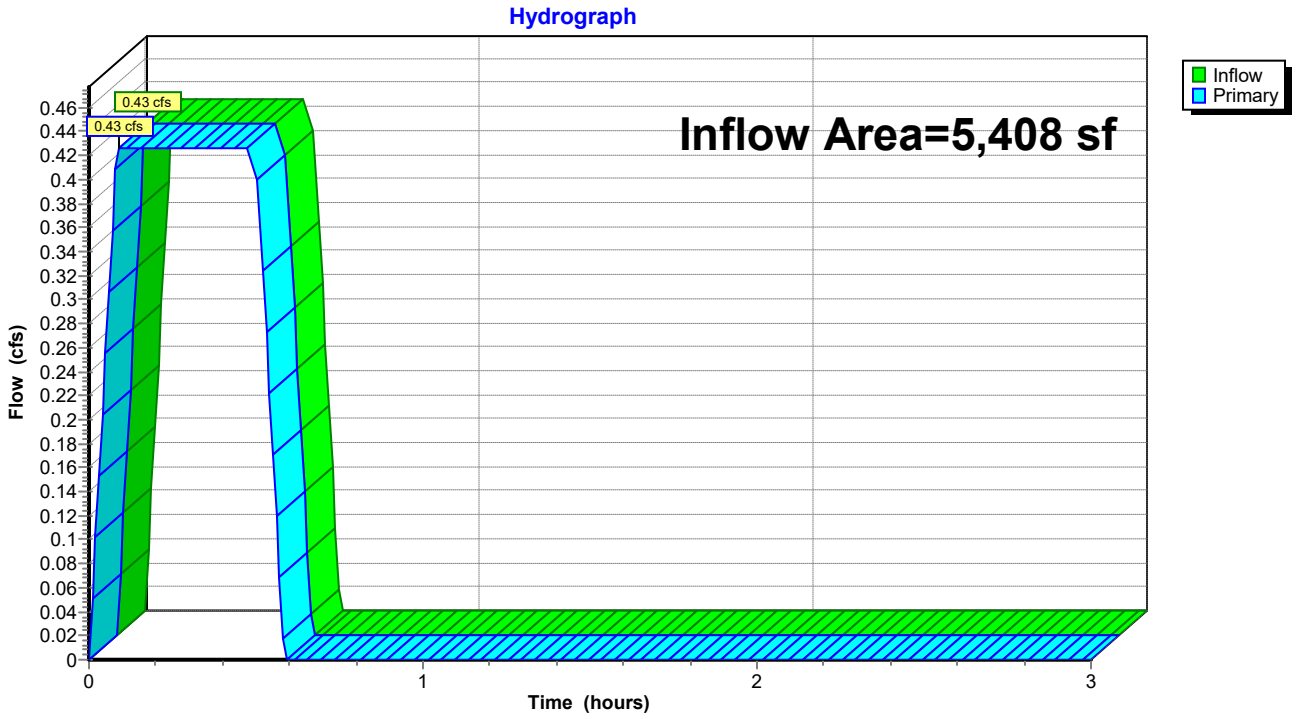


Summary for Pond CI-E1: CI - E1

Inflow Area = 5,408 sf, 77.35% Impervious, Inflow Depth = 1.70" for 25-yr event
Inflow = 0.43 cfs @ 0.09 hrs, Volume= 767 cf
Primary = 0.43 cfs @ 0.09 hrs, Volume= 767 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-E2 : CI - E2

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

Pond CI-E1: CI - E1

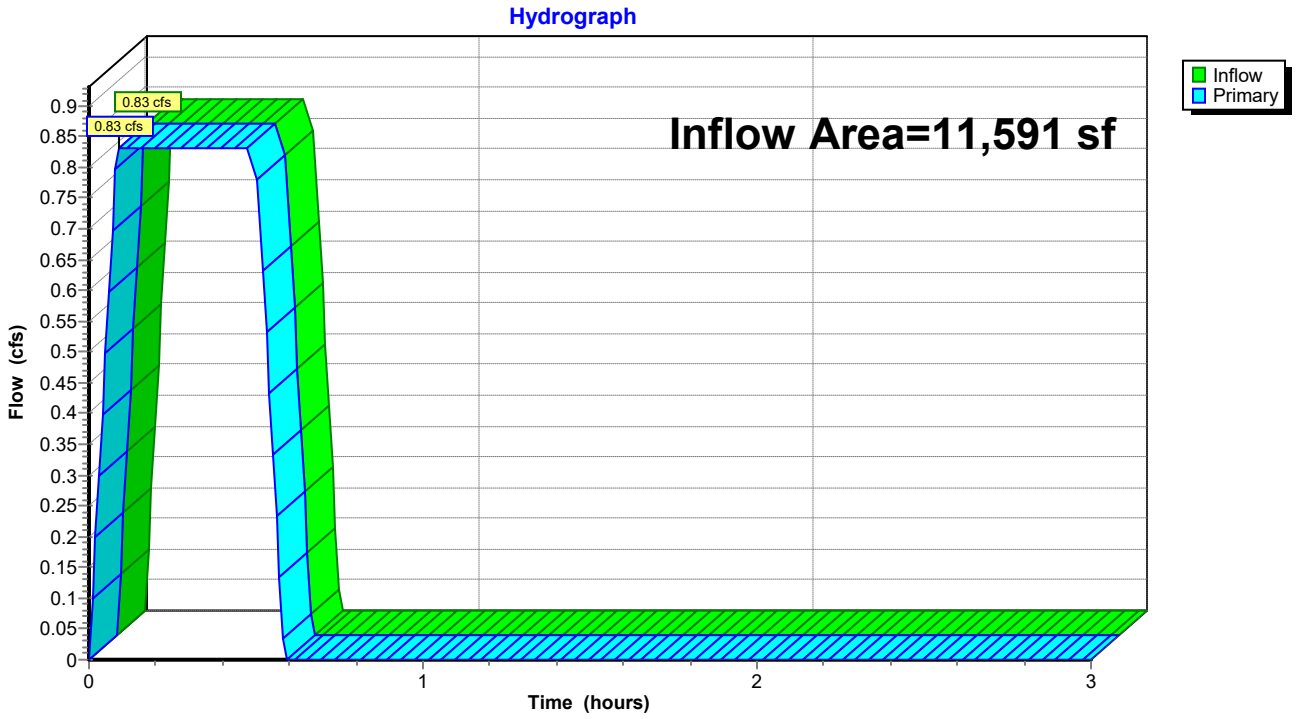


Summary for Pond CI-E2: CI - E2

Inflow Area = 11,591 sf, 64.62% Impervious, Inflow Depth = 1.55" for 25-yr event
Inflow = 0.83 cfs @ 0.09 hrs, Volume= 1,496 cf
Primary = 0.83 cfs @ 0.09 hrs, Volume= 1,496 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-E2: CI - E2



Summary for Pond DP: Existing North Detention Pond

Inflow Area = 321,792 sf, 58.73% Impervious, Inflow Depth = 1.48" for 25-yr event
Inflow = 22.07 cfs @ 0.27 hrs, Volume= 39,720 cf
Outflow = 12.22 cfs @ 0.54 hrs, Volume= 39,720 cf, Atten= 45%, Lag= 16.5 min
Primary = 12.22 cfs @ 0.54 hrs, Volume= 39,720 cf
Routed to Link FINAL : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 383.20' @ 0.54 hrs Storage= 22,005 cf

Plug-Flow detention time= 22.0 min calculated for 39,720 cf (100% of inflow)
Center-of-Mass det. time= 21.9 min (40.4 - 18.5)

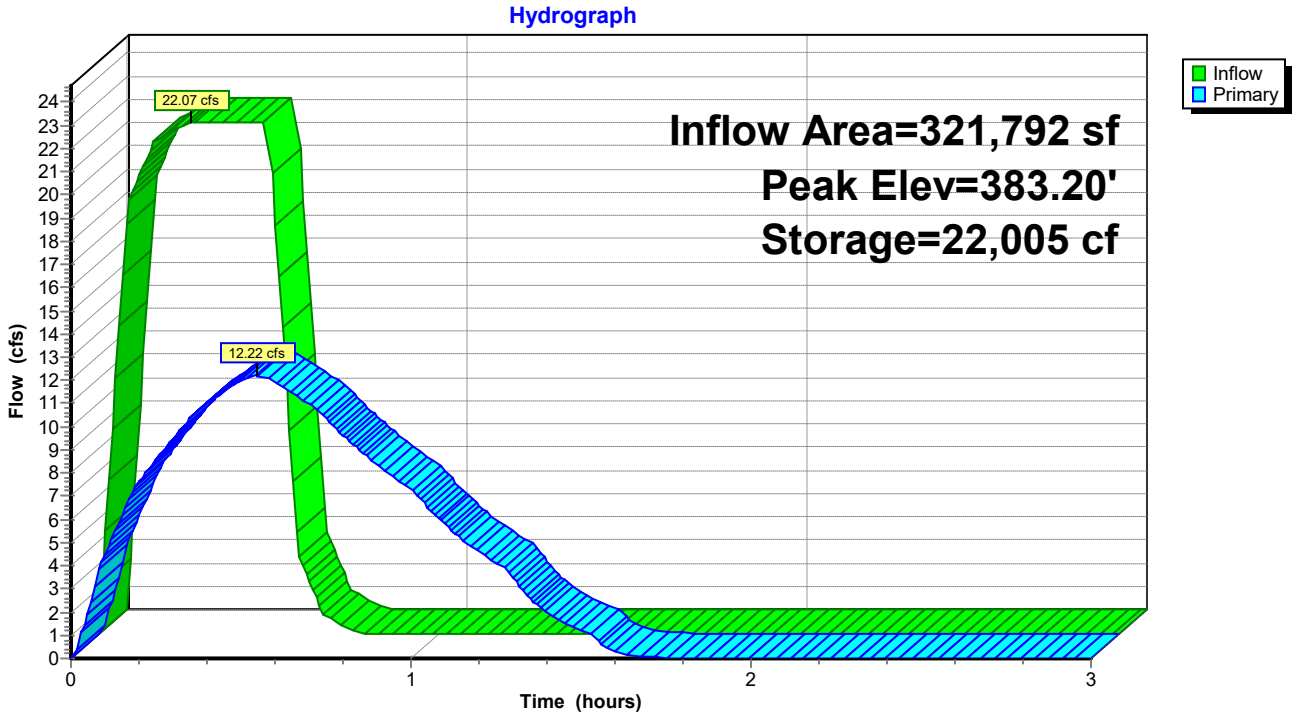
Volume	Invert	Avail.Storage	Storage Description
#1	381.17'	72,742 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.17	0	0
381.50	200	200
382.00	1,825	2,025
382.50	5,265	7,290
383.00	9,300	16,590
383.50	13,733	30,323
384.00	18,578	48,901
384.50	23,841	72,742

Device	Routing	Invert	Outlet Devices
#1	Primary	384.16'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	381.17'	**1.7' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=12.22 cfs @ 0.54 hrs HW=383.20' (Free Discharge)
1=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)
2=Sharp-Crested Rectangular Weir (Weir Controls 12.22 cfs @ 4.66 fps)

Pond DP: Existing North Detention Pond

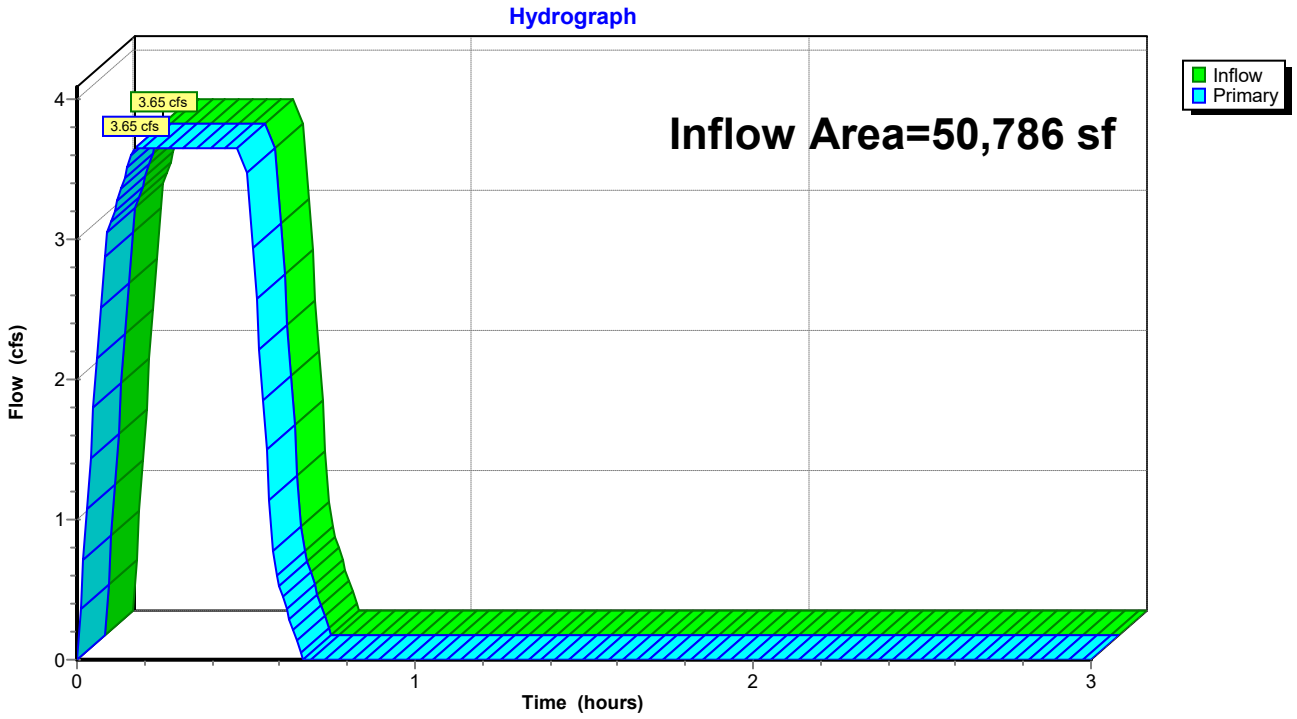


Summary for Pond JB-A2: JB - A2

Inflow Area = 50,786 sf, 65.23% Impervious, Inflow Depth = 1.55" for 25-yr event
Inflow = 3.65 cfs @ 0.17 hrs, Volume= 6,572 cf
Primary = 3.65 cfs @ 0.17 hrs, Volume= 6,572 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A3 : CI - A3

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

Pond JB-A2: JB - A2

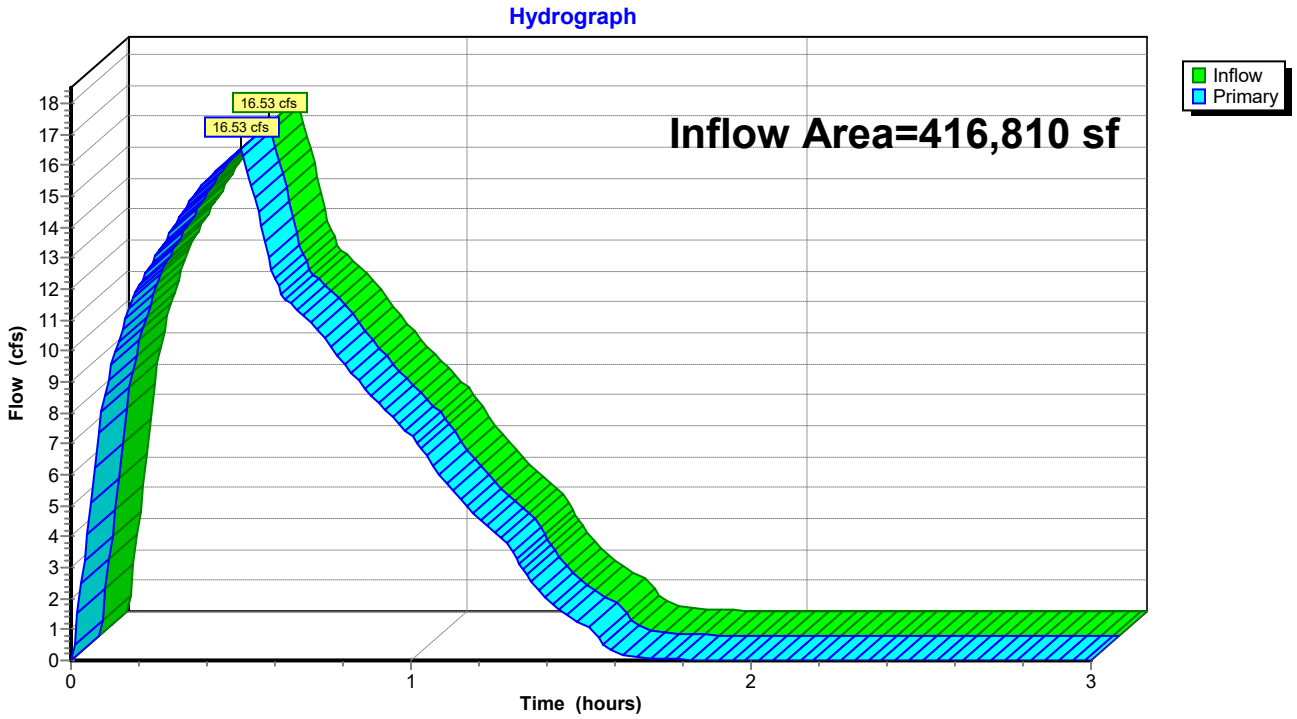


Summary for Link FINAL: APPROX DISCHARGE

Inflow Area = 416,810 sf, 49.40% Impervious, Inflow Depth = 1.38" for 25-yr event
Inflow = 16.53 cfs @ 0.50 hrs, Volume= 47,826 cf
Primary = 16.53 cfs @ 0.50 hrs, Volume= 47,826 cf, Atten= 0%, Lag= 0.0 min

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

Link FINAL: APPROX DISCHARGE



Summary for Subcatchment B1: Drainage Basin B1

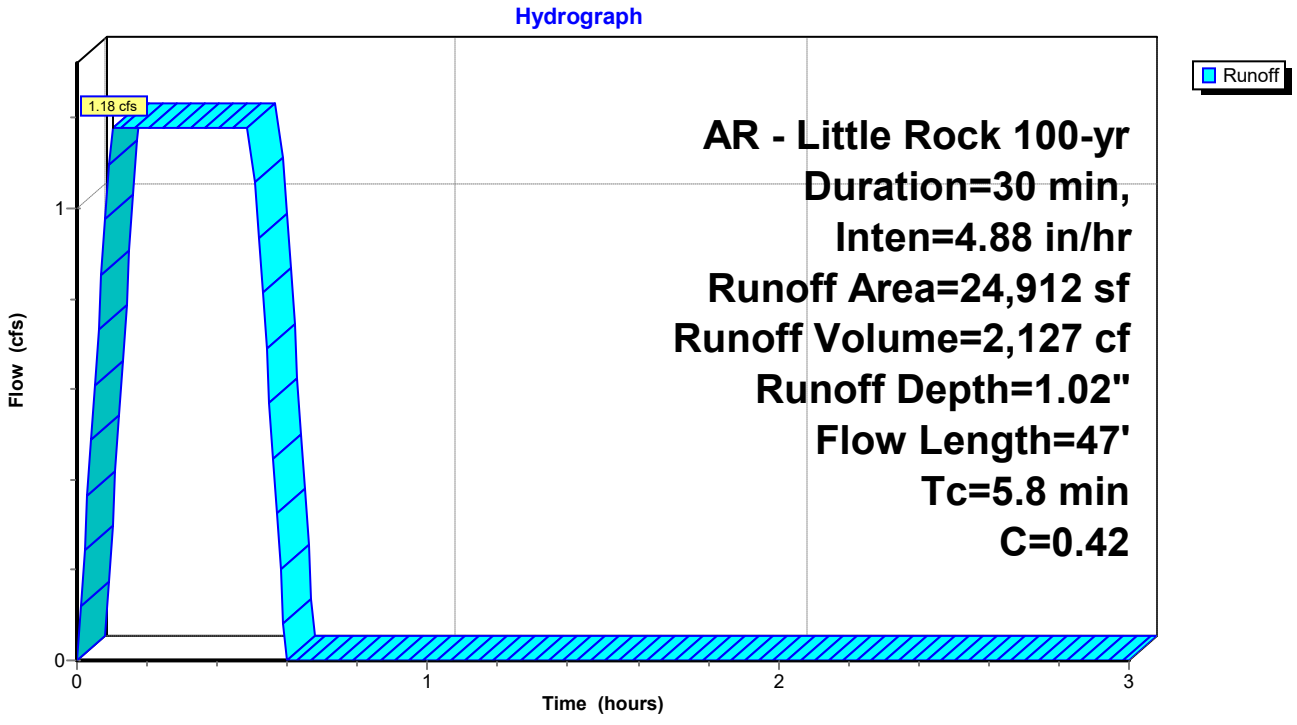
Runoff = 1.18 cfs @ 0.10 hrs, Volume= 2,127 cf, Depth= 1.02"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
24,091	0.40	Sod Yard
821	0.95	Paving, Sidewalks
24,912	0.42	Weighted Average
24,091		96.70% Pervious Area
821		3.30% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.3	9	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	38	0.2040	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
5.8	47	Total			

Subcatchment B1: Drainage Basin B1



Summary for Subcatchment B2: Drainage Basin B2

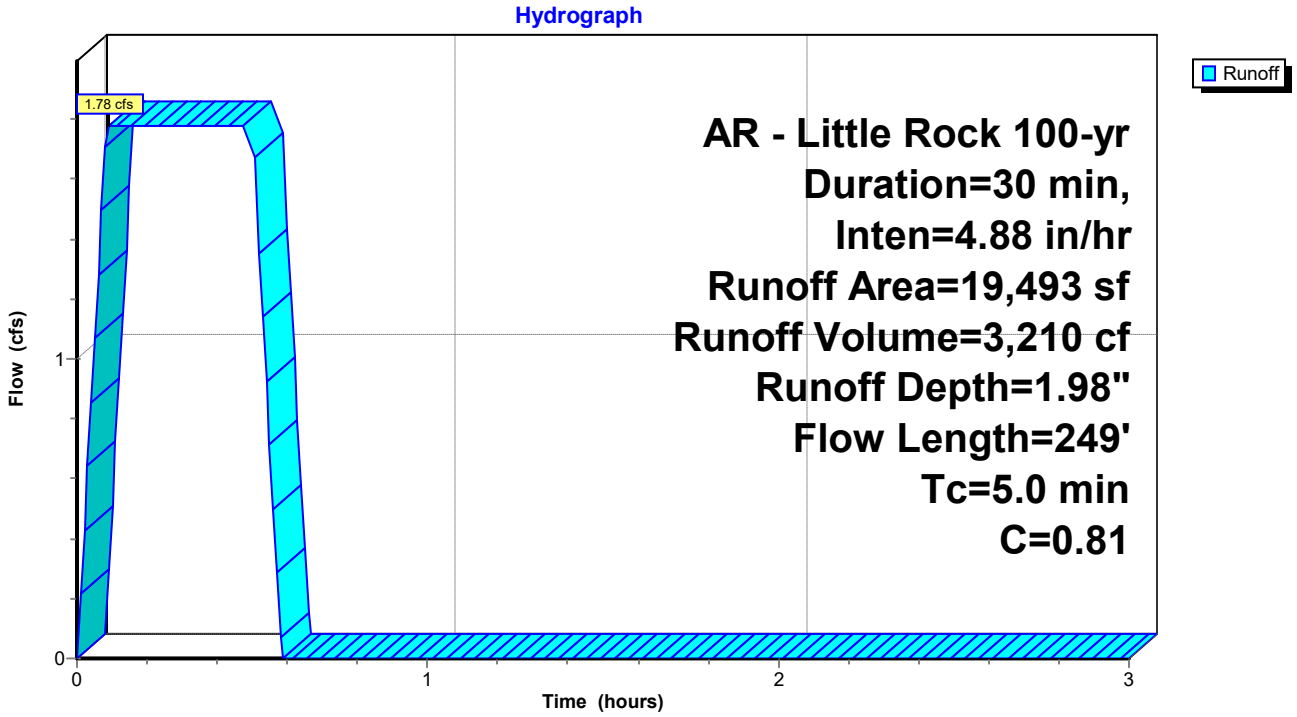
Runoff = 1.78 cfs @ 0.09 hrs, Volume= 3,210 cf, Depth= 1.98"
Routed to Pond CI-A1 : CI - A1

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
4,903	0.40	Sod Yard
14,590	0.95	Paving, Sidewalks
19,493	0.81	Weighted Average
4,903		25.15% Pervious Area
14,590		74.85% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	28	0.0450	1.69		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	72	0.0250	3.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	51	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	16	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	8	0.0430	4.21		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	7	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.2					**Direct Entry, Overland Concentrated Flow (Min)**
5.0	249	Total			

Subcatchment B2: Drainage Basin B2



Summary for Subcatchment B3: Drainage Basin B3

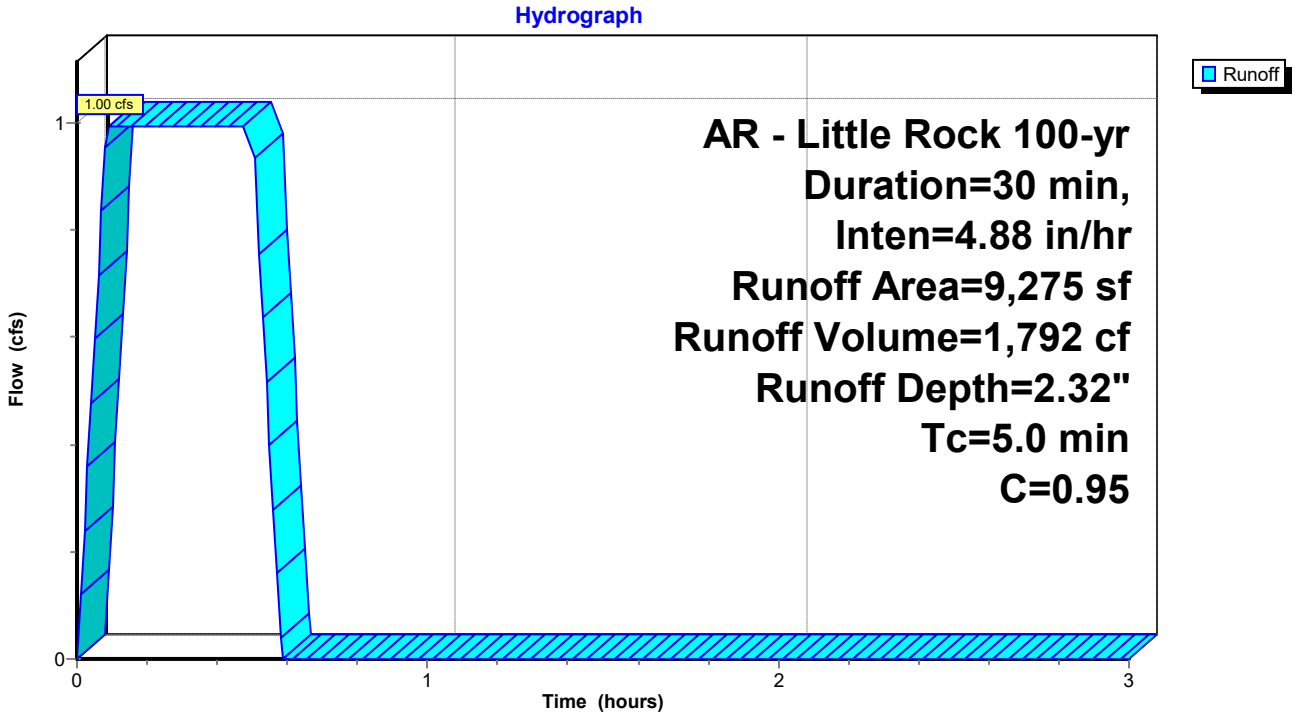
Runoff = 1.00 cfs @ 0.09 hrs, Volume= 1,792 cf, Depth= 2.32"
Routed to Pond JB-A2 : JB - A2

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
9,275	0.95	Roof
9,275		100.00% Impervious Area

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

Subcatchment B3: Drainage Basin B3



Summary for Subcatchment B4: Drainage Basin B4

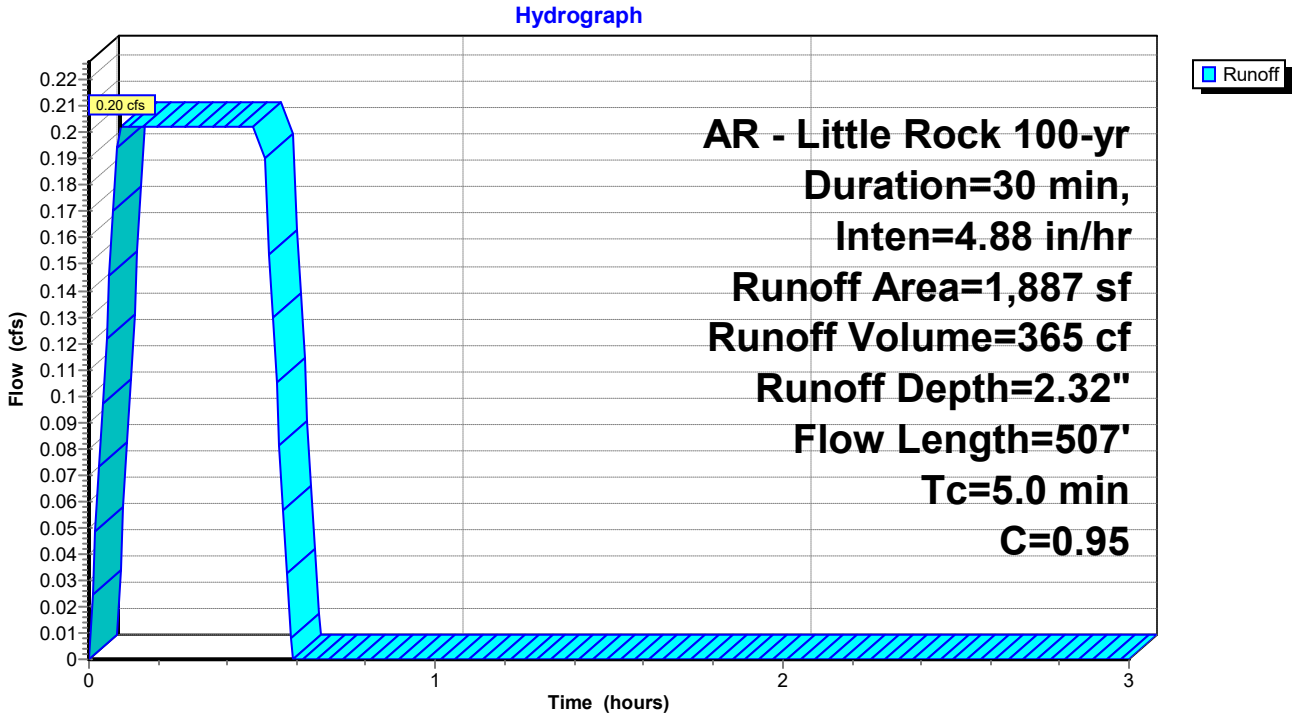
Runoff = 0.20 cfs @ 0.09 hrs, Volume= 365 cf, Depth= 2.32"
Routed to Pond CI-A3 : CI - A3

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,887	0.95	Paving, Sidewalks
1,887	0.95	Weighted Average
1,887		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	31	0.0230	1.32		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	18	0.0250	1.22		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	30	0.0240	1.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	13	0.0860	5.95		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	507	Total			

Subcatchment B4: Drainage Basin B4



Summary for Subcatchment B5: Drainage Basin B5

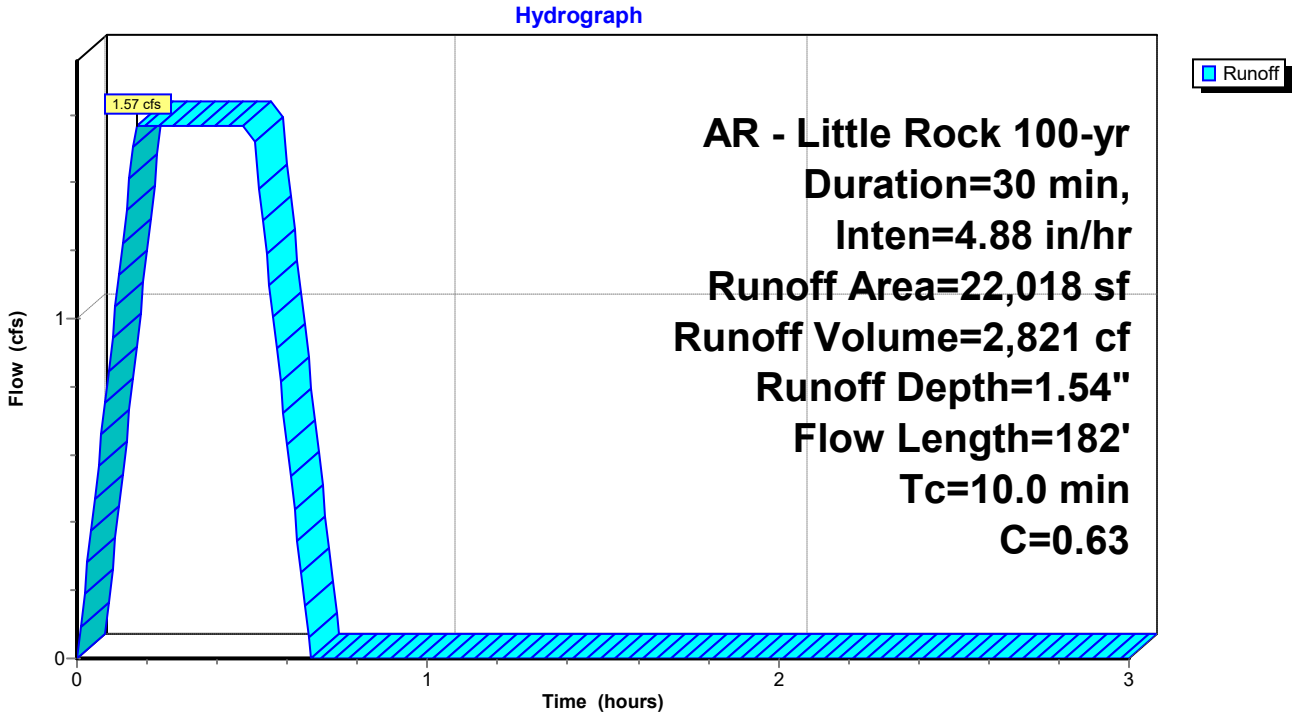
Runoff = 1.57 cfs @ 0.17 hrs, Volume= 2,821 cf, Depth= 1.54"
Routed to Pond CI-B2 : CI - B2

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
12,753	0.40	Sod Yard
9,265	0.95	Paving, Sidewalks
22,018	0.63	Weighted Average
12,753		57.92% Pervious Area
9,265		42.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	10	0.0150	0.89		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
9.1	93	0.0150	0.17		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 4.19"
0.4	40	0.0110	1.57		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	33	0.0190	2.07		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	6	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
10.0	182	Total			

Subcatchment B5: Drainage Basin B5



Summary for Subcatchment B6: Drainage Basin B6

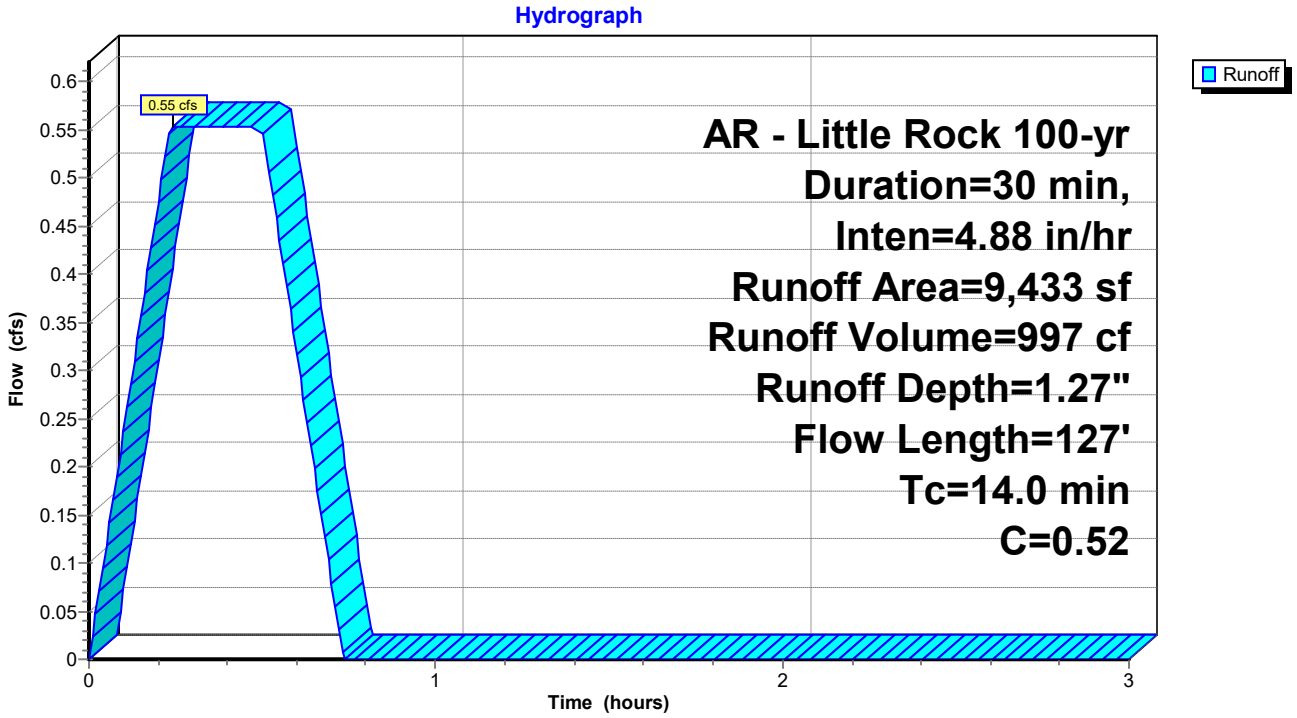
Runoff = 0.55 cfs @ 0.24 hrs, Volume= 997 cf, Depth= 1.27"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
7,346	0.40	Sod Yard
2,087	0.95	Paving, Sidewalks
9,433	0.52	Weighted Average
7,346		77.88% Pervious Area
2,087		22.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.4	79	0.0570	0.13		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.5	21	0.0620	0.10		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.0	9	0.0620	3.73		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	18	0.1080	4.93		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
14.0	127	Total			

Subcatchment B6: Drainage Basin B6



Summary for Subcatchment C1: Drainage Basin C1

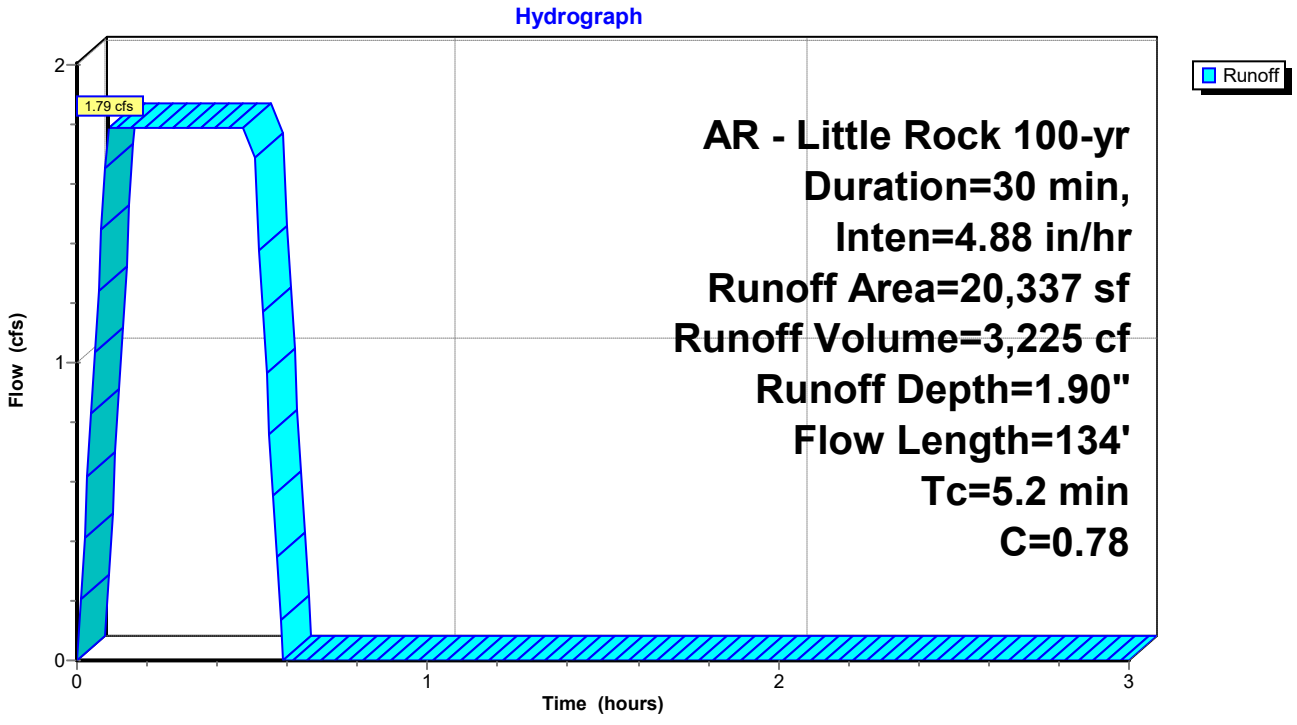
Runoff = 1.79 cfs @ 0.09 hrs, Volume= 3,225 cf, Depth= 1.90"
Routed to Pond CI-C1 : CI - C1

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
6,135	0.40	Sod Yard
14,202	0.95	Paving, Sidewalks
20,337	0.78	Weighted Average
6,135		30.17% Pervious Area
14,202		69.83% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	32	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.4	102	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.2	134	Total			

Subcatchment C1: Drainage Basin C1



Summary for Subcatchment C10: Drainage Basin C10

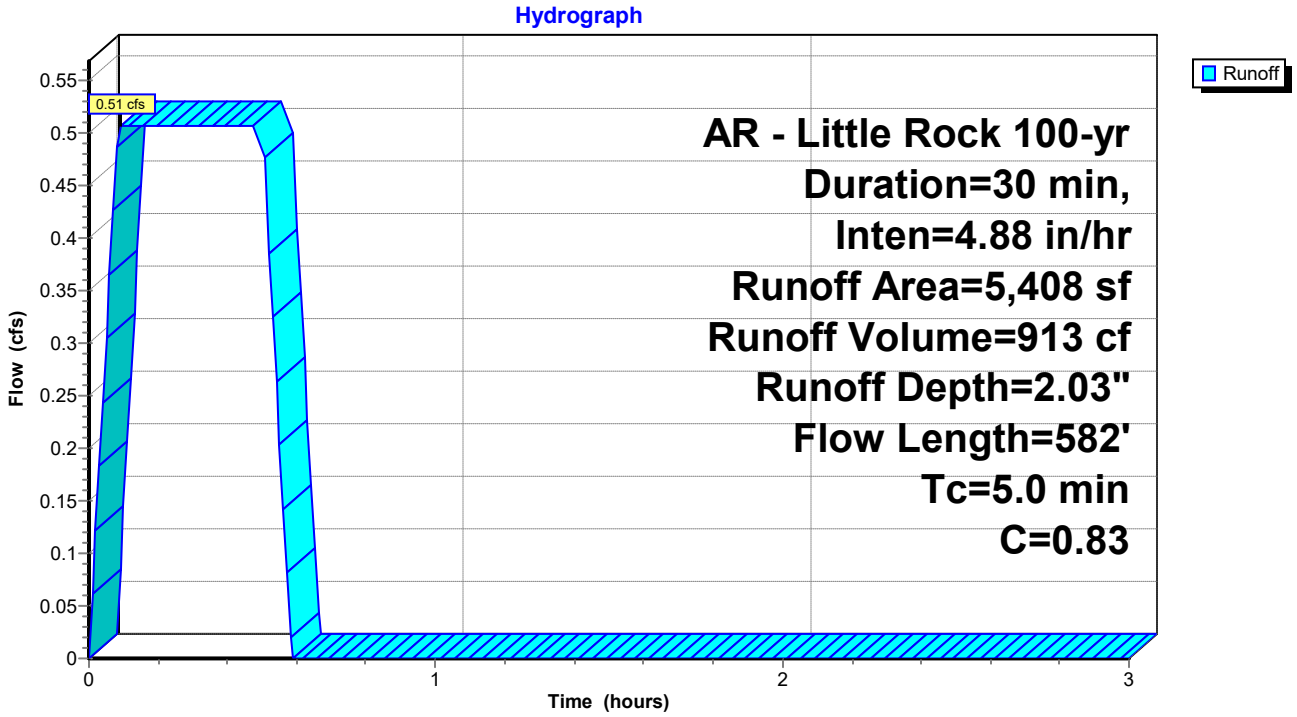
Runoff = 0.51 cfs @ 0.09 hrs, Volume= 913 cf, Depth= 2.03"
Routed to Pond CI-E1 : CI - E1

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
1,225	0.40	Sod Yard
4,183	0.95	Paving, Sidewalks
5,408	0.83	Weighted Average
1,225		22.65% Pervious Area
4,183		77.35% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	29	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	36	0.0320	3.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	48	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	13	0.0350	3.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.9	415		1.77		**Direct Entry, Concentrated Flow (Min)**
5.0	582	Total			

Subcatchment C10: Drainage Basin C10



Summary for Subcatchment C11: Drainage Basin C11

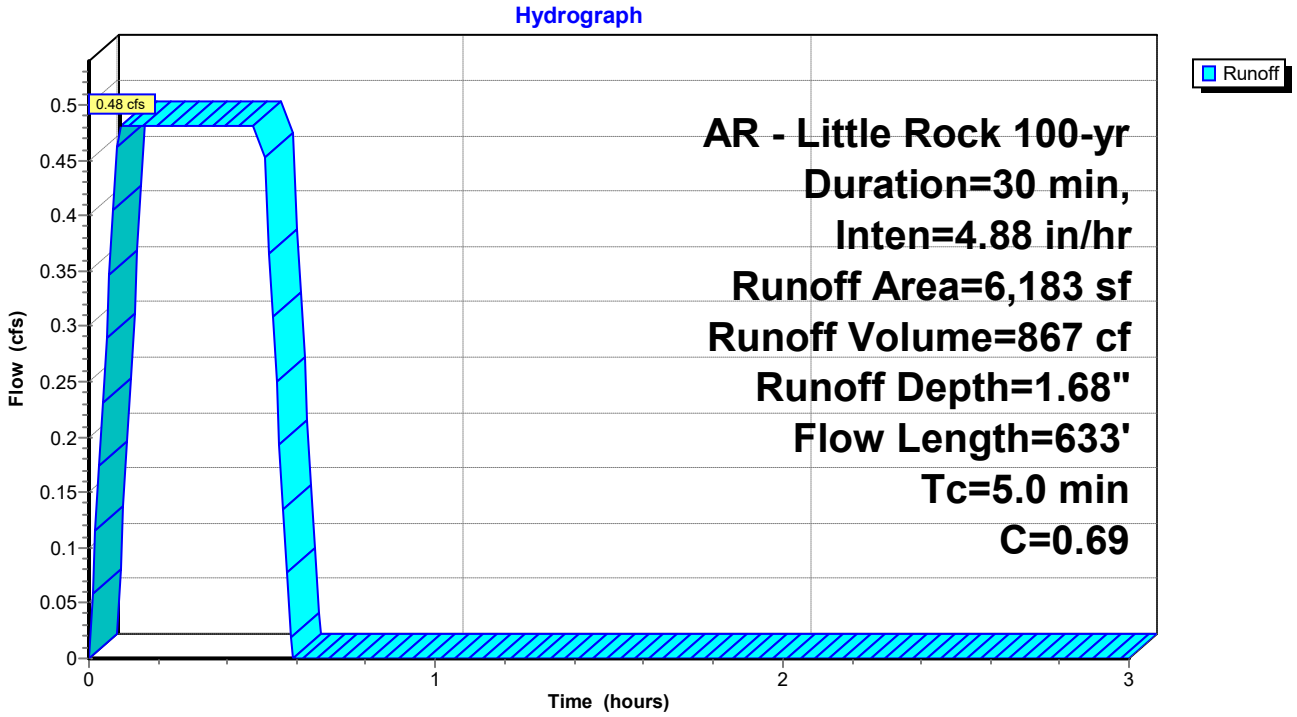
Runoff = 0.48 cfs @ 0.09 hrs, Volume= 867 cf, Depth= 1.68"
Routed to Pond CI-E2 : CI - E2

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
2,876	0.40	Sod Yard
3,307	0.95	Paving, Sidewalks
6,183	0.69	Weighted Average
2,876		46.51% Pervious Area
3,307		53.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	25	0.0200	1.19		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	33	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	47	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	37	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	633	Total			

Subcatchment C11: Drainage Basin C11



Summary for Subcatchment C12: Drainage Basin C12

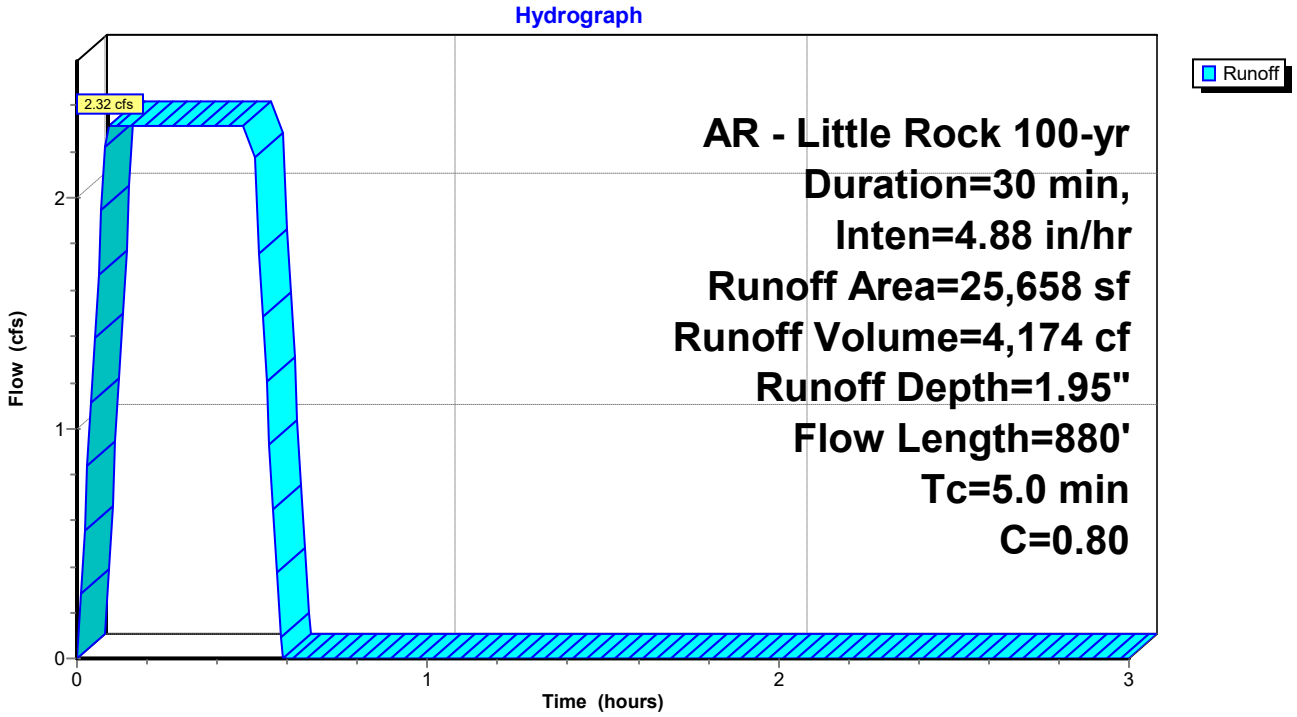
Runoff = 2.32 cfs @ 0.09 hrs, Volume= 4,174 cf, Depth= 1.95"
Routed to Pond CI-C7 : CI - C7

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
7,218	0.40	Sod Yard
18,440	0.95	Paving, Sidewalks
25,658	0.80	Weighted Average
7,218		28.13% Pervious Area
18,440		71.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	24	0.0360	1.50		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0190	0.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	21	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.9	49	0.0020	0.91		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	96	0.0330	3.69		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	94	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	25	0.0450	4.31		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	39	0.0490	4.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0460	4.35		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	11	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0440	4.26		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.3	415		3.01		**Direct Entry, Concentrated Flow (Min)**
5.0	880	Total			

Subcatchment C12: Drainage Basin C12



Summary for Subcatchment C13: Drainage Basin C13

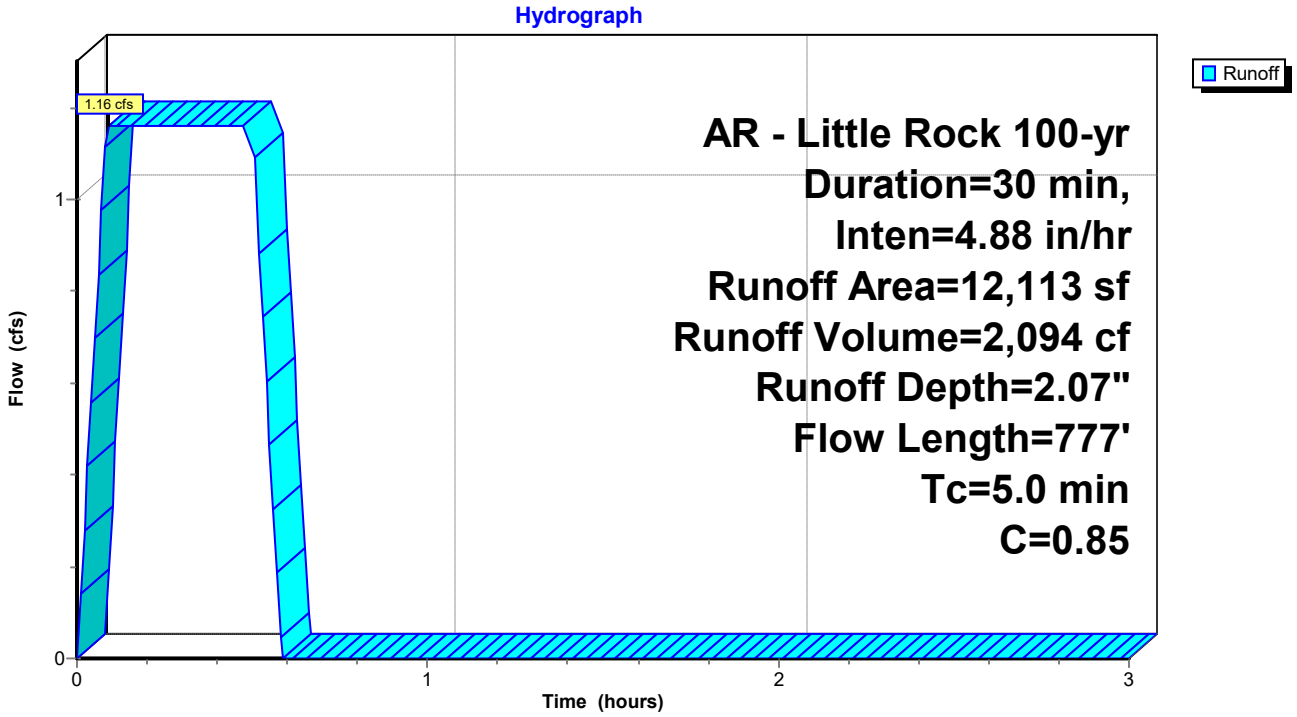
Runoff = 1.16 cfs @ 0.09 hrs, Volume= 2,094 cf, Depth= 2.07"
Routed to Pond CI-A4 : CI - A4

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
2,240	0.40	Sod Yard
9,873	0.95	Paving, Sidewalks
12,113	0.85	Weighted Average
2,240		18.49% Pervious Area
9,873		81.51% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	75	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	29	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	42	0.0730	5.48		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	74	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	32	0.0570	4.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.6	415		1.92		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	777	Total			

Subcatchment C13: Drainage Basin C13



Summary for Subcatchment C14: Drainage Basin C14

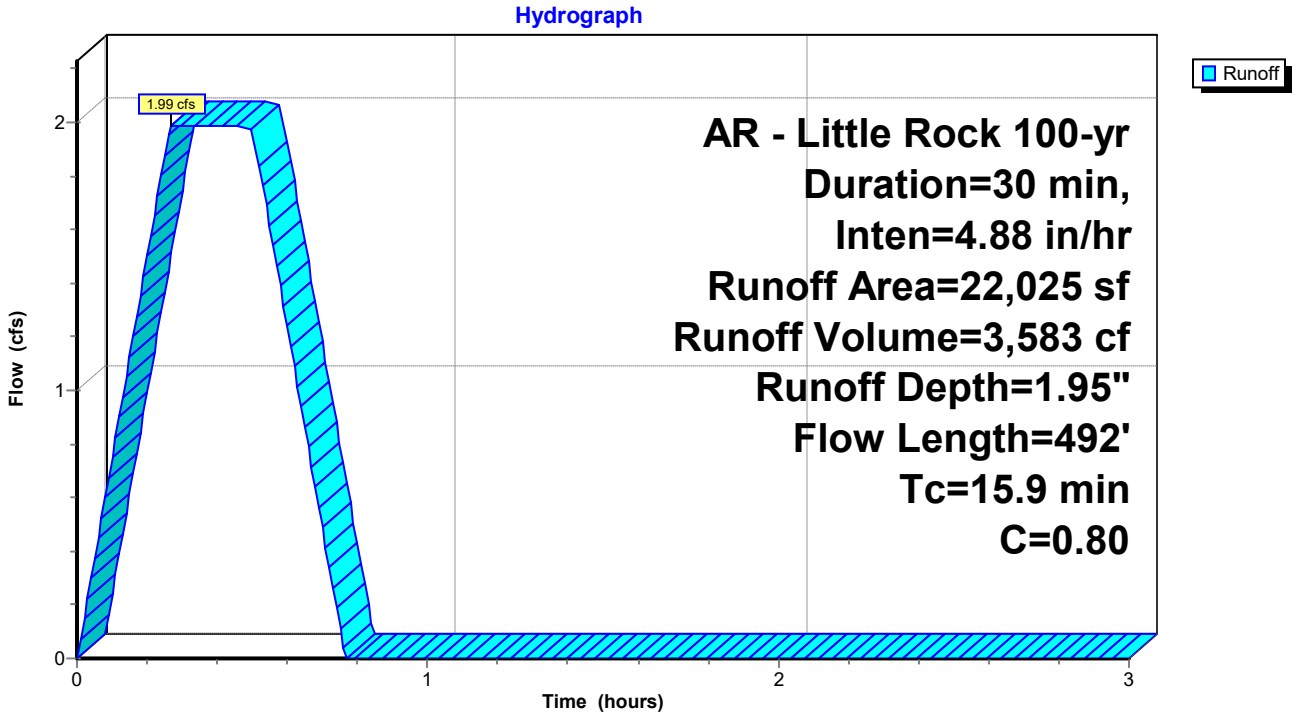
Runoff = 1.99 cfs @ 0.27 hrs, Volume= 3,583 cf, Depth= 1.95"
Routed to Pond CI-A5 : CI - A5

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
6,127	0.40	Sod Yard
15,898	0.95	Paving, Sidewalks
22,025	0.80	Weighted Average
6,127		27.82% Pervious Area
15,898		72.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.5	5	0.0310	0.06		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
9.2	45	0.0250	0.08		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
3.8	41	0.1940	0.18		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	6	0.0100	0.68		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	51	0.0870	5.99		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	52	0.0310	3.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0270	3.34		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	20	0.0400	4.06		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	34	0.0410	4.11		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0470	4.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	36	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	58	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	49	0.0840	5.88		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	31	0.0690	5.33		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
15.9	492	Total			

Subcatchment C14: Drainage Basin C14



Summary for Subcatchment C15: Drainage Basin C15

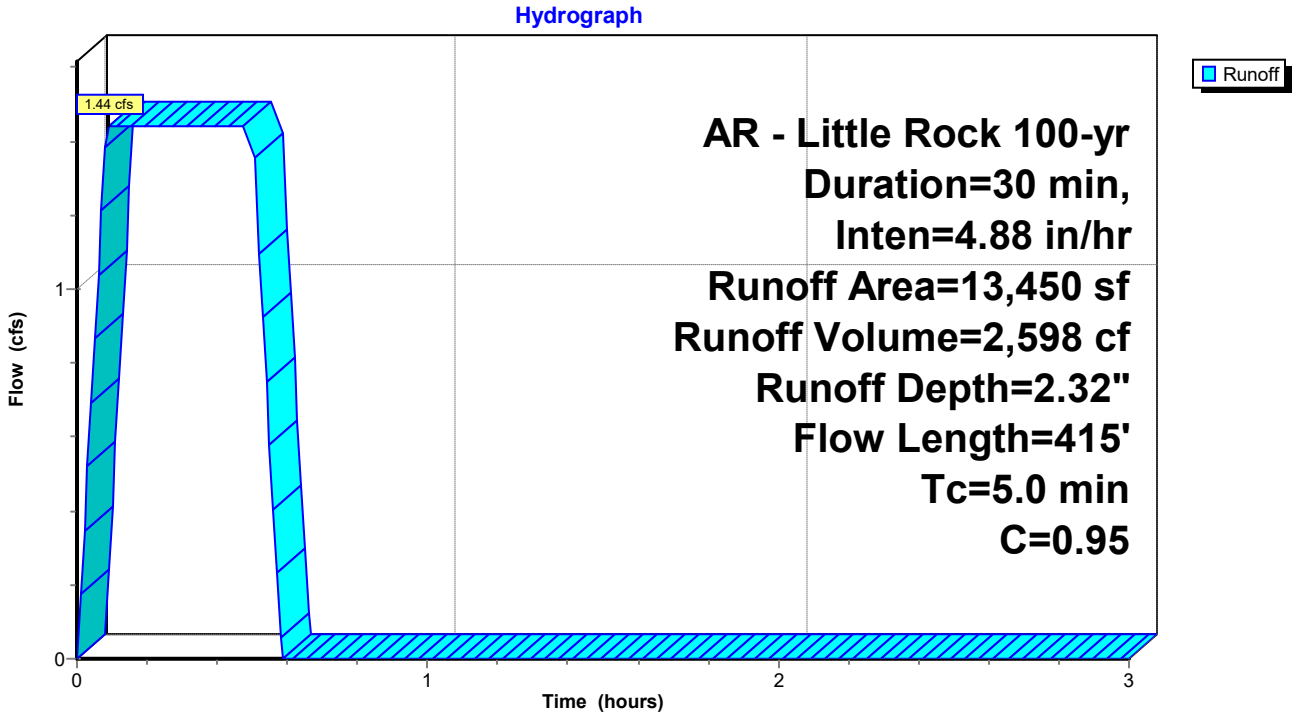
Runoff = 1.44 cfs @ 0.09 hrs, Volume= 2,598 cf, Depth= 2.32"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
13,450	0.95	Paving, Sidewalks
13,450	0.95	Weighted Average
13,450		100.00% 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 C15: Drainage Basin C15



Summary for Subcatchment C16: Drainage Basin C16

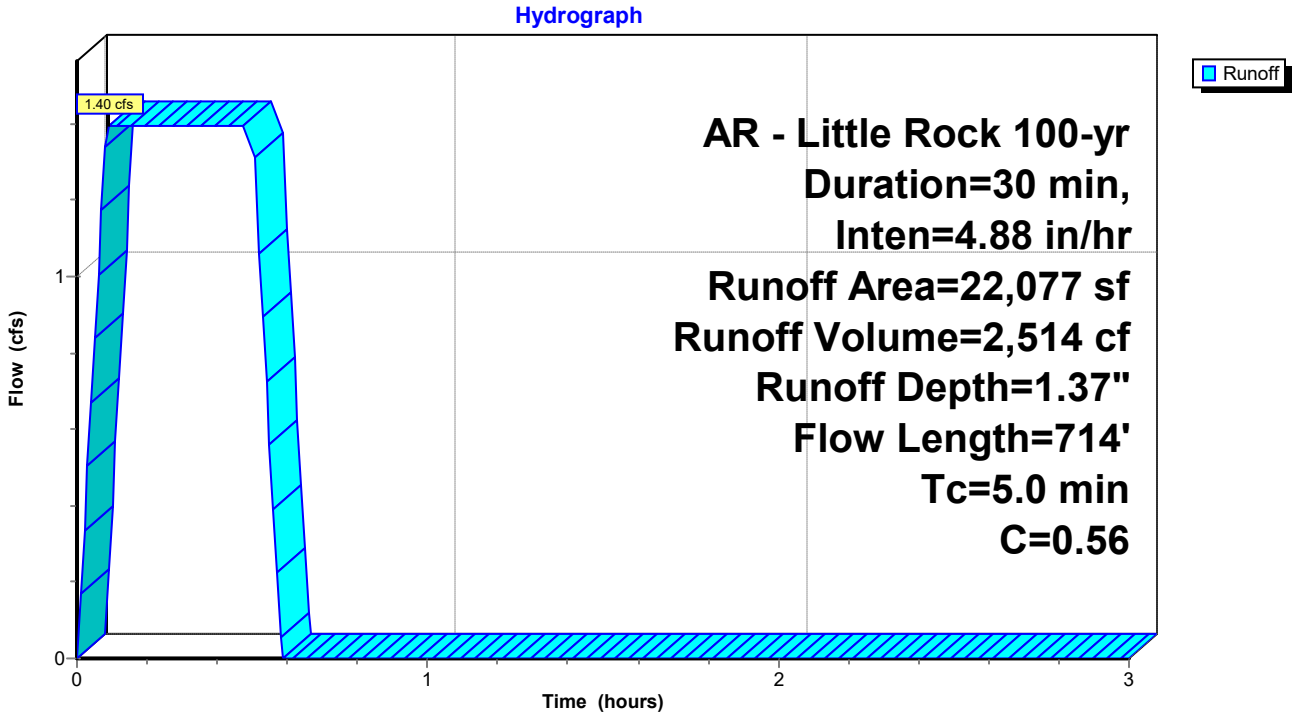
Runoff = 1.40 cfs @ 0.09 hrs, Volume= 2,514 cf, Depth= 1.37"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
15,465	0.40	Sod Yard
6,612	0.95	Paving, Sidewalks
22,077	0.56	Weighted Average
15,465		70.05% Pervious Area
6,612		29.95% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.4	26	0.0190	1.18		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	5	0.0100	0.66		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	51	0.0500	1.98		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	12	0.1540	2.33		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	50	0.1330	7.40		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.1	50	0.1170	6.94		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.2	46	0.0430	4.21		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
0.3	59	0.0370	3.90		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
3.3	415		2.10		**Direct Entry, Overland Concentrated Flow (Min)**
5.0	714	Total			

Subcatchment C16: Drainage Basin C16



Summary for Subcatchment C17: Drainage Basin C17

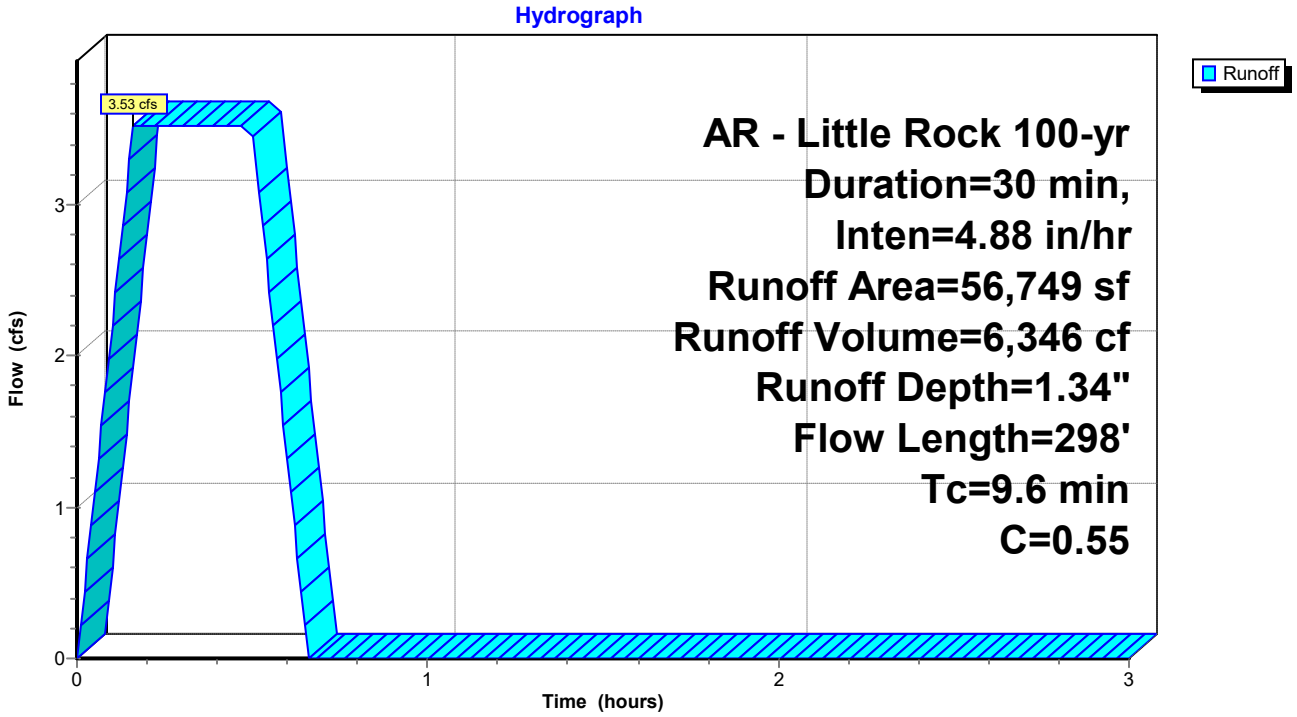
Runoff = 3.53 cfs @ 0.16 hrs, Volume= 6,346 cf, Depth= 1.34"
Routed to Pond DP : Existing North Detention Pond

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
40,914	0.40	Sod Yard
15,835	0.95	Paving, Sidewalks
56,749	0.55	Weighted Average
40,914		72.10% Pervious Area
15,835		27.90% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.8	43	0.0410	0.15		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.9	43	0.0690	0.19		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	41	0.0980	4.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	61	0.0730	4.05		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0570	3.58		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	64	0.0450	3.18		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
9.6	298	Total			

Subcatchment C17: Drainage Basin C17



Summary for Subcatchment C18: Drainage Basin C18

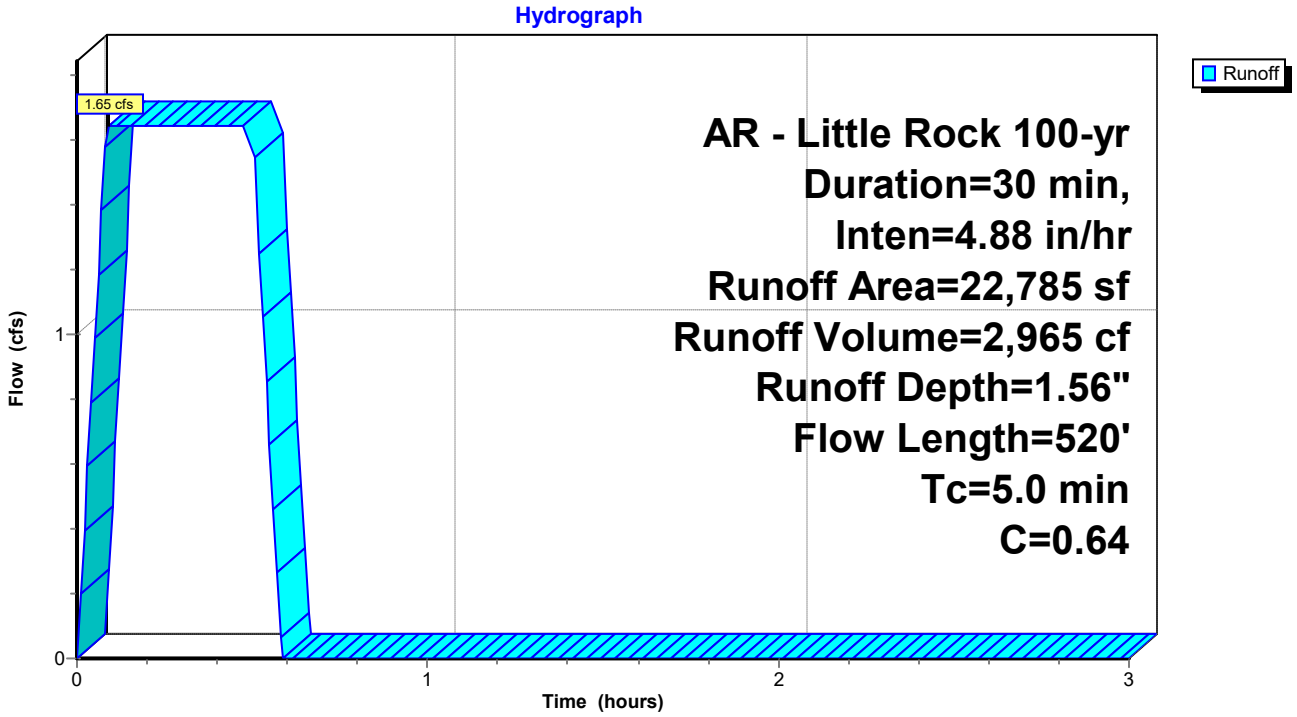
Runoff = 1.65 cfs @ 0.09 hrs, Volume= 2,965 cf, Depth= 1.56"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
12,812	0.40	Sod Yard
9,973	0.95	Paving, Sidewalks
22,785	0.64	Weighted Average
12,812		56.23% Pervious Area
9,973		43.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2980	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.3	8	0.0100	0.04		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	80	0.0210	2.94		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.4	415		17.29		**Direct Entry, Concentrated Flow (Min)**
5.0	520	Total			

Subcatchment C18: Drainage Basin C18



Summary for Subcatchment C19: Drainage Basin C19

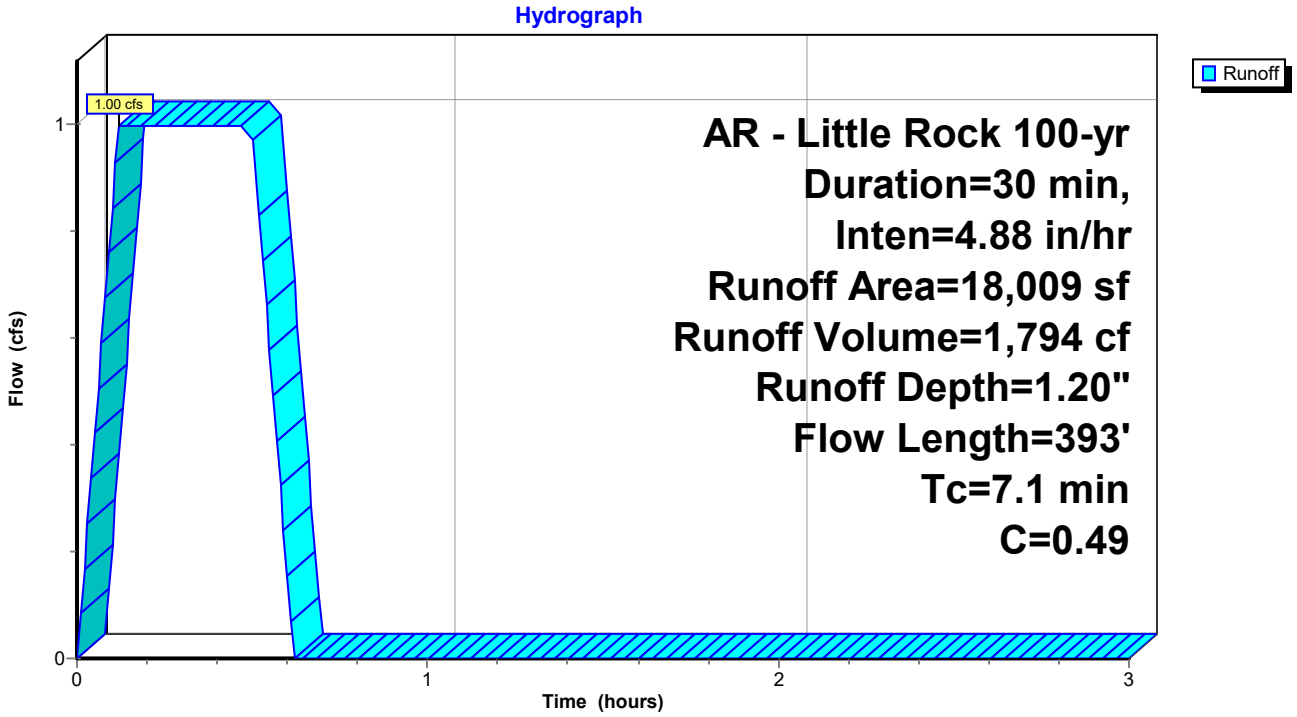
Runoff = 1.00 cfs @ 0.12 hrs, Volume= 1,794 cf, Depth= 1.20"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
15,129	0.40	Sod Yard
2,880	0.95	Paving, Sidewalks
18,009	0.49	Weighted Average
15,129		84.01% Pervious Area
2,880		15.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.7	34	0.1110	0.21		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
3.3	66	0.2450	0.34		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.0	9	0.2450	7.42		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.5	106	0.0610	3.70		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.2	46	0.0800	4.24		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.1	41	0.0960	4.65		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	66	0.0680	3.91		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.0	19	0.1070	6.64		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	6	0.0750	5.56		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
7.1	393	Total			

Subcatchment C19: Drainage Basin C19



Summary for Subcatchment C2: Drainage Basin C2

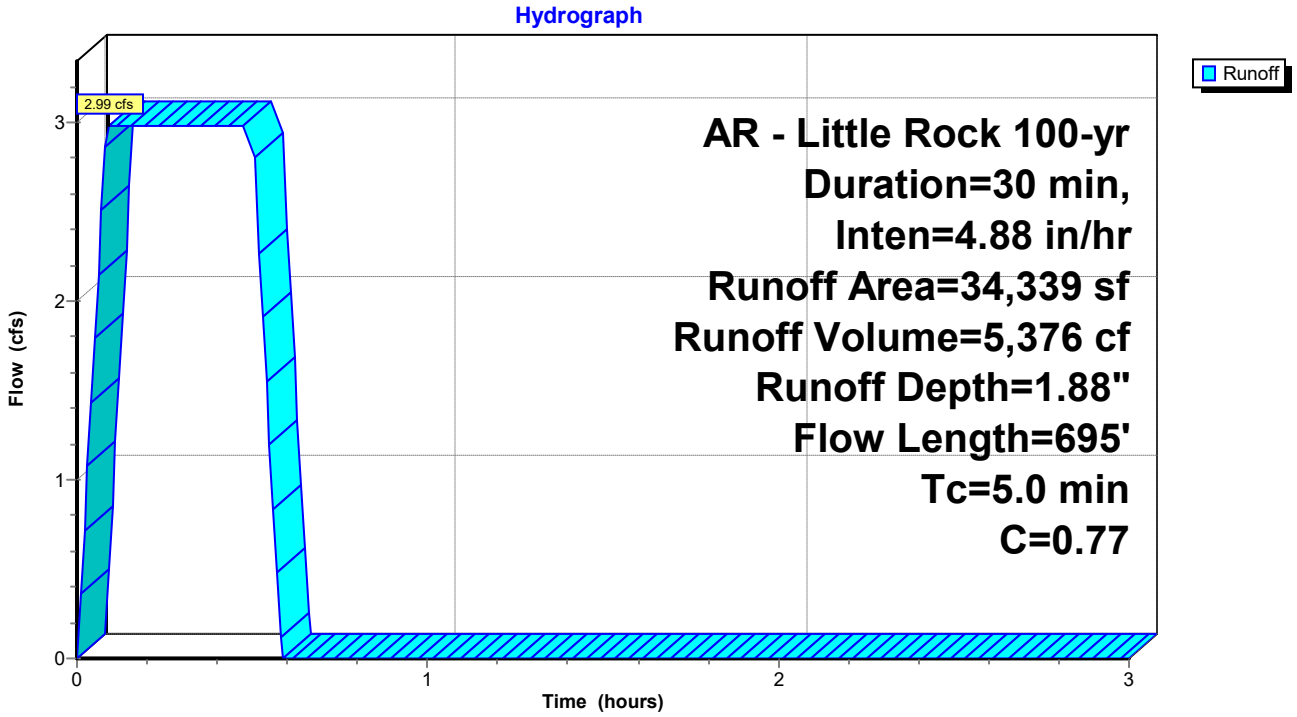
Runoff = 2.99 cfs @ 0.09 hrs, Volume= 5,376 cf, Depth= 1.88"
Routed to Pond CI-C2 : CI - C2

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
11,376	0.40	Sod Yard
22,963	0.95	Roof, Paving, Sidewalks
34,339	0.77	Weighted Average
11,376		33.13% Pervious Area
22,963		66.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	20	0.0200	1.14		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.4	74	0.0240	3.14		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0710	5.41		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	21	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	148	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
3.5	415		1.98		**Direct Entry, Concentrated Flow (Min)**
5.0	695	Total			

Subcatchment C2: Drainage Basin C2



Summary for Subcatchment C20: Drainage Basin C20

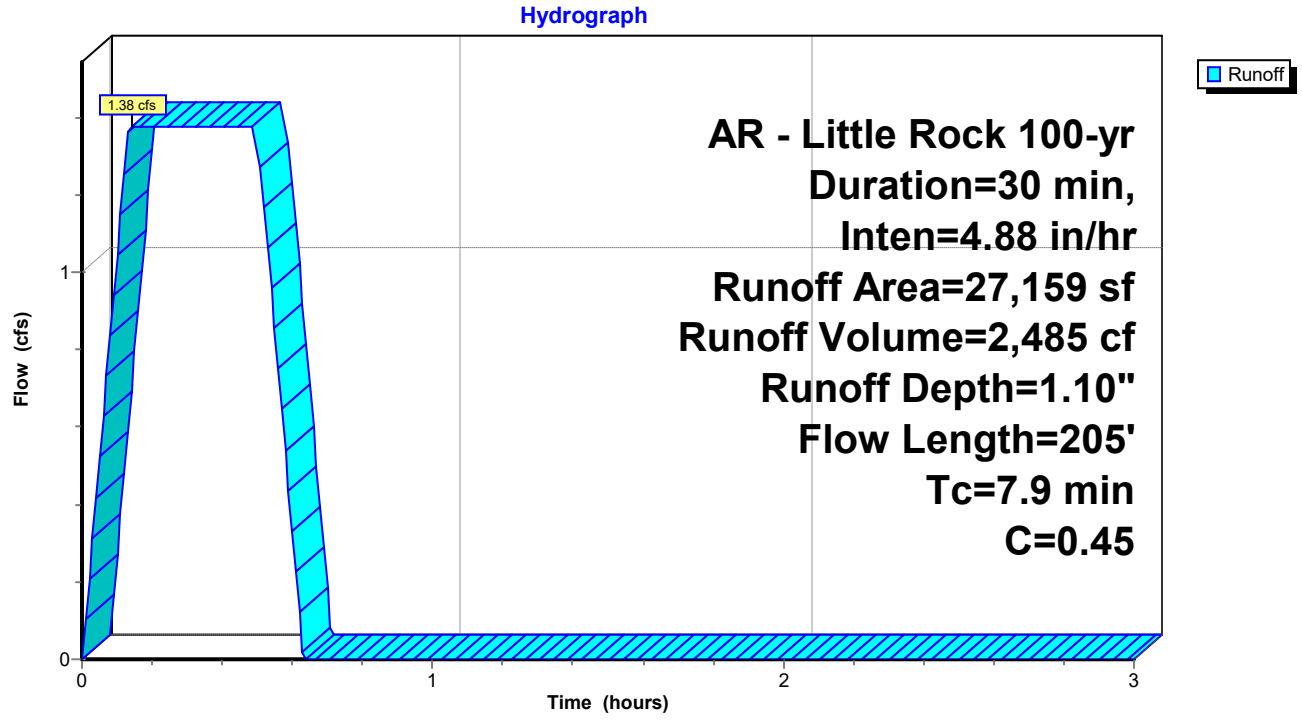
Runoff = 1.38 cfs @ 0.14 hrs, Volume= 2,485 cf, Depth= 1.10"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
24,838	0.40	Sod Yard
2,321	0.95	Paving, Sidewalks
27,159	0.45	Weighted Average
24,838		91.45% Pervious Area
2,321		8.55% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.0	45	0.1430	0.25		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
4.5	55	0.0780	0.20		**Sheet Flow, Sheet Flow** Grass: Dense n= 0.240 P2= 4.19"
0.1	37	0.0780	4.19		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
0.3	68	0.0710	4.00		**Shallow Concentrated Flow, Concentrated Flow** Grassed Waterway Kv= 15.0 fps
7.9	205	Total			

Subcatchment C20: Drainage Basin C20



Summary for Subcatchment C21: Drainage Basin C21

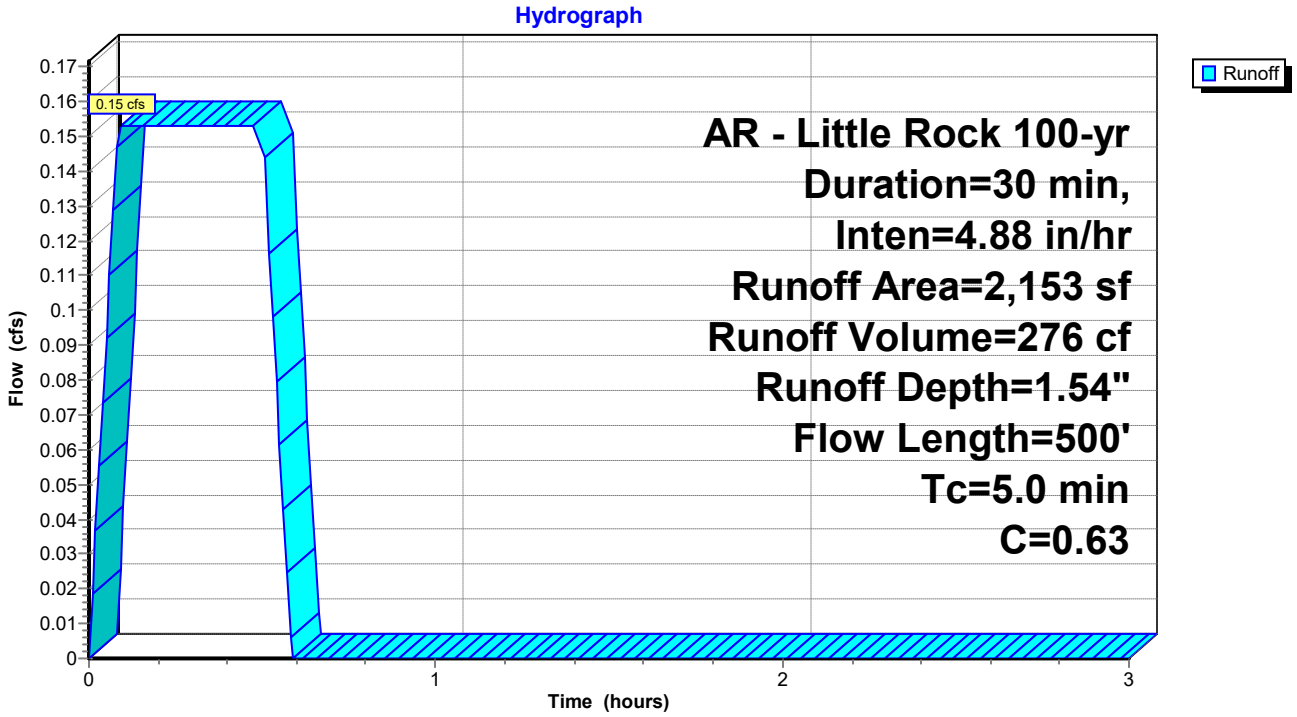
Runoff = 0.15 cfs @ 0.09 hrs, Volume= 276 cf, Depth= 1.54"
Routed to Link FINAL : APPROX DISCHARGE

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
1,234	0.40	Sod Yard
919	0.95	Paving, Sidewalks
2,153	0.63	Weighted Average
1,234		57.32% Pervious Area
919		42.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	2	0.2500	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.3	33	0.0520	1.85		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.8	24	0.0660	0.11		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.1	26	0.0620	5.05		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.5	415		13.83		**Direct Entry, Concentrated Flow (Min)**
5.0	500	Total			

Subcatchment C21: Drainage Basin C21



Summary for Subcatchment C3: Drainage Basin C3

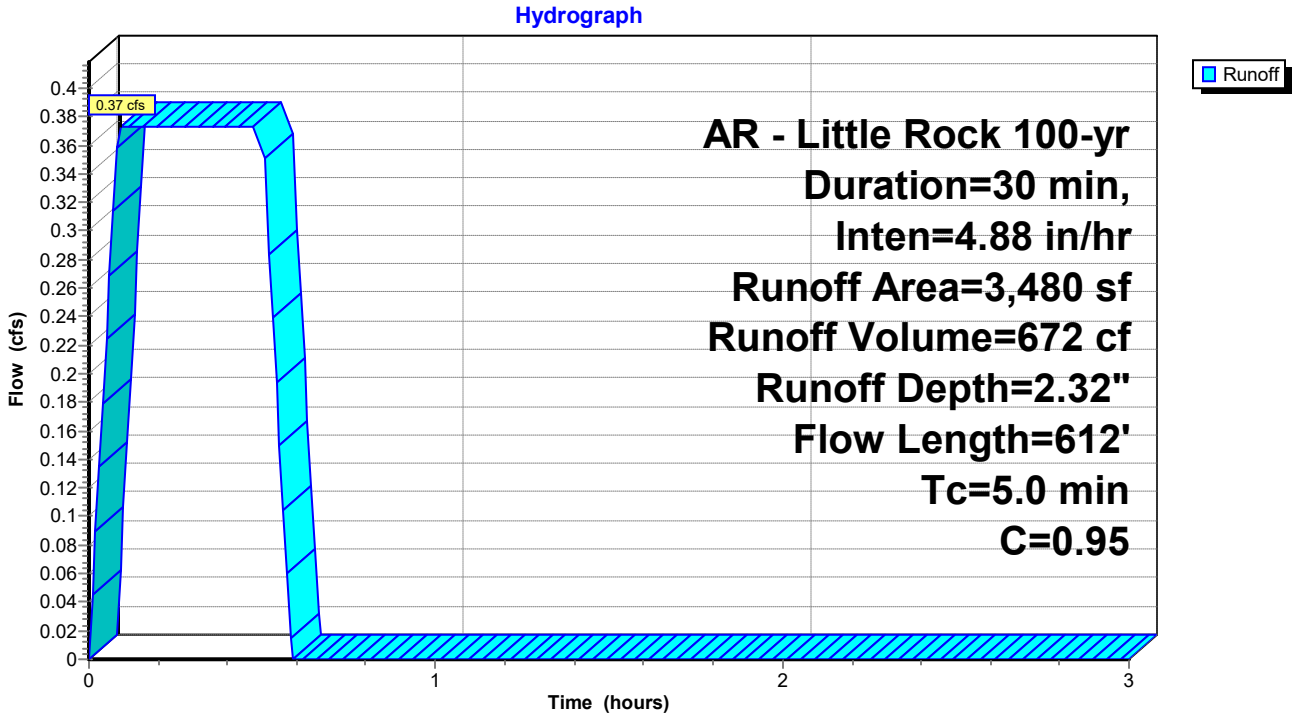
Runoff = 0.37 cfs @ 0.09 hrs, Volume= 672 cf, Depth= 2.32"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
3,480	0.95	Paving, Sidewalks
3,480	0.95	Weighted Average
3,480		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.0	10	0.0340	3.74		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	18	0.0390	4.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.6	147	0.0380	3.96		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.0	415		1.73		**Direct Entry, Concentrated Flow (Min)**
5.0	612	Total			

Subcatchment C3: Drainage Basin C3



Summary for Subcatchment C4: Drainage Basin C4

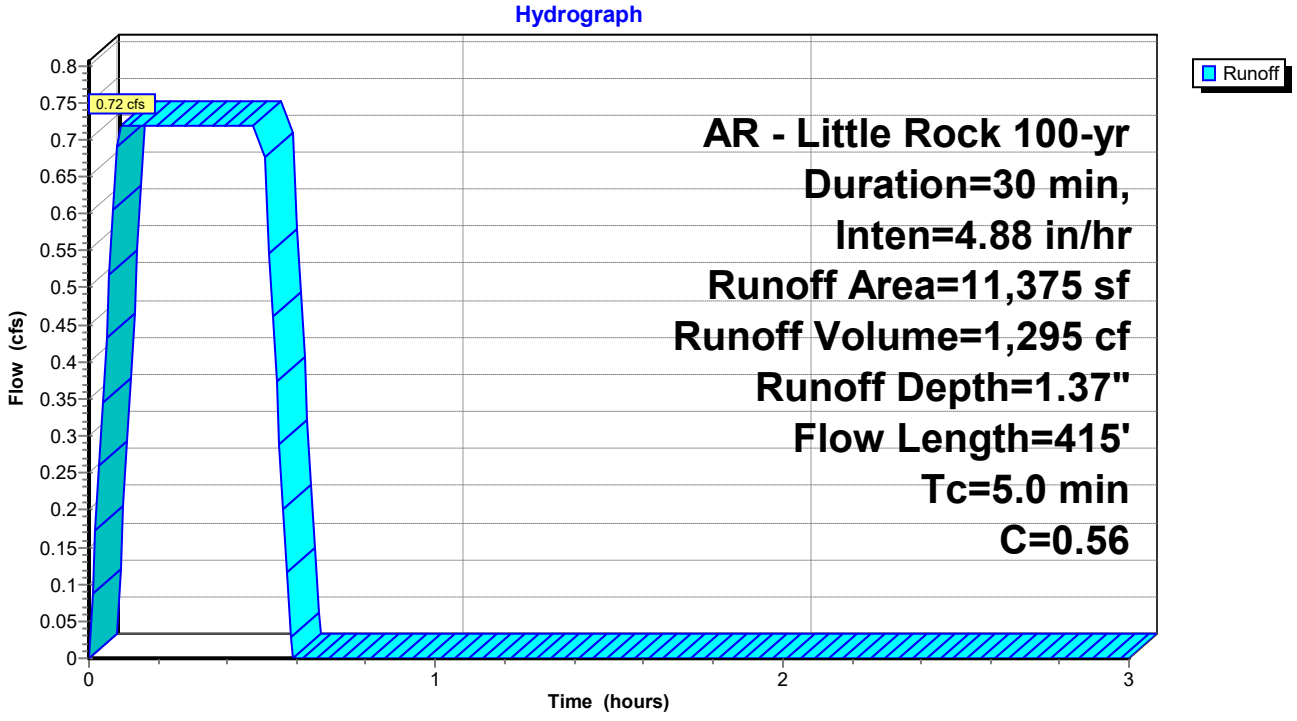
Runoff = 0.72 cfs @ 0.09 hrs, Volume= 1,295 cf, Depth= 1.37"
Routed to Pond CI-C3 : CI - C3

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
8,130	0.40	Sod Yard
3,245	0.95	Paving, Sidewalks
11,375	0.56	Weighted Average
8,130		71.47% Pervious Area
3,245		28.53% Impervious Area

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

Subcatchment C4: Drainage Basin C4



Summary for Subcatchment C5: Drainage Basin C5

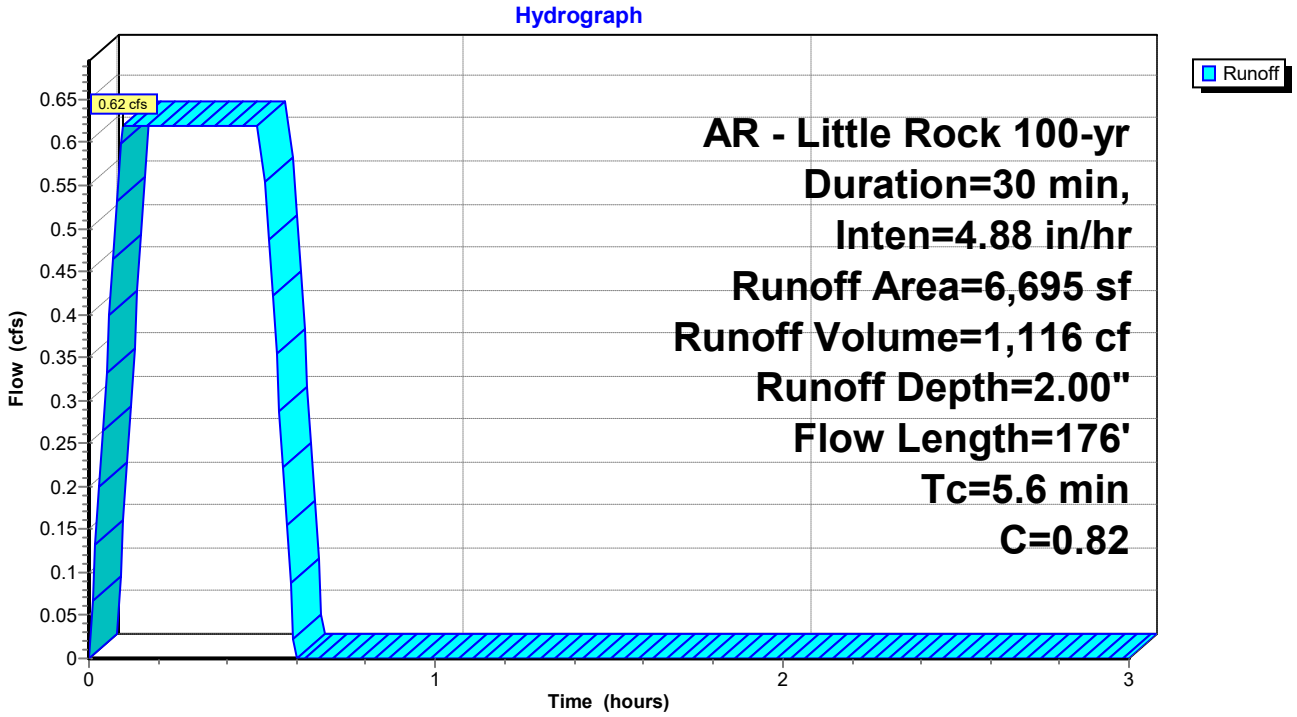
Runoff = 0.62 cfs @ 0.10 hrs, Volume= 1,116 cf, Depth= 2.00"
Routed to Pond CI-C4 : CI - C4

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
1,634	0.40	Sod Yard
5,061	0.95	Paving, Sidewalks
6,695	0.82	Weighted Average
1,634		24.41% Pervious Area
5,061		75.59% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	5	0.2990	0.14		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.2	12	0.0130	0.87		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
3.9	8	0.0070	0.03		**Sheet Flow, Sheet Flow** Grass: Bermuda n= 0.410 P2= 4.19"
0.5	58	0.0080	1.82		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	14	0.0280	3.40		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0370	3.90		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0940	6.22		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.0	13	0.0560	4.80		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	30	0.0180	2.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
5.6	176	Total			

Subcatchment C5: Drainage Basin C5



Summary for Subcatchment C6: Drainage Basin C6

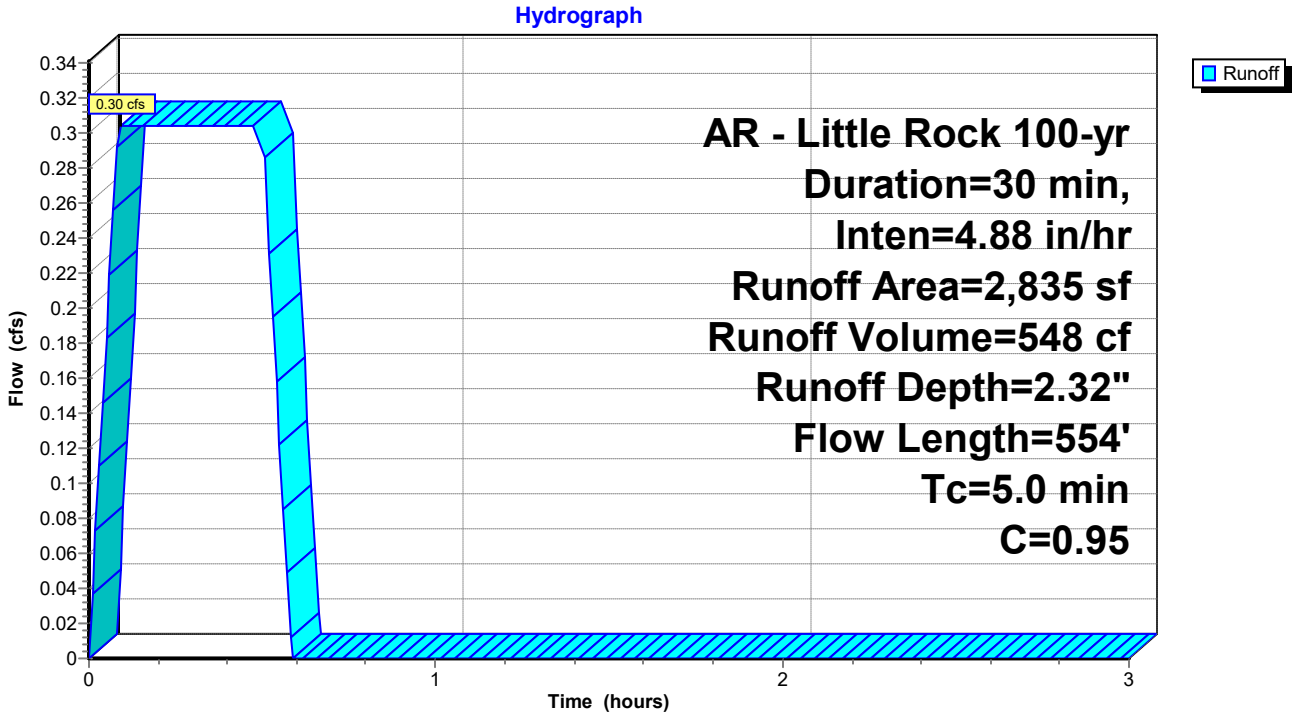
Runoff = 0.30 cfs @ 0.09 hrs, Volume= 548 cf, Depth= 2.32"
Routed to Pond CI-C5 : CI - C5

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
2,835	0.95	Paving, Sidewalks
2,835	0.95	Weighted Average
2,835		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	22	0.0200	1.16		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.2	19	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	17	0.0170	2.65		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	26	0.0360	3.85		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	28	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	27	0.0610	5.01		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.1	415		1.69		**Direct Entry, Concentrated Flow (Min)**
5.0	554	Total			

Subcatchment C6: Drainage Basin C6



Summary for Subcatchment C7: Drainage Basin C7

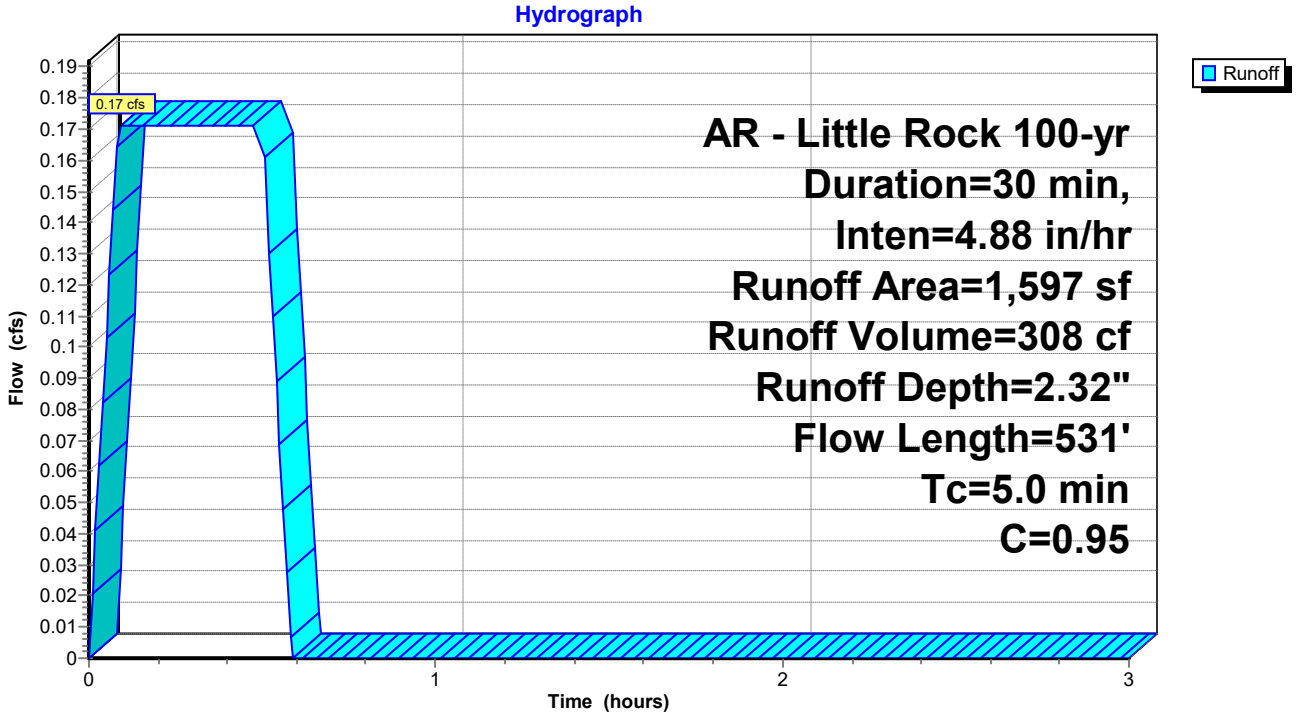
Runoff = 0.17 cfs @ 0.09 hrs, Volume= 308 cf, Depth= 2.32"
Routed to Pond CI-D1 : CI - D1

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,597	0.95	Paving, Sidewalks
1,597	0.95	Weighted Average
1,597		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	19	0.0200	1.13		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	16	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.3	81	0.0580	4.89		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
4.3	415		1.61		**Direct Entry, Concentrated Flow (Min)**
5.0	531	Total			

Subcatchment C7: Drainage Basin C7



Summary for Subcatchment C8: Drainage Basin C8

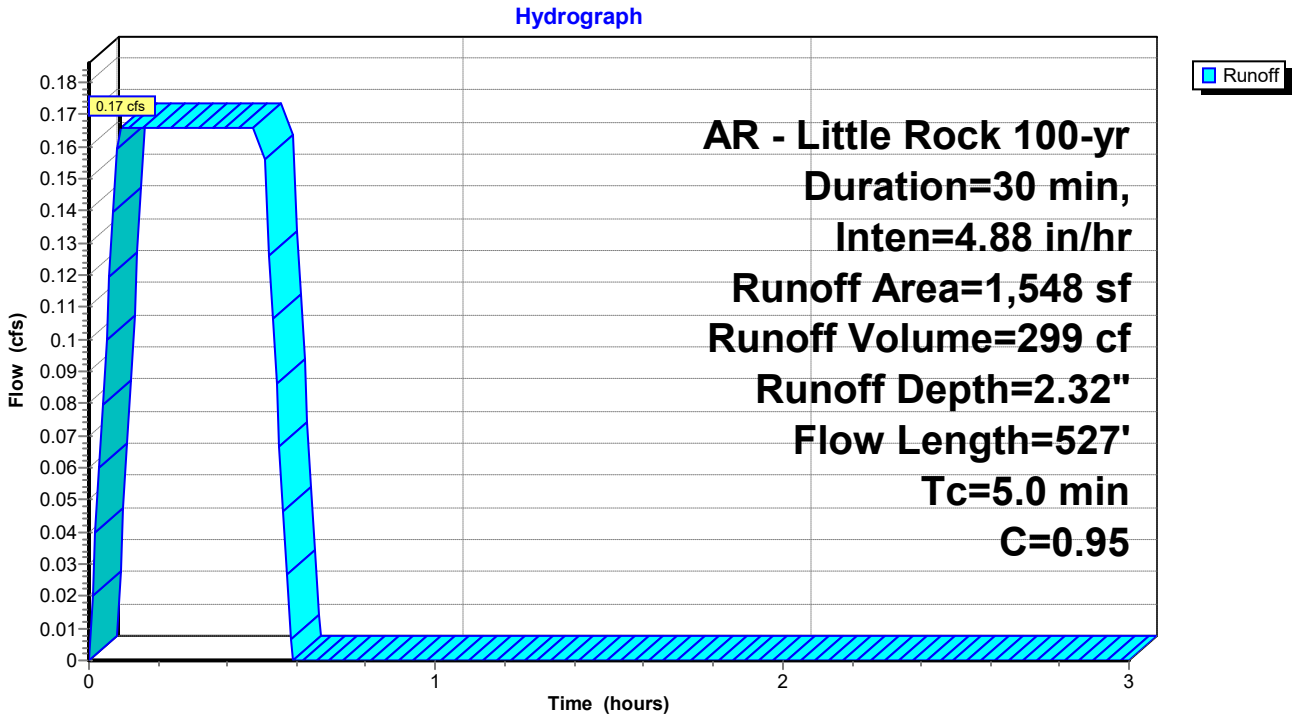
Runoff = 0.17 cfs @ 0.09 hrs, Volume= 299 cf, Depth= 2.32"
Routed to Pond CI-D2 : CI - D2

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
0	0.40	Sod Yard
1,548	0.95	Paving, Sidewalks
1,548	0.95	Weighted Average
1,548		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.3	18	0.0200	1.12		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.3	94	0.0610	5.01		**Shallow Concentrated Flow, Cncentrated Flow** Paved Kv= 20.3 fps
4.4	415		1.57		**Direct Entry, Concentrated Flow (Min)**
5.0	527	Total			

Subcatchment C8: Drainage Basin C8



Summary for Subcatchment C9: Drainage Basin C9

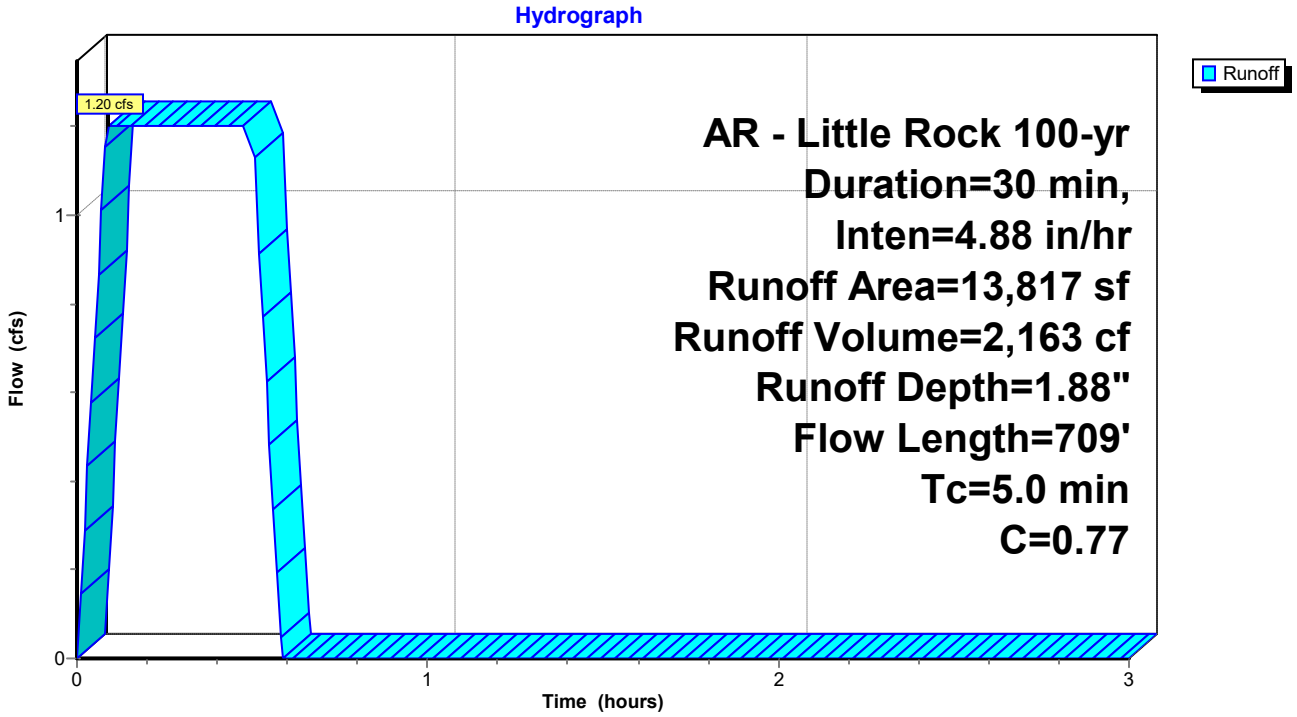
Runoff = 1.20 cfs @ 0.09 hrs, Volume= 2,163 cf, Depth= 1.88"
Routed to Pond CI-C6 : CI - C6

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=30 min, Inten=4.88 in/hr

Area (sf)	C	Description
4,456	0.40	Sod Yard
9,361	0.95	Paving, Sidewalks
13,817	0.77	Weighted Average
4,456		32.25% Pervious Area
9,361		67.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.2	100	0.0140	1.36		**Sheet Flow, Sheet Flow** Smooth surfaces n= 0.011 P2= 4.19"
0.1	13	0.0150	2.49		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	23	0.0160	2.57		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	7	0.0050	1.44		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	8	0.0100	2.03		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	41	0.0420	4.16		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.1	41	0.0540	4.72		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
0.2	61	0.0520	4.63		**Shallow Concentrated Flow, Concentrated Flow** Paved Kv= 20.3 fps
2.9	415		2.39		**Direct Entry, Concentrated Flow (Min)**
5.0	709	Total			

Subcatchment C9: Drainage Basin C9

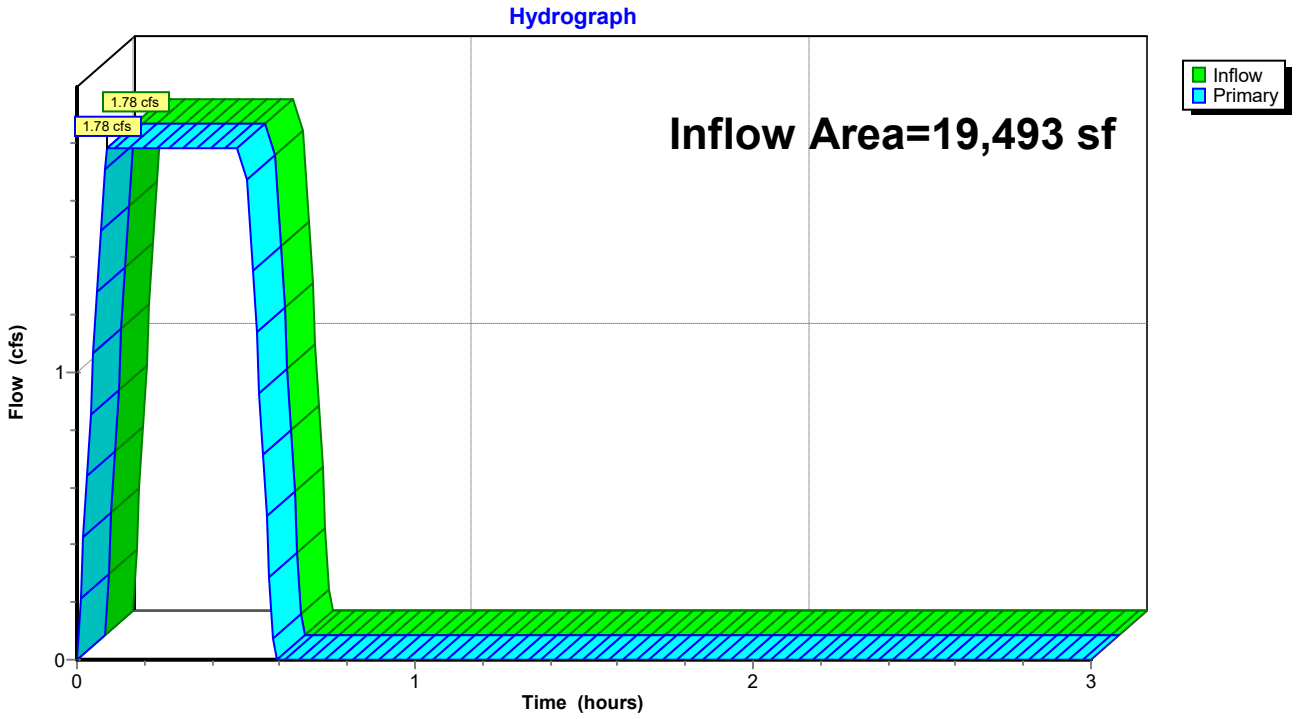


Summary for Pond CI-A1: CI - A1

Inflow Area = 19,493 sf, 74.85% Impervious, Inflow Depth = 1.98" for 100-yr event
Inflow = 1.78 cfs @ 0.09 hrs, Volume= 3,210 cf
Primary = 1.78 cfs @ 0.09 hrs, Volume= 3,210 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-A1: CI - A1

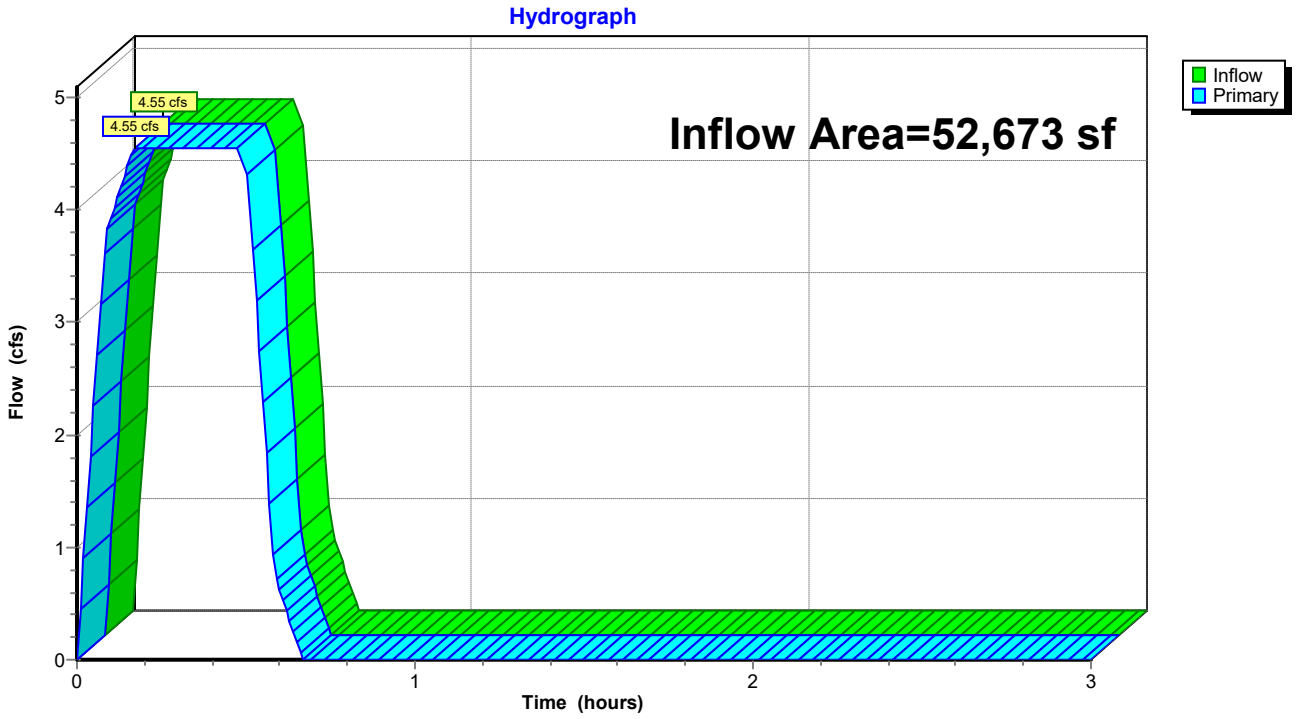


Summary for Pond CI-A3: CI - A3

Inflow Area = 52,673 sf, 66.48% Impervious, Inflow Depth = 1.87" for 100-yr event
Inflow = 4.55 cfs @ 0.17 hrs, Volume= 8,187 cf
Primary = 4.55 cfs @ 0.17 hrs, Volume= 8,187 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A4 : CI - A4

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

Pond CI-A3: CI - A3

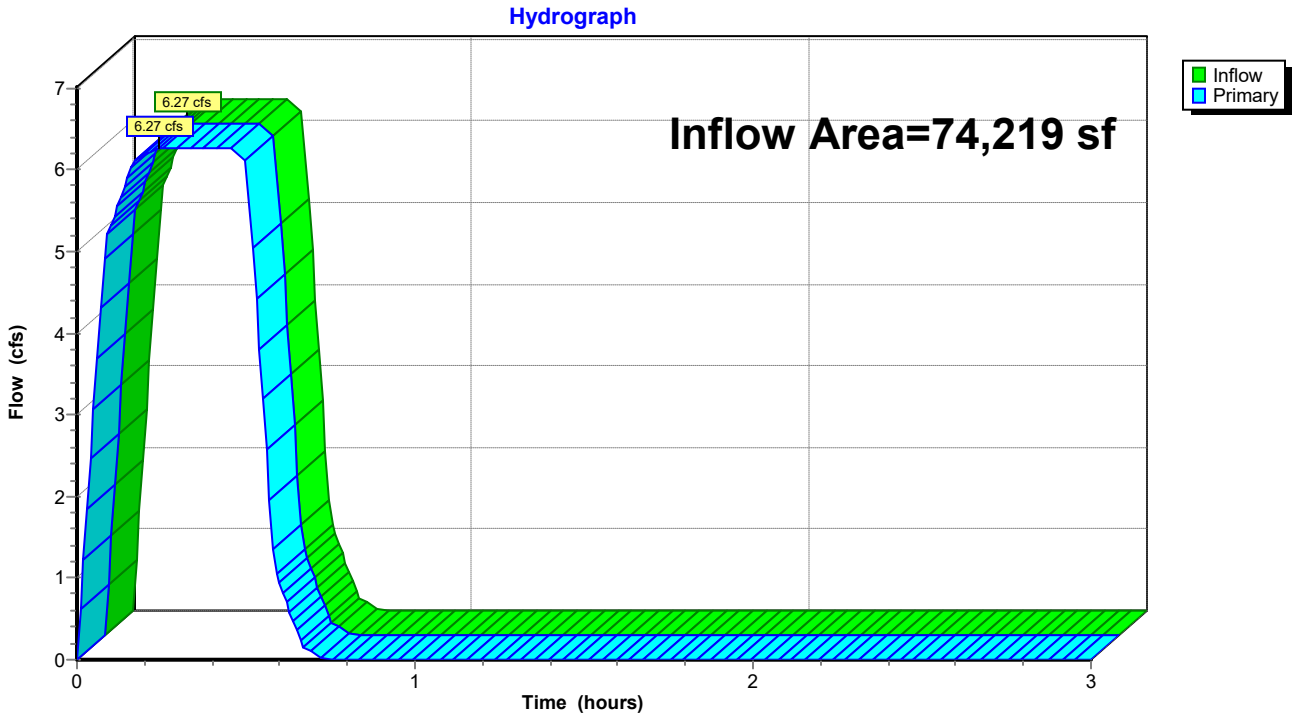


Summary for Pond CI-A4: CI - A4

Inflow Area = 74,219 sf, 63.30% Impervious, Inflow Depth = 1.82" for 100-yr event
Inflow = 6.27 cfs @ 0.24 hrs, Volume= 11,278 cf
Primary = 6.27 cfs @ 0.24 hrs, Volume= 11,278 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A5 : CI - A5

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

Pond CI-A4: CI - A4

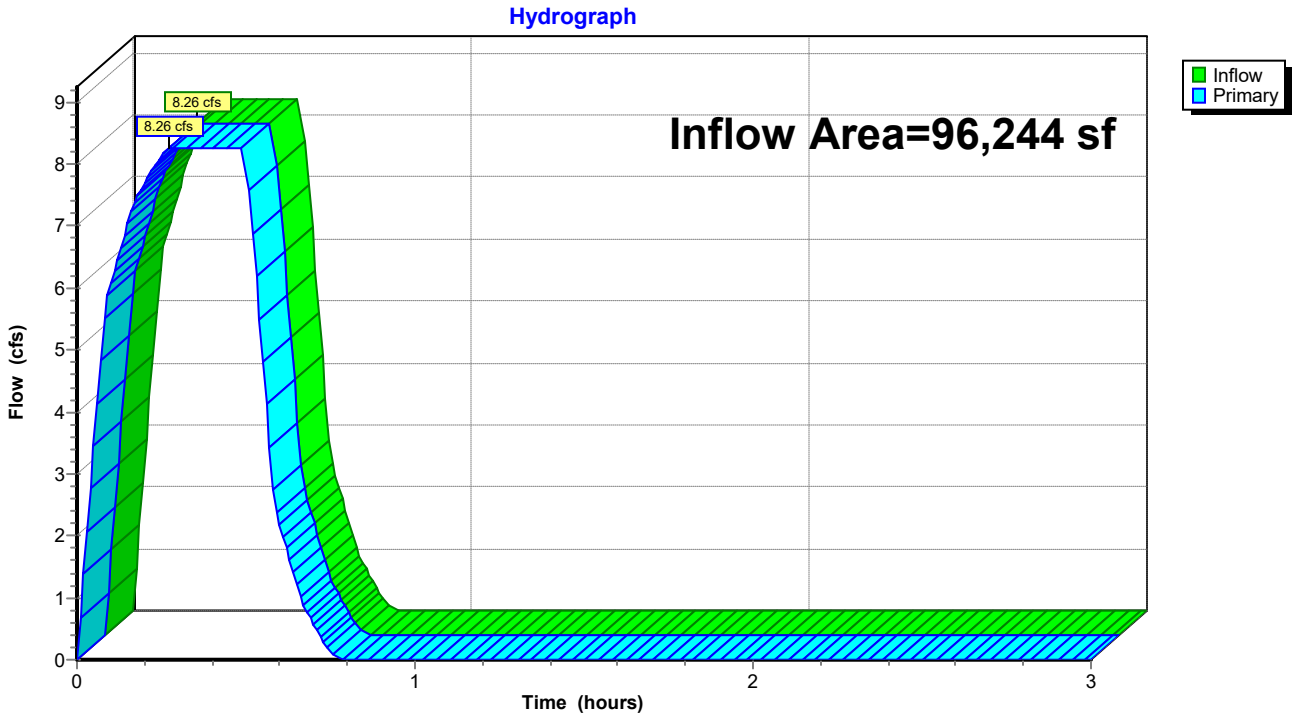


Summary for Pond CI-A5: CI - A5

Inflow Area = 96,244 sf, 65.33% Impervious, Inflow Depth = 1.85" for 100-yr event
Inflow = 8.26 cfs @ 0.27 hrs, Volume= 14,861 cf
Primary = 8.26 cfs @ 0.27 hrs, Volume= 14,861 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-A5: CI - A5

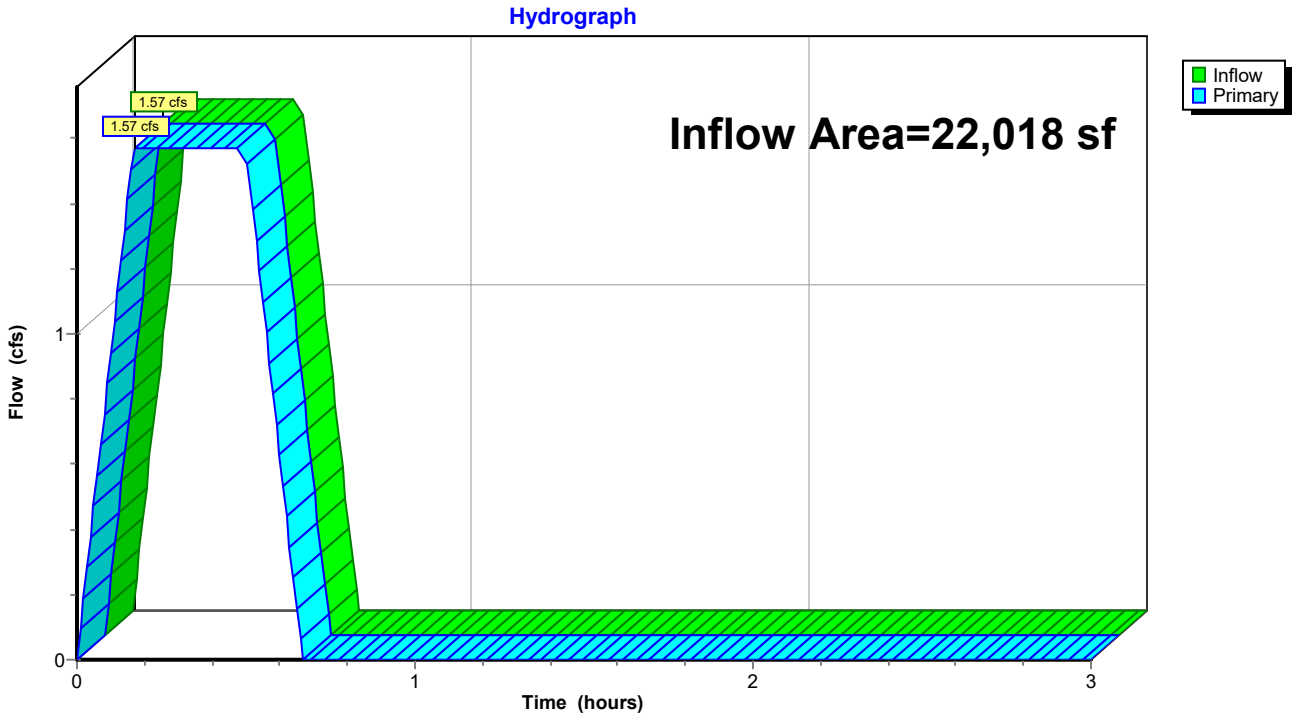


Summary for Pond CI-B2: CI - B2

Inflow Area = 22,018 sf, 42.08% Impervious, Inflow Depth = 1.54" for 100-yr event
Inflow = 1.57 cfs @ 0.17 hrs, Volume= 2,821 cf
Primary = 1.57 cfs @ 0.17 hrs, Volume= 2,821 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond JB-A2 : JB - A2

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

Pond CI-B2: CI - B2

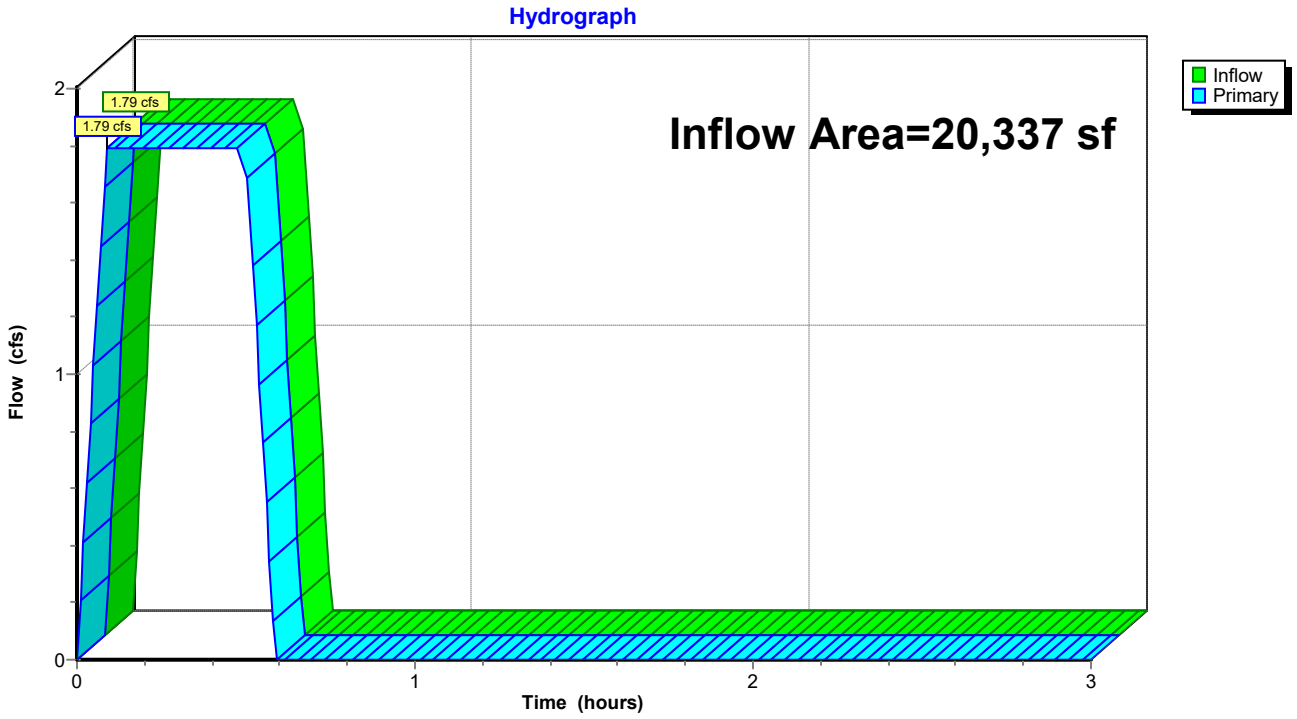


Summary for Pond CI-C1: CI - C1

Inflow Area = 20,337 sf, 69.83% Impervious, Inflow Depth = 1.90" for 100-yr event
Inflow = 1.79 cfs @ 0.09 hrs, Volume= 3,225 cf
Primary = 1.79 cfs @ 0.09 hrs, Volume= 3,225 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C2 : CI - C2

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

Pond CI-C1: CI - C1

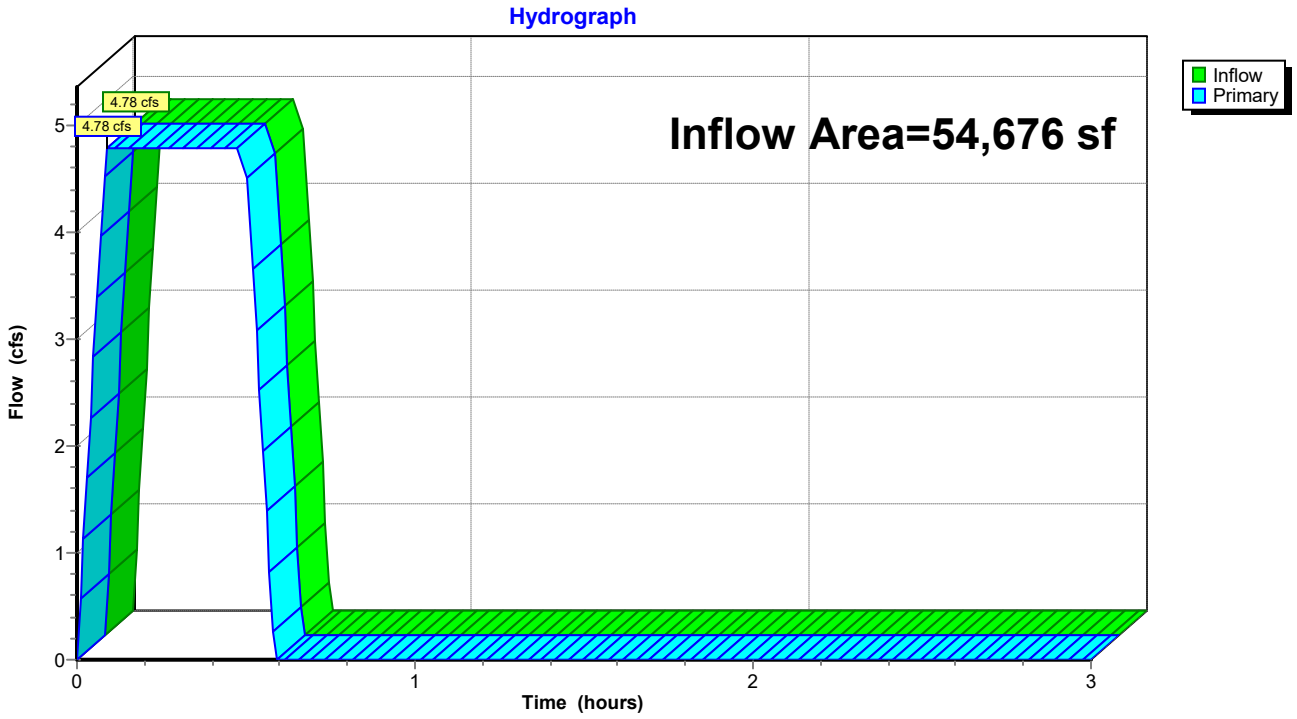


Summary for Pond CI-C2: CI - C2

Inflow Area = 54,676 sf, 67.97% Impervious, Inflow Depth = 1.89" for 100-yr event
Inflow = 4.78 cfs @ 0.09 hrs, Volume= 8,602 cf
Primary = 4.78 cfs @ 0.09 hrs, Volume= 8,602 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C3 : CI - C3

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

Pond CI-C2: CI - C2

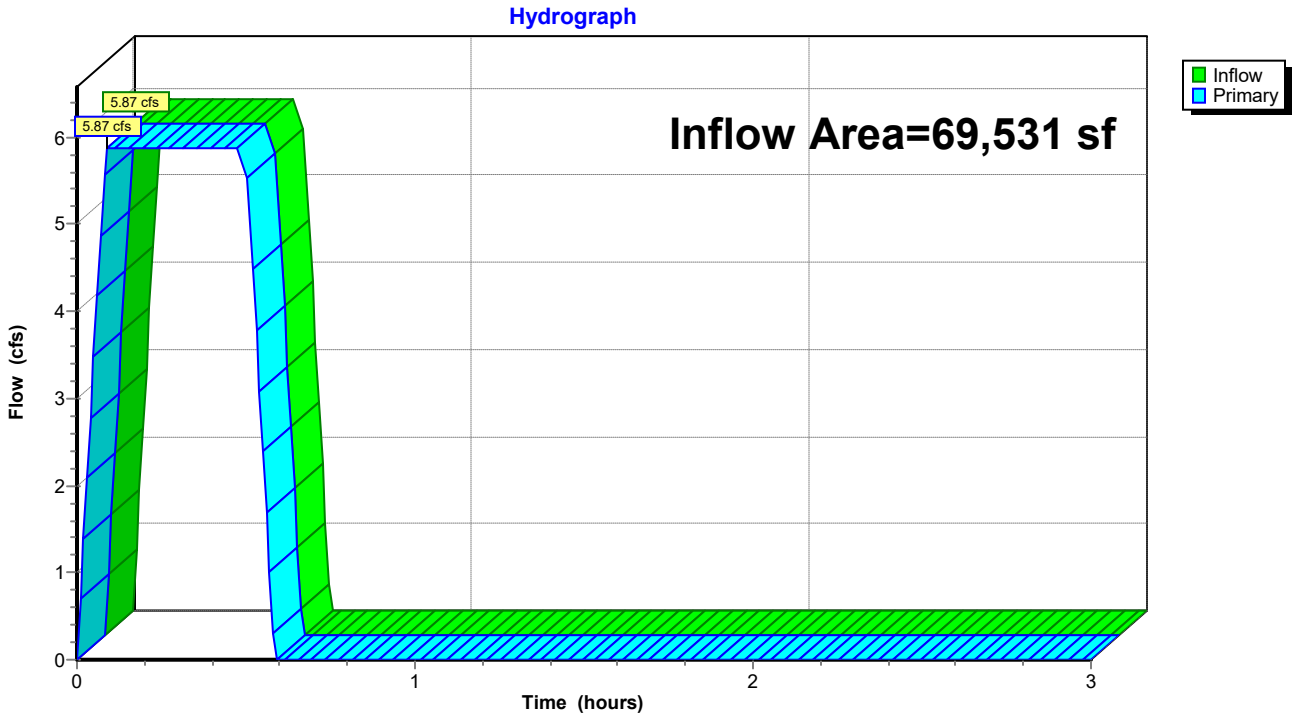


Summary for Pond CI-C3: CI - C3

Inflow Area = 69,531 sf, 63.12% Impervious, Inflow Depth = 1.82" for 100-yr event
Inflow = 5.87 cfs @ 0.09 hrs, Volume= 10,569 cf
Primary = 5.87 cfs @ 0.09 hrs, Volume= 10,569 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C4 : CI - C4

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

Pond CI-C3: CI - C3

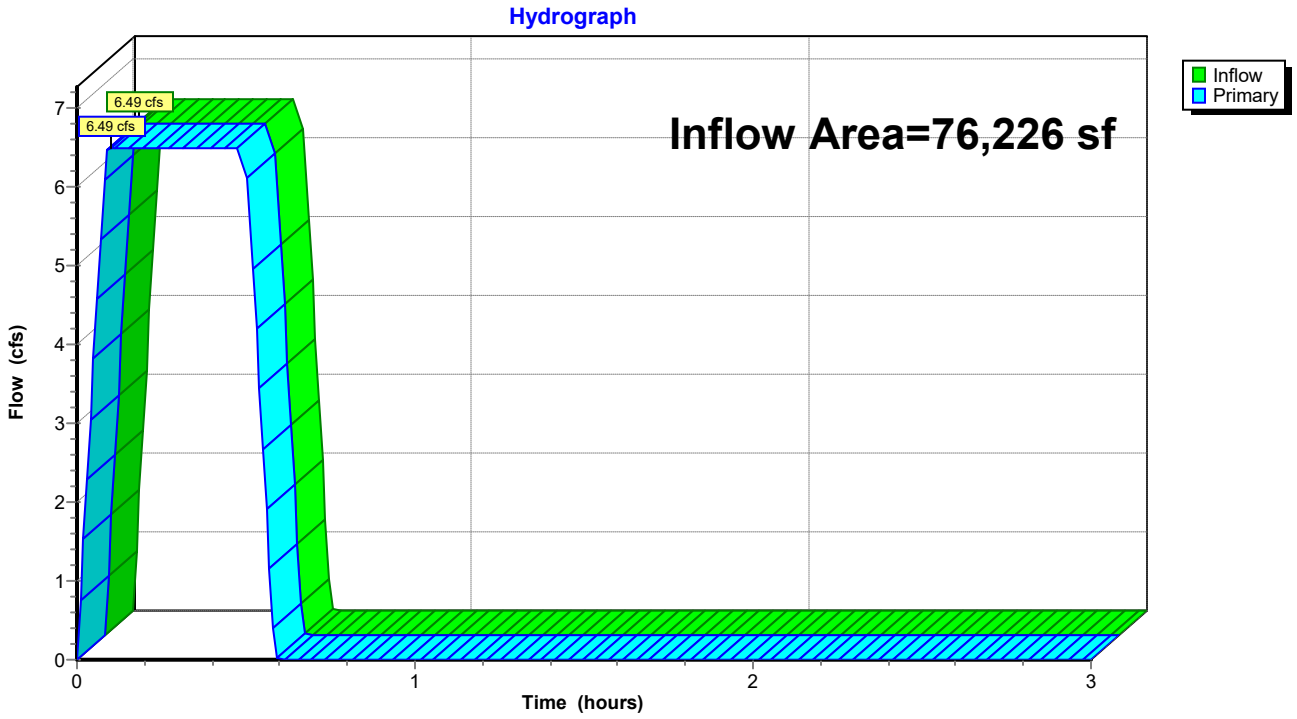


Summary for Pond CI-C4: CI - C4

Inflow Area = 76,226 sf, 64.22% Impervious, Inflow Depth = 1.84" for 100-yr event
Inflow = 6.49 cfs @ 0.10 hrs, Volume= 11,686 cf
Primary = 6.49 cfs @ 0.10 hrs, Volume= 11,686 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C5 : CI - C5

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

Pond CI-C4: CI - C4

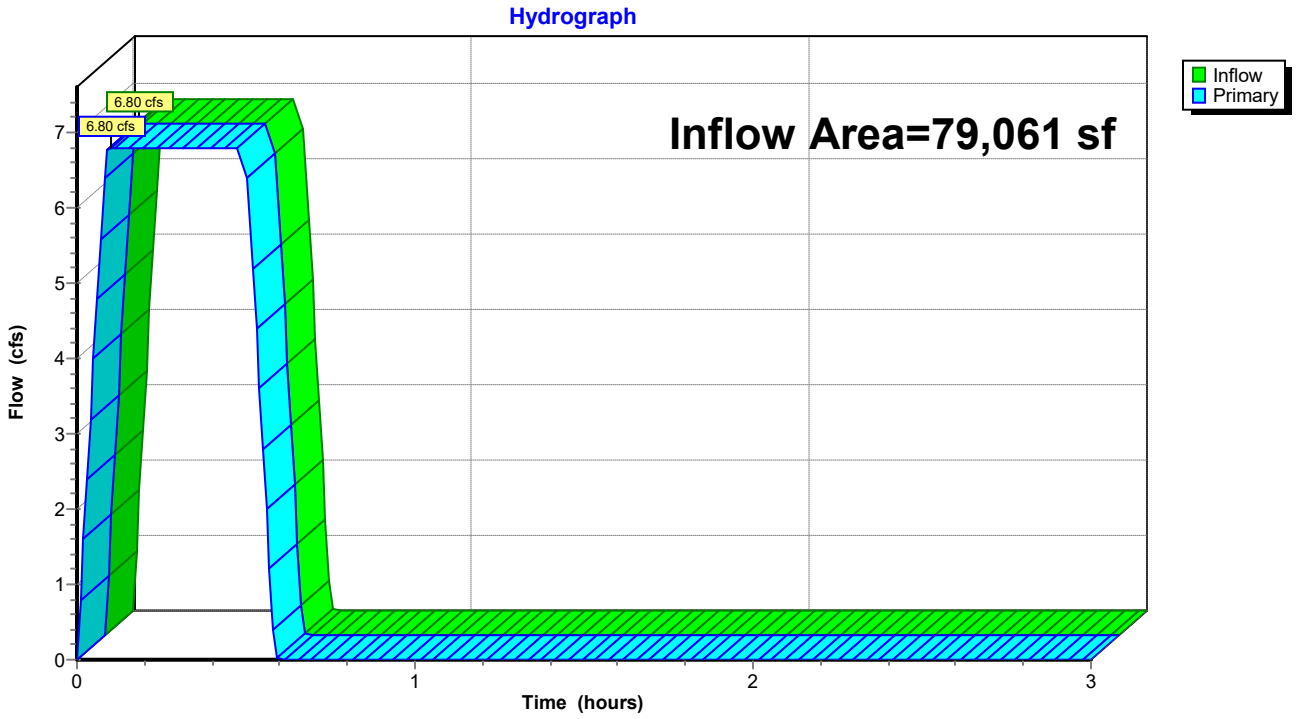


Summary for Pond CI-C5: CI - C5

Inflow Area = 79,061 sf, 65.50% Impervious, Inflow Depth = 1.86" for 100-yr event
Inflow = 6.80 cfs @ 0.10 hrs, Volume= 12,233 cf
Primary = 6.80 cfs @ 0.10 hrs, Volume= 12,233 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-C5: CI - C5

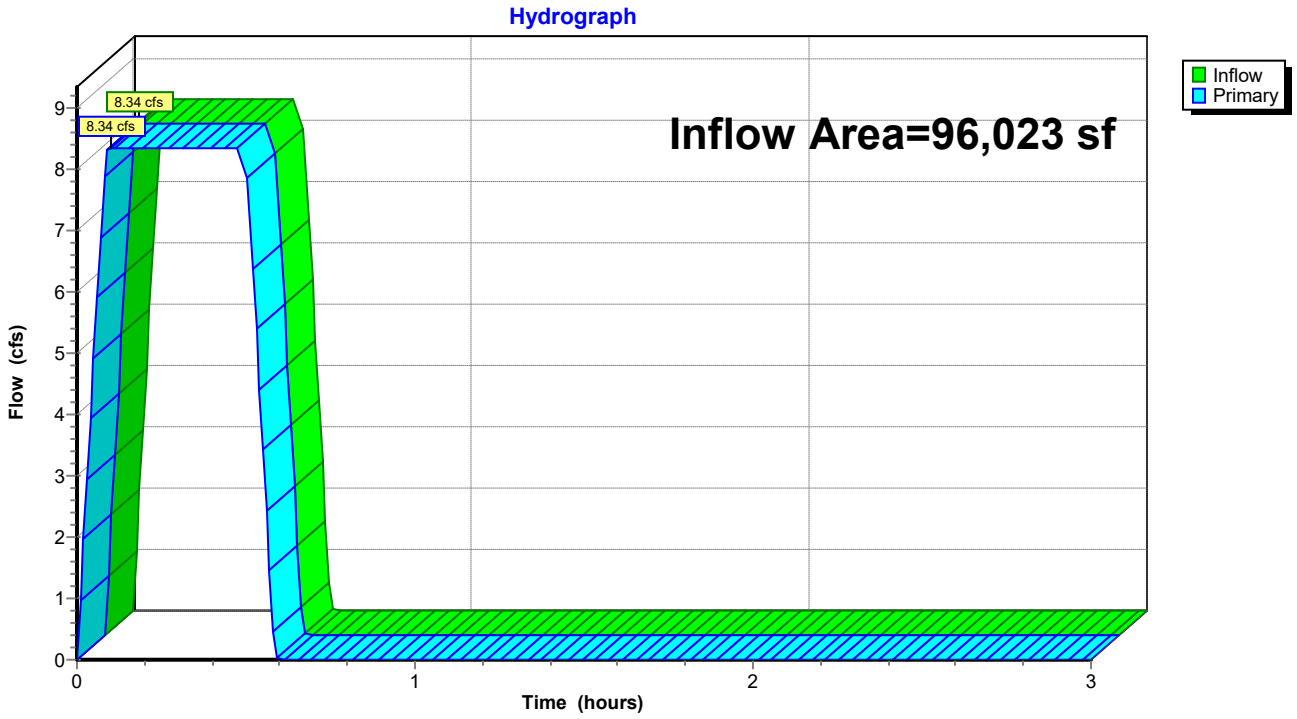


Summary for Pond CI-C6: CI - C6

Inflow Area = 96,023 sf, 66.95% Impervious, Inflow Depth = 1.88" for 100-yr event
Inflow = 8.34 cfs @ 0.10 hrs, Volume= 15,004 cf
Primary = 8.34 cfs @ 0.10 hrs, Volume= 15,004 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-C6: CI - C6

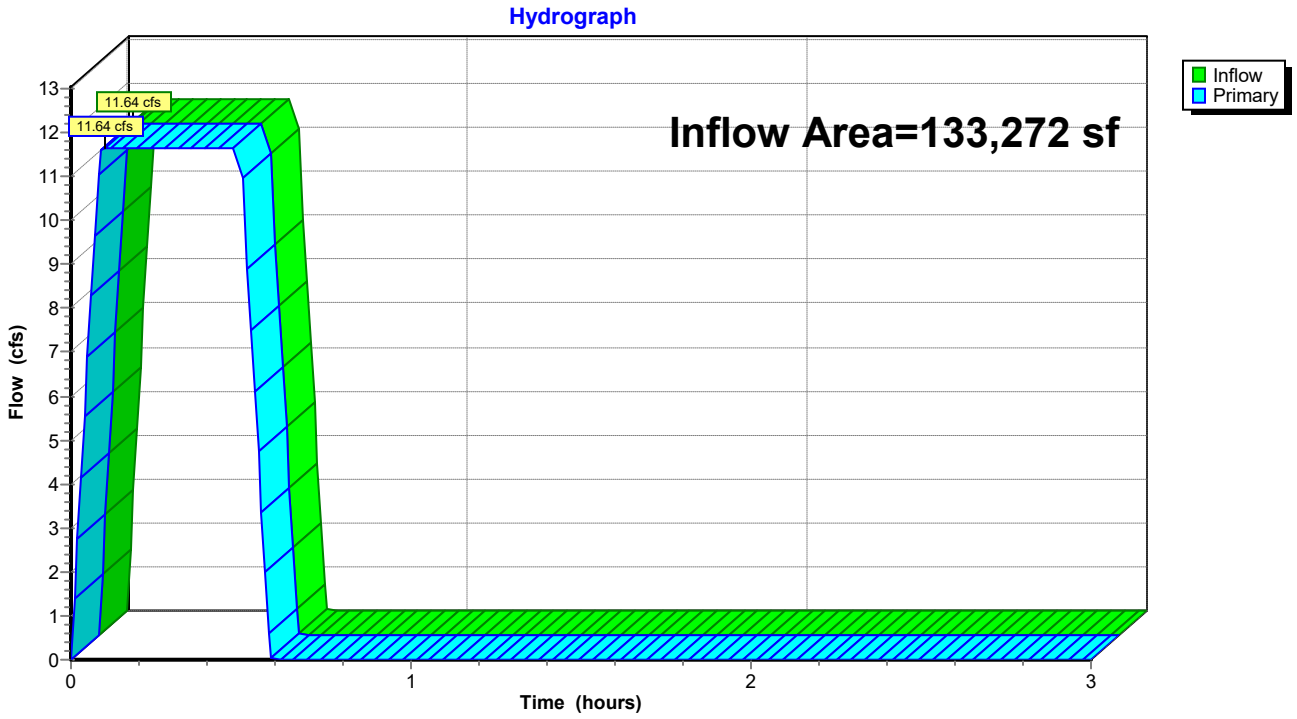


Summary for Pond CI-C7: CI - C7

Inflow Area = 133,272 sf, 67.70% Impervious, Inflow Depth = 1.89" for 100-yr event
Inflow = 11.64 cfs @ 0.10 hrs, Volume= 20,958 cf
Primary = 11.64 cfs @ 0.10 hrs, Volume= 20,958 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond DP : Existing North Detention Pond

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

Pond CI-C7: CI - C7

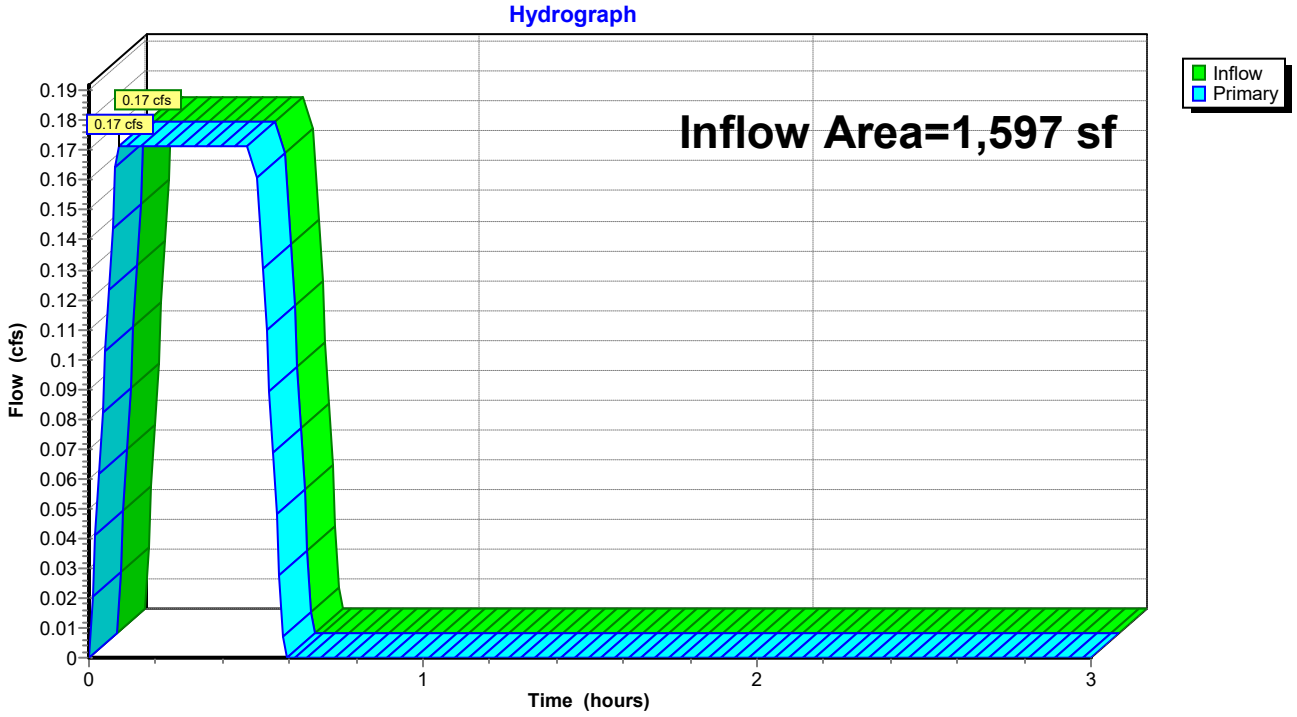


Summary for Pond CI-D1: CI - D1

Inflow Area = 1,597 sf,100.00% Impervious, Inflow Depth = 2.32" for 100-yr event
Inflow = 0.17 cfs @ 0.09 hrs, Volume= 308 cf
Primary = 0.17 cfs @ 0.09 hrs, Volume= 308 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-D2 : CI - D2

