

Notice of Intent

Public Fishing Pier Parking Area Project

Deer Island - Boston, Massachusetts

Prepared for:

Massachusetts Water Resources Authority (MWRA)



Submitted to:

Boston Conservation Commission

Prepared by:

AECOM

July 2019



AECOM
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July 23, 2019

Boston Conservation Commission
1 City Hall Square, Room 709
Boston, MA 02201

Subject: **NOTICE OF INTENT**
Public Fishing Pier Parking Area Project

Dear Ms. Croteau and Commission Members:

On behalf of the Massachusetts Water Resources Authority, AECOM is pleased to submit the enclosed two copies of the Notice of Intent for the proposed Public Fishing Pier Parking Area Project located adjacent to Tafts Avenue in the northwestern portion of Deer Island in Boston, Massachusetts. The larger copy contains the full printed version of the Notice of Intent which includes the numerous pages of hydroCAD output as part of the attached Stormwater Report. The second copy contains all of the same content with the exception of the hydroCAD output which is provided on a CD-ROM included in the package. The full electronic version (PDF) will be emailed to the Boston Conservation Commission at the time of this submittal.

The proposed project consists of the construction of a nine space parking lot (two of the spaces are handicap accessible). The lot is located on the western side of Tafts Avenue so that it is in closer proximity to the proposed construction of the nearby Deer Island Public Access Facility Shore Fishing Pier in Boston Harbor. The location of the lot on the western side of Tafts Avenue also eliminates the need for the public to cross the roadway to access the fishing pier which affords a higher degree of public safety.

The proposed design includes installation of new curbing and the associated bituminous concrete pavement, paved walking path to join the proposed parking area with the existing walking path to the west, relevant parking lot striping and signage, installation of a hydrodynamic separator and subsurface infiltration structure, relevant work to tie the infiltration structure into the existing drainage network, removal and relocation of an existing fire hydrant, and restoration of non-impervious areas with a native coastal salt tolerant grass seed mix and woody plantings of native species (northern bayberry and eastern redcedar). These same woody species have been found in close proximity to the proposed project and are suitable choices for replanting activities.

Portions of the limits of work will occur within a small amount of Land Subject to Coastal Storm Flowage (LSCSF) and a portion of the 100-foot Buffer Zone. Although the Massachusetts Wetlands Protection Act Regulations do not provide performance standards for work within LSCSF, the project will not result in a loss of flood storage capacity.

The project will result in a benefit to the public by providing convenient parking for access (including handicap parking access) to the proposed fishing pier once construction is complete.

We look forward to meeting with the Conservation Commission on August 7, 2019 to discuss the proposed project. Please do not hesitate to call me at (978) 905-3219 or Rob Adams (AECOM Vice President) at (978) 905-2708 if you have any questions with respect to this filing or require additional information to facilitate your review. Thank you for your attention to this matter.

Yours sincerely,

A handwritten signature in black ink that reads "Thomas J. Touchet". The signature is written in a cursive style with a large initial 'T'.

Thomas Touchet
Senior Wetland Scientist, PWS
tom.touchet@aecom.com

CC: MassDEP NERO (1 copy)
D. Coppes, MWRA
R. Adams, AECOM
T. Shea, AECOM
File

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WPA Form 3 – Notice of Intent



Massachusetts Department of Environmental Protection
Bureau of Resource Protection - Wetlands

WPA Form 3 – Notice of Intent

Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Provided by MassDEP:

MassDEP File Number

Document Transaction Number

Boston

City/Town

Important:

When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



Note:
Before completing this form consult your local Conservation Commission regarding any municipal bylaw or ordinance.

A. General Information

1. Project Location (**Note:** electronic filers will click on button to locate project site):

Tafts Avenue Boston (Deer Island) 02128
a. Street Address b. City/Town c. Zip Code
Latitude and Longitude: 42.354565° N 70.967511° W
d. Latitude e. Longitude
Multiple parcels (exempt; owned by Comm. Of Mass.)
f. Assessors Map/Plat Number g. Parcel /Lot Number

2. Applicant:

David Coppes
a. First Name b. Last Name
Massachusetts Water Resources Authority (MWRA)
c. Organization
Charlestown Navy Yard, 100 First Ave., Building 39 (3rd Floor)
d. Street Address
Boston MA 02129
e. City/Town f. State g. Zip Code
617-788-4359 Dave.Coppes@mwra.com
h. Phone Number i. Fax Number j. Email Address

3. Property owner (required if different from applicant): Check if more than one owner

a. First Name b. Last Name
Commonwealth of Massachusetts (under the care, custody, and control of MWRA by Frederick A. Laskey, MWRA Executive Director)
c. Organization
Deer Island
d. Street Address
East Boston MA 02128
e. City/Town f. State g. Zip Code
h. Phone Number i. Fax Number j. Email address

4. Representative (if any):

Tom Touchet
a. First Name b. Last Name
AECOM
c. Company
250 Apollo Drive
d. Street Address
Chelmsford MA 01824
e. City/Town f. State g. Zip Code
978-905-3219 978-905-2101 tom.touchet@aecom.com
h. Phone Number i. Fax Number j. Email address

5. Total WPA Fee Paid (from NOI Wetland Fee Transmittal Form):

\$462.50 \$237.50 \$225.00 (as per Boston's fee schedule)
a. Total Fee Paid b. State Fee Paid c. City/Town Fee Paid



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A. General Information (continued)

6. General Project Description:

The Massachusetts Water Resources Association (MWRA) is proposing the installation of a new parking lot located on the south side of Tafts Avenue in the northwest portion of Deer Island in Boston Harbor. The parking lot will have nine parking spots, two of which will be designated for handicapped patrons. The parking lot will also be adjacent to an existing walking trail that residents have access to as well as serve as a parking area for the proposed Deer Island Public Access Facility Shore Fishing Pier.

7a. Project Type Checklist: (Limited Project Types see Section A. 7b.)

- 1. Single Family Home
- 2. Residential Subdivision
- 3. Commercial/Industrial
- 4. Dock/Pier
- 5. Utilities
- 6. Coastal engineering Structure
- 7. Agriculture (e.g., cranberries, forestry)
- 8. Transportation
- 9. Other

7b. Is any portion of the proposed activity eligible to be treated as a limited project (including Ecological Restoration Limited Project) subject to 310 CMR 10.24 (coastal) or 310 CMR 10.53 (inland)?

- 1. Yes No If yes, describe which limited project applies to this project. (See 310 CMR 10.24 and 10.53 for a complete list and description of limited project types)

2. Limited Project Type

If the proposed activity is eligible to be treated as an Ecological Restoration Limited Project (310 CMR10.24(8), 310 CMR 10.53(4)), complete and attach Appendix A: Ecological Restoration Limited Project Checklist and Signed Certification.

8. Property recorded at the Registry of Deeds for:

Suffolk	
a. County	b. Certificate # (if registered land)
N/A	N/A
c. Book	d. Page Number

B. Buffer Zone & Resource Area Impacts (temporary & permanent)

- 1. Buffer Zone Only – Check if the project is located only in the Buffer Zone of a Bordering Vegetated Wetland, Inland Bank, or Coastal Resource Area.
- 2. Inland Resource Areas (see 310 CMR 10.54-10.58; if not applicable, go to Section B.3, Coastal Resource Areas).

Check all that apply below. Attach narrative and any supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

For all projects affecting other Resource Areas, please attach a narrative explaining how the resource area was delineated.

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
a. <input type="checkbox"/> Bank	0 1. linear feet	0 2. linear feet
b. <input type="checkbox"/> Bordering Vegetated Wetland	0 1. square feet	0 2. square feet
c. <input type="checkbox"/> Land Under Waterbodies and Waterways	0 1. square feet N/A 3. cubic yards dredged	0 2. square feet

Resource Area	Size of Proposed Alteration	Proposed Replacement (if any)
d. <input type="checkbox"/> Bordering Land Subject to Flooding	0 1. square feet	0 2. square feet

e. <input type="checkbox"/> Isolated Land Subject to Flooding	0 1. square feet 3. cubic feet of flood storage lost	0 4. cubic feet replaced
	2. cubic feet of flood storage lost	3. cubic feet replaced

f. <input type="checkbox"/> Riverfront Area	1. Name of Waterway (if available) - specify coastal or inland	
---	---	--

2. Width of Riverfront Area (check one):

- 25 ft. - Designated Densely Developed Areas only
- 100 ft. - New agricultural projects only
- 200 ft. - All other projects

3. Total area of Riverfront Area on the site of the proposed project: 0 square feet

4. Proposed alteration of the Riverfront Area:

<u>0</u> a. total square feet	<u>0</u> b. square feet within 100 ft.	<u>0</u> c. square feet between 100 ft. and 200 ft.
----------------------------------	---	--

5. Has an alternatives analysis been done and is it attached to this NOI? Yes No

6. Was the lot where the activity is proposed created prior to August 1, 1996? Yes No

3. Coastal Resource Areas: (See 310 CMR 10.25-10.35)

Note: for coastal riverfront areas, please complete **Section B.2.f.** above.



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B. Buffer Zone & Resource Area Impacts (temporary & permanent) (cont'd)

Check all that apply below. Attach narrative and supporting documentation describing how the project will meet all performance standards for each of the resource areas altered, including standards requiring consideration of alternative project design or location.

Online Users:
 Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

<u>Resource Area</u>	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
a. <input type="checkbox"/> Designated Port Areas	Indicate size under Land Under the Ocean, below	
b. <input type="checkbox"/> Land Under the Ocean	0 _____ 1. square feet	
	0 _____ 2. cubic yards dredged	
c. <input type="checkbox"/> Barrier Beach	Indicate size under Coastal Beaches and/or Coastal Dunes below	
d. <input type="checkbox"/> Coastal Beaches	0 _____ 1. square feet	0 _____ 2. cubic yards beach nourishment
e. <input type="checkbox"/> Coastal Dunes	0 _____ 1. square feet	0 _____ 2. cubic yards dune nourishment
	<u>Size of Proposed Alteration</u>	<u>Proposed Replacement (if any)</u>
f. <input type="checkbox"/> Coastal Banks	0 _____ 1. linear feet	
g. <input type="checkbox"/> Rocky Intertidal Shores	0 _____ 1. square feet	
h. <input type="checkbox"/> Salt Marshes	0 _____ 1. square feet	0 _____ 2. sq ft restoration, rehab., creation
i. <input type="checkbox"/> Land Under Salt Ponds	0 _____ 1. square feet	
	0 _____ 2. cubic yards dredged	
j. <input type="checkbox"/> Land Containing Shellfish	0 _____ 1. square feet	
k. <input type="checkbox"/> Fish Runs	Indicate size under Coastal Banks, inland Bank, Land Under the Ocean, and/or inland Land Under Waterbodies and Waterways, above	
	0 _____ 1. cubic yards dredged	
l. <input checked="" type="checkbox"/> Land Subject to Coastal Storm Flowage	105 _____ 1. square feet	

4. Restoration/Enhancement
 If the project is for the purpose of restoring or enhancing a wetland resource area in addition to the square footage that has been entered in Section B.2.b or B.3.h above, please enter the additional amount here.



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_____ a. square feet of BVW

_____ b. square feet of Salt Marsh

5. Project Involves Stream Crossings

_____ a. number of new stream crossings

_____ b. number of replacement stream crossings

C. Other Applicable Standards and Requirements

This is a proposal for an Ecological Restoration Limited Project. Skip Section C and complete Appendix A: Ecological Restoration Limited Project Checklists – Required Actions (310 CMR 10.11).

Streamlined Massachusetts Endangered Species Act/Wetlands Protection Act Review

1. Is any portion of the proposed project located in **Estimated Habitat of Rare Wildlife** as indicated on the most recent Estimated Habitat Map of State-Listed Rare Wetland Wildlife published by the Natural Heritage and Endangered Species Program (NHESP)? To view habitat maps, see the *Massachusetts Natural Heritage Atlas* or go to http://maps.massgis.state.ma.us/PRI_EST_HAB/viewer.htm.

a. Yes No **If yes, include proof of mailing or hand delivery of NOI to:**

**Natural Heritage and Endangered Species Program
Division of Fisheries and Wildlife
1 Rabbit Hill Road
Westborough, MA 01581**

August 2017
b. Date of map

If yes, the project is also subject to Massachusetts Endangered Species Act (MESA) review (321 CMR 10.18). To qualify for a streamlined, 30-day, MESA/Wetlands Protection Act review, please complete Section C.1.c, and include requested materials with this Notice of Intent (NOI); OR complete Section C.2.f, if applicable. *If MESA supplemental information is not included with the NOI, by completing Section 1 of this form, the NHESP will require a separate MESA filing which may take up to 90 days to review (unless noted exceptions in Section 2 apply, see below).*

c. Submit Supplemental Information for Endangered Species Review*

1. Percentage/acreage of property to be altered:

(a) within wetland Resource Area _____
percentage/acreage

(b) outside Resource Area _____
percentage/acreage

2. Assessor's Map or right-of-way plan of site

2. Project plans for entire project site, including wetland resource areas and areas outside of wetlands jurisdiction, showing existing and proposed conditions, existing and proposed

* Some projects **not** in Estimated Habitat may be located in Priority Habitat, and require NHESP review (see <http://www.mass.gov/eea/agencies/dfg/dfw/natural-heritage/regulatory-review/>). Priority Habitat includes habitat for state-listed plants and strictly upland species not protected by the Wetlands Protection Act.



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tree/vegetation clearing line, and clearly demarcated limits of work **

- (a) Project description (including description of impacts outside of wetland resource area & buffer zone)
- (b) Photographs representative of the site

C. Other Applicable Standards and Requirements (cont'd)

- (c) MESA filing fee (fee information available at http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_fee_schedule.htm). Make check payable to "Commonwealth of Massachusetts - NHESP" and **mail to NHESP** at above address

Projects altering 10 or more acres of land, also submit:

- (d) Vegetation cover type map of site
- (e) Project plans showing Priority & Estimated Habitat boundaries
- (f) OR Check One of the Following
 - 1. Project is exempt from MESA review. Attach applicant letter indicating which MESA exemption applies. (See 321 CMR 10.14, http://www.mass.gov/dfwele/dfw/nhesp/regulatory_review/ mesa/ mesa_exemptions.htm; the NOI must still be sent to NHESP if the project is within estimated habitat pursuant to 310 CMR 10.37 and 10.59.)
 - 2. Separate MESA review ongoing. a. NHESP Tracking # _____ b. Date submitted to NHESP _____
 - 3. Separate MESA review completed. Include copy of NHESP "no Take" determination or valid Conservation & Management Permit with approved plan.

- 3. For coastal projects only, is any portion of the proposed project located below the mean high water line or in a fish run?
 - a. Not applicable – project is in inland resource area only
 - b. Yes No

If yes, include proof of mailing, hand delivery, or electronic delivery of NOI to either:

South Shore - Cohasset to Rhode Island border, and the Cape & Islands:

Division of Marine Fisheries -
Southeast Marine Fisheries Station
Attn: Environmental Reviewer
836 South Rodney French Blvd.
New Bedford, MA 02744
Email: DMF.EnvReview-South@state.ma.us

North Shore - Hull to New Hampshire border:

Division of Marine Fisheries -
North Shore Office
Attn: Environmental Reviewer
30 Emerson Avenue
Gloucester, MA 01930
Email: DMF.EnvReview-North@state.ma.us

** MESA projects may not be segmented (321 CMR 10.16). The applicant must disclose full development plans even if such plans are not required as part of the Notice of Intent process.



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Also if yes, the project may require a Chapter 91 license. For coastal towns in the Northeast Region, please contact MassDEP’s Boston Office. For coastal towns in the Southeast Region, please contact MassDEP’s Southeast Regional Office.

C. Other Applicable Standards and Requirements (cont’d)

Online Users:
Include your document transaction number (provided on your receipt page) with all supplementary information you submit to the Department.

- 4. Is any portion of the proposed project within an Area of Critical Environmental Concern (ACEC)?
 - a. Yes No If yes, provide name of ACEC (see instructions to WPA Form 3 or MassDEP Website for ACEC locations). **Note:** electronic filers click on Website.

- b. ACEC
- 5. Is any portion of the proposed project within an area designated as an Outstanding Resource Water (ORW) as designated in the Massachusetts Surface Water Quality Standards, 314 CMR 4.00?
 - a. Yes No
- 6. Is any portion of the site subject to a Wetlands Restriction Order under the Inland Wetlands Restriction Act (M.G.L. c. 131, § 40A) or the Coastal Wetlands Restriction Act (M.G.L. c. 130, § 105)?
 - a. Yes No
- 7. Is this project subject to provisions of the MassDEP Stormwater Management Standards?
 - a. Yes. Attach a copy of the Stormwater Report as required by the Stormwater Management Standards per 310 CMR 10.05(6)(k)-(q) and check if:
 - 1. Applying for Low Impact Development (LID) site design credits (as described in Stormwater Management Handbook Vol. 2, Chapter 3)
 - 2. A portion of the site constitutes redevelopment
 - 3. Proprietary BMPs are included in the Stormwater Management System.
 - b. No. Check why the project is exempt:
 - 1. Single-family house
 - 2. Emergency road repair
 - 3. Small Residential Subdivision (less than or equal to 4 single-family houses or less than or equal to 4 units in multi-family housing project) with no discharge to Critical Areas.

D. Additional Information

- This is a proposal for an Ecological Restoration Limited Project. Skip Section D and complete Appendix A: Ecological Restoration Notice of Intent – Minimum Required Documents (310 CMR 10.12).

Applicants must include the following with this Notice of Intent (NOI). See instructions for details.

Online Users: Attach the document transaction number (provided on your receipt page) for any of the following information you submit to the Department.



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- 1. USGS or other map of the area (along with a narrative description, if necessary) containing sufficient information for the Conservation Commission and the Department to locate the site. (Electronic filers may omit this item.)
- 2. Plans identifying the location of proposed activities (including activities proposed to serve as a Bordering Vegetated Wetland [BVW] replication area or other mitigating measure) relative to the boundaries of each affected resource area.

D. Additional Information (cont'd)

- 3. Identify the method for BVW and other resource area boundary delineations (MassDEP BVW Field Data Form(s), Determination of Applicability, Order of Resource Area Delineation, etc.), and attach documentation of the methodology.

- 4. List the titles and dates for all plans and other materials submitted with this NOI.

Please see list of project plans in Attachment B

a. Plan Title

b. Prepared By

c. Signed and Stamped by

d. Final Revision Date

e. Scale

f. Additional Plan or Document Title

g. Date

- 5. If there is more than one property owner, please attach a list of these property owners not listed on this form. (Please see property owner information in Attachment D)
- 6. Attach proof of mailing for Natural Heritage and Endangered Species Program, if needed.
- 7. Attach proof of mailing for Massachusetts Division of Marine Fisheries, if needed.
- 8. Attach NOI Wetland Fee Transmittal Form
- 9. Attach Stormwater Report, if needed.

E. Fees

- 1. Fee Exempt: No filing fee shall be assessed for projects of any city, town, county, or district of the Commonwealth, federally recognized Indian tribe housing authority, municipal housing authority, or the Massachusetts Bay Transportation Authority.

Applicants must submit the following information (in addition to pages 1 and 2 of the NOI Wetland Fee Transmittal Form) to confirm fee payment:

#666	July 22, 2019
2. Municipal Check Number	3. Check date
#665	July 22, 2019
4. State Check Number	5. Check date
Robert	Adams
6. Payor name on check: First Name	7. Payor name on check: Last Name



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F. Signatures and Submittal Requirements

I hereby certify under the penalties of perjury that the foregoing Notice of Intent and accompanying plans, documents, and supporting data are true and complete to the best of my knowledge. I understand that the Conservation Commission will place notification of this Notice in a local newspaper at the expense of the applicant in accordance with the wetlands regulations, 310 CMR 10.05(5)(a).

I further certify under penalties of perjury that all abutters were notified of this application, pursuant to the requirements of M.G.L. c. 131, § 40. Notice must be made by Certificate of Mailing or in writing by hand delivery or certified mail (return receipt requested) to all abutters within 100 feet of the property line of the project location.


 1. Signature of Applicant

7/23/19
 2. Date

3. Signature of Property Owner (if different)

4. Date



5. Signature of Representative (if any)

7/23/2019
 6. Date

For Conservation Commission:

Two copies of the completed Notice of Intent (Form 3), including supporting plans and documents, two copies of the NOI Wetland Fee Transmittal Form, and the city/town fee payment, to the Conservation Commission by certified mail or hand delivery.

For MassDEP:

One copy of the completed Notice of Intent (Form 3), including supporting plans and documents, one copy of the NOI Wetland Fee Transmittal Form, and a **copy** of the state fee payment to the MassDEP Regional Office (see Instructions) by certified mail or hand delivery.

Other:

If the applicant has checked the "yes" box in any part of Section C, Item 3, above, refer to that section and the Instructions for additional submittal requirements.

The original and copies must be sent simultaneously. Failure by the applicant to send copies in a timely manner may result in dismissal of the Notice of Intent.



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 Massachusetts Wetlands Protection Act M.G.L. c. 131, §40

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A. Applicant Information

1. Location of Project:

Tafts Avenue Boston
 a. Street Address b. City/Town
 #665 (State check) State portion of fee: \$237.50
 c. Check number d. Fee amount

2. Applicant Mailing Address:

David Coppes
 a. First Name b. Last Name
 Massachusetts Water Resources Authority (MWRA)
 c. Organization
 Charlestown Navy Yard, 100 First Ave., Building 39 (3rd Floor)
 d. Mailing Address
 Boston MA 02129
 e. City/Town f. State g. Zip Code
 617-788-4359 Dave.Coppes@mwra.com
 h. Phone Number i. Fax Number j. Email Address

3. Property Owner (if different):

Commonwealth of Massachusetts (under the care, custody, and control of MWRA by Frederick A. Laskey, MWRA Executive Director)
 a. First Name b. Last Name
 c. Organization
 Deer Island
 d. Mailing Address
 East Boston MA 02128
 e. City/Town f. State g. Zip Code
 h. Phone Number i. Fax Number j. Email Address

B. Fees

Fee should be calculated using the following process & worksheet. **Please see Instructions before filling out worksheet.**

Step 1/Type of Activity: Describe each type of activity that will occur in wetland resource area and buffer zone.

Step 2/Number of Activities: Identify the number of each type of activity.

Step 3/Individual Activity Fee: Identify each activity fee from the six project categories listed in the instructions.

Step 4/Subtotal Activity Fee: Multiply the number of activities (identified in Step 2) times the fee per category (identified in Step 3) to reach a subtotal fee amount. Note: If any of these activities are in a Riverfront Area in addition to another Resource Area or the Buffer Zone, the fee per activity should be multiplied by 1.5 and then added to the subtotal amount.

Step 5/Total Project Fee: Determine the total project fee by adding the subtotal amounts from Step 4.

Step 6/Fee Payments: To calculate the state share of the fee, divide the total fee in half and subtract \$12.50. To calculate the city/town share of the fee, divide the total fee in half and add \$12.50.

To calculate filing fees, refer to the category fee list and examples in the instructions for filling out WPA Form 3 (Notice of Intent).



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B. Fees (continued)

Step 1/Type of Activity	Step 2/Number of Activities	Step 3/Individual Activity Fee	Step 4/Subtotal Activity Fee
Category 2(b) Parking Lot	1	\$500.00	\$500.00
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
Step 5/Total Project Fee:			\$500.00
Step 6/Fee Payments:			
Total Project Fee:			\$462.50 (see adjustment below for local fee)
State share of filing Fee:			a. Total Fee from Step 5 \$237.50
City/Town share of filing Fee:			b. 1/2 Total Fee less \$12.50 Note: the Boston portion of the fee follows their local fee schedule: \$225.00
			c. 1/2 Total Fee plus \$12.50

C. Submittal Requirements

- a.) Complete pages 1 and 2 and send with a check or money order for the state share of the fee, payable to the Commonwealth of Massachusetts.

Department of Environmental Protection
 Box 4062
 Boston, MA 02211

- b.) **To the Conservation Commission:** Send the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and the city/town fee payment.

To MassDEP Regional Office (see Instructions): Send a copy of the Notice of Intent or Abbreviated Notice of Intent; a **copy** of this form; and a **copy** of the state fee payment. (E-filers of Notices of Intent may submit these electronically.)

Project Narrative

1.0 Introduction and Proposed Project Activities

1.1 Introduction

The Massachusetts Department of Marine Fisheries is constructing a public saltwater fishing pier (Deer Island Public Access Facility Shore Fishing Pier) on Deer Island in Boston Harbor. In 2016, CLE Engineering designed a 22-space parking area (four of which were handicapped spaces) to be located on the east side of Tafts Avenue on the opposite side of the road as the proposed fishing pier as part of the project. The design included a stormwater detention swale that overflows to the existing catch basin system on Tafts Avenue to mitigate the impact of increased non-permeable membrane for the parking area. An Order of Conditions (OOC) was issued in October 2016 (MassDEP File # 006-1479) and the project was put out to bid and awarded. Subsequent to the awarding of the project, MWRA reconsidered alternatives to the parking lot project. AECOM assisted in evaluating those alternatives. After a screening and evaluation process, the MWRA decided to take the following action:

- The MWRA increased the parking capacity at the existing public parking area at the Deer Island Treatment Plant (DITP) entrance.
- AECOM was tasked with designing a new public parking lot on the west side of Tafts Avenue, close to the fishing pier itself. This parking area consists of nine parking spaces (two of which are handicapped spaces).

The intent of implementing these alternatives was to provide a similar number of additional public spaces for the fishing pier access to offset the elimination of the original parking area design by CLE Engineering.

The subject of this Notice of Intent is the proposed nine-space parking area designed by AECOM to be located on the west side of Tafts Road near the proposed public fishing pier (Attachments A, B, and C).

1.2 Proposed Parking Area Project Activities

As indicated above, the proposed parking lot will have nine parking spots, two of which will be designated for handicapped patrons (Attachment B). The parking lot will also be adjacent to an existing walking trail (Attachment C) that residents have access to as well as serving as a parking area for the proposed Deer Island Public Access Facility Shore Fishing Pier. The proposed design includes installation of new curbing and the associated bituminous concrete pavement, paved walking path to join the proposed parking area with the existing walking path to the west, relevant parking lot striping and signage, installation of a hydrodynamic separator and subsurface infiltration structure, relevant work to tie the infiltration structure into the existing drainage network, and removal and relocation of an existing fire hydrant.

The existing drainage network along Tafts Avenue and nearby walking paths consists of catch basins, manholes, and drainage pipes that collect and direct the runoff to one of the several oil/water separators around the perimeter of the site. Once the runoff has been treated by the oil/water separators, it is discharged into the ocean. The outfalls utilize outlet protection to prevent erosion of the native soils.

The site will be graded so that stormwater from the proposed non-permeable parking area (approximately 4,300 square feet) will be treated by a hydrodynamic separator structure and will flow into a below-grade infiltration system (Attachment B). The system was designed based upon the total area that will drain to this structure and the 100 year rain event. The infiltration system is a conservative design in terms of storage capacity. Given the existing good soils for drainage, it is anticipated that the infiltration system will function without activating the overflow the vast majority of the time. The proposed parking lot will have small berms installed at the entrance and exit to prevent additional stormwater from the roadway from entering the parking lot. A six-inch diameter overflow pipe has been provided in the design to relieve the system in the event of an extended, extreme wet weather event. During such an extreme weather event, the overflow may potentially be activated and will flow to an existing catch basin where the flow will be treated and discharged into the harbor.

Graded areas within the limits of work beyond proposed paved surfaces will be replanted using a New England native warm season grass seed mix and woody plantings of northern bayberry (*Morella pensylvanica*) and eastern redcedar (*Juniperus virginiana*).

2.0 Existing Conditions and Regulated Areas

The proposed site is a primarily undeveloped area between an existing bituminous walking path to the west near Boston Harbor and Tafts Avenue to the east. The area within the limits of work contains an existing manhole and fire hydrant. Existing vegetation within the limits of work include mowed and unmowed grasses and scattered woody vegetation including small staghorn sumac (*Rhus typhina*) and several eastern redcedar, among others (Attachment C).

According to the Massachusetts Department of Conservation and Recreation's Areas of Critical Environmental Concern (ACEC) Program MassGIS layer (April 2009), no ACECs are located within or near the project area. Work will not occur within any areas mapped as Priority or Estimated Habitat or Certified Vernal Pools as identified by the Natural Heritage and Endangered Species Program datalayers (August 2017; accessed in OLIVER in July 2019).

On March 28, 2019, an AECOM wetland scientist (PWS) visited the site to confirm the locations of nearby coastal resource areas. As shown in Attachment B, the top of Coastal Bank to Boston Harbor (top of stone revetment) is located to the west of the project site beyond the limits of work. No vegetated wetlands are located within or near the limits of work for the project.

As discussed further below, a small portion of the northeastern corner of the limits of work is located within Land Subject to Coastal Storm Flowage (LSCSF) based on the MassGIS datalayer for the FEMA 100-year flood zone (Attachment B). A portion of the project will also be located within the 100-foot Buffer Zone to Coastal Bank.

3.0 Regulated Area Impacts

The total limits of work encompass approximately 11,330 s.f. (0.26 acres). However, only a portion of this area is located within jurisdictional areas as protected under the Massachusetts Wetlands Protection Act and its implementing Regulations.

3.1 Land Subject to Coastal Storm Flowage (LSCSF)

A small amount of the limits of work (approximately 105 s.f.) will occur within Land Subject to Coastal Storm Flowage (LSCSF) in the northeastern corner of the limits of work adjacent to Tafts Avenue (Attachment B). However, no change in grade is proposed within this location.

3.2 100-Foot Buffer Zone

Approximately 7,770 s.f. of the limits of work will be located within the 100-foot Buffer Zone to top of Coastal Bank. Of this total, approximately 450 s.f. of the limits of work are located within existing paved roadway (Tafts Avenue), approximately 2,905 s.f. of new paved areas (parking lot and bituminous walkway), and approximately 4,415 s.f. of area to be revegetated with grass seed mix and woody plantings.

4.0 Compliance with Performance Standards

4.1 Land Subject to Coastal Storm Flowage (LSCSF)

As discussed above, no change in grades or loss of storage capacity would occur from proposed work within LSCSF. Furthermore, the Massachusetts Wetlands Protection Act has no performance standards for work located within LSCSF.

4.2 100-foot Buffer Zone

Although work within the 100-foot Buffer Zone will result in the conversion of a portion of existing mowed grasses, unmowed grasses, and scattered woody vegetation to impervious surfaces, these permanent impacts as a result of the proposed project within the 100-foot Buffer Zone are not anticipated to result in negative impacts to any nearby resource area (Coastal Bank, Coastal Beach,

Land Under Water or LSCSF). In addition, disturbed portions of the Buffer Zone that will not be permanently converted to paved surfaces will be revegetated using native grasses and woody plants as discussed further below.

4.3 Compliance with Massachusetts Stormwater Policy

This Project complies with the ten Stormwater Management Standards outlined in the Massachusetts Stormwater Handbook (February 2008), as discussed in detail in the Stormwater Report, Stormwater Checklist, and associated appendices provided in Attachment D.

4.4 Abutter Notification

As provided in 310 CMR 10.05, an applicant who proposes work solely within a lot with an area greater than 50 acres is required to provide notification only to Abutters whose lot is within one hundred feet from the Project Site. The limits of work for the proposed parking lot project are located more than 700 feet from the nearest abutting parcel not under the stewardship of the project proponent (MWRA). In addition, the Deer Island Treatment Plant property is approximately 170+ acres, far exceeding the 50 acre threshold for abutter notification. Therefore, no abutters are required to be notified as part of this application.

5.0 Resource Area Protection and Mitigation

5.1 General Construction

Prior to any ground disturbance, an erosion and sedimentation control system consisting of straw wattles and silt fence (or other erosion and sedimentation control system acceptable to the Boston Conservation Commission) will be installed at the site as shown in Attachment B. In addition, filter bags or other temporary protection devices will be used in nearby catchbasins to further prevent sediment from entering the existing stormwater system. The erosion and sedimentation control system depicted in Attachment B represent the minimum amount of erosion control to be used at the site, and the contractor will be required to install additional erosion control as necessary to prevent erosion or sedimentation of jurisdictional resource areas. If sediment has accumulated to a depth which impairs proper functioning of the barrier, it would be removed by hand. This material would be either reused at the site or disposed of at a suitable offsite location. Any damaged sections of erosion control would be repaired or replaced immediately upon discovery.

Dewatering (where necessary) will be conducted in compliance with the general permit (EPA and MassDEP) requirements, thereby minimizing potential impacts to adjacent resources. Any catch basins, drain, or outfalls to be used in dewatering operations shall be passed through filters, onsite settling basins, settling tank trucks, or other devices to ensure that no observable sediments or pollutants are carried into any Resource Area or street drain. Measures will be taken so that no erosion or scouring shall occur on or in the vicinity of the project site or on the banks or bottoms of waterbodies, as a result of dewatering operations.

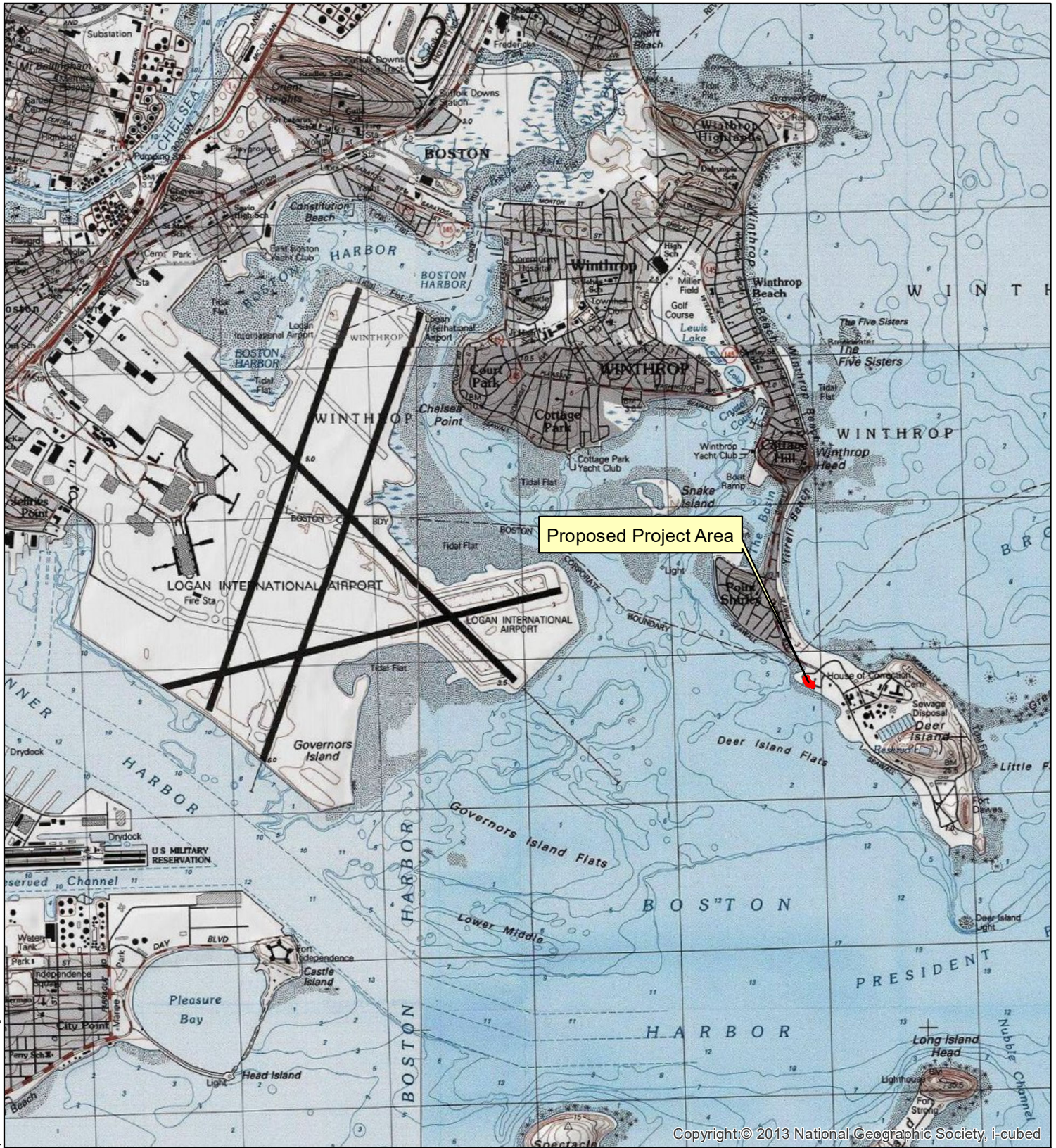
Waste material, debris, and trash will be cleaned from the work site at the end of each day and placed in trash barrels and/or dumpsters which will be disposed of off-site. Dumping of spoils material, waste, or other debris into wetland resource areas and/or buffer zones will not be allowed.

5.2 Native Vegetation Plantings

Temporary impacts to existing vegetated areas within the limits of work (approximately 5,915 square feet) will be revegetated with a New England native coastal salt tolerant grass seed mix, such as New England Wetland Plants' version of this mix. This type of seed mix contains a selection of native grasses that tolerate salty conditions and is also appropriate for drier coastal areas that receive salt spray or mist. Species typically included in this type of mix are: Canada wild rye (*Elymus canadensis*), red fescue (*Festuca rubra*), Atlantic coastal panic grass (*Panicum amarum*), big bluestem (*Andropogon gerardii*), Indian grass (*Sorghastrum nutans*), switch grass (*Panicum virgatum*), and path rush (*Juncus tenuis*). Seeding rate for this seed mix is typically 1,250 square feet/lb.

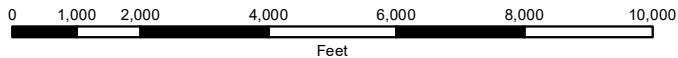
Woody plantings of northern bayberry and eastern redcedar are proposed to be planted as shown on the project plans (Attachment B). Both of these species are naturally present near the project limits of work and were chosen based on their suitability for coastal applications.

Attachment A
USGS Locus Map



Proposed Project Area

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1 inch = 3,000 feet

FIGURE 1. PROJECT LOCUS MAP

**Public Fishing Pier Parking Area Project
Deer Island**

Boston, MA

Attachment B

Project Plans

DEER ISLAND TREATMENT PLANT PARKING AREA

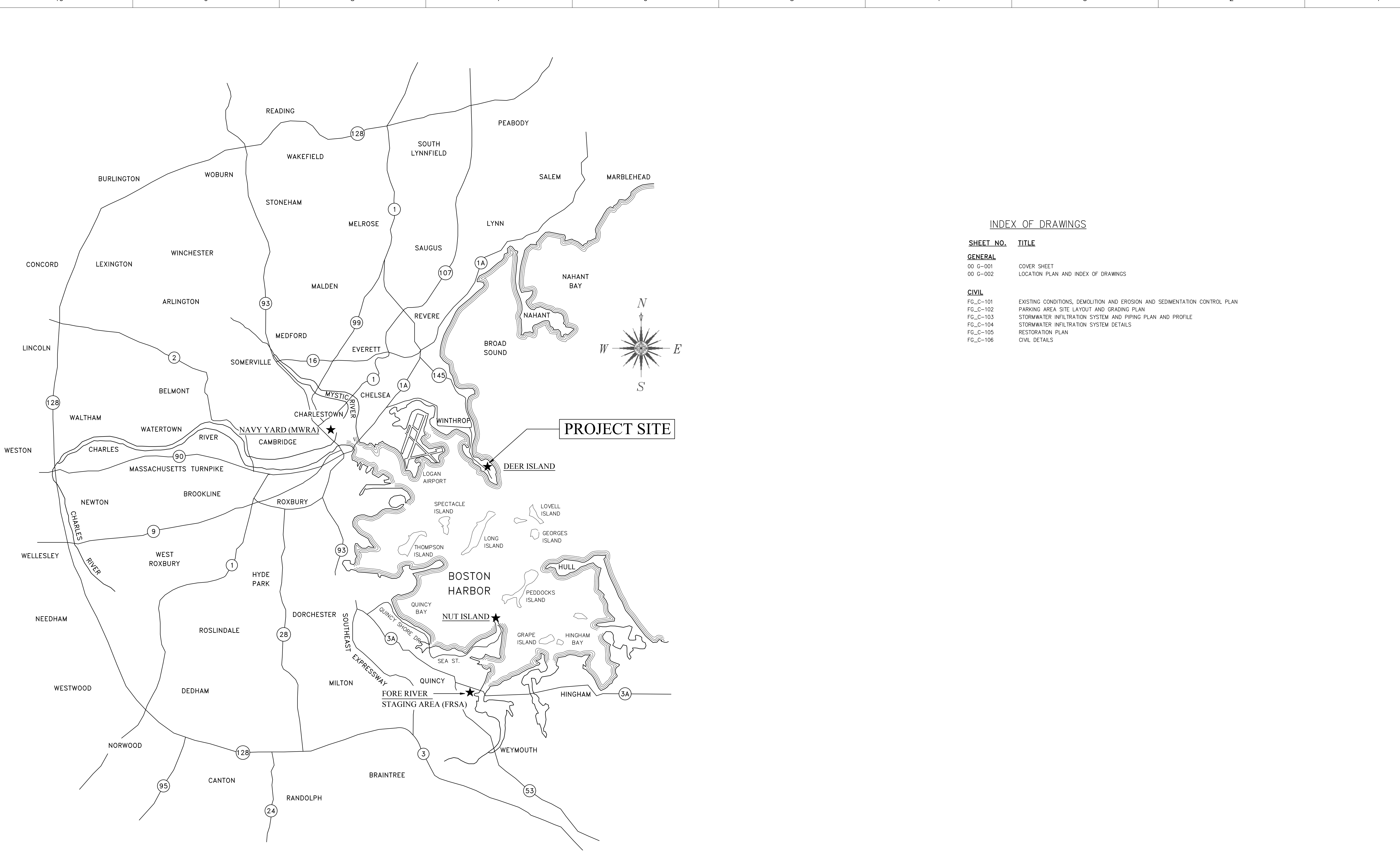
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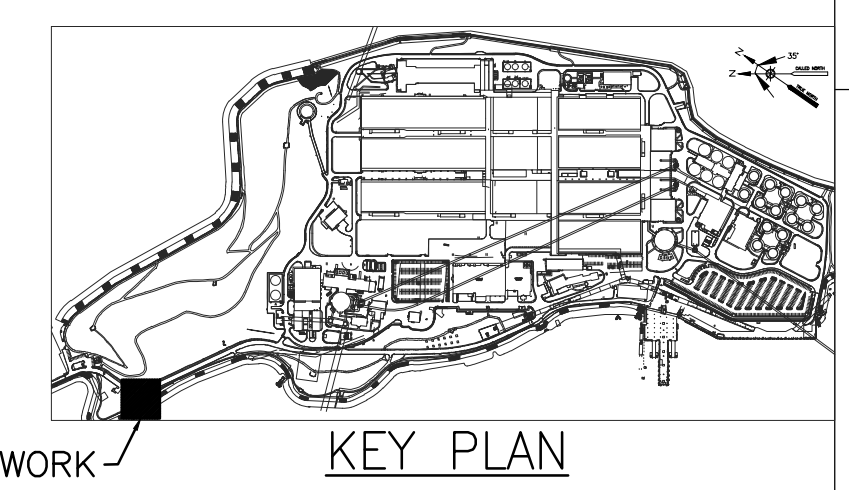
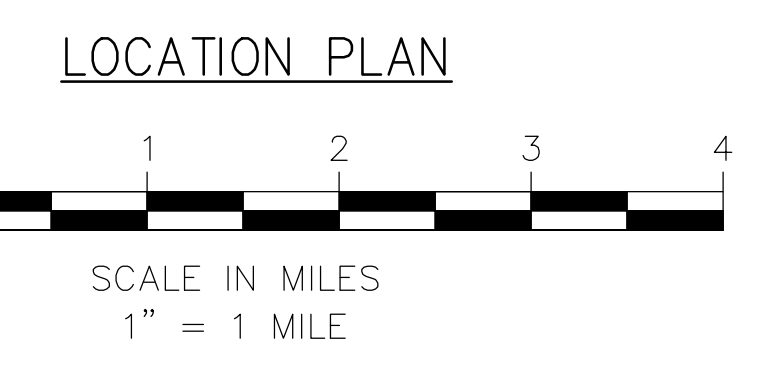


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CADD FILE NO. 00 G-001
CONTR. PKG. NO. _____
SHEET NO. 00 G-001



INDEX OF DRAWINGS

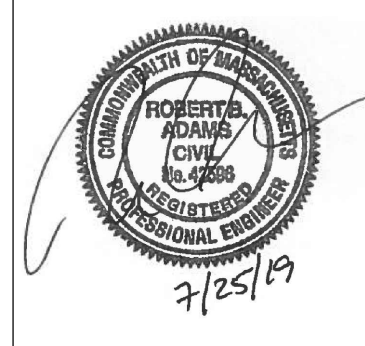
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GENERAL	
00 G-001	COVER SHEET
00 G-002	LOCATION PLAN AND INDEX OF DRAWINGS
CIVIL	
FG_C-101	EXISTING CONDITIONS, DEMOLITION AND EROSION AND SEDIMENTATION CONTROL PLAN
FG_C-102	PARKING AREA SITE LAYOUT AND GRADING PLAN
FG_C-103	STORMWATER INFILTRATION SYSTEM AND PIPING PLAN AND PROFILE
FG_C-104	STORMWATER INFILTRATION SYSTEM DETAILS
FG_C-105	RESTORATION PLAN
FG_C-106	CIVIL DETAILS



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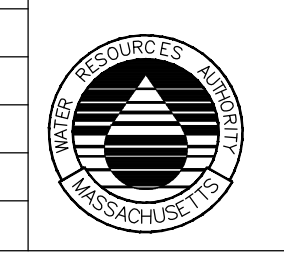


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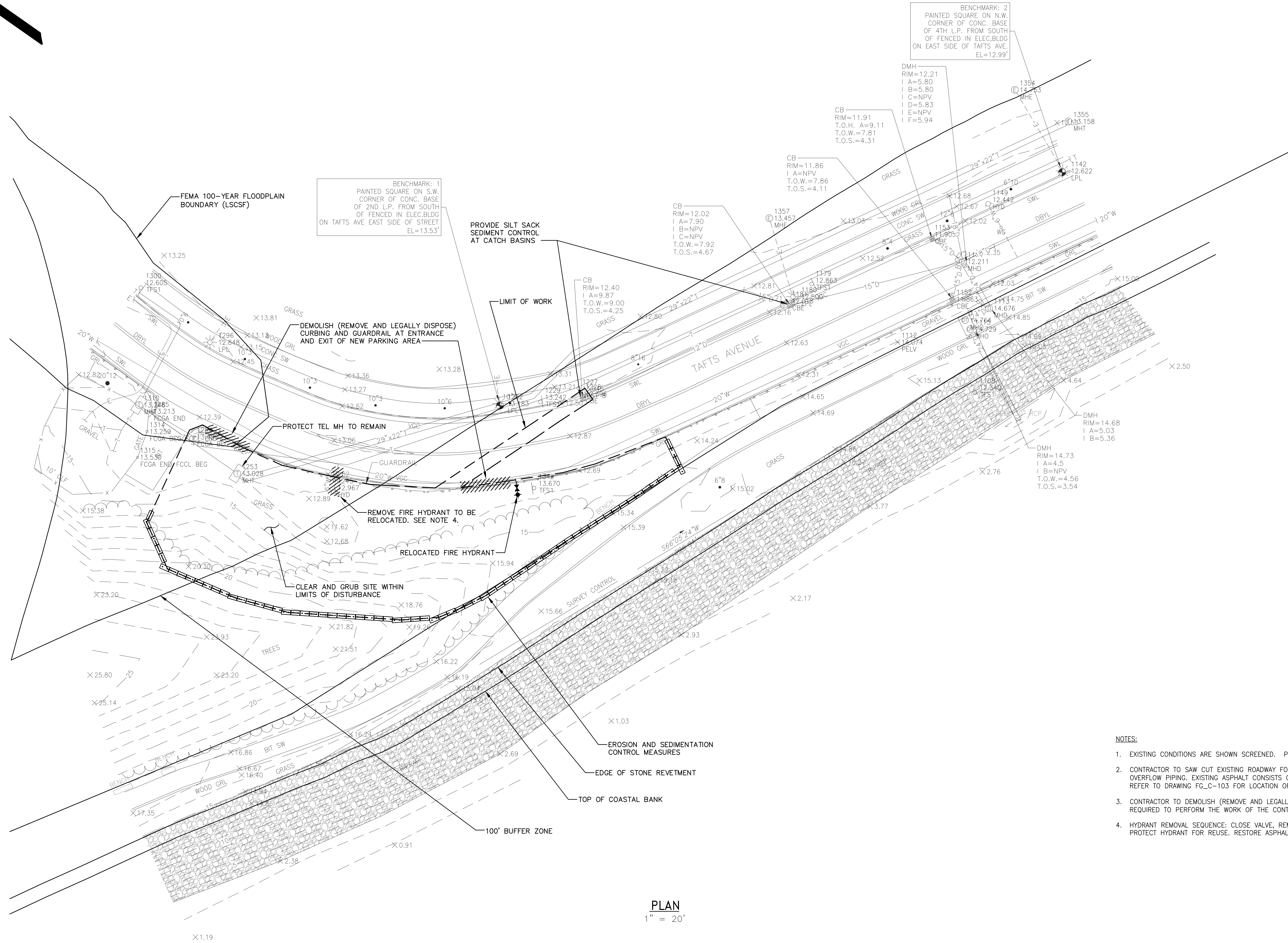
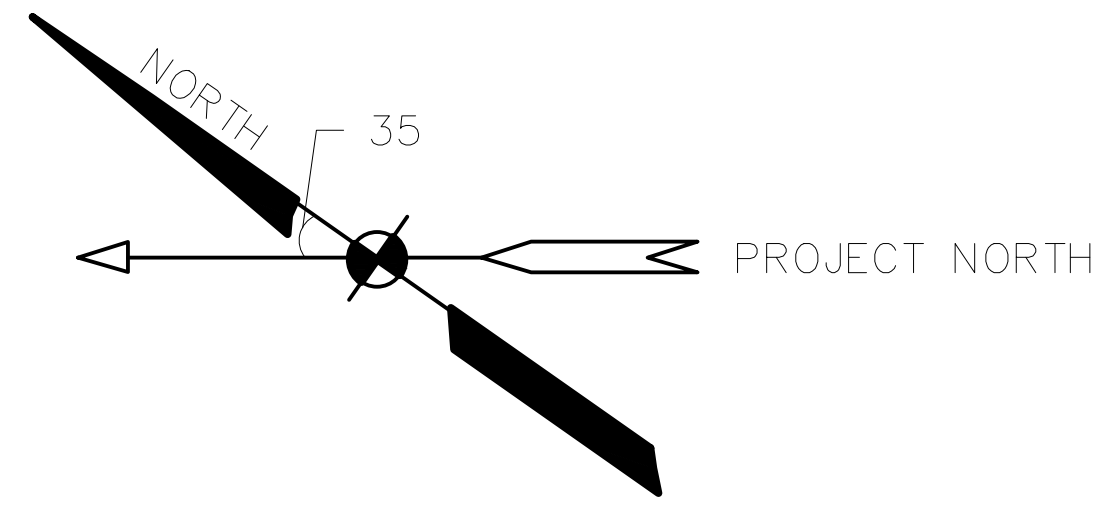
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 APPROVED BY: R. ADAMS

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MASSACHUSETTS WATER RESOURCES AUTHORITY
 DEER ISLAND TREATMENT PLANT
 PARKING AREA
LOCATION PLAN AND INDEX OF DRAWINGS

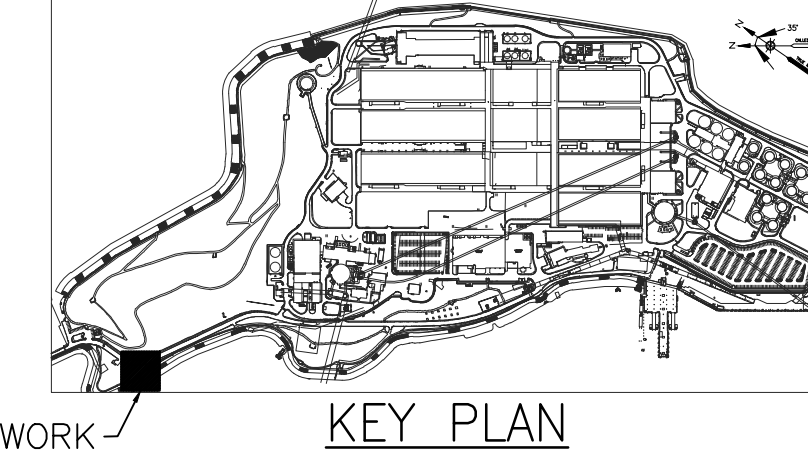
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CAD FILE NO.	
SHEET NO.	00 G-002



- NOTES:**
- EXISTING CONDITIONS ARE SHOWN SCREENED. PROPOSED WORK IS SHOWN BOLD.
 - CONTRACTOR TO SAW CUT EXISTING ROADWAY FOR INSTALLATION OF STORMWATER INFILTRATION SYSTEM OVERFLOW PIPING. EXISTING ASPHALT CONSISTS OF 5" BINDER COURSE AND 1 1/2" SURFACE COURSE. REFER TO DRAWING FG_C-103 FOR LOCATION OF OVERFLOW PIPING.
 - CONTRACTOR TO DEMOLISH (REMOVE AND LEGALLY DISPOSE OF) EXISTING GUARDRAIL AND CURBING AS REQUIRED TO PERFORM THE WORK OF THE CONTRACT.
 - HYDRANT REMOVAL SEQUENCE: CLOSE VALVE, REMOVE HYDRANT, INSTALL RESTRAINED BLIND FLANGE, PROTECT HYDRANT FOR REUSE, RESTORE ASPHALT PAVEMENT.

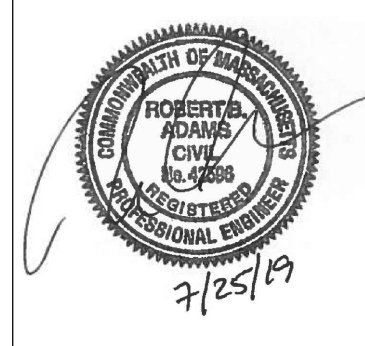


PLAN
1" = 20'



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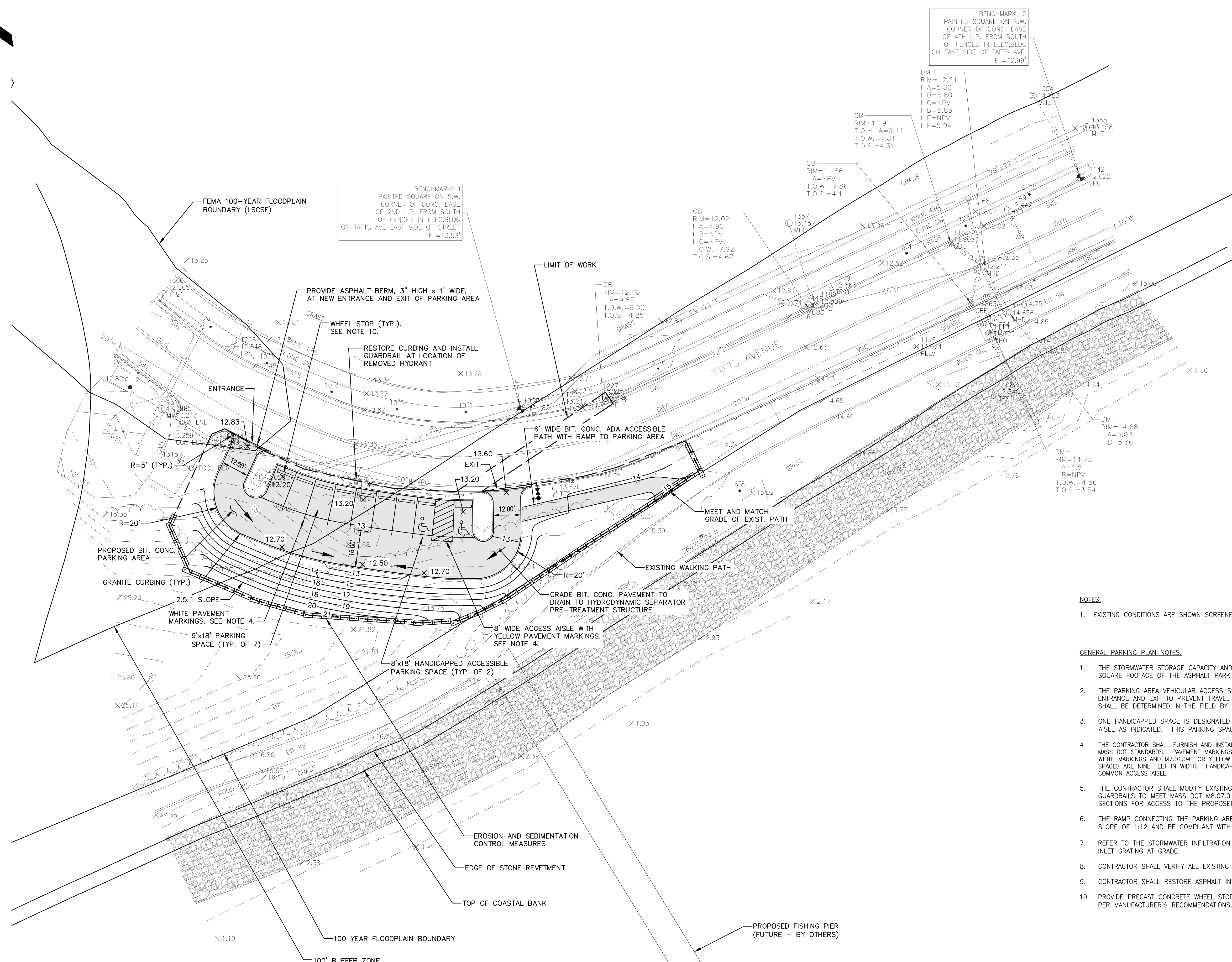
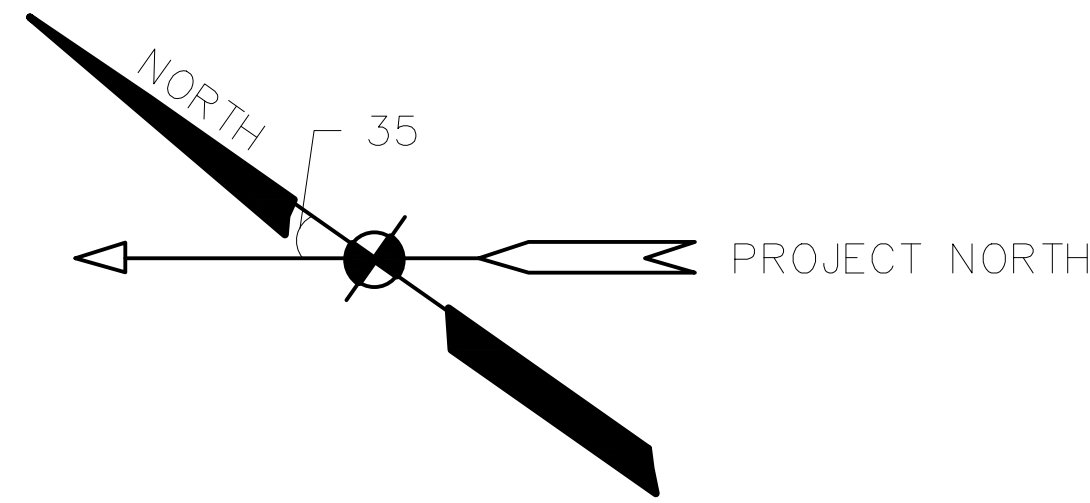
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DEER ISLAND TREATMENT PLANT
PARKING AREA

**EXISTING CONDITIONS, DEMOLITION AND
EROSION AND SEDIMENTATION CONTROL PLAN**

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SHEET NO.	FG_C-101

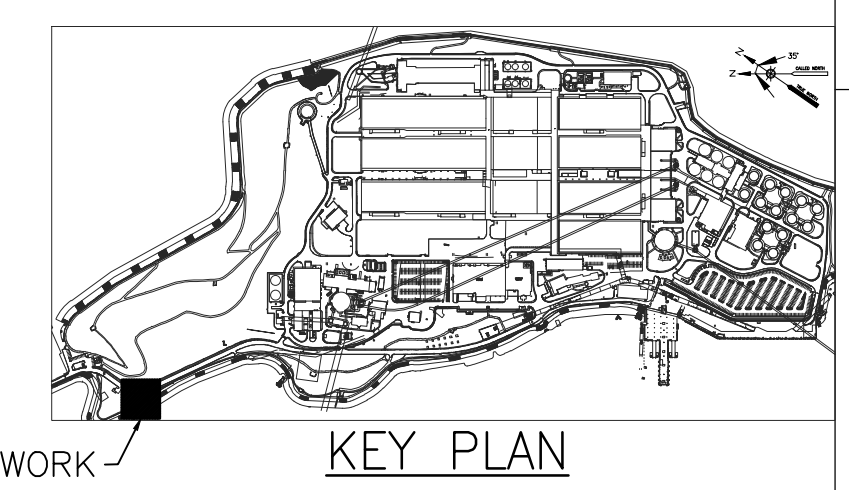
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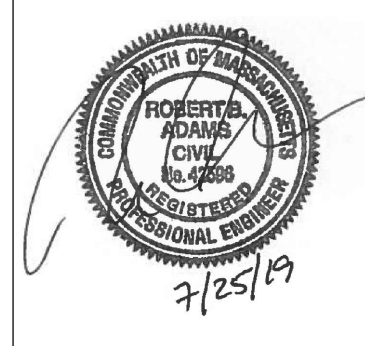
- NOTES:**
- EXISTING CONDITIONS ARE SHOWN SCREENED. PROPOSED WORK IS SHOWN BOLD.
- GENERAL PARKING PLAN NOTES:**
- THE STORMWATER STORAGE CAPACITY AND FOOTPRINT OF THE INFILTRATION SYSTEM IS BASED ON THE SQUARE FOOTAGE OF THE ASPHALT PARKING AREA AND THE 100 YEAR STORM EVENT.
 - THE PARKING AREA VEHICULAR ACCESS SHALL BE ONE-WAY. SIGNAGE SHALL BE PROVIDED AT THE ENTRANCE AND EXIT TO PREVENT TRAVEL IN THE OPPOSITE DIRECTION. LOCATION OF THE SIGNAGE SHALL BE DETERMINED IN THE FIELD BY THE OWNER.
 - ONE HANDICAPPED SPACE IS DESIGNATED FOR VAN PARKING AND REQUIRES AN EIGHT FOOT WIDE ACCESS AISLE AS INDICATED. THIS PARKING SPACE SHALL BE IDENTIFIED AS "VAN ACCESSIBLE" WITH SIGNAGE.
 - THE CONTRACTOR SHALL FURNISH AND INSTALL PAVEMENT MARKINGS AND SIGNAGE AS INDICATED, COMPLIANT WITH MASS DOT STANDARDS. PAVEMENT MARKINGS SHALL CONFORM TO MASS DOT STANDARD SECTION M7.01.03 FOR WHITE MARKINGS AND M7.01.04 FOR YELLOW MARKINGS AND US DOT CHAPTER 3B.18. CONVENTIONAL PARKING SPACES ARE NINE FEET IN WIDTH. HANDICAPPED PARKING SPACES ARE EIGHT FEET IN WIDTH AND SHARE A COMMON ACCESS AISLE.
 - THE CONTRACTOR SHALL MODIFY EXISTING CURBING AND GUARDRAIL AS REQUIRED FOR THE WORK. GUARDRAILS TO MEET MASS DOT M8.07.0 STANDARDS. TERMINAL ENDS TO BE PROVIDED WHEN REMOVING SECTIONS FOR ACCESS TO THE PROPOSED PARKING AREA. TERMINAL ENDS SHALL MATCH EXISTING.
 - THE RAMP CONNECTING THE PARKING AREA TO THE EXISTING WALKING PATH SHALL HAVE A MAXIMUM SLOPE OF 1:12 AND BE COMPLIANT WITH THE AMERICANS WITH DISABILITIES ACT (ADA).
 - REFER TO THE STORMWATER INFILTRATION SYSTEM DETAILS FOR CLEANOUT/INSPECTION PORTS AND THE INLET GRATING AT GRADE.
 - CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES WITHIN LIMITS OF WORK.
 - CONTRACTOR SHALL RESTORE ASPHALT IN THE ROADWAY AS INDICATED IN CIVIL DETAILS.
 - PROVIDE PRECAST CONCRETE WHEEL STOPS 6 FT. IN LENGTH. INSTALL WITH LAG BOLTS AND ANCHORS PER MANUFACTURER'S RECOMMENDATIONS.

PLAN
1" = 20'



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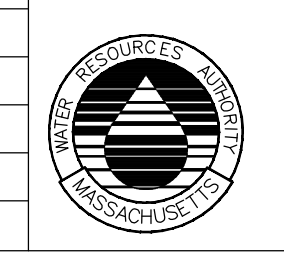
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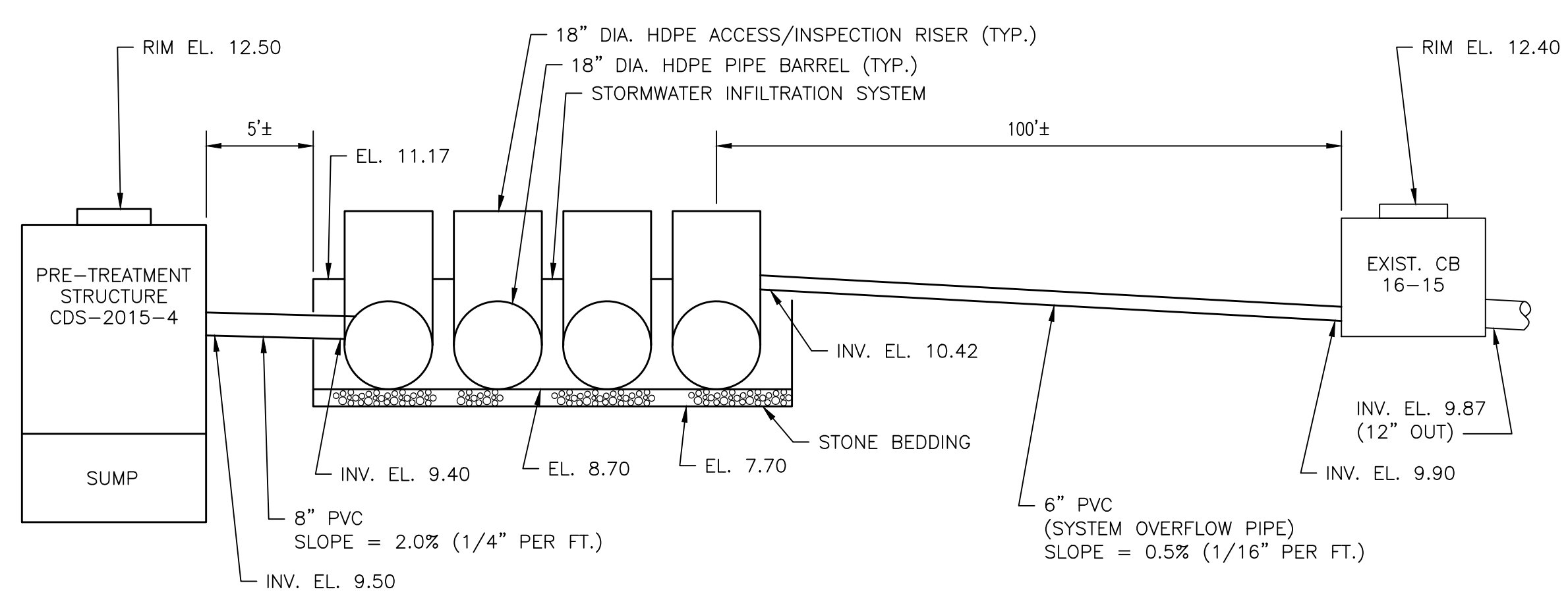
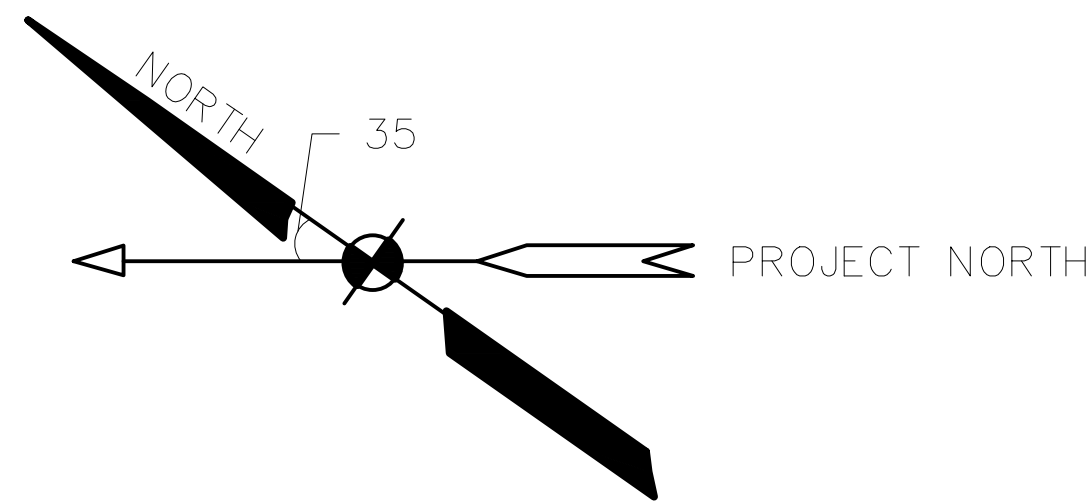
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DEER ISLAND TREATMENT PLANT
PARKING AREA

PARKING AREA SITE LAYOUT AND GRADING PLAN

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SHEET NO.	FG_C-102

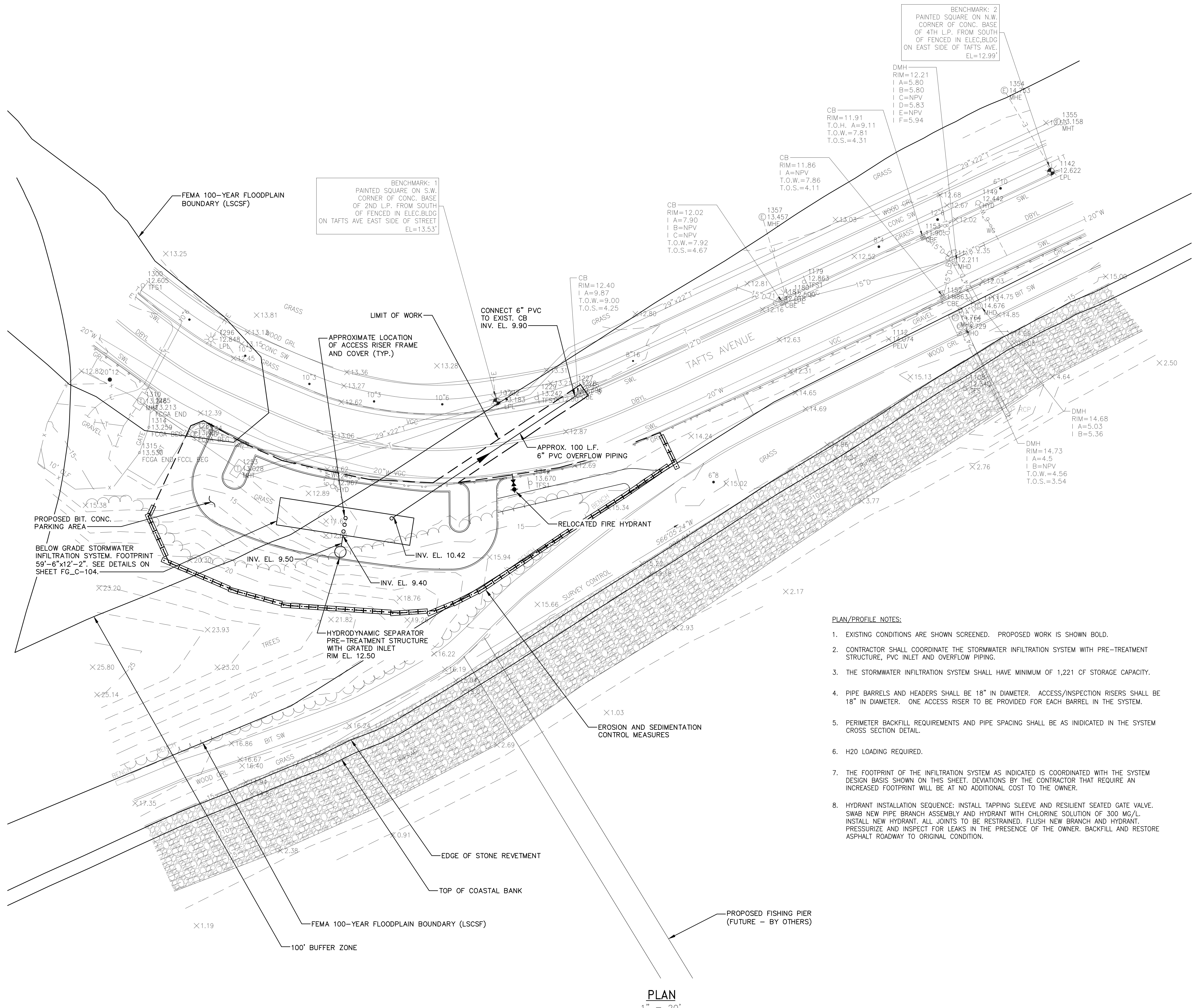
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PROFILE - STORMWATER INFILTRATION SYSTEM
NTS

DESIGN BASIS:

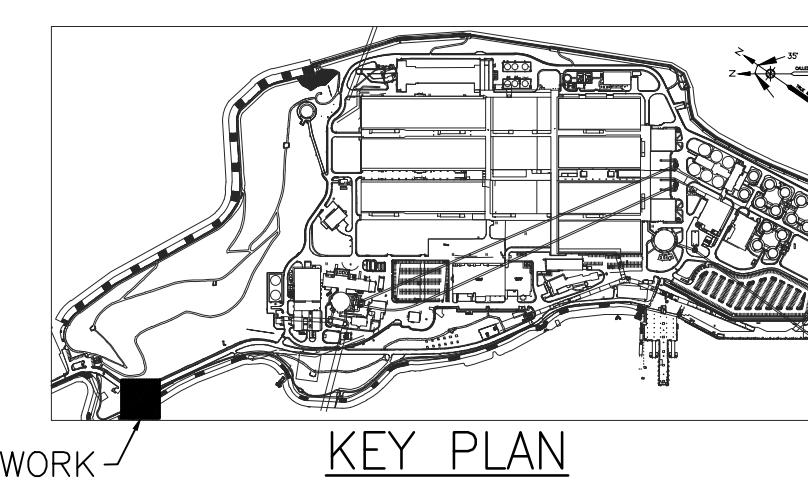
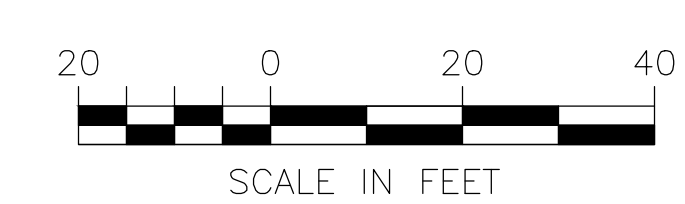
- SURFACE AREA OF PARKING LOT ASPHALT: 4,320 SF.
- PEAK, SIMULTANEOUS FLOW RATE DURING 100 YEAR STORM EVENT: 1.21 CFS.
- PRE-TREATMENT STRUCTURE BASIS OF DESIGN: CDS-2015-4 HYDRODYNAMIC SEPARATOR WITH 1.4 CFS CAPACITY.
- INFILTRATION SYSTEM BASIS OF DESIGN: LANE ENT. 18" HD100EC FULLY PERFORATED, CORRUGATED PIPE BARRELS.
- PIPE AND STONE BACKFILL TO HAVE A MINIMUM STORAGE CAPACITY OF 1,221 CF.
- STONE BEDDING UNDER 18" BARRELS TO BE 1 VERTICAL FOOT.



PLAN
1" = 20'

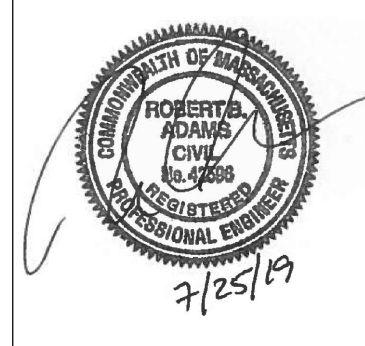
PLAN/PROFILE NOTES:

1. EXISTING CONDITIONS ARE SHOWN SCREENED. PROPOSED WORK IS SHOWN BOLD.
2. CONTRACTOR SHALL COORDINATE THE STORMWATER INFILTRATION SYSTEM WITH PRE-TREATMENT STRUCTURE, PVC INLET AND OVERFLOW PIPING.
3. THE STORMWATER INFILTRATION SYSTEM SHALL HAVE MINIMUM OF 1,221 CF OF STORAGE CAPACITY.
4. PIPE BARRELS AND HEADERS SHALL BE 18" IN DIAMETER. ACCESS/INSPECTION RISERS SHALL BE 18" IN DIAMETER. ONE ACCESS RISER TO BE PROVIDED FOR EACH BARREL IN THE SYSTEM.
5. PERIMETER BACKFILL REQUIREMENTS AND PIPE SPACING SHALL BE AS INDICATED IN THE SYSTEM CROSS SECTION DETAIL.
6. H2O LOADING REQUIRED.
7. THE FOOTPRINT OF THE INFILTRATION SYSTEM AS INDICATED IS COORDINATED WITH THE SYSTEM DESIGN BASIS SHOWN ON THIS SHEET. DEVIATIONS BY THE CONTRACTOR THAT REQUIRE AN INCREASED FOOTPRINT WILL BE AT NO ADDITIONAL COST TO THE OWNER.
8. HYDRANT INSTALLATION SEQUENCE: INSTALL TAPPING SLEEVE AND RESILIENT SEATED GATE VALVE. SWAB NEW PIPE BRANCH ASSEMBLY AND HYDRANT WITH CHLORINE SOLUTION OF 300 MG/L. INSTALL NEW HYDRANT. ALL JOINTS TO BE RESTRAINED. FLUSH NEW BRANCH AND HYDRANT. PRESSURIZE AND INSPECT FOR LEAKS IN THE PRESENCE OF THE OWNER. BACKFILL AND RESTORE ASPHALT ROADWAY TO ORIGINAL CONDITION.



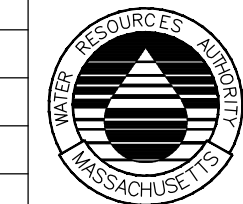
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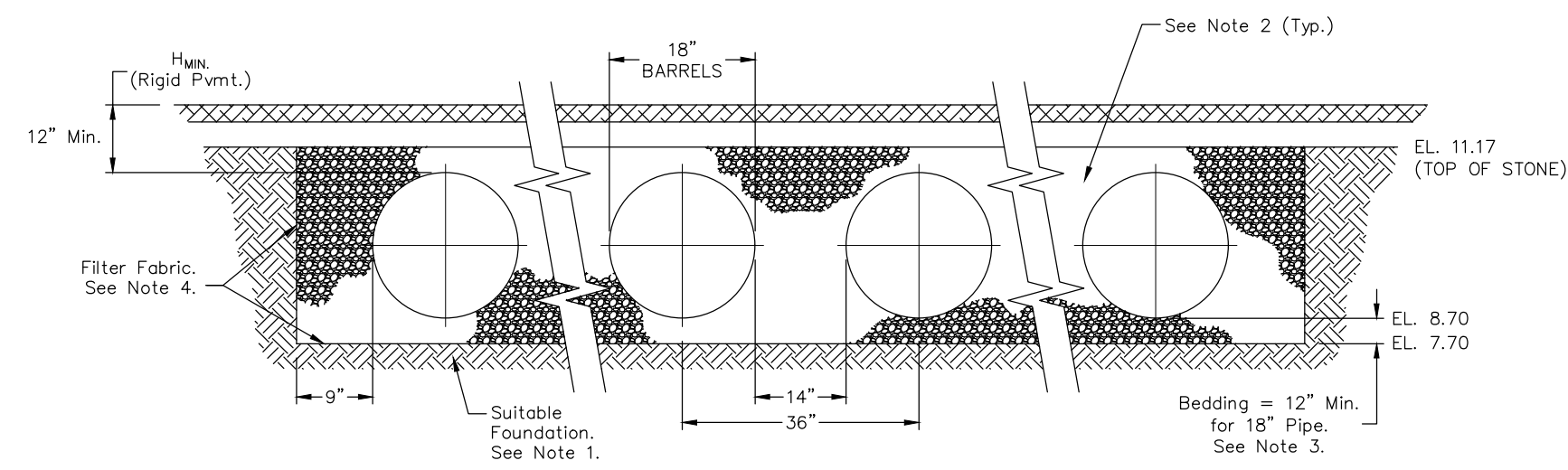
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PARKING AREA

**STORMWATER INFILTRATION SYSTEM
AND PIPING PLAN AND PROFILE**

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SHEET NO.	FG_C-103

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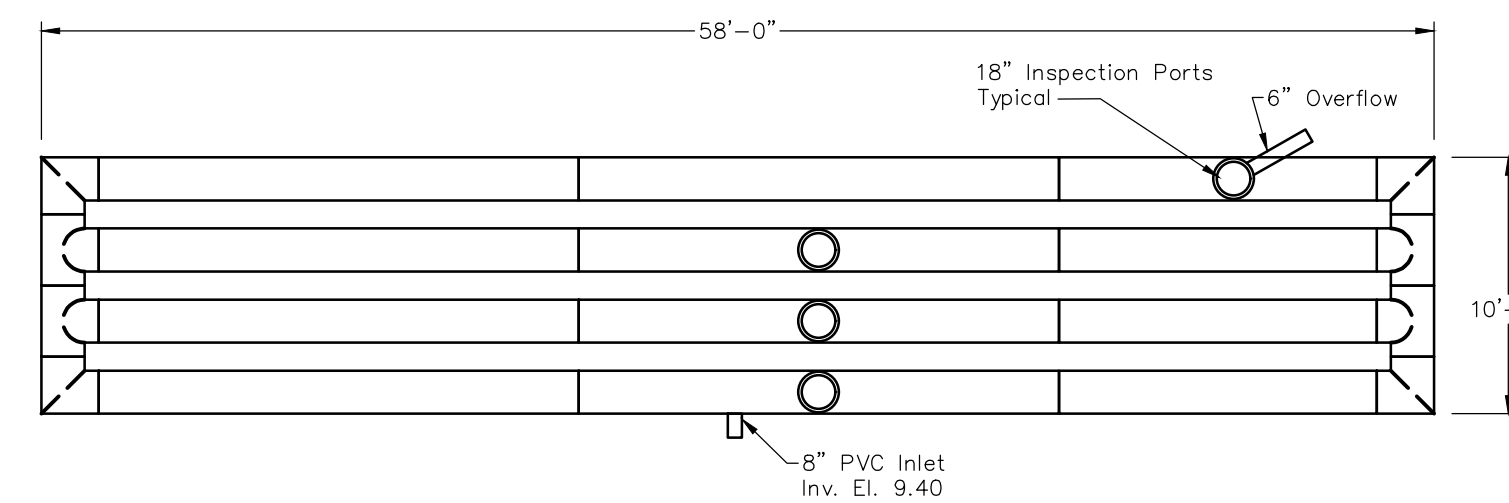


STORMWATER INFILTRATION SYSTEM CROSS-SECTION

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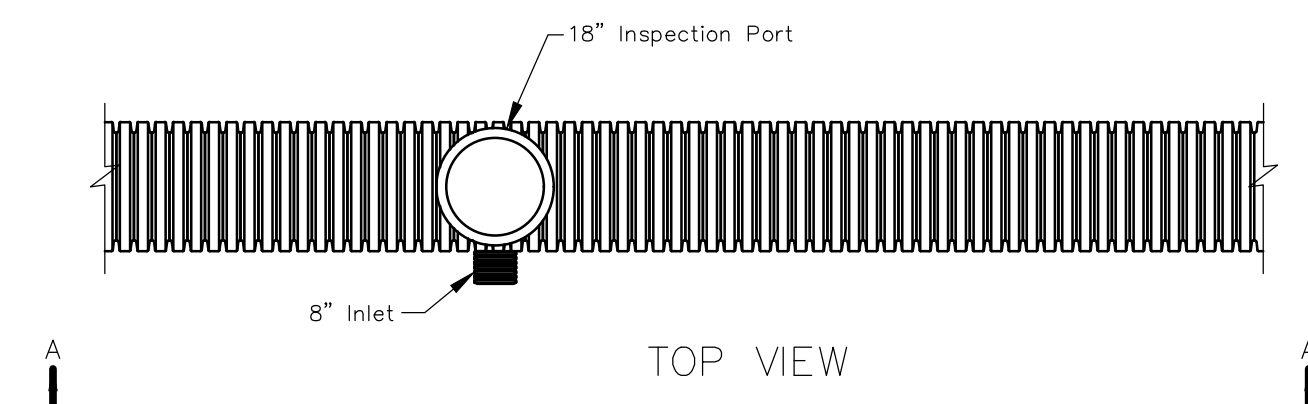
STORMWATER INFILTRATION SYSTEM CROSS SECTION NOTES:

- PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. UNSUITABLE MATERIALS SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH 3/4" CRUSHED STONE MEETING ASTM C33, COMPACTED TO A STABLE GRADE. TWELVE (12) INCHES OF SCREENED GRAVEL SHALL BE PLACED AS THE SYSTEM BEDDING. THE BEDDING MATERIAL SHALL BE ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE. REFER TO SPECIFICATION SECTION 02223.
- THE BACKFILL MATERIAL SHALL BE FREE-DRAINING ANGULAR WASHED STONE 3/4" TO 2" PARTICLE SIZE. THE ANGULAR WASHED STONE AS DIMENSIONED IN SECTION IS PART OF THE STORMWATER INFILTRATION SYSTEM AND IS FACTORED INTO THE STORAGE CAPACITY. MATERIAL TO CONFORM TO MASS DOT M2.01.1. MATERIAL SHALL BE PLACED IN 8" LIFTS. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLICING, RODDING, AIR TAMPER, VIBRATORY ROD OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.
- EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTORT, DAMAGE, OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT AND MAINTAINING BALANCED LOADING ON ALL PIPES IN THE SYSTEM DURING ALL SUCH OPERATIONS.
- NON-WOVEN GEOTEXTILE FABRIC SHALL BE USED TO WRAP THE TRENCH SIDES, TOP AND BOTTOM. REFER TO SPECIFICATION SECTION 02273.

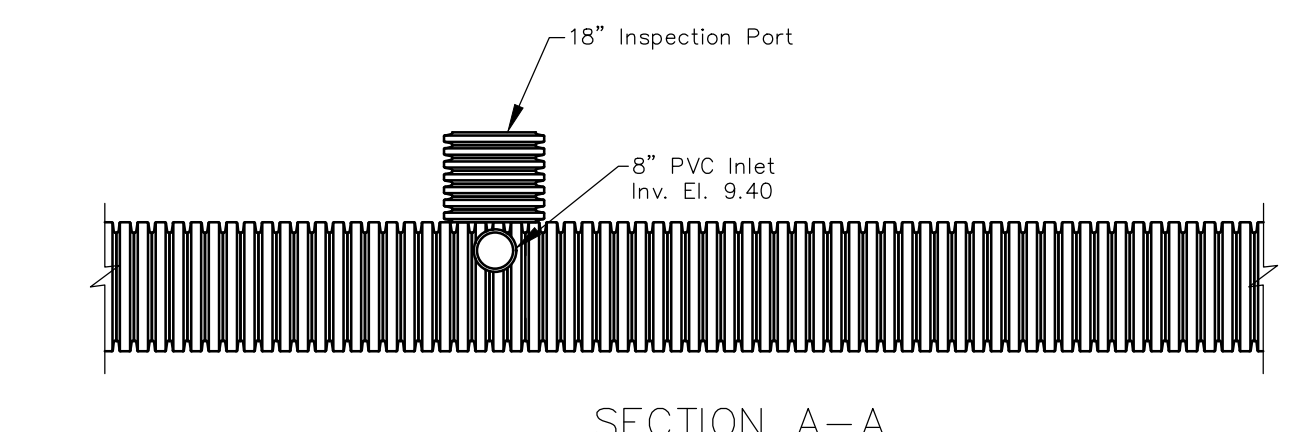


STORMWATER INFILTRATION SYSTEM PLAN VIEW

N.T.S.



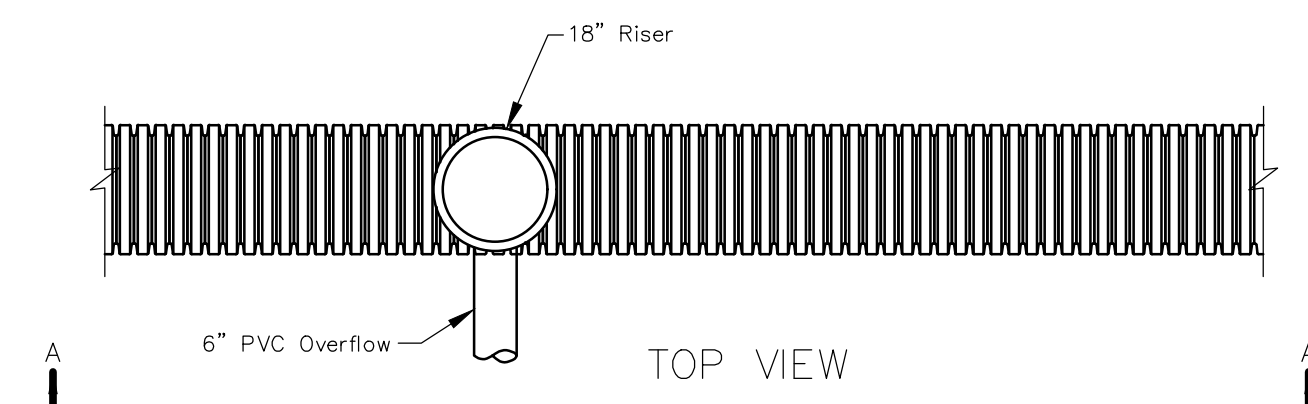
TOP VIEW



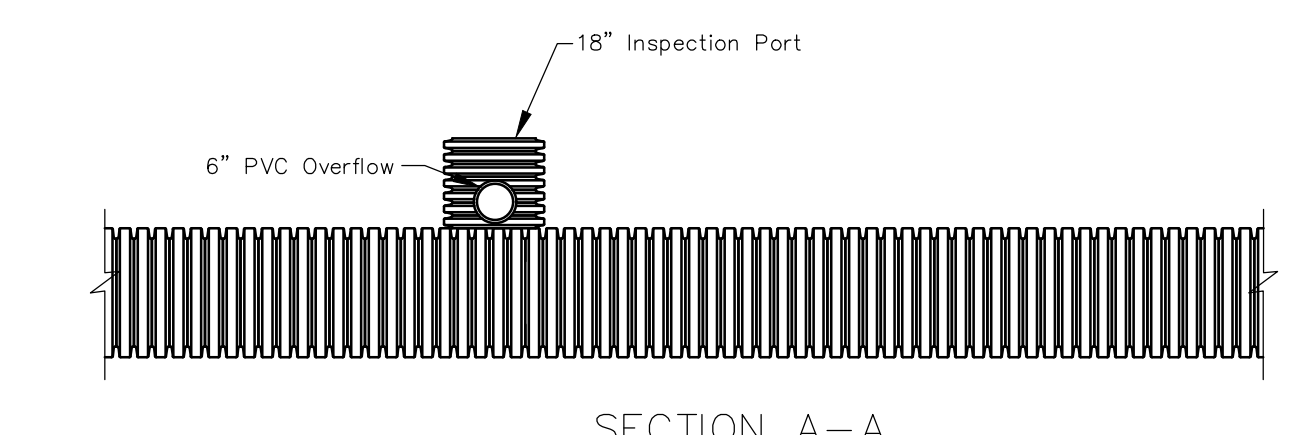
SECTION A-A

STORMWATER INFILTRATION SYSTEM INLET

N.T.S.



TOP VIEW



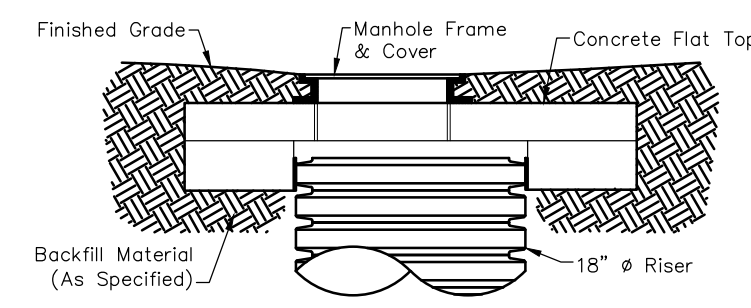
SECTION A-A

STORMWATER INFILTRATION SYSTEM OVERFLOW

N.T.S.

INFILTRATION SYSTEM OVERFLOW NOTES:

- THE 6" PVC INFILTRATION SYSTEM OVERFLOW SHALL TEE OFF THE ACCESS RISER CLOSEST TO THE STREET (TAFT'S AVENUE) AND BE RUN TO EXISTING CATCH BASIN CB-16-15, AS INDICATED.

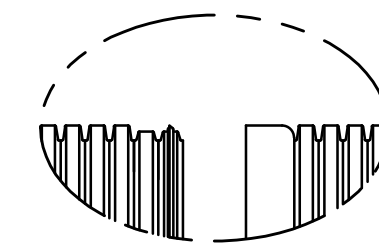


ACCESS RISER DETAIL

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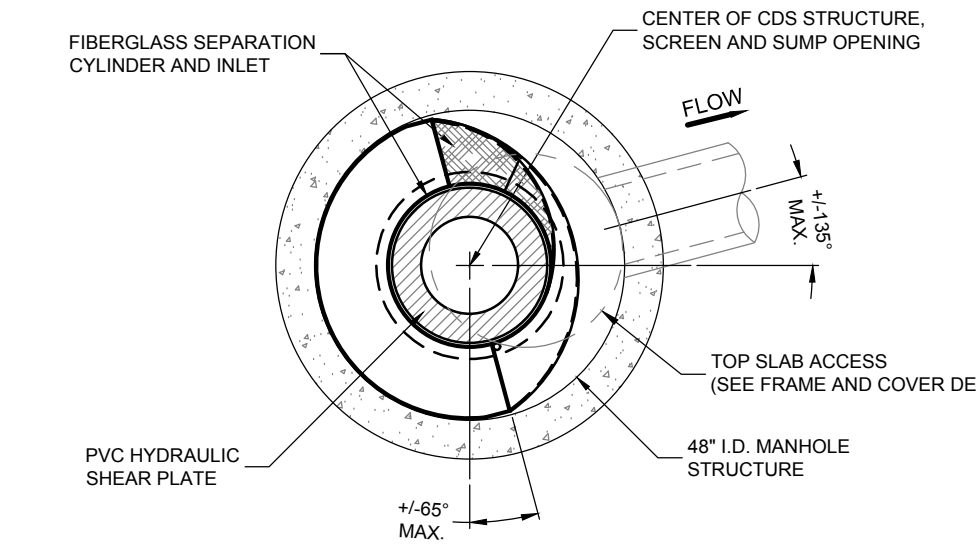
ACCESS RISER DETAIL NOTES:

- THE ACCESS RISER DETAIL IS CONCEPTUAL TO ILLUSTRATE HOW LOADS PLACED ON THE COVER OR SURROUNDING PAVEMENT WILL BE TRANSFERRED TO THE SUBGRADE AND NOT BEAR DIRECTLY ON THE RISER PIPE OR FRAME AND COVER. THE SELECTED MANUFACTURER'S DETAILS SHALL GOVERN TO ACHIEVE H-20 LOADING REQUIREMENTS.
- ALL RISERS TO BE FIELD CUT TO THE ELEVATION NEEDED TO ACCOMMODATE CONSTRUCTION OF THE RISER DETAIL.



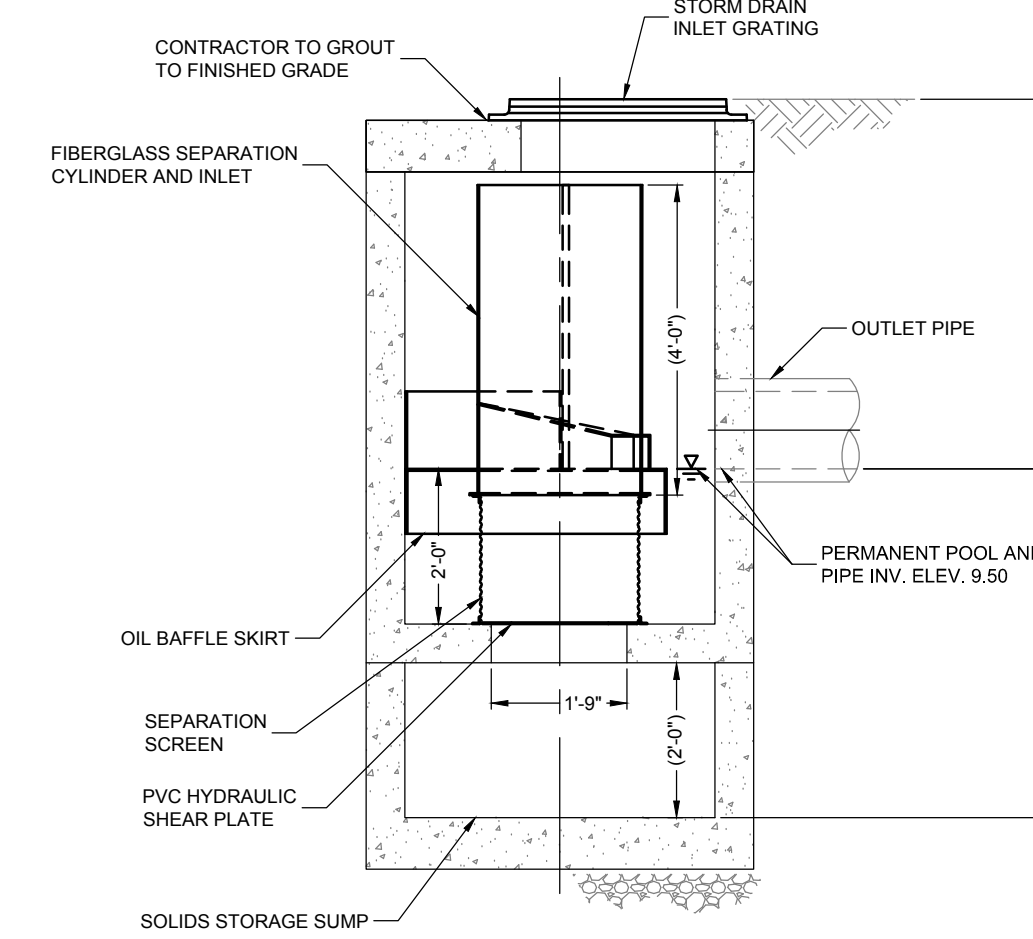
STANDARD IN-LINE BELL & SPIGOT WITH MANUFACTURER INSTALLED GASKET

N.T.S.



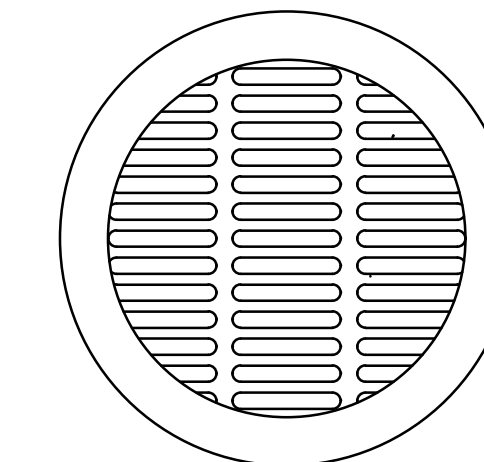
PLAN VIEW B-B

N.T.S.



ELEVATION A-A

N.T.S.



STORM DRAIN FRAME AND GRATE

N.T.S.

STORMWATER PRE-TREATMENT STRUCTURE

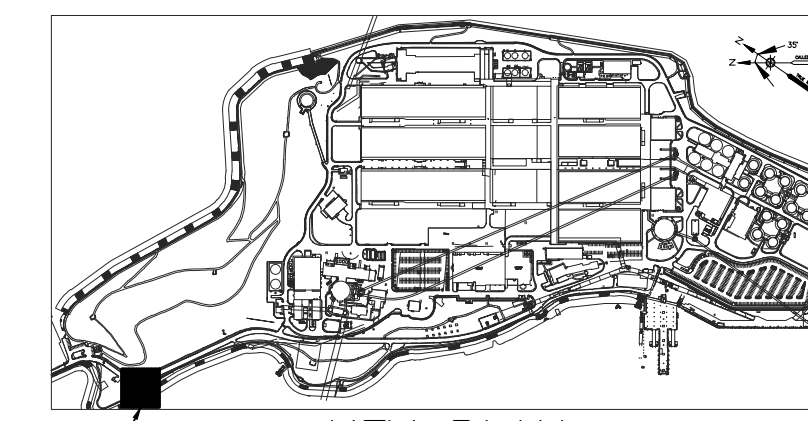
N.T.S.

HYDRODYNAMIC SEPARATOR STRUCTURE NOTES:

- THE STRUCTURE SHALL BE DESIGNED FOR A SHALLOW PROFILE WITH THE INVERT ELEVATION OF THE 8" OUTLET PIPING AT NO MORE THAN 3'-0" BELOW THE RIM ELEVATION OF THE INLET GRATING AND COORDINATED WITH THE STORMWATER INFILTRATION SYSTEM.
- PROVIDE FLUSH MOUNTED GRATE SYSTEM AT GRADE IN ASPHALT PARKING AREA AS SHOWN IN CONTRACT DRAWINGS.
- STRUCTURE AND CASTINGS SHALL MEET AASHTO H-20 LOADING STANDARDS.
- CONTRACTOR TO SEAL ALL STRUCTURE SECTIONS AND PIPE PENETRATIONS PER THE MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES:

- THE STORMWATER INFILTRATION SYSTEM SHALL BE RATED FOR H-20 LOADING.
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO WORK.
- DIMENSIONS SHOWN ARE NOMINAL. SELECTED MANUFACTURER TO PROVIDE ACTUAL DIMENSIONS.
- THE STORMWATER INFILTRATION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY STANDARD INSTALLATION PRACTICES ADAPTED TO THE SPECIAL INSTALLATION PROCEDURES CONTAINED HEREIN AND IN CONFORMANCE WITH THE SELECTED MANUFACTURER'S INSTALLATION REQUIREMENTS.
- THE CONTRACTOR SHALL COORDINATE THE HYDRODYNAMIC SEPARATOR PRE-TREATMENT STRUCTURE WITH THE STORMWATER INFILTRATION SYSTEM. CONNECTING PIPE SHALL BE 8" IN DIAMETER WITH 1/4" PER FOOT SLOPE (2%) FOR A MAXIMUM LENGTH OF 5'-0".
- CONSTRUCTION EQUIPMENT SHALL NOT TRAVERSE OR OTHERWISE BE LOCATED ATOP THE PIPE SYSTEM OR ITS COMPONENTS UNTIL SUFFICIENT COVER IS PROPERLY PLACED AND COMPACTED.
- THE FOUNDATION AND/OR BEDDING STONE MUST BE PROPERLY LEVELED TO THE ELEVATION SHOWN ON THE PROJECT PLANS PRIOR TO THE PLACEMENT OF ANY PIPE OR FITTINGS.
- ALL INFILTRATION SYSTEM PIPING SHALL BE PERFORMED PER THE REQUIREMENTS OF THE SELECTED MANUFACTURER. MINIMUM PERFORATION SIZE TO BE 1/4" DIAMETER.
- SOIL-TIGHT AND WATER TIGHT PIPE JOINT PERFORMANCE SHALL BE PROVIDED.
- REFER TO THE SELECTED MANUFACTURER'S INSTALLATION GUIDELINES FOR SYSTEM INSTALLATION REQUIREMENTS.

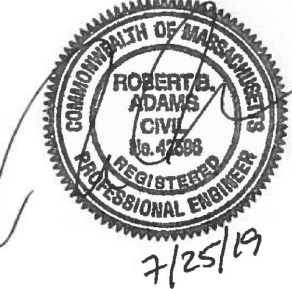


AREA OF WORK

KEY PLAN

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REG. PROF. ENGR. DATE

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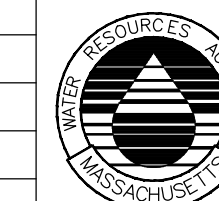
DESIGNED BY: T. SHEA

DRAWN BY: C. BENZIGER

CHECKED BY: T. SHEA

APPROVED BY: R. ADAMS

NUMBER	DATE	MADE BY	CHECKED BY	DESCRIPTION



STORMWATER INFILTRATION SYSTEM DETAILS

MASSACHUSETTS WATER RESOURCES AUTHORITY
DEER ISLAND TREATMENT PLANT
PARKING AREA

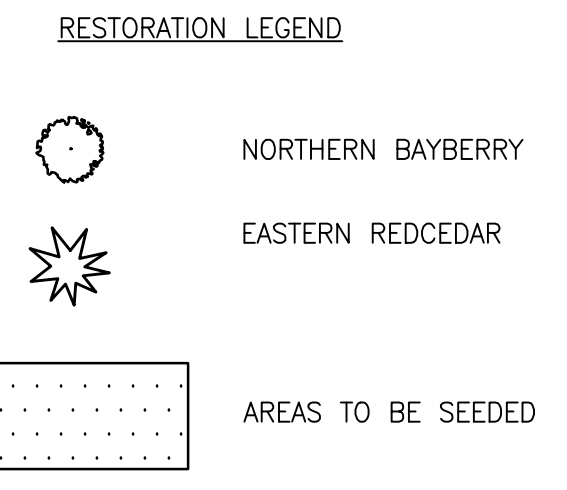
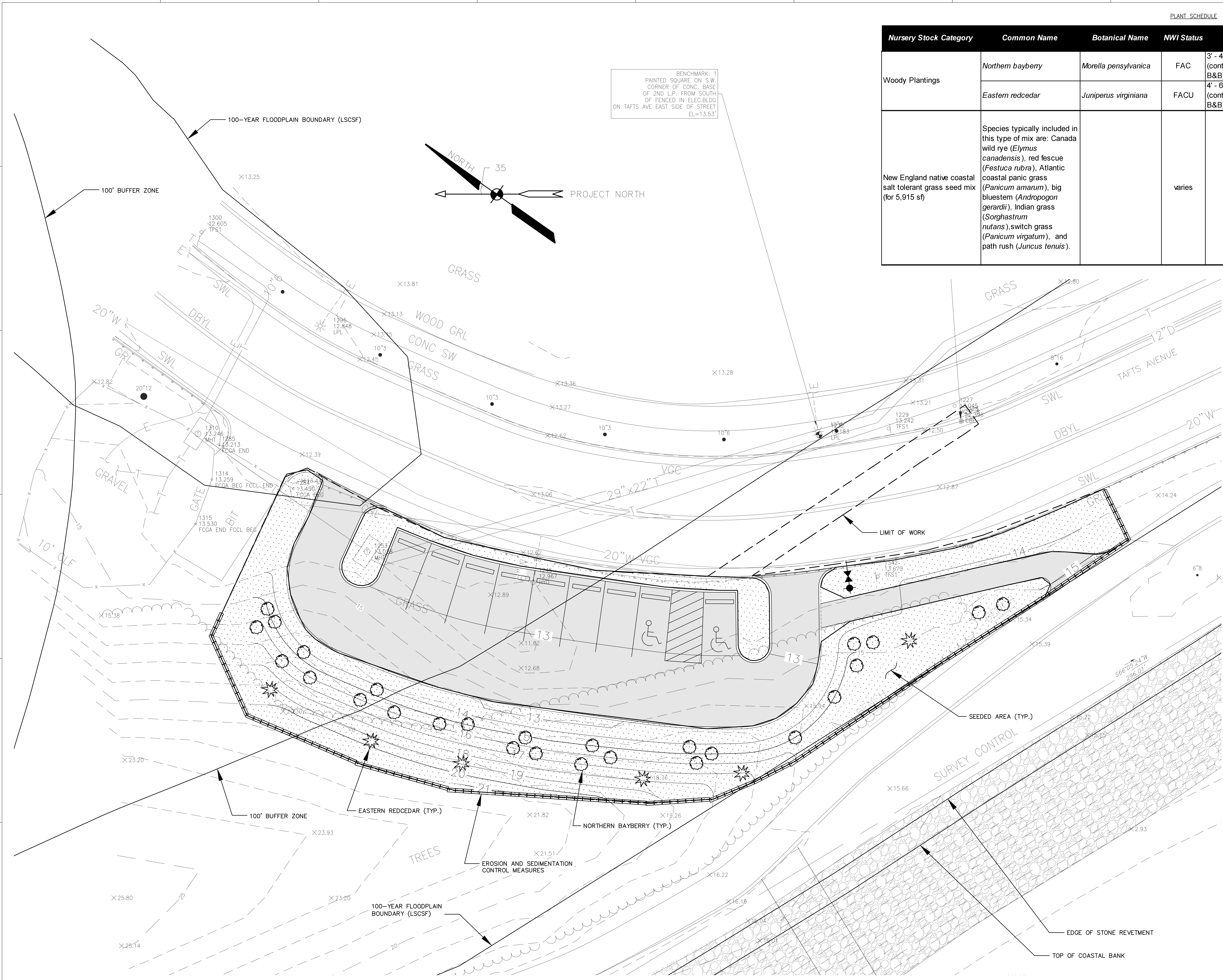
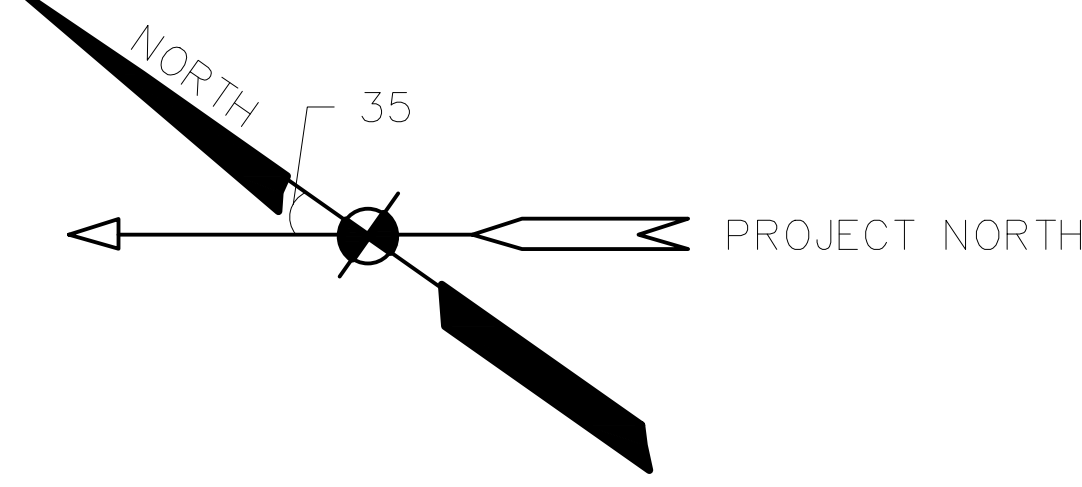
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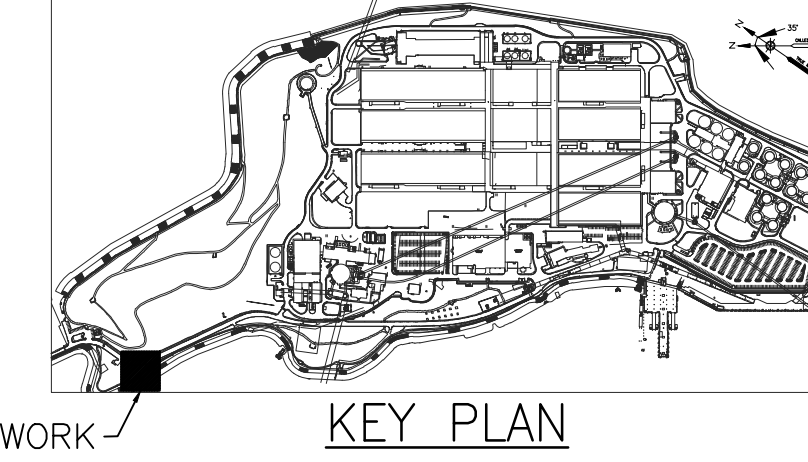
JULY 2019

Nursery Stock Category	Common Name	Botanical Name	NWI Status	Size	Qty.	Comments
Woody Plantings	Northern bayberry	<i>Morella pensylvanica</i>	FAC	3' - 4' (containerized or B&B)	27	Space as shown on the project plans
	Eastern redcedar	<i>Juniperus virginiana</i>	FAU	4' - 6' (containerized or B&B)	6	Space as shown on the project plans
New England native coastal salt tolerant grass seed mix (for 5,915 sf)	Species typically included in this type of mix are: Canada wild rye (<i>Elymus canadensis</i>), red fescue (<i>Festuca rubra</i>), Atlantic coastal panic grass (<i>Panicum amarum</i>), big bluestem (<i>Andropogon gerardii</i>), Indian grass (<i>Sorghastrum nutans</i>), switch grass (<i>Panicum virgatum</i>), and path rush (<i>Juncus tenuis</i>).		varies	(seed)	5 lbs.	This seed mix would be applied at a rate of at least 35 lbs/acre or 1,250 sf/lb.

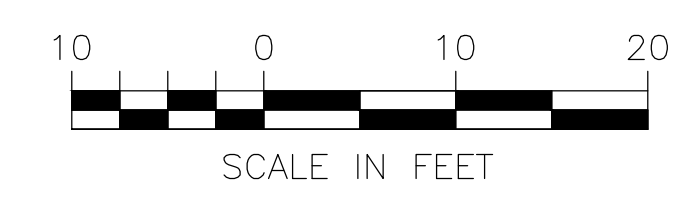
BENCHMARK: 1
PAINTED SQUARE ON S.W. CORNER OF CONC. BASE OF 2ND L.P. FROM SOUTH OF FENCED IN ELEC. BLDG ON TAFTS AVE. EAST SIDE OF STREET
EL=13.53'



NOTES:
1. EXISTING CONDITIONS ARE SHOWN SCREENED. PROPOSED WORK IS SHOWN BOLD.

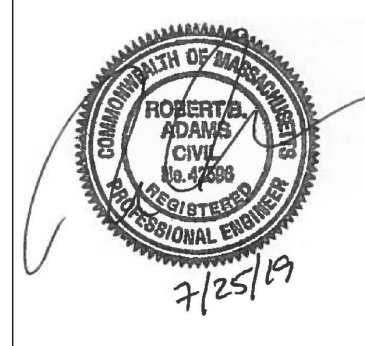


PLAN
1" = 10'



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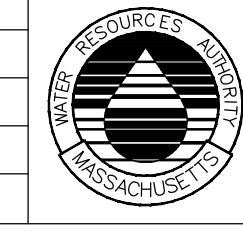
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CHECKED BY: T. SHEA
APPROVED BY: R. ADAMS

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REVISIONS	DESCRIPTION



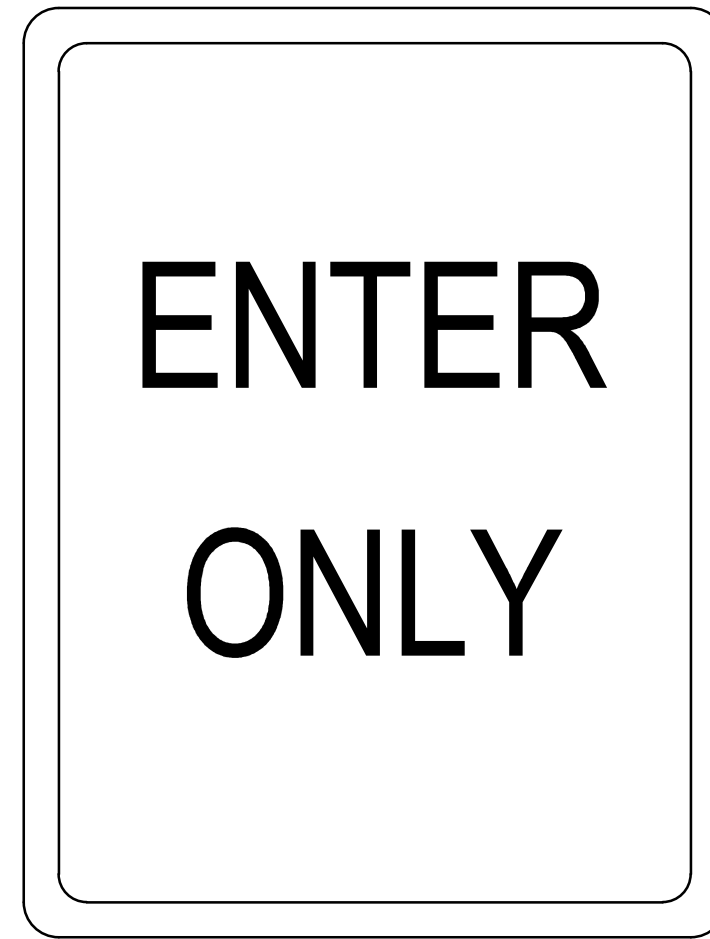
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DEER ISLAND TREATMENT PLANT
PARKING AREA

RESTORATION PLAN

CIVIL
JULY 2019

PROJECT NO. 60515090
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CAD FILE NO. FG_C-105
SHEET NO. FG_C-105

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 LAST UPDATE: Thursday, July 25, 2019 12:15:00 PM
 PLOT DATE: Thursday, July 25, 2019 2:55:33 PM



SIGN AT ENTRANCE TO PARKING AREA
 QUANTITY - 1 EACH
 SIZE - 12"x18"
 COLOR - BLACK LETTERING ON WHITE BACKGROUND



SIGN AT EXIT FROM PARKING AREA
 QUANTITY - 1 EACH
 SIZE - 12"x18"
 COLOR - BLACK LETTERING ON WHITE BACKGROUND

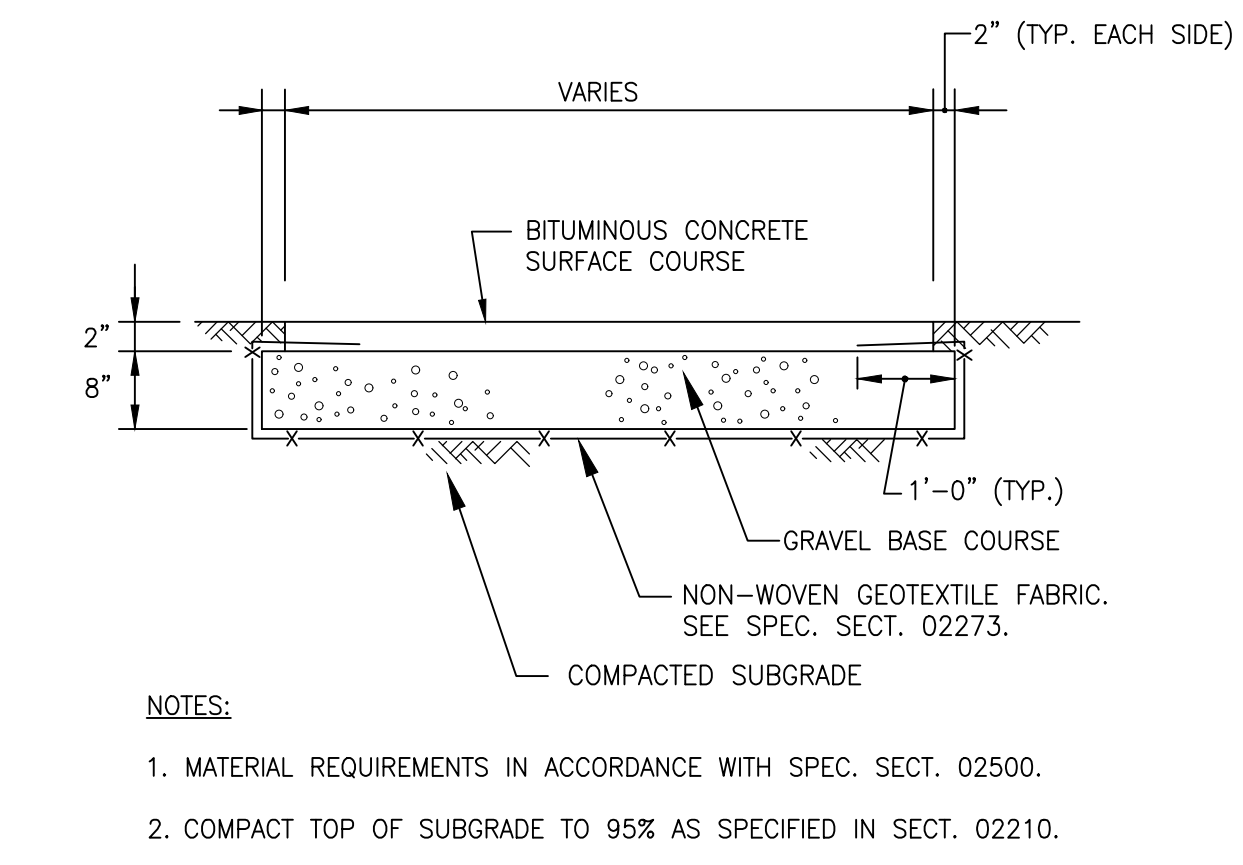
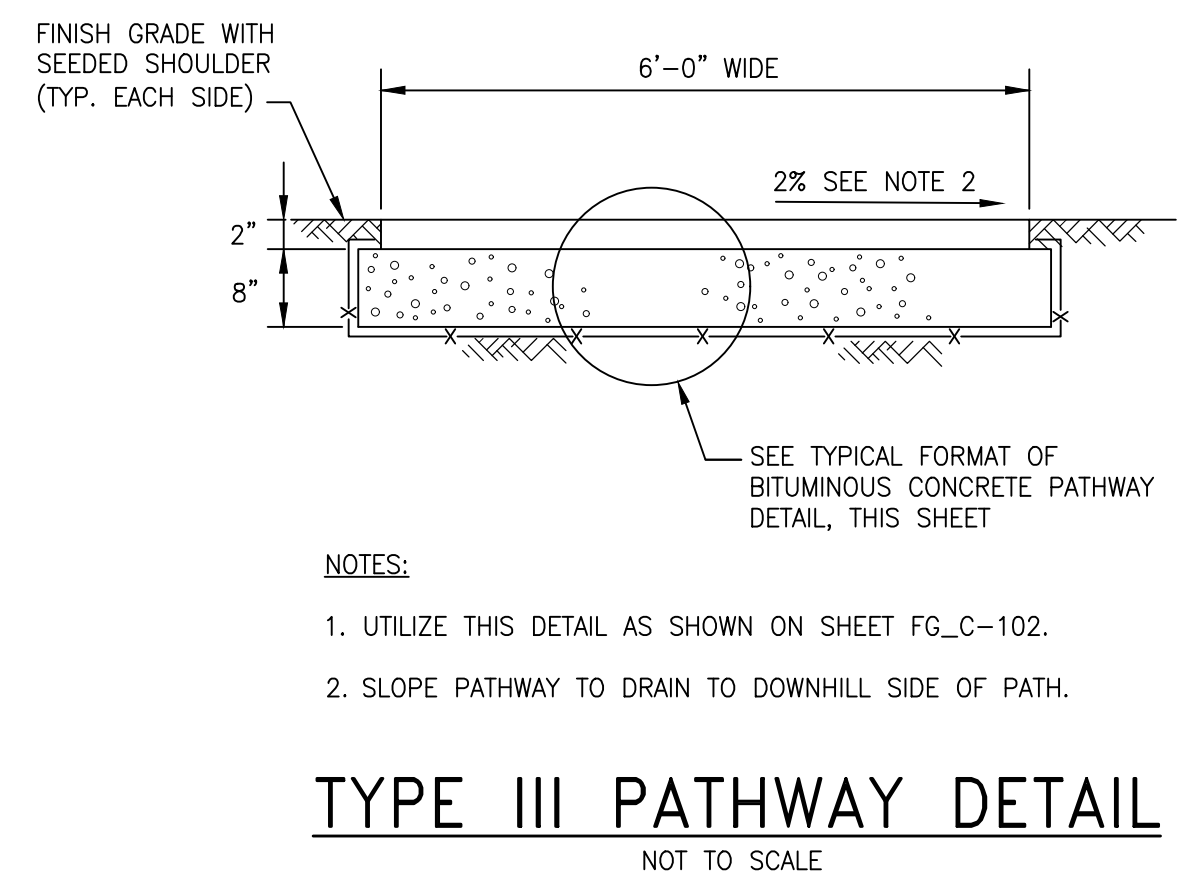
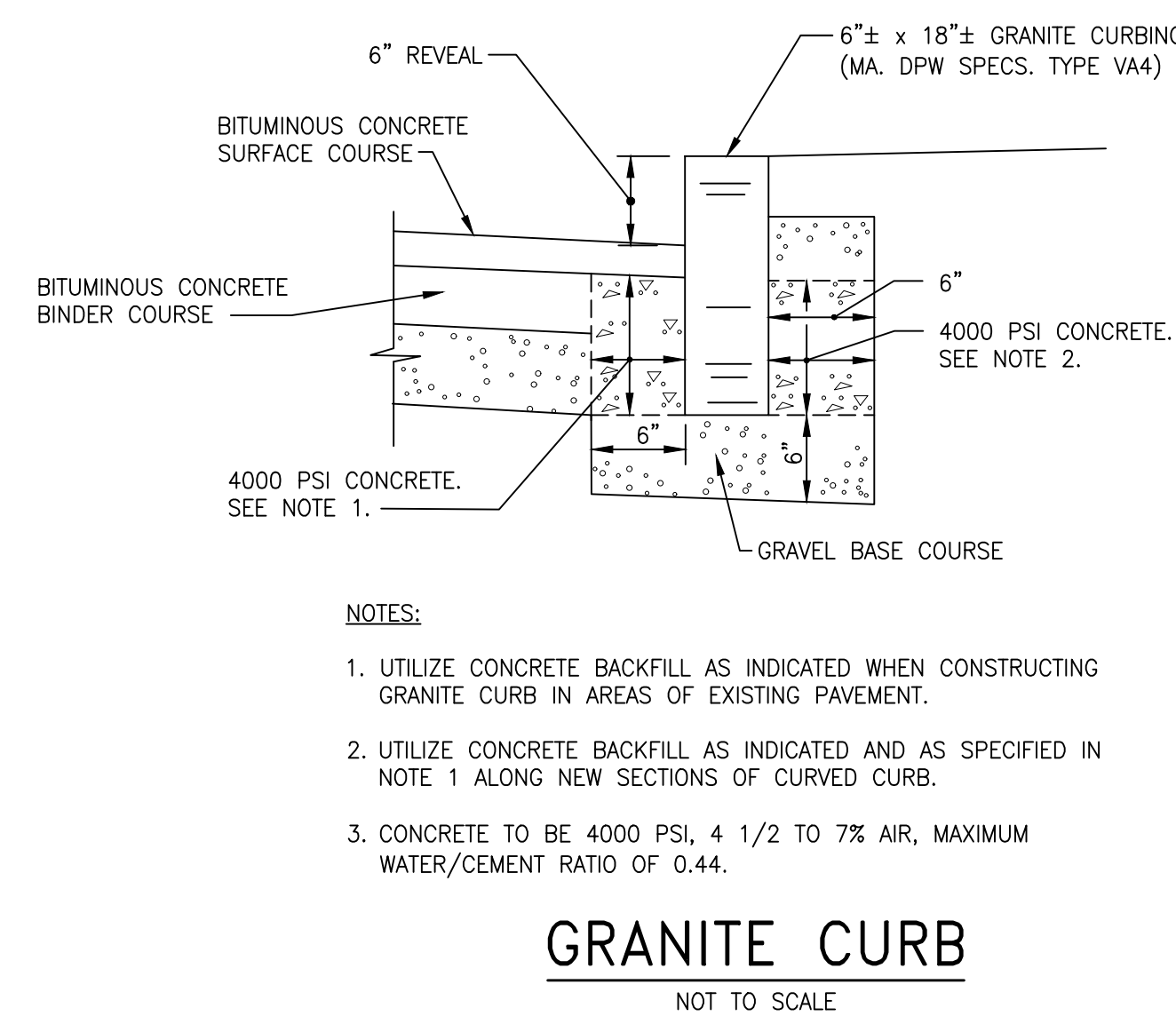
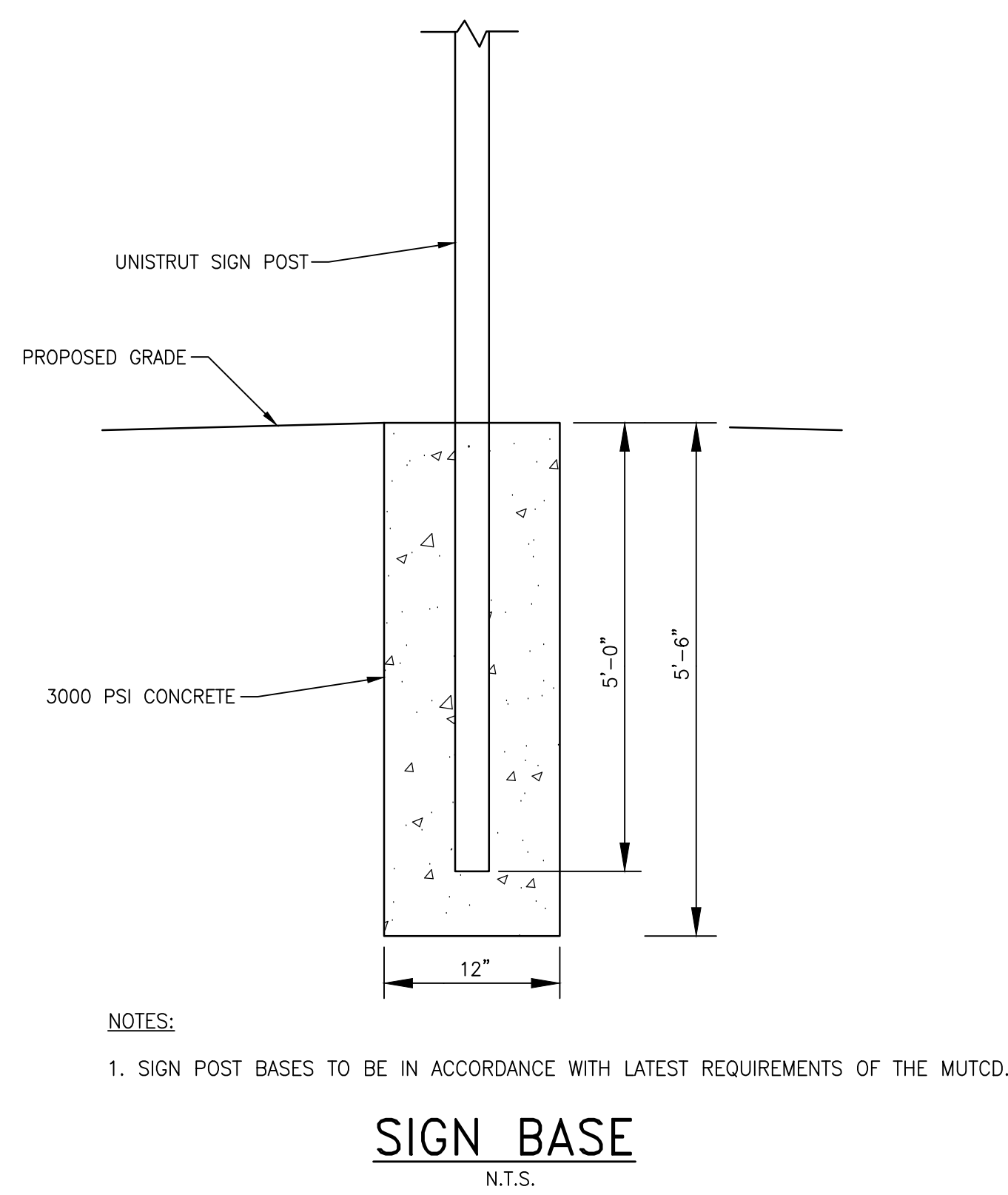


SIGN AT HANDICAP PARKING SPACE
 QUANTITY - 1 EACH
 SIZE - 12"x18"
 COLOR - WHITE LETTERING AND SYMBOL ON BLUE BACKGROUND

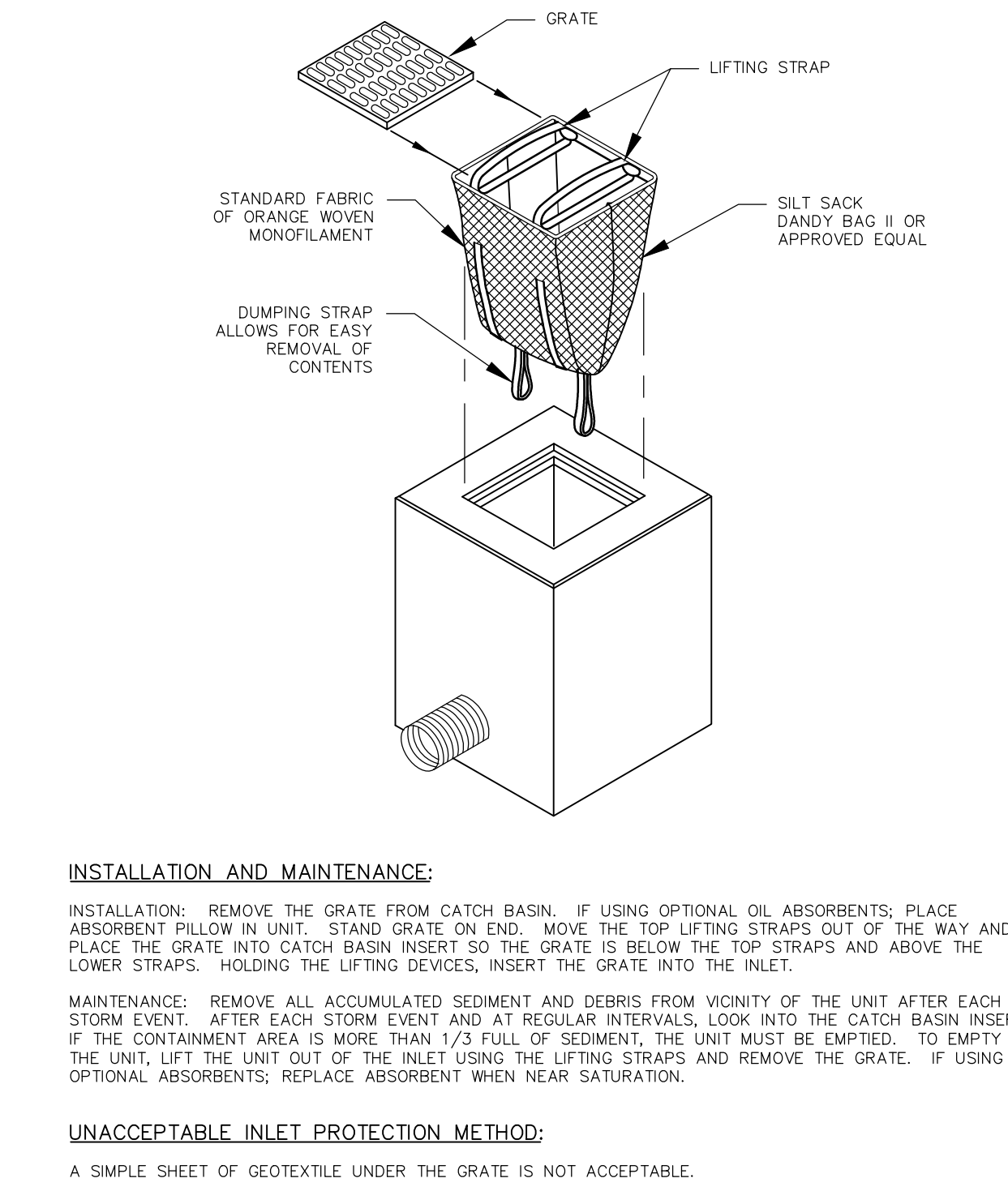


SIGN AT VAN ACCESSIBLE PARKING SPACE
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 COLOR - WHITE LETTERING AND SYMBOL ON BLUE BACKGROUND

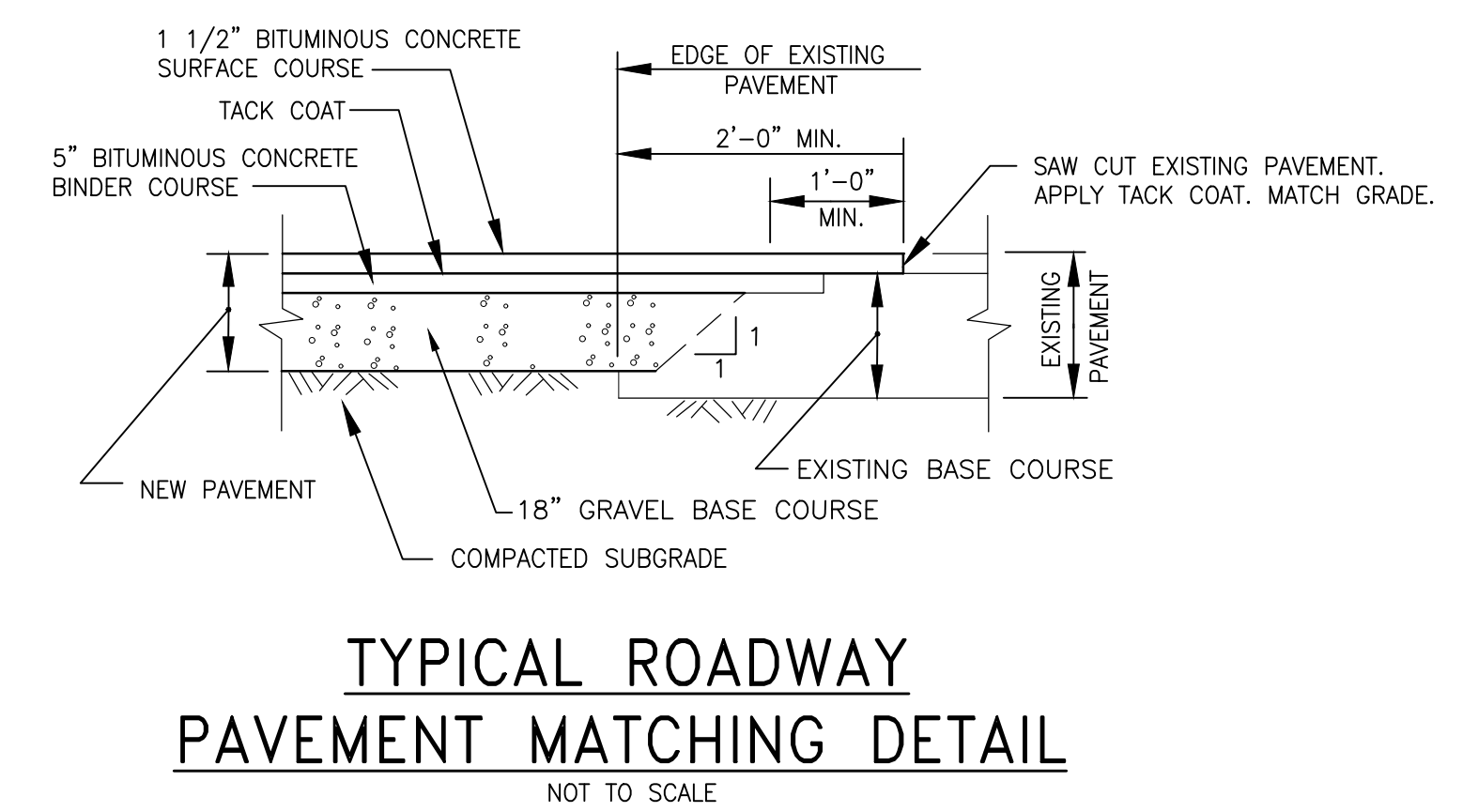
PROPOSED PARKING AREA SIGNAGE
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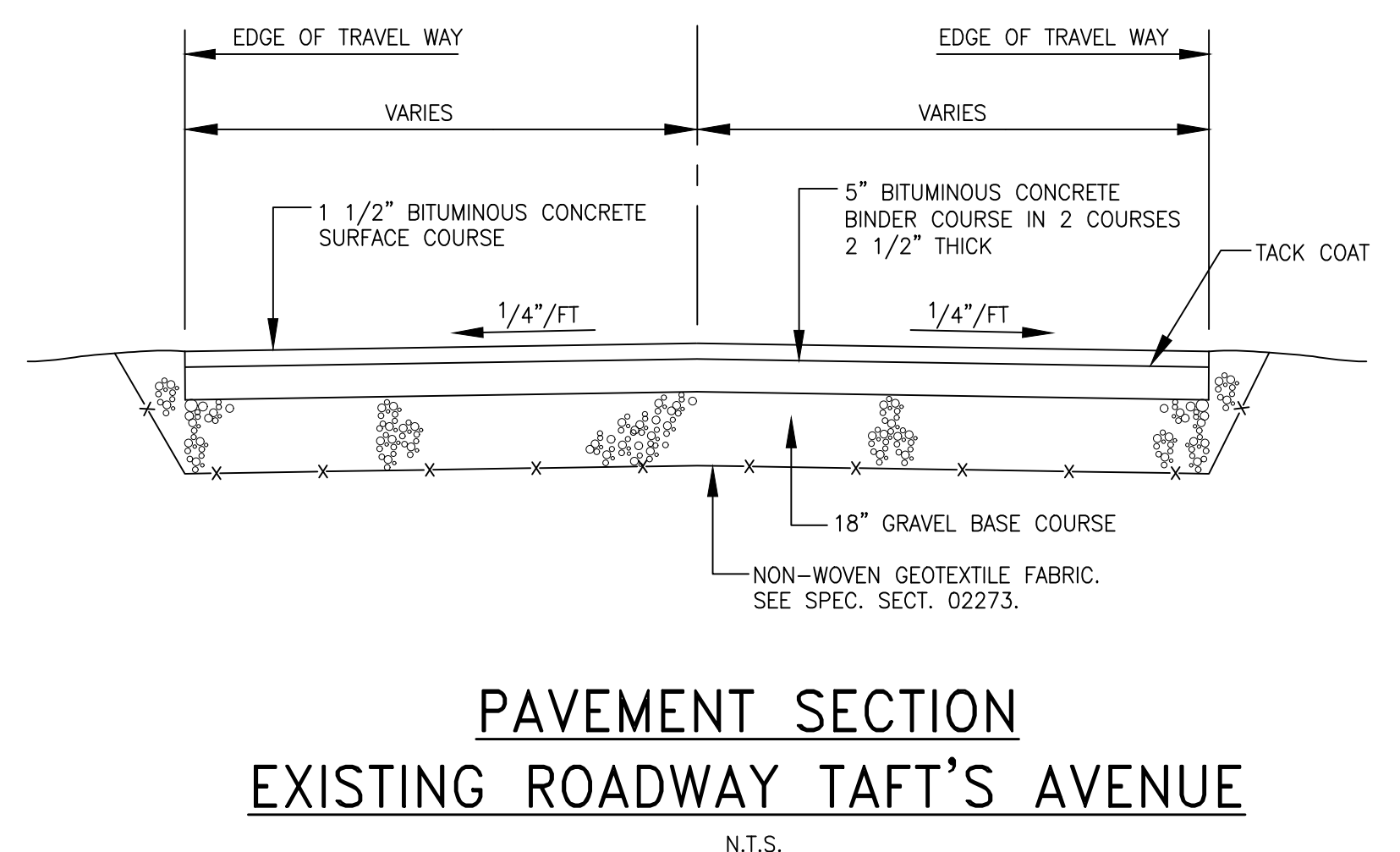
TYPICAL FORMAT OF BITUMINOUS CONCRETE PATHWAY
 NOT TO SCALE



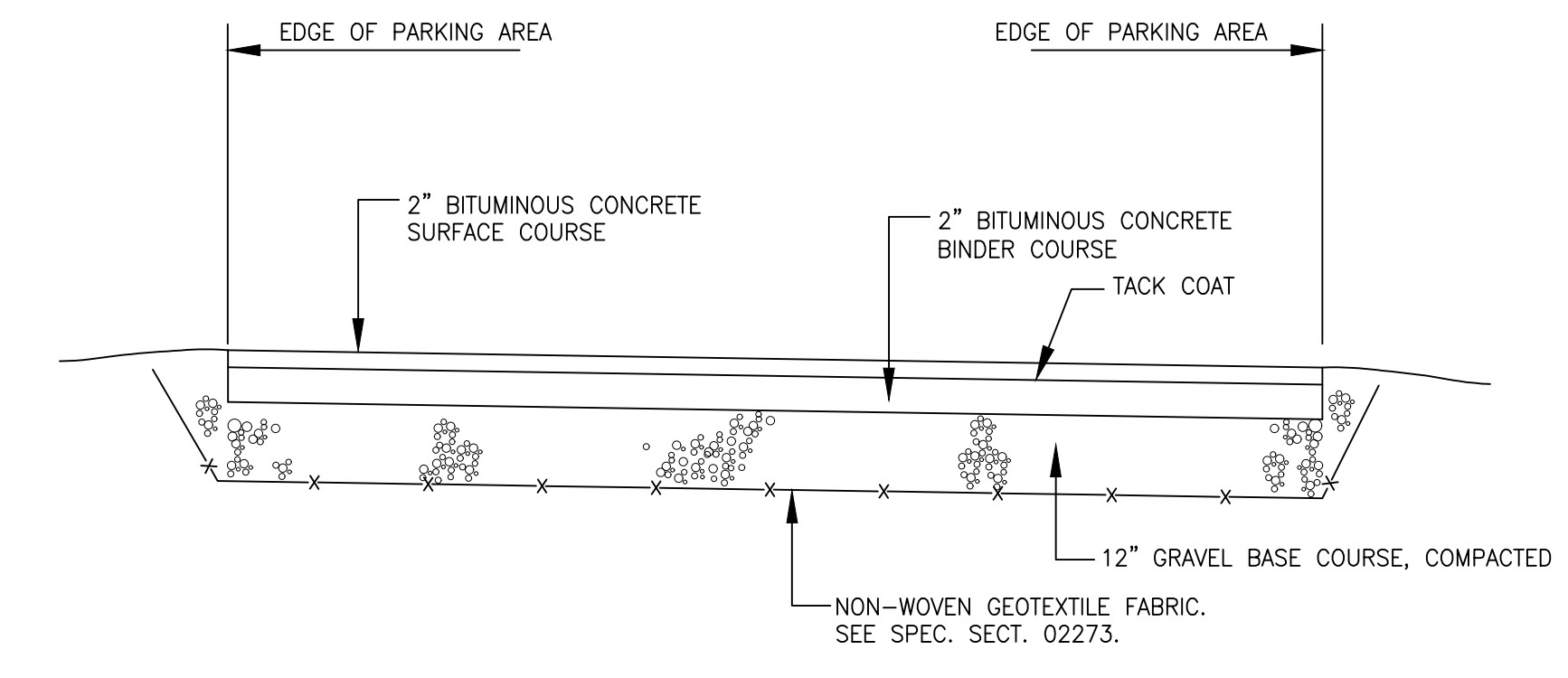
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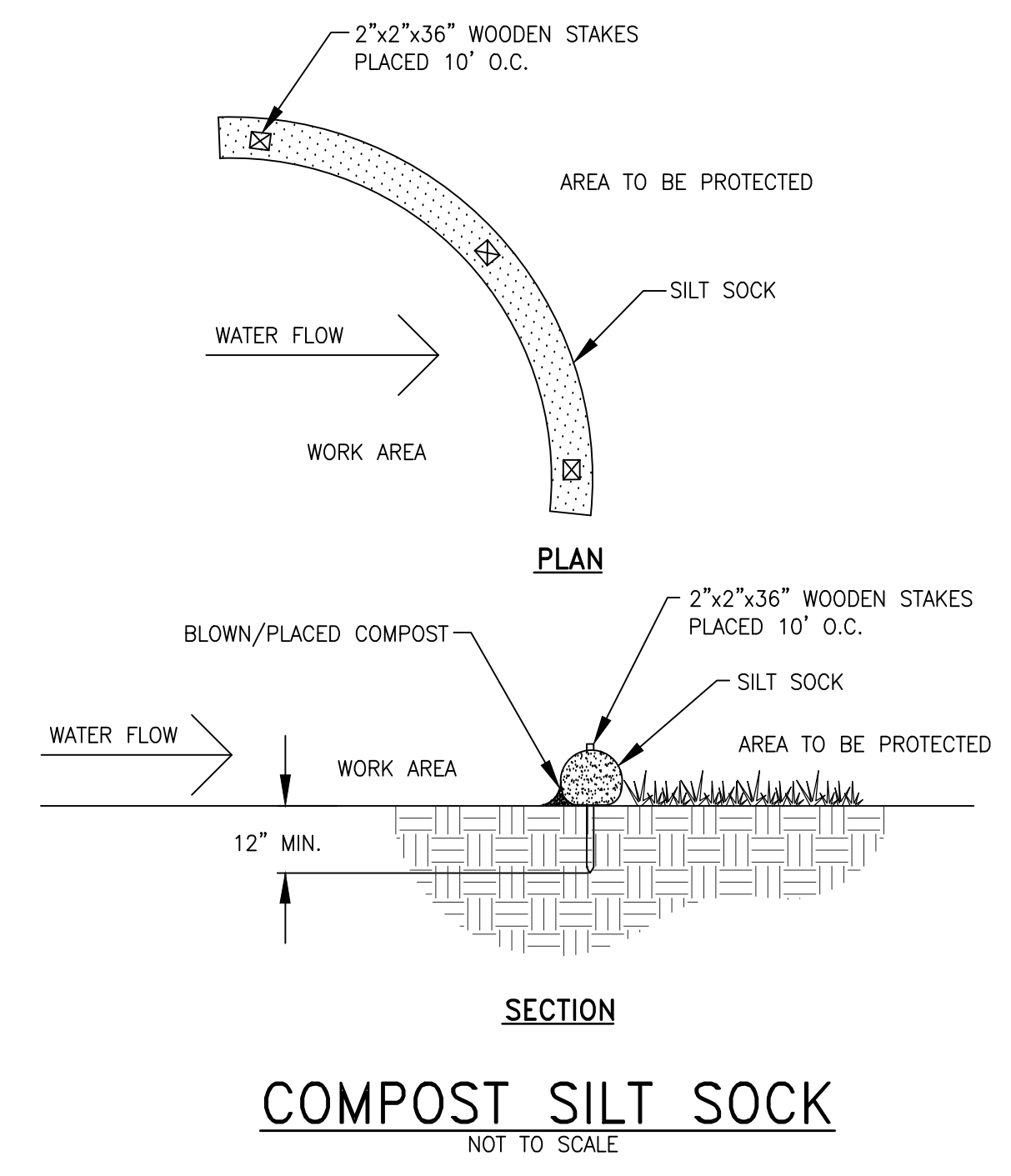
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 NOT TO SCALE



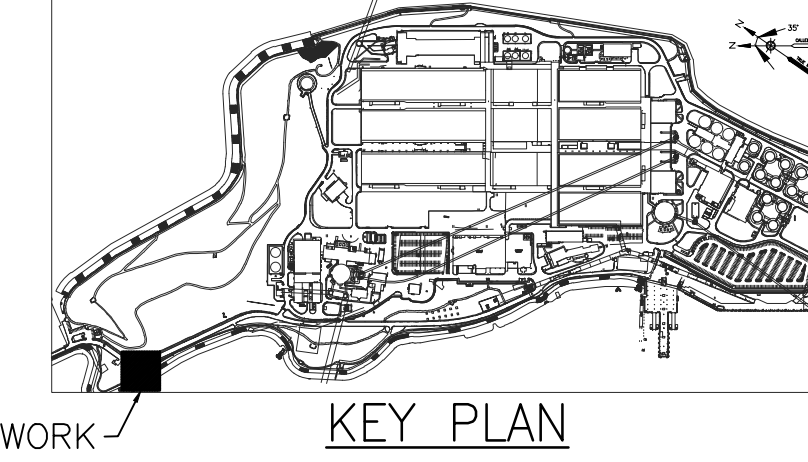
PAVEMENT SECTION EXISTING ROADWAY TAFT'S AVENUE
 N.T.S.



PAVEMENT SECTION PROPOSED PARKING AREA
 N.T.S.



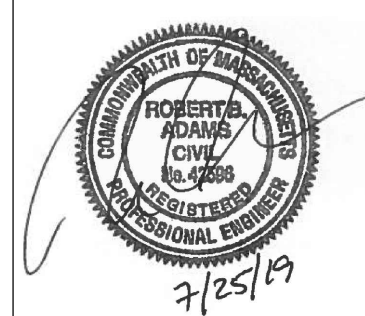
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KEY PLAN

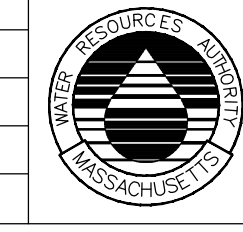
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		REVISIONS	



MASSACHUSETTS WATER RESOURCES AUTHORITY
 DEER ISLAND TREATMENT PLANT
 PARKING AREA

CIVIL DETAILS

PROJECT NO. 60515090
 CONTRACT NO. _____
 CAD FILE NO. FG_C-106
 SHEET NO. FG_C-106

JULY 2019

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 LAST UPDATE: Thursday, July 25, 2019 13:26 PM
 PLOT DATE: Thursday, July 25, 2019 2:58:44 PM

Attachment C

Site Photos



Photo 1. Project overview photo for the proposed Public Fishing Pier Parking Area Project (looking northwest).



Photo 2. Proposed parking lot project area in relation to the existing pedestrian pathway (to the left). A new pathway will connect the proposed parking area with the existing pedestrian pathway (looking northwest).



Photo 3. Proposed parking lot project area (looking northwest). The parking lot will accommodate nine parking spaces (two of which will be handicap accessible) and will provide public parking for the proposed public fishing pier (separate project) to be located to the west on Boston Harbor.



Photo 4. Proposed parking lot project area (looking southeast).

Attachment D

Stormwater Report, Checklist, and Appendices

Stormwater Management Report

Deer Island Parking Lot Improvements

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1. Introduction

The purpose of this document is to provide a description of the plan for long-term management of stormwater runoff resulting from the installation of a new parking lot on Deer Island in Boston Harbor. See Appendix A for a USGS Site Locus map of the project.

1.1 Project Description

The Massachusetts Water Resources Association (MWRA) is proposing the installation of a new parking lot in the northwest portion of Deer Island in Boston Harbor (the Site). The parking lot will have nine parking spots, two of which will be designated for handicapped patrons. The parking lot will also be adjacent to an existing walking trail that residents have access to.

1.2 Existing Conditions

The Site is currently an untouched grassy area adjacent to Tafts Avenue that leads to the Deer Island Wastewater Treatment Plant. There is an existing drainage network that collects the runoff and treats it using an oil-water separator, and then discharges the treated stormwater into Boston Harbor.

1.3 Proposed Design

The proposed design includes installation of new curbing and the associated bituminous concrete pavement, relevant parking lot striping and signage, installation of a hydrodynamic separator and subsurface infiltration structure, relevant work to tie the infiltration structure into the existing drainage network, and removal and relocation of an existing fire hydrant.

The Site will be graded in a fashion that all runoff from the proposed parking lot will be directed into the hydrodynamic separator and discharged into the subsurface infiltration structure. The structure will include an overflow pipe that ties into the existing drainage network to convey the larger storm events through the structure. The proposed parking lot will have small berms installed at the entrance and exit to prevent additional stormwater from the roadway from entering the parking lot.

1.4 Stormwater Management Regulatory and Design Criteria

This Project complies with the ten Stormwater Management Standards outlined in the Massachusetts Stormwater Handbook (February 2008), as represented in the Stormwater Checklist provided in Appendix B.

According to the March 16, 2016 Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Suffolk County (Map Number 25025C0102J), the Site is not located in a flood zone. This map can be found in Appendix C.

The following sections of this report present the project's existing conditions and proposed development in compliance with the applicable local and state regulations.

2. Pre-Development Conditions

As part of the existing site conditions assessment, available topographic and soils data were collected and analyzed. Model parameters were developed from these data sources and included in the hydrologic/hydraulic model used to estimate the pre-development flows. To assess pre- and post-development runoff conditions, the project area was divided into different drainage areas, which were analyzed for impervious area, vegetation, and time of concentration. Appendix D contains the existing conditions site plans and drainage area plans.

2.1 Watershed Delineation

The area consists primarily of existing roadway and adjacent grassy areas. The Site is currently graded towards the road, where a series of catch basins collect and convey the runoff to various oil/water separators, which then discharge the stormwater into the harbor

2.2 Soils Information

Site soils consist of medium/coarse sands, which has been determined from previously performed borings near the Site. The soil borings were performed by CLE Engineering on May 3-5, 2016, under the "Deer Island Public Access Facility Universally Accessible Fishing Pier" project. Location B-4 is closest to the Site, approximately 90 feet away from the center of the proposed subsurface infiltration structure. The soil boring logs can be found in Appendix E. Due to the medium/coarse sands found at the project location, Hydrologic Soil Group "A" has been used as the basis for the design.

2.3 Pre-Development Drainage Area Descriptions

Table 2.1 provides a summary description of each subcatchment delineated within the project location.

Table 2.1 – Description of Pre-Development Drainage Areas

Subcatchment Area	Subcatchment Description	Pervious Area (sq. ft.)	Impervious Area (sq. ft.)	Total Area (sq. ft.)
17-01	Grassed hillside with paved walking trail	22469	3145	25614
17-02	Grassed hillside with paved walking trail	8799	670	9469
17-03	Grassed hillside with paved walking trail	28625	5757	34382
17-04	Roadway with adjacent grassed areas	12438	5864	18302
17-05	Roadway with adjacent grassed areas	7127	6328	13455
17-06	Roadway with adjacent grassed areas	3714	4139	7853
17-07	Roadway with adjacent grassed areas	1411	2515	3926
16-01	Grassed hillside and roadway	32474	6225	38699
16-02	Roadway with adjacent grassed areas	2228	2298	4526
16-03	Grassed hillside and roadway	43331	2501	45832
16-04	Grassed hillside	18903	0	18903
16-05	Grassed hillside and roadway	21430	2818	24248
16-06	Grassed hillside	3474	0	3474
16-07	Grassed hillside with paved walking trail	5372	1018	6390
16-08	Grassed hillside with paved walking trail	3114	834	3948
16-09	Grassed hillside with paved walking trail	11481	1773	13254
16-10	Grassed hillside	53191	235	53426
16-11	Grassed hillside with paved walking trail	35342	1261	36603

Subcatchment Area	Subcatchment Description	Pervious Area (sq. ft.)	Impervious Area (sq. ft.)	Total Area (sq. ft.)
16-12	Grassed hillside with paved walking trail	57209	2607	59816
16-13	Grassed hillside with paved walking trail	33843	2333	36176
16-14	Grassed hillside with paved walking trail	24071	2135	26206
16-15	Grassed hillside and roadway	20295	4249	24544
16-16	Grassed area	15216	304	15520
Total:		465861	58705	524566

For all subcatchments, the total amount of impervious area is 58,705 square feet (1.348 acres), and the total amount of area is 524,566 square feet (12.042 acres), meaning 11.19% of the total area is impervious.

2.4 Pre-Development Peak Flows

The peak runoff under pre-development conditions from the project area of the 2-, 10-, 25-, and 100-year storm events can be found in Table 2.2. The rainfall data used was provided by the Northeast Regional Climate Center (NRCC) and can be found in Table 2.3. The existing conditions HydroCAD report can be found in Appendix F.

Table 2.2 – Pre-Development Peak Flow Rates

Peak Flow Rate (cfs)			
2-Year	10-Year	25-Year	100-Year
0.45	1.51	2.90	11.18

Table 2.3 – NRCC Rainfall Data

Storm Event	Rainfall Depth (in.)
2-Year	3.28
10-Year	4.89
25-Year	6.14
100-Year	8.68

3. Post-Development Conditions

The models of pre-development conditions for the project area were modified to include the proposed design elements. The pre- and post-development subcatchments are the same, as the proposed design will not modify the runoff patterns. The proposed design site plan and drainage area figures can be found in Attachment G.

3.1 Post-Development Drainage Area Descriptions

Table 3.1 provides a summary description of each subcatchment delineated within the project location.

Table 3.1 – Description of Post-Development Drainage Areas

Subcatchment Area	Subcatchment Description	Pervious Area (sq. ft.)	Impervious Area (sq. ft.)	Total Area (sq. ft.)
17-01	Grassed hillside with paved walking trail	22469	3145	25614
17-02	Grassed hillside with paved walking trail	8799	670	9469
17-03	Grassed hillside with paved walking trail	28625	5757	34382
17-04	Roadway with adjacent grassed areas	12438	5864	18302
17-05	Roadway with adjacent grassed areas	7127	6328	13455
17-06	Roadway with adjacent grassed areas	3714	4139	7853
17-07	Roadway with adjacent grassed areas	1411	2515	3926
16-01	Grassed hillside and roadway	32474	6225	38699
16-02	Roadway with adjacent grassed areas	2228	2298	4526
16-03	Grassed hillside and roadway	43331	2501	45832
16-04	Grassed hillside	18903	0	18903
16-05	Grassed hillside and roadway	21430	2818	24248
16-06	Grassed hillside	3474	0	3474
16-07	Grassed hillside with paved walking trail	5372	1018	6390
16-08	Grassed hillside with paved walking trail	3114	834	3948
16-09	Grassed hillside with paved walking trail	11481	1773	13254
16-10	Grassed hillside	53191	235	53426
16-11	Grassed hillside with paved walking trail	35342	1261	36603
16-12	Grassed hillside with paved walking trail	57209	2607	59816
16-13	Grassed hillside with paved walking trail	33843	2333	36176
16-14	Grassed hillside with paved walking trail	24071	2135	26206
16-15	Grassed hillside and roadway	20295	4249	24544
16-16	Grassed area	10949	4571	15520
Total:		461290	63276	524566

For all subcatchments, the total amount of impervious area is 63,276 square feet (1.453 acres), and the total amount of area is 524,566 square feet (12.042 acres), meaning 12.06% of the total area is impervious.

3.2 Post-Development Stormwater System

The proposed drainage features are confined to the Site; no stormwater will leave the Site without being directed through the proposed drainage system first. The proposed parking lot will be graded to direct the runoff to the southwest portion of the parking lot, into the hydrodynamic separator. The hydrodynamic separator will remove a large amount of the Total Suspended Sediment (TSS), and then discharge the stormwater into the subsurface infiltration structure. The structure is sized to hold the entire Water Quality Volume (WQV), infiltrate the Groundwater Recharge Volume (GRV), drain within 72 hours, and safely convey the 100-year storm event. The WQV, GRV, and Drawdown calculations can be found in Appendix H.

After being directed through the proposed drainage system, the stormwater will then flow into the existing drainage network, and eventually out of the existing outfall, that discharges the stormwater into the harbor.

3.3 Post-Development Peak Flow Rates

The peak runoff under post-development conditions from the project area of the 2-, 10-, 25-, and 100-year storm events can be found in Table 3.2 below. The proposed design HydroCAD report can be found in Appendix I.

Table 3.2 – Pre-Development Peak Flow Rates

Peak Flow Rate (cfs)			
2-Year	10-Year	25-Year	100-Year
0.45	1.51	2.90	11.17

Comparing Tables 2.2 and 2.3, the peak flow rates for all storm events have either remained the same or decreased slightly with the installation of the proposed parking lot and drainage improvements.

4. Stormwater Management Standards Compliance

This section discusses the project's compliance with the Stormwater Management Standards set forth in Volume 1, Chapter 1 of the Massachusetts Stormwater Handbook. A description of each standard is provided below (in *italics*) for reference purposes, followed by a description of the project's compliance with the requirement.

Standard 1: No New Untreated Discharges

The proposed design will not create any new untreated discharges. In the areas that new impervious surfaces are being proposed, a hydrodynamic separator and a subsurface infiltration structure will be installed to treat the runoff and will direct the treated stormwater into the existing drainage network.

Standard 2: Peak Rate Attenuation

As discussed in Section 3, under the proposed conditions, the stormwater runoff will be routed into treatment systems that will cause the peak runoff rates to remain the same or be reduced when compared to the existing conditions. The supporting HydroCAD reports can be found in Appendices F and I.

Standard 3: Recharge

The proposed drainage improvements meet the Stormwater Handbook's guidelines by providing sufficient recharge volume for the proposed impervious surface as follows:

The proposed drainage improvements receive runoff from a total of 4267 square feet of impervious surface. Assuming Type A soils, the required recharge volume would be approximately 213 cubic feet for the proposed impervious area. The proposed treatment structures provide a total of 962.78 cubic feet of groundwater recharge volume. The groundwater recharge volume calculations can be found in Appendix H.

Standard 4: Water Quality

The proposed drainage improvements receive runoff from a total of 4267 square feet of impervious surface. The treatment structure was designed to treat the first 1.0 inch of precipitation, which produces a required water quality volume of approximately 356 cubic feet. The infiltration structure has a storage volume of approximately 702 cubic feet. The water quality volume calculations can be found in Appendix H.

A combination of a hydrodynamic separator and the subsurface infiltration structure is expected to provide more than 80% TSS removal, meeting the removal requirement of the TSS generated by the proposed impervious area. The relevant TSS removal worksheet can be found in Appendix J, with supporting documentation for the hydrodynamic separator.

Standard 5: Land Uses with Higher Potential Pollutant Loads (LUHPPLs)

No Land Uses with Higher Potential Pollutant Loads exist in the project area.

Standard 6: Critical Areas

No Critical Areas exist at the project site.

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

The proposed construction activities are considered new development, and therefore must conform to all of the standards described herein.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

Erosion and sediment controls are shown and documented on the construction plans.

Standard 9: Operation and Maintenance Plan

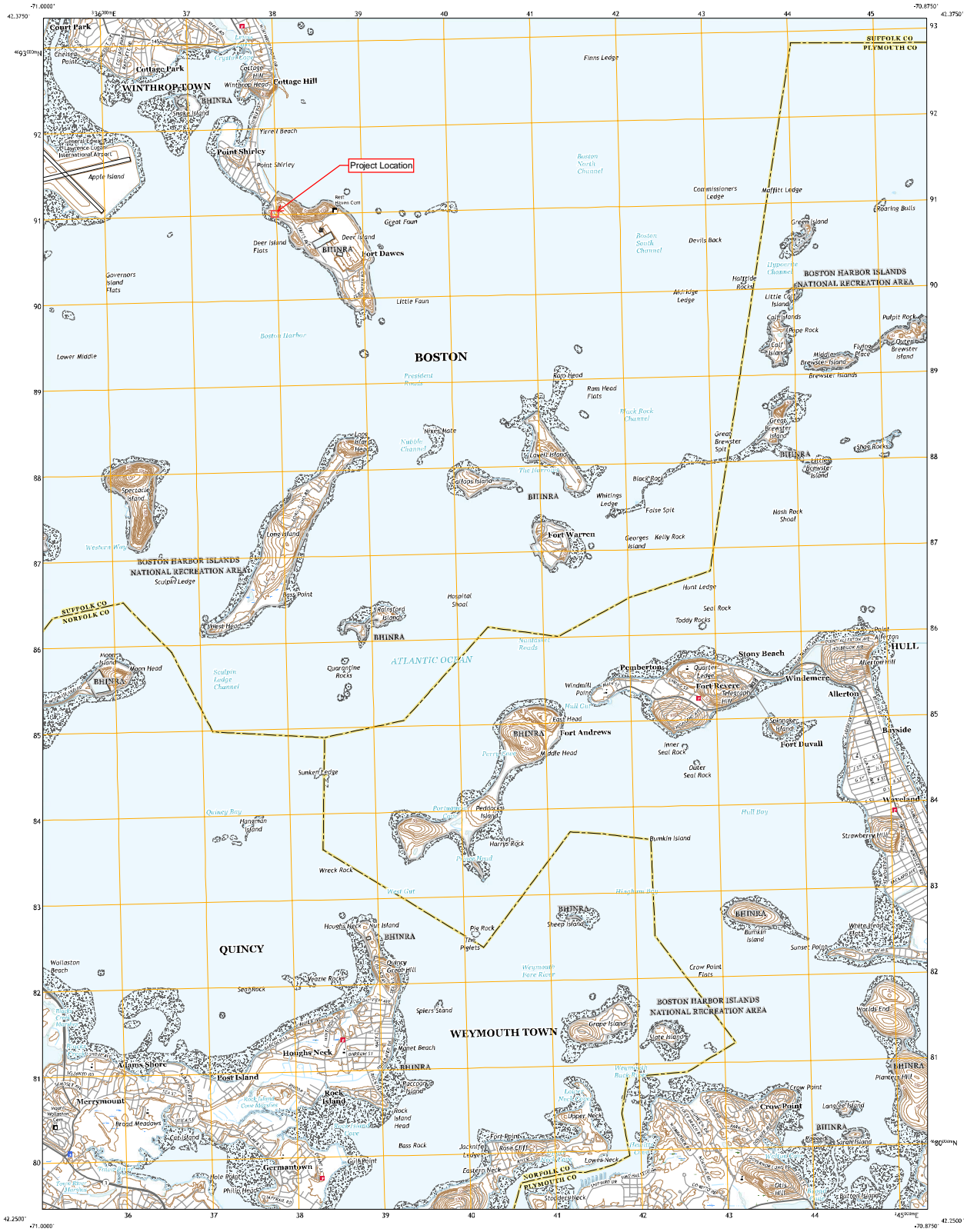
An Operation and Maintenance Plan is included in this report as Appendix K.

Standard 10: Prohibition of Illicit Discharges

There are no known illicit discharges in the project area.

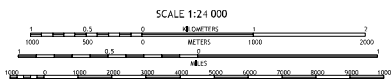
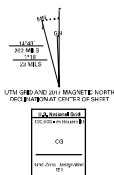
Appendix A

USGS Site Locus Map



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84) Projection used:
1 800-meter grid Universal Transverse Mercator, Zone 19T
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. OSHA is permitted to
enter private lands.

Base map: NAD 1916 - September 2014
Roads: U.S. Census Bureau, 2014
Hydrography: National Hydrography Dataset, 2005 - 2014
Contour: National Elevation Dataset, 2010 - 2012
Boundary: Multiple sources, see metadata file 2016 - 2017
Wetlands: FWS National Wetlands Inventory, 2008 - 2011



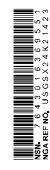
CONTOUR INTERVAL: 10 FEET
NORTH AMERICAN DATUM OF 1983
This map was produced in conformance with the
National Geographic Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.1.8.



1	2	3	4
5	6	7	8
9	10	11	12

ROAD CLASSIFICATION

- Expressway
- Secondary Hwy
- Route
- Interstate Route
- US Route
- State Route
- Local Connector
- Local Road
- unp



Appendix B

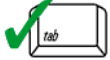
Stormwater Checklist



Checklist for Stormwater Report

A. Introduction

Important: When filling out forms on the computer, use only the tab key to move your cursor - do not use the return key.



A Stormwater Report must be submitted with the Notice of Intent permit application to document compliance with the Stormwater Management Standards. The following checklist is NOT a substitute for the Stormwater Report (which should provide more substantive and detailed information) but is offered here as a tool to help the applicant organize their Stormwater Management documentation for their Report and for the reviewer to assess this information in a consistent format. As noted in the Checklist, the Stormwater Report must contain the engineering computations and supporting information set forth in Volume 3 of the [Massachusetts Stormwater Handbook](#). The Stormwater Report must be prepared and certified by a Registered Professional Engineer (RPE) licensed in the Commonwealth.

The Stormwater Report must include:

- The Stormwater Checklist completed and stamped by a Registered Professional Engineer (see page 2) that certifies that the Stormwater Report contains all required submittals.¹ This Checklist is to be used as the cover for the completed Stormwater Report.
- Applicant/Project Name
- Project Address
- Name of Firm and Registered Professional Engineer that prepared the Report
- Long-Term Pollution Prevention Plan required by Standards 4-6
- Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan required by Standard 8²
- Operation and Maintenance Plan required by Standard 9

In addition to all plans and supporting information, the Stormwater Report must include a brief narrative describing stormwater management practices, including environmentally sensitive site design and LID techniques, along with a diagram depicting runoff through the proposed BMP treatment train. Plans are required to show existing and proposed conditions, identify all wetland resource areas, NRCS soil types, critical areas, Land Uses with Higher Potential Pollutant Loads (LUHPPL), and any areas on the site where infiltration rate is greater than 2.4 inches per hour. The Plans shall identify the drainage areas for both existing and proposed conditions at a scale that enables verification of supporting calculations.

As noted in the Checklist, the Stormwater Management Report shall document compliance with each of the Stormwater Management Standards as provided in the Massachusetts Stormwater Handbook. The soils evaluation and calculations shall be done using the methodologies set forth in Volume 3 of the Massachusetts Stormwater Handbook.

To ensure that the Stormwater Report is complete, applicants are required to fill in the Stormwater Report Checklist by checking the box to indicate that the specified information has been included in the Stormwater Report. If any of the information specified in the checklist has not been submitted, the applicant must provide an explanation. The completed Stormwater Report Checklist and Certification must be submitted with the Stormwater Report.

¹ The Stormwater Report may also include the Illicit Discharge Compliance Statement required by Standard 10. If not included in the Stormwater Report, the Illicit Discharge Compliance Statement must be submitted prior to the discharge of stormwater runoff to the post-construction best management practices.

² For some complex projects, it may not be possible to include the Construction Period Erosion and Sedimentation Control Plan in the Stormwater Report. In that event, the issuing authority has the discretion to issue an Order of Conditions that approves the project and includes a condition requiring the proponent to submit the Construction Period Erosion and Sedimentation Control Plan before commencing any land disturbance activity on the site.



Checklist for Stormwater Report

B. Stormwater Checklist and Certification

The following checklist is intended to serve as a guide for applicants as to the elements that ordinarily need to be addressed in a complete Stormwater Report. The checklist is also intended to provide conservation commissions and other reviewing authorities with a summary of the components necessary for a comprehensive Stormwater Report that addresses the ten Stormwater Standards.

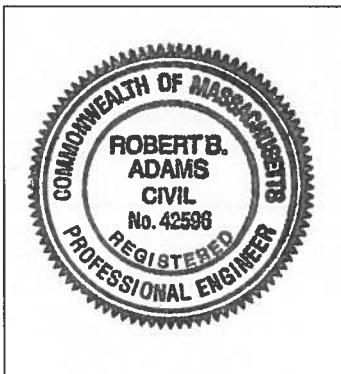
Note: Because stormwater requirements vary from project to project, it is possible that a complete Stormwater Report may not include information on some of the subjects specified in the Checklist. If it is determined that a specific item does not apply to the project under review, please note that the item is not applicable (N.A.) and provide the reasons for that determination.

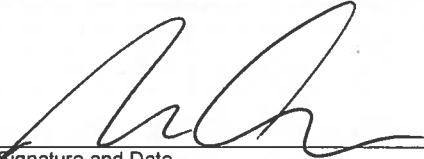
A complete checklist must include the Certification set forth below signed by the Registered Professional Engineer who prepared the Stormwater Report.

Registered Professional Engineer's Certification

I have reviewed the Stormwater Report, including the soil evaluation, computations, Long-term Pollution Prevention Plan, the Construction Period Erosion and Sedimentation Control Plan (if included), the Long-term Post-Construction Operation and Maintenance Plan, the Illicit Discharge Compliance Statement (if included) and the plans showing the stormwater management system, and have determined that they have been prepared in accordance with the requirements of the Stormwater Management Standards as further elaborated by the Massachusetts Stormwater Handbook. I have also determined that the information presented in the Stormwater Checklist is accurate and that the information presented in the Stormwater Report accurately reflects conditions at the site as of the date of this permit application.

Registered Professional Engineer Block and Signature




Signature and Date 7.19.19

Checklist

Project Type: Is the application for new development, redevelopment, or a mix of new and redevelopment?

- New development
- Redevelopment
- Mix of New Development and Redevelopment



Checklist for Stormwater Report

Checklist (continued)

LID Measures: Stormwater Standards require LID measures to be considered. Document what environmentally sensitive design and LID Techniques were considered during the planning and design of the project:

- No disturbance to any Wetland Resource Areas
- Site Design Practices (e.g. clustered development, reduced frontage setbacks)
- Reduced Impervious Area (Redevelopment Only)
- Minimizing disturbance to existing trees and shrubs
- LID Site Design Credit Requested:
 - Credit 1
 - Credit 2
 - Credit 3
- Use of "country drainage" versus curb and gutter conveyance and pipe
- Bioretention Cells (includes Rain Gardens)
- Constructed Stormwater Wetlands (includes Gravel Wetlands designs)
- Treebox Filter
- Water Quality Swale
- Grass Channel
- Green Roof
- Other (describe): _____

Standard 1: No New Untreated Discharges

- No new untreated discharges
- Outlets have been designed so there is no erosion or scour to wetlands and waters of the Commonwealth
- Supporting calculations specified in Volume 3 of the Massachusetts Stormwater Handbook included.



Checklist for Stormwater Report

Checklist (continued)

Standard 2: Peak Rate Attenuation

- Standard 2 waiver requested because the project is located in land subject to coastal storm flowage and stormwater discharge is to a wetland subject to coastal flooding.
- Evaluation provided to determine whether off-site flooding increases during the 100-year 24-hour storm.
- Calculations provided to show that post-development peak discharge rates do not exceed pre-development rates for the 2-year and 10-year 24-hour storms. If evaluation shows that off-site flooding increases during the 100-year 24-hour storm, calculations are also provided to show that post-development peak discharge rates do not exceed pre-development rates for the 100-year 24-hour storm.

Standard 3: Recharge

- Soil Analysis provided.
- Required Recharge Volume calculation provided.
- Required Recharge volume reduced through use of the LID site Design Credits.
- Sizing the infiltration, BMPs is based on the following method: Check the method used.
 - Static
 - Simple Dynamic
 - Dynamic Field¹
- Runoff from all impervious areas at the site discharging to the infiltration BMP.
- Runoff from all impervious areas at the site is *not* discharging to the infiltration BMP and calculations are provided showing that the drainage area contributing runoff to the infiltration BMPs is sufficient to generate the required recharge volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume.
- Recharge BMPs have been sized to infiltrate the Required Recharge Volume *only* to the maximum extent practicable for the following reason:
 - Site is comprised solely of C and D soils and/or bedrock at the land surface
 - M.G.L. c. 21E sites pursuant to 310 CMR 40.0000
 - Solid Waste Landfill pursuant to 310 CMR 19.000
 - Project is otherwise subject to Stormwater Management Standards only to the maximum extent practicable.
- Calculations showing that the infiltration BMPs will drain in 72 hours are provided.
- Property includes a M.G.L. c. 21E site or a solid waste landfill and a mounding analysis is included.

¹ 80% TSS removal is required prior to discharge to infiltration BMP if Dynamic Field method is used.



Checklist for Stormwater Report

Checklist (continued)

Standard 3: Recharge (continued)

- The infiltration BMP is used to attenuate peak flows during storms greater than or equal to the 10-year 24-hour storm and separation to seasonal high groundwater is less than 4 feet and a mounding analysis is provided.
- Documentation is provided showing that infiltration BMPs do not adversely impact nearby wetland resource areas.

Standard 4: Water Quality

The Long-Term Pollution Prevention Plan typically includes the following:

- Good housekeeping practices;
 - Provisions for storing materials and waste products inside or under cover;
 - Vehicle washing controls;
 - Requirements for routine inspections and maintenance of stormwater BMPs;
 - Spill prevention and response plans;
 - Provisions for maintenance of lawns, gardens, and other landscaped areas;
 - Requirements for storage and use of fertilizers, herbicides, and pesticides;
 - Pet waste management provisions;
 - Provisions for operation and management of septic systems;
 - Provisions for solid waste management;
 - Snow disposal and plowing plans relative to Wetland Resource Areas;
 - Winter Road Salt and/or Sand Use and Storage restrictions;
 - Street sweeping schedules;
 - Provisions for prevention of illicit discharges to the stormwater management system;
 - Documentation that Stormwater BMPs are designed to provide for shutdown and containment in the event of a spill or discharges to or near critical areas or from LUHPPL;
 - Training for staff or personnel involved with implementing Long-Term Pollution Prevention Plan;
 - List of Emergency contacts for implementing Long-Term Pollution Prevention Plan.
- A Long-Term Pollution Prevention Plan is attached to Stormwater Report and is included as an attachment to the Wetlands Notice of Intent.
 - Treatment BMPs subject to the 44% TSS removal pretreatment requirement and the one inch rule for calculating the water quality volume are included, and discharge:
 - is within the Zone II or Interim Wellhead Protection Area
 - is near or to other critical areas
 - is within soils with a rapid infiltration rate (greater than 2.4 inches per hour)
 - involves runoff from land uses with higher potential pollutant loads.
 - The Required Water Quality Volume is reduced through use of the LID site Design Credits.
 - Calculations documenting that the treatment train meets the 80% TSS removal requirement and, if applicable, the 44% TSS removal pretreatment requirement, are provided.



Checklist for Stormwater Report

Checklist (continued)

Standard 4: Water Quality (continued)

- The BMP is sized (and calculations provided) based on:
 - The ½" or 1" Water Quality Volume or
 - The equivalent flow rate associated with the Water Quality Volume and documentation is provided showing that the BMP treats the required water quality volume.
- The applicant proposes to use proprietary BMPs, and documentation supporting use of proprietary BMP and proposed TSS removal rate is provided. This documentation may be in the form of the propriety BMP checklist found in Volume 2, Chapter 4 of the Massachusetts Stormwater Handbook and submitting copies of the TARP Report, STEP Report, and/or other third party studies verifying performance of the proprietary BMPs.
- A TMDL exists that indicates a need to reduce pollutants other than TSS and documentation showing that the BMPs selected are consistent with the TMDL is provided.

Standard 5: Land Uses With Higher Potential Pollutant Loads (LUHPPLs)

- The NPDES Multi-Sector General Permit covers the land use and the Stormwater Pollution Prevention Plan (SWPPP) has been included with the Stormwater Report.
- The NPDES Multi-Sector General Permit covers the land use and the SWPPP will be submitted **prior to** the discharge of stormwater to the post-construction stormwater BMPs.
- The NPDES Multi-Sector General Permit does **not** cover the land use.
- LUHPPLs are located at the site and industry specific source control and pollution prevention measures have been proposed to reduce or eliminate the exposure of LUHPPLs to rain, snow, snow melt and runoff, and been included in the long term Pollution Prevention Plan.
- All exposure has been eliminated.
- All exposure has **not** been eliminated and all BMPs selected are on MassDEP LUHPPL list.
- The LUHPPL has the potential to generate runoff with moderate to higher concentrations of oil and grease (e.g. all parking lots with >1000 vehicle trips per day) and the treatment train includes an oil grit separator, a filtering bioretention area, a sand filter or equivalent.

Standard 6: Critical Areas

- The discharge is near or to a critical area and the treatment train includes only BMPs that MassDEP has approved for stormwater discharges to or near that particular class of critical area.
- Critical areas and BMPs are identified in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 7: Redevelopments and Other Projects Subject to the Standards only to the maximum extent practicable

- The project is subject to the Stormwater Management Standards only to the maximum Extent Practicable as a:
 - Limited Project
 - Small Residential Projects: 5-9 single family houses or 5-9 units in a multi-family development provided there is no discharge that may potentially affect a critical area.
 - Small Residential Projects: 2-4 single family houses or 2-4 units in a multi-family development with a discharge to a critical area
 - Marina and/or boatyard provided the hull painting, service and maintenance areas are protected from exposure to rain, snow, snow melt and runoff
 - Bike Path and/or Foot Path
 - Redevelopment Project
 - Redevelopment portion of mix of new and redevelopment.
- Certain standards are not fully met (Standard No. 1, 8, 9, and 10 must always be fully met) and an explanation of why these standards are not met is contained in the Stormwater Report.
- The project involves redevelopment and a description of all measures that have been taken to improve existing conditions is provided in the Stormwater Report. The redevelopment checklist found in Volume 2 Chapter 3 of the Massachusetts Stormwater Handbook may be used to document that the proposed stormwater management system (a) complies with Standards 2, 3 and the pretreatment and structural BMP requirements of Standards 4-6 to the maximum extent practicable and (b) improves existing conditions.

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control

A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan must include the following information:

- Narrative;
 - Construction Period Operation and Maintenance Plan;
 - Names of Persons or Entity Responsible for Plan Compliance;
 - Construction Period Pollution Prevention Measures;
 - Erosion and Sedimentation Control Plan Drawings;
 - Detail drawings and specifications for erosion control BMPs, including sizing calculations;
 - Vegetation Planning;
 - Site Development Plan;
 - Construction Sequencing Plan;
 - Sequencing of Erosion and Sedimentation Controls;
 - Operation and Maintenance of Erosion and Sedimentation Controls;
 - Inspection Schedule;
 - Maintenance Schedule;
 - Inspection and Maintenance Log Form.
- A Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan containing the information set forth above has been included in the Stormwater Report.



Checklist for Stormwater Report

Checklist (continued)

Standard 8: Construction Period Pollution Prevention and Erosion and Sedimentation Control (continued)

- The project is highly complex and information is included in the Stormwater Report that explains why it is not possible to submit the Construction Period Pollution Prevention and Erosion and Sedimentation Control Plan with the application. A Construction Period Pollution Prevention and Erosion and Sedimentation Control has **not** been included in the Stormwater Report but will be submitted **before** land disturbance begins.
- The project is **not** covered by a NPDES Construction General Permit.
- The project is covered by a NPDES Construction General Permit and a copy of the SWPPP is in the Stormwater Report.
- The project is covered by a NPDES Construction General Permit but no SWPPP been submitted. The SWPPP will be submitted BEFORE land disturbance begins.

Standard 9: Operation and Maintenance Plan

- The Post Construction Operation and Maintenance Plan is included in the Stormwater Report and includes the following information:
 - Name of the stormwater management system owners;
 - Party responsible for operation and maintenance;
 - Schedule for implementation of routine and non-routine maintenance tasks;
 - Plan showing the location of all stormwater BMPs maintenance access areas;
 - Description and delineation of public safety features;
 - Estimated operation and maintenance budget; and
 - Operation and Maintenance Log Form.
- The responsible party is **not** the owner of the parcel where the BMP is located and the Stormwater Report includes the following submissions:
 - A copy of the legal instrument (deed, homeowner's association, utility trust or other legal entity) that establishes the terms of and legal responsibility for the operation and maintenance of the project site stormwater BMPs;
 - A plan and easement deed that allows site access for the legal entity to operate and maintain BMP functions.

Standard 10: Prohibition of Illicit Discharges

- The Long-Term Pollution Prevention Plan includes measures to prevent illicit discharges;
- An Illicit Discharge Compliance Statement is attached;
- NO Illicit Discharge Compliance Statement is attached but will be submitted **prior to** the discharge of any stormwater to post-construction BMPs.

Appendix C

FEMA Flood Insurance Rate Map

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The community map repository should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations (BFEs)** and/or **Floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) Report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS Report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations table in the Flood Insurance Study Report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations table should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodway zones based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study Report for this jurisdiction.

The AE Zone category has been divided by a **Limit of Moderate Wave Action (LMWA)**. The LMWA represents the approximate landward limit of the 1.5-foot breaking wave. The effects of wave hazards between the VE Zone and the LMWA (or between the shoreline and the LMWA for areas where VE Zones are not identified) will be similar to, but less severe than those in the VE Zone.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study Report for information on flood control structures for this jurisdiction.

The projection used in the preparation of this map was Massachusetts State Plane Meters Zone (FIPS zone 2001). The horizontal datum was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or UTM zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the North American Vertical Datum of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at <http://www.ngs.noaa.gov> or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NIMS12
National Geodetic Survey
SMMC, #0202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at (301) 713-3242, or visit its website at <http://www.ngs.noaa.gov>.

Base map information shown on this FIRM is derived from Massachusetts Geographic Information System (MassGIS) digital ortho-photography produced at 45 centimeter (2005) and 30 centimeter (2008) resolution. Aerial photography is dated Spring 2005 and Spring 2008.

The **profile baselines** depicted on this map represent the hydraulic modeling baselines that make the flood profiles in the FIS report. As a result of improved topographic data, the **profile baseline**, in some cases, may deviate significantly from the channel centerline or appear outside the SFHA.

Based on updated topographic information, this map reflects more detailed and up-to-date stream channel configurations and floodplain delineations than those shown on the previous FIRM for this jurisdiction. As a result, the Flood Profiles and Floodway Data Tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on the map. Also, the road to floodplain relationships for unweeded streams may differ from what is shown on previous maps.

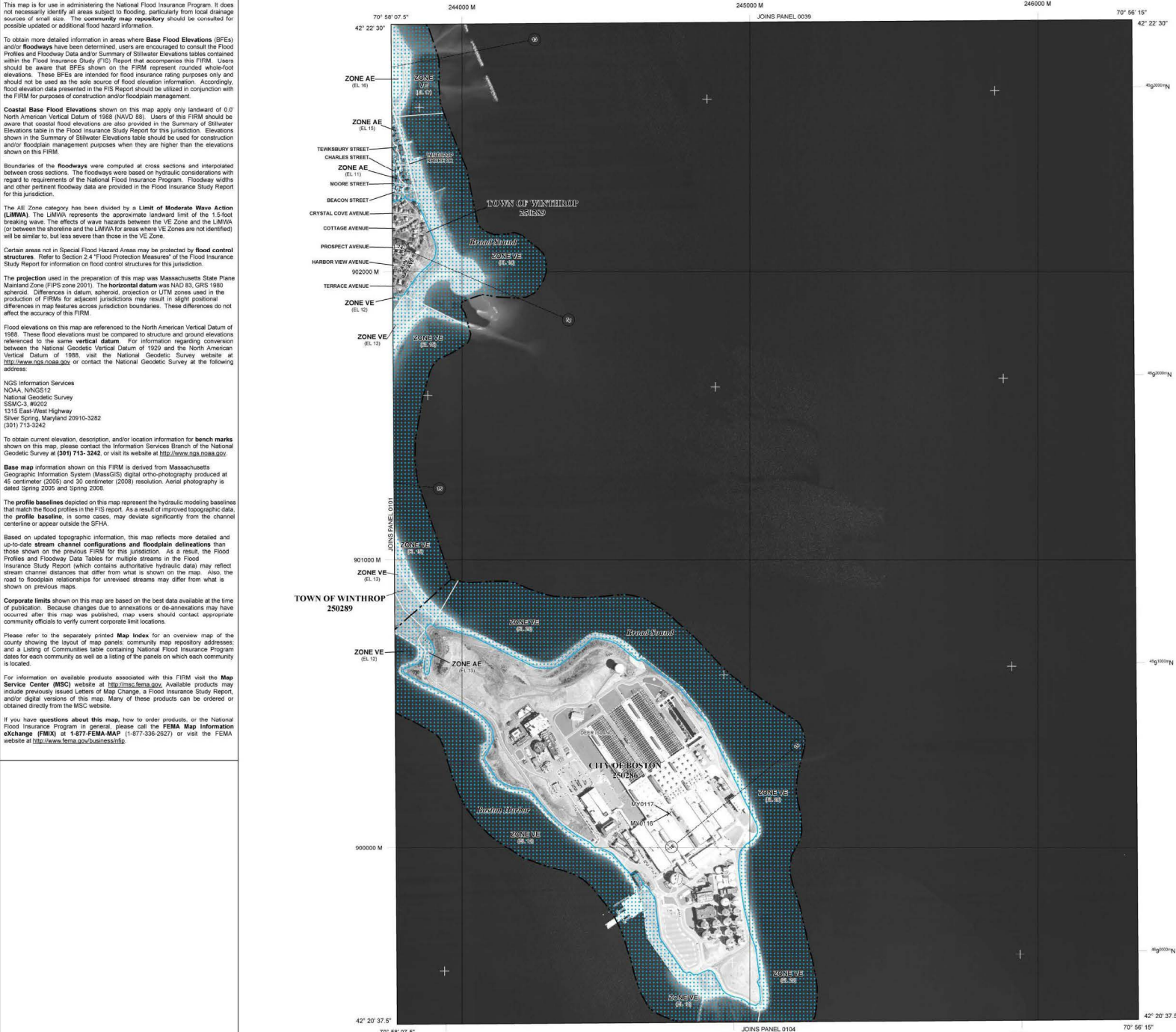
Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels, community map repository addresses, and a listing of Communities table containing National Flood Insurance Program data for each community as well as a listing of the panels on which each community is located.

For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at <http://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 MSC website.

If you have **questions about this map**, how to order products, or the National Flood Insurance Program in general, please call the **FEMA Map Information Exchange (FMIX)** at 1-877-FEMA-MAP (1-877-336-3277) or visit the FEMA website at <http://www.fema.gov/business/mip>.

Only coastal structures that are certified to provide protection from the 1-percent-annual chance flood are shown on this panel. However, all structures taken into consideration for the purpose of coastal flood hazard analysis and mapping are present in the DFIRM database in **S_Gen_Struct**.



LEGEND

- SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD**
 - ZONE A:** No Base Flood Elevations determined.
 - ZONE AH:** Base Flood Elevations determined.
 - ZONE AO:** Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
 - ZONE AD:** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined; for areas of sheet flow flooding, velocities also determined.
 - ZONE AN:** Special Flood Hazard Areas formerly protected from the 1% annual chance flood by a flood control system that was subsequently identified. Zone AN includes that former flood control system as being retained to provide protection from the 1% annual chance or greater flood.
 - ZONE AV:** Area to be protected from the 1% annual chance flood by a federal flood protection system under construction; no Base Flood Elevations determined.
 - ZONE V:** Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
 - ZONE VE:** Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.
- FLOODWAY AREAS IN ZONE AE**
- OTHER FLOOD AREAS**
 - ZONE X:** Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths between 1 and 3 feet or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.
 - ZONE X (Zone F):** Areas determined to be outside the 0.2% annual chance floodplain.
- OTHER AREAS**
 - ZONE X:** Areas in which flood hazards are undetermined, not possible.
- COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS**
- OTHERWISE PROTECTED AREAS (OPAs)**
 - CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.
 - 1% Annual Chance Floodplain Boundary
 - 0.2% Annual Chance Floodplain Boundary
 - Floodway boundary
 - Zone D boundary
 - CBRS and OPA boundary
 - Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths, or flood velocities.
 - Limit of Moderate Wave Action
 - Limit of Moderate Wave Action coincident with Zone Break
- Base Flood Elevation line and value; elevation in feet (EL 987)**
- Base Flood Elevation value where uniform within zone; elevation in feet (EL 987)**

Referenced to the North American Vertical Datum of 1988

Geographic coordinates referenced to the North American Datum of 1983 (NAD 83) Western Hemisphere
4989000 M 3000 meter gPD Massachusetts State Plane Meters Zone (FIPS Zone 2001) Lambert Conformal Conic projection
1000-meter Universal Transverse Mercator tick values, zone 19N
45° 02' 08" 93° 02' 12"

4989000 M
DMS10 X

MAP REPOSITORIES
Refer to Map Repositories list on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
September 25, 2008

EFFECTIVE DATES OF REVISIONS TO THIS PANEL
March 16, 2016 - to change Base Flood Elevations and Special Flood Hazard Areas to reflect new data and to update the effects of areas active, to update corporate limits, to add results and make other changes to the Flood Insurance Study report for this jurisdiction.
For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

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

MAP SCALE 1" = 500'
250 500 1000 FEET
150 300 600 METERS

NFIP PANEL 0102J

FIRM
FLOOD INSURANCE RATE MAP
SUFFOLK COUNTY,
MASSACHUSETTS
(ALL JURISDICTIONS)

PANEL 102 OF 176
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:			
COMMUNITY	NUMBER	PANEL	LETTER
BOSTON CITY OF	250289	0102	J
WINTHROP TOWN OF	250289	0102	J

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER 25025C0102J
MAP REVISED MARCH 16, 2016
Federal Emergency Management Agency

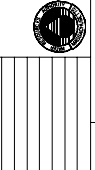
Appendix D

Existing Conditions Site Plans and Drainage Area Figures

100% DRAFT PROGRESS SUBMITTAL NOT FOR CONSTRUCTION

AECOM
300 WATER STREET
SOUTH BOSTON, MA 02108
TEL: 617.552.3100
WWW.AECOM.COM

DATE	DATE	DATE
DESIGNED BY: T. SOKA	CHECKED BY: T. SOKA	APPROVED BY: T. SOKA
DRAWN BY: C. MICHENER	DATE	DATE
SCALE: AS NOTED		
PROJECT: MASSACHUSETTS WATER RESOURCES AUTHORITY DEER ISLAND TREATMENT PLANT PARKING AREA		

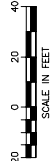


EXISTING CONDITIONS, DEMOLITION AND EROSION AND SEDIMENTATION CONTROL PLAN

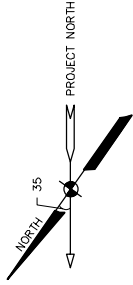
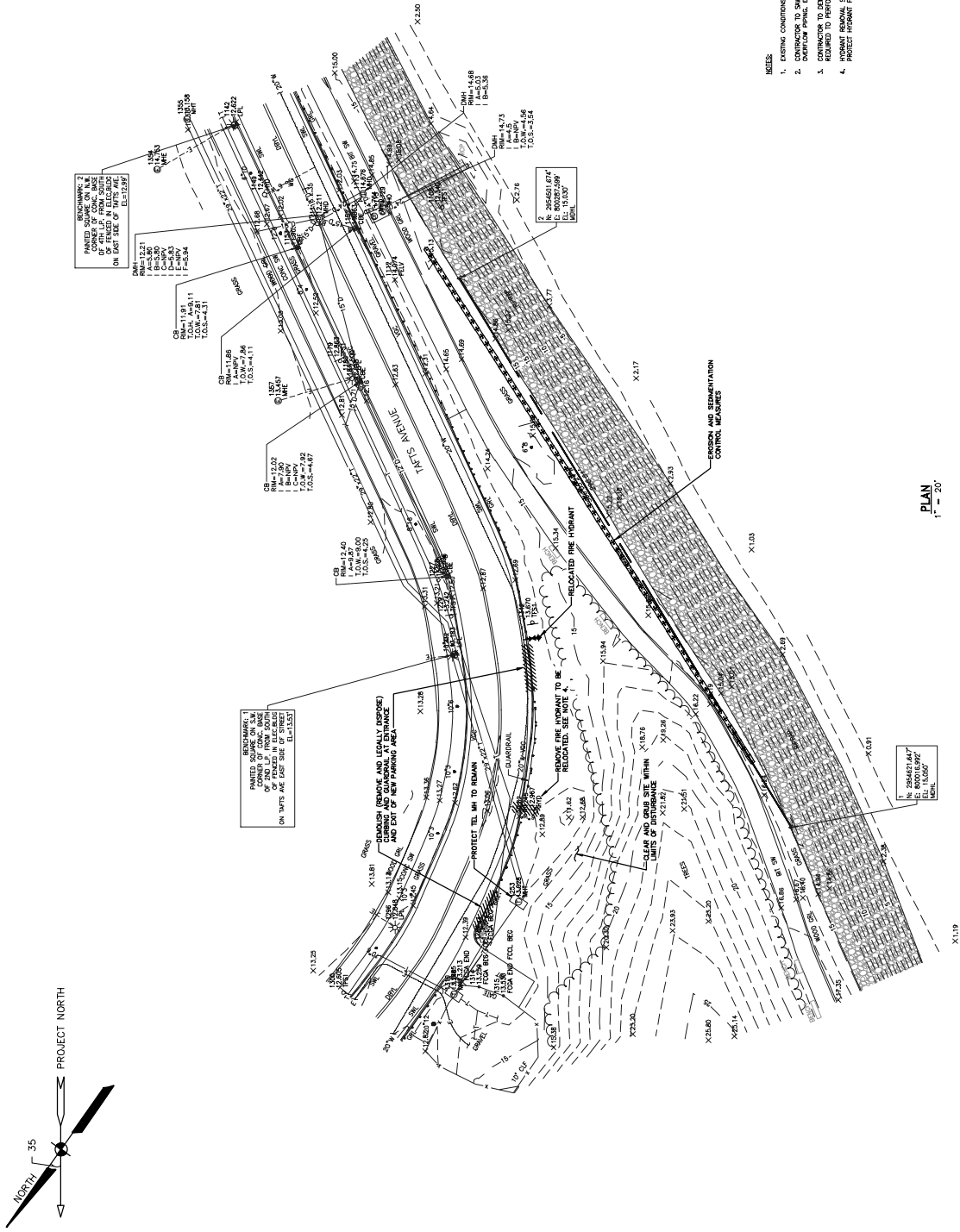


MASSACHUSETTS WATER RESOURCES AUTHORITY
DEER ISLAND TREATMENT PLANT
PARKING AREA

PROJECT No.	60315090
CONTRACT No.	TTTT
DRAWING No.	FC-1-101
SHEET No.	FC-1-101



PLAN
1" = 20'



- NOTES:
- 1. EXISTING CONDITIONS ARE SHOWN SCREENED. PROPOSED WORK IS SHOWN BOLD.
 - 2. CONTRACTOR TO USE CUT EXISTING PAVEMENT FOR RECONSTRUCTION OF STORMWATER DETENTION SYSTEM.
 - 3. CONTRACTOR TO DEMOLISH EXISTING CONCRETION AND LEGALLY DISPOSAL OF EXISTING CONCRETE AND CURBING AS REQUIRED TO PERFORM THE WORK OF THE CONTRACT.
 - 4. HYDRANT REMOVAL SEQUENCE: CLOSE VALVE, REMOVE HYDRANT, INSTALL RESTRAINED BLIND FLANGE, PROTECT HYDRANT FOR REUSE. RESTORE ORIGINAL PAVEMENT.

