STORMWATER MANAGEMENT, GROUNDWATER RECHARGE AND WATER QUALITY ANALYSIS

For

Surfside Crossing
Proposed Multi-Family Mixed Use Building

1102 9th Ave
Block 405, Lot 5-7
Neptune Township
Monmouth County, NJ

Prepared by:

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APPENDIX

I. SITE DESCRIPTION

The project site consists of Block 405, Lots 5-7, located at the intersection of 9th Ave, Memorial Drive, and 8th Ave. in Neptune Township, Monmouth County, New Jersey. Currently, the site is mostly open with wooded areas towards the central portion of the combined lots. In addition, the site currently has two single-family homes located of existing lot 7. The subject site is 79,034 square feet (1.81 acres). The site is bordered to the north by 9th Ave; to the east Memorial Drive; to the south 8th Ave, and the west by residential uses. The project consists of developing the parcel with a proposed 38,875 square foot multi-family mixed use building, which includes 78 units, 936 SF of retail, one hundred and fifty-seven (157) total passenger vehicle parking, driveways, landscaping and other related site improvements.

The existing conditions of the tract have been verified by the Alta/ NSPS Land Title Survey, prepared by Dynamic Survey, LLC, dated 3/30/2022.

II. DESIGN OVERVIEW

This report has been prepared to define and analyze the stormwater drainage conditions that would occur as a result of the development of Block 405, Lots 5-7 in Neptune Township, Monmouth County, New Jersey. The project includes new stormwater management facilities to address applicable aspects of Neptune Township Stormwater Management rules and NJAC 7:8.

Based upon the fact that the proposed improvements will result in more than one (1) acre of land disturbance and increase the amount or impervious coverage by more than 0.25 acres, this project is classified as a "major development"; and therefore, has been designed to meet the stormwater runoff quantity, quality and groundwater recharge standards, set forth by Neptune Township Land Use Ordinance and NJAC 7:8. Accordingly, the following items are addressed within this report:

- Erosion control, groundwater recharge and runoff quantity standards (7:8-5.4)
- Stormwater runoff quality standards (7:8-5.5)
- Calculation of stormwater runoff and groundwater recharge (7:8-5.6)
- Standards for structural stormwater management measures (7:8-5.7)

The scope of the report includes the proposed 38,875 square foot multi-family dwelling, basins, driveways, parking areas, landscaping and other related site improvements as shown on the engineering drawings. The proposed site plan has 81.3% impervious lot coverage. The storm systems on site have been designed using this coverage.

A hydrological evaluation is provided for the NJDEP Water Quality, 2, 10, 25, and 100-year storm events utilizing the Urban Hydrology for Small Watersheds TR55 method.

NJAC 7:8-5.4(a)3 states the stormwater quantity impacts can be calculating to meet one the of the following below:

i. Demonstrate through hydrologic and hydraulic analysis that for stormwater leaving the site, post-construction runoff hydrographs for the 2, 10 and 100-year storm events do not exceed, at any point in time, the pre-construction runoff hydrographs for the same storm events;

ii. Demonstrate through hydrologic and hydraulic analysis that there is no increase, as compared to the pre-construction condition, in the peak runoff rates of stormwater leaving the site for the two, 10 and 100-year storm events and that the increased volume or change in timing of stormwater runoff will not increase flood damage at or downstream of the site. This analysis shall include the analysis of impacts of existing land uses and projected land uses assuming full development under existing zoning and land use ordinances in the drainage area;

iii. Design stormwater management measures so that the post-construction peak runoff rates for the two, 10 and 100-year storm events are 50, 75 and 80 percent, respectively, of the pre-construction peak runoff rates. The percentages apply only to the post-construction stormwater runoff that is attributable to the portion of the site on which the proposed development or project is to be constructed.

Per the above requirements, runoff from the site will comply with the flow reductions indicated under iii as follows:

2-year:	50% reduction
10-year:	25% reduction
100-year:	20% reduction

This facility will comply with the Stormwater Management Best Management Practices.

It is important to note that the aforementioned flow reduction requirements are only required to be applied to onsite drainage areas within the limit of disturbance to satisfy Neptune Township and NJDEP flow reduction requirements. Therefore, the proposed development satisfies the flow reduction requirements by applying the peak rate reduction requirements only to the onsite areas that are proposed to be disturbed, all remaining undisturbed areas on site will continue to discharge under their existing condition.

III. EXISTING DRAINAGE CONDITIONS

The tract has been evaluated with the following drainage sub-watershed areas as depicted on the Existing Conditions Drainage Area Map that can be found in the appendix of this report.

Existing Drainage Area 1: This study area is comprised of mostly grassed areas with portions of the existing asphalt driveways and single-family home. It is analyzed as an area to be disturbed as a result of the proposed development. The stormwater runoff currently flows from the eastern portion of the site to the western end of the property towards the existing 'B' inlet located on 8th Avenue, also known as POA 2.

Existing Drainage Area 2: This study area is comprised of mostly grassed and wooded areas with a portion of the existing asphalt driveways and single-family homes. It is analyzed as an area to be disturbed as a result of the proposed development. The stormwater runoff currently flows from the eastern portion of the site to the western end of the property towards the existing low point located offsite at the rear of the adjacent lot 4. From this low point, runoff flows toward the existing 'B' inlet located on 9th Avenue, also known as POA 1.

Existing Drainage Area 3: This study area is comprised of mostly grassed and wooded areas. It is analyzed as an area to be disturbed as a result of the proposed development. The stormwater runoff currently flows from the eastern portion of the site to the western end of the property towards the existing 'B' inlet located on 9th Avenue, also known as POA 1.

Existing Bypass to Memorial Drive: This study area is comprised of mostly grassed areas. It is analyzed as an area to be minimally disturbed as a result of the proposed development. The stormwater runoff currently flows from the southern portion of the site to the northeastern side of the property towards the existing 'B' inlet located on Memorial Drive, also known as POA 3.

Based on the Monmouth County soils survey information, the soil types native to the site include:

MONMOUTH COUNTY SOIL SURVEY INFORMATION				
SOIL TYPE (SYMBOL)	**SOIL TYPE (NAME)**	**HYDROLOGIC SOIL GROUP**	**DEFAULT SOIL TYPE (NAME)**	**DEFAULT HYDROLOGIC SOIL GROUP**
UR	Urban Lands	N/A	Fort Mott	A

Per the NJ Stormwater BMP Manual Chapter 12 Soil Testing Criteria, sites that do not have a Hydrologic Soil Group can be defined as Fort Mott, HSG A, as the site is within the Coastal Plain. The soil investigation completed by Dynamic Earth, LLC, confirms the site should be examined using HSG A by completing five (5) permeability tests that show permeability rates consistent with HSG type A soils. The soil borings and soil profile pits generally encountered deep fill material and loose natural soils near the proposed building footprint. Topsoil was encountered between approximately five inches and ten inches of topsoil at the surface. Beneath the surficial cover, existing fill materials were encountered that generally consisted of sand, loamy

sand, sandy loam, and clay with variable amounts of gravel and debris. The debris encountered included brick, metal, pvc, glass, seashells, concrete, and asphalt. The existing fill materials were encountered to depths ranging between approximately 2.5 feet and 5.5 feet below the ground surface; corresponding to elevations ranging between 12.2 feet and 7.6 feet. Beneath the existing fill materials, natural soils were encountered that generally consisted of sand, sandy loam, loam sandy clay loam, silty clay loam, clay loam, silty clay, and clay with variable amounts of gravel. The natural soils were encountered to termination and refusal depths ranging between approximately 10 feet and 12.4 feet below the ground surface; corresponding to elevations ranging between 4.5 feet and 0.7 feet. The refusal encountered was due to continuous wet cave-in of coarse-grained materials.

Indicators of seasonal high groundwater (based on soil mottling and/or direct groundwater observations during the wet season) were encountered at depths ranging between approximately 2.5 feet and 4.6 feet below the ground surface; corresponding to elevations ranging between 12.2 feet and 8.8 feet. Groundwater was encountered at depths ranging between approximately five feet and seven feet below the ground surface; corresponding to elevations ranging between 10.5 feet and 7.5 feet. Groundwater levels are expected to fluctuate seasonally and following significant periods of precipitation. A summary of seasonal high groundwater levels encountered and permeability samples collected is presented in the chart below:

Seasonal High Groundwater and Permeability Test Summary						
Location	**Surface Elevation (ft)**	**Estimated Seasonal High Groundwater**		**Sample Depth (Inches)**	**Permeability Results (inches/hour)**	
		Depth (ft)	**Elevation (ft)**		**Replicate A**	**Replicate B**
SPP-1	14.7	2.5	12.2	18	Not Tested	
				40		
SPP-2	13.4	4.6	8.8	44		
				78		
SPP-3	13.1	3.3	9.8	24	8.9	7.5
				45	Not Tested	
				70		
SPP-4	13.1	3.0	10.1	24	6.5	13.8
				42	Not Tested	
				100		
SPP-5	13.9	4.0	9.9	24	12.5	6.6
SPP-6	13.2	3.8	9.4	32	>20	>20
				50	Not Tested	
SPP-7	14.5	4.2	10.3	30	14.4	18.7
				50	Not Tested	
SPP-8	13.3	3.9	9.4	36		
				60		
SPP-9	12.9	4.0	8.9	36		

Based on the laboratory testing completed and the subsurface conditions encountered at soil profile pit excavations, the soils encountered are generally consistent with a hydraulic soil group (HSG) A.

IV. PROPOSED DRAINAGE CONDITIONS

The tract has been evaluated with the following drainage sub-watershed areas as depicted on the Contributory Drainage Area Map that can be found in the appendix of this report. Each sub-watershed area has been calculated as a separate point of analysis.

Proposed Drainage Area 1: This portion of the site mainly consists of the building roof runoff. Stormwater runoff from this area is collected by a series of roof leaders which flows to the proposed above ground small-scale infiltration basin 1. Stormwater discharged from basin 1 flows through the outlet control structure to the existing 'B' inlet on 9th avenue also known as POA 1.

Proposed Study Area 2: This portion of the site mainly consists of the building roof runoff. Stormwater runoff from this area is collected by a series of roof leaders which flows to the proposed above ground small-scale infiltration basin 2. Stormwater discharged from basin 2 flows through the outlet control structure to the subsurface small-scale infiltration basin 3.

Proposed Study Area 3: This portion of the site consists of the majority of the impervious surfaces on the site including the porous pavement, asphalt, and portions of the landscaped areas. Runoff from this drainage area sheet flows to the proposed porous pavement and then to the subsurface small-scale infiltration basin 3. Stormwater discharged from basin 3, flows through the outlet control structure to the existing 'B' inlet on 9th Avenue, also known as POA 1.

Proposed Bypass 8th Ave: This portion of the site consists of a minimal portion of the asphalt driveway and adjacent grassed areas. Runoff from this area flows undetained to the existing 'B' inlet on 8th Avenue, also known as POA 2.

Proposed Bypass 9th Ave: This portion of the site consists of a minimal portion of the asphalt driveway and adjacent grassed areas. Runoff from this area flows undetained to the existing 'B' inlet on 9th Avenue, also known as POA 1.

Proposed Bypass Memorial Drive: This portion of the site consists of a minimal portion of the asphalt driveway and adjacent grassed areas. Runoff from this area flows undetained to the existing 'B' inlet on Memorial Drive also known as POA 3.

V. NON-STRUCTURAL STORMWATER MANAGEMENT STRATEGIES

The proposed project has been designed to the maximum extent practicable by incorporating the nonstructural stormwater management strategies set forth in NJAC 7:8-5.3 as follows:

1. **Protect areas that provide water quality benefits or areas particularly susceptible to erosion and sediment lost:** The proposed impervious surface is minimized wherever possible under the proposed condition; therefore, increasing the water quality benefits on the site. By implementation of the porous pavement and infiltration basins, the proposed development meets the water quality requirements set forth by NJAC 7:8.
2. **Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces:** The impervious surfaces have been minimized wherever possible. Impervious surfaces have been diverted to multiple structural BMPs capable of providing water quality treatment.
3. **Maximize the protection of natural drainage features and vegetation:** In the proposed condition, there is a 74.6% increase in impervious coverage. A Landscaping Plan has been prepared to compensate for the loss of existing vegetation due to the development.
4. **Minimize the decrease in the "time of concentration" from pre-construction to post-construction. "Time of concentration" is defined as the time it takes for runoff to travel from the hydraulically most distant point of the drainage area to the point of interest within a watershed:** The decrease in the time of concentration has been minimized by maintaining existing overland flow slopes to the maximum extent practical.
5. **Minimize land disturbance including clearing and grading:** Land disturbance has been minimized where feasible. The site disturbance is limited to the development area.
6. **Minimize soil compaction:** Soil compaction will be minimized in the basins and proposed lawn and landscape areas.
7. **Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides:** The project proposes low-maintenance trees, shrubs, and ground cover on the site. Refer to the Landscape Plan for plant information.
8. **Provide vegetated open-channel conveyance systems discharging into and through stable vegetated areas:** Due to the site constraints, it is not feasible to design a vegetated open-channel conveyance system on this project.
9. **Provide other source controls to prevent or minimize the use or exposure of pollutants at the site in order to prevent or minimizes the release of those pollutants into stormwater runoff:** The proposed small-scale infiltration basins provide 80% TSS removal. In addition, the porous pavement will provide 80% TSS removal prior to discharging to basin 3. Basin 3 will provide additional water quality measures due to infiltration.

VI. DESIGN METHODOLOGY

The intention of the proposed stormwater management facilities for this project is to comply with applicable required measures from Neptune Township Land Use Ordinance and NJAC 7:8. In order to prepare the stormwater calculations for the subject project, an investigation of the property and topography was

performed. An on-site review of the tract was performed by Dynamic Engineering Consultants, PC, verifying the existing site conditions and land cover characteristics. Dynamic Survey was contracted to prepare the ALTA/NSPS Land Title Survey for the existing site.

Based on our review of the existing site conditions and the Topographic Survey, the Drainage Area Maps for the existing and proposed site conditions as defined within this report were established. A grading plan was developed for the proposed site improvements with consideration to the existing drainage patterns. The plan was then designed to ensure runoff from the proposed development could be directed to stormwater management facilities to the maximum extent practicable in order to address the applicable sections of Neptune Township Stormwater Management rules and NJAC 7:8.

The two (2) above ground small-scale infiltration basins will temporarily store stormwater runoff from the site. An outlet control structure for each basin has been implemented to release stormwater runoff at a controlled rate to satisfy the stormwater quantity requirements. Overflow from the above ground basins is routed via the emergency spillways to the existing downstream stormwater management facilities. The above ground infiltration basins have been designed to meet the requirements set forth by NJAC 7:8.

The porous pavement drains to a subsurface small-scale infiltration basin that temporarily stores and attenuates stormwater runoff from the site. An outlet control structure has been implemented to release stormwater runoff at a controlled rate to satisfy the stormwater quantity requirements. The subsurface small-scale infiltration basin has been designed to meet the recharge requirements set forth by NJAC 7:8.

According to the NJAC 7:8-5.5(a), a TSS removal rate of 80% is required for stormwater runoff generated from vehicular pavement areas as a result of a major development. By the use of small-scale infiltration basins, and porous pavement, the proposed site meets the 80% TSS removal.

VII. STORMWATER MANAGEMENT BASIN DESIGN AND RUNOFF QUANTITY STANDARDS

In order to meet the stormwater runoff quantity and water quality requirements set forth in NJAC 7:8, the site design incorporates porous pavement, a subsurface small-scale infiltration basin, and two (2) above ground small-scale infiltration basins. Runoff from a portion of the roof area flows through a series of roof leaders to each of the above ground small-scale infiltration basins. Discharge from basin 2 flows through the stormwater conveyance systems to the subsurface small-scale infiltration basin 3. Additional runoff to basin 3 flows over land by sheet flow to the pervious paving areas, filters through the pervious paving and is then collected by the subsurface small-scale infiltration basin 3. Outflow from basins 1 and 3 is combined and routed to the existing 'B' inlet on 9th Avenue, also known as POA 1.

Minimal areas adjacent to each road frontage will have runoff that is undetained to each POA. It is important to note that the impervious surfaces that bypass to each POA are less in the proposed condition as compared to existing. An outline of the Drainage Areas is located in the Runoff Curve Number (CN) Calculations Existing & Proposed in the appendix of the report.

A summary of the pre and post development flows are shown in the charts below:

Pre-development and Post Development Peak Runoff Results

PRE VS. POST SUMMARY CHART (FLOW TO POA 1)						
DESIGN STORM	**EXISTING DISTURBED AREA (CFS)**	**HYDRO-GRAPH #**	**RUNOFF RATE REDUCTION OF DISTURBED AREA**	**MAXIMUM TOTAL ALLOWABLE RUNOFF RATE (CFS)**	**PROPOSED RUNOFF RATE (CFS)**	**HYDRO-GRAPH #**
2 Year	0.22	24	50%	0.11	0.13*	28
10 Year	0.34	24	25%	0.26	0.20	28
100 Year	2.19	24	20%	1.75	1.69	28

*De minimis exception requested.

PRE VS. POST SUMMARY CHART (FLOW TO POA 2)						
DESIGN STORM	**EXISTING DISTURBED AREA (CFS)**	**HYDRO-GRAPH #**	**RUNOFF RATE REDUCTION OF DISTURBED AREA**	**MAXIMUM TOTAL ALLOWABLE RUNOFF RATE (CFS)**	**PROPOSED RUNOFF RATE (CFS)**	**HYDRO-GRAPH #**
2 Year	0.12	10	50%	0.06	0.065*	33
10 Year	0.19	10	25%	0.14	0.10	33
100 Year	0.38	10	20%	0.30	0.24	33

*De minimis exception requested.

PRE VS. POST SUMMARY CHART (FLOW TO POA 3)						
DESIGN STORM	**EXISTING DISTURBED AREA (CFS)**	**HYDRO-GRAPH #**	**RUNOFF RATE REDUCTION OF DISTURBED AREA**	**MAXIMUM TOTAL ALLOWABLE RUNOFF RATE (CFS)**	**PROPOSED RUNOFF RATE (CFS)**	**HYDRO-GRAPH #**
2 Year	0.00	29	50%	0.00	0.00	30
10 Year	0.002	29	25%	0.00	0.005*	30
100 Year	0.041	29	20%	0.03	0.108*	30

*De minimis exception requested.

VIII. GROUNDWATER RECHARGE & WATER QUALITY

As required by NJAC 7:8-5.5, a TSS removal rate of 80% is required for stormwater generated by the water quality design storm as a result of a major development. The design for the subject development meets the obligation for TSS removal by utilizing porous pavement, one (1) subsurface infiltration basin, and two (2) above ground infiltration basins.

Nine (9) test pits have been conducted for the four (4) BMP's on site; however, only eight (8) pits will be used in design of the BMP's. SPP-4 and -5 were used in designing Basin 1, which has a basin bottom area of 520

SF. SPP-6 and -7 were used in designing Basin 2, which has a basin bottom area of 1,201 SF. SPP-2, -3, and -9 were used in designing Basin 3 which has an area of 8,430 SF. Lastly, the pervious pavement was designed using SPP-8 and -3, which has an area of 6,450 SF. See soil pit testing results in Section III of this report for further information.

Recharge: The Post-Development Annual Recharge Deficit has been calculated using the New Jersey Groundwater Recharge Spreadsheet. Per the NJGRS Spreadsheet and soils investigation, the site development does not result in a recharge deficit. Refer to the NJ Groundwater Recharge Spreadsheet in the Appendix of this report.

Water Quality: The stormwater management design for the project satisfies the requirements set forth in NJAC 7:8-5.5(a) by utilizing pervious paving and small-scale infiltration basins. The pervious pavement will provide the minimum TSS removal rate of 80%. Per NJDEP BMP Manual Chapter 9.6, pervious pavement provides an 80% TSS removal. The project meets the contributory drainage area requirement of 3:1 (drainage area to area of pervious pavement), with a maximum slope of less than 5%. For either of the above ground small-scale infiltration basins (#1 & #2), all impervious runoff comes from the roof, and is considered clean; therefore, these basins do not need additional water quality measures. Additionally, the stormwater will be evacuated from the infiltration basins within 72 hours. As a result, the water quality requirements of the Neptune Township Land Development Ordinance and NJAC 7:8 are met.

IX. STABILITY ANALYSIS

Per the NJ Soil Erosion Standards, Section 21, "Standard for Off-Site Stability," compliance has been met for the site. The conditions of the NJ SESC Standards Section 21-1 have been satisfied using the point of discharge method with a well-defined channel.

a. **Retain pre-developed runoff characteristics. Do not increase the rate of runoff from development.** Discharge rates from the proposed stormwater improvements are above the flow rates in the existing conditions; therefore method 'b' below will be used.
b. **Analyze the waterway or channel for stability under the planned rate of discharge using the Standard for Grassed Waterways or Standard for Chanel Stabilization, as appropriate.** Peak flows from the 2- and 10-year storms shall be analyzed. The 2- and 10-year storms have existing peak flowrates of 0.22 cfs and 0.34 cfs, respectively. The proposed conditions, during the stability analysis, meets the requirements set forth in the Standard for Channel Stabilization by not exceeding the maximum flow rates for the existing 12" pipe at POA 1. A summary of the flow rates are shown in the chart below:

PRE VS. POST SUMMARY CHART (STUDY POINT – STABILITY)			
Design Storm	**Existing Runoff Rate (CFS)**	**Proposed Runoff Rate (CFS)**	**Proposed Pipe Velocity (fps)**
2 Year	0.22	2.86	6.00
10 Year	0.34	4.15	6.15

c. **Modify the waterway or channel to a stable design condition.** The combined flows to the existing stormwater facilities show that the proposed flow rates are in a stable condition as the discharge rate is lower than the maximum allowable flow rate in the existing 12" pipe.

X. CONCLUSION

The proposed overall development has been designed with provisions for the safe and efficient control of stormwater runoff in a manner that will not adversely impact the existing drainage patterns, adjacent roadways, or adjacent parcels. The 80% TSS removal obligations set forth by NJAC 7:8 have been satisfied by utilizing three (3) infiltration basins and pervious pavement. Recharge requirements are met utilizing the above ground infiltration basins and underground infiltration basin. Runoff quantity requirements have been met by reducing the outflow for the 2-, 10-, and 100-yr storms by 50%, 25%, and 20%, respectively.

With this stated, it is evident that the proposed development will not have a negative impact on the existing drainage pattern, water quality, or groundwater recharge on site or within the vicinity of the subject parcel.

APPENDIX

USGS MAP

U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

The National Map US Topo

ASBURY PARK QUADRANGLE
NEW JERSEY
7.5-MINUTE SERIES

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid:Universal Transverse Mercator, Zone 18T

This map is not a legal document. Boundaries may be generalized for this map scale. Private lands within government reservations may not be shown. Obtain permission before entering private lands.

Imagery.....NAIP, July 2015 - September 2015
Roads.....U.S. Census Bureau, 2016
Names.....GNIS, 1979 - 2019
Hydrography.....National Hydrography Dataset, 2002 - 2009
Contours.....National Elevation Dataset, 2012
Boundaries.....Multiple sources; see metadata file 2017 - 2018

Wetlands.....FWS National Wetlands Inventory 2007 - 2008

MN 12°43' 226 MILS
GN 0°36' 11 MILS
UTM GRID AND 2019 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000 - m Square ID
WK
Grid Zone Designation 18T

SCALE 1:24 000
1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 20 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988

This map was produced to conform with the National Geospatial Program US Topo Product Standard, 2011.
A metadata file associated with this product is draft version 0.6.18

NEW JERSEY
QUADRANGLE LOCATION

1	2	3
4		5
6	7	

ADJOINING QUADRANGLES
1 Marlboro
2 Long Branch West
3 Long Branch East
4 Farmingdale
5 Asbury Park OE E
6 Lakewood
7 Point Pleasant

ROAD CLASSIFICATION
Expressway
Secondary Hwy
Ramp
Local Connector
Local Road
4WD
Interstate Route
US Route
State Route

ASBURY PARK, NJ
2019

NSN 7643016382838
NGA REF NO. USGSX24K395767

NRCS SOILS MAPS

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Monmouth County, New Jersey

April 4, 2022

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:979 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 10 20 40 60

Feet: 0 45 90 180 270

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Monmouth County, New Jersey
Survey Area Data: Version 15, Aug 31, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Sep 25, 2020—Oct 15, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
UR	Urban land	2.5	100.0%
Totals for Area of Interest		**2.5**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Monmouth County, New Jersey

UR—Urban land

Map Unit Setting

National map unit symbol: 4j92
Elevation: 0 to 170 feet
Mean annual precipitation: 30 to 64 inches
Mean annual air temperature: 46 to 79 degrees F
Frost-free period: 131 to 178 days
Farmland classification: Not prime farmland

Map Unit Composition

Urban land: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land

Setting

Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Minor Components

Udorthents

Percent of map unit: 5 percent
Landform: Low hills
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

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RUNOFF CURVE NUMBER (CN) CALCULATIONS- EXISTING

DYNAMIC ENGINEERING

EXISTING DRAINAGE AREA SUMMARY AND AVERAGE CURVE NUMBER(CN) CALCULATIONS

Project:	Surfside Crossing Multi-Family Development	Computed By:	SMM
Job #:	2241-99-002	Checked By:	SRC
Location:	Memorial Drive & 8th Ave, Neptune, Nj	Date:	6/14/2022

Drainage Area	Impervious Area (acre)	Impervious Area (sf)	Curve Number (CN) Used	HSG A - Open Space Area (acre)	HSG A - Open Space Area (sf)	Curve Number (CN) Used	HSG A - Wooded Area (acre)	HSG A - Wooded Area (sf)	Curve Number (CN) Used	Avg. Perv. Curve Number	Total Pervious Area (acres)	Total Area (acres)	TC (Min.)
DA 1 - 8TH AVE	0.04	1,631	98	0.04	1,655	39	0.01	463	30	37	0.05	0.09	10
DA 2 - LOW POINT	0.08	3,695	98	0.58	25,241	39	0.28	12,397	30	36	0.86	0.95	12
DA 3 - 9TH AVE	0.00	-	98	0.62	26,997	39	0.13	5,783	30	37	0.75	0.75	10
BYPASS - MEMORIAL	0.00	-	98	0.03	1,176	39	0.00	-	30	39	0.03	0.03	10
Total	**0.12**	**5326.00**		**1.26**	**55069.00**		**0.43**	**18643.00**			**1.67**	**1.81**	

Per County Soil Survey -	Soil Abbr	HSG	A	Soil	Fort mott

Description	Runoff Curve Number (CN) (HSG A)	Runoff Curve Number (CN) (HSG B)	Runoff Curve Number (CN) (HSG C)	Runoff Curve Number (CN) (HSG D)
Impervious Surface	98	98	98	98
Open Space (lawn) (good)	39	61	74	80
Woods (good)	30	55	70	77

RUNOFF CURVE NUMBER (CN) CALCULATIONS- PROPOSED

DYNAMIC ENGINEERING

PROPOSED DRAINAGE AREA SUMMARY AND AVERAGE CURVE NUMBER(CN) CALCULATIONS

Project:	Surfside Crossing Multi-Family Development	Computed By:	SMM
Job #:	2241-99-002	Checked By:	SRC
Location:	Memorial Drive & 8th Ave, Neptune, NJ	Date:	6/14/2022

Drainage Area	Impervious Area (acre)	Impervious Area (sf)	Curve Number (CN) Used	HSG A - Open Space Area (acre)	HSG A - Open Space Area (sf)	Curve Number (CN) Used	HSG A - Wooded Area (acre)	HSG A - Wooded Area (sf)	Curve Number (CN) Used	Avg. Perv. Curve Number	Total Pervious Area (acres)	Total Area (acres)	TC (Min.)
DA 1 - BASIN 1	0.10	4,453	98	0.05	2,014	39	0.00	-	30	39	0.05	0.15	6
DA 2 - BASIN 2	0.50	21,955	98	0.09	3,979	39	0.00	-	30	39	0.09	0.60	6
DA 3 - BASIN 3	0.81	35,187	98	0.01	298	39	0.00	-	30	39	0.01	0.81	6
BYPASS MEMORIAL	0.00	-	98	0.08	3,415	39	0.00	-	30	39	0.08	0.08	6
BYPASS 8TH AVE	0.02	725	98	0.04	1,727	39	0.00	-	30	39	0.04	0.06	6
BYPASS 8TH AVE	0.04	1,617	98	0.08	3,684	39	0.00	-	30	39	0.08	0.12	6
Total	**1.47**	**63,937**		**0.35**	**15,117.00**		**0.00**	**0.00**			**0.22**	**1.81**	

Per County Soil Survey -	Soil Abbr	HSG	A	Soil	Fort Mott

Description	Runoff Curve Number (CN) (HSG A)	Runoff Curve Number (CN) (HSG B)	Runoff Curve Number (CN) (HSG C)	Runoff Curve Number (CN) (HSG D)
Impervious Surface	98	98	98	98
Open Space (lawn) (good)	39	61	74	80
Woods (good)	30	55	70	77

EXISTING TIME OF CONCENTRATION (Tc) CALCULATIONS

DYNAMIC ENGINEERING
1904 Main Street, Lake Como, NJ 07719
(732) 974-0198

Date: 6/14/2022
Project: SURFSIDE CROSSING
Project No: 2241-99-002

Calculated By: SMM
Checked By: SRC

Worksheet 3: Time of Concentration (T_c) Calculations

Land Condition: Existing
Drainage Area: DA - 1

• Sheet Flow:

		AB				
1.	Surface Description	Range (natural)				
2.	Manning's Roughness Coefficient, n	0.13				
3.	Flow Length, L { total $L \le 100$ ft }	100.0 ft				
4.	Two-Year 24-hour Rainfall, p_2 for . . . Monmouth County	3.38 in	3.38 in	3.38 in		
5.	Land Slope, s (ft/ft)	0.016 ft/ft				
6.	Travel Time, $T_t = \frac{0.007\,(n\,L)^{0.8}}{p_2^{0.5}\,s^{0.4}}$	0.155 hr	+ 0.000 hr	+ 0.000 hr	=	0.155 hr

• Shallow Concentrated Flow:

		BC	CD	DE		
7.	Surface Description	Unpaved	Paved	Unpaved		
8.	Flow Length, L	12.0 ft	15.6 ft	37.0 ft		
9.	Watercourse Slope, s	0.014 ft/ft	0.014 ft/ft	0.014 ft/ft		
10.	Average velocity, V { see Figure 3.1)	1.91 ft/s	2.41 ft/s	1.91 ft/s		
11.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.002 hr	+ 0.002 hr	+ 0.005 hr	=	0.009 hr

• Channel Flow:

12.	Pipe Diameter, D					
13.	Cross-Sectional Flow Area, A					
14.	Wetted Perimeter, p_w					
15.	Hydraulic Radius, $r = A / p_w$					
16.	Channel Slope, s					
17.	Pipe Material					
18.	Manning's Roughness Coefficient, n					
19.	Velocity, $V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$					
20.	Flow Length, L					
21.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.000 hr	+ 0.000 hr	+ 0.000 hr	=	0.000 hr
22.	Watershed or subarea Time of Concentration, T_c { add T_t in steps 6, 11 and 21 }					0.164 hr
						9.8 min

DYNAMIC ENGINEERING
1904 Main Street, Lake Como, NJ 07719
(732) 974-0198

Date: 6/14/2022
Project: SURFSIDE CROSSING
Project No: 2241-99-002

Calculated By: SMM
Checked By: SRC

Worksheet 3: Time of Concentration (T_c) Calculations

Land Condition: Existing
Drainage Area: DA - 2

• Sheet Flow:

		AB				
1.	Surface Description	Range (natural)				
2.	Manning's Roughness Coefficient, n	0.13				
3.	Flow Length, L { total $L \le 100$ ft }	100.0 ft				
4.	Two-Year 24-hour Rainfall, p_2 for . . . Monmouth County	3.38 in	3.38 in	3.38 in		
5.	Land Slope, s (ft/ft)	0.020 ft/ft				
6.	Travel Time, $T_t = \frac{0.007\,(n\,L)^{0.8}}{p_2^{0.5}\,s^{0.4}}$	0.142 hr	+ 0.000 hr	+ 0.000 hr	=	0.142 hr

• Shallow Concentrated Flow:

		BC				
7.	Surface Description	Unpaved				
8.	Flow Length, L	290.0 ft				
9.	Watercourse Slope, s	0.013 ft/ft				
10.	Average velocity, V { see Figure 3.1)	1.83 ft/s				
11.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.044 hr	+ 0.000 hr	+ 0.000 hr	=	0.044 hr

• Channel Flow:

12.	Pipe Diameter, D					
13.	Cross-Sectional Flow Area, A					
14.	Wetted Perimeter, p_w					
15.	Hydraulic Radius, $r = A / p_w$					
16.	Channel Slope, s					
17.	Pipe Material					
18.	Manning's Roughness Coefficient, n					
19.	Velocity, $V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$					
20.	Flow Length, L					
21.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.000 hr	+ 0.000 hr	+ 0.000 hr	=	0.000 hr
22.	Watershed or subarea Time of Concentration, T_c { add T_t in steps 6, 11 and 21 }					0.186 hr
						11.1 min

DYNAMIC ENGINEERING
1904 Main Street, Lake Como, NJ 07719
(732) 974-0198

Date: 6/14/2022
Project: SURFSIDE CROSSING
Project No: 2241-99-002

Calculated By: SMM
Checked By: SRC

Worksheet 3: Time of Concentration (T_c) Calculations

Land Condition: Existing
Drainage Area: DA - 3

• Sheet Flow:

		AB				
1.	Surface Description	Range (natural)				
2.	Manning's Roughness Coefficient, n	0.13				
3.	Flow Length, L { total $L \le 100$ ft }	100.0 ft				
4.	Two-Year 24-hour Rainfall, p_2 for . . . Monmouth County	3.38 in	3.38 in	3.38 in		
5.	Land Slope, s (ft/ft)	0.025 ft/ft				
6.	Travel Time, $T_t = \frac{0.007\,(n\,L)^{0.8}}{p_2^{0.5}\,s^{0.4}}$	0.130 hr	+ 0.000 hr	+ 0.000 hr	=	0.130 hr

• Shallow Concentrated Flow:

		BC				
7.	Surface Description	Unpaved				
8.	Flow Length, L	233.0 ft				
9.	Watercourse Slope, s	0.009 ft/ft				
10.	Average velocity, V { see Figure 3.1)	1.56 ft/s				
11.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.041 hr	+ 0.000 hr	+ 0.000 hr	=	0.041 hr

• Channel Flow:

12.	Pipe Diameter, D					
13.	Cross-Sectional Flow Area, A					
14.	Wetted Perimeter, p_w					
15.	Hydraulic Radius, $r = A / p_w$					
16.	Channel Slope, s					
17.	Pipe Material					
18.	Manning's Roughness Coefficient, n					
19.	Velocity, $V = \frac{1.49\,r^{2/3}\,s^{1/2}}{n}$					
20.	Flow Length, L					
21.	Travel Time, $T_t = \frac{L}{3600\,V}$	0.000 hr	+ 0.000 hr	+ 0.000 hr	=	0.000 hr
22.	Watershed or subarea Time of Concentration, T_c { add T_t in steps 6, 11 and 21 }					0.171 hr
						10.3 min

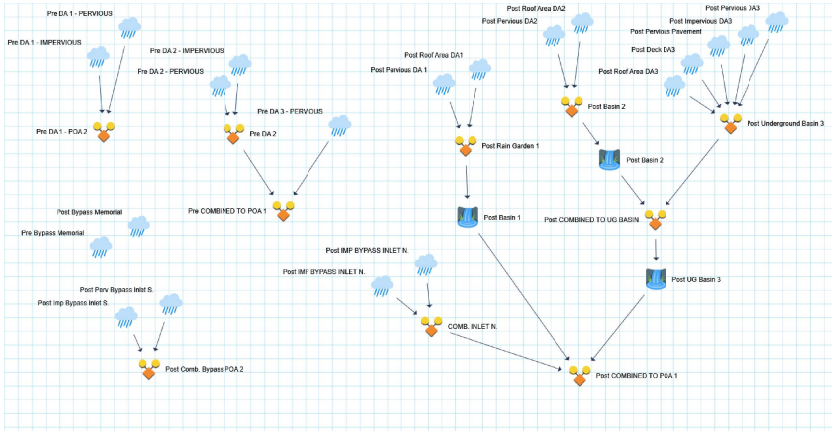
HYDROGRAPH SUMMARY REPORTS –
EXISTING & PROPOSED
2 YR., 10 YR., 25 YR. & 100 YR.

Basin Model

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022



Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.120	12.13	474	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.000	24.00	0.095	—		
3	NRCS Runoff	Post Roof Area DA3	0.801	12.17	3,546	—		
4	NRCS Runoff	Post Deck DA3	0.884	12.17	3,913	—		
5	NRCS Runoff	Post Pervious Pavement	0.414	12.17	1,834	—		
6	NRCS Runoff	Post Pervious DA 1	0.000	24.00	1.47	—		
7	NRCS Runoff	Post Roof Area DA1	0.323	12.10	1,112	—		
8	NRCS Runoff	Post Pervious DA2	0.000	24.00	2.64	—		
9	NRCS Runoff	Post Roof Area DA2	1.617	12.10	5,558	—		
10	Junction	Pre DA 1 - POA 2	0.120	12.13	474	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.000	24.00	0.323	—		
12	NRCS Runoff	Post Impervious DA3	0.138	12.17	611	—		
13	Junction	Post Underground Basin 3	2.237	12.17	9,905	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.323	12.10	1,113	6, 7		
15	Junction	Post Basin 2	1.617	12.10	5,561	8, 9		
16	Pond Route	Post Basin 2	0.235	12.27	445	15	13.78	1,143
17	Pond Route	Post Basin 1	0.000	13.67	0.001	14	14.45	286
18	Junction	Post COMBINED TO UG BASIN	2.432	12.17	10,350	13, 16		
19	Pond Route	Post UG Basin 3	0.000	9.93	0.000	18	12.36	1,890
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.221	12.17	978	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.000	0.00	0.000	—		
22	Junction	Pre DA 2	0.221	12.17	978	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.000	24.00	1.47	—		
24	Junction	Pre COMBINED TO POA 1	0.221	12.17	980	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.000	24.00	2.35	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.129	12.10	445	—		
27	Junction	COMB. INLET N.	0.129	12.10	447	25, 26		
28	Junction	Post COMBINED TO POA 1	0.129	12.10	447	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.000	24.00	0.969	—		
30	NRCS Runoff	Post Bypass Memorial	0.000	24.00	2.59	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.065	12.10	222	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.000	24.00	1.18	—		
33	Junction	Post Comb. Bypass POA 2	0.065	12.10	223	31, 32		

Hydrograph Report

Project Name:

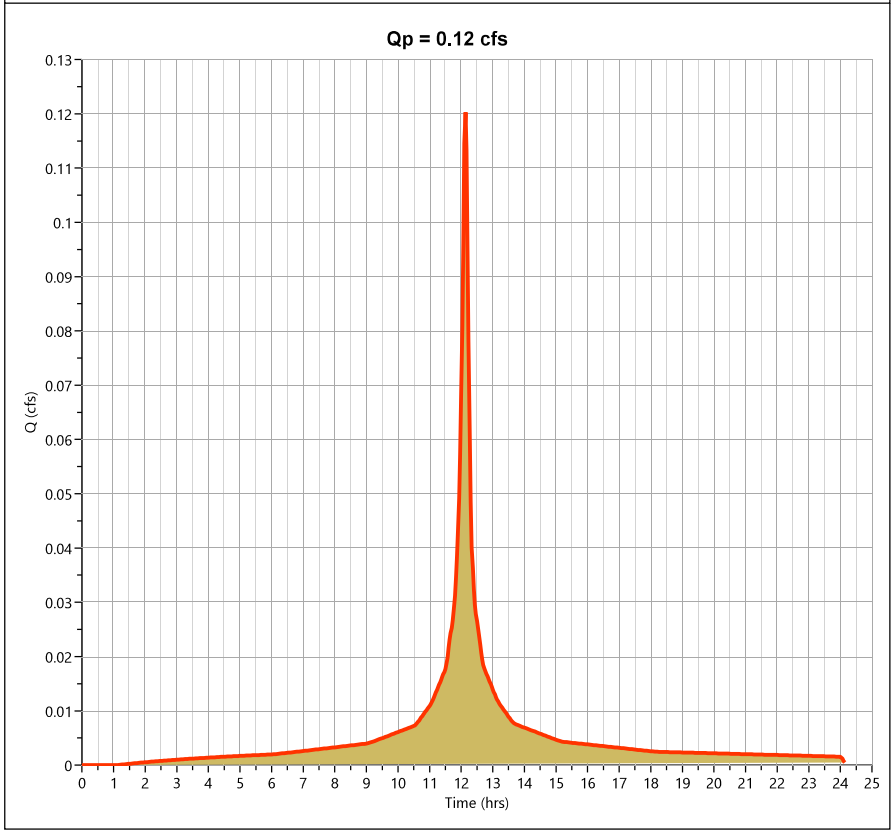
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.120 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 474 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

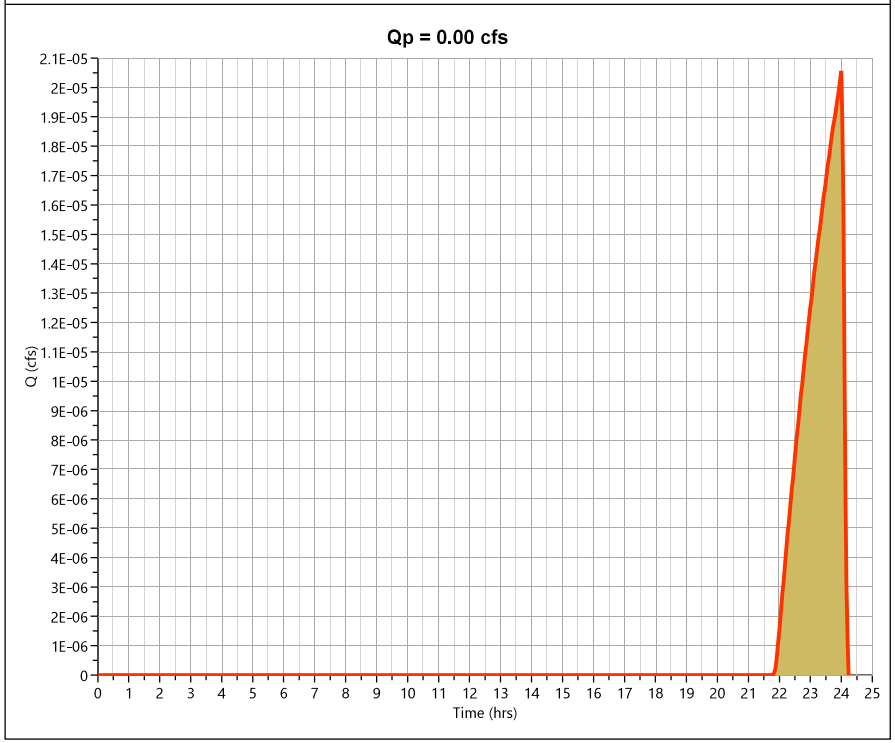
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.095 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

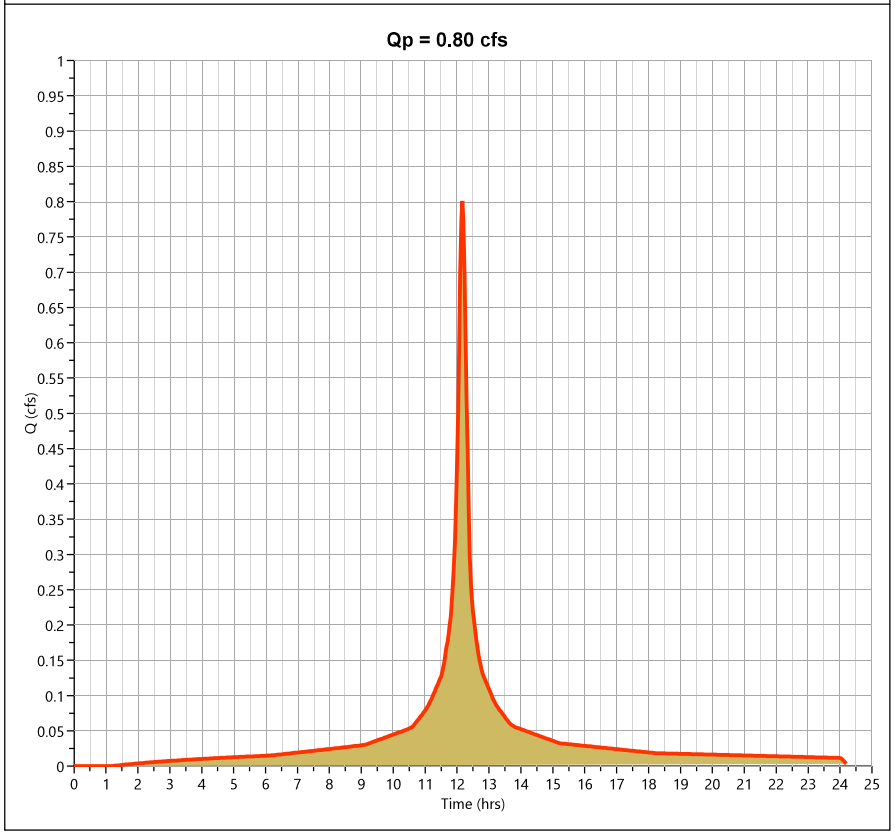
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.801 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,546 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

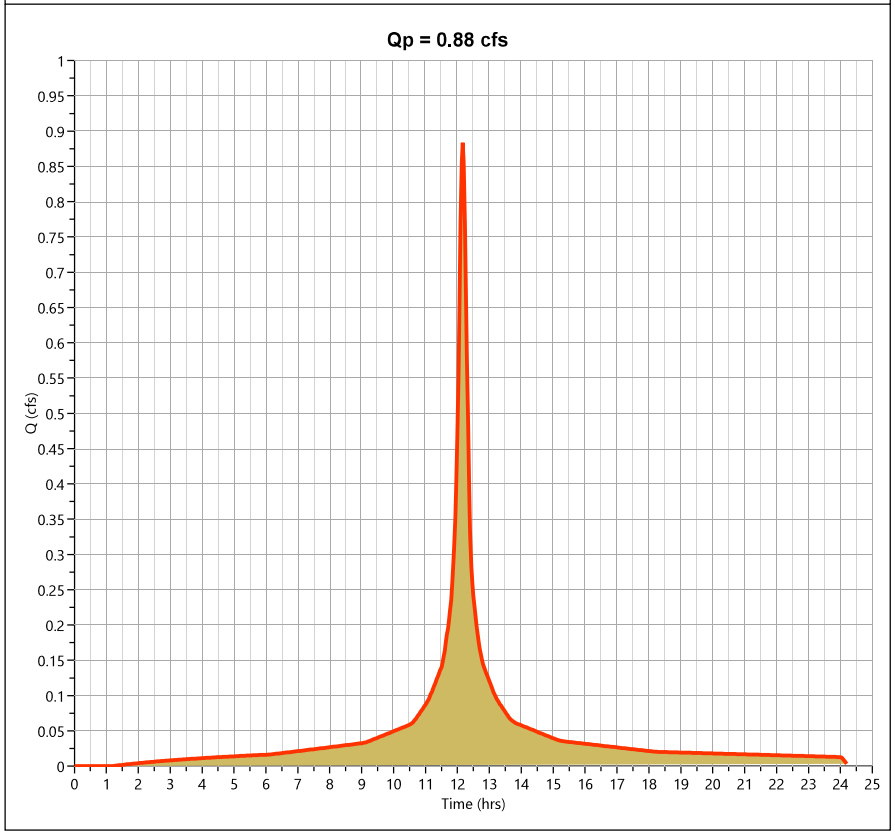
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.884 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,913 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

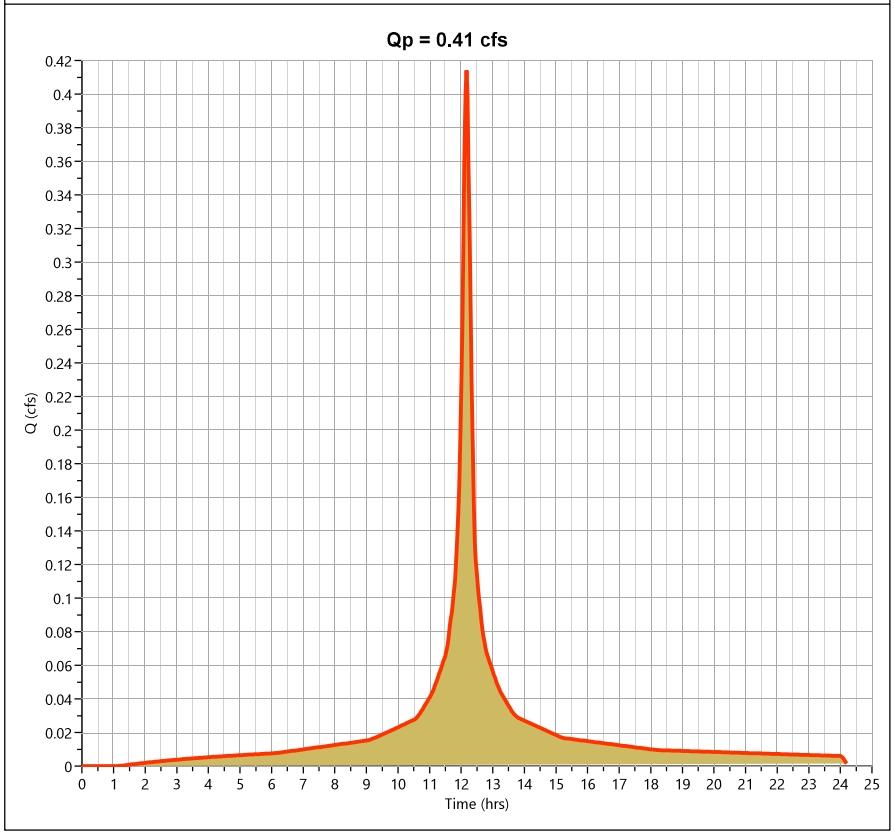
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.414 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,834 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

