MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.

ENGINEERS, SURVEYORS, SCIENTISTS

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March 29, 2023

Town of Freeport Project Review Board
C/O Caroline Pelletier, Town Planner
30 Main Street
Freeport, ME 04032

Subject: Davis Erector Group: Revised Site Plan Submission

Dear Members of the Board,

Thank-you for meeting with us on site in January 2023 to see existing site features and surrounding area of the property owned by Terry and Dave Davis at 1131 US Route 1, Freeport. As previously discussed, the property owners purchased the property in 2014 and constructed a single-family residential home served by a private septic system and drilled well. In 2017, they purchased adjoining property and obtained a building permit from the town to construct a new barn. Along with construction of the barn, earthwork and landscaping was completed to create a gravel parking/laydown area and lawn areas. Several planters and landscape trees were also added to the property. In 2021, a "dome tent" style garage was added to the west of the barn. During this time period, the Applicant began temporarily storing equipment associated with Davis Erector Group on the gravel pad on site.

In 2020, the Davis's were notified that the barn had been constructed on the property line between the two parcels and the parcels would need to be combined in order to meet town codes and setbacks. They were also told that a Site Plan permit was needed due to the use of the property for Construction Services, triggered by the storage of construction equipment on site. The Maine Department of Environmental Protection (MDEP) also contacted the Applicant regarding a stream on the property and potential impacts within the stream buffer. No formal violation was issued by Maine DEP.

As previously stated, and discussed at the last meeting, the Applicant lives at the property and occasionally brings equipment associated with their business, Davis Erector Group, onto the site for temporary storage. Equipment is brought onto the site by the Applicant in between jobs and therefore is generally not on site for more than one to two weeks at a time. Currently, equipment is being stored outside on the gravel laydown area. As cited by the town, a change of use permit to allow the additional use of Construction Services and changes to bring the Construction Services use into compliance with code are required.

As discussed at the Site Walk and in a meeting with Town Staff in February, the site and structures on site can be broken into two distinct uses. First, is the Single-Family Residential use which generally occupies the southern portion of the site. This use includes: the house, the barn, southern driveway, gravel area to the south of the garage, the storage container, dumpster and landscape and lawn area around site features. Second, is the Construction Services use which generally occupies the northern portion of the site. This use includes: a proposed 30-foot by 60-foot dome tent, northern gravel driveway and gravel area around the dome tent. This is depicted on the Site Use and Layout Plan C2.0. With a total site area of 4.53 acres and

550 feet of frontage on Route 1, the property is large enough to accommodate the two uses (minimum lot size 40,000 sf per use and 100' minimum frontage per use in the MD-B district).

The single-family residential use structures were permitted via building permit issued by the town Code Enforcement Officer and residential outdoor storage and lawn area is allowed without a permit. All areas designated as residential are proposed to stay in place and remain unchanged except for the storage container and dumpster which will be relocated in order to comply with zoning setback requirements from the side property line. These residential uses are not subject to Site Plan Review; thus areas labeled "Residential" are not described in further detail in this application and are not a part of the review. Only Construction Services-related uses are a part of the application.

For the Construction Services use, a new dome tent is proposed. The 30-foot-wide by 60-foot-long by 18-foot-high tent will be located within existing gravel area. The proposed tent location is 106.4 feet from the northerly side property line and 228 feet from the front property line, these distances exceed the 50-foot setback requirement. All Construction Services related equipment will be stored inside of the tent; no construction services equipment or materials will be stored outside or within other the residentially designated buildings on site.

The dome tent is subject to Site Plan Review. Per Section 406.G.5, a building plainly visible from the road would be required to meet building design standards; however, *"buildings screened by a depth the same or more than the front setback requirement of natural, mature vegetation, and/or another building, and/or a change in elevation or other method as approved by the Project Review Board are not considered to be visible from the road. These buildings may be seen from the road, but they are not considered to be in plain sight"*. Per 406.G.6, *"Buildings …that are not plainly visible as described in Sec 406.G.5 above shall provide extra attention to the entrance rather than the building"*.

As shown on the plans and described above, the dome tent is setback from Route 1 more than double the required 50 feet. There is a row of very tall, existing mature trees along Route 1; however, to provide screening from Route 1, a six foot high earthen berm with new 6 foot tall evergreen plantings is proposed between Route 1 and the tent. The tent was also located beside the barn so that it is hidden by the barn if approaching the site from the south. Landscape beds are proposed on either side of the existing gravel driveway entrance to help draw attention to that area. No signage or new lighting is proposed.

As shown on the plans, access to the tent is via the existing northern driveway. This driveway is gravel and will be widened from the approximately 15 foot width to 22 feet wide, in order to meet town standards. The driveway is also setback over 10-feet from the property line, which meets the town standard for driveway setbacks. An approved driveway permit for this entrance was submitted with the original application materials. Traffic at this entrance is solely for Construction Services. All residential traffic will use the "residential" entrance to the south. This Construction Services entrance will see a very low volume of traffic as it is solely related to bringing equipment on and off the site for temporary storage. This will equate to approximately ten vehicle trips per day, in either the morning or the afternoon, on days when equipment is being brought onto or off of the site by the Applicant and employees of Davis Erector Group. There are many days when the entrance will remain unused. No employee parking is provided or required on site as no employees work there and trips are solely related to dropping off or picking up equipment.

The driveway, gravel area, and new dome tent total 19,167 square feet of non-revegetated impervious area. Stormwater from this developed area is proposed to be treated in two rain gardens as shown on the site plans and detailed on C9.2. These rain gardens are designed to treat the first inch of runoff from a storm event.

They also aid in helping reduce the post-development flow rate so it does not increase from the pre-development flow rate. A revised stormwater management plan and calculations are provided in the attachments.

As discussed at the last meeting, DEP was also concerned about potential wetland impacts on site. Based on the natural resource survey completed by Main-Land, there was approximately 2,405 sf of wetland impact on site due to disturbance of vegetation and some soil disturbance. This wetland impact area is off of Route 1. No wetland impact was observed adjacent to the unnamed stream on site. There have been impacts within 75 feet of the stream related to clearing and placement of fill for the gravel parking/laydown area on site. In addition to this Site Plan Review permit, Main-Land has discussed these impacts with Maine DEP and are submitting an after-the-fact Permit-by-Rule to DEP to address impacts within the stream buffer.

Per Freeport Site Plan Review, developments resulting in an expansion should address the information in Section 602.D subsection g. through u. Please see below of a list of these items and a description of how each is addressed.

g. Sketch map showing general location of site within town

Please see the Site Maps submitted in Section 4 of the original application.

h. Location of buildings within 150 feet of parcel and roads within 200 feet of parcel

Please see the Site Maps submitted in Section 4 of the original application.

i. Existing and proposed topography at two-foot intervals

Existing and proposed topography is shown on Site Plan C3.1 at one-foot intervals.

j. A stormwater drainage plan

A revised stormwater management plan was prepared to account for treatment of only the areas associated with Construction Services. Please see the revised narrative, calculations and Pre- and Post-Development drainage plans attached to this letter.

k. A utility plan

Other than culverts and underdrains associated with stormwater management, no new utilities are proposed as part of this plan. The dome tent will not need electricity, water, or sewer as it is just for temporary storage of equipment and no employees will be working on site.

l. Lighting

As described above, no lighting is proposed at the dome tent. Please disregard the lighting materials submitted with the original application as that was associated with the barn which is a residential structure and is not part of this review.

m. Landscaping

Proposed landscaping is shown on the site plans and has been discussed in other areas of this letter. Details regarding the plantings can be found on the project plans. Please note that though not a part of this review, the Applicant has done an outstanding job of landscaping on site, especially around the house and barn.

n. If a new entrance is proposed, sight distances

Two driveways access the site. The gravel driveway at the northern portion of the site will be utilized for Construction Services. This entrance is well over 100 feet north of the residential driveway and has sight distance of 1,115 feet to the north and 640 feet to the south, both measurements exceed the requirement of 500 feet. As discussed in the narrative, the entrance will not be used daily, but only when equipment is being brought onto or off of the site. An approved entrance permit was provided in Section 7 of the original application.

o. Building elevations of new construction

The new dome tent will be 30-feet-wide by 60-feet-long and 18-feet high. This dome tent is part of a kit, and no elevation sections are available. Please see pictures of the original tent as this structure will be similar. The tent will be a dark green, a natural color intended to help blend in with proposed vegetation.

p. Estimated peak hour traffic

On days when construction services equipment is being brought on and off the site, approximately 10 trips per day are estimated at the driveway entrance. These trips would likely be in either the morning or afternoon of that day. Many days there will be no Construction Services traffic entering or exiting the site. In general, this is a very low use.

q. Type and size of all permanent machinery to generate appreciable noise

Equipment will generally be brought onto the site with truck and trailer, but these are not permanent fixtures on site. No equipment will be used on site as it is just there for storage. It is not expected that appreciable or consistent noise will be generated by this use.

r. Amount and type of waste materials stored outside of buildings

The Construction Services use will not generate any waste. Equipment is being stored on site, but no construction materials or waste will be stored and no equipment maintenance is taking place.

s. Construction items included in the performance guarantee and cost

The driveway and gravel area already exist on site. A new dome tent will be constructed by the owner. An existing loam pile on site will be used to construct the berm and revegetate some gravel areas on site. New landscape plantings will be provided by the client. The Applicant asks to waive the performance guarantee as it would only include the tent and landscape plantings.

t. Maintenance agreement of common area, if applicable

Not applicable

u. Condominium declarations, if applicable

Not applicable

We look forward to continuing the review process with the Town of Freeport.

Sincerely,

Main-Land Development Consultants, Inc.

Esther K. Bizier, P.E.
Director of Falmouth Office & Senior Engineer

Encl: Section 1: Revised Application Form
Section 2: Site Photographs
Section 3: Stormwater Management Plan, Stormwater Maintenance Plan and Calculations
Section 4: Revised Plan Set

Town of Freeport
Planning Department

Application for Review

Project Type: (check all applicable)

_x_ Site Plan Review _____ Design Review Certificate _____ Subdivision

_____ Zoning Ordinance Amendment _____ Other (please explain)_____

Name of Project: Site Plan Review Davis Property at 1131 Route 1

Proposed Use of Property: Single Family Residential and Construction Services

1) Applicant Information:

Name: Davis Erector Group, LLC (David and Terry Davis) Tel: 704-747-7095

(If a Company, provide name of person also)

Address: 1131 US Route 1, Freeport, Maine 04033

Email: terrydavis2001@hotmail.com

2) Interest in Property: Please attach a copy of the recorded deed for the property. If the applicant is not the property owner, a purchase and sale agreement or a lease agreement shall also be submitted to show that the applicant has a serious interest in the project and sufficient title, right, and/or interest to complete the project. The amount being paid for the property may be blacked out. This application will not be processed without this information.

3) Do you own any abutting property? Yes (No)

If yes, please explain:_____

4) Property Information:

Present Use of Property Residential, however, has been being used for Construction Services (temporary equipment storage) since about 2017

Location: Street Address 1131 Route 1, Freeport

Assessor's Office Map: 31 Lot: 31 (still shows as lots 31 and 31-2 on tax map)

Size of Parcel (acres): 4.53 acres Zoning District (s): Medium Density B

5) Design Review Information (please circle one from each category)

Design Review District: One Two (Not in the Design Review District)

Building Class, as designated on the Design Review District Map(s): A B C

Is this building in the Color Overly District: Yes (No)

Please describe the proposed changes: Please see Project Description.

6) **Other Information:** 2 existing residential buildings
1 proposed Construction Services tent

Proposed # of Buildings: _____ Gross Square Footage of Non-Residential Buildings: 1,800 SF (dome tent)

Is Zoning Board of Appeals Approval Required? Yes (No)

If YES, provide reason _____

7) **Subdivision Approval or a Subdivision Amendment: (if applicable)**

Proposed Number of Lots N/A

Does the applicant intend to request any waivers of Subdivision or Site Review provisions?

NO _____ YES _____

If YES, list and give reasons why _____

8) **Applicant's Engineer, Land Surveyor, Landscape Architect and/or Planner:**

Name: Esther Bizier, P.E. of Main-Land Development Consultants, Inc Tel: 207-931-8484

Address: PO Box Q, Livermore Falls, ME 04254

Email: esther@main-landdci.com

9) **Billing Contact (If different than applicant information)**

Name: same as applicant Tel: _____

Address: _____

Email: _____

Application Fee: $ 440 **Abutter Fee:** $ 27.50

Submission: *This application form, along with required accompanying materials, must be submitted to the Town Planner at least 21 days prior to the meeting at which it is to be considered.*

The undersigned, being the applicant, owner or legally authorized representative, states that all information in this application is true and correct to the best of his/her knowledge and hereby does submit the information for review by the town and in accordance with applicable ordinances, statutes and regulations of the Town, State and Federal governments.

: March 28, 2023
DATE

Esther K Bizier
SIGNATURE OF APPLICANT/OWNER/REPRESENTATIVE

Site Photos

Figure 1. Residential Area – from behind barn towards house

Figure 2. From new Construction Services area down driveway toward Route. 1

Figure 3. Previous “dome tent”, new tent will be of similar style and color

STORMWATER MANAGEMENT PLAN
Site Plan Review for Davis Property
At 1131 US Route 1, Freeport
REVISED May 15, 2023

The Applicants, Terry and Dave Davis of the Davis Erector Group propose to permit a Construction Services use in addition to the Single-Family Residential use at their property in Freeport. The site is located at 1131 US Route 1 in Freeport and can be found on Tax Map 21, Lots 31 & 31-2. The two lots total 4.53 acres and are being combined into one lot. As previously discussed in this application the property currently contains a house, barn, paved driveway for the house, second gravel driveway to the barn and gravel laydown area. There are some wetland areas on the property and the soils are predominately Hydrologic Soil Group C or C/D silt loam. The area around the stream and on the western side of the stream remain wooded.

The property drains to the southwest and is entirely within the watershed of an unnamed tributary of an Urban Impaired Stream, Frost Gully Brook. There are two points where offsite area flows onto the property. First, runoff from the residences on the east side of Route 1 flows under the road, through a 12" culvert and onto the property where it sits in a low area. The owners have installed an 18" culvert to convey the water from this point to the southern property line, where it flows off the property and subsequently into the unnamed stream. Second, a 15" culvert is located under the gravel driveway on the northern lot boundary and conveys water from abutting property Lot 31-A onto the site and then to the 18" culvert. These flow paths generally follow pre-development drainage patterns.

As discussed in the application, the house, barn, southern driveway, a portion of the gravel parking area and much of the lawn/landscaped area is being considered a single-family-residential use. These areas total 0.63 acres of non-revegetated impervious area and 3.08 acres of developed area. The Maine DEP exempts single-family-residential development from treatment under Stormwater Management Law. As the proposed construction services use is being kept on a separate area of the site, it was determined that no treatment is required for the residential uses. As such, this area is considered to be part of the "pre-development" stormwater model.

The proposed construction services use in the northern portion of the site totals 0.44 acres (19,167 SF) of non-revegetated impervious area and 0.49 acres of developed area. As this is less than one acre of disturbed area, a Maine DEP Stormwater Permit is not required. Stormwater treatment is still required to meet Town of Freeport standards for stormwater quality treatment and quantity treatment.

Stormwater quality treatment is achieved via two rain gardens which treat the new impervious and developed area associated with the Construction Services use. Sizing calculations for these rain gardens is provided in this section and construction details found on C9.1.

To demonstrate stormwater quantity treatment, peak runoff rates were compared in the pre-and post-development conditions at Watershed Analysis Point A (WAP A). Peak runoff rates were analyzed at WAP A during the 2, 10, and 25-year storm events. For this analysis the pre-development condition was assumed to include all single-family-residential development as it exists today with the northern portion of the property used for "construction services" being assumed wooded (as it appears in older aerial photos). Post-Development is considered to reflect the property as shown on the Site Layout and Grading Plans reflected in changes proposed in this Application.

Watershed Analysis Point A is located at the outlet of the 18" culvert on the southern property line.

In the pre-development condition, subcatchment areas 1.1, 1.2 and 2 flow to this point. Subcatchment 1.1 contains runoff from the house, paved driveway, gravel parking and lawn area. Subcatchment 1.2 contains a portion of the barn, gravel parking/laydown area, landscaped area and development off-site to the north (house, large lawn area and driveways). Subcatchment 2 is comprised of area across Route 1 which flows via a 12-inch culvert under Route 1 onto the applicant's property. Once on the project site, stormwater from this culvert and Subcatchment 1.2 pond in a low area on site. An 18-inch culvert, identified as Pond 4, was installed to convey water from this low point to the southern property line.

In the post-development condition WAP A sees runoff from the residential house, residential driveway and gravel area, landscaped/lawn area, and new construction services dome tent and gravel areas, and the offsite area to the north. Subcatchment 1.2 is broken into several smaller subcatchment areas due to addition of development related to Construction Services. Two small rain gardens were added to provide treatment from the new impervious gravel surface, dome tent and landscape area. The 15-inch culvert, labeled as pond 5 in the stormwater model was also extended to accommodate changes associated with the new property use.

DRAINAGE SUMMARY TABLE

WAP	Storm Event	Pre-Develop.	Post-Develop.	Change	% Change
A	2-year	6.68	6.47	-0.21	-3.2%
	10-year	10.71	10.47	-0.24	-2.3%
	25-year	12.87	12.86	-0.01	-0.1%

As shown in the table above, there is a slight decrease at WAP A, due to the rain gardens attenuating flow from the majority of the new developed areas.

POST-CONSTRUCTION STORMWATER INSPECTION & MAINTENANCE PLAN

1131 US Route 1, Terry & Dave Davis

Freeport, Maine

Narrative

The following outlines the proposed BMP's and their required inspection, maintenance, and reporting.

Inspections and maintenance will be the responsibility of the Property Owner. Written reports of inspections and maintenance work will be kept to show the work has been completed as proposed. These reports will be kept by the Owner/Applicant, along with other relevant documentation.

Contacts:

Design Engineer:	Esther Bizier, P.E. Main-Land Development Consultants P.O. Box Q, 69 Main Street Livermore Falls, Maine 04254
Applicant/Owner:	Terry & Dave Davis 1131 US Route 1 Freeport, ME 04032

Post Construction Stormwater Inspector:

_____
_____
_____

Contractors:

_____
_____
_____

Inspection

The property owner is responsible for complying with the Town of Freeport Site Plan Permit. The Applicant will be responsible for inspection and maintenance during construction and post-construction. They are also responsible for upkeep and compliance post-construction.

Purpose

The purpose of this Plan is to ensure proper function of the infrastructure constructed as part of this project. The infrastructure will include the stormwater control devices including but not limited to: drives; drainage ditches; rain gardens and culverts. The tasks detailed in this Plan are the responsibility of the applicant.

Definitions

Significant Period of Rain: 0.5 inches or more of rain in a 24-hour period.

Inspection Scope

All areas of the site shall be inspected based on the criteria discussed for each site item or stormwater control measure as found later in the plan.

Inspection Frequency

Complete site inspections at the frequency listed in the following Inspection Summary.

Inspection Qualifications

For Post-Development Inspections, the qualified post-construction stormwater inspector with knowledge of erosion and stormwater control, including the standards and conditions of the project permit shall be retained by the Applicant.

Inspection/Maintenance Responsibility

It shall be the responsibility of the Applicant to retain the services of a Post-Construction Stormwater Inspector and provide for the repair and maintenance noted by inspections, if any. When maintenance is required by inspection, the Applicant shall perform the required maintenance and/or repairs in a timely fashion and notify the Inspector when the maintenance is complete. The Applicant shall maintain detailed records for the inspections and maintenance performed.

Documentation

Post Construction inspection forms and documentation of corrective actions shall be maintained for at least (5) years.

Inspection and Maintenance Plan

The site will be inspected and maintained according to the following schedule and procedures.

INSPECTION SUMMARY
1131 US Route 1, Terry & Dave Davis

Inspections of	Schedule
- **Gravel Surface Drives**	Annual
- **Drainage Ditches**	Annual
- **Culverts**	Annual
- **Rain Gardens**	Annual
- **Vegetated Areas**	Annual

Drives:

Inspection:

The drives will be inspected at least annually to ensure proper function and to ensure structural integrity. This inspection will take place in September. Road inspections will be simple visual inspections, looking at the drive or parking surface and shoulders for rutting, washboard, potholes, and erosion.

Maintenance:

Maintenance will include the re-grading of the gravel drives and areas when necessary, to prevent or repair erosion and to ensure safe drivability. This should be performed twice a year at a minimum and shall occur in April or May and in September. Additional grading may be necessary. When grading is necessary, grade each travel lane with a two (2) percent slope. Areas with evidence of excessive potholing, wash-boarding, or other erosion will be repaired. If the addition of surface gravel is necessary, the area shall be prepped by scarifying the existing road or shoulder surface to a minimum depth of two inches. The repaired area shall be compacted using a roller or whacker plate. It is anticipated that gravel should be added approximately every five (5) years.

Drainage Ditches:

Inspection:

Inspect drainage ditches annually to look for erosion, obstruction, debris, or damage to erosion armoring, such as rip-rap.

Maintenance:

The drainage ditches shall be re-shaped and re-stabilized if found to be eroding. Accumulated sediment should also be removed from the flow line of the ditch, if it exists.

Culverts and Storm Drains:

Inspection:

The stormwater control devices will be inspected on an annual basis in September of each year. The inspection will include a review of the structural integrity of each device, a review of the inlets and outlets of the ponds, and a review of the downstream discharge areas of all pipes and channels.

Culvert and storm drain inspections should include a review of the condition of the inlets and outlets of each culvert, the integrity of the pipe, and the stability of the upstream and downstream areas around each culvert.

Maintenance:

The inlets and outlets of the culverts and storm drains should be cleaned on a regular basis to ensure that sediment does not discharge downstream or does not clog the pipe. If necessary, sediment should be removed from within the culvert.

Rain Garden:

Inspection:

The inspection will include a review of the structural integrity of each device, a review of the inlet and outlet of the pond, and a review of the downstream discharge areas of all pipes and channels. Inspections should include a check for signs of snow storage and prohibited vehicle traffic including ATV's and riding lawnmowers or tractors.

For the first three months after construction, inspect the filter bed monthly to verify the filter bed is draining within 24 - 48 hours. Thereafter, inspect semi-annually in May and October.

Maintenance:

If water ponds on the filter bed surface for more than 72 hours following a rain event, replace the top three inches of filter media. Dispose of clogged filter media soil according to the erosion and sedimentation control plan.

Mulch should be removed and replaced with a 2-to-3-inch layer of fresh mulch annually or as needed.

Fertilization of the filter area should be avoided unless absolutely necessary to establish vegetation. Pruning of excessive growth and weeding to control unwanted or invasive plants shall be done yearly. Maintaining a healthy vegetative cover will minimize clogging.

Remove sediments annually in October.

Filters with grass surfaces shall be mowed no more than twice per growing season using a push mower or weed whacker to maintain a grass height of no less than 6 inches.

Vegetated Areas:

Inspection:

Vegetated areas will be inspected at least annually to look for erosion rills and proper vegetation growth. This inspection will take place in September.

Maintenance:

Vegetated area maintenance includes: mowing where grass is preferred to woody vegetation; repair of erosion where applicable; and reseeding and mulching where bare soil is encountered. Fertilization of vegetated area should be avoided unless absolutely necessary to establish vegetative coverage.

RE-CERTIFICATION

The Town of Freeport requires annual re-certification of stormwater BMPs and stormwater control measures. Each year, submit certification to the Town of Freeport that contains:

- A statement that the site has been inspected for erosion problems and such problem areas have been appropriately repaired and permanently stabilized.
- A statement that all aspects of the stormwater management system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system.
- A statement that the erosion control plan and the stormwater management plan are being implemented as written, approved, and amended (if applicable) by the Town of Freeport.

INSPECTION AND MAINTENANCE LOG
Post Construction Stormwater
Inspection & Maintenance Log

Date of Inspection: _____
Inspected by: _____

Purpose of Inspection: Monthly, Yearly, Significant Rainfall (circle one)

Drives & Parking

Description of Conditions:
_____
_____
_____
_____

Maintenance & Date of Repairs:
_____
_____
_____
_____

Follow Up Needed:
_____
_____
_____
_____

Drainage Ditches

Description of Conditions:

Maintenance & Date of Repairs:

Follow Up Needed/Additional Comments:

Culverts

Description of Conditions:

Maintenance & Date of Repairs:

Sediment Inspection & Removal:

Date & Contractor for Sump Cleaning:

Follow Up Needed/Additional Comments:

Rain Gardens

Description of Conditions:

Maintenance & Date of Repairs:

Sediment Inspection & Removal:

Date & Contractor Cleaning:

Follow Up Needed/Additional Comments:

Vegetated Areas

Description of Conditions:

Maintenance & Date of Repairs:

Follow Up Needed/Additional Comments:

WORKSHEET FOR EVALUATING STORMWATER BMP's

Rain Garden Design

Rain Garden 1

Channel Protection Volume	acres:		
Impervious Area	0.40	1" Volume=	1452 cf
Developed non-impervious area	0.28	0.4" Volume=	407 cf
		Total Volume=	**1859** cf

Area Sizing	sq. ft:	
7% of the Impervious Area	1220	
3% of the Developed non-impervious Area	366	
Total surface area of the filter media top:	**1586**	square feet

Designed Volume:	2630	cf
Designed Filter Area:	2250	sf

WORKSHEET FOR EVALUATING STORMWATER BMP's

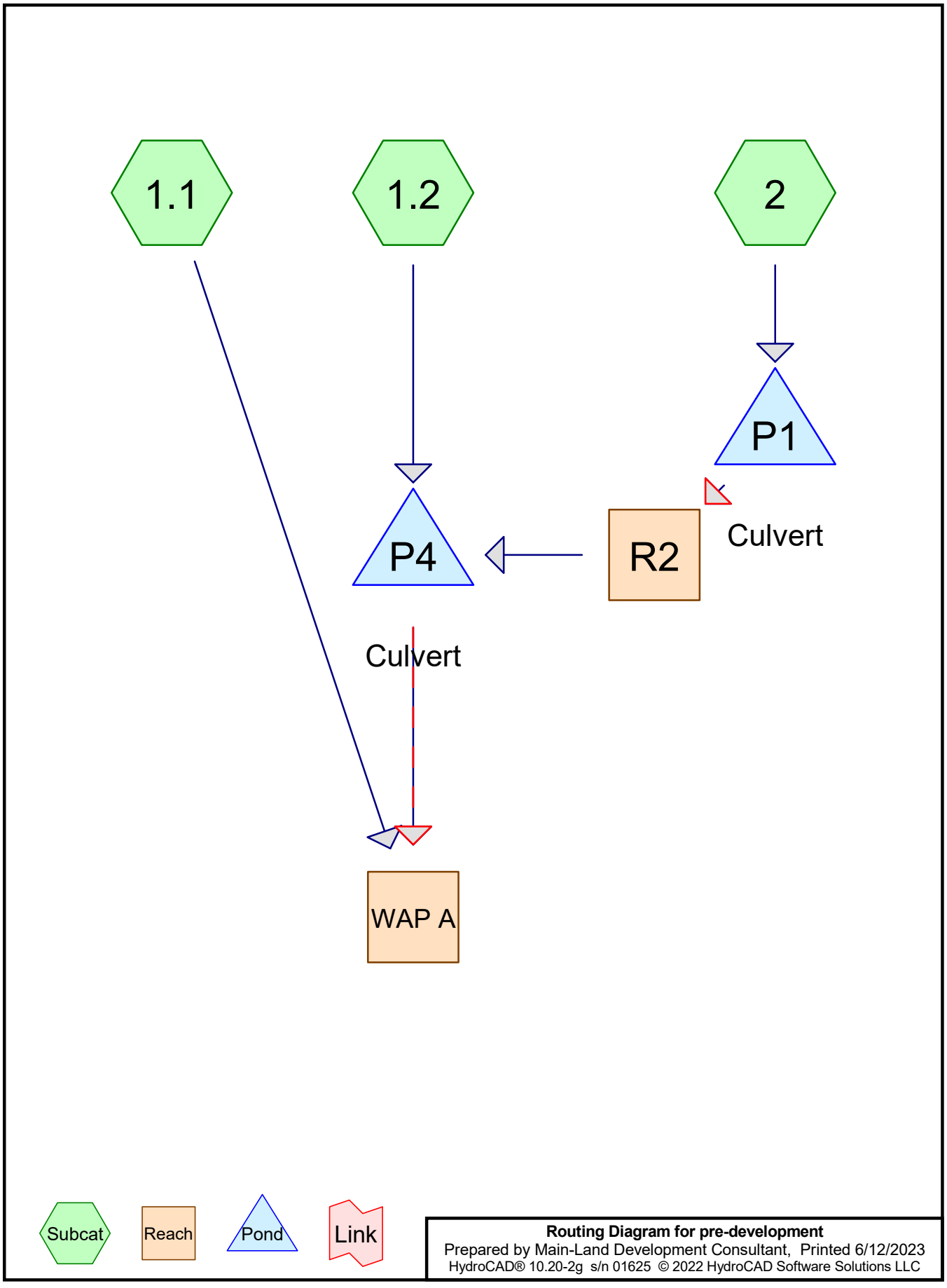
Rain Garden Design

Rain Garden 2

Channel Protection Volume	acres:		
Impervious Area	0.12	1" Volume=	436 cf
Developed non-impervious area	0.17	0.4" Volume=	247 cf
		Total Volume=	**682** cf

Area Sizing	sq. ft:	
7% of the Impervious Area	366	
3% of the Developed non-impervious Area	222	
Total surface area of the filter media top:	**588**	square feet

Designed Volume:	1871	cf
Designed Filter Area:	1602	sf



Routing Diagram for pre-development

Prepared by Main-Land Development Consultant, Printed 6/12/2023

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1.1: Runoff Area=1.120 ac 15.18% Impervious Runoff Depth=1.39"
Flow Length=110' Slope=0.0180 '/' Tc=11.2 min CN=81 Runoff=1.52 cfs 0.130 af

Subcatchment 1.2: Runoff Area=6.150 ac 11.38% Impervious Runoff Depth=1.08"
Flow Length=552' Tc=17.4 min CN=76 Runoff=5.31 cfs 0.555 af

Subcatchment 2: Runoff Area=4.090 ac 18.34% Impervious Runoff Depth=1.26"
Flow Length=218' Tc=46.7 min CN=79 Runoff=2.68 cfs 0.430 af

Reach R2: Avg. Flow Depth=0.22' Max Vel=2.23 fps Inflow=2.17 cfs 0.430 af
n=0.035 L=50.0' S=0.0360 '/' Capacity=255.81 cfs Outflow=2.17 cfs 0.430 af

Reach WAP A: Inflow=6.68 cfs 1.114 af
Outflow=6.68 cfs 1.114 af

Pond P1: Culvert Peak Elev=130.83' Storage=1,757 cf Inflow=2.68 cfs 0.430 af
Primary=2.17 cfs 0.430 af Secondary=0.00 cfs 0.000 af Outflow=2.17 cfs 0.430 af

Pond P4: Culvert Peak Elev=126.17' Storage=1,026 cf Inflow=6.05 cfs 0.985 af
Primary=5.72 cfs 0.984 af Secondary=0.00 cfs 0.000 af Outflow=5.72 cfs 0.984 af

Total Runoff Area = 11.360 ac Runoff Volume = 1.115 af Average Runoff Depth = 1.18"
85.74% Pervious = 9.740 ac 14.26% Impervious = 1.620 ac

Summary for Subcatchment 1.1:

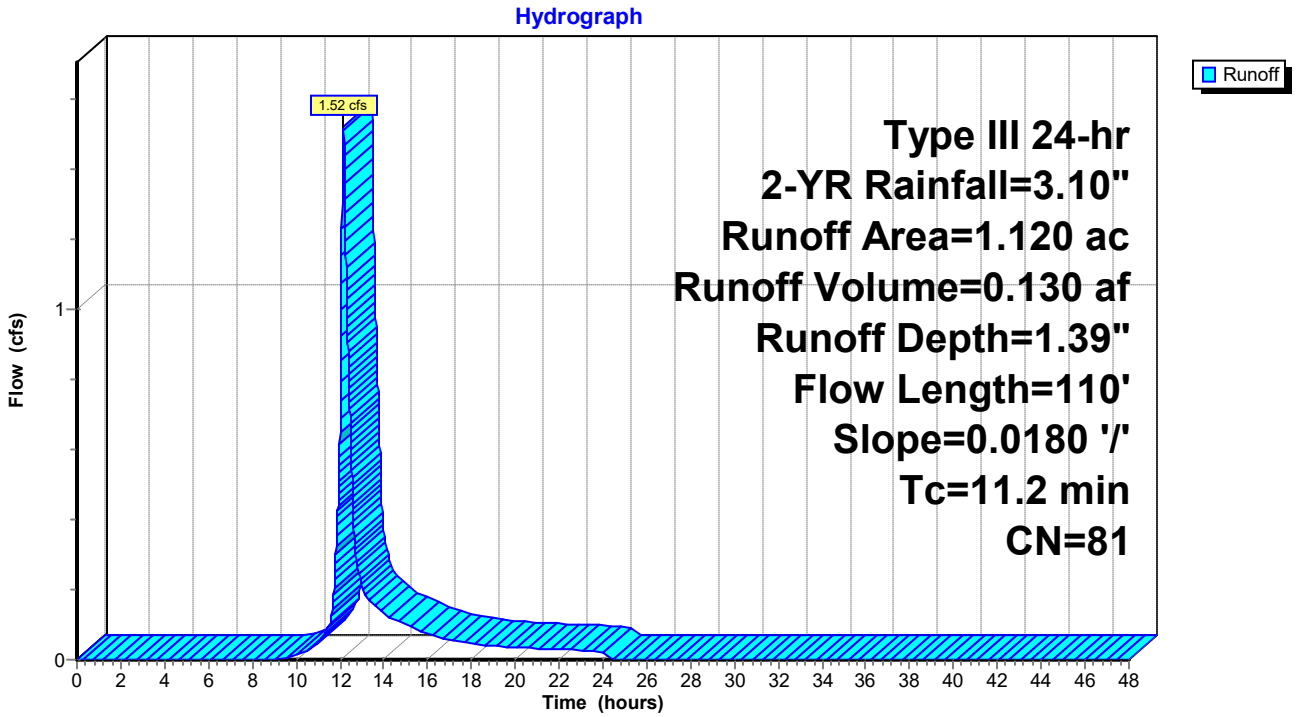
Runoff = 1.52 cfs @ 12.16 hrs, Volume= 0.130 af, Depth= 1.39"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.1:



Summary for Subcatchment 1.2:

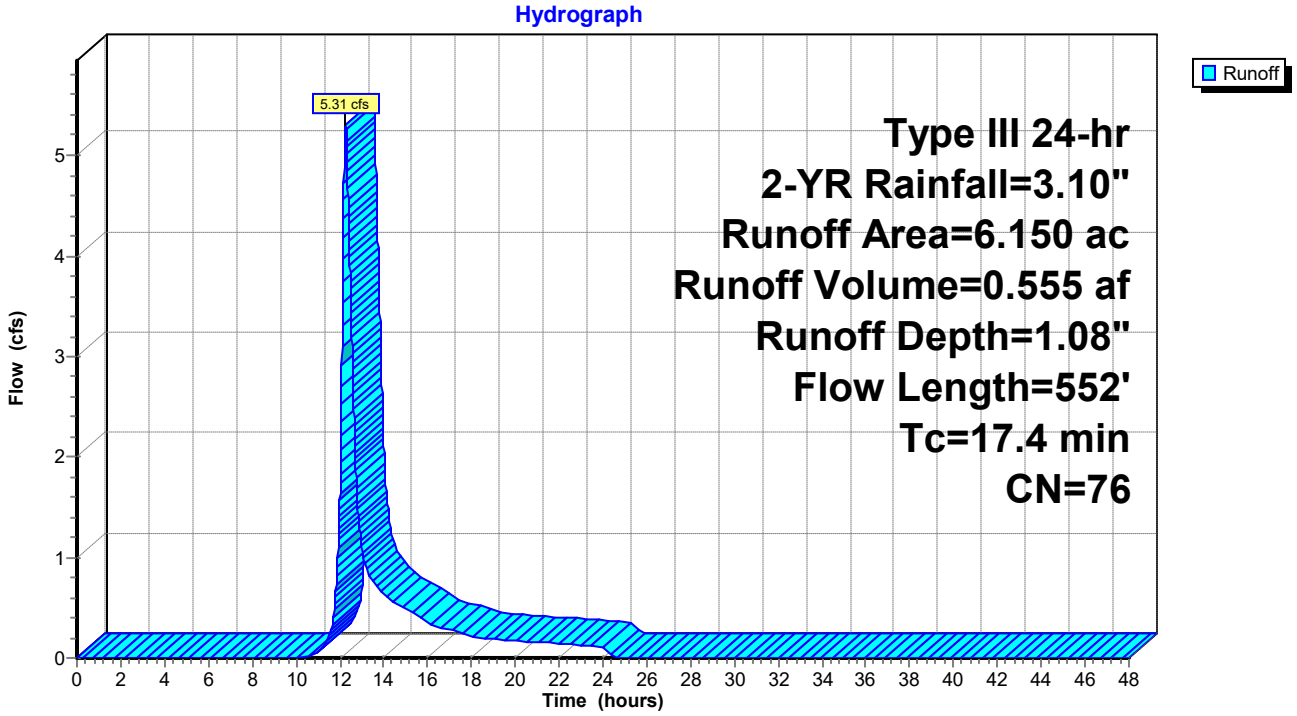
Runoff = 5.31 cfs @ 12.25 hrs, Volume= 0.555 af, Depth= 1.08"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
1.920	70	Woods, Good, HSG C
3.200	74	>75% Grass cover, Good, HSG C
0.640	98	Paved parking, HSG C
0.230	96	Gravel surface, HSG C
0.060	98	Roofs, HSG C
0.100	71	Meadow, non-grazed, HSG C
6.150	76	Weighted Average
5.450		88.62% Pervious Area
0.700		11.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	160	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	242	0.0120	8.81	234.96	**Parabolic Channel,** W=20.00' D=2.00' Area=26.7 sf Perim=20.5' n= 0.022 Earth, clean & straight
17.4	552	Total			

Subcatchment 1.2:



Summary for Subcatchment 2:

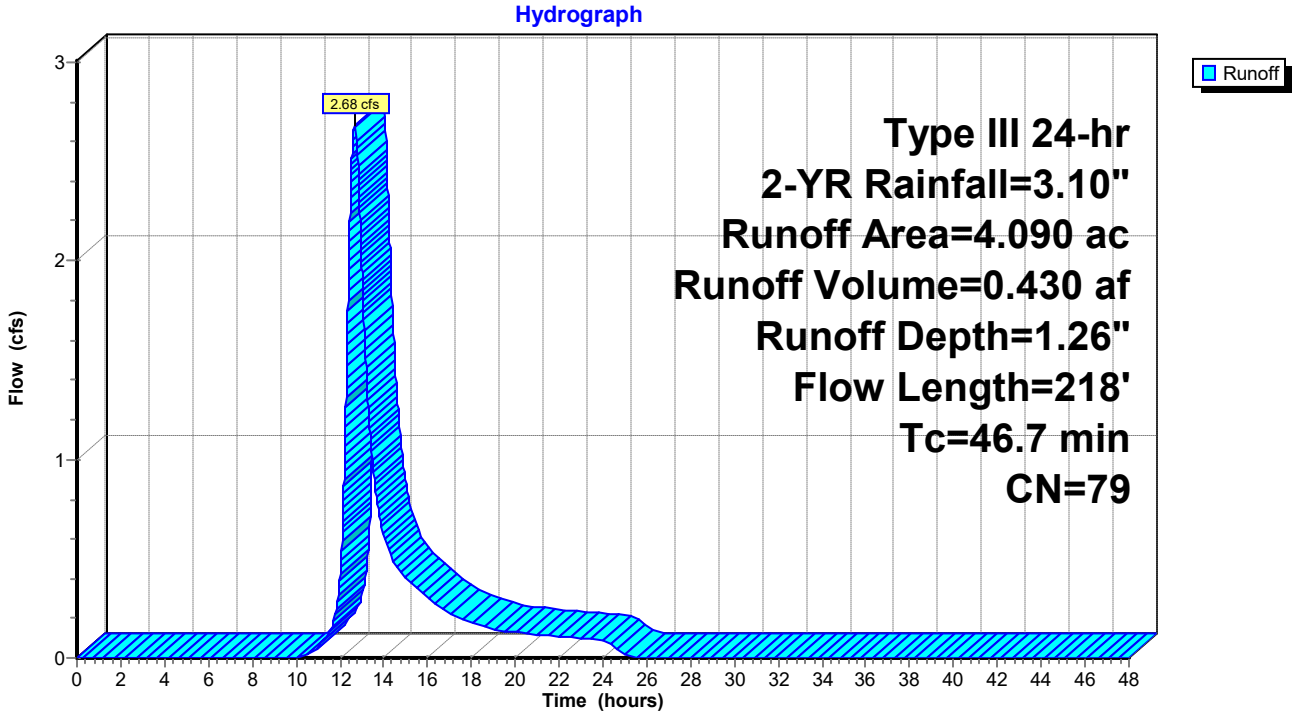
Runoff = 2.68 cfs @ 12.66 hrs, Volume= 0.430 af, Depth= 1.26"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	113	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
46.7	218	Total			

Subcatchment 2:



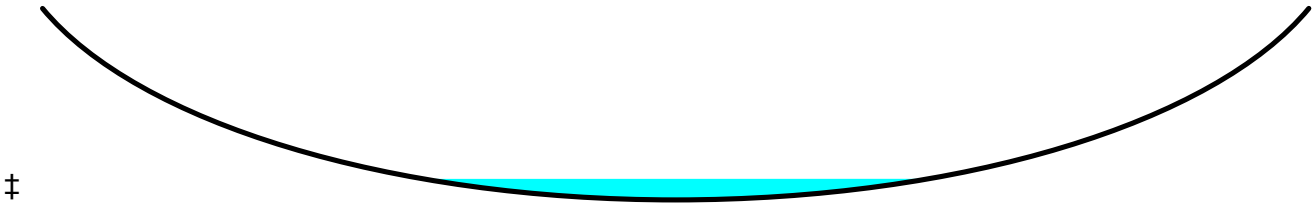
Summary for Reach R2:

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 1.26" for 2-YR event
Inflow = 2.17 cfs @ 12.93 hrs, Volume= 0.430 af
Outflow = 2.17 cfs @ 12.94 hrs, Volume= 0.430 af, Atten= 0%, Lag= 0.6 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.23 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.05 fps, Avg. Travel Time= 0.8 min

Peak Storage= 48 cf @ 12.94 hrs
Average Depth at Peak Storage= 0.22' , Surface Width= 6.63'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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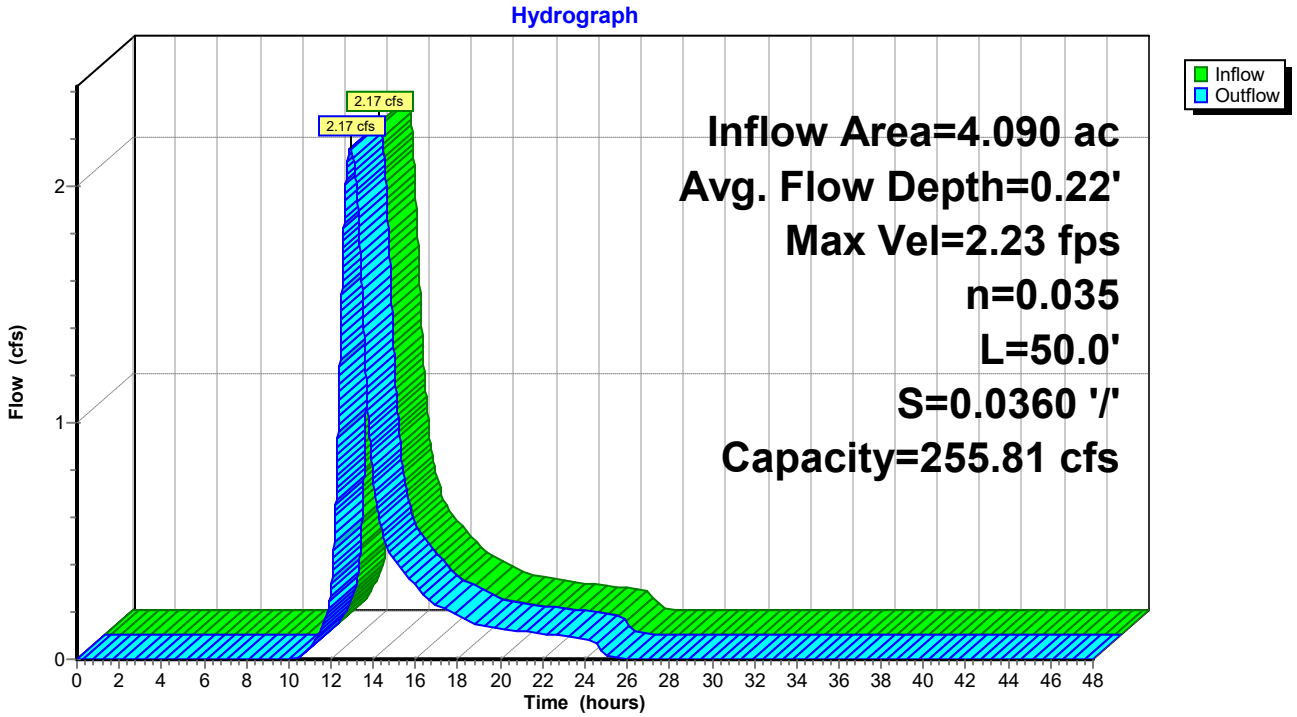
Reach R2:

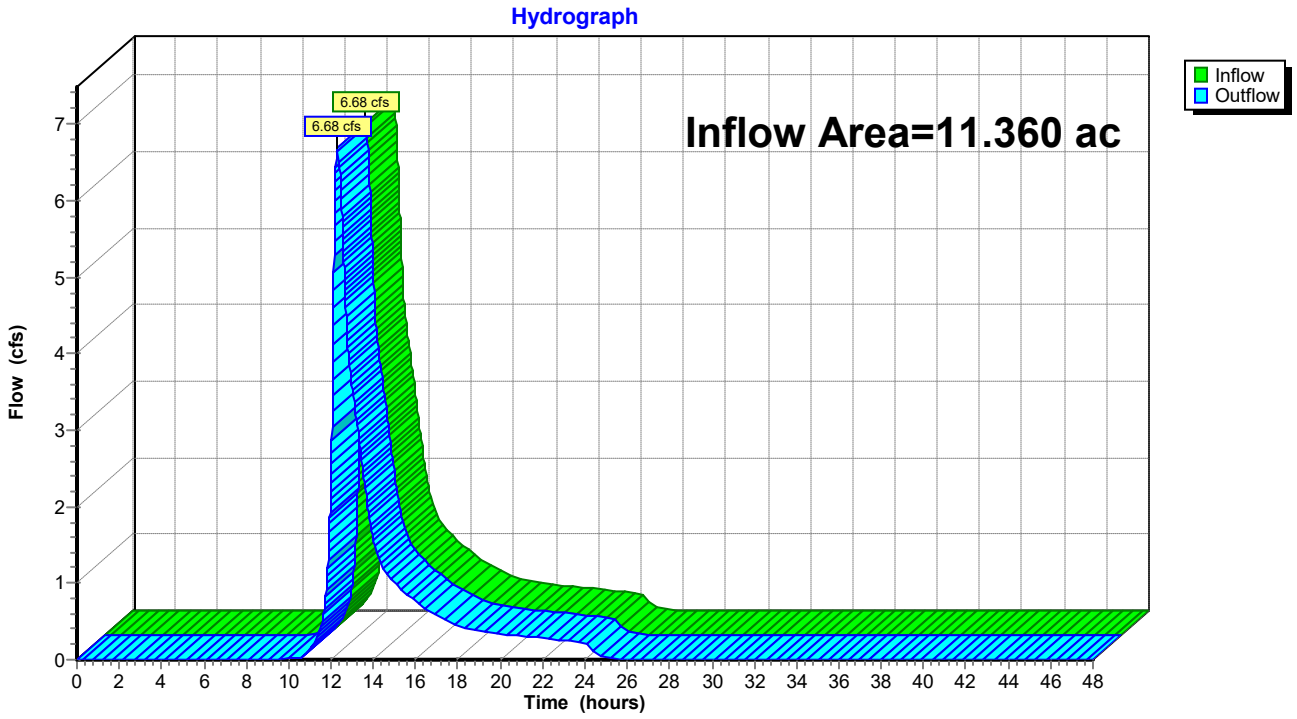


Summary for Reach WAP A:

Inflow Area = 11.360 ac, 14.26% Impervious, Inflow Depth = 1.18" for 2-YR event
Inflow = 6.68 cfs @ 12.31 hrs, Volume= 1.114 af
Outflow = 6.68 cfs @ 12.31 hrs, Volume= 1.114 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 1.26" for 2-YR event
Inflow = 2.68 cfs @ 12.66 hrs, Volume= 0.430 af
Outflow = 2.17 cfs @ 12.93 hrs, Volume= 0.430 af, Atten= 19%, Lag= 16.2 min
Primary = 2.17 cfs @ 12.93 hrs, Volume= 0.430 af
Routed to Reach R2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.83' @ 12.93 hrs Surf.Area= 4,047 sf Storage= 1,757 cf

Plug-Flow detention time= 7.9 min calculated for 0.430 af (100% of inflow)
Center-of-Mass det. time= 7.5 min (892.9 - 885.4)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

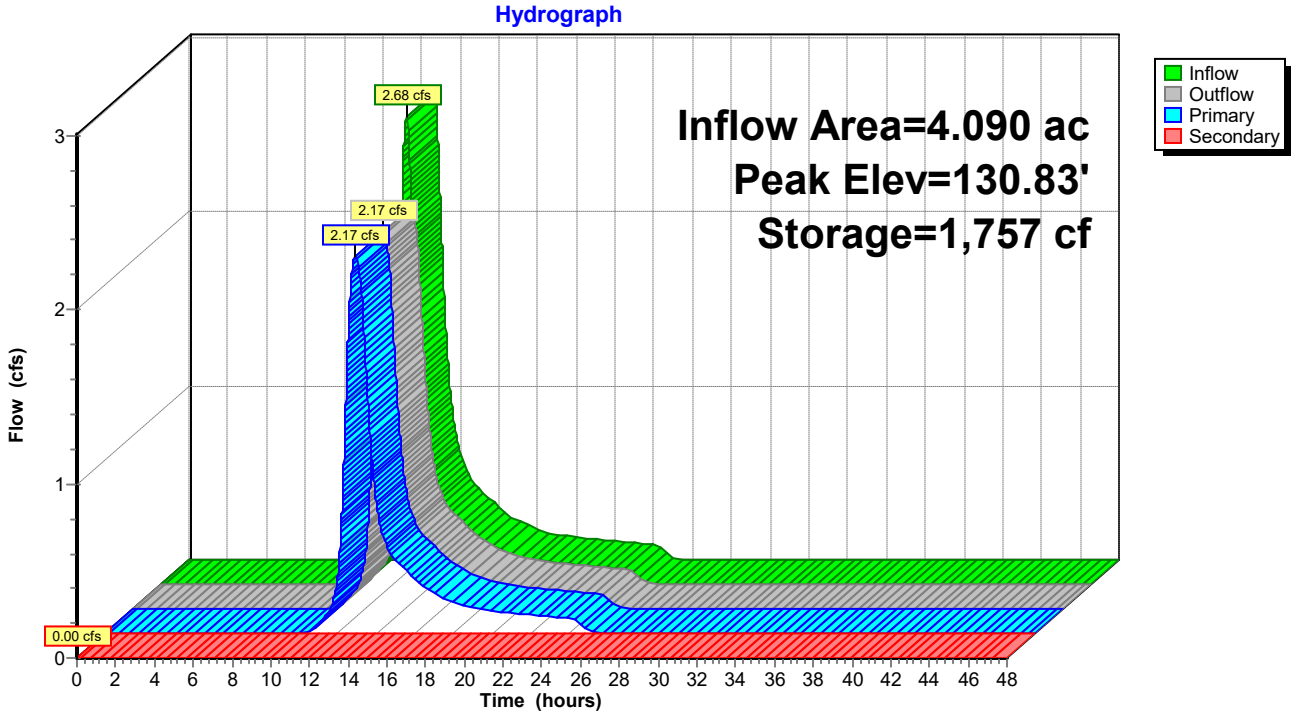
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=2.17 cfs @ 12.93 hrs HW=130.83' (Free Discharge)
1=Culvert (Inlet Controls 2.17 cfs @ 2.76 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond P1: Culvert



Summary for Pond P4: Culvert

Inflow Area = 10.240 ac, 14.16% Impervious, Inflow Depth = 1.15" for 2-YR event
Inflow = 6.05 cfs @ 12.27 hrs, Volume= 0.985 af
Outflow = 5.72 cfs @ 12.36 hrs, Volume= 0.984 af, Atten= 5%, Lag= 4.9 min
Primary = 5.72 cfs @ 12.36 hrs, Volume= 0.984 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 126.17' @ 12.36 hrs Surf.Area= 1,526 sf Storage= 1,026 cf

Plug-Flow detention time= 3.3 min calculated for 0.984 af (100% of inflow)
Center-of-Mass det. time= 3.0 min (882.3 - 879.3)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	30,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

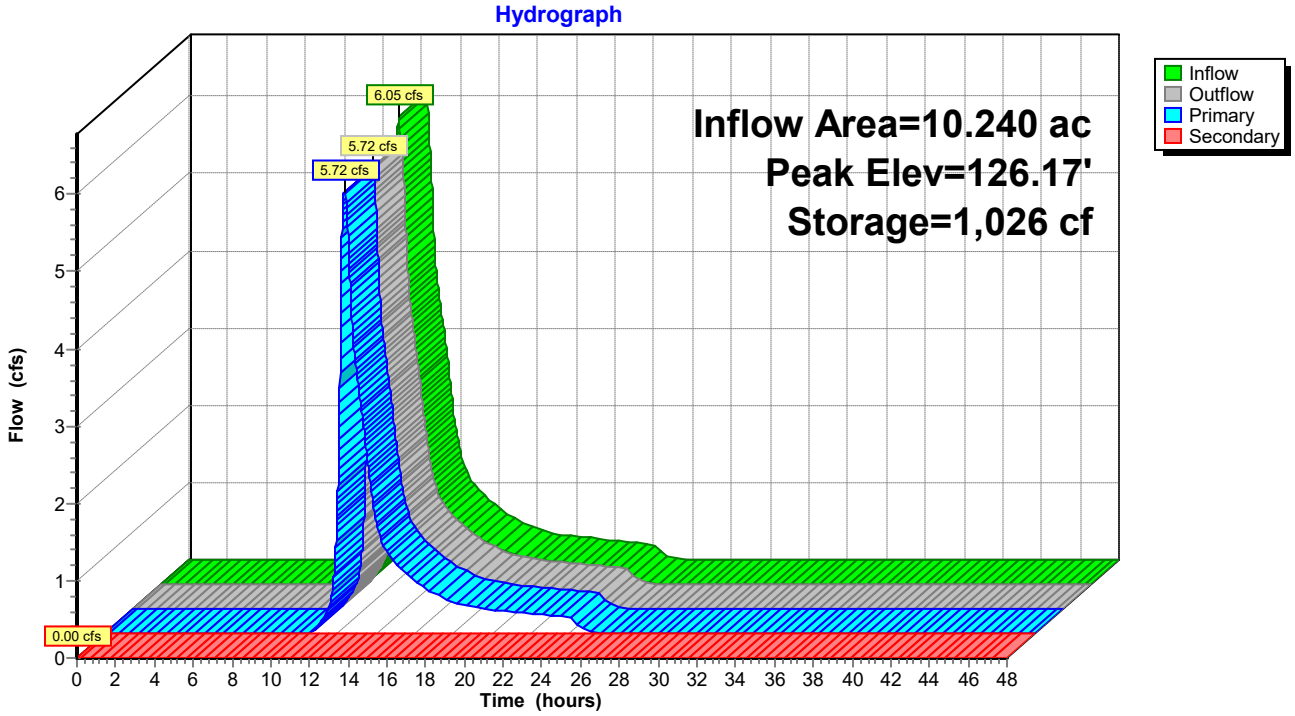
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,080	710	810
127.00	3,762	2,421	3,231
128.00	13,975	8,869	12,099
129.00	23,700	18,838	30,937

Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=5.72 cfs @ 12.36 hrs HW=126.17' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.72 cfs @ 3.25 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1.1: Runoff Area=1.120 ac 15.18% Impervious Runoff Depth=2.63"
Flow Length=110' Slope=0.0180 '/' Tc=11.2 min CN=81 Runoff=2.91 cfs 0.246 af

Subcatchment 1.2: Runoff Area=6.150 ac 11.38% Impervious Runoff Depth=2.21"
Flow Length=552' Tc=17.4 min CN=76 Runoff=11.31 cfs 1.133 af

Subcatchment 2: Runoff Area=4.090 ac 18.34% Impervious Runoff Depth=2.46"
Flow Length=218' Tc=46.7 min CN=79 Runoff=5.34 cfs 0.839 af

Reach R2: Avg. Flow Depth=0.27' Max Vel=2.55 fps Inflow=3.33 cfs 0.838 af
n=0.035 L=50.0' S=0.0360 '/' Capacity=255.81 cfs Outflow=3.33 cfs 0.838 af

Reach WAP A: Inflow=10.71 cfs 2.216 af
Outflow=10.71 cfs 2.216 af

Pond P1: Culvert Peak Elev=131.54' Storage=5,862 cf Inflow=5.34 cfs 0.839 af
Primary=3.33 cfs 0.838 af Secondary=0.00 cfs 0.000 af Outflow=3.33 cfs 0.838 af

Pond P4: Culvert Peak Elev=127.35' Storage=5,193 cf Inflow=12.74 cfs 1.971 af
Primary=9.27 cfs 1.971 af Secondary=0.00 cfs 0.000 af Outflow=9.27 cfs 1.971 af

Total Runoff Area = 11.360 ac Runoff Volume = 2.217 af Average Runoff Depth = 2.34"
85.74% Pervious = 9.740 ac 14.26% Impervious = 1.620 ac

Summary for Subcatchment 1.1:

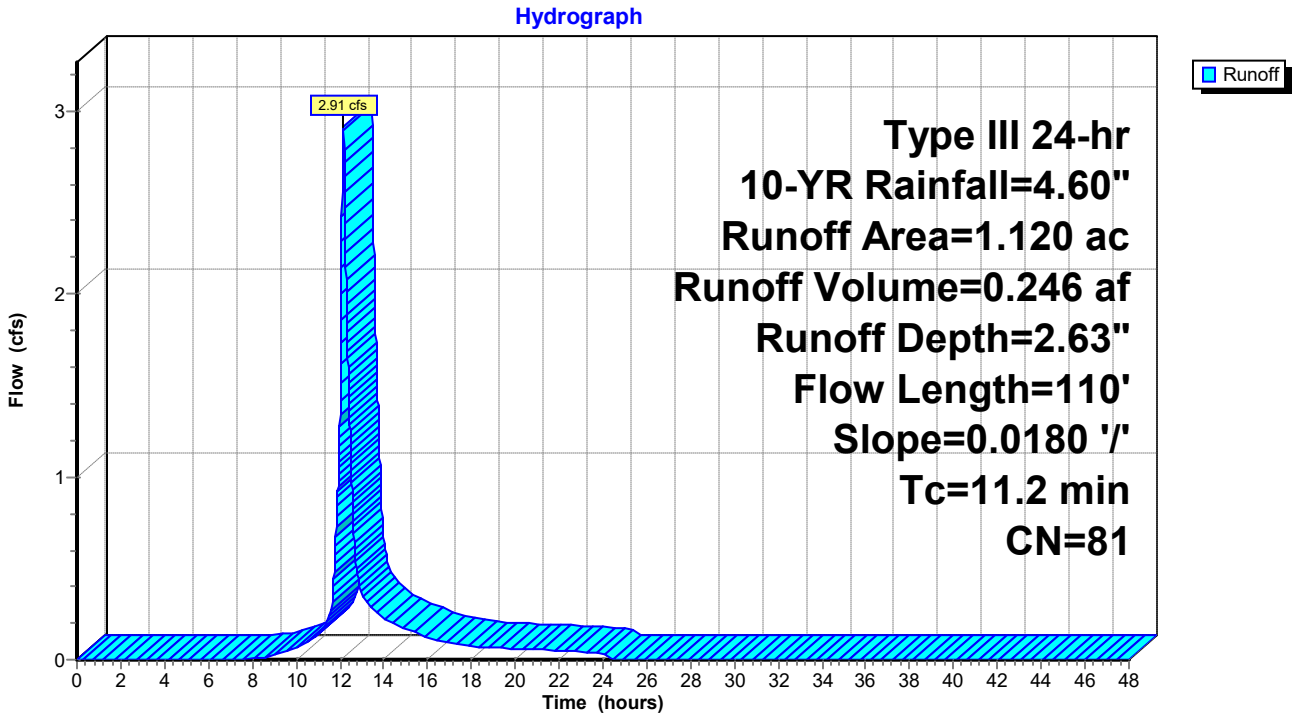
Runoff = 2.91 cfs @ 12.16 hrs, Volume= 0.246 af, Depth= 2.63"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.1:



Summary for Subcatchment 1.2:

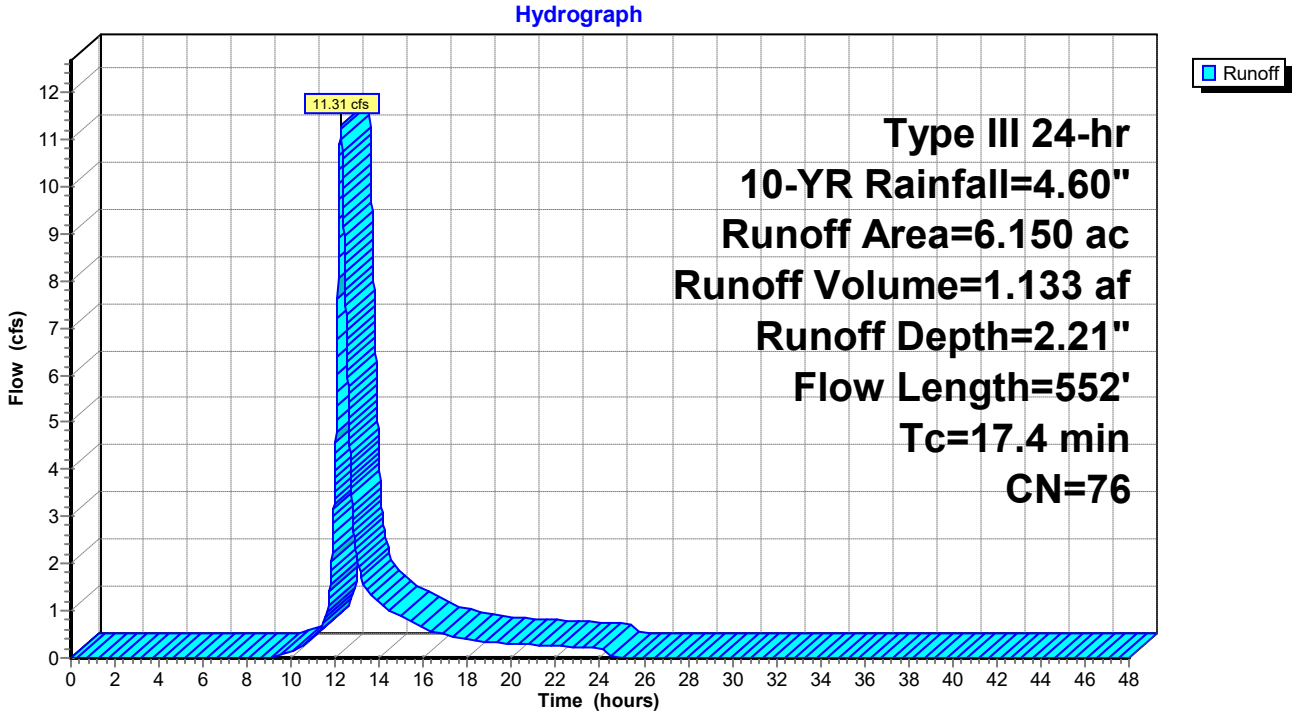
Runoff = 11.31 cfs @ 12.24 hrs, Volume= 1.133 af, Depth= 2.21"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
1.920	70	Woods, Good, HSG C
3.200	74	>75% Grass cover, Good, HSG C
0.640	98	Paved parking, HSG C
0.230	96	Gravel surface, HSG C
0.060	98	Roofs, HSG C
0.100	71	Meadow, non-grazed, HSG C
6.150	76	Weighted Average
5.450		88.62% Pervious Area
0.700		11.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	160	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	242	0.0120	8.81	234.96	**Parabolic Channel,** W=20.00' D=2.00' Area=26.7 sf Perim=20.5' n= 0.022 Earth, clean & straight
17.4	552	Total			

Subcatchment 1.2:



Summary for Subcatchment 2:

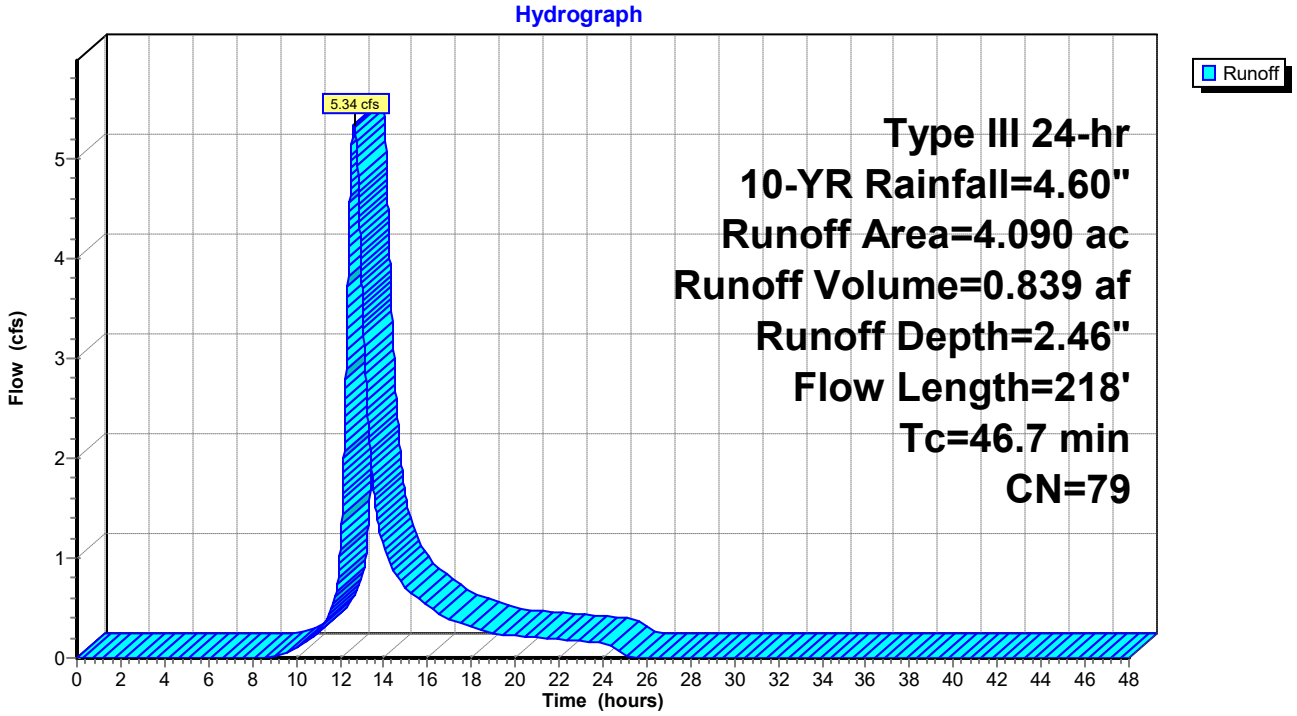
Runoff = 5.34 cfs @ 12.65 hrs, Volume= 0.839 af, Depth= 2.46"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	113	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
46.7	218	Total			

Subcatchment 2:



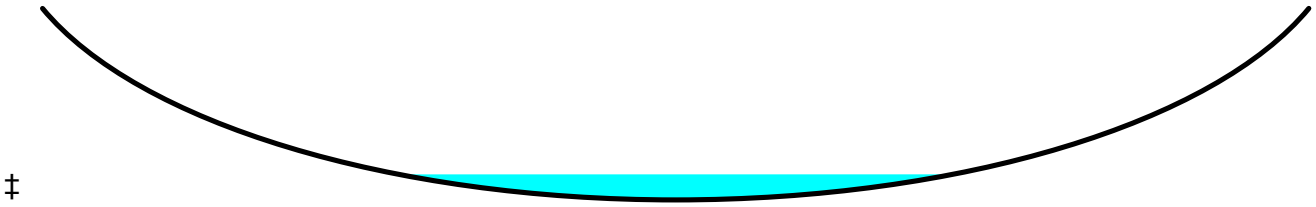
Summary for Reach R2:

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 2.46" for 10-YR event
Inflow = 3.33 cfs @ 13.08 hrs, Volume= 0.838 af
Outflow = 3.33 cfs @ 13.08 hrs, Volume= 0.838 af, Atten= 0%, Lag= 0.6 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.55 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.23 fps, Avg. Travel Time= 0.7 min

Peak Storage= 65 cf @ 13.08 hrs
Average Depth at Peak Storage= 0.27' , Surface Width= 7.31'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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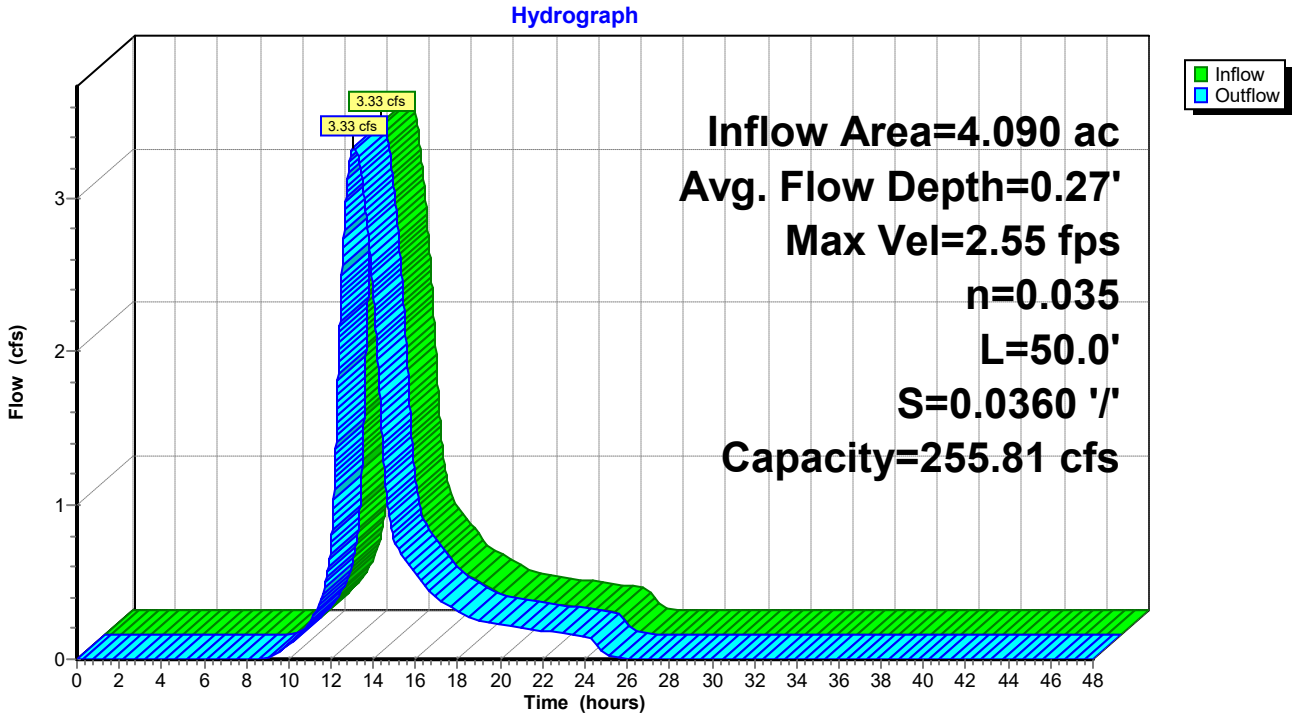
Reach R2:

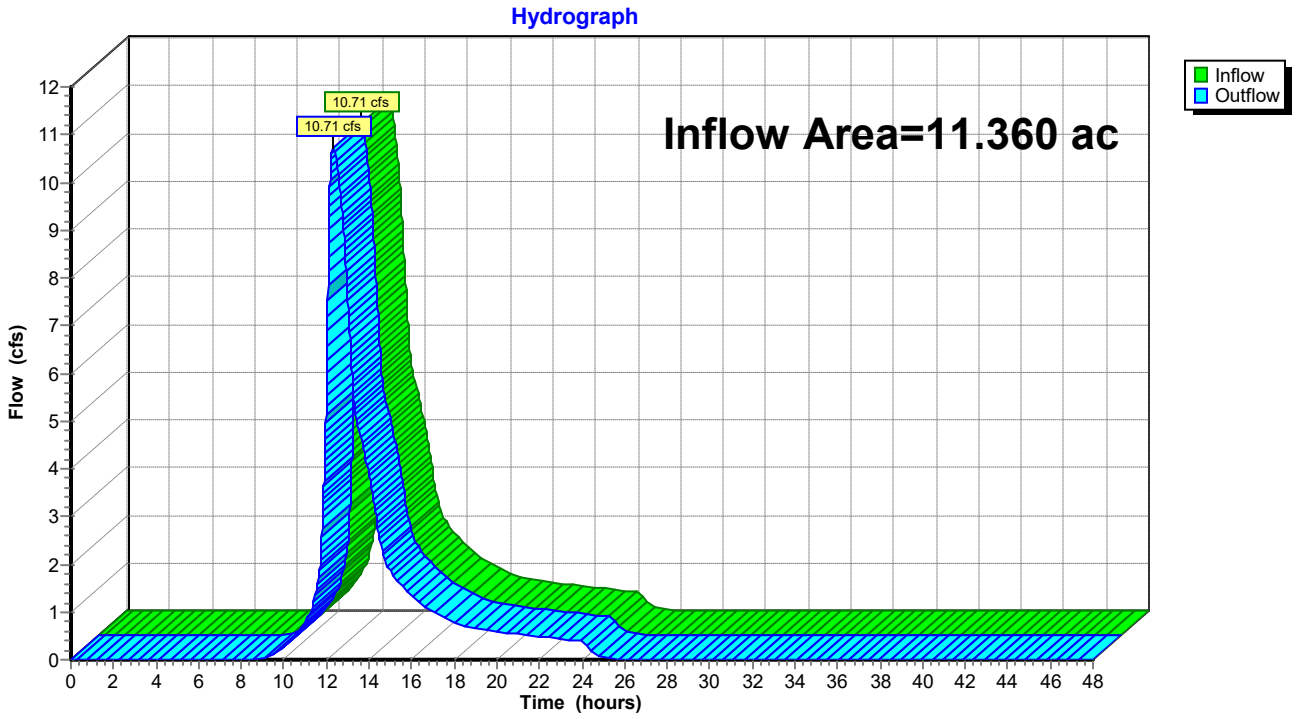


Summary for Reach WAP A:

Inflow Area = 11.360 ac, 14.26% Impervious, Inflow Depth = 2.34" for 10-YR event
Inflow = 10.71 cfs @ 12.32 hrs, Volume= 2.216 af
Outflow = 10.71 cfs @ 12.32 hrs, Volume= 2.216 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 2.46" for 10-YR event
Inflow = 5.34 cfs @ 12.65 hrs, Volume= 0.839 af
Outflow = 3.33 cfs @ 13.08 hrs, Volume= 0.838 af, Atten= 38%, Lag= 25.5 min
Primary = 3.33 cfs @ 13.08 hrs, Volume= 0.838 af
Routed to Reach R2 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 131.54' @ 13.08 hrs Surf.Area= 7,430 sf Storage= 5,862 cf

Plug-Flow detention time= 14.8 min calculated for 0.838 af (100% of inflow)
Center-of-Mass det. time= 14.6 min (880.5 - 865.9)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

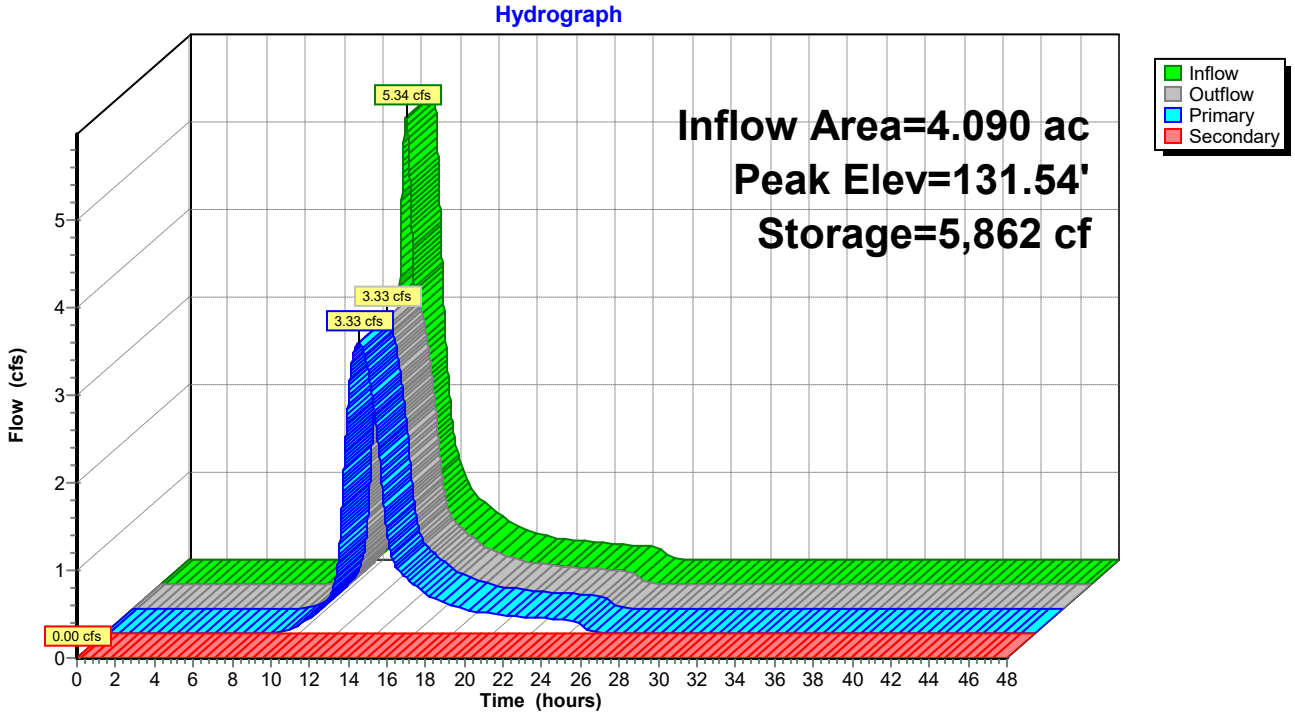
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.33 cfs @ 13.08 hrs HW=131.54' (Free Discharge)
1=Culvert (Inlet Controls 3.33 cfs @ 4.23 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond P1: Culvert



Summary for Pond P4: Culvert

Inflow Area = 10.240 ac, 14.16% Impervious, Inflow Depth = 2.31" for 10-YR event
Inflow = 12.74 cfs @ 12.25 hrs, Volume= 1.971 af
Outflow = 9.27 cfs @ 12.51 hrs, Volume= 1.971 af, Atten= 27%, Lag= 15.4 min
Primary = 9.27 cfs @ 12.51 hrs, Volume= 1.971 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 127.35' @ 12.51 hrs Surf.Area= 7,364 sf Storage= 5,193 cf

Plug-Flow detention time= 4.7 min calculated for 1.971 af (100% of inflow)
Center-of-Mass det. time= 4.3 min (865.9 - 861.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	30,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

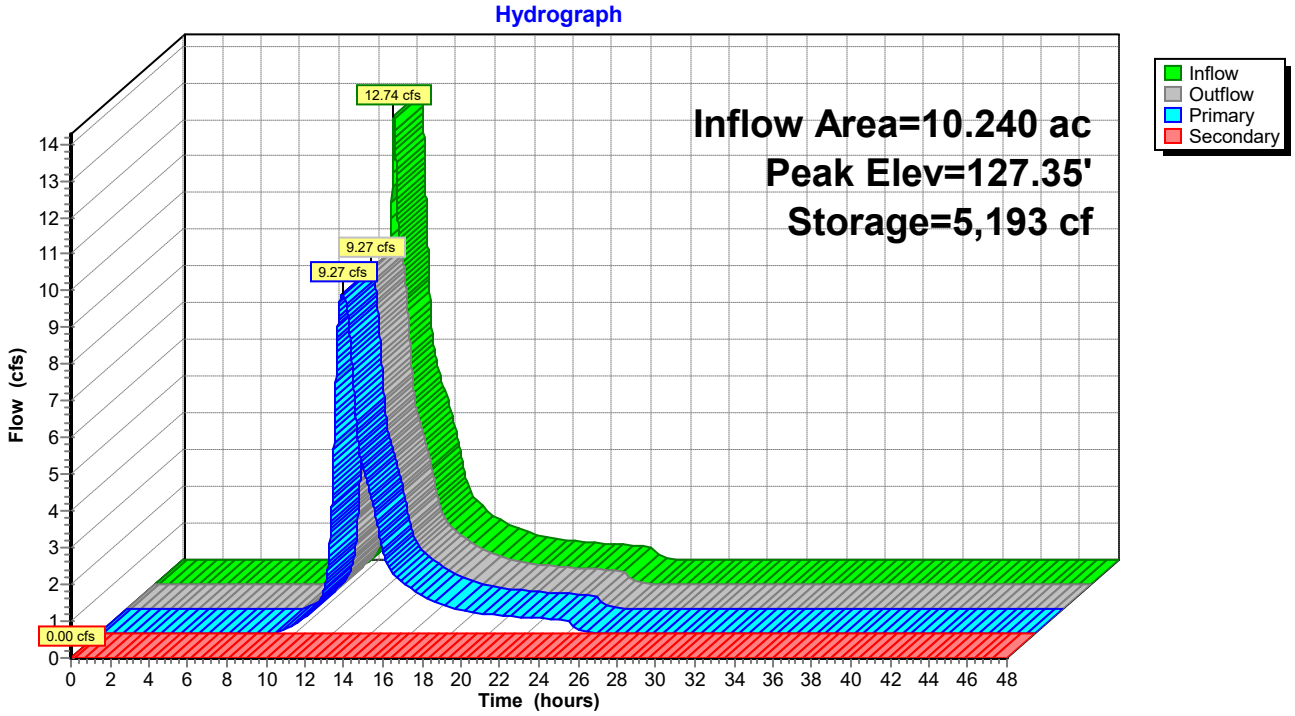
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,080	710	810
127.00	3,762	2,421	3,231
128.00	13,975	8,869	12,099
129.00	23,700	18,838	30,937

Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=9.27 cfs @ 12.51 hrs HW=127.35' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 9.27 cfs @ 5.24 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 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 1.1: Runoff Area=1.120 ac 15.18% Impervious Runoff Depth=3.70"
Flow Length=110' Slope=0.0180 '/' Tc=11.2 min CN=81 Runoff=4.08 cfs 0.346 af

Subcatchment 1.2: Runoff Area=6.150 ac 11.38% Impervious Runoff Depth=3.21"
Flow Length=552' Tc=17.4 min CN=76 Runoff=16.53 cfs 1.644 af

Subcatchment 2: Runoff Area=4.090 ac 18.34% Impervious Runoff Depth=3.50"
Flow Length=218' Tc=46.7 min CN=79 Runoff=7.63 cfs 1.193 af

Reach R2: Avg. Flow Depth=0.32' Max Vel=2.87 fps Inflow=4.88 cfs 1.193 af
n=0.035 L=50.0' S=0.0360 '/' Capacity=255.81 cfs Outflow=4.88 cfs 1.193 af

Reach WAP A: Inflow=12.87 cfs 3.182 af
Outflow=12.87 cfs 3.182 af

Pond P1: Culvert Peak Elev=132.04' Storage=10,122 cf Inflow=7.63 cfs 1.193 af
Primary=3.93 cfs 1.177 af Secondary=0.94 cfs 0.016 af Outflow=4.88 cfs 1.193 af

Pond P4: Culvert Peak Elev=127.97' Storage=11,681 cf Inflow=18.49 cfs 2.837 af
Primary=10.66 cfs 2.837 af Secondary=0.00 cfs 0.000 af Outflow=10.66 cfs 2.837 af

Total Runoff Area = 11.360 ac Runoff Volume = 3.183 af Average Runoff Depth = 3.36"
85.74% Pervious = 9.740 ac 14.26% Impervious = 1.620 ac

Summary for Subcatchment 1.1:

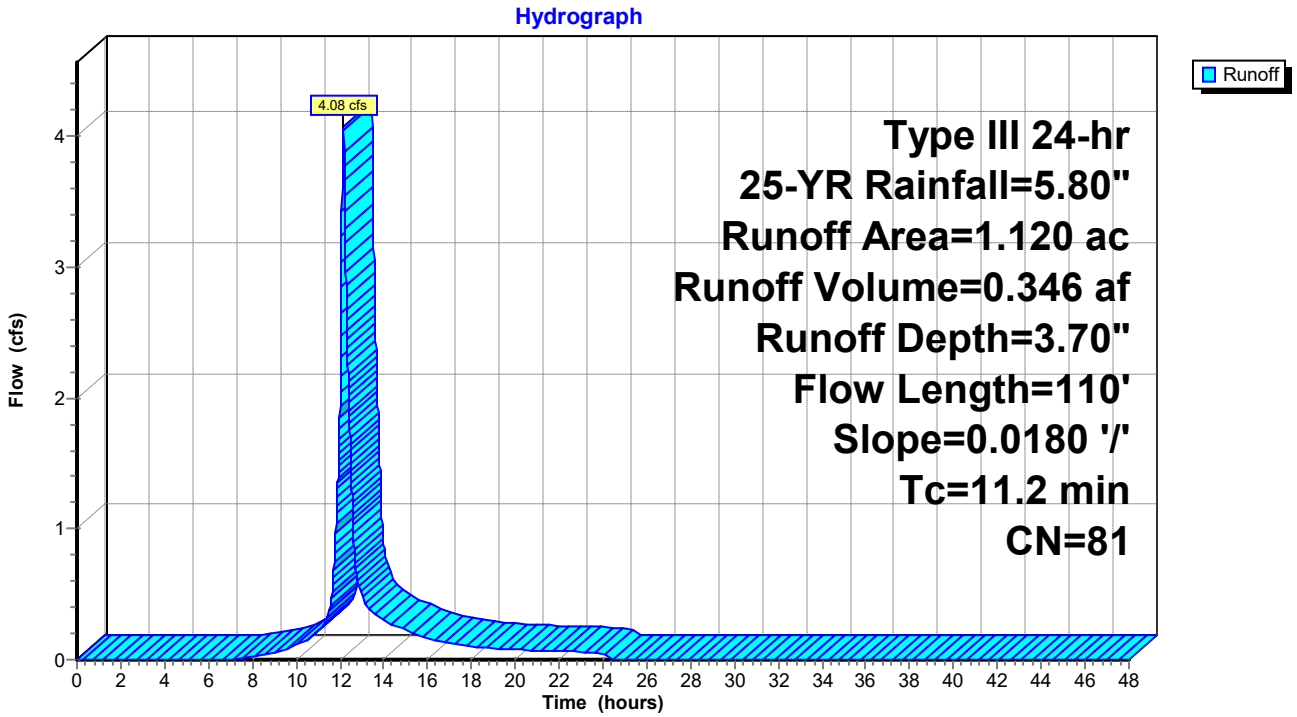
Runoff = 4.08 cfs @ 12.15 hrs, Volume= 0.346 af, Depth= 3.70"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.1:



Summary for Subcatchment 1.2:

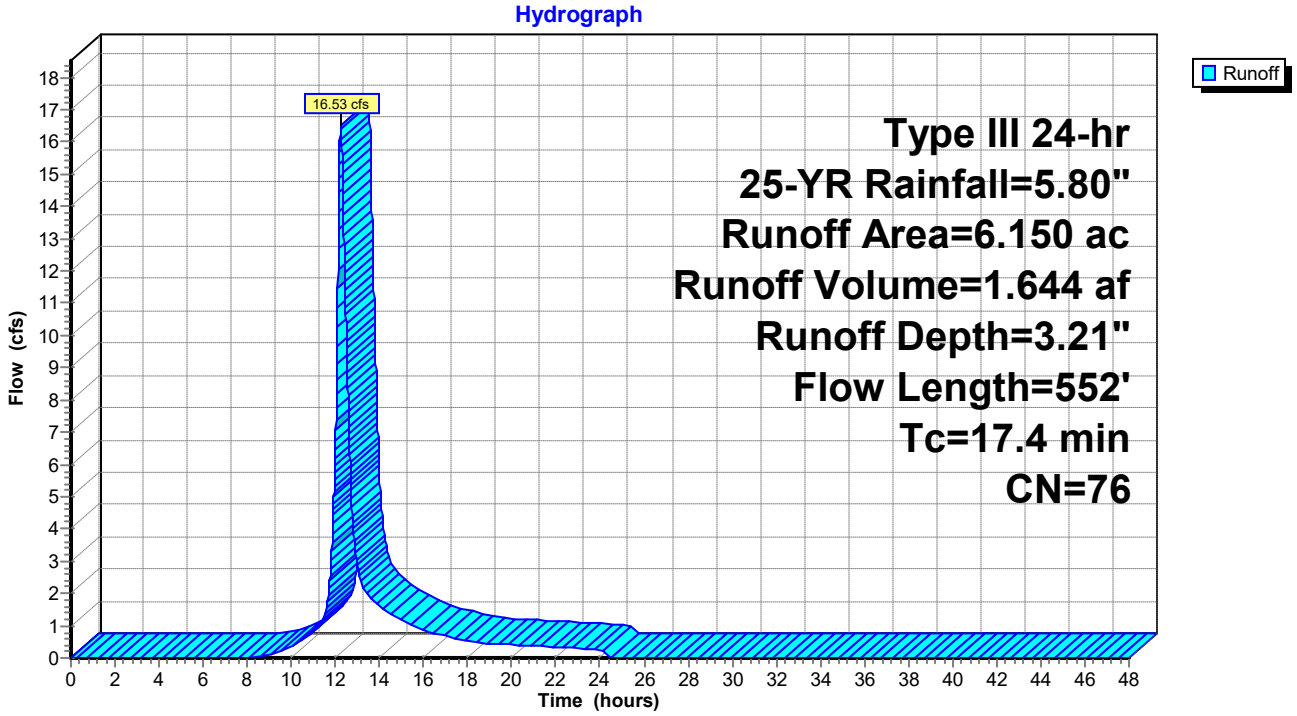
Runoff = 16.53 cfs @ 12.24 hrs, Volume= 1.644 af, Depth= 3.21"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
1.920	70	Woods, Good, HSG C
3.200	74	>75% Grass cover, Good, HSG C
0.640	98	Paved parking, HSG C
0.230	96	Gravel surface, HSG C
0.060	98	Roofs, HSG C
0.100	71	Meadow, non-grazed, HSG C
6.150	76	Weighted Average
5.450		88.62% Pervious Area
0.700		11.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
3.1	160	0.0150	0.86		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.5	242	0.0120	8.81	234.96	**Parabolic Channel,** W=20.00' D=2.00' Area=26.7 sf Perim=20.5' n= 0.022 Earth, clean & straight
17.4	552	Total			

Subcatchment 1.2:



Summary for Subcatchment 2:

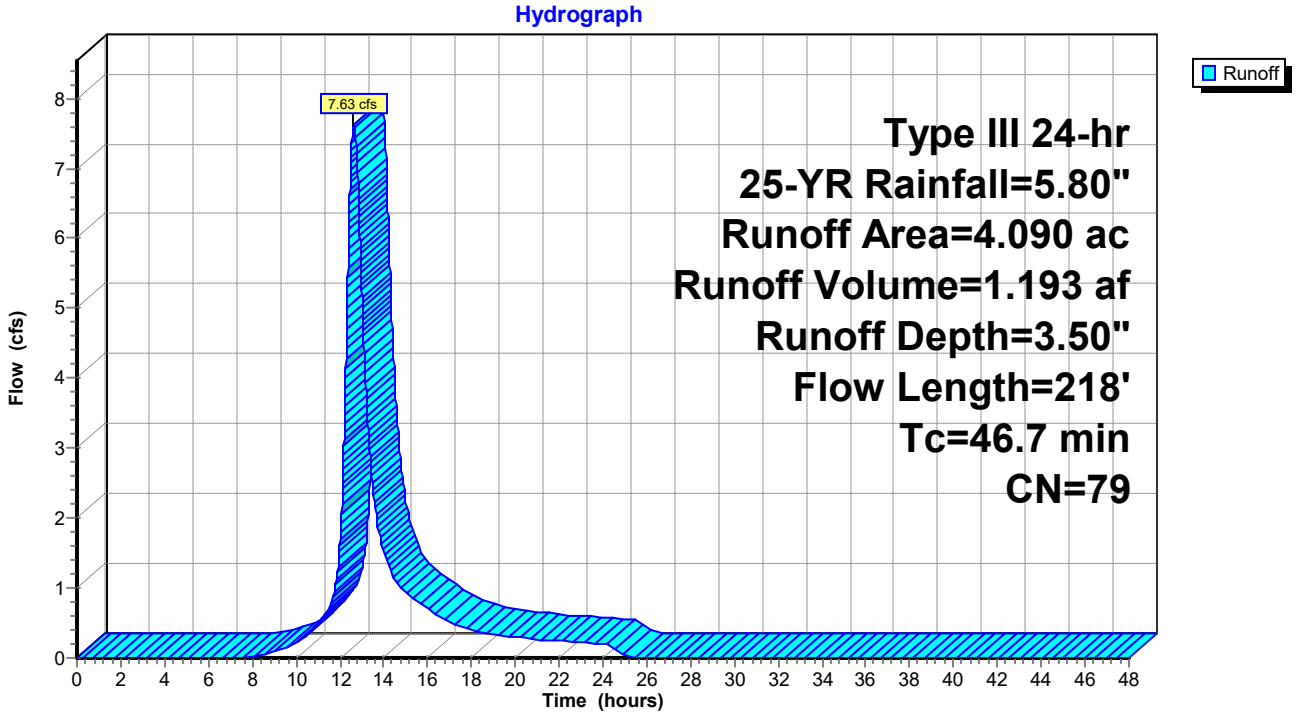
Runoff = 7.63 cfs @ 12.61 hrs, Volume= 1.193 af, Depth= 3.50"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
41.9	113	0.0200	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
46.7	218	Total			

Subcatchment 2:



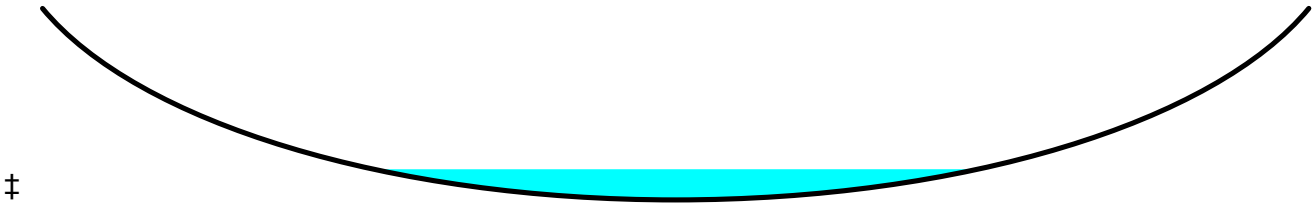
Summary for Reach R2:

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 3.50" for 25-YR event
Inflow = 4.88 cfs @ 13.05 hrs, Volume= 1.193 af
Outflow = 4.88 cfs @ 13.05 hrs, Volume= 1.193 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.87 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.34 fps, Avg. Travel Time= 0.6 min

Peak Storage= 85 cf @ 13.05 hrs
Average Depth at Peak Storage= 0.32' , Surface Width= 7.99'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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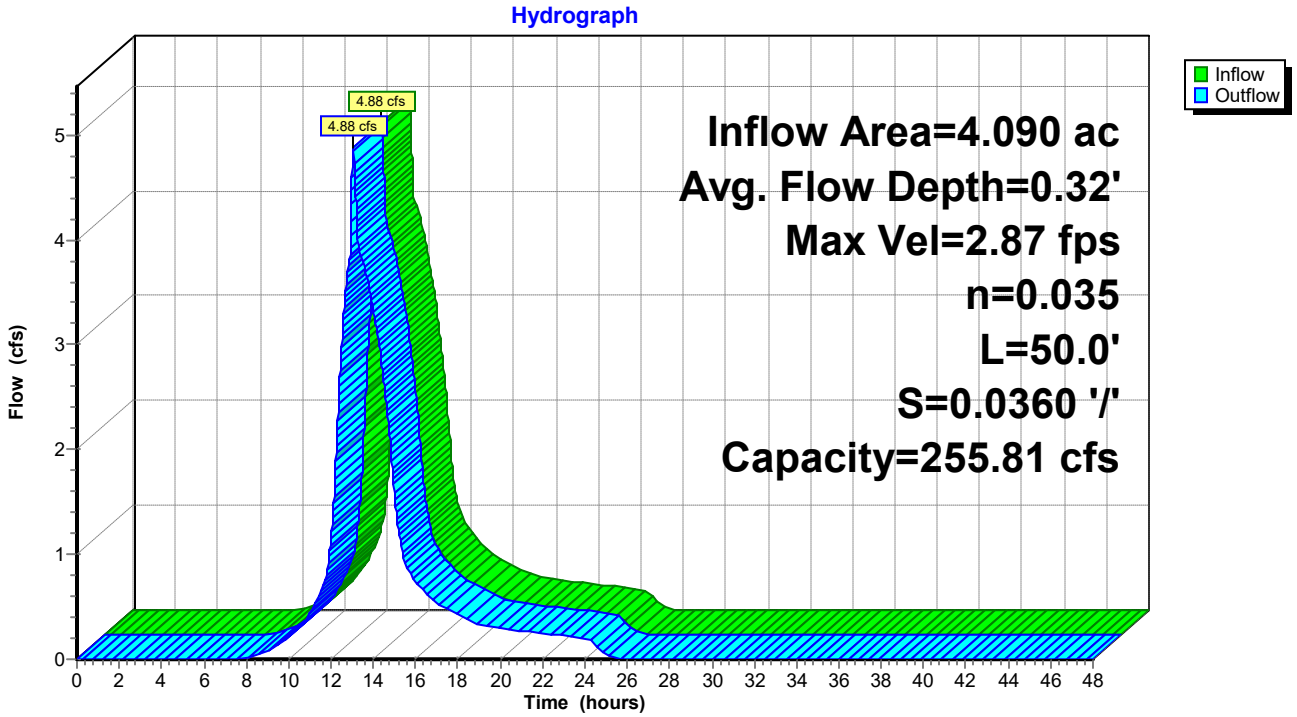
Reach R2:

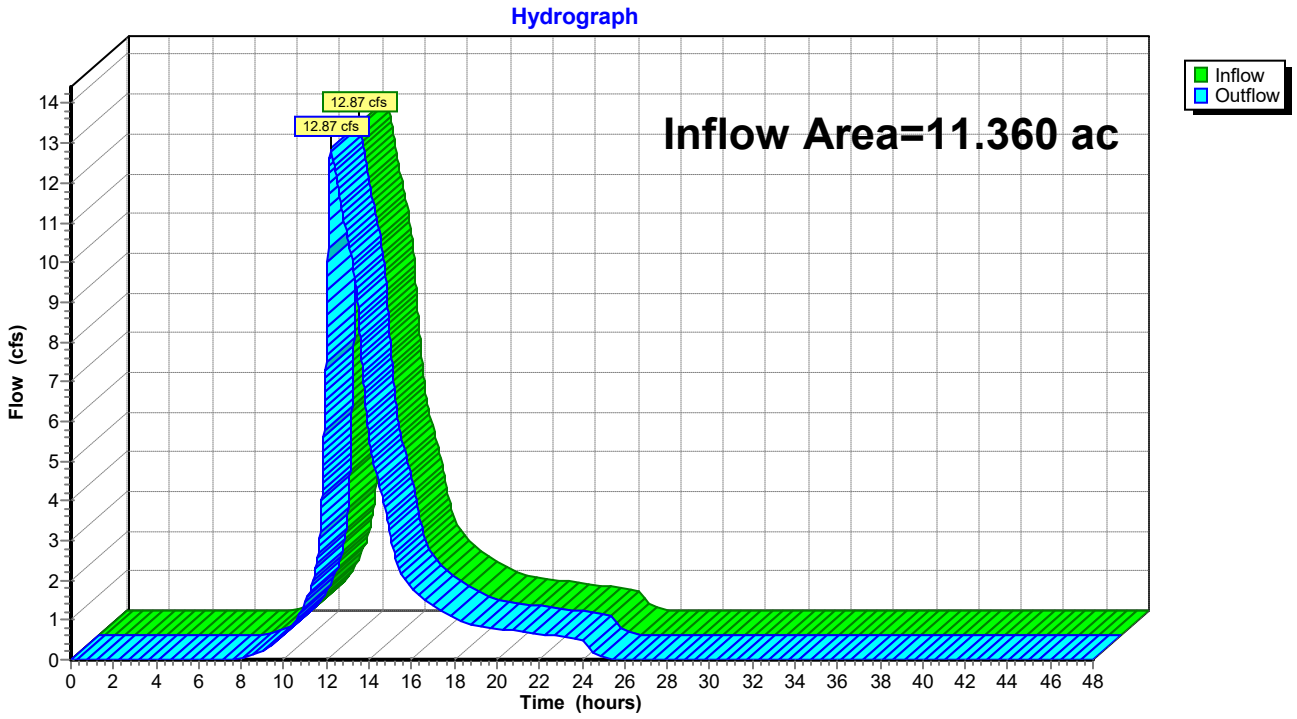


Summary for Reach WAP A:

Inflow Area = 11.360 ac, 14.26% Impervious, Inflow Depth = 3.36" for 25-YR event
Inflow = 12.87 cfs @ 12.21 hrs, Volume= 3.182 af
Outflow = 12.87 cfs @ 12.21 hrs, Volume= 3.182 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 3.50" for 25-YR event
Inflow = 7.63 cfs @ 12.61 hrs, Volume= 1.193 af
Outflow = 4.88 cfs @ 13.05 hrs, Volume= 1.193 af, Atten= 36%, Lag= 25.9 min
Primary = 3.93 cfs @ 13.05 hrs, Volume= 1.177 af
Routed to Reach R2 :
Secondary = 0.94 cfs @ 13.05 hrs, Volume= 0.016 af
Routed to Reach R2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 132.04' @ 13.05 hrs Surf.Area= 9,615 sf Storage= 10,122 cf

Plug-Flow detention time= 20.9 min calculated for 1.193 af (100% of inflow)
Center-of-Mass det. time= 20.8 min (876.6 - 855.8)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

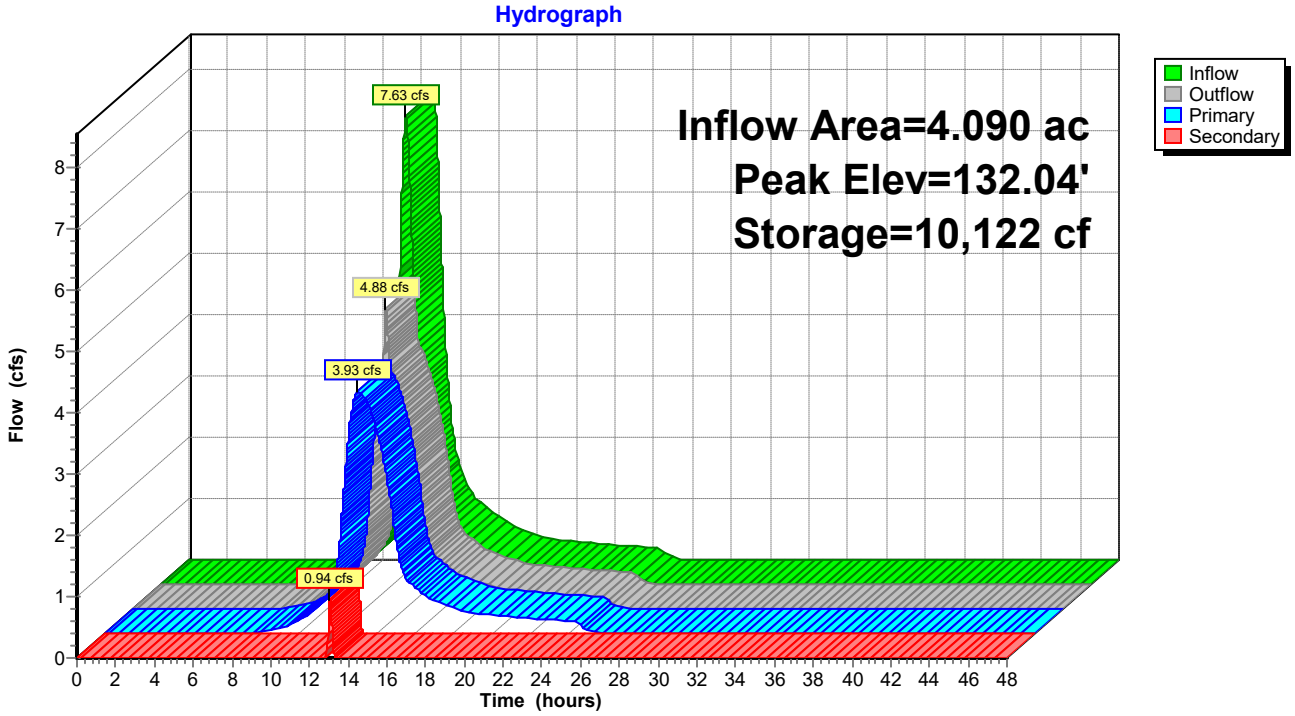
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.93 cfs @ 13.05 hrs HW=132.04' (Free Discharge)
1=Culvert (Inlet Controls 3.93 cfs @ 5.01 fps)

Secondary OutFlow Max=0.88 cfs @ 13.05 hrs HW=132.04' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Weir Controls 0.88 cfs @ 0.59 fps)

Pond P1: Culvert



Summary for Pond P4: Culvert

Inflow Area = 10.240 ac, 14.16% Impervious, Inflow Depth = 3.33" for 25-YR event
Inflow = 18.49 cfs @ 12.24 hrs, Volume= 2.837 af
Outflow = 10.66 cfs @ 12.60 hrs, Volume= 2.837 af, Atten= 42%, Lag= 21.5 min
Primary = 10.66 cfs @ 12.60 hrs, Volume= 2.837 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 127.97' @ 12.60 hrs Surf.Area= 13,666 sf Storage= 11,681 cf

Plug-Flow detention time= 7.5 min calculated for 2.837 af (100% of inflow)
Center-of-Mass det. time= 7.3 min (860.7 - 853.4)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	30,937 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

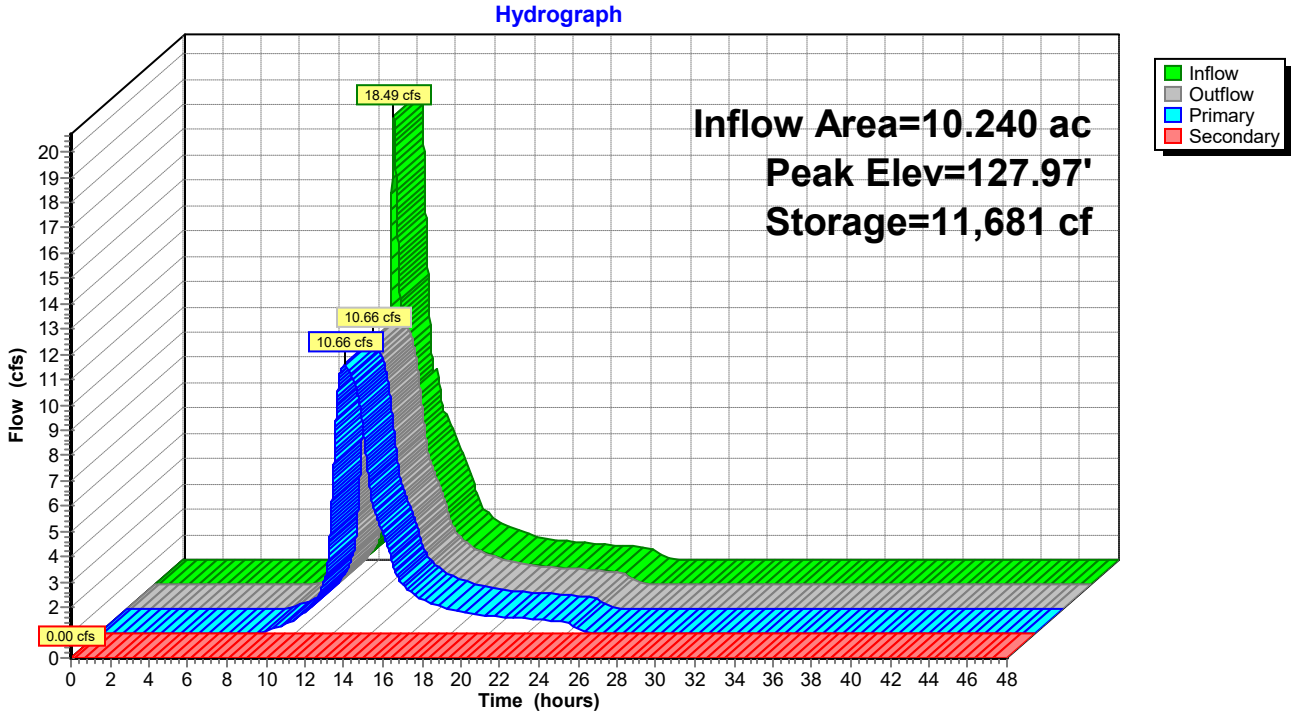
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,080	710	810
127.00	3,762	2,421	3,231
128.00	13,975	8,869	12,099
129.00	23,700	18,838	30,937

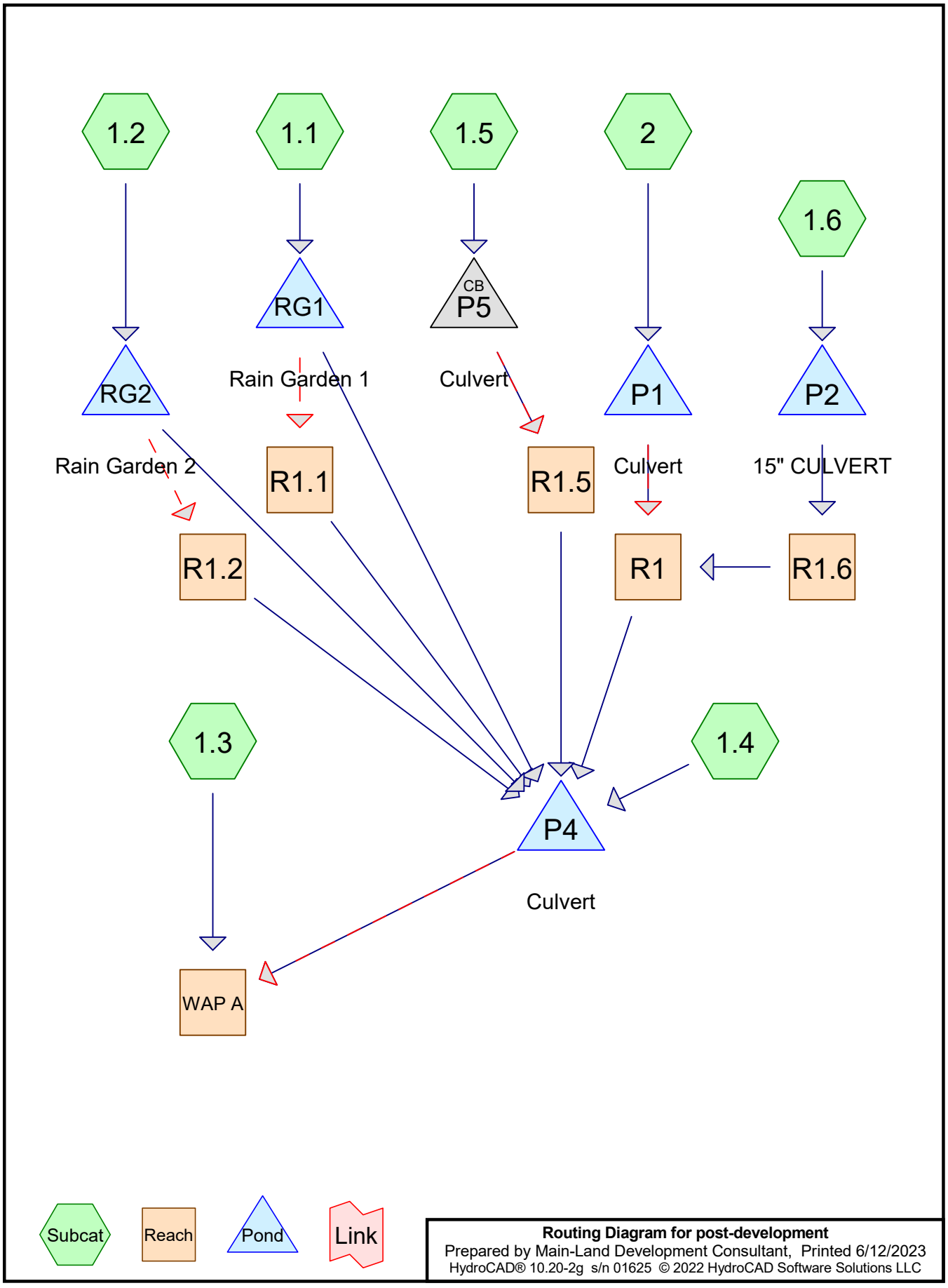
Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=10.66 cfs @ 12.60 hrs HW=127.97' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 10.66 cfs @ 6.03 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert





Routing Diagram for post-development

Prepared by Main-Land Development Consultant, Printed 6/12/2023

Summary for Subcatchment 1.1:

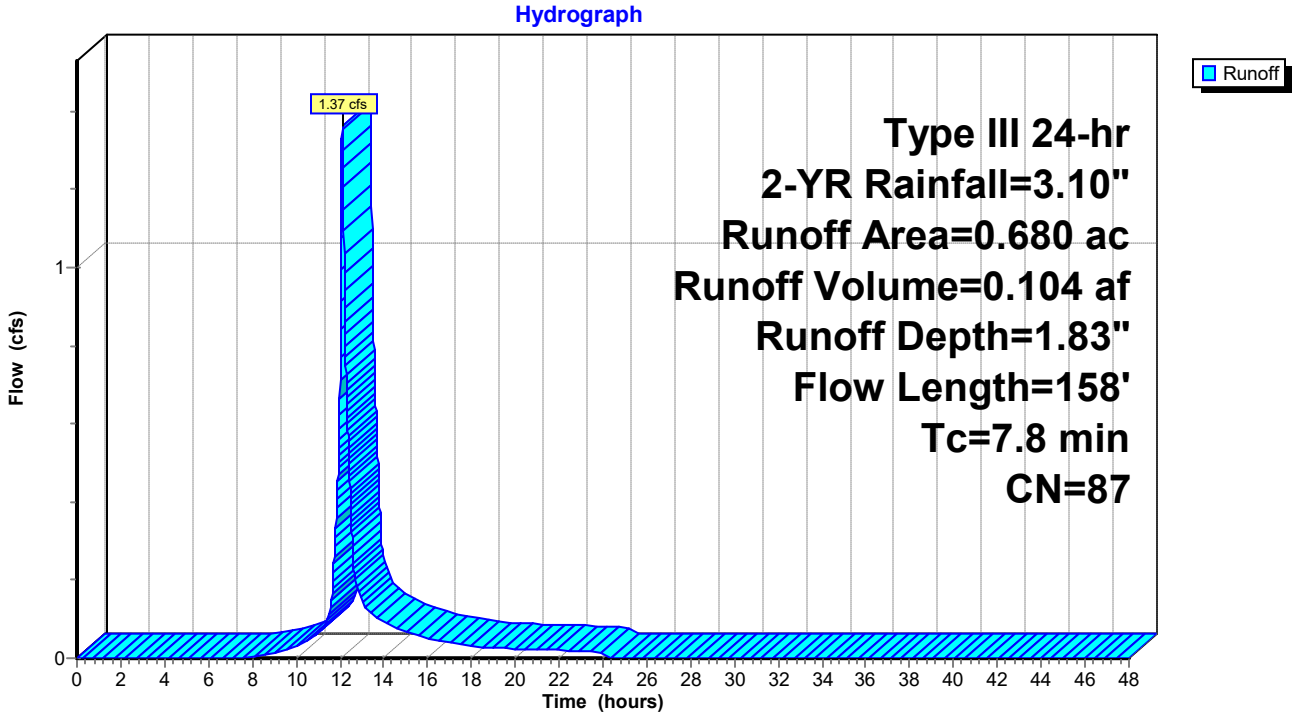
Runoff = 1.37 cfs @ 12.11 hrs, Volume= 0.104 af, Depth= 1.83"
Routed to Pond RG1 : Rain Garden 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.310	96	Gravel surface, HSG C
0.090	98	Roofs, HSG C
0.280	74	>75% Grass cover, Good, HSG C
0.680	87	Weighted Average
0.590		86.76% Pervious Area
0.090		13.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	68	0.0290	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.5	90	0.0100	1.00		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.8	158	Total			

Subcatchment 1.1:



Summary for Subcatchment 1.2:

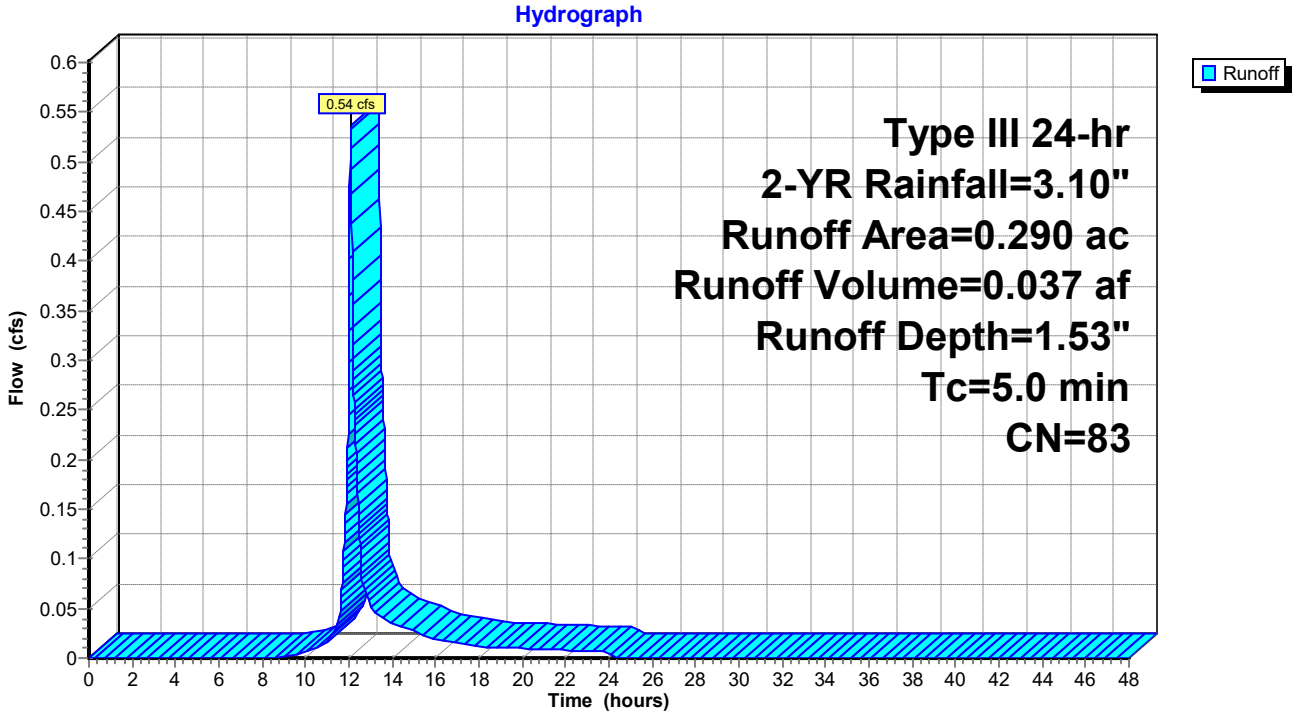
Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.037 af, Depth= 1.53"
Routed to Pond RG2 : Rain Garden 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.100	96	Gravel surface, HSG C
0.170	74	>75% Grass cover, Good, HSG C
0.290	83	Weighted Average
0.270		93.10% Pervious Area
0.020		6.90% Impervious Area

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

Subcatchment 1.2:



Summary for Subcatchment 1.3:

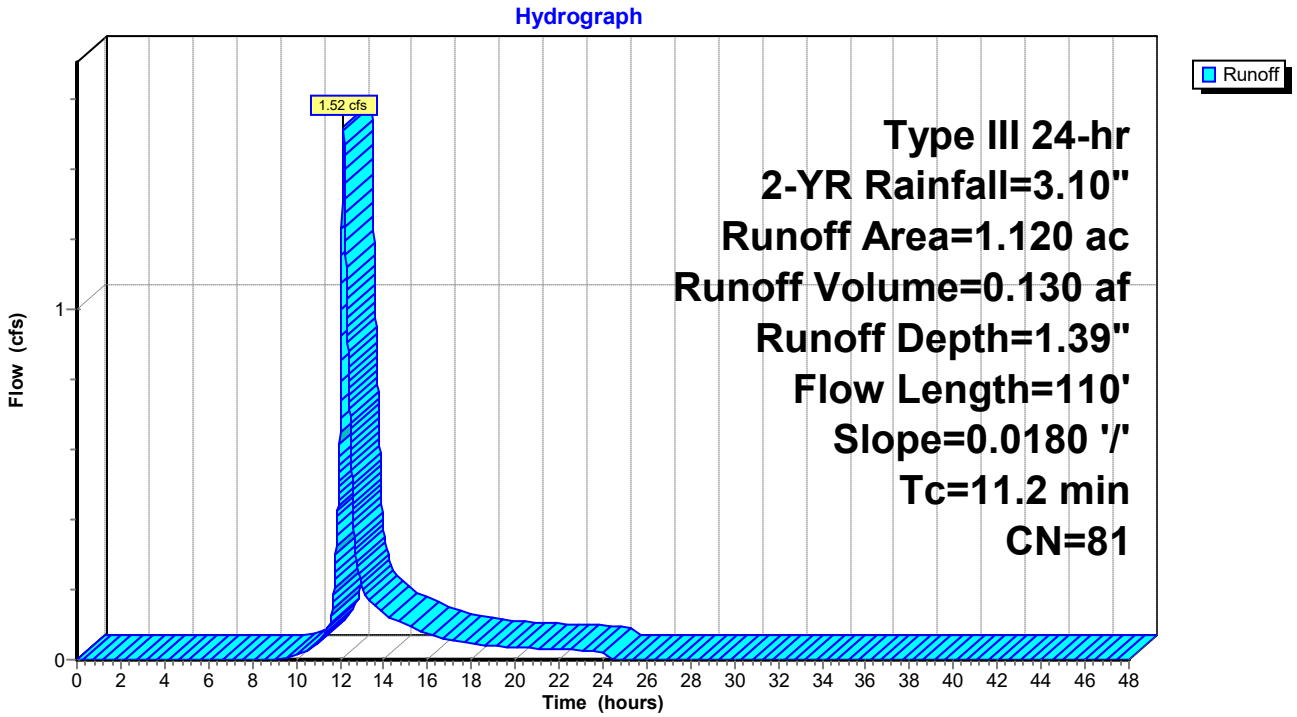
Runoff = 1.52 cfs @ 12.16 hrs, Volume= 0.130 af, Depth= 1.39"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.3:



Summary for Subcatchment 1.4:

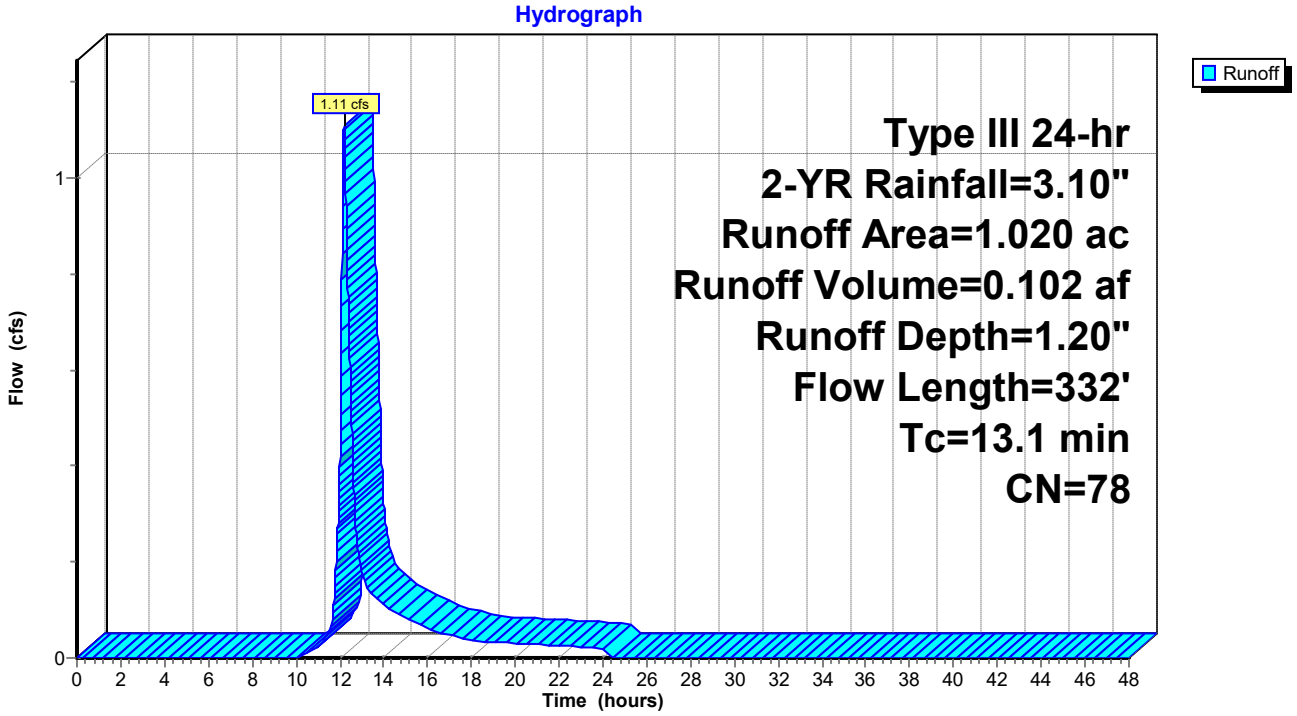
Runoff = 1.11 cfs @ 12.19 hrs, Volume= 0.102 af, Depth= 1.20"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.710	74	>75% Grass cover, Good, HSG C
0.100	71	Meadow, non-grazed, HSG C
0.080	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.020	98	Roofs, HSG C
1.020	78	Weighted Average
0.890		87.25% Pervious Area
0.130		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	136	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	196	0.0150	8.77	140.38	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
13.1	332	Total			

Subcatchment 1.4:



Summary for Subcatchment 1.5:

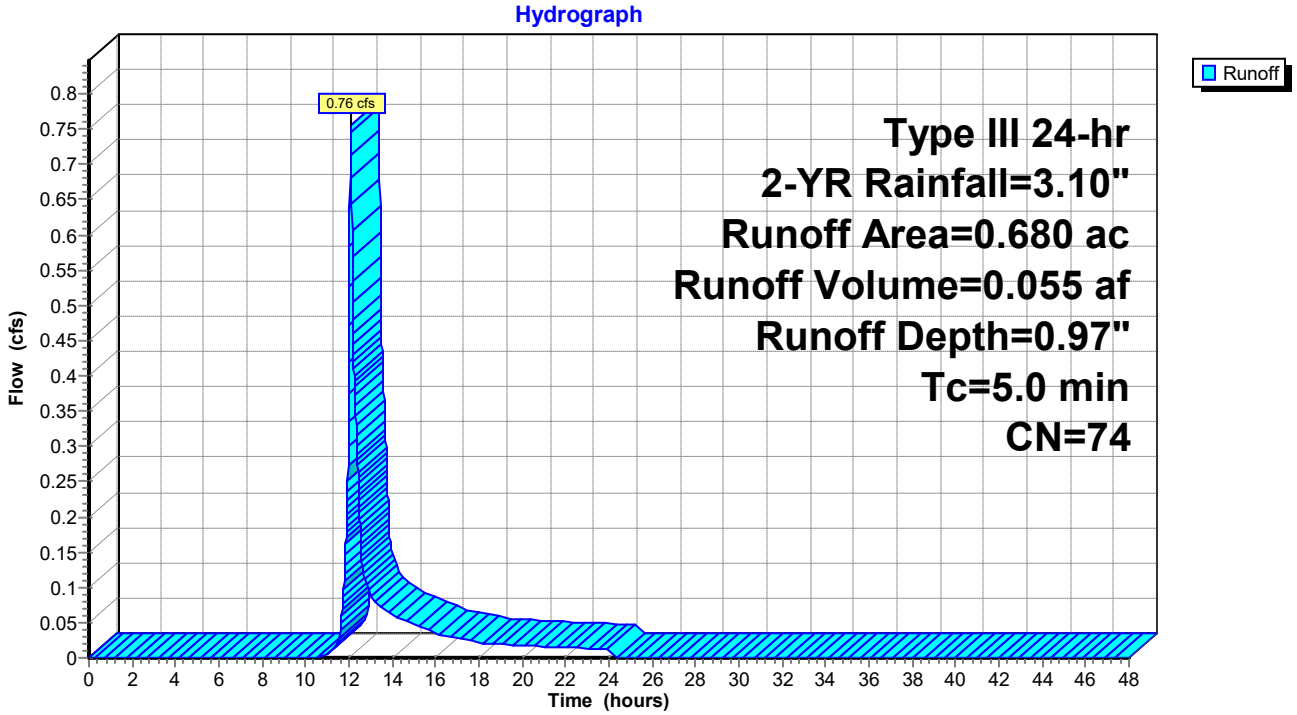
Runoff = 0.76 cfs @ 12.08 hrs, Volume= 0.055 af, Depth= 0.97"
Routed to Pond P5 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
0.670	74	>75% Grass cover, Good, HSG C
0.010	98	Roofs, HSG C
0.680	74	Weighted Average
0.670		98.53% Pervious Area
0.010		1.47% Impervious Area

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

Subcatchment 1.5:



Summary for Subcatchment 1.6:

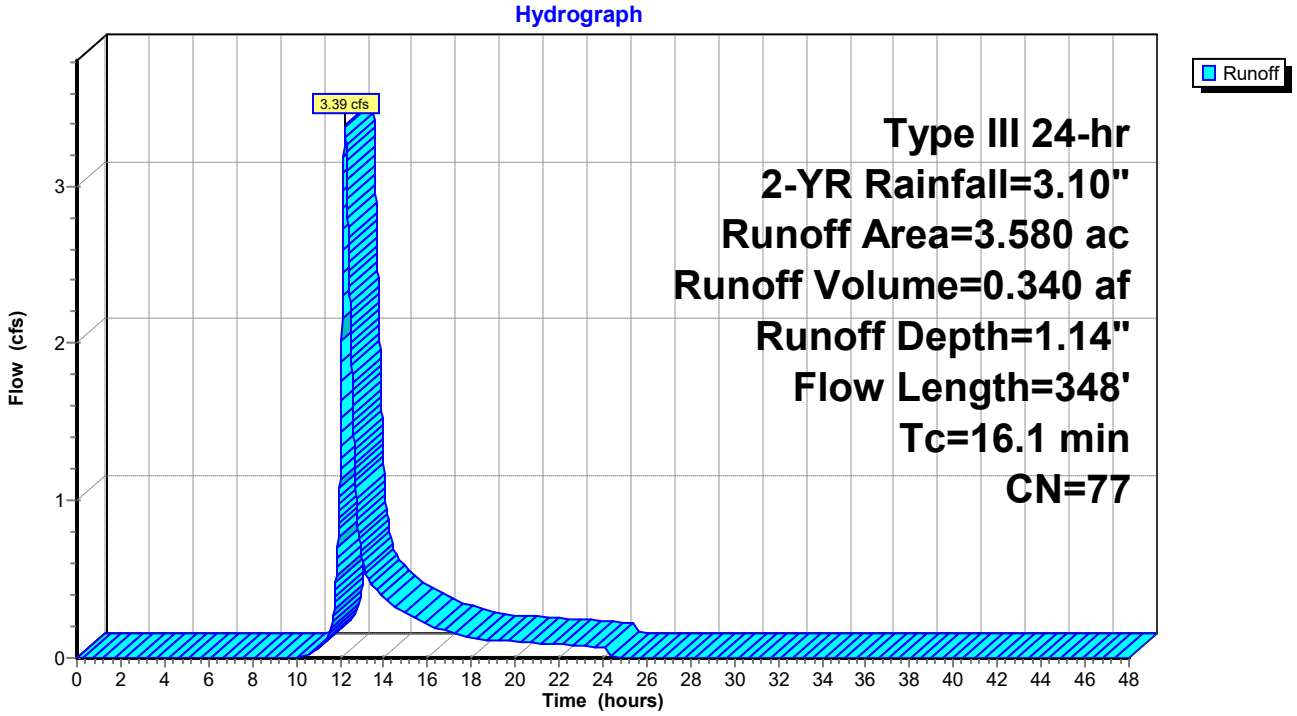
Runoff = 3.39 cfs @ 12.23 hrs, Volume= 0.340 af, Depth= 1.14"
Routed to Pond P2 : 15" CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
1.030	70	Woods, Good, HSG C
1.880	74	>75% Grass cover, Good, HSG C
0.510	98	Paved parking, HSG C
0.160	96	Gravel surface, HSG C
3.580	77	Weighted Average
3.070		85.75% Pervious Area
0.510		14.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.9	68	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	130	0.0070	5.99	95.90	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
16.1	348	Total			

Subcatchment 1.6:



Summary for Subcatchment 2:

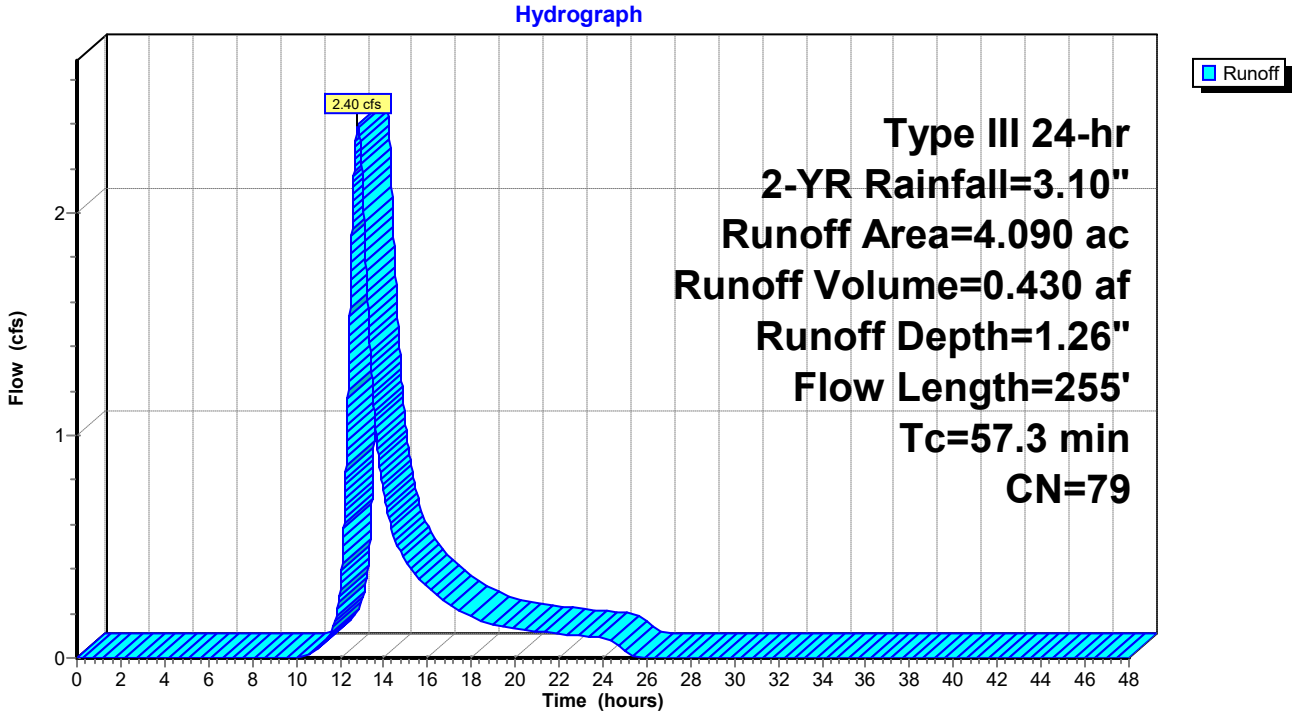
Runoff = 2.40 cfs @ 12.80 hrs, Volume= 0.430 af, Depth= 1.26"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-YR Rainfall=3.10"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
57.3	255	Total			

Subcatchment 2:



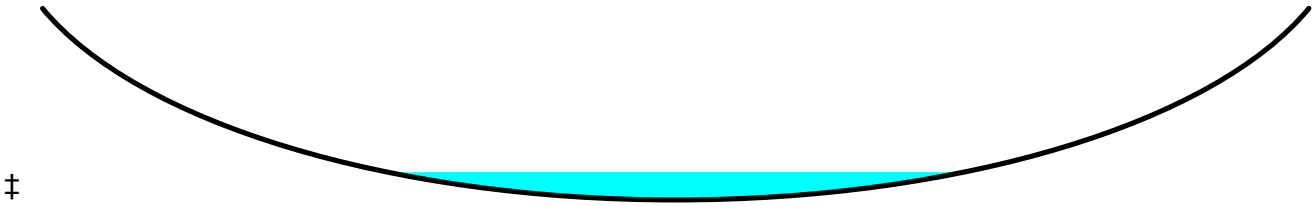
Summary for Reach R1:

Inflow Area = 7.670 ac, 16.43% Impervious, Inflow Depth = 1.21" for 2-YR event
Inflow = 3.93 cfs @ 12.27 hrs, Volume= 0.770 af
Outflow = 3.93 cfs @ 12.27 hrs, Volume= 0.770 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.68 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 1.21 fps, Avg. Travel Time= 0.7 min

Peak Storage= 73 cf @ 12.27 hrs
Average Depth at Peak Storage= 0.29' , Surface Width= 7.60'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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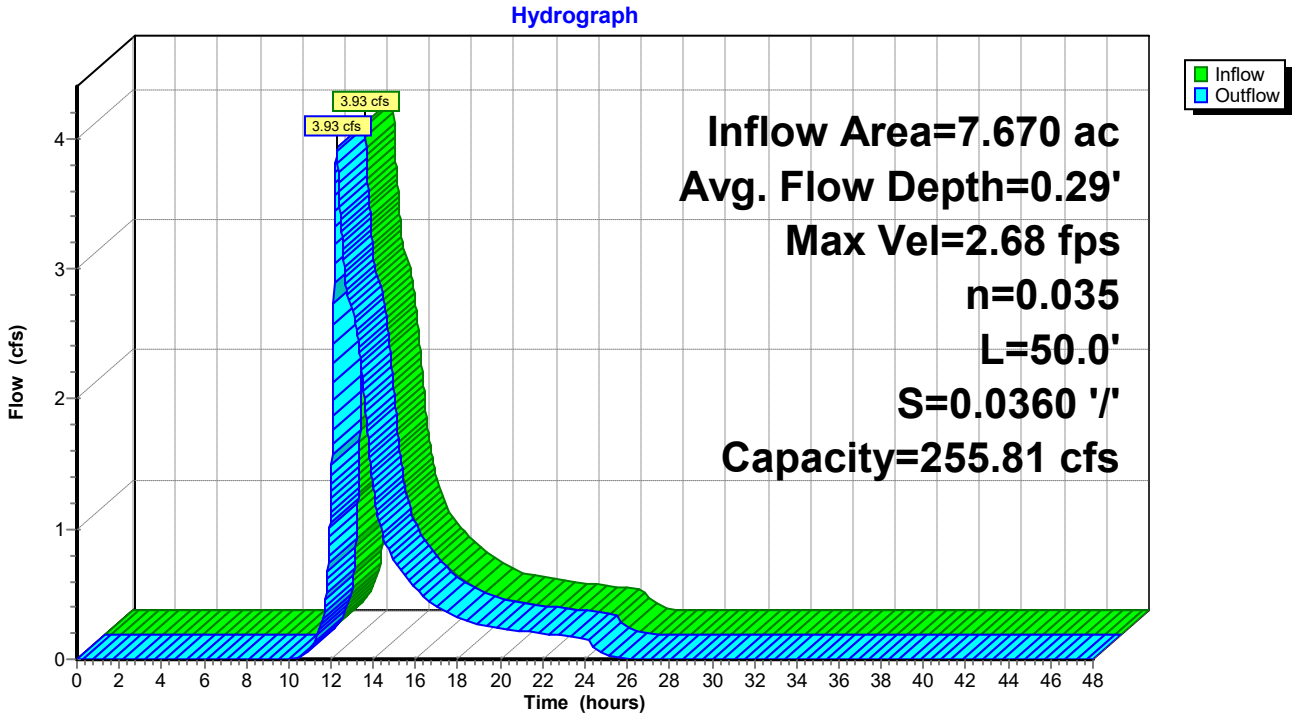
Reach R1:



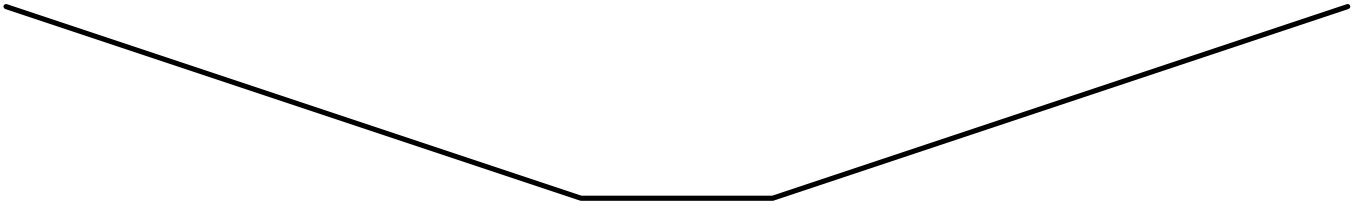
Summary for Reach R1.1:

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
Routed to Pond P4 : Culvert

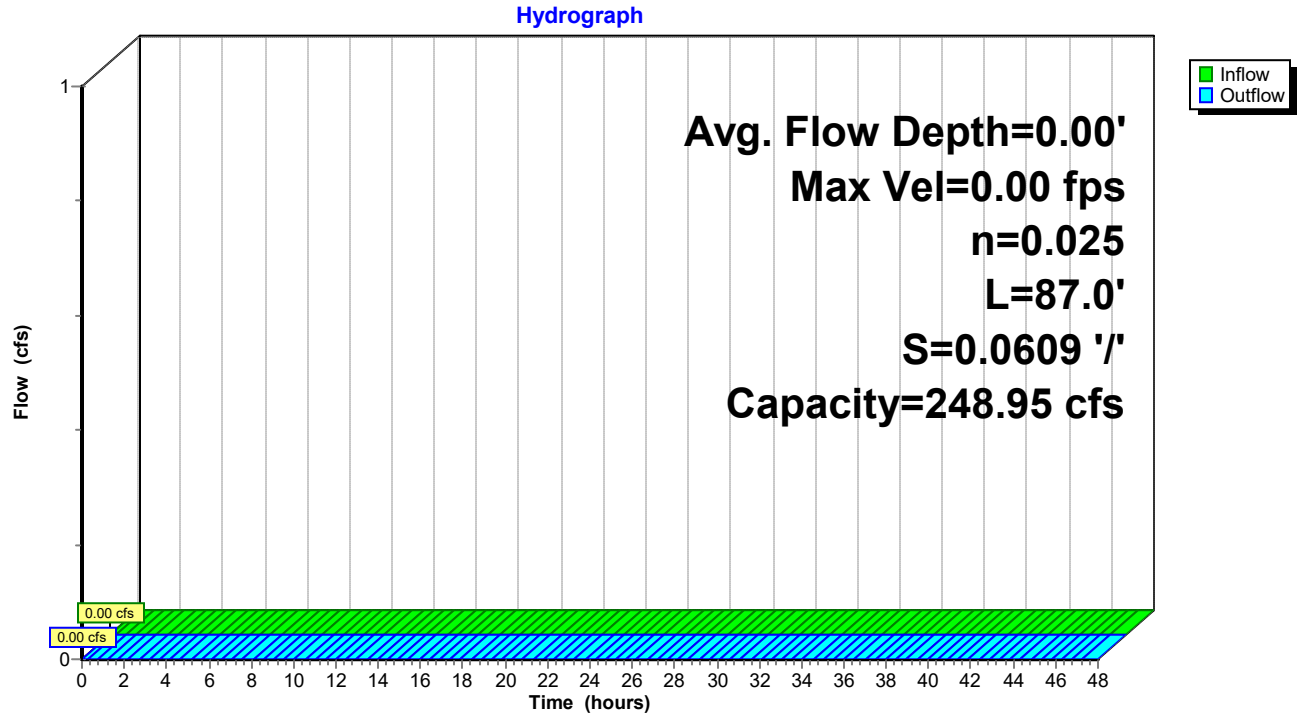
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 248.95 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 87.0' Slope= 0.0609 '/'
Inlet Invert= 130.00', Outlet Invert= 124.70'



Reach R1.1:



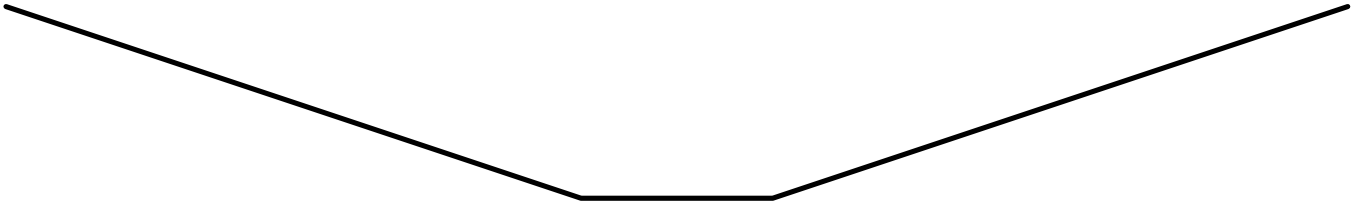
Summary for Reach R1.2:

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
Routed to Pond P4 : Culvert

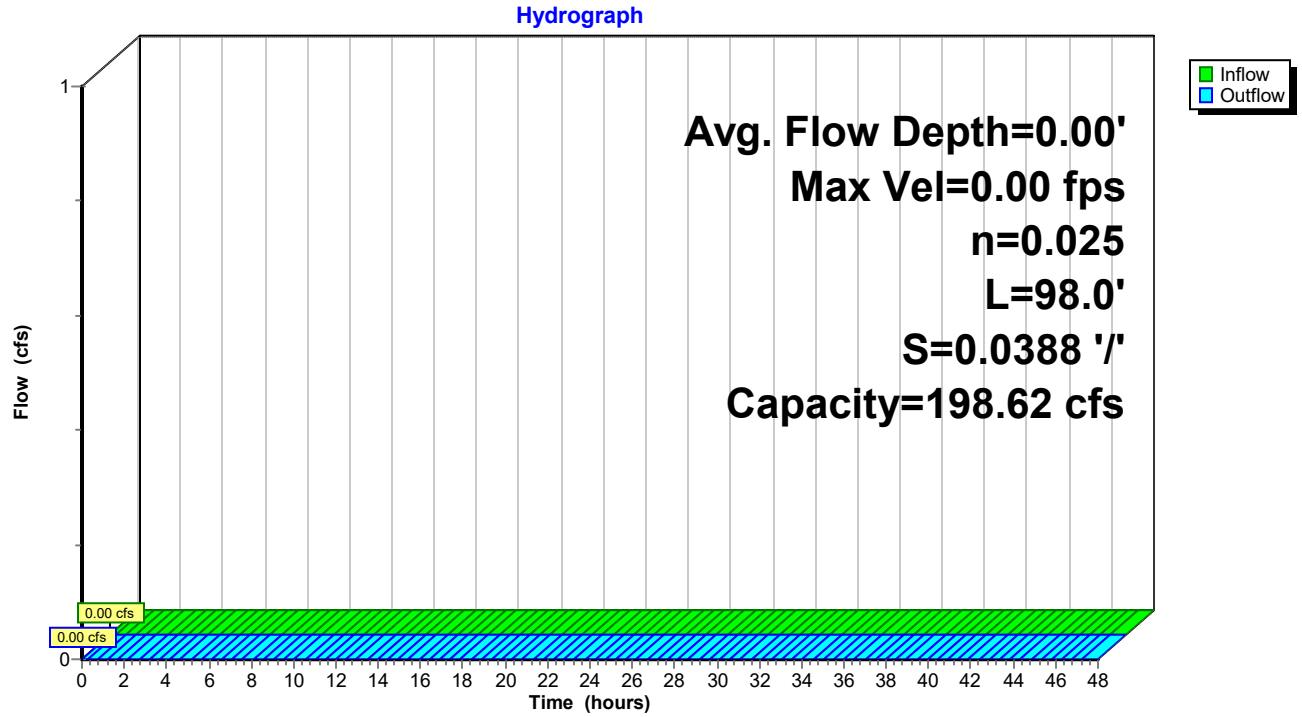
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 198.62 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 98.0' Slope= 0.0388 '/'
Inlet Invert= 128.50', Outlet Invert= 124.70'



Reach R1.2:



Summary for Reach R1.5:

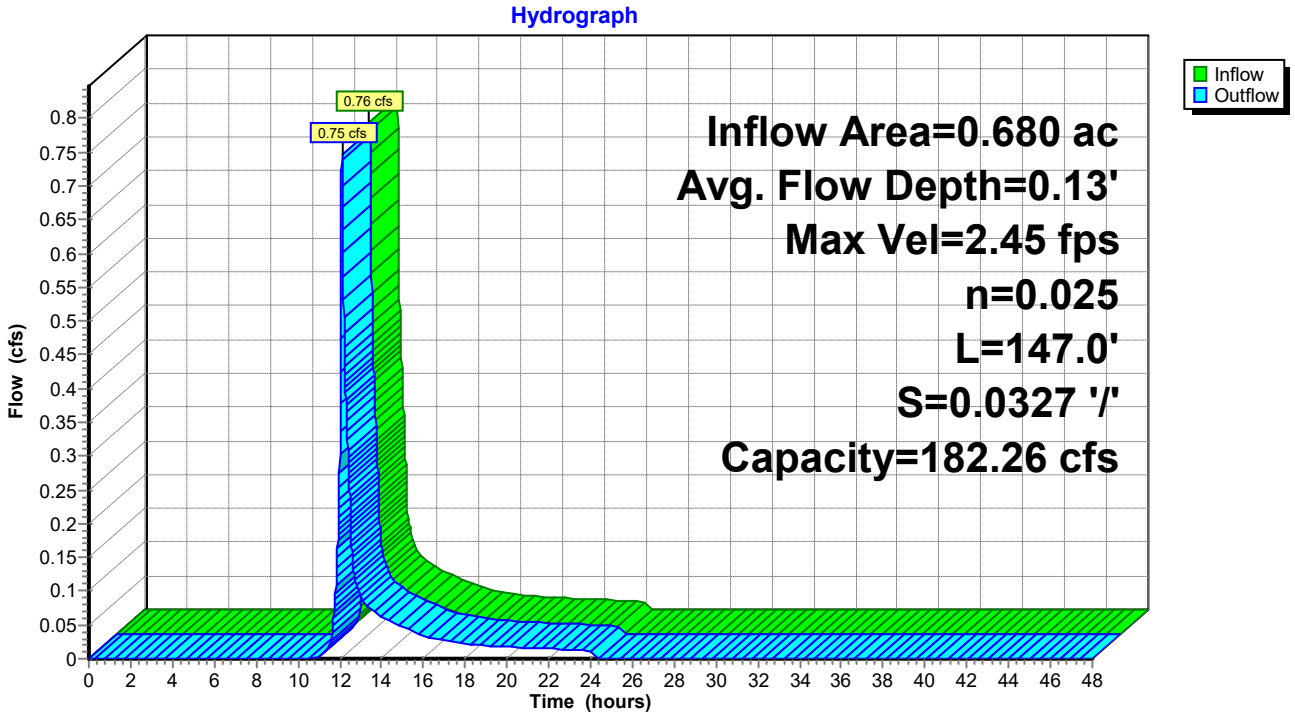
Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 0.97" for 2-YR event
Inflow = 0.76 cfs @ 12.08 hrs, Volume= 0.055 af
Outflow = 0.75 cfs @ 12.11 hrs, Volume= 0.055 af, Atten= 1%, Lag= 1.7 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.45 fps, Min. Travel Time= 1.0 min
Avg. Velocity = 0.90 fps, Avg. Travel Time= 2.7 min

Peak Storage= 45 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.13' , Surface Width= 2.77'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 182.26 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 147.0' Slope= 0.0327 '/'
Inlet Invert= 129.50', Outlet Invert= 124.70'

Reach R1.5:



Summary for Reach R1.6:

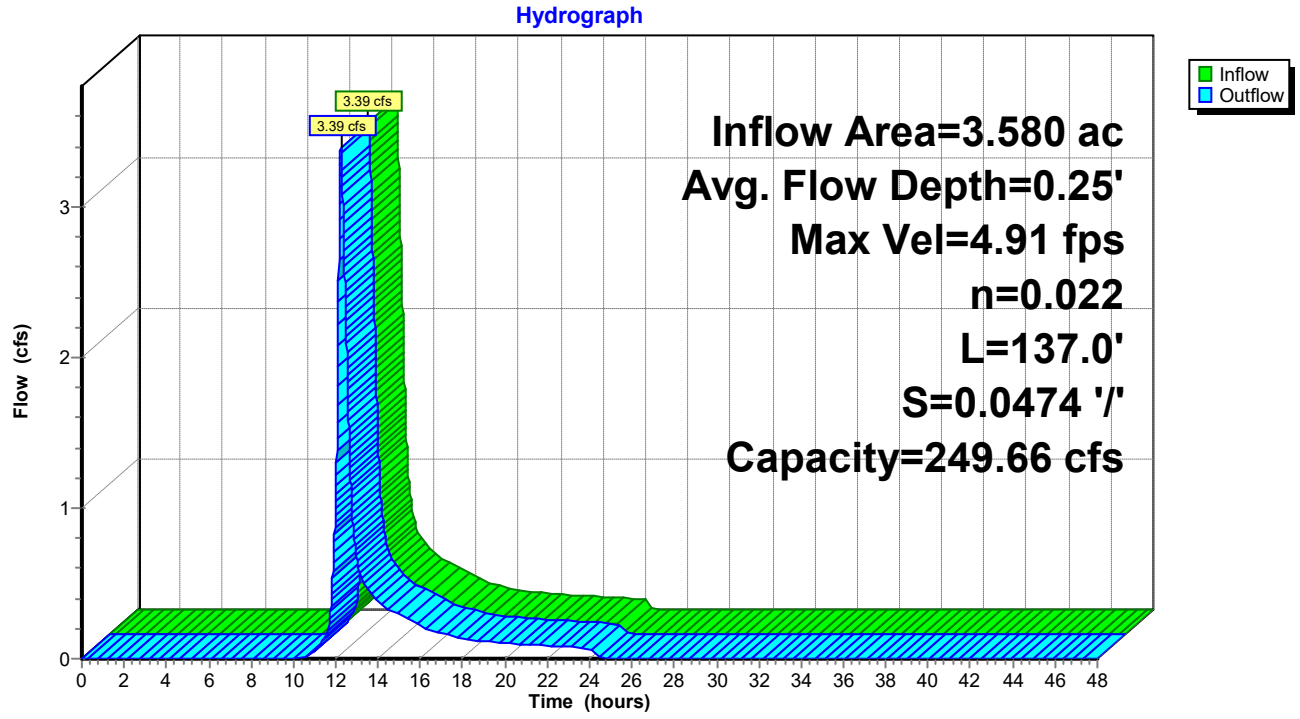
Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 1.14" for 2-YR event
Inflow = 3.39 cfs @ 12.23 hrs, Volume= 0.340 af
Outflow = 3.39 cfs @ 12.25 hrs, Volume= 0.340 af, Atten= 0%, Lag= 0.9 min
Routed to Reach R1 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 4.91 fps, Min. Travel Time= 0.5 min
Avg. Velocity = 1.84 fps, Avg. Travel Time= 1.2 min

Peak Storage= 95 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.25' , Surface Width= 3.50'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 249.66 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 137.0' Slope= 0.0474 '/'
Inlet Invert= 133.00', Outlet Invert= 126.50'

Reach R1.6:

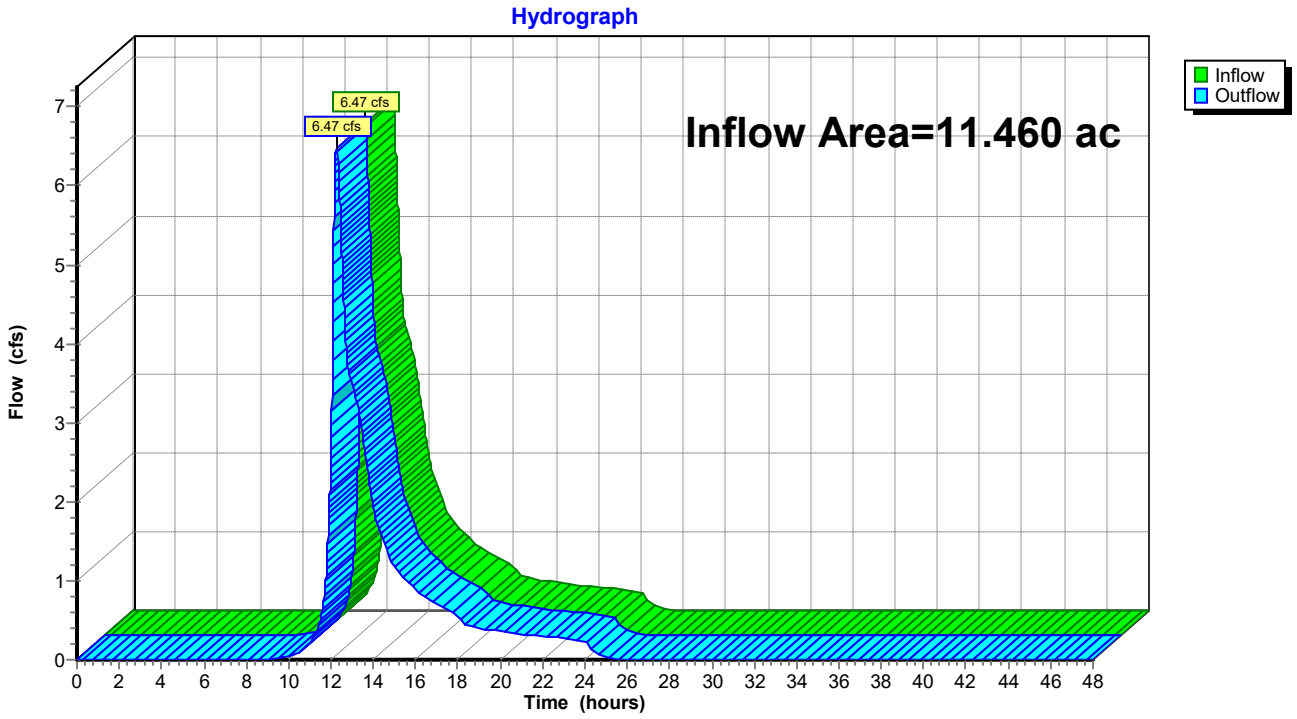


Summary for Reach WAP A:

Inflow Area = 11.460 ac, 14.66% Impervious, Inflow Depth = 1.25" for 2-YR event
Inflow = 6.47 cfs @ 12.27 hrs, Volume= 1.197 af
Outflow = 6.47 cfs @ 12.27 hrs, Volume= 1.197 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 1.26" for 2-YR event
Inflow = 2.40 cfs @ 12.80 hrs, Volume= 0.430 af
Outflow = 2.04 cfs @ 13.07 hrs, Volume= 0.430 af, Atten= 15%, Lag= 16.3 min
Primary = 2.04 cfs @ 13.07 hrs, Volume= 0.430 af
Routed to Reach R1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.76' @ 13.07 hrs Surf.Area= 3,744 sf Storage= 1,508 cf

Plug-Flow detention time= 7.4 min calculated for 0.430 af (100% of inflow)
Center-of-Mass det. time= 7.1 min (902.4 - 895.3)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

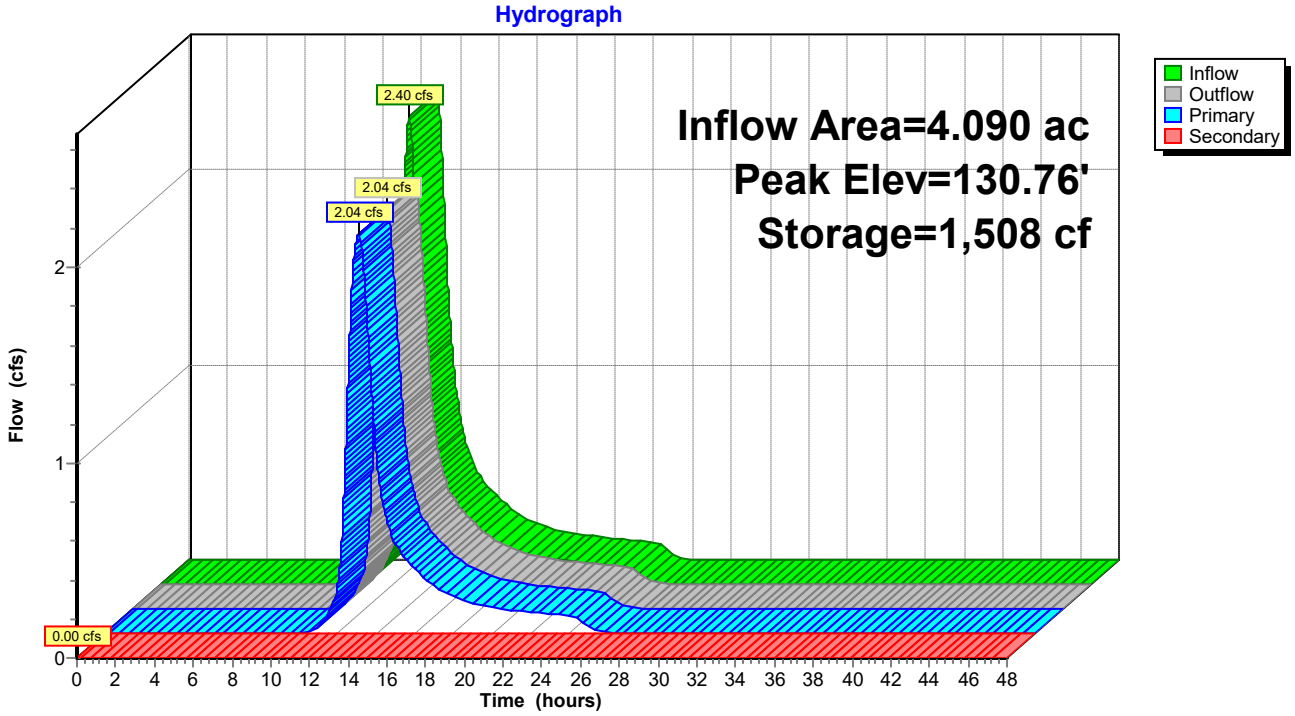
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=2.04 cfs @ 13.07 hrs HW=130.76' (Free Discharge)
1=Culvert (Inlet Controls 2.04 cfs @ 2.64 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond P1: Culvert



Summary for Pond P2: 15" CULVERT

Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 1.14" for 2-YR event
Inflow = 3.39 cfs @ 12.23 hrs, Volume= 0.340 af
Outflow = 3.39 cfs @ 12.23 hrs, Volume= 0.340 af, Atten= 0%, Lag= 0.1 min
Primary = 3.39 cfs @ 12.23 hrs, Volume= 0.340 af
Routed to Reach R1.6 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 132.65' @ 12.23 hrs Surf.Area= 33 sf Storage= 23 cf

Plug-Flow detention time= 0.1 min calculated for 0.340 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (863.7 - 863.6)

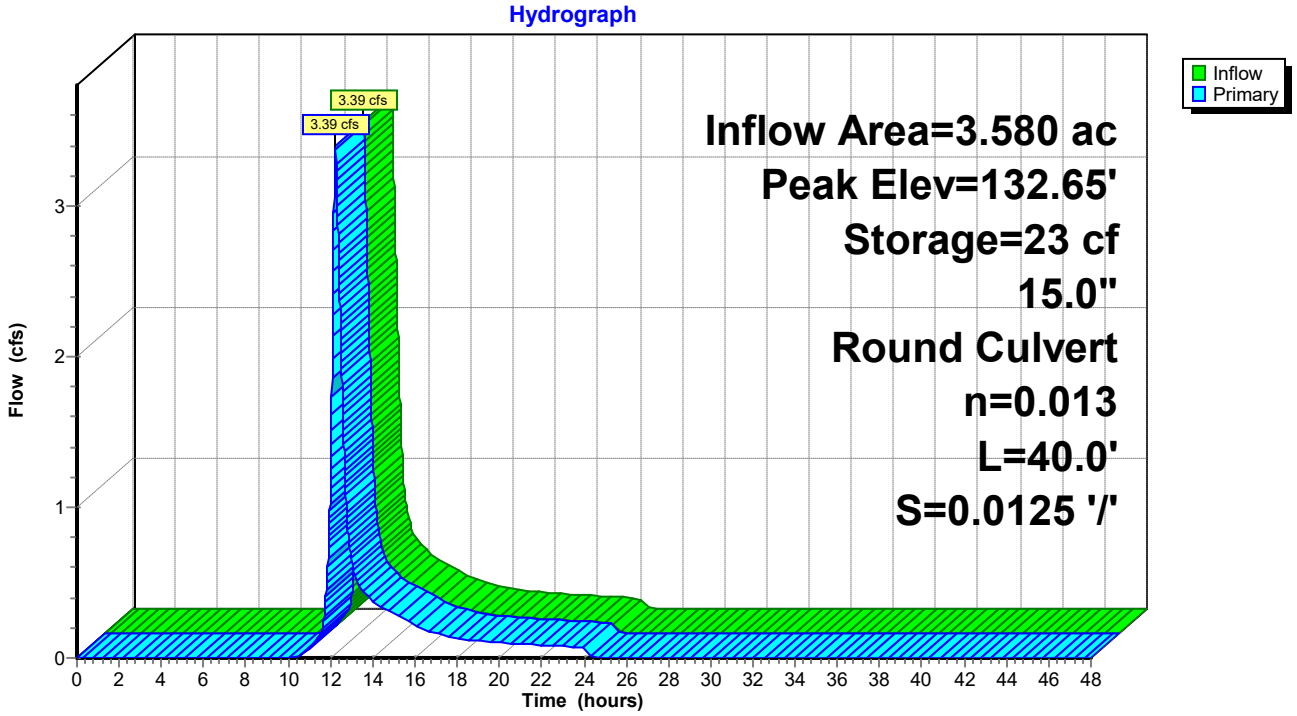
Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	36 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	2	0	0
132.00	20	6	6
133.00	40	30	36

Device	Routing	Invert	Outlet Devices
#1	Primary	131.50'	**15.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 131.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.39 cfs @ 12.23 hrs HW=132.65' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.39 cfs @ 2.88 fps)

Pond P2: 15" CULVERT



Summary for Pond P4: Culvert

Inflow Area = 10.340 ac, 14.60% Impervious, Inflow Depth = 1.24" for 2-YR event
Inflow = 5.60 cfs @ 12.25 hrs, Volume= 1.068 af
Outflow = 5.38 cfs @ 12.31 hrs, Volume= 1.067 af, Atten= 4%, Lag= 3.8 min
Primary = 5.38 cfs @ 12.31 hrs, Volume= 1.067 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 126.08' @ 12.31 hrs Surf.Area= 1,270 sf Storage= 876 cf

Plug-Flow detention time= 3.4 min calculated for 1.067 af (100% of inflow)
Center-of-Mass det. time= 3.0 min (886.5 - 883.5)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	32,296 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

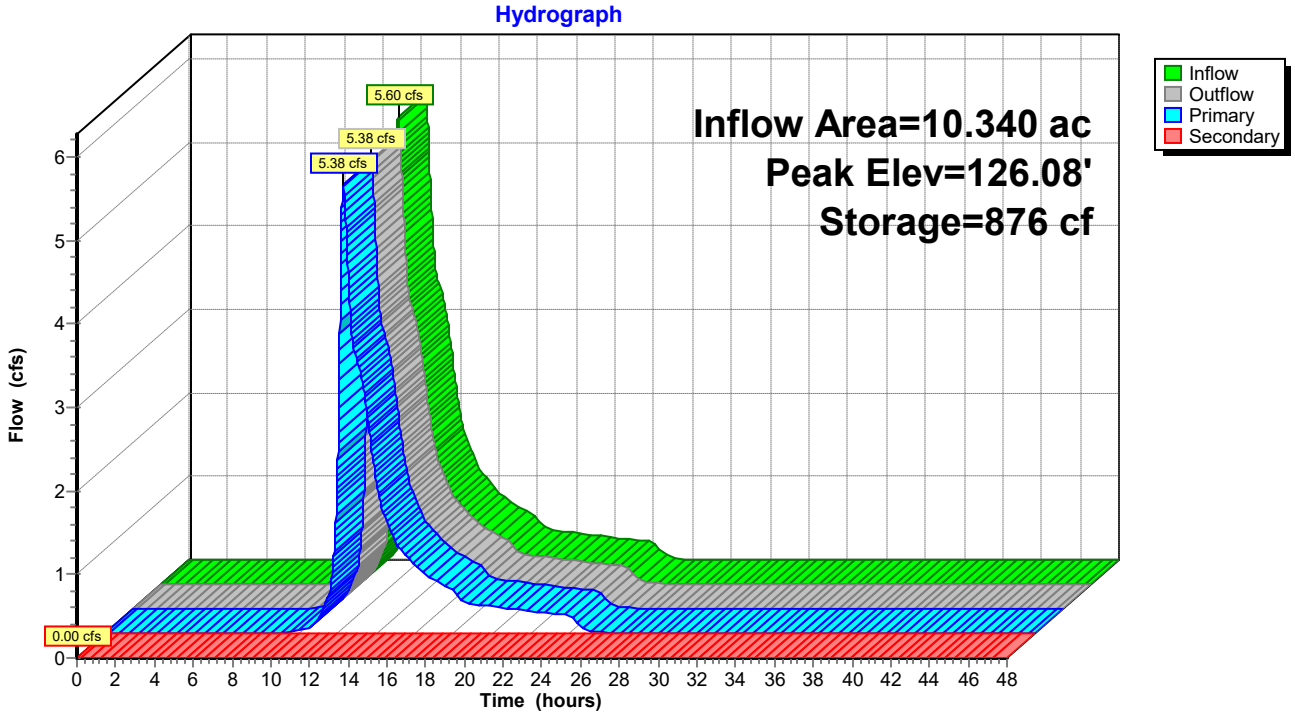
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,024	682	782
127.00	4,014	2,519	3,301
128.00	14,376	9,195	12,496
129.00	25,225	19,801	32,296

Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=5.38 cfs @ 12.31 hrs HW=126.08' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.38 cfs @ 3.16 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert



Summary for Pond P5: Culvert

Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 0.97" for 2-YR event
Inflow = 0.76 cfs @ 12.08 hrs, Volume= 0.055 af
Outflow = 0.76 cfs @ 12.08 hrs, Volume= 0.055 af, Atten= 0%, Lag= 0.0 min
Primary = 0.76 cfs @ 12.08 hrs, Volume= 0.055 af
Routed to Reach R1.5 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.5 :

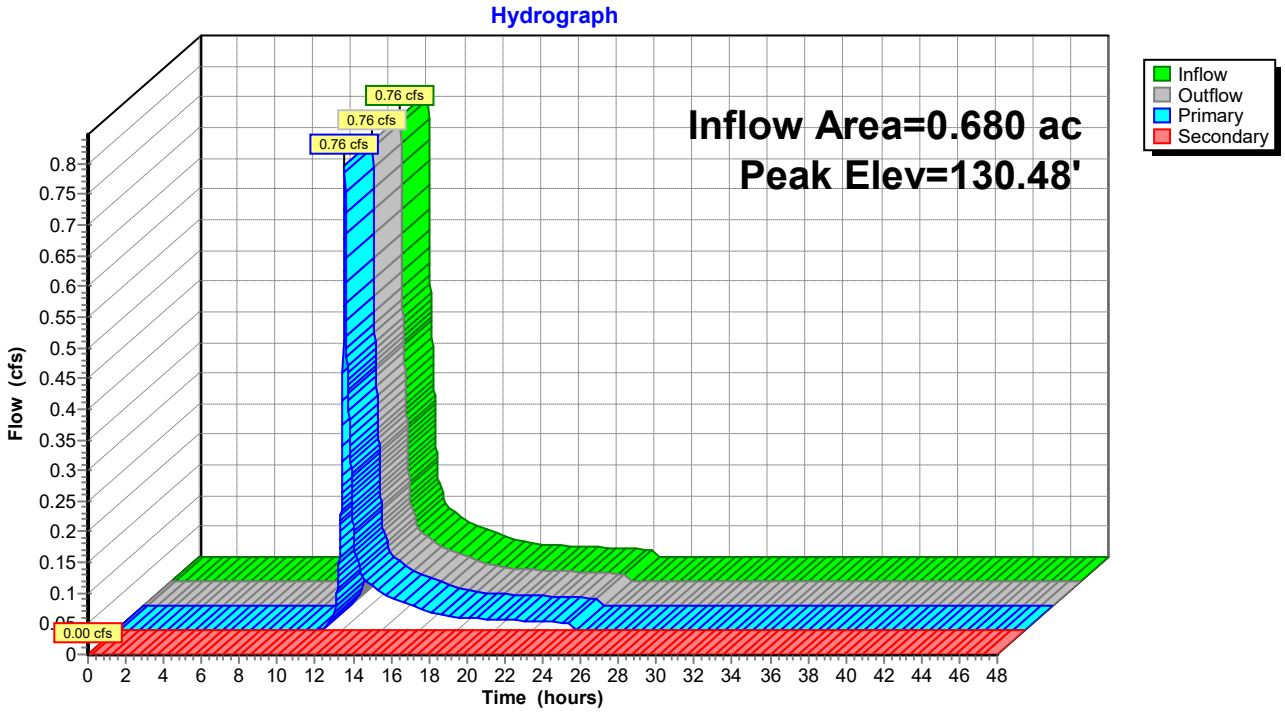
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.48' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	**15.0" Round Culvert** L= 103.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.00' / 129.50' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.00'	**143.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=0.76 cfs @ 12.08 hrs HW=130.48' (Free Discharge)
└**1=Culvert** (Barrel Controls 0.76 cfs @ 2.57 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P5: Culvert



Summary for Pond RG1: Rain Garden 1

Inflow Area = 0.680 ac, 13.24% Impervious, Inflow Depth = 1.83" for 2-YR event
Inflow = 1.37 cfs @ 12.11 hrs, Volume= 0.104 af
Outflow = 0.18 cfs @ 12.81 hrs, Volume= 0.104 af, Atten= 87%, Lag= 41.8 min
Primary = 0.18 cfs @ 12.81 hrs, Volume= 0.104 af
Routed to Pond P4 : Culvert
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 129.65' @ 12.81 hrs Surf.Area= 2,747 sf Storage= 1,632 cf

Plug-Flow detention time= 80.3 min calculated for 0.104 af (100% of inflow)
Center-of-Mass det. time= 80.3 min (902.2 - 821.9)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	5,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

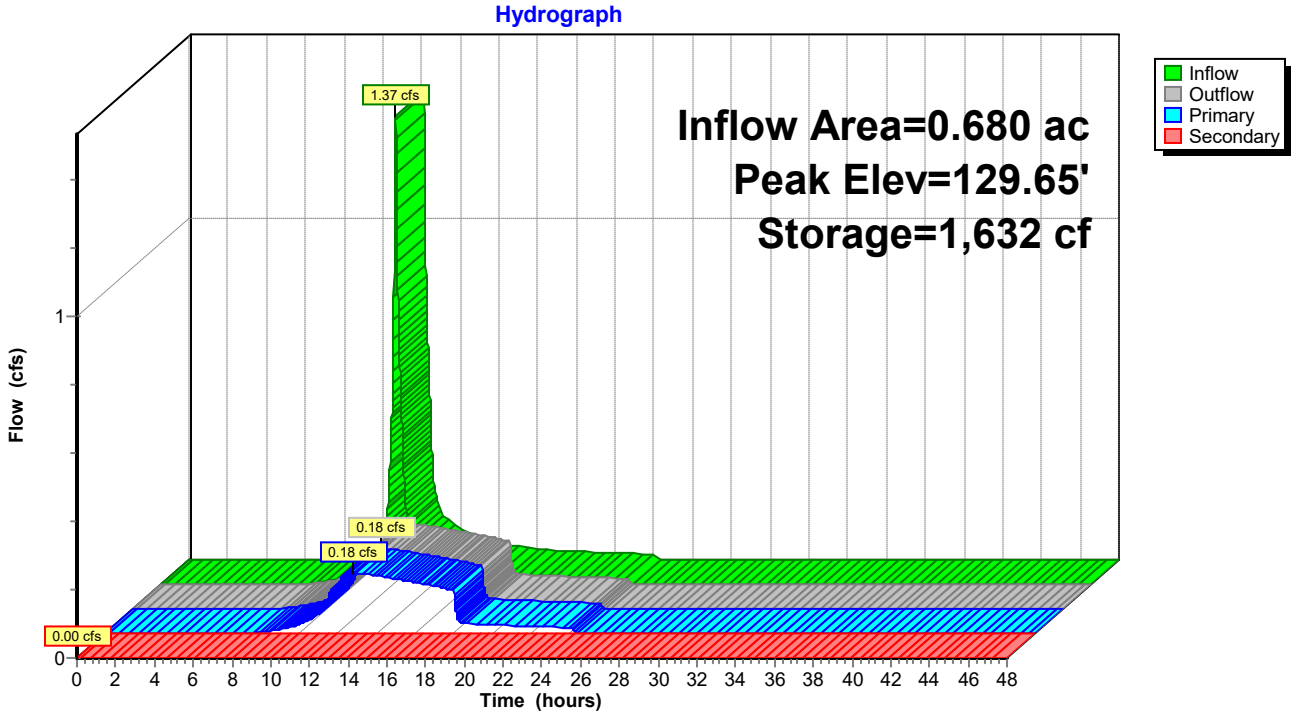
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,250	0	0
130.00	3,010	2,630	2,630
131.00	3,700	3,355	5,985

Device	Routing	Invert	Outlet Devices
#1	Device 3	129.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	130.00'	**143.0 deg x 3.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	126.50'	**4.0" Round Culvert** L= 117.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 126.50' / 124.70' S= 0.0153 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.18 cfs @ 12.81 hrs HW=129.65' (Free Discharge)
└**3=Culvert** (Passes 0.18 cfs of 0.24 cfs potential flow)
└**1=Exfiltration** (Controls 0.18 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond RG1: Rain Garden 1



Summary for Pond RG2: Rain Garden 2

Inflow Area = 0.290 ac, 6.90% Impervious, Inflow Depth = 1.53" for 2-YR event
Inflow = 0.54 cfs @ 12.08 hrs, Volume= 0.037 af
Outflow = 0.11 cfs @ 12.53 hrs, Volume= 0.037 af, Atten= 80%, Lag= 27.0 min
Primary = 0.11 cfs @ 12.53 hrs, Volume= 0.037 af
Routed to Pond P4 : Culvert
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 128.26' @ 12.53 hrs Surf.Area= 1,744 sf Storage= 443 cf

Plug-Flow detention time= 29.7 min calculated for 0.037 af (100% of inflow)
Center-of-Mass det. time= 29.7 min (863.2 - 833.5)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	4,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

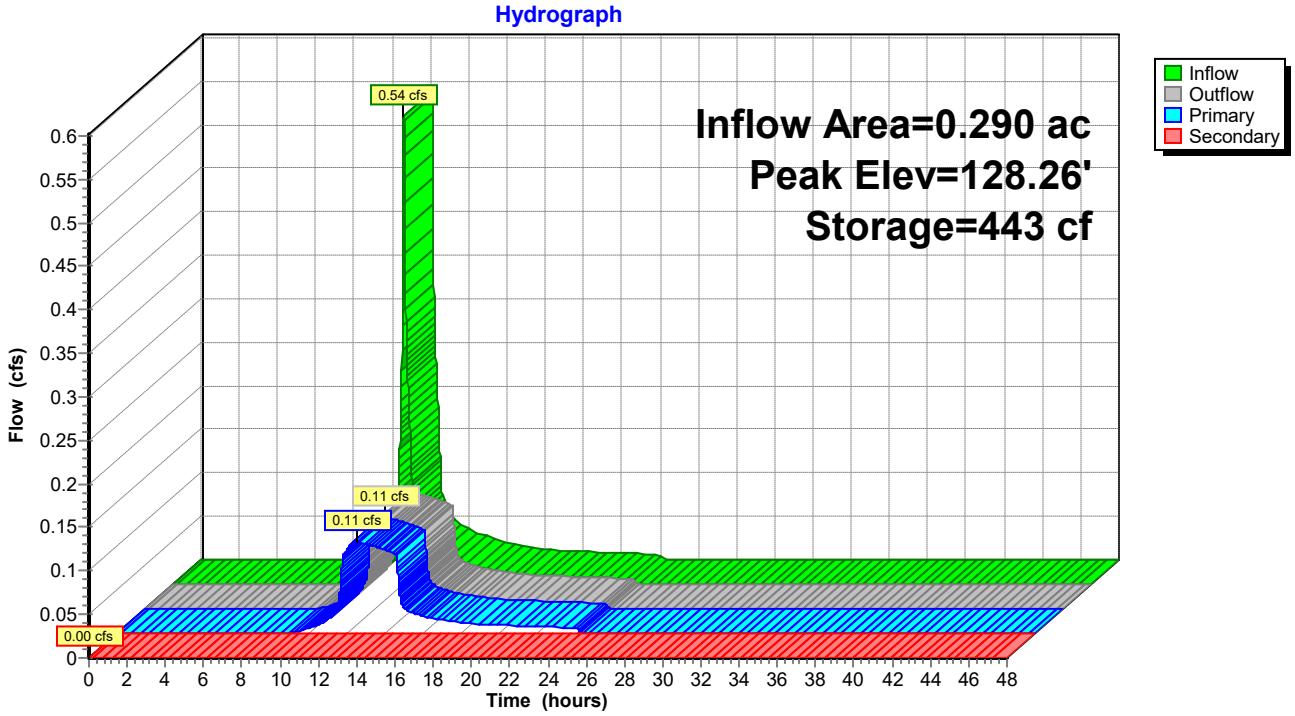
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
128.00	1,602	0	0
129.00	2,140	1,871	1,871
130.00	2,734	2,437	4,308

Device	Routing	Invert	Outlet Devices
#1	Device 3	128.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	129.00'	**143.0 deg x 6.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	125.50'	**4.0" Round Culvert** L= 121.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 125.50' / 124.60' S= 0.0074 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.11 cfs @ 12.53 hrs HW=128.26' (Free Discharge)
└**3=Culvert** (Passes 0.11 cfs of 0.20 cfs potential flow)
└**1=Exfiltration** (Controls 0.11 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond RG2: Rain Garden 2



Summary for Subcatchment 1.1:

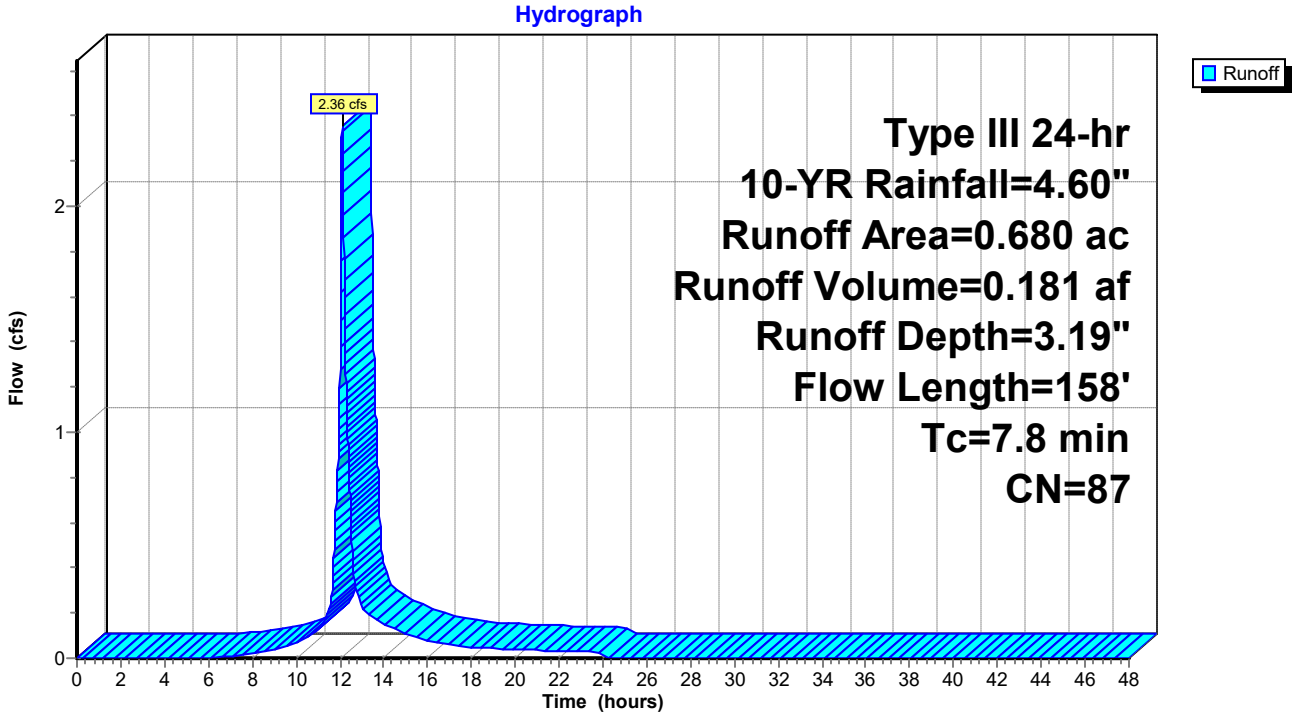
Runoff = 2.36 cfs @ 12.11 hrs, Volume= 0.181 af, Depth= 3.19"
Routed to Pond RG1 : Rain Garden 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.310	96	Gravel surface, HSG C
0.090	98	Roofs, HSG C
0.280	74	>75% Grass cover, Good, HSG C
0.680	87	Weighted Average
0.590		86.76% Pervious Area
0.090		13.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	68	0.0290	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.5	90	0.0100	1.00		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.8	158	Total			

Subcatchment 1.1:



Summary for Subcatchment 1.2:

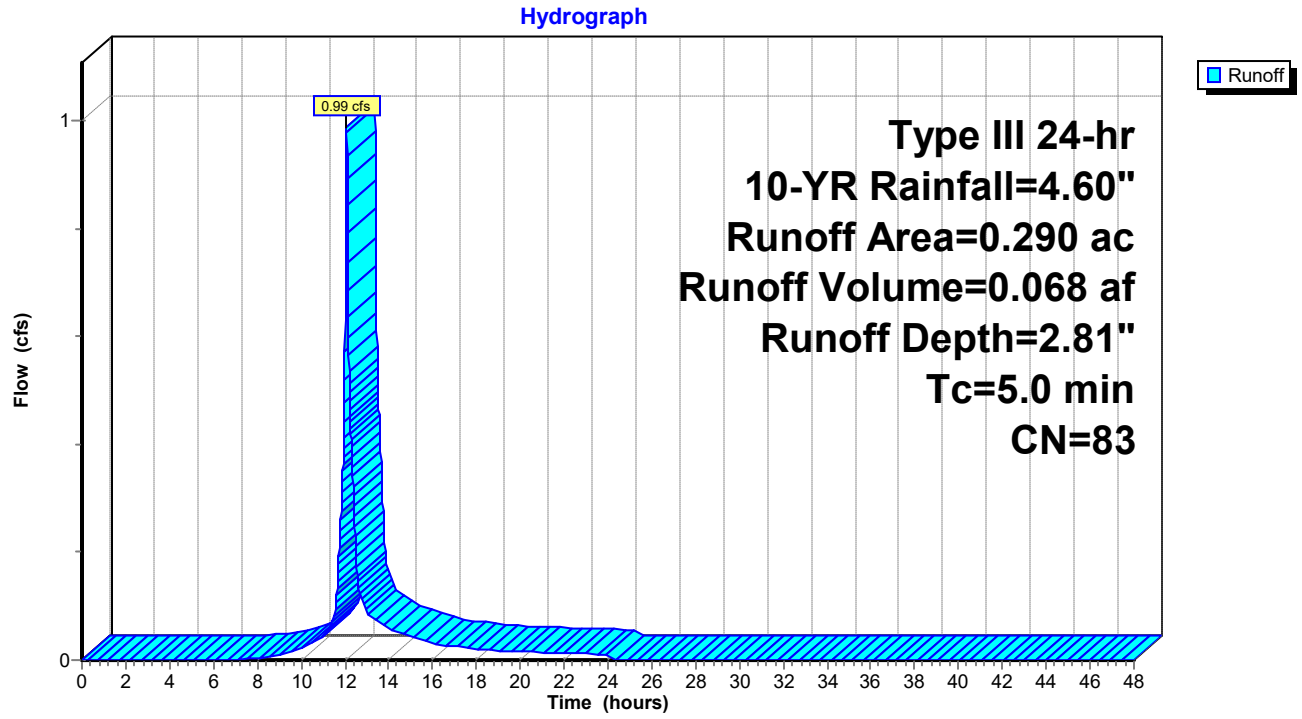
Runoff = 0.99 cfs @ 12.07 hrs, Volume= 0.068 af, Depth= 2.81"
Routed to Pond RG2 : Rain Garden 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.100	96	Gravel surface, HSG C
0.170	74	>75% Grass cover, Good, HSG C
0.290	83	Weighted Average
0.270		93.10% Pervious Area
0.020		6.90% Impervious Area