1. 256010167
T. SOKA
TEL: 15.5207
MAIL

2. 256010167
T. SOKA
TEL: 15.5207
MAIL

3. 256010167
T. SOKA
TEL: 15.5207
MAIL

4. 256010167
T. SOKA
TEL: 15.5207
MAIL



PROJECT
 DEER ISLAND
 PROPOSED PARKING

OWNER

MWRA - DITP
 130 FAIRFAX AVENUE
 BOSTON, MA 02116
 617.624.6000 / FAX
 617.624.6000 / FAX
 WWW.MWRA.MA.GOV

ENGINEER

AECOM TECHNICAL SERVICES, INC.
 250 APOLLO DRIVE
 CHELSEA, MA 02156
 617.552.5100 / FAX
 WWW.AECOM.COM

REGISTRATION

ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

605151000.17

DESIGNED BY

B. TEETSEL

DRAWN BY

B. TEETSEL

DATE CHECKED

DATE

SCALE

AS NOTED

DISCIPLINE

CIVIL

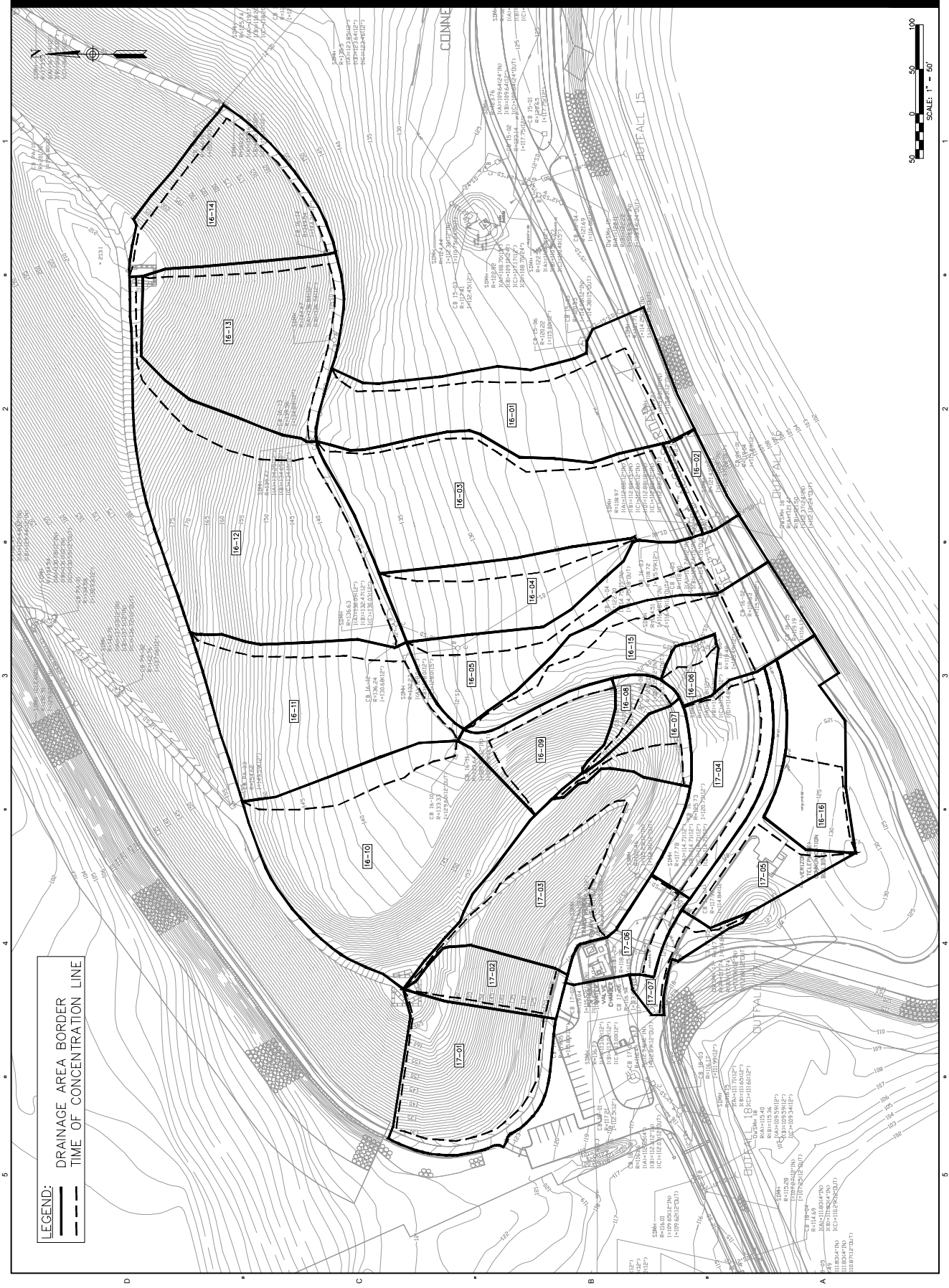
SHEET TITLE

EXISTING CONDITIONS

DRAINAGE AREAS

SHEET NUMBER

DA-001



LEGEND:
 ——— DRAINAGE AREA BORDER
 - - - - TIME OF CONCENTRATION LINE

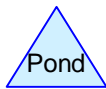
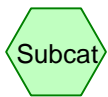
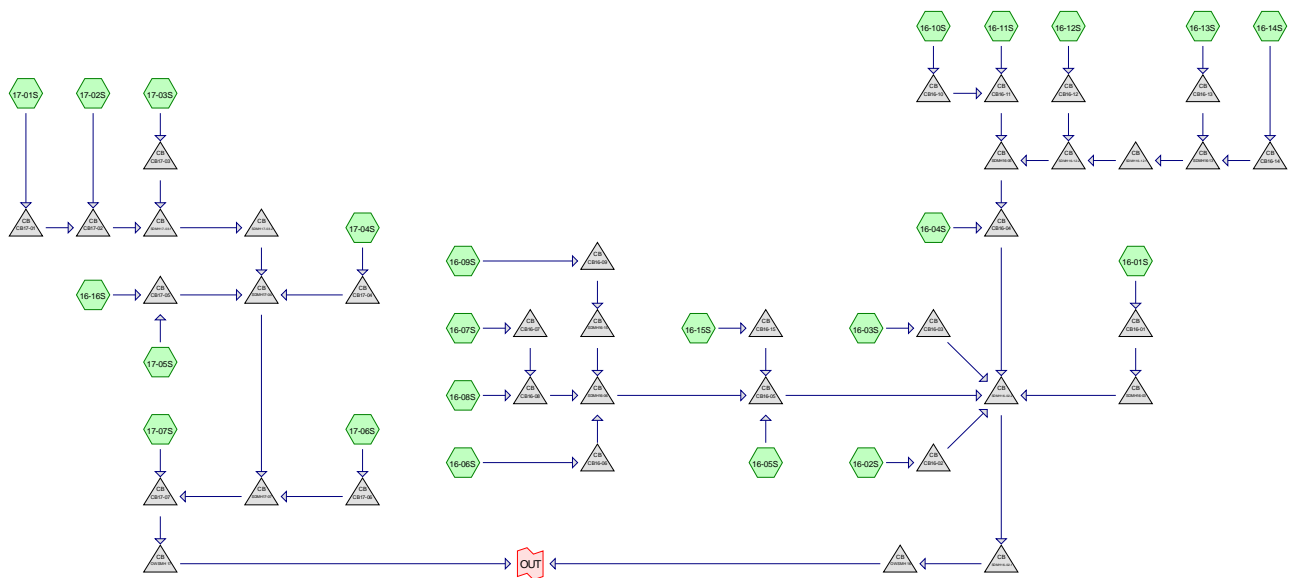


Appendix E

Soil Boring Logs

Appendix F

Existing Conditions HydroCAD Report



Routing Diagram for Existing Conditions (Type A Soils)
 Prepared by AECOM, Printed 2/27/2019
 HydroCAD® 10.00-20 s/n 00537 © 2017 HydroCAD Software Solutions LLC

Existing Conditions (Type A Soils)

Prepared by AECOM

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
10.688	30	Brush, Good, HSG A (16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S)
1.355	98	Impervious (16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S)
12.042	38	TOTAL AREA

Existing Conditions (Type A Soils)

Prepared by AECOM

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
10.688	HSG A	16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
1.355	Other	16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
12.042		TOTAL AREA

Existing Conditions (Type A Soils)

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
10.688	0.000	0.000	0.000	0.000	10.688	Brush, Good	16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
0.000	0.000	0.000	0.000	1.355	1.355	Impervious	16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
10.688	0.000	0.000	0.000	1.355	12.042	TOTAL AREA	

Existing Conditions (Type A Soils)

Prepared by AECOM

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	CB16-01	115.89	115.83	7.0	0.0086	0.012	12.0	0.0	0.0
2	CB16-02	115.59	112.88	10.0	0.2710	0.012	12.0	0.0	0.0
3	CB16-03	115.59	112.88	10.0	0.2710	0.012	12.0	0.0	0.0
4	CB16-04	114.75	112.88	70.0	0.0267	0.012	18.0	0.0	0.0
5	CB16-05	114.74	112.88	73.0	0.0255	0.012	15.0	0.0	0.0
6	CB16-06	115.49	114.80	13.0	0.0531	0.012	12.0	0.0	0.0
7	CB16-07	120.73	120.35	85.0	0.0045	0.012	12.0	0.0	0.0
8	CB16-08	120.32	114.80	66.0	0.0836	0.012	12.0	0.0	0.0
9	CB16-09	124.84	116.48	81.0	0.1032	0.012	12.0	0.0	0.0
10	CB16-10	129.60	129.56	15.0	0.0027	0.012	12.0	0.0	0.0
11	CB16-11	129.29	128.00	95.0	0.0136	0.012	12.0	0.0	0.0
12	CB16-12	130.68	130.09	18.0	0.0328	0.012	12.0	0.0	0.0
13	CB16-13	134.89	134.25	3.0	0.2133	0.012	12.0	0.0	0.0
14	CB16-14	144.36	136.84	94.0	0.0800	0.012	12.0	0.0	0.0
15	CB16-15	116.17	114.74	93.0	0.0154	0.012	12.0	0.0	0.0
16	CB17-01	115.80	115.62	50.0	0.0036	0.012	12.0	0.0	0.0
17	CB17-02	115.62	115.40	62.0	0.0035	0.012	12.0	0.0	0.0
18	CB17-03	115.44	115.40	3.0	0.0133	0.012	12.0	0.0	0.0
19	CB17-04	114.84	114.71	5.0	0.0260	0.012	12.0	0.0	0.0
20	CB17-05	114.84	114.71	19.0	0.0068	0.012	12.0	0.0	0.0
21	CB17-06	113.45	113.02	38.0	0.0113	0.012	12.0	0.0	0.0
22	CB17-07	112.89	112.86	20.0	0.0015	0.012	12.0	0.0	0.0
23	OWSMH 16	112.12	112.00	40.0	0.0030	0.012	24.0	0.0	0.0
24	OWSMH 17	112.86	111.00	38.0	0.0489	0.012	12.0	0.0	0.0
25	SDMH16-02.1	112.37	112.37	5.0	0.0000	0.012	24.0	0.0	0.0
26	SDMH16-02.2	112.88	112.51	18.0	0.0206	0.012	24.0	0.0	0.0
27	SDMH16-03	115.83	112.88	90.0	0.0328	0.012	12.0	0.0	0.0
28	SDMH16-05	128.00	114.75	225.0	0.0589	0.012	15.0	0.0	0.0
29	SDMH16-06	114.80	114.74	60.0	0.0010	0.012	15.0	0.0	0.0
30	SDMH16-12.1	134.10	132.47	215.0	0.0076	0.012	12.0	0.0	0.0
31	SDMH16-12.2	130.03	128.00	69.0	0.0294	0.012	12.0	0.0	0.0
32	SDMH16-13	136.74	134.65	113.0	0.0185	0.012	12.0	0.0	0.0
33	SDMH16-15	116.48	115.26	20.0	0.0610	0.012	12.0	0.0	0.0
34	SDMH17-03.1	115.30	115.23	70.0	0.0010	0.012	12.0	0.0	0.0
35	SDMH17-03.2	114.91	114.71	46.0	0.0043	0.012	12.0	0.0	0.0
36	SDMH17-04	114.71	113.02	123.0	0.0137	0.012	12.0	0.0	0.0
37	SDMH17-07	113.00	112.94	4.0	0.0150	0.012	12.0	0.0	0.0

Existing Conditions (Type A Soils)

Prepared by AECOM

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Type III 24-hr 2-yr Rainfall=3.28"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.01" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.00 cfs 0.001 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=0.64" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.07 cfs 0.006 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.00" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.00 cfs 0.000 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 11.62% Impervious Runoff Depth=0.00" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.00 cfs 0.000 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.01" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.00 cfs 0.000 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.04" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.00 cfs 0.000 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.00" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.00" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.00" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.00 cfs 0.000 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.00" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.00 cfs 0.000 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.00" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.00 cfs 0.000 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.00" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.00 cfs 0.000 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.02" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.00 cfs 0.001 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 1.96% Impervious Runoff Depth=0.00" Flow Length=164' Tc=6.4 min CN=31 Runoff=0.00 cfs 0.000 af

Existing Conditions (Type A Soils)

Prepared by AECOM

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Type III 24-hr 2-yr Rainfall=3.28"

Printed 2/27/2019

Page 7

Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.00" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.00 cfs 0.000 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.00" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.00 cfs 0.000 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.01" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.00 cfs 0.001 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=0.19" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.03 cfs 0.007 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=0.52" Flow Length=246' Tc=4.2 min CN=62 Runoff=0.14 cfs 0.013 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=0.68" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.13 cfs 0.010 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=1.09" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.12 cfs 0.008 af
Pond CB16-01:	Peak Elev=115.90' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-02:	Peak Elev=115.71' Inflow=0.07 cfs 0.006 af Outflow=0.07 cfs 0.006 af
Pond CB16-03:	Peak Elev=115.59' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-04:	Peak Elev=114.75' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-05:	Peak Elev=114.75' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-06:	Peak Elev=115.49' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-07:	Peak Elev=120.73' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-08:	Peak Elev=120.32' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-09:	Peak Elev=124.84' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-10:	Peak Elev=129.60' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Pond CB16-11:	Peak Elev=129.29' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-12:	Peak Elev=130.68' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-13:	Peak Elev=134.89' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-14:	Peak Elev=144.36' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-15:	Peak Elev=116.18' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB17-01:	Peak Elev=115.80' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB17-02:	Peak Elev=115.62' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB17-03:	Peak Elev=115.45' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB17-04:	Peak Elev=114.92' Inflow=0.03 cfs 0.007 af Outflow=0.03 cfs 0.007 af
Pond CB17-05:	Peak Elev=115.04' Inflow=0.14 cfs 0.013 af Outflow=0.14 cfs 0.013 af
Pond CB17-06:	Peak Elev=113.62' Inflow=0.13 cfs 0.010 af Outflow=0.13 cfs 0.010 af
Pond CB17-07:	Peak Elev=113.30' Inflow=0.38 cfs 0.039 af Outflow=0.38 cfs 0.039 af
Pond OWSMH 16:	Peak Elev=112.25' Inflow=0.07 cfs 0.008 af Outflow=0.07 cfs 0.008 af
Pond OWSMH 17:	Peak Elev=113.16' Inflow=0.38 cfs 0.039 af Outflow=0.38 cfs 0.039 af
Pond SDMH16-02.1:	Peak Elev=112.51' Inflow=0.07 cfs 0.008 af Outflow=0.07 cfs 0.008 af
Pond SDMH16-02.2:	Peak Elev=112.98' Inflow=0.07 cfs 0.008 af Outflow=0.07 cfs 0.008 af
Pond SDMH16-03:	Peak Elev=115.84' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af

Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Pond SDMH16-05:	Peak Elev=128.00'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH16-06:	Peak Elev=114.81'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH16-12.1:	Peak Elev=134.10'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH16-12.2:	Peak Elev=130.03'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH16-13:	Peak Elev=136.74'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH16-15:	Peak Elev=116.48'	Inflow=0.00 cfs	0.000 af	Outflow=0.00 cfs	0.000 af
Pond SDMH17-03.1:	Peak Elev=115.33'	Inflow=0.00 cfs	0.001 af	Outflow=0.00 cfs	0.001 af
Pond SDMH17-03.2:	Peak Elev=114.92'	Inflow=0.00 cfs	0.001 af	Outflow=0.00 cfs	0.001 af
Pond SDMH17-04:	Peak Elev=114.89'	Inflow=0.14 cfs	0.021 af	Outflow=0.14 cfs	0.021 af
Pond SDMH17-07:	Peak Elev=113.28'	Inflow=0.27 cfs	0.031 af	Outflow=0.27 cfs	0.031 af
Link OUT:		Inflow=0.45 cfs	0.047 af	Primary=0.45 cfs	0.047 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.047 af Average Runoff Depth = 0.05"
88.75% Pervious = 10.688 ac 11.25% Impervious = 1.355 ac

Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-01S:

Runoff = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Depth= 0.01"

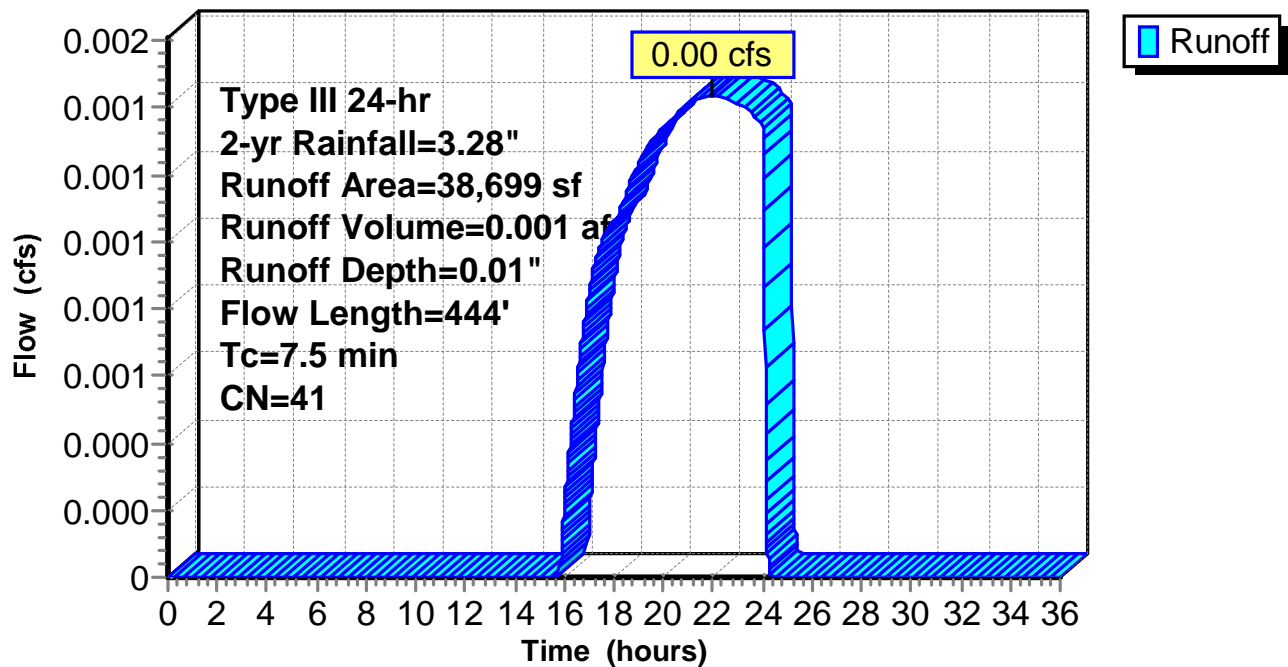
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-02S:

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 0.64"

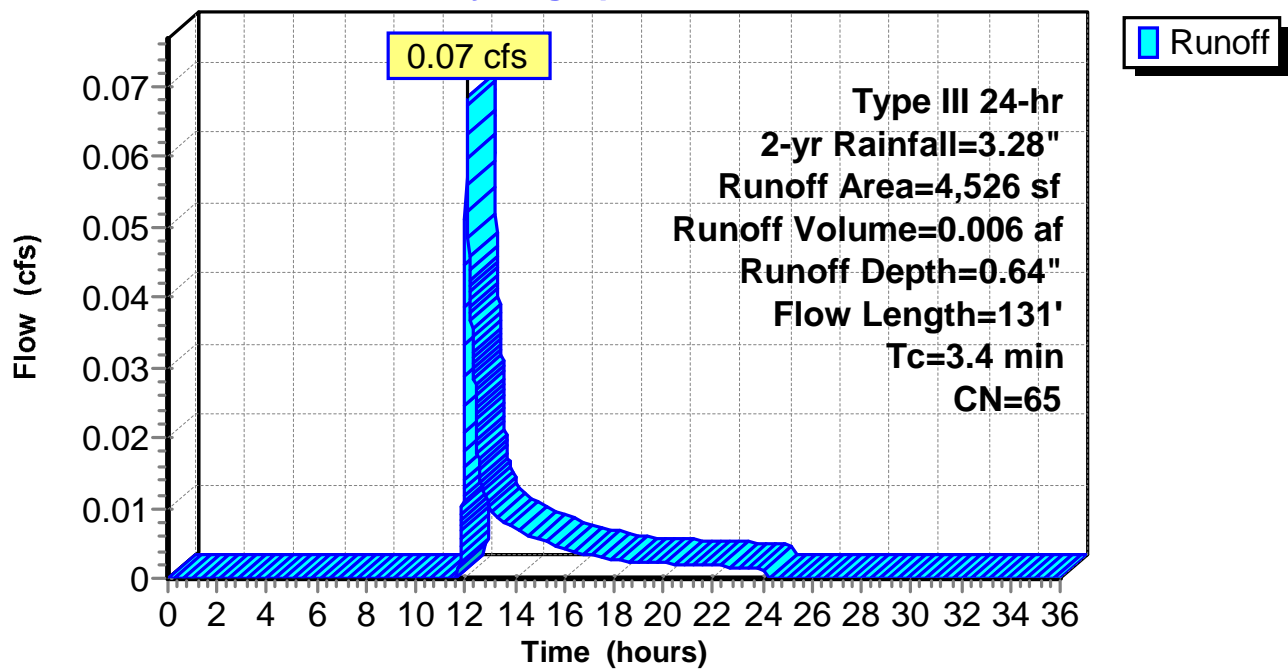
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-03S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

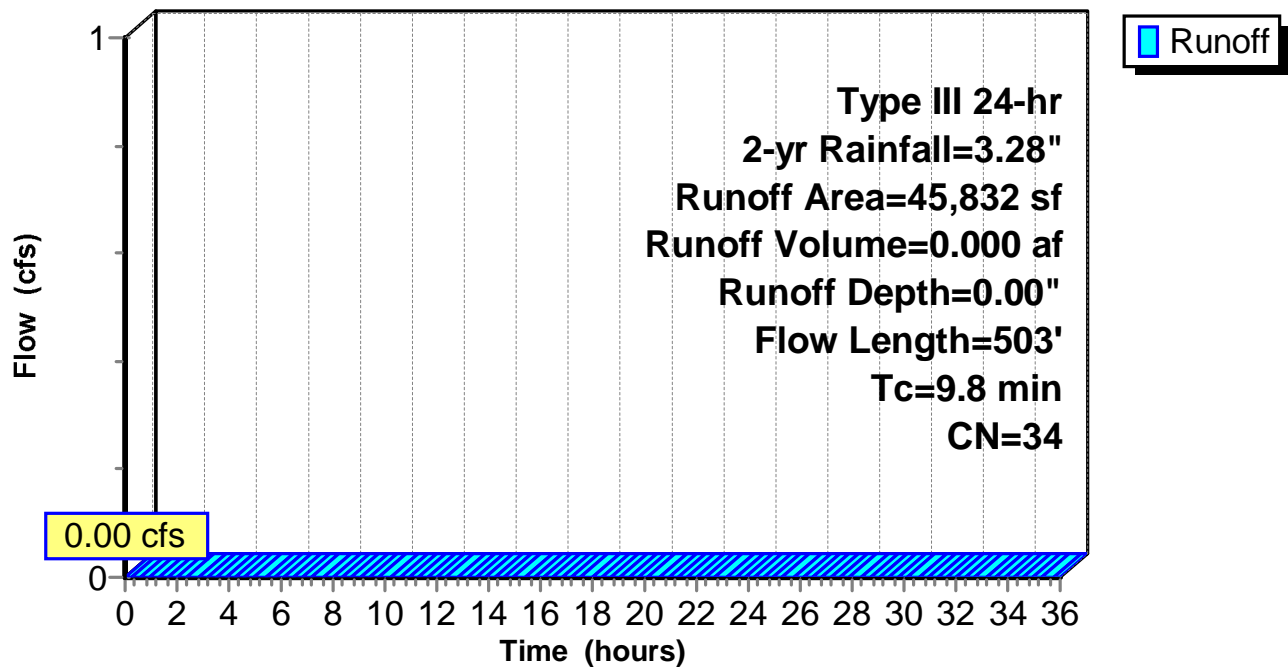
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

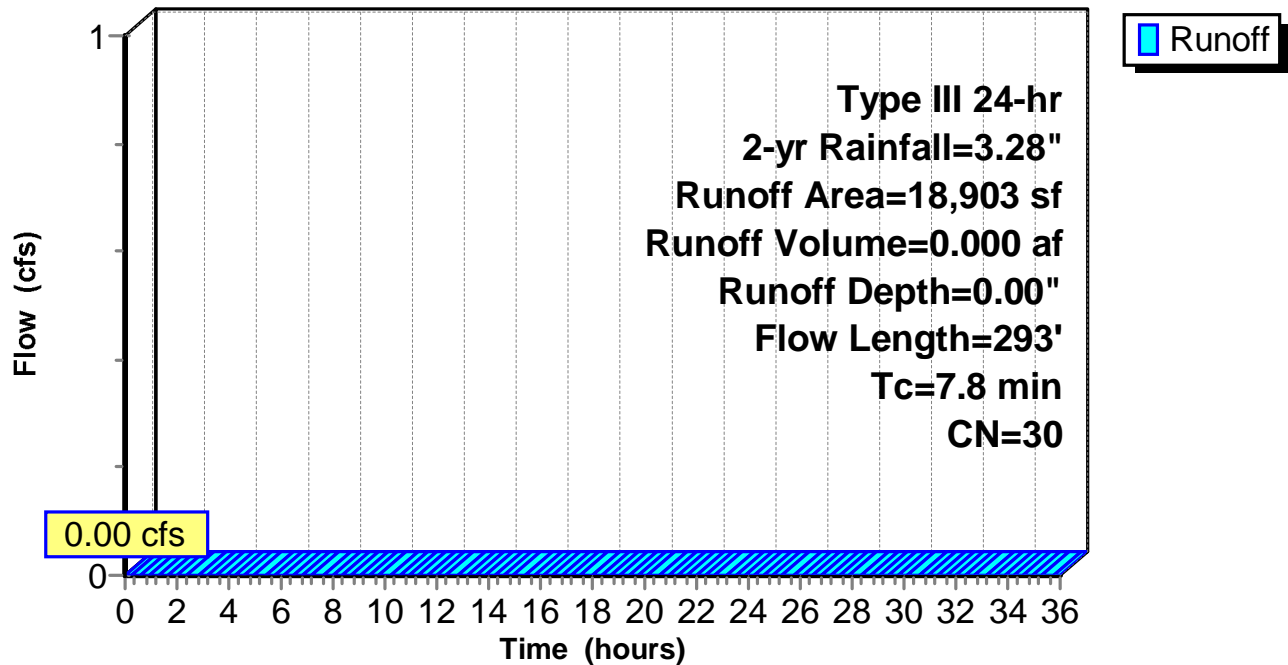
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-05S:

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Depth= 0.00"

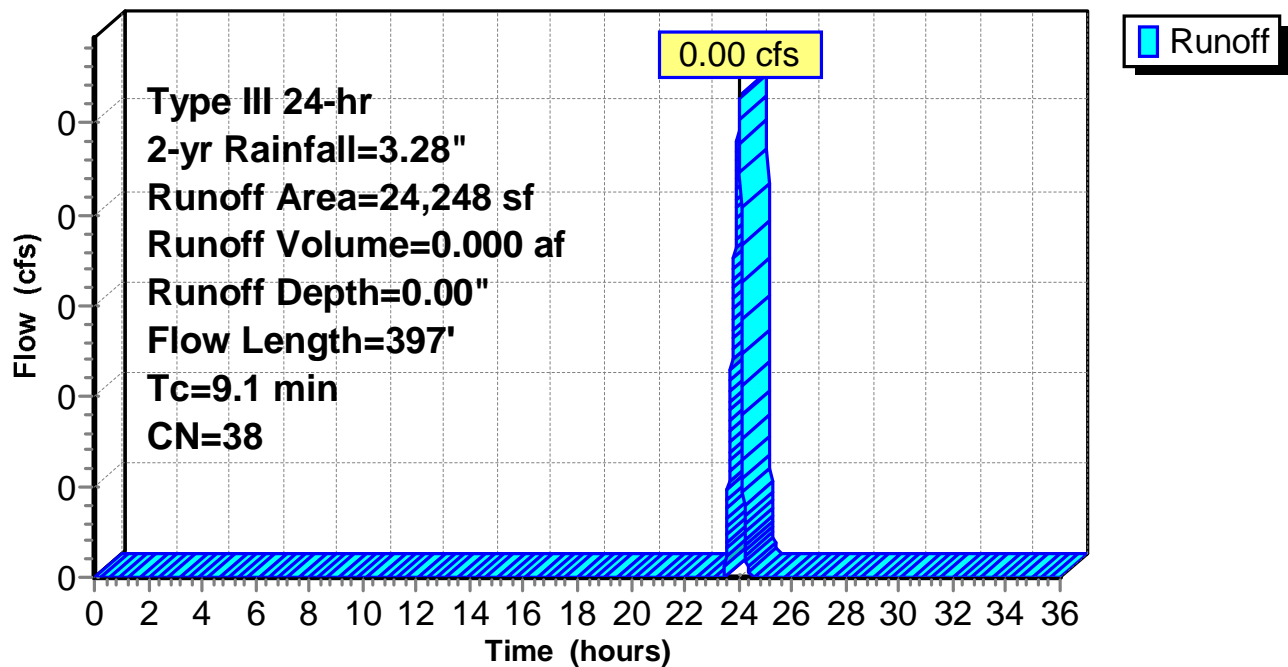
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,818	98	Impervious
21,430	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,430		88.38% Pervious Area
2,818		11.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

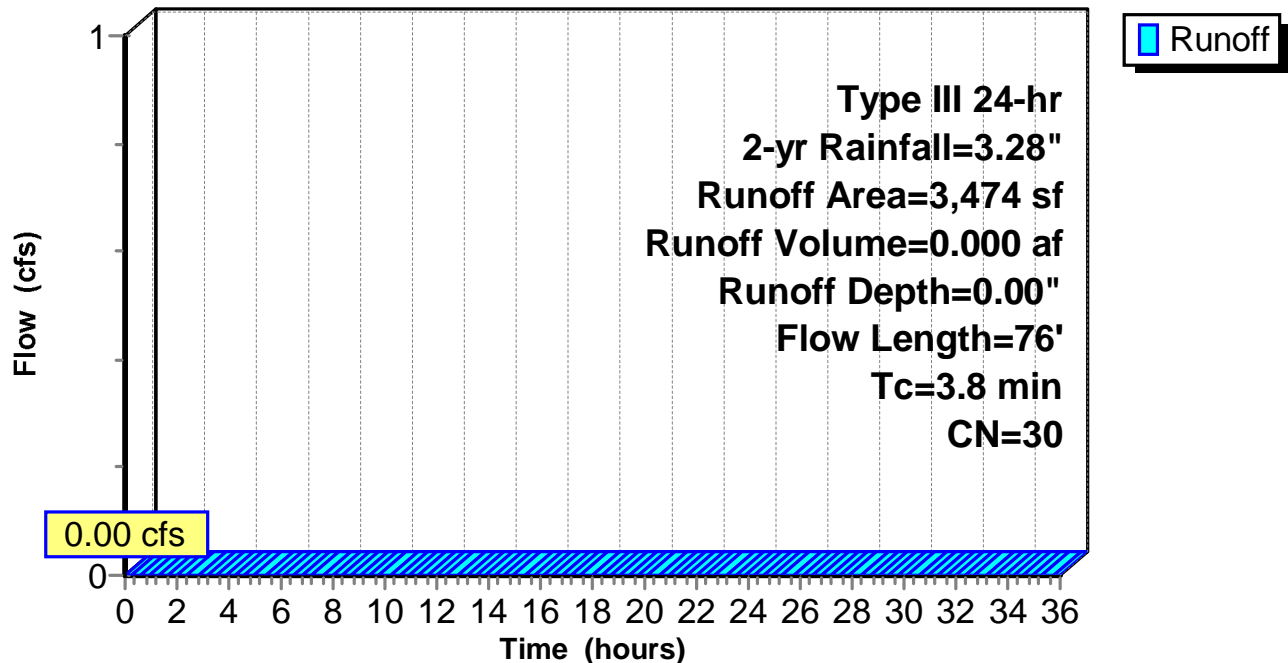
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-07S:

Runoff = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af, Depth= 0.01"

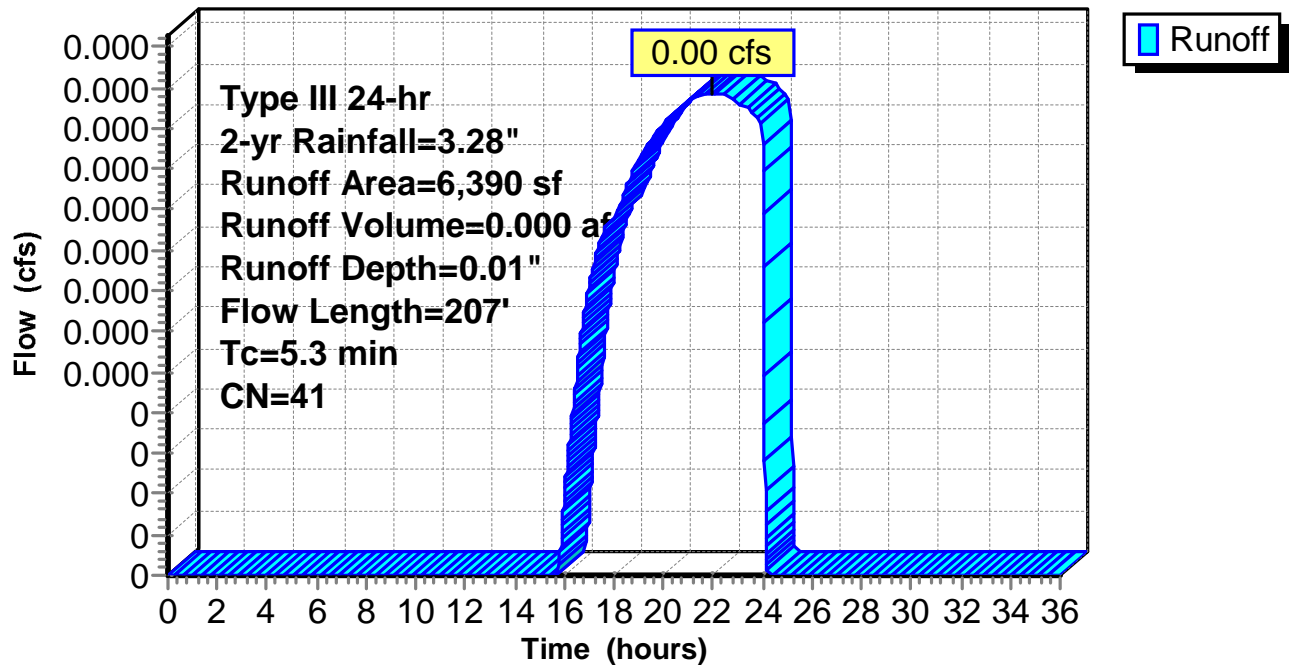
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-08S:

Runoff = 0.00 cfs @ 15.42 hrs, Volume= 0.000 af, Depth= 0.04"

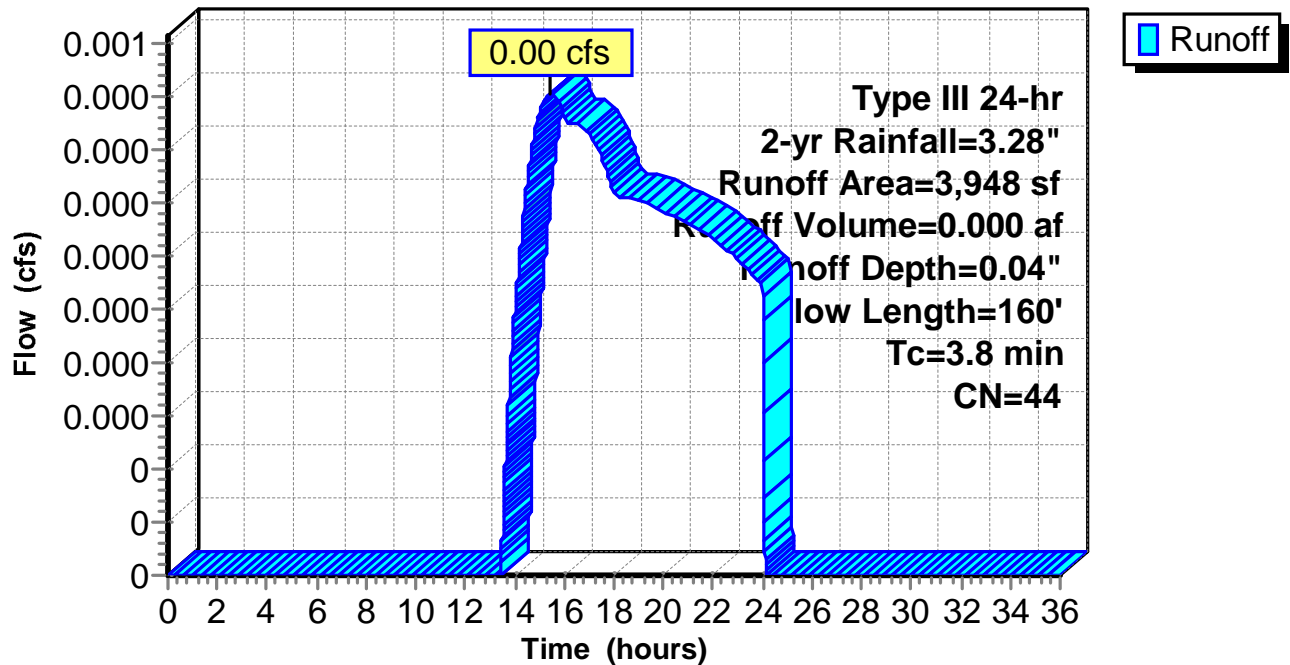
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-09S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

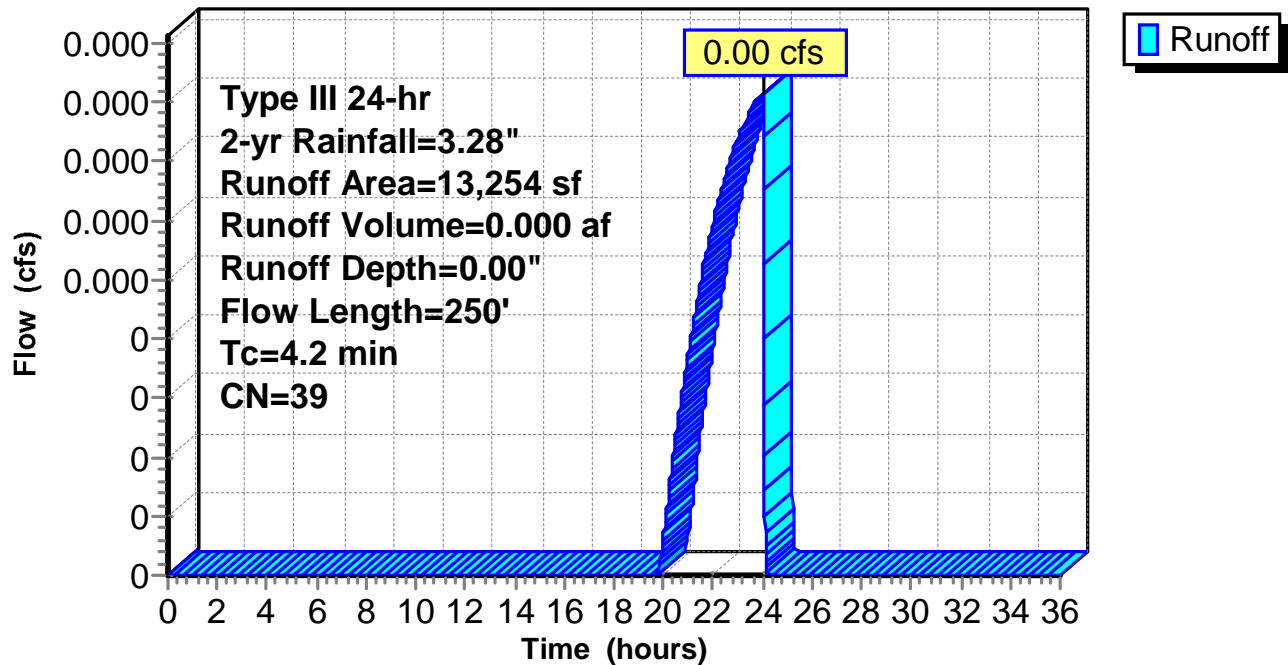
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-10S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

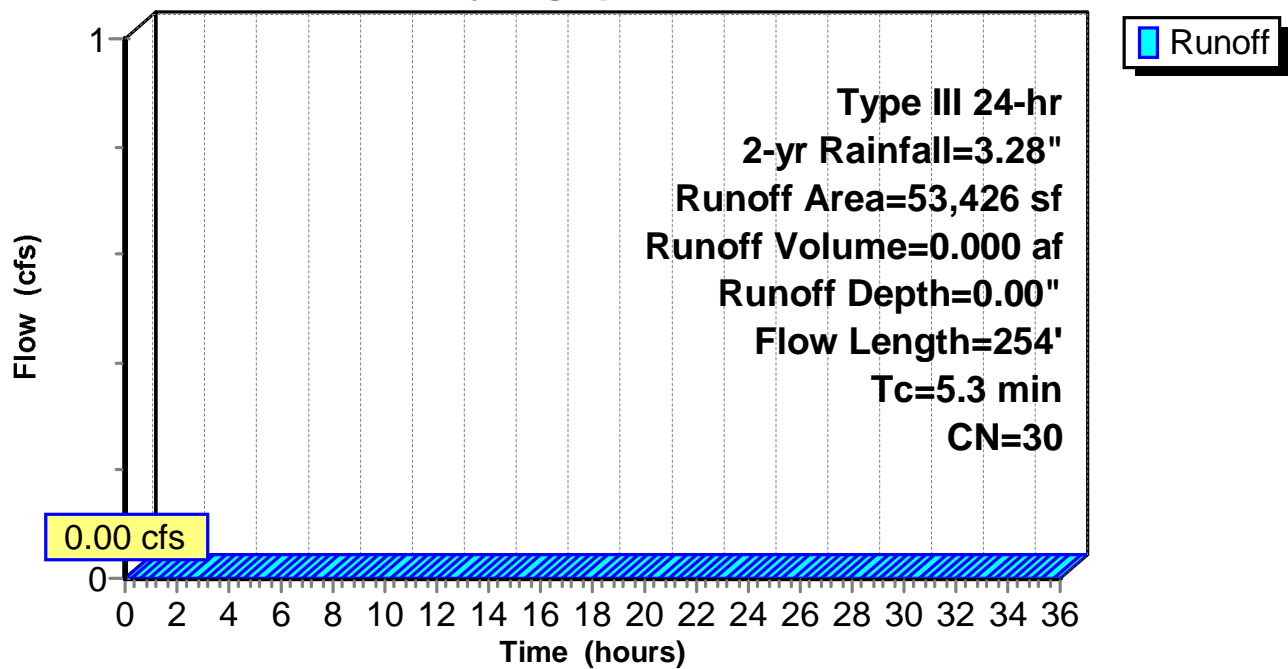
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-11S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

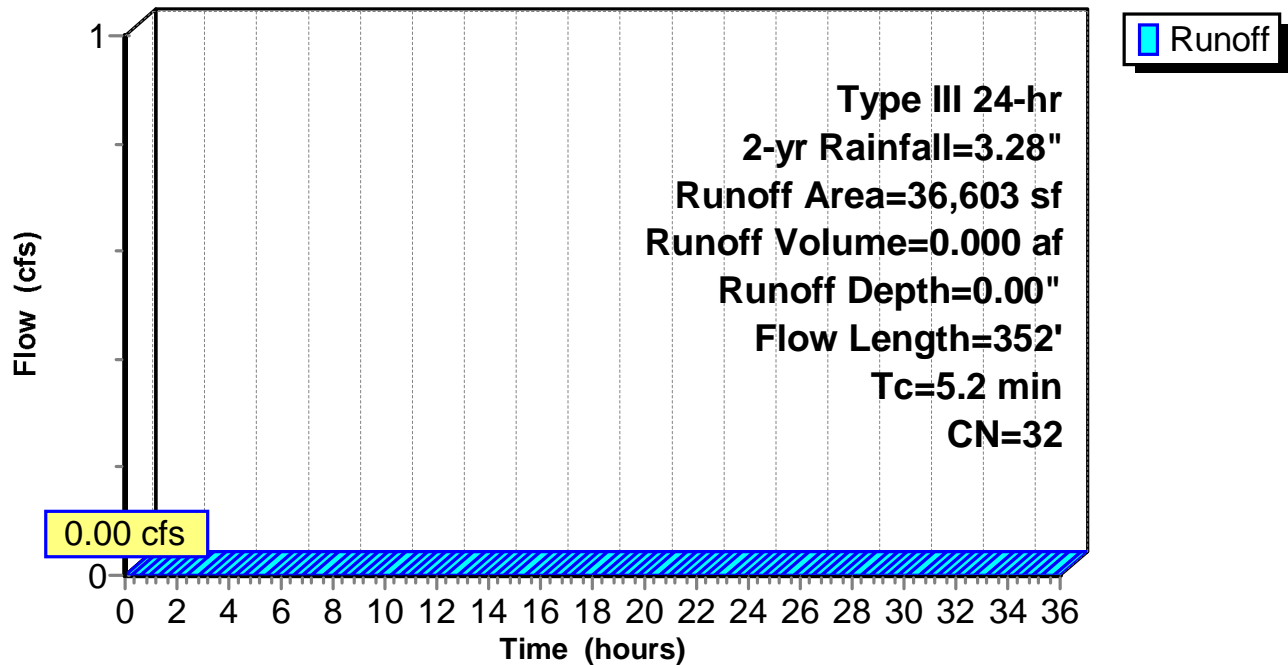
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-12S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

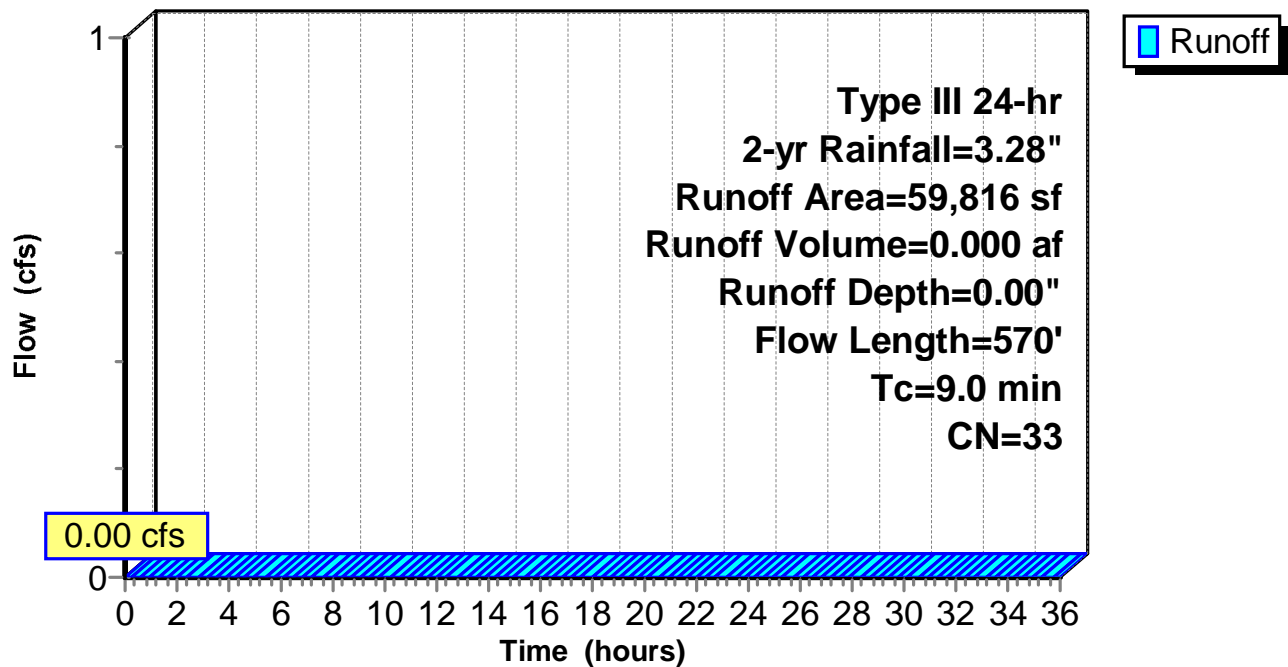
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-13S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

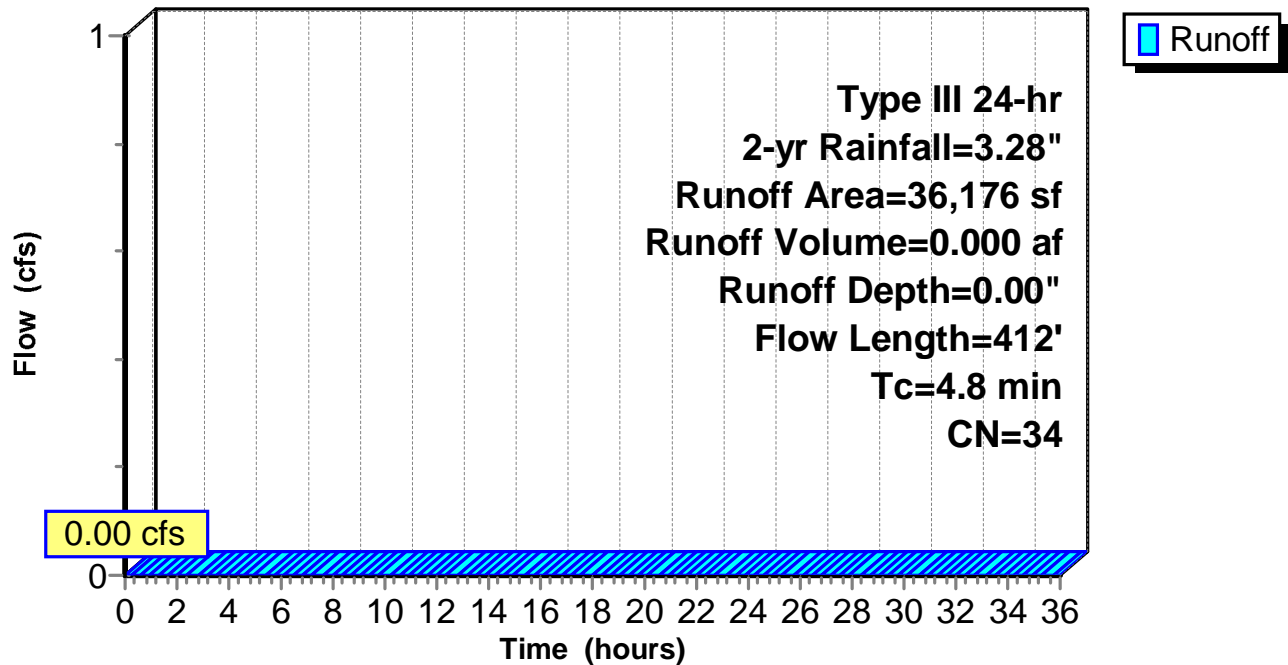
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-14S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

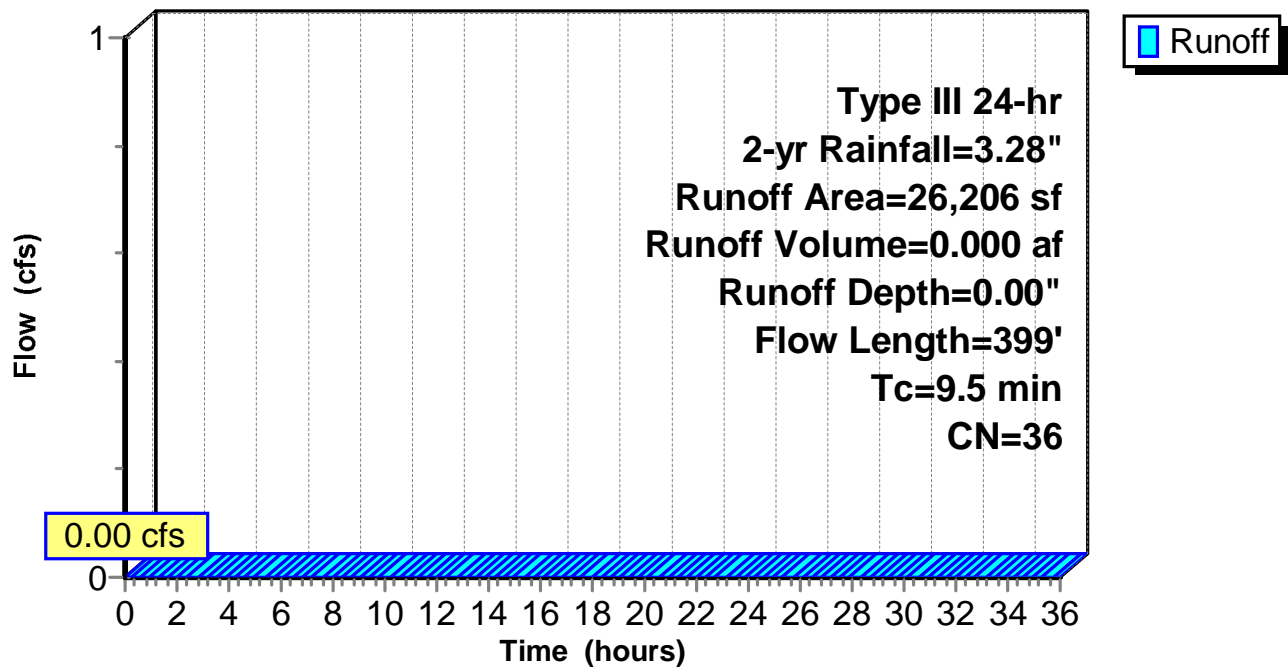
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-15S:

Runoff = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af, Depth= 0.02"

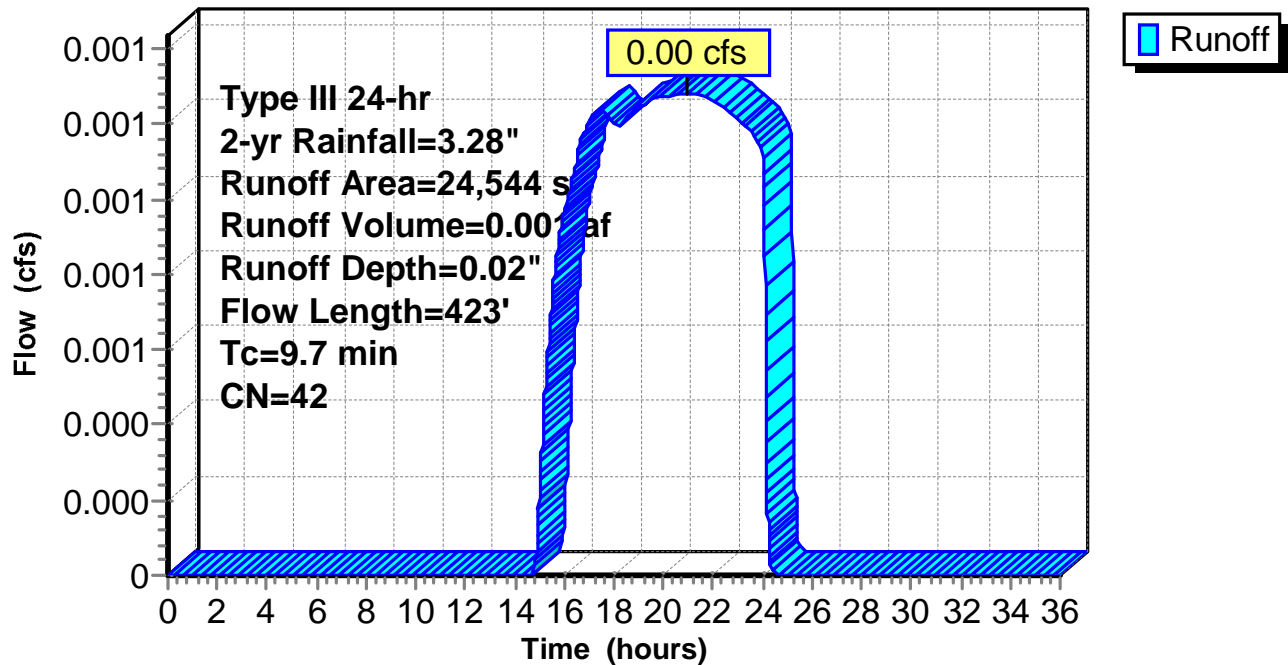
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-16S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

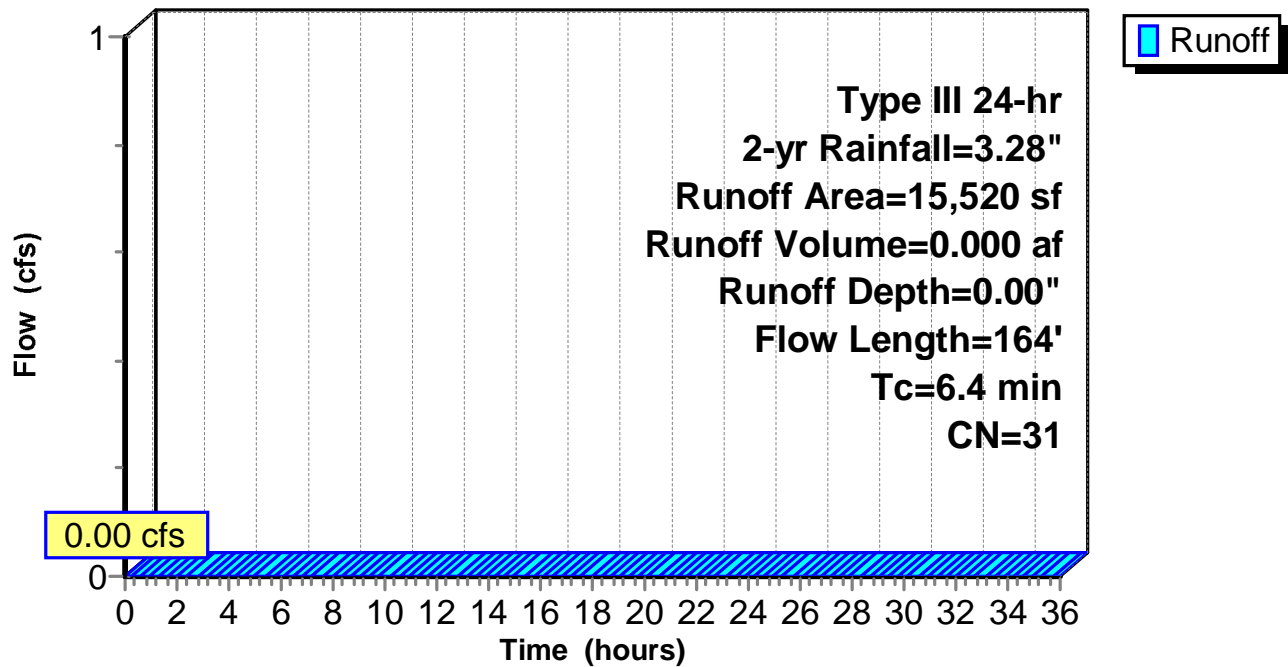
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
304	98	Impervious
15,216	30	Brush, Good, HSG A
15,520	31	Weighted Average
15,216		98.04% Pervious Area
304		1.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	114	0.1140	2.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.4	164	Total			

Subcatchment 16-16S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-01S:

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

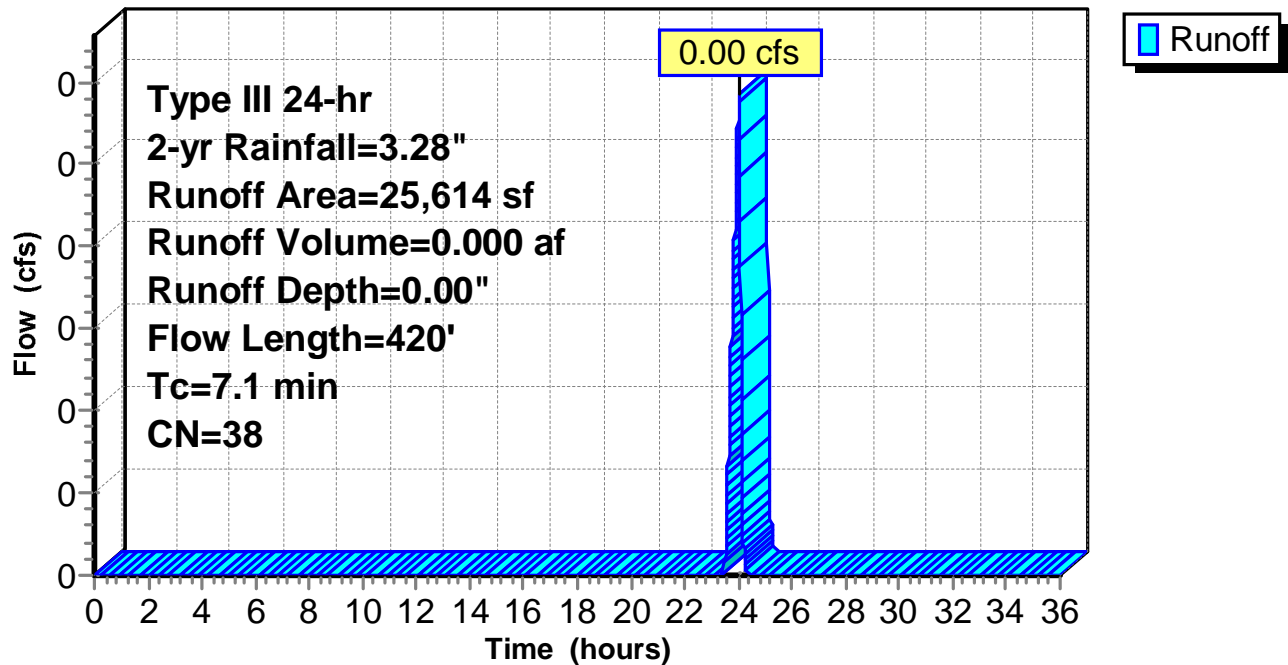
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-02S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

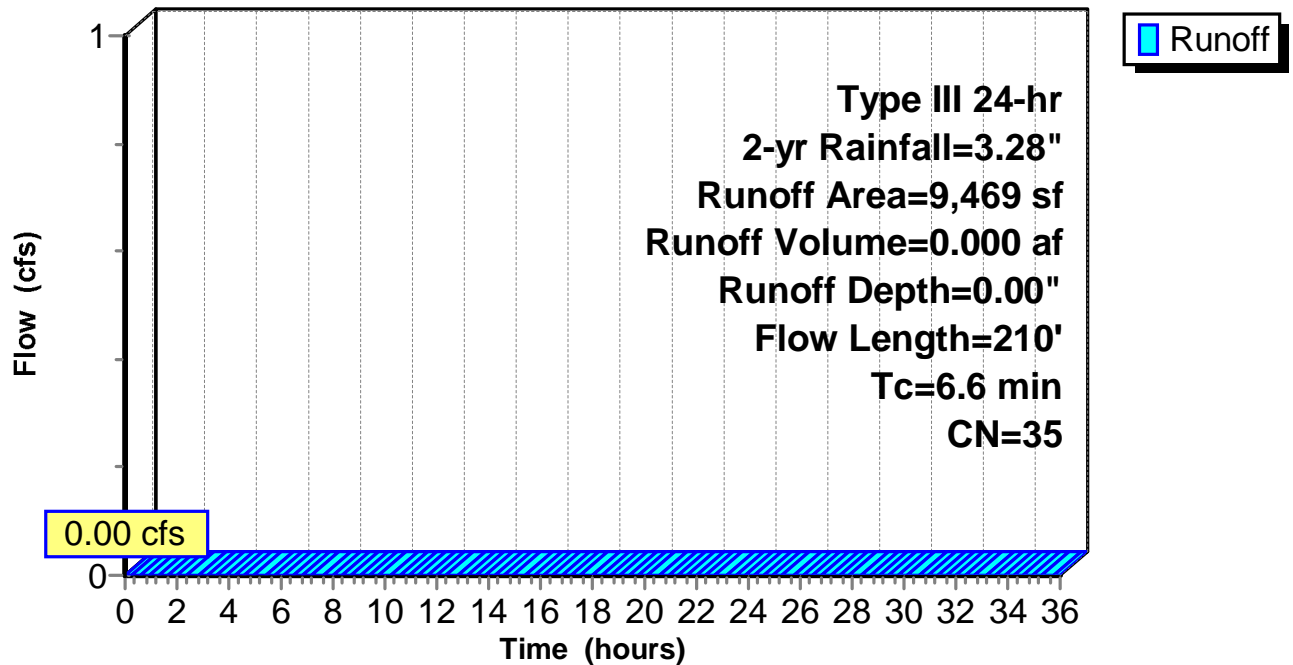
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-03S:

Runoff = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Depth= 0.01"

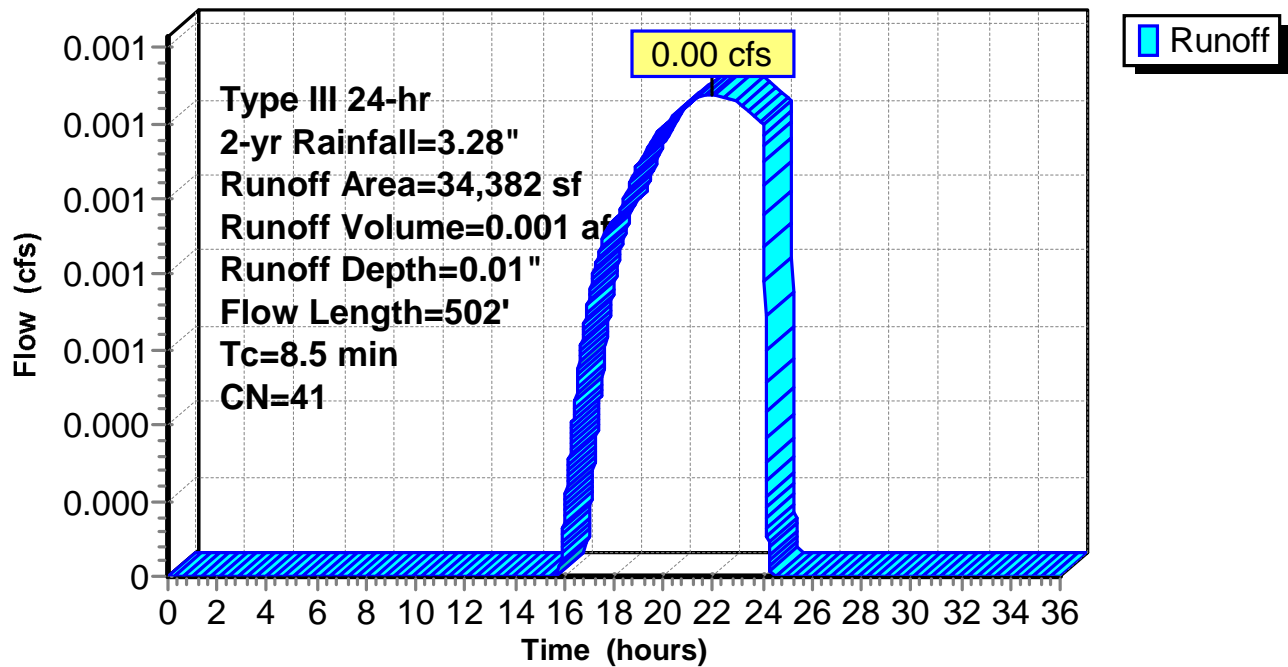
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-04S:

Runoff = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af, Depth= 0.19"

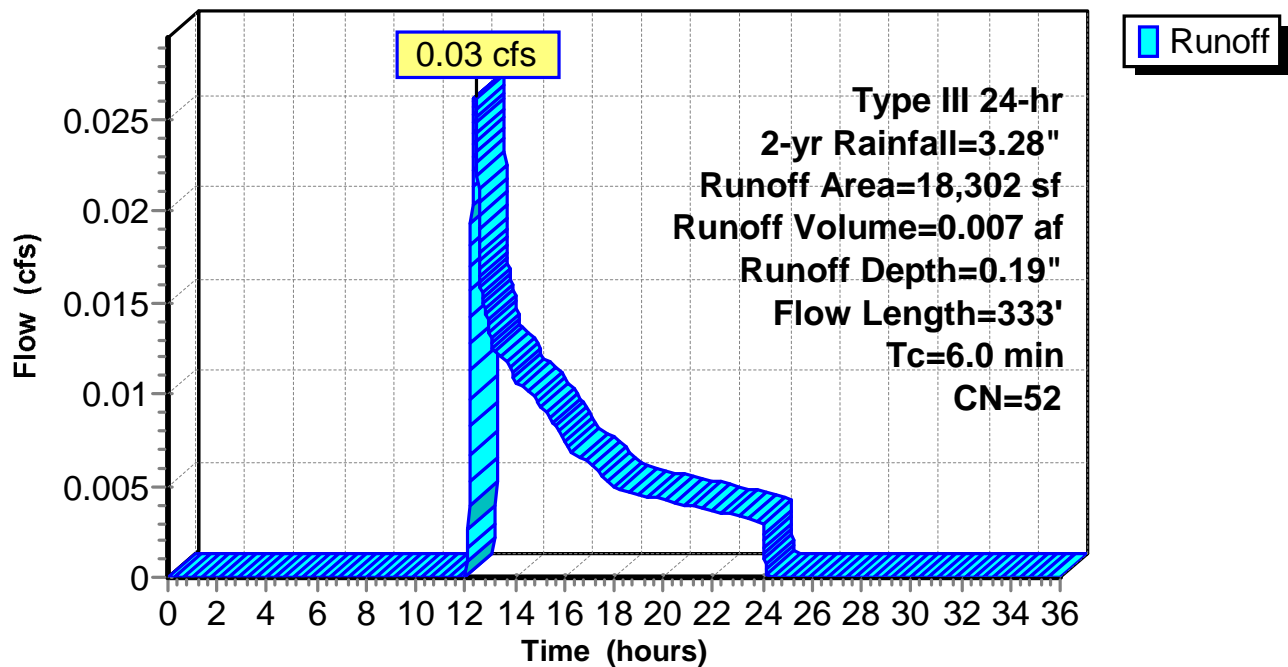
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-05S:

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 0.52"

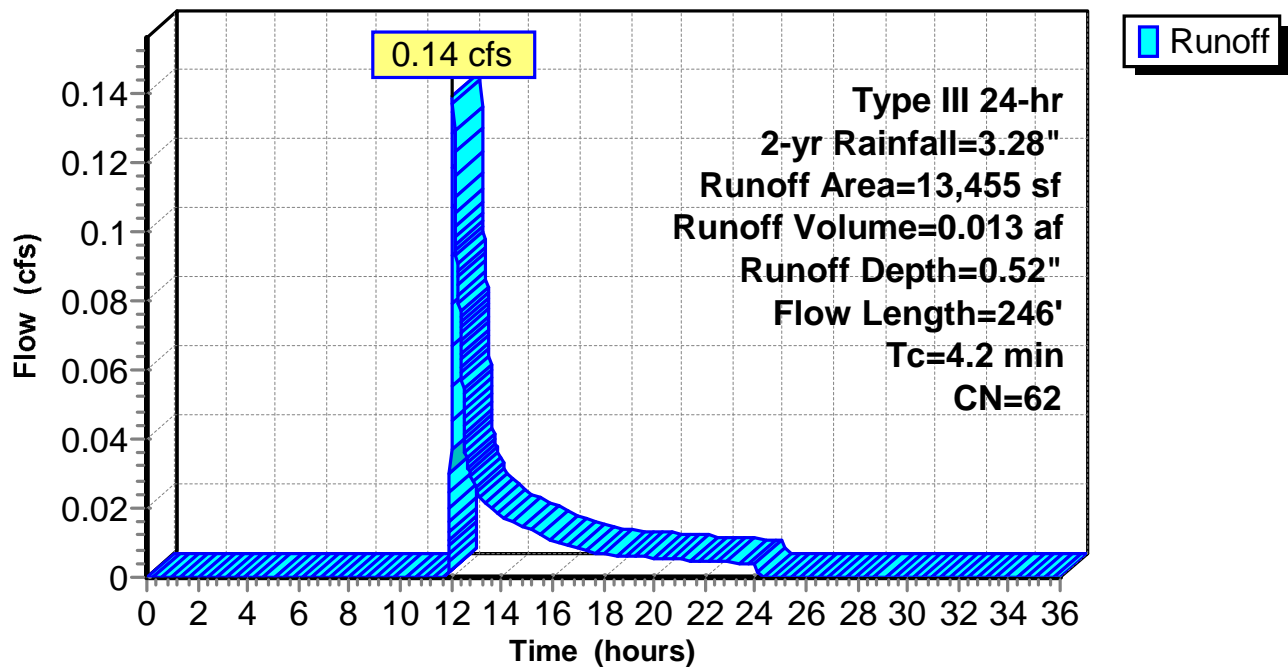
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.1	32	0.0940	6.22		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	246	Total			

Subcatchment 17-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-06S:

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 0.68"

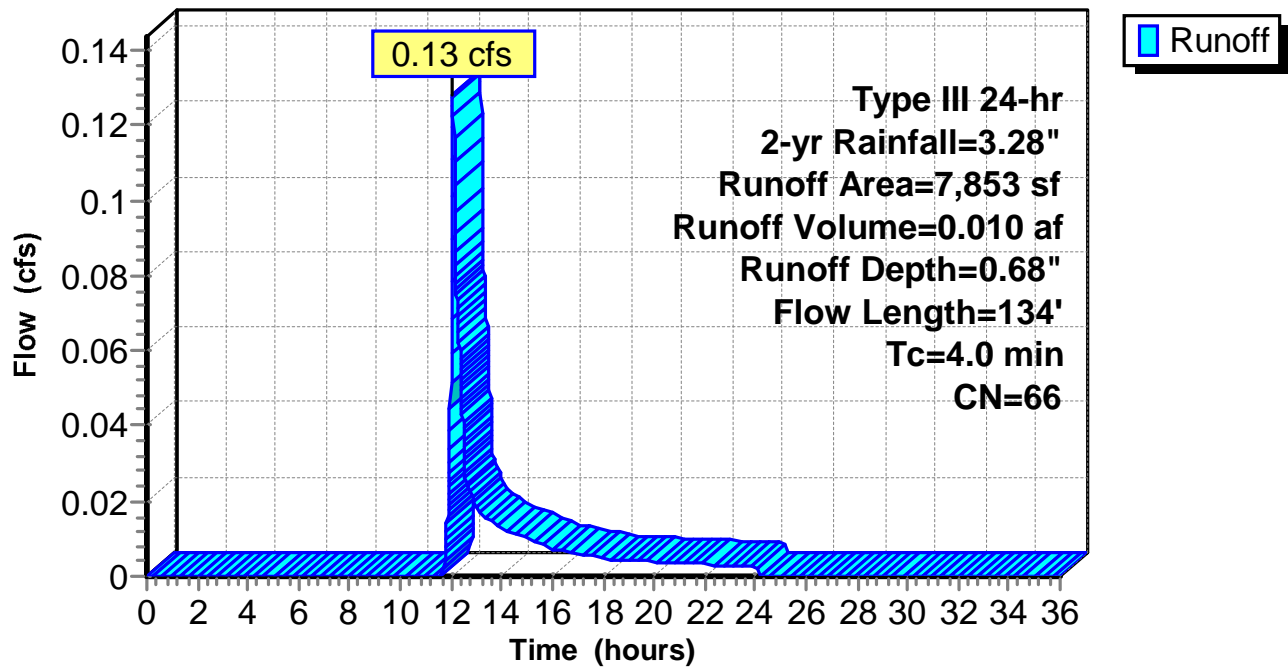
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-07S:

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 1.09"

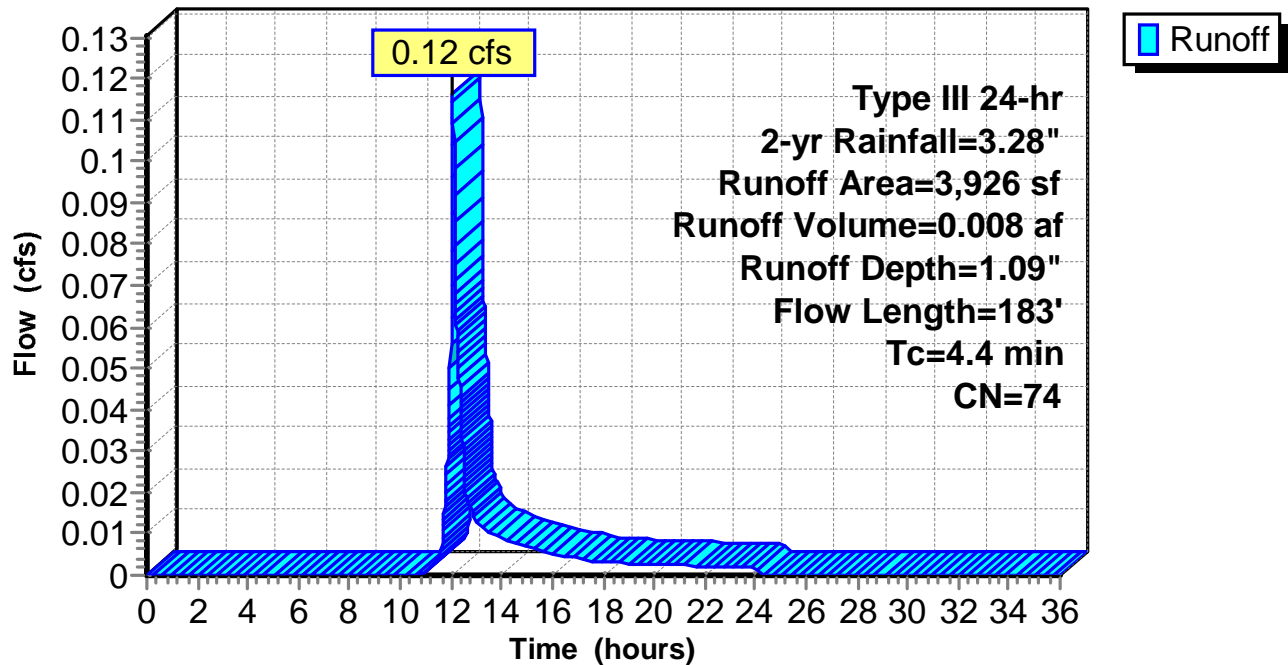
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.90' @ 21.99 hrs

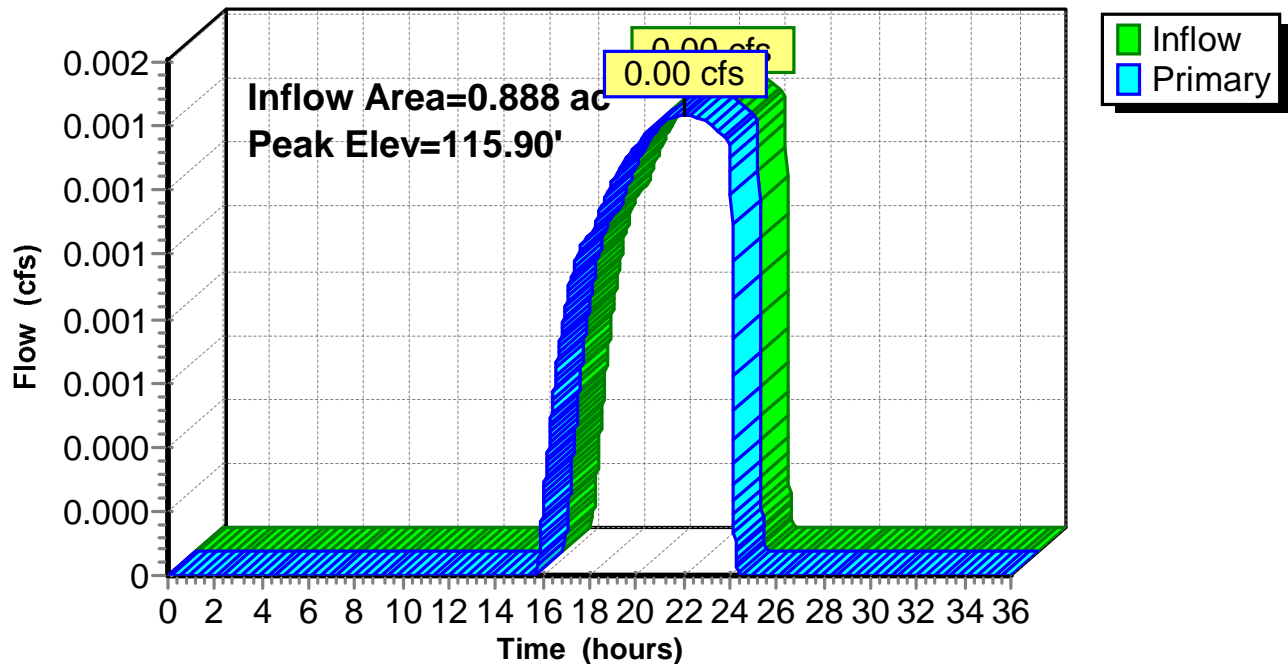
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.89'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 115.89' / 115.83' S= 0.0086 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.99 hrs HW=115.90' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.41 fps)

Pond CB16-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 0.64" for 2-yr event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af
 Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.71' @ 12.07 hrs

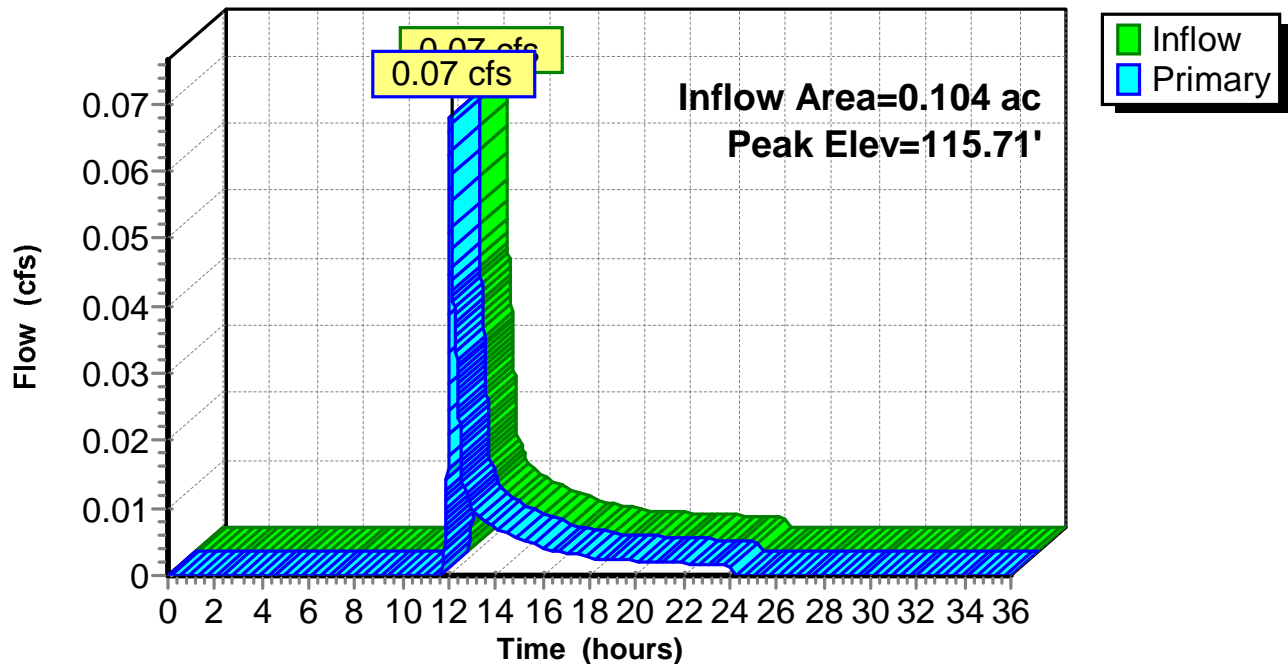
Device	Routing	Invert	Outlet Devices
#1	Primary	118.63'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=115.71' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.07 cfs @ 1.20 fps)

Pond CB16-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.59' @ 0.00 hrs

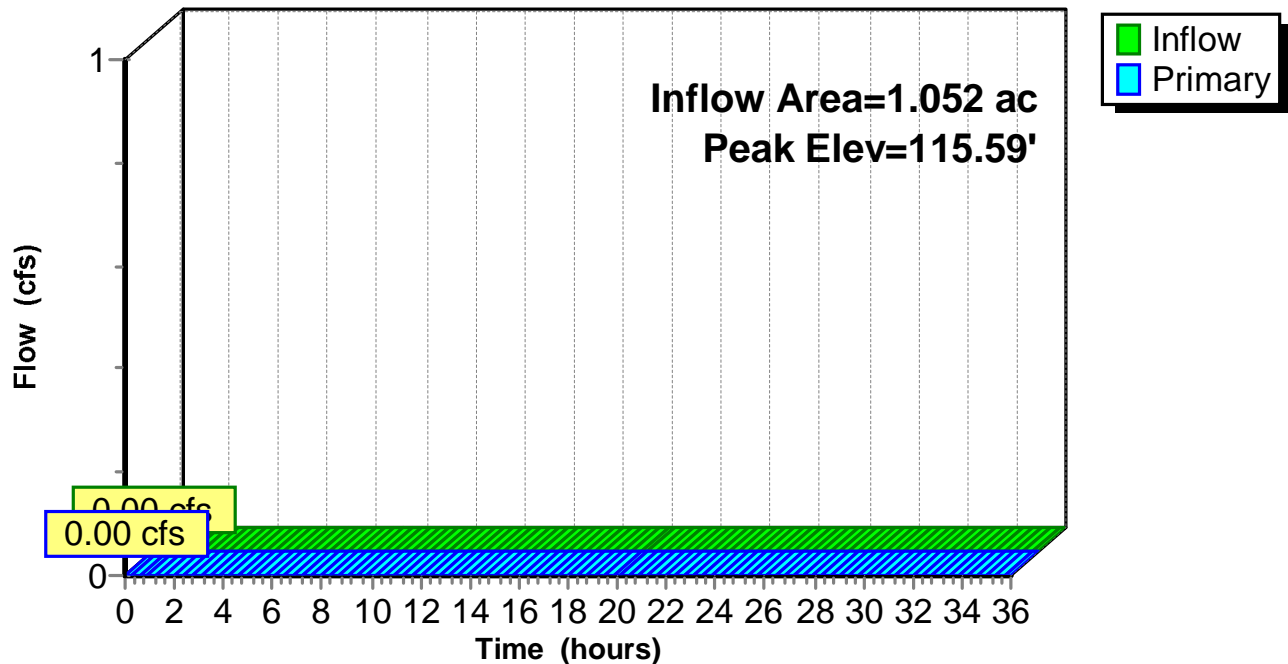
Device	Routing	Invert	Outlet Devices
#1	Primary	118.72'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.59' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.75' @ 0.00 hrs

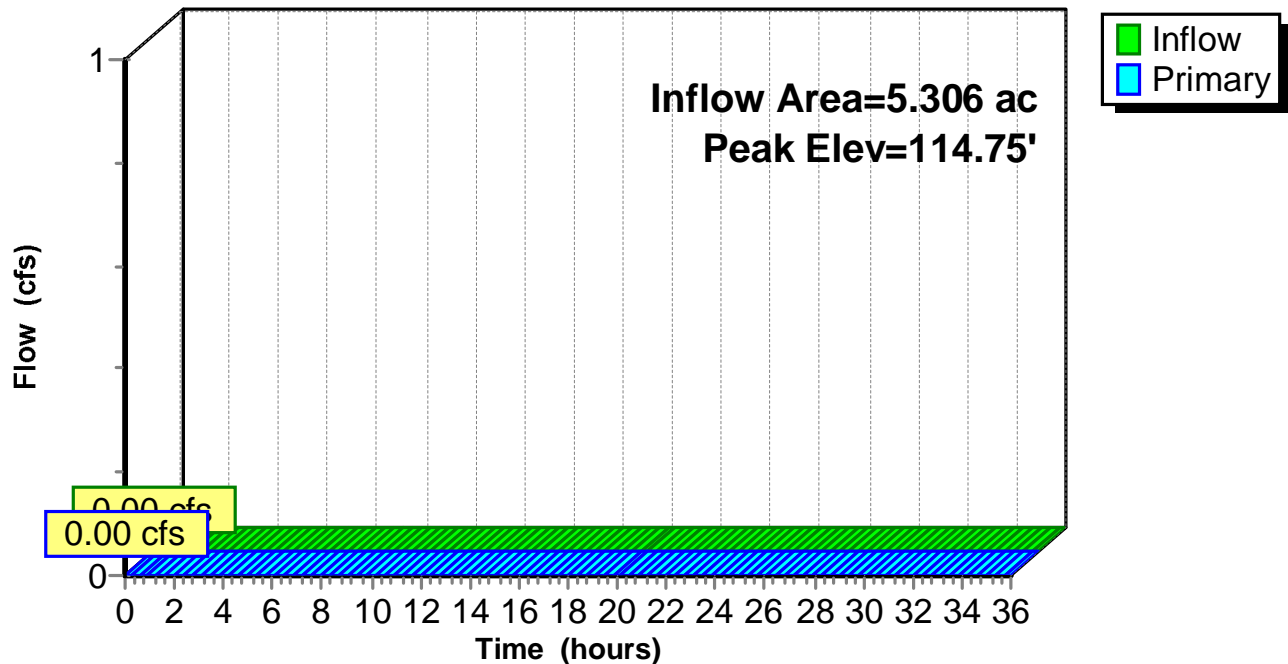
Device	Routing	Invert	Outlet Devices
#1	Primary	122.30'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.75'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 114.75' / 112.88' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=114.75' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-05:

Inflow Area = 1.741 ac, 14.09% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.75' @ 21.76 hrs

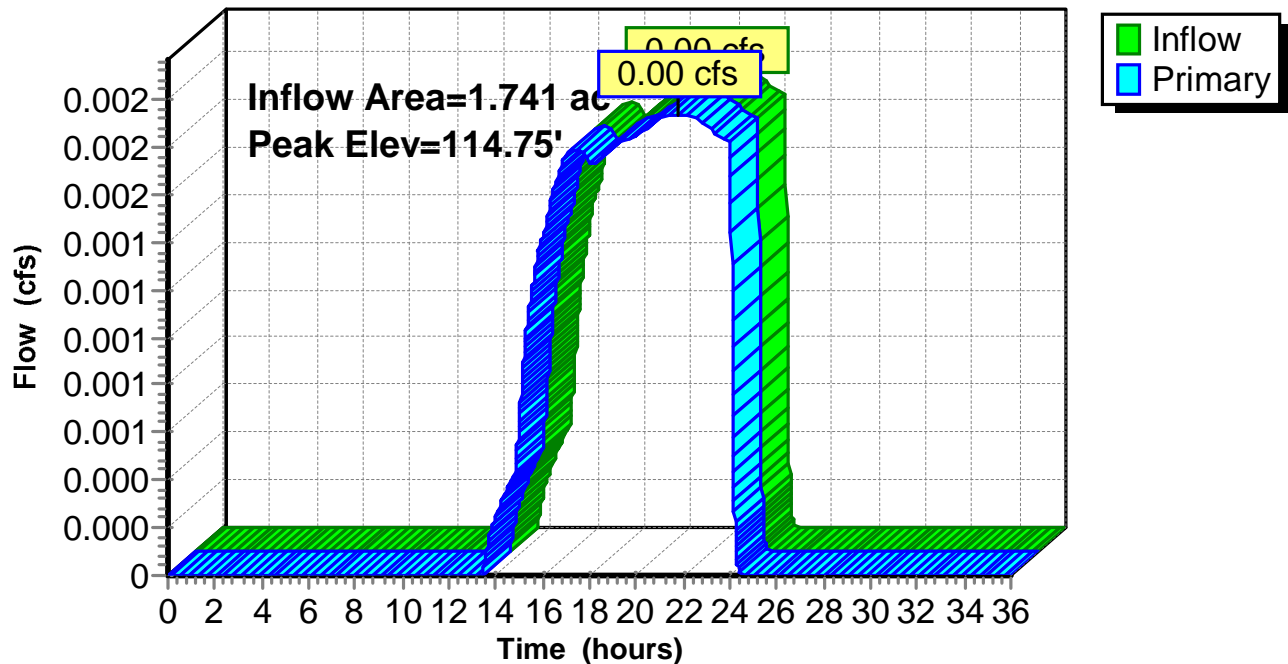
Device	Routing	Invert	Outlet Devices
#1	Primary	118.80'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.74'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 114.74' / 112.88' S= 0.0255 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 21.76 hrs HW=114.75' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.33 fps)

Pond CB16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.49' @ 0.00 hrs

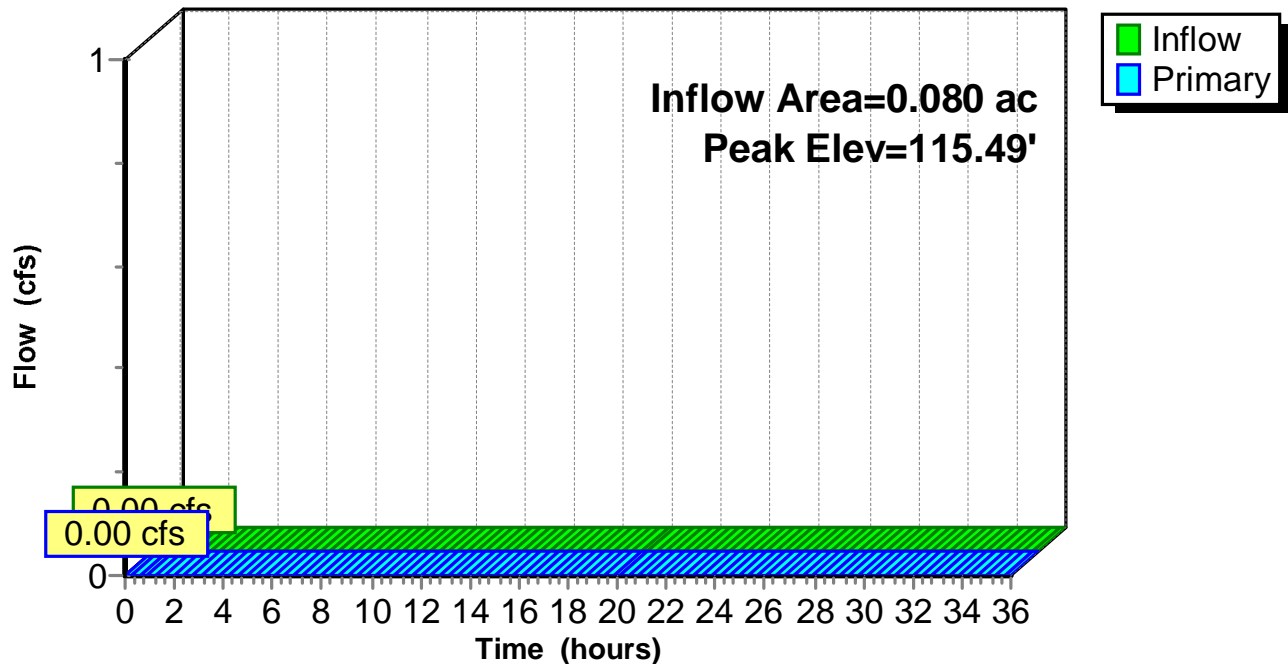
Device	Routing	Invert	Outlet Devices
#1	Primary	119.48'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.49'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 115.49' / 114.80' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=115.49' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 120.73' @ 21.96 hrs

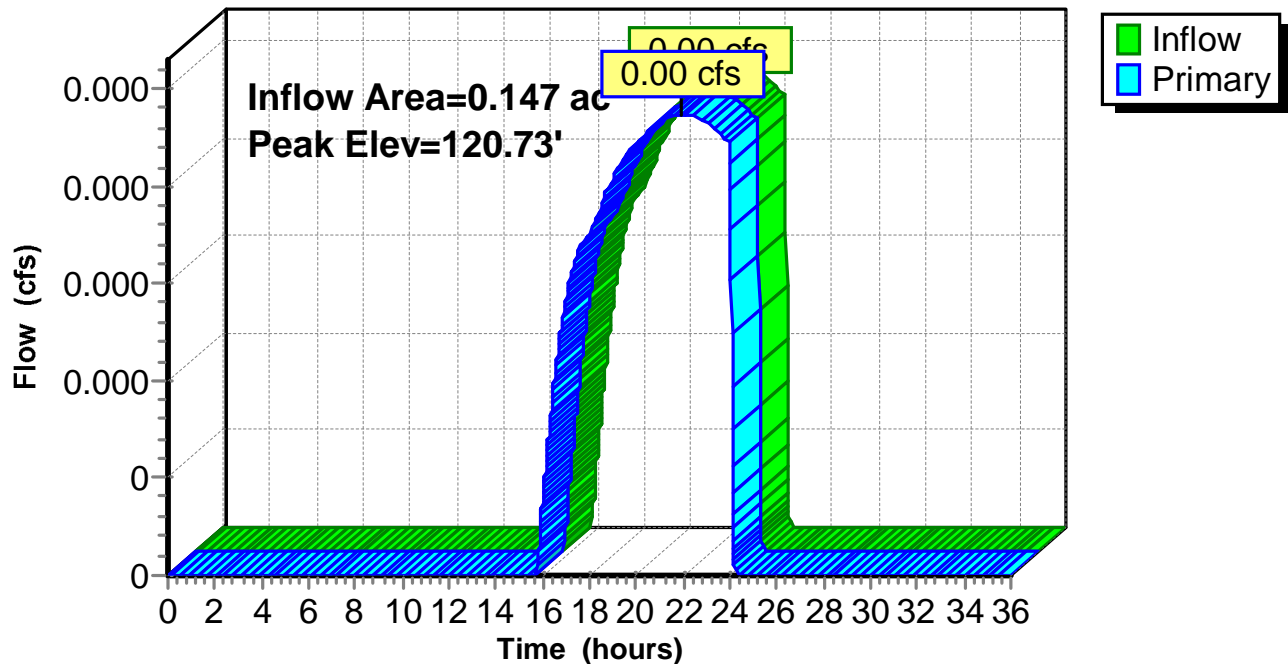
Device	Routing	Invert	Outlet Devices
#1	Primary	125.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.73'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 120.73' / 120.35' S= 0.0045 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.96 hrs HW=120.73' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.08 fps)

Pond CB16-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.02" for 2-yr event
 Inflow = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 120.32' @ 20.69 hrs

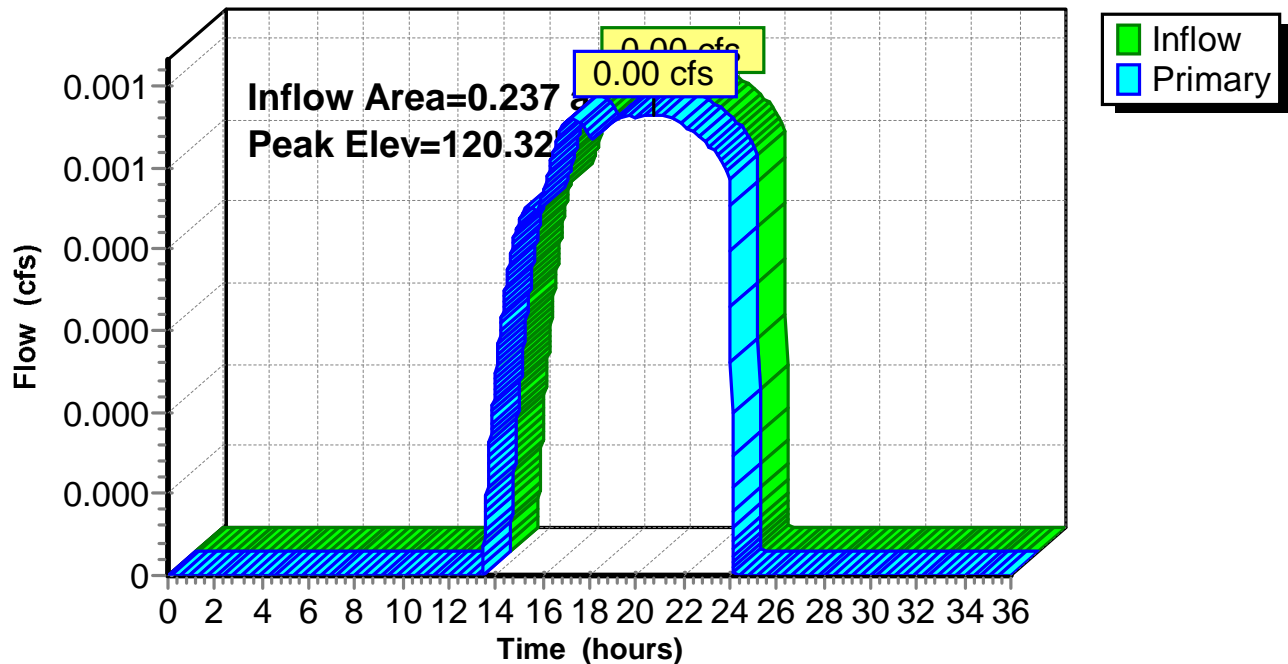
Device	Routing	Invert	Outlet Devices
#1	Primary	128.20'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.32'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 120.32' / 114.80' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 20.69 hrs HW=120.32' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.14 fps)

Pond CB16-08:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 124.84' @ 24.00 hrs

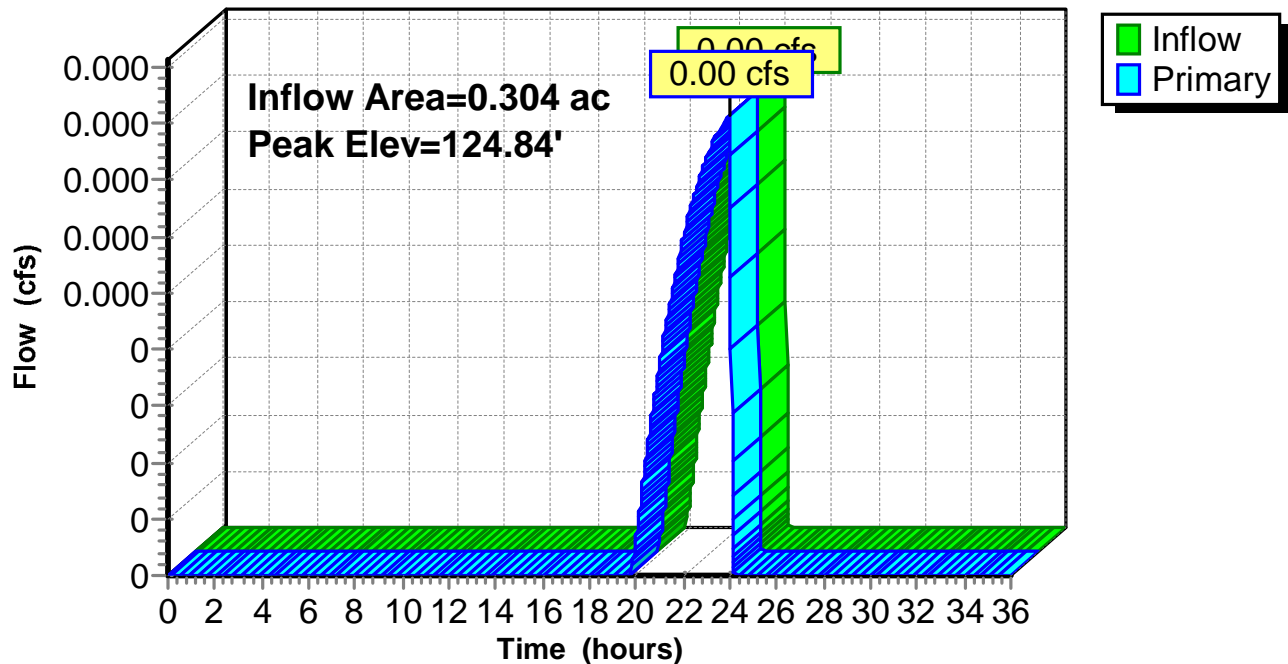
Device	Routing	Invert	Outlet Devices
#1	Primary	129.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	124.84'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 124.84' / 116.48' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=124.84' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.09 fps)

Pond CB16-09:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.60' @ 0.00 hrs

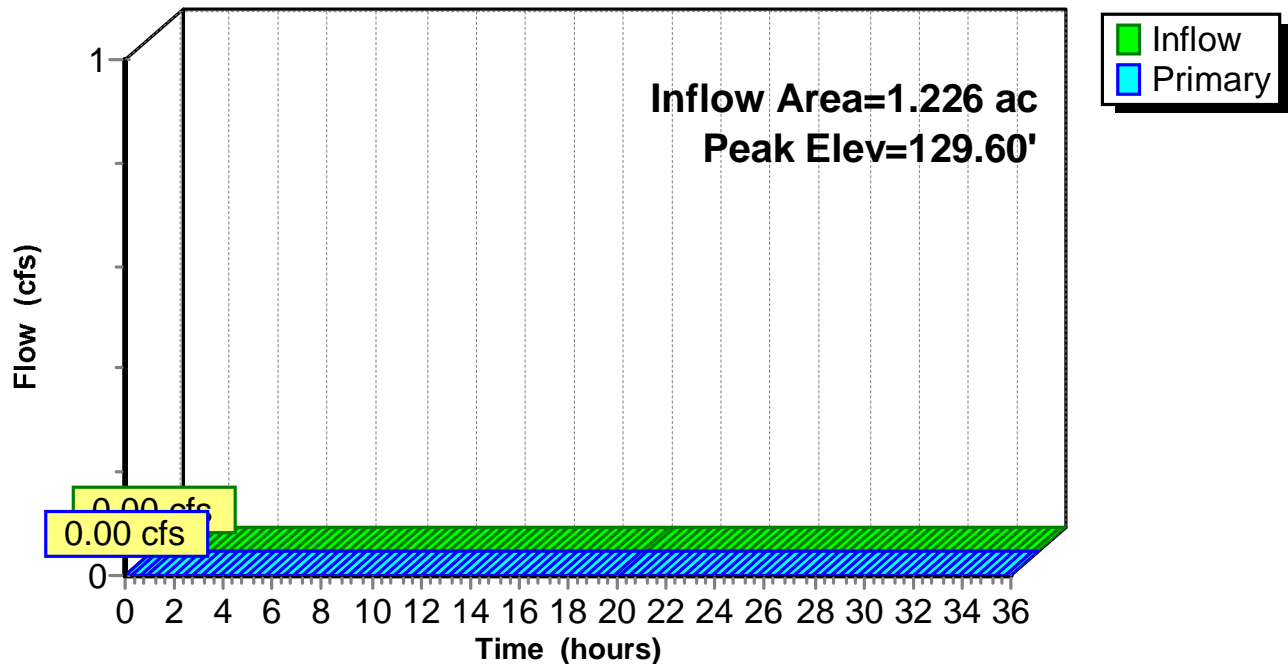
Device	Routing	Invert	Outlet Devices
#1	Primary	133.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.60'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 129.60' / 129.56' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-10:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.29' @ 0.00 hrs

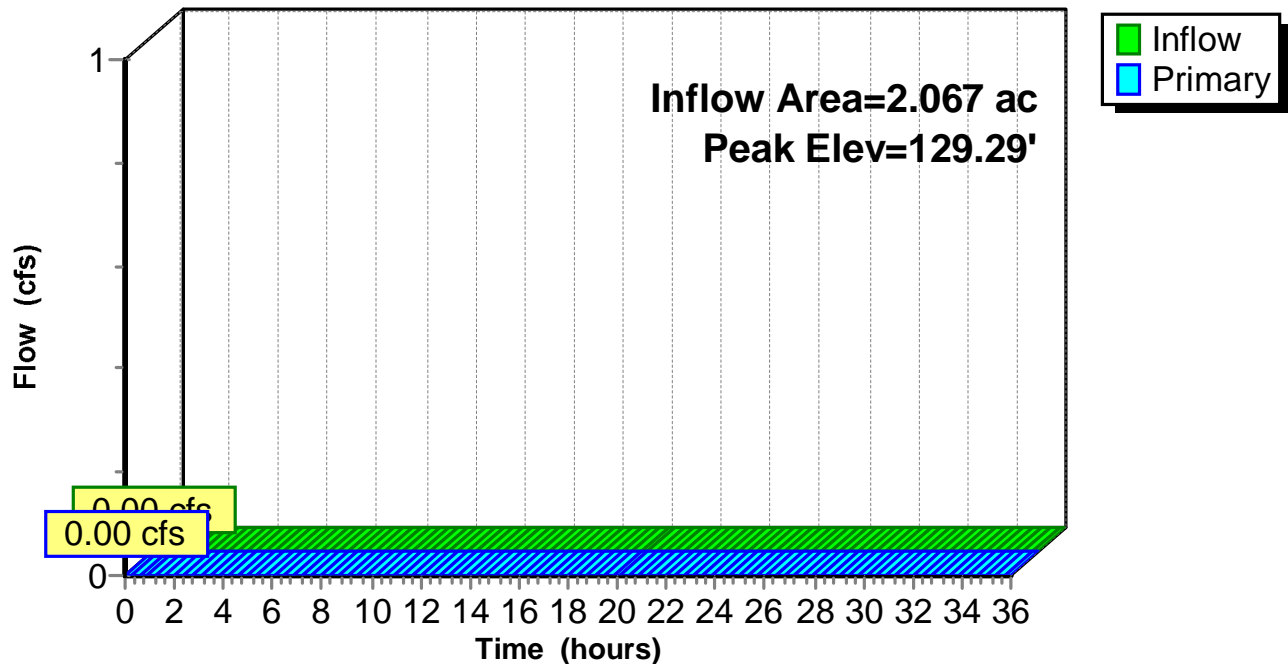
Device	Routing	Invert	Outlet Devices
#1	Primary	133.64'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.29'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 129.29' / 128.00' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.29' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-11:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 130.68' @ 0.00 hrs

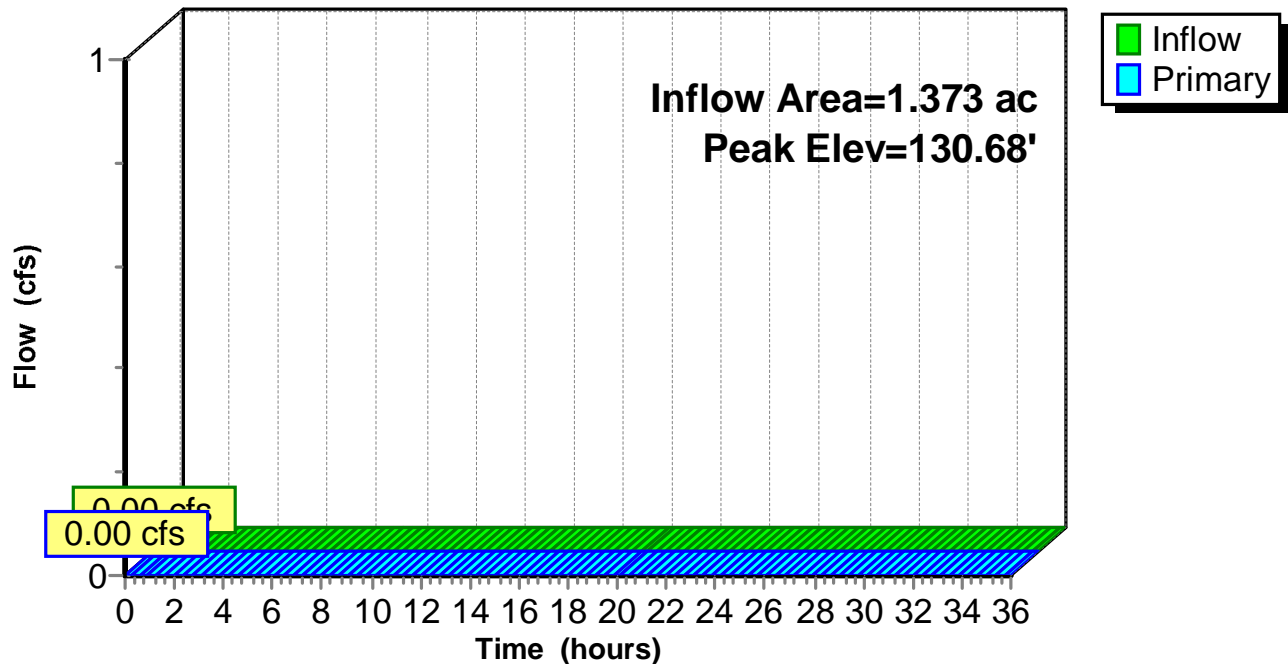
Device	Routing	Invert	Outlet Devices
#1	Primary	136.24'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	130.68'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 130.68' / 130.09' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-12:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.89' @ 0.00 hrs

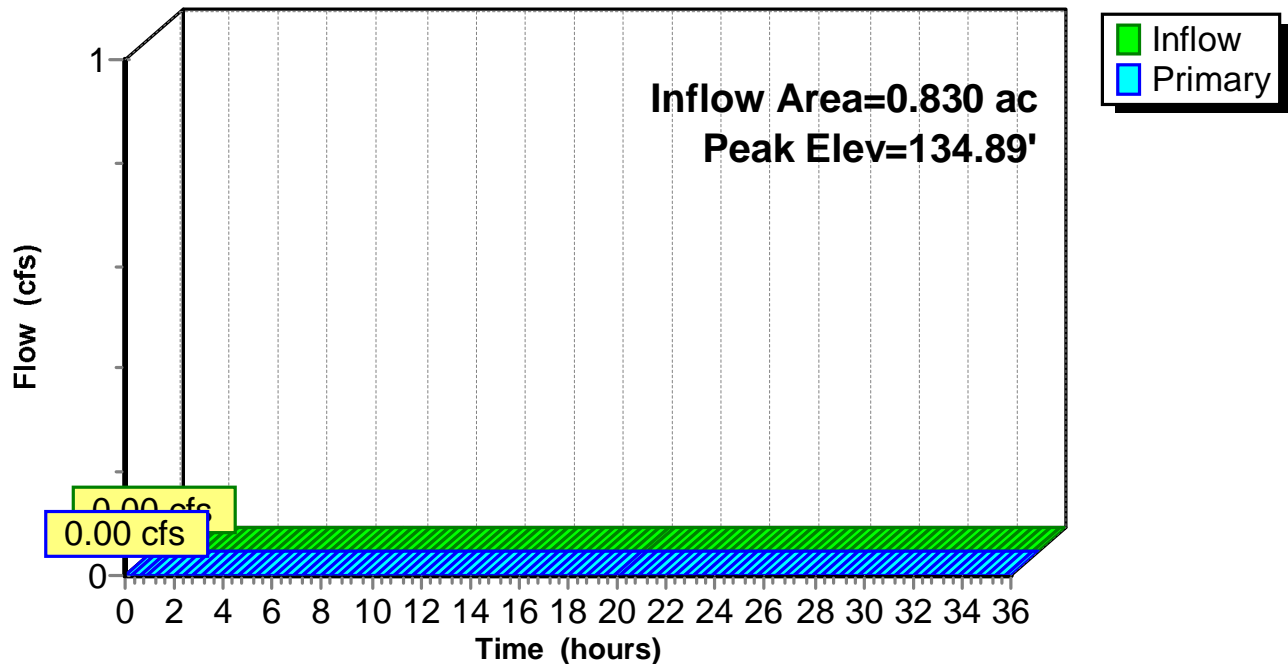
Device	Routing	Invert	Outlet Devices
#1	Primary	139.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	134.89'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 134.89' / 134.25' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=134.89' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 144.36' @ 0.00 hrs

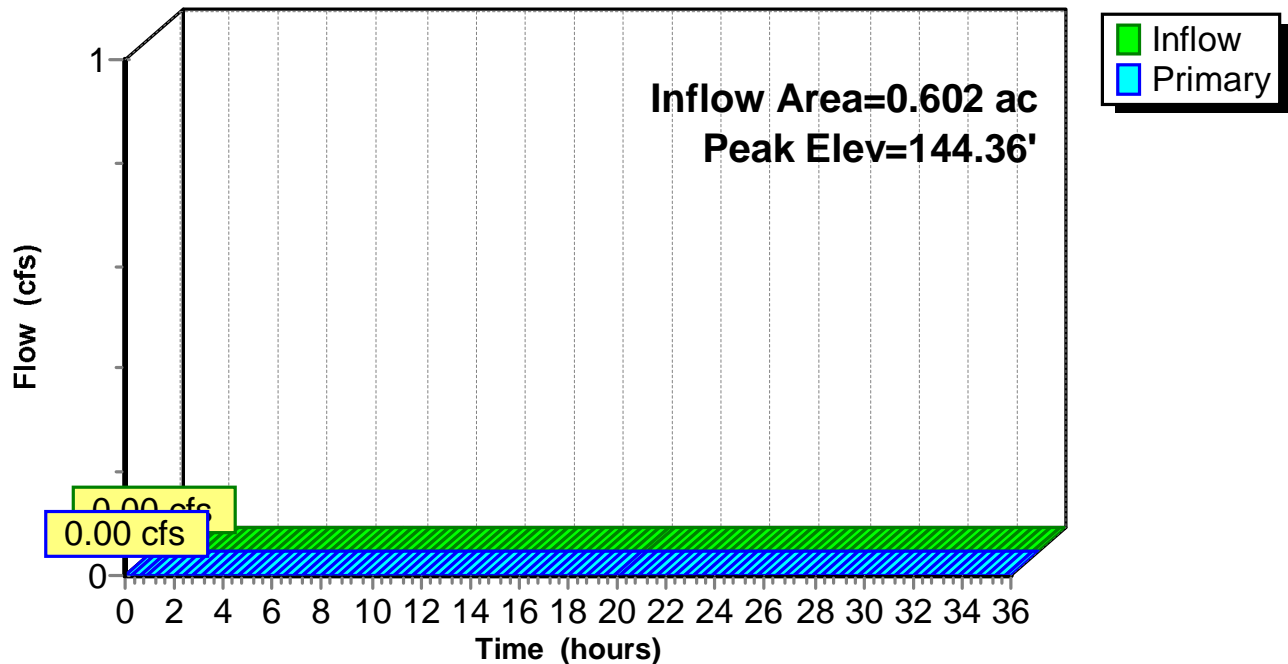
Device	Routing	Invert	Outlet Devices
#1	Primary	149.54'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	144.36'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 144.36' / 136.84' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=144.36' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-14:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-15:

Inflow Area = 0.563 ac, 17.31% Impervious, Inflow Depth = 0.02" for 2-yr event
 Inflow = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.18' @ 20.92 hrs

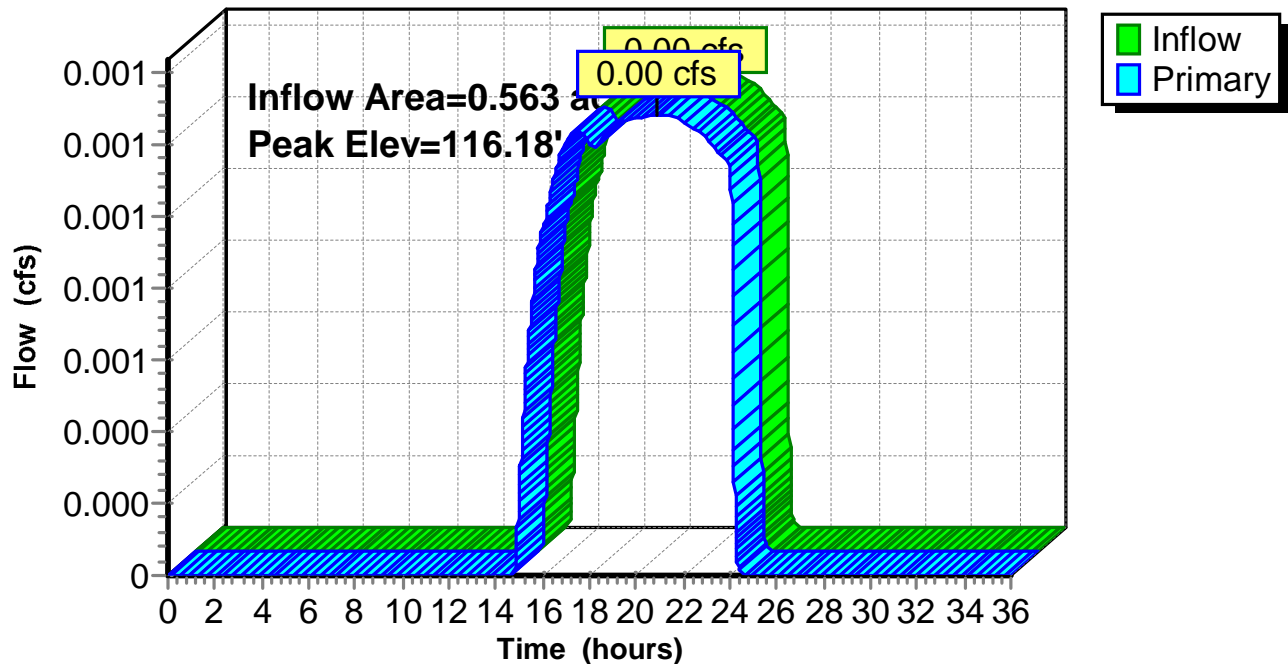
Device	Routing	Invert	Outlet Devices
#1	Primary	119.19'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	116.17'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 116.17' / 114.74' S= 0.0154 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 20.92 hrs HW=116.18' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.43 fps)

Pond CB16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.80' @ 24.03 hrs

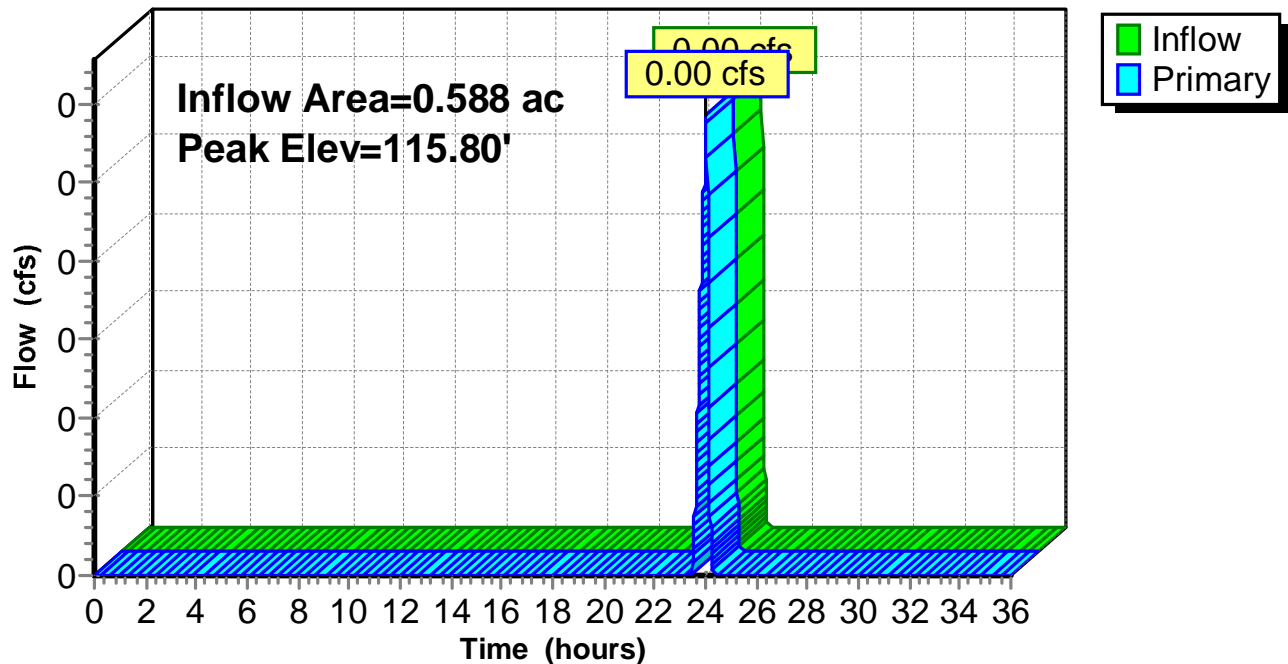
Device	Routing	Invert	Outlet Devices
#1	Primary	119.05'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.80'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 115.80' / 115.62' S= 0.0036 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.03 hrs HW=115.80' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.03 fps)

Pond CB17-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.62' @ 24.03 hrs

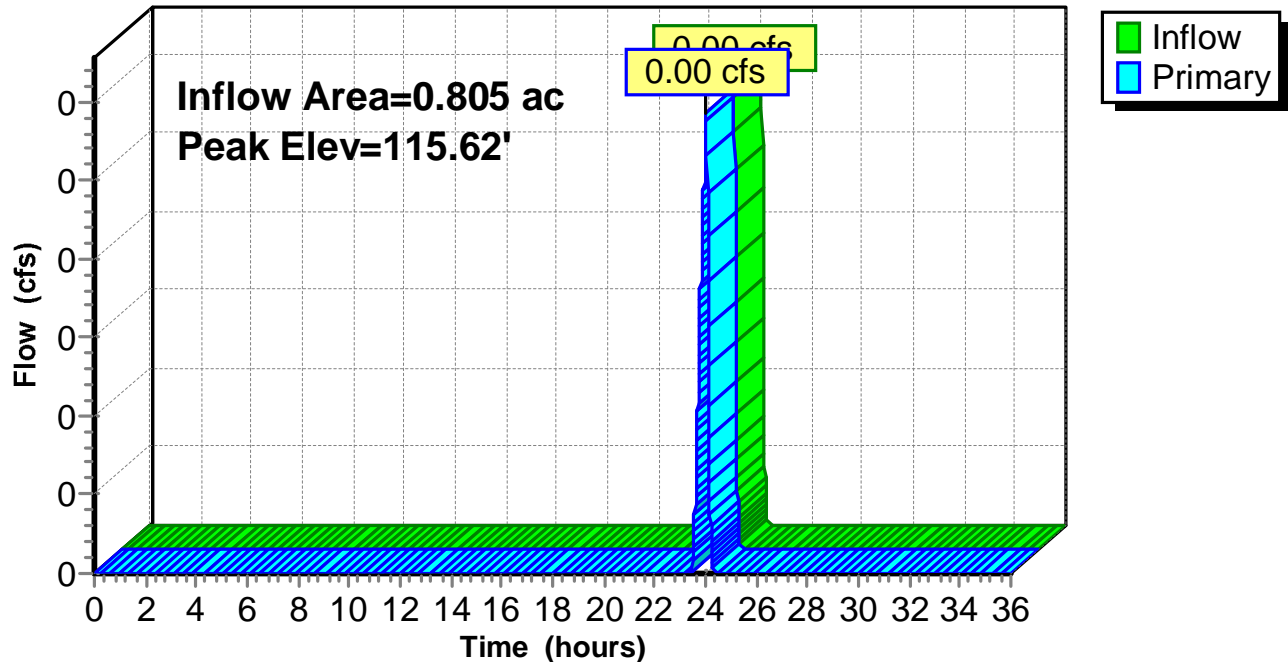
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.62'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 115.62' / 115.40' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.03 hrs HW=115.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.02 fps)

Pond CB17-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.45' @ 21.94 hrs

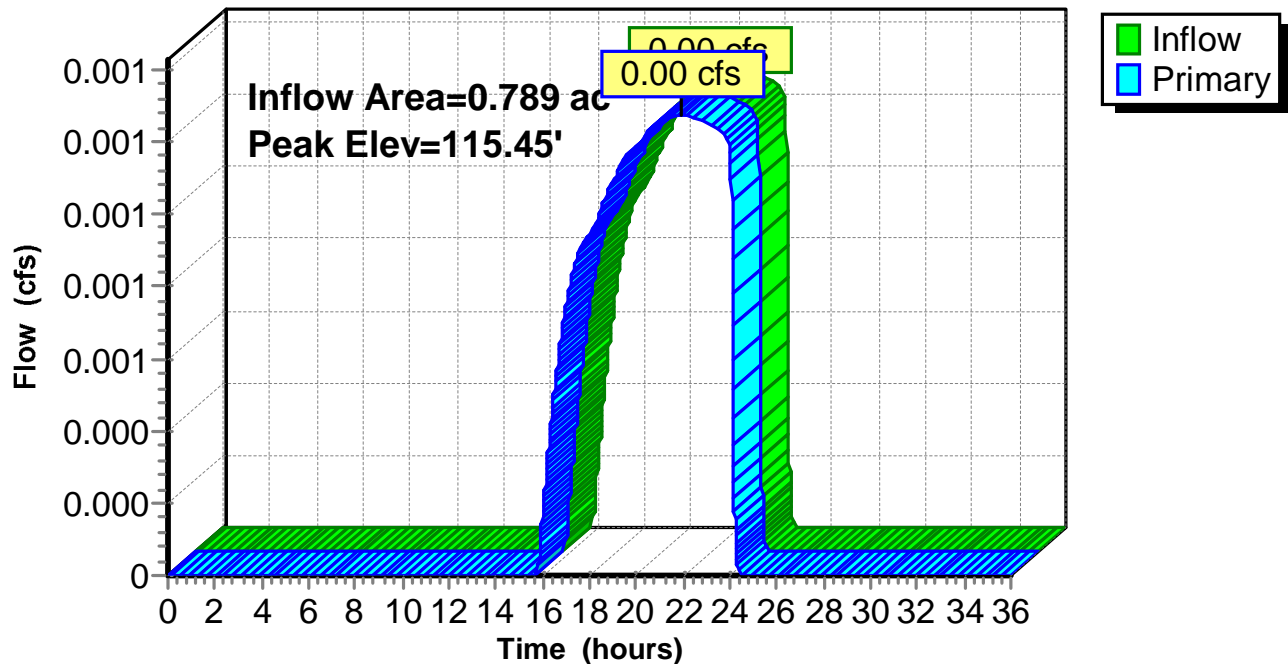
Device	Routing	Invert	Outlet Devices
#1	Primary	118.38'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.44'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 115.44' / 115.40' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=115.45' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.44 fps)

Pond CB17-03:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 0.19" for 2-yr event
 Inflow = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af
 Outflow = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.92' @ 12.39 hrs

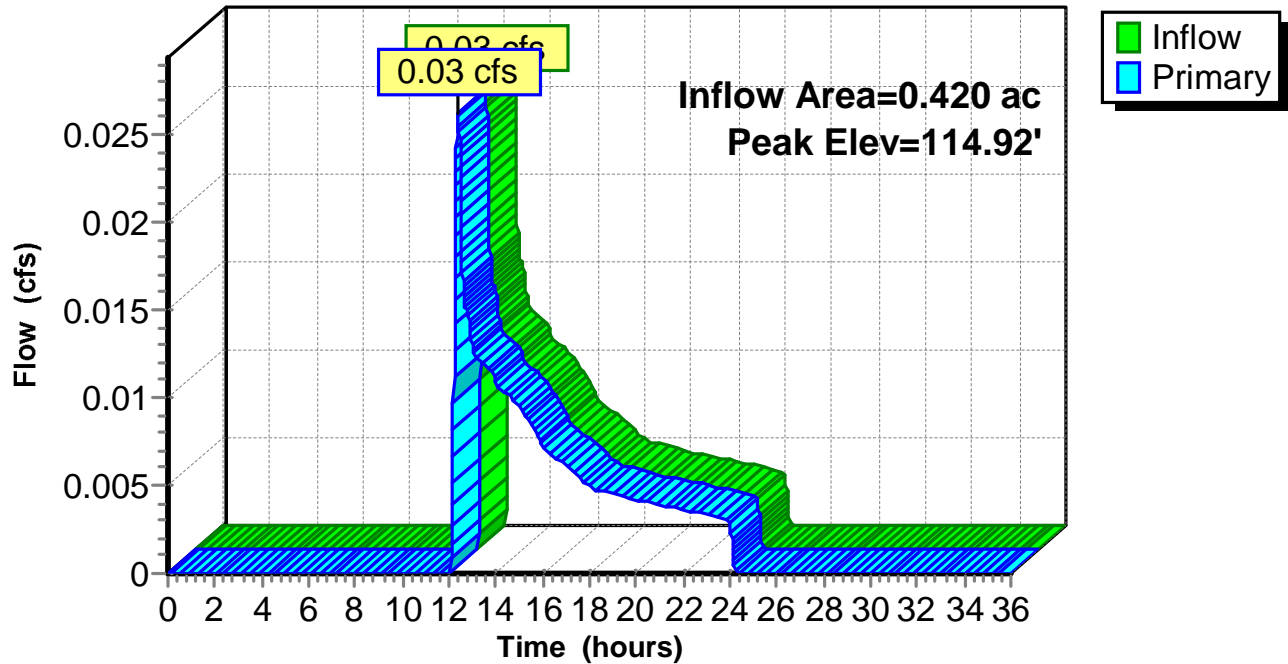
Device	Routing	Invert	Outlet Devices
#1	Primary	117.90'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.39 hrs HW=114.92' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 0.94 fps)

Pond CB17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-05:

Inflow Area = 0.665 ac, 22.89% Impervious, Inflow Depth = 0.24" for 2-yr event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.04' @ 12.09 hrs

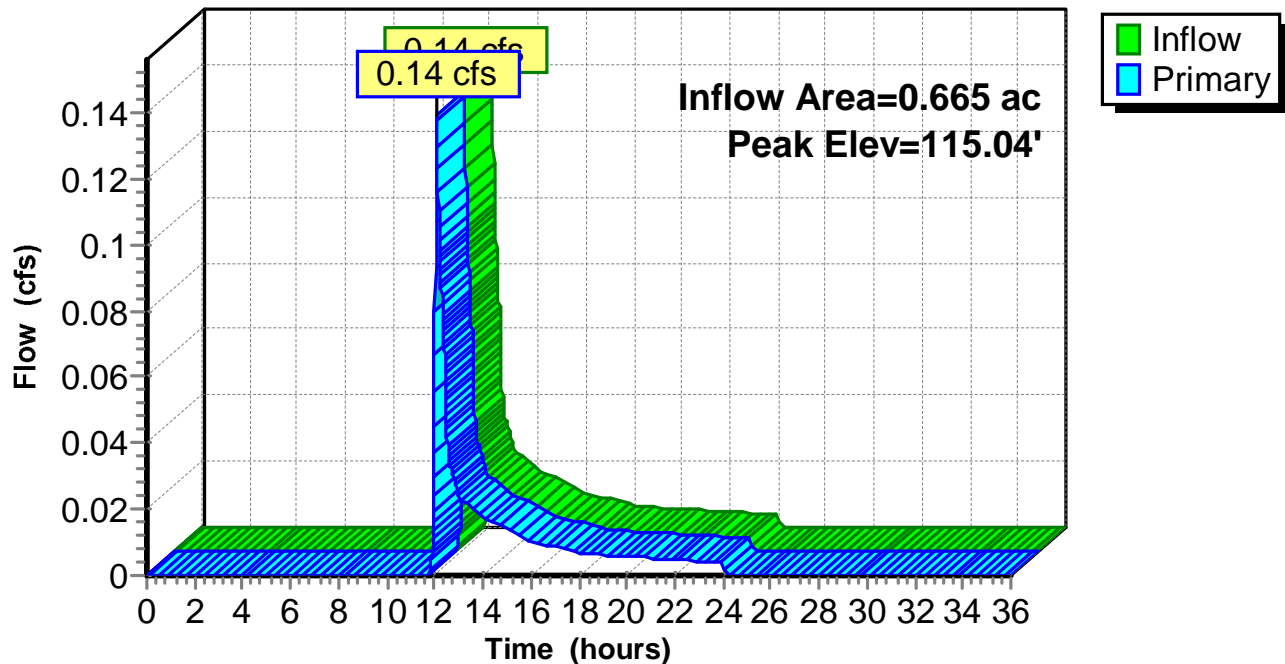
Device	Routing	Invert	Outlet Devices
#1	Primary	117.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0068 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=115.04' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.14 cfs @ 1.85 fps)

Pond CB17-05:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 0.68" for 2-yr event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 113.62' @ 12.08 hrs

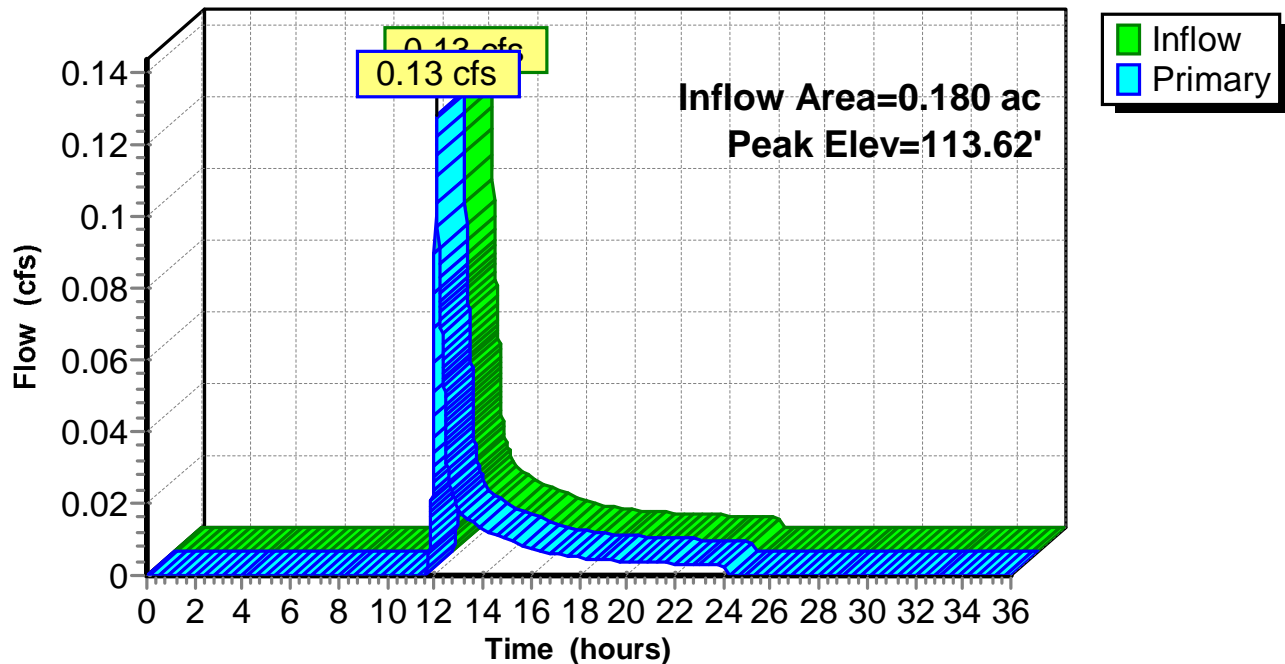
Device	Routing	Invert	Outlet Devices
#1	Primary	116.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	113.45'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 113.45' / 113.02' S= 0.0113 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.08 hrs HW=113.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.13 cfs @ 1.41 fps)

Pond CB17-06:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-07:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.16" for 2-yr event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 113.30' @ 12.08 hrs

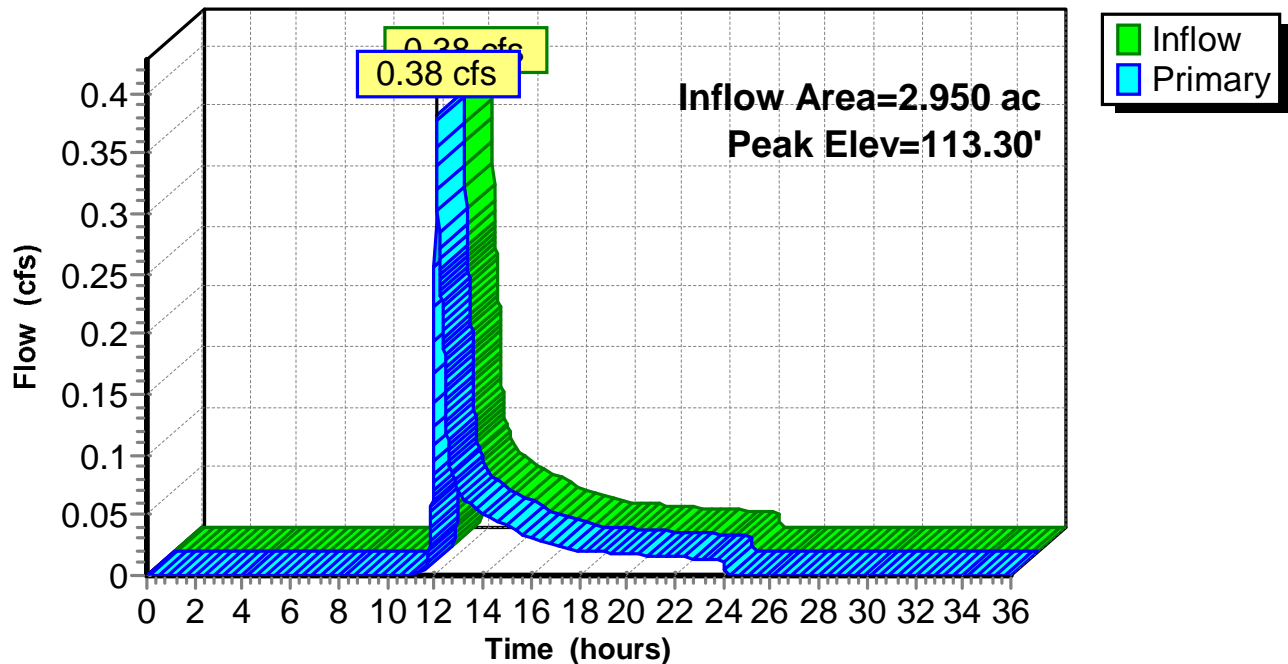
Device	Routing	Invert	Outlet Devices
#1	Primary	116.45'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	112.89'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 112.89' / 112.86' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=113.30' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.38 cfs @ 1.89 fps)

Pond CB17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond OWSMH 16:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 112.25' @ 12.07 hrs

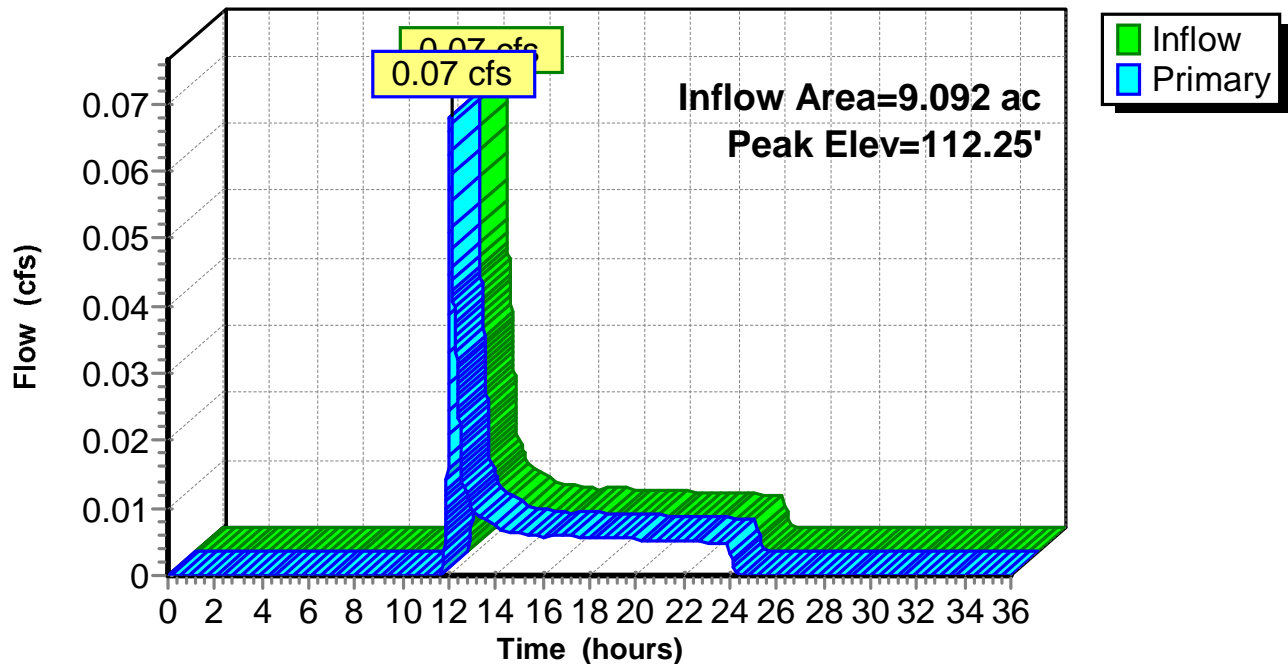
Device	Routing	Invert	Outlet Devices
#1	Primary	121.47'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.12'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 112.12' / 112.00' S= 0.0030 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=112.25' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 1.09 fps)

Pond OWSMH 16:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond OWSMH 17:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.16" for 2-yr event
 Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af
 Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.16' @ 12.08 hrs

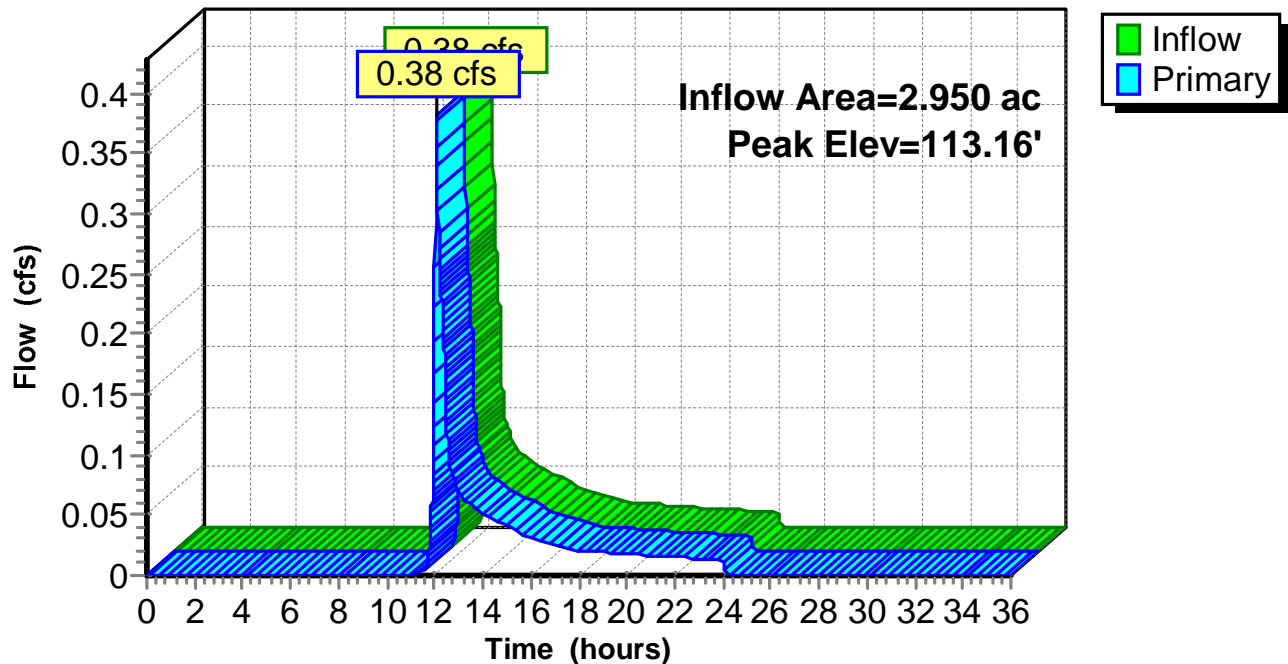
Device	Routing	Invert	Outlet Devices
#1	Primary	117.74'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.86'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 112.86' / 111.00' S= 0.0489 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=113.16' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.38 cfs @ 1.88 fps)

Pond OWSMH 17:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 112.51' @ 12.07 hrs

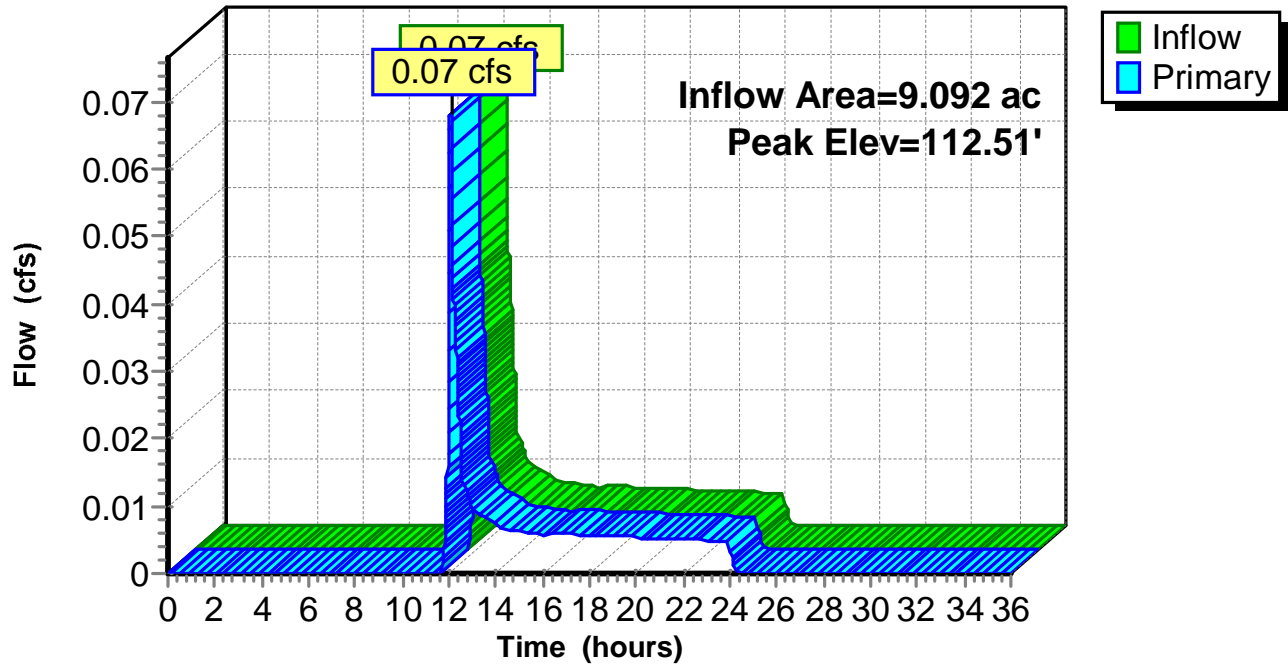
Device	Routing	Invert	Outlet Devices
#1	Primary	121.43'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.37'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 112.37' / 112.37' S= 0.0000 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=112.51' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 0.98 fps)

Pond SDMH16-02.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-02.2:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 112.98' @ 12.07 hrs

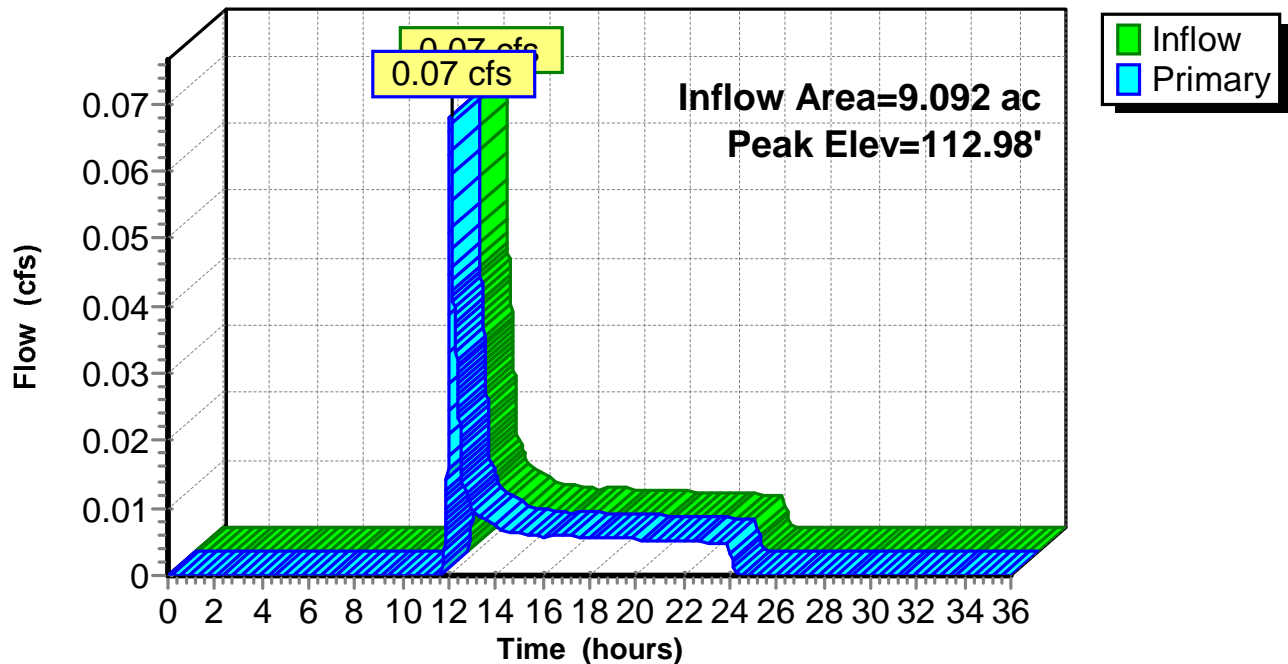
Device	Routing	Invert	Outlet Devices
#1	Primary	118.97'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.88'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 112.88' / 112.51' S= 0.0206 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=112.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.08 fps)

Pond SDMH16-02.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.84' @ 21.99 hrs

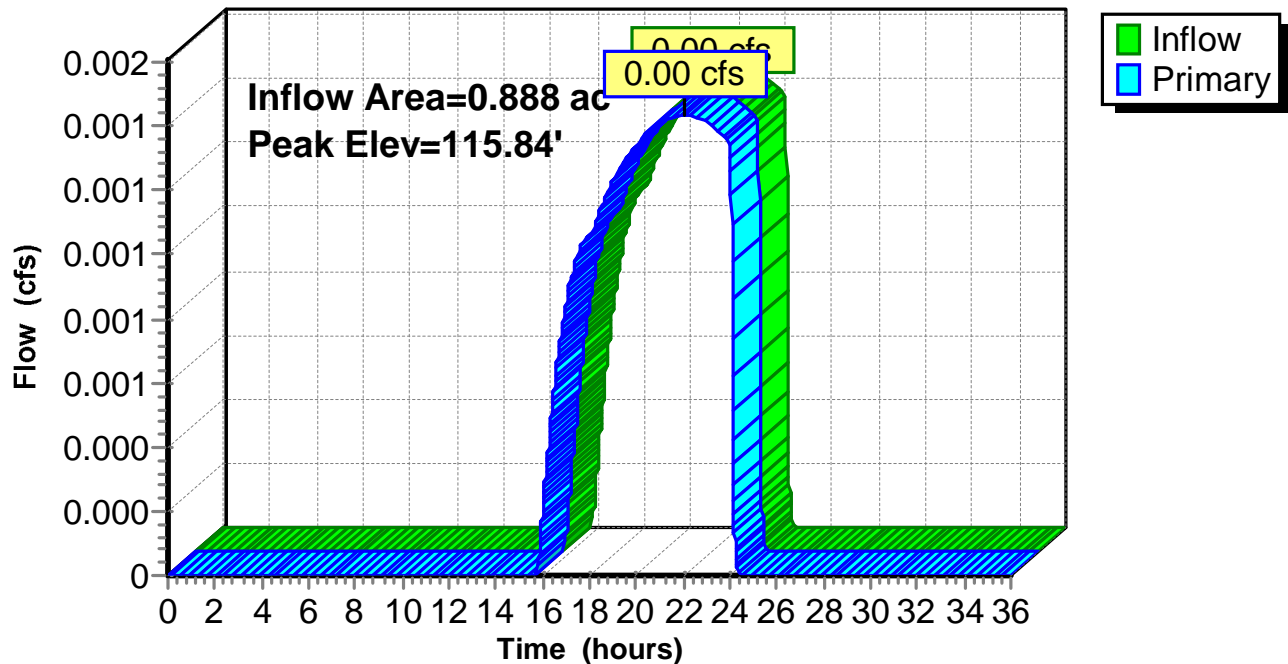
Device	Routing	Invert	Outlet Devices
#1	Primary	119.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.83'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 115.83' / 112.88' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.99 hrs HW=115.84' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.33 fps)

Pond SDMH16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 128.00' @ 0.00 hrs

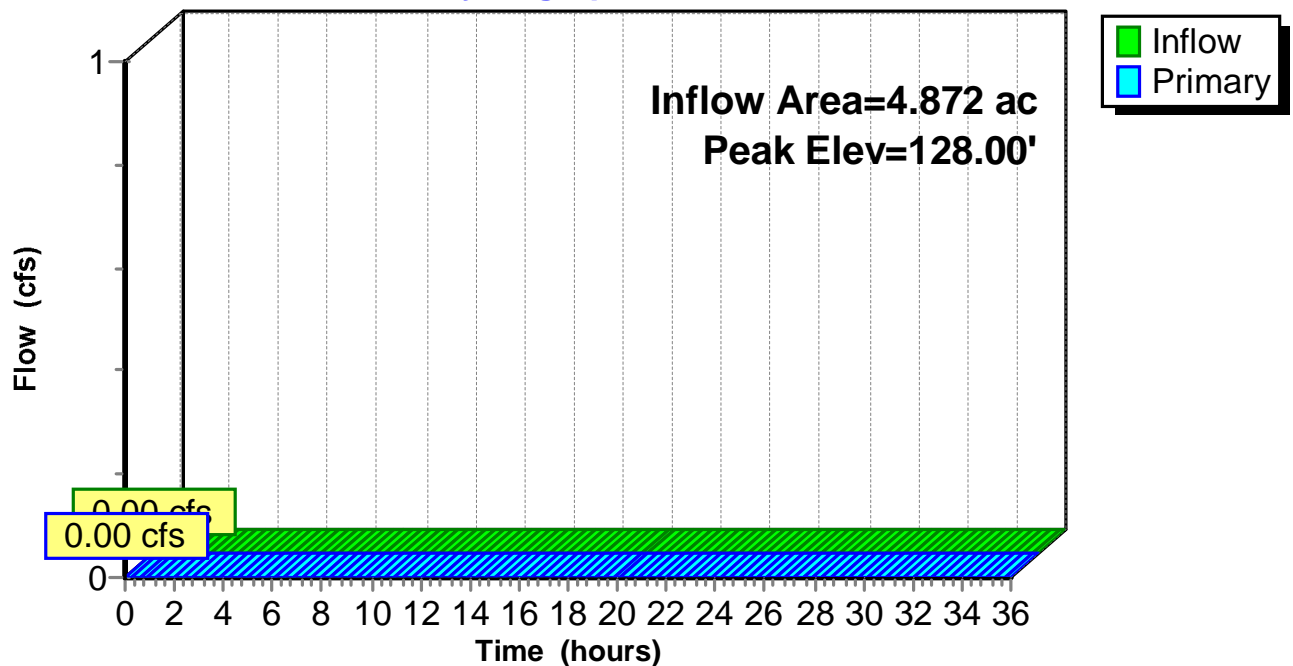
Device	Routing	Invert	Outlet Devices
#1	Primary	132.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	128.00'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 128.00' / 114.75' S= 0.0589 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.81' @ 22.69 hrs

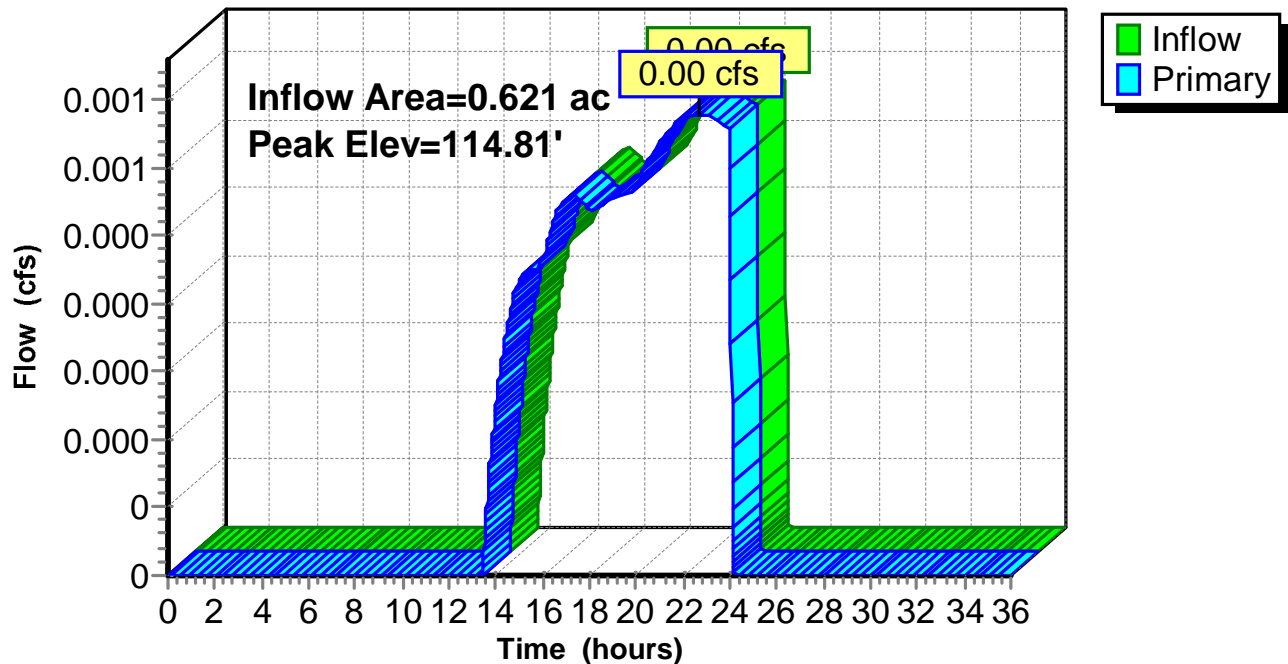
Device	Routing	Invert	Outlet Devices
#1	Primary	120.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.80'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 114.80' / 114.74' S= 0.0010 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 22.69 hrs HW=114.81' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.09 fps)

Pond SDMH16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.10' @ 0.00 hrs

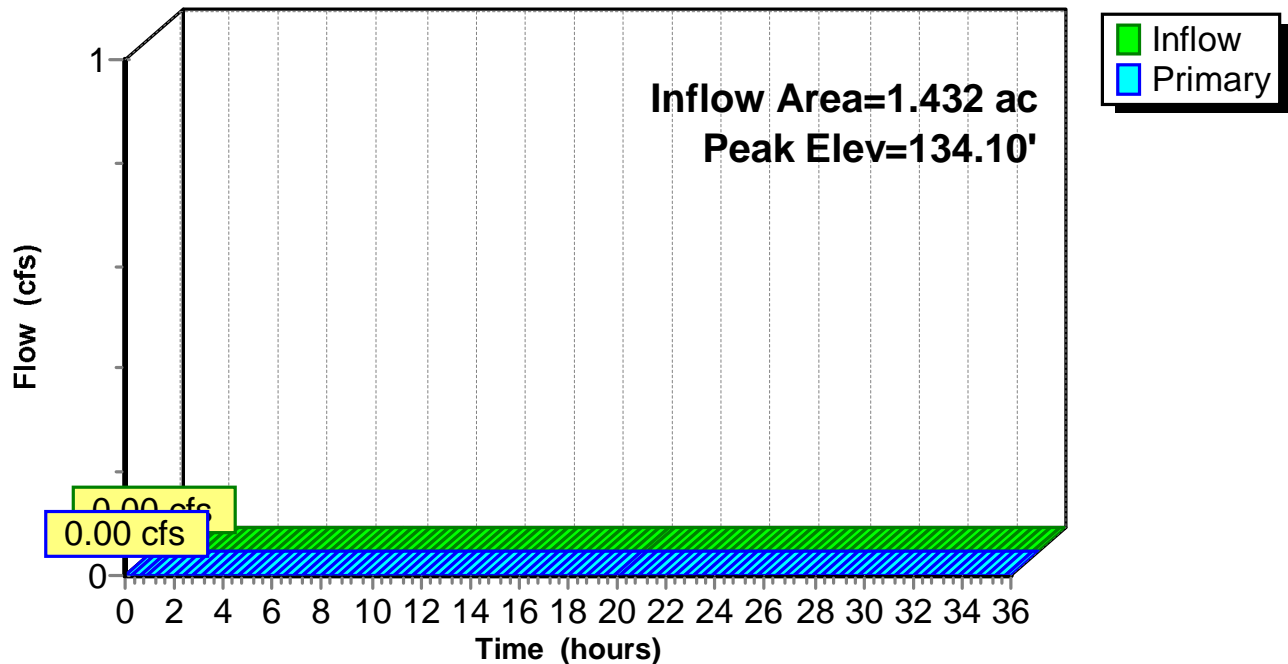
Device	Routing	Invert	Outlet Devices
#1	Primary	139.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	134.10'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 134.10' / 132.47' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=134.10' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-12.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 130.03' @ 0.00 hrs

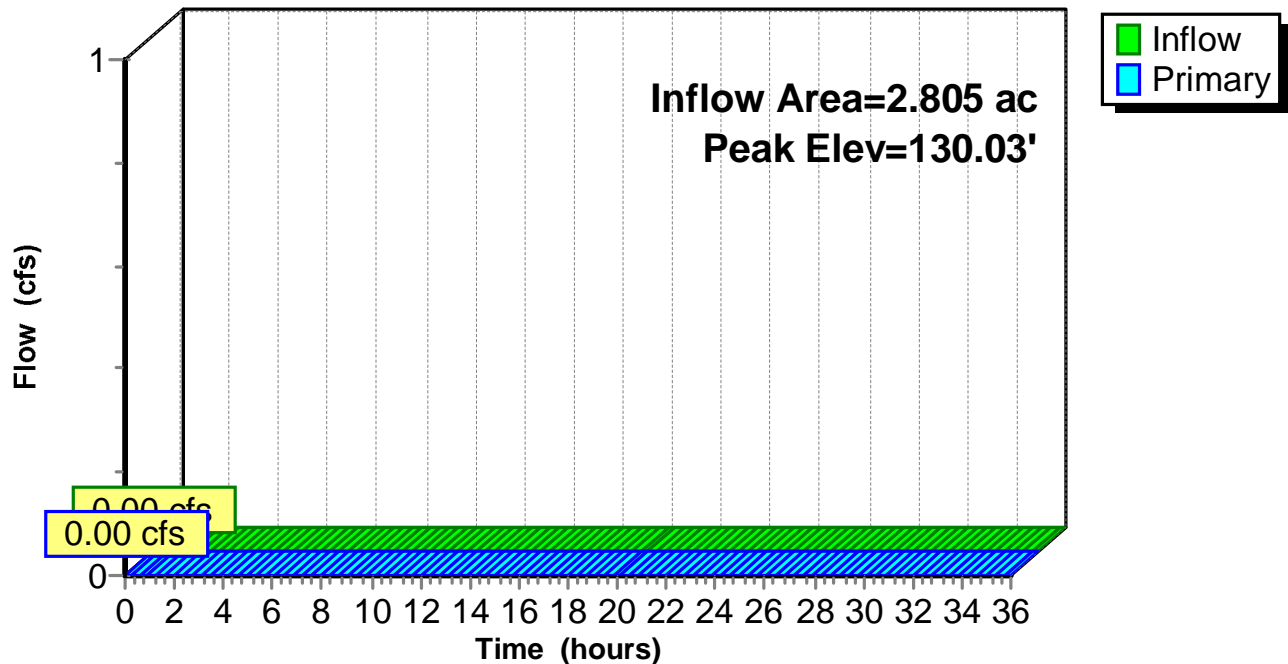
Device	Routing	Invert	Outlet Devices
#1	Primary	136.63'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	130.03'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 130.03' / 128.00' S= 0.0294 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.03' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-12.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 136.74' @ 0.00 hrs

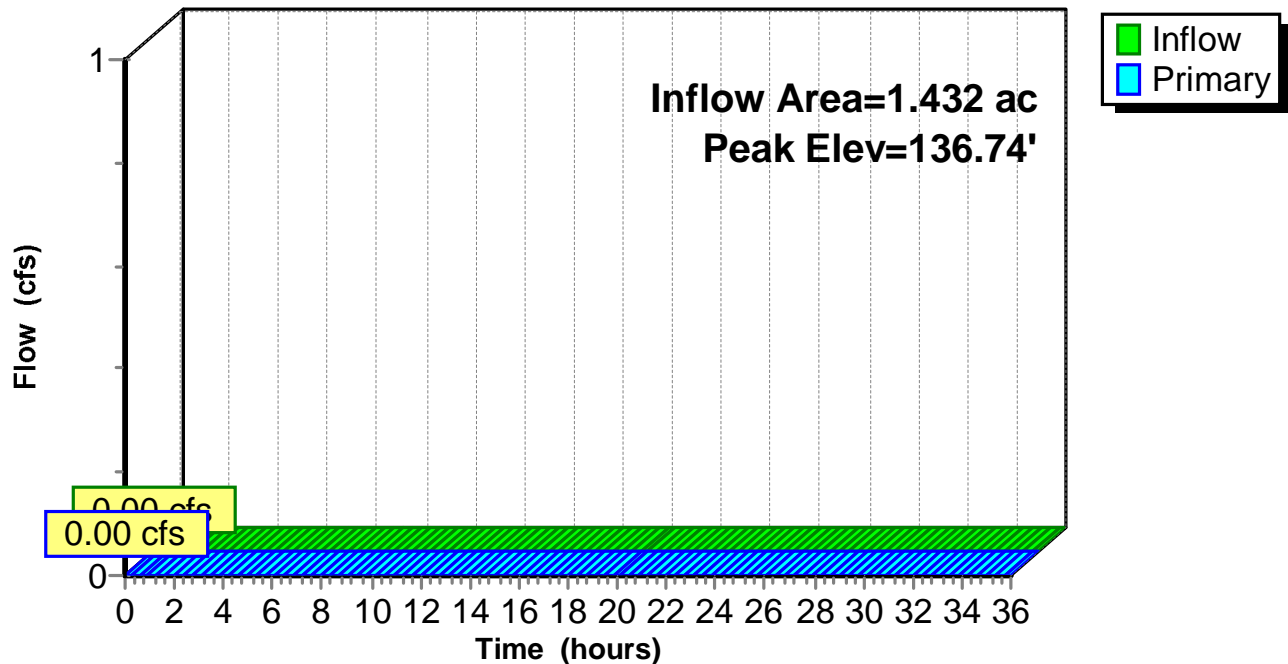
Device	Routing	Invert	Outlet Devices
#1	Primary	144.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	136.74'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 136.74' / 134.65' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=136.74' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.48' @ 24.00 hrs

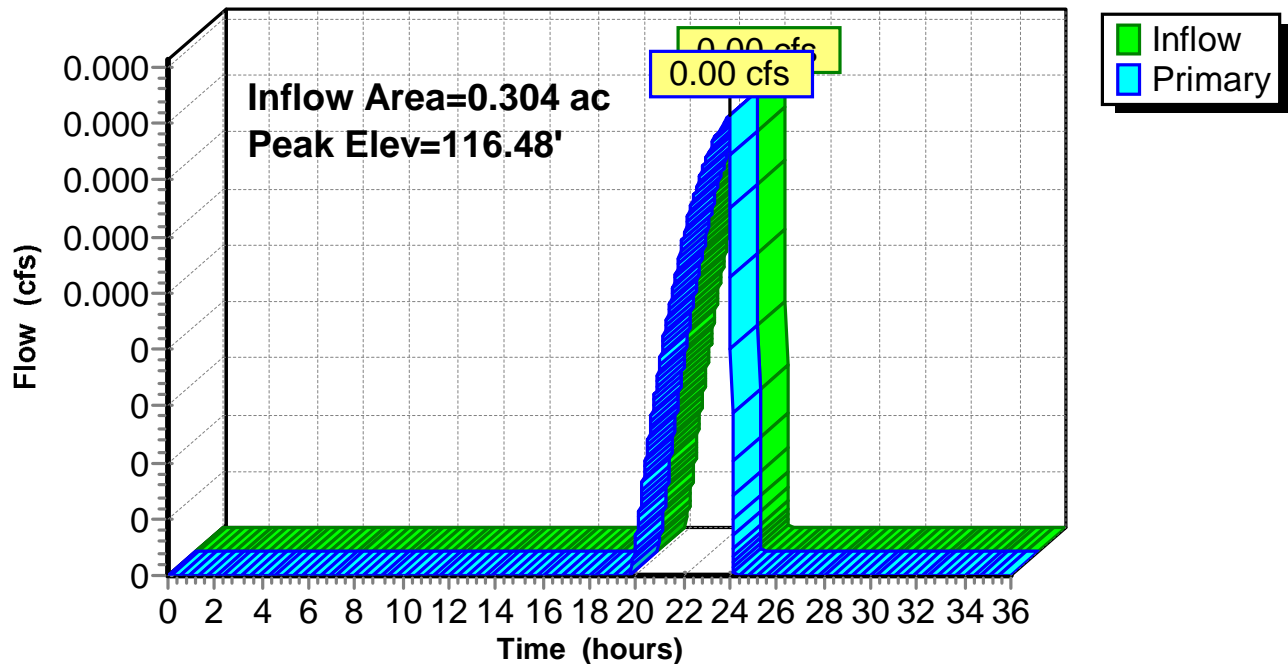
Device	Routing	Invert	Outlet Devices
#1	Primary	124.51'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	116.48'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 116.48' / 115.26' S= 0.0610 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=116.48' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.07 fps)

Pond SDMH16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.33' @ 21.94 hrs

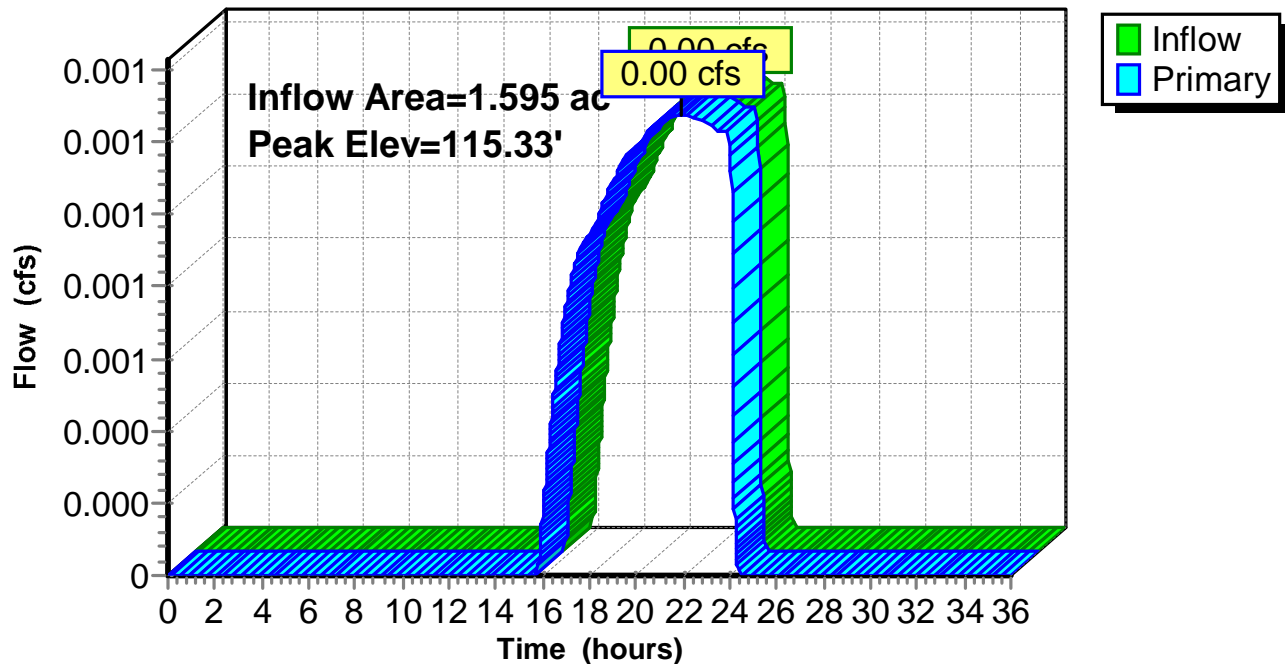
Device	Routing	Invert	Outlet Devices
#1	Primary	118.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.30'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 115.30' / 115.23' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=115.33' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.25 fps)

Pond SDMH17-03.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.92' @ 21.94 hrs

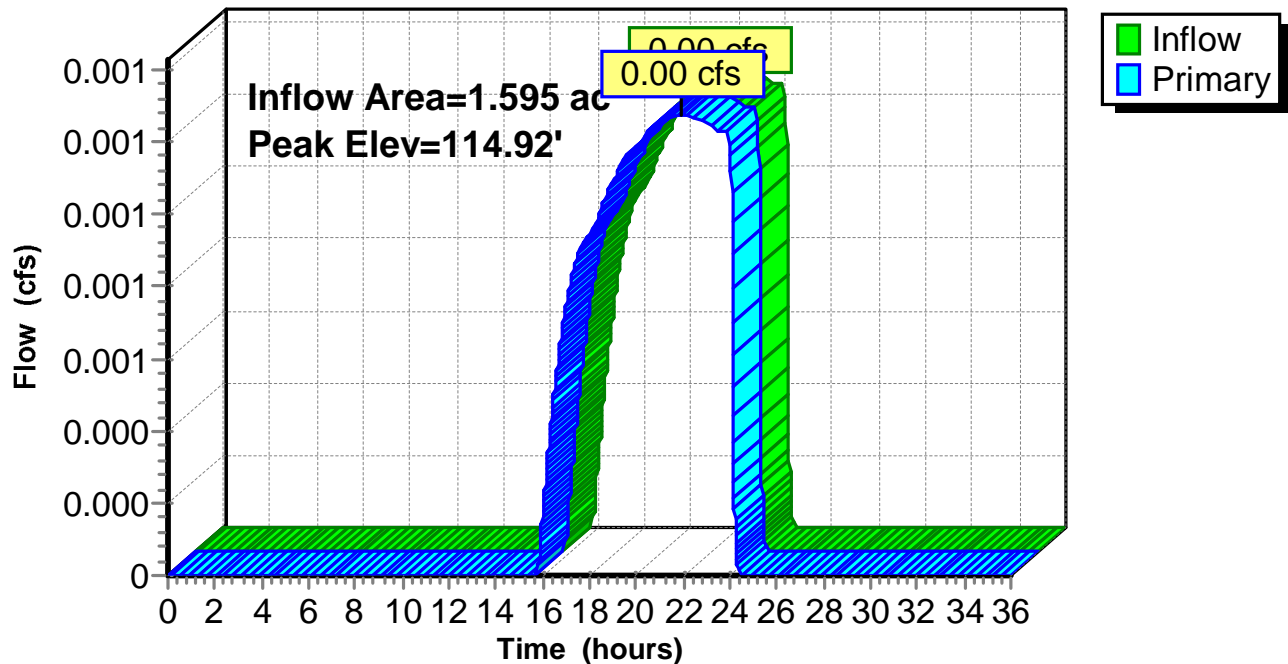
Device	Routing	Invert	Outlet Devices
#1	Primary	122.46'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.91'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 114.91' / 114.71' S= 0.0043 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=114.92' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.17 fps)

Pond SDMH17-03.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH17-04:

Inflow Area = 2.680 ac, 18.90% Impervious, Inflow Depth = 0.09" for 2-yr event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 114.89' @ 12.09 hrs

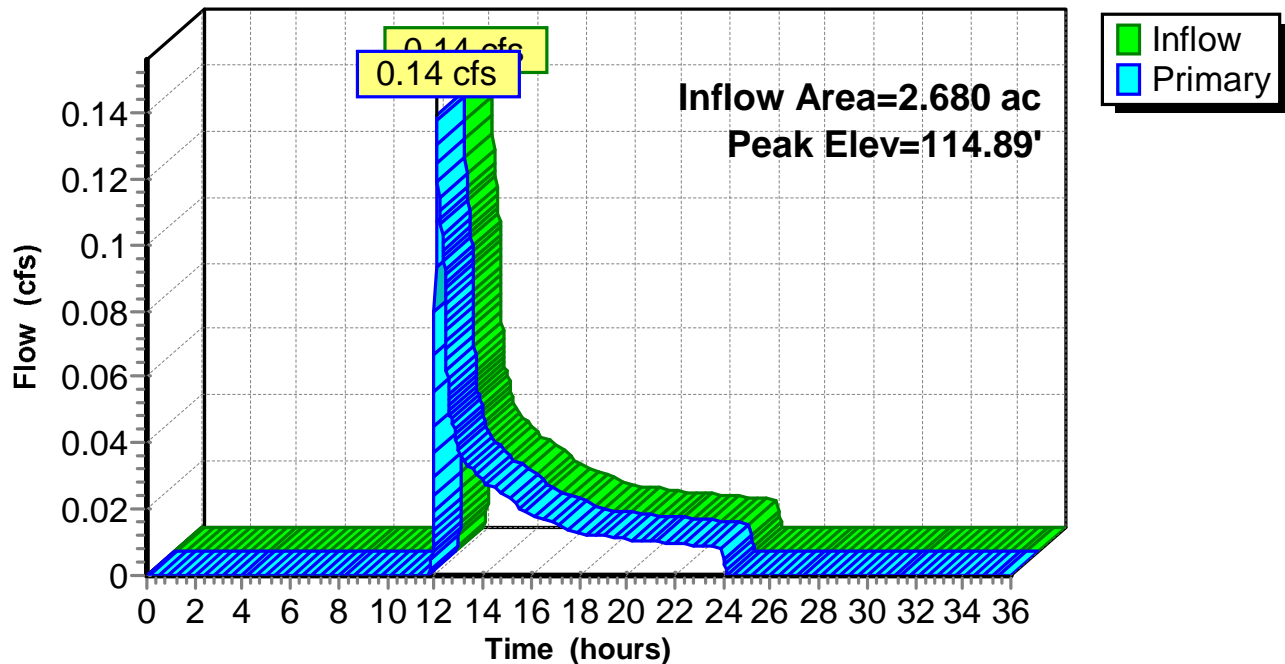
Device	Routing	Invert	Outlet Devices
#1	Primary	117.78'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.71'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 114.71' / 113.02' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=114.89' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.14 cfs @ 1.44 fps)

Pond SDMH17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH17-07:

Inflow Area = 2.860 ac, 21.03% Impervious, Inflow Depth = 0.13" for 2-yr event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af
Outflow = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 113.28' @ 12.08 hrs

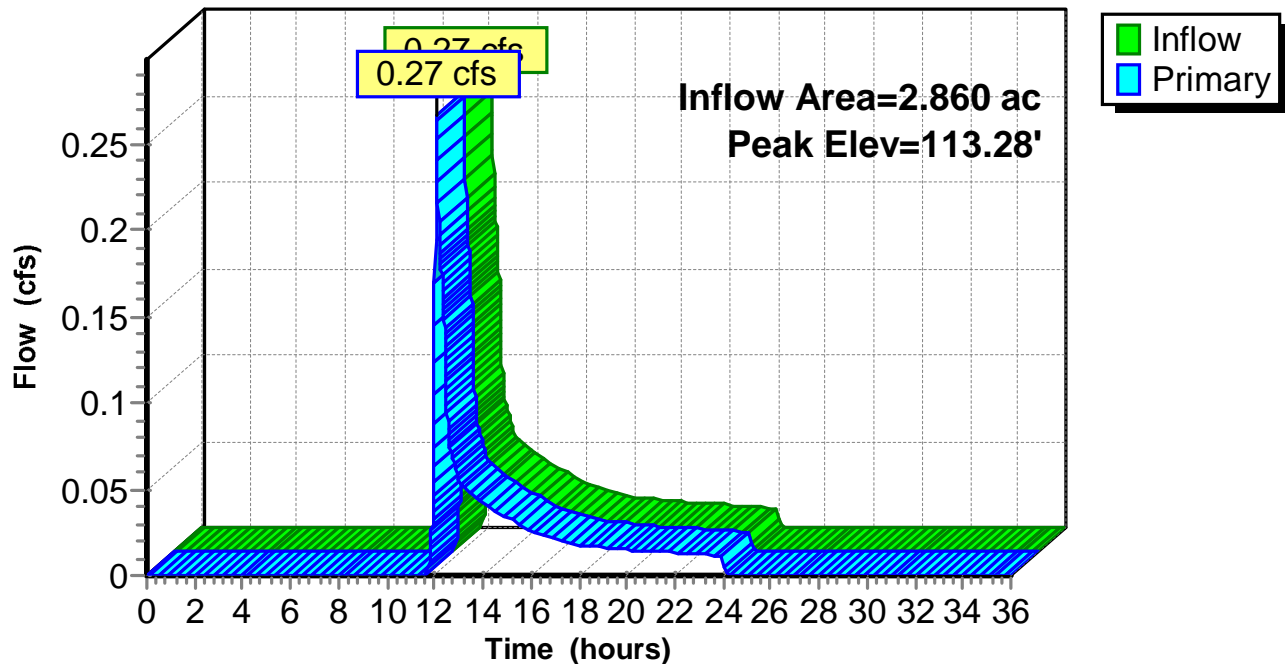
Device	Routing	Invert	Outlet Devices
#1	Primary	116.73'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	113.00'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 113.00' / 112.94' S= 0.0150 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.08 hrs HW=113.28' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.27 cfs @ 2.18 fps)

Pond SDMH17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 2-yr Rainfall=3.28"

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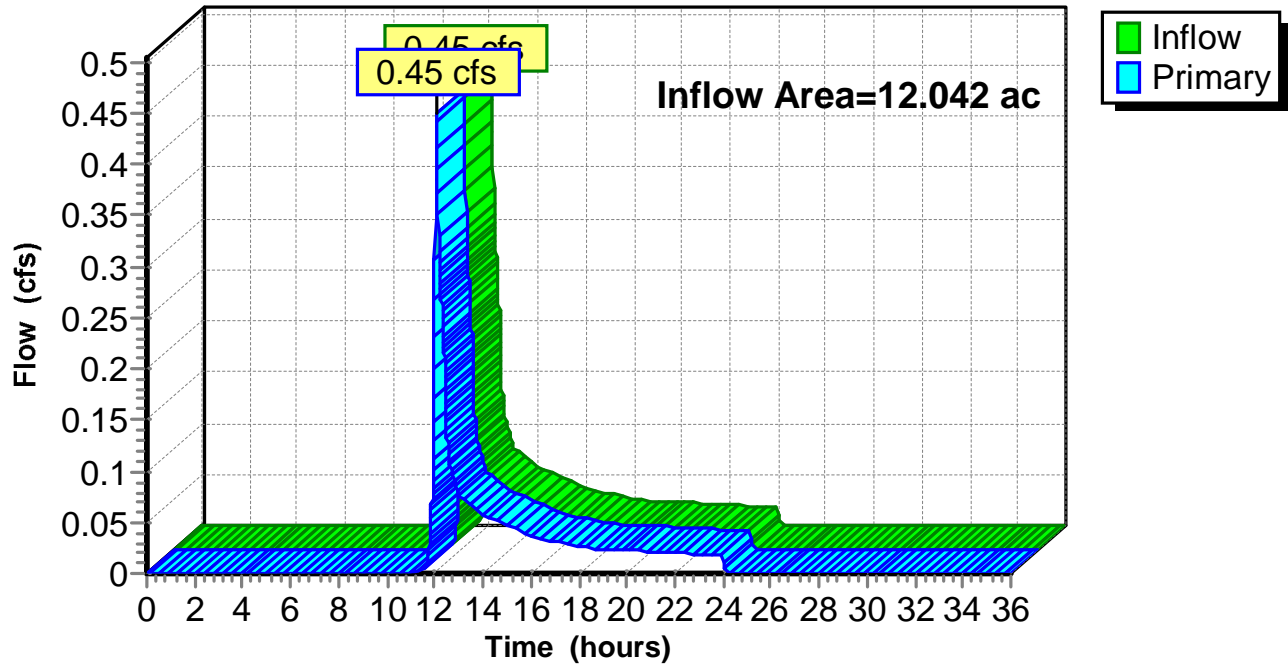
Summary for Link OUT:

Inflow Area = 12.042 ac, 11.25% Impervious, Inflow Depth = 0.05" for 2-yr event
Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af
Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.25" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.06 cfs 0.018 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=1.58" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.20 cfs 0.014 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.05" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.01 cfs 0.004 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 11.62% Impervious Runoff Depth=0.15" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.01 cfs 0.007 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.25" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.01 cfs 0.003 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.36" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.01 cfs 0.003 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.18" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.01 cfs 0.005 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.00" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.02" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.00 cfs 0.001 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.03" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.01 cfs 0.004 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.05" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.00 cfs 0.003 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.09" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.01 cfs 0.005 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.28" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.05 cfs 0.013 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 1.96% Impervious Runoff Depth=0.01" Flow Length=164' Tc=6.4 min CN=31 Runoff=0.00 cfs 0.000 af

Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.15" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.01 cfs 0.007 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.07" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.00 cfs 0.001 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.25" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.05 cfs 0.016 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=0.75" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.25 cfs 0.026 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=1.37" Flow Length=246' Tc=4.2 min CN=62 Runoff=0.49 cfs 0.035 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=1.65" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.36 cfs 0.025 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=2.28" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.25 cfs 0.017 af
Pond CB16-01:	Peak Elev=116.02' Inflow=0.06 cfs 0.018 af Outflow=0.06 cfs 0.018 af
Pond CB16-02:	Peak Elev=115.81' Inflow=0.20 cfs 0.014 af Outflow=0.20 cfs 0.014 af
Pond CB16-03:	Peak Elev=115.63' Inflow=0.01 cfs 0.004 af Outflow=0.01 cfs 0.004 af
Pond CB16-04:	Peak Elev=114.79' Inflow=0.02 cfs 0.013 af Outflow=0.02 cfs 0.013 af
Pond CB16-05:	Peak Elev=114.87' Inflow=0.08 cfs 0.030 af Outflow=0.08 cfs 0.030 af
Pond CB16-06:	Peak Elev=115.49' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-07:	Peak Elev=120.79' Inflow=0.01 cfs 0.003 af Outflow=0.01 cfs 0.003 af
Pond CB16-08:	Peak Elev=120.38' Inflow=0.02 cfs 0.006 af Outflow=0.02 cfs 0.006 af
Pond CB16-09:	Peak Elev=124.88' Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond CB16-10:	Peak Elev=129.61' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Pond CB16-11:	Peak Elev=129.31' Inflow=0.00 cfs 0.002 af Outflow=0.00 cfs 0.002 af
Pond CB16-12:	Peak Elev=130.70' Inflow=0.01 cfs 0.004 af Outflow=0.01 cfs 0.004 af
Pond CB16-13:	Peak Elev=134.91' Inflow=0.00 cfs 0.003 af Outflow=0.00 cfs 0.003 af
Pond CB16-14:	Peak Elev=144.39' Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond CB16-15:	Peak Elev=116.27' Inflow=0.05 cfs 0.013 af Outflow=0.05 cfs 0.013 af
Pond CB17-01:	Peak Elev=115.87' Inflow=0.01 cfs 0.007 af Outflow=0.01 cfs 0.007 af
Pond CB17-02:	Peak Elev=115.69' Inflow=0.01 cfs 0.008 af Outflow=0.01 cfs 0.008 af
Pond CB17-03:	Peak Elev=115.56' Inflow=0.05 cfs 0.016 af Outflow=0.05 cfs 0.016 af
Pond CB17-04:	Peak Elev=115.09' Inflow=0.25 cfs 0.026 af Outflow=0.25 cfs 0.026 af
Pond CB17-05:	Peak Elev=115.23' Inflow=0.49 cfs 0.036 af Outflow=0.49 cfs 0.036 af
Pond CB17-06:	Peak Elev=113.75' Inflow=0.36 cfs 0.025 af Outflow=0.36 cfs 0.025 af
Pond CB17-07:	Peak Elev=113.68' Inflow=1.31 cfs 0.129 af Outflow=1.31 cfs 0.129 af
Pond OWSMH 16:	Peak Elev=112.34' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af
Pond OWSMH 17:	Peak Elev=113.46' Inflow=1.31 cfs 0.129 af Outflow=1.31 cfs 0.129 af
Pond SDMH16-02.1:	Peak Elev=112.61' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af
Pond SDMH16-02.2:	Peak Elev=113.06' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af
Pond SDMH16-03:	Peak Elev=115.94' Inflow=0.06 cfs 0.018 af Outflow=0.06 cfs 0.018 af

Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Pond SDMH16-05:	Peak Elev=128.06'	Inflow=0.02 cfs	0.013 af	Outflow=0.02 cfs	0.013 af
Pond SDMH16-06:	Peak Elev=114.92'	Inflow=0.03 cfs	0.010 af	Outflow=0.03 cfs	0.010 af
Pond SDMH16-12.1:	Peak Elev=134.16'	Inflow=0.01 cfs	0.008 af	Outflow=0.01 cfs	0.008 af
Pond SDMH16-12.2:	Peak Elev=130.09'	Inflow=0.02 cfs	0.012 af	Outflow=0.02 cfs	0.012 af
Pond SDMH16-13:	Peak Elev=136.78'	Inflow=0.01 cfs	0.008 af	Outflow=0.01 cfs	0.008 af
Pond SDMH16-15:	Peak Elev=116.50'	Inflow=0.01 cfs	0.005 af	Outflow=0.01 cfs	0.005 af
Pond SDMH17-03.1:	Peak Elev=115.48'	Inflow=0.06 cfs	0.025 af	Outflow=0.06 cfs	0.025 af
Pond SDMH17-03.2:	Peak Elev=115.04'	Inflow=0.06 cfs	0.025 af	Outflow=0.06 cfs	0.025 af
Pond SDMH17-04:	Peak Elev=115.14'	Inflow=0.71 cfs	0.087 af	Outflow=0.71 cfs	0.087 af
Pond SDMH17-07:	Peak Elev=113.63'	Inflow=1.06 cfs	0.112 af	Outflow=1.06 cfs	0.112 af
Link OUT:		Inflow=1.51 cfs	0.209 af	Primary=1.51 cfs	0.209 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.209 af Average Runoff Depth = 0.21"
88.75% Pervious = 10.688 ac 11.25% Impervious = 1.355 ac

Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-01S:

Runoff = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Depth= 0.25"

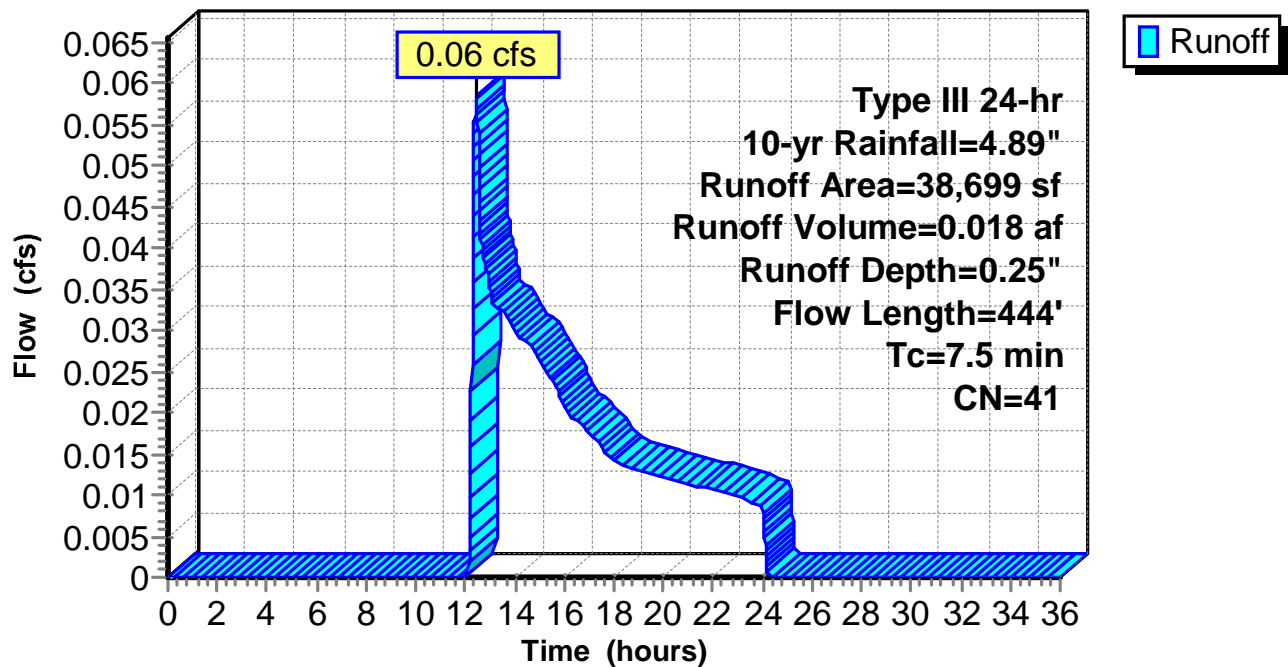
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-02S:

Runoff = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af, Depth= 1.58"

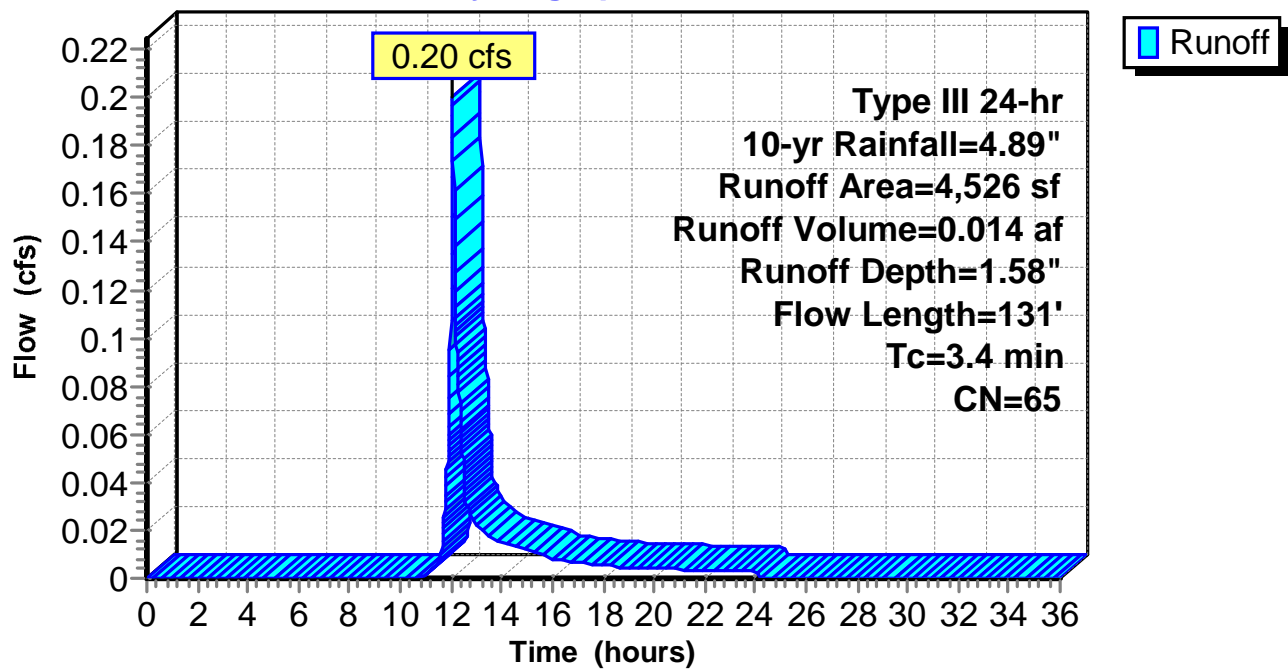
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-03S:

Runoff = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af, Depth= 0.05"

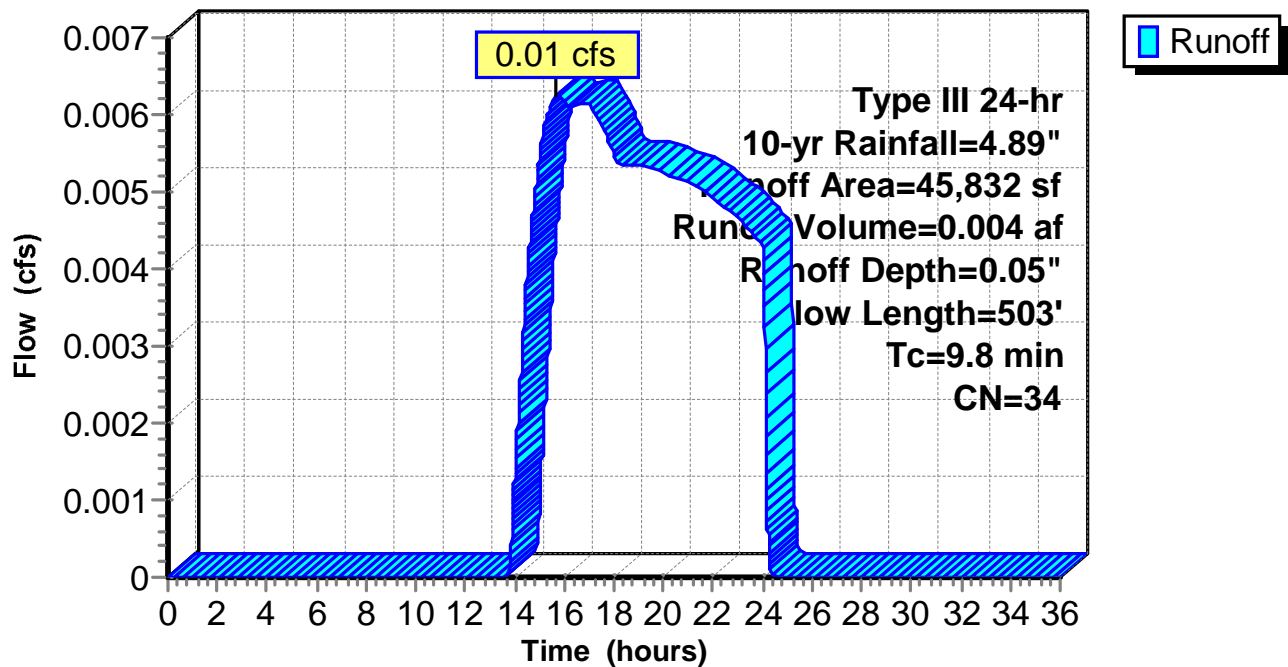
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

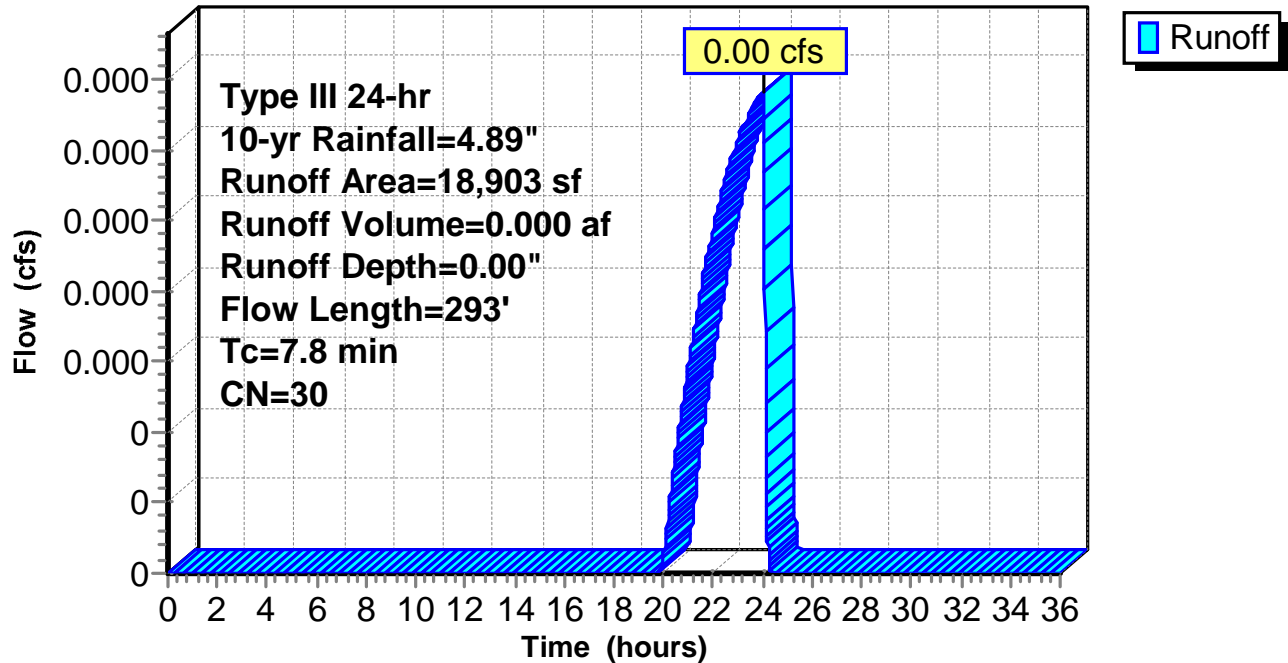
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 0	98	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-05S:

Runoff = 0.01 cfs @ 13.82 hrs, Volume= 0.007 af, Depth= 0.15"

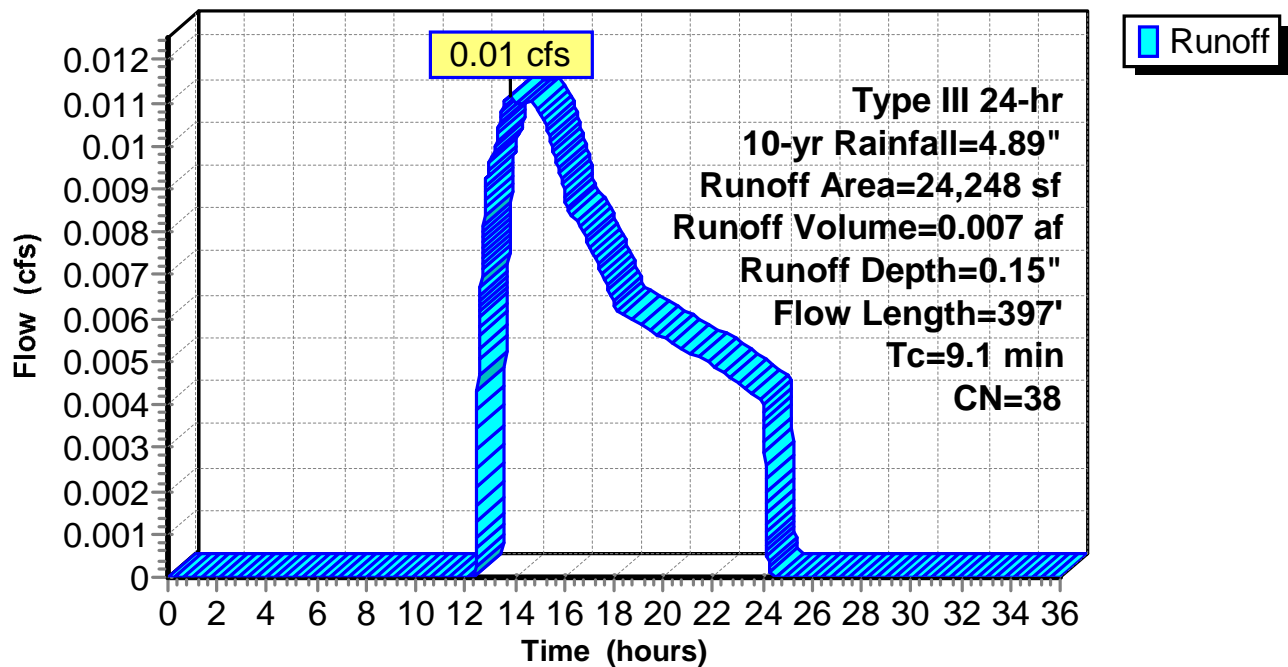
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,818	98	Impervious
21,430	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,430		88.38% Pervious Area
2,818		11.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

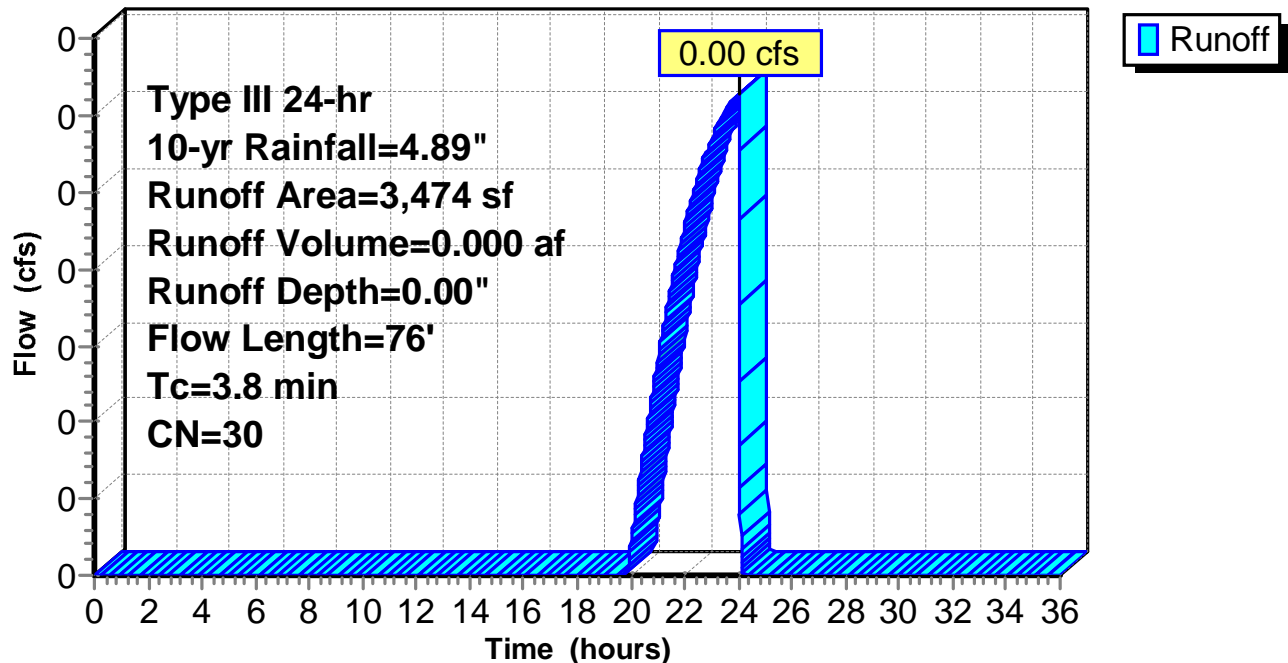
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
*	0	98 Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-07S:

Runoff = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af, Depth= 0.25"

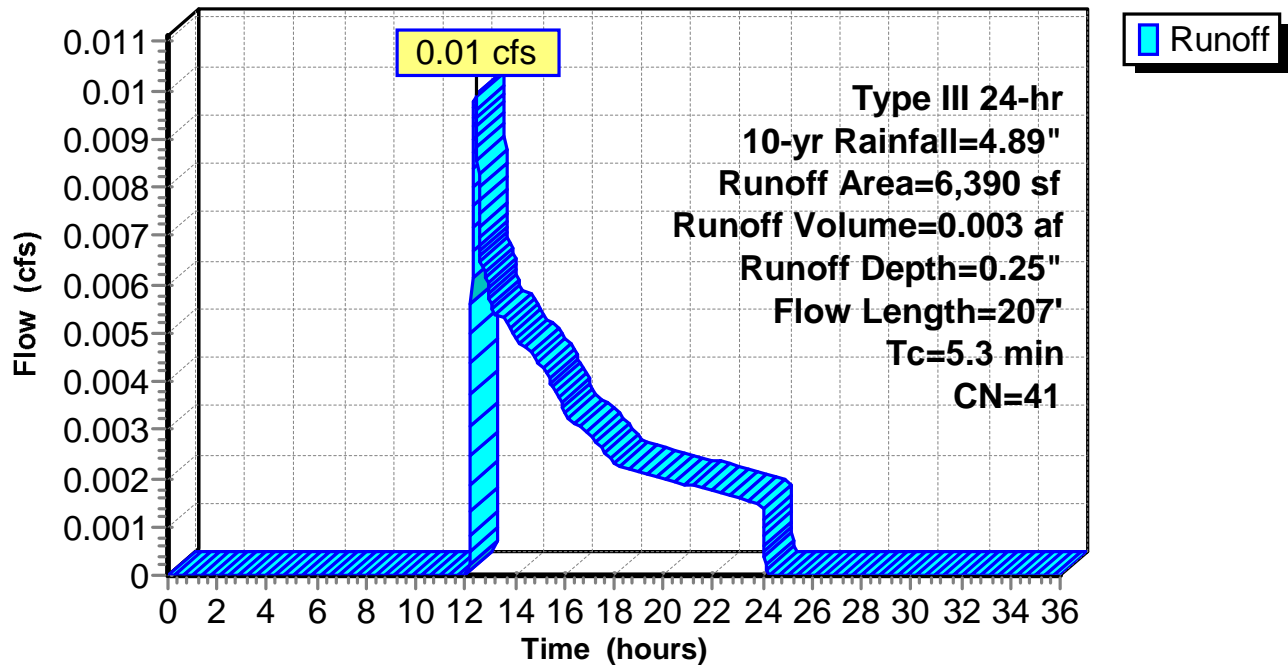
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-08S:

Runoff = 0.01 cfs @ 12.31 hrs, Volume= 0.003 af, Depth= 0.36"

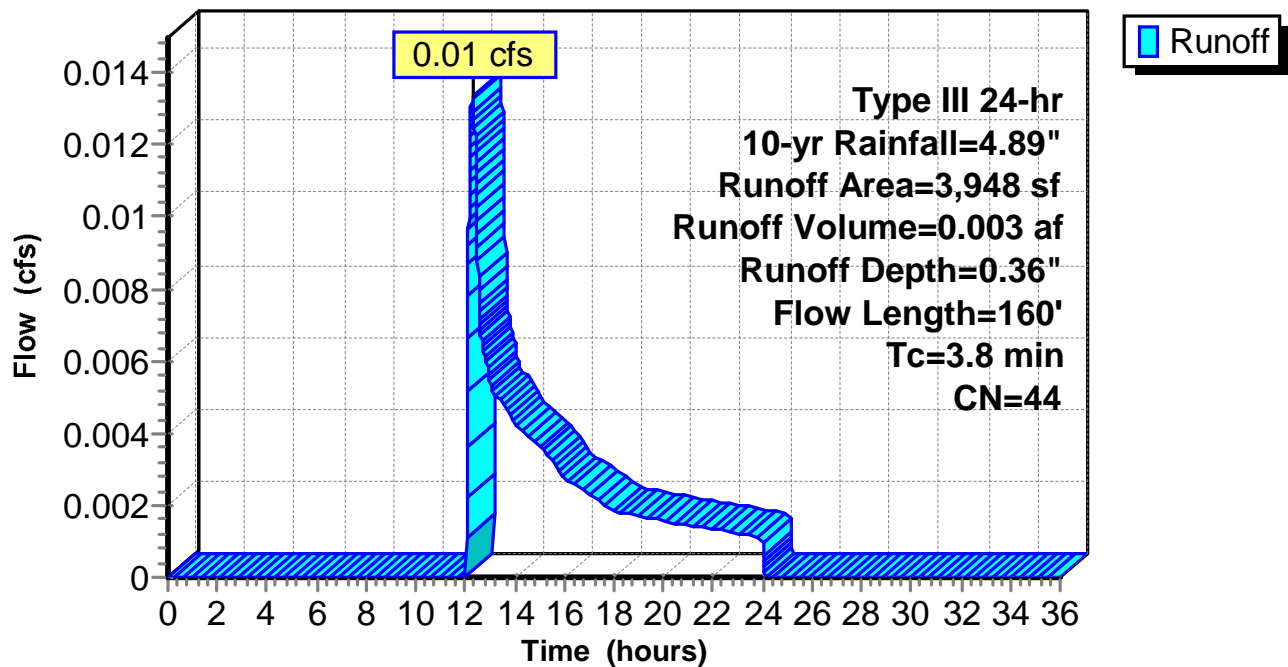
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-09S:

Runoff = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Depth= 0.18"

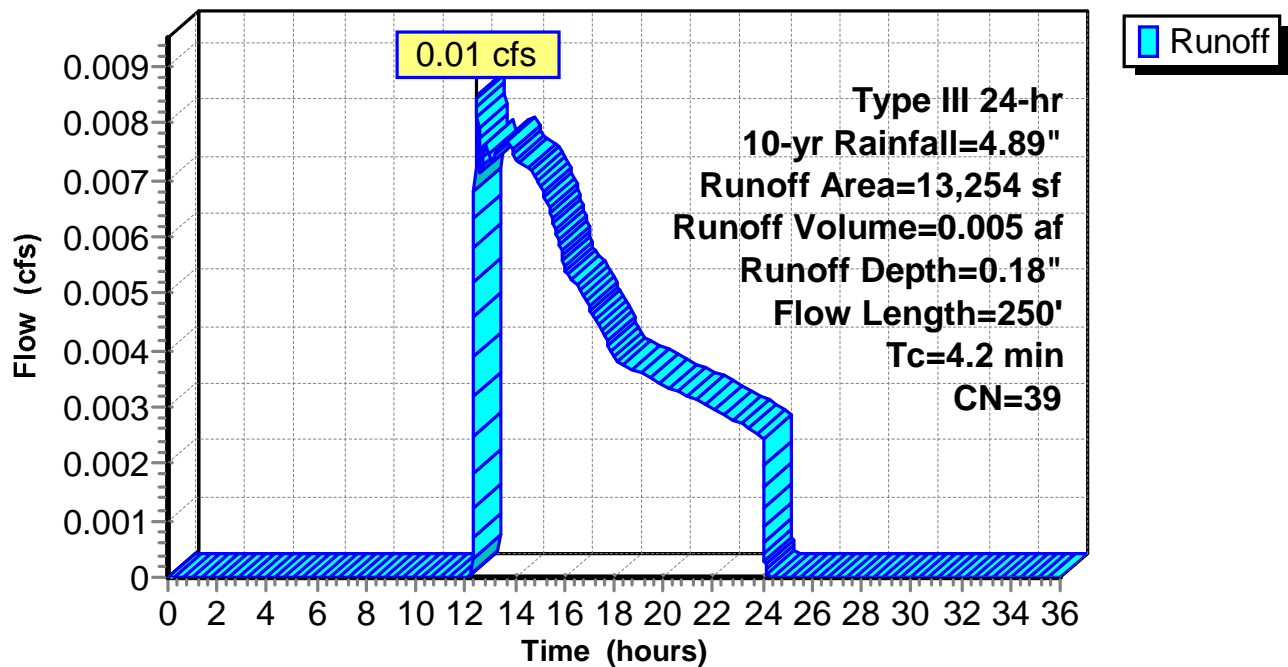
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-10S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

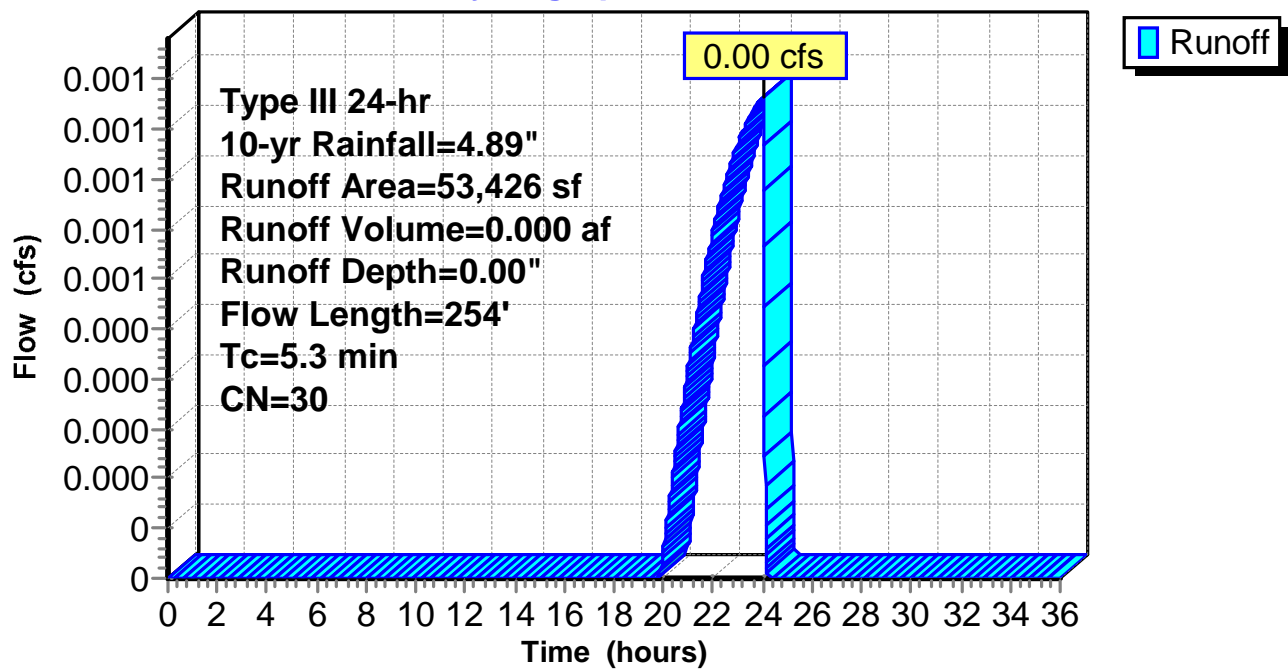
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-11S:

Runoff = 0.00 cfs @ 21.73 hrs, Volume= 0.001 af, Depth= 0.02"

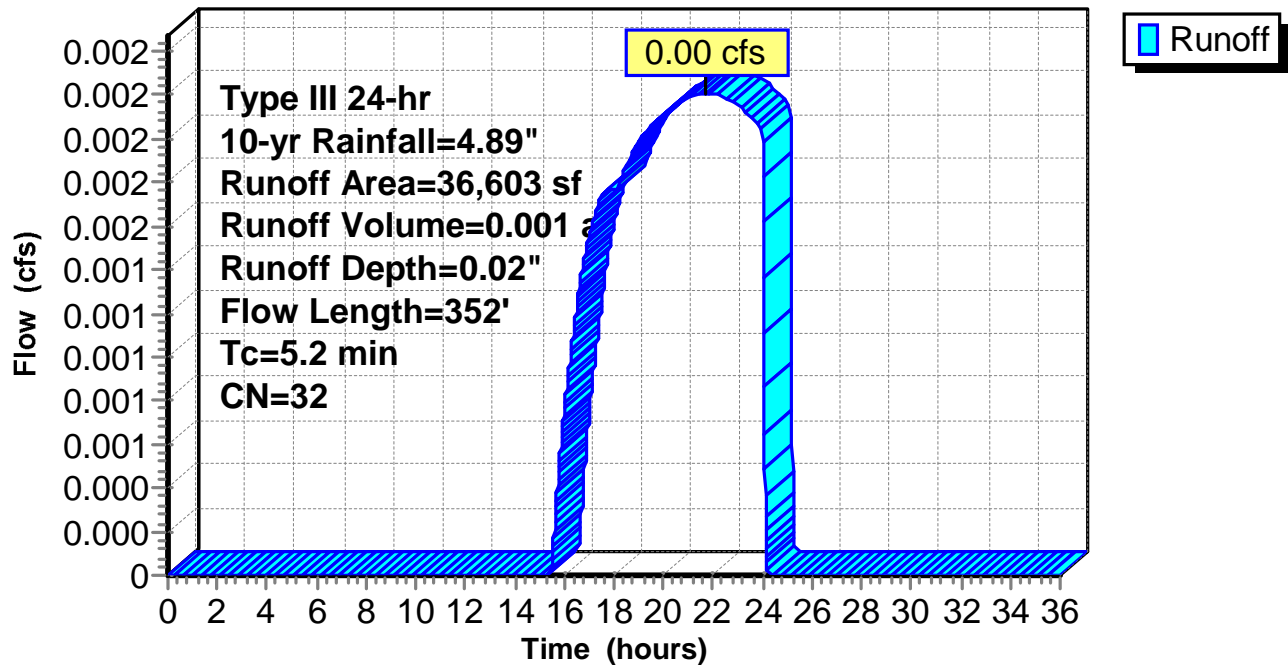
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-12S:

Runoff = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af, Depth= 0.03"

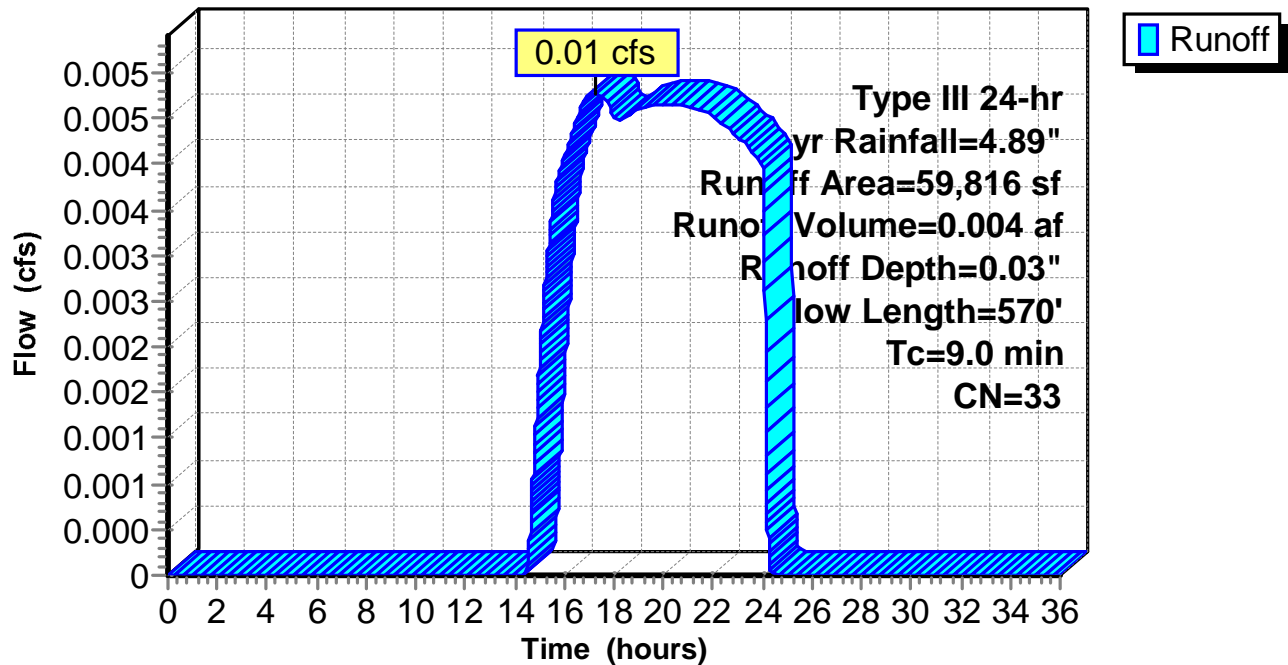
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-13S:

Runoff = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af, Depth= 0.05"

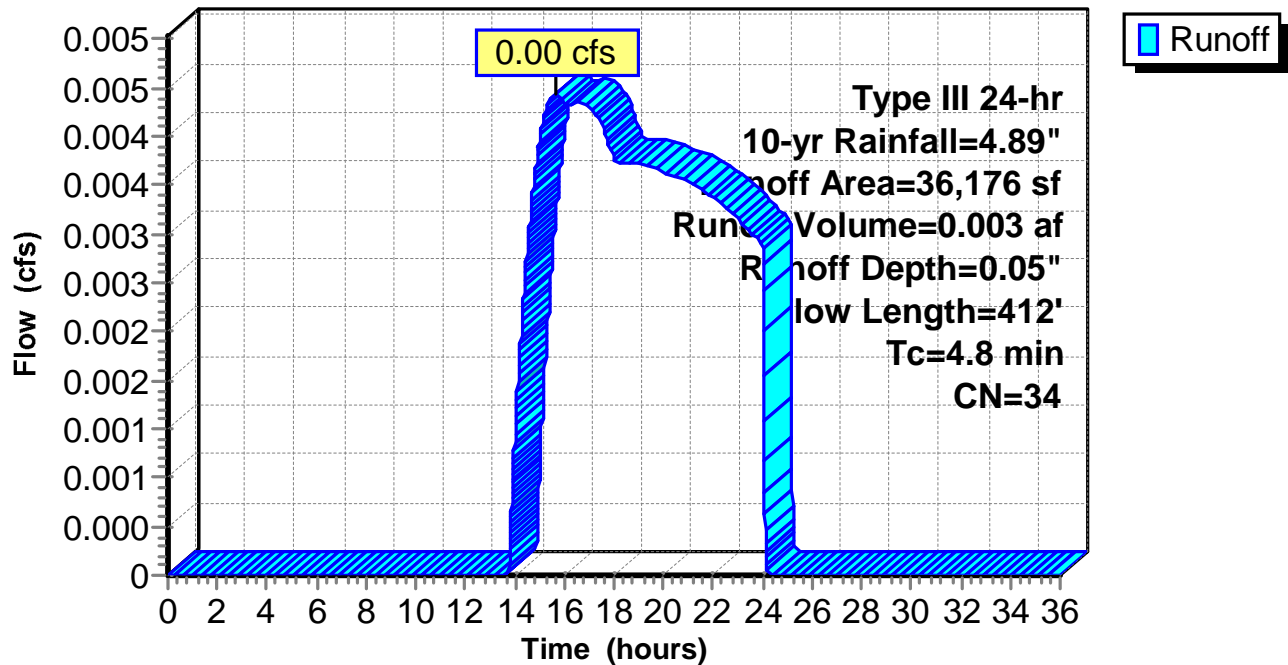
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-14S:

Runoff = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af, Depth= 0.09"

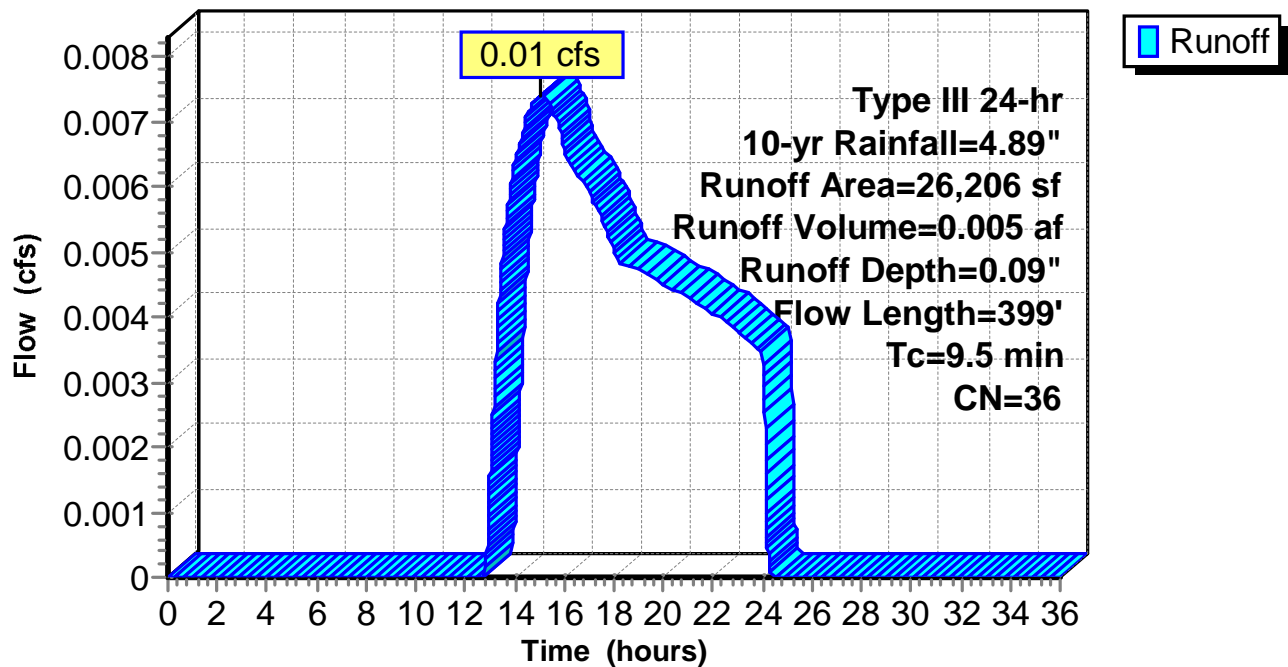
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-15S:

Runoff = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af, Depth= 0.28"

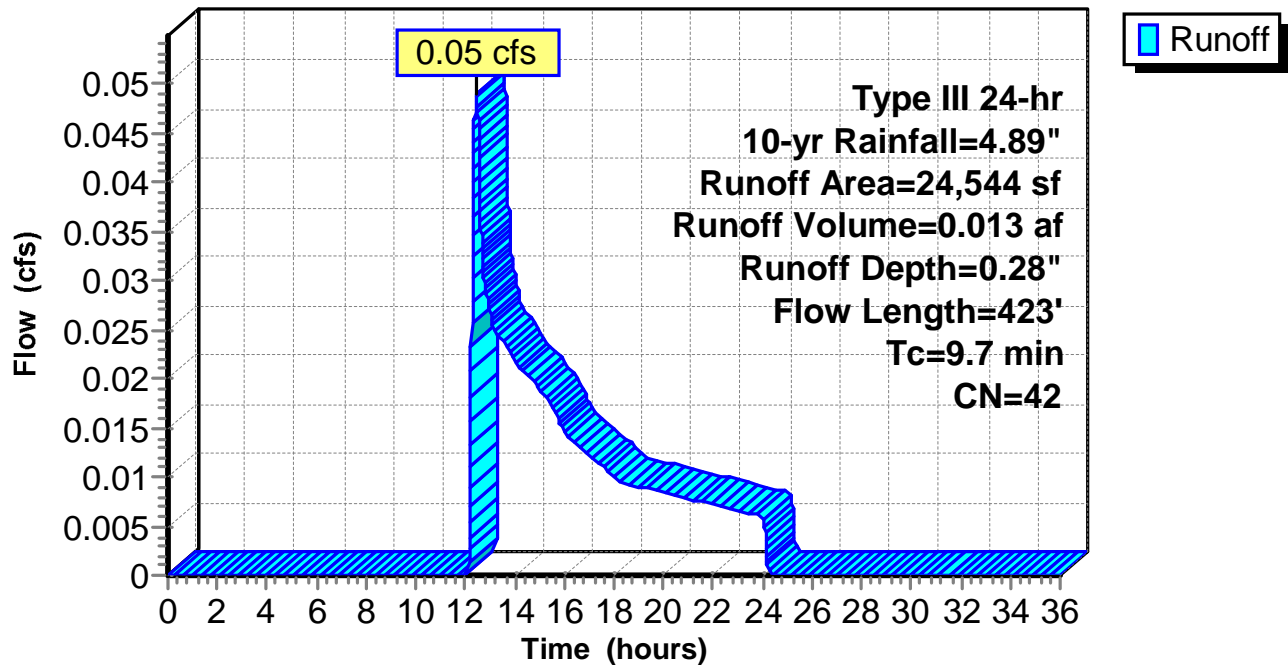
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-01S:

Runoff = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af, Depth= 0.15"

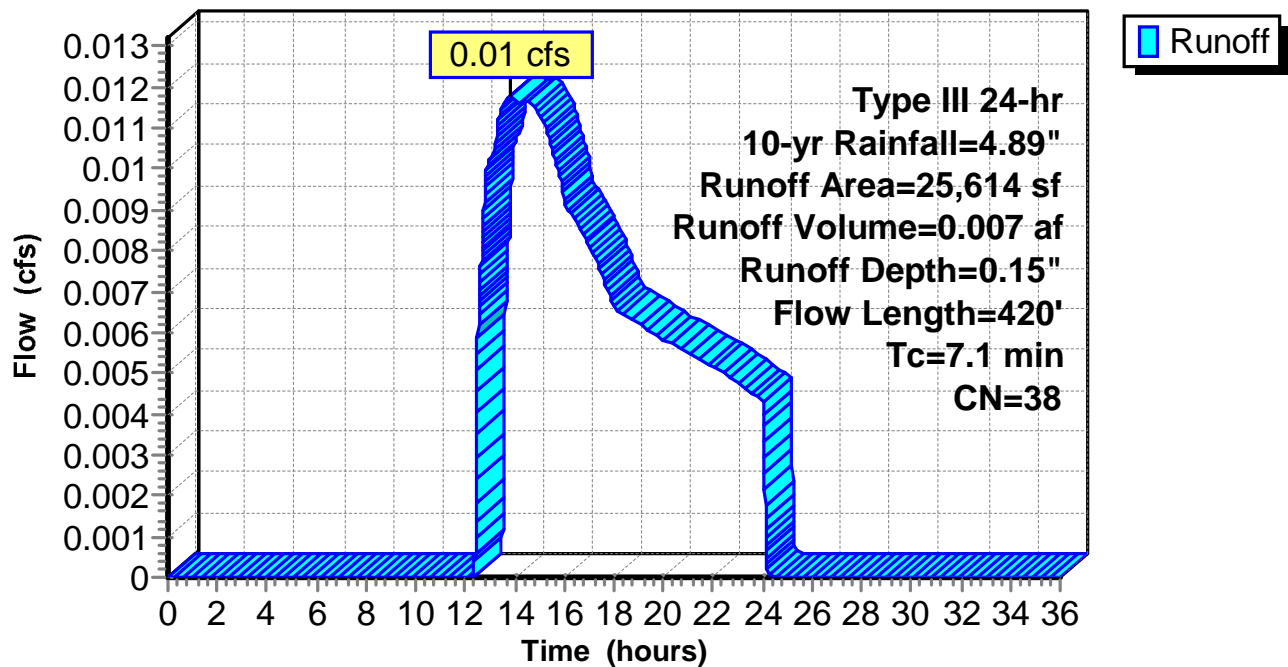
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-02S:

Runoff = 0.00 cfs @ 15.32 hrs, Volume= 0.001 af, Depth= 0.07"

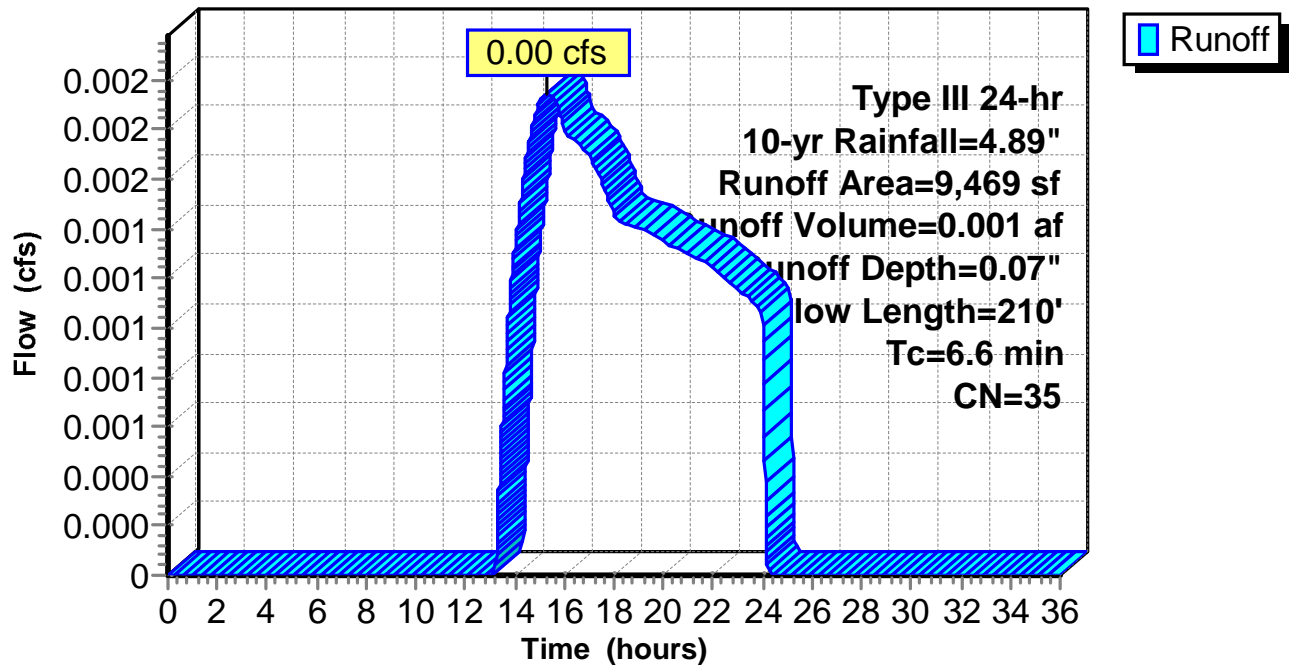
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-03S:

Runoff = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af, Depth= 0.25"

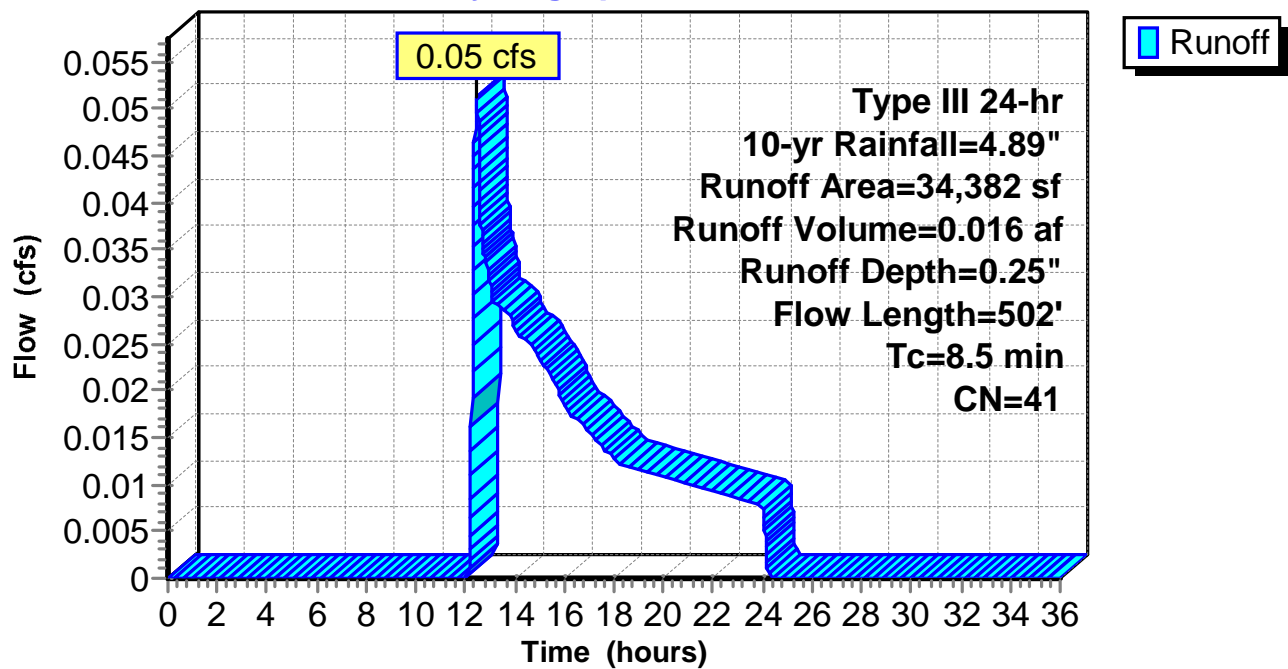
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-04S:

Runoff = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af, Depth= 0.75"