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

Pond CI-D1: CI - D1

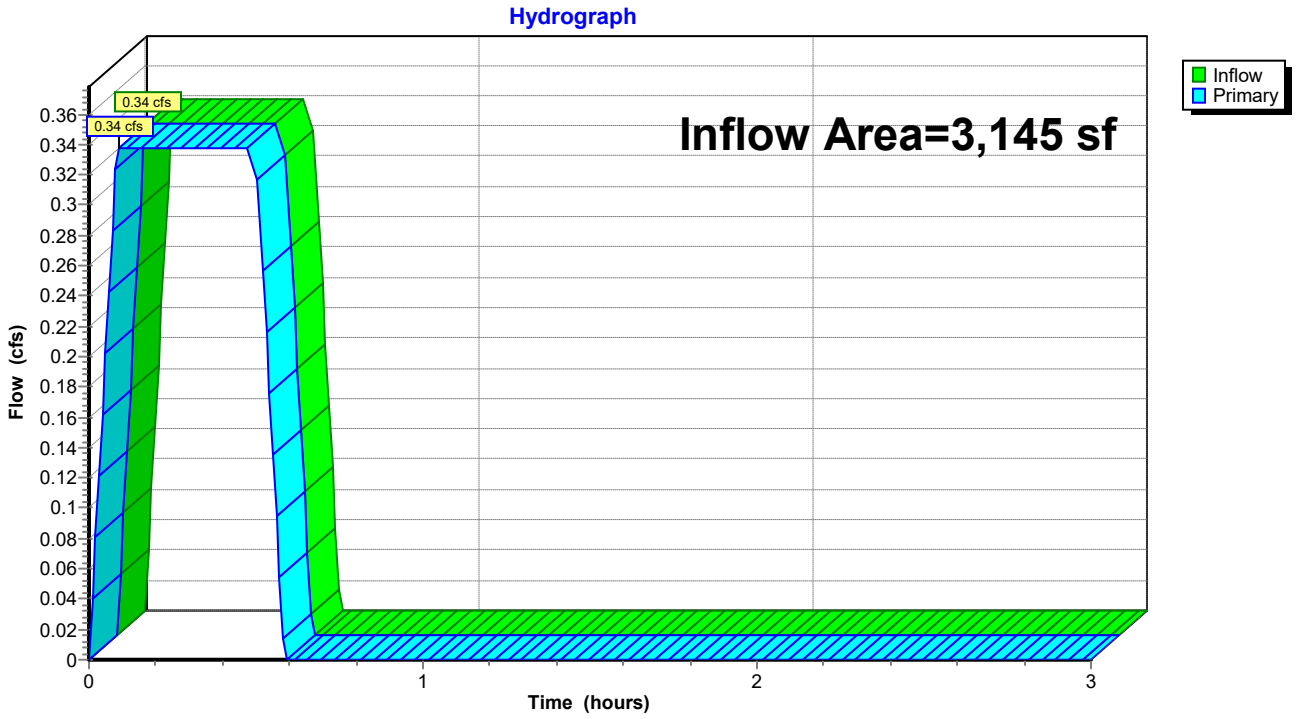


Summary for Pond CI-D2: CI - D2

Inflow Area = 3,145 sf,100.00% Impervious, Inflow Depth = 2.32" for 100-yr event
Inflow = 0.34 cfs @ 0.09 hrs, Volume= 608 cf
Primary = 0.34 cfs @ 0.09 hrs, Volume= 608 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C6 : CI - C6

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

Pond CI-D2: CI - D2

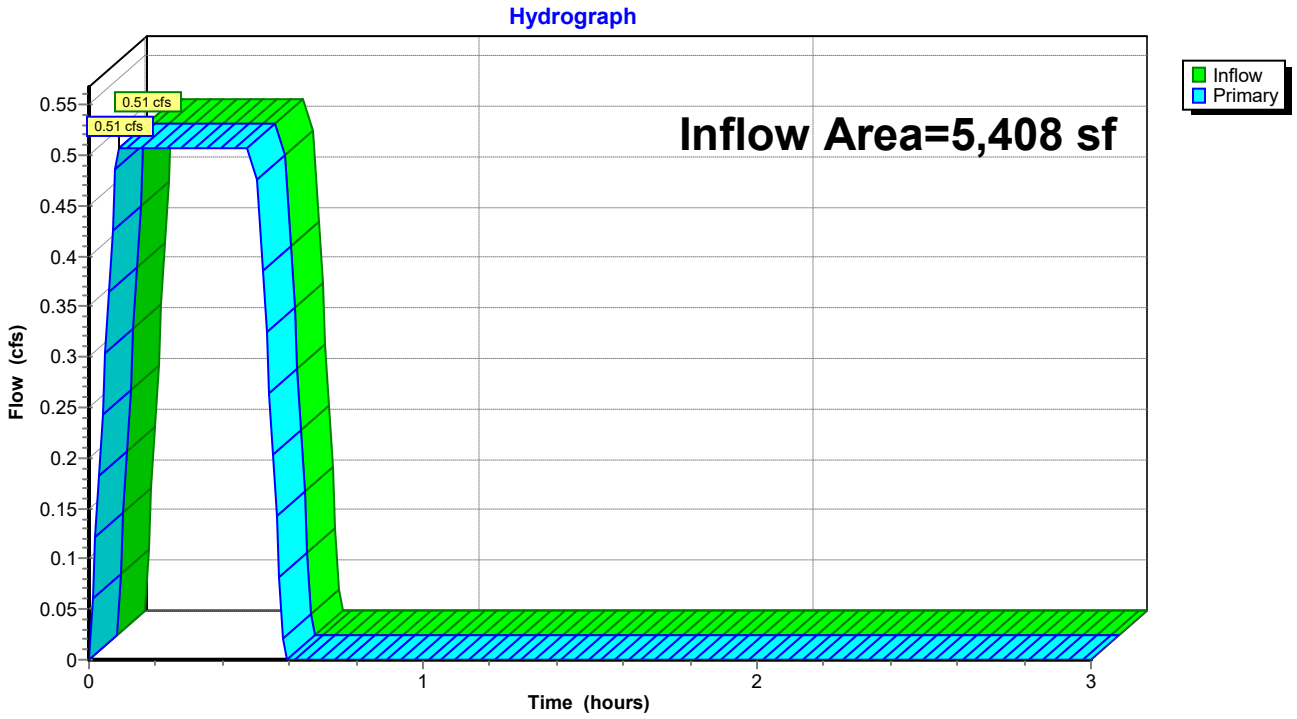


Summary for Pond CI-E1: CI - E1

Inflow Area = 5,408 sf, 77.35% Impervious, Inflow Depth = 2.03" for 100-yr event
Inflow = 0.51 cfs @ 0.09 hrs, Volume= 913 cf
Primary = 0.51 cfs @ 0.09 hrs, Volume= 913 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-E2 : CI - E2

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

Pond CI-E1: CI - E1

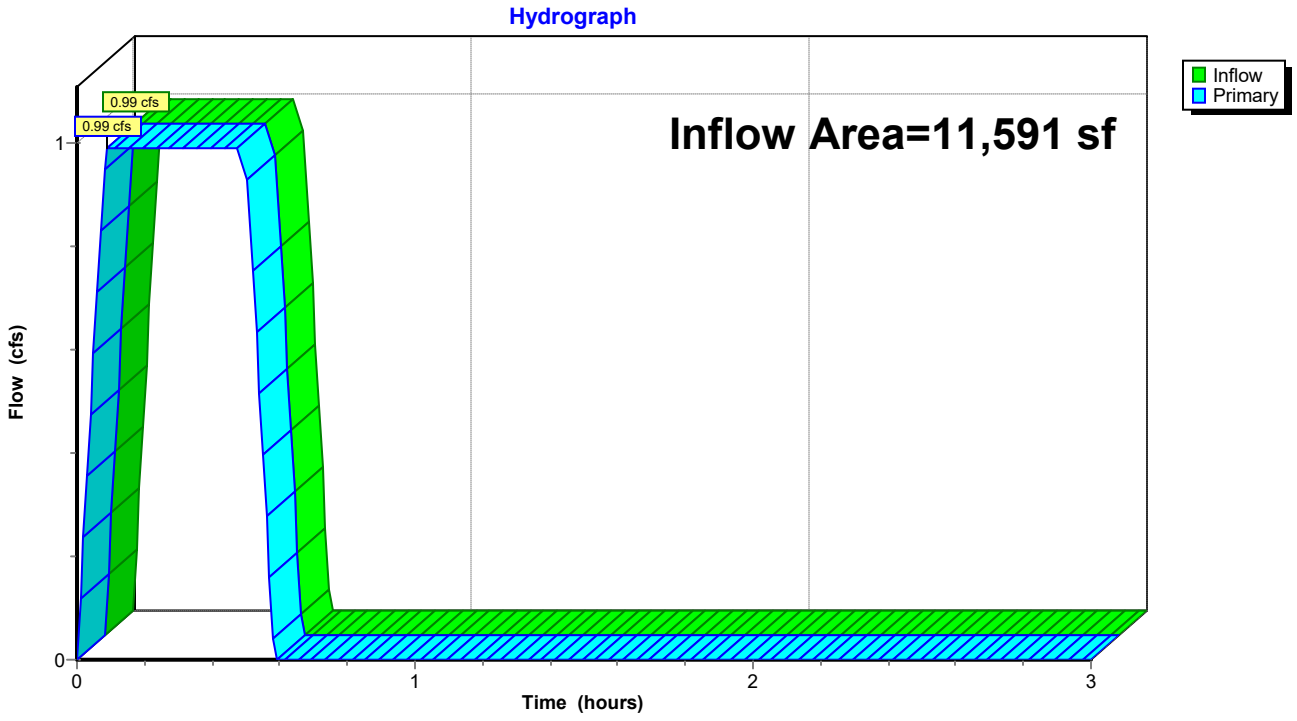


Summary for Pond CI-E2: CI - E2

Inflow Area = 11,591 sf, 64.62% Impervious, Inflow Depth = 1.84" for 100-yr event
Inflow = 0.99 cfs @ 0.09 hrs, Volume= 1,780 cf
Primary = 0.99 cfs @ 0.09 hrs, Volume= 1,780 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-C7 : CI - C7

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

Pond CI-E2: CI - E2



Summary for Pond DP: Existing North Detention Pond

Inflow Area = 321,792 sf, 58.73% Impervious, Inflow Depth = 1.76" for 100-yr event
Inflow = 26.26 cfs @ 0.27 hrs, Volume= 47,277 cf
Outflow = 13.63 cfs @ 0.55 hrs, Volume= 47,277 cf, Atten= 48%, Lag= 16.7 min
Primary = 13.63 cfs @ 0.55 hrs, Volume= 47,277 cf
Routed to Link FINAL : APPROX DISCHARGE

Routing by Stor-Ind method, Time Span= 0.00-3.00 hrs, dt= 0.01 hrs
Peak Elev= 383.40' @ 0.55 hrs Storage= 27,495 cf

Plug-Flow detention time= 24.2 min calculated for 47,120 cf (100% of inflow)
Center-of-Mass det. time= 24.3 min (42.8 - 18.5)

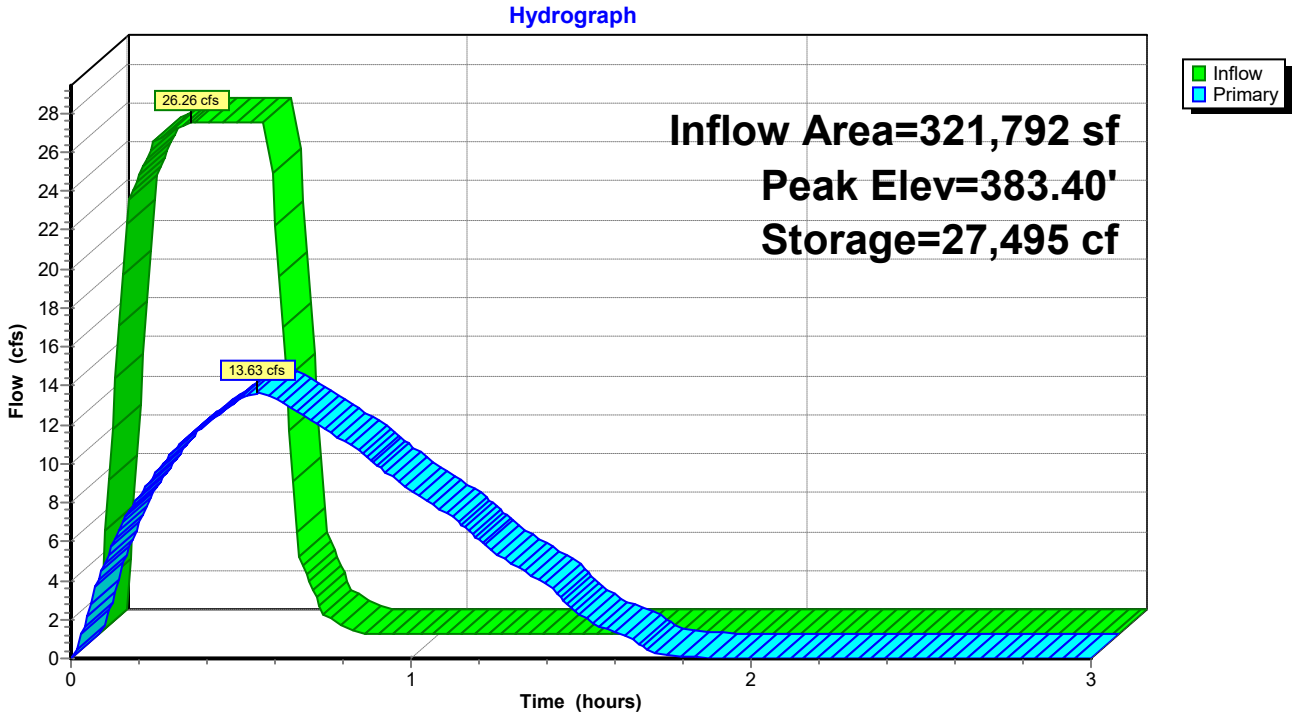
Volume	Invert	Avail.Storage	Storage Description
#1	381.17'	72,742 cf	**Custom Stage Data** Listed below

Elevation (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
381.17	0	0
381.50	200	200
382.00	1,825	2,025
382.50	5,265	7,290
383.00	9,300	16,590
383.50	13,733	30,323
384.00	18,578	48,901
384.50	23,841	72,742

Device	Routing	Invert	Outlet Devices
#1	Primary	384.16'	**5.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#2	Primary	381.17'	**1.7' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=13.63 cfs @ 0.55 hrs HW=383.40' (Free Discharge)
└**1=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 13.63 cfs @ 4.88 fps)

Pond DP: Existing North Detention Pond

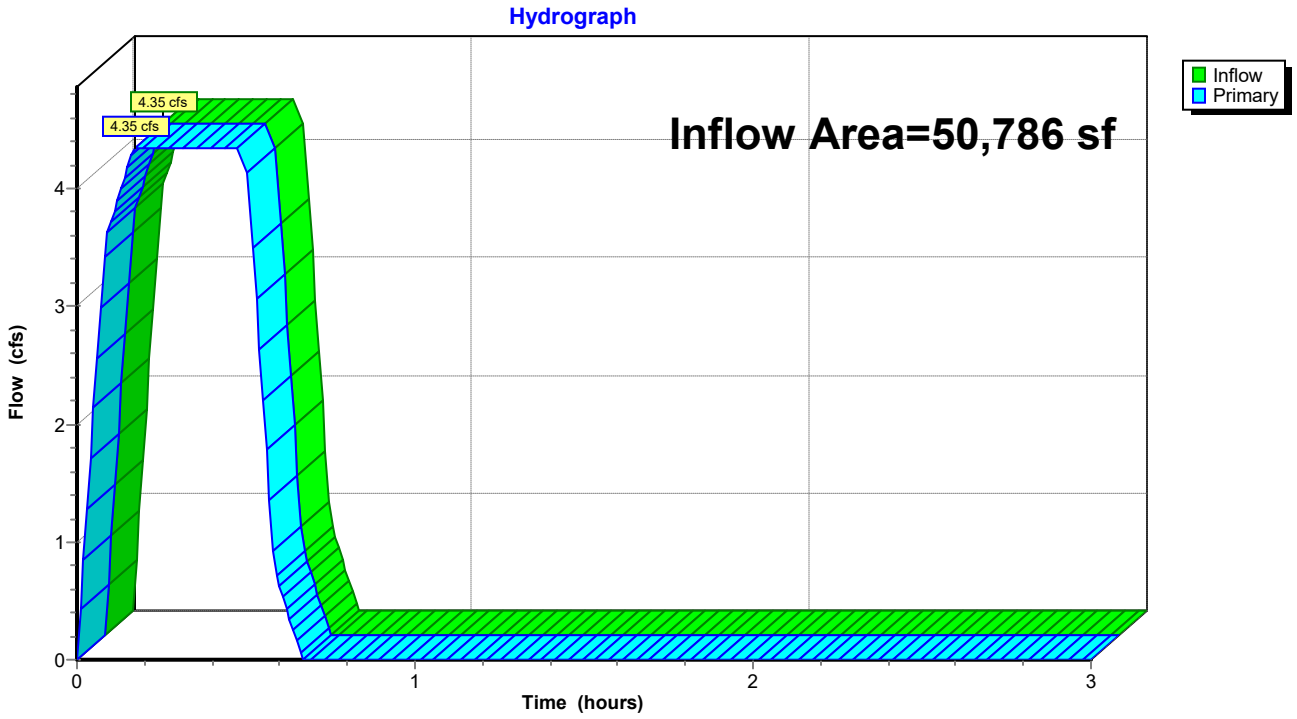


Summary for Pond JB-A2: JB - A2

Inflow Area = 50,786 sf, 65.23% Impervious, Inflow Depth = 1.85" for 100-yr event
Inflow = 4.35 cfs @ 0.17 hrs, Volume= 7,823 cf
Primary = 4.35 cfs @ 0.17 hrs, Volume= 7,823 cf, Atten= 0%, Lag= 0.0 min
Routed to Pond CI-A3 : CI - A3

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

Pond JB-A2: JB - A2

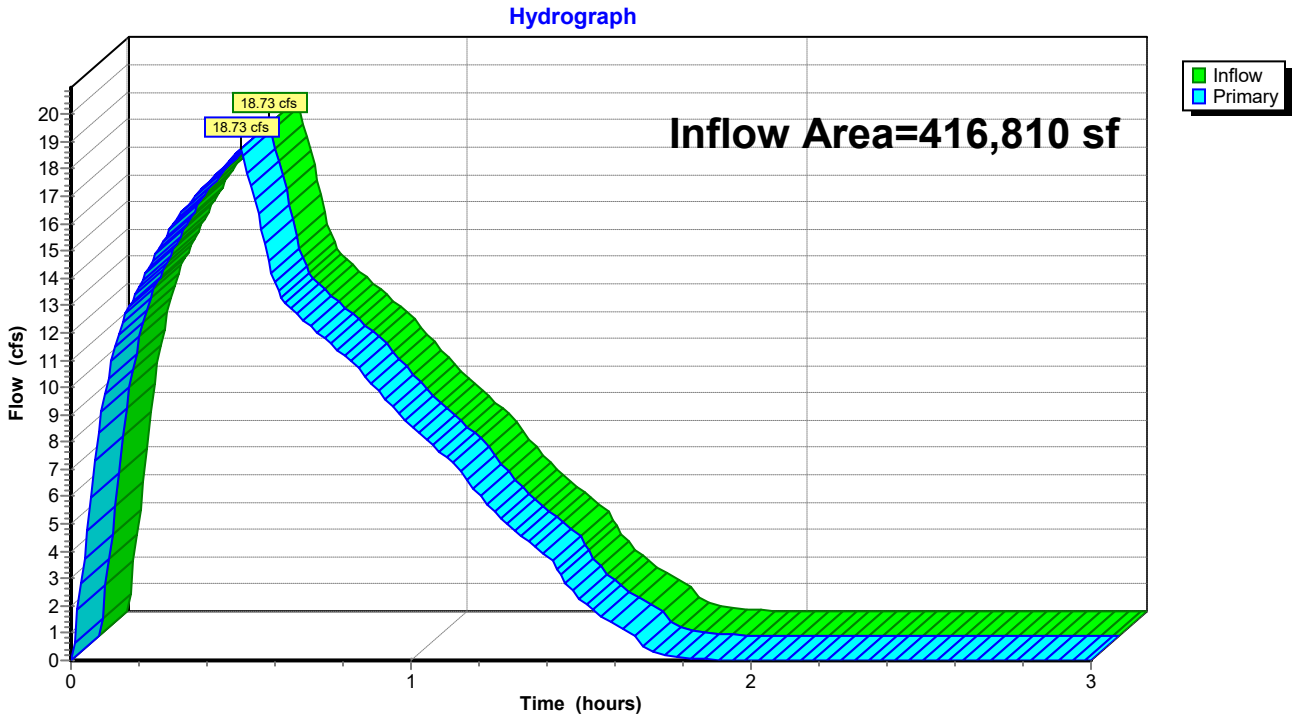


Summary for Link FINAL: APPROX DISCHARGE

Inflow Area = 416,810 sf, 49.40% Impervious, Inflow Depth = 1.64" for 100-yr event
Inflow = 18.73 cfs @ 0.50 hrs, Volume= 56,925 cf
Primary = 18.73 cfs @ 0.50 hrs, Volume= 56,925 cf, Atten= 0%, Lag= 0.0 min

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

Link FINAL: APPROX DISCHARGE



STORM SEWER SIZING

Inlet Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

JB-A1 (100 yr)

Curb Inlet

Location	= Sag
Curb Length (ft)	= 4.00
Throat Height (in)	= 6.00
Grate Area (sqft)	= -0-
Grate Width (ft)	= -0-
Grate Length (ft)	= -0-

Gutter

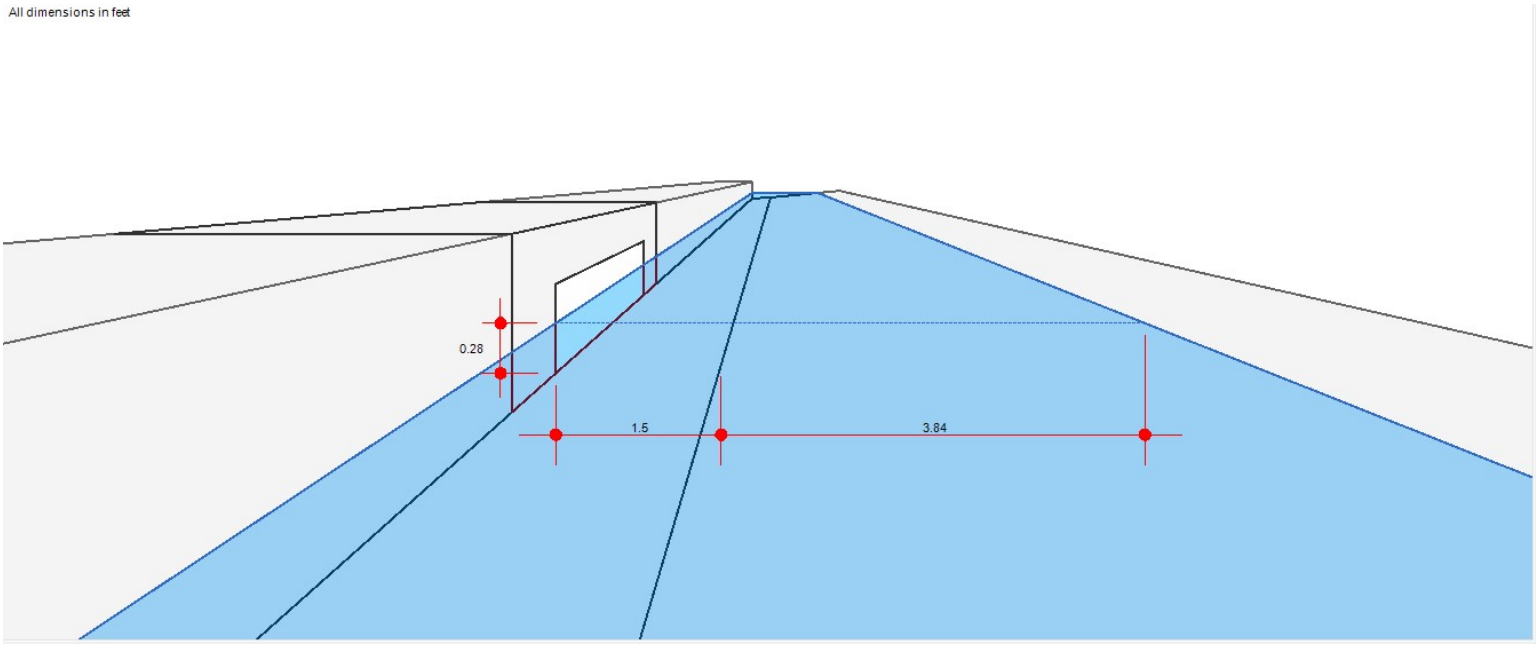
Slope, Sw (ft/ft)	= 0.033
Slope, Sx (ft/ft)	= 0.060
Local Depr (in)	= -0-
Gutter Width (ft)	= 1.50
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

Calculations

Compute by:	Known Q
Q (cfs)	= 1.78

Highlighted

Q Total (cfs)	= 1.78
Q Capt (cfs)	= 1.78
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 3.36
Efficiency (%)	= 100
Gutter Spread (ft)	= 5.34
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



Inlet Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

JB-A3 (100 yr)

Curb Inlet

Location	= Sag
Curb Length (ft)	= 4.00
Throat Height (in)	= 6.00
Grate Area (sqft)	= -0-
Grate Width (ft)	= -0-
Grate Length (ft)	= -0-

Gutter

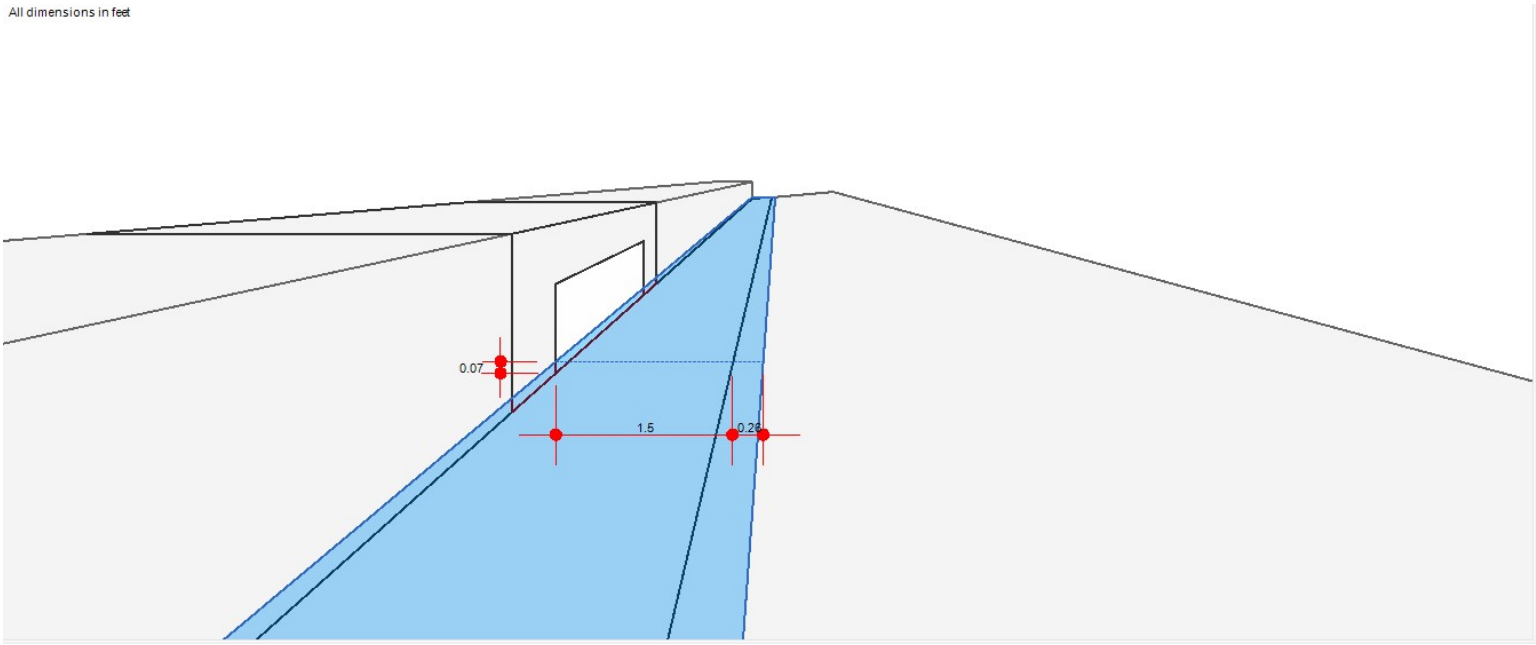
Slope, Sw (ft/ft)	= 0.033
Slope, Sx (ft/ft)	= 0.060
Local Depr (in)	= -0-
Gutter Width (ft)	= 1.50
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

Calculations

Compute by:	Known Q
Q (cfs)	= 0.20

Highlighted

Q Total (cfs)	= 0.20
Q Capt (cfs)	= 0.20
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 0.78
Efficiency (%)	= 100
Gutter Spread (ft)	= 1.76
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



Inlet Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

JB-B1 (100 yr)

Curb Inlet

Location	= Sag
Curb Length (ft)	= 6.00
Throat Height (in)	= 6.00
Grate Area (sqft)	= -0-
Grate Width (ft)	= -0-
Grate Length (ft)	= -0-

Gutter

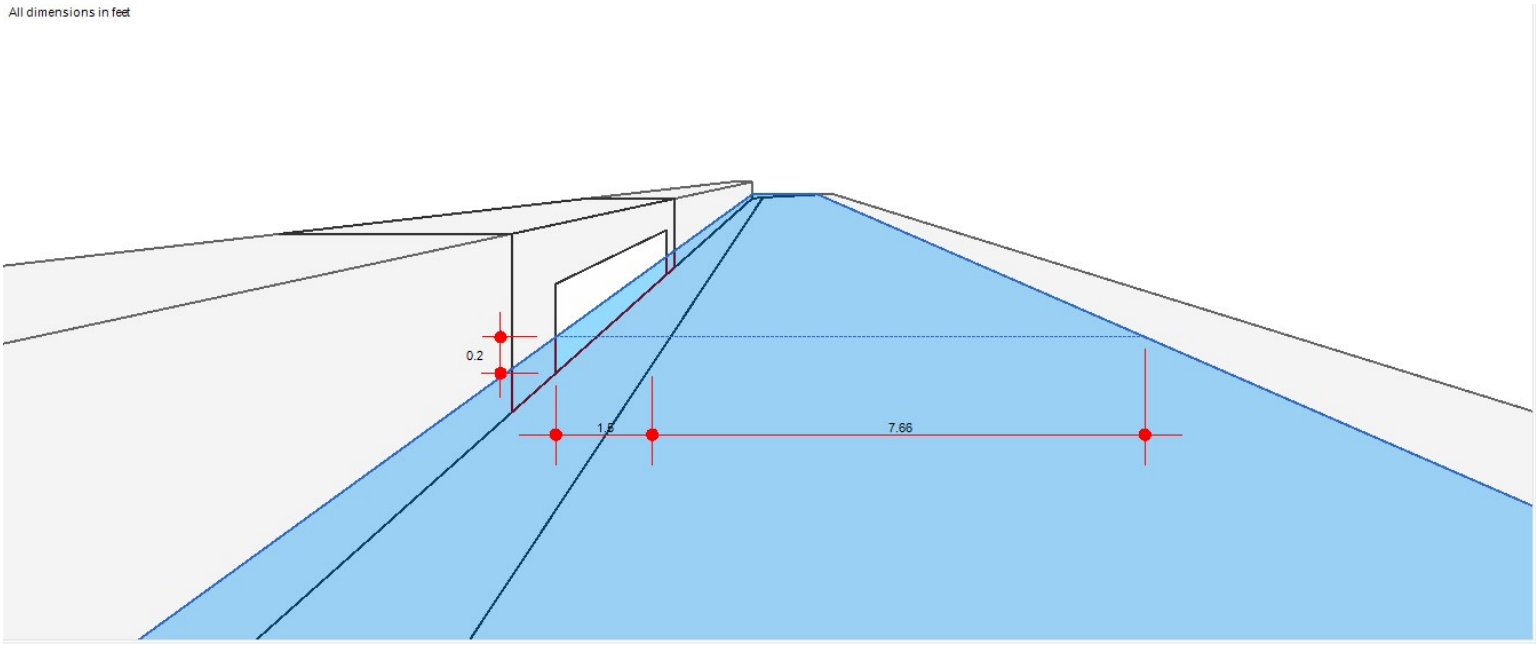
Slope, Sw (ft/ft)	= 0.033
Slope, Sx (ft/ft)	= 0.020
Local Depr (in)	= -0-
Gutter Width (ft)	= 1.50
Gutter Slope (%)	= -0-
Gutter n-value	= -0-

Calculations

Compute by:	Known Q
Q (cfs)	= 1.57

Highlighted

Q Total (cfs)	= 1.57
Q Capt (cfs)	= 1.57
Q Bypass (cfs)	= -0-
Depth at Inlet (in)	= 2.43
Efficiency (%)	= 100
Gutter Spread (ft)	= 9.16
Gutter Vel (ft/s)	= -0-
Bypass Spread (ft)	= -0-
Bypass Depth (in)	= -0-



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

Pipe-A1

Circular

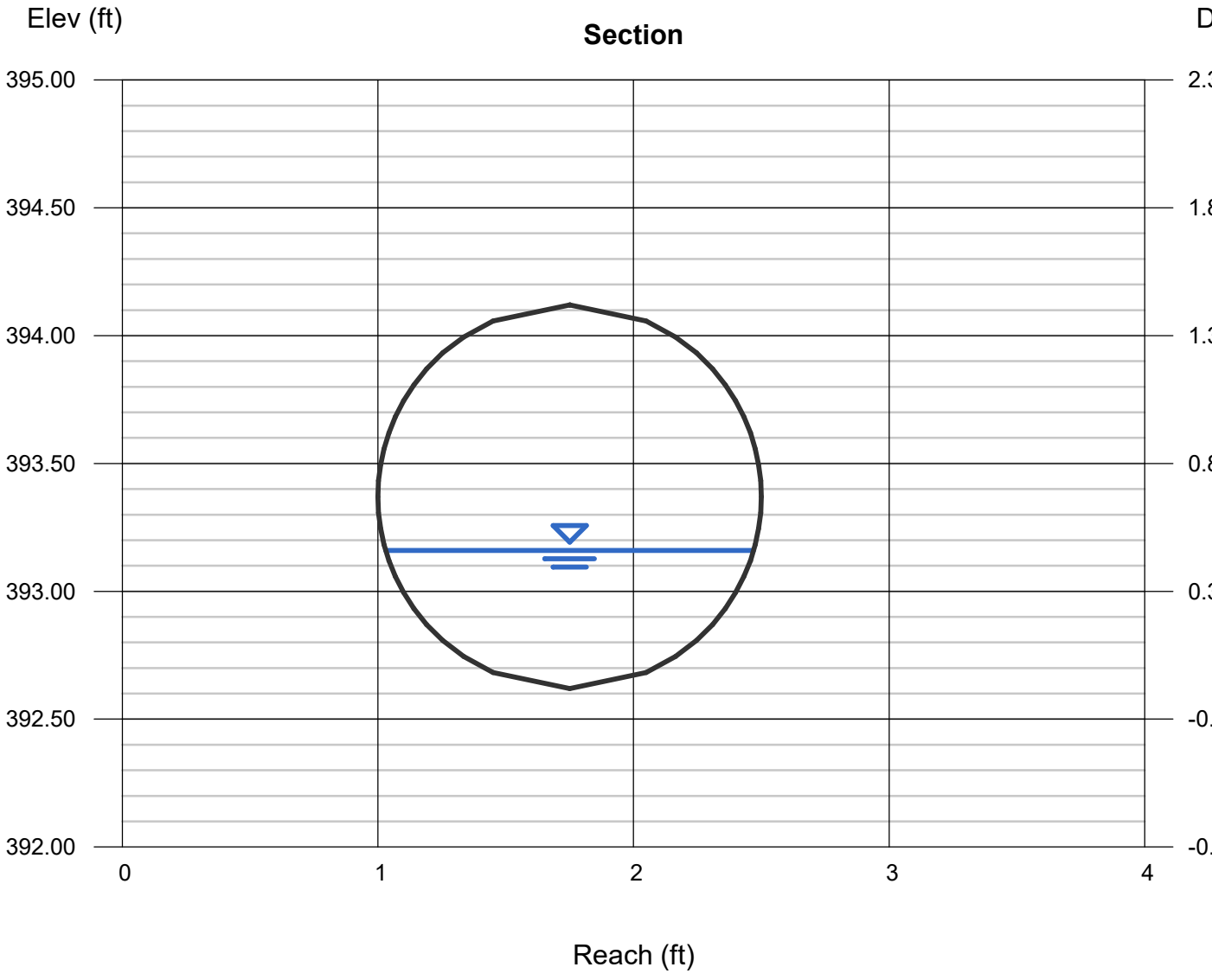
Diameter (ft)	= 1.50
Invert Elev (ft)	= 392.62
Slope (%)	= 0.50
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.78

Highlighted

Depth (ft)	= 0.54
Q (cfs)	= 1.780
Area (sqft)	= 0.58
Velocity (ft/s)	= 3.09
Wetted Perim (ft)	= 1.93
Crit Depth, Yc (ft)	= 0.50
Top Width (ft)	= 1.44
EGL (ft)	= 0.69



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

Pipe-A2

Circular

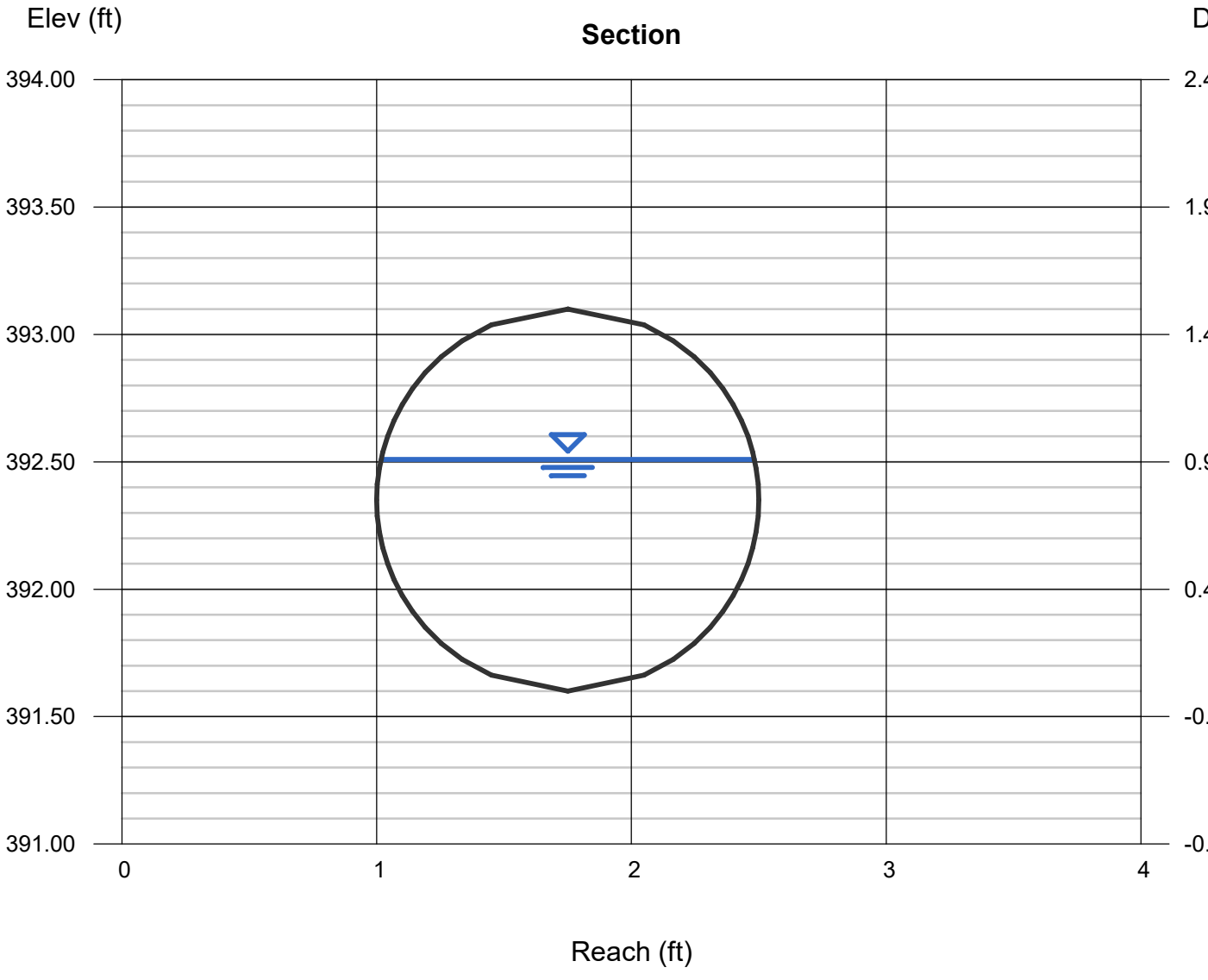
Diameter (ft)	= 1.50
Invert Elev (ft)	= 391.60
Slope (%)	= 0.50
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.35

Highlighted

Depth (ft)	= 0.91
Q (cfs)	= 4.350
Area (sqft)	= 1.13
Velocity (ft/s)	= 3.86
Wetted Perim (ft)	= 2.68
Crit Depth, Yc (ft)	= 0.80
Top Width (ft)	= 1.46
EGL (ft)	= 1.14



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

Pipe-A3

Circular

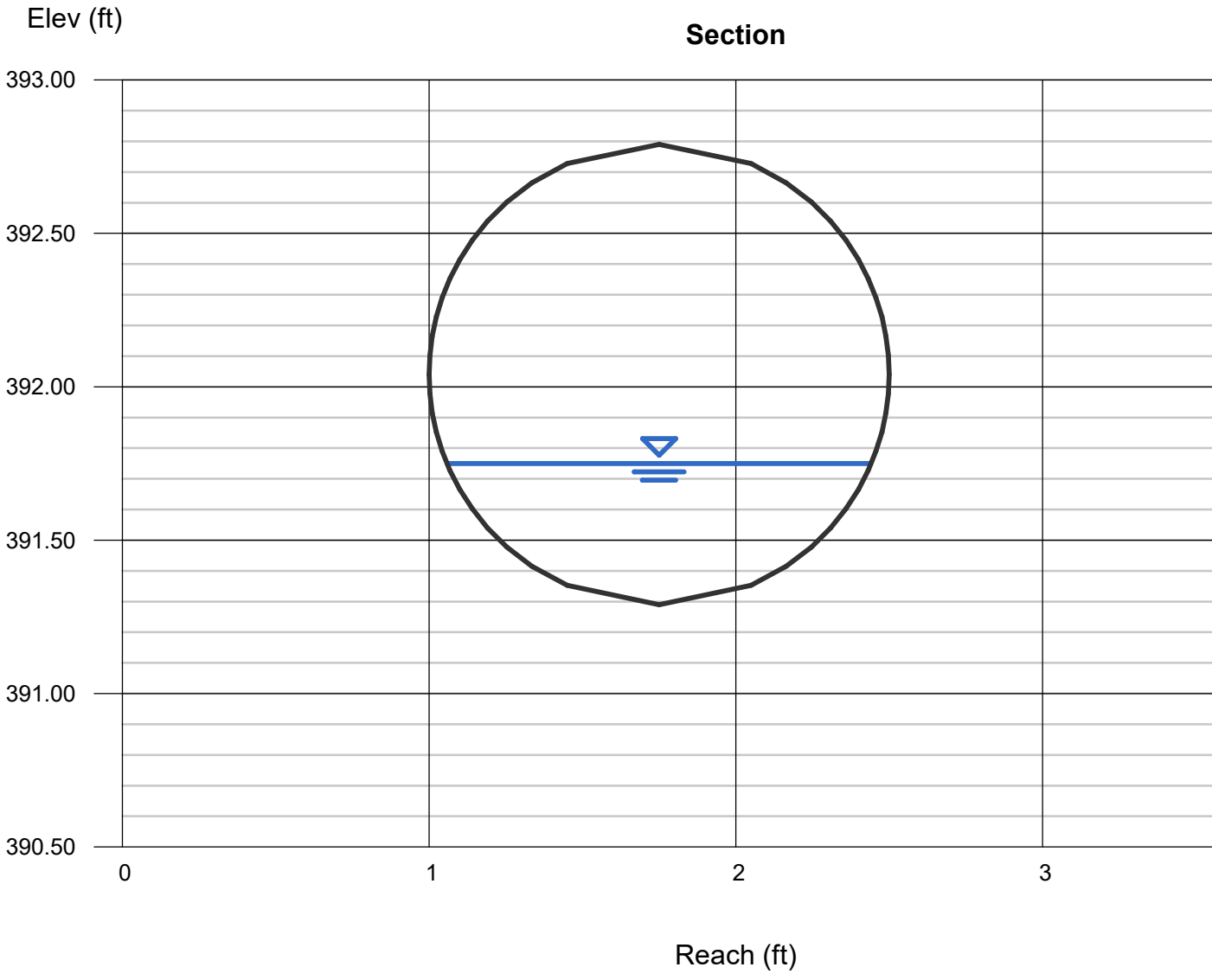
Diameter (ft)	= 1.50
Invert Elev (ft)	= 391.29
Slope (%)	= 6.20
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 4.55

Highlighted

Depth (ft)	= 0.46
Q (cfs)	= 4.550
Area (sqft)	= 0.46
Velocity (ft/s)	= 9.87
Wetted Perim (ft)	= 1.76
Crit Depth, Yc (ft)	= 0.82
Top Width (ft)	= 1.38
EGL (ft)	= 1.98



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Mar 11 2026

Pipe-B1

Circular

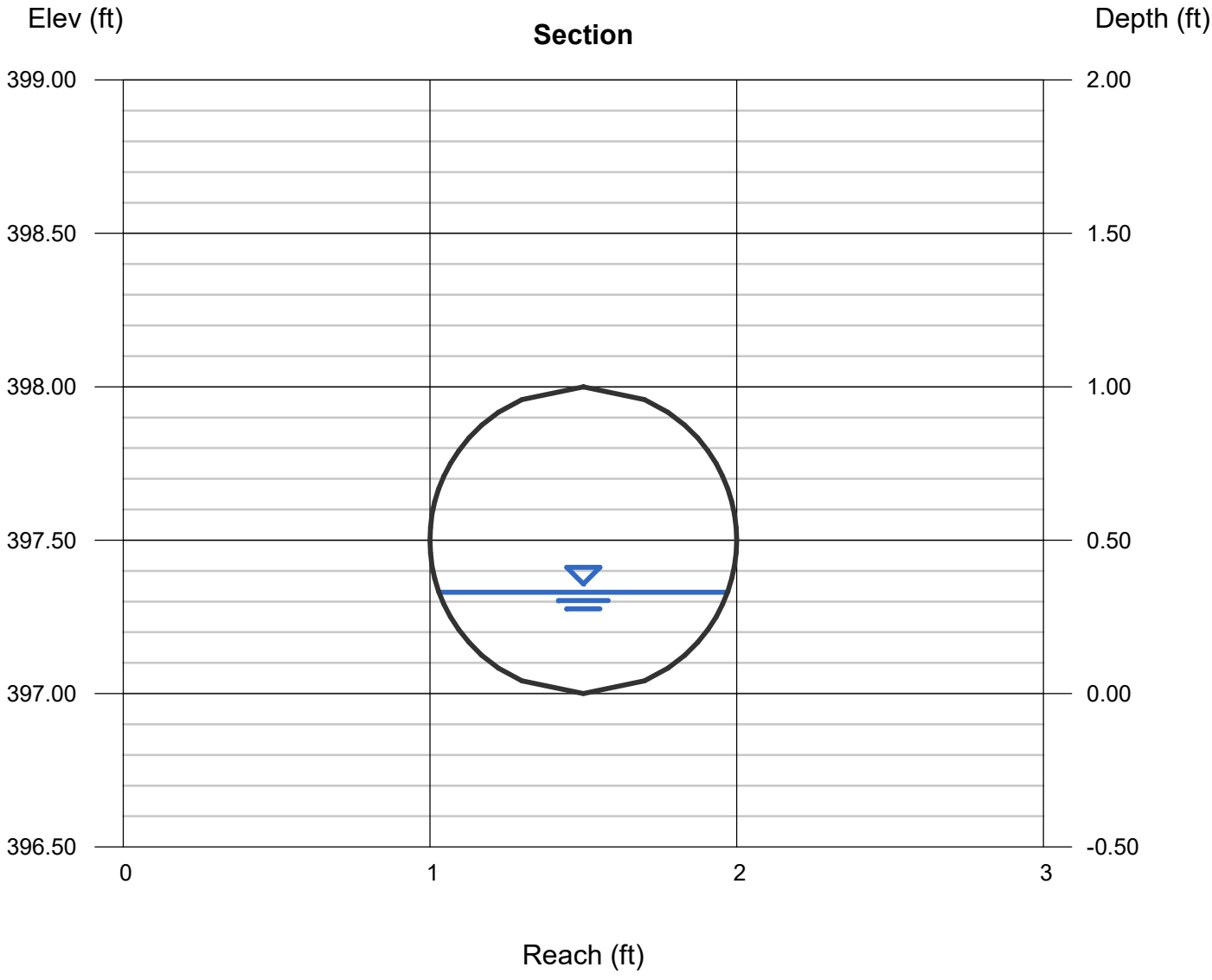
Diameter (ft)	= 1.00
Invert Elev (ft)	= 397.00
Slope (%)	= 4.92
N-Value	= 0.015

Calculations

Compute by:	Known Q
Known Q (cfs)	= 1.57

Highlighted

Depth (ft)	= 0.33
Q (cfs)	= 1.570
Area (sqft)	= 0.23
Velocity (ft/s)	= 6.93
Wetted Perim (ft)	= 1.22
Crit Depth, Yc (ft)	= 0.53
Top Width (ft)	= 0.94
EGL (ft)	= 1.08



DRAINAGE BASIN MAPS

PRE DRAINAGE PLAN

SCALE 1" = 20'

GENERAL CONSTRUCTION NOTES

A. THE CONTRACTOR WILL BE HELD SOLELY RESPONSIBLE FOR DAMAGES OCCURRING TO ANY PROPERTY DURING THE CONSTRUCTION OF THIS PROJECT. SAID CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PREVENT PROPERTY DAMAGE.

B. IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL SOLELY AND COMPLETELY BE RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND WILL NOT BE LIMITED TO NORMAL WORKING HOURS.

THE DUTY OF BRYANT TO CONDUCT CONSTRUCTION INSPECTION REVIEWS OF THE CONTRACTOR'S PERFORMANCE IS NOT AN INSPECTION OR REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES IN, ON, OR NEAR THE CONSTRUCTION SITE.

C. ALL WATER AND SEWER IMPROVEMENTS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST REVISION TO THE CITY OF BRYANT'S WATER AND WASTEWATER (SANITARY SEWER) STANDARD SPECIFICATIONS.

D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

F. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

G. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY BRYANT WATER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

H. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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

REVISION:

THE GODDARD SCHOOL OF BRYANT

BRYANT, ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 9540
PHILLIP LEWIS

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
PRE DRAINAGE PLAN

SHEET NUMBER:
C1.5

N
0 20'
1" = 20'-0"

OVERALL DRAINAGE PLAN

SCALE 1" = 20'

DRAINAGE BASINS AREAS

DRAINAGE BASIN	PERVIOUS	IMPERVIOUS
B1	28,665	770
B2	4,916	14,577
B3	0	9,275
B4	0	1887
B5	12,580	8,589
B6	7,516	2,763
C1	6,135	14,202
C2	11,376	22,963
C3	0	3,480
C4	8,130	3,245
C5	1,634	5,061
C6	0	2,835
C7	0	1,597
C8	0	1,548
C9	4,456	9,361
C10	1,225	4,183
C11	2,876	3,307
C12	7,218	18,440
C13	2,240	9,873
C14	6,127	15,898
C15	0	13,450
C16	15,465	6,612
C17	40,914	15,835
C18	12,812	9,973
C19	15,129	2,880
C20	24,838	2,321
C21	1,234	919

PHILLIP LEWIS ENGINEERING, INC.
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REVISION:

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BRYANT, ARKANSAS

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No. 566
ARKANSAS ENGINEER

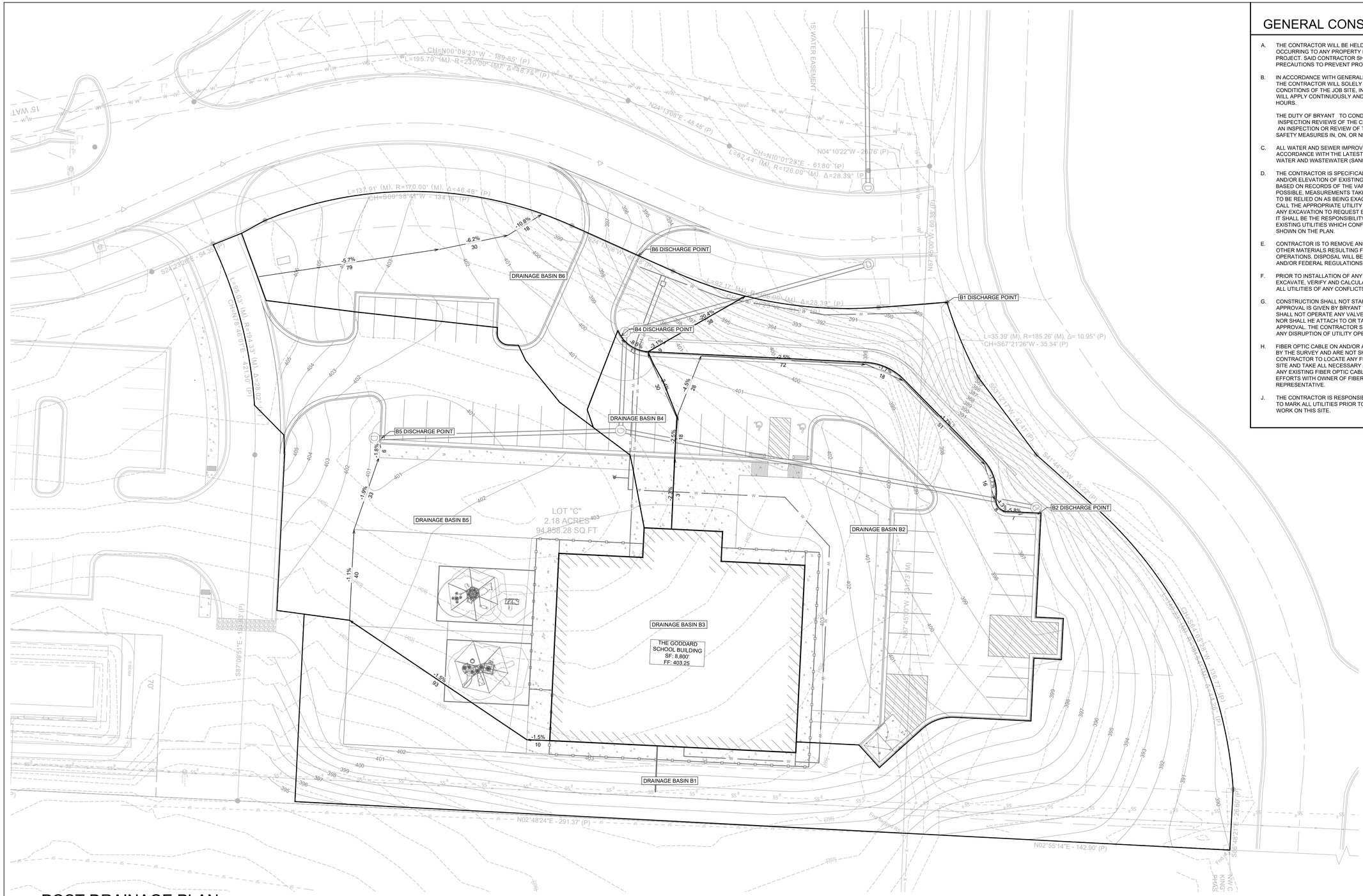
PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN

SHEET NUMBER:
C1.6

N
0 20'
1" = 20'-0"



POST DRAINAGE PLAN

SCALE 1" = 20'

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D. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AT LEAST 48 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF ALL UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH PROPOSED IMPROVEMENTS SHOWN ON THE PLAN.

E. CONTRACTOR IS TO REMOVE AND DISPOSE OF ALL DEBRIS, RUBBISH, AND OTHER MATERIALS RESULTING FROM PREVIOUS AND CURRENT DEMOLITION OPERATIONS. DISPOSAL WILL BE IN ACCORDANCE WITH ALL LOCAL, STATE AND/OR FEDERAL REGULATIONS GOVERNING SUCH OPERATIONS.

F. PRIOR TO INSTALLATION OF ANY UTILITIES, THE CONTRACTOR IS TO EXCAVATE, VERIFY AND CALCULATE ALL CROSSINGS AND INFORM ANY AND ALL UTILITIES OF ANY CONFLICTS PRIOR TO CONSTRUCTION.

G. CONSTRUCTION SHALL NOT START ON ANY WATER UTILITY TIE-INS UNTIL APPROVAL IS GIVEN BY BRYANT WATER. SAID CONTRACTOR SHALL NOT OPERATE ANY VALVE, HYDRANT, OR WATER UTILITY APPURTENANCE NOR SHALL HE ATTACH TO OR TAP ANY WATER UTILITY MAIN WITHOUT APPROVAL. THE CONTRACTOR SHALL BEAR THE COST AND CONSEQUENCE OF ANY DISRUPTION OF UTILITY OPERATION CAUSED BY CONSTRUCTION.

H. FIBER OPTIC CABLE ON AND/OR ADJACENT TO THIS SITE WERE NOT LOCATED BY THE SURVEY AND ARE NOT SHOWN. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ANY FIBER OPTIC CABLES ASSOCIATED WITH THIS SITE AND TAKE ALL NECESSARY AND REQUIRED PRECAUTIONS TO PROTECT ANY EXISTING FIBER OPTIC CABLES. CONTRACTORS SHALL COORDINATE ALL EFFORTS WITH OWNER OF FIBER OPTIC CABLES OR THEIR DESIGNATED REPRESENTATIVE.

J. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING "ONECALL" SERVICE TO MARK ALL UTILITIES PRIOR TO ANY DEMOLITION, EARTHWORK, OR UTILITY WORK ON THIS SITE.

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

REVISION:

THE GODDARD SCHOOL OF BRYANT
BRYANT, ARKANSAS

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

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
POST DRAINAGE PLAN

SHEET NUMBER:
C1.7

N
0 20'
1" = 20'-0"

OVERALL DRAINAGE PLAN (2)

SCALE 1" = 20'

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

REVISION:

THE GODDARD SCHOOL OF BRYANT

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CERTIFICATE OF AUTHORIZATION
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ARKANSAS ENGINEER

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

PROJECT NUMBER:

SHEET ISSUE DATE:
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN (2)

SHEET NUMBER:
C1.8

N
0 20'
1" = 20'-0"

OVERALL DRAINAGE PLAN (3)

SCALE 1" = 20'

DRAINAGE BASIN C19
DRAINAGE BASIN C17
DRAINAGE BASIN C15
DRAINAGE BASIN C16
DRAINAGE BASIN C14
DRAINAGE BASIN C13
DRAINAGE BASIN C11
DRAINAGE BASIN C10
DRAINAGE BASIN C20
DRAINAGE BASIN C21
EXISTING DETENTION POND
EXISTING OUTLET STRUCTURE
C19 DISCHARGE POINT
C17 DISCHARGE POINT
C16 DISCHARGE POINT
C12 DISCHARGE POINT
C11 DISCHARGE POINT
C10 DISCHARGE POINT
C13 DISCHARGE POINT
C14 DISCHARGE POINT
C20 DISCHARGE POINT
C21 DISCHARGE POINT
PARCEL NO. 840-11401-000
OWNER: VOD OFFICE, LLC
SIRNIA PARK SUBDIVISION PHASE 1
CHRISTY LANE
60' R.O.W
(PRIVATE)
LOT "B"
2.60 ACRES
69,887.15 SQ FT
15' SETBACK
25' SETBACK
15' WATER ESMT
DETENTION AREA ESMT
N01°33'25"E - 123.62' (P)
N20°58'40"E - 90.12' (P)
N10°33'25"W - 142.94' (P)
S01°33'25"W - 167.30' (P)
S87°58'00"E - 198.47' (P)
S49°03'54"E - 251.89' (P)
N87°45'00"W - 353.99' (P)
N24°13'08"E - 48.48' (P)
N04°10'22"W - 20.76' (P)
S04°10'22"E - 30.02' (M)
S24°23'28"E - 54.35' (P)
L=191.55' (M), R=186.00' (M), Δ=59.01° (P)
CH=S04°58'18"W - 183.20' (P)
L=595.03' (M)
CH=N00°09'23"W - 189.
L=195.70' (M), R=230.00' (M), Δ=48.78° (P)
L=137.91' (M), R=170.00' (M), Δ=46.48° (P)
CH=S00°58'44"W - 134.16' (P)
L=382.44' (M), R=126.00' (M), Δ=28.39° (P)
CH=N10°01'28"E - 61.80' (P)
L=92.17' (M), R=180.00' (M), Δ=28.39° (P)
CH=S13°23'14"W - 91.23' (P)
65.55'
101.76'
174.94'
176.15'
102.51'
POB LOT B
POB LOT A
1" = 20'-0"

PHILLIP LEWIS ENGINEERING, INC.
Structural + Civil Consultants
23620 Interstate 30 | Bryant, Arkansas
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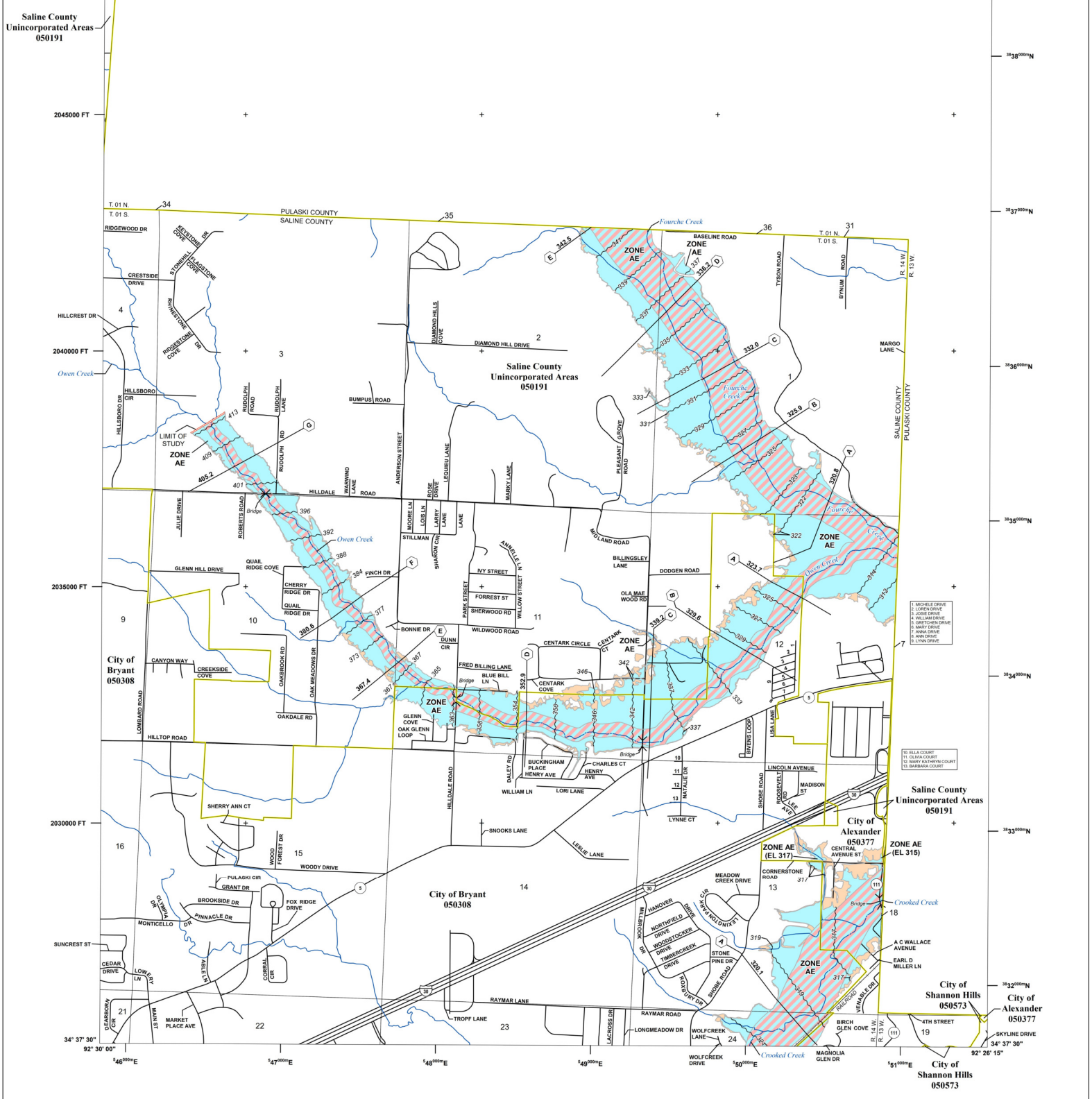
03-11-2026

PAGE TITLE:
OVERALL DRAINAGE PLAN (3)

SHEET NUMBER:
C1.9

DETENTION BASIN OUTLET STRUCTURES

FEMA FLOOD INSURANCE RATE MAP



FLOOD HAZARD INFORMATION

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

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

HTTPS://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) *Zone A,V, A99*
	With BFE or Depth *Zone AE, AO, AH, VE, AR*
	Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD	0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
	Future Conditions 1% Annual Chance Flood Hazard *Zone X*
	Area with Reduced Flood Risk due to Levee See Notes. *Zone X*
	Area with Flood Risk due to Levee *Zone D*
OTHER AREAS	NO SCREEN Area of Minimal Flood Hazard *Zone X*
	Area of Undetermined Flood Hazard *Zone D*
GENERAL STRUCTURES	Channel, Culvert, or Storm Sewer
	Levee, Dike, or Floodwall
	18.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation

NOTES TO USERS

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

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

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

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

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

SCALE

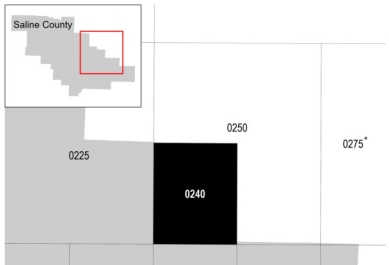
Map Projection:
State Plane Lambert Conformal Conic Arkansas South FIPS Zone 0302:
North American Datum 1983; Western Hemisphere; Vertical Datum: NAVD 88

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

0 1,000 2,000 4,000 Feet

0 250 500 1,000 Meters

PANEL LOCATOR



National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

SALINE COUNTY, ARKANSAS

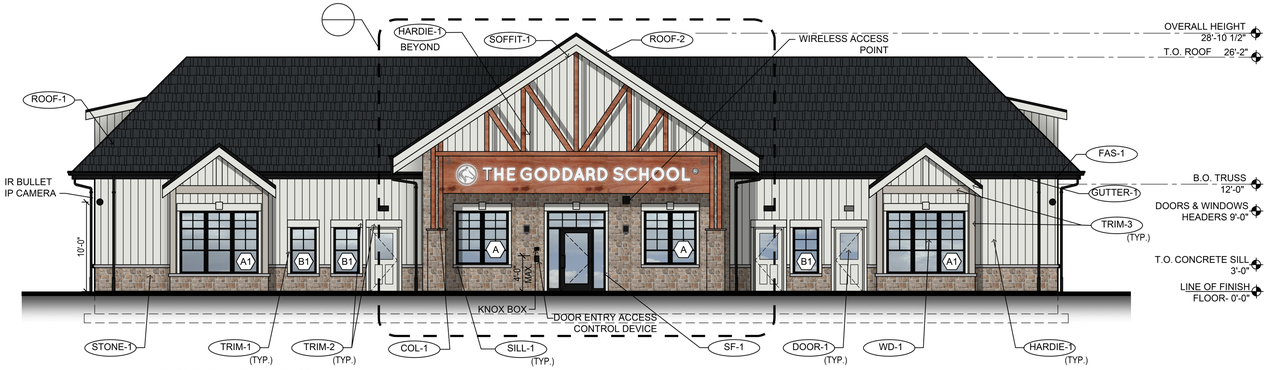
and Incorporated Areas

PANEL **240** OF **575**

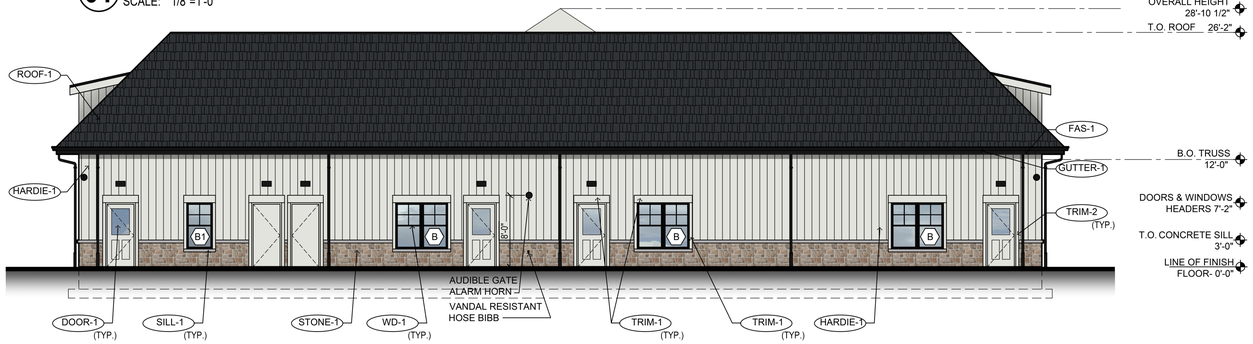
FEMA

Panel Contains:

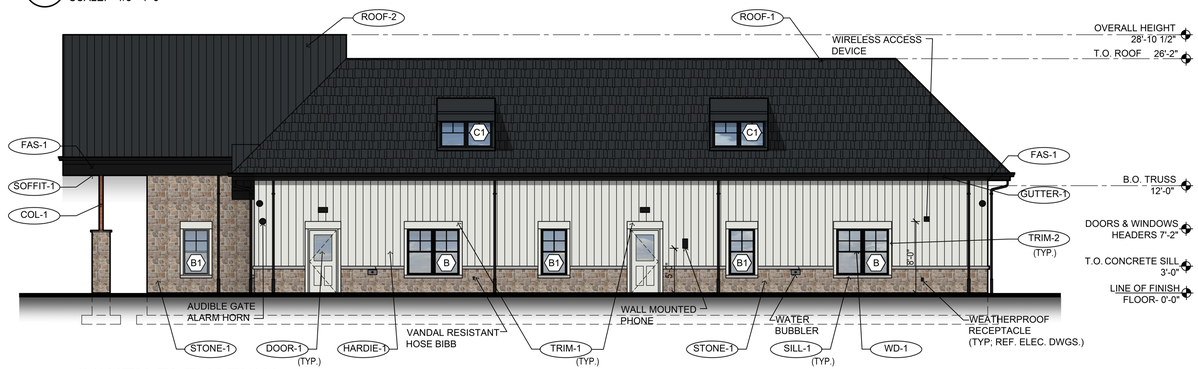
COMMUNITY	NUMBER	PANEL	SUFFIX
ALEXANDER, CITY OF	050377	0240	E
BRYANT, CITY OF	050308	0240	E
SALINE COUNTY	050191	0240	E
SHANNON HILLS, CITY OF	050573	0240	E



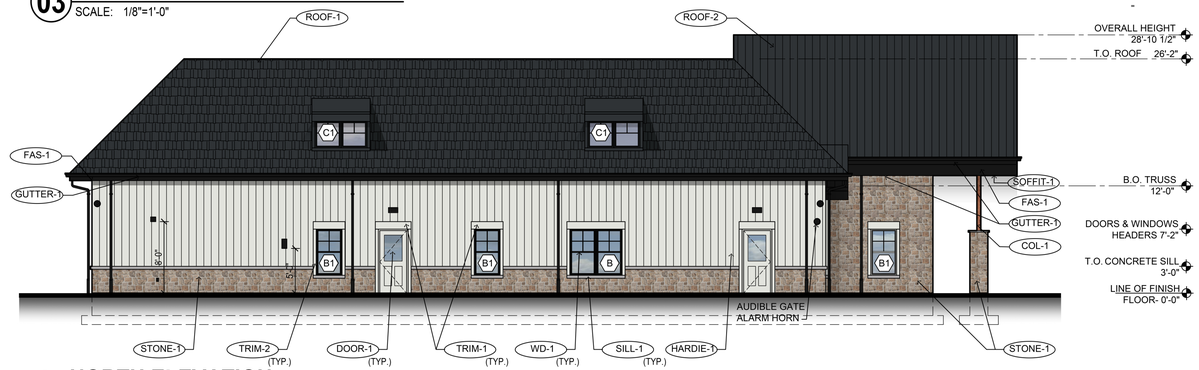
01 WEST ELEVATION
SCALE: 1/8"=1'-0"



02 EAST ELEVATION
SCALE: 1/8"=1'-0"



03 SOUTH ELEVATION
SCALE: 1/8"=1'-0"



04 NORTH ELEVATION
SCALE: 1/8"=1'-0"

EXTERIOR MATERIAL SCHEDULE

LABEL	MANUFACTURER	SIZE / TYPE	FINISH / COLOR
SF-1	KAWNEER	TRIFAB 451T / 350 PER DOOR SCHEDULE	BLACK
DOOR-1	--	PER DOOR SCHEDULE	WHITE
WD-1	ANDERSEN	SINGLE-HUNG 100 SERIES PER WINDOW SCHEDULE	BLACK
STONE-1	BUECHEL STONE CORP.	STONE VENEER - CASTLE ROCK	ANTIQUE BRONZE COUNTRY
SILL-1	CUSTOM CAST STONE	SILLSL-4S 4"Hx5"W	NATURAL
GUTTER-1	PLYGEM	6" ALUMINUM TYPE 'K' W/ LEAF SCREEN AND 6" LEADERS	WHITE
TRIM-1	JAMES HARDIE	5/4 RUSTIC HARDIE TRIM BOARD 11.25"W	ARCTIC WHITE
TRIM-2	JAMES HARDIE	5/4 RUSTIC HARDIE TRIM BOARD 3.5"W	ARCTIC WHITE
TRIM-3	JAMES HARDIE	5/4 RUSTIC HARDIE TRIM BOARD 7.25"W	STONE BEACH
HARDIE-1	JAMES HARDIE	HARDIE PANEL VERTICAL SIDING	ARCTIC WHITE
SOFFIT-1	JAMES HARDIE	VENTED CEDARMILL SOFFIT	ARCTIC WHITE
COL-1	--	6" X 6" COLUMN WRAP	PRESSURE TREATED
ROOF-1	GAF	TIMBERLINE SHINGLE	CHARCOAL
ROOF-2	PAC-CLAD	--	BLACK
FAS-1	JAMES HARDIE	ALUMINUM SMOOTH FASCIA 10"W	BLACK

FINISH SCHEDULE NOTES:
1. G.C. SHALL VERIFY KNOX BOX MODEL(S) AND LOCATION(S) WITH AUTHORITY HAVING JURISDICTION PRIOR TO ORDERING AND INSTALLATION.
2. G.C. SHALL ENSURE ALL EXTERIOR FINISHES ARE INSTALLED AND FINISHED IN COMPLIANCE WITH MANUFACTURERS' WARRANTY REQUIREMENTS.

CASCO
12 Sunnen Drive, Suite 100, St. Louis, MO 63143 T: 314.821.1100

ISSUE

NO.	DATE	DESCRIPTION	INT.

REVISION

NO.	DATE	DESCRIPTION	INT.

Project:
GODDARD SCHOOL
PROTOTYPE v.8.0
23620 INTERSTATE 30
BRYANT, AR 72022

Project Number:	Scale:
2505397	1/8"=1'-0"
Drawn By:	Approved By:
KMS	LAH

Drawing Name:
EXTERIOR ELEVATIONS

Drawing Number:
A-201

Initial Date: 01/29/2026

DESIGN PROFESSIONAL OF RECORD

DESIGN PROFESSIONAL
DESIGN PROFESSIONAL LIC NUMBER

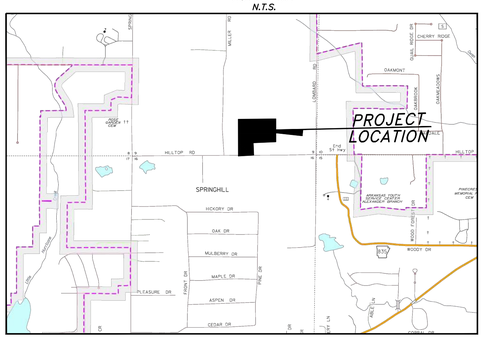
DETAILED PLANS:

HILLTOP MANOR SUBDIVISION

PART OF THE SOUTHWEST $\frac{1}{4}$ OF THE SOUTHEAST $\frac{1}{4}$, SECTION 9, T-1-S, R-14-W SALINE COUNTY, ARKANSAS

3/3/2026

VICINITY MAP
N.T.S.



Prepared By:

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

PREPARED FOR:

EMINENT CONSTRUCTION
1100 HILLFARM ROAD
BRYANT, AR 72022

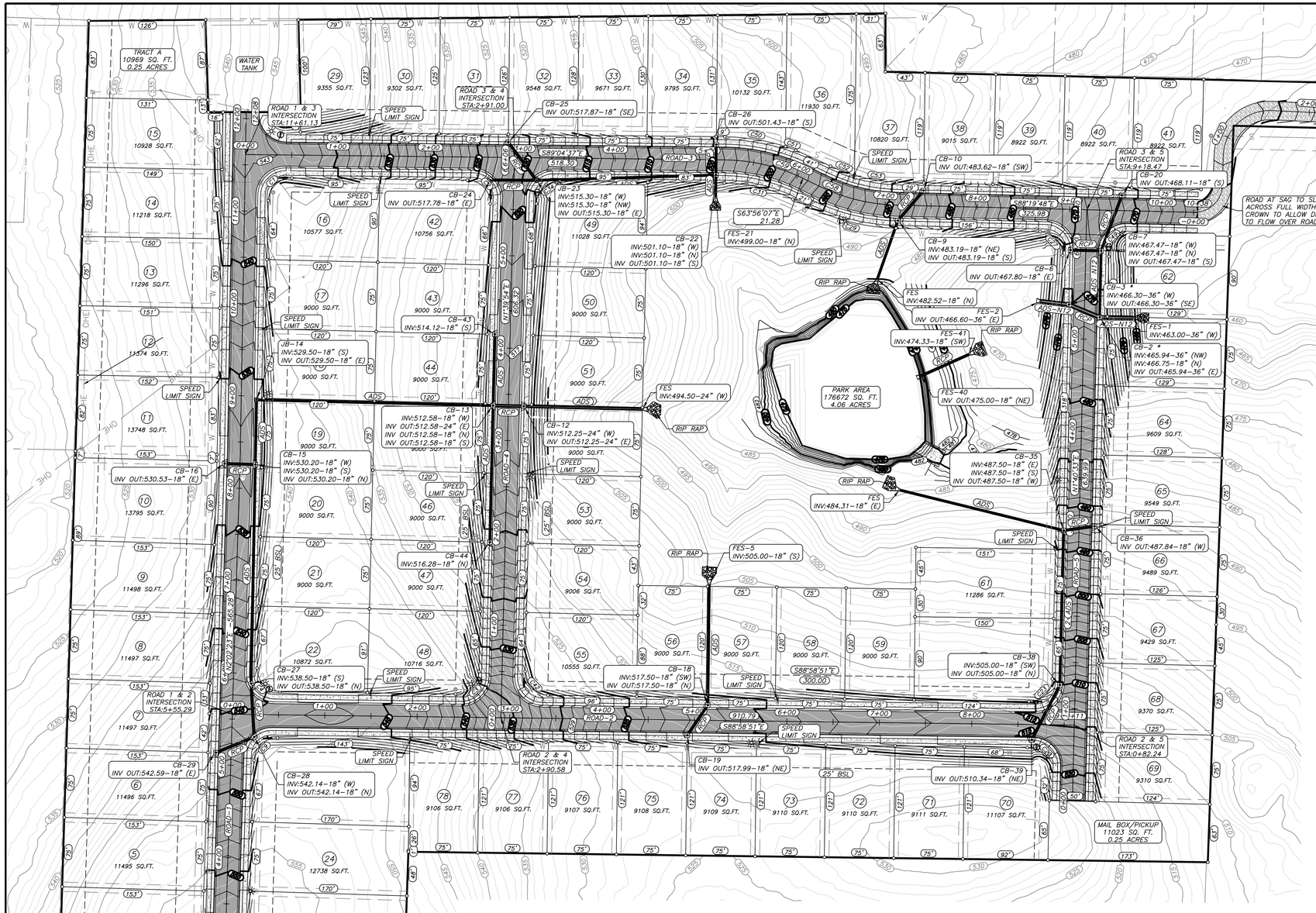
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14266
ERIC RYAN RICHARDSON

PRE-CONSTRUCTION COPY -

PLANS FOR BIDDING PURPOSES. QUANTITIES TO BE VERIFIED PRIOR TO CONSTRUCTION. CONTRACTOR TO VERIFY GRADES WITH ENGINEER PRIOR TO CONSTRUCTION.

INDEX OF SHEETS

Cover Sheet	1
Street & Drainage Plan	2
Street Plan/Profile	3-9
Detention Pond Grading	10
Utility Plan	11
Sewer Plan/Profile	12-18
Erosion Control	19
Misc. Details	20-24



Curve Table				
Curve #	Length	Radius	Chord Direction	Chord Length
C1	38.95	25.00	N46° 17' 39"E	35.13
C2	39.59	25.00	S43° 42' 21"E	35.58
C3	38.99	25.00	S46° 20' 32"W	35.16
C4	39.55	25.00	N43° 39' 28"W	35.55
C5	29.22	25.00	N54° 51' 34"W	552.73
C6	9.97	25.00	N9° 57' 03"W	552.13
C7	43.89	175.00	N8° 39' 24"E	43.78
C8	54.20	225.00	N8° 56' 27"E	54.07
C9	38.82	25.00	N46° 31' 46"E	35.04
C20	39.56	25.00	S43° 39' 09"E	35.56
C23	38.98	25.00	N46° 20' 51"E	35.15
C27	39.27	25.00	N43° 19' 38"W	35.36
C29	95.80	225.00	N76° 07' 58"W	95.08
C31	76.79	175.00	N76° 30' 22"W	76.18
C34	38.95	25.00	S46° 17' 39"W	35.13
C42	39.55	25.00	S43° 39' 28"E	35.55
C49	39.27	25.00	N46° 40' 22"E	35.35
C50	66.72	225.00	S80° 33' 00"E	66.48
C51	11.82	225.00	S70° 32' 58"E	11.82
C52	27.81	175.00	S68° 29' 17"E	27.78

Curve Table				
Curve #	Length	Radius	Chord Direction	Chord Length
C53	46.70	175.00	S80° 41' 07"E	46.56
C54	42.16	175.00	S8° 56' 27"W	42.06
C55	56.44	225.00	S8° 39' 24"W	56.29
C56	38.28	25.00	S45° 20' 10"W	34.65
C58	85.15	200.00	S76° 07' 58"E	84.51
C59	87.76	200.00	S76° 30' 22"E	87.06
C64	50.17	200.00	S8° 39' 24"W	50.03
C65	48.18	200.00	S8° 56' 27"W	48.06

ENGINEER
RICHARDSON ENGINEERING, PLLC
ADDRESS: 325 W.SOUTH ST.
BENTON, AR. 72015
PHONE NO. (501) 315-7225
PROJECT REPRESENTATIVE:
ERIC RICHARDSON, P.E.

SURVEYOR
SOUTHPOINT SURVEYING
P.O. BOX 400
SHERIDAN, AR
501-837-2342

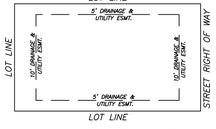
DEVELOPERS
EMINENT CONSTRUCTION
1100 HILLFARM ROAD
BRYANT, AR 72022

GENERAL NOTES

1.) PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH AHTD SPECIFICATIONS, AND BASED ON GEOTECHNICAL ANALYSIS OF THE SOIL CONDITIONS.
2.) COMPACTION TESTS TO BE CONDUCTED AS PER CITY OF BRYANT ROAD DEPT. SPECS.
3.) LIGHT POLES SHALL BE PLACED AS SHOWN ON DRAWINGS. ADDITIONAL LOCATIONS TO BE DETERMINED BY CITY OF BRYANT ROAD DEPARTMENT.
4.) ALL CORNERS TO HAVE A 25' RADIUS UNLESS OTHERWISE NOTED.
5.) PROPOSED LOCATIONS OF STREET SIGNS AND TRAFFIC CONTROL SIGNS ARE APPROXIMATE. ACTUAL LOCATION AND INSTALLATION MUST MEET MUTCD AND CITY OF BRYANT ROAD DEPT. SPECS.
6.) ALL UTILITIES TO BE LOCATED PRIOR TO CONSTRUCTION (ONE CALL, CITY, UTILITY OWNER, ETC.)
7.) CONTRACTOR TO ADHERE TO CURRENT OSHA EXCAVATION & TRENCH SAFETY REGULATIONS.
8.) THE APPROXIMATE LOCATION OF KNOWN SURFACE AND SUBSURFACE STRUCTURES, PIPES, POWER, GAS, PHONE, ETC. ARE SHOWN ON THE DESIGN DRAWINGS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF THE AFOREMENTIONED ITEMS, SHOWN AND NOT SHOWN.
9.) CONTRACTOR TO COORDINATE MAINTENANCE OF TRAFFIC ON PUBLIC RIGHT OF WAY WITH PROPER AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

DRAINAGE NOTES:

* ALL DRAINAGE PIPING TO BE SIZED TO EFFECTIVELY HANDLE A 10-YEAR RAIN EVENT.
* ALL DRAINAGE EASEMENTS SHALL CONVEY FLOWS FROM THE 100-YEAR RAIN EVENT.
* (*) DENOTES 5' INNER DIAMETER BARREL, (**) DENOTES 6' INNER DIAMETER BARREL, AND ALL OTHERS ARE 4' INSIDE DIAMETER FOR CURB INLETS AND JUNCTION BOXES.
* ALL DRAINAGE EASEMENT BETWEEN LOTS ARE 10' UNLESS OTHERWISE NOTED.



TYPICAL LOT EASEMENTS

LEGEND

- STOP SIGN
- STREET NAME SIGN
- TRAFFIC SIGN
- STREET LIGHT
- ADA APPROVED HANDICAP RAMP

LEGEND

- G — GAS LINE
- T — TELEPHONE LINE
- S — SANITARY SEWER
- X — FENCE
- W — WATER LINE
- STORM DRAIN
- DITCH OR SWALE
- OHE — POWER LINE (OVERHEAD)
- PROPOSED WATER METER BOX
- EXISTING MANHOLE
- PROPOSED MANHOLE
- LIGHT POLE
- GATE VALVE
- BLOW-OFF
- FIRE HYDRANT
- CURB INLET
- FES
- POWER POLE

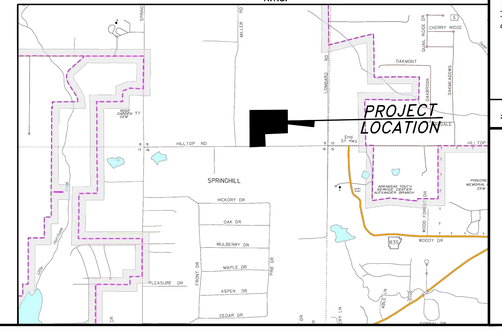
STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
ERIC RYAN RICHARDSON
No. 14266

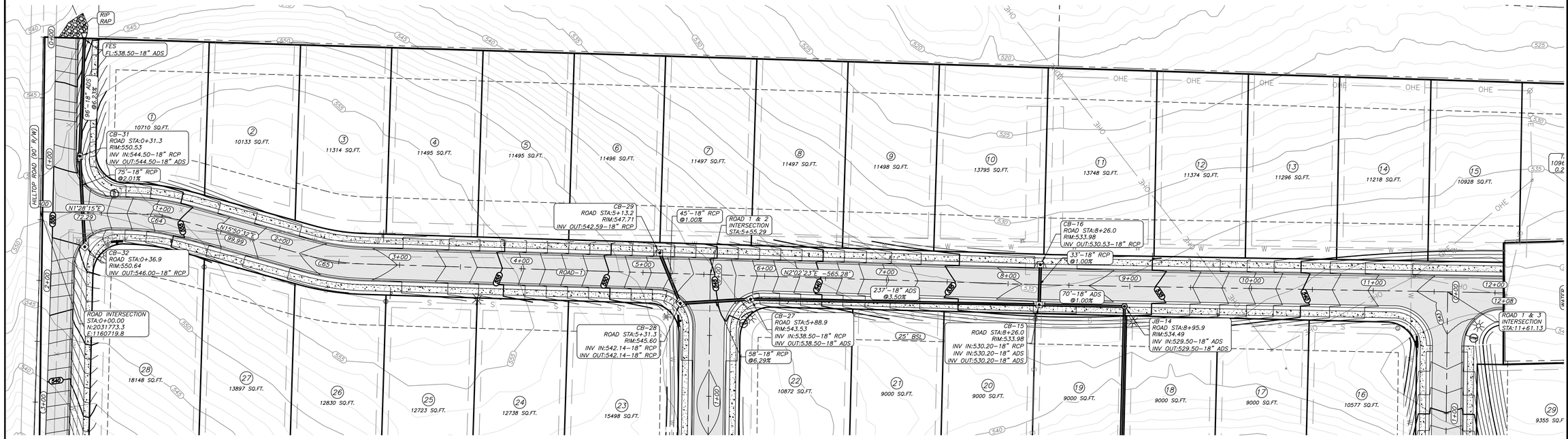
GRAPHIC SCALE

60 0 60 120 180

(IN FEET)
1 inch = 60 ft.

VICINITY MAP
N.T.S.


PROJECT LOCATION
SPRINGHILL
HILLTOP RD
HICKORY DR
OAK DR
MULBERRY DR
MAPLE DR
ASPEN DR
CEDAR DR
PLEASURE DR
WOODY DR
CHERRY RIDGE
OAKMONT
SHADY ACRES
HARRISON
PINECREST
WILLOW
LINDSEL RD
DUNLAP
KNOX DR
KNOX CIR
DOE RUN
WILLOW CREEK
ROLLING HILLS
MEADOW CREEK
WOODLAND HILLS
ROCKY BRANCH
ROCKY BRANCH CIR
ROCKY BRANCH CT
ROCKY BRANCH DR
ROCKY BRANCH PL
ROCKY BRANCH WAY
ROCKY BRANCH CV
ROCKY BRANCH LN
ROCKY BRANCH TER
ROCKY BRANCH PKWY



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ENGINEER
RICHARDSON ENGINEERING, PLLC
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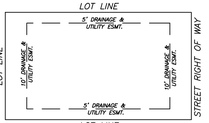
BENTON, AR. 72015
PHONE NO. (501) 315–7225
PROJECT REPRESENTATIVE:
ERIC RICHARDSON, P.E.

SURVEYOR
SOUTHPOINT SURVEYING
P.O. BOX 400
SHERIDAN, AR
501–837–2342

DEVELOPERS
EMINENT CONSTRUCTION
1100 HILLFARM ROAD
BRYANT, AR 72022



TYPICAL LOT EASEMENTS

LEGEND

- STOP SIGN
- STREET NAME SIGN
- TRAFFIC SIGN
- STREET LIGHT
- ADA APPROVED HANDICAP RAMP

LEGEND

- G — GAS LINE
- T — TELEPHONE LINE
- S — SANITARY SEWER
- X — FENCE
- W — WATER LINE
- STORM DRAIN
- > — > — DITCH OR SWALE
- OHE — POWER LINE (OVERHEAD)
- PROPOSED WATER METER BOX
- EXISTING MANHOLE
- PROPOSED MANHOLE
- LIGHT POLE
- GATE VALVE
- BLOW–OFF
- FIRE HYDRANT
- CURB INLET
- FES
- POWER POLE

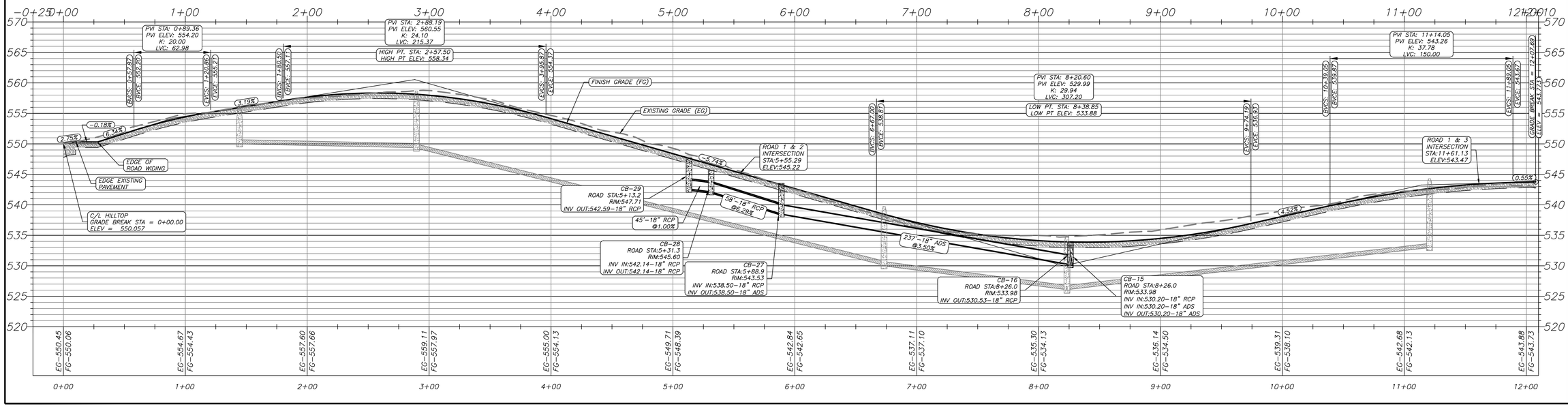
GRAPHIC SCALE

40 0 40 80 120

(IN FEET)
1 inch = 40 ft.

ROAD–1 PROFILE

Station



RICHARDSON ENGINEERING
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325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225

CERTIFICATE OF AUTHORIZATION — Richardson Engineering, PLLC No. 2519 — ARKANSAS

ROAD 1 PLAN & PROFILE
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For: EMINENT CONSTRUCTIONS

No.	Revisions	Date

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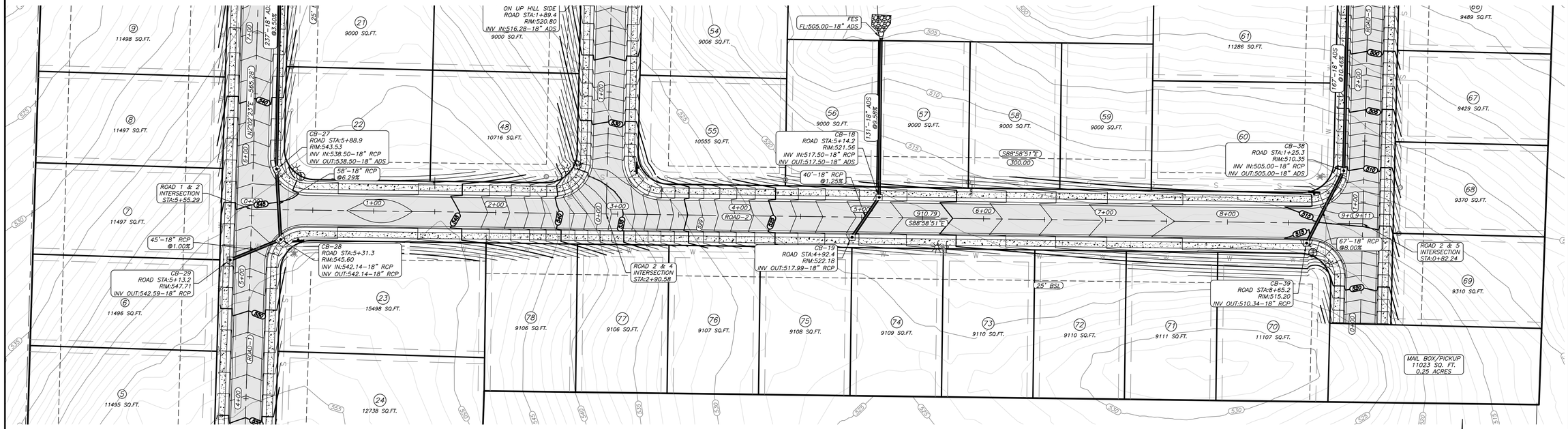
Sheet: 3 of 24



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DEVELOPERS
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BRYANT, AR 72022

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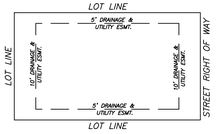


TYPICAL LOT EASEMENTS

LEGEND

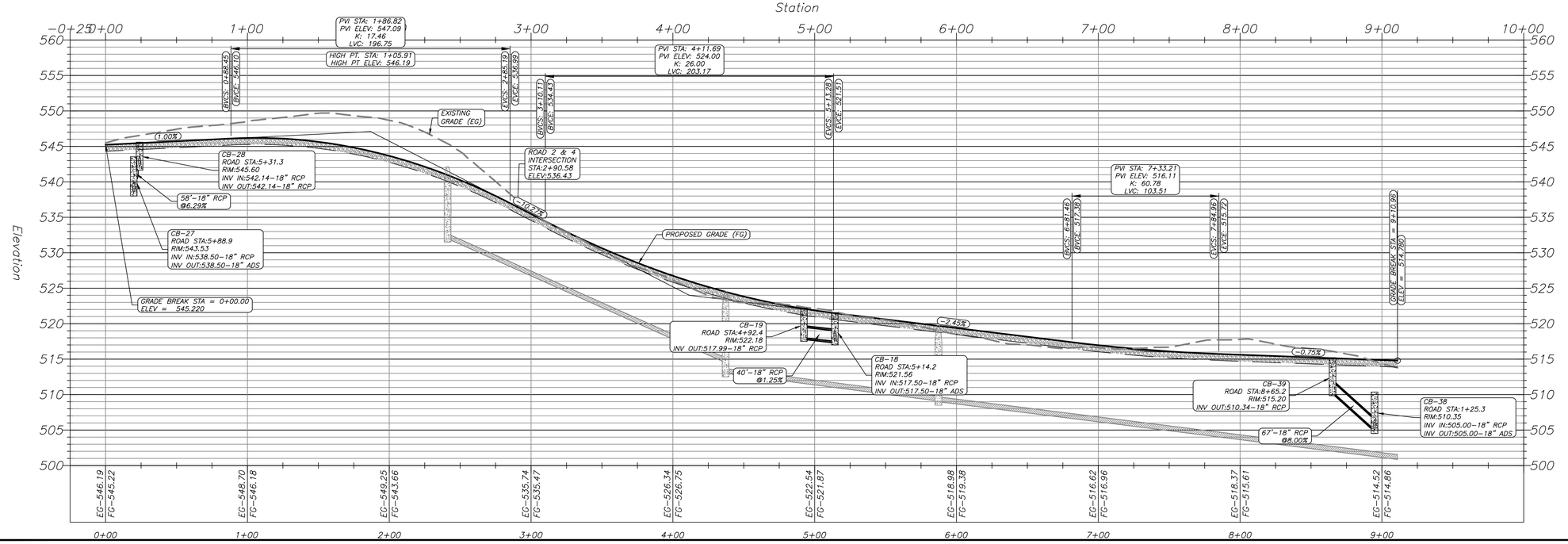
- STOP SIGN
- STREET NAME SIGN
- TRAFFIC SIGN
- STREET LIGHT
- ADA APPROVED HANDICAP RAMP

GRAPHIC SCALE

40 0 40 80 120

(IN FEET)
1 inch = 40 ft.

ROAD–2 PROFILE



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CERTIFICATE OF AUTHORIZATION
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No. 2519
ARKANSAS

ROAD 2 PLAN & PROFILE
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
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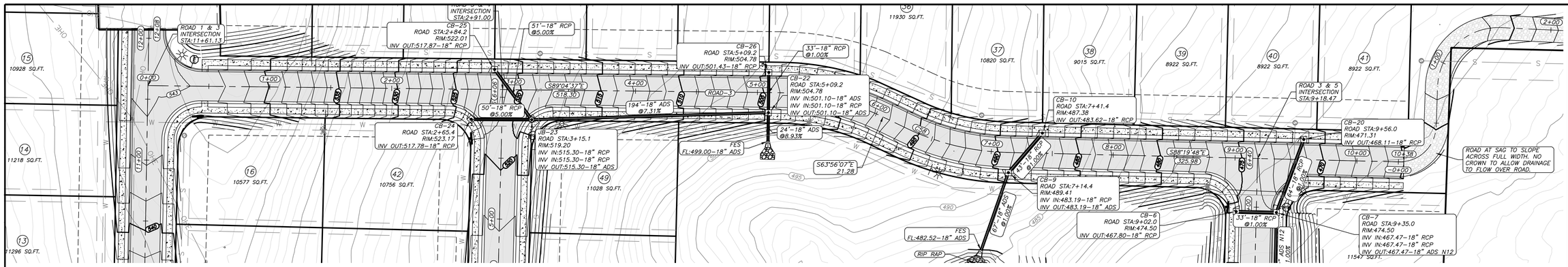

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SOUTHPOINT SURVEYING
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SHERIDAN, AR
501-837-2342

DEVELOPERS
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1100 HILLFARM ROAD
BRYANT, AR 72022

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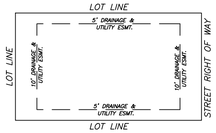
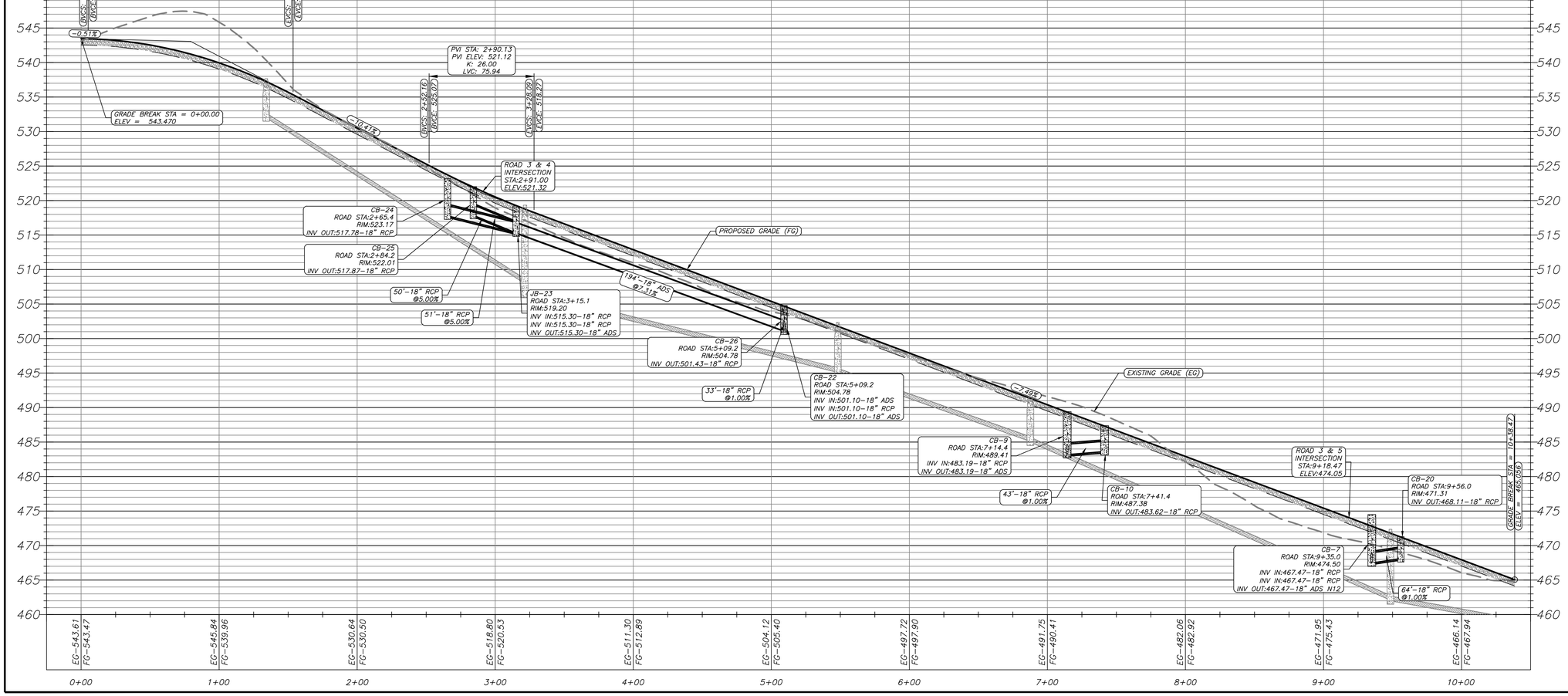


TYPICAL LOT EASEMENTS

ROAD-3 PROFILE

Station



LEGEND

STOP SIGN
STREET NAME SIGN
TRAFFIC SIGN
STREET LIGHT
ADA APPROVED HANDICAP RAMP

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325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
STATE OF ARKANSAS

ROAD 3 PLAN & PROFILE
HILLTOP MANOR
SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For: EMINENT CONSTRUCTIONS

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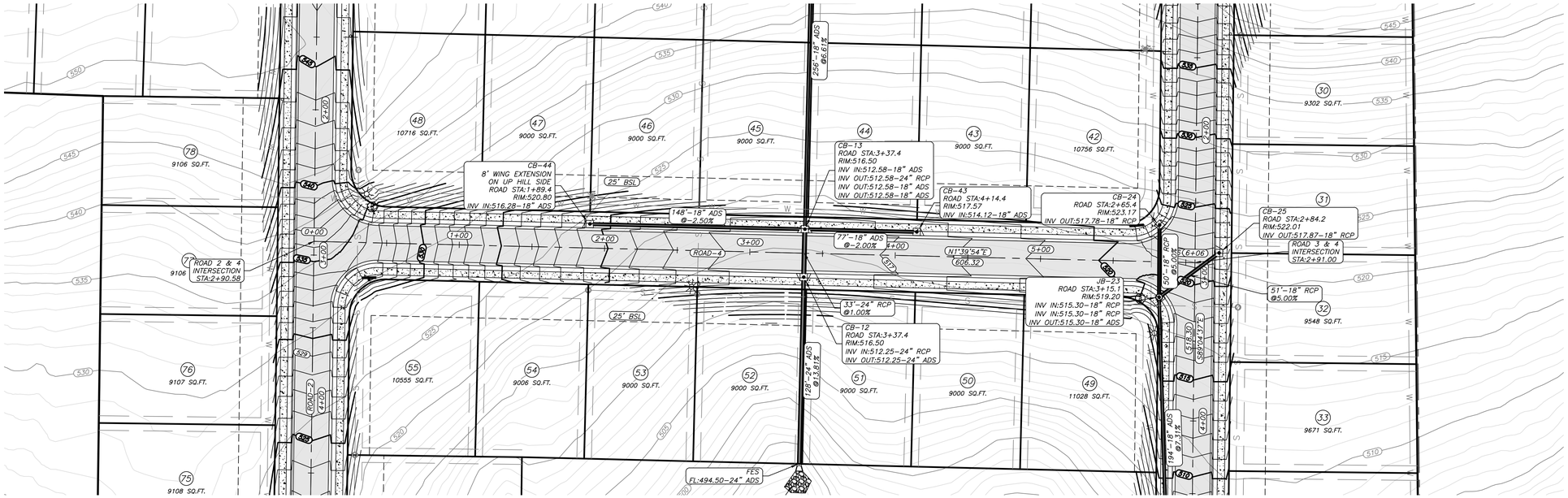
Sheet: 5 of 24



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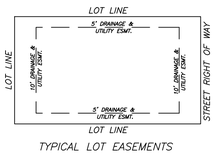

TYPICAL LOT EASEMENTS

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SOUTHPOINT SURVEYING
P.O. BOX 400
SHERIDAN, AR
501-837-2342

DEVELOPERS
EMINENT CONSTRUCTION
1100 HILLFARM ROAD
BRYANT, AR 72022

LEGEND

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- STREET NAME SIGN
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GRAPHIC SCALE

40 0 40 80 120

(IN FEET)
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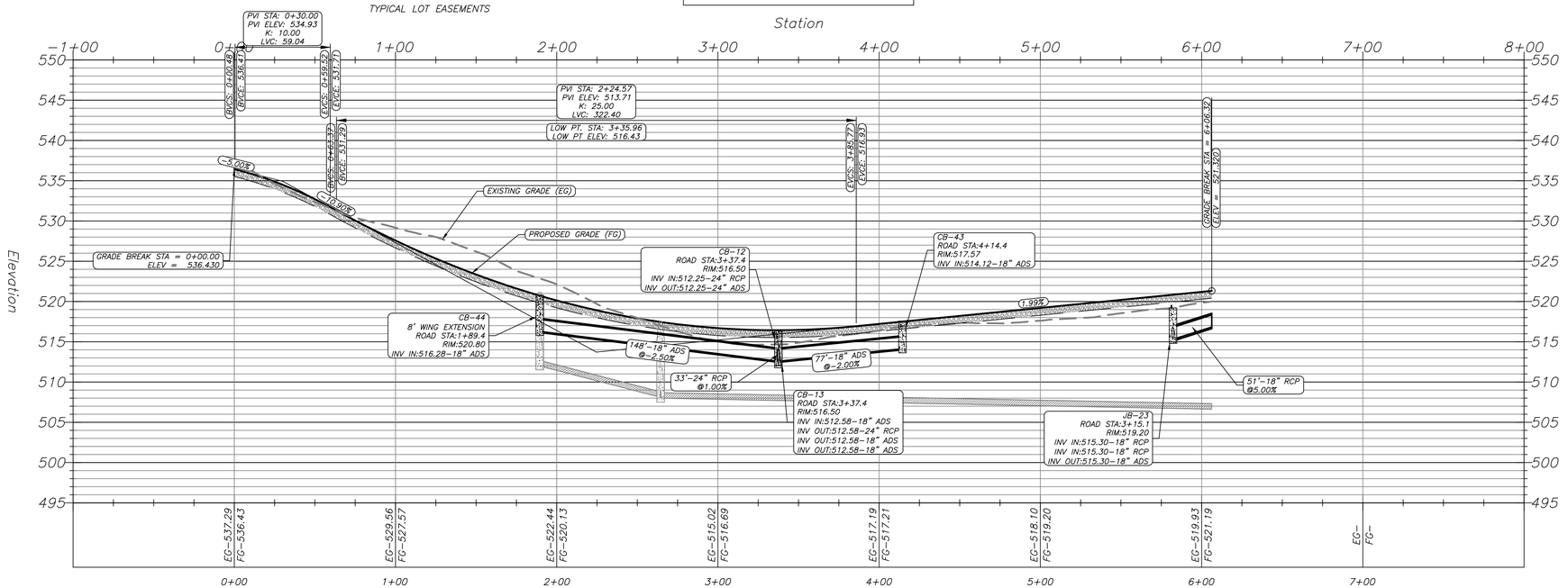
ROAD-4 PROFILE



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CERTIFICATE OF AUTHORIZATION
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ARKANSAS

ROAD 4 PLAN & PROFILE
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

EMINENT CONSTRUCTIONS

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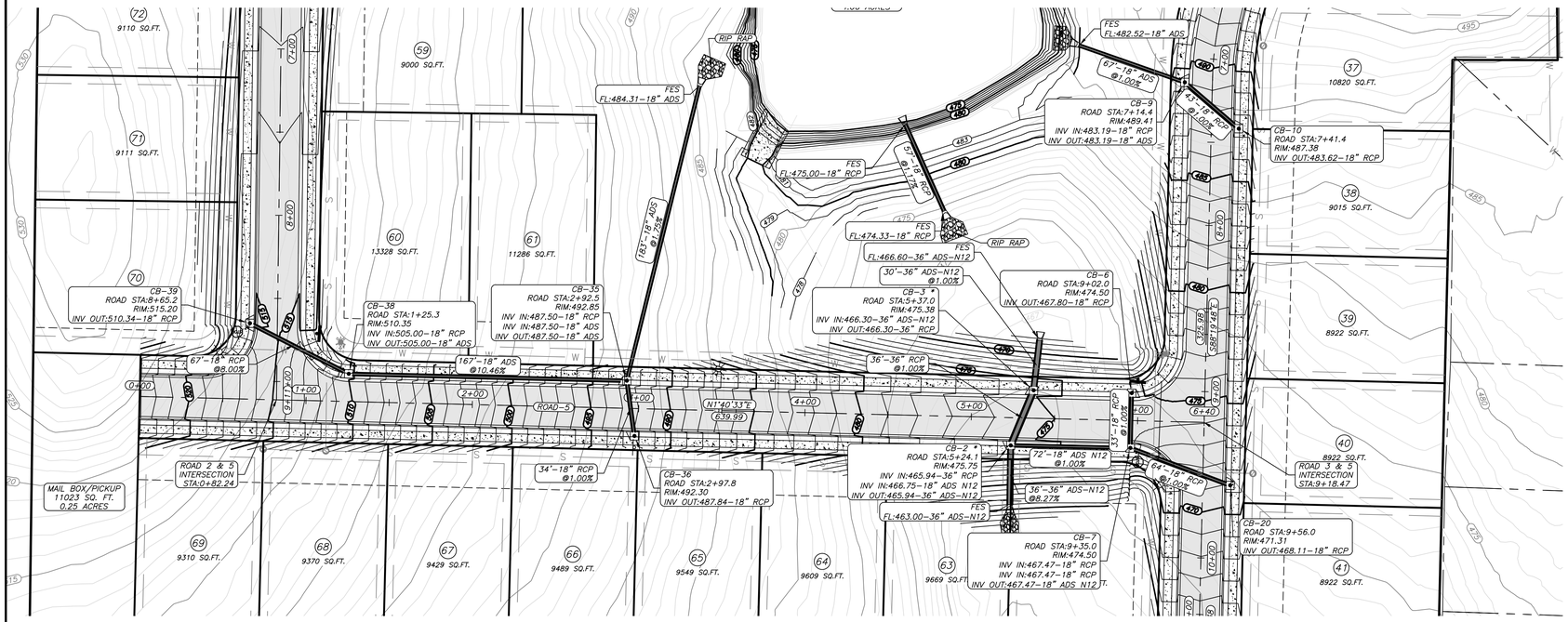
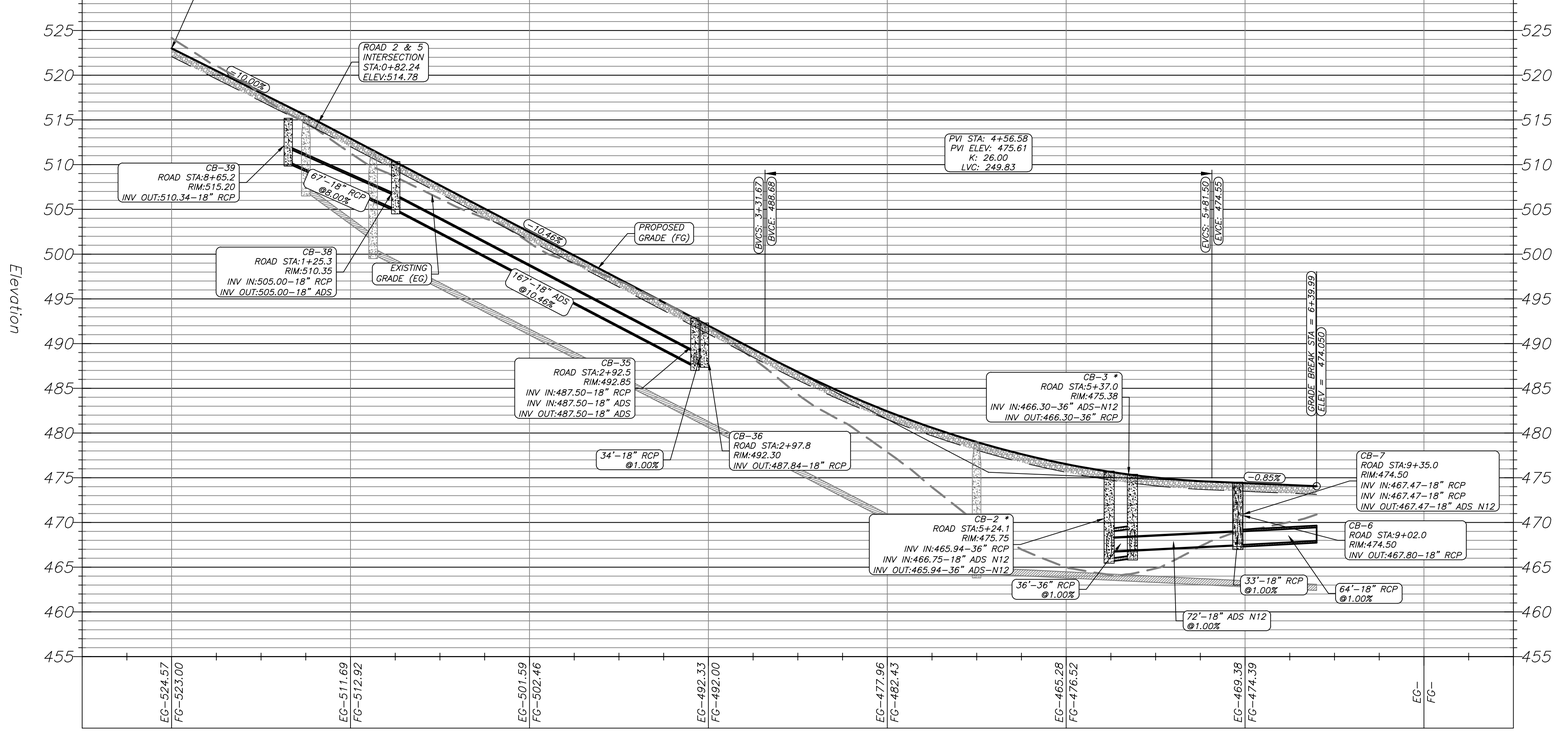


ROAD-5 PROFILE



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GRAPHIC SCALE

40 0 40 80 120

(IN FEET)
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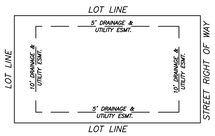

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ROAD 5 PLAN & PROFILE
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
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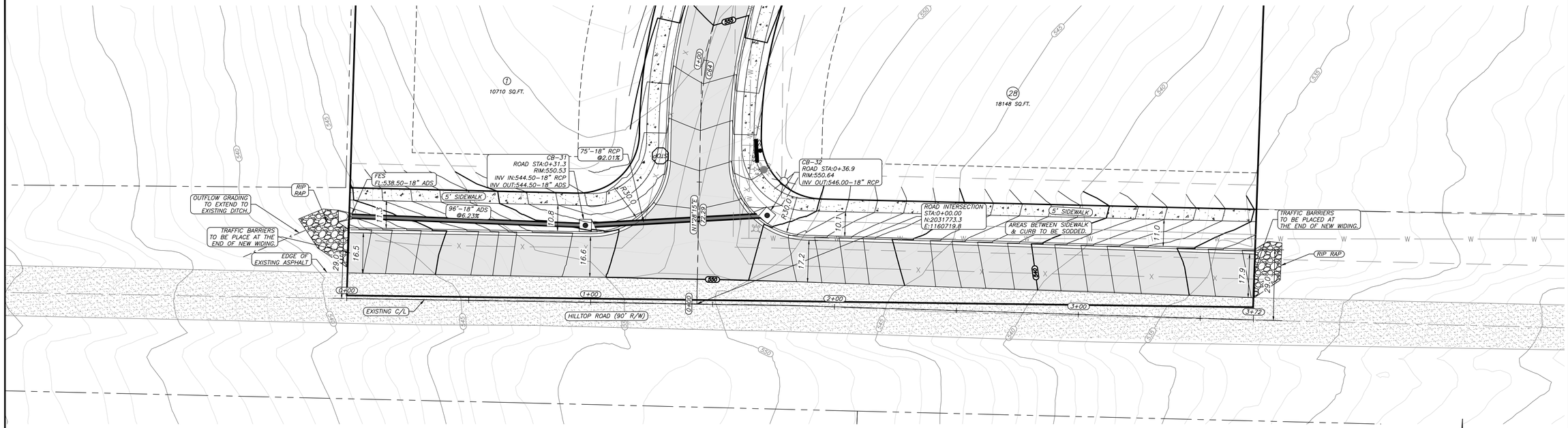

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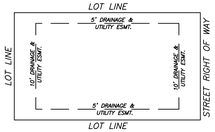
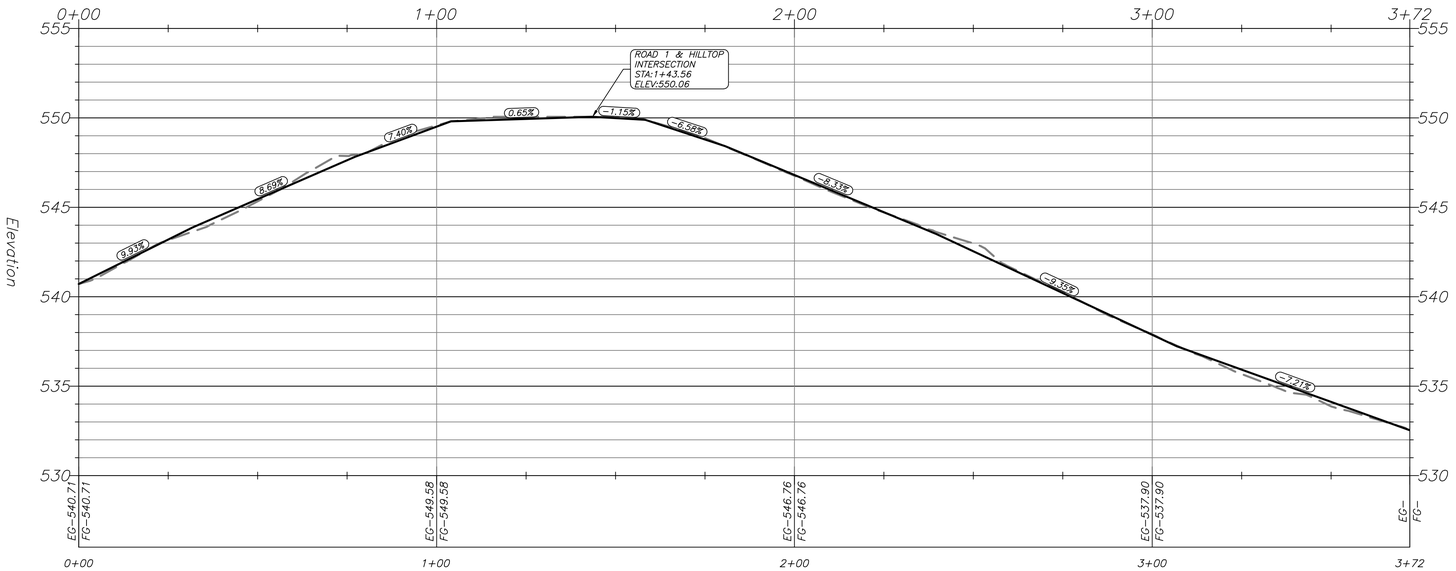
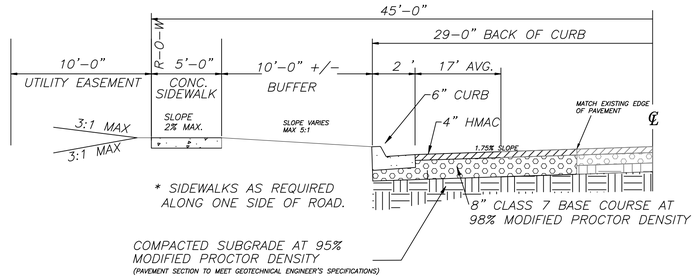


TYPICAL LOT EASEMENTS

HIOLLTOP ROAD PROFILE





TYPICAL ROAD CROSS SECTION (HALF STREET)
N.T.S.

RICHARDSON ENGINEERING
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CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

HILLTOP RD WIDING PLAN & PROFILE
HILLTOP MANOR
SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
EMINENT CONSTRUCTIONS

No.	Revisions	Date

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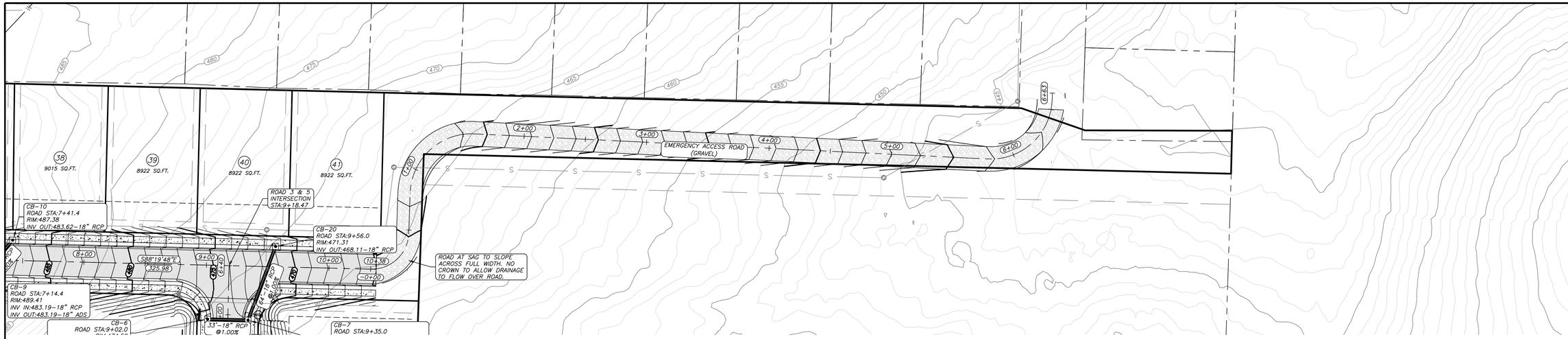
Sheet: 8 of 24



GENERAL NOTES

1.) PAVEMENT SHALL BE CONSTRUCTED IN ACCORDANCE WITH AHTD SPECIFICATIONS, AND BASED ON GEOTECHNICAL ANALYSIS OF THE SOIL CONDITIONS.
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3.) LIGHT POLES SHALL BE PLACED AS SHOWN ON DRAWINGS. ADDITIONAL LOCATIONS TO BE DETERMINED BY CITY OF BRYANT ROAD DEPARTMENT.
4.) ALL CORNERS TO HAVE A 25' RADIUS UNLESS OTHERWISE NOTED.
5.) PROPOSED LOCATIONS OF STREET SIGNS AND TRAFFIC CONTROL SIGNS ARE APPROXIMATE. ACTUAL LOCATION AND INSTALLATION MUST MEET MUTCD AND CITY OF BRYANT ROAD DEPT. SPECS.
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9.) CONTRACTOR TO COORDINATE MAINTENANCE OF TRAFFIC ON PUBLIC RIGHT OF WAY WITH PROPER AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

DRAINAGE NOTES:

* ALL DRAINAGE PIPING TO BE SIZED TO EFFECTIVELY HANDLE A 10-YEAR RAIN EVENT.
* ALL DRAINAGE EASEMENTS SHALL CONVEY FLOWS FROM THE 100-YEAR RAIN EVENT.
* (*) DENOTES 5' INNER DIAMETER BARREL, (**) DENOTES 6' INNER DIAMETER BARREL, AND ALL OTHERS ARE 4' INSIDE DIAMETER FOR CURB INLETS AND JUNCTION BOXES.
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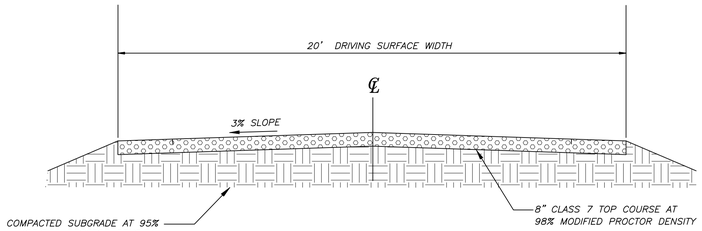
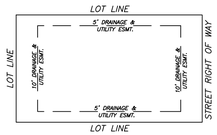


TYPICAL ACCESS ROAD CROSS SECTION
N.T.S.

NOTE:
1. ROADWAY SHALL MEET CITY OF BRYANT SPECIFICATIONS
2. STREETS AND DRAINAGE TO BE MAINTAINED BY BRYANT ROAD DEPARTMENT

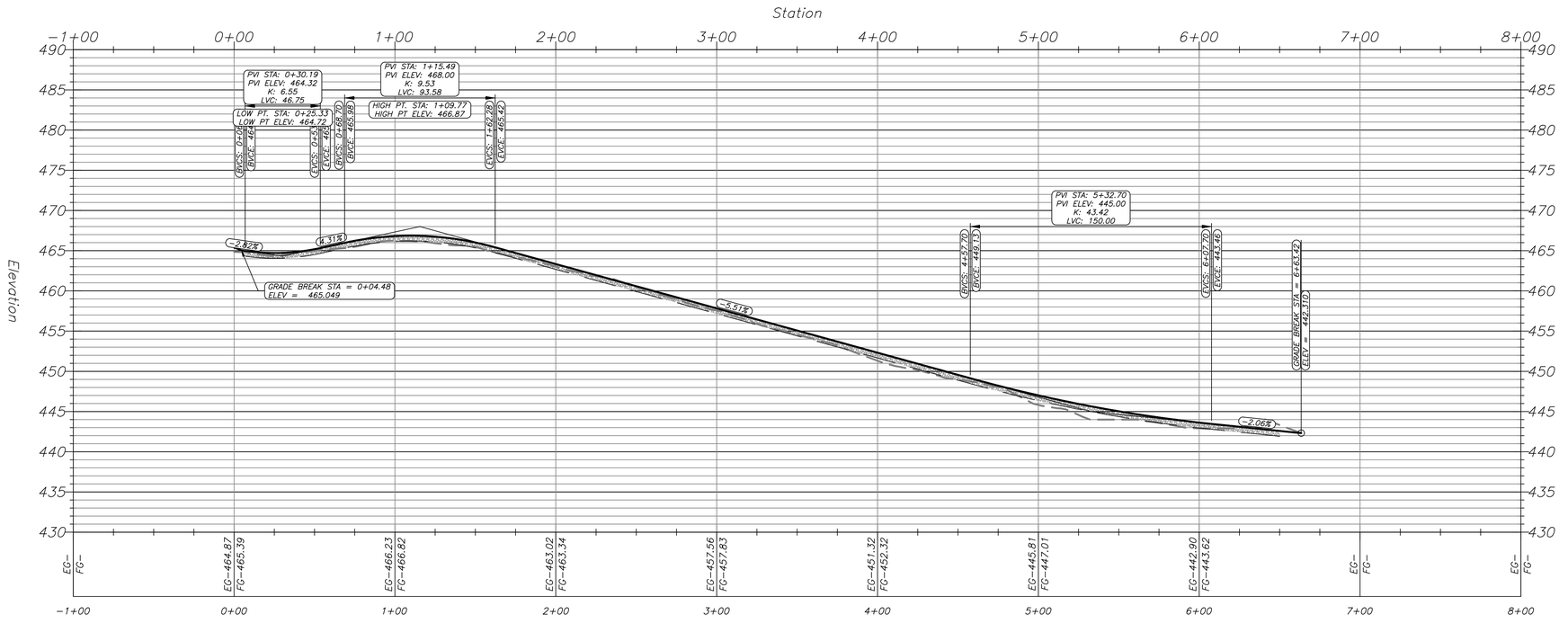


TYPICAL LOT EASEMENTS

LEGEND

- STOP SIGN
- STREET NAME SIGN
- TRAFFIC SIGN
- STREET LIGHT
- ADA APPROVED HANDICAP RAMP

EMERGENCY ACCESS ROAD PROFILE



ENGINEER
RICHARDSON ENGINEERING, PLLC
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PHONE NO. (501) 315-7225
PROJECT REPRESENTATIVE:
ERIC RICHARDSON, P.E.

SURVEYOR
SOUTHPOINT SURVEYING
P.O. BOX 400
SHERIDAN, AR
501-837-2342

DEVELOPERS
EMINENT CONSTRUCTION
1100 HILLFARM ROAD
BRYANT, AR 72022

GRAPHIC SCALE

40 0 40 80 120

(IN FEET)
1 inch = 40 ft.

LEGEND

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ROAD 3 PLAN & PROFILE
HILLTOP MANOR
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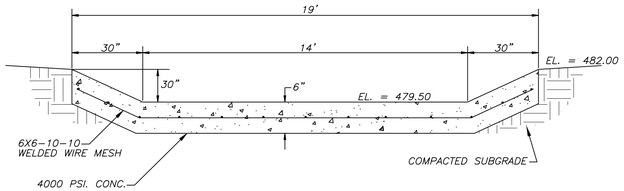
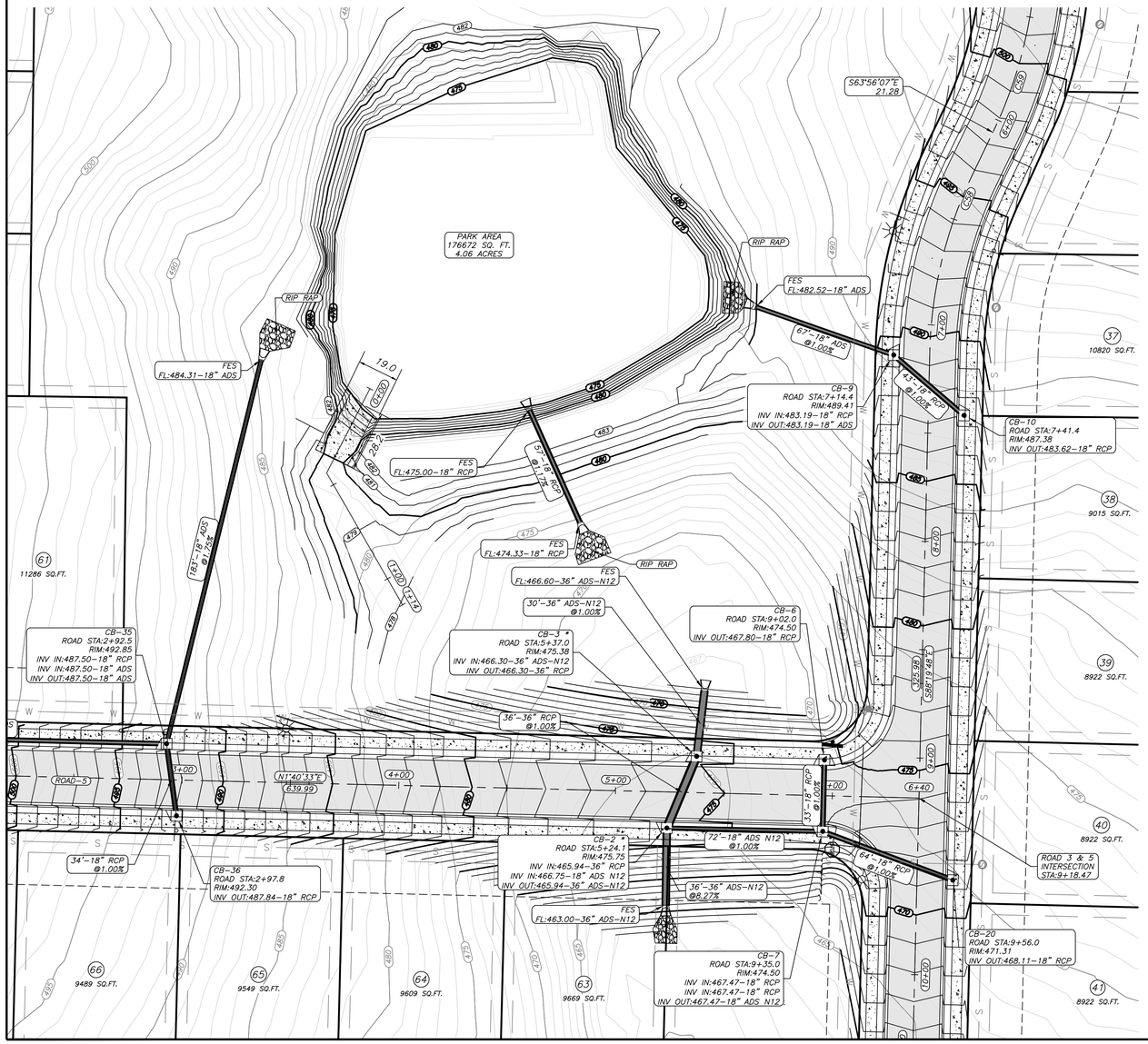


SPILLWAY DETAIL
N.T.S.



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1100 HILLFARM ROAD
BRYANT, AR 72022

LEGEND

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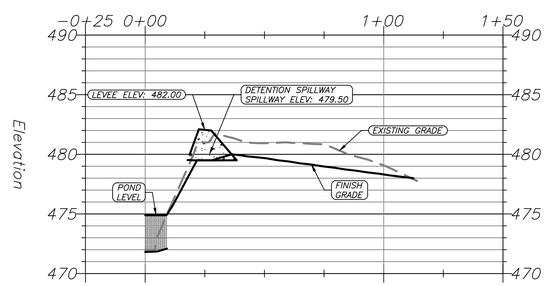
SPILLWAY OUTFLOW PROFILE



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CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
STATE OF ARKANSAS

DETENTION OUTFLOW PLAN & PROFILE
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
EMINENT CONSTRUCTIONS

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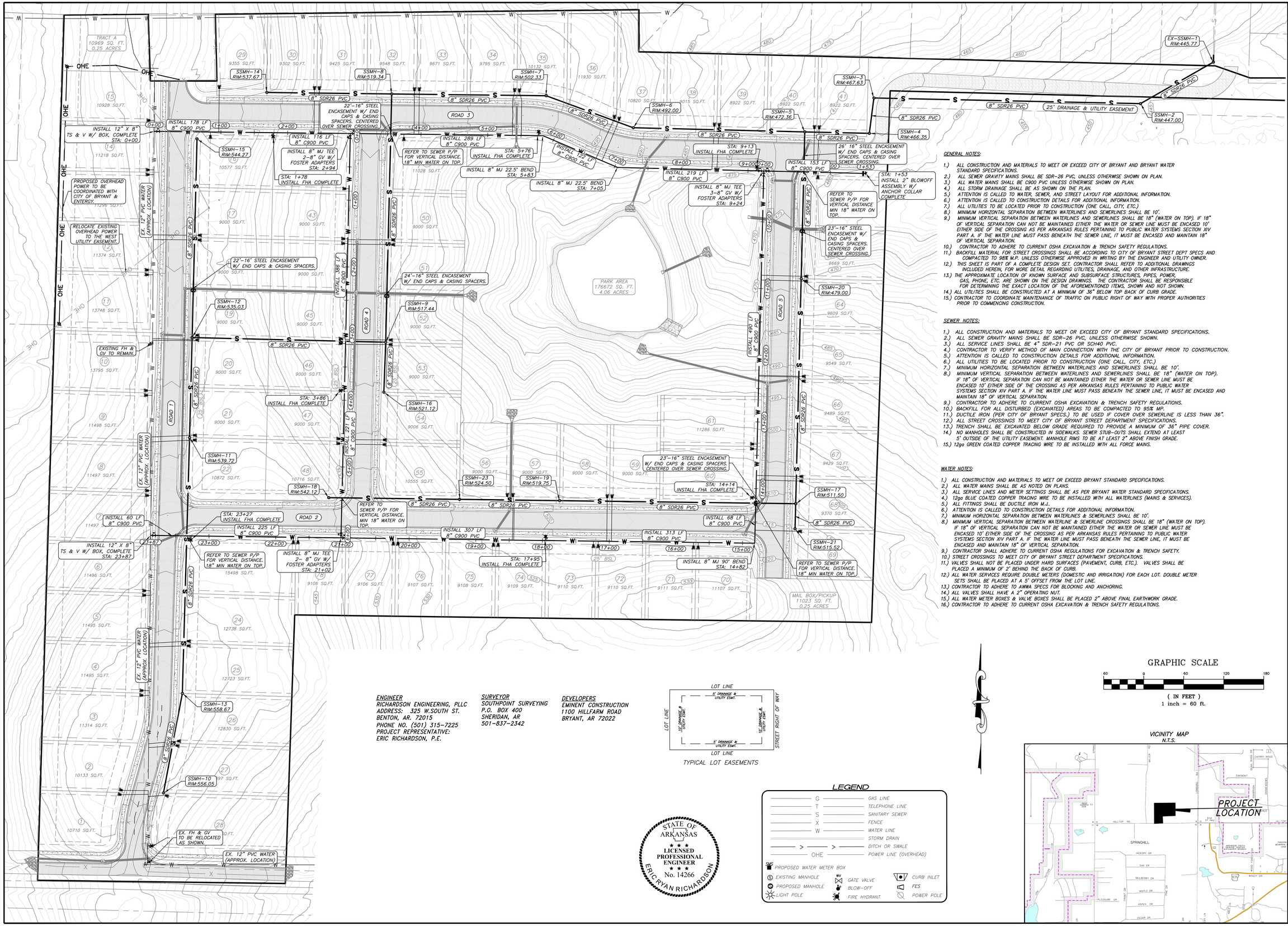

TYPICAL LOT EASEMENTS

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STATE OF ARKANSAS
LICENSED PROFESSIONAL ENGINEER
No. 14266
ERIC RYAN RICHARDSON

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GENERAL NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO MEET OR EXCEED CITY OF BRYANT AND BRYANT WATER STANDARD SPECIFICATIONS.
2.) ALL SEWER GRAVITY MAINS SHALL BE SDR-26 PVC, UNLESS OTHERWISE SHOWN ON PLAN.
3.) ALL WATER MAINS SHALL BE C900 PVC UNLESS OTHERWISE SHOWN ON PLAN.
4.) ALL STORM DRAINAGE SHALL BE AS SHOWN ON THE PLAN.
5.) ATTENTION IS CALLED TO WATER, SEWER, AND STREET LAYOUT FOR ADDITIONAL INFORMATION.
6.) ATTENTION IS CALLED TO CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION.
7.) ALL UTILITIES TO BE LOCATED PRIOR TO CONSTRUCTION (ONE CALL, CITY, ETC.)
8.) MINIMUM HORIZONTAL SEPARATION BETWEEN WATERLINES AND SEWERLINES SHALL BE 10'.
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10.) CONTRACTOR TO ADHERE TO CURRENT OSHA EXCAVATION & TRENCH SAFETY REGULATIONS.
11.) BACKFILL MATERIAL FOR STREET CROSSINGS SHALL BE ACCORDING TO CITY OF BRYANT STREET DEPT SPECS AND COMPACTED TO 98% M.P. UNLESS OTHERWISE APPROVED IN WRITING BY THE ENGINEER AND UTILITY OWNER.
12.) THIS SHEET IS PART OF A COMPLETE DESIGN SET. CONTRACTOR SHALL REFER TO ADDITIONAL DRAWINGS INCLUDED HEREIN, FOR MORE DETAIL REGARDING UTILITES, DRAINAGE, AND OTHER INFRASTRUCTURE.
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14.) ALL UTILITIES SHALL BE CONSTRUCTED AT A MINIMUM OF 36" BELOW TOP BACK OF CURB GRADE.
15.) CONTRACTOR TO COORDINATE MAINTENANCE OF TRAFFIC ON PUBLIC RIGHT OF WAY WITH PROPER AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

SEWER NOTES:

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9.) CONTRACTOR TO ADHERE TO CURRENT OSHA EXCAVATION & TRENCH SAFETY REGULATIONS.
10.) BACKFILL FOR ALL DISTURBED (EXCAVATED) AREAS TO BE COMPACTED TO 95% MP.
11.) DUCTILE IRON (PER CITY OF BRYANT SPECS.) TO BE USED IF COVER OVER SEWERLINE IS LESS THAN 36".
12.) ALL STREET CROSSINGS TO MEET CITY OF BRYANT STREET DEPARTMENT SPECIFICATIONS.
13.) TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM OF 36" PIPE COVER.
14.) NO MANHOLES SHALL BE CONSTRUCTED IN SIDEWALKS. SEWER STUB-OUTS SHALL EXTEND AT LEAST 5' OUTSIDE OF THE UTILITY EASEMENT. MANHOLE RIMS TO BE AT LEAST 2" ABOVE FINISH GRADE.
15.) 12ga GREEN COATED COPPER TRACING WIRE TO BE INSTALLED WITH ALL FORCE MAINS.

WATER NOTES:

1.) ALL CONSTRUCTION AND MATERIALS TO MEET OR EXCEED BRYANT STANDARD SPECIFICATIONS.
2.) ALL WATER MAINS SHALL BE AS NOTED ON PLANS.
3.) ALL SERVICE LINES AND METER SETTINGS SHALL BE AS PER BRYANT WATER STANDARD SPECIFICATIONS.
4.) 12ga BLUE COATED COPPER TRACING WIRE TO BE INSTALLED WITH ALL WATERLINES (MAINS & SERVICES).
5.) ALL FITTINGS SHALL BE DUCTILE IRON M.J.
6.) ATTENTION IS CALLED TO CONSTRUCTION DETAILS FOR ADDITIONAL INFORMATION.
7.) MINIMUM HORIZONTAL SEPARATION BETWEEN WATERLINES & SEWERLINES SHALL BE 10'.
8.) MINIMUM VERTICAL SEPARATION BETWEEN WATERLINE & SEWERLINE CROSSINGS SHALL BE 18" (WATER ON TOP). IF 18" OF VERTICAL SEPARATION CAN NOT BE MAINTAINED EITHER THE WATER OR SEWER LINE MUST BE ENCASED 10' EITHER SIDE OF THE CROSSING AS PER ARKANSAS RULES PERTAINING TO PUBLIC WATER SYSTEMS SECTION XIV PART A. IF THE WATER LINE MUST PASS BENEATH THE SEWER LINE, IT MUST BE ENCASED AND MAINTAIN 18" OF VERTICAL SEPARATION.
9.) CONTRACTOR SHALL ADHERE TO CURRENT OSHA REGULATIONS FOR EXCAVATION & TRENCH SAFETY.
10.) STREET CROSSINGS TO MEET CITY OF BRYANT STREET DEPARTMENT SPECIFICATIONS.
11.) VALVES SHALL NOT BE PLACED UNDER HARD SURFACES (PAVEMENT, CURB, ETC.). VALVES SHALL BE PLACED A MINIMUM OF 2' BEHIND THE BACK OF CURB.
12.) ALL WATER SERVICES REQUIRE DOUBLE METERS (DOMESTIC AND IRRIGATION) FOR EACH LOT. DOUBLE METER SETS SHALL BE PLACED AT A 5' OFFSET FROM THE LOT LINE.
13.) CONTRACTOR TO ADHERE TO AWWA SPECS FOR BLOCKING AND ANCHORING.
14.) ALL VALVES SHALL HAVE A 2" OPERATING NUT.
15.) ALL WATER METER BOXES & VALVE BOXES SHALL BE PLACED 2" ABOVE FINAL EARTHWORK GRADE.
16.) CONTRACTOR TO ADHERE TO CURRENT OSHA EXCAVATION & TRENCH SAFETY REGULATIONS.

GRAPHIC SCALE
60 0 60 120 180
(IN FEET)
1 inch = 60 ft.

VICINITY MAP
N.T.S.