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

Subcatchment 1.2:



Summary for Subcatchment 1.3:

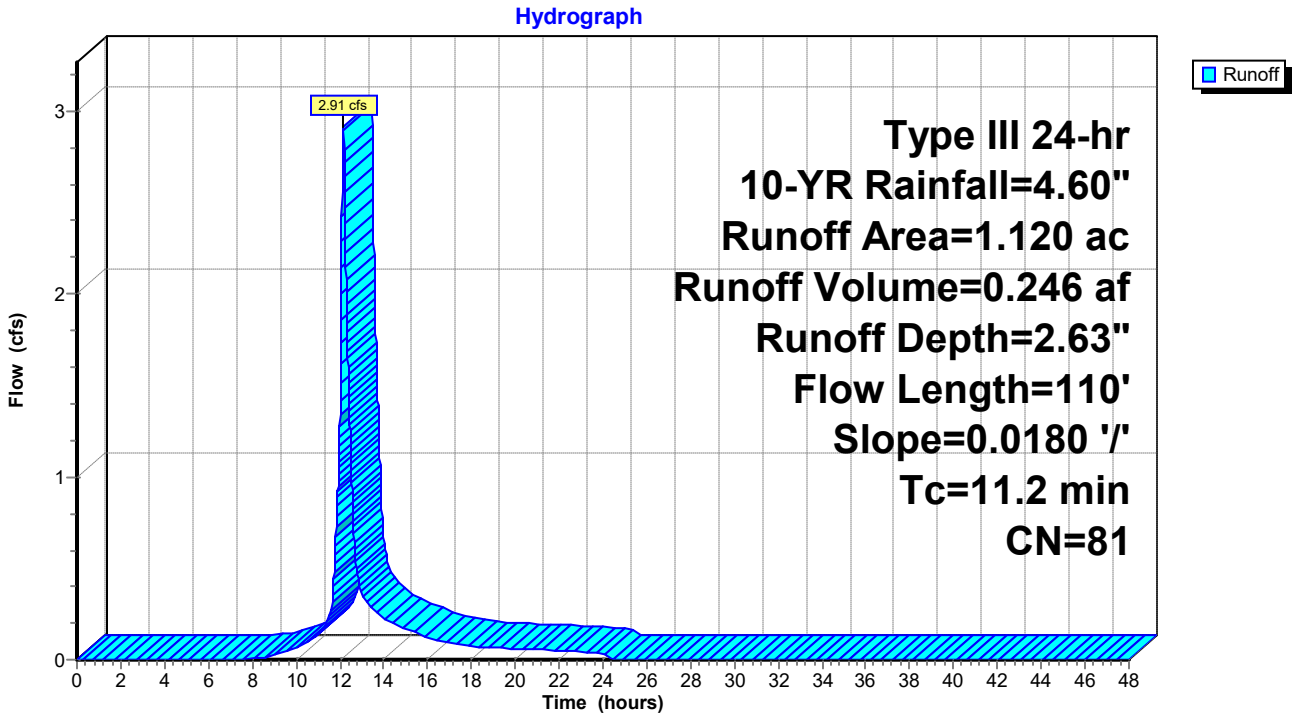
Runoff = 2.91 cfs @ 12.16 hrs, Volume= 0.246 af, Depth= 2.63"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.3:



Summary for Subcatchment 1.4:

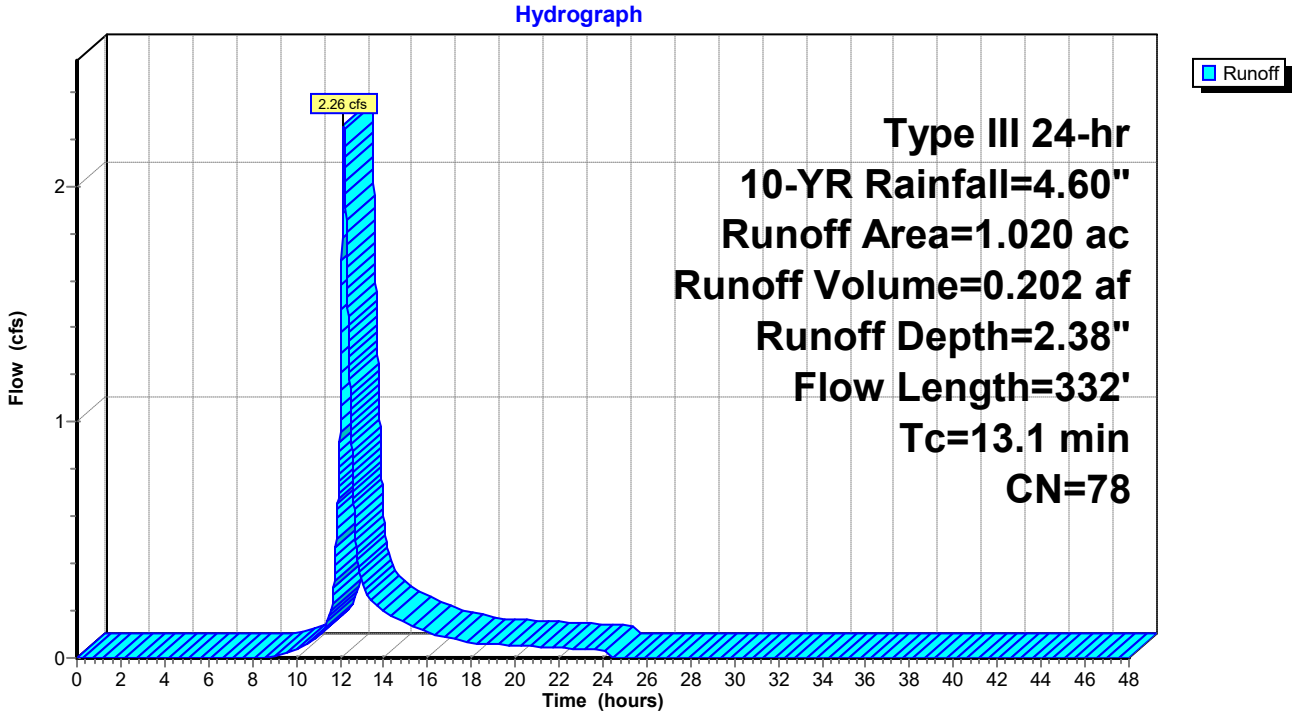
Runoff = 2.26 cfs @ 12.18 hrs, Volume= 0.202 af, Depth= 2.38"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.710	74	>75% Grass cover, Good, HSG C
0.100	71	Meadow, non-grazed, HSG C
0.080	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.020	98	Roofs, HSG C
1.020	78	Weighted Average
0.890		87.25% Pervious Area
0.130		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	136	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	196	0.0150	8.77	140.38	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
13.1	332	Total			

Subcatchment 1.4:



Summary for Subcatchment 1.5:

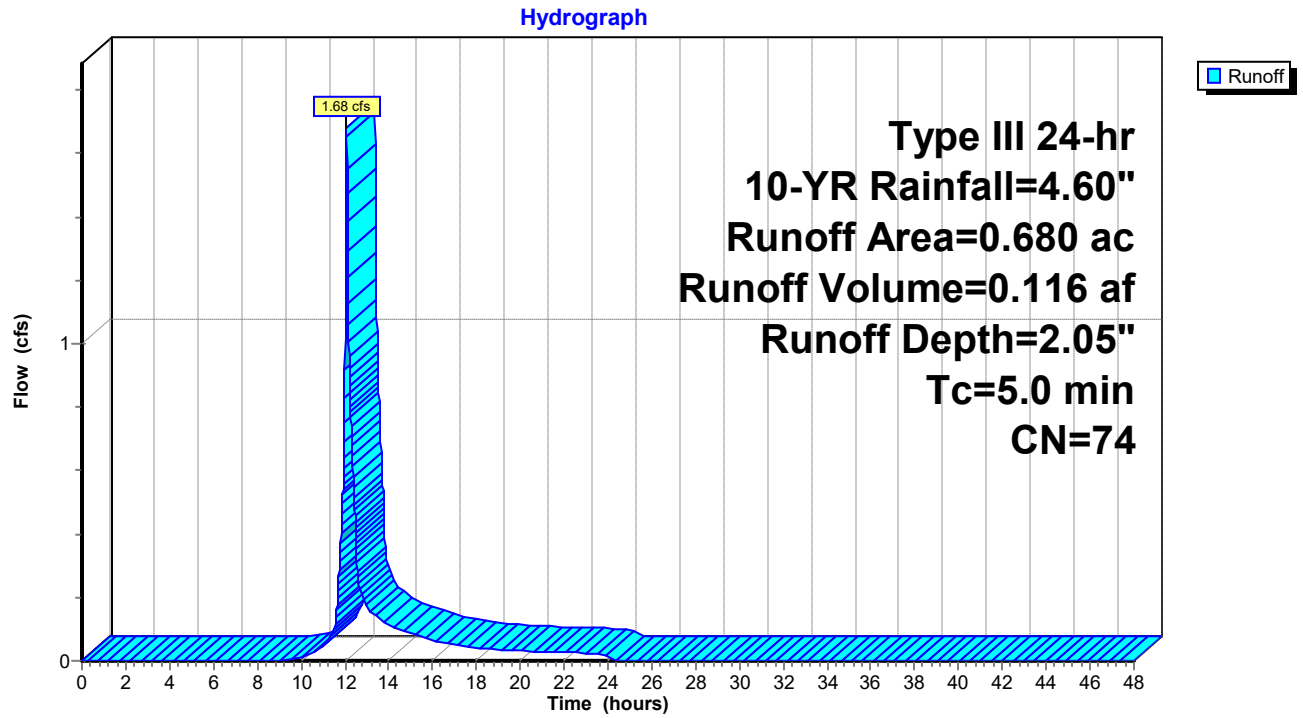
Runoff = 1.68 cfs @ 12.08 hrs, Volume= 0.116 af, Depth= 2.05"
Routed to Pond P5 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
0.670	74	>75% Grass cover, Good, HSG C
0.010	98	Roofs, HSG C
0.680	74	Weighted Average
0.670		98.53% Pervious Area
0.010		1.47% Impervious Area

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

Subcatchment 1.5:



Summary for Subcatchment 1.6:

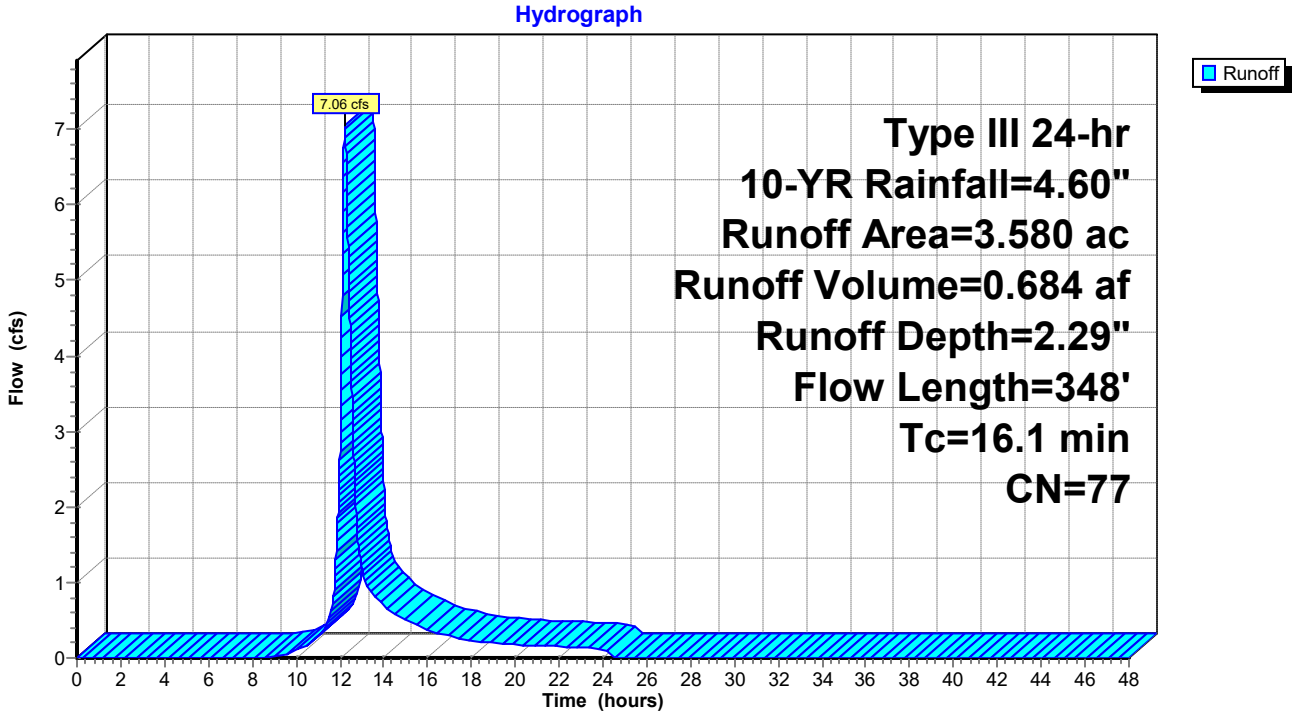
Runoff = 7.06 cfs @ 12.22 hrs, Volume= 0.684 af, Depth= 2.29"
Routed to Pond P2 : 15" CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
1.030	70	Woods, Good, HSG C
1.880	74	>75% Grass cover, Good, HSG C
0.510	98	Paved parking, HSG C
0.160	96	Gravel surface, HSG C
3.580	77	Weighted Average
3.070		85.75% Pervious Area
0.510		14.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.9	68	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	130	0.0070	5.99	95.90	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
16.1	348	Total			

Subcatchment 1.6:



Summary for Subcatchment 2:

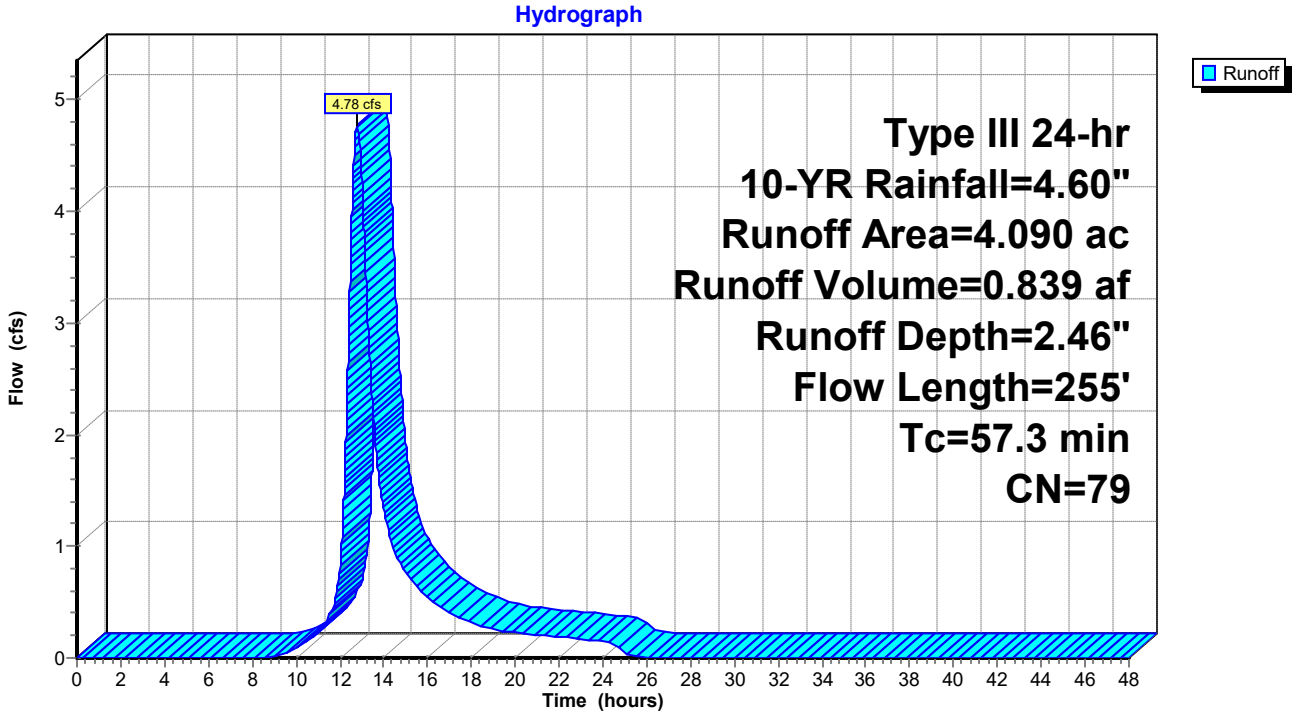
Runoff = 4.78 cfs @ 12.80 hrs, Volume= 0.839 af, Depth= 2.46"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
57.3	255	Total			

Subcatchment 2:



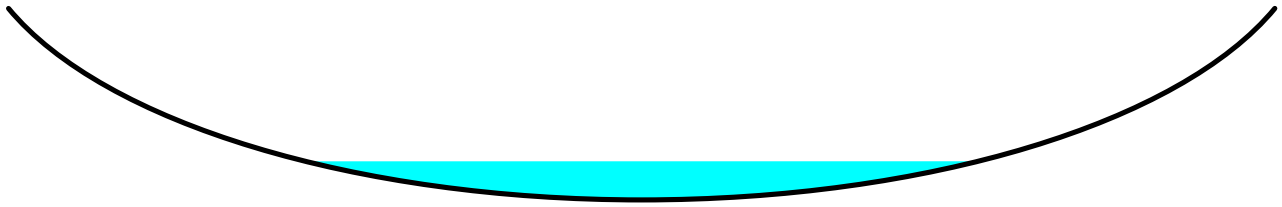
Summary for Reach R1:

Inflow Area = 7.670 ac, 16.43% Impervious, Inflow Depth = 2.38" for 10-YR event
Inflow = 8.16 cfs @ 12.25 hrs, Volume= 1.522 af
Outflow = 8.16 cfs @ 12.25 hrs, Volume= 1.522 af, Atten= 0%, Lag= 0.5 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.36 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.43 fps, Avg. Travel Time= 0.6 min

Peak Storage= 122 cf @ 12.25 hrs
Average Depth at Peak Storage= 0.41' , Surface Width= 9.00'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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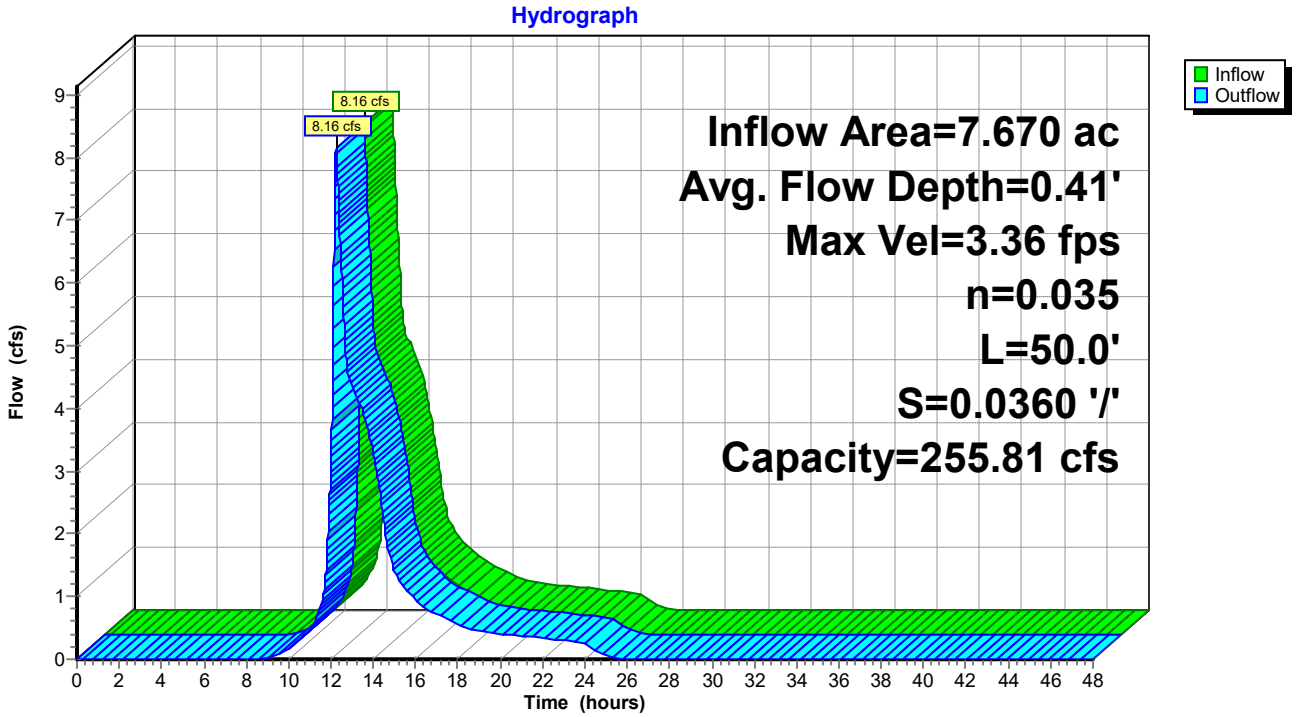
Reach R1:



Summary for Reach R1.1:

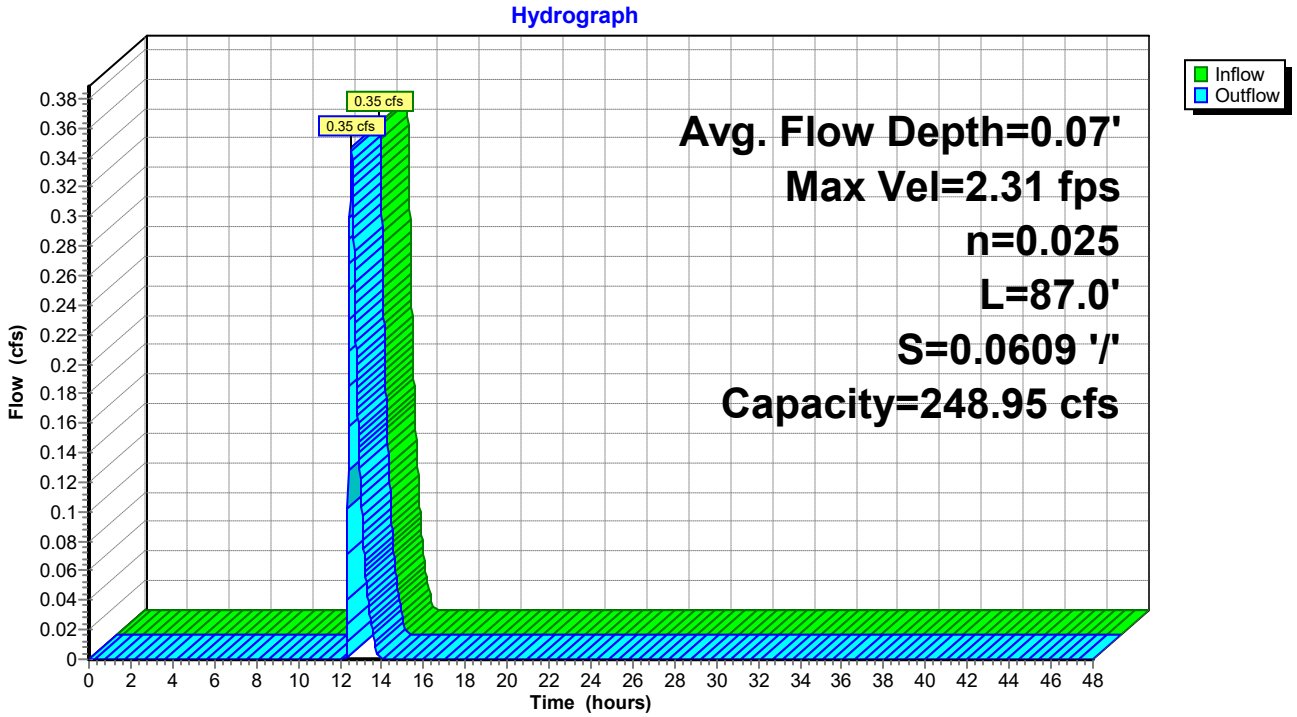
Inflow = 0.35 cfs @ 12.53 hrs, Volume= 0.015 af
Outflow = 0.35 cfs @ 12.54 hrs, Volume= 0.015 af, Atten= 0%, Lag= 1.0 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 2.31 fps, Min. Travel Time= 0.6 min
Avg. Velocity = 1.48 fps, Avg. Travel Time= 1.0 min

Peak Storage= 13 cf @ 12.53 hrs
Average Depth at Peak Storage= 0.07' , Surface Width= 2.41'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 248.95 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 87.0' Slope= 0.0609 '/'
Inlet Invert= 130.00', Outlet Invert= 124.70'

Reach R1.1:



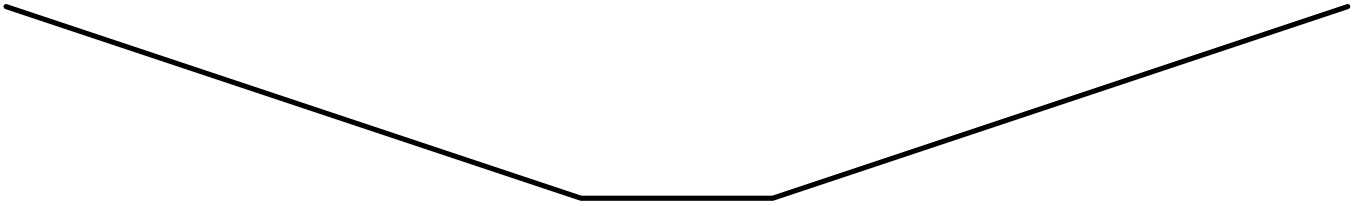
Summary for Reach R1.2:

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
Routed to Pond P4 : Culvert

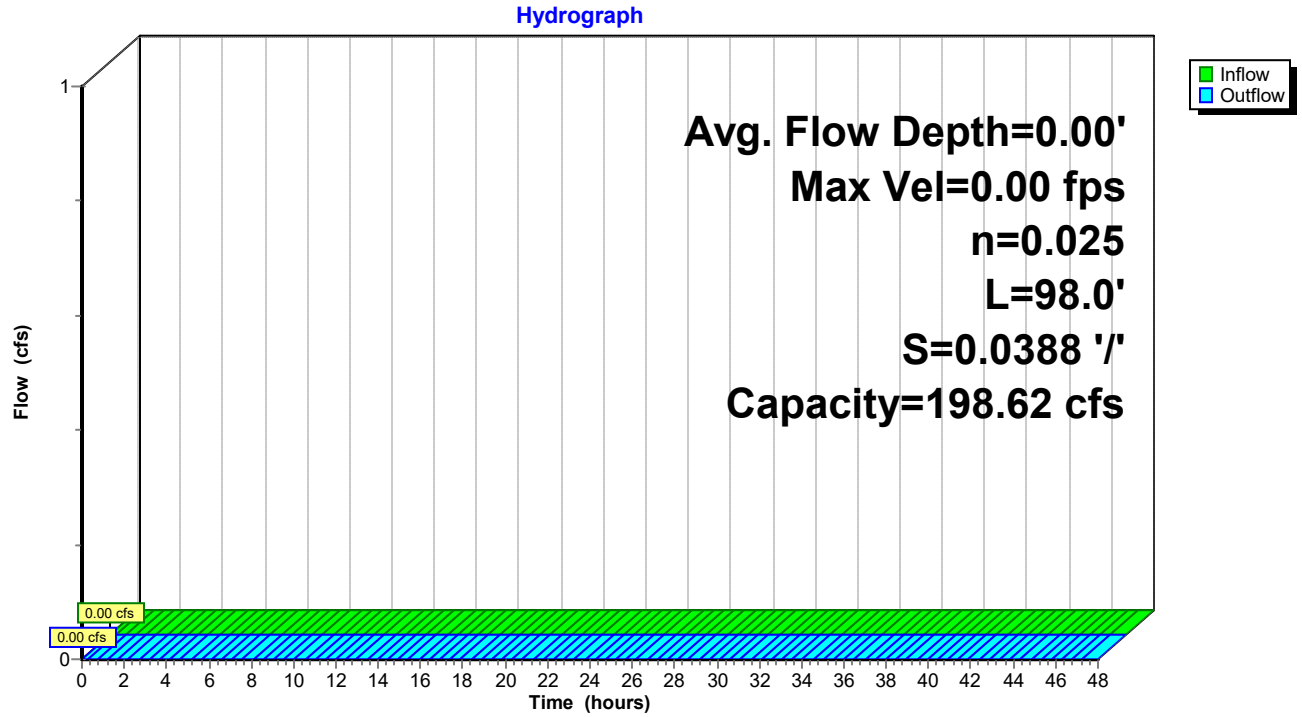
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 198.62 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 98.0' Slope= 0.0388 '/'
Inlet Invert= 128.50', Outlet Invert= 124.70'



Reach R1.2:



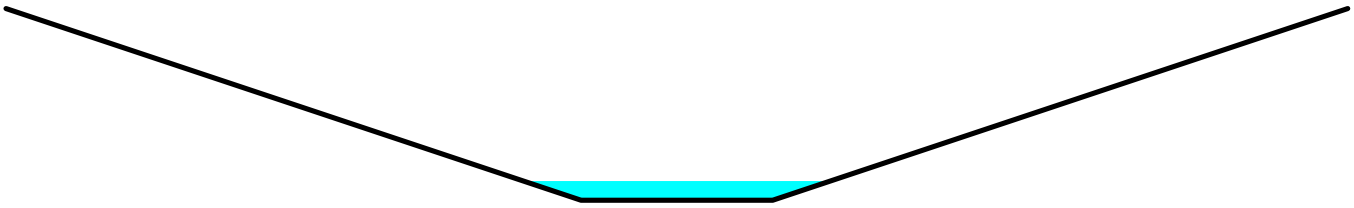
Summary for Reach R1.5:

Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 2.05" for 10-YR event
Inflow = 1.68 cfs @ 12.08 hrs, Volume= 0.116 af
Outflow = 1.66 cfs @ 12.10 hrs, Volume= 0.116 af, Atten= 1%, Lag= 1.3 min
Routed to Pond P4 : Culvert

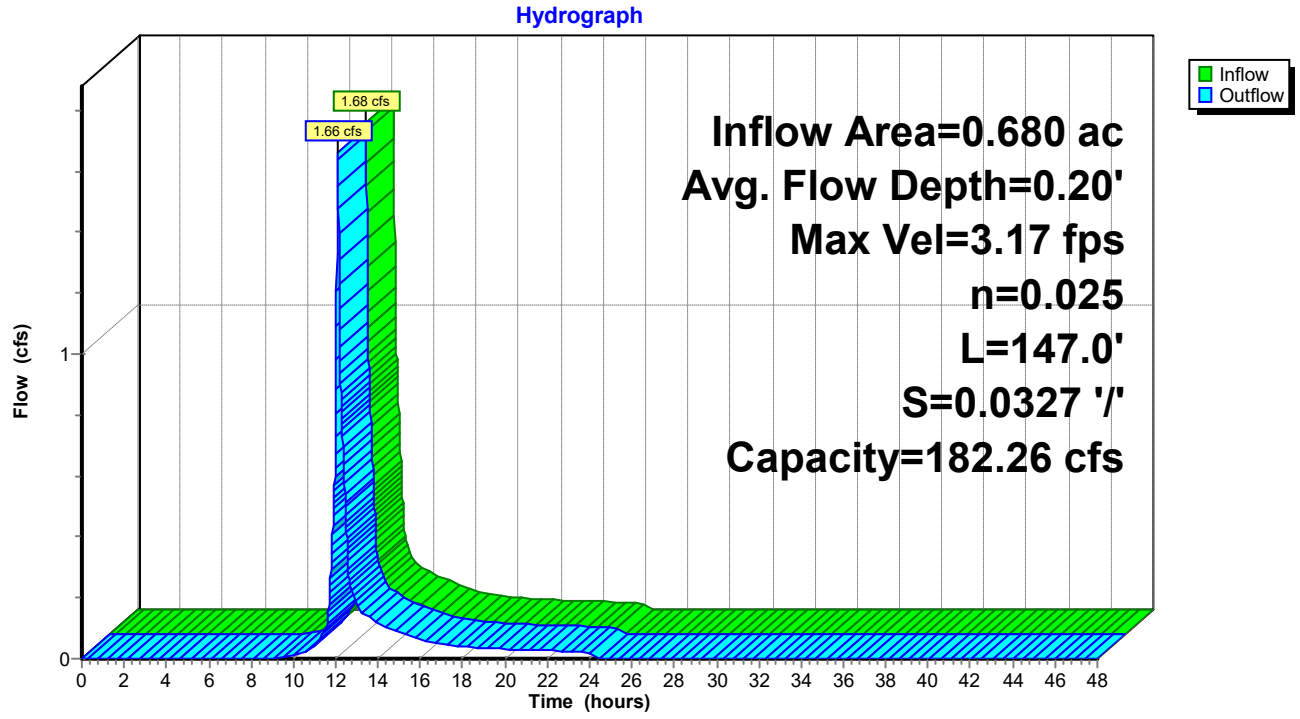
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.17 fps, Min. Travel Time= 0.8 min
Avg. Velocity = 1.02 fps, Avg. Travel Time= 2.4 min

Peak Storage= 77 cf @ 12.09 hrs
Average Depth at Peak Storage= 0.20' , Surface Width= 3.21'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 182.26 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 147.0' Slope= 0.0327 '/'
Inlet Invert= 129.50', Outlet Invert= 124.70'



Reach R1.5:



Summary for Reach R1.6:

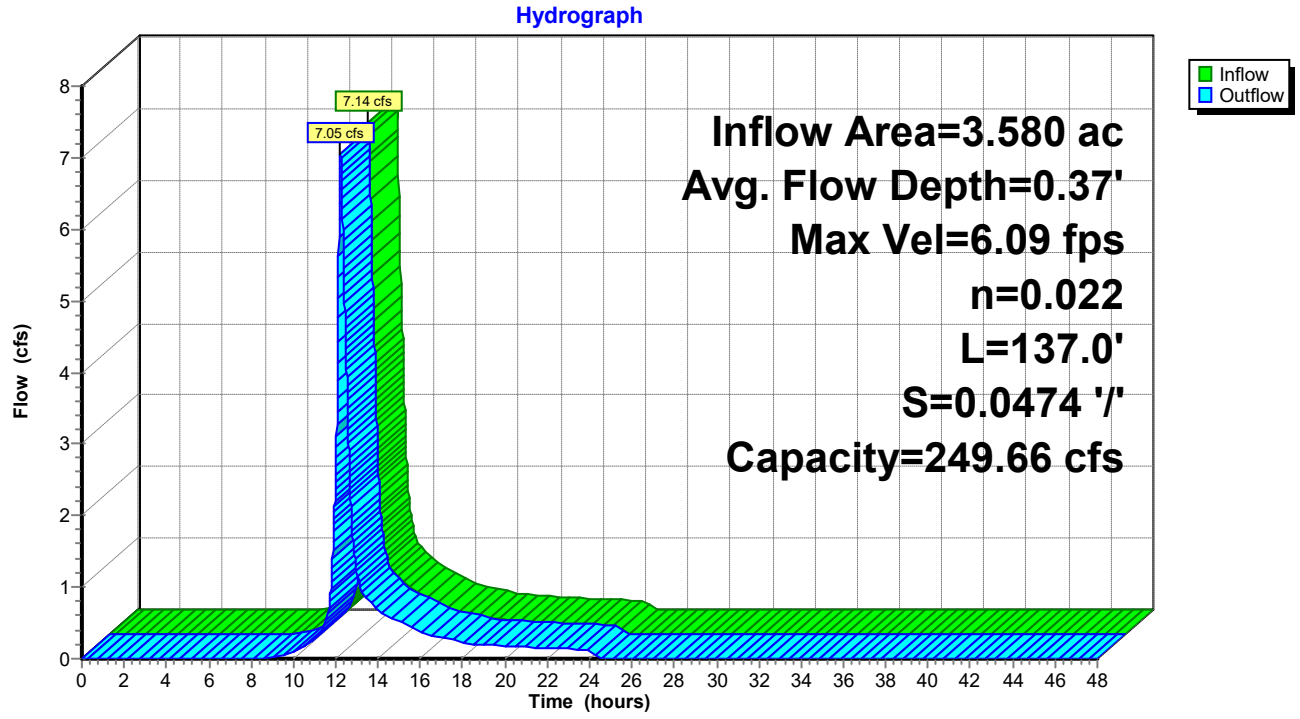
Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 2.29" for 10-YR event
Inflow = 7.14 cfs @ 12.22 hrs, Volume= 0.684 af
Outflow = 7.05 cfs @ 12.23 hrs, Volume= 0.684 af, Atten= 1%, Lag= 0.8 min
Routed to Reach R1 :

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.09 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 2.20 fps, Avg. Travel Time= 1.0 min

Peak Storage= 159 cf @ 12.23 hrs
Average Depth at Peak Storage= 0.37' , Surface Width= 4.23'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 249.66 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 137.0' Slope= 0.0474 '/'
Inlet Invert= 133.00', Outlet Invert= 126.50'

Reach R1.6:

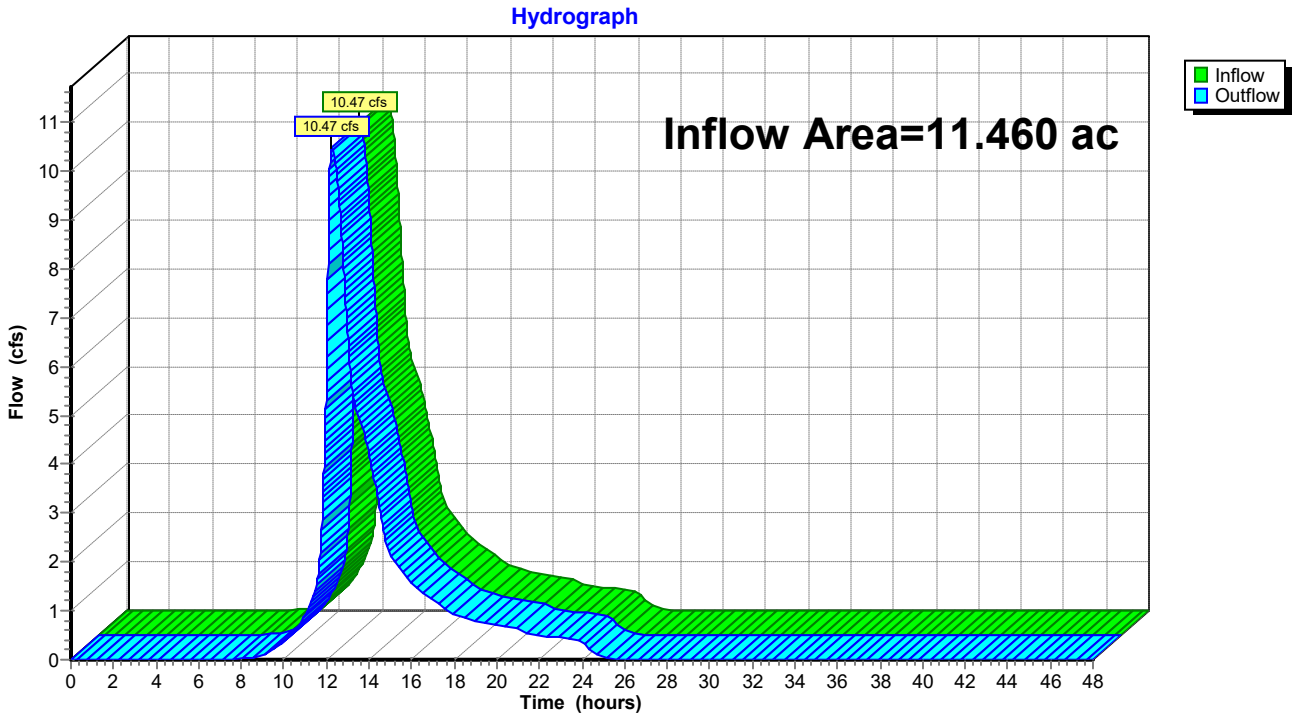


Summary for Reach WAP A:

Inflow Area = 11.460 ac, 14.66% Impervious, Inflow Depth = 2.44" for 10-YR event
Inflow = 10.47 cfs @ 12.26 hrs, Volume= 2.335 af
Outflow = 10.47 cfs @ 12.26 hrs, Volume= 2.335 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 2.46" for 10-YR event
Inflow = 4.78 cfs @ 12.80 hrs, Volume= 0.839 af
Outflow = 3.21 cfs @ 13.23 hrs, Volume= 0.838 af, Atten= 33%, Lag= 26.0 min
Primary = 3.21 cfs @ 13.23 hrs, Volume= 0.838 af
Routed to Reach R1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 131.46' @ 13.23 hrs Surf.Area= 7,024 sf Storage= 5,241 cf

Plug-Flow detention time= 14.1 min calculated for 0.838 af (100% of inflow)
Center-of-Mass det. time= 13.8 min (889.6 - 875.8)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

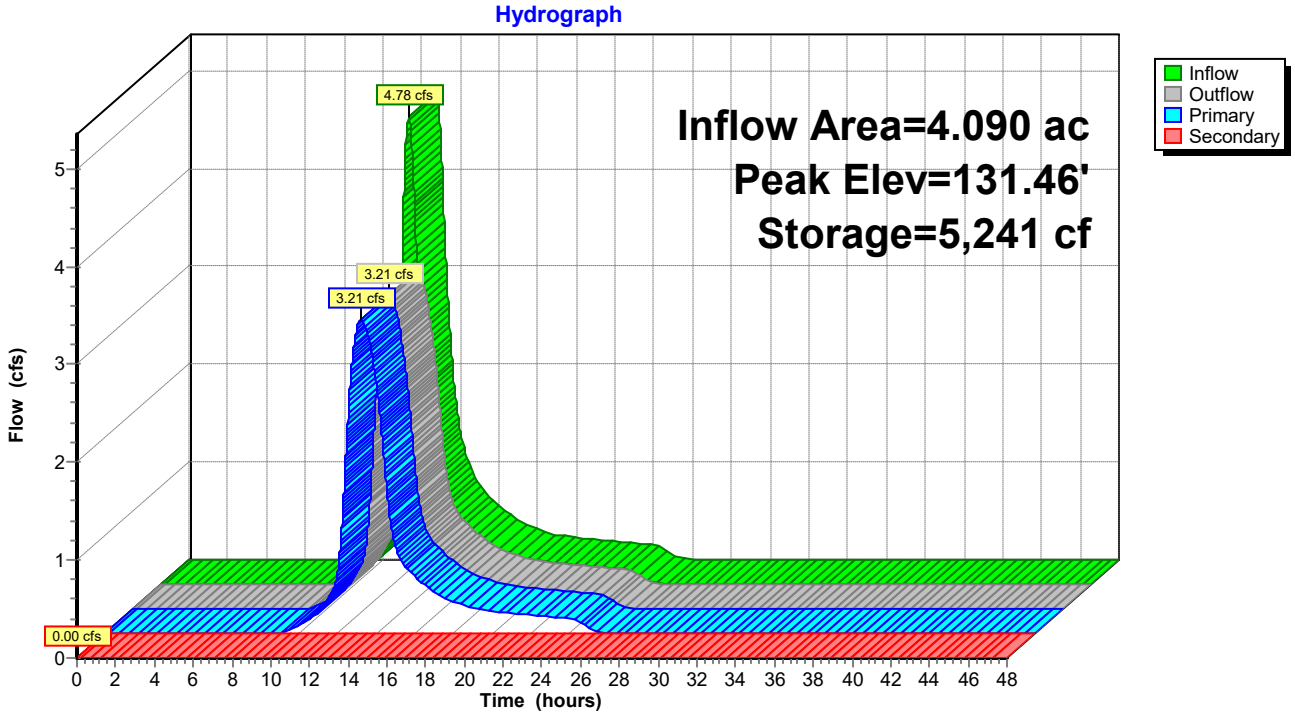
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.21 cfs @ 13.23 hrs HW=131.46' (Free Discharge)
1=Culvert (Inlet Controls 3.21 cfs @ 4.09 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond P1: Culvert



Summary for Pond P2: 15" CULVERT

Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 2.29" for 10-YR event
Inflow = 7.06 cfs @ 12.22 hrs, Volume= 0.684 af
Outflow = 7.14 cfs @ 12.22 hrs, Volume= 0.684 af, Atten= 0%, Lag= 0.0 min
Primary = 7.14 cfs @ 12.22 hrs, Volume= 0.684 af
Routed to Reach R1.6 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 134.47' @ 12.22 hrs Surf.Area= 40 sf Storage= 36 cf

Plug-Flow detention time= 0.1 min calculated for 0.684 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (843.1 - 843.0)

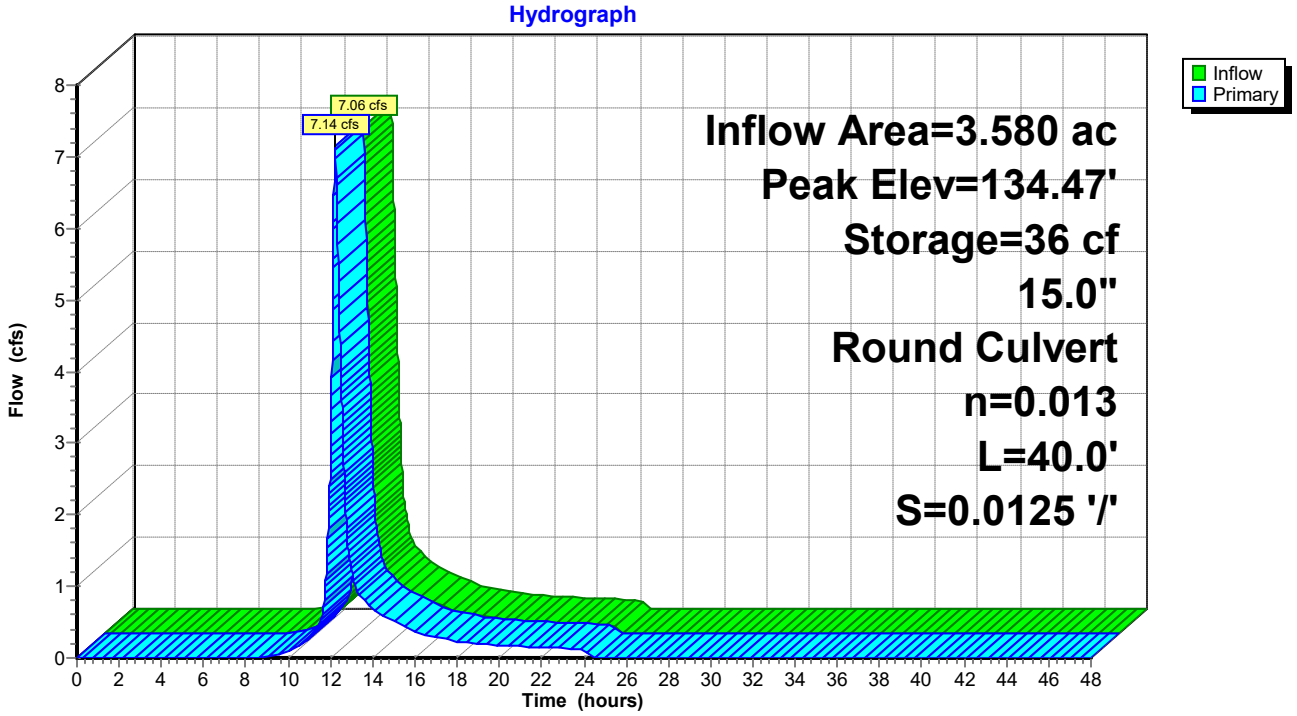
Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	36 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	2	0	0
132.00	20	6	6
133.00	40	30	36