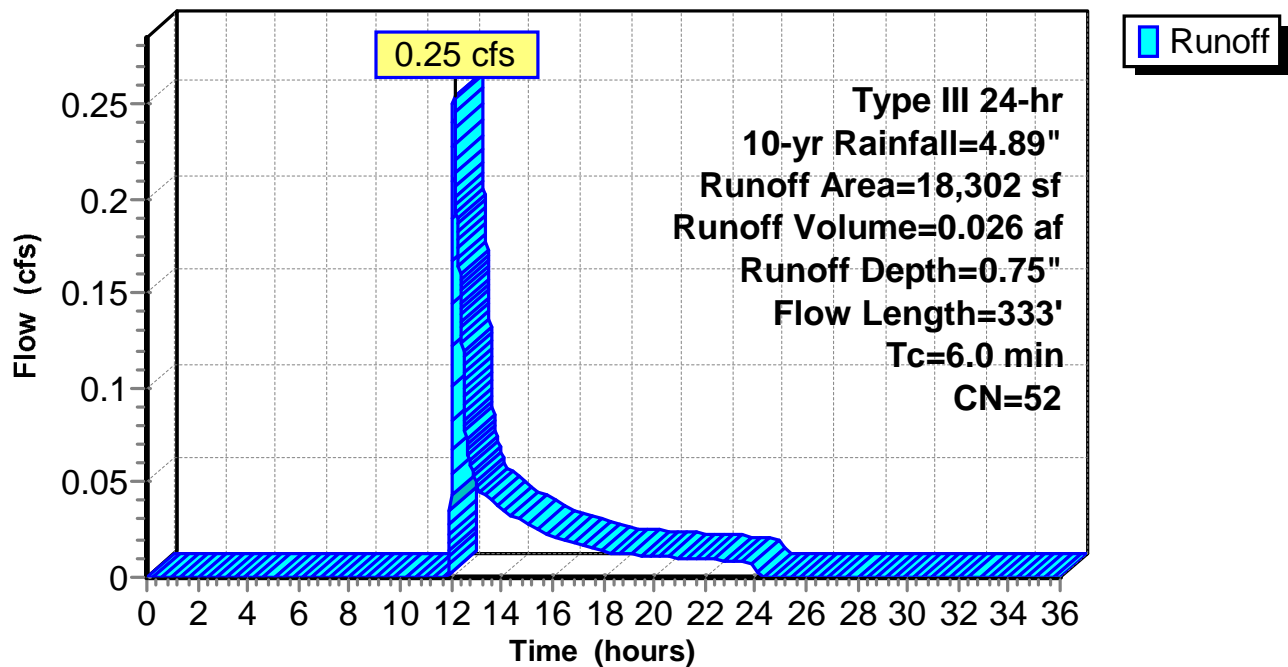
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-05S:

Runoff = 0.49 cfs @ 12.07 hrs, Volume= 0.035 af, Depth= 1.37"

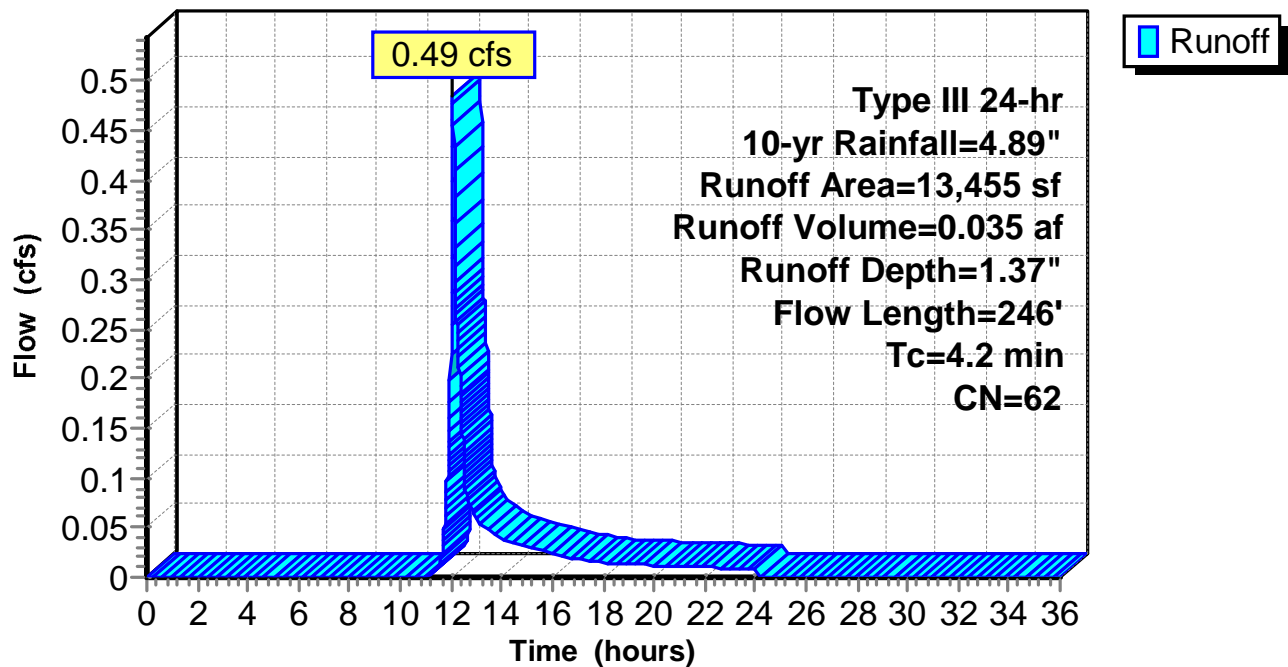
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.1	32	0.0940	6.22		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	246	Total			

Subcatchment 17-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-06S:

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 1.65"

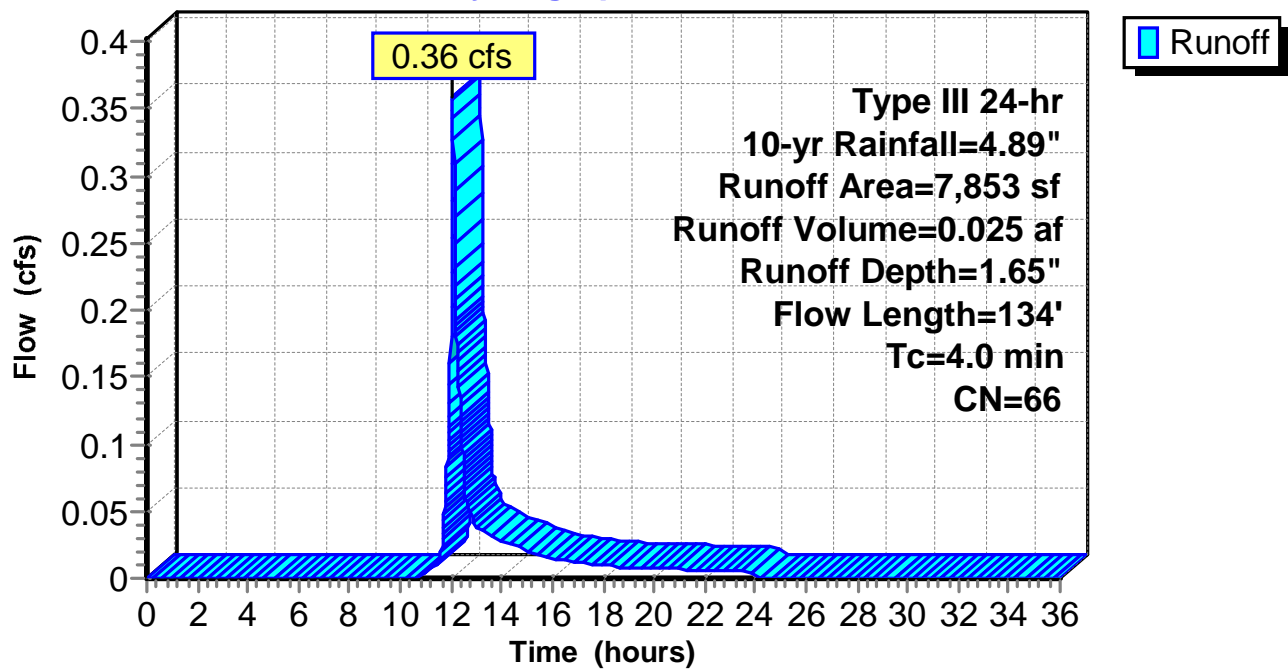
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-07S:

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 2.28"

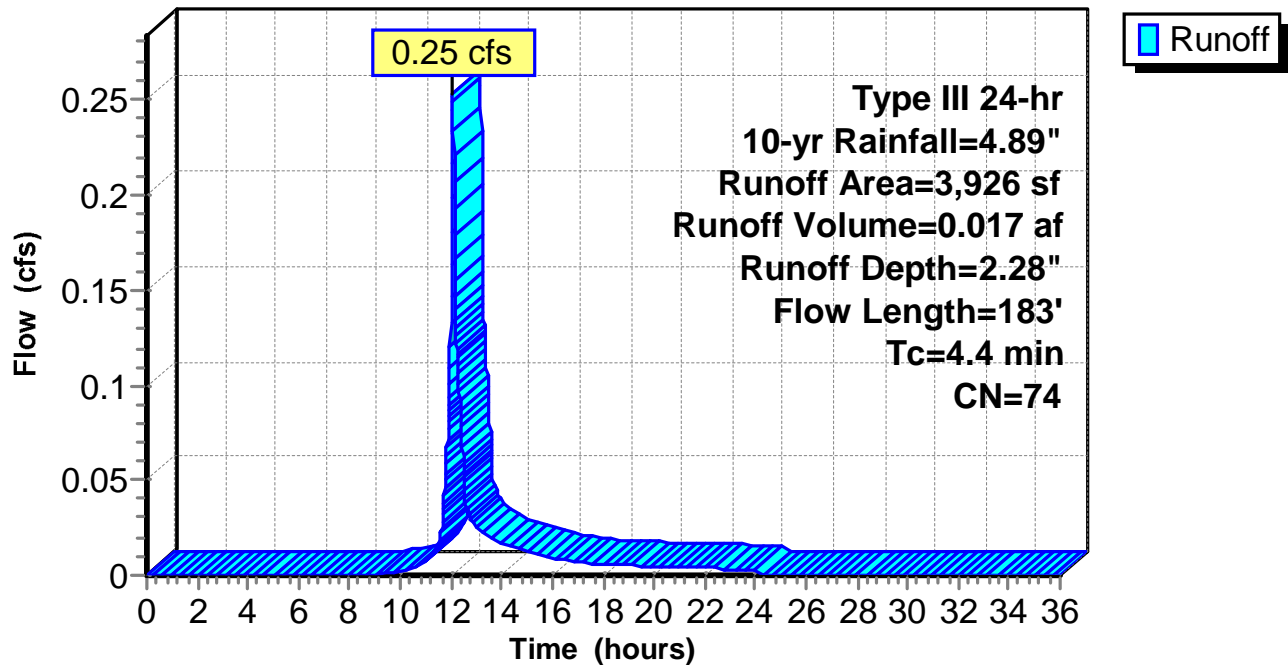
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af
 Outflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.02' @ 12.45 hrs

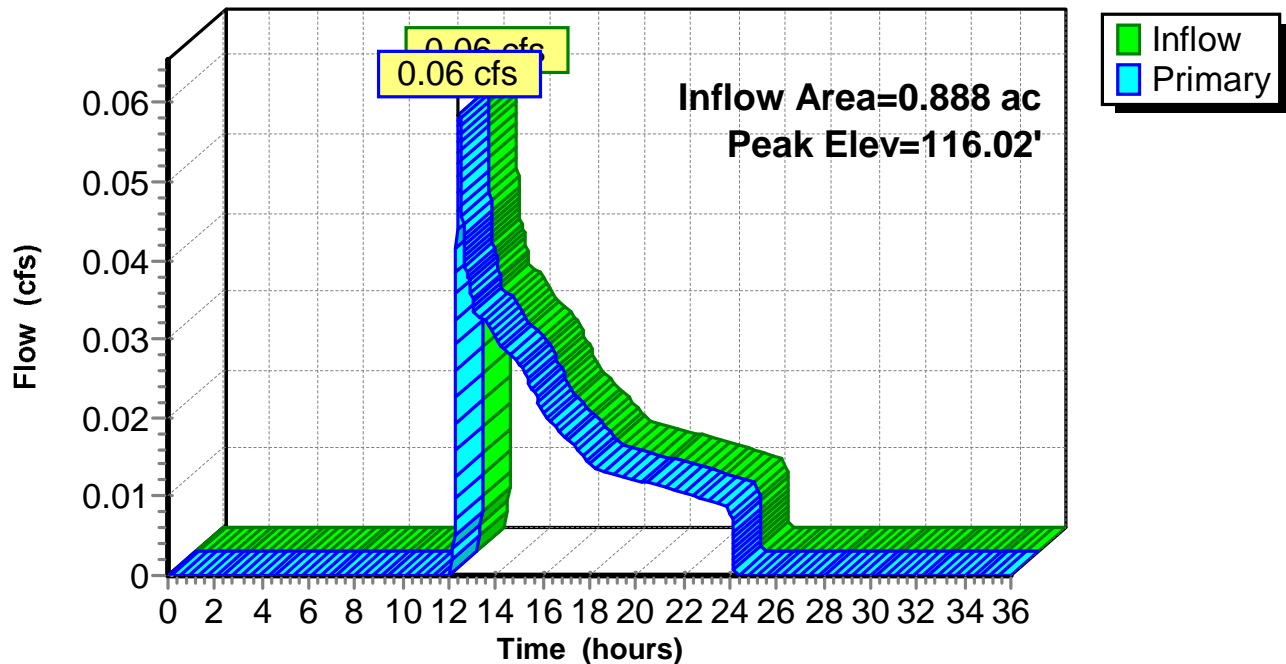
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.89'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 115.89' / 115.83' S= 0.0086 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.45 hrs HW=116.02' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 1.48 fps)

Pond CB16-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 1.58" for 10-yr event
 Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af
 Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.81' @ 12.06 hrs

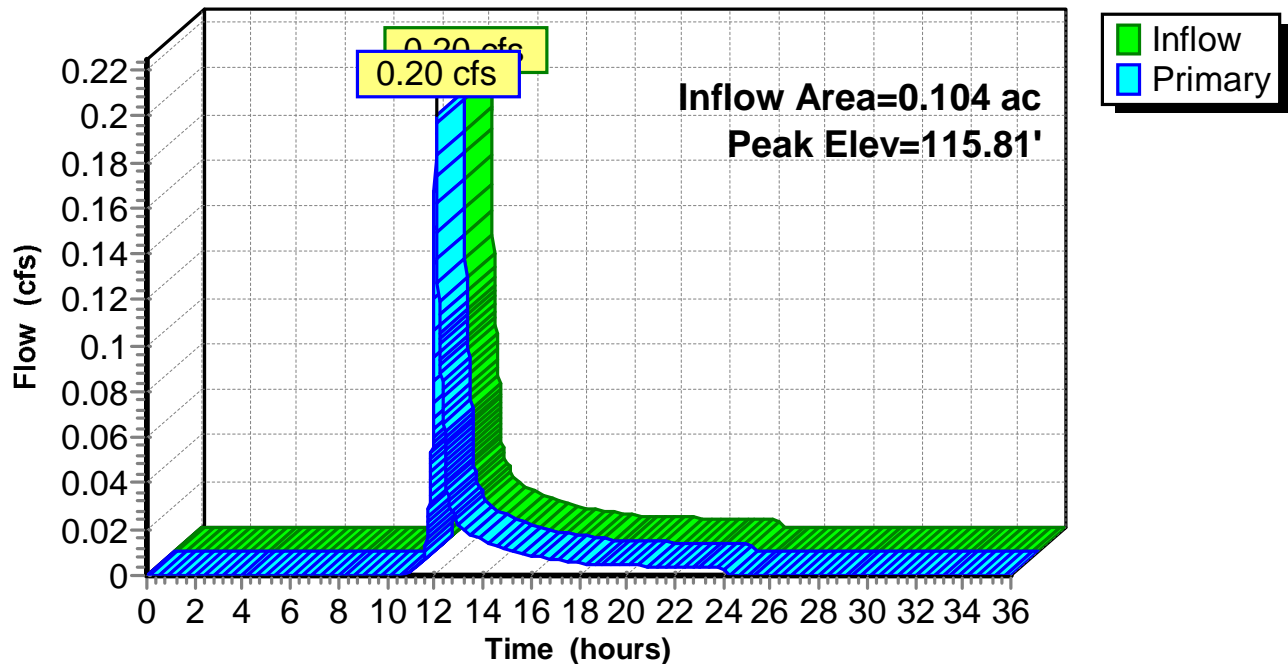
Device	Routing	Invert	Outlet Devices
#1	Primary	118.63'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=115.81' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.20 cfs @ 1.59 fps)

Pond CB16-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.05" for 10-yr event
 Inflow = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af
 Outflow = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.63' @ 15.71 hrs

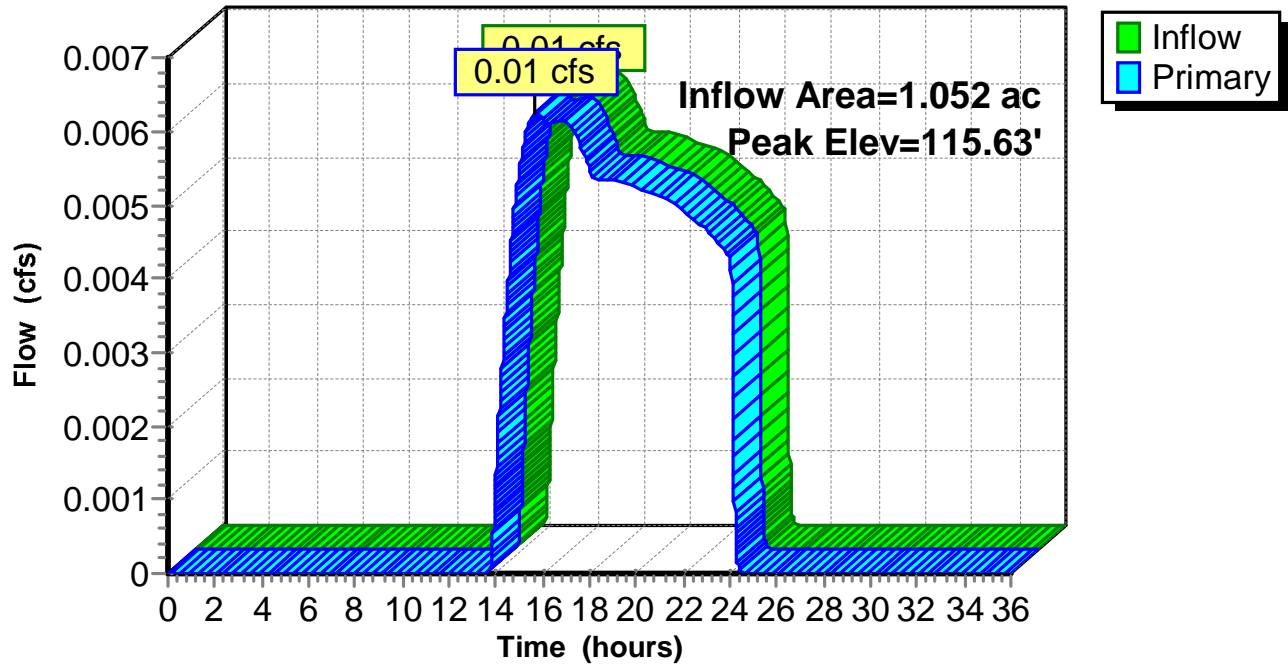
Device	Routing	Invert	Outlet Devices
#1	Primary	118.72'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.71 hrs HW=115.63' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.64 fps)

Pond CB16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.03" for 10-yr event
Inflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af
Outflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 114.79' @ 16.92 hrs

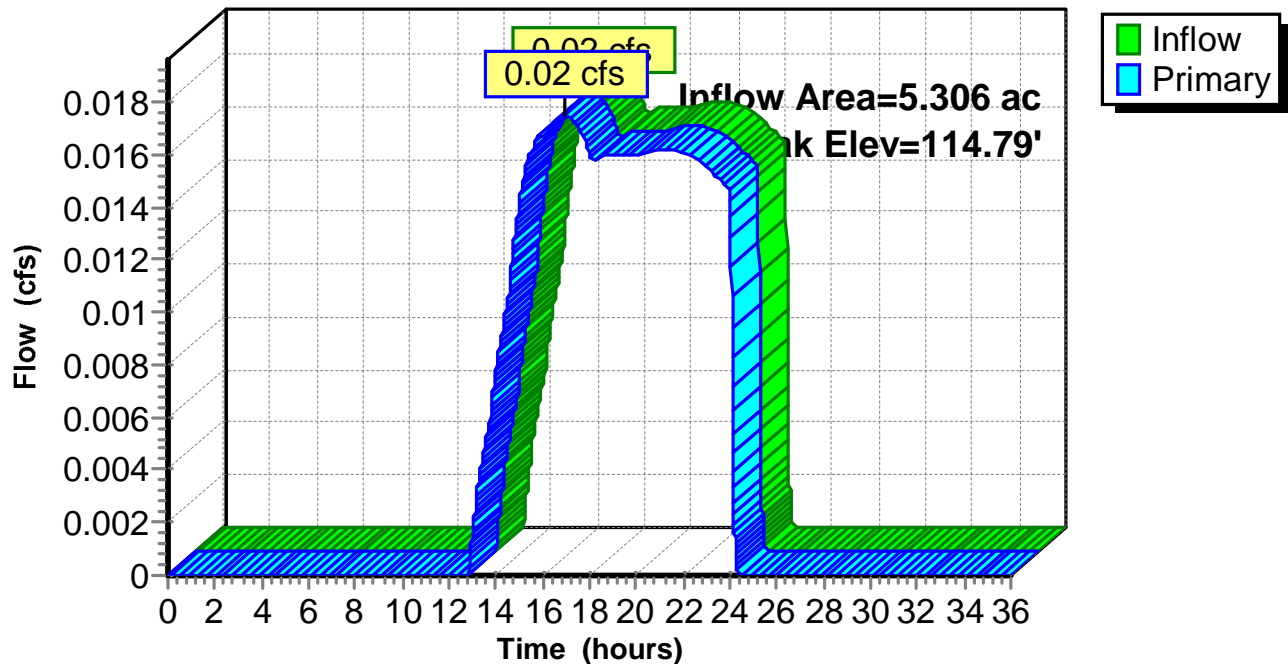
Device	Routing	Invert	Outlet Devices
#1	Primary	122.30'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.75'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 114.75' / 112.88' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.01 cfs @ 16.92 hrs HW=114.79' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.70 fps)

Pond CB16-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-05:

Inflow Area = 1.741 ac, 14.09% Impervious, Inflow Depth = 0.21" for 10-yr event
 Inflow = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af
 Outflow = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.87' @ 12.45 hrs

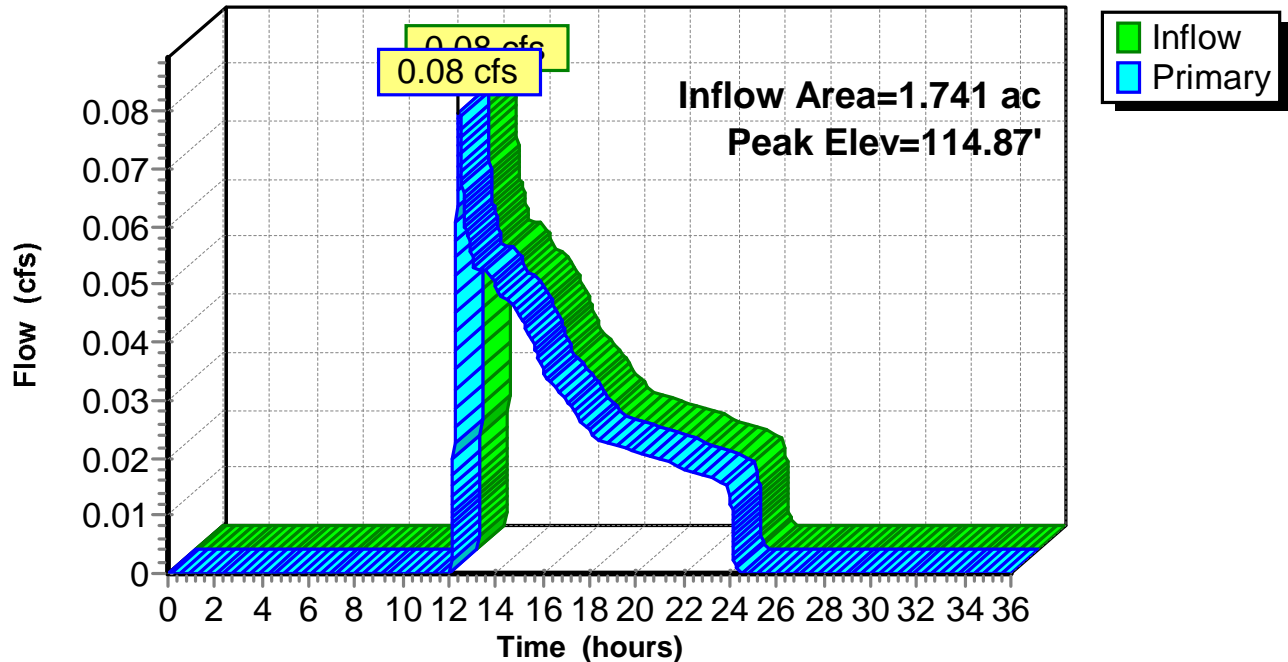
Device	Routing	Invert	Outlet Devices
#1	Primary	118.80'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.74'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 114.74' / 112.88' S= 0.0255 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.08 cfs @ 12.45 hrs HW=114.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.08 cfs @ 1.21 fps)

Pond CB16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-yr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.49' @ 24.00 hrs

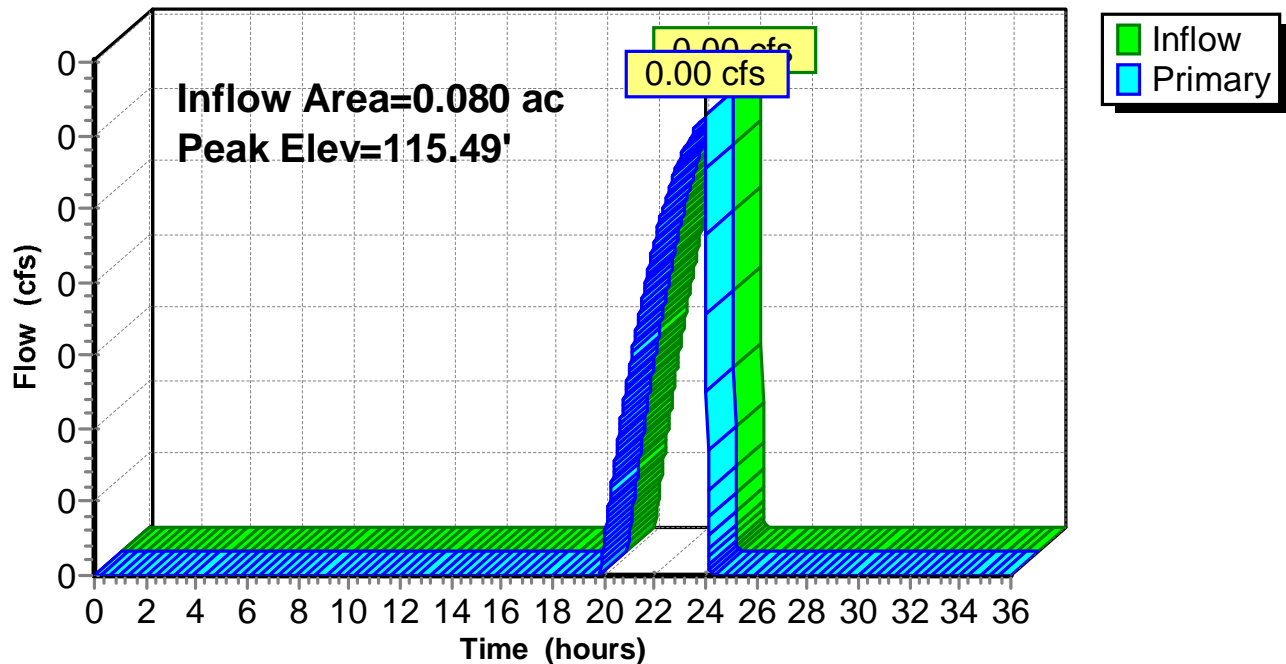
Device	Routing	Invert	Outlet Devices
#1	Primary	119.48'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.49'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 115.49' / 114.80' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=115.49' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.09 fps)

Pond CB16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af
 Outflow = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 120.79' @ 12.41 hrs

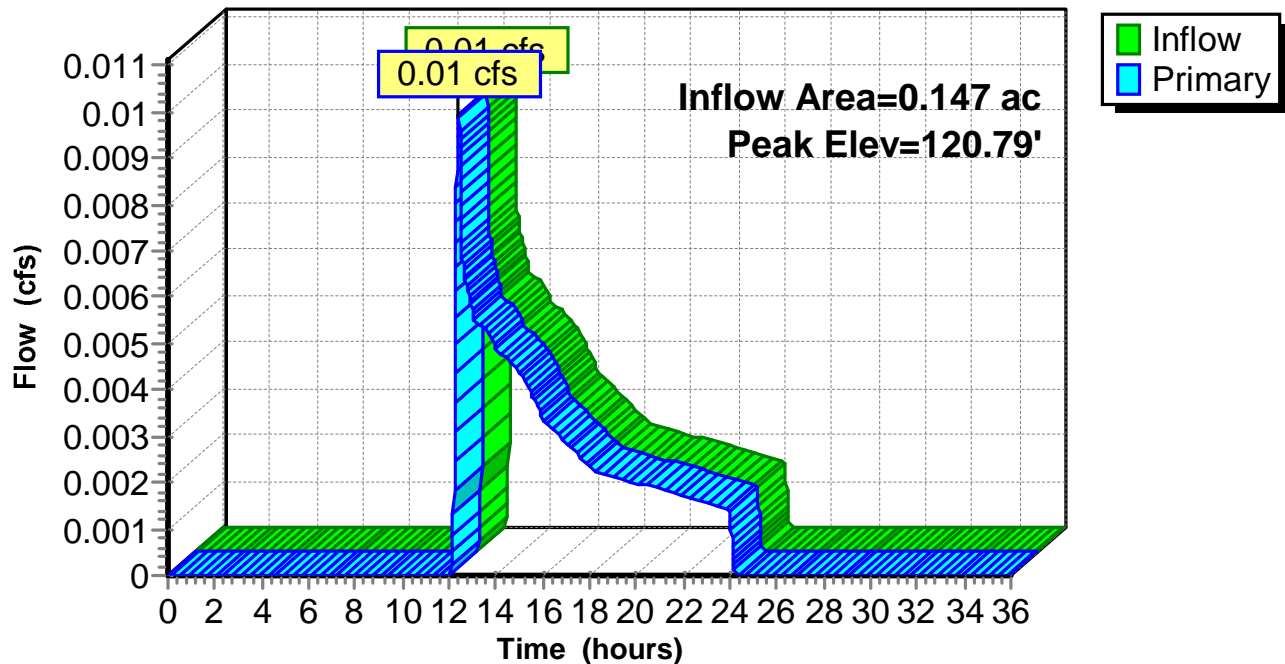
Device	Routing	Invert	Outlet Devices
#1	Primary	125.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.73'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 120.73' / 120.35' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.41 hrs HW=120.79' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.76 fps)

Pond CB16-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.29" for 10-yr event
 Inflow = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af
 Outflow = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 120.38' @ 12.37 hrs

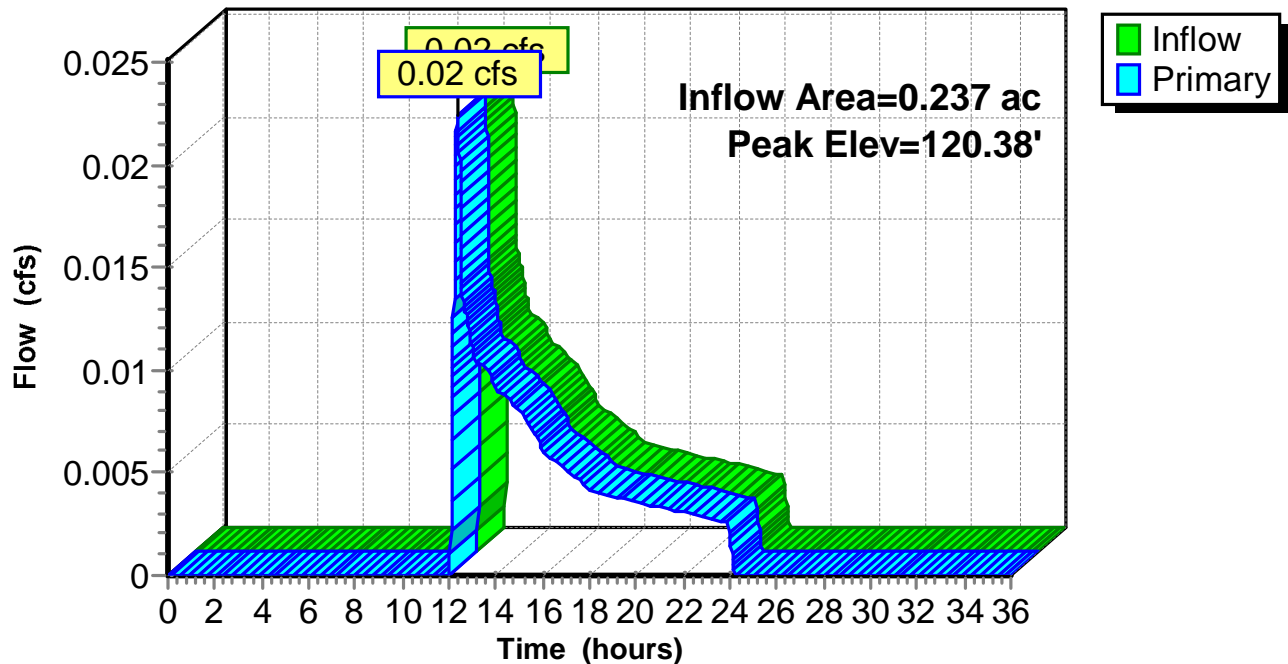
Device	Routing	Invert	Outlet Devices
#1	Primary	128.20'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.32'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 120.32' / 114.80' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.37 hrs HW=120.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.86 fps)

Pond CB16-08:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.18" for 10-yr event
 Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 124.88' @ 12.47 hrs

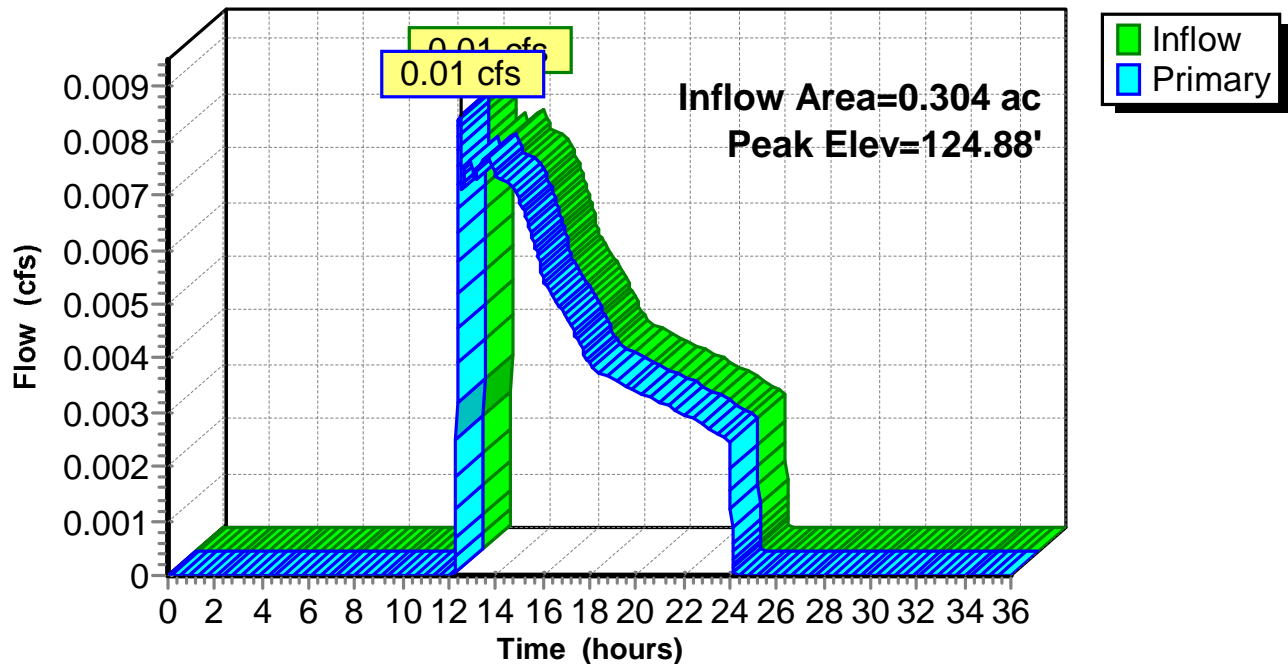
Device	Routing	Invert	Outlet Devices
#1	Primary	129.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	124.84'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 124.84' / 116.48' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.47 hrs HW=124.88' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.66 fps)

Pond CB16-09:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.00" for 10-yr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.61' @ 24.00 hrs

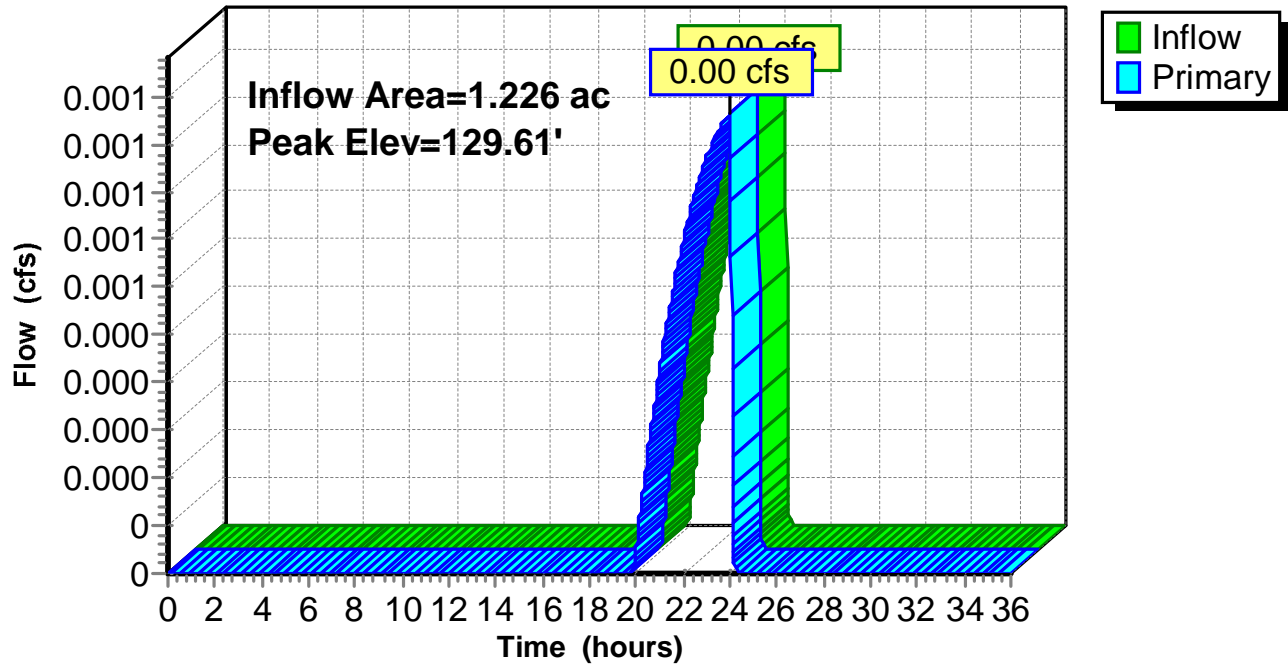
Device	Routing	Invert	Outlet Devices
#1	Primary	133.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.60'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 129.60' / 129.56' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=129.61' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.22 fps)

Pond CB16-10:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.01" for 10-yr event
 Inflow = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.31' @ 23.36 hrs

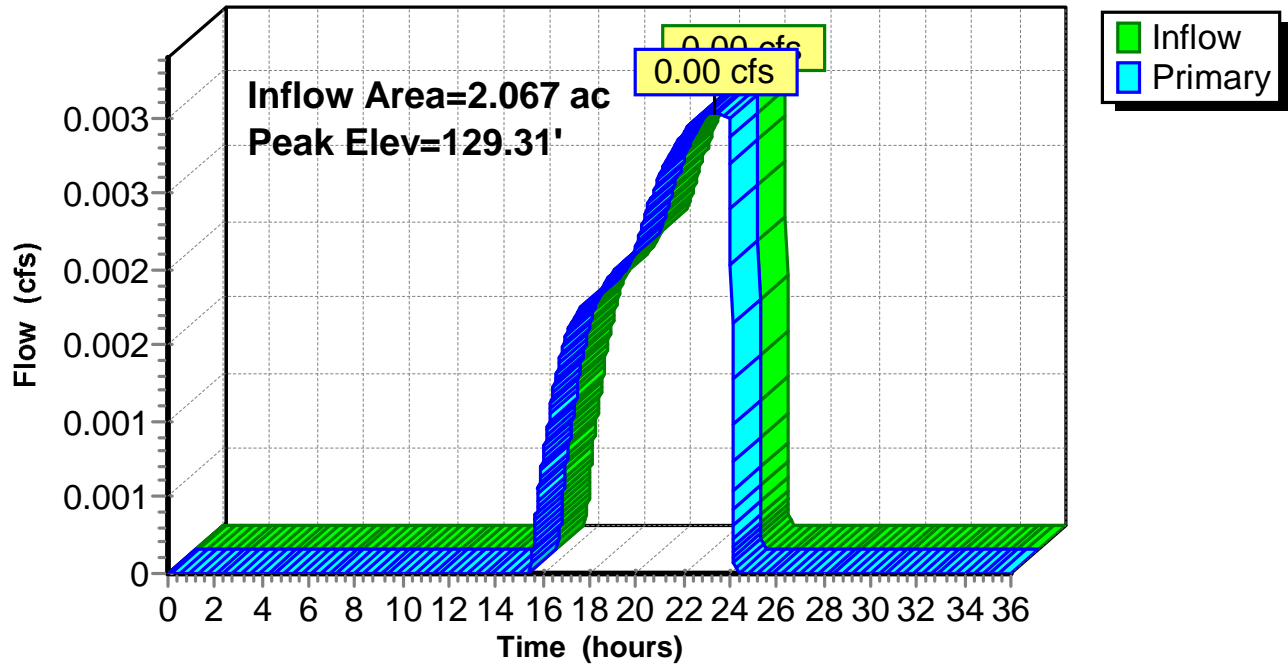
Device	Routing	Invert	Outlet Devices
#1	Primary	133.64'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.29'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 129.29' / 128.00' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 23.36 hrs HW=129.31' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.56 fps)

Pond CB16-11:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.03" for 10-yr event
 Inflow = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af
 Outflow = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 130.70' @ 17.25 hrs

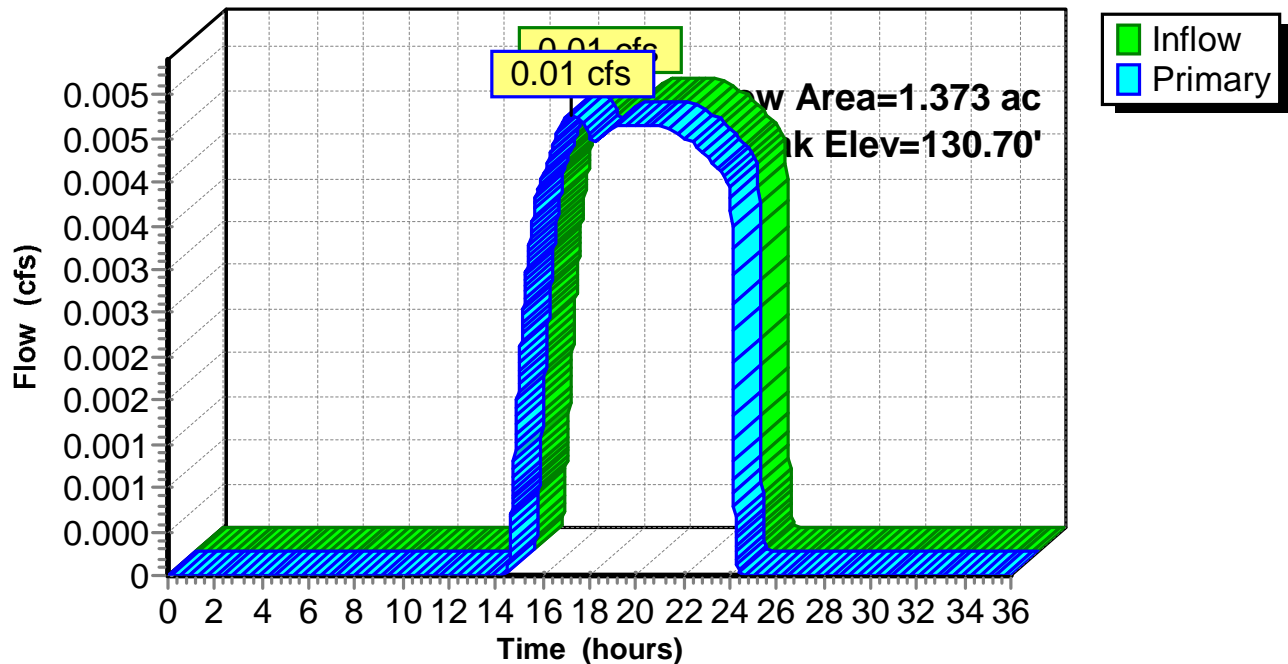
Device	Routing	Invert	Outlet Devices
#1	Primary	136.24'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	130.68'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 130.68' / 130.09' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 17.25 hrs HW=130.70' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.50 fps)

Pond CB16-12:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.05" for 10-yr event
 Inflow = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af
 Outflow = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.91' @ 15.65 hrs

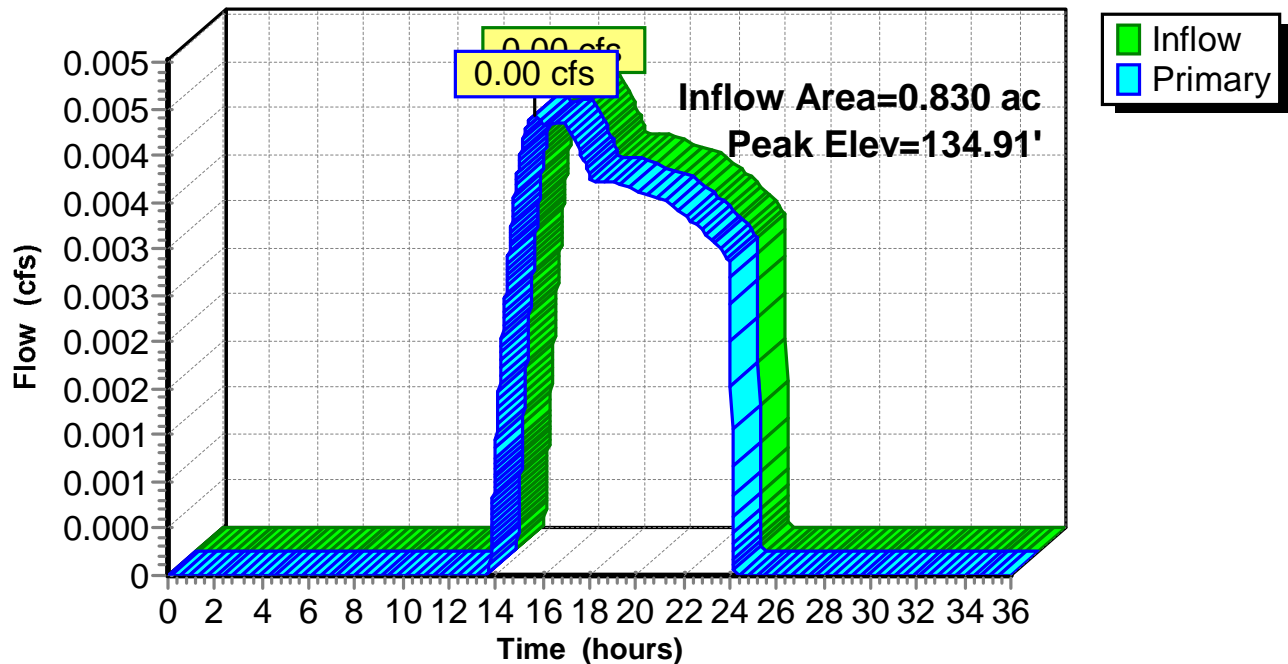
Device	Routing	Invert	Outlet Devices
#1	Primary	139.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	134.89'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 134.89' / 134.25' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.65 hrs HW=134.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.52 fps)

Pond CB16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.09" for 10-yr event
 Inflow = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 144.39' @ 15.04 hrs

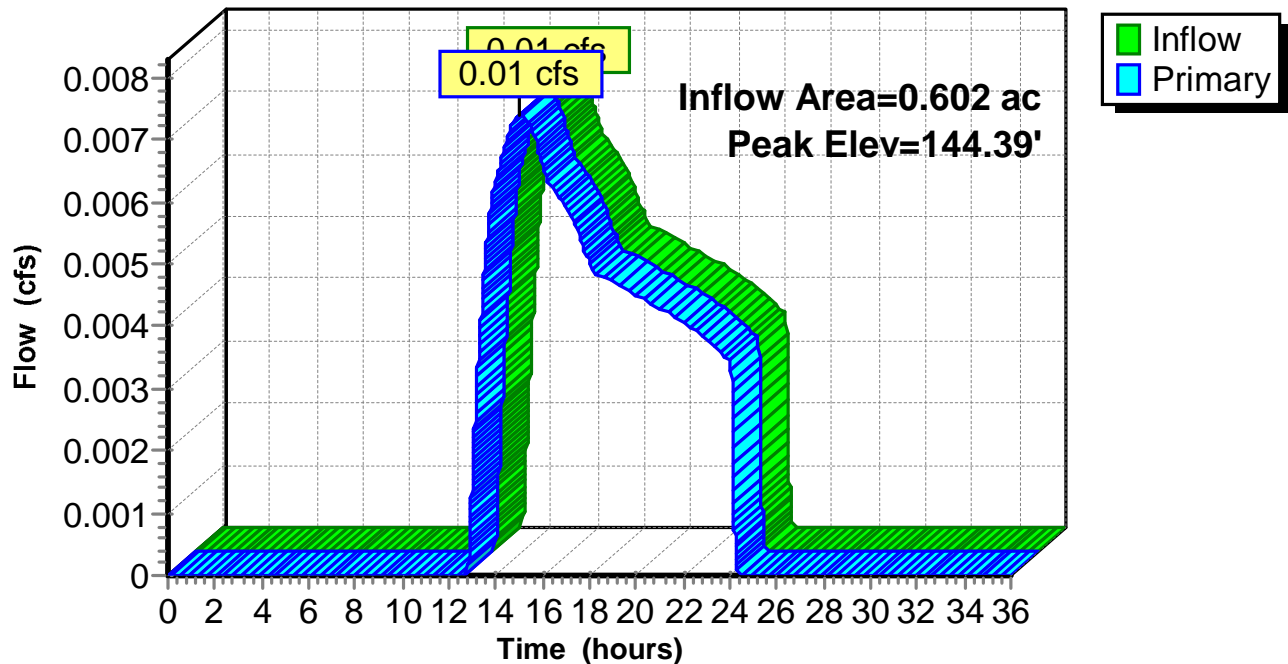
Device	Routing	Invert	Outlet Devices
#1	Primary	149.54'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	144.36'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 144.36' / 136.84' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.04 hrs HW=144.39' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.61 fps)

Pond CB16-14:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-15:

Inflow Area = 0.563 ac, 17.31% Impervious, Inflow Depth = 0.28" for 10-yr event
 Inflow = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af
 Outflow = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.27' @ 12.45 hrs

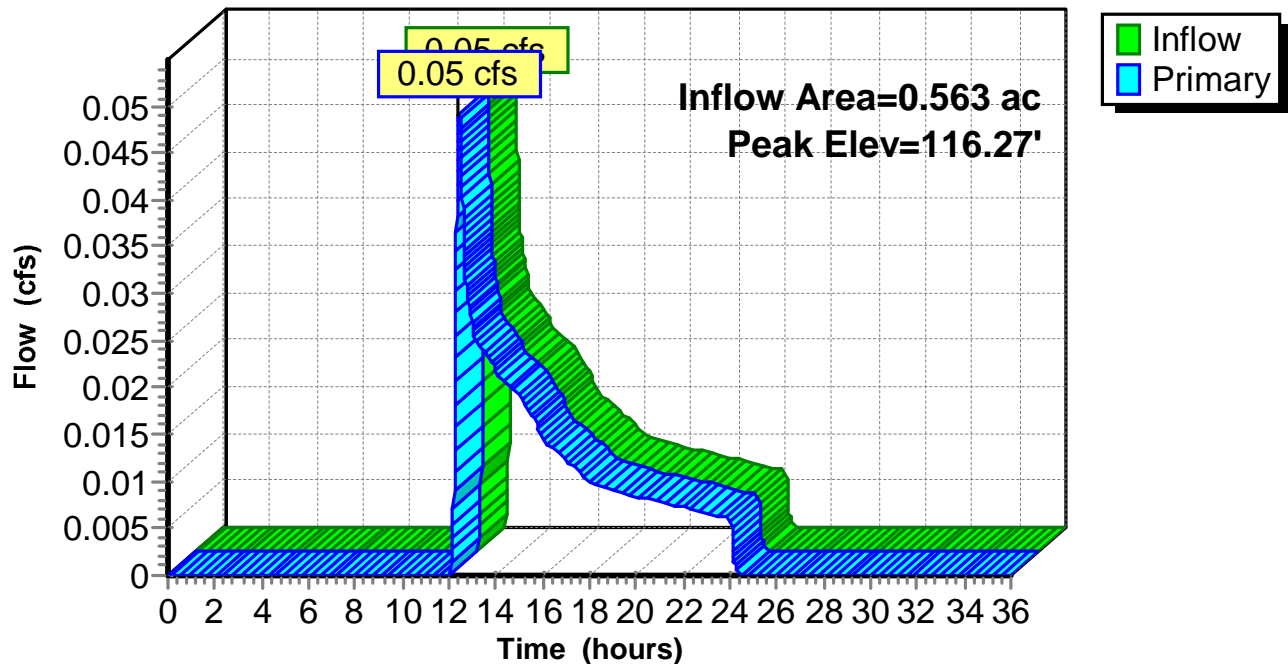
Device	Routing	Invert	Outlet Devices
#1	Primary	119.19'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	116.17'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 116.17' / 114.74' S= 0.0154 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.45 hrs HW=116.27' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.05 cfs @ 1.10 fps)

Pond CB16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.15" for 10-yr event
 Inflow = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af
 Outflow = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.87' @ 13.78 hrs

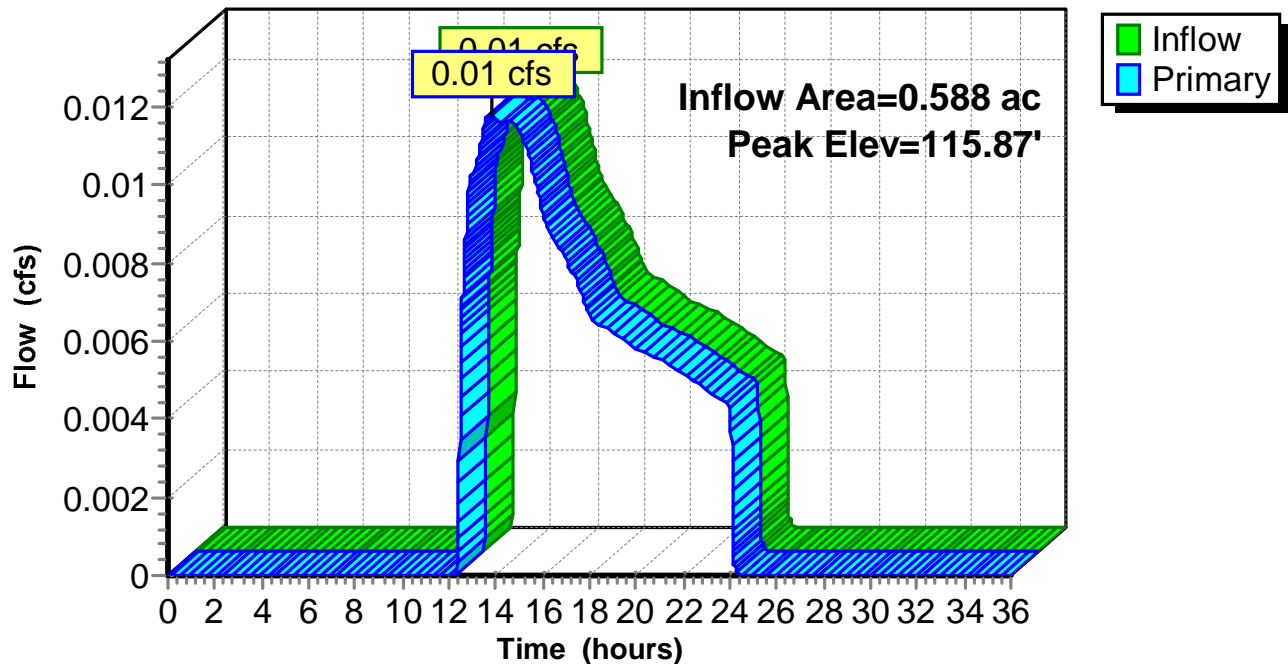
Device	Routing	Invert	Outlet Devices
#1	Primary	119.05'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.80'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 115.80' / 115.62' S= 0.0036 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 13.78 hrs HW=115.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.77 fps)

Pond CB17-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.13" for 10-yr event
 Inflow = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af
 Outflow = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.69' @ 14.68 hrs

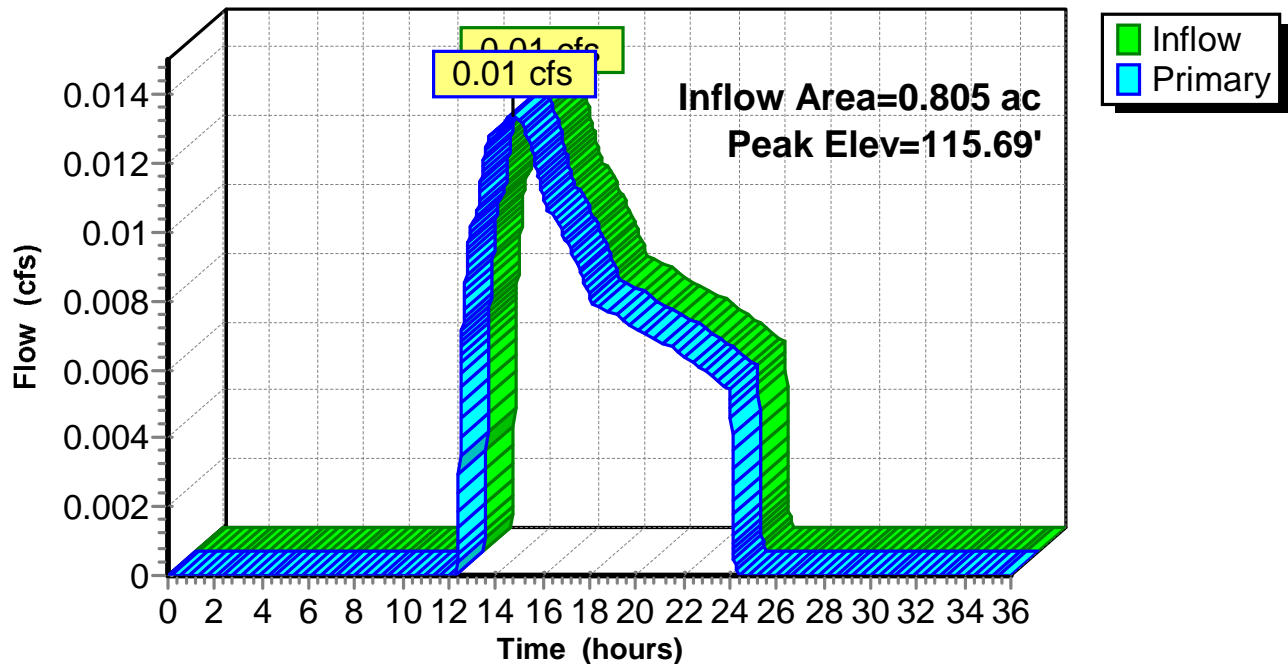
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.62'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 115.62' / 115.40' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 14.68 hrs HW=115.69' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.80 fps)

Pond CB17-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af
 Outflow = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.56' @ 12.46 hrs

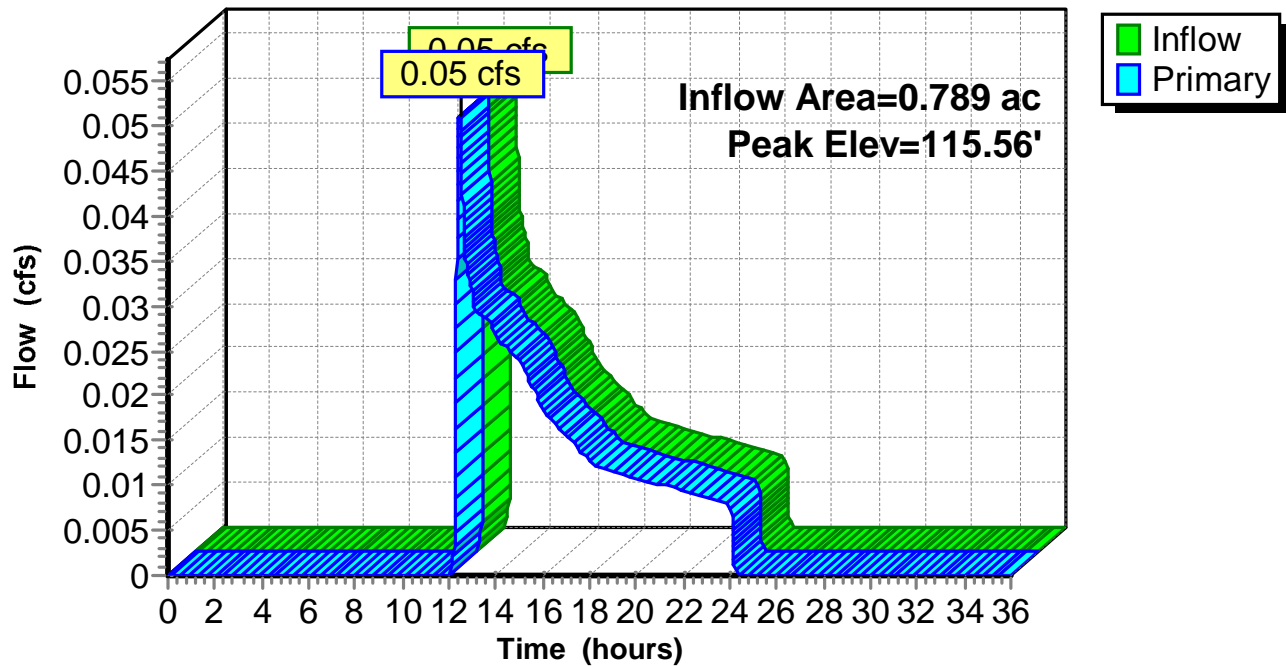
Device	Routing	Invert	Outlet Devices
#1	Primary	118.38'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.44'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 115.44' / 115.40' S= 0.0133 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.46 hrs HW=115.56' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.05 cfs @ 1.47 fps)

Pond CB17-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 0.75" for 10-yr event
 Inflow = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af
 Outflow = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.09' @ 12.12 hrs

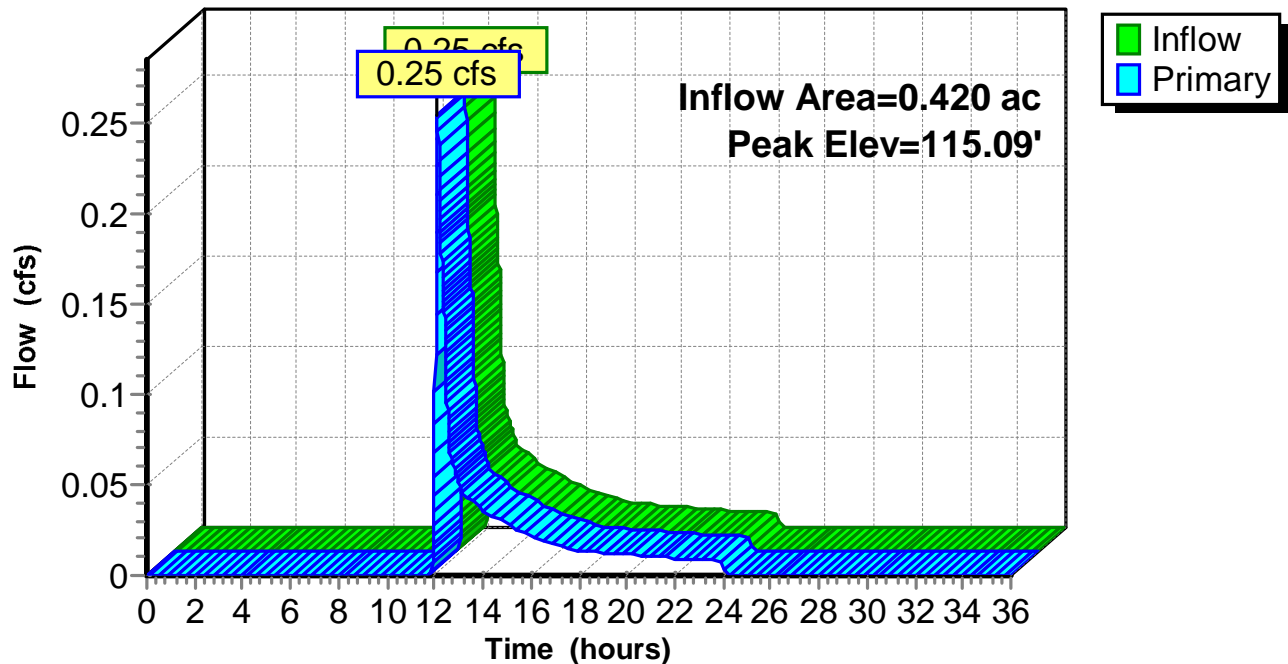
Device	Routing	Invert	Outlet Devices
#1	Primary	117.90'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.12 hrs HW=115.09' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.25 cfs @ 1.69 fps)

Pond CB17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-05:

Inflow Area = 0.665 ac, 22.89% Impervious, Inflow Depth = 0.64" for 10-yr event
 Inflow = 0.49 cfs @ 12.07 hrs, Volume= 0.036 af
 Outflow = 0.49 cfs @ 12.07 hrs, Volume= 0.036 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.49 cfs @ 12.07 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.23' @ 12.07 hrs

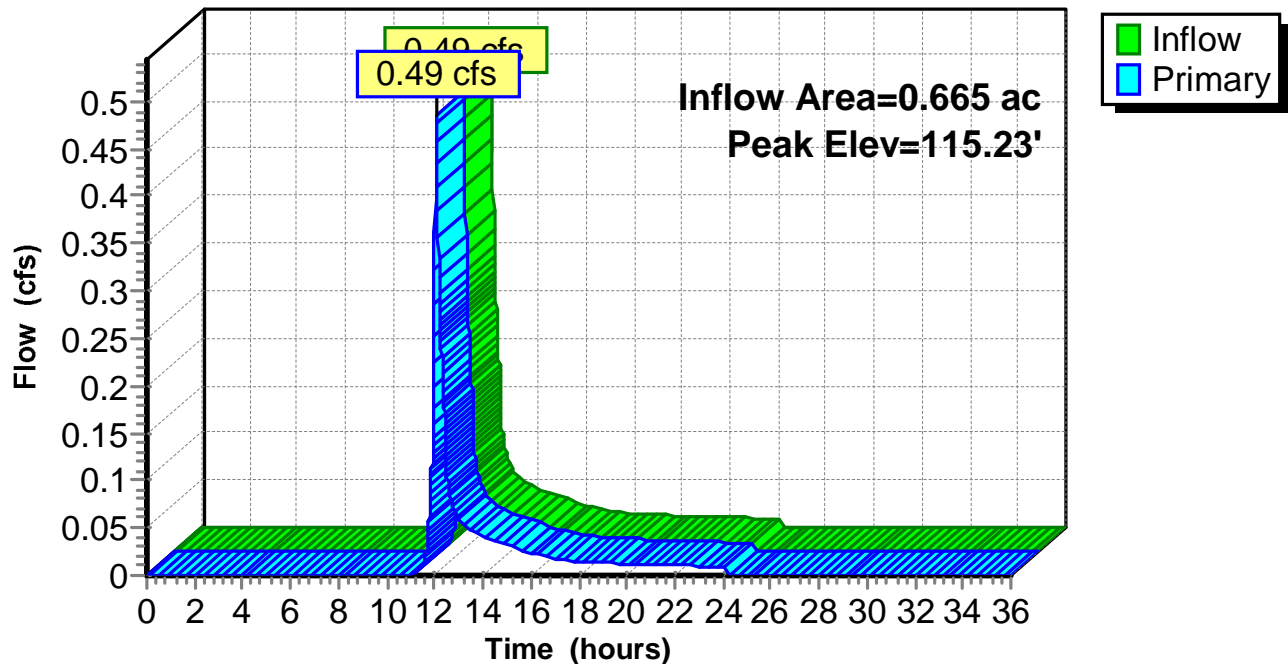
Device	Routing	Invert	Outlet Devices
#1	Primary	117.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0068 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.07 hrs HW=115.23' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.48 cfs @ 2.50 fps)

Pond CB17-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 1.65" for 10-yr event
 Inflow = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af
 Outflow = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.75' @ 12.07 hrs

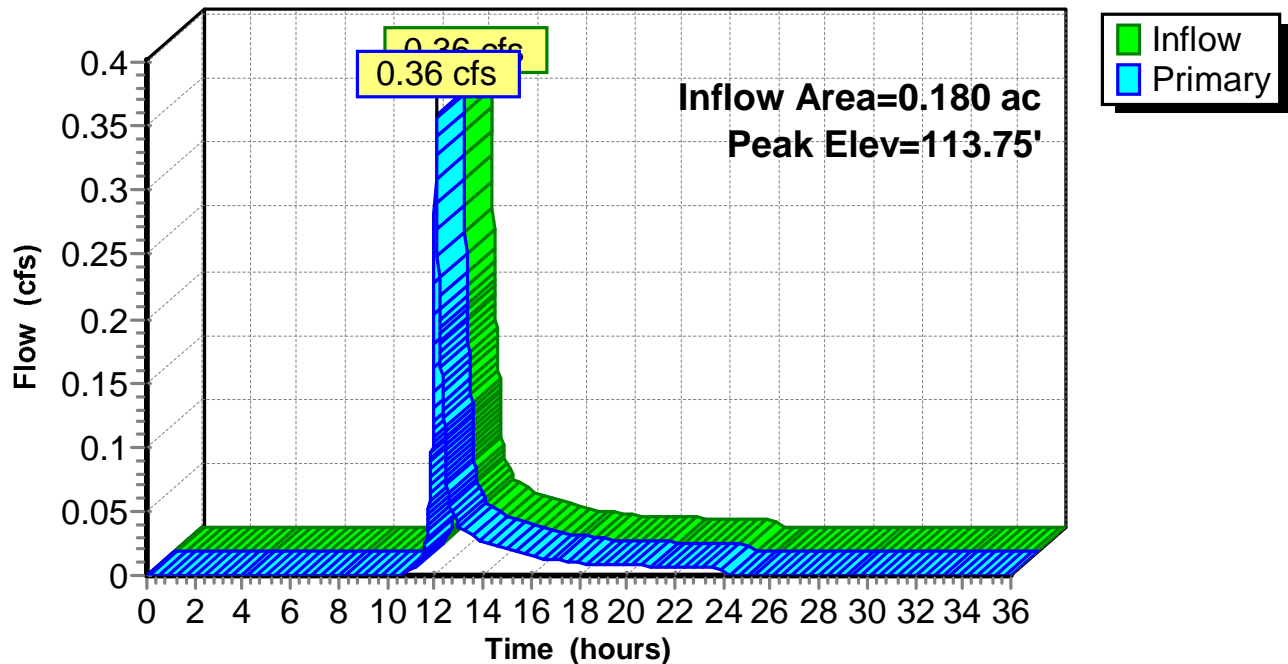
Device	Routing	Invert	Outlet Devices
#1	Primary	116.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	113.45'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 113.45' / 113.02' S= 0.0113 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.07 hrs HW=113.74' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.36 cfs @ 1.85 fps)

Pond CB17-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB17-07:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.52" for 10-yr event
 Inflow = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af
 Outflow = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.68' @ 12.08 hrs

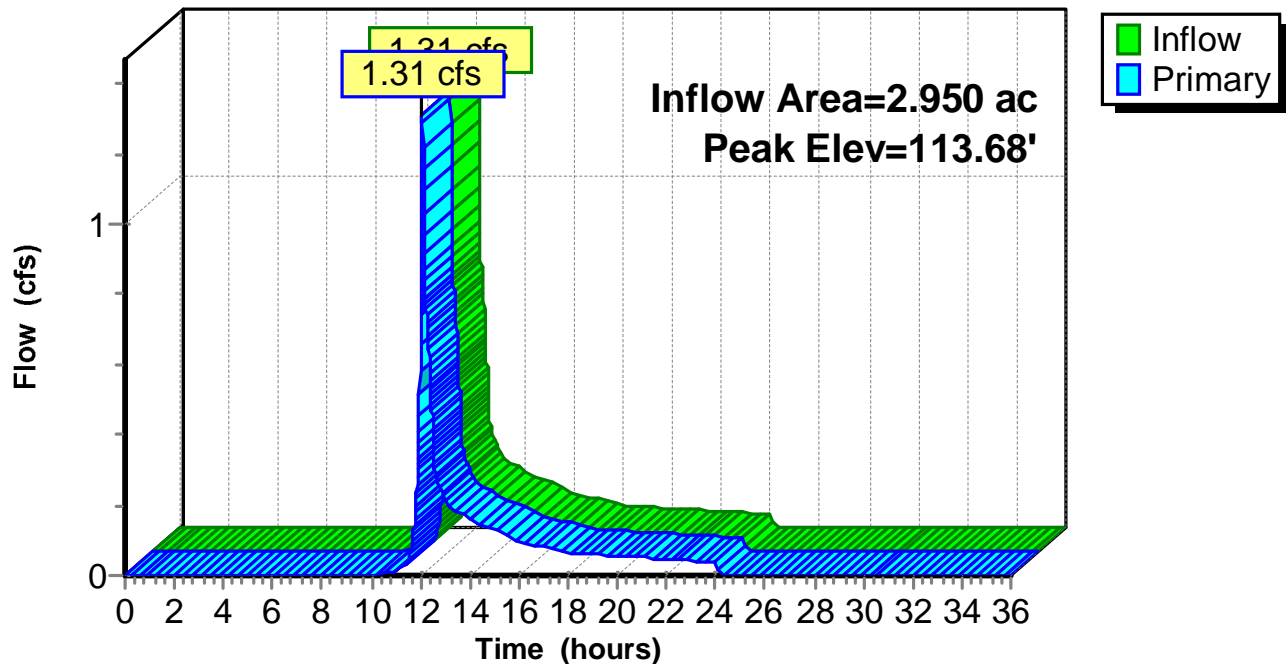
Device	Routing	Invert	Outlet Devices
#1	Primary	116.45'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	112.89'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 112.89' / 112.86' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.31 cfs @ 12.08 hrs HW=113.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.31 cfs @ 2.72 fps)

Pond CB17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond OWSMH 16:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.11" for 10-yr event
 Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
 Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 112.34' @ 12.06 hrs

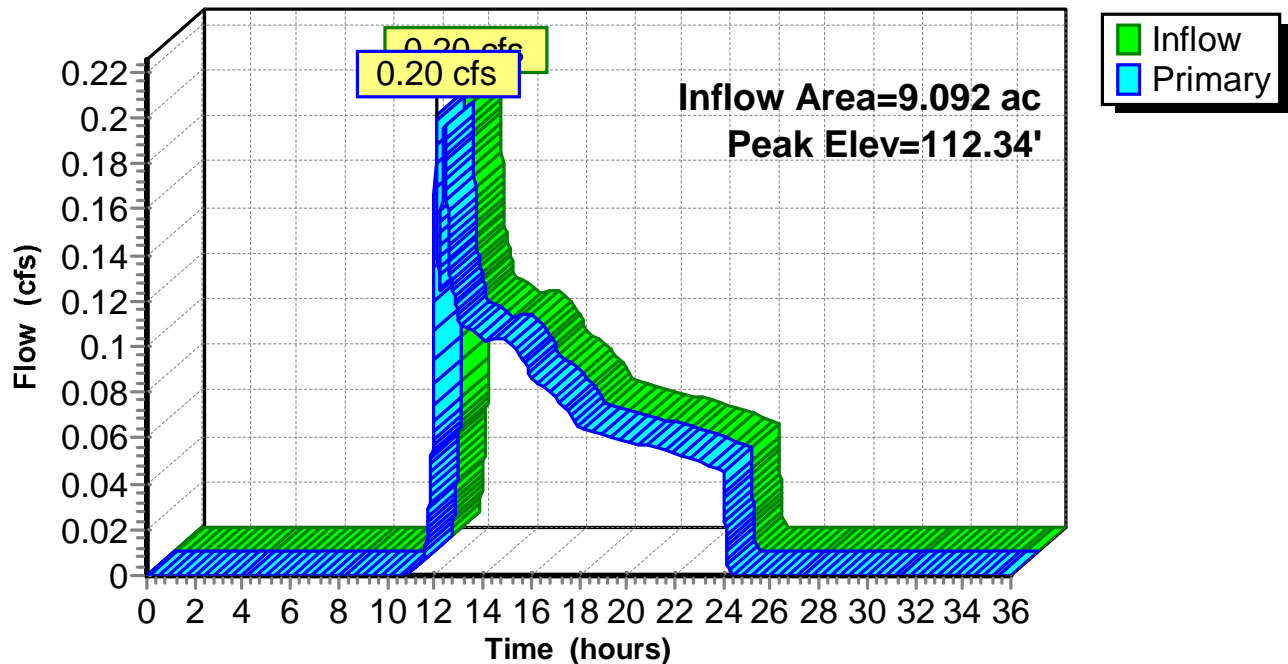
Device	Routing	Invert	Outlet Devices
#1	Primary	121.47'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.12'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 112.12' / 112.00' S= 0.0030 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.19 cfs @ 12.06 hrs HW=112.34' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.19 cfs @ 1.53 fps)

Pond OWSMH 16:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond OWSMH 17:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.52" for 10-yr event
 Inflow = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af
 Outflow = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.31 cfs @ 12.08 hrs, Volume= 0.129 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.46' @ 12.08 hrs

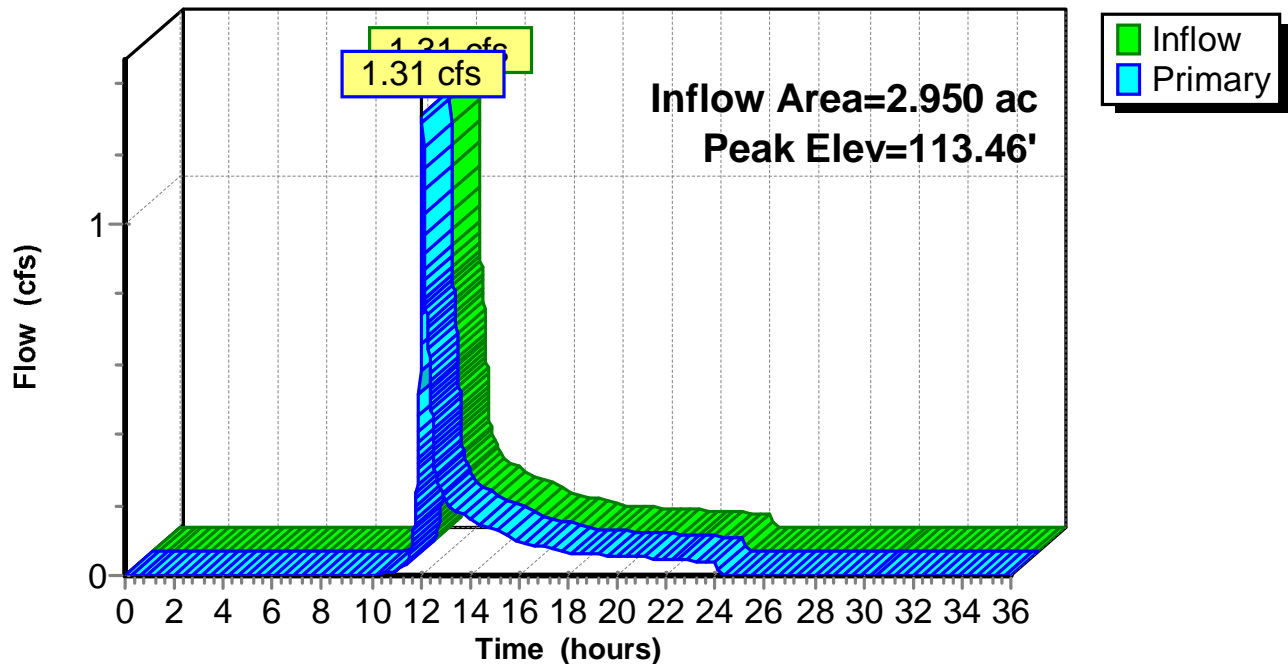
Device	Routing	Invert	Outlet Devices
#1	Primary	117.74'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.86'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 112.86' / 111.00' S= 0.0489 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.31 cfs @ 12.08 hrs HW=113.46' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.31 cfs @ 2.65 fps)

Pond OWSMH 17:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.11" for 10-yr event
 Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
 Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 112.61' @ 12.06 hrs

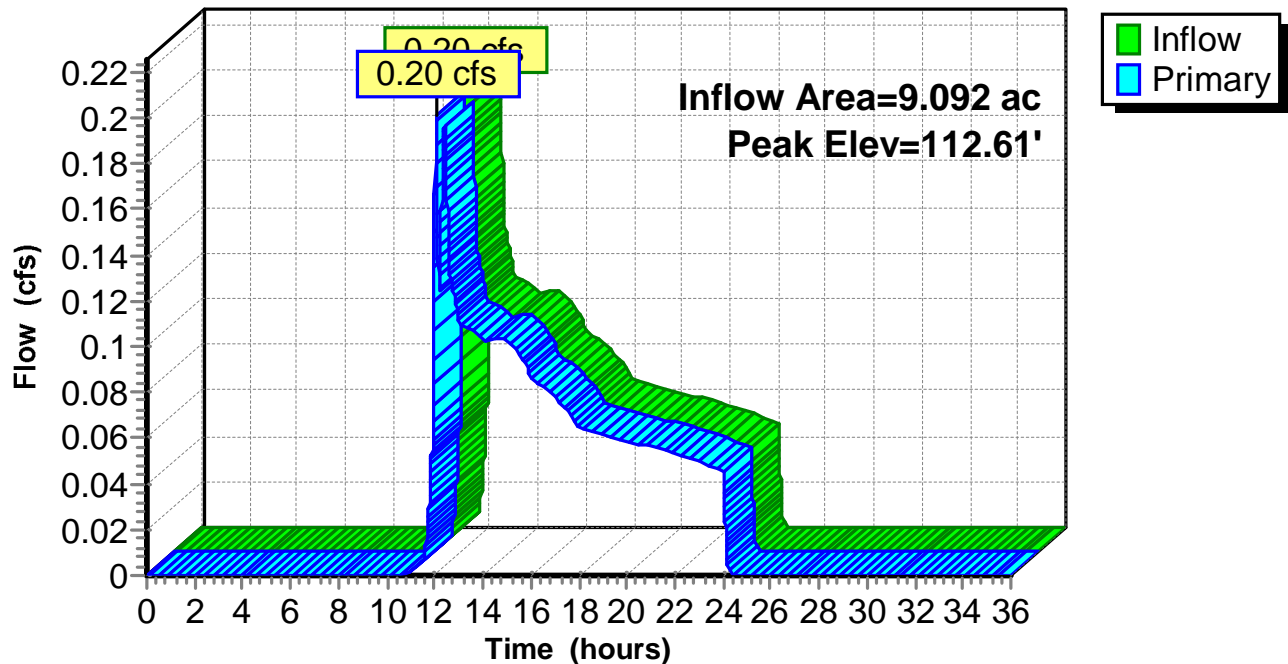
Device	Routing	Invert	Outlet Devices
#1	Primary	121.43'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.37'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 112.37' / 112.37' S= 0.0000 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.19 cfs @ 12.06 hrs HW=112.61' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.19 cfs @ 1.42 fps)

Pond SDMH16-02.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-02.2:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.11" for 10-yr event
 Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
 Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.06' @ 12.06 hrs

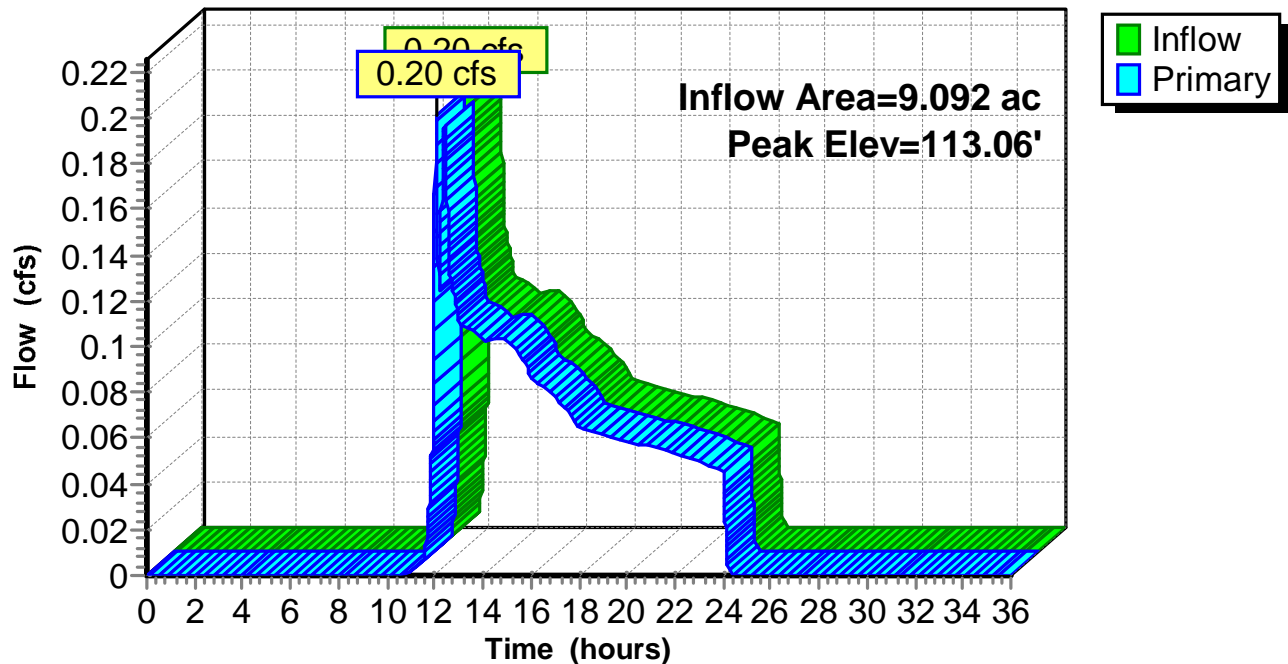
Device	Routing	Invert	Outlet Devices
#1	Primary	118.97'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.88'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 112.88' / 112.51' S= 0.0206 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=113.06' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.20 cfs @ 1.44 fps)

Pond SDMH16-02.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af
 Outflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.94' @ 12.45 hrs

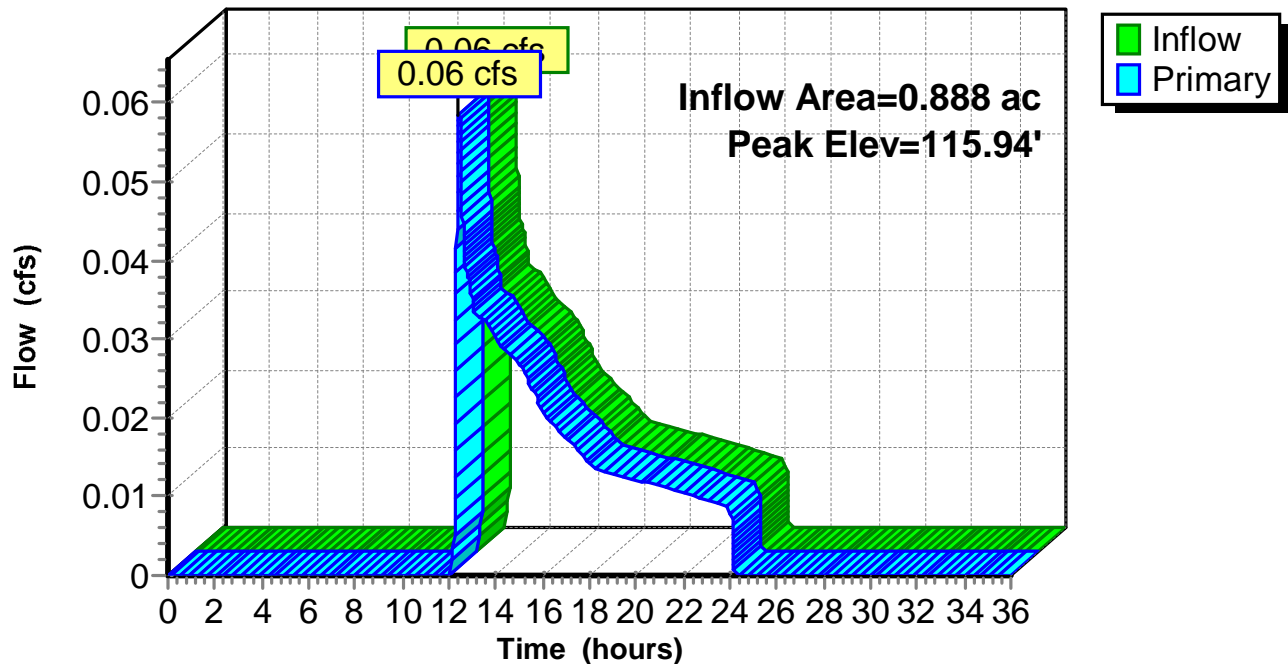
Device	Routing	Invert	Outlet Devices
#1	Primary	119.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.83'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 115.83' / 112.88' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.45 hrs HW=115.94' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.15 fps)

Pond SDMH16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.03" for 10-yr event
 Inflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af
 Outflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 128.06' @ 16.92 hrs

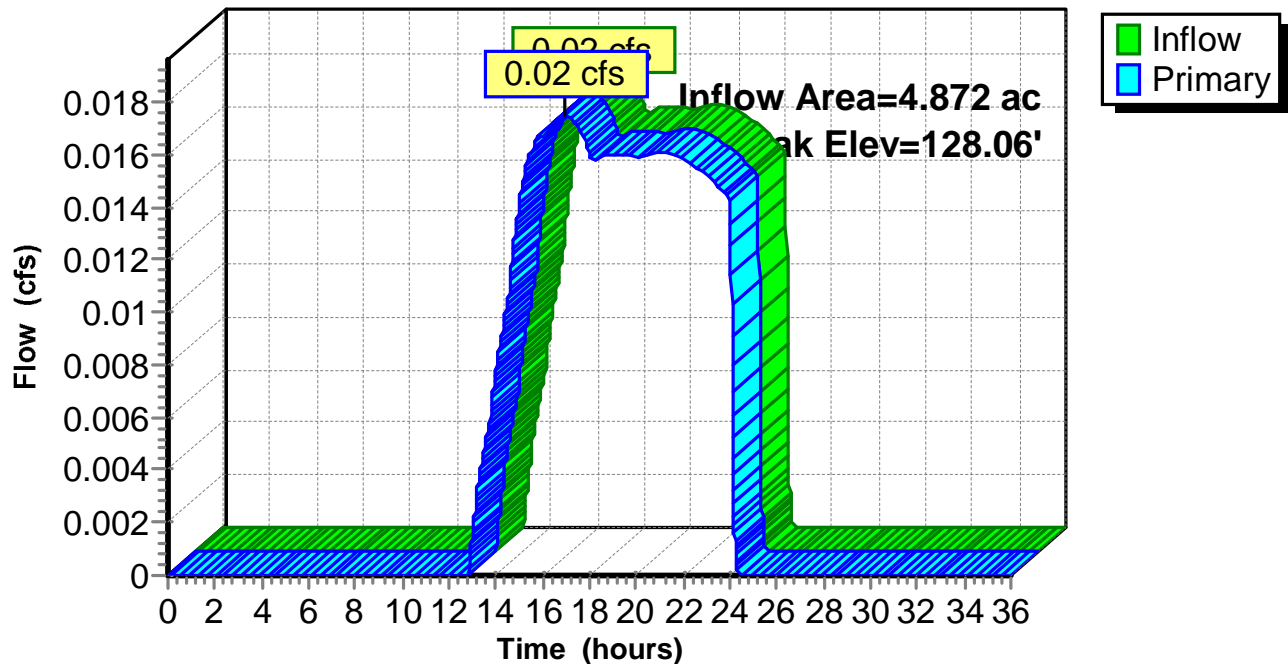
Device	Routing	Invert	Outlet Devices
#1	Primary	132.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	128.00'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 128.00' / 114.75' S= 0.0589 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.02 cfs @ 16.92 hrs HW=128.06' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.81 fps)

Pond SDMH16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.20" for 10-yr event
 Inflow = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af
 Outflow = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.92' @ 12.42 hrs

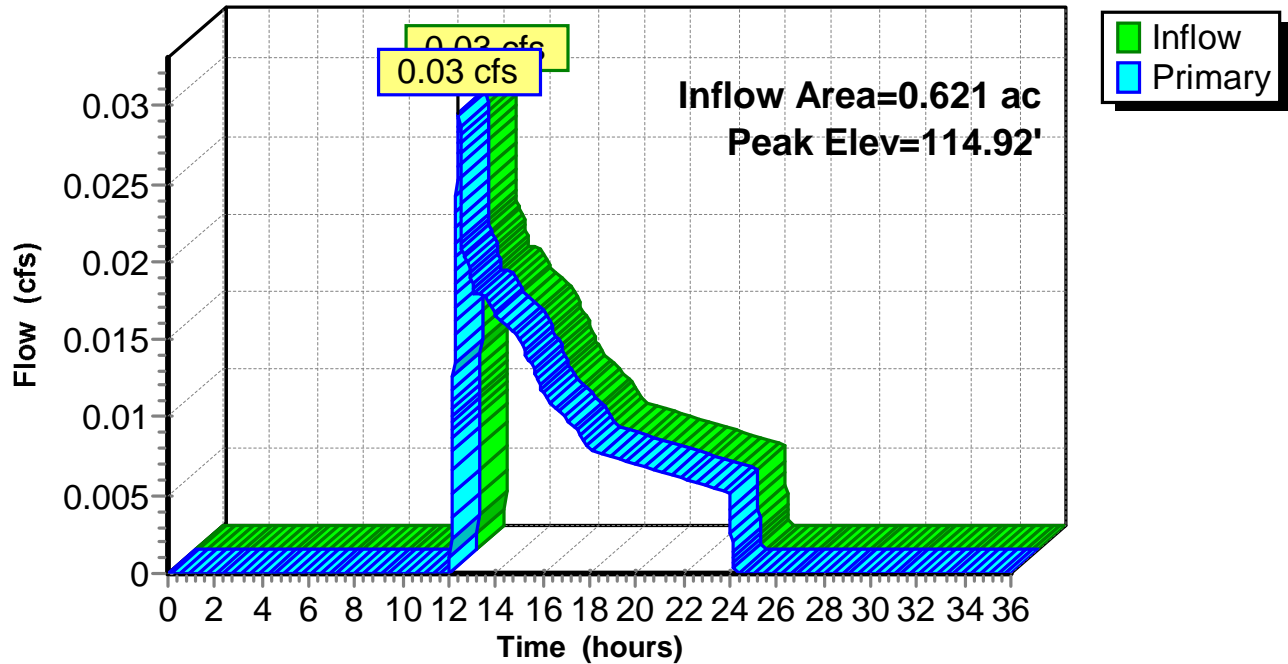
Device	Routing	Invert	Outlet Devices
#1	Primary	120.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.80'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 114.80' / 114.74' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.03 cfs @ 12.42 hrs HW=114.92' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.03 cfs @ 0.69 fps)

Pond SDMH16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.07" for 10-yr event
 Inflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af
 Outflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af

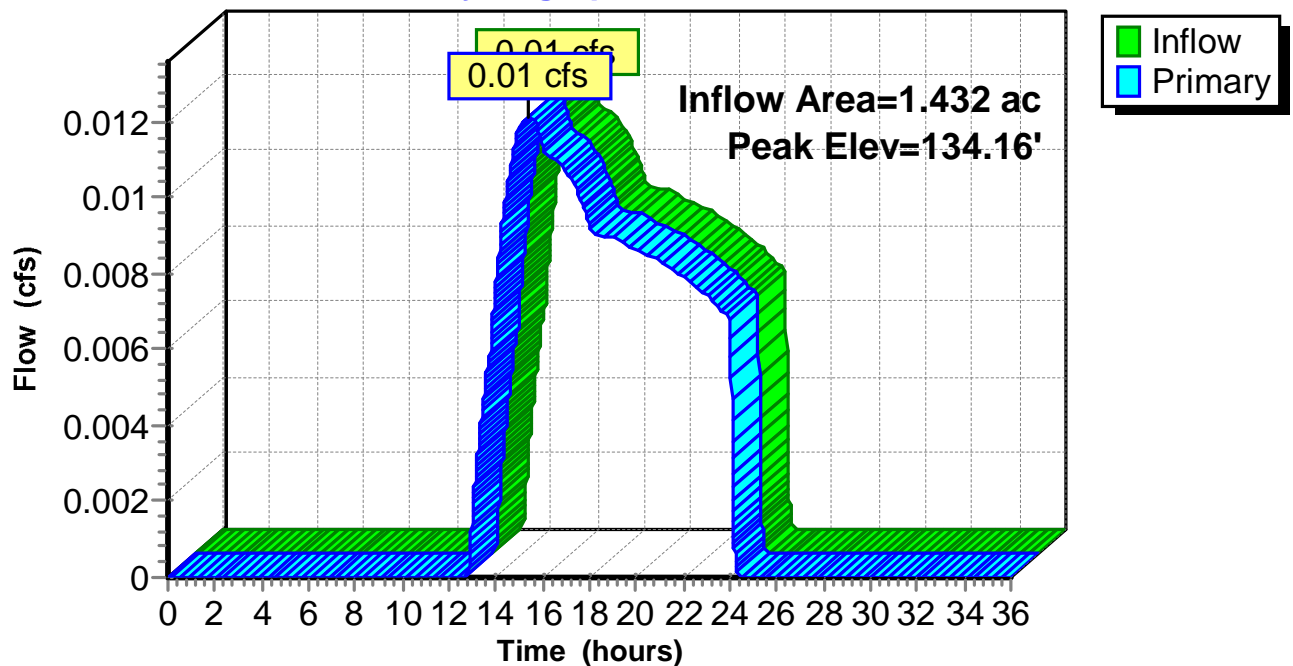
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.16' @ 15.38 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	139.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	134.10'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 134.10' / 132.47' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.38 hrs HW=134.16' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.99 fps)

Pond SDMH16-12.1:
Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.05" for 10-yr event
Inflow = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af
Outflow = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 130.09' @ 15.74 hrs

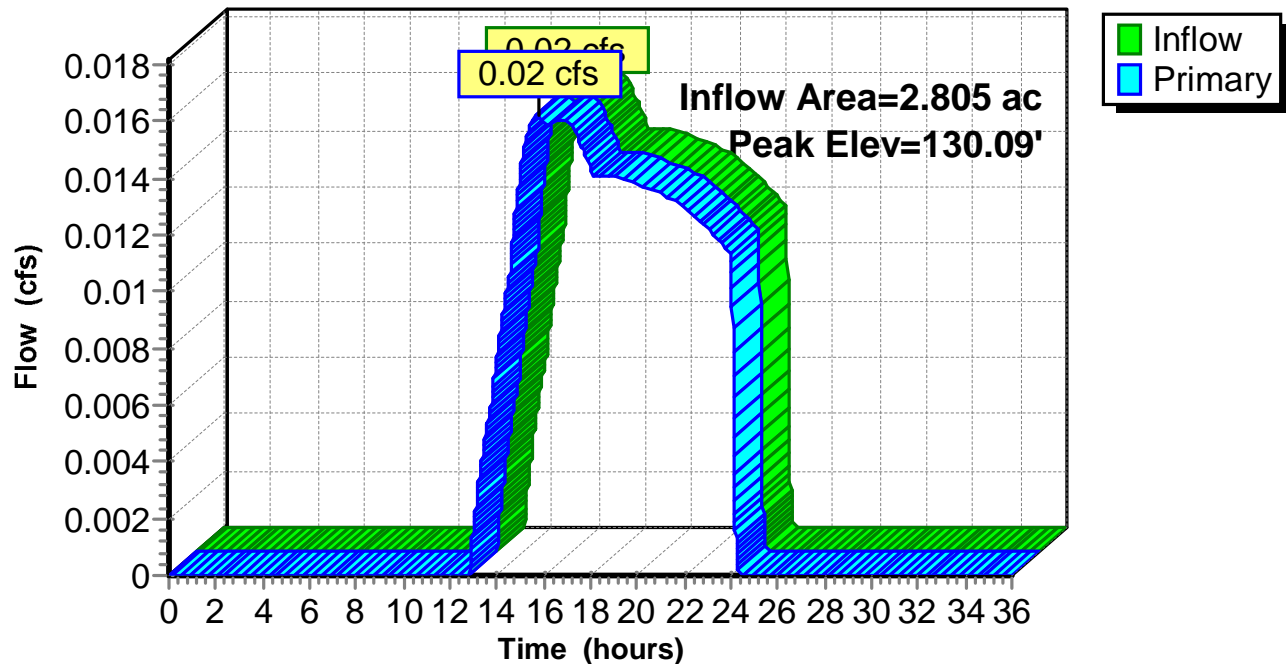
Device	Routing	Invert	Outlet Devices
#1	Primary	136.63'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	130.03'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 130.03' / 128.00' S= 0.0294 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.74 hrs HW=130.09' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.80 fps)

Pond SDMH16-12.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.07" for 10-yr event
 Inflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af
 Outflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 136.78' @ 15.38 hrs

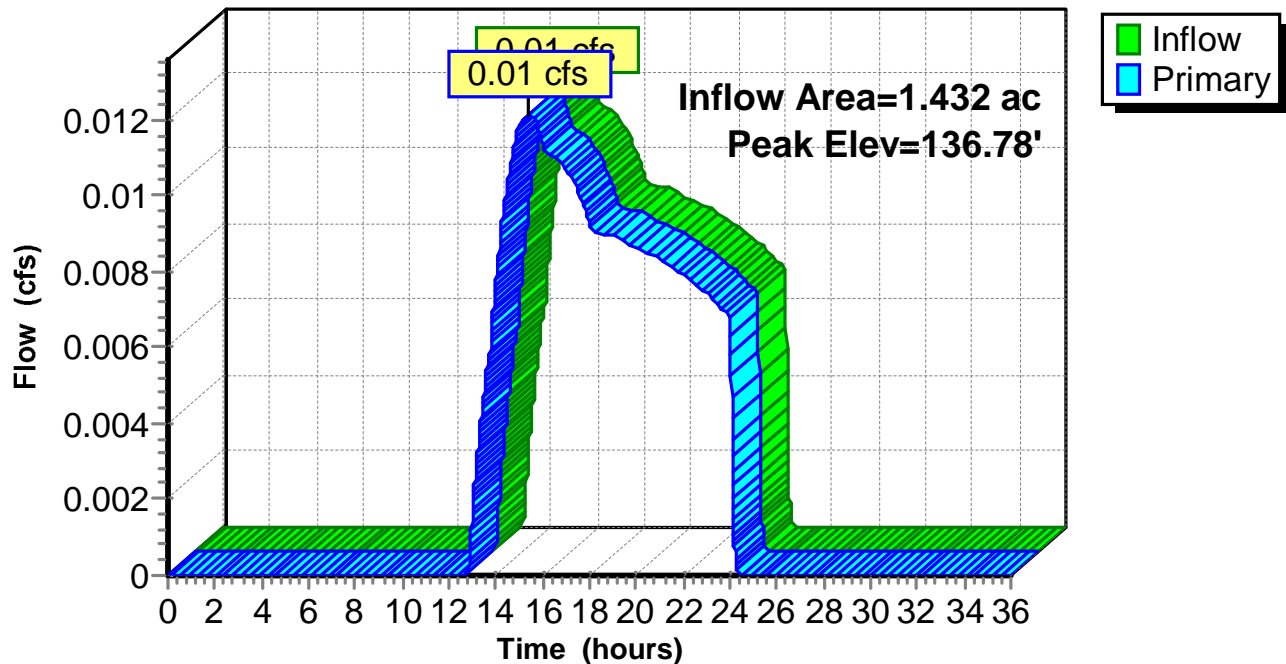
Device	Routing	Invert	Outlet Devices
#1	Primary	144.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	136.74'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 136.74' / 134.65' S= 0.0185 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.38 hrs HW=136.78' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.64 fps)

Pond SDMH16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.18" for 10-yr event
 Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.50' @ 12.47 hrs

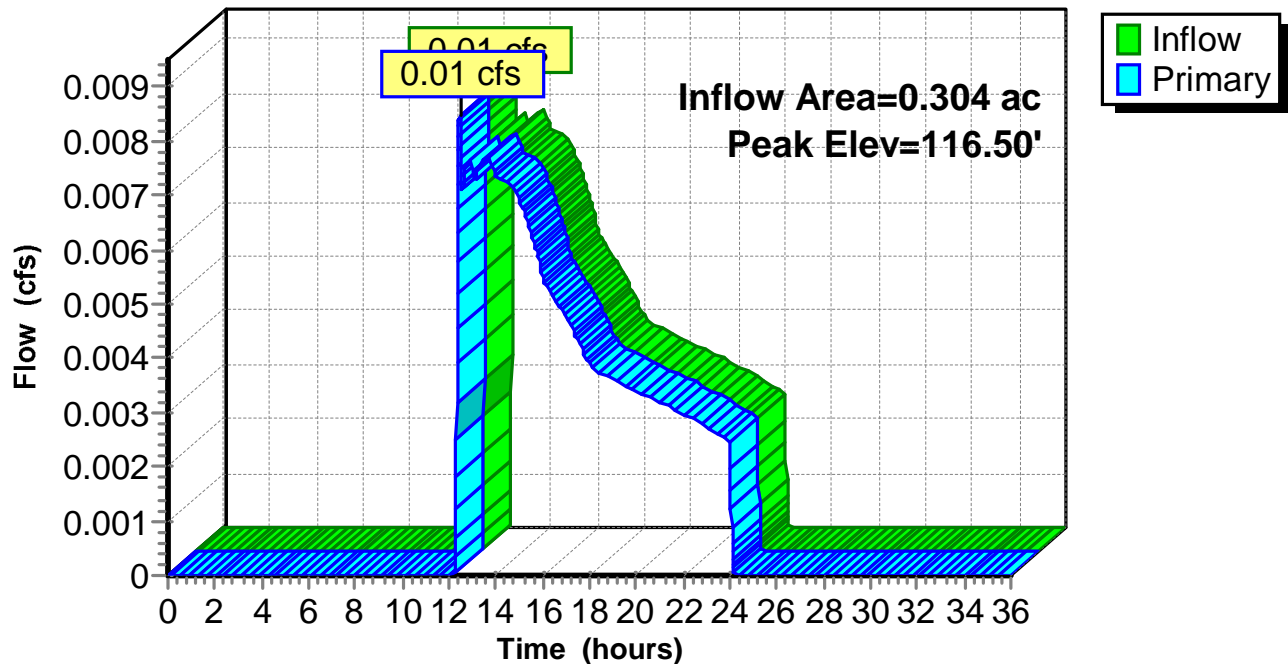
Device	Routing	Invert	Outlet Devices
#1	Primary	124.51'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	116.48'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 116.48' / 115.26' S= 0.0610 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.47 hrs HW=116.50' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.53 fps)

Pond SDMH16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.19" for 10-yr event
 Inflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af
 Outflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.48' @ 12.49 hrs

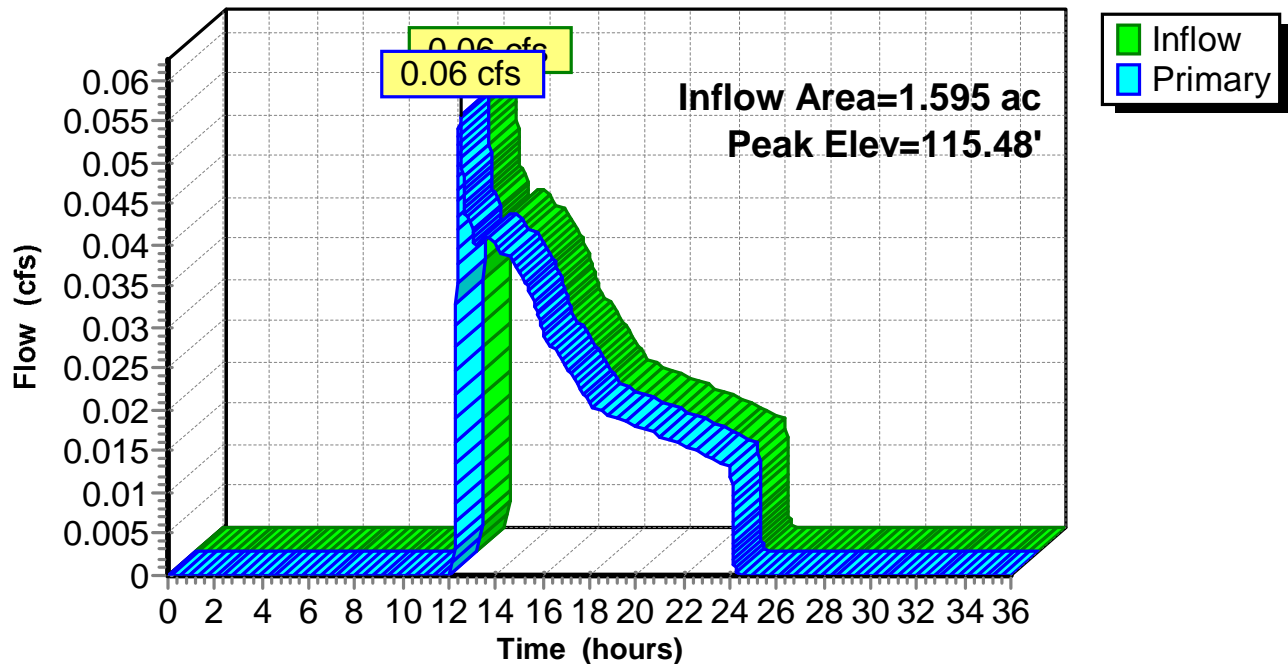
Device	Routing	Invert	Outlet Devices
#1	Primary	118.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.30'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 115.30' / 115.23' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.49 hrs HW=115.48' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 0.88 fps)

Pond SDMH17-03.1:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.19" for 10-yr event
Inflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af
Outflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.04' @ 12.49 hrs

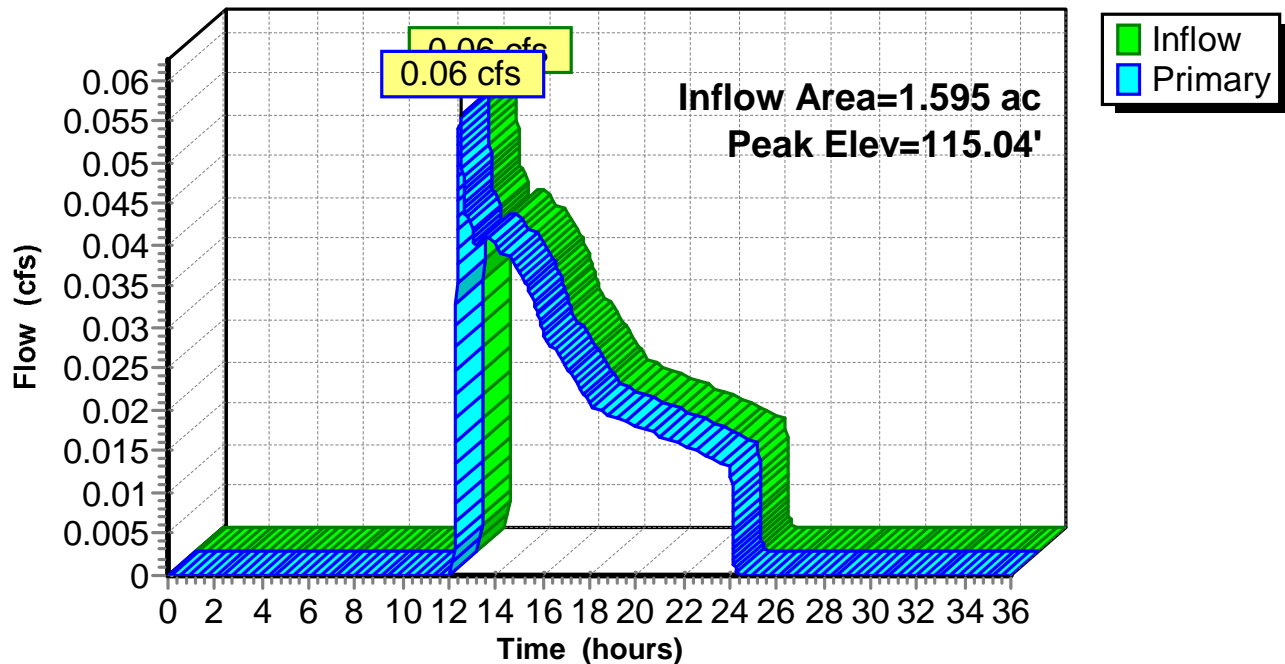
Device	Routing	Invert	Outlet Devices
#1	Primary	122.46'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.91'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 114.91' / 114.71' S= 0.0043 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.49 hrs HW=115.04' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.05 cfs @ 1.28 fps)

Pond SDMH17-03.2:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH17-04:

Inflow Area = 2.680 ac, 18.90% Impervious, Inflow Depth = 0.39" for 10-yr event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.087 af
Outflow = 0.71 cfs @ 12.09 hrs, Volume= 0.087 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.09 hrs, Volume= 0.087 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.14' @ 12.09 hrs

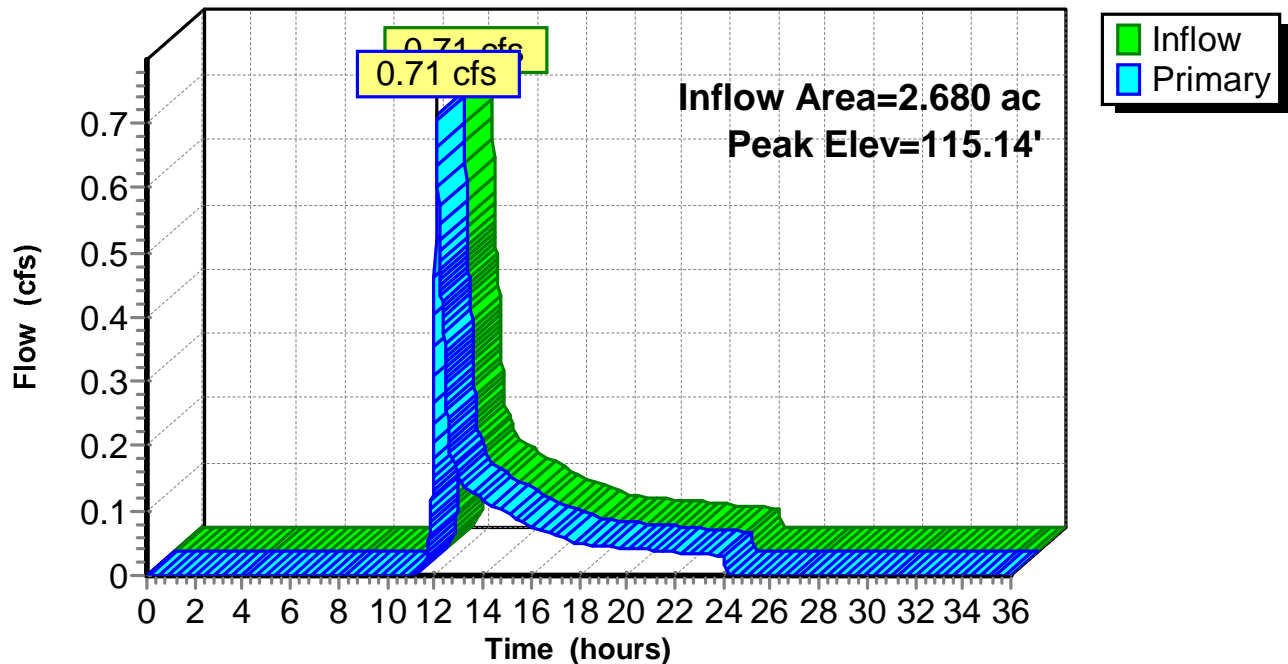
Device	Routing	Invert	Outlet Devices
#1	Primary	117.78'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.71'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 114.71' / 113.02' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.09 hrs HW=115.14' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.71 cfs @ 2.23 fps)

Pond SDMH17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH17-07:

Inflow Area = 2.860 ac, 21.03% Impervious, Inflow Depth = 0.47" for 10-yr event
 Inflow = 1.06 cfs @ 12.08 hrs, Volume= 0.112 af
 Outflow = 1.06 cfs @ 12.08 hrs, Volume= 0.112 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.06 cfs @ 12.08 hrs, Volume= 0.112 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.63' @ 12.08 hrs

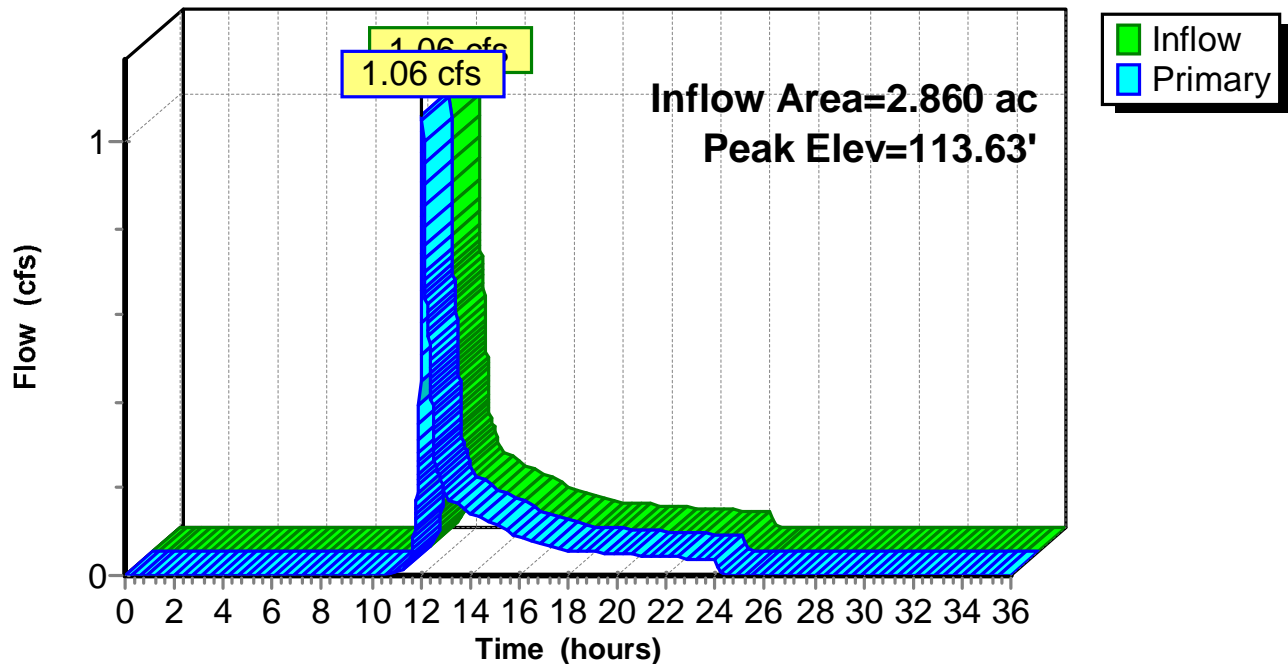
Device	Routing	Invert	Outlet Devices
#1	Primary	116.73'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	113.00'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 113.00' / 112.94' S= 0.0150 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.08 hrs HW=113.63' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.06 cfs @ 2.94 fps)

Pond SDMH17-07:

Hydrograph



Existing Conditions (Type A Soils)

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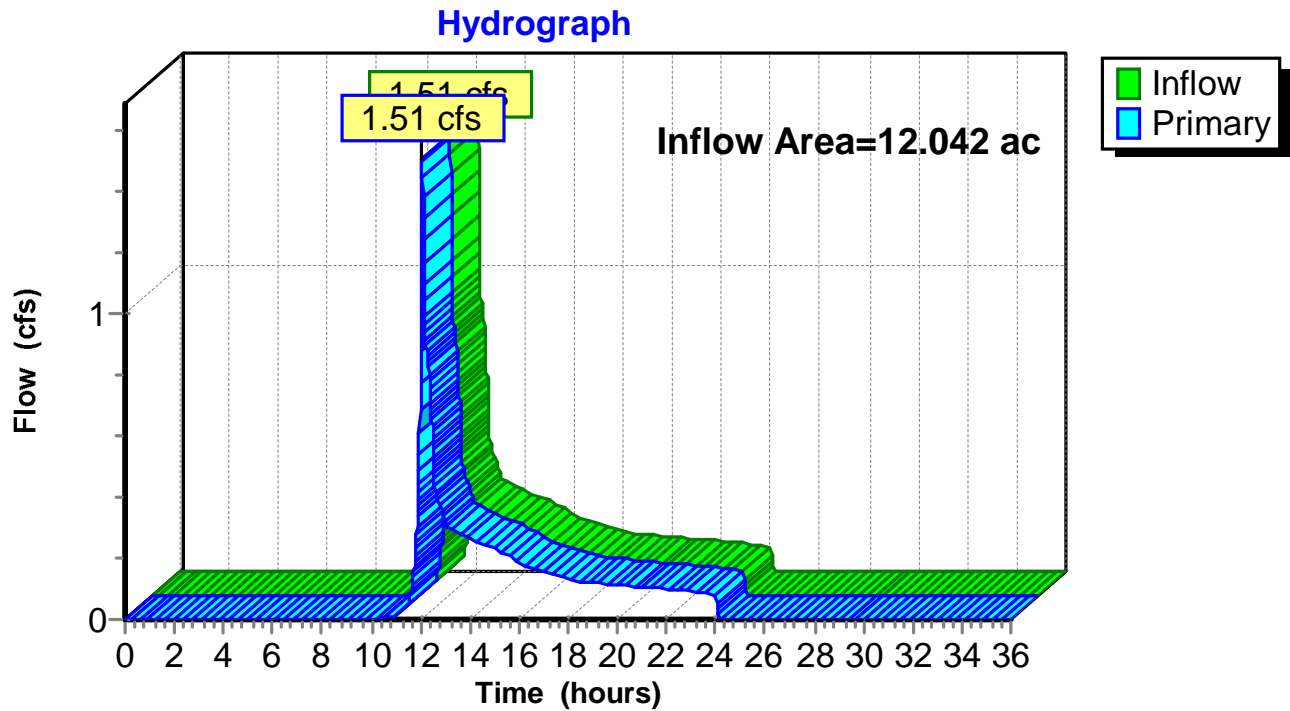
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Summary for Link OUT:

Inflow Area = 12.042 ac, 11.25% Impervious, Inflow Depth = 0.21" for 10-yr event
Inflow = 1.51 cfs @ 12.08 hrs, Volume= 0.209 af
Primary = 1.51 cfs @ 12.08 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.60" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.25 cfs 0.045 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=2.45" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.32 cfs 0.021 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.24" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.04 cfs 0.021 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.09" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.003 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 11.62% Impervious Runoff Depth=0.43" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.09 cfs 0.020 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.09" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.001 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.60" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.04 cfs 0.007 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.79" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.05 cfs 0.006 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.49" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.06 cfs 0.012 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.09" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.01 cfs 0.009 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.15" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.02 cfs 0.011 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.19" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.04 cfs 0.022 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.24" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.03 cfs 0.016 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.33" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.06 cfs 0.016 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.66" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.19 cfs 0.031 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 1.96% Impervious Runoff Depth=0.12" Flow Length=164' Tc=6.4 min CN=31 Runoff=0.01 cfs 0.004 af

Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.43" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.10 cfs 0.021 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.28" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.01 cfs 0.005 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.60" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.22 cfs 0.040 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=1.36" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.57 cfs 0.048 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=2.19" Flow Length=246' Tc=4.2 min CN=62 Runoff=0.82 cfs 0.056 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=2.54" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.57 cfs 0.038 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=3.30" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.37 cfs 0.025 af
Pond CB16-01:	Peak Elev=116.17' Inflow=0.25 cfs 0.045 af Outflow=0.25 cfs 0.045 af
Pond CB16-02:	Peak Elev=115.87' Inflow=0.32 cfs 0.021 af Outflow=0.32 cfs 0.021 af
Pond CB16-03:	Peak Elev=115.68' Inflow=0.04 cfs 0.021 af Outflow=0.04 cfs 0.021 af
Pond CB16-04:	Peak Elev=114.90' Inflow=0.12 cfs 0.078 af Outflow=0.12 cfs 0.078 af
Pond CB16-05:	Peak Elev=115.03' Inflow=0.41 cfs 0.077 af Outflow=0.41 cfs 0.077 af
Pond CB16-06:	Peak Elev=115.49' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-07:	Peak Elev=120.85' Inflow=0.04 cfs 0.007 af Outflow=0.04 cfs 0.007 af
Pond CB16-08:	Peak Elev=120.46' Inflow=0.09 cfs 0.013 af Outflow=0.09 cfs 0.013 af
Pond CB16-09:	Peak Elev=124.96' Inflow=0.06 cfs 0.012 af Outflow=0.06 cfs 0.012 af
Pond CB16-10:	Peak Elev=129.68' Inflow=0.01 cfs 0.009 af Outflow=0.01 cfs 0.009 af

Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Pond CB16-11:	Peak Elev=129.37' Inflow=0.03 cfs 0.020 af Outflow=0.03 cfs 0.020 af
Pond CB16-12:	Peak Elev=130.77' Inflow=0.04 cfs 0.022 af Outflow=0.04 cfs 0.022 af
Pond CB16-13:	Peak Elev=134.98' Inflow=0.03 cfs 0.016 af Outflow=0.03 cfs 0.016 af
Pond CB16-14:	Peak Elev=144.47' Inflow=0.06 cfs 0.016 af Outflow=0.06 cfs 0.016 af
Pond CB16-15:	Peak Elev=116.38' Inflow=0.19 cfs 0.031 af Outflow=0.19 cfs 0.031 af
Pond CB17-01:	Peak Elev=115.99' Inflow=0.10 cfs 0.021 af Outflow=0.10 cfs 0.021 af
Pond CB17-02:	Peak Elev=115.82' Inflow=0.11 cfs 0.026 af Outflow=0.11 cfs 0.026 af
Pond CB17-03:	Peak Elev=115.71' Inflow=0.22 cfs 0.040 af Outflow=0.22 cfs 0.040 af
Pond CB17-04:	Peak Elev=115.23' Inflow=0.57 cfs 0.048 af Outflow=0.57 cfs 0.048 af
Pond CB17-05:	Peak Elev=115.37' Inflow=0.82 cfs 0.060 af Outflow=0.82 cfs 0.060 af
Pond CB17-06:	Peak Elev=113.83' Inflow=0.57 cfs 0.038 af Outflow=0.57 cfs 0.038 af
Pond CB17-07:	Peak Elev=114.03' Inflow=2.33 cfs 0.236 af Outflow=2.33 cfs 0.236 af
Pond OWSMH 16:	Peak Elev=112.58' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af
Pond OWSMH 17:	Peak Elev=113.74' Inflow=2.33 cfs 0.236 af Outflow=2.33 cfs 0.236 af
Pond SDMH16-02.1:	Peak Elev=112.85' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af
Pond SDMH16-02.2:	Peak Elev=113.25' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af
Pond SDMH16-03:	Peak Elev=116.08' Inflow=0.25 cfs 0.045 af Outflow=0.25 cfs 0.045 af

Existing Conditions (Type A Soils)

Type III 24-hr 25-yr Rainfall=6.14"

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Pond SDMH16-05:	Peak Elev=128.15' Inflow=0.12 cfs 0.075 af Outflow=0.12 cfs 0.075 af
Pond SDMH16-06:	Peak Elev=115.06' Inflow=0.14 cfs 0.026 af Outflow=0.14 cfs 0.026 af
Pond SDMH16-12.1:	Peak Elev=134.25' Inflow=0.09 cfs 0.033 af Outflow=0.09 cfs 0.033 af
Pond SDMH16-12.2:	Peak Elev=130.18' Inflow=0.11 cfs 0.055 af Outflow=0.11 cfs 0.055 af
Pond SDMH16-13:	Peak Elev=136.88' Inflow=0.09 cfs 0.033 af Outflow=0.09 cfs 0.033 af
Pond SDMH16-15:	Peak Elev=116.59' Inflow=0.06 cfs 0.012 af Outflow=0.06 cfs 0.012 af
Pond SDMH17-03.1:	Peak Elev=115.71' Inflow=0.33 cfs 0.066 af Outflow=0.33 cfs 0.066 af
Pond SDMH17-03.2:	Peak Elev=115.24' Inflow=0.33 cfs 0.066 af Outflow=0.33 cfs 0.066 af
Pond SDMH17-04:	Peak Elev=115.34' Inflow=1.43 cfs 0.173 af Outflow=1.43 cfs 0.173 af
Pond SDMH17-07:	Peak Elev=113.91' Inflow=1.97 cfs 0.212 af Outflow=1.97 cfs 0.212 af
Link OUT:	Inflow=2.90 cfs 0.478 af Primary=2.90 cfs 0.478 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.478 af Average Runoff Depth = 0.48"
88.75% Pervious = 10.688 ac 11.25% Impervious = 1.355 ac

Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-01S:

Runoff = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Depth= 0.60"

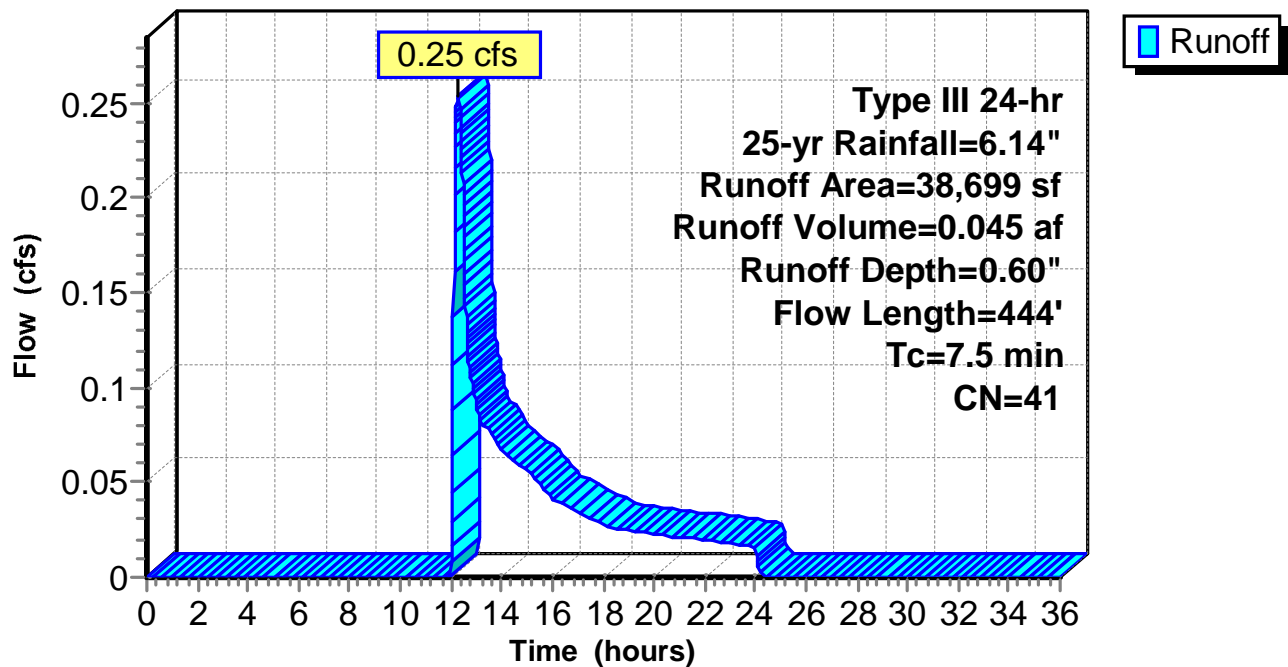
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-02S:

Runoff = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af, Depth= 2.45"

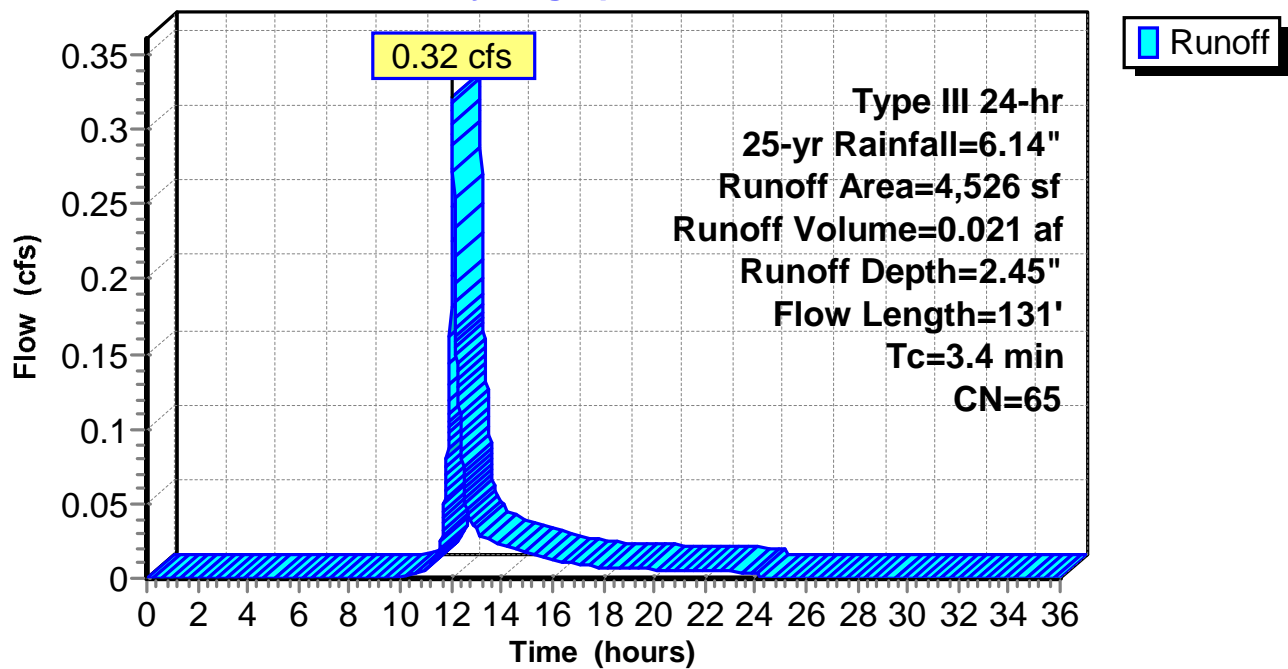
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-03S:

Runoff = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af, Depth= 0.24"

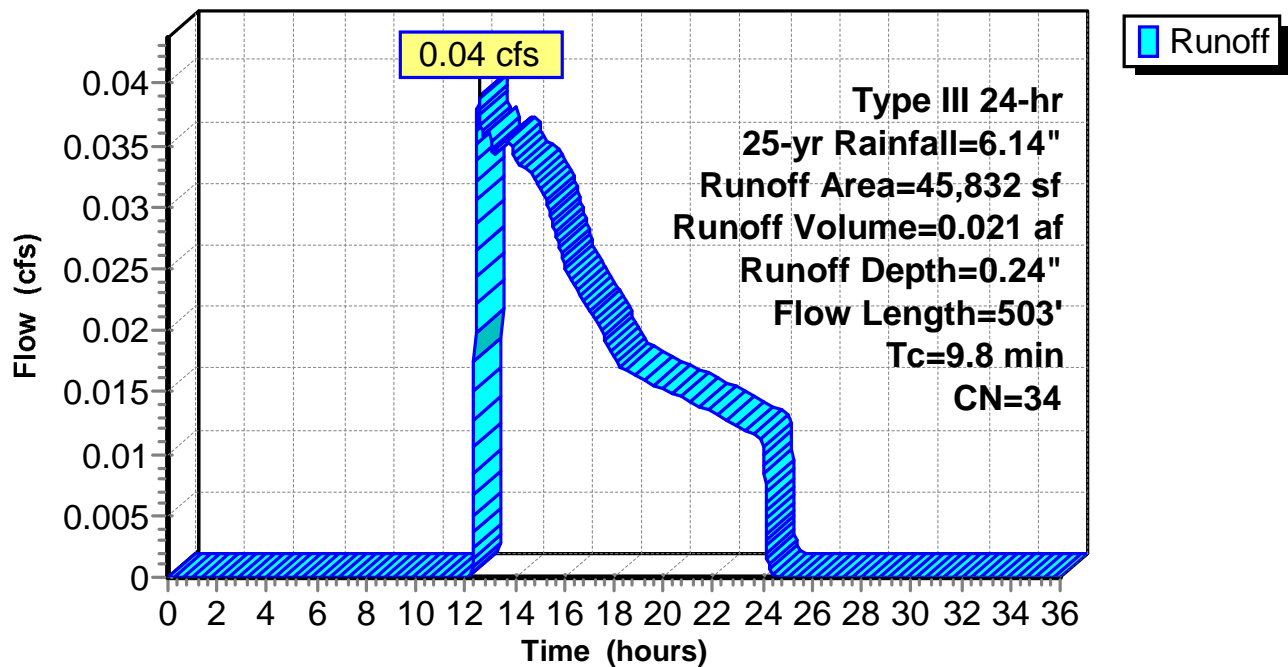
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 15.35 hrs, Volume= 0.003 af, Depth= 0.09"

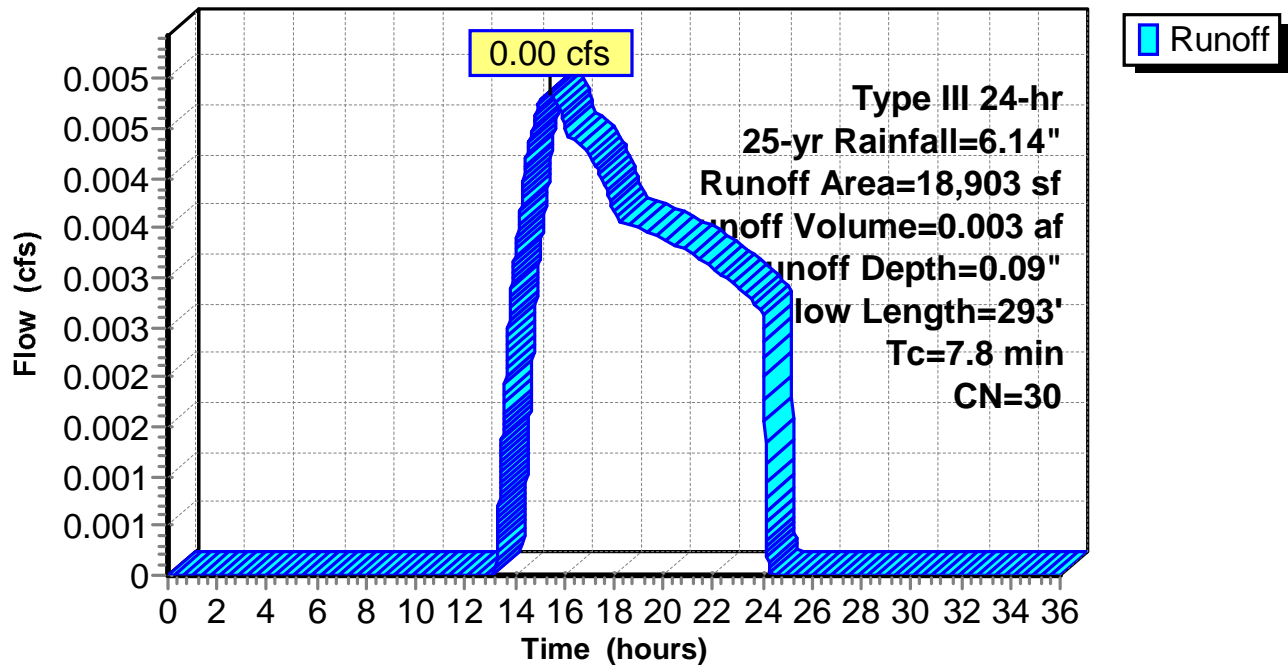
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-05S:

Runoff = 0.09 cfs @ 12.41 hrs, Volume= 0.020 af, Depth= 0.43"

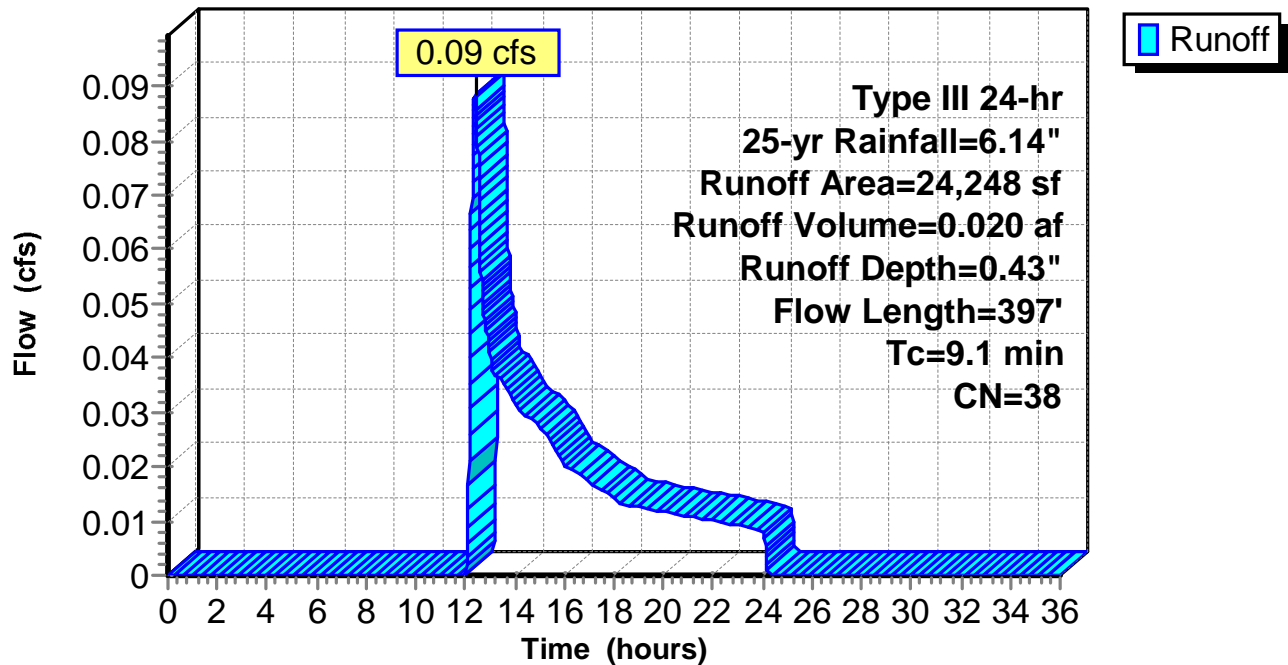
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,818	98	Impervious
21,430	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,430		88.38% Pervious Area
2,818		11.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af, Depth= 0.09"

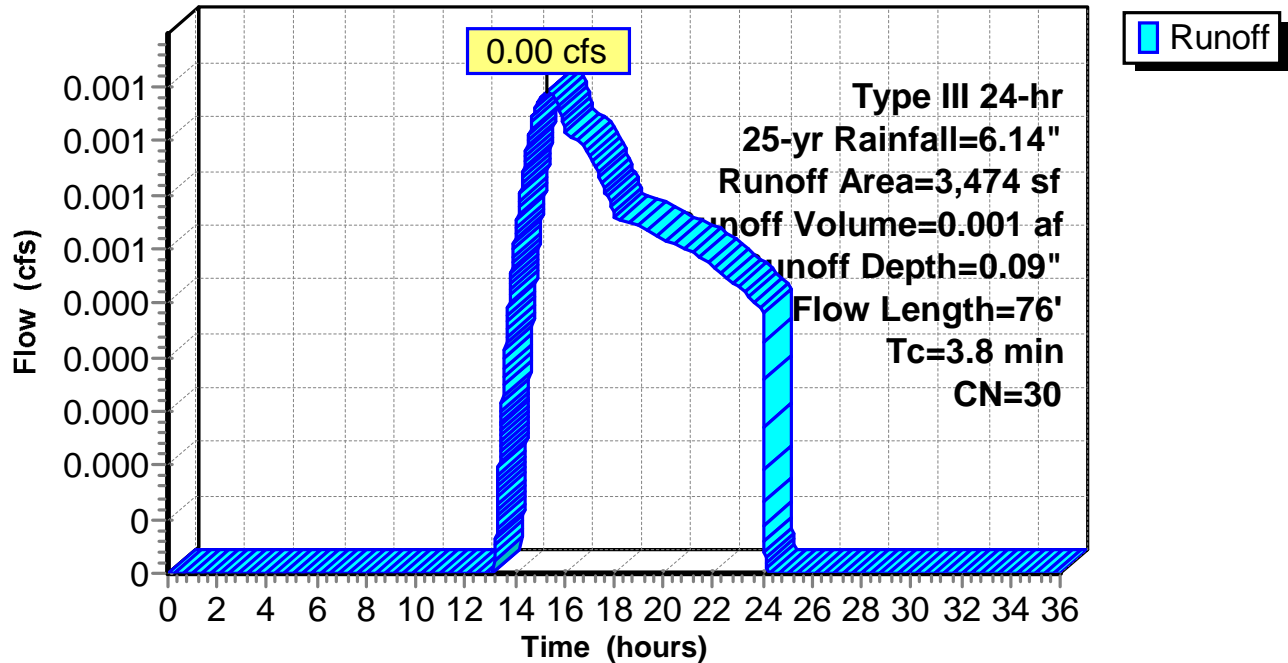
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-07S:

Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af, Depth= 0.60"

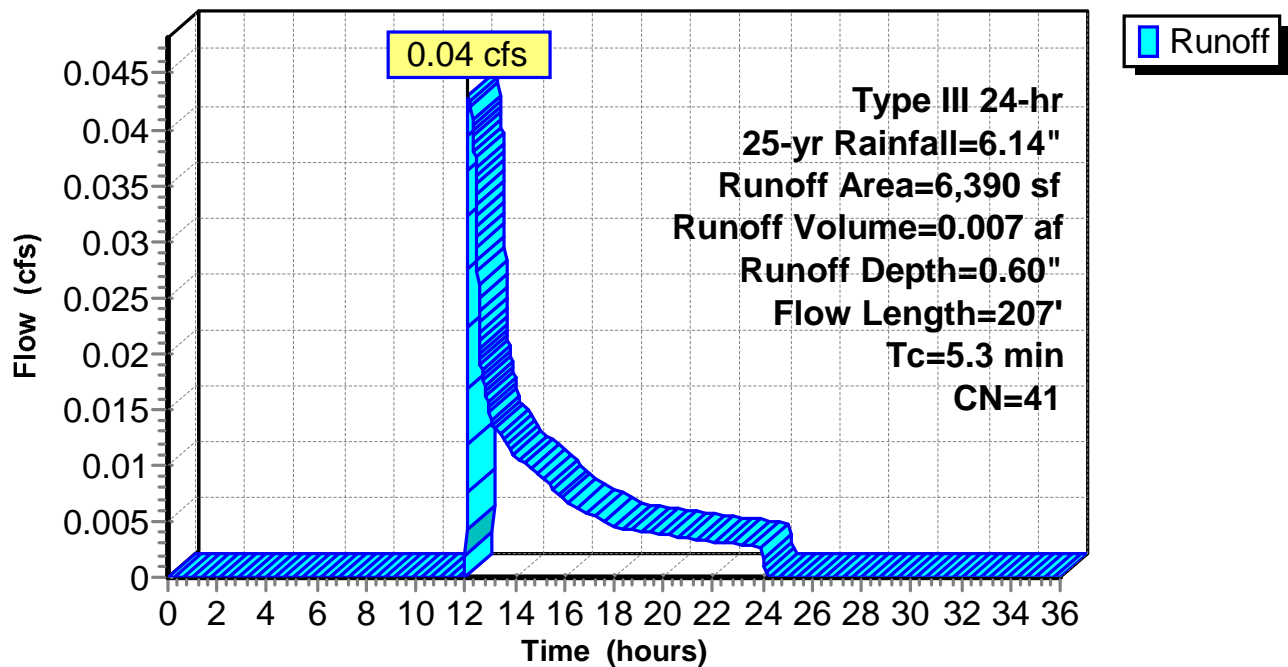
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-08S:

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 0.79"

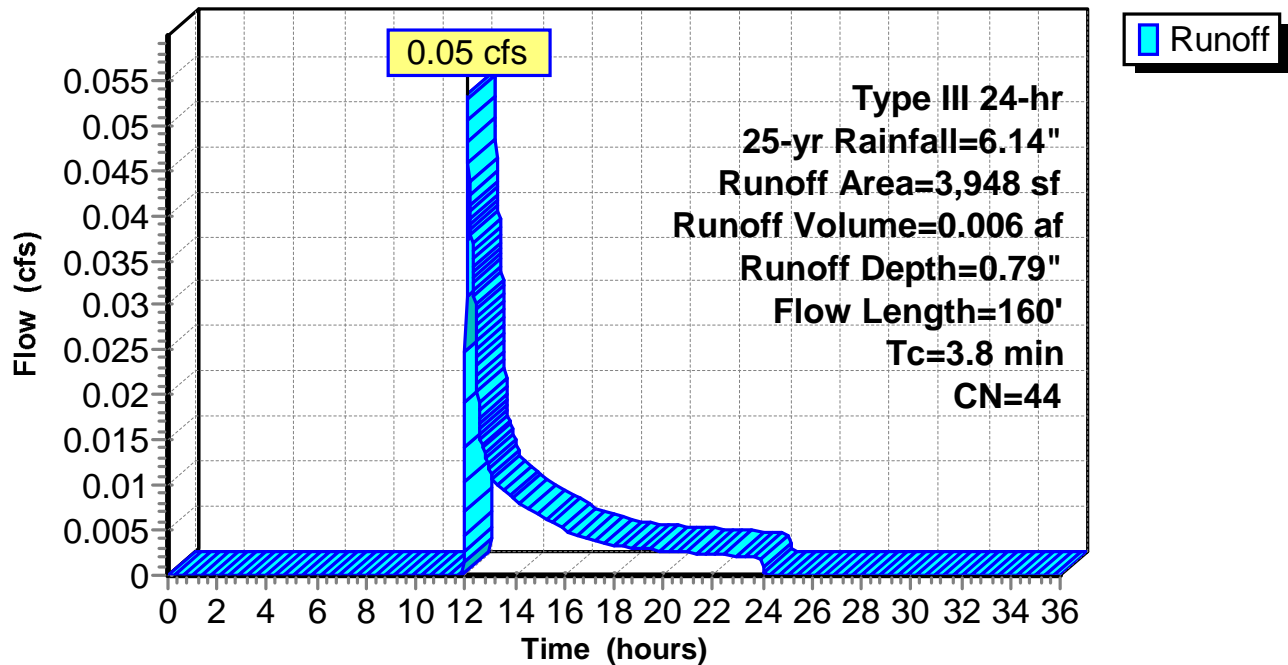
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-09S:

Runoff = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Depth= 0.49"

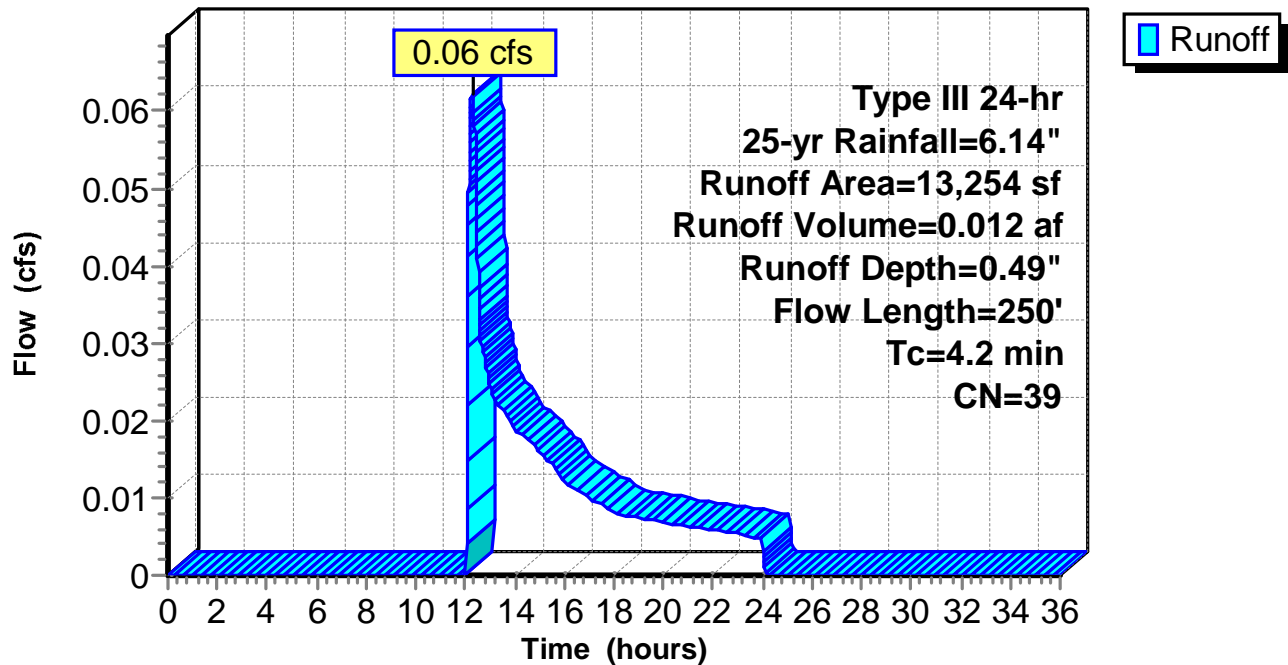
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-10S:

Runoff = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af, Depth= 0.09"

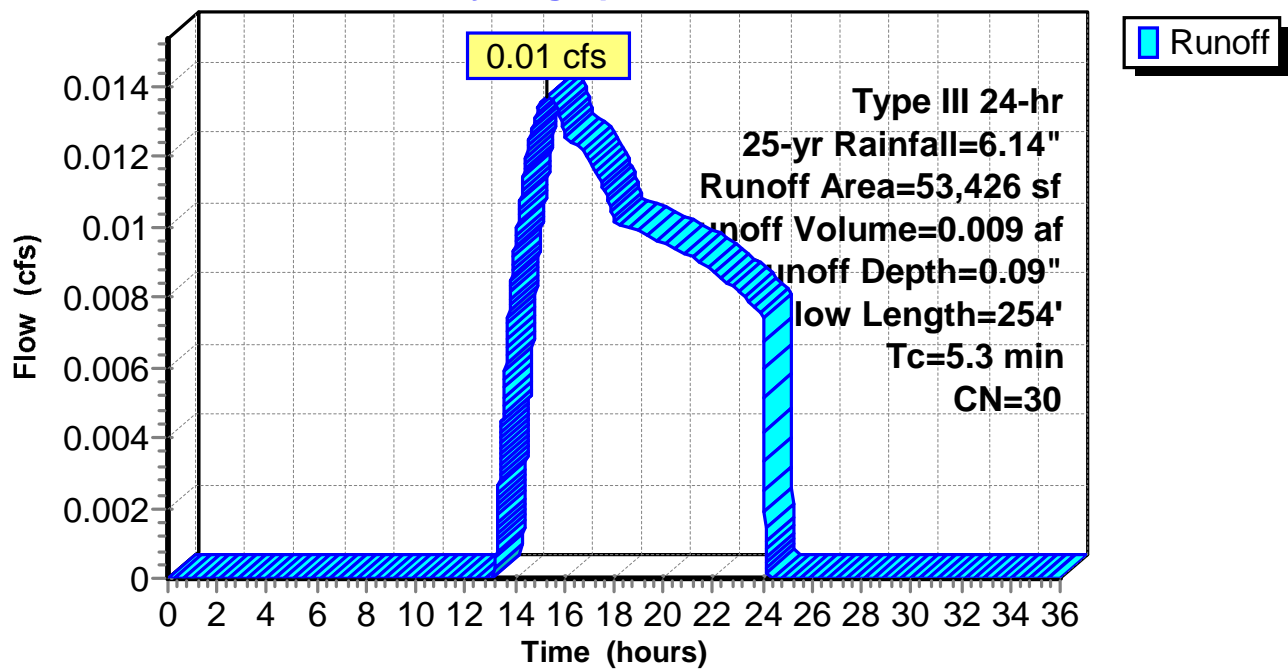
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-11S:

Runoff = 0.02 cfs @ 14.67 hrs, Volume= 0.011 af, Depth= 0.15"

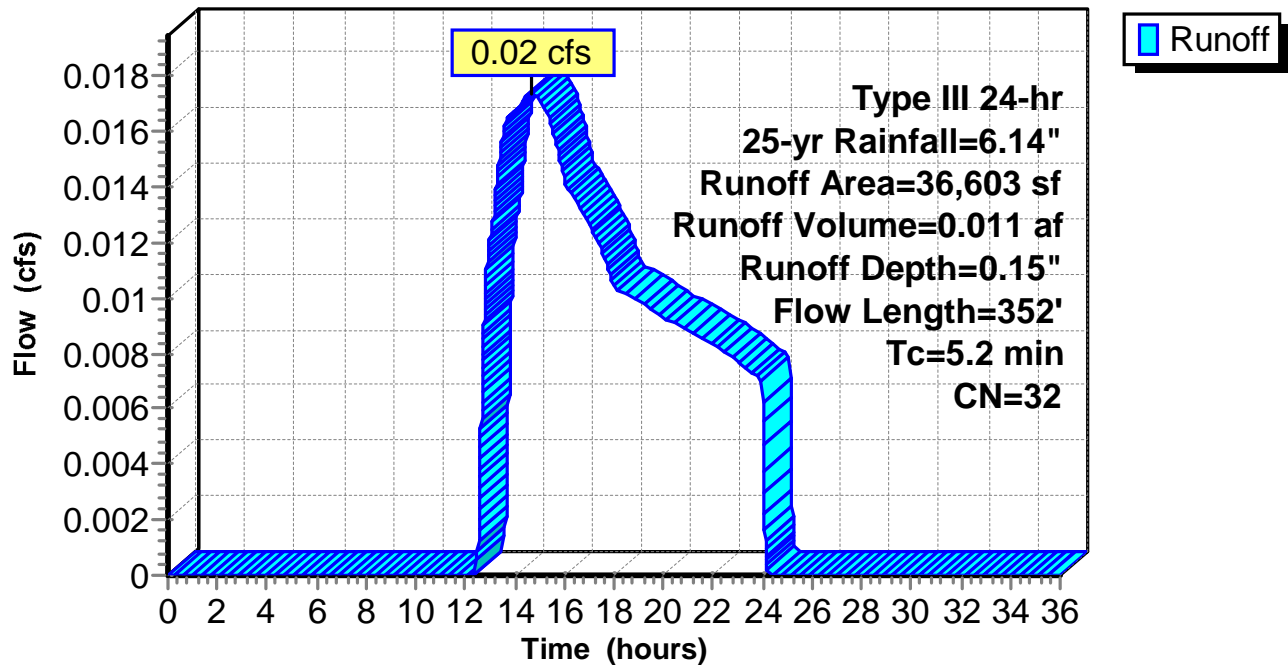
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-12S:

Runoff = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af, Depth= 0.19"

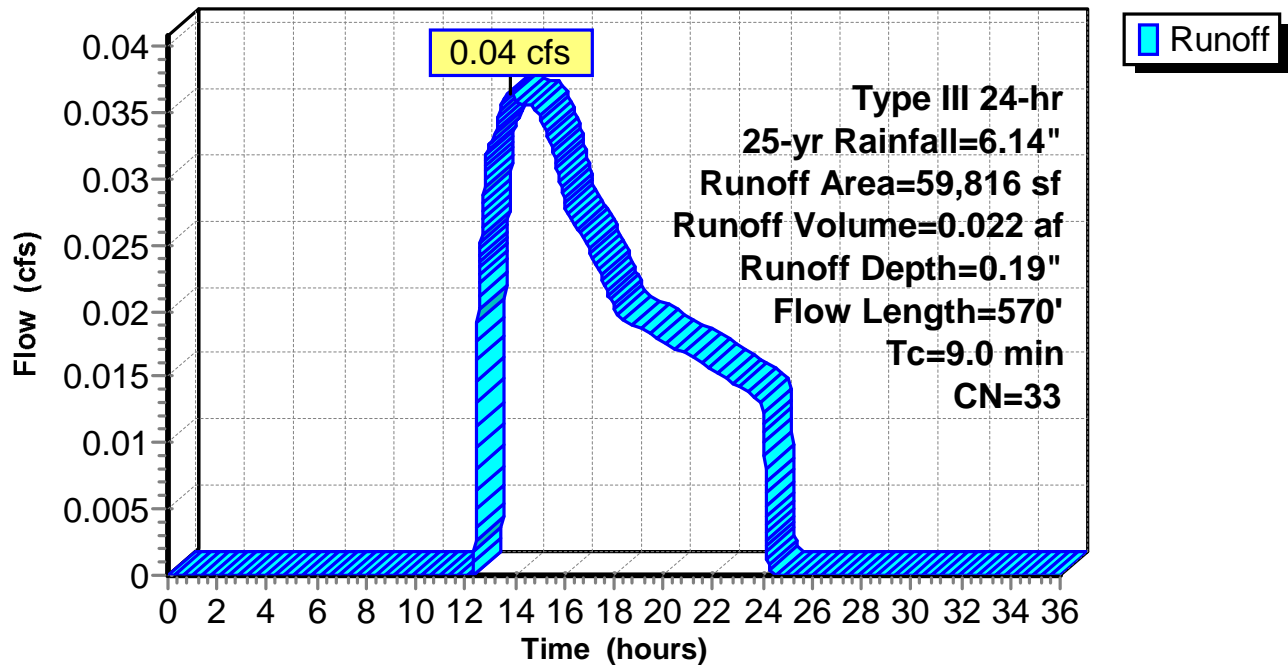
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-13S:

Runoff = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af, Depth= 0.24"

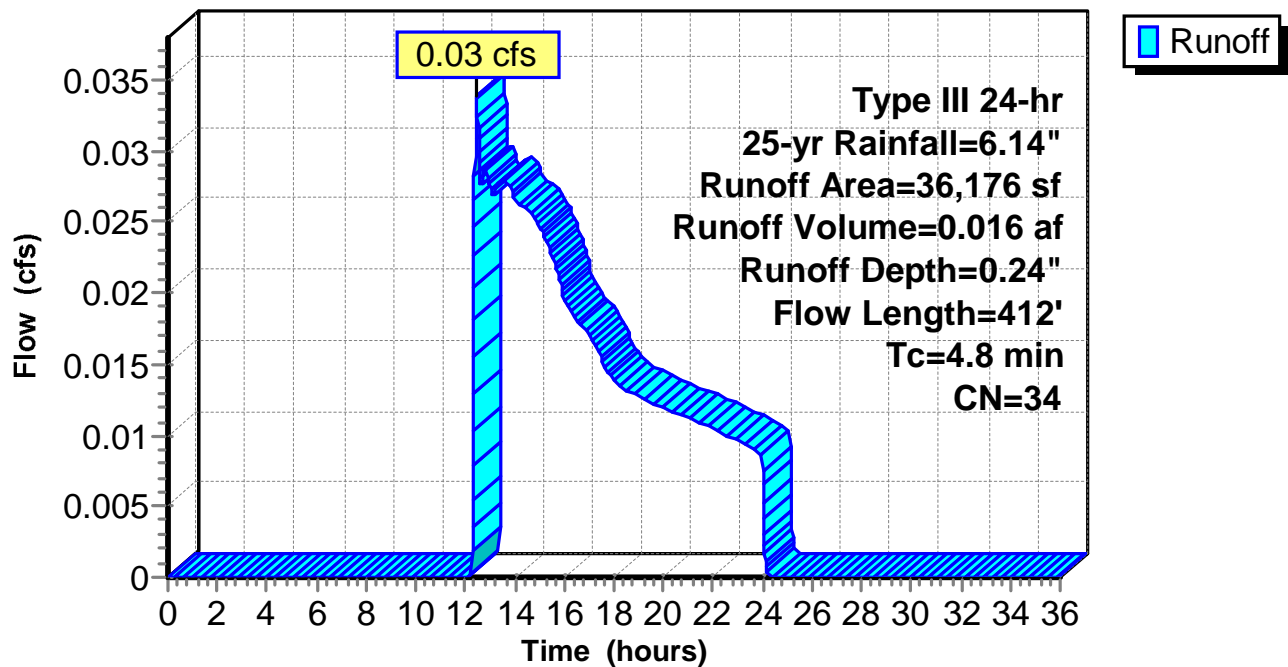
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-14S:

Runoff = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af, Depth= 0.33"

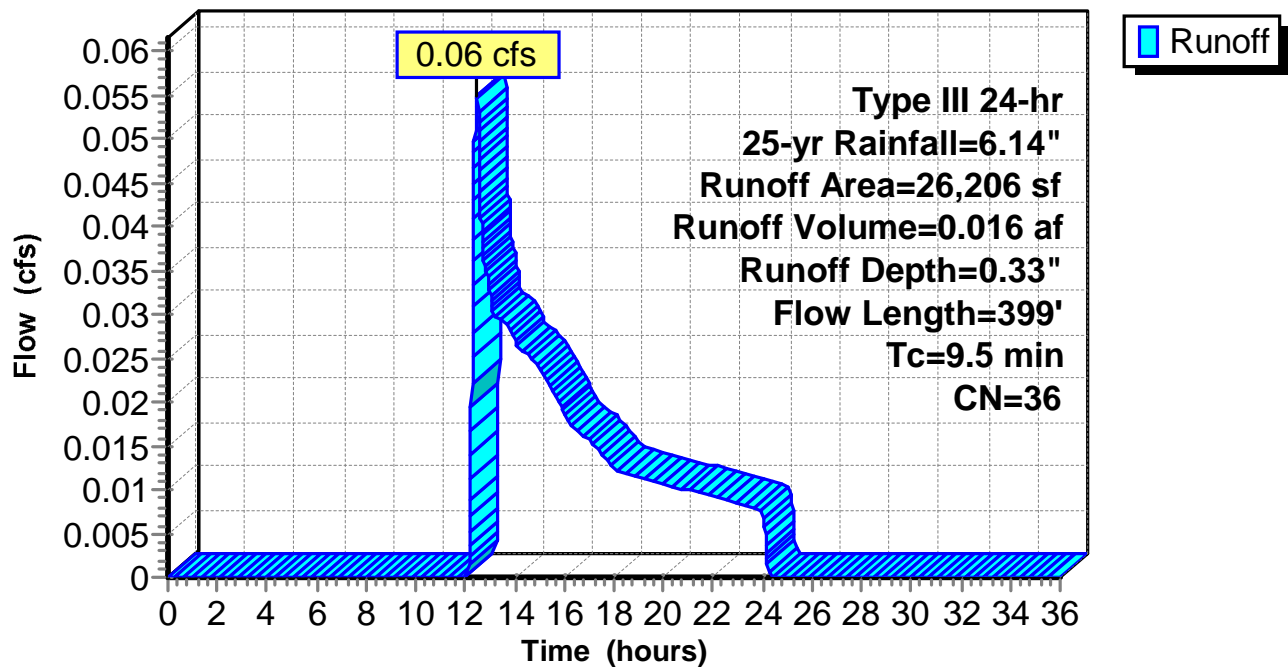
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-15S:

Runoff = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af, Depth= 0.66"

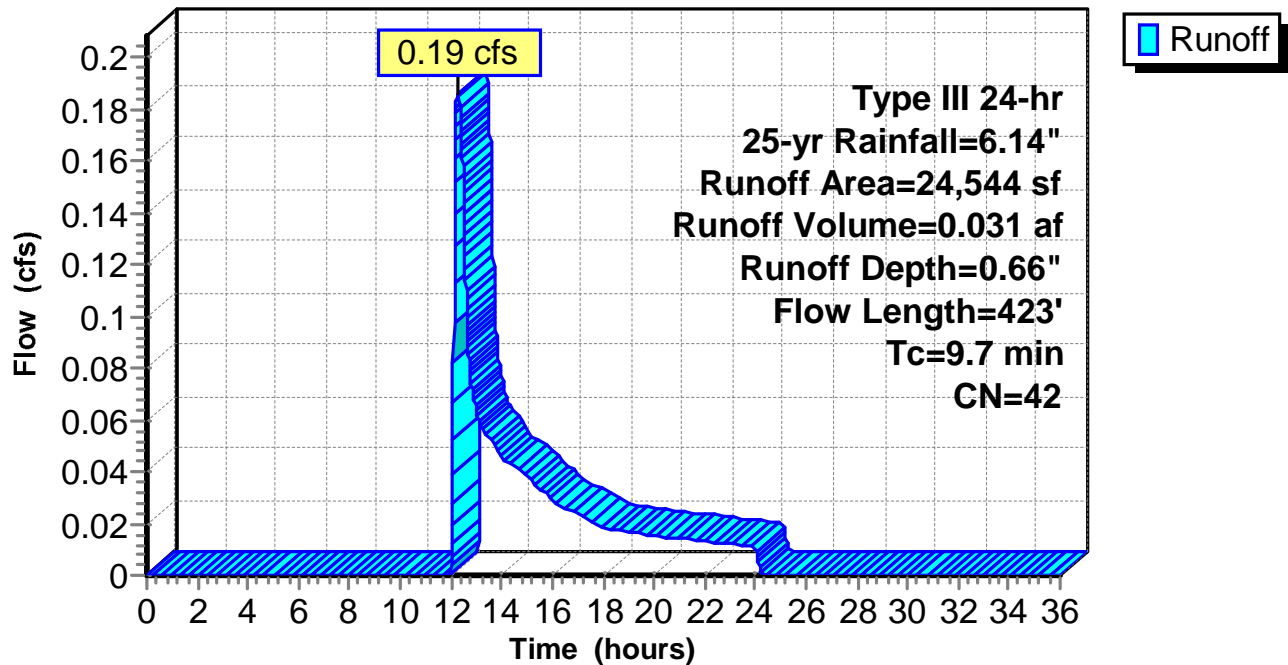
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-16S:

Runoff = 0.01 cfs @ 14.97 hrs, Volume= 0.004 af, Depth= 0.12"

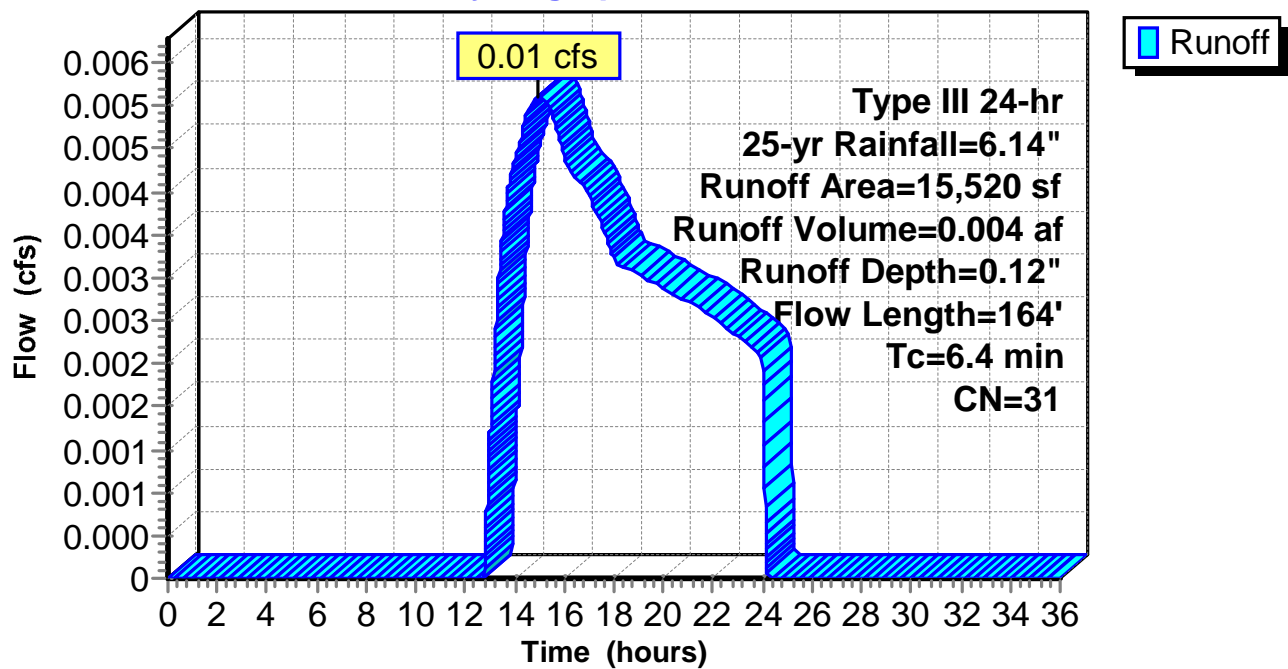
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
304	98	Impervious
15,216	30	Brush, Good, HSG A
15,520	31	Weighted Average
15,216		98.04% Pervious Area
304		1.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	114	0.1140	2.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.4	164	Total			

Subcatchment 16-16S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-01S:

Runoff = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af, Depth= 0.43"

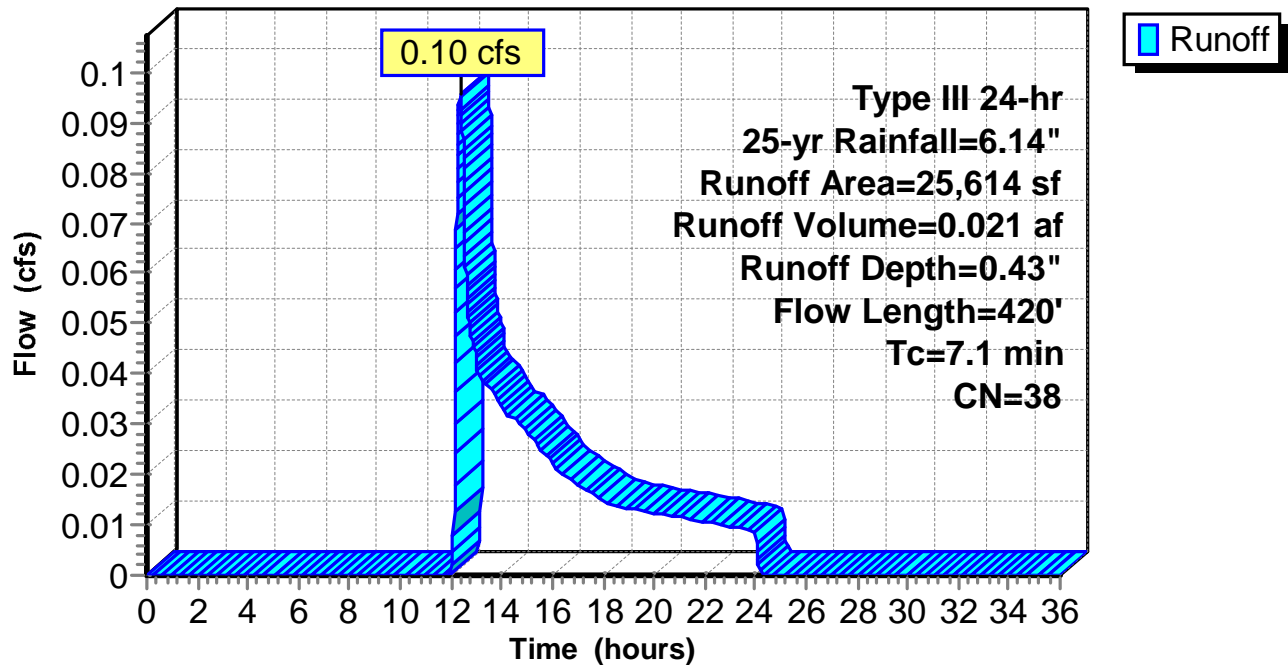
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-02S:

Runoff = 0.01 cfs @ 12.46 hrs, Volume= 0.005 af, Depth= 0.28"

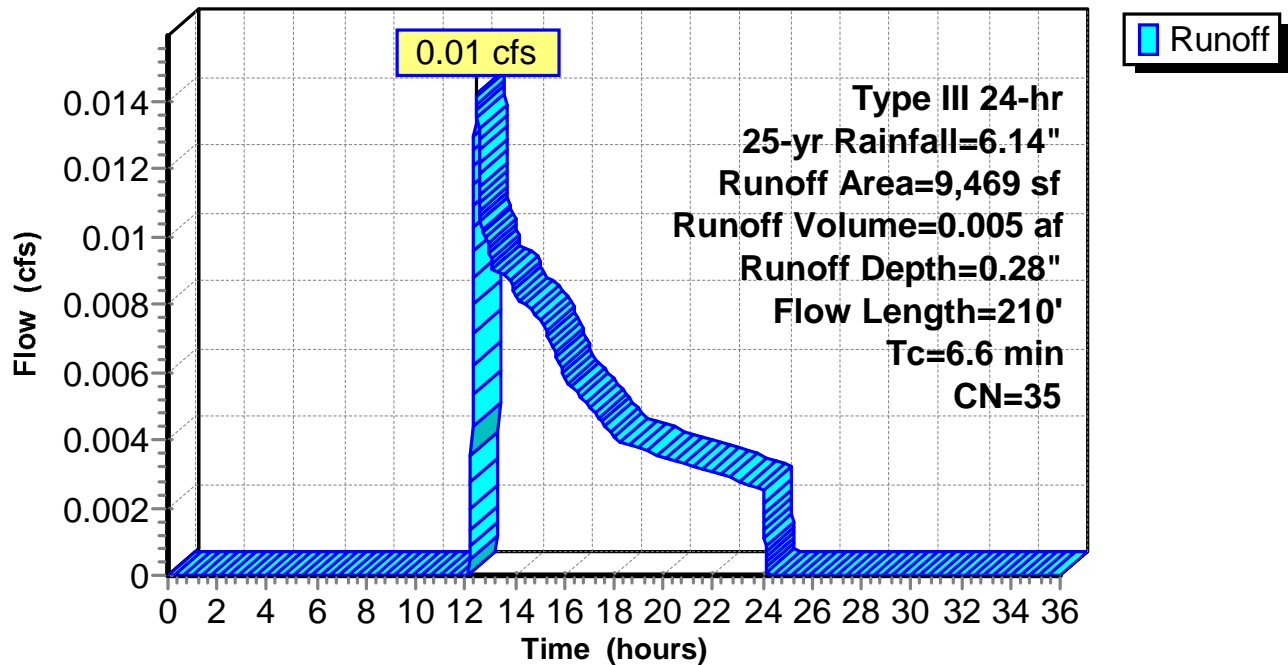
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-03S:

Runoff = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af, Depth= 0.60"

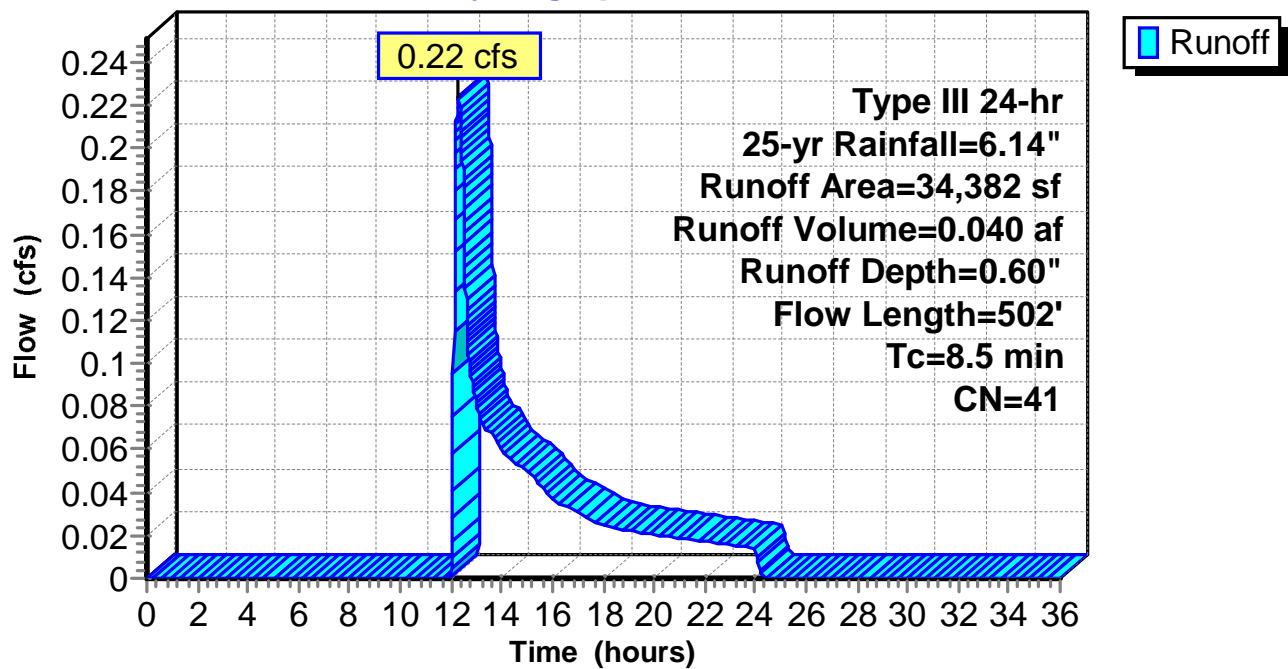
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-04S:

Runoff = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af, Depth= 1.36"

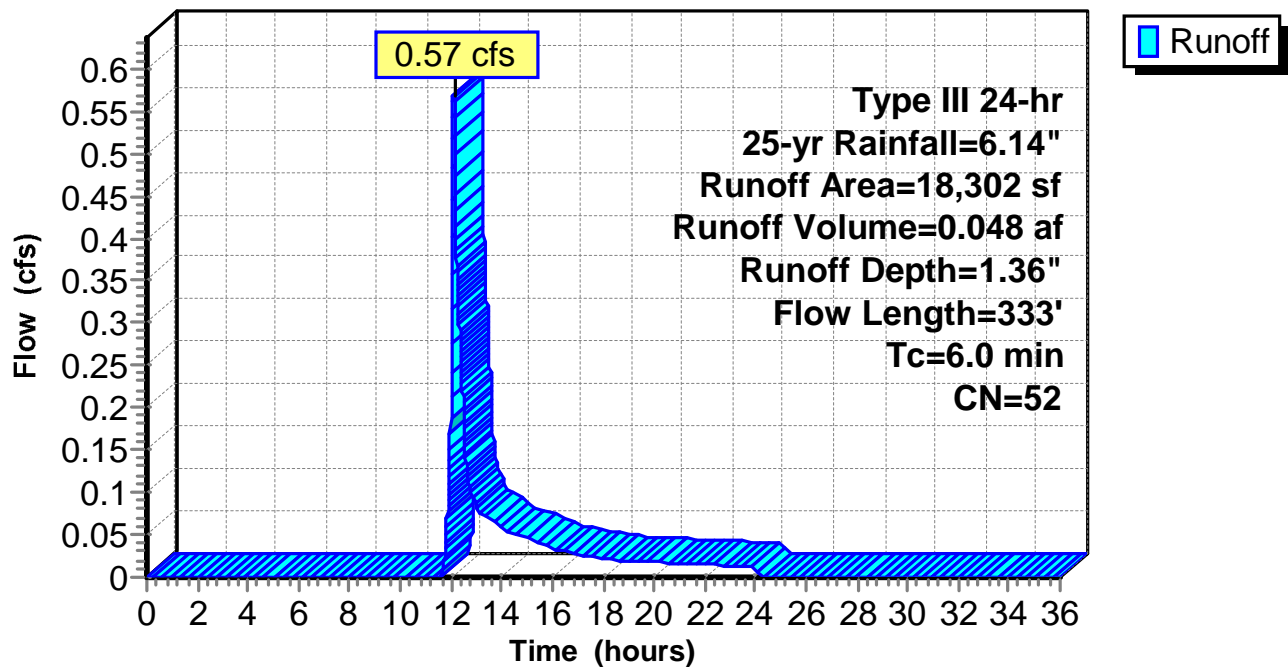
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-05S:

Runoff = 0.82 cfs @ 12.07 hrs, Volume= 0.056 af, Depth= 2.19"

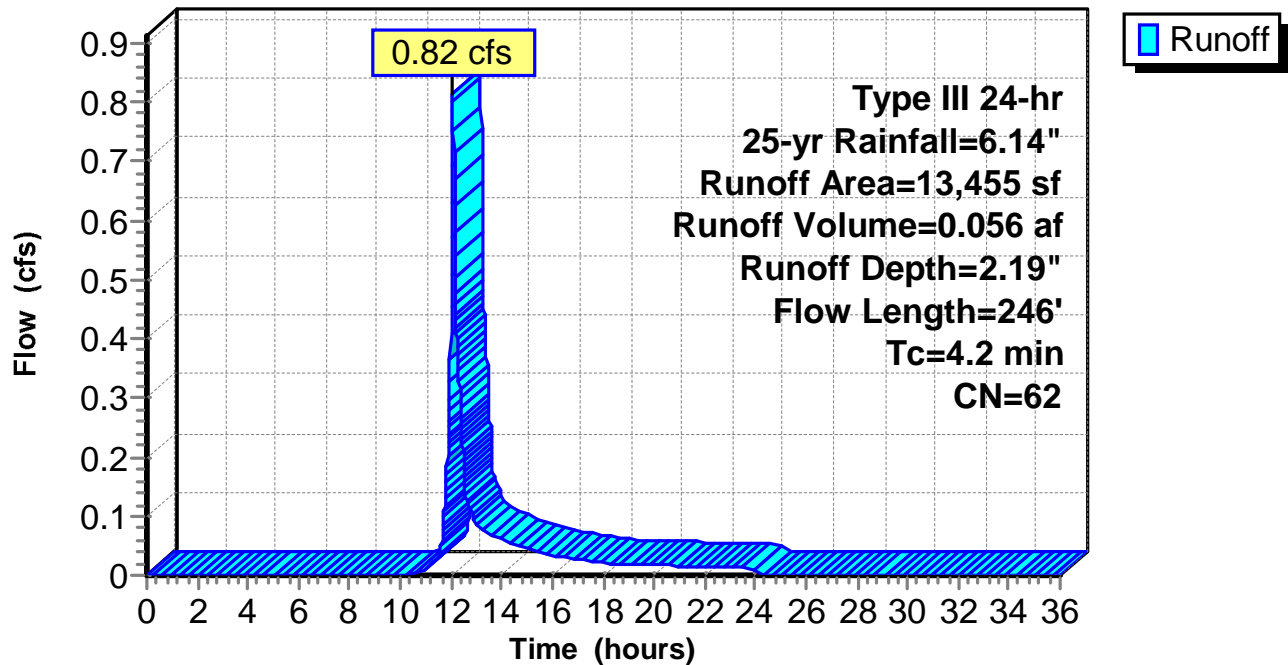
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.1	32	0.0940	6.22		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	246	Total			

Subcatchment 17-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-06S:

Runoff = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af, Depth= 2.54"

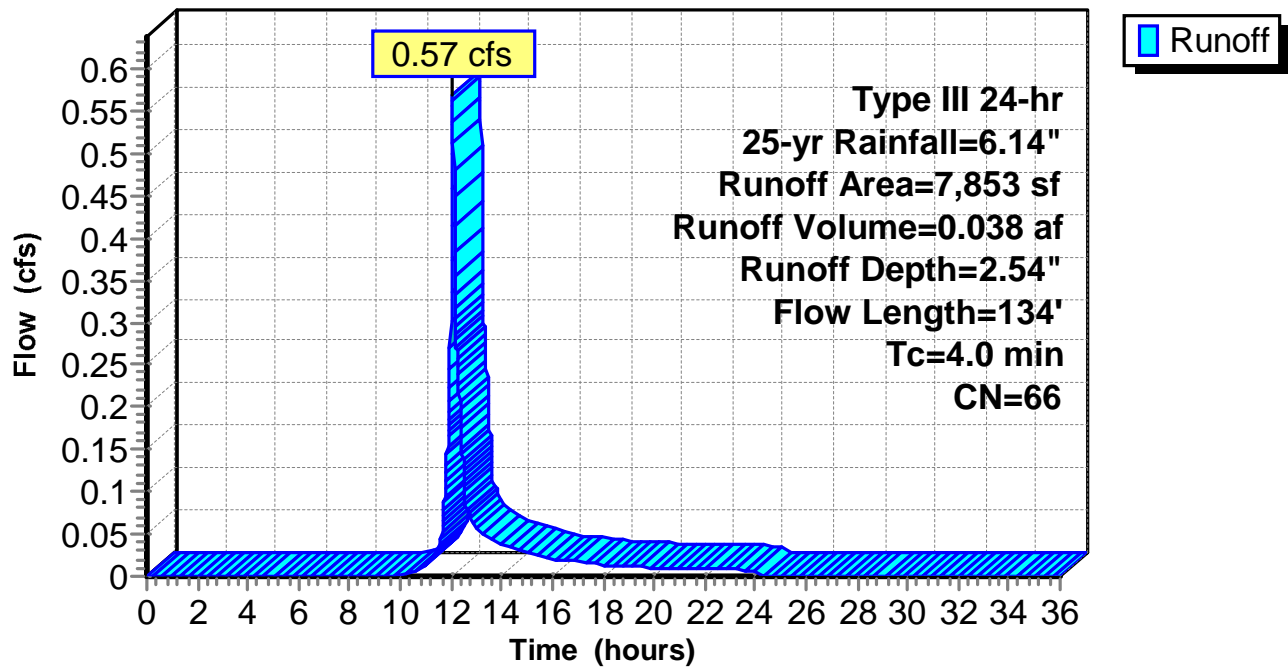
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-07S:

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 3.30"

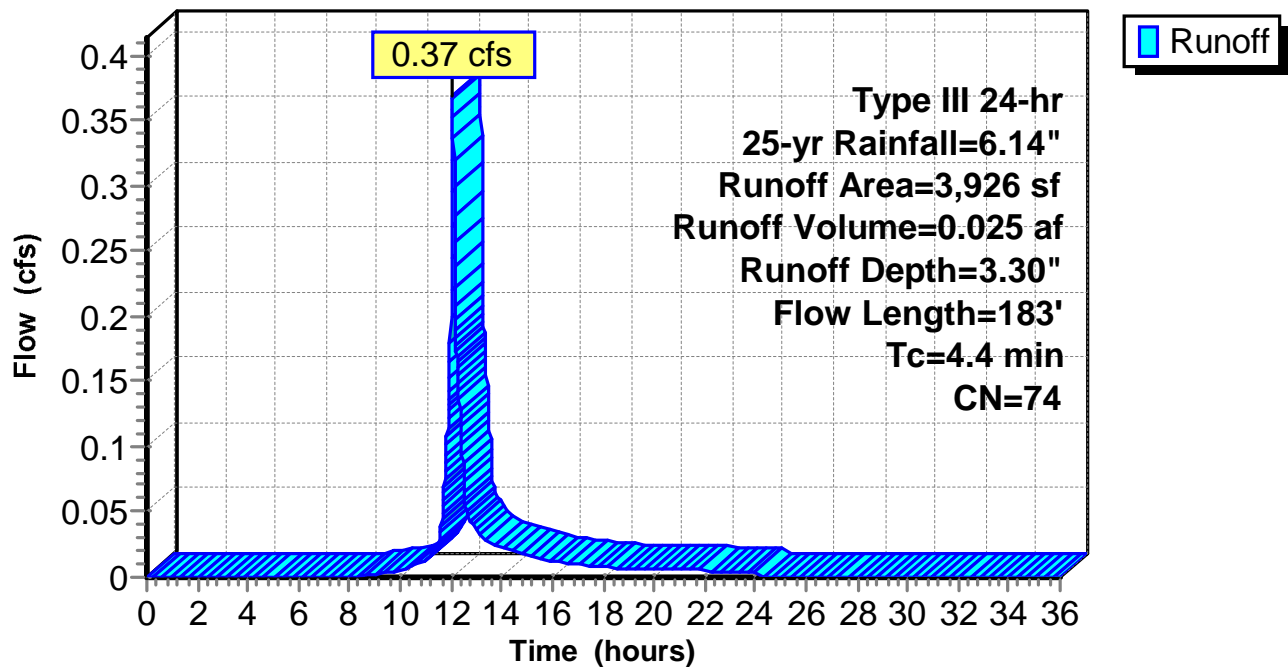
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.60" for 25-yr event
 Inflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af
 Outflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.17' @ 12.29 hrs

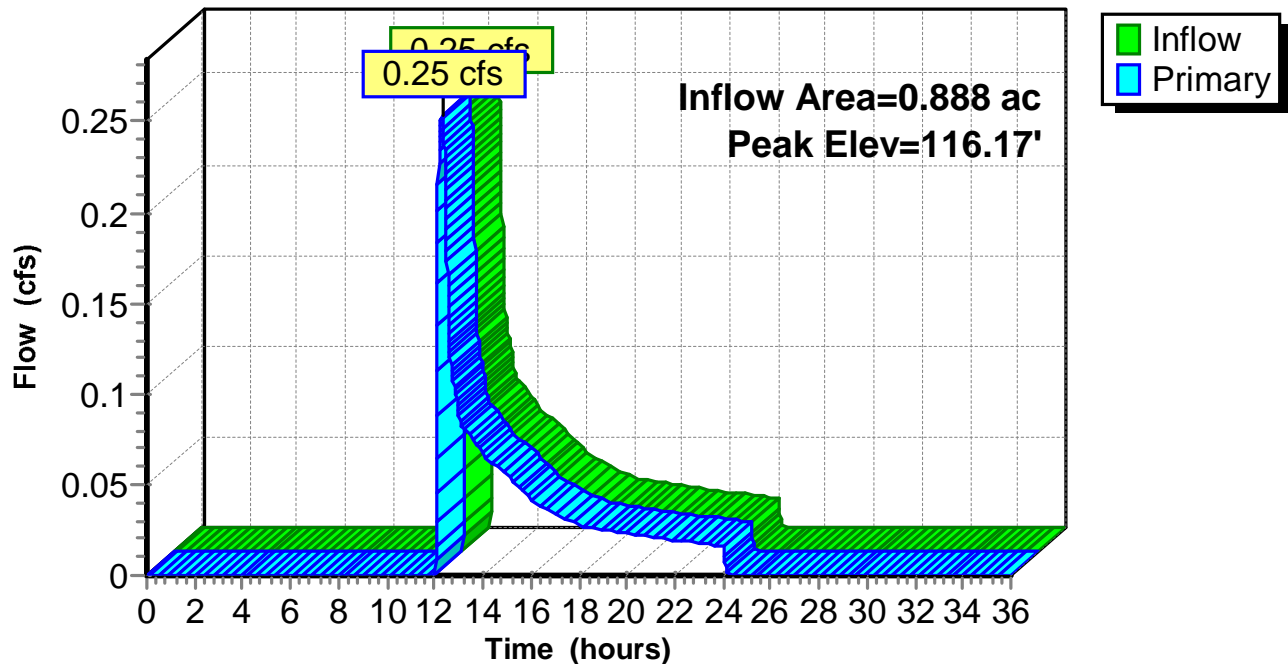
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.89'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 115.89' / 115.83' S= 0.0086 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.29 hrs HW=116.17' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.25 cfs @ 2.07 fps)

Pond CB16-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 2.45" for 25-yr event
Inflow = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af
Outflow = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.87' @ 12.06 hrs

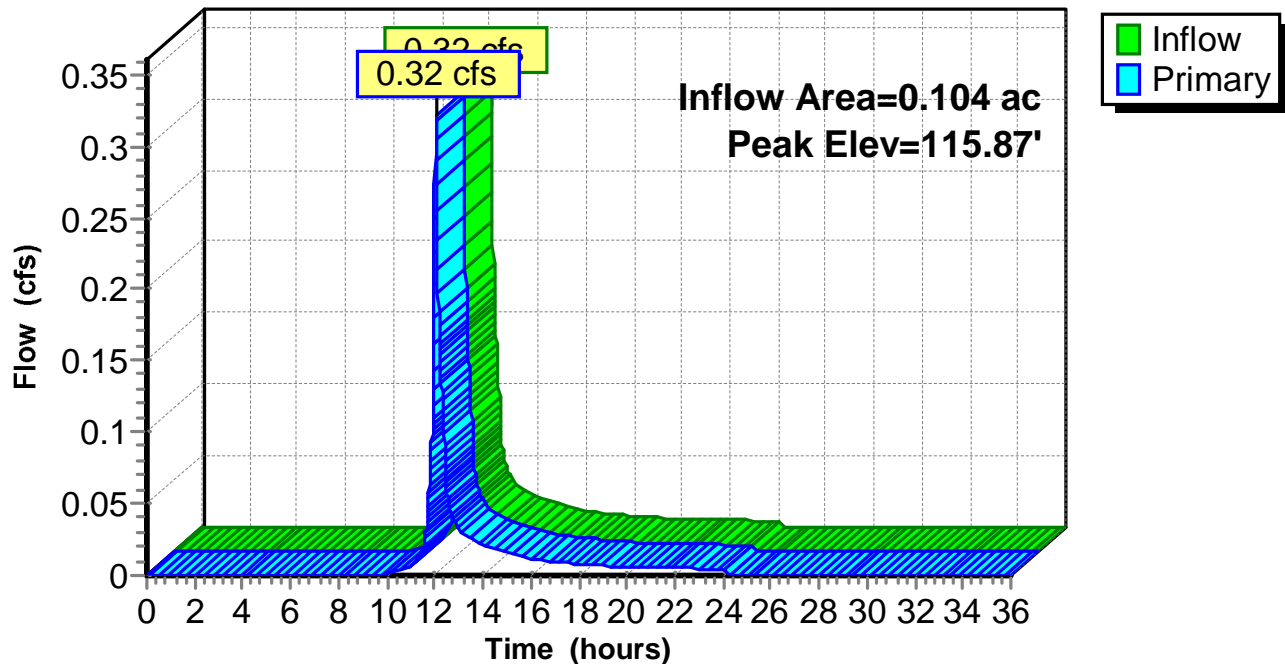
Device	Routing	Invert	Outlet Devices
#1	Primary	118.63'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.06 hrs HW=115.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.32 cfs @ 1.80 fps)

Pond CB16-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.24" for 25-yr event
 Inflow = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af
 Outflow = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.68' @ 12.55 hrs

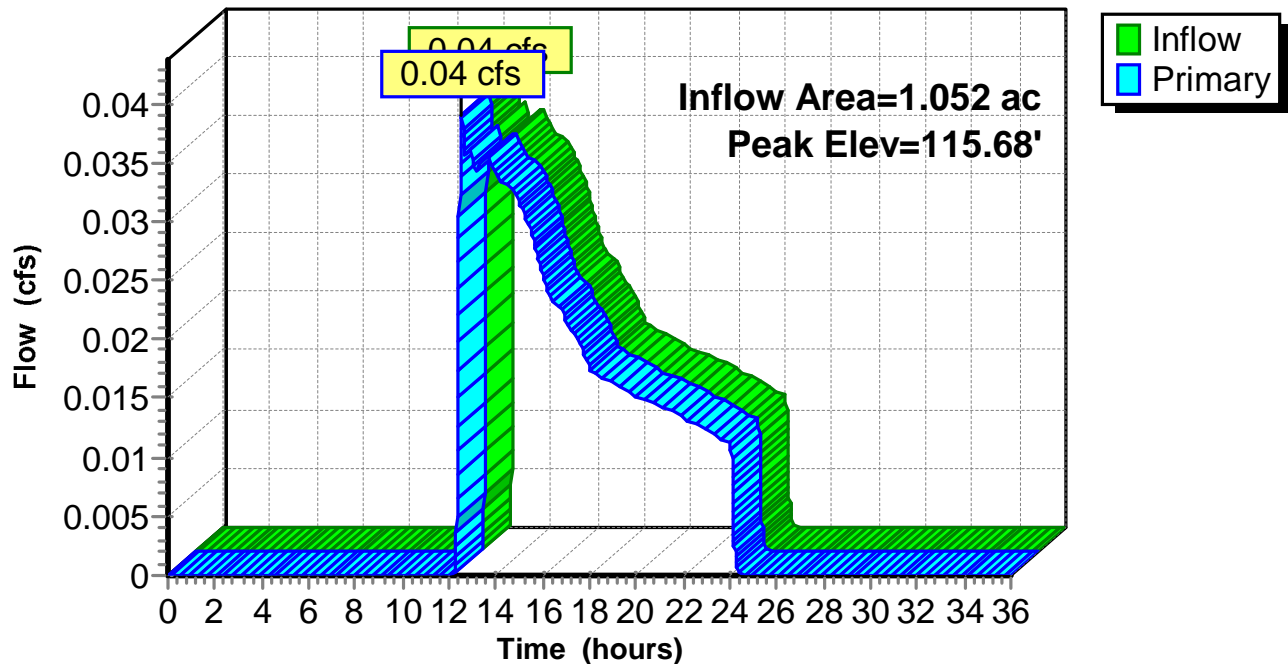
Device	Routing	Invert	Outlet Devices
#1	Primary	118.72'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.55 hrs HW=115.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.04 cfs @ 1.04 fps)

Pond CB16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.18" for 25-yr event
 Inflow = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af
 Outflow = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.90' @ 14.59 hrs

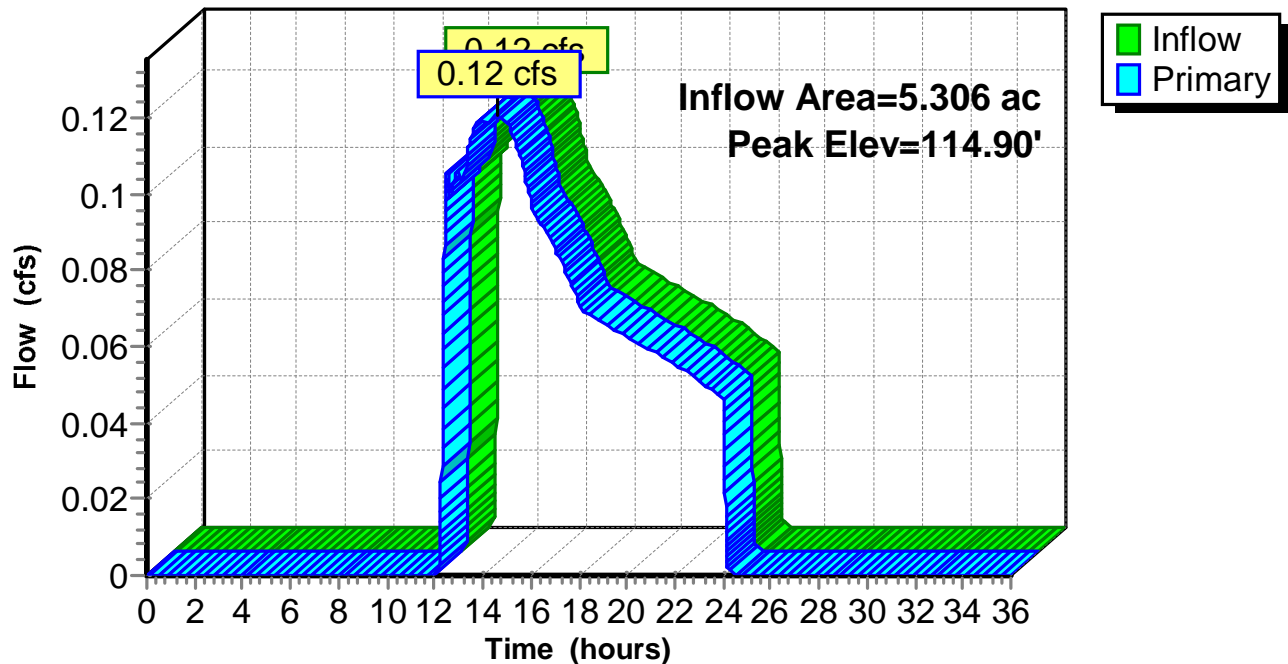
Device	Routing	Invert	Outlet Devices
#1	Primary	122.30'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.75'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 114.75' / 112.88' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.12 cfs @ 14.59 hrs HW=114.90' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.12 cfs @ 1.32 fps)

Pond CB16-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-05:

Inflow Area = 1.741 ac, 14.09% Impervious, Inflow Depth = 0.53" for 25-yr event
 Inflow = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af
 Outflow = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.03' @ 12.32 hrs

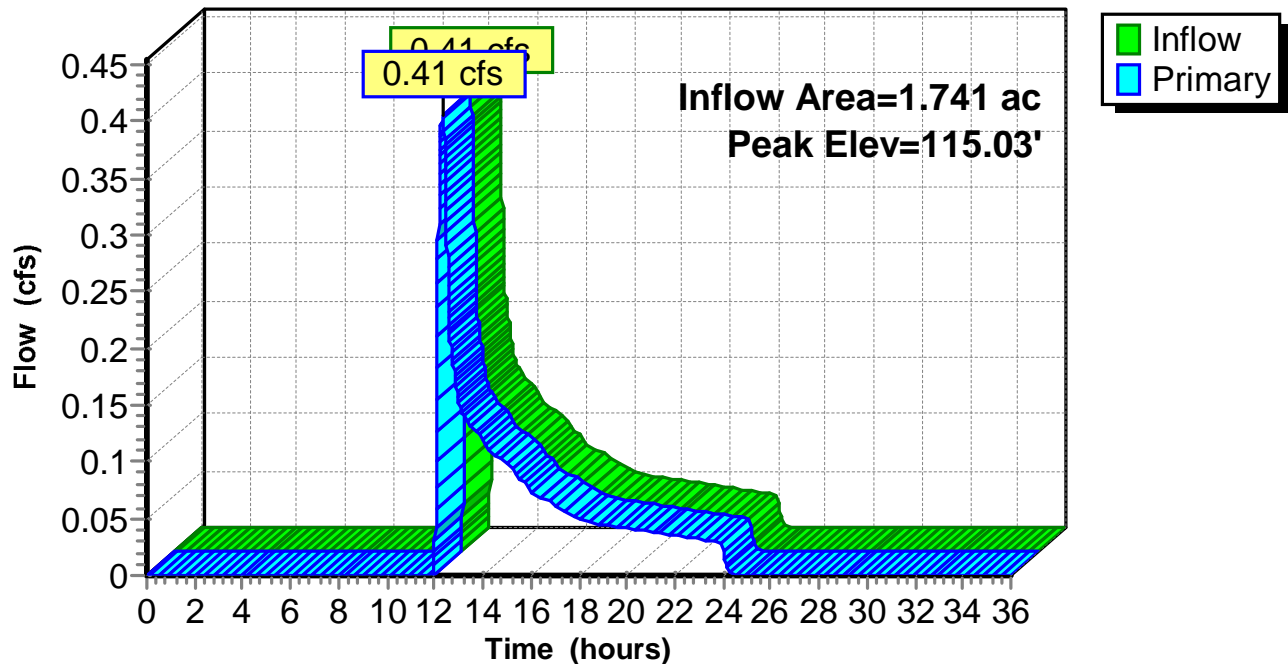
Device	Routing	Invert	Outlet Devices
#1	Primary	118.80'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.74'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 114.74' / 112.88' S= 0.0255 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.40 cfs @ 12.32 hrs HW=115.03' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.84 fps)

Pond CB16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.09" for 25-yr event
 Inflow = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.49' @ 15.26 hrs

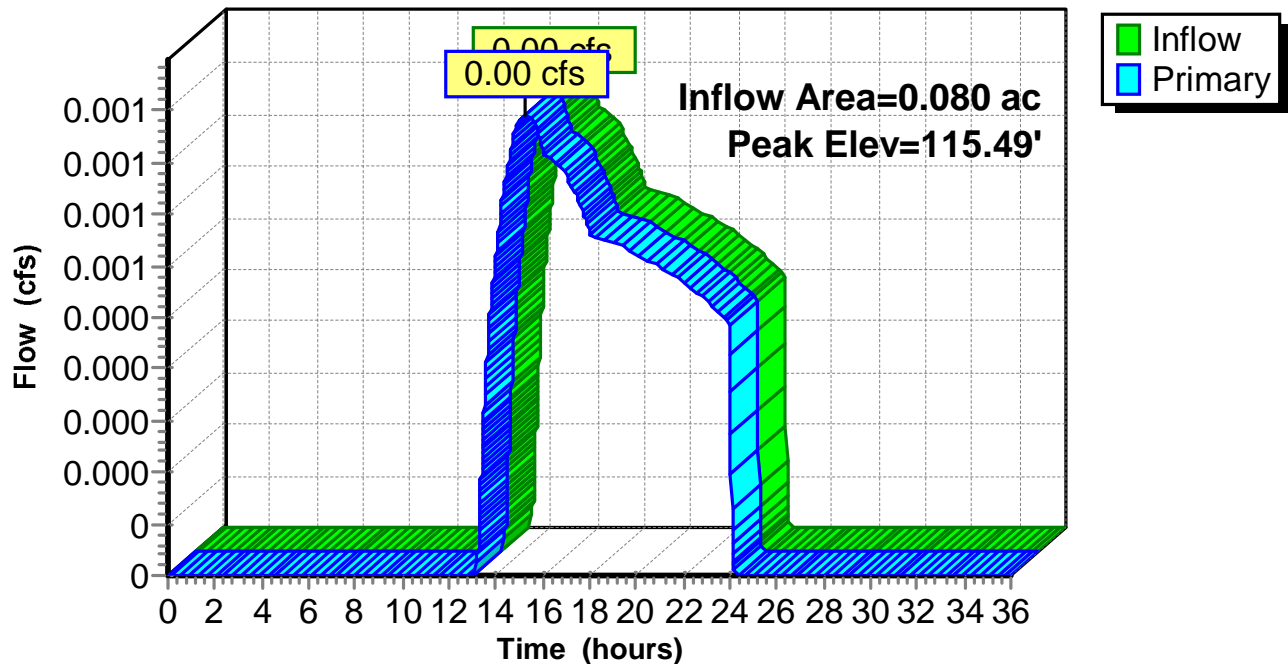
Device	Routing	Invert	Outlet Devices
#1	Primary	119.48'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.49'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 115.49' / 114.80' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.26 hrs HW=115.49' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.24 fps)

Pond CB16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.60" for 25-yr event
Inflow = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 120.85' @ 12.14 hrs

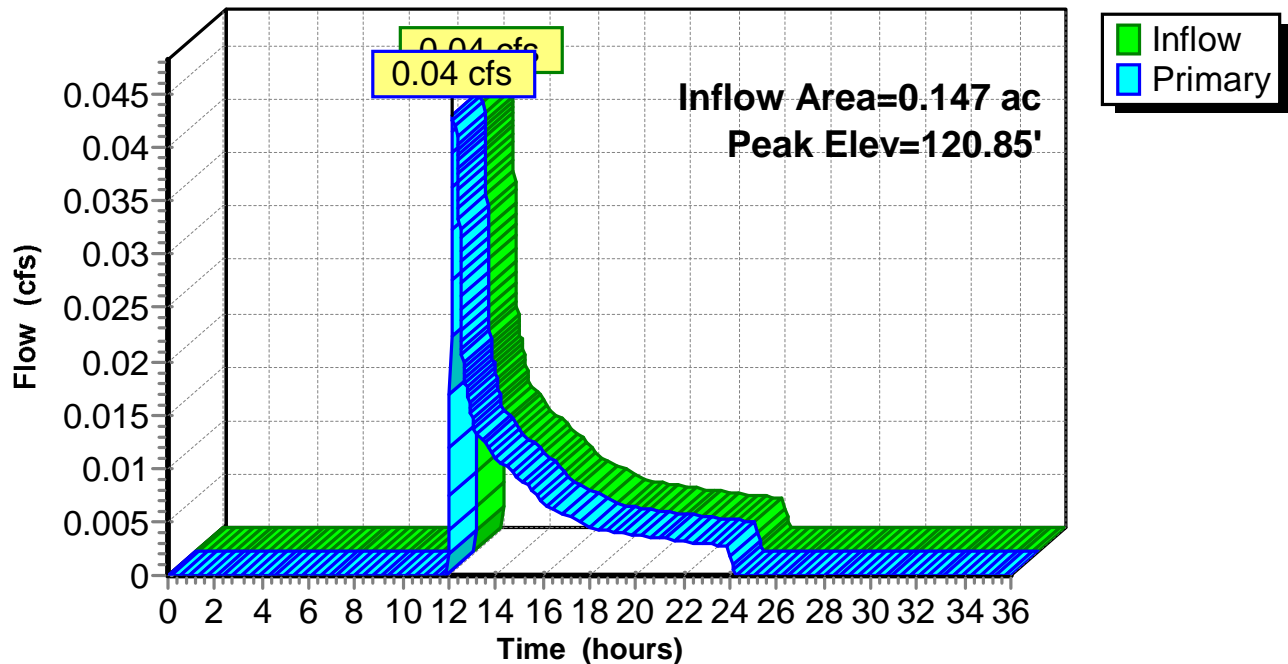
Device	Routing	Invert	Outlet Devices
#1	Primary	125.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.73'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 120.73' / 120.35' S= 0.0045 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.14 hrs HW=120.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.04 cfs @ 1.21 fps)

Pond CB16-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.67" for 25-yr event
Inflow = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af
Outflow = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 120.46' @ 12.12 hrs

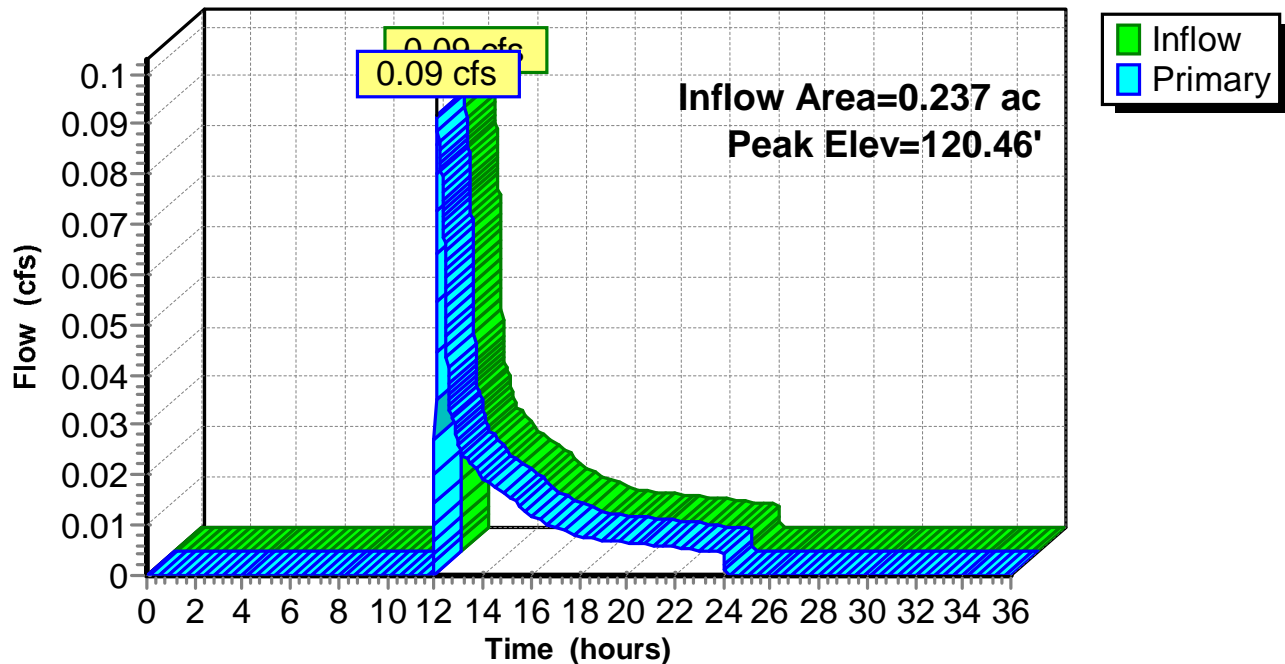
Device	Routing	Invert	Outlet Devices
#1	Primary	128.20'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.32'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 120.32' / 114.80' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.12 hrs HW=120.46' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.09 cfs @ 1.28 fps)

Pond CB16-08:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.49" for 25-yr event
 Inflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af
 Outflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 124.96' @ 12.30 hrs

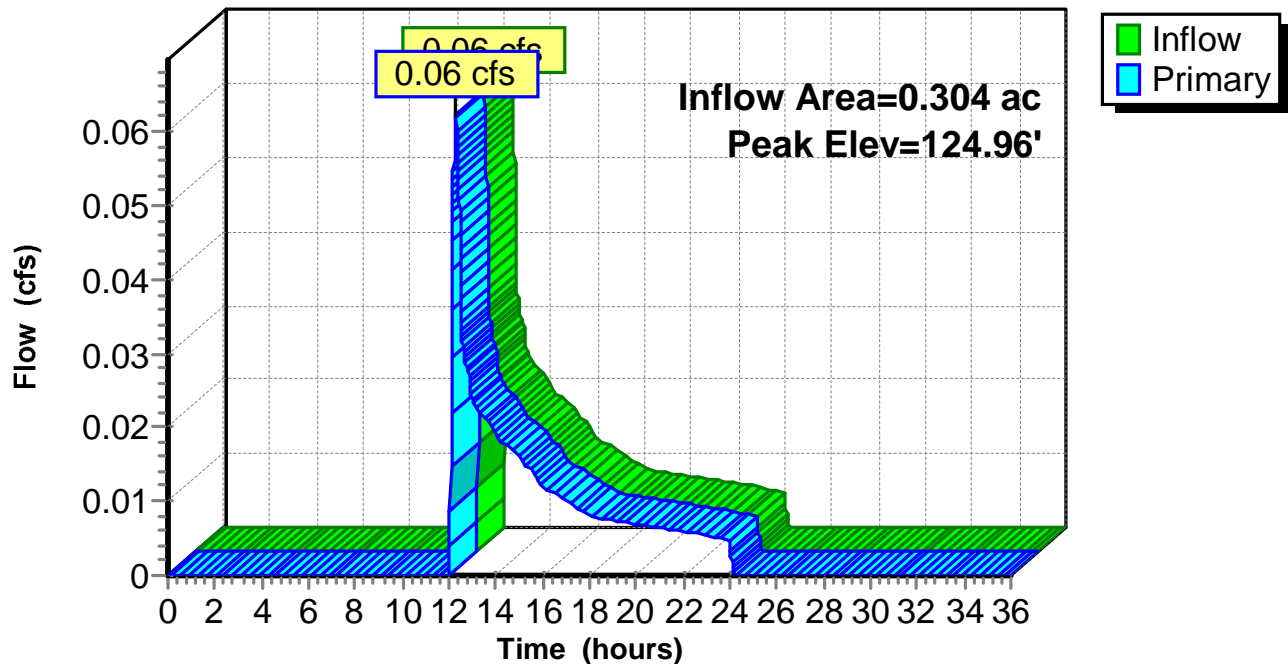
Device	Routing	Invert	Outlet Devices
#1	Primary	129.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	124.84'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 124.84' / 116.48' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.30 hrs HW=124.96' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.17 fps)

Pond CB16-09:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.09" for 25-yr event
 Inflow = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af
 Outflow = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.68' @ 15.28 hrs

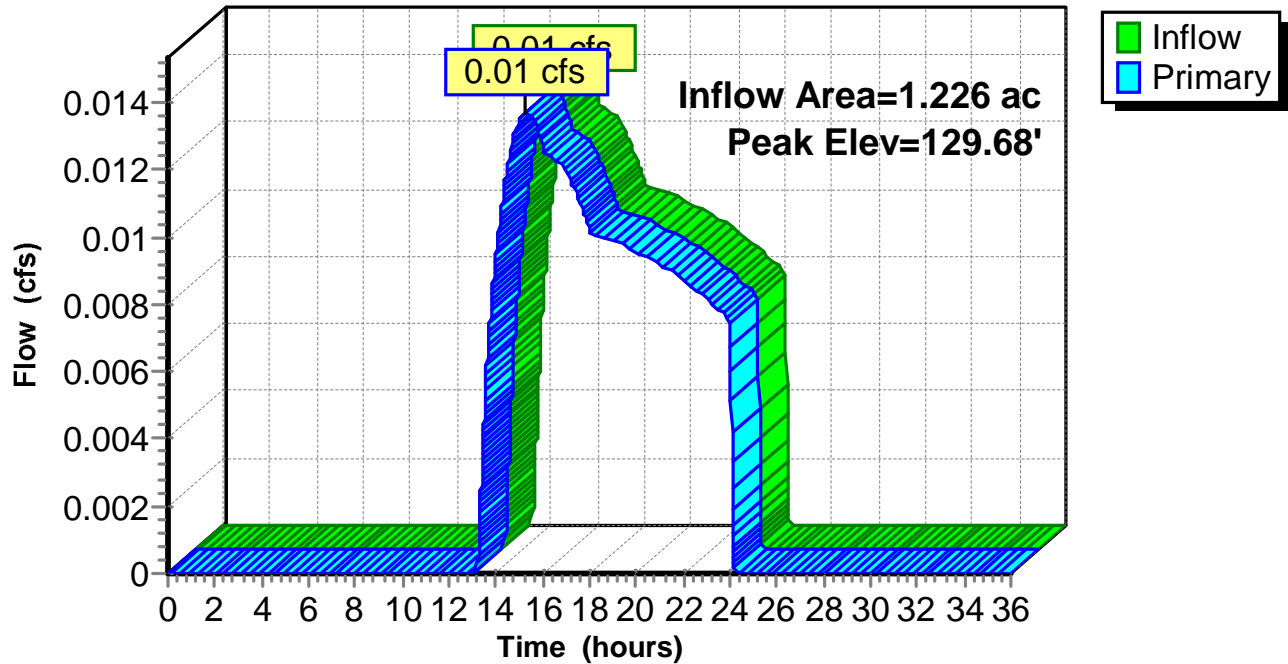
Device	Routing	Invert	Outlet Devices
#1	Primary	133.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.60'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 129.60' / 129.56' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.28 hrs HW=129.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.76 fps)

Pond CB16-10:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.11" for 25-yr event
 Inflow = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af
 Outflow = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 129.37' @ 15.02 hrs