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ARKANSAS

OVERALL UTILITY PLAN
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

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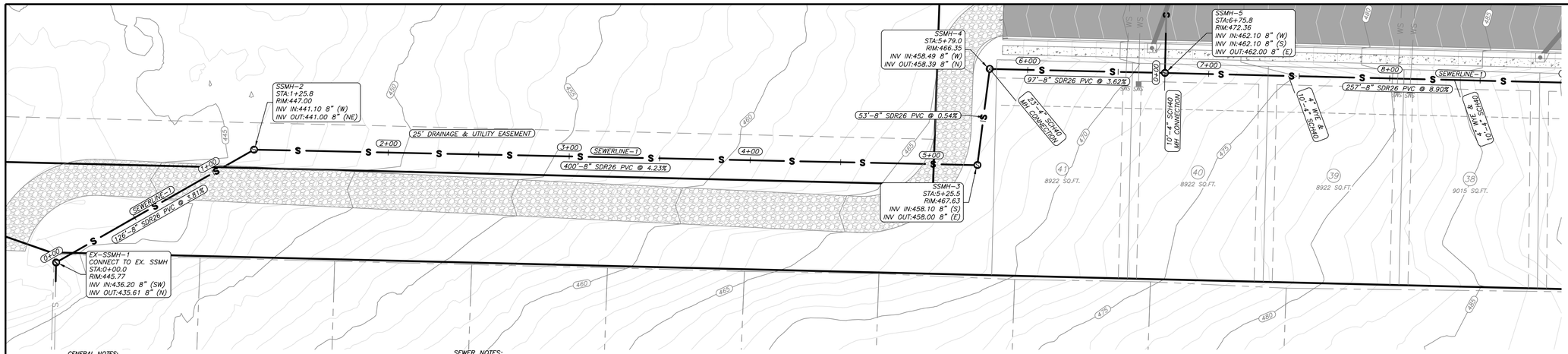

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501-837-2342

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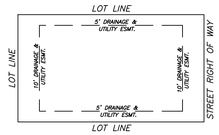

TYPICAL LOT EASEMENTS

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S	SANITARY SEWER
X	FENCE
W	WATER LINE
	STORM DRAIN
> >	DITCH OR SWALE
OHE	POWER LINE (OVERHEAD)
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GRAPHIC SCALE

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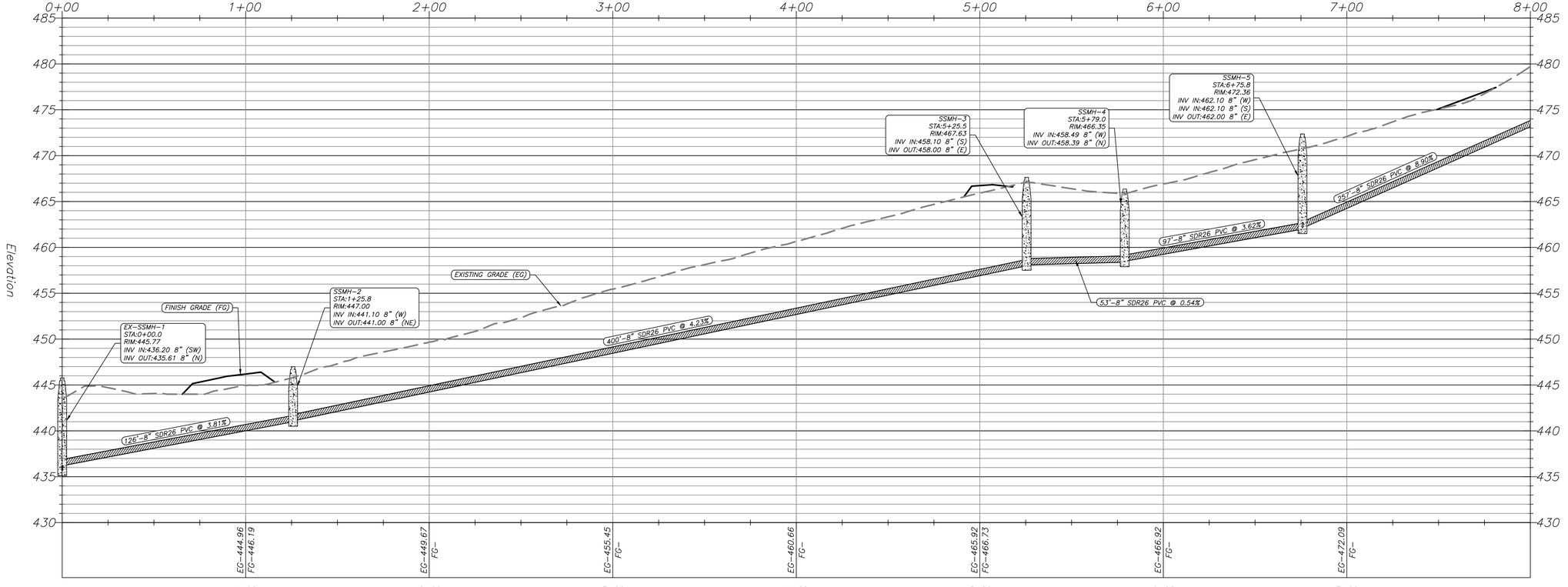

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ERIC RYAN RICHARDSON

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SEWER 1 P/P 0+00-8+00
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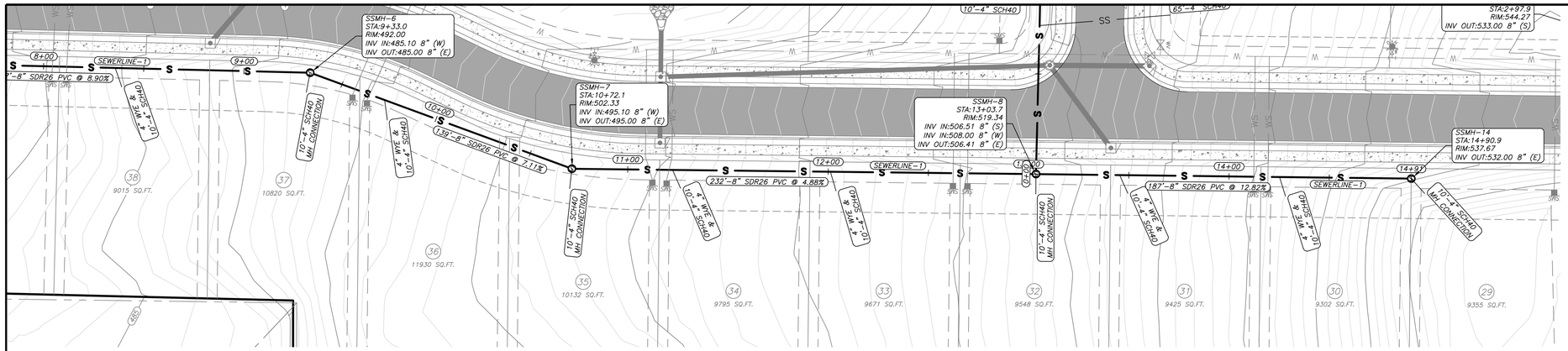

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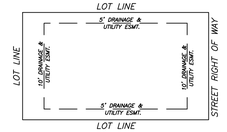

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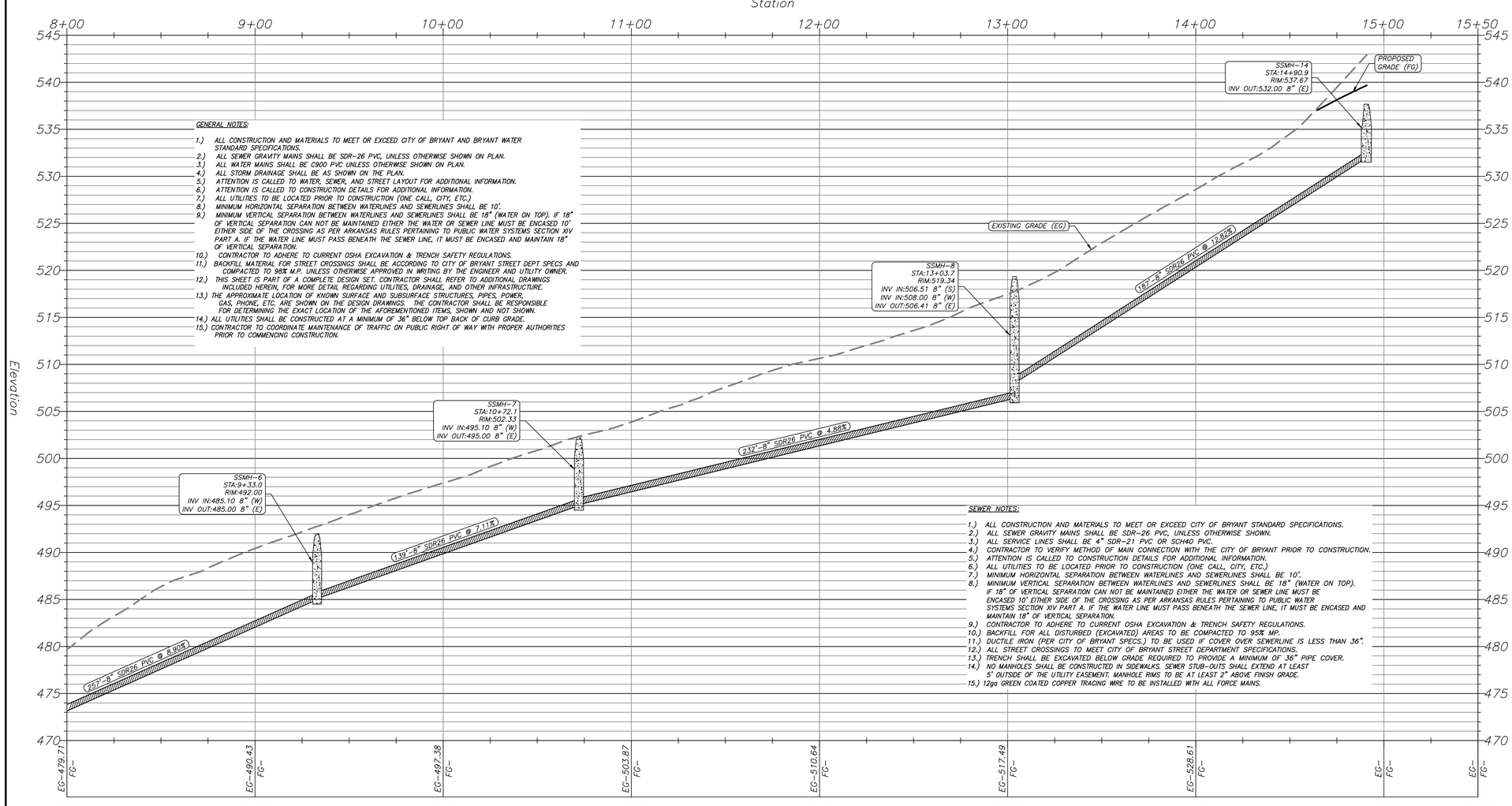

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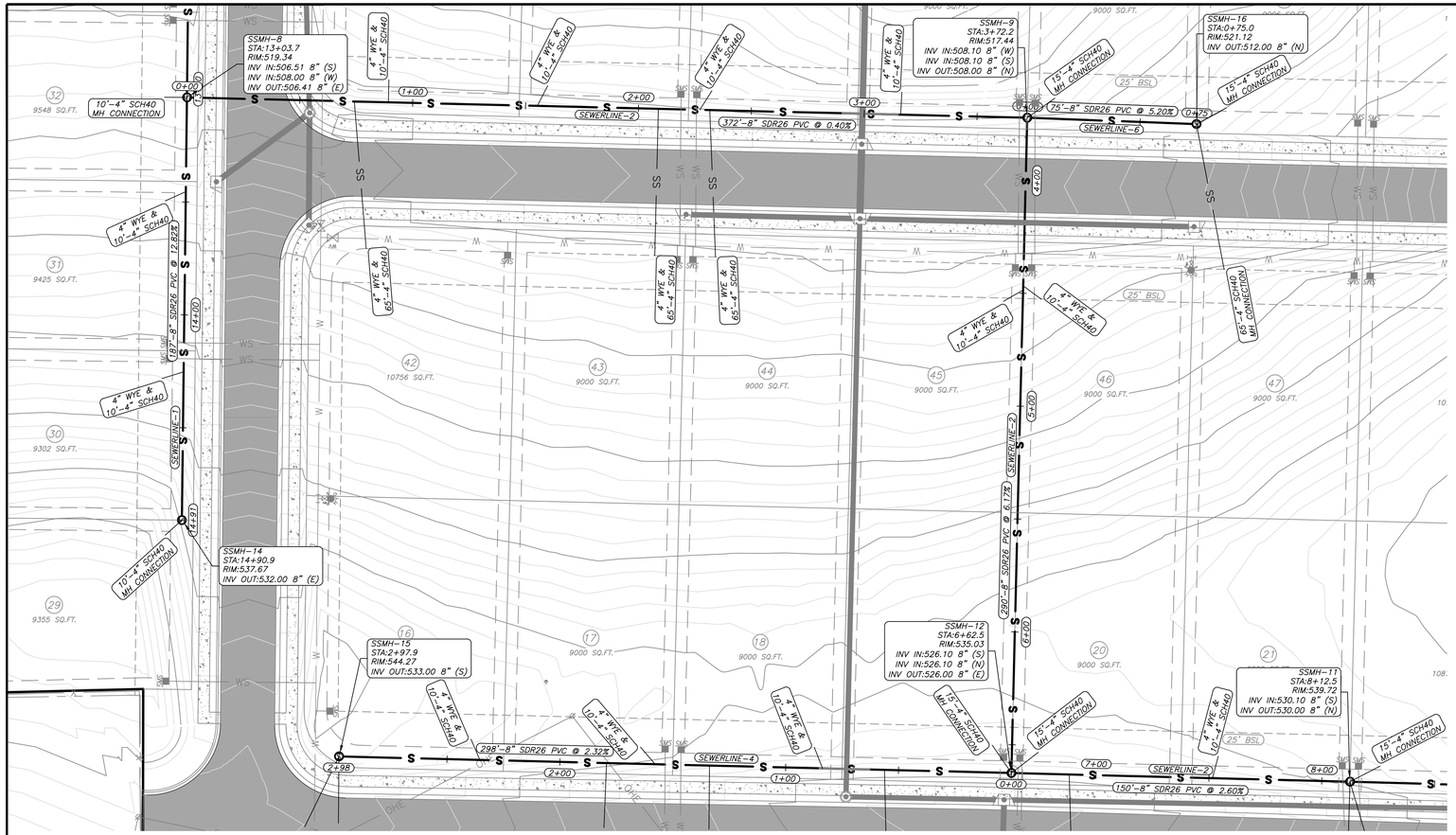
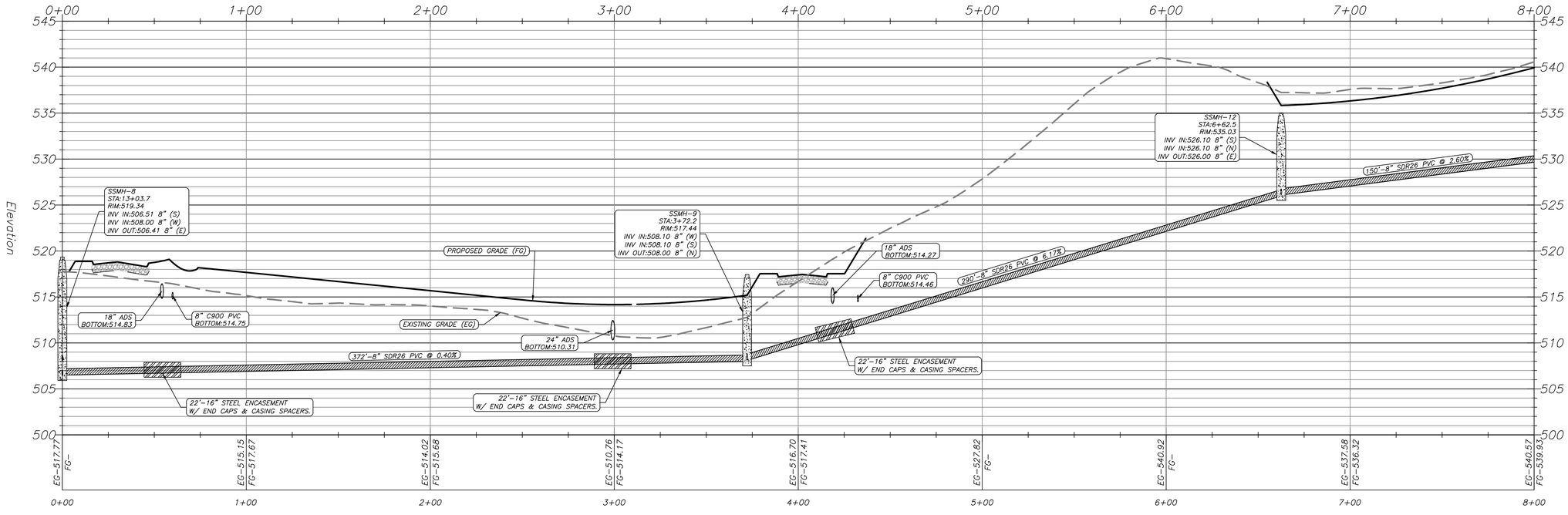


SEWERLINE-2 PROFILE



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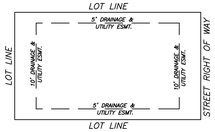

TYPICAL LOT EASEMENTS

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SEWER 2 P/P 0+00-8+00
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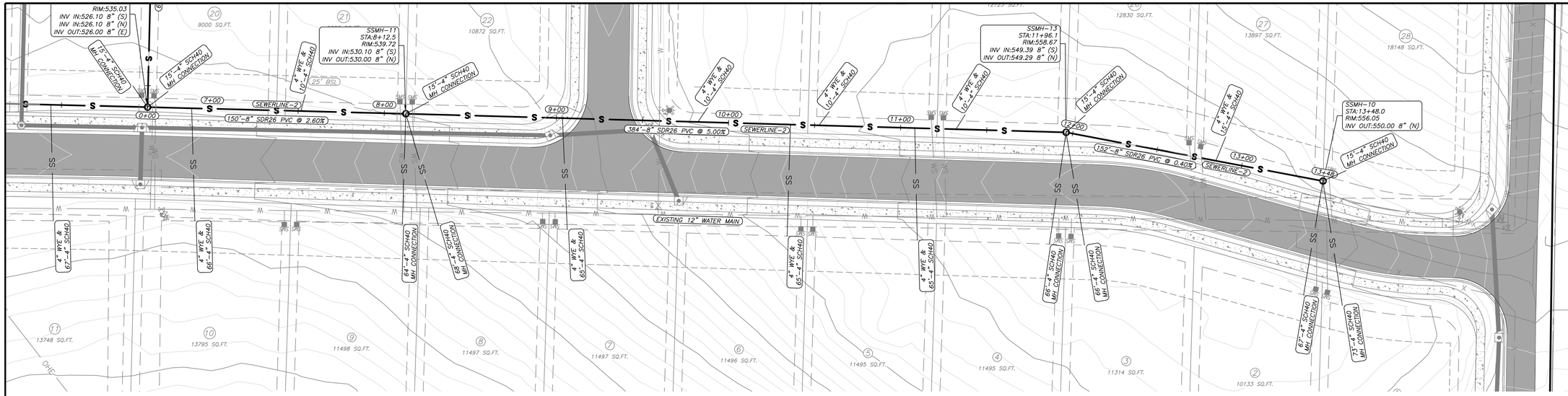

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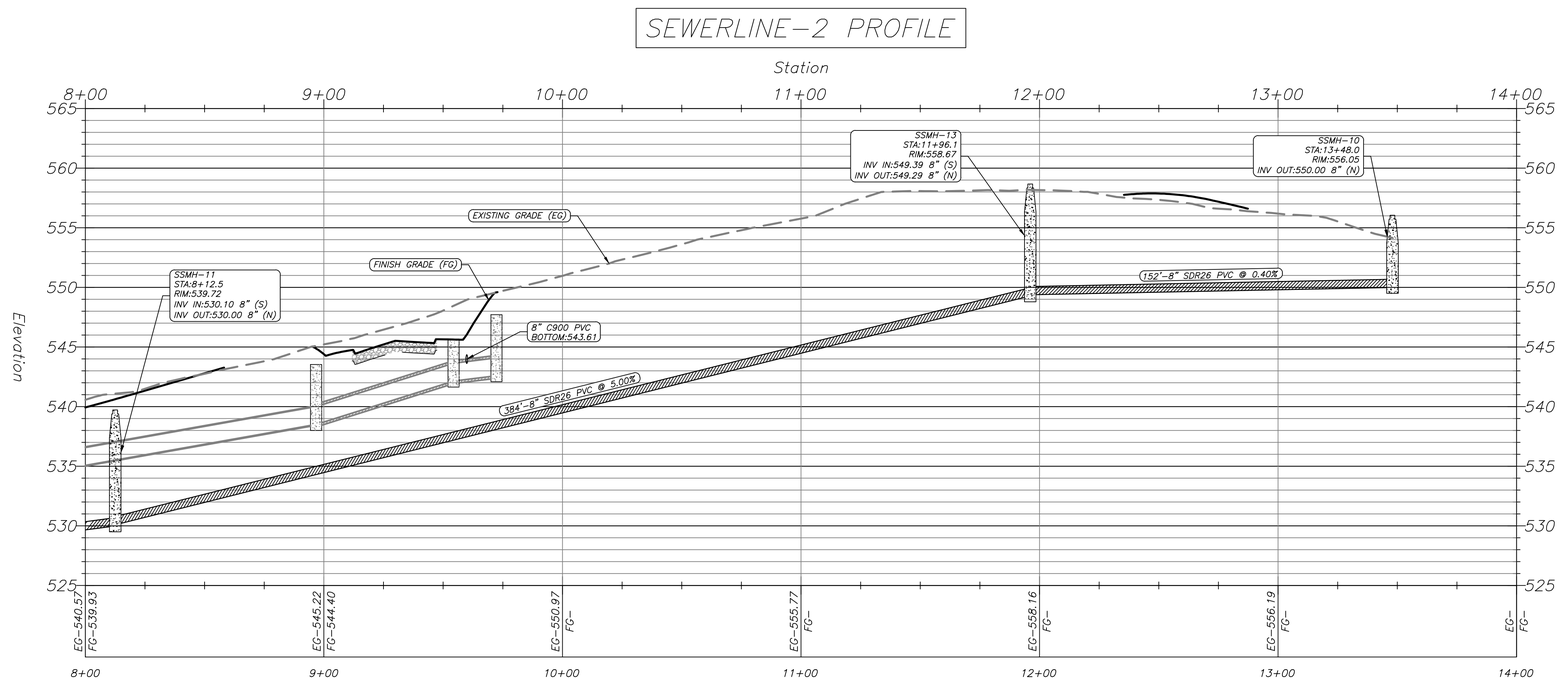

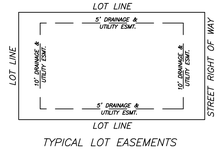

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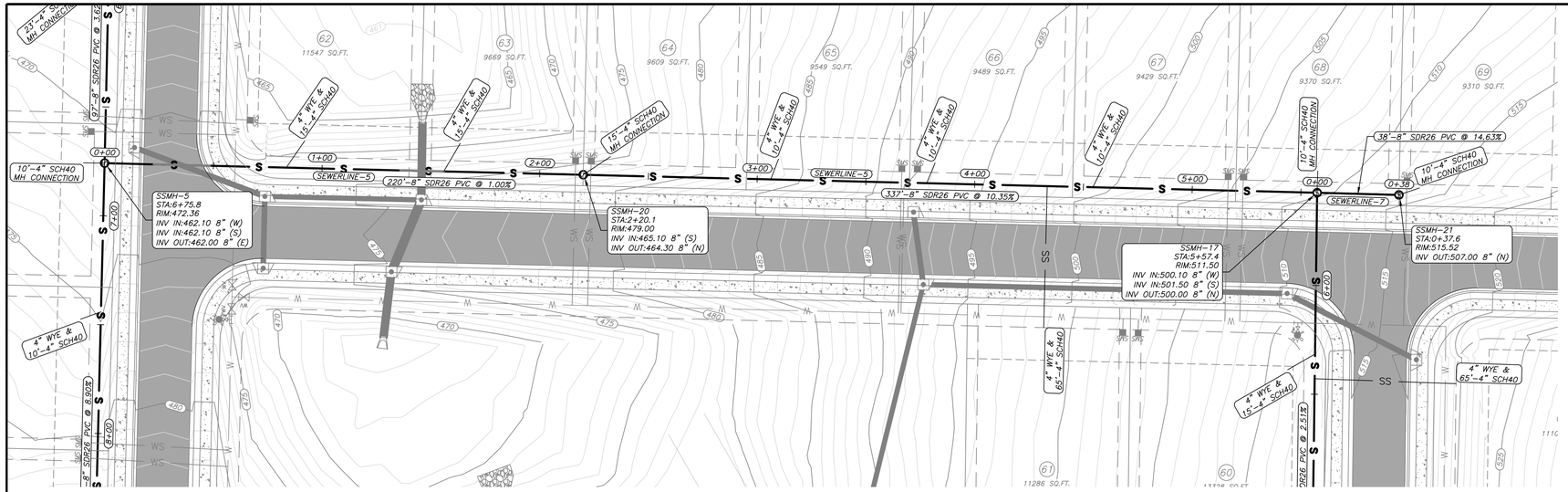

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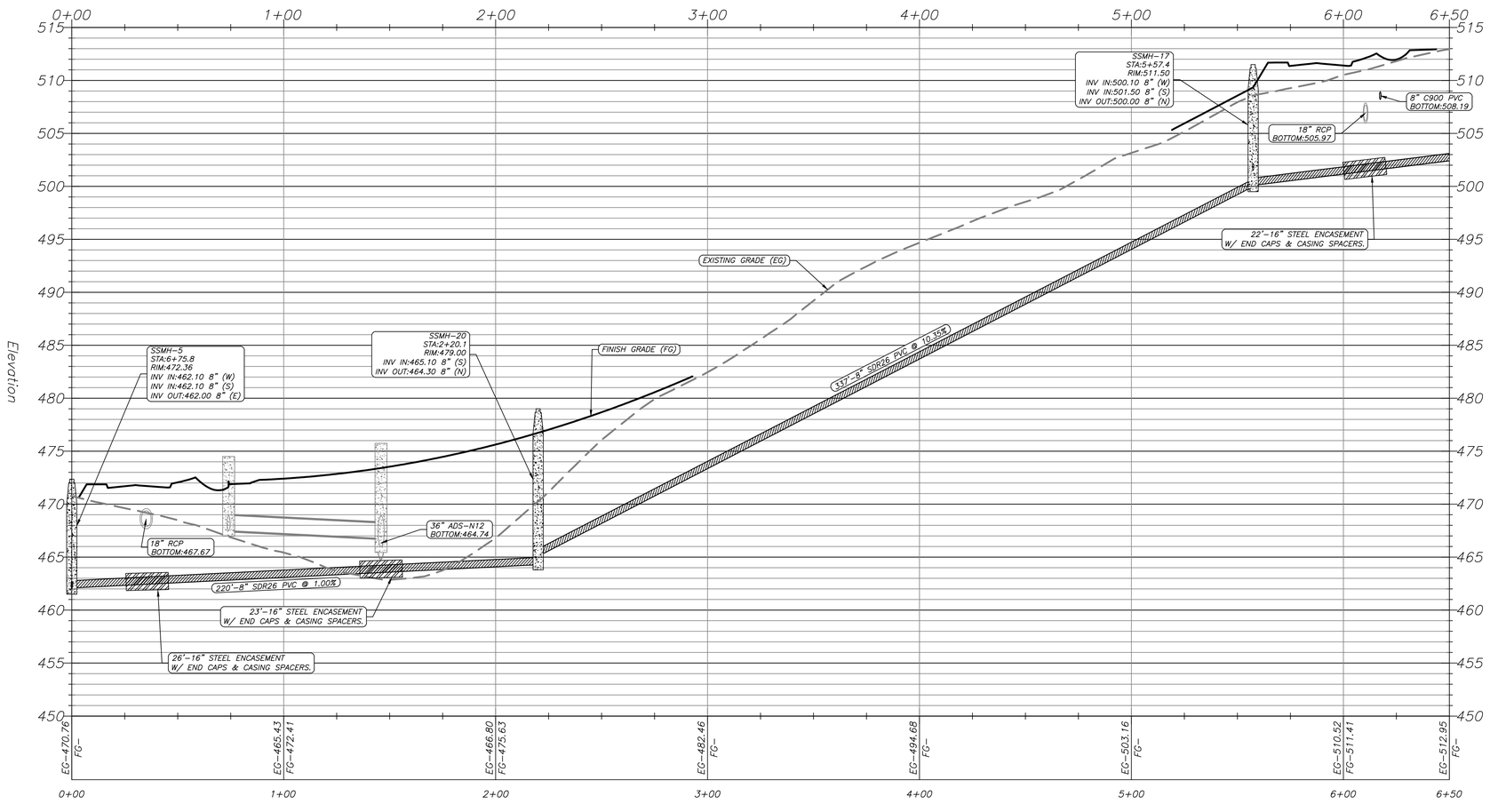

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- OHE — POWER LINE (OVERHEAD)
- PROPOSED WATER METER BOX
- EXISTING MANHOLE
- PROPOSED MANHOLE
- LIGHT POLE
- GATE VALVE
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GRAPHIC SCALE

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(IN FEET)

1 inch = 30 ft.

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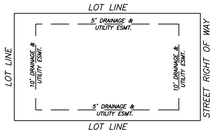

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Prepared For:
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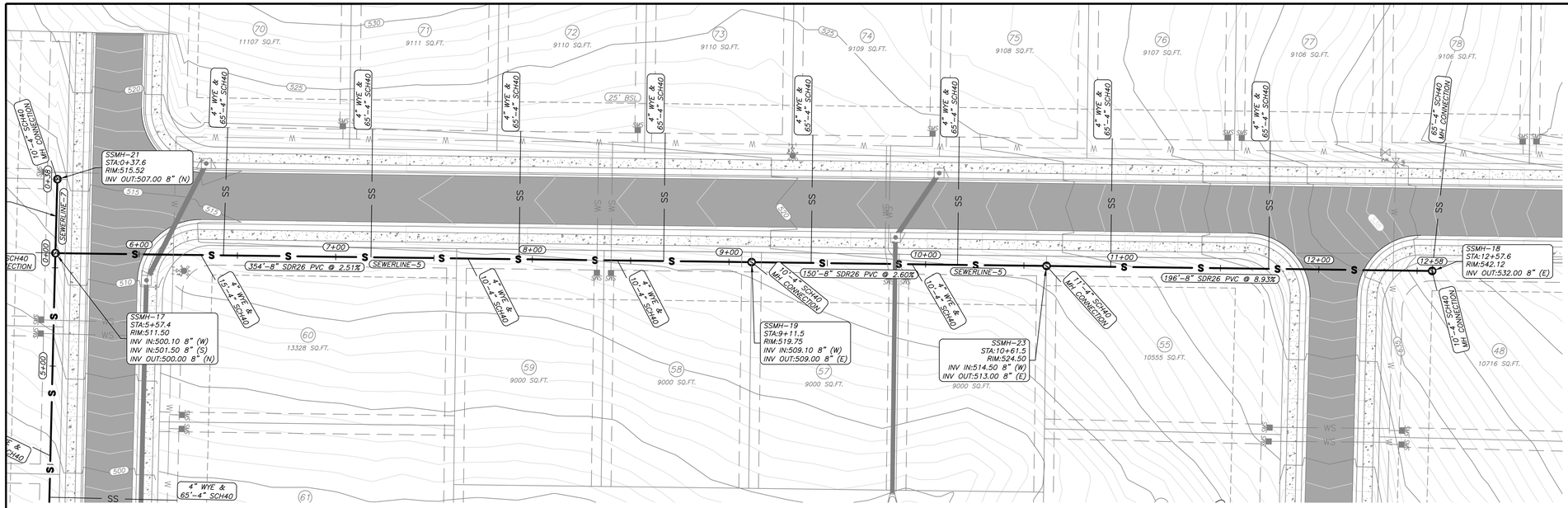
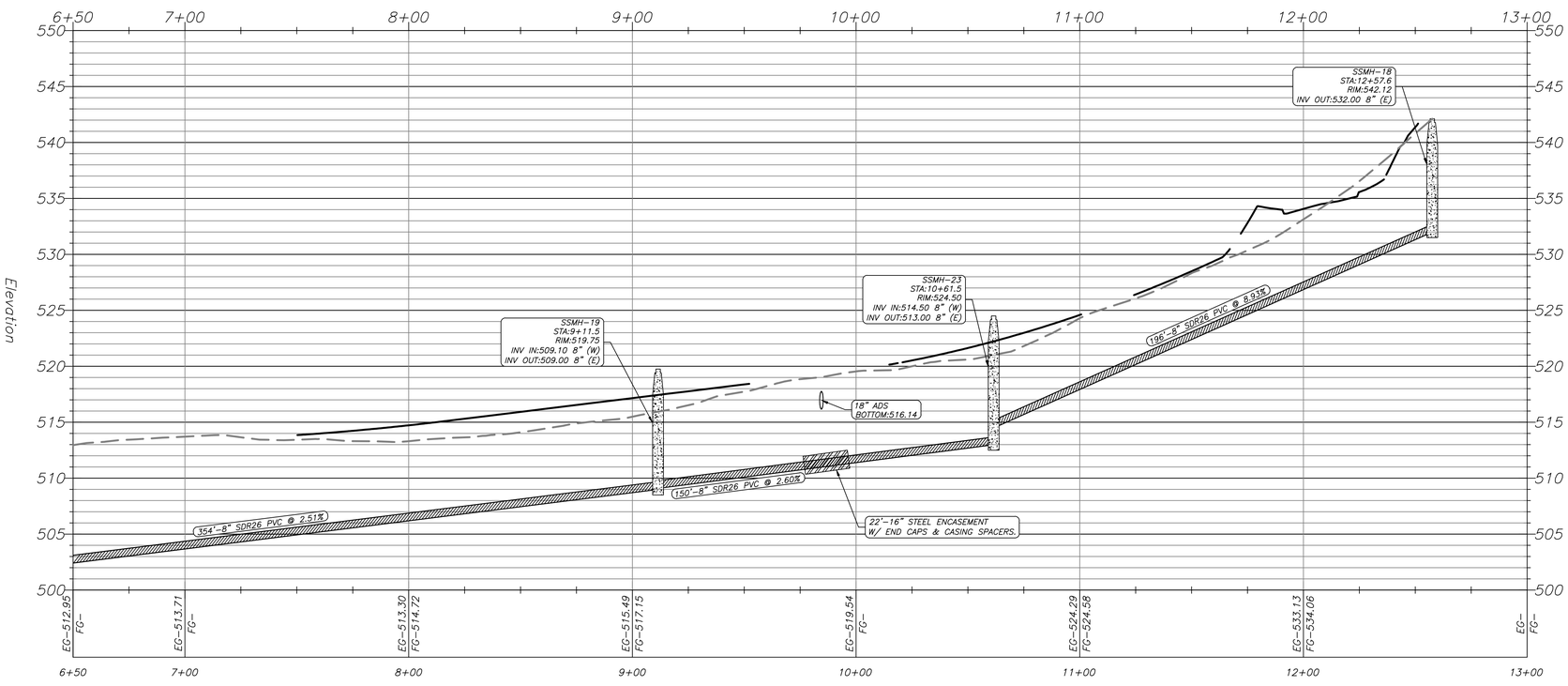


SEWERLINE-5 PROFILE



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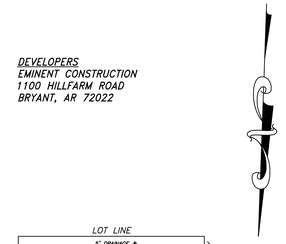

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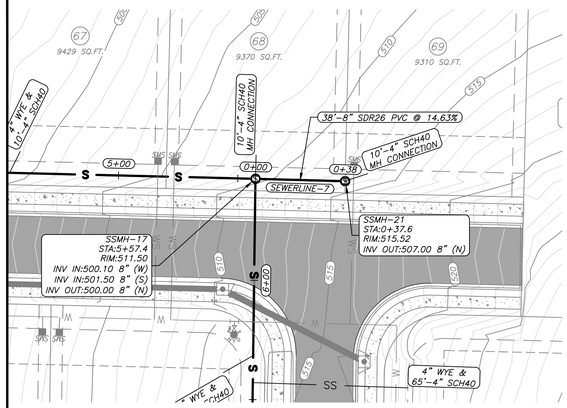

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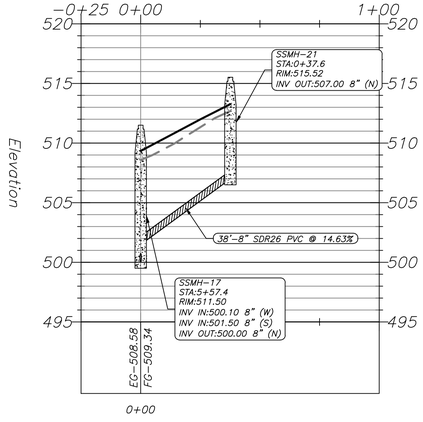

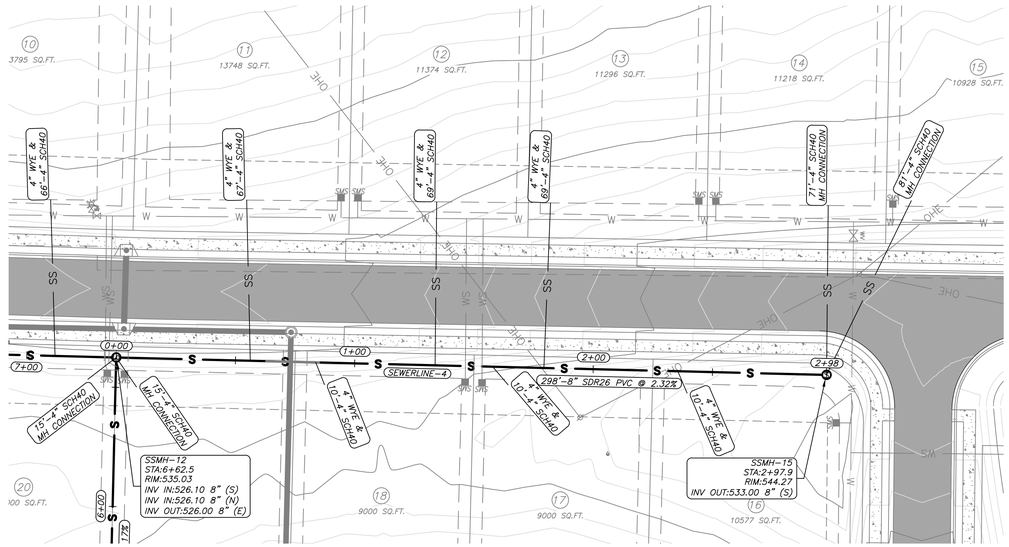

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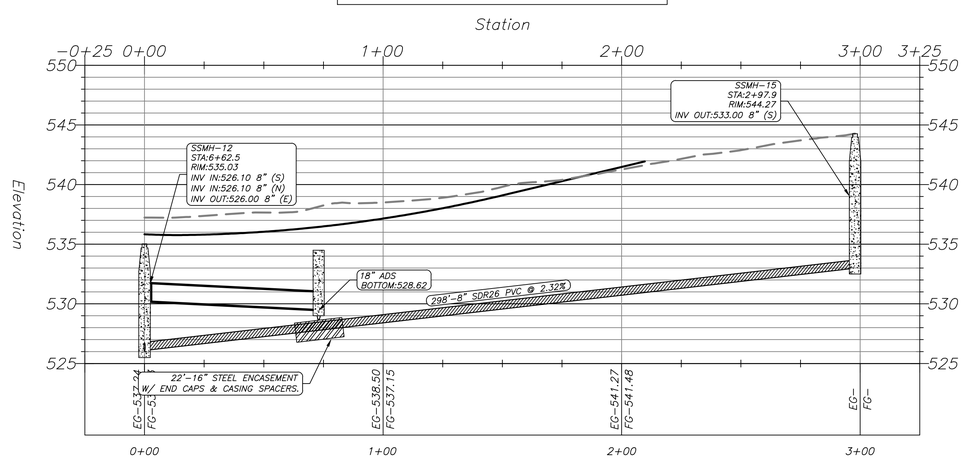

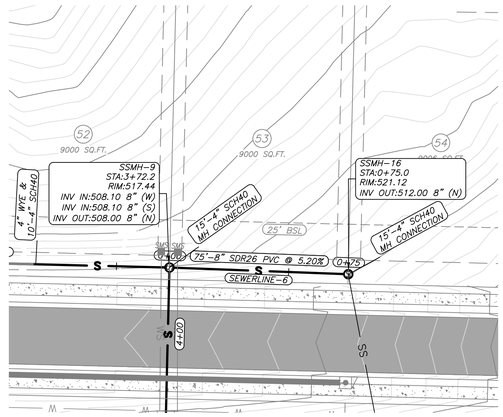

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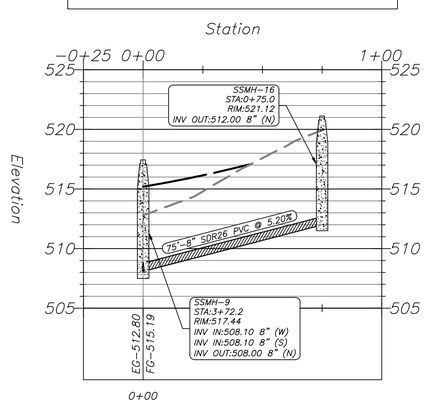

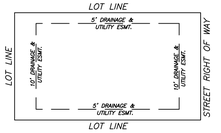

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PHASE 1 PLAN
*INSTALL SILT FENCE AROUND PROJECT
*INSTALL CONSTRUCTION ENTRANCE
*MAINTAIN EXISTING DRAINAGE DURING INITIAL PHASE OF CONSTRUCTION
PHASE 2 PLAN
*INSTALL CONCRETE WASHOUT LOCATION
*INSTALL SILT FENCE AROUND CATCH BASINS
*INSTALL ROCK CHECK DAM AT PIPE OUTFALL
*MAINTAIN SILT FENCE AROUND PROJECT
PHASE 3 PLAN
*INSTALL SILT BARRIERS AROUND CATCH BASINS ON SITE.
*SEED AND HAY DISTURBED AREAS ON THE PROJECT
*MAINTAIN SILT FENCE AROUND PROJECT UNTIL VEGETATION IS COMPLETELY ESTABLISHED.
*ANY DAMAGED BMP MEASURES SHALL BE REPLACED OR REPAIRED BEFORE THE NEXT RAIN EVENT, BUT NO LONGER THAN 3 BUSINESS DAYS FROM DATE OF DAMAGE.

PROPOSED INLET BARRIER (TYP)
PROPOSED SILT FENCE (TYP)
PROPOSED CHECK DAM (TYP)
PROPOSED SILT FENCE
PROPOSED CHECK DAM
PORTABLE SANITATION FACILITY
CONCRETE WASHOUT
SWPPP MAILBOX
CONSTRUCTION ENTRANCE

SITE DRAINAGE AREA FOR SWPPP
ACRES: 16.22
SQ.FT. : 706403.37

GRAPHIC SCALE
60 0 60 120 180
(IN FEET)
1 inch = 60 ft.

2"
8"
1.12" DIA STEEL WIRE
STAPLE DETAIL

6" Minimum
Geotextiles
NOTE: Sediment Trap is to be cleaned out when volume becomes half full.

6' Minimum
Flow
3' 5lb. stone
Geotextiles

NOTES:
1. FOR USE IN SMALL CHANNELS WITH DRAINAGE AREAS OF 50 ACRES OR LESS.
2. MUST BE USED IN CONJUNCTION WITH OTHER APPROPRIATE SEDIMENT CONTROL MEASURES.
3. USE BELOW CULVERT INSTALLATIONS, DAM CONSTRUCTION, OR ANY PROJECT THAT MAY INVOLVE GRADING ACTIVITY DIRECTLY IN A STREAM.
4. NOT INTENDED TO SUBSTANTIALLY IMPOUND WATER.
5. USE AT THE UPSTREAM END OF PONDS OR LAKES.
6. EDGES SHOULD NOT BE HIGHER THAN THE CHANNEL BANKS.
7. CENTER SHOULD BE AT LEAST 6 INCHES LOWER THAN THE OUTER EDGES OF THE DAM AT THE CHANNEL BANKS.
8. HEIGHT SHOULD NOT EXCEED ELEVATION OF UPSTREAM PROPERTY LINE.
9. SIDE SLOPES SHOULD BE 2:1 OR FLATTER.
10. TOP WIDTH SHOULD BE GREATER THAN 6 FEET.
11. EXTEND COMPLETELY ACROSS THE CHANNEL AND SECURELY TIE INTO BOTH CHANNEL BANKS
12. REQUIRES PERIODIC INSPECTION AND MAINTENANCE.
13. SEDIMENT REMOVED WHEN IT REACHES ONE-HALF OF THE ORIGINAL DAM HEIGHT

ROCK DAM
NOT TO SCALE

EXTRA STRENGTH FILTER FABRIC NEEDED WITHOUT WIRE MESH SUPPORT
STEEL OR WOOD POST.
FLOW
10 FT. MAX. SPACING WITH WIRE SUPPORT FENCE
6 FT. MAX. SPACING WITHOUT WIRE SUPPORT FENCE.

PONDING HT.
STEEL OR WOOD POST-- 36" HIGH MAX.
FILTER FABRIC ATTACH SECURELY TO UPSTREAM SIDE OF POST.
RUNOFF
9" MAX. (RECOMMENDED) STORAGE HT.
12" MIN
4 x 6 TRENCH WITH COMPACTED BACKFILL
STANDARD DETAIL
TRENCH WITH NATIVE BACKFILL

PONDING HT.
RUNOFF
12" MIN
8"
GRAVEL
ALTERNATE DETAIL
TRENCH WITH GRAVEL

NOTE:
1.) INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT AND REMOVE SEDIMENT WHEN NECESSARY.
2.) REMOVED SEDIMENT SHALL BE DEPOSITED TO AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.
3.) SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.

SILT FENCE

STRAW BALE
BINDER WIRE
STAPLES (2 PER BALE)
10 MIL PLASTIC LINING
NATIVE MATERIAL (OPTIONAL)
SECTION B-B
NOT TO SCALE
WOOD OR METAL STAPES (2 PER BALE)
5'-0" MINIMUM
B
VARIES
10 MIL PLASTIC LINING
CONCRETE WASHOUT
NOT TO SCALE

3/4" GRAVEL DRAIN
PONDING HEIGHT
OVERFLOW
CURB INLET
BACK OF SIDEWALK
A
CATCH BASIN
WIRE SCREEN OR FILTER FABRIC
2 x 4 WOOD STUD
BACK OF CURB
CURB INLET
CONCRETE BLOCK
CATCH BASIN
WIRE SCREEN OR FILTER FABRIC
CONCRETE BLOCK
PLAN VIEW
SECTION A – A

NOTES:
1.) USE BLOCK AND GRAVEL TYPE SEDIMENT BARRIER WHEN CURB INLET IS LOCATED IN GENTLY SLOPING STREET SEGMENT, WHERE WATER CAN POND AND ALLOW SEDIMENT TO SEPARATE FROM RUNOFF.
2.) BARRIER SHALL ALLOW FOR OVERFLOW FROM SEVERE STORM EVENT.
3.) INSPECT BARRIERS AND REMOVE SEDIMENT AFTER EACH STORM EVENT. SEDIMENT AND GRAVEL MUST BE REMOVED FROM THE TRAVELED WAY IMMEDIATELY.

CURB INLET SEDIMENT BARRIER

GENERAL EROSION CONTROL NOTES

1. THE LOCATION OF KNOWN SURFACE & SUBSURFACE STRUCTURES, PIPE, POWER, GAS, PHONE, ETC. ARE SHOWN ON THE PLANS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING INFORMATION AND SATISFYING THEMSELVES AS TO THE LOCATION OF THE AFOREMENTIONED ITEMS, SHOWN AND NOT SHOWN. ALL REPAIRS OR RELOCATIONS NECESSARY SHALL BE MADE AS REQUIRED BY THE OWNER OF THE UTILITY OR STRUCTURE. THE COST OF SUCH REPAIRS OR RELOCATIONS NECESSARY SHALL BE BORNE BY THE CONTRACTOR.

2. ALL STREETS, DRIVES, WALKS, DRAINAGE STRUCTURES, FENCES, ETC. THAT ARE DISTURBED SHALL BE RESTORED TO THEIR ORIGINAL OR BETTER CONDITION USING LIKE MATERIALS. COST OF SUCH REPAIRS SHALL BE BORNE BY THE CONTRACTOR UNLESS PROVISION FOR PAYMENT IS MADE IN THE PROPOSAL.

3. EROSION CONTROL DEVICES SHALL BE INSTALLED AS THE PROJECT PROGRESSES AND AREAS ARE DISTURBED.

4. THE CONTRACTOR IS REQUIRED TO NOTIFY THE ONE CALL CENTER AT 1-800-482-8998 48 HOURS PRIOR TO DIGGING IN ORDER THAT UNDERGROUND UTILITIES IN THE AREA CAN BE LOCATED.

5. ALL INLETS ON AND ADJACENT TO THE SITE SHALL BE PROTECTED FROM SEDIMENT.

6. STORM WATER CONTROLS SHALL BE INSPECTED AT LEAST ONCE EVERY 7 DAYS.

7. ALL EROSION CONTROL DEVICES ARE TO BE MAINTAINED IN GOOD WORKING CONDITION THROUGHOUT THE DURATION OF THIS PROJECT AND UNTIL PERMANENT VEGETATION IS ESTABLISHED. ALL SEDIMENT TRAPS ARE TO BE CLEANED AS REQUIRED.

8. ALL DISTURBED AREAS LEFT IDLE FOR A PERIOD OF 14 DAYS OR LONGER ARE TO RECEIVE TEMPORARY VEGETATION AND MULCHED.

9. REMOVE EROSION CONTROL DEVICES AFTER PERMANENT VEGETATION IS ESTABLISHED.

10. DEVELOPMENT SHALL ADHERE TO CITY OF BRYANT AND ADEQ STORM WATER REQUIREMENTS.

11. ADDITIONAL EROSION CONTROL MEASURES TO BE EMPLOYED WHERE NECESSARY BY SITE CONDITIONS.

12. CONTRACTOR TO COMPLY WITH ALL OSHA SAFETY REQUIREMENTS.

13. CONTRACTOR TO COORDINATE MAINTENANCE OF TRAFFIC ON PUBLIC RIGHT OF WAY WITH PROPER AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION.

SWPPP NOTES:

1.) DEVELOPMENT SHALL ADHERE TO CITY OF BRYANT AND ADEQ STORMWATER REQUIREMENTS.
2.) SEDIMENT BARRIERS SHALL BE CONSTRUCTED AT EACH INLET UNTIL GRADING IS COMPLETE AND TOP SOIL IS STABILIZED.
3.) A SILT FENCE AND STRAW BALE DIKE SHALL BE PLACED AT POTENTIAL LOCATIONS OF HEAVY EROSION.
4.) TEMPORARY STRAW BALE DIKES ARE TO BE CONSTRUCTED NOT TO POND WATER ON ADJACENT PROPERTY.
5.) ROCK DIKE CHECK DAMS TO BE CONSTRUCTED TO MEET ADEQ REQUIREMENTS WHEN USED IN LIEU OF STRAW BALE DIKES.
6.) ALL TEMPORARY EROSION CONTROLS SHALL BE MAINTAINED UNTIL ALL CONSTRUCTION IS COMPLETE AND PERMANENT GROUND COVER HAS BEEN ESTABLISHED.
7.) ONE OF THE FOLLOWING GROUND COVER METHODS SHALL BE USED AT AREAS OF CLEARING OTHER THAN FUTURE PAVEMENT SURFACES.
STRAW OR HAY-LOOSE 2.0 TONS/ACRE
STRAW OR HAY-TIED, ANCHORED, OR TACKED 1.5 TONS/ACRE
8.) SOIL EXPOSED FOR MORE THAN 14 DAYS WITH NO CONSTRUCTION ACTIVITY SHALL BE SEEDED OR REEMITTED.
9.) CONSTRUCTION ENTRANCES/EXITS SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OF MUD ON TO PUBLIC RIGHT-OF-WAY.
10.) ADDITIONAL EROSION CONTROL MEASURES TO BE EMPLOYED WHERE NECESSARY BY SITE CONDITIONS.
11.) CONTRACTOR SHALL USE "BEST MANAGEMENT PRACTICES" (BMP'S) WHEN IMPLEMENTING AND MAINTAINING SEDIMENT AND RUN-OFF CONTROLS.

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325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225

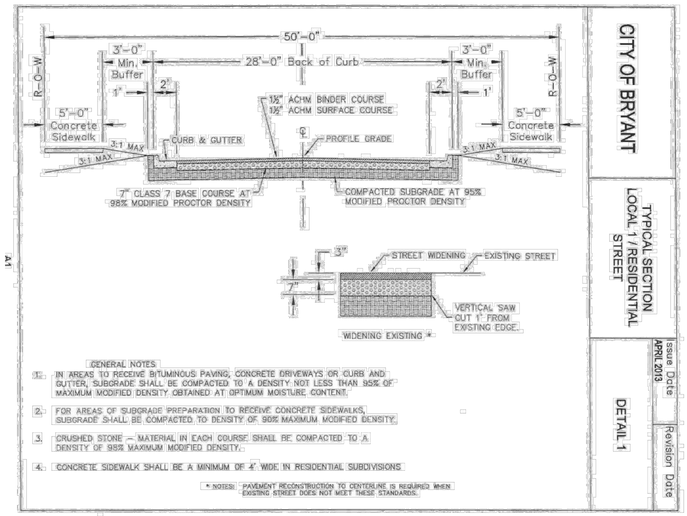
CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

EROSION CONTROL LPLAN
HILLTOP MANOR
SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
EMINENT CONSTRUCTIONS

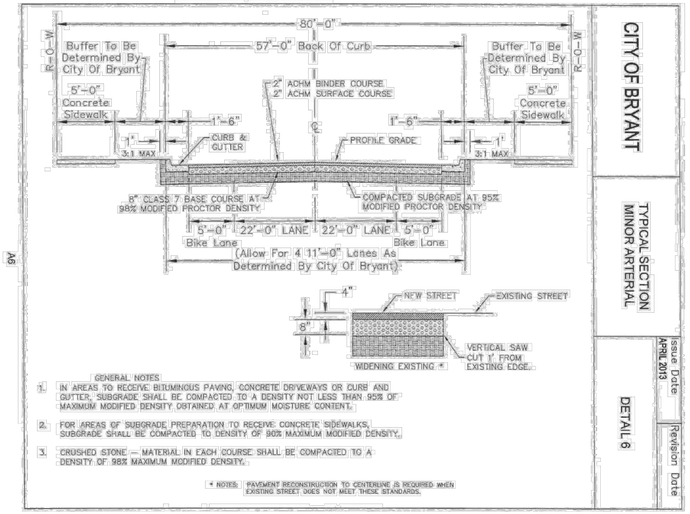
No.	Revisions	Date

PROJECT NO.: 024-034
Date: 3/3/2026
Scale: 1" = 60'
Sheet: 19 of 24



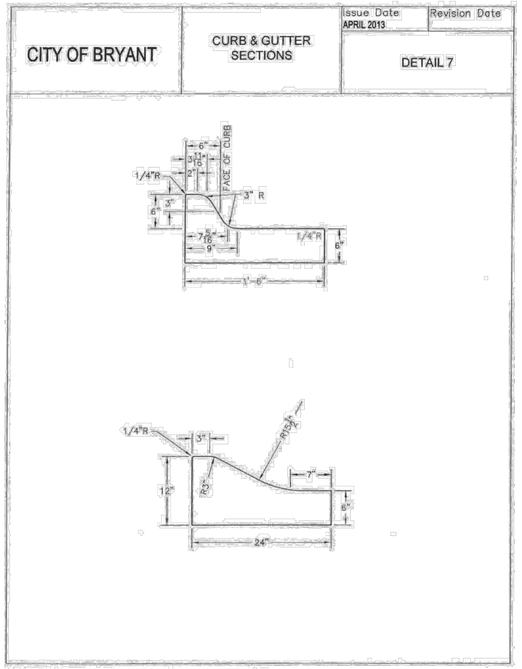
CITY OF BRYANT | TYPICAL SECTION LOCAL / RESIDENTIAL STREET | Issue Date APRIL 2013 | Revision Date | DETAIL 1

A1

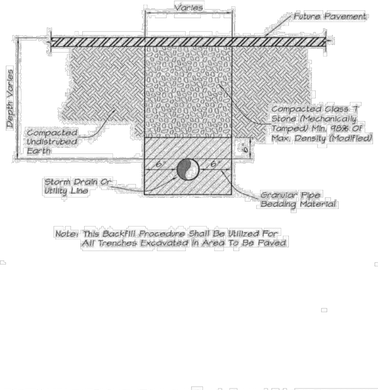


CITY OF BRYANT | TYPICAL SECTION MINOR ARTERIAL | Issue Date APRIL 2013 | Revision Date | DETAIL 6

A6

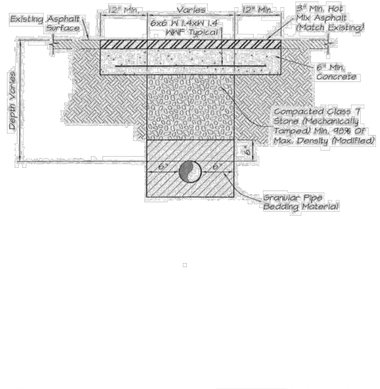


CITY OF BRYANT | TYPICAL SECTION DRAINAGE AND UTILITY CUT BACKFILL ON STREET UNDER CONSTRUCTION | Issue Date APRIL 2013 | Revision Date | DETAIL 8



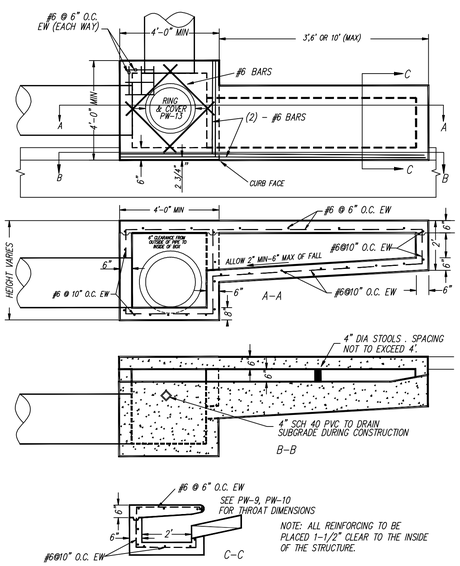
A8

CITY OF BRYANT | TYPICAL SECTION ASPHALT PAVEMENT REPAIR ON EXISTING STREET | Issue Date APRIL 2013 | Revision Date | DETAIL 9

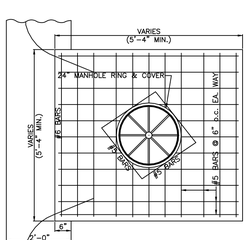


A9

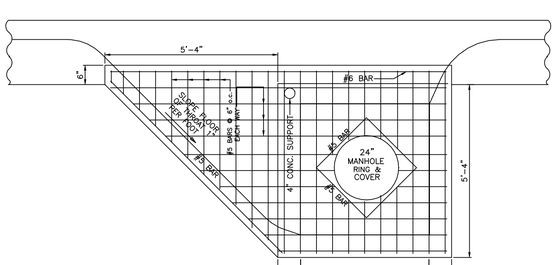
DRAINAGE SWALE
N.T.S.



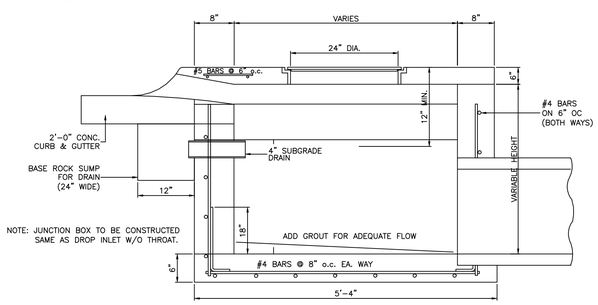
CURB INLET W/ THROAT EXTENSIONS
NOT TO SCALE



TYPICAL DROP INLET
PLAN



DETAIL – DROP INLET
WITH EXTENDED THROAT



TYPICAL DROP INLET – POURED IN PLACE
ELEVATION

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325 W. SOUTH STREET, BENTON, AR 72015 (501)315-7225

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
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ARKANSAS

MISC. DETAILS
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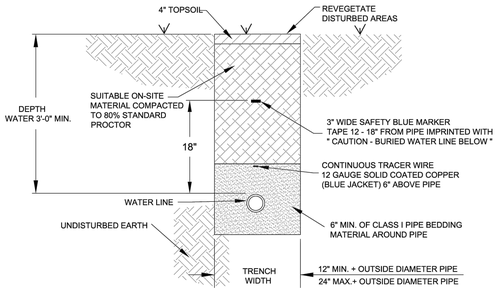
SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

EMINENT CONSTRUCTIONS
Prepared For:

No.	Revisions	Date

PROJECT NO.: 024-034
Date: 3/3/2026
Scale: NTS
Sheet: 20 of 24



NOTES:

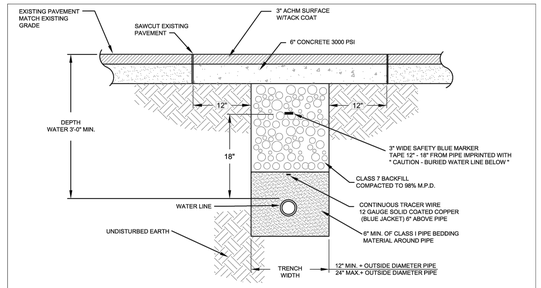
1. ALL VALVES, BENDS, ETC. SHALL BE RESTRAINED.
2. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING WATER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE WATER SYSTEM.
3. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
4. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.
5. MAXIMUM PIPE COVER SHALL BE 60" UNDER NORMAL CONDITIONS. COVER GREATER THAN 60" MAY BE ALLOWED FOR SHORT DISTANCES WHERE REQUIRED BY FIELD CONDITIONS. NO HYDRANT SHALL BE ALLOWED WHERE LINES ARE GREATER THAN 60" DEEP.

WATER MAIN TRENCH

(NON-PAVED AREA)

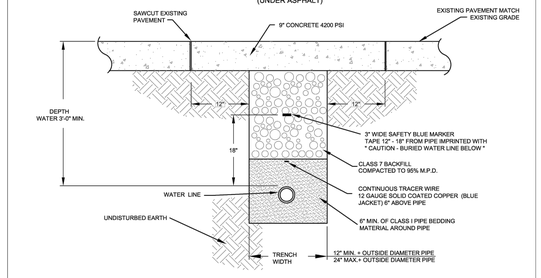
CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W1
DESCRIPTION: WATER MAIN TRENCH (NON-PAVED AREA)
DRAWN BY: | CHECKED BY: | FILE: W1-Water Trench (Non-Paved Area).dwg



WATER MAIN TRENCH

(UNDER ASPHALT)



WATER MAIN TRENCH

(UNDER CONCRETE)

NOTES:

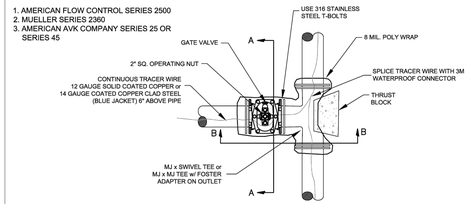
1. ALL VALVES, BENDS, ETC. SHALL BE RESTRAINED.
2. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING WATER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE WATER SYSTEM.
3. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
4. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.
5. MAXIMUM PIPE COVER SHALL BE 60" UNDER NORMAL CONDITIONS. COVER GREATER THAN 60" MAY BE ALLOWED FOR SHORT DISTANCES WHERE REQUIRED BY FIELD CONDITIONS. NO HYDRANT SHALL BE ALLOWED WHERE LINES ARE GREATER THAN 60" DEEP.

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

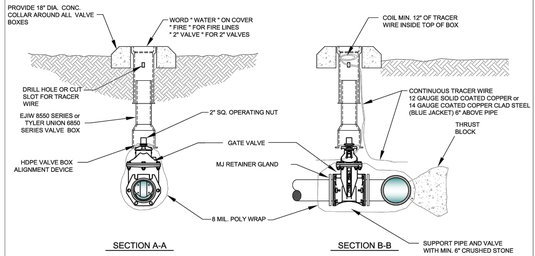
TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W2
DESCRIPTION: WATER MAIN TRENCH (UNDER PAVEMENT)
DRAWN BY: | CHECKED BY: | FILE: W2-Water Trench (Under Pavement).dwg

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45



PLAN



SECTION A-A SECTION B-B

NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

GATE VALVE DETAIL

2" - 12"

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

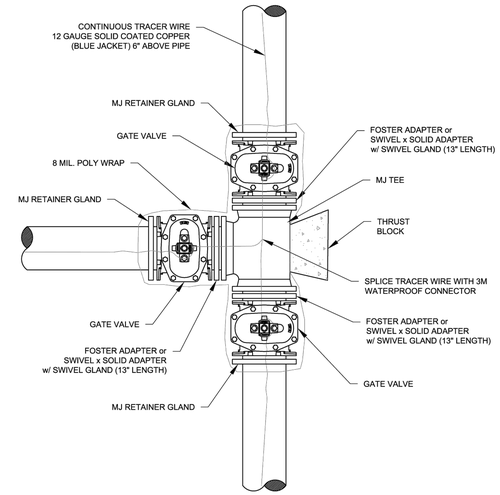
TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W4
DESCRIPTION: GATE VALVE
DRAWN BY: | CHECKED BY: | FILE: W4-Gate Valve.dwg

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45

NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.



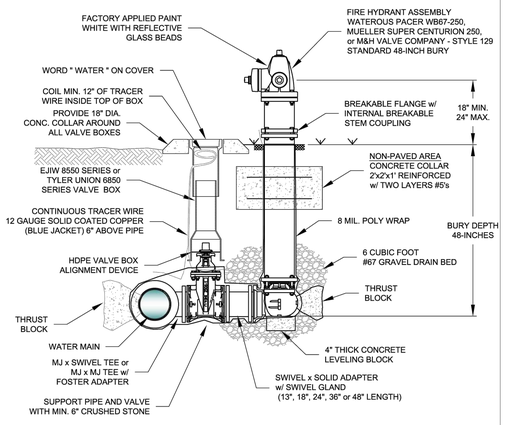
3-WAY GATE VALVE DETAIL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W5
DESCRIPTION: 3-WAY GATE VALVES
DRAWN BY: | CHECKED BY: | FILE: W5-3-Way Gate Valves.dwg

NOTES:

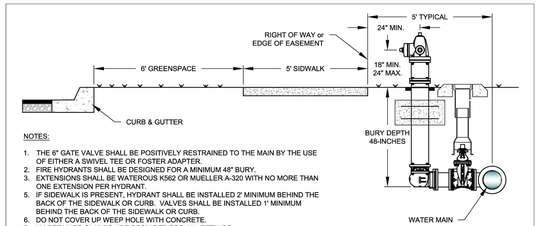
1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. BURY LINE OF HYDRANT SHALL BE NO LESS THAN THE PROPOSED FINISHED ELEVATION OF BACK OF CURB, OR SIDEWALK, WHICHEVER IS GREATER.
4. EXTENSIONS SHALL BE WATEROUS K562 OR MUELLER A-320 WITH NO MORE THAN ONE EXTENSION PER HYDRANT.
5. IF SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
8. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
9. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.



FIRE HYDRANT & VALVE CONNECTION

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W8
DESCRIPTION: FIRE HYDRANT AND VALVE CONNECTION
DRAWN BY: | CHECKED BY: | FILE: W8-Fire Hydrant and Valve.dwg



NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. EXTENSIONS SHALL BE WATEROUS K562 OR MUELLER A-320 WITH NO MORE THAN ONE EXTENSION PER HYDRANT.
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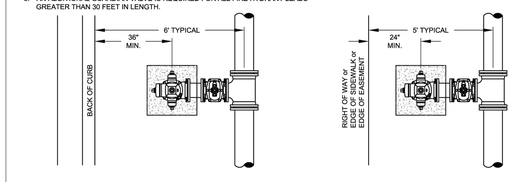
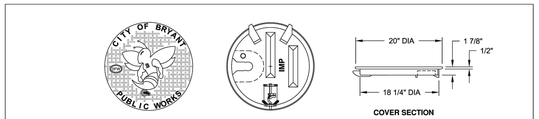
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
8. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.

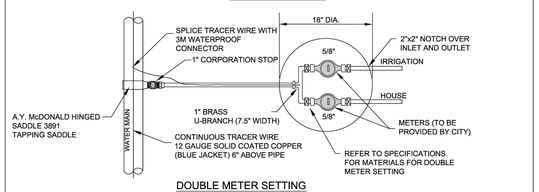


CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W9
DESCRIPTION: FIRE HYDRANT PLACEMENT
DRAWN BY: | CHECKED BY: | FILE: W9-Fire Hydrant Placement.dwg

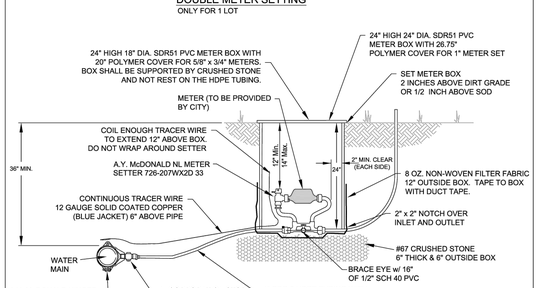


WATER METER LID



DOUBLE METER SETTING

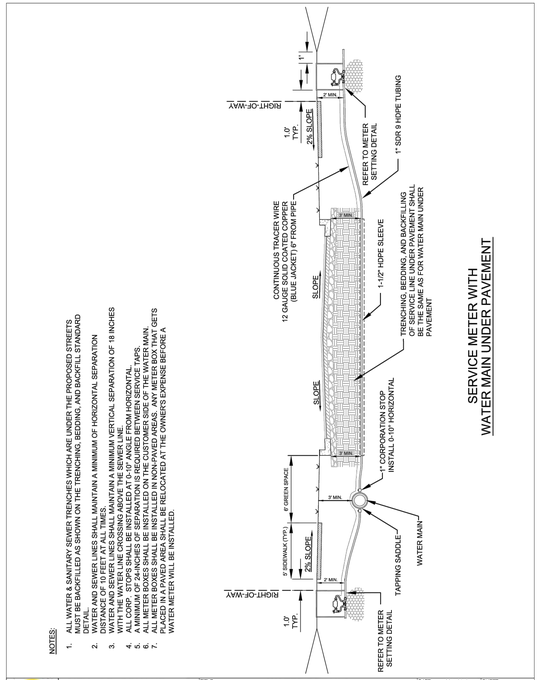
ONLY FOR 1 LOT



SINGLE METER SETTING

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W10
DESCRIPTION: METER SETTINGS
DRAWN BY: | CHECKED BY: | FILE: W10-Meter Settings.dwg



NOTES:

1. ALL WATER & SANITARY SEWER TRENCHES WHICH ARE UNDER THE PROPOSED STREETS MUST BE BACKFILLED AS SHOWN ON THE TRENCHING, BEDDING, AND BACKFILL STANDARD DETAIL.
2. WATER AND SEWER LINES SHALL MAINTAIN A MINIMUM OF HORIZONTAL SEPARATION OF 10 FEET, EDGE TO EDGE, WHENEVER POSSIBLE.
3. WATER AND SEWER LINES SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION OF 18 INCHES WITH THE WATER LINE CROSSING ABOVE THE SEWER LINE.
4. WATER LINES SHALL BE INSTALLED A MINIMUM 10 FEET FROM HORIZONTAL.
5. A MINIMUM OF 24-INCHES OF SEPARATION IS REQUIRED BETWEEN SERVICE TAPS.
6. ALL SERVICE LINES SHALL BE INSTALLED PERPENDICULAR TO THE WATER MAIN.
7. ALL METER BOXES SHALL BE INSTALLED IN NON-PAVED AREAS. ANY METER BOX THAT GETS PLACED IN A PAVED AREA SHALL BE RELOCATED AT THE OWNER'S EXPENSE BEFORE A WATER METER WILL BE INSTALLED.

SERVICE METER WITH WATER MAIN UNDER PAVEMENT

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS** | DATE: APRIL 2015 REVISED | SHEET: W11
DESCRIPTION: METER SERVICE LINE UNDER PAVEMENT
DRAWN BY: | CHECKED BY: | FILE: W11-Meter Service Line Under Pavement.dwg

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

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

MISC. DETAILS
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

EMINENT CONSTRUCTIONS

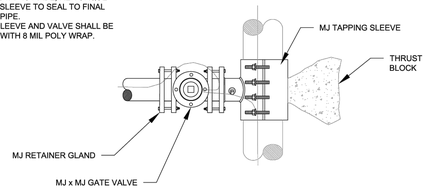
Prepared For:

No.	Revisions	Date

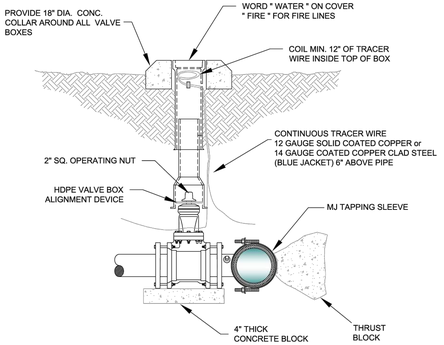
PROJECT NO.: 024-034
Date: 3/3/2026
Scale: NTS
Sheet: 21 of 24

NOTES:

1. TAPPING SLEEVE SHALL BE SMITH-BLAIR 662 OR FORD FAST.
2. AFTER THE TAP IS MADE, RE-TORQUE BOLTS ON SLEEVE TO SEAL TO FINAL SHAPE OF PIPE.
3. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL POLY WRAP.



PLAN VIEW

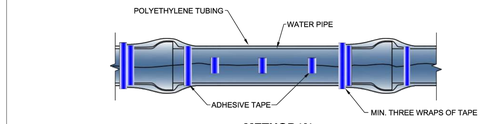


PROFILE VIEW

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

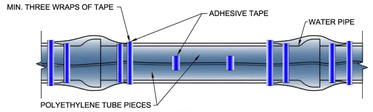
TITLE: **WATER DETAILS**
DESCRIPTION: **TAPPING SLEEVE AND VALVE**
DRAWN BY: CHECKED BY: FILE: W13-Tapping Sleeve and Valve.dwg

DATE: APRIL 2015 REVISED
SHEET: **W13**



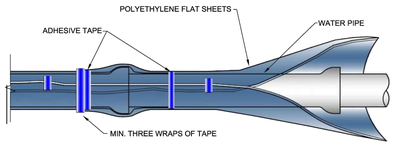
METHOD 'A'

METHOD 'A' USES ONE LENGTH OF POLYETHYLENE TUBE, OVERLAPPED AT THE JOINTS A MINIMUM OF 2 FEET.



METHOD 'B'

METHOD 'B' USES SEPARATE PIECES OF POLYETHYLENE TUBE FOR THE BARREL OF THE PIPE AND THE JOINTS. SHORT PIECES SHALL BE APPROXIMATELY 6' LONG AND OVERLAP BARREL SECTION BY A MINIMUM OF 2 FEET.



METHOD 'C'

METHOD 'C' - USED FOR PIPE-SHAPED AND ODD- SHAPED APPURTENANCES SUCH AS BENDS, REDUCERS, OFFSETS, VALVES, TEES, ETC.

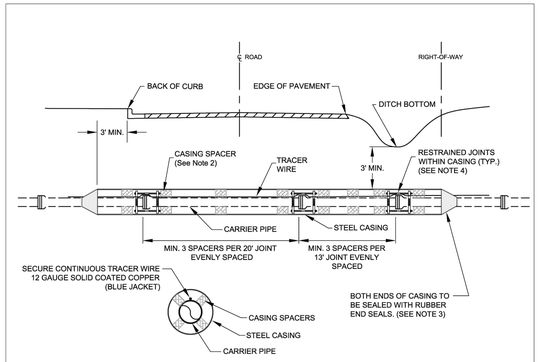
ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE POLY WRAPPED.

THE ANSI/AWWA C105/A21.5 STANDARD OUTLINES THREE METHODS OF INSTALLING POLYETHYLENE ENCASEMENT/ SLEEVING.

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS**
DESCRIPTION: **POLYETHYLENE PROTECTION MATERIAL**
DRAWN BY: CHECKED BY: FILE: W14-Poly Wrap.dwg

DATE: APRIL 2015 REVISED
SHEET: **W14**



NOTES:

1. STEEL CASING SHALL BE CONSTRUCTED OF SPIRAL OR STRAIGHT WELDED STEEL WITH A MINIMUM DIAMETER AND THICKNESS AS SHOWN BELOW (SEE TABLE).
2. PROVIDE CASING SPACERS BY CASCADE MODEL CCS AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO., OR APPROVED EQUAL.
3. PROVIDE END SEALS BY CASCADE MODEL CCES AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO., OR APPROVED EQUAL.
4. WHERE ENCASEMENTS ARE GREATER THAN 25 FEET IN LENGTH, SELF-RESTRAINING GASKETS OR BELL RESTRAINTS SHALL BE USED FOR ALL JOINTS INSIDE THE ENCASEMENT PIPE AND FOR THE FIRST JOINT IN EACH DIRECTION OUTSIDE THE ENCASEMENT PIPE.
5. BELL RESTRAINTS FOR PVC SHALL BE SERIES1900 RESTRAINT HARNESS AND BELL RESTRAINTS FOR DIP SHALL BE SERIES 1700 RESTRAINT HARNESS BY EBAA IRON INC., OR APPROVED EQUAL.
6. DIRECT BURY STEEL ENCASEMENT SHALL BE POLY WRAPPED.
7. JACK AND BORE STEEL ENCASEMENT SHALL HAVE 178 HP MAGNESIUM ANODES CAD WELDED TO THE END OF THE ENCASEMENT PIPE.

CARRIER AND CASING SIZES

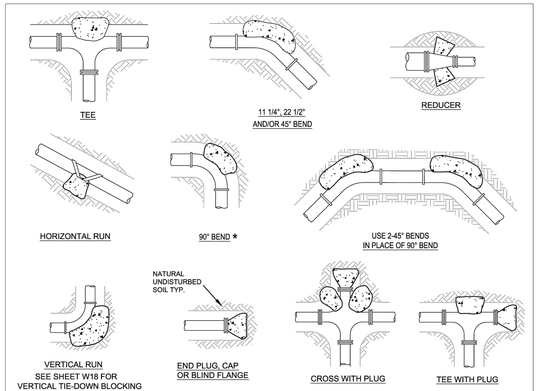
CARRIER (ID)	2"	3"	4"	6"	8	10"	12"
CASING (ID)	5"	6"	8"	12"	16"	20"	24"
CASING WALL THICKNESS	0.250	0.250	0.250	0.250	0.250	0.250	0.375
CARRIER (ID)	14" - 16"	18" - 20"	24"	30"	36"	42"	48"
CASING (ID)	30"	36"	42"	48"	54"	60"	72"
CASING WALL THICKNESS	0.375	0.500	0.625	0.625	0.625	0.625	0.750

STEEL ENCASEMENT

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS**
DESCRIPTION: **STEEL ENCASEMENT**
DRAWN BY: CHECKED BY: FILE: W15-Steel Encasement.dwg

DATE: APRIL 2015 REVISED
SHEET: **W15**



THRUST BLOCK SCHEDULE
(2000 PSF SOIL, 200 PSI WATER PRESSURE, 100 PSI WATER HAMMER)

FITTING SIZE	BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS) PLUG / TEE OR CAP	BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	FITTING SIZE	VOLUME OF THRUST BLOCK IN CU. FEET (VERTICAL BENDS) BEND ANGLE 90° *	45°	22 1/2°	11 1/4°	H/D DIAM.	EMBED-MENT
2, 3, & 4	1.9	2.7	1.4	0.7	0.4	2, 3, & 4	35.5	19.2	9.8	4.9	50"	30"
6	5.6	7.9	4.3	2.2	1.1	6	105.8	57.2	29.2	14.7	70"	30"
8	9.6	13.6	7.4	3.8	1.9	8	181.9	98.5	50.2	25.2	75"	30"
12	20.5	29.0	15.7	8.0	4.0	12	387.1	209.5	106.8	53.7	1.0"	30"
16	35.7	50.4	27.3	13.9	7.0	16	672.8	364.0	185.6	93.2	1.0"	36"
18	44.5	63.4	34.3	17.5	18.8	18	844.7	457.2	233.1	117.1	1.0"	36"
24	78.4	110.9	60.0	30.6	15.4	24	1478.7	800.3	408.0	205.0	1.5"	36"

* 90 DEGREE BENDS SHALL ONLY BE USED ON A BY-EXCEPTION BASIS, AND MUST EACH BE SPECIFICALLY APPROVED BY CITY.

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. WRAP PIPE JOINTS IN 8 MIL "POLYETHLENE" BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF. SOIL BEARING, AND UPON A PIPELINE PRESSURE OF 200 psi. PLUS 100 psi. WATER HAMMER. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON FITTINGS SHALL BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

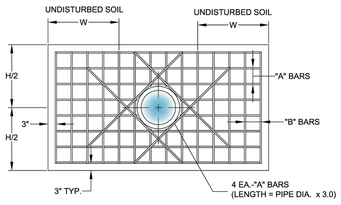
THRUST BLOCKING

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS**
DESCRIPTION: **THRUST BLOCKING**
DRAWN BY: CHECKED BY: FILE: W16-Thrust Blocking.dwg

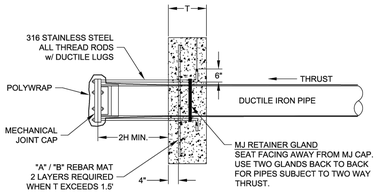
DATE: APRIL 2015 REVISED
SHEET: **W16**

ANCHOR COLLAR SCHEDULE					
PIPE SIZE	* MINIMUM DIMENSIONS * W	H	T	REINFORCING BARS "A" BARS	"B" BARS
6"	1.5'	2.0'	1.0'	#6 @ 6"	#6 @ 6"
8"	2.0'	2.5'	1.0'	#6 @ 6"	#6 @ 6"
12"	2.5'	4.0'	1.5'	#6 @ 6"	#6 @ 6"
16"	3.5'	5.0'	1.5'	#6 @ 6"	#6 @ 6"
20"	5.0'	5.5'	2.0'	#6 @ 6"	#6 @ 6"
24"	6.5'	6.0'	2.0'	#7 @ 6"	#7 @ 10"



NOTES:

1. DESIGN PRESSURE IS 200 PSI PLUS 100 PSI SURGE AND 2,000 PSI SOIL BEARING.
2. ALL DIMENSIONS ARE MINIMUM REQUIREMENTS. ACTUAL FIELD CONDITIONS MAY REQUIRE LARGER DIMENSIONS.
3. ALL RETAINER GLANDS SHALL BE MEGA-LUG BY EBAA IRON.



CITY OF BRYANT, AR
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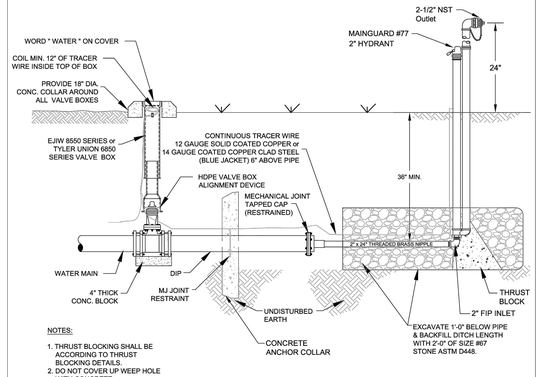
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS**
DESCRIPTION: **ANCHOR COLLAR**
DRAWN BY: CHECKED BY: FILE: W18-Anchor Collar.dwg

DATE: APRIL 2015 REVISED
SHEET: **W18**



NOTES:

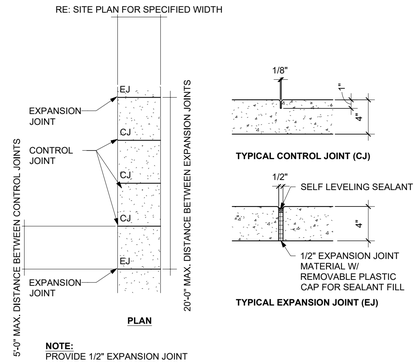
1. THRUST BLOCKING SHALL BE ACCORDING TO THRUST BLOCKING DETAILS.
2. DO NOT COVER UP WEEP HOLE WITH CONCRETE.

BLOW-OFF ASSEMBLY

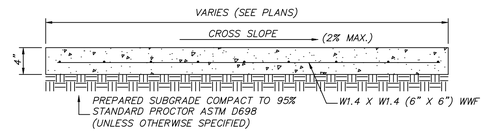
CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0468

TITLE: **WATER DETAILS**
DESCRIPTION: **BLOW-OFF ASSEMBLY**
DRAWN BY: CHECKED BY: FILE: W19-Blow-off Assembly.dwg

DATE: APRIL 2015 REVISED
SHEET: **W19**



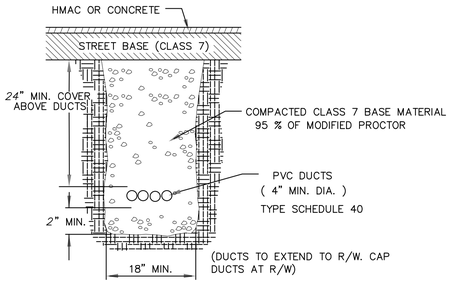
NOTE:
PROVIDE 1/2" EXPANSION JOINT AND SEALANT AS NOTED AND WHERE SIDEWALK ABUTS STRUCTURES OR OTHER SIDEWALKS.



CONCRETE SIDEWALK SPECIFICATIONS

NTS

* NOTES:
1. PORTLAND CEMENT CONCRETE 3000 PSI. MIN.
2. USE W1.4 X W1.4 (6" X 6") WWF SHEET REINFORCEMENT. CUT ½ THE WIRES AT CONTROL JOINTS.
3. CONCRETE TO CONTAIN 3-5% AIR ENTRAINMENT.
4. FINISH TO BE LIGHT BROOM FINISH.
5. DETECTABLE WARNING DEVICES TO BE INSTALLED AT RAMPS PER ADA REQUIREMENTS.
6. MAX CROSS SLOPE 2%. MAX LONGITUDINAL SLOPE 1:12.
7. CONTROL JOINTS PER CONC. WALK CONTROL JOINT DETAIL.



TYPICAL SECTION
4" UTILITY DUCTS

NOT TO SCALE

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Richardson Engineering, PLLC No. 2519 CERTIFICATE OF AUTHORIZATION ARKANSAS

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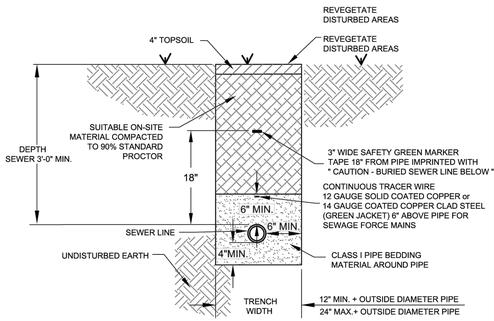
BRYANT, ARKANSAS

Prepared For: EMINENT CONSTRUCTIONS

No.	Revisions	Date

PROJECT NO.: 024-034
Date: 3/3/2026
Scale: NTS
Sheet: 22 of 24



NOTES:

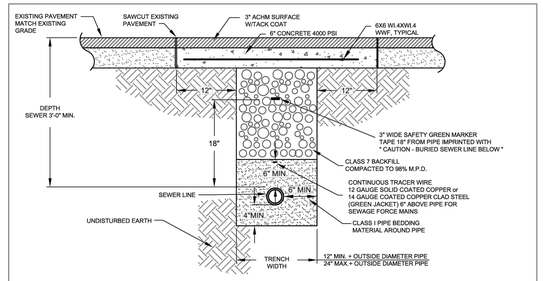
1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING SEWER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE SEWER SYSTEM.
2. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
3. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.

SEWER TRENCH

(NON-PAVED AREA)

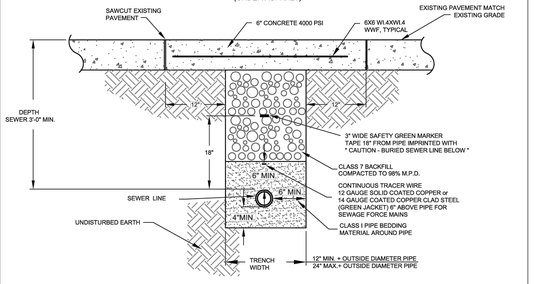
CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **SEWER TRENCH (NON-PAVED AREA)** | DRAWN BY: | CHECKED BY: | FILE: S1-Sewer Trench (Non-Paved Area).dwg | DATE: APRIL 2015 | REVISED | SHEET: **S1**



SEWER TRENCH

(UNDER ASPHALT)



SEWER TRENCH

(UNDER CONCRETE)

NOTES:

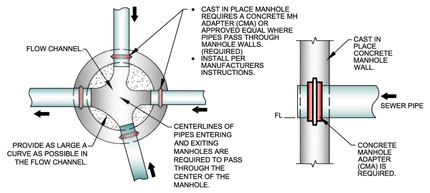
1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING SEWER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE SEWER SYSTEM.
2. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
3. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **SEWER TRENCH (UNDER PAVEMENT)** | DRAWN BY: | CHECKED BY: | FILE: S2-Sewer Trench (Under Pavement).dwg | DATE: APRIL 2015 | REVISED | SHEET: **S2**

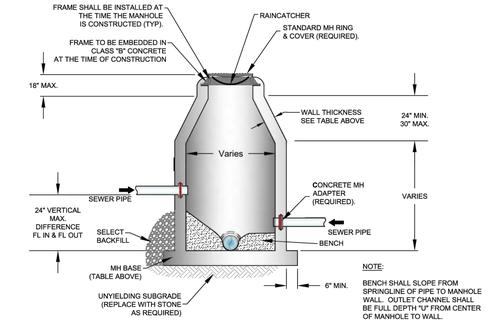
Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	6"	6"	24" (< or Equal to 24" Pipes)
5' DIA	8"	8"	
6' DIA	8"	12"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE



MANHOLE FLOW CHANNEL

CONCRETE MANHOLE ADAPTER (CMA) DETAIL



NOTE:

BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO WALL.

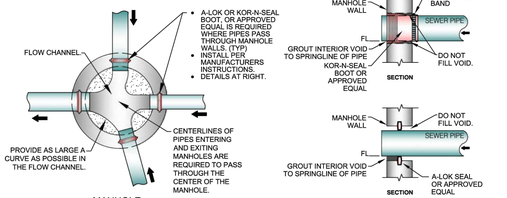
CAST-IN-PLACE MANHOLE

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **CAST-IN-PLACE MANHOLE** | DRAWN BY: | CHECKED BY: | FILE: S4-Cast In Place Manhole.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S4**

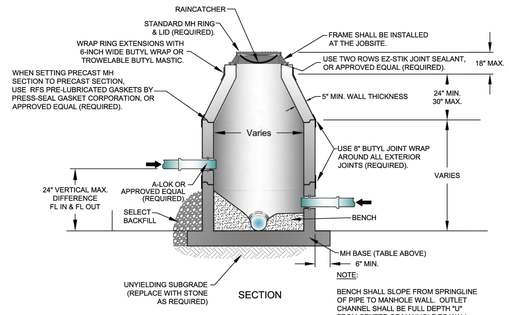
Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	5"	6"	24" (< or Equal to 24" Pipes)
5' DIA	7"	8"	
6' DIA	7"	8"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE



MANHOLE FLOW CHANNEL

CONNECTION DETAILS



SECTION

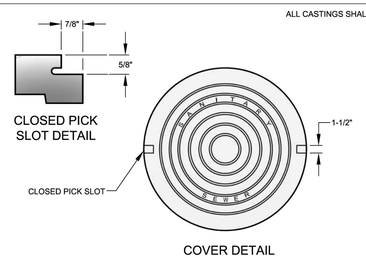
NOTE:

BENCH SHALL SLOPE FROM SPRINGLINE OF PIPE TO MANHOLE WALL. OUTLET CHANNEL SHALL BE FULL DEPTH "U" FROM CENTER OF MANHOLE TO WALL.

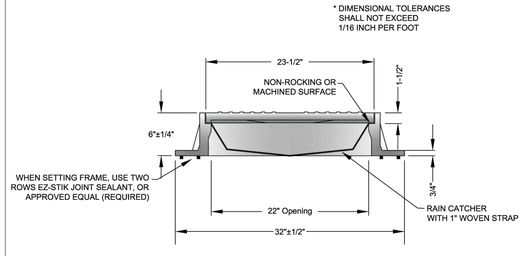
PRECAST MANHOLE

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **PRECAST MANHOLE** | DRAWN BY: | CHECKED BY: | FILE: S5-Precast Manhole.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S5**



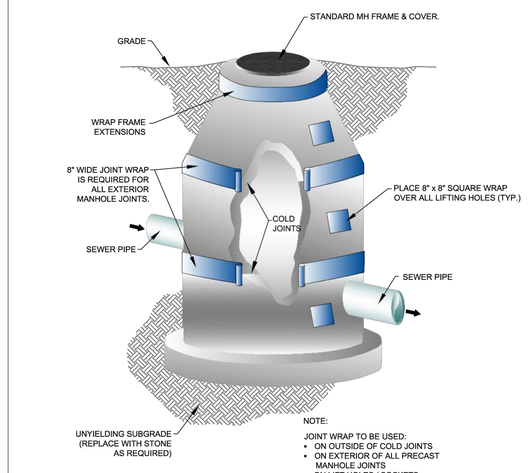
1. MINIMUM WEIGHT OF RING: 100 POUNDS
2. MINIMUM WEIGHT OF COVER: 110 POUNDS
3. COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS.
4. CASTINGS SHALL BE "MADE IN USA"



FRAME AND COVER DETAIL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **MANHOLE FRAME AND COVER** | DRAWN BY: | CHECKED BY: | FILE: S6-Manhole Frame and Cover.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S6**



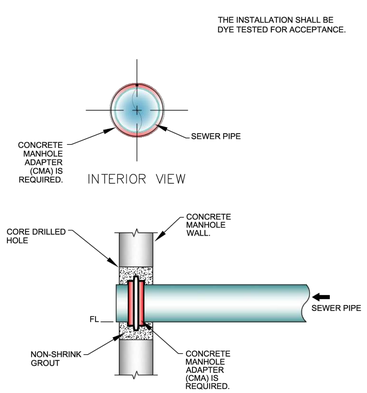
NOTE:

JOINT WRAP TO BE USED:
- ON OUTSIDE OF COLD JOINTS
- ON EXTERIOR OF ALL PRECAST MANHOLE JOINTS
- ON LIFT HOLES / SOCKETS

MANHOLE JOINT WRAP

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **MANHOLE JOINT WRAP** | DRAWN BY: | CHECKED BY: | FILE: S9-Manhole Joint Wrap.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S9**



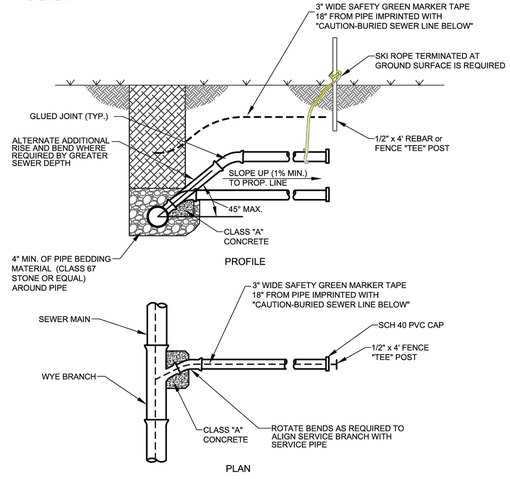
MANHOLE CORING DETAILS

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **MANHOLE CORING** | DRAWN BY: | CHECKED BY: | FILE: S11-Manhole Coring.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S11**

NOTES:

1. MODIFIED RISER LATERAL SHALL BE USED WHEN DEPTH OF COVER EXCEEDS 7'-0"
2. PLACE CLASS "A" CONCRETE UNDER EACH WYE BRANCH TO PREVENT CRACKING OR TWISTING UNDER EARTH LOADS.
3. SERVICE LATERAL STUBS SHALL TERMINATE AT LEAST 2 FEET INSIDE THE PROPERTY LINE BUT IN NO CASE SHALL THE SERVICE LATERAL STUB TERMINATE AT A DISTANCE LESS THAN 8 FEET FROM THE SANITARY SEWER MAIN.
4. BURY A 1/2" x 4' STEEL TEE FENCE POST AT END OF SERVICE LATERAL STUB AND BACKFILL TO FINISHED GRADE OF PROPERTY.
5. 4" DUCTILE IRON PIPE, LINED FOR SANITARY SEWER AND 4" DUCTILE IRON M.J. FITTINGS, LINED FOR SANITARY SEWER, SHALL BE INSTALLED FOR SERVICES BURIED AT DEPTHS OF 14 FEET AND GREATER.



SEWER SERVICE LATERAL

CITY OF BRYANT, AR
WATER UTILITIES
210 S.W. 3rd. STREET
BRYANT, AR
PHONE: (501) 943-0488

TITLE: **SEWER DETAILS** | DESCRIPTION: **SEWER SERVICE LATERAL** | DRAWN BY: | CHECKED BY: | FILE: S15-Sewer Service Lateral.dwg | DATE: APRIL 2015 | REVISED | SHEET: **S15**

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

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

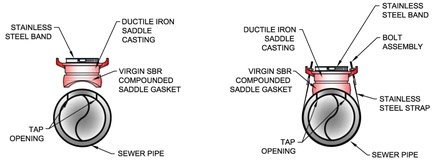
MISC. DETAILS
HILLTOP MANOR SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

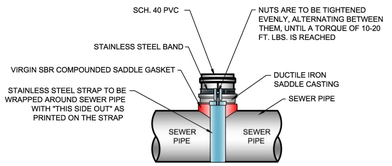
EMINENT CONSTRUCTIONS

Prepared For:

No.	Revisions	Date

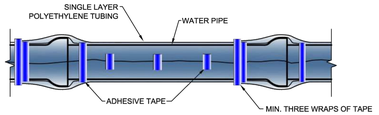
PROJECT NO.: 024-034
Date: 3/3/2026
Scale: NTS
Sheet: 23 of 24





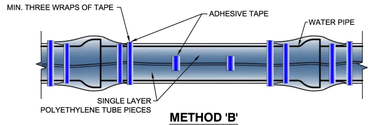
SEWER SERVICE SADDLE

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: **SEWER DETAILS**	DATE: APRIL 2015 REVISED --- --- --- --- ---	SHEET: **S17**
	DESCRIPTION: **SEWER SERVICE SADDLE**		
	DRAWN BY: CHECKED BY: FILE: S17-Sewer Service Saddle.dwg		



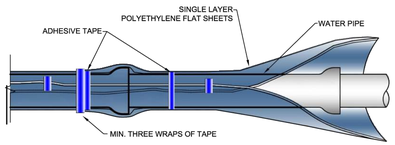
METHOD 'A'

METHOD 'A' USES ONE LENGTH OF POLYETHYLENE TUBE, OVERLAPPED AT THE JOINTS A MINIMUM OF 2 FEET.



METHOD 'B'

METHOD 'B' USES SEPARATE PIECES OF POLYETHYLENE TUBE FOR THE BARREL OF THE PIPE AND THE JOINTS. SHORT PIECES SHALL BE APPROXIMATELY 6" LONG AND OVERLAP BARREL SECTION BY A MINIMUM OF 2 FEET.



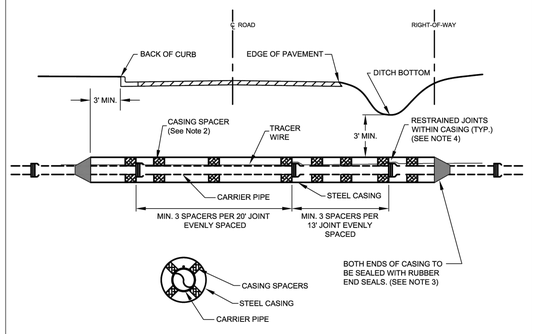
METHOD 'C'

METHOD 'C' - USED FOR PIPE-SHAPED AND ODD- SHAPED APPURTENANCES SUCH AS BENDS, REDUCERS, OFFSETS, VALVES, TEES, ETC.

ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE POLY WRAPPED.

THE ANSI/AWWA C105/A21.5 STANDARD OUTLINES THREE METHODS OF INSTALLING POLYETHYLENE ENCASEMENT/ SLEEVING.

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: **SEWER DETAILS**	DATE: APRIL 2015 REVISED --- --- --- --- ---	SHEET: **S20**
	DESCRIPTION: **POLYETHYLENE PROTECTION MATERIAL**		
	DRAWN BY: CHECKED BY: FILE: S20-Poly Wrap.dwg		



NOTES:

1. STEEL CASING SHALL BE CONSTRUCTED OF SPIRAL OR STRAIGHT WELDED STEEL WITH A MINIMUM DIAMETER AND THICKNESS AS SHOWN BELOW (SEE TABLE).
2. PROVIDE CASING SPACERS BY CASCADE MODEL CCS AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO., OR APPROVED EQUAL, MINIMUM 12-INCHES WIDE.
3. PROVIDE END SEALS BY CASCADE MODEL CCES AS MANUFACTURED BY CASCADE WATERWORKS MFG. CO., OR APPROVED EQUAL.
4. ONE CASING SPACER SHALL BE PLACED AT THE INSERTION STOP LINE TO RESIST OVER INSERTION.
5. ALL FORCE MAINS SHALL BE FULLY RESTRAINED WHERE ENCASEMENTS ARE GREATER THAN 25 FEET IN LENGTH, SELF-RESTRAINING GASKETS OR BELL RESTRAINTS SHALL BE USED FOR ALL JOINTS INSIDE THE ENCASEMENT PIPE AND FOR THE FIRST JOINT IN EACH DIRECTION OUTSIDE THE ENCASEMENT PIPE.
6. DIRECT BURY STEEL ENCASEMENT SHALL BE POLY WRAPPED.

CARRIER AND CASING SIZES

CARRIER (ID)	2"	3"	4"	6"	8	10"	12"
CASING (ID)	5"	6"	8"	12"	16"	20"	24"
CASING WALL THICKNESS	0.250	0.250	0.250	0.250	0.250	0.250	0.375
CARRIER (ID)	14" - 16"	18" - 20"	24"	30"	36"	42"	48"
CASING (ID)	30"	36"	42"	48"	54"	60"	72"
CASING WALL THICKNESS	0.375	0.500	0.625	0.625	0.625	0.625	0.750

STEEL ENCASEMENT

CITY OF BRYANT, AR WATER UTILITIES 210 S.W. 3rd. STREET BRYANT, AR PHONE: (501) 943-0468	TITLE: **SEWER DETAILS**	DATE: APRIL 2015 REVISED --- --- --- --- ---	SHEET: **S21**
	DESCRIPTION: **STEEL ENCASEMENT**		
	DRAWN BY: CHECKED BY: FILE: S21-Steel Encasement.dwg		

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

CERTIFICATE OF AUTHORIZATION
Richardson Engineering, PLLC
No. 2519
ARKANSAS

MISC. DETAILS
HILLTOP MANOR
SUBDIVISION
HILLTOP ROAD
BRYANT, ARKANSAS

Prepared For:
EMINENT CONSTRUCTIONS

No.	Revisions	Date

PROJECT NO.: 024-034
Date: 3/3/2026
Scale: NTS
Sheet: 24 of 24

Planning and Development
210 SW 3rd Street, Bryant, AR 72022
501-943-0488 | comdev@cityofbryant.com

Subdivision Application and Checklist

This is not an exhaustive guideline regarding the Subdivision Code or Approval Process. Additional information is available in the City's Subdivision Code. Applicants are advised to read the City of Bryant Subdivision Code prior to completing and signing this form. A copy is available at www.cityofbryant.com under the Planning & Development Department page.

Date: 03.11.2026 **Application Type:** [Preliminary Plat] | Final Plat | Replat

Subdivision Project Information:

Subdivision/Project Name Hilltop Manor

Property Location Hilltop Road, Bryant, AR

Parcel Number(s) 840-11625-125 Zoning Classification R2

Number of Lots 78 Number of Phases 1

Applicant or Designee:

Name Richardson Engineering, PLLC

Address 325 West South Street, Benton, AR 72015

Email Address charlotte@richardson-engrs.com Phone 501-315-7225

Requirements and Checklist for Submission:

☑ Completed Subdivision Application. *(An online application is also available through the City's application portal. You can visit the portal by clicking on "Planning Applications" under the "Services" heading on the Planning & Development Department page.)*

☑ Subdivision fees applicable to application type:

- **Preliminary Plat**
  - Preliminary Plat Review Fee: $300.00 + $3.00 Per Lot = $534.00
  - Stormwater Detention and Drainage Plan Engineering Fee: $250.00 or $25.00 per lot (whichever is greater) = $1950.00
- **Final Plat**
  - Final Plat Review Fee: $25.00 + $1.00 Per Lot = _____
  - Water / Wastewater Impact Fee: $100.00 per lot ($50 for Water, $50 for Wastewater) = _____
  - Water / Wastewater Flushing Fee: $100.00 per Subdivision Phase ($50 for Water, $50 for Wastewater) = _____

- **Replat**
  - Replat Review Fee: $25.00 + $1.00 Per Lot = _____

☐ One (1) paper copy (or digital PDF submitted through the online portal) of each of the following required attachments for the related application:

	Required Attachment	Preliminary Plat	Final Plat	Replat
☐	**Request Letter**	X	X	X
☐	**Preliminary Plat**	X		
☐	**Final Plat**		X	
☐	**Replat**			X
☐	**Survey**			X
☐	**Construction Plans Including**: Utility Plan to City's Standard Specs for Water and Sewer Design; Street Plans to City's Minimum Street Specifications; Erosion Control plan; Grading Plan	X		
☐	**As-Builts:** Water, Sewer, and Streets		X	
☐	**Drainage Report / Stormwater Calculations**	X		
☐	**ADEQ Storm Water Pollution Prevention Plan (SWPPP)**	X		
☐	**Stormwater Infrastructure Maintenance Plan**		X	
☐	**Bonds for Final Plat:** Stormwater Infrastructure Warranty Bond; Water - Waste Water Warranty Bond; Street Warranty Bond		X	
☐	**Bill of Assurances / Improvement District Documents**	X	X	
☐	**Health Dept. Letter of Sewer Acceptance**		X	
☐	**ADEQ General Stormwater NPDES Permit:** Copy of Notice of Coverage (NOC) or Proof of Submittal for Permit	X		

Once the application is received, the material will be reviewed to make sure all the required information is provided. The applicant will be notified if additional information is required. The application will then go before the Development and Review Committee (DRC) for a recommendation to the Planning Commission. The Planning Commission will make a decision on the Approval of the Preliminary Plat. Once necessary infrastructure improvements are made for the Subdivision or Phase, the Developer may then submit for Final Plat Approval of the Subdivision or Phase. A Final Plat Application will follow the same approval process as the Preliminary Plat.

READ CAREFULLY BEFORE SIGNING

I Charlotte Crone, do hereby certify that all information contained within this application is true and correct. I further certify that the owner of the property authorizes this proposed application. I understand that I must comply with all City Codes and that it is my responsibility to obtain all necessary permits required.

RICHARDSON ENGINEERING
Planning ▪ Engineering ▪ Development Consulting

March 3, 2026

City of Bryant
Development & Review Committee
Attn: Mr. Colton Leonard
Planning and Development Director
RE: Request for Preliminary Plat Approval – Hilltop Manor, Bryant, Arkansas

Dear Mr. Leonard:

On behalf of Eminent Constructions, LLC please accept this correspondence as a formal request for Preliminary Plat approval for the proposed Hilltop Manor Subdivision located on Hilltop Road in Bryant, Arkansas.

We respectfully request that this item be placed on the April 13, 2026, City of Bryant Planning Commission agenda for consideration.

Please find below the relevant contact information for the developer and project engineer:

Developer Information:
Sahil Hameerani
Eminent Constructions, LLC
15600 Hartford St
Little Rock, AR 72223
shameerani@gmail.com
(501) 786-0684

Engineer Information:
Tristin Phillips, P.E.
Richardson Engineering, PLLC
P.O. Box 192
Benton, AR 72018
Tristin@Richardson-Engrs.com
(501) 315-7225

Should you require any additional documentation or information, please do not hesitate to contact our office at your convenience. We appreciate your time and consideration of this request.

Sincerely,

Tristin Phillips, PE

Drainage Report

For

Hilltop Manor Subdivision

Bryant, Saline County, Arkansas

March 4, 2025

Prepared by:

RICHARDSON ENGINEERING, PLLC

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

TABLE OF CONTENTS

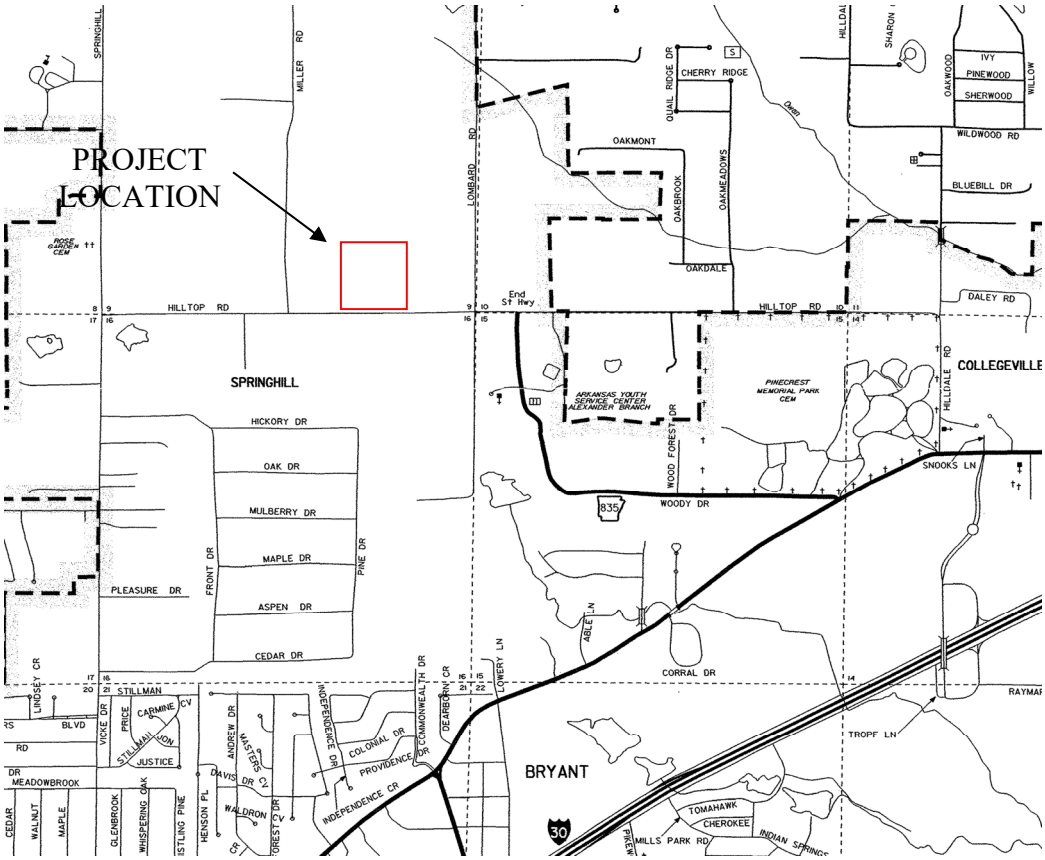
Title	Page Number
Project Owner Information	3
Project Location and Description	3
Site Drainage	4
Pre-Development	4
Post-Development	4
Runoff Summary's	5
Pre-Development Drainage Basin Information	5
Overall Site Post- Development Drainage Basin Information	6
Basin A	7
Basin B	7
Basin C	8
Basin D	8
Basin E	9
Basin F	10
Recommendations/Summary	10
Appendices:	11
Runoff Coefficient Calculation	12
Time of Concentration Calculation	13
NRCS Soil Report	14
NOAA Atlas 14 Data	15
Site Drainage Basin Maps	16
Overflow Wier Blockage Calculation	17
SSA Design Layout	18
Storm System Design (SSA)	19
2 Year Design Storm	20
10 Year Design Storm	21
25 Year Design Storm	22
50 Year Design Storm	23
100 Year Design Storm	24
Detention Pond Storage Estimate	25
Culvert Blockage Simulation	26
Pre and Post Development Hydrographs (Hydrology Studio)	27

Project Owner Information

Eminent Construction
1100 Hillfarm Road
Bryant, AR 72022

Project Location and Description

The project is located on North side of the Hilltop, part of the Southwest Quater of the Southeast Quarter, Section 9, Township 1-S, Range 14-W, Saline County, Arkansas.



Vicinity Map – N.T.S

This project is a proposed Residential Subdivision, consisting of 78 lots, located in the City of Bryant, Saline County.

Site Drainage

Pre-Development

The pre-developed runoff for the site flows to the East and West. The on-site drainage basins have been broken down into six separate basins that discharge water off-site. Drainage Basins A, B, and C discharge water to the West, Basin D, E and F discharge water to the East. The pre-development drainage basin delineation can be found in the appendix of this report.

The pre-development on-site runoff condition is undeveloped/woods.

Post-Development

The site drainage starts on the Western side of the project and flows to the East and West. The drainage is sheet flows across the lots and roads and is intercepted by the proposed storm sewer system and is discharged into a proposed detention basin on the Eastern side of the proposed development.

The City of Bryant Drainage Manual utilized different C values for each storm event. The C value for the 100-year design storm was utilized for all storm events for the drainage analysis for this site.

The minimum required volume of the detention basin was found by comparing the pre-development rational method hydrograph for the area that the detention pond is being discharged, to the post-development modified rational method hydrograph for the area that the detention basin is receiving using the Hydrology Studio program. The minimum required volume was found to be 42,611 CF for the 100-year storm event. In order to meet the City of Bryants Stormwater Manual detention requirements, the detention pond has to be sized with at least a 25% factory of safety; therefore, the minimum size of the detention pond is 53,264 CF.

Post-Development Basin A, B, and C consist of the lots on the Western border and off-site areas. Post-development Basins A, B, and C all discharge to the West of the proposed development. Post Development Basin D consists of the back half of the lots on the north line as well as off-site areas. Basin D discharges to Phase 2 of the Lombard Heights subdivision. The proposed detention basin will utilize a culvert/weir discharge structure. Post-Development Basin “E-1” is the drainage basin that discharges water into the proposed detention basin. Post-development drainage basin “E-1” consists of the majority of the storm drain system for the proposed development as well as the detention pond area. Post-Development Basin E-2 consists of the remaining storm drain system that does not get discharged into the proposed detention pond as well as off-site areas. Basin E-1 and E-2 discharge to the East. Post-Development Basin F consists of the back half of lots on the South line and off-site areas. Basin F discharges to the East. Basins A, B, C, D, E-2, and F are not routed through the detention basin, so they were calculated by themselves. A delineation for the drainage basins that were used in Hydrology Studio (for

the overall site drainage basins), as well as a delineation of the basins that were used in Storm and Sanitary Analysis (on-site storm inlets) can be seen in the appendix of this report.

The post-development on-site runoff conditions changed from undeveloped/woods to single family residential development.

Runoff Summary's

Overall Project Site Area: 29.16 Acres

Pre- Development Drainage Basin Information

Overall Pre-Development Drainage Basin Study Area: 71.08 Acres

Drainage Basins	Drainage Area (Ac)	C Value	Time of Concentration (min)
Basin A	3.20	0.62	11
Basin B	14.74	0.52	15
Basin C	6.84	0.55	11
Basin D	2.95	0.50	8
Basin E-1	11.20	0.50	12
Basin E-2	18.96	0.52	13
Basin F	13.19	0.53	17

Design Storm	Basin A (cfs)	Basin B (cfs)	Basin C (cfs)	Basin D (cfs)
2-yr	8.53	28.63	16.17	7.32
10-yr	11.43	38.41	21.67	9.80
25-yr	13.13	44.15	24.90	11.26
50-yr	14.36	48.29	27.23	12.31
100-yr	15.60	52.42	29.57	13.38

Design Storm	Basin E-1 (cfs)	Basin E-2 (cfs)	Basin F (cfs)
2-yr	23.14	39.29	24.68
10-yr	31.02	52.69	33.12
25-yr	35.65	60.55	38.07
50-yr	38.98	66.22	41.64
100-yr	42.33	71.90	45.20

Overall Site Post- Development Drainage Basin Information

Overall Post-Development Drainage Study Area: 71.08 Acres

Drainage Basins	Drainage Area (Ac)	C Value	Time of Concentration (min)
Basin A	3.53	0.66	14
Basin B	12.45	0.56	18
Basin C	6.75	0.57	11
Basin D	2.59	0.56	8
Basin E-1	16.23	0.66	17
Basin E-2	17.53	0.56	13
Basin F	12.00	0.56	16

Design Storm	Basin A (cfs)	Basin B (cfs)	Basin C (cfs)	Basin D (cfs)
2-yr	8.98	23.98	16.54	7.20
10-yr	12.04	32.19	22.16	9.64
25-yr	13.84	37.00	25.47	11.08
50-yr	15.14	40.48	27.85	12.11
100-yr	16.43	43.93	30.24	13.15

Design Storm	Basin E-1 (cfs)	Basin E-2 (cfs)	Basin F (cfs)
2-yr	37.81	39.12	24.38
10-yr	50.74	52.46	32.71
25-yr	58.33	60.29	37.60
50-yr	63.81	65.94	41.13
100-yr	69.26	71.59	44.65

Basin A

Pre-Development Drainage Study Area = 3.20
Post-Development Drainage Study Area = 3.53
Existing Condition runoff Coefficient: C = 0.62
Proposed runoff Coefficient: C = 0.66
Tc Undeveloped = 11 Minutes (TR55 Method)
Tc Developed = 14 Minutes (TR55 Method)

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Difference (cfs)
2-yr	8.53	8.98	+0.45
10-yr	11.43	12.04	+0.61
25-yr	13.13	13.84	+0.71
50-yr	14.36	15.14	+0.78
100-yr	15.60	16.43	+0.83

Basin B

Pre-Development Drainage Study Area = 14.7
Post-Development Drainage Study Area = 12.45
Existing Condition runoff Coefficient: C = 0.52
Proposed runoff Coefficient: C = 0.56
Tc Undeveloped = 15 Minutes (TR55 Method)
Tc Developed = 18 Minutes (TR55 Method)

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Difference (cfs)
2-yr	28.63	23.98	-4.65
10-yr	38.41	32.19	-6.22
25-yr	44.15	37.00	-7.15
50-yr	48.29	40.48	-7.81
100-yr	52.42	43.93	-8.49

Basin C

Pre-Development Drainage Study Area = 6.84
Post-Development Drainage Study Area = 6.75
Existing Condition runoff Coefficient: C = 0.55
Proposed runoff Coefficient: C = 0.57
Tc Undeveloped = 11 Minutes (TR55 Method)
Tc Developed = 11 Minutes (TR55 Method)

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Difference (cfs)
2-yr	16.17	16.54	+0.37
10-yr	21.67	22.16	+0.49
25-yr	24.90	25.47	+0.57
50-yr	27.23	27.85	+0.62
100-yr	29.57	30.24	+0.67

Basin D

Pre-Development Drainage Study Area = 2.95
Post-Development Drainage Study Area = 2.59
Existing Condition runoff Coefficient: C = 0.50
Proposed runoff Coefficient: C = 0.56
Tc Undeveloped = 8 Minutes (TR55 Method)
Tc Developed = 8 Minutes (TR55 Method)

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Difference (cfs)
2-yr	7.32	7.20	-0.12
10-yr	9.80	9.64	-0.16
25-yr	11.26	11.08	-0.18
50-yr	12.31	12.11	-0.20
100-yr	13.38	13.15	-0.23

Basin E

Pre-Development Drainage Study Area = 30.16
Post-Development Drainage Study Area = 33.76
Existing Condition runoff Coefficient: C = 0.50/0.52
Proposed runoff Coefficient: C = 0.66/0.56
Tc Undeveloped = 12/13 Minutes (TR55 Method)
Tc Developed = 17/13 Minutes (TR55 Method)
Detention Basin Required Volume: 42,611 CF
Detention Basin Volume: 177,357 CF
Maximum Storage: 92,311 CF
Discharge Structure: Culvert/Weir

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Post-Development w/ Detention Flow Rate (cfs)	Maximum Water Elevation in Pond (ft)
2-yr	61.27	69.48	39.66	477.15
10-yr	82.16	93.21	53.39	477.88
25-yr	94.42	107.1	61.49	478.31
50-yr	103.3	117.2	67.36	478.63
100-yr	112.1	127.2	73.24	478.93

Should the culvert get 100 percent blocked and the water can only be discharged from the pond over the top of the overflow weir structure, the maximum water elevation in the pond reaches 479.92. The water elevations for the other design storms can be seen in the appendix.

Basin F

Pre-Development Drainage Study Area = 13.19
Post-Development Drainage Study Area = 12.00
Existing Condition runoff Coefficient: C = 0.53
Proposed runoff Coefficient: C = 0.56
Tc Undeveloped = 17 Minutes (TR55 Method)
Tc Developed = 16 Minutes (TR55 Method)

Design Storm	Pre-Development Flow Rate (cfs)	Post-Development Flow Rate (cfs)	Difference (cfs)
2-yr	24.68	24.38	-0.30
10-yr	33.12	32.71	-0.41
25-yr	38.07	37.60	-0.47
50-yr	41.64	41.13	-0.51
100-yr	45.20	44.65	-0.55

Recommendations/Summary

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

Appendices

Runoff Coefficient Calculations
Time of Concentration Calculation
NRCS Soil Report
NOAA Atlas 14 Data
Site Drainage Basin Map
Overflow Wier Blockage Calculation
SSA Design Layout
Storm System Design (SSA)
Detention Pond Storage Estimate
Culvert Blockage Simulation
Pond and Post Development Hydrographs (Hydrology Studio)

Runoff Coefficient Calculations

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(1/7)

PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

PRE-DEV BASIN "A" AREA: 3.20 AC

IMPERVIOUS: 0.20 AC C = 0.95

RESIDENTIAL: 2.09 AC C = 0.65
(1/2 OR LARGER)

UNDEVELOPED: 0.39 AC C = 0.50 (CLAY SOIL AVG 2-7%)

DITCHES: 0.52 AC C = 0.49 (FAIR CONDITION AVG 2-7%)

$$C = \frac{(0.20)(0.95) + (2.09)(0.65) + (0.39)(0.50) + (052)(0.49)}{3.20}$$

$$= 0.62$$

PRE-DEV BASIN "B" AREA: 14.74 AC

IMPERVIOUS: 0.19 AC C = 0.95

RESIDENTIAL: 0.29 AC C = 0.65
(1/2 OR LARGER)

UNDEVELOPED: 14.26 AC C = 0.50

$$C = \frac{(0.19)(0.95) + (0.29)(0.65) + (14.26)(0.50)}{14.74} = 0.51$$

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PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

PRE-DEV BASIN "C" AREA: 6.84 AC

IMPERVIOUS: 0.10 AC C = 0.95

RESIDENTIAL (1/2 or >) : 1.66 AC C = 0.65

COMMERCIAL: 0.23 AC (WET) C = 0.80

UNDEVELOPED: 4.85 AC C = 0.50

$$C = \frac{(0.10)(0.95) + (1.66)(0.65) + (0.23)(0.80) + (4.85)(0.50)}{6.84}$$

$$= 0.55$$

PRE-DEV BASIN "D" AREA: 2.95 AC

UNDEVELOPED: 2.95 AC C = 0.50

PRE-DEV BASIN "E-1" AREA: 11.20 AC

UNDEVELOPED: 11.20 AC C = 0.50

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PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

PRE-DEV BASIN "E-2" AREA: 18.96 AC

SINGLE FAMILY RES.	1.20 AC	C = 0.70
RESIDENTIAL (½ ac >)	1.0 AC	C = 0.65
UNDEVELOPED:	16.76 AC	C = 0.50

$$C = \frac{(1.20)(0.70) + (1.0)(0.65) + (16.76)(0.50)}{18.96} = 0.52$$ "

PRE-DEV BASIN "F" AREA: 13.19 AC

IMPERVIOUS:	0.35 AC	C = 0.95
RESIDENTIAL (½ ac >)	1.62 AC	C = 0.65
UNDEVELOPED:	11.22 AC	C = 0.50

$$C = \frac{(0.35)(0.95) + (1.62)(0.65) + (11.22)(0.50)}{13.19} = 0.53$$ "

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PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

POST-DEV BASIN "A" AREA: 3.53 AC

IMPERVIOUS: 0.28 AC C = 0.95

RESIDENTIAL: 2.09 AC C = 0.65
(1/4 OR >)

SINGLE FAMILY: 0.68 AC C = 0.70

DITCHES: 0.48 AC C = 0.49

$$C = \frac{(0.28)(0.95) + (2.09)(0.65) + (0.68)(0.70) + (0.48)(0.49)}{3.53}$$

$= 0.66$

POST-DEV BASIN "B" AREA: 12.45 AC

IMPERVIOUS: 0.19 AC C = 0.95

RESIDENTIAL: 0.29 AC C = 0.65
(1/2 OR LARGER)

SINGLE FAMILY: 3.33 AC C = 0.70

UNDEVELOPED: 8.64 AC C = 0.50

$$C = \frac{(0.19)(0.95) + (0.29)(0.65) + (3.33)(0.70) + (8.64)(0.50)}{12.45}$$

$= 0.56$

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PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2020

POST - DEV BASIN "C" AREA: 6.75 AC

IMPERVIOUS: 0.10 AC C = 0.95

RESIDENTIAL: 1.66 AC C = 0.65
(½ OF 7)

SINGLE FAMILY: 0.44 AC C = 0.70

COMMERCIAL: 0.23 AC C = 0.80
(LOT)

UNDEVELOPED: 4.32 AC C = 0.50

$$C = \frac{(0.10)(0.95) + (1.66)(0.65) + (0.44)(0.70) + (0.23)(0.80) + (4.32)(0.50)}{6.75}$$

$$= 0.57$$

POST - DEV BASIN "D" AREA: 2.59 AC

SINGLE FAMILY: 0.73 AC C = 0.70

UNDEVELOPED: 1.86 AC C = 0.50

$$C = \frac{(0.73)(0.70) + (1.86)(0.50)}{2.59} = 0.56$$

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(6/7)

PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

POST-DEV BASIN "E-1" AREA: 16.23 ac

SINGLE FAMILY : 13.30 C = 0.70

UNDEVELOPED : 2.93 ac C = 0.50

$$C = \frac{(13.30)(0.70) + (2.93)(0.50)}{16.23} = 0.66$$

POST-DEV BASIN "E-2" AREA: 17.53 ac

SINGLE FAMILY : 4.52 ac C = 0.70

RESIDENTIAL : (1/2 ac lots) 1.0 ac C = 0.65

UNDEVELOPED: 11.69 ac C = 0.50

GRAVEL : 0.32 ac C = 0.65

$$C = \frac{(4.52)(0.70) + (1.0)(0.65) + (11.69)(0.50) + (0.32)(0.65)}{17.53}$$

$$= 0.56$$

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(7/7)

PROJECT 024-034 DRAINAGE ANALYSIS DATE 03/03/2026

POST-DEV BASIN "F" AREA: 12.0 AC

IMPERVIOUS: 0.47 AC C = 0.95

SINGLE FAMILY: 1.60 AC C = 0.70

RESIDENTIAL (½ ac or larger): 1.62 AC C = 0.65

UNDEVELOPED: 8.31 AC C = 0.50

$$C = \frac{(0.47)(0.95) + (1.60)(0.70) + (1.62)(0.65) + (8.31)(0.50)}{12.0}$$

$$= 0.56$$

Runoff Coefficients

Land Use Types	Frequency 10	25	100
Business			
Central Business District	0.9	0.93	0.95
Commercial Area	.85 (.70-.95)*	0.9	0.95
Neighborhood Area	.70 (.50-.75)	0.75	0.8
Residential			
Single Family	.50 (.30-.60)	0.6	0.7
Multi-Unit (Detached)	.60 (.40-.65)	0.65	0.75
Multi-Unit (Attached)	.70 (.60-.75)	0.75	0.8
½ Acre Lots or Larger	.40 (.25-.50)	0.45	0.65
Apartments	.70 (.50-.80)	0.75	0.8
Industrial			
Light Areas	.80 (.50-.85)	0.82	0.85
Heavy Areas	.85 (.60-.90)	0.87	0.9
Miscellaneous			
Parks and Cemeteries	.30 (.10-.40)	0.4	0.6
Playgrounds	.35 (.20-.40)	0.5	0.7
Schools and Churches	.60 (.50-.75)	0.65	0.75
Railroad Yards	.50 (.30-.60)	0.6	0.7
Offsite Flow Analysis (When Land Use Not Defined)	.55 (.45-.65)	0.67	0.7

*NOTE: The range of runoff coefficients is based on soil type. The low value is for sandy soils, while the high value is for clay soils. The given runoff coefficient outside the parenthesis is to be used for design, unless the Engineer of Record receives approval from the City Engineer for another value located within the given coefficient range.

Source: City of Little Rock Stormwater Management & Drainage Design Manual

TABLE 400-1 Runoff Coefficients for Surface Types

Character of Surface	Return Period					
	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
Developed						
Asphaltic	0.73	0.77	0.81	0.86	0.90	0.95
Concrete/Roof	0.75	0.80	0.83	0.88	0.92	0.97
Grass Areas (Lawns, Parks, etc.)						
Poor Condition (grass cover less than 50 percent of the area)						
Flat, 0-2%	0.32	0.34	0.37	0.40	0.44	0.47
Average, 2-7%	0.37	0.40	0.43	0.46	0.49	0.53
Steep, Over 7%	0.40	0.43	0.45	0.49	0.52	0.55
Fair Condition (grass cover on 50 to 75 percent of the area)						
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49
Steep, Over 7%	0.37	0.40	0.42	0.46	0.49	0.53
Good Condition (grass cover larger than 75 percent of the area)						
Flat, 0-2%	0.21	0.23	0.25	0.29	0.32	0.36
Average, 2-7%	0.29	0.32	0.35	0.39	0.42	0.46
Steep, Over 7%	0.34	0.37	0.40	0.44	0.47	0.51
Undeveloped						
Cultivated Land						
Flat, 0-2%	0.31	0.34	0.36	0.40	0.43	0.47
Average, 2-7%	0.35	0.38	0.41	0.44	0.48	0.51
Steep, Over 7%	0.39	0.42	0.44	0.48	0.51	0.54
Pasture/Range						
Flat, 0-2%	0.25	0.28	0.30	0.34	0.37	0.41
Average, 2-7%	0.33	0.36	0.38	0.42	0.45	0.49
Steep, Over 7%	0.37	0.40	0.42	0.46	0.49	0.53
Forest/Woodlands						
Flat, 0-2%	0.22	0.25	0.28	0.31	0.35	0.39
Average, 2-7%	0.31	0.34	0.36	0.40	0.43	0.47
Steep, Over 7%	0.35	0.39	0.41	0.45	0.48	0.52

Source: Rossmiller, R.L. "The Raional Formula Revisited."
County of Austin Drainage Criteria Manual

TABLE 400-2

Runoff Coefficients for Rational Method Composite Analysis

Land Use Types	Frequency 10	25	100
Undeveloped Areas			
Historic Flow Analysis, Greenbelts			
Agricultural, Natural Vegetation			
Clay Soil			
Flat, 2%	0.3	0.33	0.37
Average, 2-7%	0.4	0.44	0.5
Steep, 7%	0.5	0.55	0.62
Sandy Soil			
Flat, 2%	0.12	0.13	0.15
Average, 2-7%	0.2	0.22	0.25
Steep, 7%	0.3	0.33	0.37
Streets			
Paved	0.9	0.92	0.95
Gravel	0.35	0.5	0.65
Miscellaneous			
Drives and Walks	0.9	0.91	0.92
Roofs	0.9	0.92	0.95
Lawns			
Clay Soil			
Flat, 2%	0.18	0.2	0.25
Average, 2-7%	0.22	0.28	0.35
Steep, 7%	0.35	0.45	0.6
Sandy Soil			
Flat, 2%	0.1	0.25	0.4
Average, 2-7%	0.15	0.3	0.45
Steep, 7%	0.2	0.35	0.5

Source: City of Little Rock Stormwater Management & Drainage Design Manual

The design engineer shall use the preceding values as a rule of thumb. Areas not conforming to the preceding descriptions will be evaluated by calculating a composite runoff coefficient. Areas will be evaluated based upon the ultimate development for the area under consideration.

Time of Concentration

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PROJECT 024-034 T_c CALCULATIONS DATE 03/04/2026

POST-DEV BASIN "E-1"

SUB CB-28 T_c = 15.08 MIN

PIPE-22 => $\frac{L}{(V)(60)} = \frac{58}{(8.73)(60)}$ = 0.11 MIN

PIPE-21 => $\frac{237}{(4.4)(60)}$ = 0.89 MIN

PIPE-11 => $\frac{70}{(7.8)(60)}$ = 0.15 MIN

PIPE 10 => $\frac{256}{(7.38)(60)}$ = 0.58 MIN

PIPE 9 => $\frac{33}{(9.67)(60)}$ = 0.057 MIN

T_c = 17.43 MIN

PIPE 8 => $\frac{130}{(22.75)(60)}$ = 0.095 MIN

FES → POND

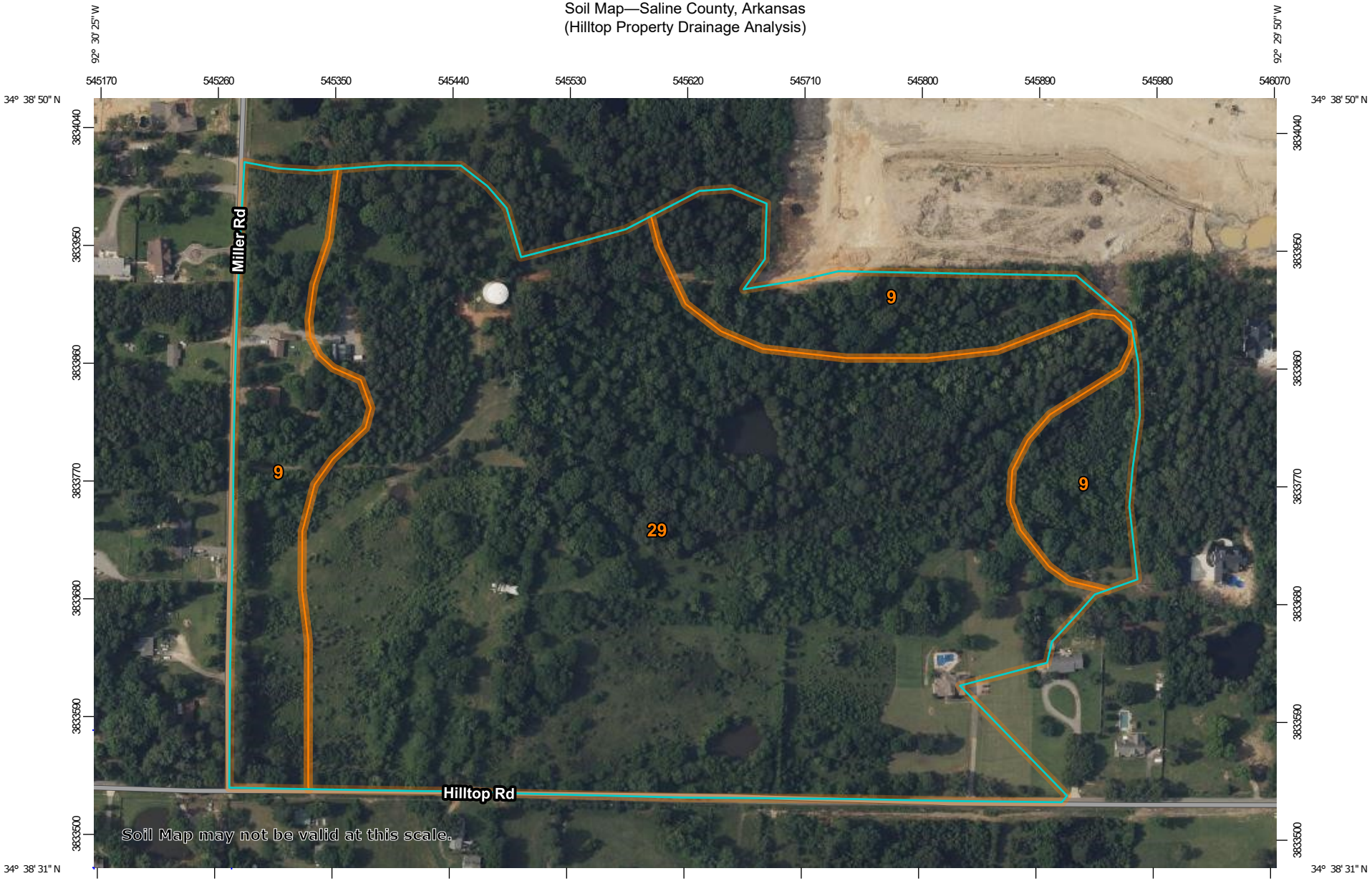
∴ L = 153 FT $S = \frac{492 - 475}{153} = 0.1111$ => 11.11%

$V = 16.1345\,(S)^{0.5} = 16.1345\,(0.1111)^{0.5} = 5.38$ FT/S

$T = 153 \div (5.38 \times 60) = 0.47$ MIN

NRCS Soil Report

Soil Map—Saline County, Arkansas
(Hilltop Property Drainage Analysis)



Map Scale: 1:4,150 if printed on A landscape (11" x 8.5") sheet.

N

0 50 100 200 300 Meters

0 200 400 800 1200 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Saline County, Arkansas
Survey Area Data: Version 22, Sep 10, 2025

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

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

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
9	Carnasaw-Townley association, undulating	16.2	22.7%
29	Tiak silt loam, 3 to 8 percent slopes	54.9	77.3%
Totals for Area of Interest		**71.1**	**100.0%**

Saline County, Arkansas

9—Carnasaw-Townley association, undulating

Map Unit Setting

National map unit symbol: m073
Landscape: Hills
Elevation: 500 to 1,800 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

Carnasaw and similar soils: 50 percent
Townley and similar soils: 35 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Carnasaw

Setting

Landscape: Hills
Landform: Hills
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from acid shale

Typical profile

A - 0 to 3 inches: gravelly silt loam
Bt1 - 3 to 6 inches: silty clay loam
Bt2 - 6 to 40 inches: clay
Cr - 40 to 72 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C

Ecological site: F119XY006AR - Clayey Upland
Hydric soil rating: No

Description of Townley

Setting

Landscape: Hills
Landform: Hills
Landform position (three-dimensional): Nose slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone and shale over clayey residuum weathered from sandstone and shale

Typical profile

A - 0 to 6 inches: silt loam
Bt1 - 6 to 23 inches: silty clay
Bt2 - 23 to 25 inches: silty clay
Cr - 25 to 29 inches: bedrock

Properties and qualities

Slope: 3 to 12 percent
Depth to restrictive feature: 20 to 40 inches to paralithic bedrock
Drainage class: 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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 3.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: F119XY006AR - Clayey Upland
Hydric soil rating: No

Minor Components

Pirum

Percent of map unit: 15 percent
Landscape: Hills
Ecological site: F119XY007AR - Loamy Upland
Hydric soil rating: No

Data Source Information

Soil Survey Area: Saline County, Arkansas
Survey Area Data: Version 22, Sep 10, 2025

Saline County, Arkansas

29—Tiak silt loam, 3 to 8 percent slopes

Map Unit Setting

National map unit symbol: m06q
Landscape: Coastal plains
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

Landscape: Coastal plains
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

Data Source Information

Soil Survey Area: Saline County, Arkansas
Survey Area Data: Version 22, Sep 10, 2025

NOAA Atlas 14 Data

NOAA Atlas 14, Volume 9, Version 2
Location name: Bryant, Arkansas, USA*
Latitude: 34.6452°, Longitude: -92.5032°
Elevation: 527 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**0.452** (0.366-0.553)	**0.512** (0.414-0.627)	**0.607** (0.490-0.746)	**0.684** (0.549-0.844)	**0.786** (0.608-0.994)	**0.861** (0.652-1.11)	**0.934** (0.684-1.23)	**1.01** (0.707-1.36)	**1.10** (0.741-1.53)	**1.16** (0.768-1.66)
10-min	**0.661** (0.536-0.810)	**0.749** (0.607-0.918)	**0.889** (0.717-1.09)	**1.00** (0.803-1.24)	**1.15** (0.890-1.46)	**1.26** (0.955-1.62)	**1.37** (1.00-1.80)	**1.47** (1.04-2.00)	**1.60** (1.09-2.24)	**1.70** (1.12-2.42)
15-min	**0.806** (0.654-0.988)	**0.914** (0.740-1.12)	**1.08** (0.875-1.33)	**1.22** (0.980-1.51)	**1.40** (1.08-1.77)	**1.54** (1.16-1.98)	**1.67** (1.22-2.20)	**1.80** (1.26-2.44)	**1.96** (1.32-2.73)	**2.07** (1.37-2.96)
30-min	**1.20** (0.972-1.47)	**1.36** (1.10-1.67)	**1.62** (1.31-2.00)	**1.83** (1.47-2.26)	**2.11** (1.63-2.66)	**2.31** (1.75-2.96)	**2.50** (1.83-3.30)	**2.69** (1.89-3.65)	**2.93** (1.98-4.09)	**3.10** (2.05-4.42)
60-min	**1.60** (1.30-1.96)	**1.82** (1.47-2.23)	**2.16** (1.74-2.65)	**2.44** (1.95-3.00)	**2.81** (2.17-3.56)	**3.09** (2.34-3.97)	**3.36** (2.46-4.44)	**3.63** (2.56-4.93)	**3.98** (2.70-5.57)	**4.24** (2.80-6.05)
2-hr	**2.01** (1.64-2.44)	**2.27** (1.85-2.76)	**2.69** (2.19-3.28)	**3.04** (2.46-3.72)	**3.51** (2.74-4.42)	**3.87** (2.95-4.95)	**4.22** (3.12-5.54)	**4.58** (3.24-6.18)	**5.04** (3.44-7.00)	**5.38** (3.58-7.62)
3-hr	**2.26** (1.86-2.74)	**2.55** (2.09-3.09)	**3.03** (2.48-3.68)	**3.43** (2.79-4.19)	**3.99** (3.13-5.01)	**4.42** (3.39-5.64)	**4.85** (3.60-6.35)	**5.29** (3.77-7.13)	**5.88** (4.03-8.15)	**6.33** (4.22-8.93)
6-hr	**2.71** (2.24-3.26)	**3.08** (2.55-3.70)	**3.70** (3.05-4.46)	**4.24** (3.47-5.13)	**5.00** (3.97-6.27)	**5.61** (4.35-7.14)	**6.23** (4.67-8.14)	**6.89** (4.95-9.24)	**7.78** (5.37-10.7)	**8.47** (5.69-11.9)
12-hr	**3.20** (2.67-3.81)	**3.68** (3.07-4.40)	**4.52** (3.75-5.40)	**5.25** (4.33-6.30)	**6.30** (5.05-7.87)	**7.15** (5.59-9.06)	**8.04** (6.07-10.5)	**8.98** (6.50-12.0)	**10.3** (7.16-14.1)	**11.3** (7.65-15.8)
24-hr	**3.75** (3.15-4.44)	**4.35** (3.66-5.15)	**5.39** (4.51-6.40)	**6.30** (5.25-7.52)	**7.64** (6.18-9.50)	**8.74** (6.89-11.0)	**9.89** (7.53-12.8)	**11.1** (8.11-14.8)	**12.8** (8.99-17.5)	**14.2** (9.65-19.6)
2-day	**4.40** (3.73-5.16)	**5.07** (4.30-5.96)	**6.24** (5.27-7.35)	**7.28** (6.11-8.62)	**8.81** (7.18-10.9)	**10.1** (8.00-12.6)	**11.4** (8.73-14.6)	**12.8** (9.40-16.9)	**14.7** (10.4-20.0)	**16.3** (11.2-22.4)
3-day	**4.81** (4.10-5.62)	**5.54** (4.71-6.47)	**6.78** (5.75-7.95)	**7.87** (6.64-9.27)	**9.46** (7.75-11.6)	**10.8** (8.59-13.4)	**12.1** (9.33-15.5)	**13.6** (10.0-17.8)	**15.6** (11.0-21.0)	**17.2** (11.8-23.5)
4-day	**5.14** (4.39-5.98)	**5.90** (5.04-6.87)	**7.20** (6.12-8.41)	**8.33** (7.04-9.78)	**9.97** (8.18-12.2)	**11.3** (9.03-14.0)	**12.7** (9.78-16.1)	**14.1** (10.4-18.5)	**16.1** (11.5-21.7)	**17.7** (12.2-24.2)
7-day	**5.96** (5.13-6.89)	**6.79** (5.84-7.86)	**8.20** (7.02-9.52)	**9.41** (8.01-11.0)	**11.1** (9.18-13.5)	**12.5** (10.1-15.4)	**13.9** (10.8-17.6)	**15.4** (11.5-20.0)	**17.5** (12.5-23.4)	**19.1** (13.2-25.9)
10-day	**6.74** (5.82-7.76)	**7.61** (6.57-8.77)	**9.07** (7.80-10.5)	**10.3** (8.82-12.0)	**12.1** (9.99-14.5)	**13.5** (10.9-16.5)	**14.9** (11.6-18.7)	**16.4** (12.2-21.2)	**18.4** (13.2-24.5)	**20.0** (13.9-27.0)
20-day	**9.13** (7.96-10.4)	**10.1** (8.78-11.5)	**11.6** (10.1-13.4)	**12.9** (11.2-14.9)	**14.8** (12.3-17.5)	**16.2** (13.1-19.5)	**17.6** (13.8-21.8)	**19.0** (14.3-24.3)	**20.9** (15.1-27.6)	**22.4** (15.7-30.1)
30-day	**11.1** (9.71-12.6)	**12.2** (10.7-13.9)	**14.0** (12.2-15.9)	**15.4** (13.4-17.7)	**17.4** (14.6-20.6)	**18.9** (15.5-22.7)	**20.4** (16.1-25.2)	**21.9** (16.5-27.9)	**23.9** (17.3-31.3)	**25.4** (17.8-33.9)
45-day	**13.4** (11.8-15.2)	**14.9** (13.1-16.8)	**17.1** (15.0-19.5)	**18.9** (16.5-21.6)	**21.4** (17.9-25.1)	**23.2** (19.0-27.7)	**25.0** (19.7-30.6)	**26.7** (20.2-33.7)	**28.9** (20.9-37.7)	**30.5** (21.5-40.6)
60-day	**15.3** (13.6-17.3)	**17.1** (15.1-19.3)	**20.0** (17.5-22.6)	**22.2** (19.4-25.3)	**25.2** (21.2-29.4)	**27.4** (22.5-32.5)	**29.5** (23.3-36.0)	**31.5** (23.9-39.7)	**34.1** (24.8-44.2)	**35.9** (25.4-47.7)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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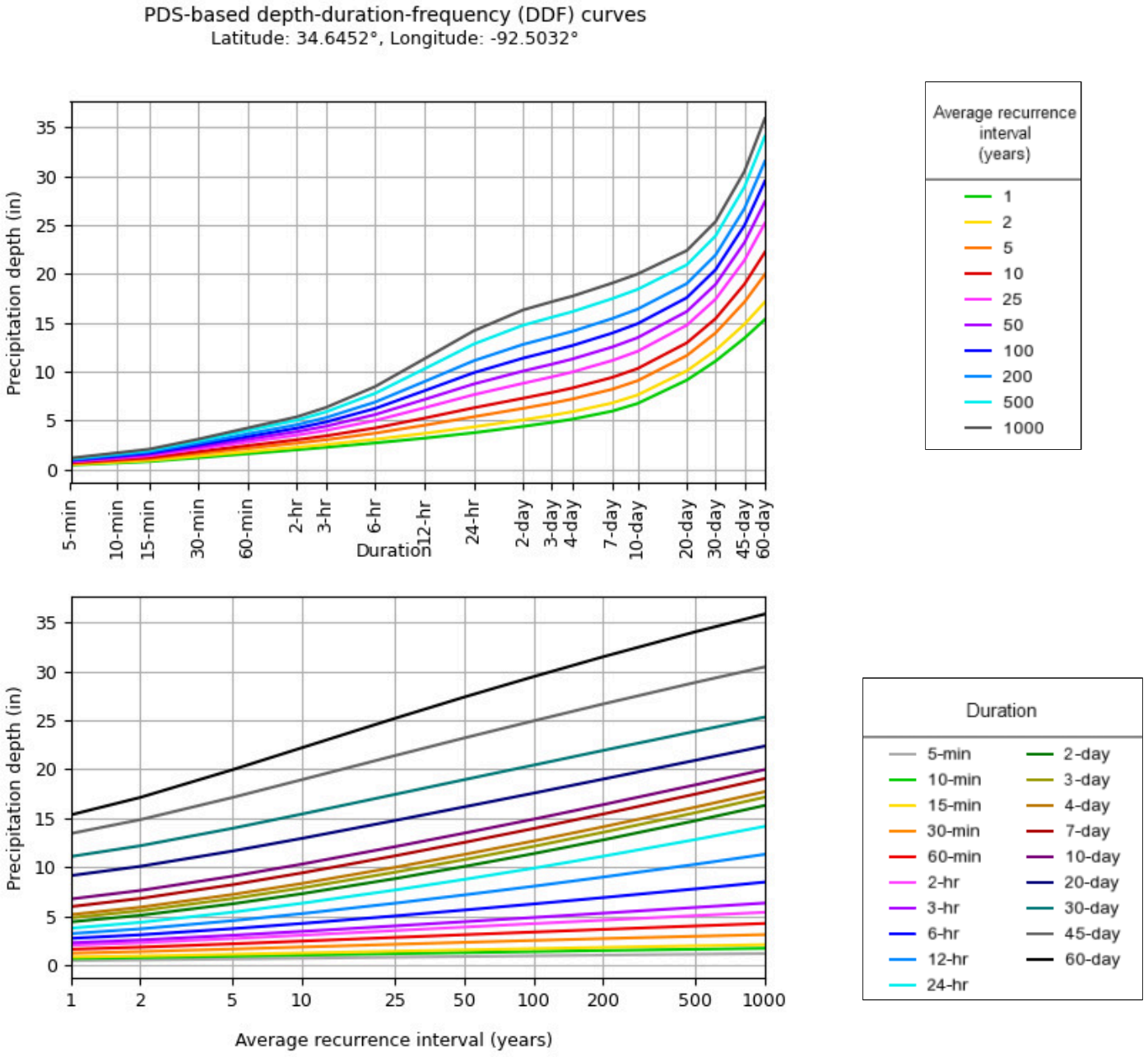
Back to Top

PF graphical



NOAA Atlas 14, Volume 9, Version 2

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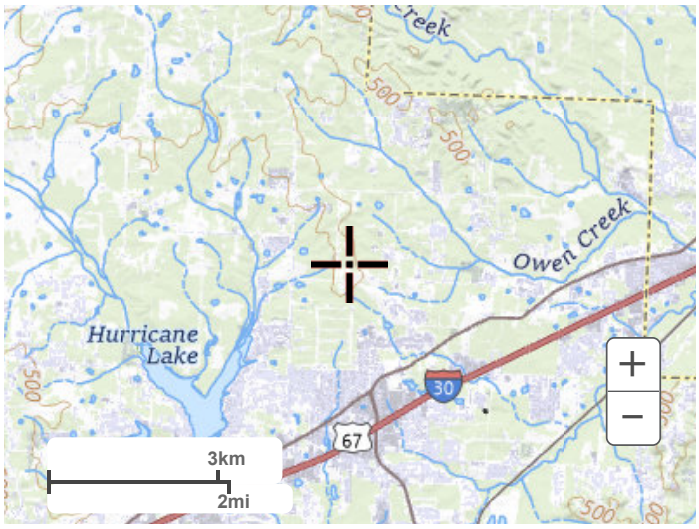
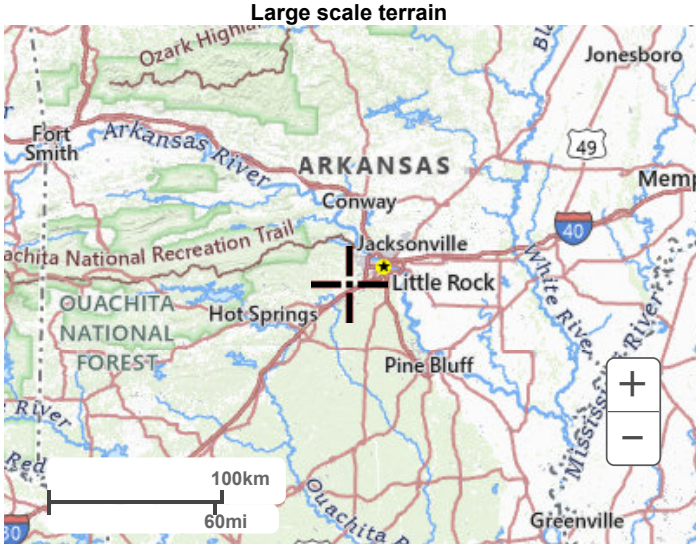
Back to Top

Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

Back to Top

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National Weather Service
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Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

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NOAA Atlas 14, Volume 9, Version 2
Location name: Bryant, Arkansas, USA*
Latitude: 34.6452°, Longitude: -92.5032°
Elevation: 527 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	**5.42** (4.39-6.64)	**6.14** (4.97-7.52)	**7.28** (5.88-8.95)	**8.21** (6.59-10.1)	**9.43** (7.30-11.9)	**10.3** (7.82-13.3)	**11.2** (8.21-14.8)	**12.1** (8.48-16.4)	**13.2** (8.89-18.4)	**13.9** (9.22-19.9)
10-min	**3.97** (3.22-4.86)	**4.49** (3.64-5.51)	**5.33** (4.30-6.55)	**6.01** (4.82-7.42)	**6.90** (5.34-8.73)	**7.57** (5.73-9.73)	**8.21** (6.01-10.8)	**8.84** (6.21-12.0)	**9.63** (6.52-13.4)	**10.2** (6.74-14.6)
15-min	**3.22** (2.62-3.95)	**3.66** (2.96-4.48)	**4.34** (3.50-5.33)	**4.88** (3.92-6.03)	**5.61** (4.34-7.10)	**6.15** (4.66-7.91)	**6.67** (4.88-8.80)	**7.18** (5.05-9.74)	**7.83** (5.30-10.9)	**8.30** (5.48-11.8)
30-min	**2.40** (1.94-2.94)	**2.73** (2.21-3.34)	**3.25** (2.62-3.99)	**3.66** (2.94-4.52)	**4.21** (3.25-5.32)	**4.62** (3.49-5.93)	**5.01** (3.66-6.59)	**5.38** (3.78-7.30)	**5.86** (3.96-8.17)	**6.20** (4.10-8.84)
60-min	**1.60** (1.30-1.96)	**1.82** (1.47-2.23)	**2.16** (1.74-2.65)	**2.44** (1.95-3.00)	**2.81** (2.17-3.56)	**3.09** (2.34-3.97)	**3.36** (2.46-4.44)	**3.63** (2.56-4.93)	**3.98** (2.70-5.57)	**4.24** (2.80-6.05)
2-hr	**1.00** (0.820-1.22)	**1.13** (0.926-1.38)	**1.35** (1.09-1.64)	**1.52** (1.23-1.86)	**1.75** (1.37-2.21)	**1.93** (1.48-2.47)	**2.11** (1.56-2.77)	**2.29** (1.62-3.09)	**2.52** (1.72-3.50)	**2.69** (1.79-3.81)
3-hr	**0.752** (0.618-0.910)	**0.849** (0.696-1.03)	**1.01** (0.824-1.22)	**1.14** (0.928-1.39)	**1.33** (1.04-1.67)	**1.47** (1.13-1.88)	**1.62** (1.20-2.12)	**1.76** (1.26-2.37)	**1.96** (1.34-2.72)	**2.11** (1.41-2.97)
6-hr	**0.452** (0.374-0.543)	**0.514** (0.425-0.618)	**0.618** (0.509-0.745)	**0.708** (0.579-0.857)	**0.835** (0.663-1.05)	**0.936** (0.726-1.19)	**1.04** (0.779-1.36)	**1.15** (0.825-1.54)	**1.30** (0.896-1.79)	**1.41** (0.950-1.98)
12-hr	**0.265** (0.221-0.316)	**0.305** (0.254-0.364)	**0.375** (0.311-0.448)	**0.435** (0.359-0.523)	**0.522** (0.419-0.653)	**0.593** (0.464-0.752)	**0.667** (0.504-0.867)	**0.745** (0.539-0.996)	**0.853** (0.594-1.17)	**0.938** (0.635-1.31)
24-hr	**0.156** (0.131-0.184)	**0.181** (0.152-0.214)	**0.224** (0.187-0.266)	**0.262** (0.218-0.313)	**0.318** (0.257-0.395)	**0.364** (0.287-0.458)	**0.412** (0.313-0.532)	**0.463** (0.337-0.615)	**0.534** (0.374-0.730)	**0.590** (0.402-0.817)
2-day	**0.091** (0.077-0.107)	**0.105** (0.089-0.124)	**0.130** (0.109-0.153)	**0.151** (0.127-0.179)	**0.183** (0.149-0.226)	**0.209** (0.166-0.262)	**0.237** (0.181-0.304)	**0.266** (0.195-0.351)	**0.307** (0.216-0.417)	**0.339** (0.232-0.466)
3-day	**0.066** (0.056-0.078)	**0.076** (0.065-0.089)	**0.094** (0.079-0.110)	**0.109** (0.092-0.128)	**0.131** (0.107-0.161)	**0.149** (0.119-0.185)	**0.168** (0.129-0.214)	**0.188** (0.138-0.247)	**0.216** (0.153-0.292)	**0.238** (0.163-0.326)
4-day	**0.053** (0.045-0.062)	**0.061** (0.052-0.071)	**0.074** (0.063-0.087)	**0.086** (0.073-0.101)	**0.103** (0.085-0.126)	**0.117** (0.094-0.145)	**0.131** (0.101-0.167)	**0.147** (0.108-0.192)	**0.168** (0.119-0.226)	**0.184** (0.127-0.251)
7-day	**0.035** (0.030-0.041)	**0.040** (0.034-0.046)	**0.048** (0.041-0.056)	**0.056** (0.047-0.065)	**0.066** (0.054-0.080)	**0.074** (0.059-0.091)	**0.082** (0.064-0.104)	**0.091** (0.068-0.119)	**0.103** (0.074-0.139)	**0.113** (0.078-0.153)
10-day	**0.028** (0.024-0.032)	**0.031** (0.027-0.036)	**0.037** (0.032-0.043)	**0.042** (0.036-0.049)	**0.050** (0.041-0.060)	**0.056** (0.045-0.068)	**0.062** (0.048-0.077)	**0.068** (0.050-0.088)	**0.076** (0.054-0.102)	**0.083** (0.057-0.112)
20-day	**0.019** (0.016-0.021)	**0.021** (0.018-0.024)	**0.024** (0.021-0.027)	**0.026** (0.023-0.031)	**0.030** (0.025-0.036)	**0.033** (0.027-0.040)	**0.036** (0.028-0.045)	**0.039** (0.029-0.050)	**0.043** (0.031-0.057)	**0.046** (0.032-0.062)
30-day	**0.015** (0.013-0.017)	**0.016** (0.014-0.019)	**0.019** (0.016-0.022)	**0.021** (0.018-0.024)	**0.024** (0.020-0.028)	**0.026** (0.021-0.031)	**0.028** (0.022-0.034)	**0.030** (0.022-0.038)	**0.033** (0.023-0.043)	**0.035** (0.024-0.047)
45-day	**0.012** (0.010-0.014)	**0.013** (0.012-0.015)	**0.015** (0.013-0.018)	**0.017** (0.015-0.020)	**0.019** (0.016-0.023)	**0.021** (0.017-0.025)	**0.023** (0.018-0.028)	**0.024** (0.018-0.031)	**0.026** (0.019-0.034)	**0.028** (0.019-0.037)
60-day	**0.010** (0.009-0.012)	**0.011** (0.010-0.013)	**0.013** (0.012-0.015)	**0.015** (0.013-0.017)	**0.017** (0.014-0.020)	**0.019** (0.015-0.022)	**0.020** (0.016-0.024)	**0.021** (0.016-0.027)	**0.023** (0.017-0.030)	**0.024** (0.017-0.033)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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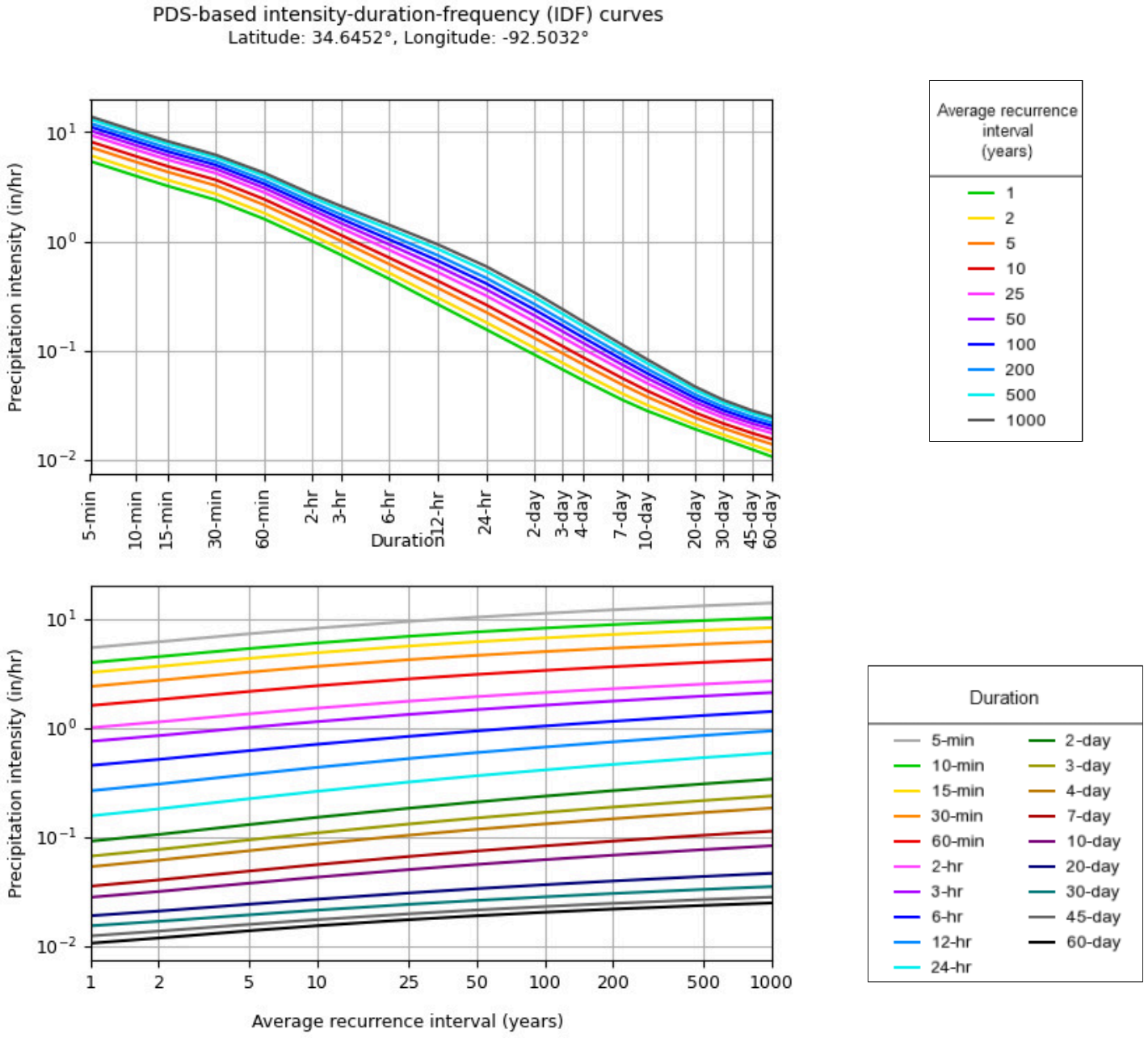
Back to Top

PF graphical



NOAA Atlas 14, Volume 9, Version 2

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Back to Top

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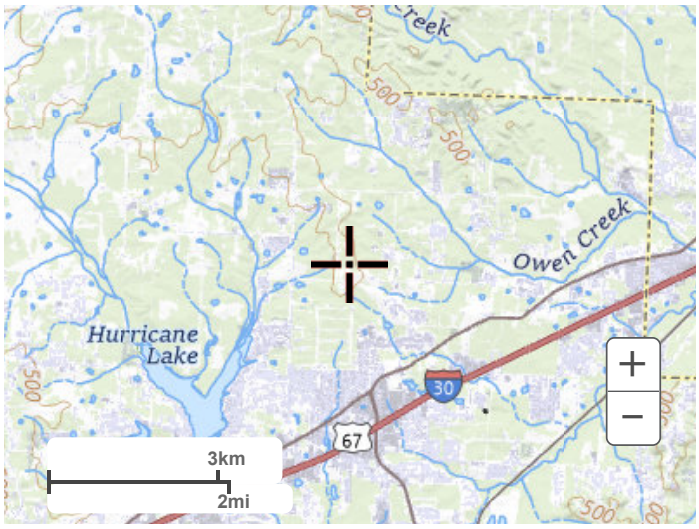
Small scale terrain



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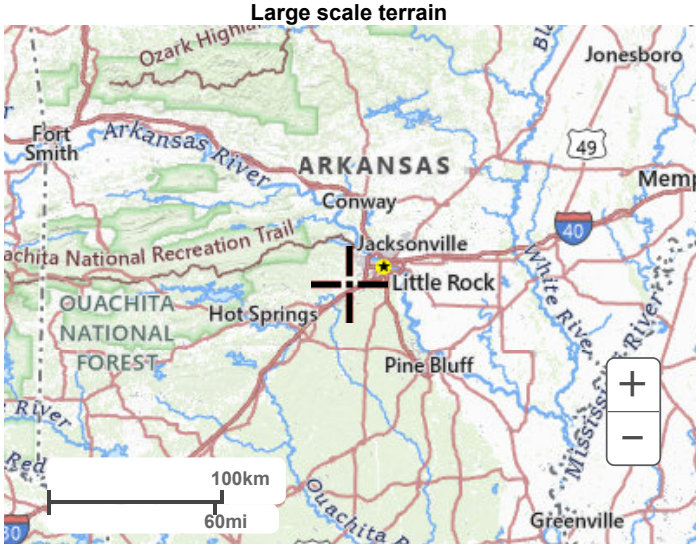

Large scale map

Large scale aerial

Back to Top

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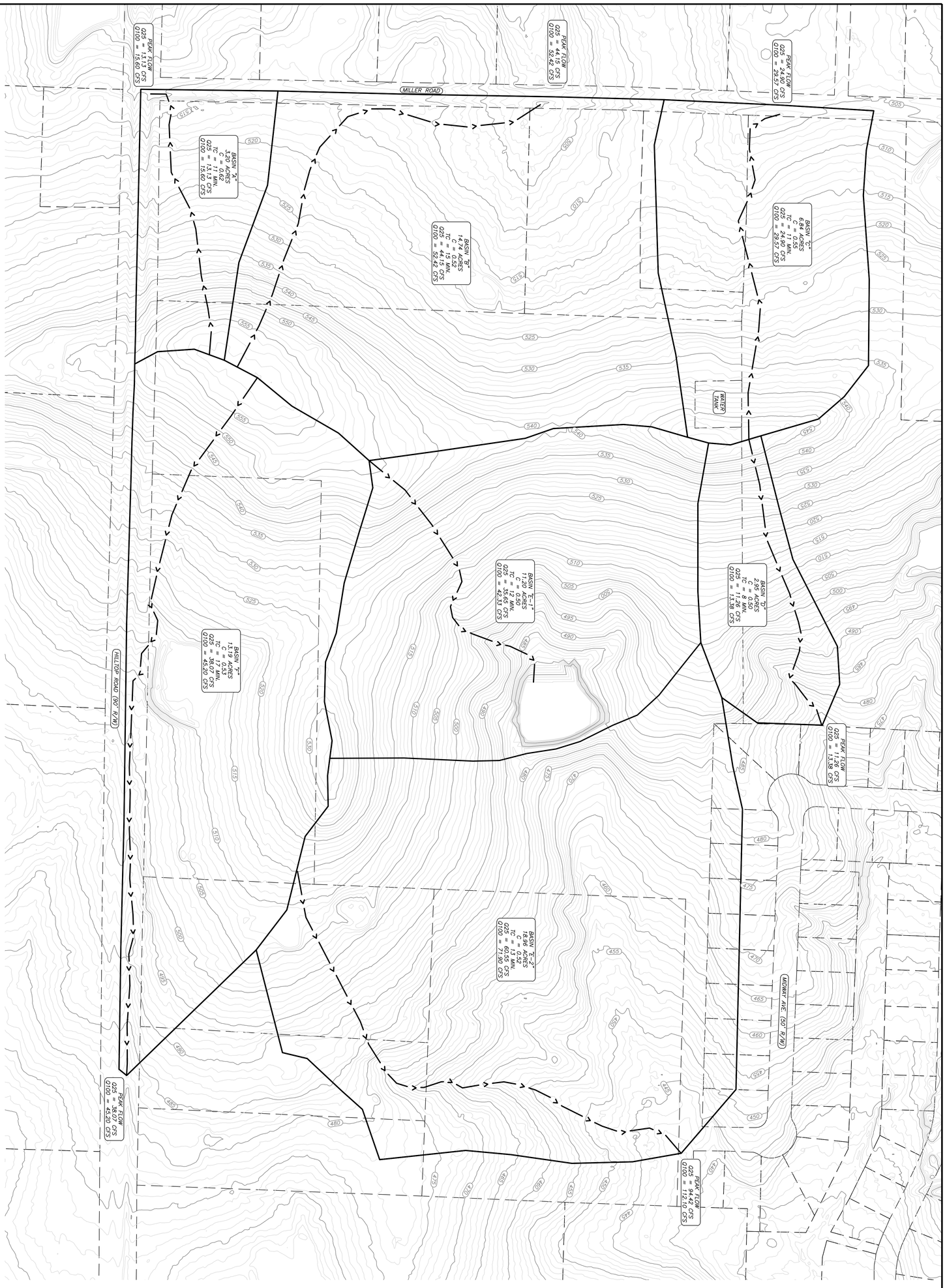
Site Drainage Basin Maps



GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

PROJECT NO.: 024-034

Scale: 1" = 100'

Date: 03/04/2026

Sheet: 1 of 3

No.	Revisions	Date

Prepared For: EMINENT CONSTRUCTIONS

PRE-DEVELOPMENT DRAINAGE BASIN MAP
HILLTOP PROPERTY - R2
75' LOTS
HILLTOP ROAD
BRYANT, ARKANSAS

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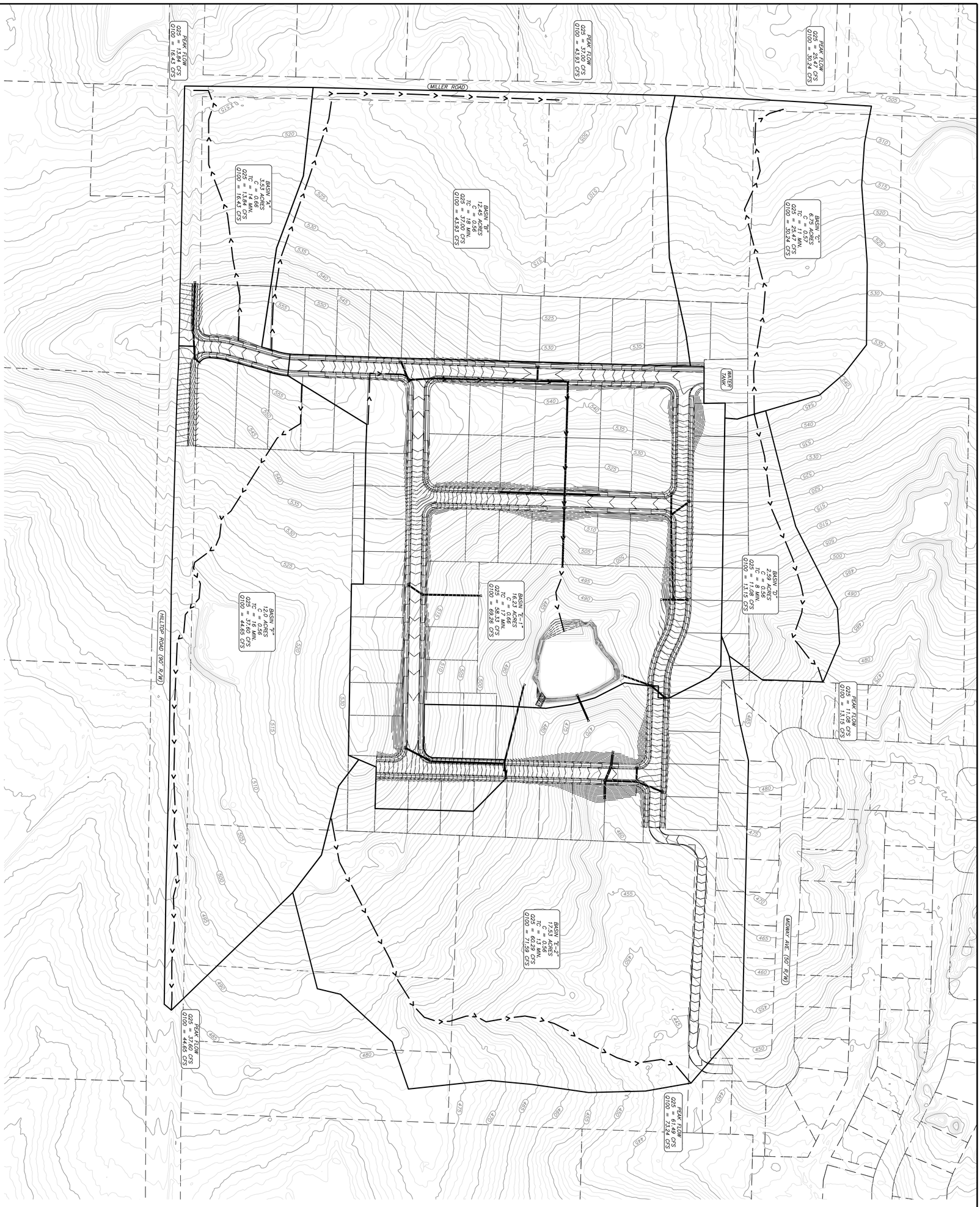

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1 inch = 100 ft.