Device	Routing	Invert	Outlet Devices
#1	Primary	131.50'	**15.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 131.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=7.14 cfs @ 12.22 hrs HW=134.47' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 7.14 cfs @ 5.82 fps)

Pond P2: 15" CULVERT



Summary for Pond P4: Culvert

Inflow Area = 10.340 ac, 14.60% Impervious, Inflow Depth = 2.42" for 10-YR event
Inflow = 11.43 cfs @ 12.23 hrs, Volume= 2.089 af
Outflow = 8.78 cfs @ 12.46 hrs, Volume= 2.089 af, Atten= 23%, Lag= 13.9 min
Primary = 8.78 cfs @ 12.46 hrs, Volume= 2.089 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 127.16' @ 12.46 hrs Surf.Area= 5,667 sf Storage= 4,072 cf

Plug-Flow detention time= 4.1 min calculated for 2.089 af (100% of inflow)
Center-of-Mass det. time= 3.8 min (874.0 - 870.2)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	32,296 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

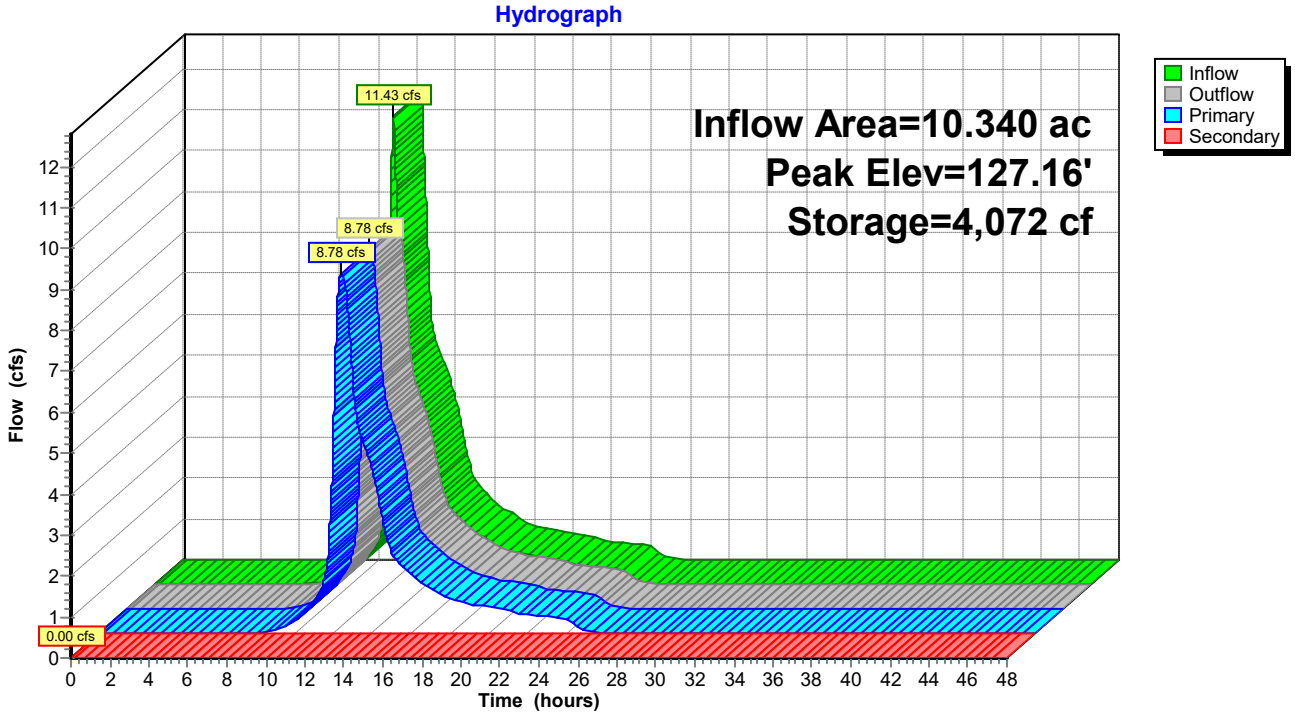
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,024	682	782
127.00	4,014	2,519	3,301
128.00	14,376	9,195	12,496
129.00	25,225	19,801	32,296

Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=8.78 cfs @ 12.46 hrs HW=127.16' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 8.78 cfs @ 4.97 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert



Summary for Pond P5: Culvert

Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 2.05" for 10-YR event
Inflow = 1.68 cfs @ 12.08 hrs, Volume= 0.116 af
Outflow = 1.68 cfs @ 12.08 hrs, Volume= 0.116 af, Atten= 0%, Lag= 0.0 min
Primary = 1.68 cfs @ 12.08 hrs, Volume= 0.116 af
Routed to Reach R1.5 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.5 :

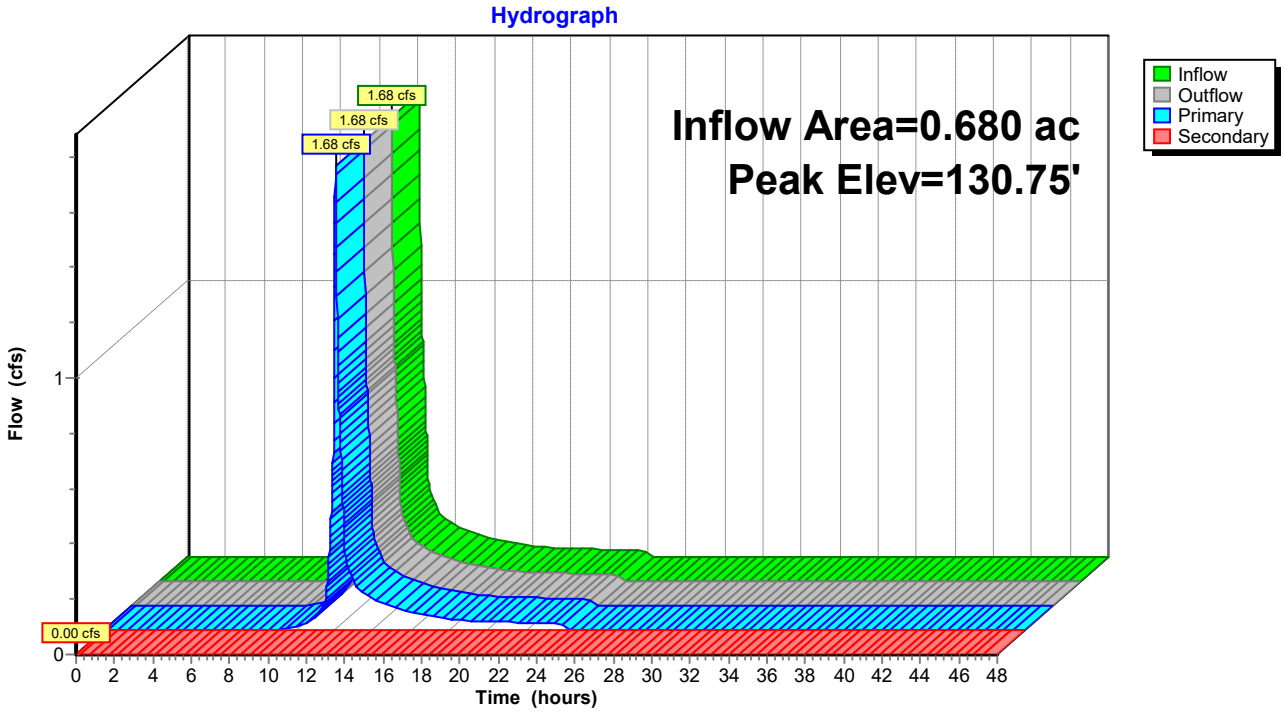
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.75' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	**15.0" Round Culvert** L= 103.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.00' / 129.50' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.00'	**143.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=1.68 cfs @ 12.08 hrs HW=130.75' (Free Discharge)
└**1=Culvert** (Barrel Controls 1.68 cfs @ 3.13 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P5: Culvert



Summary for Pond RG1: Rain Garden 1

Inflow Area = 0.680 ac, 13.24% Impervious, Inflow Depth = 3.19" for 10-YR event
Inflow = 2.36 cfs @ 12.11 hrs, Volume= 0.181 af
Outflow = 0.56 cfs @ 12.53 hrs, Volume= 0.181 af, Atten= 76%, Lag= 25.1 min
Primary = 0.21 cfs @ 12.53 hrs, Volume= 0.166 af
Routed to Pond P4 : Culvert
Secondary = 0.35 cfs @ 12.53 hrs, Volume= 0.015 af
Routed to Reach R1.1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.11' @ 12.53 hrs Surf.Area= 3,083 sf Storage= 2,952 cf

Plug-Flow detention time= 115.7 min calculated for 0.181 af (100% of inflow)
Center-of-Mass det. time= 115.7 min (921.7 - 806.0)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	5,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

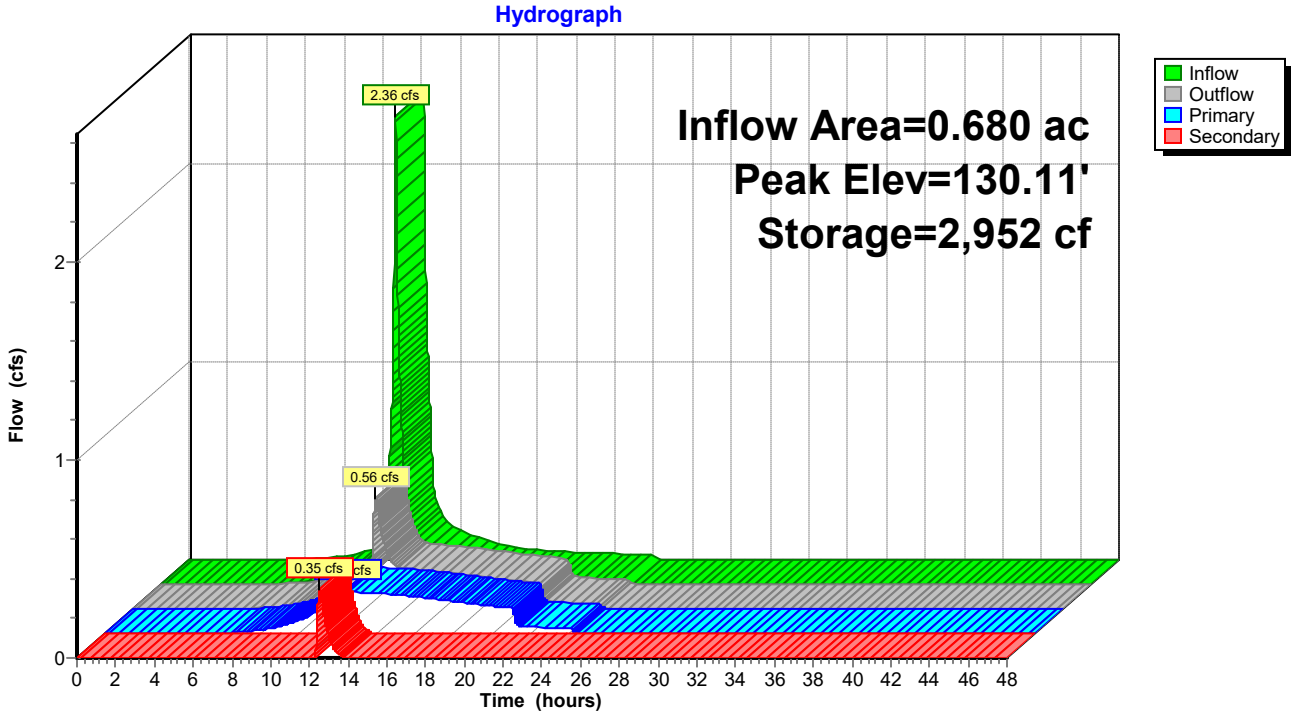
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,250	0	0
130.00	3,010	2,630	2,630
131.00	3,700	3,355	5,985

Device	Routing	Invert	Outlet Devices
#1	Device 3	129.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	130.00'	**143.0 deg x 3.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	126.50'	**4.0" Round Culvert** L= 117.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 126.50' / 124.70' S= 0.0153 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.21 cfs @ 12.53 hrs HW=130.11' (Free Discharge)
└**3=Culvert** (Passes 0.21 cfs of 0.25 cfs potential flow)
└**1=Exfiltration** (Controls 0.21 cfs)

Secondary OutFlow Max=0.35 cfs @ 12.53 hrs HW=130.11' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.35 cfs @ 0.98 fps)

Pond RG1: Rain Garden 1



Summary for Pond RG2: Rain Garden 2

Inflow Area = 0.290 ac, 6.90% Impervious, Inflow Depth = 2.81" for 10-YR event
Inflow = 0.99 cfs @ 12.07 hrs, Volume= 0.068 af
Outflow = 0.13 cfs @ 12.65 hrs, Volume= 0.068 af, Atten= 87%, Lag= 34.5 min
Primary = 0.13 cfs @ 12.65 hrs, Volume= 0.068 af
Routed to Pond P4 : Culvert
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 128.59' @ 12.65 hrs Surf.Area= 1,919 sf Storage= 1,037 cf

Plug-Flow detention time= 68.6 min calculated for 0.068 af (100% of inflow)
Center-of-Mass det. time= 68.6 min (884.5 - 815.9)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	4,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

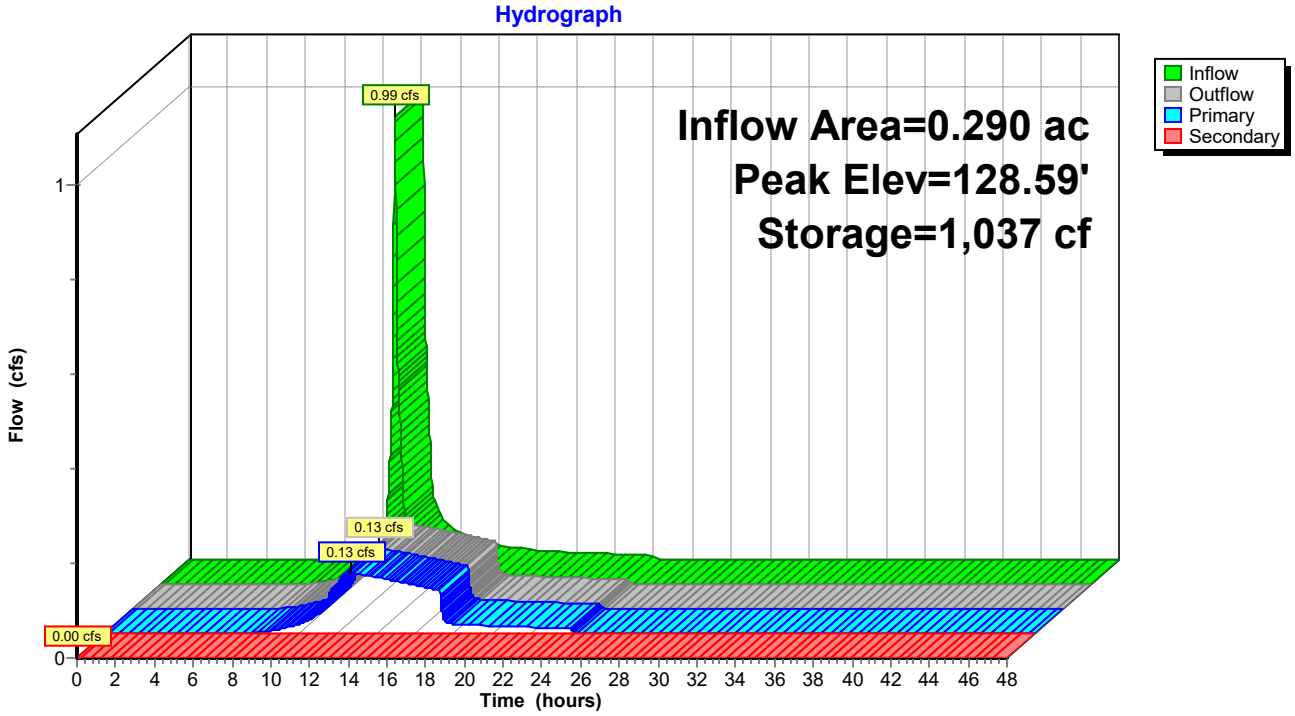
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
128.00	1,602	0	0
129.00	2,140	1,871	1,871
130.00	2,734	2,437	4,308

Device	Routing	Invert	Outlet Devices
#1	Device 3	128.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	129.00'	**143.0 deg x 6.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	125.50'	**4.0" Round Culvert** L= 121.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 125.50' / 124.60' S= 0.0074 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.13 cfs @ 12.65 hrs HW=128.59' (Free Discharge)
└**3=Culvert** (Passes 0.13 cfs of 0.21 cfs potential flow)
└**1=Exfiltration** (Controls 0.13 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond RG2: Rain Garden 2



Summary for Subcatchment 1.1:

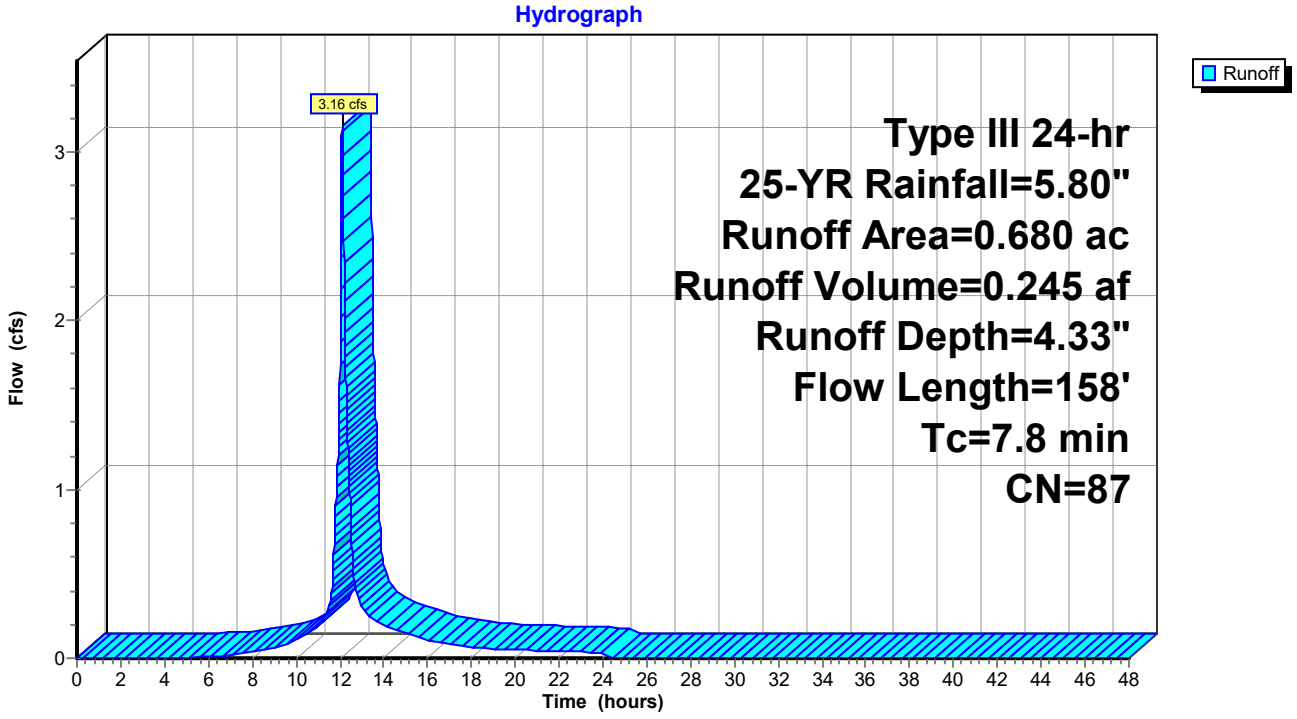
Runoff = 3.16 cfs @ 12.11 hrs, Volume= 0.245 af, Depth= 4.33"
Routed to Pond RG1 : Rain Garden 1

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.310	96	Gravel surface, HSG C
0.090	98	Roofs, HSG C
0.280	74	>75% Grass cover, Good, HSG C
0.680	87	Weighted Average
0.590		86.76% Pervious Area
0.090		13.24% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.3	68	0.0290	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.5	90	0.0100	1.00		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
7.8	158	Total			

Subcatchment 1.1:



Summary for Subcatchment 1.2:

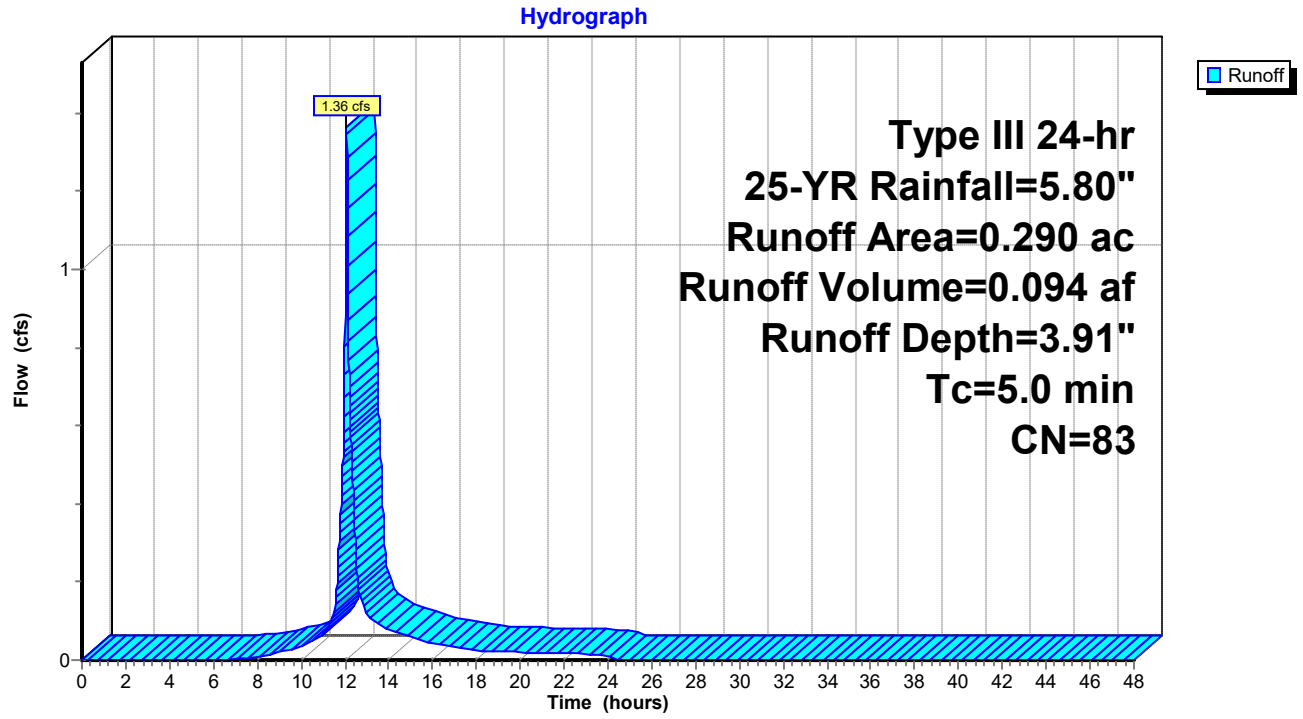
Runoff = 1.36 cfs @ 12.07 hrs, Volume= 0.094 af, Depth= 3.91"
Routed to Pond RG2 : Rain Garden 2

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.020	98	Paved parking, HSG C
0.100	96	Gravel surface, HSG C
0.170	74	>75% Grass cover, Good, HSG C
0.290	83	Weighted Average
0.270		93.10% Pervious Area
0.020		6.90% Impervious Area

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

Subcatchment 1.2:



Summary for Subcatchment 1.3:

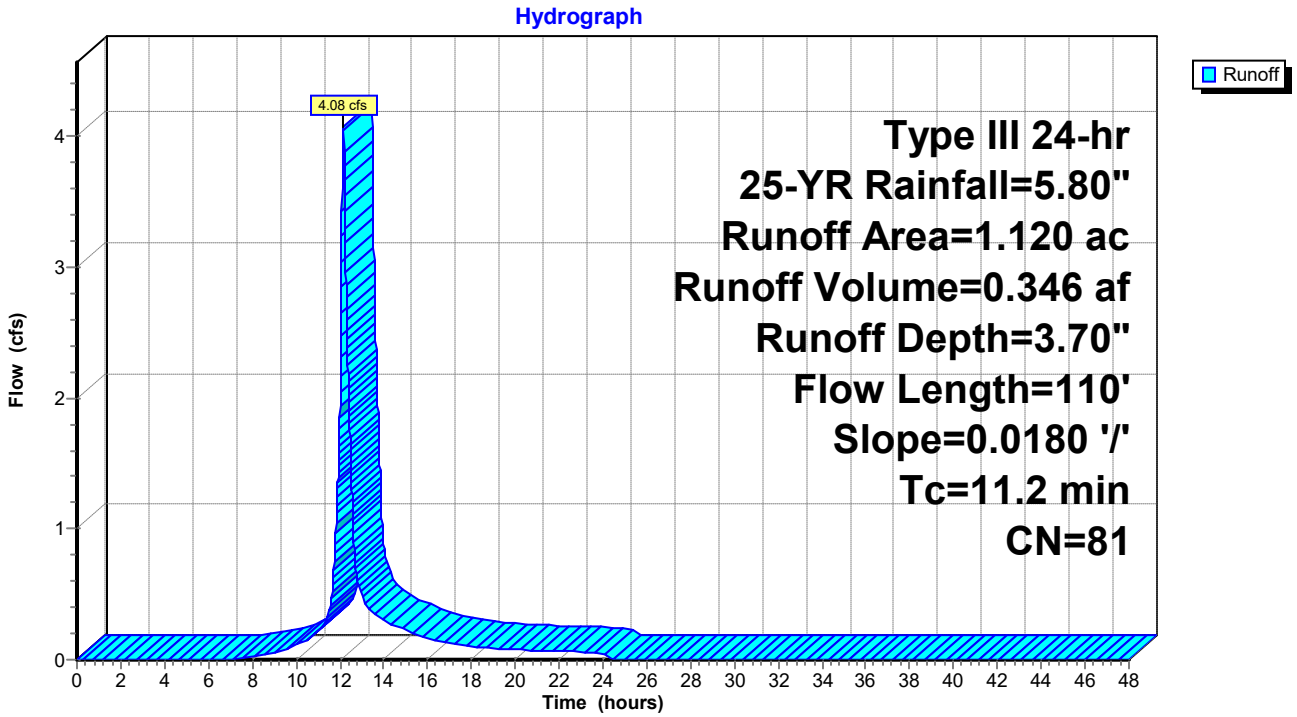
Runoff = 4.08 cfs @ 12.15 hrs, Volume= 0.346 af, Depth= 3.70"
Routed to Reach WAP A :

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.740	74	>75% Grass cover, Good, HSG C
0.190	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.060	98	Roofs, HSG C
0.020	70	Woods, Good, HSG C
1.120	81	Weighted Average
0.950		84.82% Pervious Area
0.170		15.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.2	110	0.0180	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"

Subcatchment 1.3:



Summary for Subcatchment 1.4:

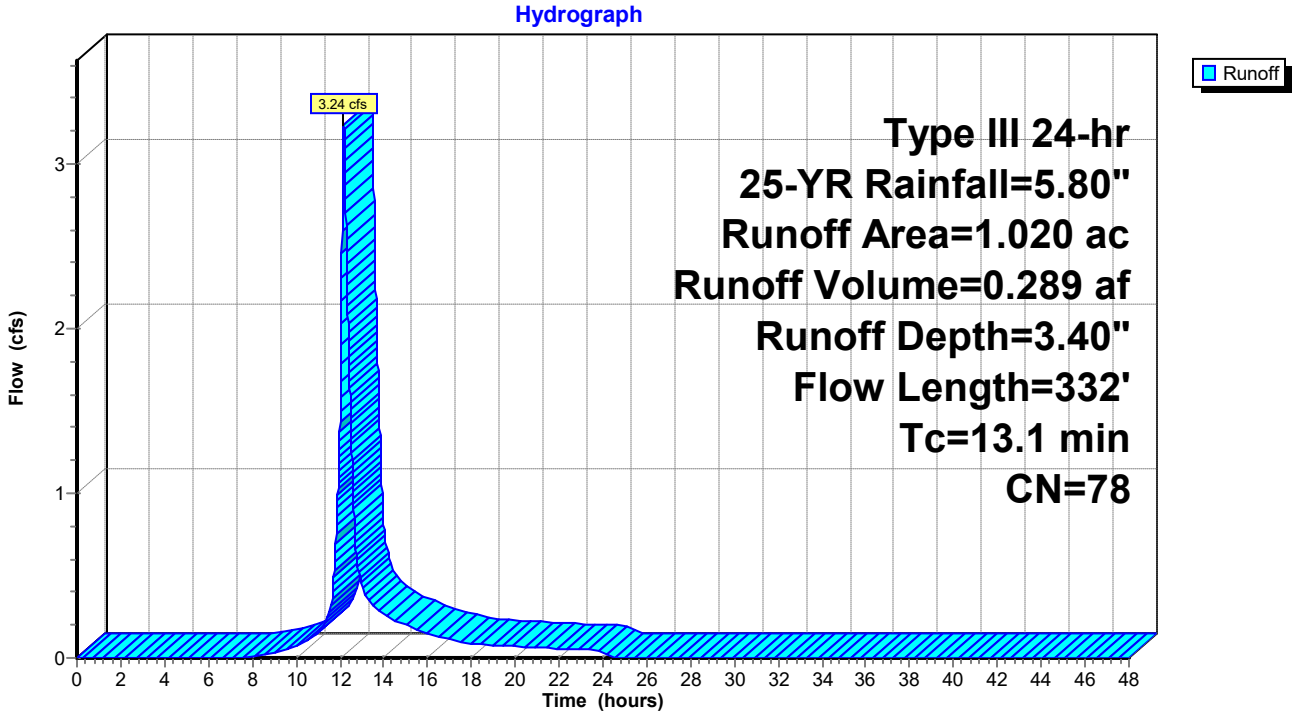
Runoff = 3.24 cfs @ 12.18 hrs, Volume= 0.289 af, Depth= 3.40"
Routed to Pond P4 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.710	74	>75% Grass cover, Good, HSG C
0.100	71	Meadow, non-grazed, HSG C
0.080	96	Gravel surface, HSG C
0.110	98	Paved parking, HSG C
0.020	98	Roofs, HSG C
1.020	78	Weighted Average
0.890		87.25% Pervious Area
0.130		12.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
12.7	136	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
0.4	196	0.0150	8.77	140.38	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
13.1	332	Total			

Subcatchment 1.4:



Summary for Subcatchment 1.5:

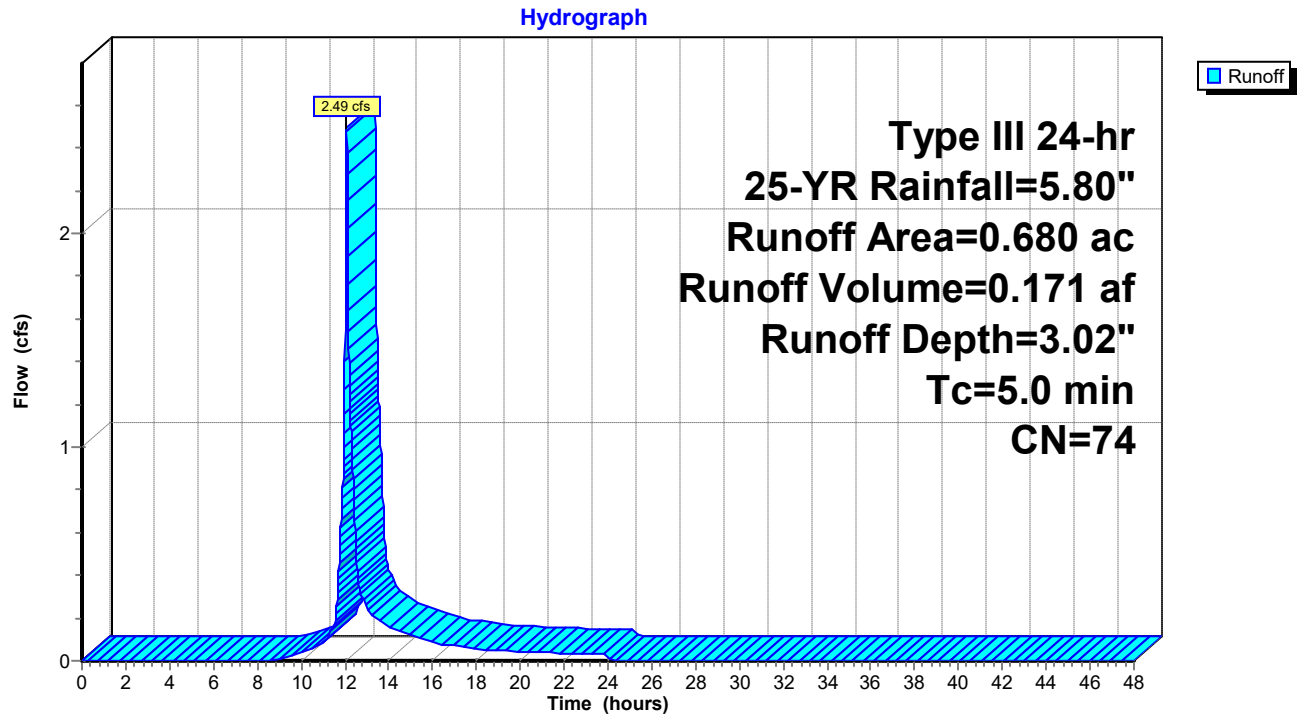
Runoff = 2.49 cfs @ 12.08 hrs, Volume= 0.171 af, Depth= 3.02"
Routed to Pond P5 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
0.670	74	>75% Grass cover, Good, HSG C
0.010	98	Roofs, HSG C
0.680	74	Weighted Average
0.670		98.53% Pervious Area
0.010		1.47% Impervious Area

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

Subcatchment 1.5:



Summary for Subcatchment 1.6:

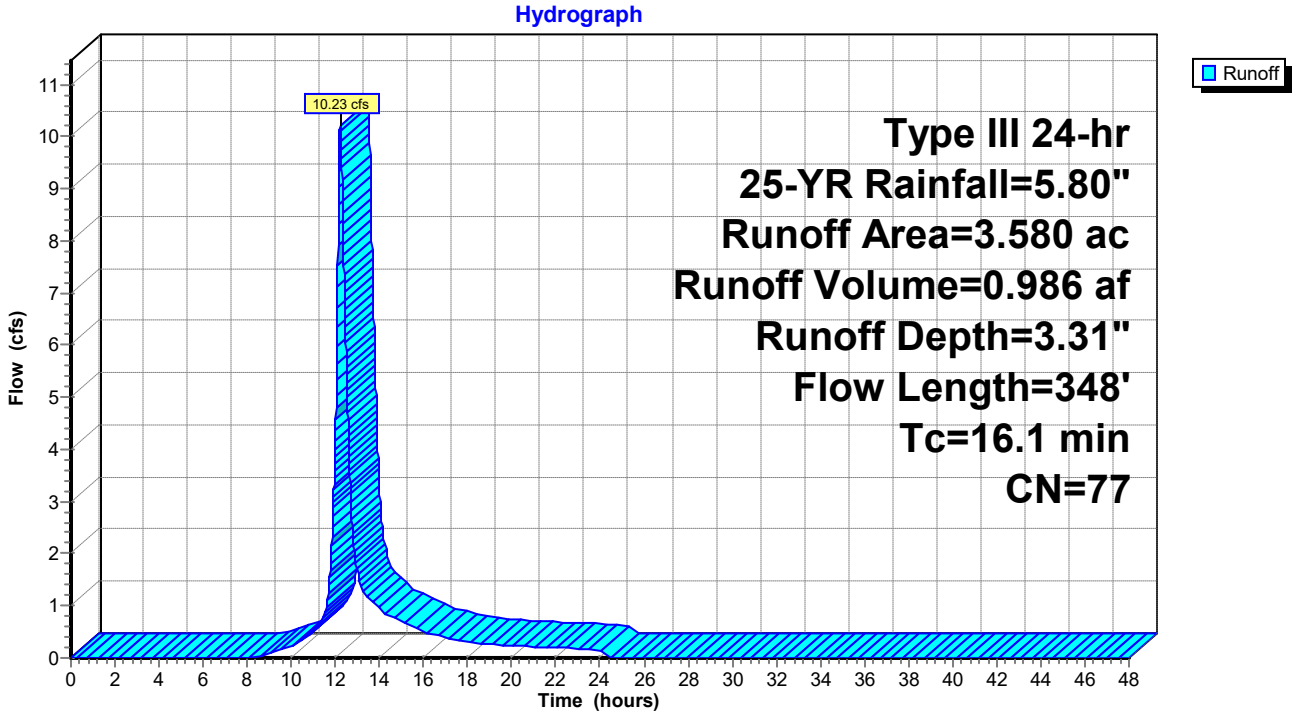
Runoff = 10.23 cfs @ 12.22 hrs, Volume= 0.986 af, Depth= 3.31"
Routed to Pond P2 : 15" CULVERT

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
1.030	70	Woods, Good, HSG C
1.880	74	>75% Grass cover, Good, HSG C
0.510	98	Paved parking, HSG C
0.160	96	Gravel surface, HSG C
3.580	77	Weighted Average
3.070		85.75% Pervious Area
0.510		14.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
13.8	150	0.0200	0.18		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.9	68	0.0070	0.59		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
0.4	130	0.0070	5.99	95.90	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
16.1	348	Total			

Subcatchment 1.6:



Summary for Subcatchment 2:

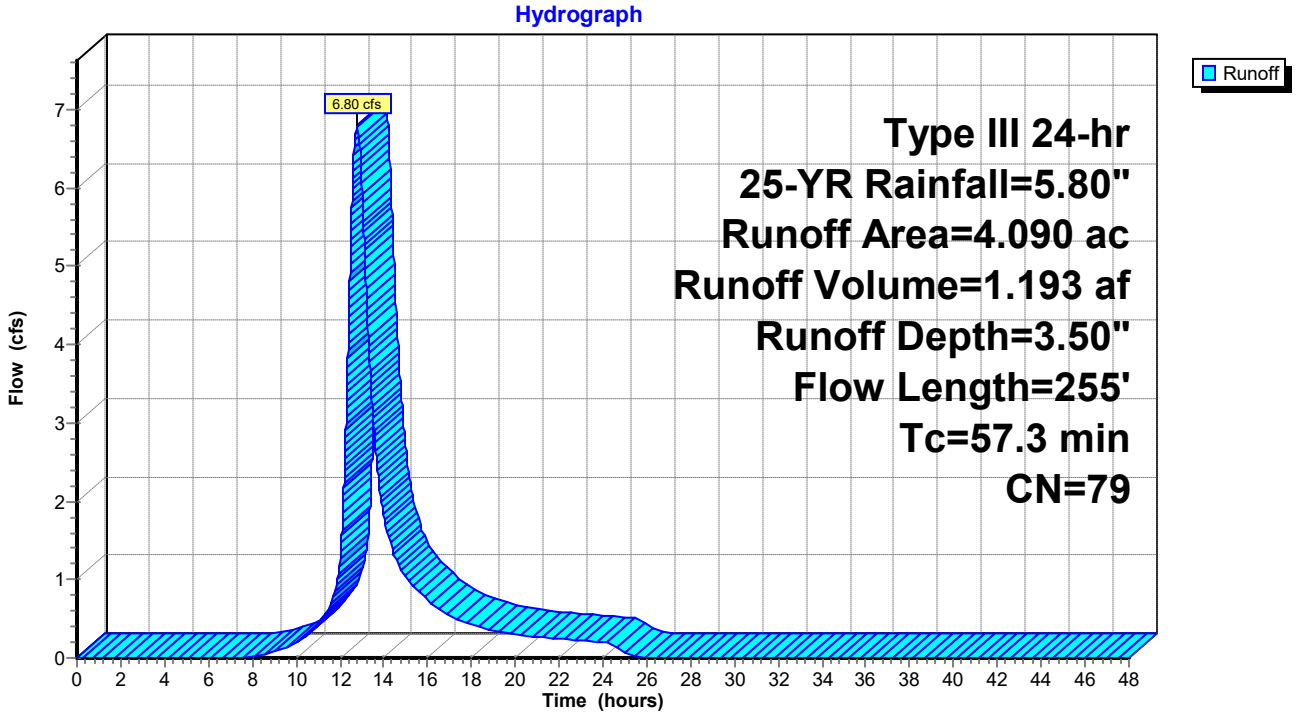
Runoff = 6.80 cfs @ 12.79 hrs, Volume= 1.193 af, Depth= 3.50"
Routed to Pond P1 : Culvert

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-YR Rainfall=5.80"

Area (ac)	CN	Description
1.190	70	Woods, Good, HSG C
1.070	77	Woods, Good, HSG D
0.660	74	>75% Grass cover, Good, HSG C
0.420	80	>75% Grass cover, Good, HSG D
0.060	98	Roofs, HSG C
0.040	98	Roofs, HSG D
0.570	98	Paved parking, HSG C
0.080	98	Paved parking, HSG D
4.090	79	Weighted Average
3.340		81.66% Pervious Area
0.750		18.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
4.7	77	0.0120	0.27		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
0.1	28	0.0100	7.16	114.62	**Trap/Vee/Rect Channel Flow,** Bot.W=2.00' D=2.00' Z= 3.0 '/' Top.W=14.00' n= 0.022 Earth, clean & straight
57.3	255	Total			

Subcatchment 2:



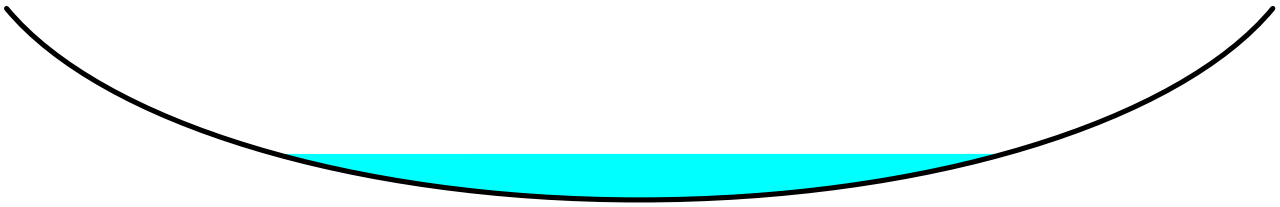
Summary for Reach R1:

Inflow Area = 7.670 ac, 16.43% Impervious, Inflow Depth = 3.41" for 25-YR event
Inflow = 11.79 cfs @ 12.24 hrs, Volume= 2.179 af
Outflow = 11.78 cfs @ 12.24 hrs, Volume= 2.179 af, Atten= 0%, Lag= 0.4 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.75 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 1.56 fps, Avg. Travel Time= 0.5 min

Peak Storage= 157 cf @ 12.24 hrs
Average Depth at Peak Storage= 0.48' , Surface Width= 9.80'
Bank-Full Depth= 2.00' Flow Area= 26.7 sf, Capacity= 255.81 cfs

20.00' x 2.00' deep Parabolic Channel, n= 0.035 Earth, dense weeds
Length= 50.0' Slope= 0.0360 '/'
Inlet Invert= 126.50', Outlet Invert= 124.70'



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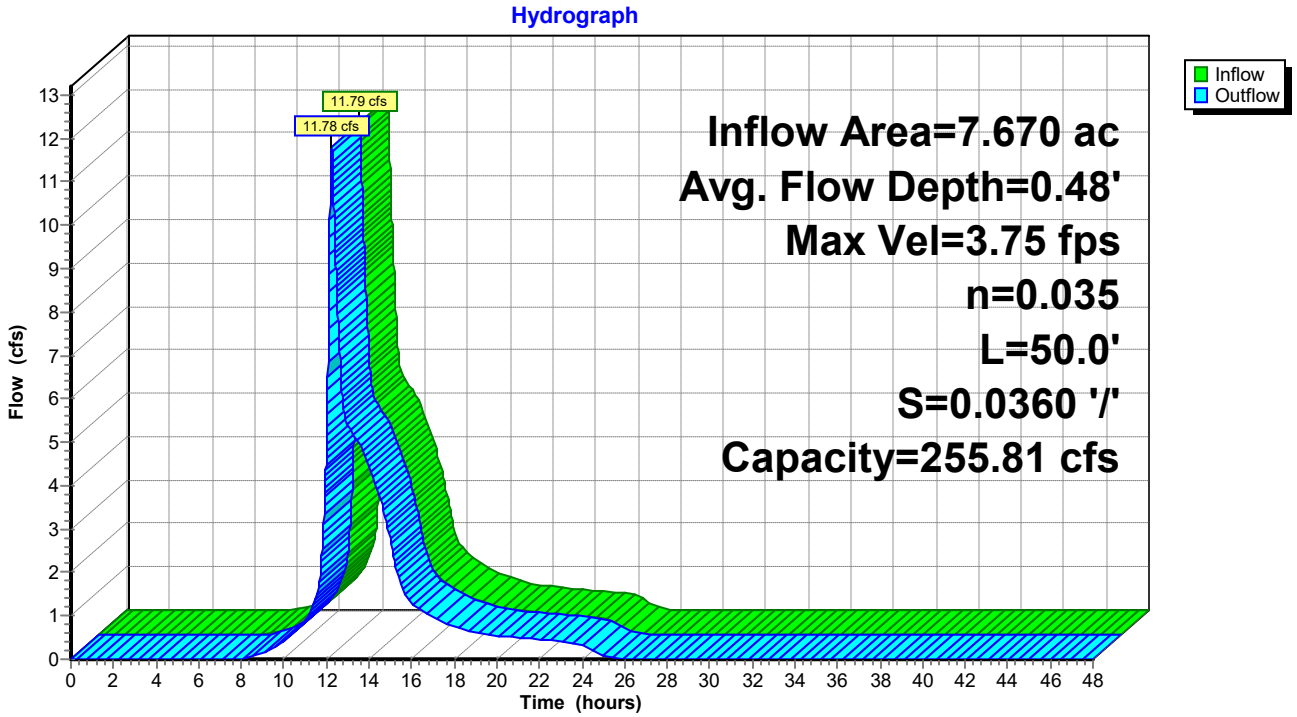
Reach R1:



Summary for Reach R1.1:

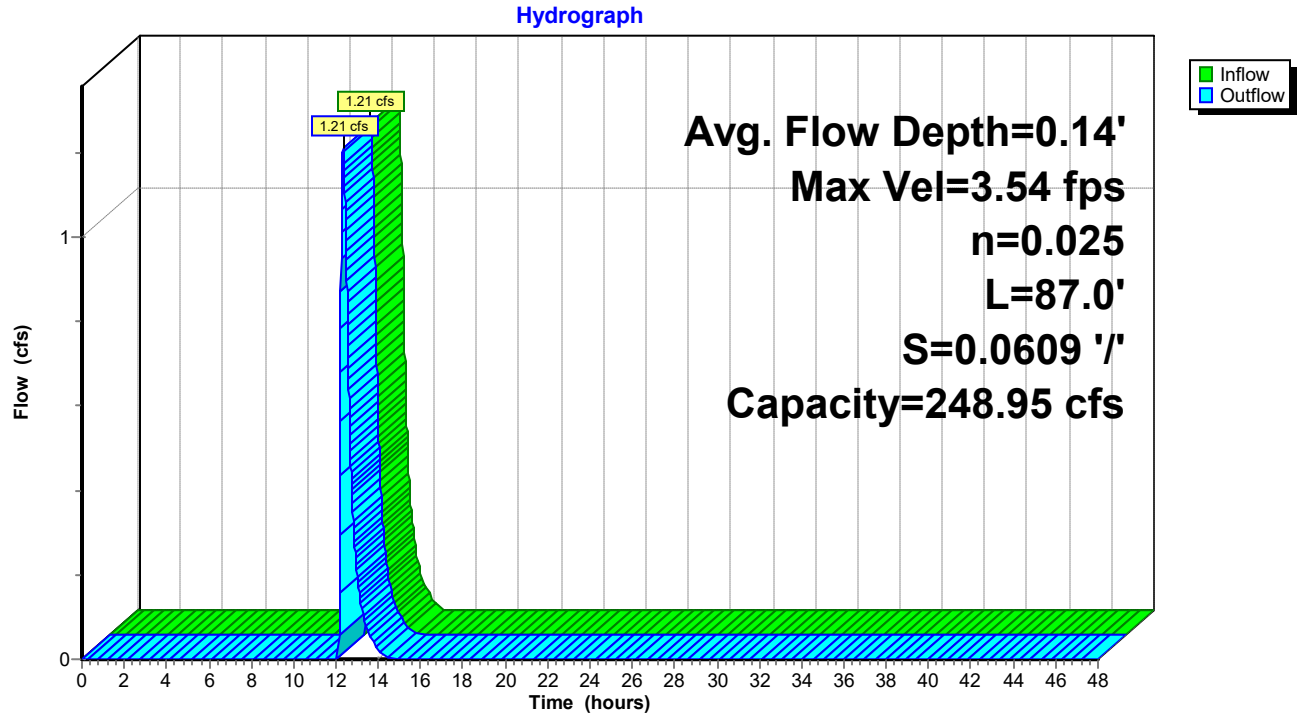
Inflow = 1.21 cfs @ 12.32 hrs, Volume= 0.053 af
Outflow = 1.21 cfs @ 12.33 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.7 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.54 fps, Min. Travel Time= 0.4 min
Avg. Velocity = 1.81 fps, Avg. Travel Time= 0.8 min

Peak Storage= 30 cf @ 12.32 hrs
Average Depth at Peak Storage= 0.14' , Surface Width= 2.85'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 248.95 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 87.0' Slope= 0.0609 '/'
Inlet Invert= 130.00', Outlet Invert= 124.70'

Reach R1.1:



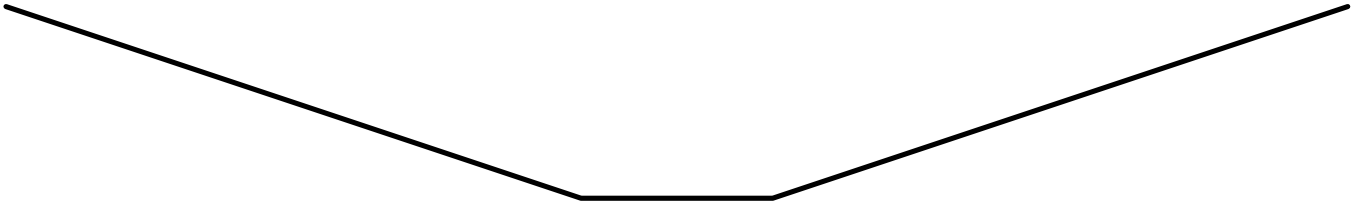
Summary for Reach R1.2:

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
Routed to Pond P4 : Culvert

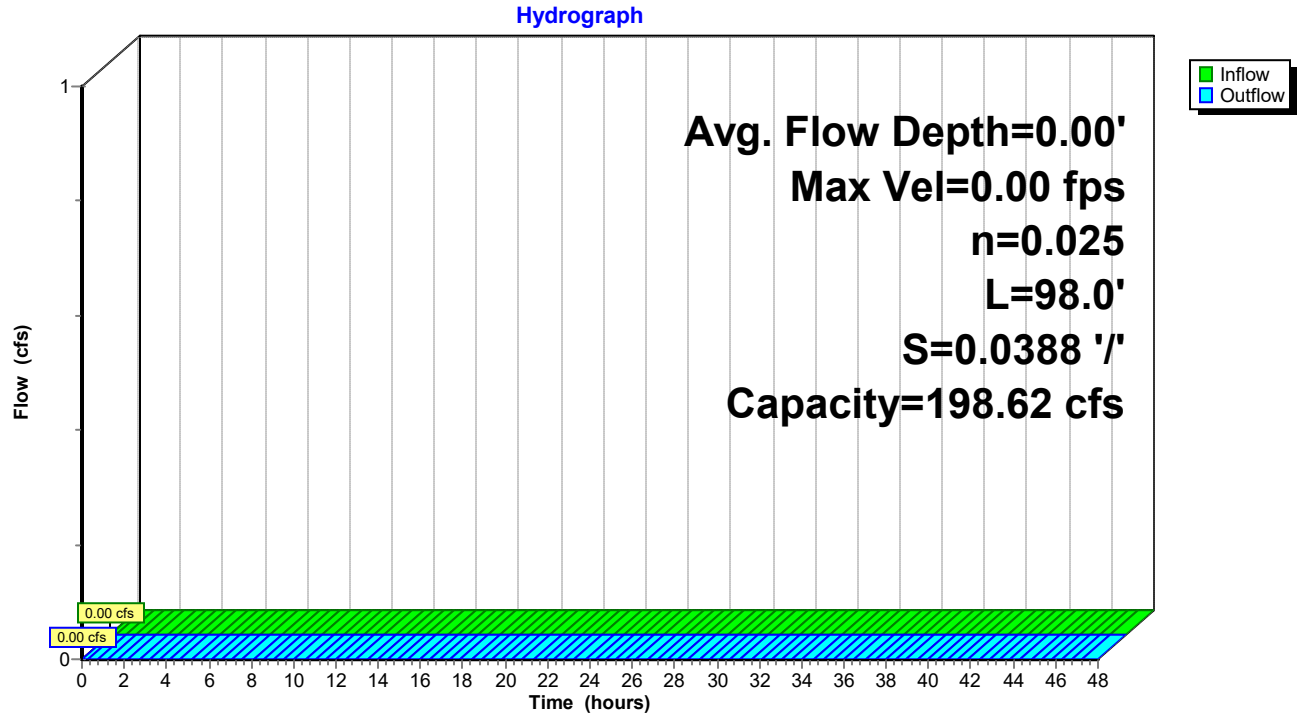
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 198.62 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 98.0' Slope= 0.0388 '/'
Inlet Invert= 128.50', Outlet Invert= 124.70'



Reach R1.2:



Summary for Reach R1.5:

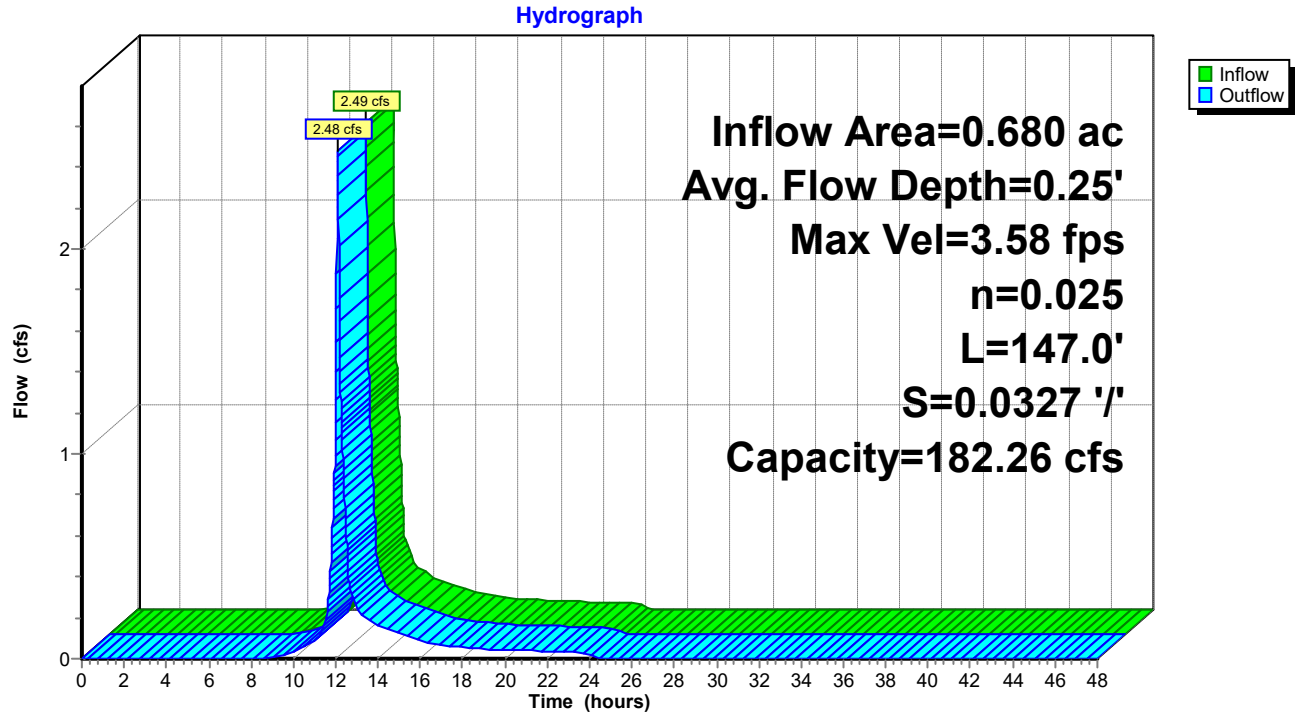
Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 3.02" for 25-YR event
Inflow = 2.49 cfs @ 12.08 hrs, Volume= 0.171 af
Outflow = 2.48 cfs @ 12.10 hrs, Volume= 0.171 af, Atten= 1%, Lag= 1.2 min
Routed to Pond P4 : Culvert

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 3.58 fps, Min. Travel Time= 0.7 min
Avg. Velocity = 1.13 fps, Avg. Travel Time= 2.2 min

Peak Storage= 102 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.25' , Surface Width= 3.51'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 182.26 cfs

2.00' x 2.00' deep channel, n= 0.025 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 147.0' Slope= 0.0327 '/'
Inlet Invert= 129.50', Outlet Invert= 124.70'

Reach R1.5:



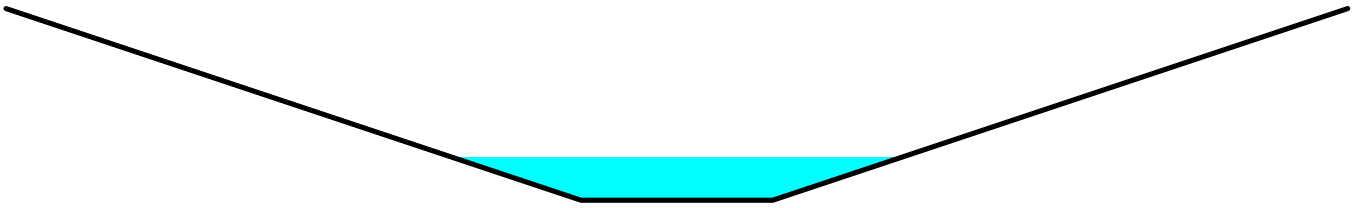
Summary for Reach R1.6:

Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 3.31" for 25-YR event
Inflow = 10.24 cfs @ 12.22 hrs, Volume= 0.986 af
Outflow = 10.21 cfs @ 12.23 hrs, Volume= 0.986 af, Atten= 0%, Lag= 0.6 min
Routed to Reach R1 :

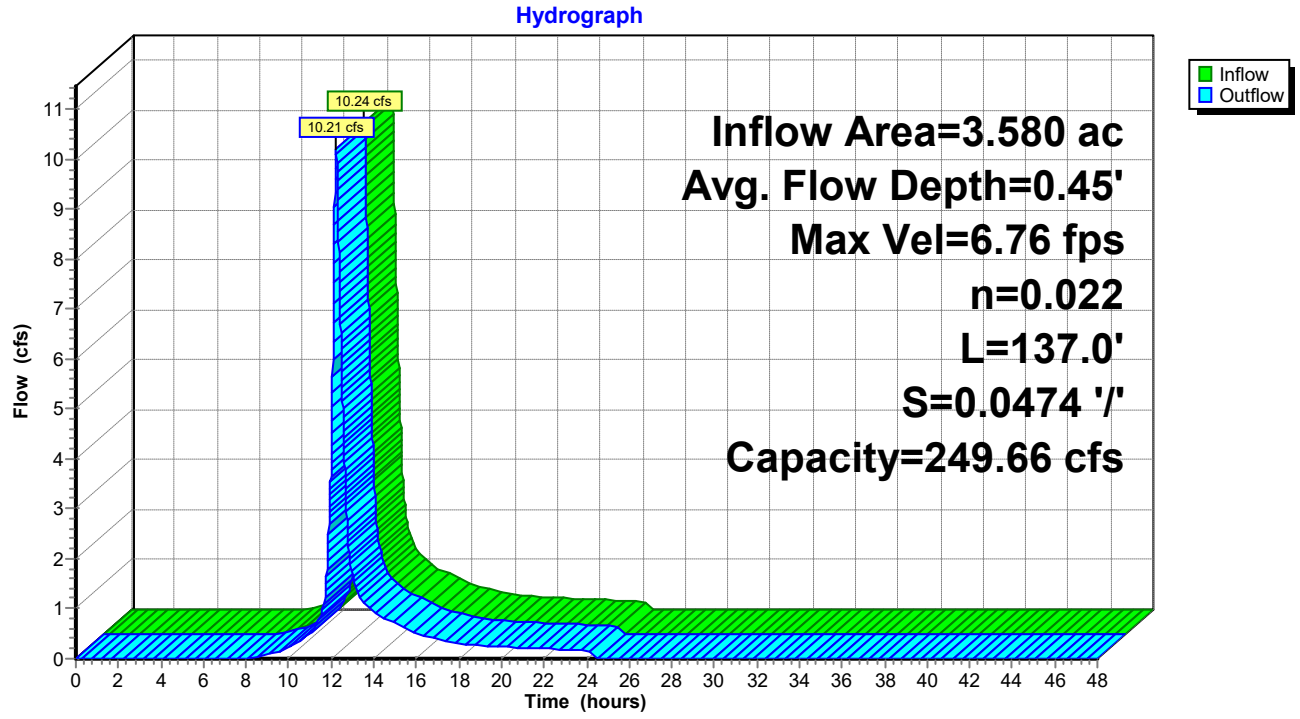
Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Max. Velocity= 6.76 fps, Min. Travel Time= 0.3 min
Avg. Velocity = 2.41 fps, Avg. Travel Time= 0.9 min

Peak Storage= 207 cf @ 12.22 hrs
Average Depth at Peak Storage= 0.45' , Surface Width= 4.70'
Bank-Full Depth= 2.00' Flow Area= 16.0 sf, Capacity= 249.66 cfs

2.00' x 2.00' deep channel, n= 0.022 Earth, clean & straight
Side Slope Z-value= 3.0 '/' Top Width= 14.00'
Length= 137.0' Slope= 0.0474 '/'
Inlet Invert= 133.00', Outlet Invert= 126.50'



Reach R1.6:

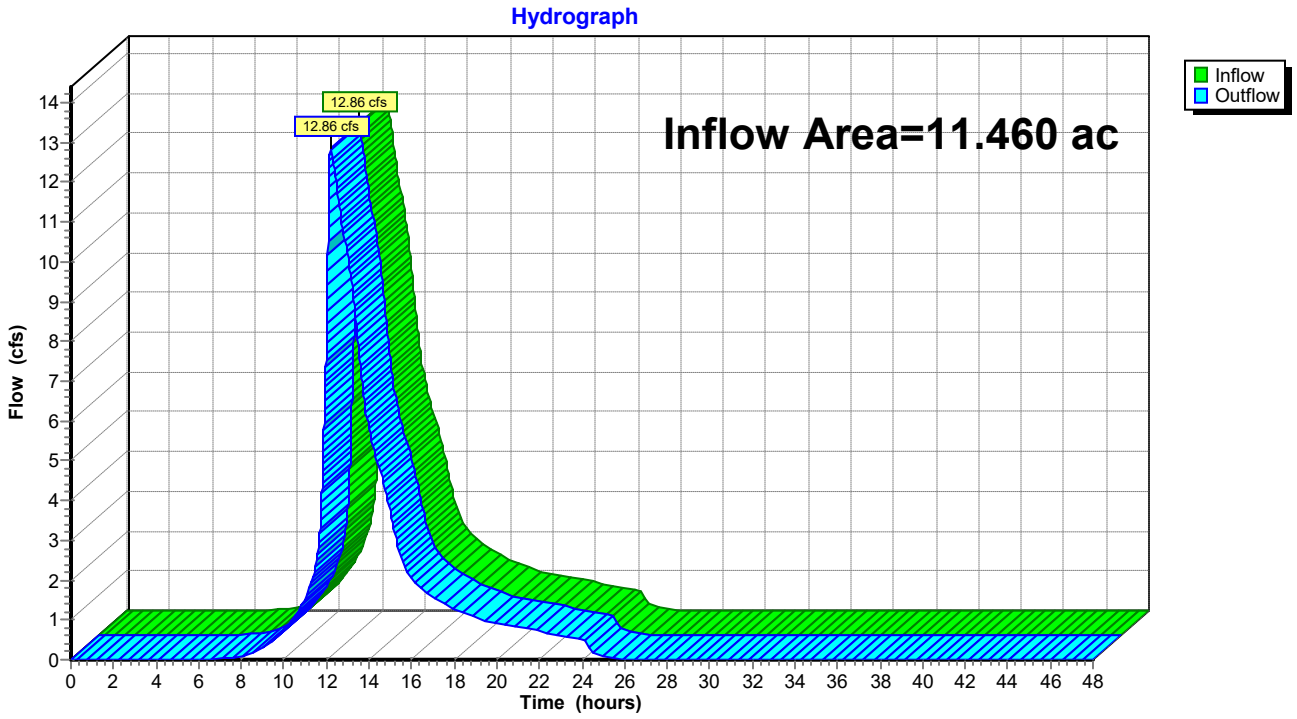


Summary for Reach WAP A:

Inflow Area = 11.460 ac, 14.66% Impervious, Inflow Depth = 3.48" for 25-YR event
Inflow = 12.86 cfs @ 12.20 hrs, Volume= 3.324 af
Outflow = 12.86 cfs @ 12.20 hrs, Volume= 3.324 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Reach WAP A:



Summary for Pond P1: Culvert

Inflow Area = 4.090 ac, 18.34% Impervious, Inflow Depth = 3.50" for 25-YR event
Inflow = 6.80 cfs @ 12.79 hrs, Volume= 1.193 af
Outflow = 3.88 cfs @ 13.33 hrs, Volume= 1.193 af, Atten= 43%, Lag= 32.5 min
Primary = 3.88 cfs @ 13.33 hrs, Volume= 1.193 af
Routed to Reach R1 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 131.99' @ 13.33 hrs Surf.Area= 9,562 sf Storage= 9,692 cf

Plug-Flow detention time= 20.9 min calculated for 1.193 af (100% of inflow)
Center-of-Mass det. time= 20.8 min (886.5 - 865.7)

Volume	Invert	Avail.Storage	Storage Description
#1	129.60'	19,568 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

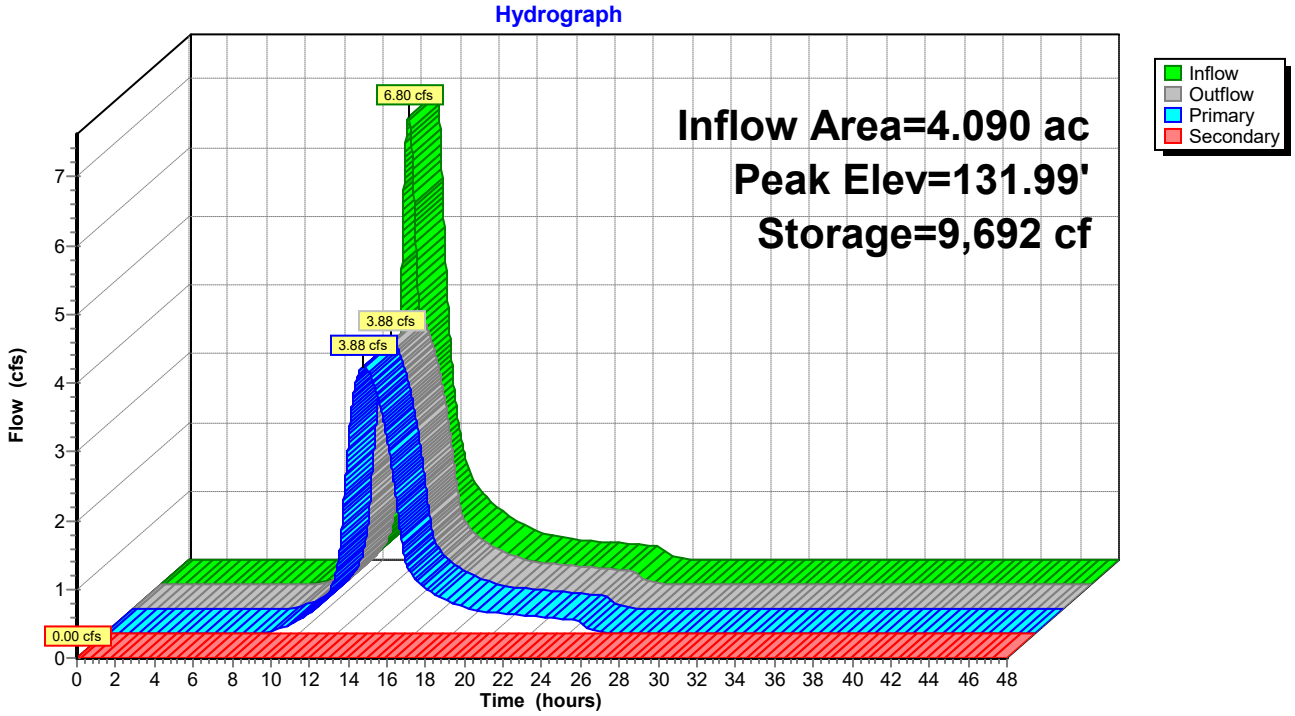
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.60	1	0	0
130.00	140	28	28
132.00	9,600	9,740	9,768
133.00	10,000	9,800	19,568

Device	Routing	Invert	Outlet Devices
#1	Primary	129.80'	**12.0" Round Culvert** L= 54.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 129.80' / 126.50' S= 0.0611 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#2	Secondary	132.00'	**143.0 deg x 40.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=3.88 cfs @ 13.33 hrs HW=131.99' (Free Discharge)
1=Culvert (Inlet Controls 3.88 cfs @ 4.94 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=129.60' (Free Discharge)
2=Sharp-Crested Vee/Trap Weir (Controls 0.00 cfs)

Pond P1: Culvert



Summary for Pond P2: 15" CULVERT

Inflow Area = 3.580 ac, 14.25% Impervious, Inflow Depth = 3.31" for 25-YR event
Inflow = 10.23 cfs @ 12.22 hrs, Volume= 0.986 af
Outflow = 10.24 cfs @ 12.22 hrs, Volume= 0.986 af, Atten= 0%, Lag= 0.0 min
Primary = 10.24 cfs @ 12.22 hrs, Volume= 0.986 af
Routed to Reach R1.6 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 136.94' @ 12.22 hrs Surf.Area= 40 sf Storage= 36 cf

Plug-Flow detention time= 0.1 min calculated for 0.986 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (832.5 - 832.4)

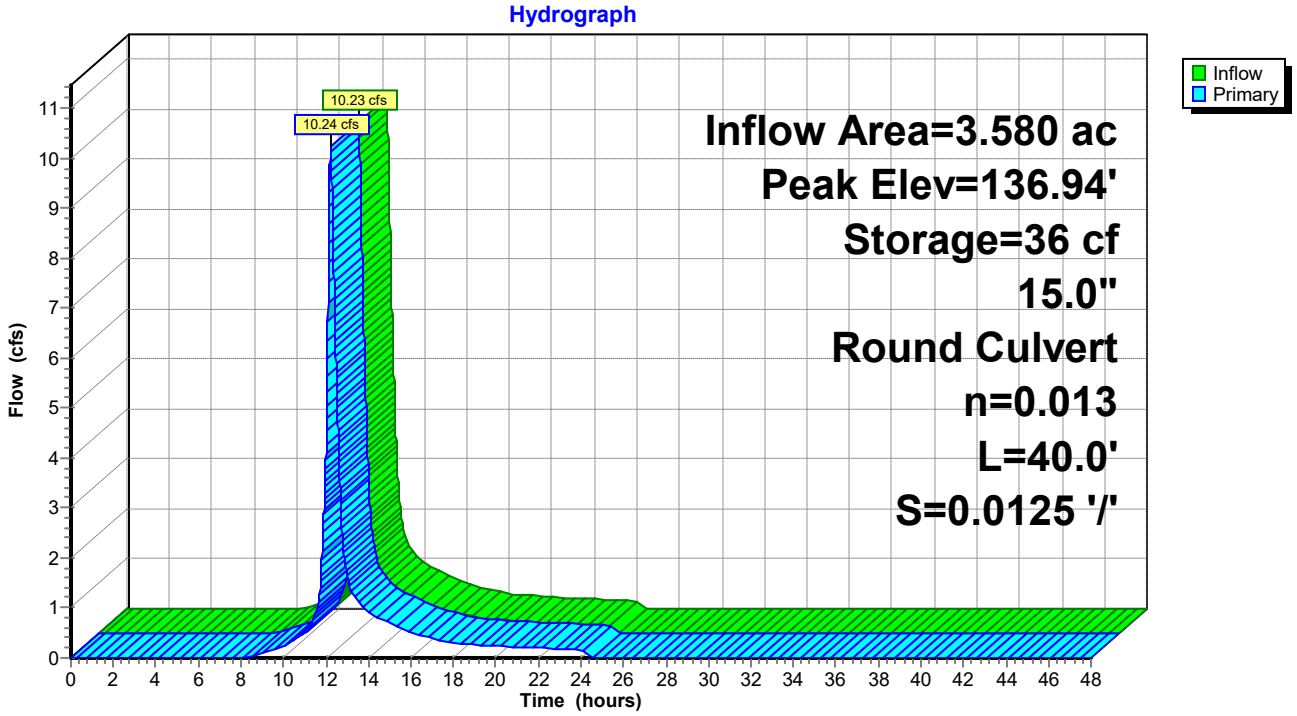
Volume	Invert	Avail.Storage	Storage Description
#1	131.50'	36 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
131.50	2	0	0
132.00	20	6	6
133.00	40	30	36

Device	Routing	Invert	Outlet Devices
#1	Primary	131.50'	**15.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 131.50' / 131.00' S= 0.0125 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=10.24 cfs @ 12.22 hrs HW=136.94' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 10.24 cfs @ 8.34 fps)

Pond P2: 15" CULVERT



Summary for Pond P4: Culvert

Inflow Area = 10.340 ac, 14.60% Impervious, Inflow Depth = 3.46" for 25-YR event
Inflow = 17.29 cfs @ 12.24 hrs, Volume= 2.979 af
Outflow = 10.39 cfs @ 12.56 hrs, Volume= 2.979 af, Atten= 40%, Lag= 19.5 min
Primary = 10.39 cfs @ 12.56 hrs, Volume= 2.979 af
Routed to Reach WAP A :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach WAP A :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 127.84' @ 12.56 hrs Surf.Area= 12,751 sf Storage= 10,368 cf

Plug-Flow detention time= 6.5 min calculated for 2.979 af (100% of inflow)
Center-of-Mass det. time= 6.2 min (868.4 - 862.2)

Volume	Invert	Avail.Storage	Storage Description
#1	124.50'	32,296 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

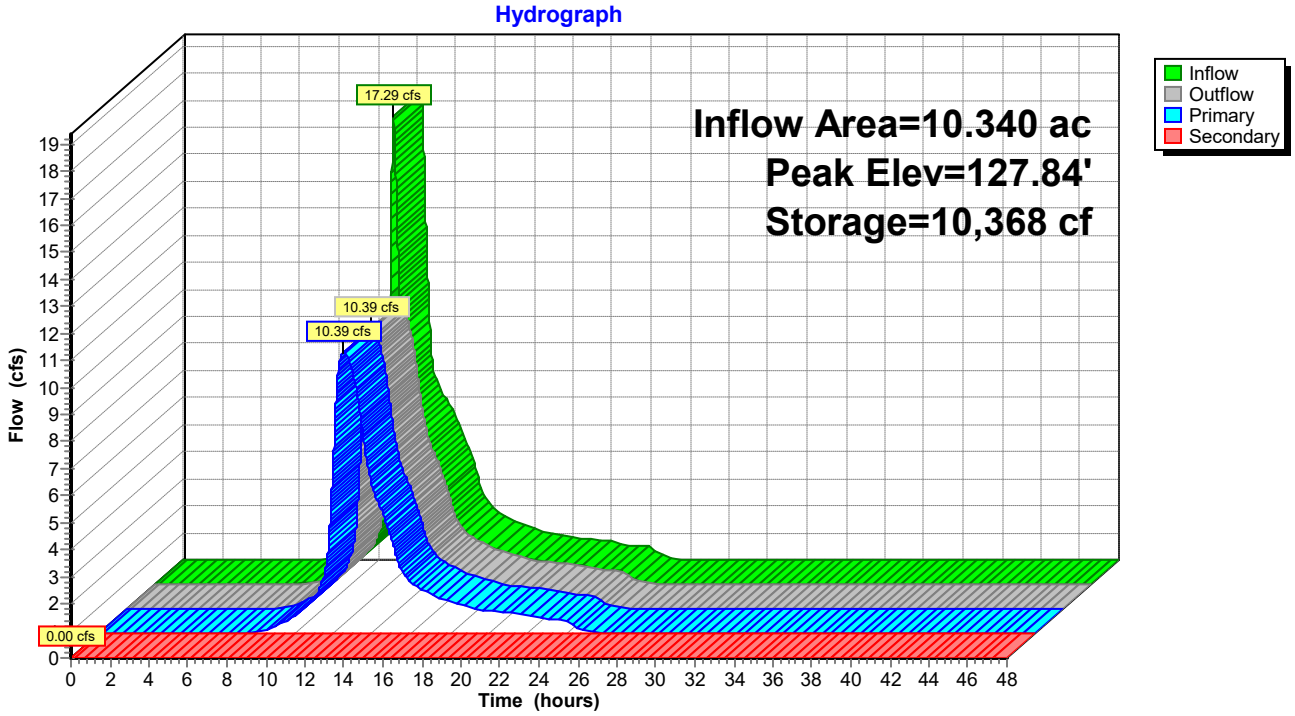
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
124.50	58	0	0
125.00	340	100	100
126.00	1,024	682	782
127.00	4,014	2,519	3,301
128.00	14,376	9,195	12,496
129.00	25,225	19,801	32,296

Device	Routing	Invert	Outlet Devices
#1	Primary	124.70'	**18.0" Round Culvert** L= 355.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 124.70' / 118.40' S= 0.0177 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.77 sf
#2	Secondary	128.00'	**143.0 deg x 15.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=10.39 cfs @ 12.56 hrs HW=127.84' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 10.39 cfs @ 5.88 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=124.50' (Free Discharge)
↑—**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P4: Culvert



Summary for Pond P5: Culvert

Inflow Area = 0.680 ac, 1.47% Impervious, Inflow Depth = 3.02" for 25-YR event
Inflow = 2.49 cfs @ 12.08 hrs, Volume= 0.171 af
Outflow = 2.49 cfs @ 12.08 hrs, Volume= 0.171 af, Atten= 0%, Lag= 0.0 min
Primary = 2.49 cfs @ 12.08 hrs, Volume= 0.171 af
Routed to Reach R1.5 :
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.5 :

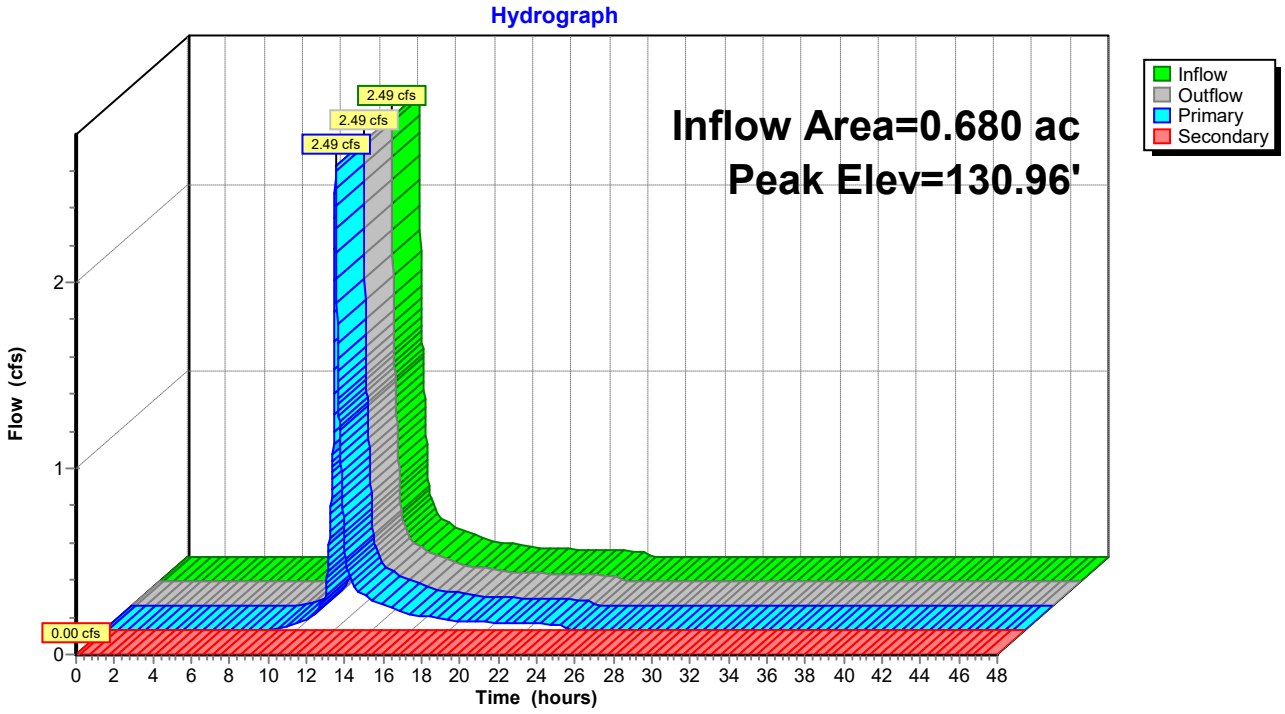
Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.96' @ 12.08 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	130.00'	**15.0" Round Culvert** L= 103.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 130.00' / 129.50' S= 0.0049 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Secondary	132.00'	**143.0 deg x 30.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)

Primary OutFlow Max=2.49 cfs @ 12.08 hrs HW=130.95' (Free Discharge)
└**1=Culvert** (Barrel Controls 2.49 cfs @ 3.42 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=130.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond P5: Culvert



Summary for Pond RG1: Rain Garden 1

Inflow Area = 0.680 ac, 13.24% Impervious, Inflow Depth = 4.33" for 25-YR event
Inflow = 3.16 cfs @ 12.11 hrs, Volume= 0.245 af
Outflow = 1.43 cfs @ 12.32 hrs, Volume= 0.245 af, Atten= 55%, Lag= 12.6 min
Primary = 0.22 cfs @ 12.32 hrs, Volume= 0.192 af
Routed to Pond P4 : Culvert
Secondary = 1.21 cfs @ 12.32 hrs, Volume= 0.053 af
Routed to Reach R1.1 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 130.23' @ 12.32 hrs Surf.Area= 3,169 sf Storage= 3,341 cf

Plug-Flow detention time= 102.6 min calculated for 0.245 af (100% of inflow)
Center-of-Mass det. time= 102.6 min (900.1 - 797.5)

Volume	Invert	Avail.Storage	Storage Description
#1	129.00'	5,985 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

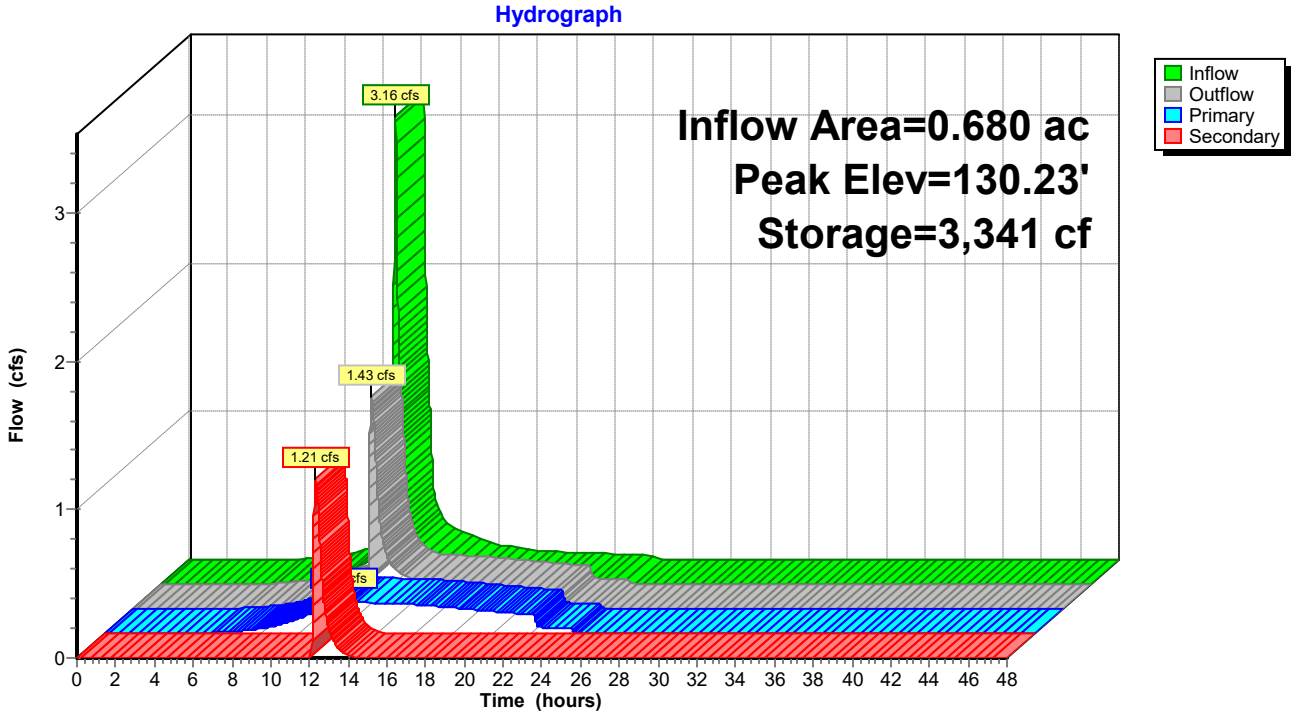
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
129.00	2,250	0	0
130.00	3,010	2,630	2,630
131.00	3,700	3,355	5,985

Device	Routing	Invert	Outlet Devices
#1	Device 3	129.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	130.00'	**143.0 deg x 3.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	126.50'	**4.0" Round Culvert** L= 117.5' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 126.50' / 124.70' S= 0.0153 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.22 cfs @ 12.32 hrs HW=130.23' (Free Discharge)
└**3=Culvert** (Passes 0.22 cfs of 0.25 cfs potential flow)
└**1=Exfiltration** (Controls 0.22 cfs)

Secondary OutFlow Max=1.21 cfs @ 12.32 hrs HW=130.23' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Weir Controls 1.21 cfs @ 1.43 fps)

Pond RG1: Rain Garden 1



Summary for Pond RG2: Rain Garden 2

Inflow Area = 0.290 ac, 6.90% Impervious, Inflow Depth = 3.91" for 25-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 0.094 af
Outflow = 0.14 cfs @ 12.82 hrs, Volume= 0.094 af, Atten= 89%, Lag= 44.8 min
Primary = 0.14 cfs @ 12.82 hrs, Volume= 0.094 af
Routed to Pond P4 : Culvert
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Routed to Reach R1.2 :

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 128.86' @ 12.82 hrs Surf.Area= 2,063 sf Storage= 1,570 cf

Plug-Flow detention time= 98.0 min calculated for 0.094 af (100% of inflow)
Center-of-Mass det. time= 98.0 min (904.7 - 806.6)

Volume	Invert	Avail.Storage	Storage Description
#1	128.00'	4,308 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

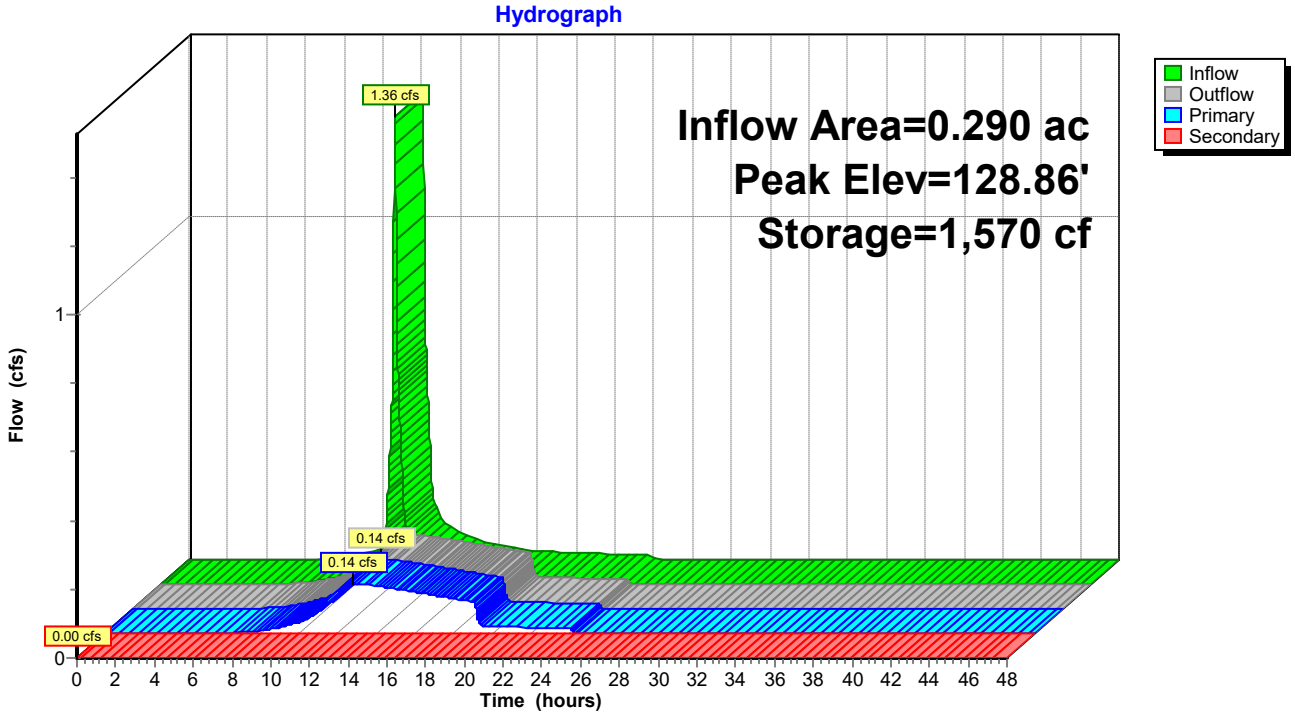
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
128.00	1,602	0	0
129.00	2,140	1,871	1,871
130.00	2,734	2,437	4,308

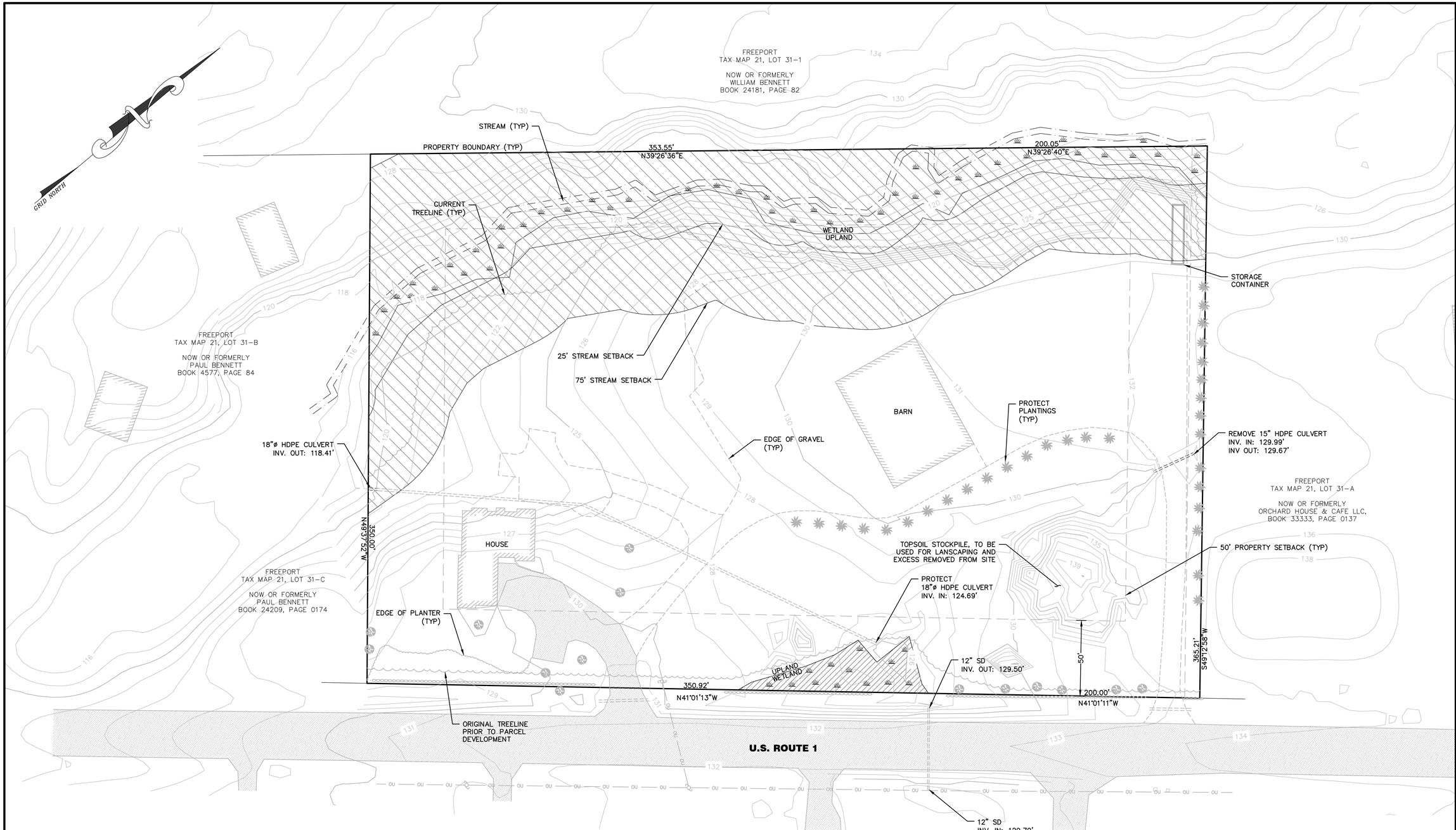
Device	Routing	Invert	Outlet Devices
#1	Device 3	128.00'	**2.410 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 125.00'
#2	Secondary	129.00'	**143.0 deg x 6.0' long Sharp-Crested Vee/Trap Weir** Cv= 2.47 (C= 3.09)
#3	Primary	125.50'	**4.0" Round Culvert** L= 121.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 125.50' / 124.60' S= 0.0074 '/' Cc= 0.900 n= 0.020 Corrugated PE, corrugated interior, Flow Area= 0.09 sf

Primary OutFlow Max=0.14 cfs @ 12.82 hrs HW=128.86' (Free Discharge)
└**3=Culvert** (Passes 0.14 cfs of 0.22 cfs potential flow)
└**1=Exfiltration** (Controls 0.14 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)

Pond RG2: Rain Garden 2





LEGEND

- UTILITY POLE
- TREE
- PAVEMENT
- EDGE OF GRAVEL
- OU — AERIAL ELECTRIC LINE
- 490 — MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- PROPERTY BOUNDARY
- ABUTTER PROPERTY BOUNDARY
- TYPICAL WETLAND BOUNDARY
- STONE WALL

EXISTING CONDITIONS AND DEMOLITION

E1. TOPOGRAPHIC AND BOUNDARY SURVEY INFORMATION SHOWN ON THIS DRAWING IS BASED ON A TOPOGRAPHIC SURVEY PLAN BY ST. CLAIR ASSOCIATES ENTITLED "TOPOGRAPHIC SURVEY OF DAVIS PROPERTY" DATED 03-18-2020..