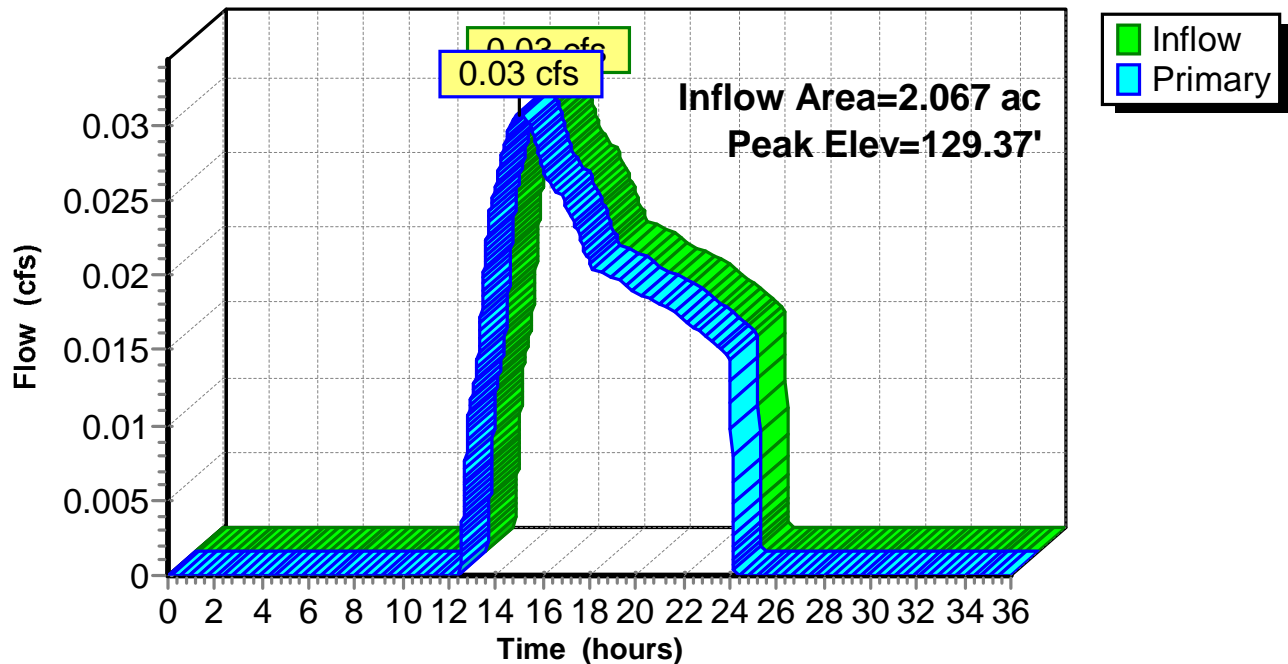
Device	Routing	Invert	Outlet Devices
#1	Primary	133.64'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.29'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 129.29' / 128.00' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 15.02 hrs HW=129.37' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 0.98 fps)

Pond CB16-11:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.19" for 25-yr event
Inflow = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af
Outflow = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 130.77' @ 13.79 hrs

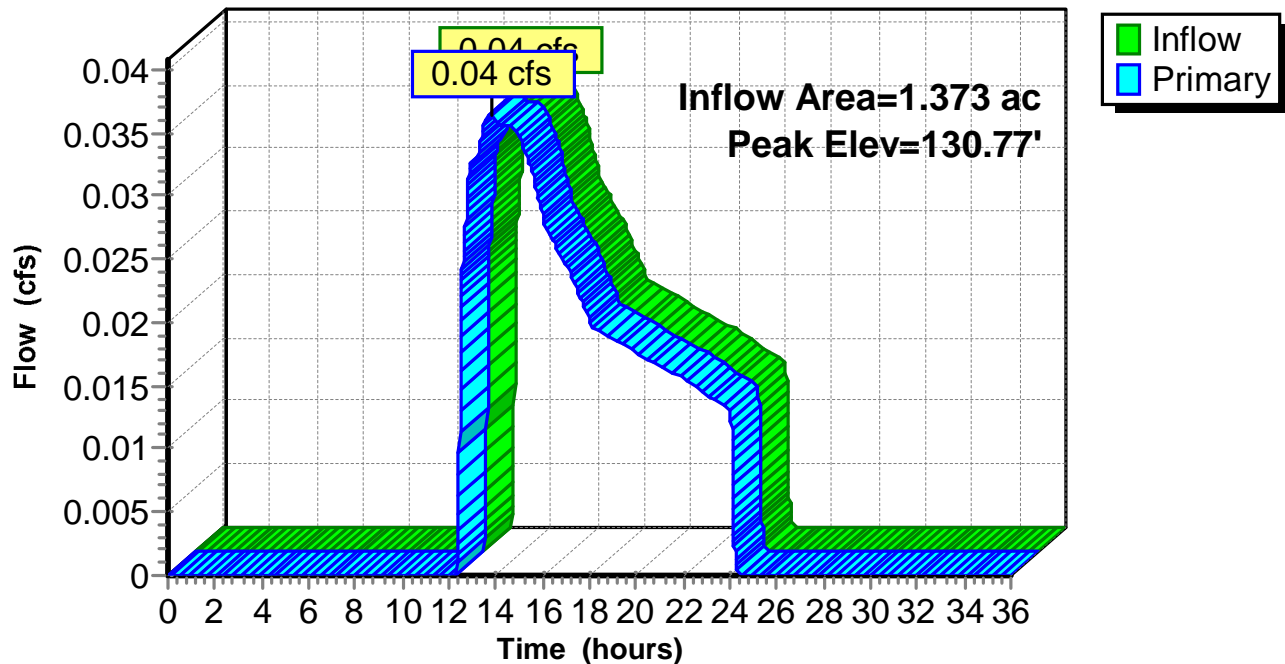
Device	Routing	Invert	Outlet Devices
#1	Primary	136.24'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	130.68'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 130.68' / 130.09' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 13.79 hrs HW=130.77' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 1.00 fps)

Pond CB16-12:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.24" for 25-yr event
 Inflow = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af
 Outflow = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.98' @ 12.47 hrs

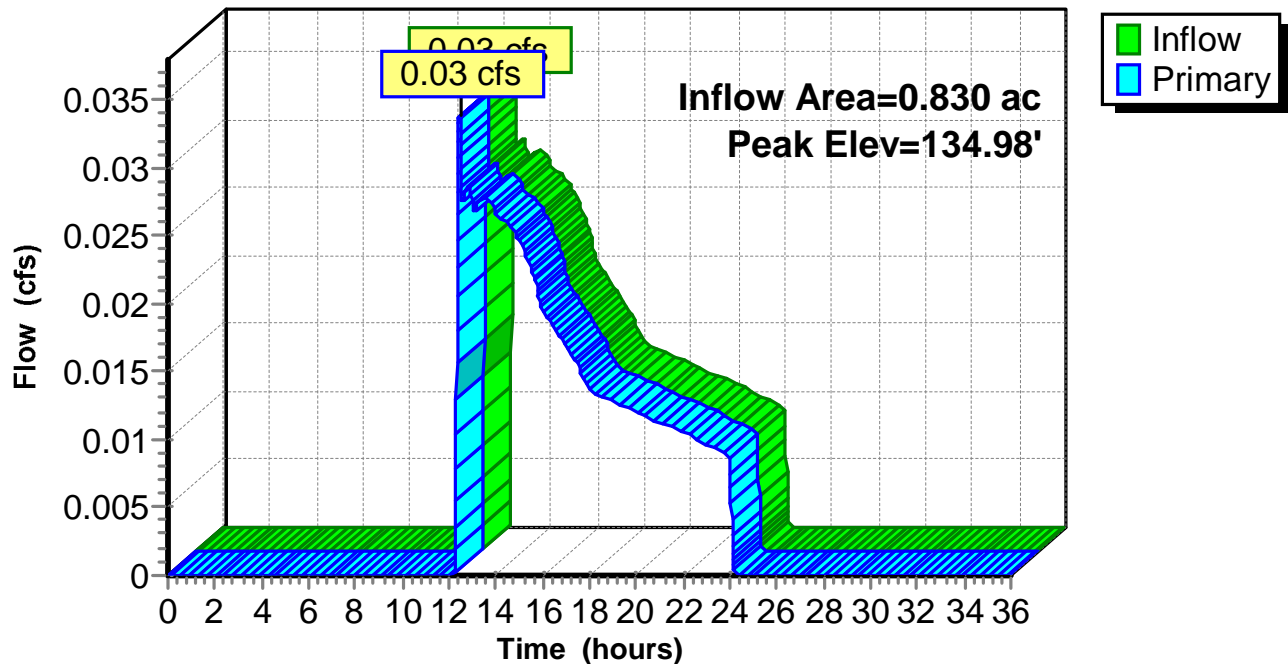
Device	Routing	Invert	Outlet Devices
#1	Primary	139.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	134.89'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 134.89' / 134.25' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.47 hrs HW=134.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 1.00 fps)

Pond CB16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.33" for 25-yr event
 Inflow = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af
 Outflow = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 144.47' @ 12.47 hrs

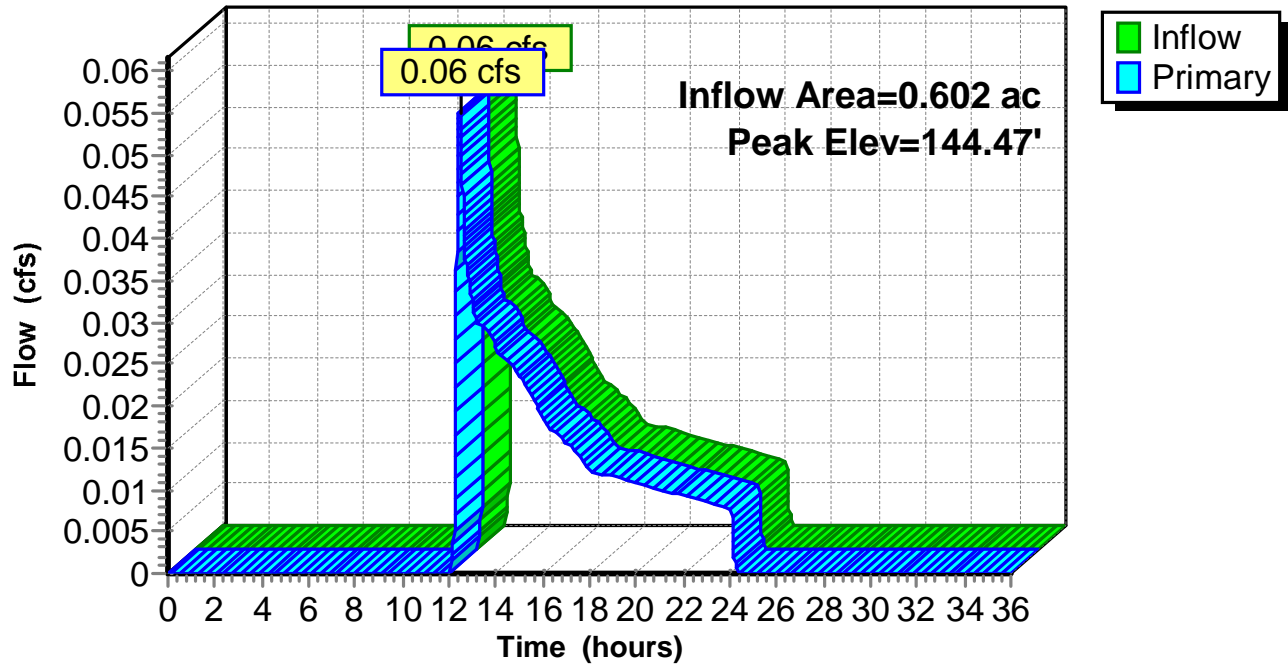
Device	Routing	Invert	Outlet Devices
#1	Primary	149.54'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	144.36'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 144.36' / 136.84' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.47 hrs HW=144.47' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.05 cfs @ 1.13 fps)

Pond CB16-14:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-15:

Inflow Area = 0.563 ac, 17.31% Impervious, Inflow Depth = 0.66" for 25-yr event
 Inflow = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af
 Outflow = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.38' @ 12.30 hrs

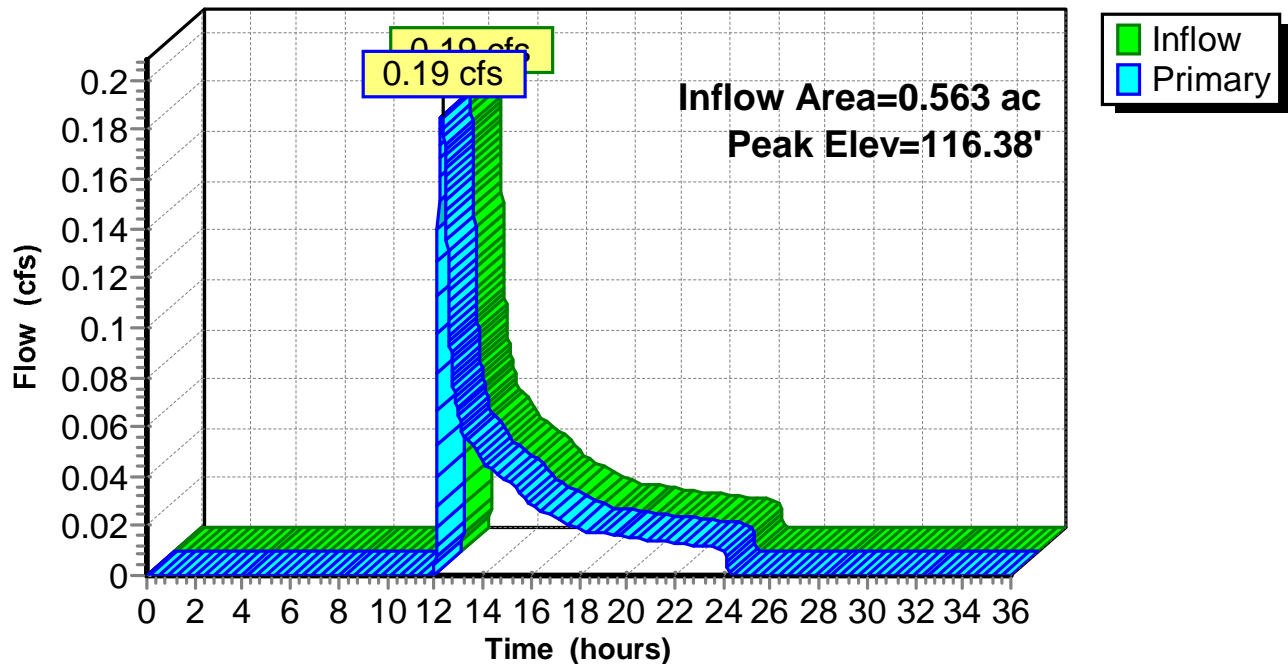
Device	Routing	Invert	Outlet Devices
#1	Primary	119.19'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	116.17'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 116.17' / 114.74' S= 0.0154 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.30 hrs HW=116.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.19 cfs @ 1.56 fps)

Pond CB16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.43" for 25-yr event
 Inflow = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af
 Outflow = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.99' @ 12.38 hrs

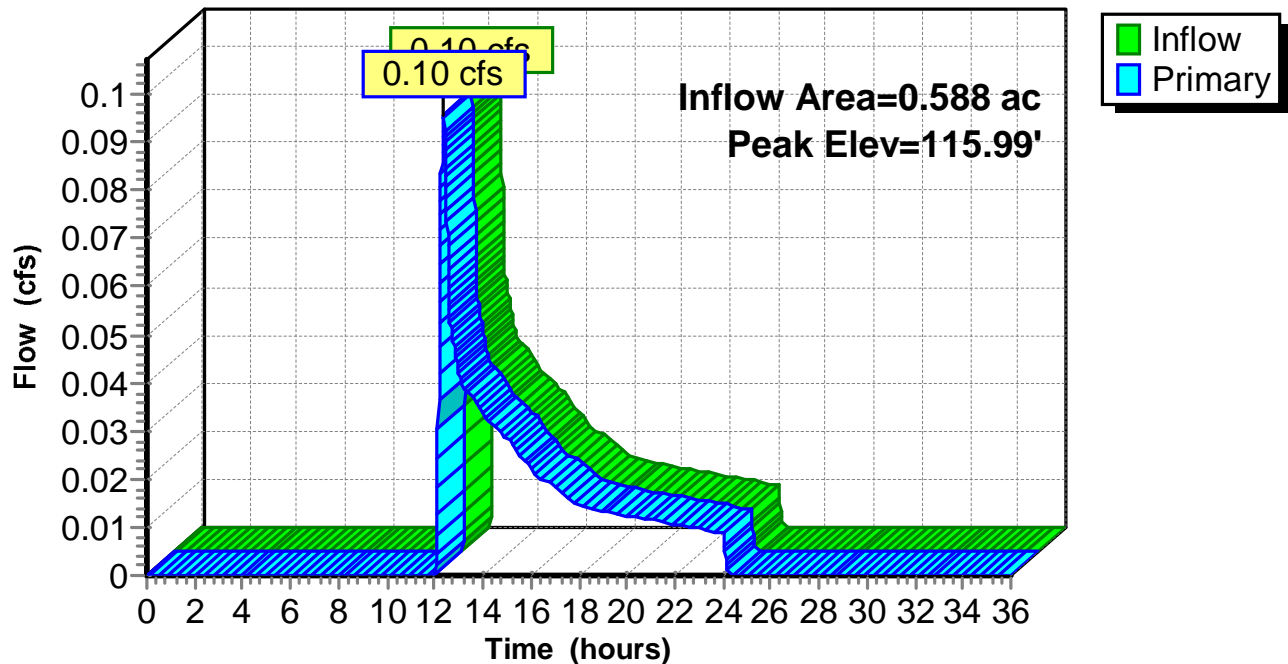
Device	Routing	Invert	Outlet Devices
#1	Primary	119.05'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.80'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 115.80' / 115.62' S= 0.0036 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.38 hrs HW=115.99' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.10 cfs @ 1.44 fps)

Pond CB17-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.39" for 25-yr event
 Inflow = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af
 Outflow = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.82' @ 12.39 hrs

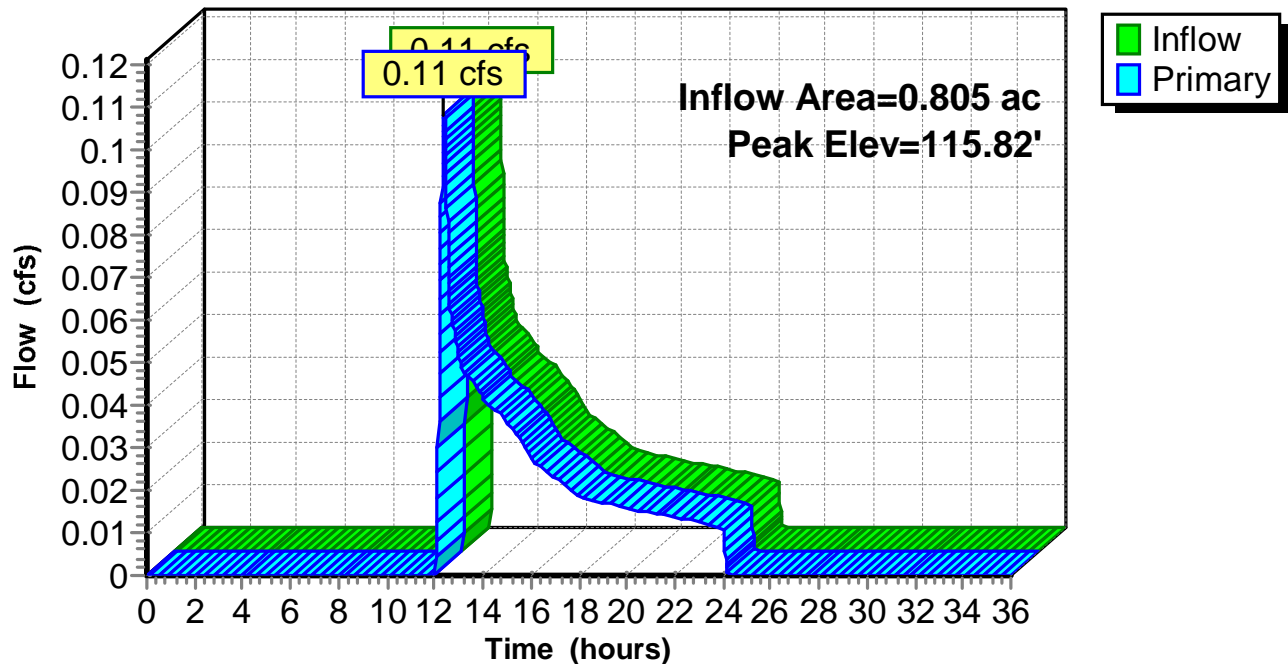
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.62'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 115.62' / 115.40' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.39 hrs HW=115.82' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.11 cfs @ 1.49 fps)

Pond CB17-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.60" for 25-yr event
 Inflow = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af
 Outflow = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.71' @ 12.31 hrs

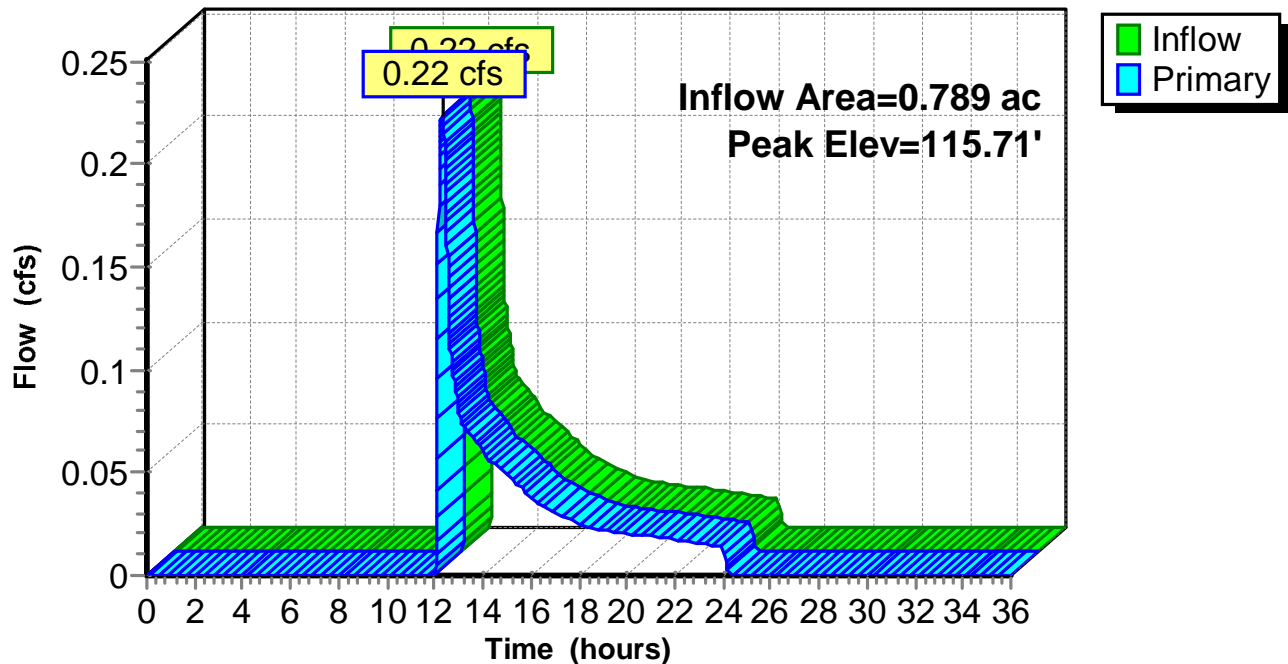
Device	Routing	Invert	Outlet Devices
#1	Primary	118.38'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.44'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 115.44' / 115.40' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.31 hrs HW=115.71' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.22 cfs @ 2.00 fps)

Pond CB17-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 1.36" for 25-yr event
Inflow = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af
Outflow = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.23' @ 12.10 hrs

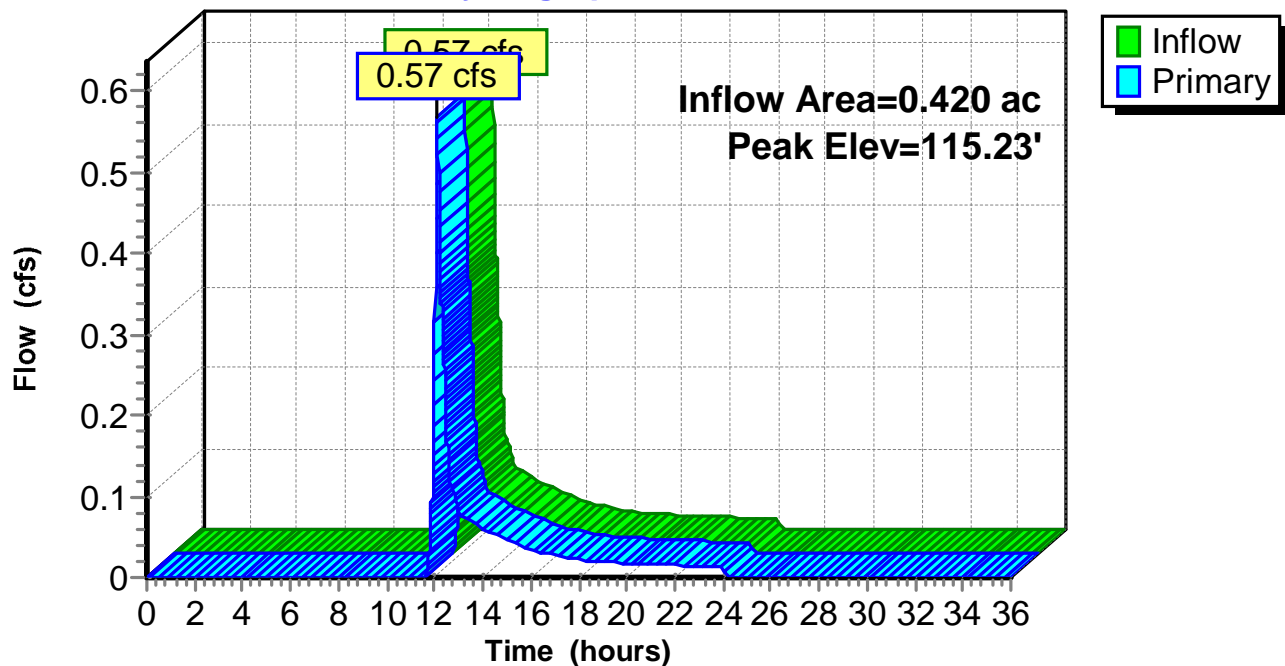
Device	Routing	Invert	Outlet Devices
#1	Primary	117.90'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.10 hrs HW=115.23' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.57 cfs @ 2.92 fps)

Pond CB17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-05:

Inflow Area = 0.665 ac, 22.89% Impervious, Inflow Depth = 1.08" for 25-yr event
Inflow = 0.82 cfs @ 12.07 hrs, Volume= 0.060 af
Outflow = 0.82 cfs @ 12.07 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 0.82 cfs @ 12.07 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.37' @ 12.07 hrs

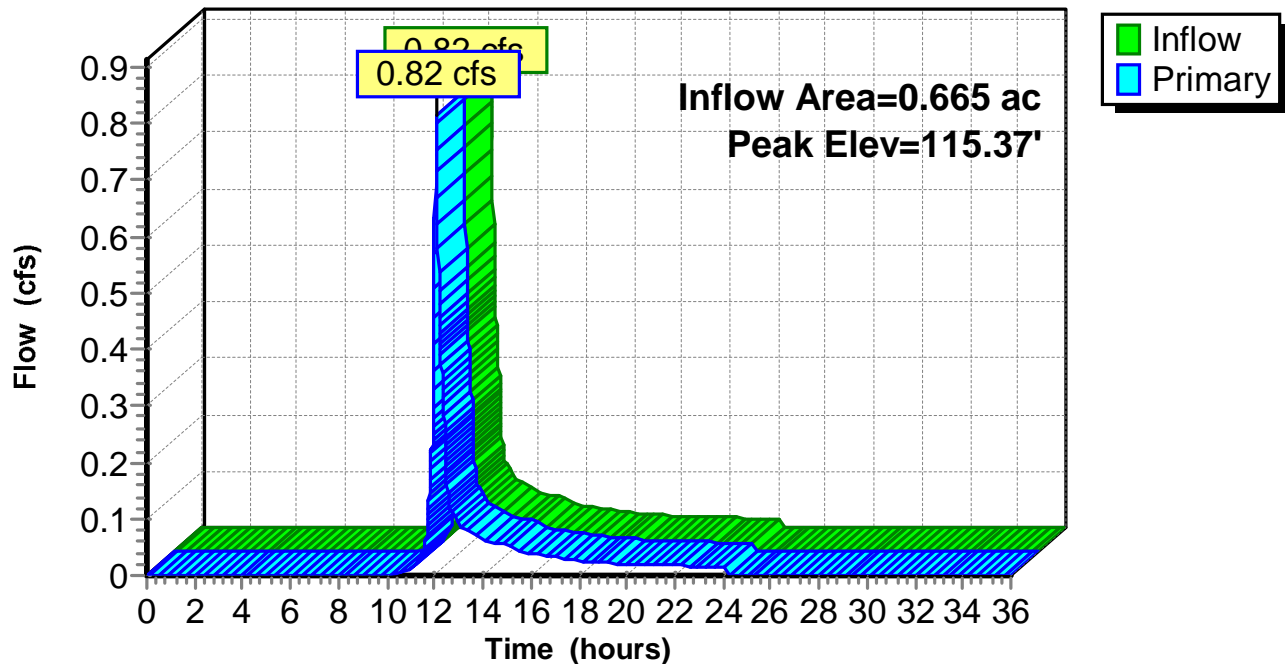
Device	Routing	Invert	Outlet Devices
#1	Primary	117.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0068 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.07 hrs HW=115.37' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.81 cfs @ 2.81 fps)

Pond CB17-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 2.54" for 25-yr event
Inflow = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af
Outflow = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 113.83' @ 12.06 hrs

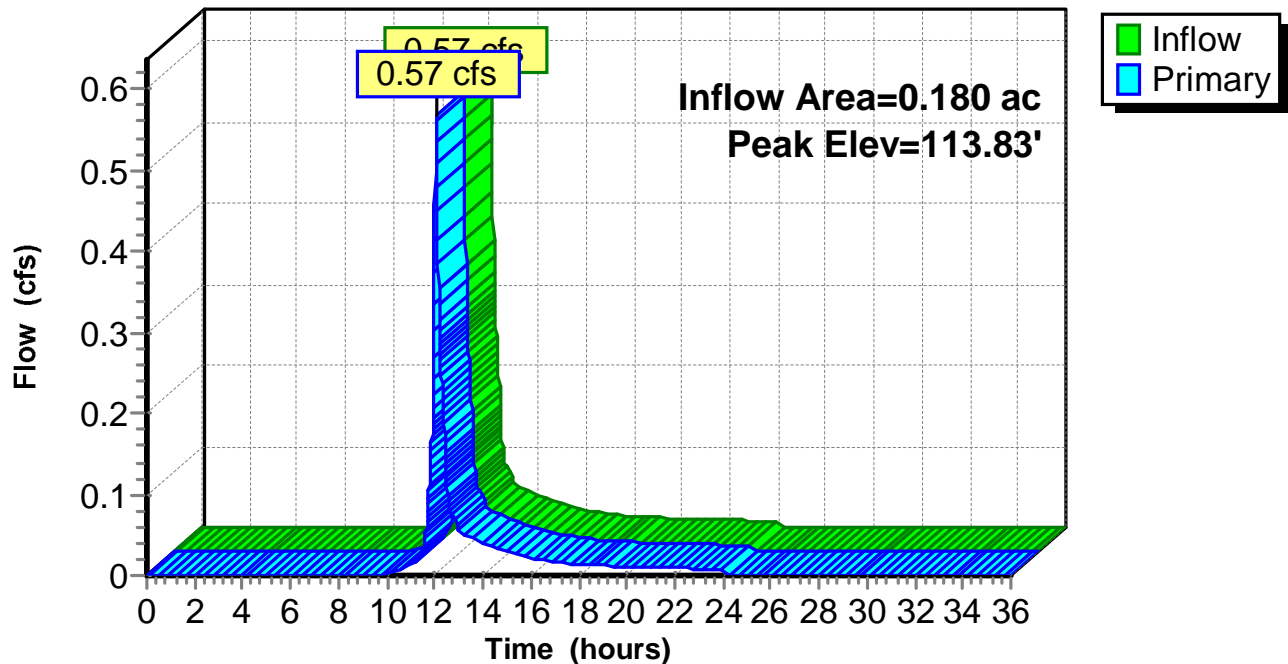
Device	Routing	Invert	Outlet Devices
#1	Primary	116.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	113.45'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 113.45' / 113.02' S= 0.0113 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.06 hrs HW=113.83' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.57 cfs @ 2.09 fps)

Pond CB17-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-07:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.96" for 25-yr event
 Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af
 Outflow = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 114.03' @ 12.08 hrs

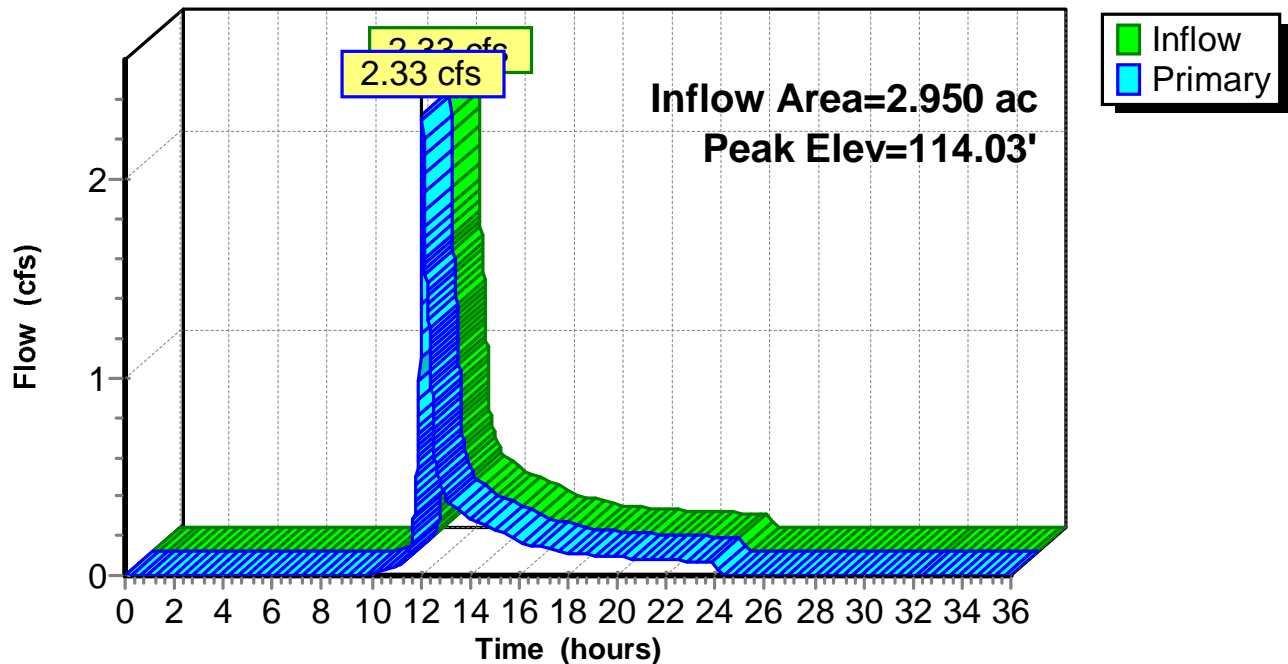
Device	Routing	Invert	Outlet Devices
#1	Primary	116.45'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	112.89'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 112.89' / 112.86' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.08 hrs HW=114.03' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 2.33 cfs @ 3.26 fps)

Pond CB17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond OWSMH 16:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.32" for 25-yr event
Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 112.58' @ 12.36 hrs

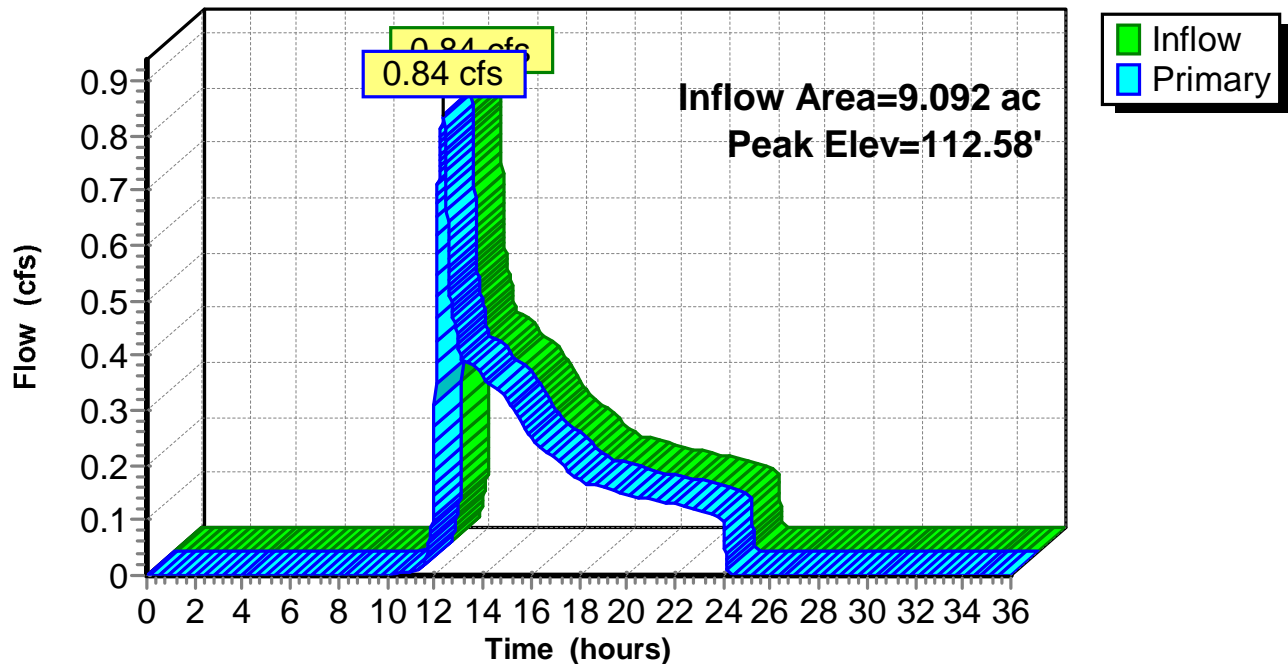
Device	Routing	Invert	Outlet Devices
#1	Primary	121.47'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.12'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 112.12' / 112.00' S= 0.0030 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.84 cfs @ 12.36 hrs HW=112.58' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.84 cfs @ 2.31 fps)

Pond OWSMH 16:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond OWSMH 17:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 0.96" for 25-yr event
 Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af
 Outflow = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.33 cfs @ 12.08 hrs, Volume= 0.236 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.74' @ 12.08 hrs

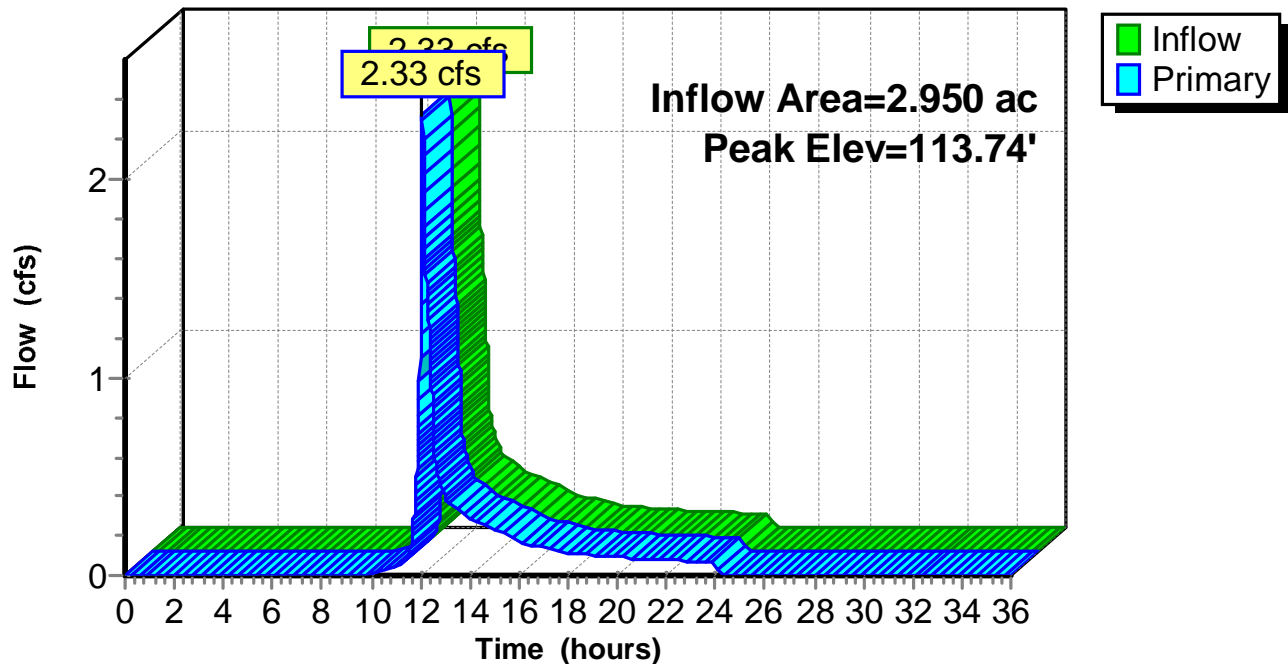
Device	Routing	Invert	Outlet Devices
#1	Primary	117.74'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.86'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 112.86' / 111.00' S= 0.0489 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.08 hrs HW=113.74' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 2.33 cfs @ 3.19 fps)

Pond OWSMH 17:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.32" for 25-yr event
Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 112.85' @ 12.36 hrs

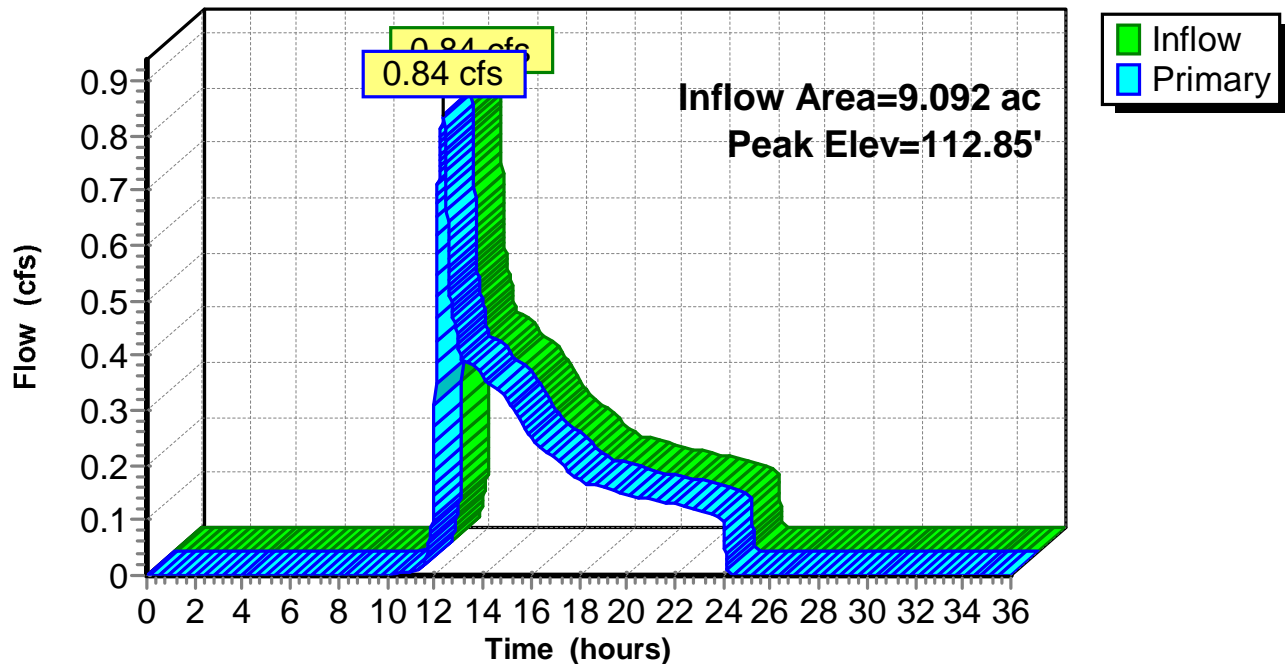
Device	Routing	Invert	Outlet Devices
#1	Primary	121.43'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.37'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 112.37' / 112.37' S= 0.0000 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.83 cfs @ 12.36 hrs HW=112.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.83 cfs @ 2.16 fps)

Pond SDMH16-02.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-02.2:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 0.32" for 25-yr event
 Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
 Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.25' @ 12.36 hrs

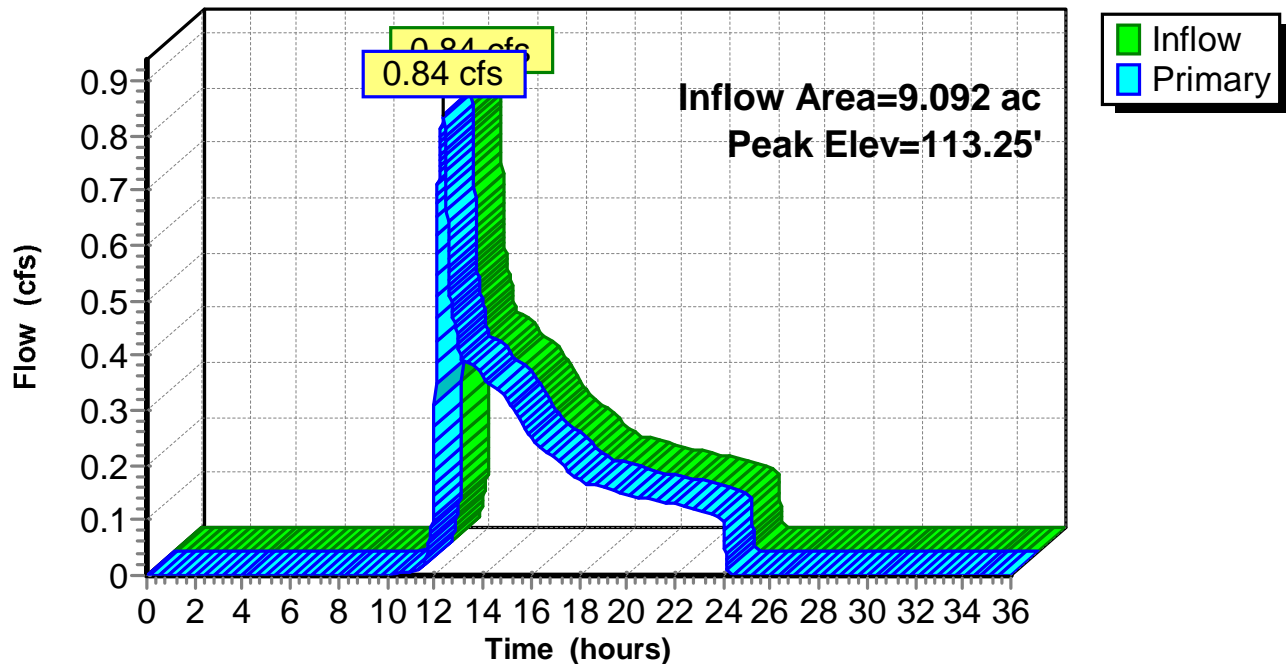
Device	Routing	Invert	Outlet Devices
#1	Primary	118.97'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.88'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 112.88' / 112.51' S= 0.0206 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.84 cfs @ 12.36 hrs HW=113.25' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.08 fps)

Pond SDMH16-02.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.60" for 25-yr event
 Inflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af
 Outflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.08' @ 12.29 hrs

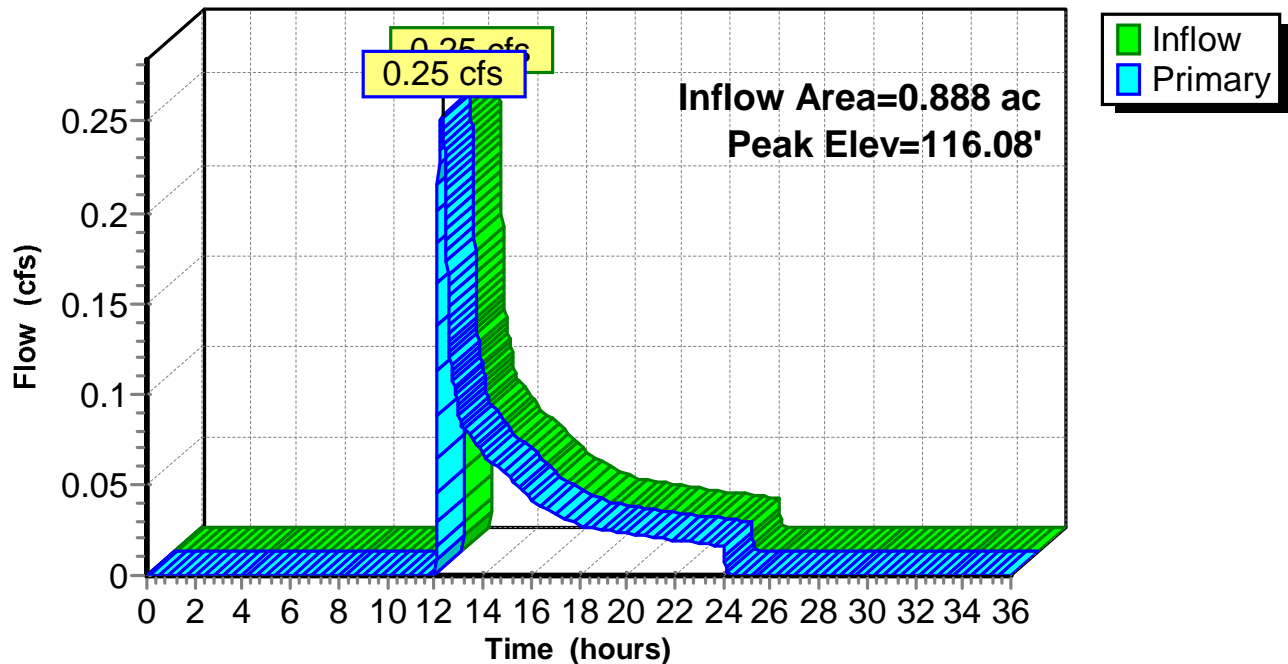
Device	Routing	Invert	Outlet Devices
#1	Primary	119.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.83'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 115.83' / 112.88' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.29 hrs HW=116.08' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.25 cfs @ 1.69 fps)

Pond SDMH16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.18" for 25-yr event
 Inflow = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af
 Outflow = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 128.15' @ 13.81 hrs

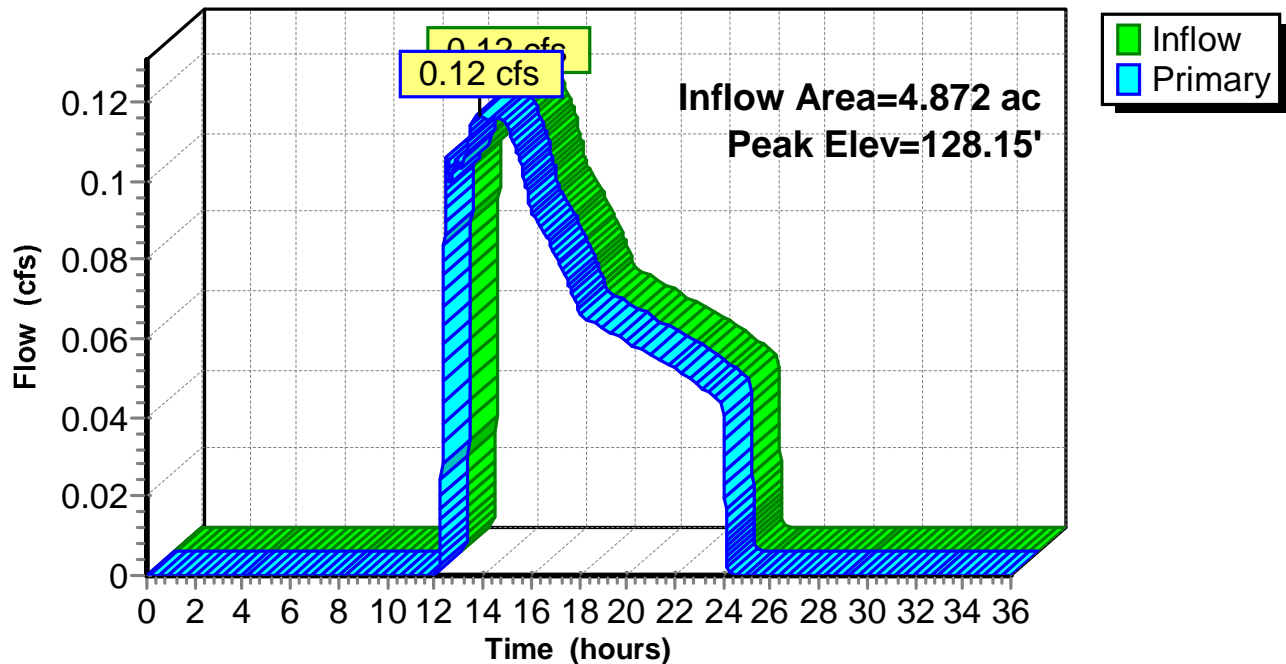
Device	Routing	Invert	Outlet Devices
#1	Primary	132.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	128.00'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 128.00' / 114.75' S= 0.0589 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 13.81 hrs HW=128.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.11 cfs @ 1.33 fps)

Pond SDMH16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.51" for 25-yr event
 Inflow = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af
 Outflow = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.06' @ 12.27 hrs

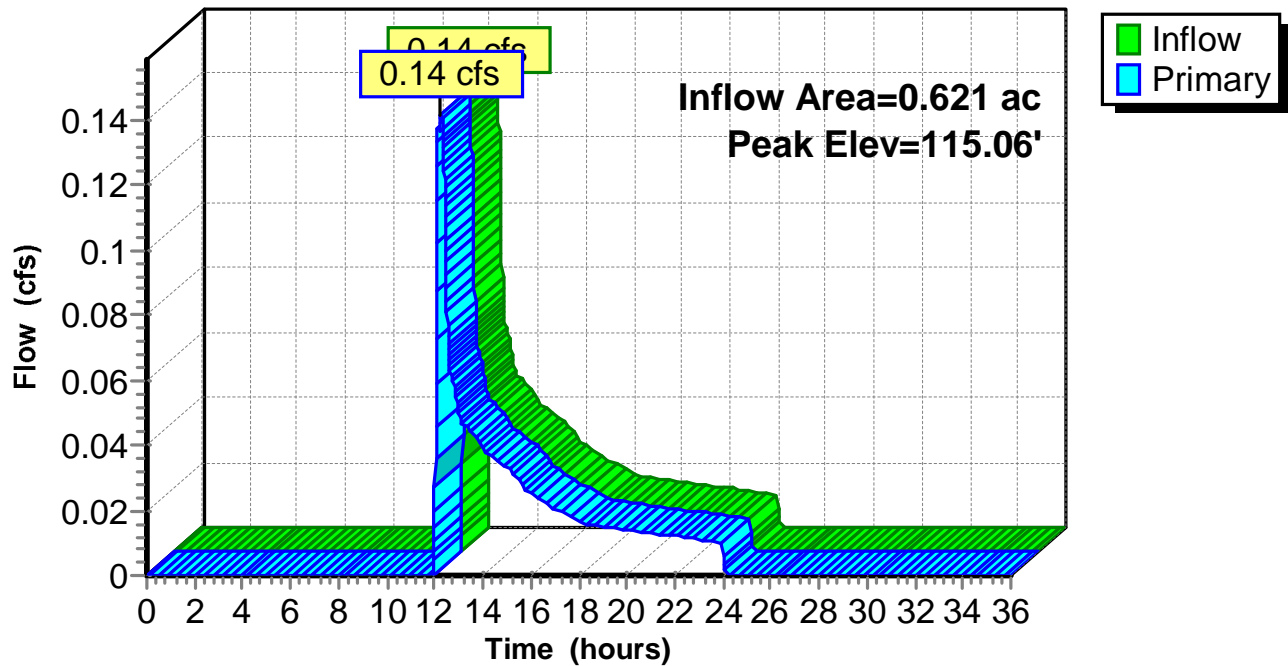
Device	Routing	Invert	Outlet Devices
#1	Primary	120.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.80'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 114.80' / 114.74' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.14 cfs @ 12.27 hrs HW=115.06' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.14 cfs @ 1.17 fps)

Pond SDMH16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.27" for 25-yr event
 Inflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af
 Outflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 134.25' @ 12.47 hrs

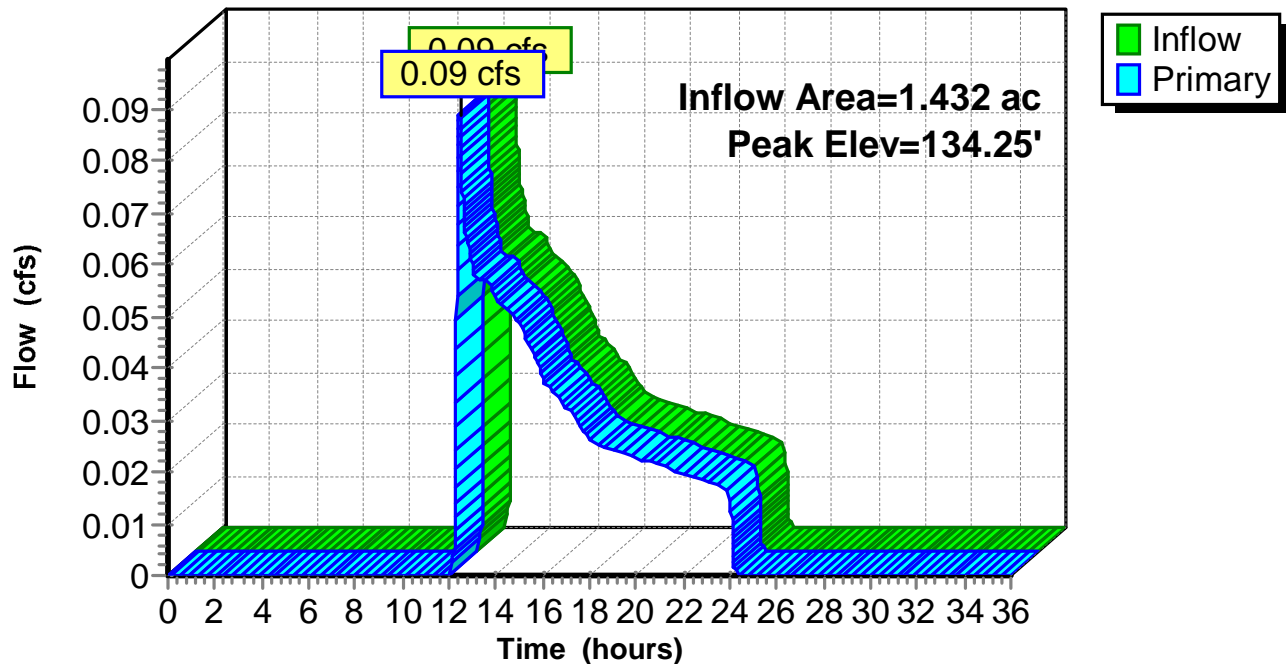
Device	Routing	Invert	Outlet Devices
#1	Primary	139.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	134.10'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 134.10' / 132.47' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.47 hrs HW=134.25' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.09 cfs @ 1.81 fps)

Pond SDMH16-12.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.23" for 25-yr event
 Inflow = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af
 Outflow = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 130.18' @ 12.51 hrs

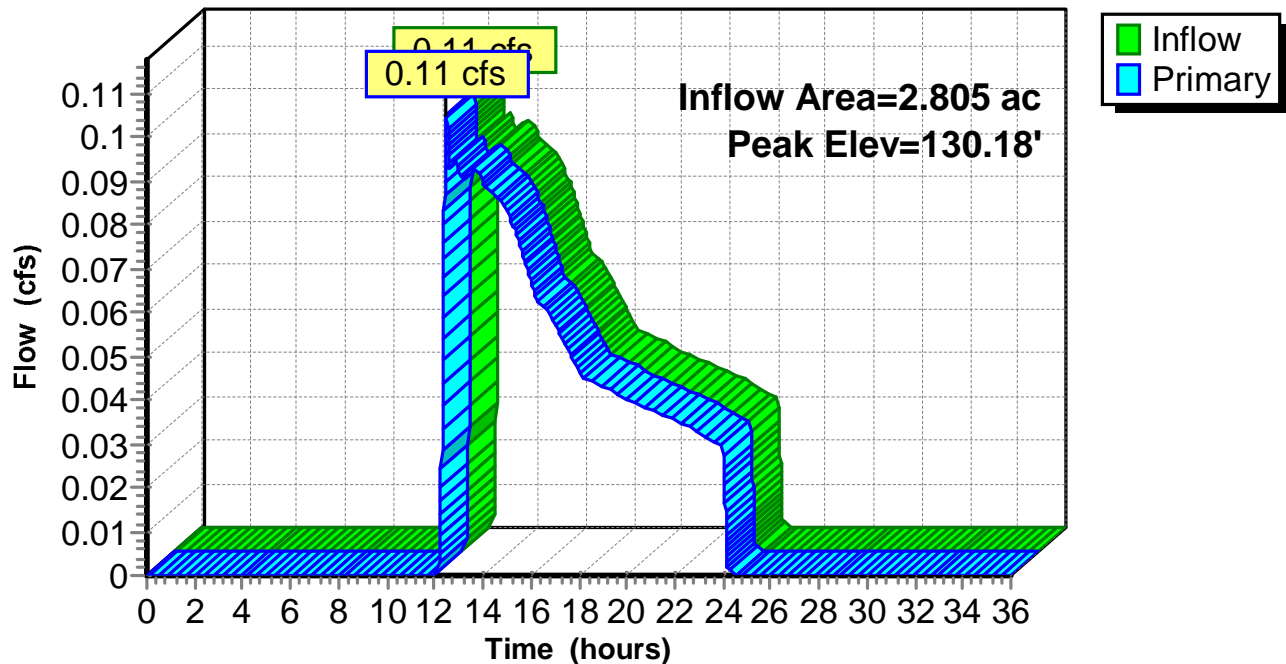
Device	Routing	Invert	Outlet Devices
#1	Primary	136.63'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	130.03'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 130.03' / 128.00' S= 0.0294 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.51 hrs HW=130.18' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.10 cfs @ 1.33 fps)

Pond SDMH16-12.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.27" for 25-yr event
 Inflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af
 Outflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 136.88' @ 12.47 hrs

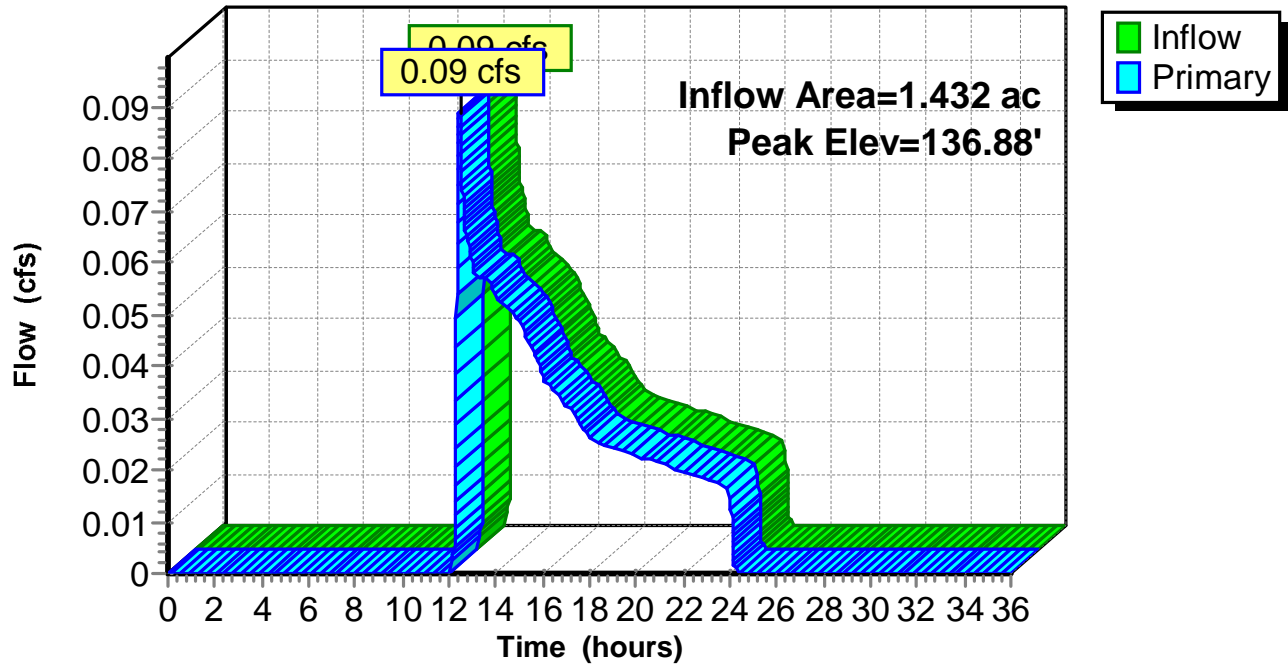
Device	Routing	Invert	Outlet Devices
#1	Primary	144.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	136.74'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 136.74' / 134.65' S= 0.0185 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.47 hrs HW=136.88' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.09 cfs @ 1.27 fps)

Pond SDMH16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.49" for 25-yr event
Inflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af
Outflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 116.59' @ 12.30 hrs

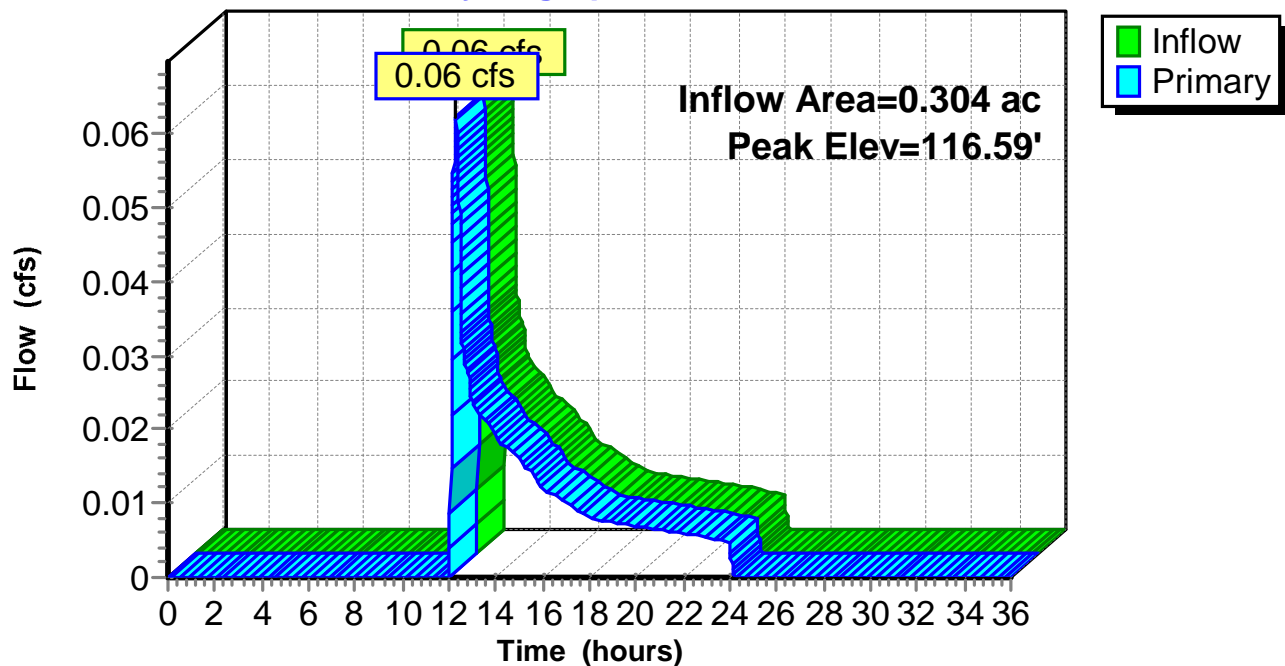
Device	Routing	Invert	Outlet Devices
#1	Primary	124.51'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	116.48'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 116.48' / 115.26' S= 0.0610 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.30 hrs HW=116.59' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.14 fps)

Pond SDMH16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.50" for 25-yr event
 Inflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af
 Outflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.71' @ 12.35 hrs

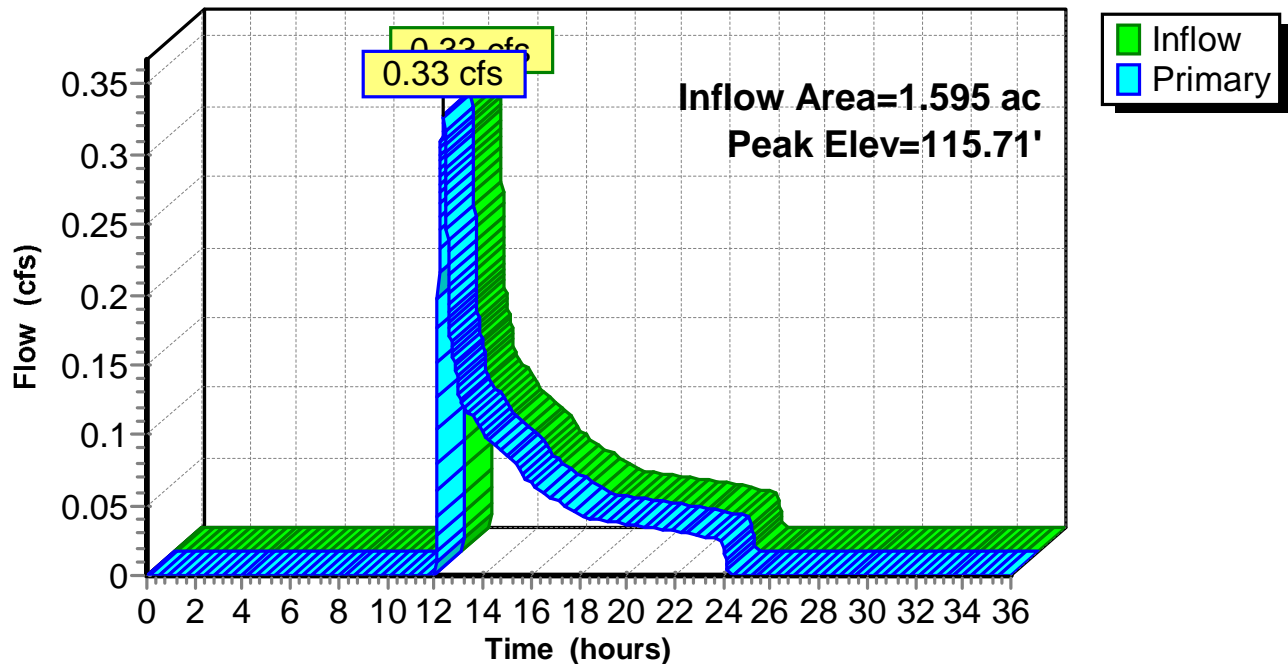
Device	Routing	Invert	Outlet Devices
#1	Primary	118.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.30'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 115.30' / 115.23' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.35 hrs HW=115.71' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.33 cfs @ 1.58 fps)

Pond SDMH17-03.1:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.50" for 25-yr event
 Inflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af
 Outflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.24' @ 12.35 hrs

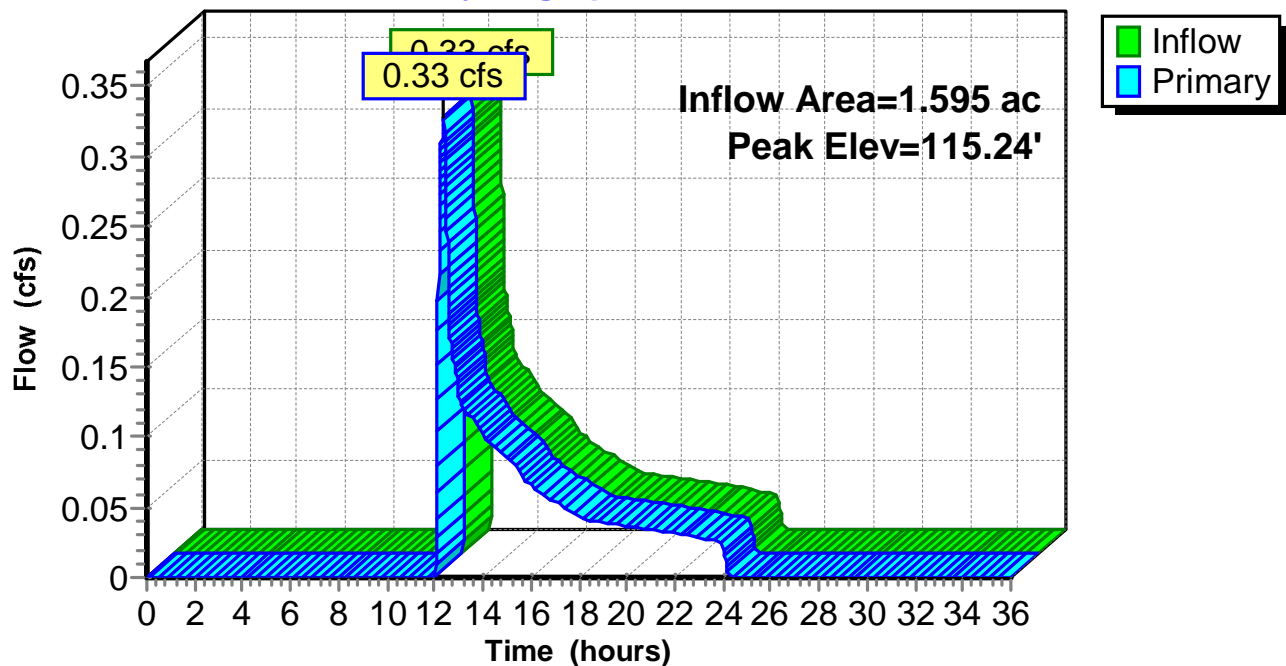
Device	Routing	Invert	Outlet Devices
#1	Primary	122.46'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.91'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 114.91' / 114.71' S= 0.0043 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.35 hrs HW=115.24' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.33 cfs @ 2.13 fps)

Pond SDMH17-03.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH17-04:

Inflow Area = 2.680 ac, 18.90% Impervious, Inflow Depth = 0.78" for 25-yr event
Inflow = 1.43 cfs @ 12.09 hrs, Volume= 0.173 af
Outflow = 1.43 cfs @ 12.09 hrs, Volume= 0.173 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.09 hrs, Volume= 0.173 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.34' @ 12.09 hrs

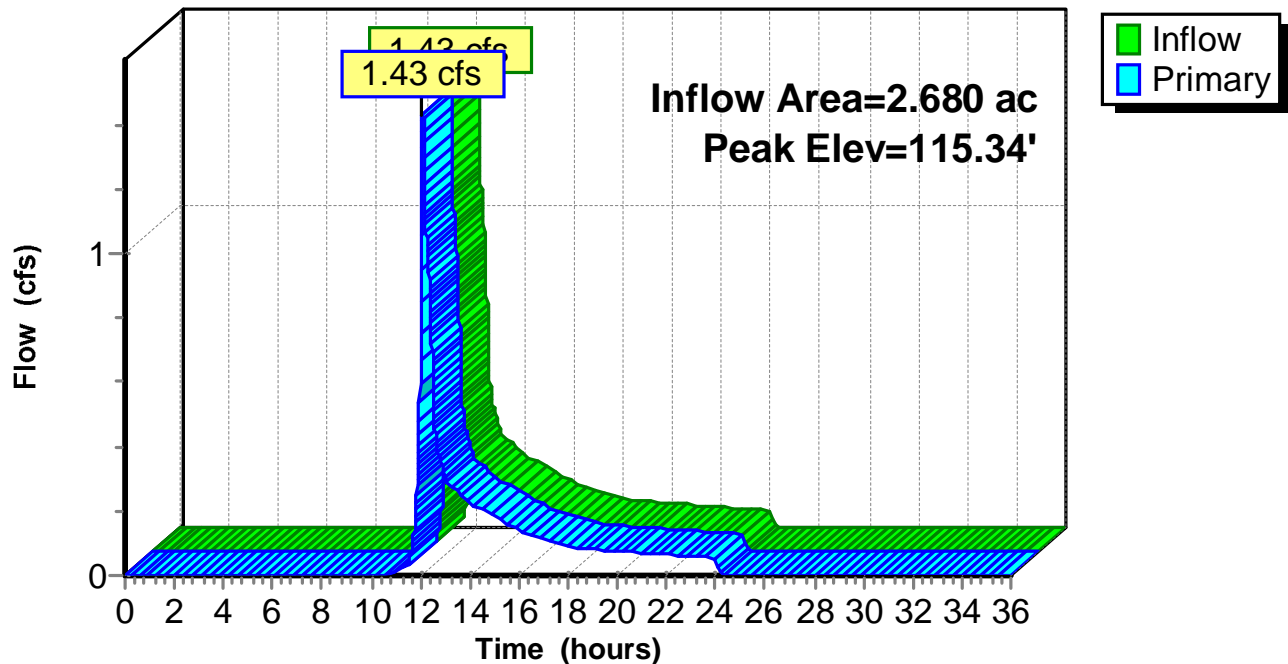
Device	Routing	Invert	Outlet Devices
#1	Primary	117.78'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.71'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 114.71' / 113.02' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.42 cfs @ 12.09 hrs HW=115.34' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.42 cfs @ 2.71 fps)

Pond SDMH17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH17-07:

Inflow Area = 2.860 ac, 21.03% Impervious, Inflow Depth = 0.89" for 25-yr event
 Inflow = 1.97 cfs @ 12.08 hrs, Volume= 0.212 af
 Outflow = 1.97 cfs @ 12.08 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.97 cfs @ 12.08 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.91' @ 12.08 hrs

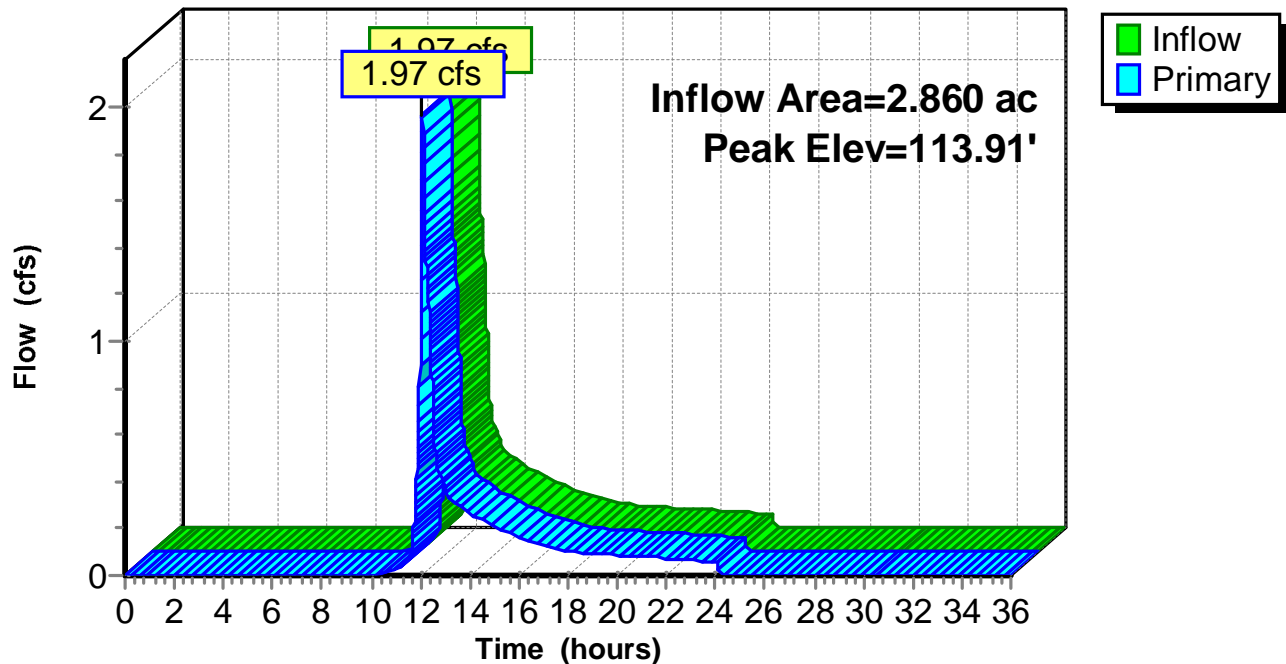
Device	Routing	Invert	Outlet Devices
#1	Primary	116.73'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	113.00'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 113.00' / 112.94' S= 0.0150 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.96 cfs @ 12.08 hrs HW=113.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.96 cfs @ 3.42 fps)

Pond SDMH17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 25-yr Rainfall=6.14"

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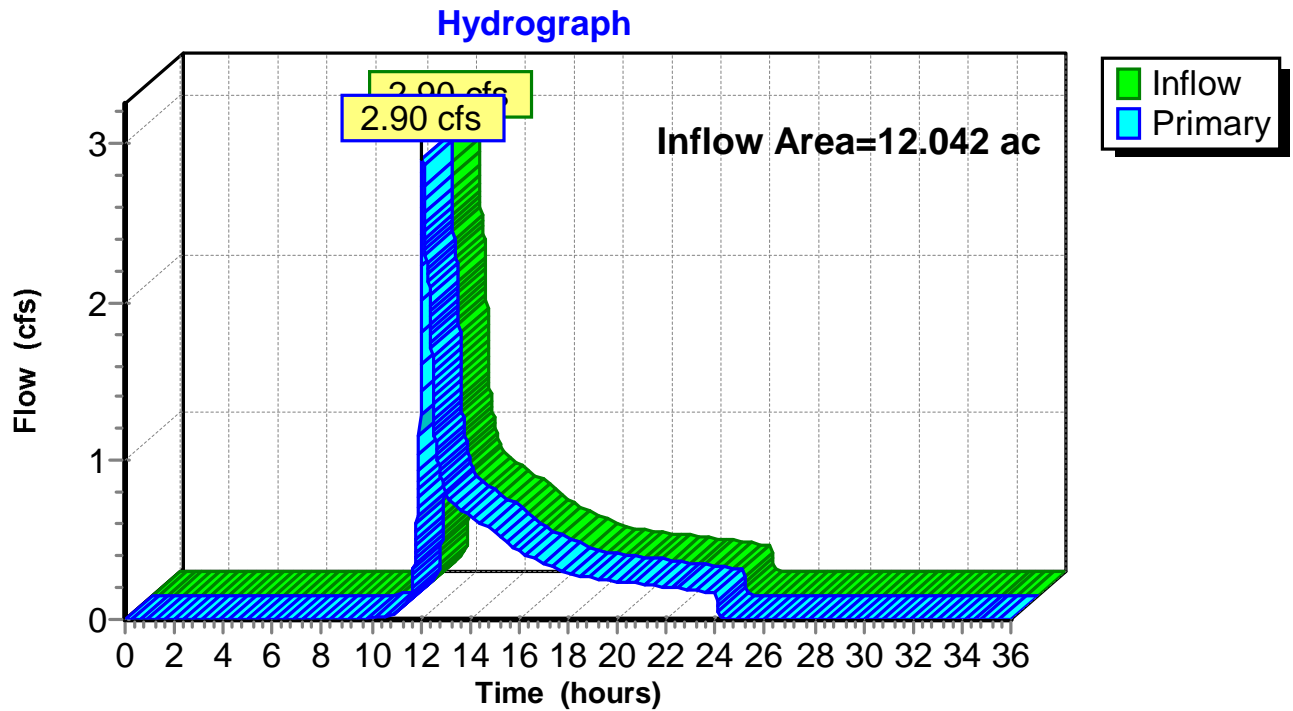
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Summary for Link OUT:

Inflow Area = 12.042 ac, 11.25% Impervious, Inflow Depth = 0.48" for 25-yr event
Inflow = 2.90 cfs @ 12.09 hrs, Volume= 0.478 af
Primary = 2.90 cfs @ 12.09 hrs, Volume= 0.478 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=1.67" Flow Length=444' Tc=7.5 min CN=41 Runoff=1.30 cfs 0.123 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=4.45" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.60 cfs 0.039 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.95" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.50 cfs 0.083 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.59" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.09 cfs 0.021 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 11.62% Impervious Runoff Depth=1.35" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.54 cfs 0.063 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.59" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.02 cfs 0.004 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=1.67" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.23 cfs 0.020 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=2.00" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.20 cfs 0.015 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=1.45" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.40 cfs 0.037 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.59" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.27 cfs 0.060 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.76" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.29 cfs 0.054 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.86" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.55 cfs 0.098 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.95" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.46 cfs 0.066 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=1.15" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.42 cfs 0.057 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=1.78" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.83 cfs 0.083 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 1.96% Impervious Runoff Depth=0.68" Flow Length=164' Tc=6.4 min CN=31 Runoff=0.10 cfs 0.020 af

Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=1.35" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.61 cfs 0.066 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=1.05" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.14 cfs 0.019 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=1.67" Flow Length=502' Tc=8.5 min CN=41 Runoff=1.11 cfs 0.110 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=2.91" Flow Length=333' Tc=6.0 min CN=52 Runoff=1.37 cfs 0.102 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=4.09" Flow Length=246' Tc=4.2 min CN=62 Runoff=1.57 cfs 0.105 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=4.57" Flow Length=134' Tc=4.0 min CN=66 Runoff=1.04 cfs 0.069 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=5.54" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.62 cfs 0.042 af
Pond CB16-01:	Peak Elev=116.60' Inflow=1.30 cfs 0.123 af Outflow=1.30 cfs 0.123 af
Pond CB16-02:	Peak Elev=115.98' Inflow=0.60 cfs 0.039 af Outflow=0.60 cfs 0.039 af
Pond CB16-03:	Peak Elev=115.94' Inflow=0.50 cfs 0.083 af Outflow=0.50 cfs 0.083 af
Pond CB16-04:	Peak Elev=115.39' Inflow=1.96 cfs 0.356 af Outflow=1.96 cfs 0.356 af
Pond CB16-05:	Peak Elev=115.44' Inflow=2.04 cfs 0.222 af Outflow=2.04 cfs 0.222 af
Pond CB16-06:	Peak Elev=115.55' Inflow=0.02 cfs 0.004 af Outflow=0.02 cfs 0.004 af
Pond CB16-07:	Peak Elev=121.00' Inflow=0.23 cfs 0.020 af Outflow=0.23 cfs 0.020 af
Pond CB16-08:	Peak Elev=120.64' Inflow=0.42 cfs 0.035 af Outflow=0.42 cfs 0.035 af
Pond CB16-09:	Peak Elev=125.15' Inflow=0.40 cfs 0.037 af Outflow=0.40 cfs 0.037 af
Pond CB16-10:	Peak Elev=129.92' Inflow=0.27 cfs 0.060 af Outflow=0.27 cfs 0.060 af

Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Pond CB16-11:	Peak Elev=129.66' Inflow=0.55 cfs 0.114 af Outflow=0.55 cfs 0.114 af
Pond CB16-12:	Peak Elev=131.05' Inflow=0.55 cfs 0.098 af Outflow=0.55 cfs 0.098 af
Pond CB16-13:	Peak Elev=135.23' Inflow=0.46 cfs 0.066 af Outflow=0.46 cfs 0.066 af
Pond CB16-14:	Peak Elev=144.68' Inflow=0.42 cfs 0.057 af Outflow=0.42 cfs 0.057 af
Pond CB16-15:	Peak Elev=116.64' Inflow=0.83 cfs 0.083 af Outflow=0.83 cfs 0.083 af
Pond CB17-01:	Peak Elev=116.28' Inflow=0.61 cfs 0.066 af Outflow=0.61 cfs 0.066 af
Pond CB17-02:	Peak Elev=116.16' Inflow=0.75 cfs 0.085 af Outflow=0.75 cfs 0.085 af
Pond CB17-03:	Peak Elev=116.10' Inflow=1.11 cfs 0.110 af Outflow=1.11 cfs 0.110 af
Pond CB17-04:	Peak Elev=115.51' Inflow=1.37 cfs 0.102 af Outflow=1.37 cfs 0.102 af
Pond CB17-05:	Peak Elev=115.62' Inflow=1.58 cfs 0.125 af Outflow=1.58 cfs 0.125 af
Pond CB17-06:	Peak Elev=113.98' Inflow=1.04 cfs 0.069 af Outflow=1.04 cfs 0.069 af
Pond CB17-07:	Peak Elev=115.90' Inflow=5.99 cfs 0.532 af Outflow=5.99 cfs 0.532 af
Pond OWSMH 16:	Peak Elev=113.40' Inflow=5.70 cfs 0.824 af Outflow=5.70 cfs 0.824 af
Pond OWSMH 17:	Peak Elev=115.87' Inflow=5.99 cfs 0.532 af Outflow=5.99 cfs 0.532 af
Pond SDMH16-02.1:	Peak Elev=113.69' Inflow=5.70 cfs 0.824 af Outflow=5.70 cfs 0.824 af
Pond SDMH16-02.2:	Peak Elev=113.95' Inflow=5.70 cfs 0.824 af Outflow=5.70 cfs 0.824 af
Pond SDMH16-03:	Peak Elev=116.43' Inflow=1.30 cfs 0.123 af Outflow=1.30 cfs 0.123 af

Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Pond SDMH16-05:	Peak Elev=128.67'	Inflow=1.87 cfs	0.335 af	Outflow=1.87 cfs	0.335 af
Pond SDMH16-06:	Peak Elev=115.40'	Inflow=0.83 cfs	0.076 af	Outflow=0.83 cfs	0.076 af
Pond SDMH16-12.1:	Peak Elev=134.57'	Inflow=0.84 cfs	0.123 af	Outflow=0.84 cfs	0.123 af
Pond SDMH16-12.2:	Peak Elev=130.64'	Inflow=1.34 cfs	0.221 af	Outflow=1.34 cfs	0.221 af
Pond SDMH16-13:	Peak Elev=137.21'	Inflow=0.84 cfs	0.123 af	Outflow=0.84 cfs	0.123 af
Pond SDMH16-15:	Peak Elev=116.79'	Inflow=0.40 cfs	0.037 af	Outflow=0.40 cfs	0.037 af
Pond SDMH17-03.1:	Peak Elev=116.38'	Inflow=1.86 cfs	0.195 af	Outflow=1.86 cfs	0.195 af
Pond SDMH17-03.2:	Peak Elev=115.81'	Inflow=1.86 cfs	0.195 af	Outflow=1.86 cfs	0.195 af
Pond SDMH17-04:	Peak Elev=116.62'	Inflow=4.49 cfs	0.422 af	Outflow=4.49 cfs	0.422 af
Pond SDMH17-07:	Peak Elev=115.55'	Inflow=5.42 cfs	0.491 af	Outflow=5.42 cfs	0.491 af
Link OUT:		Inflow=11.18 cfs	1.356 af	Primary=11.18 cfs	1.356 af

Total Runoff Area = 12.042 ac Runoff Volume = 1.356 af Average Runoff Depth = 1.35"
88.75% Pervious = 10.688 ac 11.25% Impervious = 1.355 ac

Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-01S:

Runoff = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Depth= 1.67"

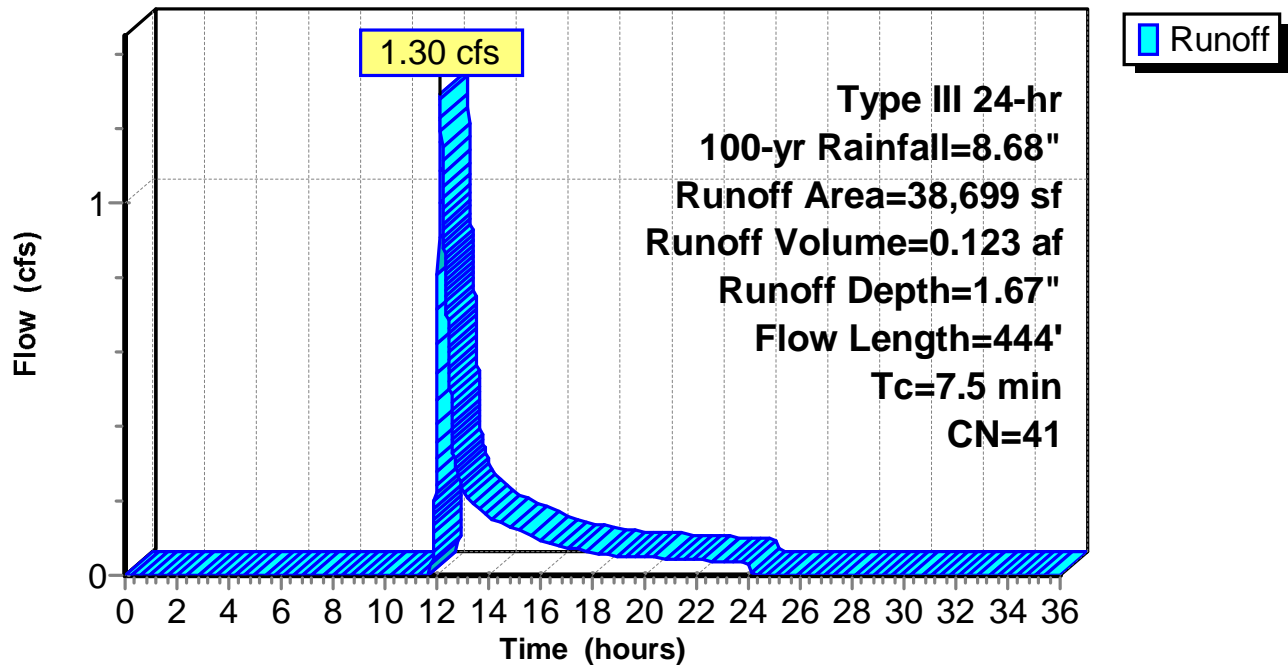
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-02S:

Runoff = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af, Depth= 4.45"

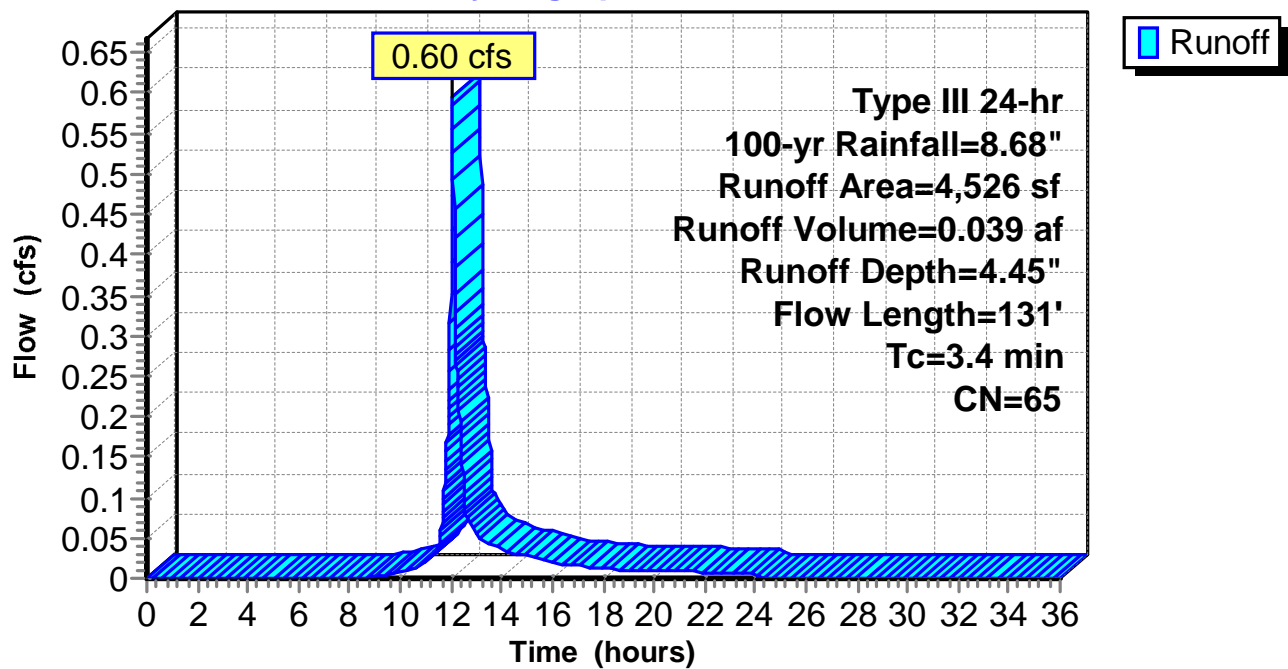
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-03S:

Runoff = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af, Depth= 0.95"

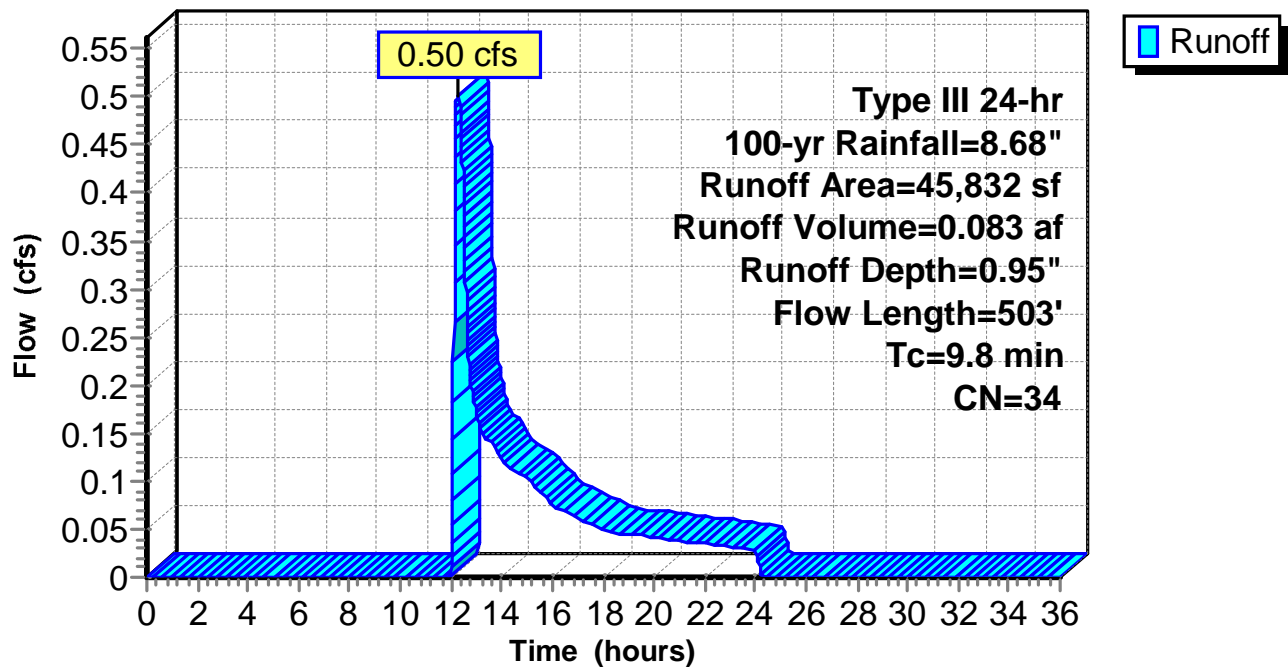
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-04S:

Runoff = 0.09 cfs @ 12.39 hrs, Volume= 0.021 af, Depth= 0.59"

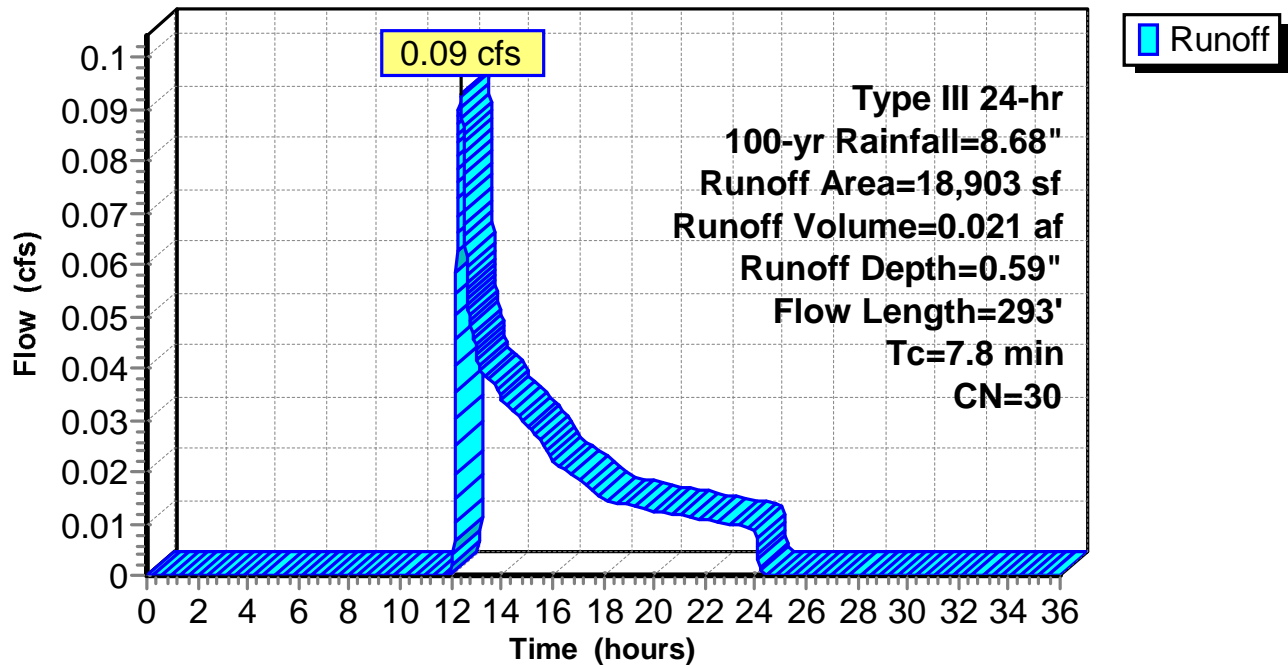
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-05S:

Runoff = 0.54 cfs @ 12.16 hrs, Volume= 0.063 af, Depth= 1.35"

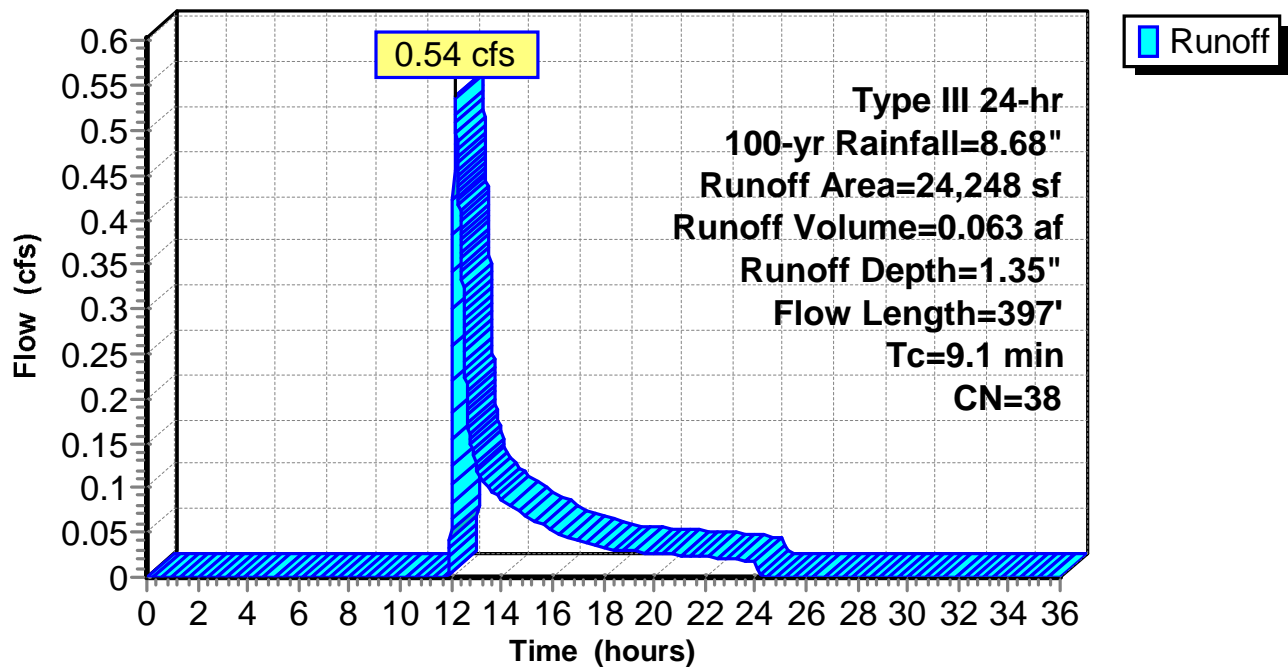
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,818	98	Impervious
21,430	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,430		88.38% Pervious Area
2,818		11.62% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-06S:

Runoff = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af, Depth= 0.59"

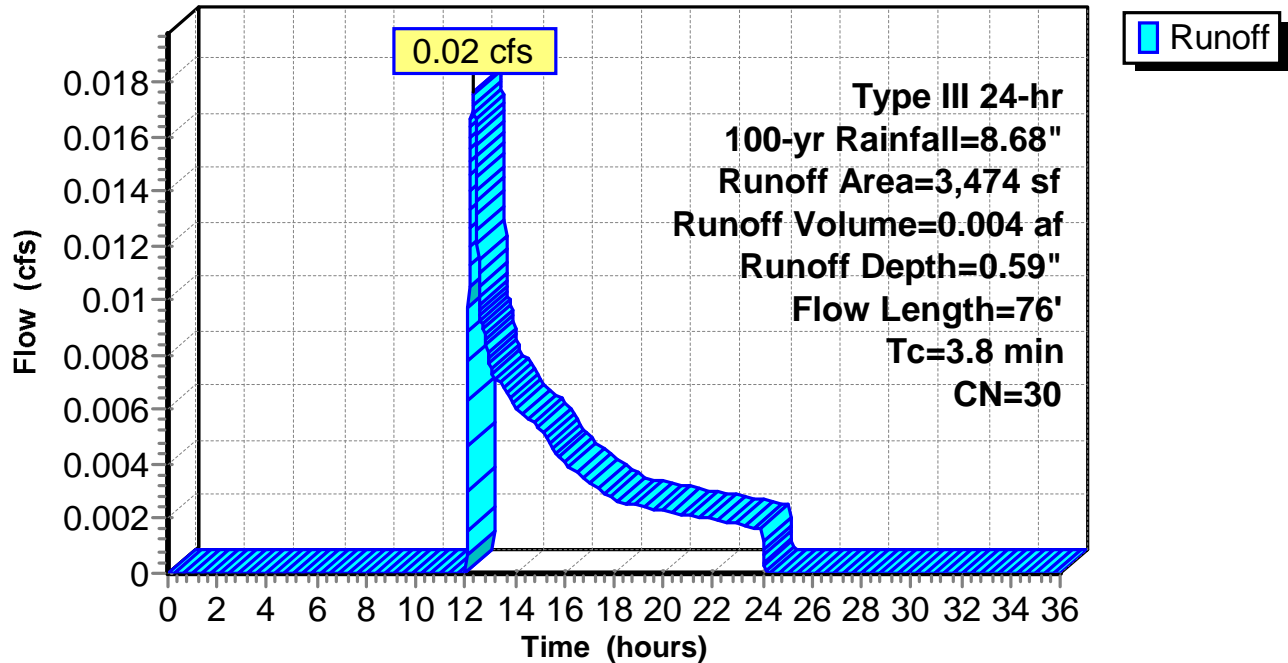
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-07S:

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af, Depth= 1.67"

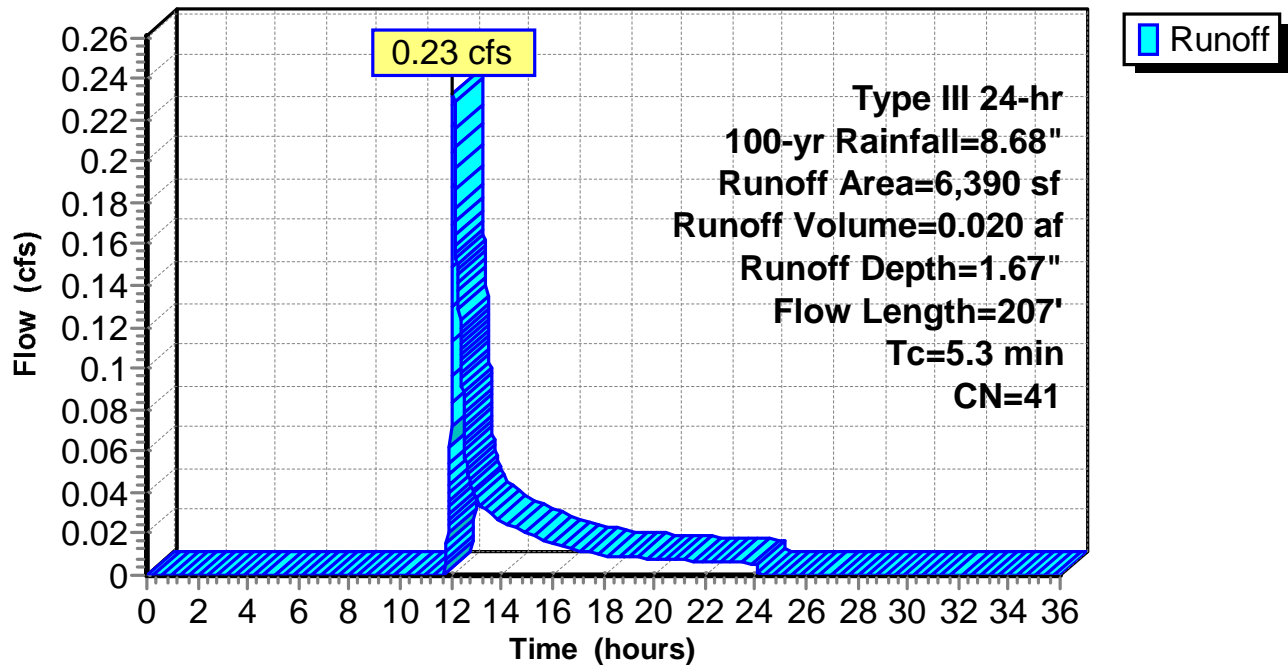
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-08S:

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 2.00"

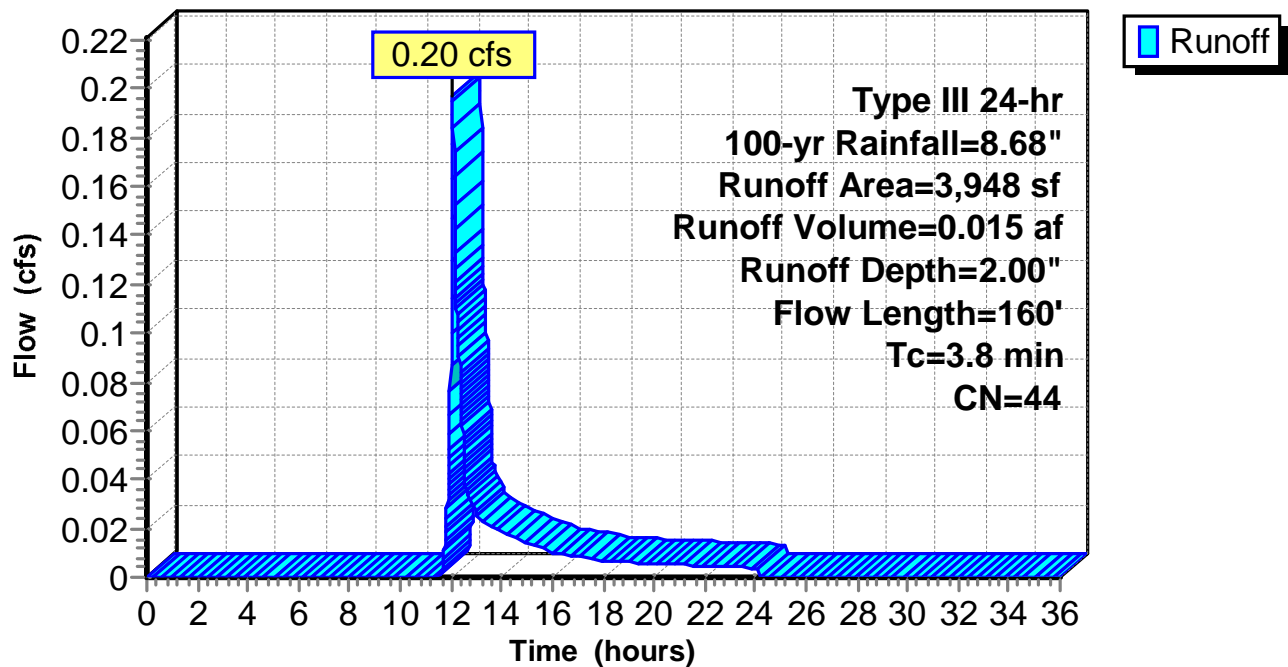
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-09S:

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 1.45"

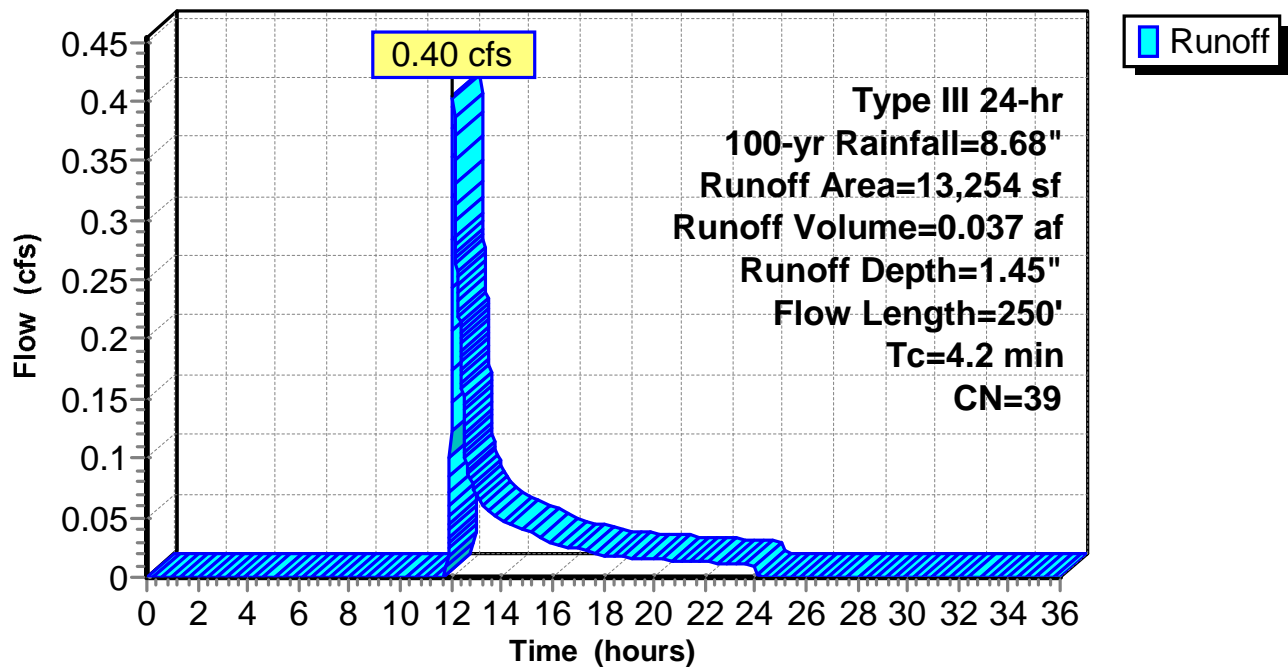
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-10S:

Runoff = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af, Depth= 0.59"

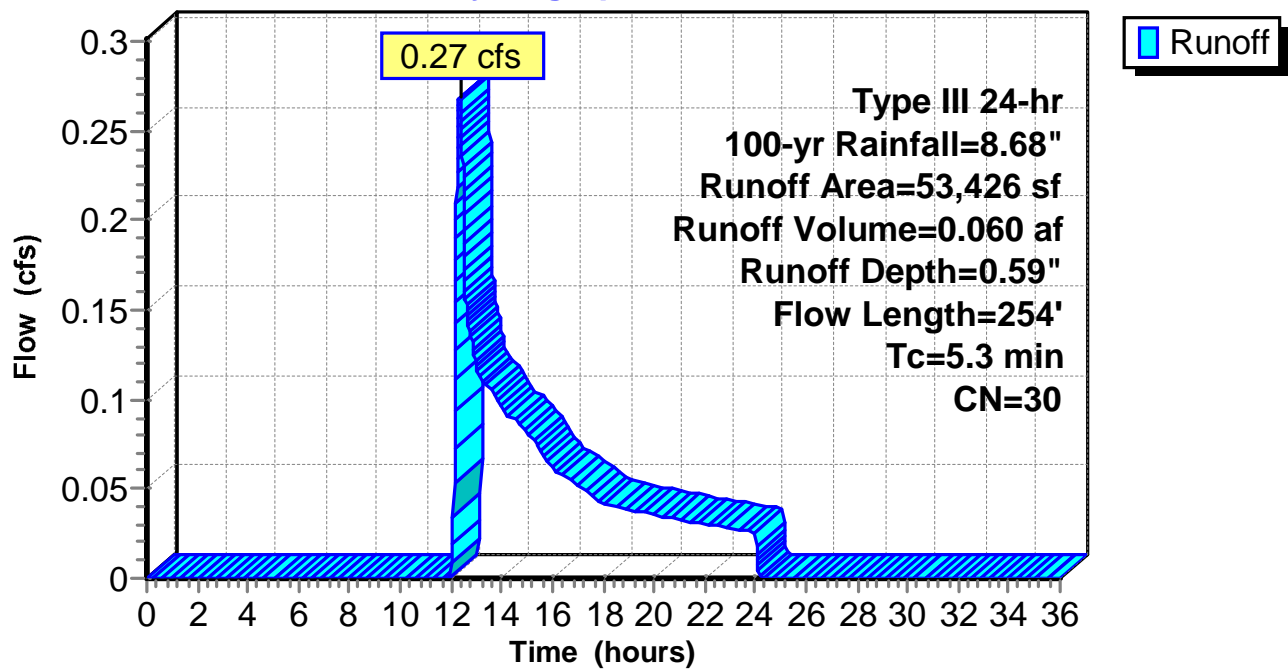
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-11S:

Runoff = 0.29 cfs @ 12.29 hrs, Volume= 0.054 af, Depth= 0.76"

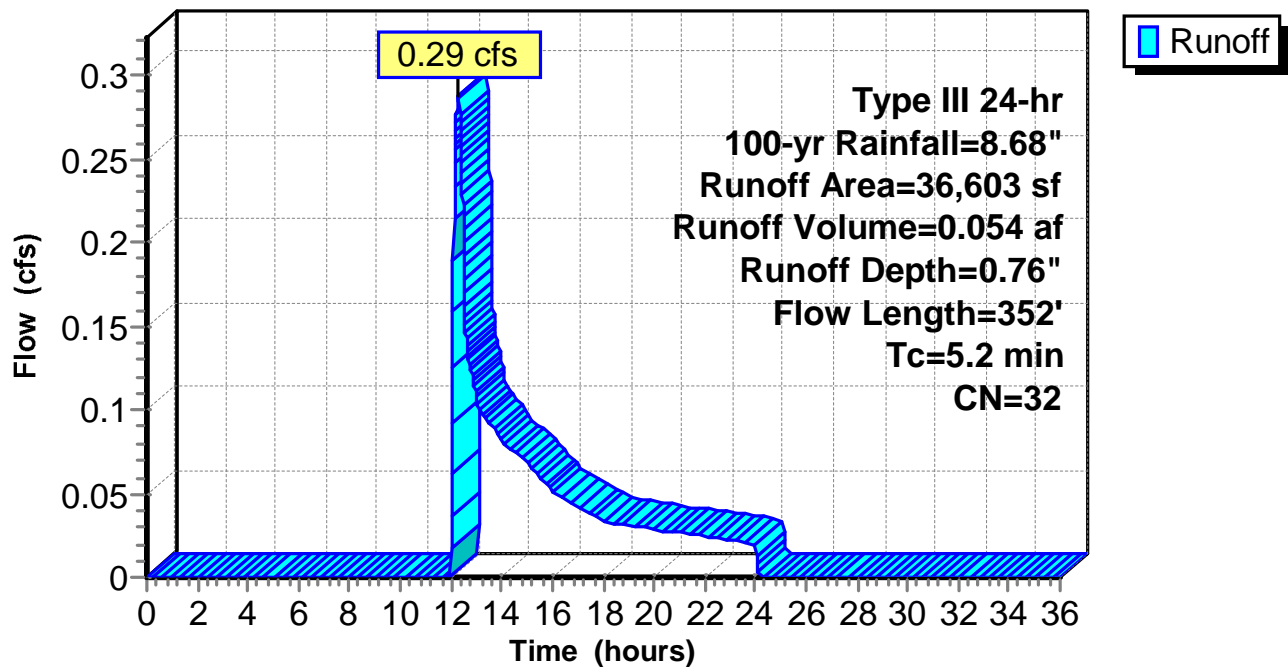
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-12S:

Runoff = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af, Depth= 0.86"

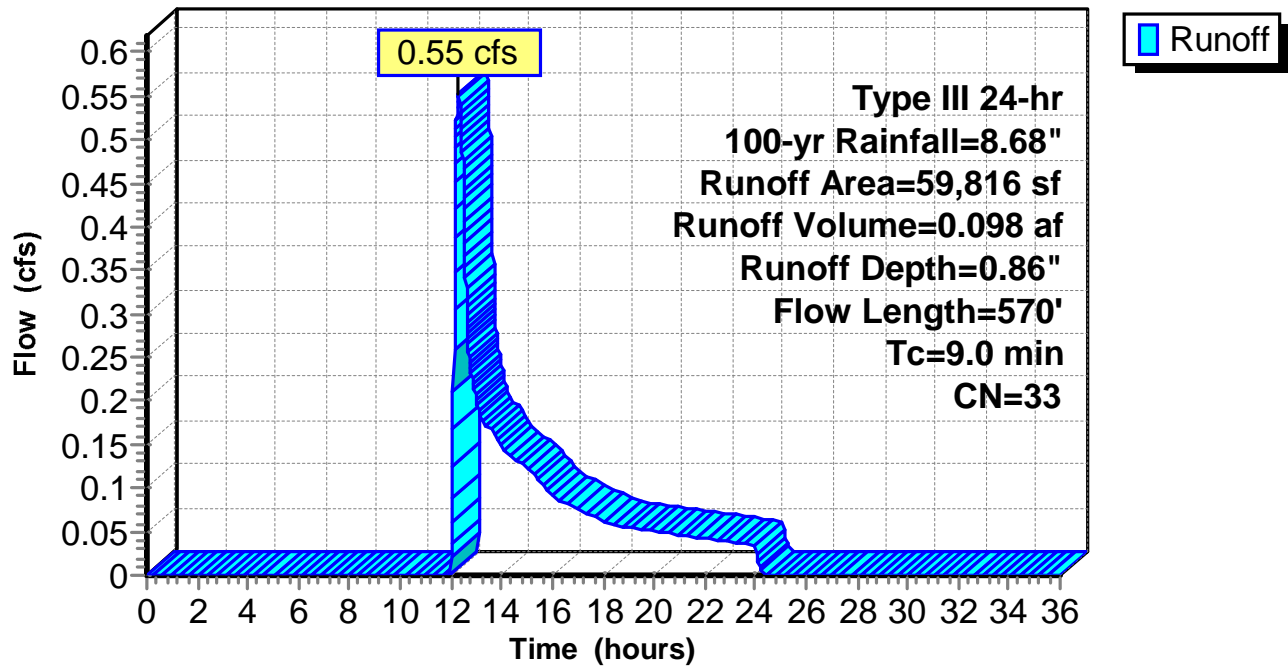
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-13S:

Runoff = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af, Depth= 0.95"

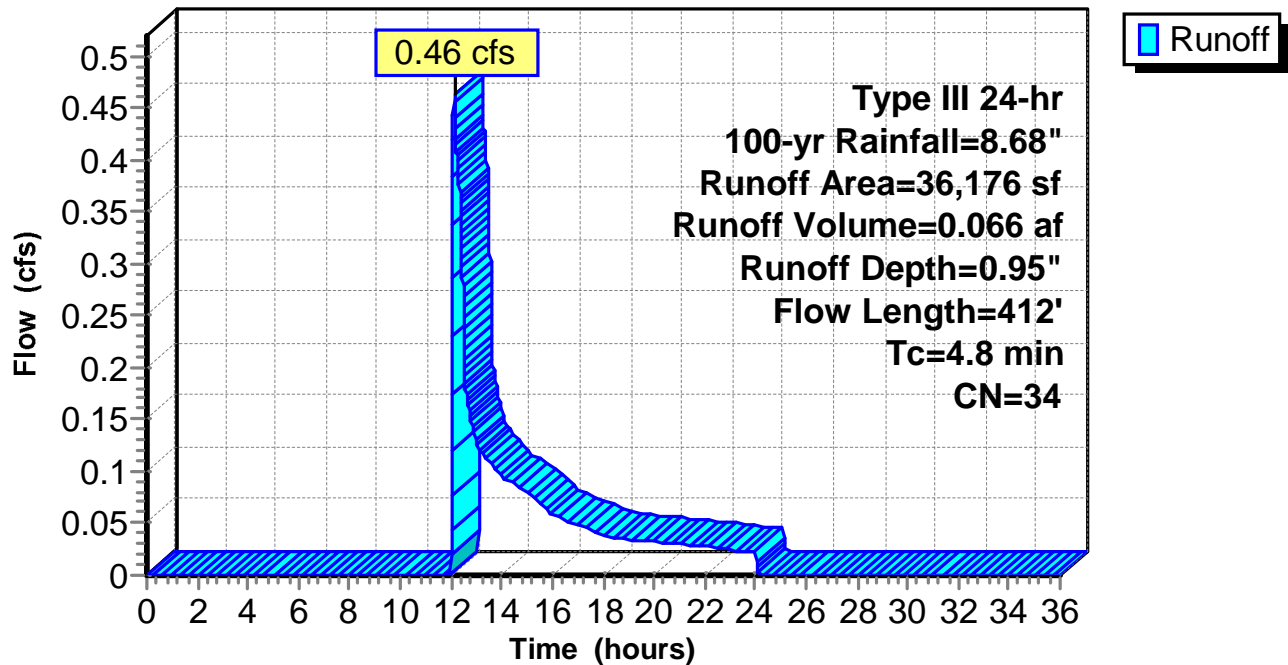
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-14S:

Runoff = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af, Depth= 1.15"

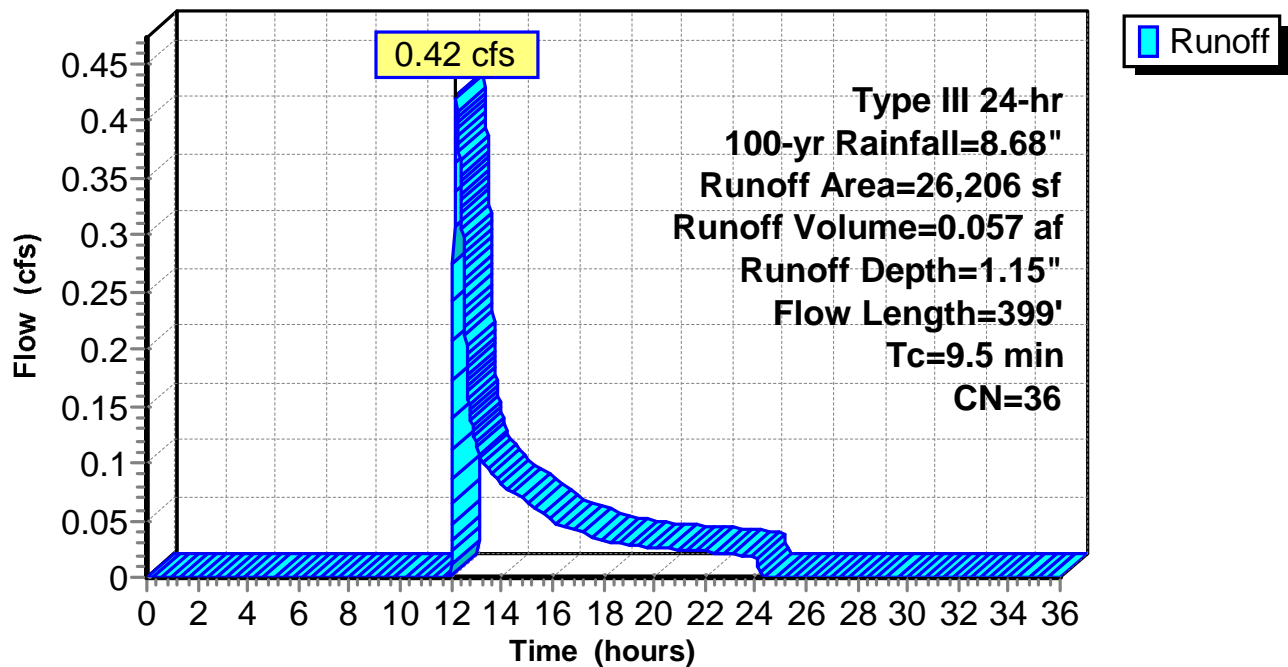
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Subcatchment 16-15S:

Runoff = 0.83 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 1.78"

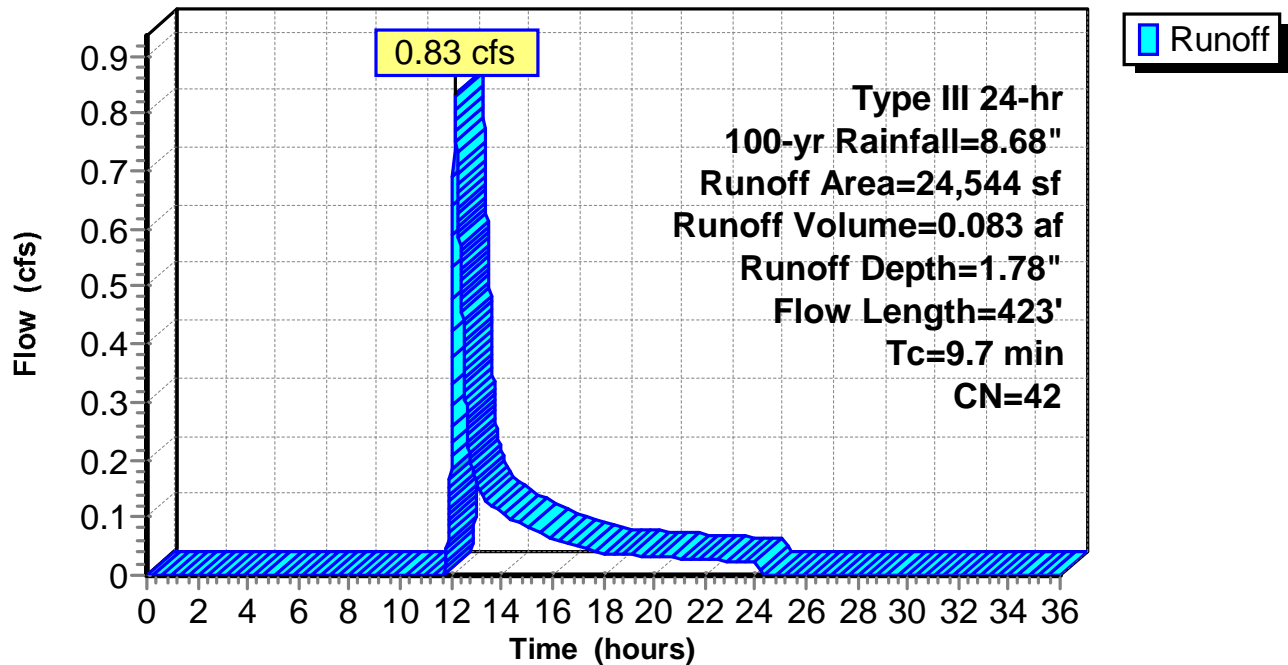
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-16S:

Runoff = 0.10 cfs @ 12.34 hrs, Volume= 0.020 af, Depth= 0.68"

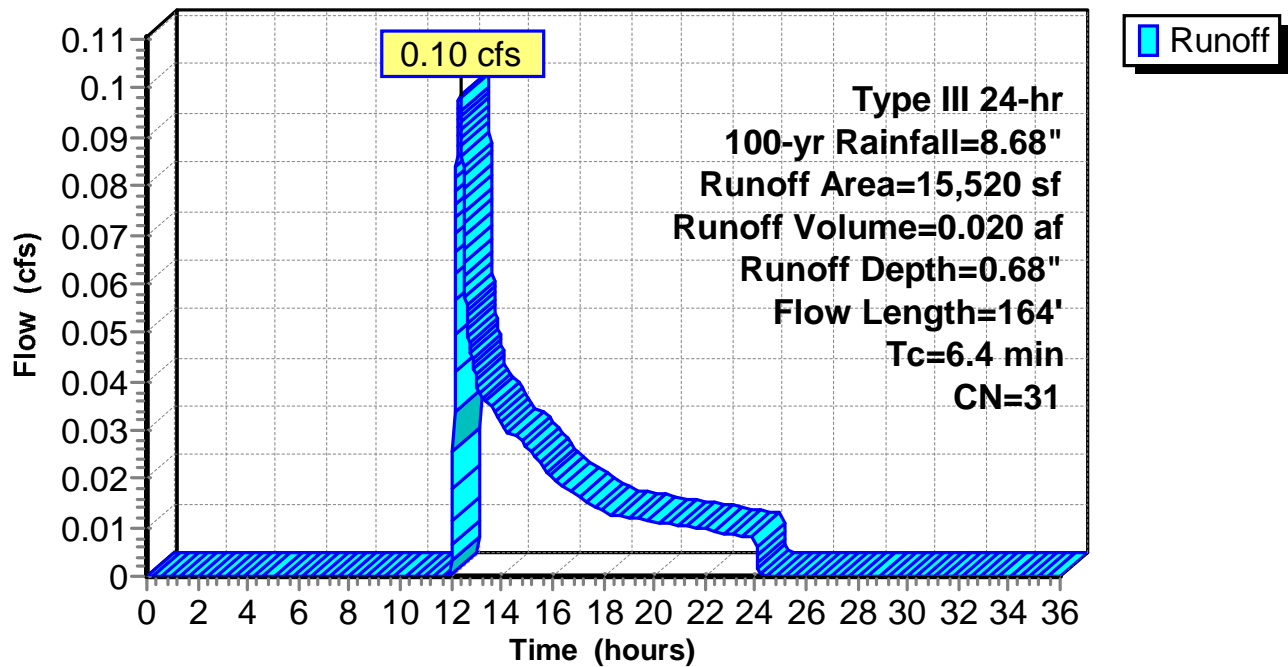
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 304	98	Impervious
15,216	30	Brush, Good, HSG A
15,520	31	Weighted Average
15,216		98.04% Pervious Area
304		1.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	114	0.1140	2.36		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.4	164	Total			

Subcatchment 16-16S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-01S:

Runoff = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af, Depth= 1.35"

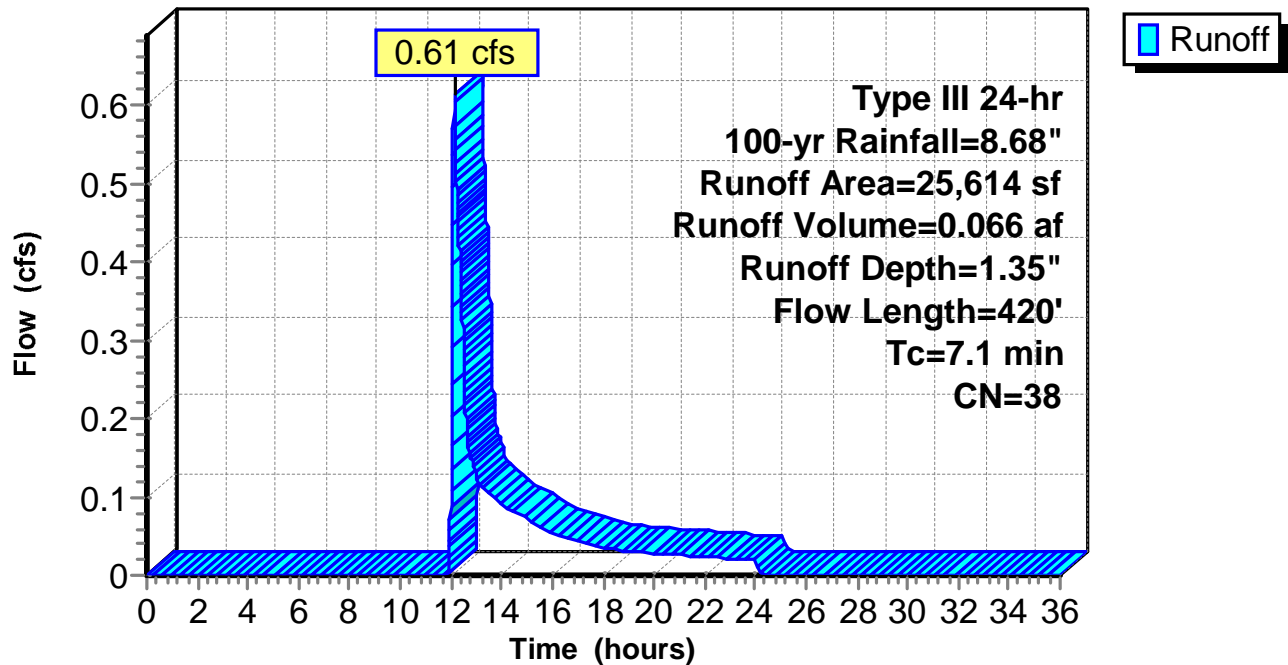
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-02S:

Runoff = 0.14 cfs @ 12.14 hrs, Volume= 0.019 af, Depth= 1.05"

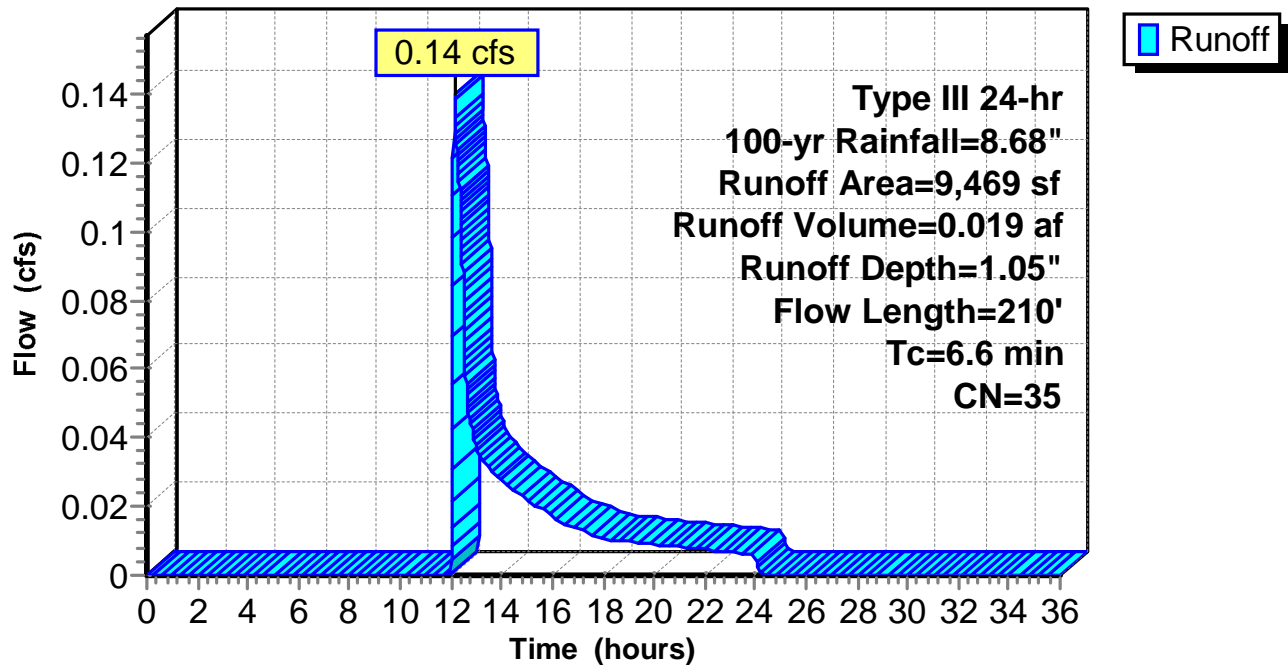
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-03S:

Runoff = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af, Depth= 1.67"

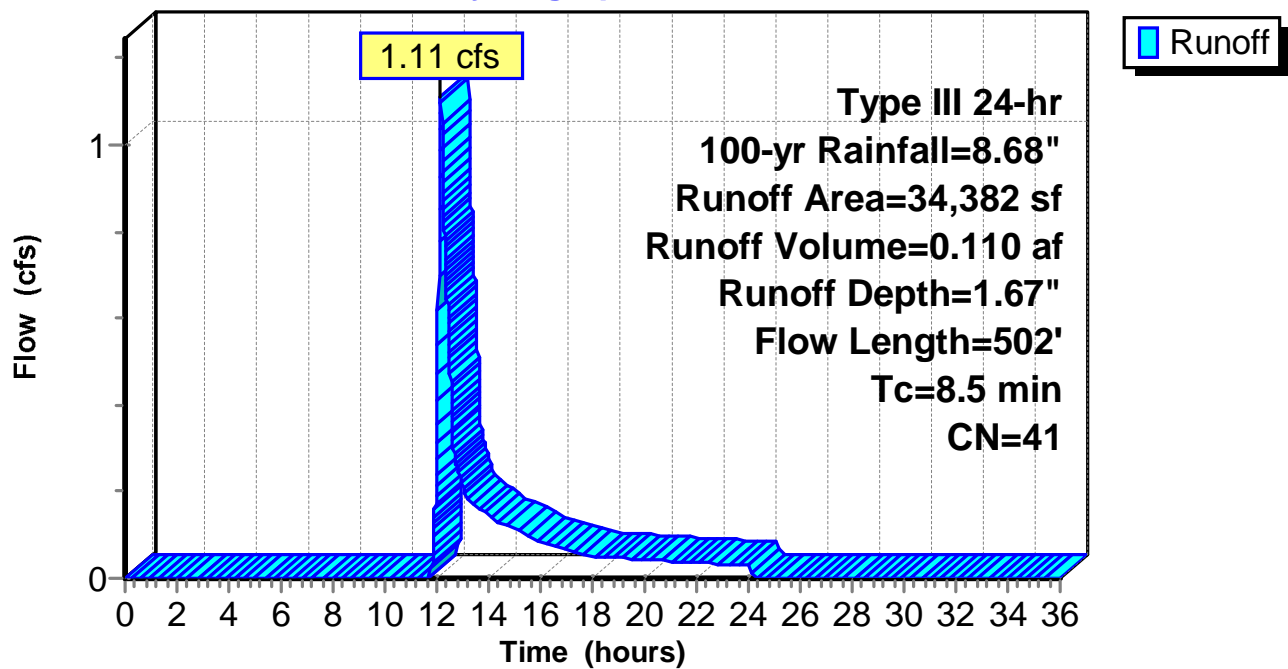
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-04S:

Runoff = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af, Depth= 2.91"

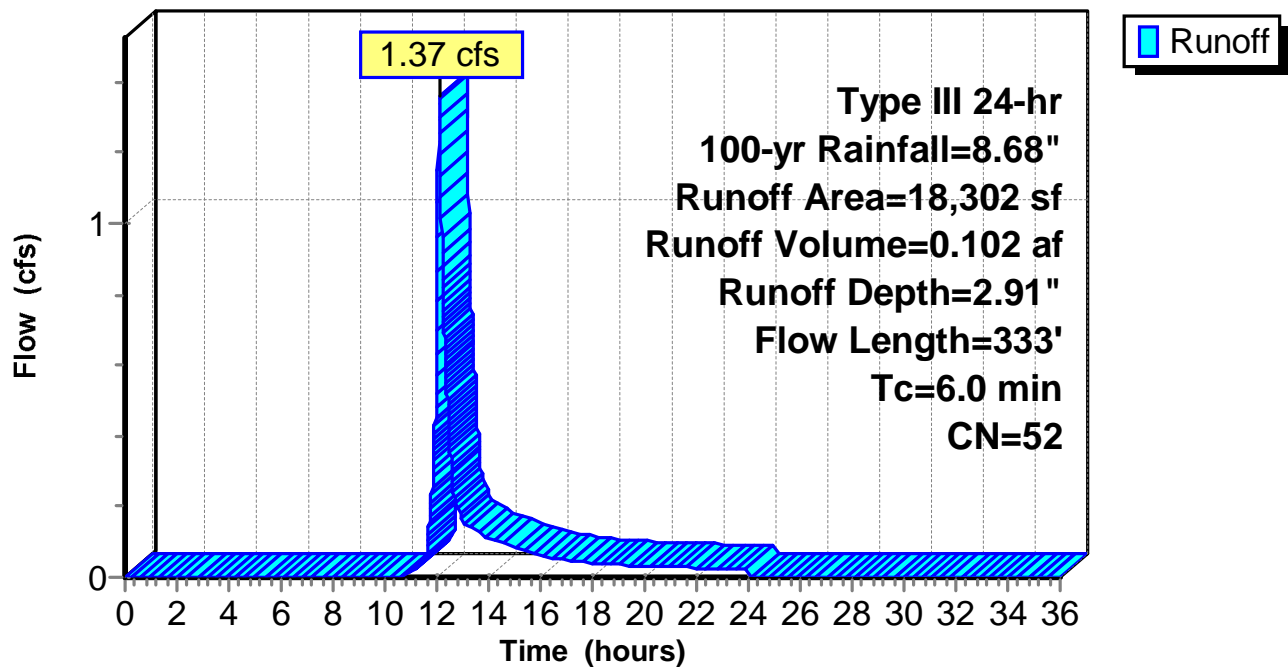
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-05S:

Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.105 af, Depth= 4.09"

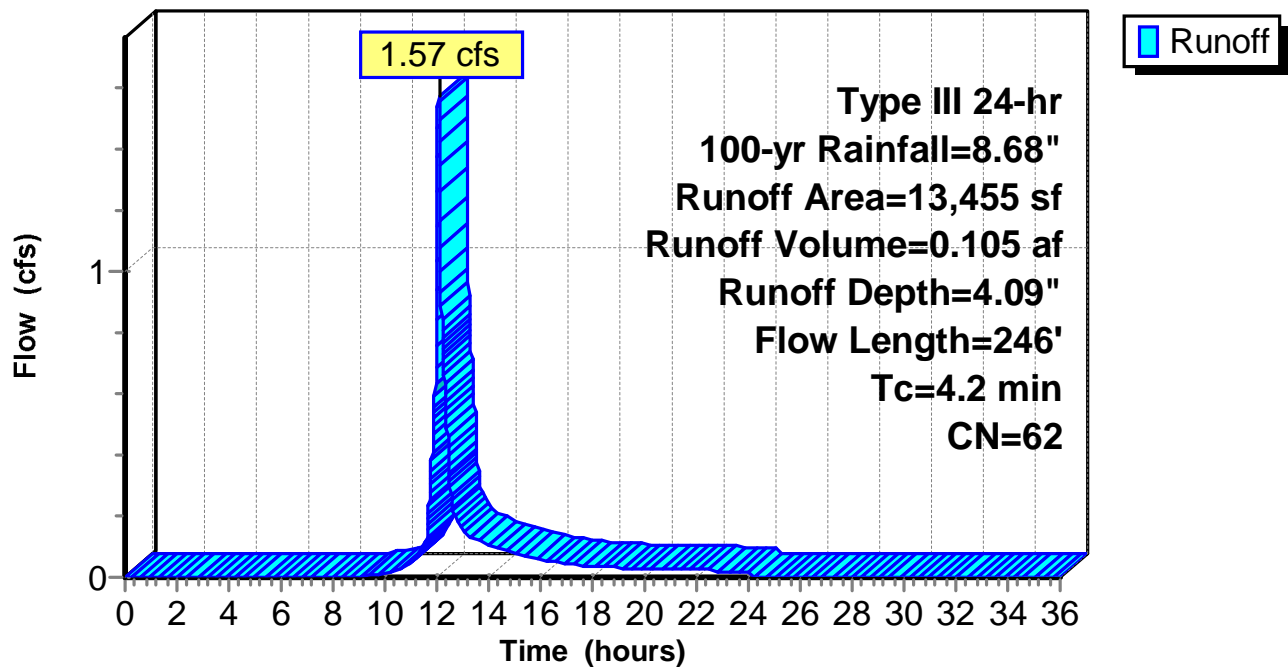
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.1	32	0.0940	6.22		Shallow Concentrated Flow, Paved Kv= 20.3 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	246	Total			

Subcatchment 17-05S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-06S:

Runoff = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af, Depth= 4.57"

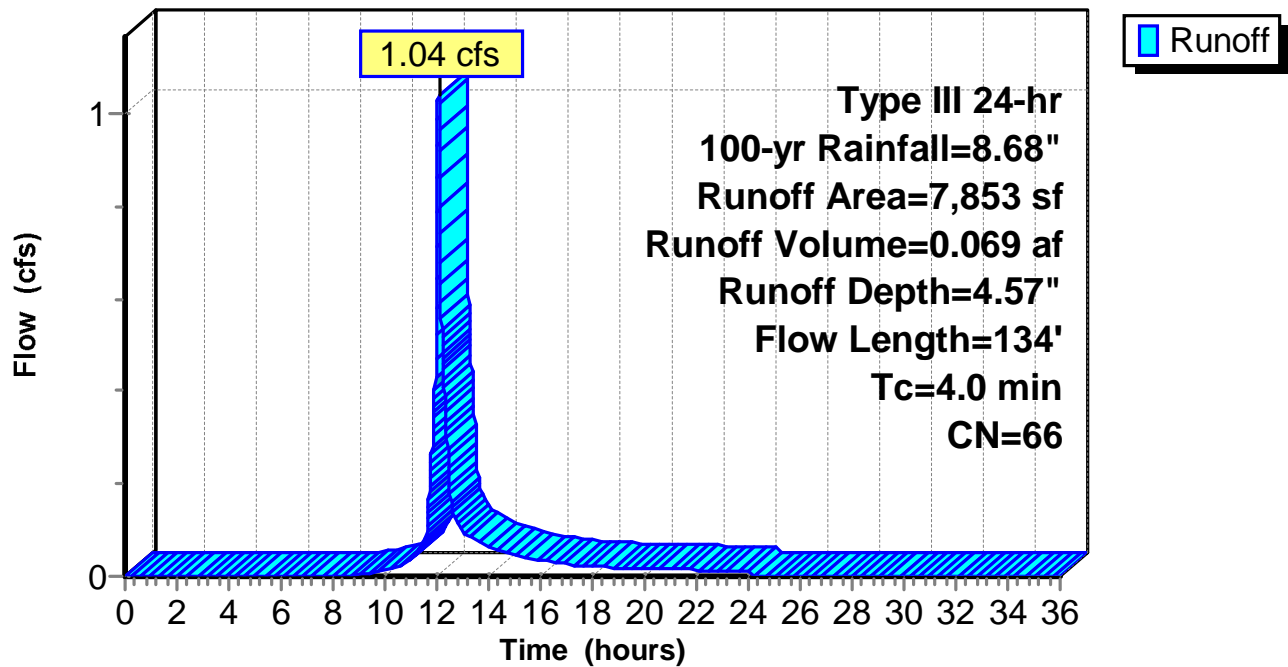
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-07S:

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 5.54"

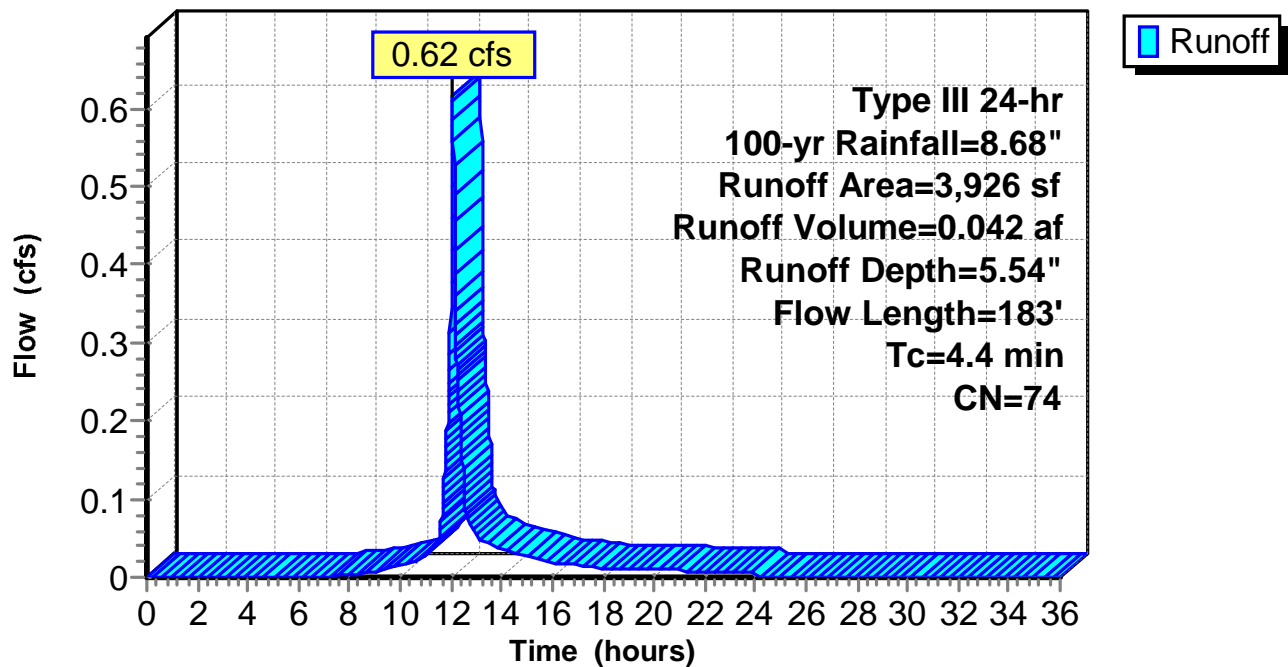
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 1.67" for 100-yr event
 Inflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af
 Outflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.60' @ 12.13 hrs

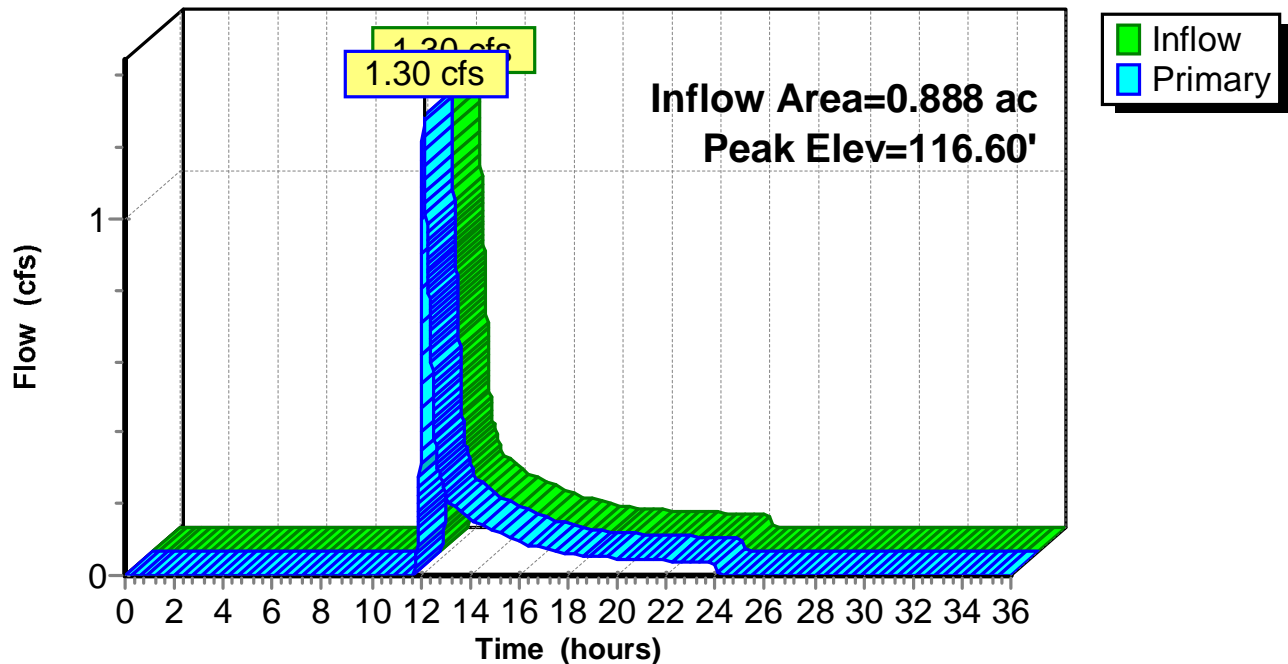
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.89'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 115.89' / 115.83' S= 0.0086 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.13 hrs HW=116.60' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.30 cfs @ 3.03 fps)

Pond CB16-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 4.45" for 100-yr event
Inflow = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af
Outflow = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.98' @ 12.05 hrs

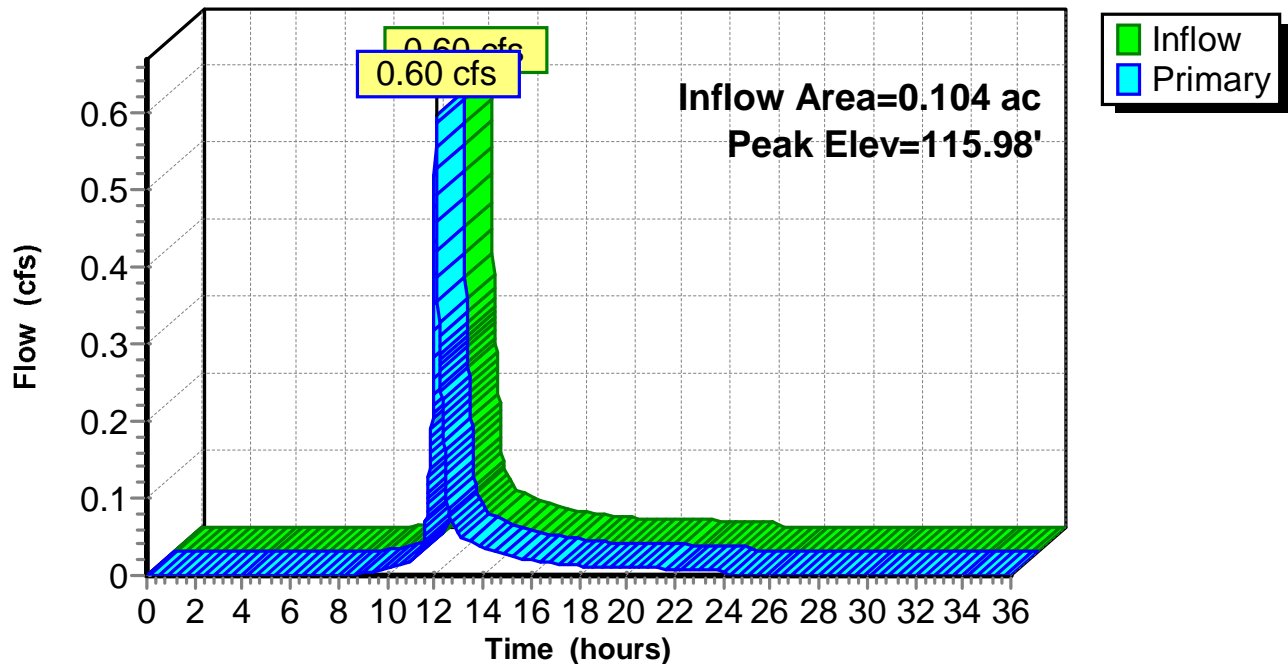
Device	Routing	Invert	Outlet Devices
#1	Primary	118.63'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.05 hrs HW=115.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.59 cfs @ 2.12 fps)

Pond CB16-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.95" for 100-yr event
 Inflow = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af
 Outflow = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.94' @ 12.29 hrs

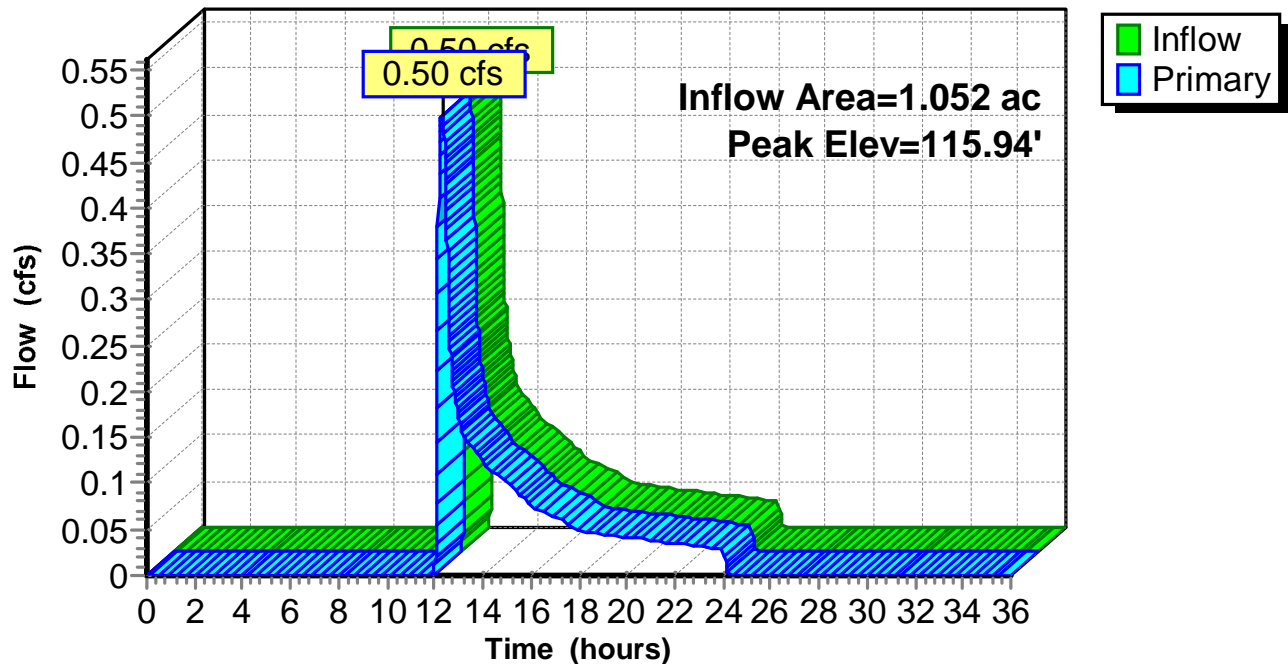
Device	Routing	Invert	Outlet Devices
#1	Primary	118.72'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.59'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 115.59' / 112.88' S= 0.2710 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.29 hrs HW=115.94' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.50 cfs @ 2.02 fps)

Pond CB16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.81" for 100-yr event
 Inflow = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af
 Outflow = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.39' @ 12.30 hrs

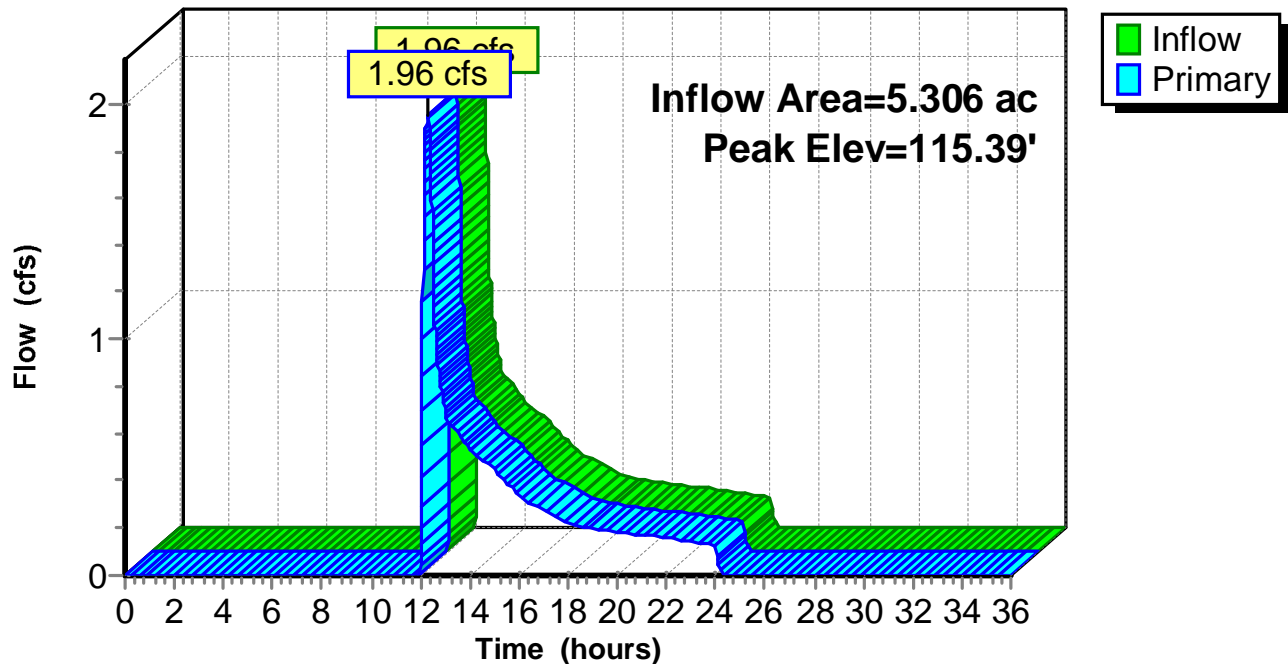
Device	Routing	Invert	Outlet Devices
#1	Primary	122.30'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.75'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 114.75' / 112.88' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=1.95 cfs @ 12.30 hrs HW=115.39' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.95 cfs @ 2.72 fps)

Pond CB16-04:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-05:

Inflow Area = 1.741 ac, 14.09% Impervious, Inflow Depth = 1.53" for 100-yr event
Inflow = 2.04 cfs @ 12.13 hrs, Volume= 0.222 af
Outflow = 2.04 cfs @ 12.13 hrs, Volume= 0.222 af, Atten= 0%, Lag= 0.0 min
Primary = 2.04 cfs @ 12.13 hrs, Volume= 0.222 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.44' @ 12.13 hrs

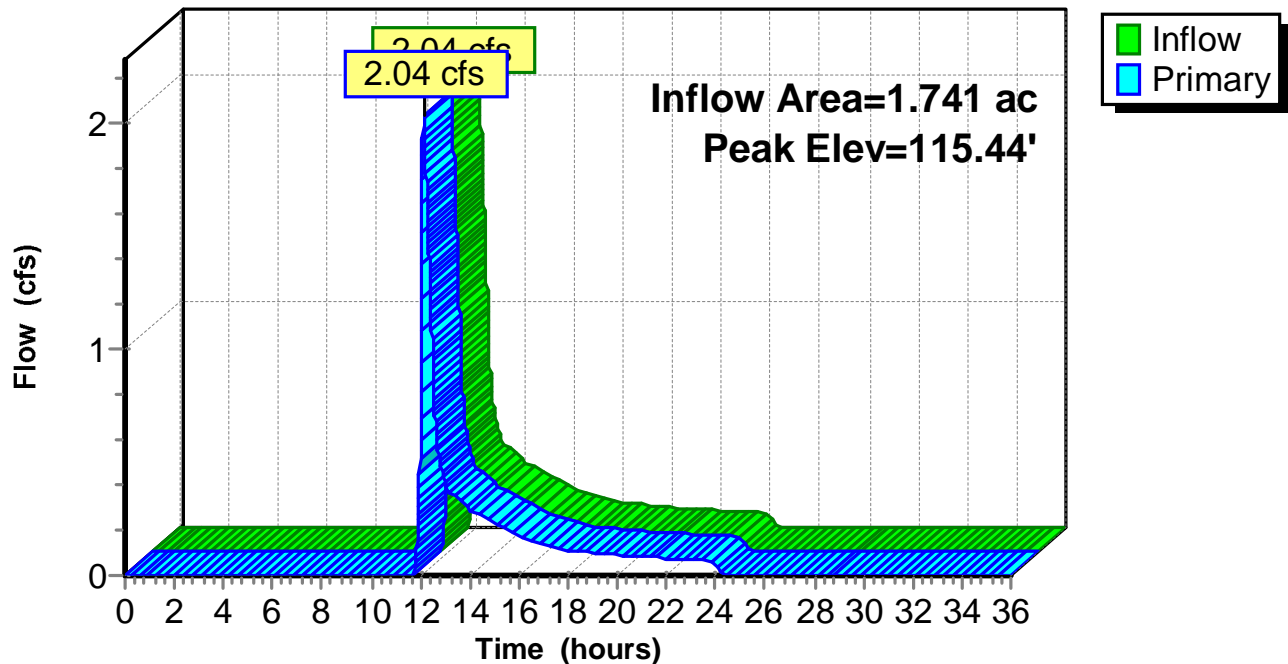
Device	Routing	Invert	Outlet Devices
#1	Primary	118.80'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.74'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 114.74' / 112.88' S= 0.0255 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=2.04 cfs @ 12.13 hrs HW=115.44' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 2.04 cfs @ 2.86 fps)

Pond CB16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.59" for 100-yr event
 Inflow = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af
 Outflow = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.55' @ 12.33 hrs

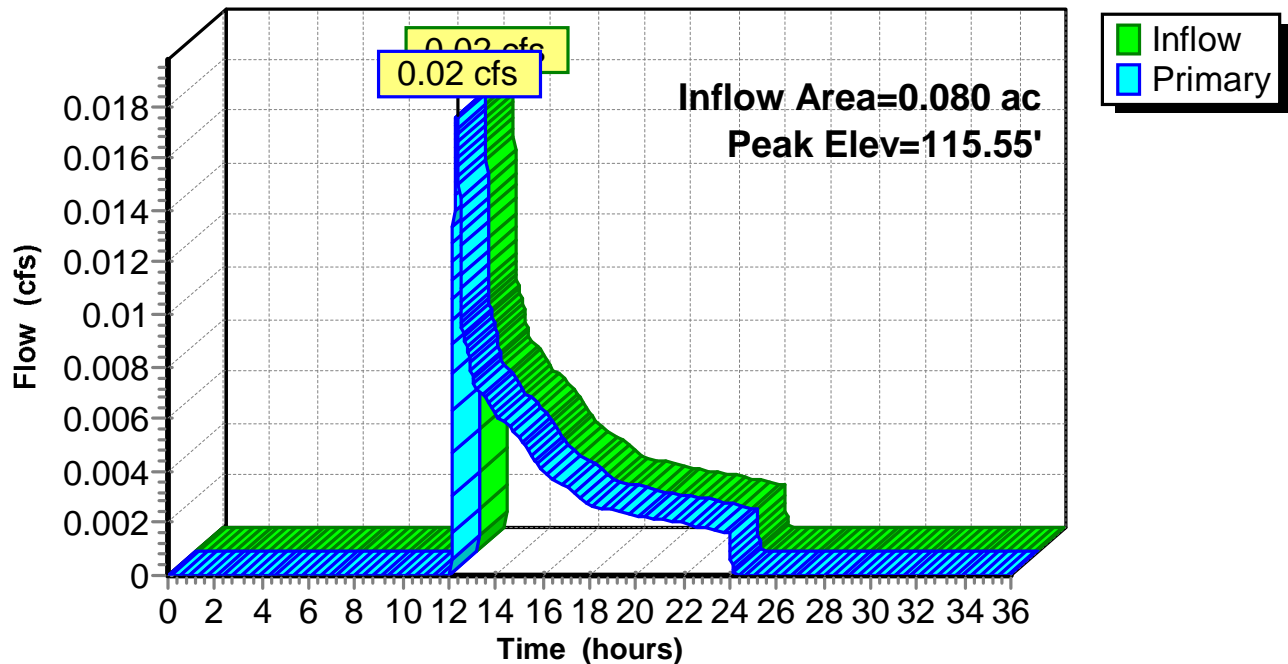
Device	Routing	Invert	Outlet Devices
#1	Primary	119.48'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.49'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 115.49' / 114.80' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.33 hrs HW=115.55' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.83 fps)

Pond CB16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 1.67" for 100-yr event
 Inflow = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af
 Outflow = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 121.00' @ 12.10 hrs

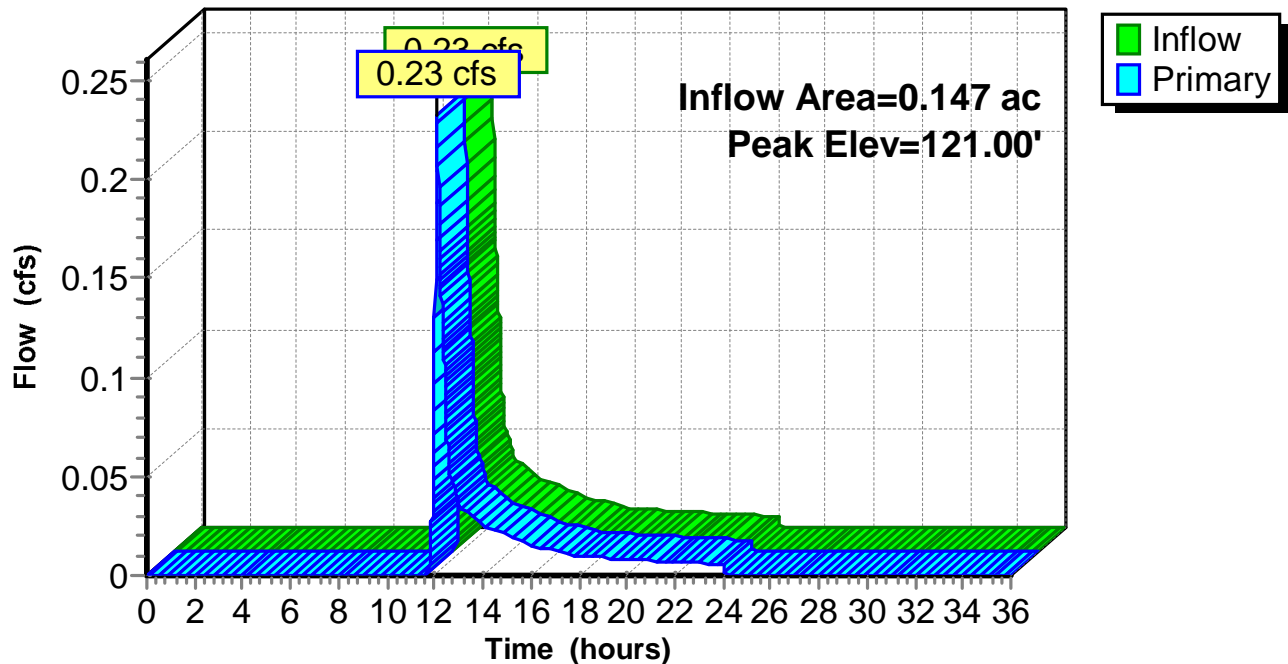
Device	Routing	Invert	Outlet Devices
#1	Primary	125.73'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.73'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 120.73' / 120.35' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.10 hrs HW=121.00' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.23 cfs @ 1.99 fps)

Pond CB16-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 1.79" for 100-yr event
 Inflow = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af
 Outflow = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 120.64' @ 12.09 hrs

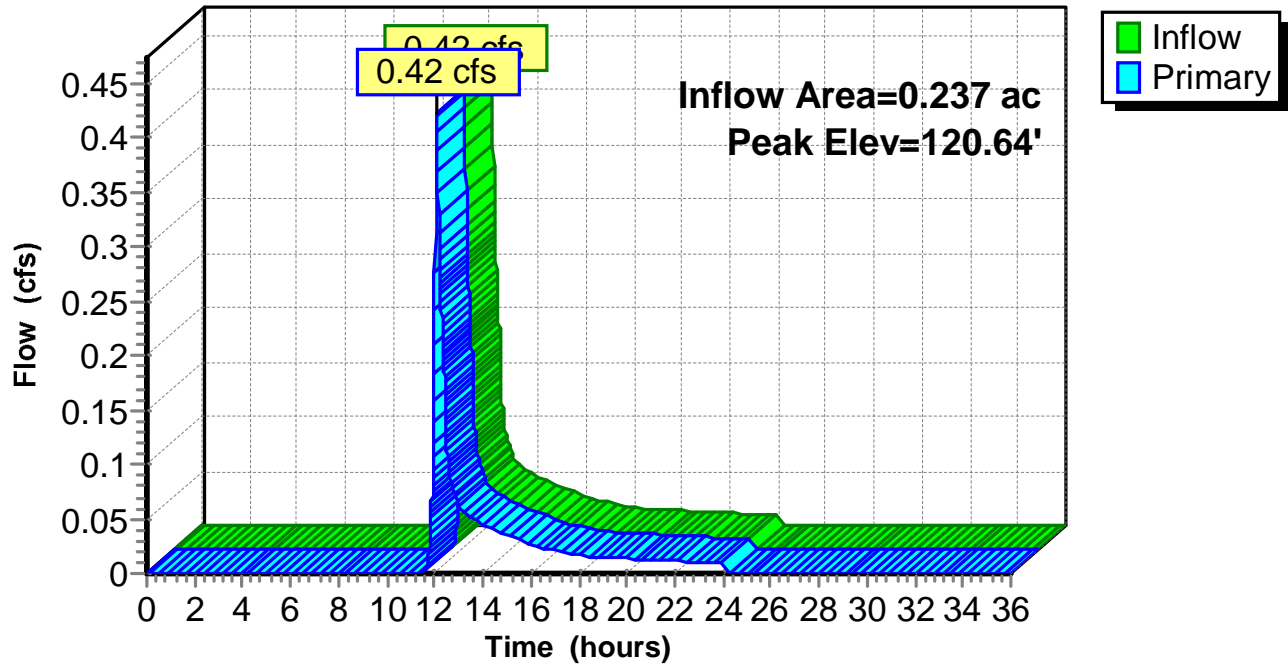
Device	Routing	Invert	Outlet Devices
#1	Primary	128.20'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	120.32'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 120.32' / 114.80' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=120.64' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.42 cfs @ 1.93 fps)

Pond CB16-08:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 1.45" for 100-yr event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 125.15' @ 12.09 hrs

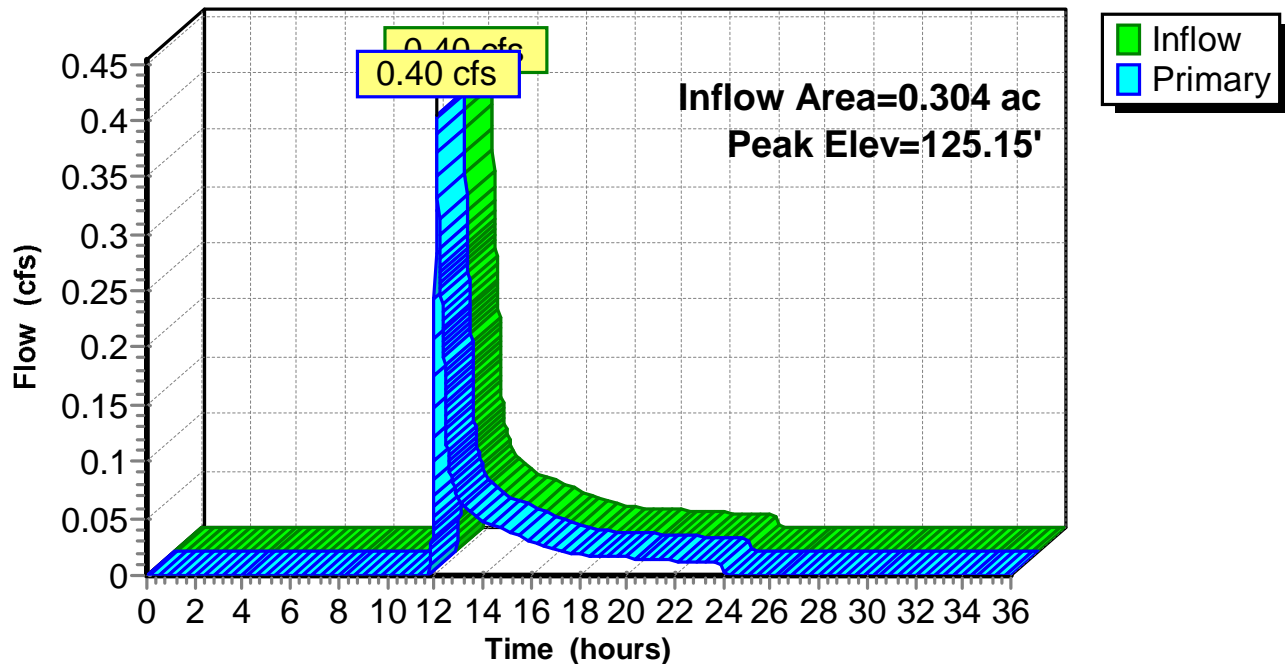
Device	Routing	Invert	Outlet Devices
#1	Primary	129.92'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	124.84'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 124.84' / 116.48' S= 0.1032 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=125.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.91 fps)

Pond CB16-09:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.59" for 100-yr event
Inflow = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af
Outflow = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 129.92' @ 12.35 hrs

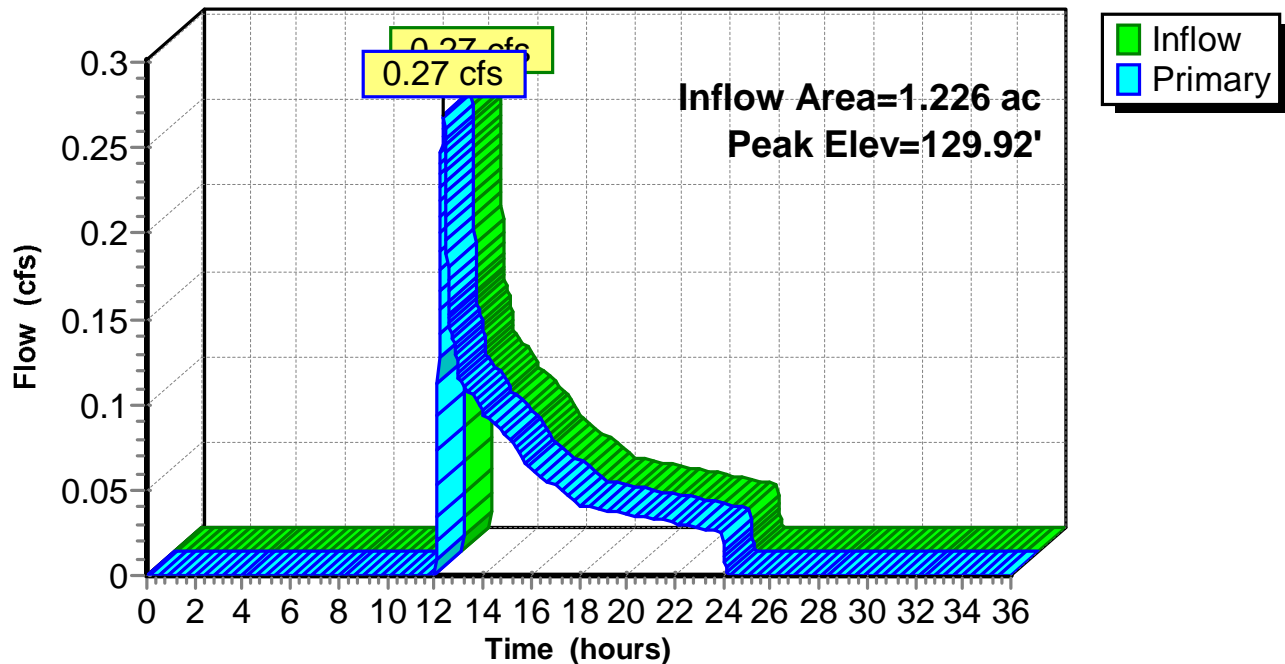
Device	Routing	Invert	Outlet Devices
#1	Primary	133.33'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.60'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 129.60' / 129.56' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.35 hrs HW=129.92' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.27 cfs @ 1.82 fps)

Pond CB16-10:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.66" for 100-yr event
Inflow = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af
Outflow = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 129.66' @ 12.33 hrs

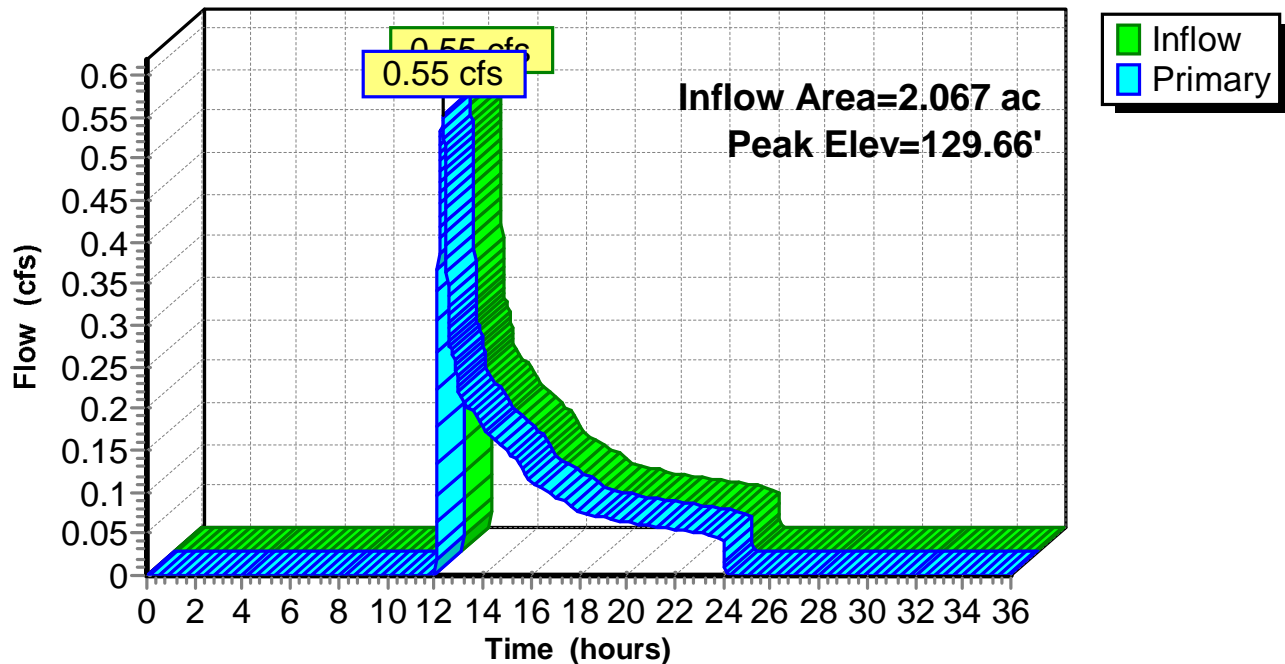
Device	Routing	Invert	Outlet Devices
#1	Primary	133.64'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	129.29'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 129.29' / 128.00' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.33 hrs HW=129.66' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.55 cfs @ 2.08 fps)

Pond CB16-11:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.86" for 100-yr event
 Inflow = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af
 Outflow = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 131.05' @ 12.33 hrs

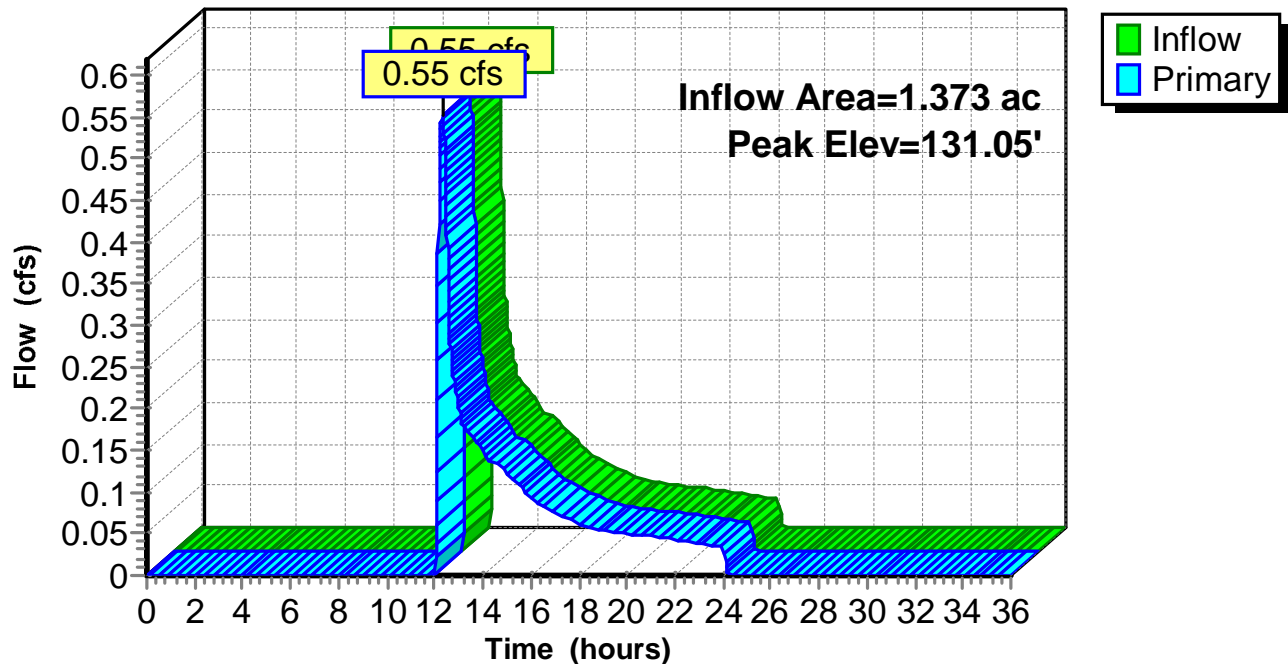
Device	Routing	Invert	Outlet Devices
#1	Primary	136.24'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	130.68'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 130.68' / 130.09' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.33 hrs HW=131.05' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.55 cfs @ 2.08 fps)

Pond CB16-12:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.95" for 100-yr event
Inflow = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af
Outflow = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 135.23' @ 12.12 hrs

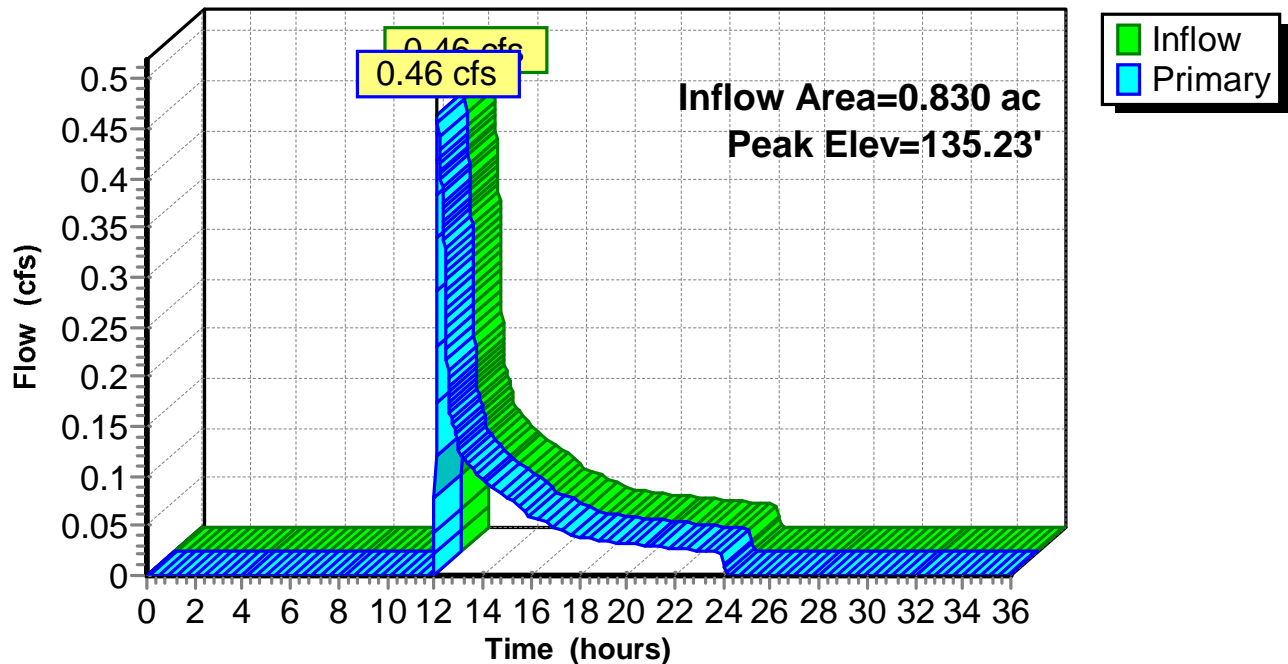
Device	Routing	Invert	Outlet Devices
#1	Primary	139.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	134.89'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 134.89' / 134.25' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.12 hrs HW=135.23' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.46 cfs @ 1.98 fps)

Pond CB16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 1.15" for 100-yr event
Inflow = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af
Outflow = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 144.68' @ 12.19 hrs

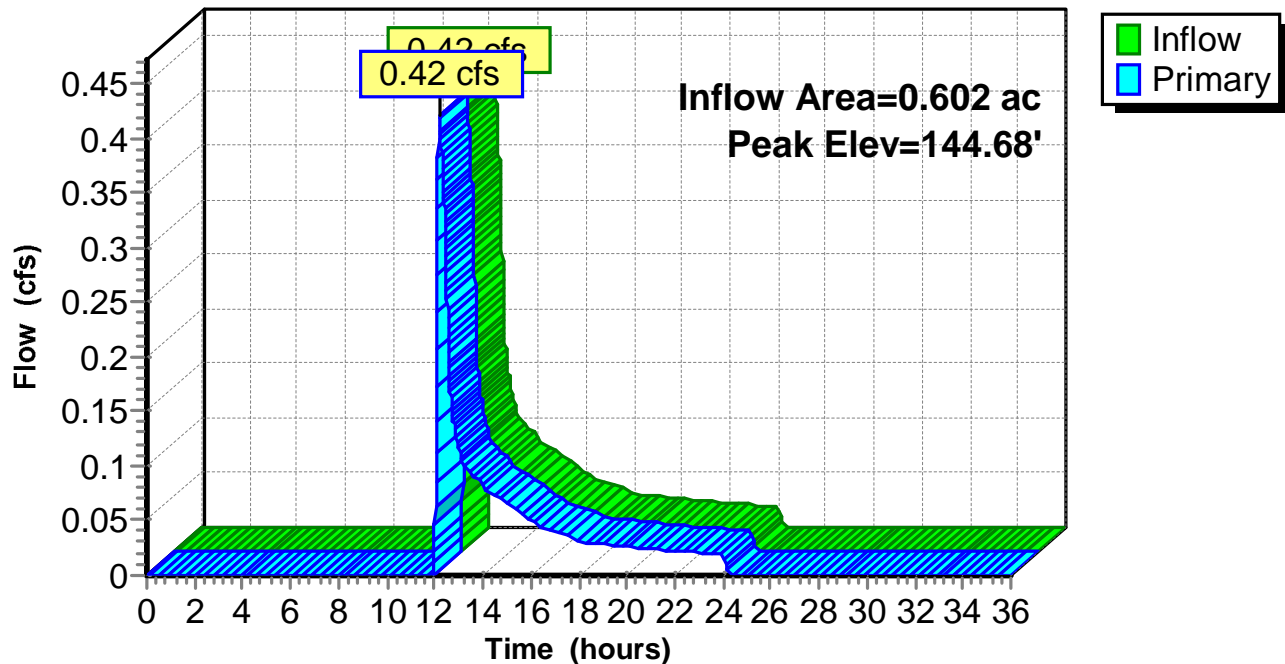
Device	Routing	Invert	Outlet Devices
#1	Primary	149.54'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	144.36'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 144.36' / 136.84' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.19 hrs HW=144.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.42 cfs @ 1.93 fps)

Pond CB16-14:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB16-15:

Inflow Area = 0.563 ac, 17.31% Impervious, Inflow Depth = 1.78" for 100-yr event
Inflow = 0.83 cfs @ 12.16 hrs, Volume= 0.083 af
Outflow = 0.83 cfs @ 12.16 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.16 hrs, Volume= 0.083 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 116.64' @ 12.16 hrs

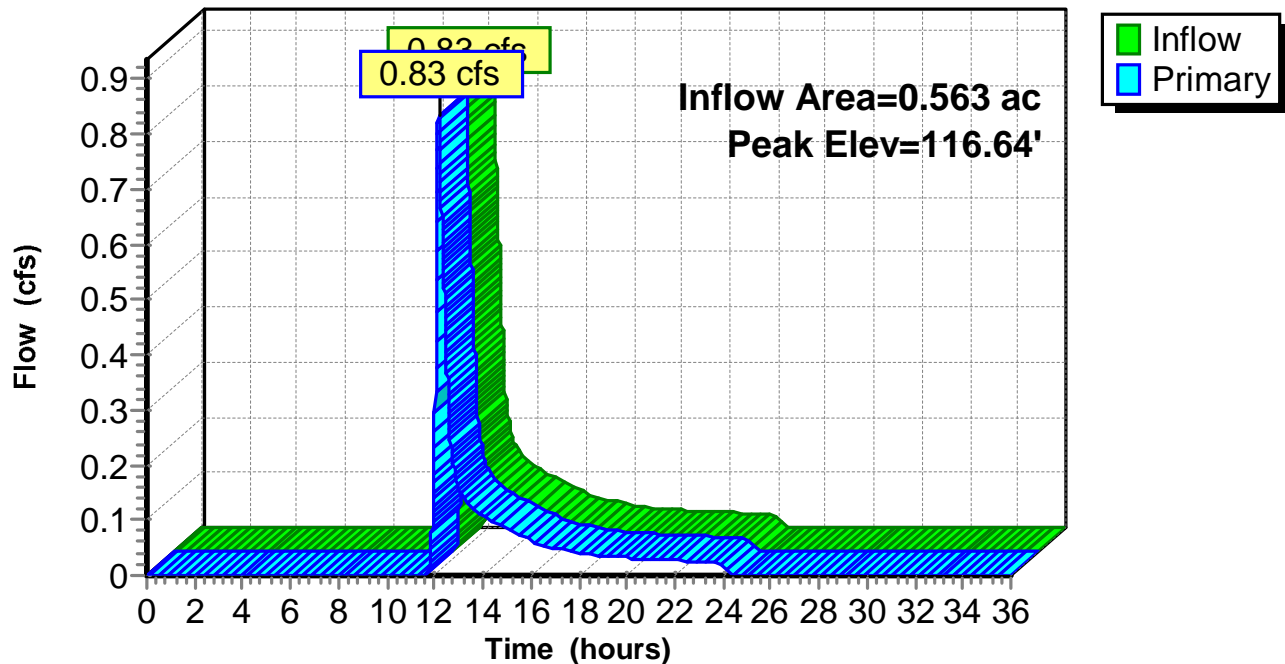
Device	Routing	Invert	Outlet Devices
#1	Primary	119.19'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	116.17'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 116.17' / 114.74' S= 0.0154 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.83 cfs @ 12.16 hrs HW=116.64' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.83 cfs @ 2.32 fps)

Pond CB16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 1.35" for 100-yr event
 Inflow = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af
 Outflow = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.28' @ 12.13 hrs

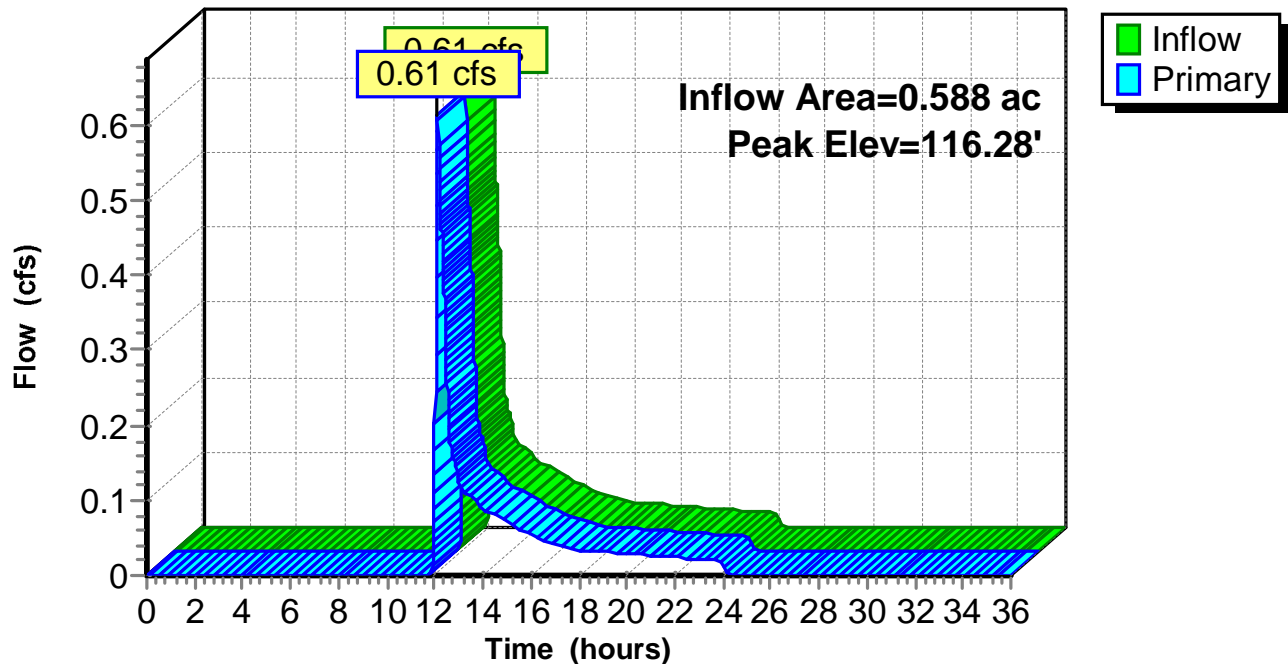
Device	Routing	Invert	Outlet Devices
#1	Primary	119.05'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.80'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 115.80' / 115.62' S= 0.0036 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.13 hrs HW=116.28' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.61 cfs @ 2.41 fps)

Pond CB17-01:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 1.27" for 100-yr event
 Inflow = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af
 Outflow = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.16' @ 12.13 hrs

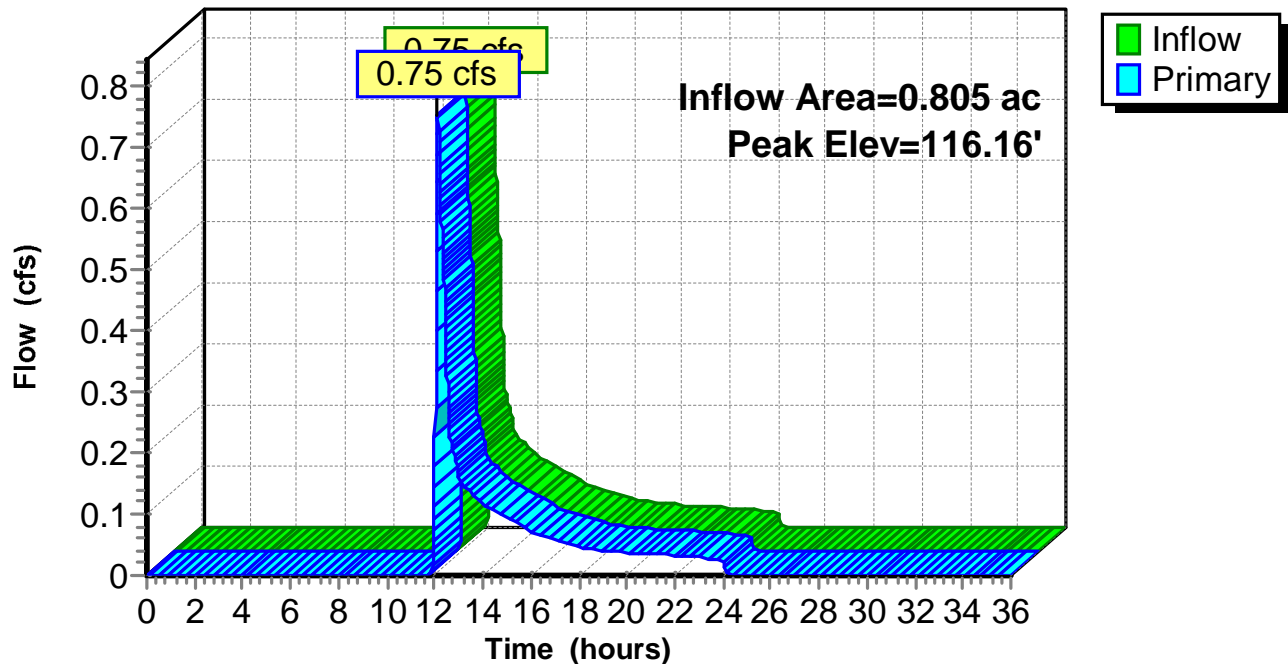
Device	Routing	Invert	Outlet Devices
#1	Primary	119.04'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.62'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 115.62' / 115.40' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.13 hrs HW=116.16' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.75 cfs @ 2.54 fps)

Pond CB17-02:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 1.67" for 100-yr event
Inflow = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af
Outflow = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
Primary = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 116.10' @ 12.14 hrs

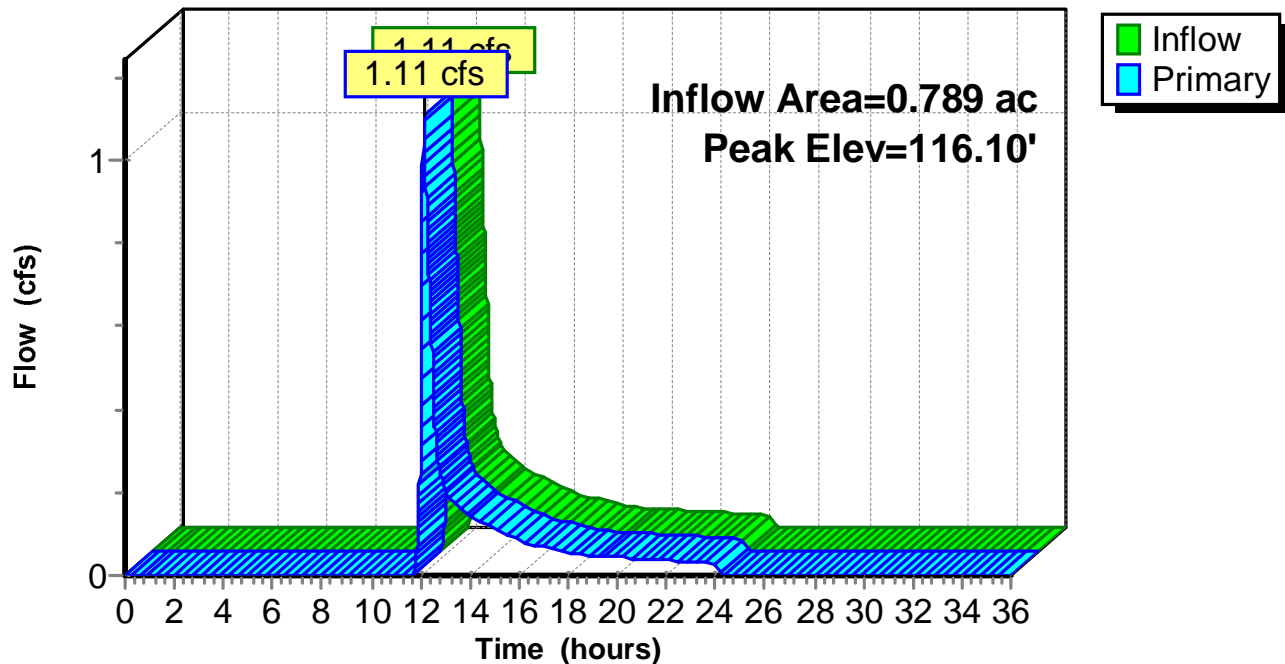
Device	Routing	Invert	Outlet Devices
#1	Primary	118.38'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	115.44'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 115.44' / 115.40' S= 0.0133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 12.14 hrs HW=116.10' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.11 cfs @ 2.88 fps)

Pond CB17-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 2.91" for 100-yr event
Inflow = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af
Outflow = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.51' @ 12.10 hrs

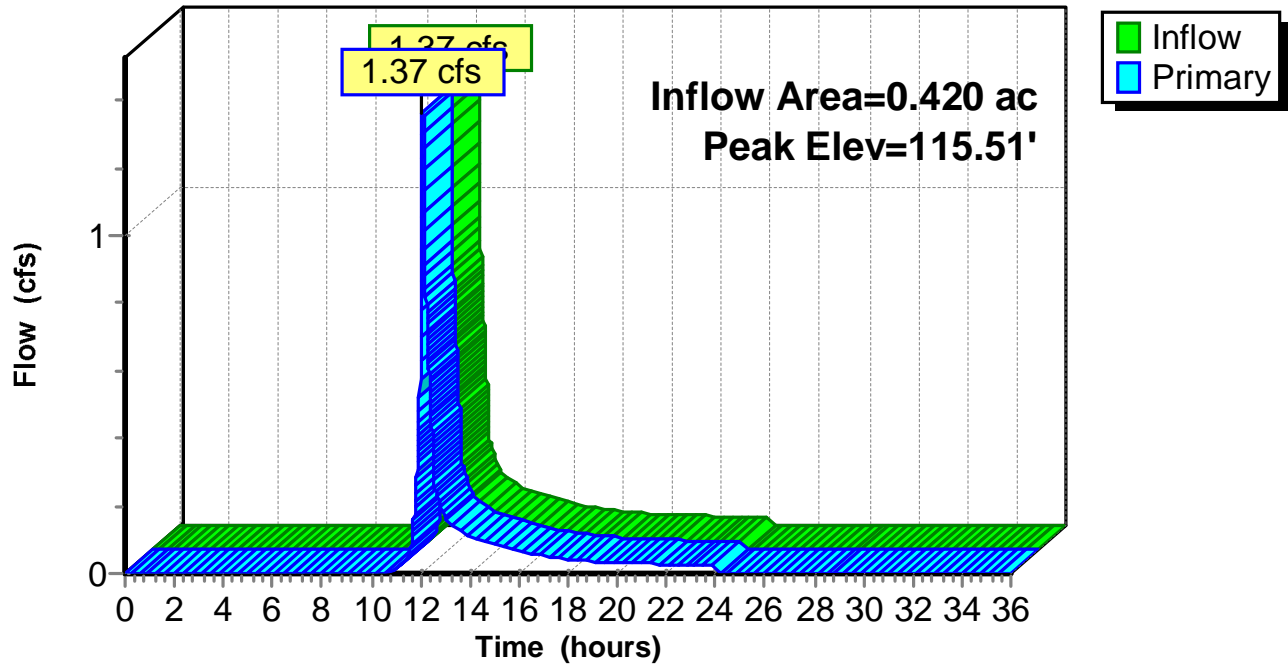
Device	Routing	Invert	Outlet Devices
#1	Primary	117.90'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.10 hrs HW=115.51' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.36 cfs @ 3.43 fps)

Pond CB17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-05:

Inflow Area = 0.665 ac, 22.89% Impervious, Inflow Depth = 2.26" for 100-yr event
 Inflow = 1.58 cfs @ 12.07 hrs, Volume= 0.125 af
 Outflow = 1.58 cfs @ 12.07 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.58 cfs @ 12.07 hrs, Volume= 0.125 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 115.62' @ 12.07 hrs

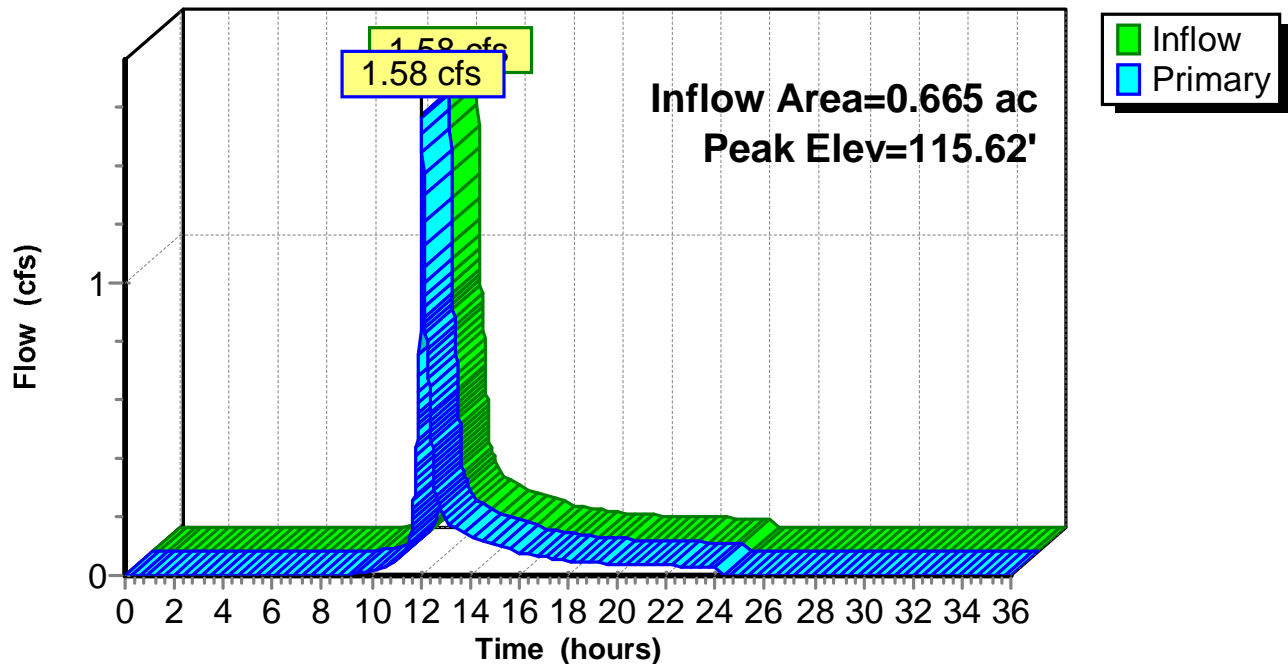
Device	Routing	Invert	Outlet Devices
#1	Primary	117.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	114.84'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 114.84' / 114.71' S= 0.0068 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.07 hrs HW=115.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.58 cfs @ 3.28 fps)

Pond CB17-05:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 4.57" for 100-yr event
 Inflow = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af
 Outflow = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.98' @ 12.06 hrs

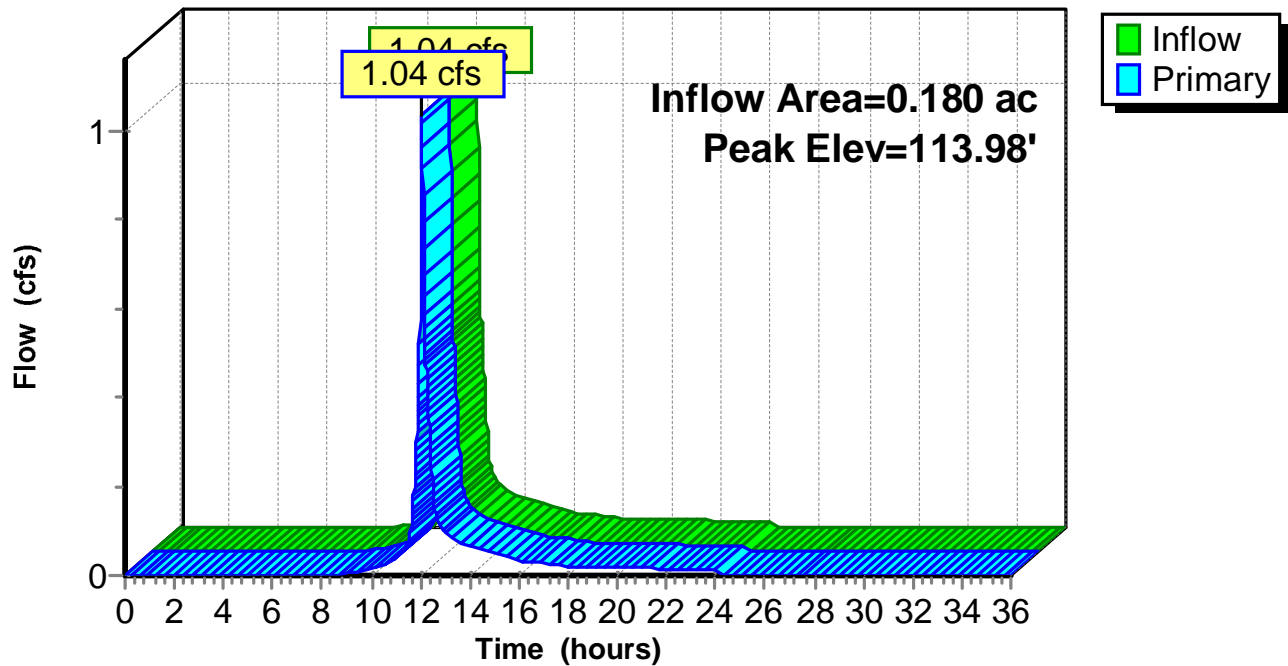
Device	Routing	Invert	Outlet Devices
#1	Primary	116.94'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	113.45'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 113.45' / 113.02' S= 0.0113 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.04 cfs @ 12.06 hrs HW=113.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.04 cfs @ 2.47 fps)

Pond CB17-06:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB17-07:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 2.16" for 100-yr event
Inflow = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af
Outflow = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af, Atten= 0%, Lag= 0.0 min
Primary = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.90' @ 12.09 hrs

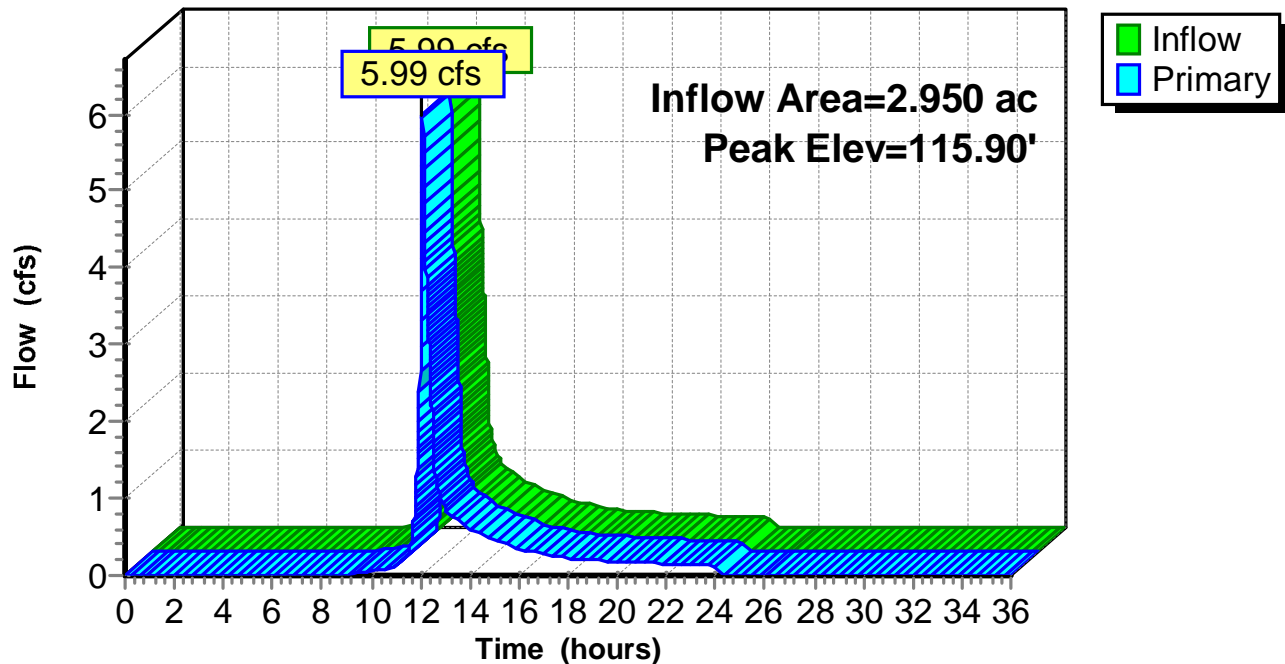
Device	Routing	Invert	Outlet Devices
#1	Primary	116.45'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	112.89'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 112.89' / 112.86' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.99 cfs @ 12.09 hrs HW=115.90' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.99 cfs @ 7.63 fps)

Pond CB17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond OWSMH 16:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 1.09" for 100-yr event
 Inflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af
 Outflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.40' @ 12.16 hrs

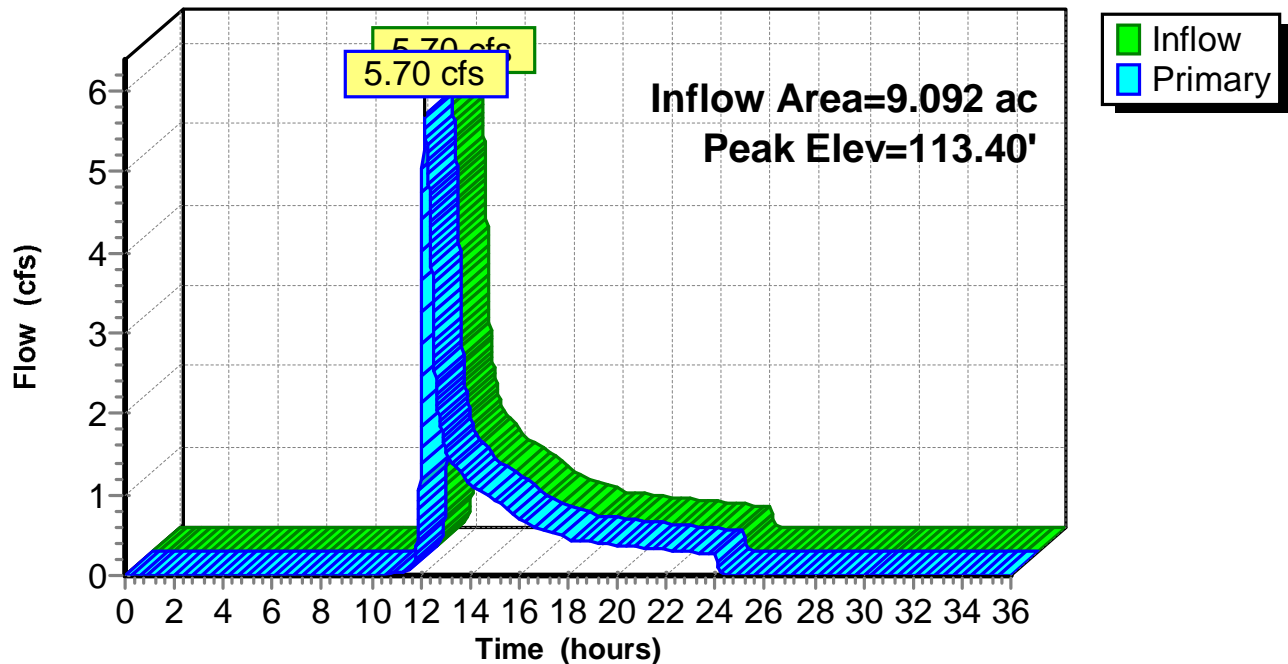
Device	Routing	Invert	Outlet Devices
#1	Primary	121.47'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.12'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 112.12' / 112.00' S= 0.0030 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.70 cfs @ 12.16 hrs HW=113.40' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 5.70 cfs @ 3.82 fps)

Pond OWSMH 16:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond OWSMH 17:

Inflow Area = 2.950 ac, 22.35% Impervious, Inflow Depth = 2.16" for 100-yr event
Inflow = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af
Outflow = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af, Atten= 0%, Lag= 0.0 min
Primary = 5.99 cfs @ 12.09 hrs, Volume= 0.532 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.87' @ 12.09 hrs