PROJECT NO.: 024-034		
Scale: 1" = 100'	Date: 03/04/2026	
Sheet: 2 of 3		

No.	Revisions	Date

Prepared For:
EMINENT CONSTRUCTIONS

POST-DEVELOPMENT DRAINAGE BASIN MAP
HILLTOP PROPERTY – R2
75' LOTS
HILLTOP ROAD
BRYANT, ARKANSAS

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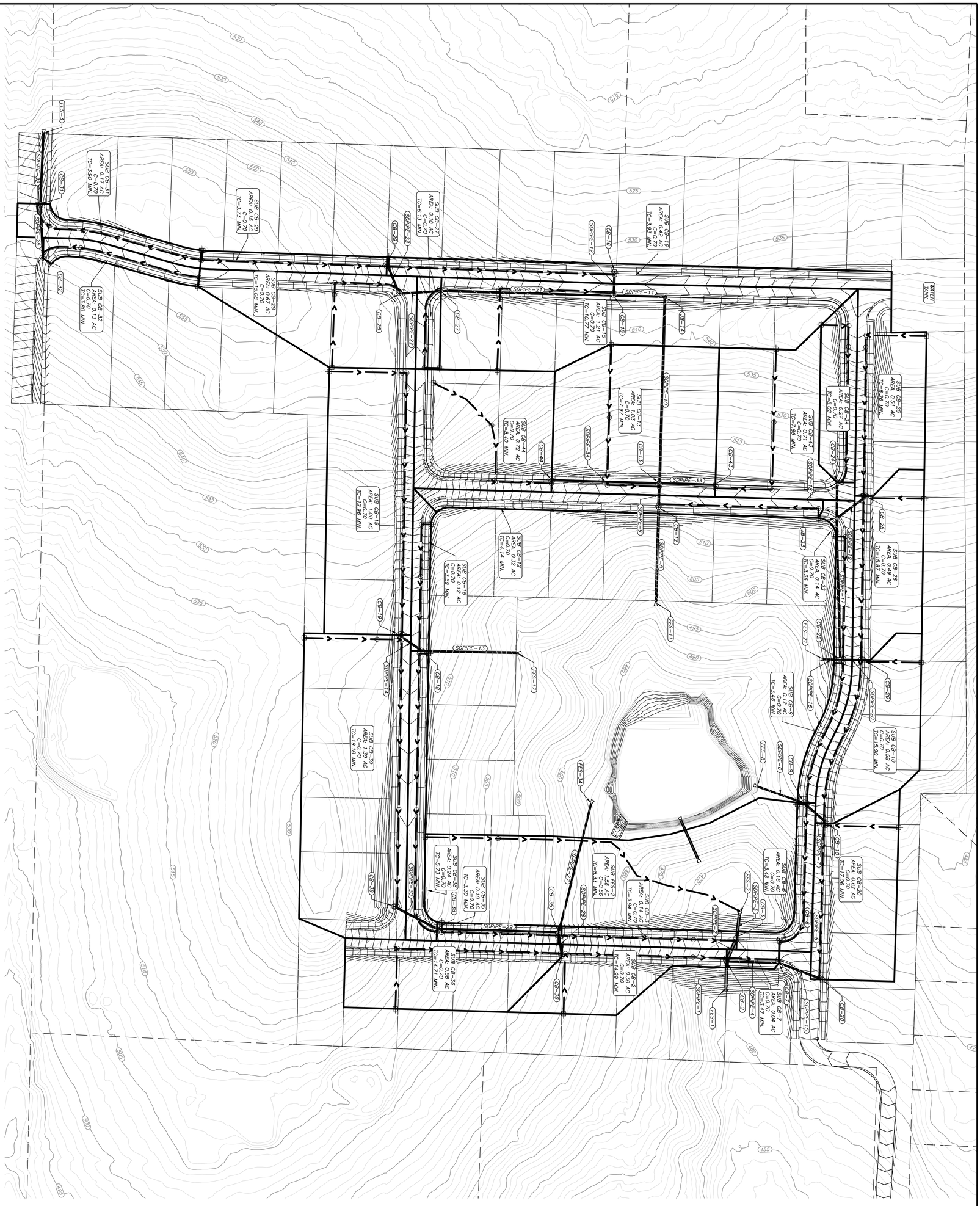

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PROJECT NO.: 024-034		
Scale: 1" = 60'	Date: 03/04/2026	
Sheet: 3 of 3		

No.	Revisions	Date

Prepared For:

EMINENT CONSTRUCTIONS

POST-DEVELOPMENT DRAINAGE BASIN MAP
HILLTOP PROPERTY – R2
75' LOTS
HILLTOP ROAD
BRYANT, ARKANSAS

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Overflow Wier Blockage Calculation

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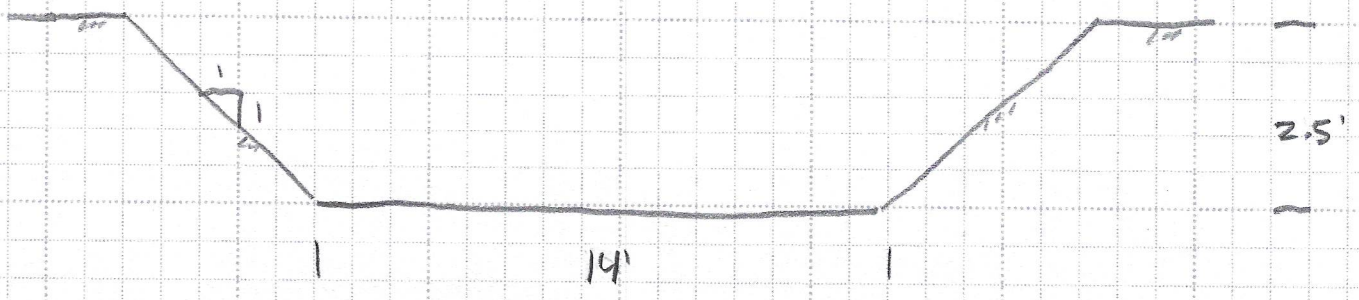
(1/1)

PROJECT 024-034 OVER FLOW WEIR CALCULATION DATE 03/04/2026



$Q = C\,L\,H^{3/2}$

$C = 2.8$

$L = 14'$

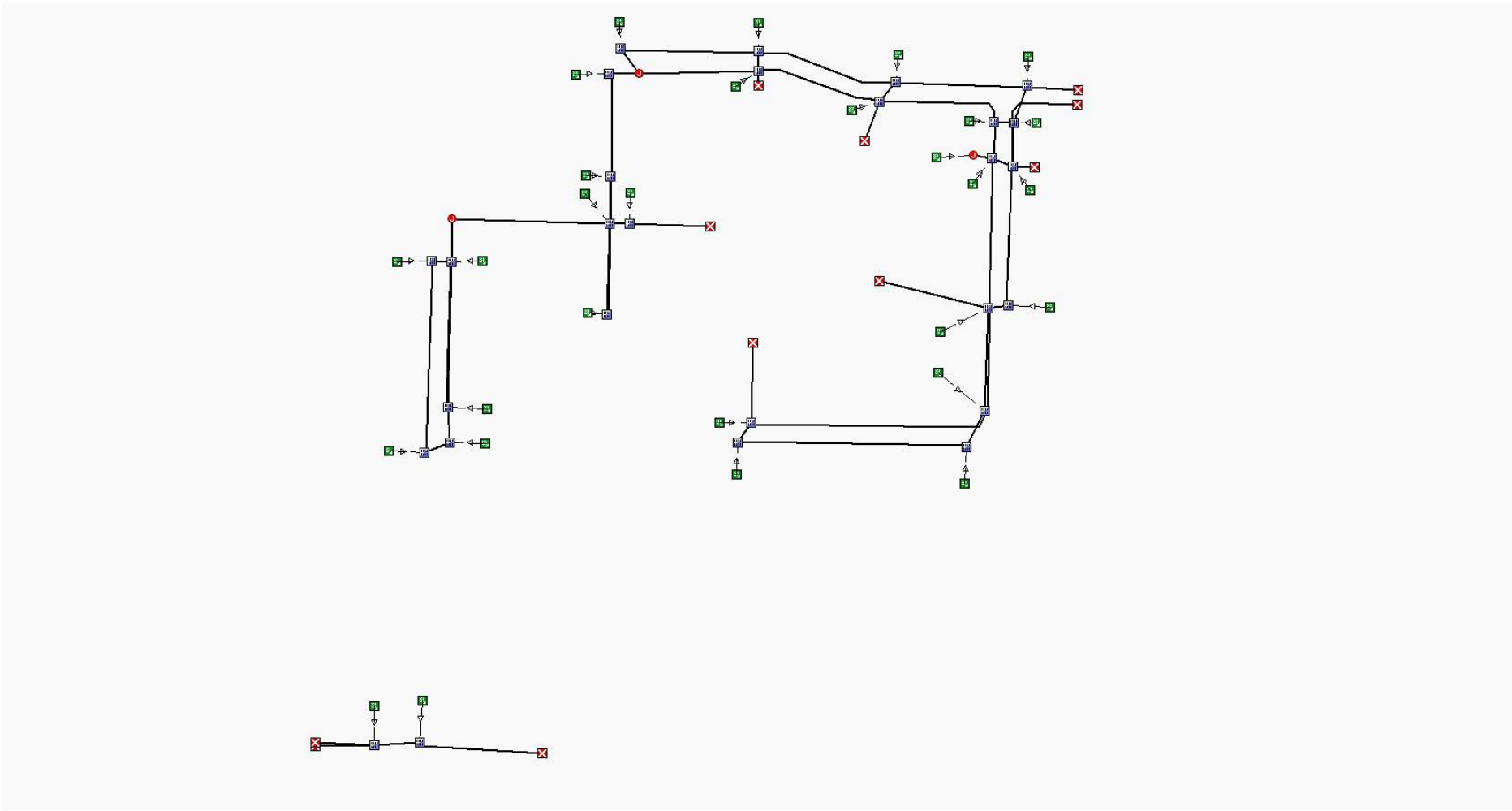
$H = 2.5'$

$Q = (2.8)(14)(2.5)^{3/2} = 154.95$ CFS

∴ ASSUMING THAT 50% OF THE WEIR IS BLOCKED

$Q = \frac{154.95}{2} = 77.48$ CFS > Q_{100} INTO POND = 69.92 CFS ✓

SSA Design Layout



Storm System Design (SSA)

2 Year Design Storm

Project Description

File Name	Hilltop Drainage Analysis 3-4-26.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

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

Number of Elements

	Qty
Rain Gages	0
Subbasins	29
Nodes	42
Junctions	3
Outfalls	11
Flow Diversions	0
Inlets	28
Storage Nodes	0
Links	52
Channels	21
Pipes	31
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	2 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-CB-10	0.58	0.7000	0.94	0.66	0.38	1.45	0 00:15:54
2	Sub-CB-12	0.32	0.7000	0.51	0.36	0.11	1.37	0 00:05:00
3	Sub-CB-13	1.03	0.7000	0.66	0.46	0.47	3.56	0 00:07:58
4	Sub-CB-15	1.21	0.7000	0.77	0.54	0.65	3.63	0 00:10:46
5	Sub-CB-16	0.42	0.7000	0.51	0.36	0.15	1.80	0 00:05:00
6	Sub-CB-18	0.12	0.7000	0.51	0.36	0.04	0.53	0 00:05:00
7	Sub-CB-19	1.00	0.7000	0.85	0.60	0.59	2.74	0 00:12:57
8	Sub-CB-2	0.38	0.7000	0.92	0.64	0.24	0.97	0 00:14:59
9	Sub-CB-20	0.62	0.7000	0.98	0.69	0.42	1.50	0 00:17:03
10	Sub-CB-22	0.14	0.7000	0.51	0.36	0.05	0.60	0 00:05:00
11	Sub-CB-24	0.27	0.7000	0.51	0.36	0.10	1.16	0 00:05:01
12	Sub-CB-25	0.51	0.7000	0.67	0.47	0.24	1.73	0 00:08:15
13	Sub-CB-26	0.49	0.7000	0.94	0.66	0.32	1.23	0 00:15:52
14	Sub-CB-27	0.10	0.7000	0.58	0.40	0.04	0.38	0 00:06:07
15	Sub-CB-28	0.67	0.7000	0.91	0.64	0.43	1.71	0 00:15:04
16	Sub-CB-29	0.15	0.7000	0.51	0.36	0.05	0.63	0 00:05:00
17	Sub-CB-3	0.14	0.7000	0.51	0.36	0.05	0.61	0 00:05:00
18	Sub-CB-31	0.17	0.7000	0.51	0.36	0.06	0.75	0 00:05:00
19	Sub-CB-32	0.13	0.7000	0.51	0.36	0.05	0.56	0 00:05:00
20	Sub-CB-35	0.10	0.7000	0.51	0.36	0.04	0.43	0 00:05:00
21	Sub-CB-36	0.58	0.7000	0.90	0.63	0.37	1.51	0 00:14:42
22	Sub-CB-38	0.24	0.7000	0.55	0.38	0.09	0.98	0 00:05:43
23	Sub-CB-39	1.39	0.7000	1.05	0.74	1.02	3.20	0 00:19:10
24	Sub-CB-43	0.71	0.7000	0.65	0.45	0.32	2.47	0 00:07:53
25	Sub-CB-44	0.72	0.7000	0.67	0.47	0.34	2.43	0 00:08:24
26	Sub-CB-6	0.16	0.7000	0.51	0.36	0.06	0.71	0 00:05:00
27	Sub-CB-7	0.04	0.7000	0.51	0.36	0.01	0.18	0 00:05:00
28	Sub-CB-9	0.12	0.7000	0.51	0.36	0.04	0.51	0 00:05:00
29	Sub-FES-2	1.58	0.5600	0.67	0.38	0.60	4.29	0 00:08:19

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)
1	FES-2	Junction	466.60	469.78	466.60	469.78	0.00	14.36	468.04	0.00	1.74
2	JB-14	Junction	529.50	535.50	529.50	535.50	0.00	5.29	529.93	0.00	5.57
3	JB-23	Junction	515.30	519.20	515.30	519.20	10.00	2.02	515.59	0.00	3.61
4	OFFSITE-1	Outfall	540.30					0.03	540.33		
5	OFFSITE-2	Outfall	532.10					0.00	532.11		
6	OFFSITE-25	Outfall	464.82					0.00	464.82		
7	OFFSITE-26	Outfall	464.82					0.18	464.90		
8	Out-FES-1	Outfall	463.00					16.29	463.57		
9	Out-FES-11	Outfall	492.00					11.70	492.47		
10	Out-FES-17	Outfall	505.00					2.27	505.26		
11	Out-FES-21	Outfall	499.00					3.04	499.30		
12	Out-FES-3	Outfall	538.50					1.24	538.71		
13	Out-FES-34	Outfall	484.31					4.00	484.84		
14	Out-FES-8	Outfall	482.52					1.37	482.87		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
1	SDPIPE-1	Pipe	CB-2	Out-FES-1	35.55	465.94	463.00	8.2700	36.000	0.0120	16.29	207.79	0.08	13.27	0.69	0
2	SDPIPE-10	Pipe	JB-14	CB-13	256.10	529.50	512.58	6.6100	18.000	0.0120	5.29	29.25	0.18	5.99	0.87	0
3	SDPIPE-11	Pipe	CB-15	JB-14	70.07	530.20	529.50	1.0000	18.000	0.0120	5.29	11.38	0.47	7.05	0.66	0
4	SDPIPE-12	Pipe	CB-16	CB-15	33.00	530.53	530.20	1.0000	18.000	0.0130	0.69	10.49	0.07	1.84	0.73	0
5	SDPIPE-13	Pipe	CB-18	Out-FES-17	130.50	517.50	505.00	9.5800	18.000	0.0120	2.27	35.22	0.06	10.80	0.26	0
6	SDPIPE-14	Pipe	FES-19	CB-18	39.55	517.99	517.50	1.2500	18.000	0.0130	2.28	11.74	0.19	5.82	0.41	0
7	SDPIPE-15	Pipe	CB-20	CB-7	64.04	468.11	467.47	1.0000	18.000	0.0130	1.45	10.50	0.14	3.74	0.41	0
8	SDPIPE-16	Pipe	CB-22	Out-FES-21	23.51	501.10	499.00	8.9300	18.000	0.0120	3.04	34.01	0.09	9.80	0.35	0
9	SDPIPE-17	Pipe	JB-23	CB-22	194.21	515.30	504.78	5.4200	18.000	0.0120	2.00	26.49	0.08	8.62	0.28	0
10	SDPIPE-18	Pipe	CB-24	JB-23	49.41	517.77	515.30	5.0000	18.000	0.0130	1.05	23.49	0.04	5.37	0.25	0
11	SDPIPE-19	Pipe	CB-25	JB-23	51.31	515.81	515.30	1.0000	18.000	0.0130	1.38	10.50	0.13	4.50	0.35	0
12	SDPIPE-2	Pipe	CB-3	CB-2	35.82	466.30	465.94	1.0000	36.000	0.0130	14.53	66.70	0.22	6.16	1.10	0
13	SDPIPE-20	Pipe	CB-26	CB-22	33.00	501.43	501.10	1.0000	18.000	0.0120	1.13	11.38	0.10	4.37	0.37	0
14	SDPIPE-21	Pipe	CB-27	CB-15	237.30	538.50	530.20	3.5000	18.000	0.0120	1.69	21.28	0.08	3.63	0.57	0
15	SDPIPE-22	Pipe	CB-28	CB-27	57.68	542.20	538.50	6.4100	18.000	0.0130	1.70	26.60	0.06	7.50	0.28	0
16	SDPIPE-23	Pipe	CB-29	CB-28	44.75	542.65	542.20	1.0000	18.000	0.0130	0.62	10.50	0.06	3.27	0.25	0
17	SDPIPE-25	Pipe	CB-32	CB-31	74.63	546.00	544.50	2.0100	18.000	0.0130	0.55	14.89	0.04	3.57	0.21	0
18	SDPIPE-27	Pipe	CB-35	Out-FES-34	182.53	487.50	484.31	1.7500	18.000	0.0120	4.00	15.03	0.27	6.84	0.55	0
19	SDPIPE-28	Pipe	CB-36	CB-35	33.55	487.84	487.50	1.0000	18.000	0.0130	1.27	10.50	0.12	3.12	0.46	0
20	SDPIPE-29	Pipe	CB-38	CB-35	167.22	505.00	487.50	10.4700	18.000	0.0120	3.08	36.81	0.08	7.34	0.43	0
21	SDPIPE-3	Pipe	FES-2	CB-3	30.36	466.60	466.30	1.0000	36.000	0.0120	14.44	71.83	0.20	7.37	1.32	0
22	SDPIPE-30	Pipe	CB-39	CB-38	66.71	510.34	505.00	8.0000	18.000	0.0130	3.08	29.71	0.10	10.67	0.33	0
23	SDPIPE-32	Pipe	CB-31	Out-FES-3	96.89	544.50	538.50	6.1900	18.000	0.0120	1.24	28.32	0.04	7.77	0.22	0
24	SDPIPE-33	Pipe	CB-43	CB-13	76.95	514.12	512.58	2.0000	18.000	0.0150	2.46	12.88	0.19	3.47	0.87	0
25	SDPIPE-34	Pipe	Inlet-CB-44	CB-13	148.00	516.28	512.58	2.5000	18.000	0.0150	2.16	14.39	0.15	3.23	0.86	0
26	SDPIPE-4	Pipe	CB-7	CB-2	71.93	467.47	466.75	1.0000	18.000	0.0120	1.44	11.38	0.13	4.10	0.38	0
27	SDPIPE-5	Pipe	CB-6	CB-7	33.00	467.80	467.47	1.0000	18.000	0.0130	0.42	10.50	0.04	1.92	0.28	0
28	SDPIPE-6	Pipe	CB-9	Out-FES-8	67.57	483.19	482.52	1.0000	18.000	0.0120	1.37	11.37	0.12	4.02	0.37	0

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
46	L-SDPIPE-29	Channel	CB-38	CB-35	172.07	510.35	492.85	10.1700	3.960	0.0150	0.02	8.06	0.00	1.78	0.02	0
47	L-SDPIPE-32	Channel	CB-31	OFFSITE-1	98.14	549.76	540.30	9.6400	6.000	0.0150	0.03	29.25	0.00	2.05	0.02	0
48	L-SDPIPE-33	Channel	CB-43	CB-13	78.40	517.57	516.63	1.2000	3.960	0.0320	0.00	2.77	0.00	0.00	0.17	0
49	L-SDPIPE-34	Channel	Inlet-CB-44	CB-13	149.79	521.28	516.63	3.1000	3.960	0.0320	0.22	4.46	0.05	0.22	0.22	0
50	L-SDPIPE-4	Channel	CB-7	OFFSITE-25	129.78	474.50	464.82	7.4600	3.960	0.0320	0.00	6.91	0.00	0.00	0.00	0
51	L-SDPIPE-6	Channel	CB-9	CB-6	214.12	489.41	474.50	6.9600	3.960	0.0150	0.00	6.67	0.00	0.00	0.09	0
52	L-SDPIPE-7	Channel	CB-10	CB-20	216.57	487.38	471.31	7.4200	3.960	0.0150	0.16	6.89	0.02	1.23	0.08	0

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	CB-10	On Grade	1	483.62	487.38	483.62	N/A	1.54	1.34	0.19	87.40	8.50	4.89	487.50
2	CB-12	On Sag	1	512.25	516.63	512.25	10.00	1.36	N/A	N/A	N/A	8.50	4.37	516.91
3	CB-13	On Sag	1	512.58	516.63	512.58	10.00	3.72	N/A	N/A	N/A	8.50	8.53	517.01
4	CB-15	On Sag	1	530.20	533.98	530.20	10.00	3.63	N/A	N/A	N/A	8.50	8.38	534.36
5	CB-16	On Sag	1	530.53	533.98	530.53	10.00	1.79	N/A	N/A	N/A	8.50	5.24	534.28
6	CB-18	On Grade	1	517.50	521.56	517.50	N/A	0.53	0.53	0.00	100.00	8.50	4.05	521.66
7	CB-2	On Grade	1	465.94	475.75	465.94	N/A	1.20	1.20	0.00	100.00	8.50	6.67	475.91
8	CB-20	On Grade	1	468.11	471.31	468.11	N/A	1.63	1.40	0.23	85.80	8.50	4.99	471.43
9	CB-22	On Grade	1	501.10	504.78	501.10	N/A	0.60	0.60	0.00	100.00	8.50	3.45	504.87
10	CB-24	On Grade	1	517.77	523.17	517.77	N/A	1.16	1.06	0.10	91.65	8.50	4.15	523.27
11	CB-25	On Grade	1	515.81	522.01	515.81	N/A	1.73	1.39	0.34	80.28	8.50	4.80	522.13
12	CB-26	On Grade	1	501.43	504.78	501.43	N/A	1.23	1.15	0.08	93.36	8.50	4.48	504.89
13	CB-27	On Grade	1	538.50	543.76	538.50	N/A	0.38	0.38	0.00	100.00	8.50	3.07	543.83
14	CB-28	On Sag	1	542.20	546.43	542.20	10.00	1.71	N/A	N/A	N/A	8.50	5.07	546.73
15	CB-29	On Grade	1	542.65	547.71	542.65	N/A	0.63	0.63	0.00	100.00	8.50	3.71	547.80
16	CB-3	On Grade	1	466.30	475.38	466.30	N/A	0.60	0.60	0.00	100.00	8.50	5.18	475.51
17	CB-31	On Grade	1	544.50	549.76	544.50	N/A	0.74	0.74	0.01	99.03	8.50	4.36	549.85
18	CB-32	On Grade	1	546.00	550.25	546.00	N/A	0.56	0.56	0.00	100.00	8.50	3.32	550.33
19	CB-35	On Grade	1	487.50	492.85	487.50	N/A	0.43	0.43	0.00	100.00	8.50	2.89	492.92
20	CB-36	On Grade	1	487.84	492.30	487.84	N/A	1.51	1.27	0.24	84.23	8.50	4.56	492.41
21	CB-38	On Grade	1	505.00	510.35	505.00	N/A	0.97	0.93	0.04	95.57	8.50	3.88	510.44
22	CB-39	On Sag	1	510.34	515.20	510.34	10.00	3.23	N/A	N/A	N/A	8.50	7.77	515.56
23	CB-43	On Grade	1	514.12	517.57	514.12	N/A	2.46	2.46	0.00	100.00	8.50	7.44	517.76
24	CB-6	On Sag	1	467.80	474.50	467.80	10.00	0.71	N/A	N/A	N/A	8.50	2.83	474.74
25	CB-7	On Grade	1	467.47	474.50	467.47	N/A	0.18	0.18	0.00	100.00	8.50	3.27	474.58
26	CB-9	On Grade	1	483.19	489.41	483.19	N/A	0.51	0.51	0.00	100.00	8.50	3.25	489.49
27	FES-19	On Grade	1	517.99	522.14	517.99	N/A	2.74	2.28	0.46	83.25	8.50	7.45	522.32
28	Inlet-CB-44	On Grade	1	516.28	521.28	516.28	N/A	2.43	2.18	0.24	89.92	8.50	5.34	521.41

Subbasin Hydrology

Subbasin : Sub-CB-10

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99996647	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	229.3185963	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.69	0	0

Total TOC (min) 15.90

Subbasin : Sub-CB-12

Input Data

Area (ac) 0.32
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	219.5273657	0	0
Slope (%) :	1.99	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	2.87	0	0
Computed Flow Time (min) :	1.28	0	0

Total TOC (min) 4.14

Subbasin : Sub-CB-13

Input Data

Area (ac) 1.03
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	11.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.27	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	71.4	0
Slope (%) :	11.5	1.99	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.47	2.87	0
Computed Flow Time (min) :	0.28	0.41	0

Total TOC (min) 7.97

Subbasin : Sub-CB-15

Input Data

Area (ac) 1.21
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	12.98144373	156.302	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.09	0.53	0

Total TOC (min) 10.77

Subbasin : Sub-CB-16

Input Data

Area (ac) 0.42
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.01720552	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	310.5319881	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	1.06	0	0

Total TOC (min) 3.93

Subbasin : Sub-CB-18

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.10752092	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.88	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	71.43477489	102.308	0
Slope (%) :	11.86	2.45	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	7	3.18	0
Computed Flow Time (min) :	0.17	0.54	0

Total TOC (min) 3.59

Subbasin : Sub-CB-19

Input Data

Area (ac) 1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100.0031436	0	0
Slope (%) :	3.4	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.83	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	6.07922878	278.905	79.9642
Slope (%) :	2	11.86	2.45
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	7	3.18
Computed Flow Time (min) :	0.04	0.66	0.42

Total TOC (min) 12.96

Subbasin : Sub-CB-2

Input Data

Area (ac) 0.38
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175.3484305	45.5292	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.44	0.4	0

Total TOC (min) 14.99

Subbasin : Sub-CB-20

Input Data

Area (ac) 0.62
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.99258294	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	3.00743724	208.662	0
Slope (%) :	2	7.49	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	5.56	0
Computed Flow Time (min) :	0.02	0.63	0

Total TOC (min) 17.06

Subbasin : Sub-CB-22

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99981258	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.0428132	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.5	0	0

Total TOC (min) 3.36

Subbasin : Sub-CB-24

Input Data

Area (ac) 0.27
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	37.99958613	0	0
Slope (%) :	6.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.15	0	0
Computed Flow Time (min) :	4.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	28.98355088	187.485	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.33	0.48	0

Total TOC (min) 5.02

Subbasin : Sub-CB-25

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99999586	0	0
Slope (%) :	7.25	0	0
2 yr, 24 hr Rainfall (in) :	4.32	0	0
Velocity (ft/sec) :	0.18	0	0
Computed Flow Time (min) :	7.56	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	16.12667612	203.961	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.19	0.52	0

Total TOC (min) 8.26

Subbasin : Sub-CB-26

Input Data

Area (ac) 0.49
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99998121	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221.0918618	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.66	0	0

Total TOC (min) 15.87

Subbasin : Sub-CB-27

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	21.13547973	0	0
Slope (%) :	1	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	5.57	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	117.1502173	0	0
Slope (%) :	2.92	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.47	0	0
Computed Flow Time (min) :	0.56	0	0

Total TOC (min) 6.13

Subbasin : Sub-CB-28

Input Data

Area (ac) 0.67
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	14.63	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	17.02372996	94.0918	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.12	0.32	0

Total TOC (min) 15.08

Subbasin : Sub-CB-29

Input Data

Area (ac) 0.15
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	253.6223323	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	0.87	0	0

Total TOC (min) 3.73

Subbasin : Sub-CB-3

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	181.26423	58.4106	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.46	0.52	0

Total TOC (min) 3.84

Subbasin : Sub-CB-31

Input Data

Area (ac) 0.17
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	166.3763112	83.6548	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.76	0.27	0

Total TOC (min) 3.90

Subbasin : Sub-CB-32

Input Data

Area (ac) 0.13
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.2624187	52.7043	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.77	0.17	0

Total TOC (min) 3.80

Subbasin : Sub-CB-35

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	159.59	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.4	0	0

Total TOC (min) 3.27

Subbasin : Sub-CB-36

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	224.201193	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.57	0	0

Total TOC (min) 14.71

Subbasin : Sub-CB-38

Input Data

Area (ac) 0.24
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.00000002	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	214.8866153	184.112	0
Slope (%) :	2.45	0.75	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.18	1.76	0
Computed Flow Time (min) :	1.13	1.74	0

Total TOC (min) 5.73

Subbasin : Sub-CB-39

Input Data

Area (ac) 1.39
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.98923348	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	34.45719772	233.523	132.701
Slope (%) :	1.5	2.45	0.75
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.98	3.18	1.76
Computed Flow Time (min) :	0.29	1.22	1.26

Total TOC (min) 19.18

Subbasin : Sub-CB-43

Input Data

Area (ac) 0.71
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	77.84	0
Slope (%) :	10.75	1.99	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	5.29	2.87	0
Computed Flow Time (min) :	0.29	0.45	0

Total TOC (min) 7.89

Subbasin : Sub-CB-44

Input Data

Area (ac) 0.72
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	9	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	8.02	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	78.42	77.02	0
Slope (%) :	16.7	11.38	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	6.59	6.86	0
Computed Flow Time (min) :	0.2	0.19	0

Total TOC (min) 8.40

Subbasin : Sub-CB-6

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	207.9606416	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.62	0	0

Total TOC (min) 3.48

Subbasin : Sub-CB-7

Input Data

Area (ac) 0.04
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999999	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	68.39700153	0	0
Slope (%) :	0.85	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.87	0	0
Computed Flow Time (min) :	0.61	0	0

Total TOC (min) 3.47

Subbasin : Sub-CB-9

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999519	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	199.7947467	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.6	0	0

Total TOC (min) 3.46

Subbasin : Sub-FES-2

Input Data

Area (ac) 1.58
Weighted Runoff Coefficient 0.56

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	363.3701089	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	1.19	0	0

Total TOC (min) 8.33

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	FES-2	466.60	469.78	3.18	466.60	0.00	469.78	0.00	0.00	0.00
2	JB-14	529.50	535.50	6.00	529.50	0.00	535.50	0.00	0.00	0.00
3	JB-23	515.30	519.20	3.90	515.30	0.00	519.20	0.00	10.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tim F Floo Occurre (days hh:n
1	FES-2	14.36	14.36	468.04	1.44	0.00	1.74	467.71	1.11	0 00:00	0 0(
2	JB-14	5.29	0.00	529.93	0.43	0.00	5.57	529.51	0.01	0 00:12	0 0(
3	JB-23	2.02	0.00	515.59	0.29	0.00	3.61	515.30	0.00	0 00:06	0 0(

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	L-SDPIPE-1	73.15	475.75	9.81	474.50	7.03	1.25	1.7100	User-Defined	0.330	14.000	0.0150
2	L-SDPIPE-13	403.61	521.56	4.06	510.35	5.35	11.21	2.7800	User-Defined	0.330	14.000	0.0150
3	L-SDPIPE-14	373.89	522.14	4.14	515.20	4.86	6.94	1.8600	User-Defined	0.330	14.000	0.0150
4	L-SDPIPE-15	83.27	471.31	3.20	464.82	0.00	6.49	7.7900	User-Defined	0.330	14.000	0.0150
5	L-SDPIPE-16	206.62	504.78	3.68	489.41	6.22	15.37	7.4400	User-Defined	0.330	14.000	0.0150
6	L-SDPIPE-18	171.93	523.17	5.40	517.57	3.45	5.60	3.2600	User-Defined	0.330	14.000	0.0150
7	L-SDPIPE-19	227.29	522.01	6.20	504.78	3.35	17.23	7.5800	User-Defined	0.330	14.000	0.0150
8	L-SDPIPE-2	62.02	475.38	9.08	474.50	6.70	0.88	1.4200	User-Defined	0.330	14.000	0.0150
9	L-SDPIPE-20	233.87	504.78	3.35	487.38	3.76	17.40	7.4400	User-Defined	0.330	14.000	0.0150
10	L-SDPIPE-21	239.45	543.76	5.26	533.98	3.78	9.78	4.0800	User-Defined	0.330	14.000	0.0150
11	L-SDPIPE-23	314.52	547.71	5.07	533.98	3.45	13.74	4.3700	User-Defined	0.500	26.000	0.0150
12	L-SDPIPE-25	202.83	550.25	4.25	532.10	0.00	18.15	8.9500	User-Defined	0.500	26.000	0.0150
13	L-SDPIPE-27	245.69	492.85	5.35	475.38	9.08	17.47	7.1100	User-Defined	0.330	14.000	0.0150
14	L-SDPIPE-28	228.18	492.30	4.46	475.75	9.81	16.55	7.2500	User-Defined	0.330	14.000	0.0150
15	L-SDPIPE-29	172.07	510.35	5.35	492.85	5.35	17.49	10.1700	User-Defined	0.330	14.000	0.0150
16	L-SDPIPE-32	98.14	549.76	5.26	540.30	0.00	9.46	9.6400	User-Defined	0.500	26.000	0.0150
17	L-SDPIPE-33	78.40	517.57	3.45	516.63	4.05	0.94	1.2000	User-Defined	0.330	14.000	0.0320
18	L-SDPIPE-34	149.79	521.28	5.00	516.63	4.05	4.65	3.1000	User-Defined	0.330	14.000	0.0320
19	L-SDPIPE-4	129.78	474.50	7.03	464.82	0.00	9.68	7.4600	User-Defined	0.330	14.000	0.0320
20	L-SDPIPE-6	214.12	489.41	6.22	474.50	6.70	14.91	6.9600	User-Defined	0.330	14.000	0.0150
21	L-SDPIPE-7	216.57	487.38	3.76	471.31	3.20	16.07	7.4200	User-Defined	0.330	14.000	0.0150

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	N
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	L-SDPIPE-1	0.00	0 00:00	3.30	0.00	0.00		0.00	0.00	0.00	
2	L-SDPIPE-13	0.00	0 00:00	4.21	0.00	0.00		0.02	0.06	0.00	
3	L-SDPIPE-14	0.46	0 00:13	3.45	0.13	0.37	16.84	0.24	0.73	0.00	
4	L-SDPIPE-15	0.18	0 00:17	7.06	0.03	1.66	0.84	0.08	0.24	0.00	
5	L-SDPIPE-16	0.00	0 00:05	6.90	0.00	0.00		0.00	0.01	0.00	
6	L-SDPIPE-18	0.11	0 00:05	4.56	0.02	6.54	0.44	0.07	0.21	0.00	
7	L-SDPIPE-19	0.34	0 00:08	6.96	0.05	2.95	1.28	0.07	0.22	0.00	
8	L-SDPIPE-2	0.00	0 00:00	3.02	0.00	0.00		0.09	0.27	0.00	
9	L-SDPIPE-20	0.09	0 00:16	6.90	0.01	0.82	4.75	0.07	0.21	0.00	
10	L-SDPIPE-21	0.00	0 00:00	5.11	0.00	0.00		0.17	0.50	0.00	
11	L-SDPIPE-23	0.00	0 00:06	19.69	0.00	0.01	524.20	0.15	0.31	0.00	
12	L-SDPIPE-25	0.00	0 00:05	28.17	0.00	0.00		0.01	0.02	0.00	
13	L-SDPIPE-27	0.00	0 00:00	6.74	0.00	0.00		0.00	0.00	0.00	
14	L-SDPIPE-28	0.24	0 00:14	6.81	0.03	2.96	1.28	0.06	0.18	0.00	
15	L-SDPIPE-29	0.02	0 00:07	8.06	0.00	1.78	1.61	0.02	0.06	0.00	
16	L-SDPIPE-32	0.03	0 00:05	29.25	0.00	2.05	0.80	0.02	0.05	0.00	
17	L-SDPIPE-33	0.00	0 00:00	2.77	0.00	0.00		0.17	0.50	0.00	
18	L-SDPIPE-34	0.22	0 00:08	4.46	0.05	0.22	11.35	0.22	0.66	0.00	
19	L-SDPIPE-4	0.00	0 00:00	6.91	0.00	0.00		0.00	0.00	0.00	
20	L-SDPIPE-6	0.00	0 00:00	6.67	0.00	0.00		0.09	0.27	0.00	
21	L-SDPIPE-7	0.16	0 00:16	6.89	0.02	1.23	2.93	0.08	0.23	0.00	

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	SDPIPE-1	35.55	465.94	0.00	463.00	0.00	2.94	8.2700	CIRCULAR	36.000	36.000	0.0120
2	SDPIPE-10	256.10	529.50	0.00	512.58	0.00	16.92	6.6100	CIRCULAR	18.000	18.000	0.0120
3	SDPIPE-11	70.07	530.20	0.00	529.50	0.00	0.70	1.0000	CIRCULAR	18.000	18.000	0.0120
4	SDPIPE-12	33.00	530.53	0.00	530.20	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
5	SDPIPE-13	130.50	517.50	0.00	505.00	0.00	12.50	9.5800	CIRCULAR	18.000	18.000	0.0120
6	SDPIPE-14	39.55	517.99	0.00	517.50	0.00	0.49	1.2500	CIRCULAR	18.000	18.000	0.0130
7	SDPIPE-15	64.04	468.11	0.00	467.47	0.00	0.64	1.0000	CIRCULAR	18.000	18.000	0.0130
8	SDPIPE-16	23.51	501.10	0.00	499.00	0.00	2.10	8.9300	CIRCULAR	18.000	18.000	0.0120
9	SDPIPE-17	194.21	515.30	0.00	504.78	3.68	10.52	5.4200	CIRCULAR	18.000	18.000	0.0120
10	SDPIPE-18	49.41	517.77	0.00	515.30	0.00	2.47	5.0000	CIRCULAR	18.000	18.000	0.0130
11	SDPIPE-19	51.31	515.81	0.00	515.30	0.00	0.51	1.0000	CIRCULAR	18.000	18.000	0.0130
12	SDPIPE-2	35.82	466.30	0.00	465.94	0.00	0.36	1.0000	CIRCULAR	36.000	36.000	0.0130
13	SDPIPE-20	33.00	501.43	0.00	501.10	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0120
14	SDPIPE-21	237.30	538.50	0.00	530.20	0.00	8.30	3.5000	CIRCULAR	18.000	18.000	0.0120
15	SDPIPE-22	57.68	542.20	0.00	538.50	0.00	3.70	6.4100	CIRCULAR	18.000	18.000	0.0130
16	SDPIPE-23	44.75	542.65	0.00	542.20	0.00	0.45	1.0000	CIRCULAR	18.000	18.000	0.0130
17	SDPIPE-25	74.63	546.00	0.00	544.50	0.00	1.50	2.0100	CIRCULAR	18.000	18.000	0.0130
18	SDPIPE-27	182.53	487.50	0.00	484.31	0.00	3.19	1.7500	CIRCULAR	18.000	18.000	0.0120
19	SDPIPE-28	33.55	487.84	0.00	487.50	0.00	0.34	1.0000	CIRCULAR	18.000	18.000	0.0130
20	SDPIPE-29	167.22	505.00	0.00	487.50	0.00	17.50	10.4700	CIRCULAR	18.000	18.000	0.0120
21	SDPIPE-3	30.36	466.60	0.00	466.30	0.00	0.30	1.0000	CIRCULAR	36.000	36.000	0.0120
22	SDPIPE-30	66.71	510.34	0.00	505.00	0.00	5.34	8.0000	CIRCULAR	18.000	18.000	0.0130
23	SDPIPE-32	96.89	544.50	0.00	538.50	0.00	6.00	6.1900	CIRCULAR	18.000	18.000	0.0120
24	SDPIPE-33	76.95	514.12	0.00	512.58	0.00	1.54	2.0000	CIRCULAR	18.000	18.000	0.0150
25	SDPIPE-34	148.00	516.28	0.00	512.58	0.00	3.70	2.5000	CIRCULAR	18.000	18.000	0.0150
26	SDPIPE-4	71.93	467.47	0.00	466.75	0.81	0.72	1.0000	CIRCULAR	18.000	18.000	0.0120
27	SDPIPE-5	33.00	467.80	0.00	467.47	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
28	SDPIPE-6	67.57	483.19	0.00	482.52	0.00	0.67	1.0000	CIRCULAR	18.000	18.000	0.0120
29	SDPIPE-7	42.68	483.62	0.00	483.19	0.00	0.43	1.0000	CIRCULAR	18.000	18.000	0.0130
30	SDPIPE-8	130.51	512.25	0.00	492.00	0.00	20.25	15.5200	CIRCULAR	24.000	24.000	0.0120
31	SDPIPE-9	33.00	512.58	0.00	512.25	0.00	0.33	1.0000	CIRCULAR	24.000	24.000	0.0130

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Fro Num
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	SDPIPE-1	16.29	0 00:08	207.79	0.08	13.27	0.04	0.69	0.23	0.00	
2	SDPIPE-10	5.29	0 00:12	29.25	0.18	5.99	0.71	0.87	0.58	0.00	
3	SDPIPE-11	5.29	0 00:12	11.38	0.47	7.05	0.17	0.66	0.44	0.00	
4	SDPIPE-12	0.69	0 00:07	10.49	0.07	1.84	0.30	0.73	0.49	0.00	
5	SDPIPE-13	2.27	0 00:13	35.22	0.06	10.80	0.20	0.26	0.18	0.00	
6	SDPIPE-14	2.28	0 00:13	11.74	0.19	5.82	0.11	0.41	0.27	0.00	
7	SDPIPE-15	1.45	0 00:17	10.50	0.14	3.74	0.29	0.41	0.27	0.00	
8	SDPIPE-16	3.04	0 00:06	34.01	0.09	9.80	0.04	0.35	0.23	0.00	
9	SDPIPE-17	2.00	0 00:06	26.49	0.08	8.62	0.38	0.28	0.19	0.00	
10	SDPIPE-18	1.05	0 00:05	23.49	0.04	5.37	0.15	0.25	0.17	0.00	
11	SDPIPE-19	1.38	0 00:08	10.50	0.13	4.50	0.19	0.35	0.23	0.00	
12	SDPIPE-2	14.53	0 00:08	66.70	0.22	6.16	0.10	1.10	0.37	0.00	
13	SDPIPE-20	1.13	0 00:16	11.38	0.10	4.37	0.13	0.37	0.25	0.00	
14	SDPIPE-21	1.69	0 00:15	21.28	0.08	3.63	1.09	0.57	0.38	0.00	
15	SDPIPE-22	1.70	0 00:15	26.60	0.06	7.50	0.13	0.28	0.19	0.00	
16	SDPIPE-23	0.62	0 00:05	10.50	0.06	3.27	0.23	0.25	0.16	0.00	
17	SDPIPE-25	0.55	0 00:05	14.89	0.04	3.57	0.35	0.21	0.14	0.00	
18	SDPIPE-27	4.00	0 00:20	15.03	0.27	6.84	0.44	0.55	0.37	0.00	
19	SDPIPE-28	1.27	0 00:14	10.50	0.12	3.12	0.18	0.46	0.31	0.00	
20	SDPIPE-29	3.08	0 00:20	36.81	0.08	7.34	0.38	0.43	0.29	0.00	
21	SDPIPE-3	14.44	0 00:00	71.83	0.20	7.37	0.07	1.32	0.44	0.00	
22	SDPIPE-30	3.08	0 00:20	29.71	0.10	10.67	0.10	0.33	0.22	0.00	
23	SDPIPE-32	1.24	0 00:05	28.32	0.04	7.77	0.21	0.22	0.15	0.00	
24	SDPIPE-33	2.46	0 00:08	12.88	0.19	3.47	0.37	0.87	0.58	0.00	
25	SDPIPE-34	2.16	0 00:08	14.39	0.15	3.23	0.76	0.86	0.57	0.00	
26	SDPIPE-4	1.44	0 00:17	11.38	0.13	4.10	0.29	0.38	0.25	0.00	
27	SDPIPE-5	0.42	0 00:07	10.50	0.04	1.92	0.29	0.28	0.18	0.00	
28	SDPIPE-6	1.37	0 00:16	11.37	0.12	4.02	0.28	0.37	0.25	0.00	
29	SDPIPE-7	1.37	0 00:16	10.50	0.13	3.58	0.20	0.40	0.27	0.00	
30	SDPIPE-8	11.70	0 00:09	96.54	0.12	19.35	0.11	0.49	0.25	0.00	
31	SDPIPE-9	11.55	0 00:09	22.62	0.51	8.12	0.07	0.93	0.46	0.00	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	CB-10	On Grade	1	483.62	487.38	3.76	483.62	0.00	N/A	0.00
2	CB-12	On Sag	1	512.25	516.63	4.38	512.25	0.00	10.00	0.00
3	CB-13	On Sag	1	512.58	516.63	4.05	512.58	0.00	10.00	0.00
4	CB-15	On Sag	1	530.20	533.98	3.78	530.20	0.00	10.00	0.00
5	CB-16	On Sag	1	530.53	533.98	3.45	530.53	0.00	10.00	0.00
6	CB-18	On Grade	1	517.50	521.56	4.06	517.50	0.00	N/A	0.00
7	CB-2	On Grade	1	465.94	475.75	9.81	465.94	0.00	N/A	0.00
8	CB-20	On Grade	1	468.11	471.31	3.20	468.11	0.00	N/A	0.00
9	CB-22	On Grade	1	501.10	504.78	3.68	501.10	0.00	N/A	0.00
10	CB-24	On Grade	1	517.77	523.17	5.40	517.77	0.00	N/A	0.00
11	CB-25	On Grade	1	515.81	522.01	6.20	515.81	0.00	N/A	0.00
12	CB-26	On Grade	1	501.43	504.78	3.35	501.43	0.00	N/A	0.00
13	CB-27	On Grade	1	538.50	543.76	5.26	538.50	0.00	N/A	0.00
14	CB-28	On Sag	1	542.20	546.43	4.23	542.20	0.00	10.00	0.00
15	CB-29	On Grade	1	542.65	547.71	5.07	542.65	0.00	N/A	0.00
16	CB-3	On Grade	1	466.30	475.38	9.08	466.30	0.00	N/A	0.00
17	CB-31	On Grade	1	544.50	549.76	5.26	544.50	0.00	N/A	0.00
18	CB-32	On Grade	1	546.00	550.25	4.25	546.00	0.00	N/A	0.00
19	CB-35	On Grade	1	487.50	492.85	5.35	487.50	0.00	N/A	0.00
20	CB-36	On Grade	1	487.84	492.30	4.46	487.84	0.00	N/A	0.00
21	CB-38	On Grade	1	505.00	510.35	5.35	505.00	0.00	N/A	0.00
22	CB-39	On Sag	1	510.34	515.20	4.86	510.34	0.00	10.00	0.00
23	CB-43	On Grade	1	514.12	517.57	3.45	514.12	0.00	N/A	0.00
24	CB-6	On Sag	1	467.80	474.50	6.70	467.80	0.00	10.00	0.00
25	CB-7	On Grade	1	467.47	474.50	7.03	467.47	0.00	N/A	0.00
26	CB-9	On Grade	1	483.19	489.41	6.22	483.19	0.00	N/A	0.00
27	FES-19	On Grade	1	517.99	522.14	4.14	517.99	0.00	N/A	0.00
28	Inlet-CB-44	On Grade	1	516.28	521.28	5.00	516.28	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB-10	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
2	CB-12	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
3	CB-13	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
4	CB-15	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
5	CB-16	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
6	CB-18	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
7	CB-2	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
8	CB-20	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
9	CB-22	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
10	CB-24	0.1033	0.0258	0.0150	0.0200	1.00	0.1312	8.50
11	CB-25	0.1041	0.0258	0.0150	0.0200	1.00	0.1312	8.50
12	CB-26	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
13	CB-27	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
14	CB-28	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
15	CB-29	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
16	CB-3	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
17	CB-31	0.0721	0.0200	0.0150	0.0200	1.50	0.1312	8.50
18	CB-32	0.0809	0.0258	0.0150	0.0200	1.00	0.1312	8.50
19	CB-35	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
20	CB-36	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
21	CB-38	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
22	CB-39	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
23	CB-43	0.0199	0.0258	0.0150	0.0200	1.00	0.1312	8.50
24	CB-6	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
25	CB-7	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
26	CB-9	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
27	FES-19	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
28	Inlet-CB-44	0.1138	0.0258	0.0150	0.0200	1.00	0.1312	8.50

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	F \
1	CB-10	1.54	1.45	1.34	0.19	87.40	4.89	487.50	0.12	0 00:16	
2	CB-12	1.36	1.36	N/A	N/A	N/A	4.37	516.91	0.28	0 00:09	
3	CB-13	3.72	3.56	N/A	N/A	N/A	8.53	517.01	0.39	0 00:09	
4	CB-15	3.63	3.63	N/A	N/A	N/A	8.38	534.36	0.38	0 00:12	
5	CB-16	1.79	1.79	N/A	N/A	N/A	5.24	534.28	0.30	0 00:12	
6	CB-18	0.53	0.53	0.53	0.00	100.00	4.05	521.66	0.10	0 00:13	
7	CB-2	1.20	0.97	1.20	0.00	100.00	6.67	475.91	0.17	0 00:08	
8	CB-20	1.63	1.50	1.40	0.23	85.80	4.99	471.43	0.12	0 00:17	
9	CB-22	0.60	0.60	0.60	0.00	100.00	3.45	504.87	0.08	0 00:06	
10	CB-24	1.16	1.16	1.06	0.10	91.65	4.15	523.27	0.10	0 00:05	
11	CB-25	1.73	1.73	1.39	0.34	80.28	4.80	522.13	0.12	0 00:08	
12	CB-26	1.23	1.23	1.15	0.08	93.36	4.48	504.89	0.11	0 00:16	
13	CB-27	0.38	0.38	0.38	0.00	100.00	3.07	543.83	0.07	0 00:15	
14	CB-28	1.71	1.71	N/A	N/A	N/A	5.07	546.73	0.30	0 00:15	
15	CB-29	0.63	0.63	0.63	0.00	100.00	3.71	547.80	0.09	0 00:05	
16	CB-3	0.60	0.60	0.60	0.00	100.00	5.18	475.51	0.13	0 00:08	
17	CB-31	0.74	0.74	0.74	0.01	99.03	4.36	549.85	0.09	0 00:05	
18	CB-32	0.56	0.56	0.56	0.00	100.00	3.32	550.33	0.08	0 00:05	
19	CB-35	0.43	0.43	0.43	0.00	100.00	2.89	492.92	0.07	0 00:20	
20	CB-36	1.51	1.51	1.27	0.24	84.23	4.56	492.41	0.11	0 00:14	
21	CB-38	0.97	0.97	0.93	0.04	95.57	3.88	510.44	0.09	0 00:20	
22	CB-39	3.23	3.20	N/A	N/A	N/A	7.77	515.56	0.37	0 00:20	
23	CB-43	2.46	2.46	2.46	0.00	100.00	7.44	517.76	0.19	0 00:08	
24	CB-6	0.71	0.71	N/A	N/A	N/A	2.83	474.74	0.24	0 00:07	
25	CB-7	0.18	0.18	0.18	0.00	100.00	3.27	474.58	0.08	0 00:17	
26	CB-9	0.51	0.51	0.51	0.00	100.00	3.25	489.49	0.08	0 00:16	
27	FES-19	2.74	2.74	2.28	0.46	83.25	7.45	522.32	0.19	0 00:13	
28	Inlet-CB-44	2.43	2.43	2.18	0.24	89.92	5.34	521.41	0.13	0 00:08	

10 Year Design Storm

Project Description

File Name	Hilltop Drainage Analysis 3-4-26.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

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

Number of Elements

	Qty
Rain Gages	0
Subbasins	29
Nodes	42
Junctions	3
Outfalls	11
Flow Diversions	0
Inlets	28
Storage Nodes	0
Links	52
Channels	21
Pipes	31
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	10 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-CB-10	0.58	0.7000	1.26	0.88	0.51	1.94	0 00:15:54
2	Sub-CB-12	0.32	0.7000	0.69	0.48	0.15	1.82	0 00:05:00
3	Sub-CB-13	1.03	0.7000	0.88	0.62	0.63	4.76	0 00:07:58
4	Sub-CB-15	1.21	0.7000	1.03	0.72	0.88	4.85	0 00:10:46
5	Sub-CB-16	0.42	0.7000	0.69	0.48	0.20	2.40	0 00:05:00
6	Sub-CB-18	0.12	0.7000	0.69	0.48	0.06	0.71	0 00:05:00
7	Sub-CB-19	1.00	0.7000	1.14	0.80	0.79	3.67	0 00:12:57
8	Sub-CB-2	0.38	0.7000	1.23	0.86	0.33	1.30	0 00:14:59
9	Sub-CB-20	0.62	0.7000	1.32	0.92	0.57	2.01	0 00:17:03
10	Sub-CB-22	0.14	0.7000	0.69	0.48	0.07	0.80	0 00:05:00
11	Sub-CB-24	0.27	0.7000	0.68	0.48	0.13	1.55	0 00:05:01
12	Sub-CB-25	0.51	0.7000	0.90	0.63	0.32	2.31	0 00:08:15
13	Sub-CB-26	0.49	0.7000	1.26	0.88	0.43	1.64	0 00:15:52
14	Sub-CB-27	0.10	0.7000	0.77	0.54	0.05	0.50	0 00:06:07
15	Sub-CB-28	0.67	0.7000	1.22	0.86	0.57	2.29	0 00:15:04
16	Sub-CB-29	0.15	0.7000	0.69	0.48	0.07	0.84	0 00:05:00
17	Sub-CB-3	0.14	0.7000	0.69	0.48	0.07	0.81	0 00:05:00
18	Sub-CB-31	0.17	0.7000	0.69	0.48	0.08	1.00	0 00:05:00
19	Sub-CB-32	0.13	0.7000	0.69	0.48	0.06	0.74	0 00:05:00
20	Sub-CB-35	0.10	0.7000	0.69	0.48	0.05	0.58	0 00:05:00
21	Sub-CB-36	0.58	0.7000	1.21	0.85	0.49	2.02	0 00:14:42
22	Sub-CB-38	0.24	0.7000	0.73	0.51	0.12	1.30	0 00:05:43
23	Sub-CB-39	1.39	0.7000	1.41	0.99	1.37	4.29	0 00:19:10
24	Sub-CB-43	0.71	0.7000	0.87	0.61	0.43	3.30	0 00:07:53
25	Sub-CB-44	0.72	0.7000	0.89	0.63	0.45	3.25	0 00:08:24
26	Sub-CB-6	0.16	0.7000	0.69	0.48	0.08	0.95	0 00:05:00
27	Sub-CB-7	0.04	0.7000	0.69	0.48	0.02	0.23	0 00:05:00
28	Sub-CB-9	0.12	0.7000	0.69	0.48	0.06	0.68	0 00:05:00
29	Sub-FES-2	1.58	0.5600	0.90	0.50	0.80	5.74	0 00:08:19

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	(
1	FES-2	Junction	466.60	469.78	466.60	469.78	0.00	18.15	468.23	0.00	1.55	
2	JB-14	Junction	529.50	535.50	529.50	535.50	0.00	7.08	530.00	0.00	5.50	
3	JB-23	Junction	515.30	519.20	515.30	519.20	10.00	2.48	515.62	0.00	3.58	
4	OFFSITE-1	Outfall	540.30					0.06	540.34			
5	OFFSITE-2	Outfall	532.10					0.01	532.12			
6	OFFSITE-25	Outfall	464.82					0.00	464.82			
7	OFFSITE-26	Outfall	464.82					0.41	464.93			
8	Out-FES-1	Outfall	463.00					20.77	463.64			
9	Out-FES-11	Outfall	492.00					16.42	492.56			
10	Out-FES-17	Outfall	505.00					2.73	505.28			
11	Out-FES-21	Outfall	499.00					4.02	499.35			
12	Out-FES-3	Outfall	538.50					1.63	538.74			
13	Out-FES-34	Outfall	484.31					5.47	484.94			
14	Out-FES-8	Outfall	482.52					1.79	482.92			

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
1	SDPIPE-1	Pipe	CB-2	Out-FES-1	35.55	465.94	463.00	8.2700	36.000	0.0120	20.77	207.79	0.10	13.80	0.80	0
2	SDPIPE-10	Pipe	JB-14	CB-13	256.10	529.50	512.58	6.6100	18.000	0.0120	7.07	29.25	0.24	6.63	1.00	0
3	SDPIPE-11	Pipe	CB-15	JB-14	70.07	530.20	529.50	1.0000	18.000	0.0120	7.08	11.38	0.62	7.49	0.79	0
4	SDPIPE-12	Pipe	CB-16	CB-15	33.00	530.53	530.20	1.0000	18.000	0.0130	0.81	10.49	0.08	1.89	0.92	0
5	SDPIPE-13	Pipe	CB-18	Out-FES-17	130.50	517.50	505.00	9.5800	18.000	0.0120	2.73	35.22	0.08	11.41	0.29	0
6	SDPIPE-14	Pipe	FES-19	CB-18	39.55	517.99	517.50	1.2500	18.000	0.0130	2.73	11.74	0.23	6.07	0.45	0
7	SDPIPE-15	Pipe	CB-20	CB-7	64.04	468.11	467.47	1.0000	18.000	0.0130	1.91	10.50	0.18	3.96	0.48	0
8	SDPIPE-16	Pipe	CB-22	Out-FES-21	23.51	501.10	499.00	8.9300	18.000	0.0120	4.02	34.01	0.12	10.32	0.41	0
9	SDPIPE-17	Pipe	JB-23	CB-22	194.21	515.30	504.78	5.4200	18.000	0.0120	2.46	26.49	0.09	9.13	0.31	0
10	SDPIPE-18	Pipe	CB-24	JB-23	49.41	517.77	515.30	5.0000	18.000	0.0130	1.29	23.49	0.05	5.64	0.28	0
11	SDPIPE-19	Pipe	CB-25	JB-23	51.31	515.81	515.30	1.0000	18.000	0.0130	1.65	10.50	0.16	4.72	0.38	0
12	SDPIPE-2	Pipe	CB-3	CB-2	35.82	466.30	465.94	1.0000	36.000	0.0130	18.39	66.70	0.28	6.53	1.26	0
13	SDPIPE-20	Pipe	CB-26	CB-22	33.00	501.43	501.10	1.0000	18.000	0.0120	1.51	11.38	0.13	4.60	0.46	0
14	SDPIPE-21	Pipe	CB-27	CB-15	237.30	538.50	530.20	3.5000	18.000	0.0120	2.26	21.28	0.11	4.01	0.69	0
15	SDPIPE-22	Pipe	CB-28	CB-27	57.68	542.20	538.50	6.4100	18.000	0.0130	2.28	26.60	0.09	8.09	0.32	0
16	SDPIPE-23	Pipe	CB-29	CB-28	44.75	542.65	542.20	1.0000	18.000	0.0130	0.83	10.50	0.08	3.51	0.29	0
17	SDPIPE-25	Pipe	CB-32	CB-31	74.63	546.00	544.50	2.0100	18.000	0.0130	0.72	14.89	0.05	3.84	0.24	0
18	SDPIPE-27	Pipe	CB-35	Out-FES-34	182.53	487.50	484.31	1.7500	18.000	0.0120	5.47	15.03	0.36	7.37	0.66	0
19	SDPIPE-28	Pipe	CB-36	CB-35	33.55	487.84	487.50	1.0000	18.000	0.0130	1.52	10.50	0.15	3.12	0.56	0
20	SDPIPE-29	Pipe	CB-38	CB-35	167.22	505.00	487.50	10.4700	18.000	0.0120	4.30	36.81	0.12	8.00	0.52	0
21	SDPIPE-3	Pipe	FES-2	CB-3	30.36	466.60	466.30	1.0000	36.000	0.0120	18.15	71.83	0.25	7.64	1.53	0
22	SDPIPE-30	Pipe	CB-39	CB-38	66.71	510.34	505.00	8.0000	18.000	0.0130	4.30	29.71	0.14	11.57	0.39	0
23	SDPIPE-32	Pipe	CB-31	Out-FES-3	96.89	544.50	538.50	6.1900	18.000	0.0120	1.63	28.32	0.06	8.35	0.25	0
24	SDPIPE-33	Pipe	CB-43	CB-13	76.95	514.12	512.58	2.0000	18.000	0.0150	3.24	12.88	0.25	3.72	1.01	0
25	SDPIPE-34	Pipe	Inlet-CB-44	CB-13	148.00	516.28	512.58	2.5000	18.000	0.0150	2.62	14.39	0.18	3.48	0.97	0
26	SDPIPE-4	Pipe	CB-7	CB-2	71.93	467.47	466.75	1.0000	18.000	0.0120	1.92	11.38	0.17	4.40	0.44	0
27	SDPIPE-5	Pipe	CB-6	CB-7	33.00	467.80	467.47	1.0000	18.000	0.0130	0.52	10.50	0.05	1.96	0.32	0
28	SDPIPE-6	Pipe	CB-9	Out-FES-8	67.57	483.19	482.52	1.0000	18.000	0.0120	1.79	11.37	0.16	4.31	0.43	0

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
46	L-SDPIPE-29	Channel	CB-38	CB-35	172.07	510.35	492.85	10.1700	3.960	0.0150	0.11	8.06	0.01	2.68	0.04	0
47	L-SDPIPE-32	Channel	CB-31	OFFSITE-1	98.14	549.76	540.30	9.6400	6.000	0.0150	0.06	29.25	0.00	2.14	0.04	0
48	L-SDPIPE-33	Channel	CB-43	CB-13	78.40	517.57	516.63	1.2000	3.960	0.0320	0.02	2.77	0.01	0.08	0.19	0
49	L-SDPIPE-34	Channel	Inlet-CB-44	CB-13	149.79	521.28	516.63	3.1000	3.960	0.0320	0.58	4.46	0.13	0.47	0.24	0
50	L-SDPIPE-4	Channel	CB-7	OFFSITE-25	129.78	474.50	464.82	7.4600	3.960	0.0320	0.00	6.91	0.00	0.00	0.00	0
51	L-SDPIPE-6	Channel	CB-9	CB-6	214.12	489.41	474.50	6.9600	3.960	0.0150	0.00	6.67	0.00	0.07	0.11	0
52	L-SDPIPE-7	Channel	CB-10	CB-20	216.57	487.38	471.31	7.4200	3.960	0.0150	0.37	6.89	0.05	1.51	0.11	0

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	CB-10	On Grade	1	483.62	487.38	483.62	N/A	2.18	1.68	0.50	77.21	8.50	5.56	487.52
2	CB-12	On Sag	1	512.25	516.63	512.25	10.00	1.82	N/A	N/A	N/A	8.50	5.29	516.93
3	CB-13	On Sag	1	512.58	516.63	512.58	10.00	5.27	N/A	N/A	N/A	8.50	10.76	517.07
4	CB-15	On Sag	1	530.20	533.98	530.20	10.00	4.85	N/A	N/A	N/A	8.50	10.18	534.41
5	CB-16	On Sag	1	530.53	533.98	530.53	10.00	2.39	N/A	N/A	N/A	8.50	6.35	534.31
6	CB-18	On Grade	1	517.50	521.56	517.50	N/A	0.70	0.70	0.00	100.00	8.50	4.49	521.67
7	CB-2	On Grade	1	465.94	475.75	465.94	N/A	1.78	1.78	0.00	100.00	8.50	7.69	475.94
8	CB-20	On Grade	1	468.11	471.31	468.11	N/A	2.32	1.75	0.57	75.33	8.50	5.68	471.45
9	CB-22	On Grade	1	501.10	504.78	501.10	N/A	0.80	0.80	0.00	99.97	8.50	3.85	504.88
10	CB-24	On Grade	1	517.77	523.17	517.77	N/A	1.54	1.29	0.25	83.68	8.50	4.62	523.28
11	CB-25	On Grade	1	515.81	522.01	515.81	N/A	2.31	1.66	0.65	71.68	8.50	5.33	522.14
12	CB-26	On Grade	1	501.43	504.78	501.43	N/A	1.65	1.41	0.24	85.52	8.50	5.00	504.91
13	CB-27	On Grade	1	538.50	543.76	538.50	N/A	0.50	0.50	0.00	100.00	8.50	3.41	543.84
14	CB-28	On Sag	1	542.20	546.43	542.20	10.00	2.28	N/A	N/A	N/A	8.50	6.16	546.76
15	CB-29	On Grade	1	542.65	547.71	542.65	N/A	0.84	0.84	0.00	100.00	8.50	4.12	547.81
16	CB-3	On Grade	1	466.30	475.38	466.30	N/A	0.81	0.81	0.00	100.00	8.50	5.73	475.52
17	CB-31	On Grade	1	544.50	549.76	544.50	N/A	0.99	0.93	0.06	93.74	8.50	4.88	549.86
18	CB-32	On Grade	1	546.00	550.25	546.00	N/A	0.74	0.74	0.00	100.00	8.50	3.68	550.33
19	CB-35	On Grade	1	487.50	492.85	487.50	N/A	0.60	0.60	0.00	100.00	8.50	3.25	492.93
20	CB-36	On Grade	1	487.84	492.30	487.84	N/A	2.02	1.53	0.49	75.65	8.50	5.06	492.42
21	CB-38	On Grade	1	505.00	510.35	505.00	N/A	1.30	1.15	0.15	88.46	8.50	4.31	510.45
22	CB-39	On Sag	1	510.34	515.20	510.34	10.00	4.44	N/A	N/A	N/A	8.50	9.60	515.61
23	CB-43	On Grade	1	514.12	517.57	514.12	N/A	3.29	3.23	0.06	98.14	8.50	8.27	517.78
24	CB-6	On Sag	1	467.80	474.50	467.80	10.00	0.95	N/A	N/A	N/A	8.50	3.43	474.75
25	CB-7	On Grade	1	467.47	474.50	467.47	N/A	0.23	0.23	0.00	100.00	8.50	3.63	474.59
26	CB-9	On Grade	1	483.19	489.41	483.19	N/A	0.68	0.68	0.00	100.00	8.50	3.61	489.50
27	FES-19	On Grade	1	517.99	522.14	517.99	N/A	3.67	2.74	0.93	74.60	8.50	8.28	522.35
28	Inlet-CB-44	On Grade	1	516.28	521.28	516.28	N/A	3.24	2.64	0.60	81.56	8.50	5.96	521.43

Subbasin Hydrology

Subbasin : Sub-CB-10

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99996647	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	229.3185963	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.69	0	0

Total TOC (min) 15.90

Subbasin : Sub-CB-12

Input Data

Area (ac) 0.32
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	219.5273657	0	0
Slope (%) :	1.99	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	2.87	0	0
Computed Flow Time (min) :	1.28	0	0

Total TOC (min) 4.14

Subbasin : Sub-CB-13

Input Data

Area (ac) 1.03
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	11.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.27	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	71.4	0
Slope (%) :	11.5	1.99	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.47	2.87	0
Computed Flow Time (min) :	0.28	0.41	0

Total TOC (min) 7.97

Subbasin : Sub-CB-15

Input Data

Area (ac) 1.21
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	12.98144373	156.302	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.09	0.53	0

Total TOC (min) 10.77

Subbasin : Sub-CB-16

Input Data

Area (ac) 0.42
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.01720552	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	310.5319881	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	1.06	0	0

Total TOC (min) 3.93

Subbasin : Sub-CB-18

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.10752092	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.88	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	71.43477489	102.308	0
Slope (%) :	11.86	2.45	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	7	3.18	0
Computed Flow Time (min) :	0.17	0.54	0

Total TOC (min) 3.59

Subbasin : Sub-CB-19

Input Data

Area (ac) 1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100.0031436	0	0
Slope (%) :	3.4	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.83	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	6.07922878	278.905	79.9642
Slope (%) :	2	11.86	2.45
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	7	3.18
Computed Flow Time (min) :	0.04	0.66	0.42

Total TOC (min) 12.96

Subbasin : Sub-CB-2

Input Data

Area (ac) 0.38
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175.3484305	45.5292	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.44	0.4	0

Total TOC (min) 14.99

Subbasin : Sub-CB-20

Input Data

Area (ac) 0.62
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.99258294	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	3.00743724	208.662	0
Slope (%) :	2	7.49	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	5.56	0
Computed Flow Time (min) :	0.02	0.63	0

Total TOC (min) 17.06

Subbasin : Sub-CB-22

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99981258	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.0428132	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.5	0	0

Total TOC (min) 3.36

Subbasin : Sub-CB-24

Input Data

Area (ac) 0.27
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	37.99958613	0	0
Slope (%) :	6.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.15	0	0
Computed Flow Time (min) :	4.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	28.98355088	187.485	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.33	0.48	0

Total TOC (min) 5.02

Subbasin : Sub-CB-25

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99999586	0	0
Slope (%) :	7.25	0	0
2 yr, 24 hr Rainfall (in) :	4.32	0	0
Velocity (ft/sec) :	0.18	0	0
Computed Flow Time (min) :	7.56	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	16.12667612	203.961	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.19	0.52	0

Total TOC (min) 8.26

Subbasin : Sub-CB-26

Input Data

Area (ac) 0.49
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99998121	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221.0918618	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.66	0	0

Total TOC (min) 15.87

Subbasin : Sub-CB-27

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	21.13547973	0	0
Slope (%) :	1	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	5.57	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	117.1502173	0	0
Slope (%) :	2.92	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.47	0	0
Computed Flow Time (min) :	0.56	0	0

Total TOC (min) 6.13

Subbasin : Sub-CB-28

Input Data

Area (ac) 0.67
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	14.63	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	17.02372996	94.0918	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.12	0.32	0

Total TOC (min) 15.08

Subbasin : Sub-CB-29

Input Data

Area (ac) 0.15
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	253.6223323	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	0.87	0	0

Total TOC (min) 3.73

Subbasin : Sub-CB-3

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	181.26423	58.4106	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.46	0.52	0

Total TOC (min) 3.84

Subbasin : Sub-CB-31

Input Data

Area (ac) 0.17
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	166.3763112	83.6548	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.76	0.27	0

Total TOC (min) 3.90

Subbasin : Sub-CB-32

Input Data

Area (ac) 0.13
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.2624187	52.7043	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.77	0.17	0

Total TOC (min) 3.80

Subbasin : Sub-CB-35

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	159.59	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.4	0	0

Total TOC (min) 3.27

Subbasin : Sub-CB-36

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	224.201193	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.57	0	0

Total TOC (min) 14.71

Subbasin : Sub-CB-38

Input Data

Area (ac) 0.24
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.00000002	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	214.8866153	184.112	0
Slope (%) :	2.45	0.75	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.18	1.76	0
Computed Flow Time (min) :	1.13	1.74	0

Total TOC (min) 5.73

Subbasin : Sub-CB-39

Input Data

Area (ac) 1.39
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.98923348	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	34.45719772	233.523	132.701
Slope (%) :	1.5	2.45	0.75
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.98	3.18	1.76
Computed Flow Time (min) :	0.29	1.22	1.26

Total TOC (min) 19.18

Subbasin : Sub-CB-43

Input Data

Area (ac) 0.71
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	77.84	0
Slope (%) :	10.75	1.99	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	5.29	2.87	0
Computed Flow Time (min) :	0.29	0.45	0

Total TOC (min) 7.89

Subbasin : Sub-CB-44

Input Data

Area (ac) 0.72
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	9	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	8.02	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	78.42	77.02	0
Slope (%) :	16.7	11.38	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	6.59	6.86	0
Computed Flow Time (min) :	0.2	0.19	0

Total TOC (min) 8.40

Subbasin : Sub-CB-6

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	207.9606416	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.62	0	0

Total TOC (min) 3.48

Subbasin : Sub-CB-7

Input Data

Area (ac) 0.04
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999999	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	68.39700153	0	0
Slope (%) :	0.85	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.87	0	0
Computed Flow Time (min) :	0.61	0	0

Total TOC (min) 3.47

Subbasin : Sub-CB-9

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999519	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	199.7947467	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.6	0	0

Total TOC (min) 3.46

Subbasin : Sub-FES-2

Input Data

Area (ac) 1.58
Weighted Runoff Coefficient 0.56

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	363.3701089	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	1.19	0	0

Total TOC (min) 8.33

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	FES-2	466.60	469.78	3.18	466.60	0.00	469.78	0.00	0.00	0.00
2	JB-14	529.50	535.50	6.00	529.50	0.00	535.50	0.00	0.00	0.00
3	JB-23	515.30	519.20	3.90	515.30	0.00	519.20	0.00	10.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tim F Floo Occurre (days hh:n
1	FES-2	18.15	18.15	468.23	1.63	0.00	1.55	467.87	1.27	0 00:08	0 0(
2	JB-14	7.08	0.00	530.00	0.50	0.00	5.50	529.51	0.01	0 00:12	0 0(
3	JB-23	2.48	0.00	515.62	0.32	0.00	3.58	515.30	0.00	0 00:05	0 0(

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	L-SDPIPE-1	73.15	475.75	9.81	474.50	7.03	1.25	1.7100	User-Defined	0.330	14.000	0.0150
2	L-SDPIPE-13	403.61	521.56	4.06	510.35	5.35	11.21	2.7800	User-Defined	0.330	14.000	0.0150
3	L-SDPIPE-14	373.89	522.14	4.14	515.20	4.86	6.94	1.8600	User-Defined	0.330	14.000	0.0150
4	L-SDPIPE-15	83.27	471.31	3.20	464.82	0.00	6.49	7.7900	User-Defined	0.330	14.000	0.0150
5	L-SDPIPE-16	206.62	504.78	3.68	489.41	6.22	15.37	7.4400	User-Defined	0.330	14.000	0.0150
6	L-SDPIPE-18	171.93	523.17	5.40	517.57	3.45	5.60	3.2600	User-Defined	0.330	14.000	0.0150
7	L-SDPIPE-19	227.29	522.01	6.20	504.78	3.35	17.23	7.5800	User-Defined	0.330	14.000	0.0150
8	L-SDPIPE-2	62.02	475.38	9.08	474.50	6.70	0.88	1.4200	User-Defined	0.330	14.000	0.0150
9	L-SDPIPE-20	233.87	504.78	3.35	487.38	3.76	17.40	7.4400	User-Defined	0.330	14.000	0.0150
10	L-SDPIPE-21	239.45	543.76	5.26	533.98	3.78	9.78	4.0800	User-Defined	0.330	14.000	0.0150
11	L-SDPIPE-23	314.52	547.71	5.07	533.98	3.45	13.74	4.3700	User-Defined	0.500	26.000	0.0150
12	L-SDPIPE-25	202.83	550.25	4.25	532.10	0.00	18.15	8.9500	User-Defined	0.500	26.000	0.0150
13	L-SDPIPE-27	245.69	492.85	5.35	475.38	9.08	17.47	7.1100	User-Defined	0.330	14.000	0.0150
14	L-SDPIPE-28	228.18	492.30	4.46	475.75	9.81	16.55	7.2500	User-Defined	0.330	14.000	0.0150
15	L-SDPIPE-29	172.07	510.35	5.35	492.85	5.35	17.49	10.1700	User-Defined	0.330	14.000	0.0150
16	L-SDPIPE-32	98.14	549.76	5.26	540.30	0.00	9.46	9.6400	User-Defined	0.500	26.000	0.0150
17	L-SDPIPE-33	78.40	517.57	3.45	516.63	4.05	0.94	1.2000	User-Defined	0.330	14.000	0.0320
18	L-SDPIPE-34	149.79	521.28	5.00	516.63	4.05	4.65	3.1000	User-Defined	0.330	14.000	0.0320
19	L-SDPIPE-4	129.78	474.50	7.03	464.82	0.00	9.68	7.4600	User-Defined	0.330	14.000	0.0320
20	L-SDPIPE-6	214.12	489.41	6.22	474.50	6.70	14.91	6.9600	User-Defined	0.330	14.000	0.0150
21	L-SDPIPE-7	216.57	487.38	3.76	471.31	3.20	16.07	7.4200	User-Defined	0.330	14.000	0.0150

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	N
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	L-SDPIPE-1	0.00	0 00:00	3.30	0.00	0.00		0.00	0.00	0.00	
2	L-SDPIPE-13	0.00	0 00:00	4.21	0.00	0.00		0.04	0.12	0.00	
3	L-SDPIPE-14	0.93	0 00:13	3.45	0.27	0.63	9.89	0.26	0.80	0.00	
4	L-SDPIPE-15	0.41	0 00:17	7.06	0.06	1.75	0.79	0.11	0.33	0.00	
5	L-SDPIPE-16	0.01	0 00:06	6.90	0.00	0.54	6.38	0.02	0.06	0.00	
6	L-SDPIPE-18	0.25	0 00:05	4.56	0.06	6.98	0.41	0.10	0.31	0.00	
7	L-SDPIPE-19	0.65	0 00:08	6.96	0.09	3.11	1.22	0.10	0.29	0.00	
8	L-SDPIPE-2	0.00	0 00:00	3.02	0.00	0.00		0.11	0.33	0.00	
9	L-SDPIPE-20	0.24	0 00:16	6.90	0.03	1.10	3.54	0.10	0.30	0.00	
10	L-SDPIPE-21	0.00	0 00:00	5.11	0.00	0.00		0.17	0.50	0.00	
11	L-SDPIPE-23	0.00	0 00:06	19.69	0.00	0.01	524.20	0.19	0.37	0.00	
12	L-SDPIPE-25	0.01	0 00:05	28.17	0.00	1.71	1.98	0.02	0.04	0.00	
13	L-SDPIPE-27	0.00	0 00:00	6.74	0.00	0.00		0.00	0.00	0.00	
14	L-SDPIPE-28	0.49	0 00:14	6.81	0.07	3.59	1.06	0.08	0.23	0.00	
15	L-SDPIPE-29	0.11	0 00:06	8.06	0.01	2.68	1.07	0.04	0.12	0.00	
16	L-SDPIPE-32	0.06	0 00:05	29.25	0.00	2.14	0.76	0.04	0.08	0.00	
17	L-SDPIPE-33	0.02	0 00:08	2.77	0.01	0.08	16.33	0.19	0.58	0.00	
18	L-SDPIPE-34	0.58	0 00:08	4.46	0.13	0.47	5.31	0.24	0.73	0.00	
19	L-SDPIPE-4	0.00	0 00:00	6.91	0.00	0.00		0.00	0.00	0.00	
20	L-SDPIPE-6	0.00	0 00:06	6.67	0.00	0.07	50.98	0.11	0.35	0.00	
21	L-SDPIPE-7	0.37	0 00:16	6.89	0.05	1.51	2.39	0.11	0.32	0.00	

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	SDPIPE-1	35.55	465.94	0.00	463.00	0.00	2.94	8.2700	CIRCULAR	36.000	36.000	0.0120
2	SDPIPE-10	256.10	529.50	0.00	512.58	0.00	16.92	6.6100	CIRCULAR	18.000	18.000	0.0120
3	SDPIPE-11	70.07	530.20	0.00	529.50	0.00	0.70	1.0000	CIRCULAR	18.000	18.000	0.0120
4	SDPIPE-12	33.00	530.53	0.00	530.20	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
5	SDPIPE-13	130.50	517.50	0.00	505.00	0.00	12.50	9.5800	CIRCULAR	18.000	18.000	0.0120
6	SDPIPE-14	39.55	517.99	0.00	517.50	0.00	0.49	1.2500	CIRCULAR	18.000	18.000	0.0130
7	SDPIPE-15	64.04	468.11	0.00	467.47	0.00	0.64	1.0000	CIRCULAR	18.000	18.000	0.0130
8	SDPIPE-16	23.51	501.10	0.00	499.00	0.00	2.10	8.9300	CIRCULAR	18.000	18.000	0.0120
9	SDPIPE-17	194.21	515.30	0.00	504.78	3.68	10.52	5.4200	CIRCULAR	18.000	18.000	0.0120
10	SDPIPE-18	49.41	517.77	0.00	515.30	0.00	2.47	5.0000	CIRCULAR	18.000	18.000	0.0130
11	SDPIPE-19	51.31	515.81	0.00	515.30	0.00	0.51	1.0000	CIRCULAR	18.000	18.000	0.0130
12	SDPIPE-2	35.82	466.30	0.00	465.94	0.00	0.36	1.0000	CIRCULAR	36.000	36.000	0.0130
13	SDPIPE-20	33.00	501.43	0.00	501.10	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0120
14	SDPIPE-21	237.30	538.50	0.00	530.20	0.00	8.30	3.5000	CIRCULAR	18.000	18.000	0.0120
15	SDPIPE-22	57.68	542.20	0.00	538.50	0.00	3.70	6.4100	CIRCULAR	18.000	18.000	0.0130
16	SDPIPE-23	44.75	542.65	0.00	542.20	0.00	0.45	1.0000	CIRCULAR	18.000	18.000	0.0130
17	SDPIPE-25	74.63	546.00	0.00	544.50	0.00	1.50	2.0100	CIRCULAR	18.000	18.000	0.0130
18	SDPIPE-27	182.53	487.50	0.00	484.31	0.00	3.19	1.7500	CIRCULAR	18.000	18.000	0.0120
19	SDPIPE-28	33.55	487.84	0.00	487.50	0.00	0.34	1.0000	CIRCULAR	18.000	18.000	0.0130
20	SDPIPE-29	167.22	505.00	0.00	487.50	0.00	17.50	10.4700	CIRCULAR	18.000	18.000	0.0120
21	SDPIPE-3	30.36	466.60	0.00	466.30	0.00	0.30	1.0000	CIRCULAR	36.000	36.000	0.0120
22	SDPIPE-30	66.71	510.34	0.00	505.00	0.00	5.34	8.0000	CIRCULAR	18.000	18.000	0.0130
23	SDPIPE-32	96.89	544.50	0.00	538.50	0.00	6.00	6.1900	CIRCULAR	18.000	18.000	0.0120
24	SDPIPE-33	76.95	514.12	0.00	512.58	0.00	1.54	2.0000	CIRCULAR	18.000	18.000	0.0150
25	SDPIPE-34	148.00	516.28	0.00	512.58	0.00	3.70	2.5000	CIRCULAR	18.000	18.000	0.0150
26	SDPIPE-4	71.93	467.47	0.00	466.75	0.81	0.72	1.0000	CIRCULAR	18.000	18.000	0.0120
27	SDPIPE-5	33.00	467.80	0.00	467.47	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
28	SDPIPE-6	67.57	483.19	0.00	482.52	0.00	0.67	1.0000	CIRCULAR	18.000	18.000	0.0120
29	SDPIPE-7	42.68	483.62	0.00	483.19	0.00	0.43	1.0000	CIRCULAR	18.000	18.000	0.0130
30	SDPIPE-8	130.51	512.25	0.00	492.00	0.00	20.25	15.5200	CIRCULAR	24.000	24.000	0.0120
31	SDPIPE-9	33.00	512.58	0.00	512.25	0.00	0.33	1.0000	CIRCULAR	24.000	24.000	0.0130

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Fro Num
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	SDPIPE-1	20.77	0 00:08	207.79	0.10	13.80	0.04	0.80	0.27	0.00	
2	SDPIPE-10	7.07	0 00:12	29.25	0.24	6.63	0.64	1.00	0.67	0.00	
3	SDPIPE-11	7.08	0 00:12	11.38	0.62	7.49	0.16	0.79	0.53	0.00	
4	SDPIPE-12	0.81	0 00:09	10.49	0.08	1.89	0.29	0.92	0.61	0.00	
5	SDPIPE-13	2.73	0 00:13	35.22	0.08	11.41	0.19	0.29	0.19	0.00	
6	SDPIPE-14	2.73	0 00:13	11.74	0.23	6.07	0.11	0.45	0.30	0.00	
7	SDPIPE-15	1.91	0 00:17	10.50	0.18	3.96	0.27	0.48	0.32	0.00	
8	SDPIPE-16	4.02	0 00:07	34.01	0.12	10.32	0.04	0.41	0.27	0.00	
9	SDPIPE-17	2.46	0 00:06	26.49	0.09	9.13	0.35	0.31	0.21	0.00	
10	SDPIPE-18	1.29	0 00:05	23.49	0.05	5.64	0.15	0.28	0.19	0.00	
11	SDPIPE-19	1.65	0 00:08	10.50	0.16	4.72	0.18	0.38	0.25	0.00	
12	SDPIPE-2	18.39	0 00:08	66.70	0.28	6.53	0.09	1.26	0.42	0.00	
13	SDPIPE-20	1.51	0 00:08	11.38	0.13	4.60	0.12	0.46	0.31	0.00	
14	SDPIPE-21	2.26	0 00:15	21.28	0.11	4.01	0.99	0.69	0.46	0.00	
15	SDPIPE-22	2.28	0 00:15	26.60	0.09	8.09	0.12	0.32	0.22	0.00	
16	SDPIPE-23	0.83	0 00:05	10.50	0.08	3.51	0.21	0.29	0.19	0.00	
17	SDPIPE-25	0.72	0 00:05	14.89	0.05	3.84	0.32	0.24	0.16	0.00	
18	SDPIPE-27	5.47	0 00:19	15.03	0.36	7.37	0.41	0.66	0.44	0.00	
19	SDPIPE-28	1.52	0 00:14	10.50	0.15	3.12	0.18	0.56	0.37	0.00	
20	SDPIPE-29	4.30	0 00:20	36.81	0.12	8.00	0.35	0.52	0.34	0.00	
21	SDPIPE-3	18.15	0 00:08	71.83	0.25	7.64	0.07	1.53	0.51	0.00	
22	SDPIPE-30	4.30	0 00:19	29.71	0.14	11.57	0.10	0.39	0.26	0.00	
23	SDPIPE-32	1.63	0 00:05	28.32	0.06	8.35	0.19	0.25	0.17	0.00	
24	SDPIPE-33	3.24	0 00:08	12.88	0.25	3.72	0.34	1.01	0.67	0.00	
25	SDPIPE-34	2.62	0 00:08	14.39	0.18	3.48	0.71	0.97	0.64	0.00	
26	SDPIPE-4	1.92	0 00:16	11.38	0.17	4.40	0.27	0.44	0.30	0.00	
27	SDPIPE-5	0.52	0 00:07	10.50	0.05	1.96	0.28	0.32	0.21	0.00	
28	SDPIPE-6	1.79	0 00:16	11.37	0.16	4.31	0.26	0.43	0.29	0.00	
29	SDPIPE-7	1.80	0 00:16	10.50	0.17	3.78	0.19	0.47	0.31	0.00	
30	SDPIPE-8	16.42	0 00:09	96.54	0.17	21.05	0.10	0.59	0.30	0.00	
31	SDPIPE-9	16.06	0 00:09	22.62	0.71	8.68	0.06	1.14	0.57	0.00	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	CB-10	On Grade	1	483.62	487.38	3.76	483.62	0.00	N/A	0.00
2	CB-12	On Sag	1	512.25	516.63	4.38	512.25	0.00	10.00	0.00
3	CB-13	On Sag	1	512.58	516.63	4.05	512.58	0.00	10.00	0.00
4	CB-15	On Sag	1	530.20	533.98	3.78	530.20	0.00	10.00	0.00
5	CB-16	On Sag	1	530.53	533.98	3.45	530.53	0.00	10.00	0.00
6	CB-18	On Grade	1	517.50	521.56	4.06	517.50	0.00	N/A	0.00
7	CB-2	On Grade	1	465.94	475.75	9.81	465.94	0.00	N/A	0.00
8	CB-20	On Grade	1	468.11	471.31	3.20	468.11	0.00	N/A	0.00
9	CB-22	On Grade	1	501.10	504.78	3.68	501.10	0.00	N/A	0.00
10	CB-24	On Grade	1	517.77	523.17	5.40	517.77	0.00	N/A	0.00
11	CB-25	On Grade	1	515.81	522.01	6.20	515.81	0.00	N/A	0.00
12	CB-26	On Grade	1	501.43	504.78	3.35	501.43	0.00	N/A	0.00
13	CB-27	On Grade	1	538.50	543.76	5.26	538.50	0.00	N/A	0.00
14	CB-28	On Sag	1	542.20	546.43	4.23	542.20	0.00	10.00	0.00
15	CB-29	On Grade	1	542.65	547.71	5.07	542.65	0.00	N/A	0.00
16	CB-3	On Grade	1	466.30	475.38	9.08	466.30	0.00	N/A	0.00
17	CB-31	On Grade	1	544.50	549.76	5.26	544.50	0.00	N/A	0.00
18	CB-32	On Grade	1	546.00	550.25	4.25	546.00	0.00	N/A	0.00
19	CB-35	On Grade	1	487.50	492.85	5.35	487.50	0.00	N/A	0.00
20	CB-36	On Grade	1	487.84	492.30	4.46	487.84	0.00	N/A	0.00
21	CB-38	On Grade	1	505.00	510.35	5.35	505.00	0.00	N/A	0.00
22	CB-39	On Sag	1	510.34	515.20	4.86	510.34	0.00	10.00	0.00
23	CB-43	On Grade	1	514.12	517.57	3.45	514.12	0.00	N/A	0.00
24	CB-6	On Sag	1	467.80	474.50	6.70	467.80	0.00	10.00	0.00
25	CB-7	On Grade	1	467.47	474.50	7.03	467.47	0.00	N/A	0.00
26	CB-9	On Grade	1	483.19	489.41	6.22	483.19	0.00	N/A	0.00
27	FES-19	On Grade	1	517.99	522.14	4.14	517.99	0.00	N/A	0.00
28	Inlet-CB-44	On Grade	1	516.28	521.28	5.00	516.28	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB-10	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
2	CB-12	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
3	CB-13	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
4	CB-15	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
5	CB-16	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
6	CB-18	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
7	CB-2	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
8	CB-20	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
9	CB-22	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
10	CB-24	0.1033	0.0258	0.0150	0.0200	1.00	0.1312	8.50
11	CB-25	0.1041	0.0258	0.0150	0.0200	1.00	0.1312	8.50
12	CB-26	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
13	CB-27	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
14	CB-28	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
15	CB-29	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
16	CB-3	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
17	CB-31	0.0721	0.0200	0.0150	0.0200	1.50	0.1312	8.50
18	CB-32	0.0809	0.0258	0.0150	0.0200	1.00	0.1312	8.50
19	CB-35	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
20	CB-36	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
21	CB-38	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
22	CB-39	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
23	CB-43	0.0199	0.0258	0.0150	0.0200	1.00	0.1312	8.50
24	CB-6	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
25	CB-7	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
26	CB-9	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
27	FES-19	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
28	Inlet-CB-44	0.1138	0.0258	0.0150	0.0200	1.00	0.1312	8.50

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	F \
1	CB-10	2.18	1.94	1.68	0.50	77.21	5.56	487.52	0.14	0 00:16	
2	CB-12	1.82	1.82	N/A	N/A	N/A	5.29	516.93	0.30	0 00:09	
3	CB-13	5.27	4.75	N/A	N/A	N/A	10.76	517.07	0.44	0 00:09	
4	CB-15	4.85	4.85	N/A	N/A	N/A	10.18	534.41	0.43	0 00:12	
5	CB-16	2.39	2.39	N/A	N/A	N/A	6.35	534.31	0.33	0 00:12	
6	CB-18	0.70	0.70	0.70	0.00	100.00	4.49	521.67	0.11	0 00:13	
7	CB-2	1.78	1.30	1.78	0.00	100.00	7.69	475.94	0.19	0 00:08	
8	CB-20	2.32	2.01	1.75	0.57	75.33	5.68	471.45	0.14	0 00:17	
9	CB-22	0.80	0.80	0.80	0.00	99.97	3.85	504.88	0.09	0 00:07	
10	CB-24	1.54	1.54	1.29	0.25	83.68	4.62	523.28	0.11	0 00:05	
11	CB-25	2.31	2.31	1.66	0.65	71.68	5.33	522.14	0.13	0 00:08	
12	CB-26	1.65	1.64	1.41	0.24	85.52	5.00	504.91	0.12	0 00:08	
13	CB-27	0.50	0.50	0.50	0.00	100.00	3.41	543.84	0.08	0 00:15	
14	CB-28	2.28	2.28	N/A	N/A	N/A	6.16	546.76	0.33	0 00:15	
15	CB-29	0.84	0.84	0.84	0.00	100.00	4.12	547.81	0.10	0 00:05	
16	CB-3	0.81	0.81	0.81	0.00	100.00	5.73	475.52	0.14	0 00:08	
17	CB-31	0.99	0.99	0.93	0.06	93.74	4.88	549.86	0.10	0 00:05	
18	CB-32	0.74	0.74	0.74	0.00	100.00	3.68	550.33	0.09	0 00:05	
19	CB-35	0.60	0.57	0.60	0.00	100.00	3.25	492.93	0.08	0 00:19	
20	CB-36	2.02	2.02	1.53	0.49	75.65	5.06	492.42	0.12	0 00:14	
21	CB-38	1.30	1.30	1.15	0.15	88.46	4.31	510.45	0.11	0 00:19	
22	CB-39	4.44	4.29	N/A	N/A	N/A	9.60	515.61	0.41	0 00:19	
23	CB-43	3.29	3.29	3.23	0.06	98.14	8.27	517.78	0.21	0 00:08	
24	CB-6	0.95	0.95	N/A	N/A	N/A	3.43	474.75	0.26	0 00:07	
25	CB-7	0.23	0.23	0.23	0.00	100.00	3.63	474.59	0.09	0 00:16	
26	CB-9	0.68	0.68	0.68	0.00	100.00	3.61	489.50	0.09	0 00:16	
27	FES-19	3.67	3.67	2.74	0.93	74.60	8.28	522.35	0.21	0 00:13	
28	Inlet-CB-44	3.24	3.24	2.64	0.60	81.56	5.96	521.43	0.15	0 00:08	

25 Year Design Storm

Project Description

File Name	Hilltop Drainage Analysis 3-4-26.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

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

Number of Elements

	Qty
Rain Gages	0
Subbasins	29
Nodes	42
Junctions	3
Outfalls	11
Flow Diversions	0
Inlets	28
Storage Nodes	0
Links	52
Channels	21
Pipes	31
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	25 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-CB-10	0.58	0.7000	1.45	1.01	0.59	2.22	0 00:15:54
2	Sub-CB-12	0.32	0.7000	0.79	0.55	0.17	2.09	0 00:05:00
3	Sub-CB-13	1.03	0.7000	1.01	0.71	0.73	5.46	0 00:07:58
4	Sub-CB-15	1.21	0.7000	1.19	0.83	1.01	5.57	0 00:10:46
5	Sub-CB-16	0.42	0.7000	0.79	0.55	0.23	2.75	0 00:05:00
6	Sub-CB-18	0.12	0.7000	0.79	0.55	0.07	0.81	0 00:05:00
7	Sub-CB-19	1.00	0.7000	1.31	0.91	0.91	4.21	0 00:12:57
8	Sub-CB-2	0.38	0.7000	1.41	0.98	0.37	1.49	0 00:14:59
9	Sub-CB-20	0.62	0.7000	1.51	1.06	0.65	2.30	0 00:17:03
10	Sub-CB-22	0.14	0.7000	0.79	0.55	0.08	0.92	0 00:05:00
11	Sub-CB-24	0.27	0.7000	0.79	0.55	0.15	1.77	0 00:05:01
12	Sub-CB-25	0.51	0.7000	1.03	0.72	0.37	2.65	0 00:08:15
13	Sub-CB-26	0.49	0.7000	1.45	1.01	0.50	1.89	0 00:15:52
14	Sub-CB-27	0.10	0.7000	0.88	0.62	0.06	0.58	0 00:06:07
15	Sub-CB-28	0.67	0.7000	1.40	0.98	0.66	2.62	0 00:15:04
16	Sub-CB-29	0.15	0.7000	0.79	0.55	0.08	0.97	0 00:05:00
17	Sub-CB-3	0.14	0.7000	0.79	0.55	0.08	0.93	0 00:05:00
18	Sub-CB-31	0.17	0.7000	0.79	0.55	0.10	1.14	0 00:05:00
19	Sub-CB-32	0.13	0.7000	0.79	0.55	0.07	0.85	0 00:05:00
20	Sub-CB-35	0.10	0.7000	0.79	0.55	0.06	0.66	0 00:05:00
21	Sub-CB-36	0.58	0.7000	1.39	0.97	0.57	2.32	0 00:14:42
22	Sub-CB-38	0.24	0.7000	0.84	0.59	0.14	1.49	0 00:05:43
23	Sub-CB-39	1.39	0.7000	1.62	1.14	1.57	4.93	0 00:19:10
24	Sub-CB-43	0.71	0.7000	0.99	0.70	0.49	3.78	0 00:07:53
25	Sub-CB-44	0.72	0.7000	1.03	0.72	0.52	3.72	0 00:08:24
26	Sub-CB-6	0.16	0.7000	0.79	0.55	0.09	1.09	0 00:05:00
27	Sub-CB-7	0.04	0.7000	0.79	0.55	0.02	0.27	0 00:05:00
28	Sub-CB-9	0.12	0.7000	0.79	0.55	0.06	0.78	0 00:05:00
29	Sub-FES-2	1.58	0.5600	1.03	0.58	0.91	6.58	0 00:08:19

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	(
1	FES-2	Junction	466.60	469.78	466.60	469.78	0.00	20.19	468.35	0.00	1.43	
2	JB-14	Junction	529.50	535.50	529.50	535.50	0.00	8.11	530.04	0.00	5.46	
3	JB-23	Junction	515.30	519.20	515.30	519.20	10.00	2.71	515.64	0.00	3.56	
4	OFFSITE-1	Outfall	540.30					0.12	540.36			
5	OFFSITE-2	Outfall	532.10					0.02	532.13			
6	OFFSITE-25	Outfall	464.82					0.00	464.82			
7	OFFSITE-26	Outfall	464.82					0.57	464.94			
8	Out-FES-1	Outfall	463.00					23.22	463.68			
9	Out-FES-11	Outfall	492.00					18.99	492.60			
10	Out-FES-17	Outfall	505.00					2.96	505.29			
11	Out-FES-21	Outfall	499.00					4.58	499.37			
12	Out-FES-3	Outfall	538.50					1.83	538.76			
13	Out-FES-34	Outfall	484.31					6.32	484.99			
14	Out-FES-8	Outfall	482.52					2.04	482.95			

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
1	SDPIPE-1	Pipe	CB-2	Out-FES-1	35.55	465.94	463.00	8.2700	36.000	0.0120	23.22	207.79	0.11	14.04	0.85	0
2	SDPIPE-10	Pipe	JB-14	CB-13	256.10	529.50	512.58	6.6100	18.000	0.0120	8.10	29.25	0.28	6.95	1.02	0
3	SDPIPE-11	Pipe	CB-15	JB-14	70.07	530.20	529.50	1.0000	18.000	0.0120	8.11	11.38	0.71	7.67	0.87	0
4	SDPIPE-12	Pipe	CB-16	CB-15	33.00	530.53	530.20	1.0000	18.000	0.0130	0.89	10.49	0.09	1.92	1.03	0
5	SDPIPE-13	Pipe	CB-18	Out-FES-17	130.50	517.50	505.00	9.5800	18.000	0.0120	2.96	35.22	0.08	11.66	0.30	0
6	SDPIPE-14	Pipe	FES-19	CB-18	39.55	517.99	517.50	1.2500	18.000	0.0130	2.96	11.74	0.25	6.18	0.47	0
7	SDPIPE-15	Pipe	CB-20	CB-7	64.04	468.11	467.47	1.0000	18.000	0.0130	2.19	10.50	0.21	4.05	0.52	0
8	SDPIPE-16	Pipe	CB-22	Out-FES-21	23.51	501.10	499.00	8.9300	18.000	0.0120	4.58	34.01	0.13	10.58	0.44	0
9	SDPIPE-17	Pipe	JB-23	CB-22	194.21	515.30	504.78	5.4200	18.000	0.0120	2.70	26.49	0.10	9.36	0.33	0
10	SDPIPE-18	Pipe	CB-24	JB-23	49.41	517.77	515.30	5.0000	18.000	0.0130	1.40	23.49	0.06	5.73	0.29	0
11	SDPIPE-19	Pipe	CB-25	JB-23	51.31	515.81	515.30	1.0000	18.000	0.0130	1.78	10.50	0.17	4.83	0.40	0
12	SDPIPE-2	Pipe	CB-3	CB-2	35.82	466.30	465.94	1.0000	36.000	0.0130	20.46	66.70	0.31	6.71	1.34	0
13	SDPIPE-20	Pipe	CB-26	CB-22	33.00	501.43	501.10	1.0000	18.000	0.0120	1.82	11.38	0.16	4.69	0.51	0
14	SDPIPE-21	Pipe	CB-27	CB-15	237.30	538.50	530.20	3.5000	18.000	0.0120	2.60	21.28	0.12	4.20	0.75	0
15	SDPIPE-22	Pipe	CB-28	CB-27	57.68	542.20	538.50	6.4100	18.000	0.0130	2.62	26.60	0.10	8.37	0.35	0
16	SDPIPE-23	Pipe	CB-29	CB-28	44.75	542.65	542.20	1.0000	18.000	0.0130	0.95	10.50	0.09	3.62	0.31	0
17	SDPIPE-25	Pipe	CB-32	CB-31	74.63	546.00	544.50	2.0100	18.000	0.0130	0.82	14.89	0.06	4.00	0.26	0
18	SDPIPE-27	Pipe	CB-35	Out-FES-34	182.53	487.50	484.31	1.7500	18.000	0.0120	6.32	15.03	0.42	7.62	0.71	0
19	SDPIPE-28	Pipe	CB-36	CB-35	33.55	487.84	487.50	1.0000	18.000	0.0130	1.65	10.50	0.16	3.02	0.61	0
20	SDPIPE-29	Pipe	CB-38	CB-35	167.22	505.00	487.50	10.4700	18.000	0.0120	5.03	36.81	0.14	8.33	0.56	0
21	SDPIPE-3	Pipe	FES-2	CB-3	30.36	466.60	466.30	1.0000	36.000	0.0120	20.18	71.83	0.28	7.74	1.64	0
22	SDPIPE-30	Pipe	CB-39	CB-38	66.71	510.34	505.00	8.0000	18.000	0.0130	5.04	29.71	0.17	12.00	0.43	0
23	SDPIPE-32	Pipe	CB-31	Out-FES-3	96.89	544.50	538.50	6.1900	18.000	0.0120	1.83	28.32	0.06	8.60	0.27	0
24	SDPIPE-33	Pipe	CB-43	CB-13	76.95	514.12	512.58	2.0000	18.000	0.0150	3.63	12.88	0.28	3.85	1.02	0
25	SDPIPE-34	Pipe	Inlet-CB-44	CB-13	148.00	516.28	512.58	2.5000	18.000	0.0150	2.86	14.39	0.20	3.60	0.98	0
26	SDPIPE-4	Pipe	CB-7	CB-2	71.93	467.47	466.75	1.0000	18.000	0.0120	2.24	11.38	0.20	4.57	0.48	0
27	SDPIPE-5	Pipe	CB-6	CB-7	33.00	467.80	467.47	1.0000	18.000	0.0130	0.57	10.50	0.05	1.97	0.35	0
28	SDPIPE-6	Pipe	CB-9	Out-FES-8	67.57	483.19	482.52	1.0000	18.000	0.0120	2.04	11.37	0.18	4.44	0.46	0

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
46	L-SDPIPE-29	Channel	CB-38	CB-35	172.07	510.35	492.85	10.1700	3.960	0.0150	0.18	8.06	0.02	2.83	0.05	0
47	L-SDPIPE-32	Channel	CB-31	OFFSITE-1	98.14	549.76	540.30	9.6400	6.000	0.0150	0.12	29.25	0.00	2.19	0.05	0
48	L-SDPIPE-33	Channel	CB-43	CB-13	78.40	517.57	516.63	1.2000	3.960	0.0320	0.14	2.77	0.05	0.14	0.22	0
49	L-SDPIPE-34	Channel	Inlet-CB-44	CB-13	149.79	521.28	516.63	3.1000	3.960	0.0320	0.82	4.46	0.18	0.61	0.25	0
50	L-SDPIPE-4	Channel	CB-7	OFFSITE-25	129.78	474.50	464.82	7.4600	3.960	0.0320	0.00	6.91	0.00	0.00	0.00	0
51	L-SDPIPE-6	Channel	CB-9	CB-6	214.12	489.41	474.50	6.9600	3.960	0.0150	0.00	6.67	0.00	0.17	0.13	0
52	L-SDPIPE-7	Channel	CB-10	CB-20	216.57	487.38	471.31	7.4200	3.960	0.0150	0.52	6.89	0.08	1.64	0.12	0

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	CB-10	On Grade	1	483.62	487.38	483.62	N/A	2.57	1.86	0.71	72.20	8.50	5.92	487.53
2	CB-12	On Sag	1	512.25	516.63	512.25	10.00	2.09	N/A	N/A	N/A	8.50	5.80	516.94
3	CB-13	On Sag	1	512.58	516.63	512.58	10.00	6.31	N/A	N/A	N/A	8.50	12.14	517.11
4	CB-15	On Sag	1	530.20	533.98	530.20	10.00	5.56	N/A	N/A	N/A	8.50	11.16	534.43
5	CB-16	On Sag	1	530.53	533.98	530.53	10.00	2.75	N/A	N/A	N/A	8.50	6.97	534.32
6	CB-18	On Grade	1	517.50	521.56	517.50	N/A	0.81	0.81	0.00	100.00	8.50	4.73	521.67
7	CB-2	On Grade	1	465.94	475.75	465.94	N/A	2.13	2.11	0.02	98.95	8.50	8.25	475.95
8	CB-20	On Grade	1	468.11	471.31	468.11	N/A	2.74	1.93	0.81	70.34	8.50	6.04	471.46
9	CB-22	On Grade	1	501.10	504.78	501.10	N/A	0.92	0.91	0.01	98.86	8.50	4.03	504.88
10	CB-24	On Grade	1	517.77	523.17	517.77	N/A	1.77	1.41	0.36	79.58	8.50	4.87	523.29
11	CB-25	On Grade	1	515.81	522.01	515.81	N/A	2.65	1.79	0.86	67.59	8.50	5.62	522.15
12	CB-26	On Grade	1	501.43	504.78	501.43	N/A	1.89	1.54	0.35	81.46	8.50	5.27	504.91
13	CB-27	On Grade	1	538.50	543.76	538.50	N/A	0.58	0.58	0.00	100.00	8.50	3.58	543.84
14	CB-28	On Sag	1	542.20	546.43	542.20	10.00	2.62	N/A	N/A	N/A	8.50	6.75	546.77
15	CB-29	On Grade	1	542.65	547.71	542.65	N/A	0.97	0.96	0.00	99.49	8.50	4.32	547.82
16	CB-3	On Grade	1	466.30	475.38	466.30	N/A	0.93	0.93	0.00	100.00	8.50	6.05	475.53
17	CB-31	On Grade	1	544.50	549.76	544.50	N/A	1.14	1.03	0.11	90.36	8.50	5.13	549.86
18	CB-32	On Grade	1	546.00	550.25	546.00	N/A	0.85	0.85	0.01	99.38	8.50	3.87	550.34
19	CB-35	On Grade	1	487.50	492.85	487.50	N/A	0.72	0.72	0.00	99.84	8.50	3.48	492.94
20	CB-36	On Grade	1	487.84	492.30	487.84	N/A	2.32	1.66	0.66	71.53	8.50	5.33	492.43
21	CB-38	On Grade	1	505.00	510.35	505.00	N/A	1.49	1.26	0.23	84.54	8.50	4.54	510.46
22	CB-39	On Sag	1	510.34	515.20	510.34	10.00	5.18	N/A	N/A	N/A	8.50	10.64	515.64
23	CB-43	On Grade	1	514.12	517.57	514.12	N/A	3.78	3.61	0.17	95.51	8.50	8.74	517.79
24	CB-6	On Sag	1	467.80	474.50	467.80	10.00	1.09	N/A	N/A	N/A	8.50	3.76	474.76
25	CB-7	On Grade	1	467.47	474.50	467.47	N/A	0.27	0.27	0.00	100.00	8.50	3.82	474.59
26	CB-9	On Grade	1	483.19	489.41	483.19	N/A	0.78	0.78	0.00	100.00	8.50	3.80	489.50
27	FES-19	On Grade	1	517.99	522.14	517.99	N/A	4.21	2.96	1.24	70.42	8.50	8.75	522.36
28	Inlet-CB-44	On Grade	1	516.28	521.28	516.28	N/A	3.72	2.88	0.84	77.39	8.50	6.29	521.44

Subbasin Hydrology

Subbasin : Sub-CB-10

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99996647	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	229.3185963	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.69	0	0

Total TOC (min) 15.90

Subbasin : Sub-CB-12

Input Data

Area (ac) 0.32
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	219.5273657	0	0
Slope (%) :	1.99	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	2.87	0	0
Computed Flow Time (min) :	1.28	0	0

Total TOC (min) 4.14

Subbasin : Sub-CB-13

Input Data

Area (ac) 1.03
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	11.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.27	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	71.4	0
Slope (%) :	11.5	1.99	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.47	2.87	0
Computed Flow Time (min) :	0.28	0.41	0

Total TOC (min) 7.97

Subbasin : Sub-CB-15

Input Data

Area (ac) 1.21
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	12.98144373	156.302	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.09	0.53	0

Total TOC (min) 10.77

Subbasin : Sub-CB-16

Input Data

Area (ac) 0.42
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.01720552	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	310.5319881	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	1.06	0	0

Total TOC (min) 3.93

Subbasin : Sub-CB-18

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.10752092	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.88	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	71.43477489	102.308	0
Slope (%) :	11.86	2.45	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	7	3.18	0
Computed Flow Time (min) :	0.17	0.54	0

Total TOC (min) 3.59

Subbasin : Sub-CB-19

Input Data

Area (ac) 1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100.0031436	0	0
Slope (%) :	3.4	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.83	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	6.07922878	278.905	79.9642
Slope (%) :	2	11.86	2.45
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	7	3.18
Computed Flow Time (min) :	0.04	0.66	0.42

Total TOC (min) 12.96

Subbasin : Sub-CB-2

Input Data

Area (ac) 0.38
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175.3484305	45.5292	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.44	0.4	0

Total TOC (min) 14.99

Subbasin : Sub-CB-20

Input Data

Area (ac) 0.62
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.99258294	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	3.00743724	208.662	0
Slope (%) :	2	7.49	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	5.56	0
Computed Flow Time (min) :	0.02	0.63	0

Total TOC (min) 17.06

Subbasin : Sub-CB-22

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99981258	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.0428132	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.5	0	0

Total TOC (min) 3.36

Subbasin : Sub-CB-24

Input Data

Area (ac) 0.27
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	37.99958613	0	0
Slope (%) :	6.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.15	0	0
Computed Flow Time (min) :	4.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	28.98355088	187.485	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.33	0.48	0

Total TOC (min) 5.02

Subbasin : Sub-CB-25

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99999586	0	0
Slope (%) :	7.25	0	0
2 yr, 24 hr Rainfall (in) :	4.32	0	0
Velocity (ft/sec) :	0.18	0	0
Computed Flow Time (min) :	7.56	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	16.12667612	203.961	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.19	0.52	0

Total TOC (min) 8.26

Subbasin : Sub-CB-26

Input Data

Area (ac) 0.49
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99998121	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221.0918618	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.66	0	0

Total TOC (min) 15.87

Subbasin : Sub-CB-27

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	21.13547973	0	0
Slope (%) :	1	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	5.57	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	117.1502173	0	0
Slope (%) :	2.92	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.47	0	0
Computed Flow Time (min) :	0.56	0	0

Total TOC (min) 6.13

Subbasin : Sub-CB-28

Input Data

Area (ac) 0.67
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	14.63	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	17.02372996	94.0918	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.12	0.32	0

Total TOC (min) 15.08

Subbasin : Sub-CB-29

Input Data

Area (ac) 0.15
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	253.6223323	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	0.87	0	0

Total TOC (min) 3.73

Subbasin : Sub-CB-3

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	181.26423	58.4106	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.46	0.52	0

Total TOC (min) 3.84

Subbasin : Sub-CB-31

Input Data

Area (ac) 0.17
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	166.3763112	83.6548	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.76	0.27	0

Total TOC (min) 3.90

Subbasin : Sub-CB-32

Input Data

Area (ac) 0.13
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.2624187	52.7043	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.77	0.17	0

Total TOC (min) 3.80

Subbasin : Sub-CB-35

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	159.59	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.4	0	0

Total TOC (min) 3.27

Subbasin : Sub-CB-36

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	224.201193	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.57	0	0

Total TOC (min) 14.71

Subbasin : Sub-CB-38

Input Data

Area (ac) 0.24
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.00000002	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	214.8866153	184.112	0
Slope (%) :	2.45	0.75	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.18	1.76	0
Computed Flow Time (min) :	1.13	1.74	0

Total TOC (min) 5.73

Subbasin : Sub-CB-39

Input Data

Area (ac) 1.39
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.98923348	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	34.45719772	233.523	132.701
Slope (%) :	1.5	2.45	0.75
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.98	3.18	1.76
Computed Flow Time (min) :	0.29	1.22	1.26

Total TOC (min) 19.18

Subbasin : Sub-CB-43

Input Data

Area (ac) 0.71
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	77.84	0
Slope (%) :	10.75	1.99	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	5.29	2.87	0
Computed Flow Time (min) :	0.29	0.45	0

Total TOC (min) 7.89

Subbasin : Sub-CB-44

Input Data

Area (ac) 0.72
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	9	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	8.02	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	78.42	77.02	0
Slope (%) :	16.7	11.38	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	6.59	6.86	0
Computed Flow Time (min) :	0.2	0.19	0

Total TOC (min) 8.40

Subbasin : Sub-CB-6

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	207.9606416	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.62	0	0

Total TOC (min) 3.48

Subbasin : Sub-CB-7

Input Data

Area (ac) 0.04
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999999	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	68.39700153	0	0
Slope (%) :	0.85	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.87	0	0
Computed Flow Time (min) :	0.61	0	0

Total TOC (min) 3.47

Subbasin : Sub-CB-9

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999519	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	199.7947467	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.6	0	0

Total TOC (min) 3.46

Subbasin : Sub-FES-2

Input Data

Area (ac) 1.58
Weighted Runoff Coefficient 0.56

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	363.3701089	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	1.19	0	0

Total TOC (min) 8.33

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	FES-2	466.60	469.78	3.18	466.60	0.00	469.78	0.00	0.00	0.00
2	JB-14	529.50	535.50	6.00	529.50	0.00	535.50	0.00	0.00	0.00
3	JB-23	515.30	519.20	3.90	515.30	0.00	519.20	0.00	10.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tim F Floo Occurre (days hh:n
1	FES-2	20.19	20.19	468.35	1.75	0.00	1.43	467.94	1.34	0 00:08	0 0(
2	JB-14	8.11	0.00	530.04	0.54	0.00	5.46	529.51	0.01	0 00:12	0 0(
3	JB-23	2.71	0.00	515.64	0.34	0.00	3.56	515.30	0.00	0 00:06	0 0(

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	L-SDPIPE-1	73.15	475.75	9.81	474.50	7.03	1.25	1.7100	User-Defined	0.330	14.000	0.0150
2	L-SDPIPE-13	403.61	521.56	4.06	510.35	5.35	11.21	2.7800	User-Defined	0.330	14.000	0.0150
3	L-SDPIPE-14	373.89	522.14	4.14	515.20	4.86	6.94	1.8600	User-Defined	0.330	14.000	0.0150
4	L-SDPIPE-15	83.27	471.31	3.20	464.82	0.00	6.49	7.7900	User-Defined	0.330	14.000	0.0150
5	L-SDPIPE-16	206.62	504.78	3.68	489.41	6.22	15.37	7.4400	User-Defined	0.330	14.000	0.0150
6	L-SDPIPE-18	171.93	523.17	5.40	517.57	3.45	5.60	3.2600	User-Defined	0.330	14.000	0.0150
7	L-SDPIPE-19	227.29	522.01	6.20	504.78	3.35	17.23	7.5800	User-Defined	0.330	14.000	0.0150
8	L-SDPIPE-2	62.02	475.38	9.08	474.50	6.70	0.88	1.4200	User-Defined	0.330	14.000	0.0150
9	L-SDPIPE-20	233.87	504.78	3.35	487.38	3.76	17.40	7.4400	User-Defined	0.330	14.000	0.0150
10	L-SDPIPE-21	239.45	543.76	5.26	533.98	3.78	9.78	4.0800	User-Defined	0.330	14.000	0.0150
11	L-SDPIPE-23	314.52	547.71	5.07	533.98	3.45	13.74	4.3700	User-Defined	0.500	26.000	0.0150
12	L-SDPIPE-25	202.83	550.25	4.25	532.10	0.00	18.15	8.9500	User-Defined	0.500	26.000	0.0150
13	L-SDPIPE-27	245.69	492.85	5.35	475.38	9.08	17.47	7.1100	User-Defined	0.330	14.000	0.0150
14	L-SDPIPE-28	228.18	492.30	4.46	475.75	9.81	16.55	7.2500	User-Defined	0.330	14.000	0.0150
15	L-SDPIPE-29	172.07	510.35	5.35	492.85	5.35	17.49	10.1700	User-Defined	0.330	14.000	0.0150
16	L-SDPIPE-32	98.14	549.76	5.26	540.30	0.00	9.46	9.6400	User-Defined	0.500	26.000	0.0150
17	L-SDPIPE-33	78.40	517.57	3.45	516.63	4.05	0.94	1.2000	User-Defined	0.330	14.000	0.0320
18	L-SDPIPE-34	149.79	521.28	5.00	516.63	4.05	4.65	3.1000	User-Defined	0.330	14.000	0.0320
19	L-SDPIPE-4	129.78	474.50	7.03	464.82	0.00	9.68	7.4600	User-Defined	0.330	14.000	0.0320
20	L-SDPIPE-6	214.12	489.41	6.22	474.50	6.70	14.91	6.9600	User-Defined	0.330	14.000	0.0150
21	L-SDPIPE-7	216.57	487.38	3.76	471.31	3.20	16.07	7.4200	User-Defined	0.330	14.000	0.0150

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	I N
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	L-SDPIPE-1	0.00	0 00:00	3.30	0.00	0.00		0.00	0.00	0.00	
2	L-SDPIPE-13	0.00	0 00:00	4.21	0.00	0.00		0.05	0.15	0.00	
3	L-SDPIPE-14	1.24	0 00:13	3.45	0.36	0.77	8.09	0.28	0.84	0.00	
4	L-SDPIPE-15	0.57	0 00:17	7.06	0.08	1.79	0.78	0.12	0.38	0.00	
5	L-SDPIPE-16	0.01	0 00:05	6.90	0.00	0.65	5.30	0.03	0.09	0.00	
6	L-SDPIPE-18	0.37	0 00:05	4.56	0.08	7.93	0.36	0.12	0.36	0.00	
7	L-SDPIPE-19	0.86	0 00:08	6.96	0.12	3.22	1.18	0.11	0.33	0.00	
8	L-SDPIPE-2	0.00	0 00:00	3.02	0.00	0.00		0.12	0.37	0.00	
9	L-SDPIPE-20	0.35	0 00:16	6.90	0.05	1.22	3.19	0.11	0.34	0.00	
10	L-SDPIPE-21	0.00	0 00:07	5.11	0.00	0.00		0.17	0.50	0.00	
11	L-SDPIPE-23	0.00	0 00:06	19.69	0.00	0.01	524.20	0.20	0.41	0.00	
12	L-SDPIPE-25	0.02	0 00:05	28.17	0.00	1.78	1.90	0.03	0.05	0.00	
13	L-SDPIPE-27	0.00	0 00:05	6.74	0.00	0.00		0.00	0.01	0.00	
14	L-SDPIPE-28	0.66	0 00:14	6.81	0.10	3.88	0.98	0.09	0.26	0.00	
15	L-SDPIPE-29	0.18	0 00:06	8.06	0.02	2.83	1.01	0.05	0.16	0.00	
16	L-SDPIPE-32	0.12	0 00:05	29.25	0.00	2.19	0.75	0.05	0.11	0.00	
17	L-SDPIPE-33	0.14	0 00:08	2.77	0.05	0.14	9.33	0.22	0.66	0.00	
18	L-SDPIPE-34	0.82	0 00:08	4.46	0.18	0.61	4.09	0.25	0.76	0.00	
19	L-SDPIPE-4	0.00	0 00:00	6.91	0.00	0.00		0.00	0.00	0.00	
20	L-SDPIPE-6	0.00	0 00:06	6.67	0.00	0.17	20.99	0.13	0.39	0.00	
21	L-SDPIPE-7	0.52	0 00:16	6.89	0.08	1.64	2.20	0.12	0.36	0.00	

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	SDPIPE-1	35.55	465.94	0.00	463.00	0.00	2.94	8.2700	CIRCULAR	36.000	36.000	0.0120
2	SDPIPE-10	256.10	529.50	0.00	512.58	0.00	16.92	6.6100	CIRCULAR	18.000	18.000	0.0120
3	SDPIPE-11	70.07	530.20	0.00	529.50	0.00	0.70	1.0000	CIRCULAR	18.000	18.000	0.0120
4	SDPIPE-12	33.00	530.53	0.00	530.20	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
5	SDPIPE-13	130.50	517.50	0.00	505.00	0.00	12.50	9.5800	CIRCULAR	18.000	18.000	0.0120
6	SDPIPE-14	39.55	517.99	0.00	517.50	0.00	0.49	1.2500	CIRCULAR	18.000	18.000	0.0130
7	SDPIPE-15	64.04	468.11	0.00	467.47	0.00	0.64	1.0000	CIRCULAR	18.000	18.000	0.0130
8	SDPIPE-16	23.51	501.10	0.00	499.00	0.00	2.10	8.9300	CIRCULAR	18.000	18.000	0.0120
9	SDPIPE-17	194.21	515.30	0.00	504.78	3.68	10.52	5.4200	CIRCULAR	18.000	18.000	0.0120
10	SDPIPE-18	49.41	517.77	0.00	515.30	0.00	2.47	5.0000	CIRCULAR	18.000	18.000	0.0130
11	SDPIPE-19	51.31	515.81	0.00	515.30	0.00	0.51	1.0000	CIRCULAR	18.000	18.000	0.0130
12	SDPIPE-2	35.82	466.30	0.00	465.94	0.00	0.36	1.0000	CIRCULAR	36.000	36.000	0.0130
13	SDPIPE-20	33.00	501.43	0.00	501.10	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0120
14	SDPIPE-21	237.30	538.50	0.00	530.20	0.00	8.30	3.5000	CIRCULAR	18.000	18.000	0.0120
15	SDPIPE-22	57.68	542.20	0.00	538.50	0.00	3.70	6.4100	CIRCULAR	18.000	18.000	0.0130
16	SDPIPE-23	44.75	542.65	0.00	542.20	0.00	0.45	1.0000	CIRCULAR	18.000	18.000	0.0130
17	SDPIPE-25	74.63	546.00	0.00	544.50	0.00	1.50	2.0100	CIRCULAR	18.000	18.000	0.0130
18	SDPIPE-27	182.53	487.50	0.00	484.31	0.00	3.19	1.7500	CIRCULAR	18.000	18.000	0.0120
19	SDPIPE-28	33.55	487.84	0.00	487.50	0.00	0.34	1.0000	CIRCULAR	18.000	18.000	0.0130
20	SDPIPE-29	167.22	505.00	0.00	487.50	0.00	17.50	10.4700	CIRCULAR	18.000	18.000	0.0120
21	SDPIPE-3	30.36	466.60	0.00	466.30	0.00	0.30	1.0000	CIRCULAR	36.000	36.000	0.0120
22	SDPIPE-30	66.71	510.34	0.00	505.00	0.00	5.34	8.0000	CIRCULAR	18.000	18.000	0.0130
23	SDPIPE-32	96.89	544.50	0.00	538.50	0.00	6.00	6.1900	CIRCULAR	18.000	18.000	0.0120
24	SDPIPE-33	76.95	514.12	0.00	512.58	0.00	1.54	2.0000	CIRCULAR	18.000	18.000	0.0150
25	SDPIPE-34	148.00	516.28	0.00	512.58	0.00	3.70	2.5000	CIRCULAR	18.000	18.000	0.0150
26	SDPIPE-4	71.93	467.47	0.00	466.75	0.81	0.72	1.0000	CIRCULAR	18.000	18.000	0.0120
27	SDPIPE-5	33.00	467.80	0.00	467.47	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
28	SDPIPE-6	67.57	483.19	0.00	482.52	0.00	0.67	1.0000	CIRCULAR	18.000	18.000	0.0120
29	SDPIPE-7	42.68	483.62	0.00	483.19	0.00	0.43	1.0000	CIRCULAR	18.000	18.000	0.0130
30	SDPIPE-8	130.51	512.25	0.00	492.00	0.00	20.25	15.5200	CIRCULAR	24.000	24.000	0.0120
31	SDPIPE-9	33.00	512.58	0.00	512.25	0.00	0.33	1.0000	CIRCULAR	24.000	24.000	0.0130

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Fro Num
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	SDPIPE-1	23.22	0 00:08	207.79	0.11	14.04	0.04	0.85	0.28	0.00	
2	SDPIPE-10	8.10	0 00:12	29.25	0.28	6.95	0.61	1.02	0.68	0.00	
3	SDPIPE-11	8.11	0 00:12	11.38	0.71	7.67	0.15	0.87	0.58	0.00	
4	SDPIPE-12	0.89	0 00:08	10.49	0.09	1.92	0.29	1.03	0.69	0.00	
5	SDPIPE-13	2.96	0 00:13	35.22	0.08	11.66	0.19	0.30	0.20	0.00	
6	SDPIPE-14	2.96	0 00:13	11.74	0.25	6.18	0.11	0.47	0.32	0.00	
7	SDPIPE-15	2.19	0 00:16	10.50	0.21	4.05	0.26	0.52	0.35	0.00	
8	SDPIPE-16	4.58	0 00:07	34.01	0.13	10.58	0.04	0.44	0.29	0.00	
9	SDPIPE-17	2.70	0 00:06	26.49	0.10	9.36	0.35	0.33	0.22	0.00	
10	SDPIPE-18	1.40	0 00:05	23.49	0.06	5.73	0.14	0.29	0.20	0.00	
11	SDPIPE-19	1.78	0 00:08	10.50	0.17	4.83	0.18	0.40	0.27	0.00	
12	SDPIPE-2	20.46	0 00:08	66.70	0.31	6.71	0.09	1.34	0.45	0.00	
13	SDPIPE-20	1.82	0 00:08	11.38	0.16	4.69	0.12	0.51	0.34	0.00	
14	SDPIPE-21	2.60	0 00:15	21.28	0.12	4.20	0.94	0.75	0.50	0.00	
15	SDPIPE-22	2.62	0 00:15	26.60	0.10	8.37	0.11	0.35	0.23	0.00	
16	SDPIPE-23	0.95	0 00:05	10.50	0.09	3.62	0.21	0.31	0.21	0.00	
17	SDPIPE-25	0.82	0 00:05	14.89	0.06	4.00	0.31	0.26	0.17	0.00	
18	SDPIPE-27	6.32	0 00:19	15.03	0.42	7.62	0.40	0.71	0.48	0.00	
19	SDPIPE-28	1.65	0 00:14	10.50	0.16	3.02	0.19	0.61	0.41	0.00	
20	SDPIPE-29	5.03	0 00:19	36.81	0.14	8.33	0.33	0.56	0.37	0.00	
21	SDPIPE-3	20.18	0 00:08	71.83	0.28	7.74	0.07	1.64	0.55	0.00	
22	SDPIPE-30	5.04	0 00:19	29.71	0.17	12.00	0.09	0.43	0.29	0.00	
23	SDPIPE-32	1.83	0 00:05	28.32	0.06	8.60	0.19	0.27	0.18	0.00	
24	SDPIPE-33	3.63	0 00:08	12.88	0.28	3.85	0.33	1.02	0.68	0.00	
25	SDPIPE-34	2.86	0 00:08	14.39	0.20	3.60	0.69	0.98	0.65	0.00	
26	SDPIPE-4	2.24	0 00:16	11.38	0.20	4.57	0.26	0.48	0.32	0.00	
27	SDPIPE-5	0.57	0 00:07	10.50	0.05	1.97	0.28	0.35	0.23	0.00	
28	SDPIPE-6	2.04	0 00:16	11.37	0.18	4.44	0.25	0.46	0.31	0.00	
29	SDPIPE-7	2.05	0 00:16	10.50	0.19	3.88	0.18	0.51	0.34	0.00	
30	SDPIPE-8	18.99	0 00:09	96.54	0.20	21.80	0.10	0.64	0.32	0.00	
31	SDPIPE-9	18.56	0 00:09	22.62	0.82	8.86	0.06	1.27	0.63	0.00	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	CB-10	On Grade	1	483.62	487.38	3.76	483.62	0.00	N/A	0.00
2	CB-12	On Sag	1	512.25	516.63	4.38	512.25	0.00	10.00	0.00
3	CB-13	On Sag	1	512.58	516.63	4.05	512.58	0.00	10.00	0.00
4	CB-15	On Sag	1	530.20	533.98	3.78	530.20	0.00	10.00	0.00
5	CB-16	On Sag	1	530.53	533.98	3.45	530.53	0.00	10.00	0.00
6	CB-18	On Grade	1	517.50	521.56	4.06	517.50	0.00	N/A	0.00
7	CB-2	On Grade	1	465.94	475.75	9.81	465.94	0.00	N/A	0.00
8	CB-20	On Grade	1	468.11	471.31	3.20	468.11	0.00	N/A	0.00
9	CB-22	On Grade	1	501.10	504.78	3.68	501.10	0.00	N/A	0.00
10	CB-24	On Grade	1	517.77	523.17	5.40	517.77	0.00	N/A	0.00
11	CB-25	On Grade	1	515.81	522.01	6.20	515.81	0.00	N/A	0.00
12	CB-26	On Grade	1	501.43	504.78	3.35	501.43	0.00	N/A	0.00
13	CB-27	On Grade	1	538.50	543.76	5.26	538.50	0.00	N/A	0.00
14	CB-28	On Sag	1	542.20	546.43	4.23	542.20	0.00	10.00	0.00
15	CB-29	On Grade	1	542.65	547.71	5.07	542.65	0.00	N/A	0.00
16	CB-3	On Grade	1	466.30	475.38	9.08	466.30	0.00	N/A	0.00
17	CB-31	On Grade	1	544.50	549.76	5.26	544.50	0.00	N/A	0.00
18	CB-32	On Grade	1	546.00	550.25	4.25	546.00	0.00	N/A	0.00
19	CB-35	On Grade	1	487.50	492.85	5.35	487.50	0.00	N/A	0.00
20	CB-36	On Grade	1	487.84	492.30	4.46	487.84	0.00	N/A	0.00
21	CB-38	On Grade	1	505.00	510.35	5.35	505.00	0.00	N/A	0.00
22	CB-39	On Sag	1	510.34	515.20	4.86	510.34	0.00	10.00	0.00
23	CB-43	On Grade	1	514.12	517.57	3.45	514.12	0.00	N/A	0.00
24	CB-6	On Sag	1	467.80	474.50	6.70	467.80	0.00	10.00	0.00
25	CB-7	On Grade	1	467.47	474.50	7.03	467.47	0.00	N/A	0.00
26	CB-9	On Grade	1	483.19	489.41	6.22	483.19	0.00	N/A	0.00
27	FES-19	On Grade	1	517.99	522.14	4.14	517.99	0.00	N/A	0.00
28	Inlet-CB-44	On Grade	1	516.28	521.28	5.00	516.28	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB-10	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
2	CB-12	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
3	CB-13	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
4	CB-15	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
5	CB-16	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
6	CB-18	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
7	CB-2	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
8	CB-20	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
9	CB-22	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
10	CB-24	0.1033	0.0258	0.0150	0.0200	1.00	0.1312	8.50
11	CB-25	0.1041	0.0258	0.0150	0.0200	1.00	0.1312	8.50
12	CB-26	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
13	CB-27	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
14	CB-28	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
15	CB-29	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
16	CB-3	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
17	CB-31	0.0721	0.0200	0.0150	0.0200	1.50	0.1312	8.50
18	CB-32	0.0809	0.0258	0.0150	0.0200	1.00	0.1312	8.50
19	CB-35	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
20	CB-36	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
21	CB-38	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
22	CB-39	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
23	CB-43	0.0199	0.0258	0.0150	0.0200	1.00	0.1312	8.50
24	CB-6	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
25	CB-7	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
26	CB-9	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
27	FES-19	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
28	Inlet-CB-44	0.1138	0.0258	0.0150	0.0200	1.00	0.1312	8.50

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	F \
1	CB-10	2.57	2.22	1.86	0.71	72.20	5.92	487.53	0.15	0 00:16	
2	CB-12	2.09	2.09	N/A	N/A	N/A	5.80	516.94	0.32	0 00:09	
3	CB-13	6.31	5.46	N/A	N/A	N/A	12.14	517.11	0.48	0 00:09	
4	CB-15	5.56	5.56	N/A	N/A	N/A	11.16	534.43	0.45	0 00:12	
5	CB-16	2.75	2.75	N/A	N/A	N/A	6.97	534.32	0.35	0 00:12	
6	CB-18	0.81	0.81	0.81	0.00	100.00	4.73	521.67	0.12	0 00:13	
7	CB-2	2.13	1.49	2.11	0.02	98.95	8.25	475.95	0.21	0 00:08	
8	CB-20	2.74	2.30	1.93	0.81	70.34	6.04	471.46	0.15	0 00:16	
9	CB-22	0.92	0.92	0.91	0.01	98.86	4.03	504.88	0.10	0 00:07	
10	CB-24	1.77	1.77	1.41	0.36	79.58	4.87	523.29	0.12	0 00:05	
11	CB-25	2.65	2.65	1.79	0.86	67.59	5.62	522.15	0.14	0 00:08	
12	CB-26	1.89	1.88	1.54	0.35	81.46	5.27	504.91	0.13	0 00:08	
13	CB-27	0.58	0.58	0.58	0.00	100.00	3.58	543.84	0.09	0 00:15	
14	CB-28	2.62	2.62	N/A	N/A	N/A	6.75	546.77	0.34	0 00:15	
15	CB-29	0.97	0.97	0.96	0.00	99.49	4.32	547.82	0.11	0 00:05	
16	CB-3	0.93	0.93	0.93	0.00	100.00	6.05	475.53	0.15	0 00:08	
17	CB-31	1.14	1.14	1.03	0.11	90.36	5.13	549.86	0.10	0 00:05	
18	CB-32	0.85	0.85	0.85	0.01	99.38	3.87	550.34	0.09	0 00:05	
19	CB-35	0.72	0.66	0.72	0.00	99.84	3.48	492.94	0.08	0 00:19	
20	CB-36	2.32	2.32	1.66	0.66	71.53	5.33	492.43	0.13	0 00:14	
21	CB-38	1.49	1.49	1.26	0.23	84.54	4.54	510.46	0.11	0 00:19	
22	CB-39	5.18	4.92	N/A	N/A	N/A	10.64	515.64	0.44	0 00:19	
23	CB-43	3.78	3.78	3.61	0.17	95.51	8.74	517.79	0.22	0 00:08	
24	CB-6	1.09	1.09	N/A	N/A	N/A	3.76	474.76	0.26	0 00:07	
25	CB-7	0.27	0.27	0.27	0.00	100.00	3.82	474.59	0.09	0 00:16	
26	CB-9	0.78	0.78	0.78	0.00	100.00	3.80	489.50	0.09	0 00:16	
27	FES-19	4.21	4.21	2.96	1.24	70.42	8.75	522.36	0.22	0 00:13	
28	Inlet-CB-44	3.72	3.72	2.88	0.84	77.39	6.29	521.44	0.16	0 00:08	

50 Year Design Storm

Project Description

File Name	Hilltop Drainage Analysis 3-4-26.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

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

Number of Elements

	Qty
Rain Gages	0
Subbasins	29
Nodes	42
Junctions	3
Outfalls	11
Flow Diversions	0
Inlets	28
Storage Nodes	0
Links	52
Channels	21
Pipes	31
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	50 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-CB-10	0.58	0.7000	1.59	1.11	0.64	2.44	0 00:15:54
2	Sub-CB-12	0.32	0.7000	0.87	0.61	0.19	2.31	0 00:05:00
3	Sub-CB-13	1.03	0.7000	1.11	0.78	0.80	6.00	0 00:07:58
4	Sub-CB-15	1.21	0.7000	1.30	0.91	1.10	6.11	0 00:10:46
5	Sub-CB-16	0.42	0.7000	0.87	0.61	0.25	3.03	0 00:05:00
6	Sub-CB-18	0.12	0.7000	0.87	0.61	0.07	0.89	0 00:05:00
7	Sub-CB-19	1.00	0.7000	1.43	1.00	1.00	4.62	0 00:12:57
8	Sub-CB-2	0.38	0.7000	1.54	1.08	0.41	1.64	0 00:14:59
9	Sub-CB-20	0.62	0.7000	1.66	1.16	0.71	2.52	0 00:17:03
10	Sub-CB-22	0.14	0.7000	0.87	0.61	0.08	1.02	0 00:05:00
11	Sub-CB-24	0.27	0.7000	0.87	0.61	0.16	1.95	0 00:05:01
12	Sub-CB-25	0.51	0.7000	1.14	0.80	0.41	2.92	0 00:08:15
13	Sub-CB-26	0.49	0.7000	1.59	1.11	0.55	2.07	0 00:15:52
14	Sub-CB-27	0.10	0.7000	0.97	0.68	0.07	0.64	0 00:06:07
15	Sub-CB-28	0.67	0.7000	1.54	1.08	0.72	2.87	0 00:15:04
16	Sub-CB-29	0.15	0.7000	0.87	0.61	0.09	1.07	0 00:05:00
17	Sub-CB-3	0.14	0.7000	0.87	0.61	0.09	1.02	0 00:05:00
18	Sub-CB-31	0.17	0.7000	0.87	0.61	0.10	1.26	0 00:05:00
19	Sub-CB-32	0.13	0.7000	0.87	0.61	0.08	0.94	0 00:05:00
20	Sub-CB-35	0.10	0.7000	0.87	0.61	0.06	0.73	0 00:05:00
21	Sub-CB-36	0.58	0.7000	1.52	1.06	0.62	2.54	0 00:14:42
22	Sub-CB-38	0.24	0.7000	0.92	0.64	0.16	1.65	0 00:05:43
23	Sub-CB-39	1.39	0.7000	1.78	1.24	1.72	5.40	0 00:19:10
24	Sub-CB-43	0.71	0.7000	1.09	0.77	0.54	4.16	0 00:07:53
25	Sub-CB-44	0.72	0.7000	1.13	0.79	0.57	4.09	0 00:08:24
26	Sub-CB-6	0.16	0.7000	0.87	0.61	0.10	1.20	0 00:05:00
27	Sub-CB-7	0.04	0.7000	0.87	0.61	0.02	0.30	0 00:05:00
28	Sub-CB-9	0.12	0.7000	0.87	0.61	0.07	0.86	0 00:05:00
29	Sub-FES-2	1.58	0.5600	1.13	0.63	1.00	7.24	0 00:08:19

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	(
1	FES-2	Junction	466.60	469.78	466.60	469.78	0.00	21.66	468.43	0.00	1.35	
2	JB-14	Junction	529.50	535.50	529.50	535.50	0.00	8.88	530.07	0.00	5.43	
3	JB-23	Junction	515.30	519.20	515.30	519.20	10.00	2.88	515.65	0.00	3.55	
4	OFFSITE-1	Outfall	540.30					0.16	540.37			
5	OFFSITE-2	Outfall	532.10					0.03	532.13			
6	OFFSITE-25	Outfall	464.82					0.00	464.82			
7	OFFSITE-26	Outfall	464.82					0.69	464.95			
8	Out-FES-1	Outfall	463.00					25.01	463.71			
9	Out-FES-11	Outfall	492.00					20.77	492.63			
10	Out-FES-17	Outfall	505.00					3.12	505.30			
11	Out-FES-21	Outfall	499.00					5.00	499.39			
12	Out-FES-3	Outfall	538.50					1.97	538.77			
13	Out-FES-34	Outfall	484.31					6.96	485.03			
14	Out-FES-8	Outfall	482.52					2.23	482.97			

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
1	SDPIPE-1	Pipe	CB-2	Out-FES-1	35.55	465.94	463.00	8.2700	36.000	0.0120	25.01	207.79	0.12	14.18	0.89	0
2	SDPIPE-10	Pipe	JB-14	CB-13	256.10	529.50	512.58	6.6100	18.000	0.0120	8.88	29.25	0.30	7.18	1.03	0
3	SDPIPE-11	Pipe	CB-15	JB-14	70.07	530.20	529.50	1.0000	18.000	0.0120	8.88	11.38	0.78	7.77	0.93	0
4	SDPIPE-12	Pipe	CB-16	CB-15	33.00	530.53	530.20	1.0000	18.000	0.0130	0.95	10.49	0.09	1.94	1.12	0
5	SDPIPE-13	Pipe	CB-18	Out-FES-17	130.50	517.50	505.00	9.5800	18.000	0.0120	3.12	35.22	0.09	11.83	0.31	0
6	SDPIPE-14	Pipe	FES-19	CB-18	39.55	517.99	517.50	1.2500	18.000	0.0130	3.12	11.74	0.27	6.25	0.49	0
7	SDPIPE-15	Pipe	CB-20	CB-7	64.04	468.11	467.47	1.0000	18.000	0.0130	2.40	10.50	0.23	4.11	0.55	0
8	SDPIPE-16	Pipe	CB-22	Out-FES-21	23.51	501.10	499.00	8.9300	18.000	0.0120	5.00	34.01	0.15	10.74	0.46	0
9	SDPIPE-17	Pipe	JB-23	CB-22	194.21	515.30	504.78	5.4200	18.000	0.0120	2.87	26.49	0.11	9.51	0.34	0
10	SDPIPE-18	Pipe	CB-24	JB-23	49.41	517.77	515.30	5.0000	18.000	0.0130	1.49	23.49	0.06	5.82	0.30	0
11	SDPIPE-19	Pipe	CB-25	JB-23	51.31	515.81	515.30	1.0000	18.000	0.0130	1.88	10.50	0.18	4.89	0.41	0
12	SDPIPE-2	Pipe	CB-3	CB-2	35.82	466.30	465.94	1.0000	36.000	0.0130	21.96	66.70	0.33	6.83	1.39	0
13	SDPIPE-20	Pipe	CB-26	CB-22	33.00	501.43	501.10	1.0000	18.000	0.0120	2.05	11.38	0.18	4.75	0.54	0
14	SDPIPE-21	Pipe	CB-27	CB-15	237.30	538.50	530.20	3.5000	18.000	0.0120	2.85	21.28	0.13	4.31	0.81	0
15	SDPIPE-22	Pipe	CB-28	CB-27	57.68	542.20	538.50	6.4100	18.000	0.0130	2.87	26.60	0.11	8.56	0.37	0
16	SDPIPE-23	Pipe	CB-29	CB-28	44.75	542.65	542.20	1.0000	18.000	0.0130	1.03	10.50	0.10	3.69	0.32	0
17	SDPIPE-25	Pipe	CB-32	CB-31	74.63	546.00	544.50	2.0100	18.000	0.0130	0.90	14.89	0.06	4.12	0.27	0
18	SDPIPE-27	Pipe	CB-35	Out-FES-34	182.53	487.50	484.31	1.7500	18.000	0.0120	6.96	15.03	0.46	7.79	0.76	0
19	SDPIPE-28	Pipe	CB-36	CB-35	33.55	487.84	487.50	1.0000	18.000	0.0130	1.74	10.50	0.17	2.93	0.65	0
20	SDPIPE-29	Pipe	CB-38	CB-35	167.22	505.00	487.50	10.4700	18.000	0.0120	5.60	36.81	0.15	8.55	0.60	0
21	SDPIPE-3	Pipe	FES-2	CB-3	30.36	466.60	466.30	1.0000	36.000	0.0120	21.65	71.83	0.30	7.83	1.72	0
22	SDPIPE-30	Pipe	CB-39	CB-38	66.71	510.34	505.00	8.0000	18.000	0.0130	5.60	29.71	0.19	12.30	0.46	0
23	SDPIPE-32	Pipe	CB-31	Out-FES-3	96.89	544.50	538.50	6.1900	18.000	0.0120	1.97	28.32	0.07	8.81	0.28	0
24	SDPIPE-33	Pipe	CB-43	CB-13	76.95	514.12	512.58	2.0000	18.000	0.0150	3.91	12.88	0.30	3.95	1.08	0
25	SDPIPE-34	Pipe	Inlet-CB-44	CB-13	148.00	516.28	512.58	2.5000	18.000	0.0150	3.03	14.39	0.21	3.68	0.98	0
26	SDPIPE-4	Pipe	CB-7	CB-2	71.93	467.47	466.75	1.0000	18.000	0.0120	2.48	11.38	0.22	4.68	0.51	0
27	SDPIPE-5	Pipe	CB-6	CB-7	33.00	467.80	467.47	1.0000	18.000	0.0130	0.61	10.50	0.06	1.98	0.38	0
28	SDPIPE-6	Pipe	CB-9	Out-FES-8	67.57	483.19	482.52	1.0000	18.000	0.0120	2.23	11.37	0.20	4.55	0.48	0