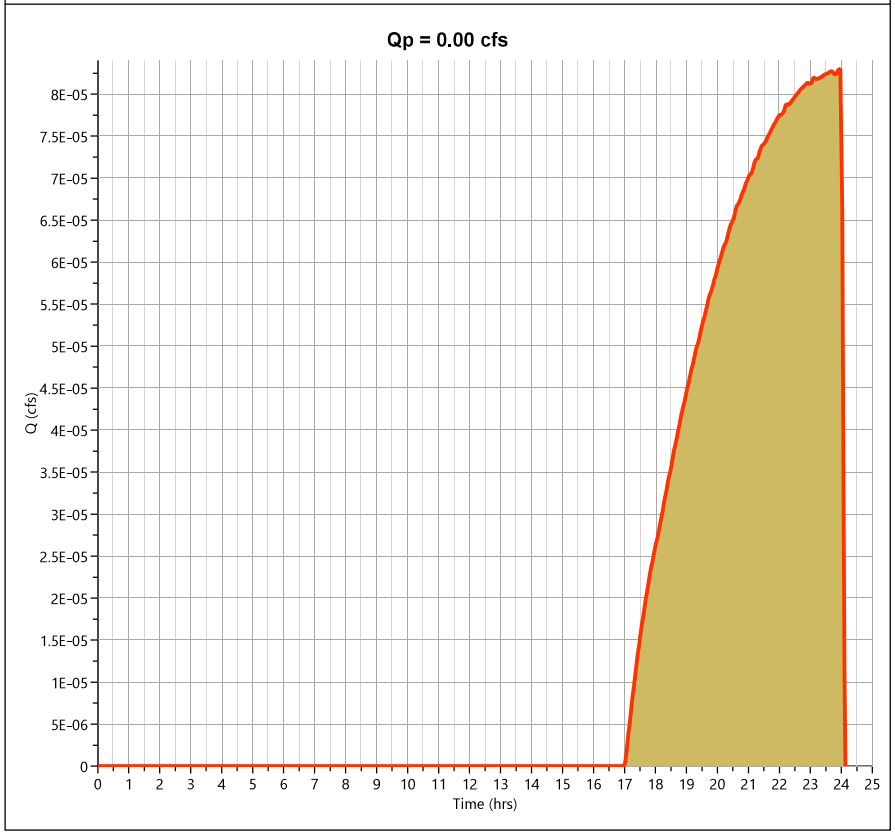
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.47 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

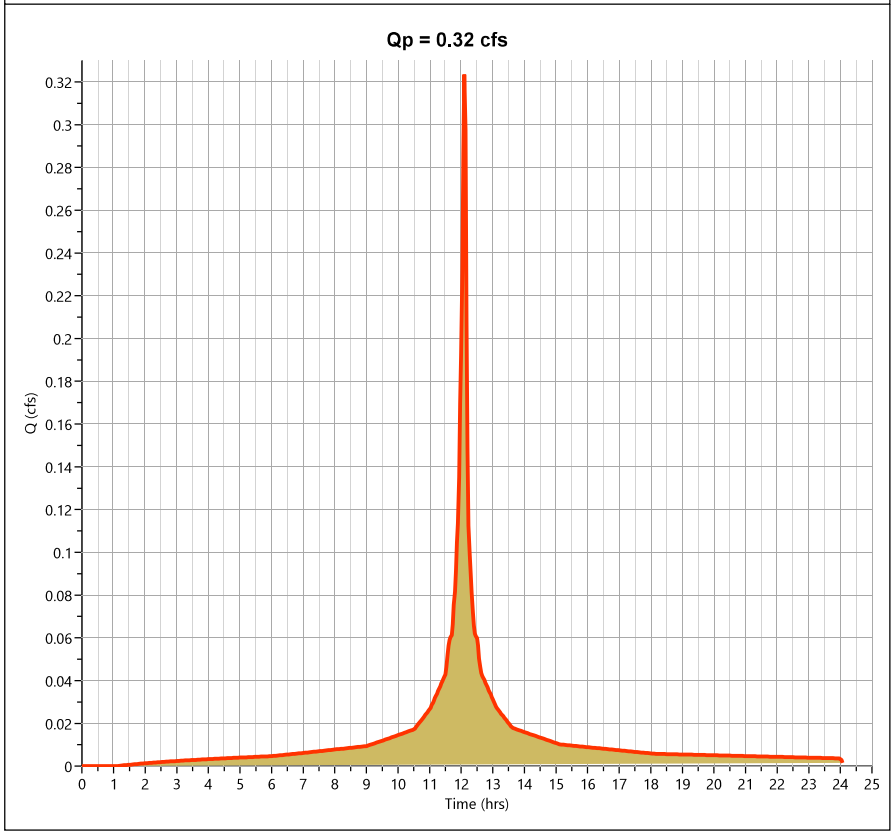
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.323 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,112 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

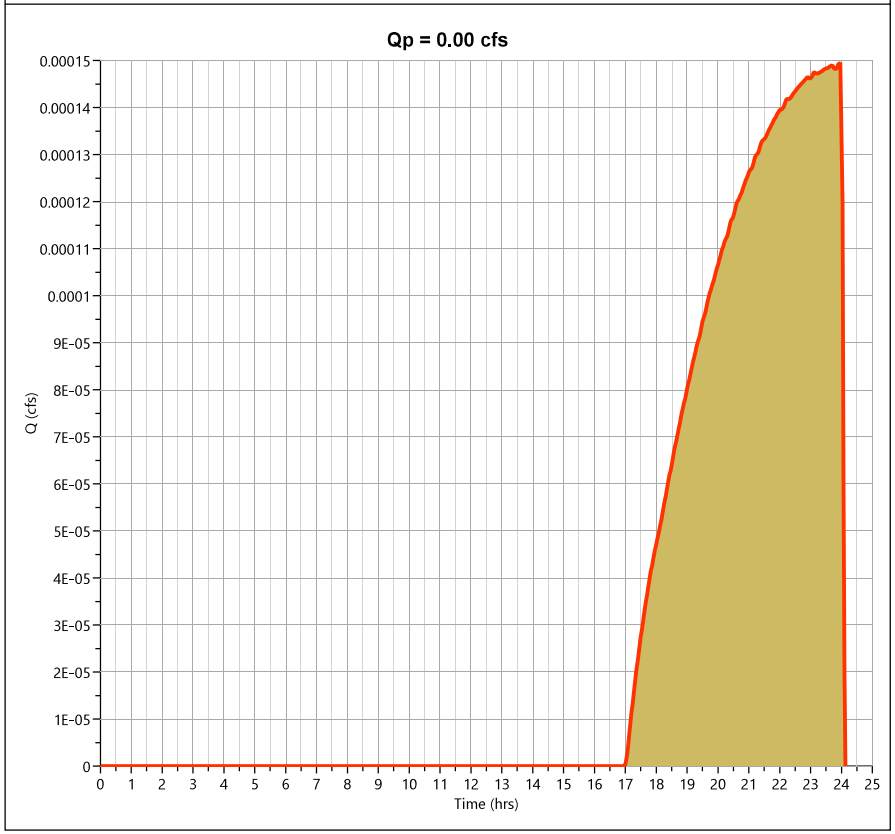
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

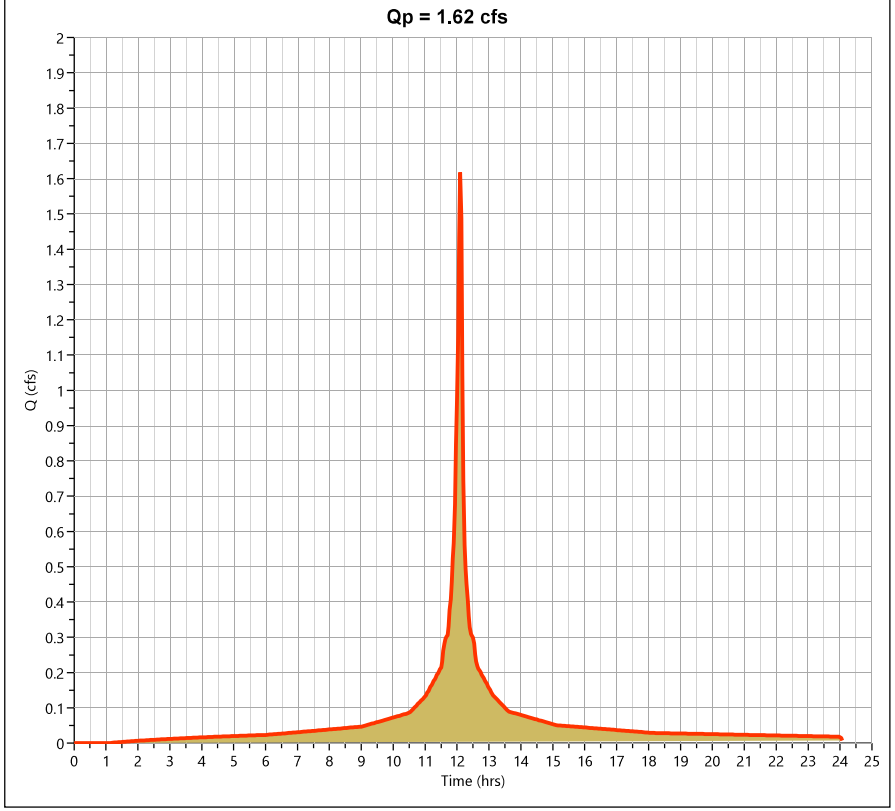
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.64 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.617 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 5,558 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

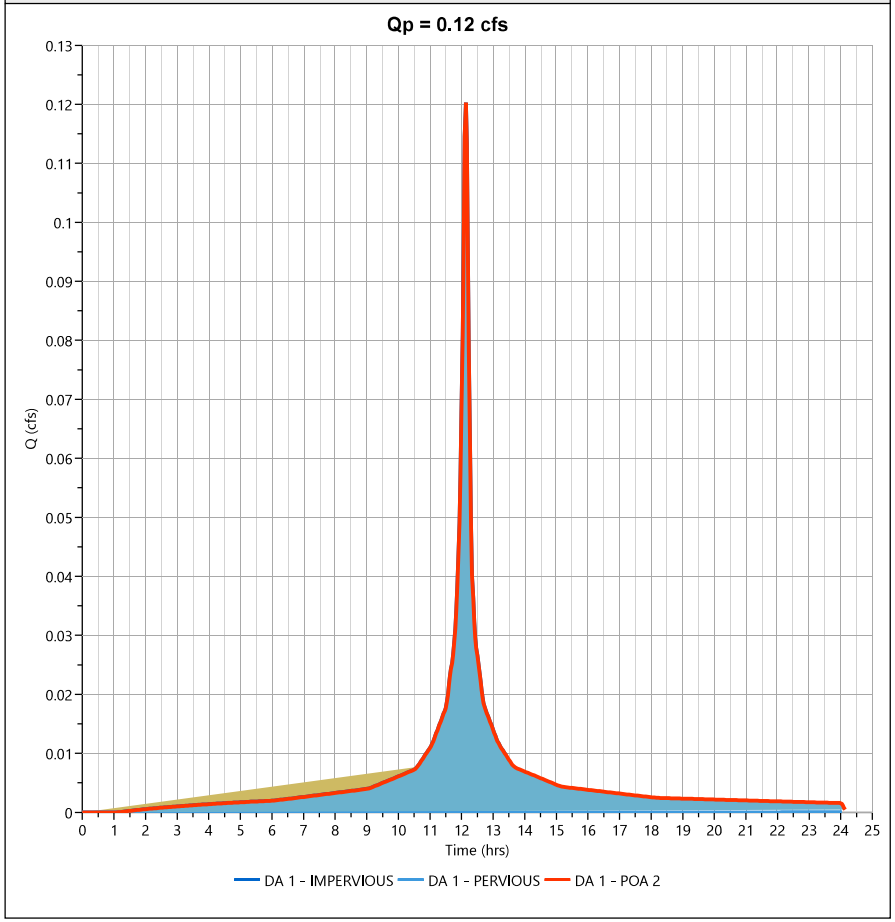


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.120 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 474 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

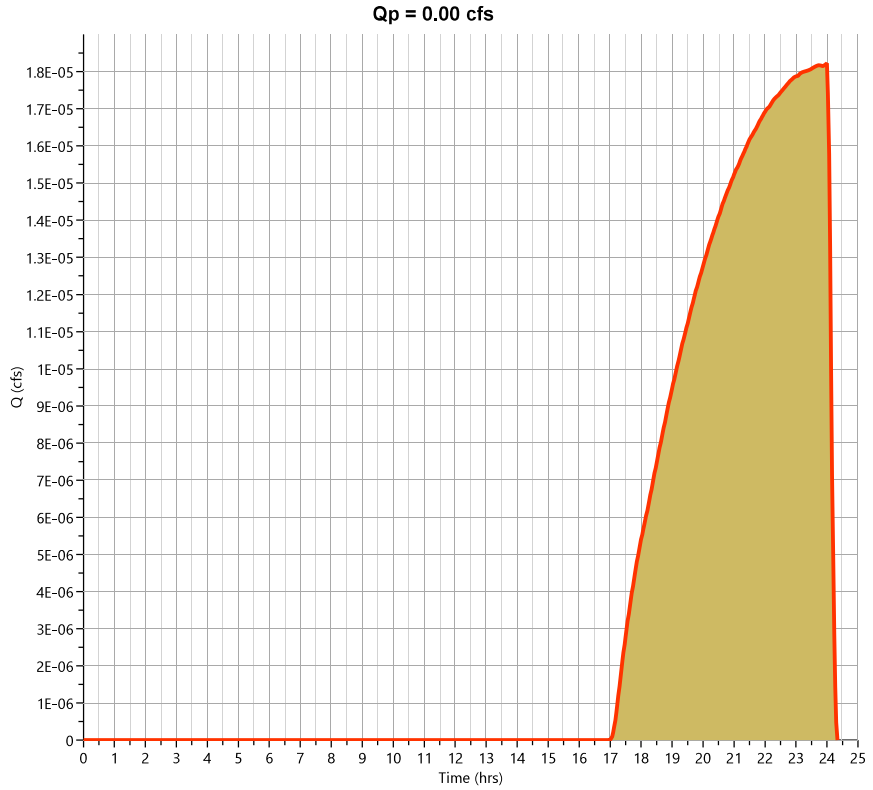
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.323 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

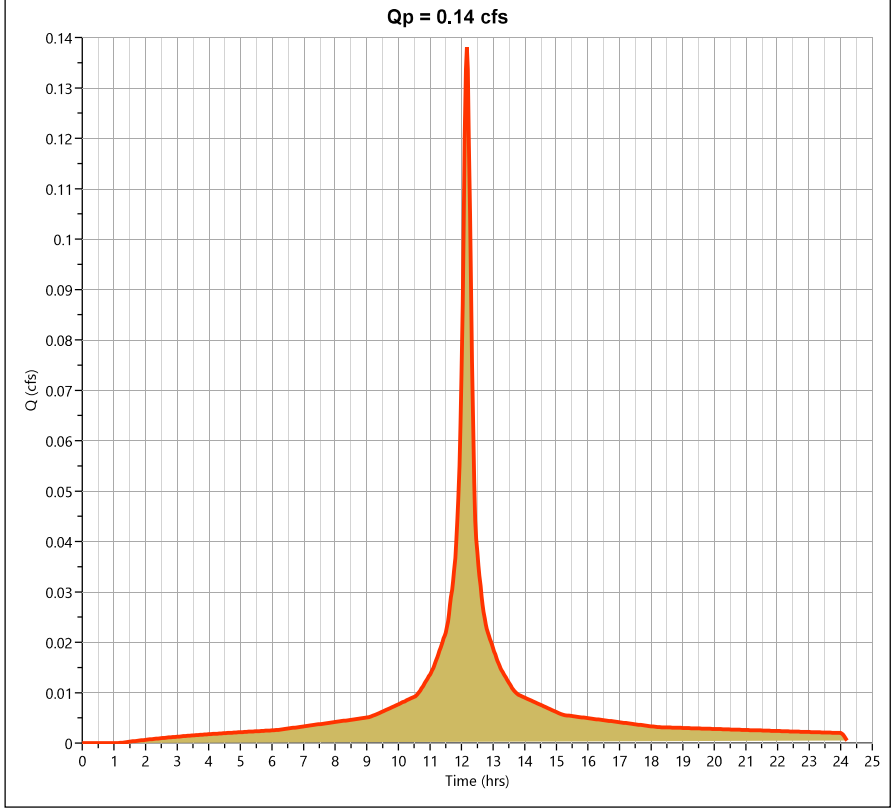
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.138 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 611 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

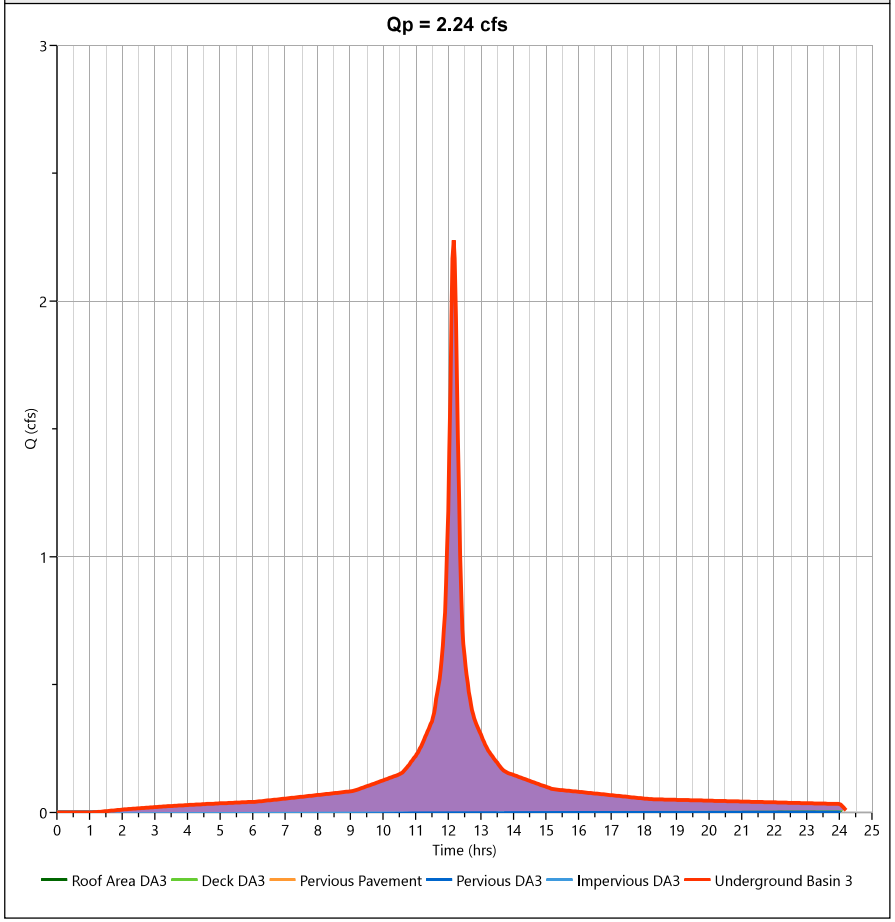
Hydrology Studio v 3.0.0.24

06-14-2022

Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 2.237 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 9,905 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

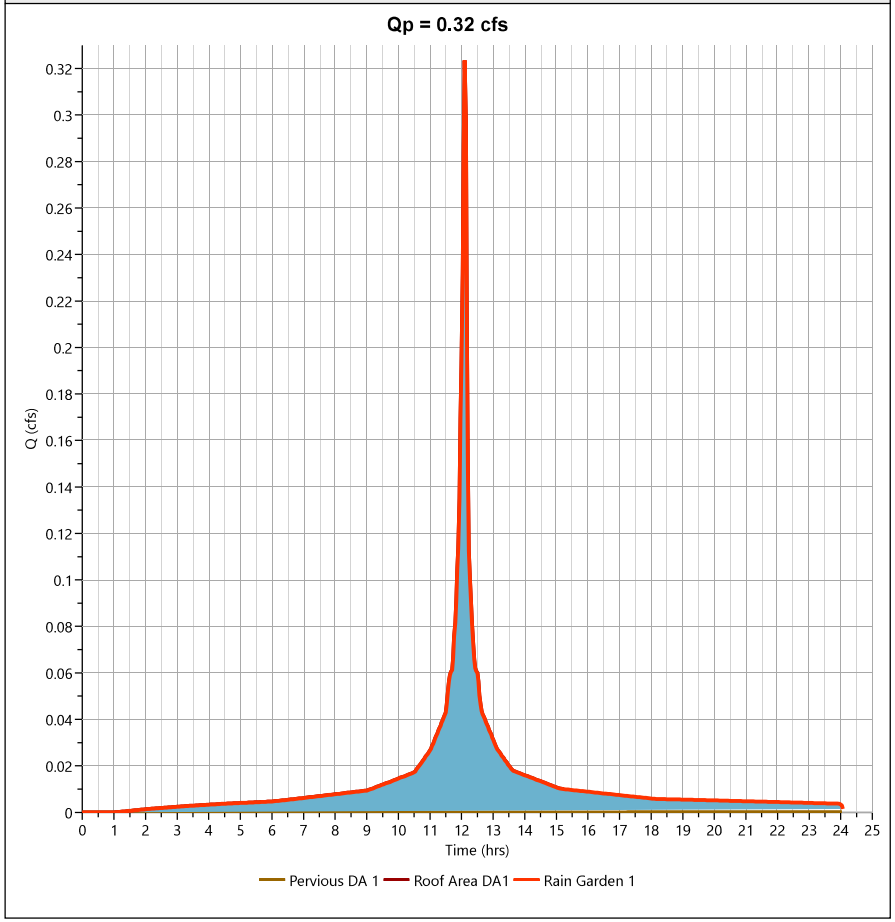
Hydrology Studio v 3.0.0.24

06-14-2022

Post Rain Garden 1

Hyd. No. 14

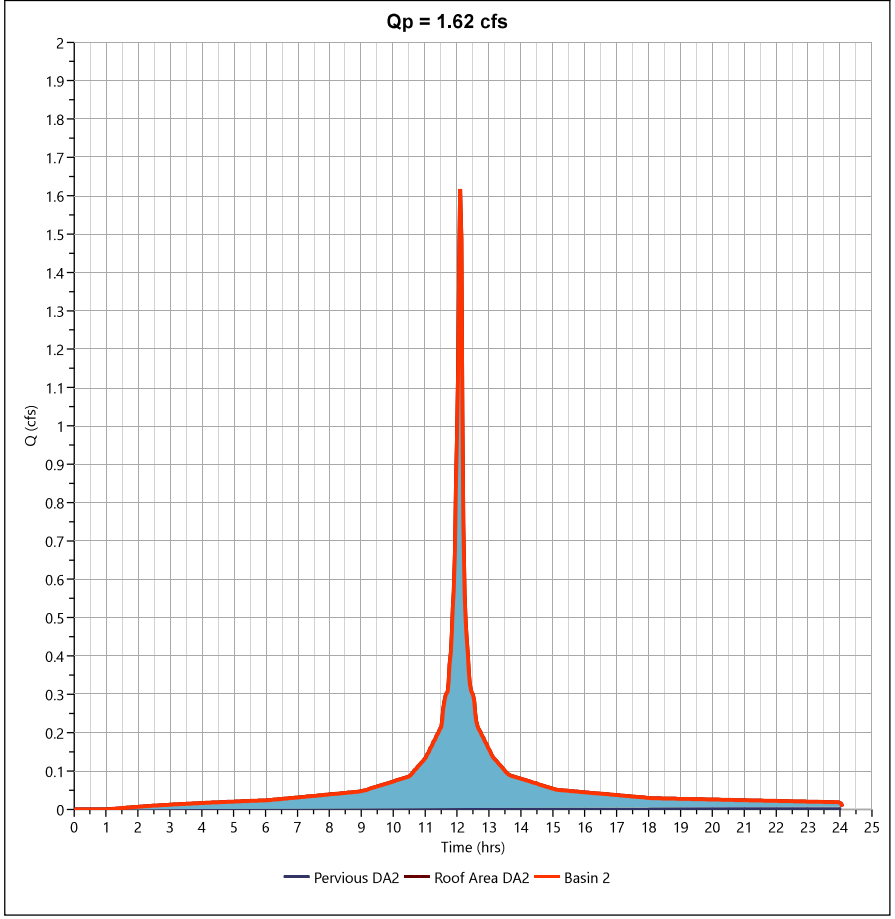
Hydrograph Type	= Junction	Peak Flow	= 0.323 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,113 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 1.617 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,561 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



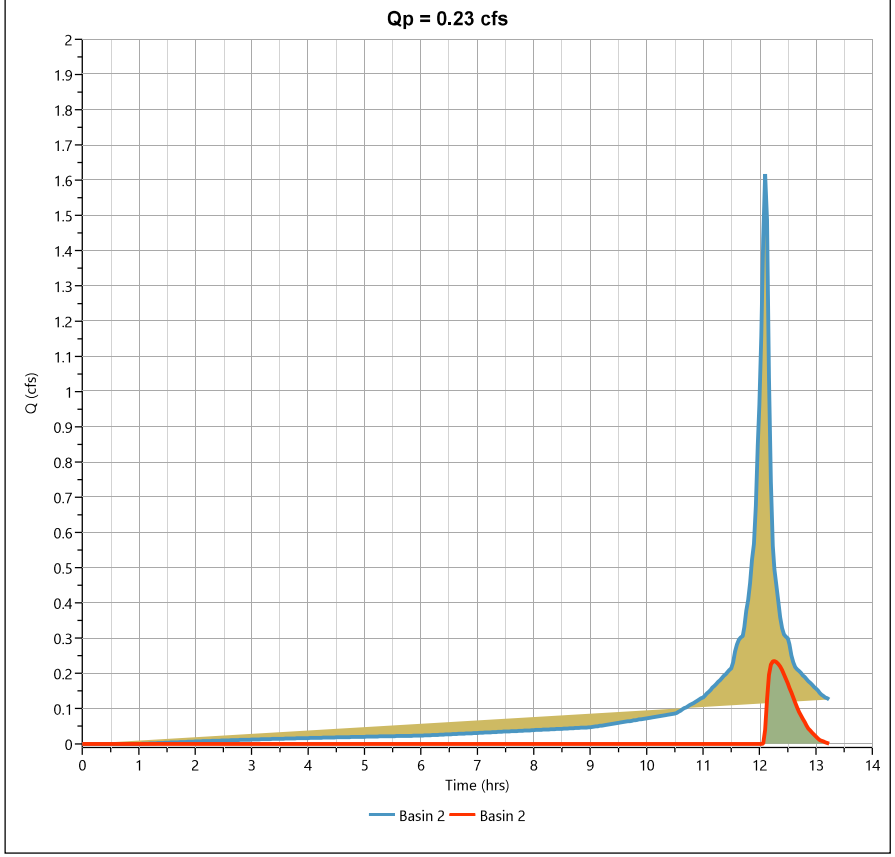
Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.235 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Hydrograph Volume	= 445 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 13.78 ft
Pond Name	= Basin 2	Max. Storage	= 1,143 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

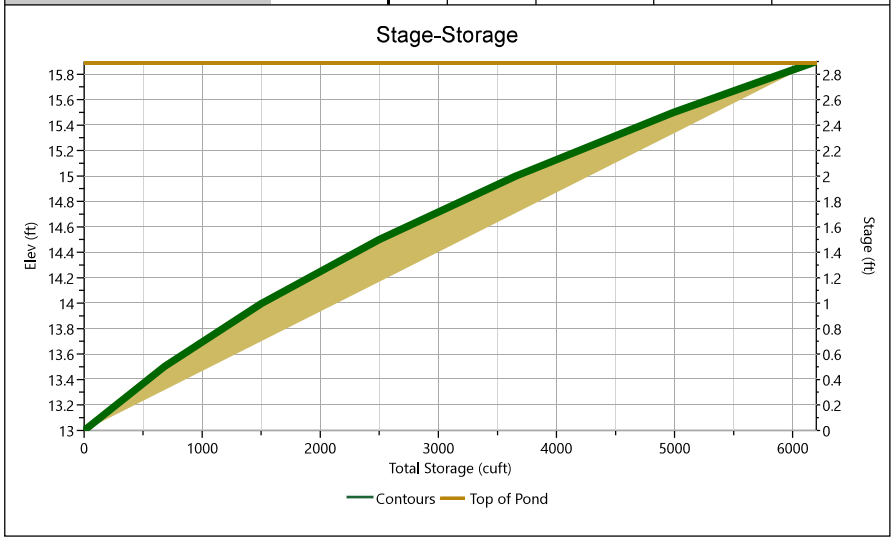
Basin 2

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	13.00
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	13.00	1,201	0.000	0.000
0.50	13.50	1,509	678	678
1.00	14.00	1,814	831	1,508
1.50	14.50	2,151	991	2,500
2.00	15.00	2,486	1,159	3,659
2.50	15.50	2,844	1,333	4,991
2.90	15.90	3,202	1,209	6,200



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

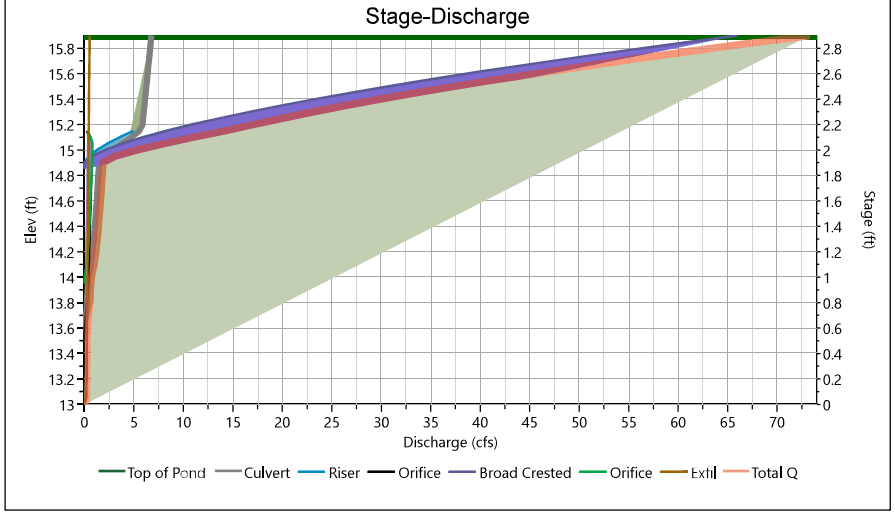
Basin 2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1*	Orifices 2*	Orifices 3	Orifice Plate	
Rise, in	12	3.5	1		Orifice Dia, in	
Span, in	12	3.5	24		No. Orifices	
No. Barrels	1	2	1		Invert Elevation, ft	
Invert Elevation, ft	12.19	13.50	13.98		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	30					
Barrel Slope, %	.3					
N-Value, n	0.013					

Weirs	Riser*	Weirs 1	Weirs 2	Weirs 3	Ancillary	
Shape / Type	Box	Broad Crested			Exfiltration, in/hr	7.20**
Crest Elevation, ft	14.9	14.9				
Crest Length, ft	12	20				
Angle, deg						
Weir Coefficient, Cw	3.3	3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	13.00	0.000	0.000	0.000	0.000		0.000	0.000				0.000		0.000
0.50	13.50	678	0.000 oc	0.000	0.000		0.000	0.000				0.252		0.251
1.00	14.00	1,508	0.402 oc	0.383	0.019		0.000	0.000				0.302		0.704
1.50	14.50	2,500	1.150 oc	0.595	0.555		0.000	0.000				0.359		1.508
2.00	15.00	3,659	2.795 oc	0.749	0.794		1.252	2.087				0.414		5.296
2.50	15.50	4,991	6.264 oc	0.000	0.000		0.000	30.67				0.474		37.41
2.90	15.90	6,200	6.766 oc	0.000	0.000		0.000	66.00				0.534		73.30

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

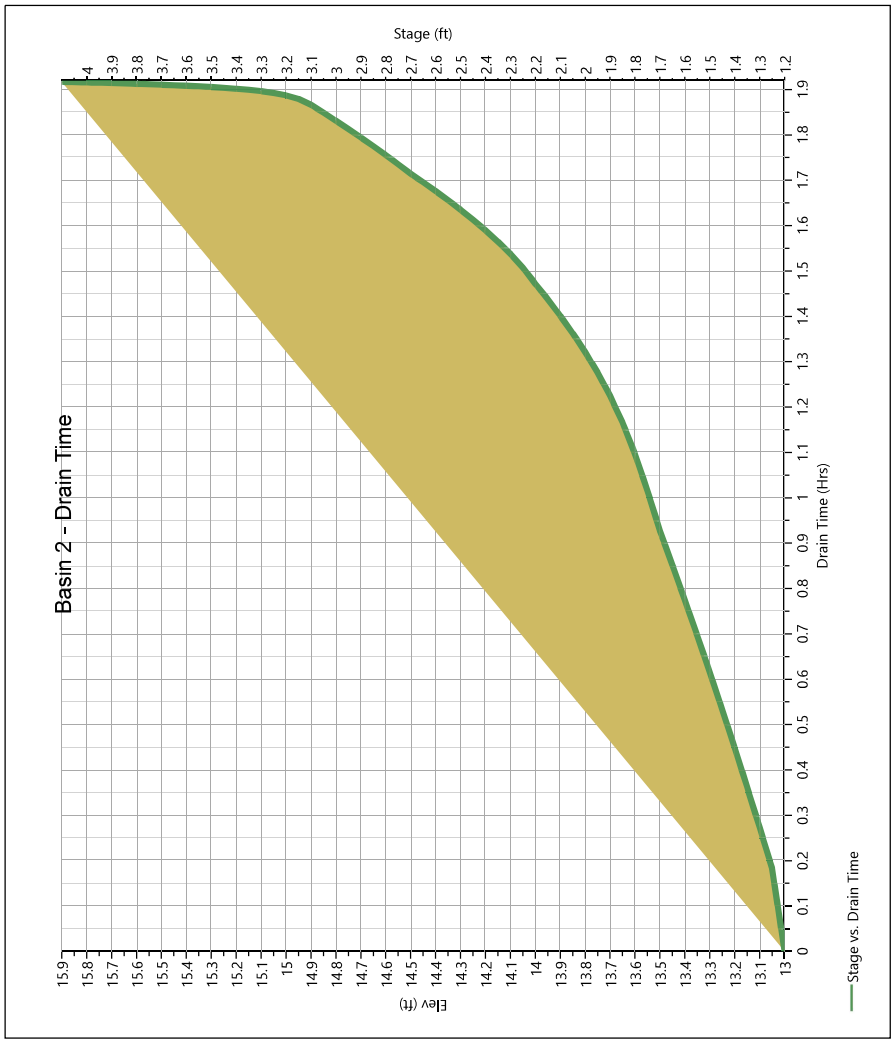
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

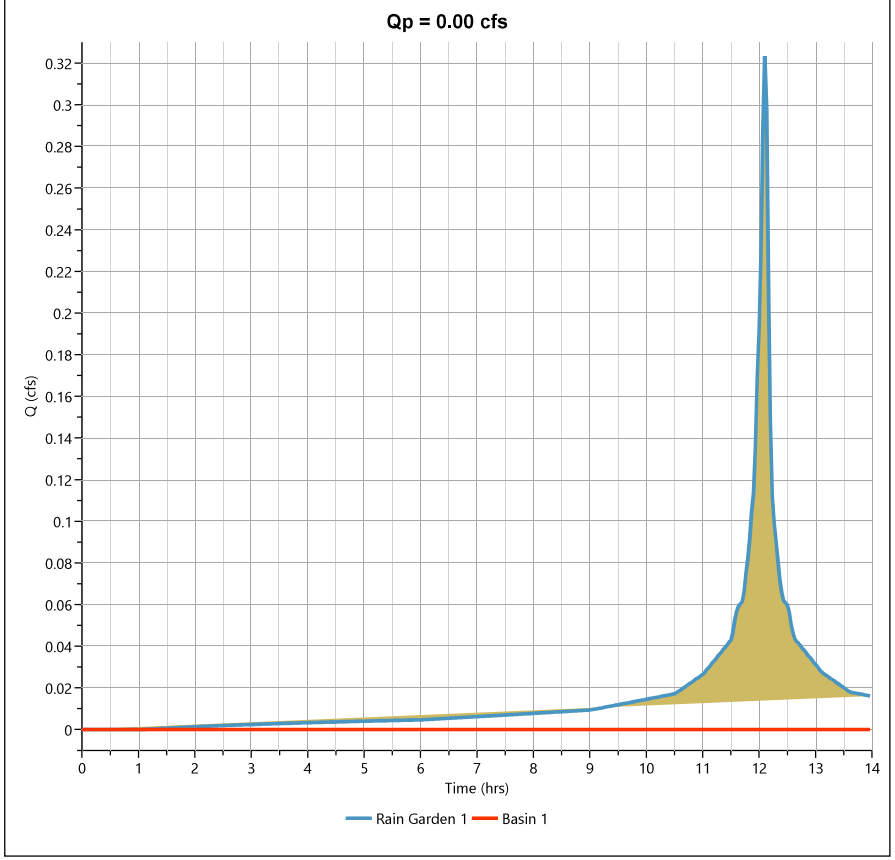
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.67 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.001 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.45 ft
Pond Name	= BASIN 1	Max. Storage	= 286 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

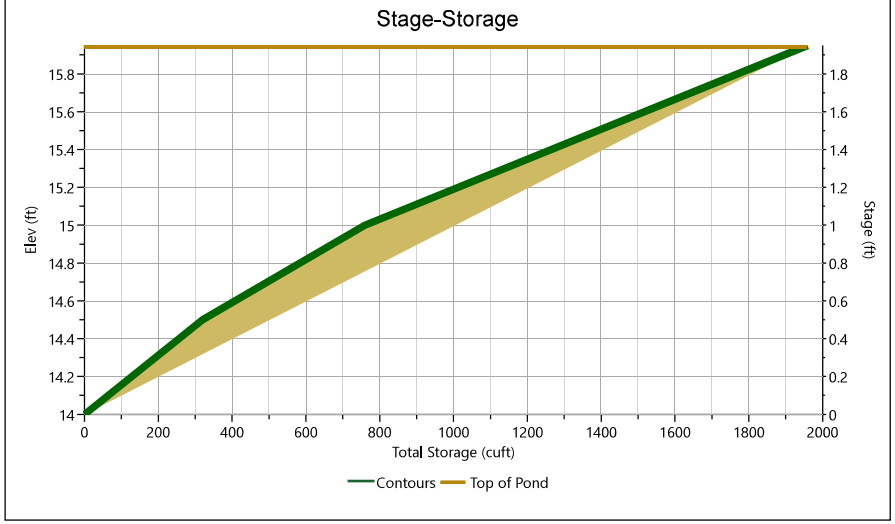
06-14-2022

BASIN 1

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	14.00
Voids (%)	100.00
Volume Calc	None

Stage / Storage Table				
Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	14.00	520	0.000	0.000
0.50	14.50	760	320	320
1.00	15.00	999	440	760
1.95	15.95	1,526	1,199	1,959



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Stage-Discharge

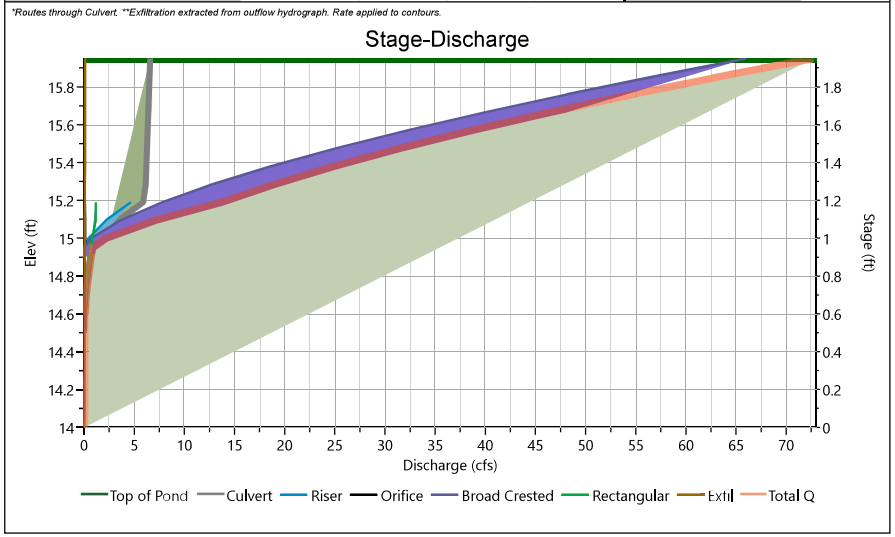
Culvert / Orifices	Culvert	Orifices		
		1*	2	3
Rise, in	12	2.5		
Span, in	12	2.5		
No. Barrels	1	1		
Invert Elevation, ft	10.23	14.50		
Orifice Coefficient, Co	0.60	0.60		
Length, ft	100			
Barrel Slope, %	.3			
N-Value, n	0.013			

Weirs	Riser*	Weirs		
		1	2*	3
Shape / Type	Box	Broad Crested	Rectangular	
Crest Elevation, ft	14.95	14.95	14.6	
Crest Length, ft	12	20	1	
Angle, deg				
Weir Coefficient, Cw	3.3	3.3	3.3	

Orifice Plate	
Orifice Dia, in	
No. Orifices	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Ancillary	
Exfiltration, in/hr	3.25**

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	14.00	0.000	0.000	0.000			0.000	0.000	0.000			0.000		0.000
0.50	14.50	320	0.000 oc	0.000			0.000	0.000	0.000			0.057		0.057
1.00	15.00	760	1.381 oc	0.103			0.443	0.738	0.835			0.075		2.194
1.95	15.95	1,959	6.585 oc	0.000			0.000	66.00	0.000			0.115		72.70

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

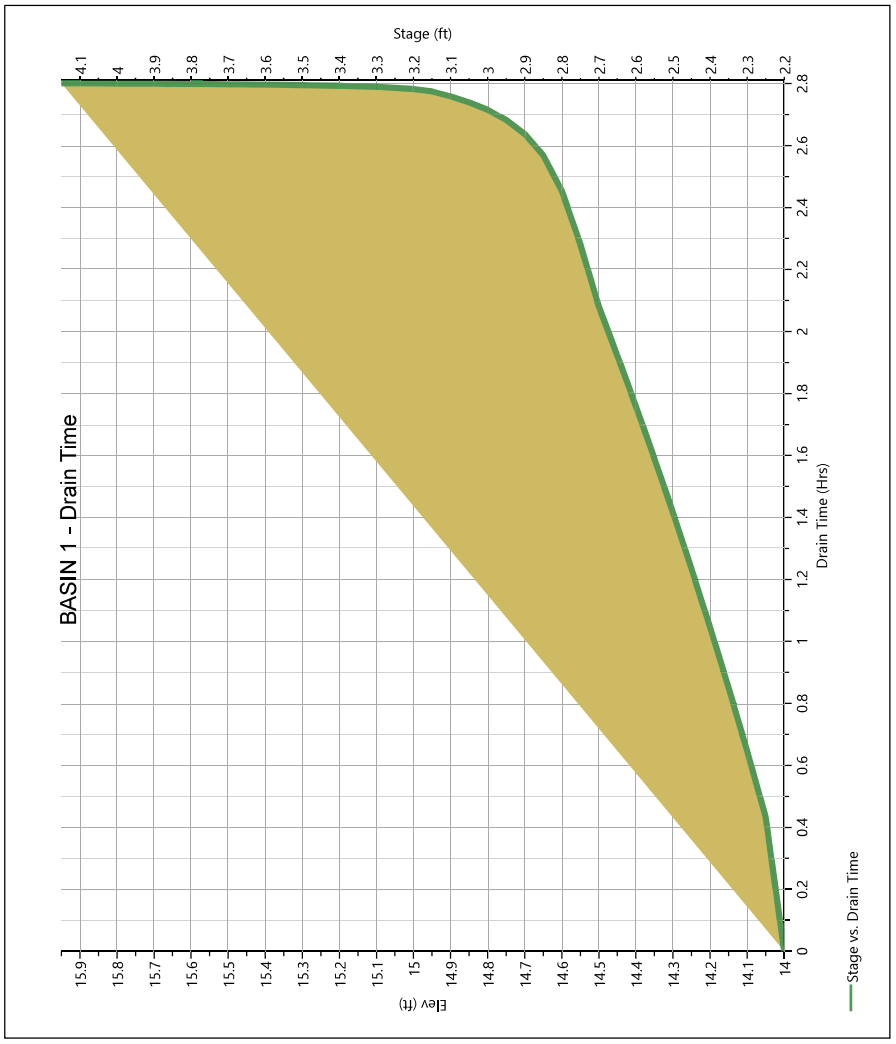
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Pond Drawdown



Hydrograph Report

Project Name:

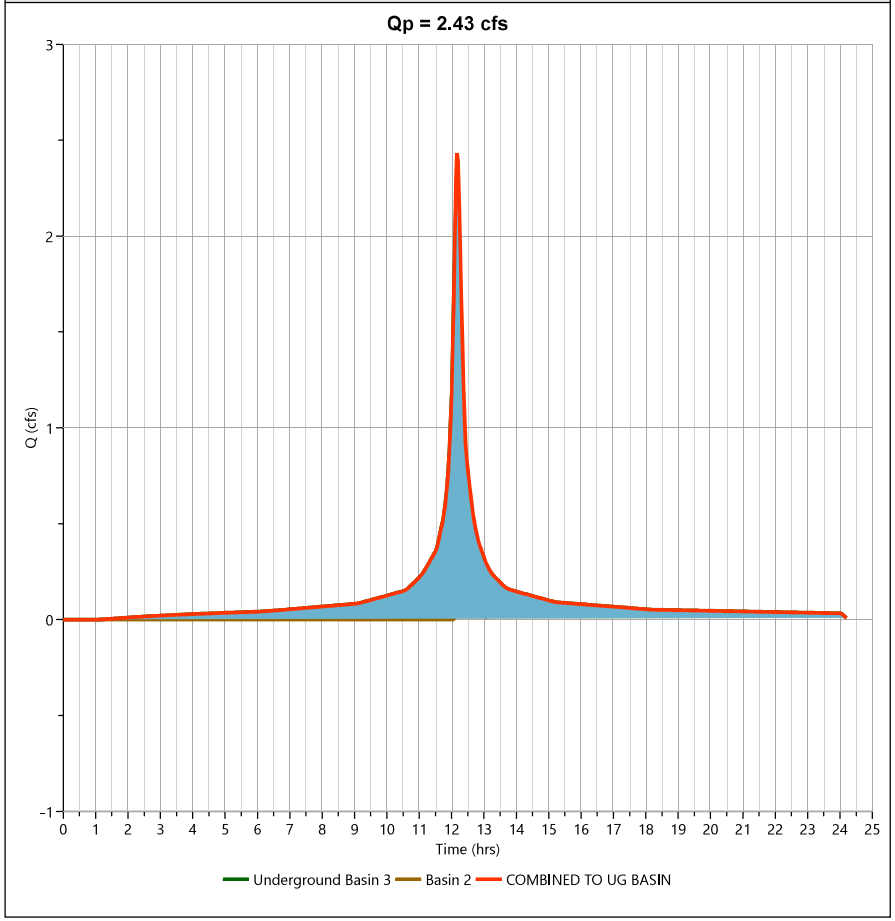
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 2.432 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 10,350 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

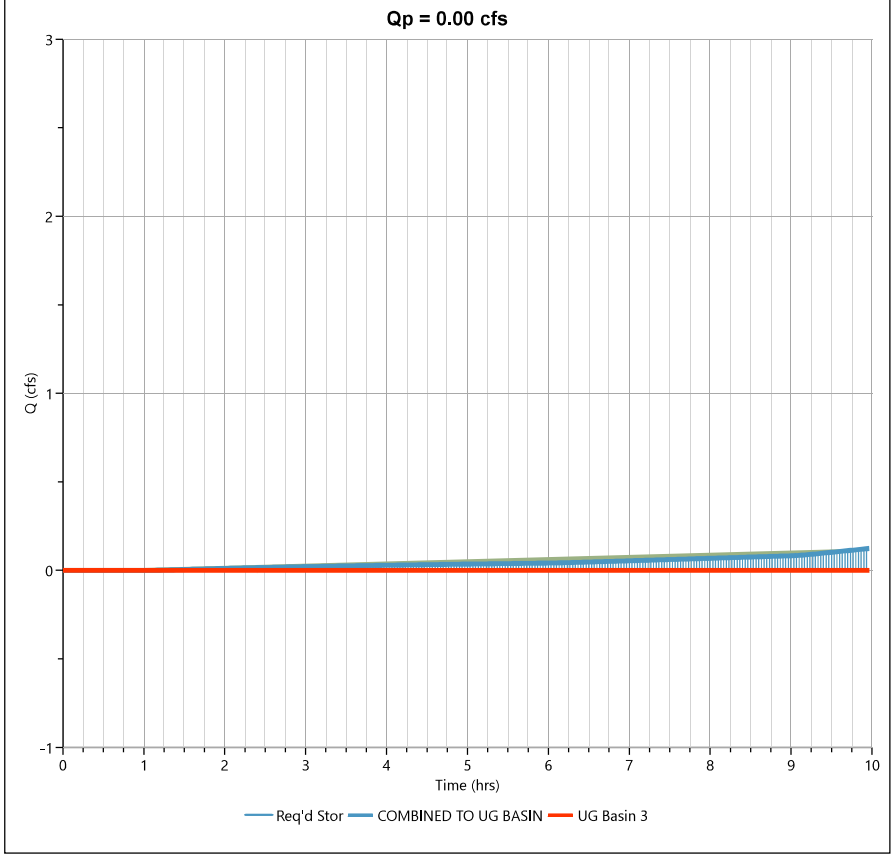
06-14-2022

Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 9.93 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 12.36 ft
Pond Name	= UG BASIN	Max. Storage	= 1,890 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

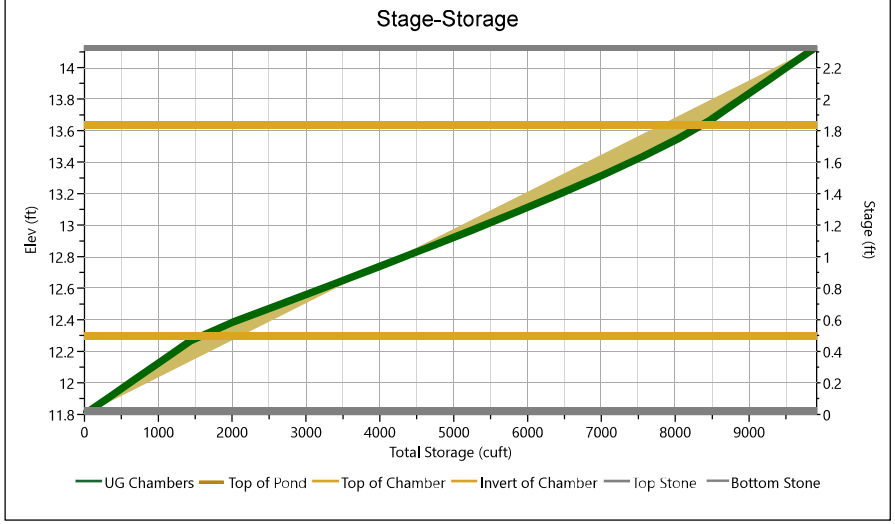
06-14-2022

UG BASIN

Stage-Storage

StormTech® SC-310™ Chamber	
Description	Input
Chamber Height, in	16
Chamber Shape	Arch
Chamber Width, in	34
Installed Length, ft	7.12
No. Chambers	309
Bare Chamber Stor, cuft	4,542
No. Rows	20
Space Between Rows, in	6
Stone Above, in	6
Stone Below, in	6
Stone Sides, in	12
Stone Ends, in	12
Encasement Voids, %	40.00
Encasement Bottom Elevation, ft	11.80