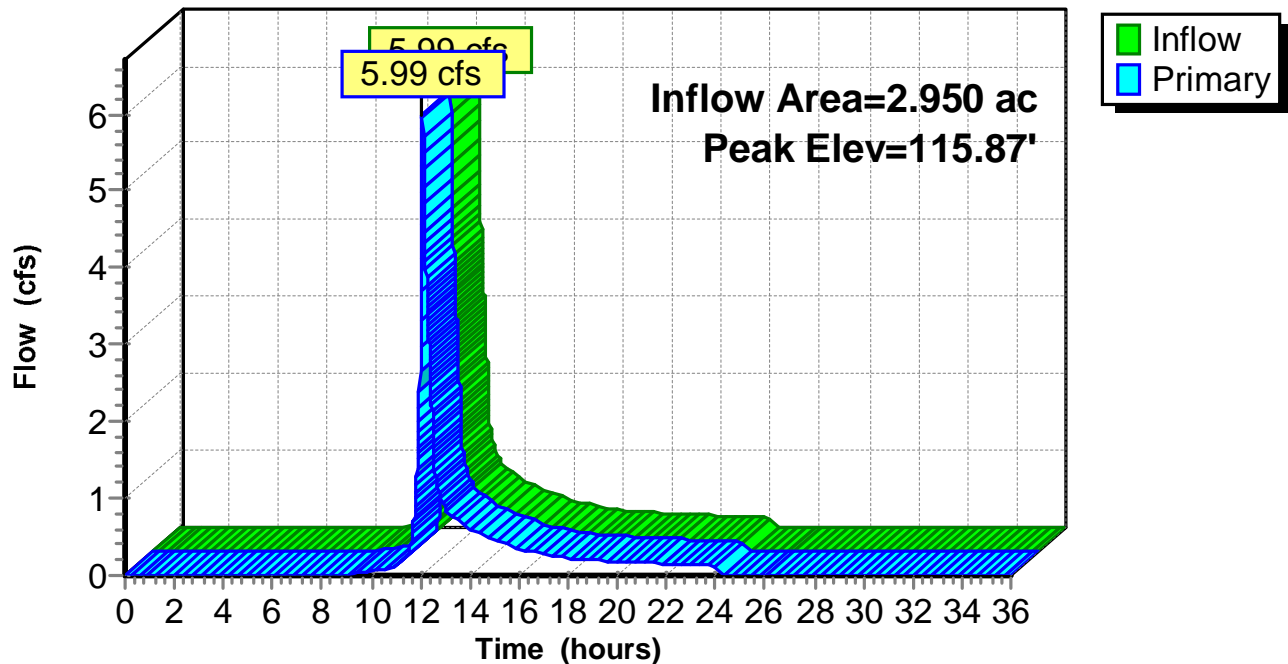
Device	Routing	Invert	Outlet Devices
#1	Primary	117.74'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	112.86'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 112.86' / 111.00' S= 0.0489 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.99 cfs @ 12.09 hrs HW=115.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.99 cfs @ 7.63 fps)

Pond OWSMH 17:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 1.09" for 100-yr event
 Inflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af
 Outflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af, Atten= 0%, Lag= 0.0 min
 Primary = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 113.69' @ 12.16 hrs

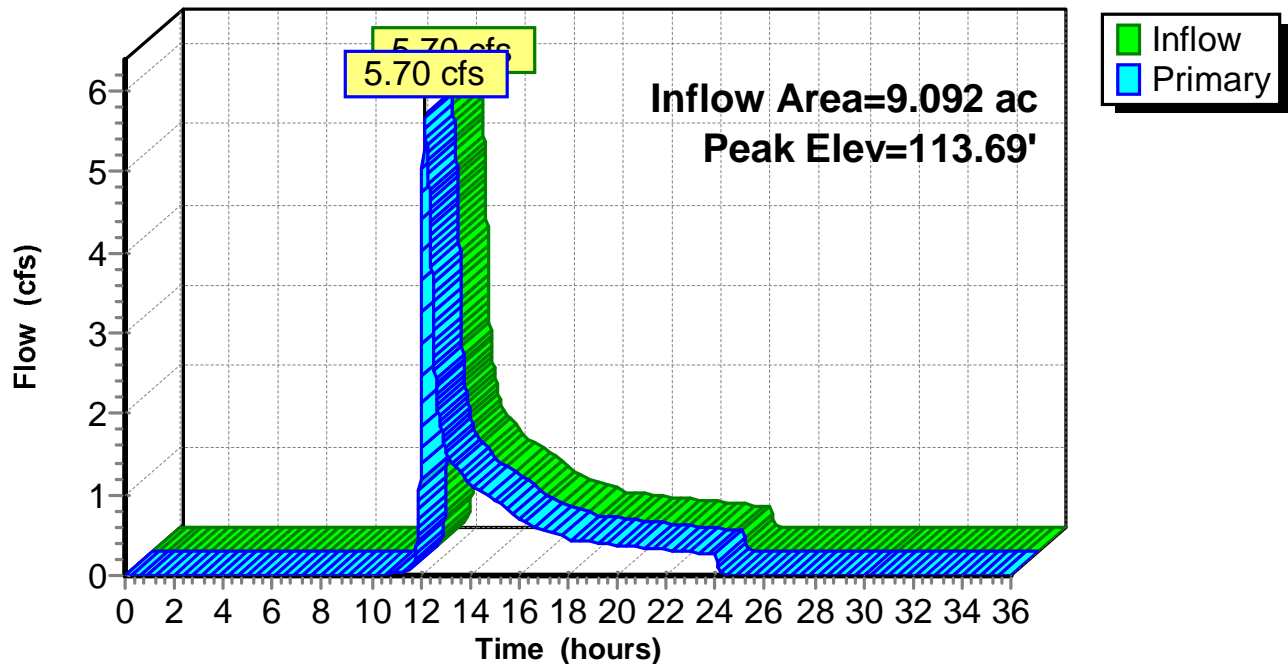
Device	Routing	Invert	Outlet Devices
#1	Primary	121.43'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.37'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 112.37' / 112.37' S= 0.0000 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.70 cfs @ 12.16 hrs HW=113.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 5.70 cfs @ 3.69 fps)

Pond SDMH16-02.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-02.2:

Inflow Area = 9.092 ac, 7.65% Impervious, Inflow Depth = 1.09" for 100-yr event
Inflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af
Outflow = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af, Atten= 0%, Lag= 0.0 min
Primary = 5.70 cfs @ 12.16 hrs, Volume= 0.824 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 113.95' @ 12.16 hrs

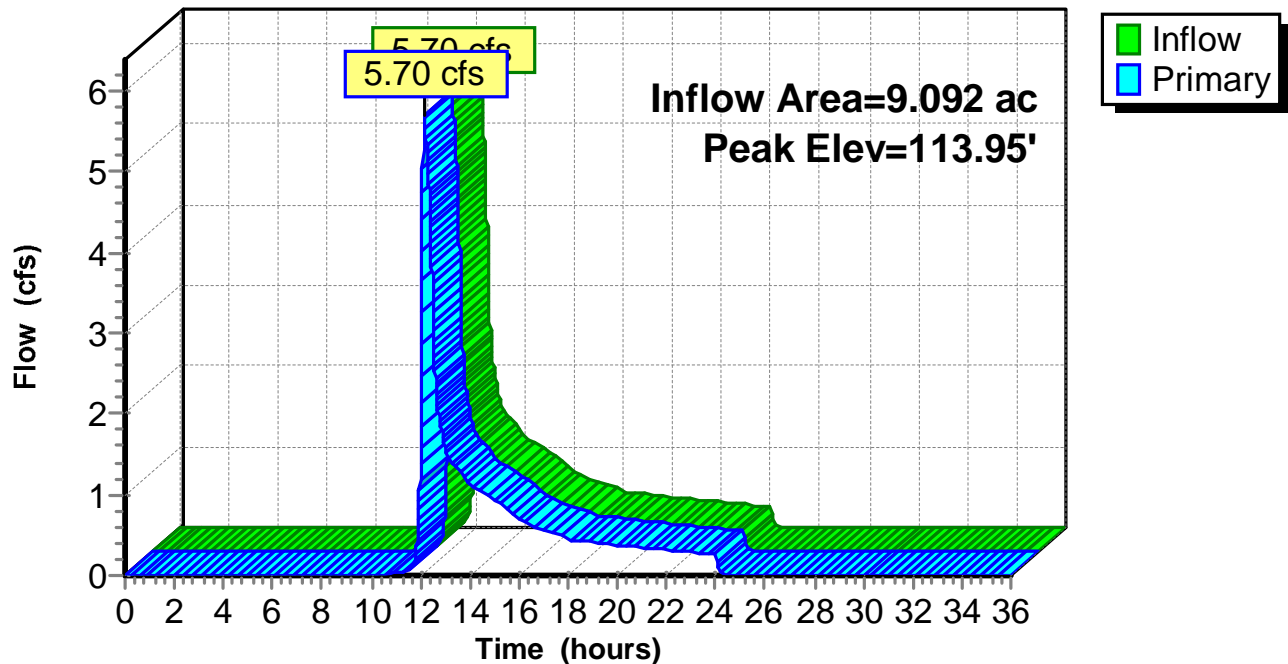
Device	Routing	Invert	Outlet Devices
#1	Primary	118.97'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	112.88'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 112.88' / 112.51' S= 0.0206 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=5.70 cfs @ 12.16 hrs HW=113.95' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 5.70 cfs @ 4.86 fps)

Pond SDMH16-02.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 1.67" for 100-yr event
 Inflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af
 Outflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.43' @ 12.13 hrs

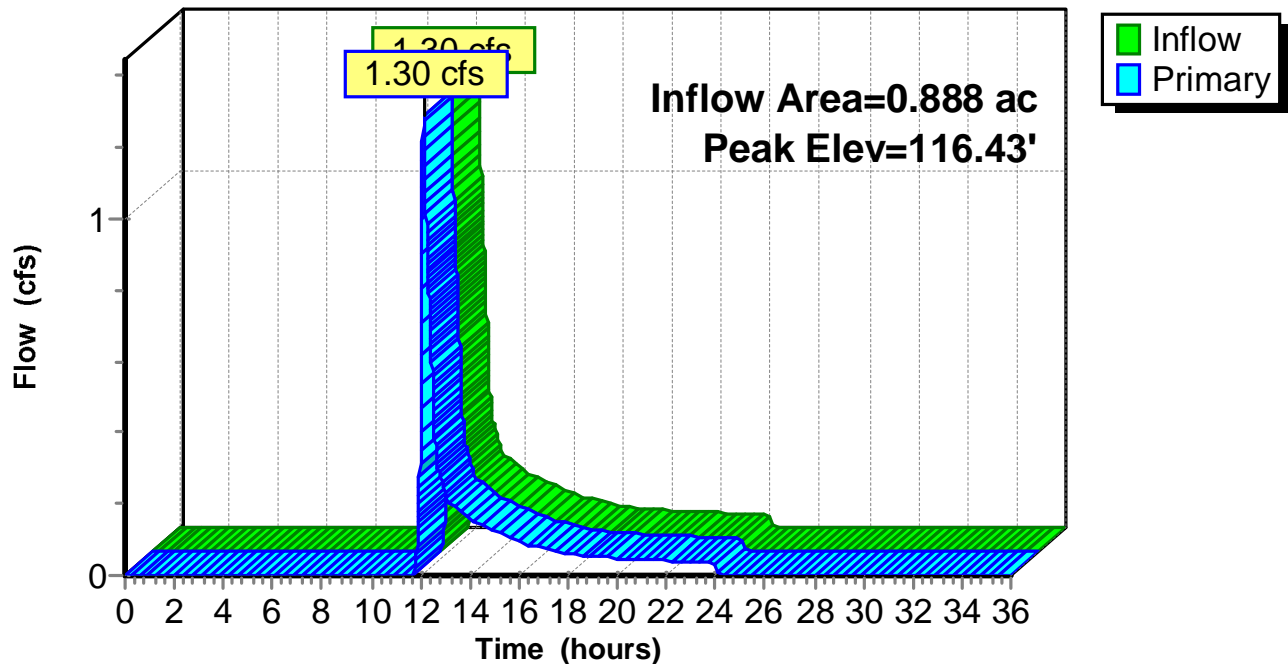
Device	Routing	Invert	Outlet Devices
#1	Primary	119.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.83'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 115.83' / 112.88' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.13 hrs HW=116.43' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.30 cfs @ 2.64 fps)

Pond SDMH16-03:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.83" for 100-yr event
 Inflow = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af
 Outflow = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 128.67' @ 12.29 hrs

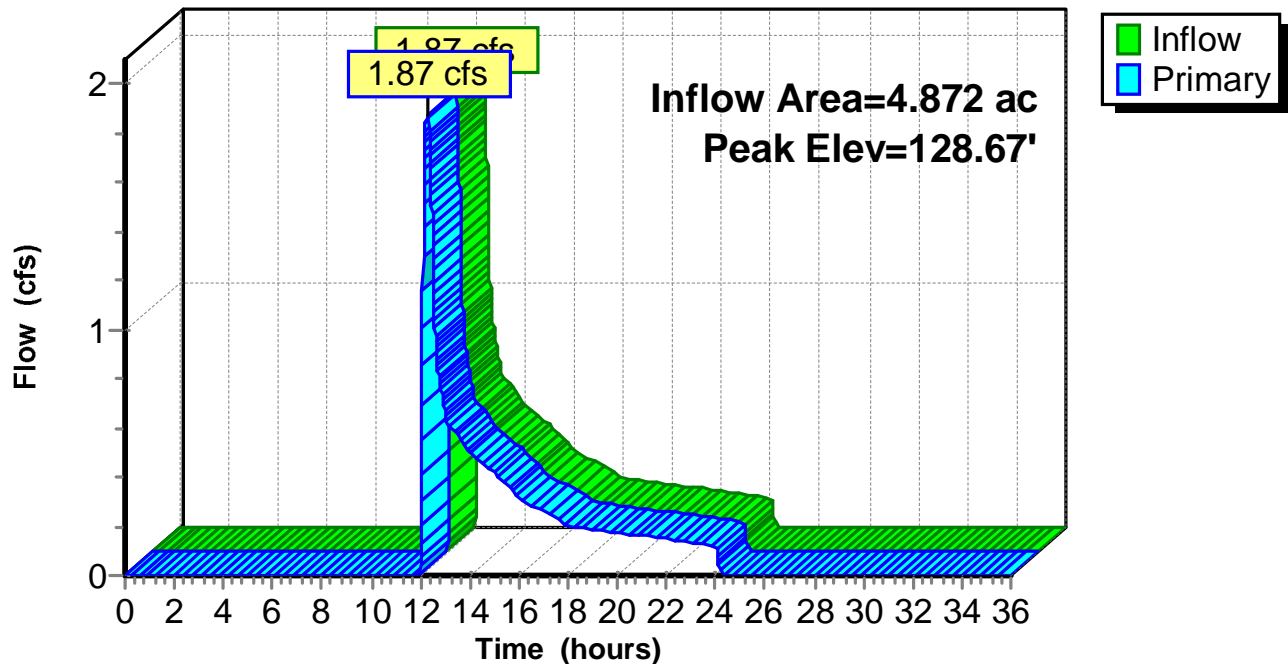
Device	Routing	Invert	Outlet Devices
#1	Primary	132.27'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	128.00'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 128.00' / 114.75' S= 0.0589 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.29 hrs HW=128.67' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.87 cfs @ 2.79 fps)

Pond SDMH16-05:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 1.47" for 100-yr event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.40' @ 12.09 hrs

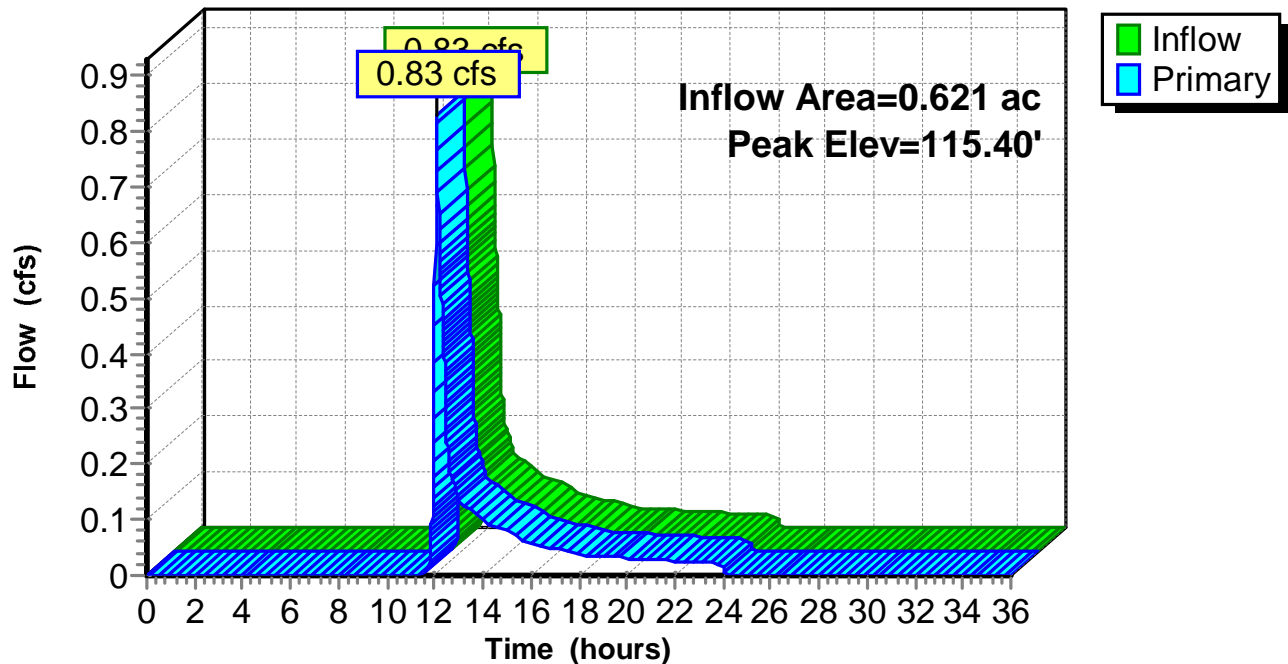
Device	Routing	Invert	Outlet Devices
#1	Primary	120.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.80'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 114.80' / 114.74' S= 0.0010 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 12.09 hrs HW=115.40' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.83 cfs @ 2.08 fps)

Pond SDMH16-06:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 1.03" for 100-yr event
Inflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af
Outflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 134.57' @ 12.16 hrs

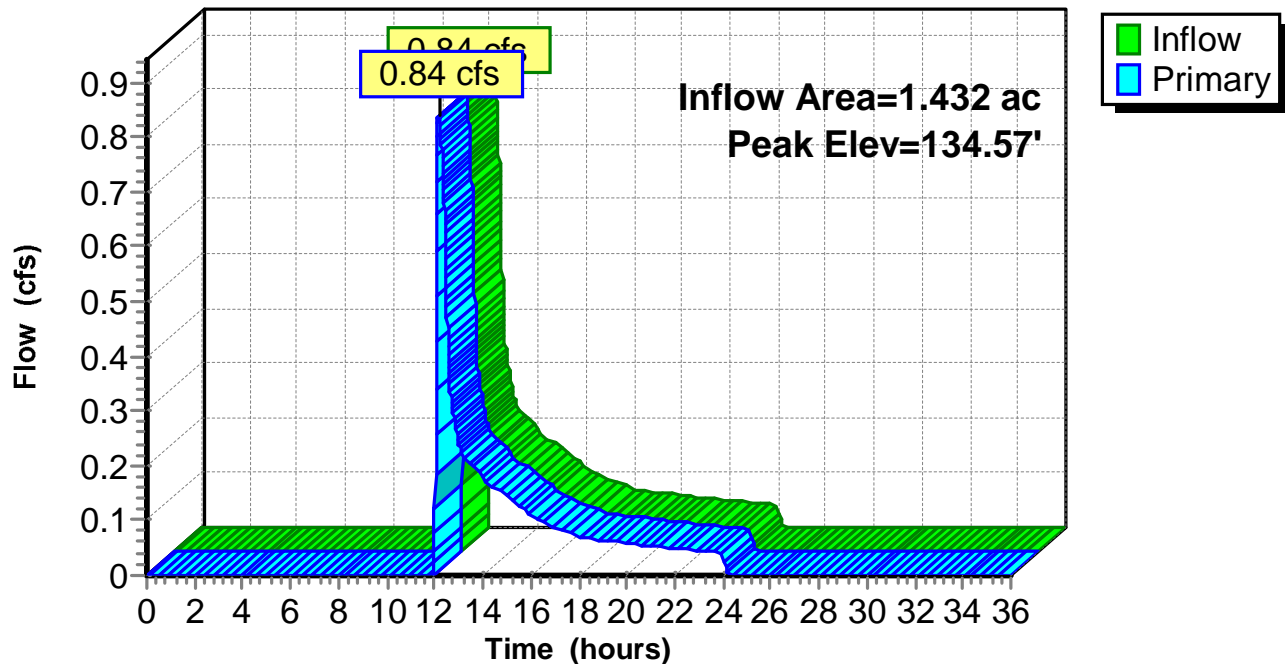
Device	Routing	Invert	Outlet Devices
#1	Primary	139.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	134.10'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 134.10' / 132.47' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.16 hrs HW=134.57' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Pond SDMH16-12.1:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.95" for 100-yr event
 Inflow = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af
 Outflow = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 130.64' @ 12.21 hrs

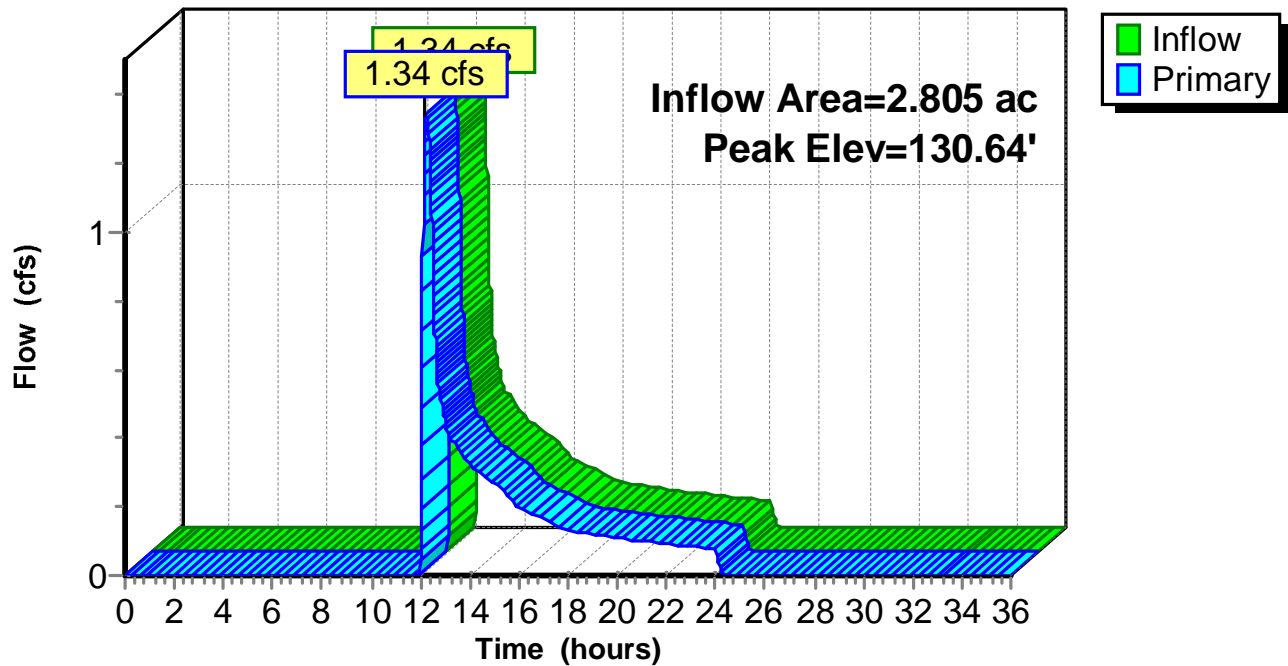
Device	Routing	Invert	Outlet Devices
#1	Primary	136.63'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	130.03'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 130.03' / 128.00' S= 0.0294 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.21 hrs HW=130.64' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.34 cfs @ 2.66 fps)

Pond SDMH16-12.2:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 1.03" for 100-yr event
 Inflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af
 Outflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 137.21' @ 12.16 hrs

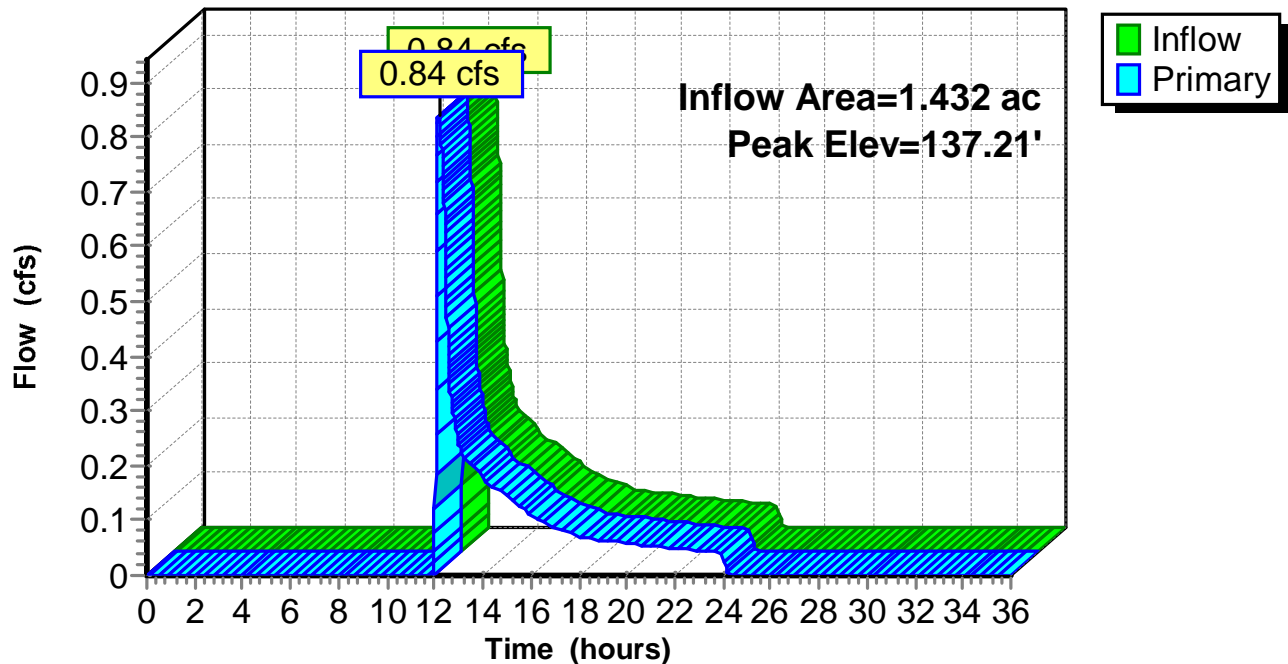
Device	Routing	Invert	Outlet Devices
#1	Primary	144.47'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	136.74'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 136.74' / 134.65' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.16 hrs HW=137.21' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Pond SDMH16-13:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 1.45" for 100-yr event
 Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af
 Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.79' @ 12.09 hrs

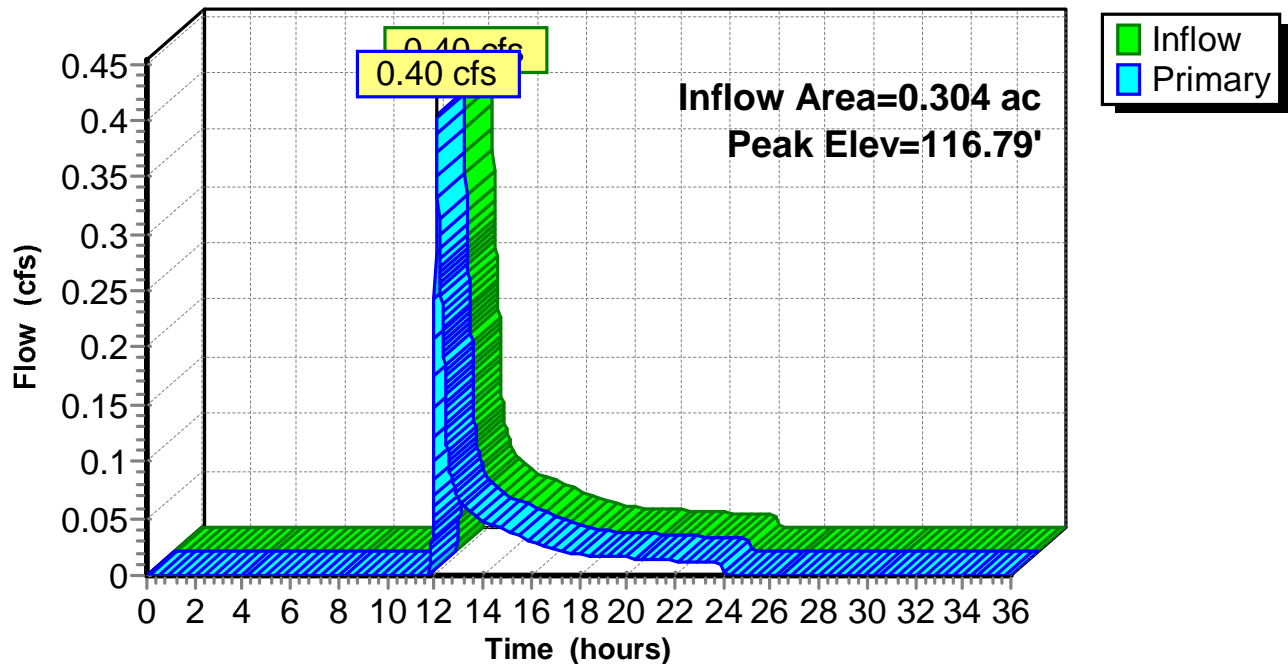
Device	Routing	Invert	Outlet Devices
#1	Primary	124.51'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	116.48'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 116.48' / 115.26' S= 0.0610 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=116.79' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.91 fps)

Pond SDMH16-15:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 1.47" for 100-yr event
 Inflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af
 Outflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.38' @ 12.14 hrs

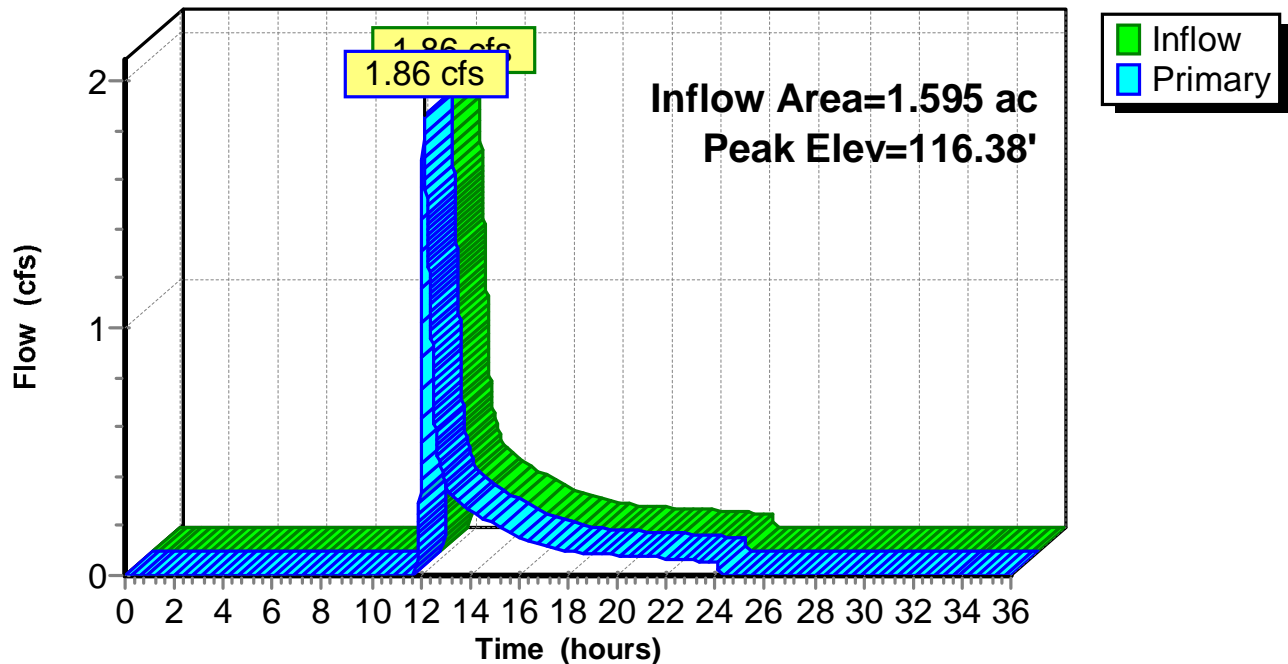
Device	Routing	Invert	Outlet Devices
#1	Primary	118.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	115.30'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 115.30' / 115.23' S= 0.0010 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.14 hrs HW=116.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.86 cfs @ 2.73 fps)

Pond SDMH17-03.1:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 1.47" for 100-yr event
Inflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af
Outflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.81' @ 12.14 hrs

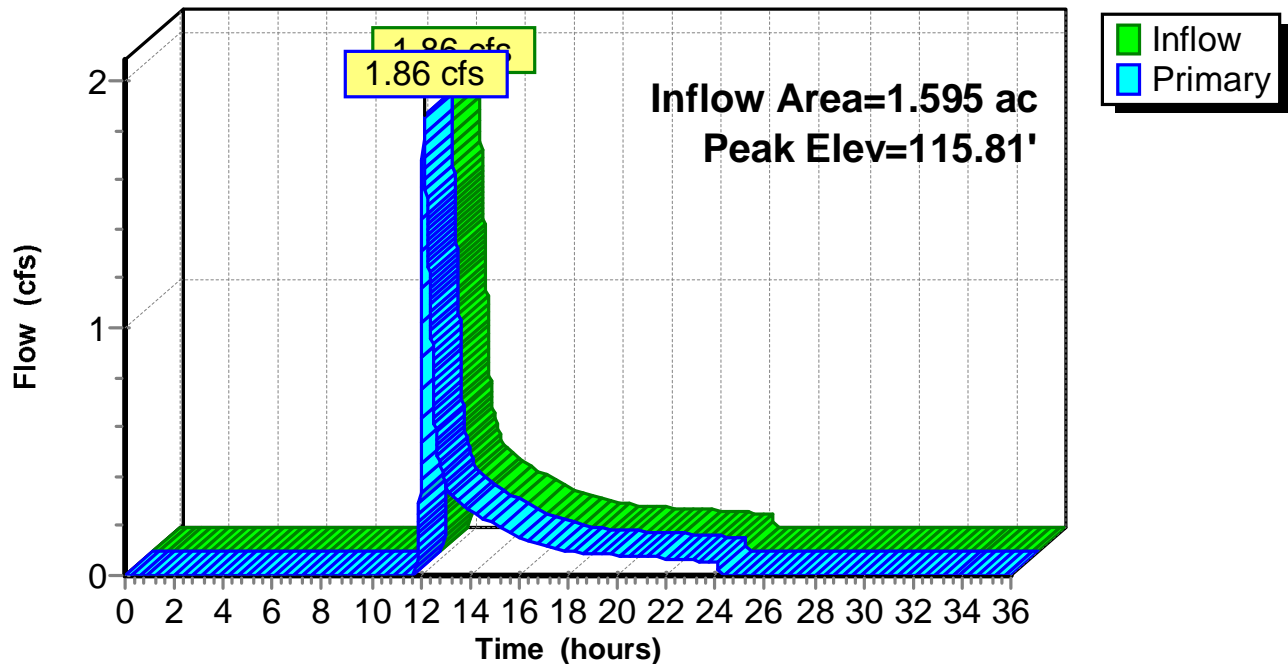
Device	Routing	Invert	Outlet Devices
#1	Primary	122.46'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.91'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 114.91' / 114.71' S= 0.0043 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.14 hrs HW=115.81' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.86 cfs @ 3.31 fps)

Pond SDMH17-03.2:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH17-04:

Inflow Area = 2.680 ac, 18.90% Impervious, Inflow Depth = 1.89" for 100-yr event
 Inflow = 4.49 cfs @ 12.10 hrs, Volume= 0.422 af
 Outflow = 4.49 cfs @ 12.10 hrs, Volume= 0.422 af, Atten= 0%, Lag= 0.0 min
 Primary = 4.49 cfs @ 12.10 hrs, Volume= 0.422 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 116.62' @ 12.10 hrs

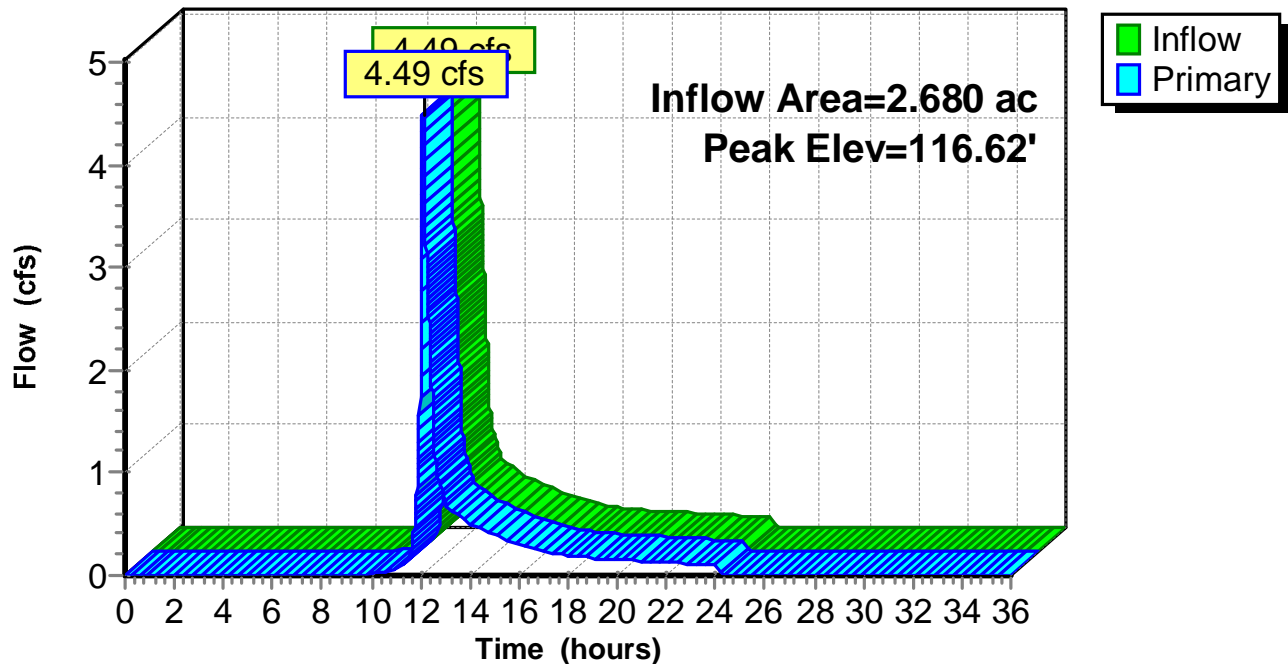
Device	Routing	Invert	Outlet Devices
#1	Primary	117.78'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	114.71'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 114.71' / 113.02' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=4.49 cfs @ 12.10 hrs HW=116.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 4.49 cfs @ 5.71 fps)

Pond SDMH17-04:

Hydrograph



Existing Conditions (Type A Soils)

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Summary for Pond SDMH17-07:

Inflow Area = 2.860 ac, 21.03% Impervious, Inflow Depth = 2.06" for 100-yr event
Inflow = 5.42 cfs @ 12.09 hrs, Volume= 0.491 af
Outflow = 5.42 cfs @ 12.09 hrs, Volume= 0.491 af, Atten= 0%, Lag= 0.0 min
Primary = 5.42 cfs @ 12.09 hrs, Volume= 0.491 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 115.55' @ 12.09 hrs

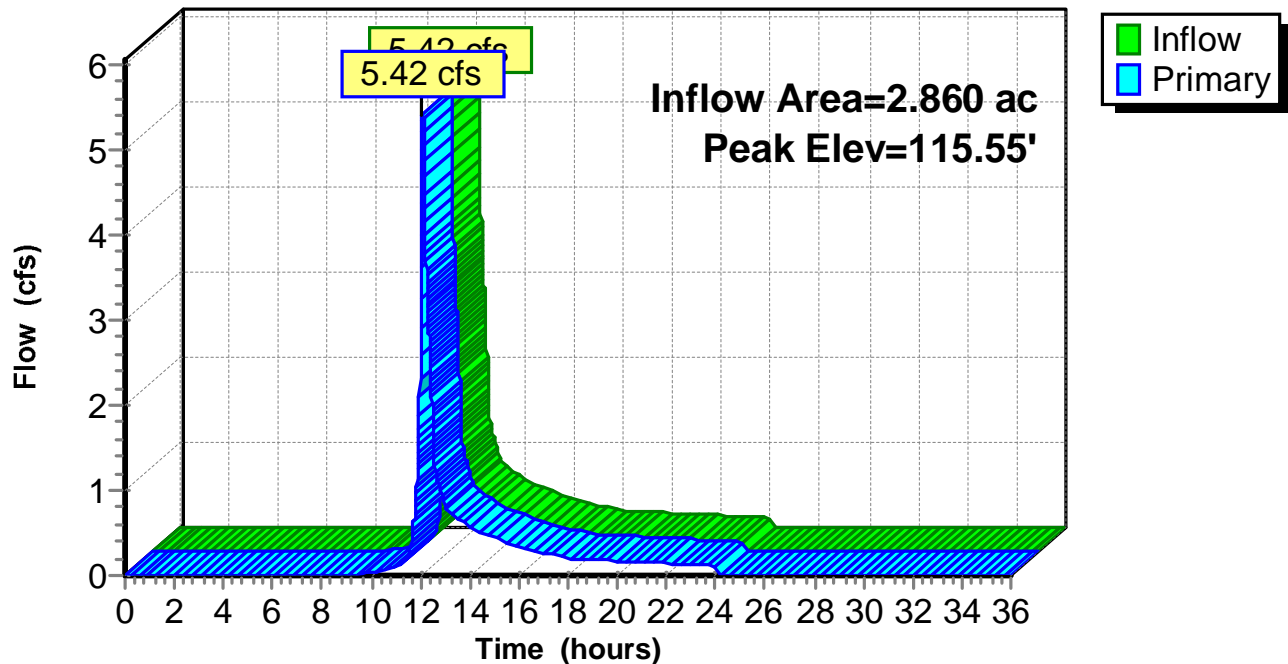
Device	Routing	Invert	Outlet Devices
#1	Primary	116.73'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	113.00'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 113.00' / 112.94' S= 0.0150 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.41 cfs @ 12.09 hrs HW=115.54' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.41 cfs @ 6.89 fps)

Pond SDMH17-07:

Hydrograph



Existing Conditions (Type A Soils)

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Type III 24-hr 100-yr Rainfall=8.68"

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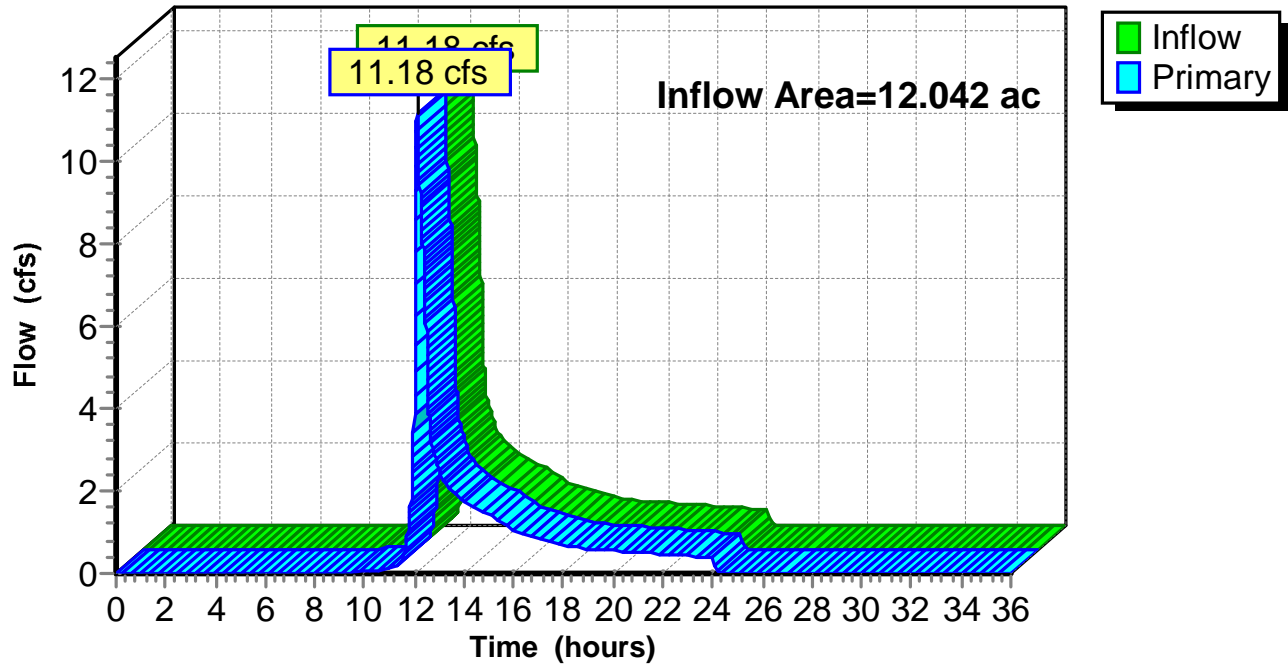
Summary for Link OUT:

Inflow Area = 12.042 ac, 11.25% Impervious, Inflow Depth = 1.35" for 100-yr event
Inflow = 11.18 cfs @ 12.12 hrs, Volume= 1.356 af
Primary = 11.18 cfs @ 12.12 hrs, Volume= 1.356 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

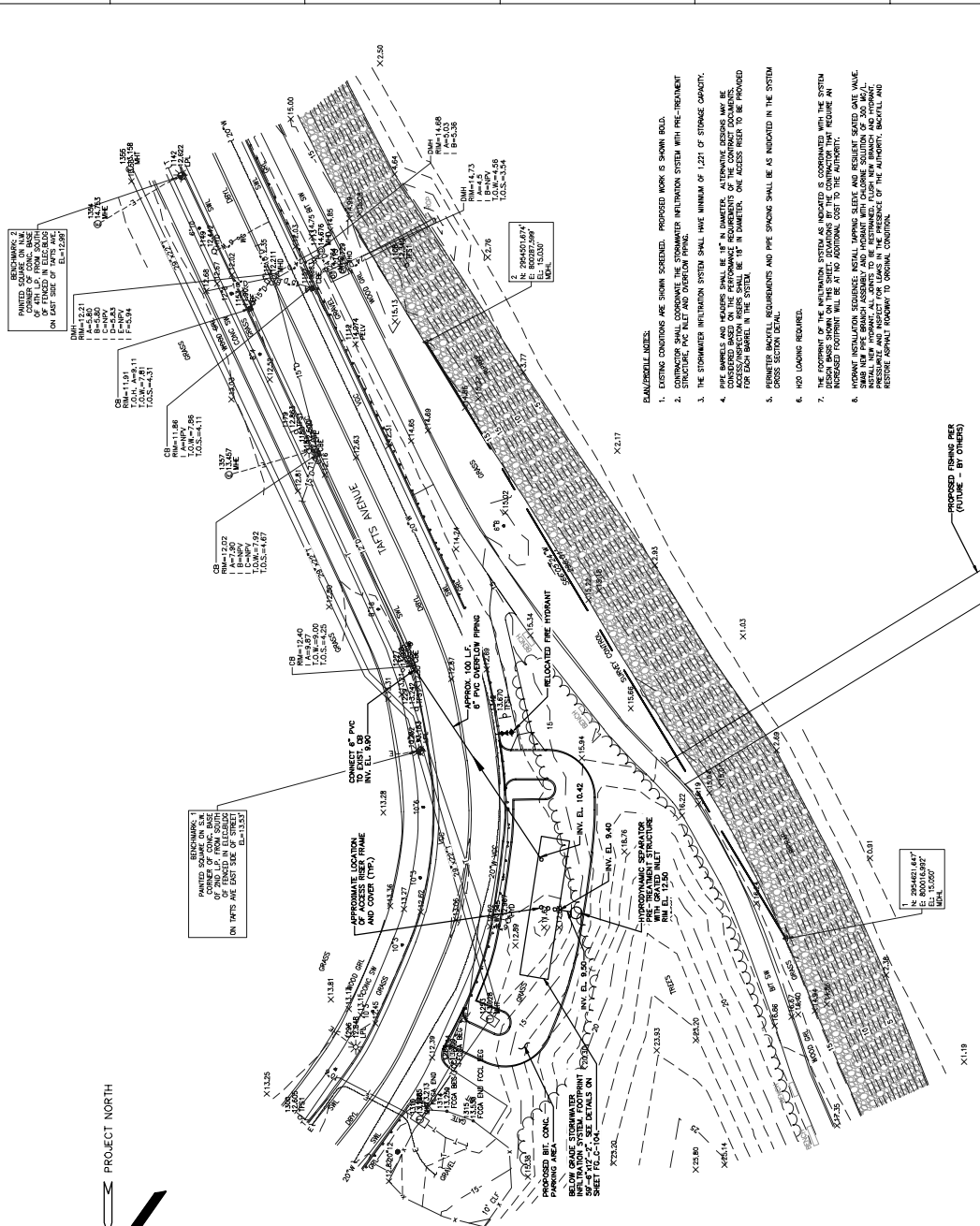
Link OUT:

Hydrograph

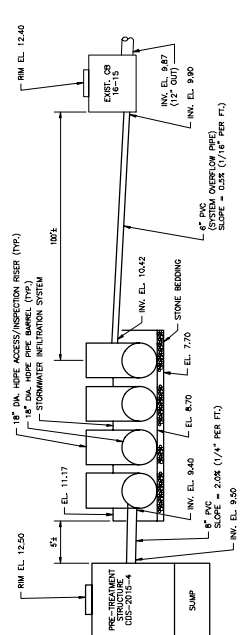


Appendix G

Proposed Design Site Plans and Drainage Area Figures

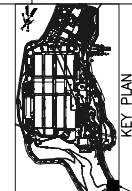


PLAN
1" = 20'



PROFILE - STORMWATER SYSTEM

- DESIGN BASIS:
- DESIGN OF INFLOW OF 0.50 CFS, 100 YR.
 - PEAK SUBSEQUENT FLOW RATE DURING 100 YEAR STORM EVENT, 1.21 CFS.
 - INFILTRATION SYSTEM BASED ON DESIGN AND TEST DATA FROM FULLY INSTRUMENTED, COMPUTED PIPE BARRELS.
 - SOME BEDDING HEIGHT OF BARRELS TO BE 1' VERTICAL ONLY.



AREA OF WORK

PROJECT NO.	603-0590
CONTRACT NO.	DEED
CAD FILE NO.	FG_0-103
SHEET NO.	FG_0-103

MASSACHUSETTS WATER RESOURCES AUTHORITY
DEER ISLAND TREATMENT PLANT
PARKING AREA
**STORMWATER INFILTRATION SYSTEM
AND PIPING PLAN AND PROFILE**



NO.	REVISION	DATE	BY	CHKD BY

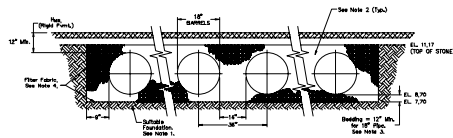
SCALE: AS NOTED	DATE: 11/20/2014
DRAWN BY: T. BOKA	CHECKED BY: T. BOKA
DESIGNED BY: T. BOKA	APPROVED BY: R. GARD
DATE: 11/20/2014	DATE: 11/20/2014

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PROJECT NO.	603-0590
CONTRACT NO.	DEED
CAD FILE NO.	FG_0-103
SHEET NO.	FG_0-103

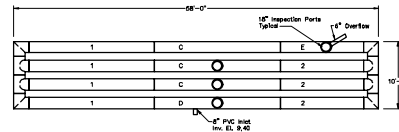
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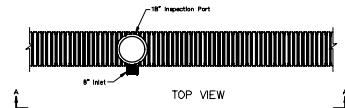
STORMWATER INFILTRATION SYSTEM CROSS-SECTION
N.T.S.

STORMWATER INFILTRATION SYSTEM CROSS SECTION NOTES

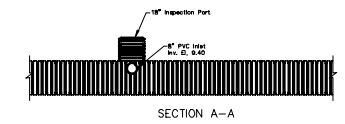
1. PRIOR TO PLACING THE BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. UNSUITABLE MATERIALS SHALL BE REMOVED AND BROUGHT BACK TO THE GRADE WITH A FILL MATERIAL AS APPROVED BY THE AUTHORITY. TWELVE (12) INCHES OF WELL GRADED GRANULAR MATERIAL SHALL BE PLACED AS THE SYSTEM BEDDING. THE BEDDING MATERIAL SHALL BE ROUGHLY SHAPED TO FIT THE BOTTOM OF THE PIPE. REFER TO SPECIFICATION SECTION 02223.
2. THE BACKFILL MATERIAL SHALL BE FREE-DRAINING ANGULAR WASHED STONE 3/4" TO 2" PARTICLE SIZE. THE ANGULAR WASHED STONE AS DIMENSIONED IN SECTION IS PART OF THE STORMWATER INFILTRATION SYSTEM AND IS FACTORED INTO THE STORAGE CAPACITY. MATERIAL TO CONFORM TO MASS DOT 402.01.1. MATERIAL SHALL BE PLACED IN 6" LIFTS. MATERIAL SHALL BE WORKED INTO THE PIPE HAUNCHES BY MEANS OF SHOVEL-SLINGING, ROADING, AIR TAMPER, VIBRATORY ROD OR OTHER EFFECTIVE METHODS. COMPACTION IS CONSIDERED ADEQUATE WHEN NO FURTHER YIELDING OF THE MATERIAL IS OBSERVED UNDER THE COMPACTOR. BACKFILL SHALL BE ADVANCED ALONG THE LENGTH OF THE SYSTEM AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING ON ANY PIPES IN THE SYSTEM.
3. EQUIPMENT USED TO PLACE AND COMPACT THE BACKFILL SHALL BE OF A SIZE AND TYPE SO AS NOT TO DISTURB, DAMAGE OR DISPLACE THE PIPE. ATTENTION MUST BE GIVEN TO PROVIDING ADEQUATE MINIMUM COVER FOR SUCH EQUIPMENT AND MAINTAINING BALANCED LOADING ON ALL PIPES IN THE SYSTEM DURING ALL SUCH OPERATIONS.
4. NON-WOVEN GEOTEXTILE FABRIC SHALL BE USED TO WRAP THE TRENCH SIDES, TOP AND BOTTOM. REFER TO SPECIFICATION SECTION 02225.



STORMWATER INFILTRATION SYSTEM PLAN VIEW
N.T.S.

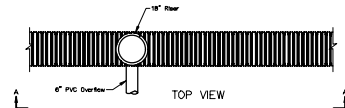


TOP VIEW

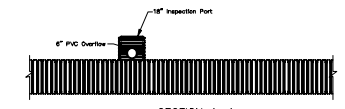


SECTION A-A

STORMWATER INFILTRATION SYSTEM INLET
N.T.S.



TOP VIEW

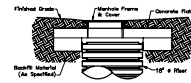


SECTION A-A

STORMWATER INFILTRATION SYSTEM OVERFLOW
N.T.S.

INFILTRATION SYSTEM OVERFLOW NOTES

1. THE 8" PVC INFILTRATION SYSTEM OVERFLOW SHALL TIE OFF THE ACCESS RISER CLOSEST TO THE STREET (14TH AVENUE) AND BE RUN TO EXISTING CATCH BASIN CB-16-15, AS INDICATED.



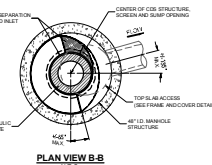
ACCESS RISER DETAIL
N.T.S.

ACCESS RISER DETAIL NOTES

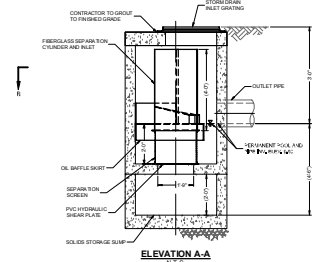
1. THE ACCESS RISER DETAIL IS CONCEPTUAL TO ILLUSTRATE HOW LOADS PLACED ON THE COVER OR SURROUNDING PAVEMENT WILL BE TRANSFERRED TO THE SUBGRADE AND NOT BEAR DIRECTLY ON THE RISER PIPE OR FRAME AND COVER. THE SELECTED MANUFACTURER'S DETAILS SHALL GOVERN TO ACHIEVE H-20 LOADING REQUIREMENTS.
2. ALL RISERS TO BE FIELD CUT TO THE ELEVATION NEEDED TO ACCOMMODATE CONSTRUCTION OF THE RISER DETAIL.



STANDARD IN-LINE BELL & SPIGOT WITH MANUFACTURER INSTALLED GASKET
N.T.S.



PLAN VIEW B-B



ELEVATION A-A



STORM DRAIN FRAME AND GRATE
D.I.A.

STORMWATER PRE-TREATMENT STRUCTURE
N.T.S.

HYDRODYNAMIC SEPARATOR STRUCTURE NOTES

1. THE STRUCTURE SHALL BE DESIGNED FOR A SHALLOW PROFILE WITH THE INVERT ELEVATION OF THE 8" OUTLET PIPING AT NO MORE THAN 3'-0" BELOW THE FIN ELEVATION OF THE INLET GRATING AND COORDINATED WITH THE STORMWATER INFILTRATION SYSTEM.
2. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS AND GROUT PIPE PENETRATIONS.
3. PROVIDE FLUSH MOUNTED GRATE SYSTEM AT GRADE IN ASPHALT PARKING AREA AS SHOWN IN CONTRACT DRAWINGS.
4. STRUCTURE AND CASTINGS SHALL MEET AASHTO H-20 LOADING STANDARDS.
5. CONTRACTOR TO SEAL ALL STRUCTURE SECTIONS AND PIPE PENETRATIONS PER THE MANUFACTURER'S RECOMMENDATIONS.

GENERAL NOTES

1. THE STORMWATER INFILTRATION SYSTEM SHALL BE RATED FOR H-20 LOADING.
2. THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING UTILITIES PRIOR TO WORK.
3. DIMENSIONS SHOWN ARE NOMINAL. SELECTED MANUFACTURER TO PROVIDE ACTUAL DIMENSIONS.
4. THE STORMWATER INFILTRATION SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH INDUSTRY STANDARDS. INSTALLATION PRACTICES ADAPTED TO THE SPECIAL INSTALLATION PROCEDURES CONTAINED HEREIN AND IN CONFORMANCE WITH THE SELECTED MANUFACTURER'S INSTALLATION REQUIREMENTS.
5. THE CONTRACTOR SHALL COORDINATE THE HYDRODYNAMIC SEPARATOR PIPE-TREATMENT STRUCTURE WITH THE STORMWATER INFILTRATION SYSTEM. CONNECTING PIPE SHALL BE 8" IN DIAMETER WITH 1/4" PER FOOT SLOPE (2%) FOR A MAXIMUM LENGTH OF 5'-0".
6. CONSTRUCTION EQUIPMENT SHALL NOT TRAVERSE OR OTHERWISE BE LOCATED ATOP THE PIPE SYSTEM OR ITS COMPONENTS UNTIL SUFFICIENT COVER IS PROPERLY PLACED AND COMPACTED.
7. THE FOUNDATION AND/OR BEDDING STONE MUST BE PROPERLY LEVELED TO THE ELEVATION SHOWN ON THE PROJECT PLANS PRIOR TO THE PLACEMENT OF ANY PIPE OR FITTINGS.
8. ALL INFILTRATION SYSTEM PIPING SHALL BE PERFORMED PER THE REQUIREMENTS OF THE SELECTED MANUFACTURER. MINIMUM PENETRATION SIZE TO BE 1/4" DIAMETER.
9. SOIL-TIGHT AND WATER TIGHT PIPE JOINT PERFORMANCE SHALL BE PROVIDED.
10. REFER TO THE SELECTED MANUFACTURER'S INSTALLATION GUIDELINES FOR SYSTEM INSTALLATION REQUIREMENTS.



KEY PLAN

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NOT FOR CONSTRUCTION



250 APOLLO DRIVE
CHILMARK, MA 01924
PHONE: (978) 905-1100
WWW.AECOM.COM

SCALE: AS NOTED									
DESIGNED BY: T. SHEA									
DRAWN BY: C. WENZLER									
CHECKED BY: T. SHEA									
APPROVED BY: R. HOGAN									



MASSACHUSETTS WATER RESOURCES AUTHORITY
DEER ISLAND TREATMENT PLANT
PARKING AREA

STORMWATER INFILTRATION SYSTEM DETAILS

PROJECT NO.	60515090
CONTRACT NO.	TTTT
CAD FILE NO.	FG_C-104
SHEET NO.	FG_C-104

DATE: MAY 2016

PREPARED BY: M. HOGAN, DATE: 05/16/16, 10:00 AM, PROJECT: 60515090, SHEET: FG_C-104, SCALE: AS NOTED, DRAWN BY: C. WENZLER, CHECKED BY: T. SHEA, APPROVED BY: R. HOGAN, DATE: 05/16/16, 10:00 AM, PROJECT: 60515090, SHEET: FG_C-104, SCALE: AS NOTED



PROJECT
DEER ISLAND
PROPOSED PARKING

OWNER

MWRA - DITP
130 FAITS AVENUE
DEER ISLAND
02030-0030 MA
www.mass.gov/mwra

ENGINEER

AECOM TECHNICAL SERVICES, INC.
250 APOLLO DRIVE
CHILMARK, MA 01924
www.aecom.com

REGISTRATION

ISSUE/REVISION

IR	DATE	DESCRIPTION

PROJECT NUMBER

605151000.17

DESIGNED BY

B. TEETSEL

DRAWN BY

B. TEETSEL

DATE CHECKED

DATE

SCALE

AS NOTED

DISCIPLINE

CIVIL

SHEET TITLE

PROPOSED DESIGN
DRAINAGE AREAS

SHEET NUMBER

DA-002



LEGEND:
 ——— DRAINAGE AREA BORDER
 - - - - TIME OF CONCENTRATION LINE



Appendix H

WQV, GRV, and Drawdown Calculations

Groundwater Recharge Volume

	Hydrologic Soil Group				TOTAL
	A	B	C	D	
Impervious Area (sq. ft.)	4960.0	0.0	0.0	0.0	4960.0
Impervious Area (ac.)	0.11	0.00	0.00	0.00	0.11
Recharge Factor	0.60	0.35	0.25	0.10	-
Required Recharge Volume (ac-ft.)	0.006	0.000	0.000	0.000	0.006
Required Recharge Volume (cu. ft.)	248.0	0.0	0.0	0.0	248.0

*Total Proposed Recharge Volume (cu. ft.) = 487.1

Water Quality Volume

Impervious Area (sq. ft.) = 4960.0
First Flush Depth (in.) = 1.0
Required WQV (cu. ft.) = 413.3

*Provided WQV (cu. ft.) = 922.2

Drawdown Calculation

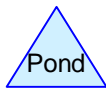
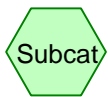
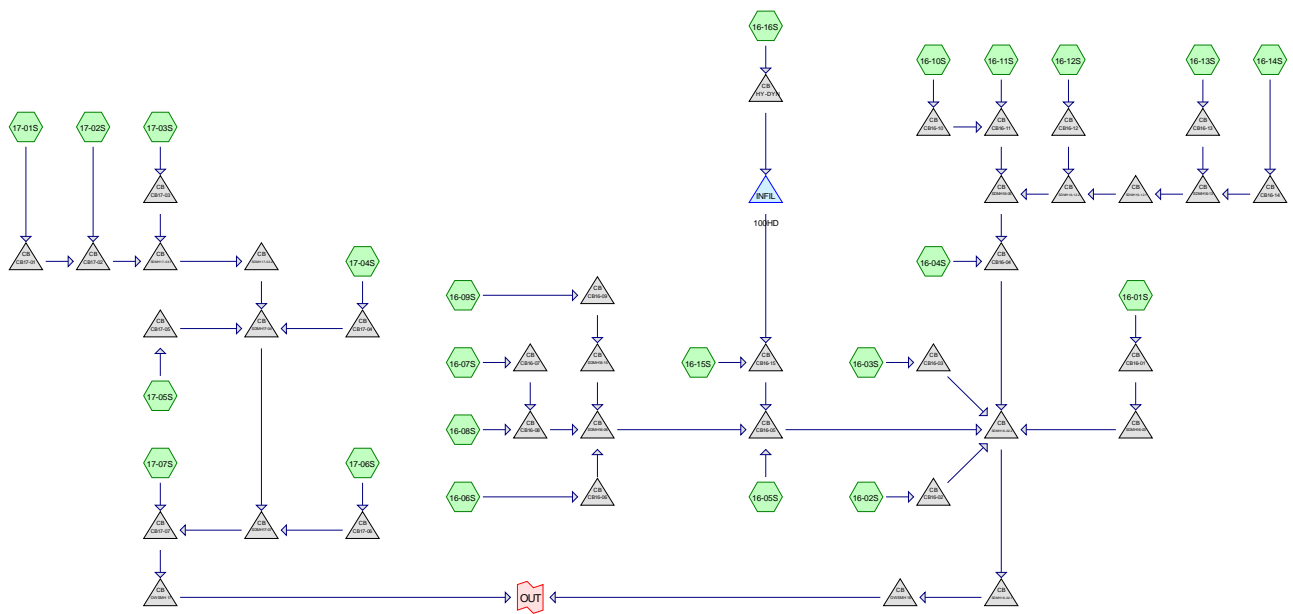
Bottom Elev. Of Trench = 7.70
Water Level = 10.42
Water Depth (ft.) = 2.72
Drawdown Rate (min. 0.17) = 2.41 in./hr.

Drawdown Duration (<72 hrs) = 13.54 hrs.

*See Appendix I (Proposed Design HydroCAD Report) for the backup calculations

Appendix I

Proposed Design HydroCAD Report



Routing Diagram for Proposed Design
 Prepared by AECOM, Printed 5/9/2019
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Proposed Design

Prepared by AECOM

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Printed 5/9/2019

Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
10.574	30	Brush, Good, HSG A (16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S)
1.469	98	Impervious (16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S)
12.042	38	TOTAL AREA

Proposed Design

Prepared by AECOM

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Page 3

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
10.574	HSG A	16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
1.469	Other	16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
12.042		TOTAL AREA

Proposed Design

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Page 4

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
10.574	0.000	0.000	0.000	0.000	10.574	Brush, Good	16-01S, 16-02S, 16-03S, 16-04S, 16-05S, 16-06S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
0.000	0.000	0.000	0.000	1.469	1.469	Impervious	16-01S, 16-02S, 16-03S, 16-05S, 16-07S, 16-08S, 16-09S, 16-10S, 16-11S, 16-12S, 16-13S, 16-14S, 16-15S, 16-16S, 17-01S, 17-02S, 17-03S, 17-04S, 17-05S, 17-06S, 17-07S
10.574	0.000	0.000	0.000	1.469	12.042	TOTAL AREA	

Proposed Design

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Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	CB16-01	9.12	9.06	7.0	0.0086	0.012	12.0	0.0	0.0
2	CB16-02	8.82	6.11	10.0	0.2710	0.012	12.0	0.0	0.0
3	CB16-03	8.82	6.11	10.0	0.2710	0.012	12.0	0.0	0.0
4	CB16-04	7.98	6.11	70.0	0.0267	0.012	18.0	0.0	0.0
5	CB16-05	7.97	6.11	73.0	0.0255	0.012	15.0	0.0	0.0
6	CB16-06	8.72	8.03	13.0	0.0531	0.012	12.0	0.0	0.0
7	CB16-07	13.96	13.58	85.0	0.0045	0.012	12.0	0.0	0.0
8	CB16-08	13.55	8.03	66.0	0.0836	0.012	12.0	0.0	0.0
9	CB16-09	18.07	9.71	81.0	0.1032	0.012	12.0	0.0	0.0
10	CB16-10	22.83	22.79	15.0	0.0027	0.012	12.0	0.0	0.0
11	CB16-11	22.52	21.23	95.0	0.0136	0.012	12.0	0.0	0.0
12	CB16-12	23.91	23.32	18.0	0.0328	0.012	12.0	0.0	0.0
13	CB16-13	28.12	27.48	3.0	0.2133	0.012	12.0	0.0	0.0
14	CB16-14	37.59	30.07	94.0	0.0800	0.012	12.0	0.0	0.0
15	CB16-15	9.40	7.97	93.0	0.0154	0.012	12.0	0.0	0.0
16	CB17-01	9.03	8.85	50.0	0.0036	0.012	12.0	0.0	0.0
17	CB17-02	8.85	8.63	62.0	0.0035	0.012	12.0	0.0	0.0
18	CB17-03	8.67	8.63	3.0	0.0133	0.012	12.0	0.0	0.0
19	CB17-04	8.07	7.94	5.0	0.0260	0.012	12.0	0.0	0.0
20	CB17-05	8.07	7.94	19.0	0.0068	0.012	12.0	0.0	0.0
21	CB17-06	6.68	6.25	38.0	0.0113	0.012	12.0	0.0	0.0
22	CB17-07	6.12	6.09	20.0	0.0015	0.012	12.0	0.0	0.0
23	HY-DYN	9.50	9.40	5.0	0.0200	0.012	8.0	0.0	0.0
24	INFIL	10.42	9.90	100.0	0.0052	0.012	8.0	0.0	0.0
25	OWSMH 16	5.35	5.23	40.0	0.0030	0.012	24.0	0.0	0.0
26	OWSMH 17	6.09	4.23	38.0	0.0489	0.012	12.0	0.0	0.0
27	SDMH16-02.1	5.60	5.60	5.0	0.0000	0.012	24.0	0.0	0.0
28	SDMH16-02.2	6.11	5.74	18.0	0.0206	0.012	24.0	0.0	0.0
29	SDMH16-03	9.06	6.11	90.0	0.0328	0.012	12.0	0.0	0.0
30	SDMH16-05	21.23	7.98	225.0	0.0589	0.012	15.0	0.0	0.0
31	SDMH16-06	8.03	7.97	60.0	0.0010	0.012	15.0	0.0	0.0
32	SDMH16-12.1	27.33	25.70	215.0	0.0076	0.012	12.0	0.0	0.0
33	SDMH16-12.2	23.26	21.23	69.0	0.0294	0.012	12.0	0.0	0.0
34	SDMH16-13	29.97	27.88	113.0	0.0185	0.012	12.0	0.0	0.0
35	SDMH16-15	9.71	8.49	20.0	0.0610	0.012	12.0	0.0	0.0
36	SDMH17-03.1	8.53	8.46	70.0	0.0010	0.012	12.0	0.0	0.0
37	SDMH17-03.2	8.14	7.94	46.0	0.0043	0.012	12.0	0.0	0.0
38	SDMH17-04	7.94	6.25	123.0	0.0137	0.012	12.0	0.0	0.0
39	SDMH17-07	6.23	6.17	4.0	0.0150	0.012	12.0	0.0	0.0

Proposed Design

Prepared by AECOM

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Type III 24-hr 2-yr Rainfall=3.28"

Printed 5/9/2019

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.01" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.00 cfs 0.001 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=0.64" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.07 cfs 0.006 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.00" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.00 cfs 0.000 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 12.06% Impervious Runoff Depth=0.00" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.00 cfs 0.000 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.01" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.00 cfs 0.000 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.04" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.00 cfs 0.000 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.00" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.00 cfs 0.000 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.00" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.00" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.00 cfs 0.000 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.00" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.00 cfs 0.000 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.00" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.00 cfs 0.000 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.00" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.00 cfs 0.000 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.02" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.00 cfs 0.001 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 33.23% Impervious Runoff Depth=0.22" Flow Length=133' Tc=6.1 min CN=53 Runoff=0.03 cfs 0.006 af

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.00" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.00 cfs 0.000 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.00" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.00 cfs 0.000 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.01" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.00 cfs 0.001 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=0.19" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.03 cfs 0.007 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=0.52" Flow Length=246' Tc=4.3 min CN=62 Runoff=0.14 cfs 0.013 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=0.68" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.13 cfs 0.010 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=1.09" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.12 cfs 0.008 af
Pond CB16-01:	Peak Elev=9.13' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-02:	Peak Elev=8.94' Inflow=0.07 cfs 0.006 af Outflow=0.07 cfs 0.006 af
Pond CB16-03:	Peak Elev=8.82' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-04:	Peak Elev=7.98' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-05:	Peak Elev=7.98' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-06:	Peak Elev=8.72' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-07:	Peak Elev=13.96' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-08:	Peak Elev=13.55' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-09:	Peak Elev=18.07' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-10:	Peak Elev=22.83' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

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Pond CB16-11:	Peak Elev=22.52'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB16-12:	Peak Elev=23.91'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB16-13:	Peak Elev=28.12'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB16-14:	Peak Elev=37.59'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB16-15:	Peak Elev=9.41'	Inflow=0.00 cfs	0.001 af		
		Outflow=0.00 cfs	0.001 af		
Pond CB17-01:	Peak Elev=9.03'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB17-02:	Peak Elev=8.85'	Inflow=0.00 cfs	0.000 af		
		Outflow=0.00 cfs	0.000 af		
Pond CB17-03:	Peak Elev=8.68'	Inflow=0.00 cfs	0.001 af		
		Outflow=0.00 cfs	0.001 af		
Pond CB17-04:	Peak Elev=8.15'	Inflow=0.03 cfs	0.007 af		
		Outflow=0.03 cfs	0.007 af		
Pond CB17-05:	Peak Elev=8.27'	Inflow=0.14 cfs	0.013 af		
		Outflow=0.14 cfs	0.013 af		
Pond CB17-06:	Peak Elev=6.85'	Inflow=0.13 cfs	0.010 af		
		Outflow=0.13 cfs	0.010 af		
Pond CB17-07:	Peak Elev=6.53'	Inflow=0.38 cfs	0.039 af		
		Outflow=0.38 cfs	0.039 af		
Pond HY-DYN:	Peak Elev=9.59'	Inflow=0.03 cfs	0.006 af		
		Outflow=0.03 cfs	0.006 af		
Pond INFIL: 100HD	Peak Elev=7.73'	Storage=0.000 af	Inflow=0.03 cfs	0.006 af	
	Discarded=0.03 cfs	0.006 af	Primary=0.00 cfs	0.000 af	Outflow=0.03 cfs
					0.006 af
Pond OWSMH 16:	Peak Elev=5.48'	Inflow=0.07 cfs	0.008 af		
		Outflow=0.07 cfs	0.008 af		
Pond OWSMH 17:	Peak Elev=6.39'	Inflow=0.38 cfs	0.039 af		
		Outflow=0.38 cfs	0.039 af		
Pond SDMH16-02.1:	Peak Elev=5.74'	Inflow=0.07 cfs	0.008 af		
		Outflow=0.07 cfs	0.008 af		

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Pond SDMH16-02.2:	Peak Elev=6.21' Inflow=0.07 cfs 0.008 af Outflow=0.07 cfs 0.008 af
Pond SDMH16-03:	Peak Elev=9.07' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond SDMH16-05:	Peak Elev=21.23' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH16-06:	Peak Elev=8.04' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH16-12.1:	Peak Elev=27.33' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH16-12.2:	Peak Elev=23.26' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH16-13:	Peak Elev=29.97' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH16-15:	Peak Elev=9.71' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond SDMH17-03.1:	Peak Elev=8.56' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond SDMH17-03.2:	Peak Elev=8.15' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond SDMH17-04:	Peak Elev=8.12' Inflow=0.14 cfs 0.021 af Outflow=0.14 cfs 0.021 af
Pond SDMH17-07:	Peak Elev=6.51' Inflow=0.27 cfs 0.031 af Outflow=0.27 cfs 0.031 af
Link OUT:	Inflow=0.45 cfs 0.047 af Primary=0.45 cfs 0.047 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.053 af Average Runoff Depth = 0.05"
87.81% Pervious = 10.574 ac 12.19% Impervious = 1.469 ac

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-01S:

Runoff = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Depth= 0.01"

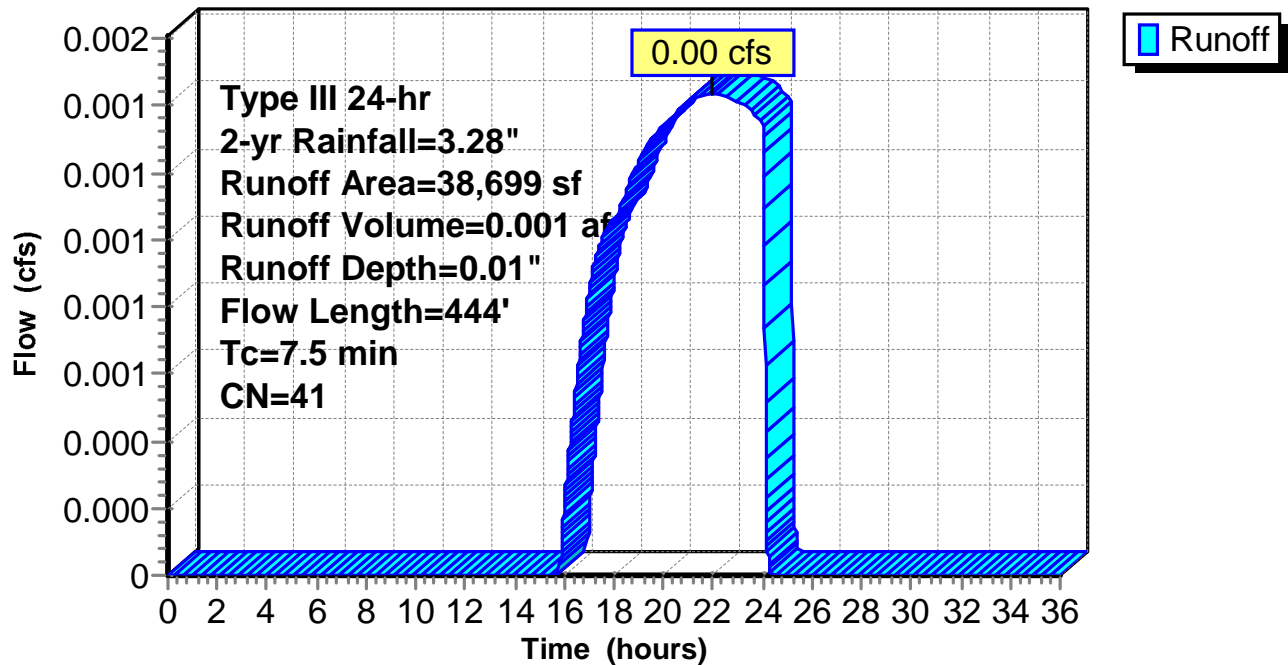
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



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Summary for Subcatchment 16-02S:

Runoff = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 0.64"

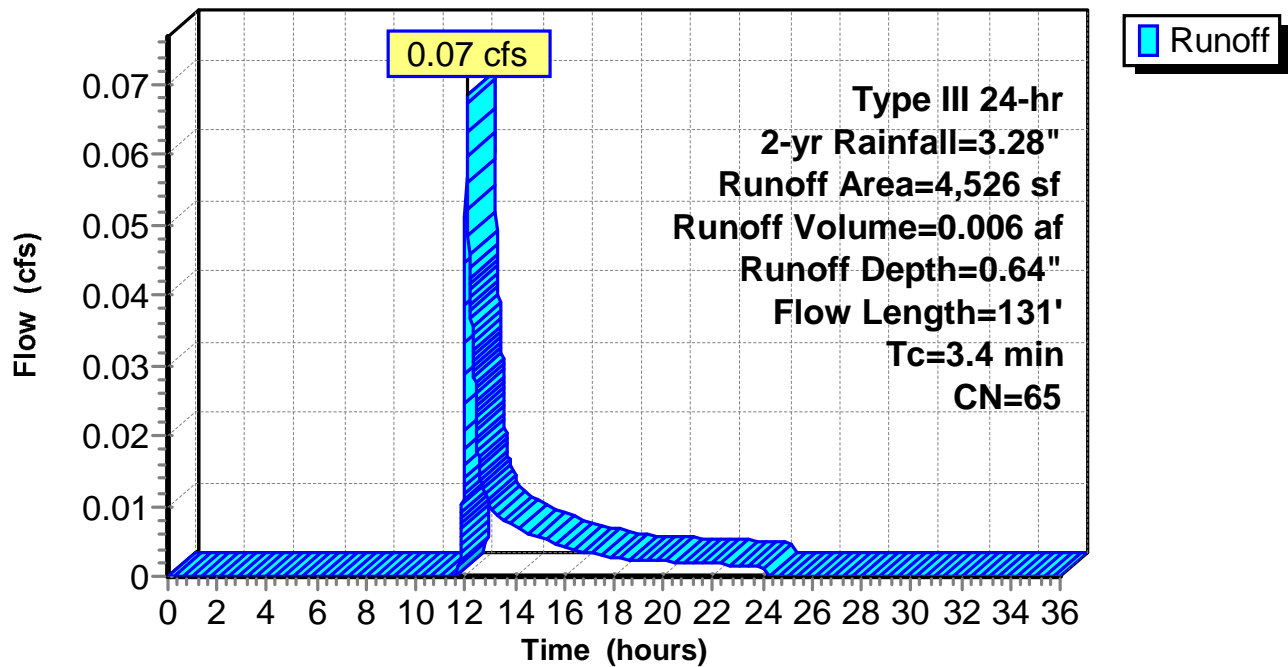
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



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Summary for Subcatchment 16-03S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

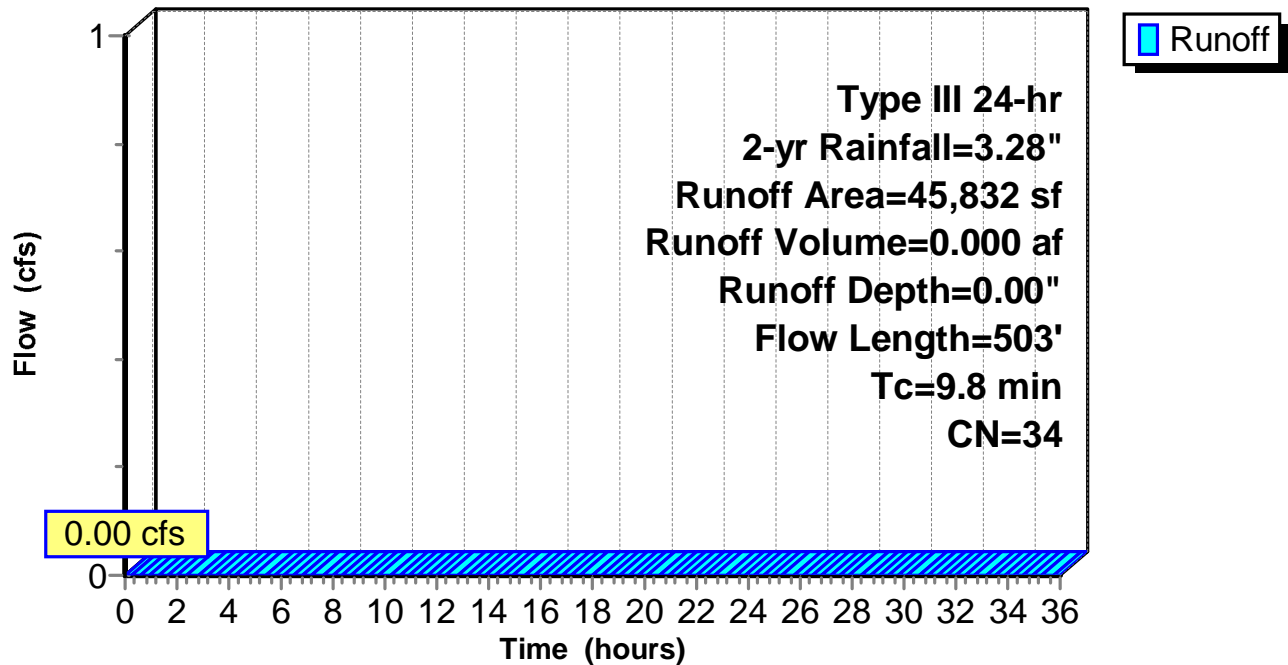
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

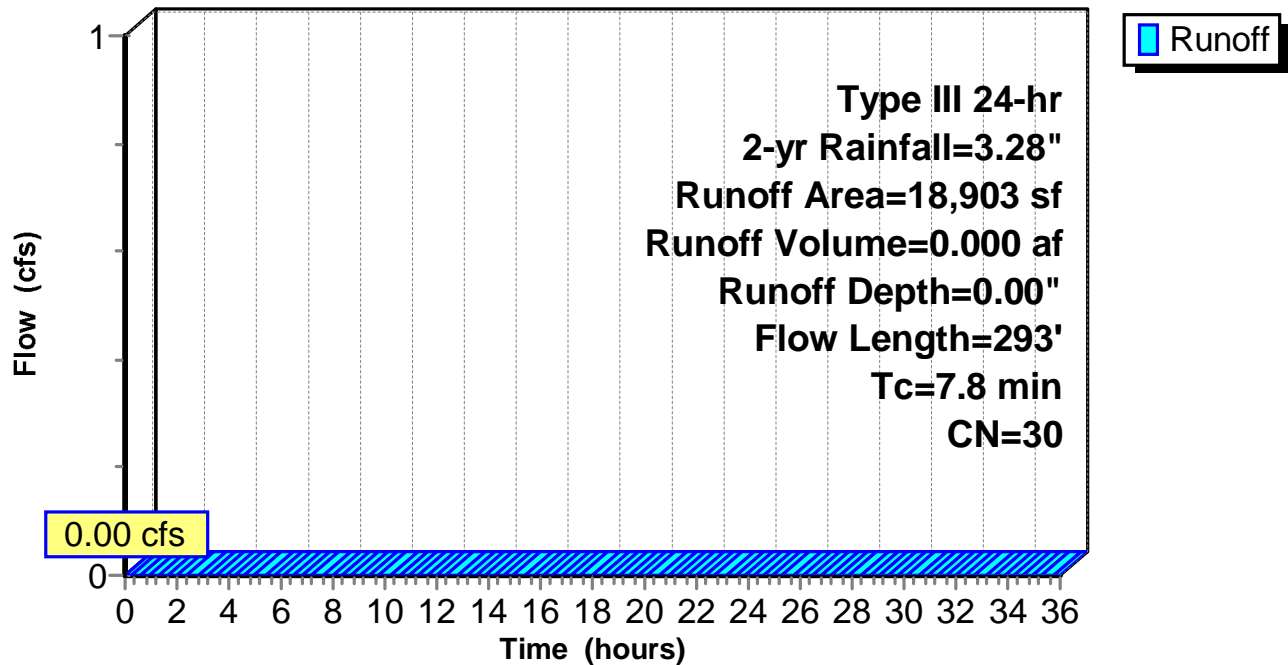
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-05S:

Runoff = 0.00 cfs @ 24.04 hrs, Volume= 0.000 af, Depth= 0.00"

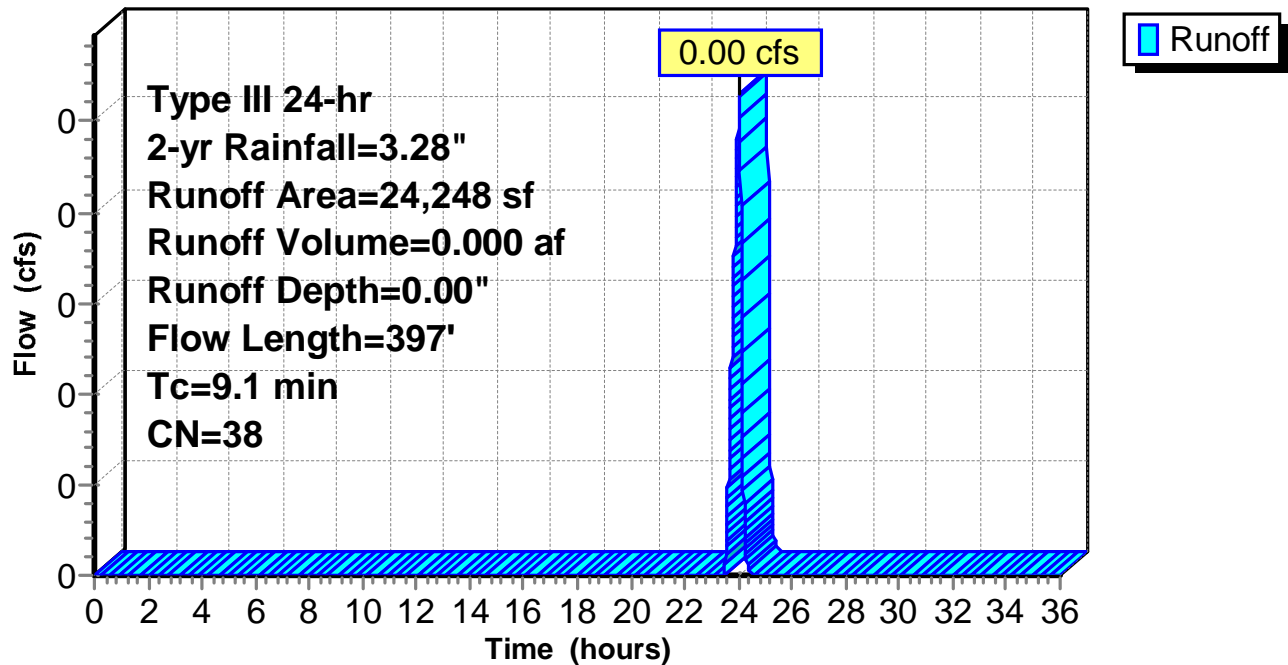
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,924	98	Impervious
21,324	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,324		87.94% Pervious Area
2,924		12.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

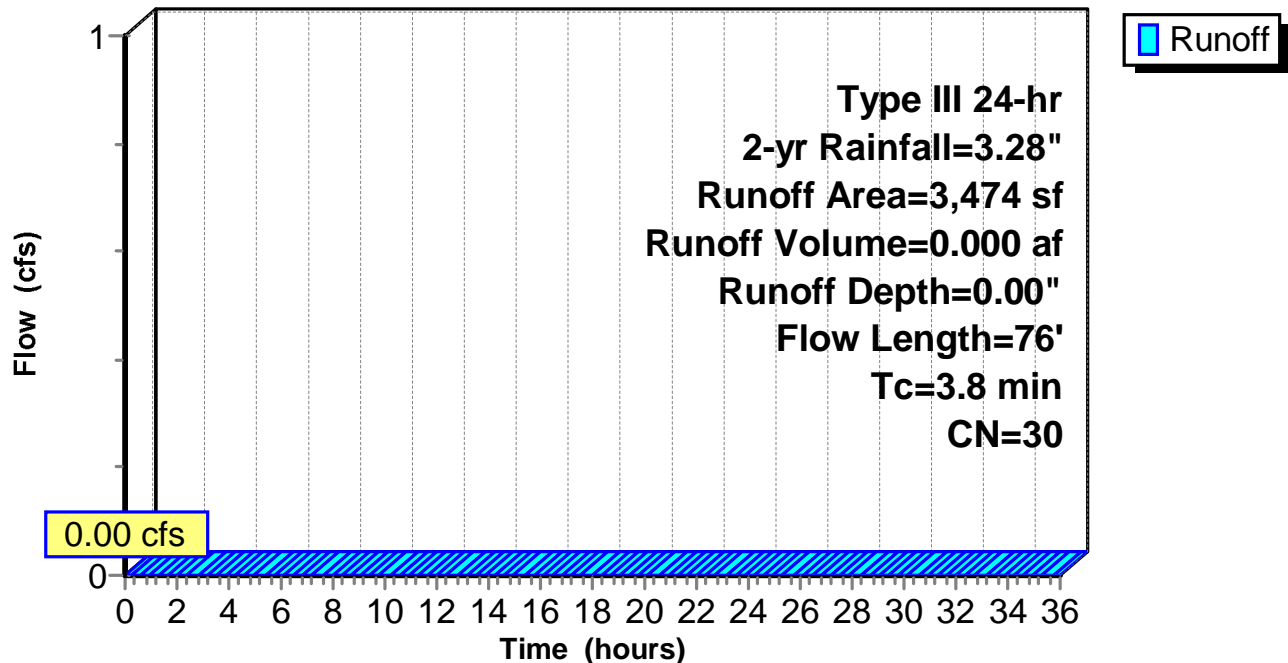
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
*	0	98 Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



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Summary for Subcatchment 16-07S:

Runoff = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af, Depth= 0.01"

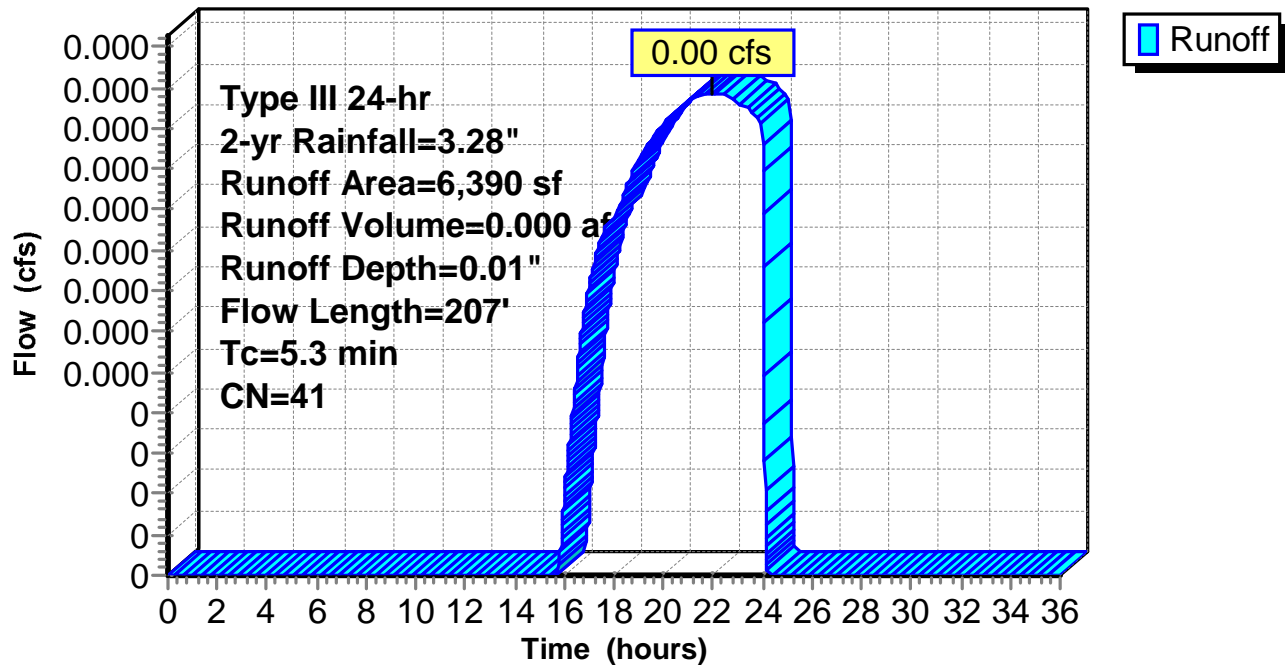
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description	
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"	
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps	
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps	
5.3	207	Total				

Subcatchment 16-07S:

Hydrograph



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Summary for Subcatchment 16-08S:

Runoff = 0.00 cfs @ 15.42 hrs, Volume= 0.000 af, Depth= 0.04"

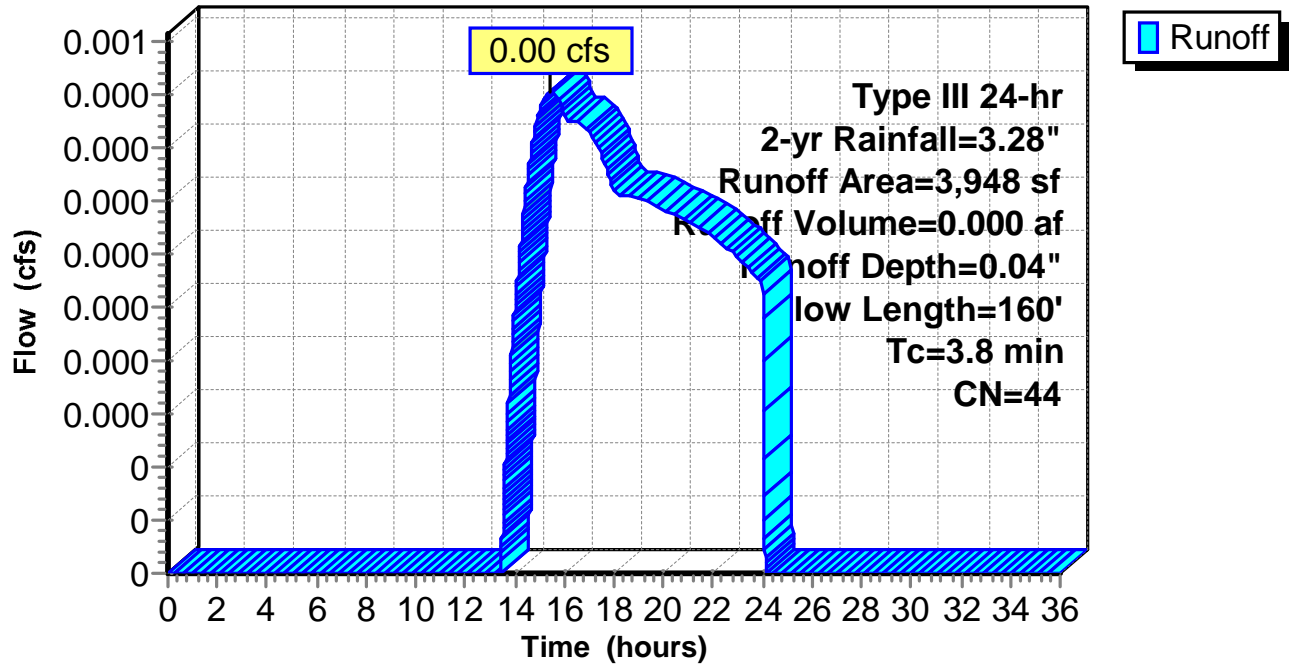
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



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Summary for Subcatchment 16-09S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

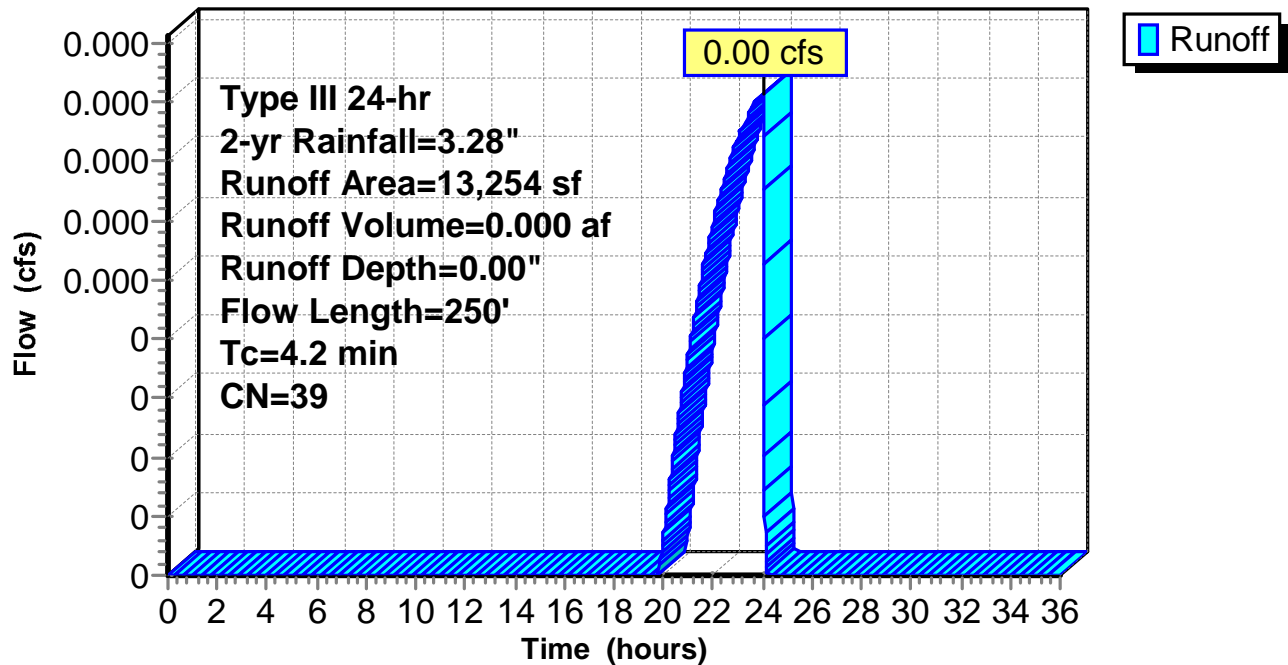
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



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Summary for Subcatchment 16-10S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

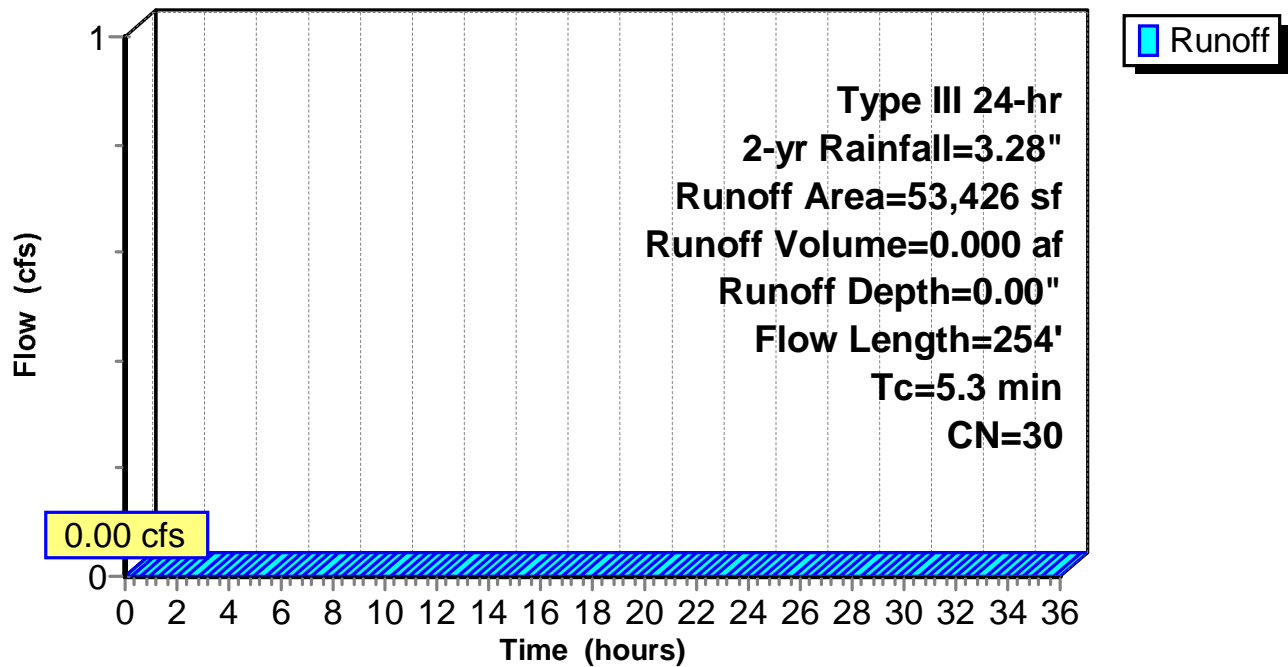
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



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Summary for Subcatchment 16-11S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

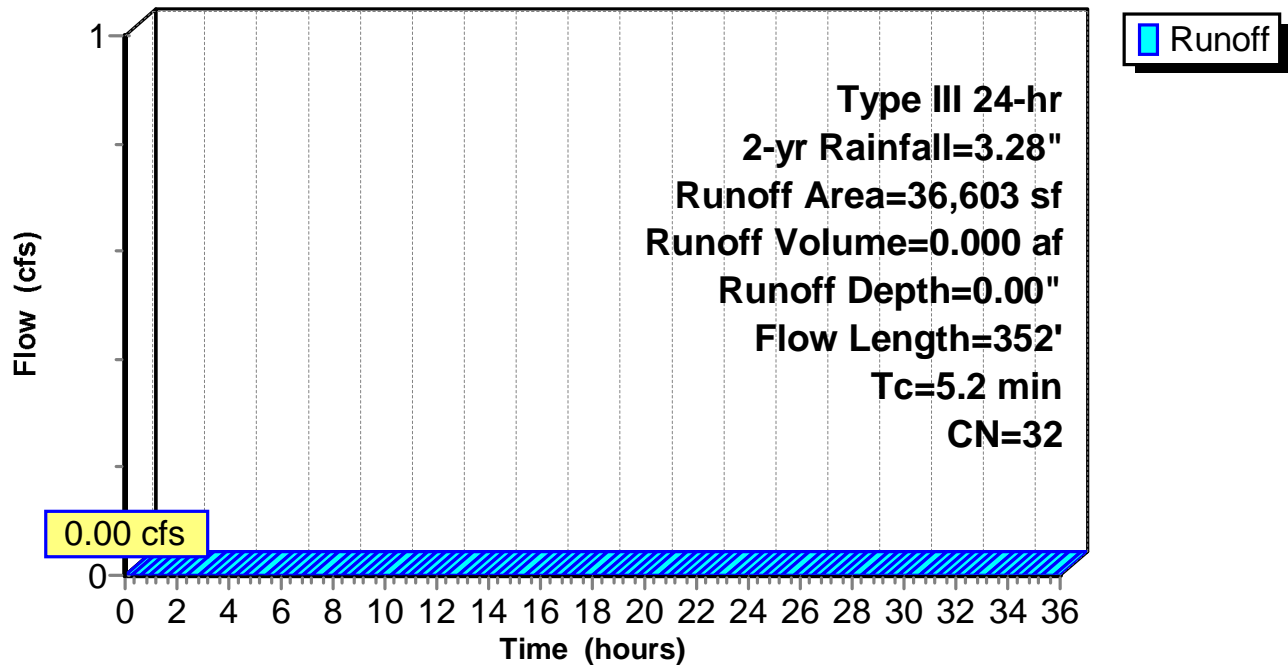
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-12S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

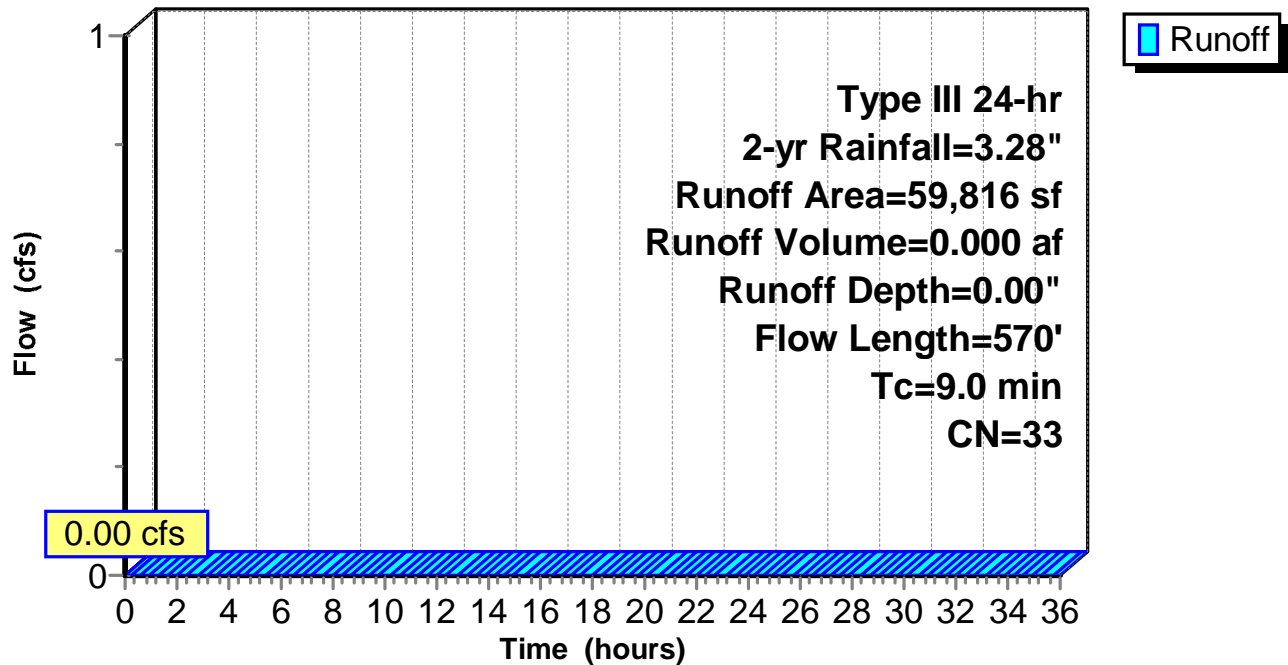
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-13S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

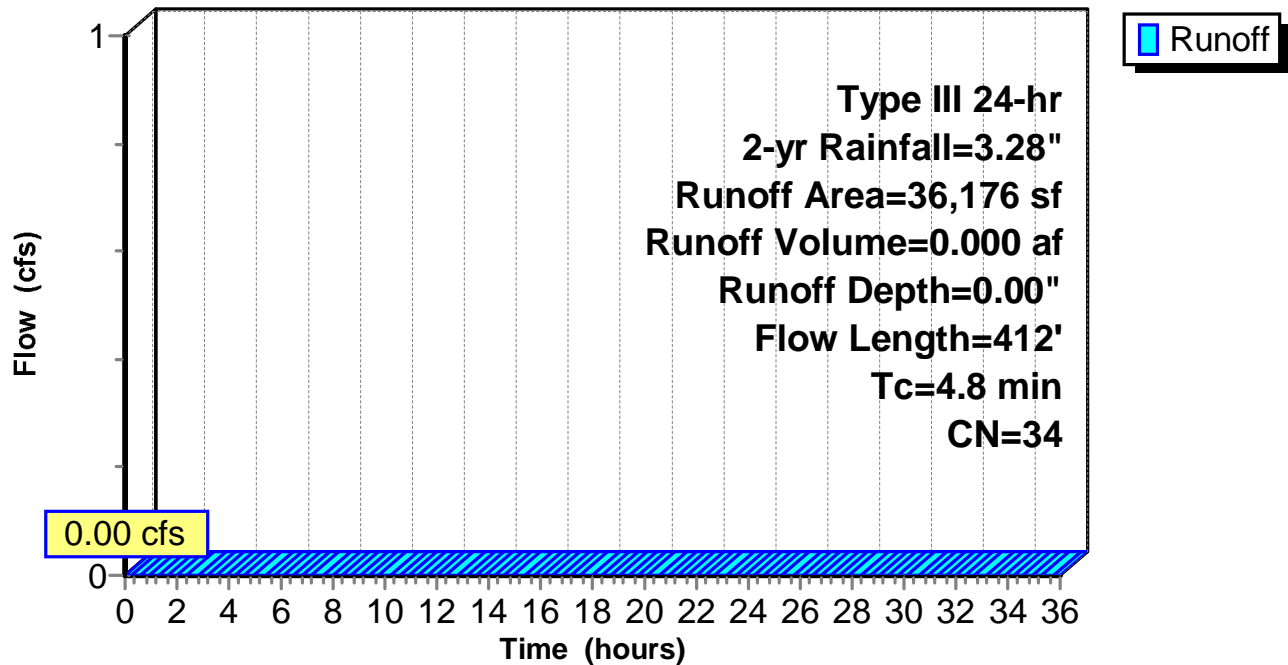
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-14S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

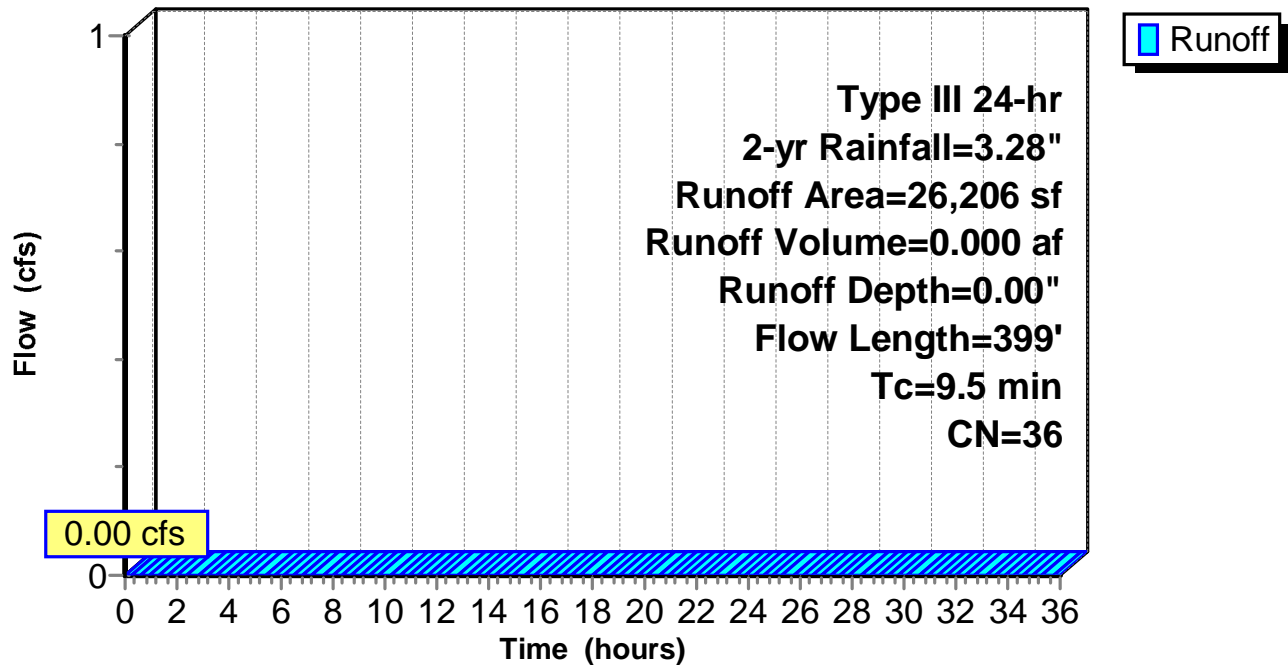
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-15S:

Runoff = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af, Depth= 0.02"

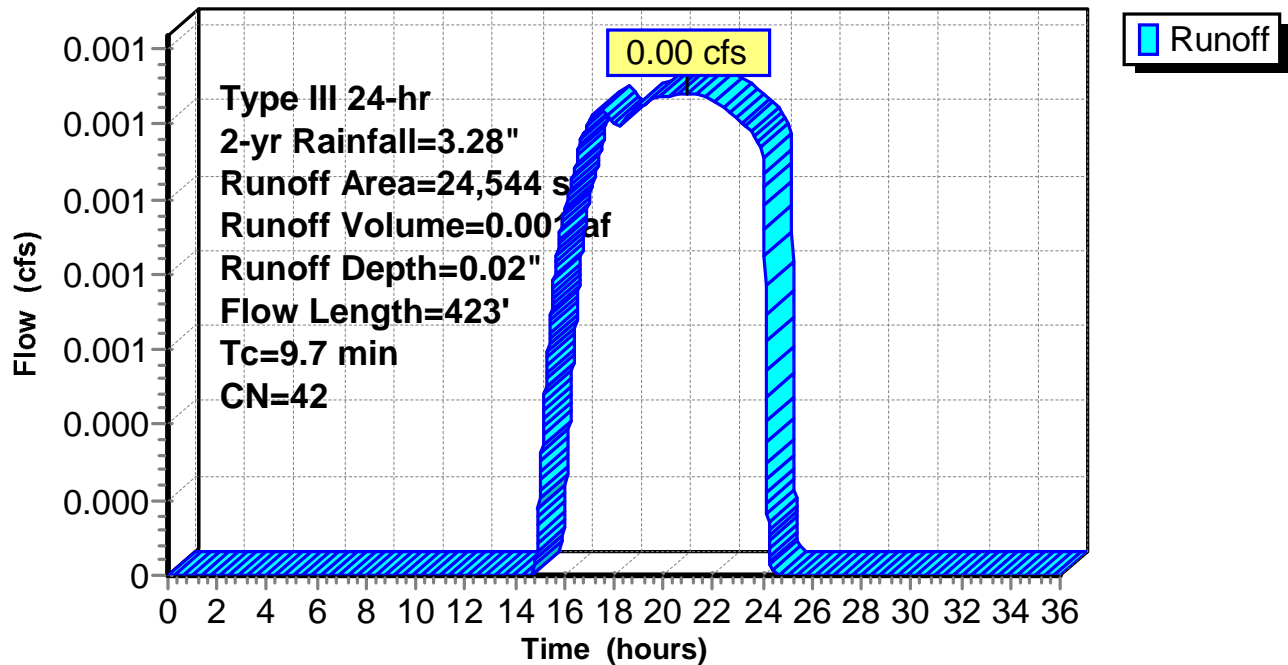
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 16-16S:

Runoff = 0.03 cfs @ 12.37 hrs, Volume= 0.006 af, Depth= 0.22"

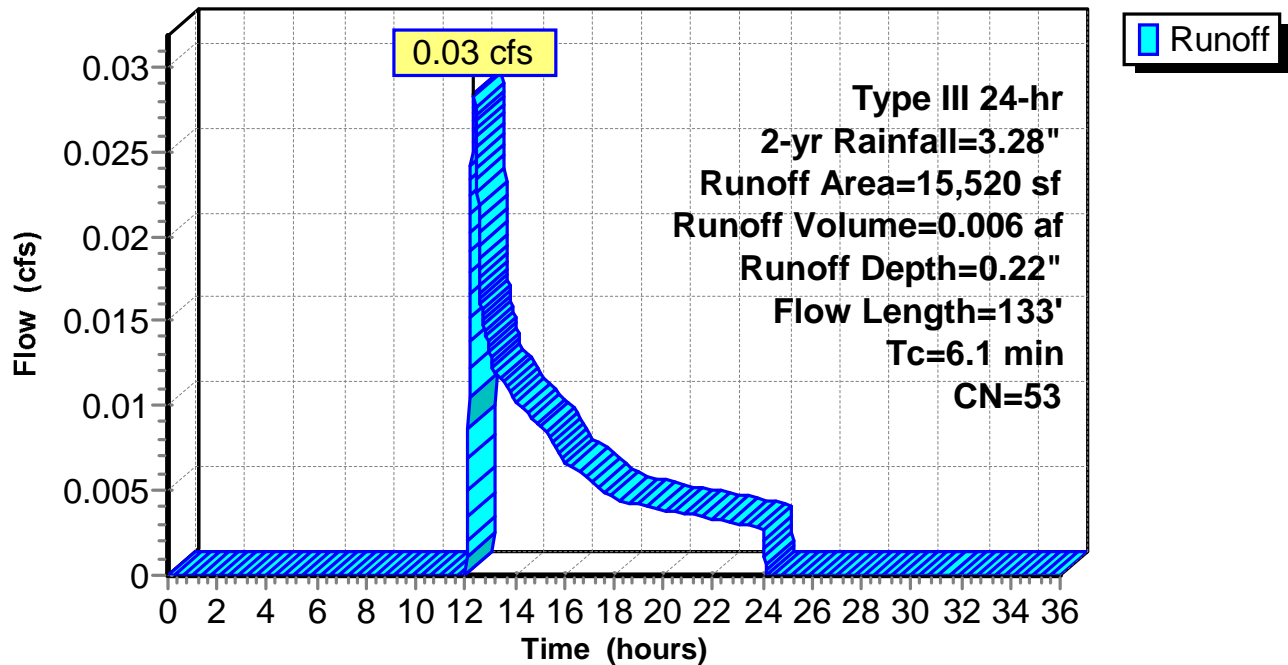
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
5,158	98	Impervious
10,362	30	Brush, Good, HSG A
15,520	53	Weighted Average
10,362		66.77% Pervious Area
5,158		33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	63	0.1190	2.41		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	20	0.3500	4.14		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.1	133	Total			

Subcatchment 16-16S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-01S:

Runoff = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Depth= 0.00"

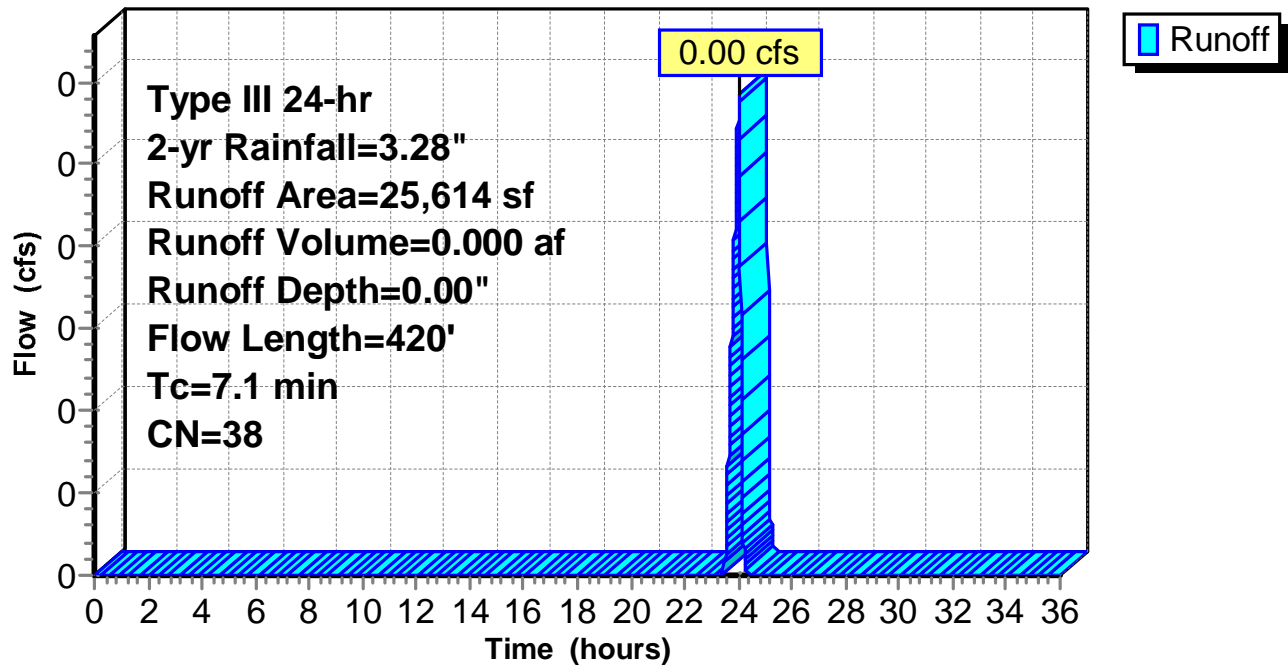
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-02S:

Runoff = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Depth= 0.00"

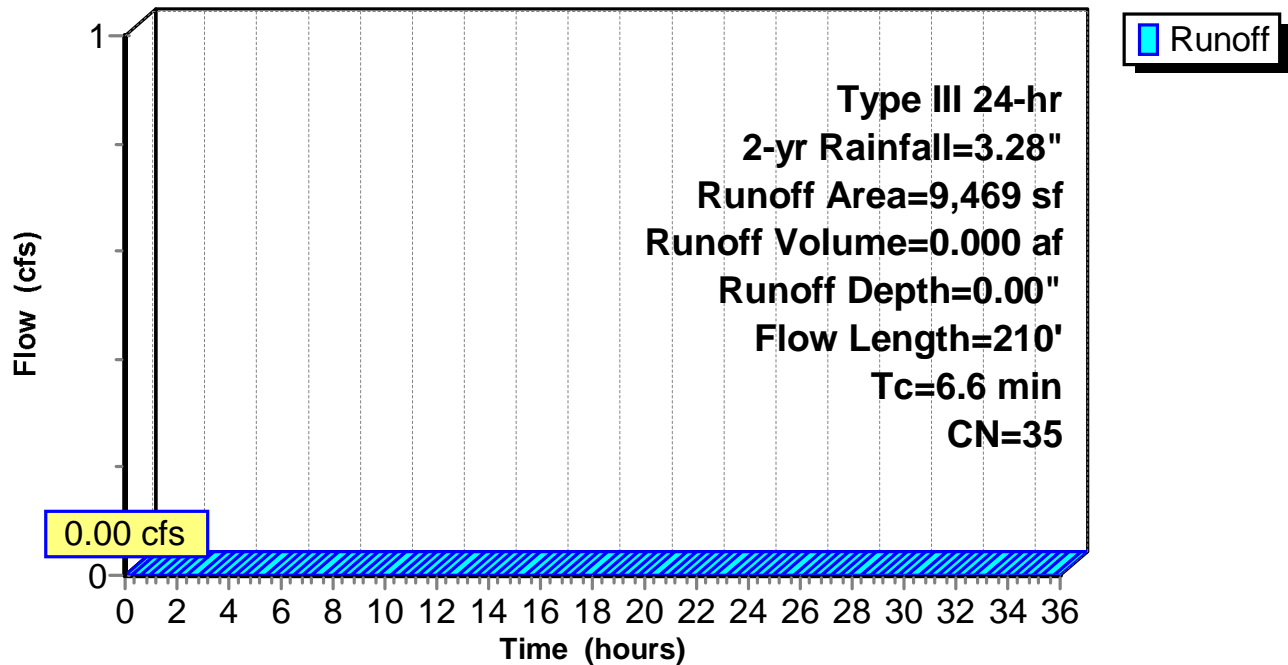
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



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Summary for Subcatchment 17-03S:

Runoff = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Depth= 0.01"

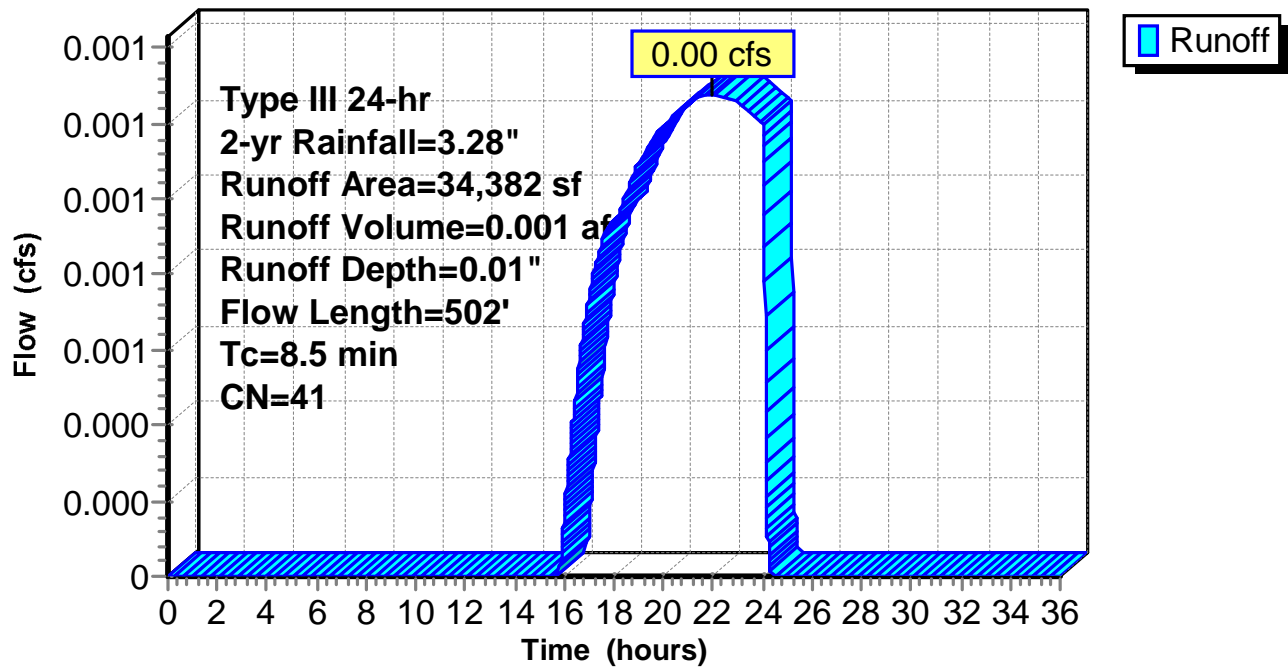
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



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Summary for Subcatchment 17-04S:

Runoff = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af, Depth= 0.19"

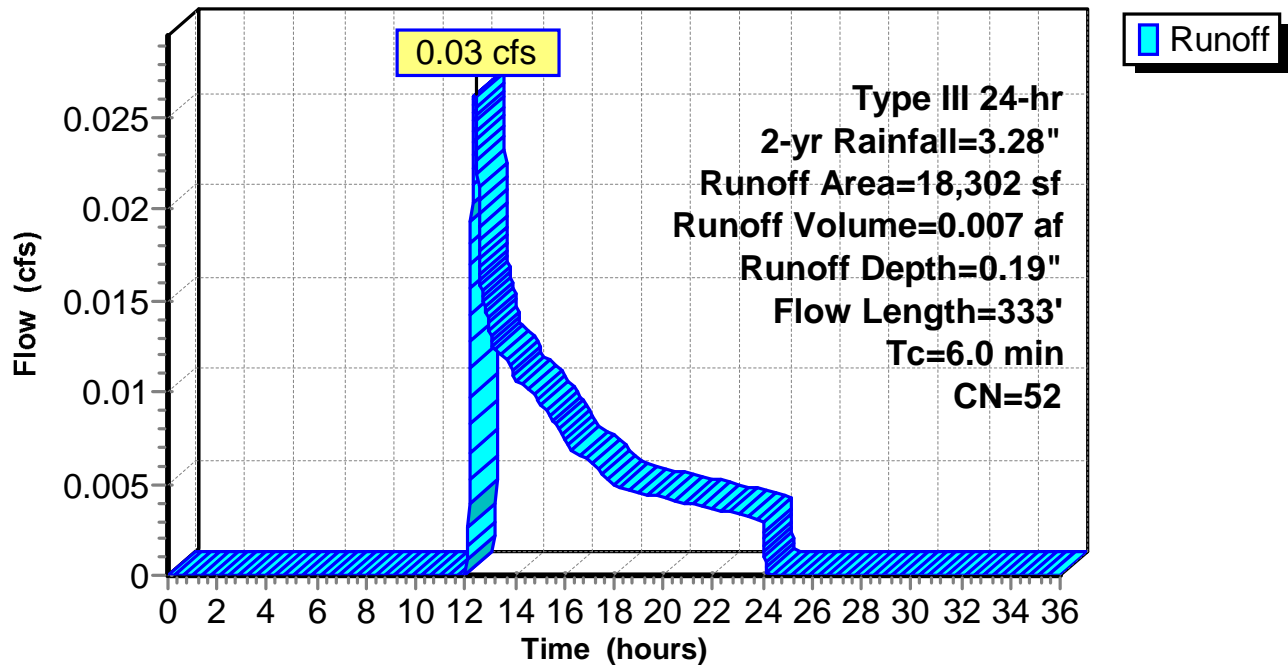
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Subcatchment 17-05S:

Runoff = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 0.52"

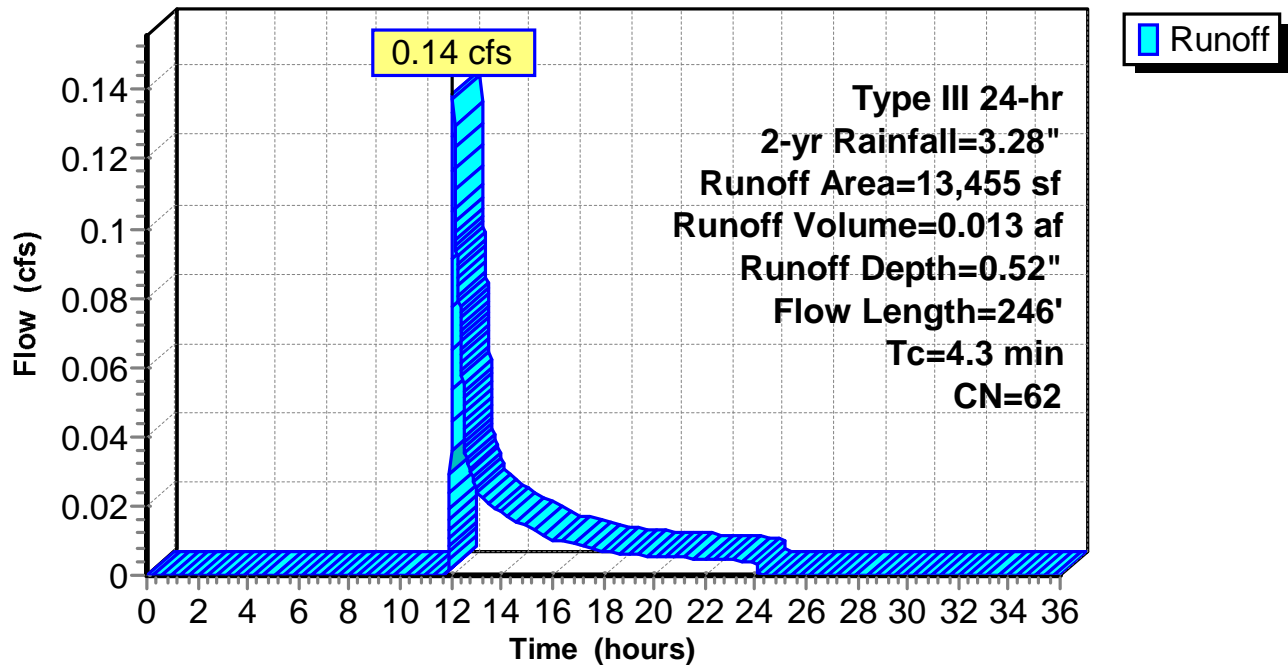
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	32	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.3	246	Total			

Subcatchment 17-05S:

Hydrograph



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Summary for Subcatchment 17-06S:

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 0.68"

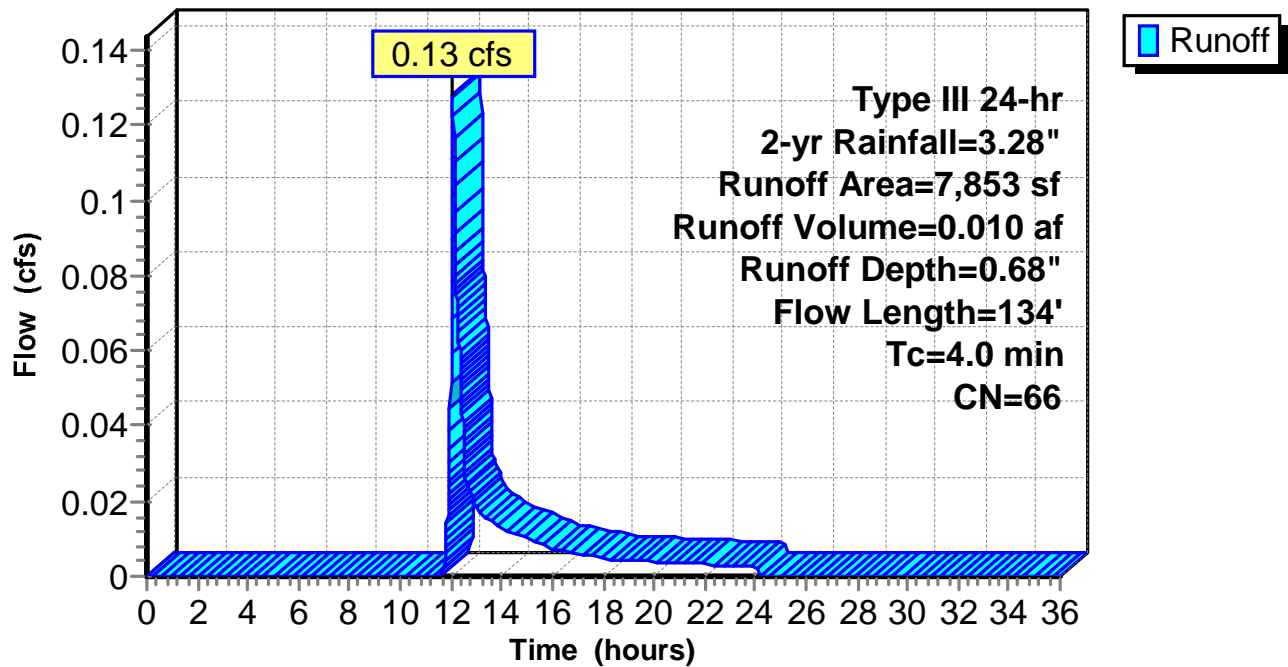
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

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Summary for Subcatchment 17-07S:

Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 1.09"

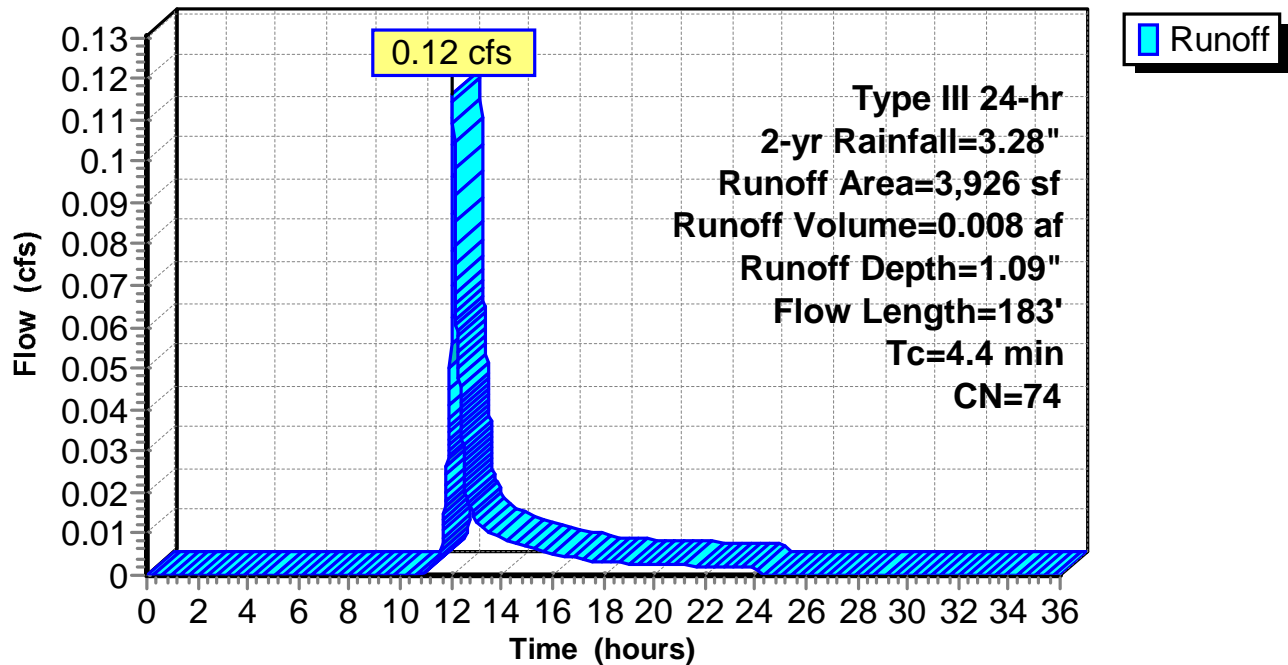
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-yr Rainfall=3.28"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.13' @ 21.99 hrs

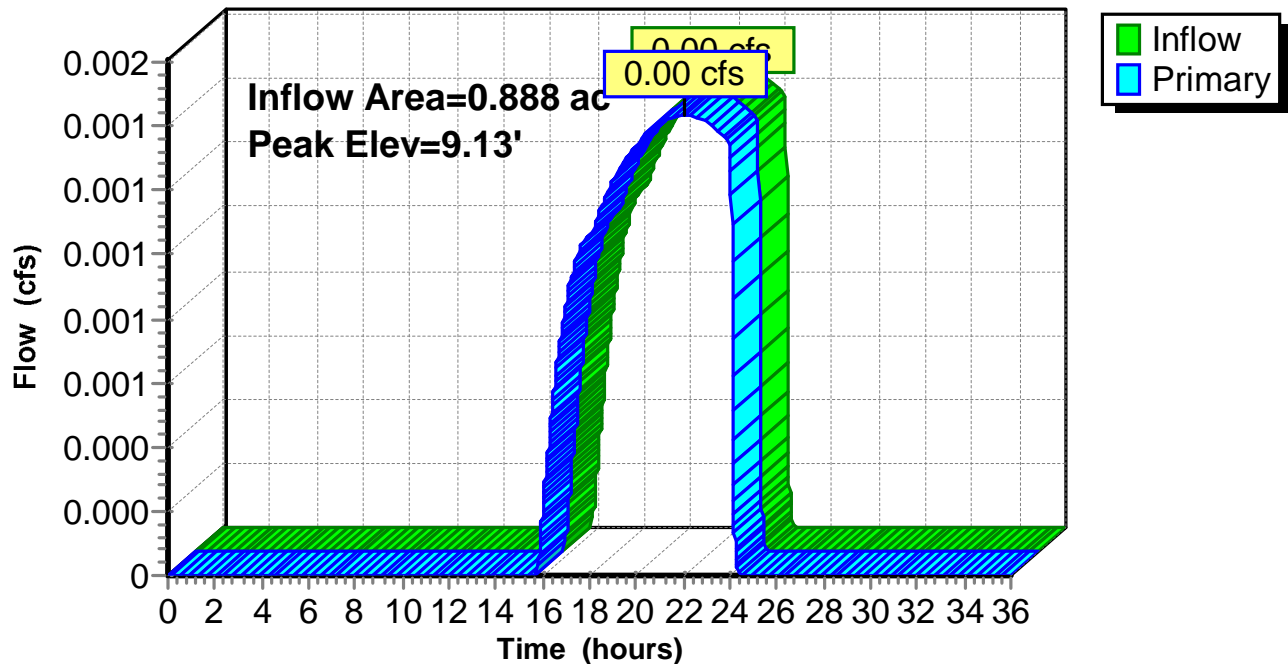
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.12'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 9.12' / 9.06' S= 0.0086 1/100' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.99 hrs HW=9.13' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.41 fps)

Pond CB16-01:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 0.64" for 2-yr event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.94' @ 12.07 hrs

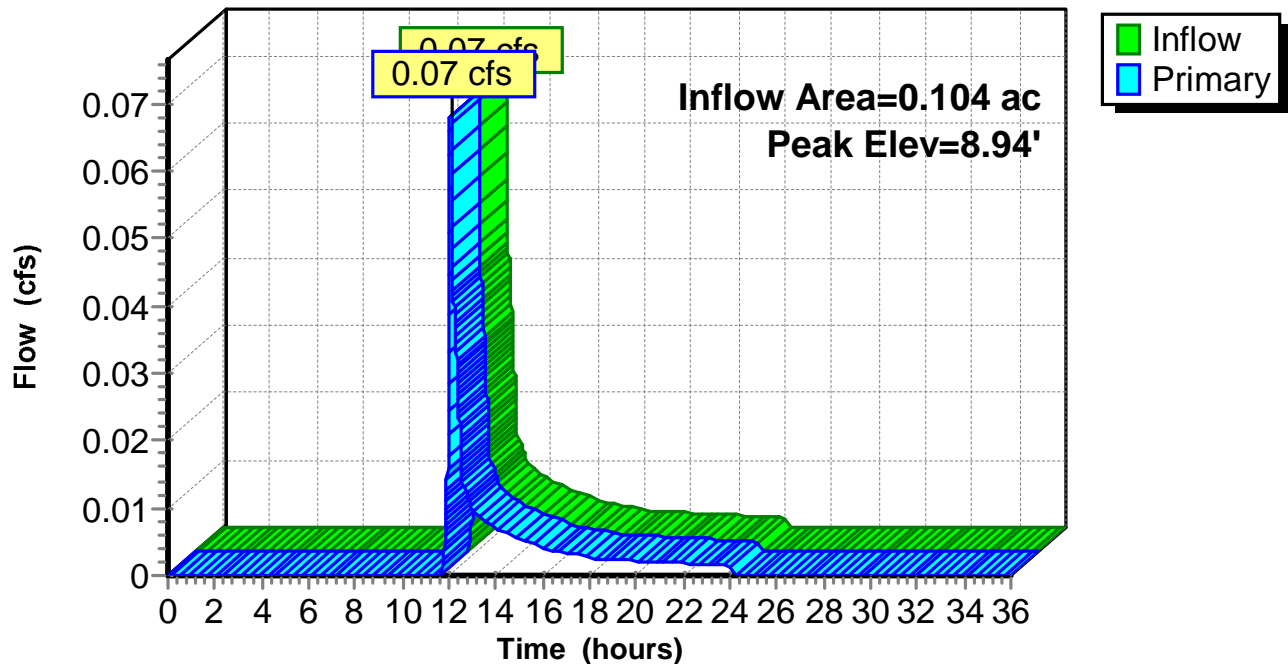
Device	Routing	Invert	Outlet Devices
#1	Primary	11.86'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.07 cfs @ 12.07 hrs HW=8.94' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.07 cfs @ 1.20 fps)

Pond CB16-02:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.82' @ 0.00 hrs

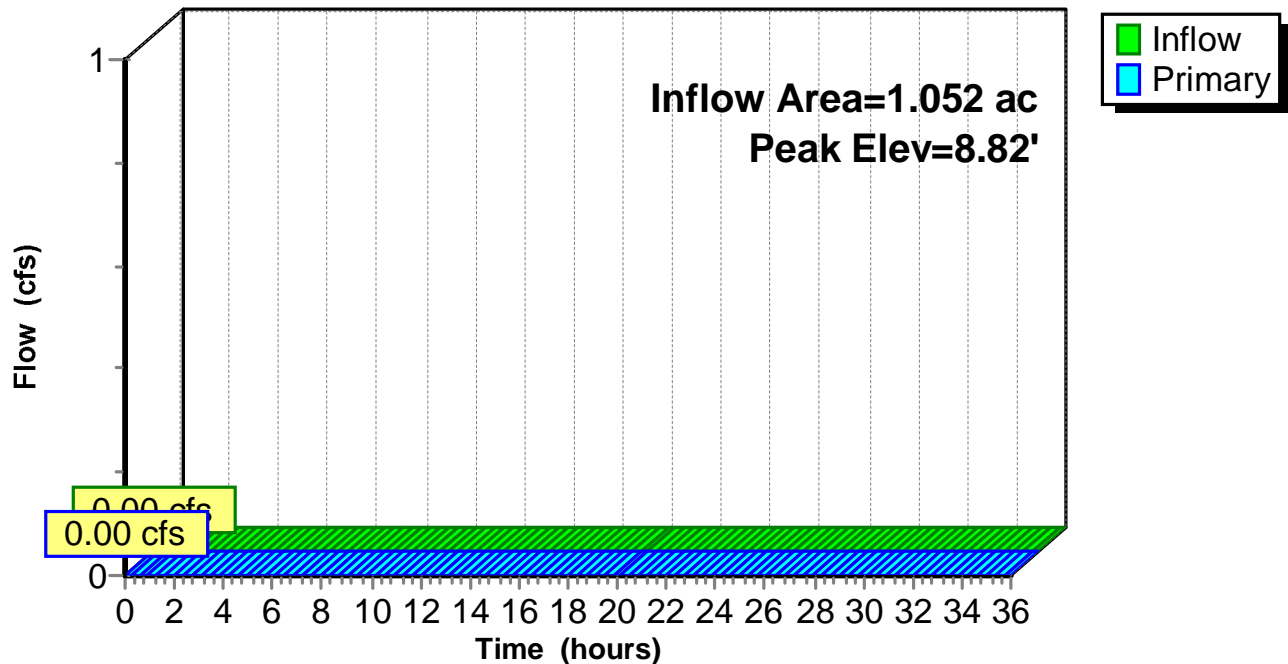
Device	Routing	Invert	Outlet Devices
#1	Primary	11.95'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.82' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-03:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.98' @ 0.00 hrs

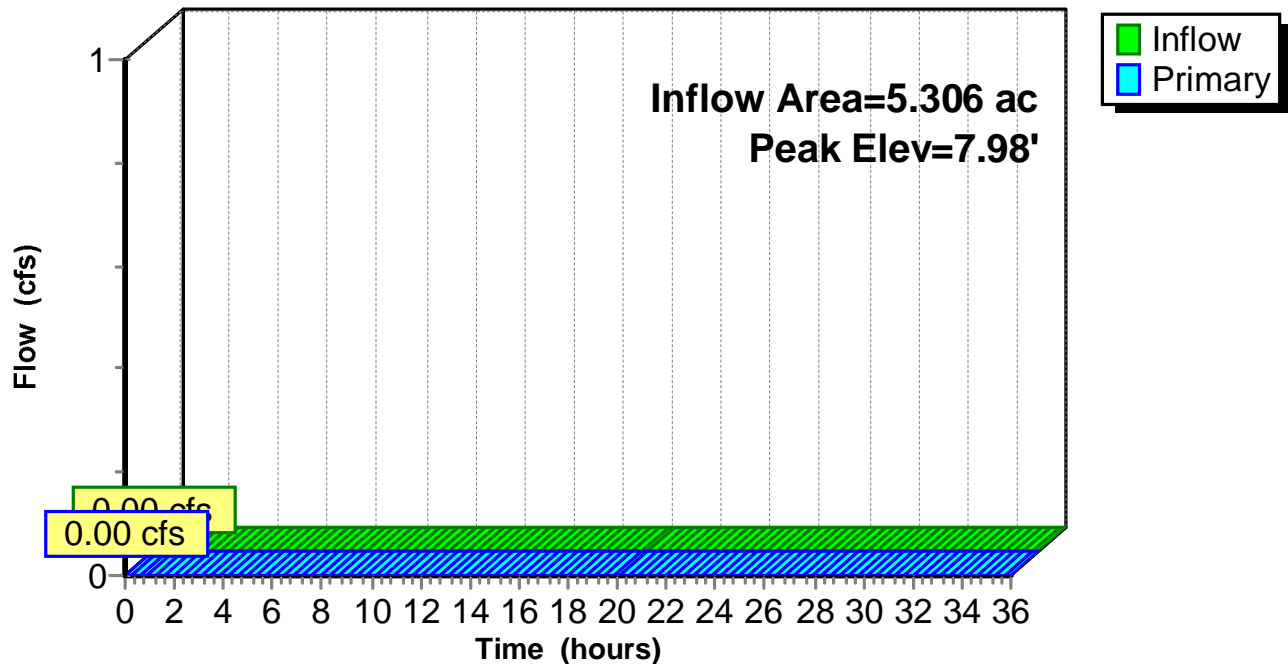
Device	Routing	Invert	Outlet Devices
#1	Primary	15.53'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.98'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 7.98' / 6.11' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-04:

Hydrograph



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Summary for Pond CB16-05:

Inflow Area = 2.098 ac, 17.46% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af
 Outflow = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.76 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.98' @ 21.76 hrs

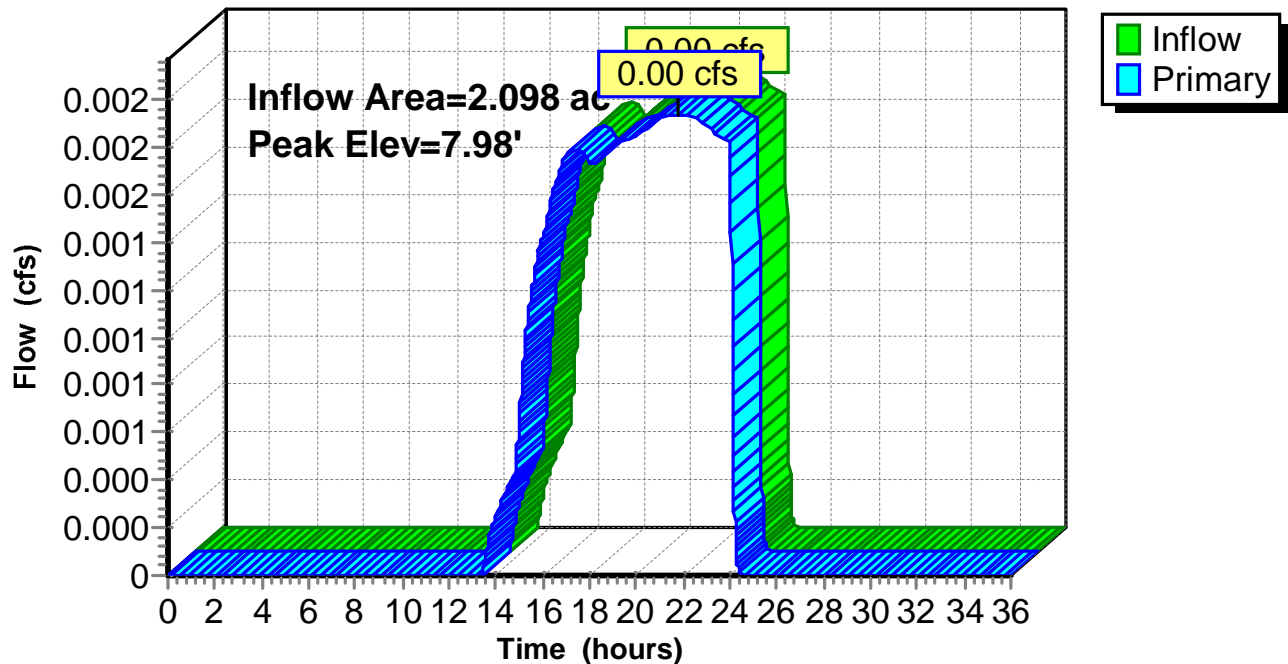
Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.97'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 7.97' / 6.11' S= 0.0255 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 21.76 hrs HW=7.98' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.33 fps)

Pond CB16-05:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.72' @ 0.00 hrs

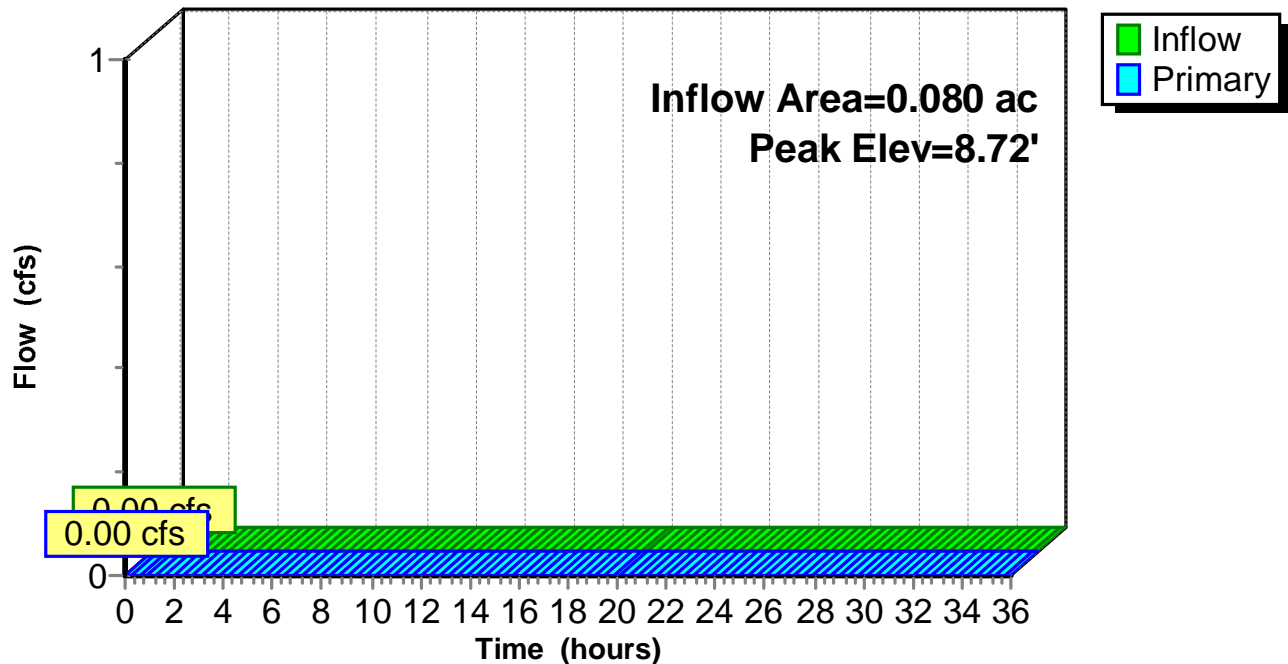
Device	Routing	Invert	Outlet Devices
#1	Primary	12.71'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.72'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 8.72' / 8.03' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=8.72' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-06:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 21.96 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 13.96' @ 21.96 hrs

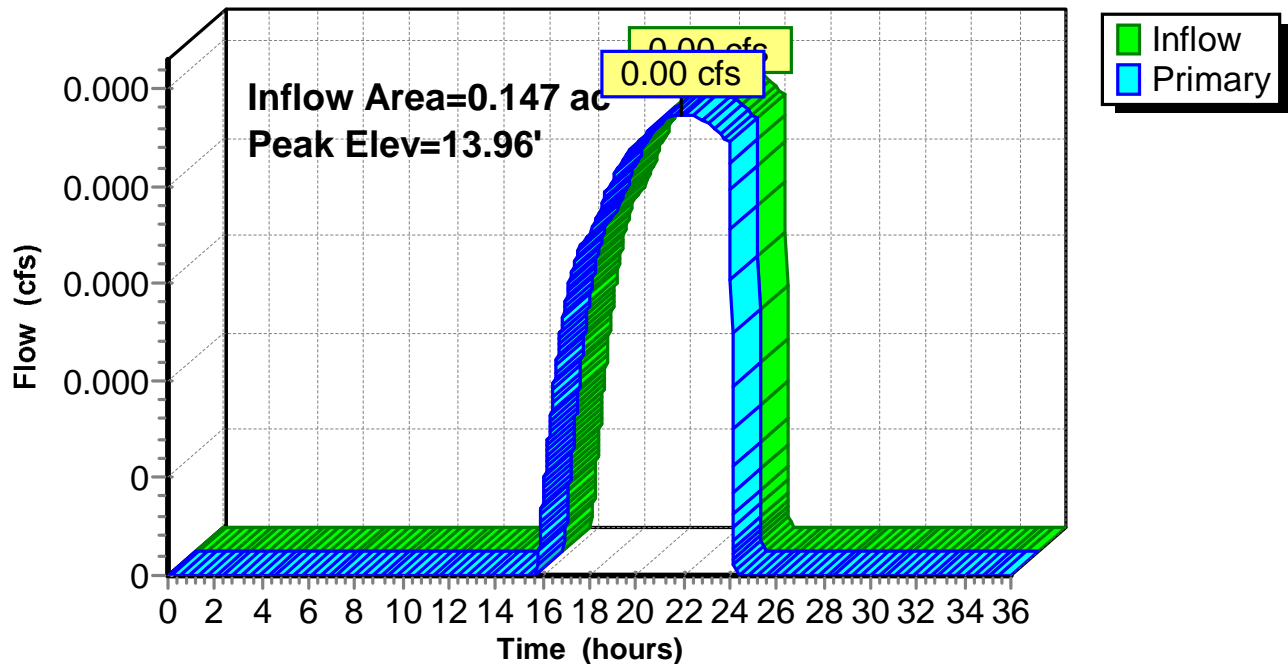
Device	Routing	Invert	Outlet Devices
#1	Primary	18.96'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.96'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 13.96' / 13.58' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.96 hrs HW=13.96' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.08 fps)

Pond CB16-07:

Hydrograph



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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.02" for 2-yr event
 Inflow = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 20.69 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 13.55' @ 20.69 hrs

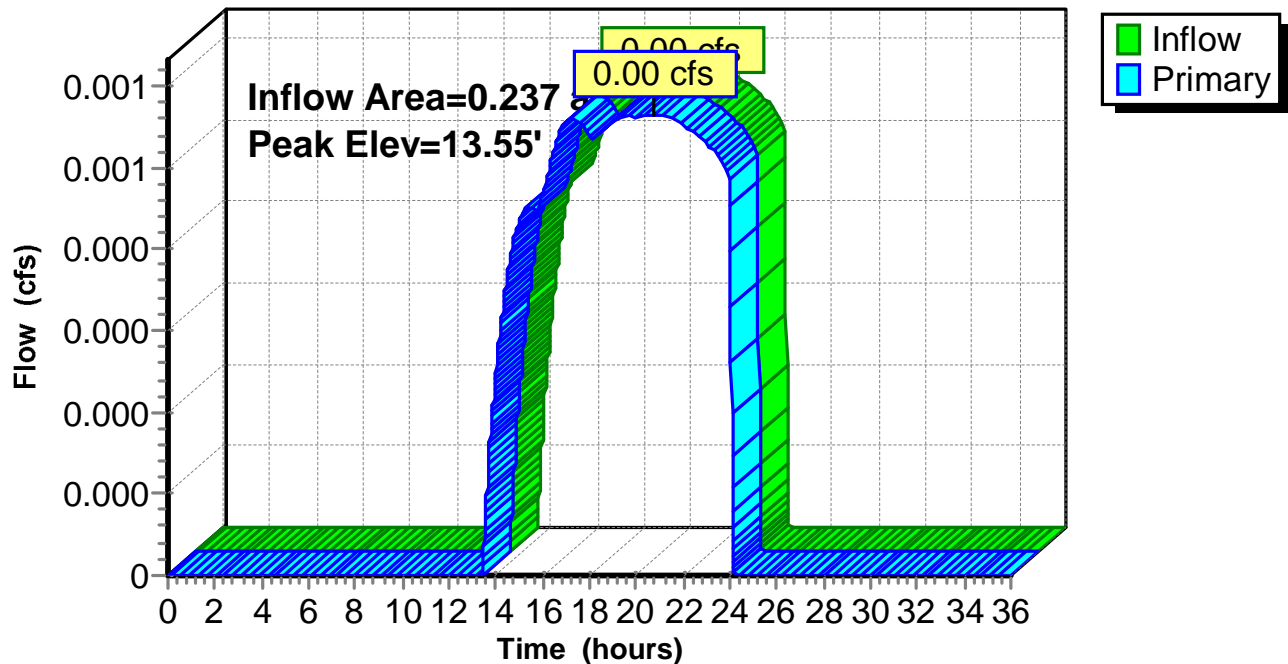
Device	Routing	Invert	Outlet Devices
#1	Primary	21.43'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.55'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 13.55' / 8.03' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 20.69 hrs HW=13.55' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.14 fps)

Pond CB16-08:

Hydrograph



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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 18.07' @ 24.00 hrs

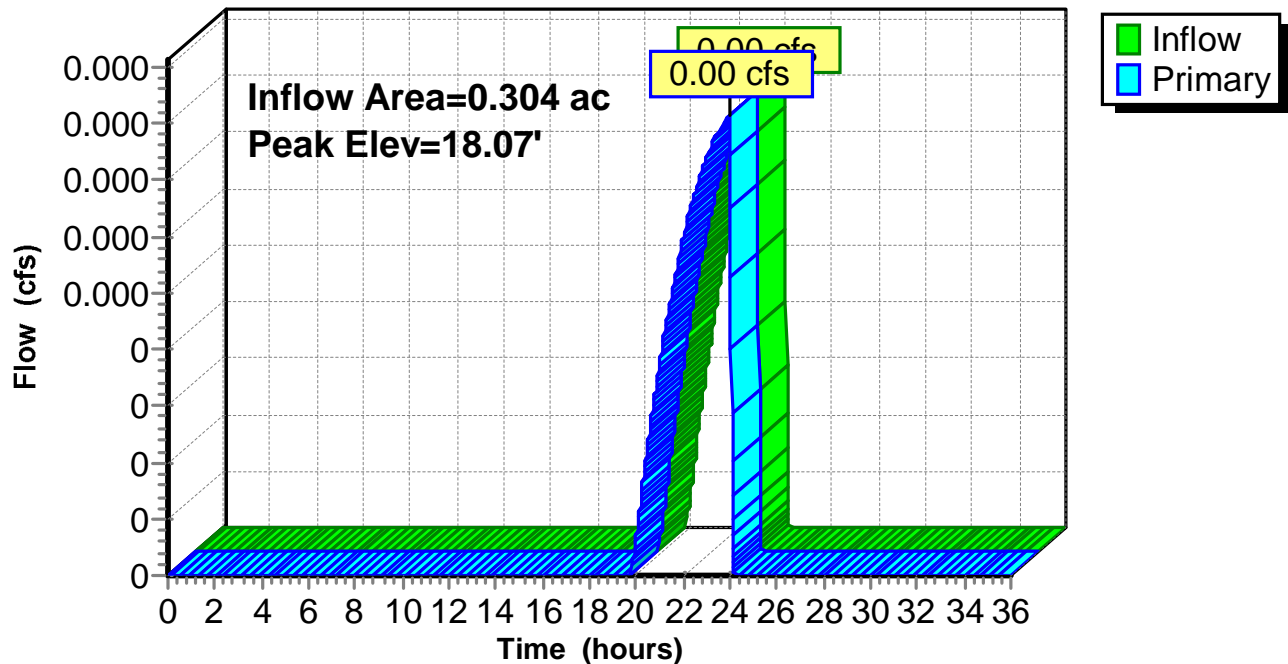
Device	Routing	Invert	Outlet Devices
#1	Primary	23.15'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	18.07'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 18.07' / 9.71' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=18.07' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.09 fps)

Pond CB16-09:

Hydrograph



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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 22.83' @ 0.00 hrs

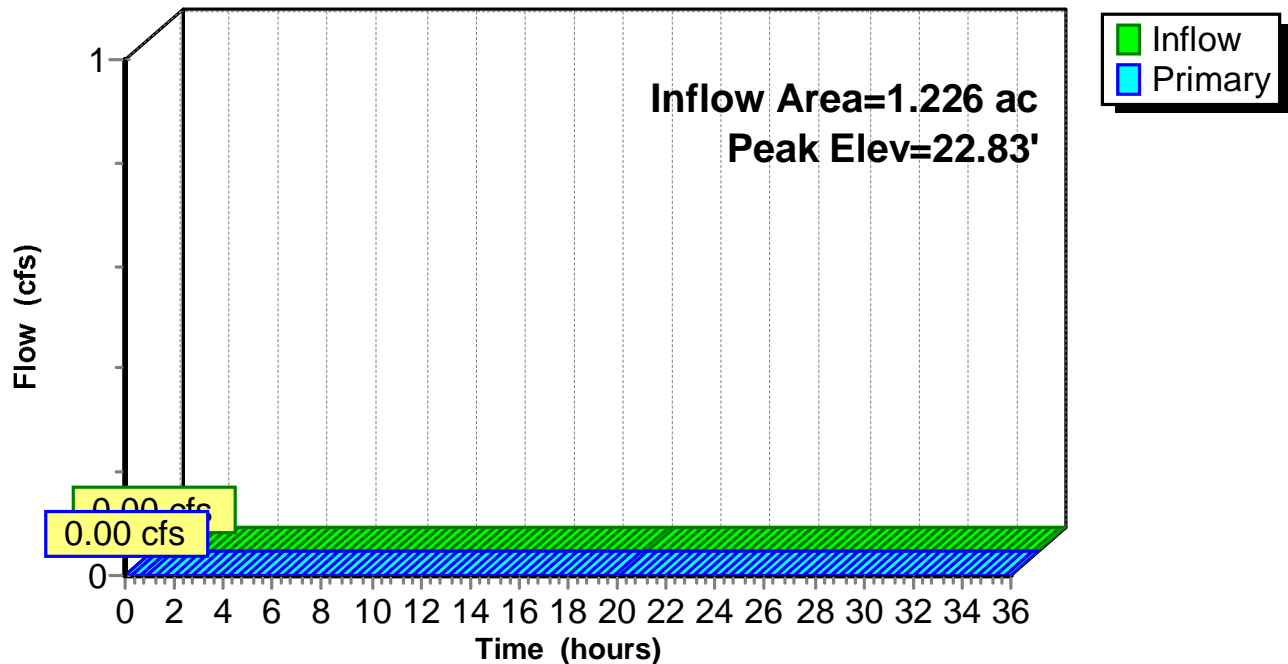
Device	Routing	Invert	Outlet Devices
#1	Primary	26.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.83'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 22.83' / 22.79' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=22.83' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-10:

Hydrograph



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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 22.52' @ 0.00 hrs

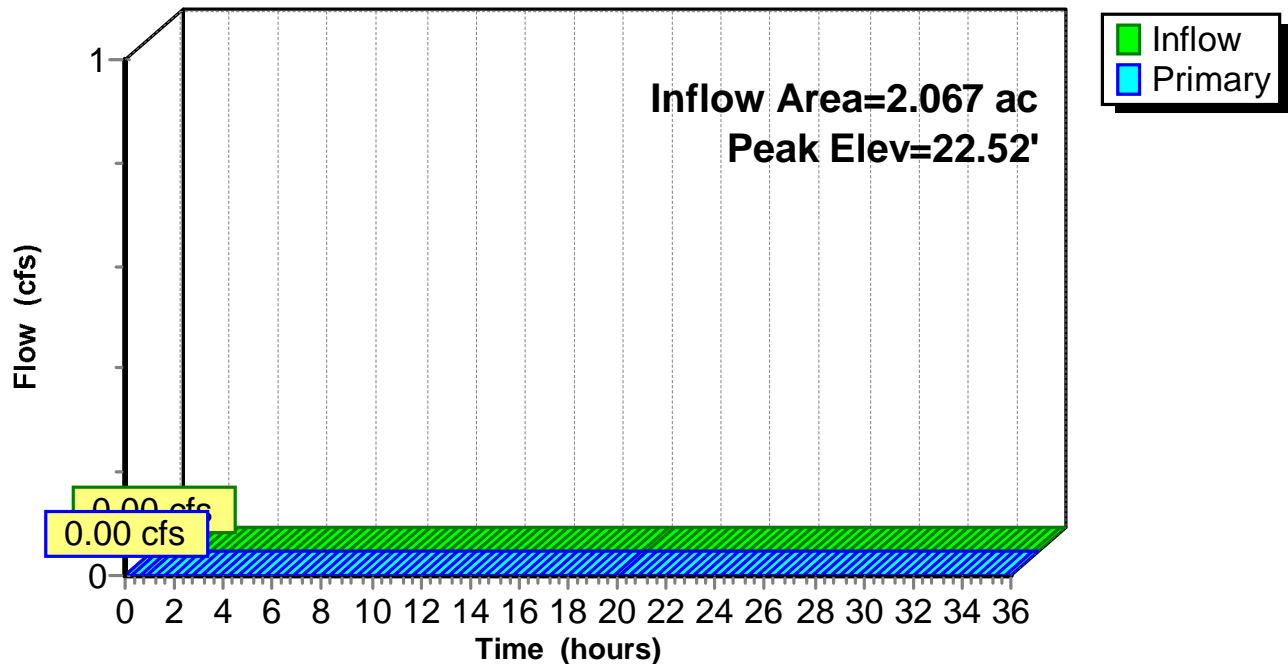
Device	Routing	Invert	Outlet Devices
#1	Primary	26.87'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.52'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 22.52' / 21.23' S= 0.0136 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=22.52' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-11:

Hydrograph



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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 23.91' @ 0.00 hrs

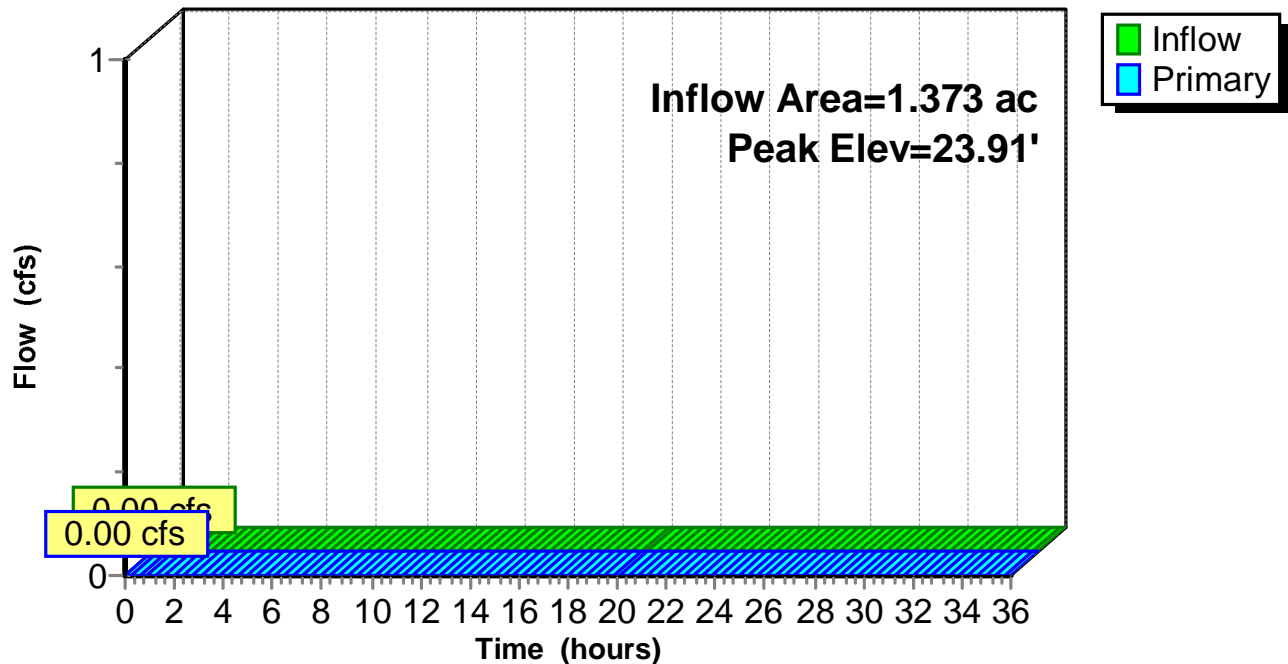
Device	Routing	Invert	Outlet Devices
#1	Primary	29.47'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	23.91'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 23.91' / 23.32' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=23.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-12:

Hydrograph



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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 28.12' @ 0.00 hrs

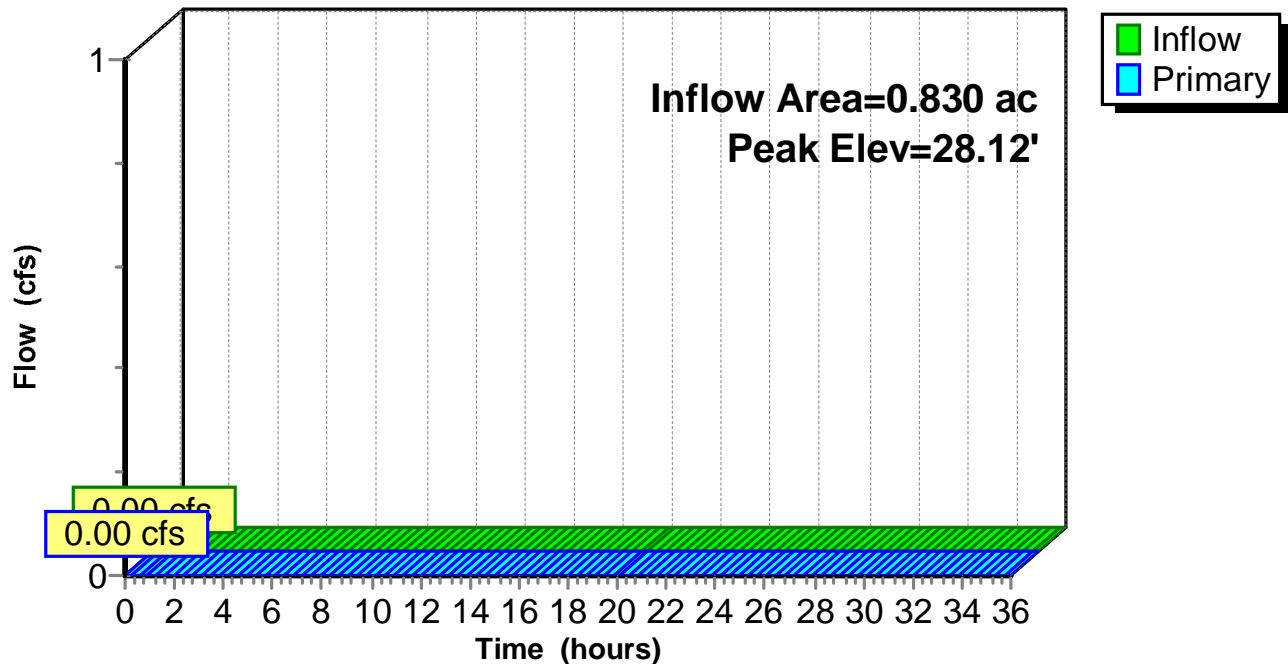
Device	Routing	Invert	Outlet Devices
#1	Primary	32.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	28.12'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 28.12' / 27.48' S= 0.2133 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=28.12' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-13:

Hydrograph



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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 37.59' @ 0.00 hrs

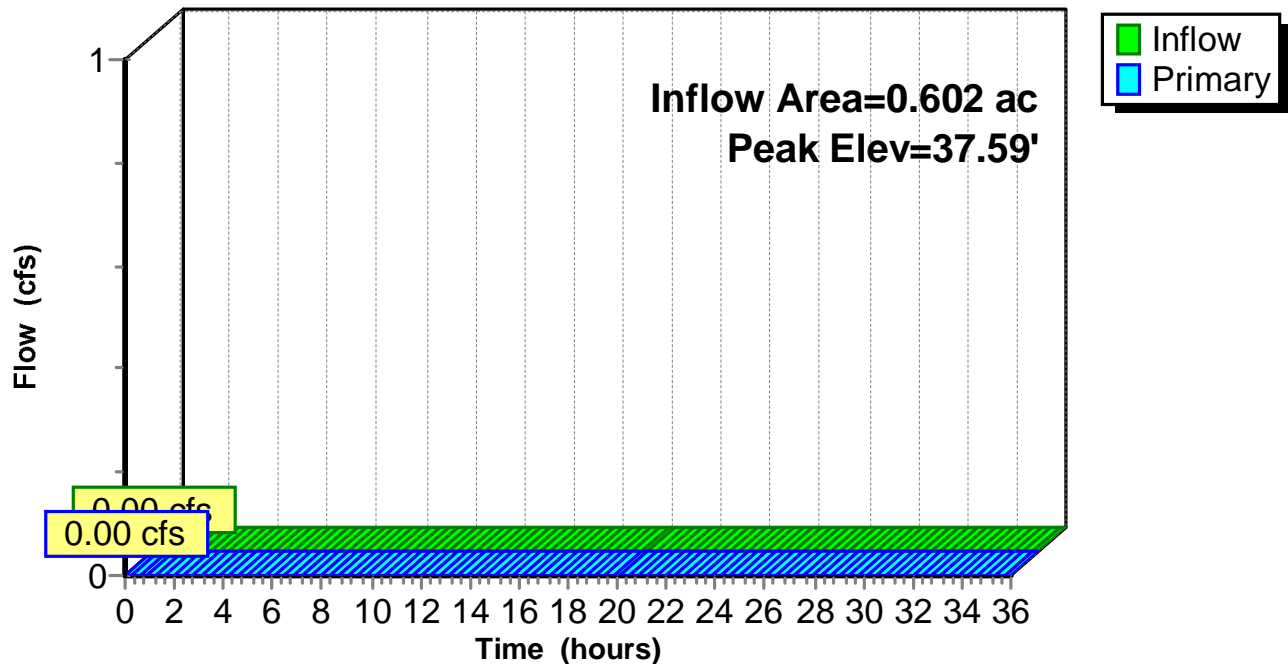
Device	Routing	Invert	Outlet Devices
#1	Primary	42.77'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	37.59'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 37.59' / 30.07' S= 0.0800 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=37.59' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond CB16-14:

Hydrograph



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Summary for Pond CB16-15:

Inflow Area = 0.920 ac, 23.48% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 20.92 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.41' @ 20.92 hrs

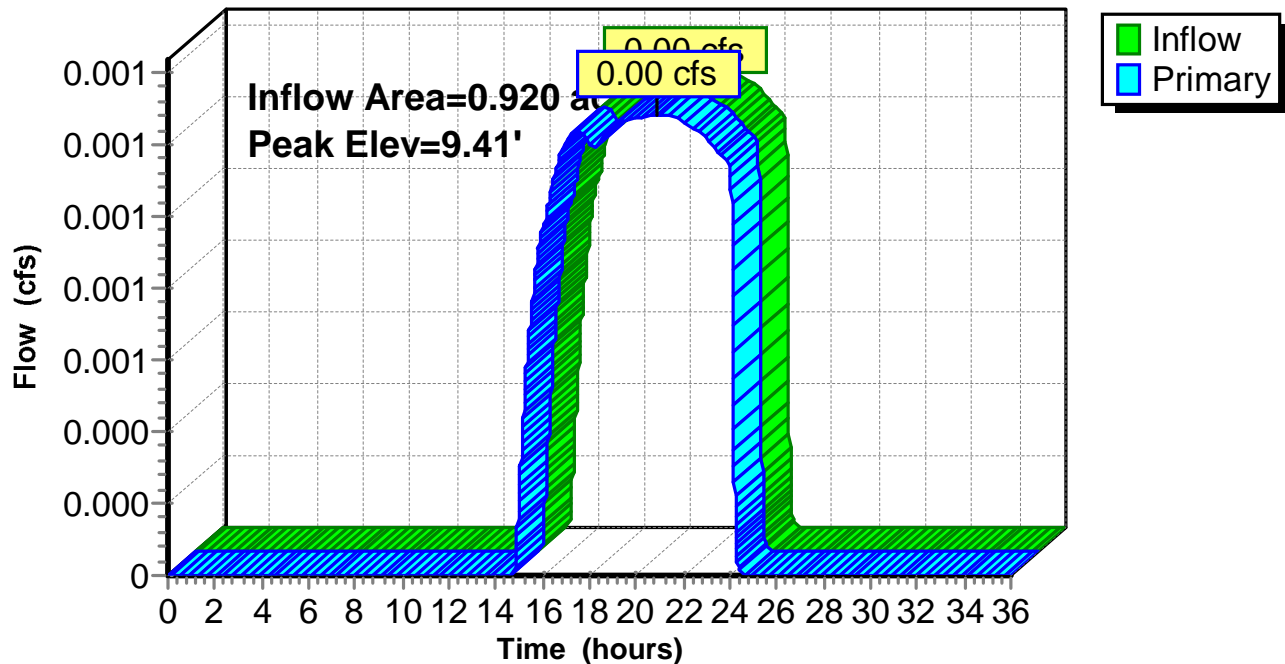
Device	Routing	Invert	Outlet Devices
#1	Primary	12.42'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.40'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 9.40' / 7.97' S= 0.0154 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 20.92 hrs HW=9.41' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.43 fps)

Pond CB16-15:

Hydrograph



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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.03' @ 24.03 hrs

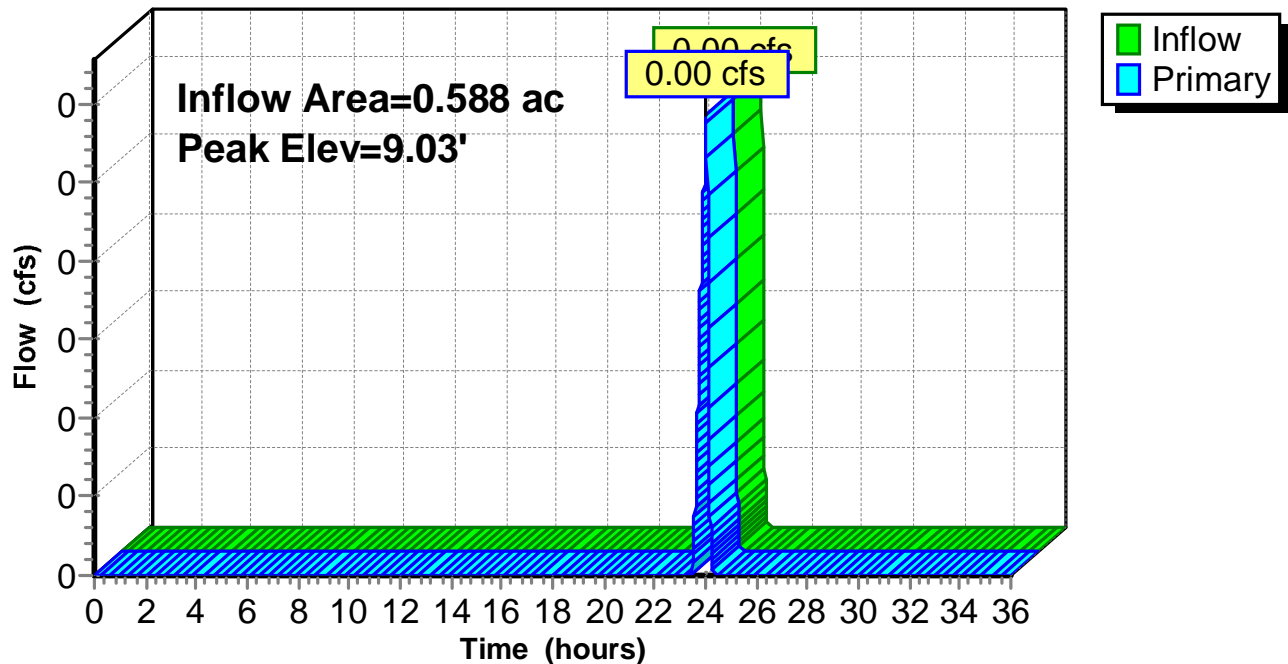
Device	Routing	Invert	Outlet Devices
#1	Primary	12.28'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.03'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 9.03' / 8.85' S= 0.0036 1/100' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.03 hrs HW=9.03' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.03 fps)

Pond CB17-01:

Hydrograph



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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.03 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.85' @ 24.03 hrs

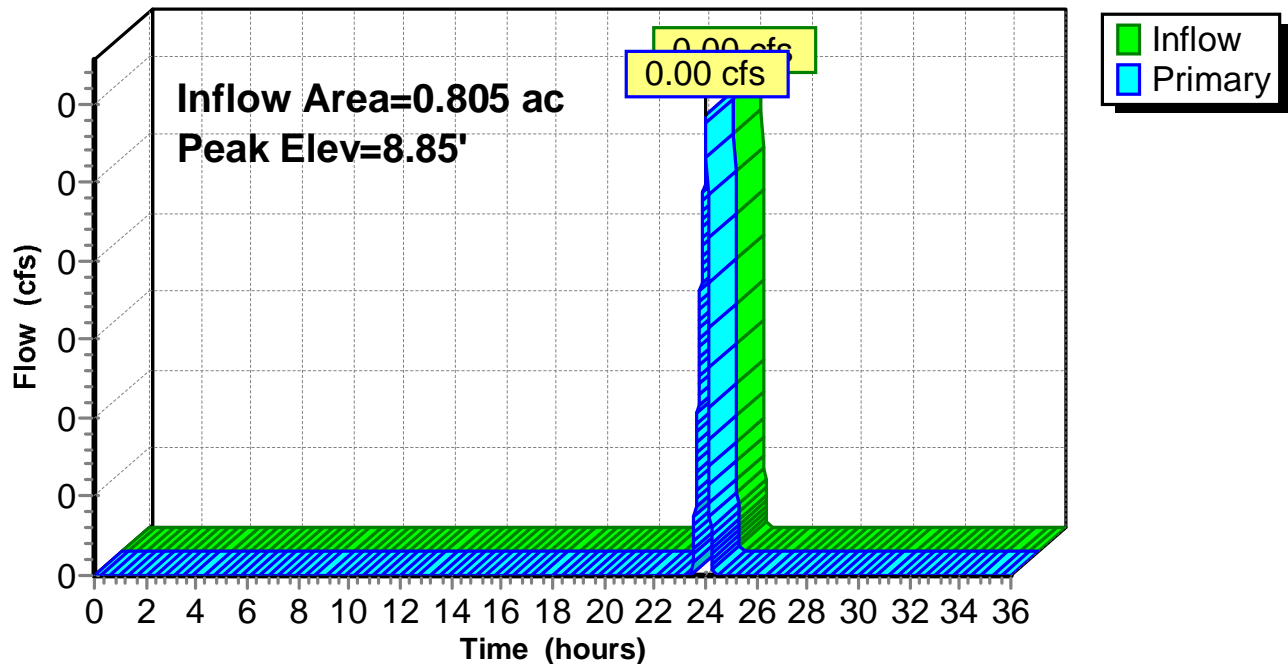
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.85'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 8.85' / 8.63' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.03 hrs HW=8.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.02 fps)

Pond CB17-02:

Hydrograph



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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.68' @ 21.94 hrs

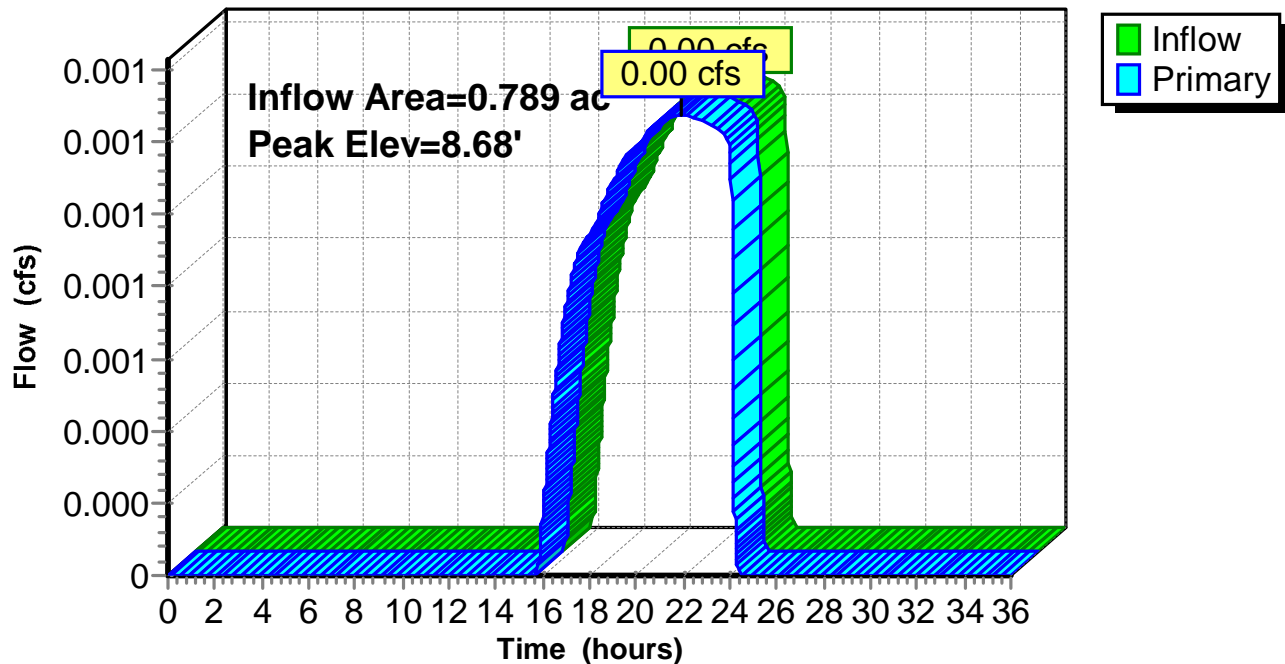
Device	Routing	Invert	Outlet Devices
#1	Primary	11.61'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.67'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 8.67' / 8.63' S= 0.0133 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=8.68' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.44 fps)

Pond CB17-03:

Hydrograph



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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 0.19" for 2-yr event
 Inflow = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af
 Outflow = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 12.39 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.15' @ 12.39 hrs

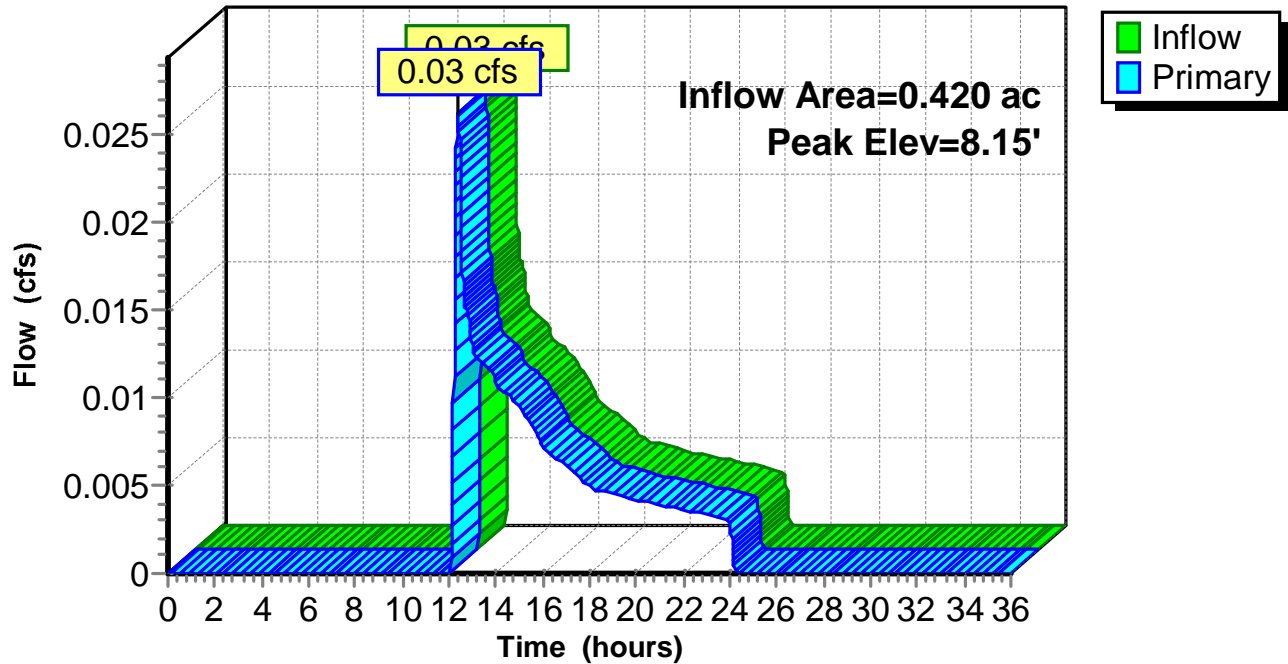
Device	Routing	Invert	Outlet Devices
#1	Primary	11.13'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0260 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.39 hrs HW=8.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 0.94 fps)

Pond CB17-04:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-05:

Inflow Area = 0.309 ac, 47.03% Impervious, Inflow Depth = 0.52" for 2-yr event
Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af
Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.09 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.27' @ 12.09 hrs

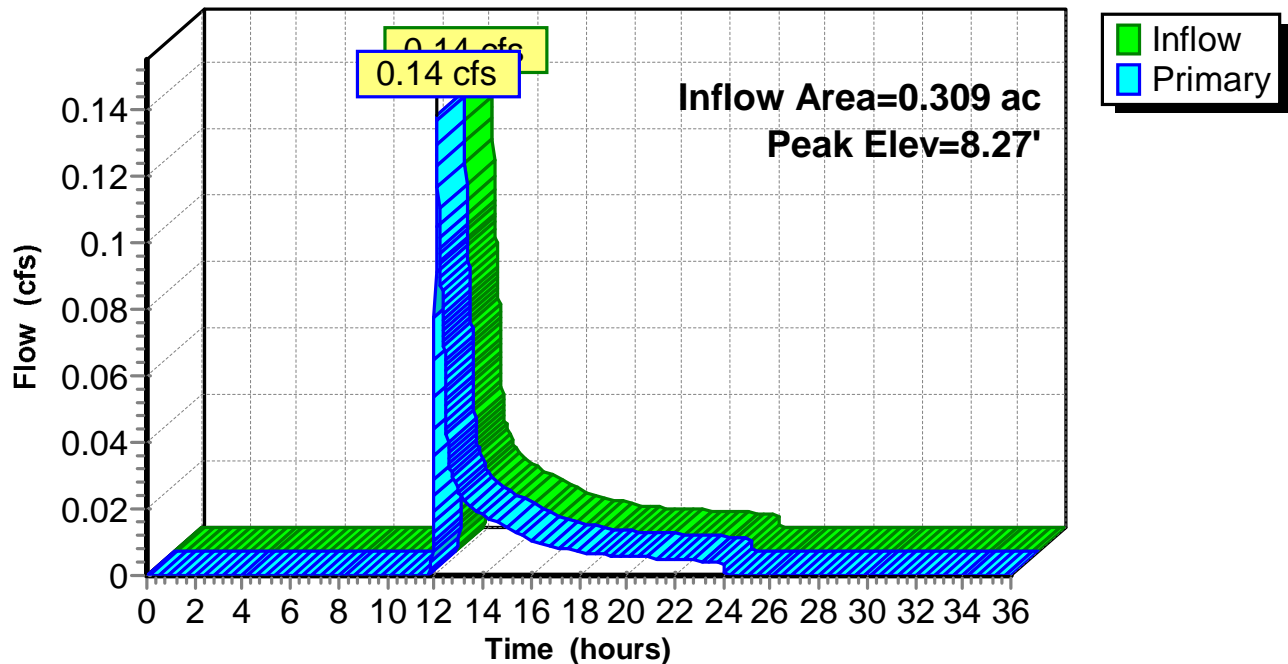
Device	Routing	Invert	Outlet Devices
#1	Primary	11.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0068 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=8.27' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.14 cfs @ 1.85 fps)

Pond CB17-05:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 0.68" for 2-yr event
Inflow = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af
Outflow = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.85' @ 12.08 hrs

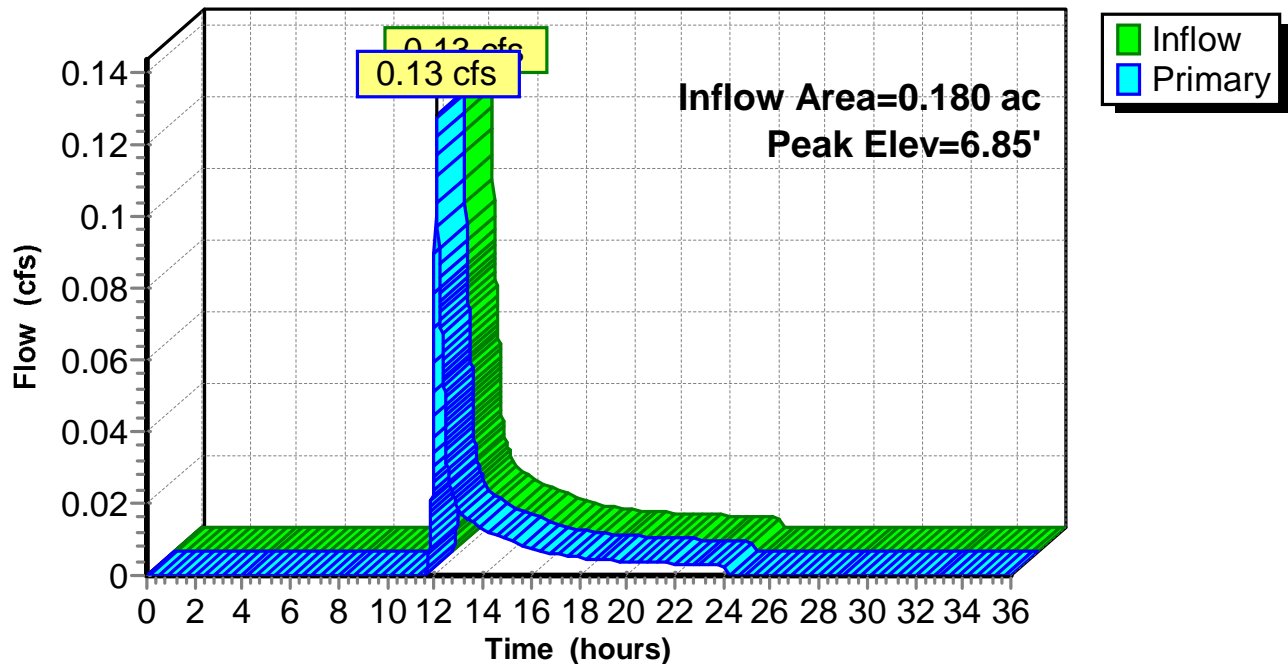
Device	Routing	Invert	Outlet Devices
#1	Primary	10.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.68'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.68' / 6.25' S= 0.0113 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.13 cfs @ 12.08 hrs HW=6.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.13 cfs @ 1.41 fps)

Pond CB17-06:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond CB17-07:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 0.18" for 2-yr event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.53' @ 12.08 hrs

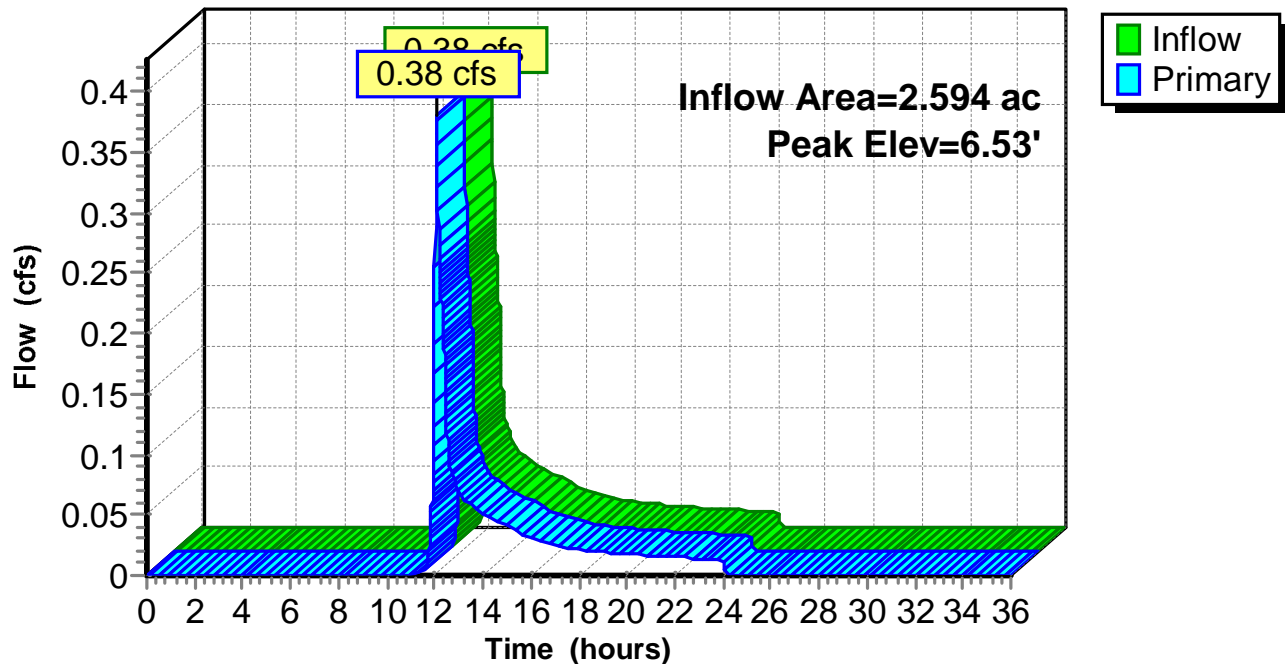
Device	Routing	Invert	Outlet Devices
#1	Primary	9.68'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.12'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 6.12' / 6.09' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=6.53' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.38 cfs @ 1.89 fps)

Pond CB17-07:

Hydrograph



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Summary for Pond HY-DYN:

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 0.22" for 2-yr event
Inflow = 0.03 cfs @ 12.37 hrs, Volume= 0.006 af
Outflow = 0.03 cfs @ 12.37 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.37 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.59' @ 12.37 hrs

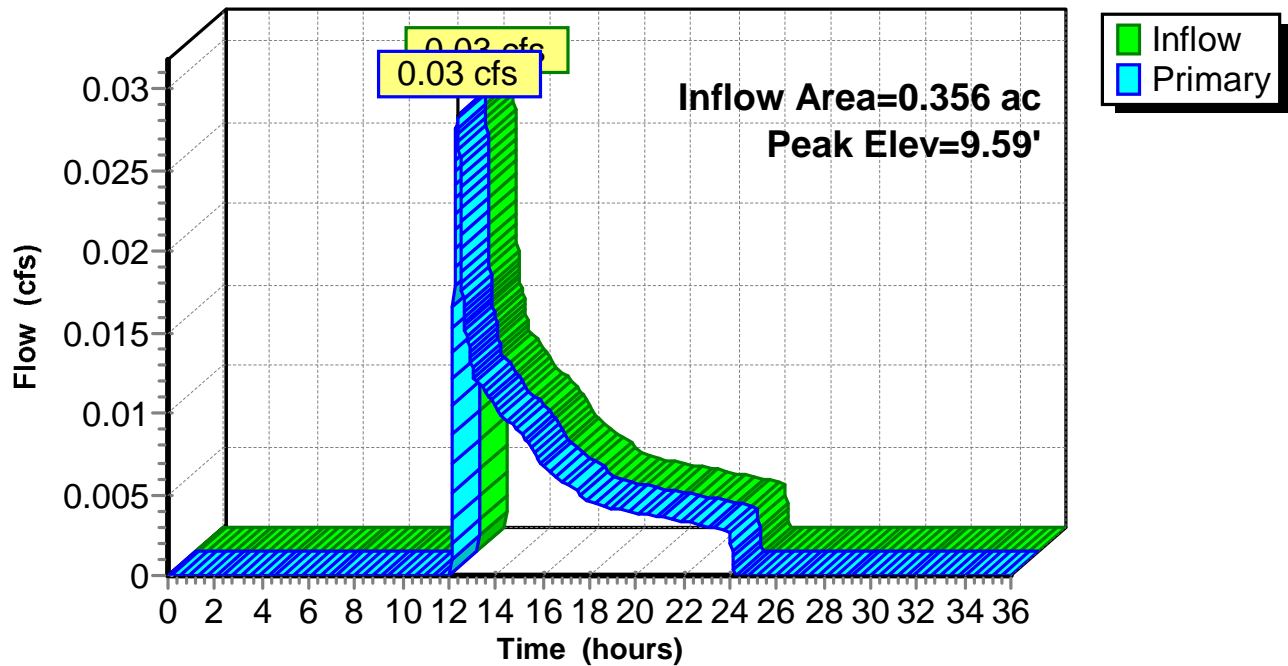
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.50'	8.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.40' S= 0.0200 1/'' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf

Primary OutFlow Max=0.03 cfs @ 12.37 hrs HW=9.59' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 1.02 fps)

Pond HY-DYN:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond INFIL: 100HD

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 0.22" for 2-yr event
 Inflow = 0.03 cfs @ 12.37 hrs, Volume= 0.006 af
 Outflow = 0.03 cfs @ 12.44 hrs, Volume= 0.006 af, Atten= 6%, Lag= 4.2 min
 Discarded = 0.03 cfs @ 12.44 hrs, Volume= 0.006 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.73' @ 12.44 hrs Surf.Area= 0.013 ac Storage= 0.000 af

Plug-Flow detention time= 4.1 min calculated for 0.006 af (100% of inflow)
 Center-of-Mass det. time= 4.1 min (972.1 - 968.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.70'	0.014 af	9.23'W x 59.50'L x 3.46'H Field A 0.044 af Overall - 0.009 af Embedded = 0.035 af x 40.0% Voids
#2A	8.70'	0.007 af	Lane HDPE 18" x 6 Inside #1 Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf Row Length Adjustment= +14.40' x 1.76 sf x 3 rows 7.73' Header x 1.76 sf x 2 = 27.2 cf Inside
		0.021 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	10.42'	8.0" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 10.42' / 9.90' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Discarded OutFlow Max=0.03 cfs @ 12.44 hrs HW=7.73' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.03 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.70' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

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Type III 24-hr 2-yr Rainfall=3.28"

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Pond INFIL: 100HD - Chamber Wizard Field A

Chamber Model = Lane HDPE 18" (Lane HDPE Pipe)

Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf

Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf

Row Length Adjustment= +14.40' x 1.76 sf x 3 rows

21.6" Wide + 14.0" Spacing = 35.6" C-C Row Spacing

2 Chambers/Row x 20.00' Long +14.40' Row Adjustment +1.80' Header x 2 = 58.00' Row Length +9.0" End Stone x 2 = 59.50' Base Length

3 Rows x 21.6" Wide + 14.0" Spacing x 2 + 9.0" Side Stone x 2 = 9.23' Base Width

12.0" Base + 21.6" Chamber Height + 8.0" Cover = 3.46' Field Height

6 Chambers x 35.2 cf +14.40' Row Adjustment x 1.76 sf x 3 Rows + 7.73' Header x 1.76 sf x 2 = 314.3 cf Chamber Storage

6 Chambers x 42.8 cf +14.40' Row Adjustment x 2.14 sf x 3 Rows + 7.73' Header x 2.14 sf x 2 = 382.7 cf Displacement

1,902.5 cf Field - 382.7 cf Chambers = 1,519.7 cf Stone x 40.0% Voids = 607.9 cf Stone Storage

Chamber Storage + Stone Storage = 922.2 cf = 0.021 af

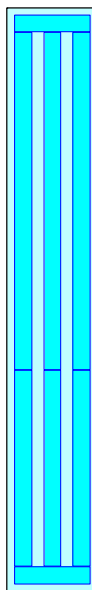
Overall Storage Efficiency = 48.5%

Overall System Size = 59.50' x 9.23' x 3.46'

6 Chambers

70.5 cy Field

56.3 cy Stone



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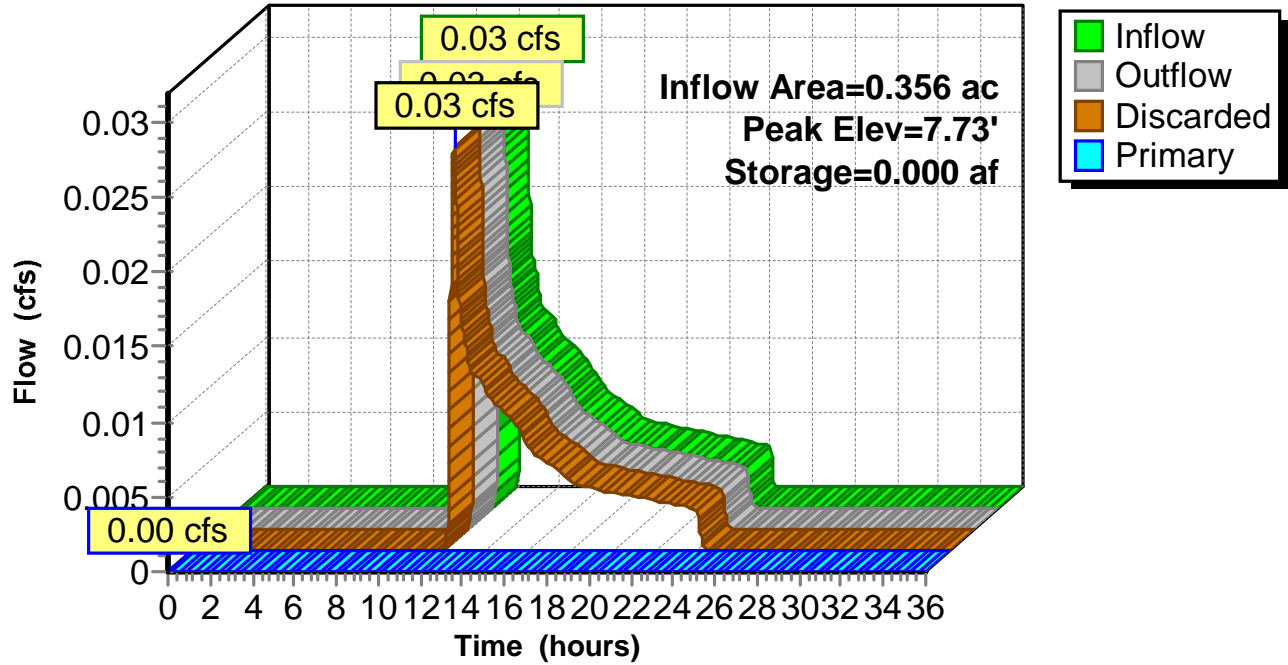
Type III 24-hr 2-yr Rainfall=3.28"

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Pond INFIL: 100HD

Hydrograph



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Summary for Pond OWSMH 16:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 5.48' @ 12.07 hrs

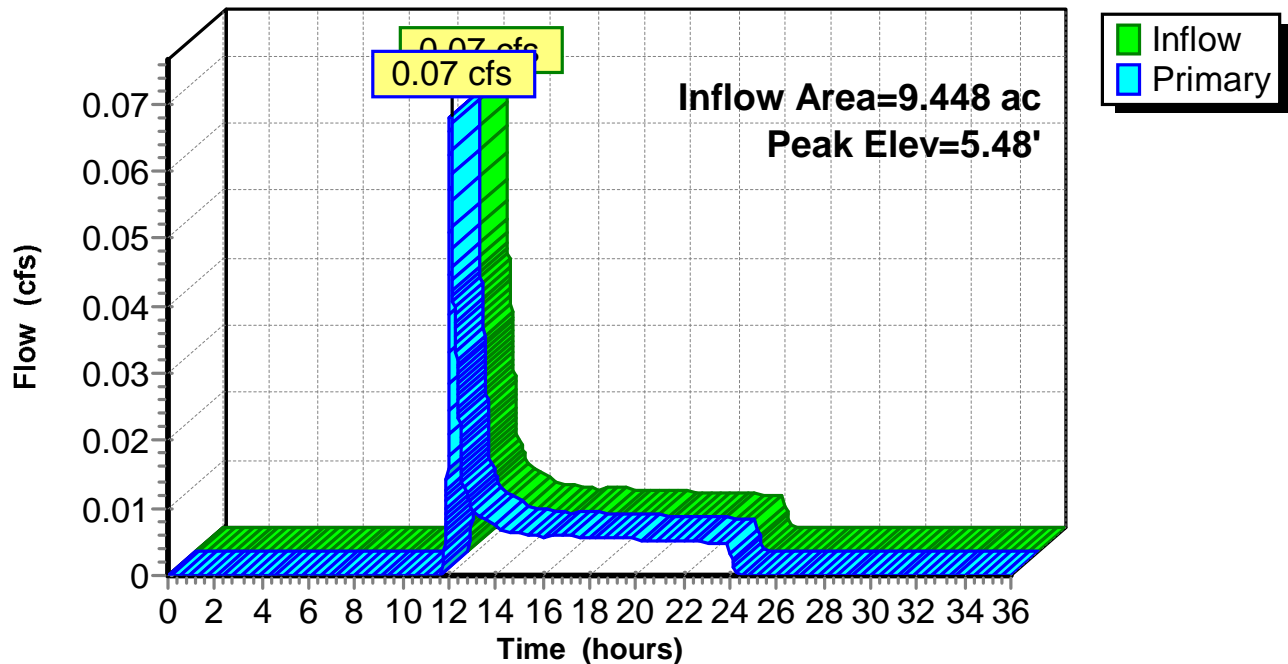
Device	Routing	Invert	Outlet Devices
#1	Primary	14.70'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	5.35'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 5.35' / 5.23' S= 0.0030 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=5.48' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 1.09 fps)

Pond OWSMH 16:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond OWSMH 17:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 0.18" for 2-yr event
Inflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af
Outflow = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.38 cfs @ 12.08 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.39' @ 12.08 hrs

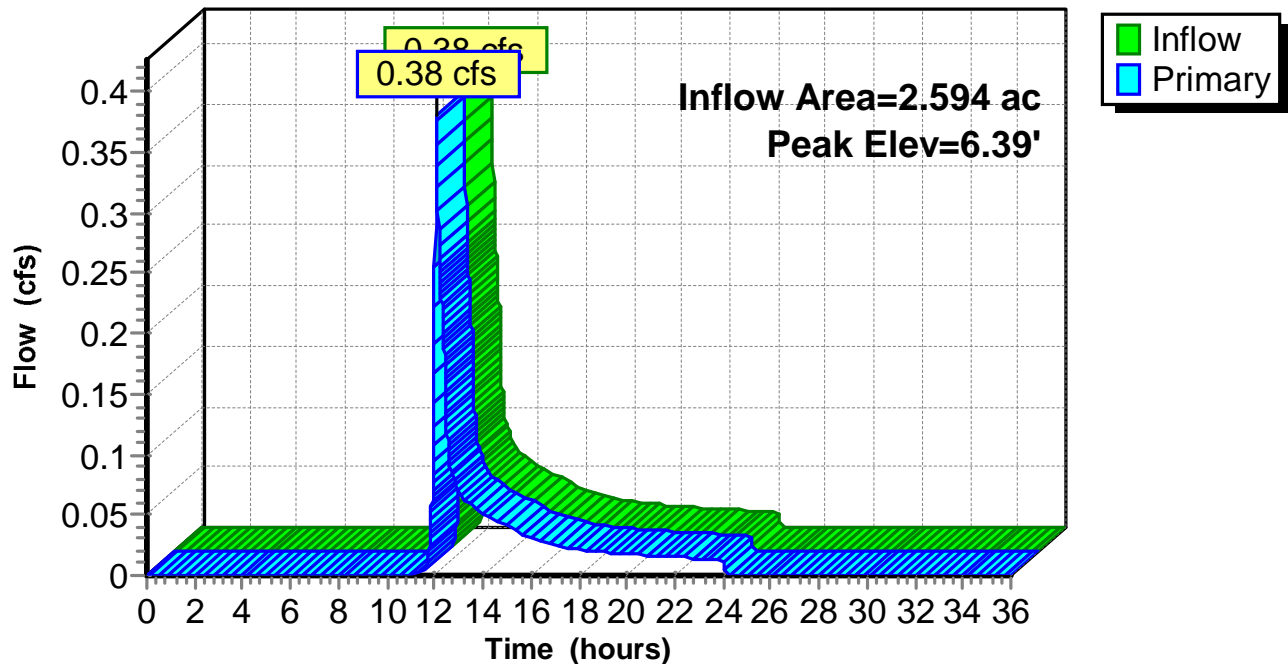
Device	Routing	Invert	Outlet Devices
#1	Primary	10.97'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	6.09'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.09' / 4.23' S= 0.0489 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.38 cfs @ 12.08 hrs HW=6.39' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.38 cfs @ 1.88 fps)

Pond OWSMH 17:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.01" for 2-yr event
 Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
 Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 5.74' @ 12.07 hrs

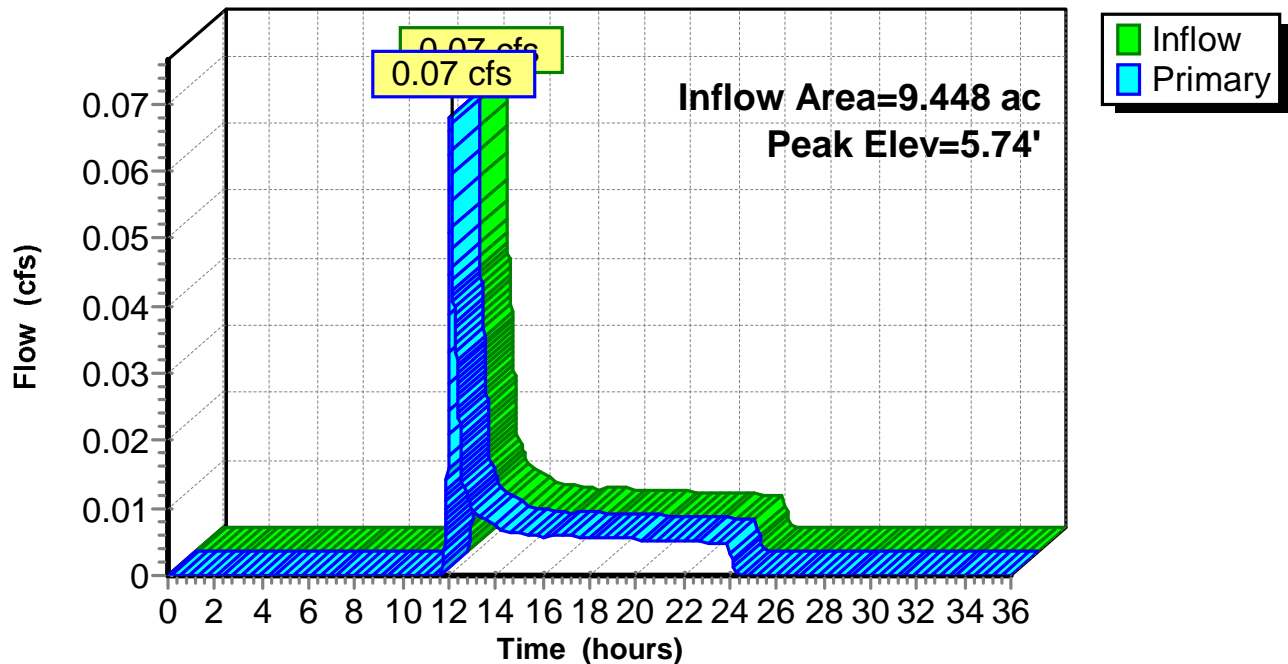
Device	Routing	Invert	Outlet Devices
#1	Primary	14.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	5.60'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 5.60' / 5.60' S= 0.0000 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=5.74' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 0.98 fps)

Pond SDMH16-02.1:

Hydrograph



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Summary for Pond SDMH16-02.2:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.07 cfs @ 12.07 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.21' @ 12.07 hrs

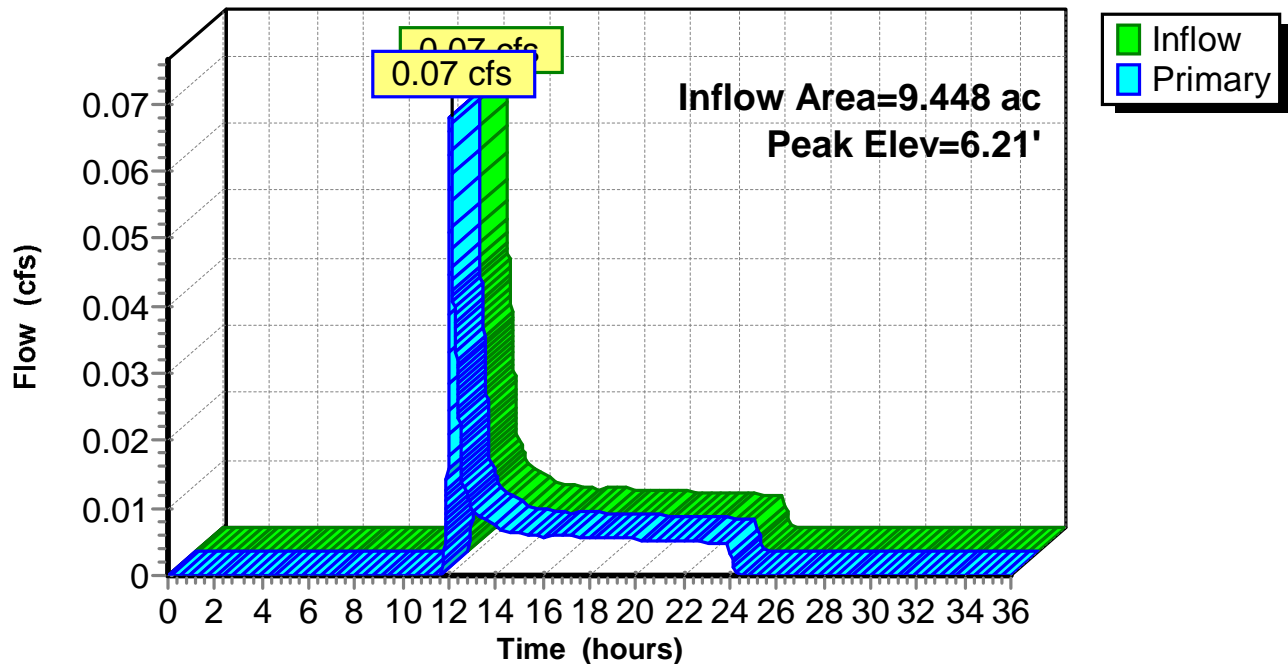
Device	Routing	Invert	Outlet Devices
#1	Primary	12.20'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.11'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 6.11' / 5.74' S= 0.0206 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.06 cfs @ 12.07 hrs HW=6.21' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.08 fps)