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
46	L-SDPIPE-29	Channel	CB-38	CB-35	172.07	510.35	492.85	10.1700	3.960	0.0150	0.26	8.06	0.03	3.10	0.06	0
47	L-SDPIPE-32	Channel	CB-31	OFFSITE-1	98.14	549.76	540.30	9.6400	6.000	0.0150	0.16	29.25	0.01	2.22	0.06	0
48	L-SDPIPE-33	Channel	CB-43	CB-13	78.40	517.57	516.63	1.2000	3.960	0.0320	0.25	2.77	0.09	0.22	0.23	0
49	L-SDPIPE-34	Channel	Inlet-CB-44	CB-13	149.79	521.28	516.63	3.1000	3.960	0.0320	1.02	4.46	0.23	0.72	0.26	0
50	L-SDPIPE-4	Channel	CB-7	OFFSITE-25	129.78	474.50	464.82	7.4600	3.960	0.0320	0.00	6.91	0.00	0.00	0.00	0
51	L-SDPIPE-6	Channel	CB-9	CB-6	214.12	489.41	474.50	6.9600	3.960	0.0150	0.00	6.67	0.00	0.20	0.14	0
52	L-SDPIPE-7	Channel	CB-10	CB-20	216.57	487.38	471.31	7.4200	3.960	0.0150	0.64	6.89	0.09	1.71	0.13	0

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	CB-10	On Grade	1	483.62	487.38	483.62	N/A	2.87	1.98	0.89	69.05	8.50	6.13	487.53
2	CB-12	On Sag	1	512.25	516.63	512.25	10.00	2.30	N/A	N/A	N/A	8.50	6.19	516.95
3	CB-13	On Sag	1	512.58	516.63	512.58	10.00	7.16	N/A	N/A	N/A	8.50	13.20	517.13
4	CB-15	On Sag	1	530.20	533.98	530.20	10.00	6.11	N/A	N/A	N/A	8.50	11.87	534.45
5	CB-16	On Sag	1	530.53	533.98	530.53	10.00	3.03	N/A	N/A	N/A	8.50	7.44	534.33
6	CB-18	On Grade	1	517.50	521.56	517.50	N/A	0.89	0.89	0.00	100.00	8.50	4.92	521.68
7	CB-2	On Grade	1	465.94	475.75	465.94	N/A	2.40	2.33	0.07	97.03	8.50	8.66	475.96
8	CB-20	On Grade	1	468.11	471.31	468.11	N/A	3.07	2.06	1.01	66.97	8.50	6.33	471.47
9	CB-22	On Grade	1	501.10	504.78	501.10	N/A	1.02	0.99	0.03	97.34	8.50	4.19	504.88
10	CB-24	On Grade	1	517.77	523.17	517.77	N/A	1.95	1.50	0.45	76.81	8.50	5.02	523.29
11	CB-25	On Grade	1	515.81	522.01	515.81	N/A	2.91	1.89	1.02	64.86	8.50	5.82	522.15
12	CB-26	On Grade	1	501.43	504.78	501.43	N/A	2.12	1.65	0.47	77.94	8.50	5.52	504.92
13	CB-27	On Grade	1	538.50	543.76	538.50	N/A	0.64	0.64	0.00	100.00	8.50	3.72	543.85
14	CB-28	On Sag	1	542.20	546.43	542.20	10.00	2.87	N/A	N/A	N/A	8.50	7.18	546.78
15	CB-29	On Grade	1	542.65	547.71	542.65	N/A	1.06	1.05	0.02	98.31	8.50	4.47	547.82
16	CB-3	On Grade	1	466.30	475.38	466.30	N/A	1.02	1.02	0.00	100.00	8.50	6.30	475.54
17	CB-31	On Grade	1	544.50	549.76	544.50	N/A	1.26	1.10	0.15	87.73	8.50	5.33	549.87
18	CB-32	On Grade	1	546.00	550.25	546.00	N/A	0.94	0.92	0.02	98.15	8.50	4.01	550.34
19	CB-35	On Grade	1	487.50	492.85	487.50	N/A	0.86	0.84	0.02	97.83	8.50	3.72	492.95
20	CB-36	On Grade	1	487.84	492.30	487.84	N/A	2.54	1.75	0.79	68.73	8.50	5.54	492.43
21	CB-38	On Grade	1	505.00	510.35	505.00	N/A	1.64	1.34	0.30	81.76	8.50	4.70	510.46
22	CB-39	On Sag	1	510.34	515.20	510.34	10.00	5.73	N/A	N/A	N/A	8.50	11.38	515.66
23	CB-43	On Grade	1	514.12	517.57	514.12	N/A	4.15	3.88	0.27	93.41	8.50	9.02	517.80
24	CB-6	On Sag	1	467.80	474.50	467.80	10.00	1.20	N/A	N/A	N/A	8.50	4.01	474.77
25	CB-7	On Grade	1	467.47	474.50	467.47	N/A	0.30	0.30	0.00	100.00	8.50	3.97	474.60
26	CB-9	On Grade	1	483.19	489.41	483.19	N/A	0.87	0.86	0.00	99.48	8.50	3.96	489.51
27	FES-19	On Grade	1	517.99	522.14	517.99	N/A	4.61	3.13	1.49	67.78	8.50	9.02	522.36
28	Inlet-CB-44	On Grade	1	516.28	521.28	516.28	N/A	4.09	3.05	1.04	74.65	8.50	6.49	521.44

Subbasin Hydrology

Subbasin : Sub-CB-10

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99996647	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	229.3185963	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.69	0	0

Total TOC (min) 15.90

Subbasin : Sub-CB-12

Input Data

Area (ac) 0.32
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	219.5273657	0	0
Slope (%) :	1.99	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	2.87	0	0
Computed Flow Time (min) :	1.28	0	0

Total TOC (min) 4.14

Subbasin : Sub-CB-13

Input Data

Area (ac) 1.03
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	11.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.27	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	71.4	0
Slope (%) :	11.5	1.99	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.47	2.87	0
Computed Flow Time (min) :	0.28	0.41	0

Total TOC (min) 7.97

Subbasin : Sub-CB-15

Input Data

Area (ac) 1.21
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	12.98144373	156.302	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.09	0.53	0

Total TOC (min) 10.77

Subbasin : Sub-CB-16

Input Data

Area (ac) 0.42
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.01720552	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	310.5319881	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	1.06	0	0

Total TOC (min) 3.93

Subbasin : Sub-CB-18

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.10752092	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.88	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	71.43477489	102.308	0
Slope (%) :	11.86	2.45	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	7	3.18	0
Computed Flow Time (min) :	0.17	0.54	0

Total TOC (min) 3.59

Subbasin : Sub-CB-19

Input Data

Area (ac) 1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100.0031436	0	0
Slope (%) :	3.4	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.83	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	6.07922878	278.905	79.9642
Slope (%) :	2	11.86	2.45
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	7	3.18
Computed Flow Time (min) :	0.04	0.66	0.42

Total TOC (min) 12.96

Subbasin : Sub-CB-2

Input Data

Area (ac) 0.38
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175.3484305	45.5292	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.44	0.4	0

Total TOC (min) 14.99

Subbasin : Sub-CB-20

Input Data

Area (ac) 0.62
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.99258294	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	3.00743724	208.662	0
Slope (%) :	2	7.49	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	5.56	0
Computed Flow Time (min) :	0.02	0.63	0

Total TOC (min) 17.06

Subbasin : Sub-CB-22

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99981258	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.0428132	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.5	0	0

Total TOC (min) 3.36

Subbasin : Sub-CB-24

Input Data

Area (ac) 0.27
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	37.99958613	0	0
Slope (%) :	6.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.15	0	0
Computed Flow Time (min) :	4.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	28.98355088	187.485	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.33	0.48	0

Total TOC (min) 5.02

Subbasin : Sub-CB-25

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99999586	0	0
Slope (%) :	7.25	0	0
2 yr, 24 hr Rainfall (in) :	4.32	0	0
Velocity (ft/sec) :	0.18	0	0
Computed Flow Time (min) :	7.56	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	16.12667612	203.961	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.19	0.52	0

Total TOC (min) 8.26

Subbasin : Sub-CB-26

Input Data

Area (ac) 0.49
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99998121	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221.0918618	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.66	0	0

Total TOC (min) 15.87

Subbasin : Sub-CB-27

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	21.13547973	0	0
Slope (%) :	1	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	5.57	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	117.1502173	0	0
Slope (%) :	2.92	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.47	0	0
Computed Flow Time (min) :	0.56	0	0

Total TOC (min) 6.13

Subbasin : Sub-CB-28

Input Data

Area (ac) 0.67
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	14.63	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	17.02372996	94.0918	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.12	0.32	0

Total TOC (min) 15.08

Subbasin : Sub-CB-29

Input Data

Area (ac) 0.15
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	253.6223323	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	0.87	0	0

Total TOC (min) 3.73

Subbasin : Sub-CB-3

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	181.26423	58.4106	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.46	0.52	0

Total TOC (min) 3.84

Subbasin : Sub-CB-31

Input Data

Area (ac) 0.17
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	166.3763112	83.6548	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.76	0.27	0

Total TOC (min) 3.90

Subbasin : Sub-CB-32

Input Data

Area (ac) 0.13
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.2624187	52.7043	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.77	0.17	0

Total TOC (min) 3.80

Subbasin : Sub-CB-35

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	159.59	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.4	0	0

Total TOC (min) 3.27

Subbasin : Sub-CB-36

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	224.201193	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.57	0	0

Total TOC (min) 14.71

Subbasin : Sub-CB-38

Input Data

Area (ac) 0.24
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.00000002	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	214.8866153	184.112	0
Slope (%) :	2.45	0.75	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.18	1.76	0
Computed Flow Time (min) :	1.13	1.74	0

Total TOC (min) 5.73

Subbasin : Sub-CB-39

Input Data

Area (ac) 1.39
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.98923348	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	34.45719772	233.523	132.701
Slope (%) :	1.5	2.45	0.75
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.98	3.18	1.76
Computed Flow Time (min) :	0.29	1.22	1.26

Total TOC (min) 19.18

Subbasin : Sub-CB-43

Input Data

Area (ac) 0.71
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	77.84	0
Slope (%) :	10.75	1.99	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	5.29	2.87	0
Computed Flow Time (min) :	0.29	0.45	0

Total TOC (min) 7.89

Subbasin : Sub-CB-44

Input Data

Area (ac) 0.72
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	9	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	8.02	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	78.42	77.02	0
Slope (%) :	16.7	11.38	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	6.59	6.86	0
Computed Flow Time (min) :	0.2	0.19	0

Total TOC (min) 8.40

Subbasin : Sub-CB-6

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	207.9606416	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.62	0	0

Total TOC (min) 3.48

Subbasin : Sub-CB-7

Input Data

Area (ac) 0.04
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999999	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	68.39700153	0	0
Slope (%) :	0.85	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.87	0	0
Computed Flow Time (min) :	0.61	0	0

Total TOC (min) 3.47

Subbasin : Sub-CB-9

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999519	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	199.7947467	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.6	0	0

Total TOC (min) 3.46

Subbasin : Sub-FES-2

Input Data

Area (ac) 1.58
Weighted Runoff Coefficient 0.56

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	363.3701089	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	1.19	0	0

Total TOC (min) 8.33

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	FES-2	466.60	469.78	3.18	466.60	0.00	469.78	0.00	0.00	0.00
2	JB-14	529.50	535.50	6.00	529.50	0.00	535.50	0.00	0.00	0.00
3	JB-23	515.30	519.20	3.90	515.30	0.00	519.20	0.00	10.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tim F Floo Occurre (days hh:n
1	FES-2	21.66	21.66	468.43	1.83	0.00	1.35	468.00	1.40	0 00:08	0 0(
2	JB-14	8.88	0.00	530.07	0.57	0.00	5.43	529.51	0.01	0 00:12	0 0(
3	JB-23	2.88	0.00	515.65	0.35	0.00	3.55	515.30	0.00	0 00:06	0 0(

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	L-SDPIPE-1	73.15	475.75	9.81	474.50	7.03	1.25	1.7100	User-Defined	0.330	14.000	0.0150
2	L-SDPIPE-13	403.61	521.56	4.06	510.35	5.35	11.21	2.7800	User-Defined	0.330	14.000	0.0150
3	L-SDPIPE-14	373.89	522.14	4.14	515.20	4.86	6.94	1.8600	User-Defined	0.330	14.000	0.0150
4	L-SDPIPE-15	83.27	471.31	3.20	464.82	0.00	6.49	7.7900	User-Defined	0.330	14.000	0.0150
5	L-SDPIPE-16	206.62	504.78	3.68	489.41	6.22	15.37	7.4400	User-Defined	0.330	14.000	0.0150
6	L-SDPIPE-18	171.93	523.17	5.40	517.57	3.45	5.60	3.2600	User-Defined	0.330	14.000	0.0150
7	L-SDPIPE-19	227.29	522.01	6.20	504.78	3.35	17.23	7.5800	User-Defined	0.330	14.000	0.0150
8	L-SDPIPE-2	62.02	475.38	9.08	474.50	6.70	0.88	1.4200	User-Defined	0.330	14.000	0.0150
9	L-SDPIPE-20	233.87	504.78	3.35	487.38	3.76	17.40	7.4400	User-Defined	0.330	14.000	0.0150
10	L-SDPIPE-21	239.45	543.76	5.26	533.98	3.78	9.78	4.0800	User-Defined	0.330	14.000	0.0150
11	L-SDPIPE-23	314.52	547.71	5.07	533.98	3.45	13.74	4.3700	User-Defined	0.500	26.000	0.0150
12	L-SDPIPE-25	202.83	550.25	4.25	532.10	0.00	18.15	8.9500	User-Defined	0.500	26.000	0.0150
13	L-SDPIPE-27	245.69	492.85	5.35	475.38	9.08	17.47	7.1100	User-Defined	0.330	14.000	0.0150
14	L-SDPIPE-28	228.18	492.30	4.46	475.75	9.81	16.55	7.2500	User-Defined	0.330	14.000	0.0150
15	L-SDPIPE-29	172.07	510.35	5.35	492.85	5.35	17.49	10.1700	User-Defined	0.330	14.000	0.0150
16	L-SDPIPE-32	98.14	549.76	5.26	540.30	0.00	9.46	9.6400	User-Defined	0.500	26.000	0.0150
17	L-SDPIPE-33	78.40	517.57	3.45	516.63	4.05	0.94	1.2000	User-Defined	0.330	14.000	0.0320
18	L-SDPIPE-34	149.79	521.28	5.00	516.63	4.05	4.65	3.1000	User-Defined	0.330	14.000	0.0320
19	L-SDPIPE-4	129.78	474.50	7.03	464.82	0.00	9.68	7.4600	User-Defined	0.330	14.000	0.0320
20	L-SDPIPE-6	214.12	489.41	6.22	474.50	6.70	14.91	6.9600	User-Defined	0.330	14.000	0.0150
21	L-SDPIPE-7	216.57	487.38	3.76	471.31	3.20	16.07	7.4200	User-Defined	0.330	14.000	0.0150

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	I N
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	L-SDPIPE-1	0.00	0 00:00	3.30	0.00	0.00		0.00	0.00	0.00	
2	L-SDPIPE-13	0.00	0 00:00	4.21	0.00	0.00		0.06	0.17	0.00	
3	L-SDPIPE-14	1.49	0 00:13	3.45	0.43	0.87	7.16	0.28	0.86	0.00	
4	L-SDPIPE-15	0.69	0 00:17	7.06	0.10	1.82	0.76	0.13	0.41	0.00	
5	L-SDPIPE-16	0.02	0 00:05	6.90	0.00	0.70	4.92	0.03	0.10	0.00	
6	L-SDPIPE-18	0.46	0 00:05	4.56	0.10	7.80	0.37	0.13	0.39	0.00	
7	L-SDPIPE-19	1.03	0 00:08	6.96	0.15	3.25	1.17	0.12	0.37	0.00	
8	L-SDPIPE-2	0.00	0 00:00	3.02	0.00	0.00		0.13	0.39	0.00	
9	L-SDPIPE-20	0.44	0 00:16	6.90	0.06	1.31	2.98	0.12	0.37	0.00	
10	L-SDPIPE-21	0.00	0 00:07	5.11	0.00	0.00		0.17	0.50	0.00	
11	L-SDPIPE-23	0.01	0 00:05	19.69	0.00	0.01	524.20	0.22	0.43	0.00	
12	L-SDPIPE-25	0.03	0 00:05	28.17	0.00	1.83	1.85	0.03	0.06	0.00	
13	L-SDPIPE-27	0.00	0 00:06	6.74	0.00	0.00		0.00	0.01	0.00	
14	L-SDPIPE-28	0.79	0 00:14	6.81	0.12	4.05	0.94	0.14	0.42	0.00	
15	L-SDPIPE-29	0.26	0 00:06	8.06	0.03	3.10	0.93	0.06	0.18	0.00	
16	L-SDPIPE-32	0.16	0 00:05	29.25	0.01	2.22	0.74	0.06	0.12	0.00	
17	L-SDPIPE-33	0.25	0 00:08	2.77	0.09	0.22	5.94	0.23	0.70	0.00	
18	L-SDPIPE-34	1.02	0 00:08	4.46	0.23	0.72	3.47	0.26	0.78	0.00	
19	L-SDPIPE-4	0.00	0 00:00	6.91	0.00	0.00		0.00	0.00	0.00	
20	L-SDPIPE-6	0.00	0 00:06	6.67	0.00	0.20	17.84	0.14	0.42	0.00	
21	L-SDPIPE-7	0.64	0 00:16	6.89	0.09	1.71	2.11	0.13	0.39	0.00	

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	SDPIPE-1	35.55	465.94	0.00	463.00	0.00	2.94	8.2700	CIRCULAR	36.000	36.000	0.0120
2	SDPIPE-10	256.10	529.50	0.00	512.58	0.00	16.92	6.6100	CIRCULAR	18.000	18.000	0.0120
3	SDPIPE-11	70.07	530.20	0.00	529.50	0.00	0.70	1.0000	CIRCULAR	18.000	18.000	0.0120
4	SDPIPE-12	33.00	530.53	0.00	530.20	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
5	SDPIPE-13	130.50	517.50	0.00	505.00	0.00	12.50	9.5800	CIRCULAR	18.000	18.000	0.0120
6	SDPIPE-14	39.55	517.99	0.00	517.50	0.00	0.49	1.2500	CIRCULAR	18.000	18.000	0.0130
7	SDPIPE-15	64.04	468.11	0.00	467.47	0.00	0.64	1.0000	CIRCULAR	18.000	18.000	0.0130
8	SDPIPE-16	23.51	501.10	0.00	499.00	0.00	2.10	8.9300	CIRCULAR	18.000	18.000	0.0120
9	SDPIPE-17	194.21	515.30	0.00	504.78	3.68	10.52	5.4200	CIRCULAR	18.000	18.000	0.0120
10	SDPIPE-18	49.41	517.77	0.00	515.30	0.00	2.47	5.0000	CIRCULAR	18.000	18.000	0.0130
11	SDPIPE-19	51.31	515.81	0.00	515.30	0.00	0.51	1.0000	CIRCULAR	18.000	18.000	0.0130
12	SDPIPE-2	35.82	466.30	0.00	465.94	0.00	0.36	1.0000	CIRCULAR	36.000	36.000	0.0130
13	SDPIPE-20	33.00	501.43	0.00	501.10	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0120
14	SDPIPE-21	237.30	538.50	0.00	530.20	0.00	8.30	3.5000	CIRCULAR	18.000	18.000	0.0120
15	SDPIPE-22	57.68	542.20	0.00	538.50	0.00	3.70	6.4100	CIRCULAR	18.000	18.000	0.0130
16	SDPIPE-23	44.75	542.65	0.00	542.20	0.00	0.45	1.0000	CIRCULAR	18.000	18.000	0.0130
17	SDPIPE-25	74.63	546.00	0.00	544.50	0.00	1.50	2.0100	CIRCULAR	18.000	18.000	0.0130
18	SDPIPE-27	182.53	487.50	0.00	484.31	0.00	3.19	1.7500	CIRCULAR	18.000	18.000	0.0120
19	SDPIPE-28	33.55	487.84	0.00	487.50	0.00	0.34	1.0000	CIRCULAR	18.000	18.000	0.0130
20	SDPIPE-29	167.22	505.00	0.00	487.50	0.00	17.50	10.4700	CIRCULAR	18.000	18.000	0.0120
21	SDPIPE-3	30.36	466.60	0.00	466.30	0.00	0.30	1.0000	CIRCULAR	36.000	36.000	0.0120
22	SDPIPE-30	66.71	510.34	0.00	505.00	0.00	5.34	8.0000	CIRCULAR	18.000	18.000	0.0130
23	SDPIPE-32	96.89	544.50	0.00	538.50	0.00	6.00	6.1900	CIRCULAR	18.000	18.000	0.0120
24	SDPIPE-33	76.95	514.12	0.00	512.58	0.00	1.54	2.0000	CIRCULAR	18.000	18.000	0.0150
25	SDPIPE-34	148.00	516.28	0.00	512.58	0.00	3.70	2.5000	CIRCULAR	18.000	18.000	0.0150
26	SDPIPE-4	71.93	467.47	0.00	466.75	0.81	0.72	1.0000	CIRCULAR	18.000	18.000	0.0120
27	SDPIPE-5	33.00	467.80	0.00	467.47	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
28	SDPIPE-6	67.57	483.19	0.00	482.52	0.00	0.67	1.0000	CIRCULAR	18.000	18.000	0.0120
29	SDPIPE-7	42.68	483.62	0.00	483.19	0.00	0.43	1.0000	CIRCULAR	18.000	18.000	0.0130
30	SDPIPE-8	130.51	512.25	0.00	492.00	0.00	20.25	15.5200	CIRCULAR	24.000	24.000	0.0120
31	SDPIPE-9	33.00	512.58	0.00	512.25	0.00	0.33	1.0000	CIRCULAR	24.000	24.000	0.0130

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Fro Num
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	SDPIPE-1	25.01	0 00:08	207.79	0.12	14.18	0.04	0.89	0.30	0.00	
2	SDPIPE-10	8.88	0 00:12	29.25	0.30	7.18	0.59	1.03	0.69	0.00	
3	SDPIPE-11	8.88	0 00:12	11.38	0.78	7.77	0.15	0.93	0.62	0.00	
4	SDPIPE-12	0.95	0 00:08	10.49	0.09	1.94	0.28	1.12	0.75	0.00	
5	SDPIPE-13	3.12	0 00:13	35.22	0.09	11.83	0.18	0.31	0.21	0.00	
6	SDPIPE-14	3.12	0 00:13	11.74	0.27	6.25	0.11	0.49	0.33	0.00	
7	SDPIPE-15	2.40	0 00:16	10.50	0.23	4.11	0.26	0.55	0.37	0.00	
8	SDPIPE-16	5.00	0 00:07	34.01	0.15	10.74	0.04	0.46	0.31	0.00	
9	SDPIPE-17	2.87	0 00:06	26.49	0.11	9.51	0.34	0.34	0.23	0.00	
10	SDPIPE-18	1.49	0 00:05	23.49	0.06	5.82	0.14	0.30	0.20	0.00	
11	SDPIPE-19	1.88	0 00:08	10.50	0.18	4.89	0.17	0.41	0.27	0.00	
12	SDPIPE-2	21.96	0 00:08	66.70	0.33	6.83	0.09	1.39	0.46	0.00	
13	SDPIPE-20	2.05	0 00:08	11.38	0.18	4.75	0.12	0.54	0.36	0.00	
14	SDPIPE-21	2.85	0 00:15	21.28	0.13	4.31	0.92	0.81	0.54	0.00	
15	SDPIPE-22	2.87	0 00:15	26.60	0.11	8.56	0.11	0.37	0.24	0.00	
16	SDPIPE-23	1.03	0 00:05	10.50	0.10	3.69	0.20	0.32	0.22	0.00	
17	SDPIPE-25	0.90	0 00:05	14.89	0.06	4.12	0.30	0.27	0.18	0.00	
18	SDPIPE-27	6.96	0 00:19	15.03	0.46	7.79	0.39	0.76	0.50	0.00	
19	SDPIPE-28	1.74	0 00:14	10.50	0.17	2.93	0.19	0.65	0.43	0.00	
20	SDPIPE-29	5.60	0 00:19	36.81	0.15	8.55	0.33	0.60	0.40	0.00	
21	SDPIPE-3	21.65	0 00:08	71.83	0.30	7.83	0.06	1.72	0.57	0.00	
22	SDPIPE-30	5.60	0 00:19	29.71	0.19	12.30	0.09	0.46	0.30	0.00	
23	SDPIPE-32	1.97	0 00:05	28.32	0.07	8.81	0.18	0.28	0.18	0.00	
24	SDPIPE-33	3.91	0 00:08	12.88	0.30	3.95	0.32	1.08	0.72	0.00	
25	SDPIPE-34	3.03	0 00:08	14.39	0.21	3.68	0.67	0.98	0.66	0.00	
26	SDPIPE-4	2.48	0 00:16	11.38	0.22	4.68	0.26	0.51	0.34	0.00	
27	SDPIPE-5	0.61	0 00:07	10.50	0.06	1.98	0.28	0.38	0.25	0.00	
28	SDPIPE-6	2.23	0 00:16	11.37	0.20	4.55	0.25	0.48	0.32	0.00	
29	SDPIPE-7	2.23	0 00:16	10.50	0.21	3.95	0.18	0.53	0.36	0.00	
30	SDPIPE-8	20.77	0 00:09	96.54	0.22	22.26	0.10	0.68	0.34	0.00	
31	SDPIPE-9	20.31	0 00:09	22.62	0.90	8.94	0.06	1.36	0.68	0.00	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	CB-10	On Grade	1	483.62	487.38	3.76	483.62	0.00	N/A	0.00
2	CB-12	On Sag	1	512.25	516.63	4.38	512.25	0.00	10.00	0.00
3	CB-13	On Sag	1	512.58	516.63	4.05	512.58	0.00	10.00	0.00
4	CB-15	On Sag	1	530.20	533.98	3.78	530.20	0.00	10.00	0.00
5	CB-16	On Sag	1	530.53	533.98	3.45	530.53	0.00	10.00	0.00
6	CB-18	On Grade	1	517.50	521.56	4.06	517.50	0.00	N/A	0.00
7	CB-2	On Grade	1	465.94	475.75	9.81	465.94	0.00	N/A	0.00
8	CB-20	On Grade	1	468.11	471.31	3.20	468.11	0.00	N/A	0.00
9	CB-22	On Grade	1	501.10	504.78	3.68	501.10	0.00	N/A	0.00
10	CB-24	On Grade	1	517.77	523.17	5.40	517.77	0.00	N/A	0.00
11	CB-25	On Grade	1	515.81	522.01	6.20	515.81	0.00	N/A	0.00
12	CB-26	On Grade	1	501.43	504.78	3.35	501.43	0.00	N/A	0.00
13	CB-27	On Grade	1	538.50	543.76	5.26	538.50	0.00	N/A	0.00
14	CB-28	On Sag	1	542.20	546.43	4.23	542.20	0.00	10.00	0.00
15	CB-29	On Grade	1	542.65	547.71	5.07	542.65	0.00	N/A	0.00
16	CB-3	On Grade	1	466.30	475.38	9.08	466.30	0.00	N/A	0.00
17	CB-31	On Grade	1	544.50	549.76	5.26	544.50	0.00	N/A	0.00
18	CB-32	On Grade	1	546.00	550.25	4.25	546.00	0.00	N/A	0.00
19	CB-35	On Grade	1	487.50	492.85	5.35	487.50	0.00	N/A	0.00
20	CB-36	On Grade	1	487.84	492.30	4.46	487.84	0.00	N/A	0.00
21	CB-38	On Grade	1	505.00	510.35	5.35	505.00	0.00	N/A	0.00
22	CB-39	On Sag	1	510.34	515.20	4.86	510.34	0.00	10.00	0.00
23	CB-43	On Grade	1	514.12	517.57	3.45	514.12	0.00	N/A	0.00
24	CB-6	On Sag	1	467.80	474.50	6.70	467.80	0.00	10.00	0.00
25	CB-7	On Grade	1	467.47	474.50	7.03	467.47	0.00	N/A	0.00
26	CB-9	On Grade	1	483.19	489.41	6.22	483.19	0.00	N/A	0.00
27	FES-19	On Grade	1	517.99	522.14	4.14	517.99	0.00	N/A	0.00
28	Inlet-CB-44	On Grade	1	516.28	521.28	5.00	516.28	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB-10	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
2	CB-12	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
3	CB-13	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
4	CB-15	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
5	CB-16	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
6	CB-18	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
7	CB-2	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
8	CB-20	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
9	CB-22	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
10	CB-24	0.1033	0.0258	0.0150	0.0200	1.00	0.1312	8.50
11	CB-25	0.1041	0.0258	0.0150	0.0200	1.00	0.1312	8.50
12	CB-26	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
13	CB-27	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
14	CB-28	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
15	CB-29	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
16	CB-3	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
17	CB-31	0.0721	0.0200	0.0150	0.0200	1.50	0.1312	8.50
18	CB-32	0.0809	0.0258	0.0150	0.0200	1.00	0.1312	8.50
19	CB-35	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
20	CB-36	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
21	CB-38	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
22	CB-39	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
23	CB-43	0.0199	0.0258	0.0150	0.0200	1.00	0.1312	8.50
24	CB-6	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
25	CB-7	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
26	CB-9	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
27	FES-19	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
28	Inlet-CB-44	0.1138	0.0258	0.0150	0.0200	1.00	0.1312	8.50

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	F \
1	CB-10	2.87	2.43	1.98	0.89	69.05	6.13	487.53	0.15	0 00:16	
2	CB-12	2.30	2.30	N/A	N/A	N/A	6.19	516.95	0.33	0 00:09	
3	CB-13	7.16	6.00	N/A	N/A	N/A	13.20	517.13	0.51	0 00:09	
4	CB-15	6.11	6.11	N/A	N/A	N/A	11.87	534.45	0.47	0 00:12	
5	CB-16	3.03	3.03	N/A	N/A	N/A	7.44	534.33	0.36	0 00:12	
6	CB-18	0.89	0.89	0.89	0.00	100.00	4.92	521.68	0.12	0 00:13	
7	CB-2	2.40	1.64	2.33	0.07	97.03	8.66	475.96	0.22	0 00:08	
8	CB-20	3.07	2.52	2.06	1.01	66.97	6.33	471.47	0.16	0 00:16	
9	CB-22	1.02	1.02	0.99	0.03	97.34	4.19	504.88	0.10	0 00:07	
10	CB-24	1.95	1.95	1.50	0.45	76.81	5.02	523.29	0.12	0 00:05	
11	CB-25	2.91	2.91	1.89	1.02	64.86	5.82	522.15	0.14	0 00:08	
12	CB-26	2.12	2.07	1.65	0.47	77.94	5.52	504.92	0.14	0 00:08	
13	CB-27	0.64	0.64	0.64	0.00	100.00	3.72	543.85	0.09	0 00:15	
14	CB-28	2.87	2.87	N/A	N/A	N/A	7.18	546.78	0.35	0 00:15	
15	CB-29	1.06	1.06	1.05	0.02	98.31	4.47	547.82	0.11	0 00:05	
16	CB-3	1.02	1.02	1.02	0.00	100.00	6.30	475.54	0.16	0 00:08	
17	CB-31	1.26	1.26	1.10	0.15	87.73	5.33	549.87	0.11	0 00:05	
18	CB-32	0.94	0.94	0.92	0.02	98.15	4.01	550.34	0.10	0 00:05	
19	CB-35	0.86	0.73	0.84	0.02	97.83	3.72	492.95	0.09	0 00:19	
20	CB-36	2.54	2.54	1.75	0.79	68.73	5.54	492.43	0.14	0 00:14	
21	CB-38	1.64	1.64	1.34	0.30	81.76	4.70	510.46	0.12	0 00:19	
22	CB-39	5.73	5.39	N/A	N/A	N/A	11.38	515.66	0.46	0 00:19	
23	CB-43	4.15	4.15	3.88	0.27	93.41	9.02	517.80	0.23	0 00:09	
24	CB-6	1.20	1.20	N/A	N/A	N/A	4.01	474.77	0.27	0 00:07	
25	CB-7	0.30	0.30	0.30	0.00	100.00	3.97	474.60	0.10	0 00:16	
26	CB-9	0.87	0.86	0.86	0.00	99.48	3.96	489.51	0.10	0 00:16	
27	FES-19	4.61	4.61	3.13	1.49	67.78	9.02	522.36	0.23	0 00:13	
28	Inlet-CB-44	4.09	4.09	3.05	1.04	74.65	6.49	521.44	0.16	0 00:08	

100 Year Design Storm

Project Description

File Name	Hilltop Drainage Analysis 3-4-26.SPF

Project Options

Flow Units	CFS
Elevation Type	Elevation
Hydrology Method	Rational
Time of Concentration (TOC) Method	SCS TR-55
Link Routing Method	Hydrodynamic
Enable Overflow Ponding at Nodes	YES
Skip Steady State Analysis Time Periods	NO

Analysis Options

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

Number of Elements

	Qty
Rain Gages	0
Subbasins	29
Nodes	42
Junctions	3
Outfalls	11
Flow Diversions	0
Inlets	28
Storage Nodes	0
Links	52
Channels	21
Pipes	31
Pumps	0
Orifices	0
Weirs	0
Outlets	0
Pollutants	0
Land Uses	0

Rainfall Details

Return Period	100 year(s)

Subbasin Summary

SN	Subbasin ID	Area (ac)	Weighted Runoff Coefficient	Total Rainfall (in)	Total Runoff (in)	Total Runoff Volume (ac-in)	Peak Runoff (cfs)	Time of Concentration (days hh:mm:ss)
1	Sub-CB-10	0.58	0.7000	1.72	1.21	0.70	2.65	0 00:15:54
2	Sub-CB-12	0.32	0.7000	0.93	0.65	0.21	2.48	0 00:05:00
3	Sub-CB-13	1.03	0.7000	1.20	0.84	0.87	6.49	0 00:07:58
4	Sub-CB-15	1.21	0.7000	1.41	0.99	1.20	6.62	0 00:10:46
5	Sub-CB-16	0.42	0.7000	0.93	0.65	0.27	3.27	0 00:05:00
6	Sub-CB-18	0.12	0.7000	0.93	0.65	0.08	0.96	0 00:05:00
7	Sub-CB-19	1.00	0.7000	1.55	1.09	1.09	5.01	0 00:12:57
8	Sub-CB-2	0.38	0.7000	1.67	1.17	0.44	1.78	0 00:14:59
9	Sub-CB-20	0.62	0.7000	1.80	1.26	0.78	2.74	0 00:17:03
10	Sub-CB-22	0.14	0.7000	0.93	0.65	0.09	1.10	0 00:05:00
11	Sub-CB-24	0.27	0.7000	0.93	0.65	0.18	2.11	0 00:05:01
12	Sub-CB-25	0.51	0.7000	1.23	0.86	0.44	3.15	0 00:08:15
13	Sub-CB-26	0.49	0.7000	1.72	1.21	0.59	2.25	0 00:15:52
14	Sub-CB-27	0.10	0.7000	1.05	0.73	0.07	0.69	0 00:06:07
15	Sub-CB-28	0.67	0.7000	1.67	1.17	0.78	3.12	0 00:15:04
16	Sub-CB-29	0.15	0.7000	0.93	0.65	0.10	1.15	0 00:05:00
17	Sub-CB-3	0.14	0.7000	0.93	0.65	0.09	1.10	0 00:05:00
18	Sub-CB-31	0.17	0.7000	0.93	0.65	0.11	1.36	0 00:05:00
19	Sub-CB-32	0.13	0.7000	0.93	0.65	0.08	1.01	0 00:05:00
20	Sub-CB-35	0.10	0.7000	0.93	0.65	0.07	0.78	0 00:05:00
21	Sub-CB-36	0.58	0.7000	1.65	1.16	0.67	2.76	0 00:14:42
22	Sub-CB-38	0.24	0.7000	0.99	0.70	0.17	1.77	0 00:05:43
23	Sub-CB-39	1.39	0.7000	1.93	1.35	1.87	5.86	0 00:19:10
24	Sub-CB-43	0.71	0.7000	1.18	0.83	0.59	4.49	0 00:07:53
25	Sub-CB-44	0.72	0.7000	1.22	0.85	0.61	4.43	0 00:08:24
26	Sub-CB-6	0.16	0.7000	0.93	0.65	0.11	1.29	0 00:05:00
27	Sub-CB-7	0.04	0.7000	0.93	0.65	0.03	0.32	0 00:05:00
28	Sub-CB-9	0.12	0.7000	0.93	0.65	0.08	0.92	0 00:05:00
29	Sub-FES-2	1.58	0.5600	1.22	0.69	1.09	7.82	0 00:08:19

Node Summary

SN	Element ID	Element Type	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Surcharge Elevation (ft)	Ponded Area (ft^2)	Peak Inflow (cfs)	Max HGL Elevation Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)
1	FES-2	Junction	466.60	469.78	466.60	469.78	0.00	23.00	468.51	0.00	1.27
2	JB-14	Junction	529.50	535.50	529.50	535.50	0.00	9.58	530.09	0.00	5.41
3	JB-23	Junction	515.30	519.20	515.30	519.20	10.00	3.03	515.66	0.00	3.54
4	OFFSITE-1	Outfall	540.30					0.20	540.37		
5	OFFSITE-2	Outfall	532.10					0.03	532.13		
6	OFFSITE-25	Outfall	464.82					0.00	464.82		
7	OFFSITE-26	Outfall	464.82					0.82	464.96		
8	Out-FES-1	Outfall	463.00					26.65	463.73		
9	Out-FES-11	Outfall	492.00					22.98	492.66		
10	Out-FES-17	Outfall	505.00					3.27	505.31		
11	Out-FES-21	Outfall	499.00					5.37	499.40		
12	Out-FES-3	Outfall	538.50					2.10	538.78		
13	Out-FES-34	Outfall	484.31					7.59	485.07		
14	Out-FES-8	Outfall	482.52					2.41	482.98		

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
1	SDPIPE-1	Pipe	CB-2	Out-FES-1	35.55	465.94	463.00	8.2700	36.000	0.0120	26.65	207.79	0.13	14.34	0.93	0
2	SDPIPE-10	Pipe	JB-14	CB-13	256.10	529.50	512.58	6.6100	18.000	0.0120	9.58	29.25	0.33	7.38	1.05	0
3	SDPIPE-11	Pipe	CB-15	JB-14	70.07	530.20	529.50	1.0000	18.000	0.0120	9.58	11.38	0.84	7.80	0.99	0
4	SDPIPE-12	Pipe	CB-16	CB-15	33.00	530.53	530.20	1.0000	18.000	0.0130	1.17	10.49	0.11	1.95	1.22	0
5	SDPIPE-13	Pipe	CB-18	Out-FES-17	130.50	517.50	505.00	9.5800	18.000	0.0120	3.27	35.22	0.09	11.98	0.32	0
6	SDPIPE-14	Pipe	FES-19	CB-18	39.55	517.99	517.50	1.2500	18.000	0.0130	3.27	11.74	0.28	6.32	0.50	0
7	SDPIPE-15	Pipe	CB-20	CB-7	64.04	468.11	467.47	1.0000	18.000	0.0130	2.60	10.50	0.25	4.15	0.58	0
8	SDPIPE-16	Pipe	CB-22	Out-FES-21	23.51	501.10	499.00	8.9300	18.000	0.0120	5.37	34.01	0.16	10.87	0.48	0
9	SDPIPE-17	Pipe	JB-23	CB-22	194.21	515.30	504.78	5.4200	18.000	0.0120	3.01	26.49	0.11	9.63	0.35	0
10	SDPIPE-18	Pipe	CB-24	JB-23	49.41	517.77	515.30	5.0000	18.000	0.0130	1.56	23.49	0.07	5.88	0.31	0
11	SDPIPE-19	Pipe	CB-25	JB-23	51.31	515.81	515.30	1.0000	18.000	0.0130	1.97	10.50	0.19	4.95	0.42	0
12	SDPIPE-2	Pipe	CB-3	CB-2	35.82	466.30	465.94	1.0000	36.000	0.0130	23.32	66.70	0.35	6.93	1.44	0
13	SDPIPE-20	Pipe	CB-26	CB-22	33.00	501.43	501.10	1.0000	18.000	0.0120	2.22	11.38	0.19	4.80	0.56	0
14	SDPIPE-21	Pipe	CB-27	CB-15	237.30	538.50	530.20	3.5000	18.000	0.0120	3.09	21.28	0.15	4.40	0.86	0
15	SDPIPE-22	Pipe	CB-28	CB-27	57.68	542.20	538.50	6.4100	18.000	0.0130	3.11	26.60	0.12	8.73	0.38	0
16	SDPIPE-23	Pipe	CB-29	CB-28	44.75	542.65	542.20	1.0000	18.000	0.0130	1.10	10.50	0.10	3.71	0.34	0
17	SDPIPE-25	Pipe	CB-32	CB-31	74.63	546.00	544.50	2.0100	18.000	0.0130	0.97	14.89	0.07	4.20	0.28	0
18	SDPIPE-27	Pipe	CB-35	Out-FES-34	182.53	487.50	484.31	1.7500	18.000	0.0120	7.59	15.03	0.50	7.93	0.80	0
19	SDPIPE-28	Pipe	CB-36	CB-35	33.55	487.84	487.50	1.0000	18.000	0.0130	1.82	10.50	0.17	2.86	0.69	0
20	SDPIPE-29	Pipe	CB-38	CB-35	167.22	505.00	487.50	10.4700	18.000	0.0120	6.15	36.81	0.17	8.74	0.63	0
21	SDPIPE-3	Pipe	FES-2	CB-3	30.36	466.60	466.30	1.0000	36.000	0.0120	22.99	71.83	0.32	7.93	1.78	0
22	SDPIPE-30	Pipe	CB-39	CB-38	66.71	510.34	505.00	8.0000	18.000	0.0130	6.15	29.71	0.21	12.56	0.48	0
23	SDPIPE-32	Pipe	CB-31	Out-FES-3	96.89	544.50	538.50	6.1900	18.000	0.0120	2.10	28.32	0.07	8.96	0.29	0
24	SDPIPE-33	Pipe	CB-43	CB-13	76.95	514.12	512.58	2.0000	18.000	0.0150	4.04	12.88	0.31	4.02	1.26	0
25	SDPIPE-34	Pipe	Inlet-CB-44	CB-13	148.00	516.28	512.58	2.5000	18.000	0.0150	3.17	14.39	0.22	3.75	0.99	0
26	SDPIPE-4	Pipe	CB-7	CB-2	71.93	467.47	466.75	1.0000	18.000	0.0120	2.71	11.38	0.24	4.78	0.54	0
27	SDPIPE-5	Pipe	CB-6	CB-7	33.00	467.80	467.47	1.0000	18.000	0.0130	0.65	10.50	0.06	1.98	0.41	0
28	SDPIPE-6	Pipe	CB-9	Out-FES-8	67.57	483.19	482.52	1.0000	18.000	0.0120	2.41	11.37	0.21	4.63	0.50	0

Link Summary

SN	Element ID	Element Type	From (Inlet) Node	To (Outlet) Node	Length	Inlet Invert Elevation	Outlet Invert Elevation	Average Slope	Diameter or Height	Manning's Roughness	Peak Flow	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Peak Flow Depth	Peak Fl Dep Total De Ra
					(ft)	(ft)	(ft)	(%)	(in)		(cfs)	(cfs)		(ft/sec)	(ft)	
46	L-SDPIPE-29	Channel	CB-38	CB-35	172.07	510.35	492.85	10.1700	3.960	0.0150	0.33	8.06	0.04	3.26	0.07	0
47	L-SDPIPE-32	Channel	CB-31	OFFSITE-1	98.14	549.76	540.30	9.6400	6.000	0.0150	0.20	29.25	0.01	2.24	0.07	0
48	L-SDPIPE-33	Channel	CB-43	CB-13	78.40	517.57	516.63	1.2000	3.960	0.0320	0.36	2.77	0.13	0.30	0.24	0
49	L-SDPIPE-34	Channel	Inlet-CB-44	CB-13	149.79	521.28	516.63	3.1000	3.960	0.0320	1.20	4.46	0.27	0.81	0.26	0
50	L-SDPIPE-4	Channel	CB-7	OFFSITE-25	129.78	474.50	464.82	7.4600	3.960	0.0320	0.00	6.91	0.00	0.00	0.00	0
51	L-SDPIPE-6	Channel	CB-9	CB-6	214.12	489.41	474.50	6.9600	3.960	0.0150	0.01	6.67	0.00	0.22	0.15	0
52	L-SDPIPE-7	Channel	CB-10	CB-20	216.57	487.38	471.31	7.4200	3.960	0.0150	0.76	6.89	0.11	1.79	0.14	0

Inlet Summary

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Ponded Area (ft^2)	Peak Flow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Allowable Spread (ft)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)
1	CB-10	On Grade	1	483.62	487.38	483.62	N/A	3.18	2.10	1.08	66.02	8.50	6.39	487.54
2	CB-12	On Sag	1	512.25	516.63	512.25	10.00	2.48	N/A	N/A	N/A	8.50	6.50	516.96
3	CB-13	On Sag	1	512.58	516.63	512.58	10.00	7.94	N/A	N/A	N/A	8.50	14.14	517.16
4	CB-15	On Sag	1	530.20	533.98	530.20	10.00	6.62	N/A	N/A	N/A	8.50	12.52	534.47
5	CB-16	On Sag	1	530.53	533.98	530.53	10.00	3.28	N/A	N/A	N/A	8.50	7.84	534.34
6	CB-18	On Grade	1	517.50	521.56	517.50	N/A	0.96	0.96	0.00	100.00	8.50	5.03	521.68
7	CB-2	On Grade	1	465.94	475.75	465.94	N/A	2.77	2.61	0.16	94.08	8.50	9.08	475.97
8	CB-20	On Grade	1	468.11	471.31	468.11	N/A	3.39	2.18	1.21	64.21	8.50	6.53	471.47
9	CB-22	On Grade	1	501.10	504.78	501.10	N/A	1.09	1.05	0.04	95.92	8.50	4.31	504.89
10	CB-24	On Grade	1	517.77	523.17	517.77	N/A	2.10	1.57	0.54	74.48	8.50	5.18	523.30
11	CB-25	On Grade	1	515.81	522.01	515.81	N/A	3.15	1.97	1.18	62.63	8.50	5.99	522.16
12	CB-26	On Grade	1	501.43	504.78	501.43	N/A	2.37	1.77	0.60	74.78	8.50	5.71	504.92
13	CB-27	On Grade	1	538.50	543.76	538.50	N/A	0.69	0.69	0.00	100.00	8.50	3.80	543.85
14	CB-28	On Sag	1	542.20	546.43	542.20	10.00	3.12	N/A	N/A	N/A	8.50	7.58	546.79
15	CB-29	On Grade	1	542.65	547.71	542.65	N/A	1.15	1.11	0.03	97.01	8.50	4.61	547.83
16	CB-3	On Grade	1	466.30	475.38	466.30	N/A	1.10	1.10	0.00	100.00	8.50	6.45	475.54
17	CB-31	On Grade	1	544.50	549.76	544.50	N/A	1.35	1.16	0.19	85.78	8.50	5.44	549.87
18	CB-32	On Grade	1	546.00	550.25	546.00	N/A	1.01	0.98	0.03	96.82	8.50	4.14	550.35
19	CB-35	On Grade	1	487.50	492.85	487.50	N/A	0.98	0.94	0.05	95.34	8.50	3.91	492.95
20	CB-36	On Grade	1	487.84	492.30	487.84	N/A	2.76	1.83	0.93	66.42	8.50	5.69	492.44
21	CB-38	On Grade	1	505.00	510.35	505.00	N/A	1.77	1.41	0.36	79.52	8.50	4.83	510.47
22	CB-39	On Sag	1	510.34	515.20	510.34	10.00	6.29	N/A	N/A	N/A	8.50	12.10	515.68
23	CB-43	On Grade	1	514.12	517.57	514.12	N/A	4.49	4.11	0.38	91.44	8.50	9.30	517.80
24	CB-6	On Sag	1	467.80	474.50	467.80	10.00	1.29	N/A	N/A	N/A	8.50	4.22	474.77
25	CB-7	On Grade	1	467.47	474.50	467.47	N/A	0.32	0.32	0.00	100.00	8.50	4.08	474.60
26	CB-9	On Grade	1	483.19	489.41	483.19	N/A	0.95	0.93	0.01	98.45	8.50	4.08	489.51
27	FES-19	On Grade	1	517.99	522.14	517.99	N/A	5.01	3.27	1.73	65.39	8.50	9.31	522.37
28	Inlet-CB-44	On Grade	1	516.28	521.28	516.28	N/A	4.42	3.20	1.23	72.29	8.50	6.68	521.45

Subbasin Hydrology

Subbasin : Sub-CB-10

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

TOC Method : SCS TR-55

Sheet Flow Equation :

Tc = (0.007 * ((n * Lf)^0.8)) / ((P^0.5) * (Sf^0.4))

Where :

Tc = Time of Concentration (hr)
n = Manning's roughness
Lf = Flow Length (ft)
P = 2 yr, 24 hr Rainfall (inches)
Sf = Slope (ft/ft)

Shallow Concentrated Flow Equation :

V = 16.1345 * (Sf^0.5) (unpaved surface)
V = 20.3282 * (Sf^0.5) (paved surface)
V = 15.0 * (Sf^0.5) (grassed waterway surface)
V = 10.0 * (Sf^0.5) (nearly bare & untilled surface)
V = 9.0 * (Sf^0.5) (cultivated straight rows surface)
V = 7.0 * (Sf^0.5) (short grass pasture surface)
V = 5.0 * (Sf^0.5) (woodland surface)
V = 2.5 * (Sf^0.5) (forest w/heavy litter surface)
Tc = (Lf / V) / (3600 sec/hr)

Where:

Tc = Time of Concentration (hr)
Lf = Flow Length (ft)
V = Velocity (ft/sec)
Sf = Slope (ft/ft)

Channel Flow Equation :

V = (1.49 * (R^(2/3)) * (Sf^0.5)) / n
R = Aq / Wp
Tc = (Lf / V) / (3600 sec/hr)

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99996647	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	229.3185963	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.69	0	0

Total TOC (min) 15.90

Subbasin : Sub-CB-12

Input Data

Area (ac) 0.32
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	219.5273657	0	0
Slope (%) :	1.99	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	2.87	0	0
Computed Flow Time (min) :	1.28	0	0

Total TOC (min) 4.14

Subbasin : Sub-CB-13

Input Data

Area (ac) 1.03
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	11.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.27	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	71.4	0
Slope (%) :	11.5	1.99	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.47	2.87	0
Computed Flow Time (min) :	0.28	0.41	0

Total TOC (min) 7.97

Subbasin : Sub-CB-15

Input Data

Area (ac) 1.21
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.16	0	0
Computed Flow Time (min) :	10.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	12.98144373	156.302	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.09	0.53	0

Total TOC (min) 10.77

Subbasin : Sub-CB-16

Input Data

Area (ac) 0.42
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.01720552	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	310.5319881	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	1.06	0	0

Total TOC (min) 3.93

Subbasin : Sub-CB-18

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.10752092	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.88	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	71.43477489	102.308	0
Slope (%) :	11.86	2.45	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	7	3.18	0
Computed Flow Time (min) :	0.17	0.54	0

Total TOC (min) 3.59

Subbasin : Sub-CB-19

Input Data

Area (ac) 1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100.0031436	0	0
Slope (%) :	3.4	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.14	0	0
Computed Flow Time (min) :	11.83	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	6.07922878	278.905	79.9642
Slope (%) :	2	11.86	2.45
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	7	3.18
Computed Flow Time (min) :	0.04	0.66	0.42

Total TOC (min) 12.96

Subbasin : Sub-CB-2

Input Data

Area (ac) 0.38
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	175.3484305	45.5292	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.44	0.4	0

Total TOC (min) 14.99

Subbasin : Sub-CB-20

Input Data

Area (ac) 0.62
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.99258294	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	3.00743724	208.662	0
Slope (%) :	2	7.49	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	5.56	0
Computed Flow Time (min) :	0.02	0.63	0

Total TOC (min) 17.06

Subbasin : Sub-CB-22

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99981258	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.0428132	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.5	0	0

Total TOC (min) 3.36

Subbasin : Sub-CB-24

Input Data

Area (ac) 0.27
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	37.99958613	0	0
Slope (%) :	6.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.15	0	0
Computed Flow Time (min) :	4.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	28.98355088	187.485	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.33	0.48	0

Total TOC (min) 5.02

Subbasin : Sub-CB-25

Input Data

Area (ac) 0.51
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99999586	0	0
Slope (%) :	7.25	0	0
2 yr, 24 hr Rainfall (in) :	4.32	0	0
Velocity (ft/sec) :	0.18	0	0
Computed Flow Time (min) :	7.56	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	16.12667612	203.961	0
Slope (%) :	0.51	10.41	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.45	6.56	0
Computed Flow Time (min) :	0.19	0.52	0

Total TOC (min) 8.26

Subbasin : Sub-CB-26

Input Data

Area (ac) 0.49
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	82.99998121	0	0
Slope (%) :	1.25	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.09	0	0
Computed Flow Time (min) :	15.21	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	221.0918618	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.66	0	0

Total TOC (min) 15.87

Subbasin : Sub-CB-27

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	21.13547973	0	0
Slope (%) :	1	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.06	0	0
Computed Flow Time (min) :	5.57	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	117.1502173	0	0
Slope (%) :	2.92	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.47	0	0
Computed Flow Time (min) :	0.56	0	0

Total TOC (min) 6.13

Subbasin : Sub-CB-28

Input Data

Area (ac) 0.67
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.11	0	0
Computed Flow Time (min) :	14.63	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	17.02372996	94.0918	0
Slope (%) :	2	5.74	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	2.28	4.87	0
Computed Flow Time (min) :	0.12	0.32	0

Total TOC (min) 15.08

Subbasin : Sub-CB-29

Input Data

Area (ac) 0.15
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	253.6223323	0	0
Slope (%) :	5.74	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	4.87	0	0
Computed Flow Time (min) :	0.87	0	0

Total TOC (min) 3.73

Subbasin : Sub-CB-3

Input Data

Area (ac) 0.14
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	181.26423	58.4106	0
Slope (%) :	10.46	0.85	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	1.87	0
Computed Flow Time (min) :	0.46	0.52	0

Total TOC (min) 3.84

Subbasin : Sub-CB-31

Input Data

Area (ac) 0.17
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	166.3763112	83.6548	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.76	0.27	0

Total TOC (min) 3.90

Subbasin : Sub-CB-32

Input Data

Area (ac) 0.13
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	167.2624187	52.7043	0
Slope (%) :	3.19	6.34	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.63	5.12	0
Computed Flow Time (min) :	0.77	0.17	0

Total TOC (min) 3.80

Subbasin : Sub-CB-35

Input Data

Area (ac) 0.1
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	159.59	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Unpaved	Unpaved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.4	0	0

Total TOC (min) 3.27

Subbasin : Sub-CB-36

Input Data

Area (ac) 0.58
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	83	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	14.14	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	224.201193	0	0
Slope (%) :	10.46	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	6.57	0	0
Computed Flow Time (min) :	0.57	0	0

Total TOC (min) 14.71

Subbasin : Sub-CB-38

Input Data

Area (ac) 0.24
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13.00000002	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	214.8866153	184.112	0
Slope (%) :	2.45	0.75	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	3.18	1.76	0
Computed Flow Time (min) :	1.13	1.74	0

Total TOC (min) 5.73

Subbasin : Sub-CB-39

Input Data

Area (ac) 1.39
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	99.98923348	0	0
Slope (%) :	1.5	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.1	0	0
Computed Flow Time (min) :	16.41	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	34.45719772	233.523	132.701
Slope (%) :	1.5	2.45	0.75
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	1.98	3.18	1.76
Computed Flow Time (min) :	0.29	1.22	1.26

Total TOC (min) 19.18

Subbasin : Sub-CB-43

Input Data

Area (ac) 0.71
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	93	77.84	0
Slope (%) :	10.75	1.99	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	5.29	2.87	0
Computed Flow Time (min) :	0.29	0.45	0

Total TOC (min) 7.89

Subbasin : Sub-CB-44

Input Data

Area (ac) 0.72
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	9	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.21	0	0
Computed Flow Time (min) :	8.02	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	78.42	77.02	0
Slope (%) :	16.7	11.38	0
Surface Type :	Unpaved	Paved	Unpaved
Velocity (ft/sec) :	6.59	6.86	0
Computed Flow Time (min) :	0.2	0.19	0

Total TOC (min) 8.40

Subbasin : Sub-CB-6

Input Data

Area (ac) 0.16
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	13	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	207.9606416	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.62	0	0

Total TOC (min) 3.48

Subbasin : Sub-CB-7

Input Data

Area (ac) 0.04
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999999	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	68.39700153	0	0
Slope (%) :	0.85	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	1.87	0	0
Computed Flow Time (min) :	0.61	0	0

Total TOC (min) 3.47

Subbasin : Sub-CB-9

Input Data

Area (ac) 0.12
Weighted Runoff Coefficient 0.7

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	12.99999519	0	0
Slope (%) :	2	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.08	0	0
Computed Flow Time (min) :	2.86	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	199.7947467	0	0
Slope (%) :	7.49	0	0
Surface Type :	Paved	Paved	Paved
Velocity (ft/sec) :	5.56	0	0
Computed Flow Time (min) :	0.6	0	0

Total TOC (min) 3.46

Subbasin : Sub-FES-2

Input Data

Area (ac) 1.58
Weighted Runoff Coefficient 0.56

Time of Concentration

Sheet Flow Computations	Subarea A	Subarea B	Subarea C
Manning's Roughness :	0.3	0	0
Flow Length (ft) :	100	0	0
Slope (%) :	12	0	0
2 yr, 24 hr Rainfall (in) :	4.35	0	0
Velocity (ft/sec) :	0.23	0	0
Computed Flow Time (min) :	7.15	0	0

Shallow Concentrated Flow Computations	Subarea A	Subarea B	Subarea C
Flow Length (ft) :	363.3701089	0	0
Slope (%) :	10	0	0
Surface Type :	Unpaved	Paved	Paved
Velocity (ft/sec) :	5.1	0	0
Computed Flow Time (min) :	1.19	0	0

Total TOC (min) 8.33

Junction Input

SN	Element ID	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Ground/Rim (Max) Offset (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Surcharge Elevation (ft)	Surcharge Depth (ft)	Ponded Area (ft^2)	Minimum Pipe Cover (in)
1	FES-2	466.60	469.78	3.18	466.60	0.00	469.78	0.00	0.00	0.00
2	JB-14	529.50	535.50	6.00	529.50	0.00	535.50	0.00	0.00	0.00
3	JB-23	515.30	519.20	3.90	515.30	0.00	519.20	0.00	10.00	0.00

Junction Results

SN	Element ID	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Max HGL Elevation Attained (ft)	Max HGL Depth Attained (ft)	Max Surcharge Depth Attained (ft)	Min Freeboard Attained (ft)	Average HGL Elevation Attained (ft)	Average HGL Depth Attained (ft)	Time of Max HGL Occurrence (days hh:mm)	Tim F Floo Occurre (days hh:n
1	FES-2	23.00	23.00	468.51	1.91	0.00	1.27	468.04	1.44	0 00:08	0 0(
2	JB-14	9.58	0.00	530.09	0.59	0.00	5.41	529.51	0.01	0 00:12	0 0(
3	JB-23	3.03	0.00	515.66	0.36	0.00	3.54	515.30	0.00	0 00:05	0 0(

Channel Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Shape	Height (ft)	Width (ft)	Manning's Roughness
1	L-SDPIPE-1	73.15	475.75	9.81	474.50	7.03	1.25	1.7100	User-Defined	0.330	14.000	0.0150
2	L-SDPIPE-13	403.61	521.56	4.06	510.35	5.35	11.21	2.7800	User-Defined	0.330	14.000	0.0150
3	L-SDPIPE-14	373.89	522.14	4.14	515.20	4.86	6.94	1.8600	User-Defined	0.330	14.000	0.0150
4	L-SDPIPE-15	83.27	471.31	3.20	464.82	0.00	6.49	7.7900	User-Defined	0.330	14.000	0.0150
5	L-SDPIPE-16	206.62	504.78	3.68	489.41	6.22	15.37	7.4400	User-Defined	0.330	14.000	0.0150
6	L-SDPIPE-18	171.93	523.17	5.40	517.57	3.45	5.60	3.2600	User-Defined	0.330	14.000	0.0150
7	L-SDPIPE-19	227.29	522.01	6.20	504.78	3.35	17.23	7.5800	User-Defined	0.330	14.000	0.0150
8	L-SDPIPE-2	62.02	475.38	9.08	474.50	6.70	0.88	1.4200	User-Defined	0.330	14.000	0.0150
9	L-SDPIPE-20	233.87	504.78	3.35	487.38	3.76	17.40	7.4400	User-Defined	0.330	14.000	0.0150
10	L-SDPIPE-21	239.45	543.76	5.26	533.98	3.78	9.78	4.0800	User-Defined	0.330	14.000	0.0150
11	L-SDPIPE-23	314.52	547.71	5.07	533.98	3.45	13.74	4.3700	User-Defined	0.500	26.000	0.0150
12	L-SDPIPE-25	202.83	550.25	4.25	532.10	0.00	18.15	8.9500	User-Defined	0.500	26.000	0.0150
13	L-SDPIPE-27	245.69	492.85	5.35	475.38	9.08	17.47	7.1100	User-Defined	0.330	14.000	0.0150
14	L-SDPIPE-28	228.18	492.30	4.46	475.75	9.81	16.55	7.2500	User-Defined	0.330	14.000	0.0150
15	L-SDPIPE-29	172.07	510.35	5.35	492.85	5.35	17.49	10.1700	User-Defined	0.330	14.000	0.0150
16	L-SDPIPE-32	98.14	549.76	5.26	540.30	0.00	9.46	9.6400	User-Defined	0.500	26.000	0.0150
17	L-SDPIPE-33	78.40	517.57	3.45	516.63	4.05	0.94	1.2000	User-Defined	0.330	14.000	0.0320
18	L-SDPIPE-34	149.79	521.28	5.00	516.63	4.05	4.65	3.1000	User-Defined	0.330	14.000	0.0320
19	L-SDPIPE-4	129.78	474.50	7.03	464.82	0.00	9.68	7.4600	User-Defined	0.330	14.000	0.0320
20	L-SDPIPE-6	214.12	489.41	6.22	474.50	6.70	14.91	6.9600	User-Defined	0.330	14.000	0.0150
21	L-SDPIPE-7	216.57	487.38	3.76	471.31	3.20	16.07	7.4200	User-Defined	0.330	14.000	0.0150

Channel Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	I N
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	L-SDPIPE-1	0.00	0 00:17	3.30	0.00	0.00		0.00	0.01	0.00	
2	L-SDPIPE-13	0.00	0 00:00	4.21	0.00	0.00		0.06	0.18	0.00	
3	L-SDPIPE-14	1.73	0 00:13	3.45	0.50	0.97	6.42	0.29	0.88	0.00	
4	L-SDPIPE-15	0.82	0 00:17	7.06	0.12	1.85	0.75	0.14	0.44	0.00	
5	L-SDPIPE-16	0.03	0 00:05	6.90	0.00	0.81	4.25	0.04	0.13	0.00	
6	L-SDPIPE-18	0.54	0 00:05	4.56	0.12	8.20	0.35	0.14	0.42	0.00	
7	L-SDPIPE-19	1.18	0 00:08	6.96	0.17	3.25	1.17	0.13	0.40	0.00	
8	L-SDPIPE-2	0.00	0 00:00	3.02	0.00	0.00		0.14	0.42	0.00	
9	L-SDPIPE-20	0.53	0 00:16	6.90	0.08	1.39	2.80	0.13	0.40	0.00	
10	L-SDPIPE-21	0.00	0 00:08	5.11	0.00	0.00		0.17	0.50	0.00	
11	L-SDPIPE-23	0.03	0 00:05	19.69	0.00	0.03	174.73	0.23	0.45	0.00	
12	L-SDPIPE-25	0.03	0 00:05	28.17	0.00	1.87	1.81	0.03	0.06	0.00	
13	L-SDPIPE-27	0.00	0 00:06	6.74	0.00	0.00		0.01	0.02	0.00	
14	L-SDPIPE-28	1.02	0 00:14	6.81	0.15	4.11	0.93	0.15	0.46	0.00	
15	L-SDPIPE-29	0.33	0 00:06	8.06	0.04	3.26	0.88	0.07	0.20	0.00	
16	L-SDPIPE-32	0.20	0 00:05	29.25	0.01	2.24	0.73	0.07	0.14	0.00	
17	L-SDPIPE-33	0.36	0 00:08	2.77	0.13	0.30	4.36	0.24	0.73	0.00	
18	L-SDPIPE-34	1.20	0 00:08	4.46	0.27	0.81	3.08	0.26	0.80	0.00	
19	L-SDPIPE-4	0.00	0 00:00	6.91	0.00	0.00		0.00	0.00	0.00	
20	L-SDPIPE-6	0.01	0 00:06	6.67	0.00	0.22	16.22	0.15	0.45	0.00	
21	L-SDPIPE-7	0.76	0 00:16	6.89	0.11	1.79	2.02	0.14	0.42	0.00	

Pipe Input

SN	Element ID	Length (ft)	Inlet Invert Elevation (ft)	Inlet Invert Offset (ft)	Outlet Invert Elevation (ft)	Outlet Invert Offset (ft)	Total Drop (ft)	Average Slope (%)	Pipe Shape	Pipe Diameter or Height (in)	Pipe Width (in)	Manning's Roughness
1	SDPIPE-1	35.55	465.94	0.00	463.00	0.00	2.94	8.2700	CIRCULAR	36.000	36.000	0.0120
2	SDPIPE-10	256.10	529.50	0.00	512.58	0.00	16.92	6.6100	CIRCULAR	18.000	18.000	0.0120
3	SDPIPE-11	70.07	530.20	0.00	529.50	0.00	0.70	1.0000	CIRCULAR	18.000	18.000	0.0120
4	SDPIPE-12	33.00	530.53	0.00	530.20	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
5	SDPIPE-13	130.50	517.50	0.00	505.00	0.00	12.50	9.5800	CIRCULAR	18.000	18.000	0.0120
6	SDPIPE-14	39.55	517.99	0.00	517.50	0.00	0.49	1.2500	CIRCULAR	18.000	18.000	0.0130
7	SDPIPE-15	64.04	468.11	0.00	467.47	0.00	0.64	1.0000	CIRCULAR	18.000	18.000	0.0130
8	SDPIPE-16	23.51	501.10	0.00	499.00	0.00	2.10	8.9300	CIRCULAR	18.000	18.000	0.0120
9	SDPIPE-17	194.21	515.30	0.00	504.78	3.68	10.52	5.4200	CIRCULAR	18.000	18.000	0.0120
10	SDPIPE-18	49.41	517.77	0.00	515.30	0.00	2.47	5.0000	CIRCULAR	18.000	18.000	0.0130
11	SDPIPE-19	51.31	515.81	0.00	515.30	0.00	0.51	1.0000	CIRCULAR	18.000	18.000	0.0130
12	SDPIPE-2	35.82	466.30	0.00	465.94	0.00	0.36	1.0000	CIRCULAR	36.000	36.000	0.0130
13	SDPIPE-20	33.00	501.43	0.00	501.10	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0120
14	SDPIPE-21	237.30	538.50	0.00	530.20	0.00	8.30	3.5000	CIRCULAR	18.000	18.000	0.0120
15	SDPIPE-22	57.68	542.20	0.00	538.50	0.00	3.70	6.4100	CIRCULAR	18.000	18.000	0.0130
16	SDPIPE-23	44.75	542.65	0.00	542.20	0.00	0.45	1.0000	CIRCULAR	18.000	18.000	0.0130
17	SDPIPE-25	74.63	546.00	0.00	544.50	0.00	1.50	2.0100	CIRCULAR	18.000	18.000	0.0130
18	SDPIPE-27	182.53	487.50	0.00	484.31	0.00	3.19	1.7500	CIRCULAR	18.000	18.000	0.0120
19	SDPIPE-28	33.55	487.84	0.00	487.50	0.00	0.34	1.0000	CIRCULAR	18.000	18.000	0.0130
20	SDPIPE-29	167.22	505.00	0.00	487.50	0.00	17.50	10.4700	CIRCULAR	18.000	18.000	0.0120
21	SDPIPE-3	30.36	466.60	0.00	466.30	0.00	0.30	1.0000	CIRCULAR	36.000	36.000	0.0120
22	SDPIPE-30	66.71	510.34	0.00	505.00	0.00	5.34	8.0000	CIRCULAR	18.000	18.000	0.0130
23	SDPIPE-32	96.89	544.50	0.00	538.50	0.00	6.00	6.1900	CIRCULAR	18.000	18.000	0.0120
24	SDPIPE-33	76.95	514.12	0.00	512.58	0.00	1.54	2.0000	CIRCULAR	18.000	18.000	0.0150
25	SDPIPE-34	148.00	516.28	0.00	512.58	0.00	3.70	2.5000	CIRCULAR	18.000	18.000	0.0150
26	SDPIPE-4	71.93	467.47	0.00	466.75	0.81	0.72	1.0000	CIRCULAR	18.000	18.000	0.0120
27	SDPIPE-5	33.00	467.80	0.00	467.47	0.00	0.33	1.0000	CIRCULAR	18.000	18.000	0.0130
28	SDPIPE-6	67.57	483.19	0.00	482.52	0.00	0.67	1.0000	CIRCULAR	18.000	18.000	0.0120
29	SDPIPE-7	42.68	483.62	0.00	483.19	0.00	0.43	1.0000	CIRCULAR	18.000	18.000	0.0130
30	SDPIPE-8	130.51	512.25	0.00	492.00	0.00	20.25	15.5200	CIRCULAR	24.000	24.000	0.0120
31	SDPIPE-9	33.00	512.58	0.00	512.25	0.00	0.33	1.0000	CIRCULAR	24.000	24.000	0.0130

Pipe Results

SN	Element ID	Peak Flow	Time of Peak Flow Occurrence	Design Flow Capacity	Peak Flow/ Design Flow Ratio	Peak Flow Velocity	Travel Time	Peak Flow Depth	Peak Flow Depth/ Total Depth Ratio	Total Time Surcharged	Fro Num
		(cfs)	(days hh:mm)	(cfs)		(ft/sec)	(min)	(ft)		(min)	
1	SDPIPE-1	26.65	0 00:08	207.79	0.13	14.34	0.04	0.93	0.31	0.00	
2	SDPIPE-10	9.58	0 00:12	29.25	0.33	7.38	0.58	1.05	0.70	0.00	
3	SDPIPE-11	9.58	0 00:12	11.38	0.84	7.80	0.15	0.99	0.66	0.00	
4	SDPIPE-12	1.17	0 00:08	10.49	0.11	1.95	0.28	1.22	0.81	0.00	
5	SDPIPE-13	3.27	0 00:13	35.22	0.09	11.98	0.18	0.32	0.21	0.00	
6	SDPIPE-14	3.27	0 00:13	11.74	0.28	6.32	0.10	0.50	0.33	0.00	
7	SDPIPE-15	2.60	0 00:16	10.50	0.25	4.15	0.26	0.58	0.39	0.00	
8	SDPIPE-16	5.37	0 00:07	34.01	0.16	10.87	0.04	0.48	0.32	0.00	
9	SDPIPE-17	3.01	0 00:05	26.49	0.11	9.63	0.34	0.35	0.23	0.00	
10	SDPIPE-18	1.56	0 00:05	23.49	0.07	5.88	0.14	0.31	0.21	0.00	
11	SDPIPE-19	1.97	0 00:08	10.50	0.19	4.95	0.17	0.42	0.28	0.00	
12	SDPIPE-2	23.32	0 00:08	66.70	0.35	6.93	0.09	1.44	0.48	0.00	
13	SDPIPE-20	2.22	0 00:08	11.38	0.19	4.80	0.11	0.56	0.38	0.00	
14	SDPIPE-21	3.09	0 00:15	21.28	0.15	4.40	0.90	0.86	0.58	0.00	
15	SDPIPE-22	3.11	0 00:15	26.60	0.12	8.73	0.11	0.38	0.26	0.00	
16	SDPIPE-23	1.10	0 00:05	10.50	0.10	3.71	0.20	0.34	0.22	0.00	
17	SDPIPE-25	0.97	0 00:05	14.89	0.07	4.20	0.30	0.28	0.19	0.00	
18	SDPIPE-27	7.59	0 00:19	15.03	0.50	7.93	0.38	0.80	0.53	0.00	
19	SDPIPE-28	1.82	0 00:14	10.50	0.17	2.86	0.20	0.69	0.46	0.00	
20	SDPIPE-29	6.15	0 00:19	36.81	0.17	8.74	0.32	0.63	0.42	0.00	
21	SDPIPE-3	22.99	0 00:08	71.83	0.32	7.93	0.06	1.78	0.59	0.00	
22	SDPIPE-30	6.15	0 00:19	29.71	0.21	12.56	0.09	0.48	0.32	0.00	
23	SDPIPE-32	2.10	0 00:05	28.32	0.07	8.96	0.18	0.29	0.19	0.00	
24	SDPIPE-33	4.04	0 00:07	12.88	0.31	4.02	0.32	1.26	0.84	0.00	
25	SDPIPE-34	3.17	0 00:08	14.39	0.22	3.75	0.66	0.99	0.66	0.00	
26	SDPIPE-4	2.71	0 00:16	11.38	0.24	4.78	0.25	0.54	0.36	0.00	
27	SDPIPE-5	0.65	0 00:07	10.50	0.06	1.98	0.28	0.41	0.27	0.00	
28	SDPIPE-6	2.41	0 00:16	11.37	0.21	4.63	0.24	0.50	0.34	0.00	
29	SDPIPE-7	2.41	0 00:16	10.50	0.23	4.01	0.18	0.56	0.37	0.00	
30	SDPIPE-8	22.98	0 00:09	96.54	0.24	22.75	0.10	0.72	0.36	0.00	
31	SDPIPE-9	22.41	0 00:09	22.62	0.99	9.67	0.06	1.38	0.69	0.00	

Inlet Input

SN	Element ID	Inlet Location	Number of Inlets	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Inlet Depth (ft)	Initial Water Elevation (ft)	Initial Water Depth (ft)	Ponded Area (ft^2)	Grate Clogging Factor (%)
1	CB-10	On Grade	1	483.62	487.38	3.76	483.62	0.00	N/A	0.00
2	CB-12	On Sag	1	512.25	516.63	4.38	512.25	0.00	10.00	0.00
3	CB-13	On Sag	1	512.58	516.63	4.05	512.58	0.00	10.00	0.00
4	CB-15	On Sag	1	530.20	533.98	3.78	530.20	0.00	10.00	0.00
5	CB-16	On Sag	1	530.53	533.98	3.45	530.53	0.00	10.00	0.00
6	CB-18	On Grade	1	517.50	521.56	4.06	517.50	0.00	N/A	0.00
7	CB-2	On Grade	1	465.94	475.75	9.81	465.94	0.00	N/A	0.00
8	CB-20	On Grade	1	468.11	471.31	3.20	468.11	0.00	N/A	0.00
9	CB-22	On Grade	1	501.10	504.78	3.68	501.10	0.00	N/A	0.00
10	CB-24	On Grade	1	517.77	523.17	5.40	517.77	0.00	N/A	0.00
11	CB-25	On Grade	1	515.81	522.01	6.20	515.81	0.00	N/A	0.00
12	CB-26	On Grade	1	501.43	504.78	3.35	501.43	0.00	N/A	0.00
13	CB-27	On Grade	1	538.50	543.76	5.26	538.50	0.00	N/A	0.00
14	CB-28	On Sag	1	542.20	546.43	4.23	542.20	0.00	10.00	0.00
15	CB-29	On Grade	1	542.65	547.71	5.07	542.65	0.00	N/A	0.00
16	CB-3	On Grade	1	466.30	475.38	9.08	466.30	0.00	N/A	0.00
17	CB-31	On Grade	1	544.50	549.76	5.26	544.50	0.00	N/A	0.00
18	CB-32	On Grade	1	546.00	550.25	4.25	546.00	0.00	N/A	0.00
19	CB-35	On Grade	1	487.50	492.85	5.35	487.50	0.00	N/A	0.00
20	CB-36	On Grade	1	487.84	492.30	4.46	487.84	0.00	N/A	0.00
21	CB-38	On Grade	1	505.00	510.35	5.35	505.00	0.00	N/A	0.00
22	CB-39	On Sag	1	510.34	515.20	4.86	510.34	0.00	10.00	0.00
23	CB-43	On Grade	1	514.12	517.57	3.45	514.12	0.00	N/A	0.00
24	CB-6	On Sag	1	467.80	474.50	6.70	467.80	0.00	10.00	0.00
25	CB-7	On Grade	1	467.47	474.50	7.03	467.47	0.00	N/A	0.00
26	CB-9	On Grade	1	483.19	489.41	6.22	483.19	0.00	N/A	0.00
27	FES-19	On Grade	1	517.99	522.14	4.14	517.99	0.00	N/A	0.00
28	Inlet-CB-44	On Grade	1	516.28	521.28	5.00	516.28	0.00	N/A	0.00

Roadway & Gutter Input

SN	Element ID	Roadway Longitudinal Slope (ft/ft)	Roadway Cross Slope (ft/ft)	Roadway Manning's Roughness	Gutter Cross Slope (ft/ft)	Gutter Width (ft)	Gutter Depression (in)	Allowable Spread (ft)
1	CB-10	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
2	CB-12	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
3	CB-13	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
4	CB-15	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
5	CB-16	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
6	CB-18	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
7	CB-2	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
8	CB-20	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
9	CB-22	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
10	CB-24	0.1033	0.0258	0.0150	0.0200	1.00	0.1312	8.50
11	CB-25	0.1041	0.0258	0.0150	0.0200	1.00	0.1312	8.50
12	CB-26	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
13	CB-27	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
14	CB-28	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
15	CB-29	0.0574	0.0258	0.0150	0.0200	1.00	0.1312	8.50
16	CB-3	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
17	CB-31	0.0721	0.0200	0.0150	0.0200	1.50	0.1312	8.50
18	CB-32	0.0809	0.0258	0.0150	0.0200	1.00	0.1312	8.50
19	CB-35	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
20	CB-36	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
21	CB-38	0.1046	0.0258	0.0150	0.0200	1.00	0.1312	8.50
22	CB-39	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
23	CB-43	0.0199	0.0258	0.0150	0.0200	1.00	0.1312	8.50
24	CB-6	N/A	0.0258	0.0150	0.0200	1.00	0.1312	8.50
25	CB-7	0.0085	0.0258	0.0150	0.0200	1.00	0.1312	8.50
26	CB-9	0.0749	0.0258	0.0150	0.0200	1.00	0.1312	8.50
27	FES-19	0.0245	0.0258	0.0150	0.0200	1.00	0.1312	8.50
28	Inlet-CB-44	0.1138	0.0258	0.0150	0.0200	1.00	0.1312	8.50

Inlet Results

SN	Element ID	Peak Flow (cfs)	Peak Lateral Inflow (cfs)	Peak Flow Intercepted by Inlet (cfs)	Peak Flow Bypassing Inlet (cfs)	Inlet Efficiency during Peak Flow (%)	Max Gutter Spread during Peak Flow (ft)	Max Gutter Water Elev. during Peak Flow (ft)	Max Gutter Water Depth during Peak Flow (ft)	Time of Max Depth Occurrence (days hh:mm)	F \
1	CB-10	3.18	2.64	2.10	1.08	66.02	6.39	487.54	0.16	0 00:16	
2	CB-12	2.48	2.48	N/A	N/A	N/A	6.50	516.96	0.33	0 00:09	
3	CB-13	7.94	6.48	N/A	N/A	N/A	14.14	517.16	0.53	0 00:09	
4	CB-15	6.62	6.62	N/A	N/A	N/A	12.52	534.47	0.49	0 00:12	
5	CB-16	3.28	3.26	N/A	N/A	N/A	7.84	534.34	0.37	0 00:12	
6	CB-18	0.96	0.96	0.96	0.00	100.00	5.03	521.68	0.12	0 00:13	
7	CB-2	2.77	1.78	2.61	0.16	94.08	9.08	475.97	0.23	0 00:08	
8	CB-20	3.39	2.74	2.18	1.21	64.21	6.53	471.47	0.16	0 00:16	
9	CB-22	1.09	1.09	1.05	0.04	95.92	4.31	504.89	0.11	0 00:07	
10	CB-24	2.10	2.10	1.57	0.54	74.48	5.18	523.30	0.13	0 00:05	
11	CB-25	3.15	3.15	1.97	1.18	62.63	5.99	522.16	0.15	0 00:08	
12	CB-26	2.37	2.24	1.77	0.60	74.78	5.71	504.92	0.14	0 00:08	
13	CB-27	0.69	0.69	0.69	0.00	100.00	3.80	543.85	0.09	0 00:15	
14	CB-28	3.12	3.12	N/A	N/A	N/A	7.58	546.79	0.36	0 00:15	
15	CB-29	1.15	1.15	1.11	0.03	97.01	4.61	547.83	0.11	0 00:05	
16	CB-3	1.10	1.10	1.10	0.00	100.00	6.45	475.54	0.16	0 00:08	
17	CB-31	1.35	1.35	1.16	0.19	85.78	5.44	549.87	0.11	0 00:05	
18	CB-32	1.01	1.01	0.98	0.03	96.82	4.14	550.35	0.10	0 00:05	
19	CB-35	0.98	0.78	0.94	0.05	95.34	3.91	492.95	0.09	0 00:19	
20	CB-36	2.76	2.76	1.83	0.93	66.42	5.69	492.44	0.14	0 00:14	
21	CB-38	1.77	1.77	1.41	0.36	79.52	4.83	510.47	0.12	0 00:19	
22	CB-39	6.29	5.86	N/A	N/A	N/A	12.10	515.68	0.48	0 00:19	
23	CB-43	4.49	4.49	4.11	0.38	91.44	9.30	517.80	0.23	0 00:09	
24	CB-6	1.29	1.29	N/A	N/A	N/A	4.22	474.77	0.28	0 00:07	
25	CB-7	0.32	0.32	0.32	0.00	100.00	4.08	474.60	0.10	0 00:16	
26	CB-9	0.95	0.92	0.93	0.01	98.45	4.08	489.51	0.10	0 00:16	
27	FES-19	5.01	5.01	3.27	1.73	65.39	9.31	522.37	0.23	0 00:13	
28	Inlet-CB-44	4.42	4.42	3.20	1.23	72.29	6.68	521.45	0.17	0 00:08	

Detention Pond Storage Estimate

Pond No. 1 : Hilltop Detention Pond

Pond Designer

Report | Help

Estimate Storage* > Create Pond > Add Outlet Structures

1-Yr | 2-Yr | 3-Yr | 5-Yr | 10-Yr | 25-Yr | 50-Yr | 100-Yr

Post-dev Hyd = 13 - Mod Rational - Post-Dev Basin "E

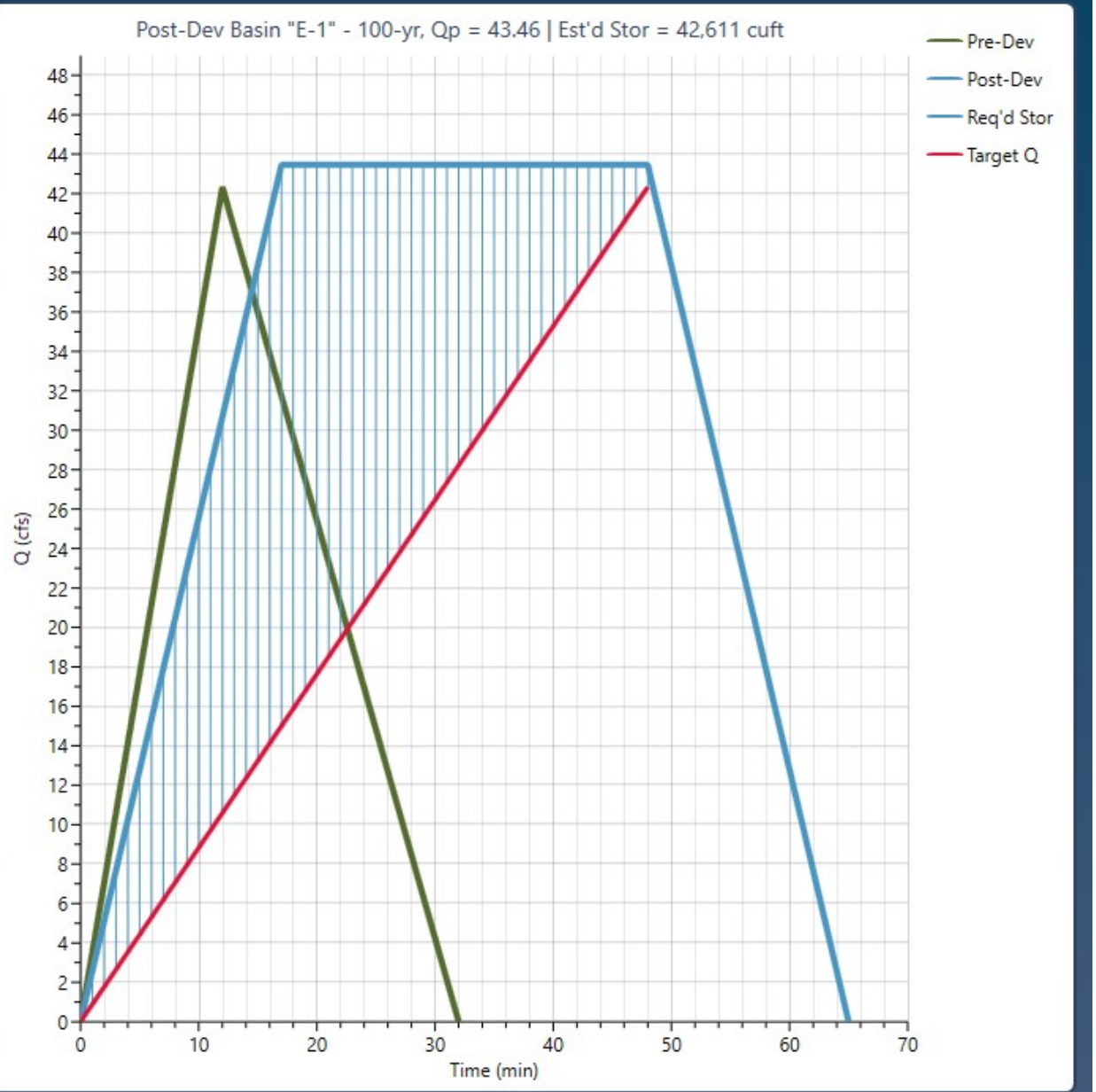
Pre-dev Hyd = 5 - Rational - Pre-Dev Basin "E-1"

Freq (Yr)	Vol Pre (cuft)	Vol Post (cuft)	Qp Post (cfs)	Q Targ (cfs)	Req Stor (cuft)
1					
2	22,242	68,090	23.64	23.14	22,967
3					
5					
10	29,819	91,663	31.83	31.02	31,174
25	34,268	105,431	36.61	35.65	35,913
50	37,472	115,494	40.10	38.98	39,483
100	40,692	125,154	43.46	42.33	42,611

Clear | Estimate Storage

	Extended Detention Storage (optional)	
Zone	Description	Volume (cuft)
1	WQv	
2	CPv	
3	Custom	
4	Custom	

Clear | Apply



*Estimate Storage Step is Optional

Always skip this step

Create Pond >

Culvert Blockage Simulation

Pond No. 1 : Hilltop Detention Pond

Pond Designer

Report | Help

Estimate Storage > Create Pond > **Add Outlet Structures**

Table | Structure | Plan / Profile | Stage vs. Q | Stage vs. Drain Time | Trial Route | Help | Flow Pat

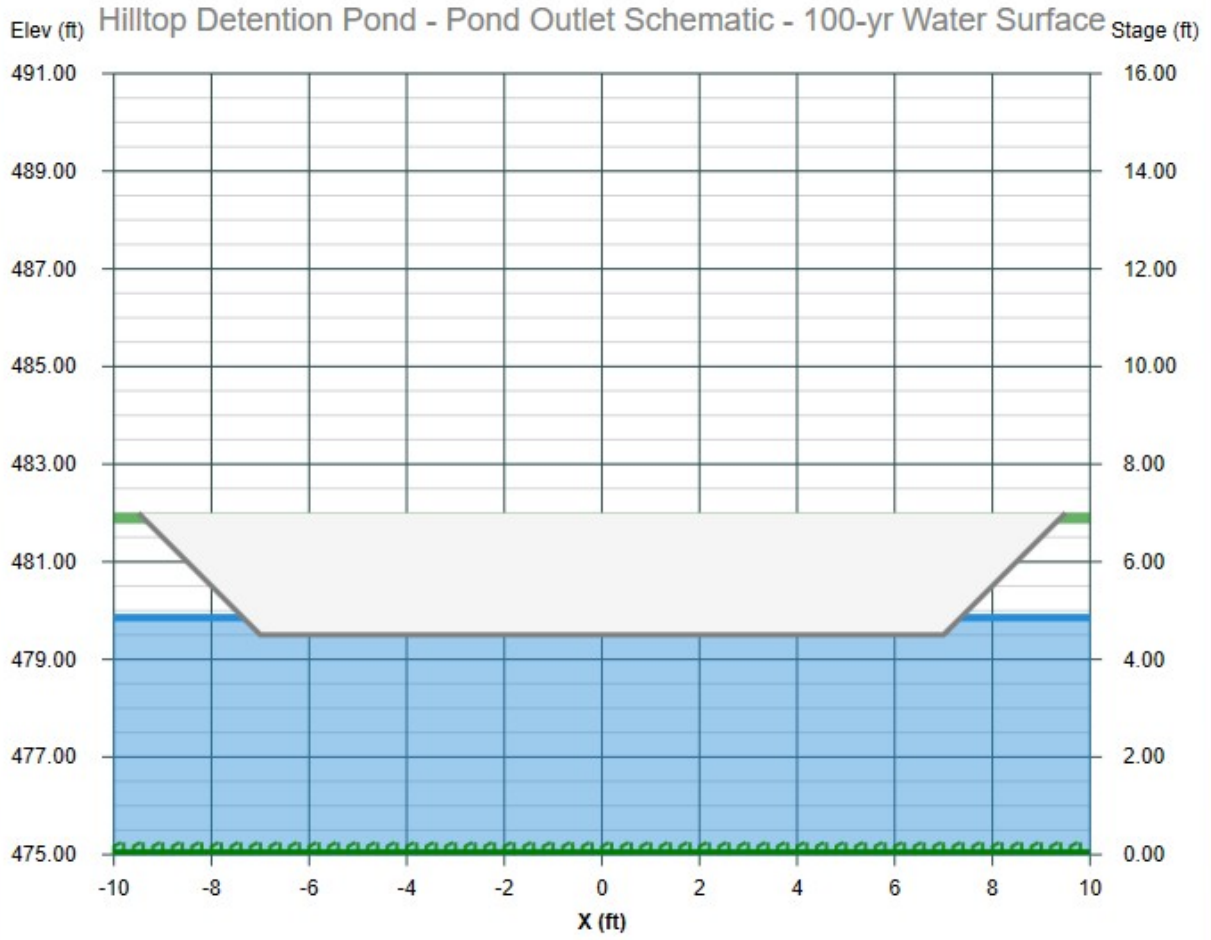
Culvert	Riser	Orifice	Weir
Exfiltration	User	Perf Riser	Tailwater

Primary Culvert	Input
Outlet Structure =	Culvert
Shape =	Circular
Diameter (in) =	18
No. Barrels =	1
Invert Elev. (ft) =	475.00
Orifice Coeff. (Co) =	0.6
Length (ft) =	57.00
Barrel Slope (%) =	1.17
N-Value (n) =	0.013
Restrictor (optional)	None
Active =	☐

Auto | Add/Update

Freq (Yr)	Q Targ (cfs)	Q Act (cfs)	Max Ele (ft)	Max Stor (cuft)
2	23.14	0.00	477.97	68,090
10	31.02	0.00	478.91	91,663
25	35.65	0.00	479.43	105,431
50	38.98	5.42	479.74	113,429
100	42.33	12.95	479.92	118,321

Auto Route | Trial Route



Numerical Output

X = 9.22 ft Y = 482.09 ft

< Create Pond | Finish

Pre and Post Development Hydrographs (Hydrology Studio)

Table of Contents

Basin Model Schematic 1

Hydrograph by Return Period 2

2 - Year

Hydrograph Summary 3

Hydrograph Reports

Hydrograph No. 1, Rational, Pre-Dev Basin "A" 4

Tc by TR55 Worksheet 5

Hydrograph No. 2, Rational, Pre-Dev Basin "B" 6

Tc by TR55 Worksheet 7

Hydrograph No. 3, Rational, Pre-Dev Basin "C" 8

Tc by TR55 Worksheet 9

Hydrograph No. 4, Rational, Pre-Dev Basin "D" 10

Tc by TR55 Worksheet 11

Hydrograph No. 5, Rational, Pre-Dev Basin "E-1" 12

Tc by TR55 Worksheet 13

Hydrograph No. 6, Rational, Pre-Dev Basin "E-2" 14

Tc by TR55 Worksheet 15

Hydrograph No. 7, Junction, Total Pre Basin "E" 16

Hydrograph No. 8, Rational, Pre-Dev Basin "F" 17

Tc by TR55 Worksheet 18

Hydrograph No. 9, Rational, Post-Dev Basin A 19

Tc by TR55 Worksheet 20

Hydrograph No. 10, Rational, Post-Dev Basin B 21

Tc by TR55 Worksheet 22

Hydrograph No. 11, Rational, Post-Dev Basin "C" 23

Tc by TR55 Worksheet 24

Hydrograph No. 12, Rational, Post-Dev Basin "D" 25

Tc by TR55 Worksheet 26

Hydrograph No. 13, Mod Rational, Post-Dev Basin "E-1" 27

Hydrograph No. 14, Pond Route, Detention Basin 28

Detention Pond Reports - Hilltop Detention Pond 29

Hydrograph No. 15, Rational, Post-Dev Basin "E-2" 33

Tc by TR55 Worksheet 34

Hydrograph No. 16, Junction, Total Post-Dev "E" 35

Hydrograph No. 17, Rational, Post-Dev Basin "F" 36

Tc by TR55 Worksheet 37

Contents continued...

10 - Year

Hydrograph Summary **38**

Hydrograph Reports

Hydrograph No. 1, Rational, Pre-Dev Basin "A" 39

Hydrograph No. 2, Rational, Pre-Dev Basin "B" 40

Hydrograph No. 3, Rational, Pre-Dev Basin "C" 41

Hydrograph No. 4, Rational, Pre-Dev Basin "D" 42

Hydrograph No. 5, Rational, Pre-Dev Basin "E-1" 43

Hydrograph No. 6, Rational, Pre-Dev Basin "E-2" 44

Hydrograph No. 7, Junction, Total Pre Basin "E" 45

Hydrograph No. 8, Rational, Pre-Dev Basin "F" 46

Hydrograph No. 9, Rational, Post-Dev Basin A 47

Hydrograph No. 10, Rational, Post-Dev Basin B 48

Hydrograph No. 11, Rational, Post-Dev Basin "C" 49

Hydrograph No. 12, Rational, Post-Dev Basin "D" 50

Hydrograph No. 13, Mod Rational, Post-Dev Basin "E-1" 51

Hydrograph No. 14, Pond Route, Detention Basin 52

Hydrograph No. 15, Rational, Post-Dev Basin "E-2" 53

Hydrograph No. 16, Junction, Total Post-Dev "E" 54

Hydrograph No. 17, Rational, Post-Dev Basin "F" 55

25 - Year

Hydrograph Summary **56**

Hydrograph Reports

Hydrograph No. 1, Rational, Pre-Dev Basin "A" 57

Hydrograph No. 2, Rational, Pre-Dev Basin "B" 58

Hydrograph No. 3, Rational, Pre-Dev Basin "C" 59

Hydrograph No. 4, Rational, Pre-Dev Basin "D" 60

Hydrograph No. 5, Rational, Pre-Dev Basin "E-1" 61

Hydrograph No. 6, Rational, Pre-Dev Basin "E-2" 62

Hydrograph No. 7, Junction, Total Pre Basin "E" 63

Hydrograph No. 8, Rational, Pre-Dev Basin "F" 64

Hydrograph No. 9, Rational, Post-Dev Basin A 65

Hydrograph No. 10, Rational, Post-Dev Basin B 66

Hydrograph No. 11, Rational, Post-Dev Basin "C" 67

Hydrograph No. 12, Rational, Post-Dev Basin "D" 68

Hydrograph No. 13, Mod Rational, Post-Dev Basin "E-1" 69

Contents continued...

Hydrograph No. 14, Pond Route, Detention Basin 70
Hydrograph No. 15, Rational, Post-Dev Basin "E-2" 71
Hydrograph No. 16, Junction, Total Post-Dev "E" 72
Hydrograph No. 17, Rational, Post-Dev Basin "F" 73

50 - Year

Hydrograph Summary **74**

Hydrograph Reports

Hydrograph No. 1, Rational, Pre-Dev Basin "A" 75
Hydrograph No. 2, Rational, Pre-Dev Basin "B" 76
Hydrograph No. 3, Rational, Pre-Dev Basin "C" 77
Hydrograph No. 4, Rational, Pre-Dev Basin "D" 78
Hydrograph No. 5, Rational, Pre-Dev Basin "E-1" 79
Hydrograph No. 6, Rational, Pre-Dev Basin "E-2" 80
Hydrograph No. 7, Junction, Total Pre Basin "E" 81
Hydrograph No. 8, Rational, Pre-Dev Basin "F" 82
Hydrograph No. 9, Rational, Post-Dev Basin A 83
Hydrograph No. 10, Rational, Post-Dev Basin B 84
Hydrograph No. 11, Rational, Post-Dev Basin "C" 85
Hydrograph No. 12, Rational, Post-Dev Basin "D" 86
Hydrograph No. 13, Mod Rational, Post-Dev Basin "E-1" 87
Hydrograph No. 14, Pond Route, Detention Basin 88
Hydrograph No. 15, Rational, Post-Dev Basin "E-2" 89
Hydrograph No. 16, Junction, Total Post-Dev "E" 90
Hydrograph No. 17, Rational, Post-Dev Basin "F" 91

100 - Year

Hydrograph Summary **92**

Hydrograph Reports

Hydrograph No. 1, Rational, Pre-Dev Basin "A" 93
Hydrograph No. 2, Rational, Pre-Dev Basin "B" 94
Hydrograph No. 3, Rational, Pre-Dev Basin "C" 95
Hydrograph No. 4, Rational, Pre-Dev Basin "D" 96
Hydrograph No. 5, Rational, Pre-Dev Basin "E-1" 97
Hydrograph No. 6, Rational, Pre-Dev Basin "E-2" 98
Hydrograph No. 7, Junction, Total Pre Basin "E" 99
Hydrograph No. 8, Rational, Pre-Dev Basin "F" 100
Hydrograph No. 9, Rational, Post-Dev Basin A 101

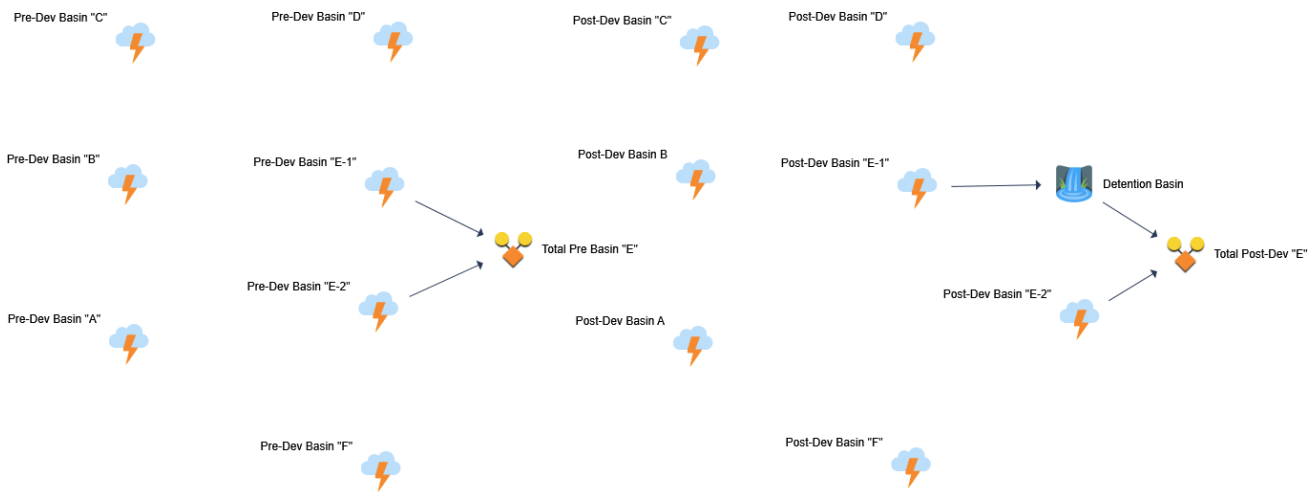
Contents continued...

Hydrograph No. 10, Rational, Post-Dev Basin B 102
Hydrograph No. 11, Rational, Post-Dev Basin "C" 103
Hydrograph No. 12, Rational, Post-Dev Basin "D" 104
Hydrograph No. 13, Mod Rational, Post-Dev Basin "E-1" 105
Hydrograph No. 14, Pond Route, Detention Basin 106
Hydrograph No. 15, Rational, Post-Dev Basin "E-2" 107
Hydrograph No. 16, Junction, Total Post-Dev "E" 108
Hydrograph No. 17, Rational, Post-Dev Basin "F" 109

Basin Model

Hydrology Studio v 3.0.0.39

Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026



Hydrograph by Return Period

Hydrology Studio v 3.0.0.39

Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Outflow (cfs)							
			1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
1	Rational	Pre-Dev Basin "A"		8.527			11.43	13.13	14.36	15.60
2	Rational	Pre-Dev Basin "B"		28.63			38.41	44.15	48.29	52.42
3	Rational	Pre-Dev Basin "C"		16.17			21.67	24.90	27.23	29.57
4	Rational	Pre-Dev Basin "D"		7.322			9.804	11.26	12.31	13.38
5	Rational	Pre-Dev Basin "E-1"		23.14			31.02	35.65	38.98	42.33
6	Rational	Pre-Dev Basin "E-2"		39.29			52.69	60.55	66.22	71.90
7	Junction	Total Pre Basin "E"		61.27			82.16	94.42	103.3	112.1
8	Rational	Pre-Dev Basin "F"		24.68			33.12	38.07	41.64	45.20
9	Rational	Post-Dev Basin A		8.979			12.04	13.84	15.14	16.43
10	Rational	Post-Dev Basin B		23.98			32.19	37.00	40.48	43.93
11	Rational	Post-Dev Basin "C"		16.54			22.16	25.47	27.85	30.24
12	Rational	Post-Dev Basin "D"		7.200			9.641	11.08	12.11	13.15
13	Mod Rational	Post-Dev Basin "E-1"		23.64			31.83	36.61	40.10	43.46
14	Pond Route	Detention Basin		10.07			12.42	13.61	14.43	15.18
15	Rational	Post-Dev Basin "E-2"		39.12			52.46	60.29	65.94	71.59
16	Junction	Total Post-Dev "E"		39.66			53.39	61.49	67.36	73.24
17	Rational	Post-Dev Basin "F"		24.38			32.71	37.60	41.13	44.65

Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.39

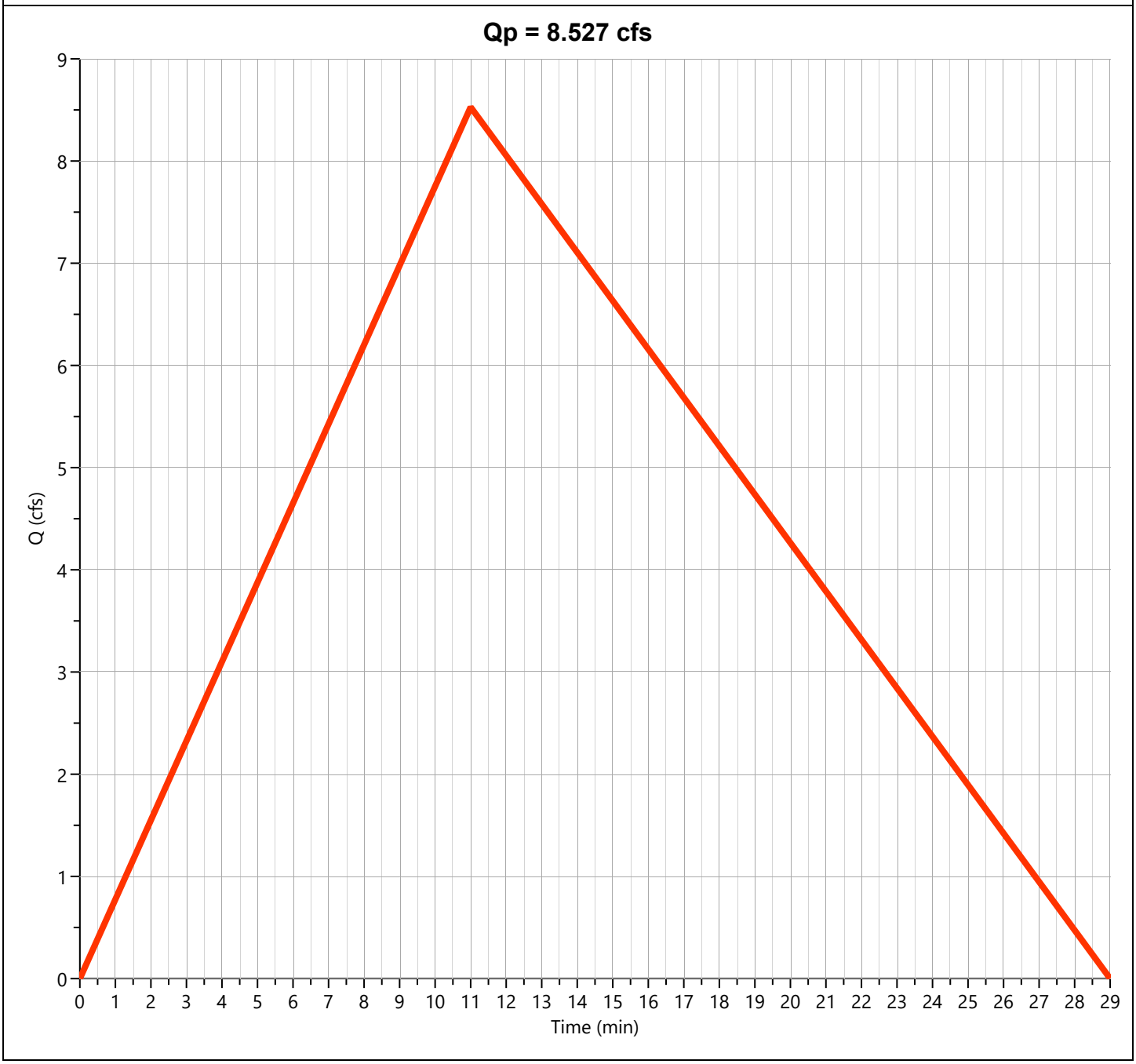
Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	8.527	0.18	7,513	----		
2	Rational	Pre-Dev Basin "B"	28.63	0.25	34,400	----		
3	Rational	Pre-Dev Basin "C"	16.17	0.18	14,247	----		
4	Rational	Pre-Dev Basin "D"	7.322	0.13	4,692	----		
5	Rational	Pre-Dev Basin "E-1"	23.14	0.20	22,242	----		
6	Rational	Pre-Dev Basin "E-2"	39.29	0.22	40,914	----		
7	Junction	Total Pre Basin "E"	61.27	0.22	62,291	5, 6		
8	Rational	Pre-Dev Basin "F"	24.68	0.28	33,601	----		
9	Rational	Post-Dev Basin A	8.979	0.23	10,069	----		
10	Rational	Post-Dev Basin B	23.98	0.30	34,576	----		
11	Rational	Post-Dev Basin "C"	16.54	0.18	14,570	----		
12	Rational	Post-Dev Basin "D"	7.200	0.13	4,614	----		
13	Mod Rational	Post-Dev Basin "E-1"	23.64	0.28	68,090	----		
14	Pond Route	Detention Basin	10.07	0.97	68,005	13	477.15	48,434
15	Rational	Post-Dev Basin "E-2"	39.12	0.22	40,738	----		
16	Junction	Total Post-Dev "E"	39.66	0.22	107,909	14, 15		
17	Rational	Post-Dev Basin "F"	24.38	0.27	31,245	----		

Pre-Dev Basin "A"

Hyd. No. 1

Hydrograph Type	= Rational	Peak Flow	= 8.527 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 7,513 cuft
Drainage Area	= 3.2 ac	Runoff Coeff.	= 0.62
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Tc by TR55 Worksheet

Hydrology Studio v 3.0.0.39

03-04-2026

Pre-Dev Basin "A"
Rational

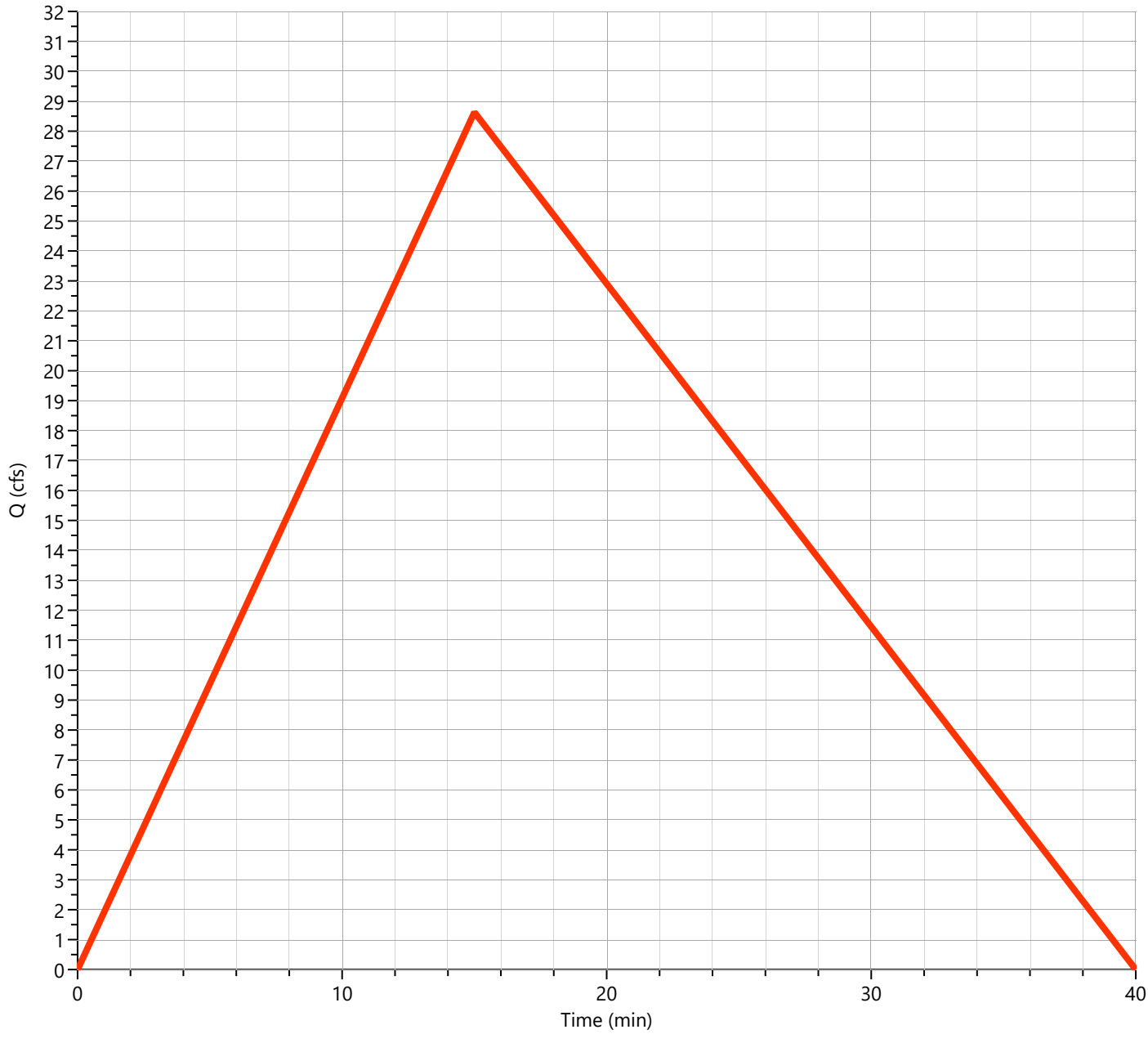
Hyd. No. 1

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	6			
Travel Time (min)	**9.43**	**0.00**	**0.00**	**9.43**
Shallow Concentrated Flow				
Flow Length (ft)	509			
Watercourse Slope (%)	8.35	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	4.66			
Travel Time (min)	**1.82**	**0.00**	**0.00**	**1.82**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**11 min**

Pre-Dev Basin "B"

Hyd. No. 2

Hydrograph Type	= Rational	Peak Flow	= 28.63 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.25 hrs
Time Interval	= 1 min	Runoff Volume	= 34,400 cuft
Drainage Area	= 14.74 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 15.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.74 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "B"
Rational

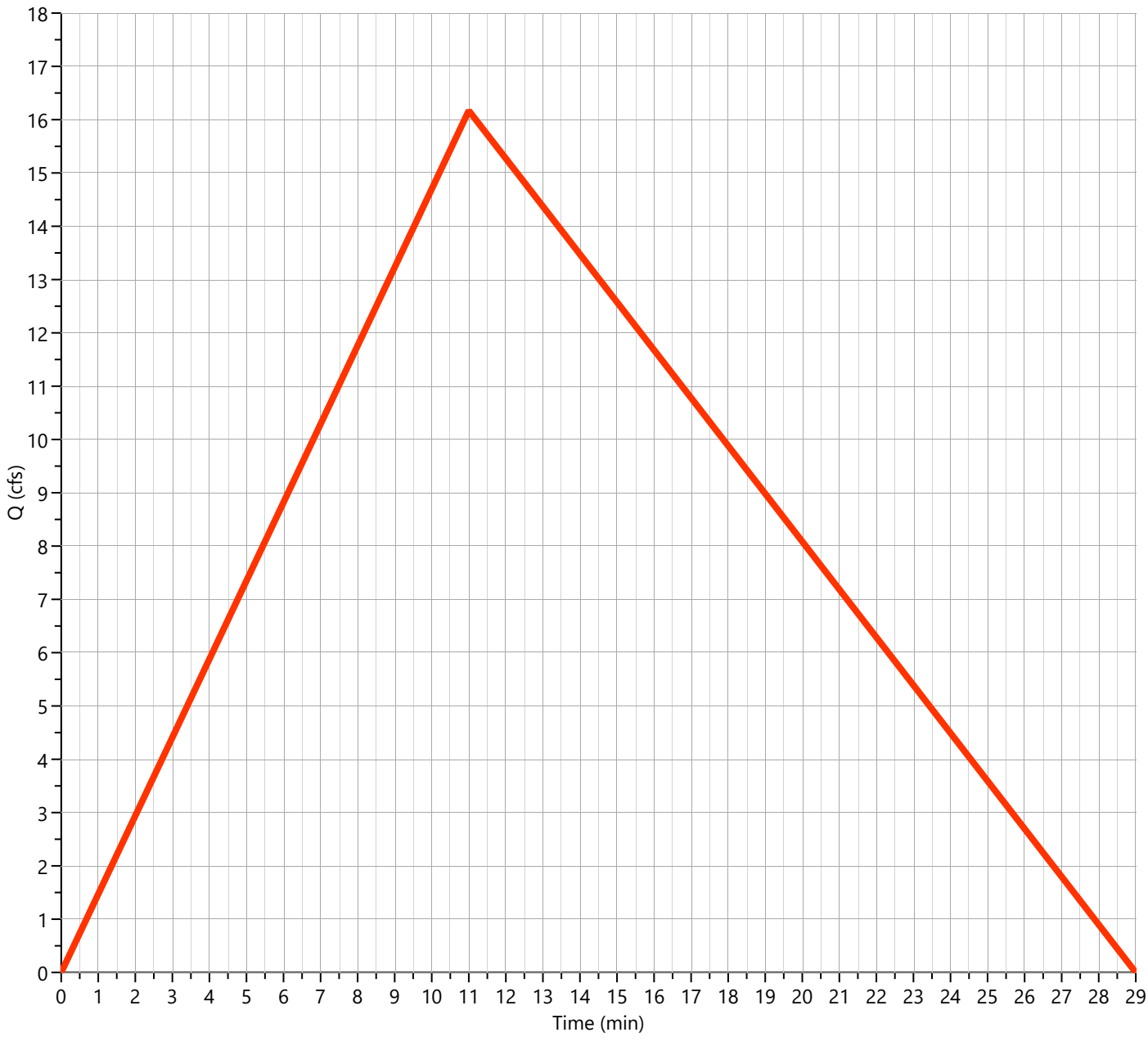
Hyd. No. 2

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	4			
Travel Time (min)	**11.09**	**0.00**	**0.00**	**11.09**
Shallow Concentrated Flow				
Flow Length (ft)	926			
Watercourse Slope (%)	5.90	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.92			
Travel Time (min)	**3.94**	**0.00**	**0.00**	**3.94**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**15 min**

Pre-Dev Basin "C"

Hyd. No. 3

Hydrograph Type	= Rational	Peak Flow	= 16.17 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 14,247 cuft
Drainage Area	= 6.84 ac	Runoff Coeff.	= 0.55
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "C"
Rational

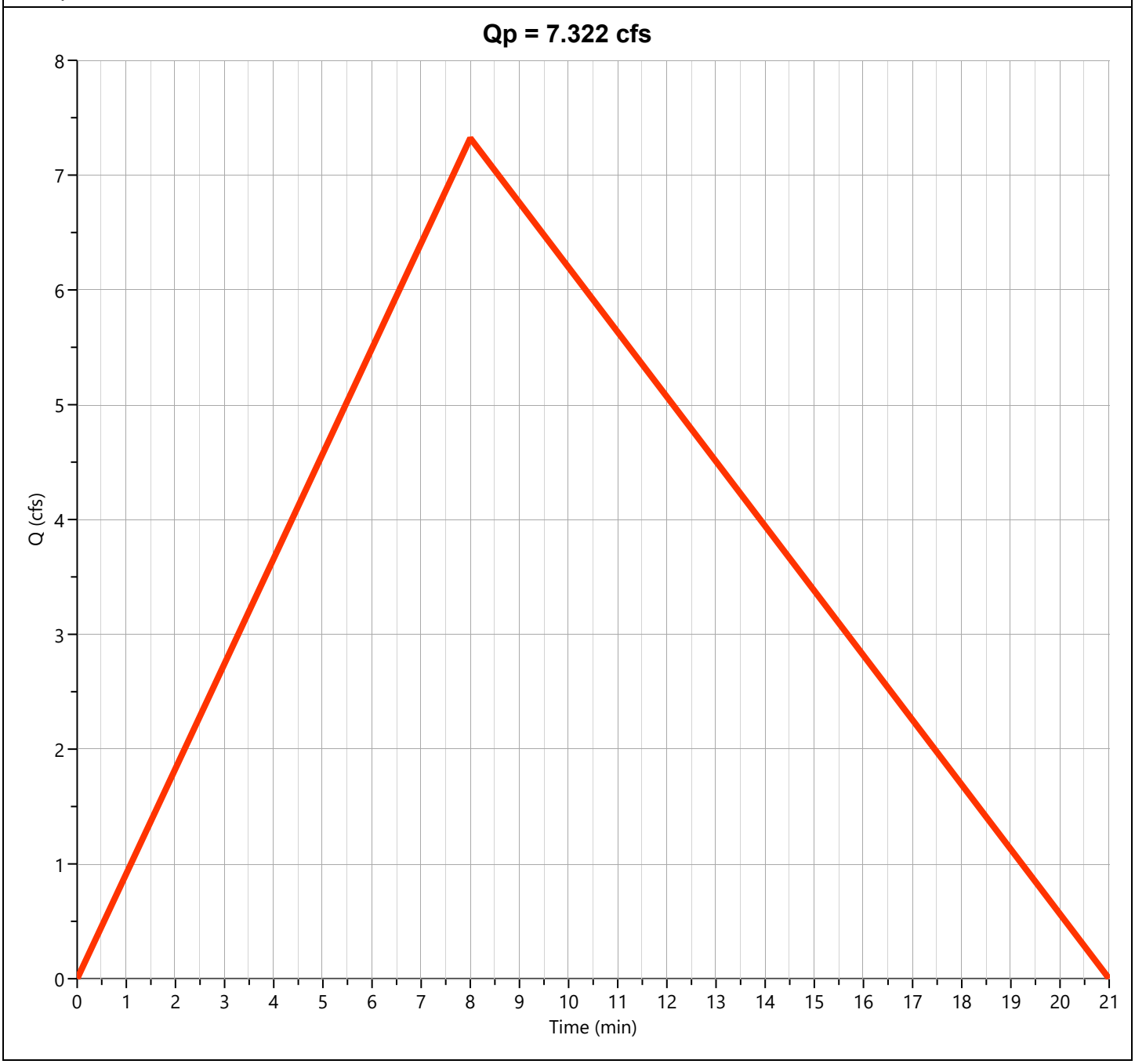
Hyd. No. 3

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	8			
Travel Time (min)	**8.40**	**0.00**	**0.00**	**8.40**
Shallow Concentrated Flow				
Flow Length (ft)	654	71		
Watercourse Slope (%)	5.68	6.20	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.85	5.06		
Travel Time (min)	**2.83**	**0.23**	**0.00**	**3.07**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**11 min**

Pre-Dev Basin "D"

Hyd. No. 4

Hydrograph Type	= Rational	Peak Flow	= 7.322 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 4,692 cuft
Drainage Area	= 2.95 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.96 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "D"
Rational

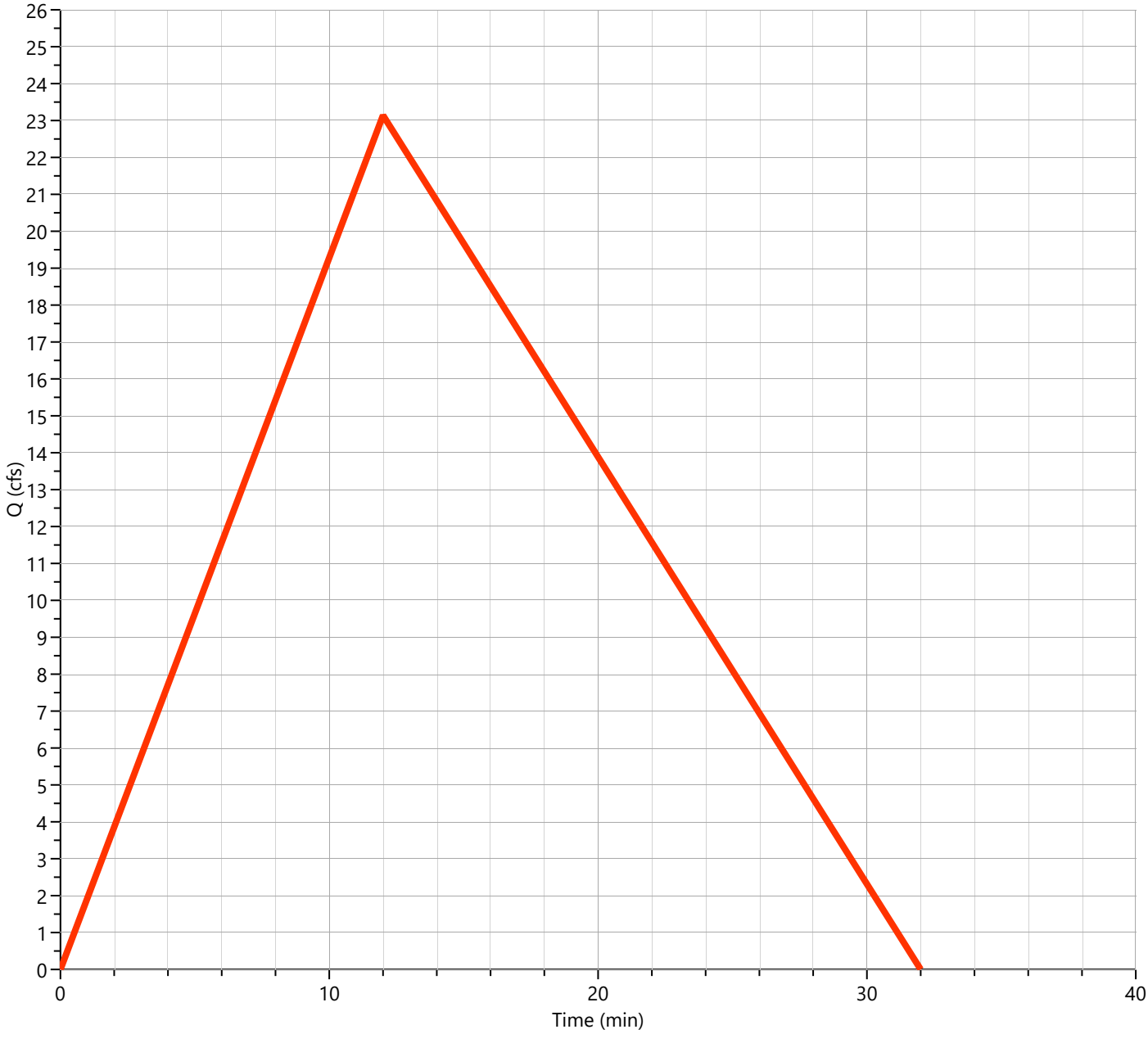
Hyd. No. 4

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	14			
Travel Time (min)	**6.72**	**0.00**	**0.00**	**6.72**
Shallow Concentrated Flow				
Flow Length (ft)	554			
Watercourse Slope (%)	11.00	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	5.35			
Travel Time (min)	**1.73**	**0.00**	**0.00**	**1.73**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**8 min**

Pre-Dev Basin "E-1"

Hyd. No. 5

Hydrograph Type	= Rational	Peak Flow	= 23.14 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 22,242 cuft
Drainage Area	= 11.2 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.13 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-1"
Rational

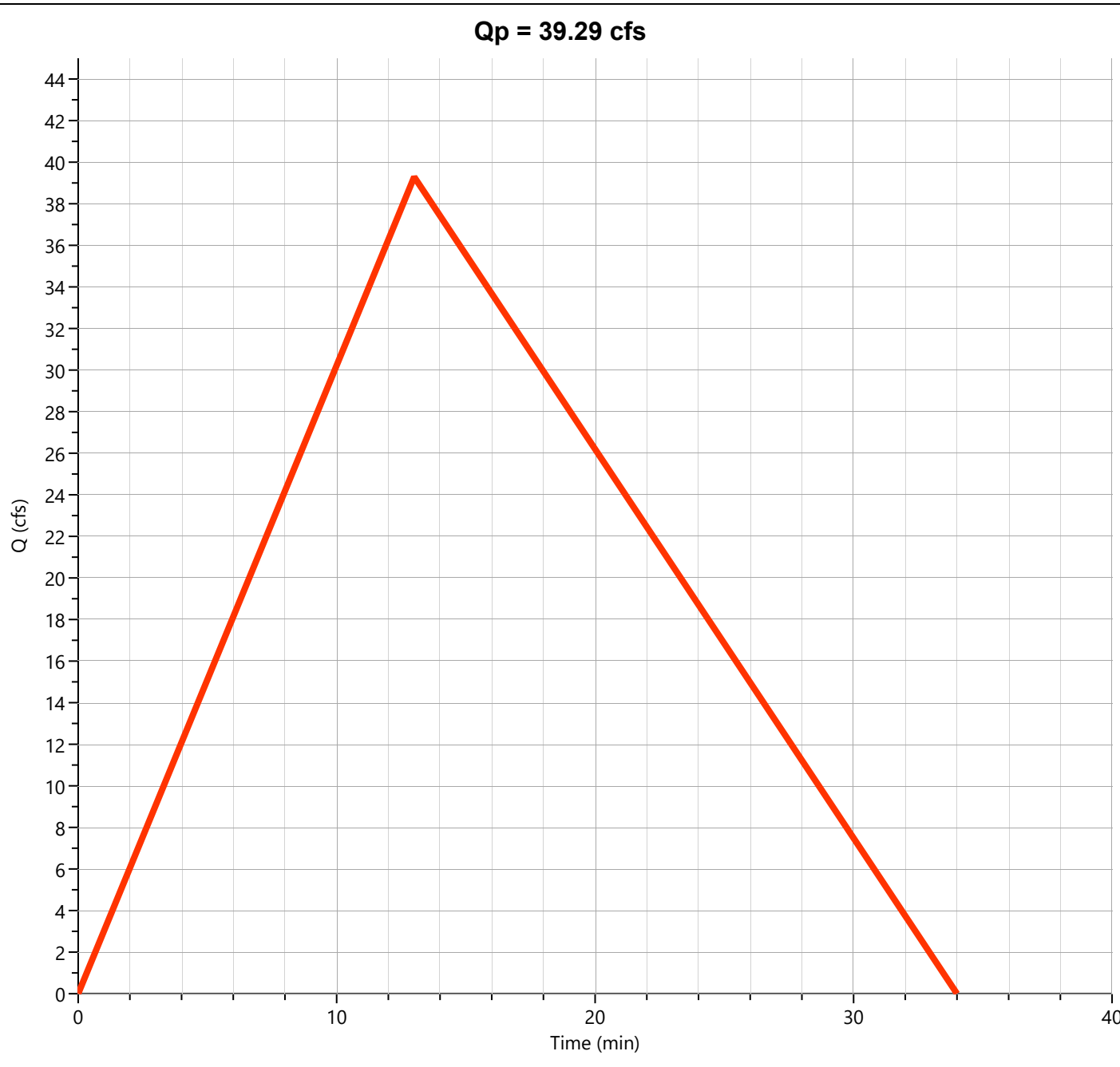
Hyd. No. 5

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	5			
Travel Time (min)	**10.14**	**0.00**	**0.00**	**10.14**
Shallow Concentrated Flow				
Flow Length (ft)	565			
Watercourse Slope (%)	13.00	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	5.82			
Travel Time (min)	**1.62**	**0.00**	**0.00**	**1.62**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**12 min**

Pre-Dev Basin "E-2"

Hyd. No. 6

Hydrograph Type	= Rational	Peak Flow	= 39.29 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 40,914 cuft
Drainage Area	= 18.96 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.99 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-2"
Rational

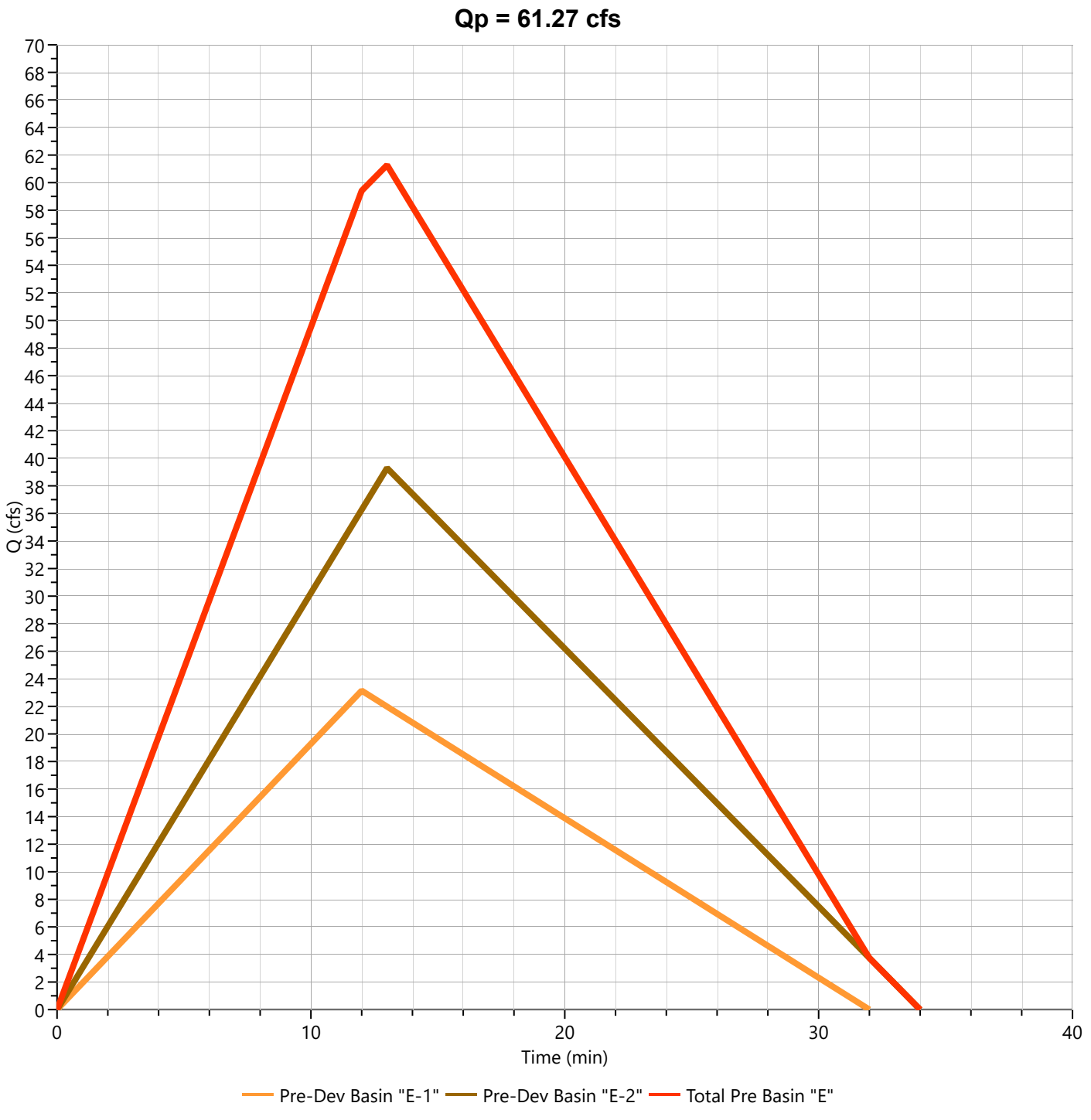
Hyd. No. 6

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	7.25			
Travel Time (min)	**8.74**	**0.00**	**0.00**	**8.74**
Shallow Concentrated Flow				
Flow Length (ft)	1070			
Watercourse Slope (%)	6.23	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	4.03			
Travel Time (min)	**4.43**	**0.00**	**0.00**	**4.43**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**13 min**

Total Pre Basin "E"

Hyd. No. 7

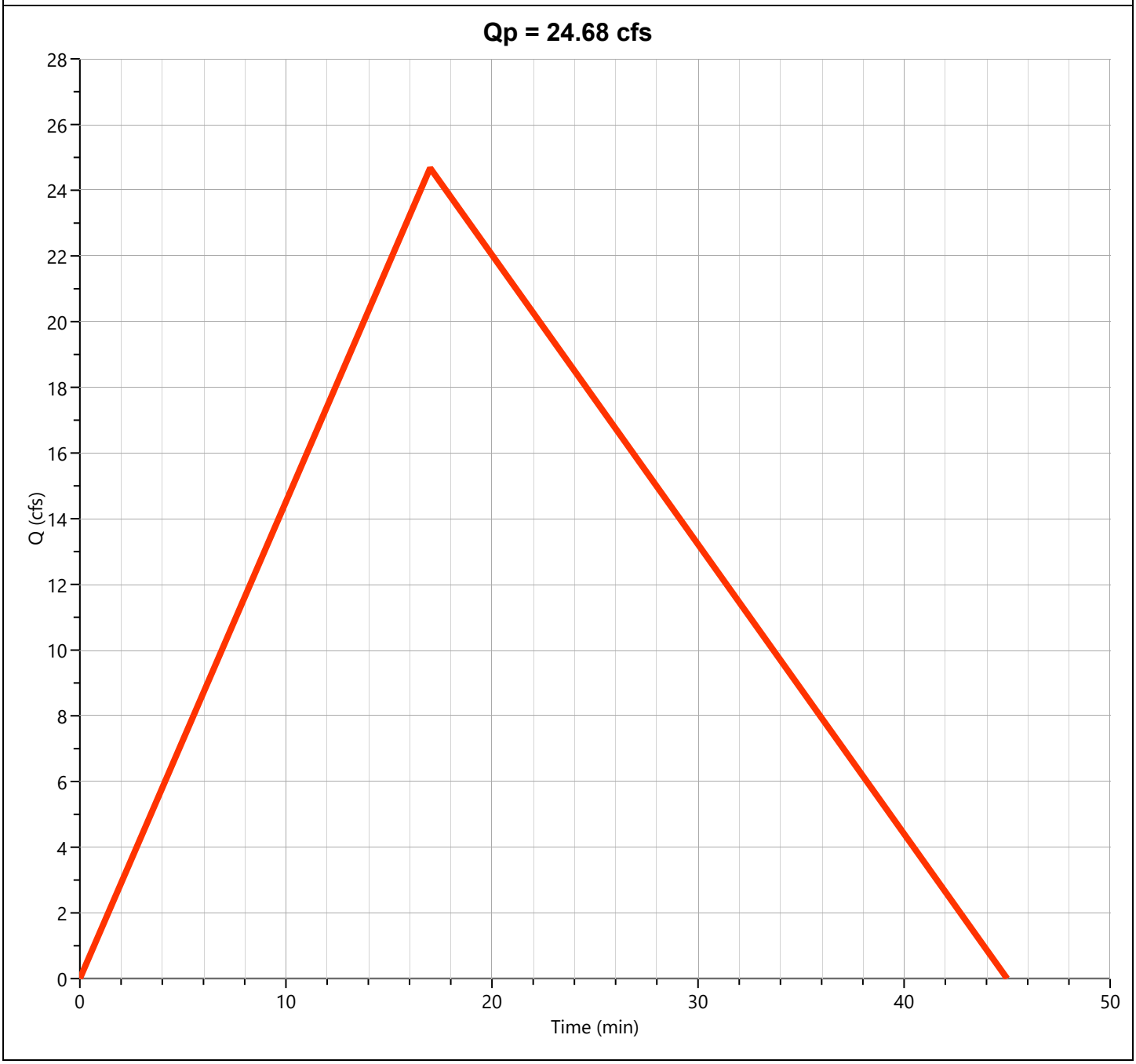
Hydrograph Type	= Junction	Peak Flow	= 61.27 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 62,291 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 30.16 ac



Pre-Dev Basin "F"

Hyd. No. 8

Hydrograph Type	= Rational	Peak Flow	= 24.68 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 33,601 cuft
Drainage Area	= 13.19 ac	Runoff Coeff.	= 0.53
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.53 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "F"
Rational

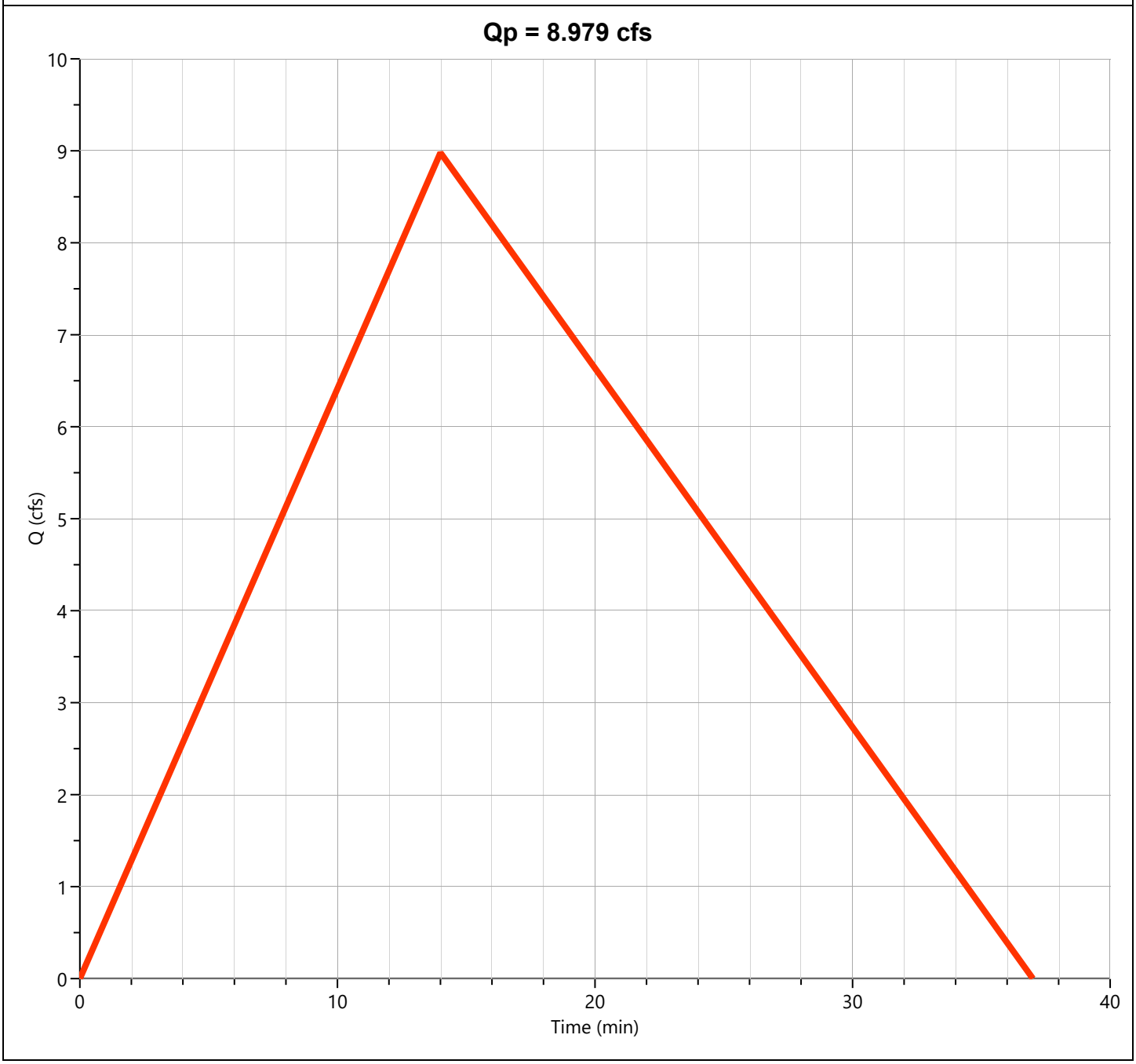
Hyd. No. 8

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	5			
Travel Time (min)	**10.14**	**0.00**	**0.00**	**10.14**
Shallow Concentrated Flow				
Flow Length (ft)	1477			
Watercourse Slope (%)	4.90	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.57			
Travel Time (min)	**6.89**	**0.00**	**0.00**	**6.89**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**17 min**

Post-Dev Basin A

Hyd. No. 9

Hydrograph Type	= Rational	Peak Flow	= 8.979 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.23 hrs
Time Interval	= 1 min	Runoff Volume	= 10,069 cuft
Drainage Area	= 3.53 ac	Runoff Coeff.	= 0.66
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.85 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A
Rational

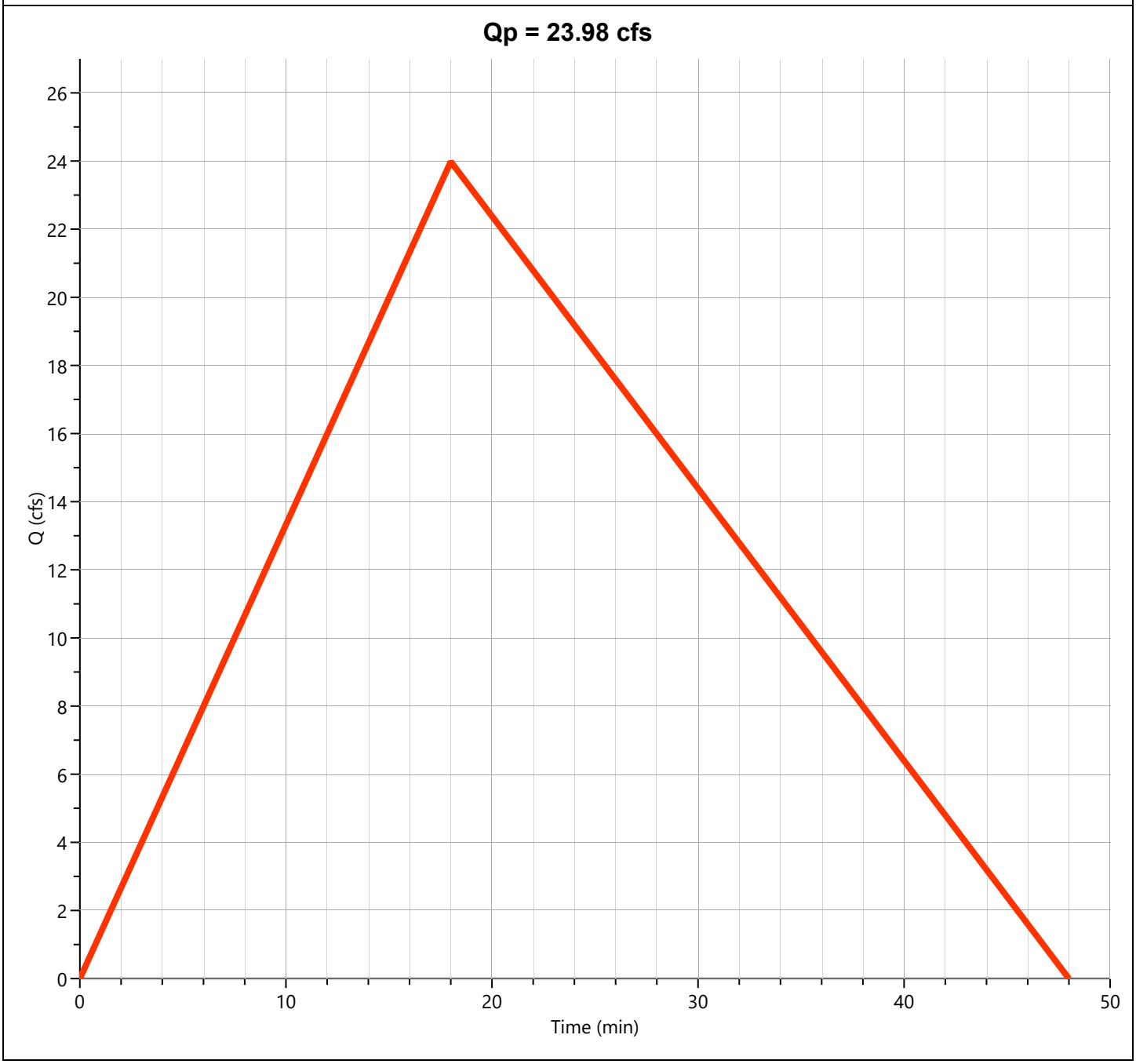
Hyd. No. 9

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	3			
Travel Time (min)	**12.44**	**0.00**	**0.00**	**12.44**
Shallow Concentrated Flow				
Flow Length (ft)	519			
Watercourse Slope (%)	8.38	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	4.67			
Travel Time (min)	**1.85**	**0.00**	**0.00**	**1.85**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**14 min**

Post-Dev Basin B

Hyd. No. 10

Hydrograph Type	= Rational	Peak Flow	= 23.98 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.30 hrs
Time Interval	= 1 min	Runoff Volume	= 34,576 cuft
Drainage Area	= 12.45 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 18.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.44 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin B
Rational

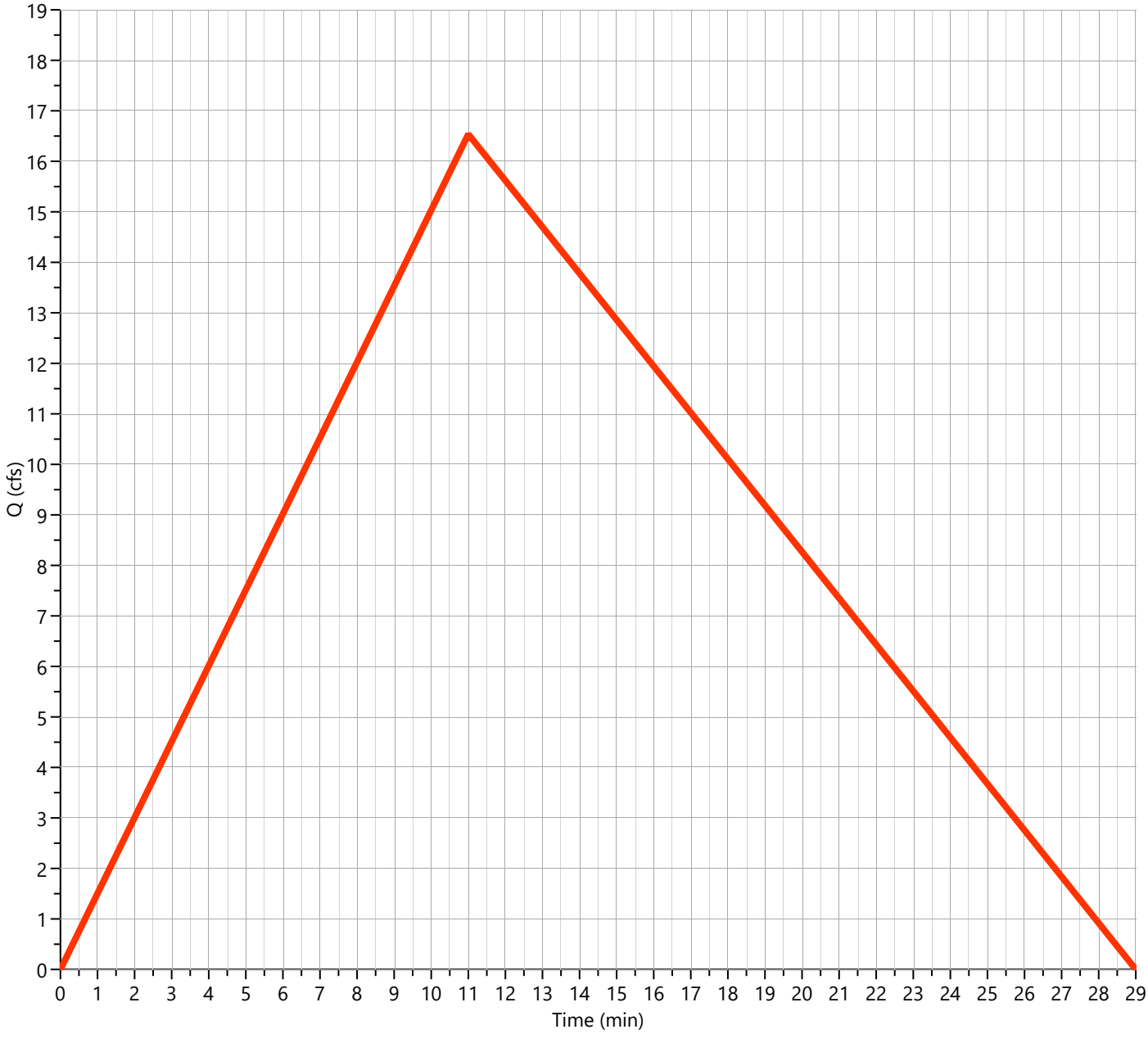
Hyd. No. 10

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	2.5			
Travel Time (min)	**13.38**	**0.00**	**0.00**	**13.38**
Shallow Concentrated Flow				
Flow Length (ft)	1025			
Watercourse Slope (%)	5.49	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.78			
Travel Time (min)	**4.52**	**0.00**	**0.00**	**4.52**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**18 min**

Post-Dev Basin "C"

Hyd. No. 11

Hydrograph Type	= Rational	Peak Flow	= 16.54 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 14,570 cuft
Drainage Area	= 6.75 ac	Runoff Coeff.	= 0.57
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "C"
Rational