Stage / Storage Table				
Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.0	11.80	7,703	0.000	0.000
1.4	11.92	7,703	359	359
2.8	12.03	7,703	359	719
4.2	12.15	7,703	359	1,078
5.6	12.27	7,703	359	1,438
7.0	12.38	7,703	564	2,002
8.4	12.50	7,703	660	2,662
9.8	12.62	7,703	656	3,318
11.2	12.73	7,703	650	3,967
12.6	12.85	7,703	640	4,608
14.0	12.97	7,703	628	5,236
15.4	13.08	7,703	613	5,849
16.8	13.20	7,703	594	6,443
18.2	13.32	7,703	569	7,013
19.6	13.43	7,703	538	7,550
21.0	13.55	7,703	494	8,044
22.4	13.67	7,703	433	8,477
23.8	13.78	7,703	359	8,837
25.2	13.90	7,703	359	9,196
26.6	14.02	7,703	359	9,555
28.0	14.13	7,703	359	9,915



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Stage-Discharge

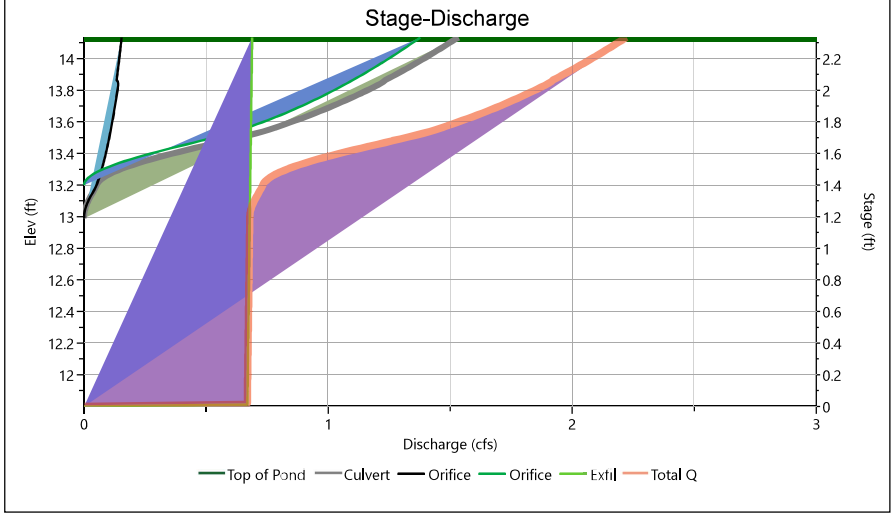
Culvert / Orifices	Culvert	Orifices		
		1*	2*	3
Rise, in	12	2.5	4.5	
Span, in	12	2.5	4.5	
No. Barrels	1	1	3	
Invert Elevation, ft	12.20	13.00	13.20	
Orifice Coefficient, Co	0.60	0.60	0.60	
Length, ft	30			
Barrel Slope, %	.3			
N-Value, n	0.013			

Weirs	Riser*	Weirs		
		1*	2	3
Shape / Type		Rectangular		
Crest Elevation, ft		14.13		
Crest Length, ft		5		
Angle, deg				
Weir Coefficient, Cw		3.3		

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Ancillary	
Exfiltration, in/hr	3.75**

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	11.80	0.000	0.000	0.000	0.000			0.000				0.000		0.000
0.12	11.92	359	0.000	0.000	0.000			0.000				0.670		0.670
0.23	12.03	719	0.000	0.000	0.000			0.000				0.671		0.671
0.35	12.15	1,078	0.000	0.000	0.000			0.000				0.672		0.672
0.47	12.27	1,438	0.000	0.000	0.000			0.000				0.673		0.673
0.58	12.38	2,002	0.000	0.000	0.000			0.000				0.674		0.674
0.70	12.50	2,662	0.000	0.000	0.000			0.000				0.675		0.675
0.82	12.62	3,318	0.000	0.000	0.000			0.000				0.676		0.676
0.93	12.73	3,967	0.000	0.000	0.000			0.000				0.677		0.677
1.05	12.85	4,608	0.000	0.000	0.000			0.000				0.678		0.678
1.17	12.97	5,236	0.000	0.000	0.000			0.000				0.679		0.679
1.28	13.08	5,849	0.013 oc	0.013	0.000			0.000				0.680		0.692
1.40	13.20	6,443	0.051 oc	0.051	0.000			0.000				0.681		0.732
1.52	13.32	7,013	0.180 oc	0.076	0.104			0.000				0.682		0.862
1.63	13.43	7,550	0.452 oc	0.094	0.358			0.000				0.683		1.135
1.75	13.55	8,044	0.758 oc	0.110	0.649			0.000				0.684		1.442
1.87	13.67	8,477	0.966 oc	0.123	0.843			0.000				0.685		1.651
1.98	13.78	8,837	1.139 oc	0.135	1.004			0.000				0.686		1.825
2.10	13.90	9,196	1.278 oc	0.136	1.142			0.000				0.687		1.965
2.22	14.02	9,555	1.411 oc	0.145	1.265			0.000				0.688		2.098
2.33	14.13	9,915	1.535 oc	0.154	1.378			0.003				0.689		2.223

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

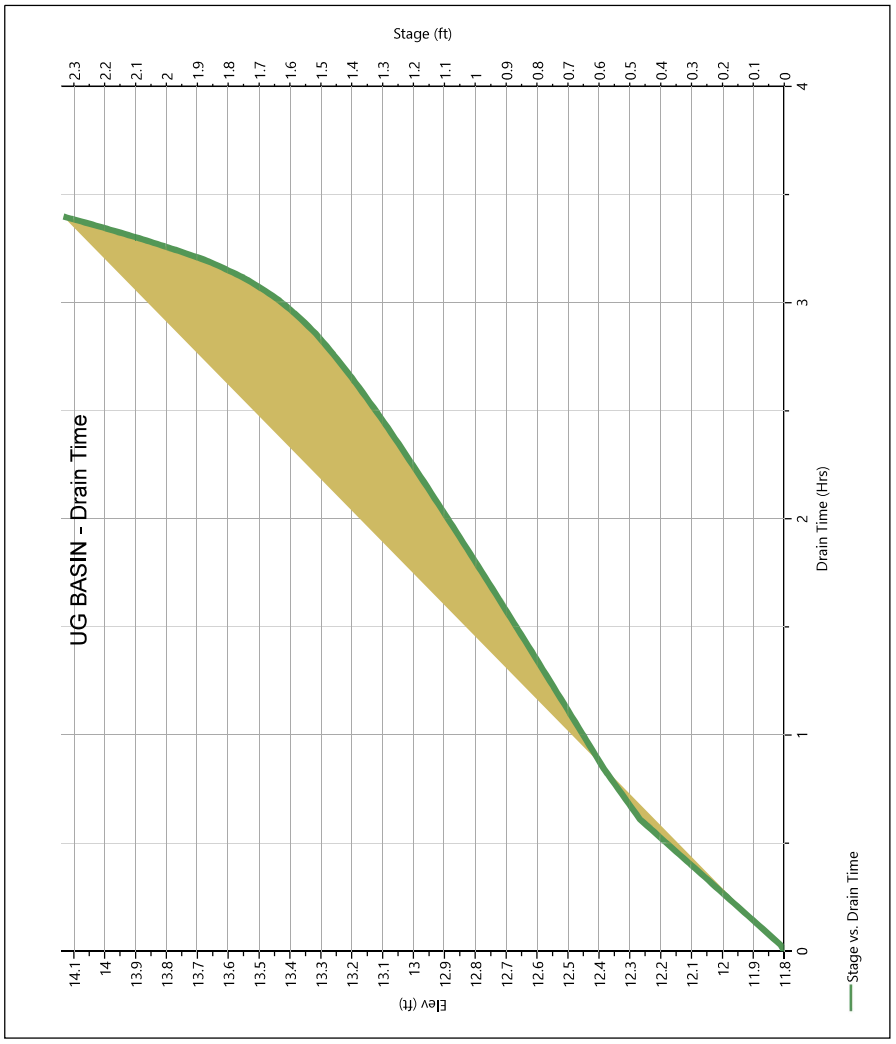
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Pond Drawdown



Hydrograph Report

Project Name:

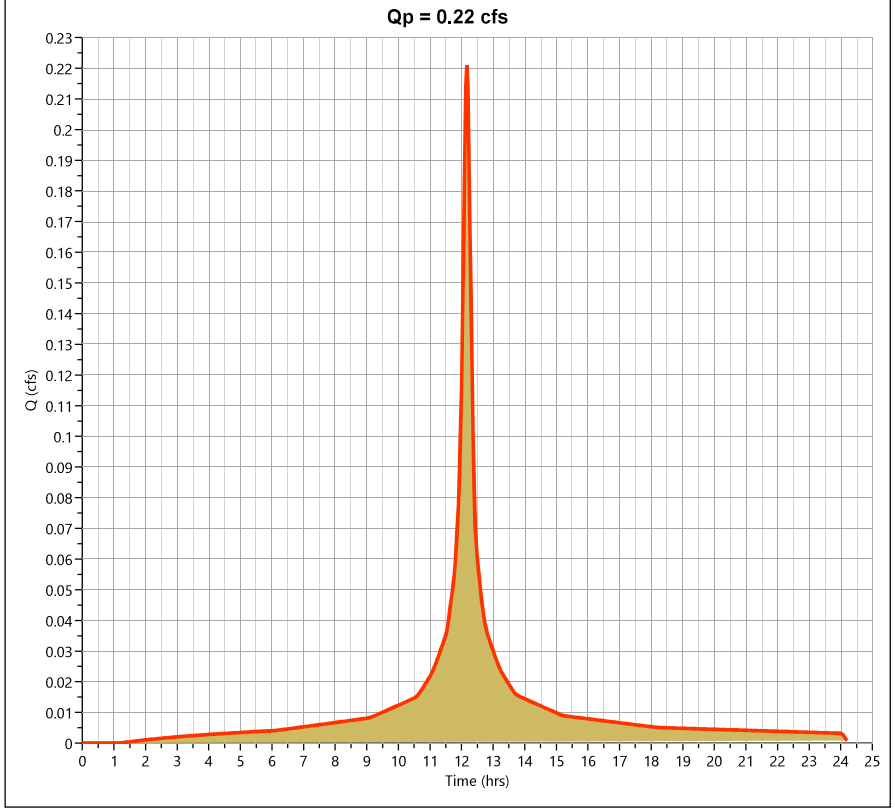
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 978 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

Qp = 0.00 cfs

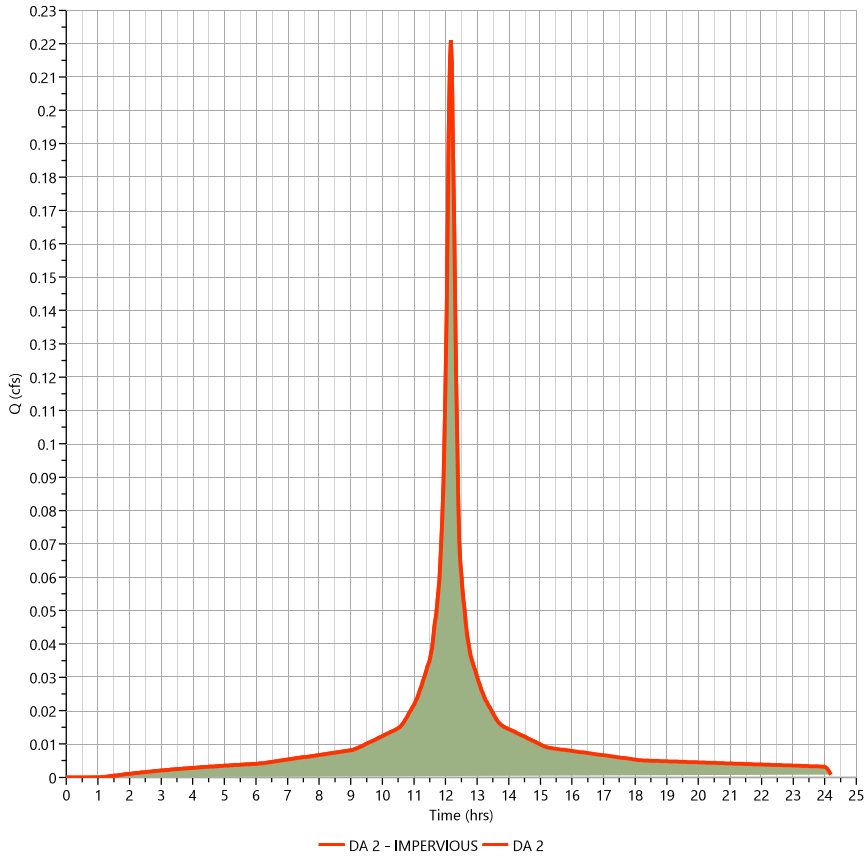
Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 978 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac

Qp = 0.22 cfs



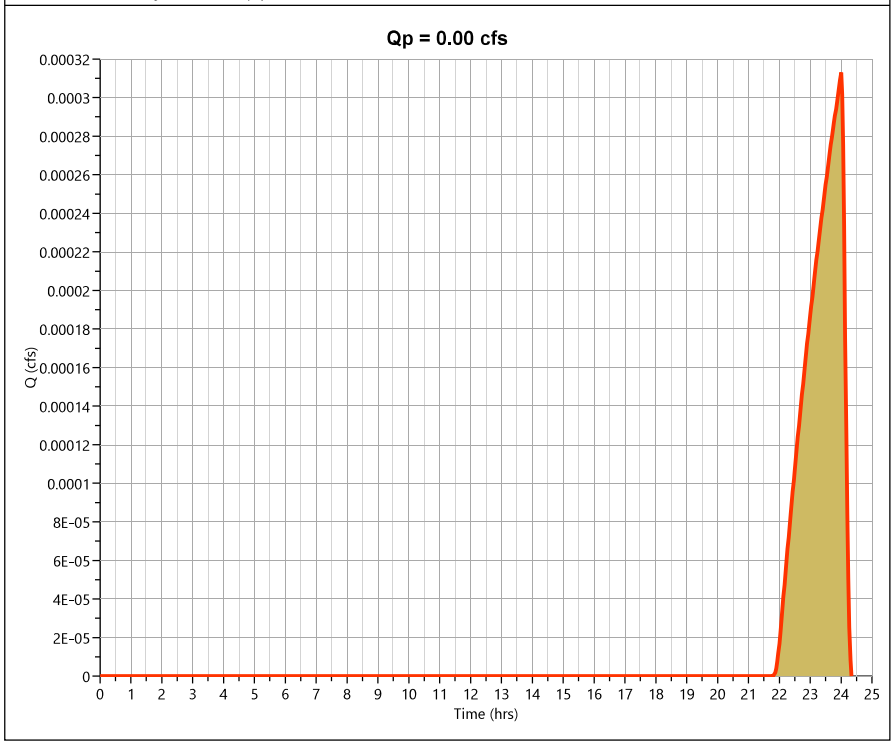
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.47 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

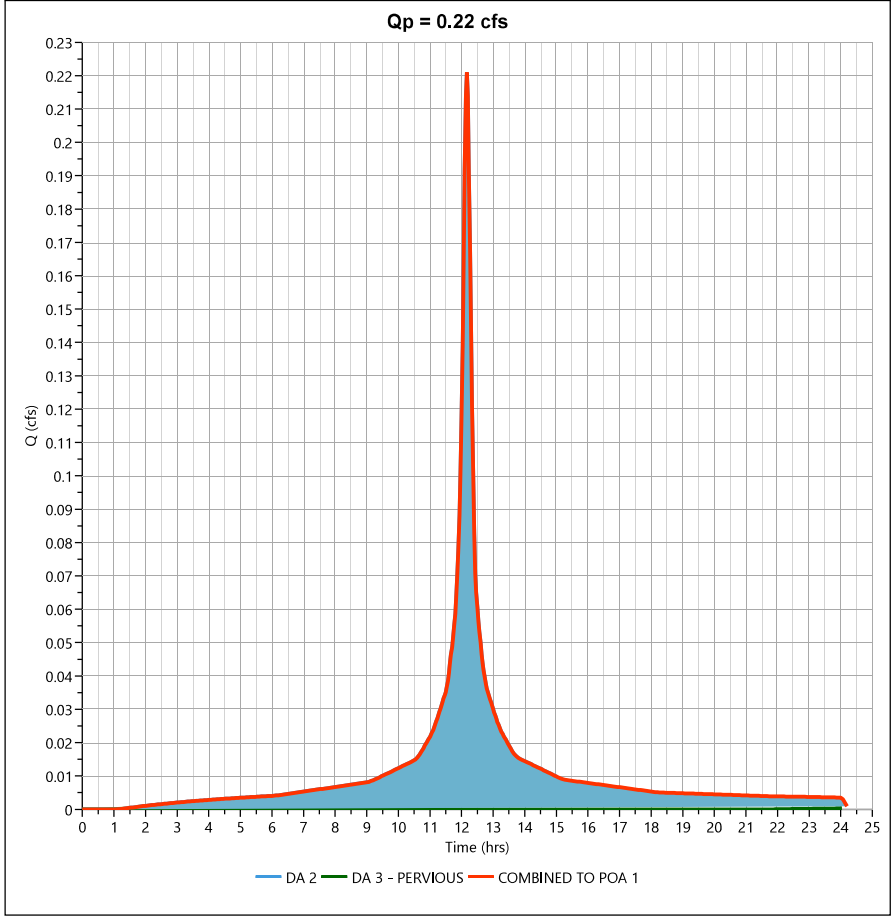


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 980 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

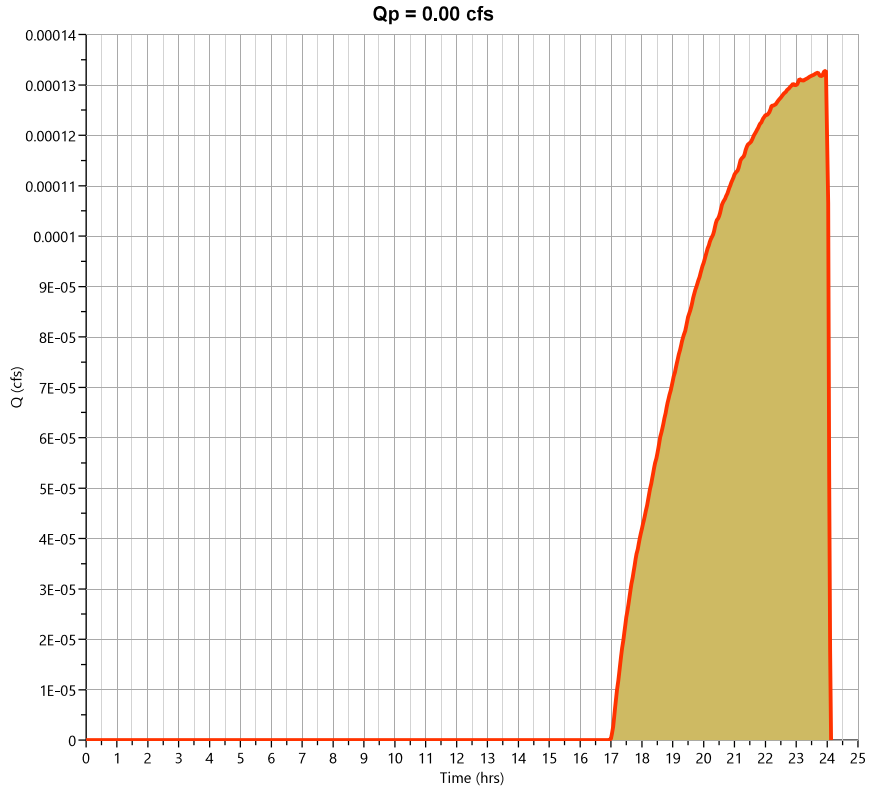
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.35 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

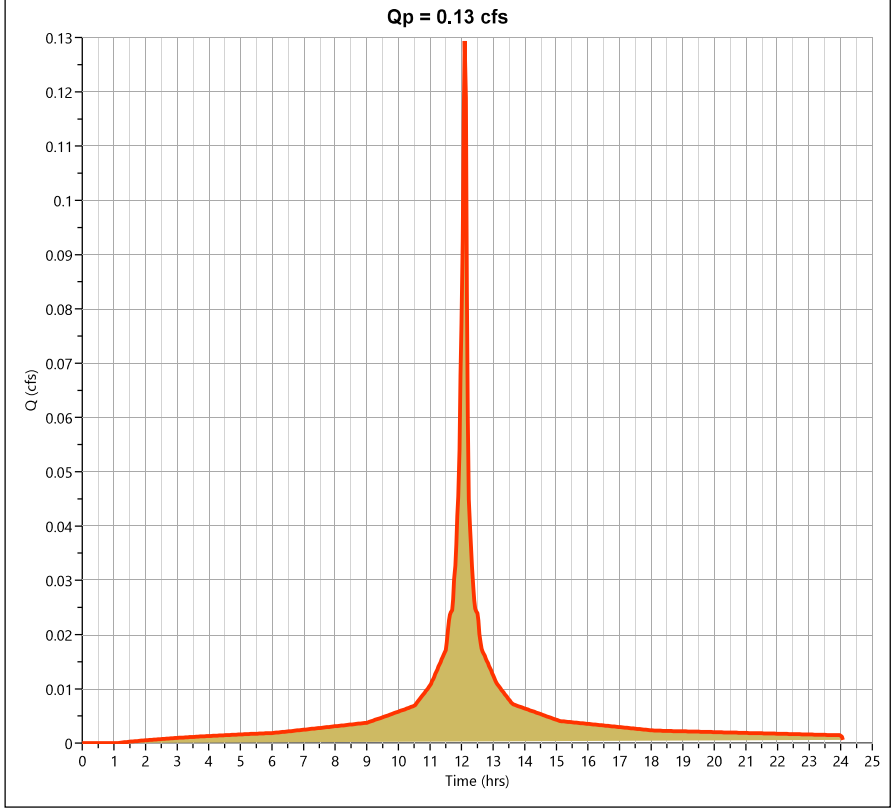
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 445 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

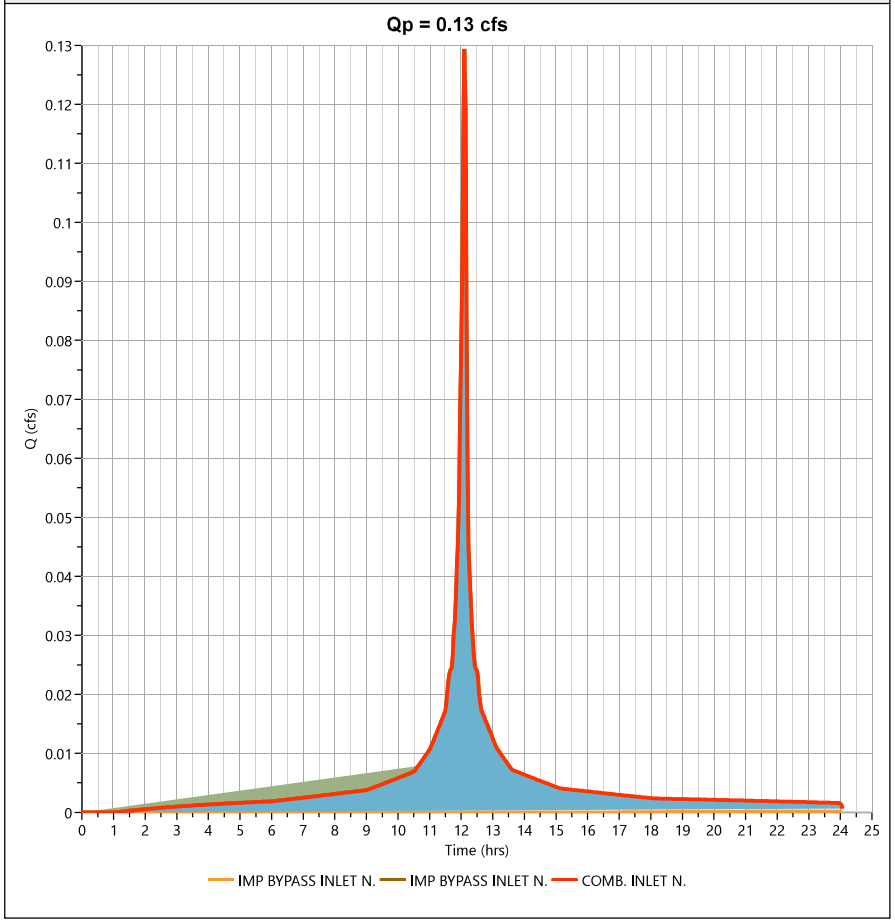
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 447 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

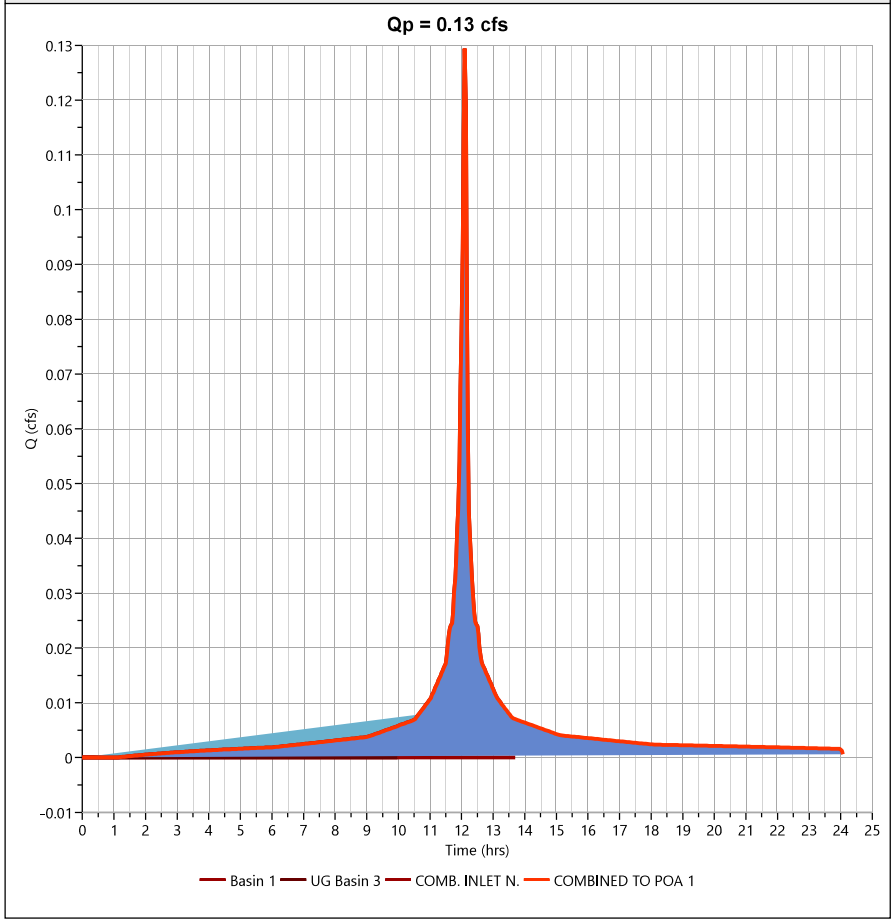
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 447 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

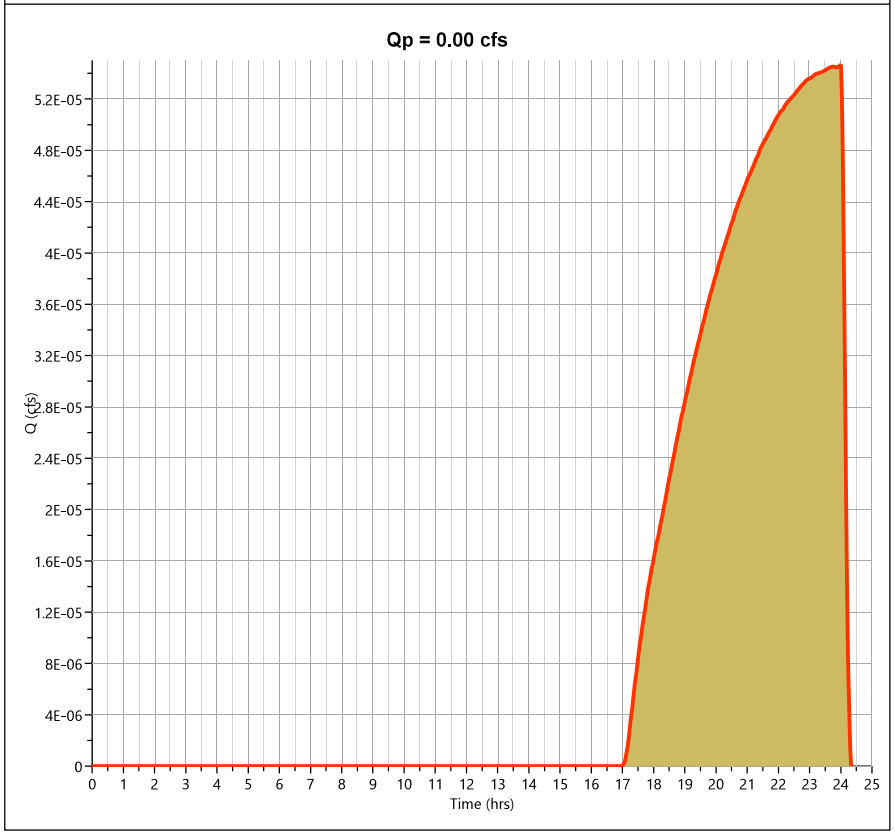
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.969 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

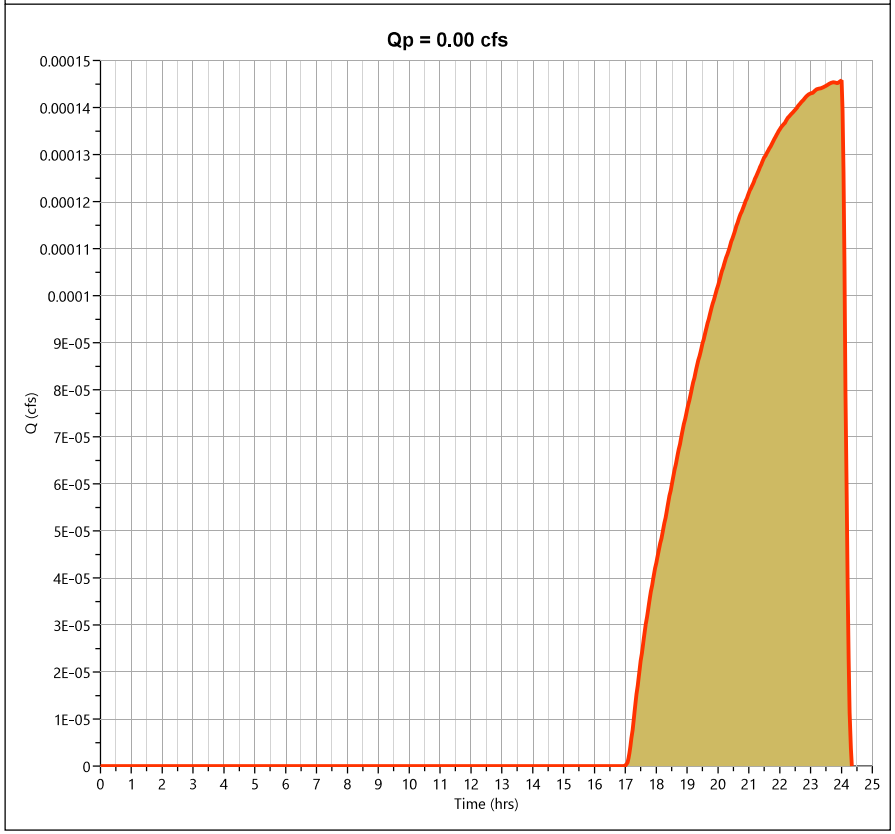
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.59 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

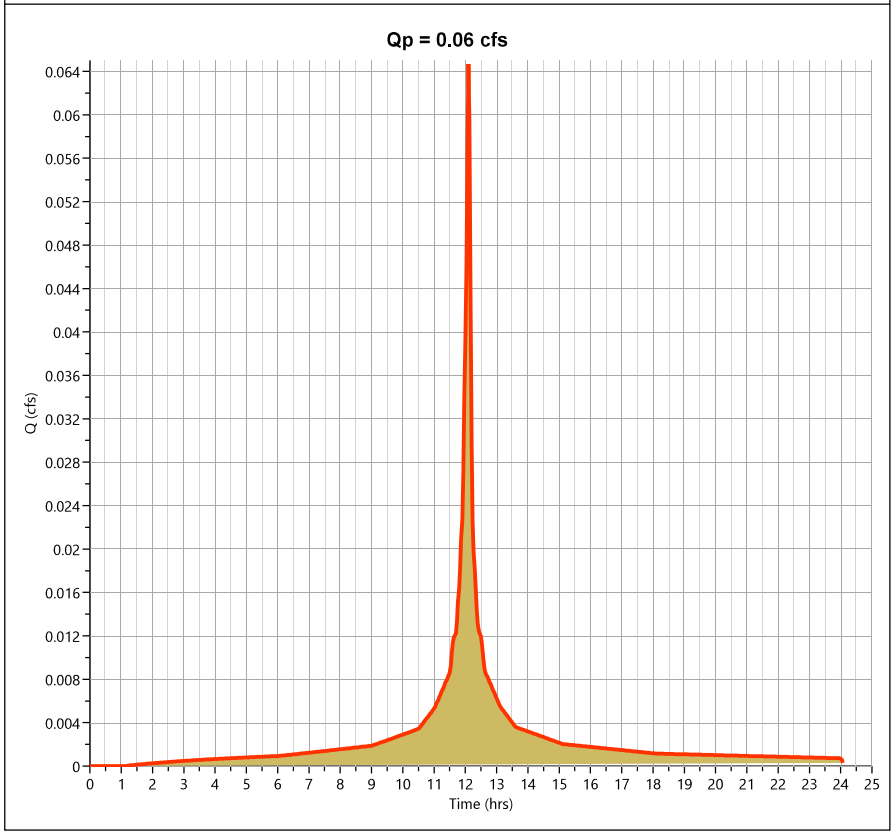
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.065 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 222 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

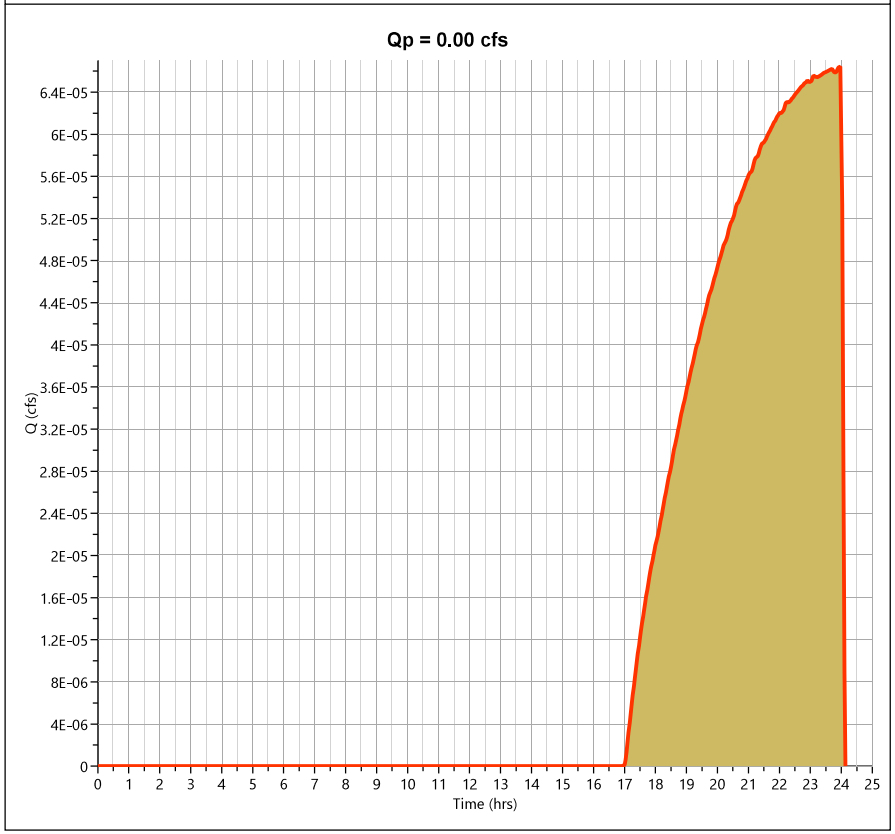
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.18 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

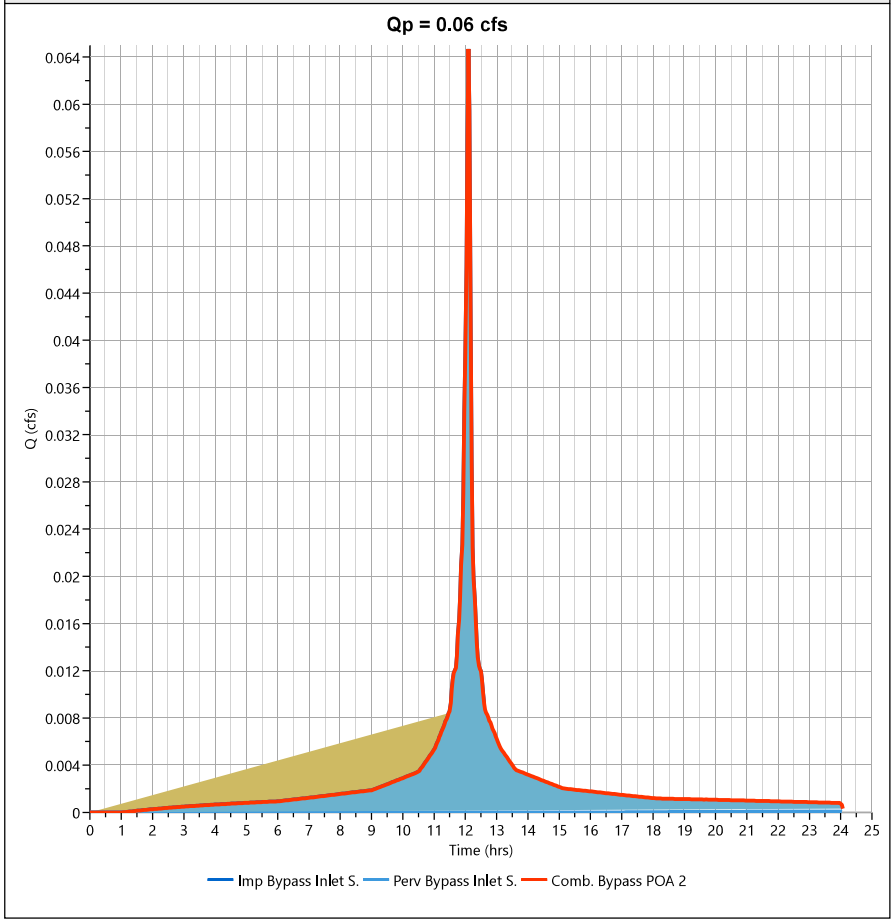
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.065 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 223 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.187	12.13	753	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.002	12.97	38.7	—		
3	NRCS Runoff	Post Roof Area DA3	1.248	12.17	5,626	—		
4	NRCS Runoff	Post Deck DA3	1.377	12.17	6,208	—		
5	NRCS Runoff	Post Pervious Pavement	0.646	12.17	2,910	—		
6	NRCS Runoff	Post Pervious DA 1	0.003	12.50	49.8	—		
7	NRCS Runoff	Post Roof Area DA1	0.504	12.10	1,764	—		
8	NRCS Runoff	Post Pervious DA2	0.005	12.50	89.7	—		
9	NRCS Runoff	Post Roof Area DA2	2.519	12.10	8,818	—		
10	Junction	Pre DA 1 - POA 2	0.187	12.13	791	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.001	12.60	11.0	—		
12	NRCS Runoff	Post Impervious DA3	0.215	12.17	970	—		
13	Junction	Post Underground Basin 3	3.486	12.17	15,725	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.504	12.10	1,814	6, 7		
15	Junction	Post Basin 2	2.519	12.10	8,908	8, 9		
16	Pond Route	Post Basin 2	0.769	12.20	1,709	15	14.17	1,838
17	Pond Route	Post Basin 1	0.084	12.30	161	14	14.66	458
18	Junction	Post COMBINED TO UG BASIN	4.226	12.17	17,434	13, 16		
19	Pond Route	Post UG Basin 3	0.000	12.73	0.000	18	12.92	4,962
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.344	12.17	1,552	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.021	13.30	570	—		
22	Junction	Pre DA 2	0.344	12.17	2,122	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.026	13.00	598	—		
24	Junction	Pre COMBINED TO POA 1	0.344	12.17	2,720	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.005	12.50	79.7	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.202	12.10	705	—		
27	Junction	COMB. INLET N.	0.202	12.10	785	25, 26		
28	Junction	Post COMBINED TO POA 1	0.204	12.10	946	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.002	12.60	32.9	—		
30	NRCS Runoff	Post Bypass Memorial	0.005	12.60	87.7	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.101	12.10	353	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.002	12.50	39.9	—		
33	Junction	Post Comb. Bypass POA 2	0.101	12.10	393	31, 32		

Hydrograph Report

Project Name:

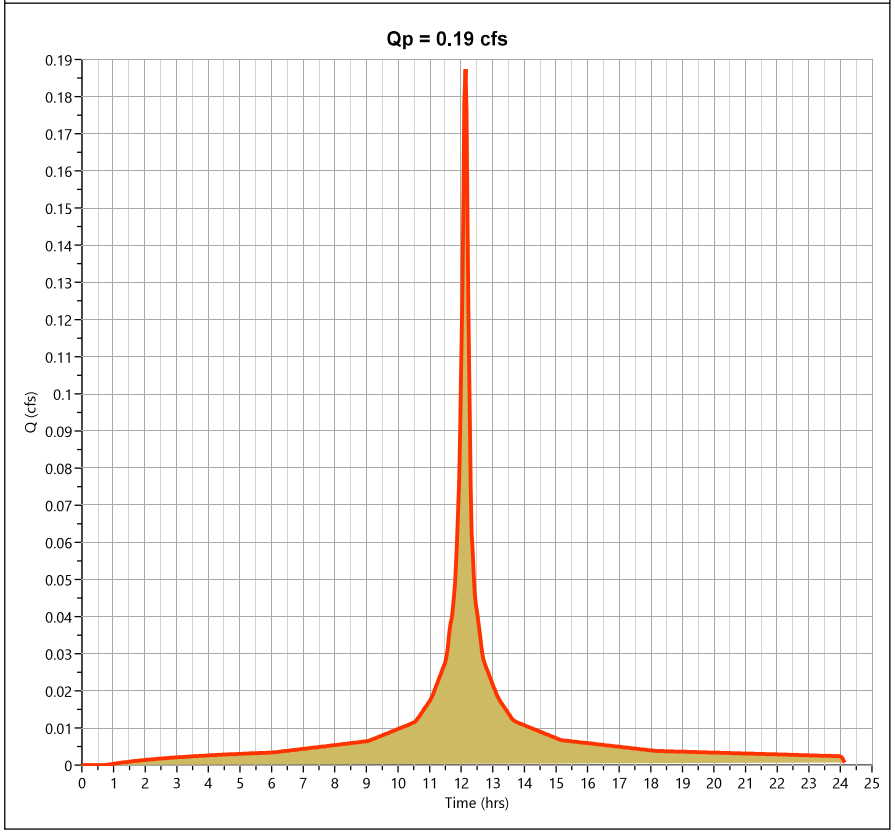
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.187 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 753 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

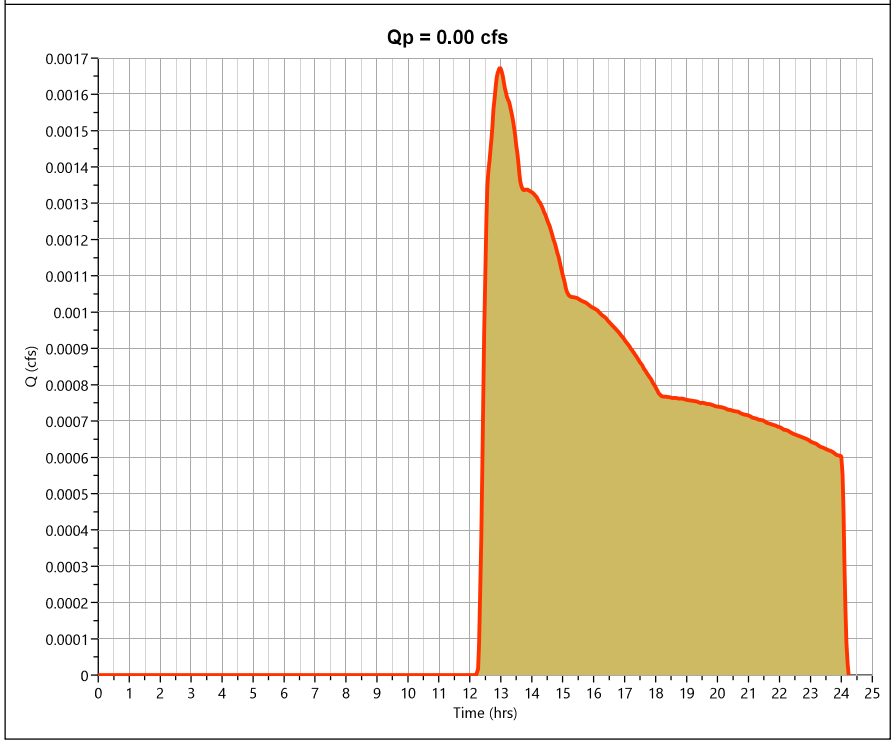
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.97 hrs
Time Interval	= 2 min	Runoff Volume	= 38.7 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

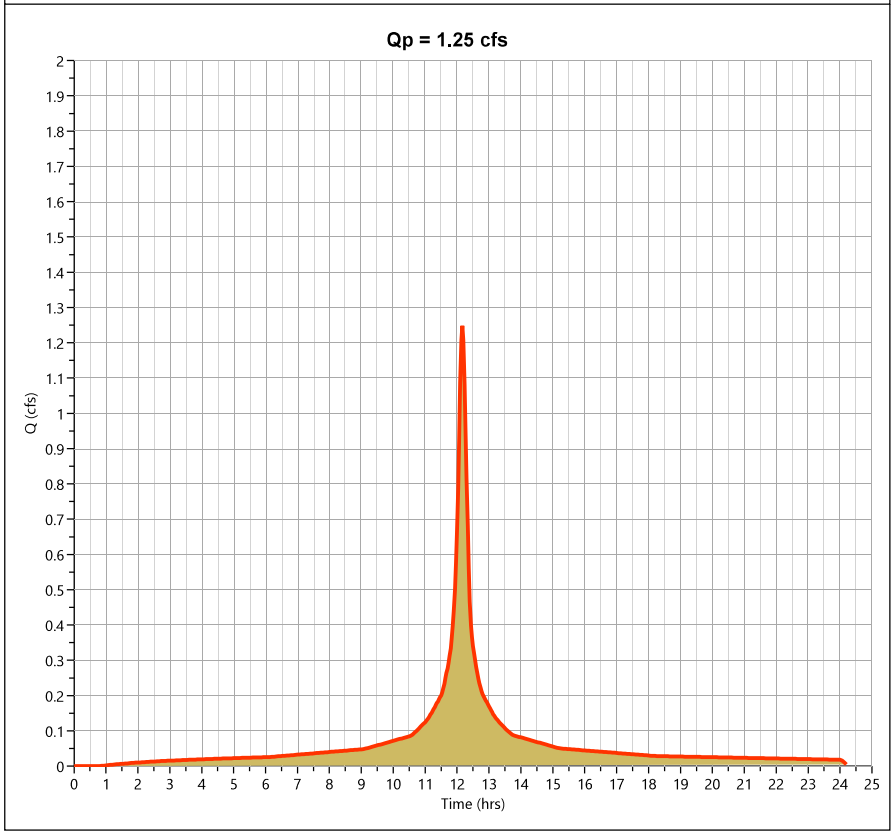
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.248 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 5,626 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

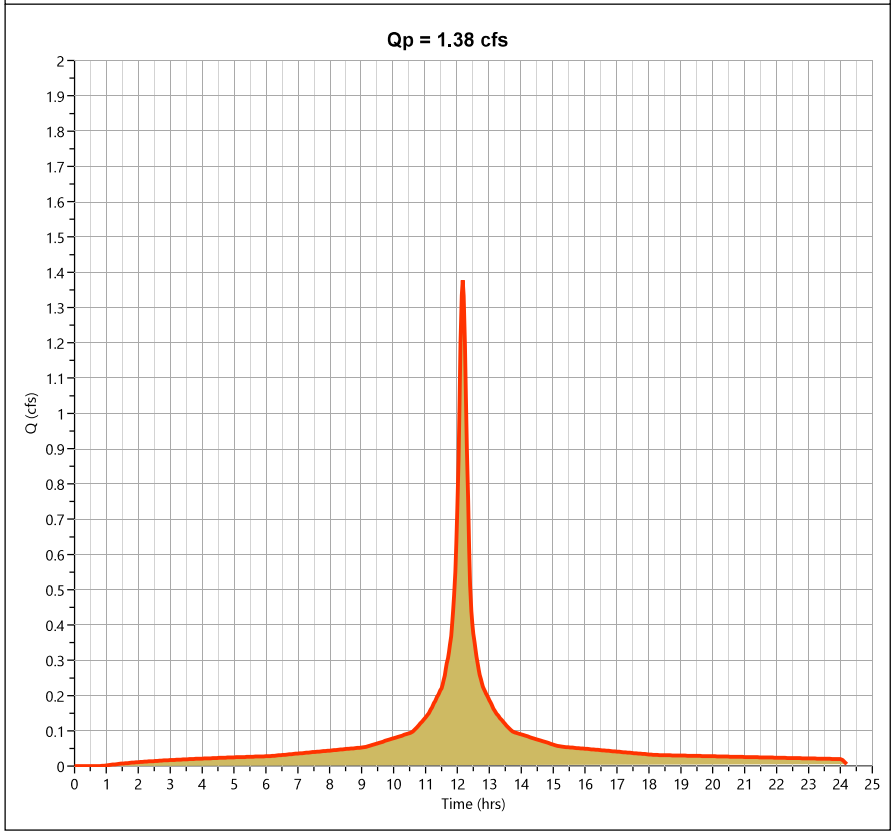
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.377 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 6,208 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