Pond SDMH16-02.2:

Hydrograph



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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.99 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.07' @ 21.99 hrs

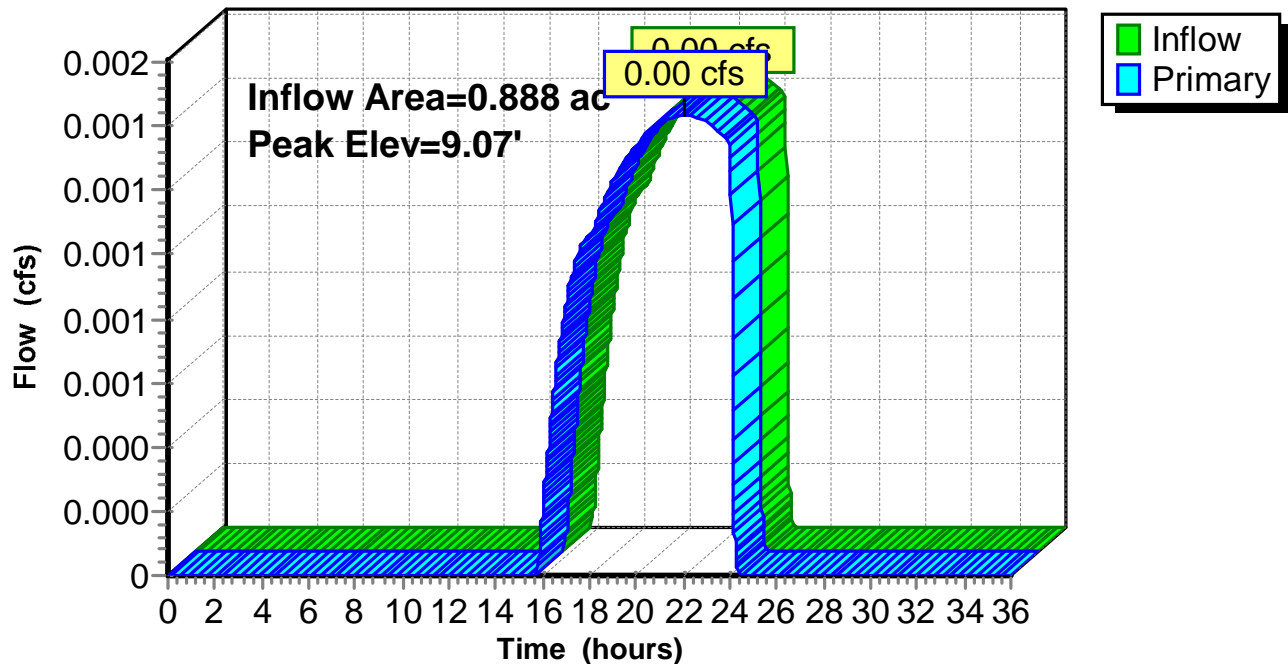
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.06'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 9.06' / 6.11' S= 0.0328 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.99 hrs HW=9.07' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.33 fps)

Pond SDMH16-03:

Hydrograph



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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 21.23' @ 0.00 hrs

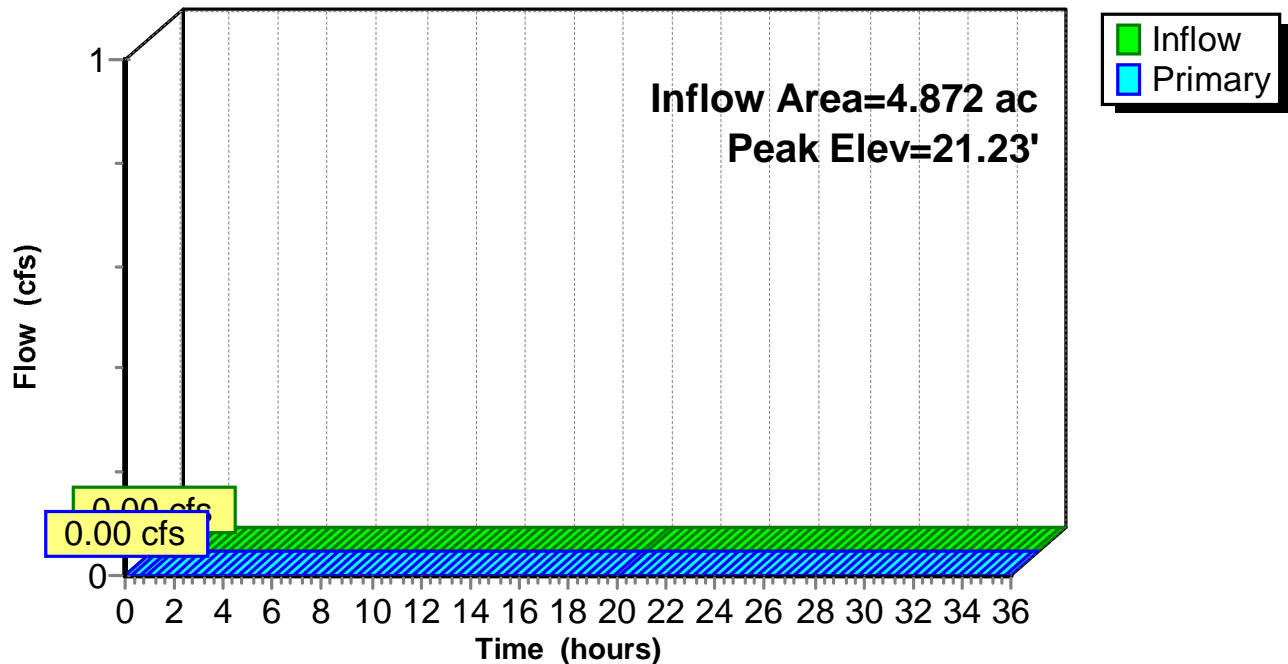
Device	Routing	Invert	Outlet Devices
#1	Primary	25.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	21.23'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 21.23' / 7.98' S= 0.0589 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=21.23' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-05:

Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 22.69 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.04' @ 22.69 hrs

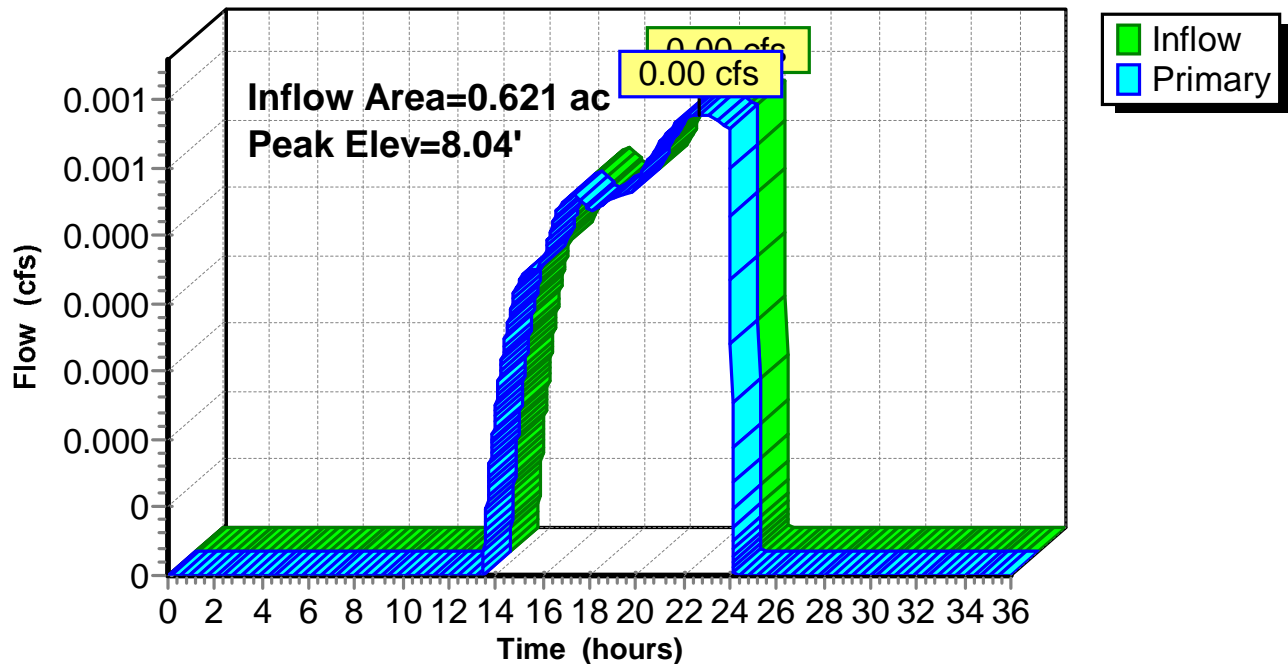
Device	Routing	Invert	Outlet Devices
#1	Primary	13.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.03'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 8.03' / 7.97' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.00 cfs @ 22.69 hrs HW=8.04' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.09 fps)

Pond SDMH16-06:

Hydrograph



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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

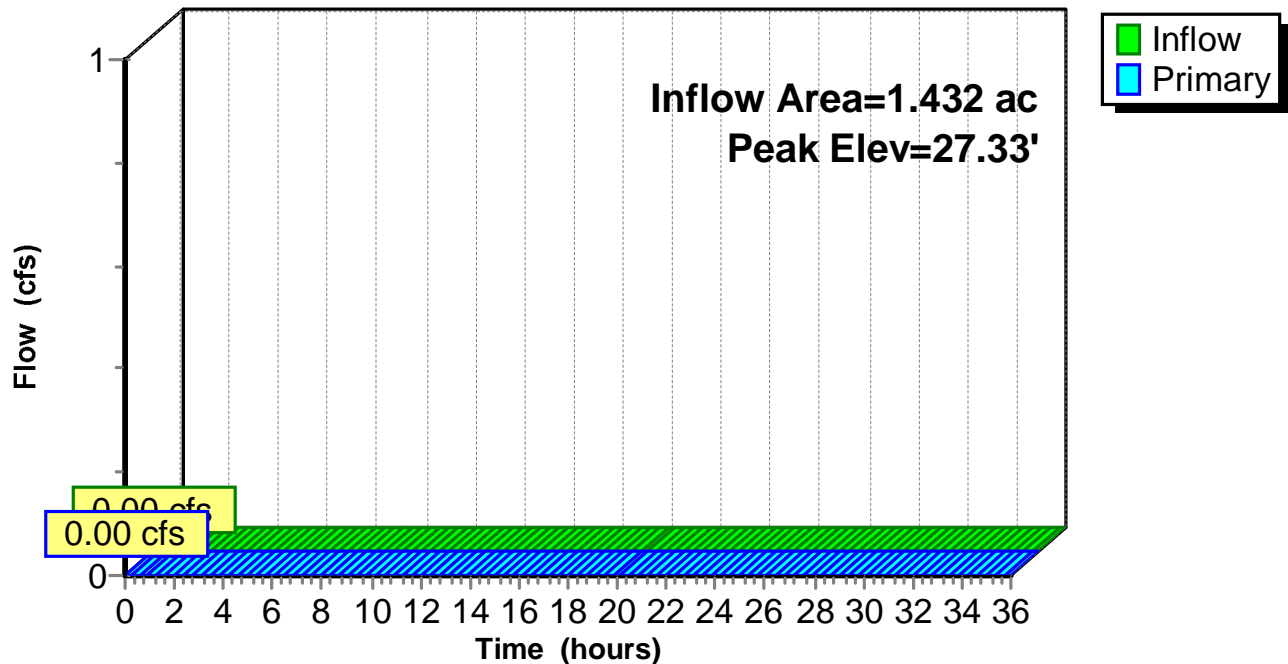
Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 27.33' @ 0.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	32.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	27.33'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 27.33' / 25.70' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=27.33' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-12.1:
Hydrograph



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Type III 24-hr 2-yr Rainfall=3.28"

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.00" for 2-yr event
 Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
 Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 23.26' @ 0.00 hrs

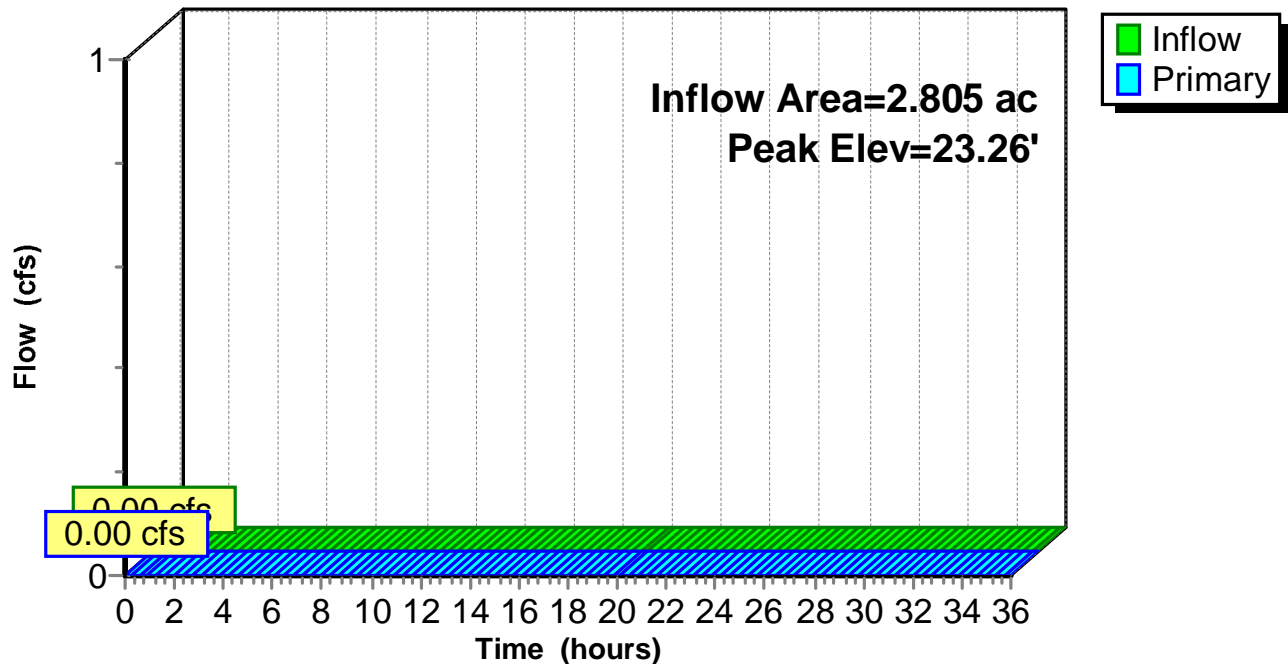
Device	Routing	Invert	Outlet Devices
#1	Primary	29.86'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	23.26'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 23.26' / 21.23' S= 0.0294 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=23.26' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-12.2:

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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 29.97' @ 0.00 hrs

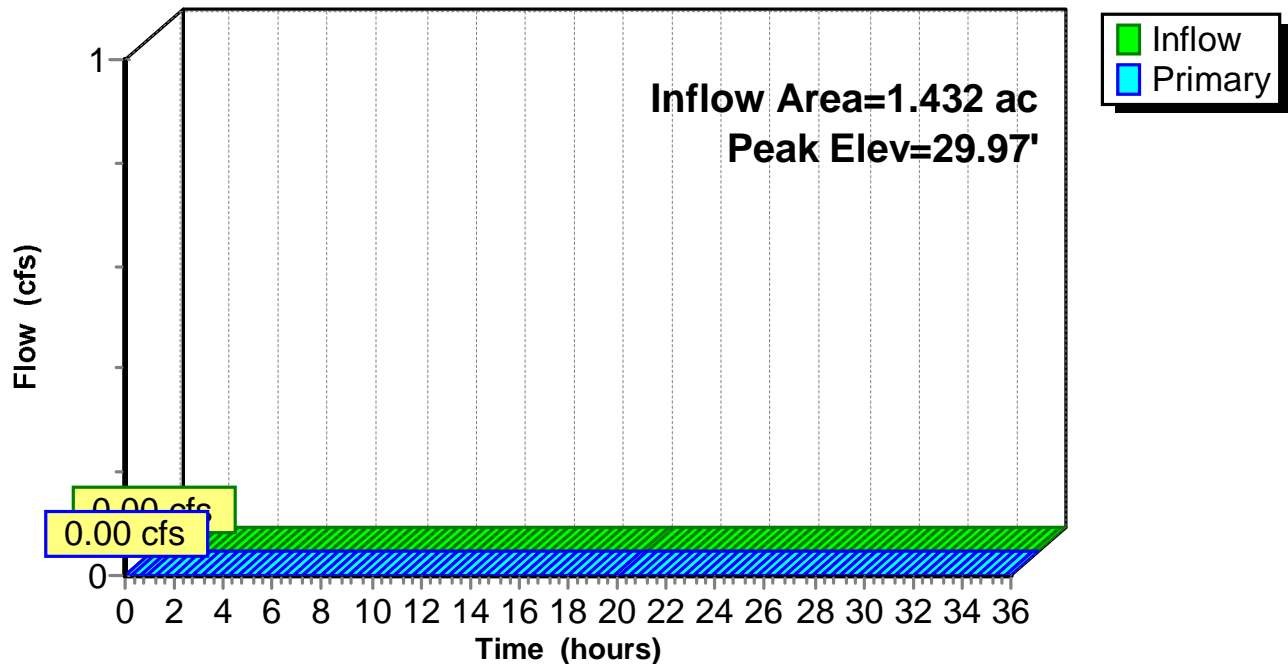
Device	Routing	Invert	Outlet Devices
#1	Primary	37.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	29.97'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 29.97' / 27.88' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=29.97' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Controls 0.00 cfs)

Pond SDMH16-13:

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.00" for 2-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.71' @ 24.00 hrs

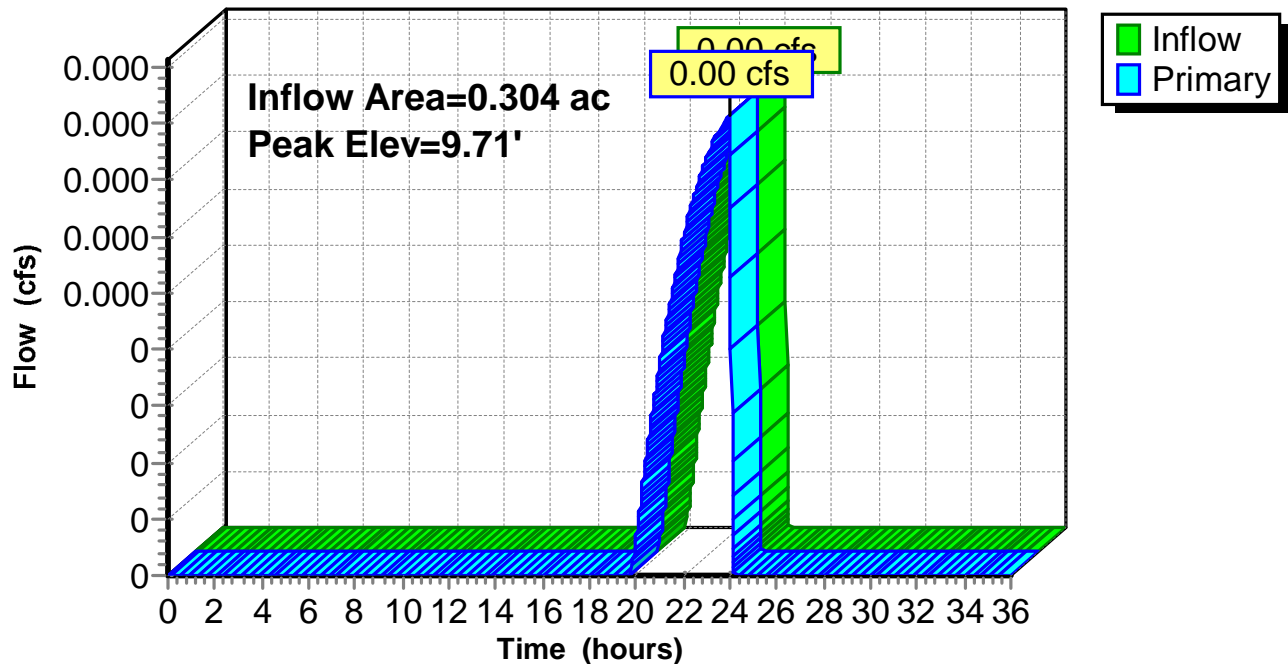
Device	Routing	Invert	Outlet Devices
#1	Primary	17.74'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.71'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 9.71' / 8.49' S= 0.0610 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=9.71' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.07 fps)

Pond SDMH16-15:

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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.56' @ 21.94 hrs

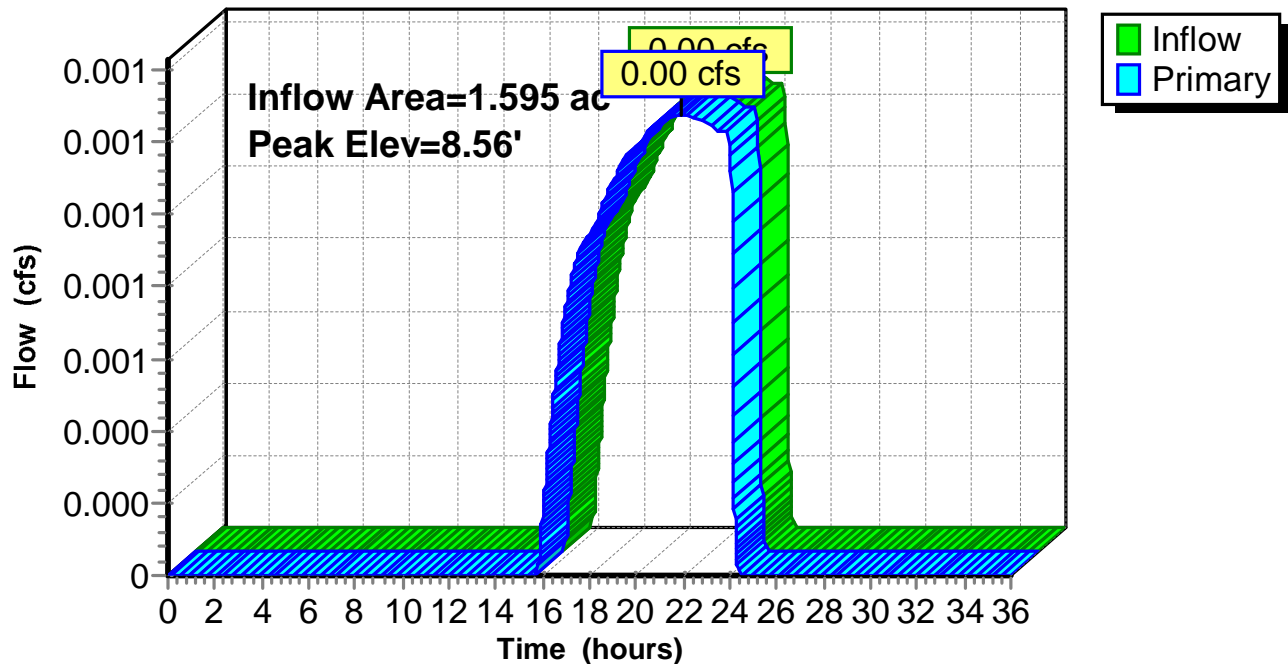
Device	Routing	Invert	Outlet Devices
#1	Primary	11.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.53'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 8.53' / 8.46' S= 0.0010 1/8" Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=8.56' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.25 fps)

Pond SDMH17-03.1:

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.01" for 2-yr event
Inflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 21.94 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.15' @ 21.94 hrs

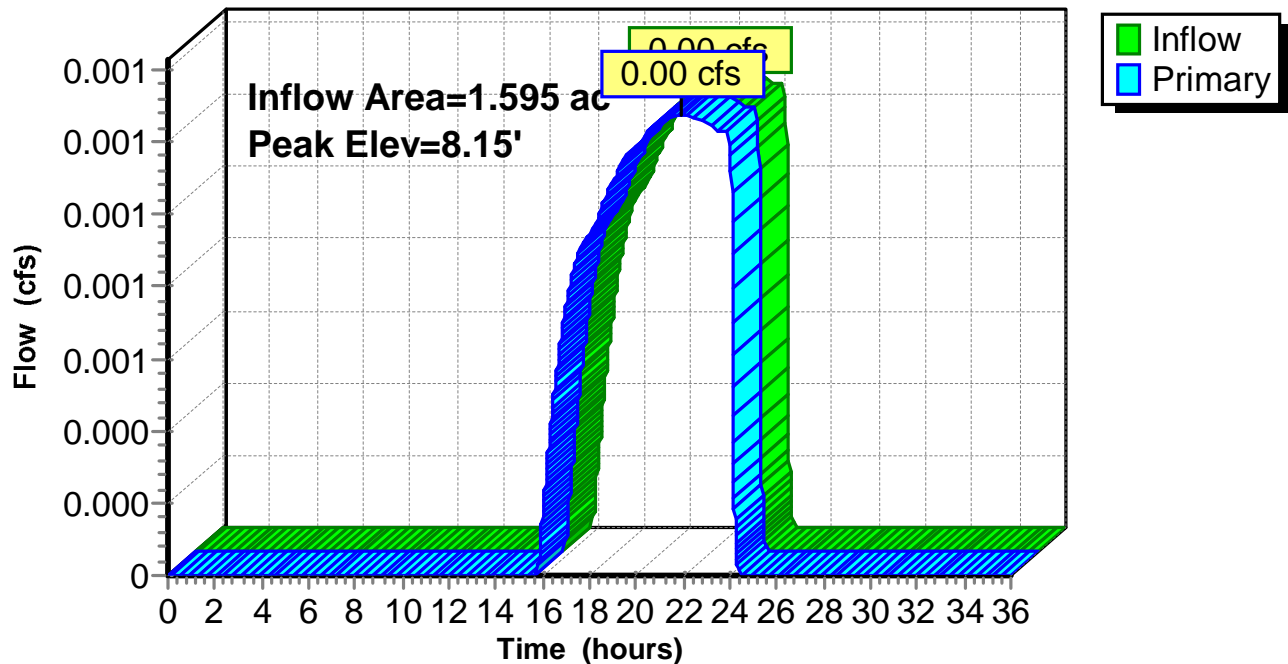
Device	Routing	Invert	Outlet Devices
#1	Primary	15.69'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.14'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 8.14' / 7.94' S= 0.0043 1/8' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 21.94 hrs HW=8.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.17 fps)

Pond SDMH17-03.2:

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Summary for Pond SDMH17-04:

Inflow Area = 2.324 ac, 21.50% Impervious, Inflow Depth = 0.11" for 2-yr event
 Inflow = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af
 Outflow = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.14 cfs @ 12.09 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.12' @ 12.09 hrs

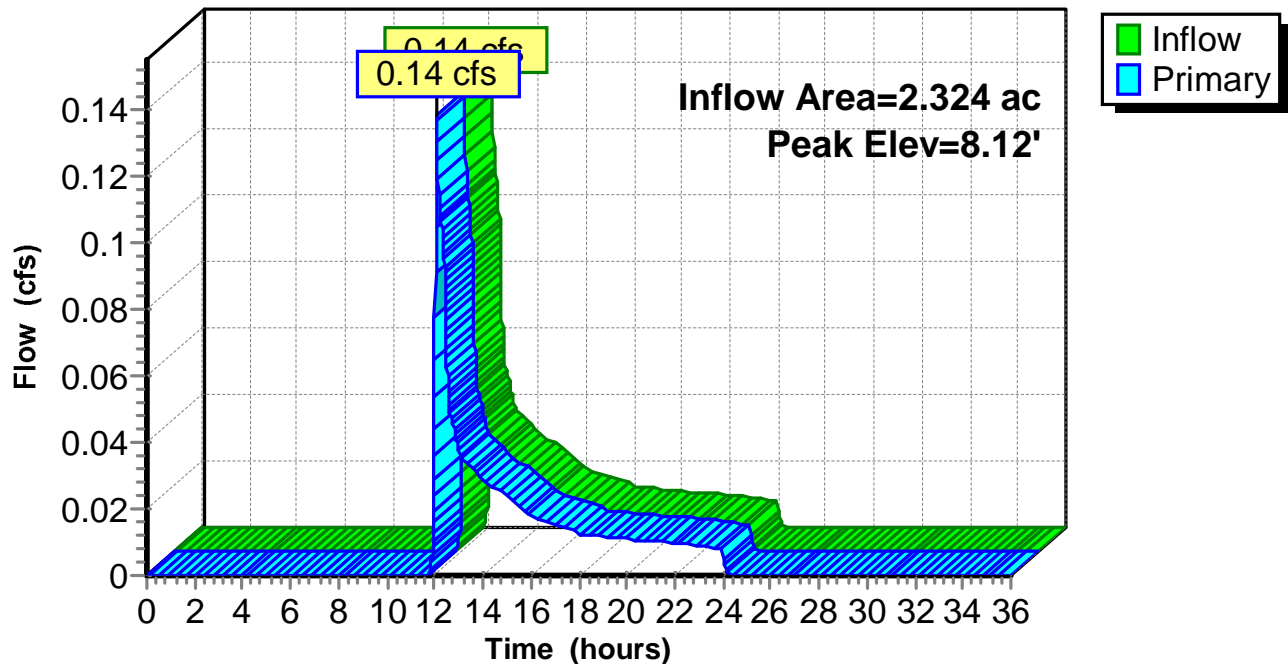
Device	Routing	Invert	Outlet Devices
#1	Primary	11.01'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	7.94'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 7.94' / 6.25' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.14 cfs @ 12.09 hrs HW=8.12' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.14 cfs @ 1.44 fps)

Pond SDMH17-04:

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Summary for Pond SDMH17-07:

Inflow Area = 2.504 ac, 23.75% Impervious, Inflow Depth = 0.15" for 2-yr event
Inflow = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af
Outflow = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.08 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.51' @ 12.08 hrs

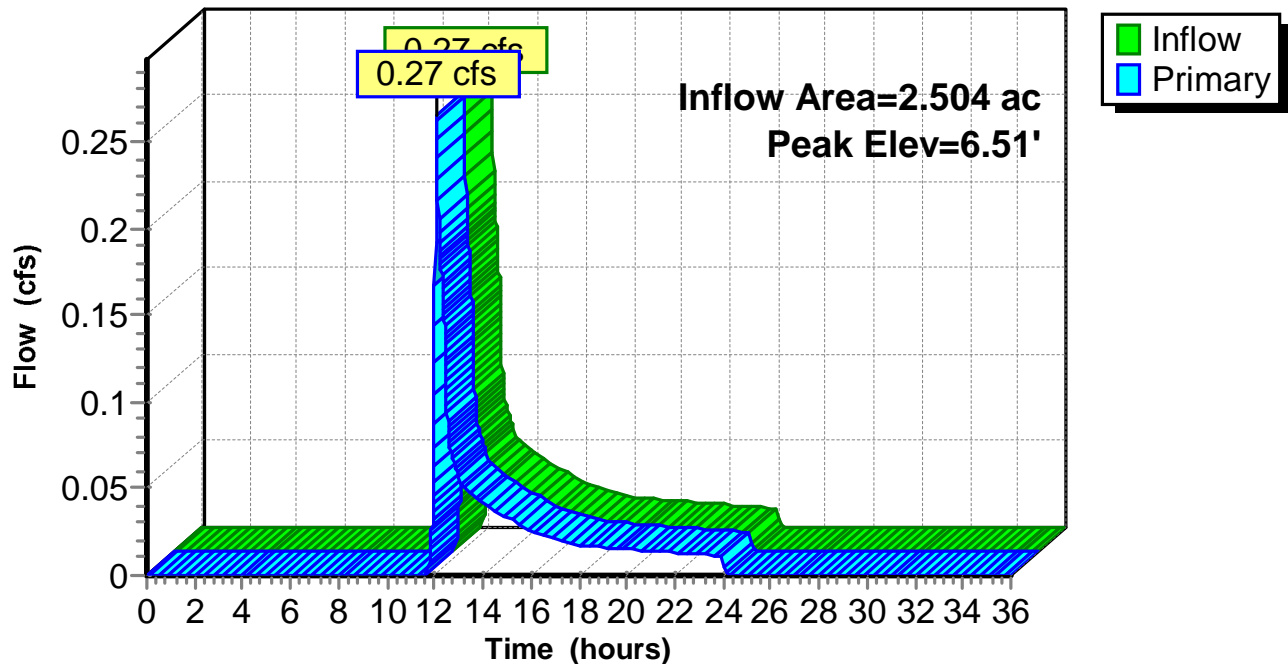
Device	Routing	Invert	Outlet Devices
#1	Primary	9.96'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.23'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 6.23' / 6.17' S= 0.0150 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.26 cfs @ 12.08 hrs HW=6.51' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.26 cfs @ 2.18 fps)

Pond SDMH17-07:

Hydrograph



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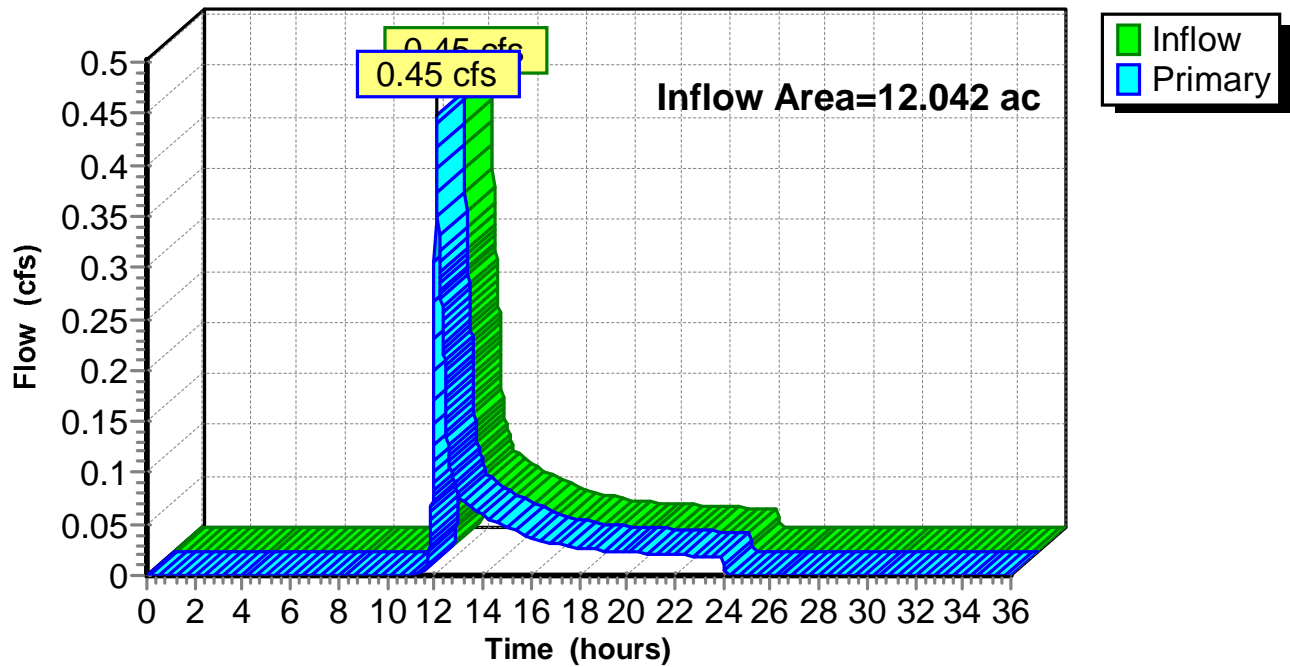
Summary for Link OUT:

Inflow Area = 12.042 ac, 12.19% Impervious, Inflow Depth = 0.05" for 2-yr event
Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af
Primary = 0.45 cfs @ 12.08 hrs, Volume= 0.047 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.25" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.06 cfs 0.018 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=1.58" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.20 cfs 0.014 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.05" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.01 cfs 0.004 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 12.06% Impervious Runoff Depth=0.15" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.01 cfs 0.007 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.00" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.25" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.01 cfs 0.003 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.36" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.01 cfs 0.003 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.18" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.01 cfs 0.005 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.00" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.00 cfs 0.000 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.02" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.00 cfs 0.001 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.03" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.01 cfs 0.004 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.05" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.00 cfs 0.003 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.09" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.01 cfs 0.005 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.28" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.05 cfs 0.013 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 33.23% Impervious Runoff Depth=0.81" Flow Length=133' Tc=6.1 min CN=53 Runoff=0.24 cfs 0.024 af

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.15" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.01 cfs 0.007 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.07" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.00 cfs 0.001 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.25" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.05 cfs 0.016 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=0.75" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.25 cfs 0.026 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=1.37" Flow Length=246' Tc=4.3 min CN=62 Runoff=0.48 cfs 0.035 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=1.65" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.36 cfs 0.025 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=2.28" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.25 cfs 0.017 af
Pond CB16-01:	Peak Elev=9.25' Inflow=0.06 cfs 0.018 af Outflow=0.06 cfs 0.018 af
Pond CB16-02:	Peak Elev=9.04' Inflow=0.20 cfs 0.014 af Outflow=0.20 cfs 0.014 af
Pond CB16-03:	Peak Elev=8.86' Inflow=0.01 cfs 0.004 af Outflow=0.01 cfs 0.004 af
Pond CB16-04:	Peak Elev=8.02' Inflow=0.02 cfs 0.013 af Outflow=0.02 cfs 0.013 af
Pond CB16-05:	Peak Elev=8.10' Inflow=0.08 cfs 0.030 af Outflow=0.08 cfs 0.030 af
Pond CB16-06:	Peak Elev=8.72' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af
Pond CB16-07:	Peak Elev=14.02' Inflow=0.01 cfs 0.003 af Outflow=0.01 cfs 0.003 af
Pond CB16-08:	Peak Elev=13.61' Inflow=0.02 cfs 0.006 af Outflow=0.02 cfs 0.006 af
Pond CB16-09:	Peak Elev=18.11' Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond CB16-10:	Peak Elev=22.84' Inflow=0.00 cfs 0.000 af Outflow=0.00 cfs 0.000 af

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Pond CB16-11:	Peak Elev=22.54' Inflow=0.00 cfs 0.002 af Outflow=0.00 cfs 0.002 af
Pond CB16-12:	Peak Elev=23.93' Inflow=0.01 cfs 0.004 af Outflow=0.01 cfs 0.004 af
Pond CB16-13:	Peak Elev=28.14' Inflow=0.00 cfs 0.003 af Outflow=0.00 cfs 0.003 af
Pond CB16-14:	Peak Elev=37.62' Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond CB16-15:	Peak Elev=9.50' Inflow=0.05 cfs 0.013 af Outflow=0.05 cfs 0.013 af
Pond CB17-01:	Peak Elev=9.10' Inflow=0.01 cfs 0.007 af Outflow=0.01 cfs 0.007 af
Pond CB17-02:	Peak Elev=8.92' Inflow=0.01 cfs 0.008 af Outflow=0.01 cfs 0.008 af
Pond CB17-03:	Peak Elev=8.79' Inflow=0.05 cfs 0.016 af Outflow=0.05 cfs 0.016 af
Pond CB17-04:	Peak Elev=8.32' Inflow=0.25 cfs 0.026 af Outflow=0.25 cfs 0.026 af
Pond CB17-05:	Peak Elev=8.46' Inflow=0.48 cfs 0.035 af Outflow=0.48 cfs 0.035 af
Pond CB17-06:	Peak Elev=6.98' Inflow=0.36 cfs 0.025 af Outflow=0.36 cfs 0.025 af
Pond CB17-07:	Peak Elev=6.91' Inflow=1.31 cfs 0.128 af Outflow=1.31 cfs 0.128 af
Pond HY-DYN:	Peak Elev=9.79' Inflow=0.24 cfs 0.024 af Outflow=0.24 cfs 0.024 af
Pond INFIL: 100HD	Peak Elev=8.96' Storage=0.006 af Inflow=0.24 cfs 0.024 af Discarded=0.04 cfs 0.024 af Primary=0.00 cfs 0.000 af Outflow=0.04 cfs 0.024 af
Pond OWSMH 16:	Peak Elev=5.57' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af
Pond OWSMH 17:	Peak Elev=6.69' Inflow=1.31 cfs 0.128 af Outflow=1.31 cfs 0.128 af
Pond SDMH16-02.1:	Peak Elev=5.84' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af

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Pond SDMH16-02.2:	Peak Elev=6.29' Inflow=0.20 cfs 0.080 af Outflow=0.20 cfs 0.080 af
Pond SDMH16-03:	Peak Elev=9.17' Inflow=0.06 cfs 0.018 af Outflow=0.06 cfs 0.018 af
Pond SDMH16-05:	Peak Elev=21.29' Inflow=0.02 cfs 0.013 af Outflow=0.02 cfs 0.013 af
Pond SDMH16-06:	Peak Elev=8.15' Inflow=0.03 cfs 0.010 af Outflow=0.03 cfs 0.010 af
Pond SDMH16-12.1:	Peak Elev=27.39' Inflow=0.01 cfs 0.008 af Outflow=0.01 cfs 0.008 af
Pond SDMH16-12.2:	Peak Elev=23.32' Inflow=0.02 cfs 0.012 af Outflow=0.02 cfs 0.012 af
Pond SDMH16-13:	Peak Elev=30.01' Inflow=0.01 cfs 0.008 af Outflow=0.01 cfs 0.008 af
Pond SDMH16-15:	Peak Elev=9.73' Inflow=0.01 cfs 0.005 af Outflow=0.01 cfs 0.005 af
Pond SDMH17-03.1:	Peak Elev=8.71' Inflow=0.06 cfs 0.025 af Outflow=0.06 cfs 0.025 af
Pond SDMH17-03.2:	Peak Elev=8.27' Inflow=0.06 cfs 0.025 af Outflow=0.06 cfs 0.025 af
Pond SDMH17-04:	Peak Elev=8.37' Inflow=0.71 cfs 0.086 af Outflow=0.71 cfs 0.086 af
Pond SDMH17-07:	Peak Elev=6.86' Inflow=1.06 cfs 0.111 af Outflow=1.06 cfs 0.111 af
Link OUT:	Inflow=1.51 cfs 0.209 af Primary=1.51 cfs 0.209 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.233 af Average Runoff Depth = 0.23"
87.81% Pervious = 10.574 ac 12.19% Impervious = 1.469 ac

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-01S:

Runoff = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Depth= 0.25"

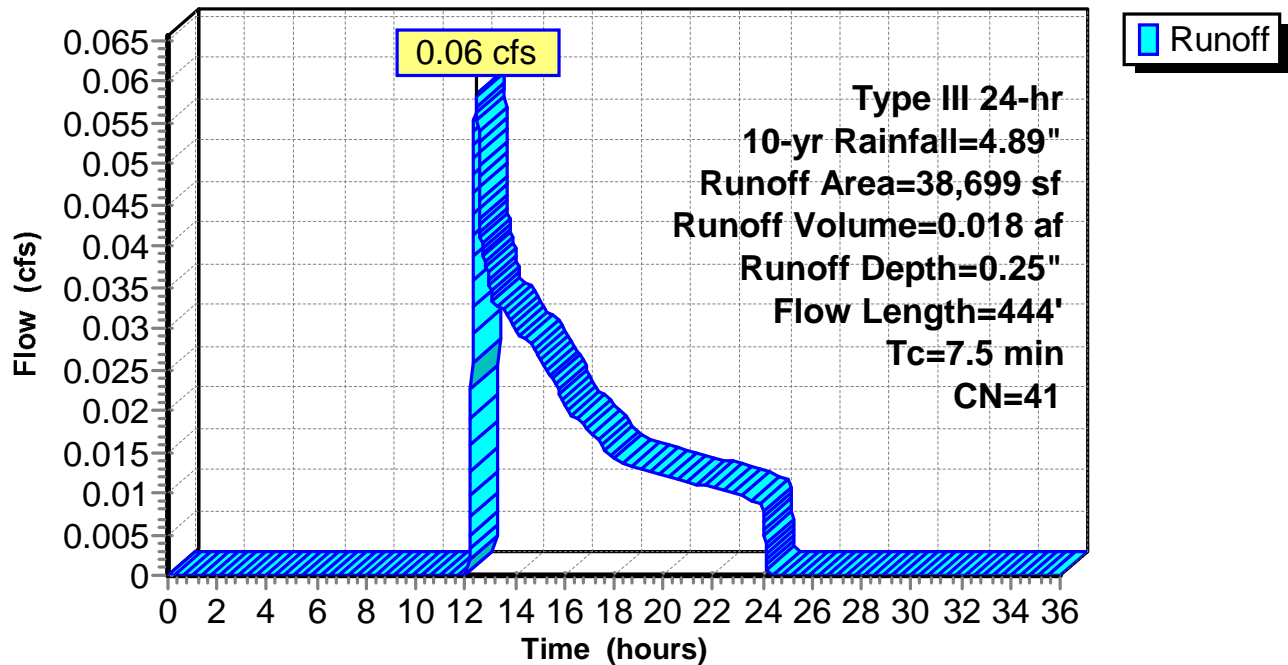
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

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Summary for Subcatchment 16-02S:

Runoff = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af, Depth= 1.58"

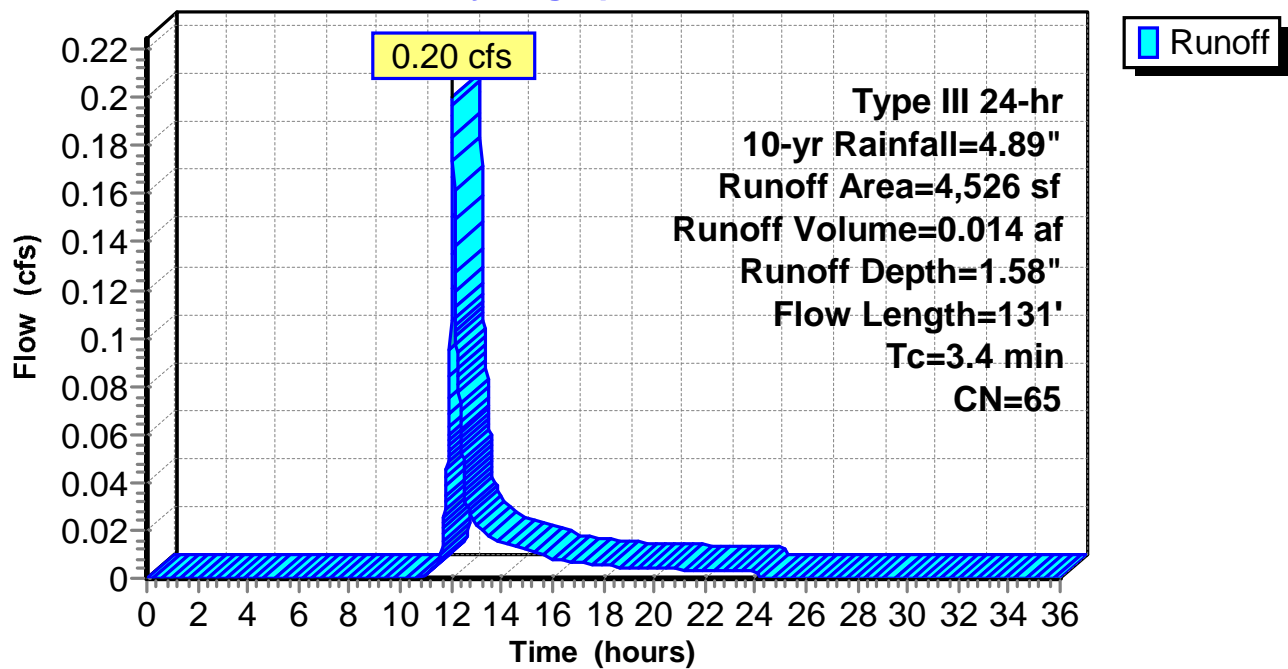
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



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Summary for Subcatchment 16-03S:

Runoff = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af, Depth= 0.05"

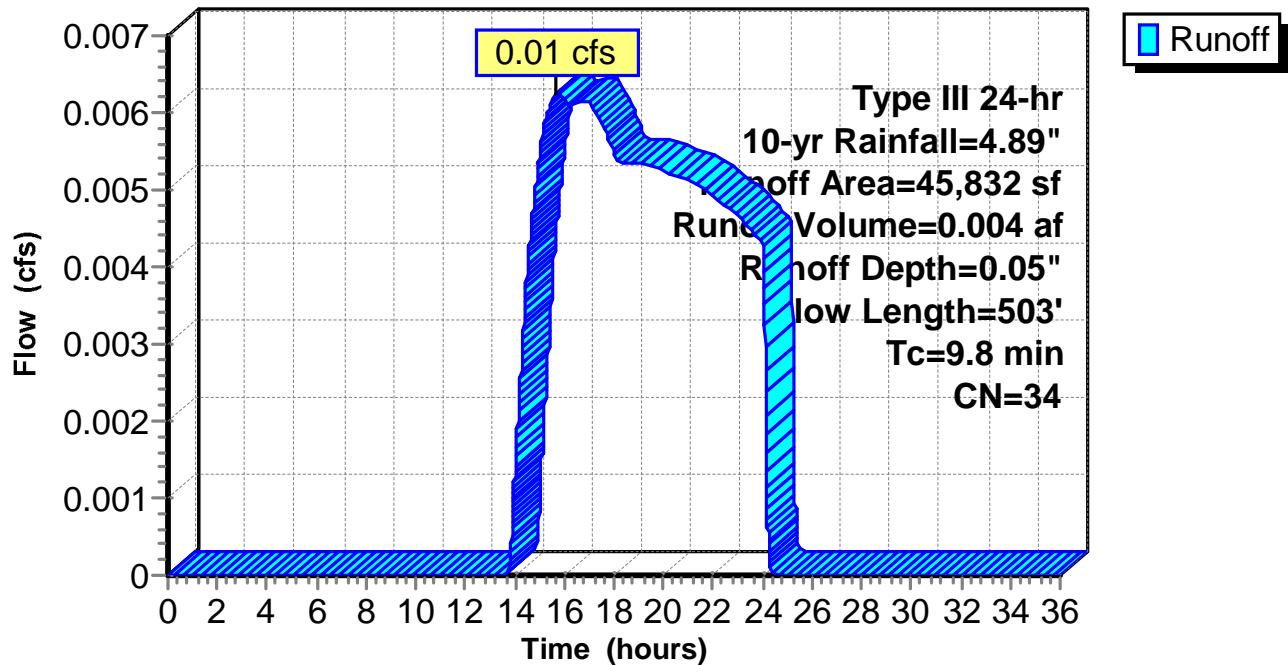
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

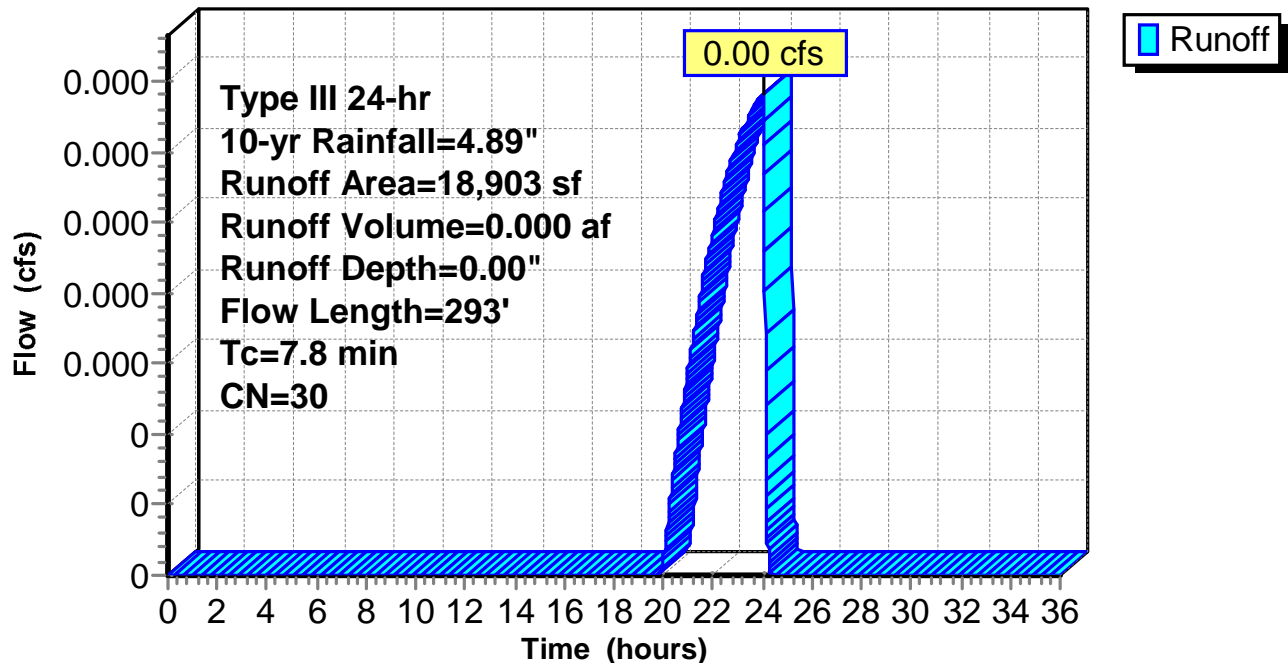
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-05S:

Runoff = 0.01 cfs @ 13.82 hrs, Volume= 0.007 af, Depth= 0.15"

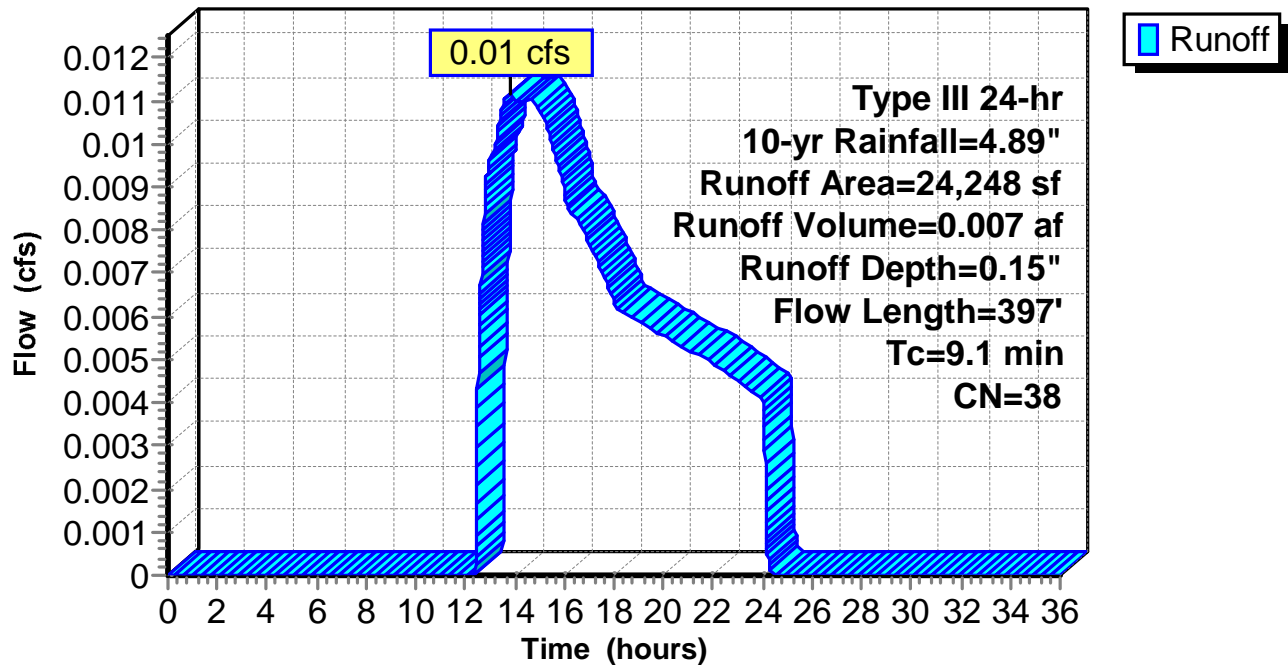
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,924	98	Impervious
21,324	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,324		87.94% Pervious Area
2,924		12.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

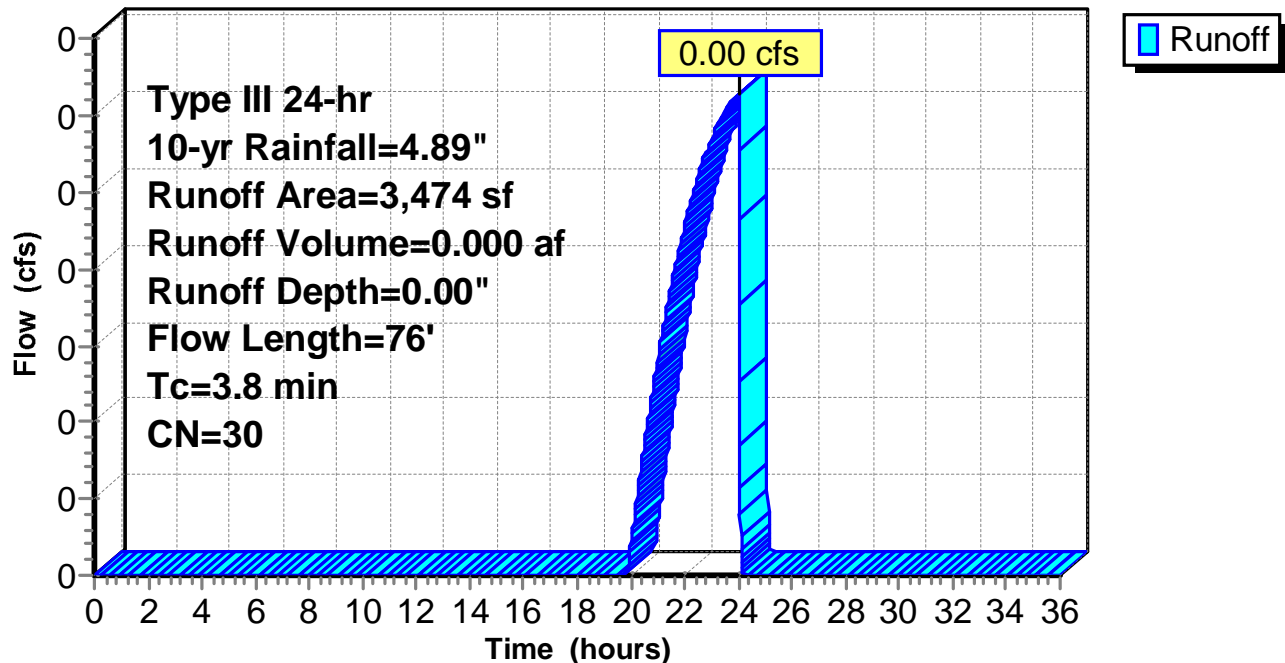
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-07S:

Runoff = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af, Depth= 0.25"

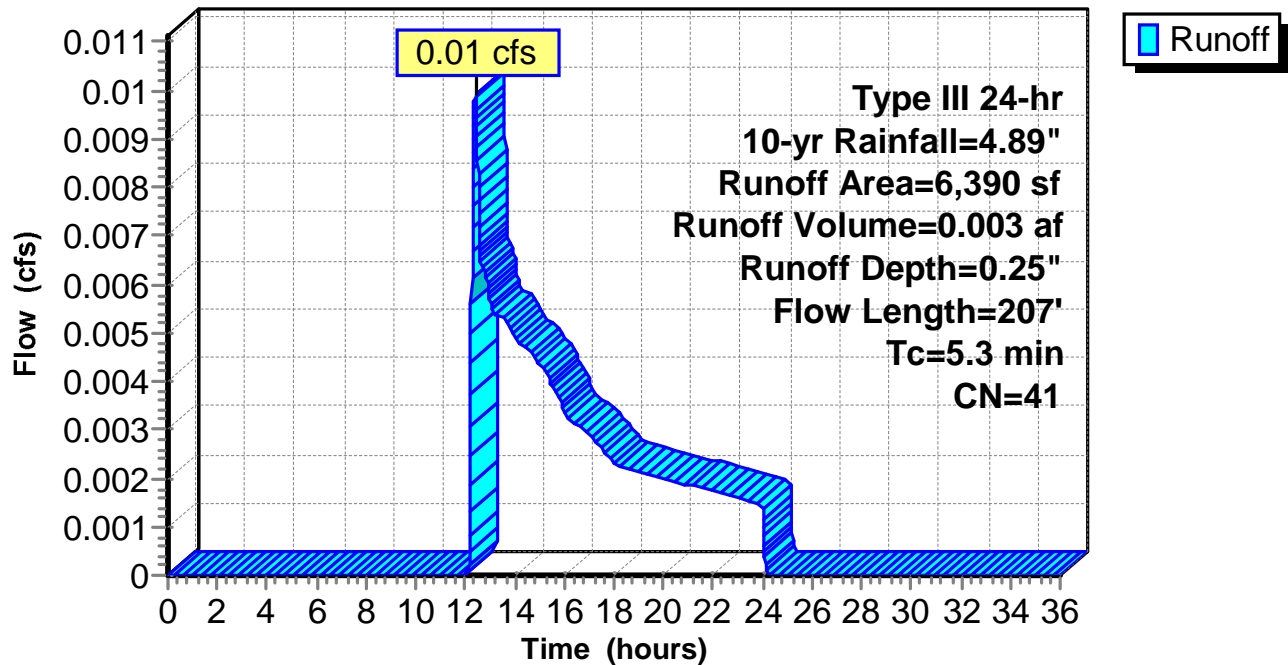
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

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Summary for Subcatchment 16-08S:

Runoff = 0.01 cfs @ 12.31 hrs, Volume= 0.003 af, Depth= 0.36"

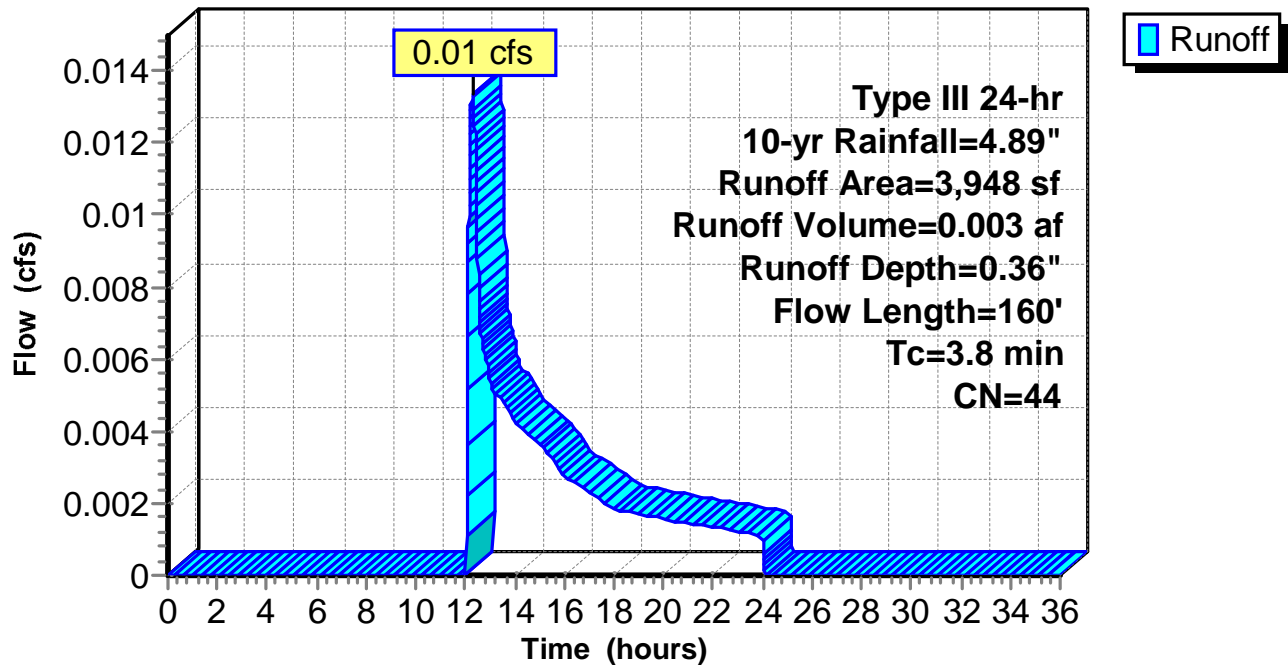
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



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Summary for Subcatchment 16-09S:

Runoff = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Depth= 0.18"

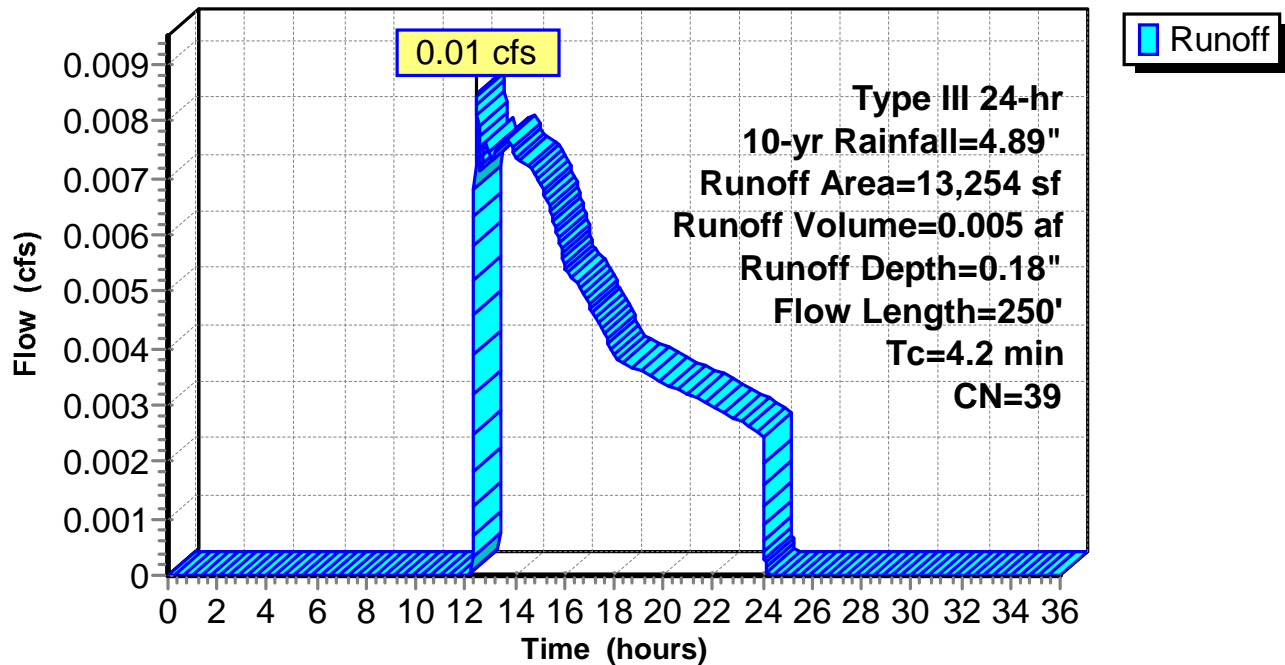
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



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Summary for Subcatchment 16-10S:

Runoff = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Depth= 0.00"

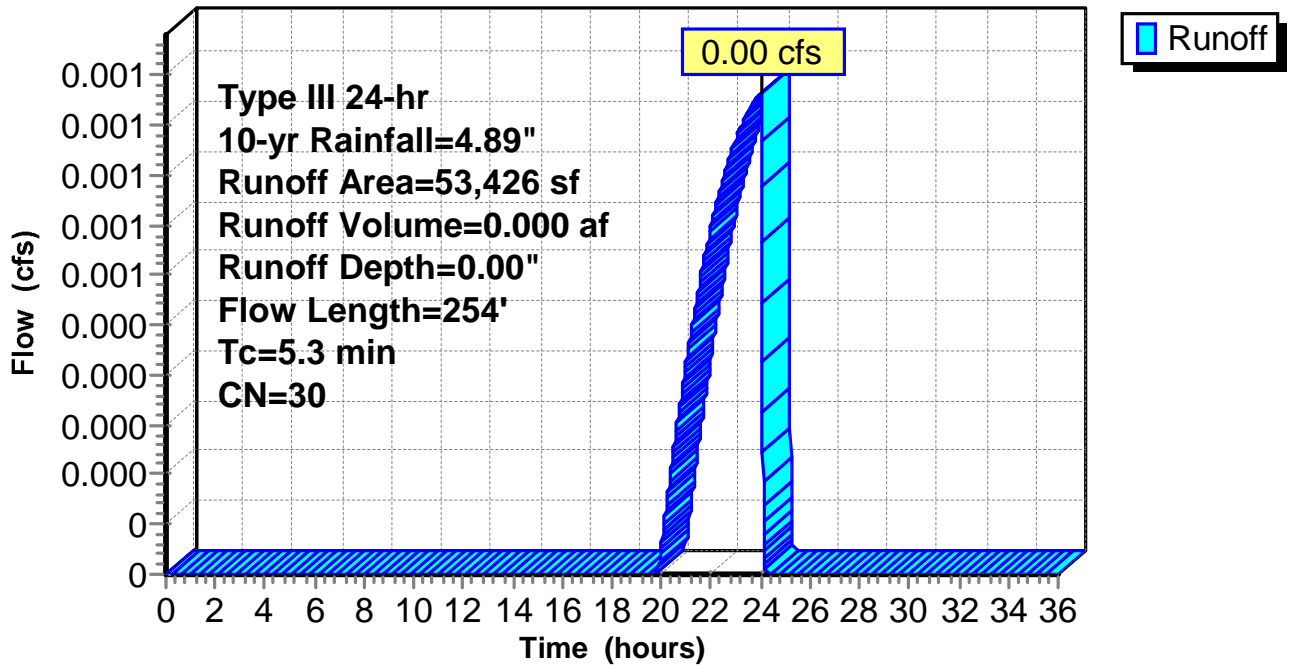
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

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Summary for Subcatchment 16-11S:

Runoff = 0.00 cfs @ 21.73 hrs, Volume= 0.001 af, Depth= 0.02"

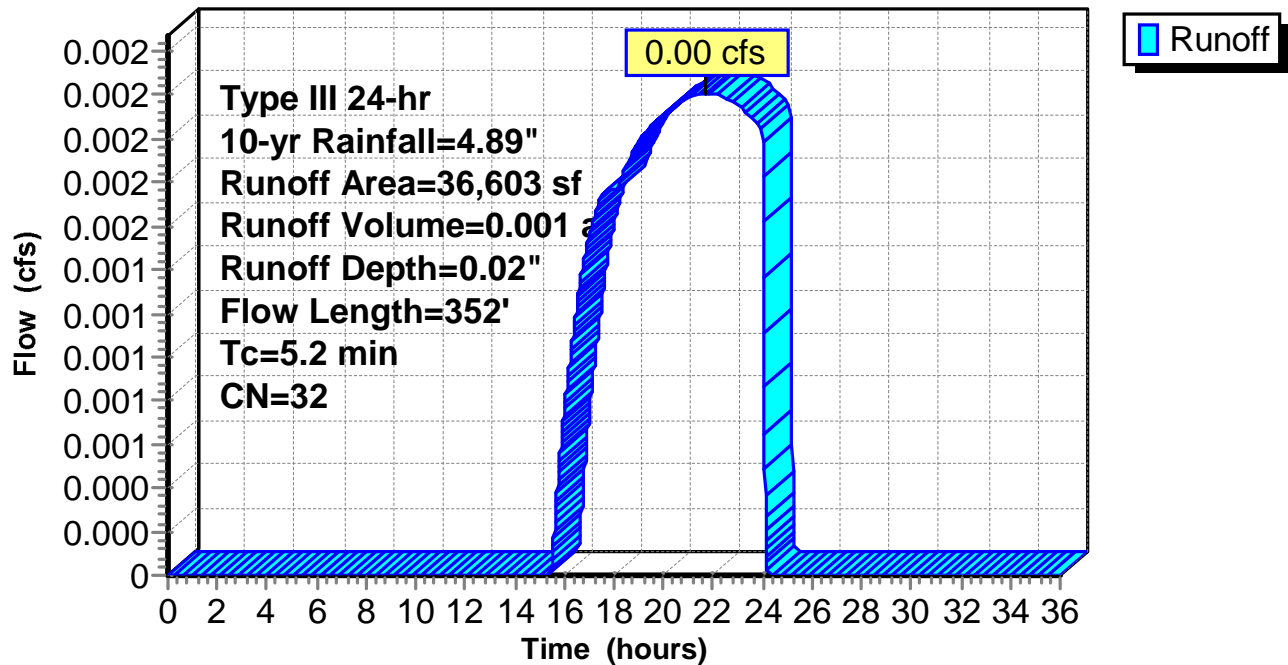
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 16-12S:

Runoff = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af, Depth= 0.03"

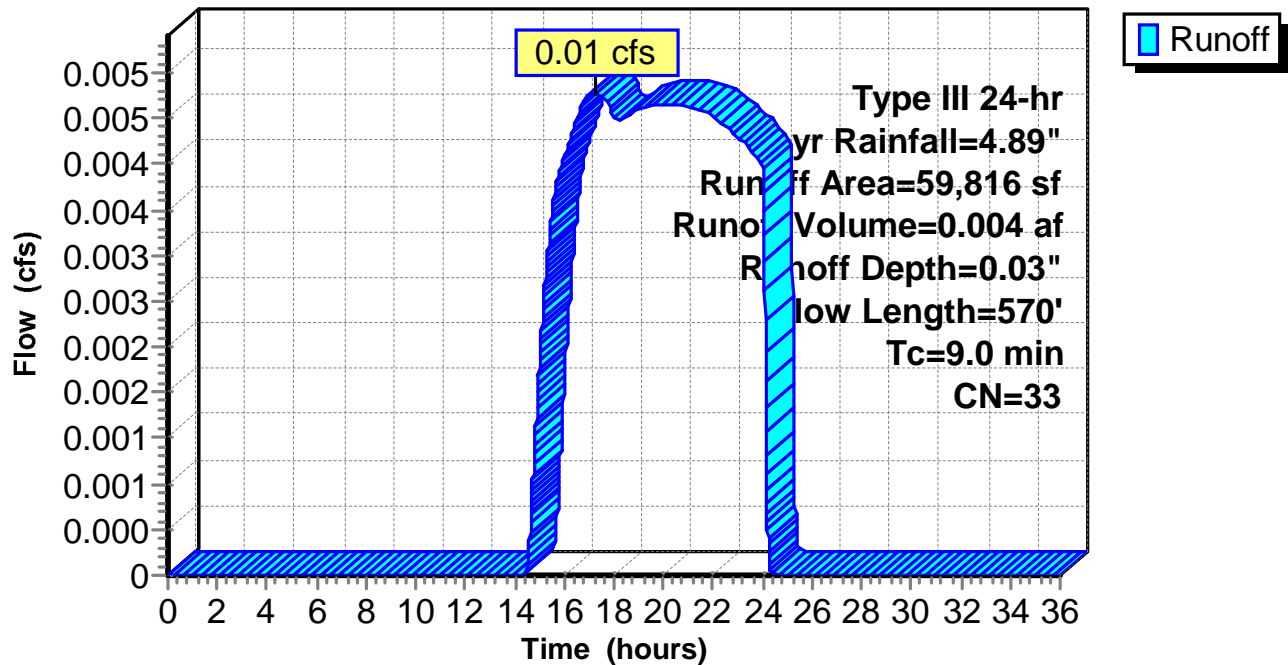
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

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Summary for Subcatchment 16-13S:

Runoff = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af, Depth= 0.05"

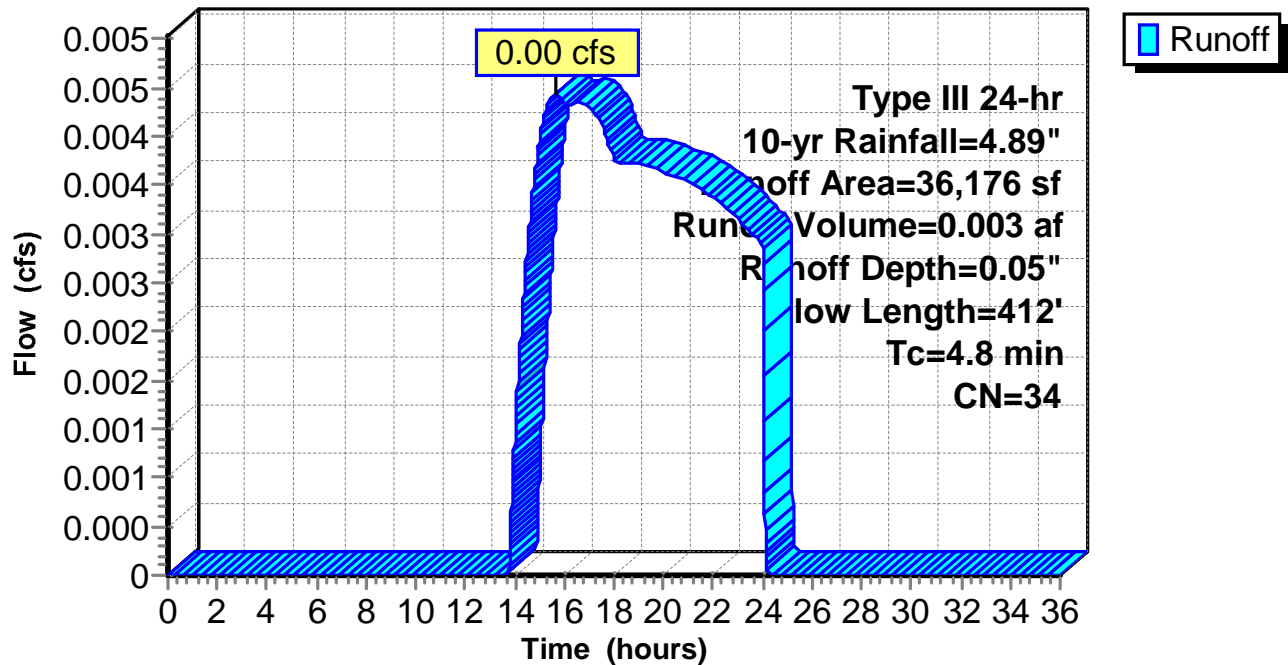
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

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Summary for Subcatchment 16-14S:

Runoff = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af, Depth= 0.09"

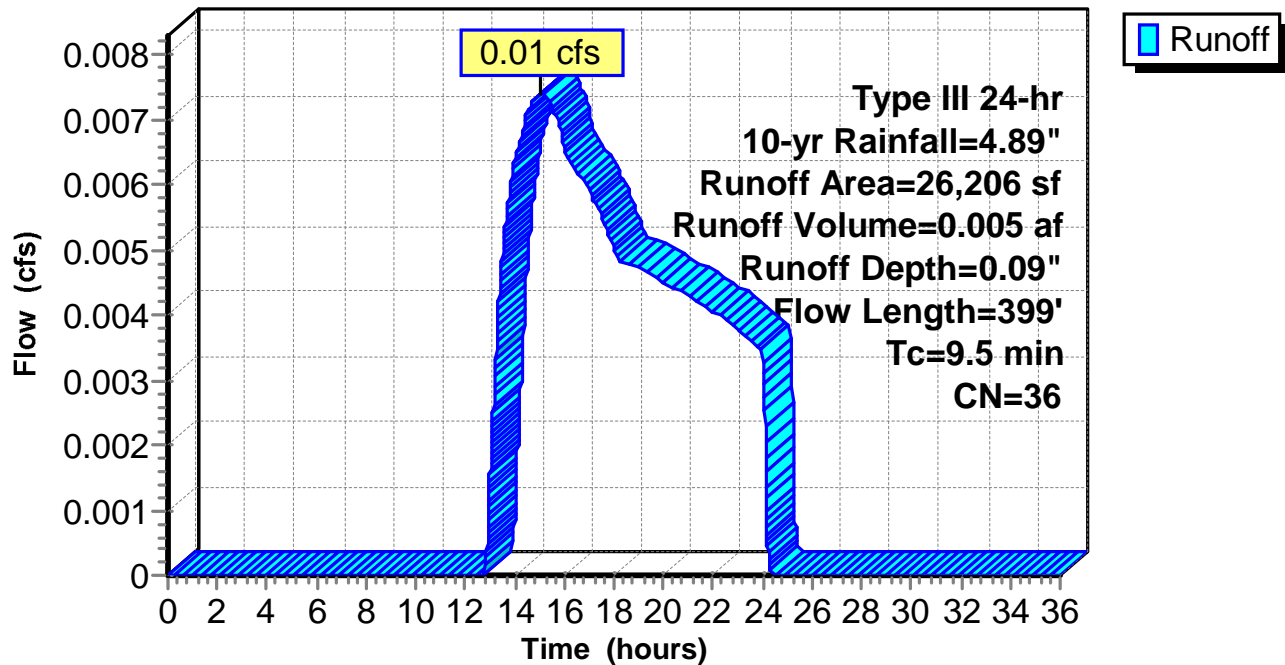
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

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Summary for Subcatchment 16-15S:

Runoff = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af, Depth= 0.28"

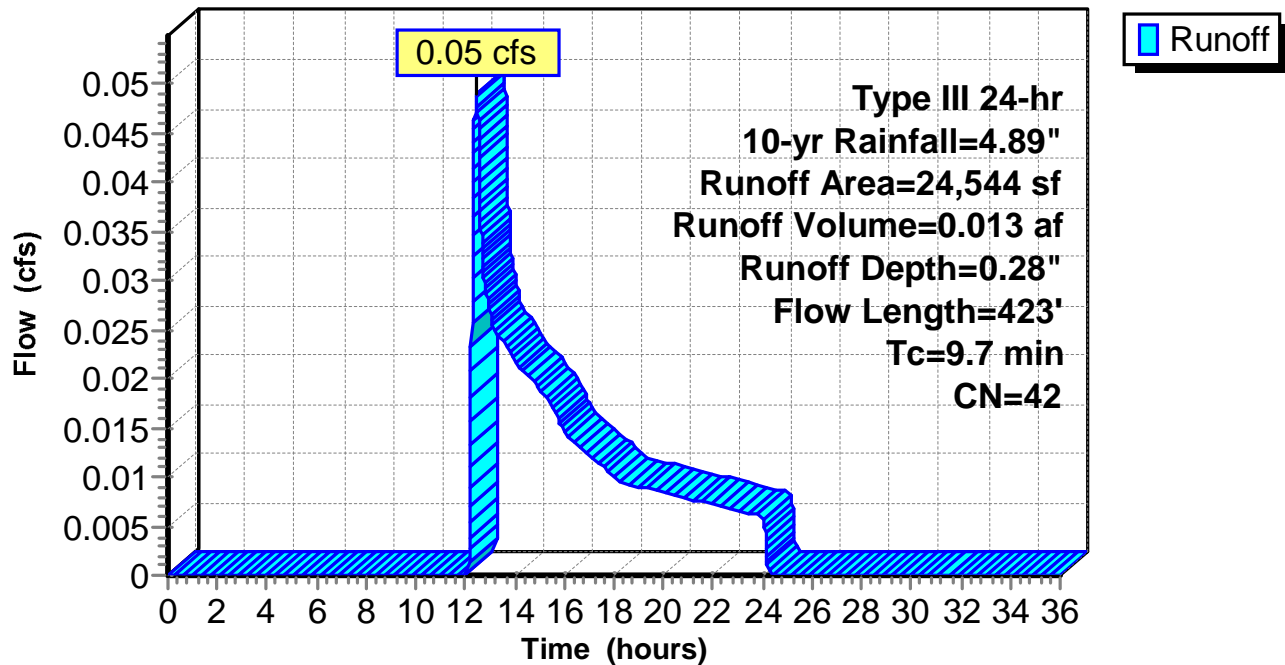
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

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Summary for Subcatchment 16-16S:

Runoff = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af, Depth= 0.81"

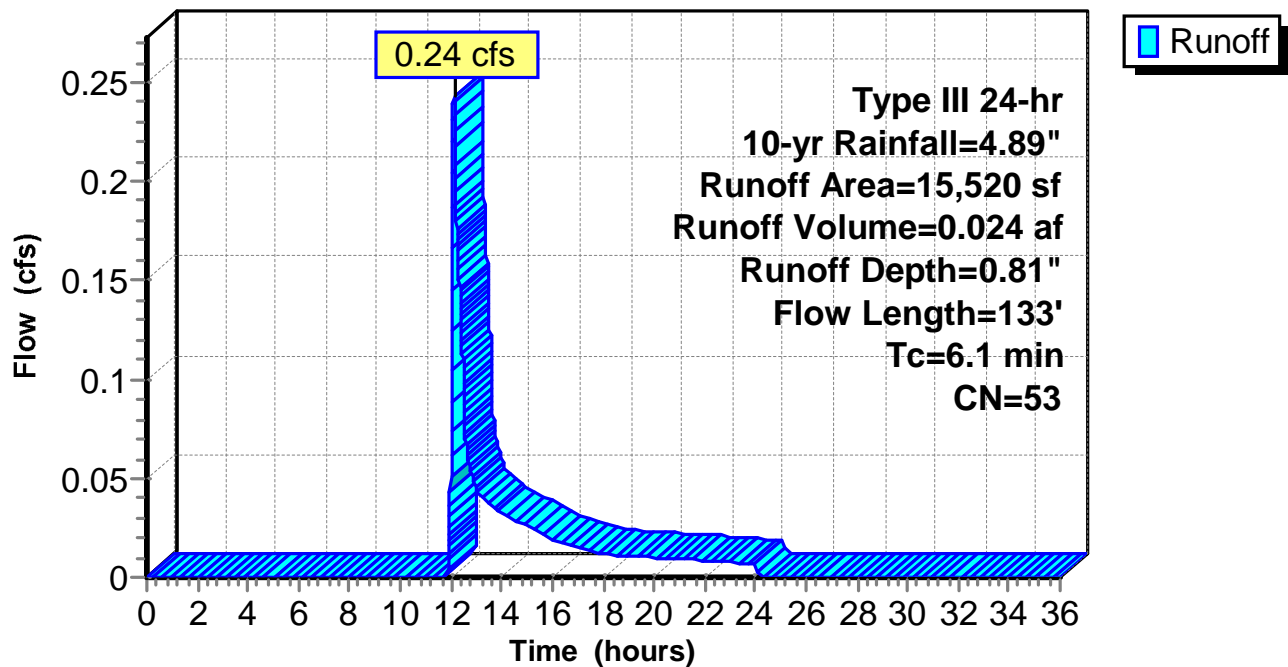
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
5,158	98	Impervious
10,362	30	Brush, Good, HSG A
15,520	53	Weighted Average
10,362		66.77% Pervious Area
5,158		33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	63	0.1190	2.41		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	20	0.3500	4.14		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.1	133	Total			

Subcatchment 16-16S:

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Summary for Subcatchment 17-01S:

Runoff = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af, Depth= 0.15"

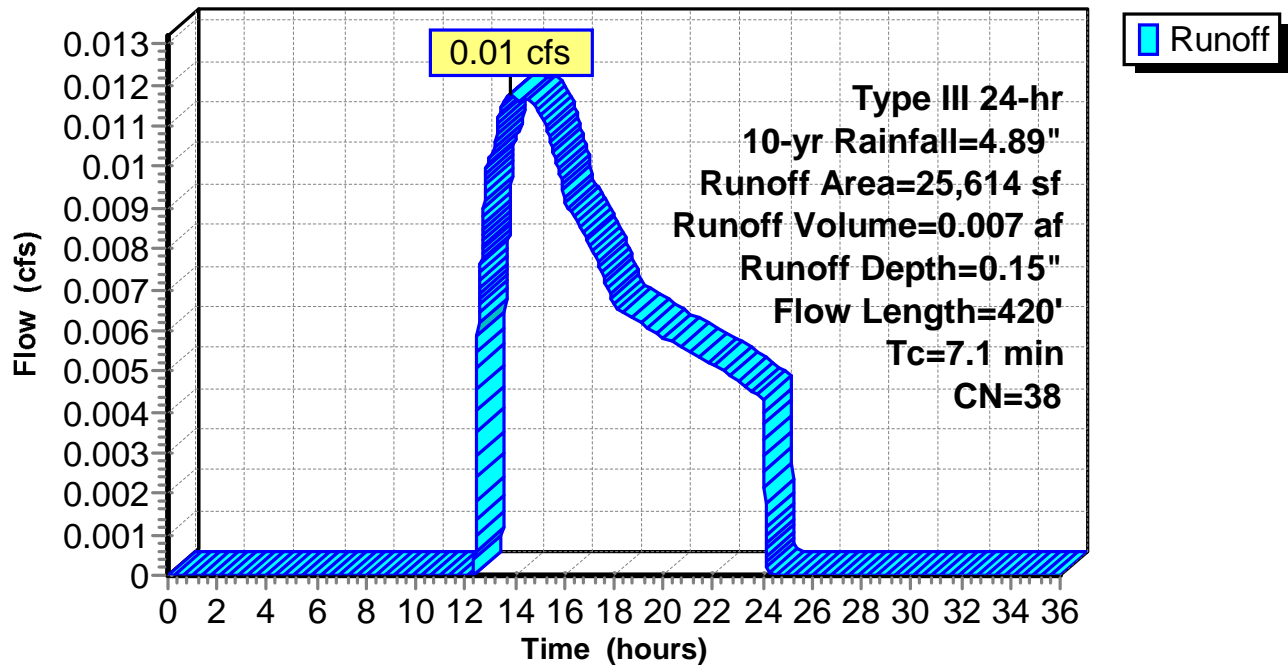
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

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Summary for Subcatchment 17-02S:

Runoff = 0.00 cfs @ 15.32 hrs, Volume= 0.001 af, Depth= 0.07"

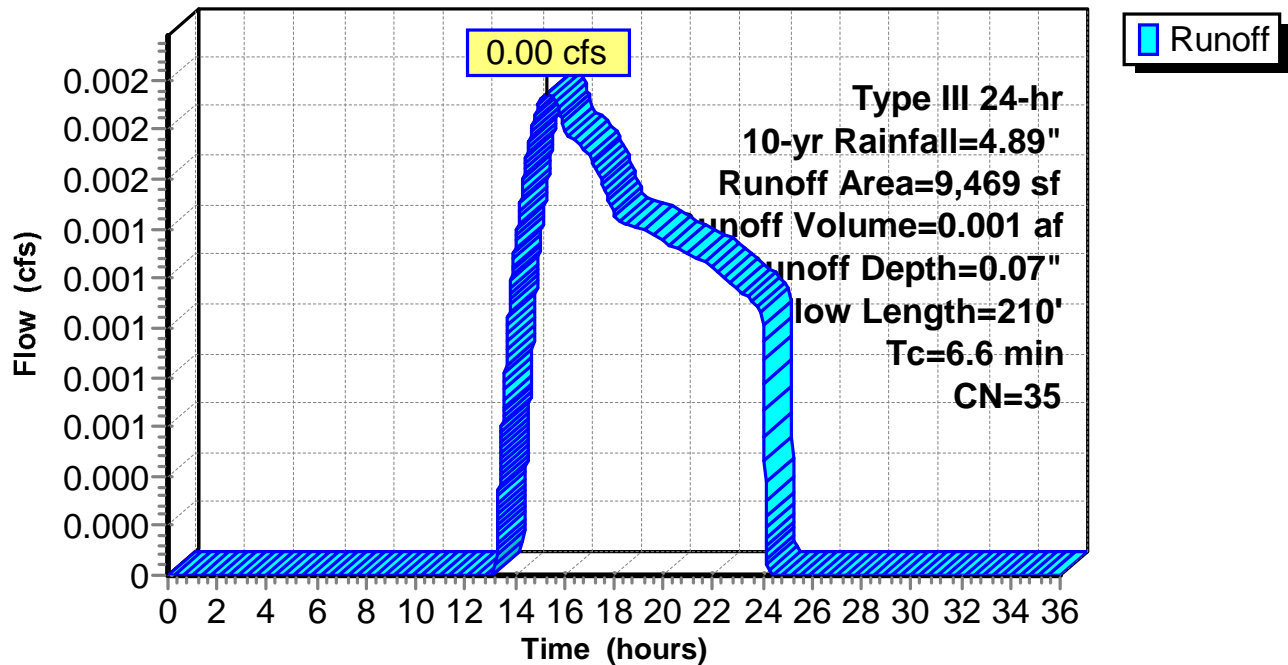
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



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Summary for Subcatchment 17-03S:

Runoff = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af, Depth= 0.25"

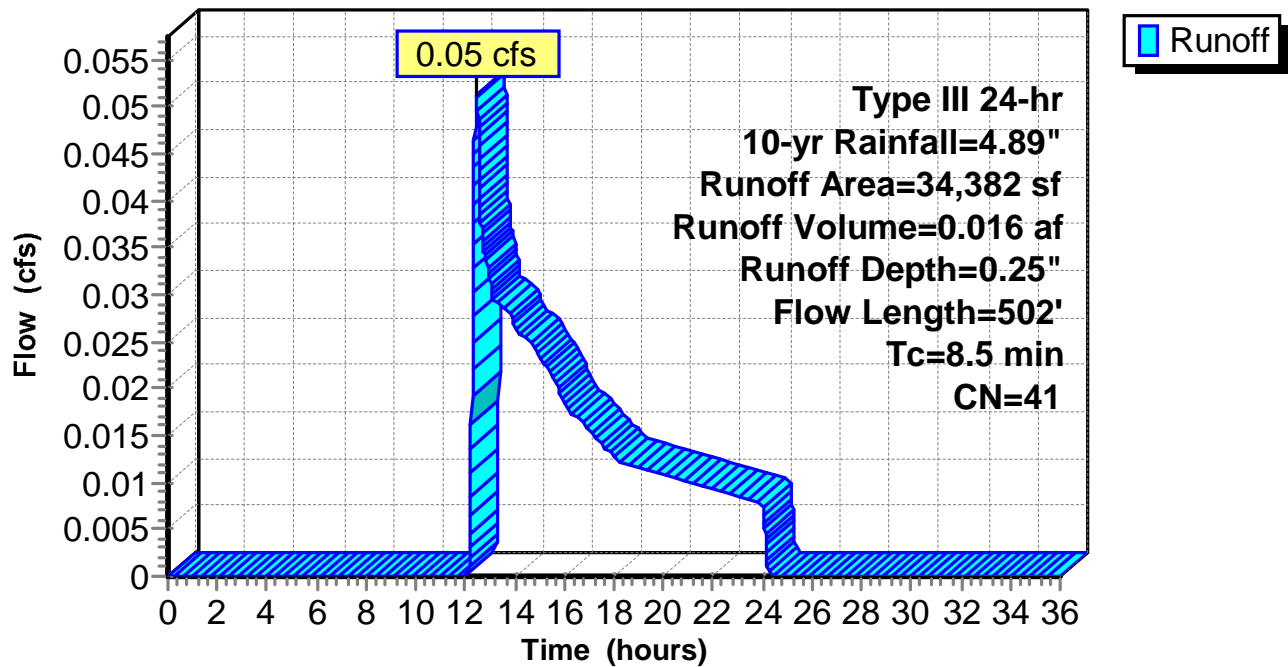
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



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Summary for Subcatchment 17-04S:

Runoff = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af, Depth= 0.75"

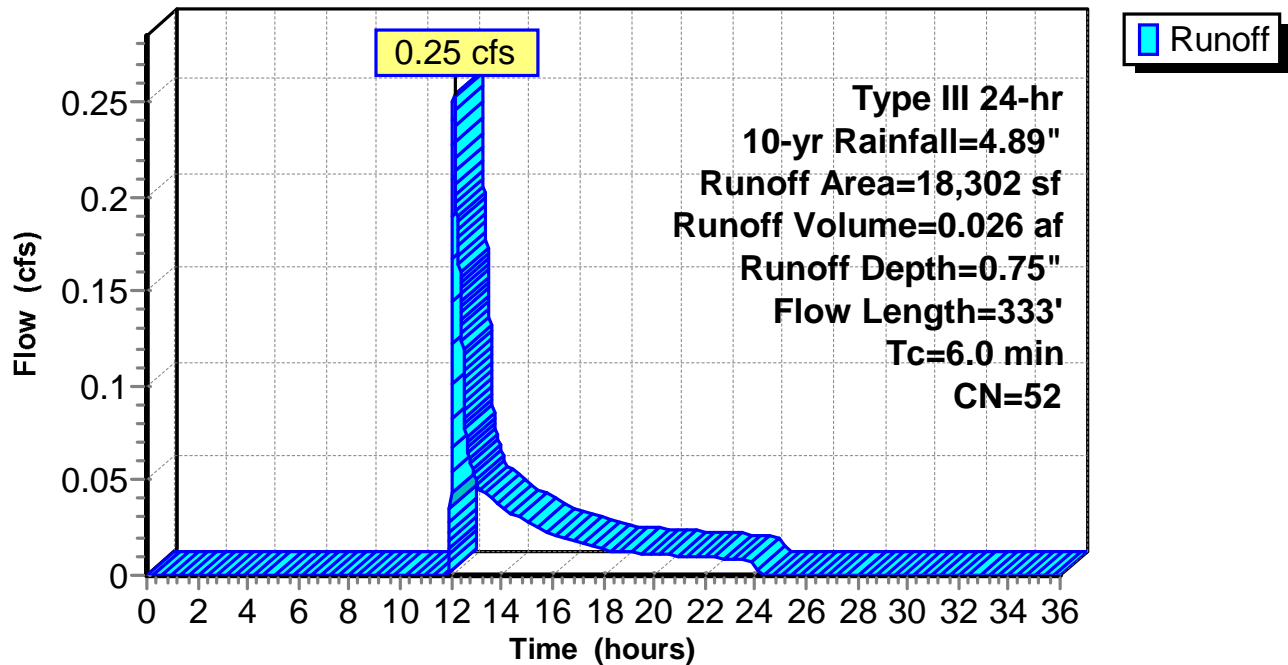
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



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Summary for Subcatchment 17-05S:

Runoff = 0.48 cfs @ 12.07 hrs, Volume= 0.035 af, Depth= 1.37"

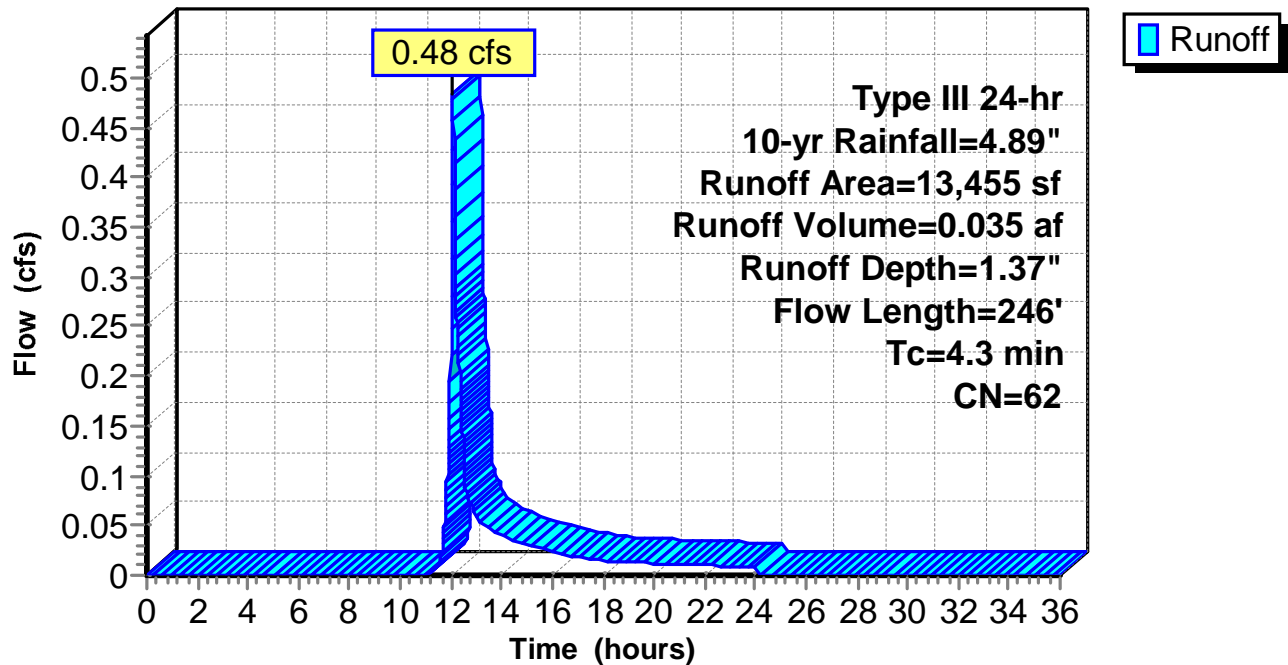
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	32	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.3	246	Total			

Subcatchment 17-05S:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-06S:

Runoff = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 1.65"

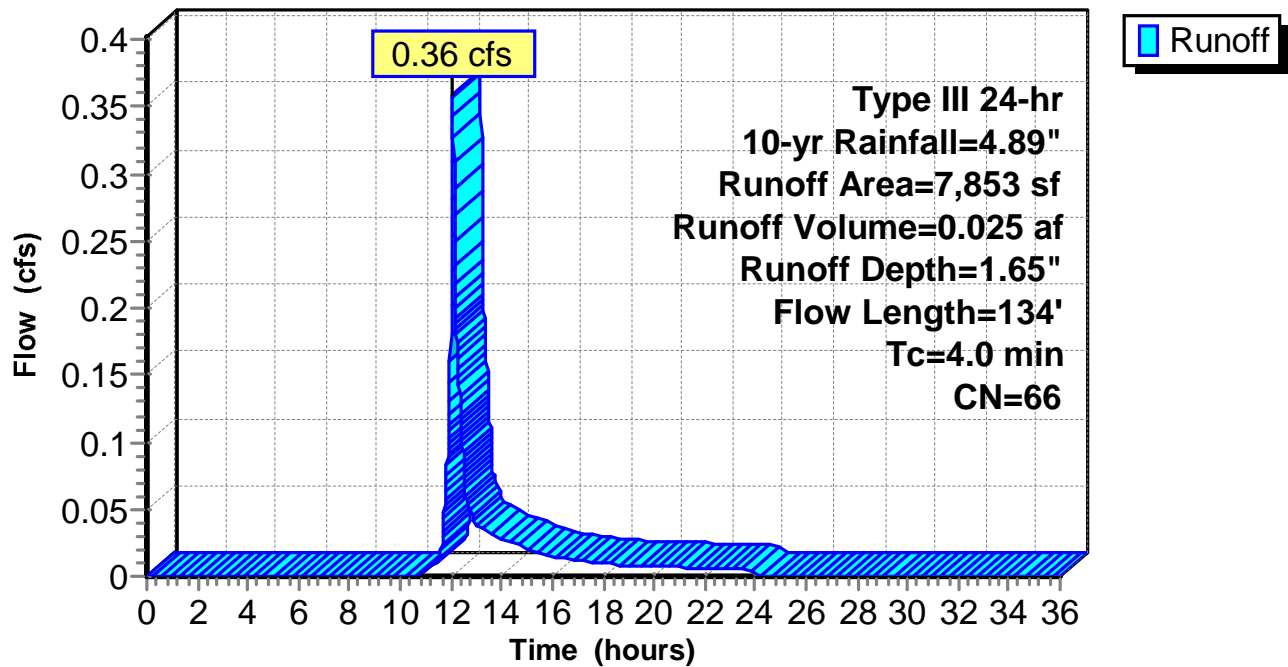
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Subcatchment 17-07S:

Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.017 af, Depth= 2.28"

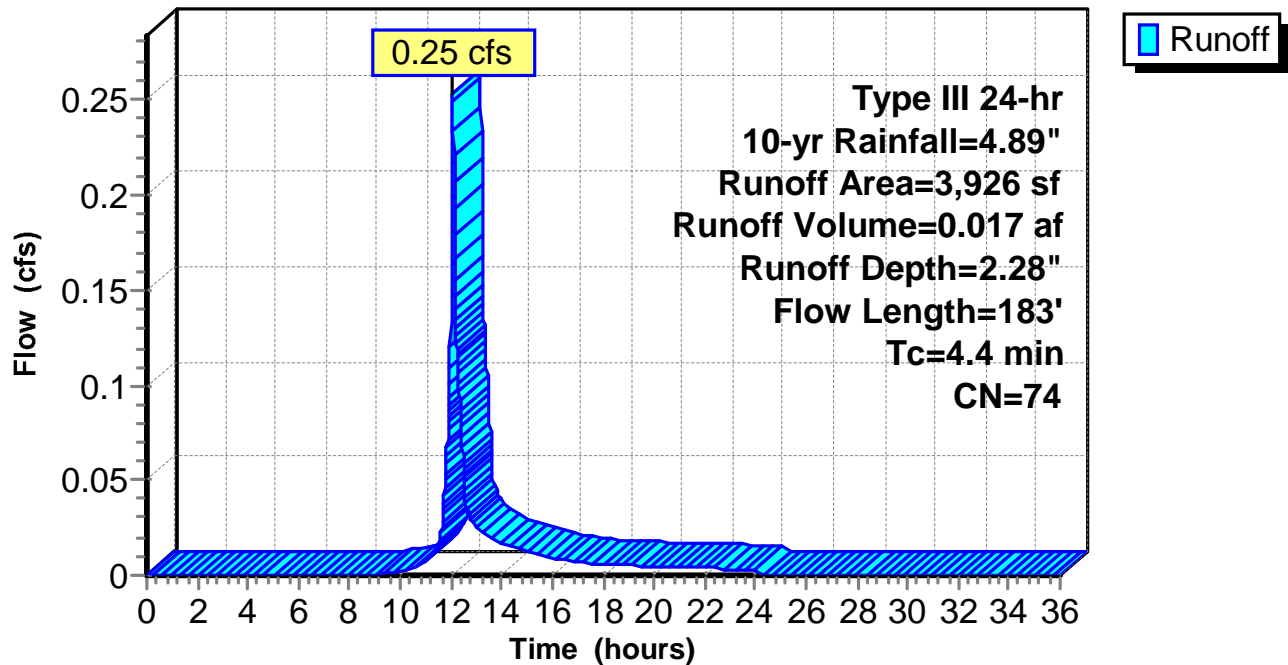
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-yr Rainfall=4.89"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af
 Outflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.25' @ 12.45 hrs

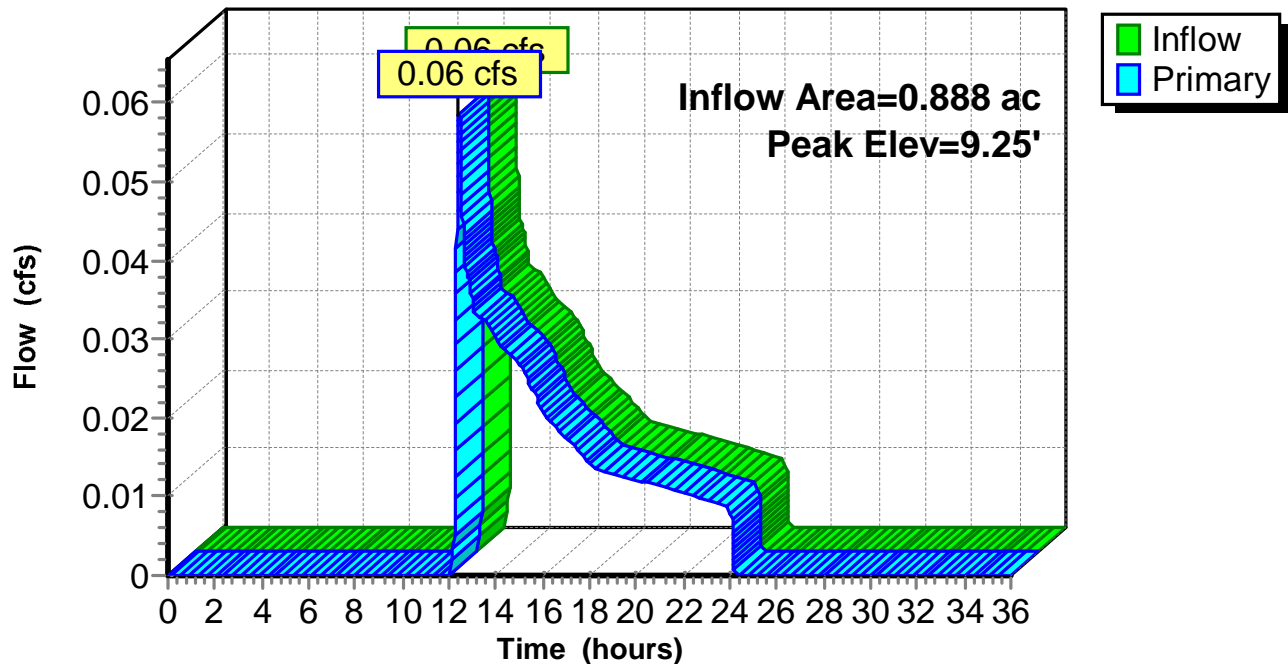
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.12'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 9.12' / 9.06' S= 0.0086 1/100' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.45 hrs HW=9.25' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 1.48 fps)

Pond CB16-01:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 1.58" for 10-yr event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.014 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.04' @ 12.06 hrs

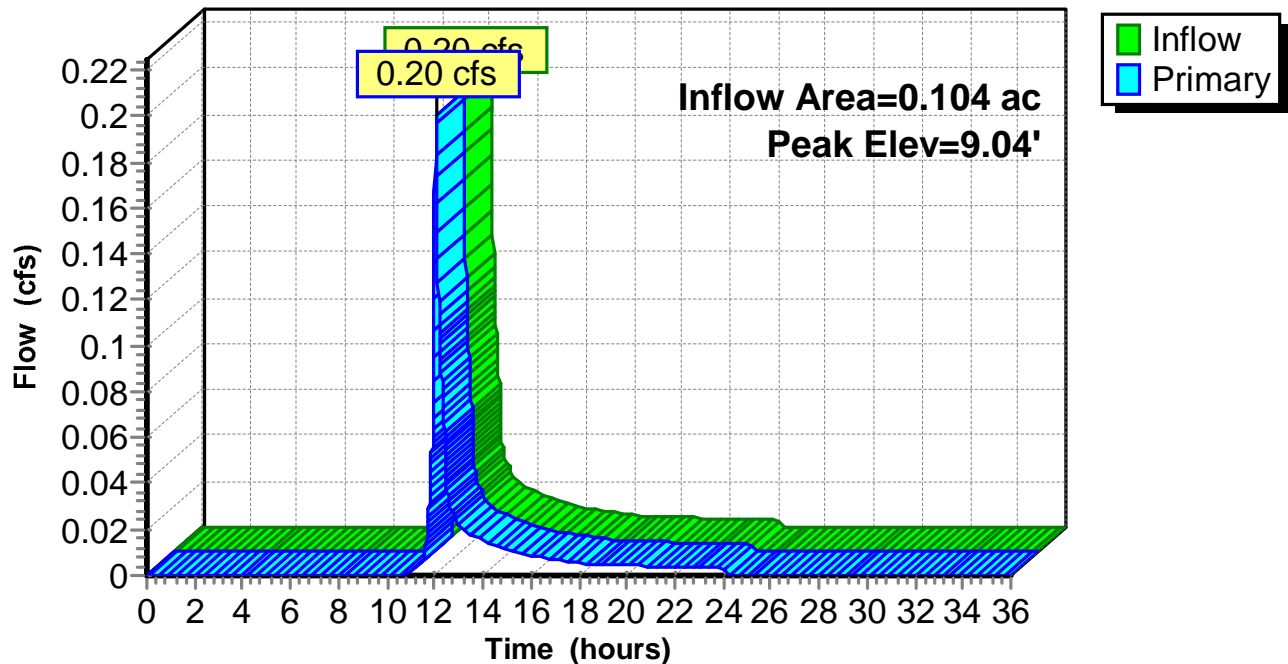
Device	Routing	Invert	Outlet Devices
#1	Primary	11.86'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=9.04' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.20 cfs @ 1.59 fps)

Pond CB16-02:

Hydrograph



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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.05" for 10-yr event
Inflow = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 15.71 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.86' @ 15.71 hrs

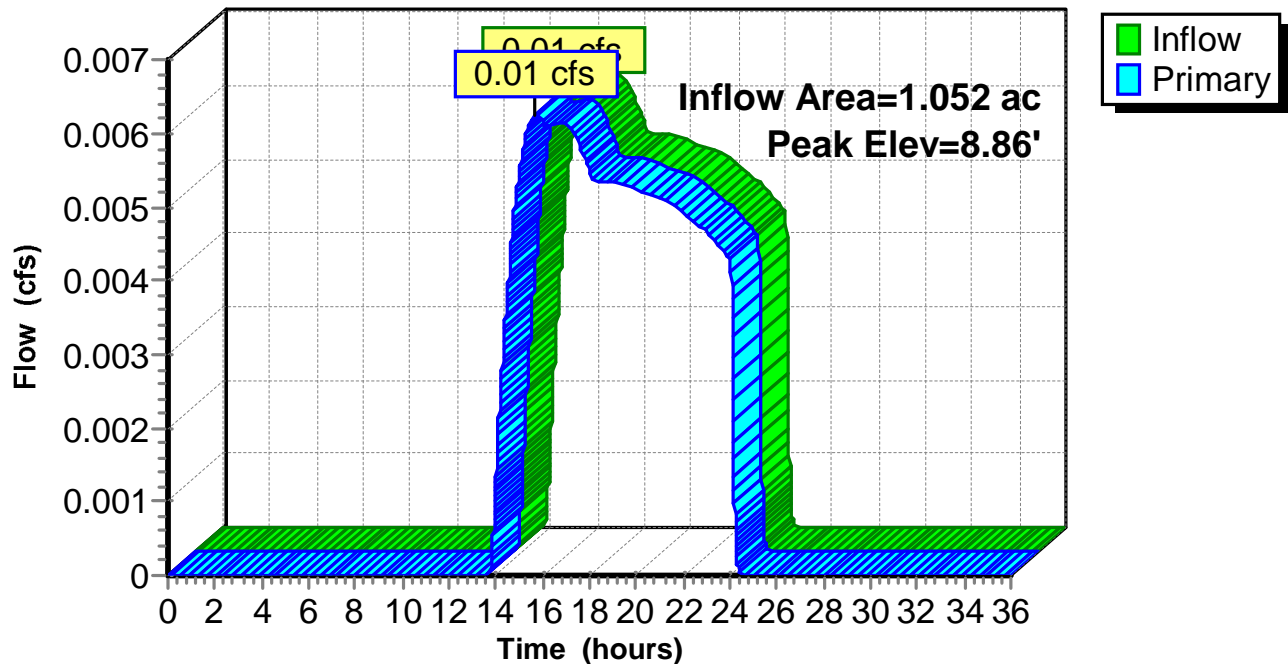
Device	Routing	Invert	Outlet Devices
#1	Primary	11.95'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.71 hrs HW=8.86' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.64 fps)

Pond CB16-03:

Hydrograph



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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.03" for 10-yr event
Inflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af
Outflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.02' @ 16.92 hrs

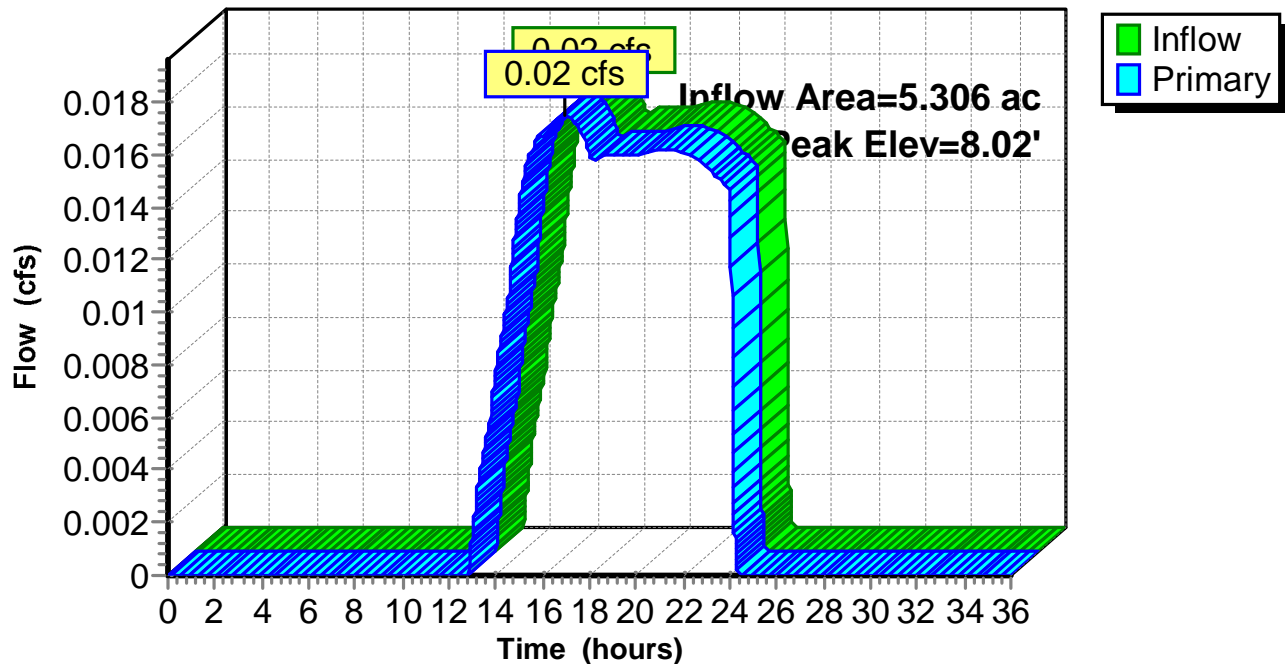
Device	Routing	Invert	Outlet Devices
#1	Primary	15.53'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.98'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 7.98' / 6.11' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.01 cfs @ 16.92 hrs HW=8.02' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.70 fps)

Pond CB16-04:

Hydrograph



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Summary for Pond CB16-05:

Inflow Area = 2.098 ac, 17.46% Impervious, Inflow Depth = 0.17" for 10-yr event
 Inflow = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af
 Outflow = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.08 cfs @ 12.45 hrs, Volume= 0.030 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.10' @ 12.45 hrs

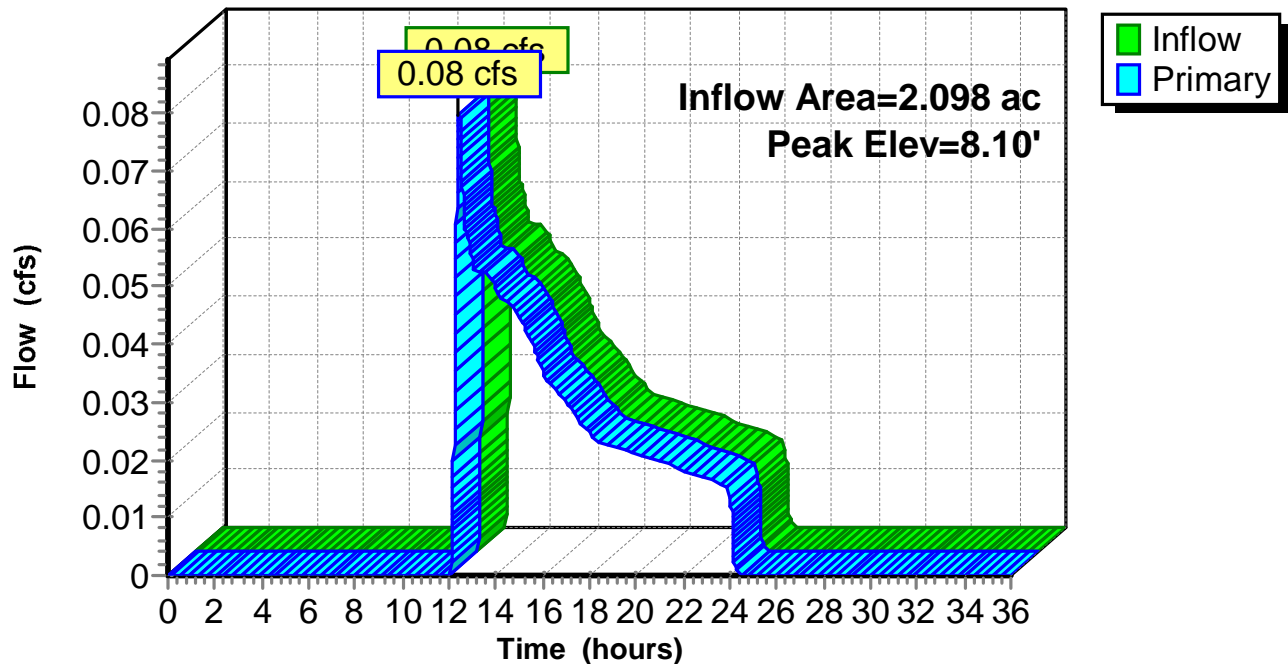
Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.97'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 7.97' / 6.11' S= 0.0255 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.08 cfs @ 12.45 hrs HW=8.10' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.08 cfs @ 1.21 fps)

Pond CB16-05:

Hydrograph



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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.72' @ 24.00 hrs

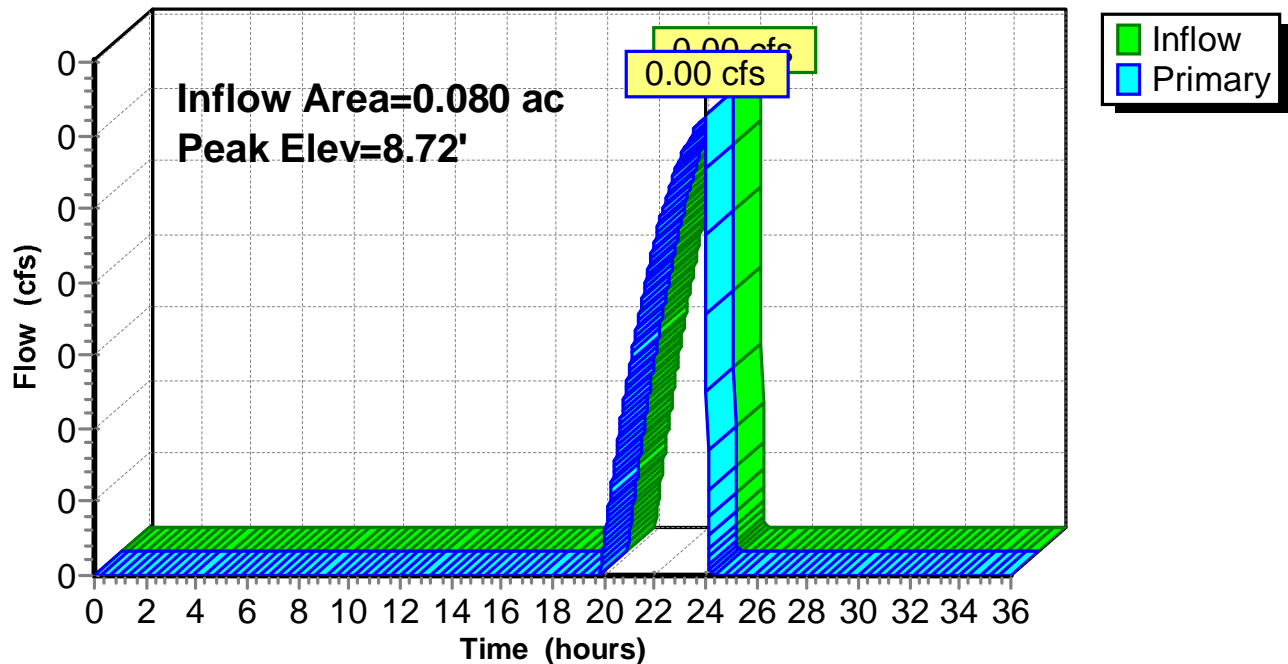
Device	Routing	Invert	Outlet Devices
#1	Primary	12.71'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.72'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 8.72' / 8.03' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=8.72' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.09 fps)

Pond CB16-06:

Hydrograph



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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.25" for 10-yr event
Inflow = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af
Outflow = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.41 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 14.02' @ 12.41 hrs

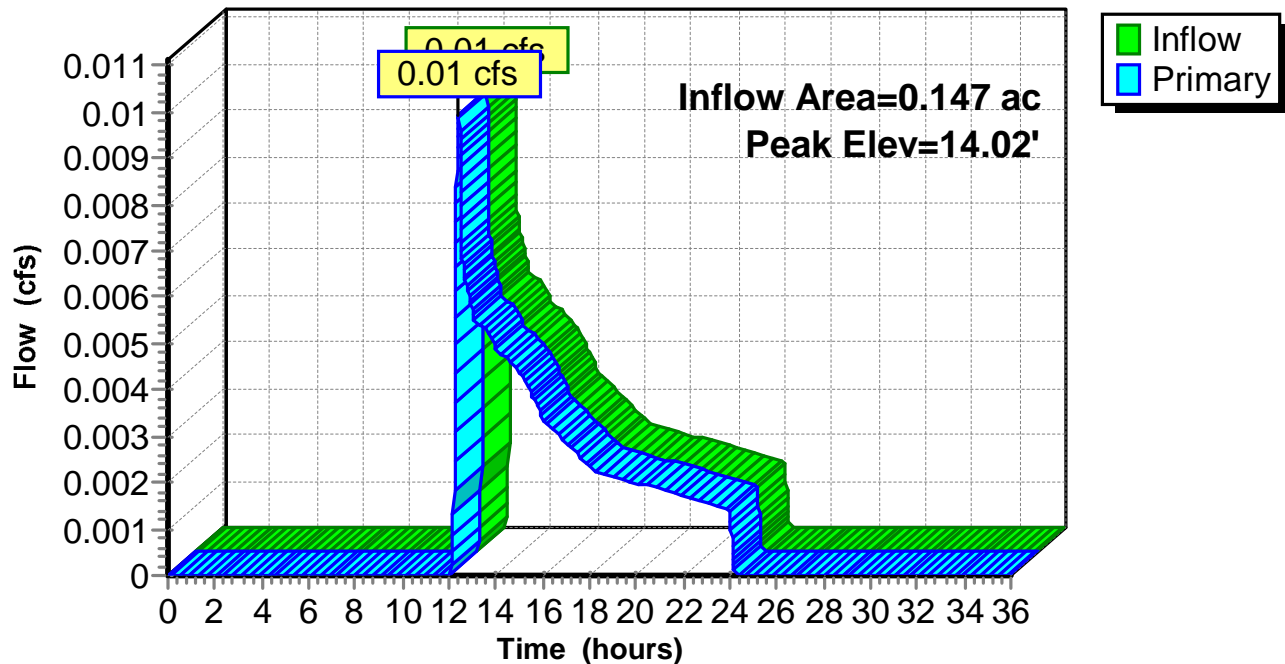
Device	Routing	Invert	Outlet Devices
#1	Primary	18.96'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.96'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 13.96' / 13.58' S= 0.0045 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.41 hrs HW=14.02' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.76 fps)

Pond CB16-07:

Hydrograph



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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.29" for 10-yr event
Inflow = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 12.37 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 13.61' @ 12.37 hrs

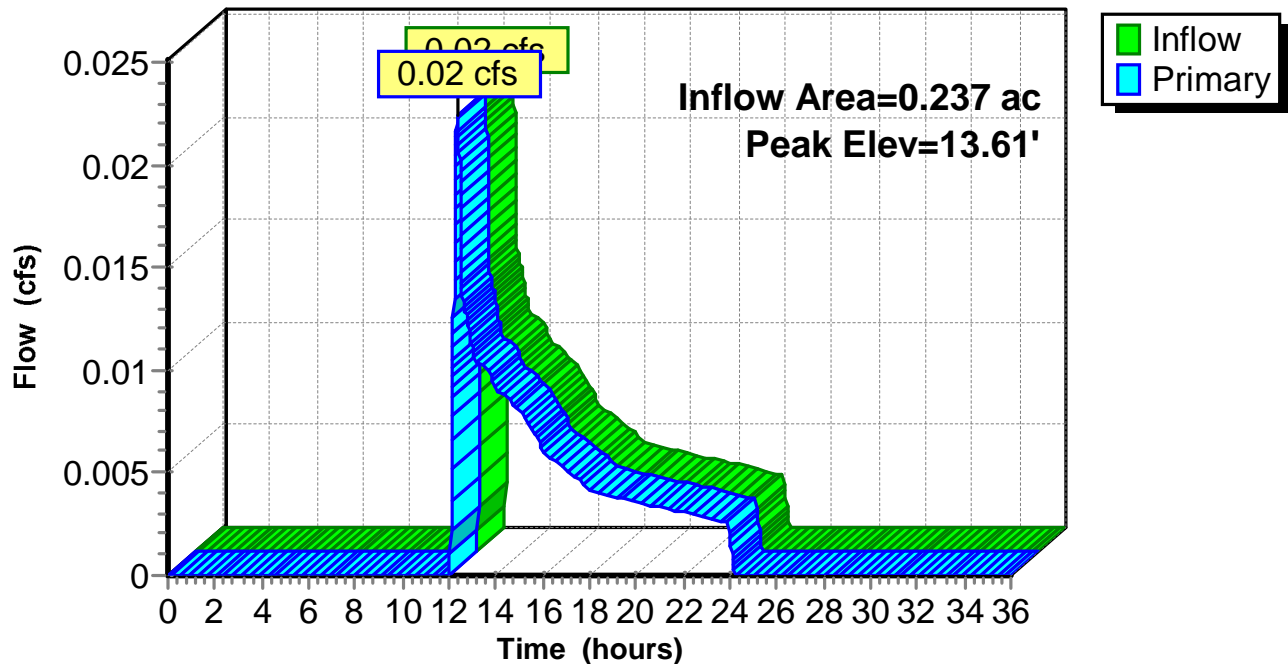
Device	Routing	Invert	Outlet Devices
#1	Primary	21.43'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.55'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 13.55' / 8.03' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.37 hrs HW=13.61' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.86 fps)

Pond CB16-08:

Hydrograph



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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.18" for 10-yr event
Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 18.11' @ 12.47 hrs

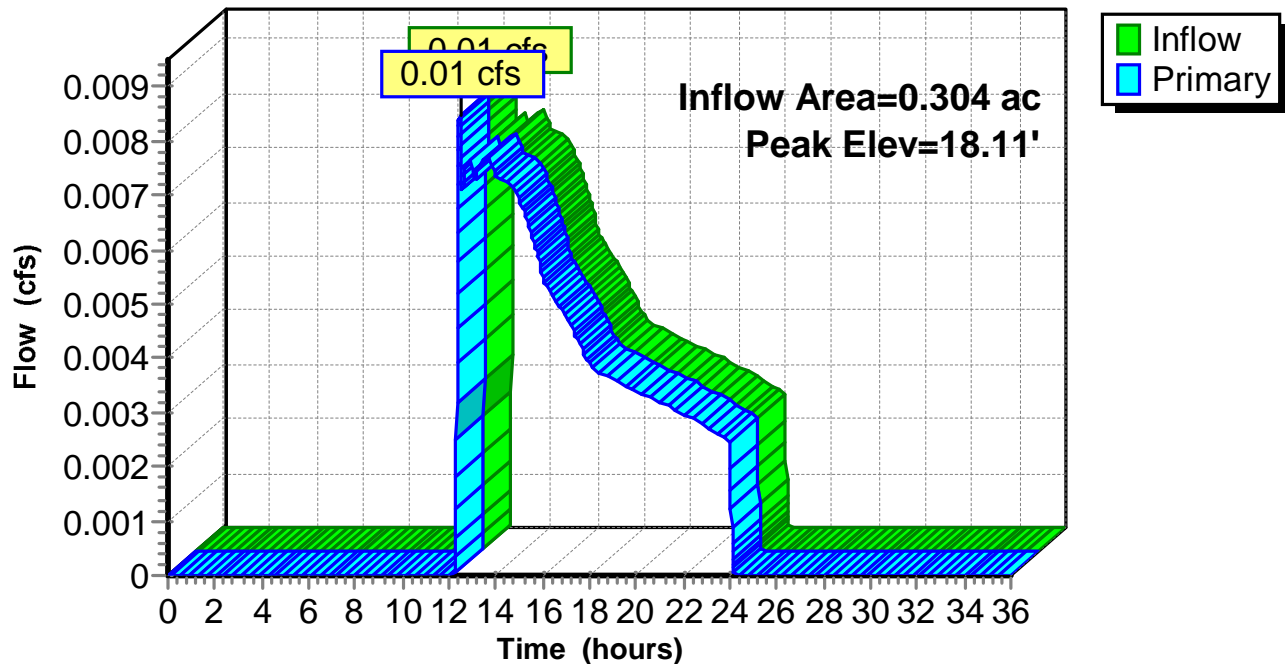
Device	Routing	Invert	Outlet Devices
#1	Primary	23.15'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	18.07'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 18.07' / 9.71' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 12.47 hrs HW=18.11' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.66 fps)

Pond CB16-09:

Hydrograph



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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.00" for 10-yr event
Inflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 24.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.84' @ 24.00 hrs

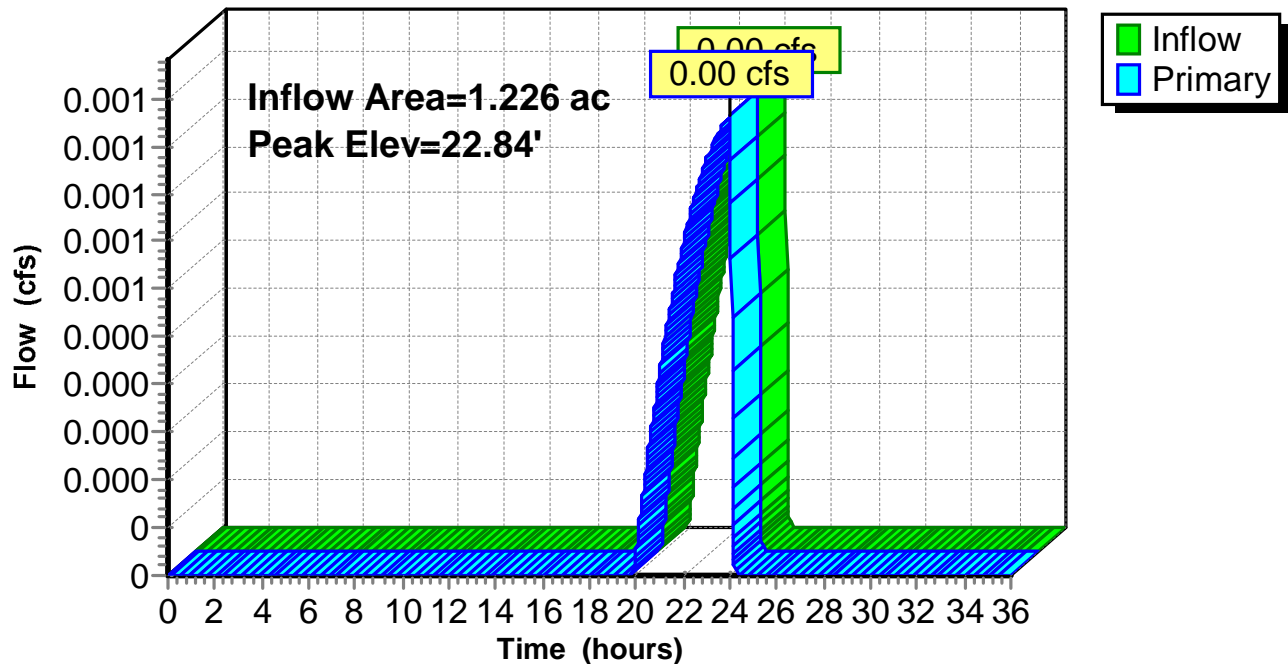
Device	Routing	Invert	Outlet Devices
#1	Primary	26.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.83'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 22.83' / 22.79' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 24.00 hrs HW=22.84' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.22 fps)

Pond CB16-10:

Hydrograph



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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.01" for 10-yr event
 Inflow = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af
 Outflow = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.00 cfs @ 23.36 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 22.54' @ 23.36 hrs

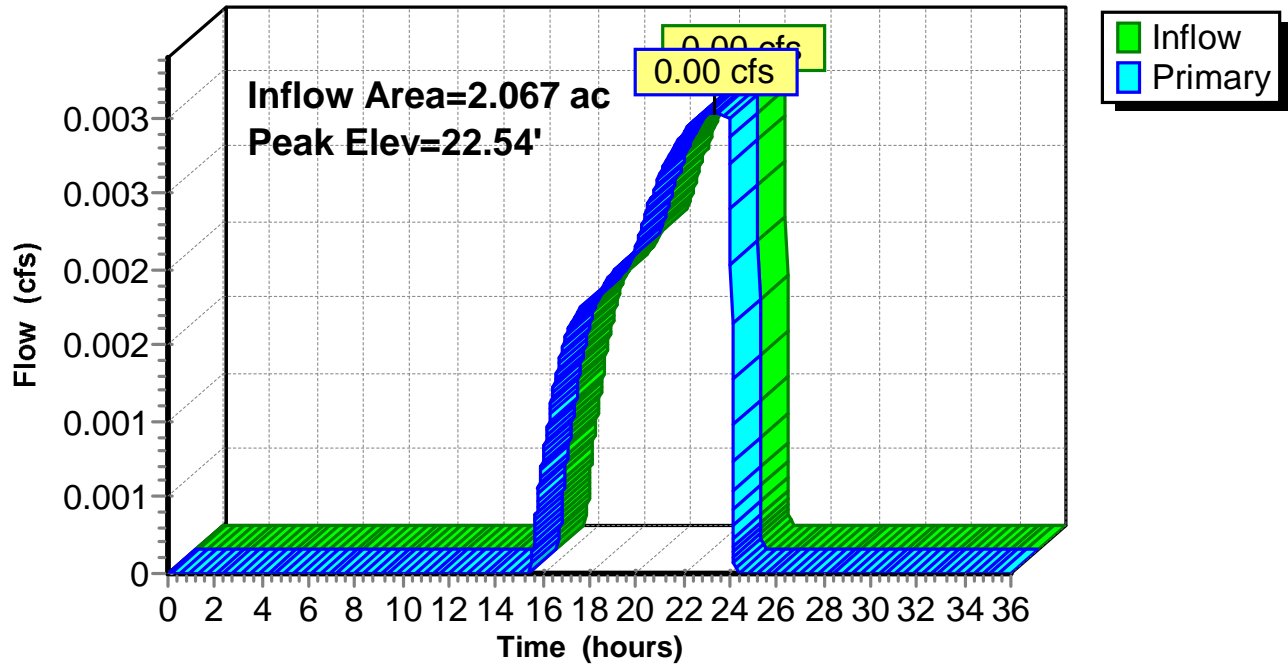
Device	Routing	Invert	Outlet Devices
#1	Primary	26.87'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.52'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 22.52' / 21.23' S= 0.0136 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 23.36 hrs HW=22.54' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.00 cfs @ 0.56 fps)

Pond CB16-11:

Hydrograph



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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.03" for 10-yr event
Inflow = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af
Outflow = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 17.25 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 23.93' @ 17.25 hrs

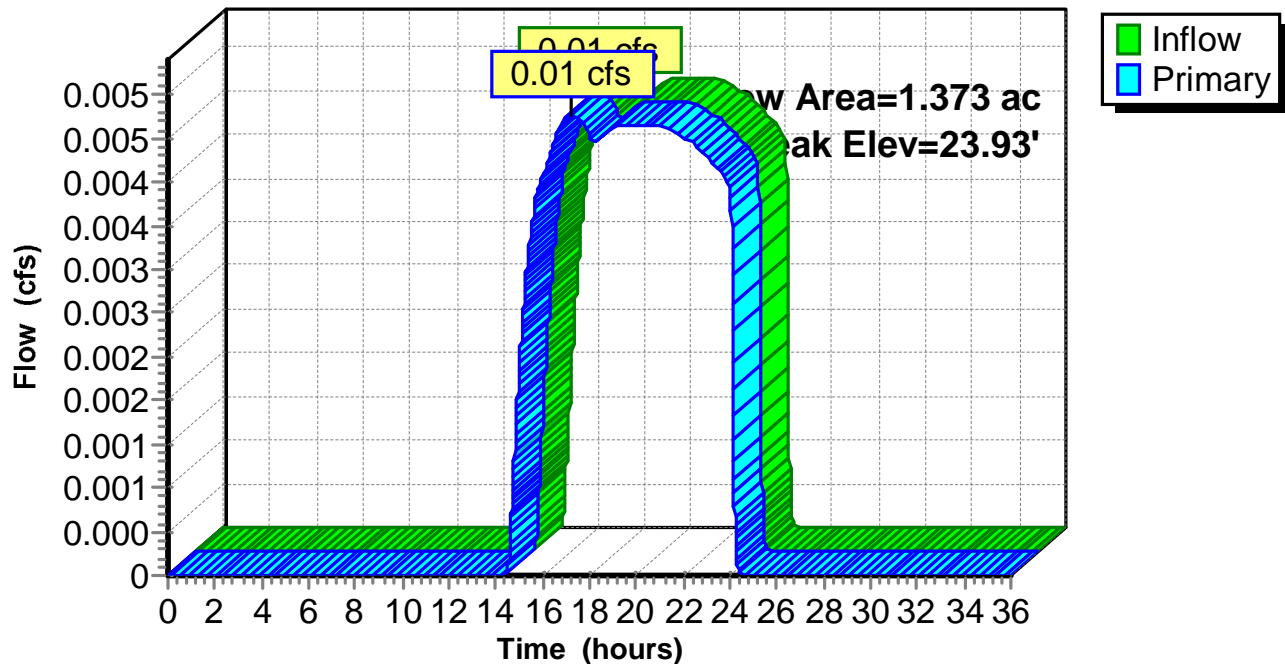
Device	Routing	Invert	Outlet Devices
#1	Primary	29.47'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	23.91'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 23.91' / 23.32' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 17.25 hrs HW=23.93' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.50 fps)

Pond CB16-12:

Hydrograph



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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.05" for 10-yr event
Inflow = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af
Outflow = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 15.65 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 28.14' @ 15.65 hrs

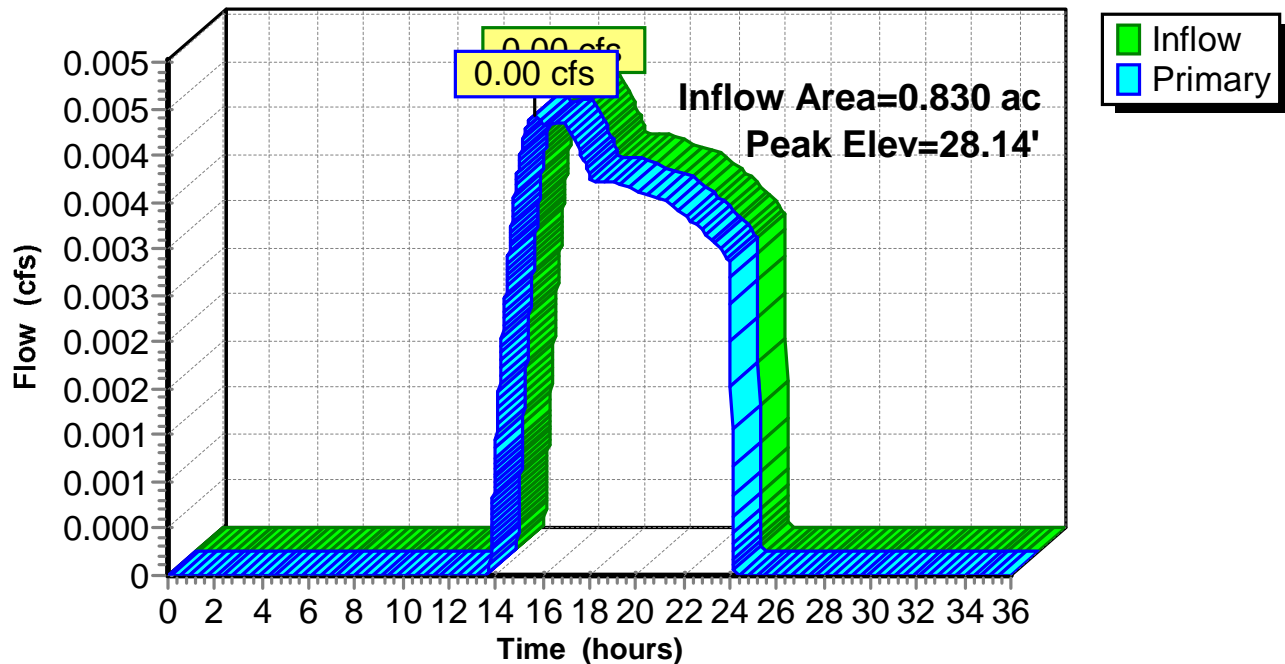
Device	Routing	Invert	Outlet Devices
#1	Primary	32.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	28.12'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 28.12' / 27.48' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.65 hrs HW=28.14' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.52 fps)

Pond CB16-13:

Hydrograph



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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.09" for 10-yr event
Inflow = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af
Outflow = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 15.04 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 37.62' @ 15.04 hrs

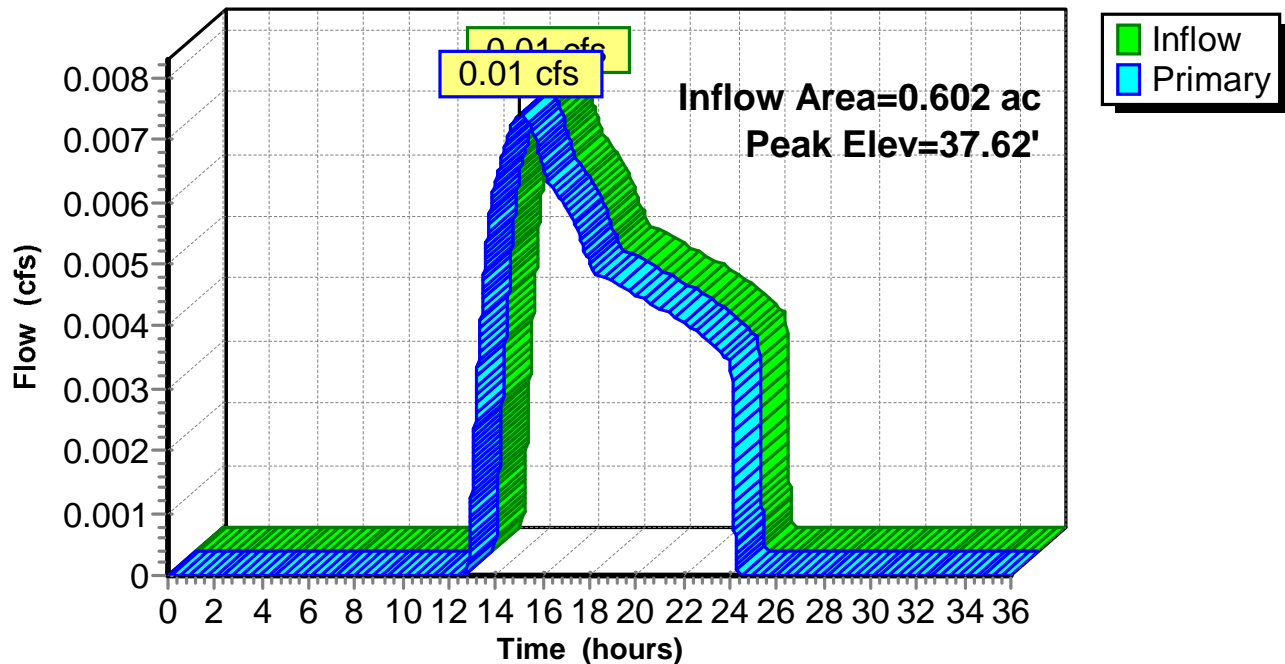
Device	Routing	Invert	Outlet Devices
#1	Primary	42.77'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	37.59'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 37.59' / 30.07' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.04 hrs HW=37.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.61 fps)

Pond CB16-14:

Hydrograph



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Summary for Pond CB16-15:

Inflow Area = 0.920 ac, 23.48% Impervious, Inflow Depth = 0.17" for 10-yr event
Inflow = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af
Outflow = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.45 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.50' @ 12.45 hrs

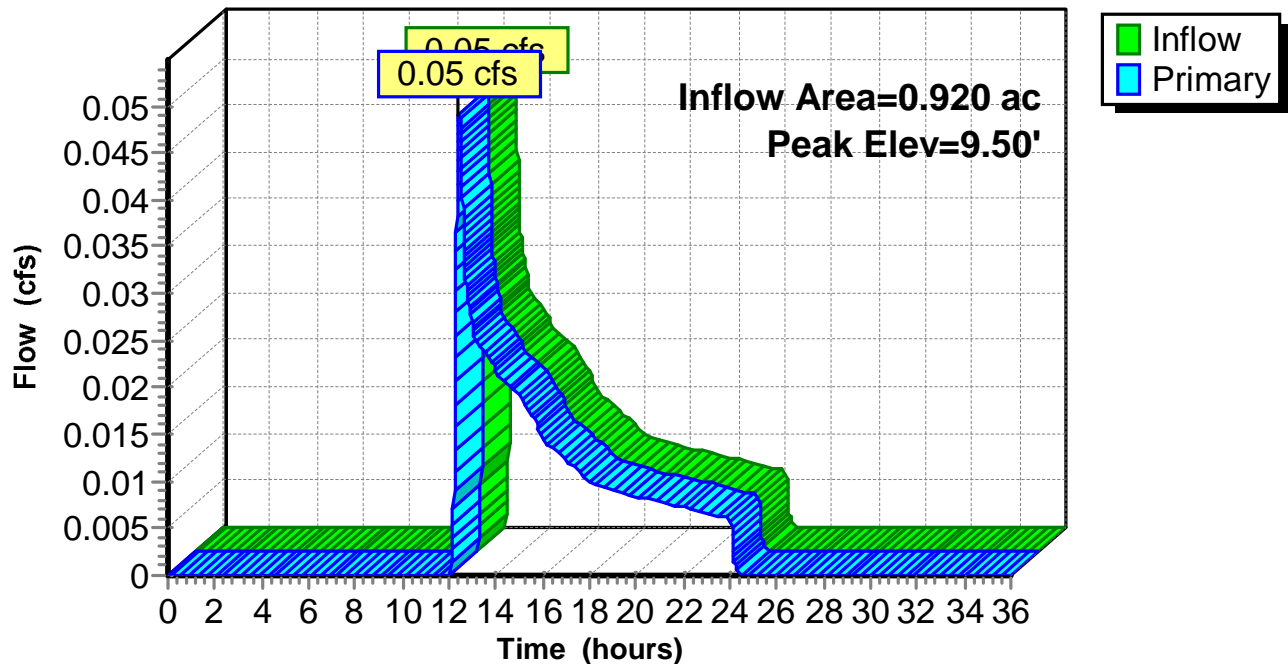
Device	Routing	Invert	Outlet Devices
#1	Primary	12.42'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.40'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 9.40' / 7.97' S= 0.0154 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.45 hrs HW=9.50' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.05 cfs @ 1.10 fps)

Pond CB16-15:

Hydrograph



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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.15" for 10-yr event
Inflow = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af
Outflow = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 13.78 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.10' @ 13.78 hrs

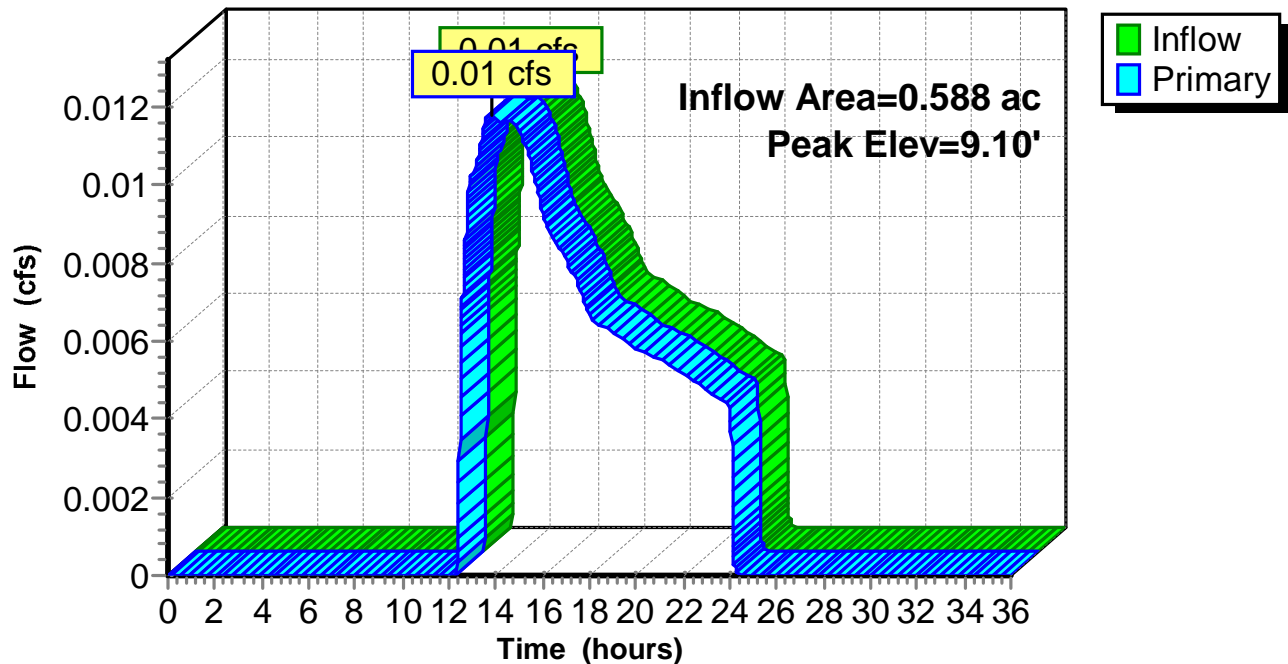
Device	Routing	Invert	Outlet Devices
#1	Primary	12.28'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.03'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 9.03' / 8.85' S= 0.0036 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 13.78 hrs HW=9.10' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.77 fps)

Pond CB17-01:

Hydrograph



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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.13" for 10-yr event
Inflow = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 14.68 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.92' @ 14.68 hrs

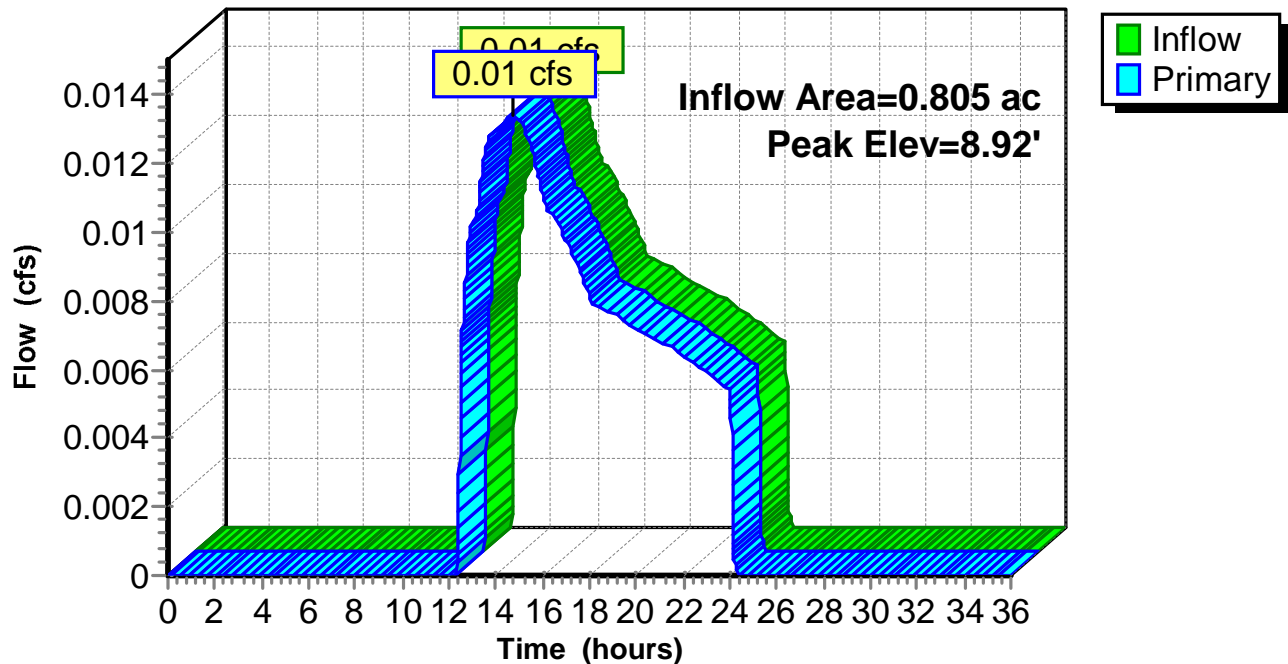
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.85'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 8.85' / 8.63' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 14.68 hrs HW=8.92' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.80 fps)

Pond CB17-02:

Hydrograph



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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af
 Outflow = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.05 cfs @ 12.46 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.79' @ 12.46 hrs

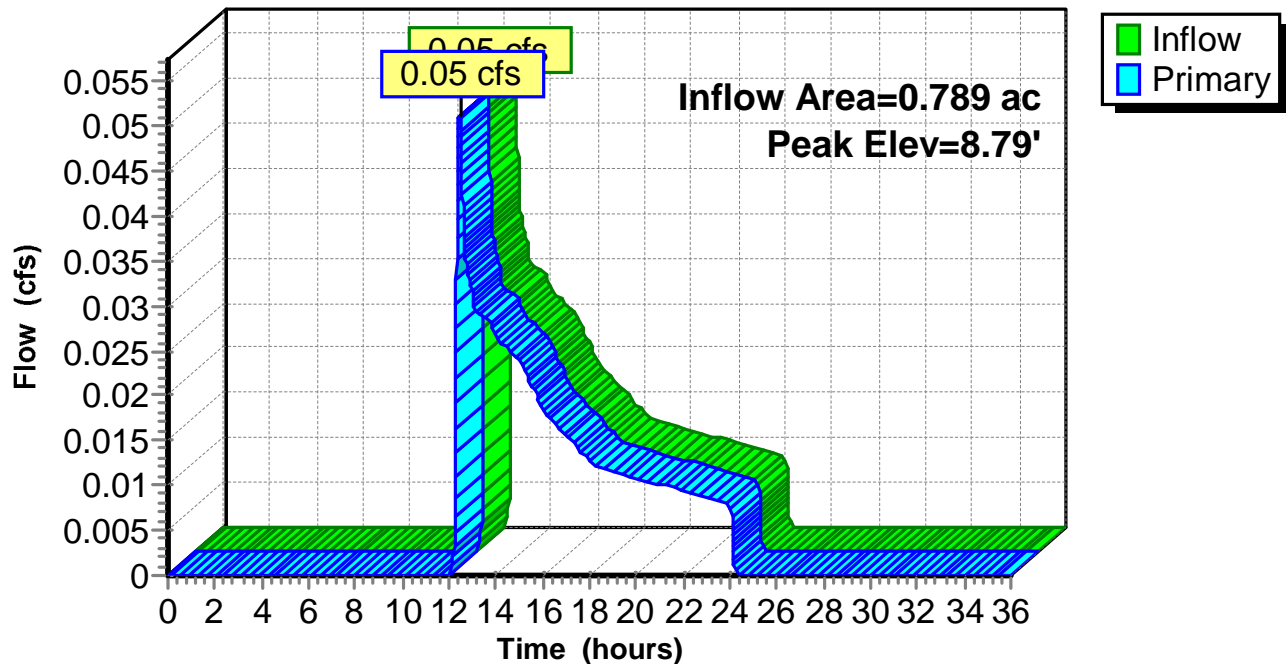
Device	Routing	Invert	Outlet Devices
#1	Primary	11.61'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.67'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 8.67' / 8.63' S= 0.0133 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.46 hrs HW=8.79' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.05 cfs @ 1.47 fps)

Pond CB17-03:

Hydrograph



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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 0.75" for 10-yr event
Inflow = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af
Outflow = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.12 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.32' @ 12.12 hrs

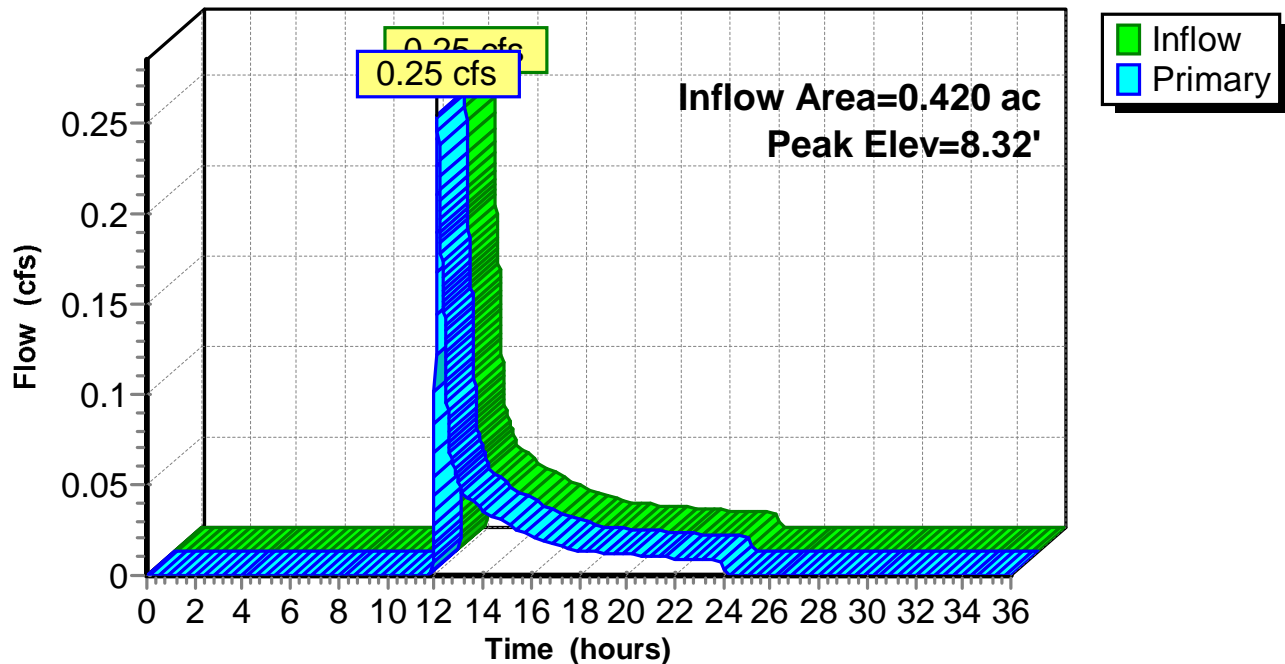
Device	Routing	Invert	Outlet Devices
#1	Primary	11.13'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0260 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.12 hrs HW=8.32' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.25 cfs @ 1.69 fps)

Pond CB17-04:

Hydrograph



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Summary for Pond CB17-05:

Inflow Area = 0.309 ac, 47.03% Impervious, Inflow Depth = 1.37" for 10-yr event
Inflow = 0.48 cfs @ 12.07 hrs, Volume= 0.035 af
Outflow = 0.48 cfs @ 12.07 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.48 cfs @ 12.07 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.46' @ 12.07 hrs

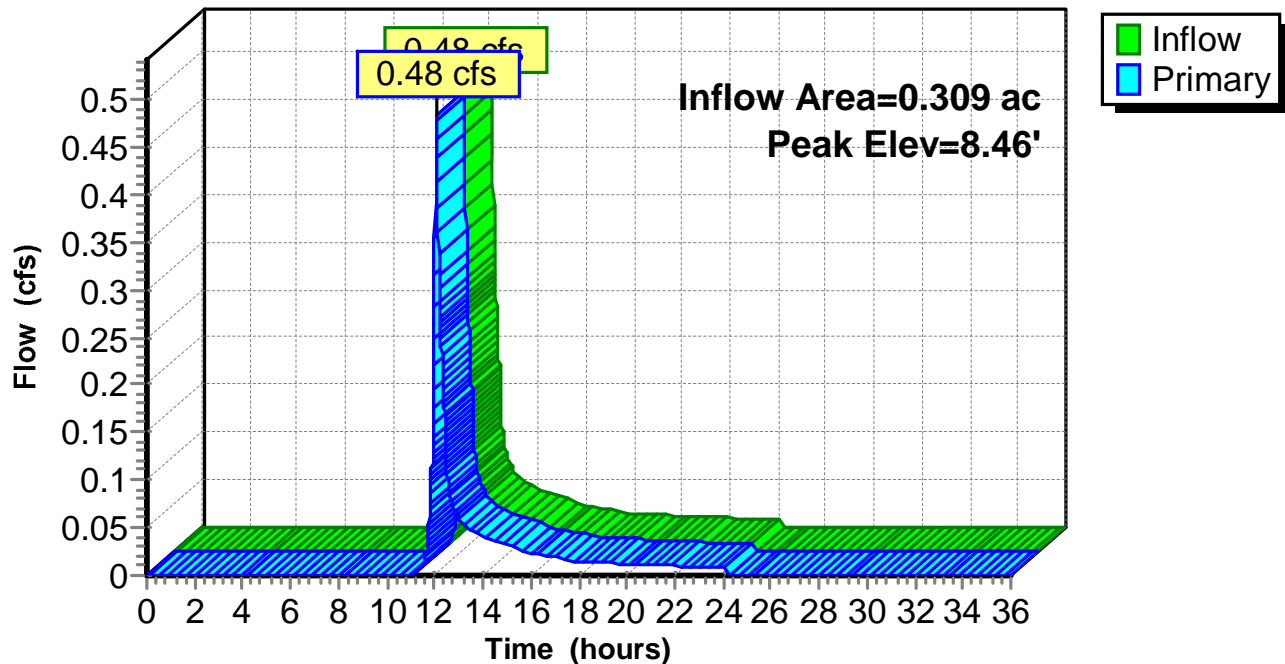
Device	Routing	Invert	Outlet Devices
#1	Primary	11.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0068 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.48 cfs @ 12.07 hrs HW=8.46' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.48 cfs @ 2.50 fps)

Pond CB17-05:

Hydrograph



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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 1.65" for 10-yr event
Inflow = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af
Outflow = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.36 cfs @ 12.07 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.98' @ 12.07 hrs

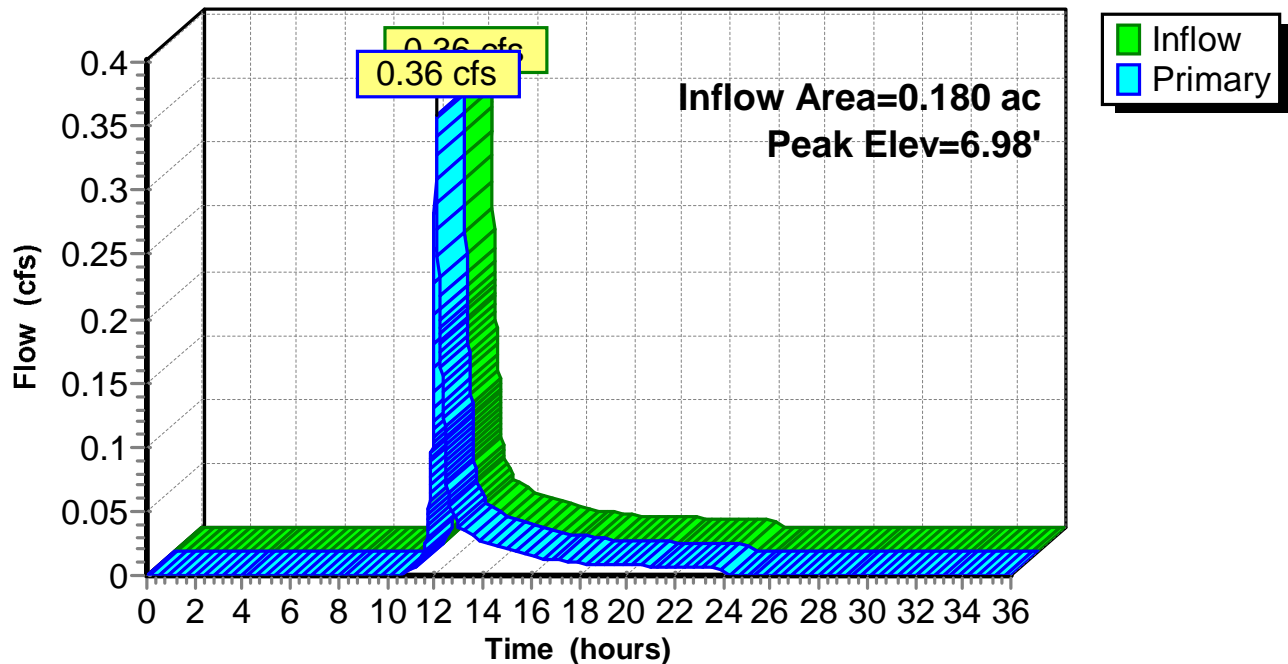
Device	Routing	Invert	Outlet Devices
#1	Primary	10.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.68'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.68' / 6.25' S= 0.0113 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.36 cfs @ 12.07 hrs HW=6.97' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.36 cfs @ 1.85 fps)

Pond CB17-06:

Hydrograph



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Summary for Pond CB17-07:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 0.59" for 10-yr event
 Inflow = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af
 Outflow = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 6.91' @ 12.08 hrs

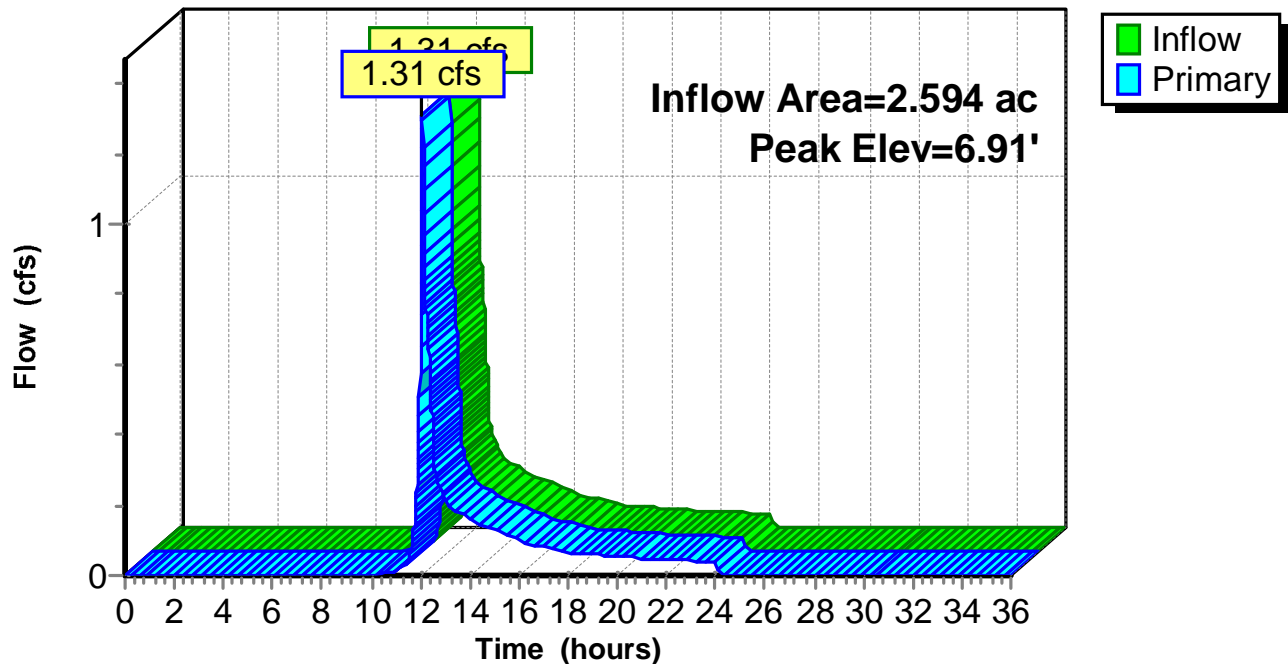
Device	Routing	Invert	Outlet Devices
#1	Primary	9.68'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.12'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 6.12' / 6.09' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.31 cfs @ 12.08 hrs HW=6.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.31 cfs @ 2.72 fps)

Pond CB17-07:

Hydrograph



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Summary for Pond HY-DYN:

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 0.81" for 10-yr event
Inflow = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af
Outflow = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min
Primary = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.79' @ 12.11 hrs

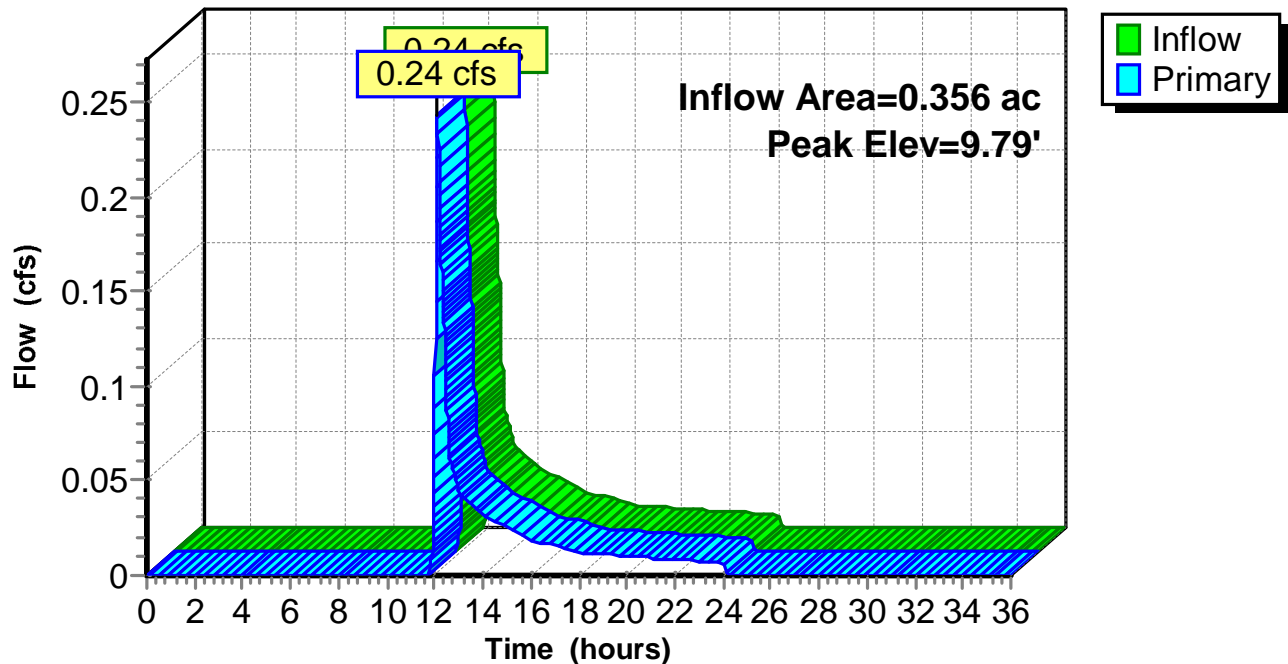
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.50'	8.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.40' S= 0.0200 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf

Primary OutFlow Max=0.24 cfs @ 12.11 hrs HW=9.79' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.24 cfs @ 2.45 fps)

Pond HY-DYN:

Hydrograph



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Summary for Pond INFIL: 100HD

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 0.81" for 10-yr event
Inflow = 0.24 cfs @ 12.11 hrs, Volume= 0.024 af
Outflow = 0.04 cfs @ 13.21 hrs, Volume= 0.024 af, Atten= 83%, Lag= 65.7 min
Discarded = 0.04 cfs @ 13.21 hrs, Volume= 0.024 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.96' @ 13.21 hrs Surf.Area= 0.013 ac Storage= 0.006 af

Plug-Flow detention time= 66.0 min calculated for 0.024 af (100% of inflow)
Center-of-Mass det. time= 66.0 min (969.3 - 903.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.70'	0.014 af	9.23'W x 59.50'L x 3.46'H Field A 0.044 af Overall - 0.009 af Embedded = 0.035 af x 40.0% Voids
#2A	8.70'	0.007 af	Lane HDPE 18" x 6 Inside #1 Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf Row Length Adjustment= +14.40' x 1.76 sf x 3 rows 7.73' Header x 1.76 sf x 2 = 27.2 cf Inside
		0.021 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	10.42'	8.0" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 10.42' / 9.90' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Discarded OutFlow Max=0.04 cfs @ 13.21 hrs HW=8.96' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.04 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.70' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

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Pond INFIL: 100HD - Chamber Wizard Field A

Chamber Model = Lane HDPE 18" (Lane HDPE Pipe)

Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf

Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf

Row Length Adjustment= +14.40' x 1.76 sf x 3 rows

21.6" Wide + 14.0" Spacing = 35.6" C-C Row Spacing

2 Chambers/Row x 20.00' Long +14.40' Row Adjustment +1.80' Header x 2 = 58.00' Row Length +9.0" End Stone x 2 = 59.50' Base Length

3 Rows x 21.6" Wide + 14.0" Spacing x 2 + 9.0" Side Stone x 2 = 9.23' Base Width

12.0" Base + 21.6" Chamber Height + 8.0" Cover = 3.46' Field Height

6 Chambers x 35.2 cf +14.40' Row Adjustment x 1.76 sf x 3 Rows + 7.73' Header x 1.76 sf x 2 = 314.3 cf Chamber Storage

6 Chambers x 42.8 cf +14.40' Row Adjustment x 2.14 sf x 3 Rows + 7.73' Header x 2.14 sf x 2 = 382.7 cf Displacement

1,902.5 cf Field - 382.7 cf Chambers = 1,519.7 cf Stone x 40.0% Voids = 607.9 cf Stone Storage

Chamber Storage + Stone Storage = 922.2 cf = 0.021 af

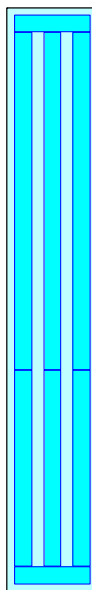
Overall Storage Efficiency = 48.5%

Overall System Size = 59.50' x 9.23' x 3.46'

6 Chambers

70.5 cy Field

56.3 cy Stone



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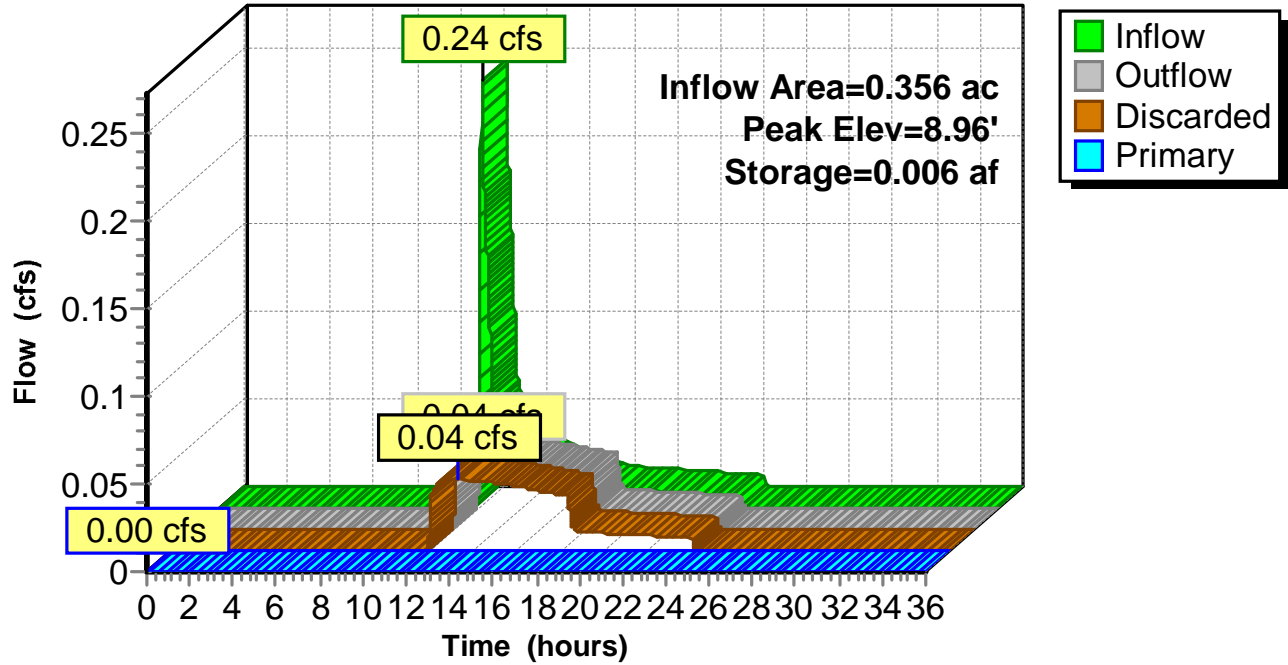
Type III 24-hr 10-yr Rainfall=4.89"

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Pond INFIL: 100HD

Hydrograph



Proposed Design

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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond OWSMH 16:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.10" for 10-yr event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 5.57' @ 12.06 hrs

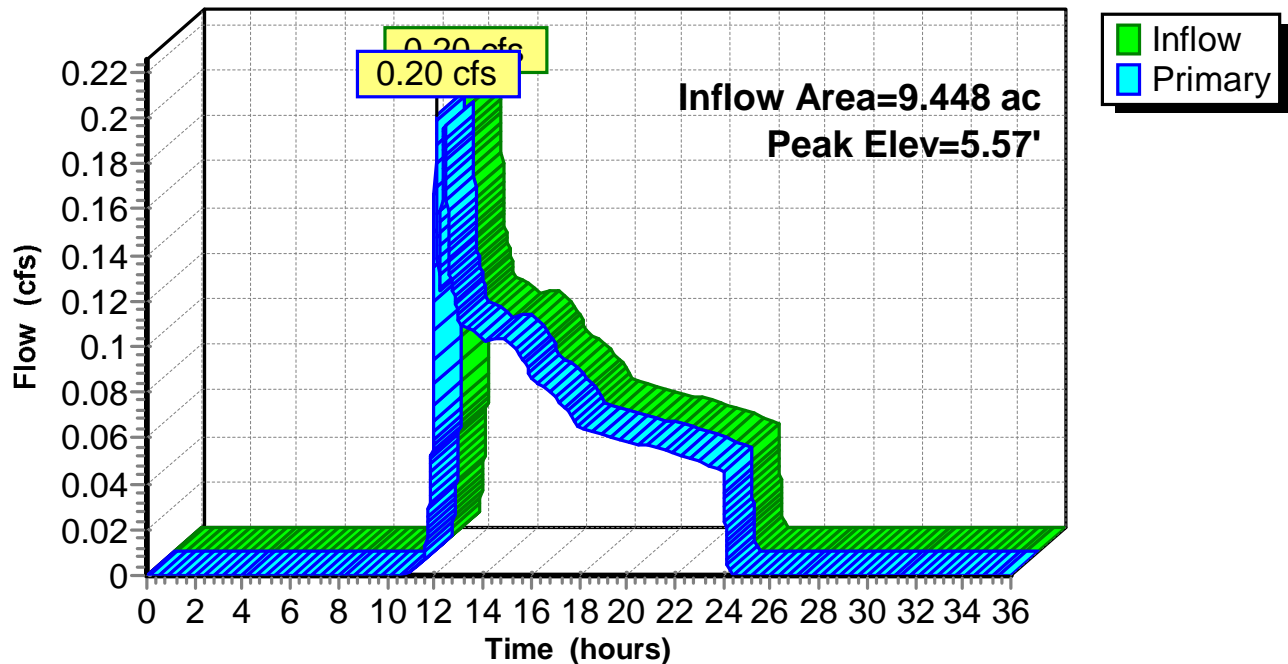
Device	Routing	Invert	Outlet Devices
#1	Primary	14.70'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	5.35'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 5.35' / 5.23' S= 0.0030 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.19 cfs @ 12.06 hrs HW=5.57' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.19 cfs @ 1.53 fps)

Pond OWSMH 16:

Hydrograph



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Summary for Pond OWSMH 17:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 0.59" for 10-yr event
Inflow = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af
Outflow = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af, Atten= 0%, Lag= 0.0 min
Primary = 1.31 cfs @ 12.08 hrs, Volume= 0.128 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.69' @ 12.08 hrs

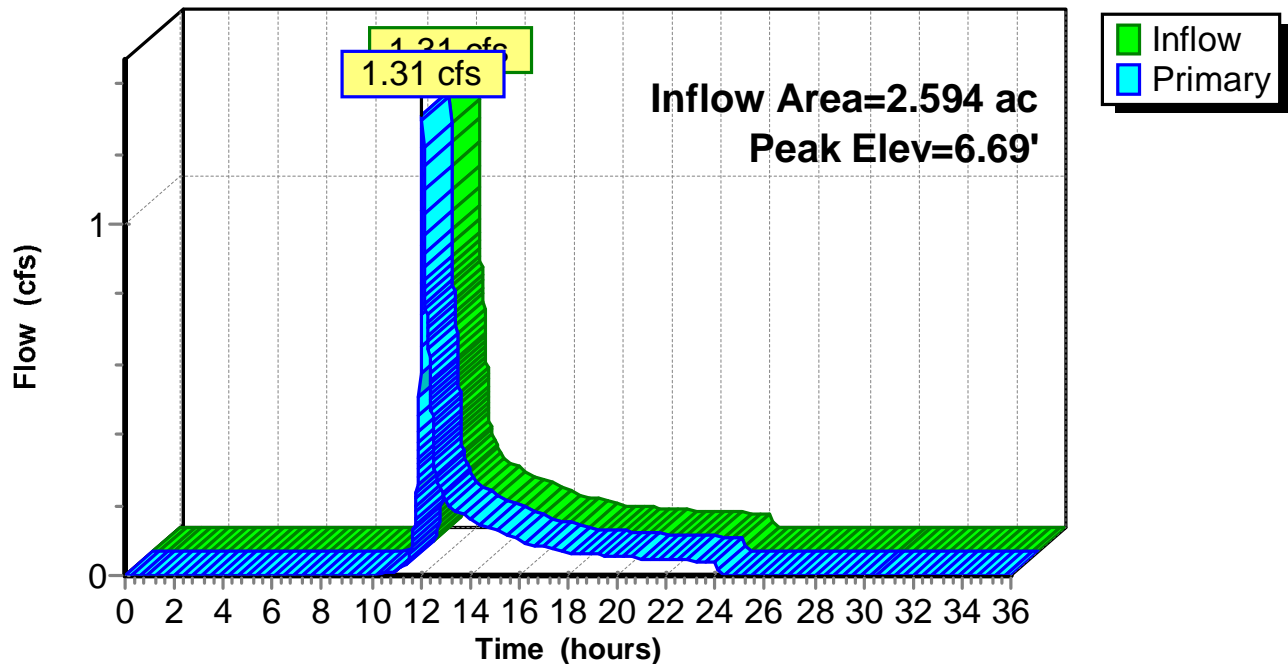
Device	Routing	Invert	Outlet Devices
#1	Primary	10.97'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	6.09'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.09' / 4.23' S= 0.0489 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.31 cfs @ 12.08 hrs HW=6.69' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.31 cfs @ 2.65 fps)

Pond OWSMH 17:

Hydrograph



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Summary for Pond SDMH16-02.1:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.10" for 10-yr event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 5.84' @ 12.06 hrs

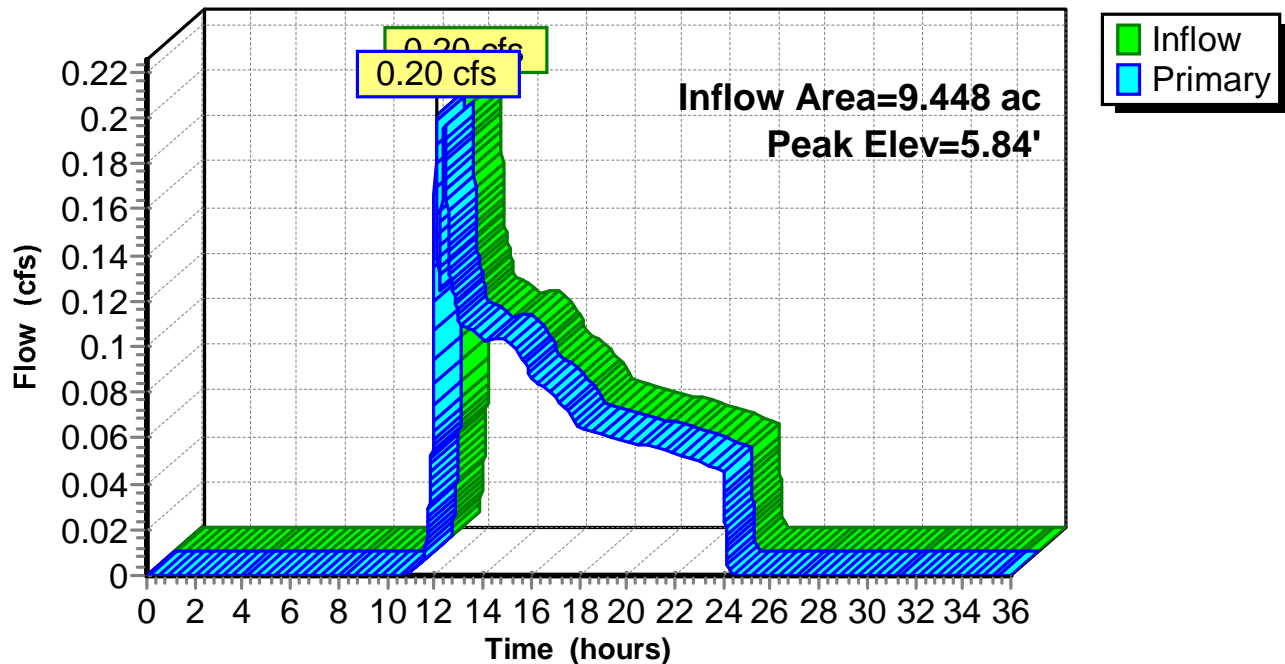
Device	Routing	Invert	Outlet Devices
#1	Primary	14.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	5.60'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 5.60' / 5.60' S= 0.0000 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.19 cfs @ 12.06 hrs HW=5.84' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.19 cfs @ 1.42 fps)

Pond SDMH16-02.1:

Hydrograph



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Summary for Pond SDMH16-02.2:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.10" for 10-yr event
Inflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af
Outflow = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af, Atten= 0%, Lag= 0.0 min
Primary = 0.20 cfs @ 12.06 hrs, Volume= 0.080 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.29' @ 12.06 hrs

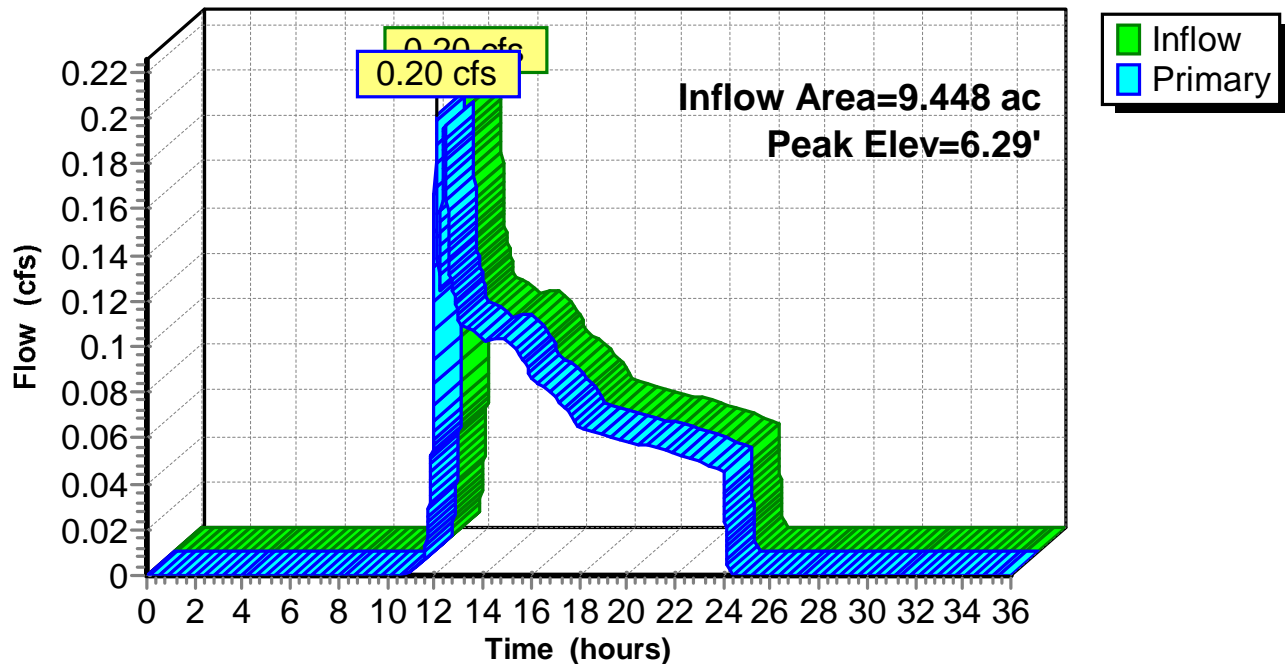
Device	Routing	Invert	Outlet Devices
#1	Primary	12.20'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.11'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 6.11' / 5.74' S= 0.0206 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.20 cfs @ 12.06 hrs HW=6.29' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.20 cfs @ 1.44 fps)

Pond SDMH16-02.2:

Hydrograph



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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.25" for 10-yr event
 Inflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af
 Outflow = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.45 hrs, Volume= 0.018 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.17' @ 12.45 hrs

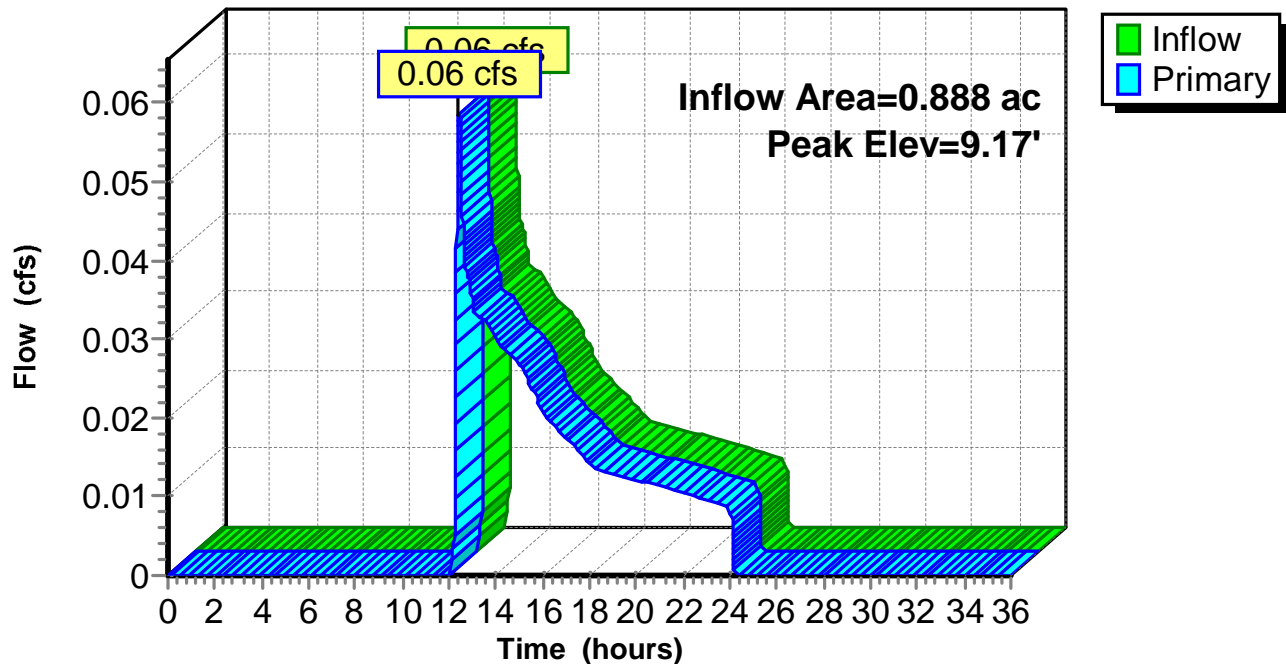
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.06'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 9.06' / 6.11' S= 0.0328 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.45 hrs HW=9.17' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.15 fps)

Pond SDMH16-03:

Hydrograph



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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.03" for 10-yr event
Inflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af
Outflow = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 16.92 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 21.29' @ 16.92 hrs

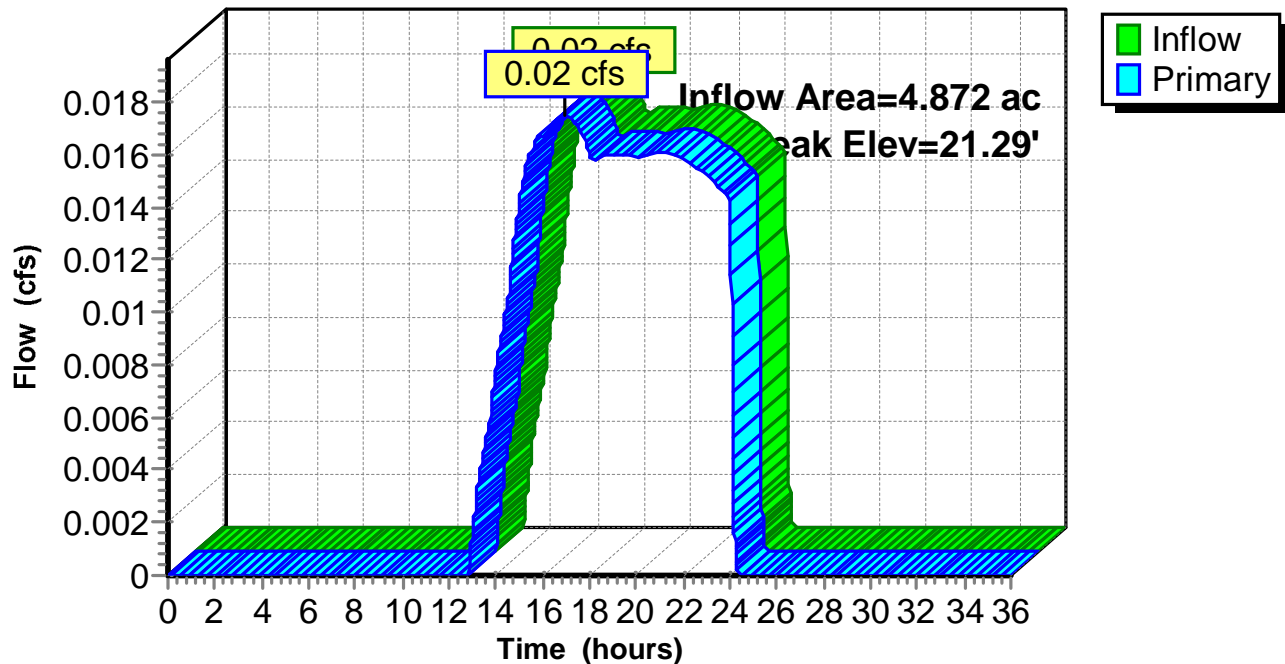
Device	Routing	Invert	Outlet Devices
#1	Primary	25.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	21.23'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 21.23' / 7.98' S= 0.0589 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.02 cfs @ 16.92 hrs HW=21.29' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.81 fps)

Pond SDMH16-05:

Hydrograph



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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.20" for 10-yr event
Inflow = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af
Outflow = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.42 hrs, Volume= 0.010 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.15' @ 12.42 hrs

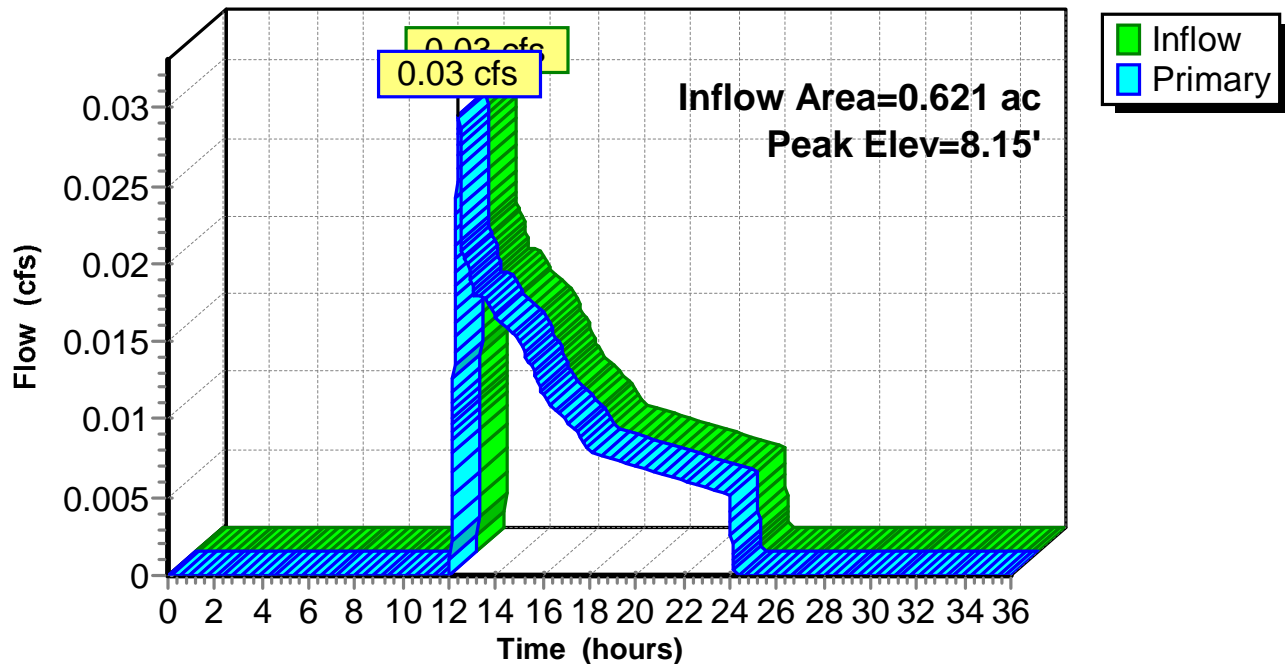
Device	Routing	Invert	Outlet Devices
#1	Primary	13.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.03'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 8.03' / 7.97' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.03 cfs @ 12.42 hrs HW=8.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.03 cfs @ 0.69 fps)

Pond SDMH16-06:

Hydrograph



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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.07" for 10-yr event
Inflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 27.39' @ 15.38 hrs

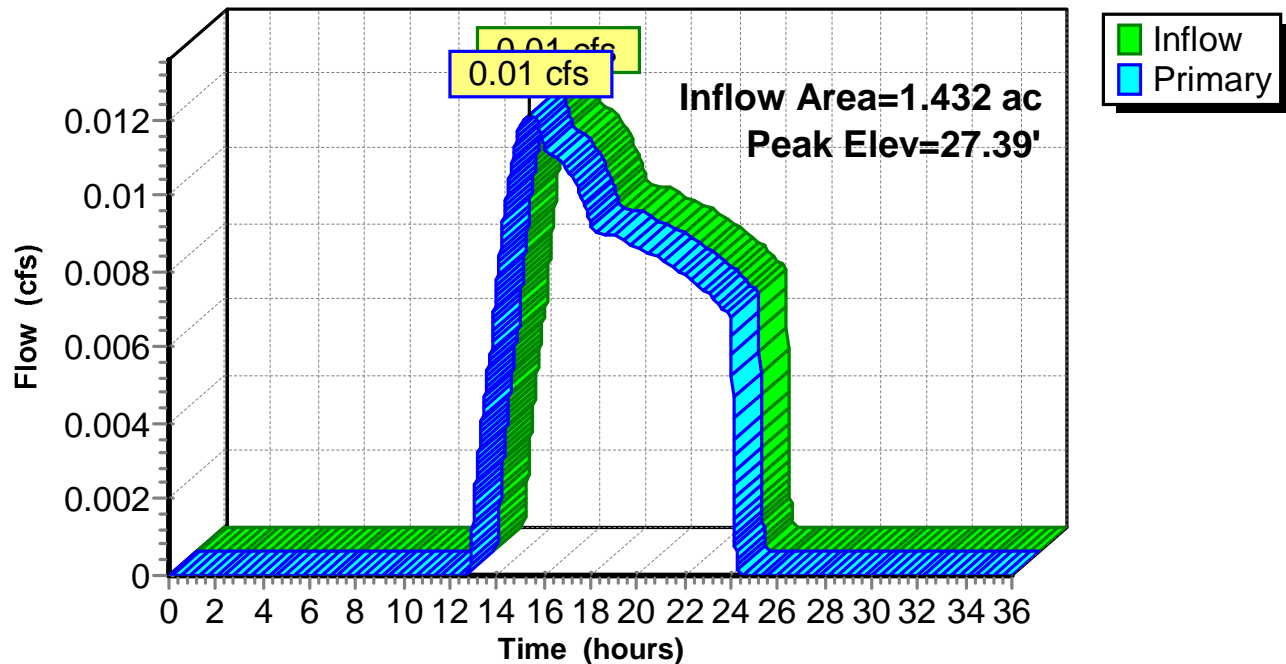
Device	Routing	Invert	Outlet Devices
#1	Primary	32.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	27.33'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 27.33' / 25.70' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.38 hrs HW=27.39' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.99 fps)

Pond SDMH16-12.1:

Hydrograph



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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.05" for 10-yr event
Inflow = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af
Outflow = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.02 cfs @ 15.74 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 23.32' @ 15.74 hrs

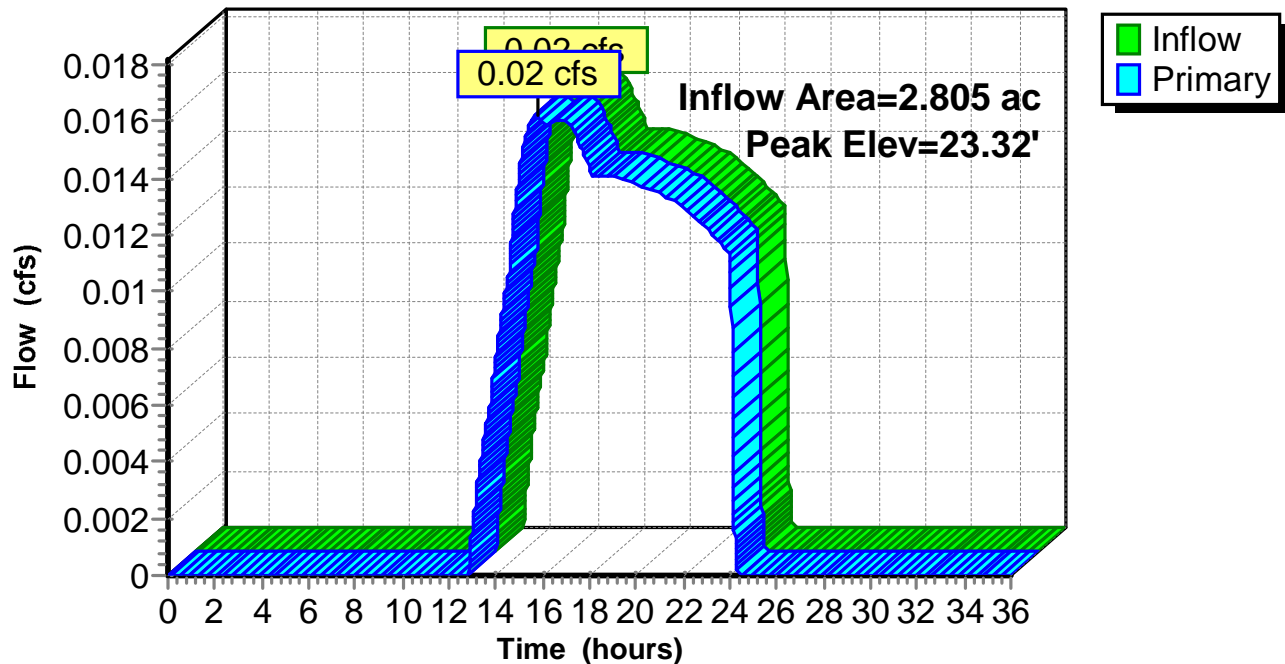
Device	Routing	Invert	Outlet Devices
#1	Primary	29.86'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	23.26'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 23.26' / 21.23' S= 0.0294 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.74 hrs HW=23.32' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.80 fps)

Pond SDMH16-12.2:

Hydrograph



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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.07" for 10-yr event
Inflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af
Outflow = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 15.38 hrs, Volume= 0.008 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 30.01' @ 15.38 hrs

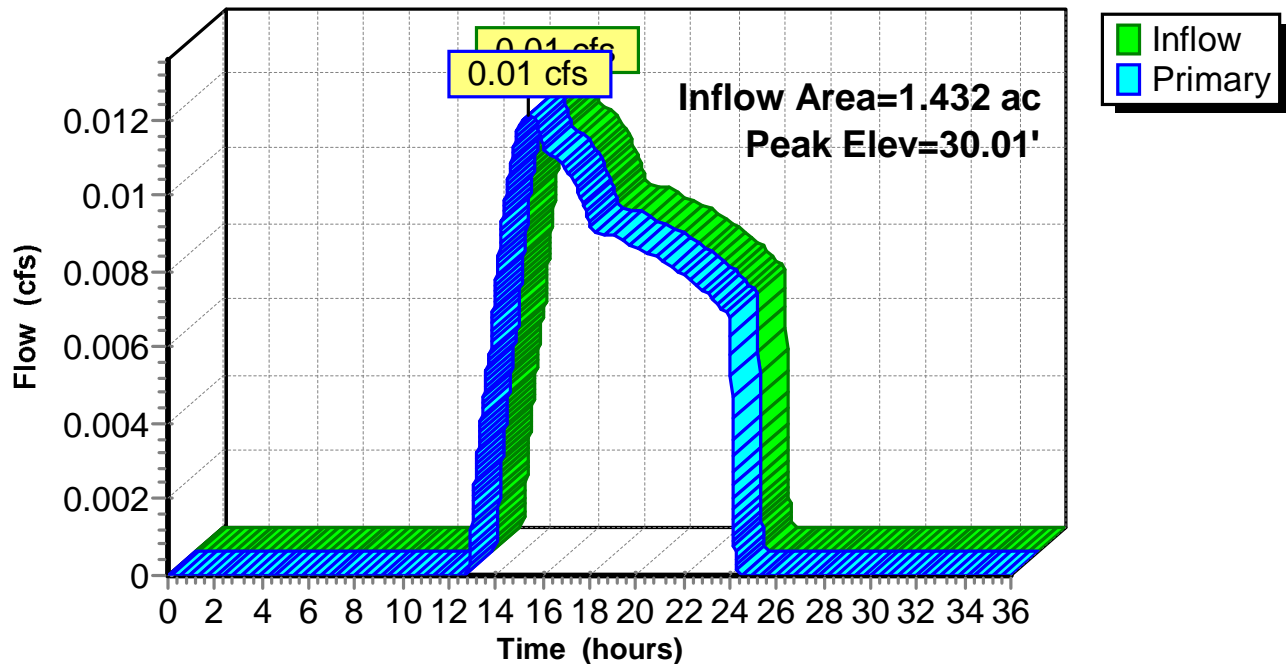
Device	Routing	Invert	Outlet Devices
#1	Primary	37.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	29.97'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 29.97' / 27.88' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.38 hrs HW=30.01' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.01 cfs @ 0.64 fps)

Pond SDMH16-13:

Hydrograph



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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.18" for 10-yr event
 Inflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af
 Outflow = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.01 cfs @ 12.47 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.73' @ 12.47 hrs

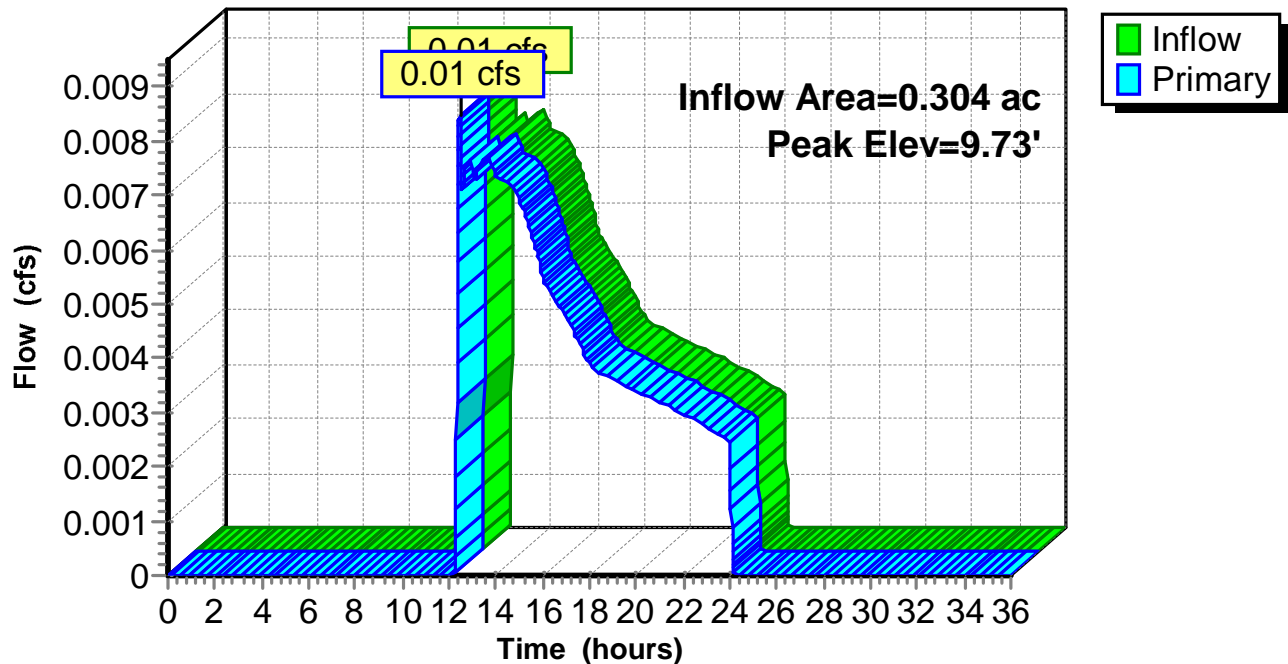
Device	Routing	Invert	Outlet Devices
#1	Primary	17.74'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.71'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 9.71' / 8.49' S= 0.0610 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 12.47 hrs HW=9.73' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.53 fps)

Pond SDMH16-15:

Hydrograph



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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.19" for 10-yr event
 Inflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af
 Outflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.71' @ 12.49 hrs

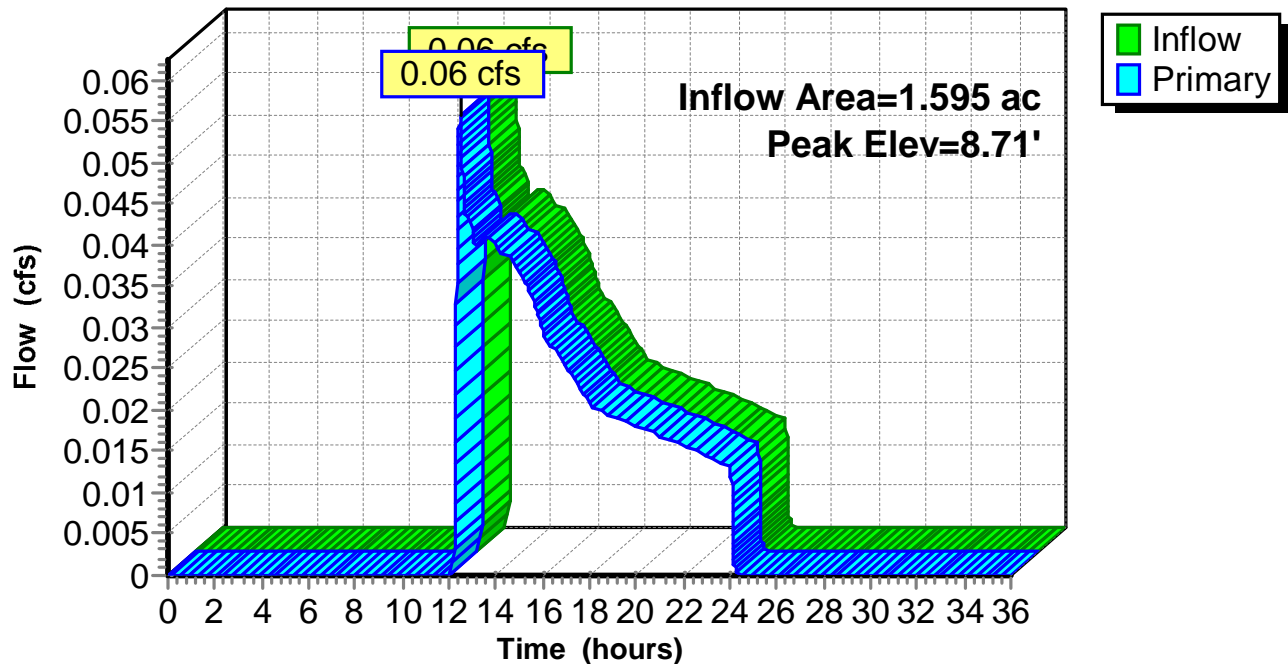
Device	Routing	Invert	Outlet Devices
#1	Primary	11.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.53'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 8.53' / 8.46' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.49 hrs HW=8.71' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.06 cfs @ 0.88 fps)

Pond SDMH17-03.1:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.19" for 10-yr event
Inflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af
Outflow = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.49 hrs, Volume= 0.025 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.27' @ 12.49 hrs

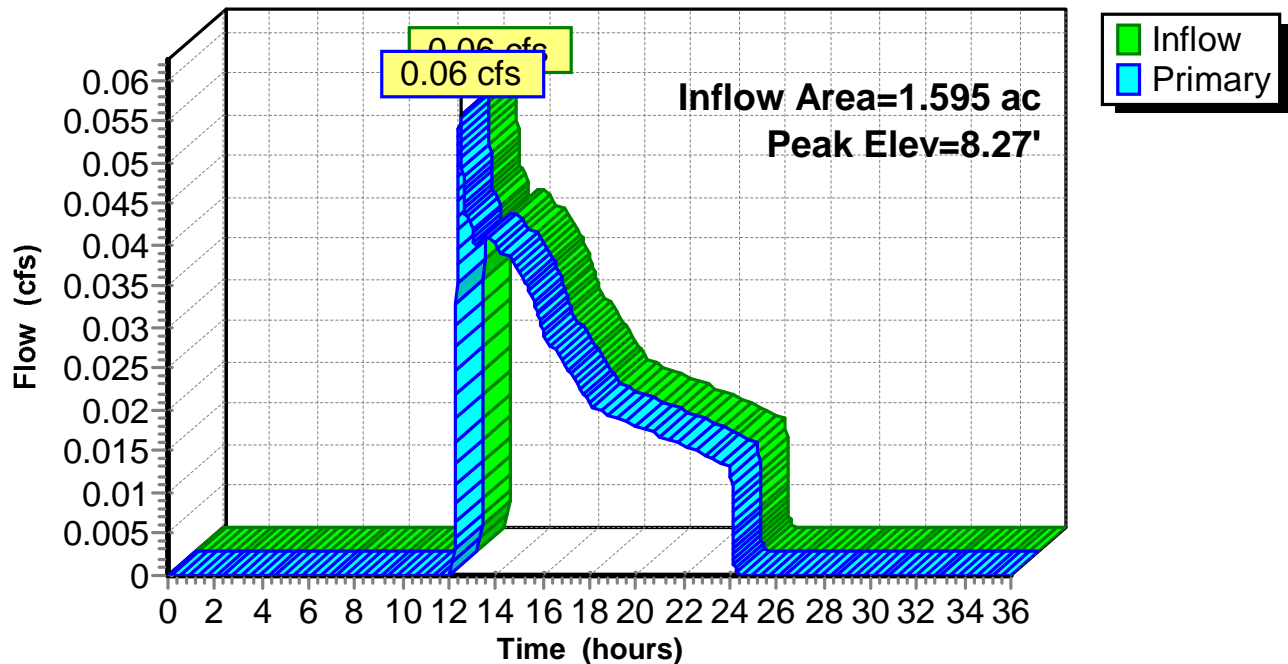
Device	Routing	Invert	Outlet Devices
#1	Primary	15.69'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.14'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 8.14' / 7.94' S= 0.0043 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.49 hrs HW=8.27' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.05 cfs @ 1.28 fps)

Pond SDMH17-03.2:

Hydrograph



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Summary for Pond SDMH17-04:

Inflow Area = 2.324 ac, 21.50% Impervious, Inflow Depth = 0.45" for 10-yr event
Inflow = 0.71 cfs @ 12.09 hrs, Volume= 0.086 af
Outflow = 0.71 cfs @ 12.09 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min
Primary = 0.71 cfs @ 12.09 hrs, Volume= 0.086 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.37' @ 12.09 hrs

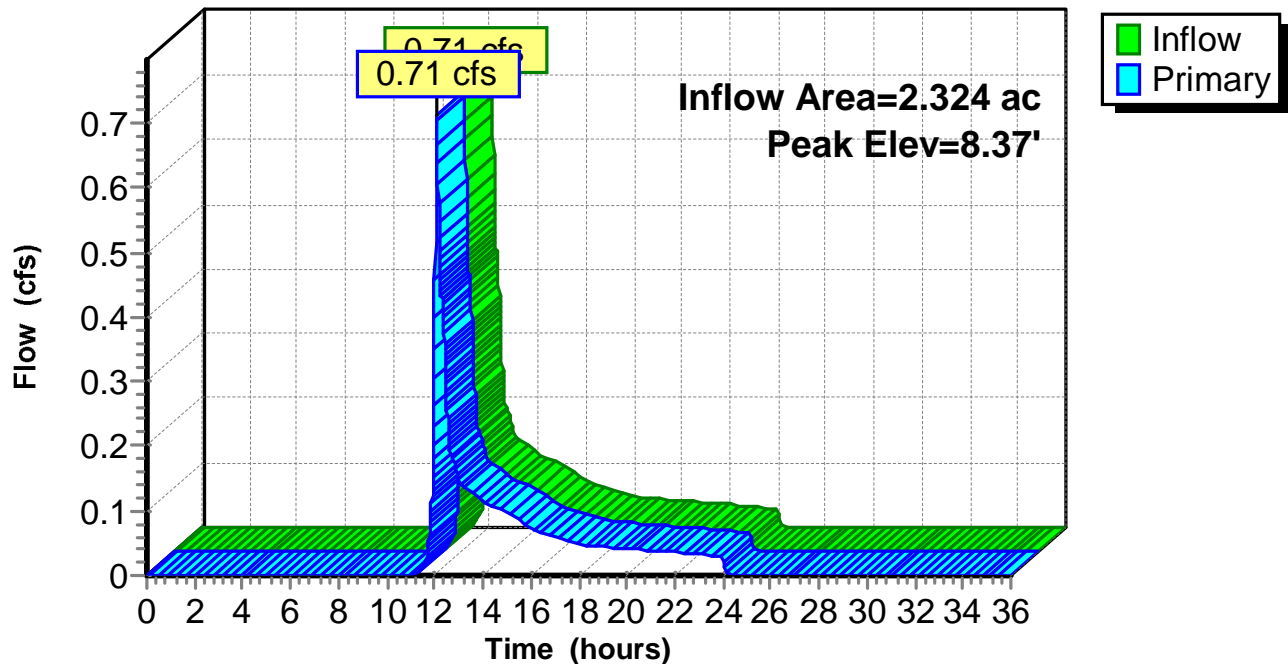
Device	Routing	Invert	Outlet Devices
#1	Primary	11.01'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	7.94'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 7.94' / 6.25' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.71 cfs @ 12.09 hrs HW=8.37' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.71 cfs @ 2.23 fps)