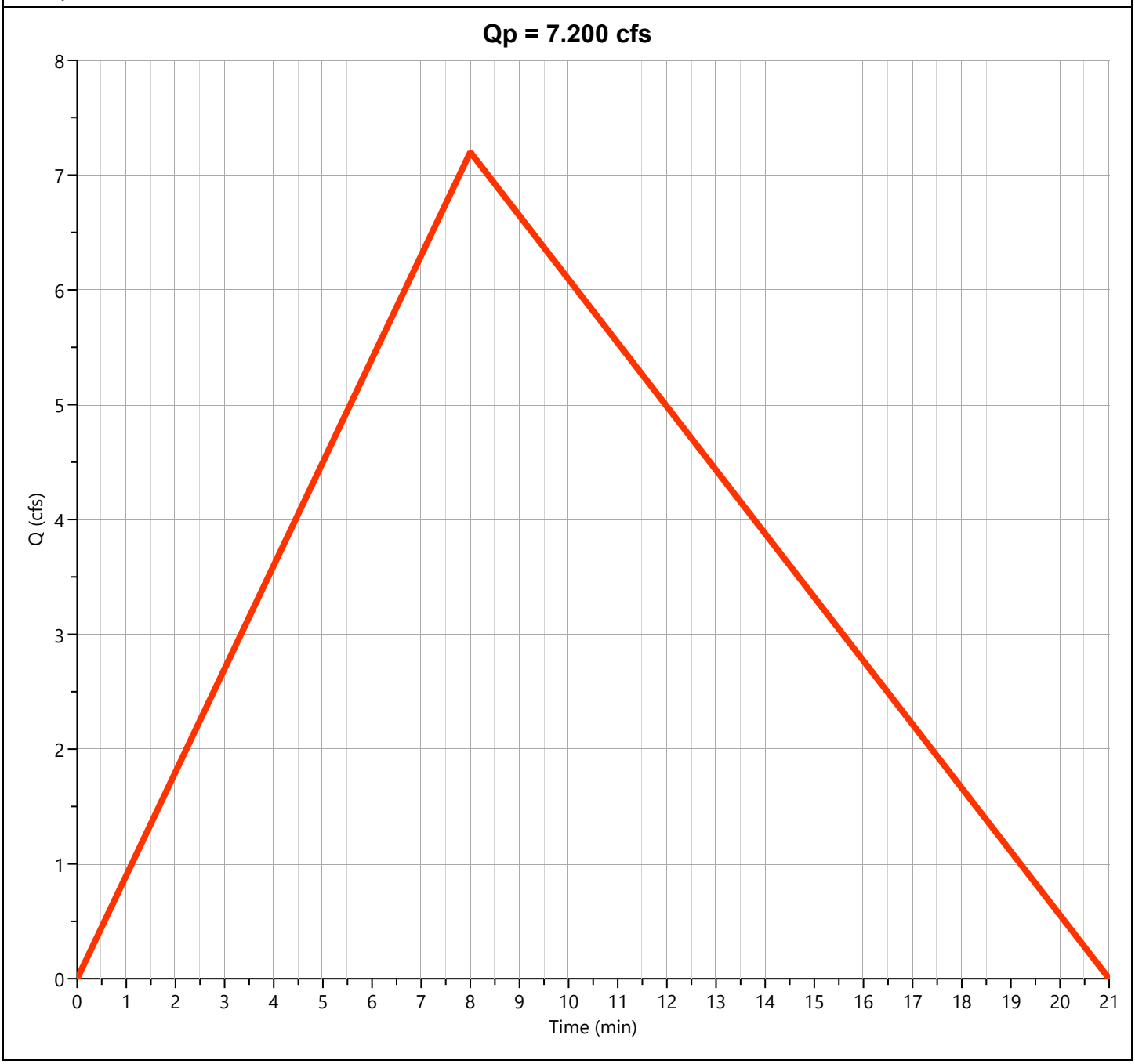
Hyd. No. 11

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	8			
Travel Time (min)	**8.40**	**0.00**	**0.00**	**8.40**
Shallow Concentrated Flow				
Flow Length (ft)	654			
Watercourse Slope (%)	5.68	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.85			
Travel Time (min)	**2.83**	**0.00**	**0.00**	**2.83**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**11 min**

Post-Dev Basin "D"

Hyd. No. 12

Hydrograph Type	= Rational	Peak Flow	= 7.200 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 4,614 cuft
Drainage Area	= 2.59 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.96 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "D"
Rational

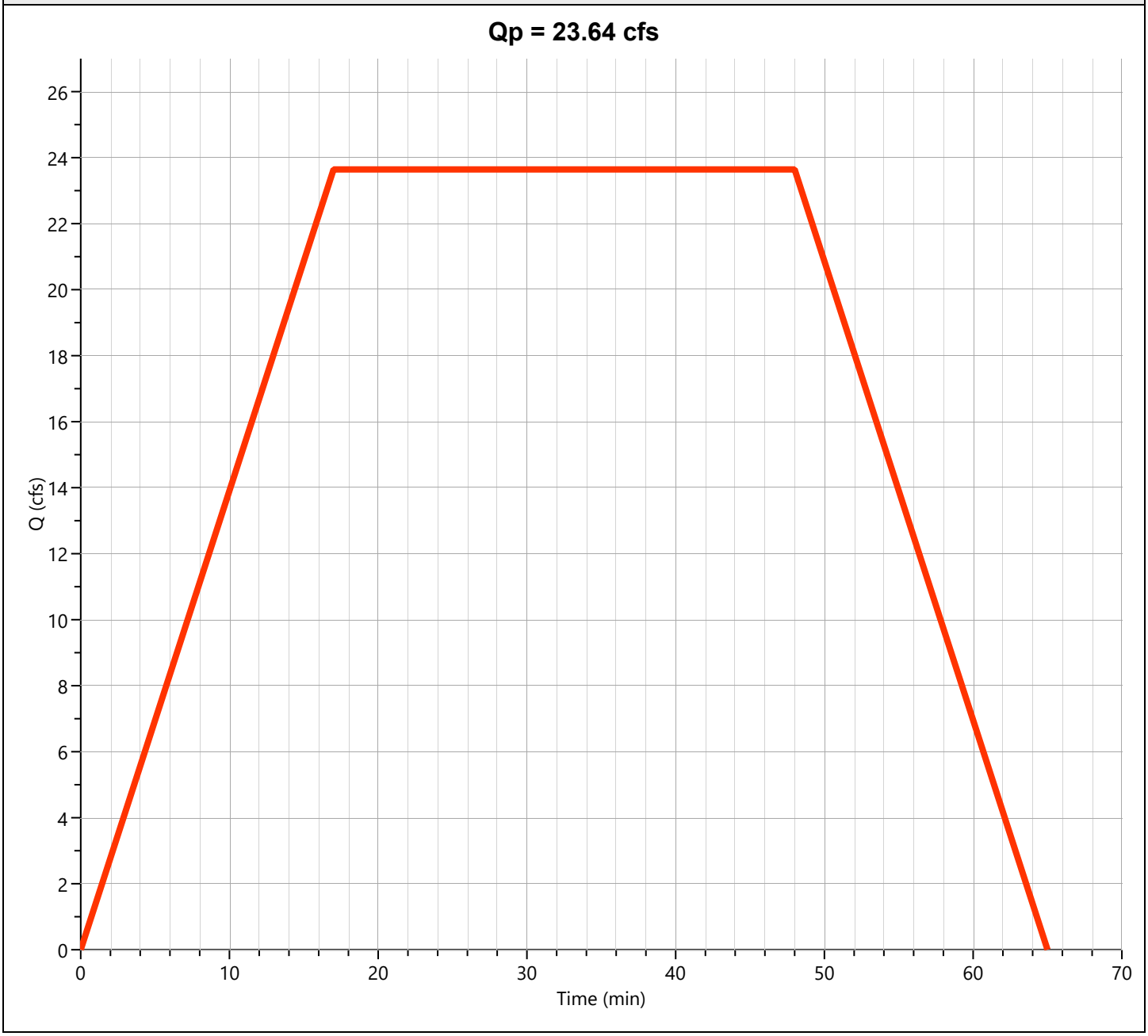
Hyd. No. 12

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	14			
Travel Time (min)	**6.72**	**0.00**	**0.00**	**6.72**
Shallow Concentrated Flow				
Flow Length (ft)	554			
Watercourse Slope (%)	11.00	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	5.35			
Travel Time (min)	**1.73**	**0.00**	**0.00**	**1.73**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**8 min**

Post-Dev Basin "E-1"

Hyd. No. 13

Hydrograph Type	= Mod Rational	Peak Flow	= 23.64 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 68,090 cuft
Drainage Area	= 16.23 ac	Runoff Coeff.	= 0.66
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 2.21 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2.82 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



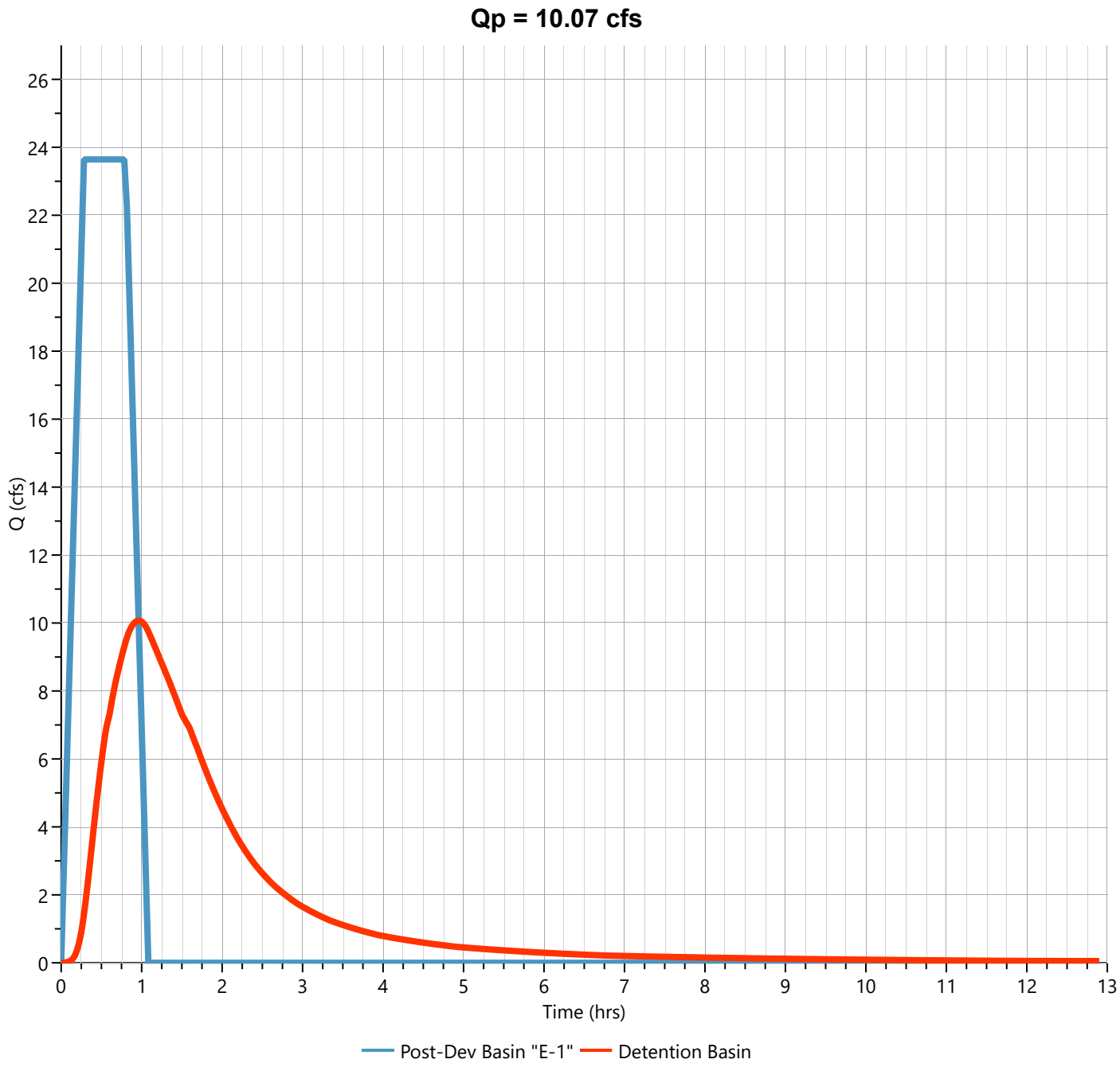
Detention Basin

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 10.07 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 68,005 cuft
Inflow Hydrograph	= 13 - Post-Dev Basin "E-1"	Max. Elevation	= 477.15 ft
Pond Name	= Hilltop Detention Pond	Max. Storage	= 48,434 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 1.35 hrs



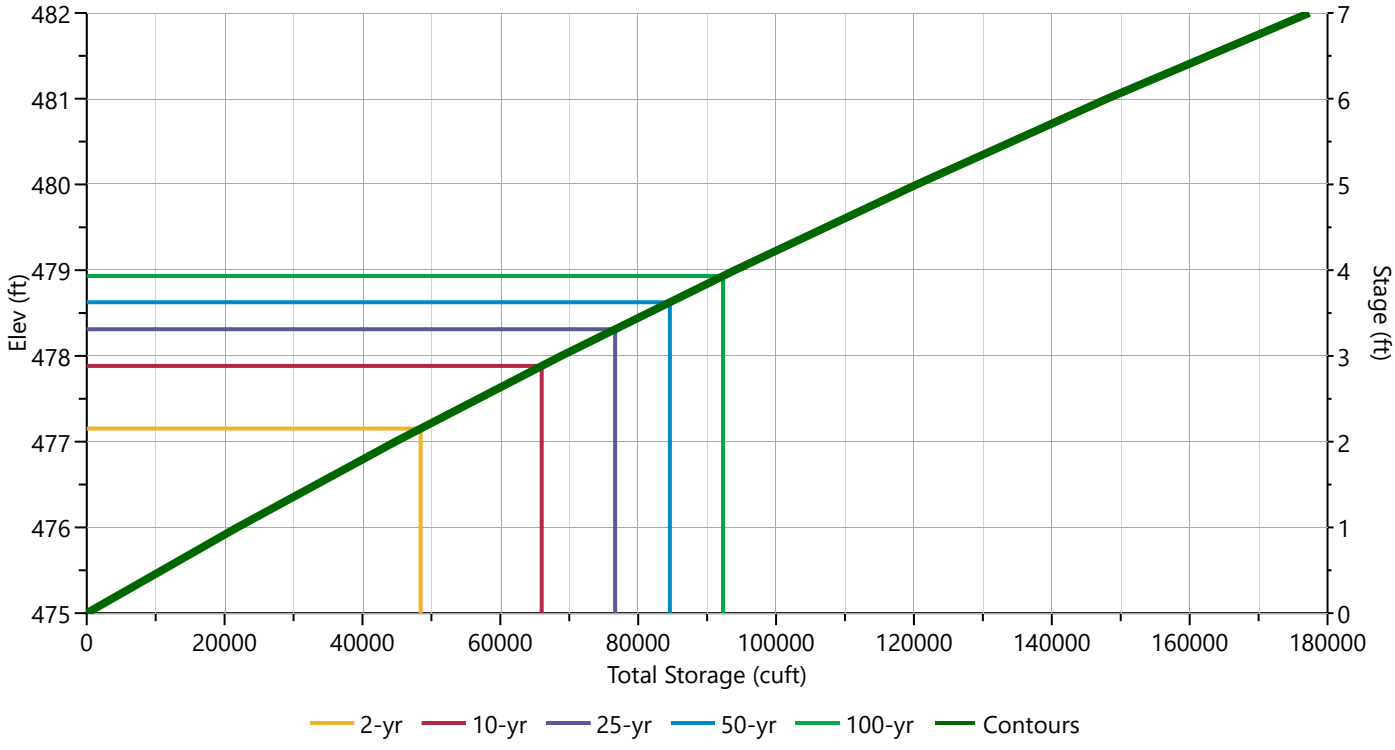
Hilltop Detention Pond

Stage-Storage

User Defined Contours	
Description	**Input**
Bottom Elevation, ft	475.00
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	475.00	21,307	0.000	0.000
1.00	476.00	22,378	21,843	21,843
2.00	477.00	23,482	22,930	44,773
3.00	478.00	24,620	24,051	68,824
4.00	479.00	25,790	25,205	94,029
5.00	480.00	26,995	26,393	120,421
6.00	481.00	28,232	27,614	148,035
7.00	482.00	30,413	29,323	177,357

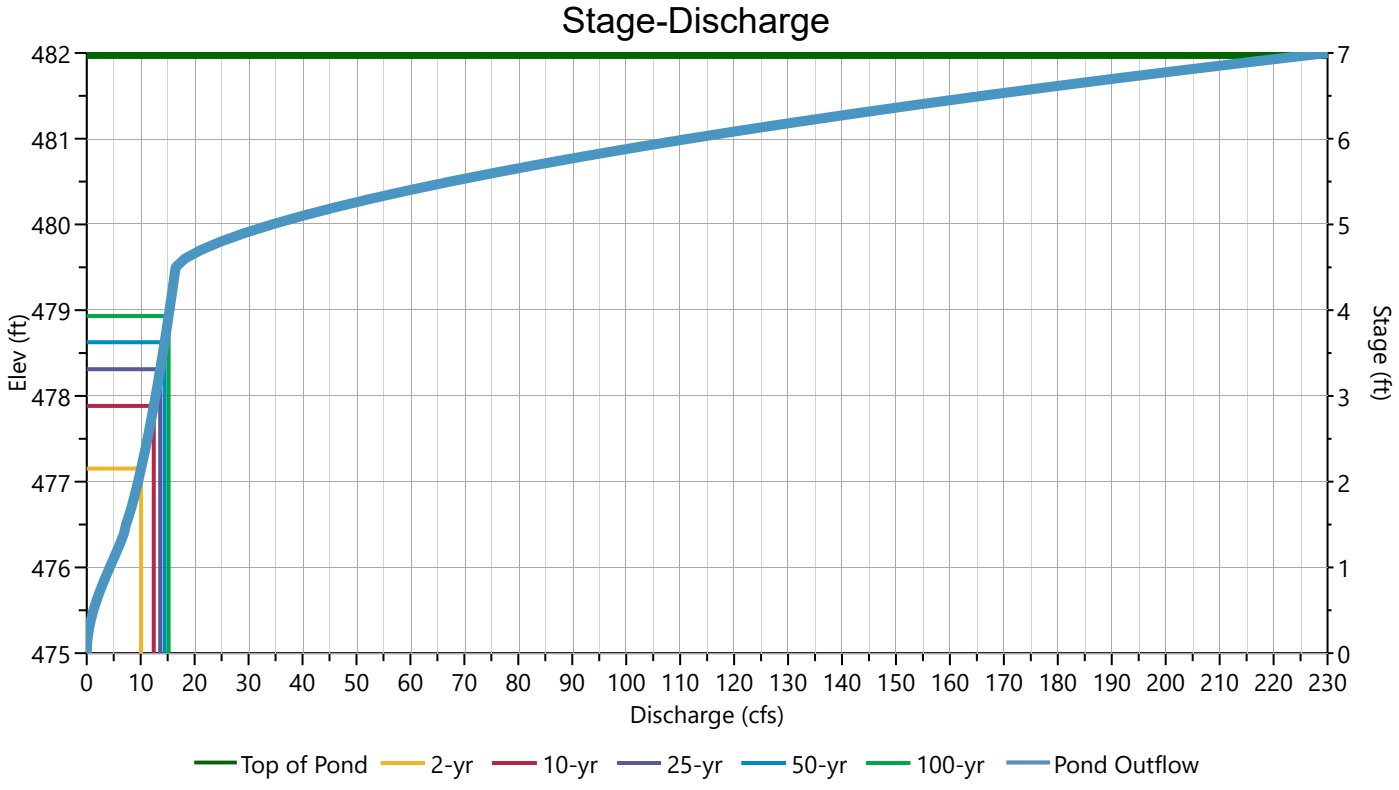


Hilltop Detention Pond

Stage-Discharge

Culvert / Orifices	Cir Culvert	Orifice			Perforated Riser	
		1	2	3		
Rise, in	18				Hole Diameter, in	
Span, in	18				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	475.00				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	57					
Barrel Slope, %	1.17					
N-Value, n	0.013					
Weirs	**Riser**	**Weir**			**Ancillary**	
		1 (i)	2	3		
Shape / Type		Broad Crested			Exfiltration, in/hr	
Crest Elevation, ft		479.5				
Crest Length, ft		14				
Angle, deg		45 (1:1)				
Weir Coefficient, Cw		3.3				

m = Flows through Culvert, i = Independent



Hilltop Detention Pond

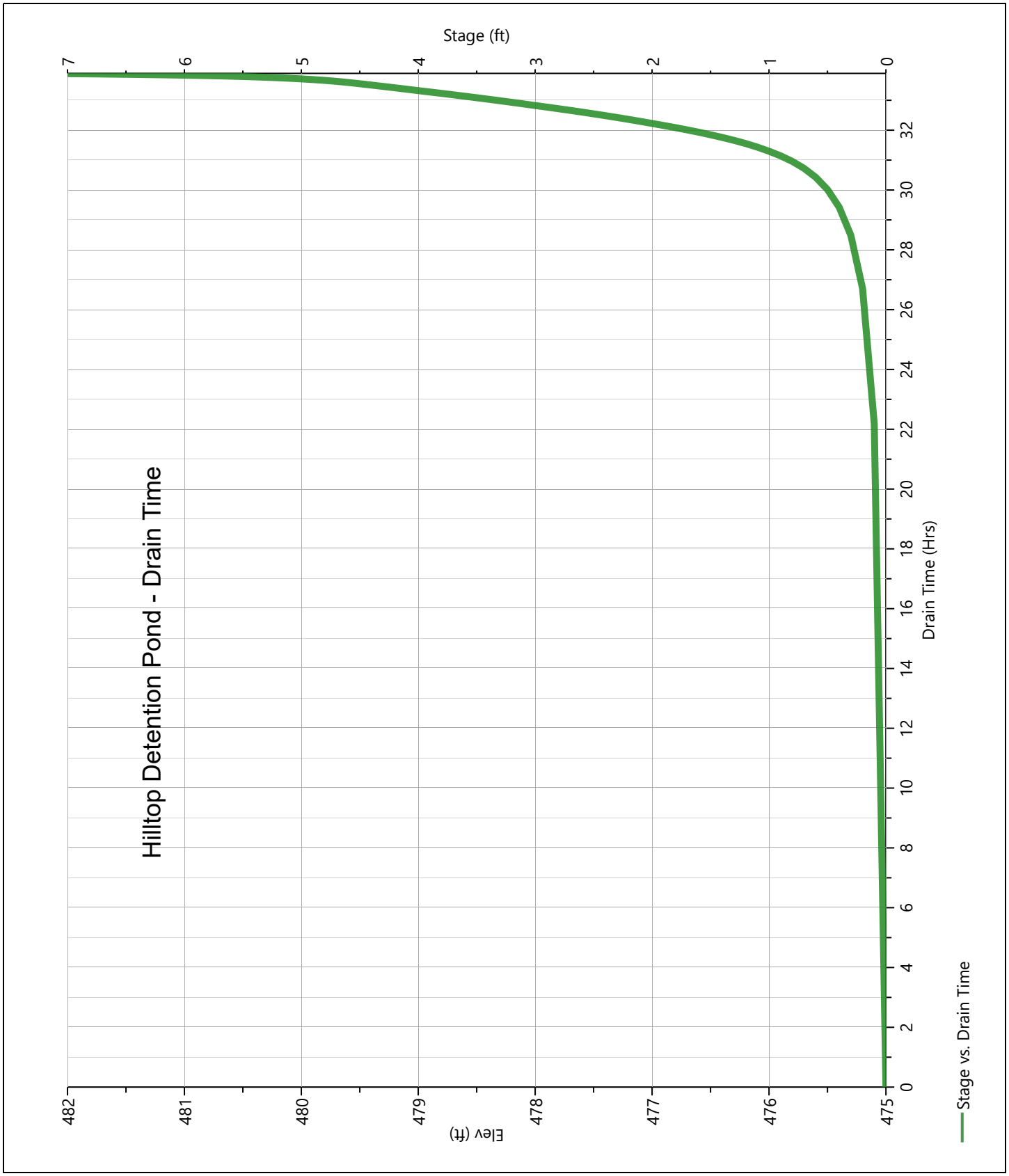
Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	475.00	0.000	0.000					0.000						0.000
1.00	476.00	21,843	4.265 ic					0.000						4.265
2.00	477.00	44,773	9.512 ic					0.000						9.512
3.00	478.00	68,824	12.76 ic					0.000						12.76
4.00	479.00	94,029	15.34 ic					0.000						15.34
5.00	480.00	120,421	17.54 ic					16.80						34.34
6.00	481.00	148,035	19.49 ic					92.15						111.6
7.00	482.00	177,357	21.27 ic					208.7						230.0

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

Hilltop Detention Pond

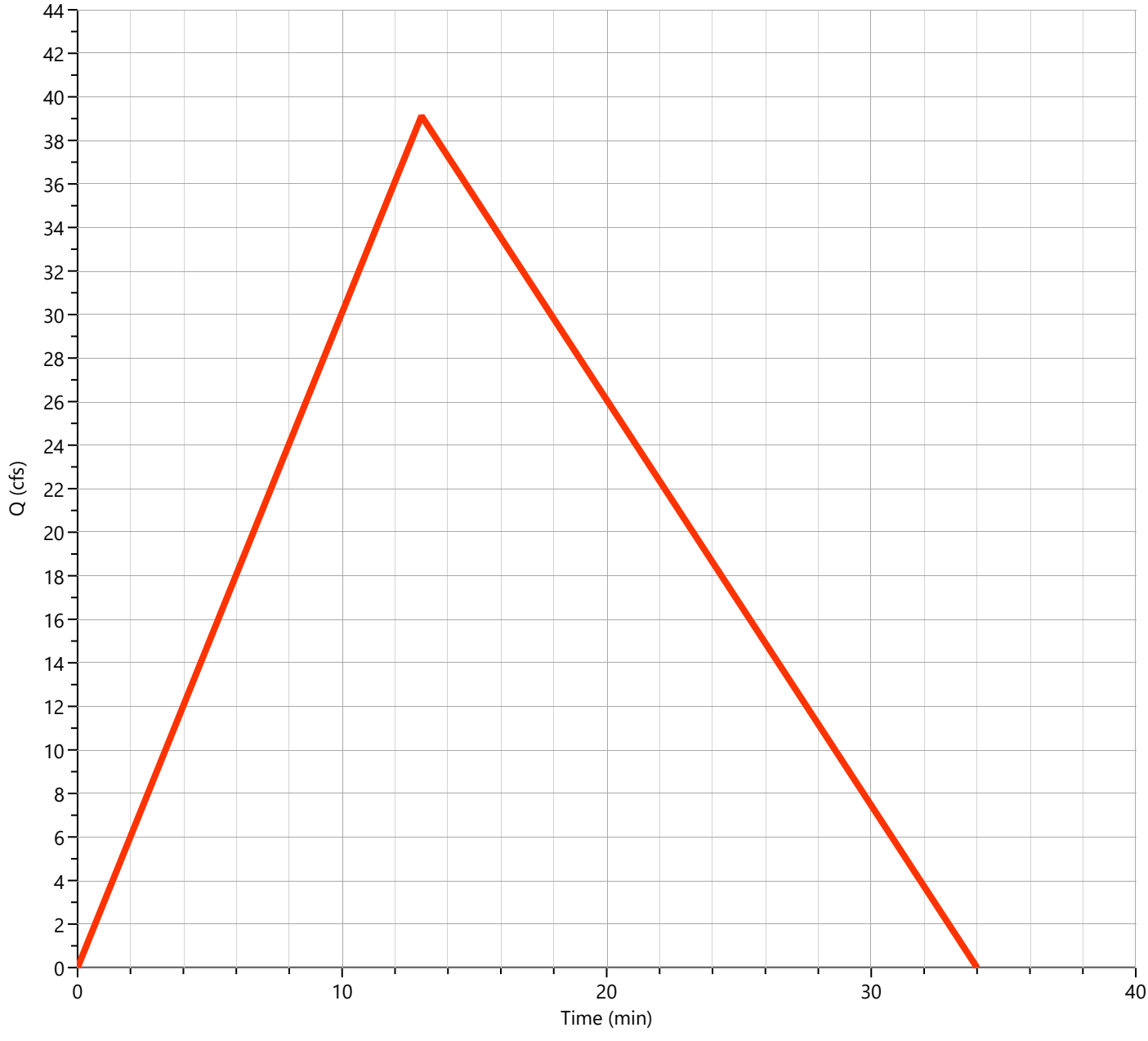
Pond Drawdown



Post-Dev Basin "E-2"

Hyd. No. 15

Hydrograph Type	= Rational	Peak Flow	= 39.12 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 40,738 cuft
Drainage Area	= 17.53 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.99 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "E-2"
Rational

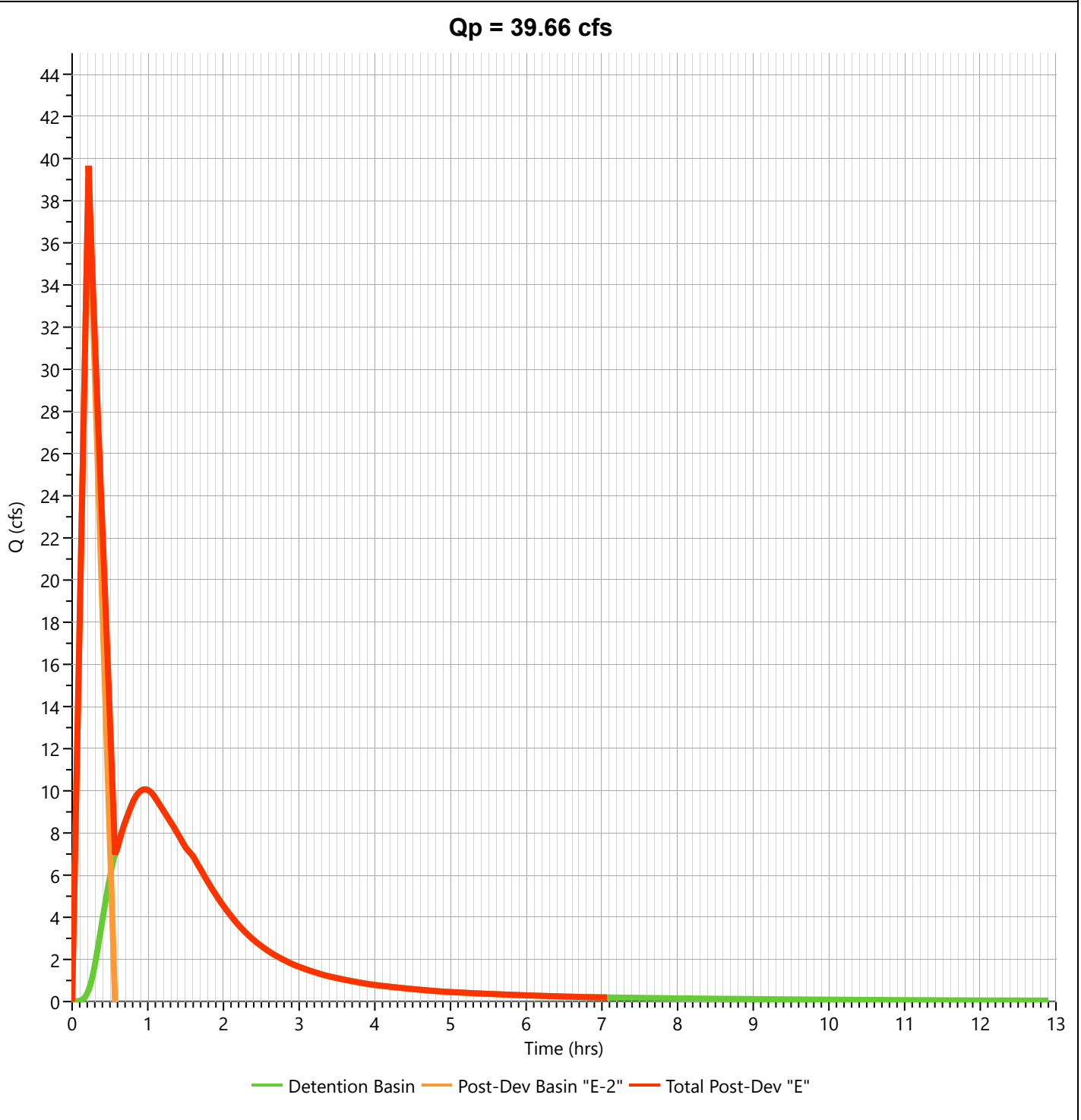
Hyd. No. 15

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	7.25			
Travel Time (min)	**8.74**	**0.00**	**0.00**	**8.74**
Shallow Concentrated Flow				
Flow Length (ft)	1070			
Watercourse Slope (%)	6.23	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	4.03			
Travel Time (min)	**4.43**	**0.00**	**0.00**	**4.43**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**13 min**

Total Post-Dev "E"

Hyd. No. 16

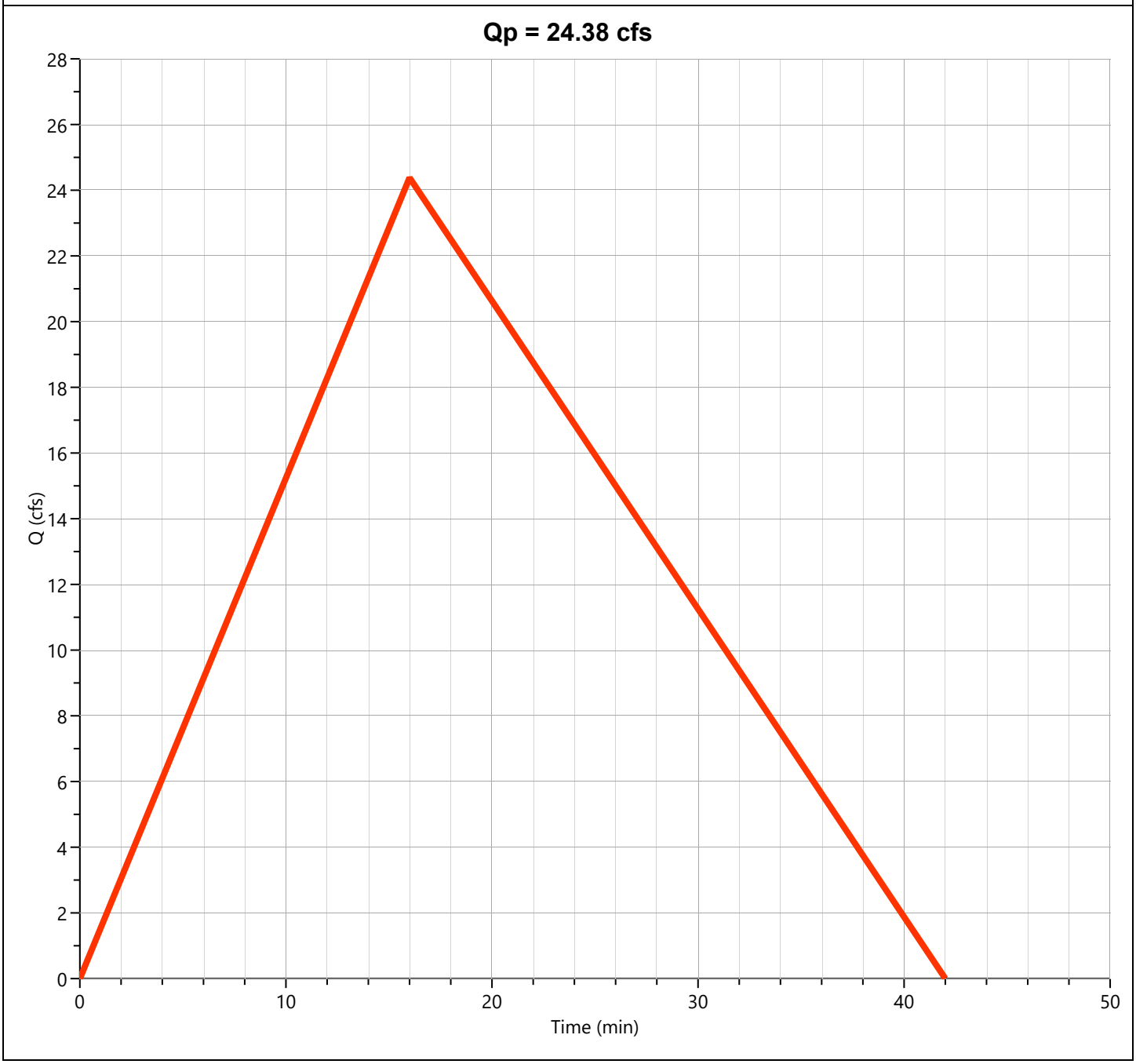
Hydrograph Type	= Junction	Peak Flow	= 39.66 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 107,909 cuft
Inflow Hydrographs	= 15	Total Contrib. Area	= 17.53 ac



Post-Dev Basin "F"

Hyd. No. 17

Hydrograph Type	= Rational	Peak Flow	= 24.38 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.27 hrs
Time Interval	= 1 min	Runoff Volume	= 31,245 cuft
Drainage Area	= 12.0 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.63 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "F"
Rational

Hyd. No. 17

Description	Segments			
	A	B	C	Tc (min)
Sheet Flow				
Description				
Manning's n	0.300	0.013	0.013	
Flow Length (ft)	100			
2-yr, 24-hr Precip. (in)	4.35	2.28	2.28	
Land Slope (%)	6			
Travel Time (min)	**9.43**	**0.00**	**0.00**	**9.43**
Shallow Concentrated Flow				
Flow Length (ft)	1449			
Watercourse Slope (%)	4.90	0.00	0.00	
Surface Description	Unpaved	Paved	Paved	
Average Velocity (ft/s)	3.57			
Travel Time (min)	**6.76**	**0.00**	**0.00**	**6.76**
Channel Flow				
X-sectional Flow Area (sqft)				
Wetted Perimeter (ft)				
Channel Slope (%)				
Manning's n	0.013	0.013	0.013	
Velocity (ft/s)				
Flow Length (ft)				
Travel Time (min)	**0.00**	**0.00**	**0.00**	**0.00**
Total Travel Time				**16 min**

Hydrograph 10-yr Summary

Hydrology Studio v 3.0.0.39

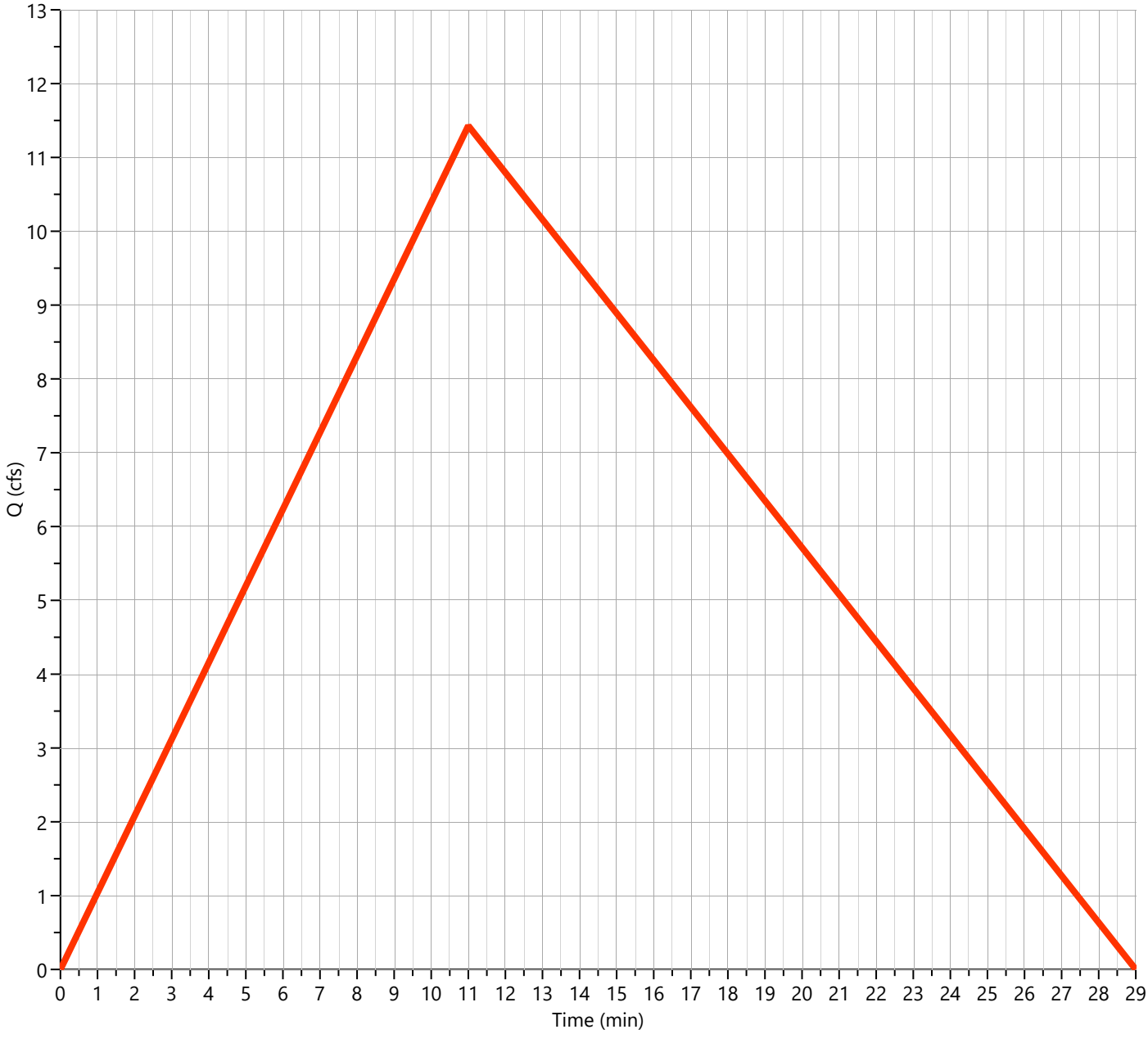
Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	11.43	0.18	10,070	----		
2	Rational	Pre-Dev Basin "B"	38.41	0.25	46,149	----		
3	Rational	Pre-Dev Basin "C"	21.67	0.18	19,095	----		
4	Rational	Pre-Dev Basin "D"	9.804	0.13	6,283	----		
5	Rational	Pre-Dev Basin "E-1"	31.02	0.20	29,819	----		
6	Rational	Pre-Dev Basin "E-2"	52.69	0.22	54,864	----		
7	Junction	Total Pre Basin "E"	82.16	0.22	83,523	5, 6		
8	Rational	Pre-Dev Basin "F"	33.12	0.28	45,094	----		
9	Rational	Post-Dev Basin A	12.04	0.23	13,505	----		
10	Rational	Post-Dev Basin B	32.19	0.30	46,411	----		
11	Rational	Post-Dev Basin "C"	22.16	0.18	19,529	----		
12	Rational	Post-Dev Basin "D"	9.641	0.13	6,178	----		
13	Mod Rational	Post-Dev Basin "E-1"	31.83	0.28	91,663	----		
14	Pond Route	Detention Basin	12.42	0.97	91,575	13	477.88	66,000
15	Rational	Post-Dev Basin "E-2"	52.46	0.22	54,628	----		
16	Junction	Total Post-Dev "E"	53.39	0.22	145,085	14, 15		
17	Rational	Post-Dev Basin "F"	32.71	0.27	41,924	----		

Pre-Dev Basin "A"

Hyd. No. 1

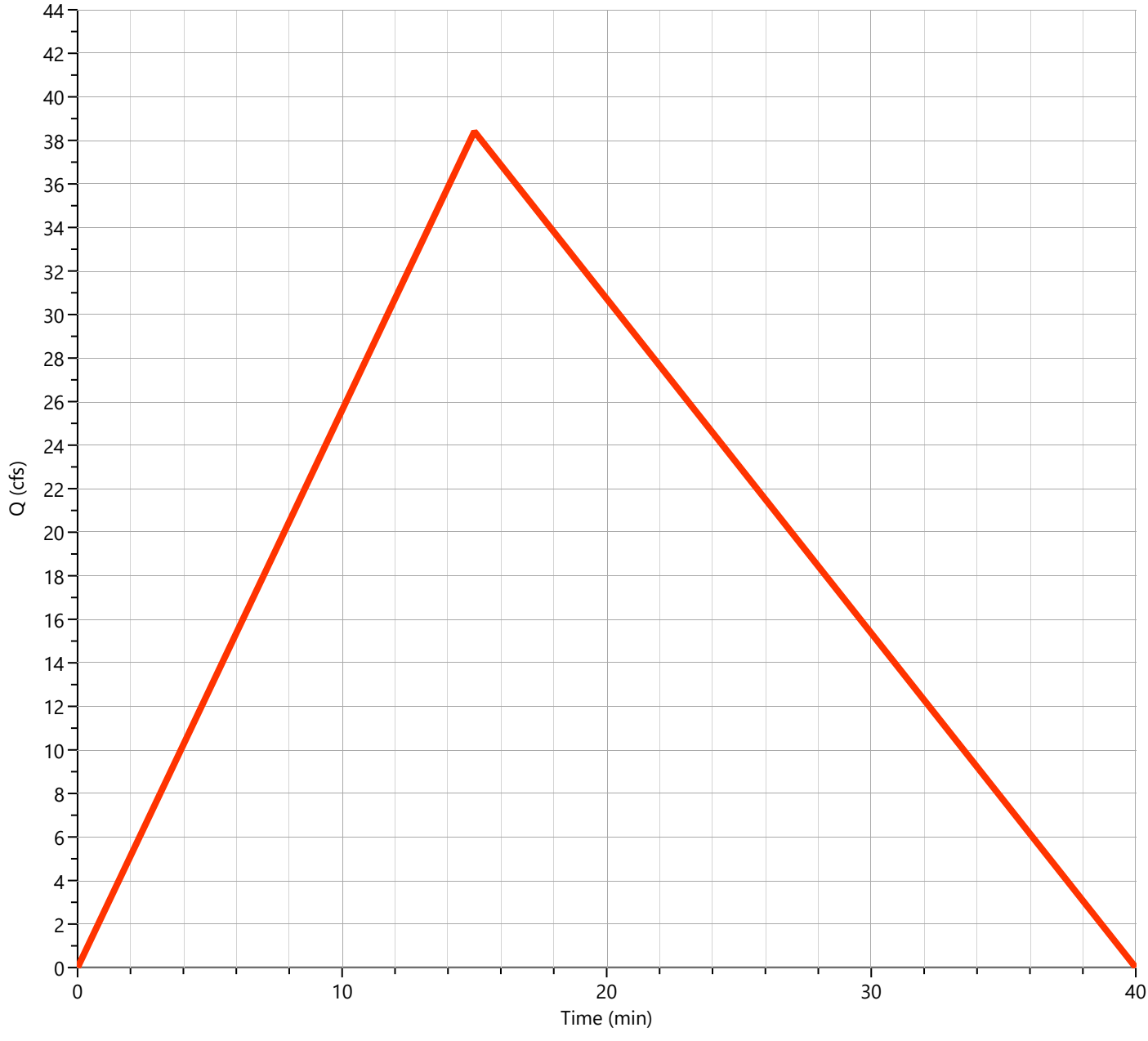
Hydrograph Type	= Rational	Peak Flow	= 11.43 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 10,070 cuft
Drainage Area	= 3.2 ac	Runoff Coeff.	= 0.62
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.76 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "B"

Hyd. No. 2

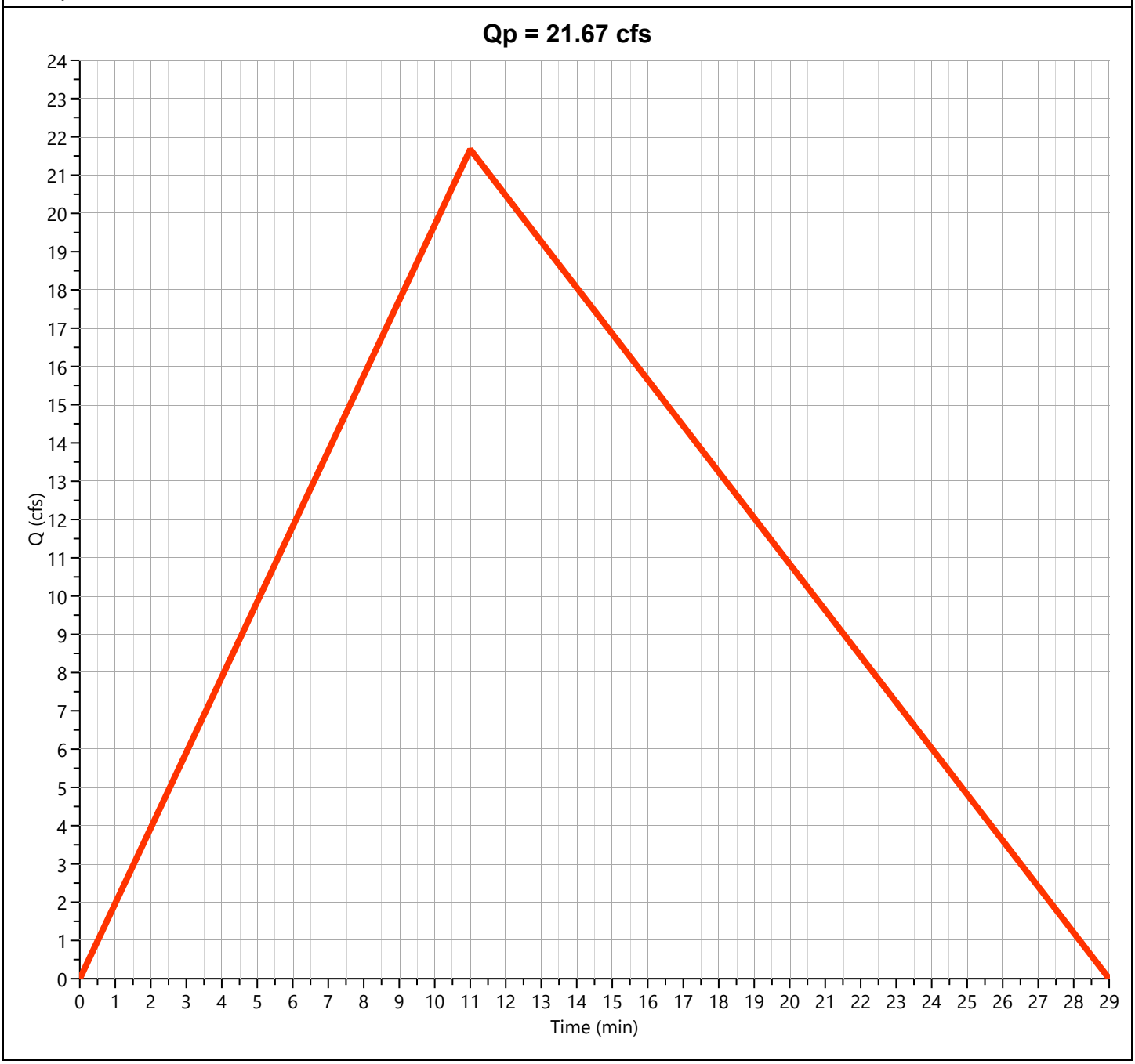
Hydrograph Type	= Rational	Peak Flow	= 38.41 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.25 hrs
Time Interval	= 1 min	Runoff Volume	= 46,149 cuft
Drainage Area	= 14.74 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 15.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.01 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "C"

Hyd. No. 3

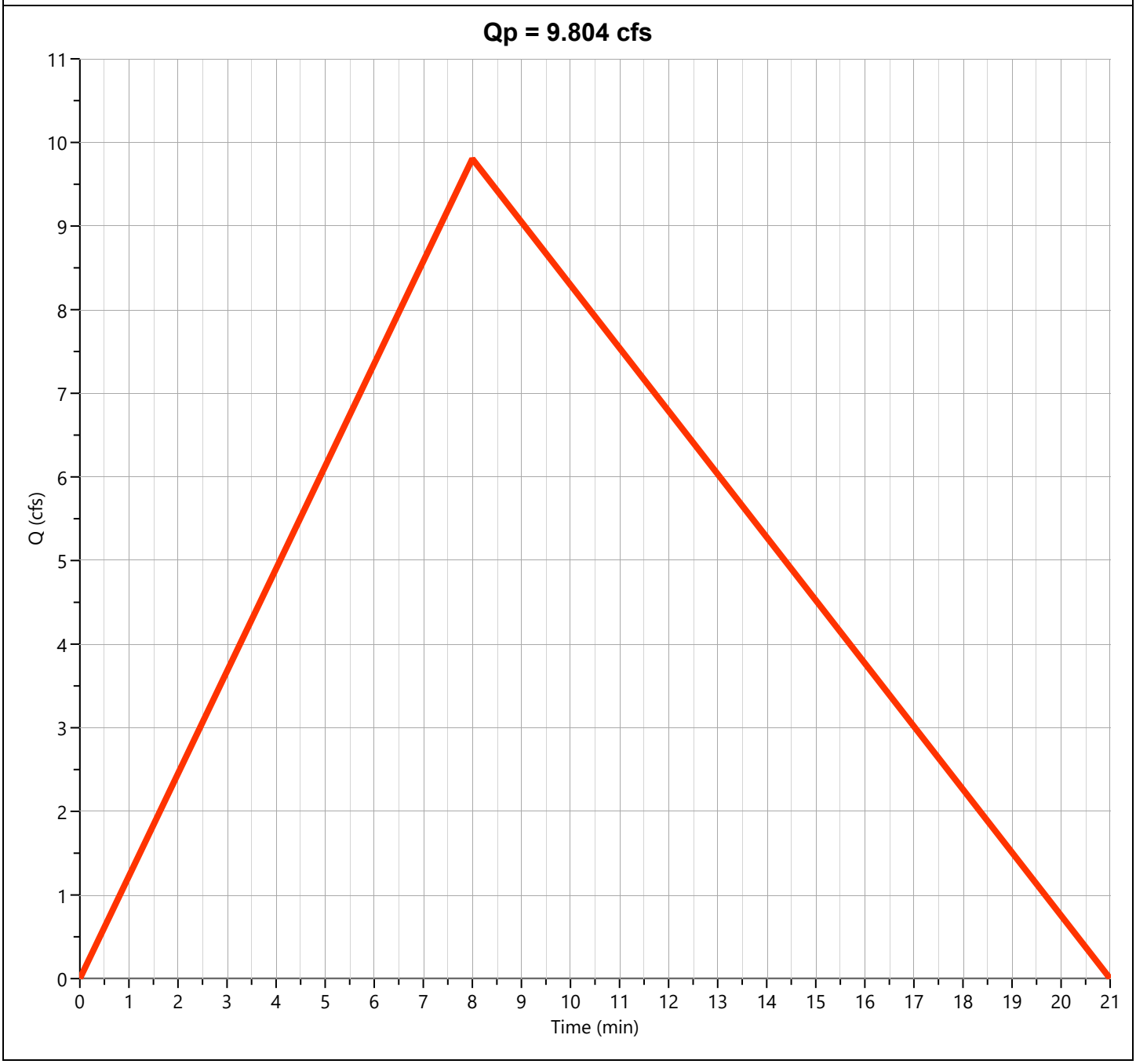
Hydrograph Type	= Rational	Peak Flow	= 21.67 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 19,095 cuft
Drainage Area	= 6.84 ac	Runoff Coeff.	= 0.55
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.76 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "D"

Hyd. No. 4

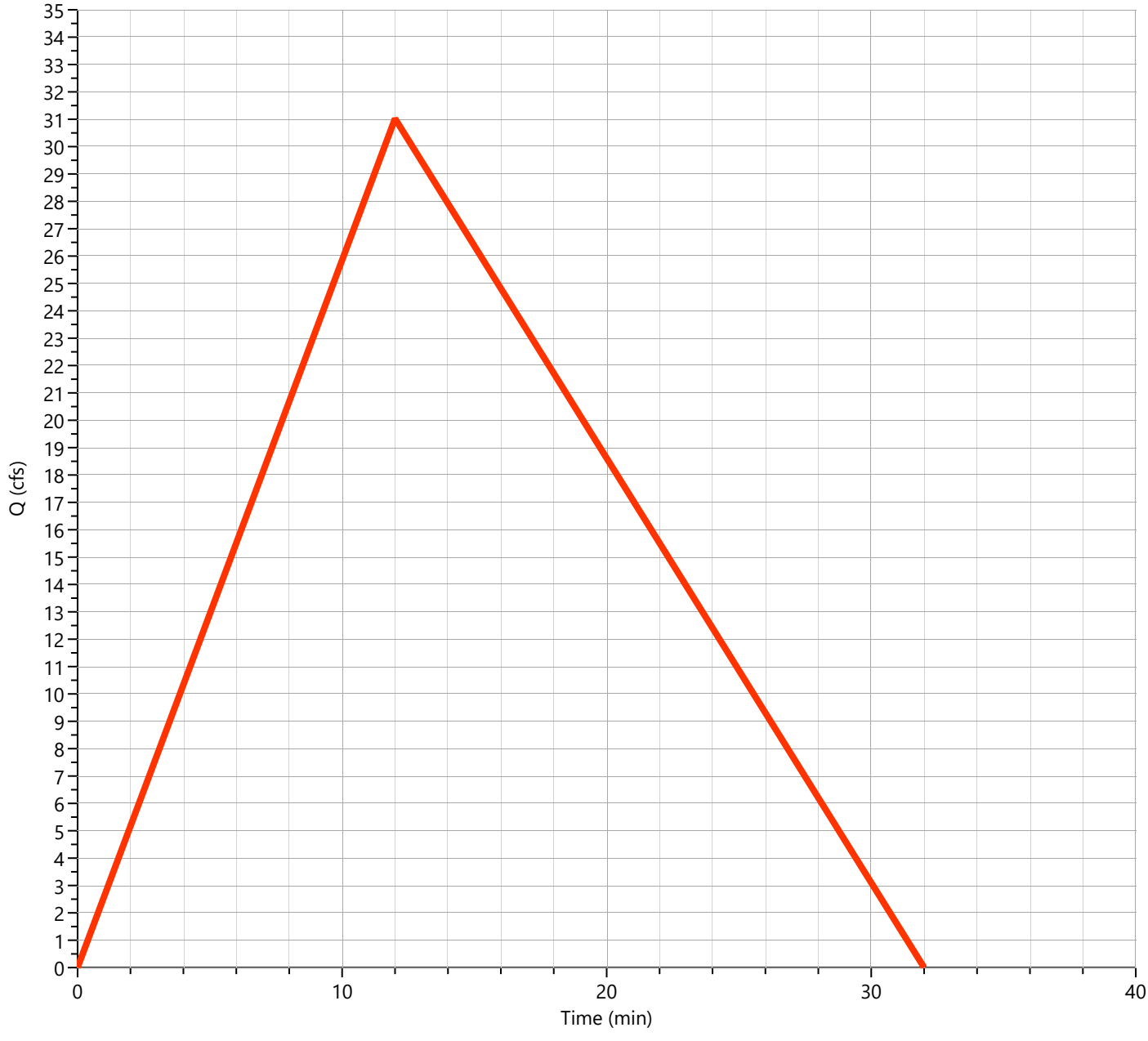
Hydrograph Type	= Rational	Peak Flow	= 9.804 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 6,283 cuft
Drainage Area	= 2.95 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.65 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-1"

Hyd. No. 5

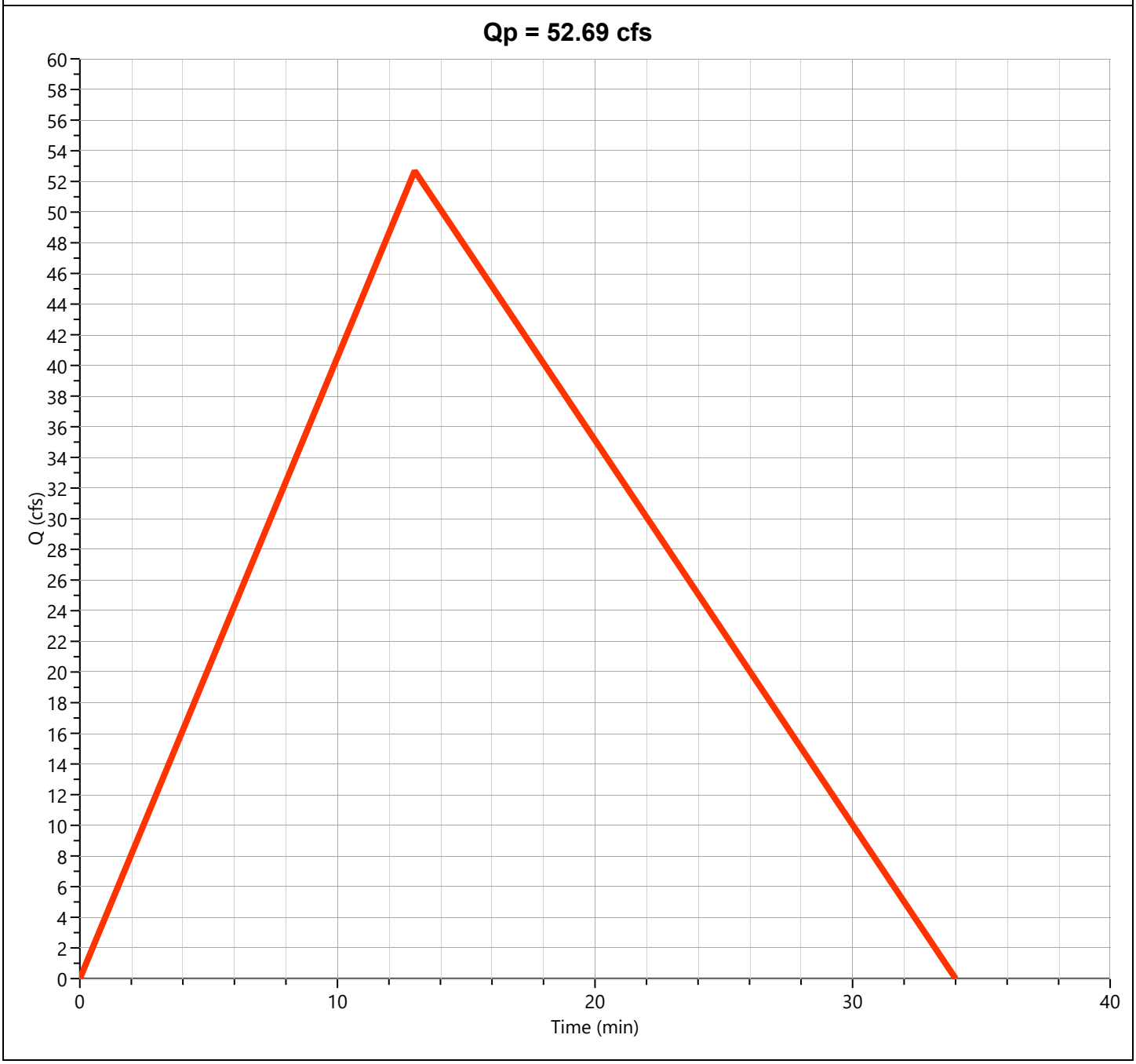
Hydrograph Type	= Rational	Peak Flow	= 31.02 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 29,819 cuft
Drainage Area	= 11.2 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.54 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-2"

Hyd. No. 6

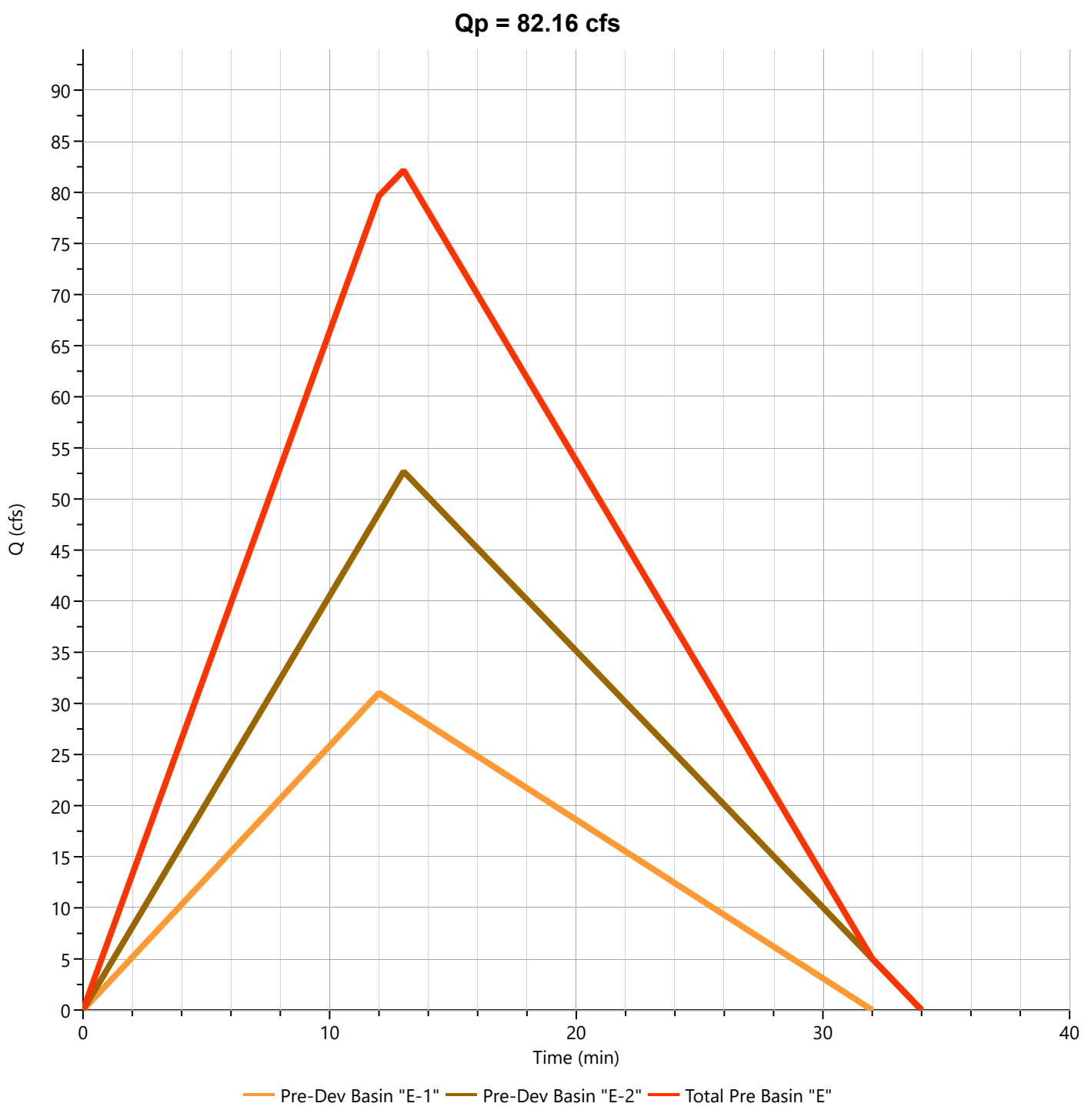
Hydrograph Type	= Rational	Peak Flow	= 52.69 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 54,864 cuft
Drainage Area	= 18.96 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.34 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre Basin "E"

Hyd. No. 7

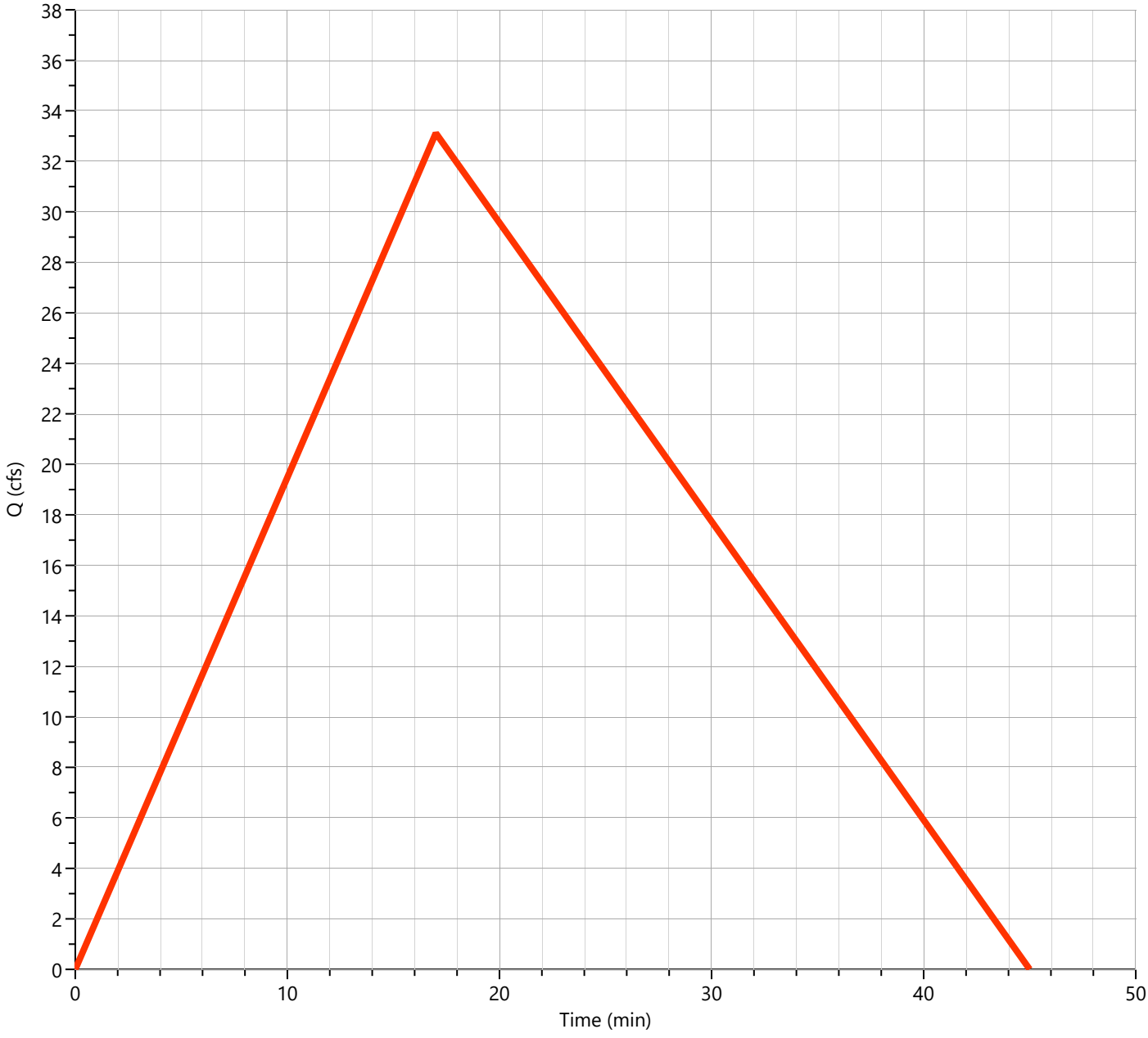
Hydrograph Type	= Junction	Peak Flow	= 82.16 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 83,523 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 30.16 ac



Pre-Dev Basin "F"

Hyd. No. 8

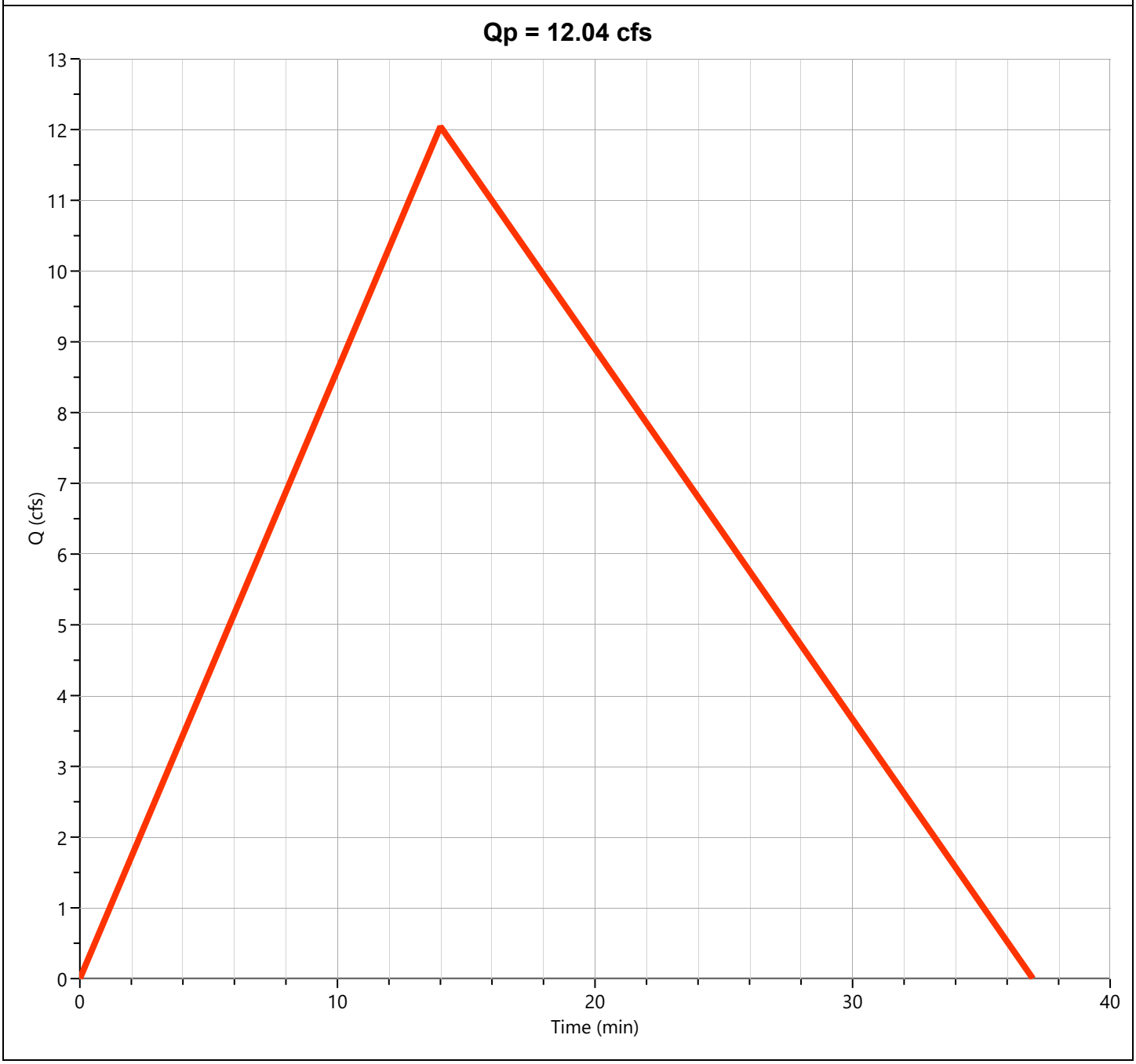
Hydrograph Type	= Rational	Peak Flow	= 33.12 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 45,094 cuft
Drainage Area	= 13.19 ac	Runoff Coeff.	= 0.53
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.74 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 9

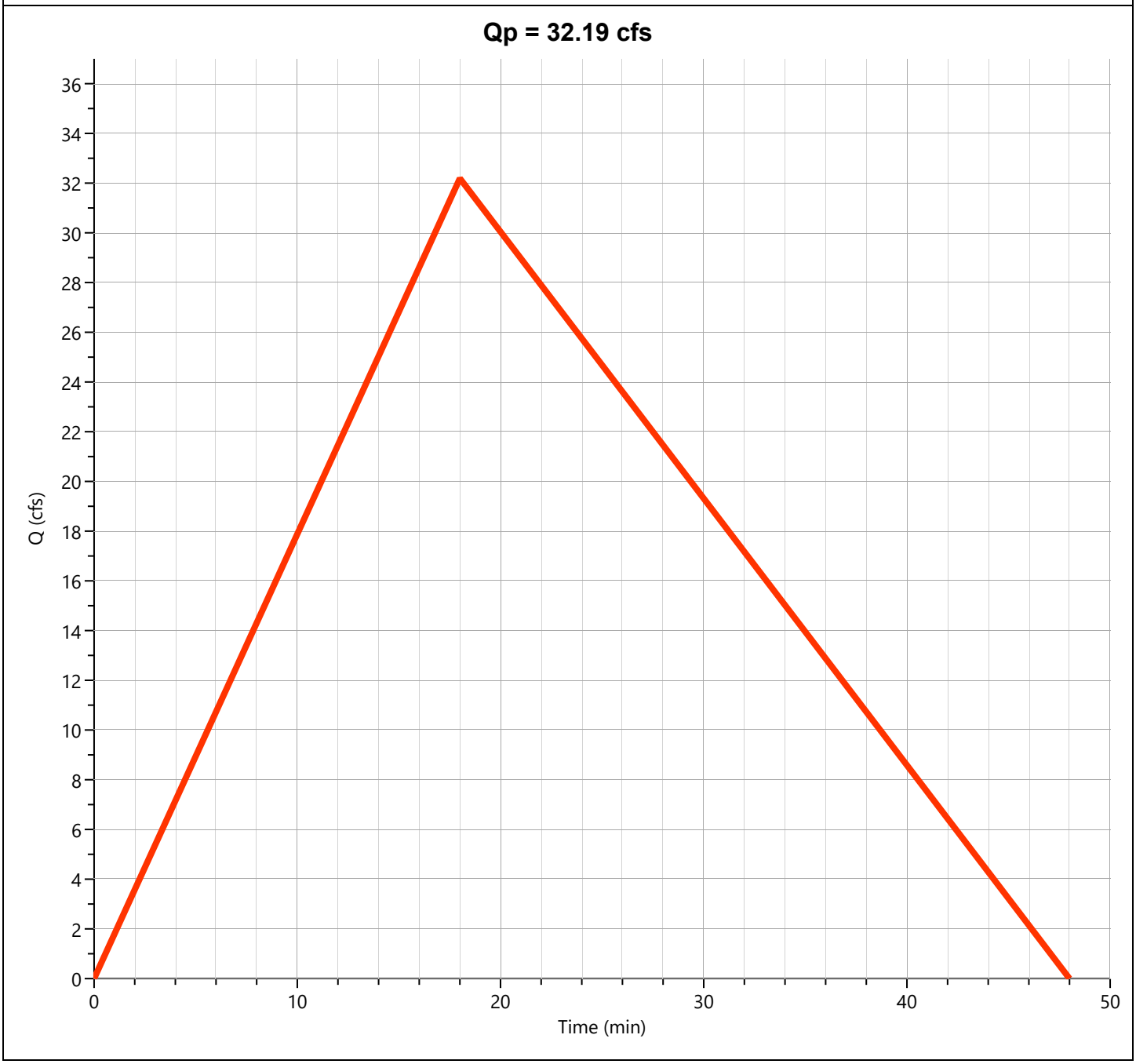
Hydrograph Type	= Rational	Peak Flow	= 12.04 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.23 hrs
Time Interval	= 1 min	Runoff Volume	= 13,505 cuft
Drainage Area	= 3.53 ac	Runoff Coeff.	= 0.66
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.17 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin B

Hyd. No. 10

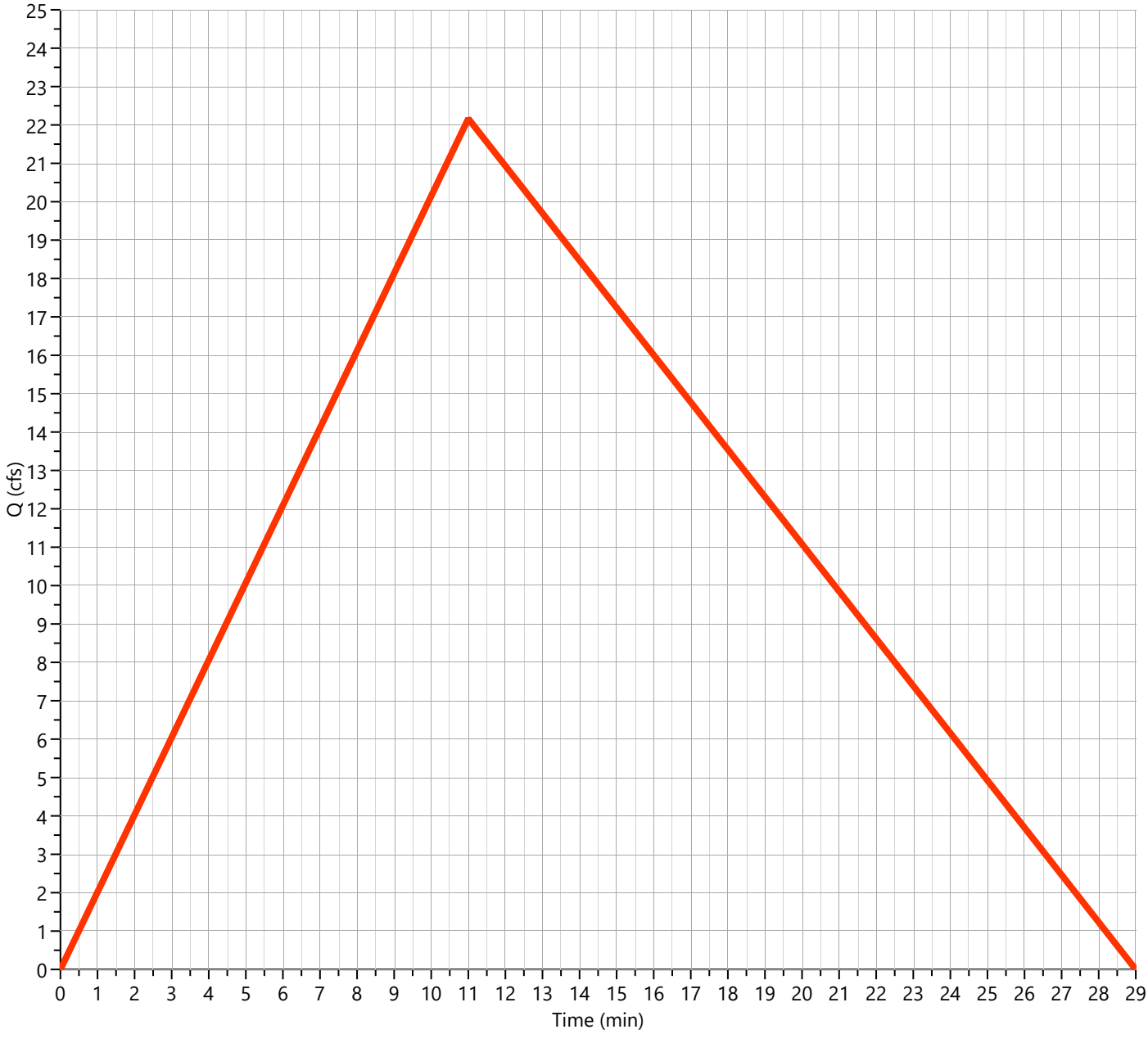
Hydrograph Type	= Rational	Peak Flow	= 32.19 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.30 hrs
Time Interval	= 1 min	Runoff Volume	= 46,411 cuft
Drainage Area	= 12.45 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 18.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.62 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "C"

Hyd. No. 11

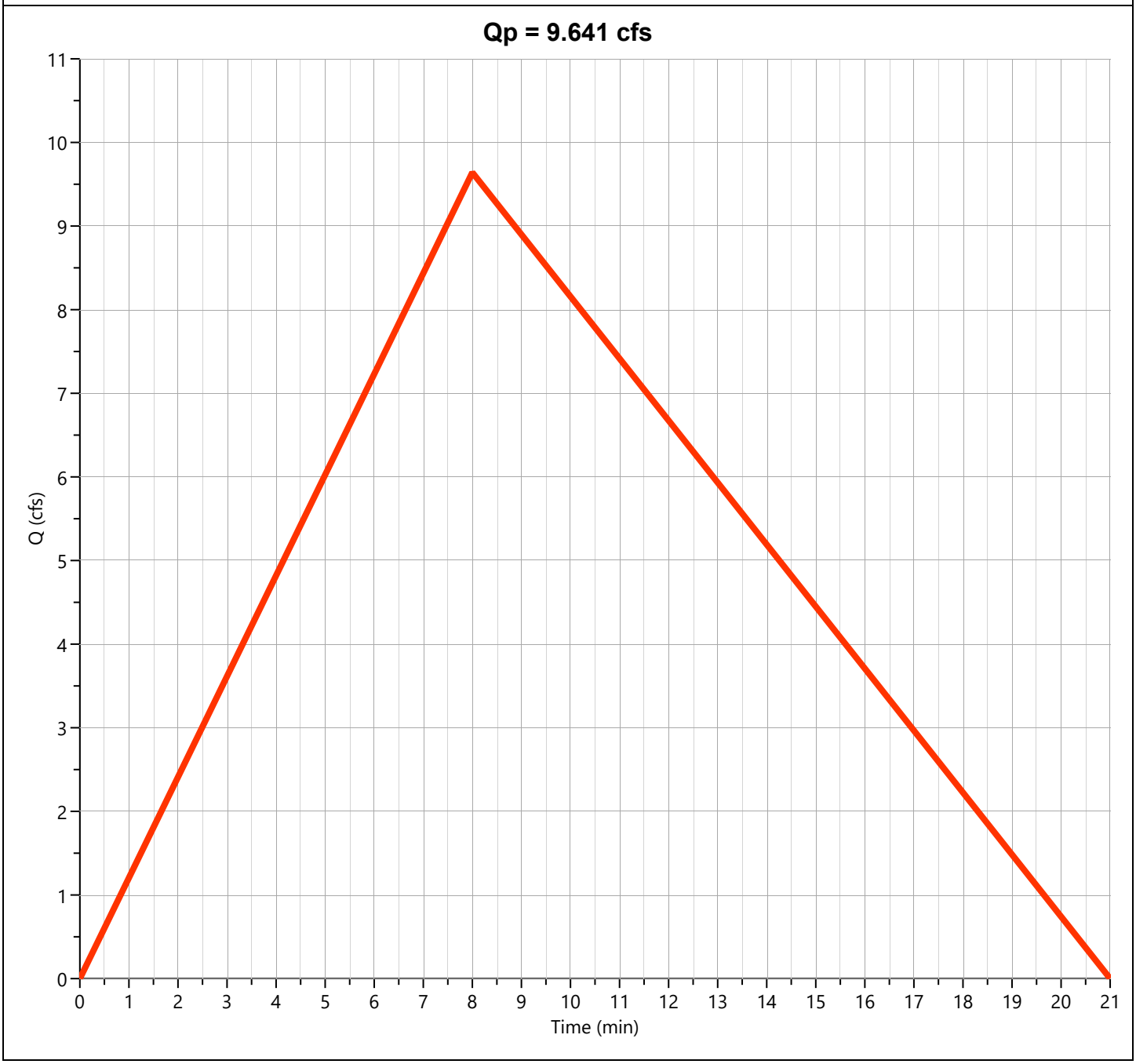
Hydrograph Type	= Rational	Peak Flow	= 22.16 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 19,529 cuft
Drainage Area	= 6.75 ac	Runoff Coeff.	= 0.57
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.76 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "D"

Hyd. No. 12

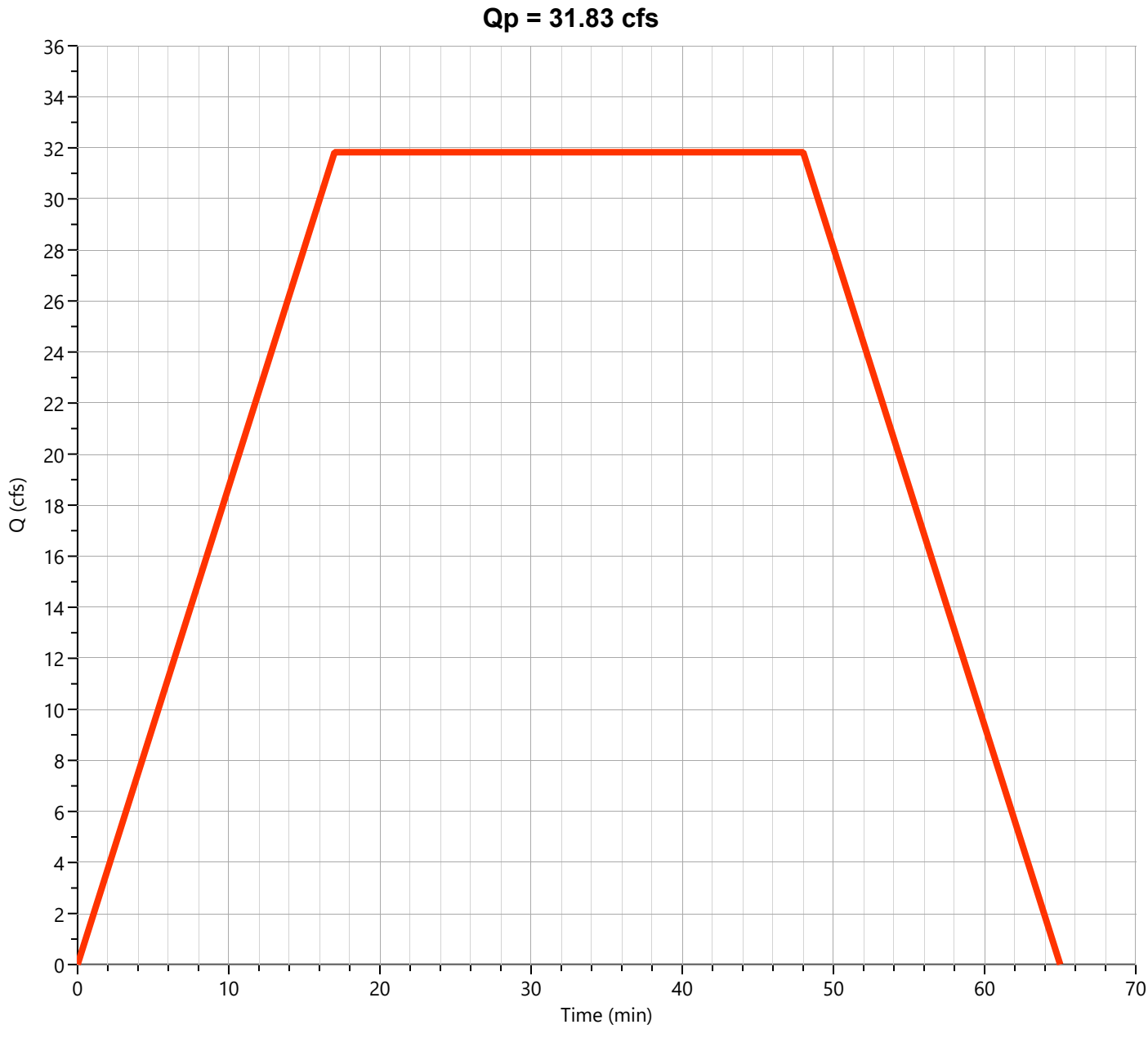
Hydrograph Type	= Rational	Peak Flow	= 9.641 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 6,178 cuft
Drainage Area	= 2.59 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.65 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "E-1"

Hyd. No. 13

Hydrograph Type	= Mod Rational	Peak Flow	= 31.83 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 91,663 cuft
Drainage Area	= 16.23 ac	Runoff Coeff.	= 0.66
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 2.97 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2.82 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



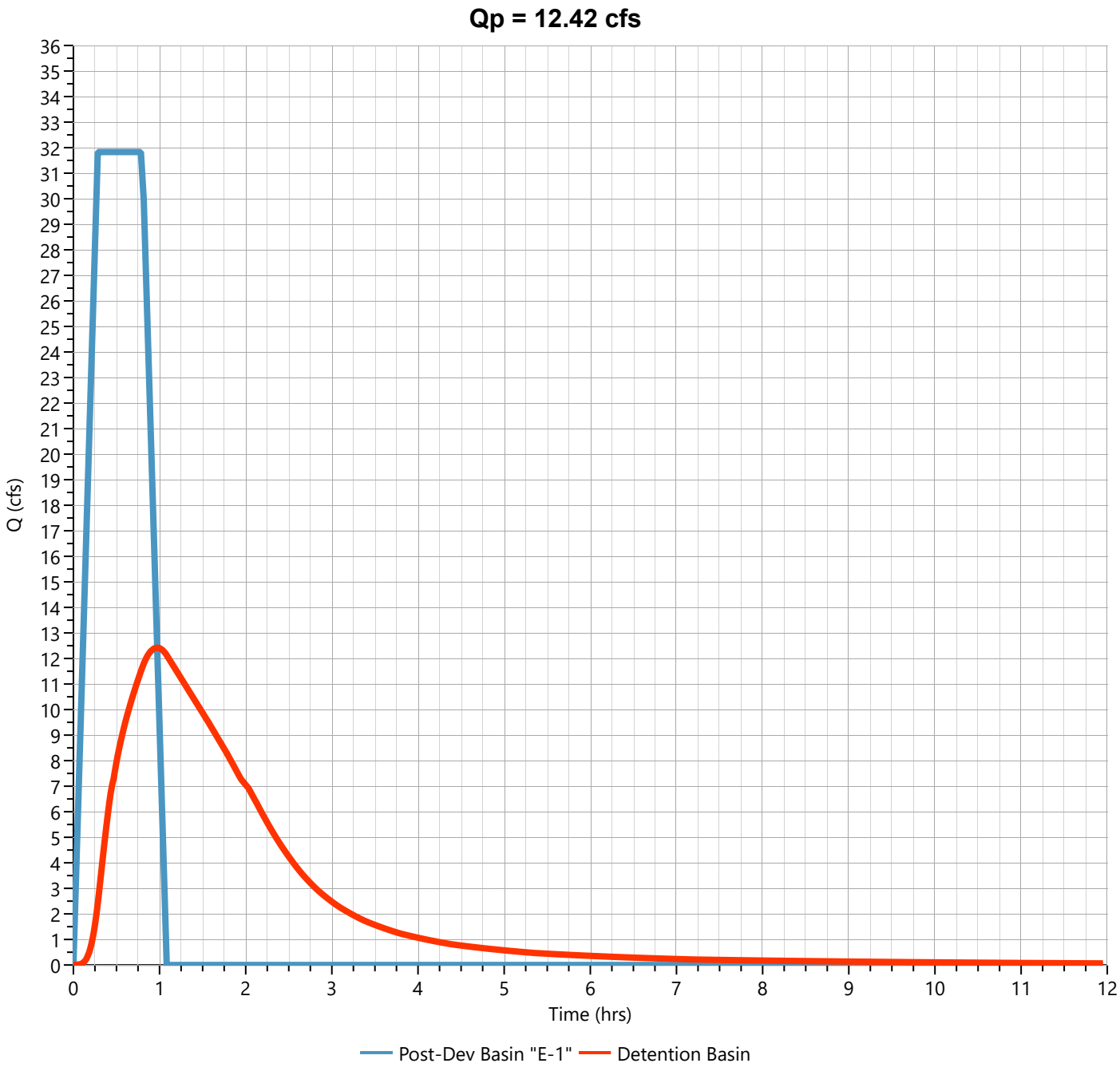
Detention Basin

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 12.42 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.97 hrs
Time Interval	= 1 min	Hydrograph Volume	= 91,575 cuft
Inflow Hydrograph	= 13 - Post-Dev Basin "E-1"	Max. Elevation	= 477.88 ft
Pond Name	= Hilltop Detention Pond	Max. Storage	= 66,000 cuft

Pond Routing by Storage Indication Method

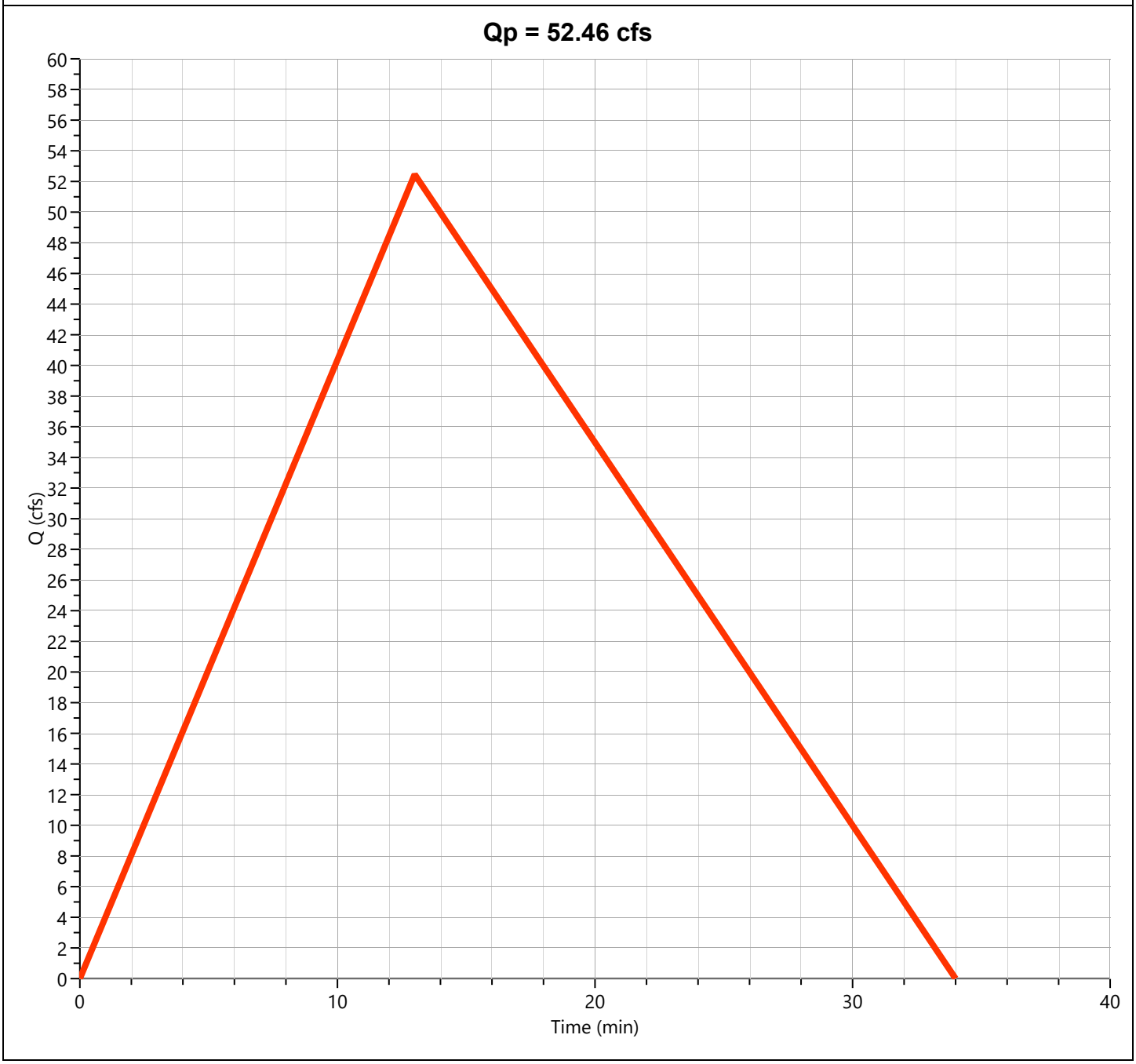
Center of mass detention time = 1.34 hrs



Post-Dev Basin "E-2"

Hyd. No. 15

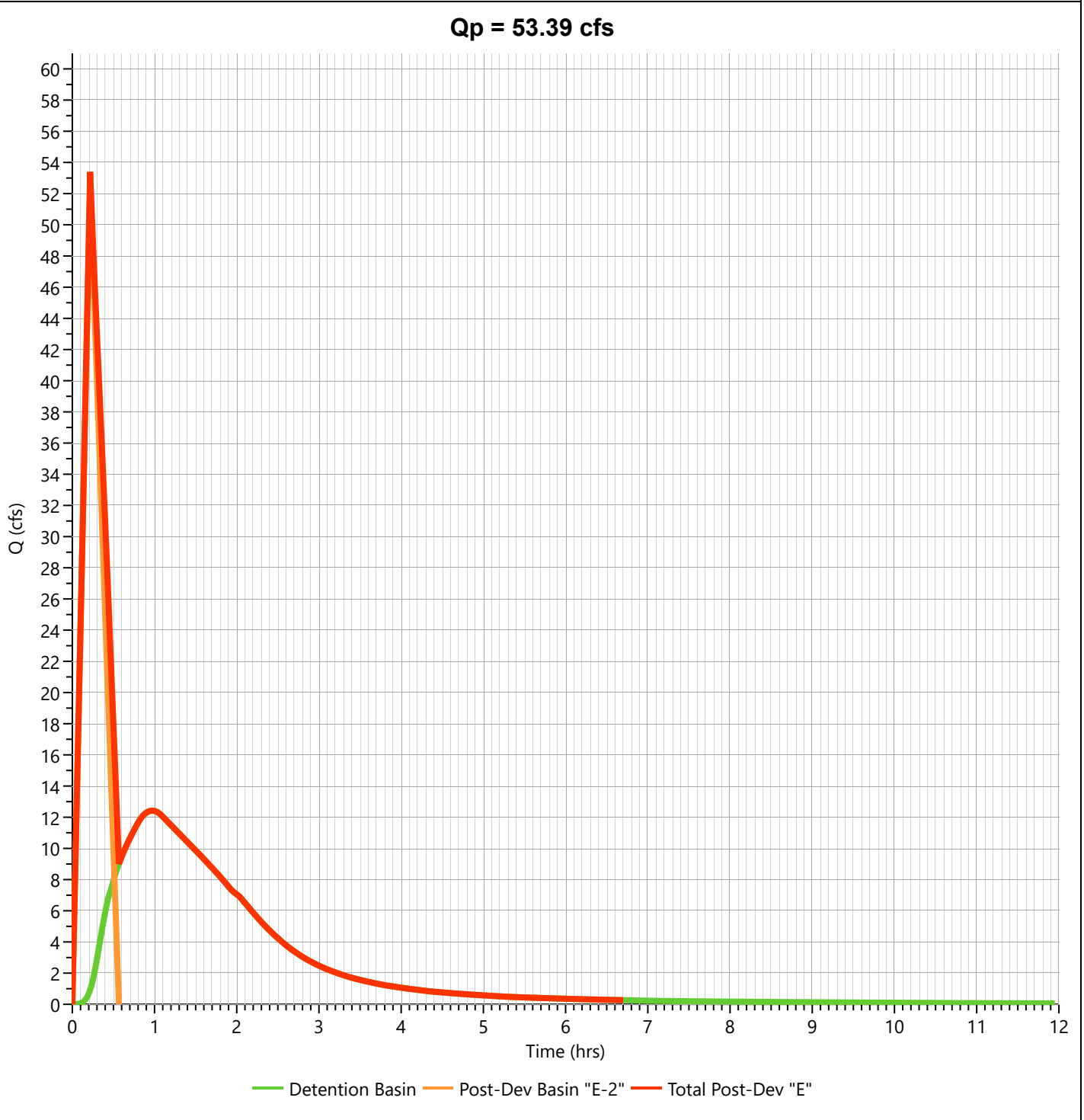
Hydrograph Type	= Rational	Peak Flow	= 52.46 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 54,628 cuft
Drainage Area	= 17.53 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.34 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev "E"

Hyd. No. 16

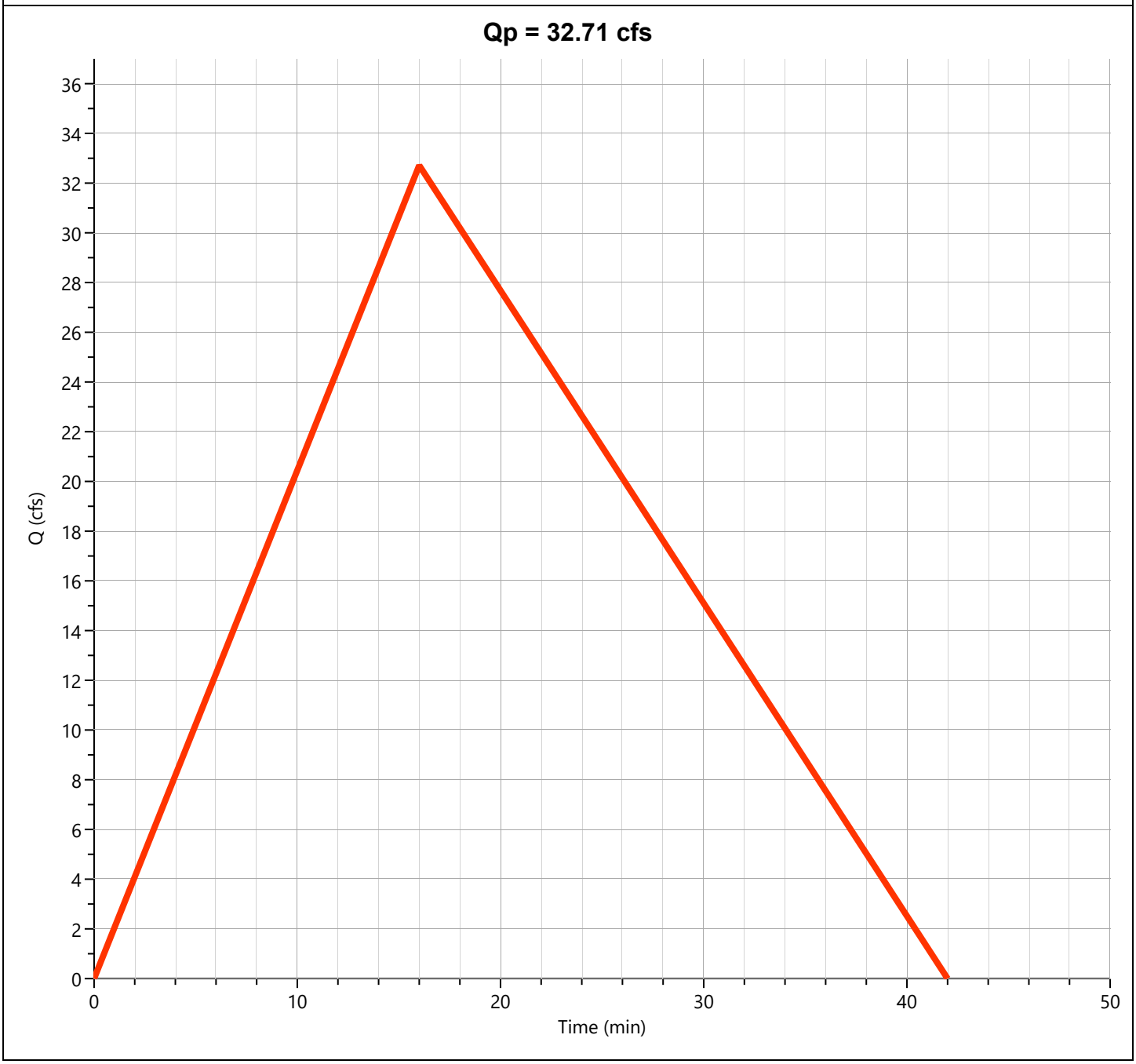
Hydrograph Type	= Junction	Peak Flow	= 53.39 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 145,085 cuft
Inflow Hydrographs	= 15	Total Contrib. Area	= 17.53 ac



Post-Dev Basin "F"

Hyd. No. 17

Hydrograph Type	= Rational	Peak Flow	= 32.71 cfs
Storm Frequency	= 10-yr	Time to Peak	= 0.27 hrs
Time Interval	= 1 min	Runoff Volume	= 41,924 cuft
Drainage Area	= 12.0 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.87 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph 25-yr Summary

Hydrology Studio v 3.0.0.39

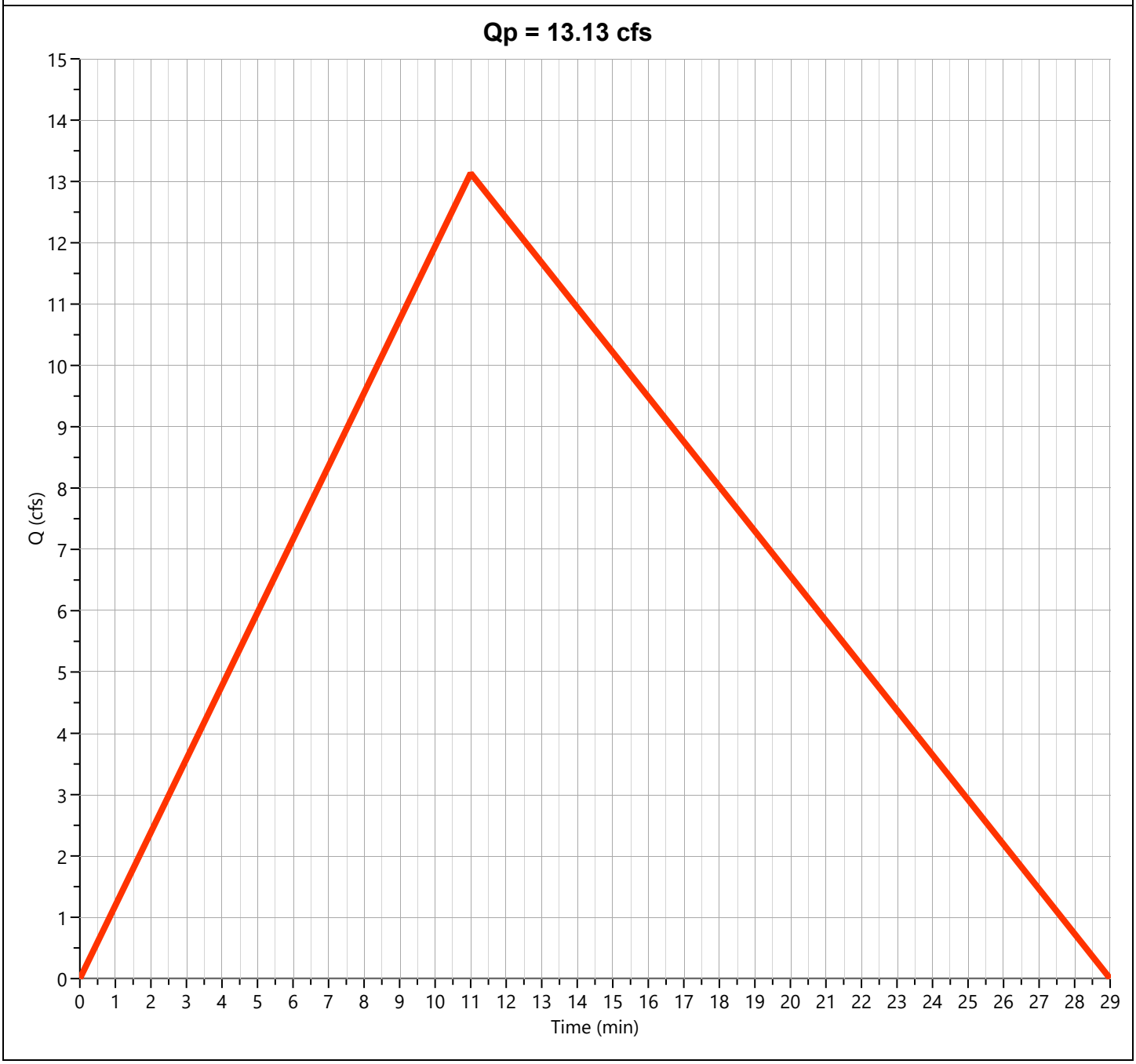
Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	13.13	0.18	11,572	----		
2	Rational	Pre-Dev Basin "B"	44.15	0.25	53,043	----		
3	Rational	Pre-Dev Basin "C"	24.90	0.18	21,943	----		
4	Rational	Pre-Dev Basin "D"	11.26	0.13	7,218	----		
5	Rational	Pre-Dev Basin "E-1"	35.65	0.20	34,268	----		
6	Rational	Pre-Dev Basin "E-2"	60.55	0.22	63,053	----		
7	Junction	Total Pre Basin "E"	94.42	0.22	95,989	5, 6		
8	Rational	Pre-Dev Basin "F"	38.07	0.28	51,833	----		
9	Rational	Post-Dev Basin A	13.84	0.23	15,521	----		
10	Rational	Post-Dev Basin B	37.00	0.30	53,350	----		
11	Rational	Post-Dev Basin "C"	25.47	0.18	22,441	----		
12	Rational	Post-Dev Basin "D"	11.08	0.13	7,098	----		
13	Mod Rational	Post-Dev Basin "E-1"	36.61	0.28	105,431	----		
14	Pond Route	Detention Basin	13.61	0.98	105,341	13	478.31	76,654
15	Rational	Post-Dev Basin "E-2"	60.29	0.22	62,782	----		
16	Junction	Total Post-Dev "E"	61.49	0.22	166,838	14, 15		
17	Rational	Post-Dev Basin "F"	37.60	0.27	48,189	----		

Pre-Dev Basin "A"

Hyd. No. 1

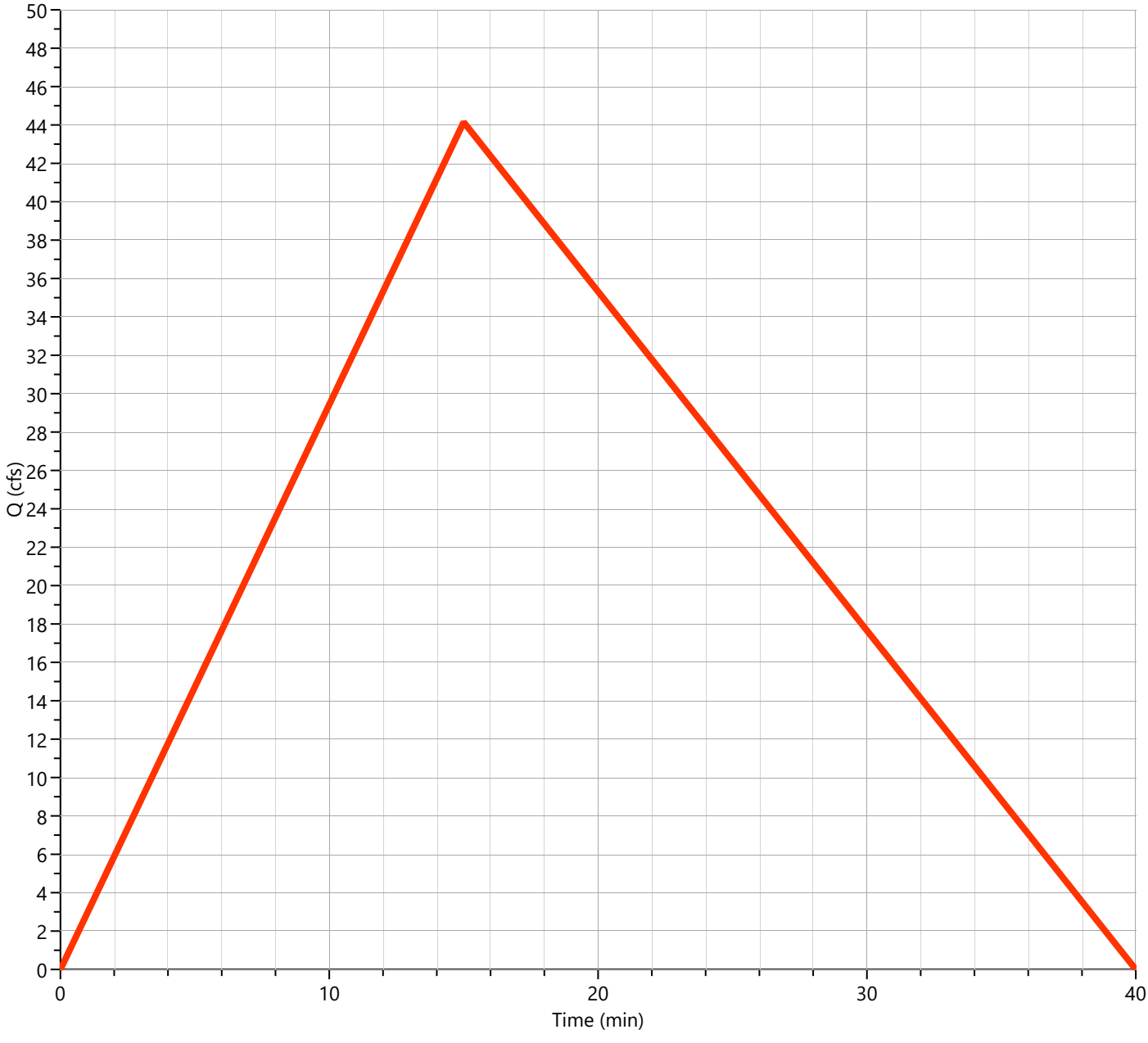
Hydrograph Type	= Rational	Peak Flow	= 13.13 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 11,572 cuft
Drainage Area	= 3.2 ac	Runoff Coeff.	= 0.62
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.62 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "B"

Hyd. No. 2

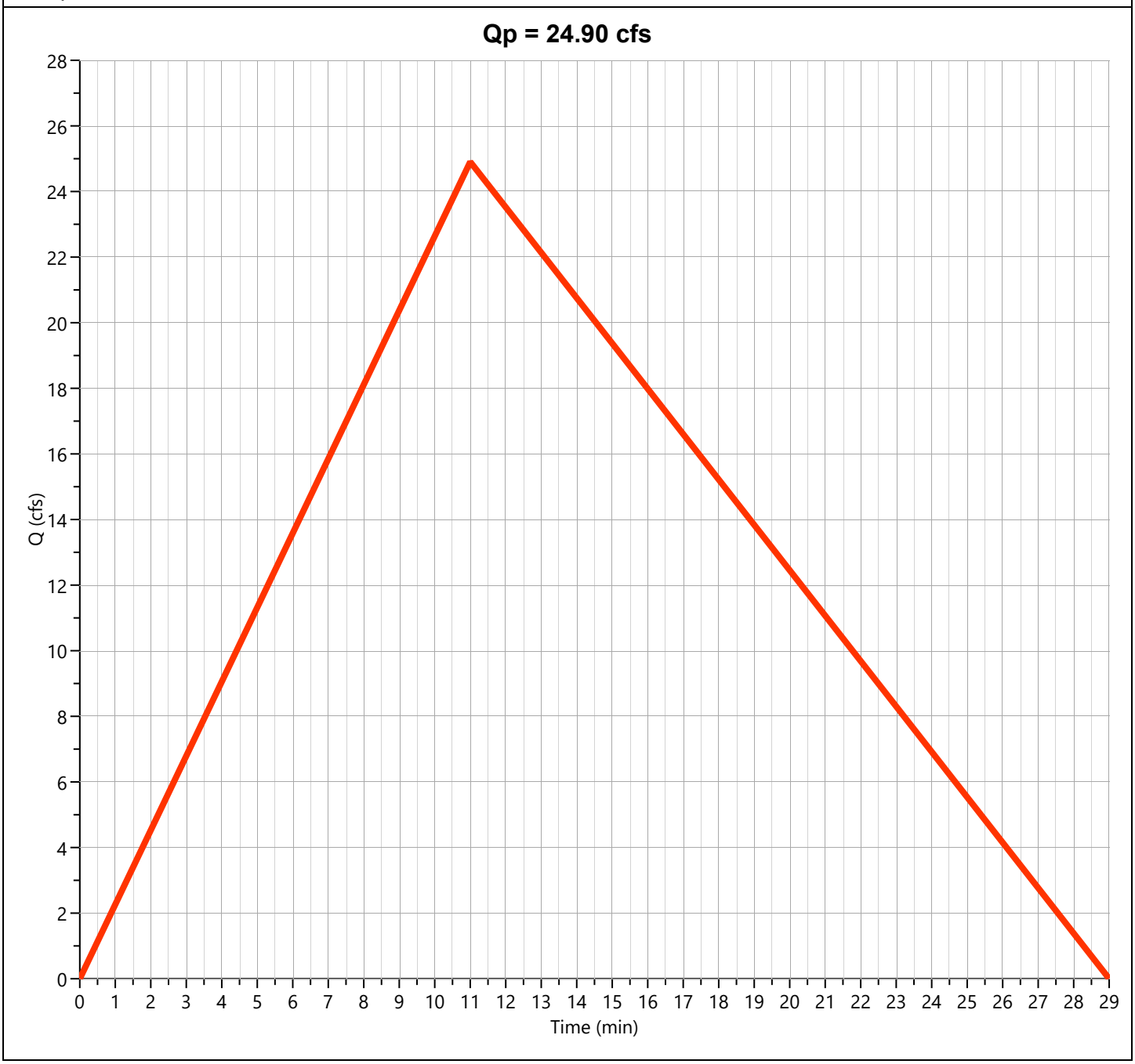
Hydrograph Type	= Rational	Peak Flow	= 44.15 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.25 hrs
Time Interval	= 1 min	Runoff Volume	= 53,043 cuft
Drainage Area	= 14.74 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 15.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.76 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "C"

Hyd. No. 3

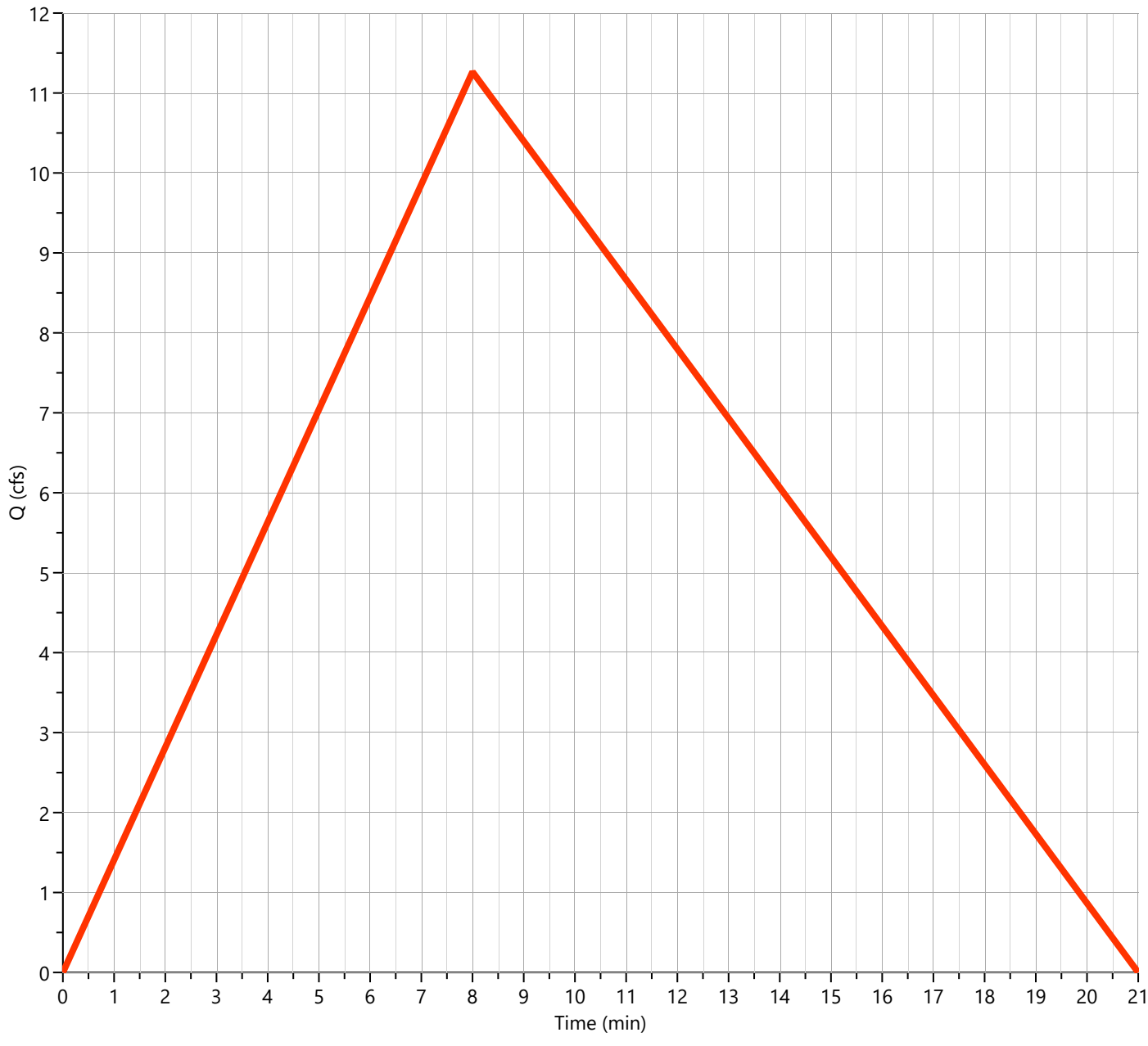
Hydrograph Type	= Rational	Peak Flow	= 24.90 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 21,943 cuft
Drainage Area	= 6.84 ac	Runoff Coeff.	= 0.55
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.62 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "D"

Hyd. No. 4

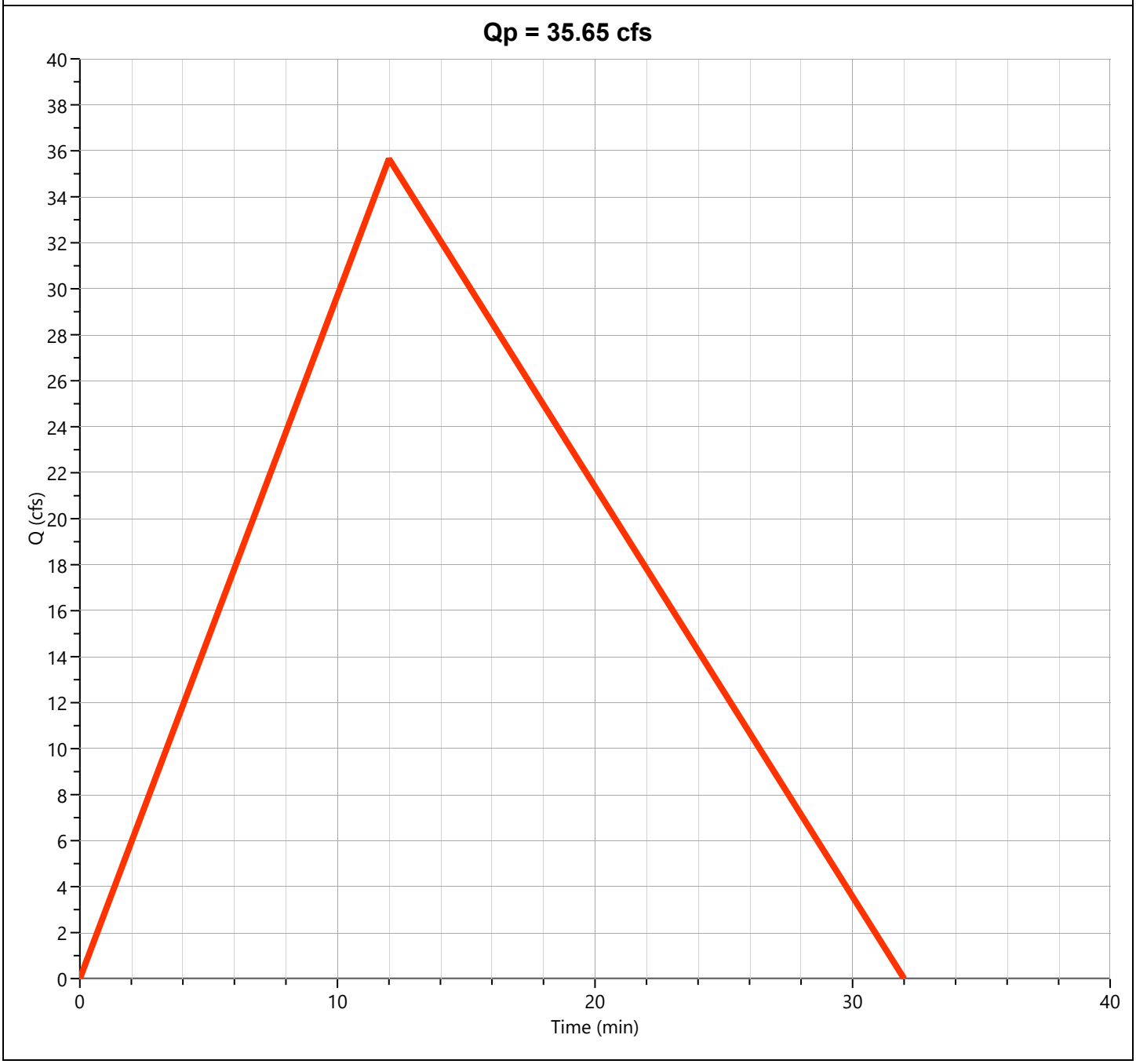
Hydrograph Type	= Rational	Peak Flow	= 11.26 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 7,218 cuft
Drainage Area	= 2.95 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.64 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-1"

Hyd. No. 5

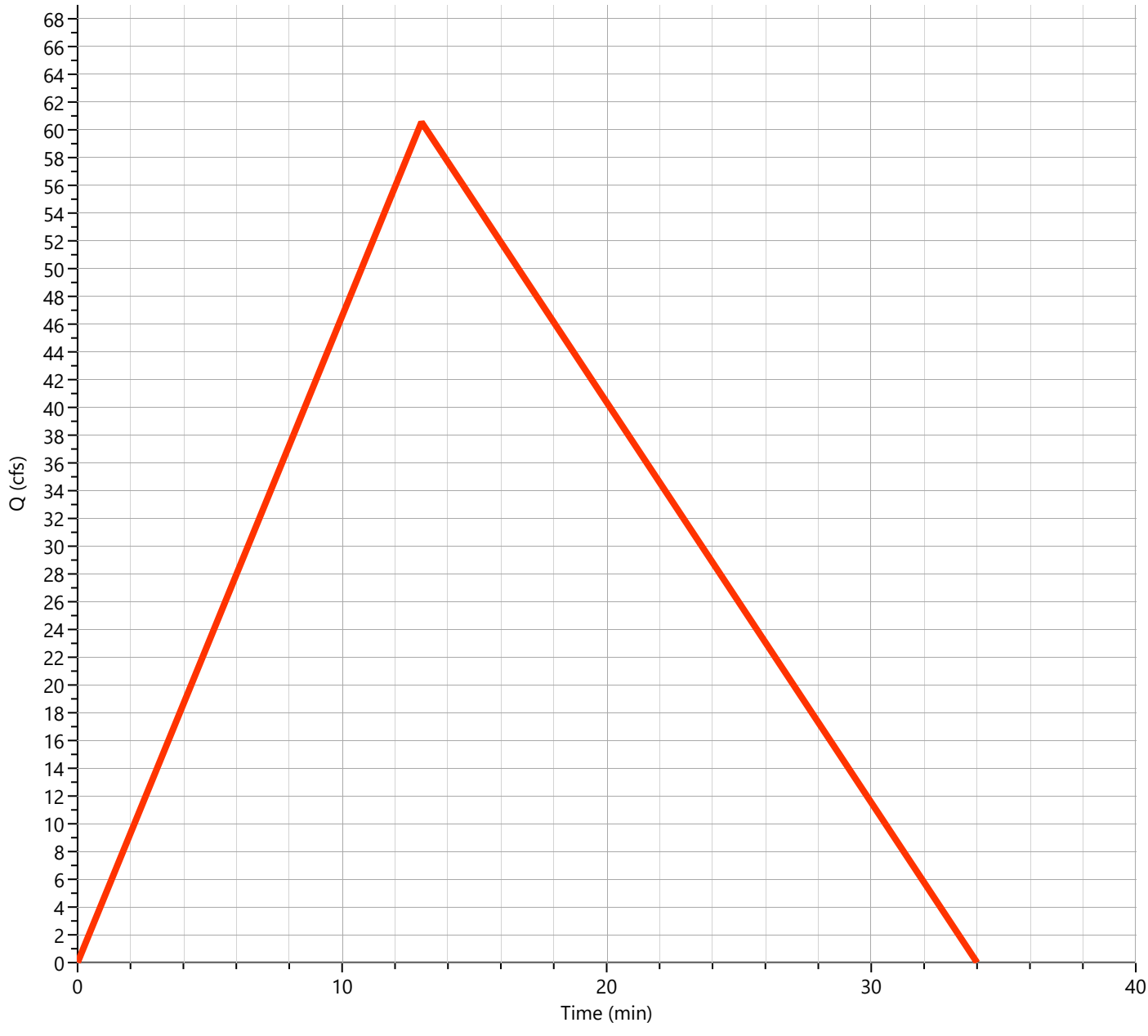
Hydrograph Type	= Rational	Peak Flow	= 35.65 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 34,268 cuft
Drainage Area	= 11.2 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.37 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-2"

Hyd. No. 6

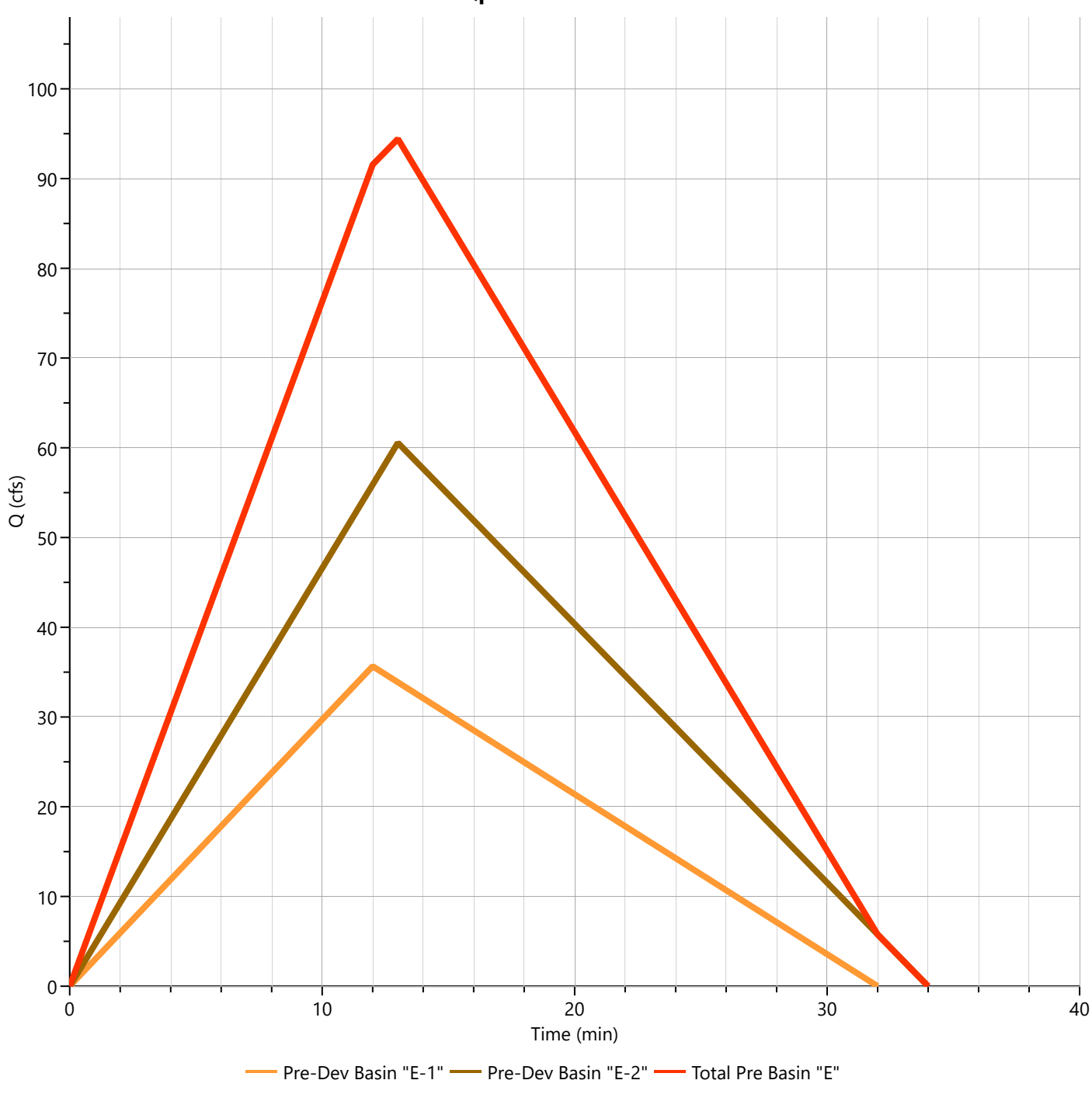
Hydrograph Type	= Rational	Peak Flow	= 60.55 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 63,053 cuft
Drainage Area	= 18.96 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.14 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre Basin "E"

Hyd. No. 7

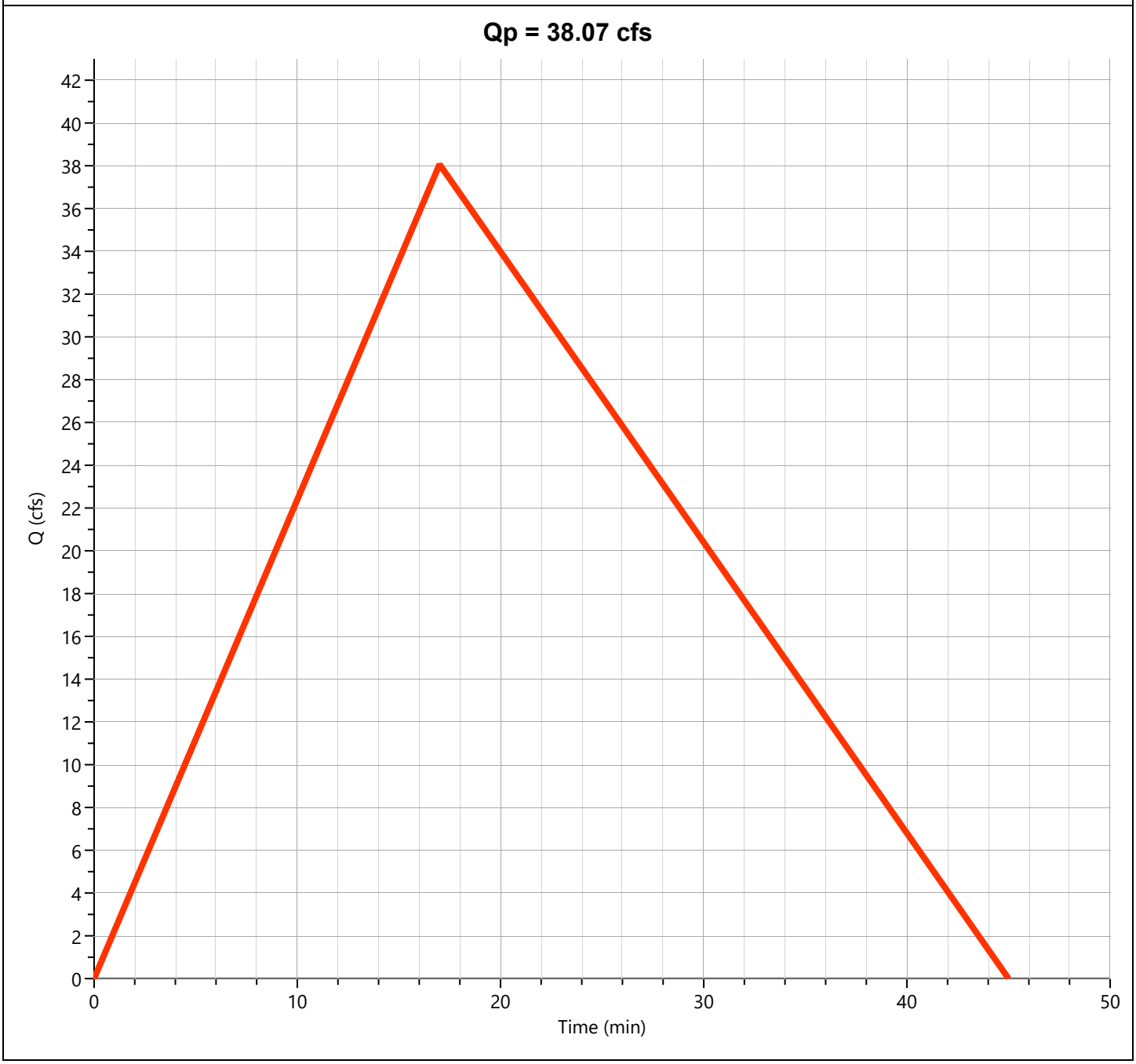
Hydrograph Type	= Junction	Peak Flow	= 94.42 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 95,989 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 30.16 ac



Pre-Dev Basin "F"

Hyd. No. 8

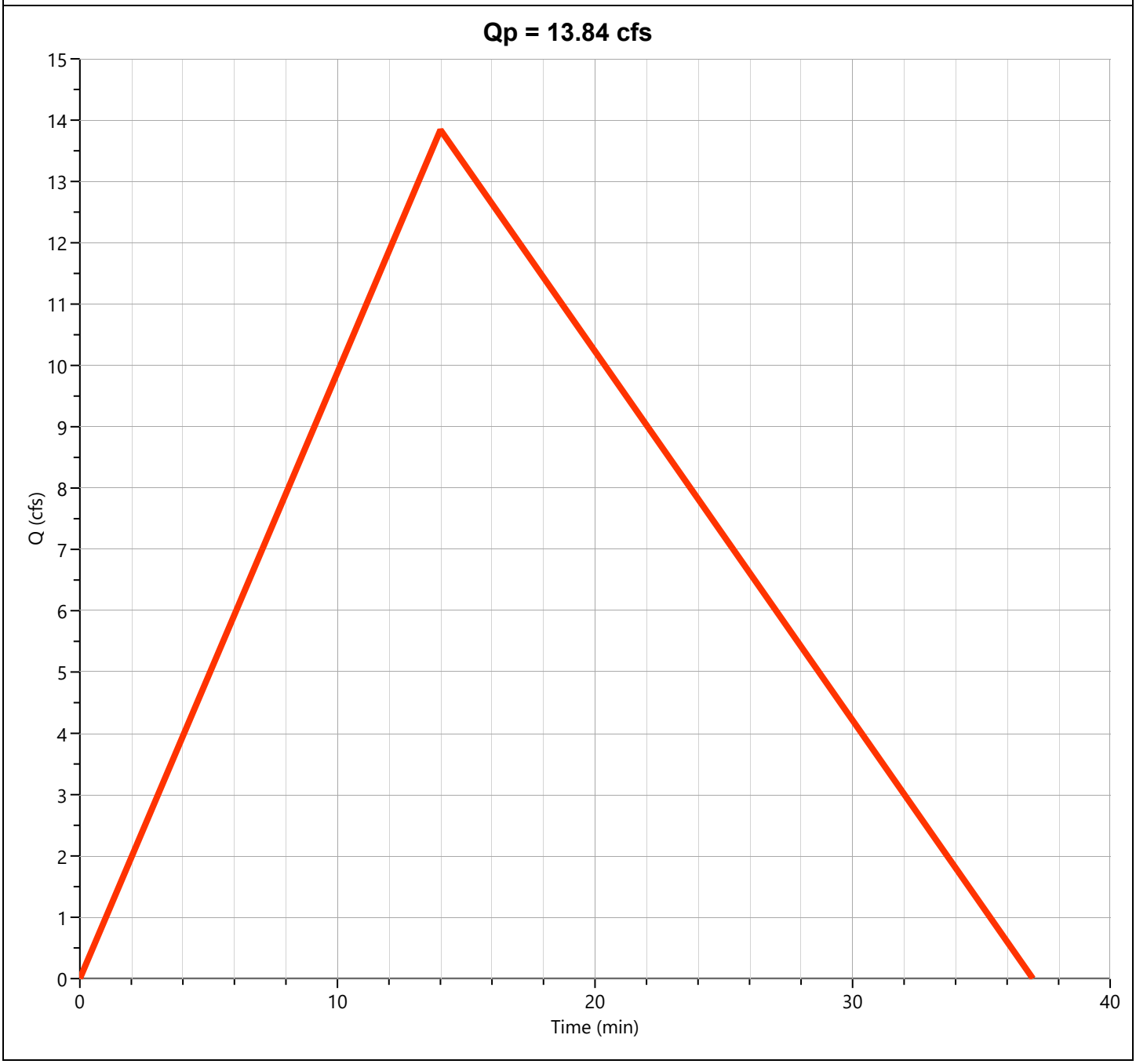
Hydrograph Type	= Rational	Peak Flow	= 38.07 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 51,833 cuft
Drainage Area	= 13.19 ac	Runoff Coeff.	= 0.53
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.45 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 9

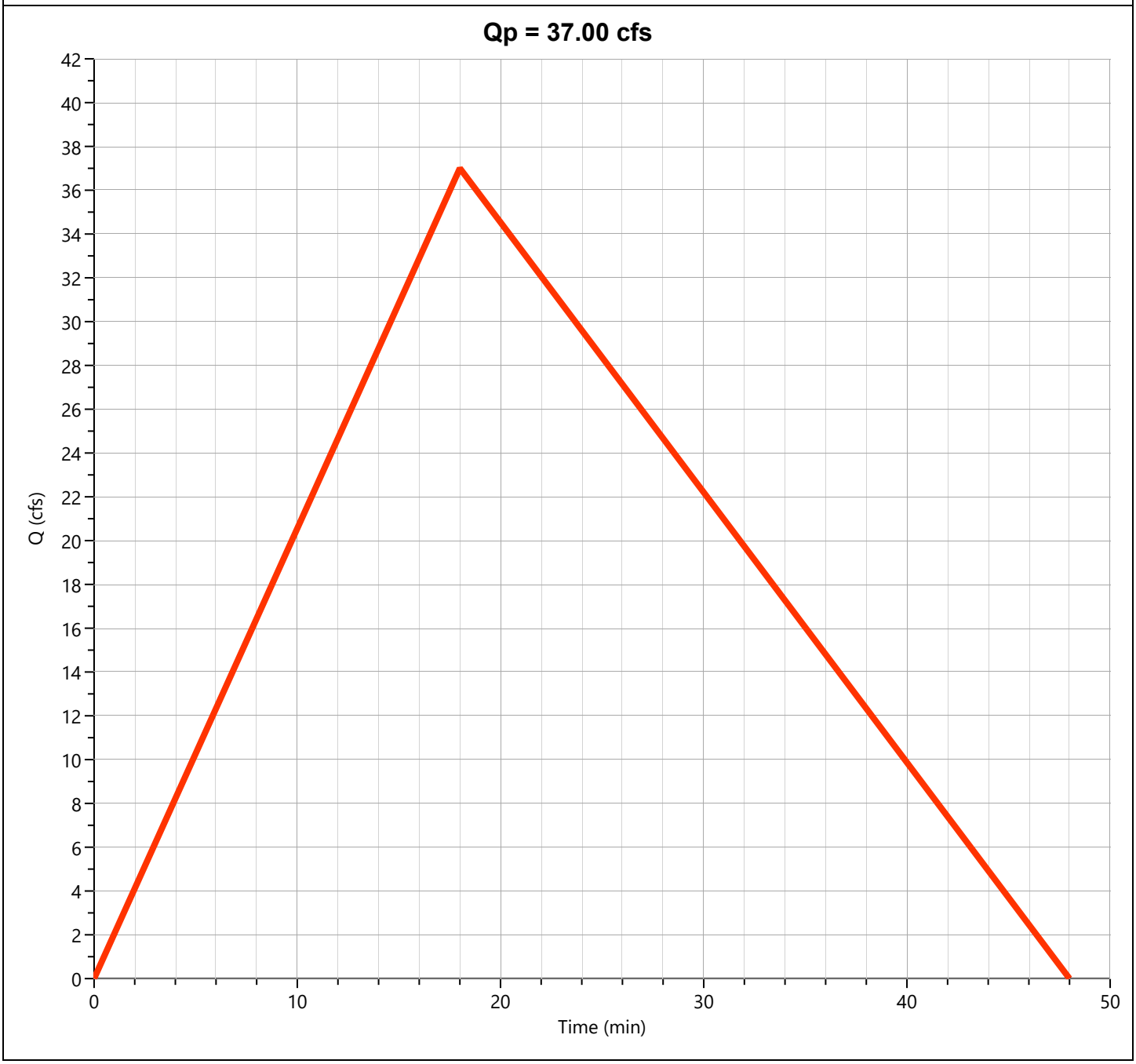
Hydrograph Type	= Rational	Peak Flow	= 13.84 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.23 hrs
Time Interval	= 1 min	Runoff Volume	= 15,521 cuft
Drainage Area	= 3.53 ac	Runoff Coeff.	= 0.66
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.94 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin B

Hyd. No. 10

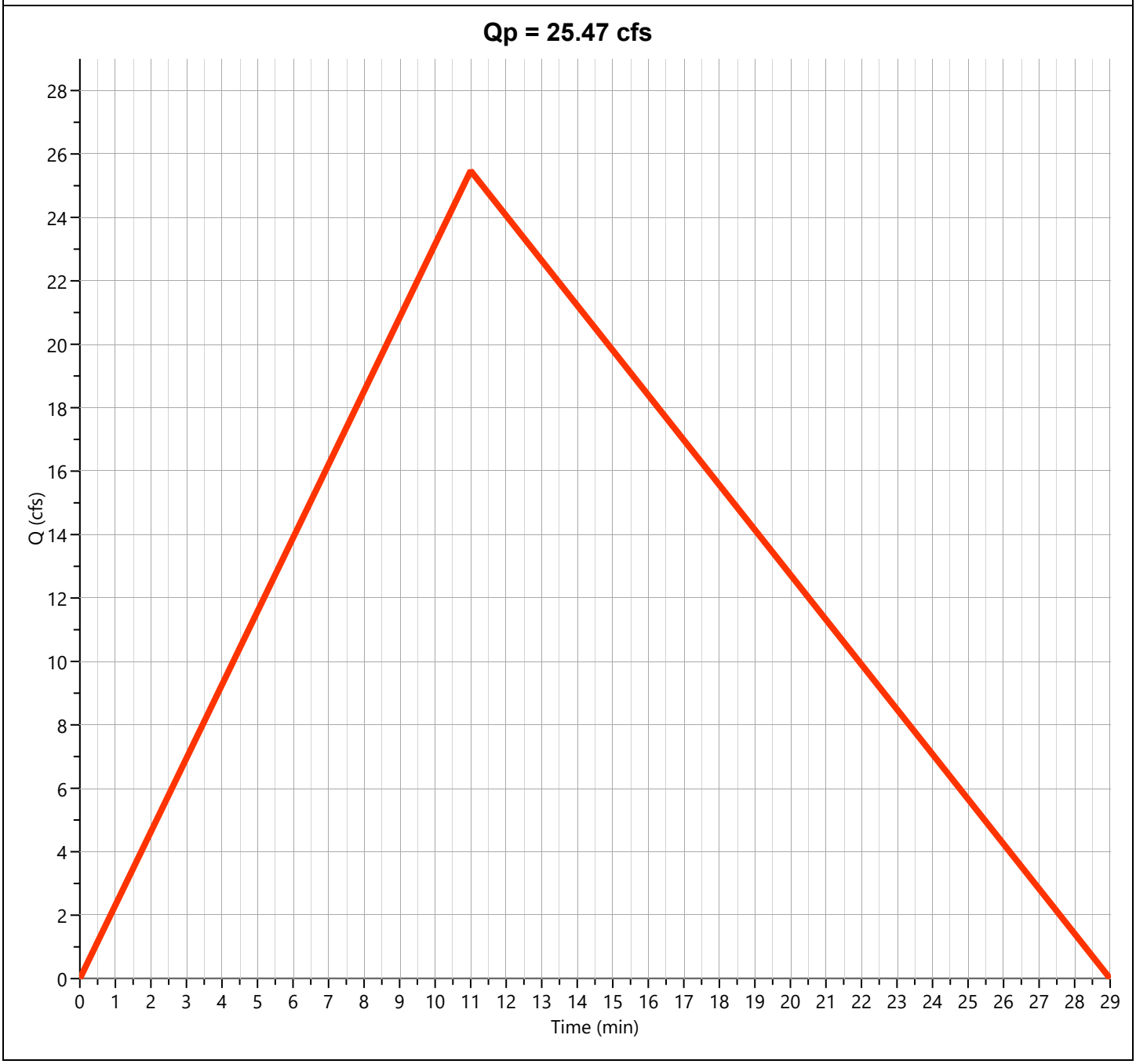
Hydrograph Type	= Rational	Peak Flow	= 37.00 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.30 hrs
Time Interval	= 1 min	Runoff Volume	= 53,350 cuft
Drainage Area	= 12.45 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 18.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.31 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "C"

Hyd. No. 11

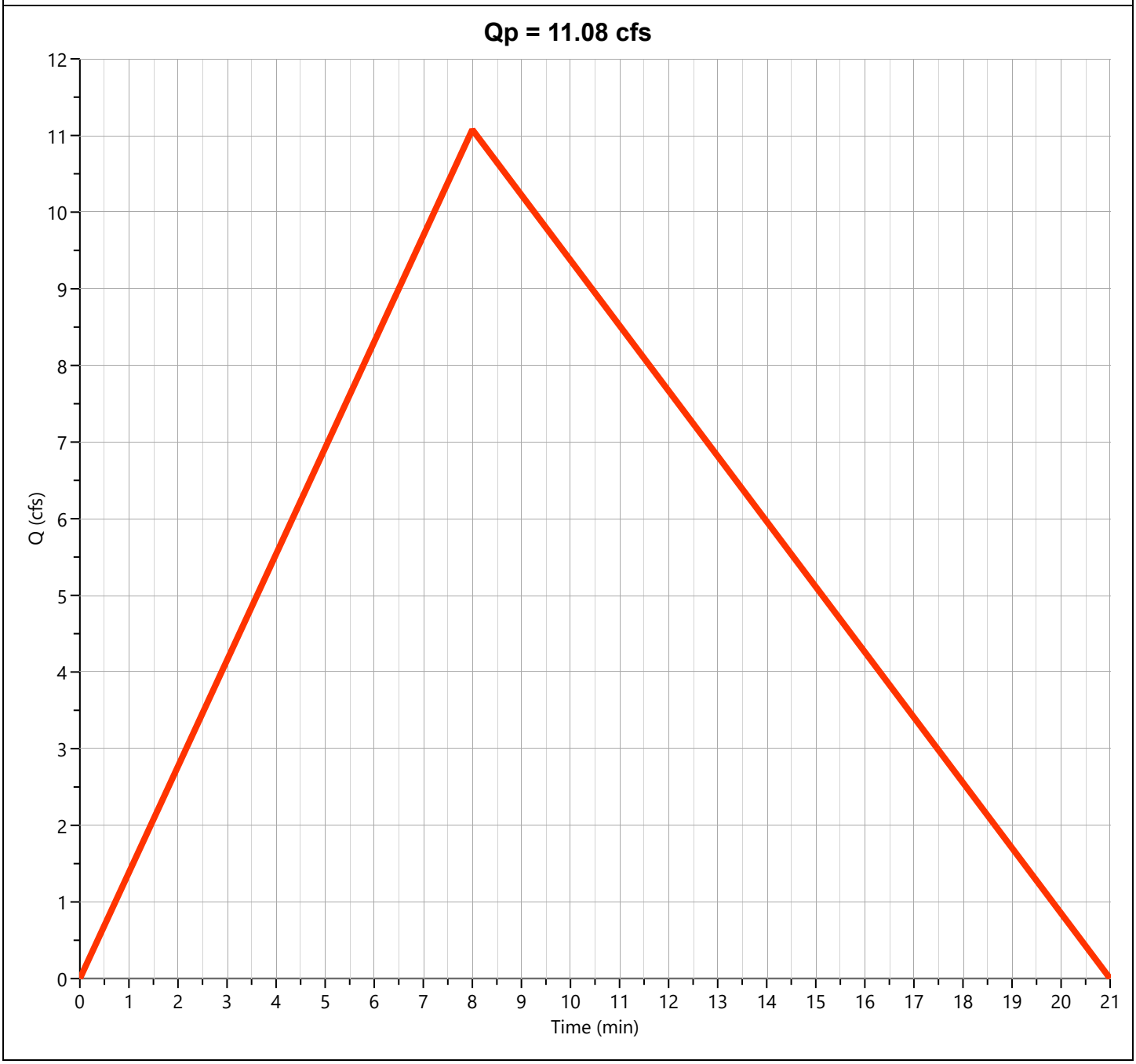
Hydrograph Type	= Rational	Peak Flow	= 25.47 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 22,441 cuft
Drainage Area	= 6.75 ac	Runoff Coeff.	= 0.57
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.62 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "D"