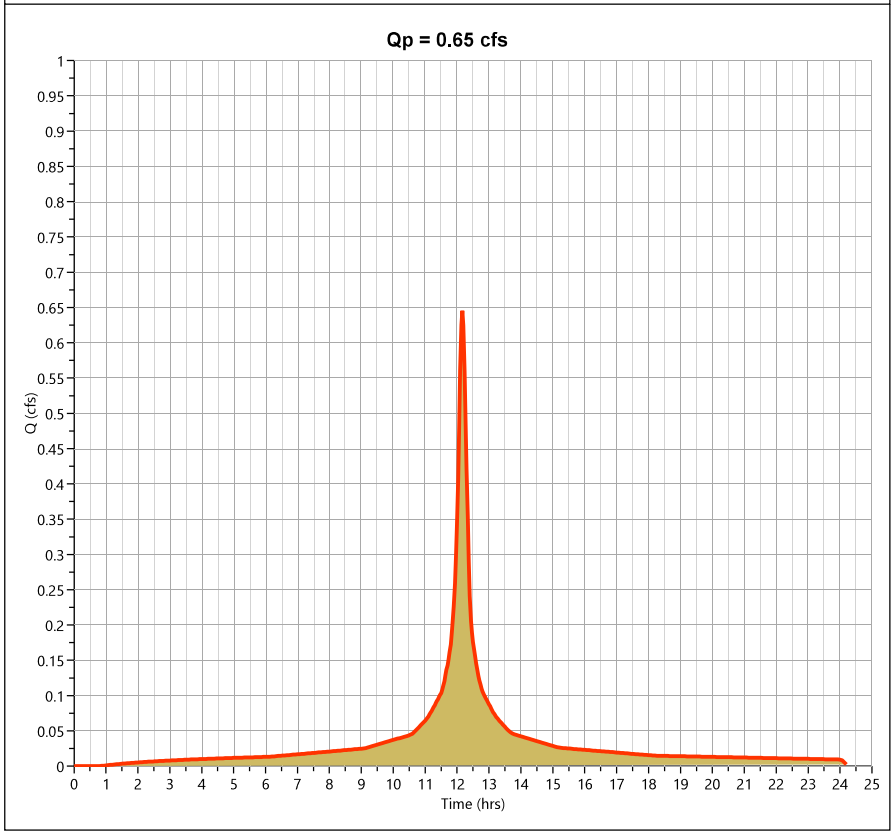
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.646 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 2,910 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

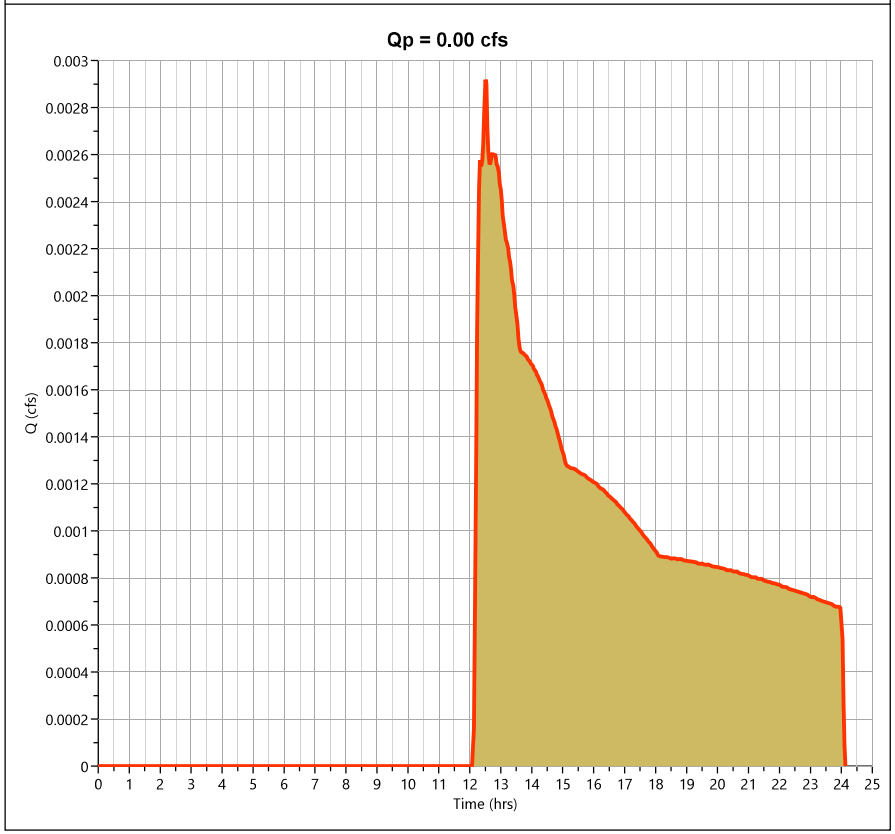
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.003 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 49.8 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

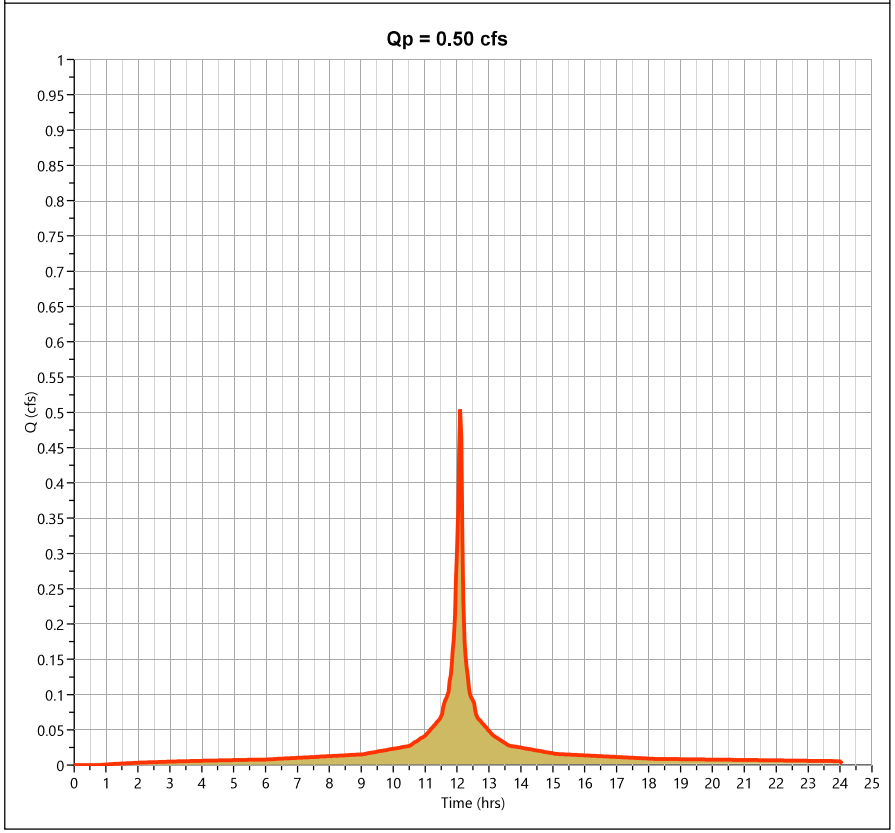
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.504 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,764 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

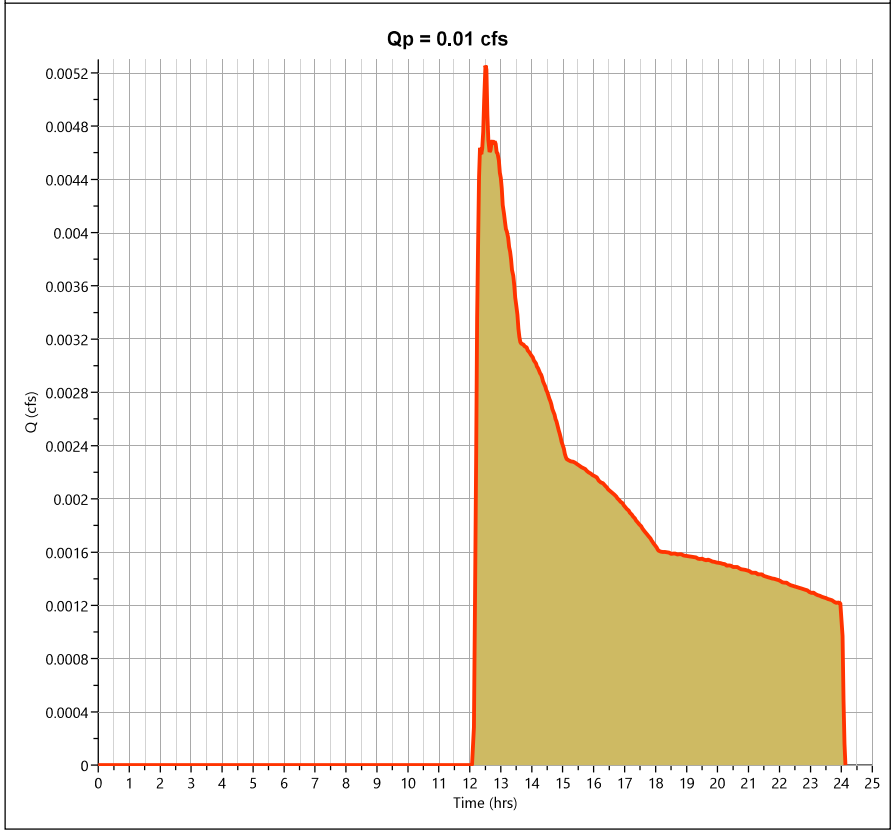
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 89.7 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

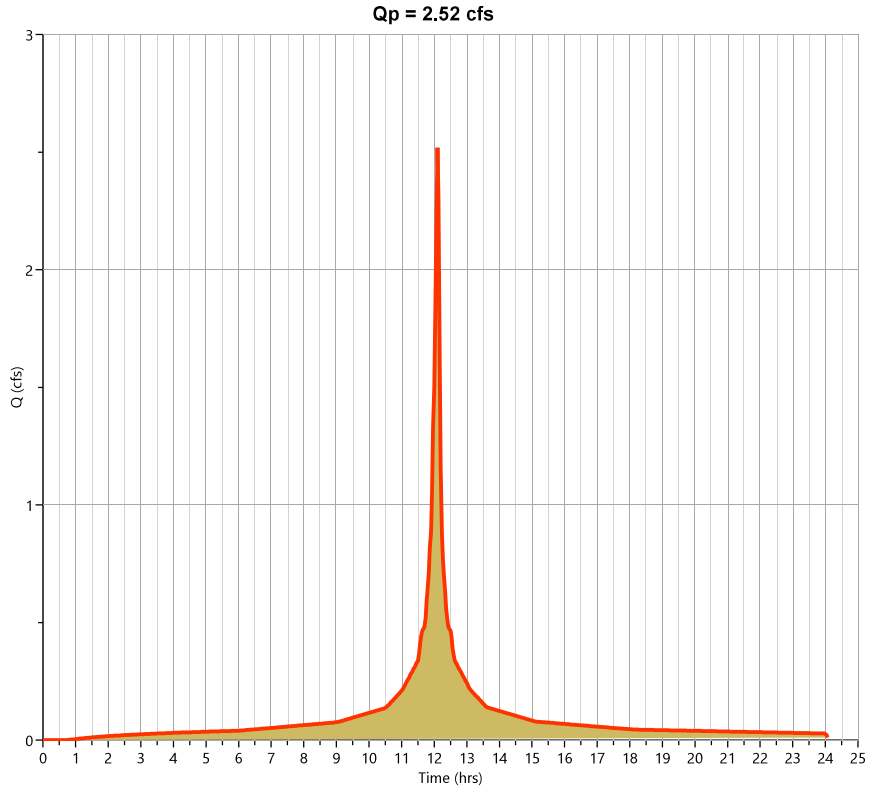
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.519 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 8,818 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

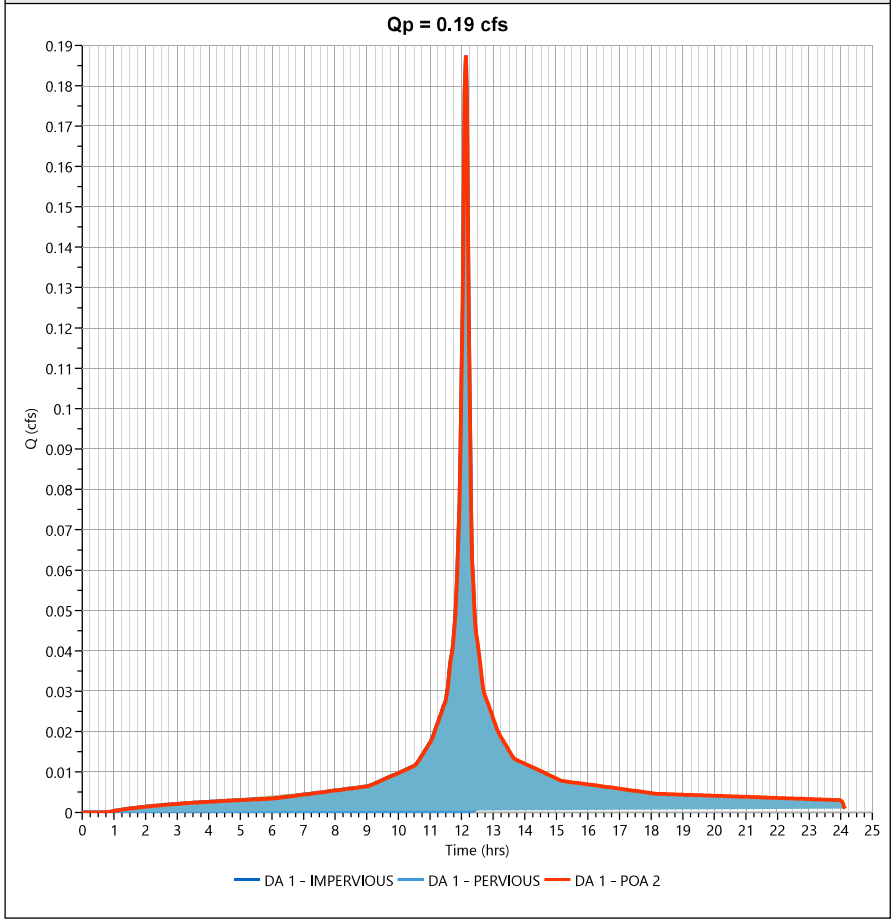
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.187 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 791 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

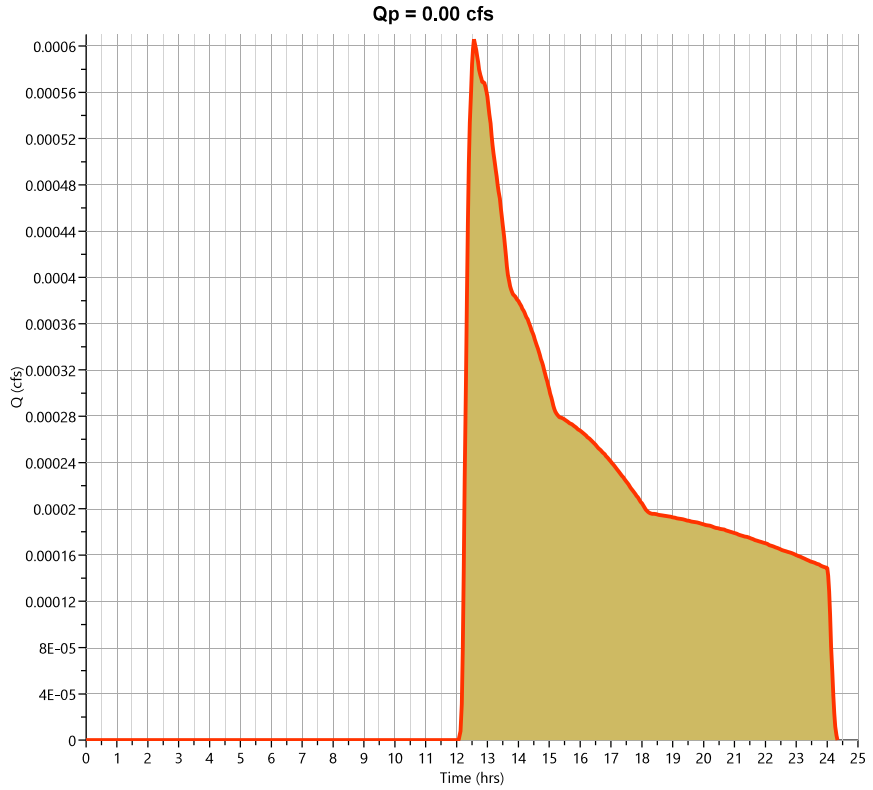
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.001 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 11.0 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

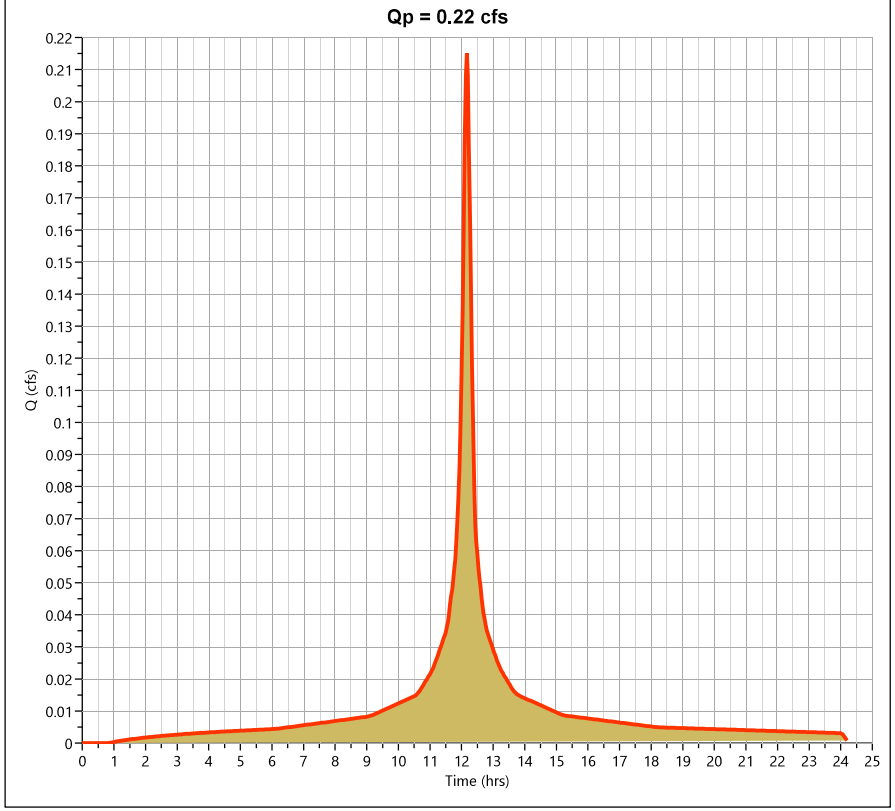
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

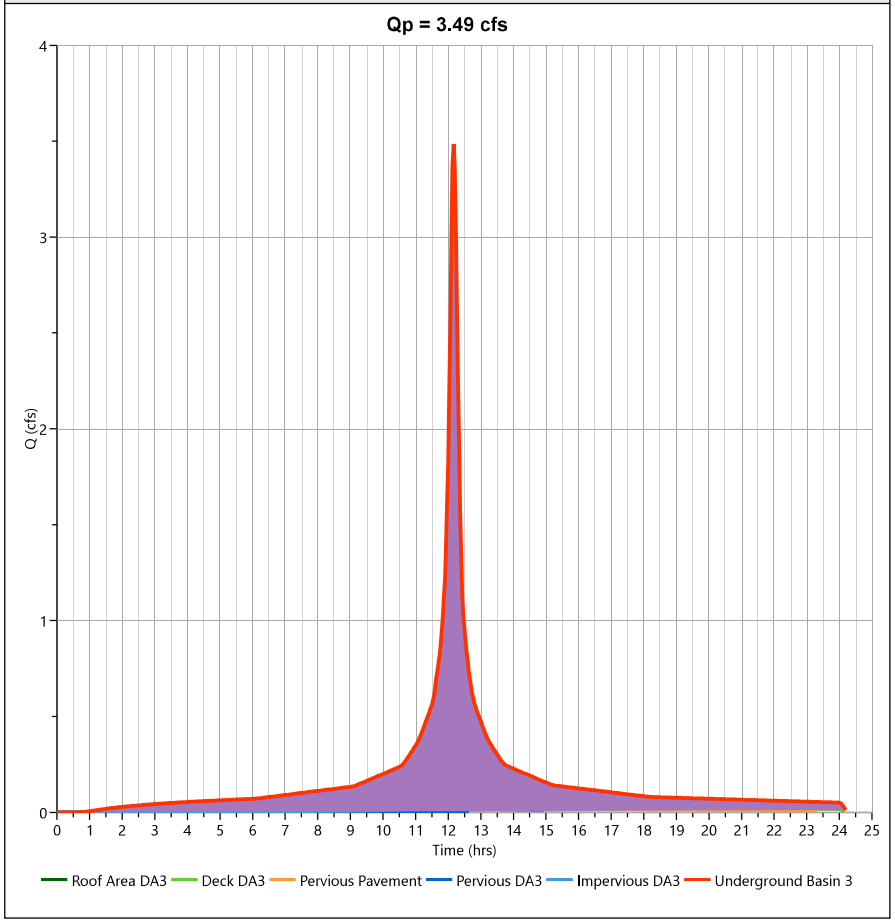
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.215 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 970 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 3.486 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 15,725 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac

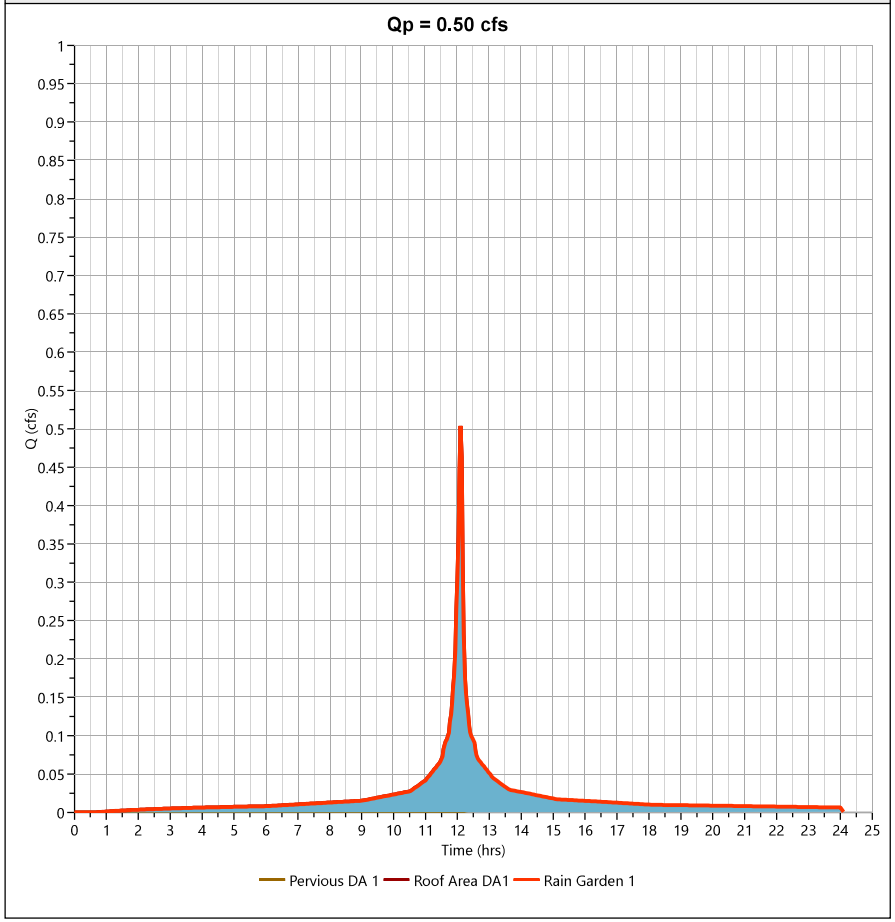


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.504 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,814 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

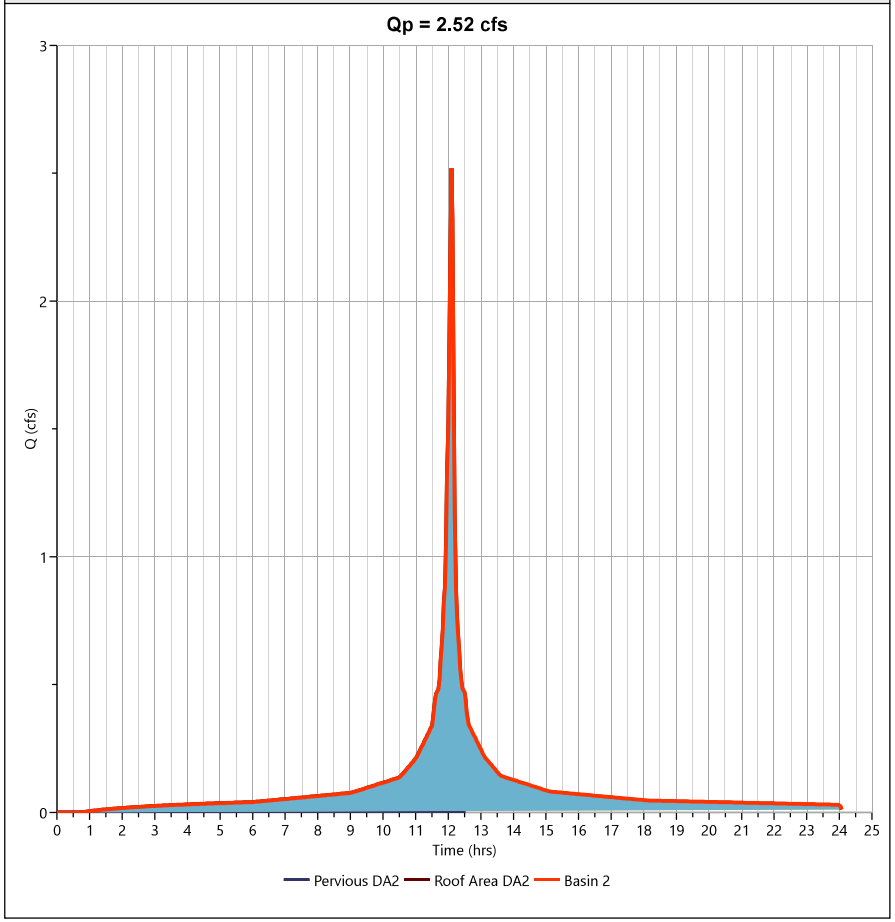
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 2.519 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 8,908 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

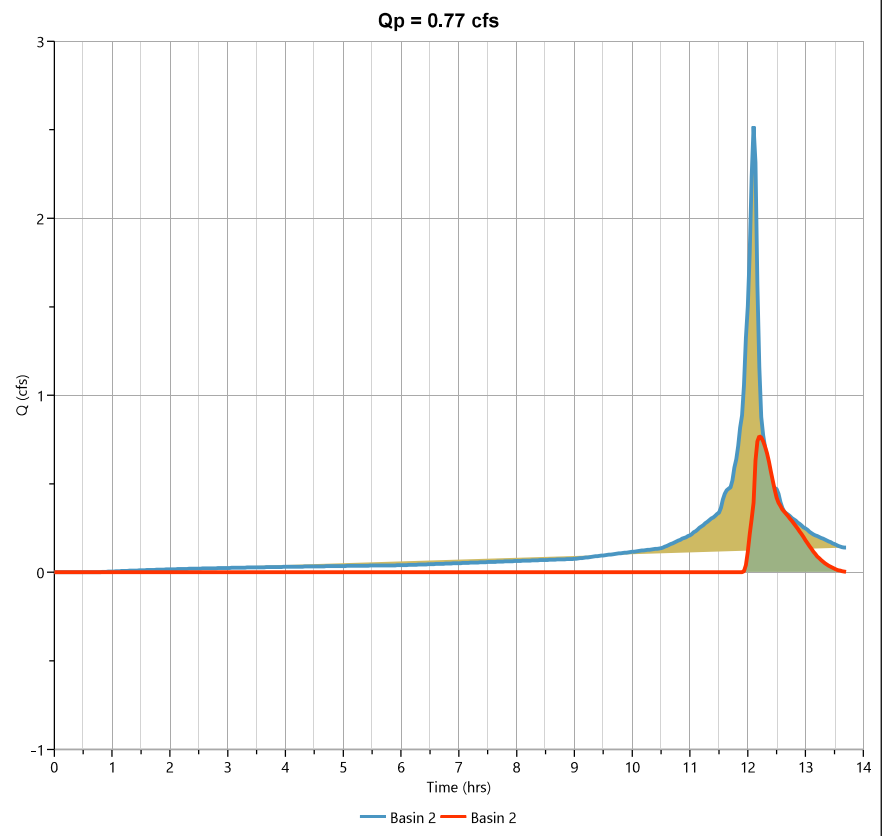
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.769 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,709 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 14.17 ft
Pond Name	= Basin 2	Max. Storage	= 1,838 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 1 min*



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

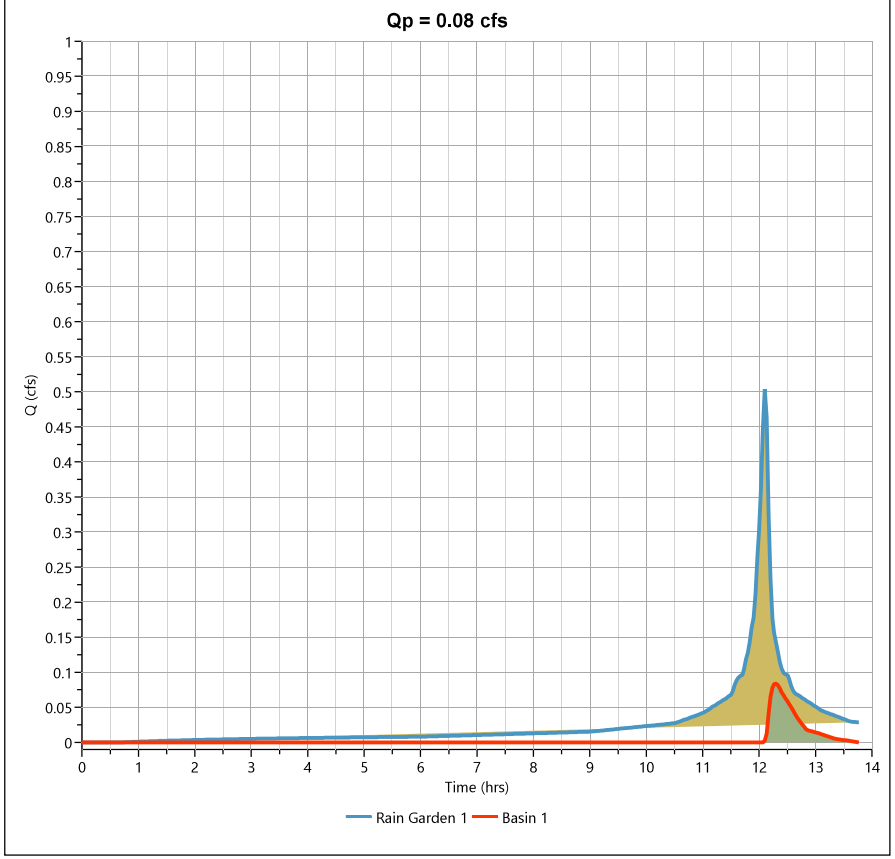
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.084 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Hydrograph Volume	= 161 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.66 ft
Pond Name	= BASIN 1	Max. Storage	= 458 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Project Name:

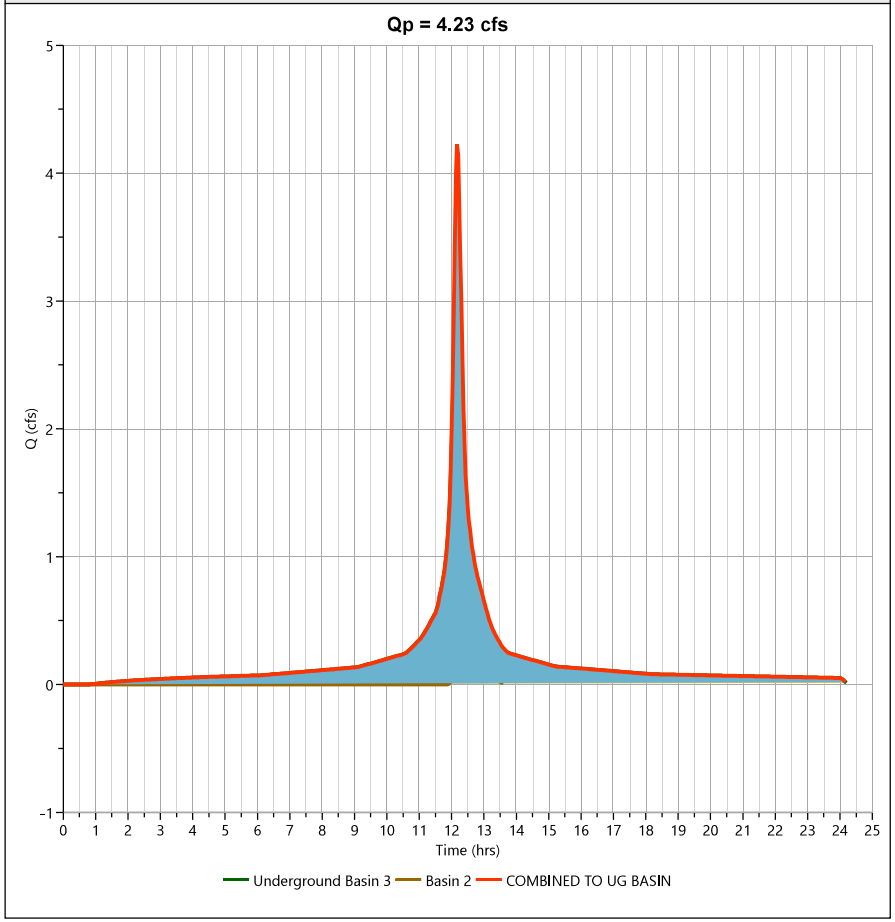
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 4.226 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 17,434 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

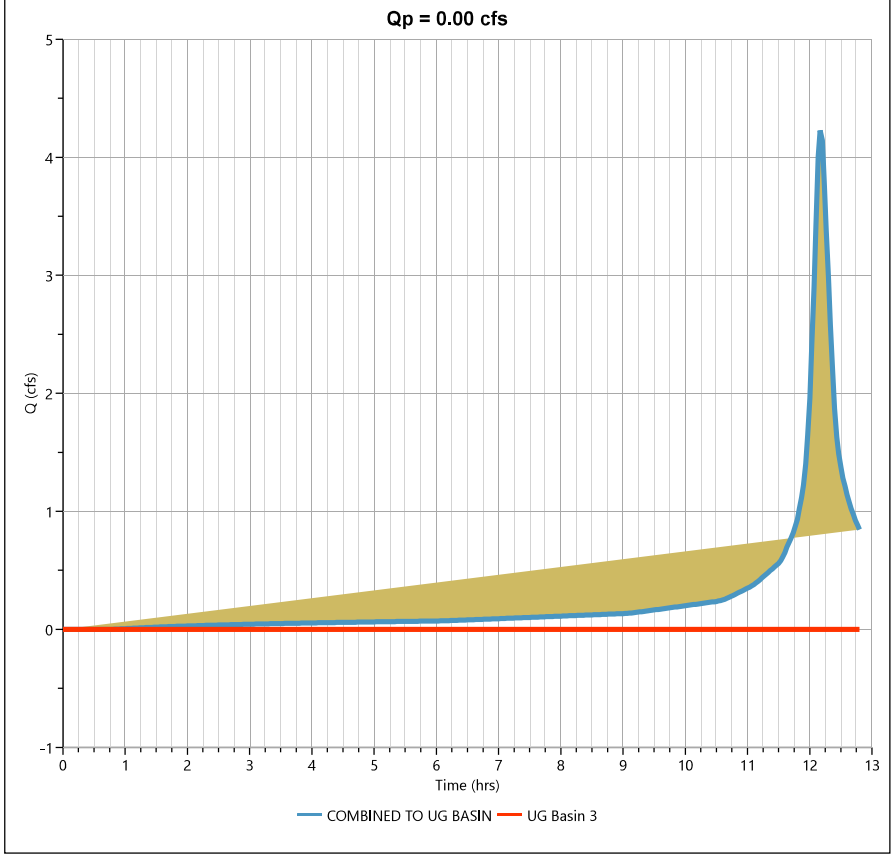


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.73 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 12.92 ft
Pond Name	= UG BASIN	Max. Storage	= 4,962 cuft

Pond Routing by Storage Indication Method

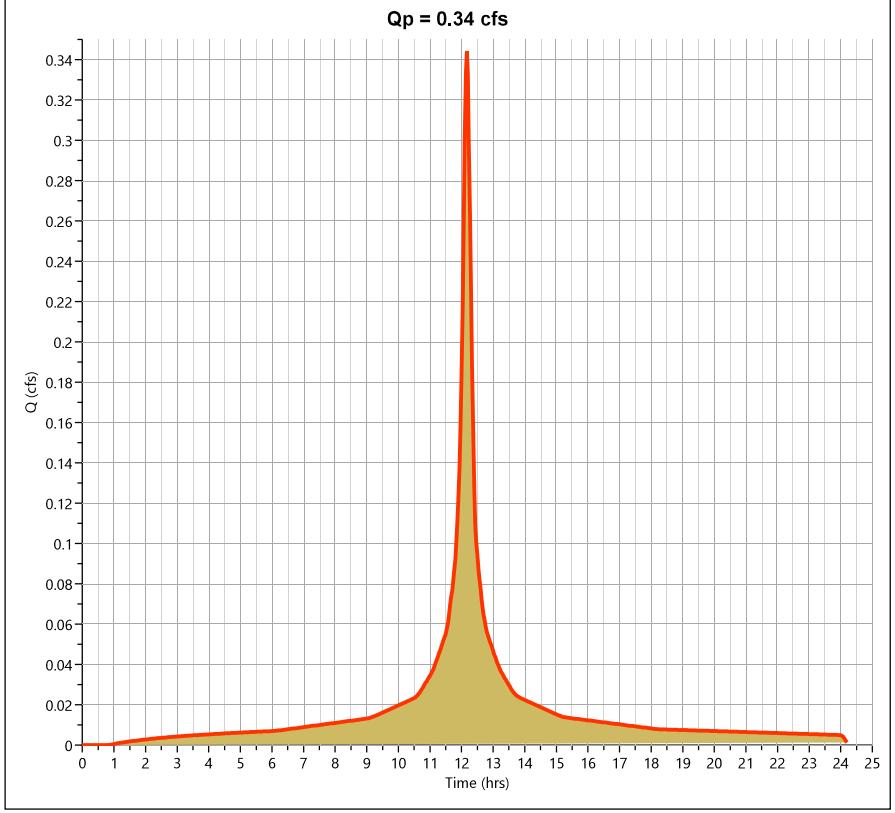


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,552 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



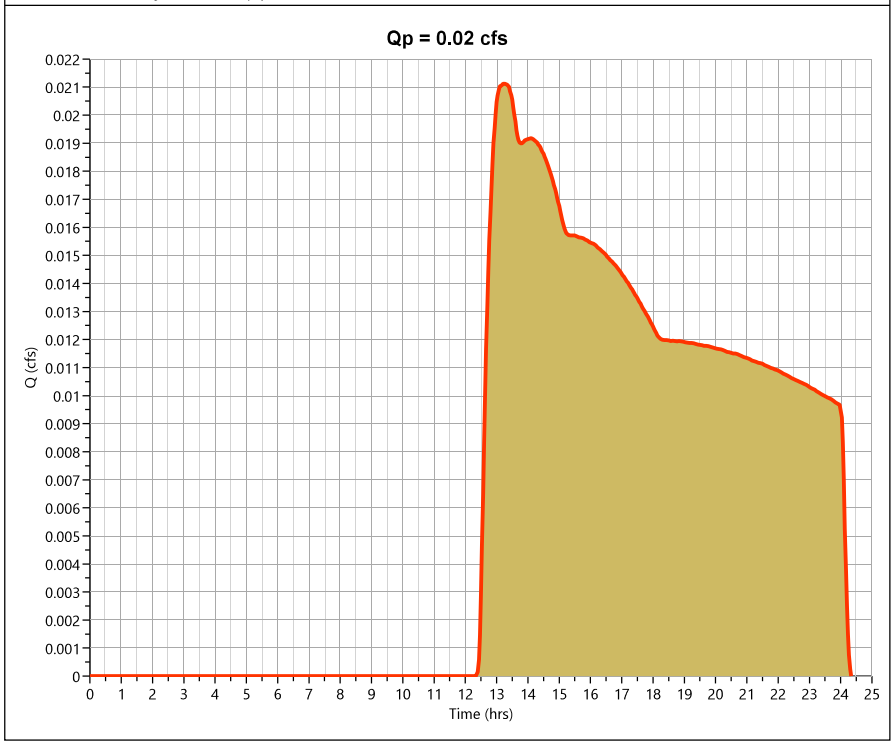
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.021 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.30 hrs
Time Interval	= 2 min	Runoff Volume	= 570 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

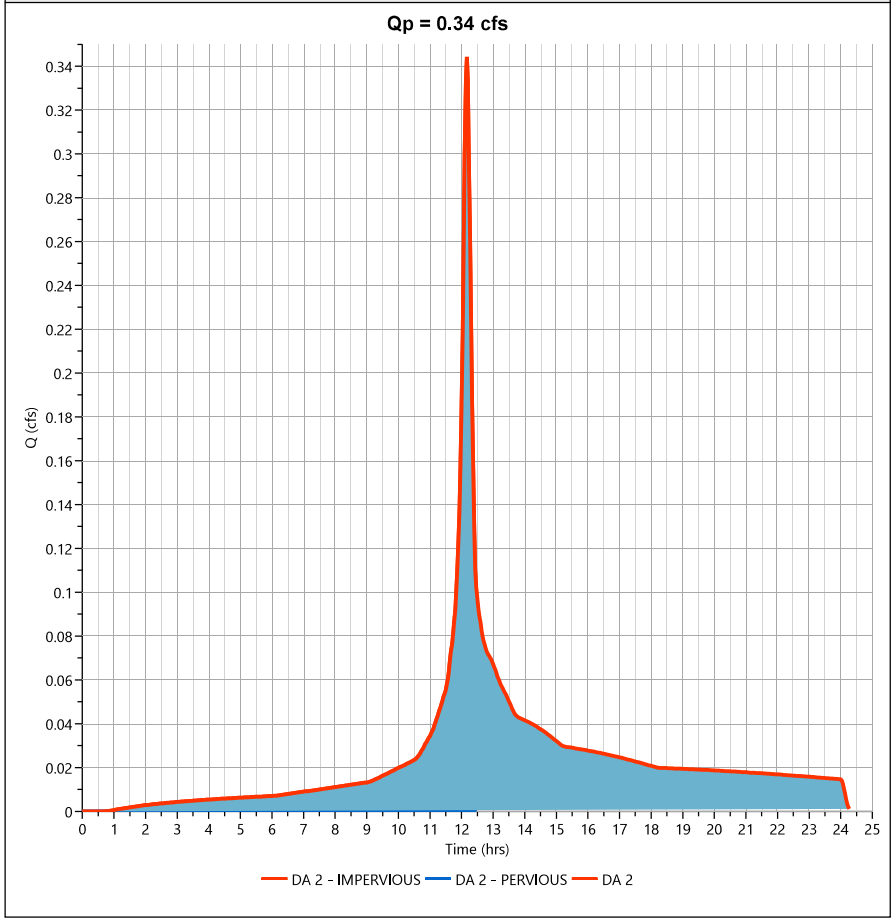


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,122 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



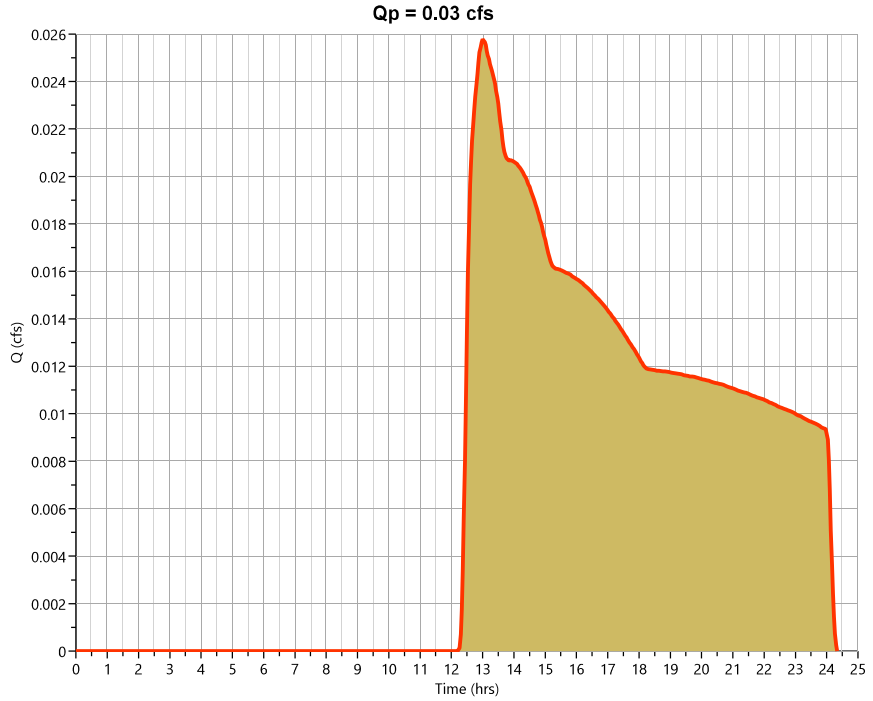
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.026 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.00 hrs
Time Interval	= 2 min	Runoff Volume	= 598 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

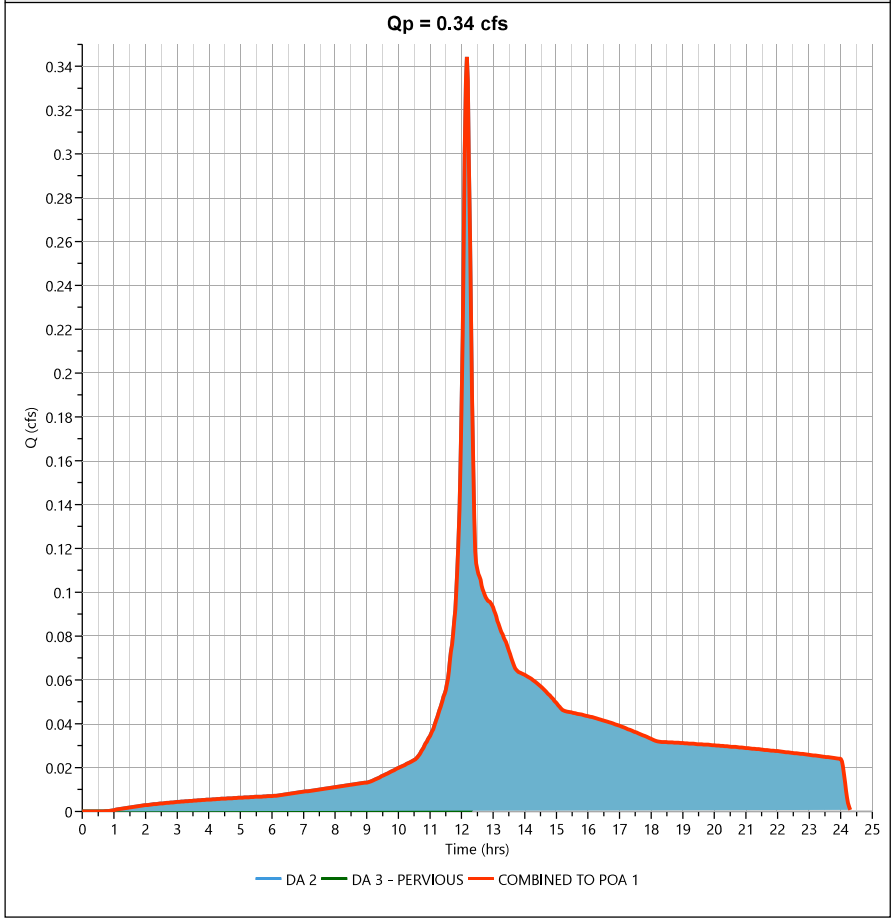


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,720 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

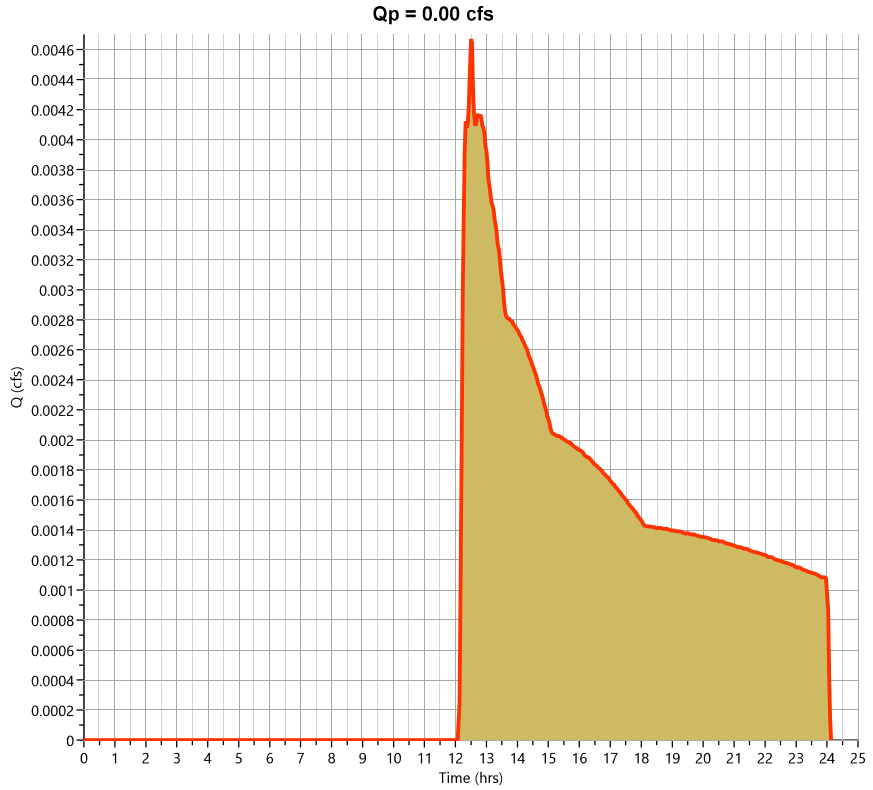
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 79.7 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