Pond SDMH17-04:

Hydrograph



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Type III 24-hr 10-yr Rainfall=4.89"

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Summary for Pond SDMH17-07:

Inflow Area = 2.504 ac, 23.75% Impervious, Inflow Depth = 0.53" for 10-yr event
Inflow = 1.06 cfs @ 12.08 hrs, Volume= 0.111 af
Outflow = 1.06 cfs @ 12.08 hrs, Volume= 0.111 af, Atten= 0%, Lag= 0.0 min
Primary = 1.06 cfs @ 12.08 hrs, Volume= 0.111 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.86' @ 12.08 hrs

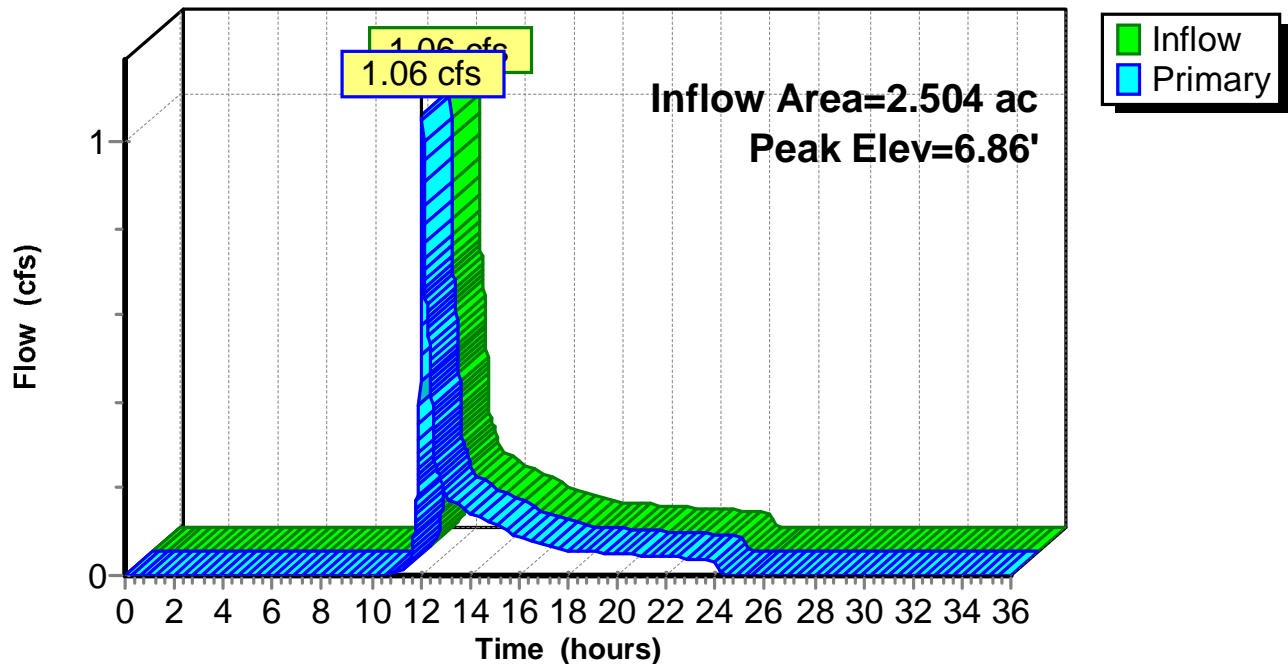
Device	Routing	Invert	Outlet Devices
#1	Primary	9.96'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.23'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 6.23' / 6.17' S= 0.0150 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.06 cfs @ 12.08 hrs HW=6.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.06 cfs @ 2.94 fps)

Pond SDMH17-07:

Hydrograph



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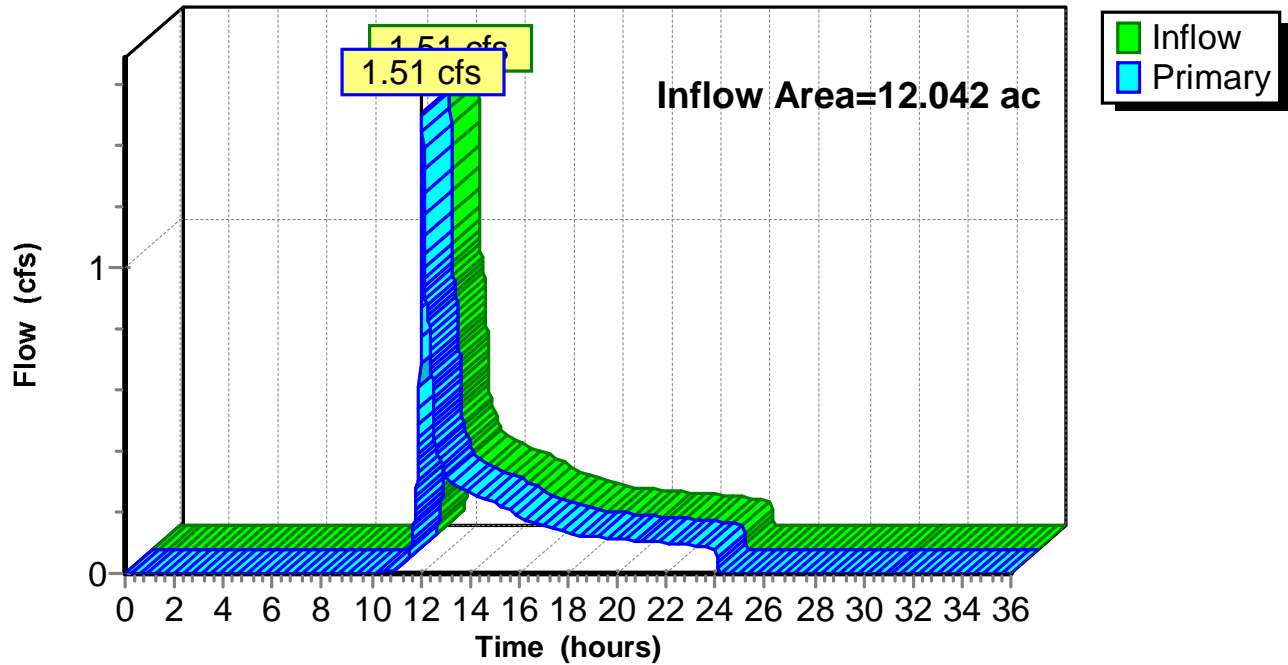
Summary for Link OUT:

Inflow Area = 12.042 ac, 12.19% Impervious, Inflow Depth = 0.21" for 10-yr event
Inflow = 1.51 cfs @ 12.08 hrs, Volume= 0.209 af
Primary = 1.51 cfs @ 12.08 hrs, Volume= 0.209 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=0.60" Flow Length=444' Tc=7.5 min CN=41 Runoff=0.25 cfs 0.045 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=2.45" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.32 cfs 0.021 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.24" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.04 cfs 0.021 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.09" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.00 cfs 0.003 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 12.06% Impervious Runoff Depth=0.43" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.09 cfs 0.020 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.09" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.00 cfs 0.001 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=0.60" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.04 cfs 0.007 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=0.79" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.05 cfs 0.006 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=0.49" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.06 cfs 0.012 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.09" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.01 cfs 0.009 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.15" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.02 cfs 0.011 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.19" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.04 cfs 0.022 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.24" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.03 cfs 0.016 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=0.33" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.06 cfs 0.016 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=0.66" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.19 cfs 0.031 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 33.23% Impervious Runoff Depth=1.44" Flow Length=133' Tc=6.1 min CN=53 Runoff=0.52 cfs 0.043 af

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Type III 24-hr 25-yr Rainfall=6.14"

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=0.43" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.10 cfs 0.021 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=0.28" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.01 cfs 0.005 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=0.60" Flow Length=502' Tc=8.5 min CN=41 Runoff=0.22 cfs 0.040 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=1.36" Flow Length=333' Tc=6.0 min CN=52 Runoff=0.57 cfs 0.048 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=2.19" Flow Length=246' Tc=4.3 min CN=62 Runoff=0.81 cfs 0.056 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=2.54" Flow Length=134' Tc=4.0 min CN=66 Runoff=0.57 cfs 0.038 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=3.30" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.37 cfs 0.025 af
Pond CB16-01:	Peak Elev=9.40' Inflow=0.25 cfs 0.045 af Outflow=0.25 cfs 0.045 af
Pond CB16-02:	Peak Elev=9.10' Inflow=0.32 cfs 0.021 af Outflow=0.32 cfs 0.021 af
Pond CB16-03:	Peak Elev=8.91' Inflow=0.04 cfs 0.021 af Outflow=0.04 cfs 0.021 af
Pond CB16-04:	Peak Elev=8.13' Inflow=0.12 cfs 0.078 af Outflow=0.12 cfs 0.078 af
Pond CB16-05:	Peak Elev=8.26' Inflow=0.41 cfs 0.077 af Outflow=0.41 cfs 0.077 af
Pond CB16-06:	Peak Elev=8.72' Inflow=0.00 cfs 0.001 af Outflow=0.00 cfs 0.001 af
Pond CB16-07:	Peak Elev=14.08' Inflow=0.04 cfs 0.007 af Outflow=0.04 cfs 0.007 af
Pond CB16-08:	Peak Elev=13.69' Inflow=0.09 cfs 0.013 af Outflow=0.09 cfs 0.013 af
Pond CB16-09:	Peak Elev=18.19' Inflow=0.06 cfs 0.012 af Outflow=0.06 cfs 0.012 af
Pond CB16-10:	Peak Elev=22.91' Inflow=0.01 cfs 0.009 af Outflow=0.01 cfs 0.009 af

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Type III 24-hr 25-yr Rainfall=6.14"

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Pond CB16-11:	Peak Elev=22.60' Inflow=0.03 cfs 0.020 af Outflow=0.03 cfs 0.020 af
Pond CB16-12:	Peak Elev=24.00' Inflow=0.04 cfs 0.022 af Outflow=0.04 cfs 0.022 af
Pond CB16-13:	Peak Elev=28.21' Inflow=0.03 cfs 0.016 af Outflow=0.03 cfs 0.016 af
Pond CB16-14:	Peak Elev=37.70' Inflow=0.06 cfs 0.016 af Outflow=0.06 cfs 0.016 af
Pond CB16-15:	Peak Elev=9.61' Inflow=0.19 cfs 0.031 af Outflow=0.19 cfs 0.031 af
Pond CB17-01:	Peak Elev=9.22' Inflow=0.10 cfs 0.021 af Outflow=0.10 cfs 0.021 af
Pond CB17-02:	Peak Elev=9.05' Inflow=0.11 cfs 0.026 af Outflow=0.11 cfs 0.026 af
Pond CB17-03:	Peak Elev=8.94' Inflow=0.22 cfs 0.040 af Outflow=0.22 cfs 0.040 af
Pond CB17-04:	Peak Elev=8.46' Inflow=0.57 cfs 0.048 af Outflow=0.57 cfs 0.048 af
Pond CB17-05:	Peak Elev=8.60' Inflow=0.81 cfs 0.056 af Outflow=0.81 cfs 0.056 af
Pond CB17-06:	Peak Elev=7.06' Inflow=0.57 cfs 0.038 af Outflow=0.57 cfs 0.038 af
Pond CB17-07:	Peak Elev=7.26' Inflow=2.33 cfs 0.233 af Outflow=2.33 cfs 0.233 af
Pond HY-DYN:	Peak Elev=9.96' Inflow=0.52 cfs 0.043 af Outflow=0.52 cfs 0.043 af
Pond INFIL: 100HD	Peak Elev=10.22' Storage=0.016 af Inflow=0.52 cfs 0.043 af Discarded=0.05 cfs 0.043 af Primary=0.00 cfs 0.000 af Outflow=0.05 cfs 0.043 af
Pond OWSMH 16:	Peak Elev=5.81' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af
Pond OWSMH 17:	Peak Elev=6.97' Inflow=2.33 cfs 0.233 af Outflow=2.33 cfs 0.233 af
Pond SDMH16-02.1:	Peak Elev=6.08' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af

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Pond SDMH16-02.2:	Peak Elev=6.48' Inflow=0.84 cfs 0.242 af Outflow=0.84 cfs 0.242 af
Pond SDMH16-03:	Peak Elev=9.31' Inflow=0.25 cfs 0.045 af Outflow=0.25 cfs 0.045 af
Pond SDMH16-05:	Peak Elev=21.38' Inflow=0.12 cfs 0.075 af Outflow=0.12 cfs 0.075 af
Pond SDMH16-06:	Peak Elev=8.29' Inflow=0.14 cfs 0.026 af Outflow=0.14 cfs 0.026 af
Pond SDMH16-12.1:	Peak Elev=27.48' Inflow=0.09 cfs 0.033 af Outflow=0.09 cfs 0.033 af
Pond SDMH16-12.2:	Peak Elev=23.41' Inflow=0.11 cfs 0.055 af Outflow=0.11 cfs 0.055 af
Pond SDMH16-13:	Peak Elev=30.11' Inflow=0.09 cfs 0.033 af Outflow=0.09 cfs 0.033 af
Pond SDMH16-15:	Peak Elev=9.82' Inflow=0.06 cfs 0.012 af Outflow=0.06 cfs 0.012 af
Pond SDMH17-03.1:	Peak Elev=8.94' Inflow=0.33 cfs 0.066 af Outflow=0.33 cfs 0.066 af
Pond SDMH17-03.2:	Peak Elev=8.47' Inflow=0.33 cfs 0.066 af Outflow=0.33 cfs 0.066 af
Pond SDMH17-04:	Peak Elev=8.58' Inflow=1.43 cfs 0.170 af Outflow=1.43 cfs 0.170 af
Pond SDMH17-07:	Peak Elev=7.14' Inflow=1.97 cfs 0.208 af Outflow=1.97 cfs 0.208 af
Link OUT:	Inflow=2.90 cfs 0.475 af Primary=2.90 cfs 0.475 af

Total Runoff Area = 12.042 ac Runoff Volume = 0.517 af Average Runoff Depth = 0.52"
87.81% Pervious = 10.574 ac 12.19% Impervious = 1.469 ac

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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-01S:

Runoff = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Depth= 0.60"

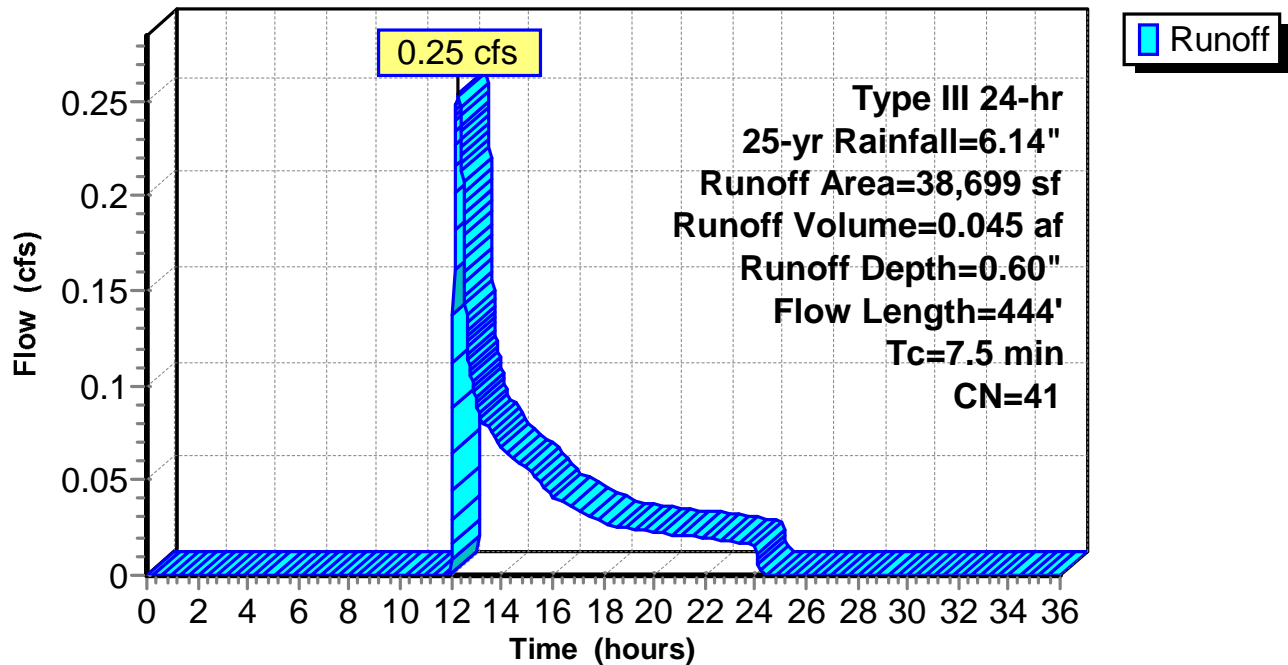
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-02S:

Runoff = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af, Depth= 2.45"

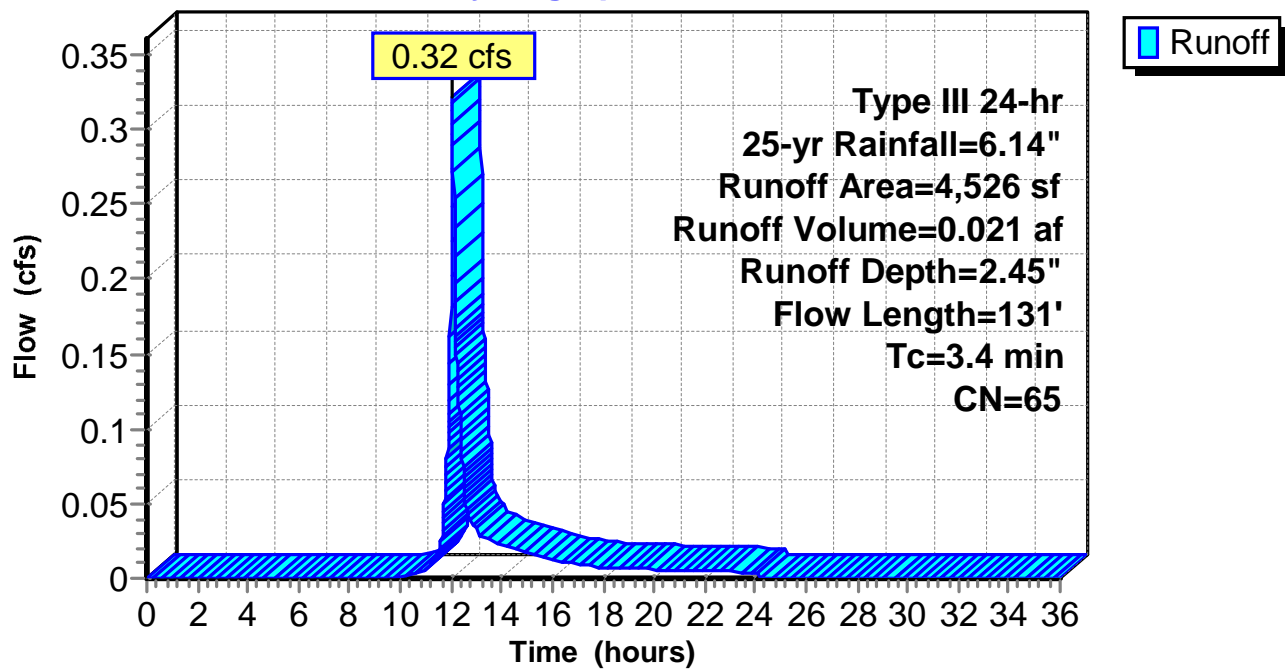
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-03S:

Runoff = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af, Depth= 0.24"

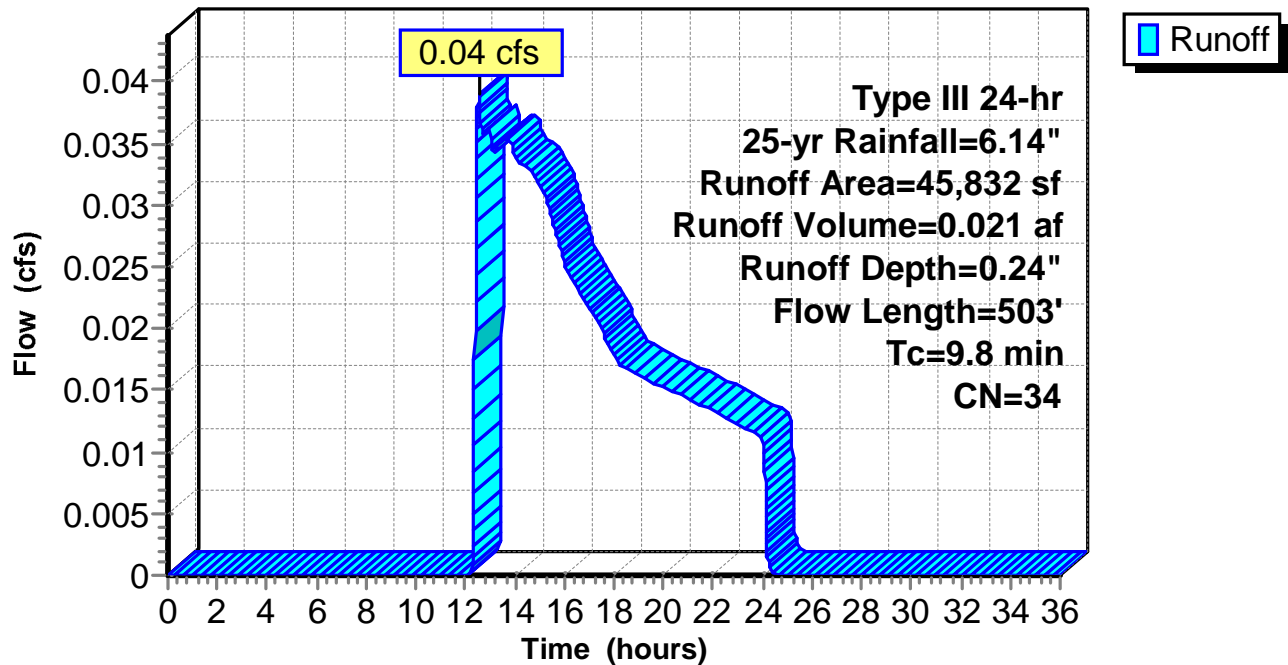
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-04S:

Runoff = 0.00 cfs @ 15.35 hrs, Volume= 0.003 af, Depth= 0.09"

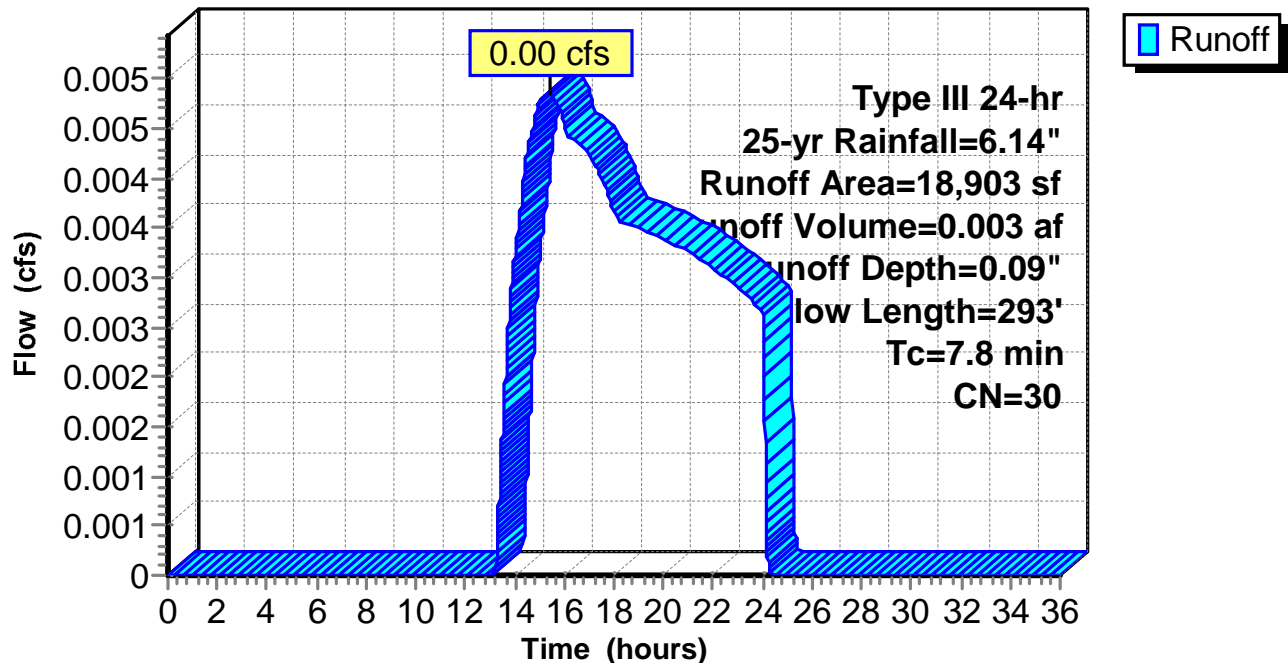
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
*	0	Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-05S:

Runoff = 0.09 cfs @ 12.41 hrs, Volume= 0.020 af, Depth= 0.43"

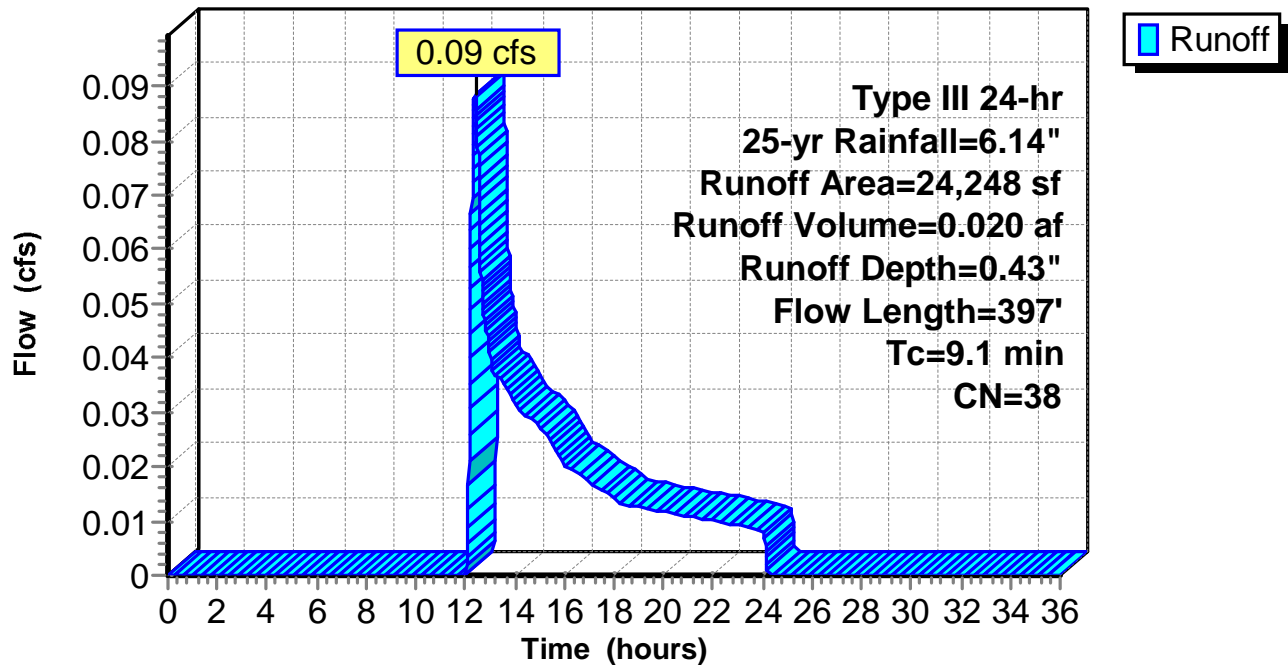
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,924	98	Impervious
21,324	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,324		87.94% Pervious Area
2,924		12.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-06S:

Runoff = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af, Depth= 0.09"

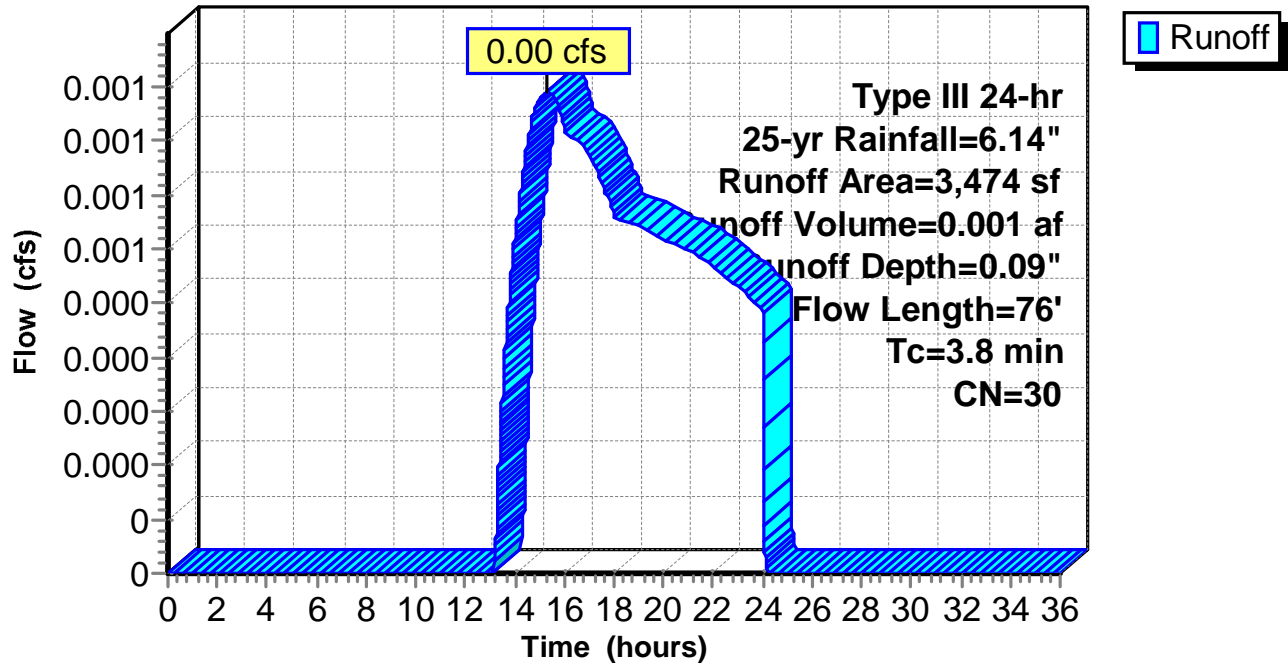
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-07S:

Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af, Depth= 0.60"

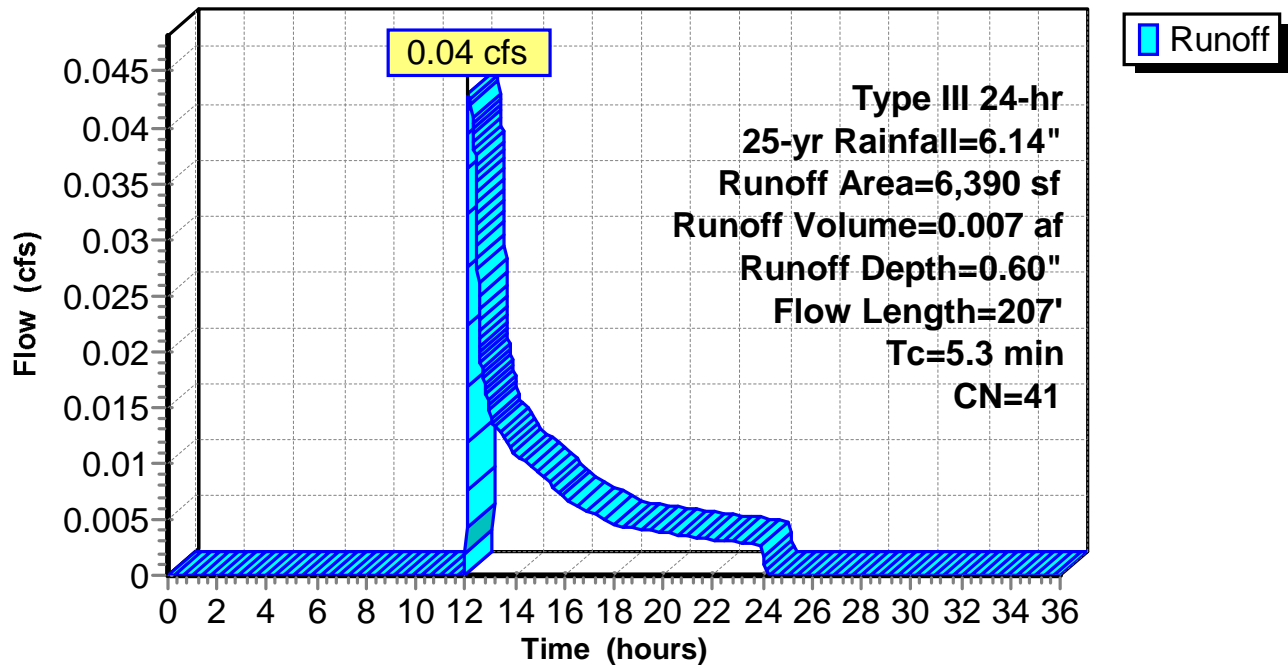
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-08S:

Runoff = 0.05 cfs @ 12.09 hrs, Volume= 0.006 af, Depth= 0.79"

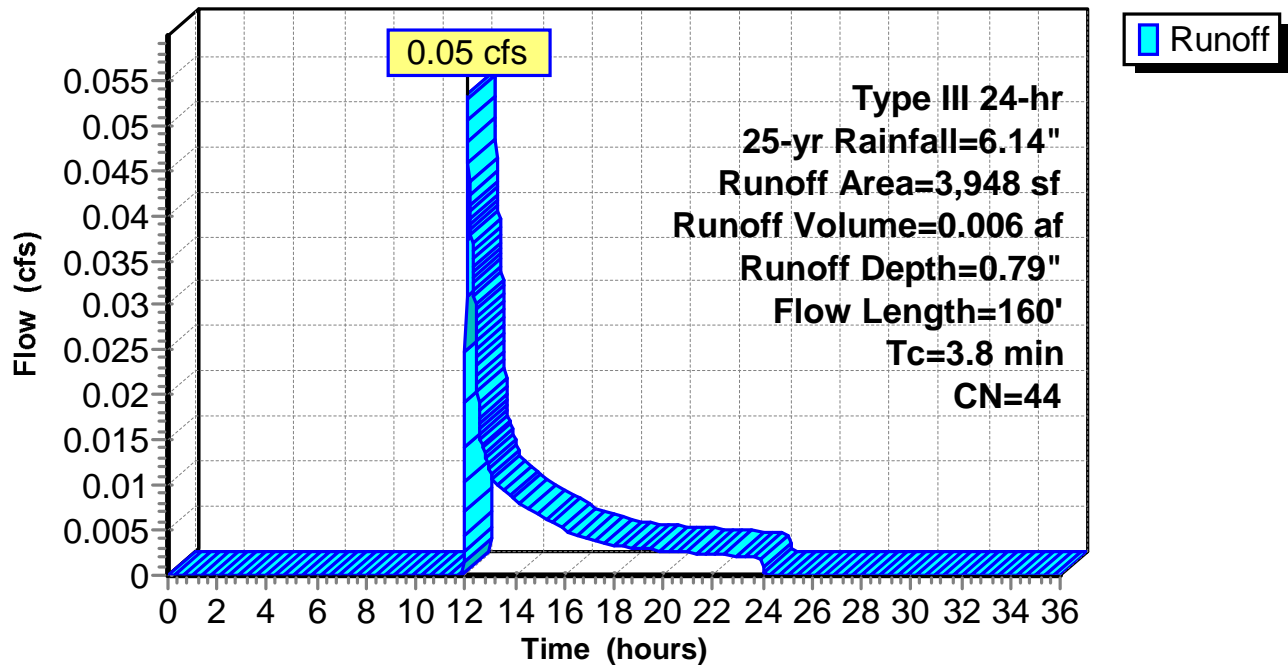
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-09S:

Runoff = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Depth= 0.49"

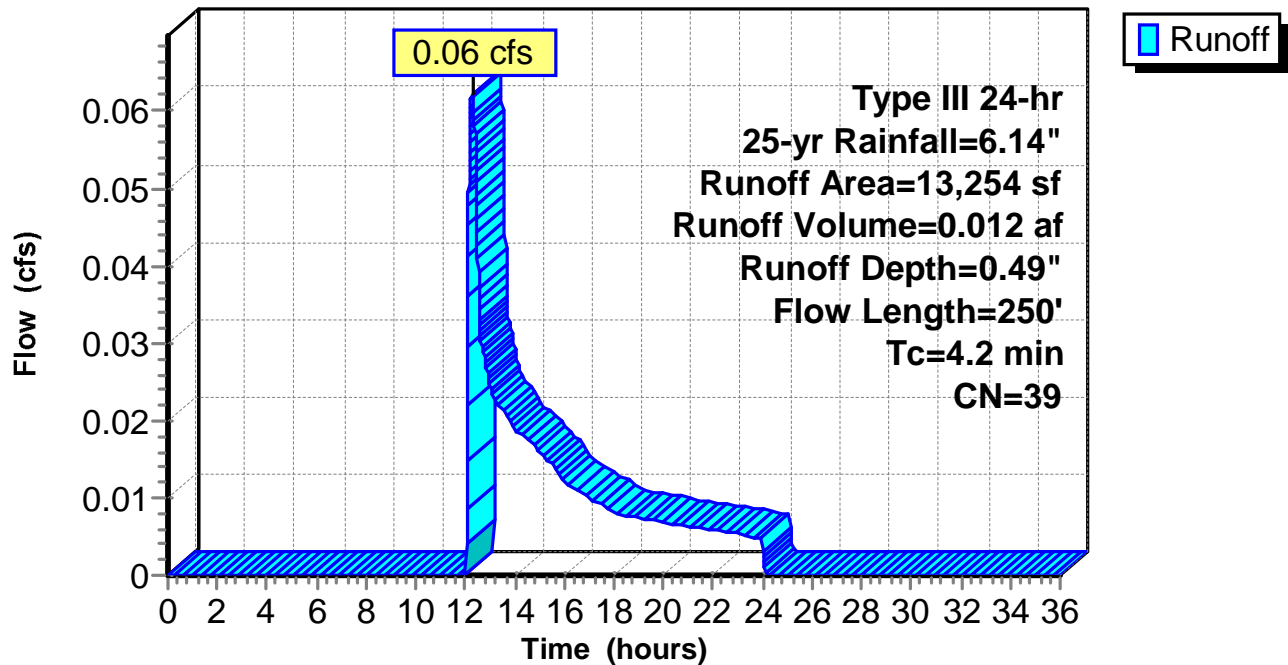
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



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Summary for Subcatchment 16-10S:

Runoff = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af, Depth= 0.09"

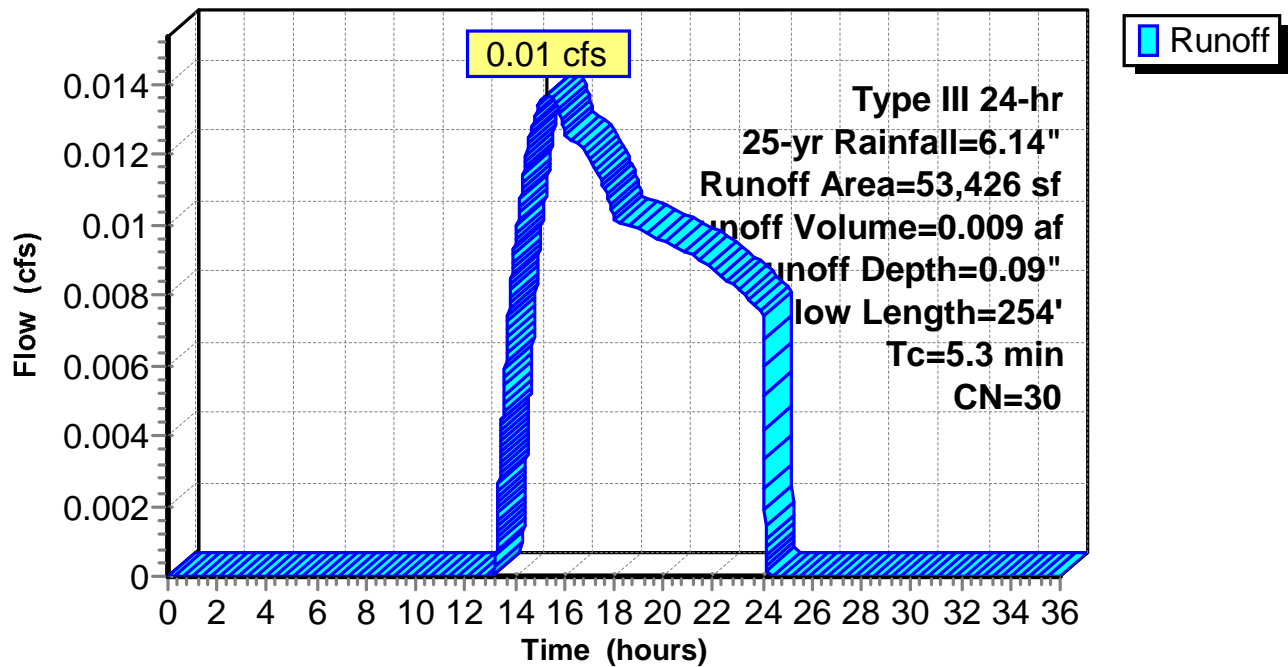
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-11S:

Runoff = 0.02 cfs @ 14.67 hrs, Volume= 0.011 af, Depth= 0.15"

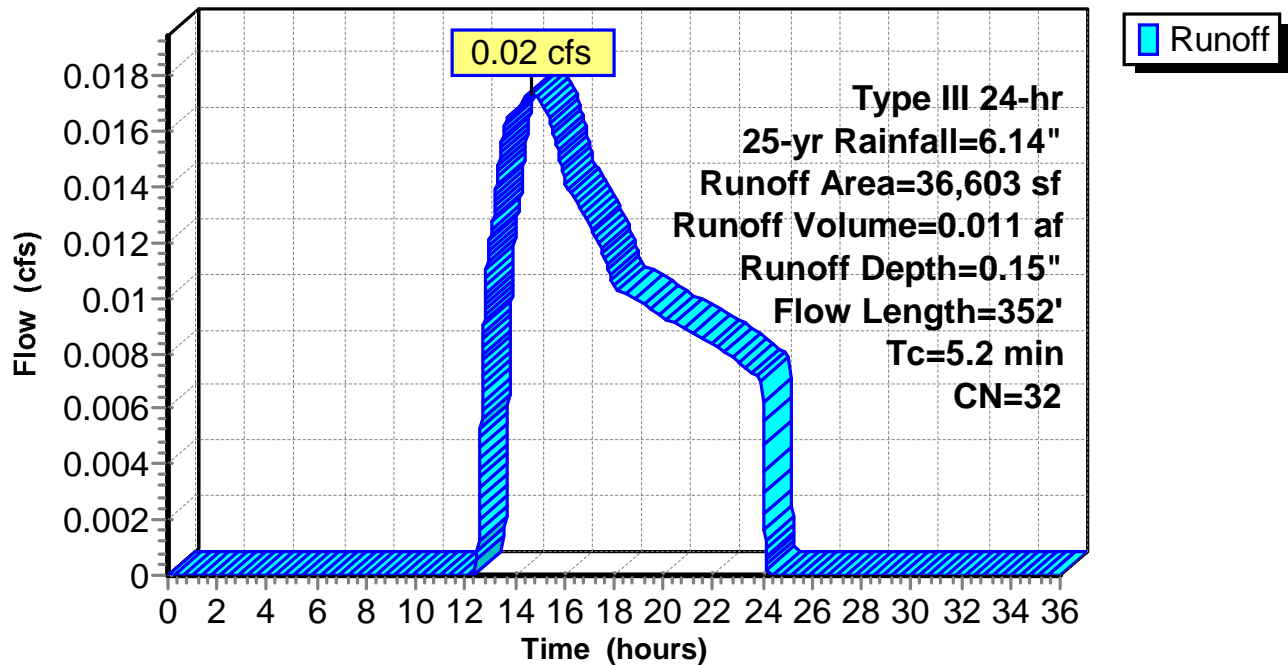
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-12S:

Runoff = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af, Depth= 0.19"

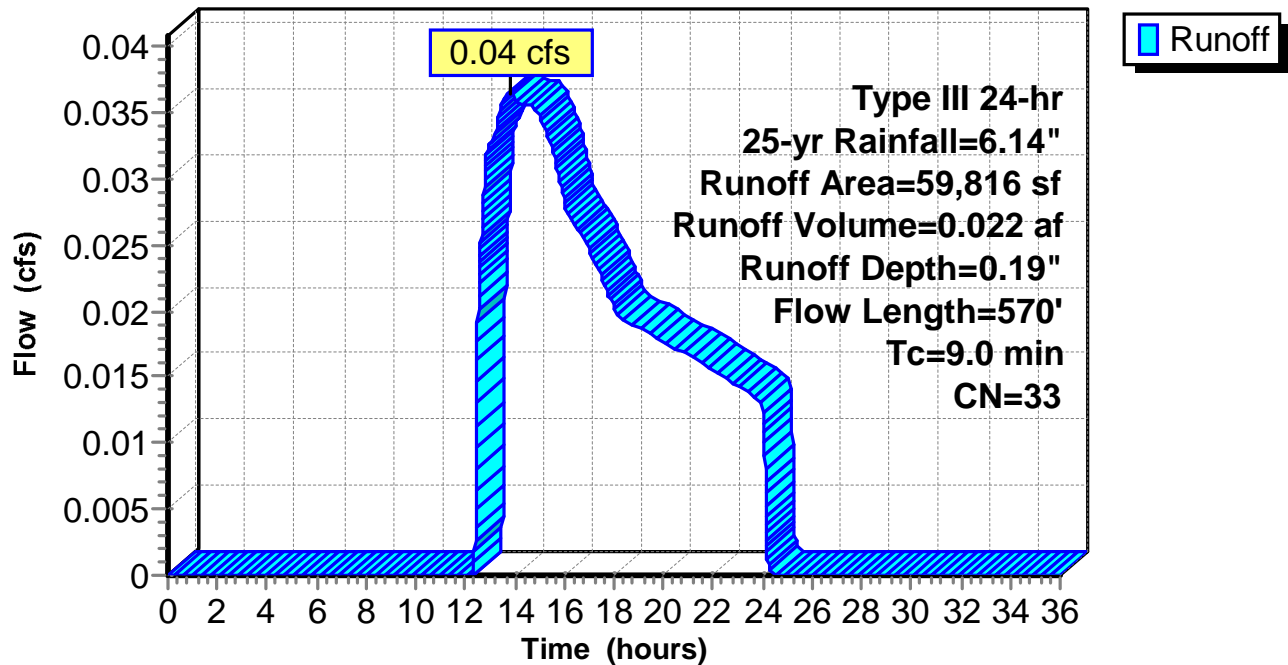
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-13S:

Runoff = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af, Depth= 0.24"

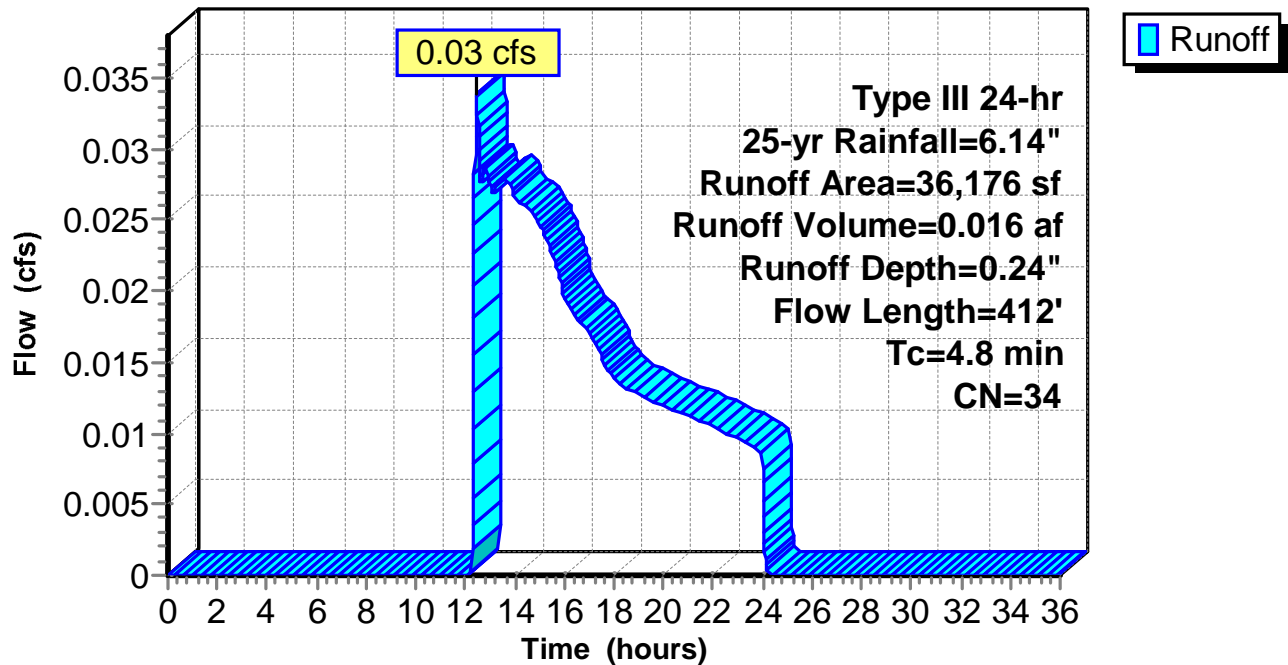
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-14S:

Runoff = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af, Depth= 0.33"

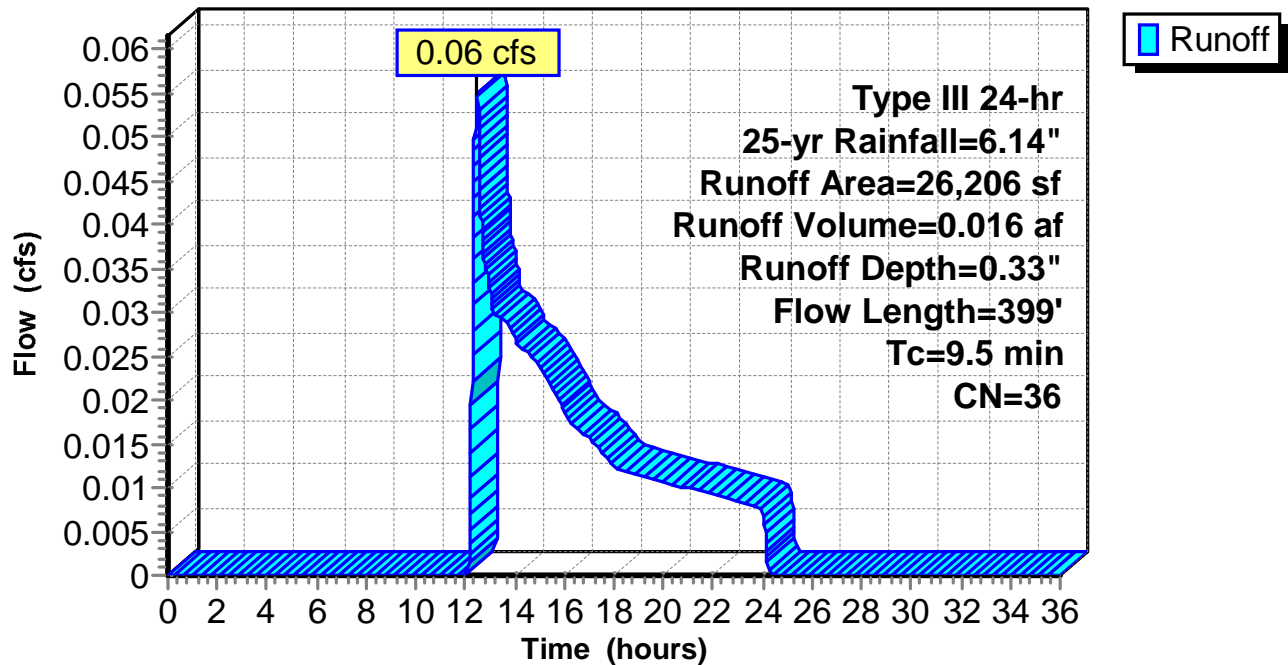
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

Hydrograph



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Summary for Subcatchment 16-15S:

Runoff = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af, Depth= 0.66"

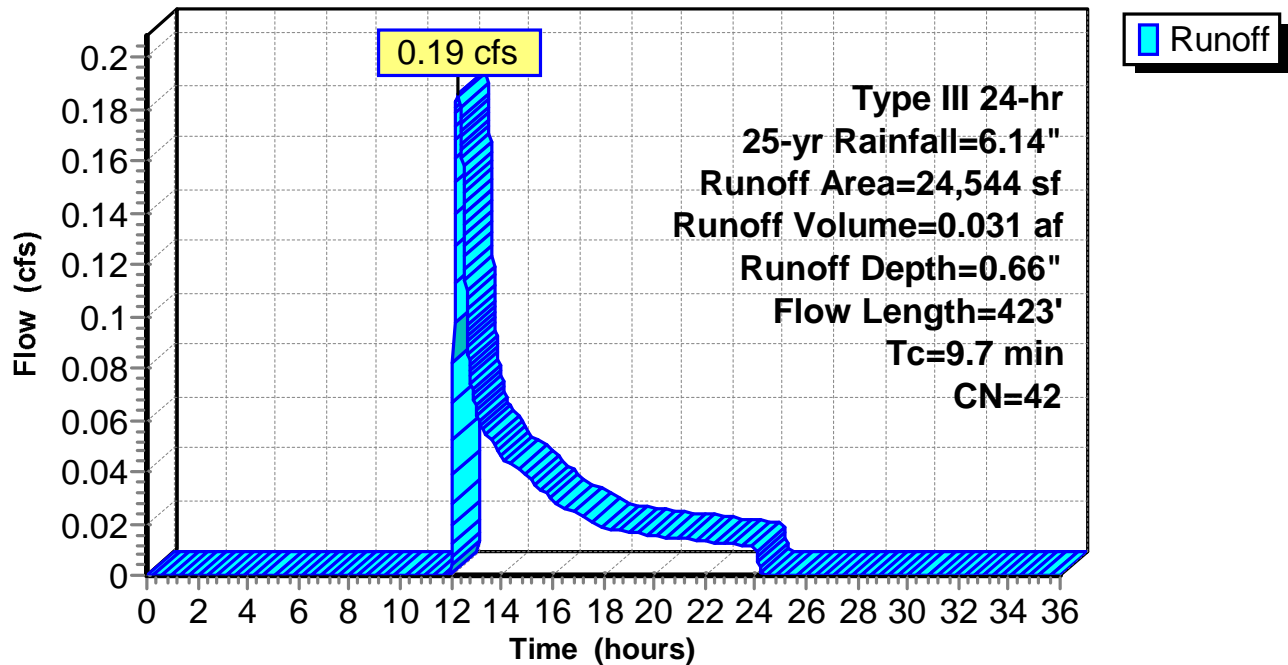
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 16-16S:

Runoff = 0.52 cfs @ 12.10 hrs, Volume= 0.043 af, Depth= 1.44"

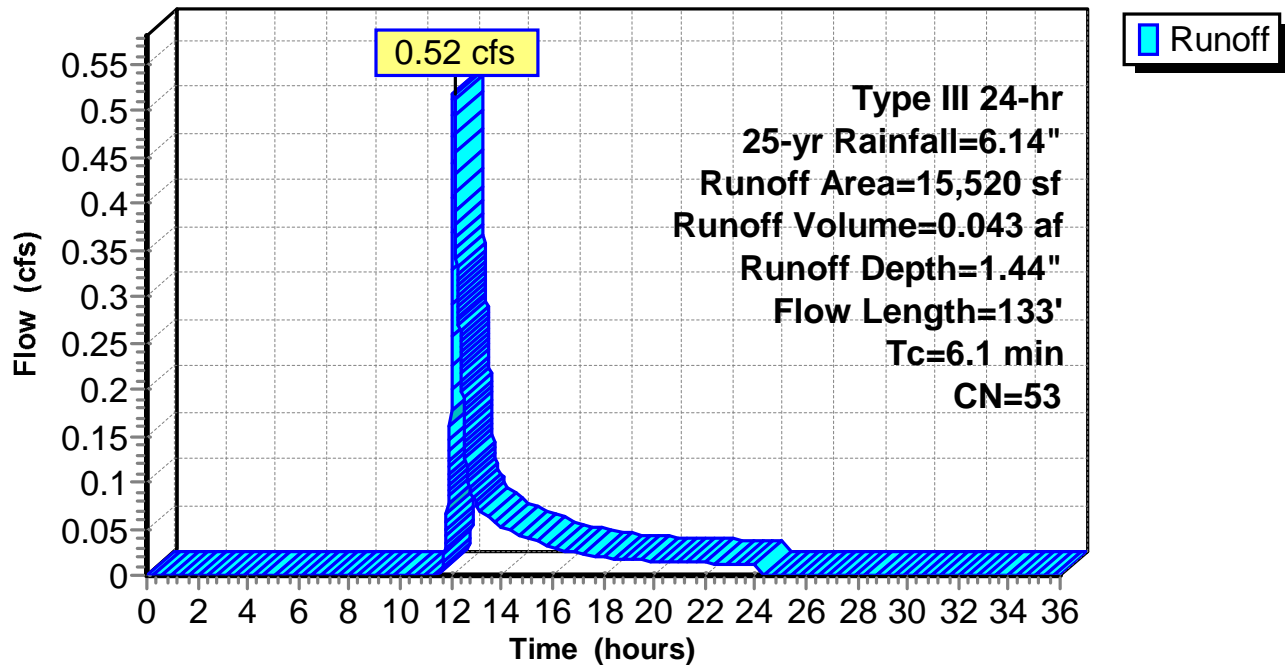
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 5,158	98	Impervious
10,362	30	Brush, Good, HSG A
15,520	53	Weighted Average
10,362		66.77% Pervious Area
5,158		33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	63	0.1190	2.41		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	20	0.3500	4.14		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.1	133	Total			

Subcatchment 16-16S:

Hydrograph



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Summary for Subcatchment 17-01S:

Runoff = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af, Depth= 0.43"

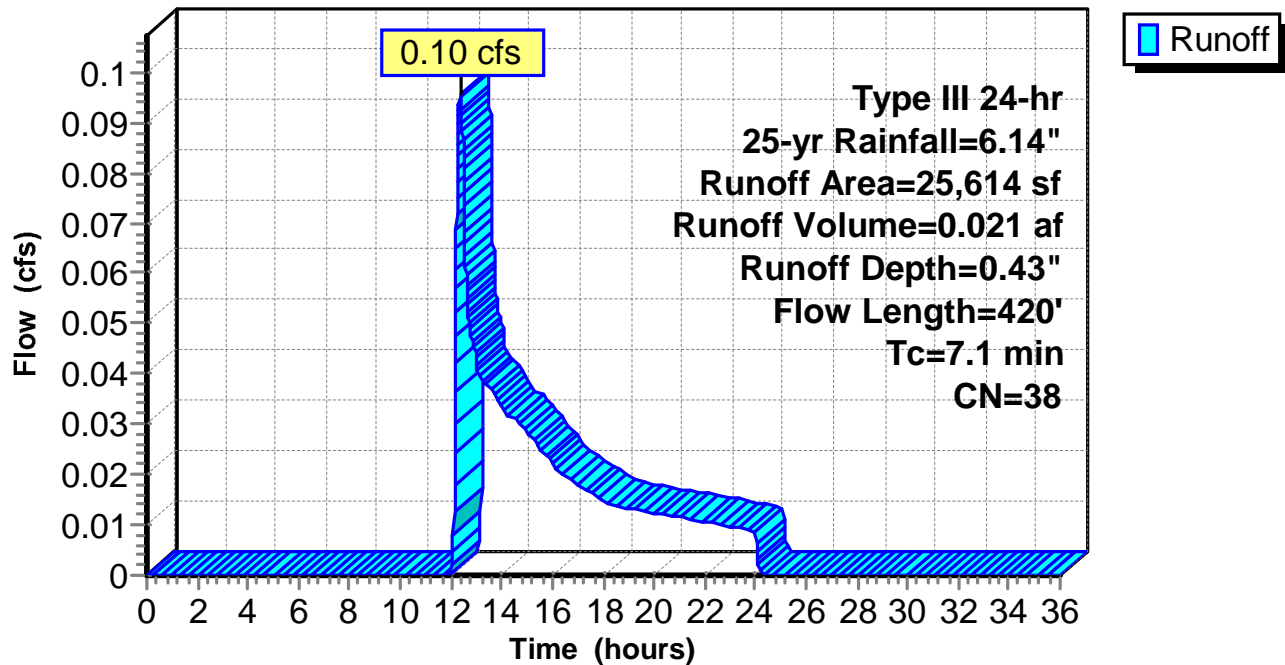
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

Hydrograph



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Summary for Subcatchment 17-02S:

Runoff = 0.01 cfs @ 12.46 hrs, Volume= 0.005 af, Depth= 0.28"

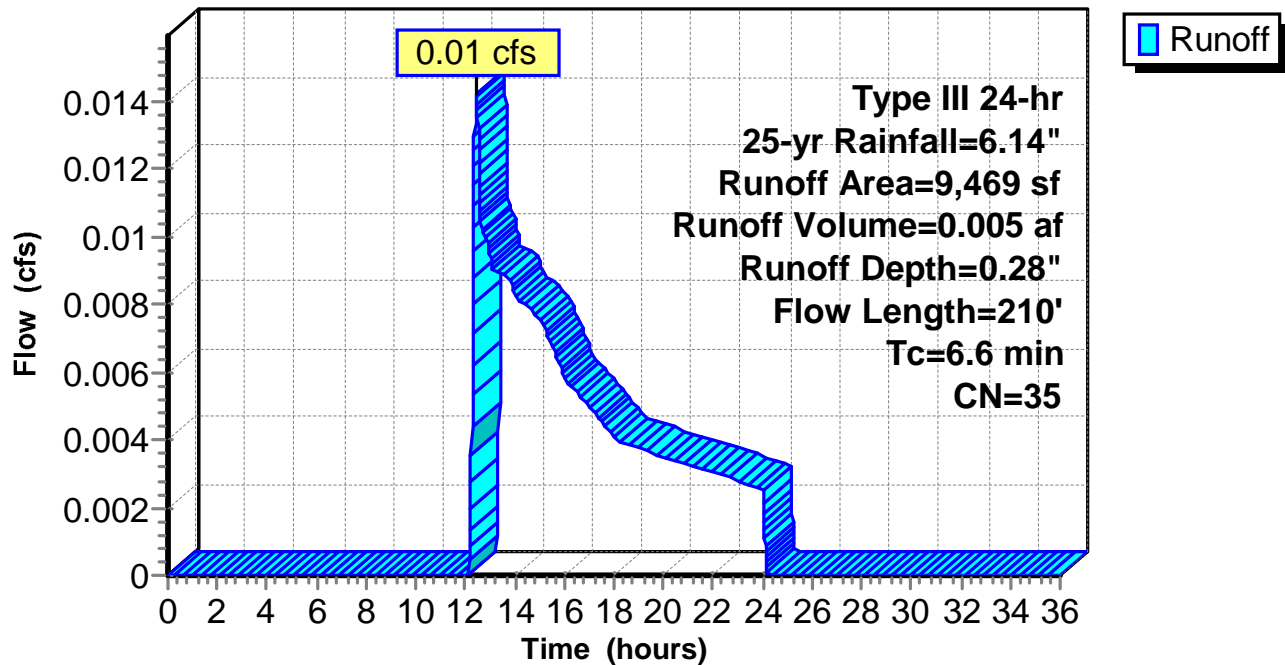
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



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Summary for Subcatchment 17-03S:

Runoff = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af, Depth= 0.60"

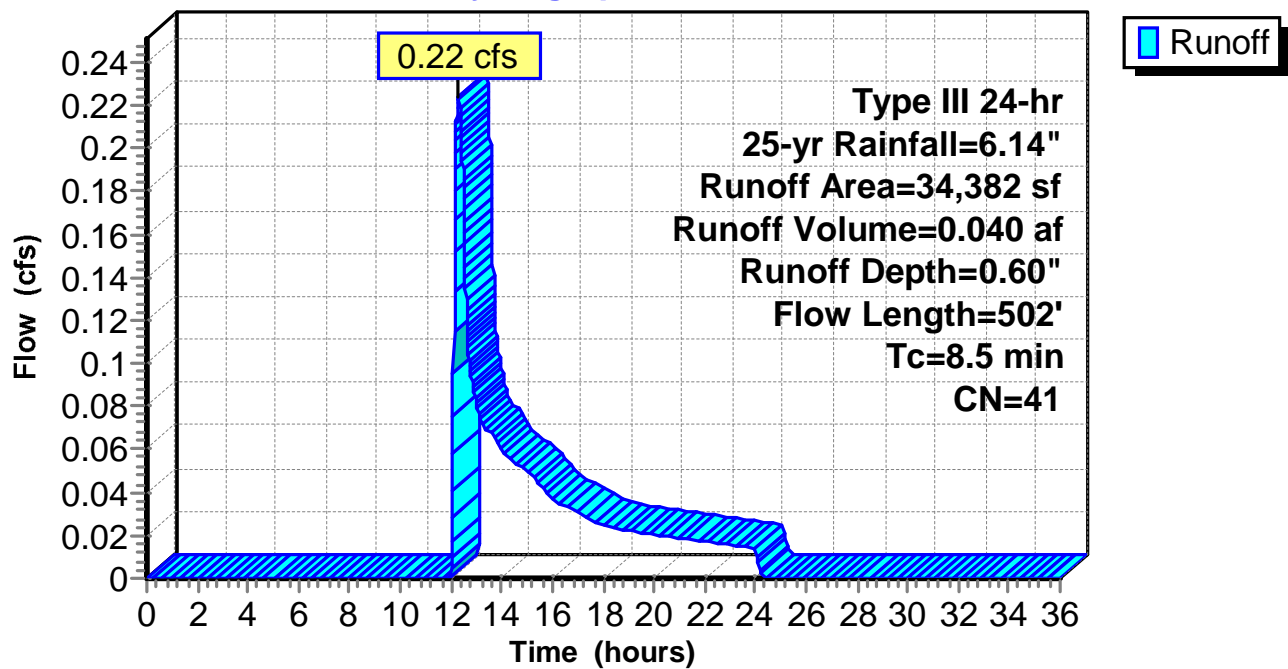
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
* 5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-04S:

Runoff = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af, Depth= 1.36"

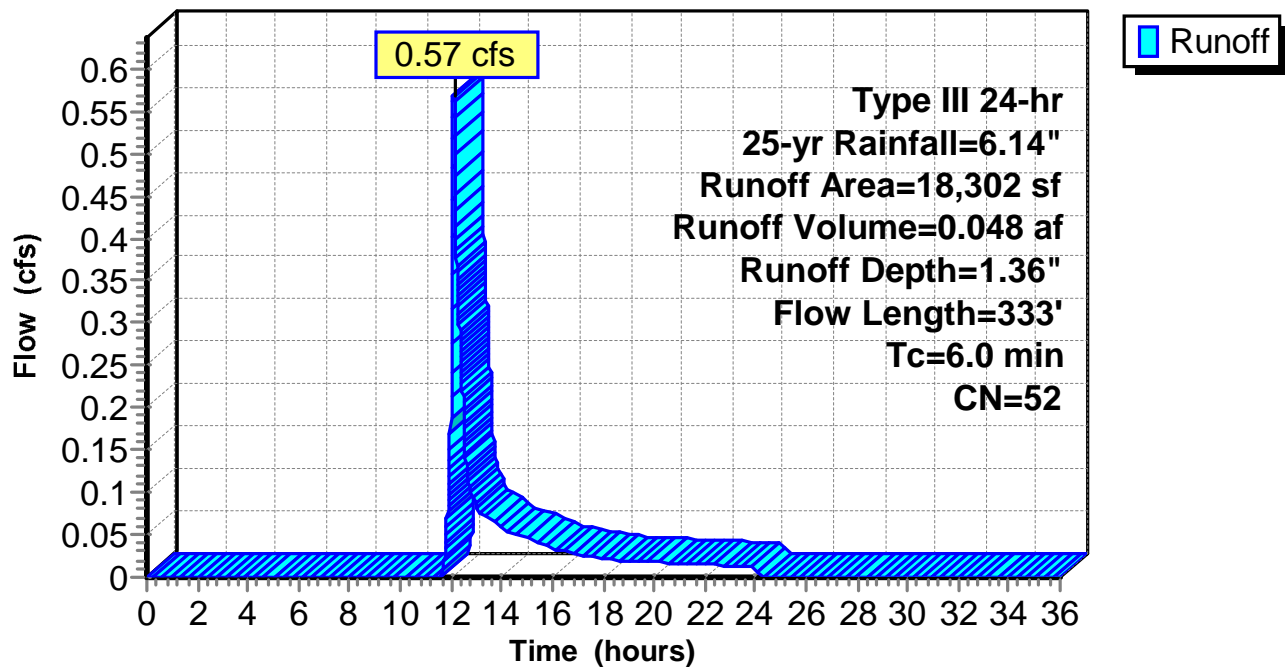
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Subcatchment 17-05S:

Runoff = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af, Depth= 2.19"

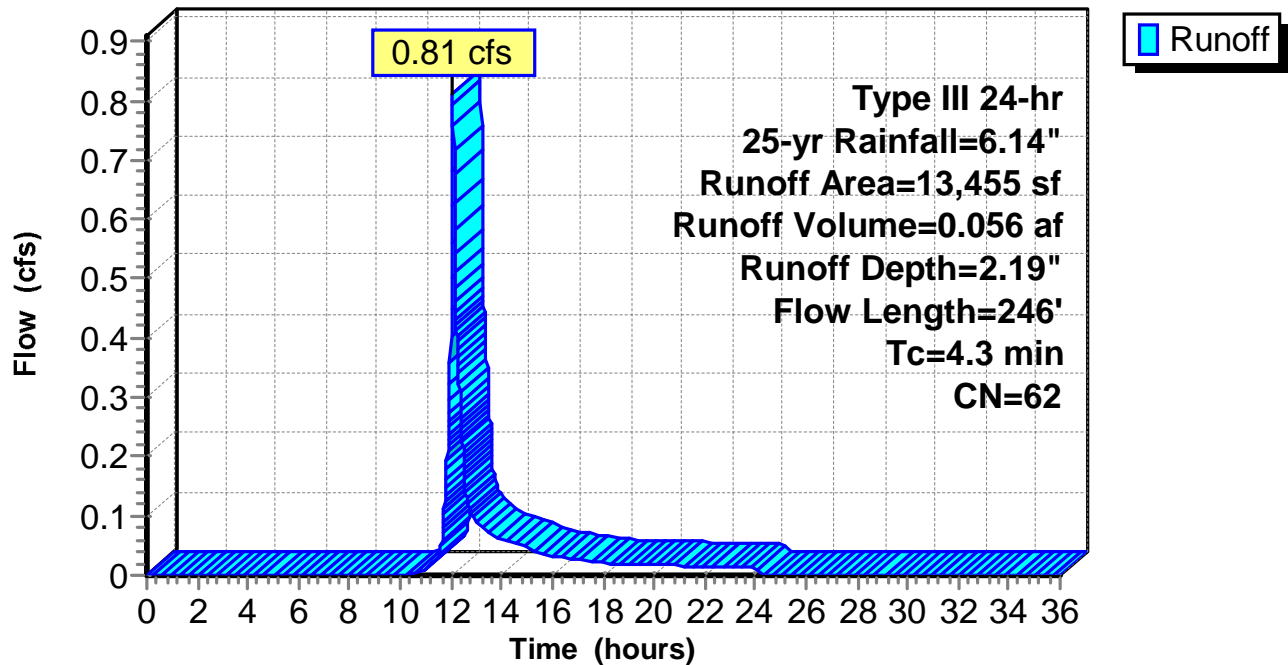
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	32	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.3	246	Total			

Subcatchment 17-05S:

Hydrograph



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Summary for Subcatchment 17-06S:

Runoff = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af, Depth= 2.54"

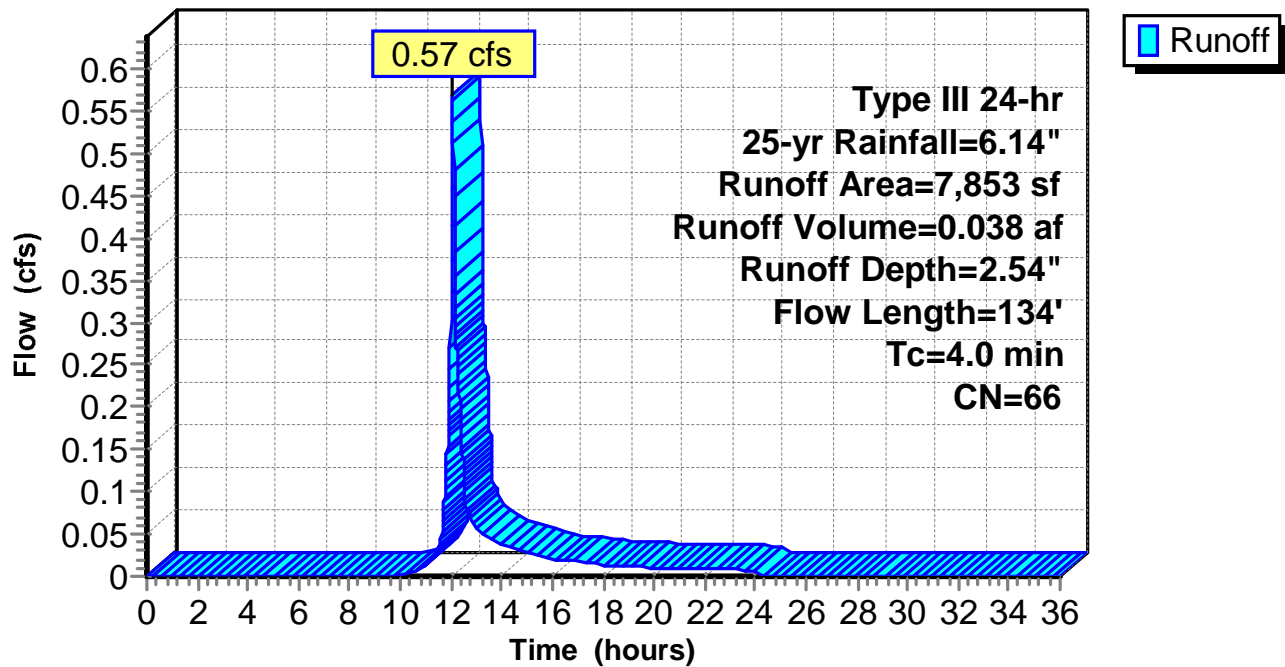
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

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Summary for Subcatchment 17-07S:

Runoff = 0.37 cfs @ 12.07 hrs, Volume= 0.025 af, Depth= 3.30"

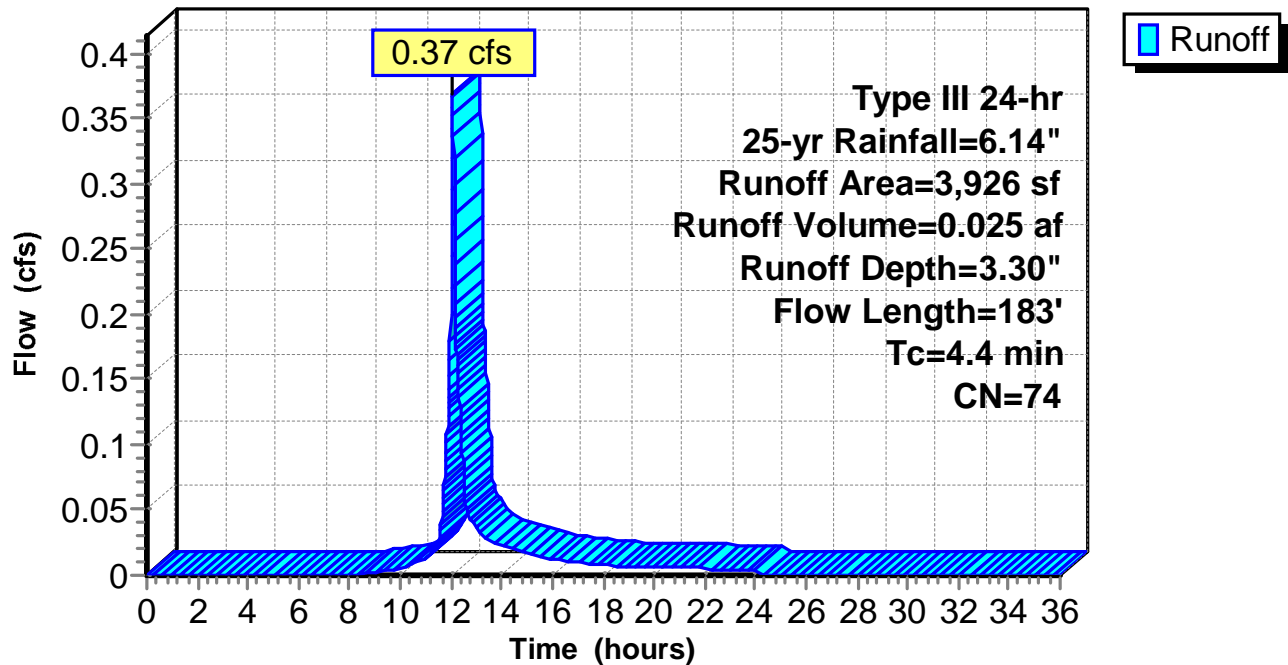
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=6.14"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.60" for 25-yr event
 Inflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af
 Outflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.40' @ 12.29 hrs

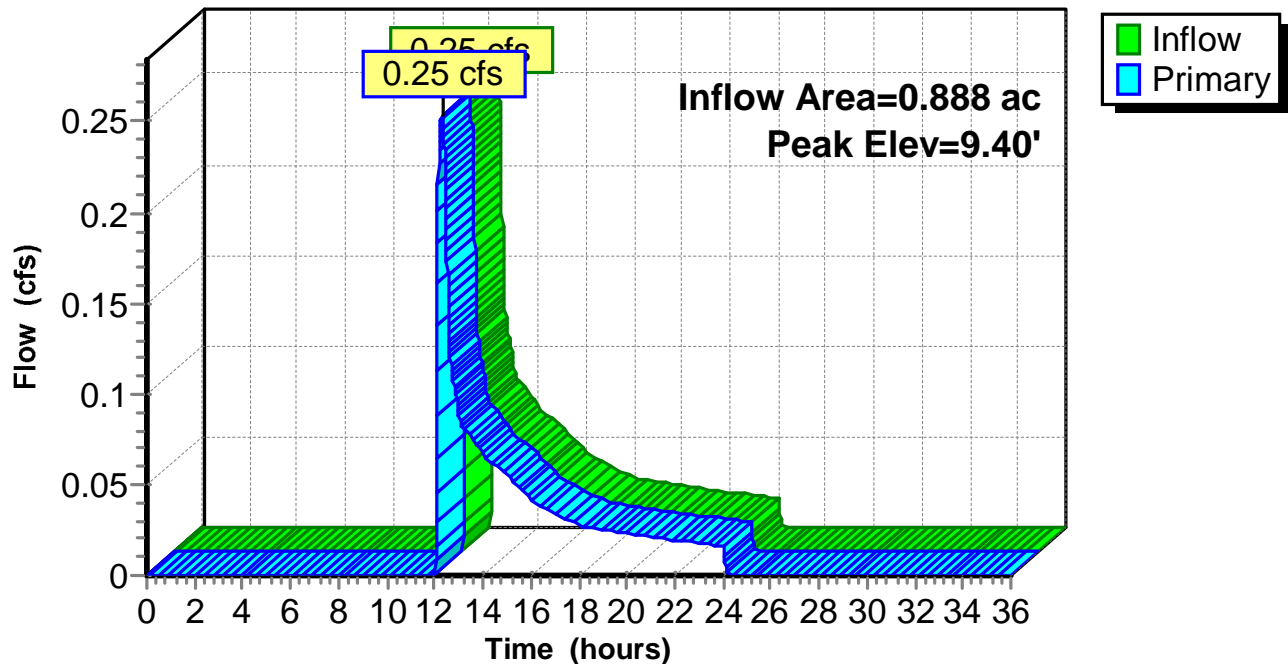
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.12'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 9.12' / 9.06' S= 0.0086 1/100' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.29 hrs HW=9.40' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.25 cfs @ 2.07 fps)

Pond CB16-01:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 2.45" for 25-yr event
Inflow = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af
Outflow = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
Primary = 0.32 cfs @ 12.06 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.10' @ 12.06 hrs

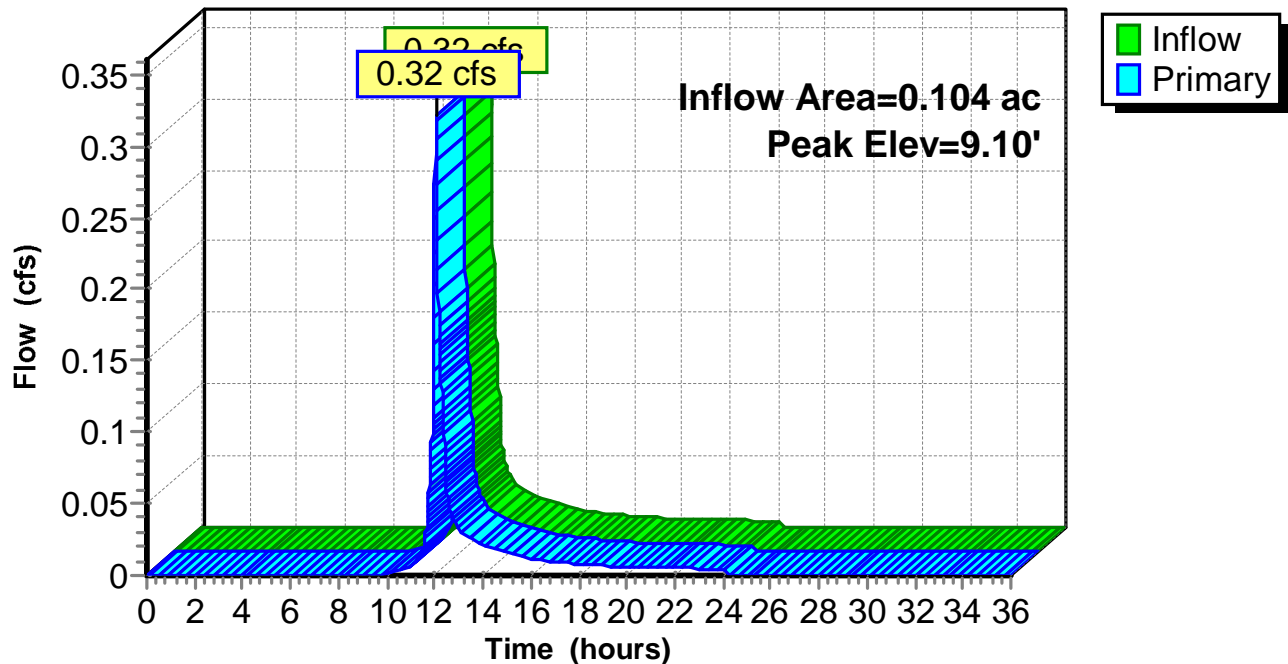
Device	Routing	Invert	Outlet Devices
#1	Primary	11.86'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.32 cfs @ 12.06 hrs HW=9.10' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.32 cfs @ 1.80 fps)

Pond CB16-02:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.24" for 25-yr event
 Inflow = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af
 Outflow = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.04 cfs @ 12.55 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.91' @ 12.55 hrs

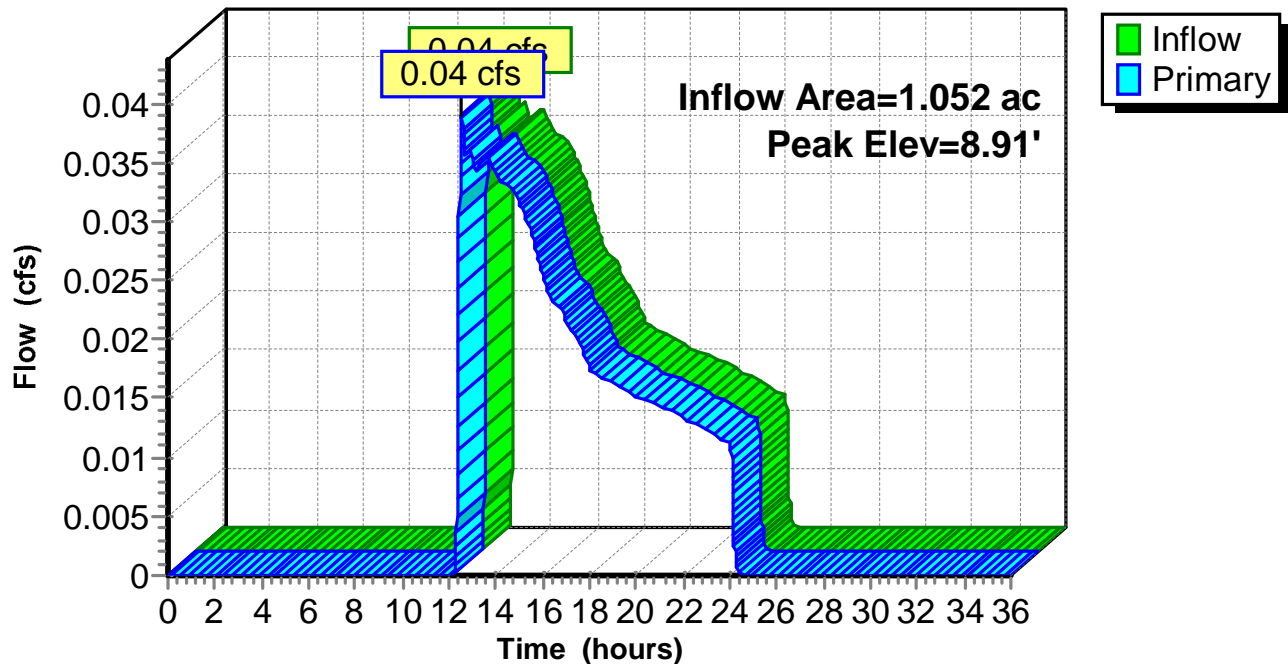
Device	Routing	Invert	Outlet Devices
#1	Primary	11.95'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.55 hrs HW=8.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.04 cfs @ 1.04 fps)

Pond CB16-03:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.18" for 25-yr event
 Inflow = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af
 Outflow = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.12 cfs @ 14.59 hrs, Volume= 0.078 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.13' @ 14.59 hrs

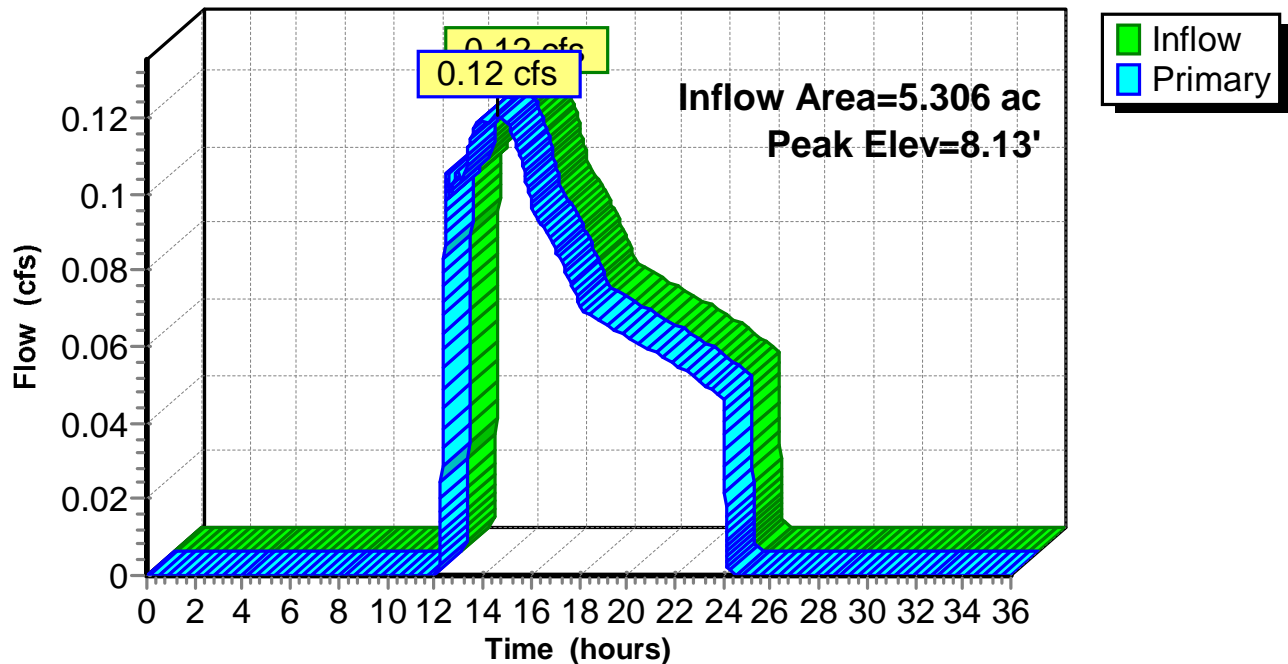
Device	Routing	Invert	Outlet Devices
#1	Primary	15.53'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.98'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 7.98' / 6.11' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=0.12 cfs @ 14.59 hrs HW=8.13' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.12 cfs @ 1.32 fps)

Pond CB16-04:

Hydrograph



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Summary for Pond CB16-05:

Inflow Area = 2.098 ac, 17.46% Impervious, Inflow Depth = 0.44" for 25-yr event
 Inflow = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af
 Outflow = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.41 cfs @ 12.32 hrs, Volume= 0.077 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.26' @ 12.32 hrs

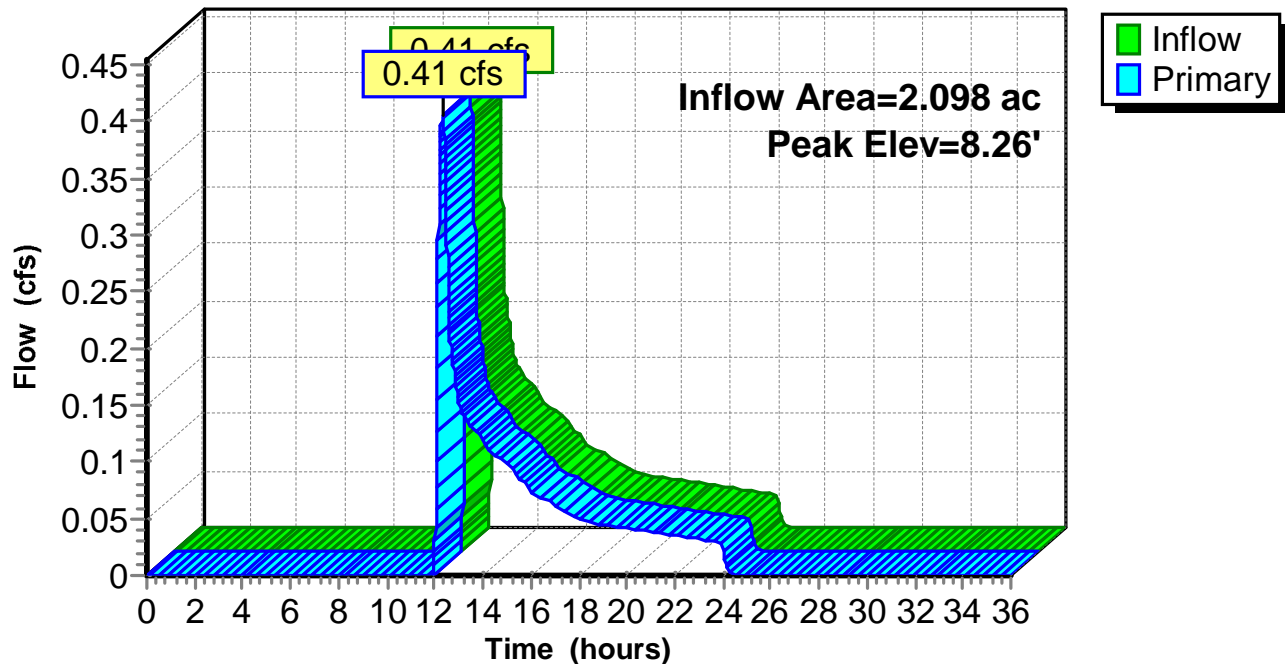
Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.97'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 7.97' / 6.11' S= 0.0255 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.40 cfs @ 12.32 hrs HW=8.26' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.84 fps)

Pond CB16-05:

Hydrograph



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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.09" for 25-yr event
Inflow = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 15.26 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.72' @ 15.26 hrs

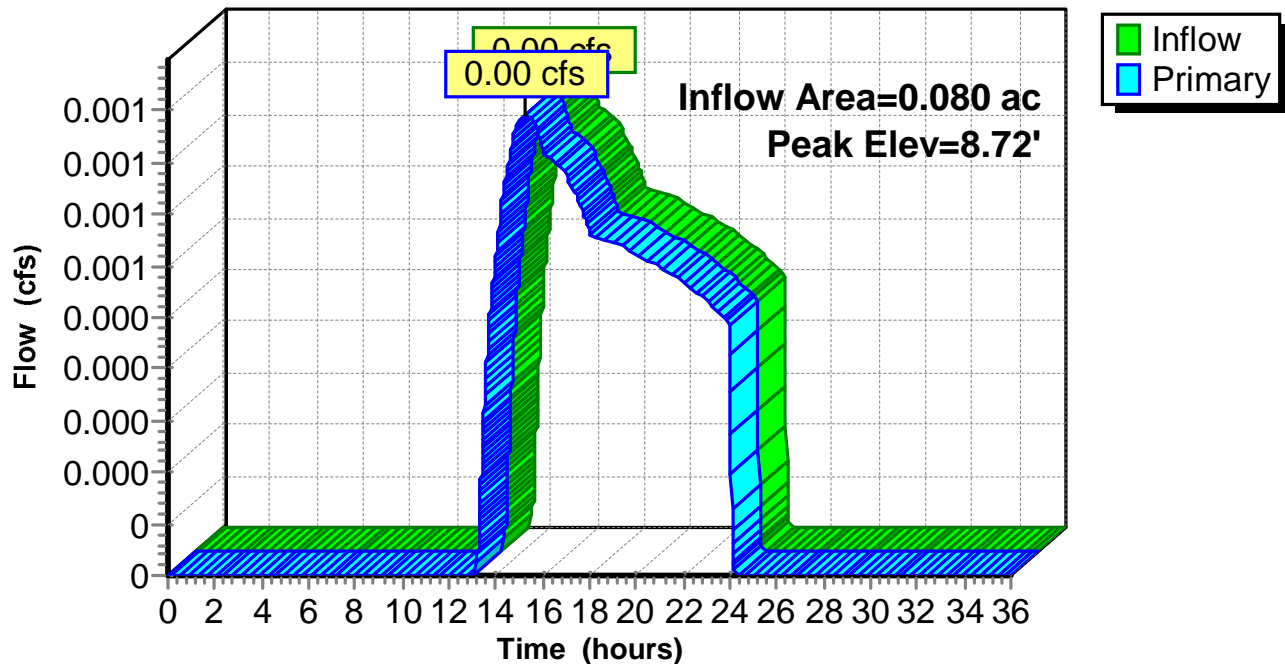
Device	Routing	Invert	Outlet Devices
#1	Primary	12.71'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.72'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 8.72' / 8.03' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.00 cfs @ 15.26 hrs HW=8.72' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.00 cfs @ 0.24 fps)

Pond CB16-06:

Hydrograph



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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 0.60" for 25-yr event
Inflow = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.14 hrs, Volume= 0.007 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 14.08' @ 12.14 hrs

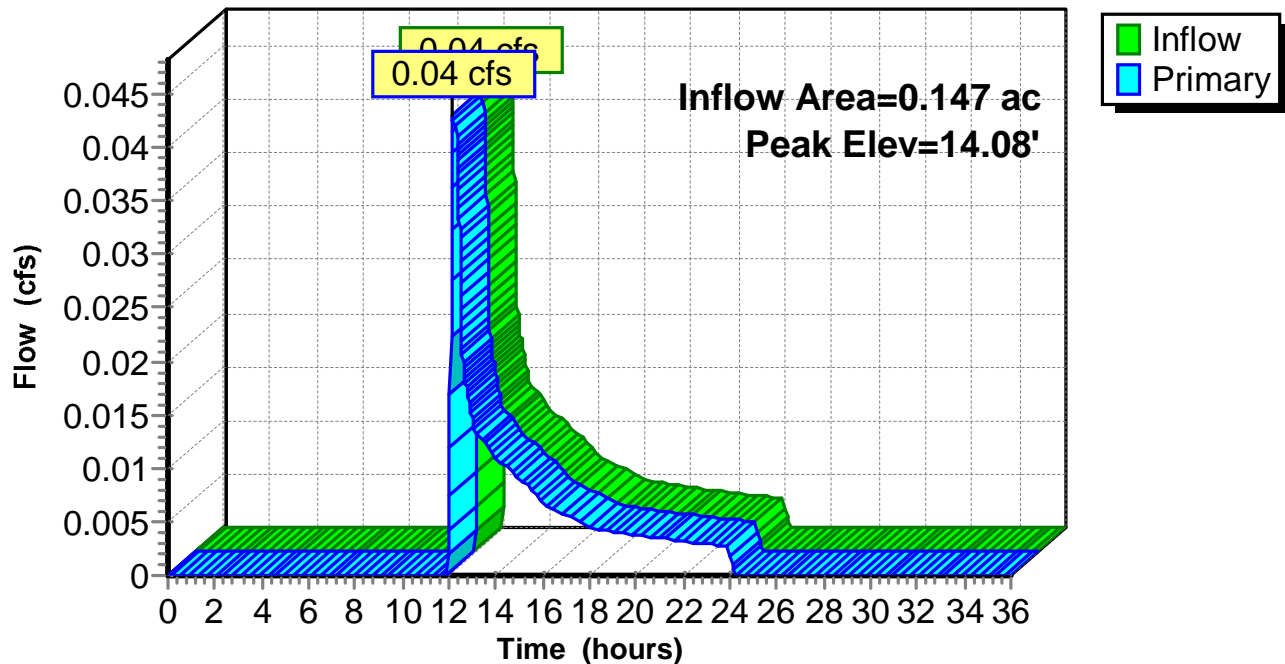
Device	Routing	Invert	Outlet Devices
#1	Primary	18.96'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.96'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 13.96' / 13.58' S= 0.0045 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.04 cfs @ 12.14 hrs HW=14.08' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.04 cfs @ 1.21 fps)

Pond CB16-07:

Hydrograph



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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 0.67" for 25-yr event
Inflow = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af
Outflow = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.12 hrs, Volume= 0.013 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 13.69' @ 12.12 hrs

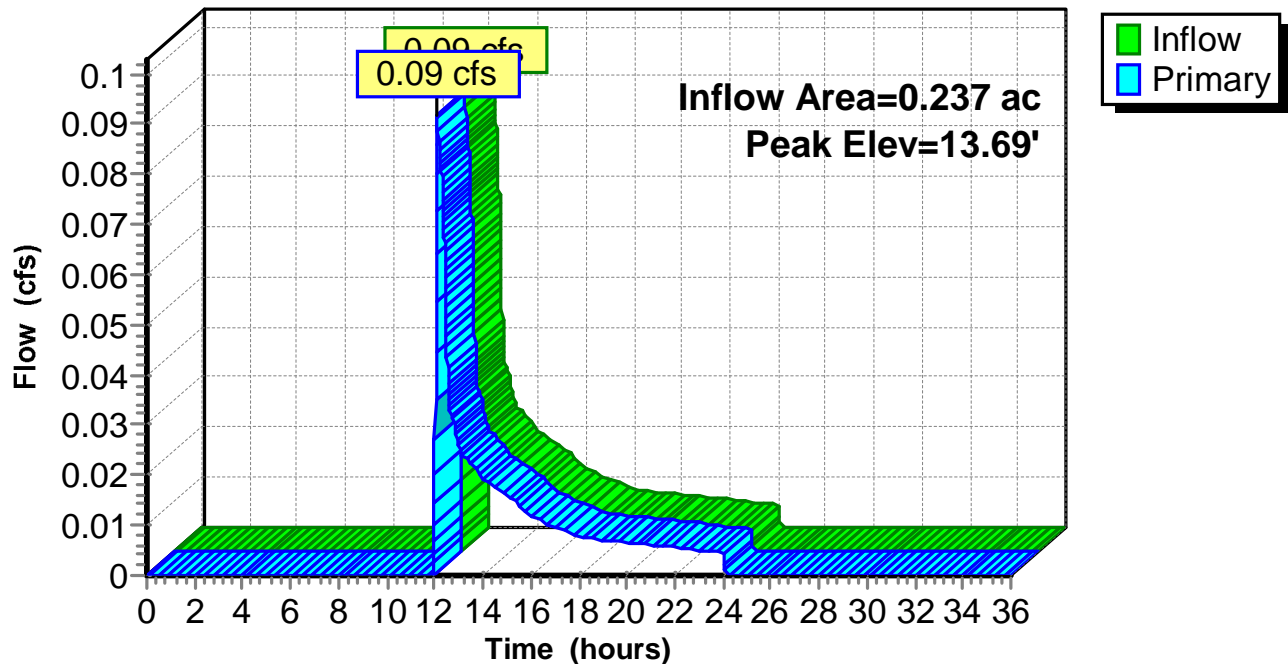
Device	Routing	Invert	Outlet Devices
#1	Primary	21.43'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.55'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 13.55' / 8.03' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.12 hrs HW=13.69' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.09 cfs @ 1.28 fps)

Pond CB16-08:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.49" for 25-yr event
Inflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af
Outflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 18.19' @ 12.30 hrs

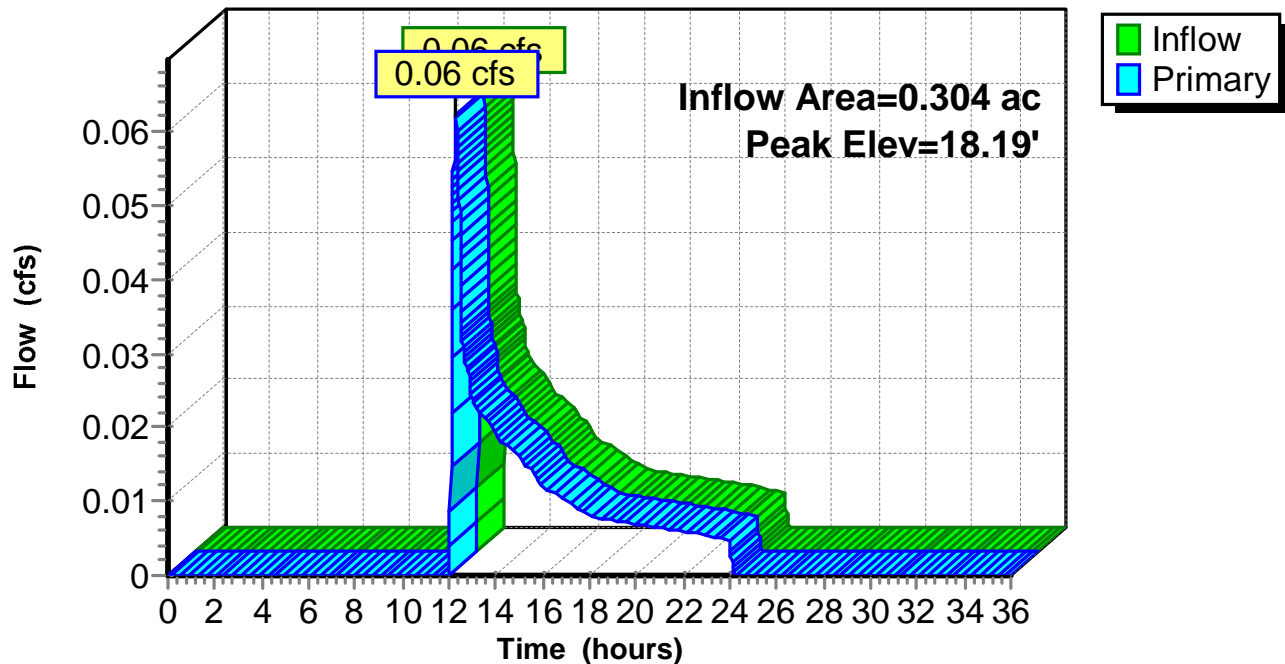
Device	Routing	Invert	Outlet Devices
#1	Primary	23.15'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	18.07'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 18.07' / 9.71' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.30 hrs HW=18.19' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.17 fps)

Pond CB16-09:

Hydrograph



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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.09" for 25-yr event
Inflow = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af
Outflow = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af, Atten= 0%, Lag= 0.0 min
Primary = 0.01 cfs @ 15.28 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.91' @ 15.28 hrs

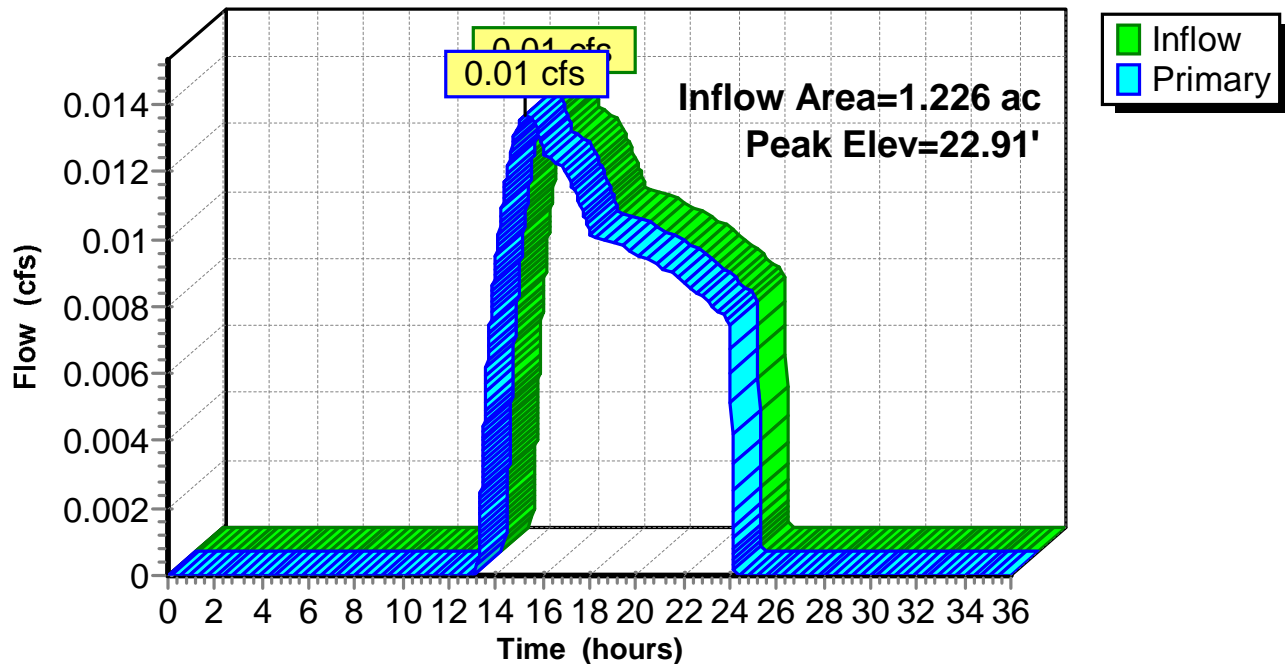
Device	Routing	Invert	Outlet Devices
#1	Primary	26.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.83'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 22.83' / 22.79' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.01 cfs @ 15.28 hrs HW=22.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.01 cfs @ 0.76 fps)

Pond CB16-10:

Hydrograph



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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.11" for 25-yr event
 Inflow = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af
 Outflow = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.03 cfs @ 15.02 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 22.60' @ 15.02 hrs

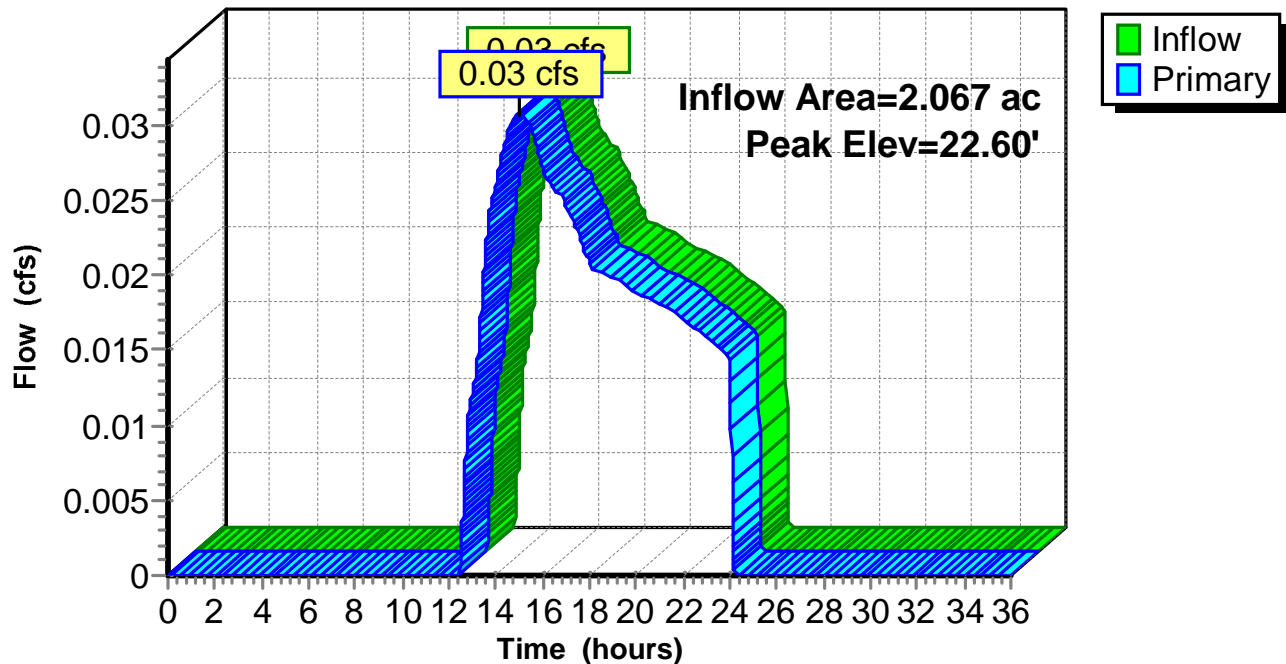
Device	Routing	Invert	Outlet Devices
#1	Primary	26.87'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.52'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 22.52' / 21.23' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 15.02 hrs HW=22.60' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 0.98 fps)

Pond CB16-11:

Hydrograph



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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.19" for 25-yr event
Inflow = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af
Outflow = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af, Atten= 0%, Lag= 0.0 min
Primary = 0.04 cfs @ 13.79 hrs, Volume= 0.022 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 24.00' @ 13.79 hrs

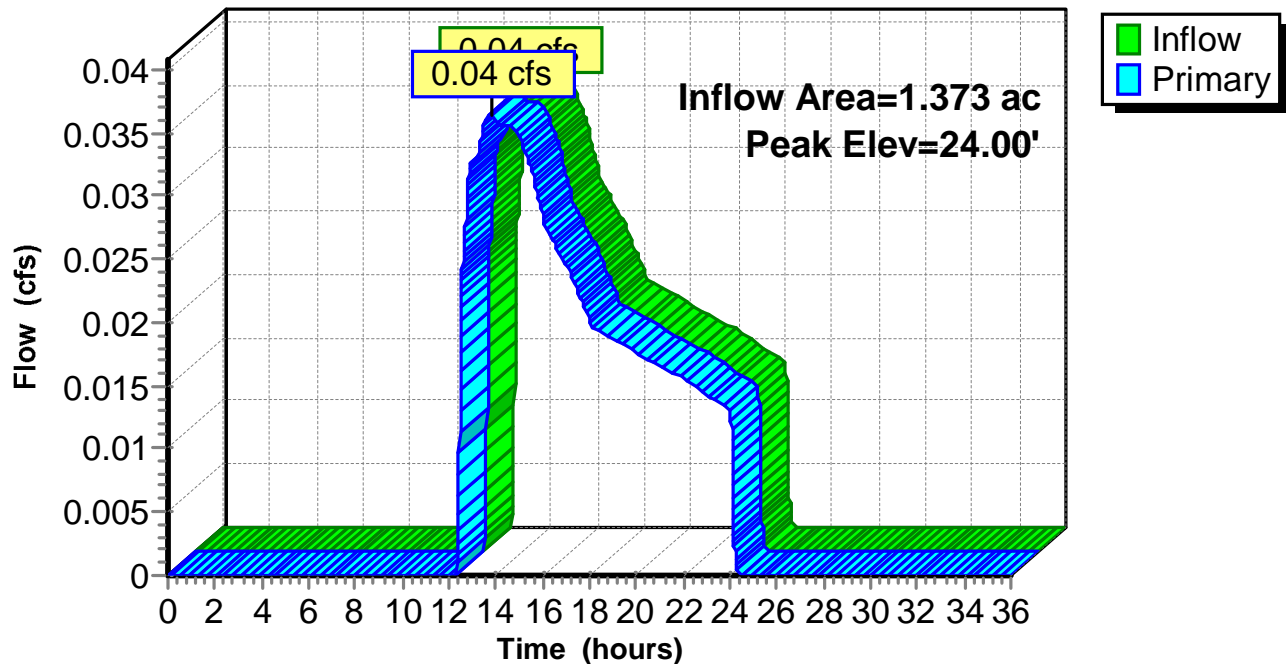
Device	Routing	Invert	Outlet Devices
#1	Primary	29.47'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	23.91'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 23.91' / 23.32' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 13.79 hrs HW=24.00' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 1.00 fps)

Pond CB16-12:

Hydrograph



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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.24" for 25-yr event
Inflow = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af
Outflow = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
Primary = 0.03 cfs @ 12.47 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 28.21' @ 12.47 hrs

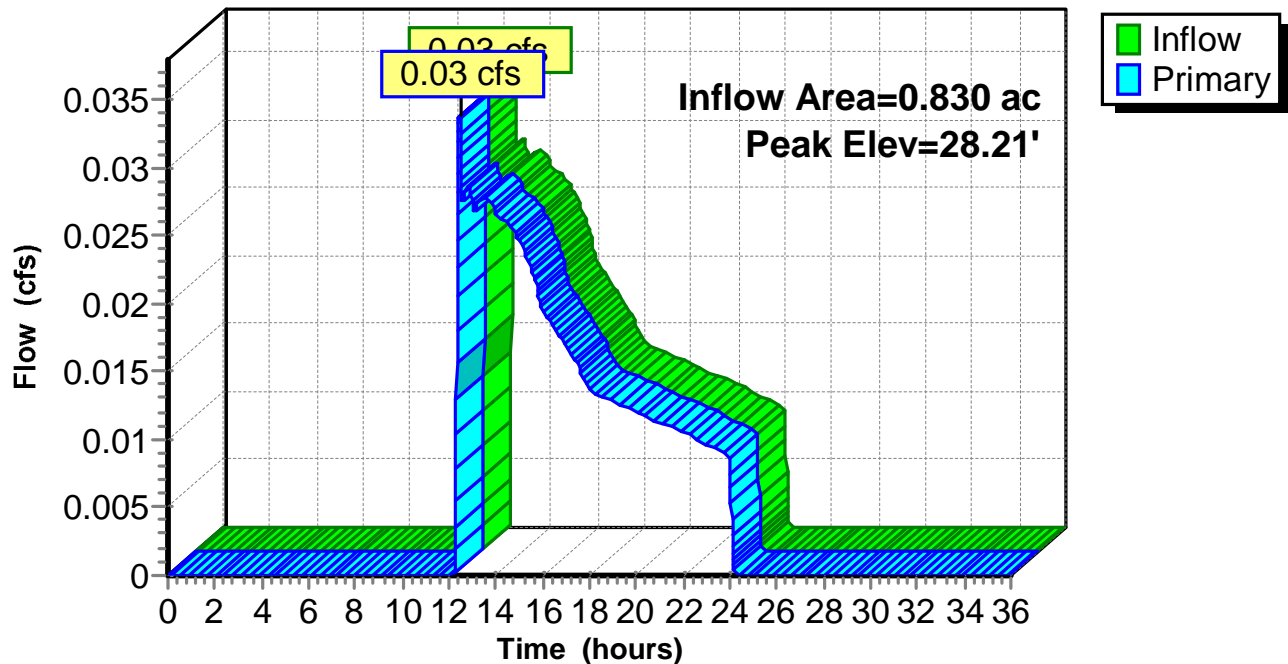
Device	Routing	Invert	Outlet Devices
#1	Primary	32.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	28.12'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 28.12' / 27.48' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.03 cfs @ 12.47 hrs HW=28.21' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.03 cfs @ 1.00 fps)

Pond CB16-13:

Hydrograph



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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 0.33" for 25-yr event
 Inflow = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af
 Outflow = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.06 cfs @ 12.47 hrs, Volume= 0.016 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 37.70' @ 12.47 hrs

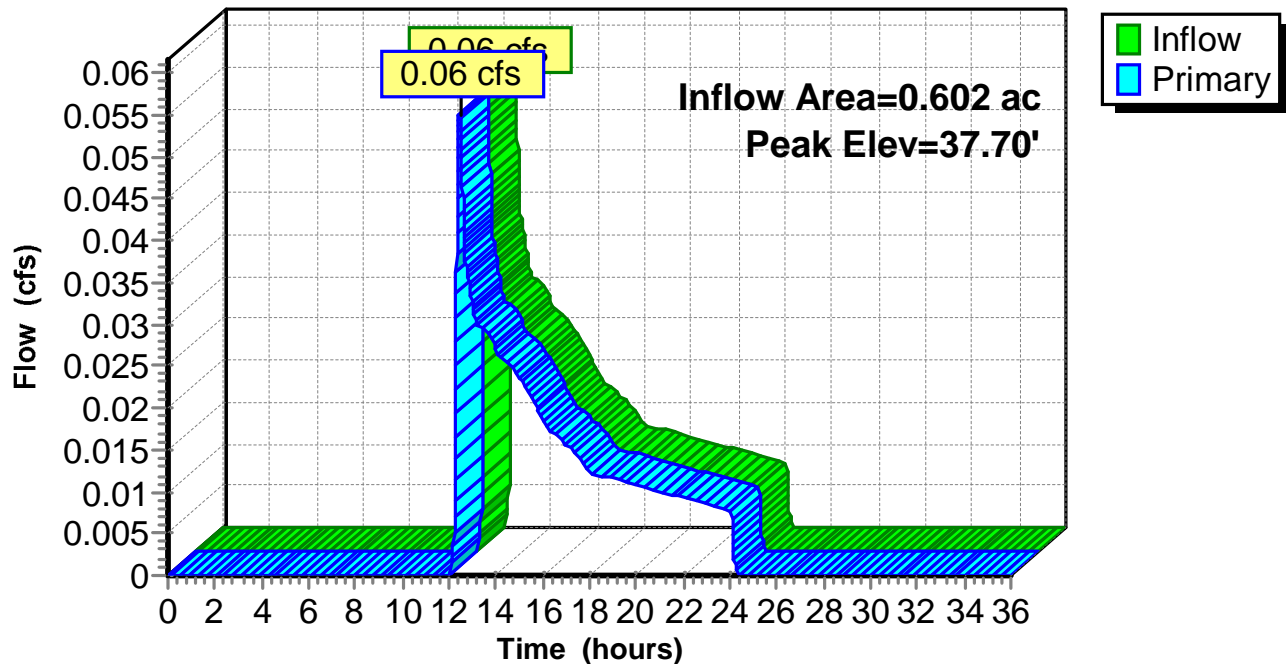
Device	Routing	Invert	Outlet Devices
#1	Primary	42.77'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	37.59'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 37.59' / 30.07' S= 0.0800 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.05 cfs @ 12.47 hrs HW=37.70' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.05 cfs @ 1.13 fps)

Pond CB16-14:

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Summary for Pond CB16-15:

Inflow Area = 0.920 ac, 23.48% Impervious, Inflow Depth = 0.41" for 25-yr event
Inflow = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af
Outflow = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af, Atten= 0%, Lag= 0.0 min
Primary = 0.19 cfs @ 12.30 hrs, Volume= 0.031 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.61' @ 12.30 hrs

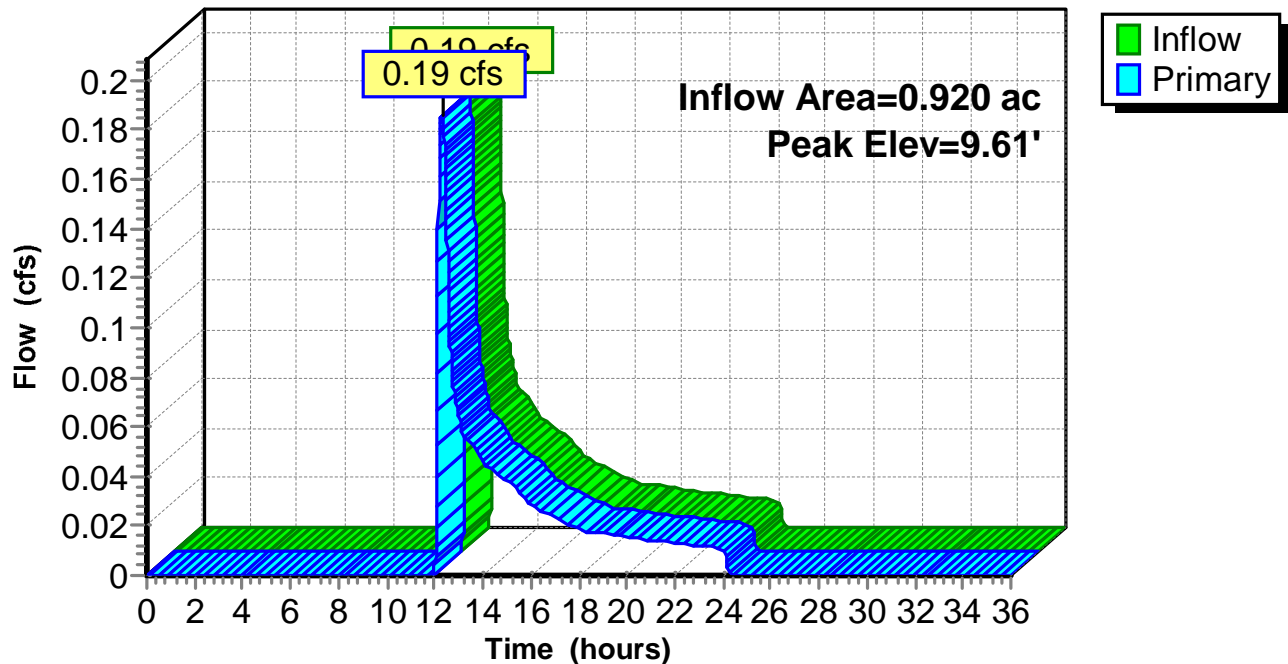
Device	Routing	Invert	Outlet Devices
#1	Primary	12.42'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.40'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 9.40' / 7.97' S= 0.0154 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.19 cfs @ 12.30 hrs HW=9.61' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.19 cfs @ 1.56 fps)

Pond CB16-15:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 0.43" for 25-yr event
 Inflow = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af
 Outflow = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.10 cfs @ 12.38 hrs, Volume= 0.021 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.22' @ 12.38 hrs

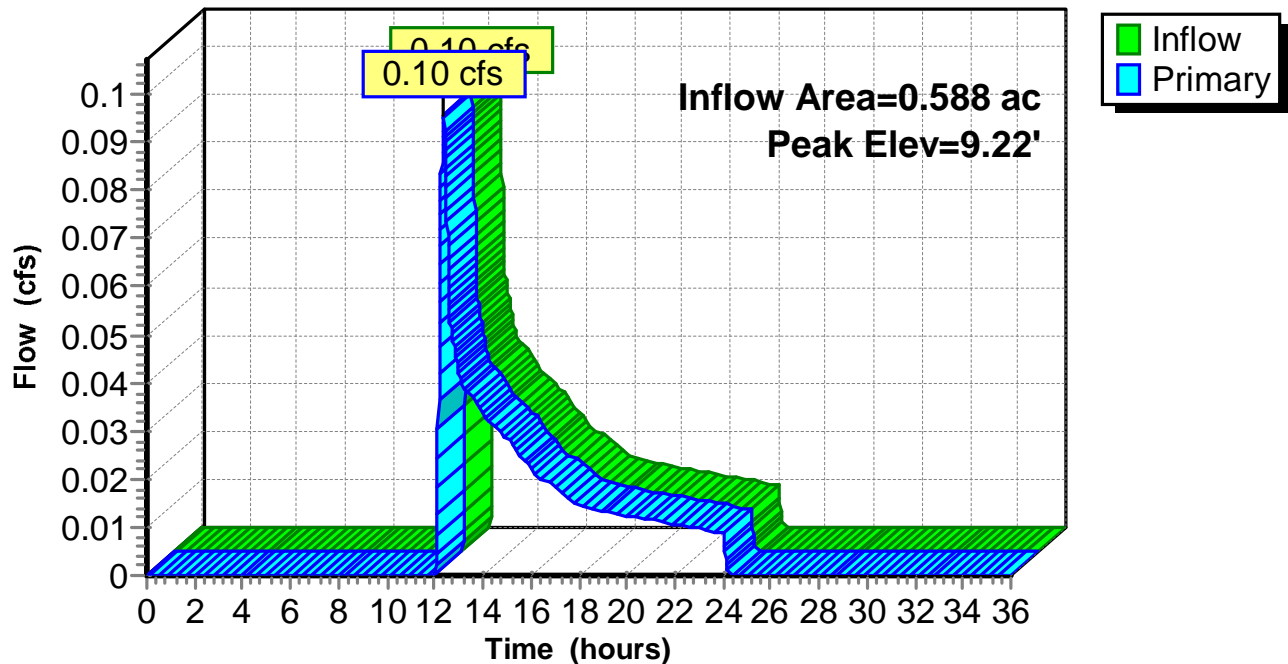
Device	Routing	Invert	Outlet Devices
#1	Primary	12.28'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.03'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 9.03' / 8.85' S= 0.0036 1/100' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.38 hrs HW=9.22' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.10 cfs @ 1.44 fps)

Pond CB17-01:

Hydrograph



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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 0.39" for 25-yr event
Inflow = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af
Outflow = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.39 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.05' @ 12.39 hrs

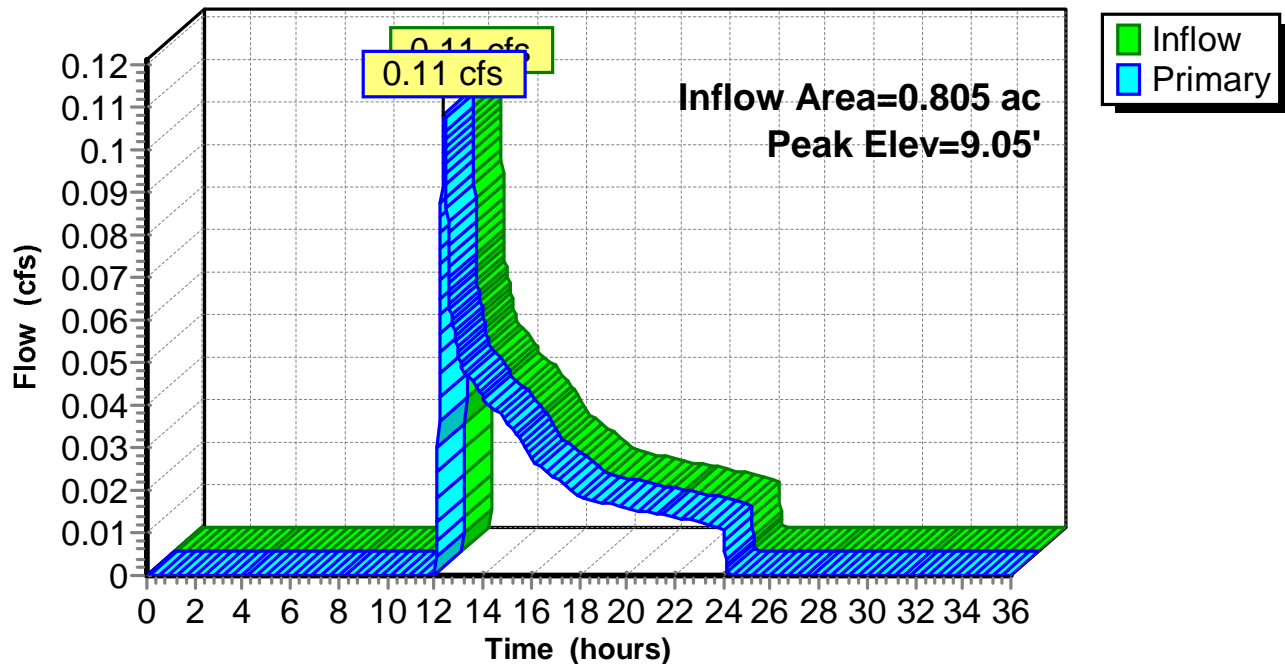
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.85'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 8.85' / 8.63' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.11 cfs @ 12.39 hrs HW=9.05' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.11 cfs @ 1.49 fps)

Pond CB17-02:

Hydrograph



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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 0.60" for 25-yr event
Inflow = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af
Outflow = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min
Primary = 0.22 cfs @ 12.31 hrs, Volume= 0.040 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.94' @ 12.31 hrs

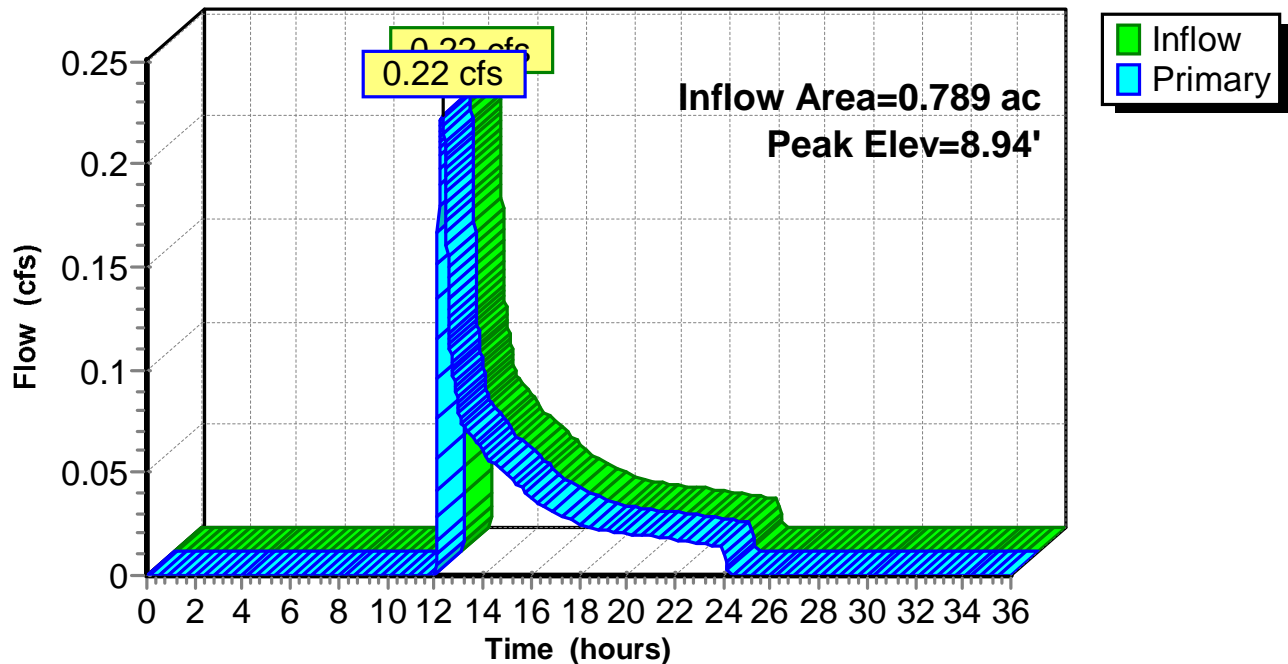
Device	Routing	Invert	Outlet Devices
#1	Primary	11.61'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.67'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 8.67' / 8.63' S= 0.0133 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.22 cfs @ 12.31 hrs HW=8.94' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.22 cfs @ 2.00 fps)

Pond CB17-03:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 1.36" for 25-yr event
Inflow = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af
Outflow = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.10 hrs, Volume= 0.048 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.46' @ 12.10 hrs

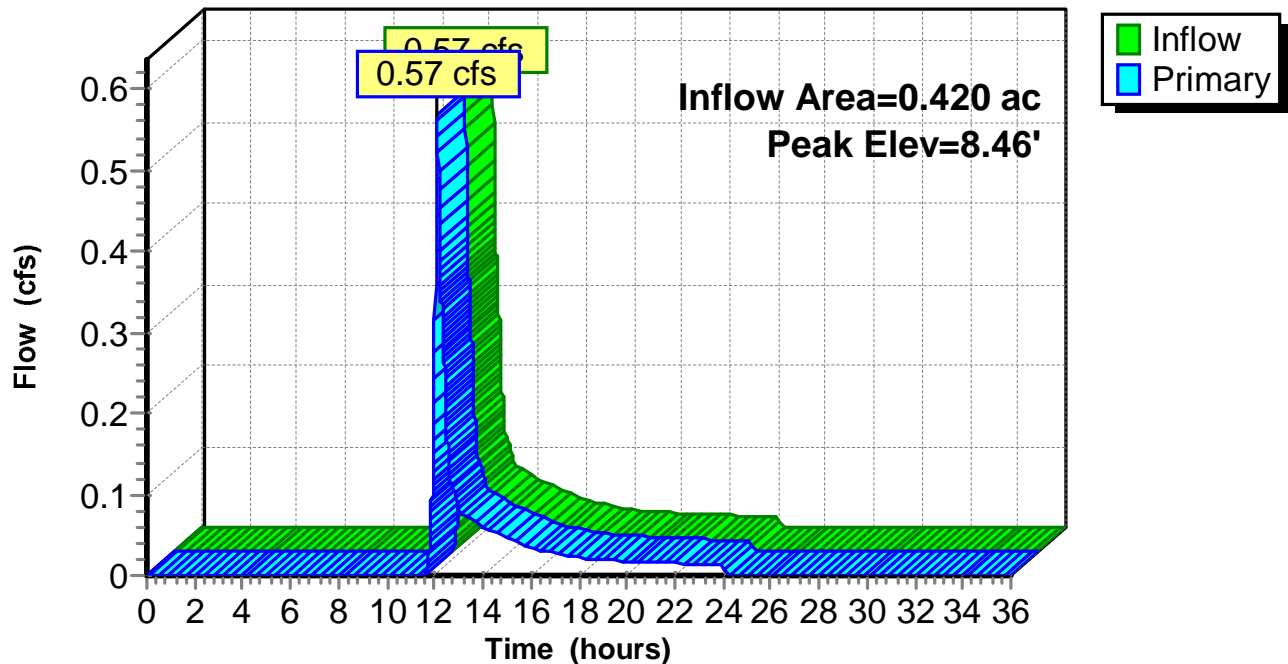
Device	Routing	Invert	Outlet Devices
#1	Primary	11.13'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.10 hrs HW=8.46' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.57 cfs @ 2.92 fps)

Pond CB17-04:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-05:

Inflow Area = 0.309 ac, 47.03% Impervious, Inflow Depth = 2.19" for 25-yr event
Inflow = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af
Outflow = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af, Atten= 0%, Lag= 0.0 min
Primary = 0.81 cfs @ 12.07 hrs, Volume= 0.056 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.60' @ 12.07 hrs

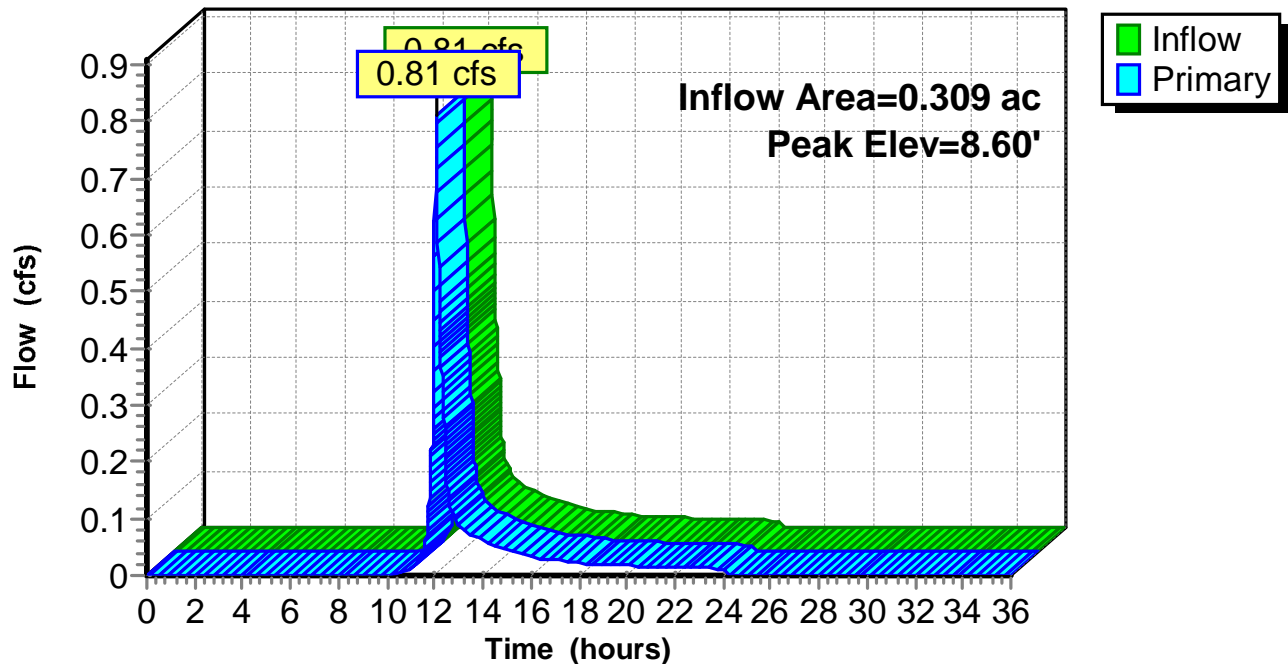
Device	Routing	Invert	Outlet Devices
#1	Primary	11.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0068 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.81 cfs @ 12.07 hrs HW=8.60' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.81 cfs @ 2.81 fps)

Pond CB17-05:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 2.54" for 25-yr event
Inflow = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af
Outflow = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min
Primary = 0.57 cfs @ 12.06 hrs, Volume= 0.038 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 7.06' @ 12.06 hrs

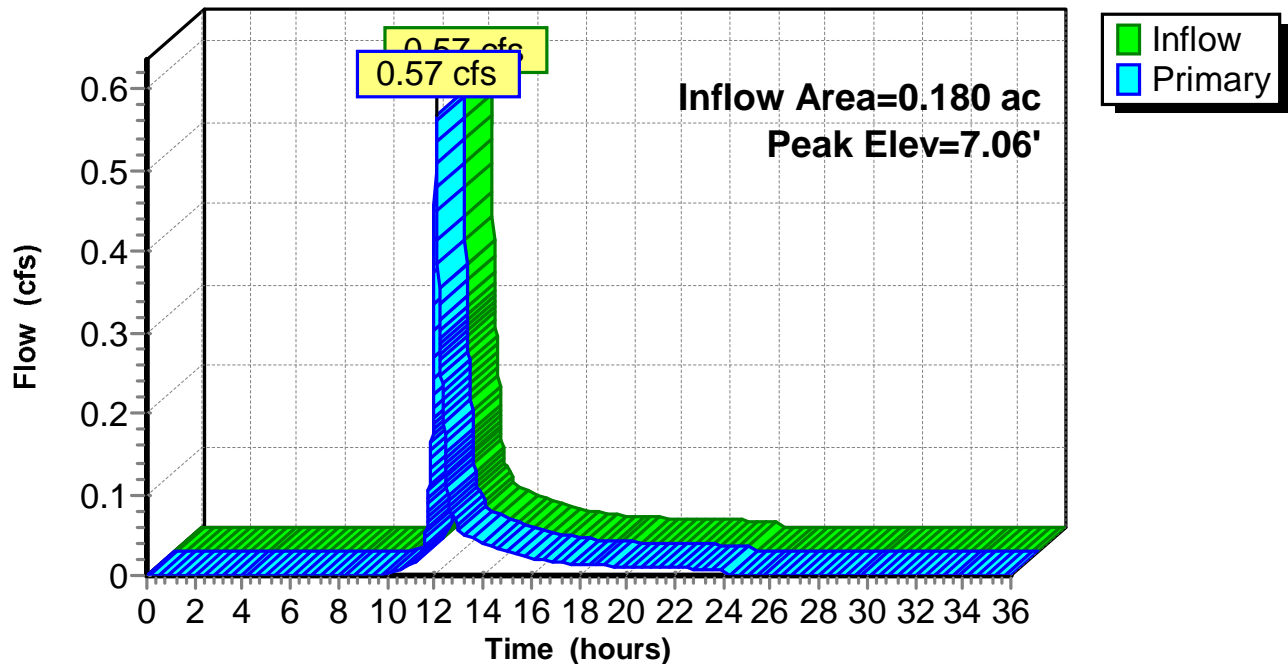
Device	Routing	Invert	Outlet Devices
#1	Primary	10.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.68'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.68' / 6.25' S= 0.0113 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.57 cfs @ 12.06 hrs HW=7.06' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.57 cfs @ 2.09 fps)

Pond CB17-06:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond CB17-07:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 1.08" for 25-yr event
 Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af
 Outflow = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
 Primary = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 7.26' @ 12.08 hrs

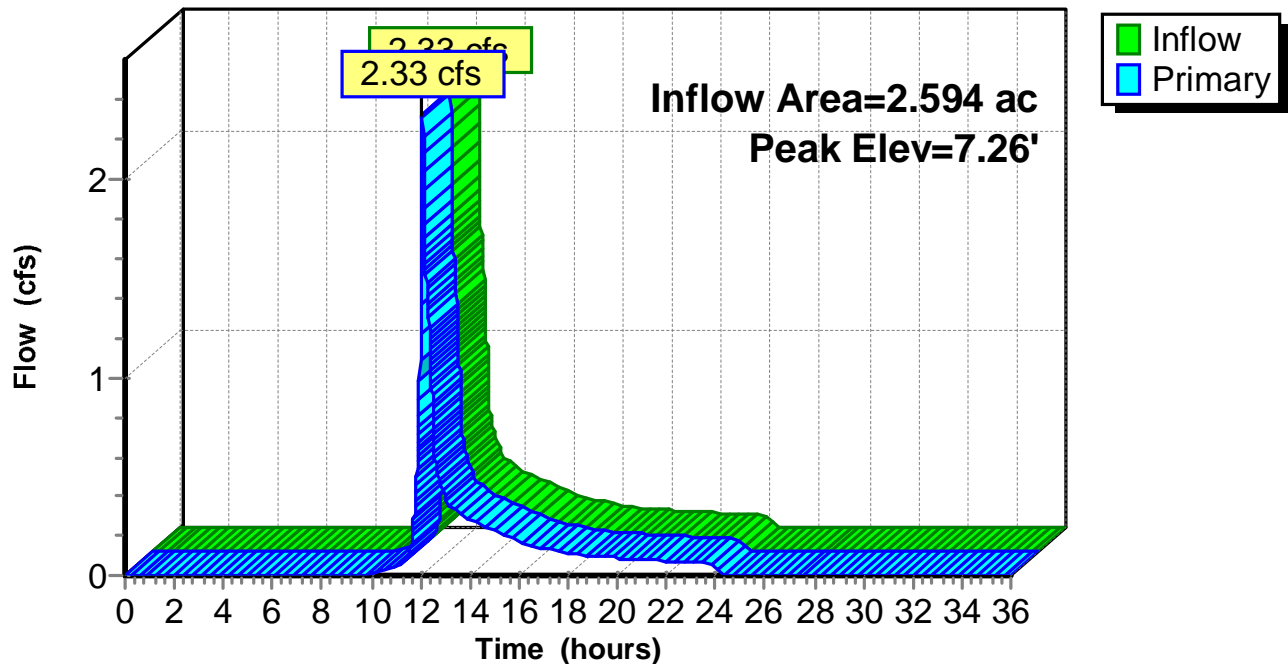
Device	Routing	Invert	Outlet Devices
#1	Primary	9.68'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.12'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 6.12' / 6.09' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.08 hrs HW=7.26' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 2.33 cfs @ 3.26 fps)

Pond CB17-07:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond HY-DYN:

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 1.44" for 25-yr event
Inflow = 0.52 cfs @ 12.10 hrs, Volume= 0.043 af
Outflow = 0.52 cfs @ 12.10 hrs, Volume= 0.043 af, Atten= 0%, Lag= 0.0 min
Primary = 0.52 cfs @ 12.10 hrs, Volume= 0.043 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.96' @ 12.10 hrs

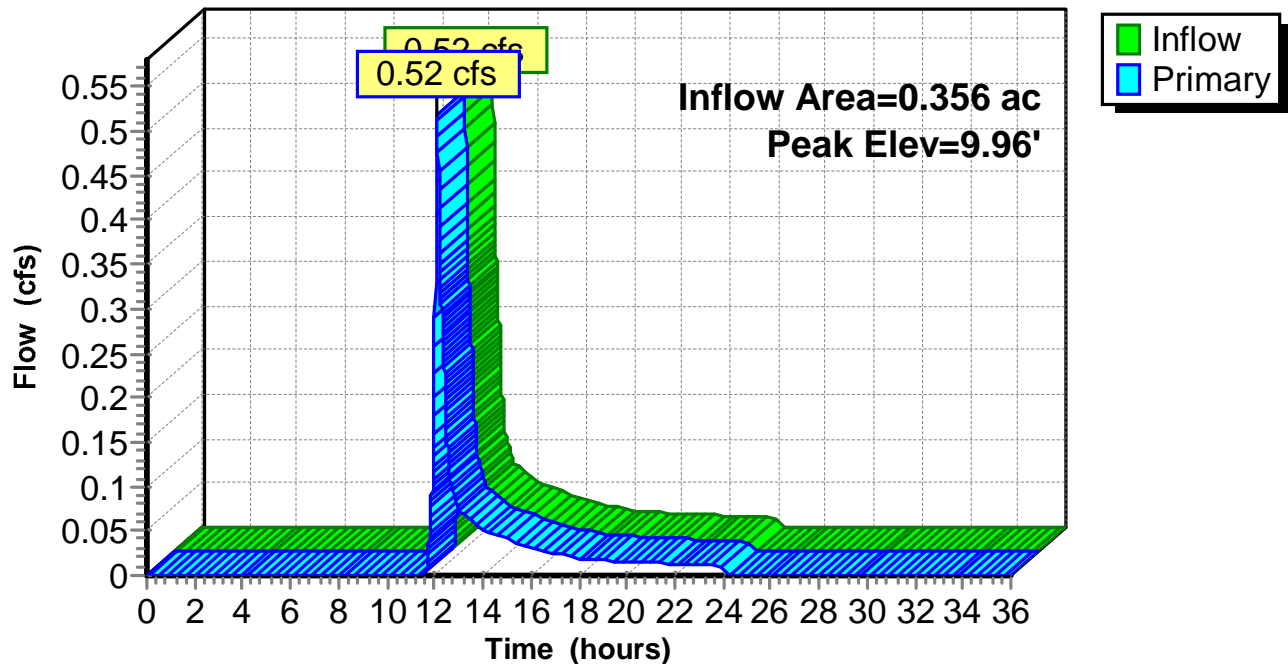
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.50'	8.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.40' S= 0.0200 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf

Primary OutFlow Max=0.52 cfs @ 12.10 hrs HW=9.96' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.52 cfs @ 2.84 fps)

Pond HY-DYN:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond INFIL: 100HD

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 1.44" for 25-yr event
 Inflow = 0.52 cfs @ 12.10 hrs, Volume= 0.043 af
 Outflow = 0.05 cfs @ 14.10 hrs, Volume= 0.043 af, Atten= 90%, Lag= 119.7 min
 Discarded = 0.05 cfs @ 14.10 hrs, Volume= 0.043 af
 Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 10.22' @ 14.10 hrs Surf.Area= 0.013 ac Storage= 0.016 af

Plug-Flow detention time= 162.6 min calculated for 0.043 af (100% of inflow)
 Center-of-Mass det. time= 162.5 min (1,044.3 - 881.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.70'	0.014 af	9.23'W x 59.50'L x 3.46'H Field A 0.044 af Overall - 0.009 af Embedded = 0.035 af x 40.0% Voids
#2A	8.70'	0.007 af	Lane HDPE 18" x 6 Inside #1 Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf Row Length Adjustment= +14.40' x 1.76 sf x 3 rows 7.73' Header x 1.76 sf x 2 = 27.2 cf Inside
		0.021 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	10.42'	8.0" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 10.42' / 9.90' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Discarded OutFlow Max=0.05 cfs @ 14.10 hrs HW=10.22' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=7.70' (Free Discharge)

↑**2=Culvert** (Controls 0.00 cfs)

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Type III 24-hr 25-yr Rainfall=6.14"

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Pond INFIL: 100HD - Chamber Wizard Field A

Chamber Model = Lane HDPE 18" (Lane HDPE Pipe)

Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf

Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf

Row Length Adjustment= +14.40' x 1.76 sf x 3 rows

21.6" Wide + 14.0" Spacing = 35.6" C-C Row Spacing

2 Chambers/Row x 20.00' Long +14.40' Row Adjustment +1.80' Header x 2 = 58.00' Row Length +9.0" End Stone x 2 = 59.50' Base Length

3 Rows x 21.6" Wide + 14.0" Spacing x 2 + 9.0" Side Stone x 2 = 9.23' Base Width

12.0" Base + 21.6" Chamber Height + 8.0" Cover = 3.46' Field Height

6 Chambers x 35.2 cf +14.40' Row Adjustment x 1.76 sf x 3 Rows + 7.73' Header x 1.76 sf x 2 = 314.3 cf Chamber Storage

6 Chambers x 42.8 cf +14.40' Row Adjustment x 2.14 sf x 3 Rows + 7.73' Header x 2.14 sf x 2 = 382.7 cf Displacement

1,902.5 cf Field - 382.7 cf Chambers = 1,519.7 cf Stone x 40.0% Voids = 607.9 cf Stone Storage

Chamber Storage + Stone Storage = 922.2 cf = 0.021 af

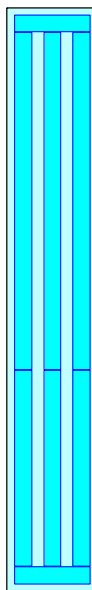
Overall Storage Efficiency = 48.5%

Overall System Size = 59.50' x 9.23' x 3.46'

6 Chambers

70.5 cy Field

56.3 cy Stone



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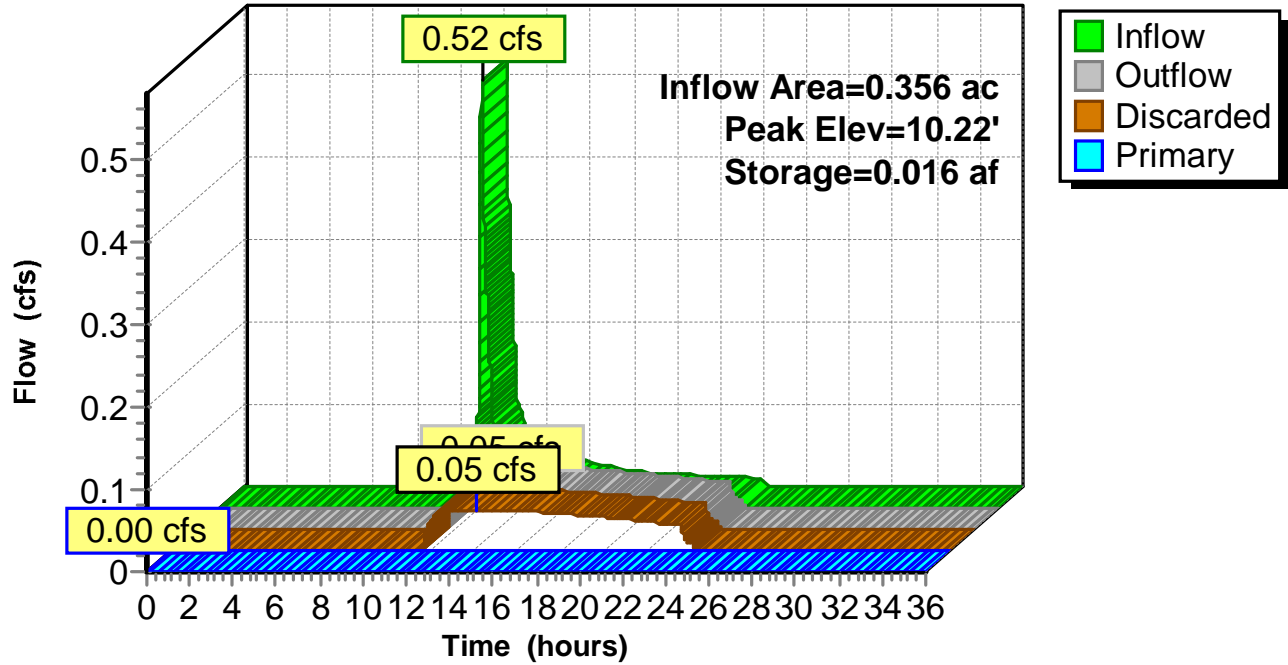
Type III 24-hr 25-yr Rainfall=6.14"

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Pond INFIL: 100HD

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond OWSMH 16:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.31" for 25-yr event
Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 5.81' @ 12.36 hrs

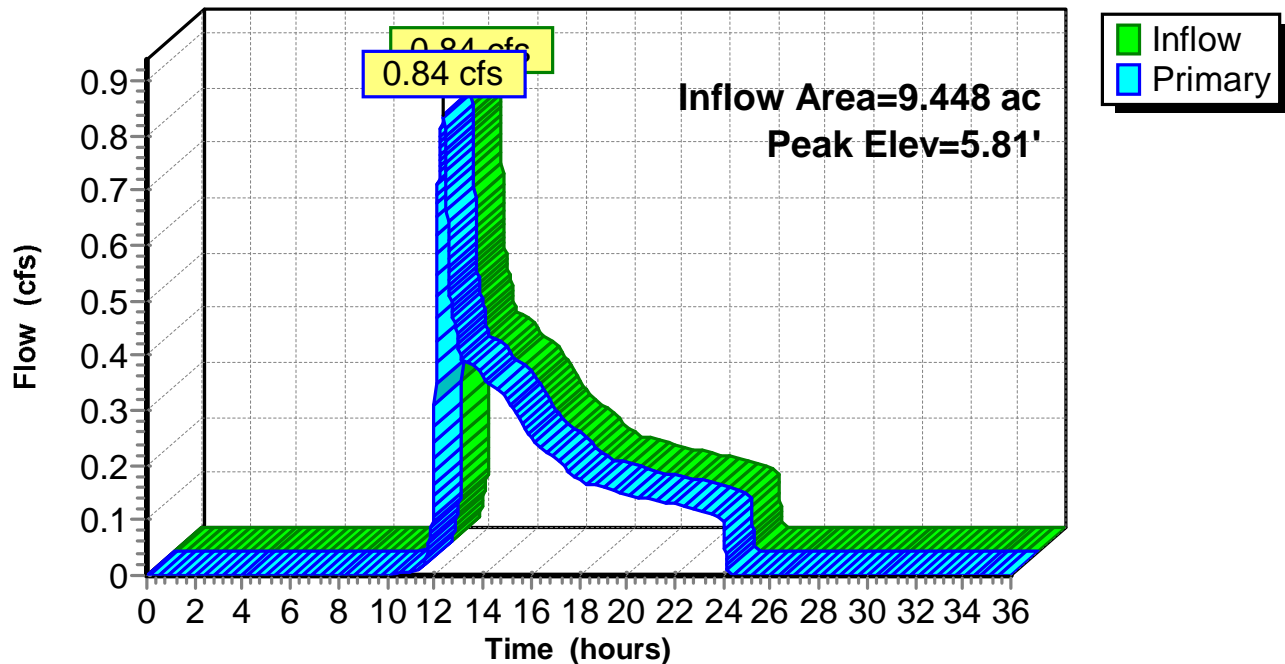
Device	Routing	Invert	Outlet Devices
#1	Primary	14.70'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	5.35'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 5.35' / 5.23' S= 0.0030 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.84 cfs @ 12.36 hrs HW=5.81' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.84 cfs @ 2.31 fps)

Pond OWSMH 16:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond OWSMH 17:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 1.08" for 25-yr event
Inflow = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af
Outflow = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af, Atten= 0%, Lag= 0.0 min
Primary = 2.33 cfs @ 12.08 hrs, Volume= 0.233 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.97' @ 12.08 hrs

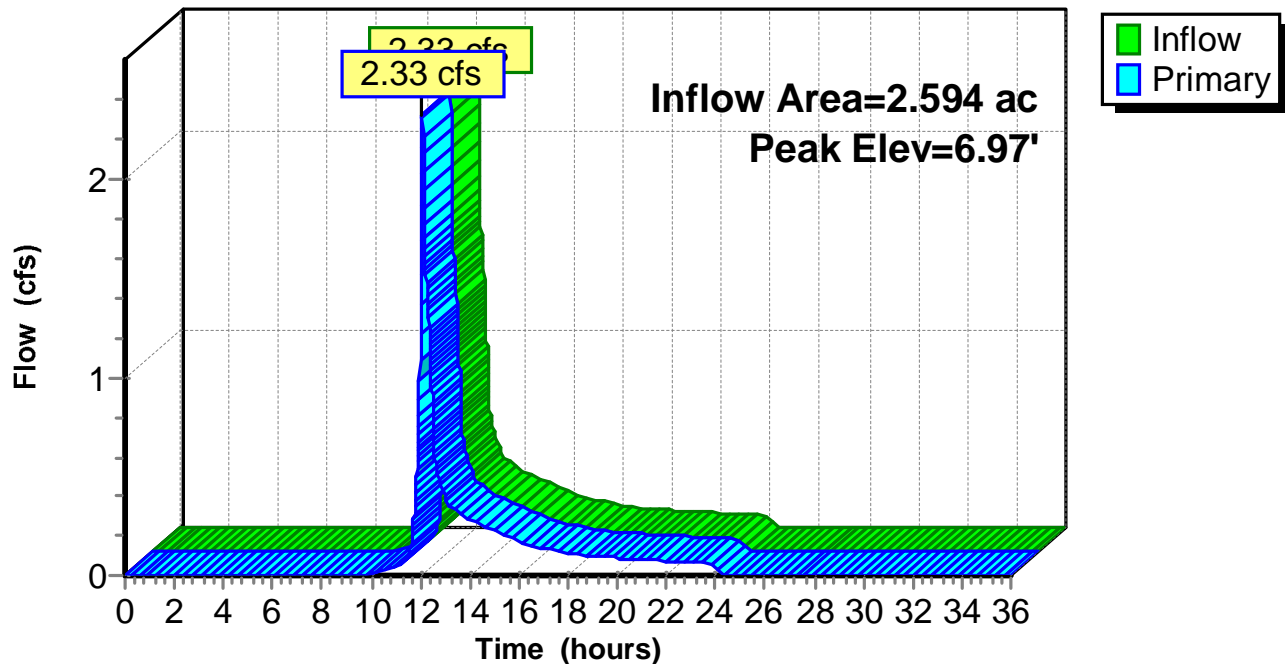
Device	Routing	Invert	Outlet Devices
#1	Primary	10.97'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	6.09'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.09' / 4.23' S= 0.0489 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=2.33 cfs @ 12.08 hrs HW=6.97' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 2.33 cfs @ 3.19 fps)

Pond OWSMH 17:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.31" for 25-yr event
Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.08' @ 12.36 hrs

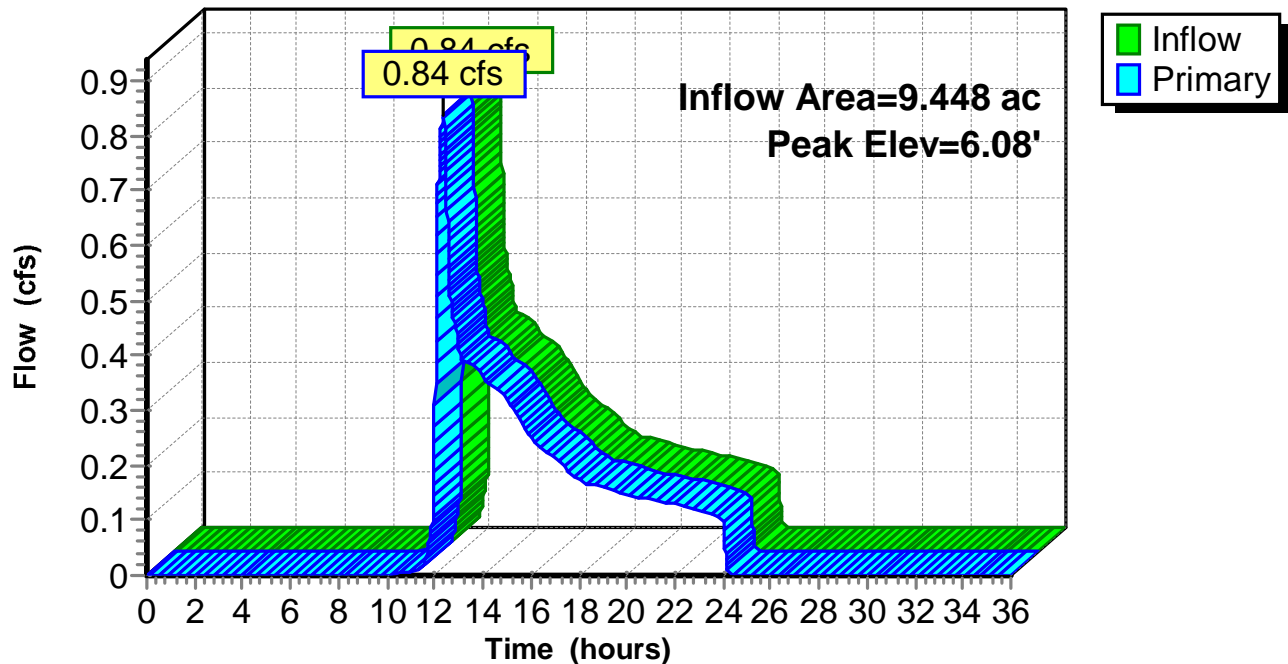
Device	Routing	Invert	Outlet Devices
#1	Primary	14.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	5.60'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 5.60' / 5.60' S= 0.0000 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.83 cfs @ 12.36 hrs HW=6.08' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.83 cfs @ 2.16 fps)

Pond SDMH16-02.1:

Hydrograph



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Summary for Pond SDMH16-02.2:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 0.31" for 25-yr event
Inflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af
Outflow = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.36 hrs, Volume= 0.242 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.48' @ 12.36 hrs

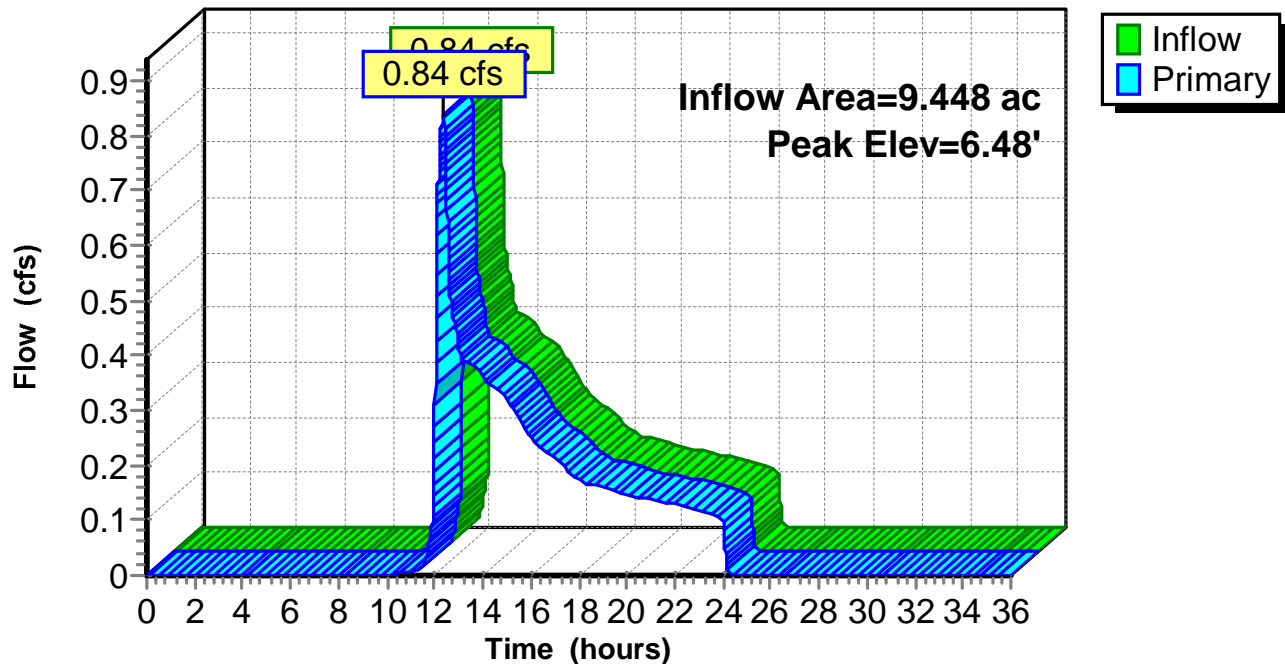
Device	Routing	Invert	Outlet Devices
#1	Primary	12.20'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.11'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 6.11' / 5.74' S= 0.0206 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=0.84 cfs @ 12.36 hrs HW=6.48' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.08 fps)

Pond SDMH16-02.2:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 0.60" for 25-yr event
Inflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af
Outflow = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af, Atten= 0%, Lag= 0.0 min
Primary = 0.25 cfs @ 12.29 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.31' @ 12.29 hrs

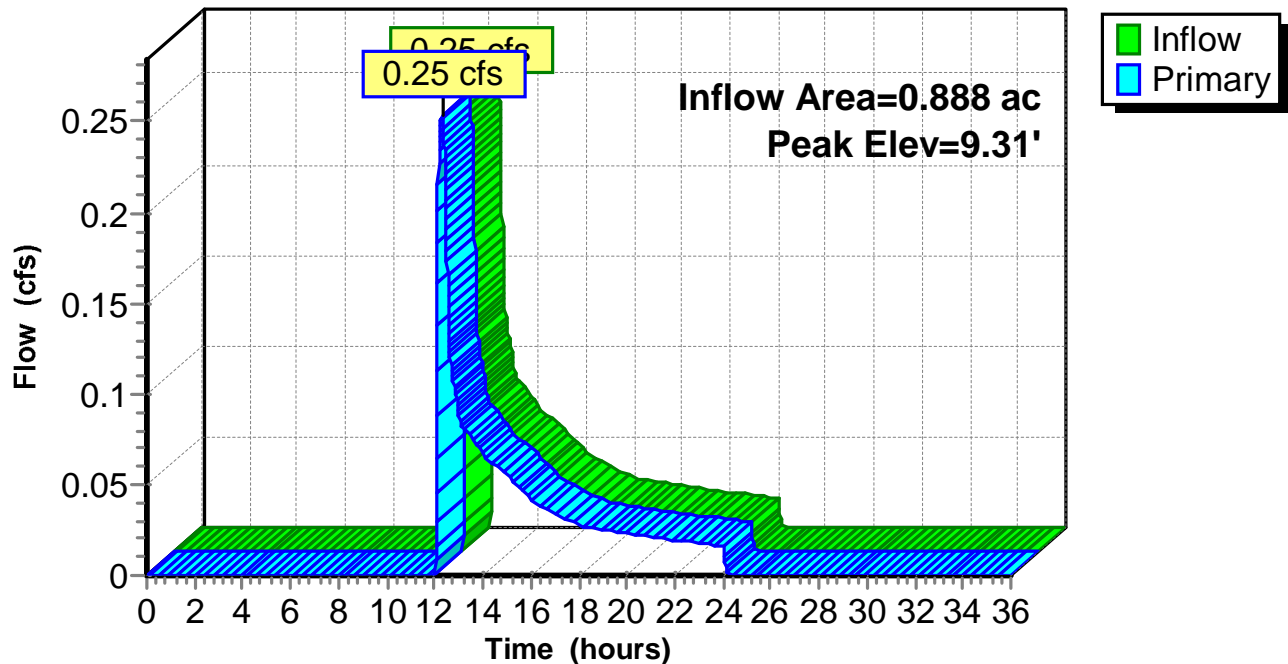
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.06'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 9.06' / 6.11' S= 0.0328 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.25 cfs @ 12.29 hrs HW=9.31' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.25 cfs @ 1.69 fps)

Pond SDMH16-03:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.18" for 25-yr event
Inflow = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af
Outflow = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af, Atten= 0%, Lag= 0.0 min
Primary = 0.12 cfs @ 13.81 hrs, Volume= 0.075 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 21.38' @ 13.81 hrs

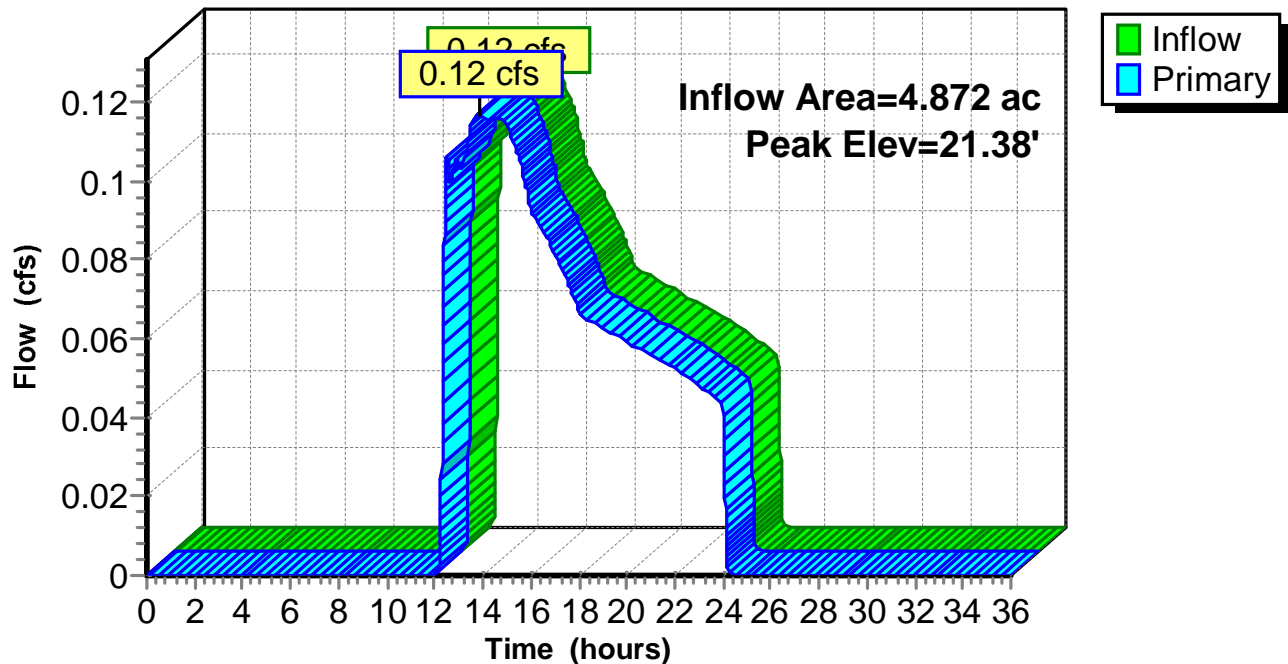
Device	Routing	Invert	Outlet Devices
#1	Primary	25.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	21.23'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 21.23' / 7.98' S= 0.0589 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.11 cfs @ 13.81 hrs HW=21.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.11 cfs @ 1.33 fps)

Pond SDMH16-05:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 0.51" for 25-yr event
Inflow = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af
Outflow = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min
Primary = 0.14 cfs @ 12.27 hrs, Volume= 0.026 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.29' @ 12.27 hrs

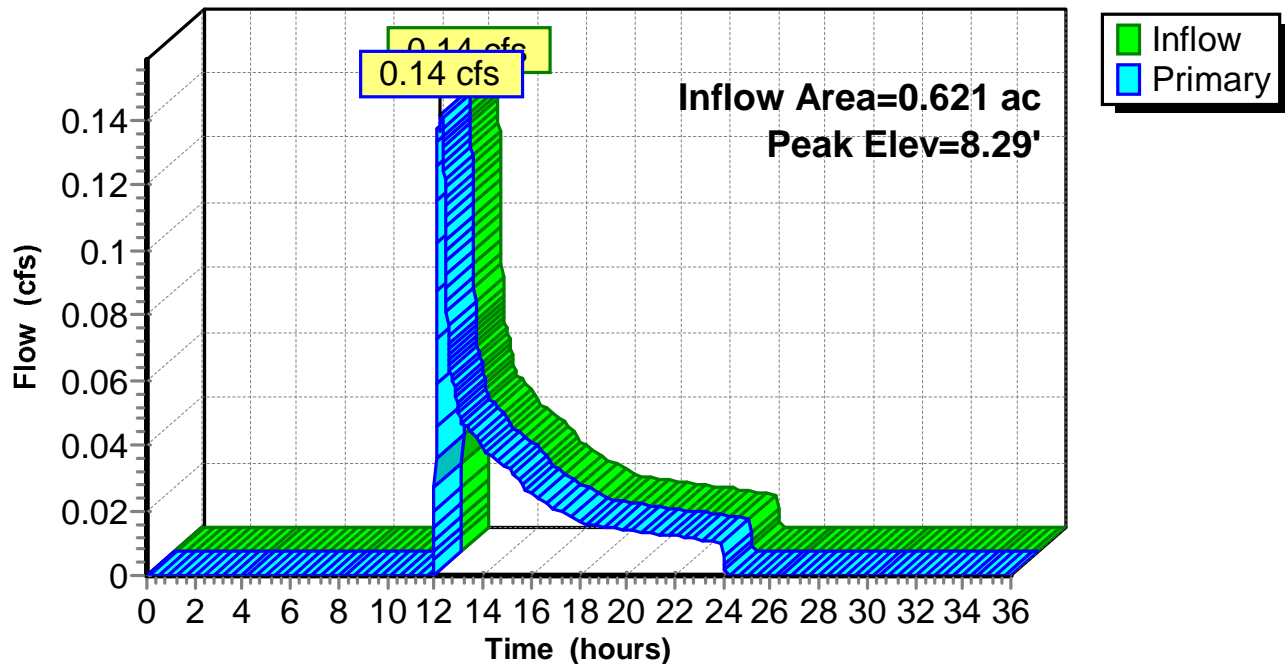
Device	Routing	Invert	Outlet Devices
#1	Primary	13.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.03'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 8.03' / 7.97' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.14 cfs @ 12.27 hrs HW=8.29' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.14 cfs @ 1.17 fps)

Pond SDMH16-06:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.27" for 25-yr event
 Inflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af
 Outflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 27.48' @ 12.47 hrs

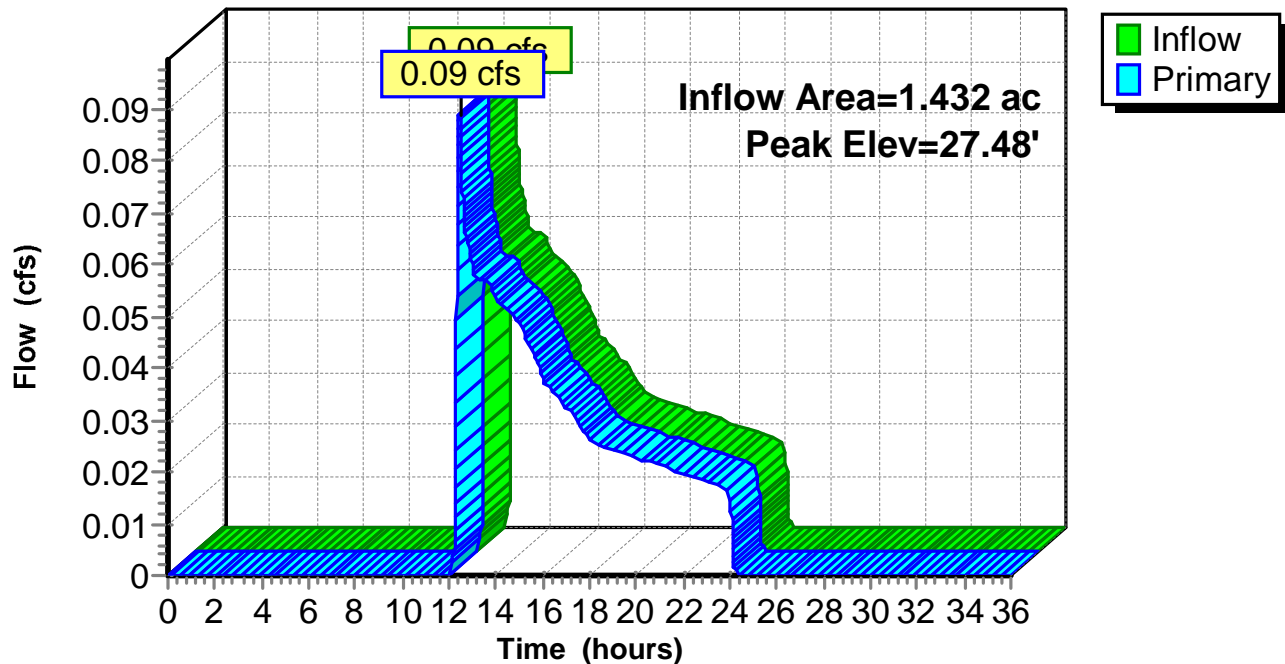
Device	Routing	Invert	Outlet Devices
#1	Primary	32.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	27.33'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 27.33' / 25.70' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.47 hrs HW=27.48' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.09 cfs @ 1.81 fps)

Pond SDMH16-12.1:

Hydrograph



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Type III 24-hr 25-yr Rainfall=6.14"

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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.23" for 25-yr event
Inflow = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af
Outflow = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.11 cfs @ 12.51 hrs, Volume= 0.055 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 23.41' @ 12.51 hrs

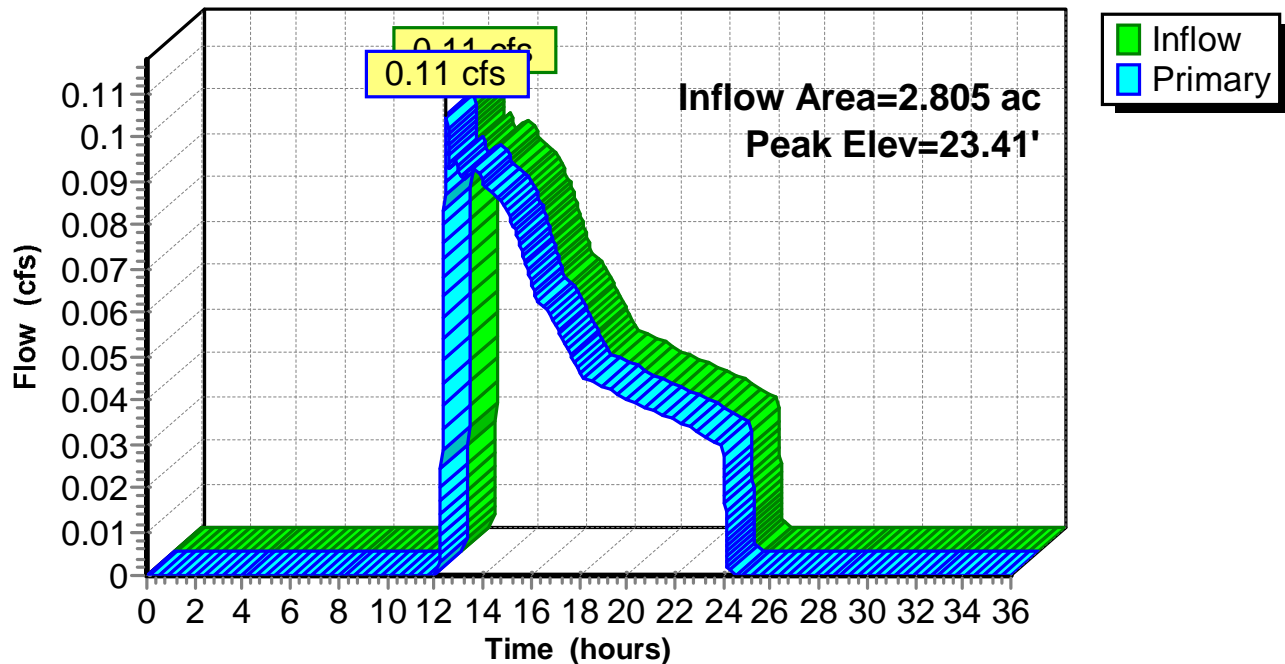
Device	Routing	Invert	Outlet Devices
#1	Primary	29.86'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	23.26'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 23.26' / 21.23' S= 0.0294 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.10 cfs @ 12.51 hrs HW=23.41' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.10 cfs @ 1.33 fps)

Pond SDMH16-12.2:

Hydrograph



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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 0.27" for 25-yr event
Inflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af
Outflow = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af, Atten= 0%, Lag= 0.0 min
Primary = 0.09 cfs @ 12.47 hrs, Volume= 0.033 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 30.11' @ 12.47 hrs

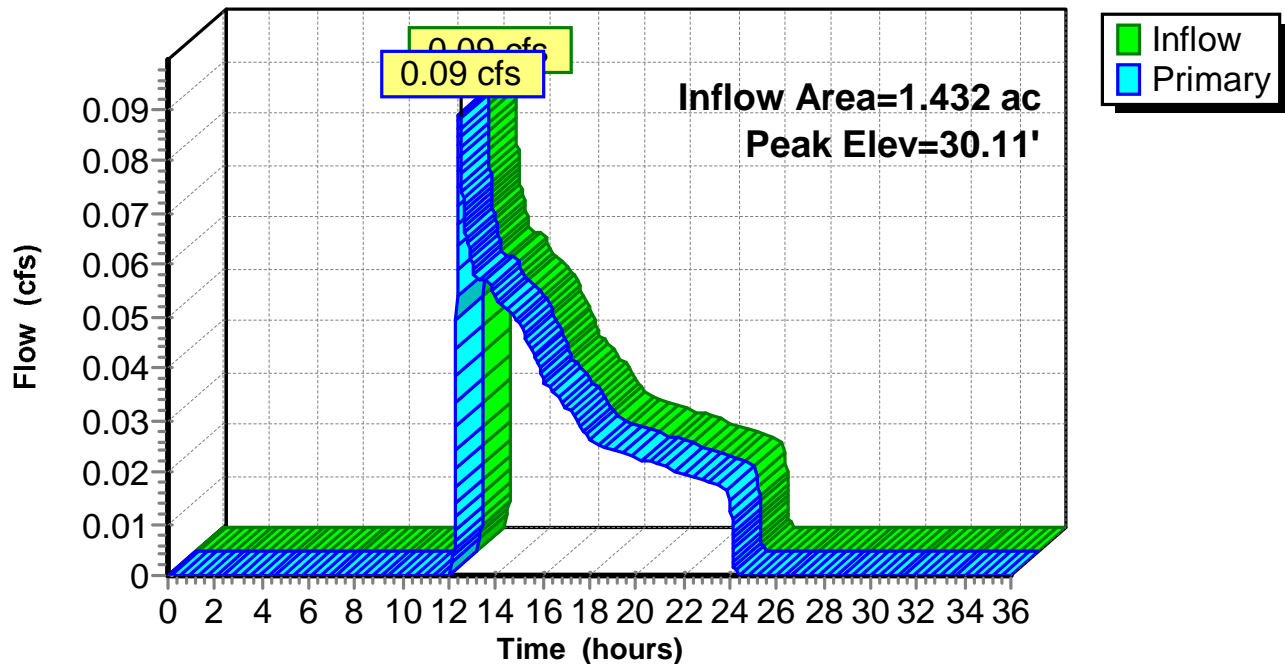
Device	Routing	Invert	Outlet Devices
#1	Primary	37.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	29.97'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 29.97' / 27.88' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.09 cfs @ 12.47 hrs HW=30.11' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.09 cfs @ 1.27 fps)

Pond SDMH16-13:

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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 0.49" for 25-yr event
Inflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af
Outflow = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min
Primary = 0.06 cfs @ 12.30 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.82' @ 12.30 hrs

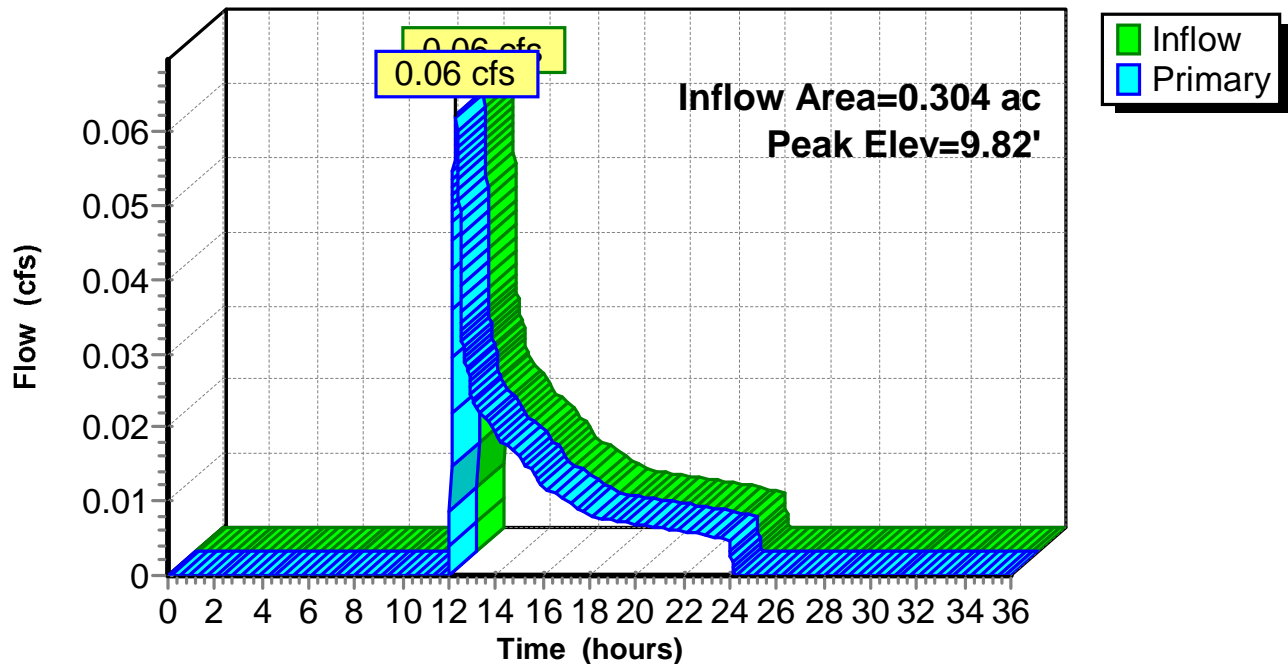
Device	Routing	Invert	Outlet Devices
#1	Primary	17.74'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.71'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 9.71' / 8.49' S= 0.0610 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.06 cfs @ 12.30 hrs HW=9.82' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.06 cfs @ 1.14 fps)

Pond SDMH16-15:

Hydrograph



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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.50" for 25-yr event
Inflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af
Outflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.94' @ 12.35 hrs

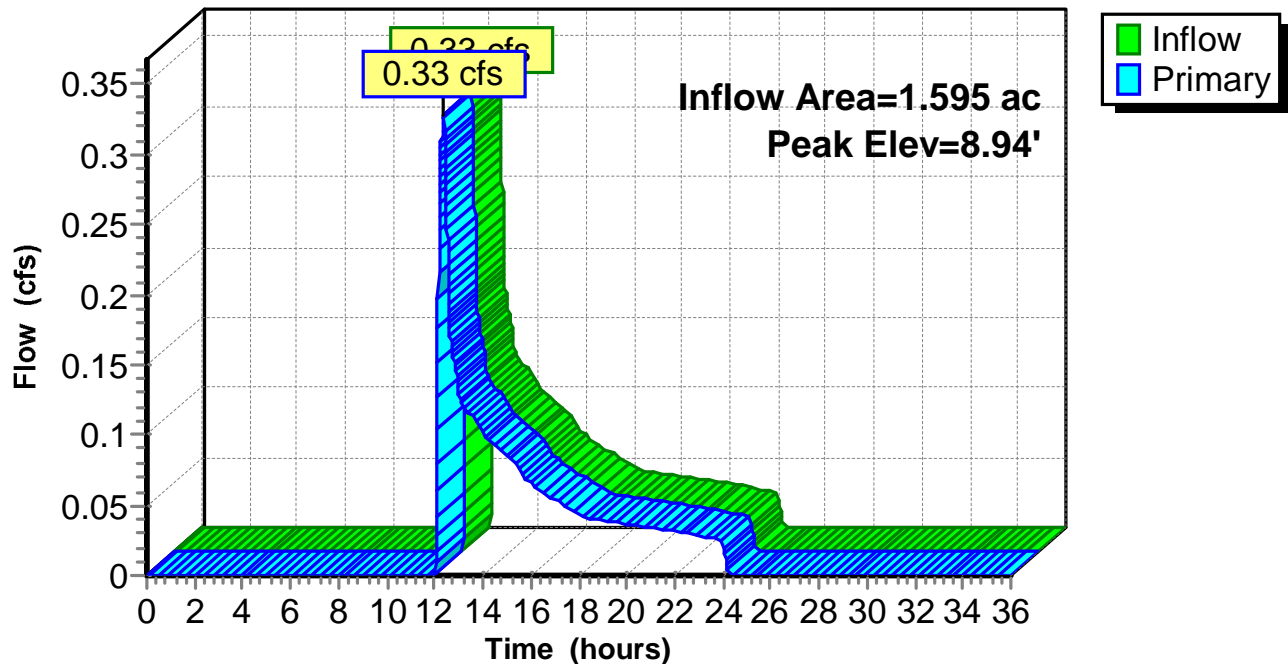
Device	Routing	Invert	Outlet Devices
#1	Primary	11.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.53'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 8.53' / 8.46' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.35 hrs HW=8.94' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.33 cfs @ 1.58 fps)

Pond SDMH17-03.1:

Hydrograph



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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 0.50" for 25-yr event
Inflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af
Outflow = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.33 cfs @ 12.35 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.47' @ 12.35 hrs

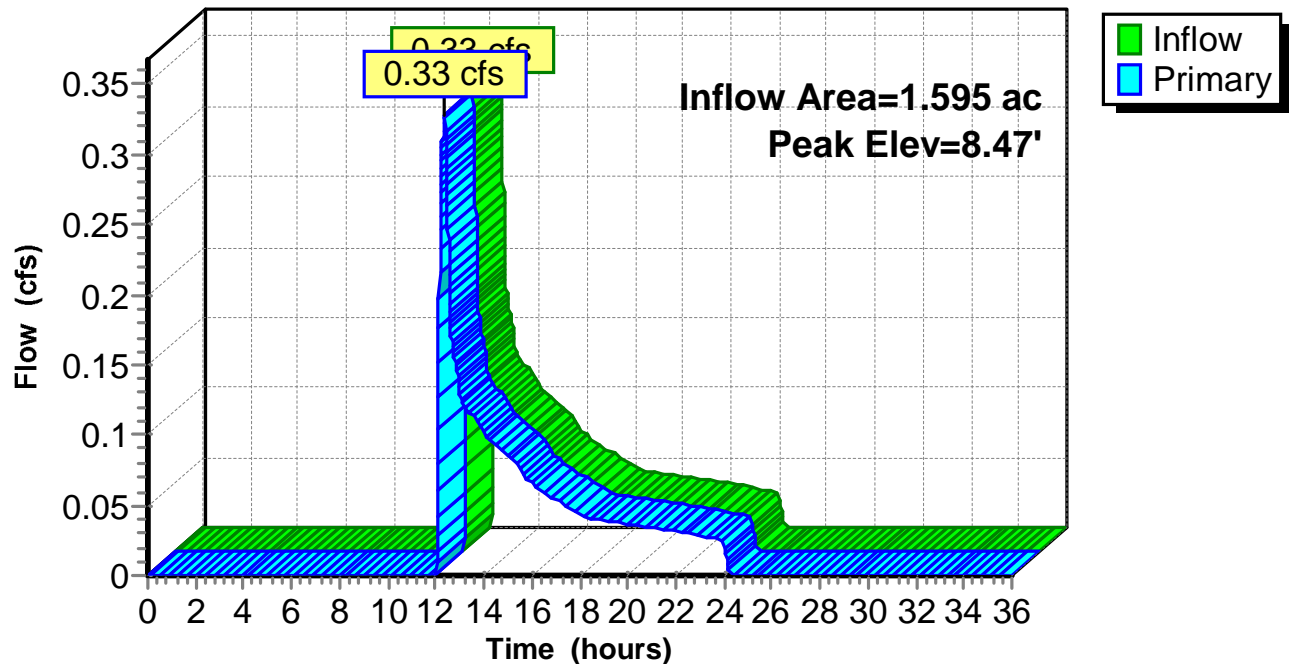
Device	Routing	Invert	Outlet Devices
#1	Primary	15.69'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.14'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 8.14' / 7.94' S= 0.0043 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.33 cfs @ 12.35 hrs HW=8.47' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.33 cfs @ 2.13 fps)

Pond SDMH17-03.2:

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Summary for Pond SDMH17-04:

Inflow Area = 2.324 ac, 21.50% Impervious, Inflow Depth = 0.88" for 25-yr event
Inflow = 1.43 cfs @ 12.10 hrs, Volume= 0.170 af
Outflow = 1.43 cfs @ 12.10 hrs, Volume= 0.170 af, Atten= 0%, Lag= 0.0 min
Primary = 1.43 cfs @ 12.10 hrs, Volume= 0.170 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.58' @ 12.10 hrs

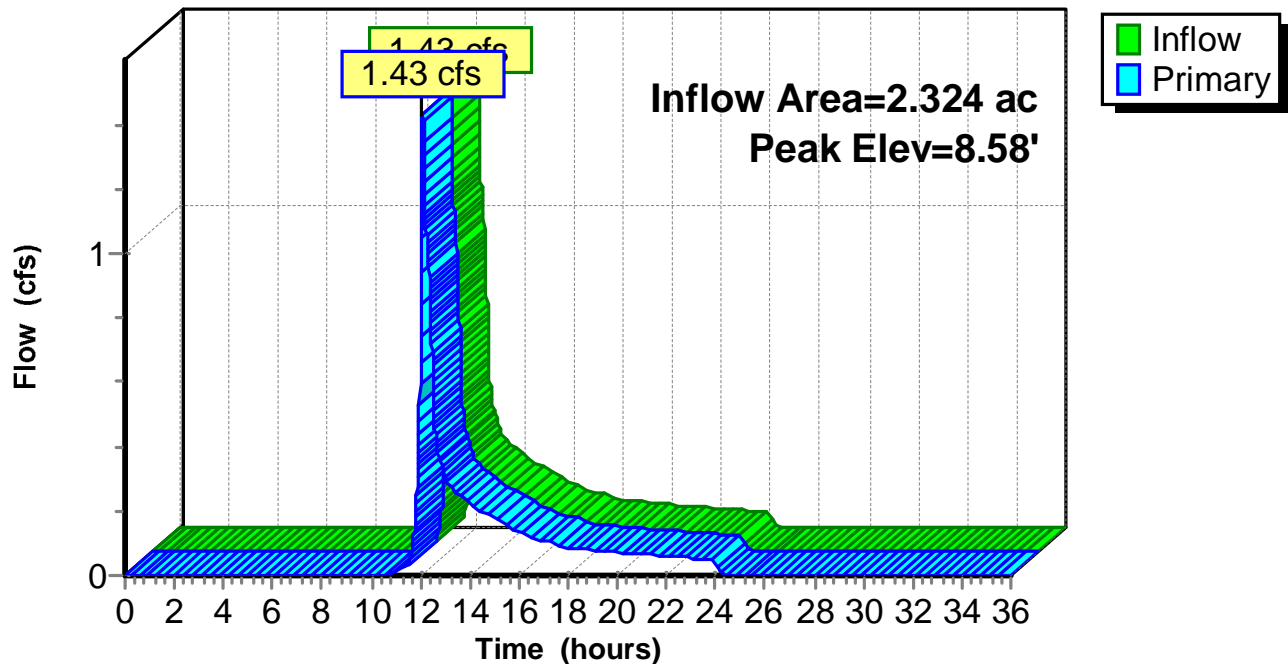
Device	Routing	Invert	Outlet Devices
#1	Primary	11.01'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	7.94'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 7.94' / 6.25' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.43 cfs @ 12.10 hrs HW=8.57' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.43 cfs @ 2.71 fps)

Pond SDMH17-04:

Hydrograph



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Summary for Pond SDMH17-07:

Inflow Area = 2.504 ac, 23.75% Impervious, Inflow Depth = 1.00" for 25-yr event
Inflow = 1.97 cfs @ 12.08 hrs, Volume= 0.208 af
Outflow = 1.97 cfs @ 12.08 hrs, Volume= 0.208 af, Atten= 0%, Lag= 0.0 min
Primary = 1.97 cfs @ 12.08 hrs, Volume= 0.208 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 7.14' @ 12.08 hrs

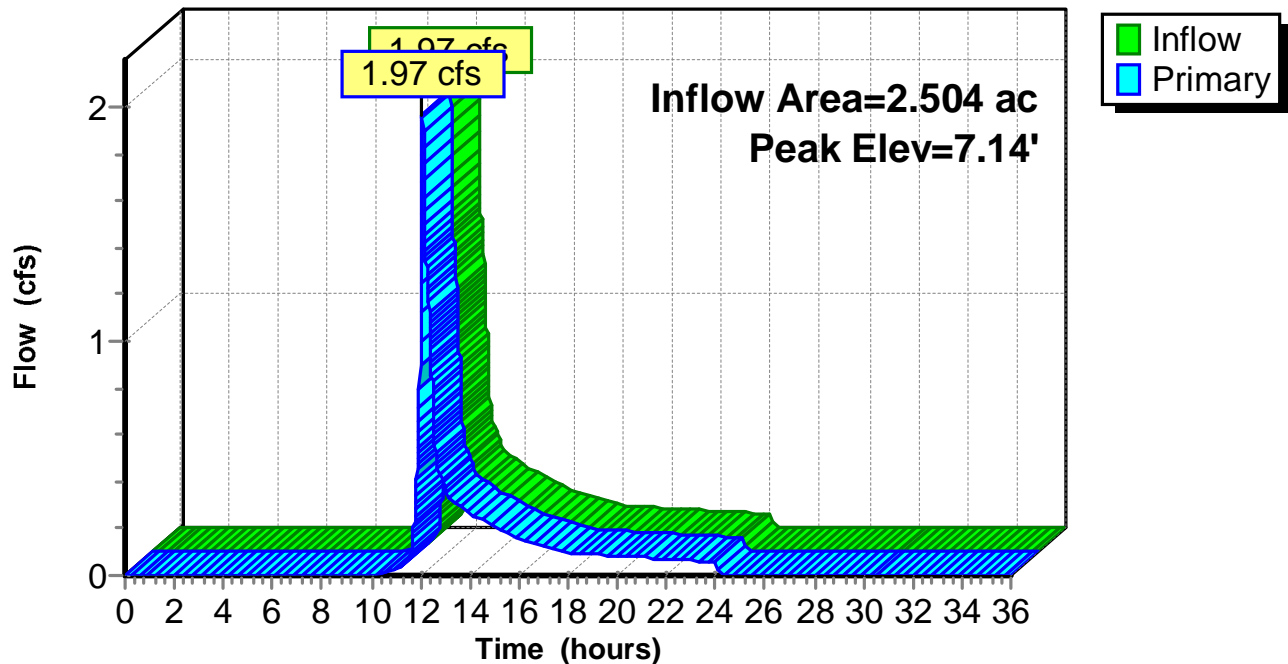
Device	Routing	Invert	Outlet Devices
#1	Primary	9.96'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.23'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 6.23' / 6.17' S= 0.0150 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.96 cfs @ 12.08 hrs HW=7.14' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.96 cfs @ 3.42 fps)

Pond SDMH17-07:

Hydrograph



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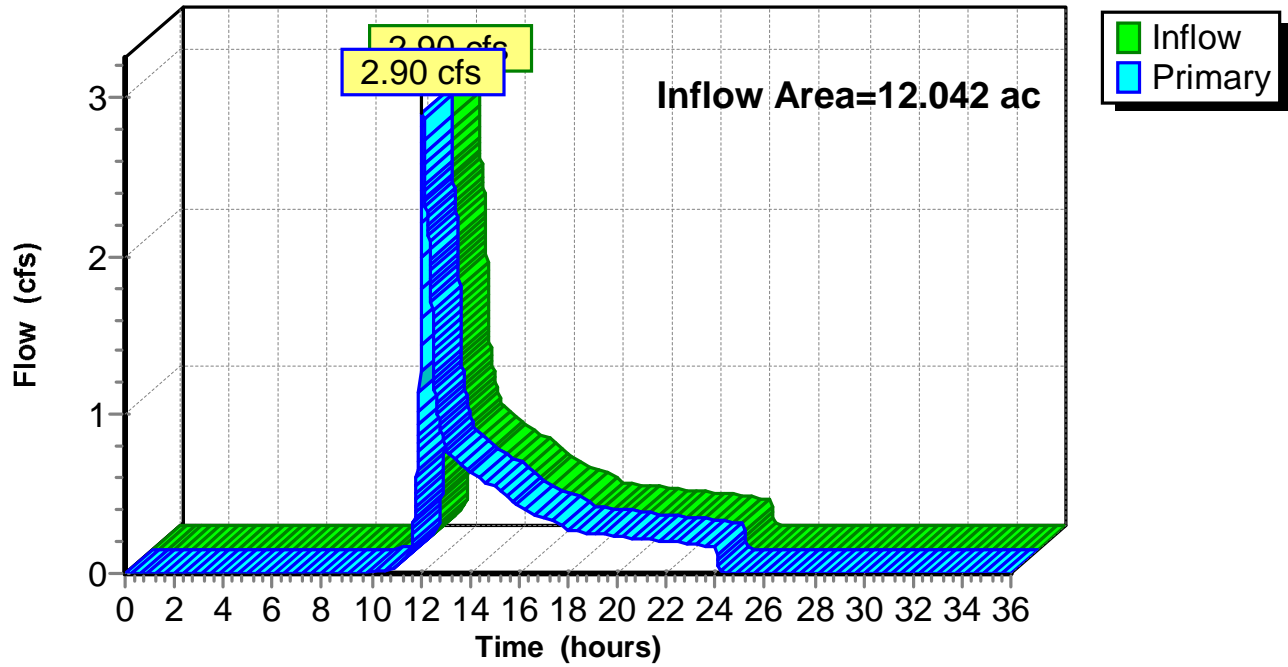
Summary for Link OUT:

Inflow Area = 12.042 ac, 12.19% Impervious, Inflow Depth = 0.47" for 25-yr event
Inflow = 2.90 cfs @ 12.09 hrs, Volume= 0.475 af
Primary = 2.90 cfs @ 12.09 hrs, Volume= 0.475 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:

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Time span=0.00-36.00 hrs, dt=0.01 hrs, 3601 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 16-01S:	Runoff Area=38,699 sf 16.09% Impervious Runoff Depth=1.67" Flow Length=444' Tc=7.5 min CN=41 Runoff=1.30 cfs 0.123 af
Subcatchment 16-02S:	Runoff Area=4,526 sf 50.77% Impervious Runoff Depth=4.45" Flow Length=131' Tc=3.4 min CN=65 Runoff=0.60 cfs 0.039 af
Subcatchment 16-03S:	Runoff Area=45,832 sf 5.46% Impervious Runoff Depth=0.95" Flow Length=503' Tc=9.8 min CN=34 Runoff=0.50 cfs 0.083 af
Subcatchment 16-04S:	Runoff Area=18,903 sf 0.00% Impervious Runoff Depth=0.59" Flow Length=293' Tc=7.8 min CN=30 Runoff=0.09 cfs 0.021 af
Subcatchment 16-05S:	Runoff Area=24,248 sf 12.06% Impervious Runoff Depth=1.35" Flow Length=397' Tc=9.1 min CN=38 Runoff=0.54 cfs 0.063 af
Subcatchment 16-06S:	Runoff Area=3,474 sf 0.00% Impervious Runoff Depth=0.59" Flow Length=76' Tc=3.8 min CN=30 Runoff=0.02 cfs 0.004 af
Subcatchment 16-07S:	Runoff Area=6,390 sf 15.93% Impervious Runoff Depth=1.67" Flow Length=207' Tc=5.3 min CN=41 Runoff=0.23 cfs 0.020 af
Subcatchment 16-08S:	Runoff Area=3,948 sf 21.12% Impervious Runoff Depth=2.00" Flow Length=160' Tc=3.8 min CN=44 Runoff=0.20 cfs 0.015 af
Subcatchment 16-09S:	Runoff Area=13,254 sf 13.38% Impervious Runoff Depth=1.45" Flow Length=250' Tc=4.2 min CN=39 Runoff=0.40 cfs 0.037 af
Subcatchment 16-10S:	Runoff Area=53,426 sf 0.44% Impervious Runoff Depth=0.59" Flow Length=254' Tc=5.3 min CN=30 Runoff=0.27 cfs 0.060 af
Subcatchment 16-11S:	Runoff Area=36,603 sf 3.45% Impervious Runoff Depth=0.76" Flow Length=352' Tc=5.2 min CN=32 Runoff=0.29 cfs 0.054 af
Subcatchment 16-12S:	Runoff Area=59,816 sf 4.36% Impervious Runoff Depth=0.86" Flow Length=570' Tc=9.0 min CN=33 Runoff=0.55 cfs 0.098 af
Subcatchment 16-13S:	Runoff Area=36,176 sf 6.45% Impervious Runoff Depth=0.95" Flow Length=412' Tc=4.8 min CN=34 Runoff=0.46 cfs 0.066 af
Subcatchment 16-14S:	Runoff Area=26,206 sf 8.15% Impervious Runoff Depth=1.15" Flow Length=399' Tc=9.5 min CN=36 Runoff=0.42 cfs 0.057 af
Subcatchment 16-15S:	Runoff Area=24,544 sf 17.31% Impervious Runoff Depth=1.78" Flow Length=423' Tc=9.7 min CN=42 Runoff=0.83 cfs 0.083 af
Subcatchment 16-16S:	Runoff Area=15,520 sf 33.23% Impervious Runoff Depth=3.02" Flow Length=133' Tc=6.1 min CN=53 Runoff=1.21 cfs 0.090 af

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Subcatchment 17-01S:	Runoff Area=25,614 sf 12.28% Impervious Runoff Depth=1.35" Flow Length=420' Tc=7.1 min CN=38 Runoff=0.61 cfs 0.066 af
Subcatchment 17-02S:	Runoff Area=9,469 sf 7.08% Impervious Runoff Depth=1.05" Flow Length=210' Tc=6.6 min CN=35 Runoff=0.14 cfs 0.019 af
Subcatchment 17-03S:	Runoff Area=34,382 sf 16.74% Impervious Runoff Depth=1.67" Flow Length=502' Tc=8.5 min CN=41 Runoff=1.11 cfs 0.110 af
Subcatchment 17-04S:	Runoff Area=18,302 sf 32.04% Impervious Runoff Depth=2.91" Flow Length=333' Tc=6.0 min CN=52 Runoff=1.37 cfs 0.102 af
Subcatchment 17-05S:	Runoff Area=13,455 sf 47.03% Impervious Runoff Depth=4.09" Flow Length=246' Tc=4.3 min CN=62 Runoff=1.57 cfs 0.105 af
Subcatchment 17-06S:	Runoff Area=7,853 sf 52.71% Impervious Runoff Depth=4.57" Flow Length=134' Tc=4.0 min CN=66 Runoff=1.04 cfs 0.069 af
Subcatchment 17-07S:	Runoff Area=3,926 sf 64.06% Impervious Runoff Depth=5.54" Flow Length=183' Tc=4.4 min CN=74 Runoff=0.62 cfs 0.042 af
Pond CB16-01:	Peak Elev=9.83' Inflow=1.30 cfs 0.123 af Outflow=1.30 cfs 0.123 af
Pond CB16-02:	Peak Elev=9.21' Inflow=0.60 cfs 0.039 af Outflow=0.60 cfs 0.039 af
Pond CB16-03:	Peak Elev=9.17' Inflow=0.50 cfs 0.083 af Outflow=0.50 cfs 0.083 af
Pond CB16-04:	Peak Elev=8.62' Inflow=1.96 cfs 0.356 af Outflow=1.96 cfs 0.356 af
Pond CB16-05:	Peak Elev=8.78' Inflow=2.57 cfs 0.254 af Outflow=2.57 cfs 0.254 af
Pond CB16-06:	Peak Elev=8.78' Inflow=0.02 cfs 0.004 af Outflow=0.02 cfs 0.004 af
Pond CB16-07:	Peak Elev=14.23' Inflow=0.23 cfs 0.020 af Outflow=0.23 cfs 0.020 af
Pond CB16-08:	Peak Elev=13.87' Inflow=0.42 cfs 0.035 af Outflow=0.42 cfs 0.035 af
Pond CB16-09:	Peak Elev=18.38' Inflow=0.40 cfs 0.037 af Outflow=0.40 cfs 0.037 af
Pond CB16-10:	Peak Elev=23.15' Inflow=0.27 cfs 0.060 af Outflow=0.27 cfs 0.060 af

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Pond CB16-11:	Peak Elev=22.89' Inflow=0.55 cfs 0.114 af Outflow=0.55 cfs 0.114 af
Pond CB16-12:	Peak Elev=24.28' Inflow=0.55 cfs 0.098 af Outflow=0.55 cfs 0.098 af
Pond CB16-13:	Peak Elev=28.46' Inflow=0.46 cfs 0.066 af Outflow=0.46 cfs 0.066 af
Pond CB16-14:	Peak Elev=37.91' Inflow=0.42 cfs 0.057 af Outflow=0.42 cfs 0.057 af
Pond CB16-15:	Peak Elev=10.05' Inflow=1.47 cfs 0.116 af Outflow=1.47 cfs 0.116 af
Pond CB17-01:	Peak Elev=9.51' Inflow=0.61 cfs 0.066 af Outflow=0.61 cfs 0.066 af
Pond CB17-02:	Peak Elev=9.39' Inflow=0.75 cfs 0.085 af Outflow=0.75 cfs 0.085 af
Pond CB17-03:	Peak Elev=9.33' Inflow=1.11 cfs 0.110 af Outflow=1.11 cfs 0.110 af
Pond CB17-04:	Peak Elev=8.74' Inflow=1.37 cfs 0.102 af Outflow=1.37 cfs 0.102 af
Pond CB17-05:	Peak Elev=8.85' Inflow=1.57 cfs 0.105 af Outflow=1.57 cfs 0.105 af
Pond CB17-06:	Peak Elev=7.21' Inflow=1.04 cfs 0.069 af Outflow=1.04 cfs 0.069 af
Pond CB17-07:	Peak Elev=9.12' Inflow=5.98 cfs 0.512 af Outflow=5.98 cfs 0.512 af
Pond HY-DYN:	Peak Elev=10.38' Inflow=1.21 cfs 0.090 af Outflow=1.21 cfs 0.090 af
Pond INFIL: 100HD	Peak Elev=11.00' Storage=0.020 af Inflow=1.21 cfs 0.090 af Discarded=0.06 cfs 0.058 af Primary=0.69 cfs 0.032 af Outflow=0.75 cfs 0.090 af
Pond OWSMH 16:	Peak Elev=6.70' Inflow=6.27 cfs 0.856 af Outflow=6.27 cfs 0.856 af
Pond OWSMH 17:	Peak Elev=9.09' Inflow=5.98 cfs 0.512 af Outflow=5.98 cfs 0.512 af
Pond SDMH16-02.1:	Peak Elev=6.99' Inflow=6.27 cfs 0.856 af Outflow=6.27 cfs 0.856 af

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Pond SDMH16-02.2:	Peak Elev=7.24' Inflow=6.27 cfs 0.856 af Outflow=6.27 cfs 0.856 af
Pond SDMH16-03:	Peak Elev=9.66' Inflow=1.30 cfs 0.123 af Outflow=1.30 cfs 0.123 af
Pond SDMH16-05:	Peak Elev=21.90' Inflow=1.87 cfs 0.335 af Outflow=1.87 cfs 0.335 af
Pond SDMH16-06:	Peak Elev=8.63' Inflow=0.83 cfs 0.076 af Outflow=0.83 cfs 0.076 af
Pond SDMH16-12.1:	Peak Elev=27.80' Inflow=0.84 cfs 0.123 af Outflow=0.84 cfs 0.123 af
Pond SDMH16-12.2:	Peak Elev=23.87' Inflow=1.34 cfs 0.221 af Outflow=1.34 cfs 0.221 af
Pond SDMH16-13:	Peak Elev=30.44' Inflow=0.84 cfs 0.123 af Outflow=0.84 cfs 0.123 af
Pond SDMH16-15:	Peak Elev=10.02' Inflow=0.40 cfs 0.037 af Outflow=0.40 cfs 0.037 af
Pond SDMH17-03.1:	Peak Elev=9.61' Inflow=1.86 cfs 0.195 af Outflow=1.86 cfs 0.195 af
Pond SDMH17-03.2:	Peak Elev=9.04' Inflow=1.86 cfs 0.195 af Outflow=1.86 cfs 0.195 af
Pond SDMH17-04:	Peak Elev=9.84' Inflow=4.47 cfs 0.402 af Outflow=4.47 cfs 0.402 af
Pond SDMH17-07:	Peak Elev=8.77' Inflow=5.40 cfs 0.471 af Outflow=5.40 cfs 0.471 af
Link OUT:	Inflow=11.15 cfs 1.368 af Primary=11.15 cfs 1.368 af

Total Runoff Area = 12.042 ac Runoff Volume = 1.426 af Average Runoff Depth = 1.42"
87.81% Pervious = 10.574 ac 12.19% Impervious = 1.469 ac

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 16-01S:

Runoff = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Depth= 1.67"

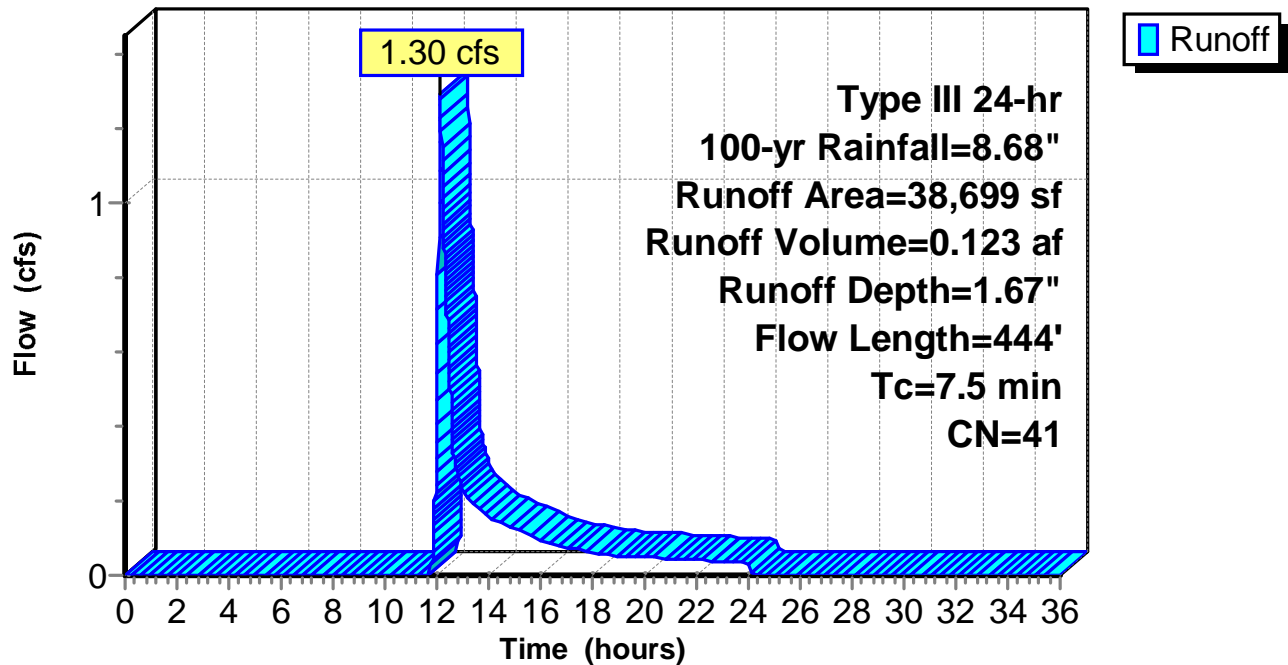
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
6,225	98	Impervious
32,474	30	Brush, Good, HSG A
38,699	41	Weighted Average
32,474		83.91% Pervious Area
6,225		16.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.8	280	0.0570	1.67		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.0	114	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
7.5	444	Total			

Subcatchment 16-01S:

Hydrograph



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Summary for Subcatchment 16-02S:

Runoff = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af, Depth= 4.45"

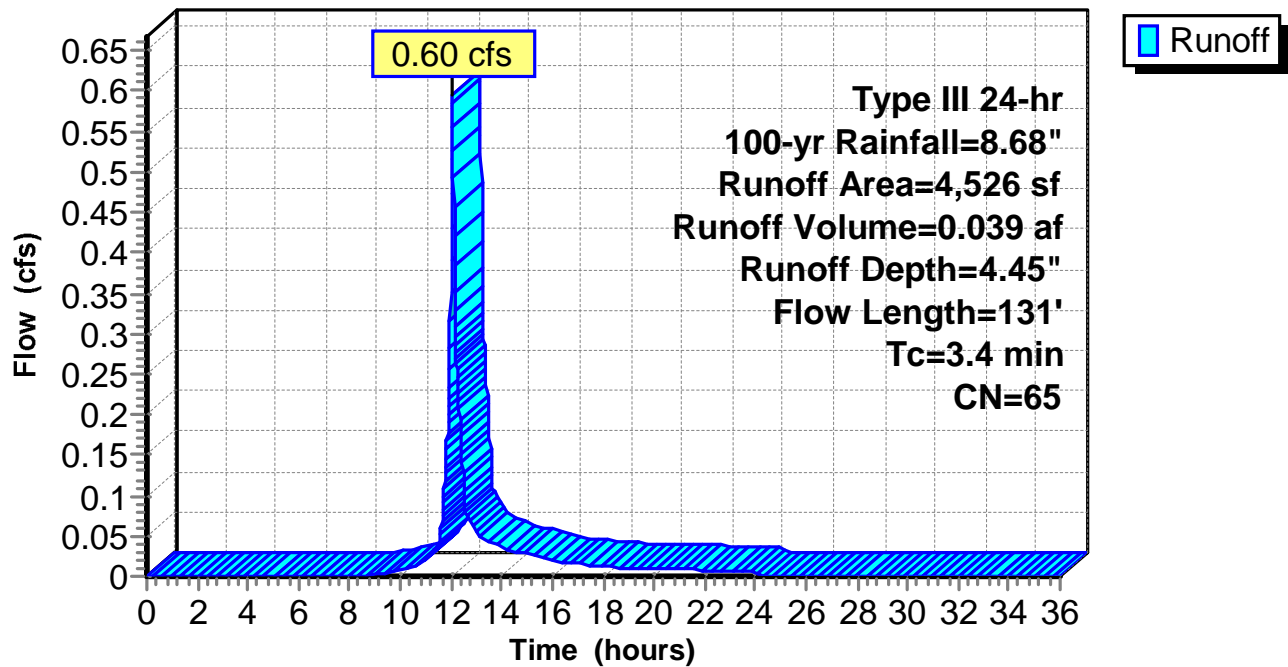
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,298	98	Impervious
2,228	30	Brush, Good, HSG A
4,526	65	Weighted Average
2,228		49.23% Pervious Area
2,298		50.77% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.5	25	0.0920	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.9	106	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.4	131	Total			

Subcatchment 16-02S:

Hydrograph



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Summary for Subcatchment 16-03S:

Runoff = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af, Depth= 0.95"

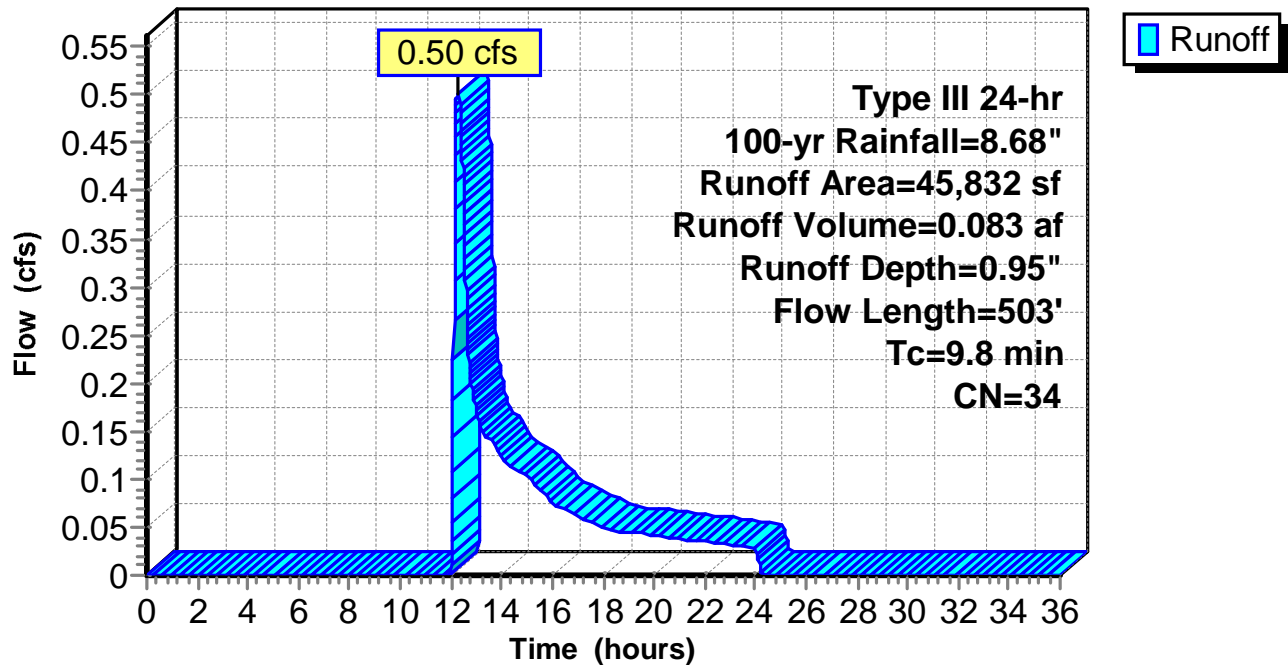
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,501	98	Impervious
43,331	30	Brush, Good, HSG A
45,832	34	Weighted Average
43,331		94.54% Pervious Area
2,501		5.46% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.7	347	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	106	0.0090	1.93		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.8	503	Total			