Hyd. No. 12

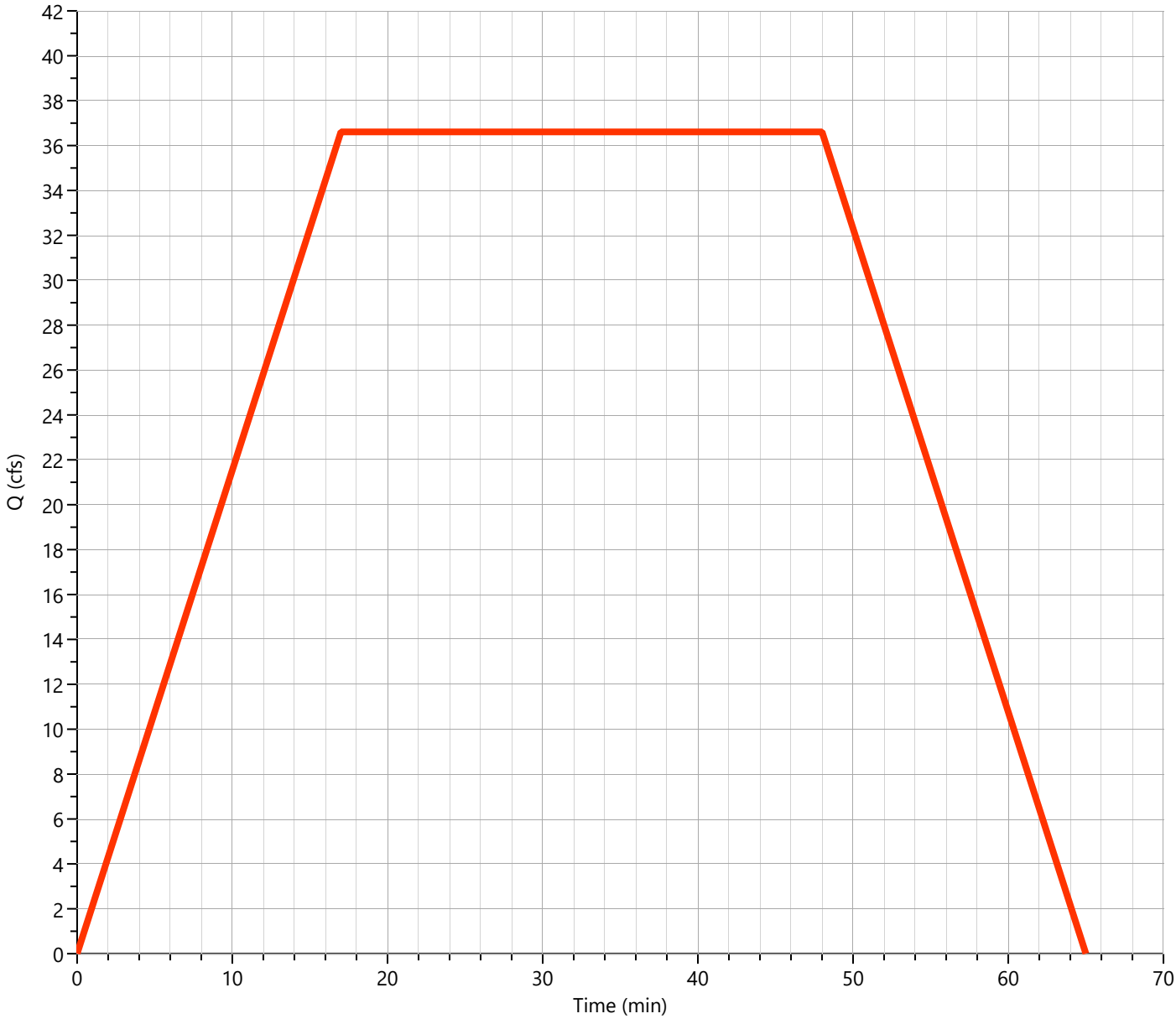
Hydrograph Type	= Rational	Peak Flow	= 11.08 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 7,098 cuft
Drainage Area	= 2.59 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.64 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "E-1"

Hyd. No. 13

Hydrograph Type	= Mod Rational	Peak Flow	= 36.61 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 105,431 cuft
Drainage Area	= 16.23 ac	Runoff Coeff.	= 0.66
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.42 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2.82 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



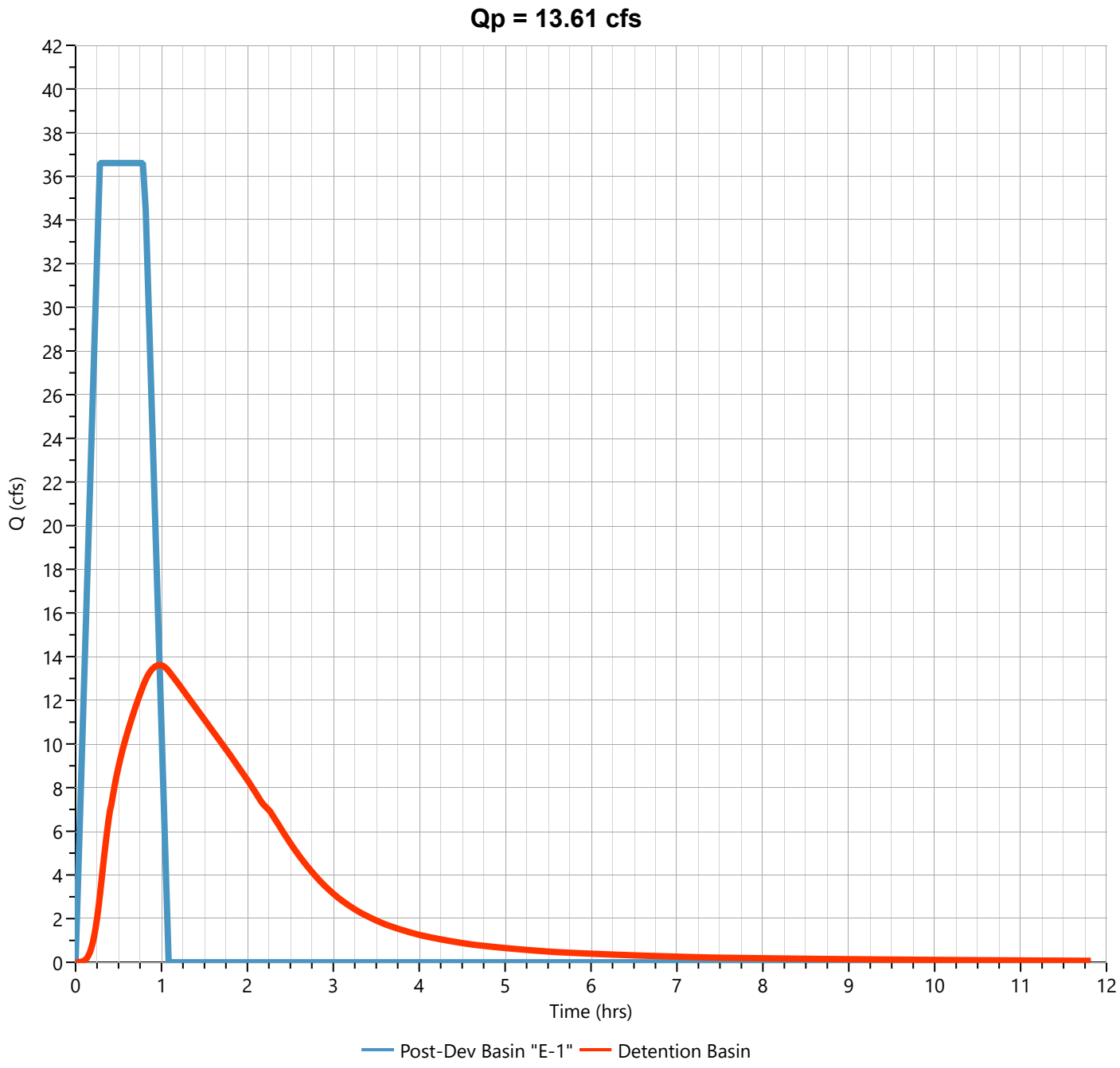
Detention Basin

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 13.61 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.98 hrs
Time Interval	= 1 min	Hydrograph Volume	= 105,341 cuft
Inflow Hydrograph	= 13 - Post-Dev Basin "E-1"	Max. Elevation	= 478.31 ft
Pond Name	= Hilltop Detention Pond	Max. Storage	= 76,654 cuft

Pond Routing by Storage Indication Method

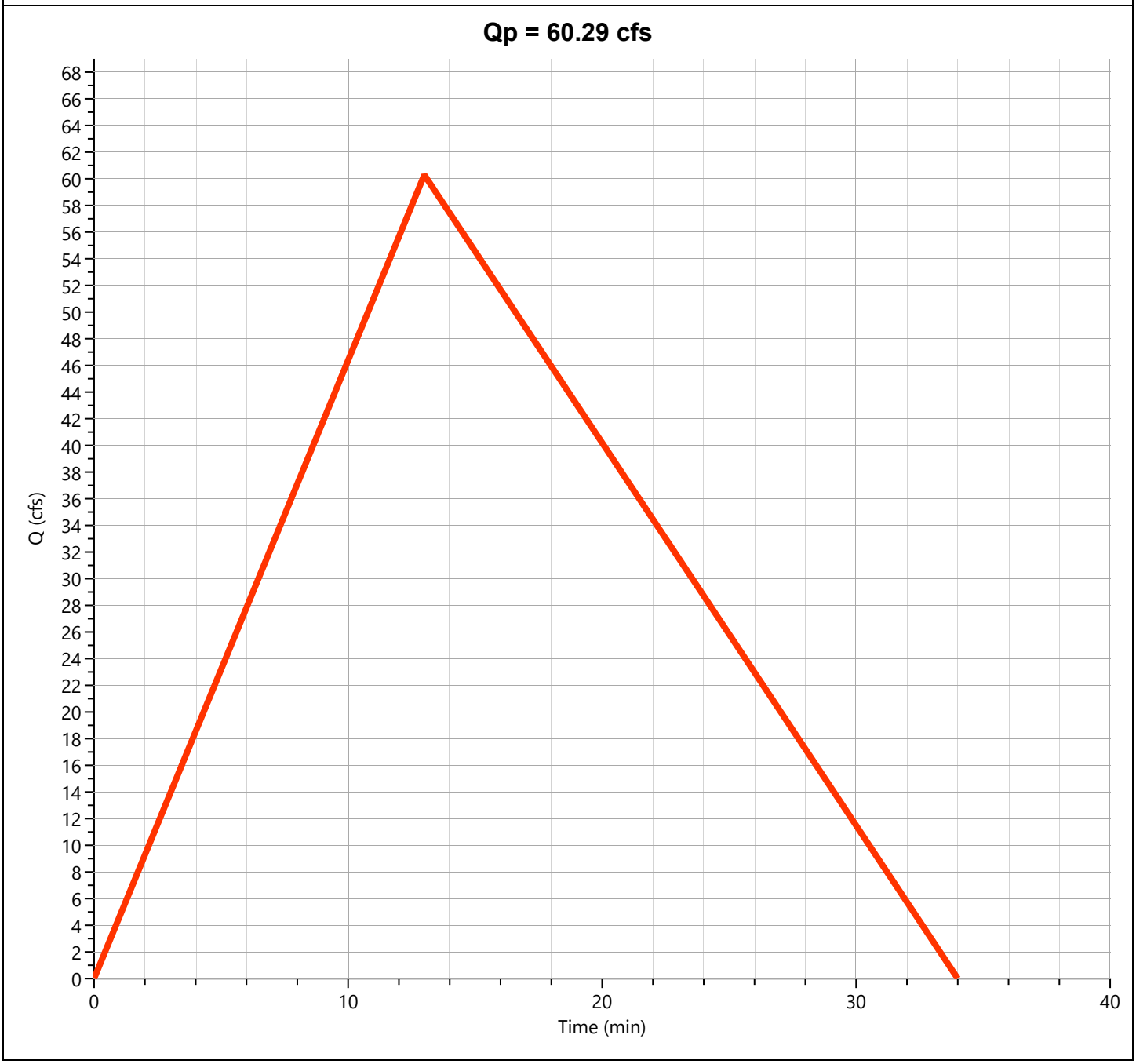
Center of mass detention time = 1.35 hrs



Post-Dev Basin "E-2"

Hyd. No. 15

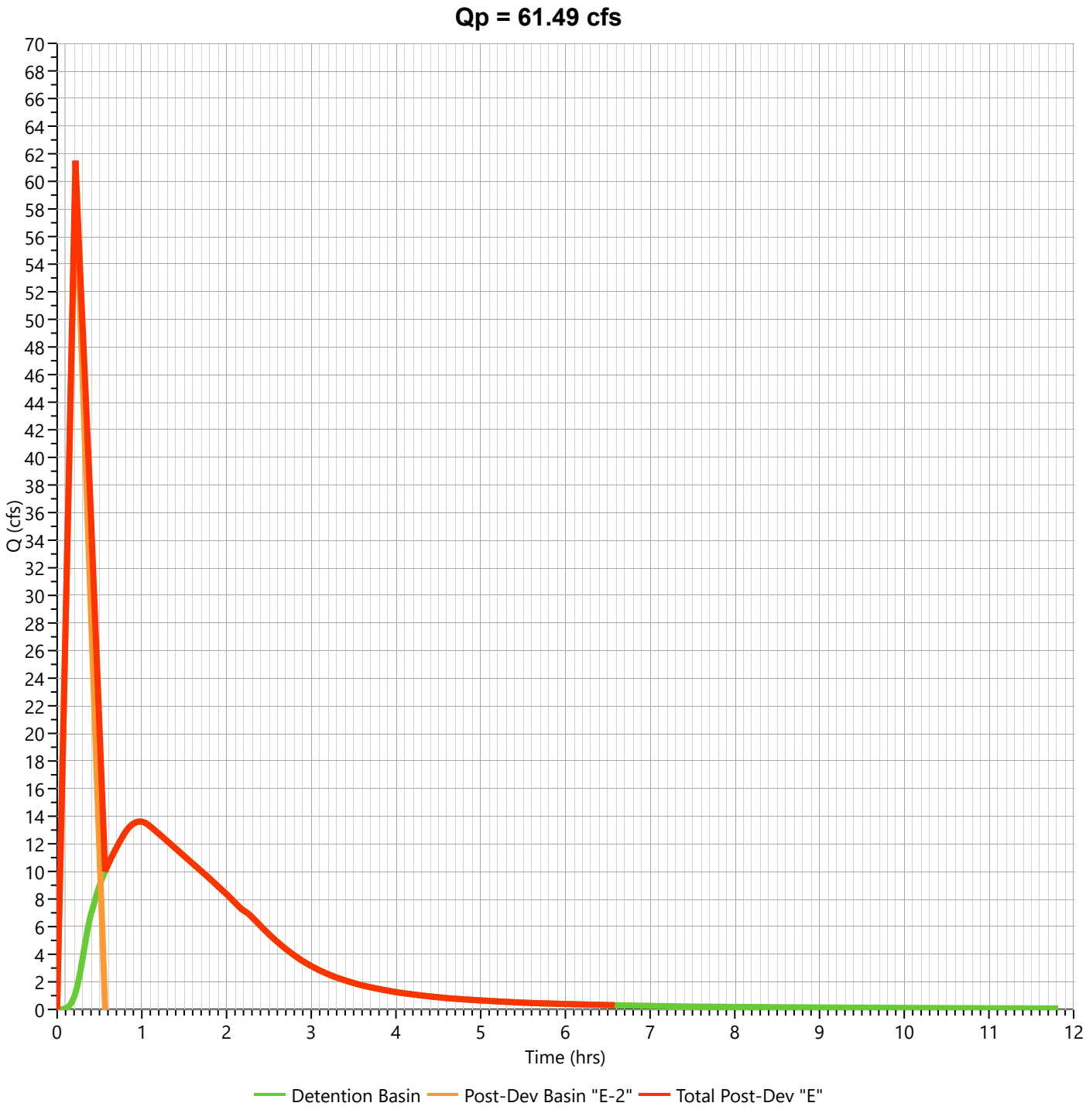
Hydrograph Type	= Rational	Peak Flow	= 60.29 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 62,782 cuft
Drainage Area	= 17.53 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.14 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev "E"

Hyd. No. 16

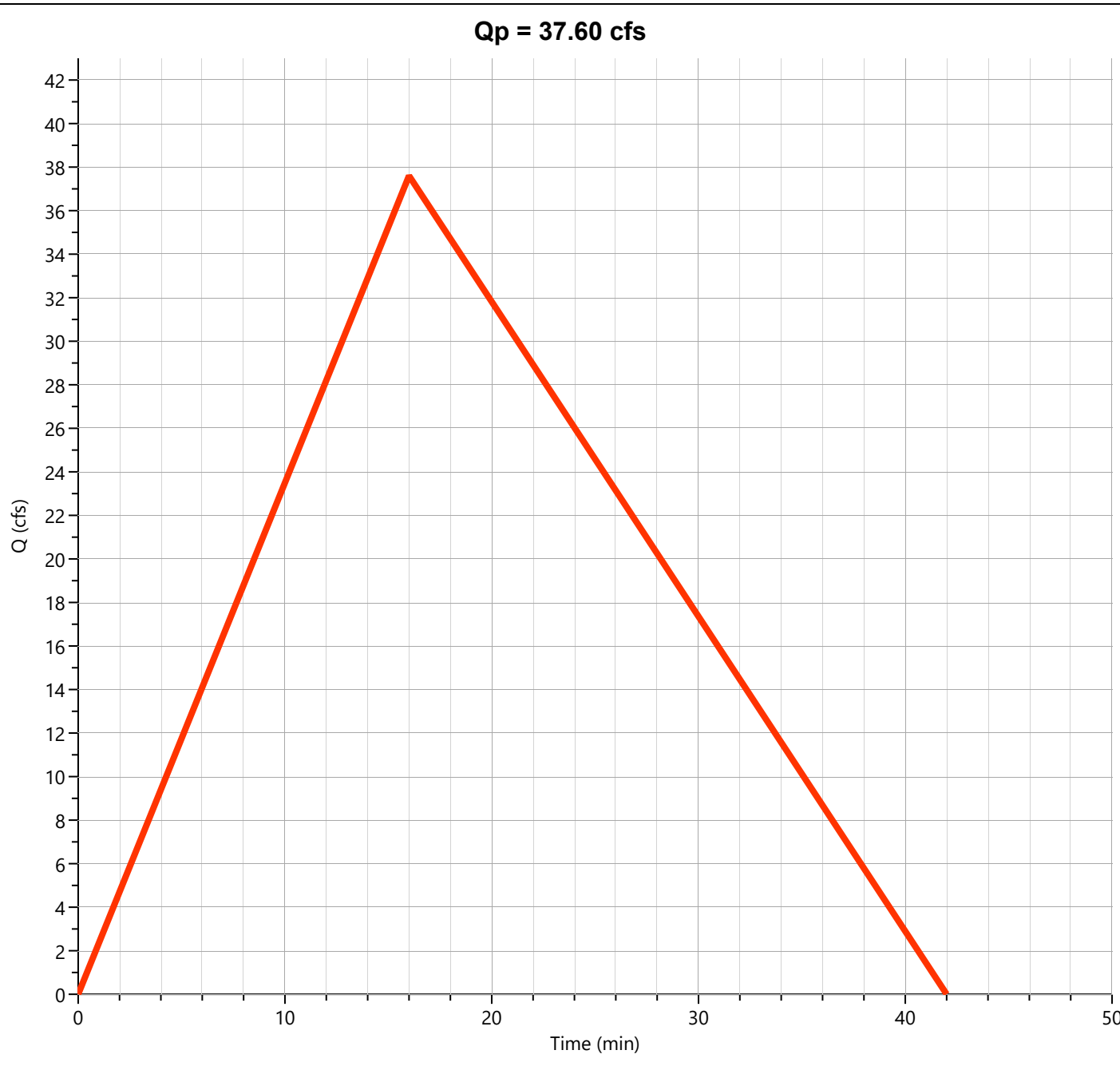
Hydrograph Type	= Junction	Peak Flow	= 61.49 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 166,838 cuft
Inflow Hydrographs	= 15	Total Contrib. Area	= 17.53 ac



Post-Dev Basin "F"

Hyd. No. 17

Hydrograph Type	= Rational	Peak Flow	= 37.60 cfs
Storm Frequency	= 25-yr	Time to Peak	= 0.27 hrs
Time Interval	= 1 min	Runoff Volume	= 48,189 cuft
Drainage Area	= 12.0 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.60 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph 50-yr Summary

Hydrology Studio v 3.0.0.39

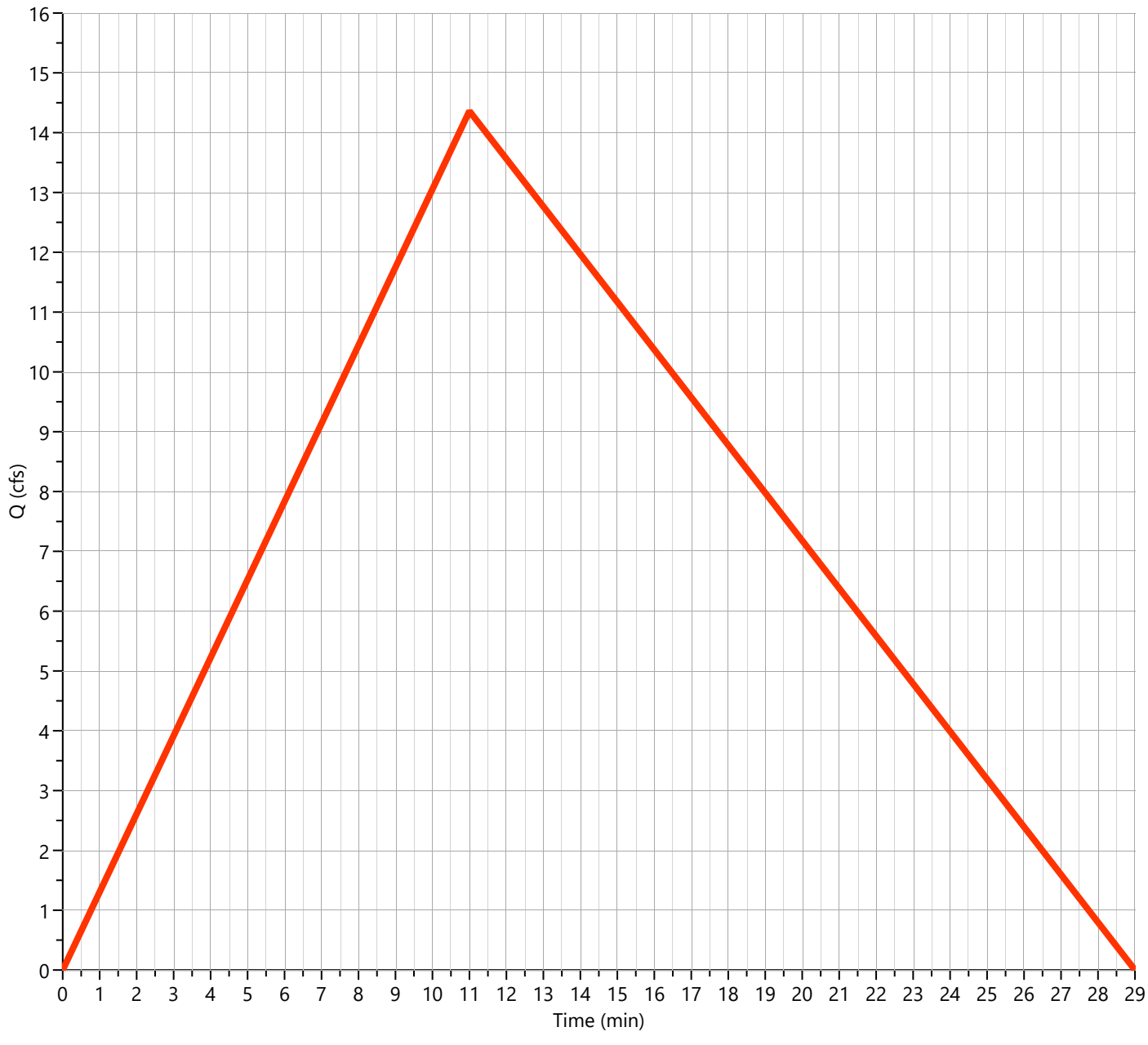
Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	14.36	0.18	12,653	----		
2	Rational	Pre-Dev Basin "B"	48.29	0.25	58,019	----		
3	Rational	Pre-Dev Basin "C"	27.23	0.18	23,992	----		
4	Rational	Pre-Dev Basin "D"	12.31	0.13	7,889	----		
5	Rational	Pre-Dev Basin "E-1"	38.98	0.20	37,472	----		
6	Rational	Pre-Dev Basin "E-2"	66.22	0.22	68,955	----		
7	Junction	Total Pre Basin "E"	103.3	0.22	104,970	5, 6		
8	Rational	Pre-Dev Basin "F"	41.64	0.28	56,705	----		
9	Rational	Post-Dev Basin A	15.14	0.23	16,976	----		
10	Rational	Post-Dev Basin B	40.48	0.30	58,368	----		
11	Rational	Post-Dev Basin "C"	27.85	0.18	24,537	----		
12	Rational	Post-Dev Basin "D"	12.11	0.13	7,757	----		
13	Mod Rational	Post-Dev Basin "E-1"	40.10	0.28	115,494	----		
14	Pond Route	Detention Basin	14.43	0.98	115,403	13	478.63	84,597
15	Rational	Post-Dev Basin "E-2"	65.94	0.22	68,659	----		
16	Junction	Total Post-Dev "E"	67.36	0.22	182,657	14, 15		
17	Rational	Post-Dev Basin "F"	41.13	0.27	52,714	----		

Pre-Dev Basin "A"

Hyd. No. 1

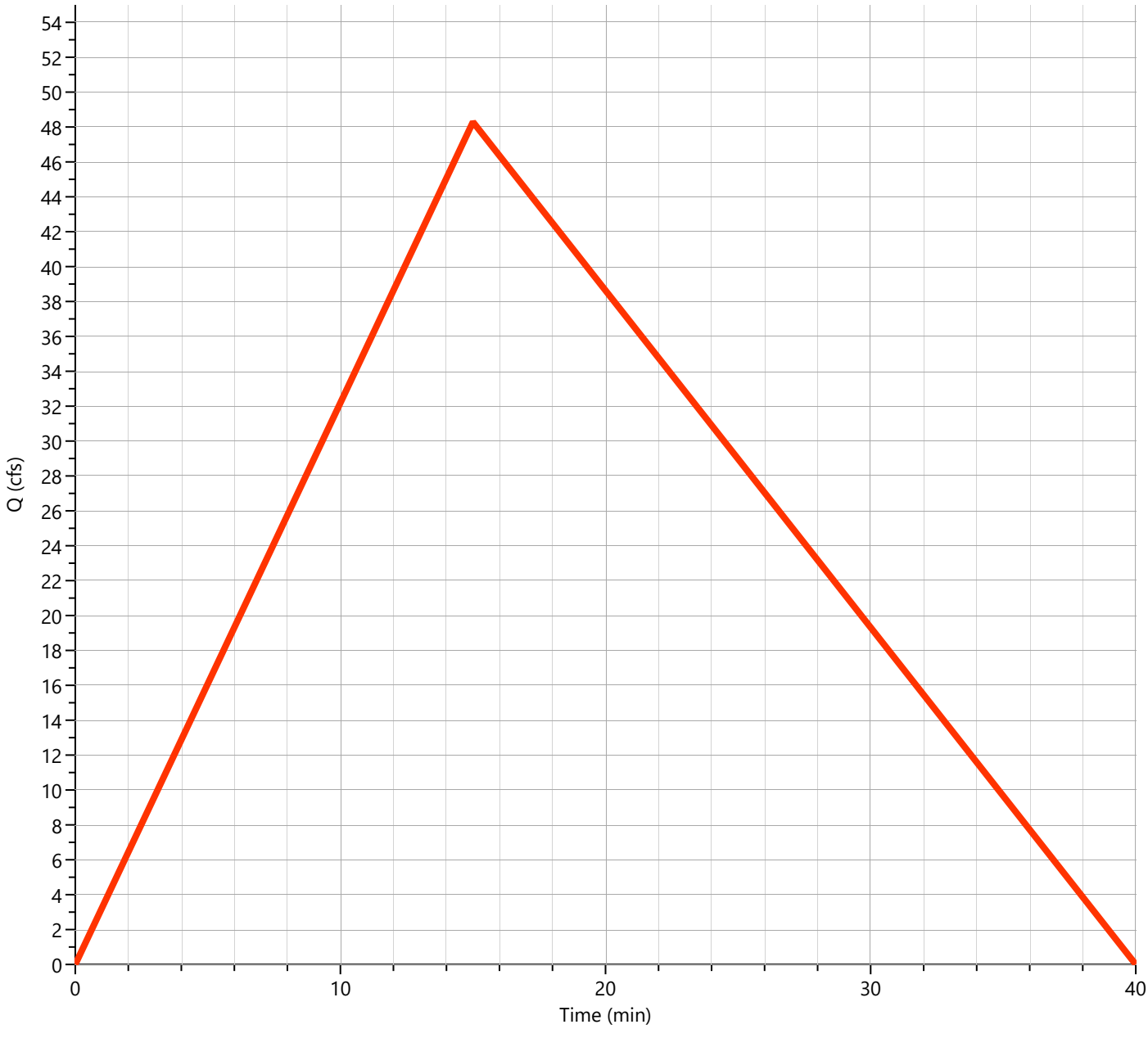
Hydrograph Type	= Rational	Peak Flow	= 14.36 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 12,653 cuft
Drainage Area	= 3.2 ac	Runoff Coeff.	= 0.62
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.24 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "B"

Hyd. No. 2

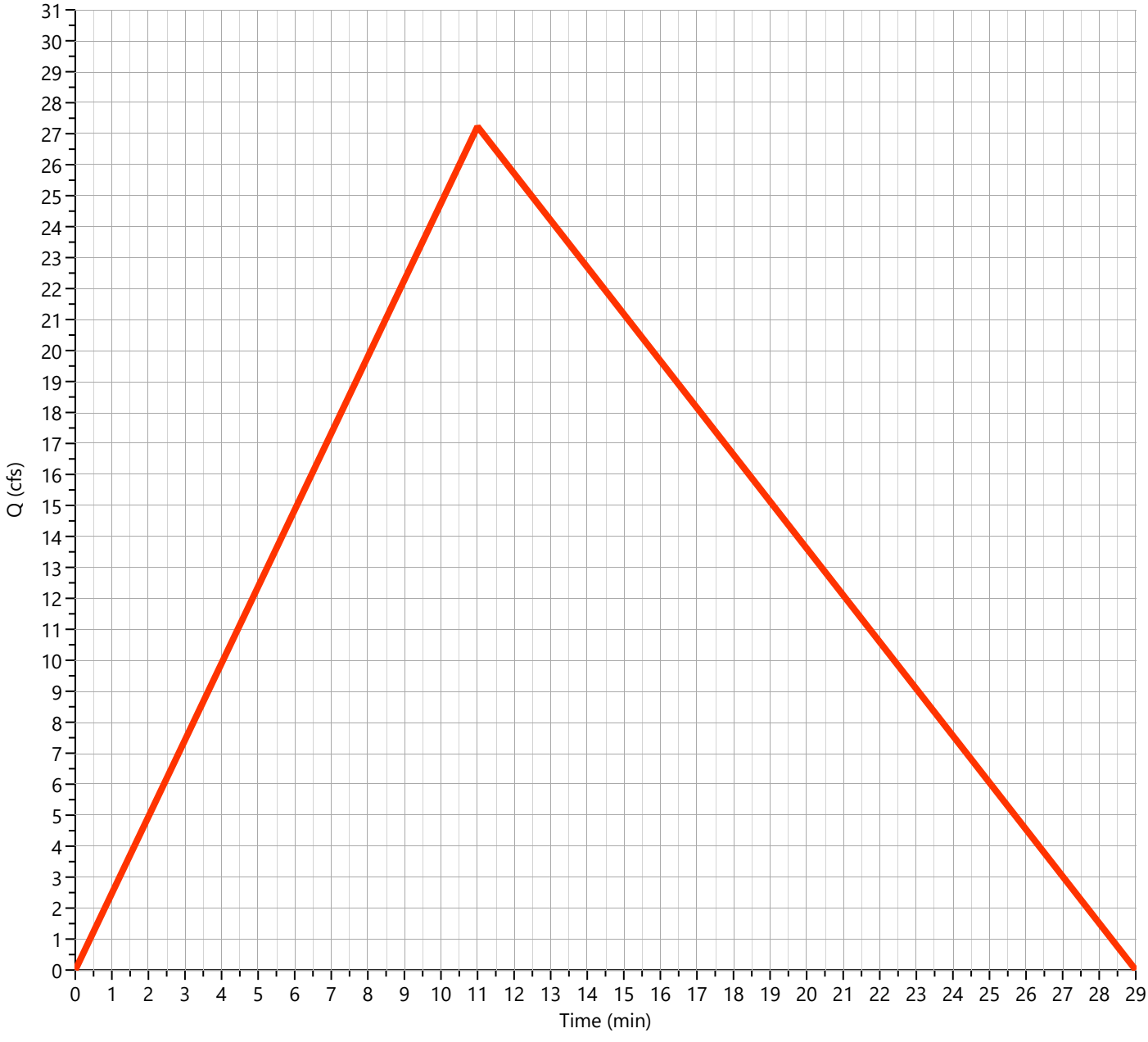
Hydrograph Type	= Rational	Peak Flow	= 48.29 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.25 hrs
Time Interval	= 1 min	Runoff Volume	= 58,019 cuft
Drainage Area	= 14.74 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 15.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "C"

Hyd. No. 3

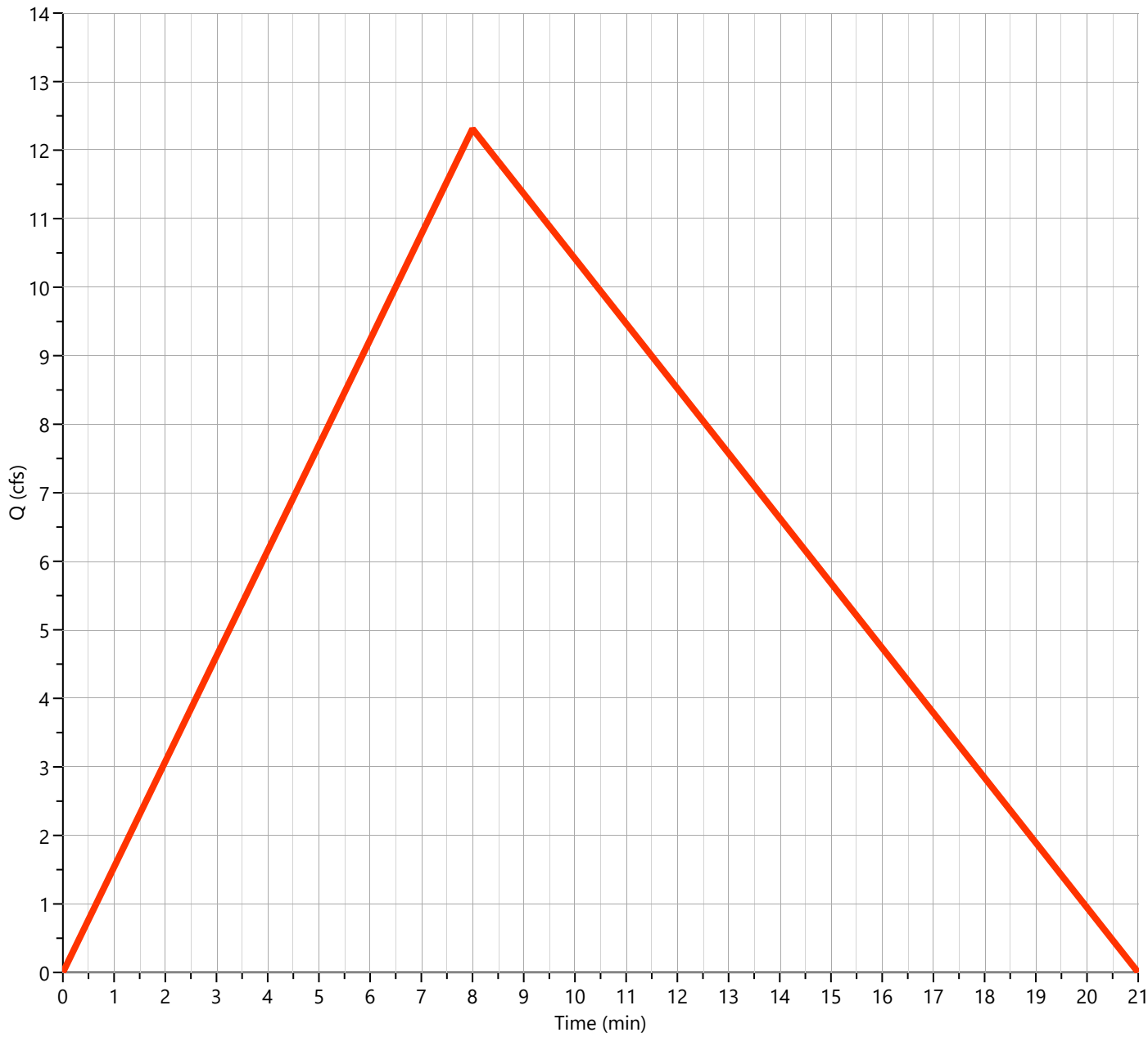
Hydrograph Type	= Rational	Peak Flow	= 27.23 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 23,992 cuft
Drainage Area	= 6.84 ac	Runoff Coeff.	= 0.55
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.24 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "D"

Hyd. No. 4

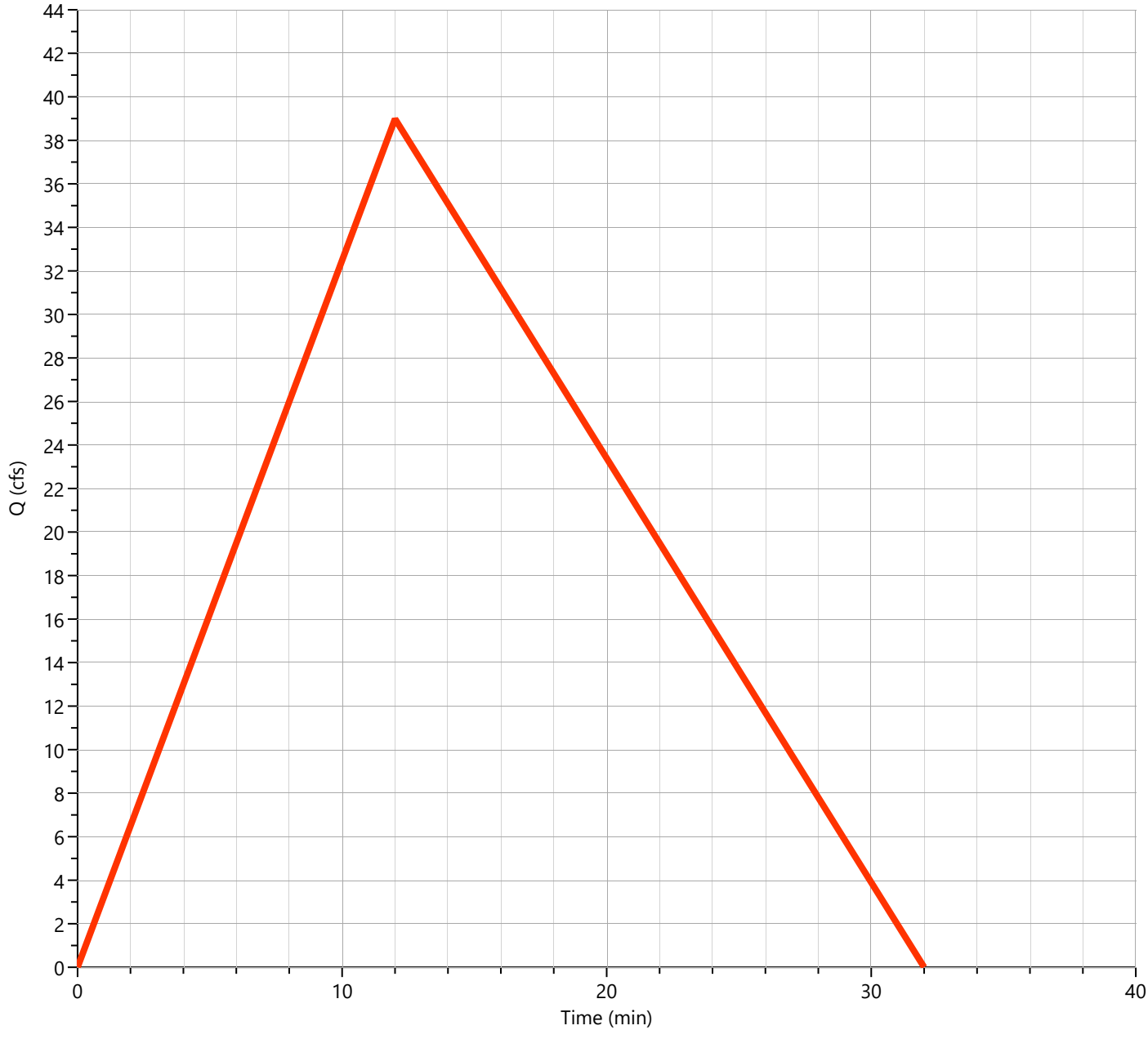
Hydrograph Type	= Rational	Peak Flow	= 12.31 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 7,889 cuft
Drainage Area	= 2.95 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.35 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-1"

Hyd. No. 5

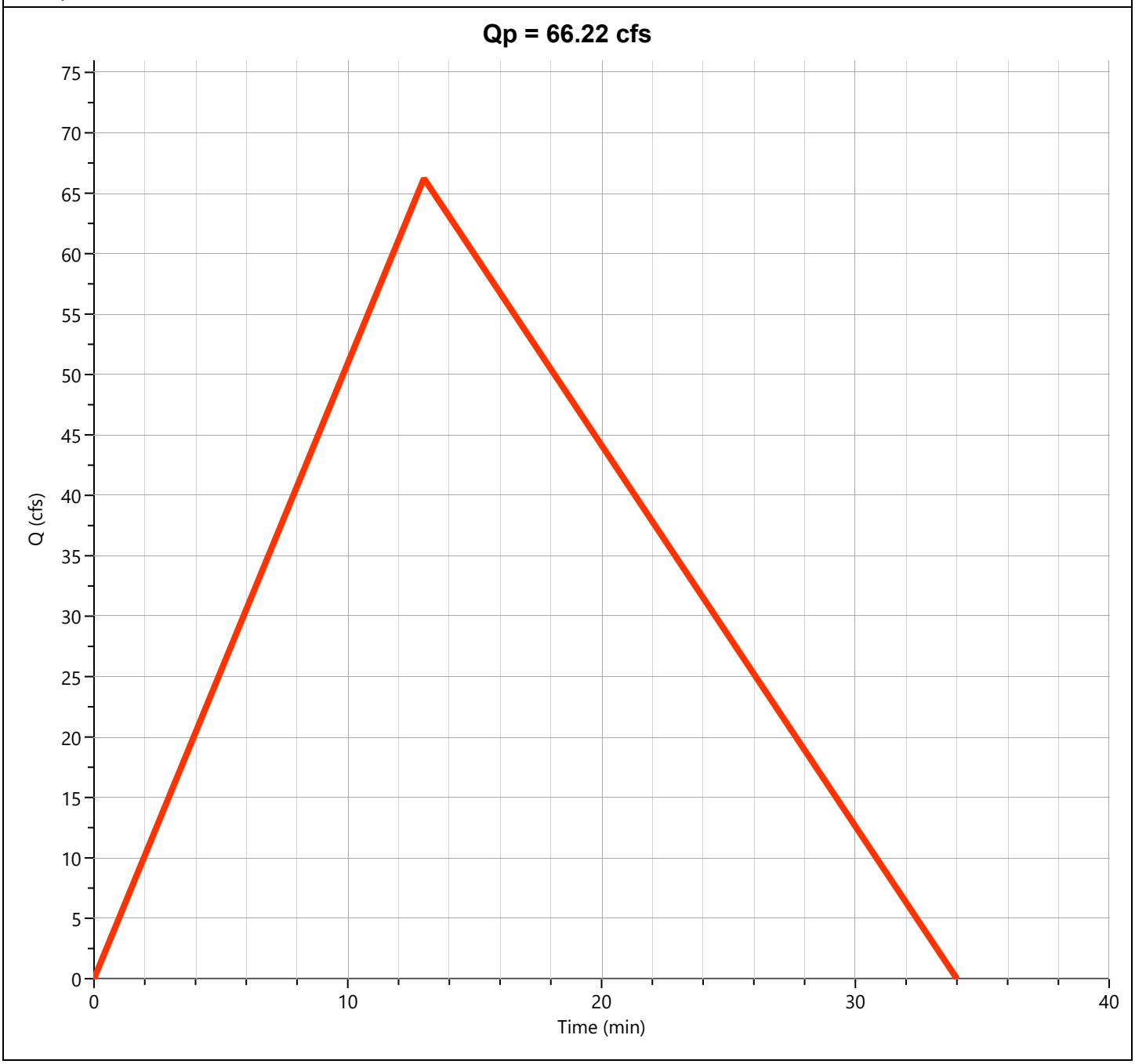
Hydrograph Type	= Rational	Peak Flow	= 38.98 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 37,472 cuft
Drainage Area	= 11.2 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.96 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-2"

Hyd. No. 6

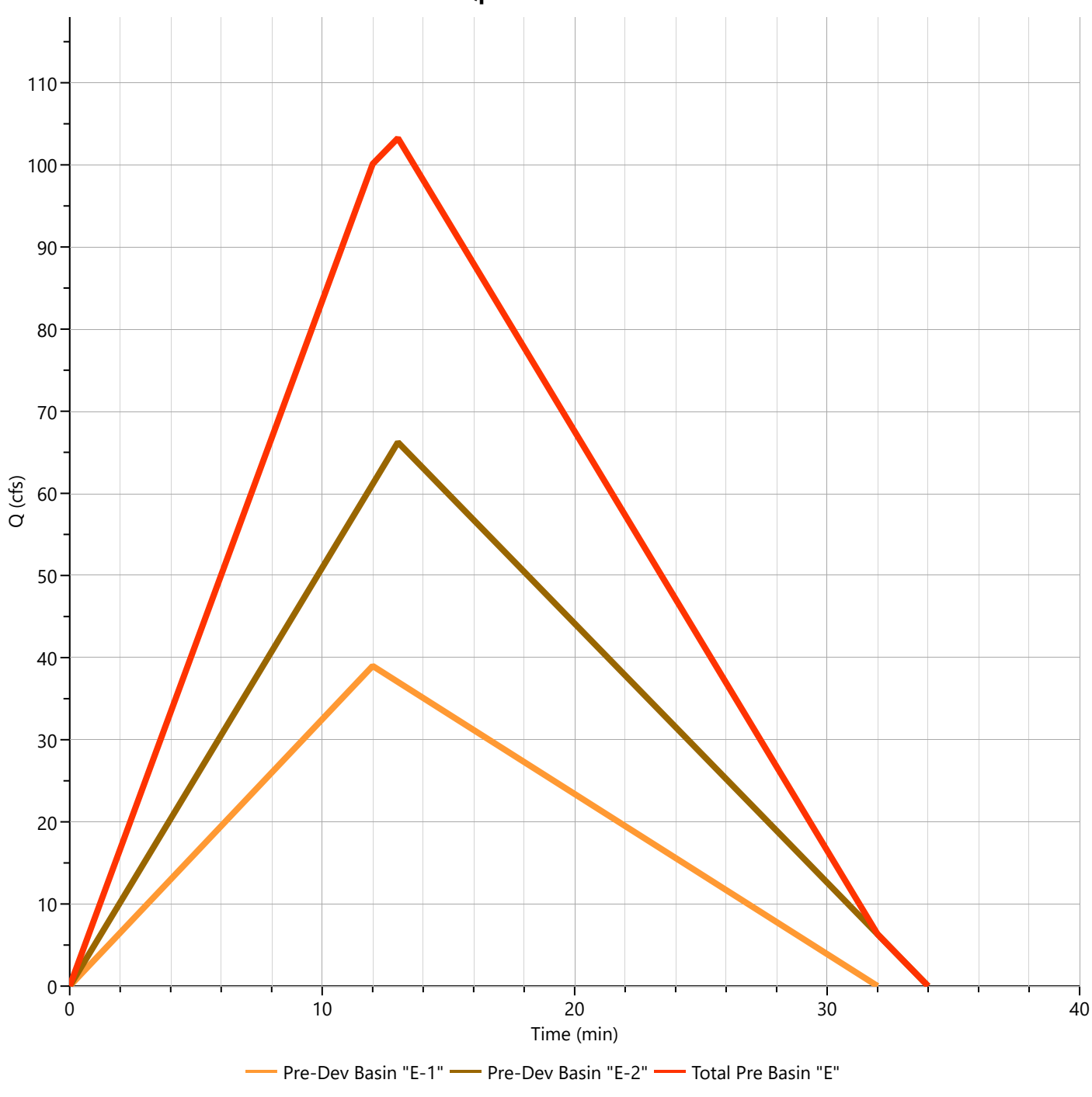
Hydrograph Type	= Rational	Peak Flow	= 66.22 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 68,955 cuft
Drainage Area	= 18.96 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.72 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre Basin "E"

Hyd. No. 7

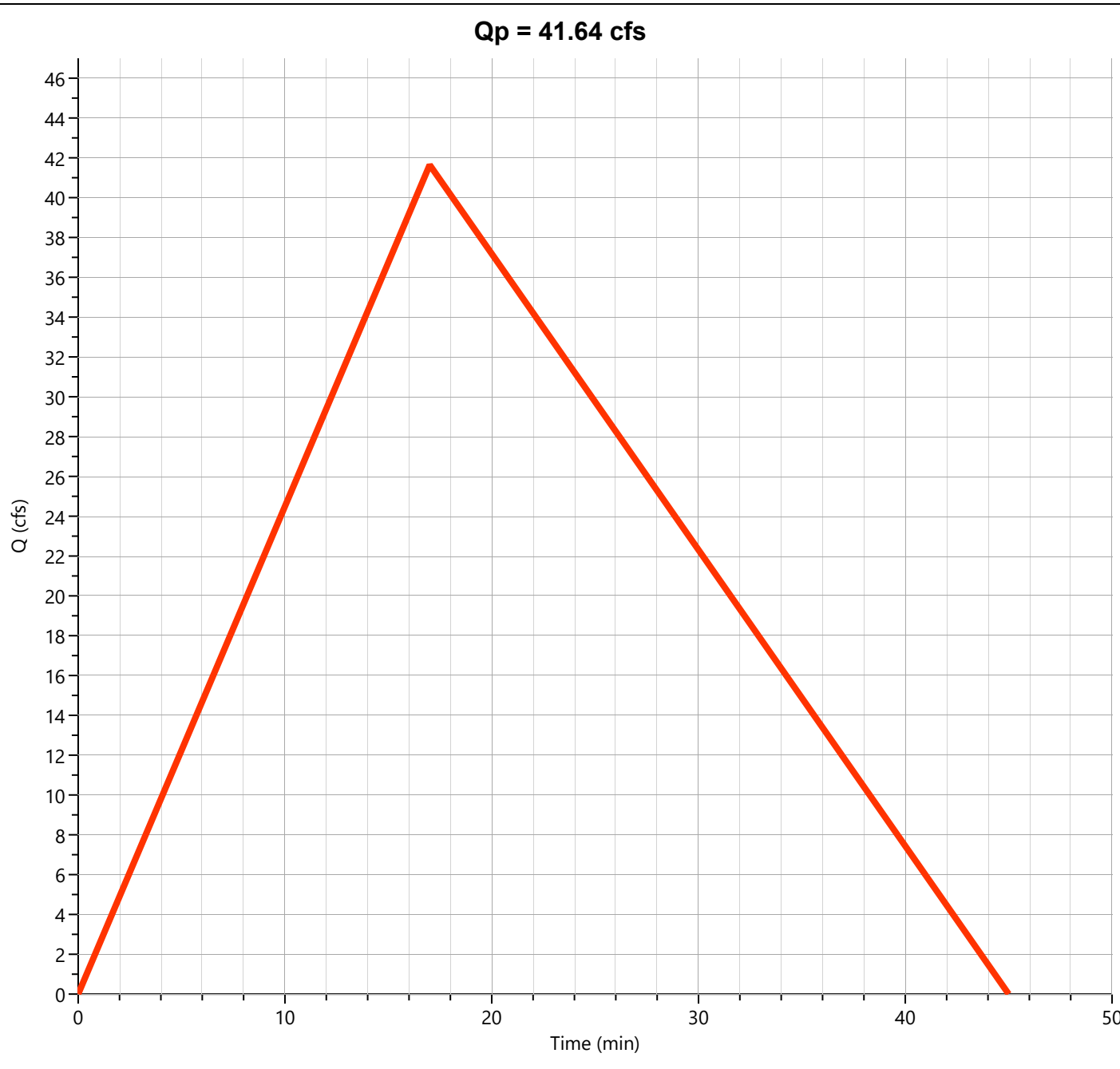
Hydrograph Type	= Junction	Peak Flow	= 103.3 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 104,970 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 30.16 ac



Pre-Dev Basin "F"

Hyd. No. 8

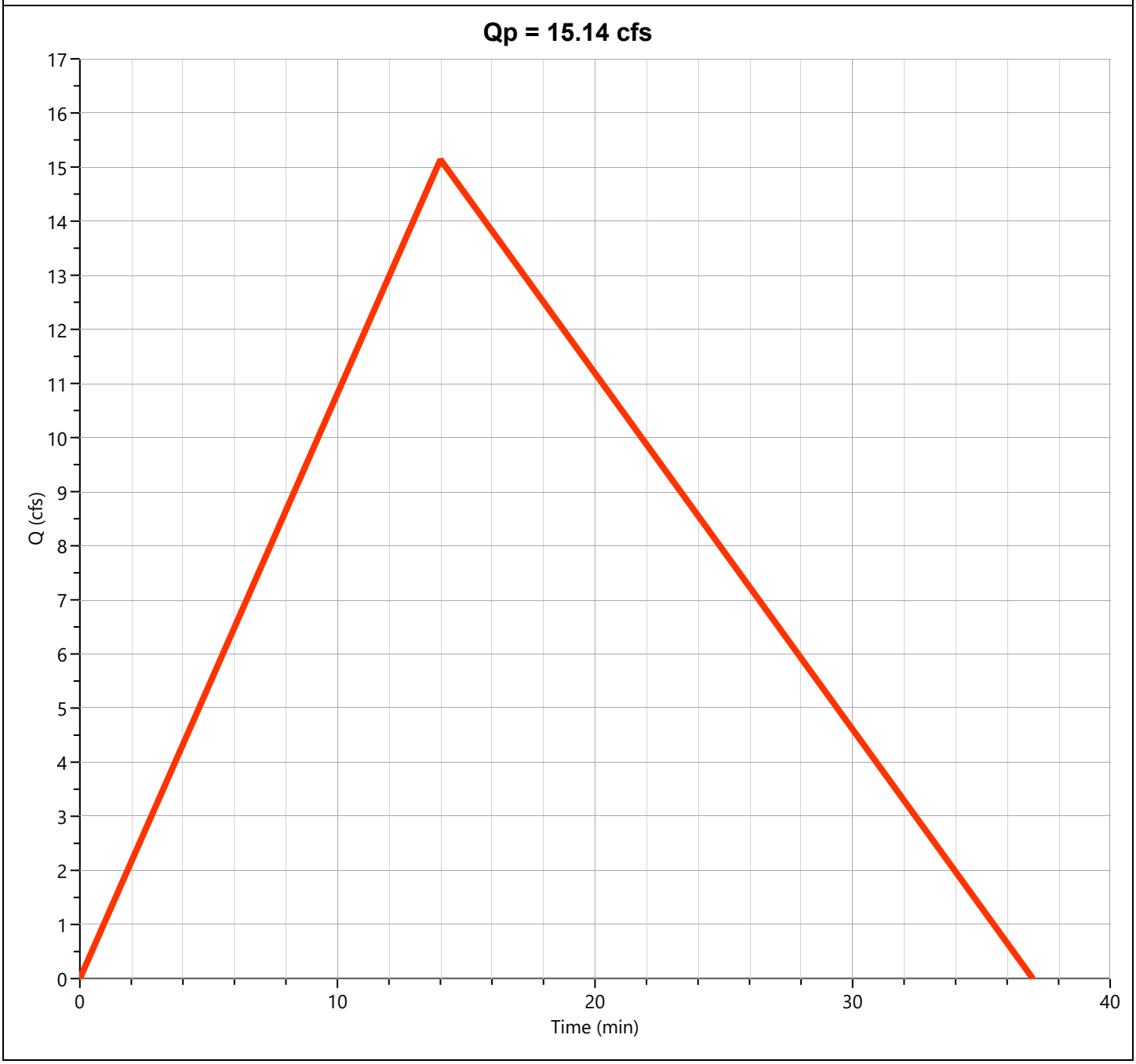
Hydrograph Type	= Rational	Peak Flow	= 41.64 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 56,705 cuft
Drainage Area	= 13.19 ac	Runoff Coeff.	= 0.53
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.96 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 9

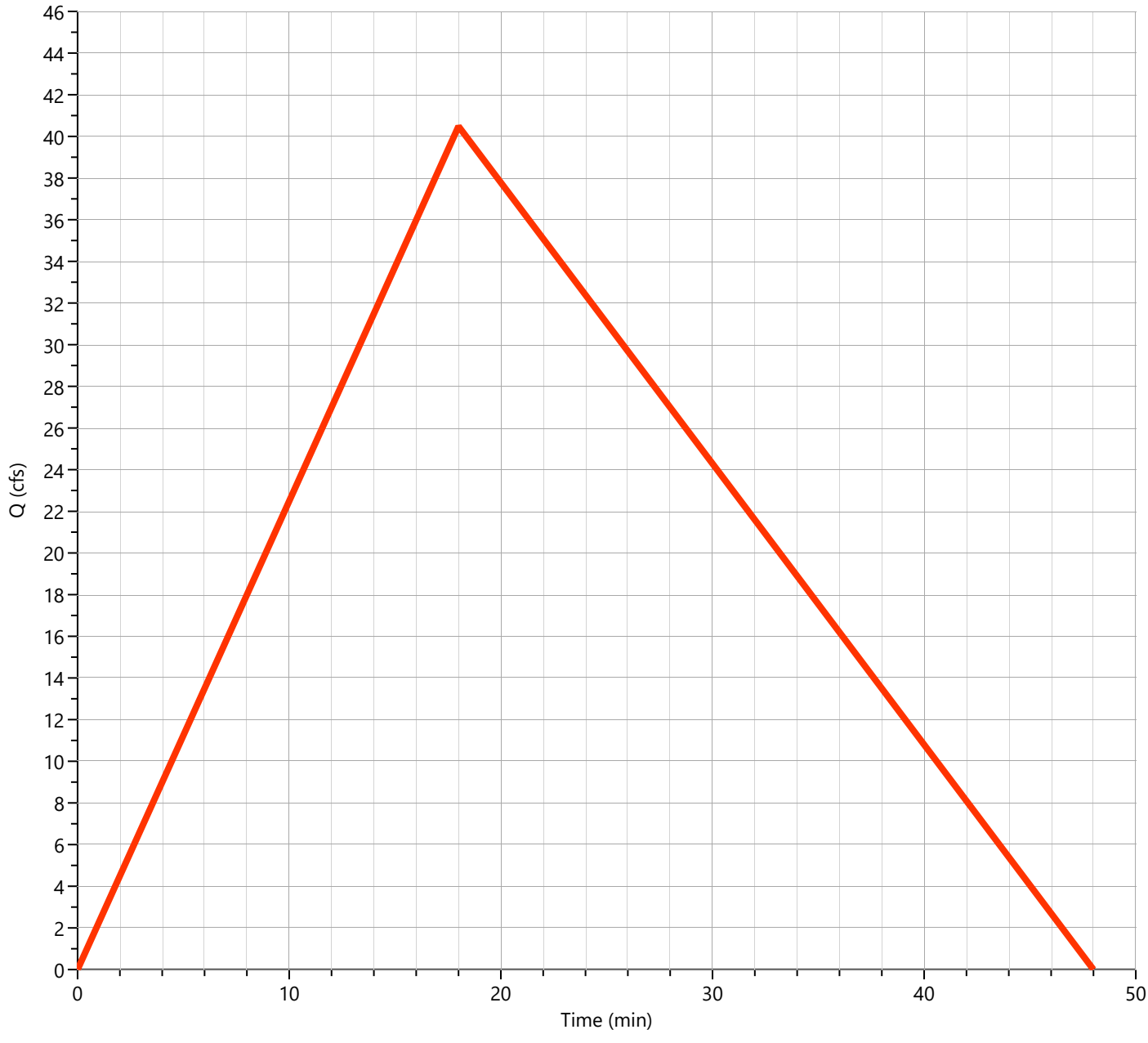
Hydrograph Type	= Rational	Peak Flow	= 15.14 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.23 hrs
Time Interval	= 1 min	Runoff Volume	= 16,976 cuft
Drainage Area	= 3.53 ac	Runoff Coeff.	= 0.66
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.50 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin B

Hyd. No. 10

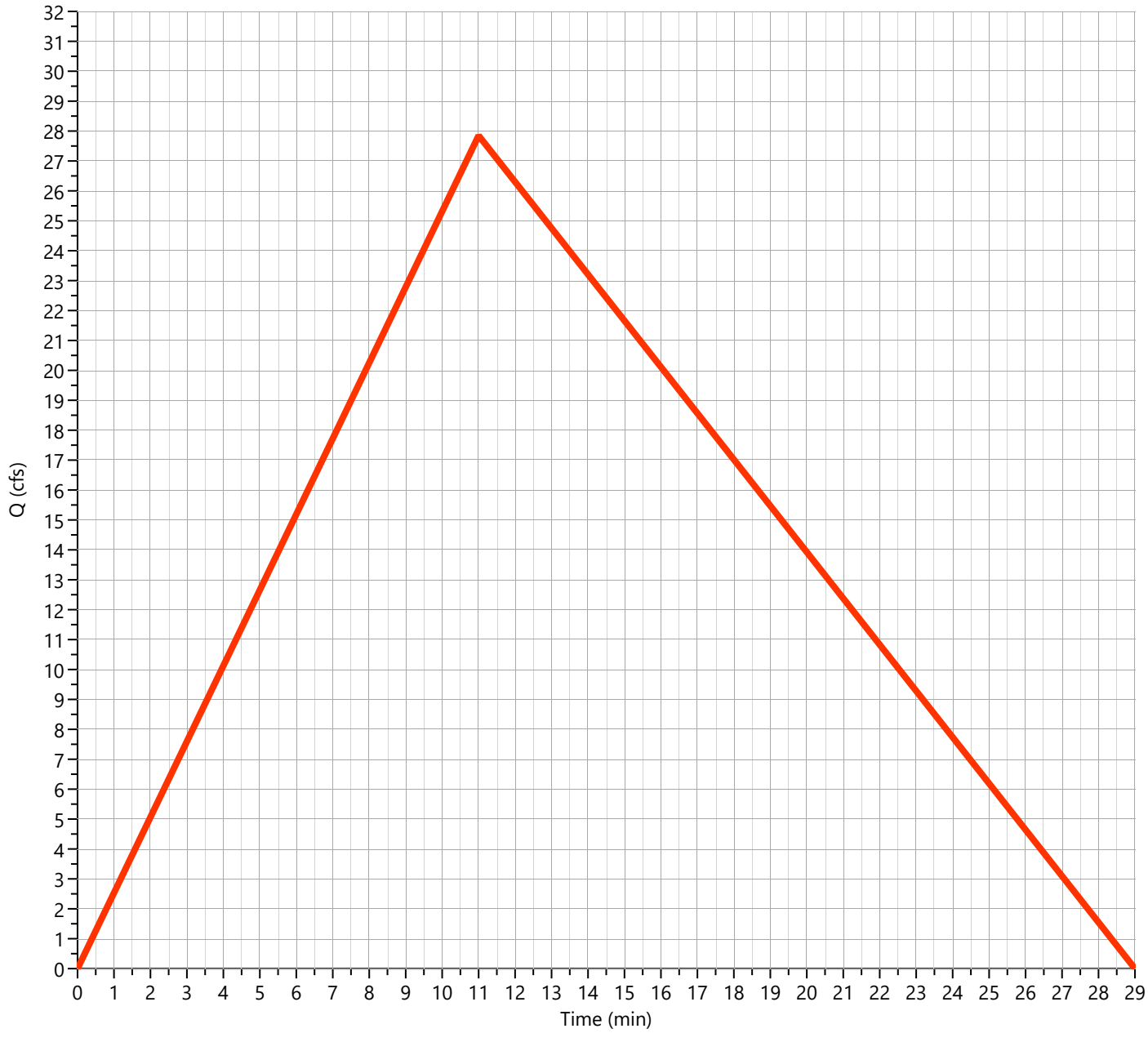
Hydrograph Type	= Rational	Peak Flow	= 40.48 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.30 hrs
Time Interval	= 1 min	Runoff Volume	= 58,368 cuft
Drainage Area	= 12.45 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 18.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 5.81 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "C"

Hyd. No. 11

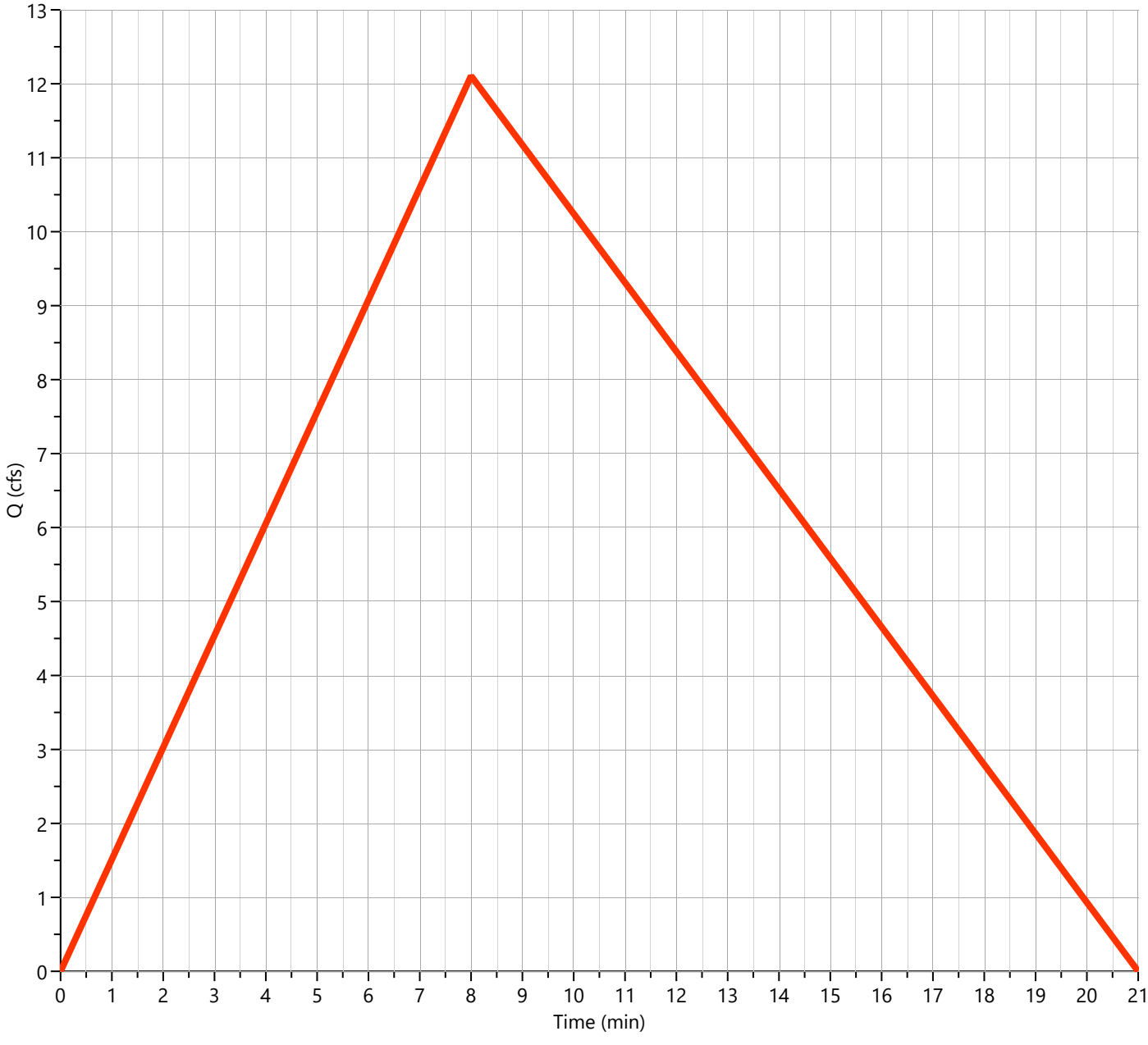
Hydrograph Type	= Rational	Peak Flow	= 27.85 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 24,537 cuft
Drainage Area	= 6.75 ac	Runoff Coeff.	= 0.57
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.24 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "D"

Hyd. No. 12

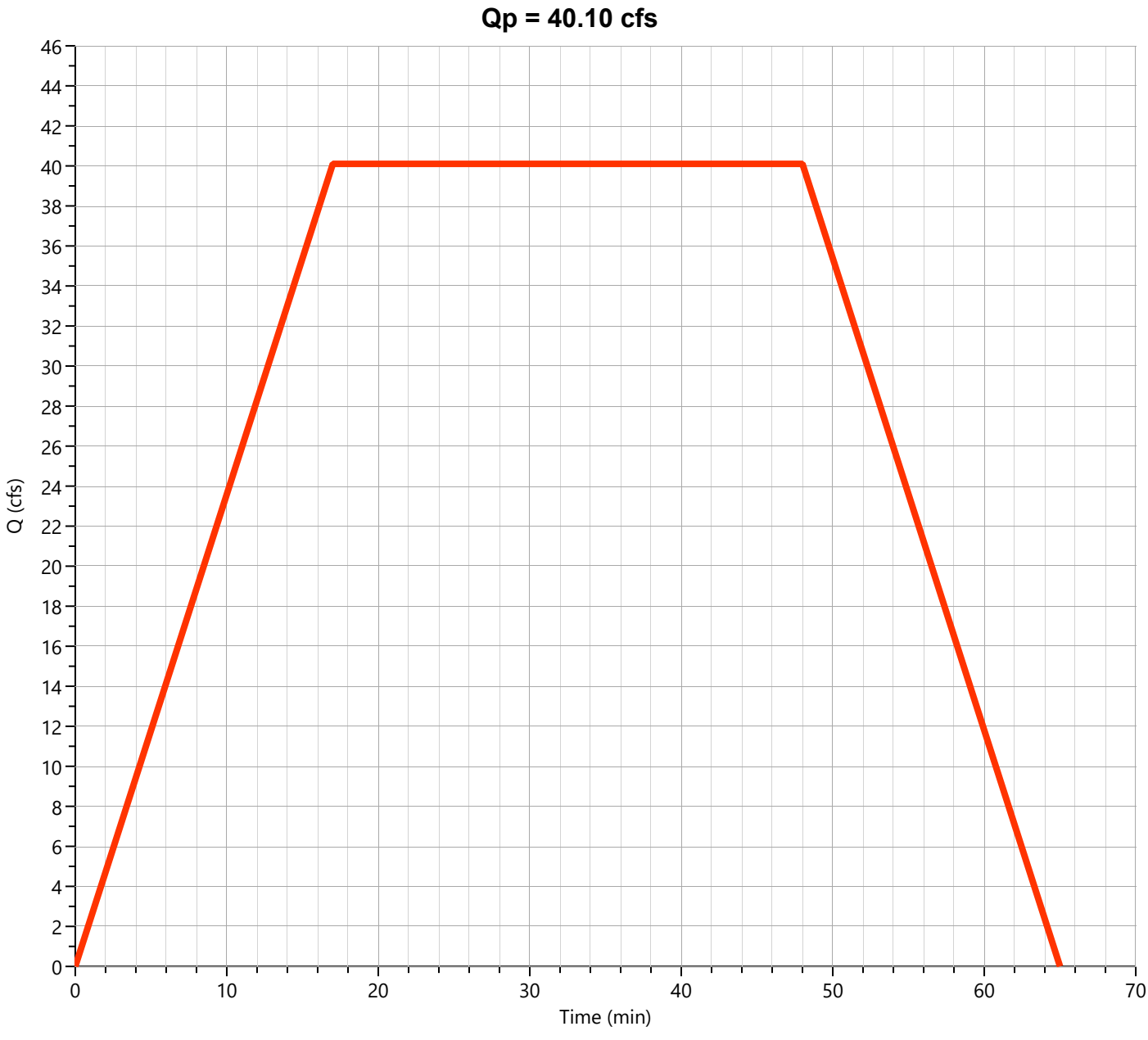
Hydrograph Type	= Rational	Peak Flow	= 12.11 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 7,757 cuft
Drainage Area	= 2.59 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 8.35 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "E-1"

Hyd. No. 13

Hydrograph Type	= Mod Rational	Peak Flow	= 40.10 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 115,494 cuft
Drainage Area	= 16.23 ac	Runoff Coeff.	= 0.66
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 3.74 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2.82 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



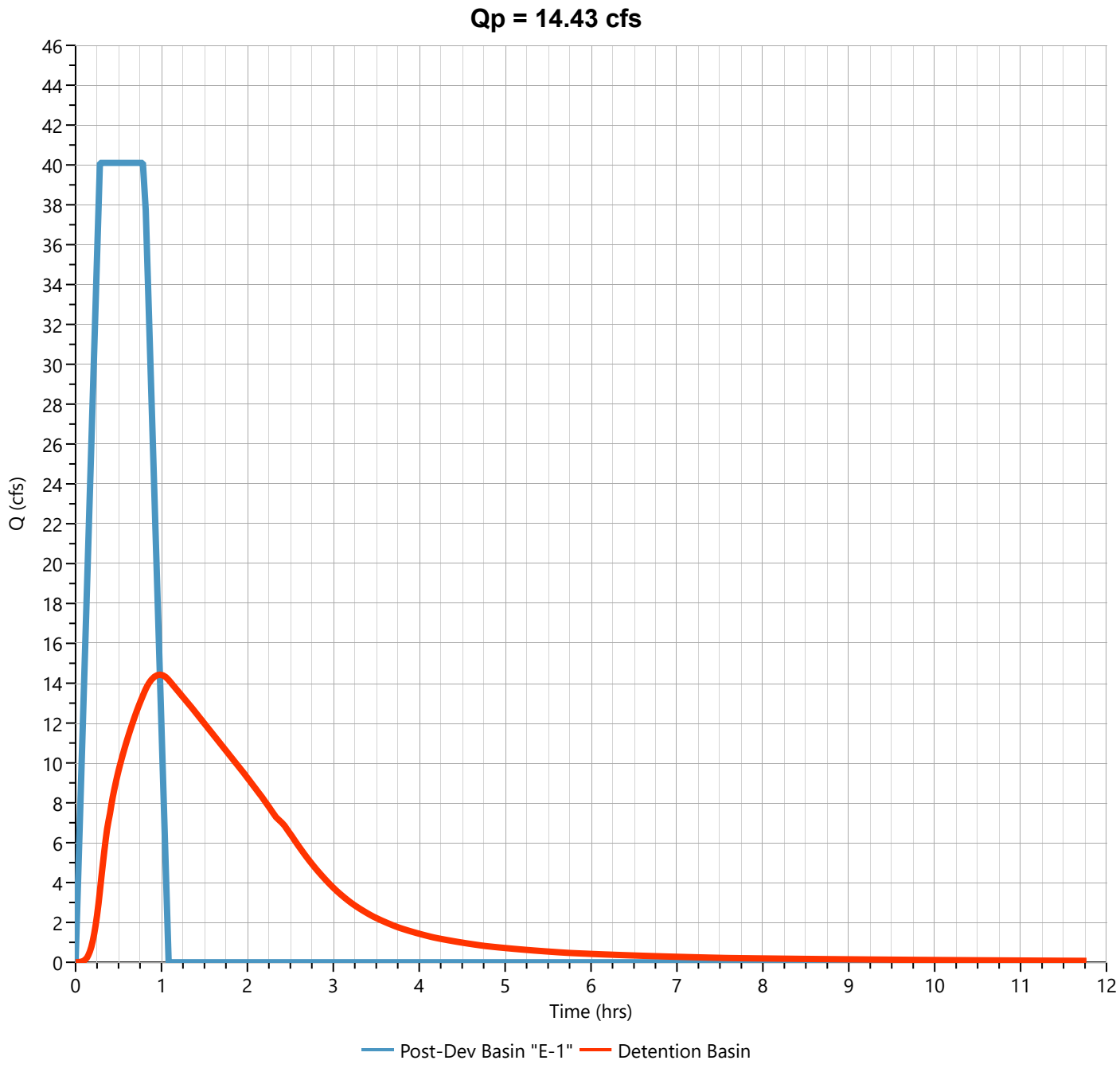
Detention Basin

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 14.43 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.98 hrs
Time Interval	= 1 min	Hydrograph Volume	= 115,403 cuft
Inflow Hydrograph	= 13 - Post-Dev Basin "E-1"	Max. Elevation	= 478.63 ft
Pond Name	= Hilltop Detention Pond	Max. Storage	= 84,597 cuft

Pond Routing by Storage Indication Method

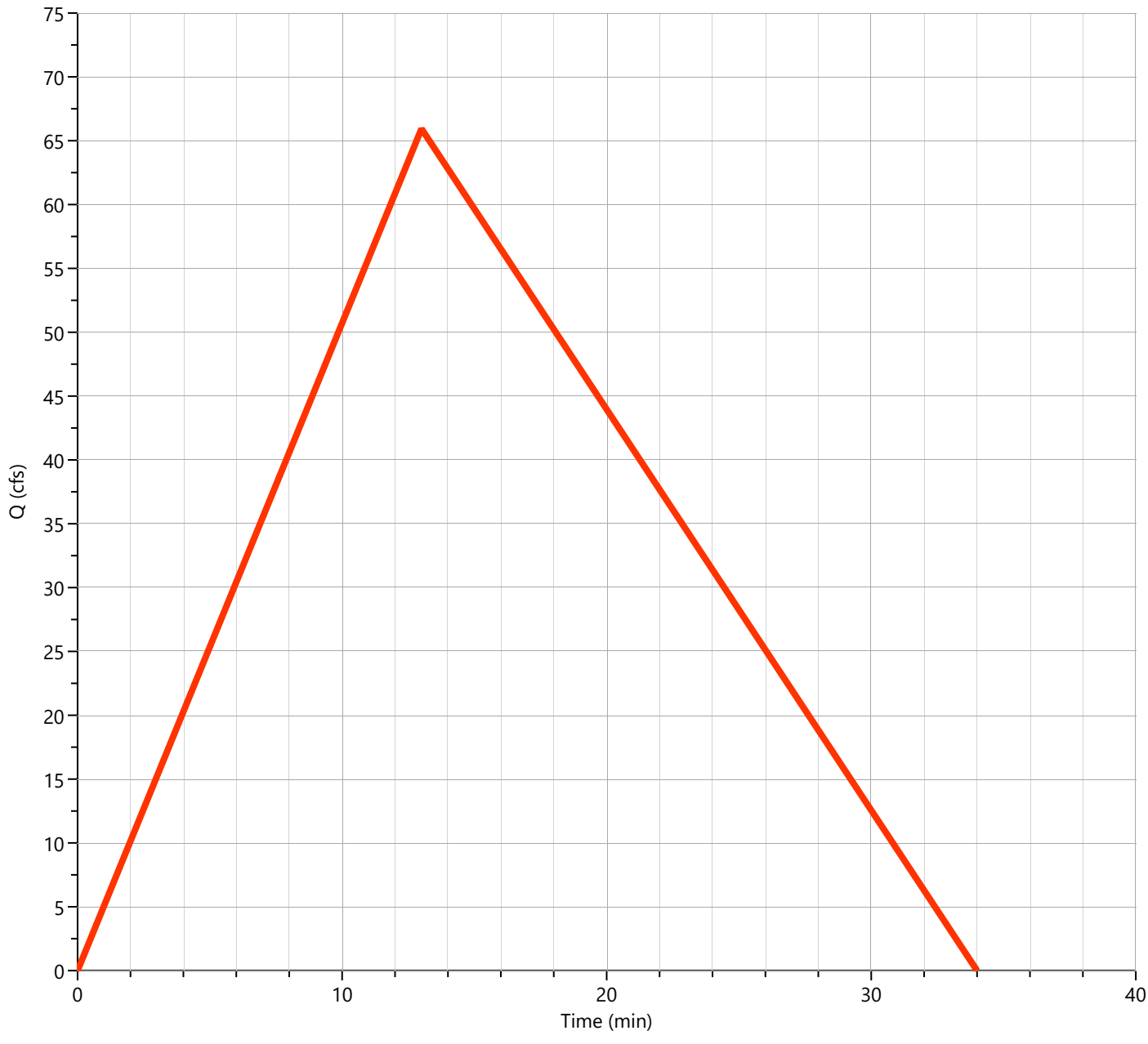
Center of mass detention time = 1.37 hrs



Post-Dev Basin "E-2"

Hyd. No. 15

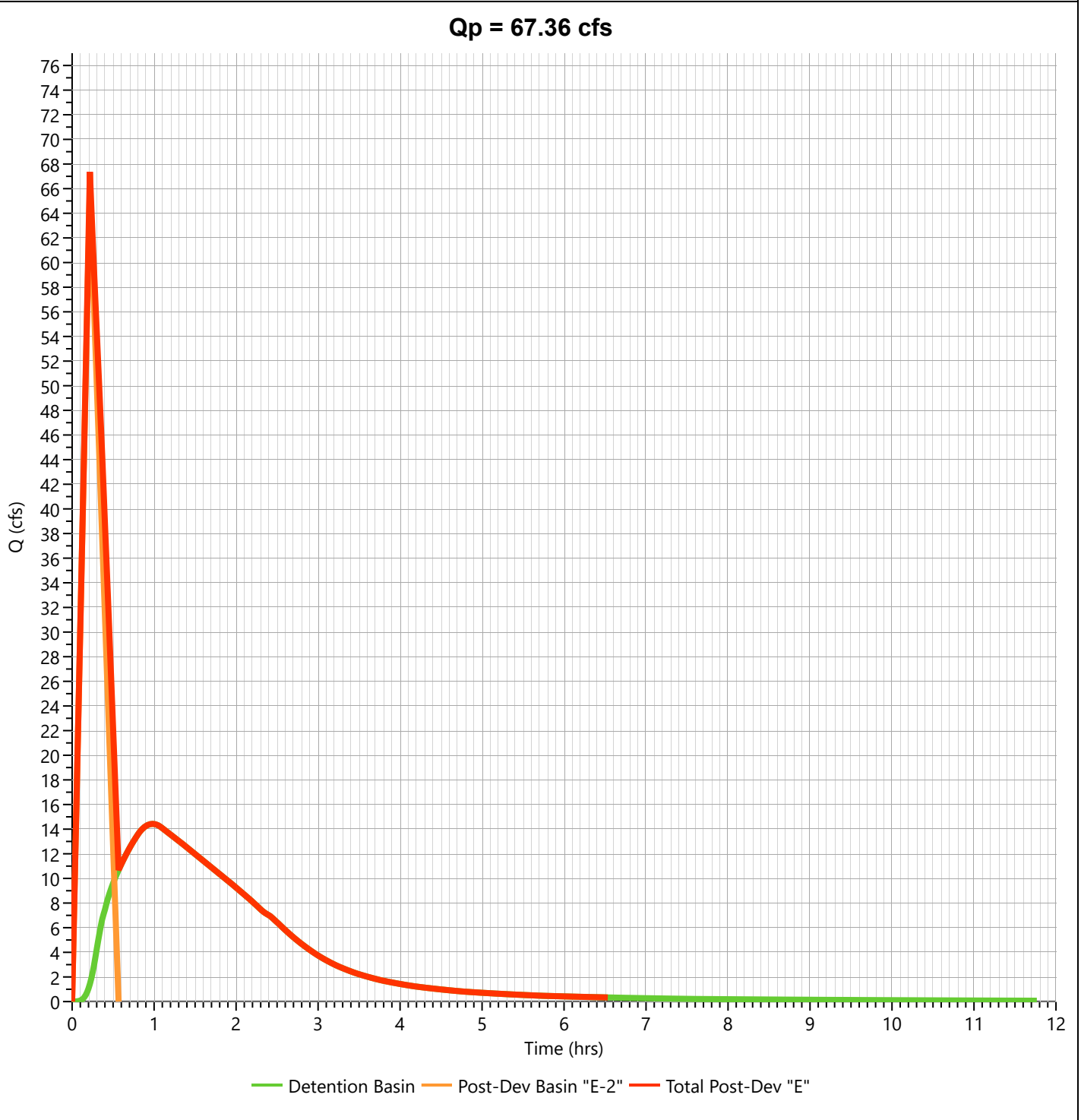
Hydrograph Type	= Rational	Peak Flow	= 65.94 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 68,659 cuft
Drainage Area	= 17.53 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.72 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev "E"

Hyd. No. 16

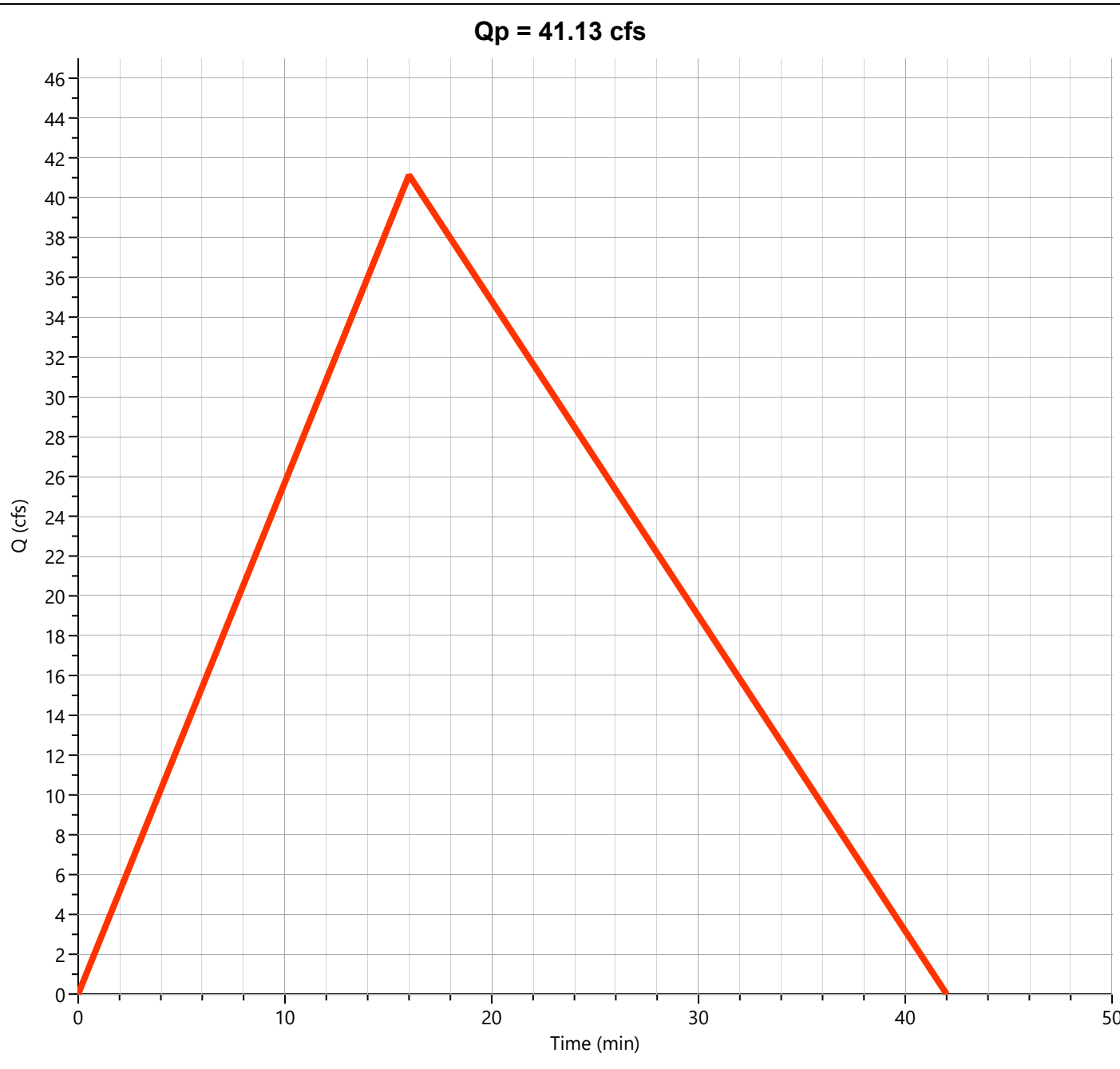
Hydrograph Type	= Junction	Peak Flow	= 67.36 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 182,657 cuft
Inflow Hydrographs	= 15	Total Contrib. Area	= 17.53 ac



Post-Dev Basin "F"

Hyd. No. 17

Hydrograph Type	= Rational	Peak Flow	= 41.13 cfs
Storm Frequency	= 50-yr	Time to Peak	= 0.27 hrs
Time Interval	= 1 min	Runoff Volume	= 52,714 cuft
Drainage Area	= 12.0 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.12 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Hydrograph 100-yr Summary

Hydrology Studio v 3.0.0.39

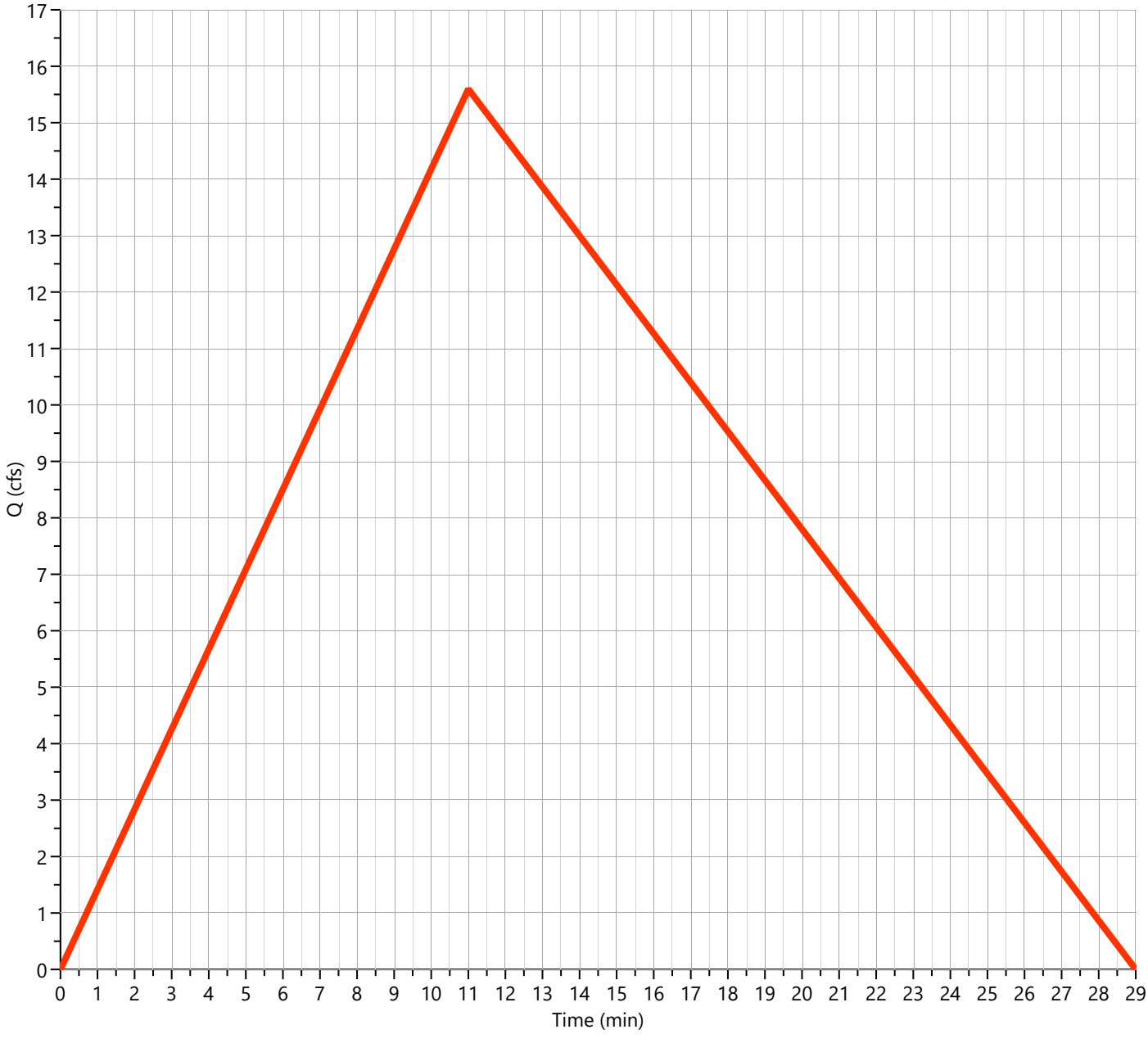
Project Name: Hilltop Subdivision
File: Detention Calculation 3-4-26.hys
03-04-2026

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	Rational	Pre-Dev Basin "A"	15.60	0.18	13,742	----		
2	Rational	Pre-Dev Basin "B"	52.42	0.25	62,983	----		
3	Rational	Pre-Dev Basin "C"	29.57	0.18	26,057	----		
4	Rational	Pre-Dev Basin "D"	13.38	0.13	8,572	----		
5	Rational	Pre-Dev Basin "E-1"	42.33	0.20	40,692	----		
6	Rational	Pre-Dev Basin "E-2"	71.90	0.22	74,872	----		
7	Junction	Total Pre Basin "E"	112.1	0.22	113,981	5, 6		
8	Rational	Pre-Dev Basin "F"	45.20	0.28	61,545	----		
9	Rational	Post-Dev Basin A	16.43	0.23	18,430	----		
10	Rational	Post-Dev Basin B	43.93	0.30	63,344	----		
11	Rational	Post-Dev Basin "C"	30.24	0.18	26,649	----		
12	Rational	Post-Dev Basin "D"	13.15	0.13	8,429	----		
13	Mod Rational	Post-Dev Basin "E-1"	43.46	0.28	125,154	----		
14	Pond Route	Detention Basin	15.18	0.98	125,061	13	478.93	92,311
15	Rational	Post-Dev Basin "E-2"	71.59	0.22	74,550	----		
16	Junction	Total Post-Dev "E"	73.24	0.22	198,086	14, 15		
17	Rational	Post-Dev Basin "F"	44.65	0.27	57,218	----		

Pre-Dev Basin "A"

Hyd. No. 1

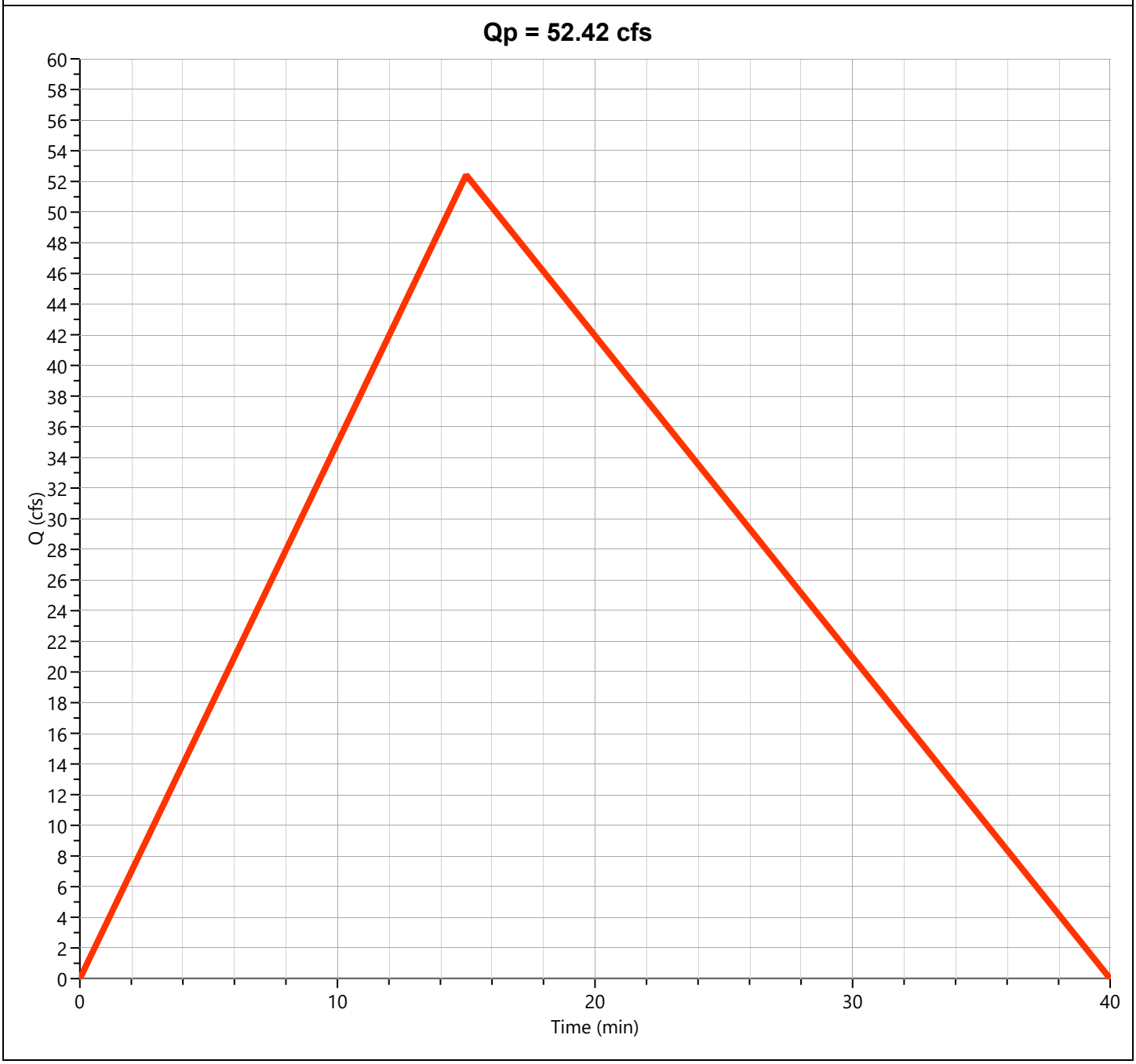
Hydrograph Type	= Rational	Peak Flow	= 15.60 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 13,742 cuft
Drainage Area	= 3.2 ac	Runoff Coeff.	= 0.62
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.86 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "B"

Hyd. No. 2

Hydrograph Type	= Rational	Peak Flow	= 52.42 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.25 hrs
Time Interval	= 1 min	Runoff Volume	= 62,983 cuft
Drainage Area	= 14.74 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 15.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.84 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "C"

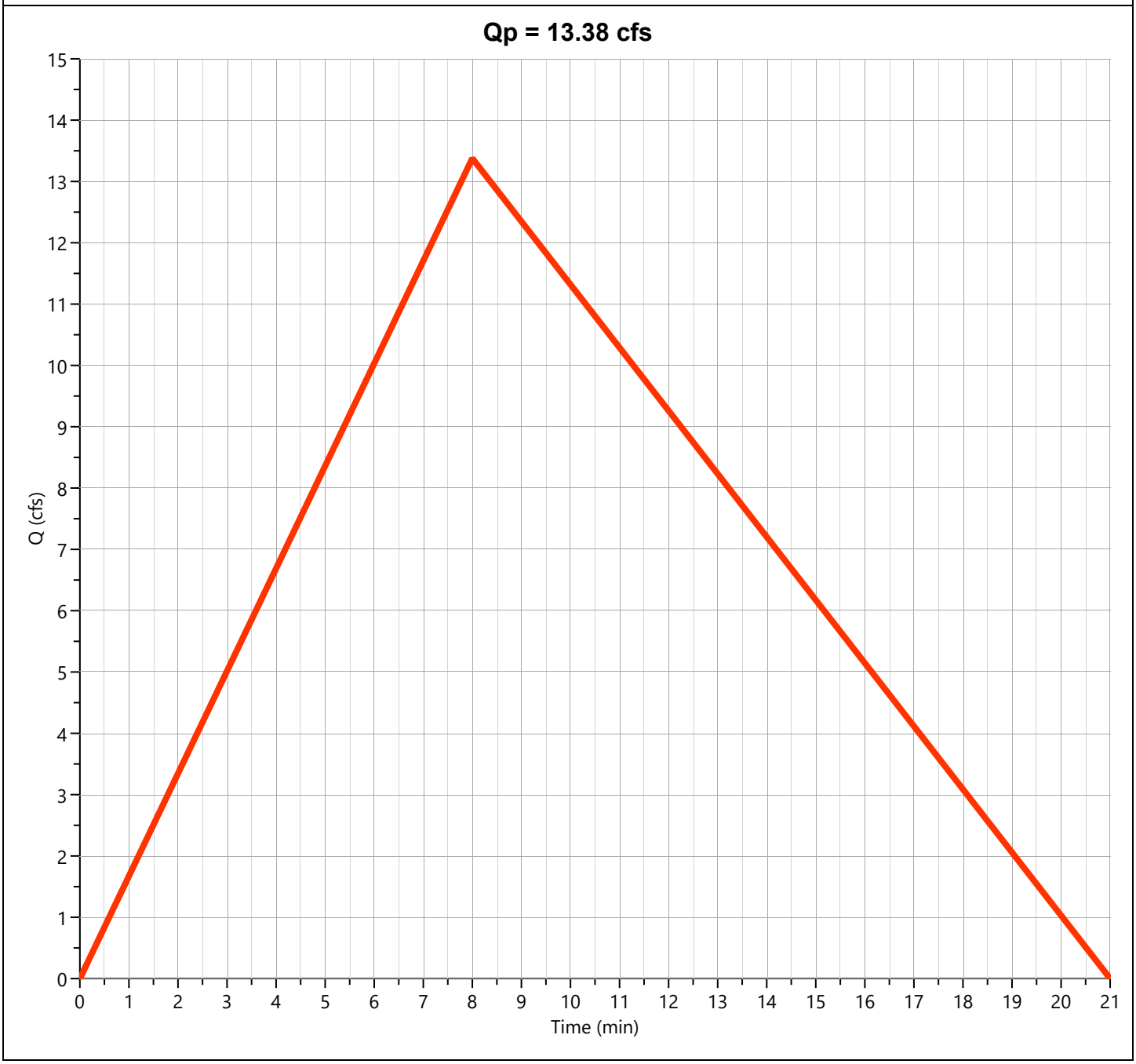
Hyd. No. 3

Hydrograph Type	= Rational	Peak Flow	= 29.57 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 26,057 cuft
Drainage Area	= 6.84 ac	Runoff Coeff.	= 0.55
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.86 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

Pre-Dev Basin "D"

Hyd. No. 4

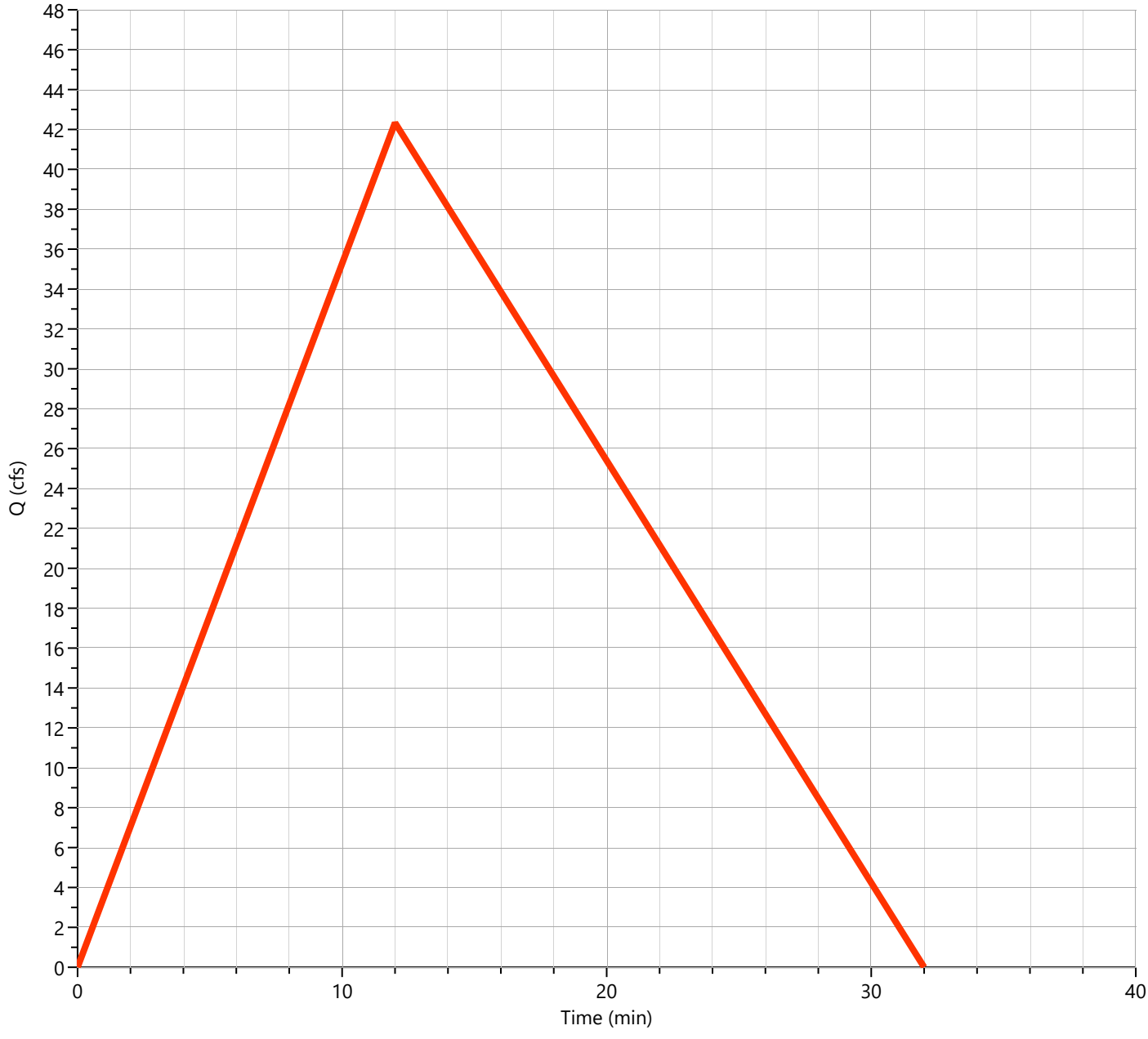
Hydrograph Type	= Rational	Peak Flow	= 13.38 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 8,572 cuft
Drainage Area	= 2.95 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 9.07 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-1"

Hyd. No. 5

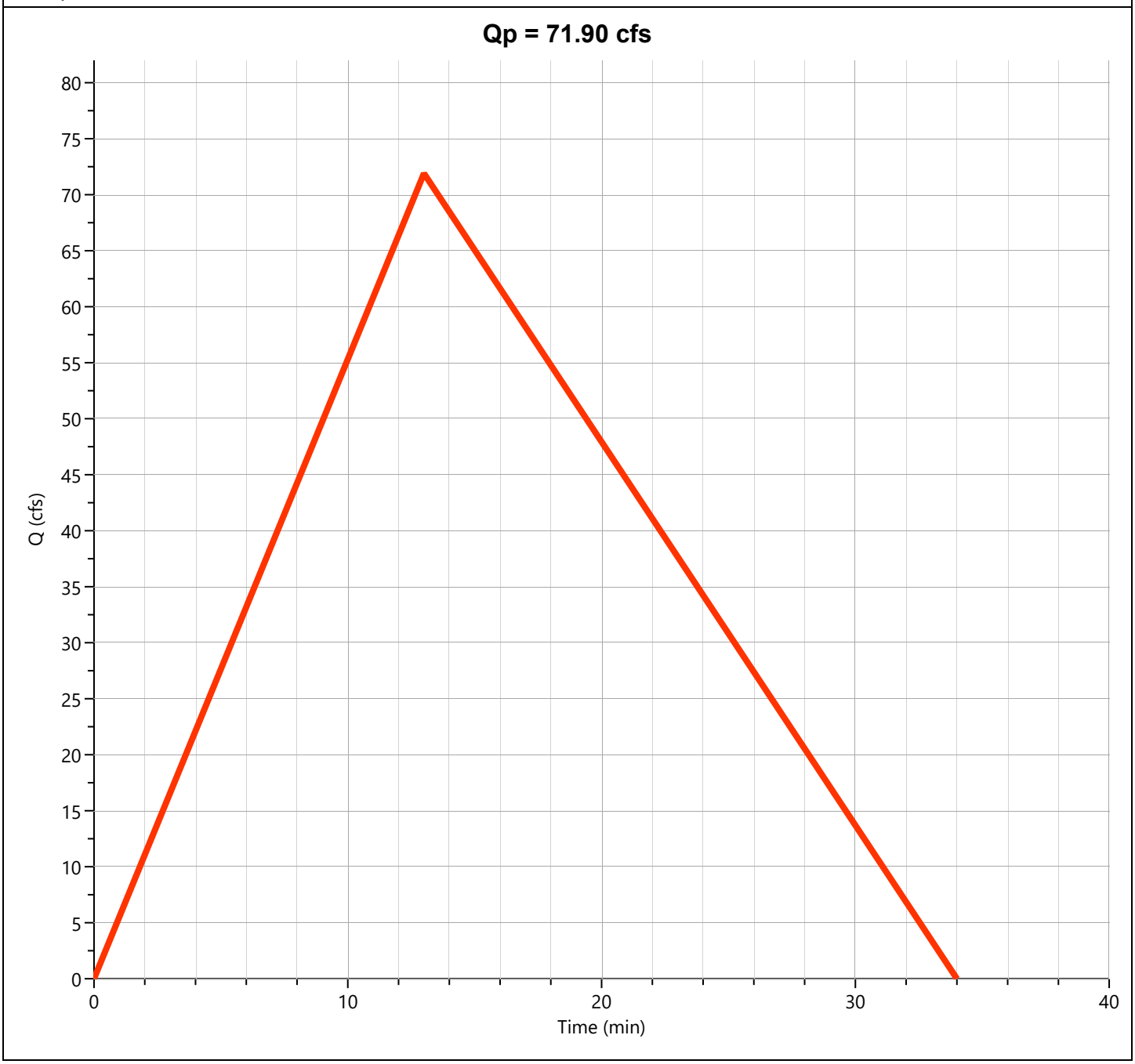
Hydrograph Type	= Rational	Peak Flow	= 42.33 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.20 hrs
Time Interval	= 1 min	Runoff Volume	= 40,692 cuft
Drainage Area	= 11.2 ac	Runoff Coeff.	= 0.50
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 12.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.56 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Pre-Dev Basin "E-2"

Hyd. No. 6

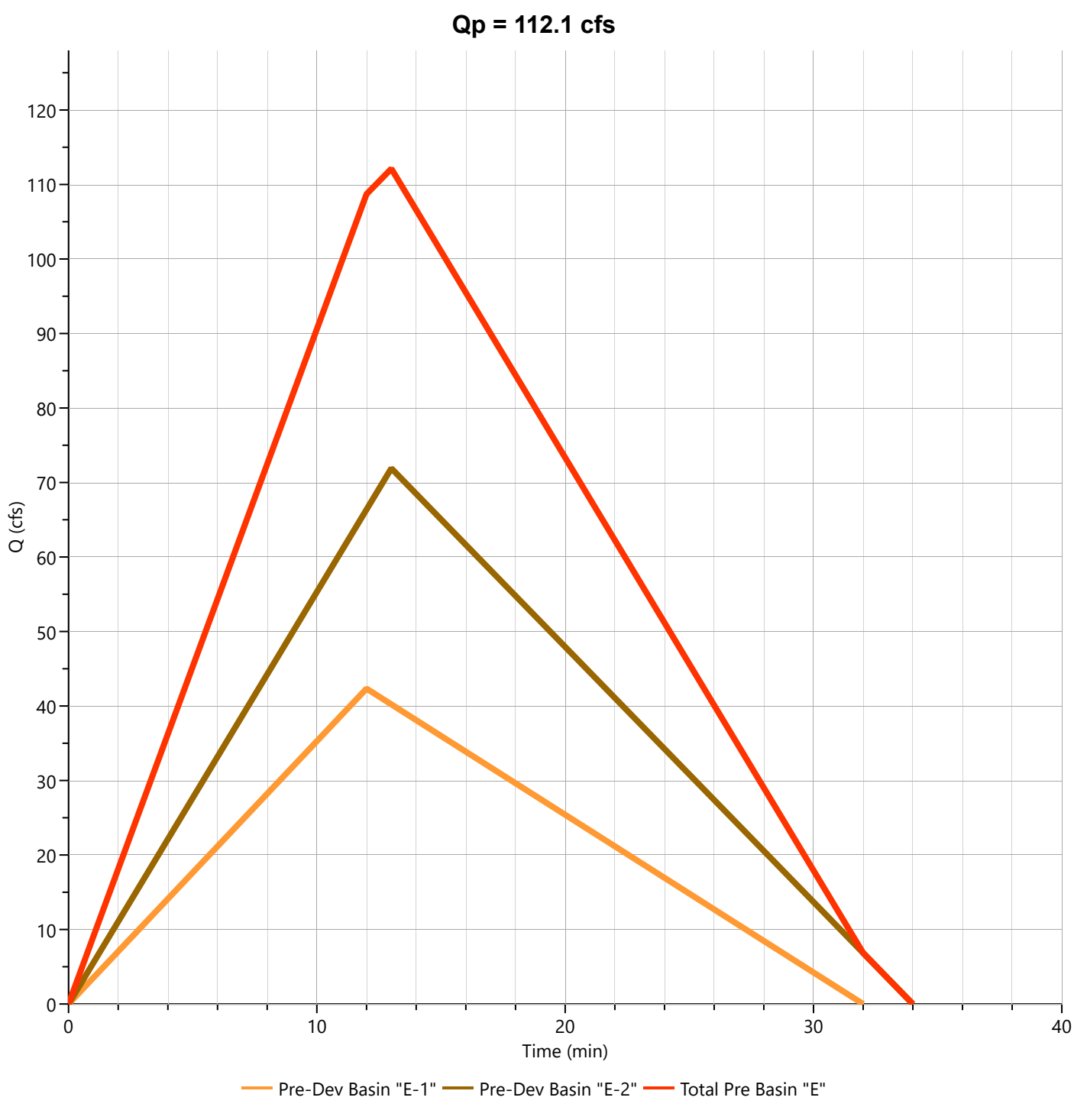
Hydrograph Type	= Rational	Peak Flow	= 71.90 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 74,872 cuft
Drainage Area	= 18.96 ac	Runoff Coeff.	= 0.52
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.29 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Pre Basin "E"

Hyd. No. 7

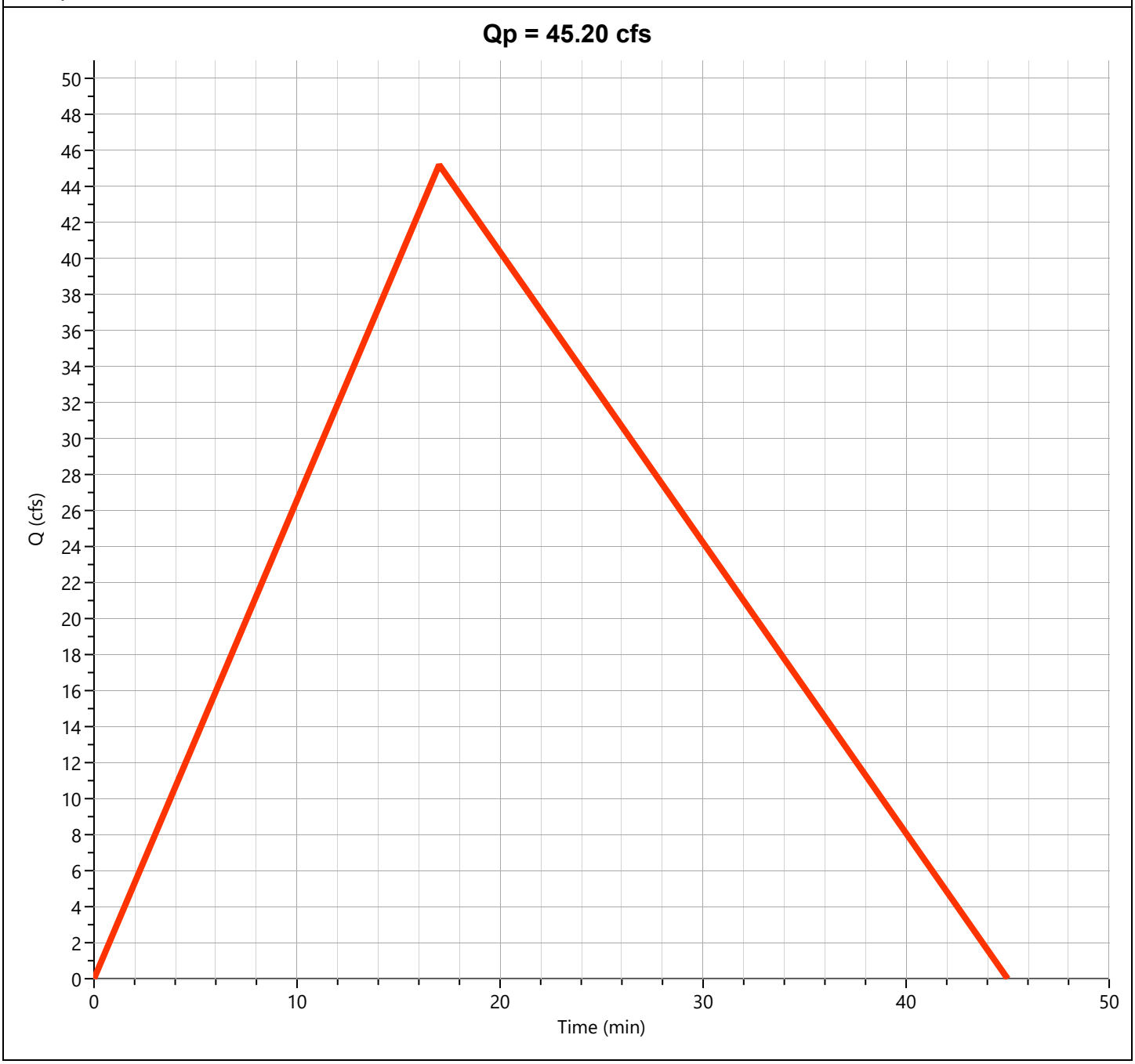
Hydrograph Type	= Junction	Peak Flow	= 112.1 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 113,981 cuft
Inflow Hydrographs	= 5, 6	Total Contrib. Area	= 30.16 ac



Pre-Dev Basin "F"

Hyd. No. 8

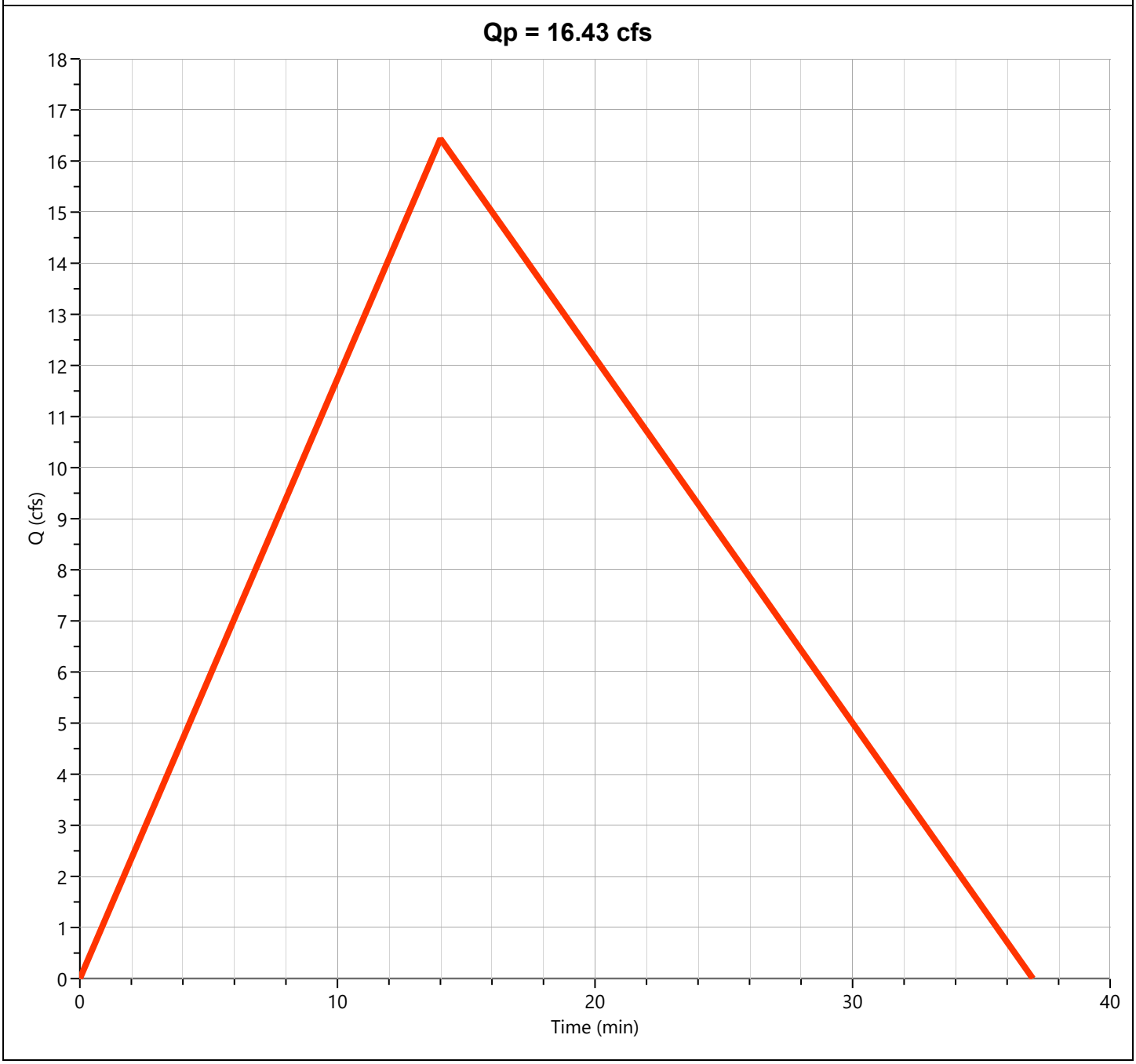
Hydrograph Type	= Rational	Peak Flow	= 45.20 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 61,545 cuft
Drainage Area	= 13.19 ac	Runoff Coeff.	= 0.53
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.47 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin A

Hyd. No. 9

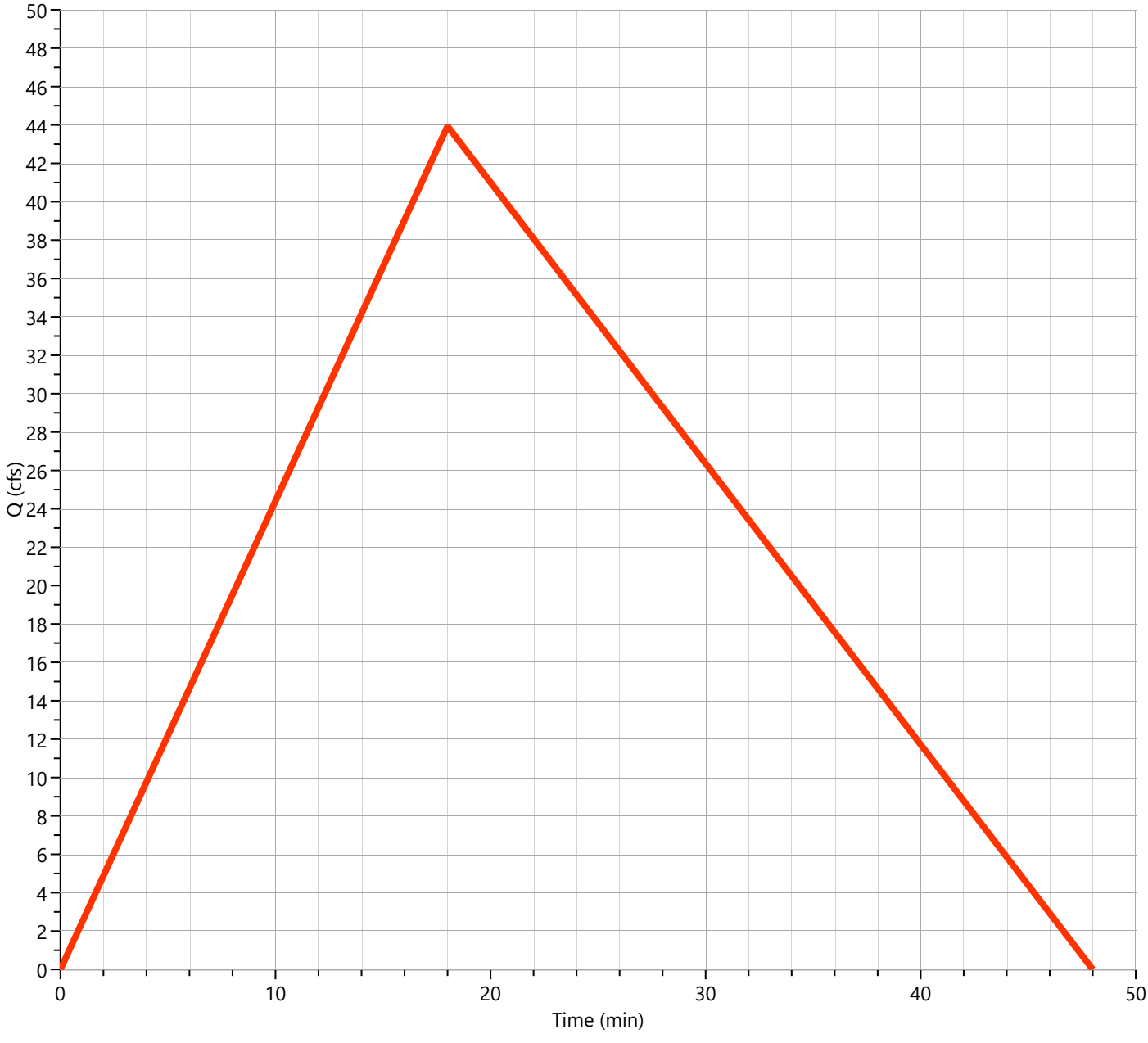
Hydrograph Type	= Rational	Peak Flow	= 16.43 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.23 hrs
Time Interval	= 1 min	Runoff Volume	= 18,430 cuft
Drainage Area	= 3.53 ac	Runoff Coeff.	= 0.66
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 14.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.05 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin B

Hyd. No. 10

Hydrograph Type	= Rational	Peak Flow	= 43.93 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.30 hrs
Time Interval	= 1 min	Runoff Volume	= 63,344 cuft
Drainage Area	= 12.45 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 18.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.30 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "C"

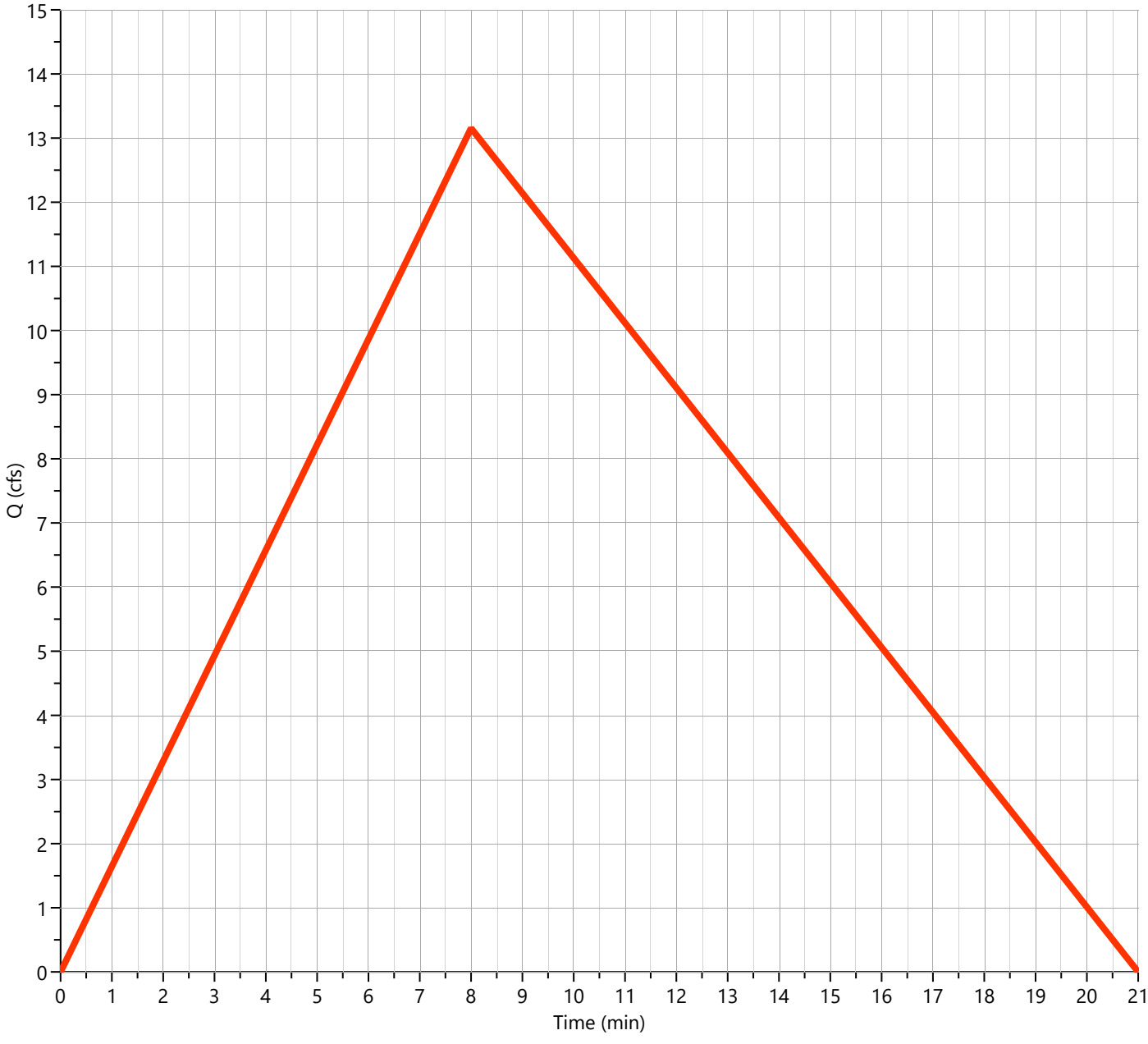
Hyd. No. 11

Hydrograph Type	= Rational	Peak Flow	= 30.24 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.18 hrs
Time Interval	= 1 min	Runoff Volume	= 26,649 cuft
Drainage Area	= 6.75 ac	Runoff Coeff.	= 0.57
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 11.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.86 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67

Post-Dev Basin "D"

Hyd. No. 12

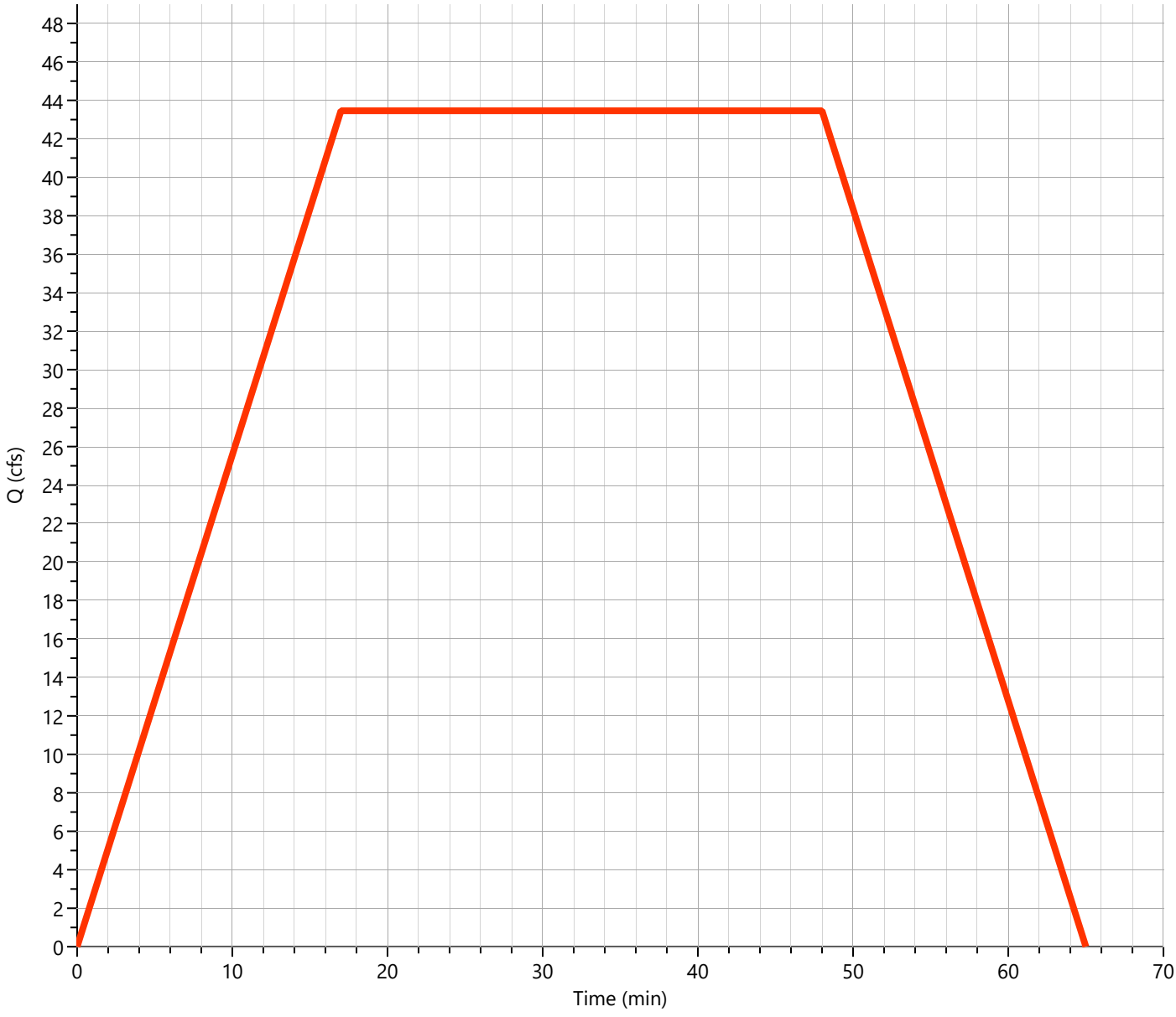
Hydrograph Type	= Rational	Peak Flow	= 13.15 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.13 hrs
Time Interval	= 1 min	Runoff Volume	= 8,429 cuft
Drainage Area	= 2.59 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 8.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 9.07 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Post-Dev Basin "E-1"

Hyd. No. 13

Hydrograph Type	= Mod Rational	Peak Flow	= 43.46 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.28 hrs
Time Interval	= 1 min	Runoff Volume	= 125,154 cuft
Drainage Area	= 16.23 ac	Runoff Coeff.	= 0.66
Tc Method	= User	Time of Conc. (Tc)	= 17.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 4.06 in/hr
Freq. Corr. Factor	= 1.00	Storm Duration	= 2.82 x Tc
Target Q	= 0.000 cfs	Required Storage	= 0.000 cuft



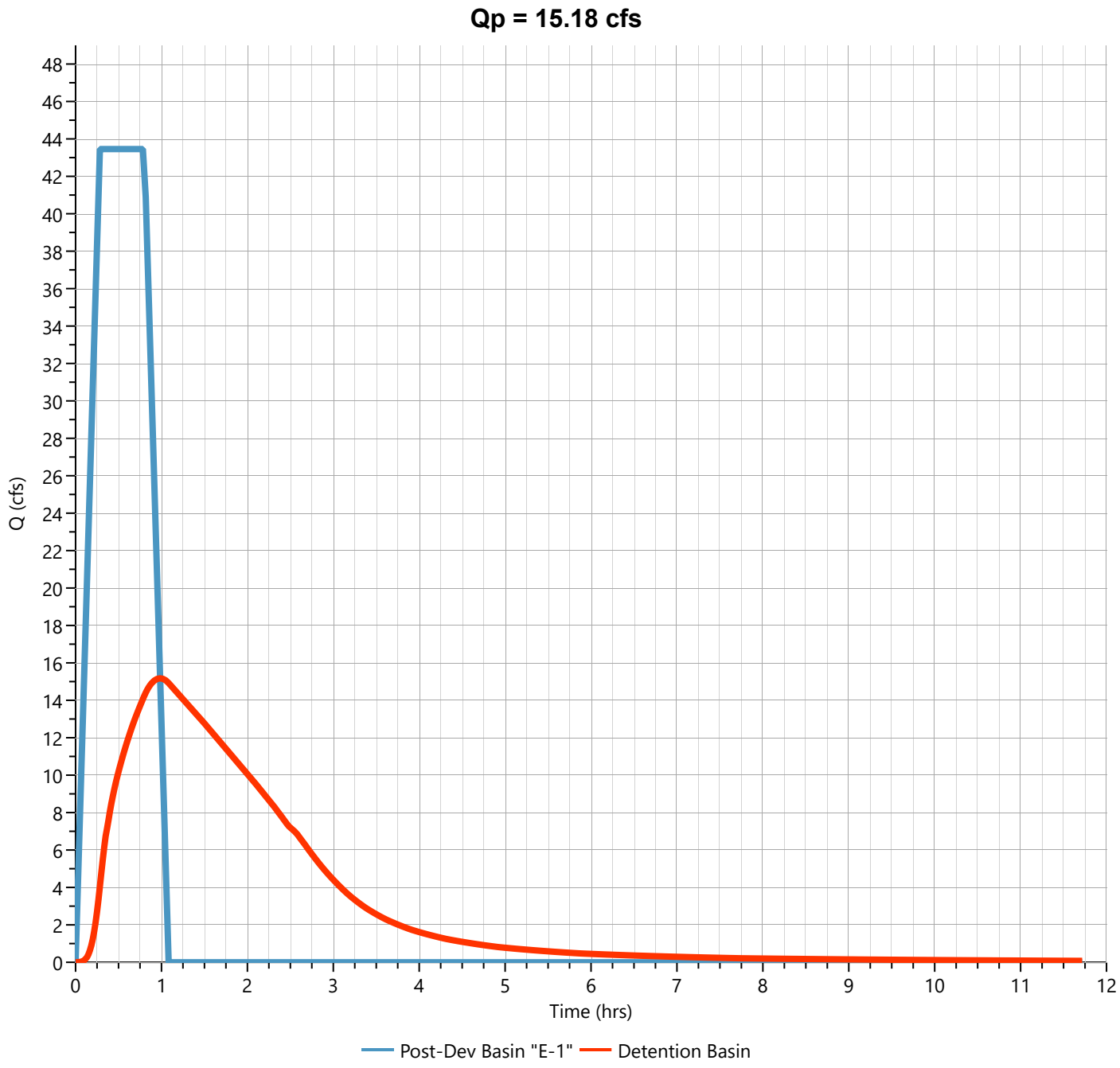
Detention Basin

Hyd. No. 14

Hydrograph Type	= Pond Route	Peak Flow	= 15.18 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.98 hrs
Time Interval	= 1 min	Hydrograph Volume	= 125,061 cuft
Inflow Hydrograph	= 13 - Post-Dev Basin "E-1"	Max. Elevation	= 478.93 ft
Pond Name	= Hilltop Detention Pond	Max. Storage	= 92,311 cuft

Pond Routing by Storage Indication Method

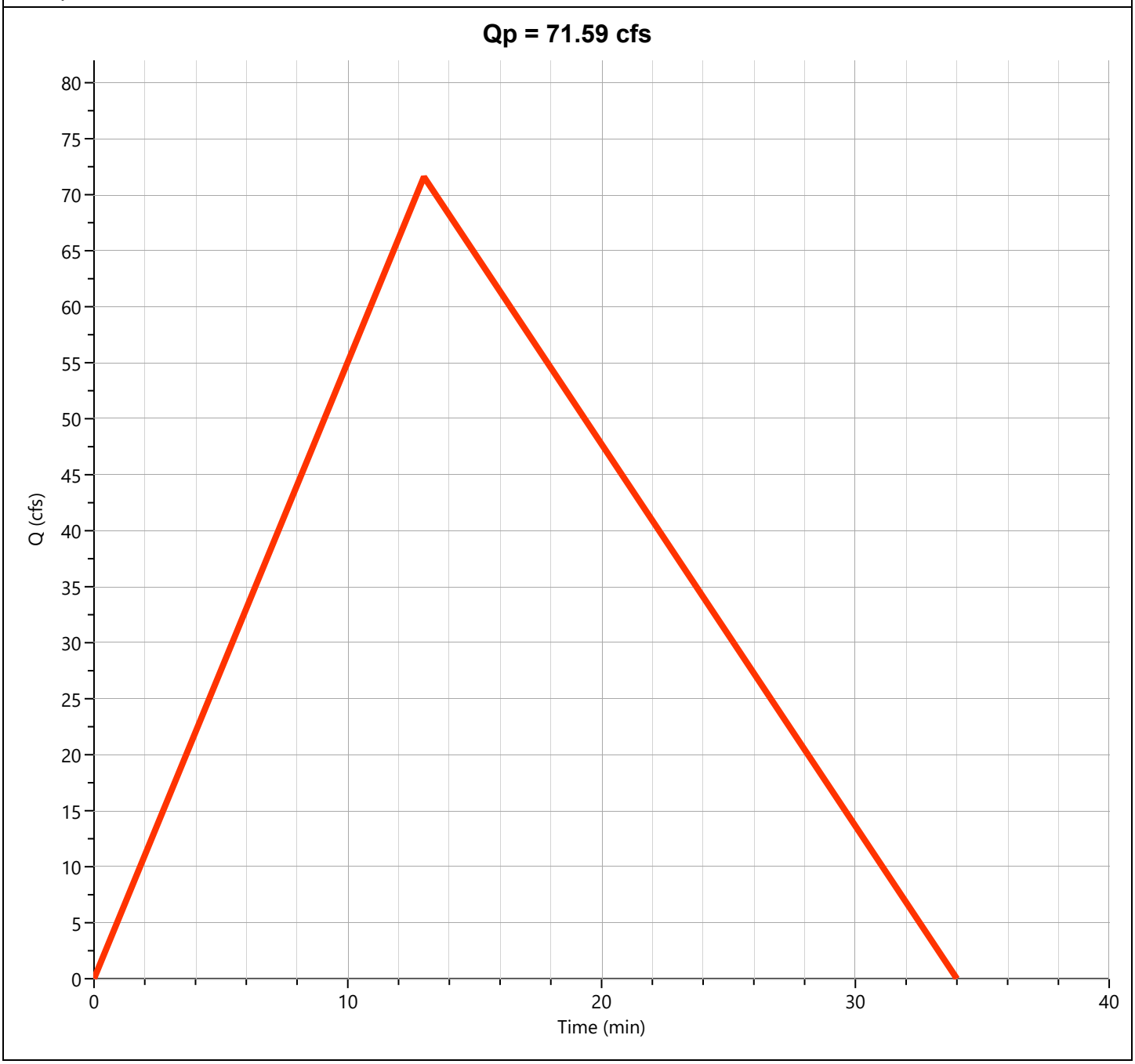
Center of mass detention time = 1.39 hrs



Post-Dev Basin "E-2"

Hyd. No. 15

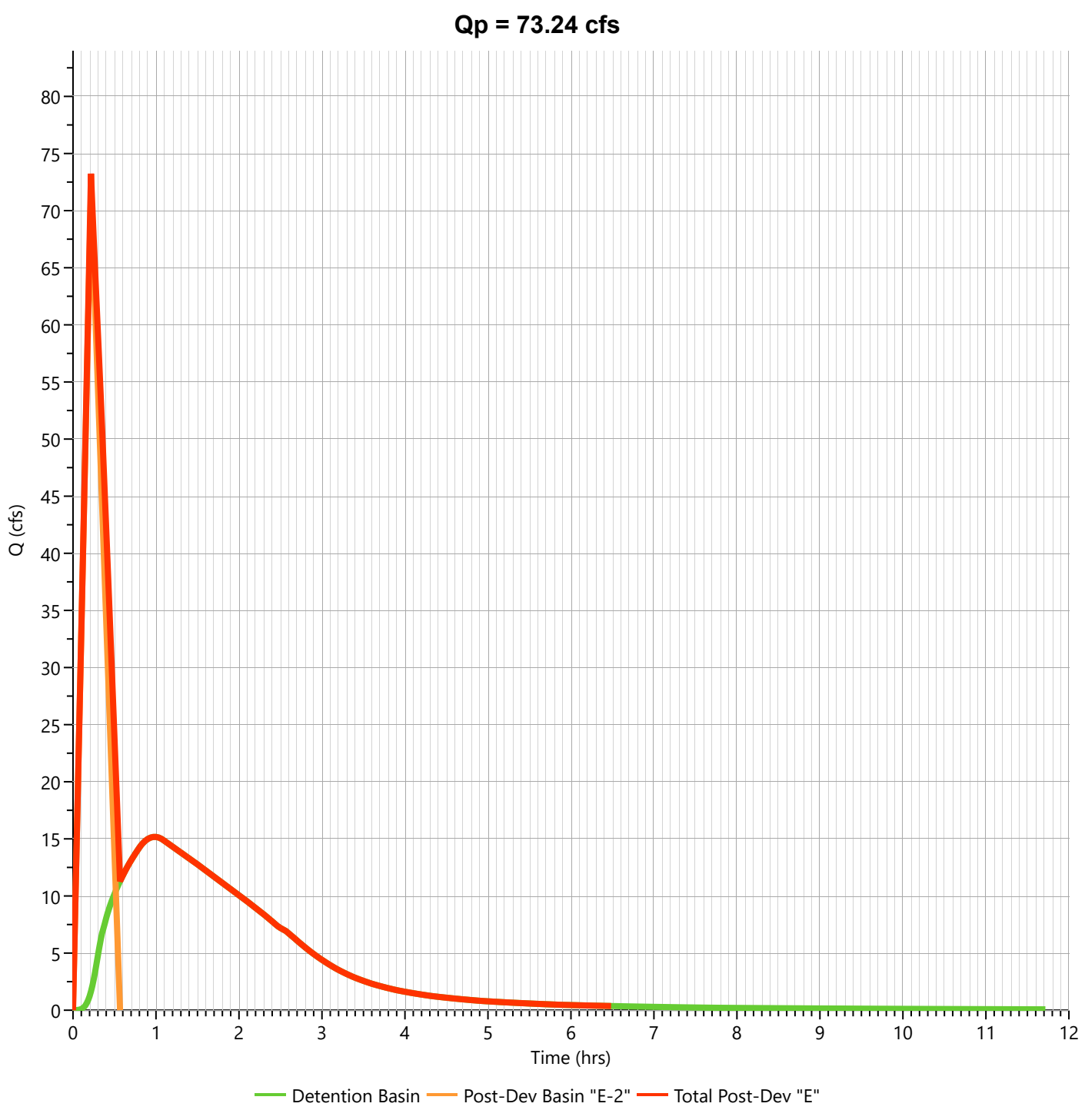
Hydrograph Type	= Rational	Peak Flow	= 71.59 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Runoff Volume	= 74,550 cuft
Drainage Area	= 17.53 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 13.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 7.29 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67



Total Post-Dev "E"

Hyd. No. 16

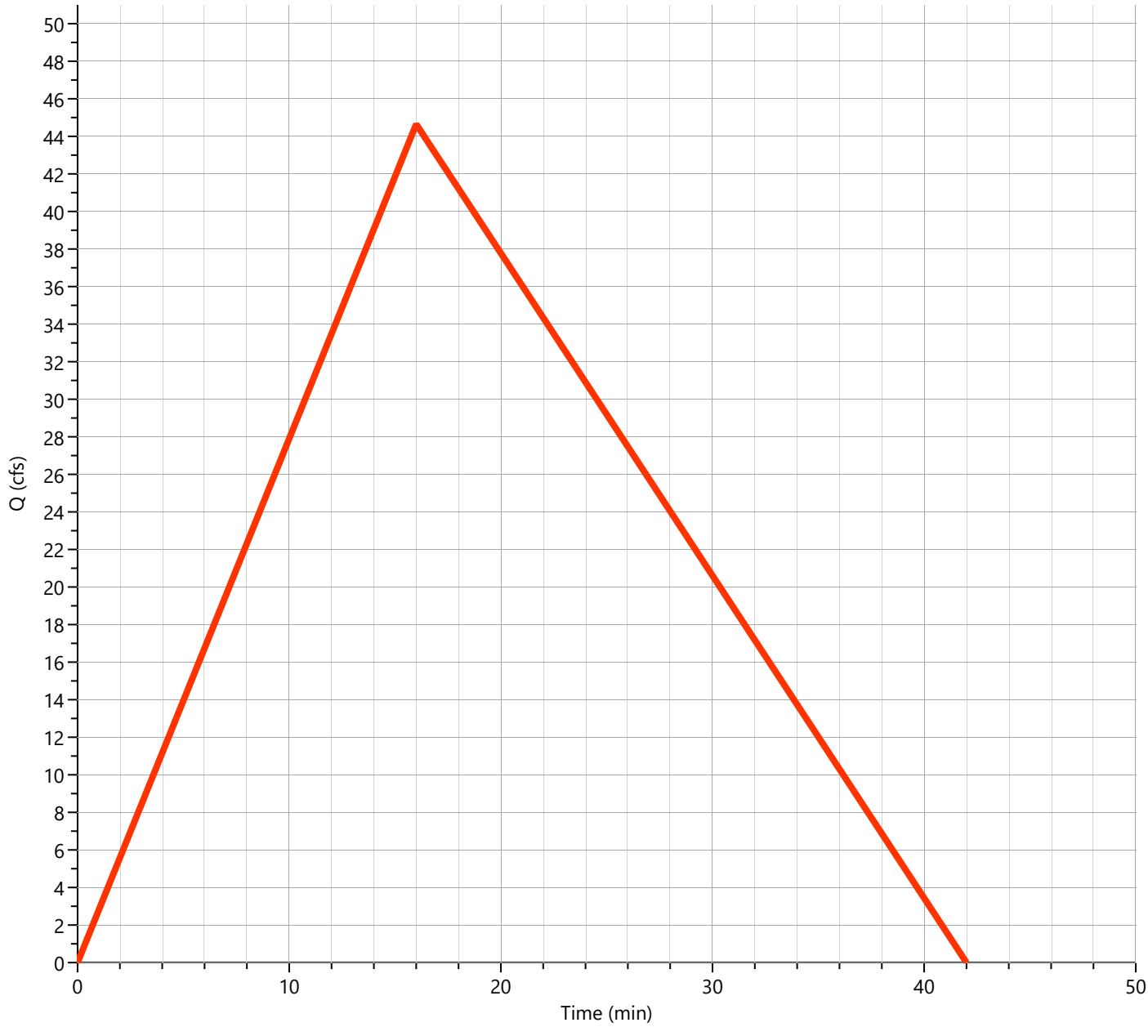
Hydrograph Type	= Junction	Peak Flow	= 73.24 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.22 hrs
Time Interval	= 1 min	Hydrograph Volume	= 198,086 cuft
Inflow Hydrographs	= 15	Total Contrib. Area	= 17.53 ac

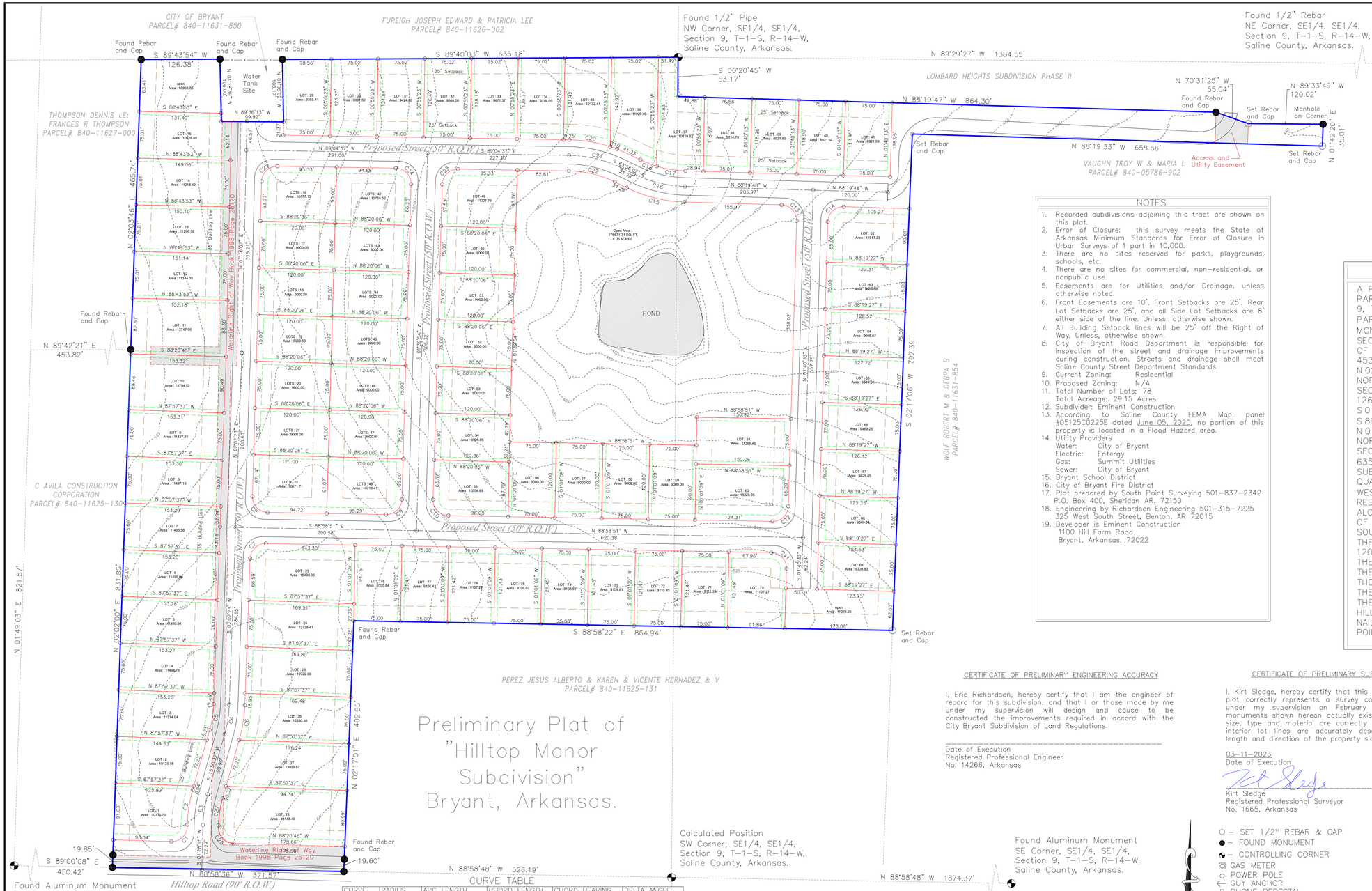


Post-Dev Basin "F"

Hyd. No. 17

Hydrograph Type	= Rational	Peak Flow	= 44.65 cfs
Storm Frequency	= 100-yr	Time to Peak	= 0.27 hrs
Time Interval	= 1 min	Runoff Volume	= 57,218 cuft
Drainage Area	= 12.0 ac	Runoff Coeff.	= 0.56
Tc Method	= TR55 (See Worksheet)	Time of Conc. (Tc)	= 16.0 min
IDF Curve	= City of Bryant IDF Curve.idf	Intensity	= 6.64 in/hr
Freq. Corr. Factor	= 1.00	Asc/Rec Limb Factors	= 1/1.67





VICINITY MAP

NOTES

1. Recorded subdivisions adjoining this tract are shown on this plat.
2. Error of Closure: this survey meets the State of Arkansas Minimum Standards for Error of Closure in Urban Surveys of 1 part in 10,000.
3. There are no sites reserved for parks, playgrounds, schools, etc.
4. There are no sites for commercial, non-residential, or nonpublic use.
5. Easements are for Utilities and/or Drainage, unless otherwise noted.
6. Front Easements are 10', Front Setbacks are 25', Rear Lot Setbacks are 25', and all Side Lot Setbacks are 8' either side of the line. Unless, otherwise shown.
7. All Building Setback lines will be 25' off the Right of Way. Unless, otherwise shown.
8. City of Bryant Road Department is responsible for inspection of the street and drainage improvements during construction. Streets and drainage shall meet Saline County Street Department Standards.
9. Current Zoning: Residential
10. Proposed Zoning: N/A
11. Total Number of Lots: 78
    Total Acreage: 29.15 Acres
12. Subdivider: Eminent Construction
13. According to Saline County FEMA Map, panel #05125C0225E dated June 05, 2020, no portion of this property is located in a Flood Hazard area.
14. Utility Providers
    Water: City of Bryant
    Electric: Entergy
    Gas: Summit Utilities
    Sewer: City of Bryant
15. Bryant School District
16. City of Bryant Fire District
17. Plat prepared by South Point Surveying 501-837-2342 P.O. Box 400, Sheridan AR. 72150
18. Engineering by Richardson Engineering 501-315-7225 325 West South Street, Benton, AR 72015
19. Developer is Eminent Construction 1100 Hill Farm Road Bryant, Arkansas, 72022

SURVEY DESCRIPTION

A PART OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER AND A PART OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SECTION 9, TOWNSHIP 1 SOUTH, RANGE 14 WEST, SALINE COUNTY, ARKANSAS MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING A FOUND 2 1/2"ALUMINUM MONUMENT ACCEPTED AS THE SOUTHWEST CORNER OF SAID SW 1/4, SE 1/4 OF SECTION 9; THENCE ALONG THE WEST LINE THEREOF N 01°49'03" E A DISTANCE OF 821.57'; THENCE LEAVING SAID WEST LINE N 89°42'21" E A DISTANCE OF 453.82' TO A FOUND REBAR AND CAP AT THE POINT OF BEGINNING; THENCE N 02°03'46" E A DISTANCE OF 465.74' TO A FOUND REBAR AND CAP ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG SAID NORTH LINE N 89°43'54" E A DISTANCE OF 126.38' TO A FOUND REBAR AND CAP; THENCE LEAVING SAID NORTH LINE S 01°18'39" E A DISTANCE OF 100.00' TO A SET REBAR AND CAP; THENCE S 89°36'13" E A DISTANCE OF 99.92' TO A FOUND 1/2" REBAR ; THENCE N 01°06'02" W A DISTANCE OF 100.17' TO A FOUND REBAR AND CAP ON THE NORTH LINE OF THE SOUTHWEST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG SAID NORTH LINE N 89°40'03" E A DISTANCE OF 635.18' TO A FOUND 1/2" PIPE ON THE WEST LINE OF LOMBARD HEIGHTS SUBDIVISION, ALSO ACCEPTED AS THE NORTHWEST CORNER OF THE SOUTHEAST QUARTER OF THE SOUTHEAST QUARTER OF SAID SECTION 9; THENCE ALONG THE WEST LINE THEREOF S 00°20'45" W A DISTANCE OF 63.17' TO A FOUND 1/2" REBAR AT THE SOUTHWEST CORNER OF LOMBARD HEIGHTS SUBDIVISION; THENCE ALONG THE SOUTH LINE OF SAID LOMBARD HEIGHTS S 88°19'47" E A DISTANCE OF 864.30' TO A FOUND REBAR AND CAP; THENCE CONTINUE ALONG SAID SOUTH LINE S 70°31'25" E A DISTANCE OF 55.04' TO A SET REBAR AND CAP; THENCE CONTINUE ALONG SAID SOUTH LINE S 89°33'49" E A DISTANCE OF 120.02' TO A THE SOUTHEAST CORNER OF LOMBARD HEIGHTS SUBDIVISION; THENCE S 01°42'20" W A DISTANCE OF 35.01' TO A SET REBAR AND CAP; THENCE N 88°19'33" W A DISTANCE OF 658.66' TO A SET REBAR AND CAP; THENCE S 02°17'06" W A DISTANCE OF 797.39' TO A SET REBAR AND CAP; THENCE N 88°58'22" W A DISTANCE OF 864.94' TO A FOUND REBAR AND CAP; THENCE S 02°17'01" W A DISTANCE OF 402.85' TO A FOUND MAG NAIL IN HILLTOP ROAD; THENCE N 88°58'36" W A DISTANCE OF 371.57' TO A FOUND MAG NAIL IN HILLTOP ROAD; THENCE N 02°02'00" E A DISTANCE OF 831.85' TO THE POINT OF BEGINNING CONTAINING 29.15 ACRES MORE OR LESS.