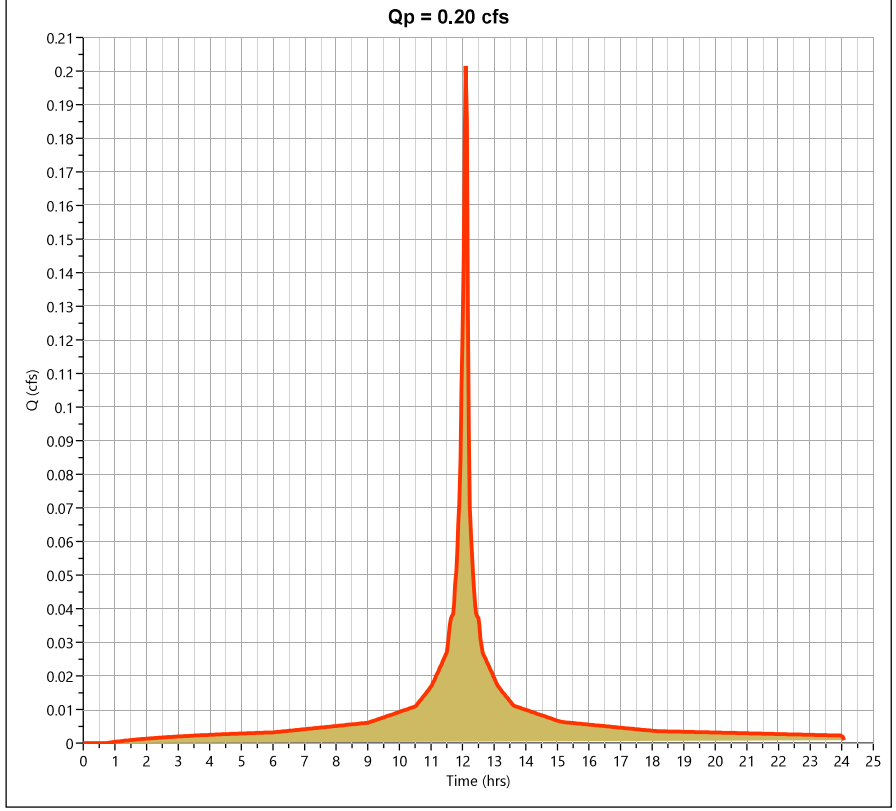
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.202 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 705 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

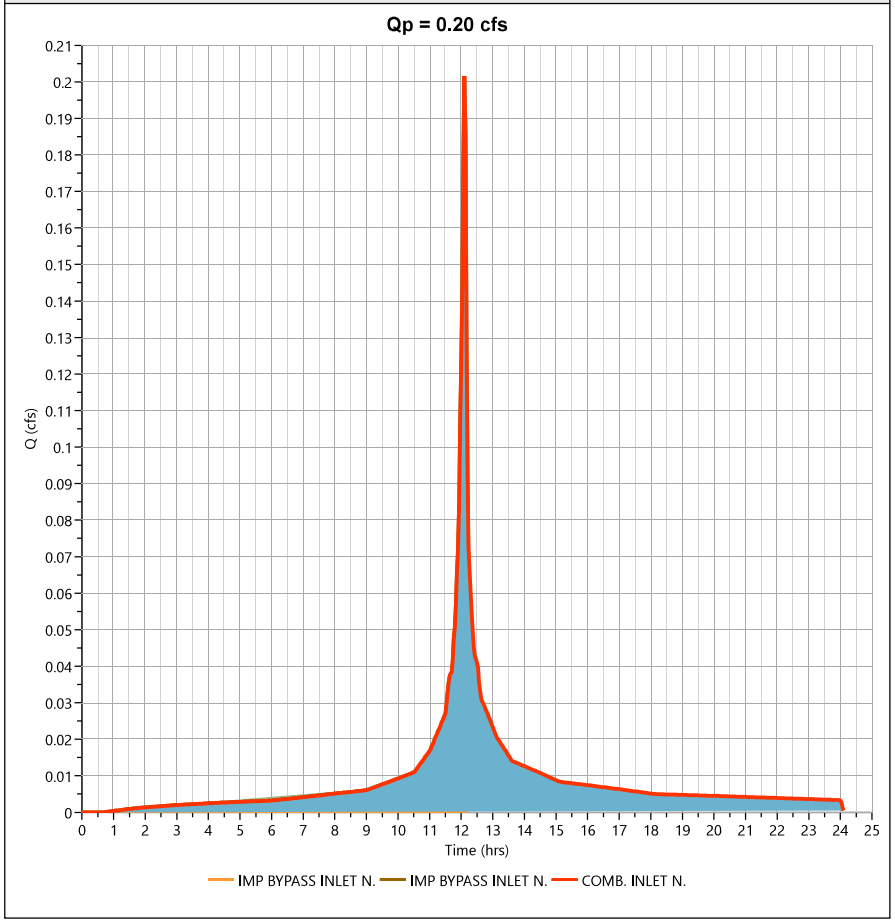
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.202 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 785 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

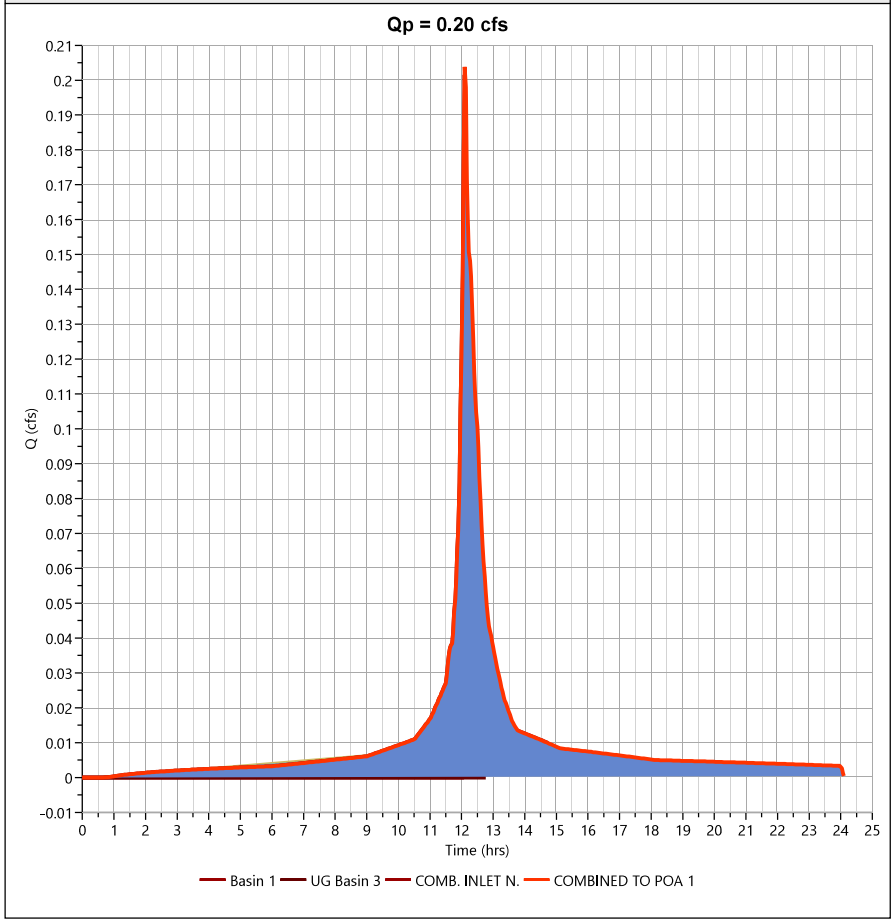
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.204 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 946 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

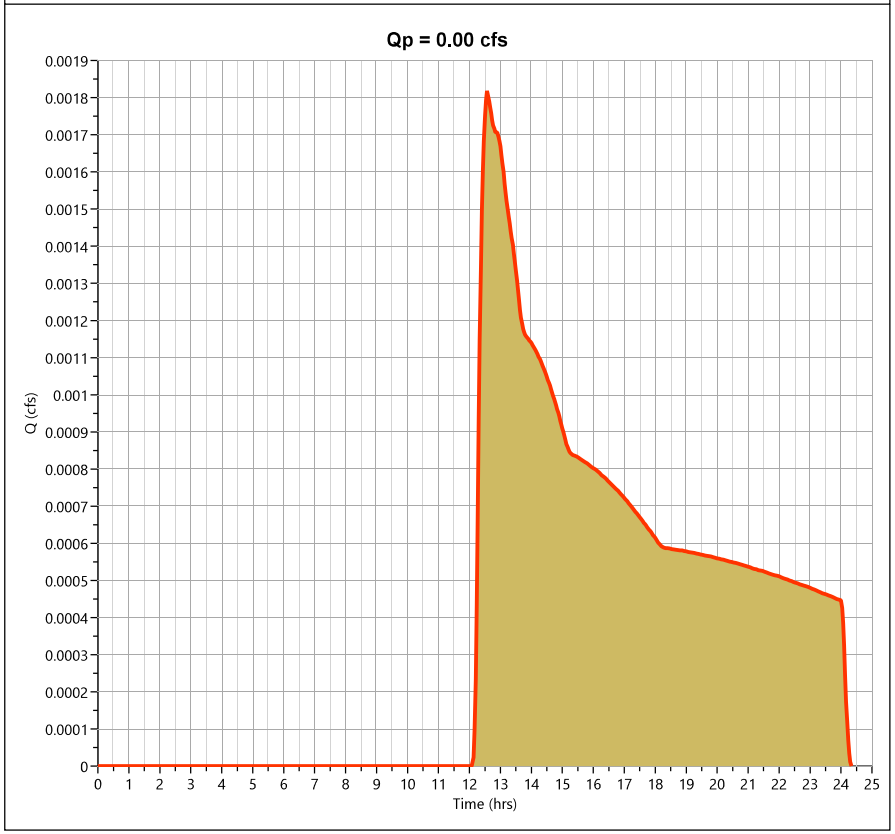
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 32.9 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

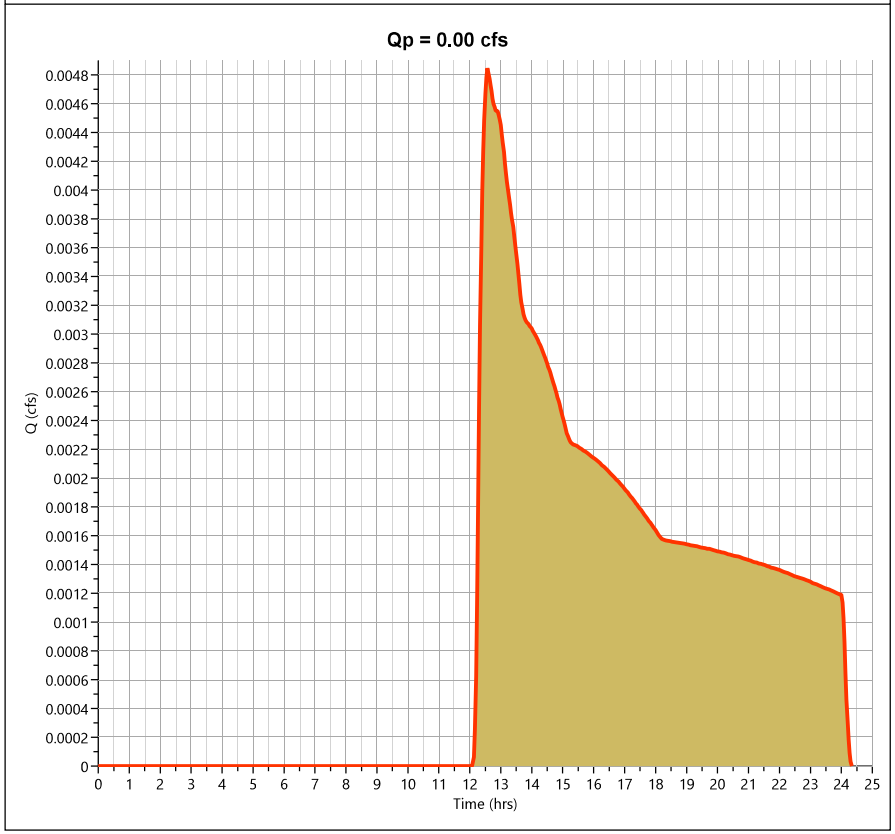
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 87.7 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

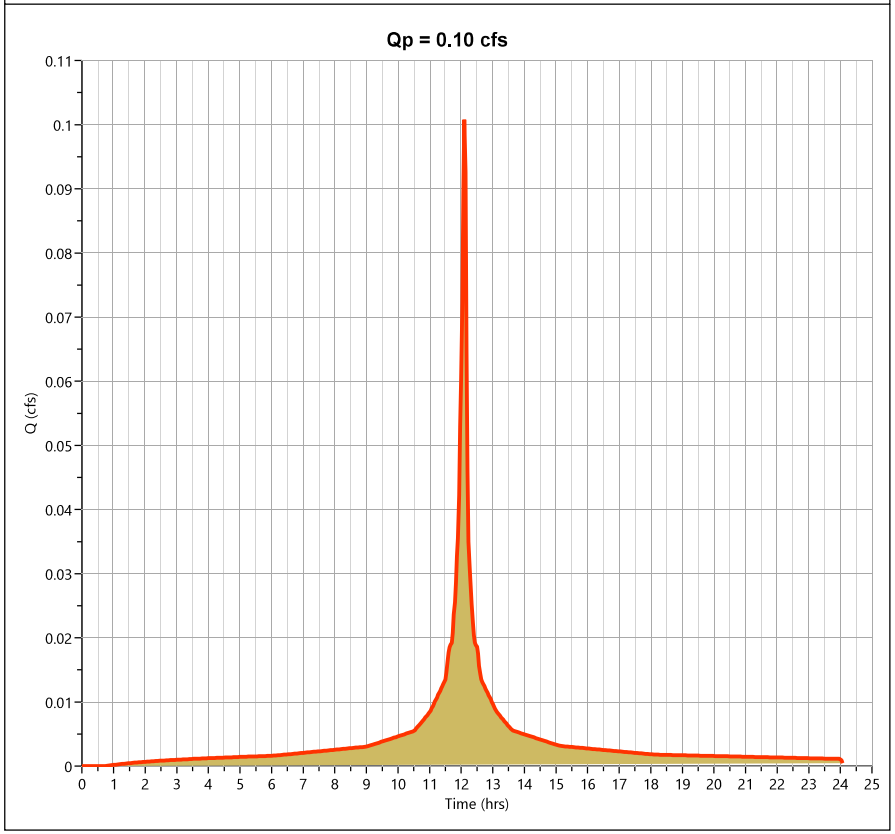
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.101 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 353 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

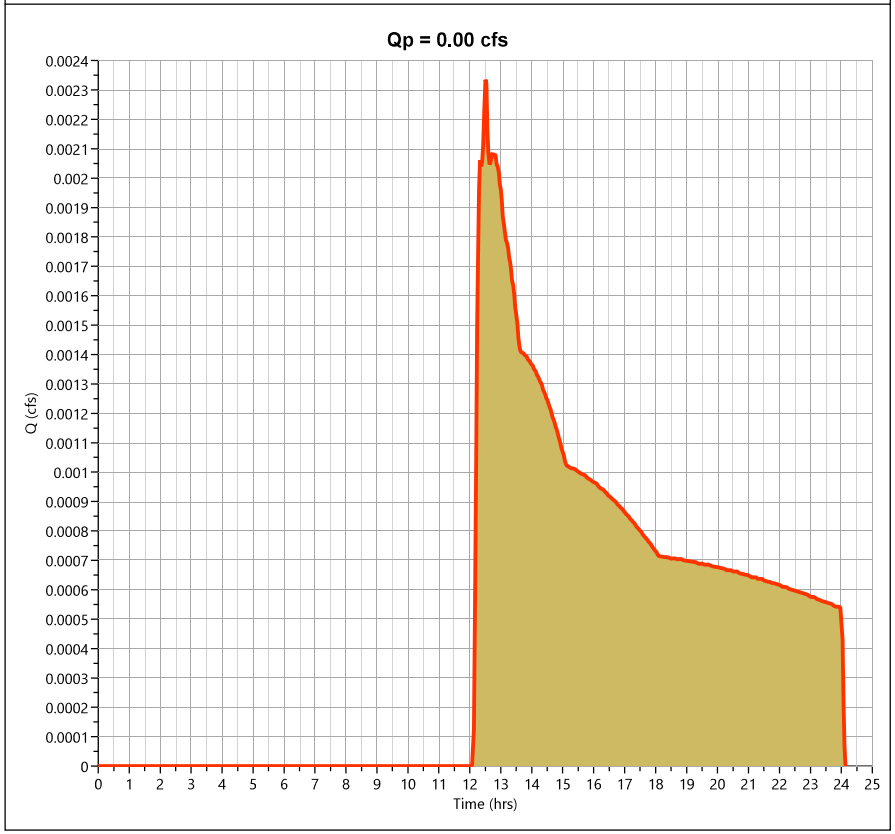
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 39.9 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

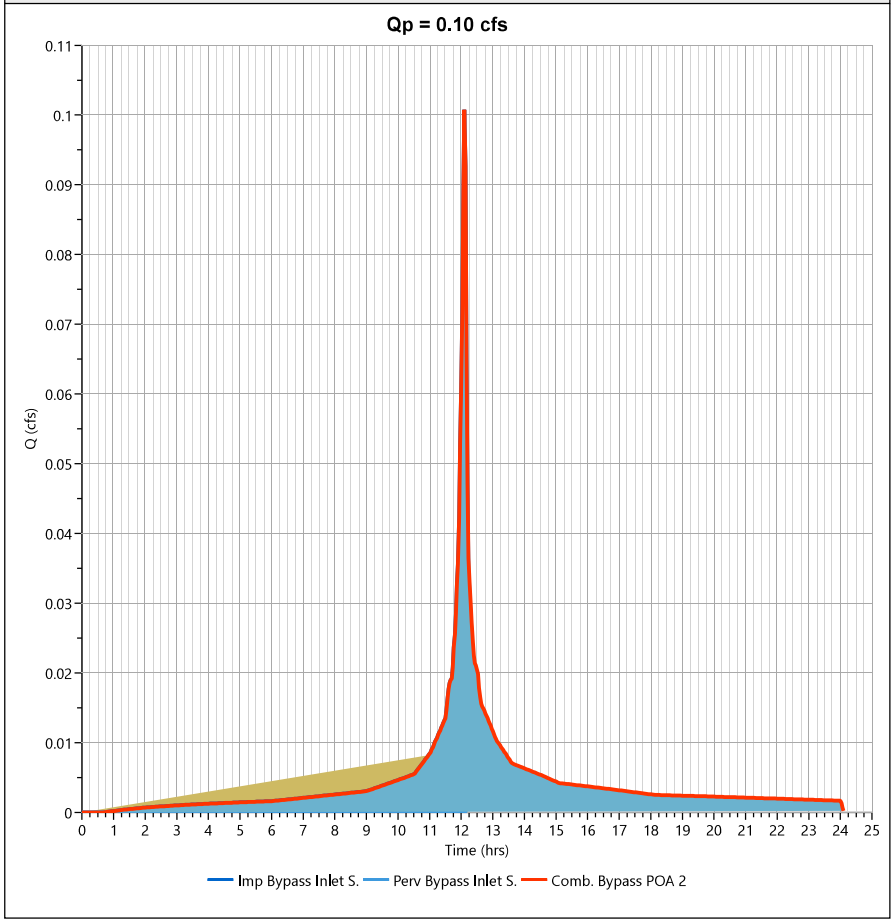
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.101 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 393 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 25-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.234	12.13	947	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.010	12.27	100	—		
3	NRCS Runoff	Post Roof Area DA3	1.559	12.17	7,079	—		
4	NRCS Runoff	Post Deck DA3	1.721	12.17	7,812	—		
5	NRCS Runoff	Post Pervious Pavement	0.806	12.17	3,662	—		
6	NRCS Runoff	Post Pervious DA 1	0.020	12.13	116	—		
7	NRCS Runoff	Post Roof Area DA1	0.629	12.10	2,219	—		
8	NRCS Runoff	Post Pervious DA2	0.036	12.13	210	—		
9	NRCS Runoff	Post Roof Area DA2	3.147	12.10	11,096	—		
10	Junction	Pre DA 1 - POA 2	0.240	12.13	1,047	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.003	12.30	25.6	—		
12	NRCS Runoff	Post Impervious DA3	0.269	12.17	1,221	—		
13	Junction	Post Underground Basin 3	4.357	12.17	19,799	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.645	12.10	2,336	6, 7		
15	Junction	Post Basin 2	3.175	12.10	11,306	8, 9		
16	Pond Route	Post Basin 2	1.060	12.20	2,790	15	14.41	2,316
17	Pond Route	Post Basin 1	0.256	12.20	398	14	14.75	541
18	Junction	Post COMBINED TO UG BASIN	5.394	12.17	22,589	13, 16		
19	Pond Route	Post UG Basin 3	0.260	12.93	833	18	13.36	7,196
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.430	12.17	1,953	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.120	12.37	1,574	—		
22	Junction	Pre DA 2	0.486	12.20	3,527	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.140	12.33	1,549	—		
24	Junction	Pre COMBINED TO POA 1	0.588	12.20	5,077	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.032	12.13	186	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.252	12.10	888	—		
27	Junction	COMB. INLET N.	0.277	12.10	1,074	25, 26		
28	Junction	Post COMBINED TO POA 1	0.443	12.13	2,305	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.009	12.30	76.9	—		
30	NRCS Runoff	Post Bypass Memorial	0.024	12.30	205	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.126	12.10	444	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.016	12.13	93.2	—		
33	Junction	Post Comb. Bypass POA 2	0.139	12.10	537	31, 32		

Hydrograph Report

Project Name:

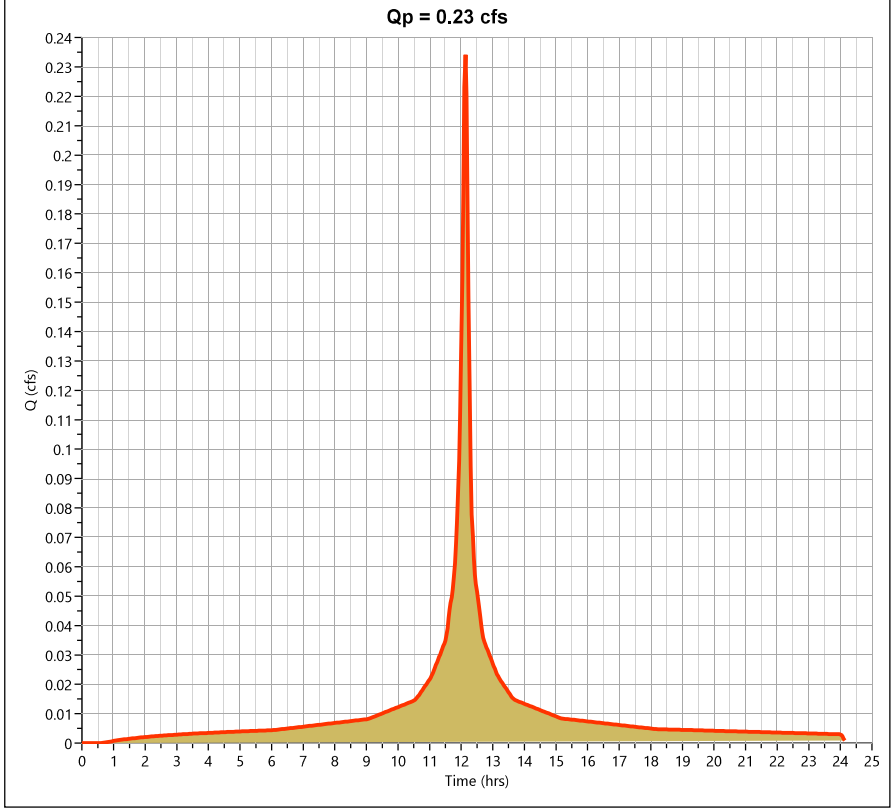
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.234 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 947 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

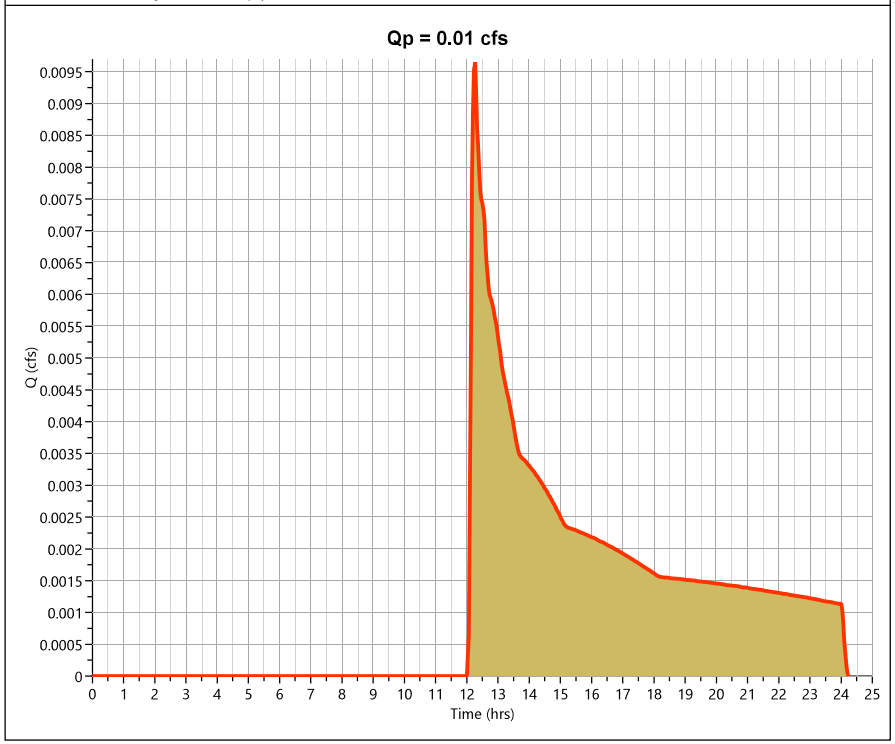
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.010 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Runoff Volume	= 100 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

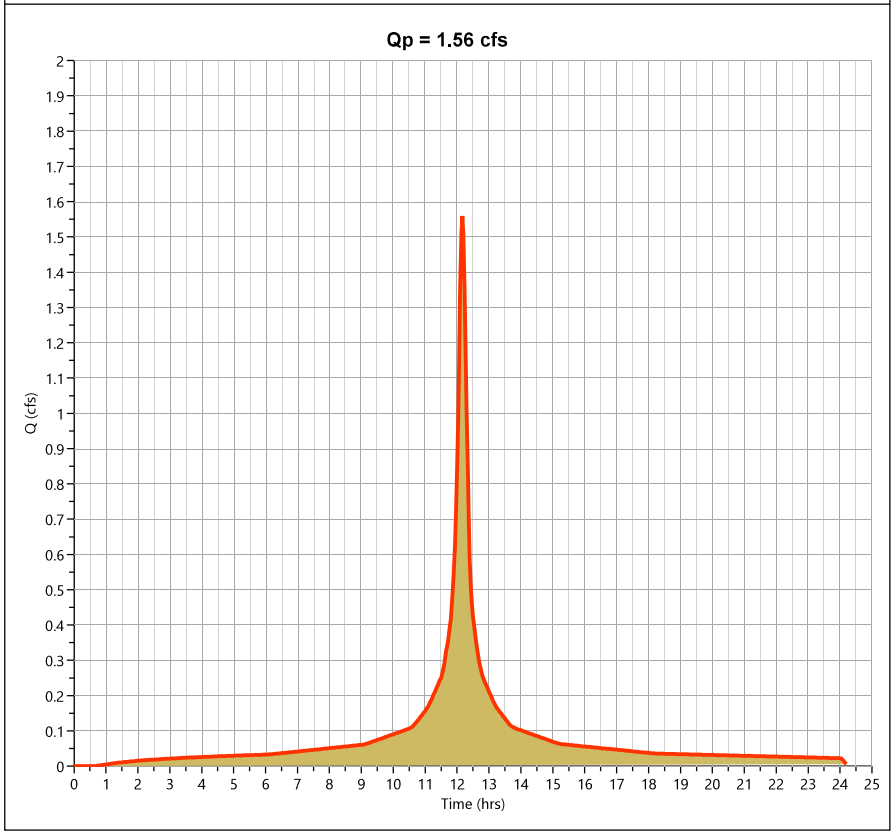
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.559 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 7,079 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

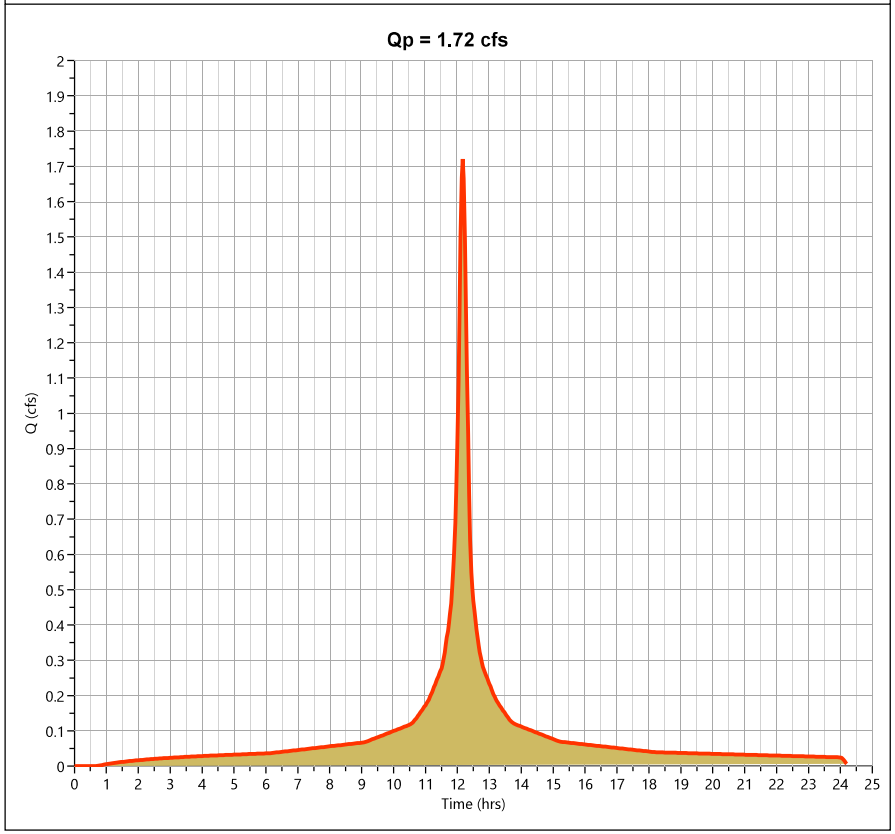
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.721 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 7,812 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

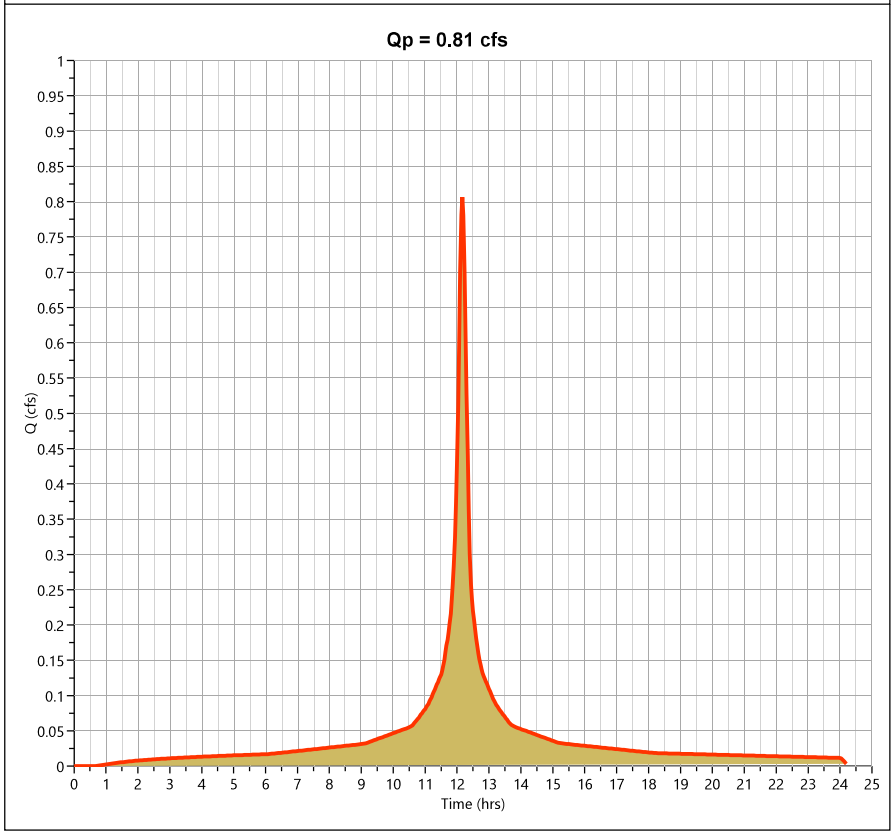
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.806 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,662 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

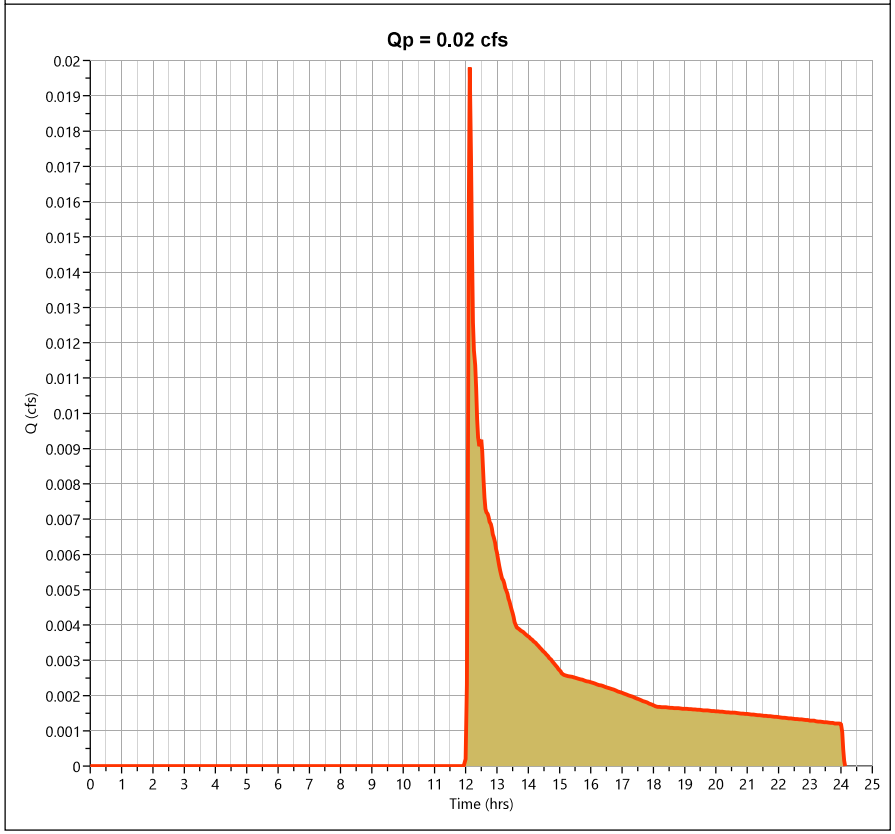
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.020 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 116 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

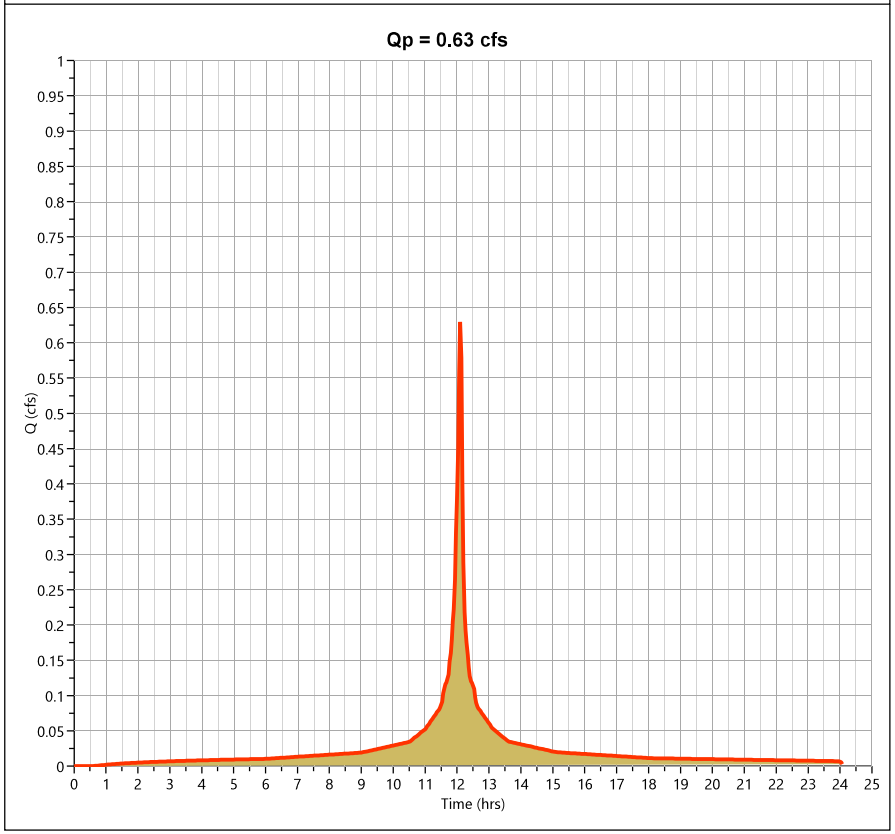
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.629 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 2,219 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

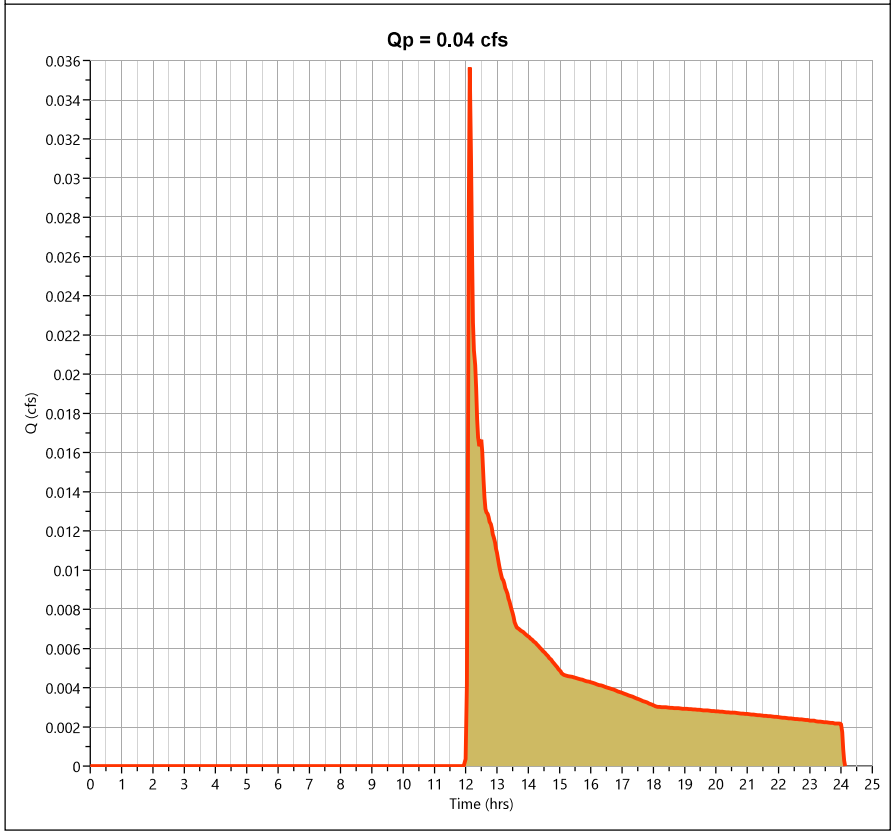
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.036 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 210 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

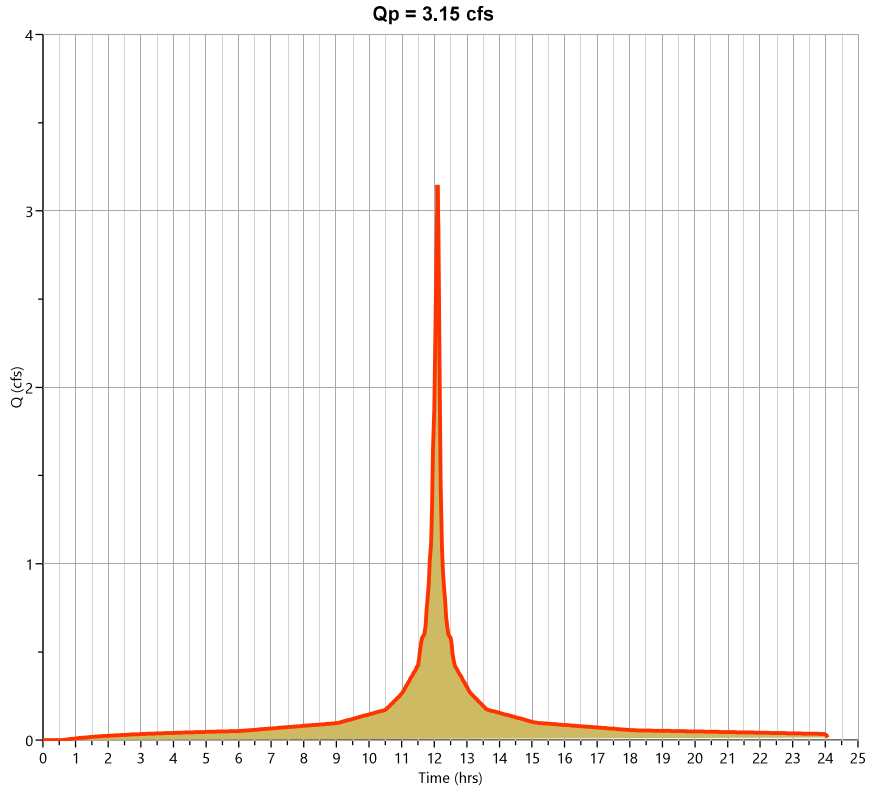
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.147 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 11,096 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

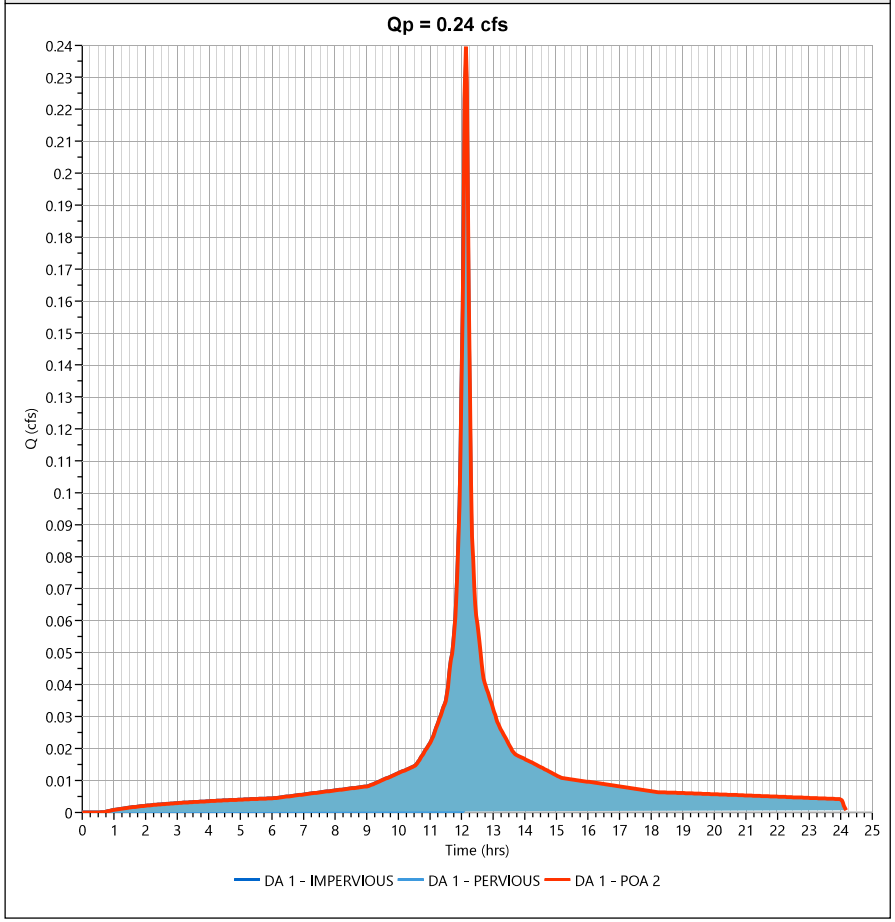
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.240 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,047 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

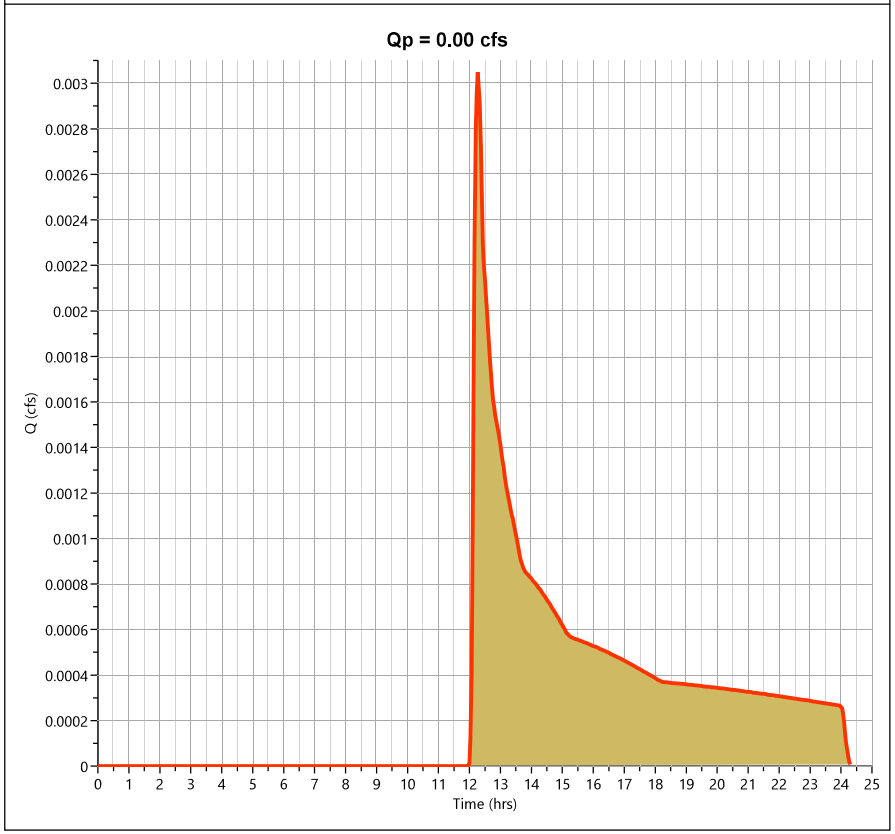
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.003 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 25.6 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

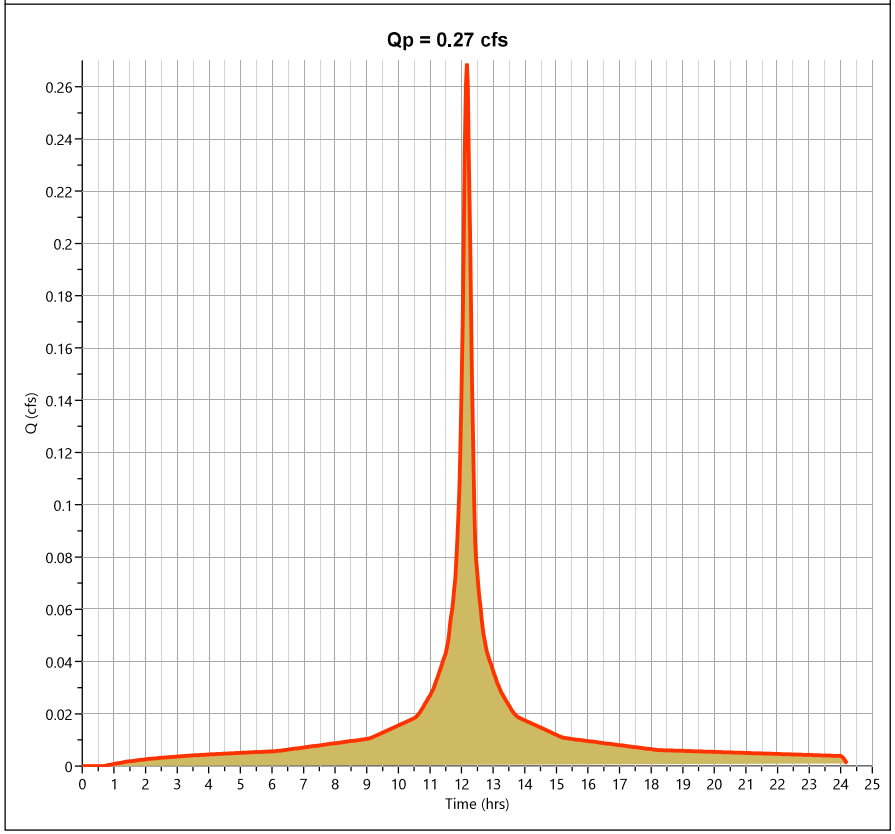
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

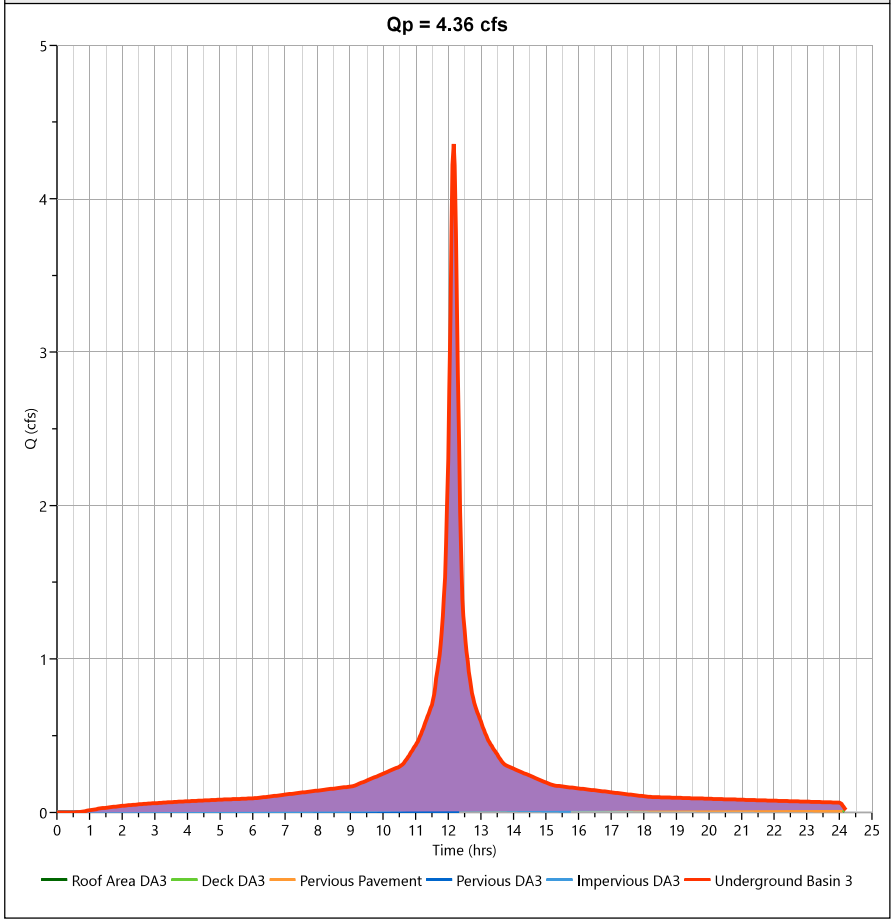
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.269 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,221 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 4.357 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 19,799 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac

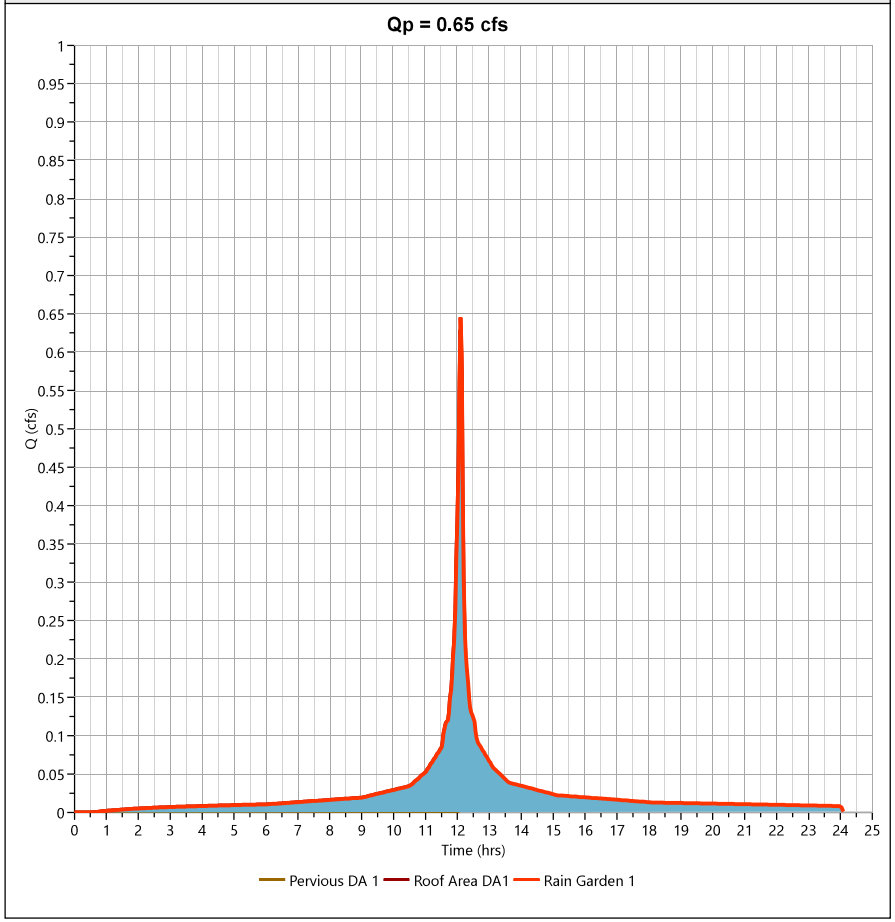


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.645 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,336 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

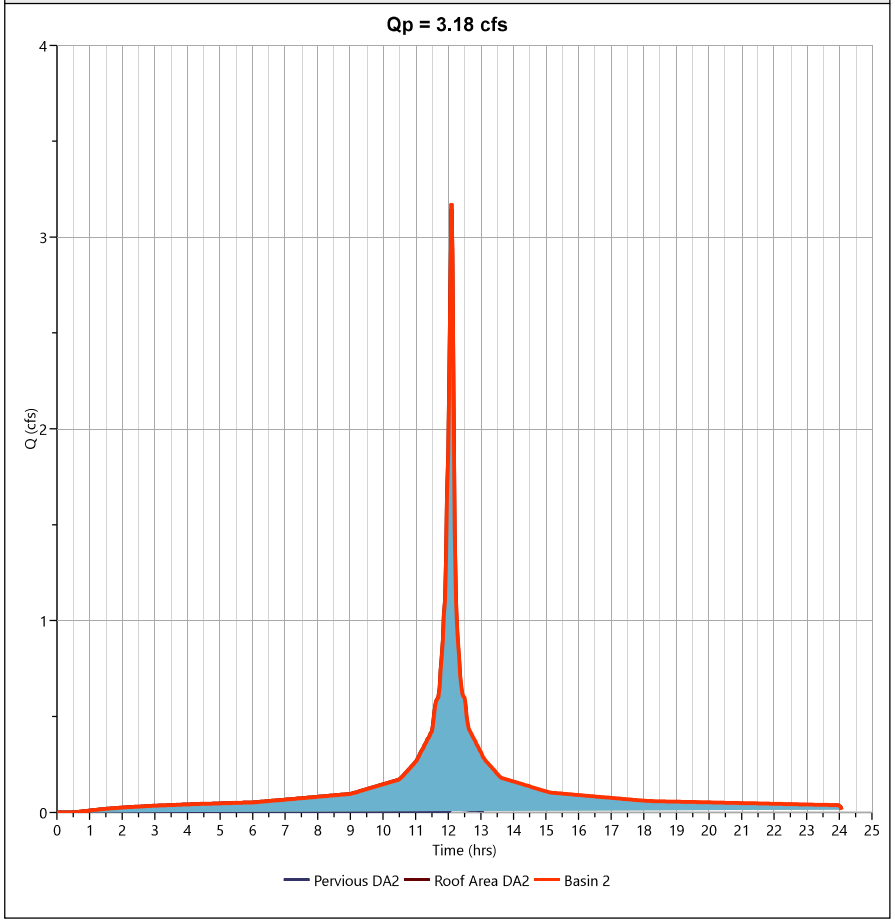
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 3.175 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 11,306 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

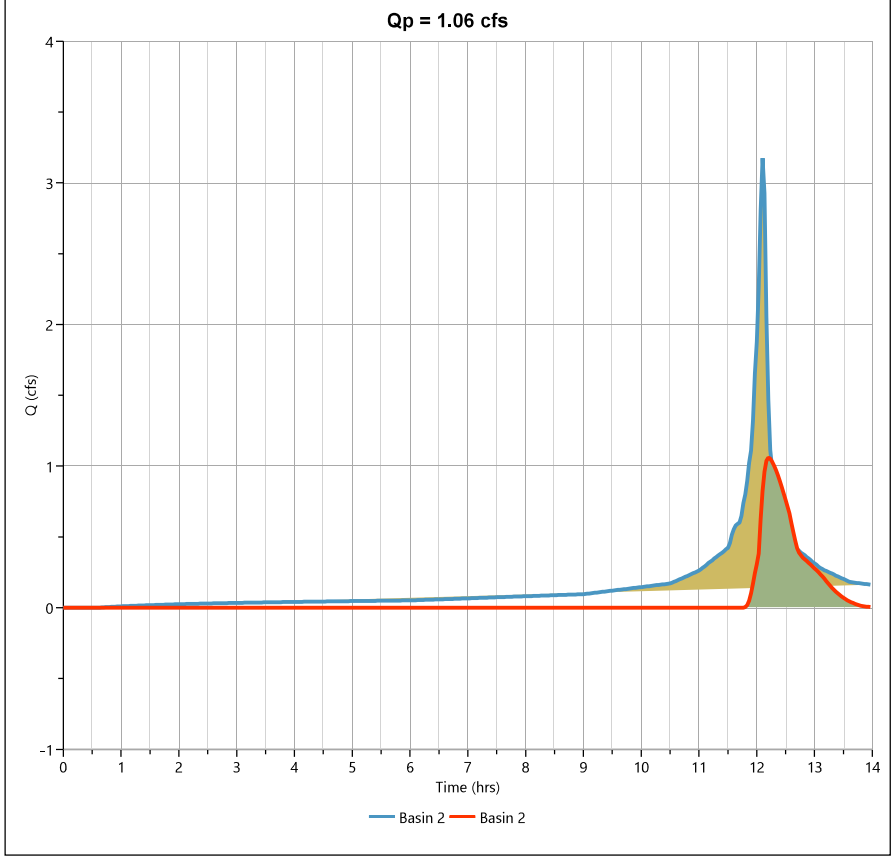
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 1.060 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,790 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 14.41 ft
Pond Name	= Basin 2	Max. Storage	= 2,316 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 4 min*



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

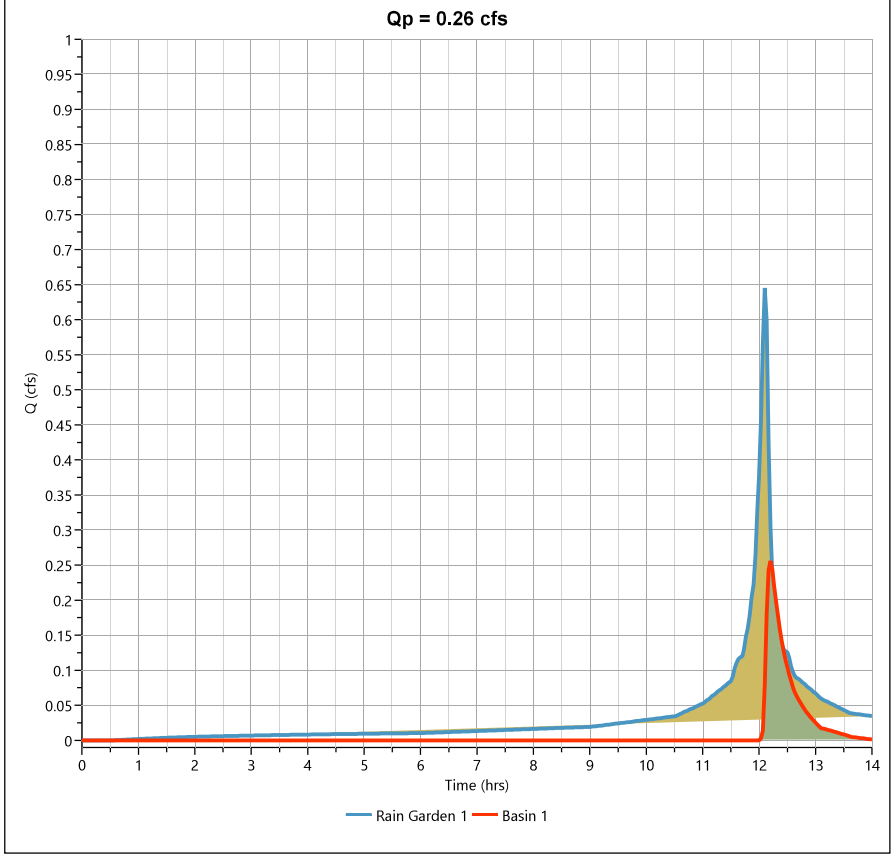
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.256 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 398 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.75 ft
Pond Name	= BASIN 1	Max. Storage	= 541 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Project Name:

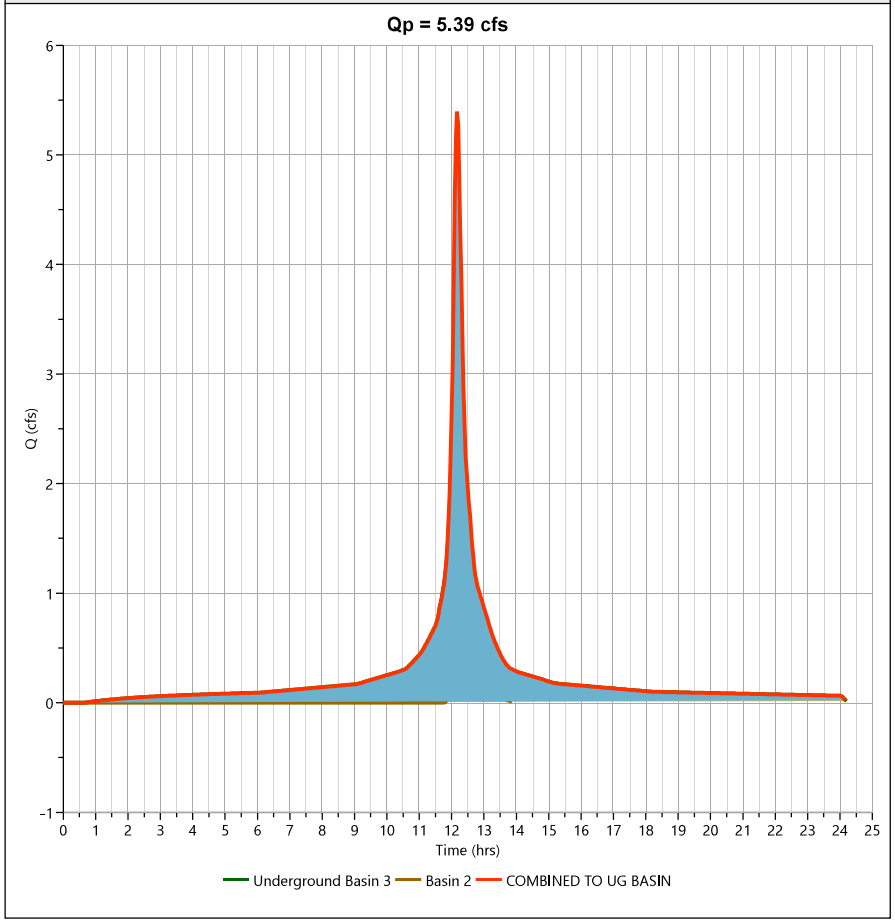
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 5.394 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 22,589 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

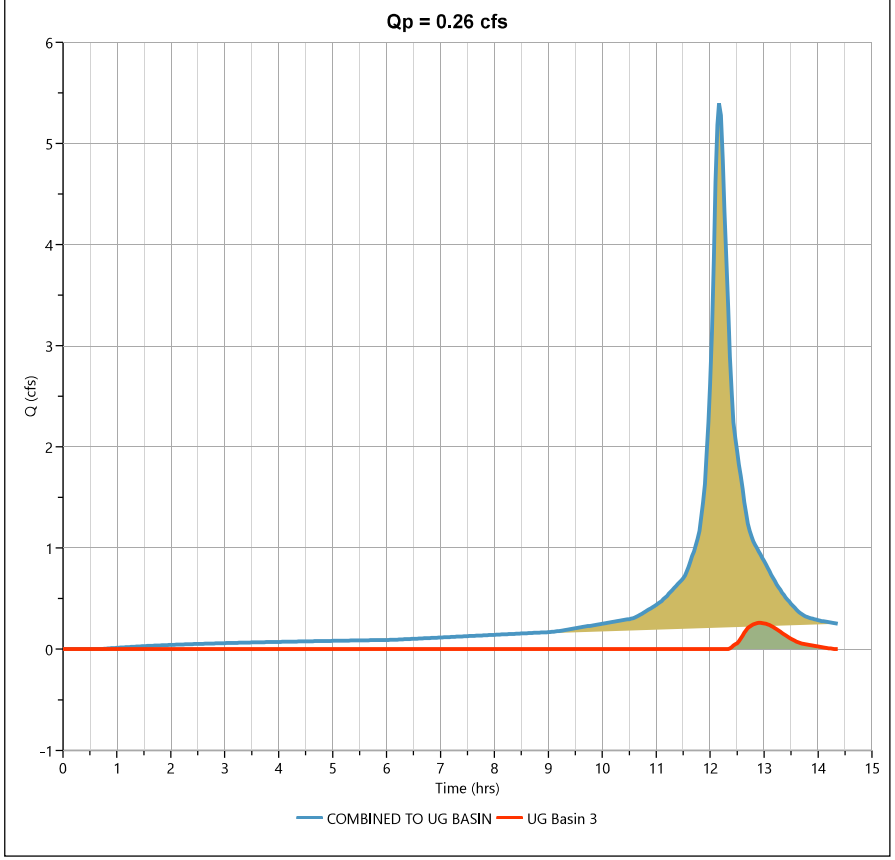


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.260 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.93 hrs
Time Interval	= 2 min	Hydrograph Volume	= 833 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 13.36 ft
Pond Name	= UG BASIN	Max. Storage	= 7,196 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 37 min*

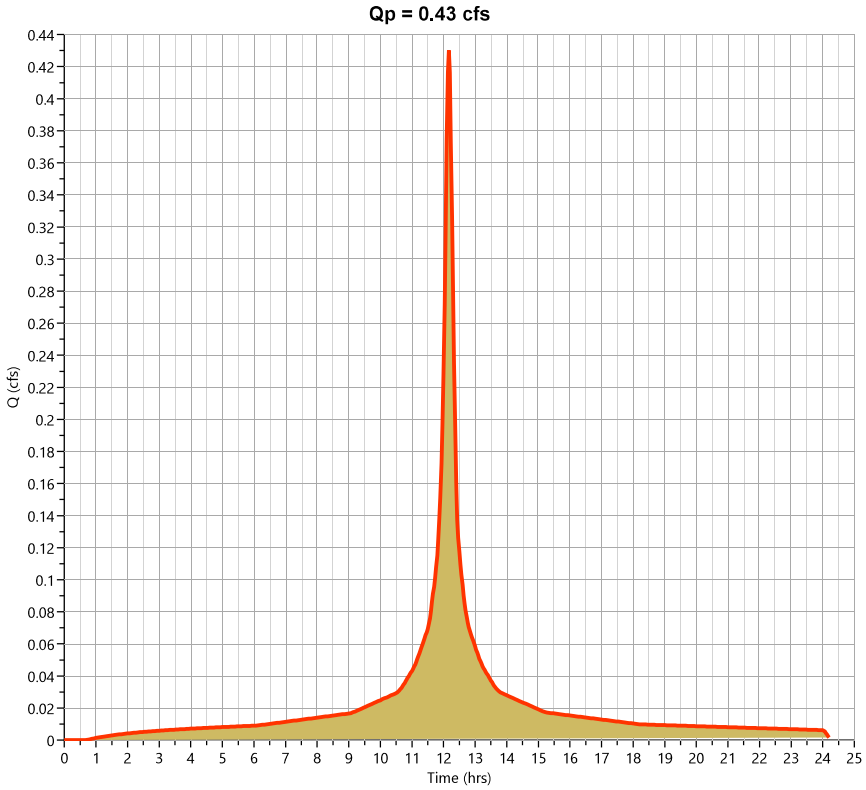


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.430 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,953 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



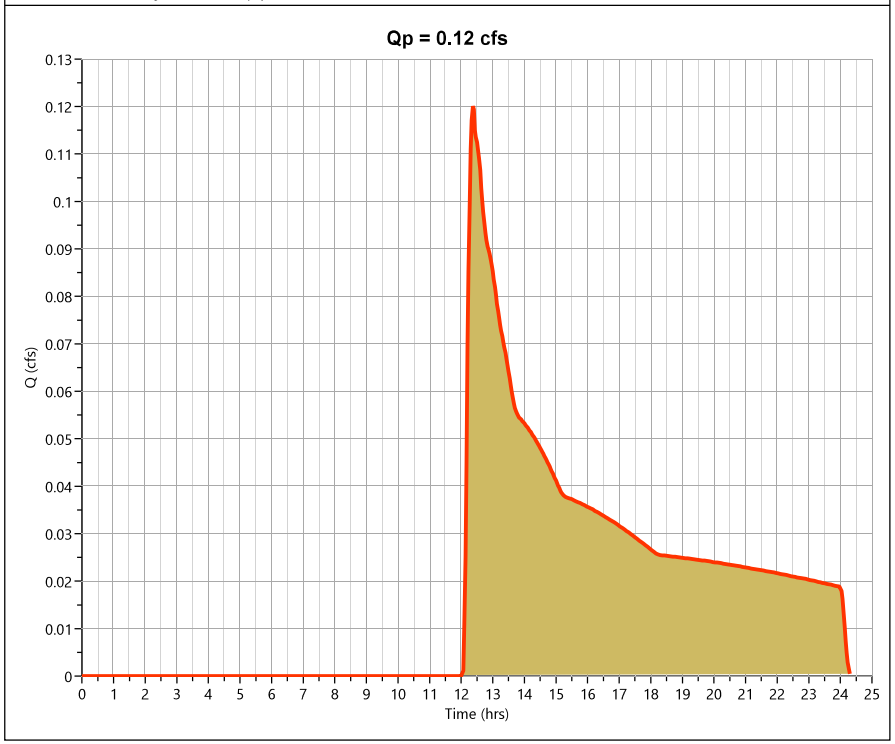
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.120 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.37 hrs
Time Interval	= 2 min	Runoff Volume	= 1,574 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

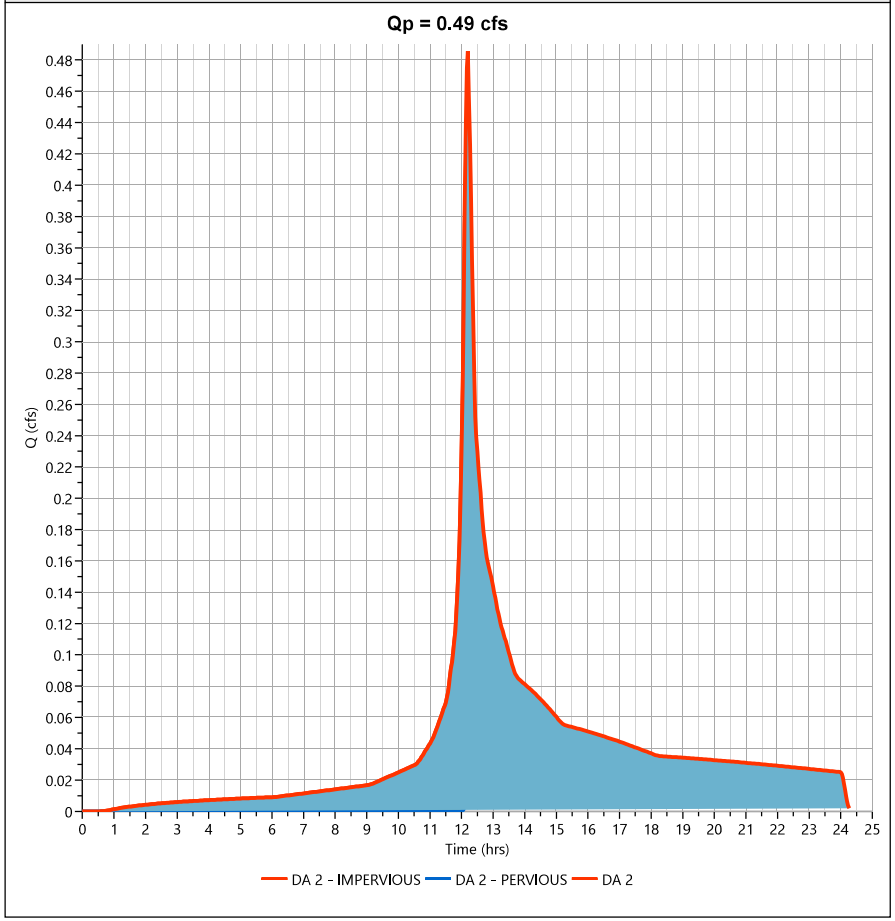


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.486 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,527 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



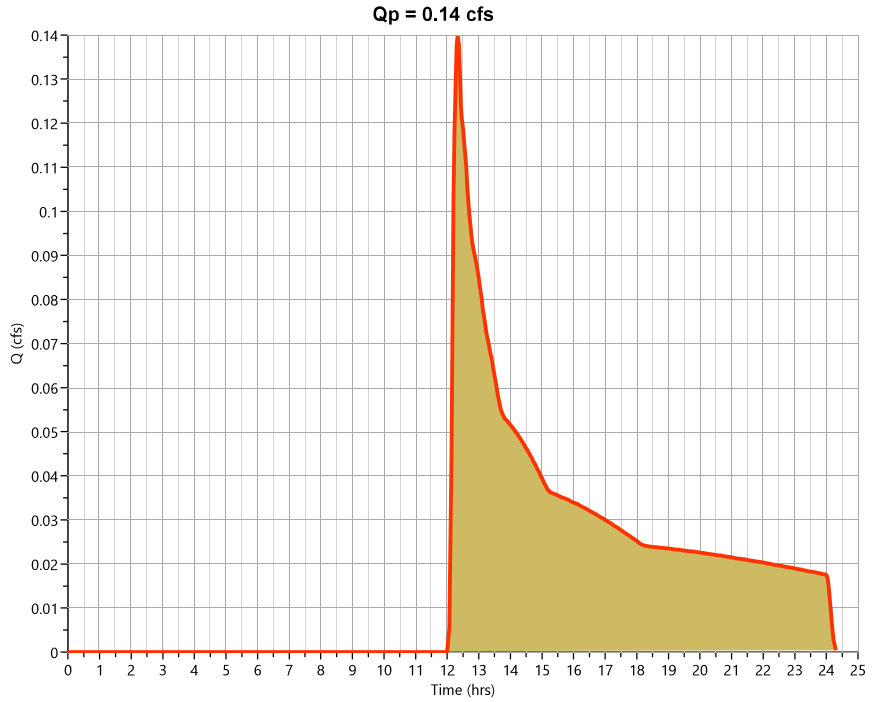
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.140 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.33 hrs
Time Interval	= 2 min	Runoff Volume	= 1,549 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

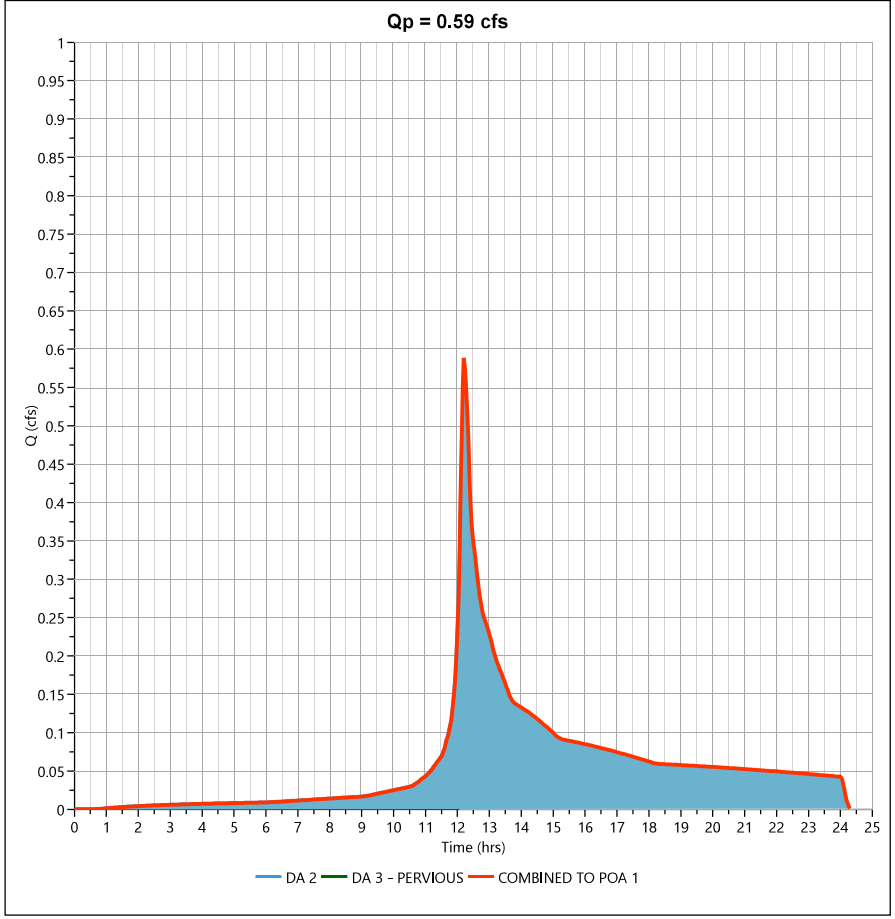


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.588 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,077 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

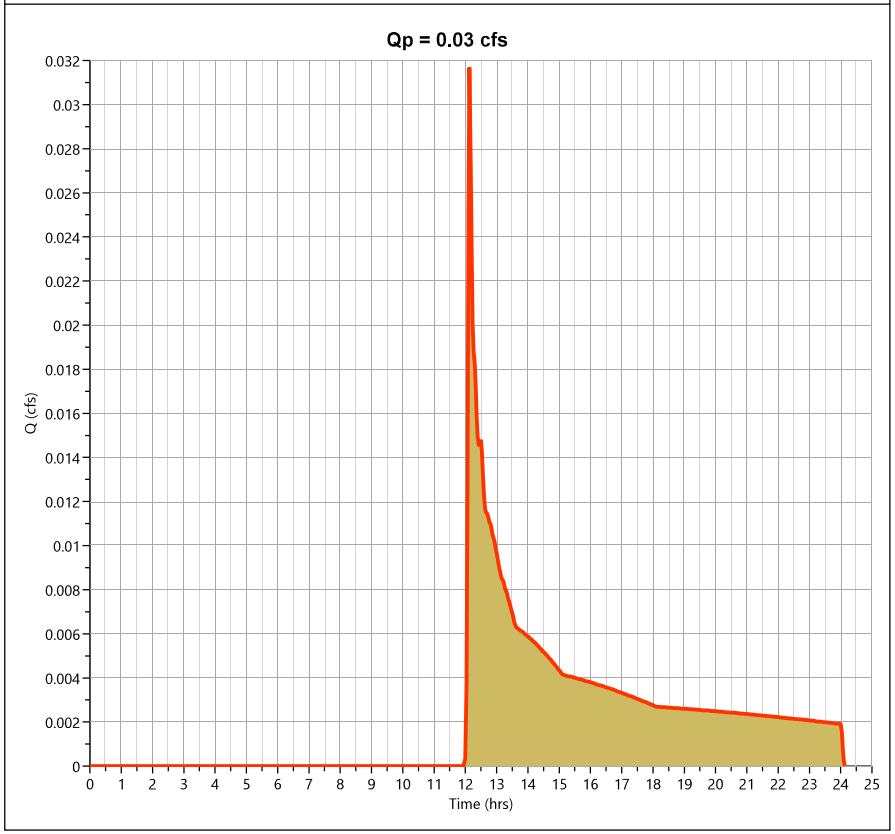
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.032 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 186 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

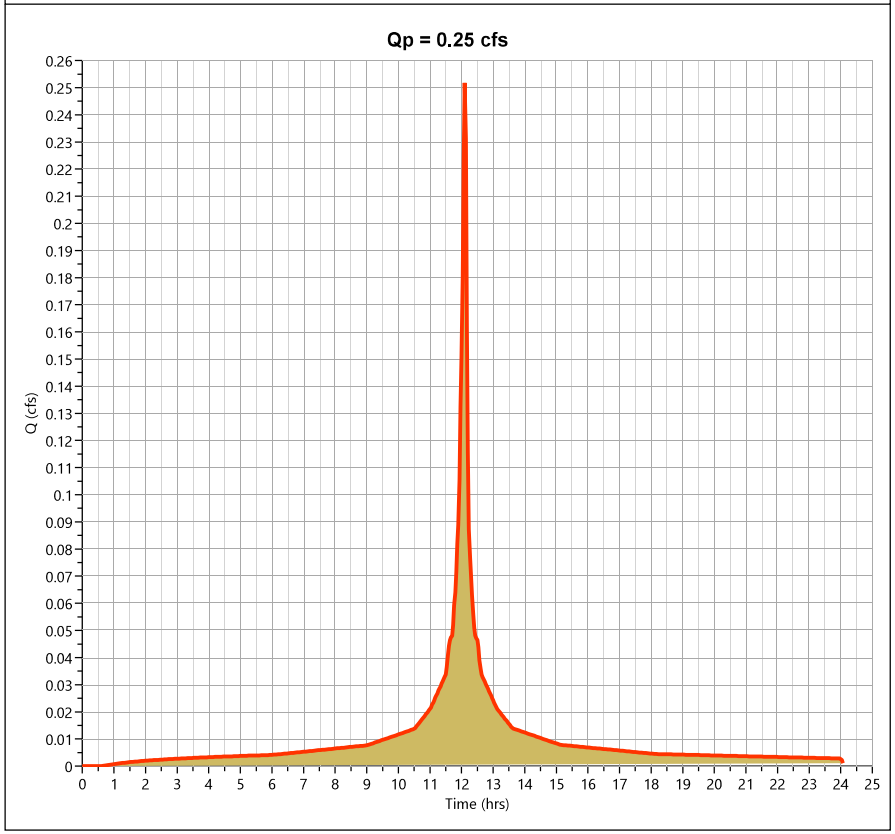
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.252 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 888 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

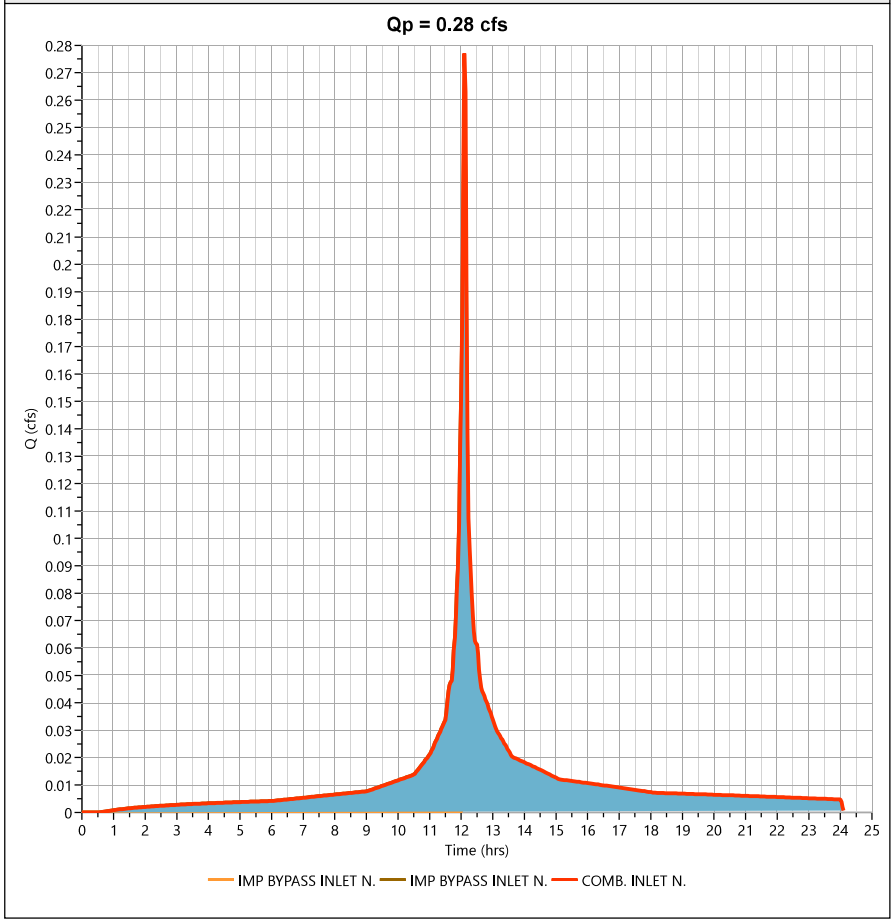
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.277 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,074 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

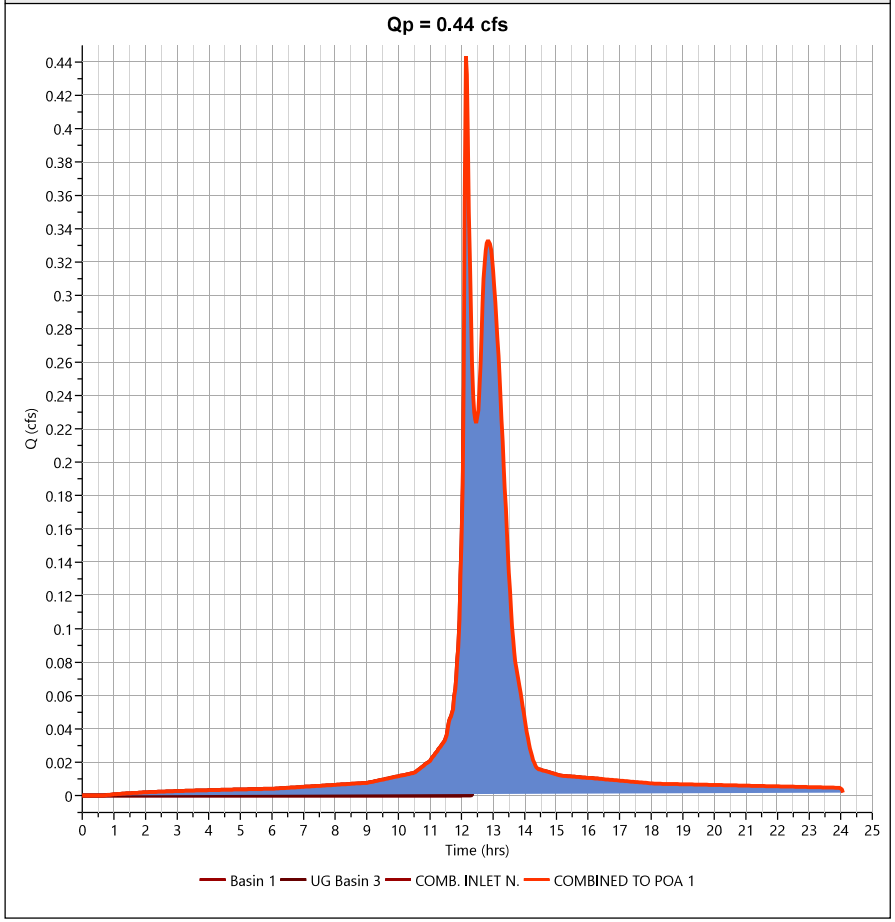
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.443 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,305 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

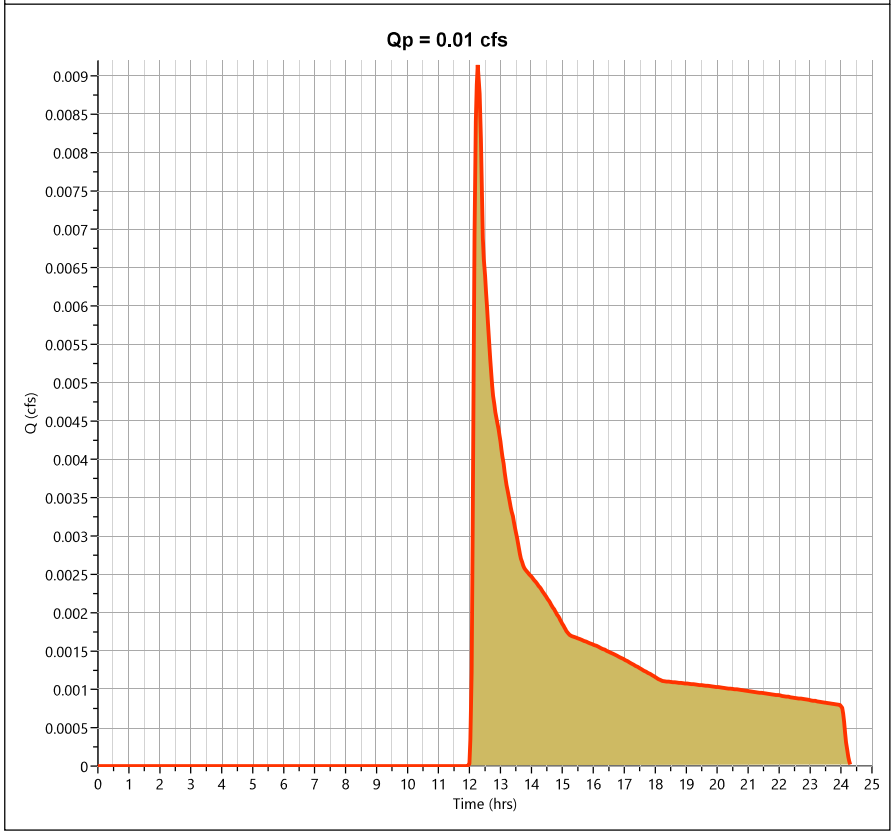
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.009 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 76.9 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

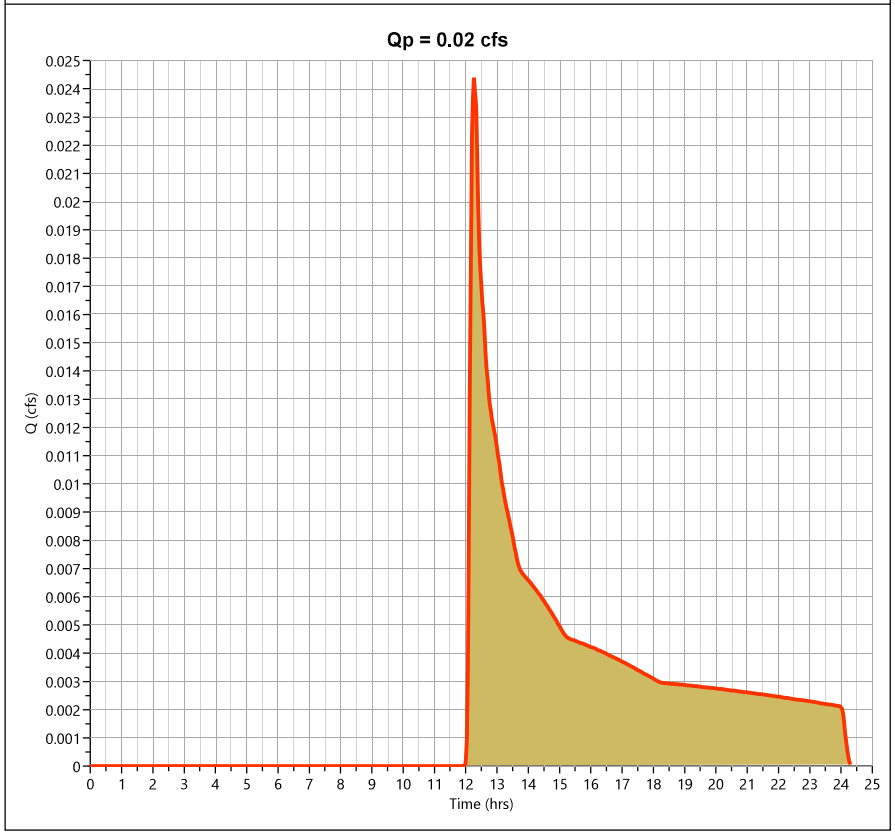
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.024 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 205 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

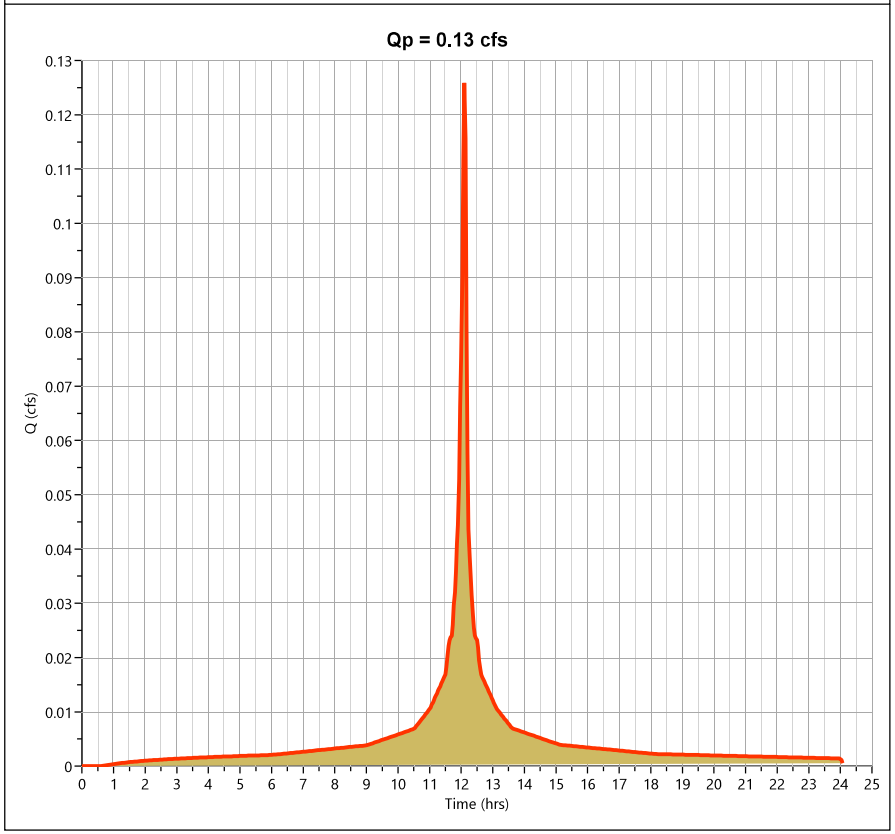
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.126 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 444 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

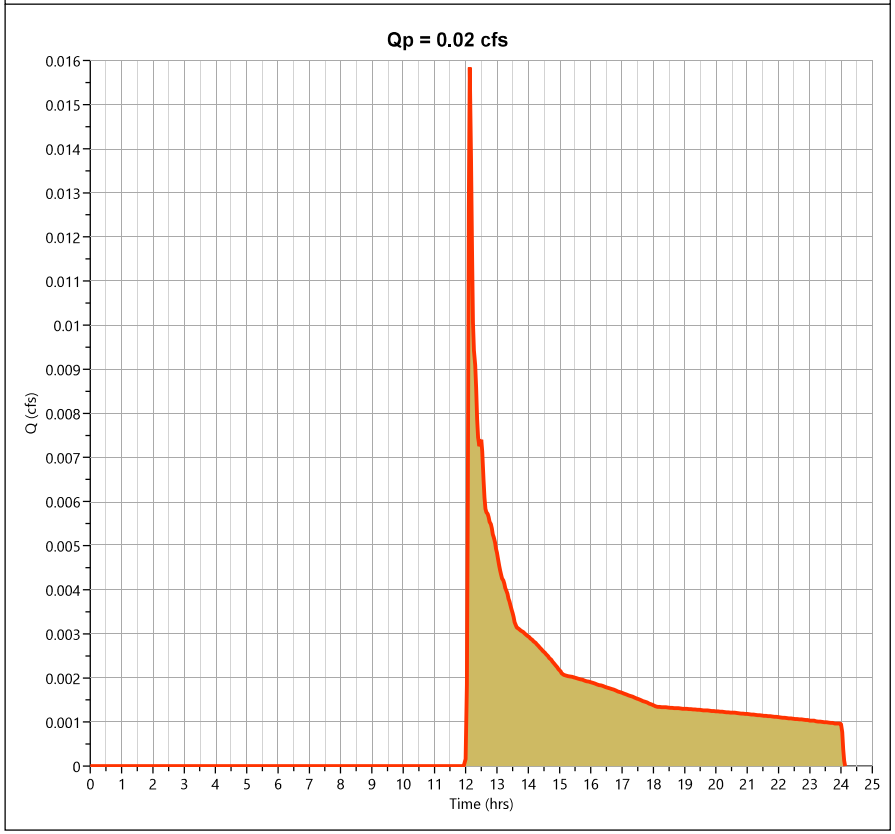
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.016 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 93.2 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

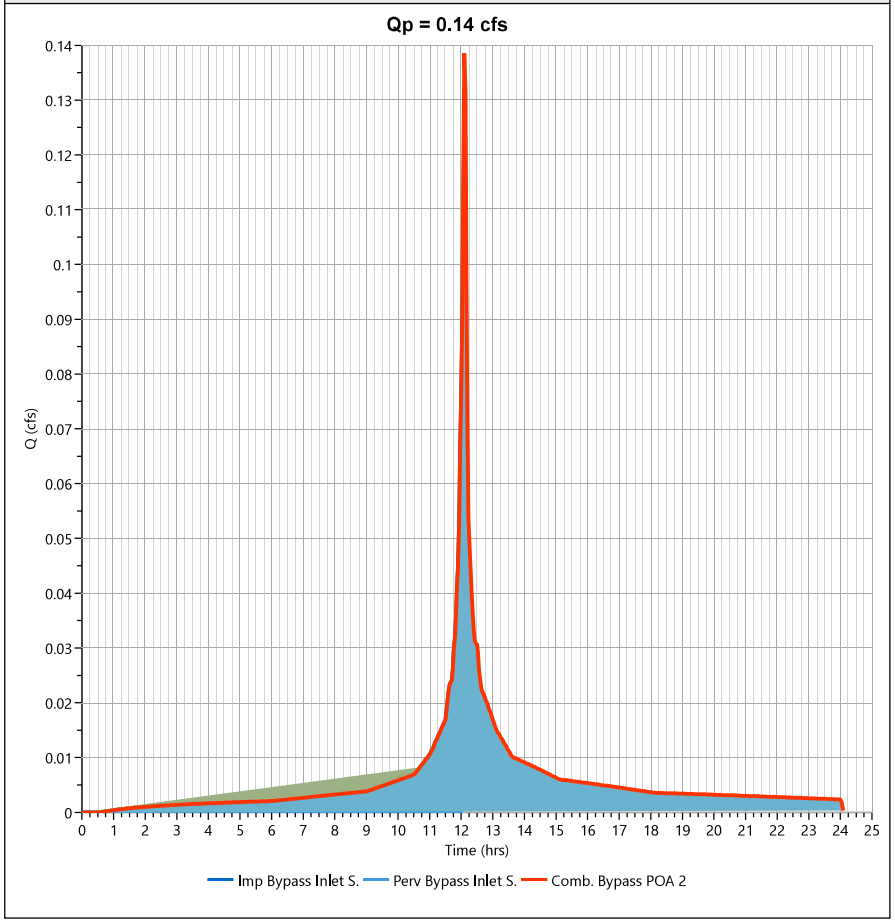
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.139 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 537 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.322	12.13	1,311	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.060	12.17	273	—		
3	NRCS Runoff	Post Roof Area DA3	2.141	12.17	9,802	—		
4	NRCS Runoff	Post Deck DA3	2.363	12.17	10,816	—		
5	NRCS Runoff	Post Pervious Pavement	1.108	12.17	5,070	—		
6	NRCS Runoff	Post Pervious DA 1	0.083	12.13	295	—		
7	NRCS Runoff	Post Roof Area DA1	0.864	12.10	3,073	—		
8	NRCS Runoff	Post Pervious DA2	0.149	12.13	530	—		
9	NRCS Runoff	Post Roof Area DA2	4.321	12.10	15,364	—		
10	Junction	Pre DA 1 - POA 2	0.379	12.13	1,584	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.014	12.20	64.8	—		
12	NRCS Runoff	Post Impervious DA3	0.369	12.17	1,690	—		
13	Junction	Post Underground Basin 3	5.994	12.17	27,444	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.946	12.10	3,368	6, 7		
15	Junction	Post Basin 2	4.468	12.10	15,895	8, 9		
16	Pond Route	Post Basin 2	1.424	12.20	5,077	15	14.84	3,273
17	Pond Route	Post Basin 1	0.613	12.17	939	14	14.90	666
18	Junction	Post COMBINED TO UG BASIN	7.392	12.17	32,521	13, 16		
19	Pond Route	Post UG Basin 3	1.475	12.67	6,303	18	14.08	9,744
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.591	12.17	2,704	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.810	12.20	4,475	—		
22	Junction	Pre DA 2	1.381	12.20	7,179	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.809	12.20	4,218	—		
24	Junction	Pre COMBINED TO POA 1	2.190	12.20	11,397	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.132	12.13	471	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.346	12.10	1,229	—		
27	Junction	COMB. INLET N.	0.476	12.10	1,701	25, 26		
28	Junction	Post COMBINED TO POA 1	1.685	12.53	8,943	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.041	12.20	194	—		
30	NRCS Runoff	Post Bypass Memorial	0.108	12.20	519	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.173	12.10	615	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.066	12.13	236	—		
33	Junction	Post Comb. Bypass POA 2	0.238	12.10	850	31, 32		