Subcatchment 16-03S:

Hydrograph



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Summary for Subcatchment 16-04S:

Runoff = 0.09 cfs @ 12.39 hrs, Volume= 0.021 af, Depth= 0.59"

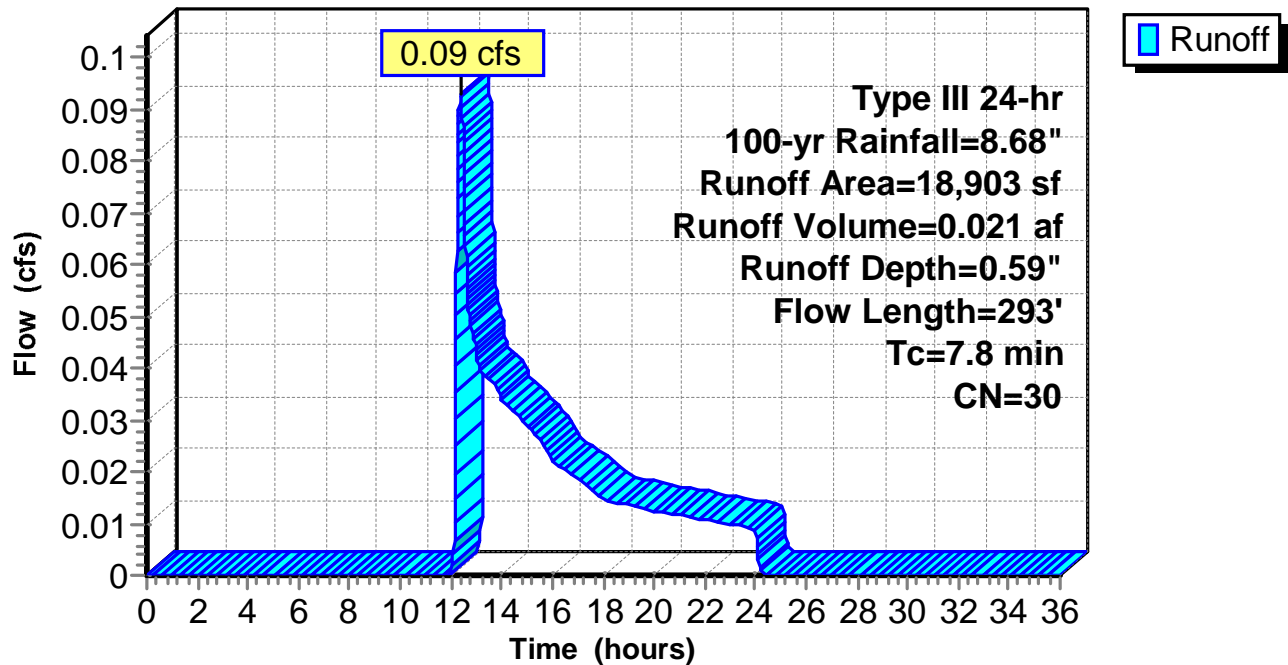
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
*	0	98 Impervious
18,903	30	Brush, Good, HSG A
18,903	30	Weighted Average
18,903		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
2.6	243	0.0510	1.58		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.8	293	Total			

Subcatchment 16-04S:

Hydrograph



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Summary for Subcatchment 16-05S:

Runoff = 0.54 cfs @ 12.16 hrs, Volume= 0.063 af, Depth= 1.35"

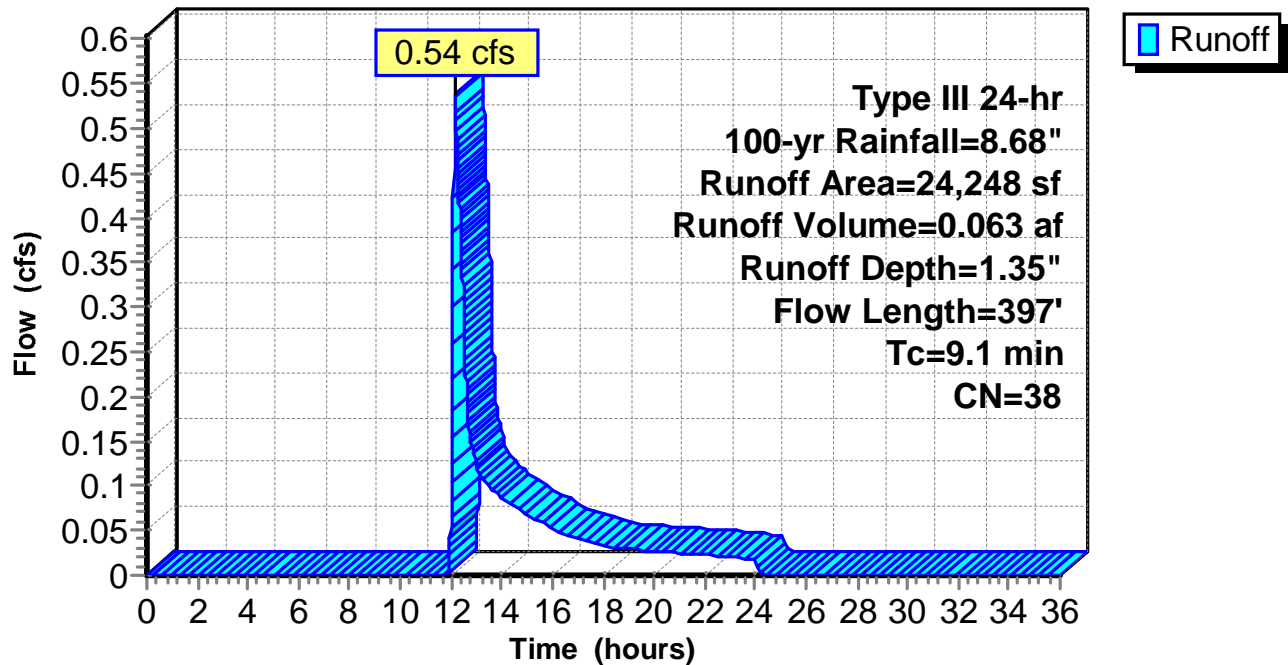
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 2,924	98	Impervious
21,324	30	Brush, Good, HSG A
24,248	38	Weighted Average
21,324		87.94% Pervious Area
2,924		12.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.5	312	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.4	35	0.0060	1.57		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.1	397	Total			

Subcatchment 16-05S:

Hydrograph



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Summary for Subcatchment 16-06S:

Runoff = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af, Depth= 0.59"

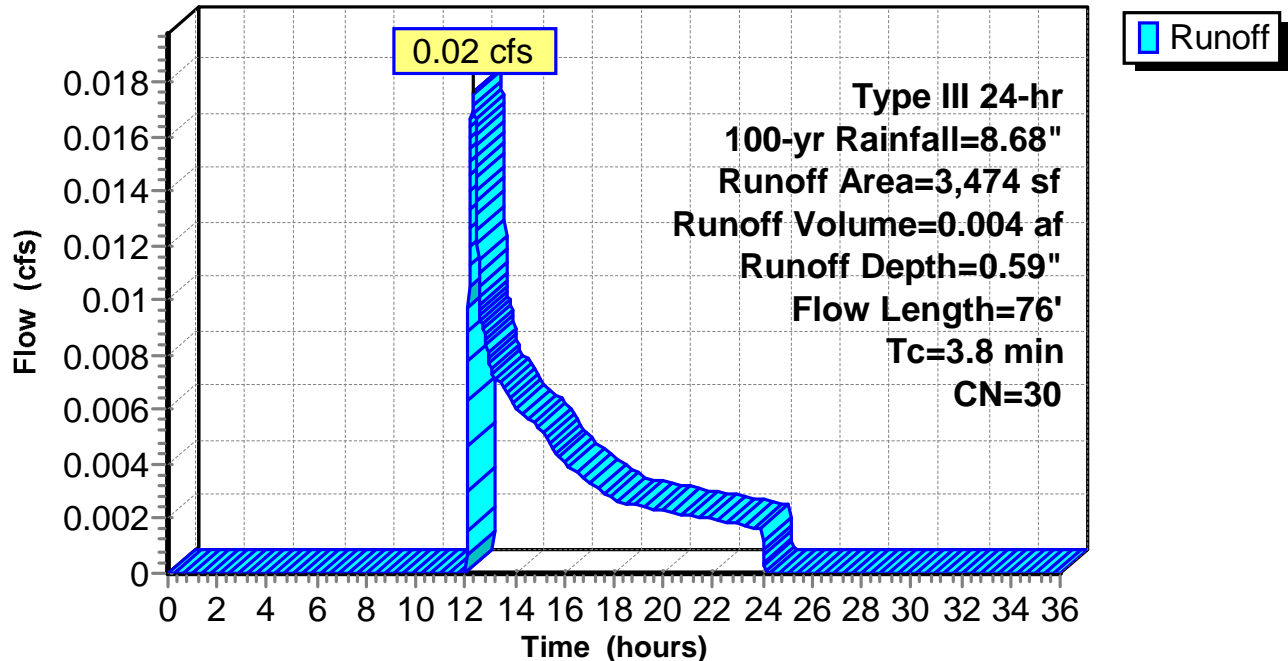
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
*	0	Impervious
3,474	30	Brush, Good, HSG A
3,474	30	Weighted Average
3,474		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.3	26	0.0580	1.69		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
3.8	76	Total			

Subcatchment 16-06S:

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Summary for Subcatchment 16-07S:

Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af, Depth= 1.67"

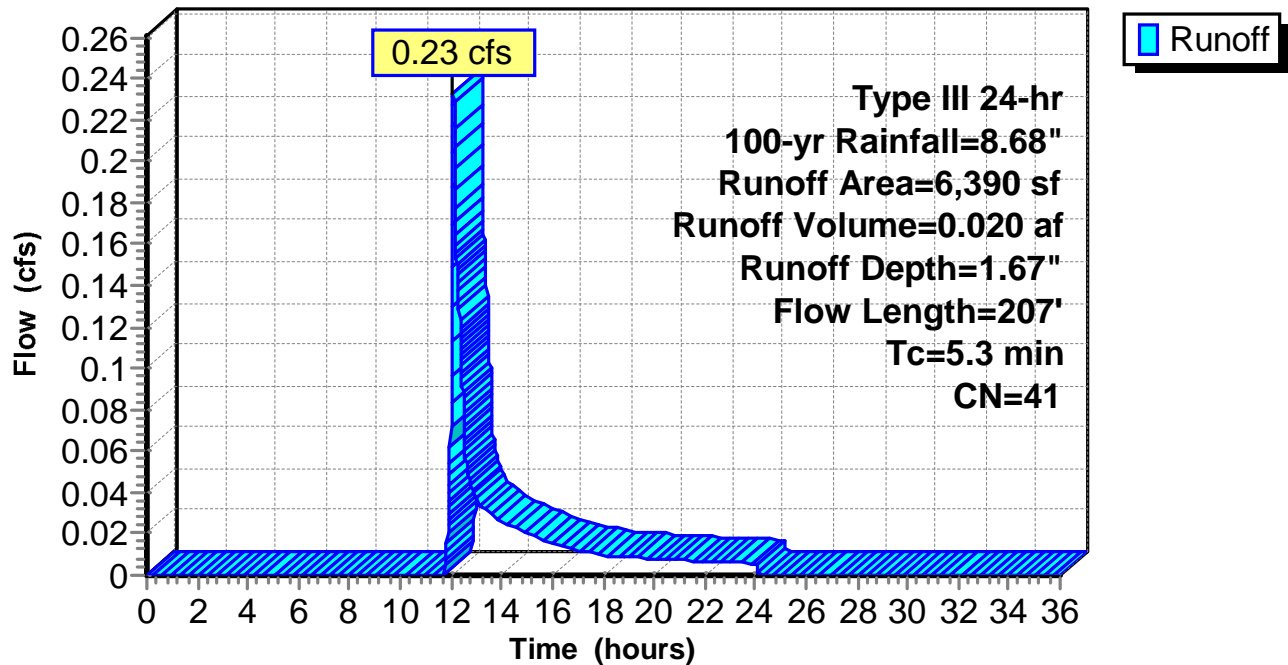
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 1,018	98	Impervious
5,372	30	Brush, Good, HSG A
6,390	41	Weighted Average
5,372		84.07% Pervious Area
1,018		15.93% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	112	0.2460	3.47		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	45	0.0390	4.01		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.3	207	Total			

Subcatchment 16-07S:

Hydrograph



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Summary for Subcatchment 16-08S:

Runoff = 0.20 cfs @ 12.07 hrs, Volume= 0.015 af, Depth= 2.00"

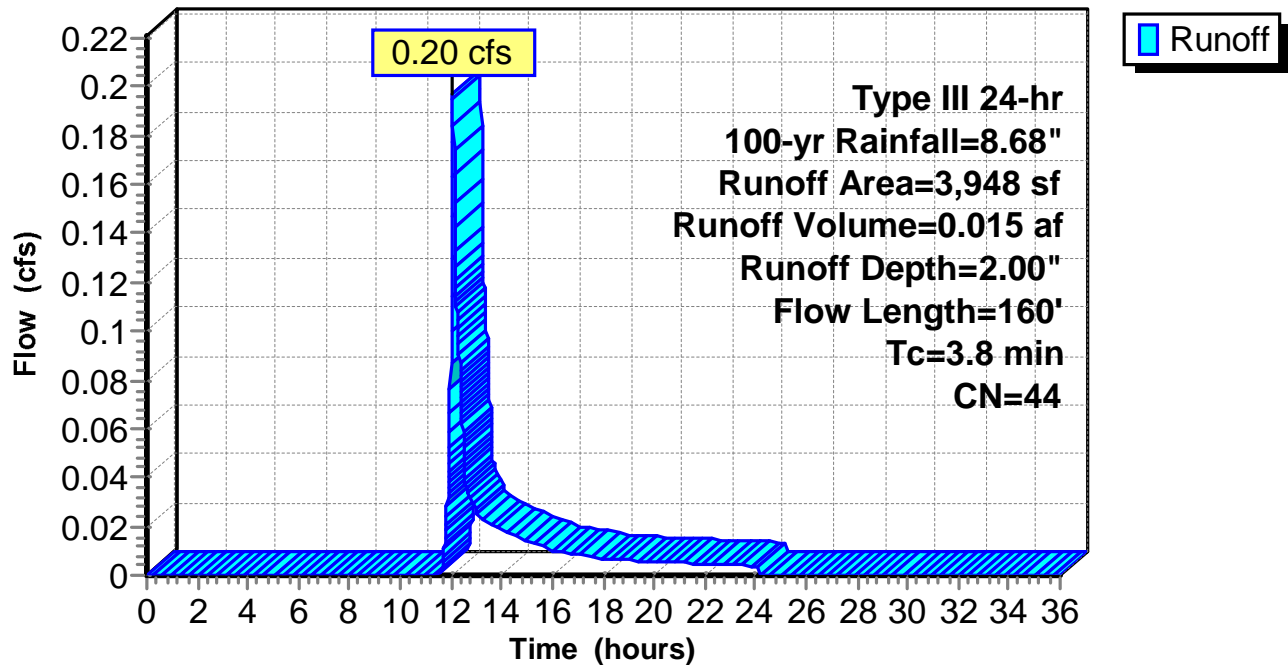
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
834	98	Impervious
3,114	30	Brush, Good, HSG A
3,948	44	Weighted Average
3,114		78.88% Pervious Area
834		21.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	73	0.2260	3.33		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.2	37	0.0410	4.11		Shallow Concentrated Flow, Paved Kv= 20.3 fps
3.8	160	Total			

Subcatchment 16-08S:

Hydrograph



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Summary for Subcatchment 16-09S:

Runoff = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Depth= 1.45"

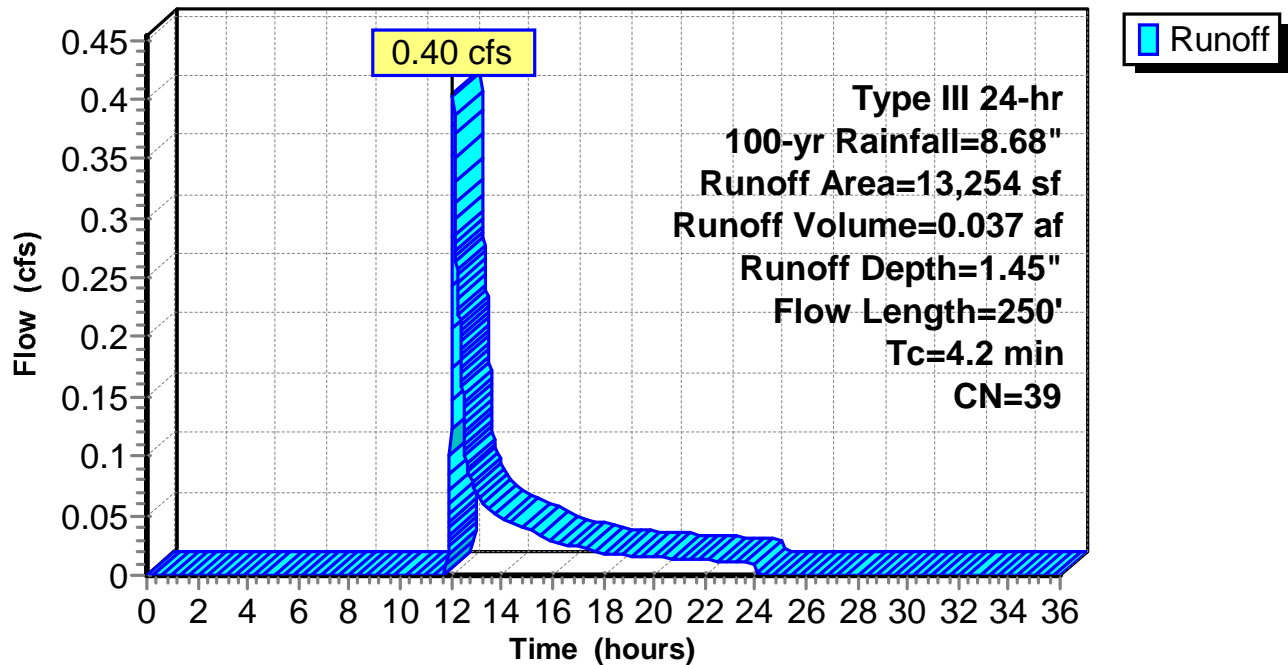
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
1,773	98	Impervious
11,481	30	Brush, Good, HSG A
13,254	39	Weighted Average
11,481		86.62% Pervious Area
1,773		13.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	49	0.3160	3.93		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	151	0.0230	3.08		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.2	250	Total			

Subcatchment 16-09S:

Hydrograph



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Summary for Subcatchment 16-10S:

Runoff = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af, Depth= 0.59"

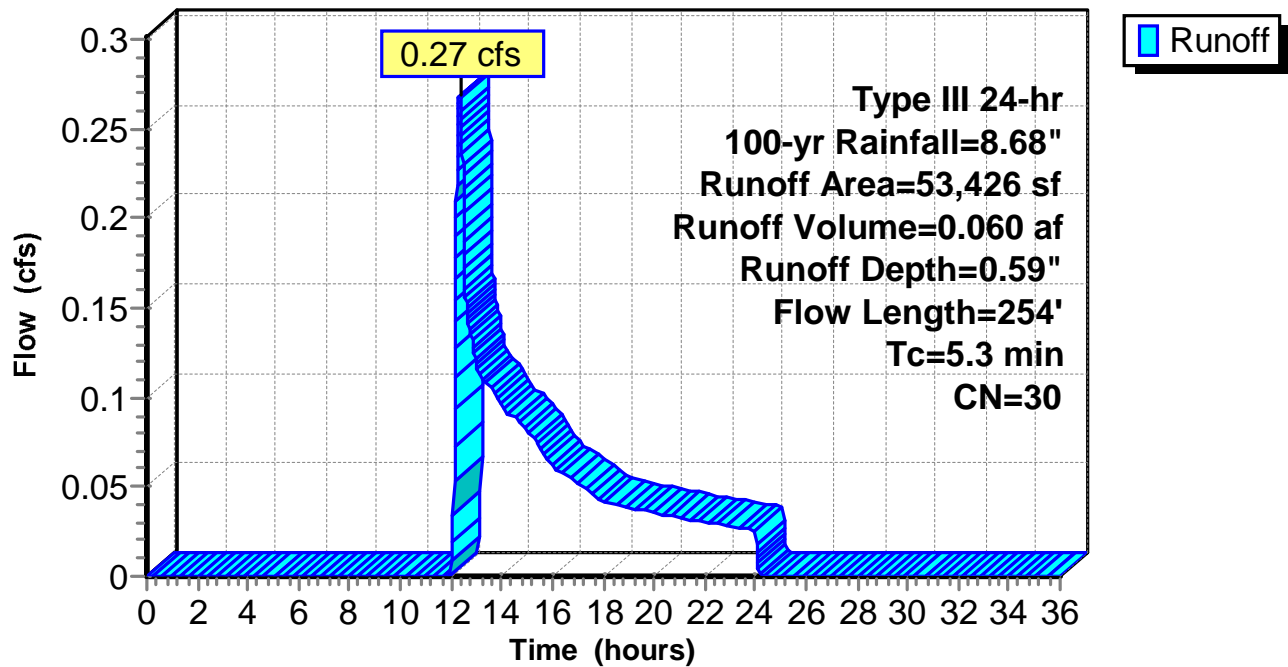
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
235	98	Impervious
53,191	30	Brush, Good, HSG A
53,426	30	Weighted Average
53,191		99.56% Pervious Area
235		0.44% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.8	204	0.0690	1.84		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
5.3	254	Total			

Subcatchment 16-10S:

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Summary for Subcatchment 16-11S:

Runoff = 0.29 cfs @ 12.29 hrs, Volume= 0.054 af, Depth= 0.76"

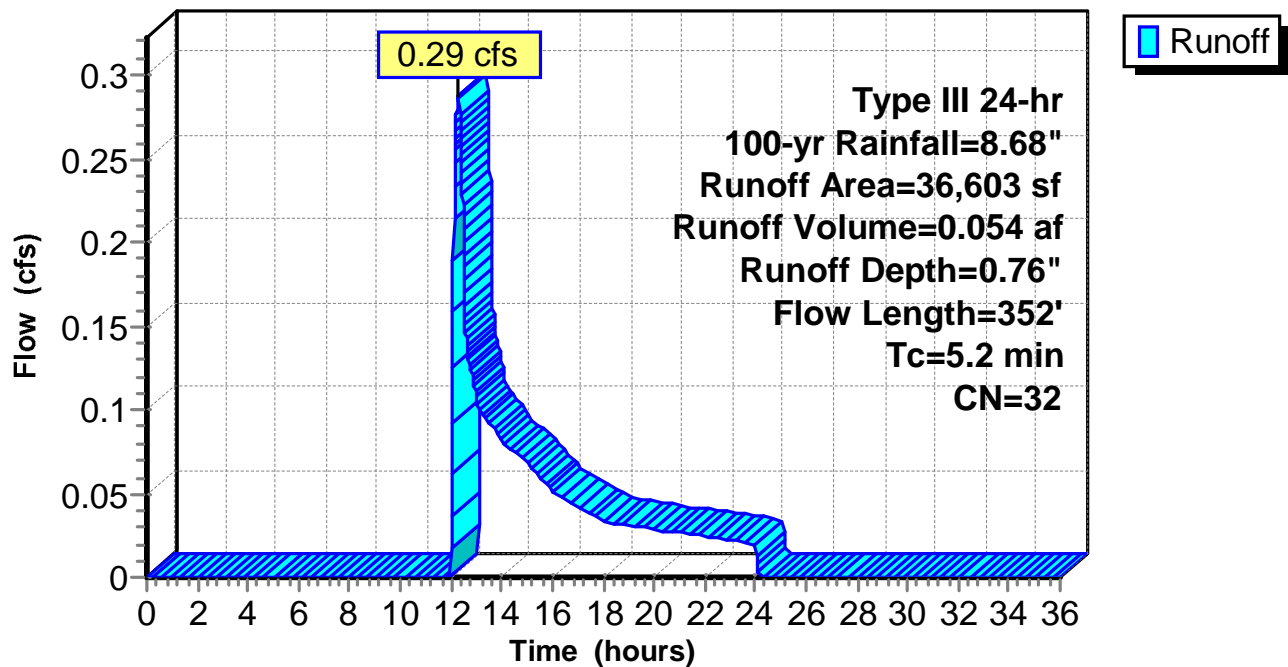
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
1,261	98	Impervious
35,342	30	Brush, Good, HSG A
36,603	32	Weighted Average
35,342		96.55% Pervious Area
1,261		3.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	198	0.1160	2.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.6	104	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
5.2	352	Total			

Subcatchment 16-11S:

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Summary for Subcatchment 16-12S:

Runoff = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af, Depth= 0.86"

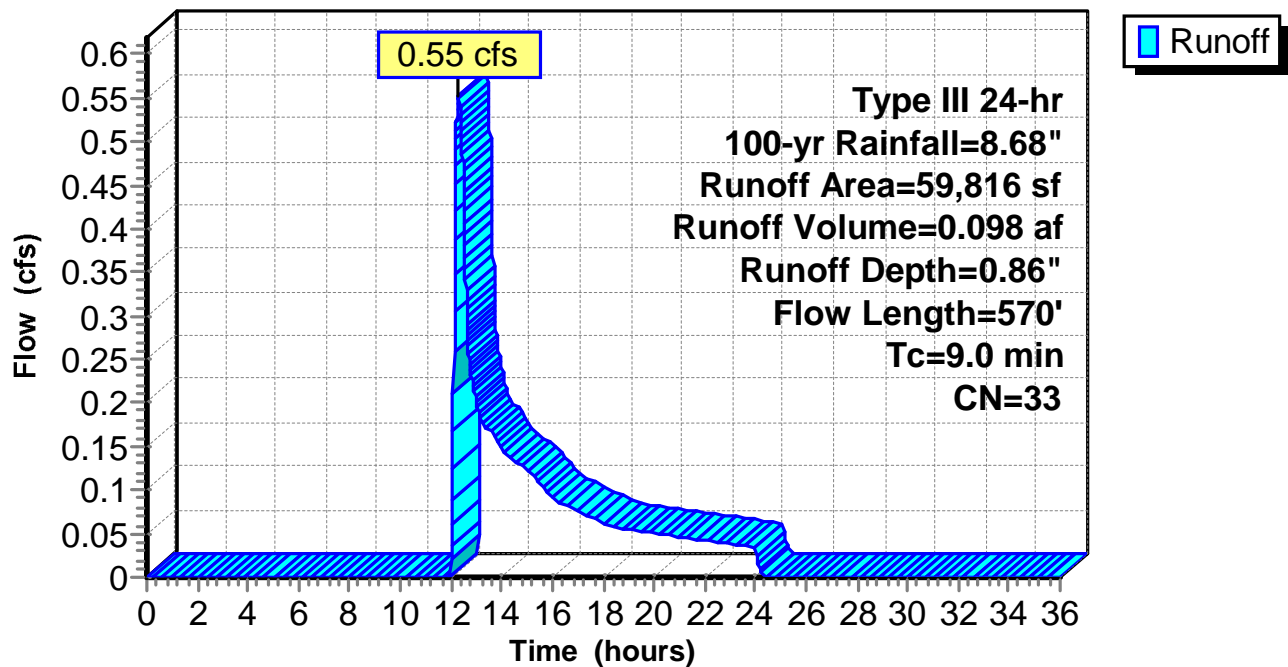
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 2,607	98	Impervious
57,209	30	Brush, Good, HSG A
59,816	33	Weighted Average
57,209		95.64% Pervious Area
2,607		4.36% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.0400	0.14		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
1.4	289	0.2440	3.46		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.5	231	0.0150	2.49		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.0	570	Total			

Subcatchment 16-12S:

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Summary for Subcatchment 16-13S:

Runoff = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af, Depth= 0.95"

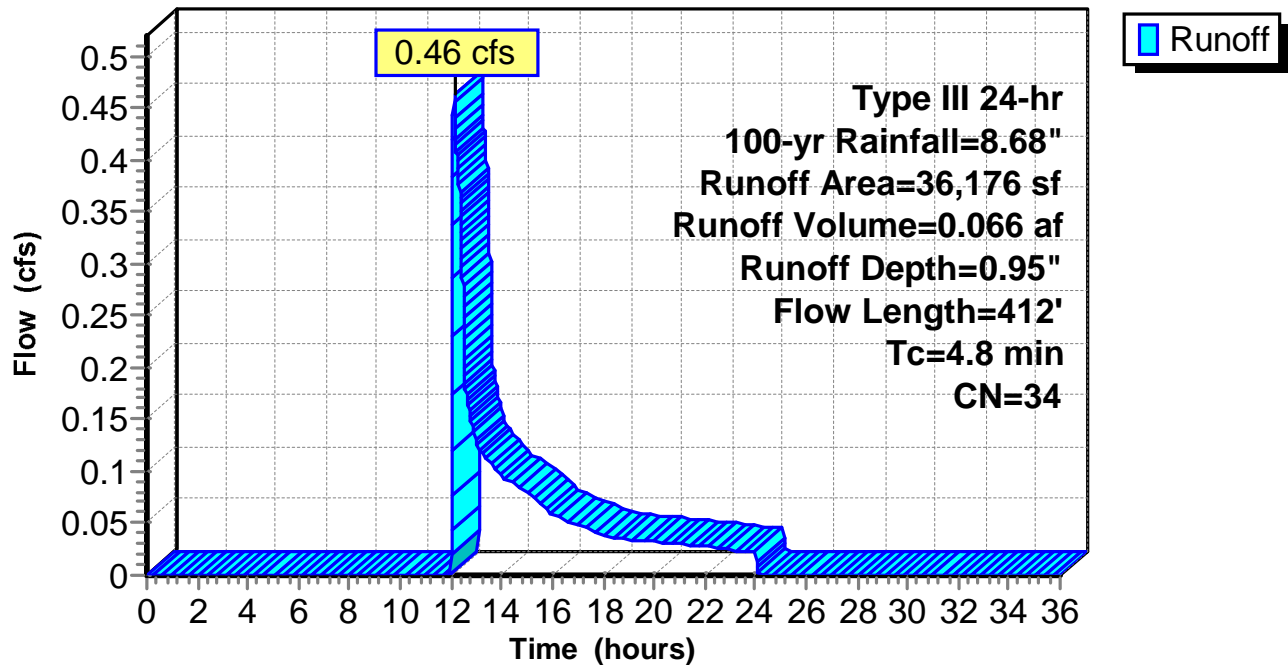
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,333	98	Impervious
33,843	30	Brush, Good, HSG A
36,176	34	Weighted Average
33,843		93.55% Pervious Area
2,333		6.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.3	50	0.1900	0.25		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	160	0.3340	4.05		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.8	202	0.0470	4.40		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.8	412	Total			

Subcatchment 16-13S:

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Summary for Subcatchment 16-14S:

Runoff = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af, Depth= 1.15"

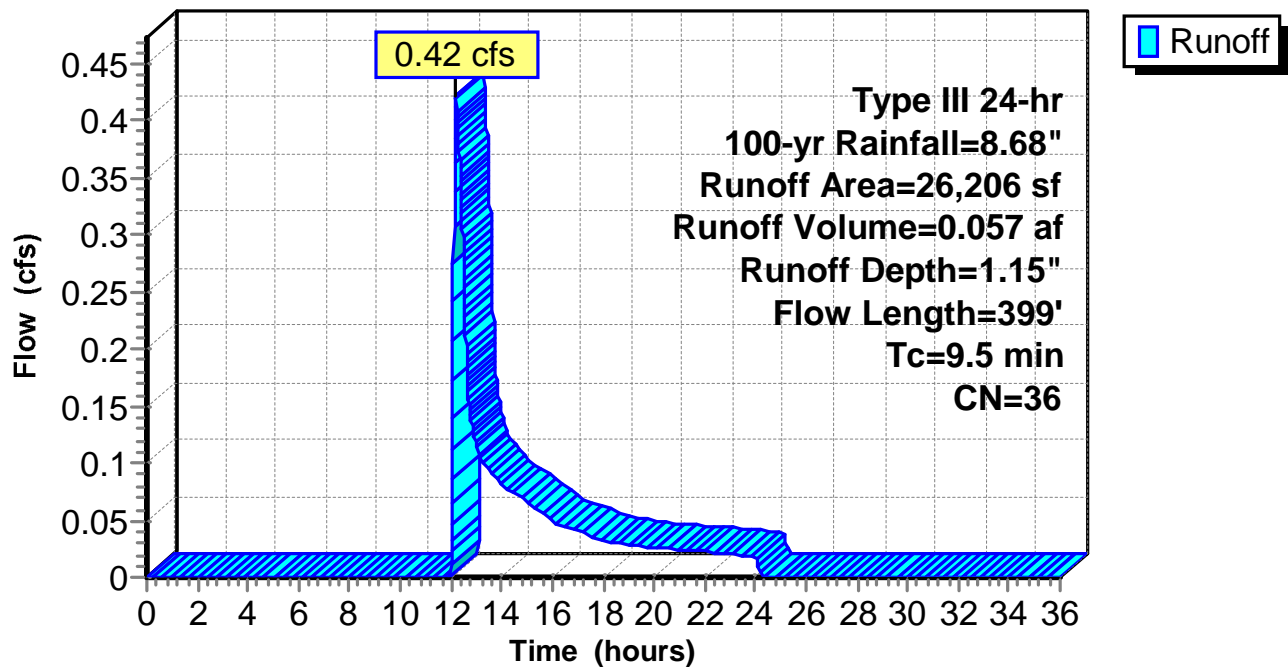
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,135	98	Impervious
24,071	30	Brush, Good, HSG A
26,206	36	Weighted Average
24,071		91.85% Pervious Area
2,135		8.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.1	50	0.0200	0.10		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.7	157	0.3250	3.99		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	192	0.0550	4.76		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.5	399	Total			

Subcatchment 16-14S:

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Summary for Subcatchment 16-15S:

Runoff = 0.83 cfs @ 12.16 hrs, Volume= 0.083 af, Depth= 1.78"

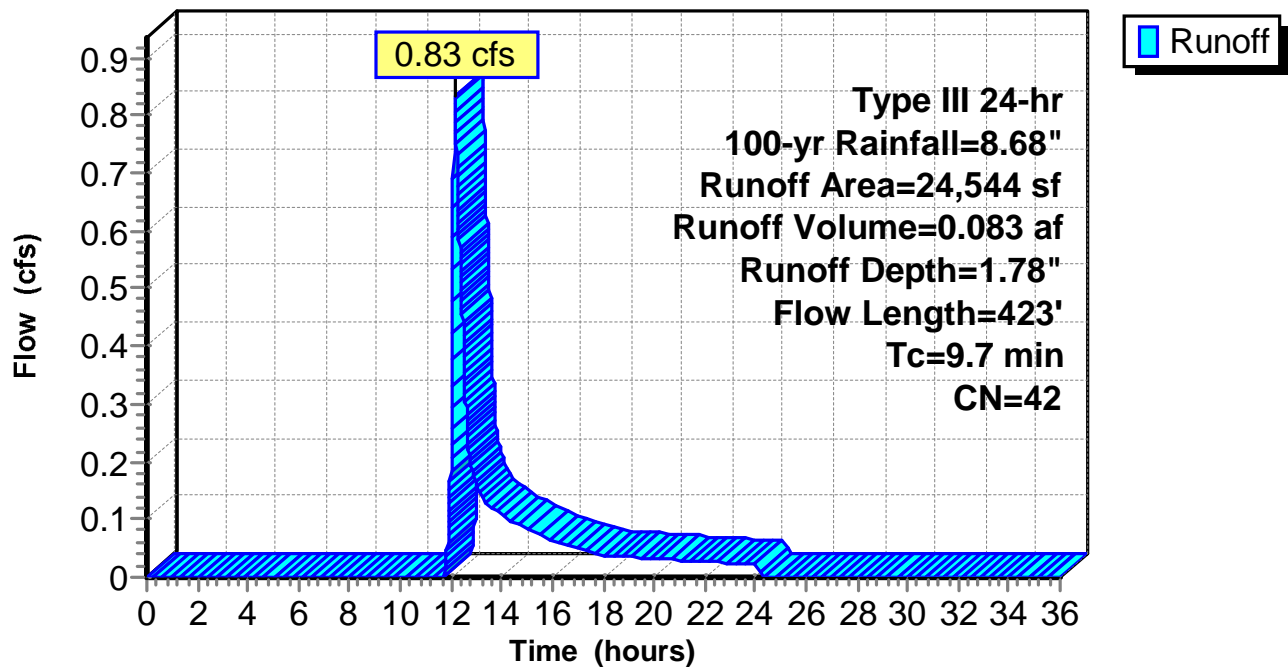
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
4,249	98	Impervious
20,295	30	Brush, Good, HSG A
24,544	42	Weighted Average
20,295		82.69% Pervious Area
4,249		17.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.6	50	0.0800	0.18		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.4	281	0.0390	1.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
1.7	92	0.0020	0.91		Shallow Concentrated Flow, Paved Kv= 20.3 fps
9.7	423	Total			

Subcatchment 16-15S:

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Summary for Subcatchment 16-16S:

Runoff = 1.21 cfs @ 12.10 hrs, Volume= 0.090 af, Depth= 3.02"

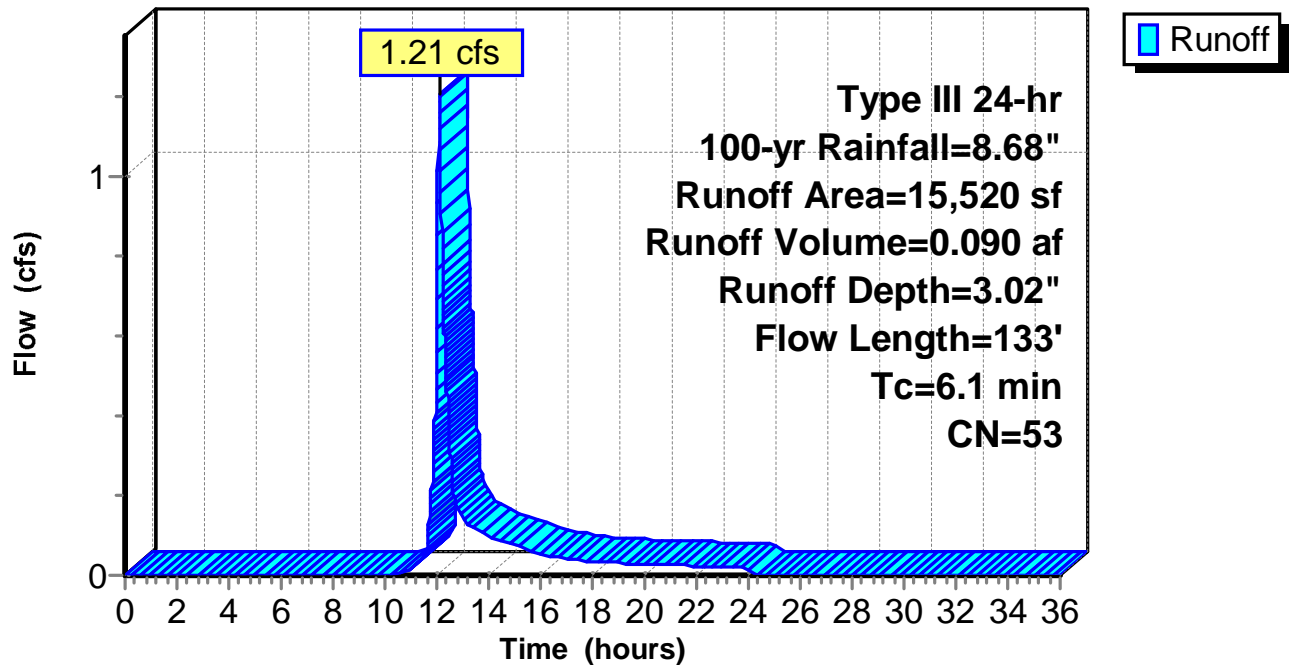
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
5,158	98	Impervious
10,362	30	Brush, Good, HSG A
15,520	53	Weighted Average
10,362		66.77% Pervious Area
5,158		33.23% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0500	0.15		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	63	0.1190	2.41		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.1	20	0.3500	4.14		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.1	133	Total			

Subcatchment 16-16S:

Hydrograph



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Summary for Subcatchment 17-01S:

Runoff = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af, Depth= 1.35"

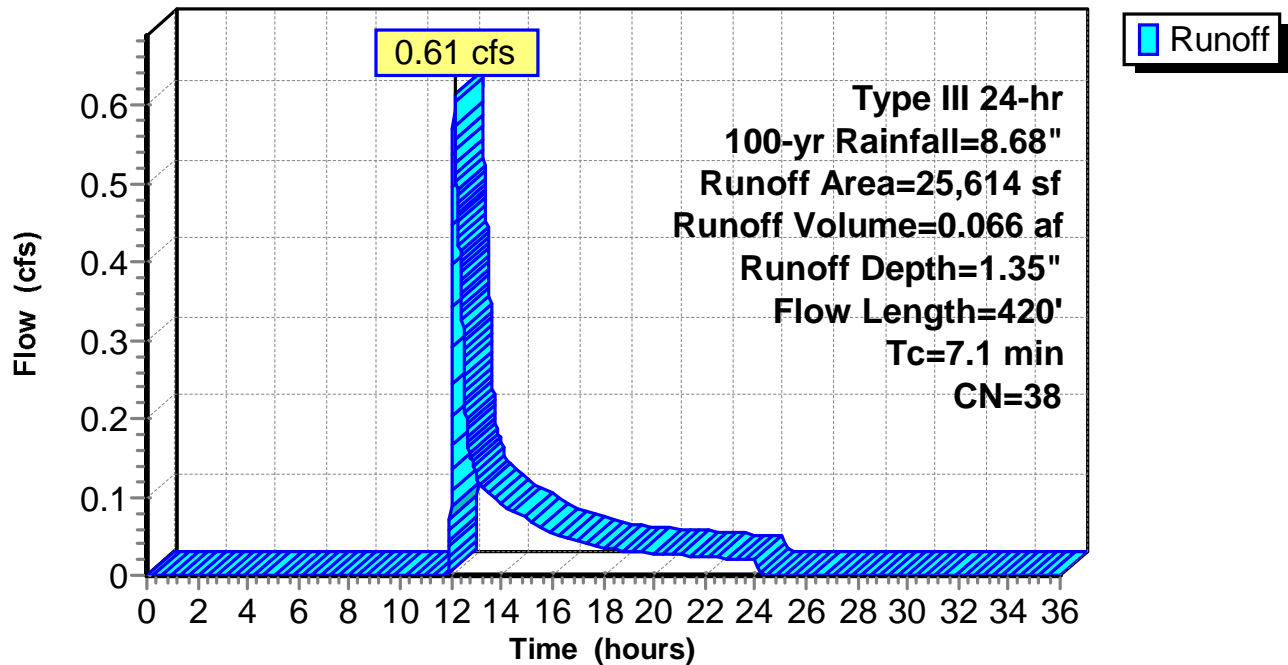
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
3,145	98	Impervious
22,469	30	Brush, Good, HSG A
25,614	38	Weighted Average
22,469		87.72% Pervious Area
3,145		12.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.7	50	0.1400	0.22		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.5	111	0.2880	3.76		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.9	259	0.0460	1.50		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
7.1	420	Total			

Subcatchment 17-01S:

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Summary for Subcatchment 17-02S:

Runoff = 0.14 cfs @ 12.14 hrs, Volume= 0.019 af, Depth= 1.05"

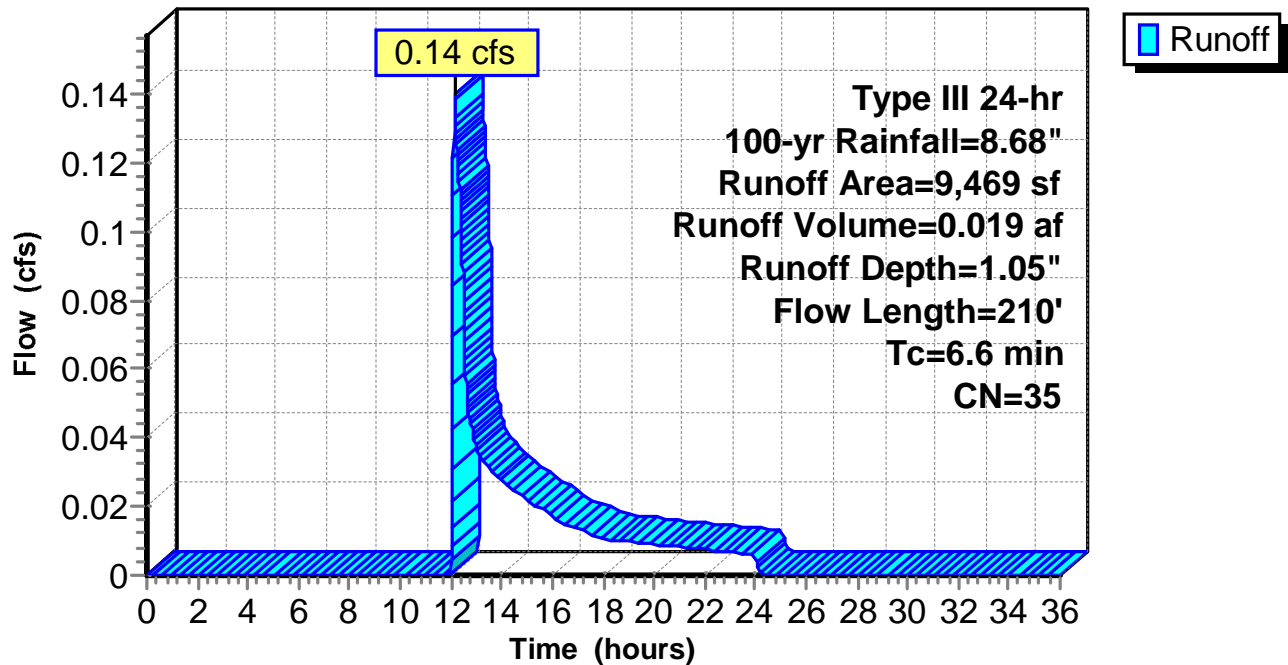
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 670	98	Impervious
8,799	30	Brush, Good, HSG A
9,469	35	Weighted Average
8,799		92.92% Pervious Area
670		7.08% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.4	110	0.3910	4.38		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.7	50	0.0020	0.31		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
6.6	210	Total			

Subcatchment 17-02S:

Hydrograph



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Summary for Subcatchment 17-03S:

Runoff = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af, Depth= 1.67"

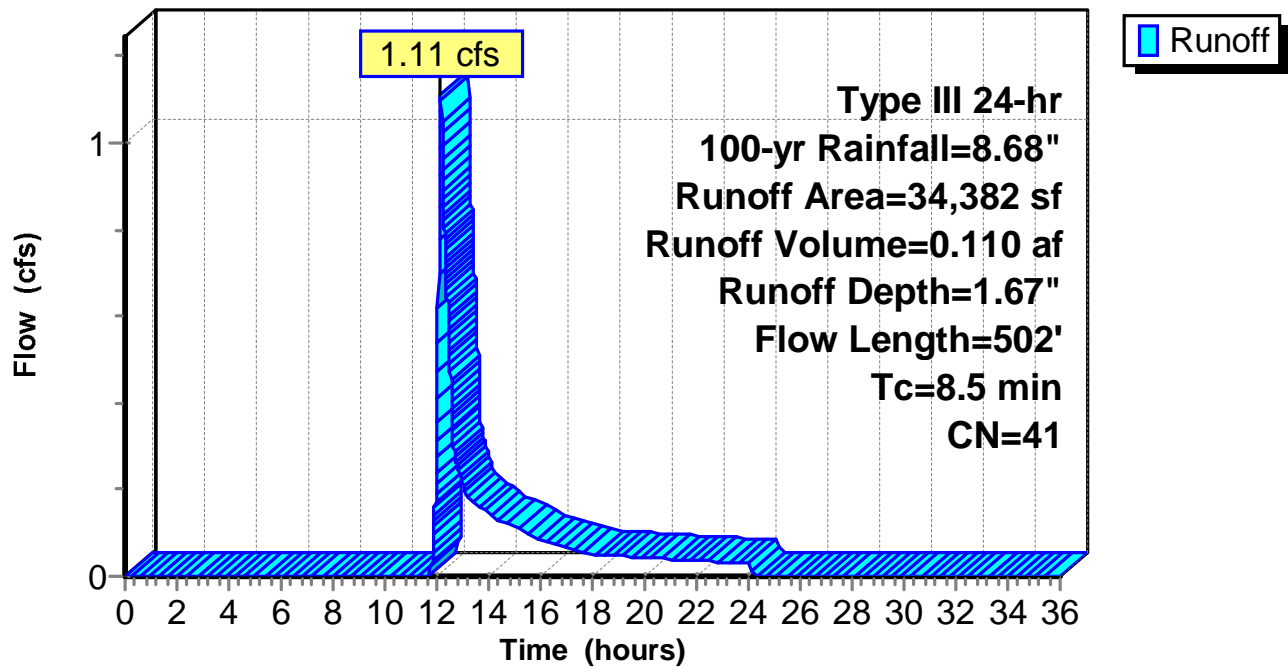
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
5,757	98	Impervious
28,625	30	Brush, Good, HSG A
34,382	41	Weighted Average
28,625		83.26% Pervious Area
5,757		16.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.2	50	0.0600	0.16		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
3.3	452	0.1080	2.30		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
8.5	502	Total			

Subcatchment 17-03S:

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-04S:

Runoff = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af, Depth= 2.91"

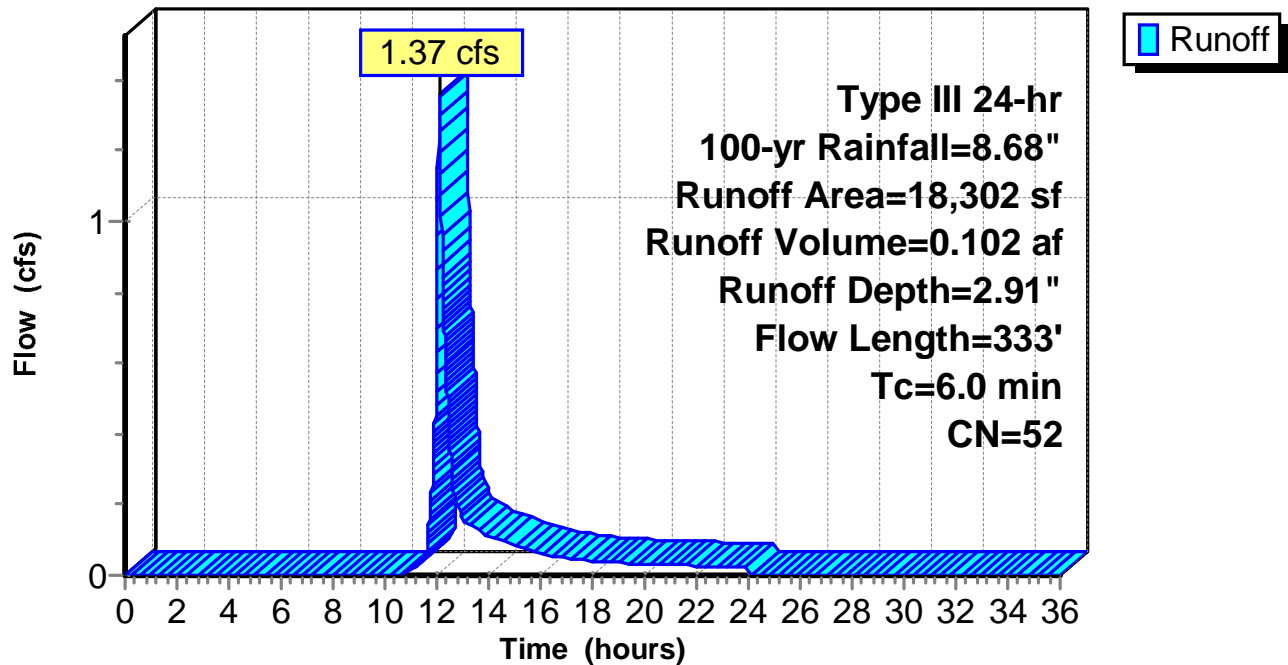
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
5,864	98	Impervious
12,438	30	Brush, Good, HSG A
18,302	52	Weighted Average
12,438		67.96% Pervious Area
5,864		32.04% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.6	50	0.1500	0.23		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	20	0.0500	1.57		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
2.2	263	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
6.0	333	Total			

Subcatchment 17-04S:

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-05S:

Runoff = 1.57 cfs @ 12.07 hrs, Volume= 0.105 af, Depth= 4.09"

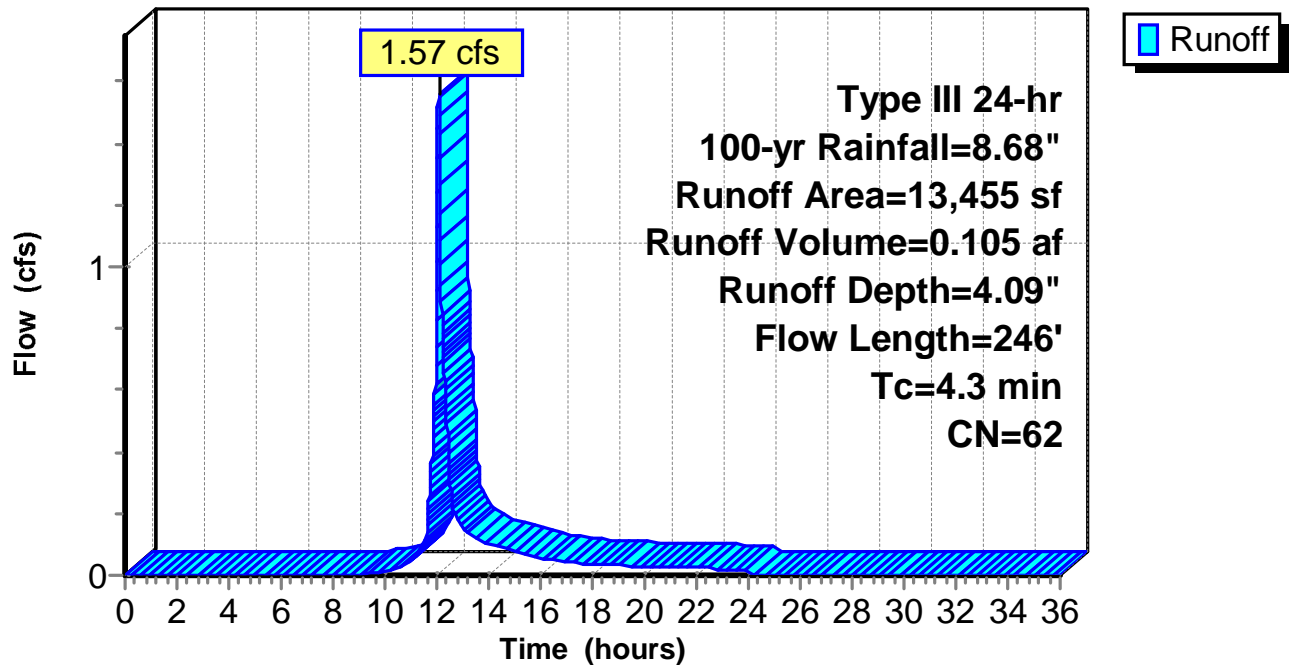
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
6,328	98	Impervious
7,127	30	Brush, Good, HSG A
13,455	62	Weighted Average
7,127		52.97% Pervious Area
6,328		47.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	50	0.2000	0.26		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	32	0.0940	2.15		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.9	164	0.0240	3.14		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.3	246	Total			

Subcatchment 17-05S:

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Subcatchment 17-06S:

Runoff = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af, Depth= 4.57"

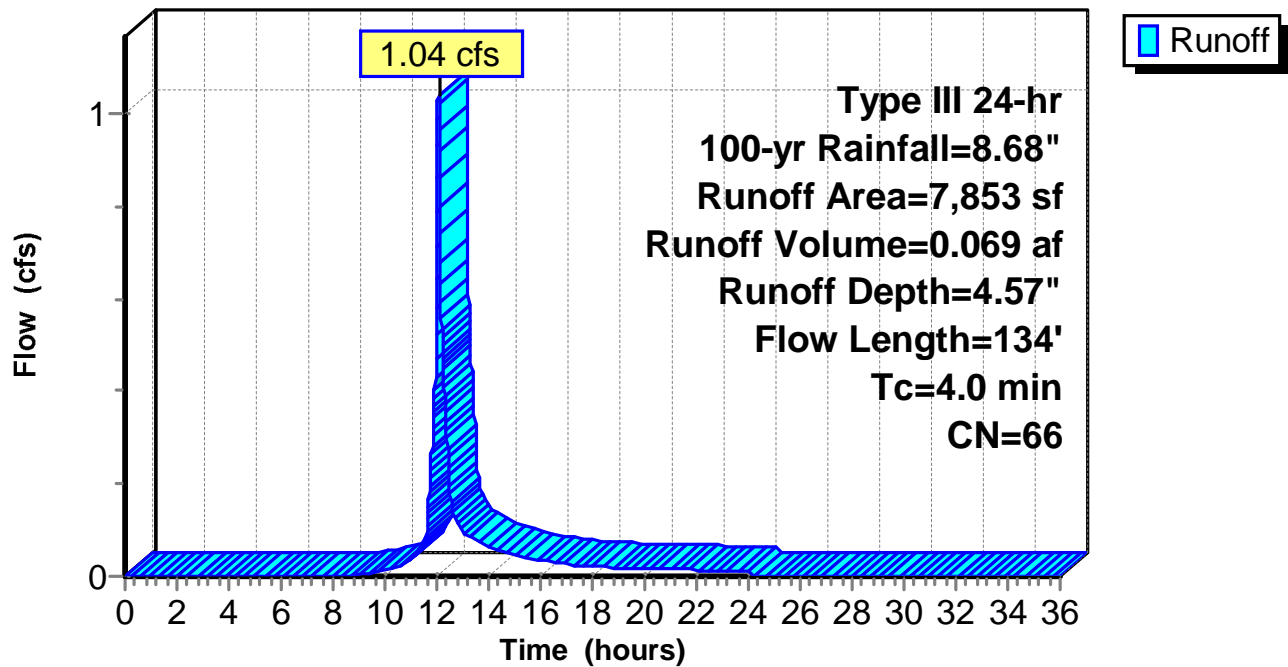
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
* 4,139	98	Impervious
3,714	30	Brush, Good, HSG A
7,853	66	Weighted Average
3,714		47.29% Pervious Area
4,139		52.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.2	37	0.1080	0.19		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.8	97	0.0100	2.03		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.0	134	Total			

Subcatchment 17-06S:

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Summary for Subcatchment 17-07S:

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 5.54"

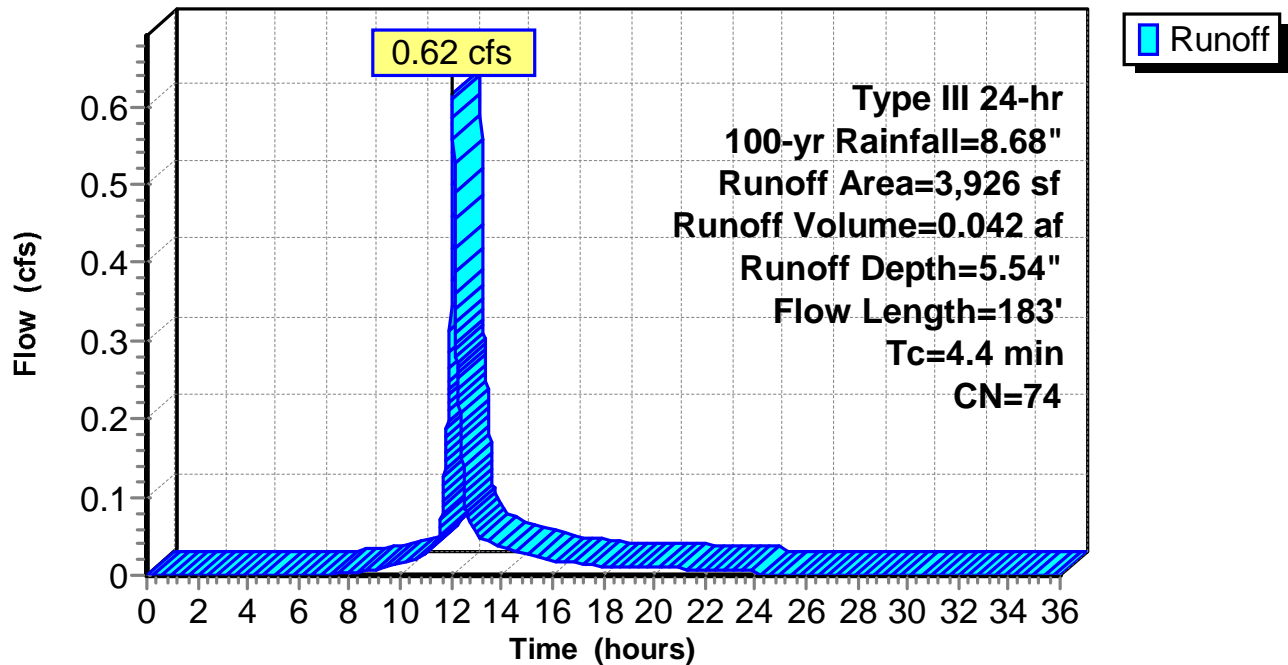
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-yr Rainfall=8.68"

Area (sf)	CN	Description
2,515	98	Impervious
1,411	30	Brush, Good, HSG A
3,926	74	Weighted Average
1,411		35.94% Pervious Area
2,515		64.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.1600	0.24		Sheet Flow, Grass: Dense n= 0.240 P2= 3.28"
0.2	30	0.1420	2.64		Shallow Concentrated Flow, Short Grass Pasture Kv= 7.0 fps
0.7	103	0.0130	2.31		Shallow Concentrated Flow, Paved Kv= 20.3 fps
4.4	183	Total			

Subcatchment 17-07S:

Hydrograph



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Summary for Pond CB16-01:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 1.67" for 100-yr event
Inflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af
Outflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.83' @ 12.13 hrs

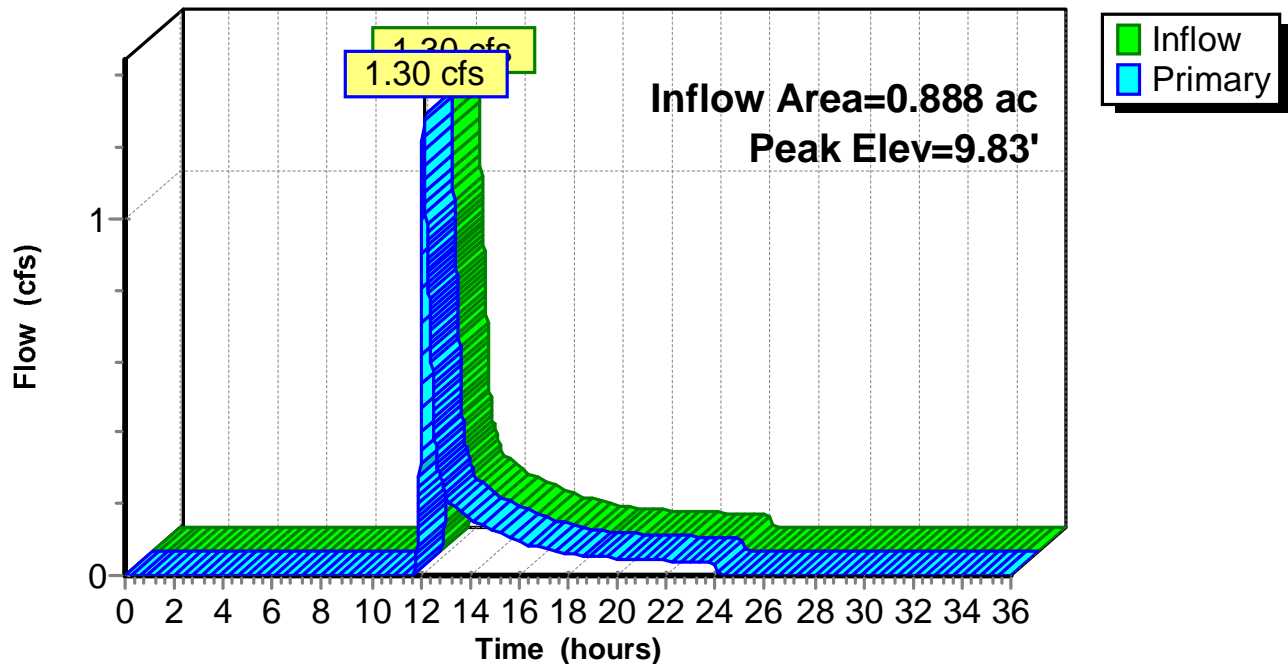
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.12'	12.0" Round Culvert L= 7.0' Ke= 0.500 Inlet / Outlet Invert= 9.12' / 9.06' S= 0.0086 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.13 hrs HW=9.83' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.30 cfs @ 3.03 fps)

Pond CB16-01:

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Summary for Pond CB16-02:

Inflow Area = 0.104 ac, 50.77% Impervious, Inflow Depth = 4.45" for 100-yr event
Inflow = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af
Outflow = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
Primary = 0.60 cfs @ 12.05 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.21' @ 12.05 hrs

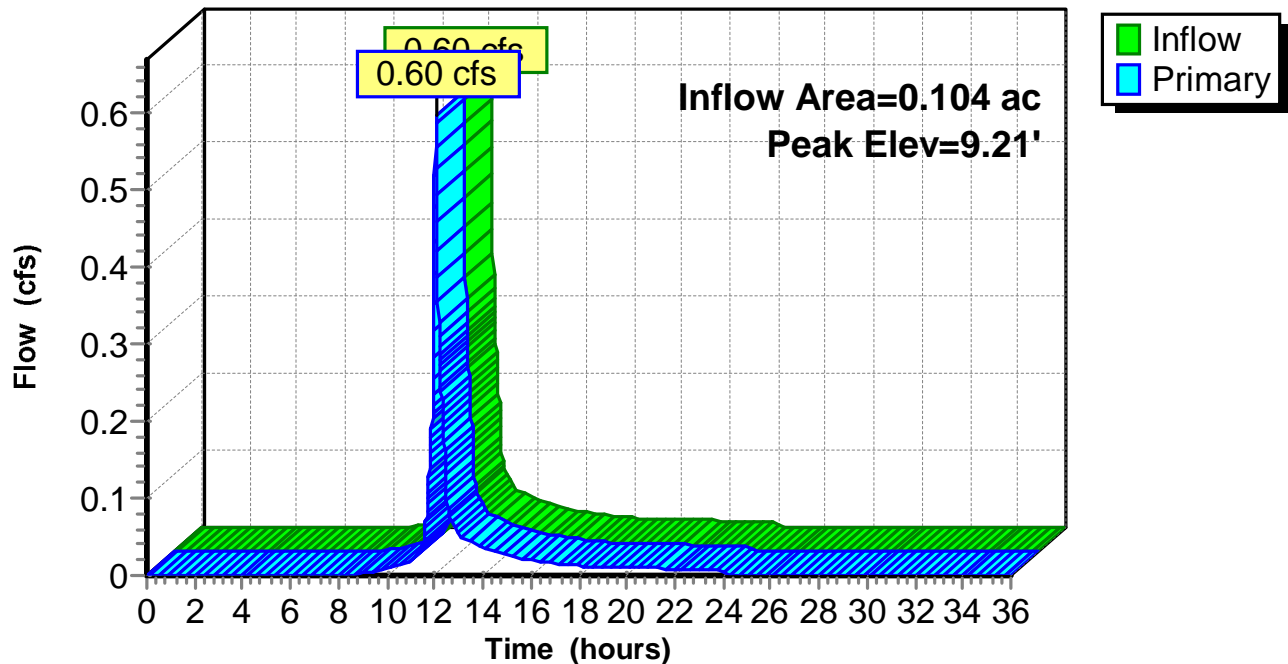
Device	Routing	Invert	Outlet Devices
#1	Primary	11.86'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.59 cfs @ 12.05 hrs HW=9.21' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.59 cfs @ 2.12 fps)

Pond CB16-02:

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Summary for Pond CB16-03:

Inflow Area = 1.052 ac, 5.46% Impervious, Inflow Depth = 0.95" for 100-yr event
Inflow = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af
Outflow = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min
Primary = 0.50 cfs @ 12.29 hrs, Volume= 0.083 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.17' @ 12.29 hrs

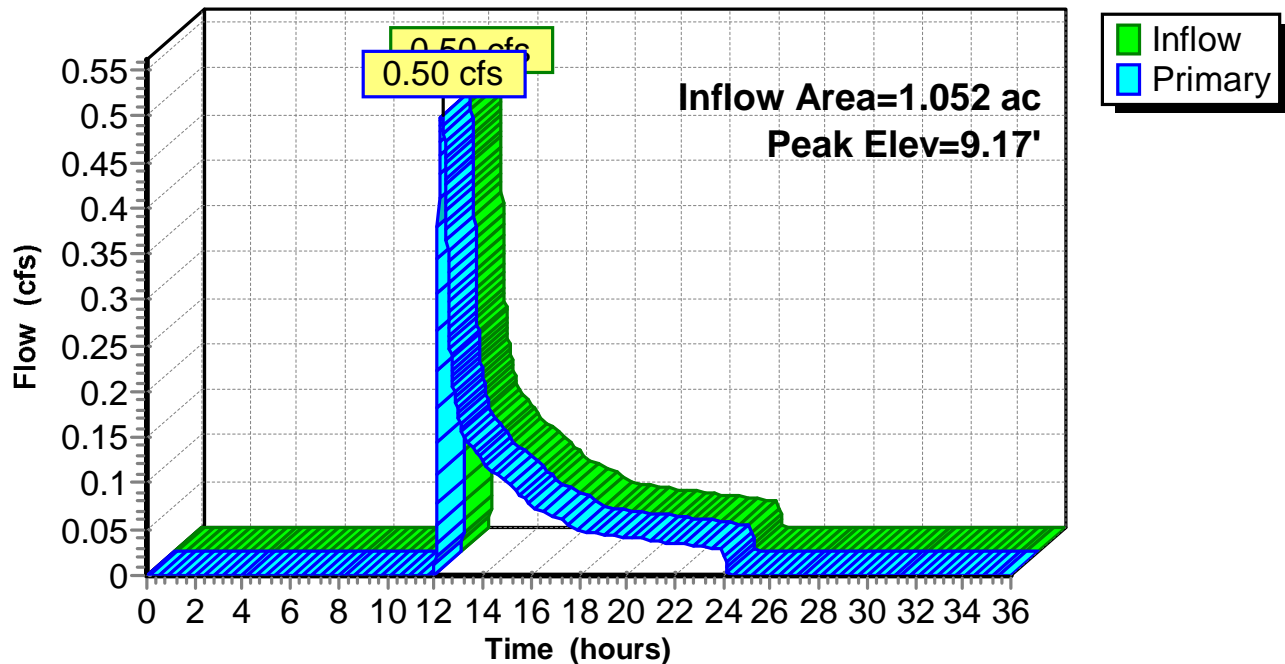
Device	Routing	Invert	Outlet Devices
#1	Primary	11.95'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.82'	12.0" Round Culvert L= 10.0' Ke= 0.500 Inlet / Outlet Invert= 8.82' / 6.11' S= 0.2710 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.50 cfs @ 12.29 hrs HW=9.17' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.50 cfs @ 2.02 fps)

Pond CB16-03:

Hydrograph



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Summary for Pond CB16-04:

Inflow Area = 5.306 ac, 3.71% Impervious, Inflow Depth = 0.81" for 100-yr event
Inflow = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af
Outflow = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af, Atten= 0%, Lag= 0.0 min
Primary = 1.96 cfs @ 12.30 hrs, Volume= 0.356 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.62' @ 12.30 hrs

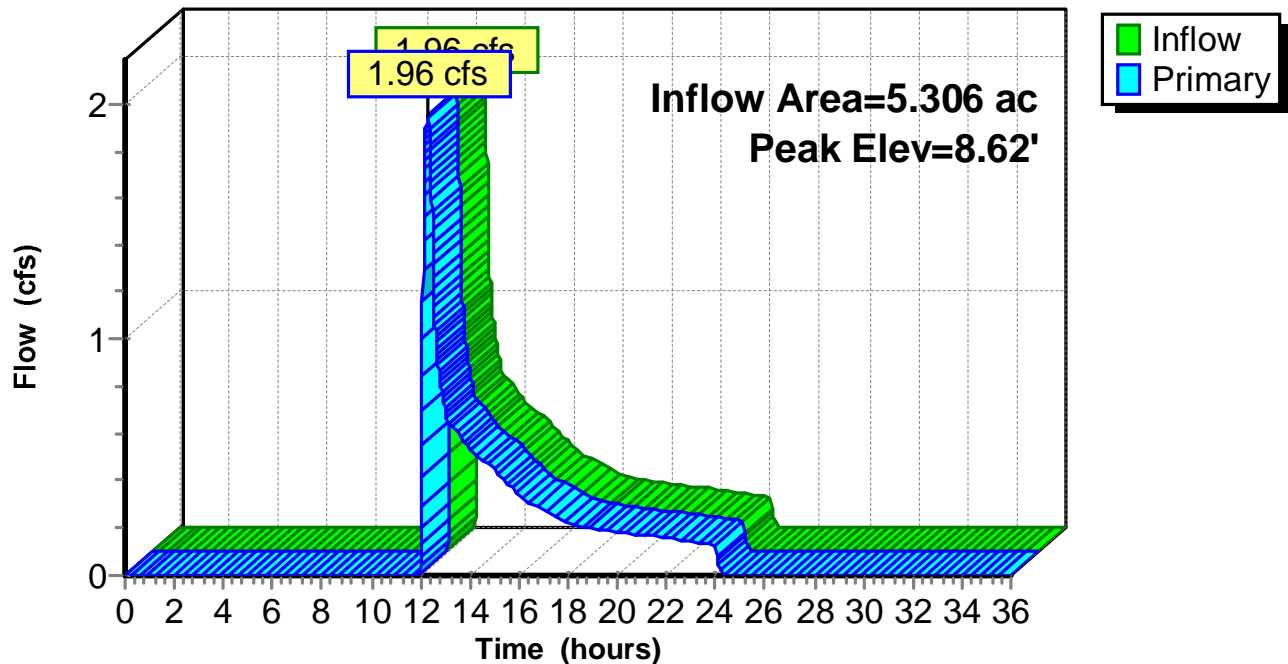
Device	Routing	Invert	Outlet Devices
#1	Primary	15.53'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.98'	18.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 7.98' / 6.11' S= 0.0267 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.77 sf

Primary OutFlow Max=1.95 cfs @ 12.30 hrs HW=8.62' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.95 cfs @ 2.72 fps)

Pond CB16-04:

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Summary for Pond CB16-05:

Inflow Area = 2.098 ac, 17.46% Impervious, Inflow Depth = 1.46" for 100-yr event
Inflow = 2.57 cfs @ 12.19 hrs, Volume= 0.254 af
Outflow = 2.57 cfs @ 12.19 hrs, Volume= 0.254 af, Atten= 0%, Lag= 0.0 min
Primary = 2.57 cfs @ 12.19 hrs, Volume= 0.254 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.78' @ 12.19 hrs

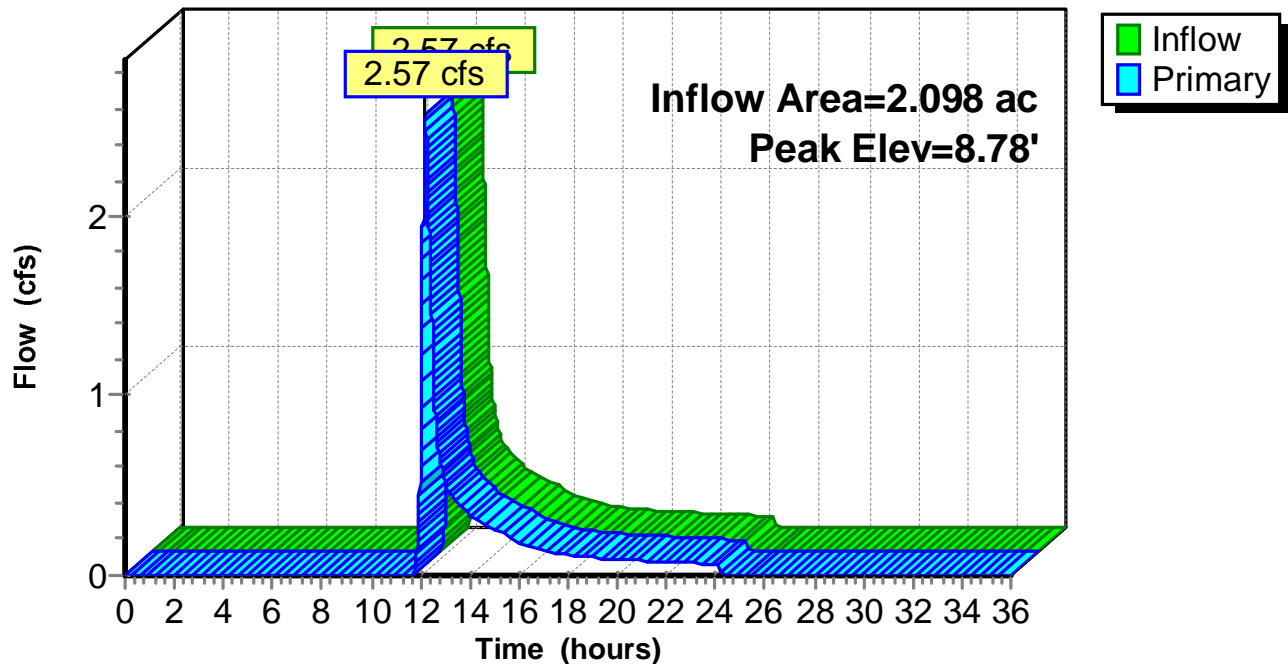
Device	Routing	Invert	Outlet Devices
#1	Primary	12.03'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	7.97'	15.0" Round Culvert L= 73.0' Ke= 0.500 Inlet / Outlet Invert= 7.97' / 6.11' S= 0.0255 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=2.56 cfs @ 12.19 hrs HW=8.78' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 2.56 cfs @ 3.06 fps)

Pond CB16-05:

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Summary for Pond CB16-06:

Inflow Area = 0.080 ac, 0.00% Impervious, Inflow Depth = 0.59" for 100-yr event
 Inflow = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af
 Outflow = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.02 cfs @ 12.33 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 8.78' @ 12.33 hrs

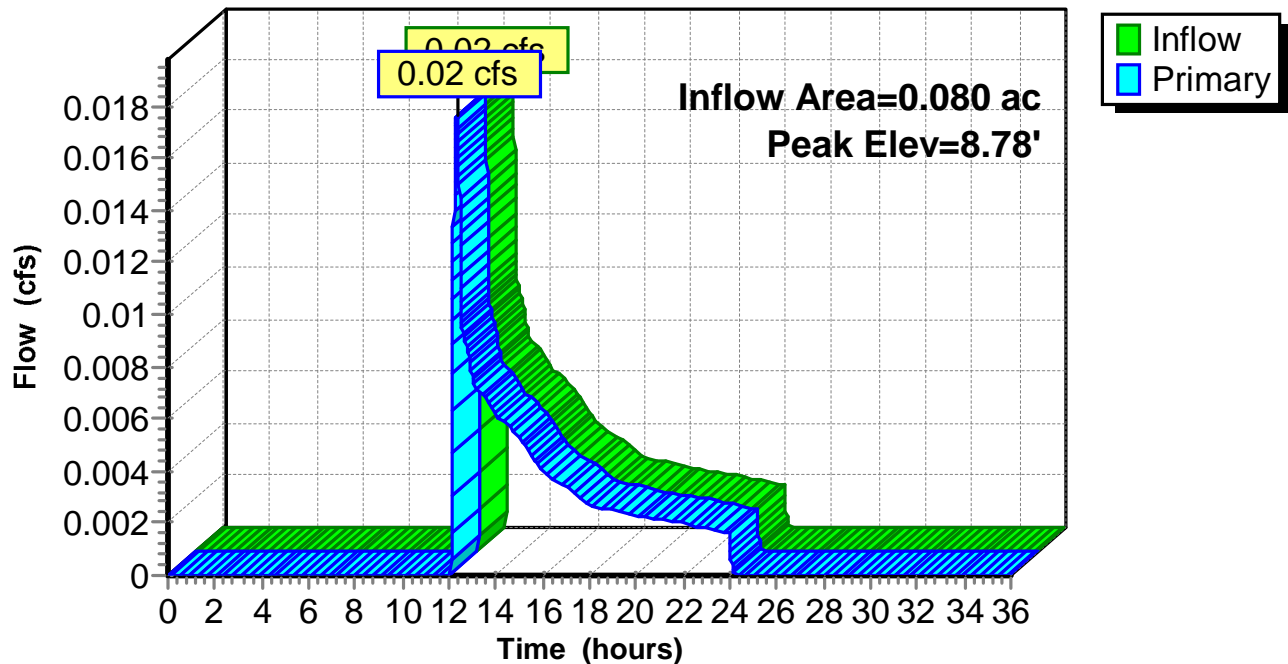
Device	Routing	Invert	Outlet Devices
#1	Primary	12.71'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.72'	12.0" Round Culvert L= 13.0' Ke= 0.500 Inlet / Outlet Invert= 8.72' / 8.03' S= 0.0531 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.02 cfs @ 12.33 hrs HW=8.78' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.02 cfs @ 0.83 fps)

Pond CB16-06:

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Summary for Pond CB16-07:

Inflow Area = 0.147 ac, 15.93% Impervious, Inflow Depth = 1.67" for 100-yr event
 Inflow = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af
 Outflow = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.23 cfs @ 12.10 hrs, Volume= 0.020 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 14.23' @ 12.10 hrs

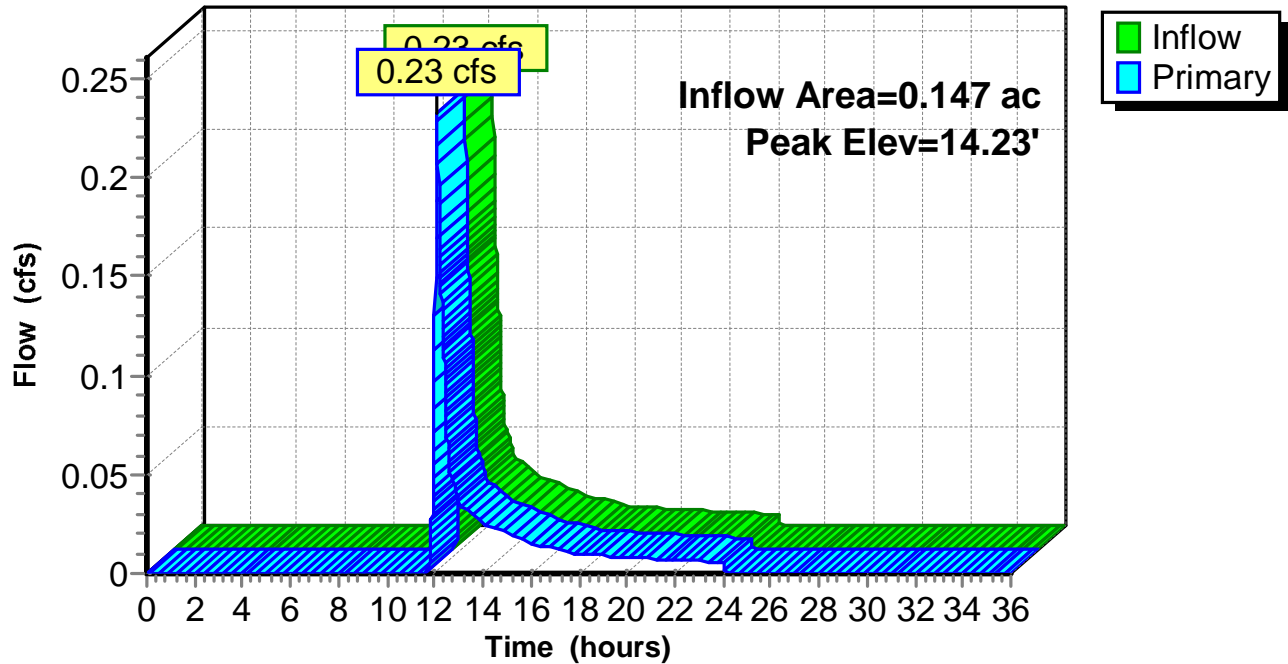
Device	Routing	Invert	Outlet Devices
#1	Primary	18.96'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.96'	12.0" Round Culvert L= 85.0' Ke= 0.500 Inlet / Outlet Invert= 13.96' / 13.58' S= 0.0045 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.23 cfs @ 12.10 hrs HW=14.23' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.23 cfs @ 1.99 fps)

Pond CB16-07:

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Summary for Pond CB16-08:

Inflow Area = 0.237 ac, 17.91% Impervious, Inflow Depth = 1.79" for 100-yr event
Inflow = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af
Outflow = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.09 hrs, Volume= 0.035 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 13.87' @ 12.09 hrs

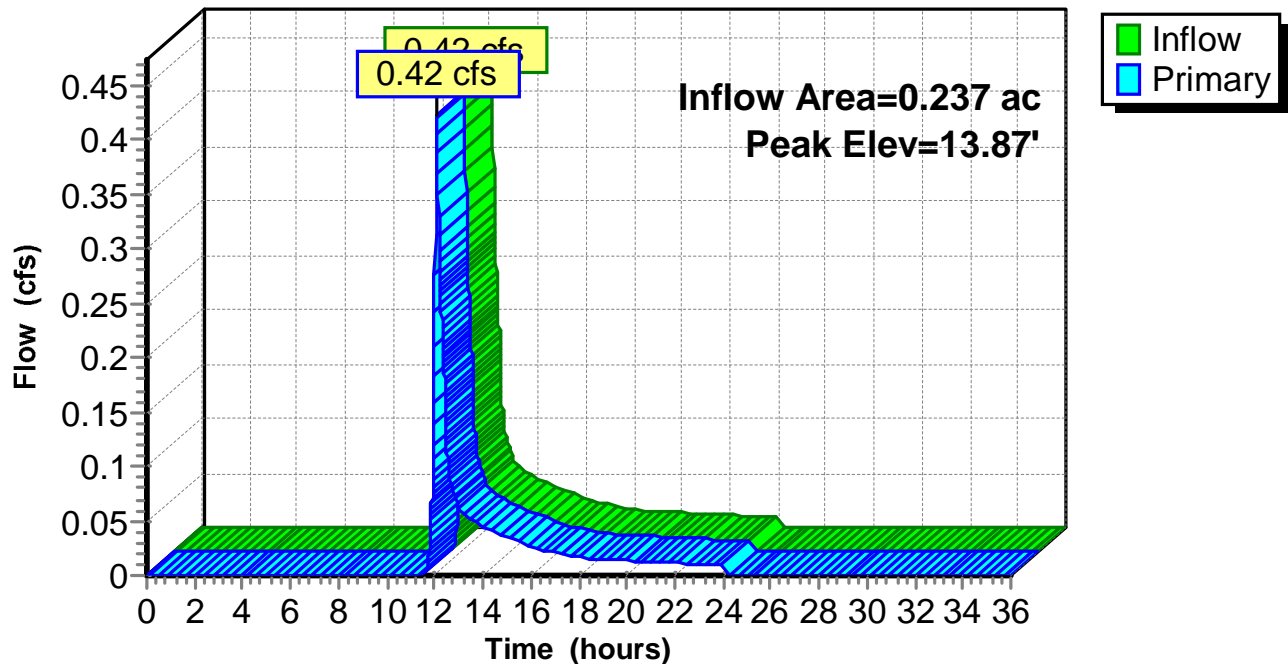
Device	Routing	Invert	Outlet Devices
#1	Primary	21.43'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	13.55'	12.0" Round Culvert L= 66.0' Ke= 0.500 Inlet / Outlet Invert= 13.55' / 8.03' S= 0.0836 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.09 hrs HW=13.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.42 cfs @ 1.93 fps)

Pond CB16-08:

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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond CB16-09:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 1.45" for 100-yr event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 18.38' @ 12.09 hrs

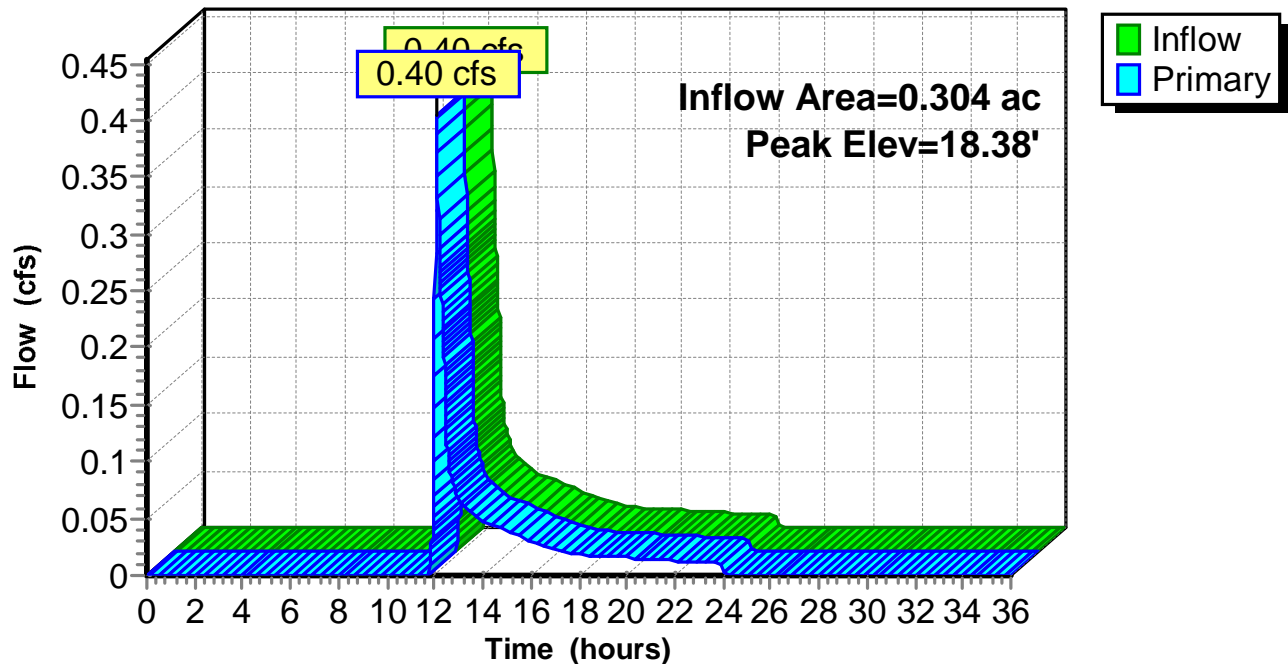
Device	Routing	Invert	Outlet Devices
#1	Primary	23.15'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	18.07'	12.0" Round Culvert L= 81.0' Ke= 0.500 Inlet / Outlet Invert= 18.07' / 9.71' S= 0.1032 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=18.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.91 fps)

Pond CB16-09:

Hydrograph



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Summary for Pond CB16-10:

Inflow Area = 1.226 ac, 0.44% Impervious, Inflow Depth = 0.59" for 100-yr event
Inflow = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af
Outflow = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 0.27 cfs @ 12.35 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 23.15' @ 12.35 hrs

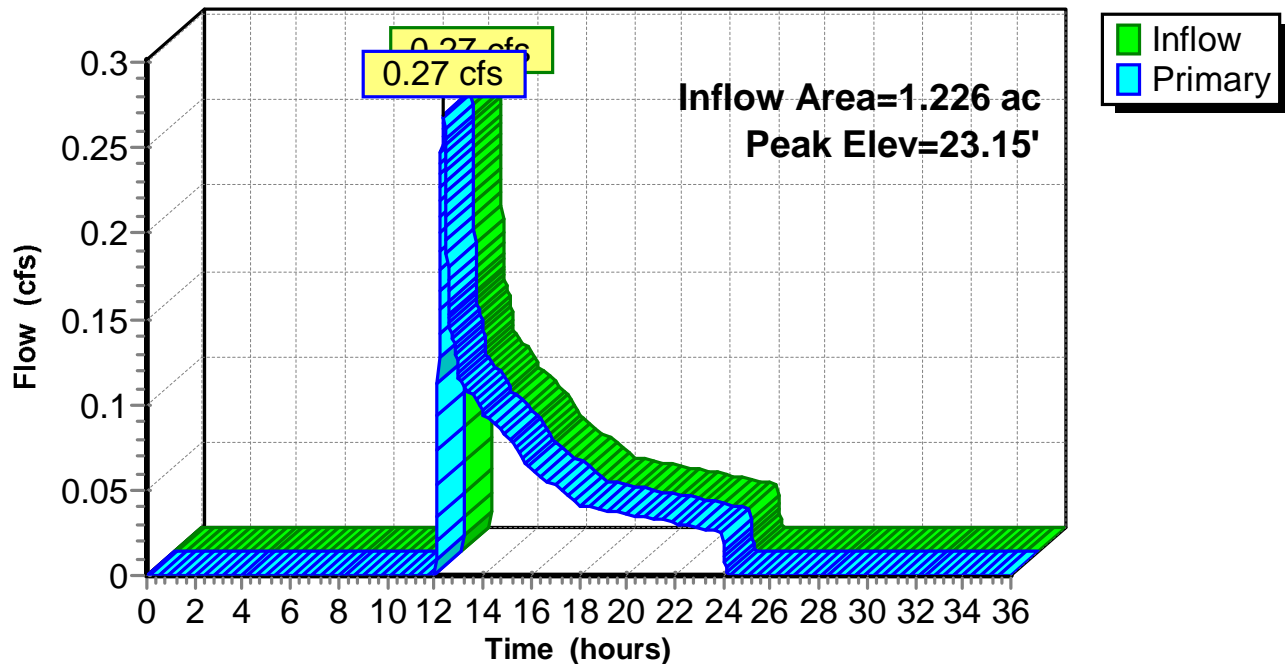
Device	Routing	Invert	Outlet Devices
#1	Primary	26.56'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.83'	12.0" Round Culvert L= 15.0' Ke= 0.500 Inlet / Outlet Invert= 22.83' / 22.79' S= 0.0027 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.27 cfs @ 12.35 hrs HW=23.15' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.27 cfs @ 1.82 fps)

Pond CB16-10:

Hydrograph



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Summary for Pond CB16-11:

Inflow Area = 2.067 ac, 1.66% Impervious, Inflow Depth = 0.66" for 100-yr event
Inflow = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af
Outflow = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af, Atten= 0%, Lag= 0.0 min
Primary = 0.55 cfs @ 12.33 hrs, Volume= 0.114 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 22.89' @ 12.33 hrs

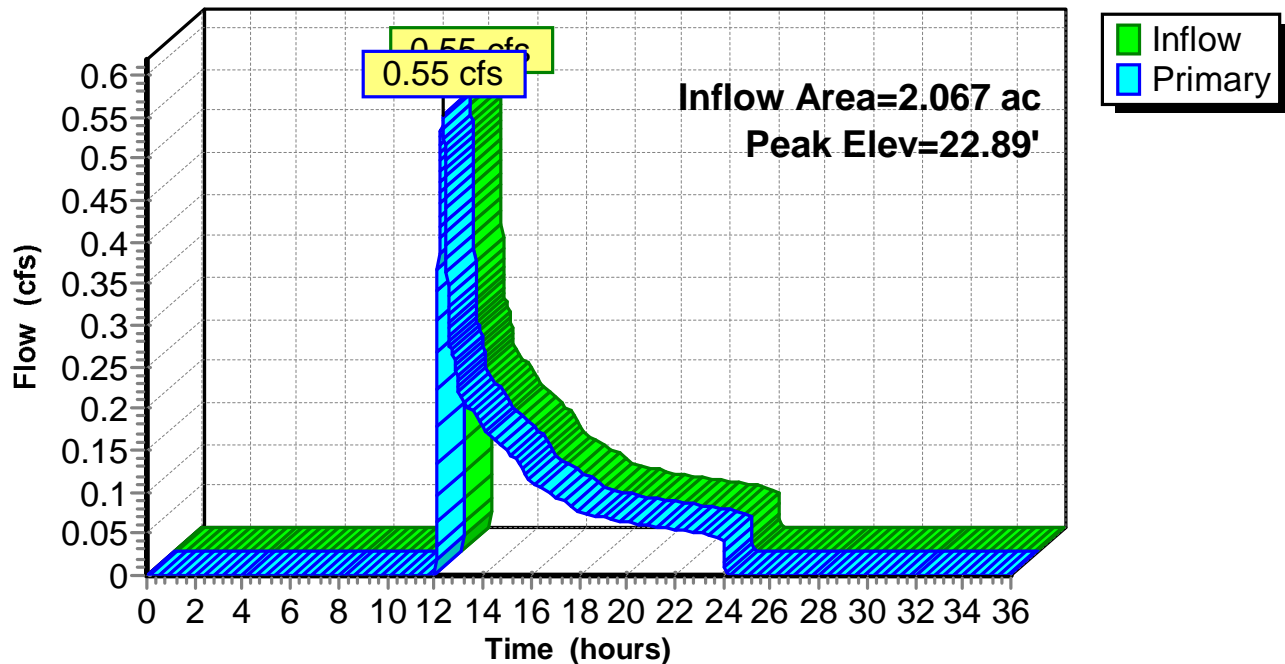
Device	Routing	Invert	Outlet Devices
#1	Primary	26.87'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	22.52'	12.0" Round Culvert L= 95.0' Ke= 0.500 Inlet / Outlet Invert= 22.52' / 21.23' S= 0.0136 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.33 hrs HW=22.89' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.55 cfs @ 2.08 fps)

Pond CB16-11:

Hydrograph



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Summary for Pond CB16-12:

Inflow Area = 1.373 ac, 4.36% Impervious, Inflow Depth = 0.86" for 100-yr event
 Inflow = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af
 Outflow = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.55 cfs @ 12.33 hrs, Volume= 0.098 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 24.28' @ 12.33 hrs

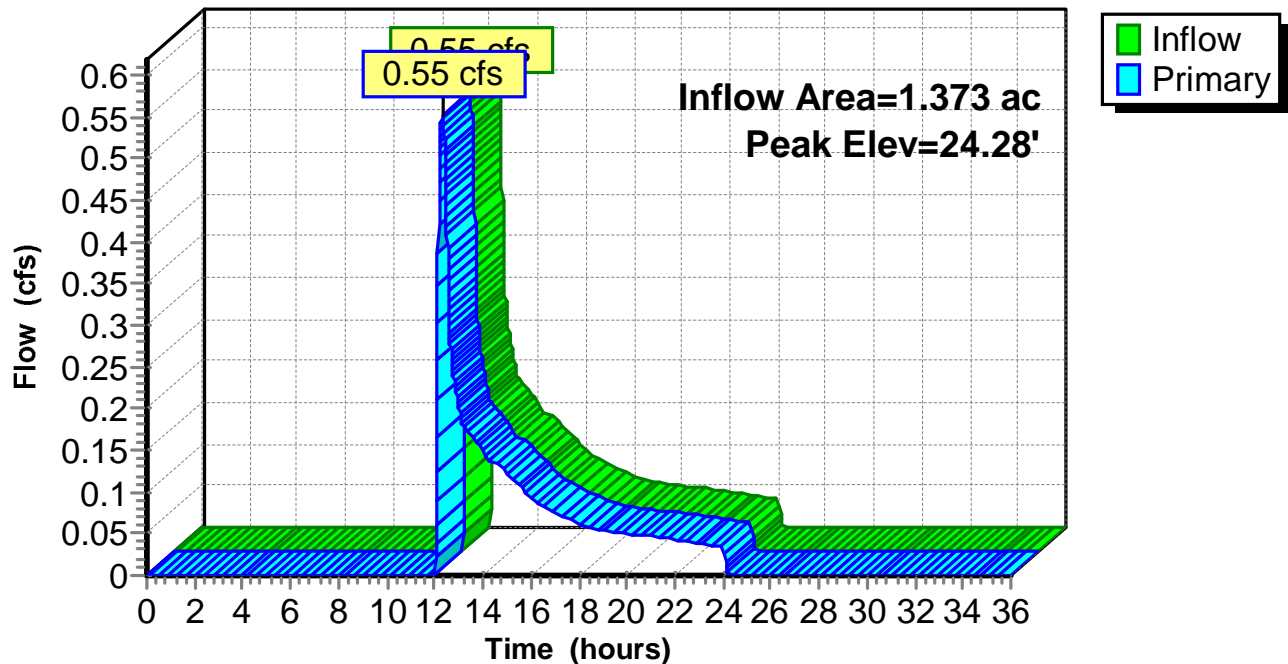
Device	Routing	Invert	Outlet Devices
#1	Primary	29.47'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	23.91'	12.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 23.91' / 23.32' S= 0.0328 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.55 cfs @ 12.33 hrs HW=24.28' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.55 cfs @ 2.08 fps)

Pond CB16-12:

Hydrograph



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Summary for Pond CB16-13:

Inflow Area = 0.830 ac, 6.45% Impervious, Inflow Depth = 0.95" for 100-yr event
 Inflow = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af
 Outflow = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
 Primary = 0.46 cfs @ 12.12 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 28.46' @ 12.12 hrs

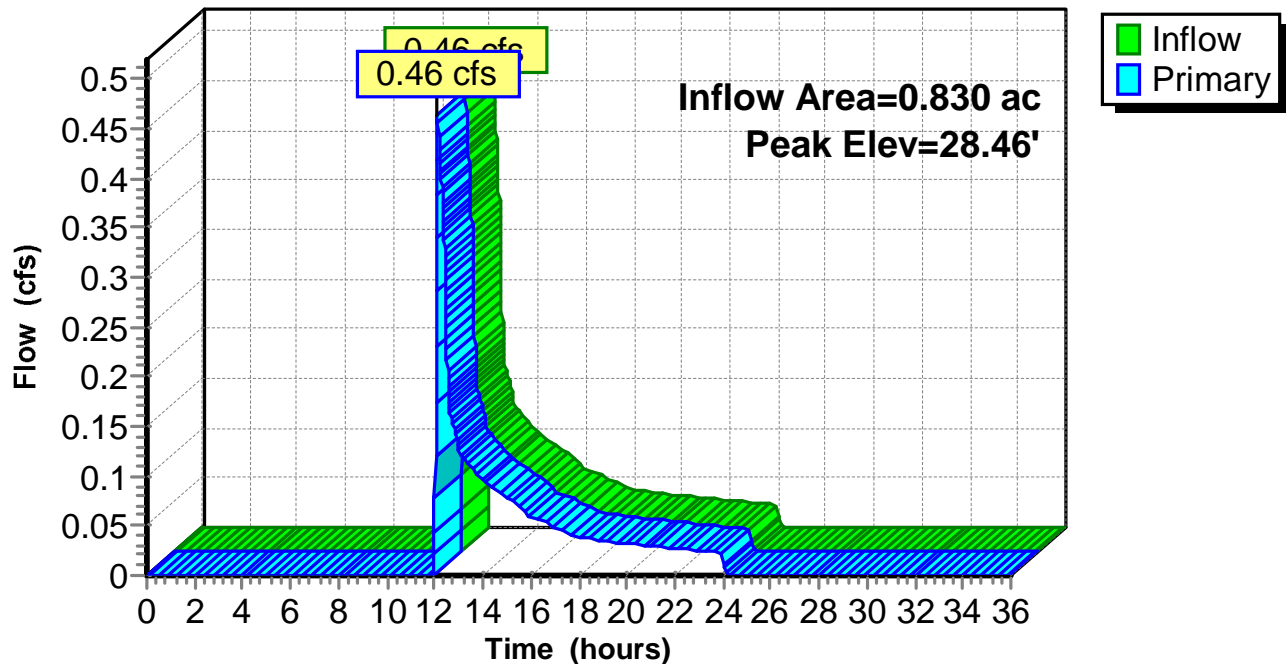
Device	Routing	Invert	Outlet Devices
#1	Primary	32.79'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	28.12'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 28.12' / 27.48' S= 0.2133 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.46 cfs @ 12.12 hrs HW=28.46' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.46 cfs @ 1.98 fps)

Pond CB16-13:

Hydrograph



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Summary for Pond CB16-14:

Inflow Area = 0.602 ac, 8.15% Impervious, Inflow Depth = 1.15" for 100-yr event
Inflow = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af
Outflow = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.19 hrs, Volume= 0.057 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 37.91' @ 12.19 hrs

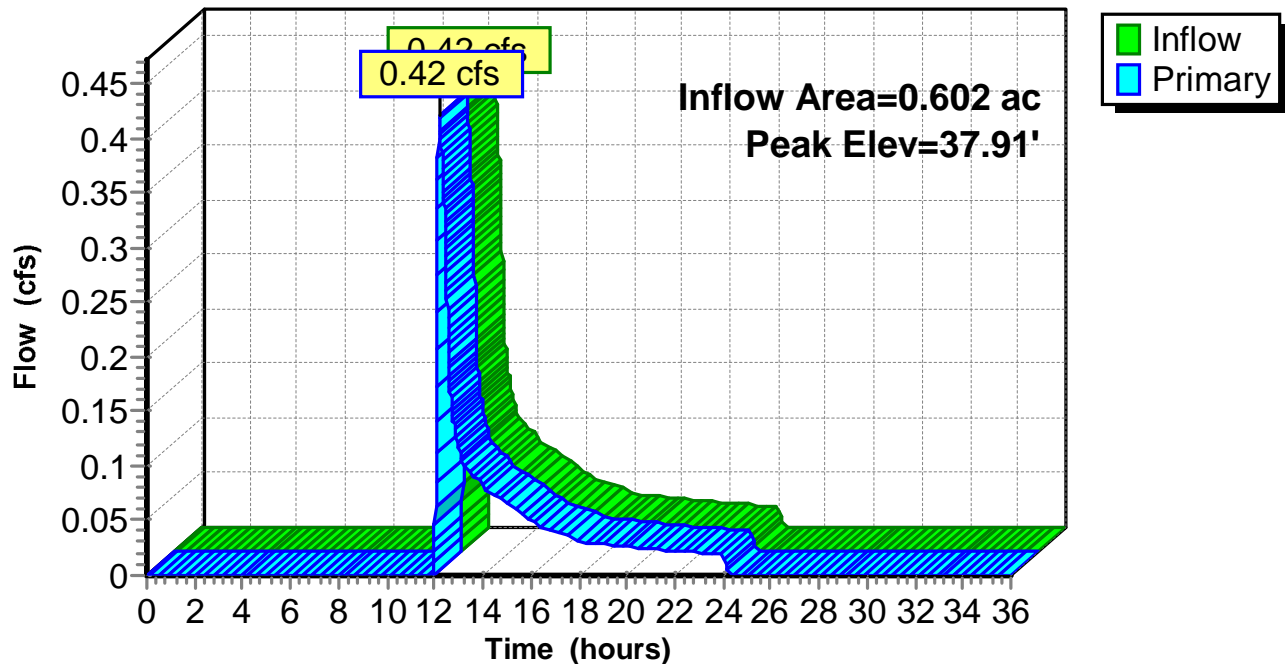
Device	Routing	Invert	Outlet Devices
#1	Primary	42.77'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	37.59'	12.0" Round Culvert L= 94.0' Ke= 0.500 Inlet / Outlet Invert= 37.59' / 30.07' S= 0.0800 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.42 cfs @ 12.19 hrs HW=37.91' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.42 cfs @ 1.93 fps)

Pond CB16-14:

Hydrograph



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Summary for Pond CB16-15:

Inflow Area = 0.920 ac, 23.48% Impervious, Inflow Depth = 1.51" for 100-yr event
Inflow = 1.47 cfs @ 12.20 hrs, Volume= 0.116 af
Outflow = 1.47 cfs @ 12.20 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Primary = 1.47 cfs @ 12.20 hrs, Volume= 0.116 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 10.05' @ 12.20 hrs

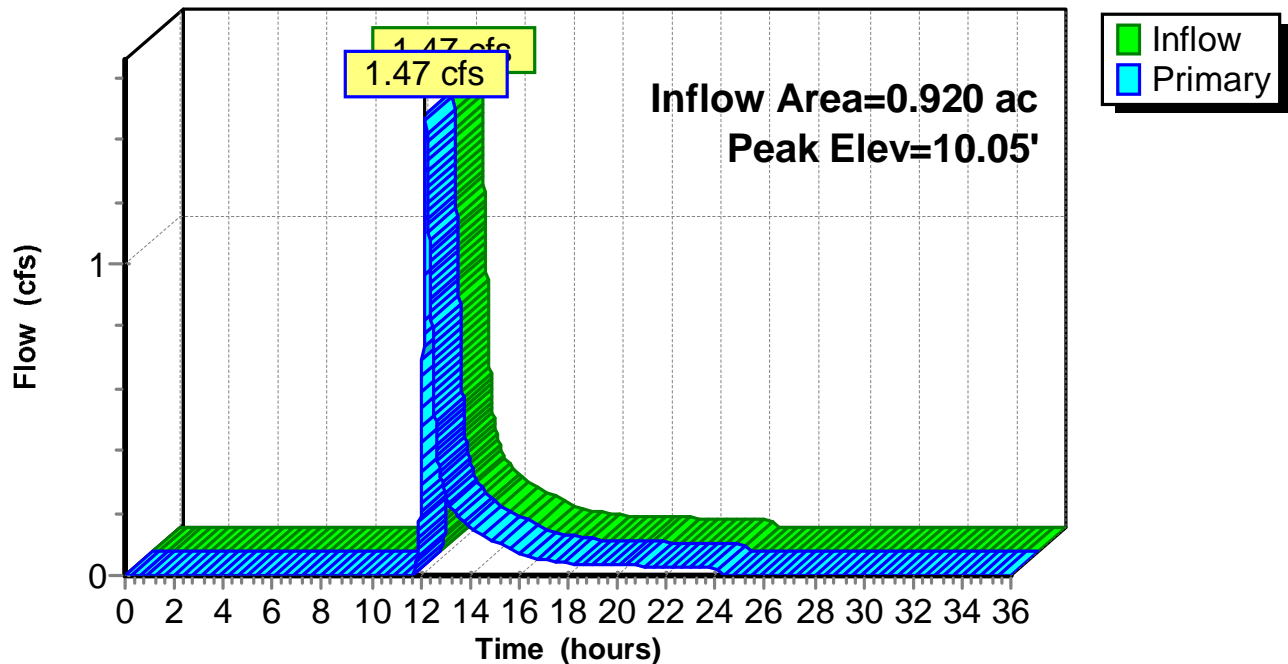
Device	Routing	Invert	Outlet Devices
#1	Primary	12.42'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.40'	12.0" Round Culvert L= 93.0' Ke= 0.500 Inlet / Outlet Invert= 9.40' / 7.97' S= 0.0154 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.47 cfs @ 12.20 hrs HW=10.05' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.47 cfs @ 2.74 fps)

Pond CB16-15:

Hydrograph



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Summary for Pond CB17-01:

Inflow Area = 0.588 ac, 12.28% Impervious, Inflow Depth = 1.35" for 100-yr event
Inflow = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af
Outflow = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min
Primary = 0.61 cfs @ 12.13 hrs, Volume= 0.066 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.51' @ 12.13 hrs

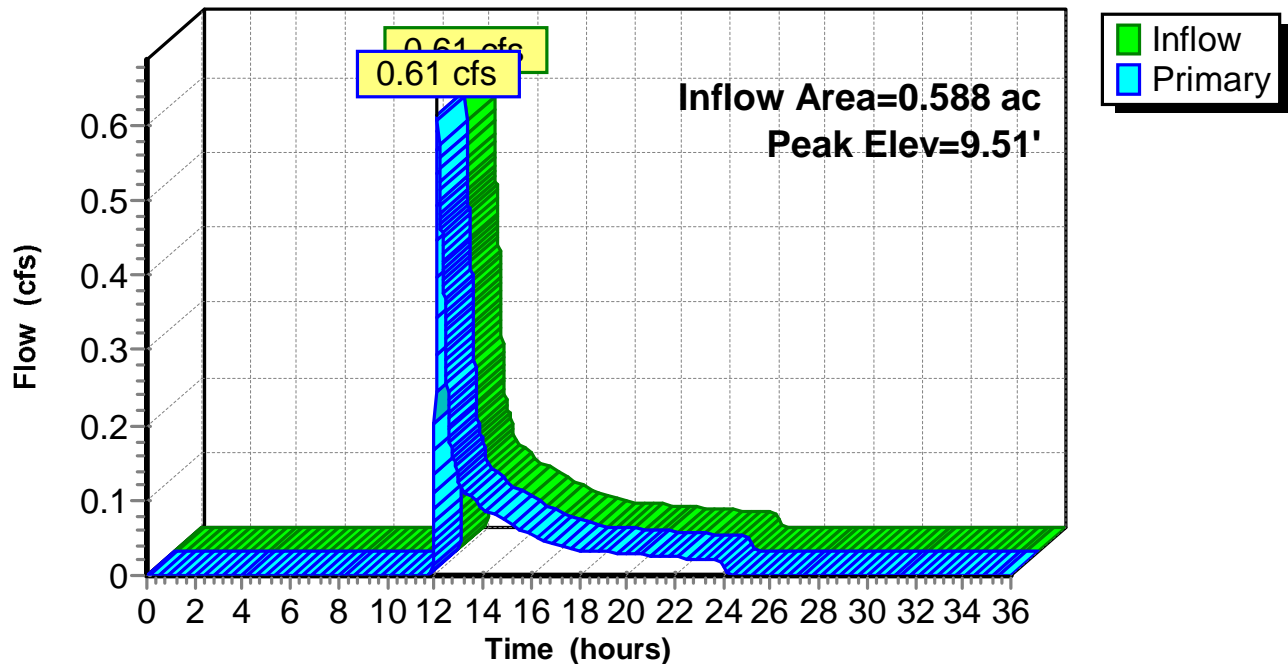
Device	Routing	Invert	Outlet Devices
#1	Primary	12.28'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.03'	12.0" Round Culvert L= 50.0' Ke= 0.500 Inlet / Outlet Invert= 9.03' / 8.85' S= 0.0036 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.61 cfs @ 12.13 hrs HW=9.51' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.61 cfs @ 2.41 fps)

Pond CB17-01:

Hydrograph



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Summary for Pond CB17-02:

Inflow Area = 0.805 ac, 10.87% Impervious, Inflow Depth = 1.27" for 100-yr event
Inflow = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af
Outflow = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af, Atten= 0%, Lag= 0.0 min
Primary = 0.75 cfs @ 12.13 hrs, Volume= 0.085 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.39' @ 12.13 hrs

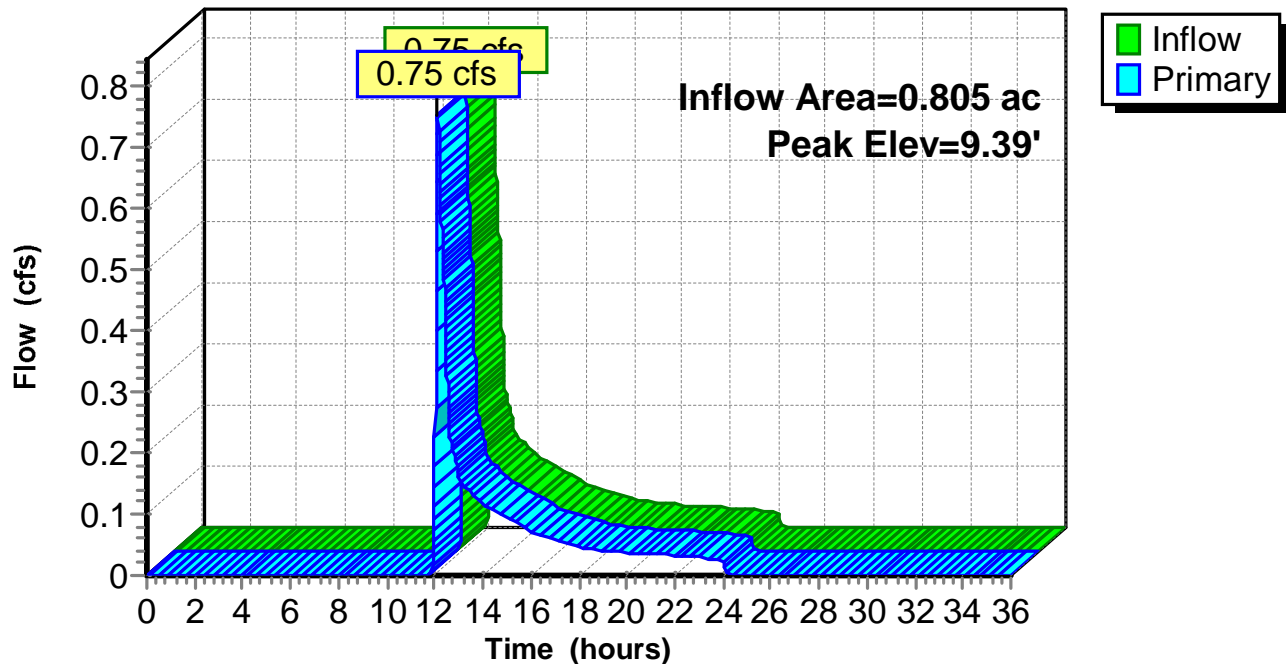
Device	Routing	Invert	Outlet Devices
#1	Primary	12.27'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.85'	12.0" Round Culvert L= 62.0' Ke= 0.500 Inlet / Outlet Invert= 8.85' / 8.63' S= 0.0035 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.75 cfs @ 12.13 hrs HW=9.39' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.75 cfs @ 2.54 fps)

Pond CB17-02:

Hydrograph



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Summary for Pond CB17-03:

Inflow Area = 0.789 ac, 16.74% Impervious, Inflow Depth = 1.67" for 100-yr event
 Inflow = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af
 Outflow = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.11 cfs @ 12.14 hrs, Volume= 0.110 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 9.33' @ 12.14 hrs

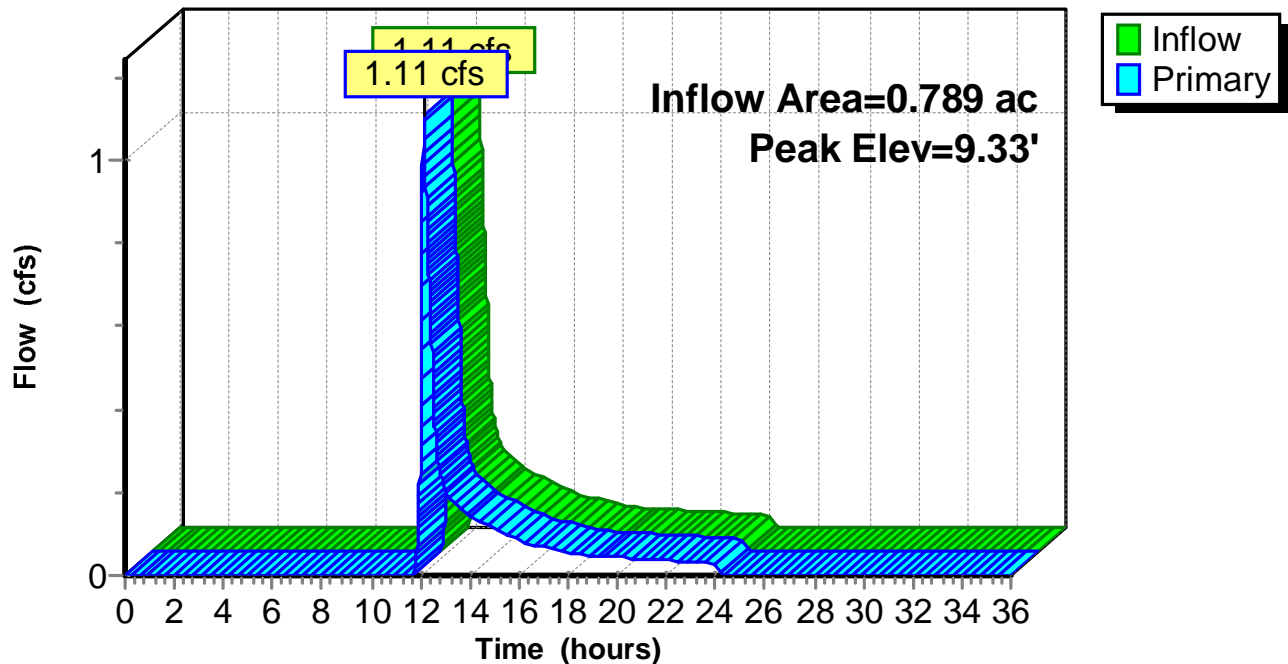
Device	Routing	Invert	Outlet Devices
#1	Primary	11.61'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.67'	12.0" Round Culvert L= 3.0' Ke= 0.500 Inlet / Outlet Invert= 8.67' / 8.63' S= 0.0133 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.11 cfs @ 12.14 hrs HW=9.33' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.11 cfs @ 2.88 fps)

Pond CB17-03:

Hydrograph



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Summary for Pond CB17-04:

Inflow Area = 0.420 ac, 32.04% Impervious, Inflow Depth = 2.91" for 100-yr event
Inflow = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af
Outflow = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af, Atten= 0%, Lag= 0.0 min
Primary = 1.37 cfs @ 12.10 hrs, Volume= 0.102 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.74' @ 12.10 hrs

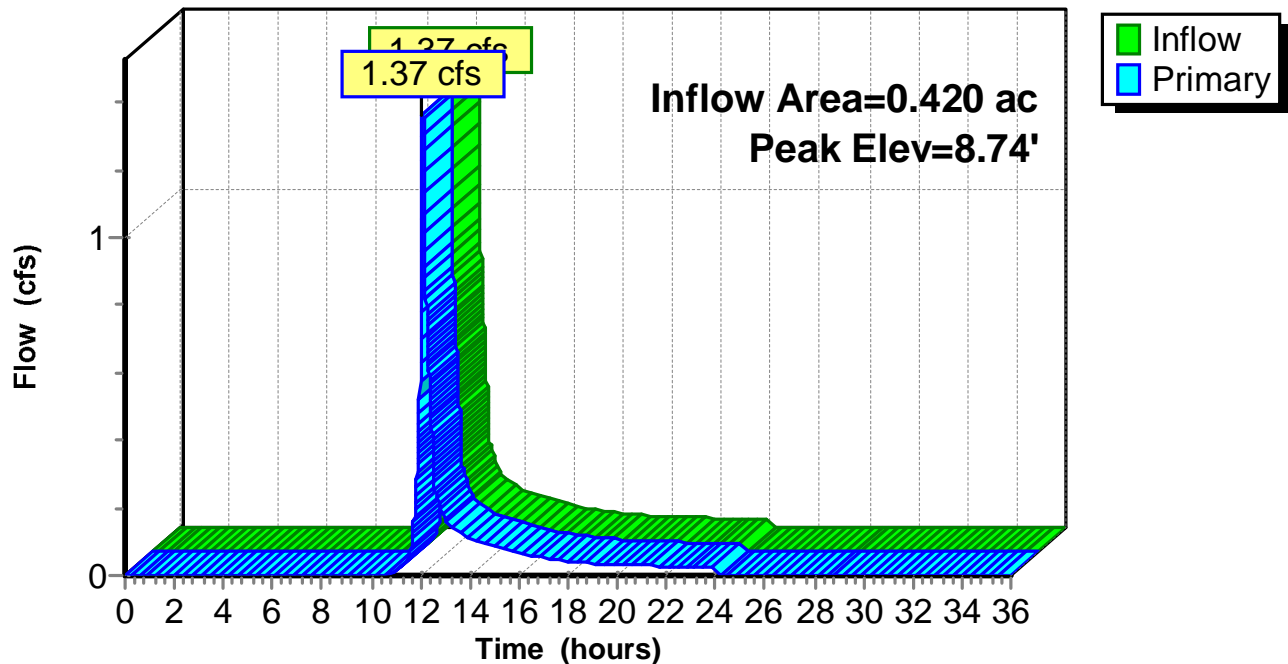
Device	Routing	Invert	Outlet Devices
#1	Primary	11.13'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0260 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.36 cfs @ 12.10 hrs HW=8.74' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.36 cfs @ 3.43 fps)

Pond CB17-04:

Hydrograph



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Summary for Pond CB17-05:

Inflow Area = 0.309 ac, 47.03% Impervious, Inflow Depth = 4.09" for 100-yr event
Inflow = 1.57 cfs @ 12.07 hrs, Volume= 0.105 af
Outflow = 1.57 cfs @ 12.07 hrs, Volume= 0.105 af, Atten= 0%, Lag= 0.0 min
Primary = 1.57 cfs @ 12.07 hrs, Volume= 0.105 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.85' @ 12.07 hrs

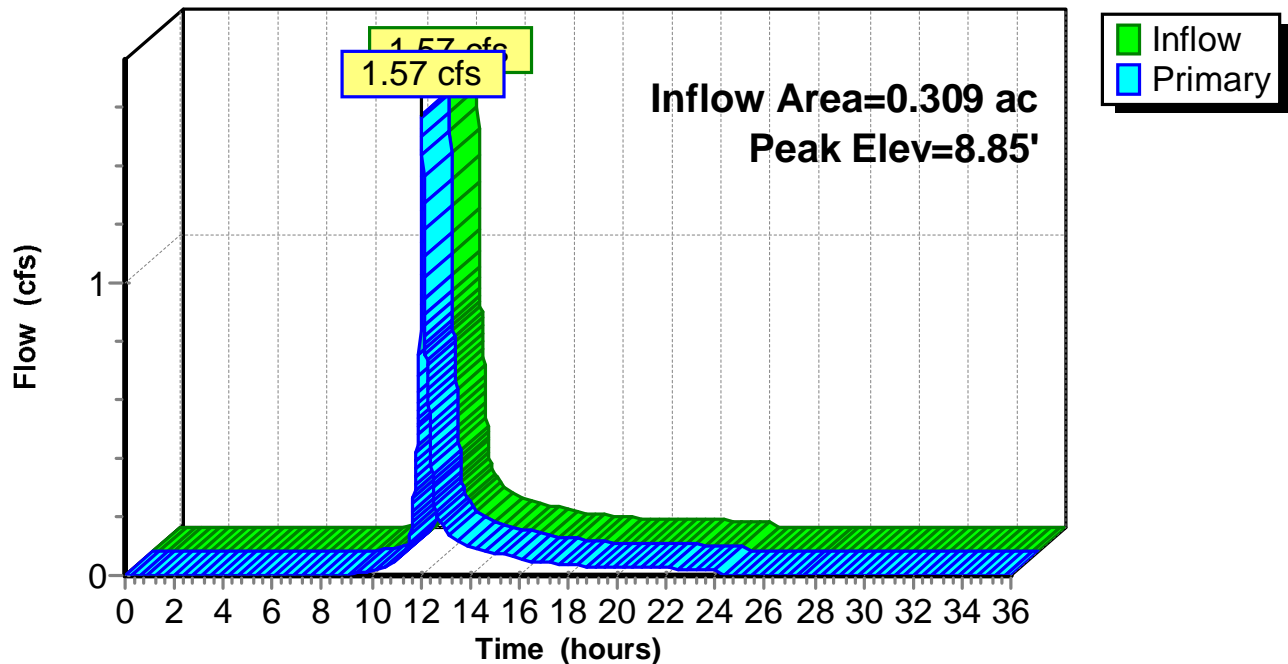
Device	Routing	Invert	Outlet Devices
#1	Primary	11.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	8.07'	12.0" Round Culvert L= 19.0' Ke= 0.500 Inlet / Outlet Invert= 8.07' / 7.94' S= 0.0068 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.56 cfs @ 12.07 hrs HW=8.85' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.56 cfs @ 3.28 fps)

Pond CB17-05:

Hydrograph



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Summary for Pond CB17-06:

Inflow Area = 0.180 ac, 52.71% Impervious, Inflow Depth = 4.57" for 100-yr event
Inflow = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af
Outflow = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af, Atten= 0%, Lag= 0.0 min
Primary = 1.04 cfs @ 12.06 hrs, Volume= 0.069 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 7.21' @ 12.06 hrs

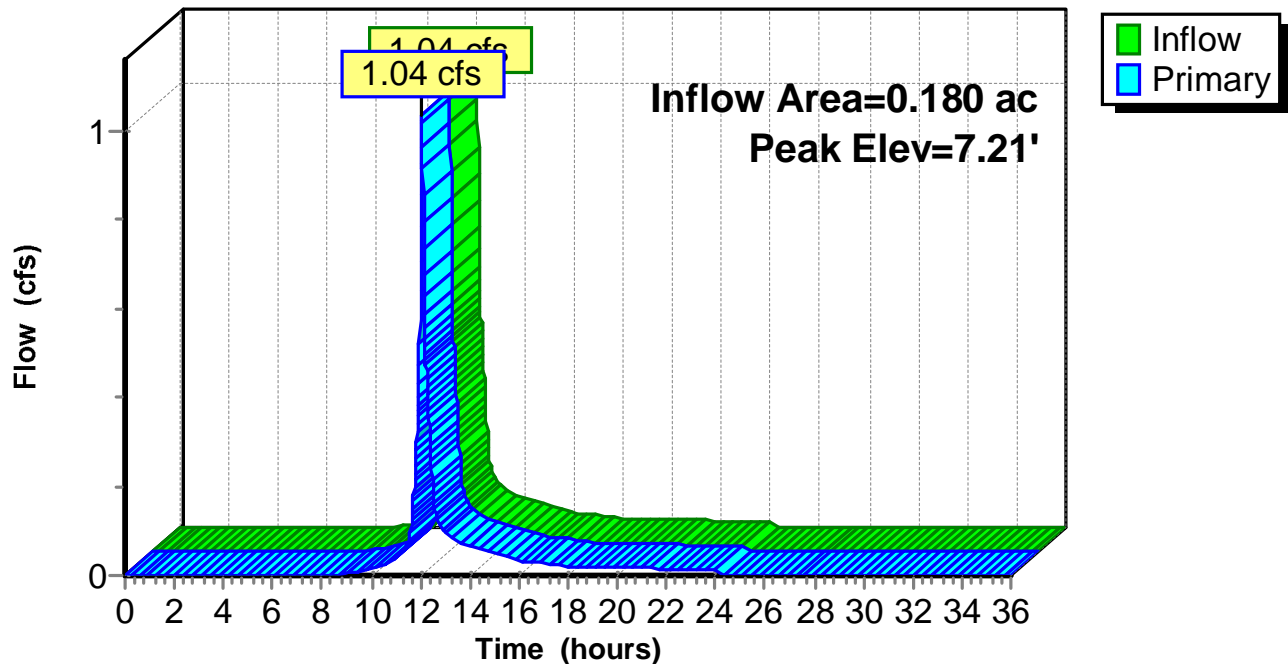
Device	Routing	Invert	Outlet Devices
#1	Primary	10.17'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.68'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.68' / 6.25' S= 0.0113 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.04 cfs @ 12.06 hrs HW=7.21' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.04 cfs @ 2.47 fps)

Pond CB17-06:

Hydrograph



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Summary for Pond CB17-07:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 2.37" for 100-yr event
Inflow = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af
Outflow = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af, Atten= 0%, Lag= 0.0 min
Primary = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.12' @ 12.09 hrs

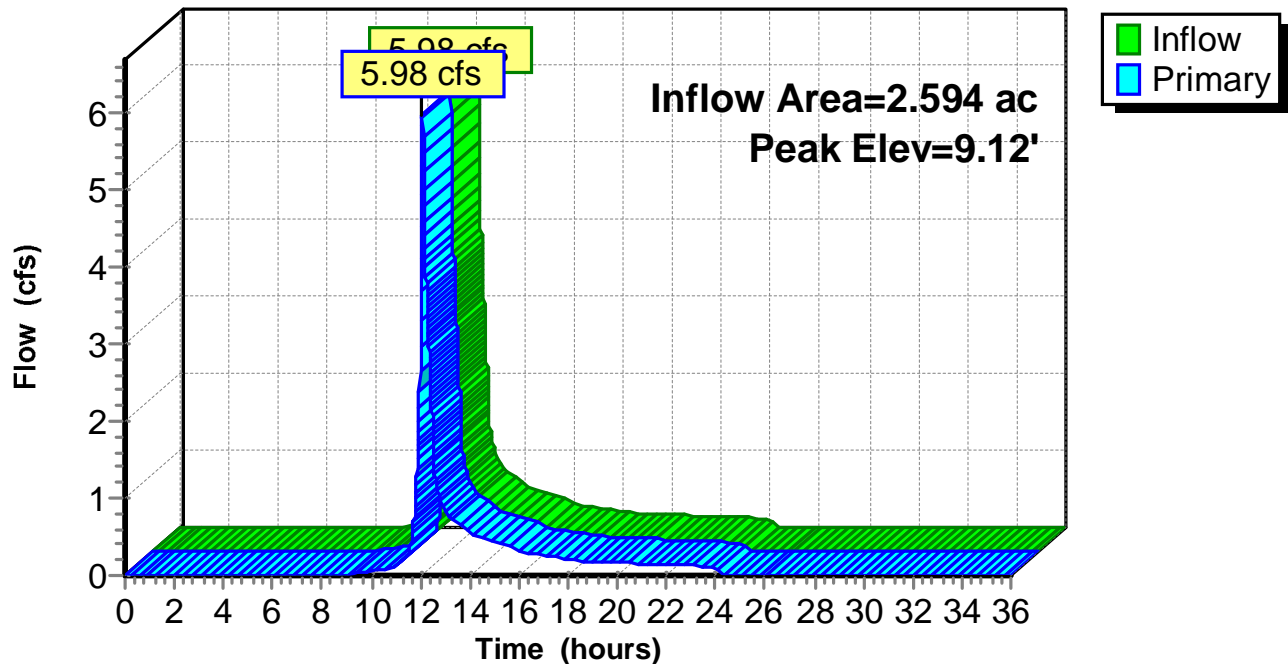
Device	Routing	Invert	Outlet Devices
#1	Primary	9.68'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	6.12'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 6.12' / 6.09' S= 0.0015 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.98 cfs @ 12.09 hrs HW=9.12' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.98 cfs @ 7.61 fps)

Pond CB17-07:

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Summary for Pond HY-DYN:

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 3.02" for 100-yr event
 Inflow = 1.21 cfs @ 12.10 hrs, Volume= 0.090 af
 Outflow = 1.21 cfs @ 12.10 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min
 Primary = 1.21 cfs @ 12.10 hrs, Volume= 0.090 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
 Peak Elev= 10.38' @ 12.10 hrs

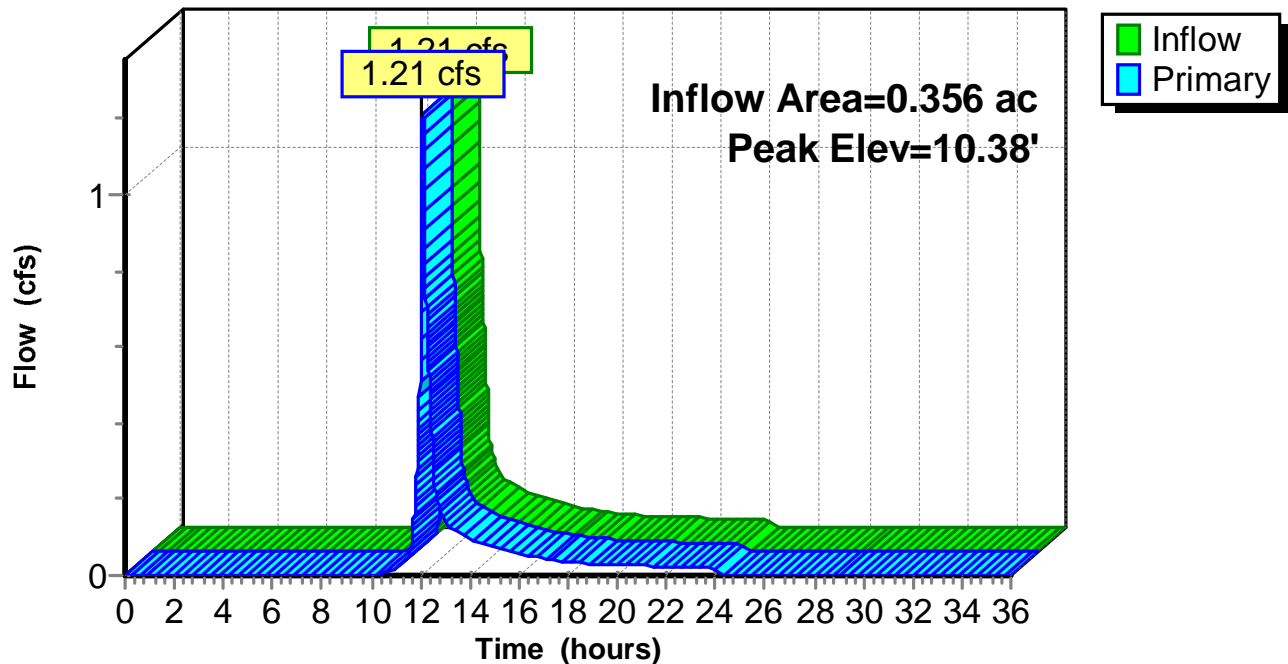
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" x 24.0" Horiz. Orifice/Grate C= 0.600 Limited to weir flow at low heads
#2	Primary	9.50'	8.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 9.50' / 9.40' S= 0.0200 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.35 sf

Primary OutFlow Max=1.21 cfs @ 12.10 hrs HW=10.38' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.21 cfs @ 3.47 fps)

Pond HY-DYN:

Hydrograph



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Summary for Pond INFIL: 100HD

Inflow Area = 0.356 ac, 33.23% Impervious, Inflow Depth = 3.02" for 100-yr event
Inflow = 1.21 cfs @ 12.10 hrs, Volume= 0.090 af
Outflow = 0.75 cfs @ 12.21 hrs, Volume= 0.090 af, Atten= 38%, Lag= 7.0 min
Discarded = 0.06 cfs @ 12.21 hrs, Volume= 0.058 af
Primary = 0.69 cfs @ 12.21 hrs, Volume= 0.032 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 11.00' @ 12.21 hrs Surf.Area= 0.013 ac Storage= 0.020 af

Plug-Flow detention time= 123.1 min calculated for 0.090 af (100% of inflow)
Center-of-Mass det. time= 123.1 min (980.8 - 857.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	7.70'	0.014 af	9.23'W x 59.50'L x 3.46'H Field A 0.044 af Overall - 0.009 af Embedded = 0.035 af x 40.0% Voids
#2A	8.70'	0.007 af	Lane HDPE 18" x 6 Inside #1 Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf Row Length Adjustment= +14.40' x 1.76 sf x 3 rows 7.73' Header x 1.76 sf x 2 = 27.2 cf Inside
		0.021 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	7.70'	2.410 in/hr Exfiltration over Wetted area
#2	Primary	10.42'	8.0" Round Culvert L= 100.0' Ke= 0.500 Inlet / Outlet Invert= 10.42' / 9.90' S= 0.0052 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf

Discarded OutFlow Max=0.06 cfs @ 12.21 hrs HW=11.00' (Free Discharge)

↑**1=Exfiltration** (Exfiltration Controls 0.06 cfs)

Primary OutFlow Max=0.69 cfs @ 12.21 hrs HW=11.00' (Free Discharge)

↑**2=Culvert** (Barrel Controls 0.69 cfs @ 2.85 fps)

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Type III 24-hr 100-yr Rainfall=8.68"

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Pond INFIL: 100HD - Chamber Wizard Field A

Chamber Model = Lane HDPE 18" (Lane HDPE Pipe)

Inside= 18.0"W x 18.0"H => 1.76 sf x 20.00'L = 35.2 cf

Outside= 21.6"W x 21.6"H => 2.14 sf x 20.00'L = 42.8 cf

Row Length Adjustment= +14.40' x 1.76 sf x 3 rows

21.6" Wide + 14.0" Spacing = 35.6" C-C Row Spacing

2 Chambers/Row x 20.00' Long +14.40' Row Adjustment +1.80' Header x 2 = 58.00' Row Length +9.0" End Stone x 2 = 59.50' Base Length

3 Rows x 21.6" Wide + 14.0" Spacing x 2 + 9.0" Side Stone x 2 = 9.23' Base Width

12.0" Base + 21.6" Chamber Height + 8.0" Cover = 3.46' Field Height

6 Chambers x 35.2 cf +14.40' Row Adjustment x 1.76 sf x 3 Rows + 7.73' Header x 1.76 sf x 2 = 314.3 cf Chamber Storage

6 Chambers x 42.8 cf +14.40' Row Adjustment x 2.14 sf x 3 Rows + 7.73' Header x 2.14 sf x 2 = 382.7 cf Displacement

1,902.5 cf Field - 382.7 cf Chambers = 1,519.7 cf Stone x 40.0% Voids = 607.9 cf Stone Storage

Chamber Storage + Stone Storage = 922.2 cf = 0.021 af

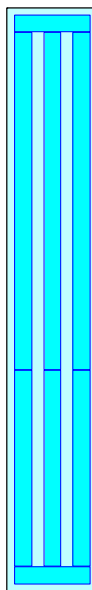
Overall Storage Efficiency = 48.5%

Overall System Size = 59.50' x 9.23' x 3.46'

6 Chambers

70.5 cy Field

56.3 cy Stone



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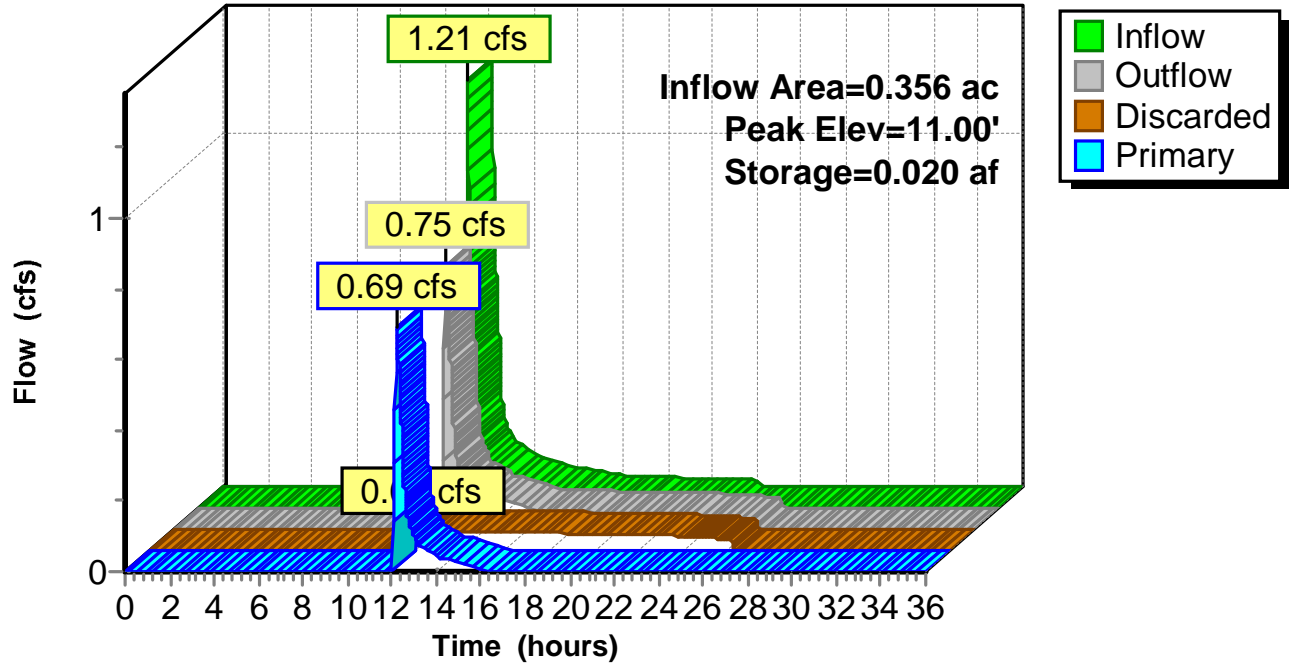
Type III 24-hr 100-yr Rainfall=8.68"

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Pond INFIL: 100HD

Hydrograph



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Summary for Pond OWSMH 16:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 1.09" for 100-yr event
Inflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af
Outflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af, Atten= 0%, Lag= 0.0 min
Primary = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.70' @ 12.18 hrs

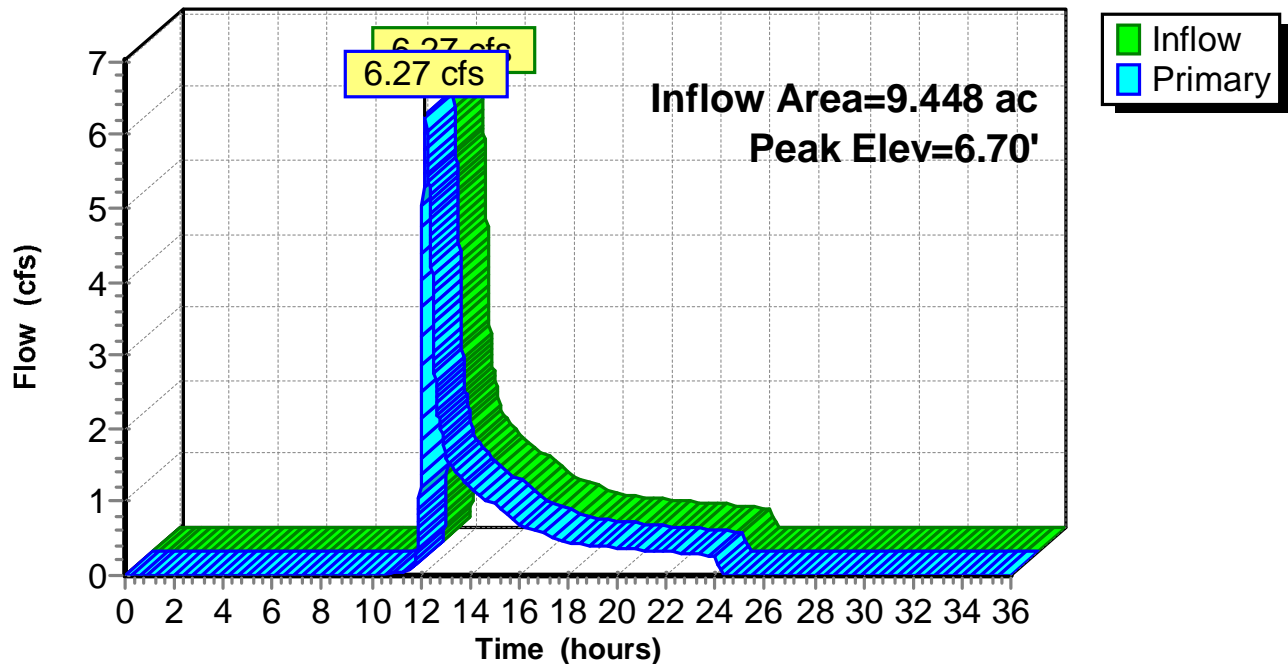
Device	Routing	Invert	Outlet Devices
#1	Primary	14.70'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	5.35'	24.0" Round Culvert L= 40.0' Ke= 0.500 Inlet / Outlet Invert= 5.35' / 5.23' S= 0.0030 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.27 cfs @ 12.18 hrs HW=6.70' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 6.27 cfs @ 3.92 fps)

Pond OWSMH 16:

Hydrograph



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Summary for Pond OWSMH 17:

Inflow Area = 2.594 ac, 25.15% Impervious, Inflow Depth = 2.37" for 100-yr event
Inflow = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af
Outflow = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af, Atten= 0%, Lag= 0.0 min
Primary = 5.98 cfs @ 12.09 hrs, Volume= 0.512 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.09' @ 12.09 hrs

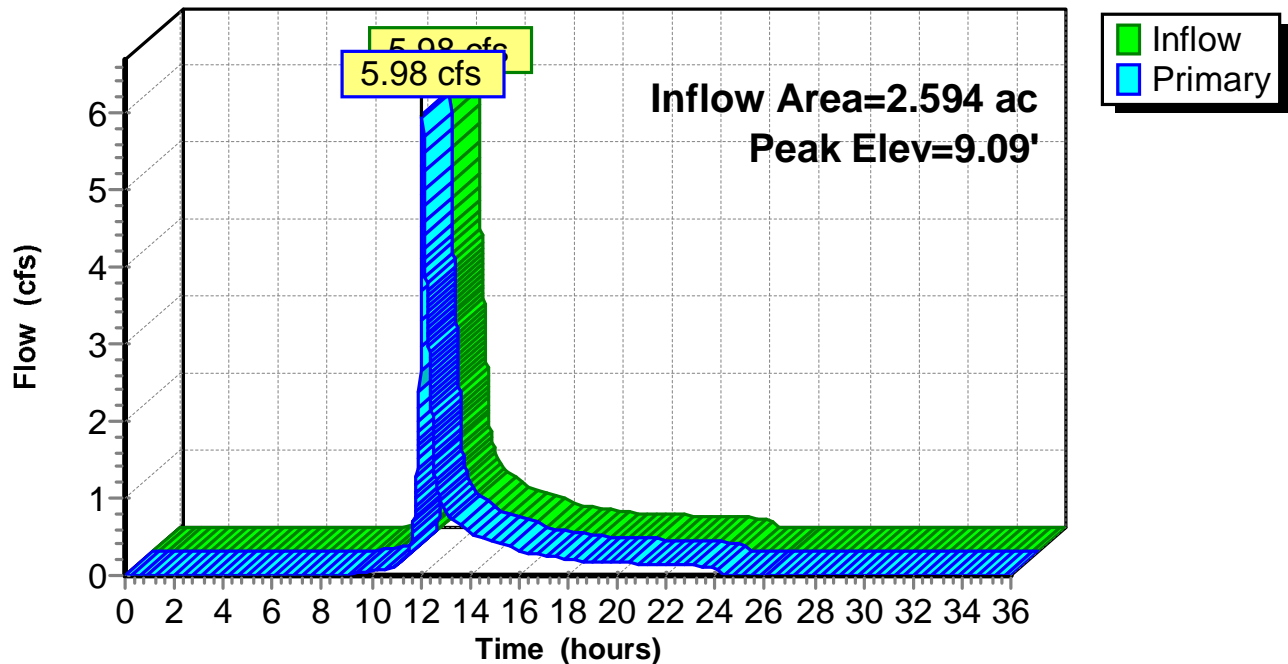
Device	Routing	Invert	Outlet Devices
#1	Primary	10.97'	24.0" Horiz. Orifice/Grate X 0.00 X 2 rows C= 0.600 Limited to weir flow at low heads
#2	Primary	6.09'	12.0" Round Culvert L= 38.0' Ke= 0.500 Inlet / Outlet Invert= 6.09' / 4.23' S= 0.0489 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.98 cfs @ 12.09 hrs HW=9.09' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.98 cfs @ 7.61 fps)

Pond OWSMH 17:

Hydrograph



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Type III 24-hr 100-yr Rainfall=8.68"

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Summary for Pond SDMH16-02.1:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 1.09" for 100-yr event
Inflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af
Outflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af, Atten= 0%, Lag= 0.0 min
Primary = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 6.99' @ 12.18 hrs

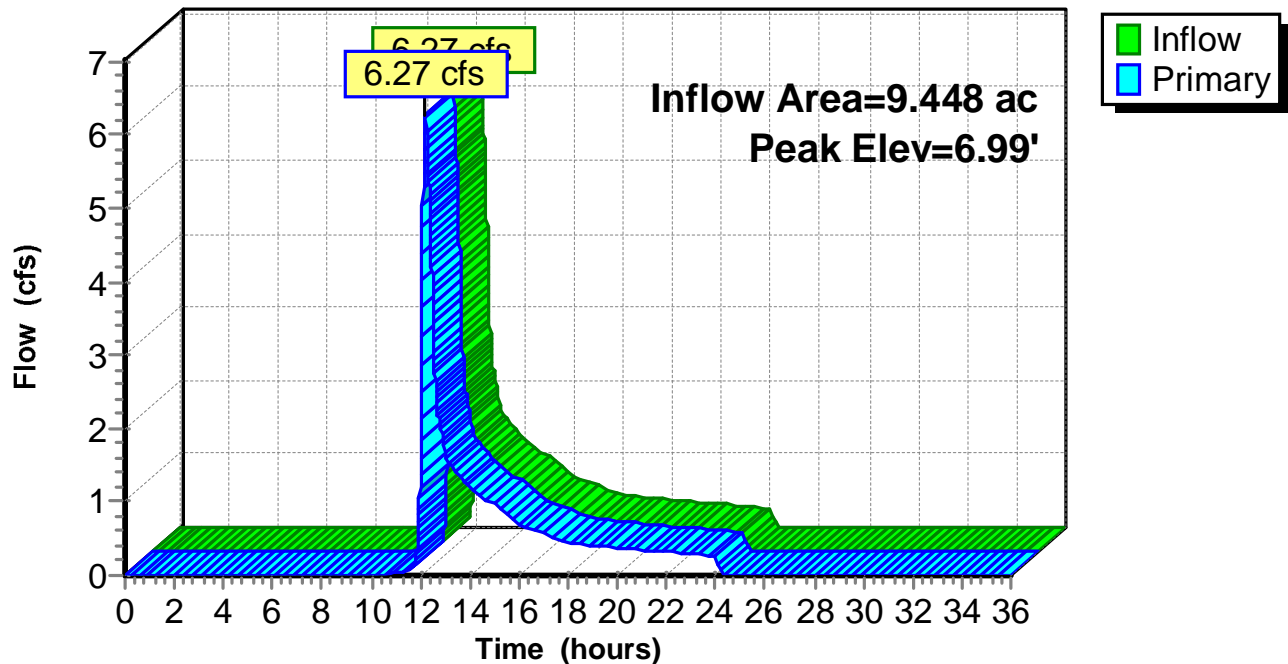
Device	Routing	Invert	Outlet Devices
#1	Primary	14.66'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	5.60'	24.0" Round Culvert L= 5.0' Ke= 0.500 Inlet / Outlet Invert= 5.60' / 5.60' S= 0.0000 1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.27 cfs @ 12.18 hrs HW=6.99' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 6.27 cfs @ 3.79 fps)

Pond SDMH16-02.1:

Hydrograph



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Summary for Pond SDMH16-02.2:

Inflow Area = 9.448 ac, 8.64% Impervious, Inflow Depth = 1.09" for 100-yr event
Inflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af
Outflow = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af, Atten= 0%, Lag= 0.0 min
Primary = 6.27 cfs @ 12.18 hrs, Volume= 0.856 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 7.24' @ 12.18 hrs

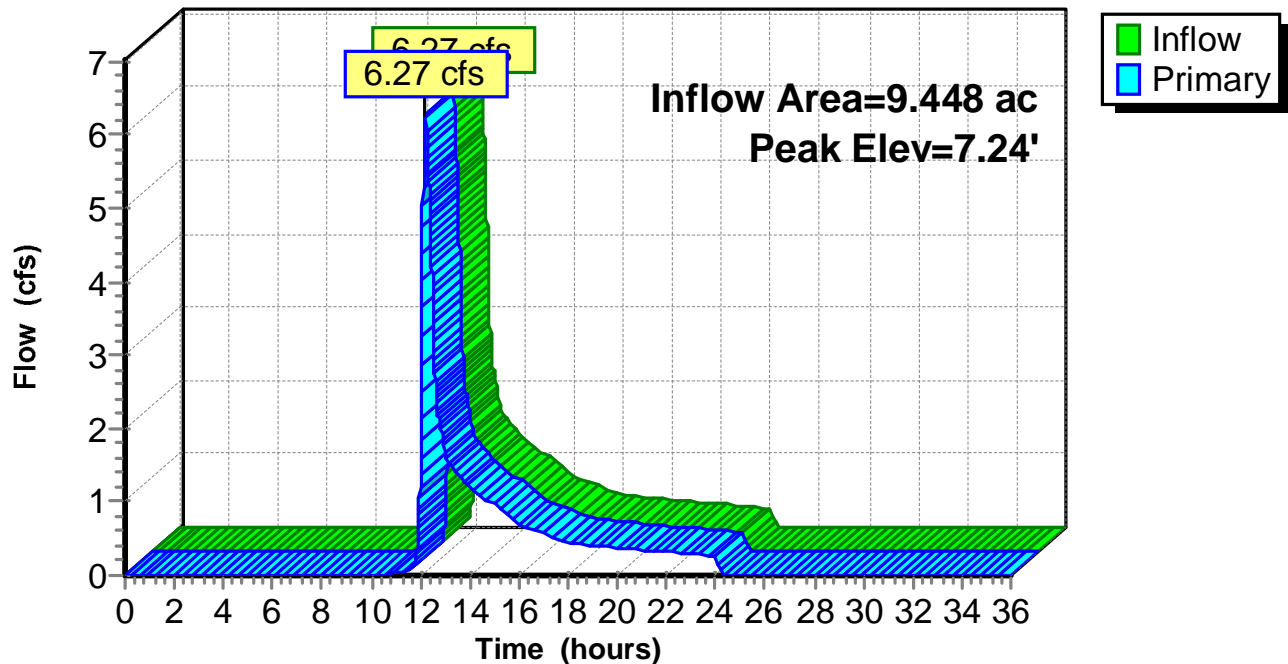
Device	Routing	Invert	Outlet Devices
#1	Primary	12.20'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.11'	24.0" Round Culvert L= 18.0' Ke= 0.500 Inlet / Outlet Invert= 6.11' / 5.74' S= 0.0206 ' /' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 3.14 sf

Primary OutFlow Max=6.27 cfs @ 12.18 hrs HW=7.24' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 6.27 cfs @ 4.94 fps)

Pond SDMH16-02.2:

Hydrograph



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Summary for Pond SDMH16-03:

Inflow Area = 0.888 ac, 16.09% Impervious, Inflow Depth = 1.67" for 100-yr event
Inflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af
Outflow = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 1.30 cfs @ 12.13 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.66' @ 12.13 hrs

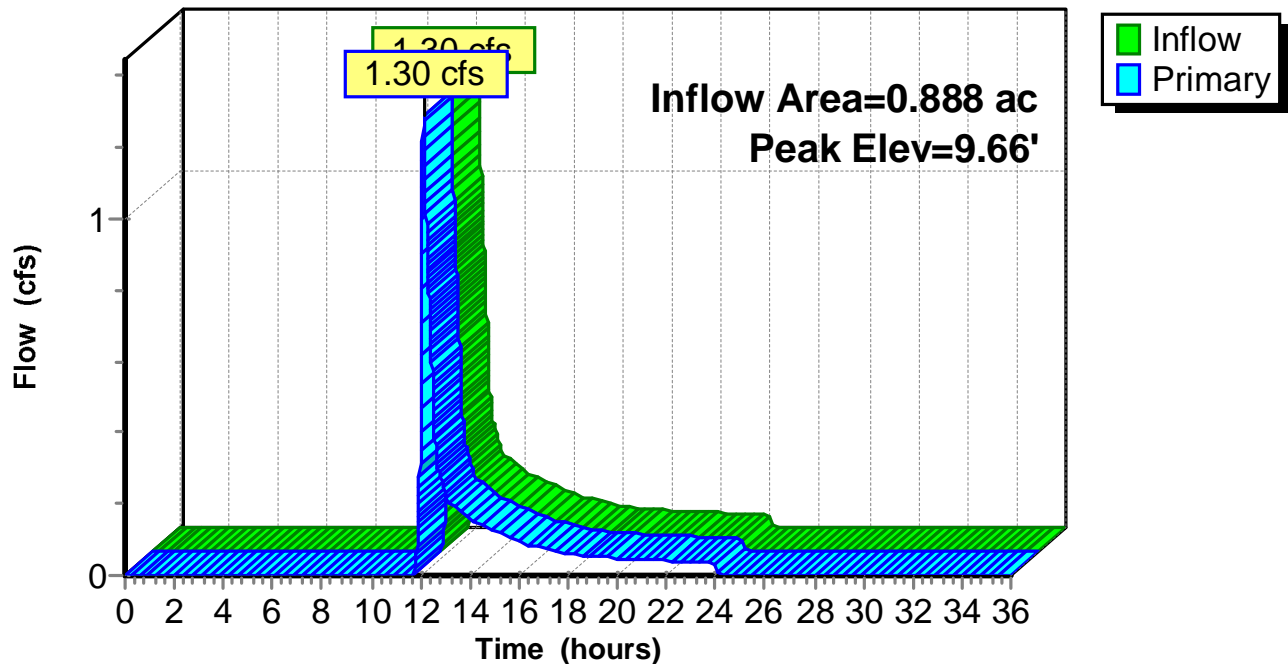
Device	Routing	Invert	Outlet Devices
#1	Primary	12.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.06'	12.0" Round Culvert L= 90.0' Ke= 0.500 Inlet / Outlet Invert= 9.06' / 6.11' S= 0.0328 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.30 cfs @ 12.13 hrs HW=9.66' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.30 cfs @ 2.64 fps)

Pond SDMH16-03:

Hydrograph



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Summary for Pond SDMH16-05:

Inflow Area = 4.872 ac, 4.04% Impervious, Inflow Depth = 0.83" for 100-yr event
Inflow = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af
Outflow = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min
Primary = 1.87 cfs @ 12.29 hrs, Volume= 0.335 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 21.90' @ 12.29 hrs

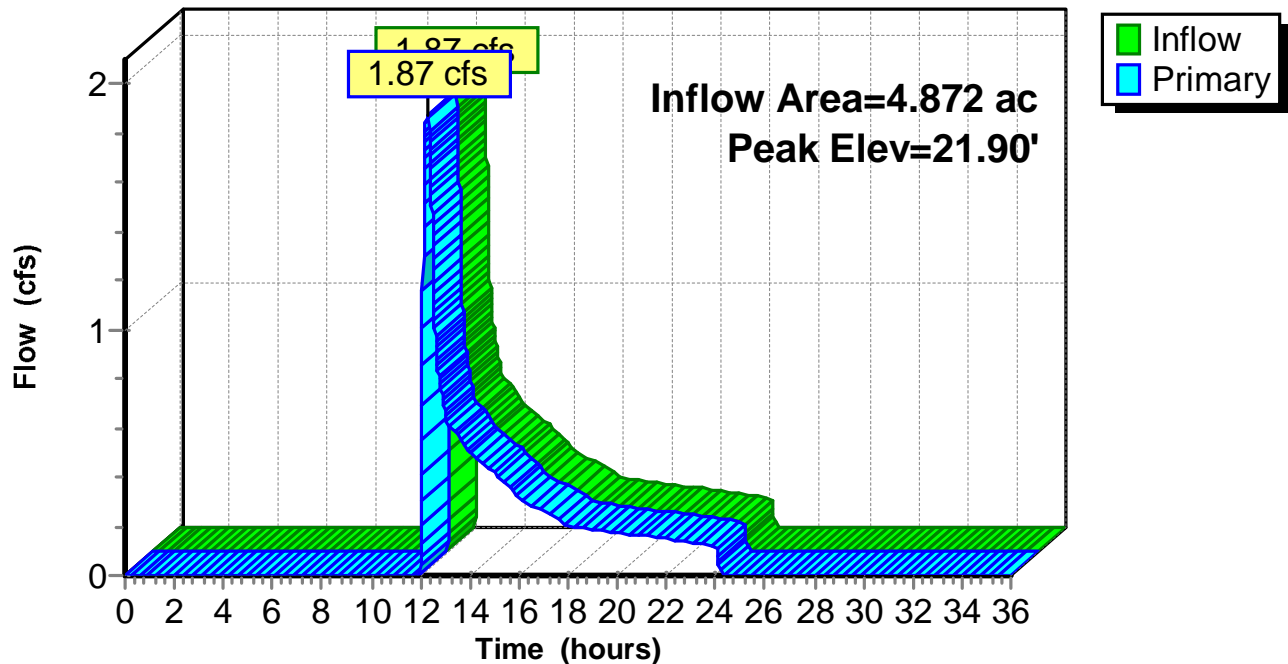
Device	Routing	Invert	Outlet Devices
#1	Primary	25.50'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	21.23'	15.0" Round Culvert L= 225.0' Ke= 0.500 Inlet / Outlet Invert= 21.23' / 7.98' S= 0.0589 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=1.87 cfs @ 12.29 hrs HW=21.90' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.87 cfs @ 2.79 fps)

Pond SDMH16-05:

Hydrograph



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Summary for Pond SDMH16-06:

Inflow Area = 0.621 ac, 13.39% Impervious, Inflow Depth = 1.47" for 100-yr event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af
Outflow = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af, Atten= 0%, Lag= 0.0 min
Primary = 0.83 cfs @ 12.09 hrs, Volume= 0.076 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.63' @ 12.09 hrs

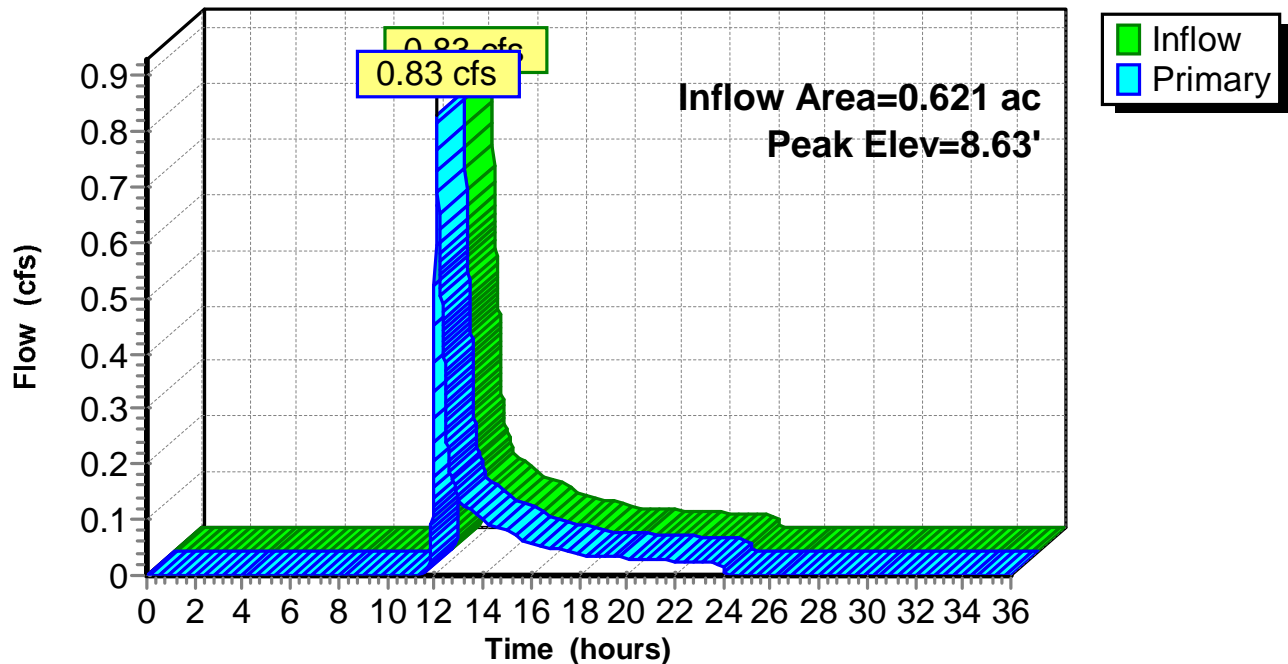
Device	Routing	Invert	Outlet Devices
#1	Primary	13.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.03'	15.0" Round Culvert L= 60.0' Ke= 0.500 Inlet / Outlet Invert= 8.03' / 7.97' S= 0.0010 1/1' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 1.23 sf

Primary OutFlow Max=0.83 cfs @ 12.09 hrs HW=8.63' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 0.83 cfs @ 2.08 fps)

Pond SDMH16-06:

Hydrograph



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Summary for Pond SDMH16-12.1:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 1.03" for 100-yr event
Inflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af
Outflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 27.80' @ 12.16 hrs

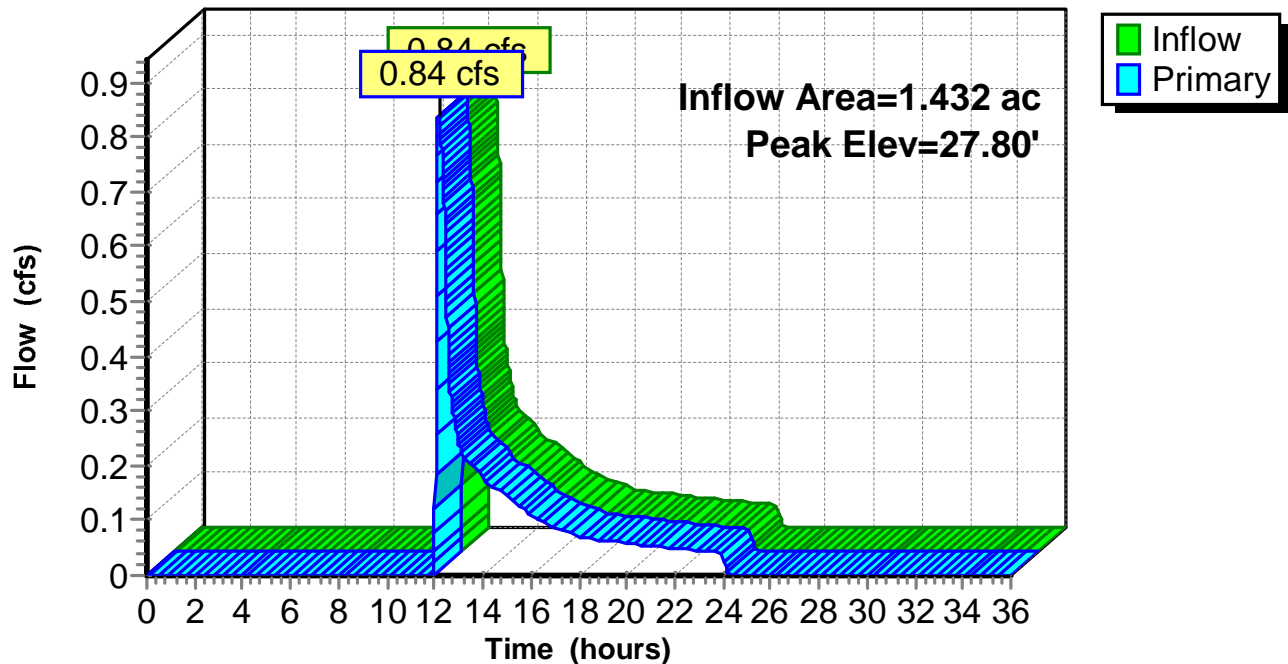
Device	Routing	Invert	Outlet Devices
#1	Primary	32.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	27.33'	12.0" Round Culvert L= 215.0' Ke= 0.500 Inlet / Outlet Invert= 27.33' / 25.70' S= 0.0076 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.16 hrs HW=27.80' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Pond SDMH16-12.1:

Hydrograph



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Summary for Pond SDMH16-12.2:

Inflow Area = 2.805 ac, 5.79% Impervious, Inflow Depth = 0.95" for 100-yr event
Inflow = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af
Outflow = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af, Atten= 0%, Lag= 0.0 min
Primary = 1.34 cfs @ 12.21 hrs, Volume= 0.221 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 23.87' @ 12.21 hrs

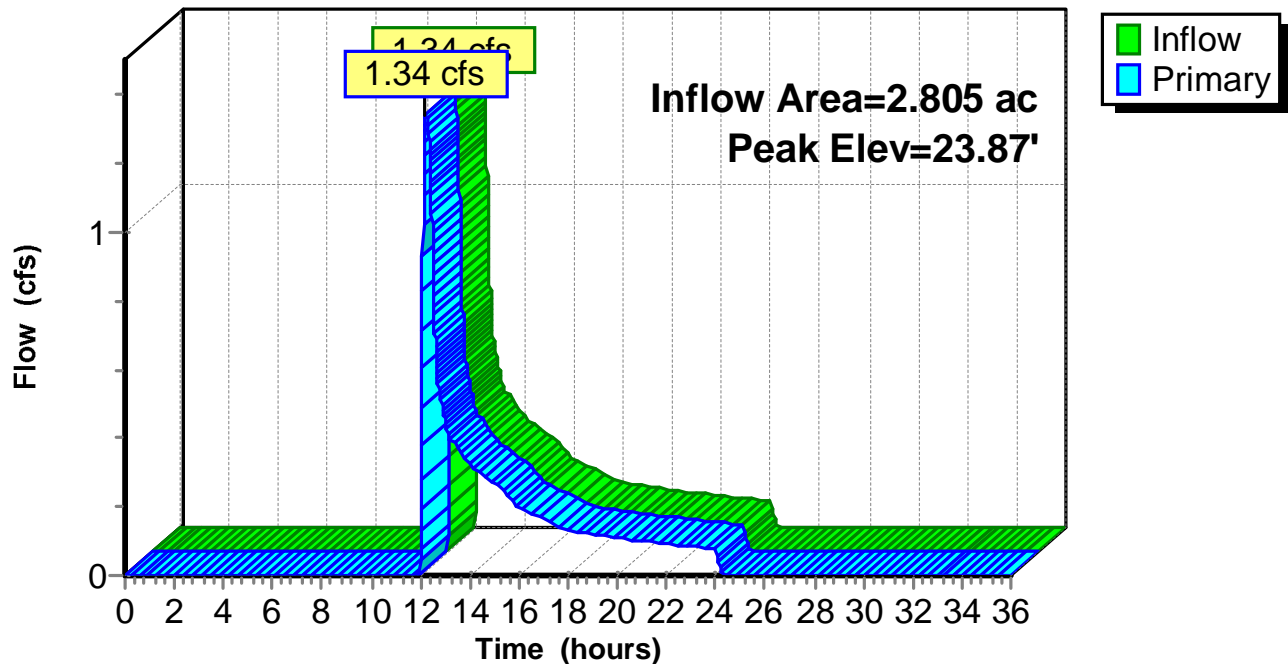
Device	Routing	Invert	Outlet Devices
#1	Primary	29.86'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	23.26'	12.0" Round Culvert L= 69.0' Ke= 0.500 Inlet / Outlet Invert= 23.26' / 21.23' S= 0.0294 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.34 cfs @ 12.21 hrs HW=23.87' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 1.34 cfs @ 2.66 fps)

Pond SDMH16-12.2:

Hydrograph



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Summary for Pond SDMH16-13:

Inflow Area = 1.432 ac, 7.16% Impervious, Inflow Depth = 1.03" for 100-yr event
Inflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af
Outflow = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af, Atten= 0%, Lag= 0.0 min
Primary = 0.84 cfs @ 12.16 hrs, Volume= 0.123 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 30.44' @ 12.16 hrs

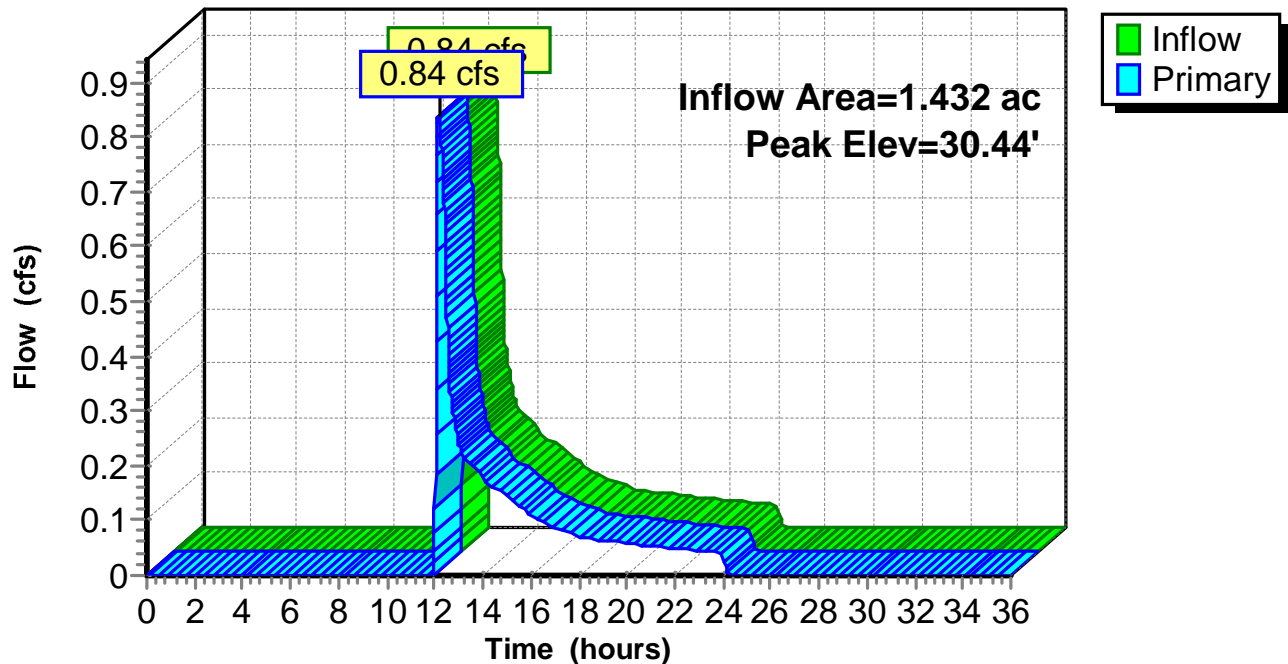
Device	Routing	Invert	Outlet Devices
#1	Primary	37.70'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	29.97'	12.0" Round Culvert L= 113.0' Ke= 0.500 Inlet / Outlet Invert= 29.97' / 27.88' S= 0.0185 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.84 cfs @ 12.16 hrs HW=30.44' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.84 cfs @ 2.33 fps)

Pond SDMH16-13:

Hydrograph



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Summary for Pond SDMH16-15:

Inflow Area = 0.304 ac, 13.38% Impervious, Inflow Depth = 1.45" for 100-yr event
Inflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af
Outflow = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min
Primary = 0.40 cfs @ 12.09 hrs, Volume= 0.037 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 10.02' @ 12.09 hrs

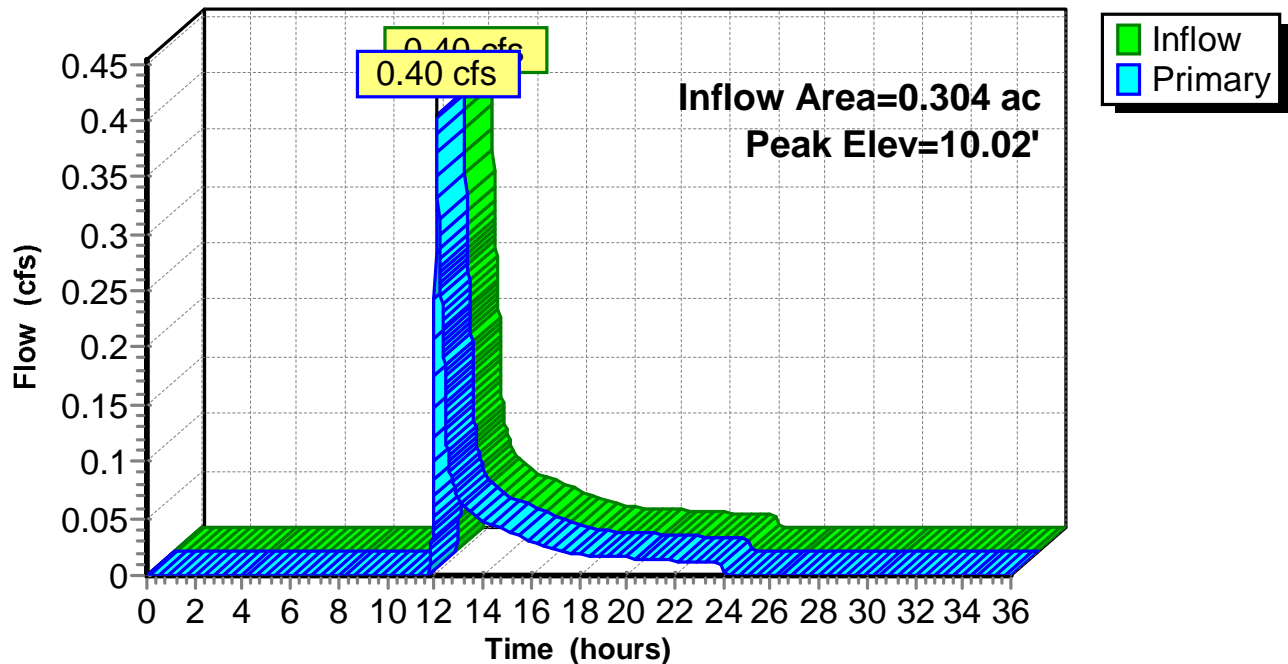
Device	Routing	Invert	Outlet Devices
#1	Primary	17.74'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	9.71'	12.0" Round Culvert L= 20.0' Ke= 0.500 Inlet / Outlet Invert= 9.71' / 8.49' S= 0.0610 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=0.40 cfs @ 12.09 hrs HW=10.02' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 0.40 cfs @ 1.91 fps)

Pond SDMH16-15:

Hydrograph



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Summary for Pond SDMH17-03.1:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 1.47" for 100-yr event
Inflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af
Outflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.61' @ 12.14 hrs

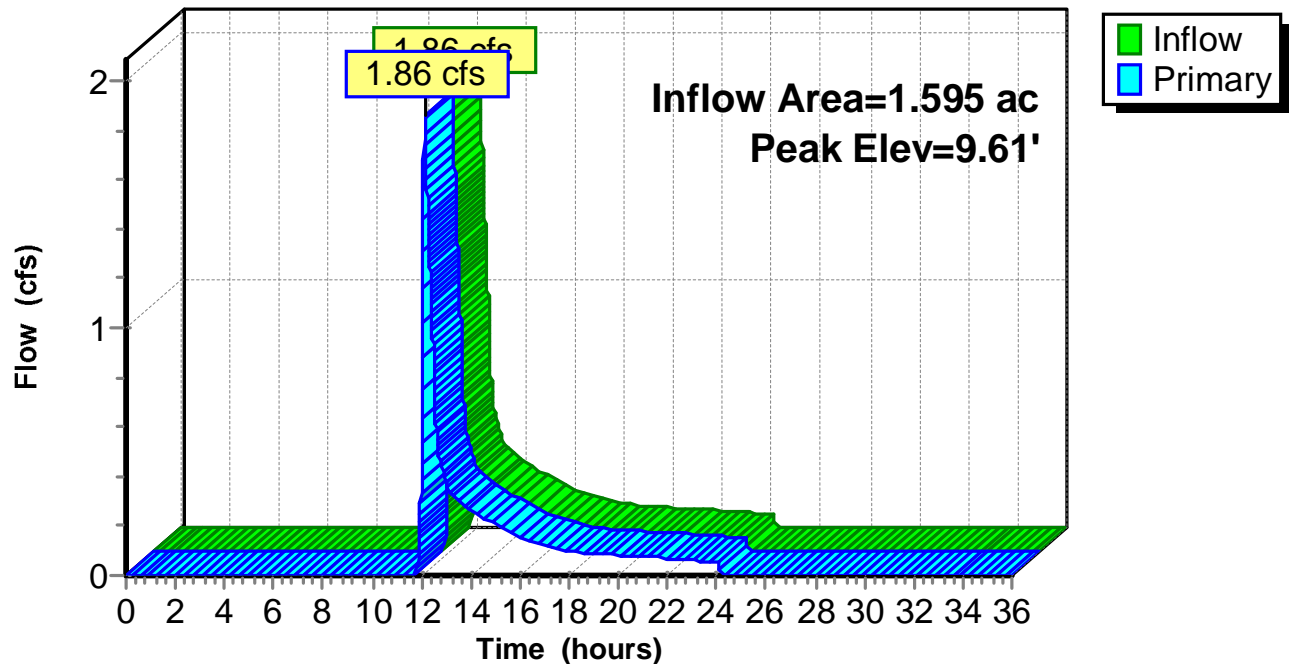
Device	Routing	Invert	Outlet Devices
#1	Primary	11.89'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.53'	12.0" Round Culvert L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 8.53' / 8.46' S= 0.0010 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.14 hrs HW=9.61' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.86 cfs @ 2.73 fps)

Pond SDMH17-03.1:

Hydrograph



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Summary for Pond SDMH17-03.2:

Inflow Area = 1.595 ac, 13.78% Impervious, Inflow Depth = 1.47" for 100-yr event
Inflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af
Outflow = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min
Primary = 1.86 cfs @ 12.14 hrs, Volume= 0.195 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.04' @ 12.14 hrs

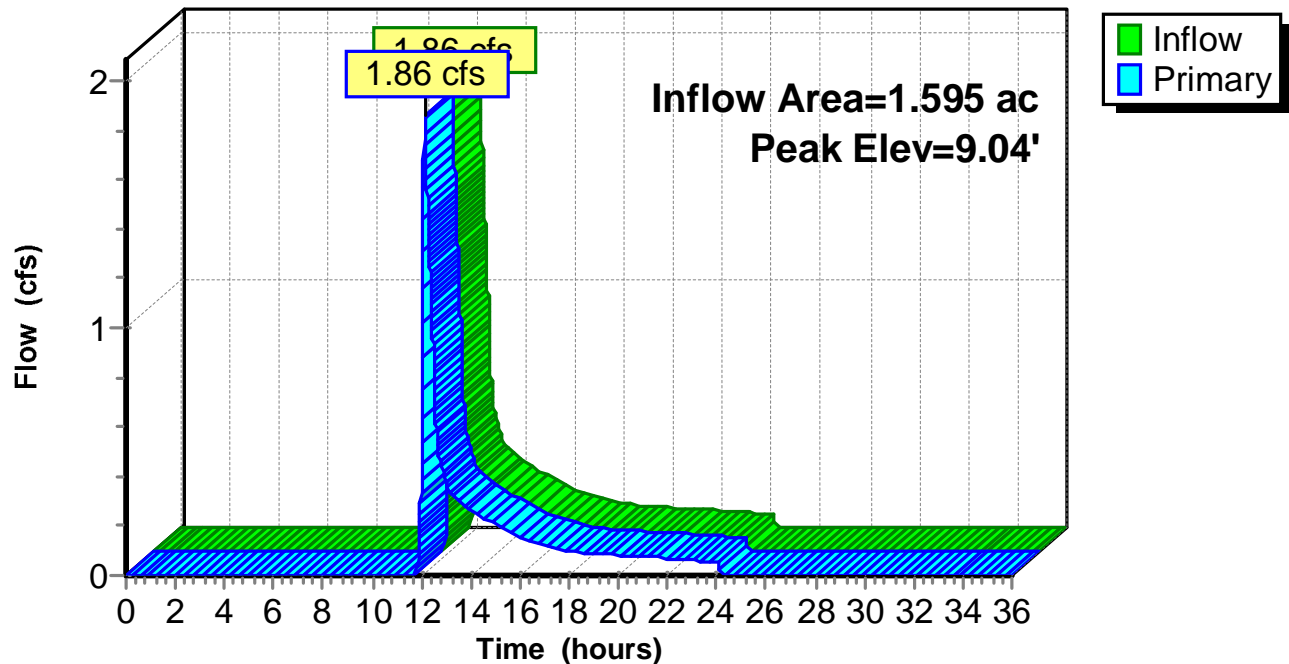
Device	Routing	Invert	Outlet Devices
#1	Primary	15.69'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	8.14'	12.0" Round Culvert L= 46.0' Ke= 0.500 Inlet / Outlet Invert= 8.14' / 7.94' S= 0.0043 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=1.86 cfs @ 12.14 hrs HW=9.04' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Barrel Controls 1.86 cfs @ 3.31 fps)

Pond SDMH17-03.2:

Hydrograph



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Summary for Pond SDMH17-04:

Inflow Area = 2.324 ac, 21.50% Impervious, Inflow Depth = 2.08" for 100-yr event
Inflow = 4.47 cfs @ 12.10 hrs, Volume= 0.402 af
Outflow = 4.47 cfs @ 12.10 hrs, Volume= 0.402 af, Atten= 0%, Lag= 0.0 min
Primary = 4.47 cfs @ 12.10 hrs, Volume= 0.402 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 9.84' @ 12.10 hrs

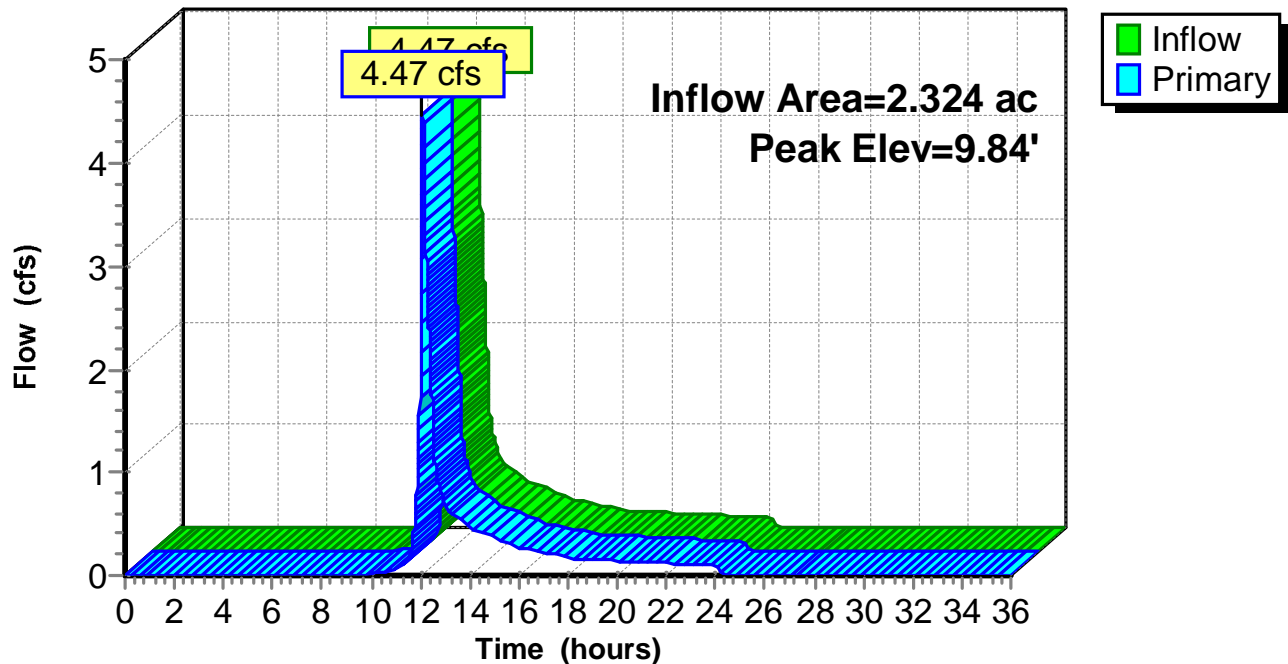
Device	Routing	Invert	Outlet Devices
#1	Primary	11.01'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	7.94'	12.0" Round Culvert L= 123.0' Ke= 0.500 Inlet / Outlet Invert= 7.94' / 6.25' S= 0.0137 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=4.47 cfs @ 12.10 hrs HW=9.84' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 4.47 cfs @ 5.69 fps)

Pond SDMH17-04:

Hydrograph



Proposed Design

Prepared by AECOM

HydroCAD® 10.00-20 s/n 00537 © 2017 HydroCAD Software Solutions LLC

Type III 24-hr 100-yr Rainfall=8.68"

Printed 5/9/2019

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Summary for Pond SDMH17-07:

Inflow Area = 2.504 ac, 23.75% Impervious, Inflow Depth = 2.26" for 100-yr event
Inflow = 5.40 cfs @ 12.09 hrs, Volume= 0.471 af
Outflow = 5.40 cfs @ 12.09 hrs, Volume= 0.471 af, Atten= 0%, Lag= 0.0 min
Primary = 5.40 cfs @ 12.09 hrs, Volume= 0.471 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs
Peak Elev= 8.77' @ 12.09 hrs

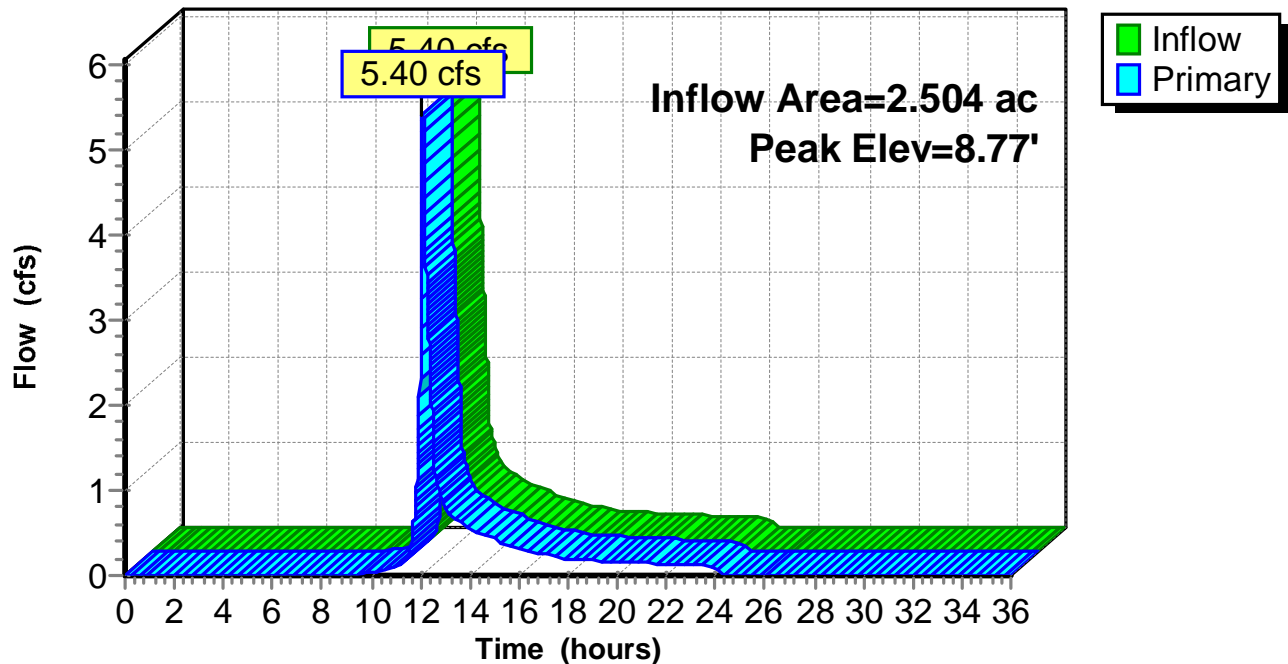
Device	Routing	Invert	Outlet Devices
#1	Primary	9.96'	24.0" Horiz. Orifice/Grate X 0.00 C= 0.600 Limited to weir flow at low heads
#2	Primary	6.23'	12.0" Round Culvert L= 4.0' Ke= 0.500 Inlet / Outlet Invert= 6.23' / 6.17' S= 0.0150 ' / ' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 0.79 sf

Primary OutFlow Max=5.39 cfs @ 12.09 hrs HW=8.76' (Free Discharge)

- 1=Orifice/Grate (Controls 0.00 cfs)
- 2=Culvert (Inlet Controls 5.39 cfs @ 6.87 fps)

Pond SDMH17-07:

Hydrograph



Proposed Design

Prepared by AECOM

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Type III 24-hr 100-yr Rainfall=8.68"

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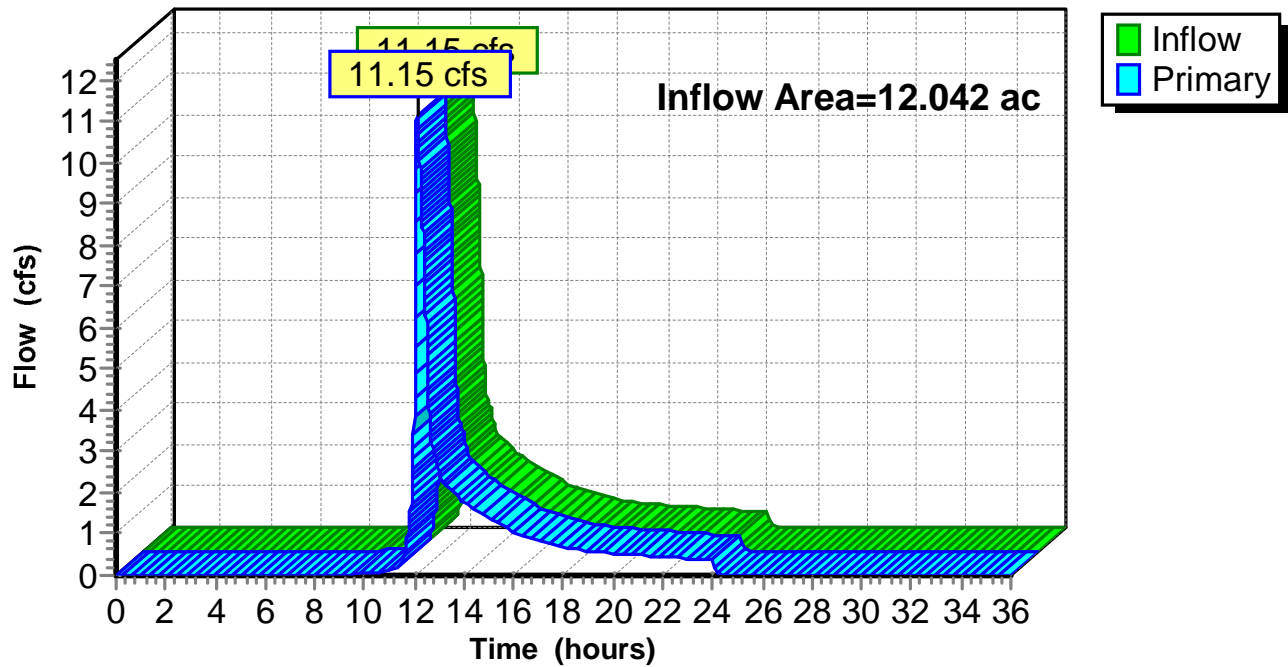
Summary for Link OUT:

Inflow Area = 12.042 ac, 12.19% Impervious, Inflow Depth = 1.36" for 100-yr event
Inflow = 11.15 cfs @ 12.12 hrs, Volume= 1.368 af
Primary = 11.15 cfs @ 12.12 hrs, Volume= 1.368 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.01 hrs

Link OUT:

Hydrograph



Appendix J

TSS Removal Worksheet and Supporting Documentation

Location:

TSS Removal Calculation Worksheet

A BMP ¹	B TSS Removal Rate ¹	C Starting TSS Load*	D Amount Removed (B*C)	E Remaining Load (C-D)
Hydrodynamic Separator	0.80	1.00	0.80	0.20
Subsurface Infiltration Structure	0.80	0.20	0.16	0.04

Total TSS Removal =

Project:
 Prepared By:
 Date:

*Equals remaining load from previous BMP (E) which enters the BMP

CDS Guide

Operation, Design, Performance and Maintenance



CDS®

Using patented continuous deflective separation technology, the CDS system screens, separates and traps debris, sediment, and oil and grease from stormwater runoff. The indirect screening capability of the system allows for 100% removal of floatables and neutrally buoyant material without blinding. Flow and screening controls physically separate captured solids, and minimize the re-suspension and release of previously trapped pollutants. Inline units can treat up to 6 cfs, and internally bypass flows in excess of 50 cfs (1416 L/s). Available precast or cast-in-place, offline units can treat flows from 1 to 300 cfs (28.3 to 8495 L/s). The pollutant removal capacity of the CDS system has been proven in lab and field testing.

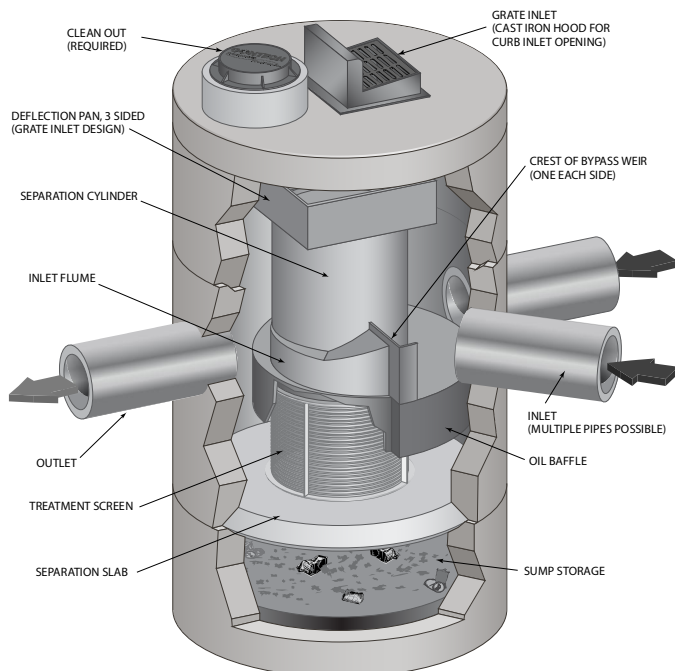
Operation Overview

Stormwater enters the diversion chamber where the diversion weir guides the flow into the unit's separation chamber and pollutants are removed from the flow. All flows up to the system's treatment design capacity enter the separation chamber and are treated.

Swirl concentration and screen deflection force floatables and solids to the center of the separation chamber where 100% of floatables and neutrally buoyant debris larger than the screen apertures are trapped.

Stormwater then moves through the separation screen, under the oil baffle and exits the system. The separation screen remains clog free due to continuous deflection.

During the flow events exceeding the treatment design capacity, the diversion weir bypasses excessive flows around the separation chamber, so captured pollutants are retained in the separation cylinder.



Design Basics

There are three primary methods of sizing a CDS system. The Water Quality Flow Rate Method determines which model size provides the desired removal efficiency at a given flow rate for a defined particle size. The Rational Rainfall Method™ or the Probabilistic Method is used when a specific removal efficiency of the net annual sediment load is required.

Typically in the United States, CDS systems are designed to achieve an 80% annual solids load reduction based on lab generated performance curves for a gradation with an average particle size (d50) of 125 microns (μm). For some regulatory environments, CDS systems can also be designed to achieve an 80% annual solids load reduction based on an average particle size (d50) of 75 microns (μm) or 50 microns (μm).

Water Quality Flow Rate Method

In some cases, regulations require that a specific treatment rate, often referred to as the water quality design flow (WQQ), be treated. This WQQ represents the peak flow rate from either an event with a specific recurrence interval, e.g. the six-month storm, or a water quality depth, e.g. 1/2-inch (13 mm) of rainfall.

The CDS is designed to treat all flows up to the WQQ. At influent rates higher than the WQQ, the diversion weir will direct most flow exceeding the WQQ around the separation chamber. This allows removal efficiency to remain relatively constant in the separation chamber and eliminates the risk of washout during bypass flows regardless of influent flow rates.

Treatment flow rates are defined as the rate at which the CDS will remove a specific gradation of sediment at a specific removal efficiency. Therefore the treatment flow rate is variable, based on the gradation and removal efficiency specified by the design engineer.

Rational Rainfall Method™

Differences in local climate, topography and scale make every site hydraulically unique. It is important to take these factors into consideration when estimating the long-term performance of any stormwater treatment system. The Rational Rainfall Method combines site-specific information with laboratory generated performance data, and local historical precipitation records to estimate removal efficiencies as accurately as possible.

Short duration rain gauge records from across the United States and Canada were analyzed to determine the percent of the total annual rainfall that fell at a range of intensities. US stations' depths were totaled every 15 minutes, or hourly, and recorded in 0.01-inch increments. Depths were recorded hourly with 1-mm resolution at Canadian stations. One trend was consistent at all sites; the vast majority of precipitation fell at low intensities and high intensity storms contributed relatively little to the total annual depth.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Rainfall Method. Since most sites are relatively small and highly impervious, the Rational Rainfall Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS system are

determined. Performance efficiency curve determined from full scale laboratory tests on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Probabilistic Rational Method

The Probabilistic Rational Method is a sizing program Contech developed to estimate a net annual sediment load reduction for a particular CDS model based on site size, site runoff coefficient, regional rainfall intensity distribution, and anticipated pollutant characteristics.

The Probabilistic Method is an extension of the Rational Method used to estimate peak discharge rates generated by storm events of varying statistical return frequencies (e.g. 2-year storm event). Under the Rational Method, an adjustment factor is used to adjust the runoff coefficient estimated for the 10-year event, correlating a known hydrologic parameter with the target storm event. The rainfall intensities vary depending on the return frequency of the storm event under consideration. In general, these two frequency dependent parameters (rainfall intensity and runoff coefficient) increase as the return frequency increases while the drainage area remains constant.

These intensities, along with the total drainage area and runoff coefficient for each specific site, are translated into flow rates using the Rational Method. Since most sites are relatively small and highly impervious, the Rational Method is appropriate. Based on the runoff flow rates calculated for each intensity, operating rates within a proposed CDS are determined. Performance efficiency curve on defined sediment PSDs is applied to calculate solids removal efficiency. The relative removal efficiency at each operating rate is added to produce a net annual pollutant removal efficiency estimate.

Treatment Flow Rate

The inlet throat area is sized to ensure that the WQQ passes through the separation chamber at a water surface elevation equal to the crest of the diversion weir. The diversion weir bypasses excessive flows around the separation chamber, thus preventing re-suspension or re-entrainment of previously captured particles.

Hydraulic Capacity

The hydraulic capacity of a CDS system is determined by the length and height of the diversion weir and by the maximum allowable head in the system. Typical configurations allow hydraulic capacities of up to ten times the treatment flow rate. The crest of the diversion weir may be lowered and the inlet throat may be widened to increase the capacity of the system at a given water surface elevation. The unit is designed to meet project specific hydraulic requirements.

Performance

Full-Scale Laboratory Test Results

A full-scale CDS system (Model CDS2020-5B) was tested at the facility of University of Florida, Gainesville, FL. This CDS unit was evaluated under controlled laboratory conditions of influent flow rate and addition of sediment.

Two different gradations of silica sand material (UF Sediment & OK-110) were used in the CDS performance evaluation. The particle size distributions (PSDs) of the test materials were analyzed using standard method "Gradation ASTM D-422 "Standard Test Method for Particle-Size Analysis of Soils" by a certified laboratory.

UF Sediment is a mixture of three different products produced by the U.S. Silica Company: "Sil-Co-Sil 106", "#1 DRY" and "20/40 Oil Frac". Particle size distribution analysis shows that the UF Sediment has a very fine gradation ($d_{50} = 20$ to $30 \mu\text{m}$) covering a wide size range (Coefficient of Uniformity, C averaged at 10.6). In comparison with the hypothetical TSS gradation specified in the NJDEP (New Jersey Department of Environmental Protection) and NJCAT (New Jersey Corporation for Advanced Technology) protocol for lab testing, the UF Sediment covers a similar range of particle size but with a finer d_{50} (d_{50} for NJDEP is approximately $50 \mu\text{m}$) (NJDEP, 2003).

The OK-110 silica sand is a commercial product of U.S. Silica Sand. The particle size distribution analysis of this material, also included in Figure 1, shows that 99.9% of the OK-110 sand is finer than 250 microns, with a mean particle size (d_{50}) of 106 microns. The PSDs for the test material are shown in Figure 1.

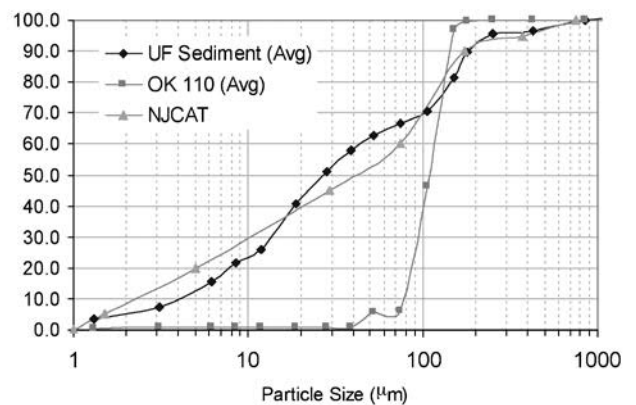


Figure 1. Particle size distributions

Tests were conducted to quantify the performance of a specific CDS unit (1.1 cfs (31.3-L/s) design capacity) at various flow rates, ranging from 1% up to 125% of the treatment design capacity of the unit, using the 2400 micron screen. All tests were conducted with controlled influent concentrations of approximately 200 mg/L. Effluent samples were taken at equal time intervals across the entire duration of each test run. These samples were then processed with a Dekaport Cone sample splitter to obtain representative sub-samples for Suspended Sediment Concentration (SSC) testing using ASTM D3977-97 "Standard Test Methods for Determining Sediment Concentration in Water Samples", and particle size distribution analysis.

Results and Modeling

Based on the data from the University of Florida, a performance model was developed for the CDS system. A regression analysis was used to develop a fitting curve representative of the scattered data points at various design flow rates. This model, which demonstrated good agreement with the laboratory data, can then be used to predict CDS system performance with respect

to SSC removal for any particle size gradation, assuming the particles are inorganic sandy-silt. Figure 2 shows CDS predictive performance for two typical particle size gradations (NJCAT gradation and OK-110 sand) as a function of operating rate.

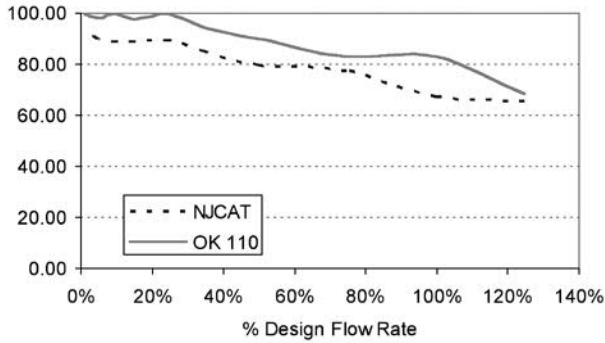


Figure 2. CDS stormwater treatment predictive performance for various particle gradations as a function of operating rate.

Many regulatory jurisdictions set a performance standard for hydrodynamic devices by stating that the devices shall be capable of achieving an 80% removal efficiency for particles having a mean particle size (d_{50}) of 125 microns (e.g. Washington State Department of Ecology — WASDOE - 2008). The model can be used to calculate the expected performance of such a PSD (shown in Figure 3). The model indicates (Figure 4) that the CDS system with 2400 micron screen achieves approximately 80% removal at the design (100%) flow rate, for this particle size distribution ($d_{50} = 125 \mu m$).

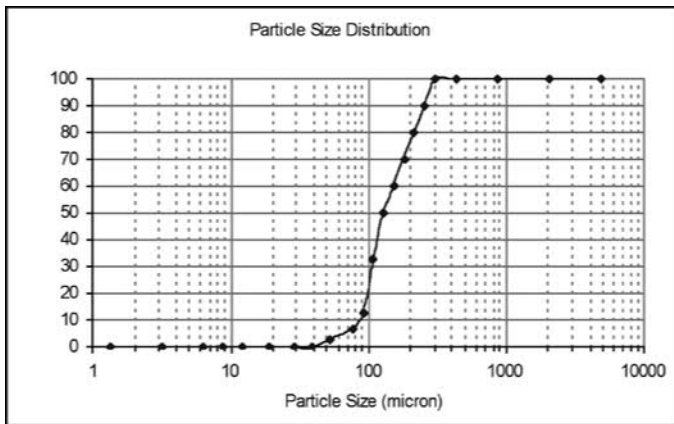


Figure 3. WASDOE PSD

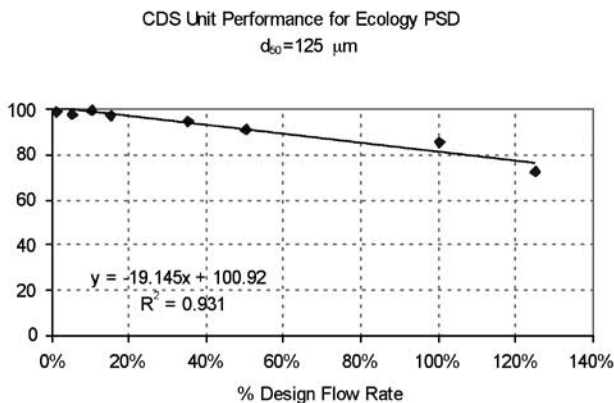


Figure 4. Modeled performance for WASDOE PSD.

Maintenance

The CDS system should be inspected at regular intervals and maintained when necessary to ensure optimum performance. The rate at which the system collects pollutants will depend more heavily on site activities than the size of the unit. For example, unstable soils or heavy winter sanding will cause the grit chamber to fill more quickly but regular sweeping of paved surfaces will slow accumulation.

Inspection

Inspection is the key to effective maintenance and is easily performed. Pollutant transport and deposition may vary from year to year and regular inspections will help ensure that the system is cleaned out at the appropriate time. At a minimum, inspections should be performed twice per year (e.g. spring and fall) however more frequent inspections may be necessary in climates where winter sanding operations may lead to rapid accumulations, or in equipment washdown areas. Installations should also be inspected more frequently where excessive amounts of trash are expected.

The visual inspection should ascertain that the system components are in working order and that there are no blockages or obstructions in the inlet and separation screen. The inspection should also quantify the accumulation of hydrocarbons, trash, and sediment in the system. Measuring pollutant accumulation can be done with a calibrated dipstick, tape measure or other measuring instrument. If absorbent material is used for enhanced removal of hydrocarbons, the level of discoloration of the sorbent material should also be identified



during inspection. It is useful and often required as part of an operating permit to keep a record of each inspection. A simple form for doing so is provided.

Access to the CDS unit is typically achieved through two manhole access covers. One opening allows for inspection and cleanout of the separation chamber (cylinder and screen) and isolated sump. The other allows for inspection and cleanout of sediment captured and retained outside the screen. For deep units, a single manhole access point would allow both sump cleanout and access outside the screen.

The CDS system should be cleaned when the level of sediment has reached 75% of capacity in the isolated sump or when an appreciable level of hydrocarbons and trash has accumulated. If absorbent material is used, it should be replaced when significant discoloration has occurred. Performance will not be impacted until 100% of the sump capacity is exceeded however it is recommended that the system be cleaned prior to that for easier removal of sediment. The level of sediment is easily determined by measuring from finished grade down to the top of the sediment pile. To avoid underestimating the level of sediment in the chamber, the measuring device must be lowered to the top of the sediment pile carefully. Particles at the top of the pile typically offer less resistance to the end of the rod than consolidated particles toward the bottom of the pile. Once this measurement is recorded, it should be compared to the as-built drawing for the unit to determine whether the height of the sediment pile off the bottom of the sump floor exceeds 75% of the total height of isolated sump.

Cleaning

Cleaning of a CDS system should be done during dry weather conditions when no flow is entering the system. The use of a vacuum truck is generally the most effective and convenient method of removing pollutants from the system. Simply remove the manhole covers and insert the vacuum hose into the sump. The system should be completely drained down and the sump fully evacuated of sediment. The area outside the screen should also be cleaned out if pollutant build-up exists in this area.

In installations where the risk of petroleum spills is small, liquid contaminants may not accumulate as quickly as sediment. However, the system should be cleaned out immediately in the event of an oil or gasoline spill. Motor oil and other hydrocarbons that accumulate on a more routine basis should be removed when an appreciable layer has been captured. To remove these pollutants, it may be preferable to use absorbent pads since they are usually less expensive to dispose than the oil/water emulsion that may be created by vacuuming the oily layer. Trash and debris can be netted out to separate it from the other pollutants. The screen should be cleaned to ensure it is free of trash and debris.

Manhole covers should be securely seated following cleaning activities to prevent leakage of runoff into the system from above and also to ensure that proper safety precautions have been followed. Confined space entry procedures need to be followed if physical access is required. Disposal of all material removed from the CDS system should be done in accordance with local regulations. In many jurisdictions, disposal of the sediments may be handled in the same manner as the disposal of sediments removed from catch basins or deep sump manholes. Check your local regulations for specific requirements on disposal.



CDS Model	Diameter		Distance from Water Surface to Top of Sediment Pile		Sediment Storage Capacity	
	ft	m	ft	m	y ³	m ³
CDS1515	3	0.9	3.0	0.9	0.5	0.4
CDS2015	4	1.2	3.0	0.9	0.9	0.7
CDS2015	5	1.5	3.0	0.9	1.3	1.0
CDS2020	5	1.5	3.5	1.1	1.3	1.0
CDS2025	5	1.5	4.0	1.2	1.3	1.0
CDS3020	6	1.8	4.0	1.2	2.1	1.6
CDS3025	6	1.8	4.0	1.2	2.1	1.6
CDS3030	6	1.8	4.6	1.4	2.1	1.6
CDS3035	6	1.8	5.0	1.5	2.1	1.6
CDS4030	8	2.4	4.6	1.4	5.6	4.3
CDS4040	8	2.4	5.7	1.7	5.6	4.3
CDS4045	8	2.4	6.2	1.9	5.6	4.3
CDS5640	10	3.0	6.3	1.9	8.7	6.7
CDS5653	10	3.0	7.7	2.3	8.7	6.7
CDS5668	10	3.0	9.3	2.8	8.7	6.7
CDS5678	10	3.0	10.3	3.1	8.7	6.7

Table 1: CDS Maintenance Indicators and Sediment Storage Capacities

Note: To avoid underestimating the volume of sediment in the chamber, carefully lower the measuring device to the top of the sediment pile. Finer silty particles at the top of the pile may be more difficult to feel with a measuring stick. These finer particles typically offer less resistance to the end of the rod than larger particles toward the bottom of the pile.



CDS Inspection & Maintenance Log

CDS Model: _____ Location: _____

Date	Water depth to sediment ¹	Floatable Layer Thickness ²	Describe Maintenance Performed	Maintenance Personnel	Comments

1. The water depth to sediment is determined by taking two measurements with a stadia rod: one measurement from the manhole opening to the top of the sediment pile and the other from the manhole opening to the water surface. If the difference between these measurements is less than the values listed in table 1 the system should be cleaned out. **Note: to avoid underestimating the volume of sediment in the chamber, the measuring device must be carefully lowered to the top of the sediment pile.**

2. For optimum performance, the system should be cleaned out when the floating hydrocarbon layer accumulates to an appreciable thickness. In the event of an oil spill, the system should be cleaned immediately.

SUPPORT

- Drawings and specifications are available at www.ContechES.com.
- Site-specific design support is available from our engineers.



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www.ContechES.com

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Appendix K

Operation and Maintenance Plan

**Deer Island Parking Lot Improvements
Stormwater Management System**

Operation and Maintenance Plan (O&M)

March 2019

This Stormwater Management System Operation and Maintenance Plan outlines the required inspection and maintenance of structural Best Management Practices (BMPs), and for measures to prevent pollution and to improve the water quality of stormwater runoff associated with the parking lot improvements project located on Deer Island in Boston Harbor.

Proposed Project

The proposed stormwater management improvements consist of a hydrodynamic separator and a subsurface infiltration structure that will treat the runoff from the proposed parking lot. The site will be graded in a fashion that all runoff from the proposed parking lot will be directed into the hydrodynamic separator and discharged into the subsurface infiltration structure. The structure will include an overflow pipe that ties into the existing drainage network to convey the larger storm events through the structure. The proposed parking lot will have small berms installed at the entrance and exit to prevent additional stormwater from the roadway from entering the parking lot.

This document has been prepared in accordance with the requirements of the Stormwater Regulations included in the Massachusetts Wetlands Protection Act Regulations (310 CMR 10).

Responsible Party

The Massachusetts Water Resources Authority (MWRA) will be responsible for the maintenance of the parking lot and associated stormwater management features. Questions or concerns regarding maintenance activities may be directed to the Community Relations Manager:

Jeff McLaughlin:
Charlestown Navy Yard
100 First Ave.
Building 39
Boston, MA 02129
Phone: (617) 305-5762
Email: Jeffrey.McLaughlin@mwra.com

Maintenance Measures

The stormwater management system covered by this Operation and Maintenance Plan consists of the following components:

- Hydrodynamic Separator
- Subsurface Infiltration Structure

Maintenance of these components will be conducted as noted in the attached Operation and Maintenance table summarizing the pertinent inspection and maintenance activities (Attachment A).

If inspection indicates the need for major repairs of structural surfaces, the inspector should contact the Community Relations Manager to initiate procedures to effect repairs.

Practices for Long Term Pollution Prevention

For the facilities covered by this Operation and Maintenance Plan, long term pollution prevention includes the following measures:

Litter Pick-up

The MWRA will conduct litter pick-up from the stormwater management facilities in conjunction with routine road maintenance activities.

Routine Inspection and Maintenance of Stormwater BMPs

The MWRA will conduct inspection and maintenance of the stormwater management practices in accordance with the guidelines discussed above.

Spill Prevention and Response

The MWRA will implement response procedures for releases of significant materials such as fuels, oils, or chemical materials onto the ground or other areas that could reasonably be expected to discharge to surface or groundwater.

- Reportable quantities will immediately be reported to the applicable Federal, State, and local agencies as required by law. Reportable quantities of chemical, fuels, or oils are established under the Clean Water Act and enforced through MassDEP. The MassDEP Emergency Response Program shall be immediately notified in accordance with required procedures for the report of a release (telephone 888-304-1133).
- Applicable containment and cleanup procedures will be performed immediately. Impacted material collected during the response must be removed promptly and disposed of in accordance with Federal, State, and local requirements. A licensed emergency response contractor may be required to assist in cleanup of releases depending on the amount of the release and the ability of the responsible party to perform the required response.
- Reportable quantities of chemical, fuels, or oils are established under the Clean Water Act and enforced through DEP.

Invasive Species Management

If the MWRA notes the presence of invasive species within the stormwater BMPs during inspections, the MWRA will initiate corrective action. Control of invasive species comply with all state and federal regulatory requirements for such practices.

Snow and Ice Management

Snow and Ice Management shall be conducted consistent with the practices outlined by the local ordinances.

Prohibition of Illicit Discharges

The MassDEP Stormwater Management Standards prohibit illicit discharges to the storm water management system. Illicit discharges are discharges that do not entirely consist of stormwater, except for certain specified non-stormwater discharges.

Examples of discharges from the following sources are not considered illicit discharges:

Water from firefighting activities is allowed under this permit and need only be addressed where they are identified as significant sources of pollutants to waters of the United States.

Firefighting activities	Riparian habitats/wetlands
Foundation drain lines	Potable water sources
Line flushing	Dechlorinated swimming pool water
Footing drains	Street sweeping
Irrigation systems	Wash water from buildings (without detergents)
Residential car washing	Condensation from air conditioning units
Uncontaminated groundwater	Run-off from private driveways caused by precipitation
Rising groundwater	Lawn watering

There are no known or proposed illicit connections associated with this project. If a potential illicit discharge to the facilities covered by this plan is detected (e.g., dry weather flows at any pipe outlet, evidence of contamination of surface water discharge by non-stormwater sources), the MWRA shall be notified for assistance in determining the nature and source of the discharge.

Attachment A: Best Management Practices: Operation & Maintenance Measures

Best Management Practice	Sweep	Mow	Inspect	Clean	Repair	Notes
Hydrodynamic Separator	NA	NA	Quarterly	Biannually	ANI*	<ul style="list-style-type: none"> • Clean unit whenever the level of sediment has reached 75% of capacity in the isolated sump, or when an appreciable level of hydrocarbons and trash has accumulated. • Remove accumulated sediment from outlet when > 0.5 foot or obstructing outlet.
Subsurface Infiltration Structure	NA	NA	Quarterly	Biannually	ANI	<ul style="list-style-type: none"> • Monitor to confirm that there is no standing water 72 hours after a major storm event • Remove accumulated sediment from outlet when > 0.5 foot or obstructing outlet.

*ANI = As Needed based on Inspection