E2. CONTRACTOR SHALL VERIFY SITE CONDITIONS, INCLUDING TEST PITS FOR LOCATIONS AND INVERTS OF UTILITIES, AND REPORT ANY DISCREPANCIES TO MAIN-LAND PRIOR TO PROCEEDING WITH THAT PORTION OF THE WORK.

NOTES

1. TOWN OF FREEPORT: TAX MAP 21, LOTS 31 & 31-2.
2. PROJECT LOCATED WITHIN THE MEDIUM DENSITY B (MD-B) ZONE.
3. EXISTING CONDITIONS ARE BASED ON THE FOLLOWING SOURCES:
   - BOUNDARY AND TOPOGRAPHIC SURVEY BY ST. CLAIR ASSOCIATES ENTITLED "TOPOGRAPHIC SURVEY OF DAVIS PROPERTY", DATED 2020-02-05.
   - GOOGLE EARTH AERIAL IMAGERY DATED OCTOBER 2021.
   - NATURAL RESOURCE DELINEATION PERFORMED BY MAIN-LAND ON 2022-05-19.
   - FIELD OBSERVATIONS MADE ON 2022-05-06.

MAIN-LAND
DEVELOPMENT
CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

LAND OF TERRY & DAVE DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

OWNER OF RECORD

TERRY & DAVE DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

MADE FOR

DAVIS ERECTOR GROUP, LLC

148 BENJAMIN W PICKETT ST,
SOUTH PORTLAND, ME 04106

DRAWING SCALE:

30 0 15 30

(IN FEET)

1 INCH = 30 FT

SUBMISSION NOTES:

SUBMISSION 1: 2022-11-29 SDH
ISSUED FOR PERMIT REVIEW.

SUBMISSION 2: 2023-03-28 SDH
ISSUED FOR PERMITTING.

SUBMISSION 3: 2023-06-12 SDH
ISSUED FOR PERMITTING.

PROJ. MGR:	EKB
DRAWN BY:	SDH
CHECKED BY:	EKB
SUBMISSION NO.	2
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

EXISTING CONDITIONS

SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED
PROFESSIONAL ENGINEER

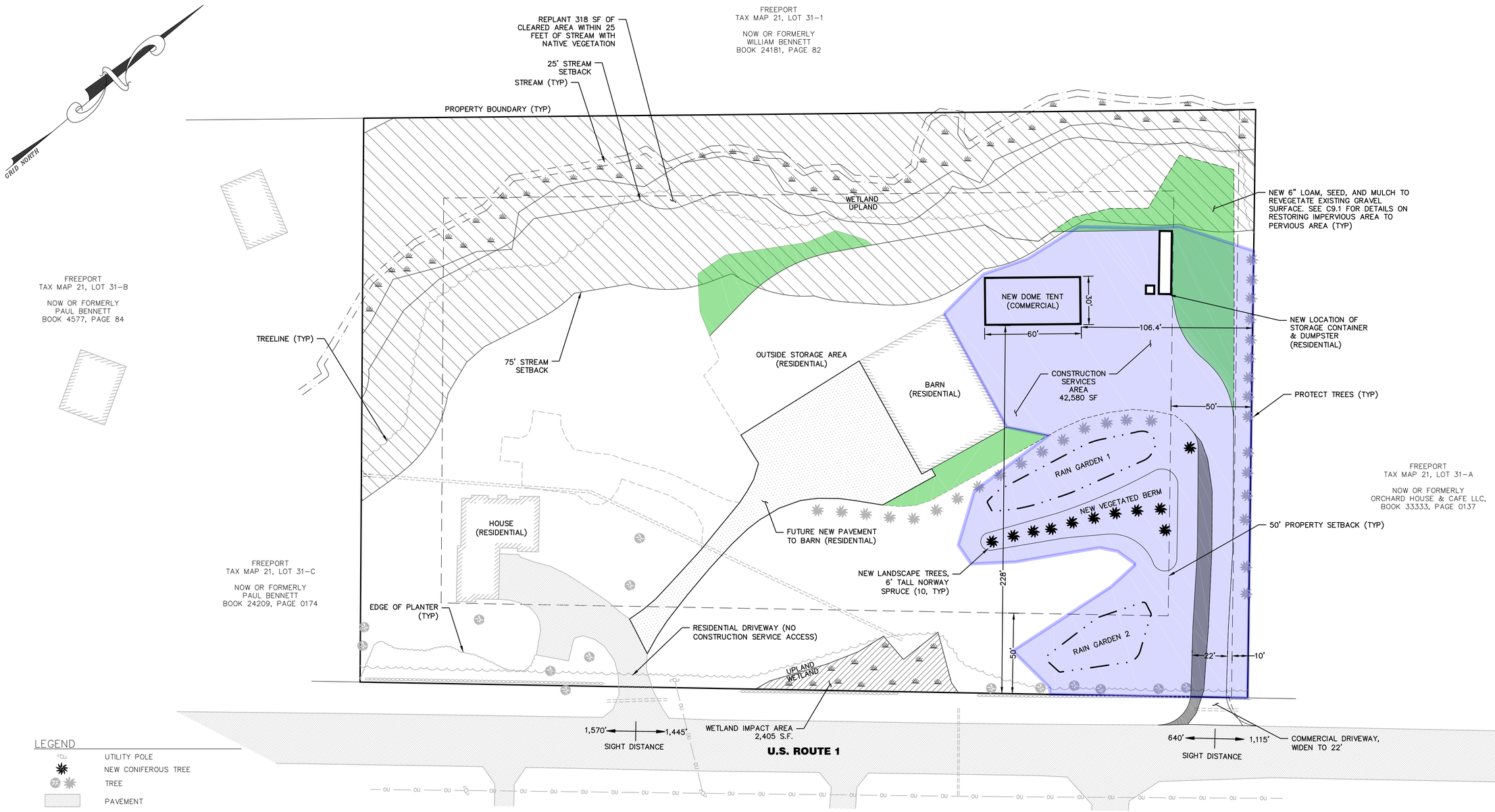
2023-06-12

ESTHER K. BIZIER ME PE#14236

DRAWING NO.

C1.1

MLDC NO. 22-142 1 OF 4



LEGEND

- UTILITY POLE
- NEW CONIFEROUS TREE
- TREE
- PAVEMENT
- RE-VEGETATED GRAVEL AREA
- COMMERCIAL USE AREA (CONSTRUCTION SERVICES)
- NEW GRAVEL AREA
- EDGE OF GRAVEL
- OU — AERIAL ELECTRIC LINE
- 490 — MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- 130 — NEW MAJOR CONTOUR LINE
- NEW MINOR CONTOUR LINE
- PROPERTY BOUNDARY
- ABUTTER PROPERTY BOUNDARY
- TYPICAL WETLAND BOUNDARY
- RIP-RAP
- STONE WALL

LOT STANDARDS

	CODE	PROPOSED
PROPERTY SETBACK (FRONT)	50 FT	228 FT
PROPERTY SETBACK (REAR)	50 FT	102 FT
PROPERTY SETBACK (SIDE)	50 FT	106 FT
ROAD FRONTAGE ON ROUTE 1	200 FT	550.92 FT

AREA SUMMARY

EXISTING RESIDENTIAL IMPERVIOUS	0.67 AC
EXISTING RESIDENTIAL DEVELOPED	2.22 AC
PROPOSED CONSTRUCTION SERVICES IMPERVIOUS	0.48 AC
PROPOSED COMMERCIAL DEVELOPED	0.98 AC
MINIMUM LOT AREA	40,000 S.F.
LOT AREA REQUIRED FOR TWO USES	80,000 S.F.
LOT AREA	197,469 S.F.

NOTES

1. TOWN OF FREEPORT: TAX MAP 21, LOTS 31 & 31-2.
2. ZONING DISTRICT: MEDIUM DENSITY B (MD-B).
3. EXISTING CONDITIONS ARE BASED ON THE FOLLOWING SOURCES:
   - BOUNDARY AND TOPOGRAPHIC SURVEY BY ST. CLAIR ASSOCIATES ENTITLED "TOPOGRAPHIC SURVEY OF DAVIS PROPERTY", DATED 2020-02-05.
   - GOOGLE EARTH AERIAL IMAGERY DATED OCTOBER 2021.
   - NATURAL RESOURCE DELINEATION PERFORMED BY MAIN-LAND ON 2022-05-19.
4. PROPERTY USES:
   - RESIDENTIAL
   - CONSTRUCTION SERVICES
5. LOT AREA: 4.53 ACRES
6. NO LIGHTING IS PROPOSED IN 'CONSTRUCTION SERVICES' AREA.

MAIN-LAND
DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

LAND OF TERRY & DAVE DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

OWNER OF RECORD

TERRY L. & DAVID M. DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

MADE FOR

DAVIS ERECTOR GROUP, LLC

148 BENJAMIN W PICKETT ST,
SOUTH PORTLAND, ME 04106

DRAWING SCALE:

30 0 15 30
(IN FEET)
1 INCH = 30 FT

SUBMISSION NOTES:
SUBMISSION 1: 2023-03-28 SDH ISSUED FOR PERMITTING.

SUBMISSION 2: 2023-05-02 SDH ISSUED FOR PERMITTING.

SUBMISSION 3: 2023-05-15 SDH ISSUED FOR PERMITTING.

PROJ. MGR:	EKB
DRAWN BY:	SDH
CHECKED BY:	EKB
SUBMISSION NO.	3
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

SITE LAYOUT PLAN

SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED
PROFESSIONAL ENGINEER
2023-06-12

ESTHER K. BIZIER ME PE#14236

DRAWING NO.

C2.1

GRID NORTH

FREEPORT
TAX MAP 21, LOT 31-1

NOW OR FORMERLY
WILLIAM BENNETT
BOOK 24181, PAGE 82

FREEPORT
TAX MAP 21, LOT 31-B

NOW OR FORMERLY
PAUL BENNETT
BOOK 4577, PAGE 84

FREEPORT
TAX MAP 21, LOT 31-C

NOW OR FORMERLY
PAUL BENNETT
BOOK 24209, PAGE 0174

FREEPORT
TAX MAP 21, LOT 31-A

NOW OR FORMERLY
ORCHARD HOUSE & CAFE LLC,
BOOK 33333, PAGE 0137

REPLANT 318 SF OF CLEARED AREA WITHIN 25 FEET OF STREAM WITH NATIVE VEGETATION

25' STREAM SETBACK

STREAM (TYP)

PROPERTY BOUNDARY (TYP)

WETLAND
UPLAND

NEW DOME TENT
(COMMERCIAL)

NEW 6" LOAM, SEED, AND MULCH TO REVEGETATE EXISTING GRAVEL SURFACE. SEE C9.1 FOR DETAILS ON RESTORING IMPERVIOUS AREA TO PERVIOUS AREA (TYP)

NEW LOCATION OF STORAGE CONTAINER & DUMPSTER (RESIDENTIAL)

TREELINE (TYP)

75' STREAM SETBACK

TEMPORARY SILT FENCE (TYP)

OUTSIDE STORAGE AREA (RESIDENTIAL)

RIP-RAP EMERGENCY SPILLWAY

RAIN GARDEN 1

BARN
(RESIDENTIAL)

18" HDPE
INV. OUT: 118.41'

RIP-RAP
CULVERT INLET
AND OUTLET

FLOW ARROW
(TYP)

NEW 15" SD
INV. IN: 130.00'
INV. OUT: 129.5'

TOPSOIL STOCKPILE TO BE USED FOR PROPOSED BERM AND LANDSCAPING. EXCESS MATERIAL TO BE REMOVED FROM SITE

HOUSE
(RESIDENTIAL)

4"ø HDPE UNDERDRAIN
INV. IN:127.0'
INV. OUT: 124.7'

NEW GRAVEL BERM

50' PROPERTY SETBACK (TYP)

18" HDPE
INV. IN: 124.69'

RIP-RAP
UNDERDRAIN
OUTLET
EL. 124.7'

RAIN GARDEN 2

EDGE OF PLANTER
(TYP)

COMMERCIAL DRIVEWAY

UPLAND
WETLAND

4"ø HDPE UNDERDRAIN
INV. IN:126.0'
INV. OUT: 124.7'

12" HDPE
INV. OUT: 129.50'

RESIDENTIAL DRIVEWAY (NO CONSTRUCTION SERVICE ACCESS)

WETLAND IMPACT AREA
2,405 S.F.

U.S. ROUTE 1

RIP-RAP
EMERGENCY
SPILLWAY

EXTEND OR REPLACE 15"ø
HDPE CULVERT (TYP)

PROTECT MATURE
VEGETATION (TYP)

12" HDPE
INV. IN: 129.79'

LEGEND

- UTILITY POLE
- NEW CONIFEROUS TREE
- TREE
- PAVEMENT
- RE-VEGETATED GRAVEL AREA
- NEW GRAVEL AREA
- EDGE OF GRAVEL
- AERIAL ELECTRIC LINE
- MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- NEW MAJOR CONTOUR LINE
- NEW MINOR CONTOUR LINE
- PROPERTY BOUNDARY
- ABUTTER PROPERTY BOUNDARY
- TEMPORARY SILTFENCE
- TYPICAL WETLAND BOUNDARY
- RIP-RAP
- STONE WALL

GRADING AND EROSION CONTROL

G1. ADD 6" LOAM, SEED AND MULCH TO DISTURBED AREAS UNLESS OTHERWISE NOTED. PROVIDE EROSION CONTROL MESH ON ALL SLOPES 6:1 OR STEEPER, AND ALONG DITCH CHANNELS.

G2. GRADE SURFACES TO DRAIN AWAY FROM BUILDING. PUDDLING OF WATER IN PAVED OR UNPAVED AREAS WILL NOT BE ACCEPTABLE EXCEPT FOR AREAS DESIGNATED AS PONDS.

G3. MAINTAIN TEMPORARY EROSION CONTROL MEASURES FOR THE FULL DURATION OF CONSTRUCTION. INSPECT WEEKLY AND AFTER EACH STORM AND REPAIR AS NEEDED. REMOVE SEDIMENTS FROM THE SITE, PLACE IN AREA OF LOW EROSION POTENTIAL, AND STABILIZE WITH SEED AND MULCH.

G4. PLACE TEMPORARY SOIL STABILIZATION WITHIN 7 DAYS OF INITIAL DISTURBANCE. PLACE PERMANENT SOIL STABILIZATION WITHIN 7 DAYS OF FINAL GRADING.

G5. CLEAN SEDIMENTS FROM NEW AND EXISTING STORM DRAIN PIPES.

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ISSUED FOR CLIENT REVIEW.

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ISSUED FOR REVIEW.

SUBMISSION 3: 2023-05-02 SDH
ISSUED FOR REVIEW.

SUBMISSION 4: 2023-06-12 SDH
ISSUED FOR REVIEW.

PROJ. MGR:	EKB
DRAWN BY:	SDH
CHECKED BY:	EKB
SUBMISSION NO.	4
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

GRADING & UTILITIES PLAN

SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED
PROFESSIONAL ENGINEER

2023-06-12
ESTHER K. BIZIER ME PE#14236

DRAWING NO.

C3.1

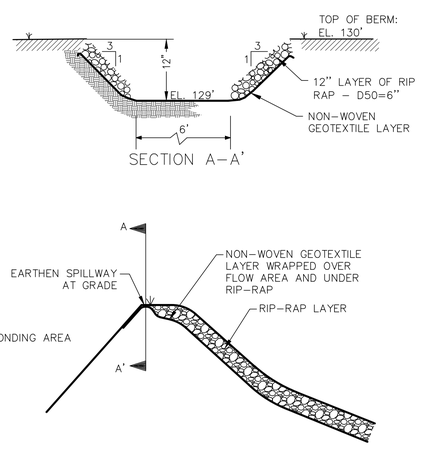
MLDC NO. 22-142 3 OF 4

REMOVAL OF IMPERVIOUS SURFACES

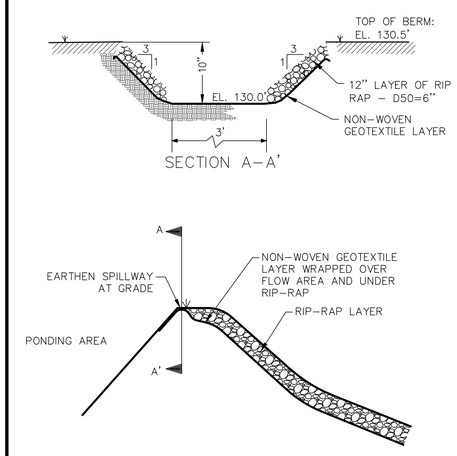
1. INSTALL PROPERTY EROSION AND SEDIMENTATION CONTROL MEASURES PRIOR TO START OF WORK AND MAINTAIN FOR THE DURATION OF CONSTRUCTION AND UNTIL SITE IS STABILIZED.
2. IMPERVIOUS MATERIAL SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH APPROVED WASTE HANDLING METHODS. REMOVE A MINIMUM 3" OF BASE MATERIAL.
3. REMAINING AGGREGATE BASE AND/OR SUBBASE SHALL THEN BE WORKED TO A DEPTH OF 9 INCHES TO BREAK UP ITS FORM, REDUCE LEVEL OF COMPACTION AND INCREASE STORAGE AND PERMEABILITY BY:
   - 3.1. SCARIFYING THE MATERIAL USING A RIPPER
   - 3.2. EXCAVATION AND REPLACEMENT OF MATERIAL IN-KIND, USING MINIMAL COMPACTION EFFORTS
   - 3.3. EXCAVATION AND REPLACEMENT OF MATERIAL WITH GRANULAR BORROW USING MINIMAL COMPACTION EFFORTS
4. AT A MINIMUM, ALL DISTURBED AREAS SHALL BE STABILIZED WITH 6-INCHES OF LOAM, SEEDED AND MULCHED (OR LANDSCAPED ACCORDING TO LANDSCAPE PLAN). CONTRACTOR MUST USE PROPER EQUIPMENT AND CONSTRUCTION TECHNIQUE TO MITIGATE THE POTENTIAL TO RECOMPACT THE AGGREGATE MATERIAL. PROVIDE ROUTINE WATERING UNTIL ADEQUATE CATCH (MINIMUM 80%). REMOVE EROSION AND SEDIMENTATION CONTROL MEASURES ONLY AFTER STABILIZATION OF RE-VEGETATED AREA.

METHODOLOGY FROM CUMBERLAND COUNTY SOIL & WATER CONSERVATION DISTRICT GUIDELINES

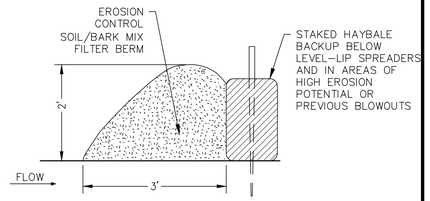
REMOVAL OF IMPERVIOUS SURFACE — NOT TO SCALE — B5

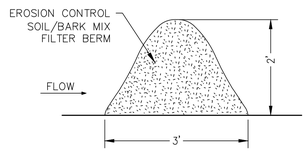


RAIN GARDEN 2 EMERGENCY SPILLWAY — NOT TO SCALE — B4

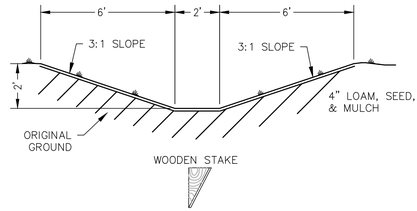


RAIN GARDEN 1 EMERGENCY SPILLWAY — NOT TO SCALE — B3





SEDIMENT FILTER BERM — NOT TO SCALE — C2

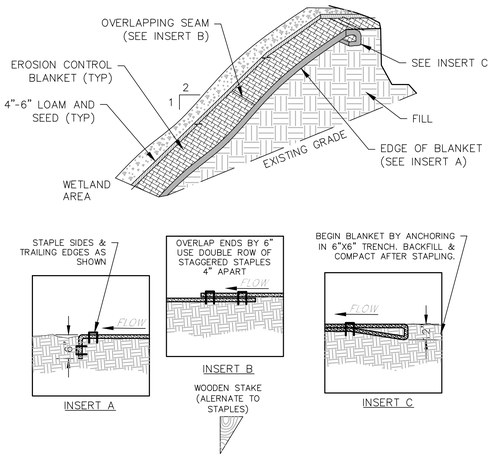


OPTION TO STAPLES

NOTES:
1. FLOW AREA OF GRASS DITCH TO BE LINED WITH AMERICAN EXCELSIOR CURLEX BANKMENT OR EQUAL, INSTALLED PER MANUFACTURER'S RECOMMENDATION WITHIN 48 HOURS OF FINAL DITCH GRADING.
2. BURY THE TOP OF THE NETTING IN A TRENCH 6" OR MORE DEEP.
3. TAM TRENCH FULL OF SOIL, SECURE WITH ROW OF STAPLES (OR WOOD STAKES), 12" SPACING, 4" DOWN FROM THE TRENCH.
4. OVERLAP-BURY UPPER END OF LOWER STRIP AS IN "A" & "B" OVERLAP END OF TOP STRIP 4" AND STAPLE OR WOOD STAKE.
5. CHECK SLOT-FOLD OF NETTING BURIED IN SLIT TRENCH TAMPED; DOUBLE ROW OF STAPLES (OR WOOD STAKES) AT 12" SPACING, USE CHECK SLOTS AT 15" SPACING IN DITCHES OR STEEP SLOPES.

TYPICAL GRASS DITCH — NOT TO SCALE — C1

NOTES:
1. FILL SHALL BE COMPACTED IN 6" TO 12" LAYERS TO AVOID SETTLEMENT. COMPACT FILL UNDER PAVEMENTS AND GRAVEL AREAS TO 95% OF MAXIMUM DRY DENSITY; AND UNDER GRASS OR MULCH AREAS TO 90% OF MAXIMUM DRY DENSITY.
2. SOILS SHALL NOT CONTAIN COBBLES LARGER THAN 8" IN THE GREATEST DIMENSION, ICE, FROZEN SOIL, OR ROOTS/STUMPAGE.
3. DO NO WORK ON FROZEN OR MUDDY GROUND.
4. UNROLL MAT ONTO GROUND IN DIRECTION OF WATER FLOW.
5. MAT SHOULD LIE FLAT. DO NOT STRETCH MAT OVER GROUND. STRETCHING MAY CAUSE MAT TO BRIDGE DEPRESSIONS IN THE SURFACE AND ALLOW EROSION UNDERNEATH.
6. BURY TRANSVERSE TERMINAL ENDS OF MAT TO SECURE AND PREVENT EROSIVE FLOW UNDERNEATH.
7. SECURE MAT SNUGLY INTO ALL TRANSVERSE CHECK SLOTS.
8. BACKFILL AND COMPACT TRENCHES AND CHECK SLOTS AFTER STAKING THE MAT IN BOTTOM OF TRENCH.
9. OVERLAP ROLL ENDS BY THREE (3) FEET (MIN.) WITH UPSLOPE MAT ON TOP TO PREVENT UPLIFT OF MAT END BY WATER FLOW. IF INSTALLING IN THE DIRECTION OF A CONCENTRATED WATERFLOW, START NEW ROLLS IN A TRANSVERSE DITCH.
10. OVERLAP ADJACENT EDGES OF MAT BT THREE (3) INCHES (MIN.) AND STAKE.
11. WOOD STAKES ARE RECOMMENDED FOR PINNING MAT TO THE GROUND SURFACE. STAKES SHOULD BE 1" X 3" NOMINAL STOCK CUT IN A TRINGULAR SHAPE. STAKES SHOULD BE 12" TO 18" LONG, DEPENDING ON SOIL DENSITY.
12. DRIVE WOODEN STAKES TO WITHIN THREE (3) INCHES OF GROUND SURFACE. DO NOT DRIVE FLUSH TO SURFACE.
13. IN ALL TRANSVERSE TERMINAL TRENCHES AND CHECK SLOTS, STAKE EACH MAT AT ITS CENTER AND OVERLAP EDGES BEFORE BACKFILLING AND COMPACTING.
14. STAKE OVERLAPS LONGITUDINALLY AT THREE (3) TO FIVE (5) FOOT INTERVALS.
15. FOLLOW COLORED DOT PATTERNS BY MANUFACTURER.



EMBANKMENT W/EROSION CONTROL BLANKET — NOT TO SCALE — B1

UTILITY LOCATION REQUIREMENTS

PRIOR TO EXCAVATION, VERIFY THE UNDERGROUND UTILITIES, PIPES, STRUCTURES, AND FACILITIES. PROVIDE THE FOLLOWING MINIMUM MEASURES.

A. PRE-MARK THE BOUNDARIES OF YOUR PLANNED EXCAVATION WITH WHITE PAINT, FLAGS, OR STAKES SO UTILITY CREWS KNOW WHERE TO MARK THEIR LINES.

B. CALL DIG SAFE, AT 1-888-DIGSAFE, AT LEAST THREE BUSINESS DAYS – BUT NO MORE THAN 30 CALENDAR DAYS – BEFORE STARTING WORK. DON'T ASSUME SOMEONE ELSE WILL MAKE THE CALL.

C. WAIT THREE BUSINESS DAYS FOR LINES TO BE LOCATED AND MARKED WITH COLOR-CODED PAINT, FLAGS, OR STAKES. NOTE THE COLOR OF THE MARKS AND THE TYPE OF UTILITIES THEY INDICATE. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

D. CONTACT THE LANDOWNER AND OTHER 'NON-MEMBER' UTILITIES (WATER, SEWER, GAS, ETC) FOR THEM TO MARK THE LOCATIONS OF THEIR UNDERGROUND FACILITIES. TRANSFER THESE MARKS TO THE AS-BUILT DRAWINGS.

E. RE-NOTIFY DIG SAFE AND THE NON-MEMBER UTILITIES IF THE DIGGING, DRILLING, OR BLASTING DOES NOT OCCUR WITHIN 30 CALENDAR DAYS, OR IF THE MARKS ARE LOST DUE TO WEATHER CONDITIONS, SITE WORK ACTIVITY, OR ANY OTHER REASON.

F. HAND DIG WITHIN 18 INCHES IN ANY DIRECTION OF ANY UNDERGROUND LINE UNTIL THE LINE IS EXPOSED. MECHANICAL METHODS MAY BE USED FOR INITIAL SITE PENETRATION, SUCH AS REMOVAL OF PAVEMENT OR ROCK.

G. DIG SAFE REQUIREMENTS ARE IN ADDITION TO TOWN, CITY, AND/OR STATE D.O.T. STREET OPENING PERMIT REQUIREMENTS.

H. FOR COMPLETE DIG SAFE REQUIREMENTS, CALL THE P.U.C. OR VISIT THEIR WEBSITE.

I. IF YOU DAMAGE, DISLOCATE, OR DISTURB ANY UNDERGROUND UTILITY LINE, IMMEDIATELY NOTIFY THE AFFECTED UTILITY. IF DAMAGE CREATES SAFETY CONCERNS, CALL THE FIRE DEPARTMENT AND TAKE IMMEDIATE STEPS TO SAFEGUARD HEALTH AND PROPERTY.

J. ANY TIME AN UNDERGROUND LINE IS DAMAGED OR DISTURBED, OR IF LINES ARE IMPROPERLY MARKED, YOU MUST FILE AND INCIDENT REPORT WITH THE P.U.C.. FOR AN INCIDENT REPORT FORM VISIT WWW.STATE.ME.US/MPUC OR CALL THE P.U.C. AT 1-800-452-4699.

UTILITY LOCATION REQUIREMENTS — NOT TO SCALE — A5

GENERAL NOTES

1. AVOID COMPACTING UNDERDRAIN BEDDING AND SOIL FILTER MEDIA DURING CONSTRUCTION. OVER-COMPACTED SOILS WILL NOT ALLOW PROPER WATER MIGRATION THROUGH THE SOIL SECTION; FILTER BEDS ARE INTENDED TO DRAIN DRY WITHIN 24 HOURS.
2. ALL DEVELOPED AREA ON THE LOT MUST DRAIN TO A RAIN GARDEN. PROVIDE ONE FILTER FOR THE LOT WITH THE TOTAL AREA NOTED, OR SPLIT THE AREA INTO MULTIPLE SMALLER GARDENS. SHAPES CAN VARY TO ACCOMODATE NATIVE TERRAIN AND/OR LANDSCAPING.
3. EACH HOMEOWNER OF A LOT THAT REQUIRES A RAIN GARDEN MUST CHOOSE BETWEEN A GRASSED GARDEN OR A PLANTED GARDEN. SEE NOTES TO RIGHT.

PLANTED FILTER

1. CONSTRUCT FILTER SUCH THAT BERM IS NO MORE THAN 6 INCHES ABOVE THE MULCH SURFACE.
2. GRASSED RAIN GARDENS SHALL HAVE A MINIMUM OF 1,602 SQUARE FEET OF AREA TOTAL

UNDERDRAIN BEDDING

1. UNDERDRAIN GRANULAR MATERIAL SHALL BE WELL GRADED, CLEAN, COARSE GRAVEL MEETING THE MEDOT SPECIFICATION 703.22 UNDERDRAIN TYP B FOR UNDERDRAIN BACKFILL (SEE TABLE 3).
2. UNDERDRAINS SHALL MAINTAIN A MINIMUM OF 1% FOR POSITIVE DRAINAGE.

TABLE 3
MEDOT Specifications for UNDERDRAINS

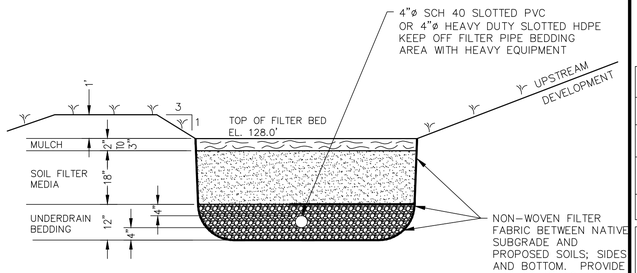
Sieve Size	% by Weight
Underdrain Type B	
1"	90–100
1/2"	75–100
#4	50–100
#20	15–80
#50	0–15
#200	0–5

TABLE 1
SOIL FILTER MEDIA

Filter Media	Mixture by Volume	Specifications
Coarse Loamy Sand	70%–80%	Required to meet the Sieve Analysis specified in Table 2, below.
Mulch	20%–30%	Moderatley fine, shredded bark or wood fiber mulch with less than 5000% passing the #200 sieve
		No more than 10% passing #200 sieve.

TABLE 2
COARSE LOAMY SAND SIEVE ANALYSIS SPEC.

Sieve Size	% by Weight
#10	85–100
#20	70–100
#60	15–40
#200	8–10



RAIN GARDEN 2 — NOT TO SCALE — A2

GENERAL NOTES

1. AVOID COMPACTING UNDERDRAIN BEDDING AND SOIL FILTER MEDIA DURING CONSTRUCTION. OVER-COMPACTED SOILS WILL NOT ALLOW PROPER WATER MIGRATION THROUGH THE SOIL SECTION; FILTER BEDS ARE INTENDED TO DRAIN DRY WITHIN 24 HOURS.
2. ALL DEVELOPED AREA ON THE LOT MUST DRAIN TO A RAIN GARDEN. PROVIDE ONE FILTER FOR THE LOT WITH THE TOTAL AREA NOTED, OR SPLIT THE AREA INTO MULTIPLE SMALLER GARDENS. SHAPES CAN VARY TO ACCOMODATE NATIVE TERRAIN AND/OR LANDSCAPING.
3. EACH HOMEOWNER OF A LOT THAT REQUIRES A RAIN GARDEN MUST CHOOSE BETWEEN A GRASSED GARDEN OR A PLANTED GARDEN. SEE NOTES TO RIGHT.

GRASSED FILTER

1. CONSTRUCT FILTER SUCH THAT BERM IS NO MORE THAN 18 INCHES ABOVE THE MULCH SURFACE.
2. GRASSED RAIN GARDENS SHALL HAVE A MINIMUM OF 2,250 SQUARE FEET OF AREA TOTAL

UNDERDRAIN BEDDING

1. UNDERDRAIN GRANULAR MATERIAL SHALL BE WELL GRADED, CLEAN, COARSE GRAVEL MEETING THE MEDOT SPECIFICATION 703.22 UNDERDRAIN TYP B FOR UNDERDRAIN BACKFILL (SEE TABLE 3).
2. UNDERDRAINS SHALL MAINTAIN A MINIMUM OF 1% FOR POSITIVE DRAINAGE.

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TABLE 2
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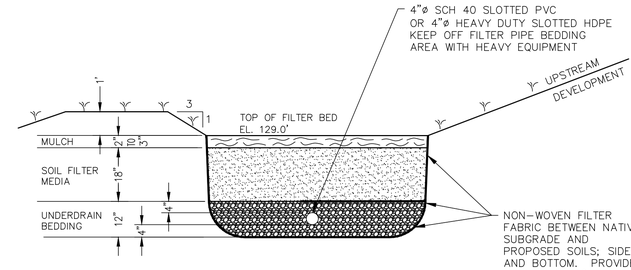

RAIN GARDEN 1 — NOT TO SCALE — A1

MAIN-LAND DEVELOPMENT CONSULTANTS, INC.
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367 US ROUTE 1 FALMOUTH, MAINE
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MADE FOR

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148 BENJAMIN W PICKETT ST, SOUTH PORTLAND, ME 04106

DRAWING SCALE:

NOT TO SCALE

SUBMISSION NOTES:
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SUBMISSION 2: 2022-11-29 SDH ISSUED FOR CLIENT REVIEW.
SUBMISSION 3: 2023-03-28 SDH ISSUED FOR PERMITTING.
SUBMISSION 4: 2023-06-12 SDH ISSUED FOR PERMITTING.

PROJ. MGR:	EKB
DRAWN BY:	SDH
CHECKED BY:	EKB
SUBMISSION NO.	4
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

SITE DETAILS

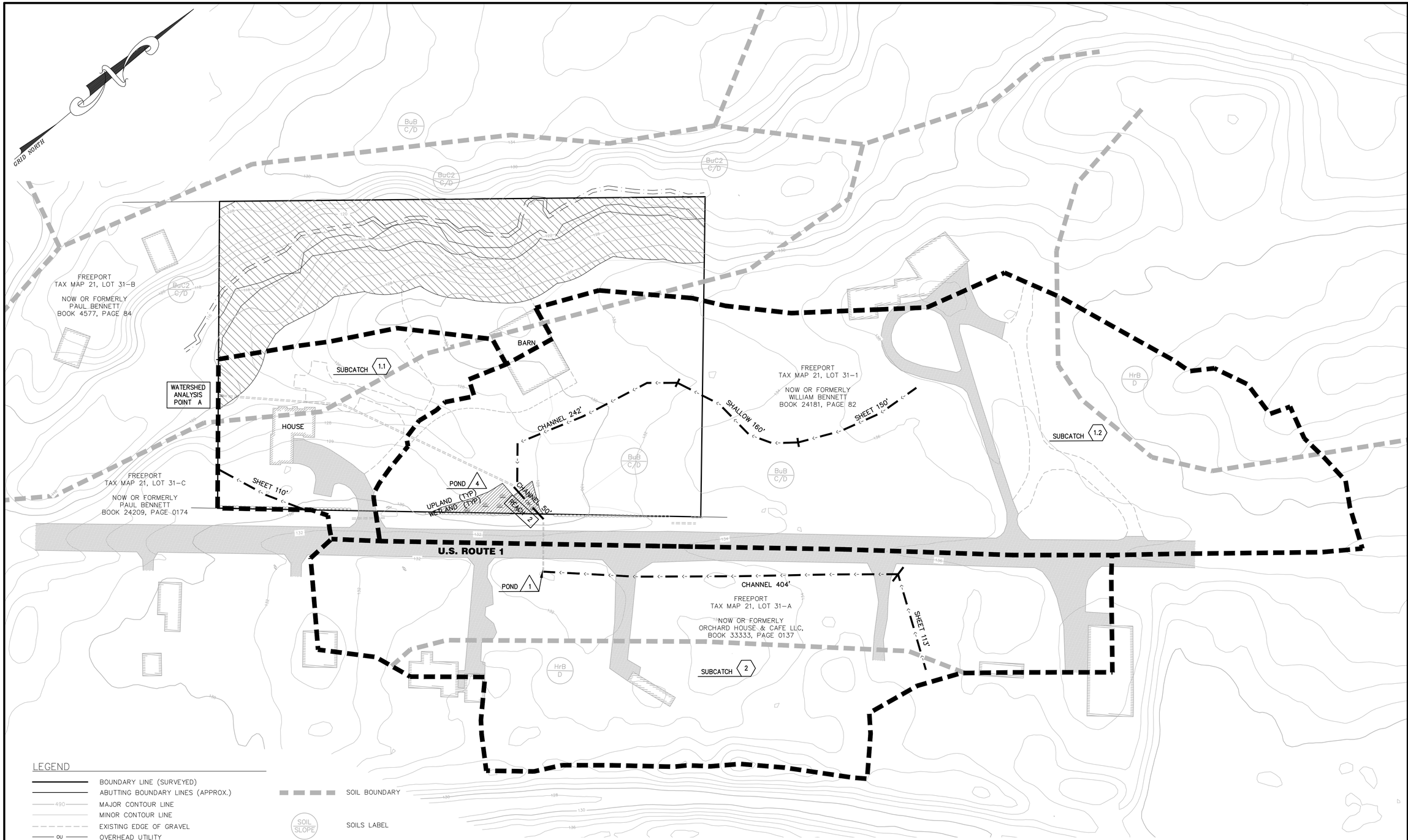
SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED PROFESSIONAL ENGINEER
2023-06-12
ESTHER K. BIZIER ME PE#14236

DRAWING NO.

C9.1

MLDC NO. 22-142 4 OF 4



LEGEND

- BOUNDARY LINE (SURVEYED)
- ABUTTING BOUNDARY LINES (APPROX.)
- 490 MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- EXISTING EDGE OF GRAVEL
- OU OVERHEAD UTILITY
- DRAINAGE CULVERT
- EXISTING PAVED SURFACE
- UTILITY POLE
- DRAINAGE FLOW LINES
- SUBCATCHMENT BOUNDARY
- TYPICAL WETLAND BOUNDARY
- WATERSHED ANALYSIS POINT 1 — WATERSHED ANALYSIS POINT
- SUBCATCH 1 — SUBCATCHMENT LABEL
- STONE WALL
- SOIL BOUNDARY
- SOIL / SLOPE — SOILS LABEL

SOIL	SLOPE
BuB – LAMOINE SILT LOAM	A – 0–3% SLOPE
BuC2 – BUXTON SILT LOAM	B – 3–8% SLOPE
HrB – LYMAN–TUNBRIDGE	C – 8–15% SLOPE
	D – 15–30% SLOPE

NOTES

1. CONTOURS SHOWN ARE BASED ON LIDAR DATA DOWNLOADED FROM NOAA DATA VIEWER WITH A CONTOUR INTERVAL OF 2-FEET. THE VERTICAL DATUM IS NAV88.
2. SOIIL TEST PIT LOCATIONS SHOWN ARE APPROXIMATE AND ARE BASED ON A SOIL EXPLORATION CONDUCTED BY SUMMIT ENGINEERING SERVICES ON 2022-02-18. SEE APPLICATION PACKAGE FOR COPY OF REPORT.
3. HYDROLOGIC SOIL GROUP BASED ON SOILS MAP DOWNLOADED FROM NATURAL RESOURCES CONSERVATION SERVICE AT HTTPS://WWW.NRCS.USDA.GO.
4. THE STORMWATER MANAGEMENT PLAN PACKAGE, INCLUDING CALCULATIONS AND NARRATIVE, ARE AN INTEGRAL PART OF THE STORMWATER DRAINAGE STUDY.

MAIN-LAND
DEVELOPMENT CONSULTANTS, INC.
69 MAIN ST. LIVERMORE FALLS, MAINE
367 US ROUTE 1 FALMOUTH, MAINE
PH: (207) 897-6752 FAX: (207) 897-5404
WWW.MAIN-LANDDCI.COM

PROJECT

LAND OF TERRY & DAVE DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

OWNER OF RECORD

TERRY & DAVID DAVIS

1131 US ROUTE 1,
FREEPORT, ME 04033

MADE FOR

DAVIS ERECTOR GROUP, LLC

148 BENJAMIN W PICKETT ST,
SOUTH PORTLAND, ME 04106

DRAWING SCALE:

50 0 25 50
(IN FEET)
1 INCH = 50 FT

SUBMISSION NOTES:

SUBMISSION 1: 2022-11-29 SDH
ISSUED FOR PERMITTING.

SUBMISSION 2: 2023-03-28 SDH
ISSUED FOR PERMITTING.

SUBMISSION 3: 2023-06-12 SDH
ISSUED FOR PERMITTING.

PROJ. MGR:	EKB
DRAWN BY:	SDH
CHECKED BY:	EKB
SUBMISSION NO.	3
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

PRE-DEVELOPMENT DRAINAGE PLAN

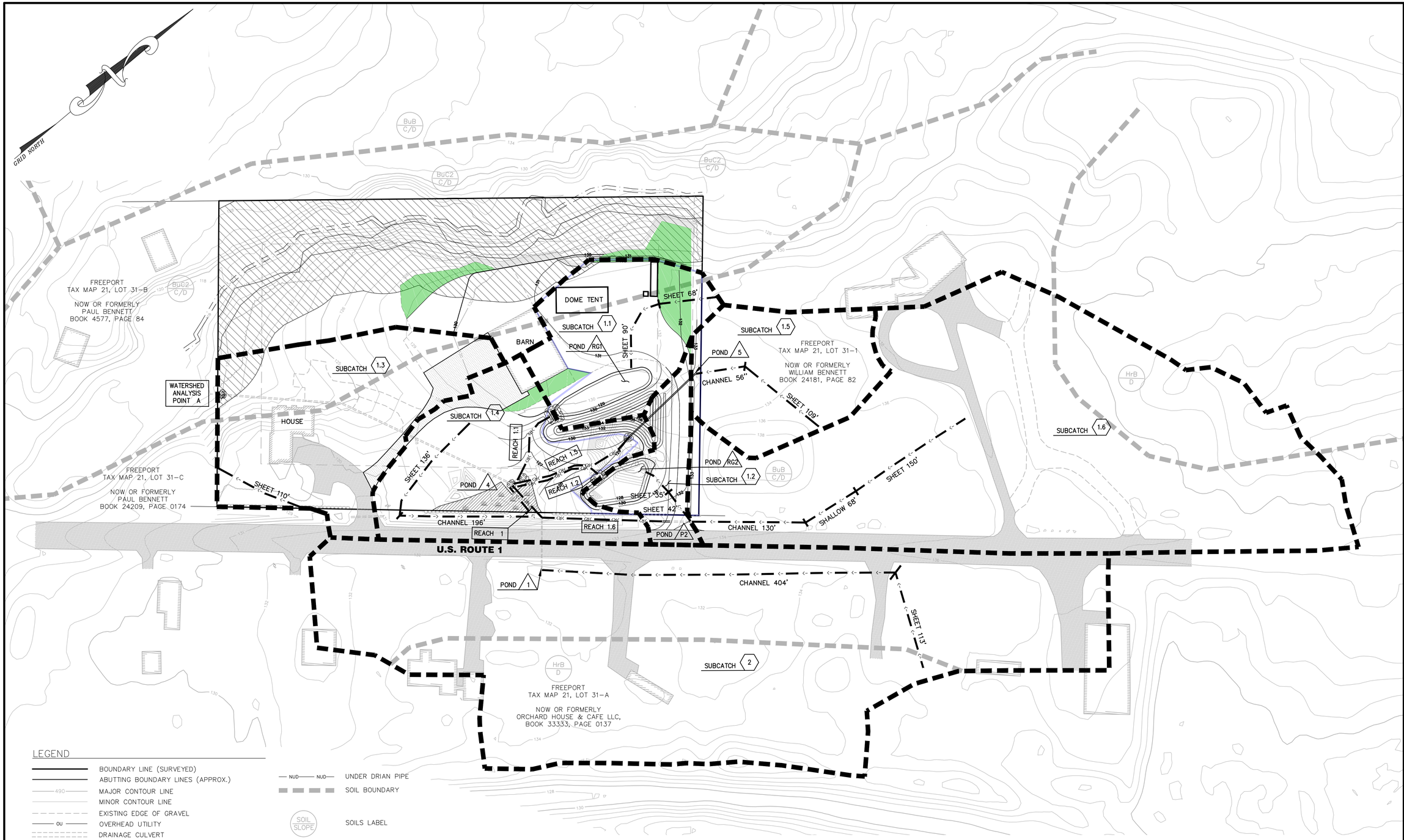
SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED PROFESSIONAL ENGINEER
2023-06-12
ESTHER K. BIZIER ME PE#14236

DRAWING NO.

D1.1

MLDC NO. 22-142 1 OF 2



LEGEND

- BOUNDARY LINE (SURVEYED)
- ABUTTING BOUNDARY LINES (APPROX.)
- 490 MAJOR CONTOUR LINE
- MINOR CONTOUR LINE
- EXISTING EDGE OF GRAVEL
- OU OVERHEAD UTILITY
- DRAINAGE CULVERT
- EXISTING PAVED SURFACE
- UTILITY POLE
- DRAINAGE FLOW LINES
- SUBCATCHMENT BOUNDARY
- TYPICAL WETLAND BOUNDARY
- WATERSHED ANALYSIS POINT 1 — WATERSHED ANALYSIS POINT
- SUBCATCH 1 — SUBCATCHMENT LABEL
- STONE WALL
- NUD UNDER DRIAN PIPE
- SOIL BOUNDARY
- SOIL SLOPE — SOILS LABEL

SOIL	SLOPE
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SUBMISSION NO.	3
SURVEY DATE:	2020-02-05
SUBMISSION DATE:	2023-06-12
SUBMITTED FOR:	REVIEW

NOT FOR CONSTRUCTION

POST-DEVELOPMENT DRAINAGE PLAN

SEAL:

STATE OF MAINE
ESTHER K. BIZIER
No. 14236
LICENSED PROFESSIONAL ENGINEER
2023-06-12
ESTHER K. BIZIER ME PE#14236

DRAWING NO.

D2.1

MLDC NO. 22-142 2 OF 2