Preliminary Plat of "Hilltop Manor Subdivision" Bryant, Arkansas.

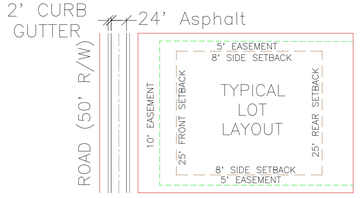
CURVE	RADIUS	ARC LENGTH	CHORD LENGTH	CHORD BEARING	DELTA ANGLE
C1	25.00'	39.35'	35.41'	S 46°33'45" W	90°10'59"
C2	225.00'	56.44'	56.29'	N 08°39'24" E	14°22'16"
C3	200.00'	50.17'	50.03'	S 08°39'24" W	14°22'16"
C4	200.00'	48.18'	48.06'	S 08°56'27" W	13°48'09"
C5	175.00'	42.16'	42.06'	S 08°56'27" W	13°48'09"
C6	225.00'	54.20'	54.07'	N 08°56'27" E	13°48'09"
C7	25.00'	38.82'	35.04'	S 46°31'46" W	88°58'46"
C8	25.00'	39.56'	35.55'	N 43°59'28" W	90°38'45"
C9	25.00'	38.99'	35.16'	S 46°20'32" W	89°21'15"
C10	25.00'	39.55'	35.55'	S 43°39'28" E	90°38'45"
C11	25.00'	39.56'	35.56'	N 43°39'09" W	90°39'24"
C12	25.00'	38.98'	35.15'	S 46°20'51" W	89°20'36"
C13	25.00'	39.27'	35.36'	S 43°19'38" E	90°00'21"
C14	25.00'	39.27'	35.35'	S 46°40'22" W	89°59'39"
C15	225.00'	95.80'	95.08'	N 76°07'58" W	24°23'41"
C16	200.00'	85.15'	84.51'	N 76°07'58" W	24°23'41"
C17	175.00'	46.70'	46.56'	N 80°41'07" W	15°17'22"
C18	175.00'	27.81'	27.78'	S 68°29'17" E	9°06'19"
C19	225.00'	11.82'	11.82'	N 70°32'58" W	3°00'38"
C20	225.00'	66.72'	66.48'	S 80°33'00" E	16°59'26"
C21	200.00'	87.76'	87.06'	N 76°30'22" W	25°08'30"
C22	175.00'	76.79'	76.18'	N 76°30'22" W	25°08'30"
C23	25.00'	38.95'	35.13'	N 46°17'39" E	89°15'29"
C24	25.00'	39.59'	35.58'	S 43°42'21" E	90°44'31"
C25	25.00'	38.95'	35.13'	N 46°17'39" E	89°15'29"
C26	25.34'	42.44'	37.65'	N 39°58'34" W	95°58'21"
C27	175.00'	43.89'	43.78'	N 08°39'24" E	14°22'16"

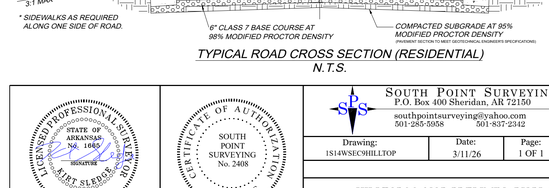
STATE CODE
500-01S-14W-0-09-200-62-1665

BASIS OF BEARING
Based on GPS Observations taken in Arkansas State Plane South Zone "Grid"

○ – SET 1/2" REBAR & CAP
● – FOUND MONUMENT
◔ – CONTROLLING CORNER
GAS METER
POWER POLE
GUY ANCHOR
PHONE PEDESTAL
SEWER MANHOLE
SIGN
LIGHT
WATER METER
WATER VALVE
FIRE HYDRANT
MAILBOX
AT&T VAULT
BOUNDARY
BUILDING LINE
EASEMENT
FENCE LINE
ROAD
RIGHT-OF-WAY
SECTION LINE
OVERHEAD ELECTRIC

80 0 80 160 240
Scale 1" = 80'





TYPICAL ROAD CROSS SECTION (RESIDENTIAL)
N.T.S.

CERTIFICATE OF PRELIMINARY ENGINEERING ACCURACY

I, Eric Richardson, hereby certify that I am the engineer of record for this subdivision, and that I or those made by me under my supervision will design and cause to be constructed the improvements required in accord with the City Bryant Subdivision of Land Regulations.

_____
Date of Execution
Registered Professional Engineer
No. 14266, Arkansas

CERTIFICATE OF PRELIMINARY SURVEYING ACCURACY

I, Kirt Sledge, hereby certify that this proposed preliminary plat correctly represents a survey completed by me, or under my supervision on February 6, 2026, that all monuments shown hereon actually exist and their location, size, type and material are correctly shown; and that all interior lot lines are accurately described in terms of length and direction of the property sides.

03-11-2026
Date of Execution

Kirt Sledge
Registered Professional Surveyor
No. 1665, Arkansas

CERTIFICATE OF PROPERTY OWNERSHIP

I, _____, hereby certify that the deed records in the office of the Circuit Clerk and Ex-Officio Recorder of Saline County Arkansas reflect that NXT GEN Homes is the record title owner of real property more particularly described herein on plat, dated this ___ day of _____, 2026

Signed_____

Licensed Abstractor No_____
or Attorney Bar No_____

CERTIFICATE OF PRELIMINARY PLAT APPROVAL

All requirements of the City of Bryant Subdivision of Land Regulations relative to the preparation and submittal of a Preliminary Plat having been fulfilled, approval of this plat is hereby granted, subject to further provisions of said regulations.

This Certificate shall expire Date_____

Signed_____
Date of Execution Name, Chairman
Bryant Planning Commission

LICENSED PROFESSIONAL SURVEYOR
STATE OF ARKANSAS
No. 1665
SIGNATURE
KIRT SLEDGE

CERTIFICATE OF AUTHORIZATION
SOUTH POINT SURVEYING No. 2408
ARKANSAS

SOUTH POINT SURVEYING, PLLC
P.O. Box 400 Sheridan, AR 72150
southpointsurveying@yahoo.com
501-285-5958 501-837-2342

Drawing:	Date:	Page:	Drawn by:
1S14WSEC9HILLTOP	3/11/26	1 OF 1	MO

HILLTOP MANOR PRELIMINARY PLAT
BRYANT , ARKANSAS

BILL OF ASSURANCE
ELM ESTATES

PART A. PREAMBLE

WHEREAS, SALINE COUNTY CONTRACTING AND RENTAL PROPERTIES LLC. is the Owner, by virtue of Instrument XXX, of the following land situated in Saline County, Arkansas, to wit:

OVERALL SUBDIVISION (LESS RIGHT OF WAY) - 0.83 ACRES - 36,251 SQUARE FEET
PART OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER (NE1/4 SW1/4) OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 14 WEST, SALINE COUNTY, ARKANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS: **COMMENCING** AT A FOUND RAILROAD SPIKE LOCATED AT THE INTERSECTION OF SOUTHWEST 4TH STREET AND SOUTH ELM STREET FOR THE NORTHEAST CORNER OF THE SAID NE1/4 SW1/4, AND RUN THENCE S4°27'21"W - 185.52 FEET ALONG SAID STREET AND THE EAST LINE OF THE SAID NE1/4 SW1/4 TO A FOUND RAILROAD SPIKE; THENCE LEAVING SAID STREET, N88°47'17"W - 14.67 FEET TO A FOUND 1 1/2" PIPE LOCATED ON THE WEST RIGHT OF WAY OF SOUTH ELM STREET; THENCE N4°27'21"E - 50.08 FEET ALONG SAID WEST RIGHT OF WAY TO A SET 1/2" REBAR W/CAP #1573 FOR THE **POINT OF BEGINNING**; THENCE N88°47'17"W - 315.38 FEET, LEAVING SAID WEST RIGHT OF WAY, TO A SET 1/2" REBAR W/CAP #1573; THENCE N4°08'03"E - 115.60 FEET TO A SET 1/2" REBAR W/CAP #1573 LOCATED ON THE SOUTH RIGHT OF WAY OF SOUTHWEST 4TH STREET; THENCE S88°44'13"E - 289.58 FEET CONTINUING ALONG SAID SOUTH RIGHT OF WAY TO A COMPUTED POINT; THENCE CONTINUING ALONG SAID SOUTH RIGHT OF WAY AND ALONG A CURVE TO THE RIGHT WITH AN ARC LENGTH OF 40.66 FEET AND A RADIUS OF 25.00 FEET, WHOSE CHORD BEARS S42°08'26"E - 36.33 FEET TO A COMPUTED POINT LOCATED ON THE WEST RIGHT OF WAY OF SOUTH ELM STREET; THENCE S4°27'21"W - 88.92 FEET CONTINUING ALONG SAID WEST RIGHT OF WAY TO THE **POINT OF BEGINNING**, CONTAINING 0.83 ACRES, MORE OR LESS. SUBJECT TO ANY EXISTING EASEMENTS AND THE RIGHTS OF WAY OF SOUTHWEST 4TH STREET AND SOUTH ELM STREET.

RIGHT OF WAY DEDICATION - 0.21 ACRES - 9,204 SQUARE FEET
PART OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER (NE1/4 SW1/4) OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 14 WEST, SALINE COUNTY, ARKANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS: **BEGINNING** AT A FOUND RAILROAD SPIKE LOCATED AT THE INTERSECTION OF SOUTHWEST 4TH STREET AND SOUTH ELM STREET FOR THE NORTHEAST CORNER OF THE SAID NE1/4 SW1/4, AND RUN THENCE S4°27'21"W - 185.52 FEET ALONG SAID STREET AND THE EAST LINE OF THE SAID NE1/4 SW1/4 TO A FOUND RAILROAD SPIKE; THENCE LEAVING SAID STREET, N88°47'17"W - 14.67 FEET TO A FOUND 1 1/2" PIPE LOCATED ON THE WEST RIGHT OF WAY OF SOUTH ELM STREET; THENCE N4°27'21"E - 139.00 FEET ALONG SAID WEST RIGHT OF WAY TO A COMPUTED POINT; THENCE ALONG A CURVE TO THE LEFT WITH AN ARC LENGTH OF 40.66 FEET AND A RADIUS OF 25.00 FEET, WHOSE CHORD BEARS N42°08'26"W - 36.33 FEET TO A COMPUTED POINT LOCATED ON THE SOUTH RIGHT OF WAY OF SOUTHWEST 4TH STREET; THENCE N88°44'13"W - 289.58 FEET ALONG SAID SOUTH RIGHT OF WAY TO A SET 1/2" REBAR W/CAP #1573; THENCE N4°08'03"E - 20.05 FEET TO A COMPUTED POINT LOCATED IN THE CENTER OF SW 4TH STREET AND ON THE NORTH LINE OF THE SAID NE1/4 SW1/4; THENCE S88°44'38"E - 330.79 FEET ALONG SAID STREET AND SAID NORTH LINE TO THE **POINT OF BEGINNING**, CONTAINING 0.21 ACRES, MORE OR LESS.

TRACT A - 0.87 ACRES - 38,036 SQUARE FEET
PART OF THE NORTHEAST QUARTER OF THE SOUTHWEST QUARTER (NE1/4 SW1/4) OF SECTION 34, TOWNSHIP 1 SOUTH, RANGE 14 WEST, SALINE COUNTY, ARKANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS: **COMMENCING** AT A FOUND RAILROAD SPIKE LOCATED AT THE INTERSECTION OF SOUTHWEST 4TH STREET AND SOUTH ELM STREET FOR THE NORTHEAST CORNER OF THE SAID NE1/4 SW1/4, AND RUN THENCE S4°27'21"W - 185.52 FEET ALONG SAID STREET AND THE EAST LINE OF THE SAID NE1/4 SW1/4 TO A FOUND RAILROAD SPIKE; THENCE LEAVING SAID STREET, N88°47'17"W - 14.67 FEET TO A FOUND 1 1/2" PIPE LOCATED ON THE WEST RIGHT OF WAY OF SOUTH ELM STREET FOR THE **POINT OF BEGINNING**; THENCE N88°47'17"W - 115.07 FEET, LEAVING SAID WEST RIGHT OF WAY, TO A SET 1/2" REBAR W/CAP #1573; THENCE S4°07'18"W - 111.50 FEET TO A SET 1/2" REBAR W/CAP #1573; THENCE N88°47'17"W - 200.04 FEET TO A FOUND 1" PIPE; THENCE N4°08'03"E - 161.57 FEET TO A SET 1/2" REBAR W/CAP #1573; THENCE S88°47'17"E - 315.38 TO A SET 1/2" REBAR W/CAP #1573 LOCATED ON THE WEST RIGHT OF WAY OF SOUTH ELM STREET; THENCE

S4°27'21"W - 50.08 FEET CONTINUING ALONG SAID WEST RIGHT OF WAY TO THE **POINT OF BEGINNING**, CONTAINING 0.87 ACRES, MORE OR LESS. SUBJECT TO ANY EXISTING EASEMENTS AND THE RIGHT OF WAY OF SOUTH ELM STREET.

WHEREAS, Owner has caused said land to be surveyed and a plat thereof made, dividing said land into lots as shown on said plat and showing the dimensions of each lot and the width of the streets as known as ELM ESTATES SUBDIVISION, PHASE 1 AND PHASE 2, Saline County, Arkansas.

WHEREAS, the Saline County Real Estate Assessor and Office of Emergency Services have approved said Subdivision and road names.

NOW THEREFORE, Morgan Garner, in consideration of the purposes herein stated, does hereby designate said land and make part hereof to be known as ELM ESTATES SUBDIVISION, PHASE 1 AND PHASE 2, to the City of Bryant, Saline County, Arkansas, and that hereafter any conveyance by the Owners of said land by lot number shall forever be held to be good and legal description and the streets shown on said plat in said .Subdivision are hereby and will become a public road to be accepted by Saline County for maintenance. The property owners of ELM ESTATES SUBDIVISION are subject to the purpose of maintaining and ownership of common areas and appurtenant belonging thereto. The use of the land in said Subdivision being subject to the following Protective and Restrictive Covenants:

PART B. AREA OF APPLICATION

B-1 FULLY PROTECTED RESIDENTIAL AREA. The residential area covenants in Part C in their entirety shall apply to the entire Subdivision.

PART C: RESIDENTIAL AREA COVENANTS:

C-1 LAND USE AND BUILDING TYPE. No lot shall be used except for residential purposes. Not business of any nature or kind shall at any time be conducted in any building located on any of the lots. No building shall be erected, altered, placed or allowed to remain on any lot other than one detached, single-family dwelling not to exceed two stories in height, excluding basement area. No lot can be subdivided for any purpose without the prior approval from the Saline County Planning Board.

C-2 ARCHITECTURAL CONTROL. No dwelling or structure shall be erected, placed or altered on any lot until the construction plans and specifications and a plan showing the location of the structure, including landscaping, have been approved by the architectural control committee as to quality of workmanship and materials, harmony of external design with existing structures, and as to location with respect to topography and finish grade elevation, and intended objectives of the Architectural Control Committee to achieve a subdivision that accomplishes the desired architectural design in the structure and subdivision ascetics. No fence or wall shall be erected, placed or altered on any lot nearer than the setbacks as shown on the Plat. The term structure is defined to include any and all types of fences, antennas, decks, basketball goals, swimming pools and television satellite dishes, which in no event shall be placed in front of dwellings. Each

property owner requesting approval shall submit to the Architectural Control Committee at least two weeks prior to the time approval is needed, a complete set of house plans and completed material and specifications list. Approval shall be a provided in Part D.

C-3 DWELLING COST, QUALITY AND SIZE. No dwelling shall be permitted on any lot unless the dwelling has at least 1,800 square feet, it being the intention and purpose of the covenants to assure that all dwellings shall be of a quality of workmanship and materials substantially the same or better than that for the minimum permitted dwelling size. No manufactured houses are allowed, site-built homes only.

C-4 BUILDING LOCATION. No building shall be located on any lot, nearer to the side street line, than the minimum building set back lines as shown on the recorded plat. For the purposes of this covenant, eaves and steps shall not be considered as part of the building. No lot shall be subdivided and no more than one dwelling shall be permitted on any one lot.

C-5 BUILDING REQUIREMENTS. All buildings shall have roof pitch of no less than 4/12. All fences shall be of chain link or of wood type approved by the Architectural control committee.

C-6 EASEMENTS. Easements for installation and maintenance of utilities and drainage facilities, and construction, repair and maintenance of adequate walls, roofs and eaves are reserved as shown on recorded plat.

C-7 NUISANCES. No noxious or offensive trade or activities shall be carried on, nor shall anything be done thereon which may be or become a nuisance to the neighborhood.

C-8 TEMPORARY STRUCTURES. No structure of a temporary character, basement, tent, shack, garage, barn or other out building shall be used on any tract at any time as a residence either temporarily or permanently; except that the developer may have a temporary construction and/or sales office.

C-9 OUTBUILDINGS. One outbuilding for storage shall be permitted, if approved by the Architectural Control Committee and shall conform to the same architectural design and construction of the dwelling. Above ground swimming pools are prohibited.

C-10 SIGNS. No sign of any kind shall be displayed to the public view on any lot, except, one professional sign of not more than one square foot; one sign of not more than five square feet advertising the property for sale or rent or any signs used by a builder to advertise the property during the construction and sales period.

C-11 OWNER RESPONSIBILITY. Any property owner shall insure that any contractor performing services for the property owner shall comply with the provisions of this Bill of Assurance.

C-12 CONTRACTOR RESPONSIBILITY. No contractor shall damage in any way the utilities or streets in any manner.

C-13 OIL AND MINING OPERATIONS. No oil drilling, oil development operations, oil refining, quarrying or mining operations of any kind shall be permitted upon or in any lot, nor shall oil wells, tanks, tunnels, mineral excavations or shafts be permitted upon or in any lot. No derrick or structures designated for us in boring for oil or natural gas shall be erected, maintained or permitted upon any lot.

C-14 LIVESTOCK AND POULTRY. No animals, livestock or poultry of any kind may be raised, bred or kept on any tract, except that dogs or cats may be kept, on any lot provided that they are not kept, bred or maintained for any commercial purpose and provided that facilities for maintenance of same are approved by the Architectural Control Committee and that the keeping of same does not constitute a nuisance.

C-15 GARBAGE AND REFUSE DISPOSAL. No lot or easement shall be used or maintained as a dumping ground for rubbish. Trash, garbage and other waste shall not be kept except in sanitary containers. There shall be no burning of trash, rubbish, leaves or yard waste.

C-16 SIGHT DISTANCE AT INTERSECTIONS. No fence, wall, hedge or shrub planting which obstructs sight lines at elevations between 2 and 6 feet above the roadways shall be placed or permitted to remain on any lot comer which the triangular area formed by the street property lines and the line connecting them at points 15 feet from the intersection of street right of way lines, or in the case of a rounded property comer, from the intersection of the street property line extended. The same sight line limitations shall apply on any lot within 10 feet from the intersection of the street property line with the edge of a driveway pavement. No tree shall be permitted to remain within such distances or such intersections unless the foliage line is maintained at sufficient height to prevent obstruction of such sight lines.

C-17 LOT, YARD AND HOME MAINTENANCE. All property owners, after acquisition of any lot, shall keep all grounds and yards mowed, trimmed and clean. All houses shall be painted and stained. No deviation from the original plans shall be permitted without approval of the Architectural Control Committee.

C-18 COMMENCEMENT OF CONSTRUCTION. A property owner must start construction of an approved dwelling within a period of one (1) year from date of purchase. The developer reserves the option to repurchase any lot for the amount of the original purchase price if construction is not commenced within such period of time. This option shall be exercised in writing within a period of thirty (30) days after the one (1) year period.

C-19 COMPLETION OF CONSTRUCTION. Any dwelling must be completed in its entirety within a period of one year from date such construction is commenced.

C-20 MOTOR VEHICLE PARKING. Abandoned or unused motor vehicles shall not be parked or permitted to remain on any lot or within the dedicated street. Boats, recreational vehicles and trailers cannot be parked at the front or side of any dwelling or in the dedicated street and must be parked in back of the dwelling. Owners or permanent residents are prohibited from parking in

the street. There shall be no non-functioning vehicles kept on the lot or in view of the public. There shall be no repair work done outside of the garage.

C-21 MINIMUM FLOOR LEVEL ELEVATIONS. The Architectural Control Committee reserves the right to prescribe the minimum floor elevations for lots. All homes shall have a minimum floor elevation of one foot above the back of the curb unless waived in writing by the Architectural Control Committee.

C-22 SEWER SERVICE. No Septic systems shall be allowed on individual lots.

PART D. ARCHITECTURAL CONTROL COMMITTEE:

D-1 MEMBERSHIP. The Architectural Control Committee shall be composed of Morgan Garner and Kayla Garner. A majority of the committee may designate a representative to act for it. In the event of death or resignation of any member of the committee, the remaining members shall have full authority to designate a successor. Neither the members of the committee nor its designated representative shall be entitled to any compensation for thence services performed pursuant to this covenant.

D-2 PROCEDURE. The committee's approval or disapproval as required in these covenants shall be in writing and in the form hereto attached marked Exhibit "A" which, when executed, should be retained by the owner/builder as proof of the Committee's approval. In the event the committee or its designated representative fails to approve or disapprove within 30 days after plans and specification have been submitted to it or in the event no suit to enjoin the construction or compliance with these covenants has been commenced within 180 days after the completion thereof will not be required and the related covenants shall be deemed to have been fully complied with. The Committee will with Buyer's will with Buyer's permission and at the expense of the Buyer refer Buyer's plan to an architect for revisions and changes to comply with the Bill of Assurance.

PART E. GENERAL PROVISIONS:

E-1 TERM. These covenants are to run with the land and shall be binding on all parties and all persons claiming under them for a period of twenty-five years from the date these covenants are recorded after which time, said covenants shall be automatically extended for successive period of ten years, subject to the express provision that these covenants may be amended at any time after the date of execution hereby by an instrument signed by the members of the Architectural Control Committee and the owner or owners of a majority of the lots herein platted are recorded after which time, said covenants shall be automatically extended for successive period of ten years, subject to the express provision that these covenants may be amended at any time after the date of execution hereby by an instrument signed by the members of the Architectural Control Committee and the owner or owners of a majority of the lots herein platted.

E-2 ENFORCEMENT. Enforcement shall be by proceedings at law or in equity against any person or persons violating or attempting to violate any covenant either to restrain violations or to recover damages.

E-3 SEVERABILITY Invalidation of any one of these covenants by judgment or court order shall in no way affect any of the other provisions which shall remain in full force and effect.

IN WITNESS WHEREOF, the name of Owner is hereby affixed by its Members this _____ day of _____, 2026.

SALINE COUNTY CONTRACTING AND RENTAL PROPERTIES LLC

BY: _____
Morgan Garner

ACKNOWLEDGEMENT

STATE OF ARKANSAS)
)
COUNTY OF SALINE)

On this day appeared before me, a Notary Public, Morgan Garner, known to me to be the President of SALINE COUNY CONTRACTING AND RENTAL PROPERTIES LLC. and acknowledged that he was authorized to execute the foregoing on its behalf and that they had executed same for the consideration and purpose therein mentions and set forth.

Witness my hand and seal this ____ day of _____, 2026.

_____
Notary Public

My Commission Expires:

Bryant Planning Commission

ELM ESTATES

Subdivision Checklist

Approved by
Bryant Planning Commission
07/14/2003 Revised 6/18/2007

Instructions

The attached checklist must be completed by the owner and subdivision engineer and must be submitted along with the Preliminary Plat Plan and other specified documentation for review and approval by the Planning Commission. The owner may not begin developing the subdivision until the review of the Preliminary Plat plan is approved.

No changes or alterations can be made to the approved Preliminary Plat Plan without Planning Commission approval.

When all lots have been surveyed, the utilities and drainage measures are in place, and roads have been constructed, the owner and engineer will submit a Final Plat Plan for approval by the Commission. This Final Plat Plan will incorporate all approved changes and will be verified by the City Engineer. No lots will be sold or rights-of-way and easements conveyed until the Final Plat has been submitted and approved.

Fees due to City of Bryant upon submission of Preliminary Plat application

- $300.00 + $3.00 per lot - for Subdivision preliminary plat review
- $250.00 or $25.00 per lot **(whichever is greater)** - Stormwater Detention and Drainage Plan Engineering Fee
- A Surety Bond or Cashier's check in the amount of 10% of the estimated development cost must be furnished within 10 days after Preliminary Plat approval.

Fees due to Bryant Water and Sewer Department upon submission of Final Plat application

- $100 per lot - Water/Sewer Impact Fee
- $100 per Subdivision Phase - Water/Sewer Flushing Fee

Fees due to City of Bryant upon submission of Final Plat application

- $25.00 + $1.00 per lot - for Subdivision Final Plat review

City of Bryant Subdivision Checklist

Subdivision/Project Name ELM ESTATES

Contact Person GEORGE WOODEN **Phone** (501) 408-4650

Mailing Address 3825 MT CARMEL ROAD, BRYANT, AR 72022

I. Basic Information Needed On The Plat

- ▲ 1. Name of Subdivision/Project
- ▲ 2. Current zoning R-1
- ▲ 3. Name and Address of owner of Record
- ▲ 4. Illustrate Source of Title giving deed record book and page number
- ▲ 5. Name & address of the sub-divider
- ▲ 6. Date of Survey
- ▲ 7. Vicinity map locating streets, highways, section lines, railroad, schools, & parks within ½ mile
- ▲ 8. Legal description of the property with exact boundary lines
- ▲ 9. Acreage of property
- ▲ 10. Number of Lots
- ▲ 11. Lot area in square feet
- ▲ 12. Lot lines with appropriate dimensions
- ▲ 13. Building setback lines
- ▲ 14. Preliminary Engineering certificate seal and signature on each page
- ▲ 15. Certificate of Engineering Accuracy
- ▲ 16. Certificate of Owner
- ▲ 17. Certificate of Final Plat Approval
- ▲ 18. Certificate of Recording
- ▲ 19. Show scale (not less than 1" = 100')
- ▲ 20. North Arrow
- ▲ 21. Show Title block
- ▲ 22. Show adjoining property owners
- ▲ 23. Layout of all proposed streets including traffic control devices (stop signs, speed limit, etc.)
- 24. Layout of all subdivision entrance street upgrades
- ▲ 25. Layout of all proposed alleys
- ▲ 26. Layout of all proposed sidewalk systems
- ▲ 27. Layout identifies any FEMA flood plain and flood way property within the 100-year flood elevation. (Provide Corp of Engineers 404 Permit if required)
- ▲ 28. Drainage easements for stormwater run-off and detention giving dimensions, locations, and purpose
- ▲ 29. Layout accommodates Master Street Plan segments within the boundaries
- ▲ 30. Street layout ties to existing adjoining subdivision stub-out streets and provides stub-out streets for future adjoining subdivisions.
- ▲ 31. Street width and right-of-way properly shown for each functional classification
- ▲ 32. Street centerlines showing angles of deflection, intersection, radii, length oftangents and arcs, and degree of curvature with basis of curve data
- ▲ 33. Typical cross section of streets
- ▲ 34. Location and name of existing streets
- ▲ 35. New street names that are not similar to existing street names
- ▲ 36. Show street lights
- ▲ 37. Show Fire Hydrant placement

- ▲ 38. Show and label all permanent & proposed easements
- ▲ 39. Any proposed open space must be shown
- ▲ 40. Show the direction and flow of all water courses entering the tract
- ▲ 41. Show the direction and flow of all water courses leaving the tract
- ▲ 42. The drainage area of all water courses above the points of entry.
- ▲ 43. The downstream drainage channel and drainage structures substantially impacted by the subdivision/project.
- ▲ 44. Show source of water supply
- ▲ 45. Show location of waste water connection to municipal main & sanitary sewer layout
- ▲ 46. A phasing plan outlining the boundaries for each phase

II. Additional Information Needed, But Not Necessarily On The Plat

- ▲ 47. Natural features within the proposed subdivision including drainage channels, bodies of water, wooded areas, and other significant features
- ▲ 48. Existing streets, buildings, water courses, railroads. Culverts, utilities and easement on and adjacent to the tract.
- ▲ 49. Where method of disposal of wastewater is other than connection to a public waste water system, detailed information shall accompany the plat.
- ▲ 50. Calculations and field notes, including drainage calculations along with support drawing
- 51. Stormwater detention plan approval from City Engineer (attach copy of approval)
- ▲ 52. The Certificate of Preliminary Engineering Accuracy on each set of street and drainage plans.
- ▲ 53. ADA Accessibility Standard Form completed (and attached)
- ▲ 54. A Bill of Assurance has been prepared for this subdivision (and attached)
- ▲ 55. All lots comply with minimum square footage area and minimum lot width at the front building line
- ▲ 56. Street pavement design will be as specified by City or AHTD design procedures, approved by the City Engineer.
- ▲ 57. Made the "One Call" prior to site clearance or other excavation activity

III. Preliminary Plat Attachments

(Application will not be accepted until all attachment requirements are met)

- ▲ 58. **Letter to Planning Commission** stating your request
- ▲ 59. Completed **Checklist**
- ▲ **60. Completed agreement to provide performance assurance**
- ▲ 61. **Subdivider Performance Bond or Cashier's Check** for infrastructure installation
- ▲ 62. Landscaping plan of any proposed common open space
- ▲ 63. **Draft of Bill of Assurance** proposed for the subdivision (if applicable)
- ▲ 64. **20 copies of Preliminary Plat Plan (folded)** that includes vicinity map (minimum size 17" X 34" paper)
- ▲ 65. **Two (2) IBM compatible diskettes or CDR's** with pertinent data and Plat in CAD compatible .DXF electronic file format
- ▲ 66. Copy of **Stormwater Detention approval**
- ▲ 67. 2 copies **Plan and profile** of all streets
- ▲ 68. Receipt for **$300.00 + $3.00 per lot for preliminary Subdivision fee**
- ▲ 69. Receipt for **$250.00 or $25.00 per lot (whichever is greater) for Stormwater Detention and Drainage Plan review**
- ▲ 70. Copy of **ADEQ Stormwater Pollution Prevention Plan** for property parcel containing one acre or larger.

III. Final Plat Attachments

(Application will not be accepted until all attachment requirements are met)

- ▲ 71. **Letter to Planning Commission** stating your request
- ▲ 72. Completed **Checklist**
- ▲ 73. **20 copies of Final Plat Plan (folded)** that includes vicinity map (minimum size 17" X 34" paper)
- ▲ 74. **Two (2) IBM compatible diskettes or CDR's** with pertinent data and Plat in CAD compatible .DXF electronic file format
- ▲ 75. **Bill of Assurance** including provisions set out in Title 15 Subdivision Regulations 15.16.01
- ▲ 76. Copy of **Water & Sewer Commission approval** or....
- ▲ 77. State Health Department approval of any new water supply and/or sewage system.
- ▲ 78. **Letter submitted by a Registered Professional Engineer, certifying that all infrastructure improvements and installations have been installed** in accordance with the submitted construction plans and drawings and the standards established by the City of Bryant and are functioning properly.
- ▲ 79. Infrastructure Maintenance Bond or Cashier's check.
- ▲ 80. Check for **$25.00 + $1.00 per lot for final Subdivision fee**
- ▲ 81. Check for **Water Sewer impact fees ($100.00 Flushing Fee and $100.00 impact fee per lot)**

ELM ESTATES
Name of Subdivision

George Worden
Surveyor

I HAVE COMPLIED WITH THE REQUIREMENTS LISTED ABOVE AND HAVE CHECKED ALL OF THE BOXES ON THE CHECKLIST WHICH APPLY TO THIS PROJECT SUBMITTAL.

Owner Signature

Vernon J Williams
Engineer Signature

CITY USE

Preliminary Plat Approved _____

Planning Commission Date _____

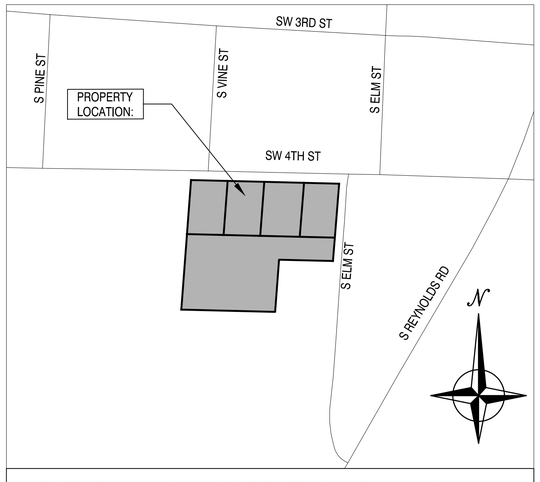
Final Plat Approved _____

Planning Commission Date _____

Proof of Recording - County _____

County Clerk _____ Date _____

FOR USE AND BENEFIT OF:
SALINE COUNTY CONTRACTING AND RENTAL PROPERTIES, LLC
ELM ESTATES
CITY OF BRYANT, SALINE COUNTY, ARKANSAS



VICINITY MAP - SALINE COUNTY, AR

Prepared by:

GarNat Engineering, LLC

Designing our client's success

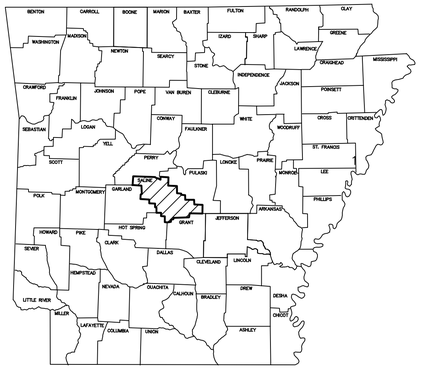
www.garnatengineering.com

P.O. Box 116
Benton, AR 72018
Ph (501) 408-4650

3825 Mt Carmel Road
Bryant, AR 72022
garnatengineering@gmail.com

DRAWING INDEX:

V1.0	FINAL PLAT
C2.0	GRAVITY SEWER PLAN AND PROFILE



ARKANSAS

REVISED AS PER ADH MAY 21, 2025

RECORD DRAWING

CERTIFICATE OF AUTHORIZATION
GarNat Engineering, LLC
No. 2174
ARKANSAS

Line Table		
Line #	Direction	Length
L2	N4° 08' 03"E	20.05'
L1	N88° 47' 17"W	14.67'

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	40.66'	25.00'	93°11'34"	S42° 08' 26"E	36.33'

CERTIFICATE OF AUTHORIZATION
GarNat Engineering, LLC
No. 2174
ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
VERNON J. WILLIAMS
NO. 9551

PROPERTY SPECIFICATIONS:

ZONING CLASSIFICATION: R-1 AND R-2

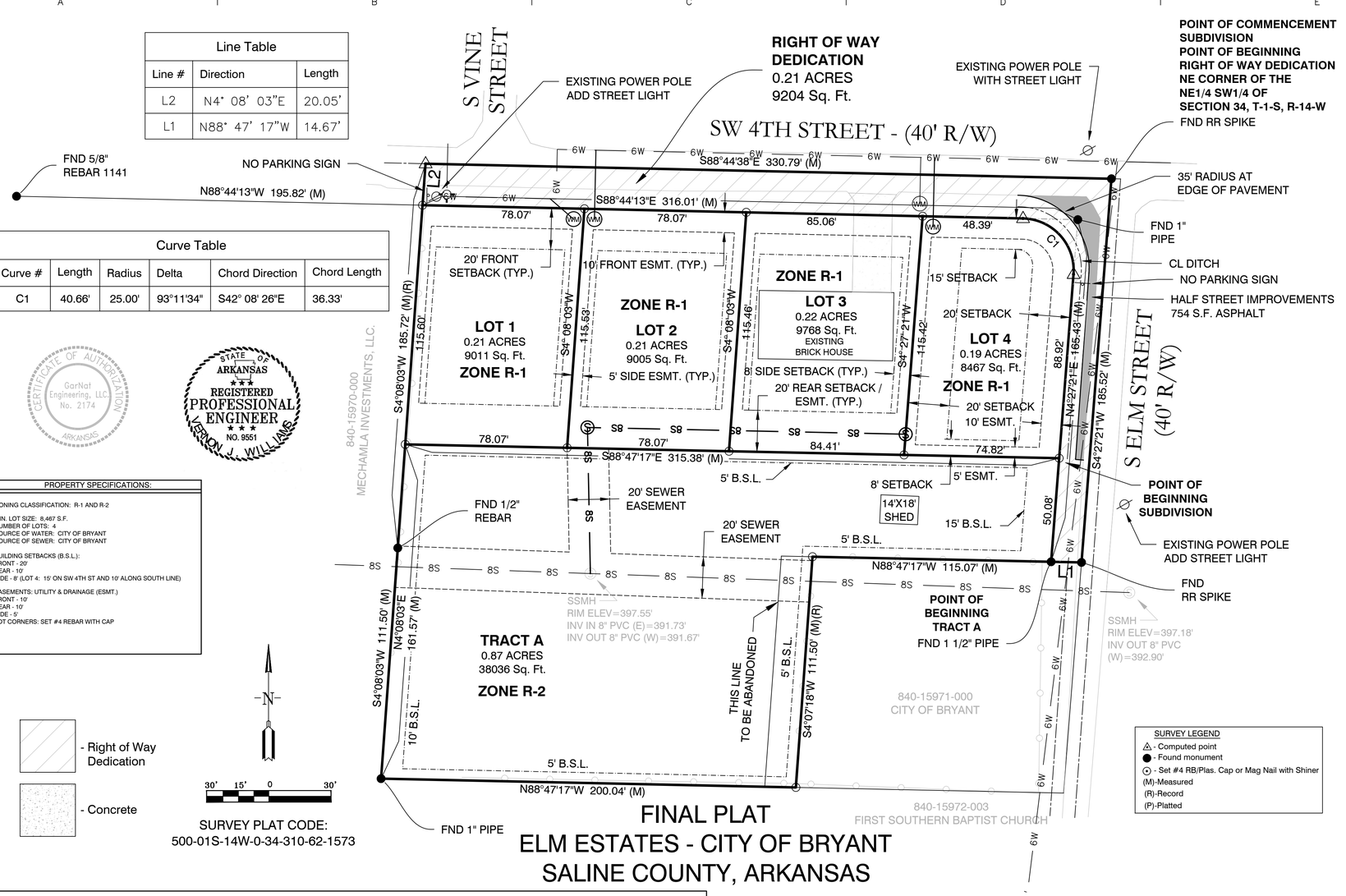
MIN. LOT SIZE: 8,467 S.F.
NUMBER OF LOTS: 4
SOURCE OF WATER: CITY OF BRYANT
SOURCE OF SEWER: CITY OF BRYANT

BUILDING SETBACKS (B.S.L.):
FRONT - 20'
REAR - 10'
SIDE - 8' (LOT 4: 15' ON SW 4TH ST AND 10' ALONG SOUTH LINE)

EASEMENTS: UTILITY & DRAINAGE (ESMT.)
FRONT - 10'
REAR - 10'
SIDE - 5'
LOT CORNERS: SET #4 REBAR WITH CAP

- Right of Way Dedication
- Concrete

SURVEY PLAT CODE:
500-01S-14W-0-34-310-62-1573



SURVEY LEGEND
- Computed point
- Found monument
- Set #4 RB/Plas. Cap or Mag Nail with Shiner
(M)-Measured
(R)-Record
(P)-Platted

FINAL PLAT
ELM ESTATES - CITY OF BRYANT
SALINE COUNTY, ARKANSAS

PLAT CERTIFICATES:

OWNER:
Name: Saline County Contracting and Rental Properties, LLC
Address: 3501 Lake Norrell Road Alexander, Arkansas 72002

DEVELOPER:
Name: Saline County Contracting and Rental Properties, LLC
Address: 3501 Lake Norrell Road Alexander, Arkansas 72002

CERTIFICATE OF OWNER:

We, the undersigned, owners of the real estate shown and described herein do hereby certify that we have laid off, platted and subdivided, and do hereby lay off, plat and subdivide said real estate in accordance with the within plat.

Date: _____ Signed: _____
Name: Morgan Garner
Address: 3501 Lake Norrell Road, Alexander, AR 72002

Source of Title Saline County: Warranty Deed 2021-021901

CERTIFICATE OF ENGINEERING ACCURACY:

I, Vernon J. Williams, hereby certify that this plat correctly represents a survey and a plan made by me or under my supervision; that all monuments shown hereon actually exist and their locations, size, type, and material are correctly shown; and that all requirements of the City of Bryant Subdivision Rules and Regulations have been fully complied with.

Date: _____ Signed: _____
Vernon J. Williams
Registered Professional Engineer
No. 9551, Arkansas

CERTIFICATE OF RECORDING: _____

CERTIFICATE OF SURVEYING ACCURACY:

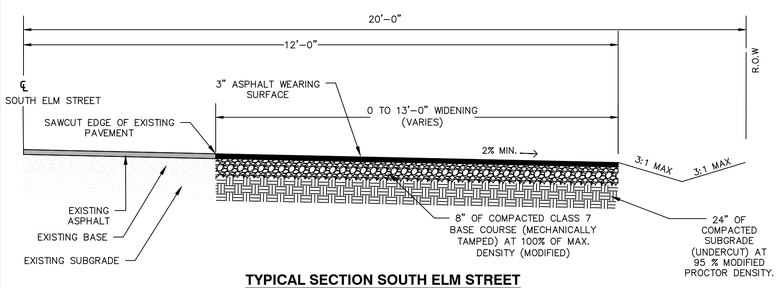
I, George P. Wooden, hereby certify that this plat correctly represents a boundary survey made by me or under my supervision on February 3, 2026; that the boundary lines shown hereon correspond with the description in the deeds cited in the above Source of Title; and that all monuments which were found or placed on the property are correctly described and located.

Date: _____ Signed: _____
George P. Wooden
Registered Land Surveyor
No. 1573, Arkansas

CERTIFICATE OF FINAL PLAT APPROVAL:

Pursuant to the City of Bryant Subdivision Rules and Regulations, this document was given approval by the Bryant Planning Commission at a meeting held April 13, 2026. All of the document is hereby accepted, and this certificate executed under the authority of said rules and regulations.

Date: _____ Signed: _____
Lance Penfield, Chairman
Bryant Planning Commission



TYPICAL SECTION SOUTH ELM STREET
(LOOKING SOUTH) N.T.S.

NOTES:

1. ASPHALT SURFACE COURSE SHALL MEET MATERIAL AND INSTALLATION REQUIREMENTS OF SECTION 407 OF ARDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.
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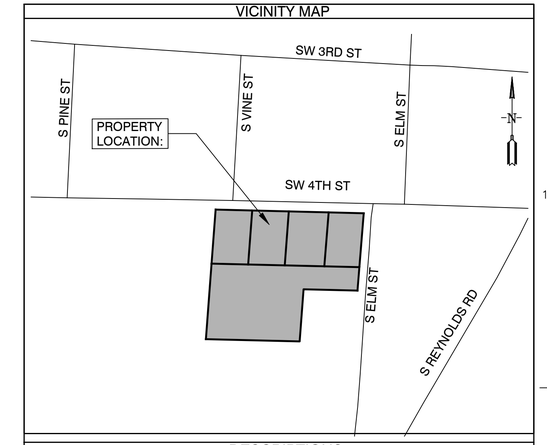
VICINITY MAP



DESCRIPTIONS:

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DOCUMENTS USED:

- WARRANTY DEED BOOK 2021 PAGE 021901 COLE TO SALINE COUNTY CONTRACTING AND RENTAL PROPERTIES, LLC
- PREVIOUS SURVEY BY GARNAT ENGINEERING, LLC PLS #1573 WOODEN DATED 10/12/2024

BASIS OF BEARINGS:

BENCHMARK(S) PROVIDED ARE REBAR AND COORDINATES ON BENCHMARKS ARE NORTH AMERICAN DATUM 1983, ARKANSAS SOUTH ZONE, US SURVEY FEET, GRID COORDINATES AND ELEVATIONS ARE NAVD 1988. COORDINATES AND ELEVATIONS WERE ESTABLISHED USING GPS AND WERE PROCESSED USING THE NATIONAL GEODETIC SURVEY'S "ONLINE POSITIONING USER SERVICE" (OPUS).

CERTIFICATIONS:

BY AFFIXING MY SEAL AND SIGNATURE, I GEORGE P. WOODEN, PS NO.1573, HEREBY CERTIFY THAT THIS DRAWING CORRECTLY DEPICTS A SURVEY COMPILED UNDER MY SUPERVISION ON OCTOBER 12, 2024.

THIS SURVEY WAS BASED ON LEGAL DESCRIPTIONS AND TITLE WORK FURNISHED BY OTHERS AND DOES NOT REPRESENT A TITLE SEARCH.

THIS PROPERTY IS NOT LOCATED IN THE 100 YEAR FLOOD PLAIN. THE PROPERTY SHOWN ON THIS PLAT IS LOCATED IN ZONE "X" OF THE F.E.M.A. MAP PANEL 05125C0380E EFFECTIVE DATE JUNE 05, 2020.

BY	REVISION	DATE

GNE Designing our client's success

GarNat Engineering, LLC
P.O. Box 116 Benton, AR 72018
3825 Mt Carmel Rd Bryant, AR 72022
Ph (501) 408-4650
garnatengineering@gmail.com

FOR THE USE & BENEFIT OF:
SALINE COUNTY CONTRACTING AND RENTAL PROPERTIES, LLC
ELM ESTATES
CITY OF BRYANT
SALINE COUNTY, ARKANSAS

PROFESSIONAL SURVEYOR
STATE OF ARKANSAS
NO. 1573
SIGNATURE
GEORGE P. WOODEN
REGISTERED

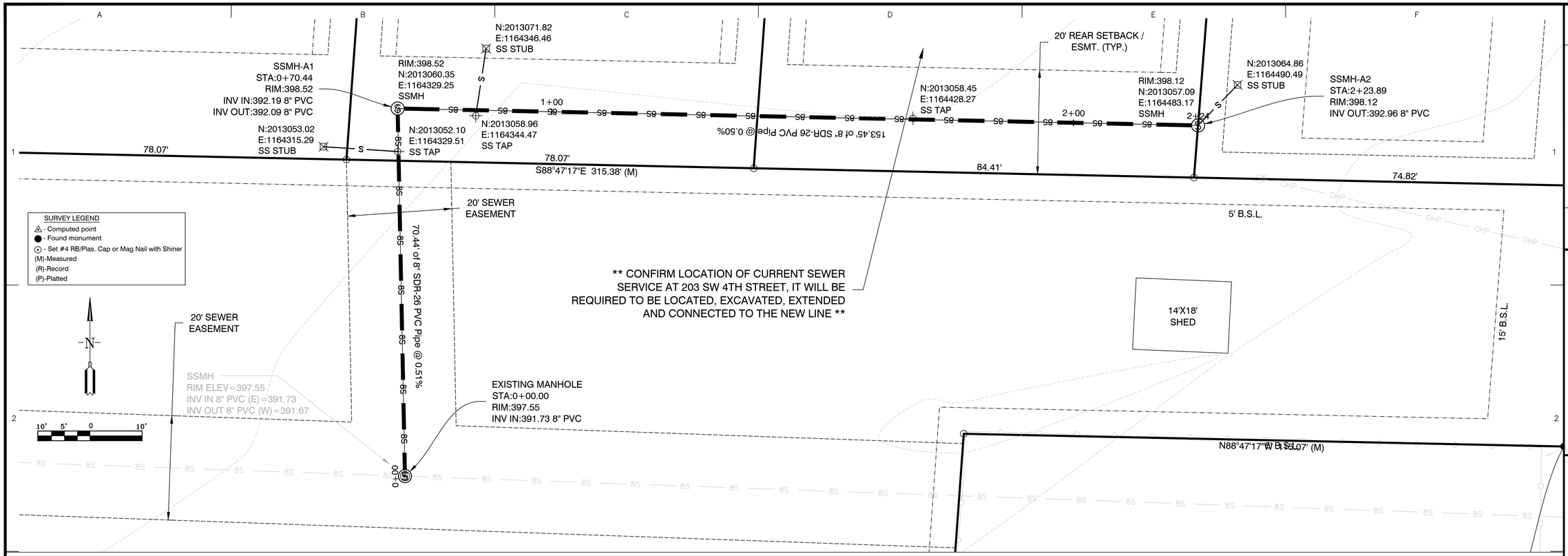
CONTENTS:
FINAL PLAT

PROJECT NO:
24145

DATE:
MAR. 25, 2025

SHEET NO:
V1.0

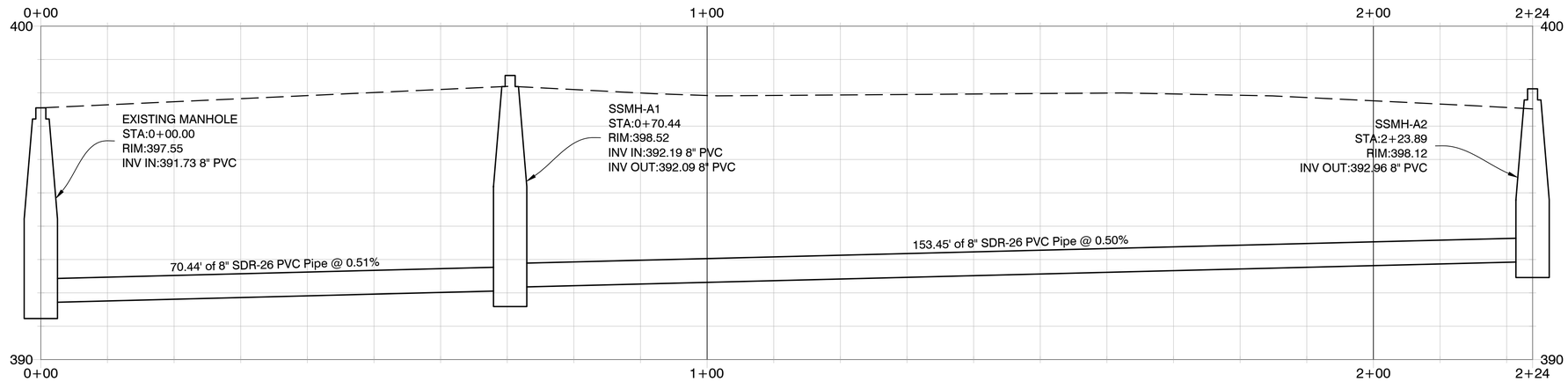
a:\Projects\2024 Projects\24145 Elm Estates 203 SW 4th St, Bryant\Drawings\CAD\Layout\24145 Elm Estates Final Plat - 032025.dwg



NOTES:

1. SANITARY SEWER CONSTRUCTION SHALL COMPLY WITH THE CITY OF BRYANT STANDARD SPECIFICATION & DETAILS.
2. MAINTAIN 10 FEET OF HORIZONTAL SEPARATION BETWEEN WATER & SEWER LINES.
3. ALL MANHOLES SHALL BE EPOXY COATED PER CITY OF BRYANT REQUIREMENTS.

GRAVITY SEWER PROFILE



SCALE: 1" = 10' H
1" = 2' V

CERTIFICATE OF AUTHORIZATION
GarNat Engineering, LLC.
No. 2174
ARKANSAS

DATE	REVISION	BY
05-21-25	REVISED AS PER ADH	GPW

GNE Designing our client's success
GarNat Engineering, LLC
P.O. Box 116
Benton, AR 72018
3825 Mt Carmel Rd
Bryant, AR 72022
Ph (501) 408-4650
garnatengineering@gmail.com

FOR THE USE & BENEFIT OF:
SALINE COUNTY CONTRACTING
AND RENTAL PROPERTIES, LLC
ELM ESTATES
CITY OF BRYANT
SALINE COUNTY, ARKANSAS

RECORD DRAWING

CONTENTS:
GRAVITY SEWER PLAN AND PROFILE

PROJECT NO: 24145

DATE: MAR. 25, 2025

SHEET NO: C2.0

J:\Projects\2024 Projects\24145 Elm Estates 203 SW 4th St, Bryant\Drawings\CIVIL\Design\24145 ASB Elm Estates - Utility Plan - 11 - 032025.dwg

Line Table		
Line #	Direction	Length
L2	N4° 08' 03"E	20.05'
L1	N88° 47' 17"W	14.67'

Curve Table					
Curve #	Length	Radius	Delta	Chord Direction	Chord Length
C1	40.66'	25.00'	93°11'34"	S42° 08' 26"E	36.33'

CERTIFICATE OF AUTHORIZATION
GarNat Engineering, LLC
No. 2174
ARKANSAS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
VERNON J. WILLIAMS
NO. 9551

PROPERTY SPECIFICATIONS:

ZONING CLASSIFICATION: R-1 AND R-2

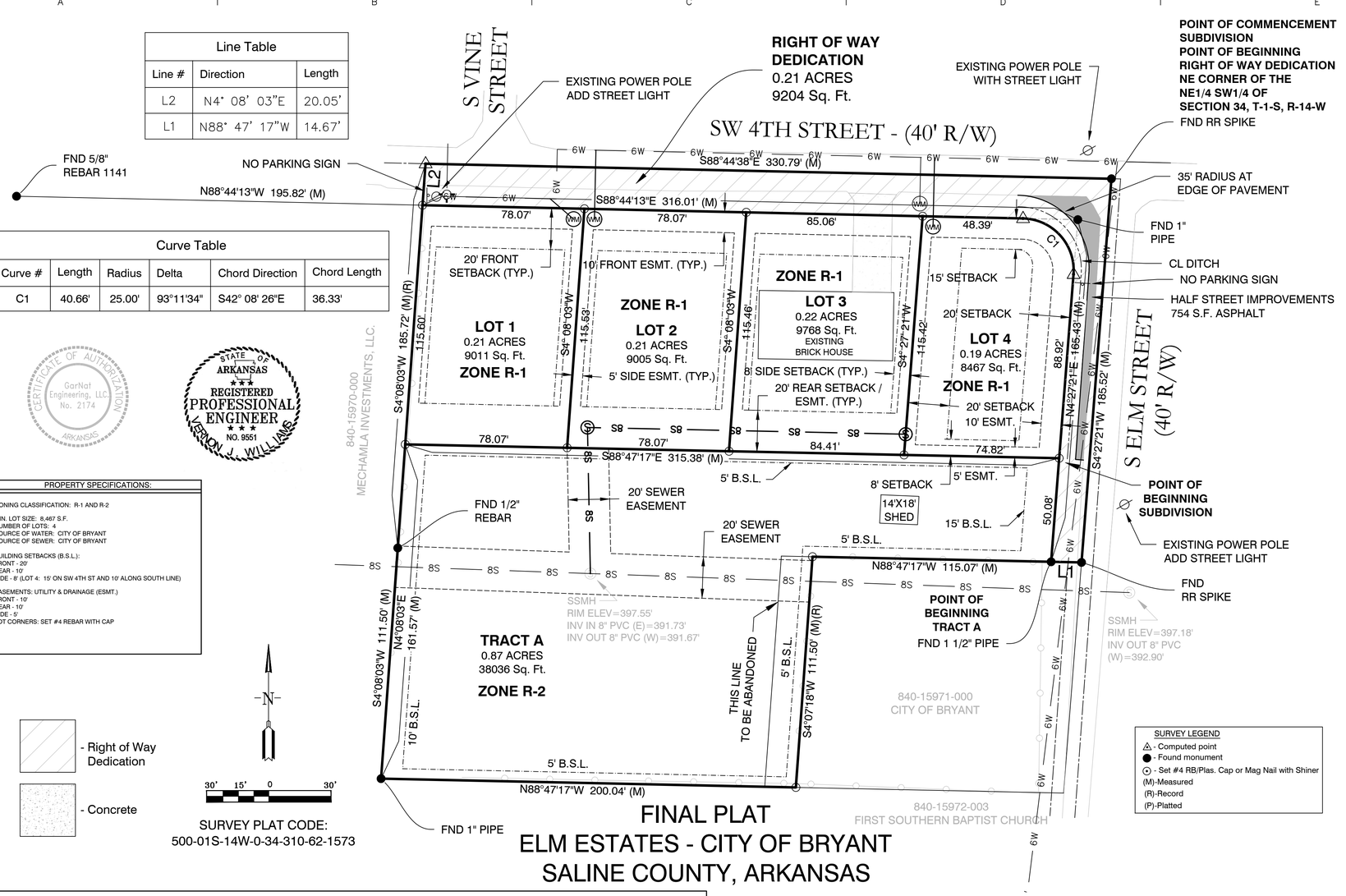
MIN. LOT SIZE: 8,467 S.F.
NUMBER OF LOTS: 4
SOURCE OF WATER: CITY OF BRYANT
SOURCE OF SEWER: CITY OF BRYANT

BUILDING SETBACKS (B.S.L.):
FRONT - 20'
REAR - 10'
SIDE - 8' (LOT 4: 15' ON SW 4TH ST AND 10' ALONG SOUTH LINE)

EASEMENTS: UTILITY & DRAINAGE (ESMT.)
FRONT - 10'
REAR - 10'
SIDE - 5'
LOT CORNERS: SET #4 REBAR WITH CAP

- Right of Way Dedication
- Concrete

SURVEY PLAT CODE:
500-01S-14W-0-34-310-62-1573



SURVEY LEGEND
- Computed point
- Found monument
- Set #4 RB/Plas. Cap or Mag Nail with Shiner
(M)-Measured
(R)-Record
(P)-Platted

FINAL PLAT
ELM ESTATES - CITY OF BRYANT
SALINE COUNTY, ARKANSAS

PLAT CERTIFICATES:

OWNER:
Name: Saline County Contracting and Rental Properties, LLC
Address: 3501 Lake Norrell Road Alexander, Arkansas 72002

DEVELOPER:
Name: Saline County Contracting and Rental Properties, LLC
Address: 3501 Lake Norrell Road Alexander, Arkansas 72002

CERTIFICATE OF OWNER:

We, the undersigned, owners of the real estate shown and described herein do hereby certify that we have laid off, platted and subdivided, and do hereby lay off, plat and subdivide said real estate in accordance with the within plat.

Date: _____ Signed: _____
Name: Morgan Garner
Address: 3501 Lake Norrell Road, Alexander, AR 72002

Source of Title Saline County: Warranty Deed 2021-021901

CERTIFICATE OF ENGINEERING ACCURACY:

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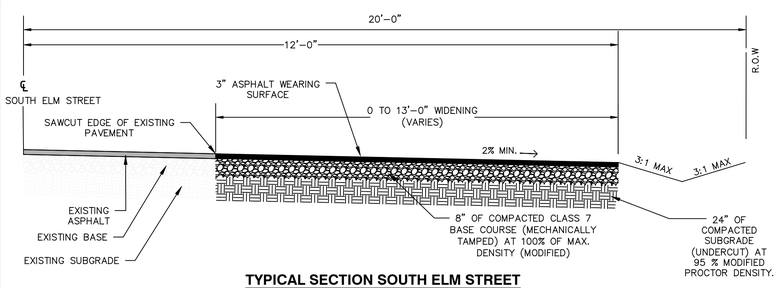

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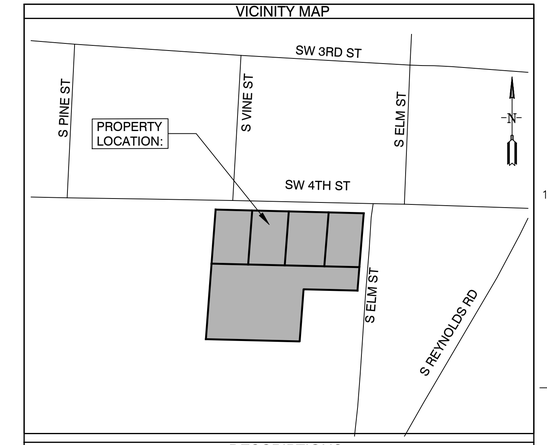

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GNE

3825 Mt Carmel Rd.
Bryant, AR 72022

GarNat Engineering, LLC

P.O. Box 116
Benton, AR 72018

March 12, 2026

Mr. Colton Leonard
Planning and Development Director
210 SW 3rd Street
Bryant, AR 72022

Re: Final Plat – Elm Estates

Dear Mr. Leonard:

Please allow this letter and following list of enclosures to serve as my application for approval of the referenced final plat. It is my desire that this matter be included on the agenda for your April 13, 2026 City of Bryant Planning Commission meeting. The developer for the project is Saline County Contracting and Rental Properties, LLC, 3501 Lake Norrell Road, Alexander, Arkansas 72002 morgan.garner@cranfordasphalt.com (501) 251-7786.

List of Enclosures

- Final Plat
- As Built
- Bryant Subdivision Checklist
- Bill of Assurance
- Subdivision Final Plat Review Fee $29.00

If you have questions or need any additional information, please do not hesitate to contact me.

Sincerely,
GarNat Engineering, LLC

Vernon J. Williams

Vernon J. Williams, P.E., President

LEGEND OF SYMBOLS & ABBREVIATIONS

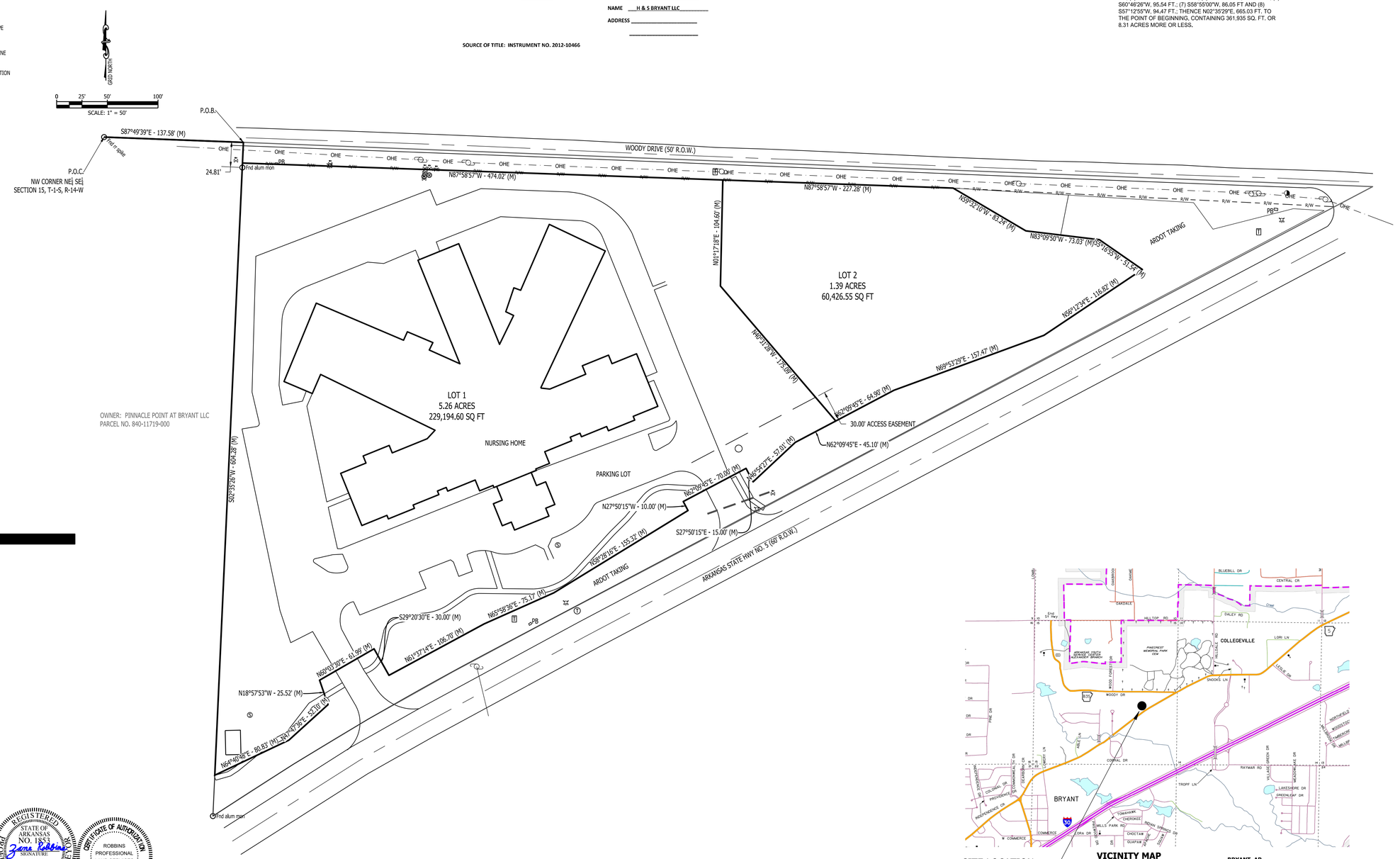
GAS METER
WATER METER
GUY WIRE
POWER/UTILITY POLE
TELEPHONE PEDESTAL
SEWER MANHOLE
WATER VALVE
FIRE HYDRANT
SIGNS
LIGHT POLE
TELEPHONE MANHOLE
SANITARY SEWER LINE
WATER LINE
STORM SEWER PIPE
ROADWAY CENTERLINE
UTILITY EASEMENT
BUILDING SETBACK LINE
ROADWAY RIGHT-OF-WAY
OVERHEAD ELECTRIC LINES
UNDERGROUND TELEPHONE
UNDERGROUND GAS
UNDERGROUND FIBER OPTIC
FENCE
STEEL GUARD RAIL
[100] SURFACE CONTOUR LINE & ELEVATION

STORM DRAIN MANHOLE
SEWER CLEANOUT
N NORTH
S SOUTH
E EAST
W WEST
(M) AS MEASURED
(D) PER DEED
R/W RIGHT-OF-WAY
L.A. LANDSCAPED AREA
CR4 CAPPED 1/2" REBAR
CONC. CONCRETE
P.O.C. POINT OF COMMENCEMENT
P.O.B. POINT OF BEGINNING
CMP CORRUGATED METAL PIPE
RCP REINFORCED CONCRETE PIPE
ESMT EASEMENT
HDPE HIGH DENSITY POLYETHYLENE
SUBD SUBDIVISION
FDC FIRE DEPARTMENT CONNECTION
CPS COTTON PICKER SPINDLE
PS 5/8" PIPE
RS 5/8" REBAR
R4 1/2" REBAR
PK SURVEY NAIL
PB TELEPHONE PULL BOX

ASPHALT
CONCRETE

SET 1/2" REBAR w/ CAP #1853
SET COTTON-PICKER SPINDLE
FOUND MONUMENT (DESC. NOTED)
COMPUTED CORNER (NOT SET)
AP CORRESPONDS TO DRAWING NOTE

GRID NORTH
0 25' 50' 100'
SCALE: 1" = 50'



OWNER: PINNACLE POINT AT BRYANT LLC
PARCEL NO. 840-11719-000

CERTIFICATE OF SURVEY ACCURACY

I, ZANE ROBBINS, HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A BOUNDARY SURVEY MADE OR VERIFIED BY ME, THAT ALL SURVEYING REQUIREMENTS OF THE STATE OF ARKANSAS AND CITY OF BRYANT SUBDIVISION RULES AND REGULATIONS HAVE BEEN COMPLIED WITH AND FILED FOR RECORD AS REQUIRED.

DATE OF EXECUTION

Zane Robbins
REGISTERED PROFESSIONAL LAND SURVEYOR
NO. 1853 ARKANSAS

CERTIFICATE OF FINAL PLAT APPROVAL

ALL REQUIREMENTS OF THE BRYANT SUBDIVISION RULES AND REGULATIONS RELATIVE TO THE PREPARATION AND SUBMITTAL TO A FINAL PLAT HAVE BEEN FULFILLED, APPROVAL OF THIS PLAT IS HEREBY GRANTED, SUBJECT TO FURTHER PROVISIONS OF SAID RULES AND REGULATIONS.

SIGNED,

DATE OF EXECUTION

BRYANT PLANNING COMMISSION

CERTIFICATE OF OWNER

WE, THE UNDERSIGNED, OWNERS OF THE REAL ESTATE SHOWN AND DESCRIBED HEREIN, DO HEREBY CERTIFY THAT WE HAVE LAID OFF, PLATTED AND SUBDIVIDED, AND DO HEREBY LAY OFF, PLAT AND SUBDIVIDE SAID REAL ESTATE IN ACCORDANCE WITH THIS PLAT.

DATE OF EXECUTION _____

SIGNED _____
NAME H & S BRYANT LLC
ADDRESS _____

SOURCE OF TITLE: INSTRUMENT NO. 2012-10466

LAND DESCRIPTION PROVIDED

PART OF THE NE1/4 SE1/4, SECTION 15, T-1-S, R-14-W, SALINE COUNTY, ARKANSAS, MORE PARTICULARLY DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHWEST CORNER OF SAID NE1/4 SE1/4, SECTION 15; THENCE S87°45'20"E ALONG THE NORTH LINE OF SAID NE1/4 SE1/4, 137.46 FT. TO THE POINT OF BEGINNING; THENCE CONTINUING S87°45'20"E ALONG SAID NORTH LINE, 1114.53 FT. TO A POINT ON THE NORTHERLY RIGHT-OF-WAY LINE OF ARKANSAS STATE HIGHWAY NO. 5 (60' R/W); THENCE SOUTHWESTERLY ALONG SAID RIGHT-OF-WAY LINE THE FOLLOWING: (1) S62°13'25"W, 268.42 FT.; (2) S62°13'48"W, 256.59 FT.; (3) S62°07'36"W, 192.93 FT.; (4) S62°18'05"W, 204.54 FT.; (5) S61°56'27"W, 103.23 FT.; (6) S60°46'26"W, 95.54 FT.; (7) S58°55'00"W, 86.05 FT AND (8) S57°12'55"W, 94.47 FT.; THENCE N02°35'29"E, 665.03 FT. TO THE POINT OF BEGINNING, CONTAINING 361,935 SQ. FT. OR 8.31 ACRES MORE OR LESS.

UTILITY NOTES

U1. UTILITIES SHOWN ON THIS SURVEY ARE NOTED BY VISIBLE OBSERVATION ONLY. LOCATION OF UNDERGROUND UTILITIES SHOWN ON THIS SURVEY MUST BE CONSIDERED TO BE APPROXIMATE AS NO EXCAVATION HAS TAKEN PLACE AS OF THIS DATE TO DETERMINE THEIR EXACT LOCATION. OTHER UTILITIES, TO WHICH THE EXISTENCE AND LOCATION ARE UNKNOWN, MAY BE LOCATED ON OR NEAR THE SUBJECT PROPERTY.

GENERAL NOTES

1. BASIS OF BEARING FOR THIS SURVEY IS ARKANSAS STATE PLANE GRID NORTH. DISTANCES SHOWN ARE GROUND DISTANCES.
2. REFERENCES:
   A. SPECIAL WARRANTY DEED TO H & S BRYANT, LLC. INSTRUMENT NO. 2012-056527.
   B. SURVEY BY RASBURRY SURVEYING DATED 07-14-11.

CERTIFICATION

I HEREBY CERTIFY THAT THE ABOVE PLAT REPRESENTS A SURVEY MADE BY ME OR UNDER MY SUPERVISION ON THIS DAY AND THAT ALL CORNERS ARE SET AS SHOWN. NO INDEPENDENT SEARCH FOR EASEMENTS, COVENANTS, ENCUMBRANCES, OR ANY OTHER FACTS WHICH AN ACCURATE TITLE SEARCH MAY DISCLOSE WAS PERFORMED.

Zane Robbins
ZANE ROBBINS, AR PLS #1853

REGISTERED PROFESSIONAL LAND SURVEYOR — STATE OF ARKANSAS — NO. 1853 — ZANE ROBBINS — SIGNATURE — 03/13/2026

CERTIFICATE OF AUTHORIZATION — ROBBINS PROFESSIONAL LAND SERVICES #4151 — ARKANSAS - SURVEYOR

PROPERTY ADDRESS
6907 HWY 5 N
BRYANT, AR

CURRENT OWNER OF RECORD
H & S BRYANT LLC
5 HALSTED CIRCLE SUITE #1
ROGERS AR 72756

FOR THE USE & BENEFIT OF

VICINITY MAP (NTS)

BRYANT, AR

PLAT CODE: 500-01S-14W-0-15-210-62-1853

DATE	REVISIONS

6907 HIGHWAY 5 NORTH BRYANT SALINE COUNTY, ARKANSAS LOTS 1 & 2 WOODY DRIVE ADDITION

FINAL PLAT

ROBBINS PROFESSIONAL LAND SERVICES
INCORPORATED
SURVEYING | GIS | CONSTRUCTION STAKING
P.O. BOX 599 | BRYANT, ARKANSAS 72089
OFFICE: 501.425.5887 | EMAIL: ZANE@ROBBINSGIS@GMAIL.COM

DRAWN BY	ZR
CHECKED BY	ZR
DATE	03-13-26
SCALE	1"=50'
PROJECT No.	2024130
SHEET	--
PAGE	1 of 1

C:\ROBBINS GIS\HWY 5 AND WOODY PROPS\DWG\Final_PLAT.dwg, PLOTTED BY: ZANE, 3/13/2026 2:36:04 PM | ©2026 ROBBINS PROFESSIONAL LAND SERVICES INCORPORATED

MICHAEL BOLIN
& ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 605, BENTON, AR 72018, (501) 776-2692
FAX (501) 776-2619 EMAIL: cmbolin@sbcglobal.net

SUBDIVISION IMPROVEMENTS
WHISTLING PINES
BRYANT, ARKANSAS

STREET & DRAINAGE PLAN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

CONTACT PERSON:
M. BOLIN

SCALE:
1" = 60'

DATE: MARCH 2021

STREET
&
DRAINAGE
PLAN

JOB NO.	SHEET NO.
139-ABC	1 OF 8

PLANS

FOR

SUBDIVISION IMPROVEMENTS

BRYANT, ARKANSAS

JOB NO. 139-ABC
WHISTLING PINES

INDEX OF DRAWINGS

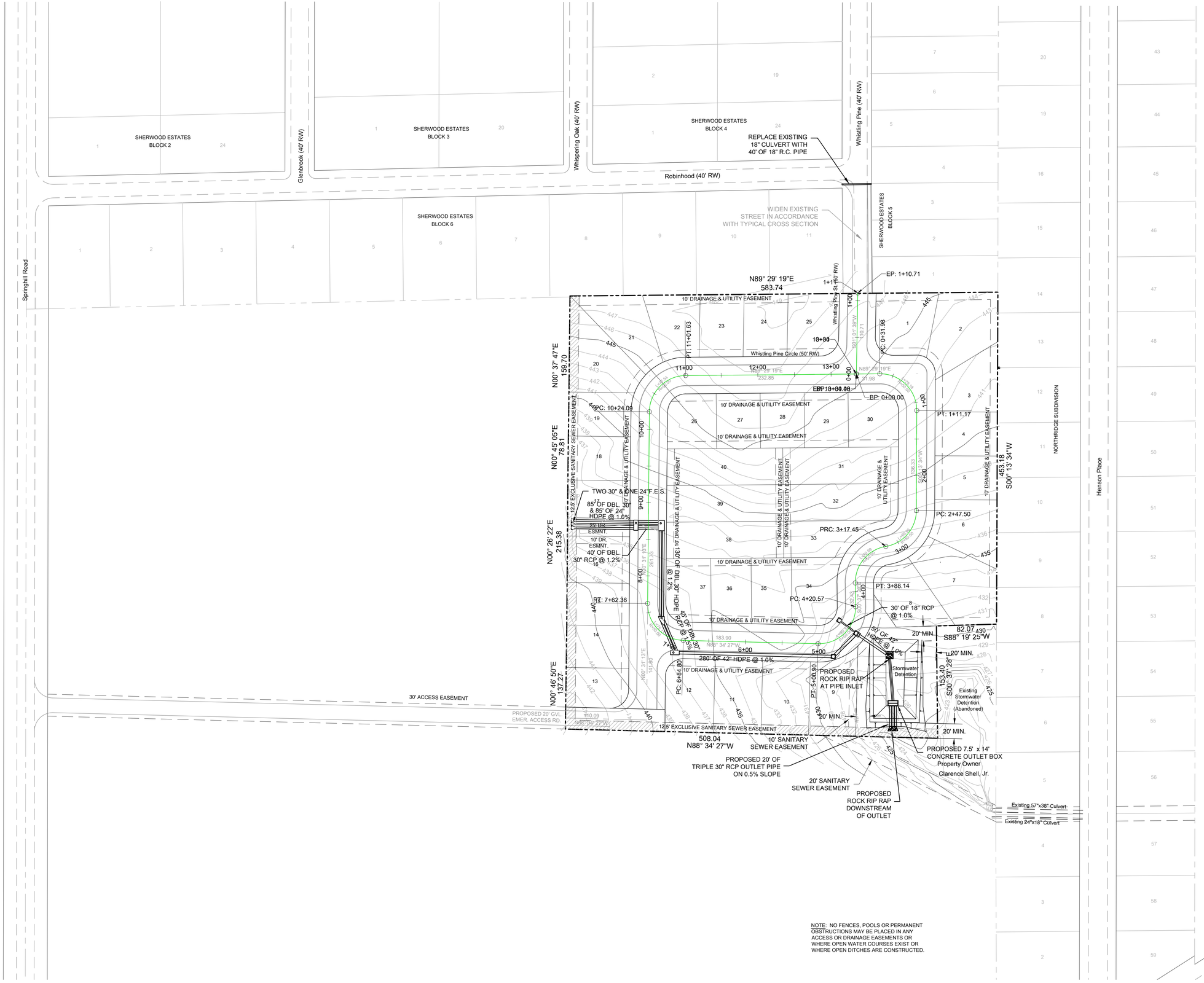
DESCRIPTION	SHEET No.
STREET & DRAINAGE PLAN	1
STREET PROFILE & TYPICAL SECTION	2
STREET & DRAINAGE MISC. DETAILS	3
STORMWATER DETENTION BASIN	4
WATER PLAN	5
SANITARY SEWER PLAN	6
SANITARY SEWER PROFILES	7
WATER & SAN. SEWER MISC. DETAILS	8

MICHAEL BOLIN & ASSOCIATES, INC.
CONSULTING ENGINEERS

CERTIFICATE OF AUTHORIZATION
MICHAEL BOLIN & ASSOCIATES, INC.
NO. 1404
ARKANSAS ENGINEER

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

MARCH 2021
REVISED MARCH 2026



NOTE: NO FENCES, POOLS OR PERMANENT OBSTRUCTIONS MAY BE PLACED IN ANY ACCESS OR DRAINAGE EASEMENTS OR WHERE OPEN WATER COURSES EXIST OR WHERE OPEN DITCHES ARE CONSTRUCTED.

MICHAEL BOLIN
& ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 605, BENTON, AR 72018, (501) 776-2692
FAX (501) 776-2619 EMAIL: cmbolin@sbcglobal.net

BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS
WHISTLING PINES
STREET & DRAINAGE PLAN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

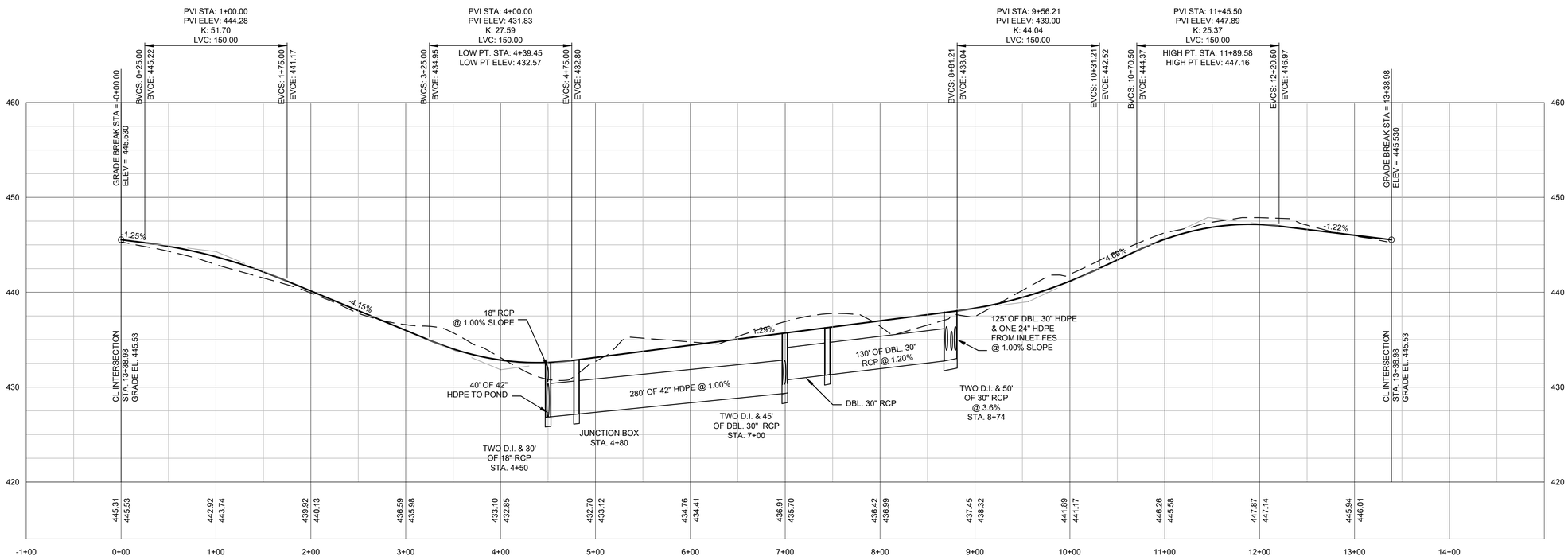
CONTACT PERSON:
M. BOLIN

SCALE:
1" = 60'

DATE: MARCH 2021

STREET
&
DRAINAGE
PLAN

JOB NO.	SHEET NO.
139-ABC	1 OF 8

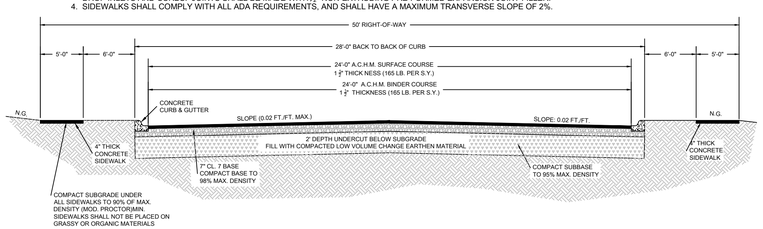


WHISTLING PINE CIRCLE PROFILE

SCALE: 1" = 60' HORIZ.
1" = 6' VERT.

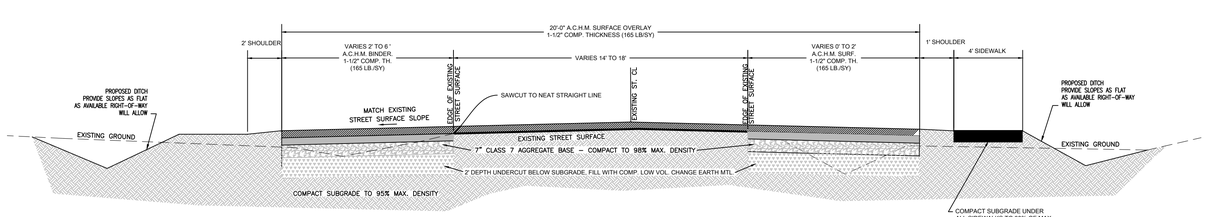
SIDEWALK NOTES:

1. ALL SIDEWALKS SHALL BE REINFORCED WITH WOVEN WIRE FABRIC REINFORCEMENT.
2. CONTRACTION JOINTS SHALL BE CONSTRUCTED PERPENDICULAR TO THE SIDEWALK AT 4'-0" INTERVALS.
3. EXPANSION JOINTS SHALL BE CONSTRUCTED PERPENDICULAR TO THE SIDEWALK AT 20'-0" INTERVALS, & AT DRIVEWAYS, DROP INLETS AND CURBS. JOINTS SHALL BE MADE WITH ½" NON-EXTRUDING PRE-FORMED EXPANSION JOINT FILLER.
4. SIDEWALKS SHALL COMPLY WITH ALL ADA REQUIREMENTS, AND SHALL HAVE A MAXIMUM TRANSVERSE SLOPE OF 2%.



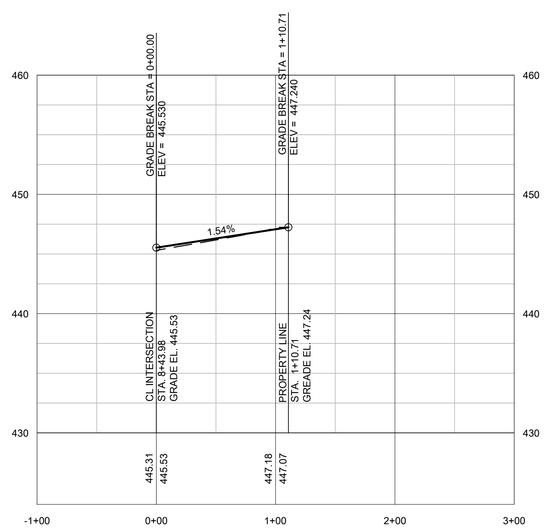
TYPICAL STREET & SIDEWALK SECTION

N.T.S.



EXISTING STREET WIDENING - TYPICAL SECTION

N.T.S.



WHISTLING PINE STREET PROFILE

SCALE: 1" = 60' HORIZ.
1" = 6' VERT.

MICHAEL BOLIN
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BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS
WHISTLING PINES

STREET PROFILE & TYPICAL SECTION

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

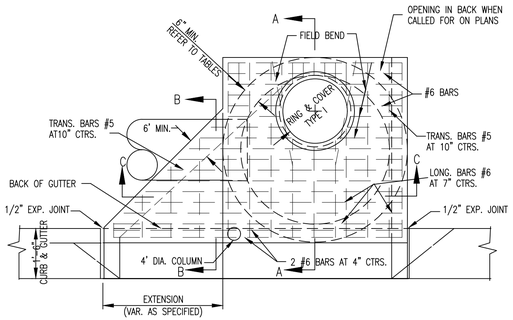
CONTACT PERSON:
M. BOLIN

SCALE:
AS SHOWN

DATE: MARCH 2021

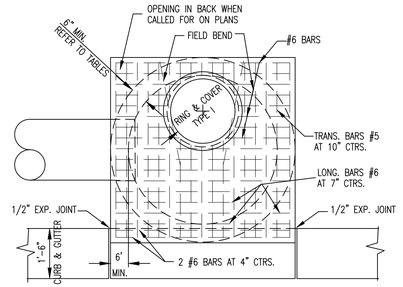
STREET PROFILE
&
TYPICAL SECTION

JOB NO.	SHEET NO.
139-ABC	2 OF 8

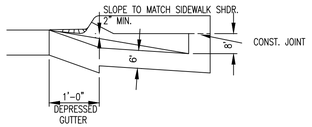


PLAN-W/SINGLE EXTENSION

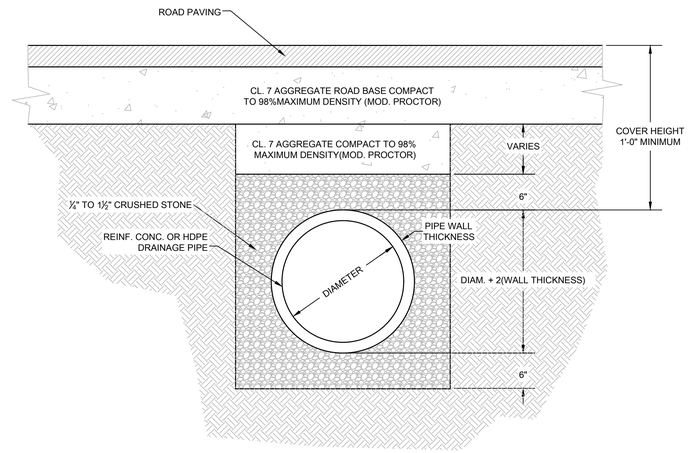
NOTE: FOR DOUBLE USE SINGLE ON BOTH SIDES



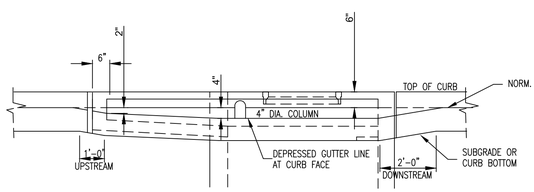
PLAN



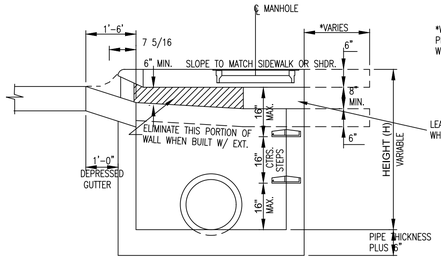
SECTION B-B



DRAINAGE PIPE BEDDING DETAIL FOR PIPE UNDER PAVEMENT

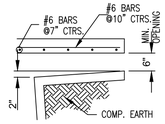


FRONT ELEVATION

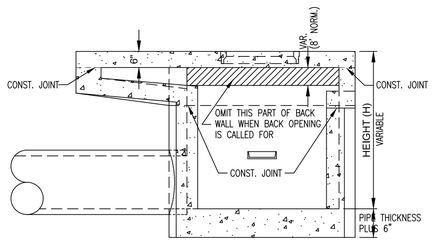


SECTION A-A

*WHEN OPENING IN BACK IS CALLED FOR ON PLANS, EXTEND OPENING TO MATCH SIDEWALK WIDTH.



BACK OPENING



SECTION C-C

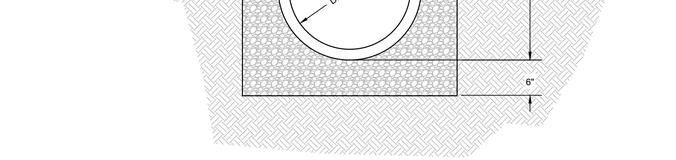
DIA. OF D.I.	DIA. OF OUTLET PIPE	MINIMUM WALL THICKNESS	
		CAST IN PLACE	PRECAST
4' I.D.	12" THRU 27"	6"	5"
5' I.D.	30" THRU 42"	8"	6"
6' I.D.	48" THRU 54"	8"	7"

DROP INLET DETAILS

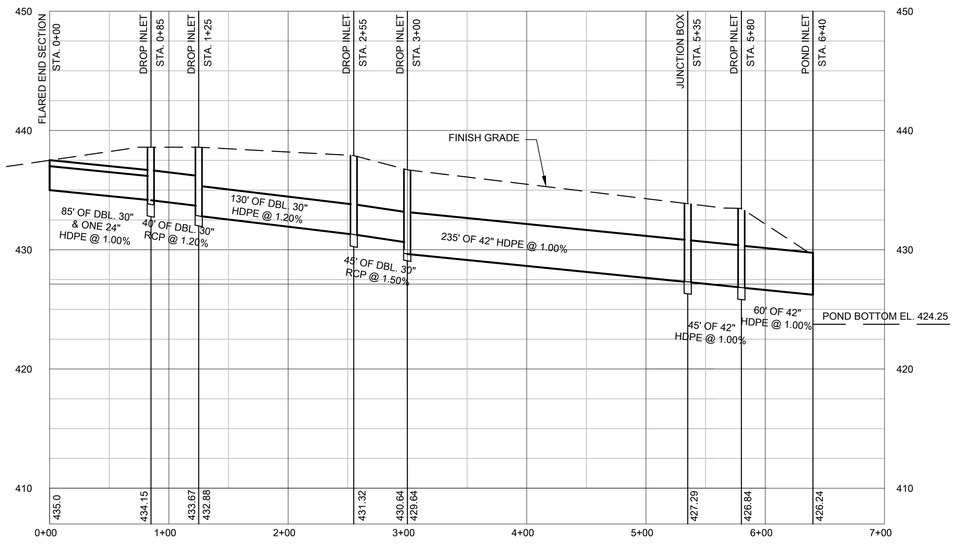
N.T.S.

GENERAL NOTES

1. ALL EXPOSED CORNERS TO HAVE 3/4" CHAMFER.
2. STEPS SHALL BE INSTALLED IN ALL INLETS 4'-0" AND OVER OR DIRECTED BY THE ENGINEER.
3. ALL REINF. BARS SHALL BE GRADE 60 AND HAVE MIN. 1 1/2" COVER.
4. DROP INLETS AND EXTENSIONS ON CURVED SECTIONS SHALL CONFORM TO THE CURVATURE OF THE CURVE.
5. 4" DIA. CONC. COLUMNS SPACED AT MAX. 4'-0" INTERVALS SHALL BE INSTALLED ALONG INLETS & EXTENSION TO SUPPORT TOPS.
6. BASE & INLET WALLS SHALL BE CAST MONOLITHICALLY.
7. THE THROAT SHALL BE CAST INTEGRALLY WITH THE CURB & GUTTER.
8. THE TOP SHALL BE CAST-IN-PLACE.
9. PIPE MAY ENTER DROP INLET FROM ANY ANGLE OR ELEVATION AS MAY BE APPROVED BY THE ENGINEER.

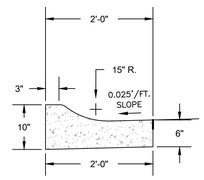


DRAINAGE PIPE BEDDING DETAIL FOR PIPE NOT UNDER PAVEMENT



STORM SEWER PROFILE

SCALE: 1" = 60' HORIZ.
1" = 6' VERT.

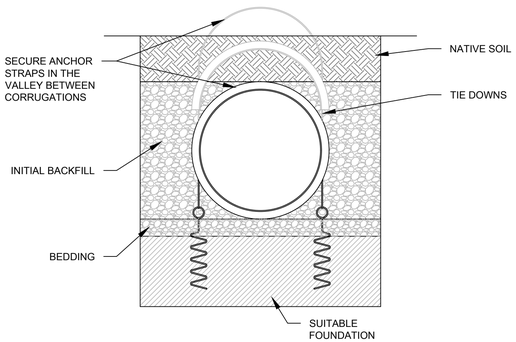


CONCRETE CURB SECTION

MINIMUM PIPE COVER TO PREVENT FLOTATION OF HDPE DRAINAGE PIPE

NOMINAL PIPE DIAMETER (INCHES)	MINIMUM COVER (INCHES)
12	9
15	11
18	13
24	17
30	22
36	25
42	29
48	33
60	40

NOTE: WHEN ANTI-FLOTATION ANCHORS ARE REQUIRED THEY SHALL BE INSTALLED WITH A MAXIMUM SPACING OF 10' ON CENTERS.



DRAINAGE PIPE ANCHOR DETAIL FOR PIPE WITH LESS THAN MIN. REQ'D COVER TO PREVENT FLOTATION

MICHAEL BOLIN & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 605, BENTON, AR 72018, (501) 776-2692
FAX (501) 776-2619 EMAIL: cmbolin@sbcglobal.net

BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS

WHISTLING PINES

STREET & DRAINAGE MISCELLANEOUS DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

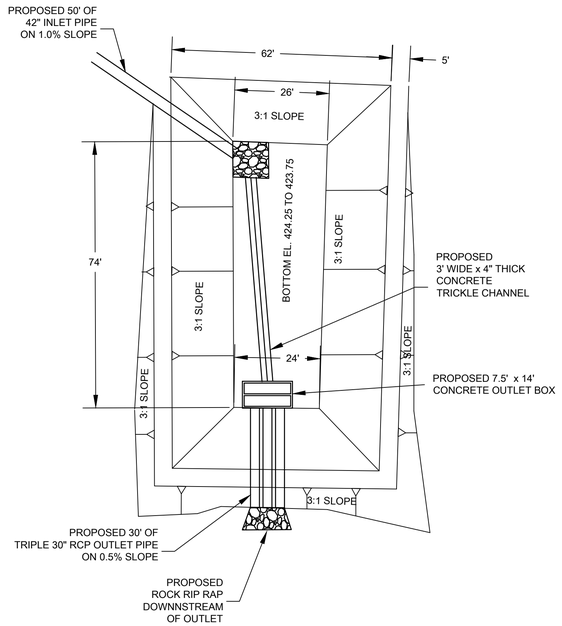
CONTACT PERSON: M. BOLIN

SCALE: AS SHOWN

DATE: MARCH 2021

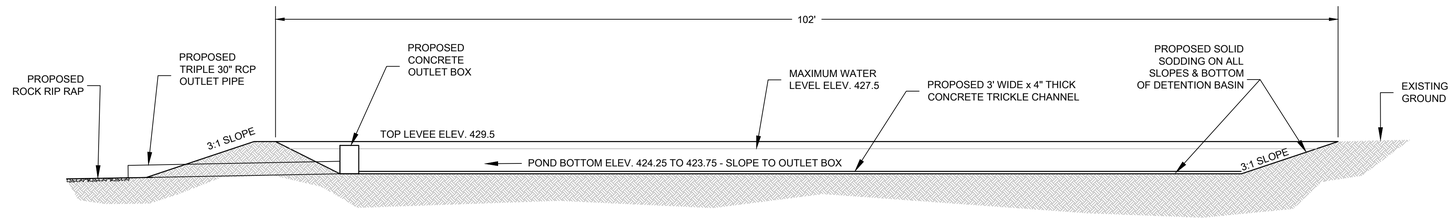
STREET & DRAINAGE MISCELLANEOUS DETAILS

JOB NO.	SHEET NO.
139-ABC	3 OF 8



STORMWATER DETENTION BASIN PLAN

SCALE: 1" = 20'



STORMWATER DETENTION BASIN SECTION

NOT TO SCALE

Stormwater Detention Basin:

Affected drainage area:

Off-site drainage area, A = 23.5 acres
On-site drainage area, A = 7.8 acres (Proposed)

Total effected drainage area, A = 31.3 acres

Off-Site Flow:

Length of overland flow = 150 feet, Slope of overland flow = 3%
Length of shallow concentrated flow = 675 feet, Slope of, shallow concentrated flow = 3%
Length of natural channel channelized flow = 850 feet, Slope of channelized flow = 2%

From nomographs with overland flow roughness coefficient = 0. 40, shallow and channelized flow roughness coefficient = 0.03:

Existing off-site time of concentration, t_c = 32.6 minutes
Existing off-site intensity, i_2 = 2.7 in/hr (2 year flood), i_5 = 3.7 in/hr (10 year flood) i_6 = 4.3 in/hr (25 year flood), i_{25} = 4.7 in/hr (50 year flood), i_{50} = 5.5 in/hr (100 year flood)

Existing off-site surface is undeveloped, clay soil, average slope, C_x = 0.50 (100 year flood)
= 0.44 (25 year flood)

Existing off-site flow, Q_2 = (0.44)(2.7)(23.5) = 27.9 cfs, Q_{10} = (0.44)(3.7)(23.5) = 38.3 cfs, Q_{25} = (0.44)(4.3)(23.5) = 44.5 cfs, Q_{50} = (0.44)(4.7)(23.5) = 48.6 cfs, Q_{100} = (0.44)(5.5)(23.5) = 64.6 cfs

Undeveloped Subdivision Site Flow:

Length of overland flow = 120 feet, Slope of overland flow = 1%
Length of shallow concentrated flow = 320 feet
Slope of, shallow concentrated flow = 5%
Length of natural channel channelized flow = 550 feet, Slope of channelized flow = 2%

From nomographs with overland flow roughness coefficient = 0. 30, shallow flow roughness coefficient = 0.03, channelized flow roughness coefficient = 0.02

Undeveloped Subdivision Site time of concentration, t_c = 26.1 minutes
Undeveloped Subdivision Site intensity, i_2 = 3.0 in/hr (2 year flood), i_5 = 4.3 in/hr (10 year flood), i_6 = 5.0 in/hr (25 year flood), i_{25} = 5.4 in/hr (50 year flood), i_{50} = 6.2 in/hr (100 year flood)

Existing subdivision site surface is undeveloped, clay soil, average slope, C_u = 0.50 (100 year flood)
= 0.44 (25 year flood)

Undeveloped subdivision site flow, Q_{25} = (0.44)(5.0)(7.8) = 17.2 cfs, Q_{100} = (0.50)(6.2)(7.8) = 24.2 cfs

Developed Subdivision Site Flow:

Length of overland flow = 120 feet, Slope of overland flow = 1%
Length of shallow concentrated flow = 320 feet
Slope of, shallow concentrated flow = 5%
Length of channelized flow = 550 feet, Slope of channelized flow = 2%

From nomographs with overland flow roughness coefficient = 0. 30, shallow flow roughness coefficient = 0.03, channelized flow roughness coefficient = 0.013

Developed Subdivision Site time of concentration, t_c = 22.1 minutes (1,326 sec.)
Developed Subdivision Site intensity, i_{d} = 5.5 in/hr (25 year flood), i_{d} = 6.3 in/hr (100 year flood)

Developed subdivision site surface is single family residential, C_v = 0.70 (100 year flood)
= 0.60 (25 year flood)

Developed subdivision site flow, Q_{25} = (0.60)(5.5)(7.8) = 25.7 cfs, Q_{100} = (0.70)(6.3)(7.8) = 34.4 cfs

Required Detention Volume:

Volume required = (Dev. Q_{100} – Undev. Q_{100}) (Dev. t_c) = (34.4 – 24.2) (1,326) = 13,525 cubic feet

Pond top levee el. = 429.5, Bottom el. = 423.75, Max. water level el. = 427.5, Water depth = 3.75'
At 3.75' depth, the required average area = 3,940 sq. ft.

Use basin with dimensions as shown with 3:1 side slopes, which will provide a volume of 17,167 cubic feet plus one foot of freeboard at a depth of 12" above spillway.

The undeveloped 2-year runoff to the basin is 10.3 cfs + 27.9 =38.2 cfs
The undeveloped 10-year runoff to the basin is 14.8 cfs + 38.3 = 53.1 cfs
The undeveloped 25-year runoff to the basin is 17.2 cfs +44.5 = 61.7 cfs
The undeveloped 50-year runoff to the basin is 18.6 cfs +48.6 = 67.2 cfs

Use concrete outlet box with outlet orifices sized for 38.2 cfs (2-yr.) and 61.7 cfs (25-yr.) capacity, and overflow weirs sized for 53.1 cfs (10-yr.), 67.2 cfs (50-yr.) and 99.0 cfs (100-yr. developed) capacity.

One 18.95" diameter orifices through the outlet structure wall orifice will discharge 38.2 cfs (2-yr.).

A 4.75' long weir under a head of 12" will discharge 15.0 cfs. This weir plus the 2-year, 18.95" diameter orifice will discharge 53.1 cfs (10-yr.).

Two 28.75" diameter orifices through the outlet structure wall orifice will discharge 61.7 cfs (25-yr.).

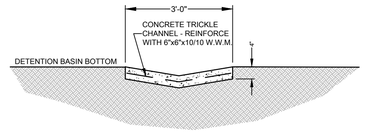
A 4.75' long weir under a head of 6" will discharge 5.5 cfs. This weir plus the 25-year orifices will discharge 67.2 cfs (50-yr.).

The 100-year developed flow from the area routing to the basin is: Q_{100} = Q_{100} (off-site) + Q_{100} (developed site) = 64.6 + 34.4 = 99.0 cfs, and the required additional overflow weir capacity is: 99.0 – 61.7 = 37.3 cfs

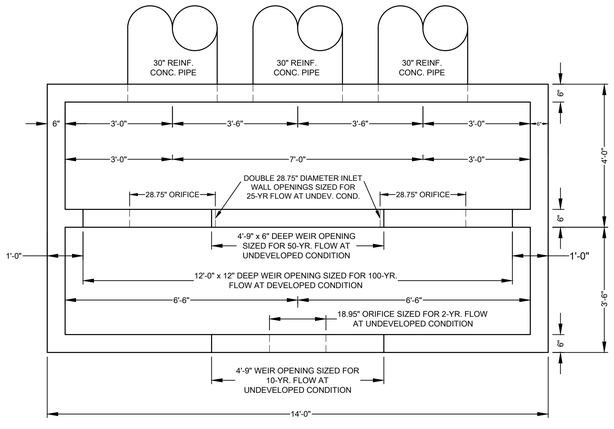
At a head of 12" on a rectangular weir a weir length of 11.4' is required to discharge approximately 37.3 cfs. Use a 12' long by 12" deep rectangular weir.

The required discharge for the proposed outlet is 99.0 cfs. Three 30" concrete pipes under an inlet head of 3.75' will discharge approximately 105 cfs (see attached headwater nomograph). Use three 30" concrete outlet pipes.

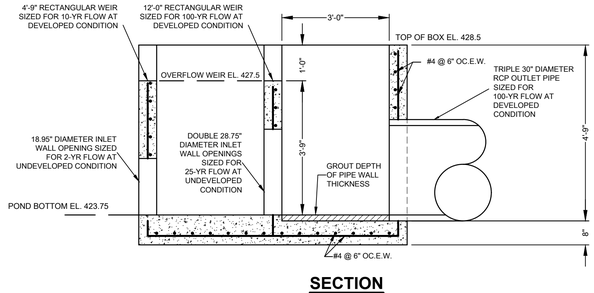
Proposed outlet structure is 7'-6" x 14' (exterior dimensions) concrete box with bottom el. = 423.75, top el. = 428.5, and top of overflow weir el. = 427.5. Outlet will be triple 30" dia. reinforced concrete pipes.



TRICKLE CHANNEL SECTION



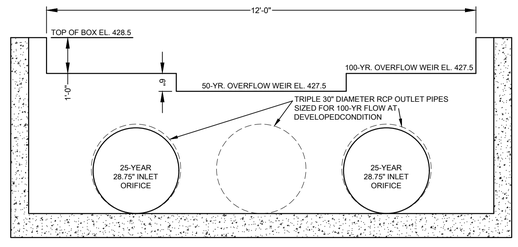
PLAN



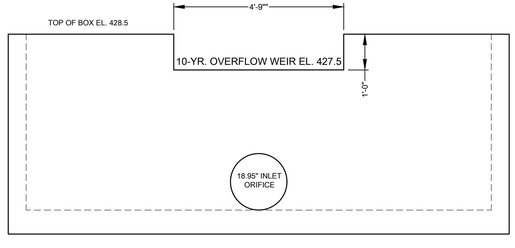
SECTION

DETENTION BASIN OUTLET STRUCTURE DETAILS

SCALE: 1/2" = 1'-0"



MID-BASIN UPSTREAM ELEVATION



UPSTREAM ELEVATION

MICHAEL BOLIN
& ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 605, BENTON, AR 72018, (501) 776-2692
FAX (501) 776-2619 EMAIL: cmbolin@sbcglobal.net

BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS
WHISTLING PINES

STORMWATER DETENTION BASIN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

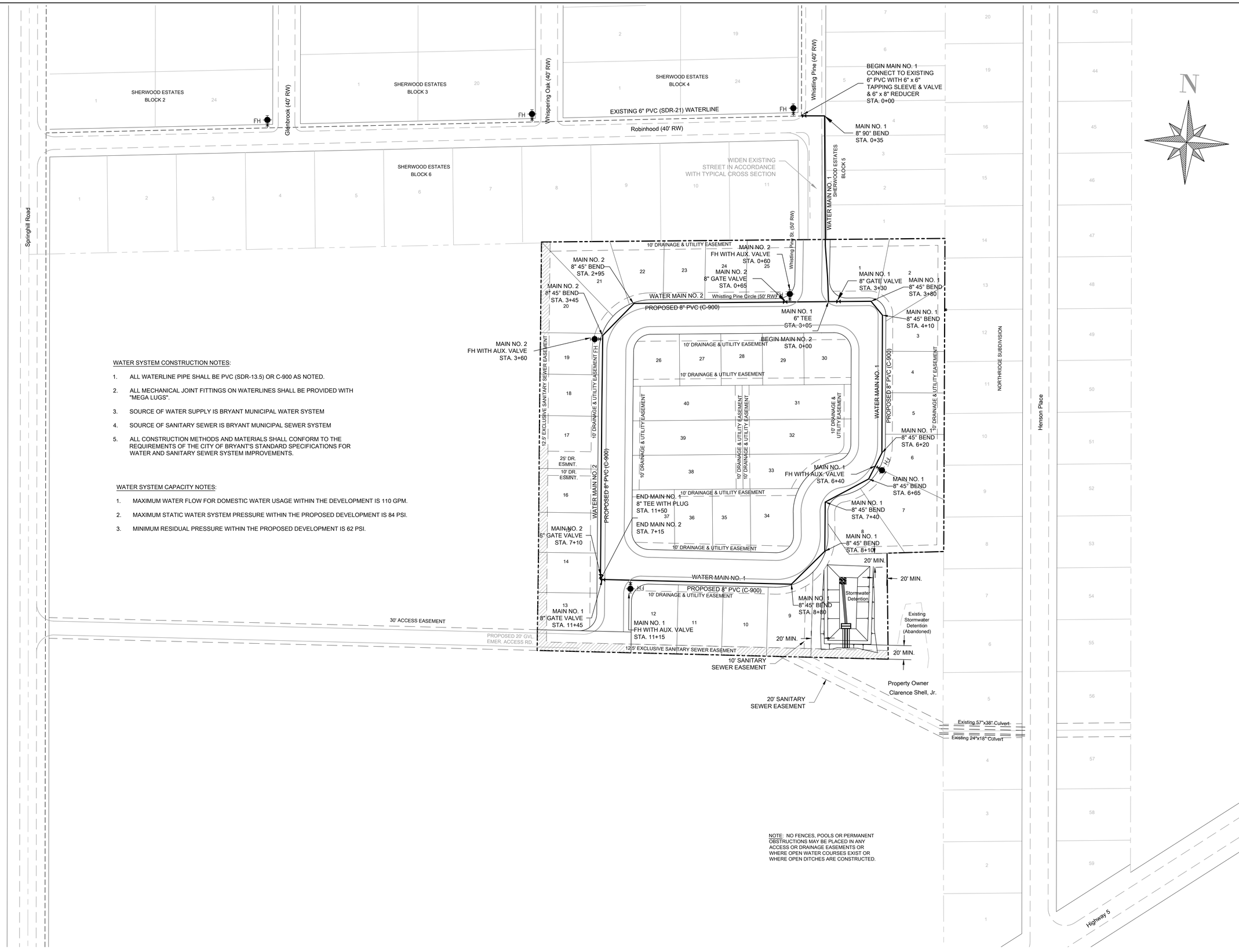
CONTACT PERSON:
M. BOLIN

SCALE:
AS SHOWN

DATE: MARCH 2021

STORMWATER
DETENTION BASIN

JOB NO.	SHEET NO.
139-ABC	4 OF 8



WATER SYSTEM CONSTRUCTION NOTES:

1. ALL WATERLINE PIPE SHALL BE PVC (SDR-13.5) OR C-900 AS NOTED.
2. ALL MECHANICAL JOINT FITTINGS ON WATERLINES SHALL BE PROVIDED WITH "MEGA LUGS".
3. SOURCE OF WATER SUPPLY IS BRYANT MUNICIPAL WATER SYSTEM
4. SOURCE OF SANITARY SEWER IS BRYANT MUNICIPAL SEWER SYSTEM
5. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF BRYANT'S STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER SYSTEM IMPROVEMENTS.

WATER SYSTEM CAPACITY NOTES:

1. MAXIMUM WATER FLOW FOR DOMESTIC WATER USAGE WITHIN THE DEVELOPMENT IS 110 GPM.
2. MAXIMUM STATIC WATER SYSTEM PRESSURE WITHIN THE PROPOSED DEVELOPMENT IS 84 PSI.
3. MINIMUM RESIDUAL PRESSURE WITHIN THE PROPOSED DEVELOPMENT IS 62 PSI.

NOTE: NO FENCES, POOLS OR PERMANENT OBSTRUCTIONS MAY BE PLACED IN ANY ACCESS OR DRAINAGE EASEMENTS OR WHERE OPEN WATER COURSES EXIST OR WHERE OPEN DITCHES ARE CONSTRUCTED.

MICHAEL BOLIN
& ASSOCIATES, INC.
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BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS
WHISTLING PINES

WATER PLAN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

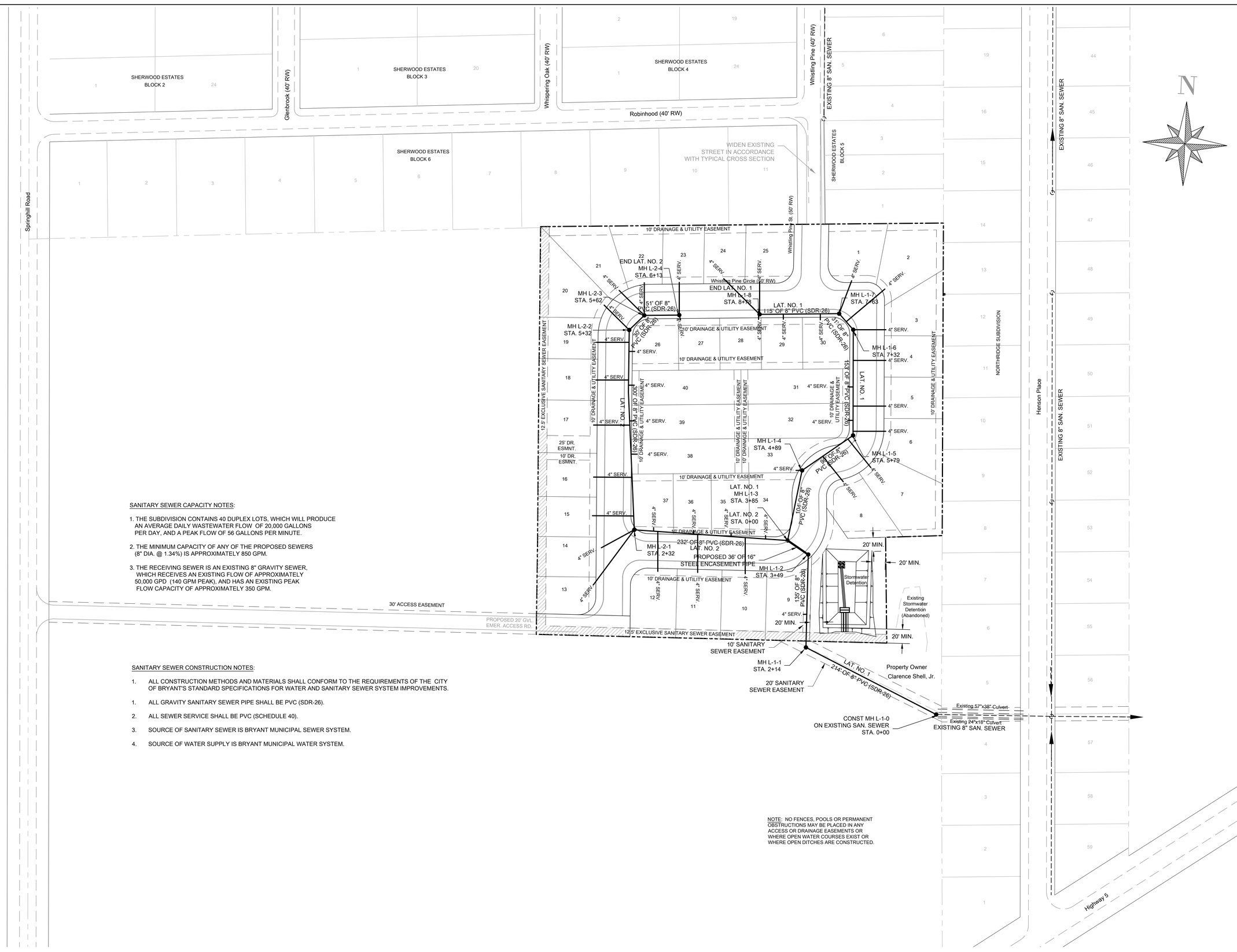
CONTACT PERSON:
M. BOLIN

SCALE:
1" = 60'

DATE: MARCH 2021

WATER PLAN

JOB NO.	SHEET NO.
139-ABC	5 OF 8



SANITARY SEWER CAPACITY NOTES:

1. THE SUBDIVISION CONTAINS 40 DUPLEX LOTS, WHICH WILL PRODUCE AN AVERAGE DAILY WASTEWATER FLOW OF 20,000 GALLONS PER DAY, AND A PEAK FLOW OF 56 GALLONS PER MINUTE.
2. THE MINIMUM CAPACITY OF ANY OF THE PROPOSED SEWERS (8" DIA. @ 1.34%) IS APPROXIMATELY 850 GPM.
3. THE RECEIVING SEWER IS AN EXISTING 8" GRAVITY SEWER, WHICH RECEIVES AN EXISTING FLOW OF APPROXIMATELY 50,000 GPD (140 GPM PEAK), AND HAS AN EXISTING PEAK FLOW CAPACITY OF APPROXIMATELY 350 GPM.

SANITARY SEWER CONSTRUCTION NOTES:

1. ALL CONSTRUCTION METHODS AND MATERIALS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF BRYANT'S STANDARD SPECIFICATIONS FOR WATER AND SANITARY SEWER SYSTEM IMPROVEMENTS.
1. ALL GRAVITY SANITARY SEWER PIPE SHALL BE PVC (SDR-26).
2. ALL SEWER SERVICE SHALL BE PVC (SCHEDULE 40).
3. SOURCE OF SANITARY SEWER IS BRYANT MUNICIPAL SEWER SYSTEM.
4. SOURCE OF WATER SUPPLY IS BRYANT MUNICIPAL WATER SYSTEM.

NOTE: NO FENCES, POOLS OR PERMANENT OBSTRUCTIONS MAY BE PLACED IN ANY ACCESS OR DRAINAGE EASEMENTS OR WHERE OPEN WATER COURSES EXIST OR WHERE OPEN DITCHES ARE CONSTRUCTED.

MICHAEL BOLIN
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SUBDIVISION IMPROVEMENTS
WHISTLING PINES
BRYANT, ARKANSAS
SANITARY SEWER PLAN

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

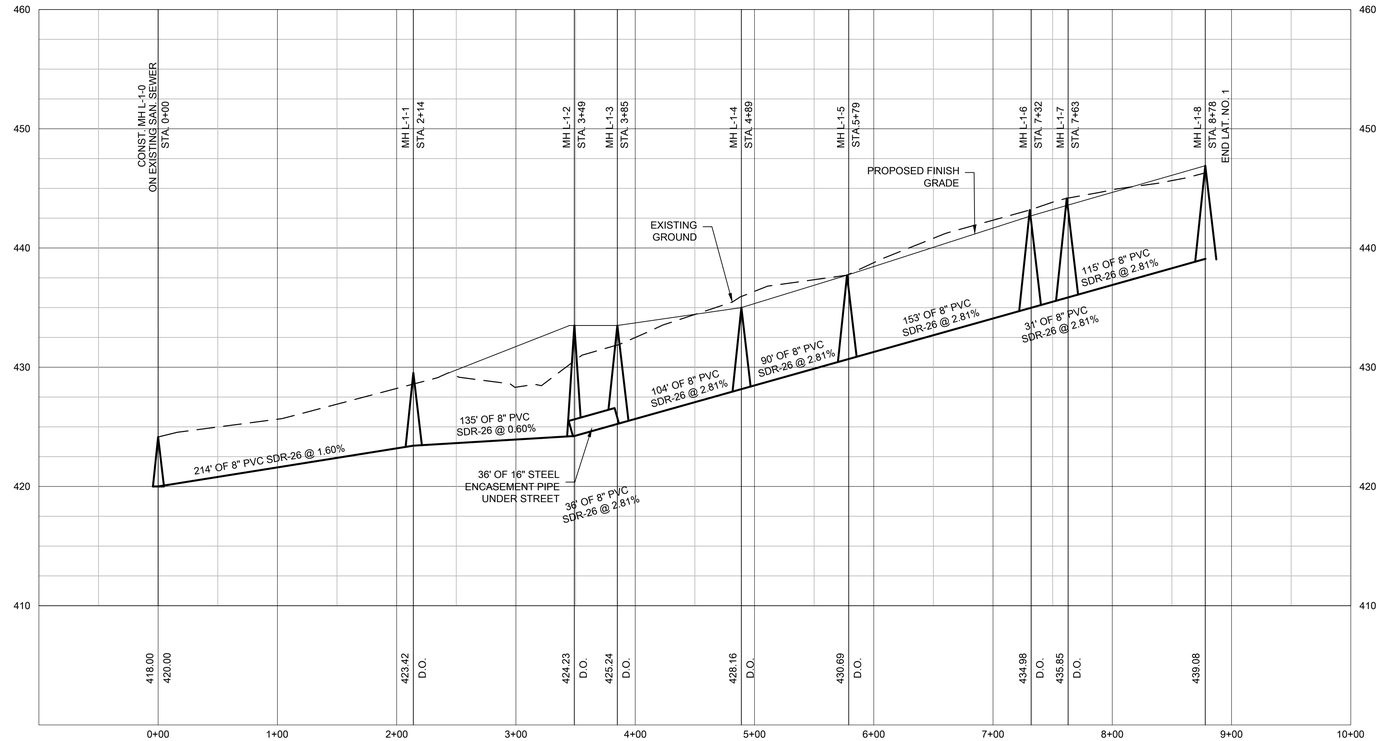
CONTACT PERSON:
M. BOLIN

SCALE:
1" = 60'

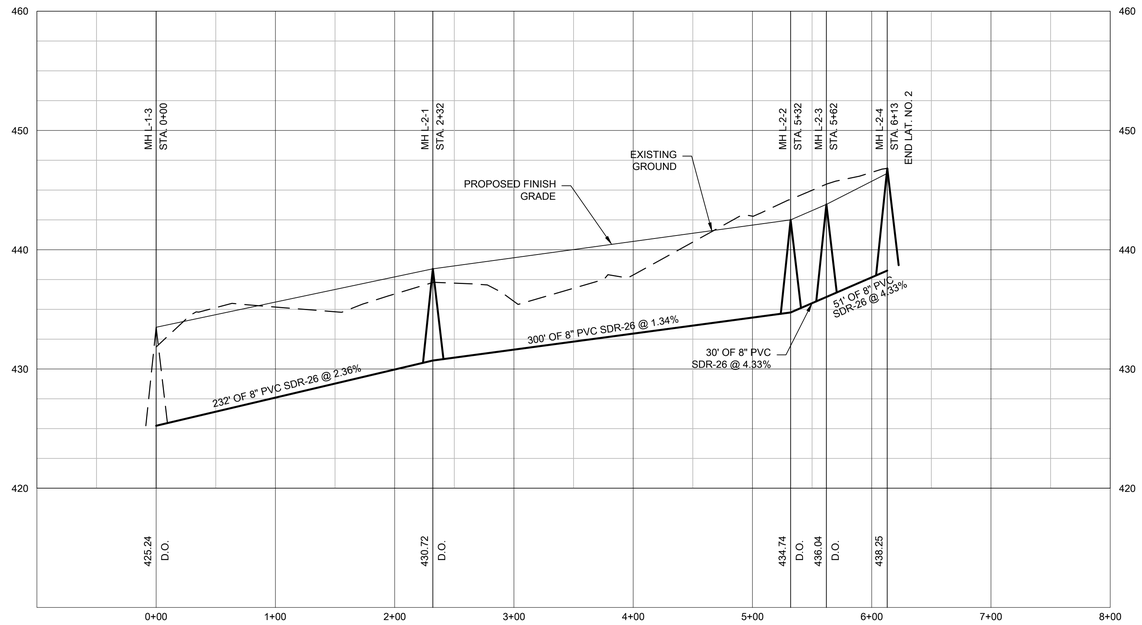
DATE: MARCH 2021

SANITARY SEWER PLAN

JOB NO.	SHEET NO.
139-ABC	6 OF 8



SANITARY SEWER LATERAL NO. 1 PROFILE



SANITARY SEWER LATERAL NO. 2 PROFILE

MICHAEL BOLIN
& ASSOCIATES, INC.
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BRYANT, ARKANSAS

SUBDIVISION IMPROVEMENTS
WHISTLING PINES

SANITARY SEWER PROFILES

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

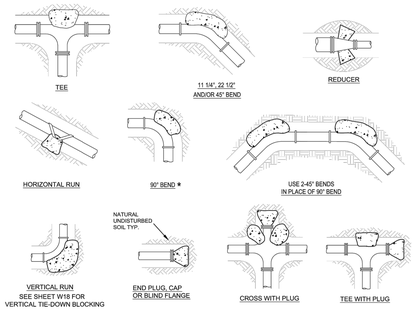
CONTACT PERSON:
M. BOLIN

SCALE:
1" = 60' HORIZ.
1" = 6' VERT.

DATE: MARCH 2021

SANITARY SEWER PROFILES

JOB NO.	SHEET NO.
139-ABC	7 OF 8



THRUST BLOCK SCHEDULE

(2000 PSF SOIL, 200 PSI WATER PRESSURE, 150 PSI WATER HAMMER)

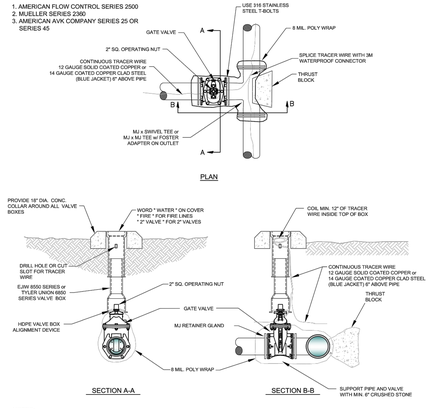
FITTING SIZE	PLUG 150 PSI CAP	BEARING AREA OF THRUST BLOCKS IN SQ. FT. (HORIZONTAL BENDS) BEND ANGLE				FITTING SIZE	VOLUME OF THRUST BLOCK IN CU. FEET (VERTICAL BENDS) BEND ANGLE				MJ65 SWIVEL	EMBED-MENT
		22 1/2°	45°	22 1/2°	11 1/4°		22 1/2°	45°	22 1/2°	11 1/4°		
2, 3, & 4	1.9	3.7	7.4	3.7	0.4	2, 3, & 4	35.5	19.2	8.8	4.9	30°	30"
6	5.6	7.8	4.3	2.2	1.1	6	105.8	57.2	25.3	14.2	75°	30"
8	9.8	13.8	7.4	3.8	1.9	8	181.3	98.5	50.2	25.2	75°	30"
10	15.5	20.6	11.1	5.6	2.8	10	283.1	153.3	106.2	53.2	75°	30"
12	22.3	30.4	17.1	8.5	4.3	12	407.4	220.5	149.4	75.3	75°	30"
16	44.6	60.4	34.3	17.5	10.9	16	844.7	457.2	320.1	177.1	75°	36"
24	78.4	110.5	60.0	30.8	15.5	24	1815.7	980.3	438.2	350.0	75°	36"

* 90 DEGREE BENDS SHALL ONLY BE USED ON A BY-EXCEPTION BASIS, AND MUST EACH BE SPECIFICALLY APPROVED BY CITY.

THRUST BLOCK NOTES:

1. CONCRETE FOR THRUST BLOCKS - CLASS A CONCRETE SHALL DEVELOP NOT LESS THAN 3000 P.S.I. COMPRESSIVE STRENGTH AT 28 DAYS AND BE PLACED AGAINST UNDISTURBED SOIL.
2. ALL BENDS, BOTH HORIZONTAL AND VERTICAL, SHALL BE BACKED WITH CONCRETE. VERTICAL BENDS SHALL BE PLACED ON CONCRETE PADS WHERE BENDS TURN UP, OR LOADED WHERE BENDS TURN DOWN.
3. WRAP PIPE JOINTS IN 8 MIL "POLYETHYLENE" BEFORE PLACING CONCRETE.
4. BEARING AREA SHOWN IN TABLE, IS BASED UPON A 2000 LB/SF SOIL BEARING, AND UPON A PIPELINE PRESSURE OF 200 psi, PLUS 100 psi, WATER HAMMER. AREAS SHOWN SHALL BE ADJUSTED, SHOULD FIELD CONDITIONS VARY.
5. MJ RESTRAINTS ARE REQUIRED FOR ALL FITTINGS.
6. USE LONG-RADIUS FITTINGS WHEREVER POSSIBLE.
7. ALL BOLTS FOR FITTINGS SHALL BE 316 STAINLESS STEEL.
8. ALL DUCTILE IRON FITTINGS SHALL BE FUSION-BONDED EPOXY COATED INSIDE AND OUTSIDE IN ACCORDANCE WITH ANSI/AWWA C116/A21.16.
9. UNIT WEIGHT OF CONCRETE FOR VERTICAL THRUST BLOCKS IS 150 LBS/CU. FT.

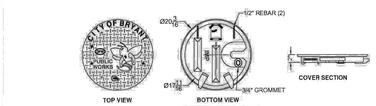
THRUST BLOCKING



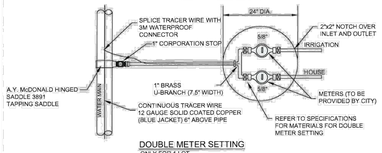
NOTES:

1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.

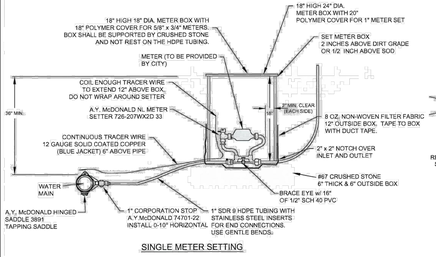
GATE VALVE DETAIL
2" - 12"



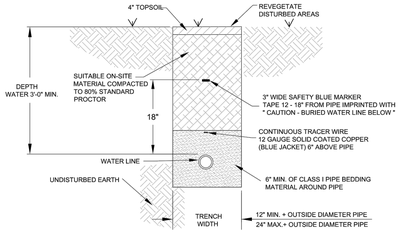
WATER METER LID



DOUBLE METER SETTING
ONLY FOR 1 LOT



SINGLE METER SETTING



WATER MAIN TRENCH

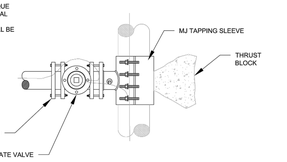
(NON-PAVED AREA)

NOTES:

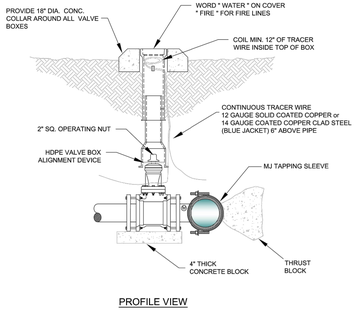
1. ALL VALVES, BENDS, ETC. SHALL BE RESTRAINED.
2. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING WATER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE WATER SYSTEM.
3. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
4. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.
5. MAXIMUM PIPE COVER SHALL BE 60" UNDER NORMAL CONDITIONS. COVER GREATER THAN 60" MAY BE ALLOWED FOR SHORT DISTANCES WHERE REQUIRED BY FIELD CONDITIONS. NO HYDRANT SHALL BE ALLOWED WHERE LINES ARE GREATER THAN 60" DEEP.

NOTES:

1. TAPPING SLEEVE SHALL BE SMITH-BLAIR 662 OR FORD FAST.
2. AFTER THE TAP IS MADE, RE-TORQUE BOLTS ON SLEEVE TO SEAL TO FINAL SHAPE OF PIPE.
3. TAPPING SLEEVE AND VALVE SHALL BE WRAPPED WITH 8 MIL POLY WRAP.

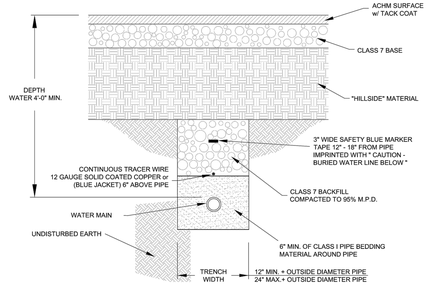


PLAN VIEW



PROFILE VIEW

TAPPING SLEEVE & VALVE DETAILS



WATER MAIN INSTALLATION PRIOR TO ROADWAY CONSTRUCTION

NOTES:

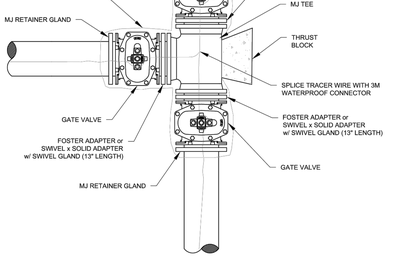
1. ALL VALVES, BENDS, ETC. SHALL BE RESTRAINED.
2. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING WATER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE WATER SYSTEM.
3. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
4. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.
5. MAXIMUM PIPE COVER SHALL BE 60" UNDER NORMAL CONDITIONS. COVER GREATER THAN 60" MAY BE ALLOWED FOR SHORT DISTANCES WHERE REQUIRED BY FIELD CONDITIONS. NO HYDRANT SHALL BE ALLOWED WHERE LINES ARE GREATER THAN 60" DEEP.

PERMITTED VALVES

1. AMERICAN FLOW CONTROL SERIES 2500
2. MUELLER SERIES 2360
3. AMERICAN AVK COMPANY SERIES 25 OR SERIES 45

NOTES:

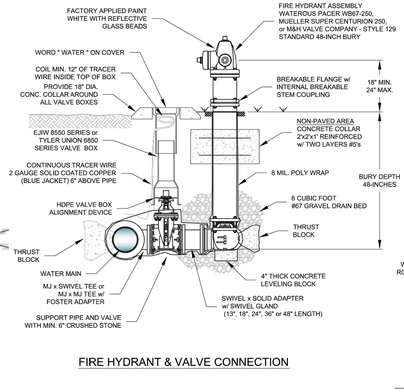
1. ALL VALVES SHALL BE SECURELY ANCHORED TO THE TEE.
2. ALL HARDWARE SHALL BE 316 STAINLESS STEEL.
3. IF DEPTH OF BURY EXCEEDS 4 FT., A VALVE STEM EXTENSION SHALL BE REQUIRED. THE VALVE STEM EXTENSION NUT SHALL BE WITHIN 24-INCHES TO 12-INCHES OF THE FINISHED SURFACE.



3-WAY GATE VALVE DETAIL

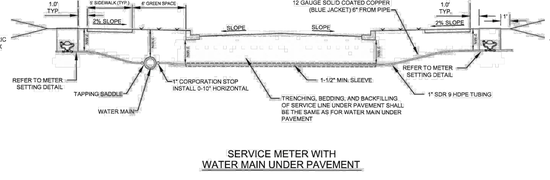
NOTES:

1. THE 6" GATE VALVE SHALL BE POSITIVELY RESTRAINED TO THE MAIN BY THE USE OF EITHER A SWIVEL TEE OR FOSTER ADAPTER.
2. FIRE HYDRANTS SHALL BE DESIGNED FOR A MINIMUM 48" BURY.
3. BURY LINE OF HYDRANT SHALL BE NO LESS THAN THE PROPOSED FINISHED ELEVATION OF BACK OF CURB, OR SIDEWALK, WHICHEVER IS GREATER.
4. EXTENSIONS SHALL BE WATEROUS K952 OR MUELLER A-320 WITH NO MORE THAN ONE EXTENSION PER HYDRANT.
5. 9" SIDEWALK IS PRESENT, HYDRANT SHALL BE INSTALLED 2' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB. VALVES SHALL BE INSTALLED 1' MINIMUM BEHIND THE BACK OF THE SIDEWALK OR CURB.
6. DO NOT COVER UP WEEP HOLE WITH CONCRETE.
7. MJ RETAINER GLANDS ARE REQUIRED FOR ALL FITTINGS.
7. 6" DUCTILE IRON PIPE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 48-INCHES FROM THE MAIN VALVE.
8. AN ADDITIONAL GUARDIAN VALVE IS REQUIRED FOR ALL FIRE HYDRANT LEADS GREATER THAN 30 FEET IN LENGTH.

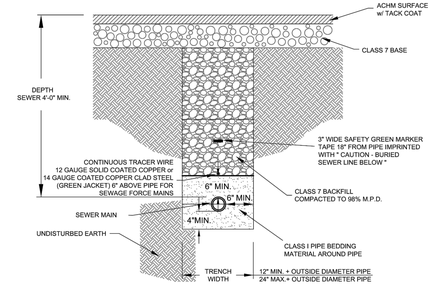


FIRE HYDRANT & VALVE CONNECTION

1. ALL WATER & SANITARY SEWER TRENCHES WHICH ARE UNDER THE PROPOSED STREETS MUST BE BACKFILLED AS SHOWN ON THE TRENCHING, BEDDING, AND BACKFILL STANDARD DETAIL.
2. WATER AND SEWER LINES SHALL MAINTAIN A MINIMUM OF HORIZONTAL SEPARATION DISTANCE OF 10 FEET AT ALL TIMES.
3. WATER AND SEWER LINES SHALL MAINTAIN A MINIMUM VERTICAL SEPARATION OF 18 INCHES WITH THE WATER LINE CROSSING ABOVE THE SEWER LINE.
4. ALL CORP. STOPS SHALL BE INSTALLED AT 0-10° ANGLE FROM HORIZONTAL.
5. A MINIMUM OF 24-INCHES OF SEPARATION IS REQUIRED BETWEEN SERVICE TAPS.
6. ALL METER BOXES SHALL BE INSTALLED ON THE CUSTOMER SIDE OF THE WATER MAIN.
7. ALL METER BOXES SHALL BE INSTALLED IN NON-PAVED AREAS. ANY METER BOX THAT GETS PLACED IN A PAVED AREA SHALL BE RELOCATED AT THE OWNER'S EXPENSE BEFORE A WATER METER WILL BE INSTALLED.



SERVICE METER WITH WATER MAIN UNDER PAVEMENT



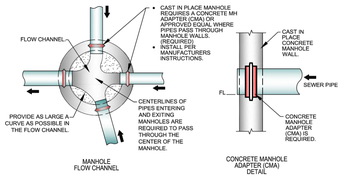
SEWER MAIN INSTALLATION PRIOR TO ROADWAY CONSTRUCTION

NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING SEWER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE SEWER SYSTEM.
2. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
3. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.

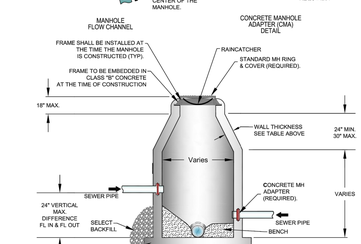
Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	6"	6"	24" (< or Equal to 24" Pipes)
5' DIA	8"	8"	
6' DIA	8"	12"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE



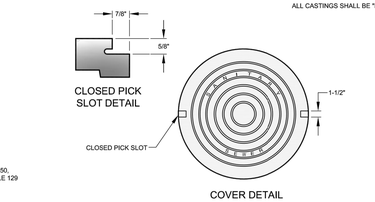
MANHOLE FLOW CHANNEL

CONCRETE MANHOLE ADAPTER (CMA) DETAIL



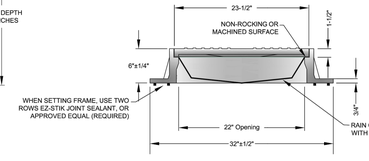
CAST-IN-PLACE MANHOLE

ALL CASTINGS SHALL BE "MADE IN USA"



COVER DETAIL

1. MINIMUM WEIGHT OF RING: 100 POUNDS
2. MINIMUM WEIGHT OF COVER: 110 POUNDS
3. COVERS ARE FURNISHED WITH TWO CLOSED PICK SLOTS.
4. CASTINGS SHALL BE "MADE IN USA"



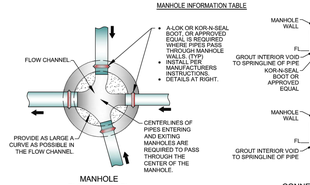
FRAME AND COVER DETAIL

SEWER TRENCH

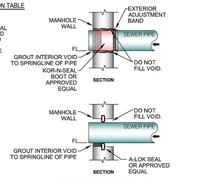
(NON-PAVED AREA)

Inside Diameter of Manhole	Minimum Wall Thickness	Base Thickness	Minimum Ring & Cover Size
4' DIA	5"	6"	24" (< or Equal to 24" Pipes)
5' DIA	7"	8"	
6' DIA	7"	8"	36" (> 24" Pipes)

MANHOLE INFORMATION TABLE



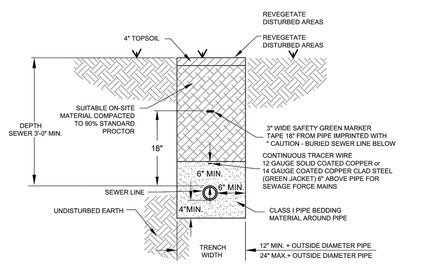
MANHOLE FLOW CHANNEL



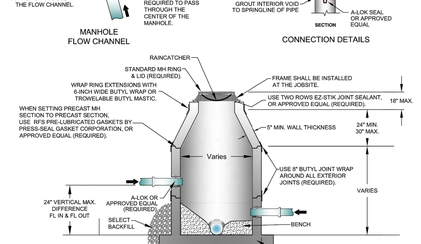
CONNECTION DETAILS

NOTES:

1. THE CONTRACTOR SHALL PROVIDE ALL ITEMS NECESSARY TO CONNECT WITH ANY PART OF THE EXISTING SEWER SYSTEM THAT WILL REMAIN IN ORDER TO ESTABLISH A SATISFACTORY AND ACCEPTABLE SEWER SYSTEM.
2. CONTRACTOR TO CONSTRUCT ALL TRENCH EXCAVATION IN ACCORDANCE WITH ALL OSHA REGULATIONS (29 CFR CH.XVII, SUBPART B)
3. TRENCH SHALL BE EXCAVATED BELOW GRADE REQUIRED TO PROVIDE A MINIMUM 36" OF PIPE COVER.

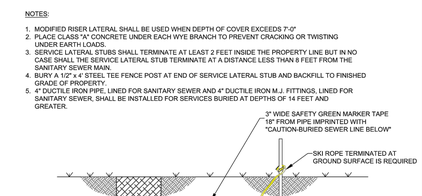


SECTION

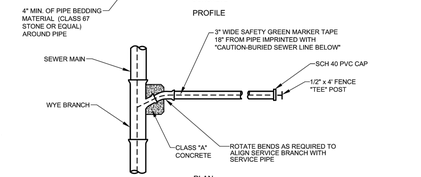


SECTION

PRECAST MANHOLE



PROFILE



PLAN

SEWER SERVICE LATERAL

MICHAEL BOLIN & ASSOCIATES, INC.
CONSULTING ENGINEERS
P.O. BOX 605, BENTON, AR 72018, (501) 776-2692
FAX (501) 776-2619 EMAIL: cmbolin@sbcglobal.net

SUBDIVISION IMPROVEMENTS
WHISTLING PINES

BRYANT, ARKANSAS

WATER & SAN. SEWER MISCELLANEOUS DETAILS

STATE OF ARKANSAS
REGISTERED PROFESSIONAL ENGINEER
No. 4197
MICHAEL BOLIN

AS-BUILT DATE:

CONTACT PERSON: M. BOLIN

SCALE: AS SHOWN

DATE: MARCH 2021

WATER & SANITARY SEWER MISCELLANEOUS DETAILS

JOB NO.	SHEET NO.
139-ABC	8 OF 8

40 x 120
40 x 120
Google Maps

4905 N Shobe Rd
4826 N Shobe Rd
4911 R
4818 N Shobe Rd
840-05919-000
4800 N Shobe Rd
N Shobe Rd
840-11640-036
ynne Ct
nne Ct
840-11640-075
4707 N Shobe Rd
4718 N Shobe Rd
4718 N
25736 I 30 N
840-11640-200
I 30 N
25536 I 30 N
25548 I 30 N
840-11640-220
840-11640-212
840-11640-206
25700 I 30 N
25546 I 30 N
25528 I 30 N
25550 I 30 N

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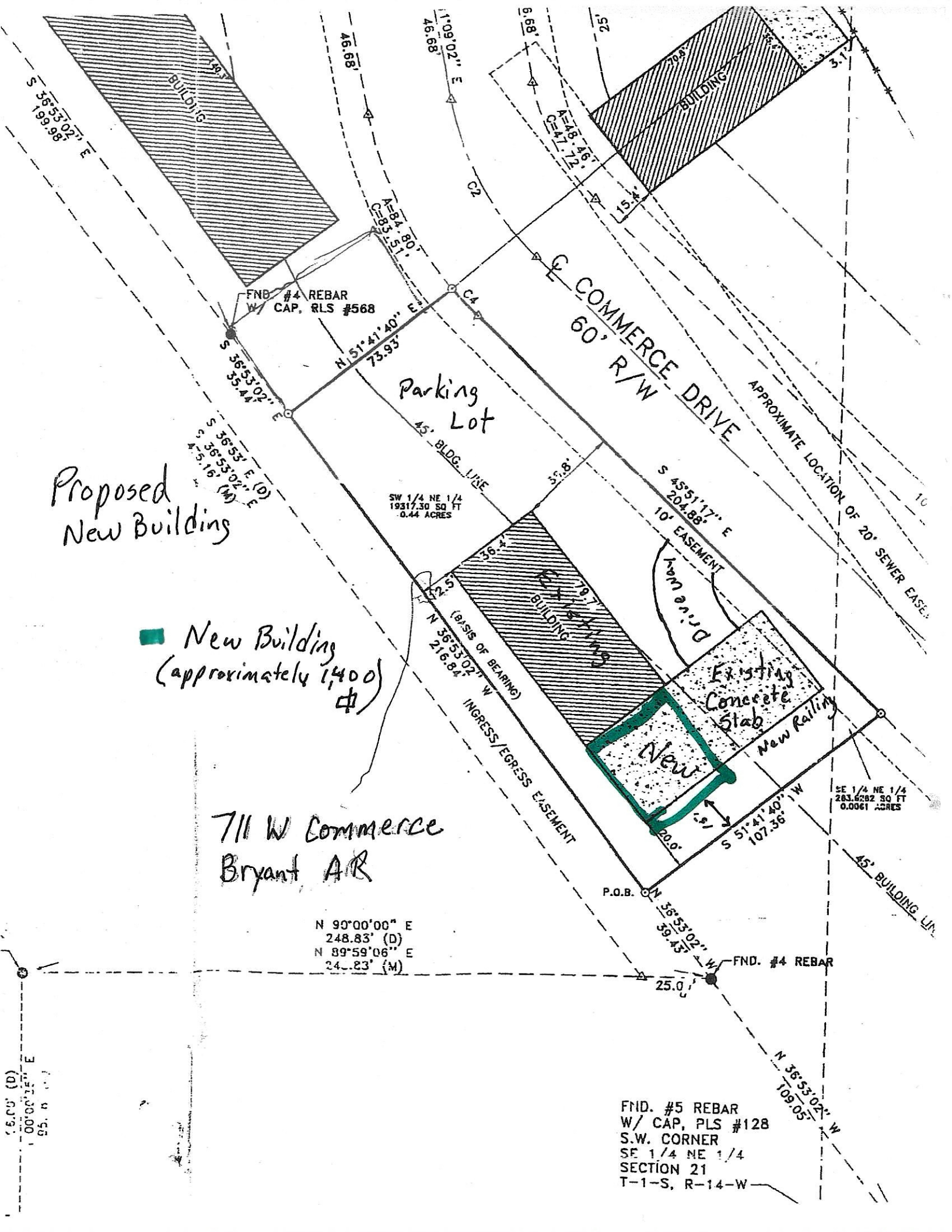
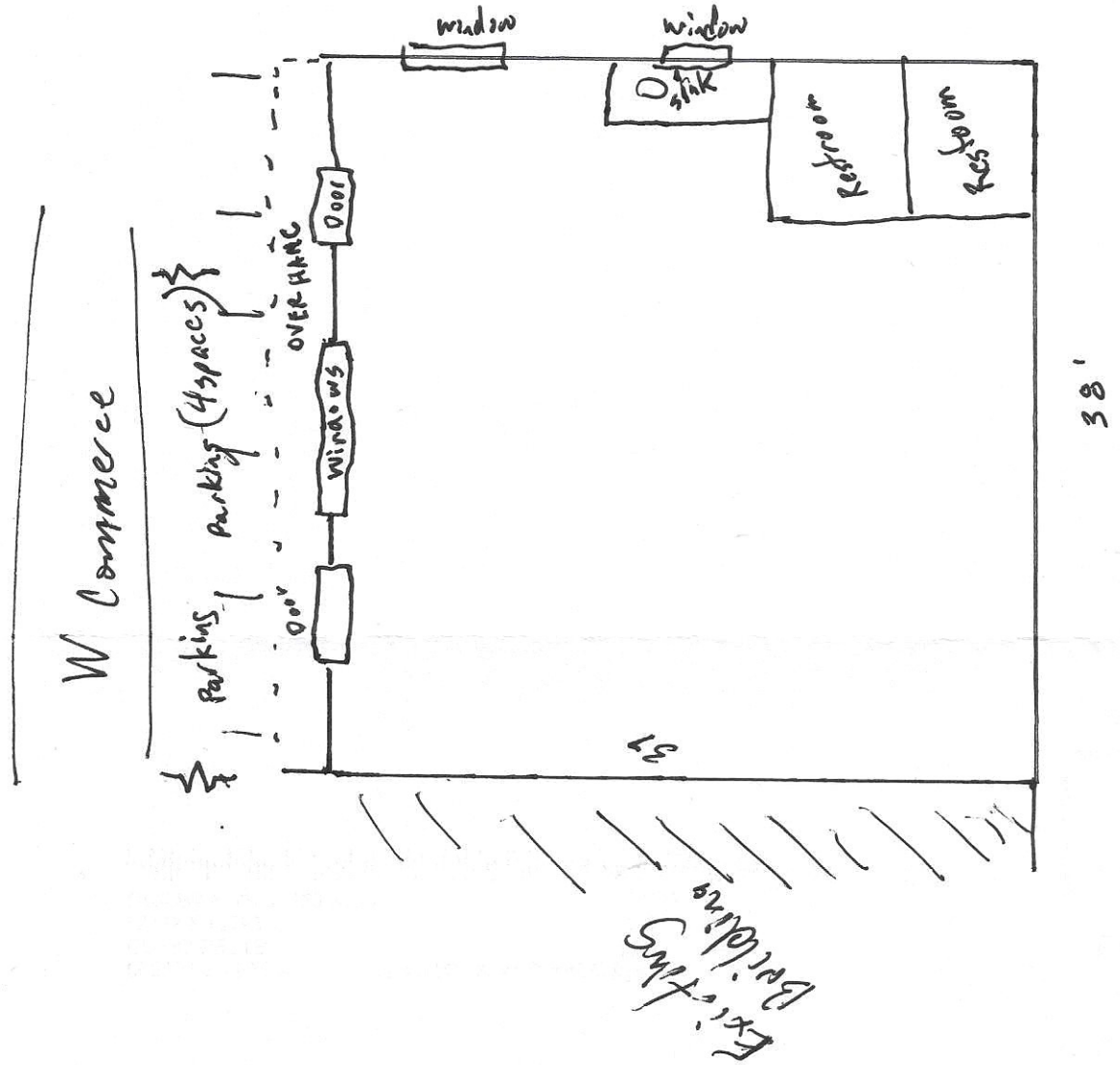

Proposed New Building
New Building (approximately 1,400 sq ft)
711 W Commerce
Bryant AR
℄ COMMERCE DRIVE
60' R/W
Parking Lot
45' BLDG. LINE
BUILDING
EXISTING BUILDING
Drive way
10' EASEMENT
INGRESS/EGRESS EASEMENT
APPROXIMATE LOCATION OF 20' SEWER EASE
Existing Concrete Slab
New
New Railing
FND #4 REBAR W/ CAP, RLS #568
FND. #4 REBAR
FND. #5 REBAR W/ CAP, PLS #128 S.W. CORNER SE 1/4 NE 1/4 SECTION 21 T-1-S, R-14-W
P.O.B.
SW 1/4 NE 1/4 19317.30 SQ FT 0.44 ACRES
SE 1/4 NE 1/4 283.6282 SQ FT 0.0061 ACRES
S 36°53'02" E 199.98'
N 51°41'40" E 73.93'
S 36°53'02" E 35.44'
S 36°53' E (D) S 36°53'02" E (M) 45.16' (M)
S 45°51'17" E 204.88'
N 36°53'02" W 216.84' (BASIS OF BEARING)
S 51°41'40" W 107.36'
N 36°53'02" W 39.43'
N 36°53'02" W 109.05'
N 90°00'00" E 248.83' (D)
N 89°59'06" E 24..83' (M)
A=84.80' C=83.51'
A=48.46' C=47.72'
C2
C4
46.68'
46.68'
1°09'02" E
149.7'
70.8'
35.4'
3.1'
15.4'
25'
6.68'
36.4'
35.8'
20.0'
15.1'
25.0'

Building Addition

711 W. Commerce
Bryant, AR



Contact: Craig Betts
501-425-8904