Hydrograph Report

Project Name:

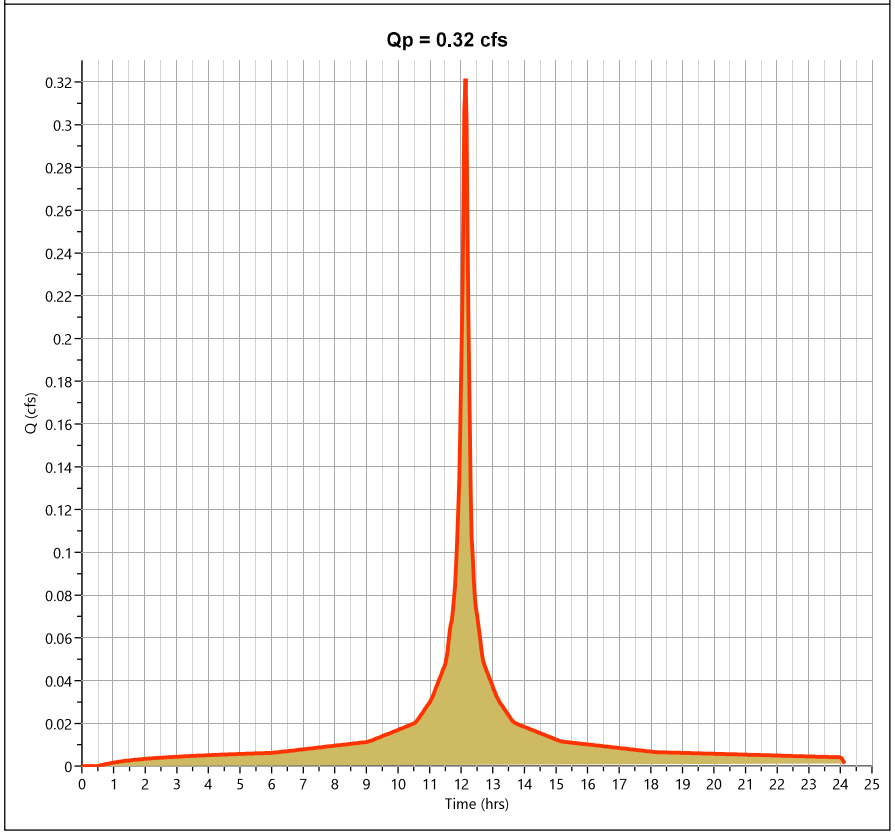
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.322 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

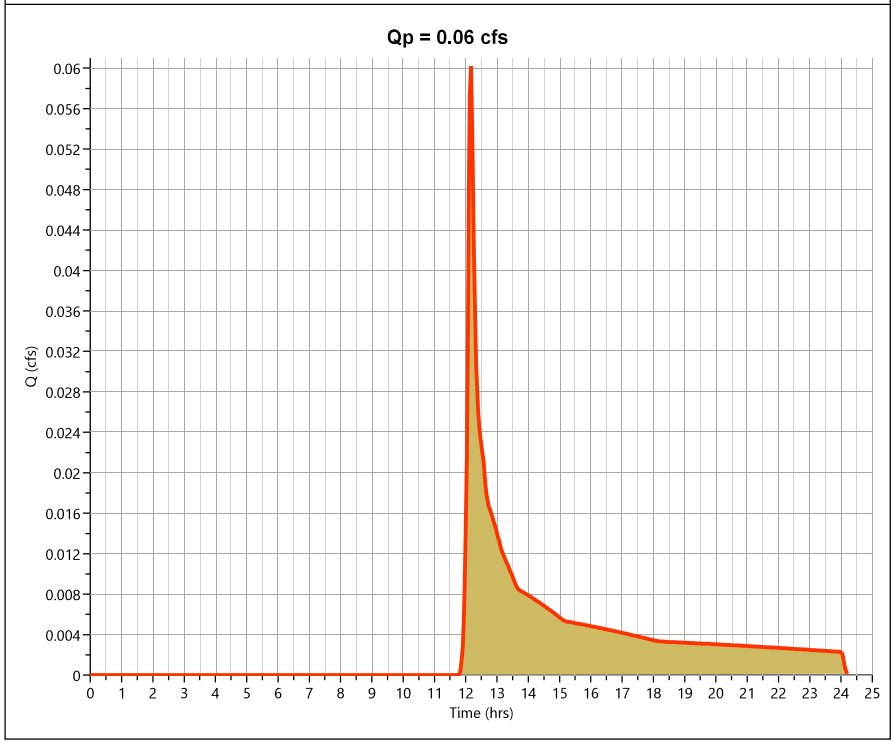
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.060 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 273 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

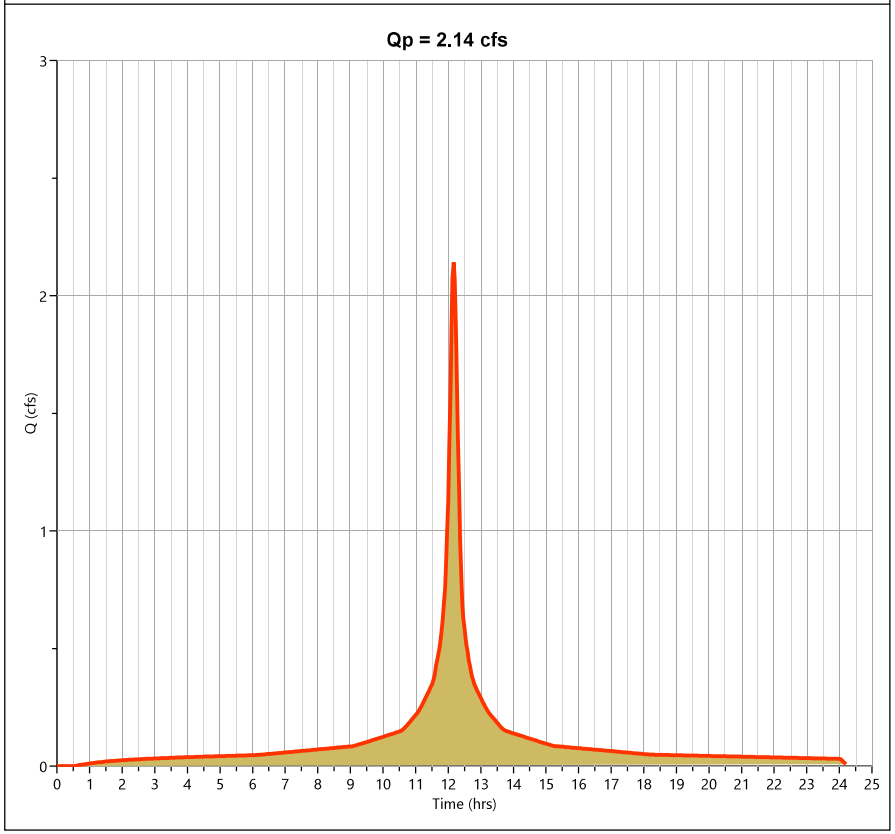
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.141 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 9,802 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

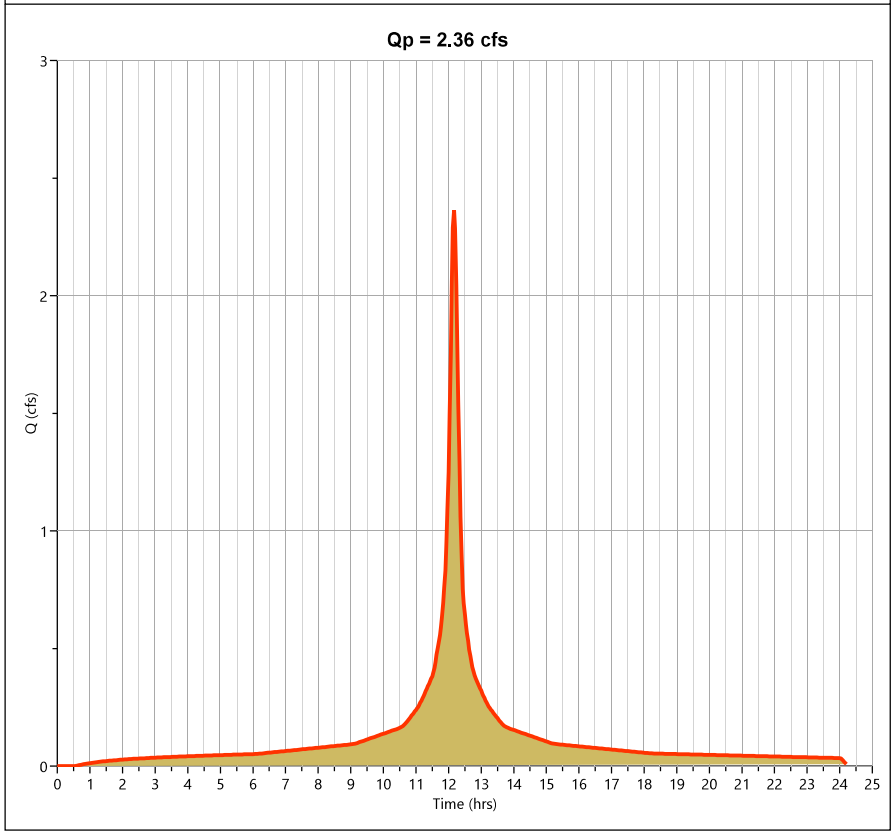
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.363 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 10,816 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

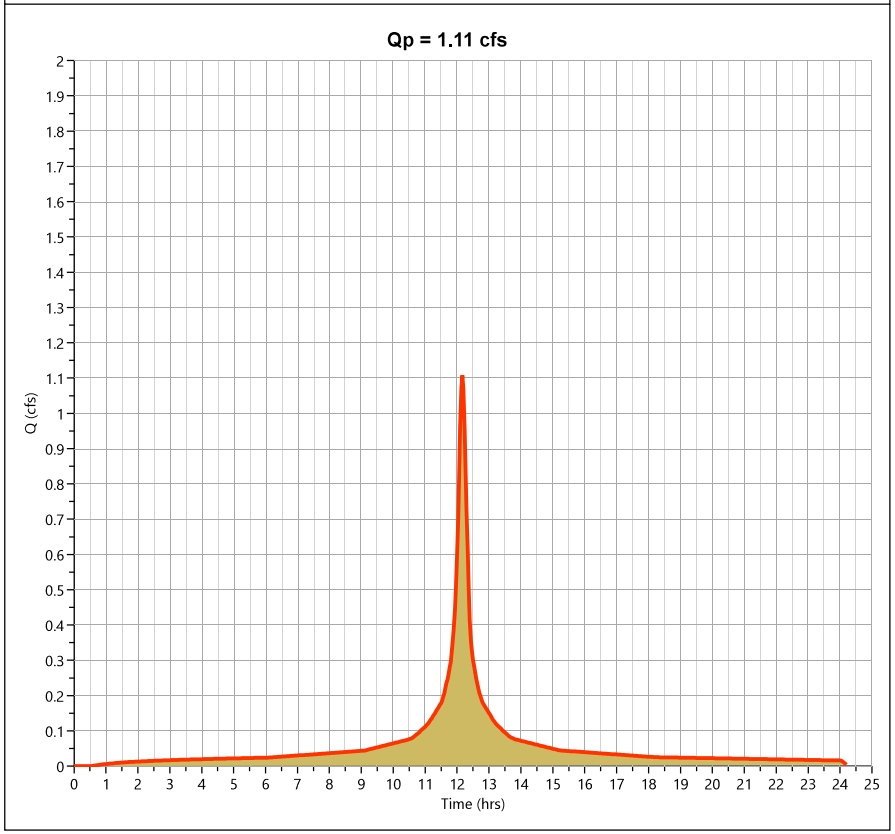
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.108 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 5,070 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

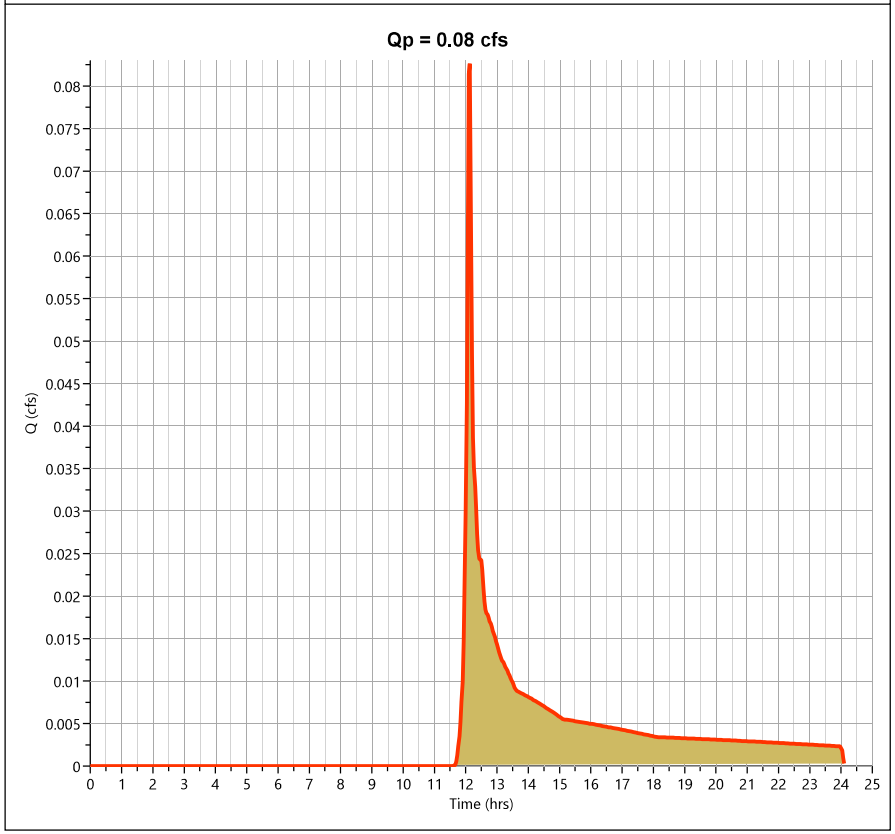
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.083 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 295 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

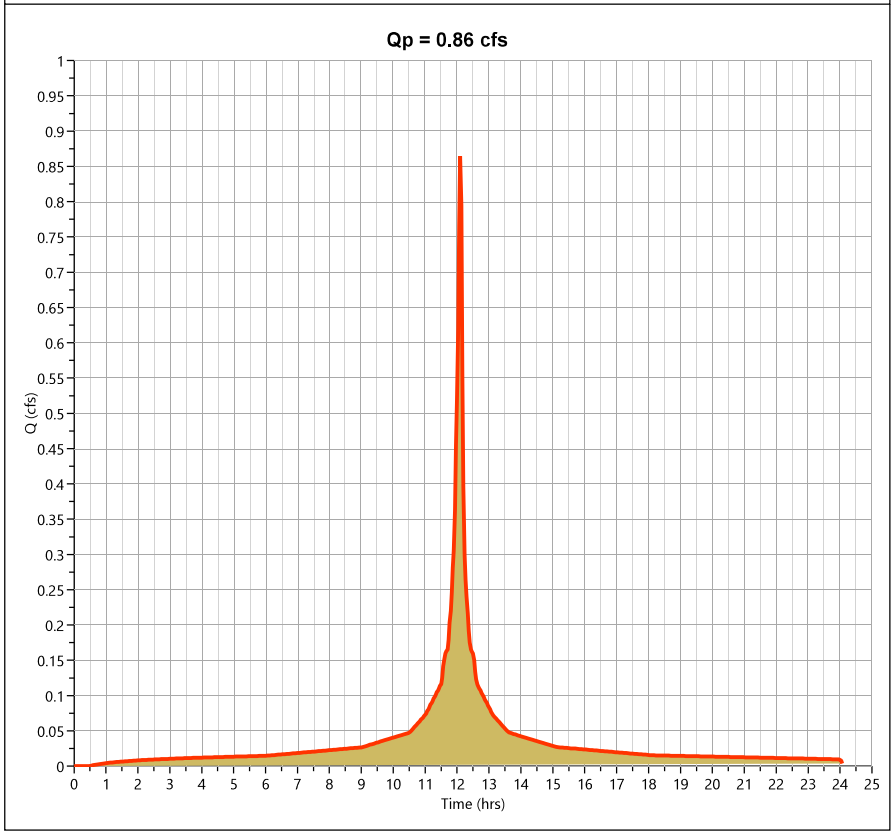
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.864 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 3,073 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

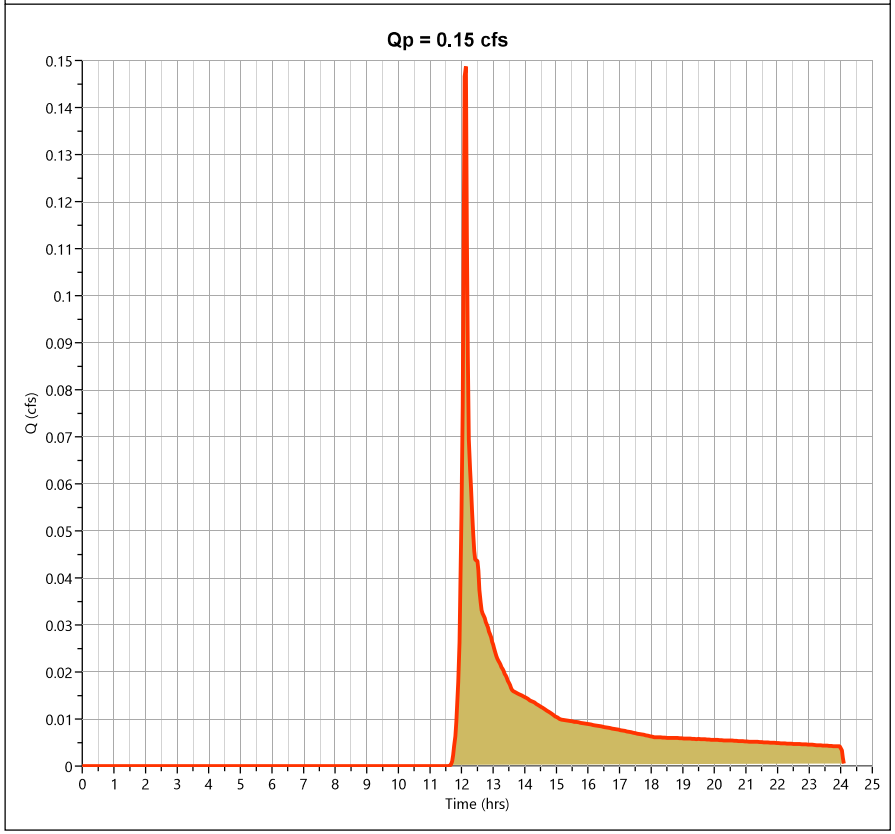
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

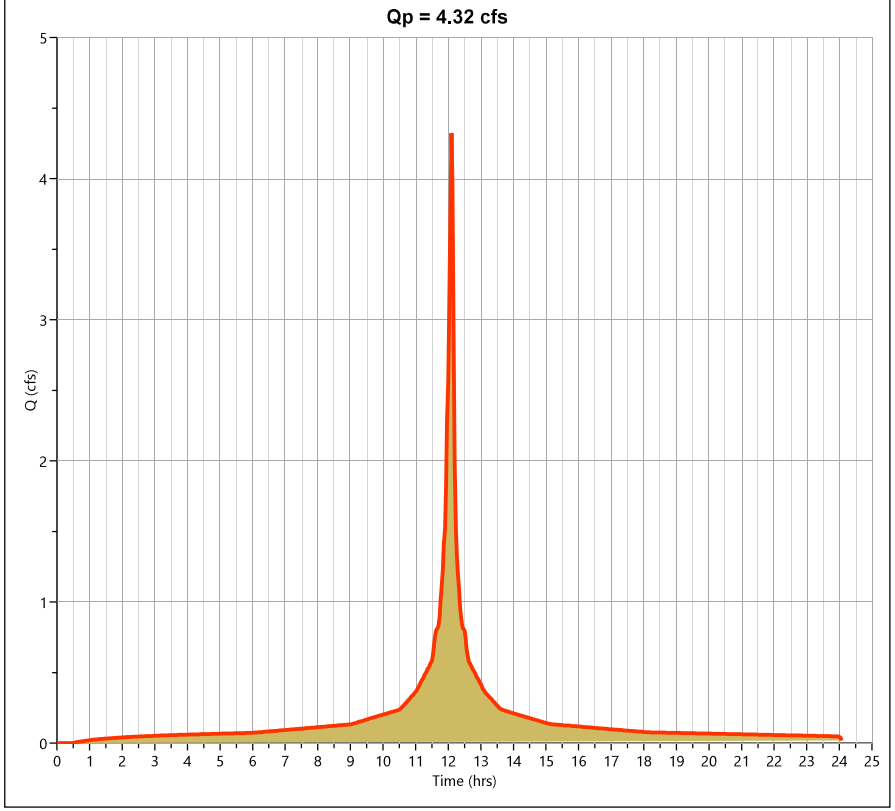
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.149 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 530 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.321 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 15,364 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

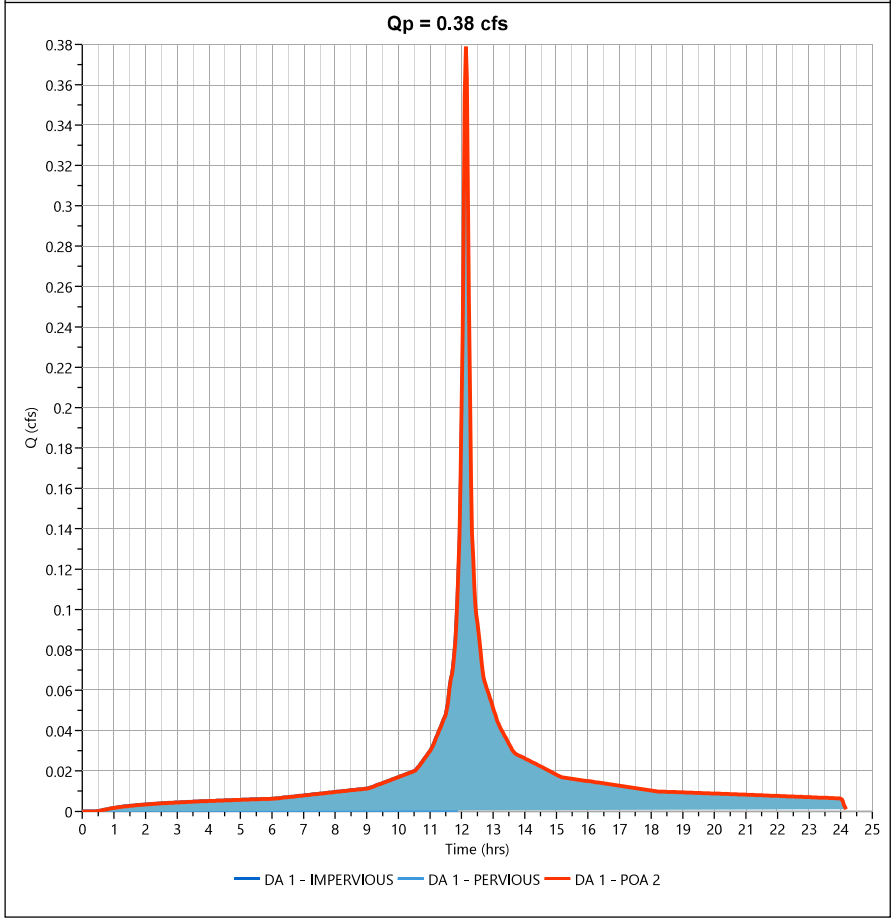


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.379 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,584 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

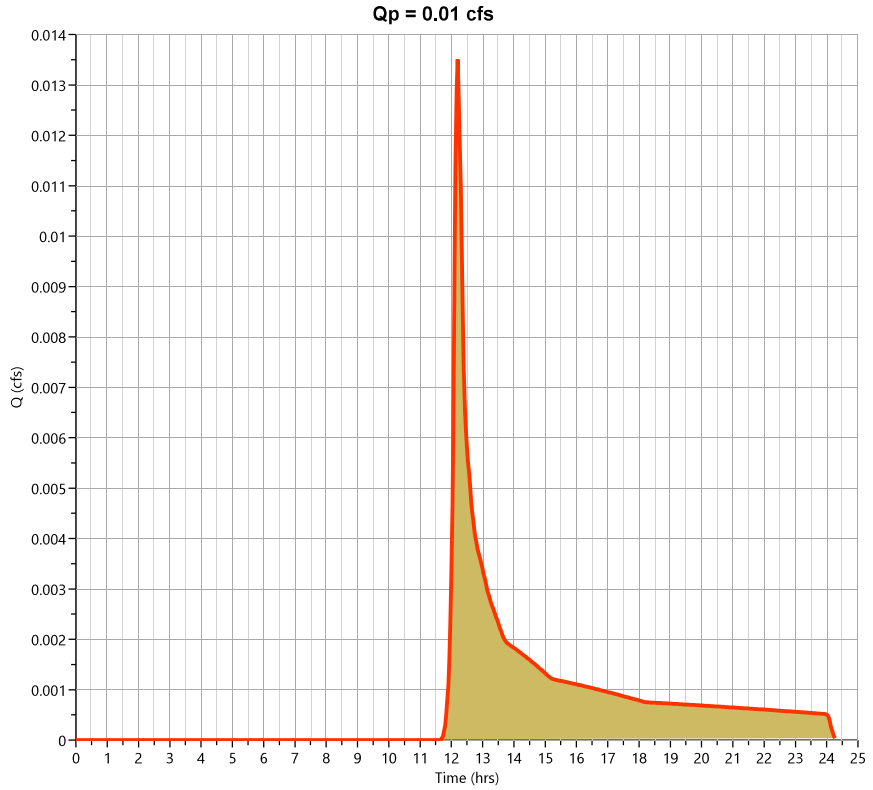
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.014 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 64.8 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

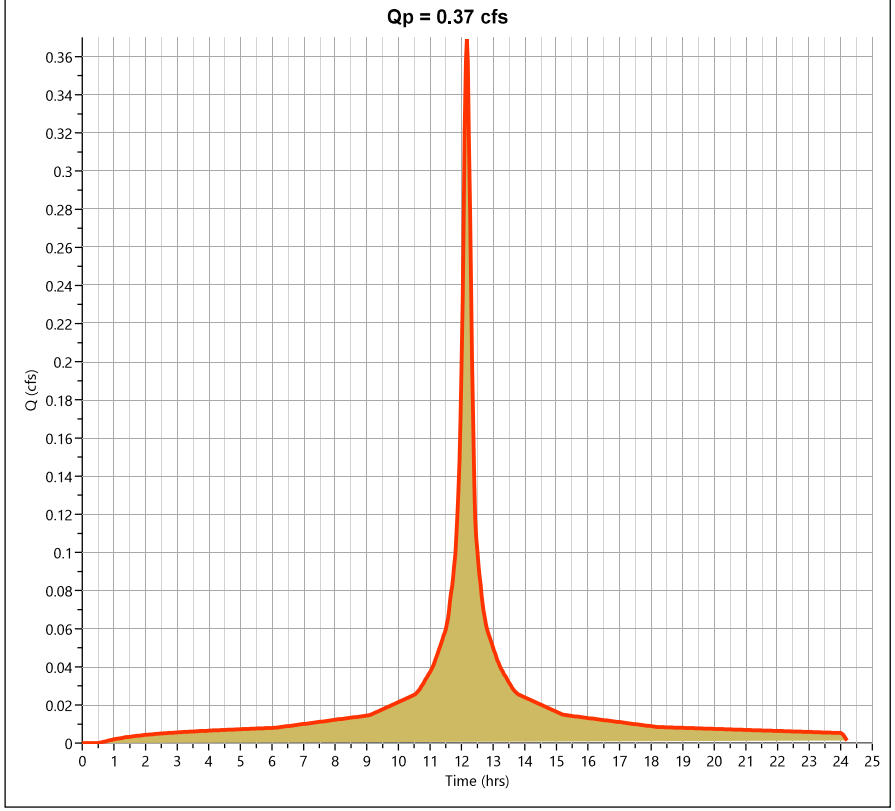
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.369 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,690 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

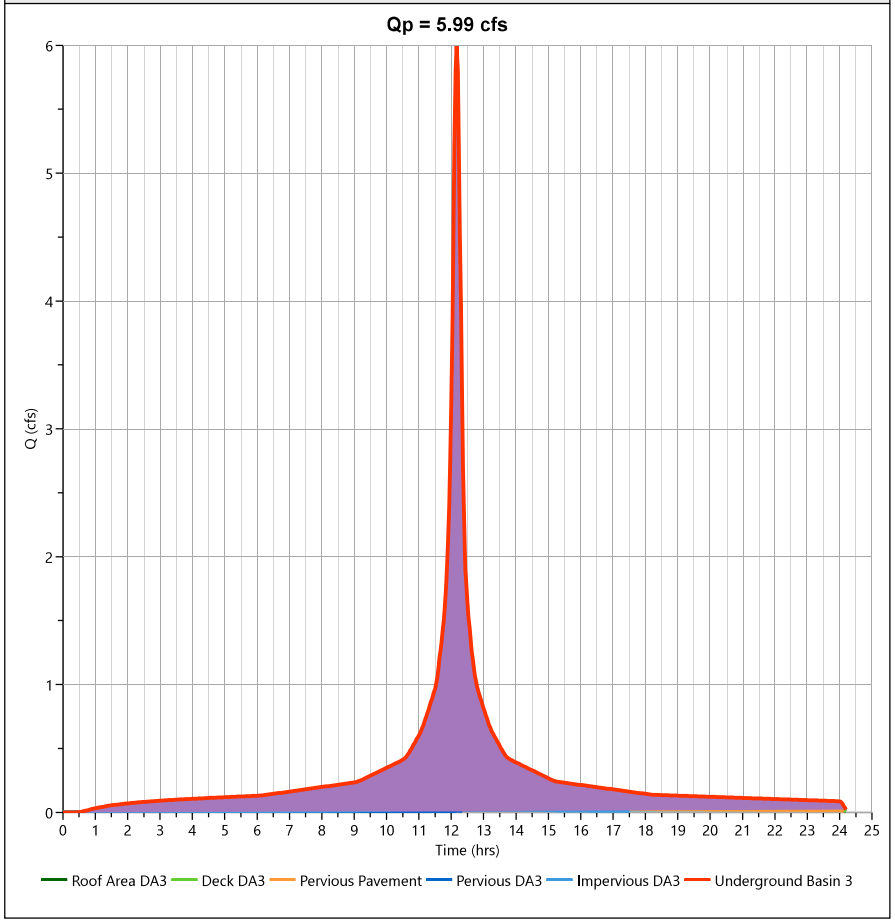
Hydrology Studio v 3.0.0.24

06-14-2022

Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 5.994 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 27,444 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

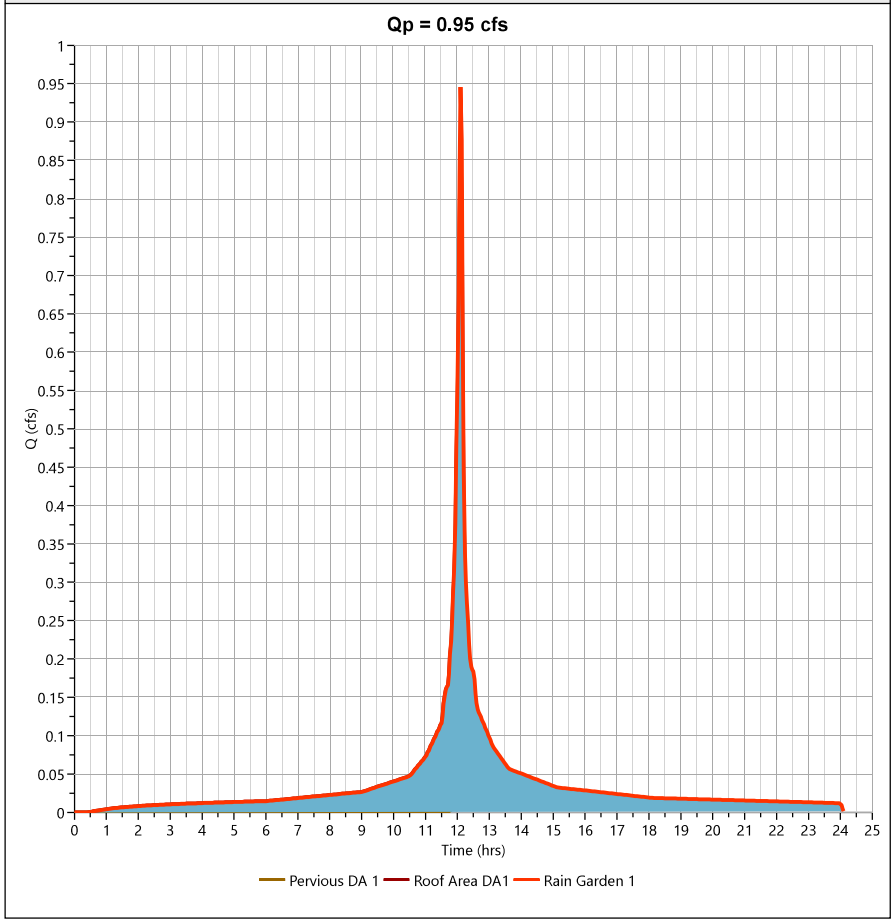
Hydrology Studio v 3.0.0.24

06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.946 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,368 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

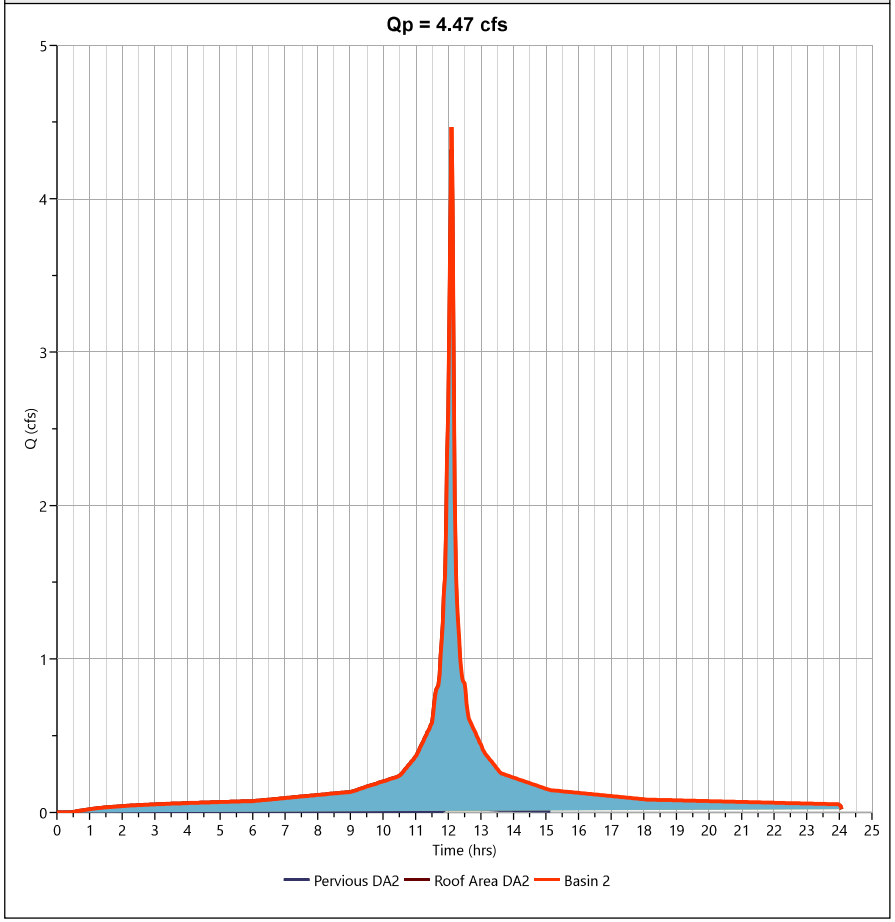
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 4.468 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 15,895 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

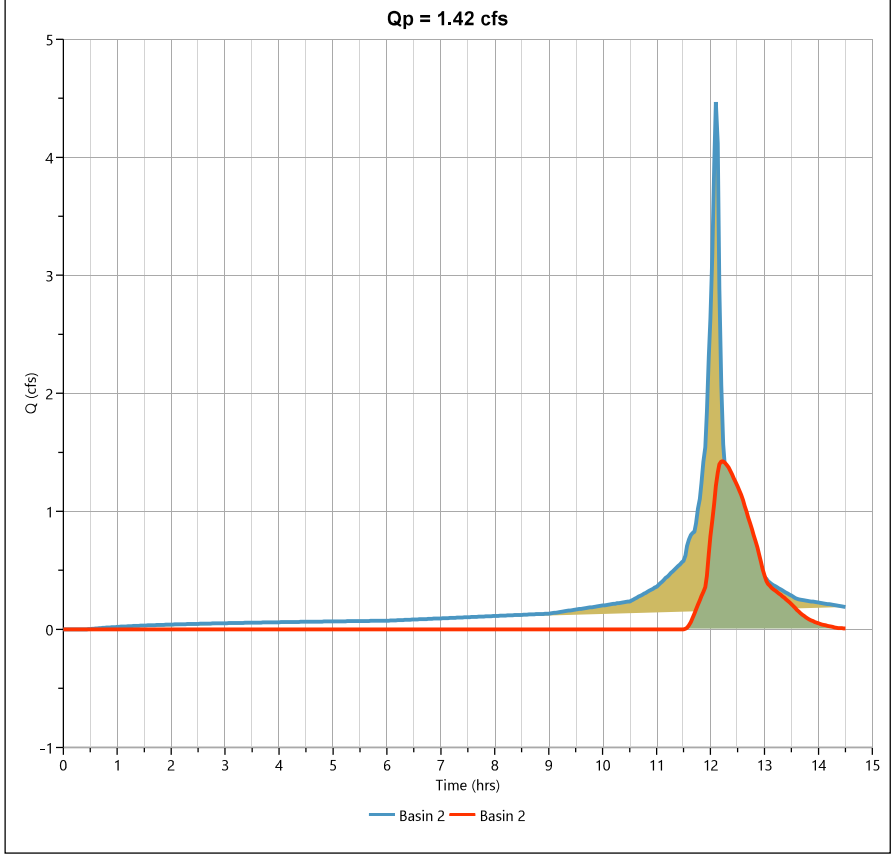
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 1.424 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,077 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 14.84 ft
Pond Name	= Basin 2	Max. Storage	= 3,273 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 9 min*

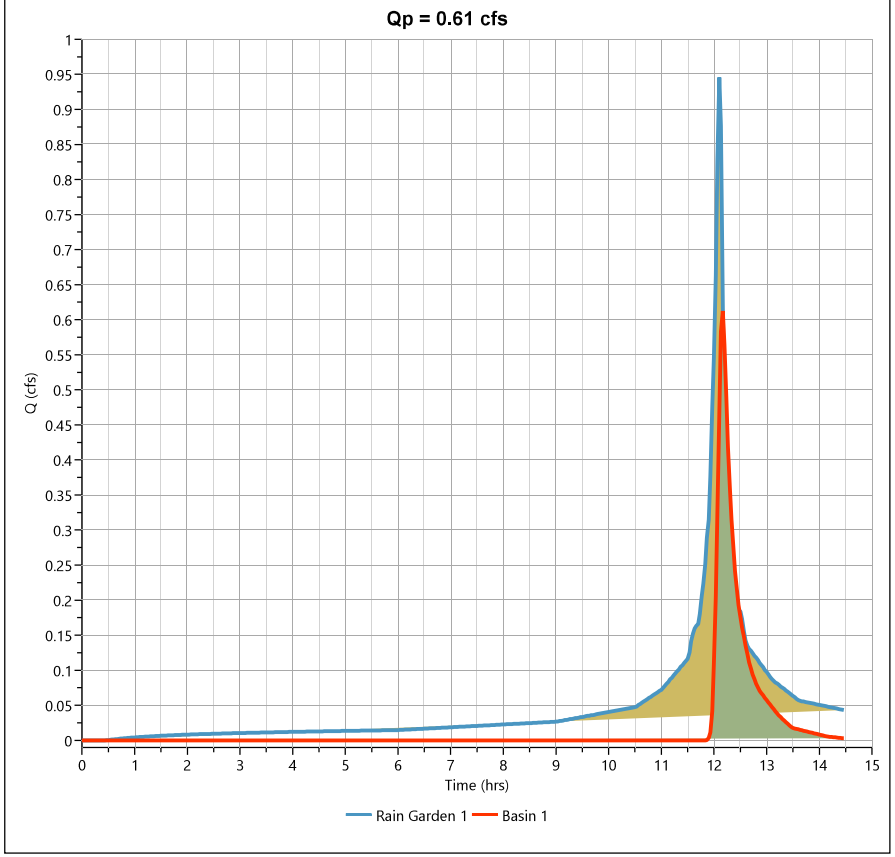


Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.613 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 939 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.90 ft
Pond Name	= BASIN 1	Max. Storage	= 666 cuft

Pond Routing by Storage Indication Method

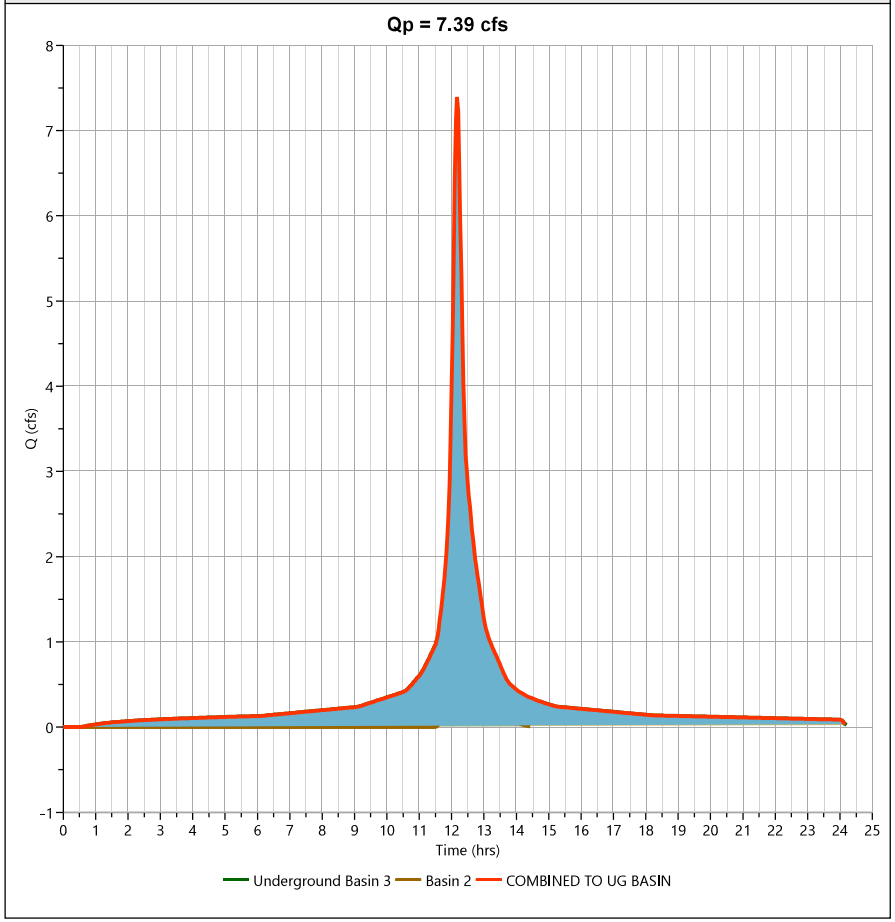


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 7.392 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 32,521 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

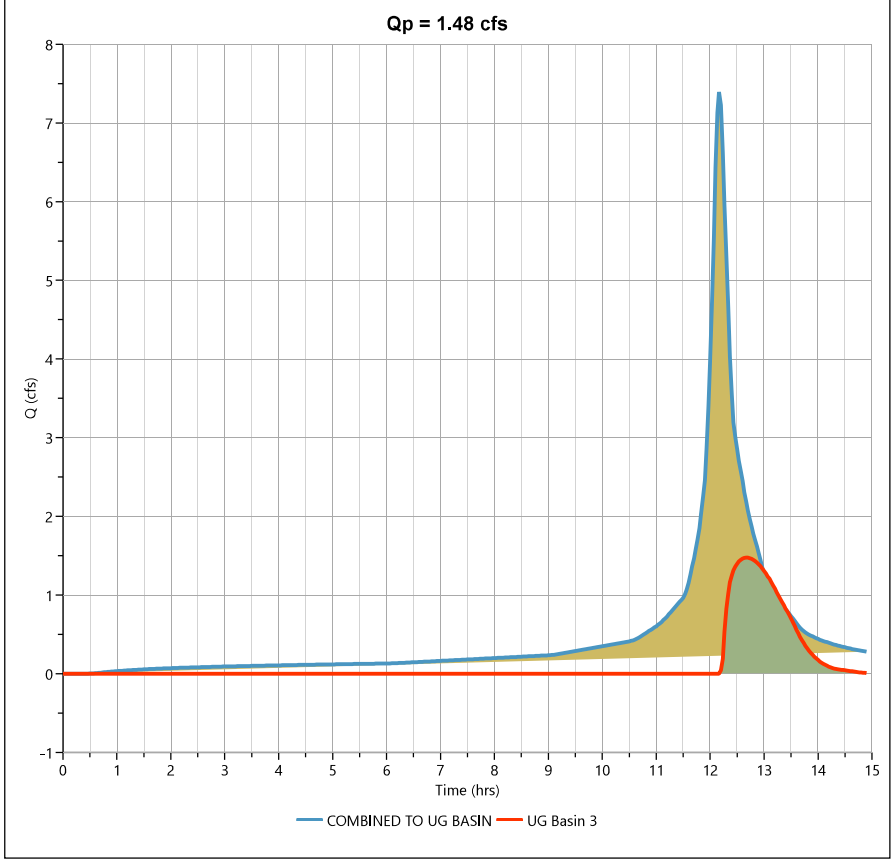


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 1.475 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.67 hrs
Time Interval	= 2 min	Hydrograph Volume	= 6,303 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 14.08 ft
Pond Name	= UG BASIN	Max. Storage	= 9,744 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 34 min*

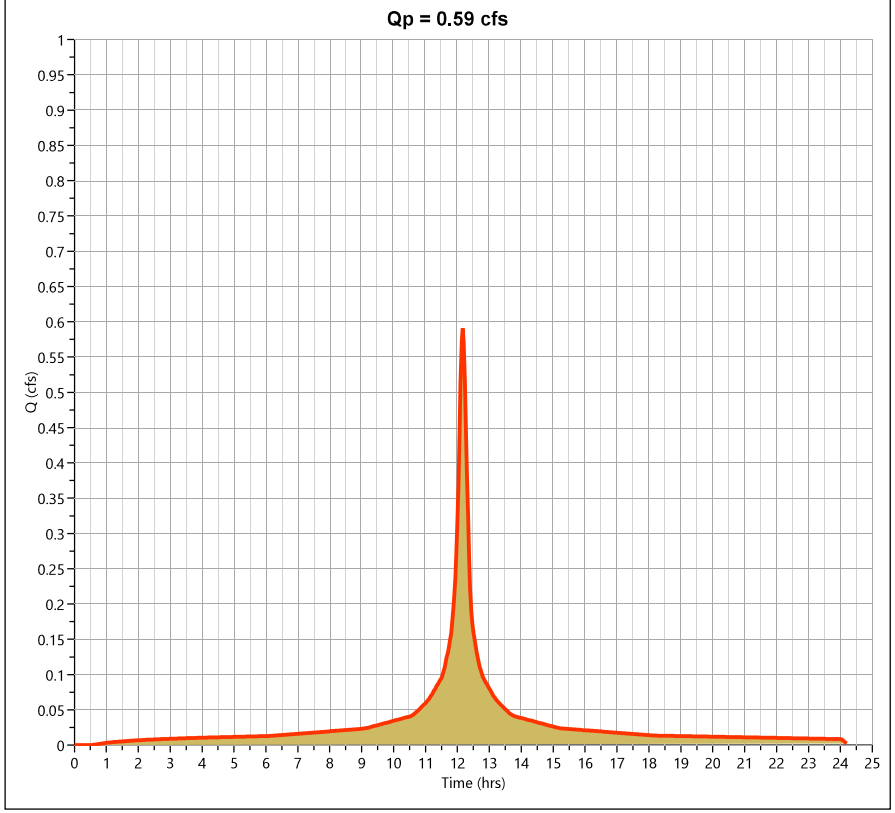


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.591 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 2,704 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

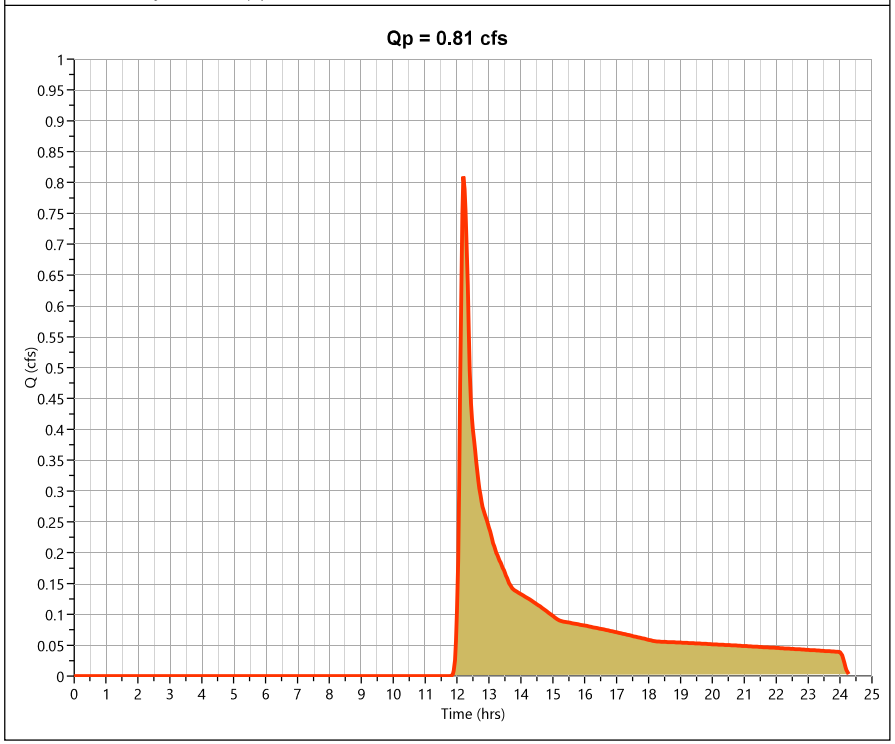
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.810 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 4,475 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed



Hydrograph Report

Project Name:

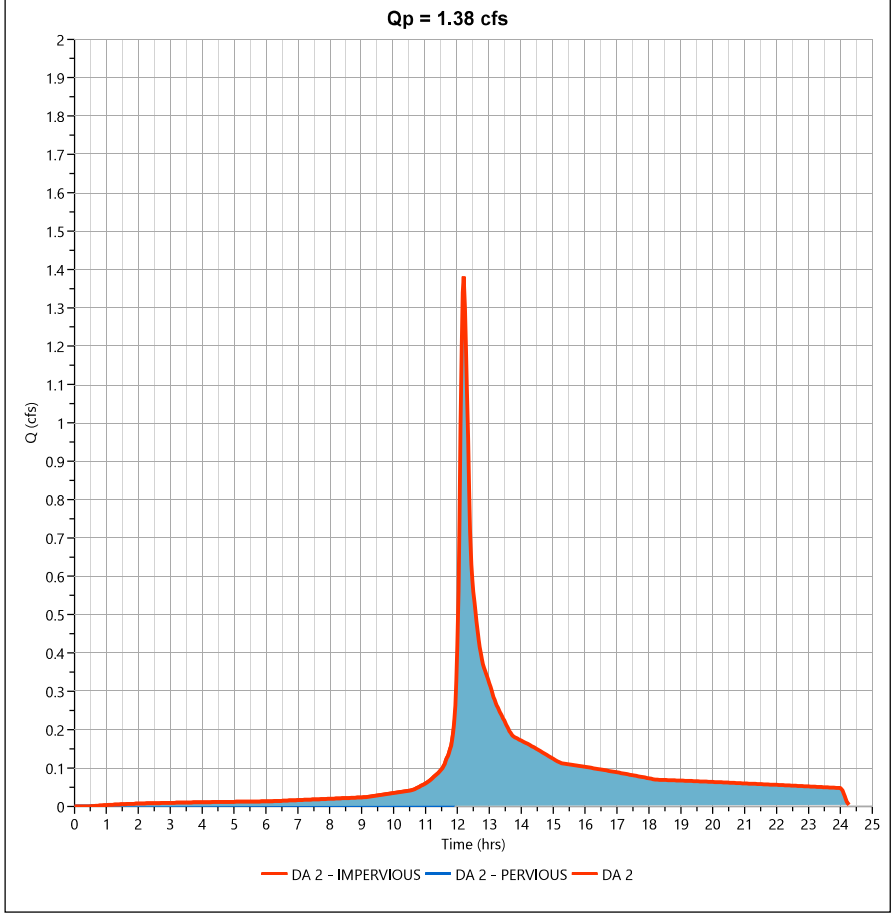
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 1.381 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 7,179 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



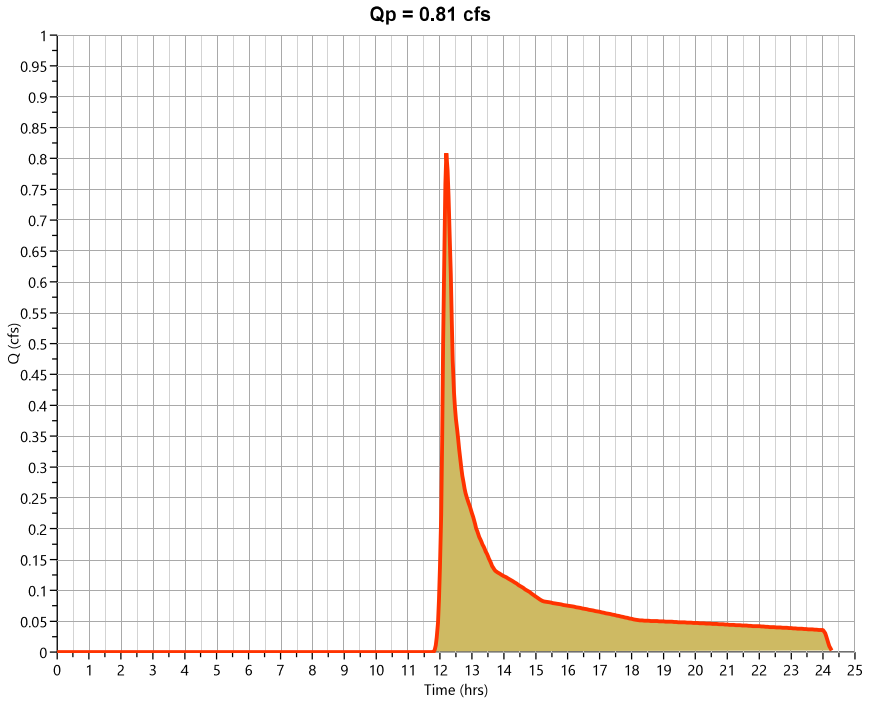
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.809 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 4,218 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

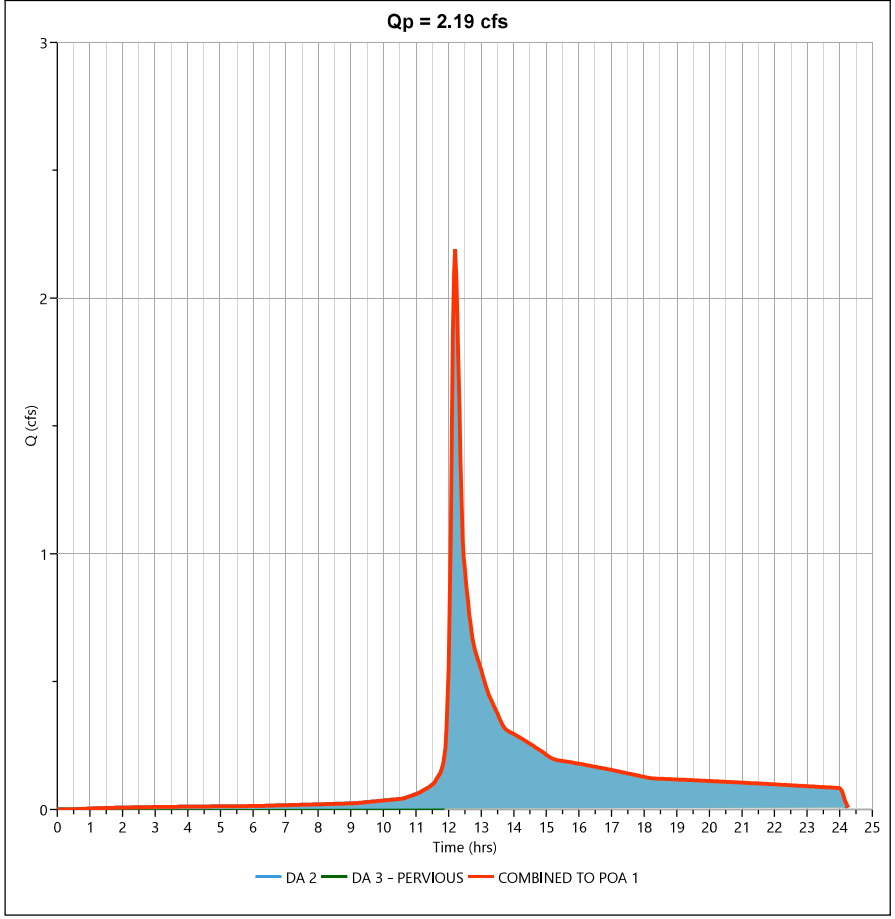


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 2.190 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 11,397 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

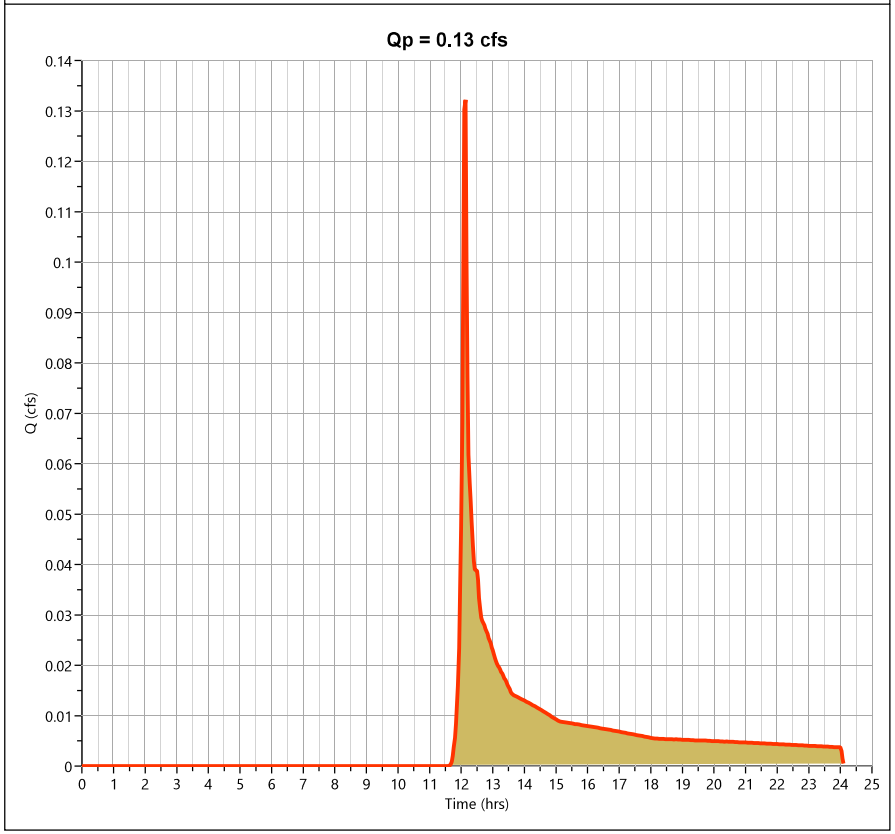
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.132 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 471 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

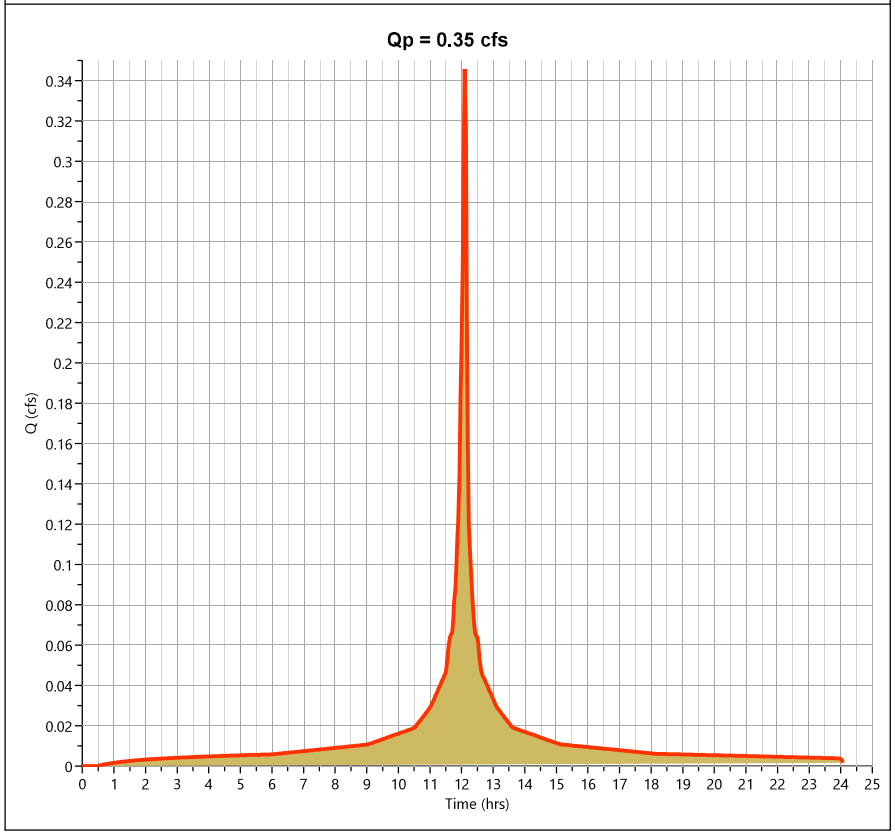
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.346 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,229 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

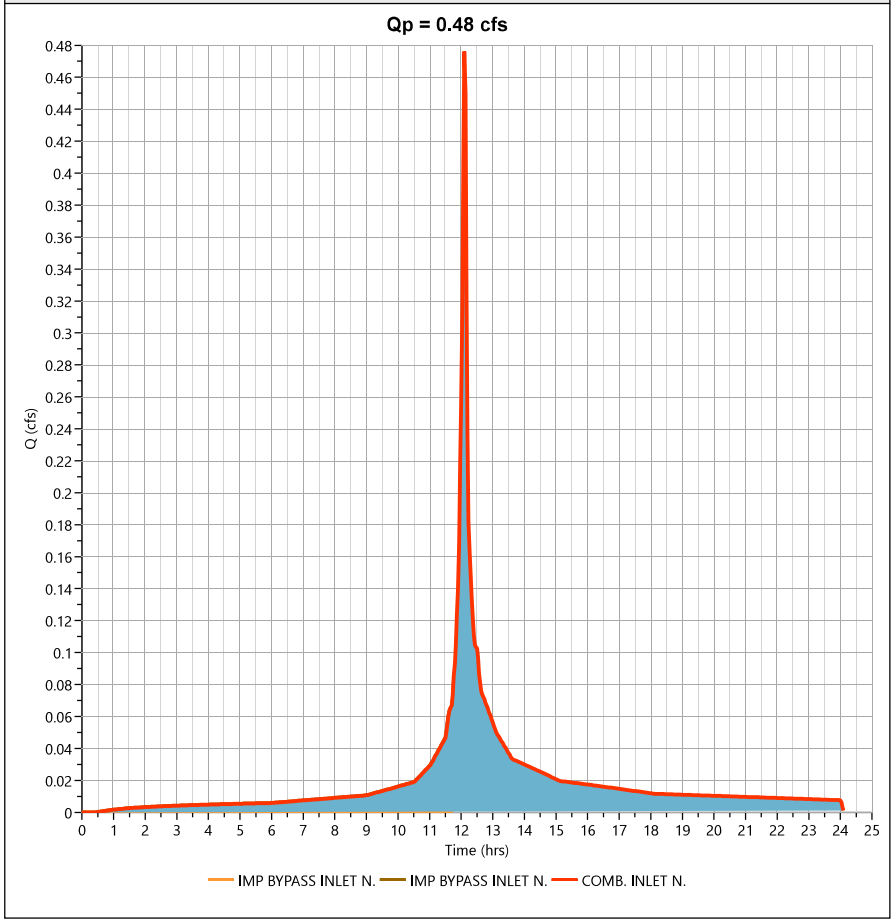
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.476 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,701 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

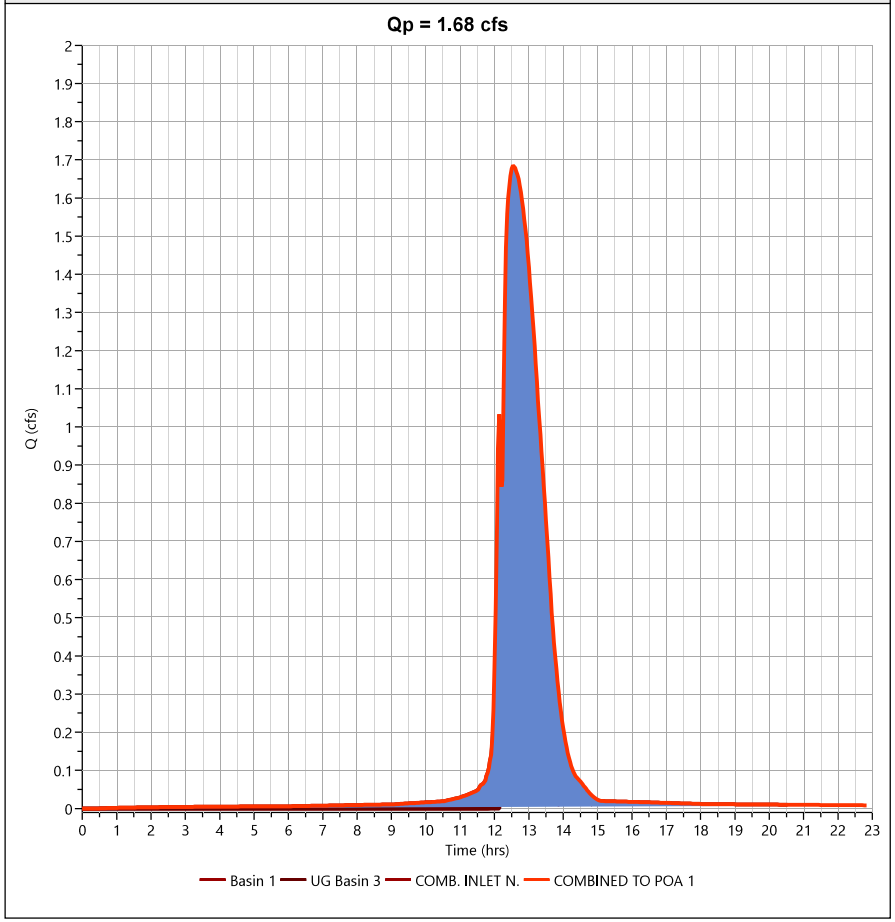
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 1.685 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.53 hrs
Time Interval	= 2 min	Hydrograph Volume	= 8,943 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

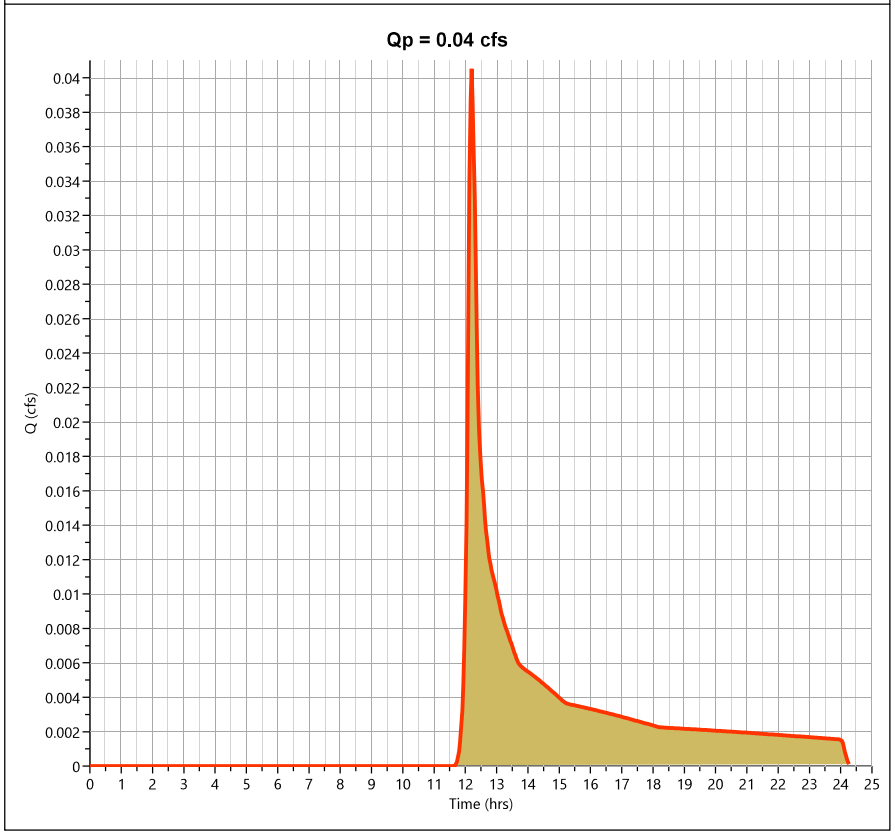
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.041 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 194 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

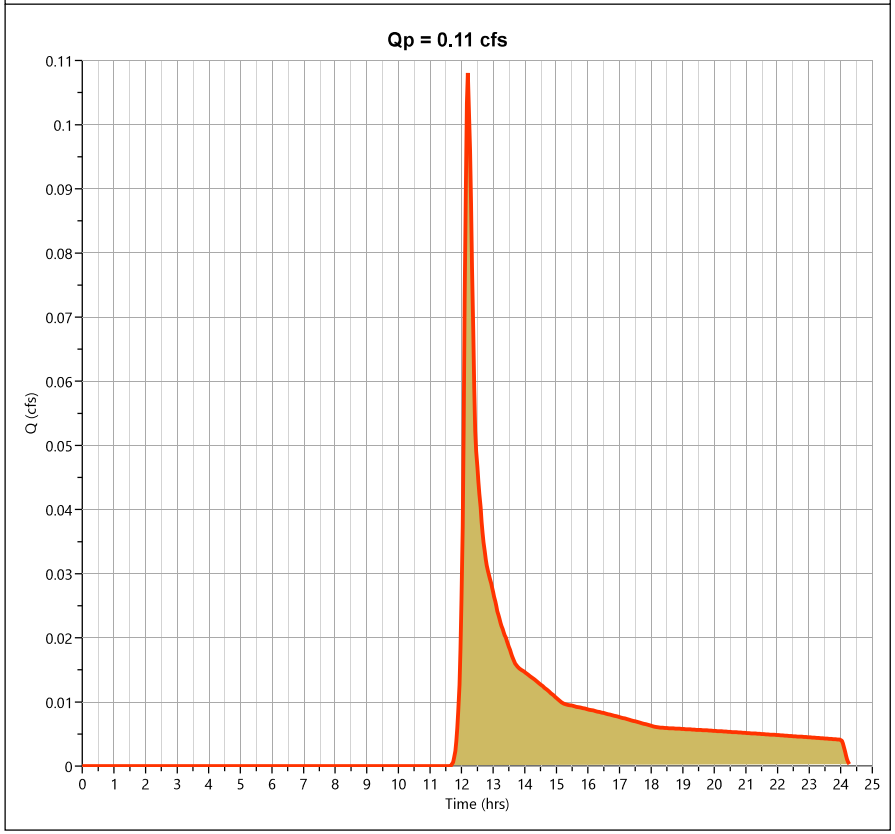
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.108 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 519 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

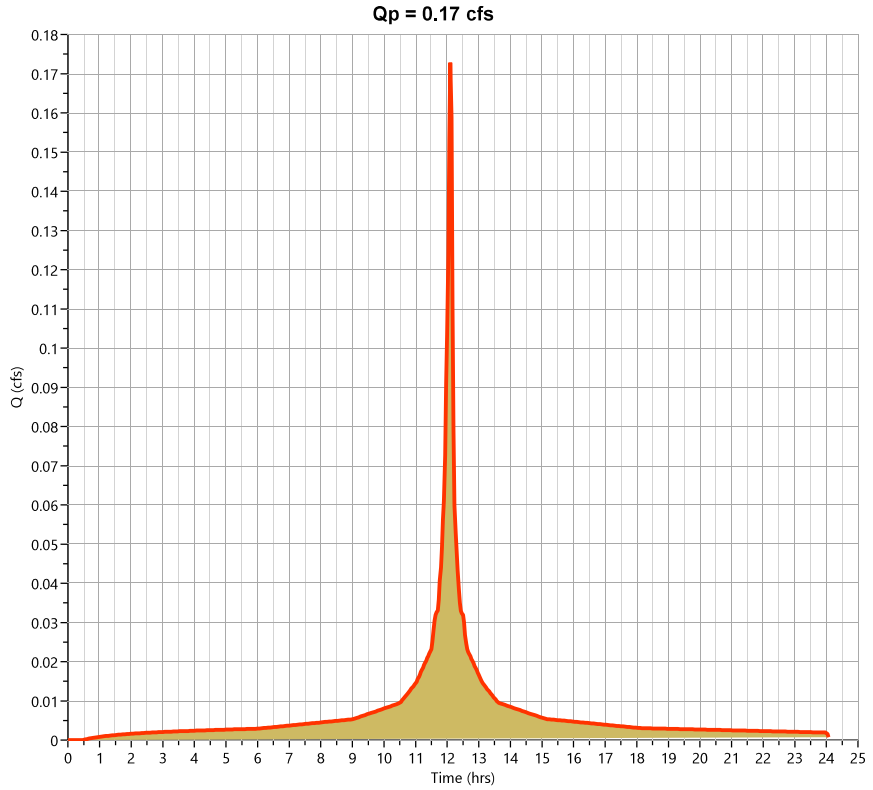
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.173 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 615 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

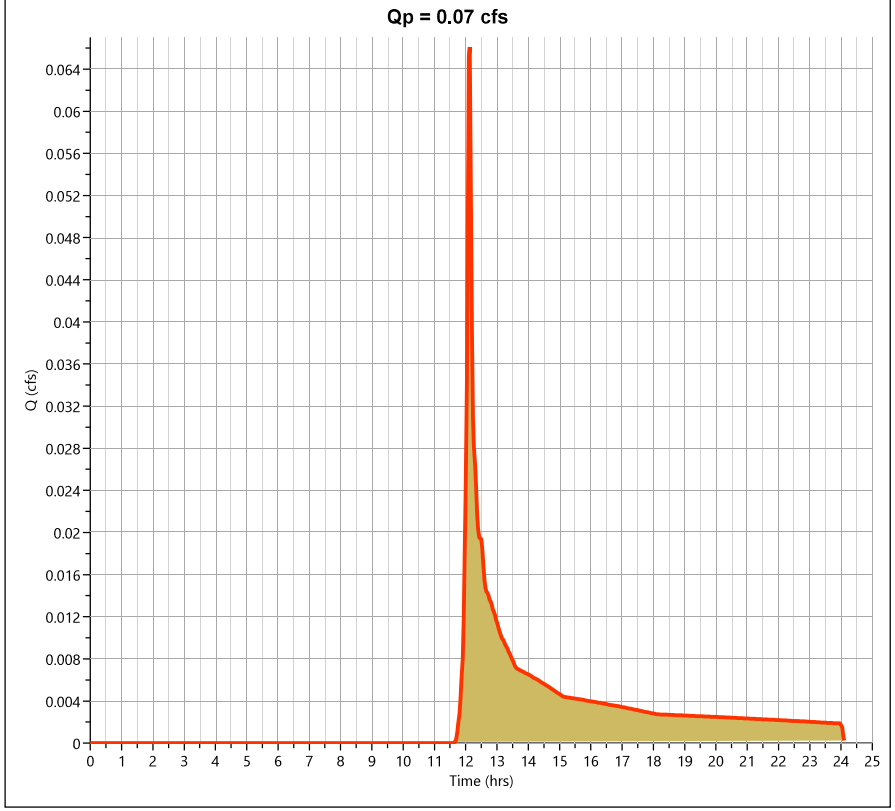
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.066 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 236 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

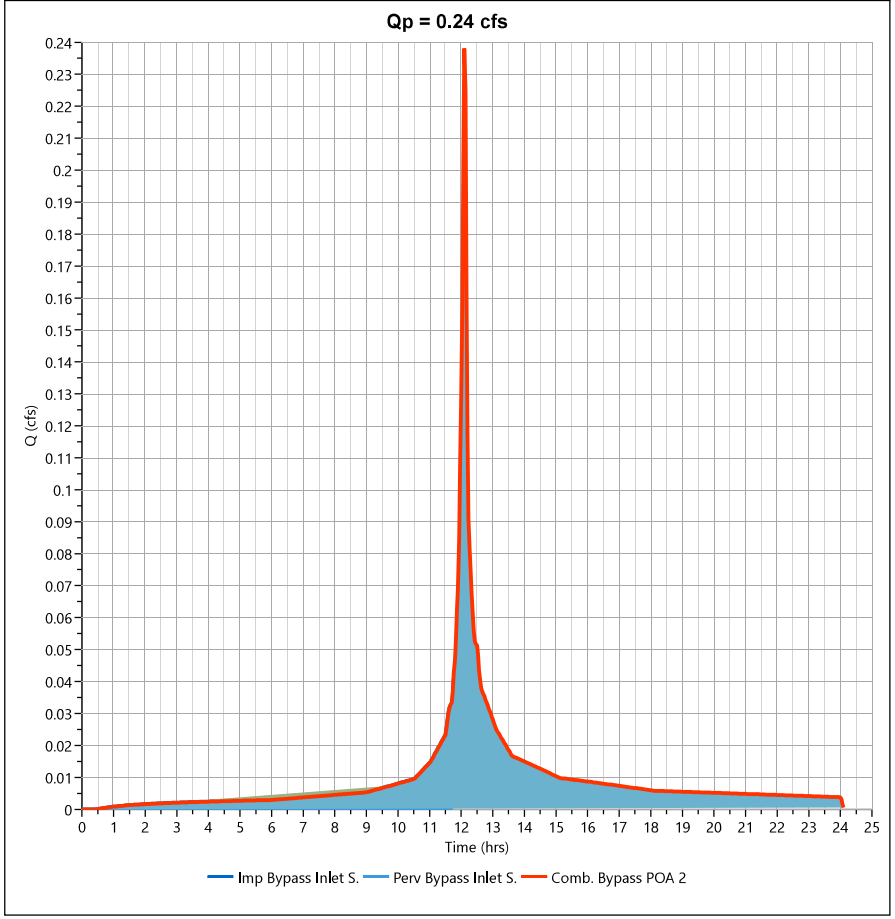
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.238 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 850 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



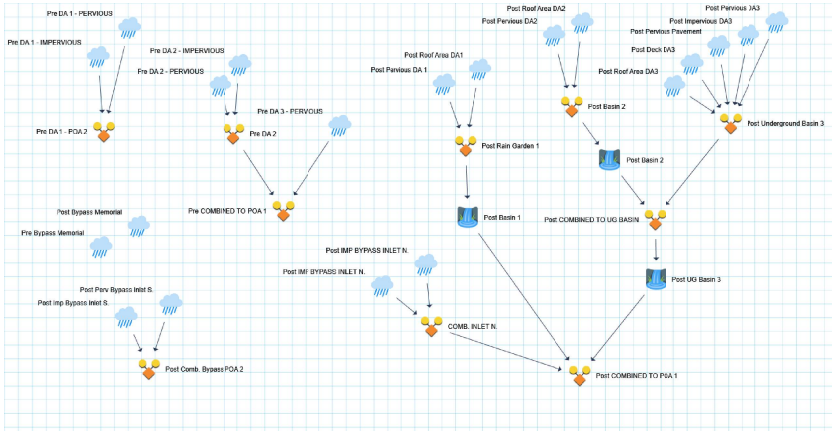
HYDROGRAPH SUMMARY REPORTS –
EXISTING & PROPOSED
WATER QUALITY STORM

Basin Model

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022



Hydrograph 1-yr Summary

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.041	12.13	150	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.000	0.00	0.000	—		
3	NRCS Runoff	Post Roof Area DA3	0.270	12.17	1,123	—		
4	NRCS Runoff	Post Deck DA3	0.298	12.17	1,239	—		
5	NRCS Runoff	Post Pervious Pavement	0.140	12.17	581	—		
6	NRCS Runoff	Post Pervious DA 1	0.000	0.00	0.000	—		
7	NRCS Runoff	Post Roof Area DA1	0.109	12.10	352	—		
8	NRCS Runoff	Post Pervious DA2	0.000	0.00	0.000	—		
9	NRCS Runoff	Post Roof Area DA2	0.547	12.10	1,760	—		
10	Junction	Pre DA 1 - POA 2	0.041	12.13	150	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.000	0.00	0.000	—		
12	NRCS Runoff	Post Impervious DA3	0.047	12.17	194	—		
13	Junction	Post Underground Basin 3	0.754	12.17	3,137	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.109	12.10	352	6, 7		
15	Junction	Post Basin 2	0.547	12.10	1,760	8, 9		
16	Pond Route	Post Basin 2	0.000	12.53	0.000	15	13.17	231
17	Pond Route	Post Basin 1	0.000	12.03	0.000	14	14.09	58.9
18	Junction	Post COMBINED TO UG BASIN	0.754	12.17	3,137	13, 16		
19	Pond Route	Post UG Basin 3	0.000	12.47	0.000	18	11.82	59.6
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.075	12.17	310	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.000	0.00	0.000	—		
22	Junction	Pre DA 2	0.075	12.17	310	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.000	0.00	0.000	—		
24	Junction	Pre COMBINED TO POA 1	0.075	12.17	310	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.000	0.00	0.000	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.044	12.10	141	—		
27	Junction	COMB. INLET N.	0.044	12.10	141	25, 26		
28	Junction	Post COMBINED TO POA 1	0.044	12.10	141	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.000	0.00	0.000	—		
30	NRCS Runoff	Post Bypass Memorial	0.000	0.00	0.000	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.022	12.10	70.4	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.000	0.00	0.000	—		
33	Junction	Post Comb. Bypass POA 2	0.022	12.10	70.4	31, 32		

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

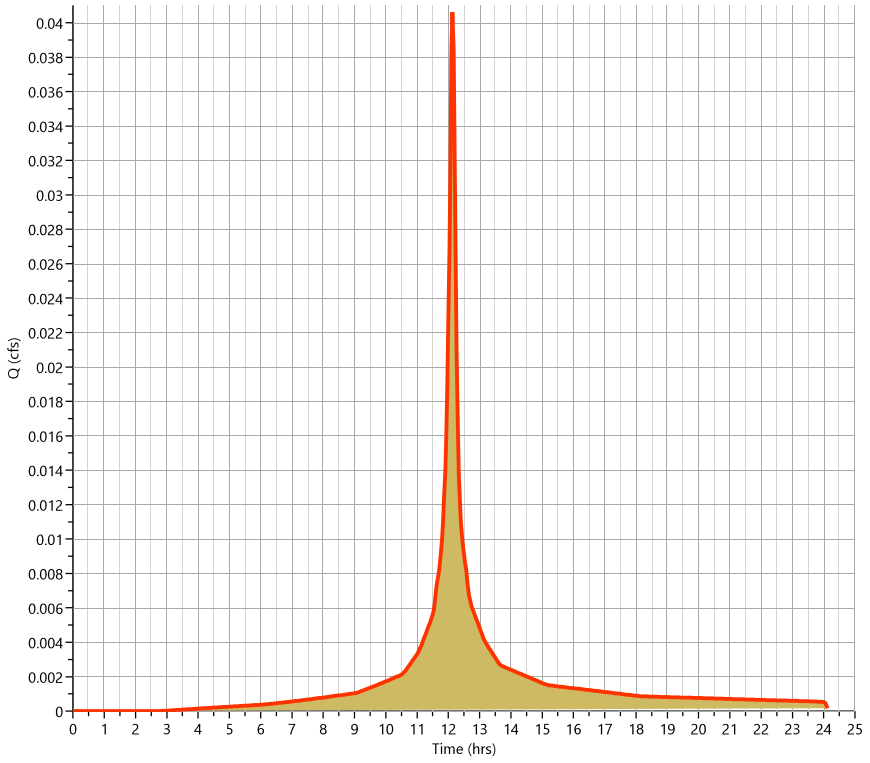
06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.041 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 150 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.04 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed

Qp = 0.00 cfs

Hydrograph Report

Project Name:

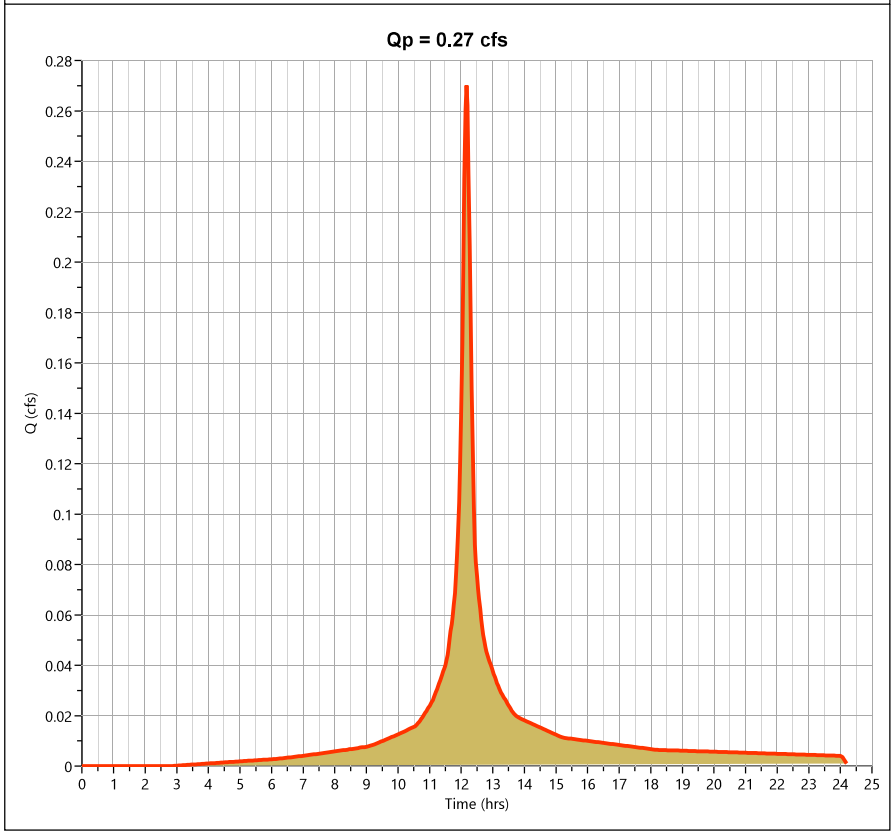
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.270 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,123 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

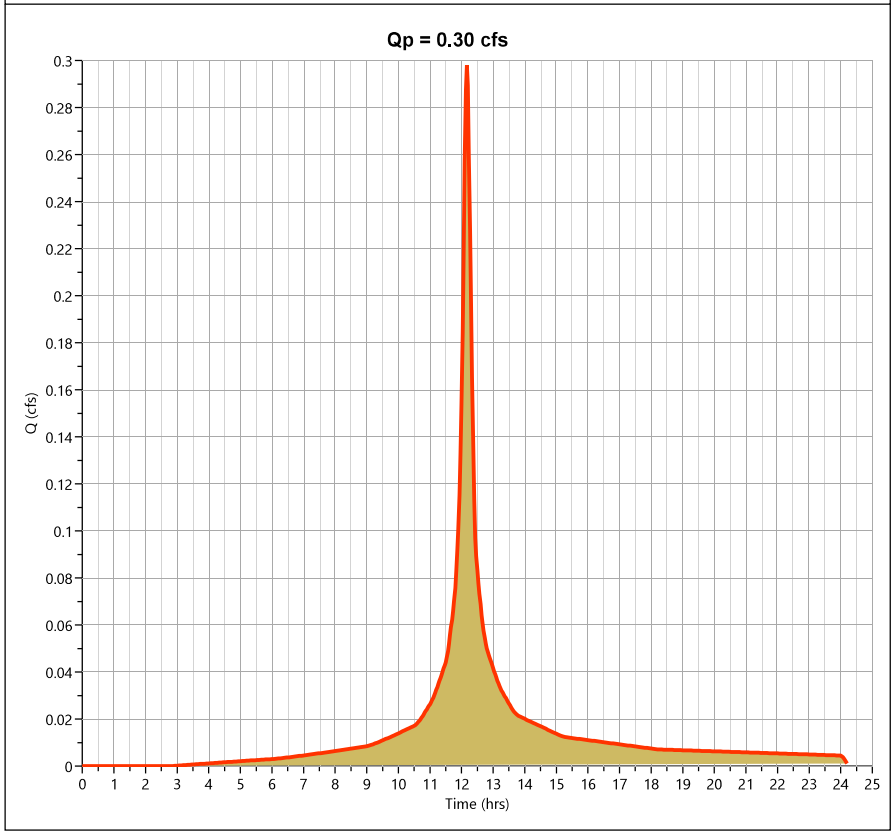
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.298 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,239 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

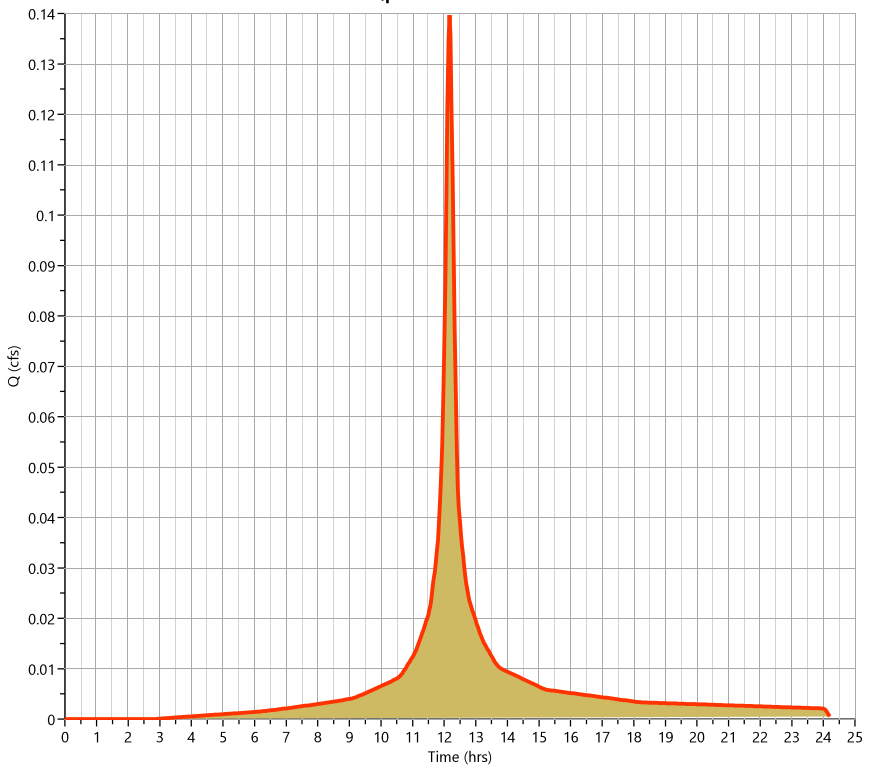
06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.140 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 581 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.14 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

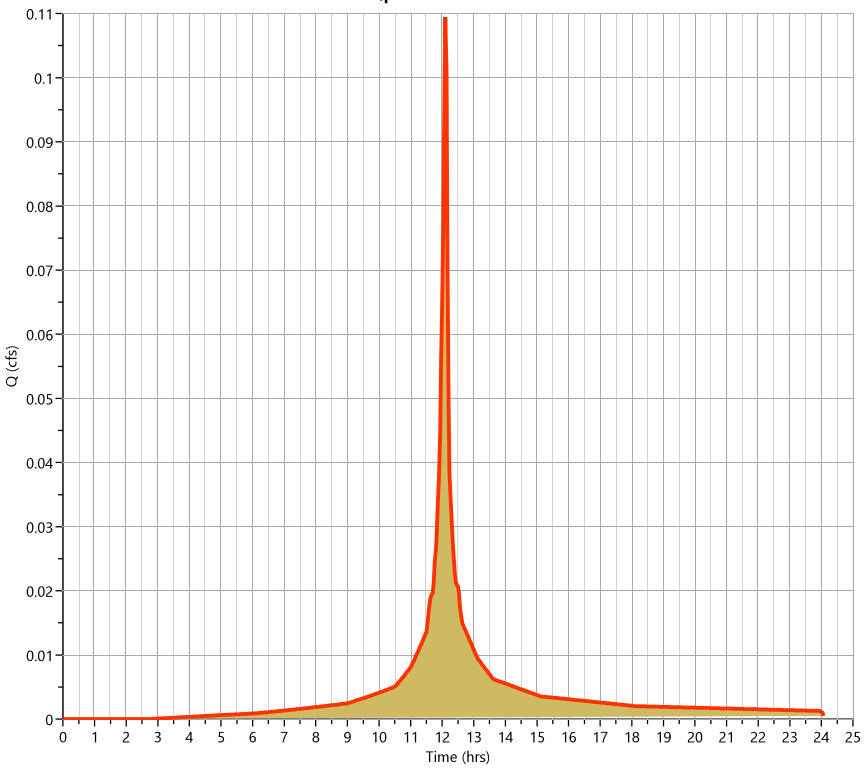
06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.109 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 352 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.11 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

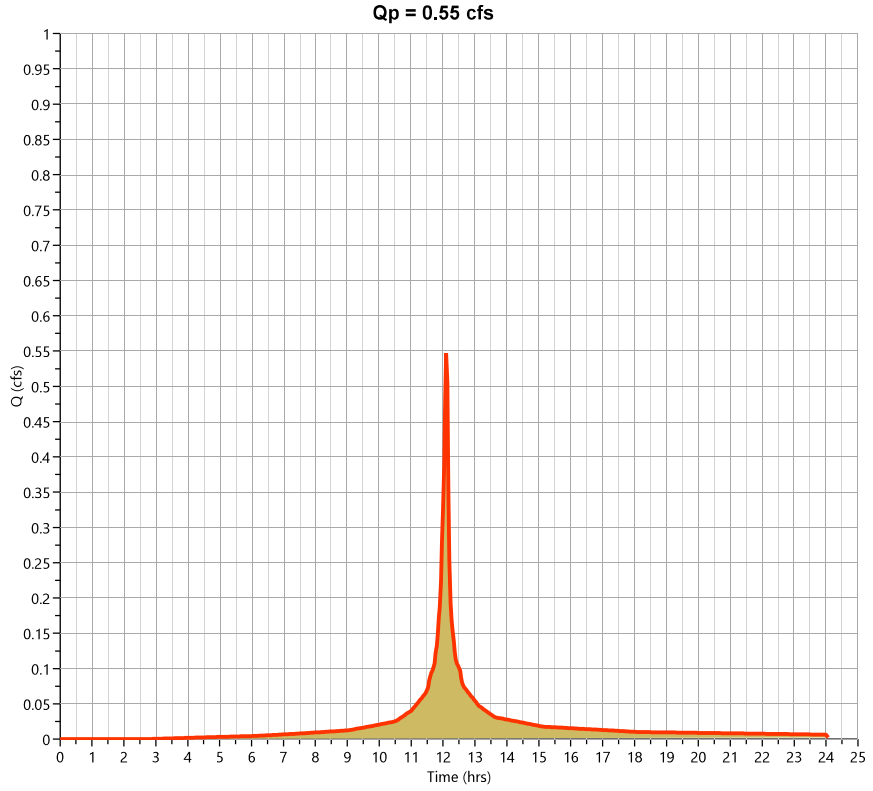
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.547 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,760 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

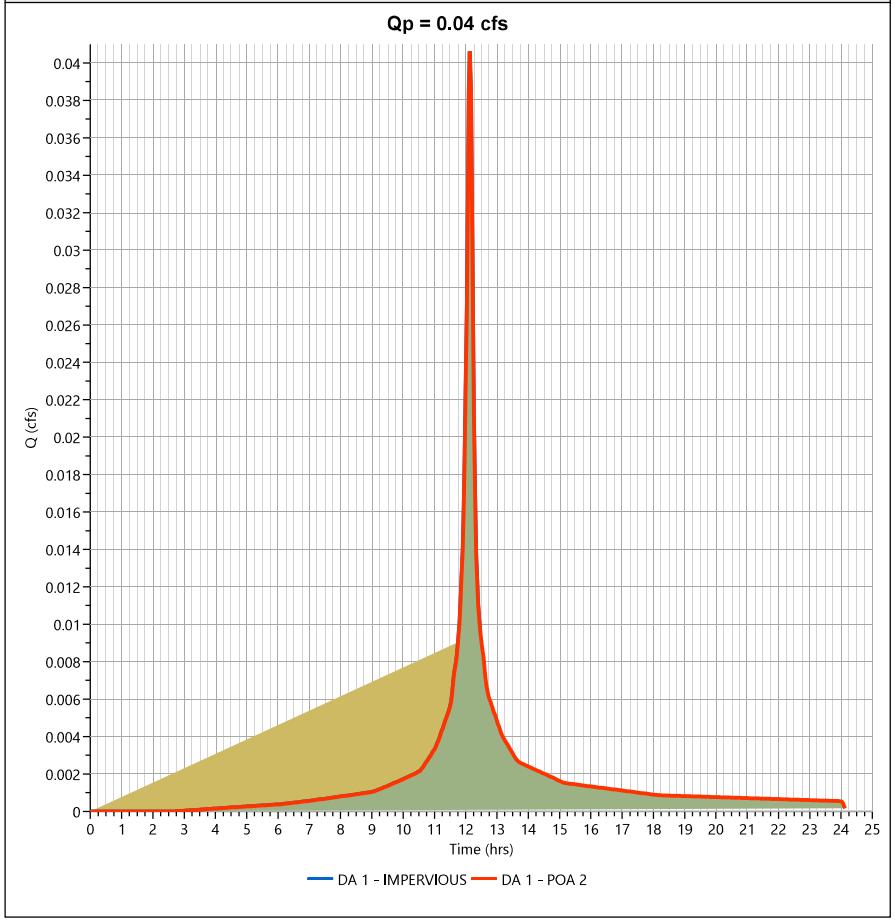
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.041 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 150 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

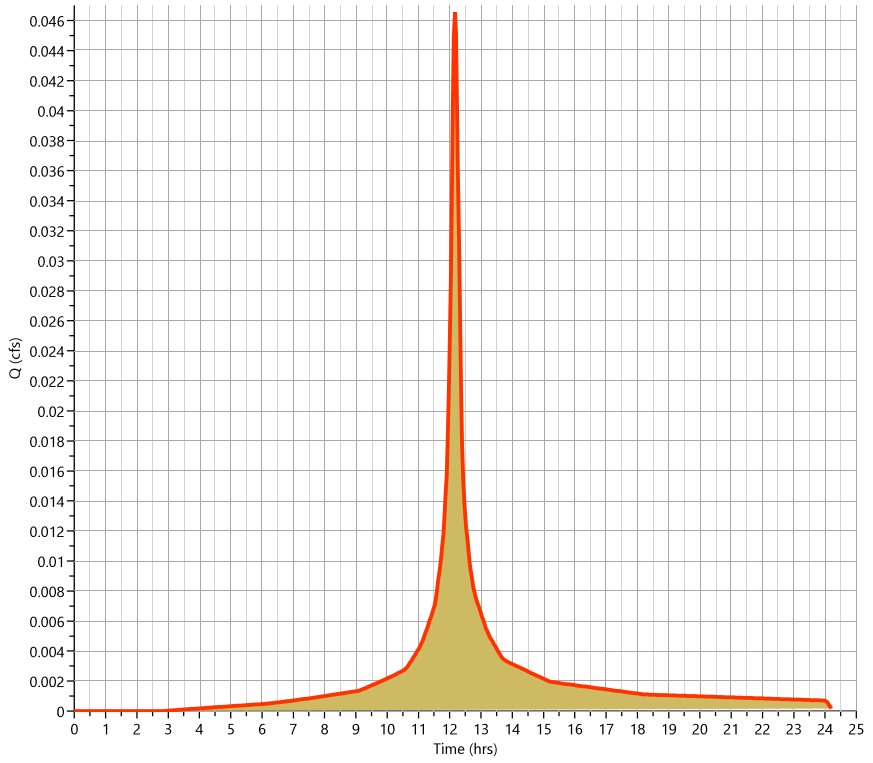
06-14-2022

Post Impervious DA3

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.047 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 194 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.05 cfs



Hydrograph Report

Project Name:

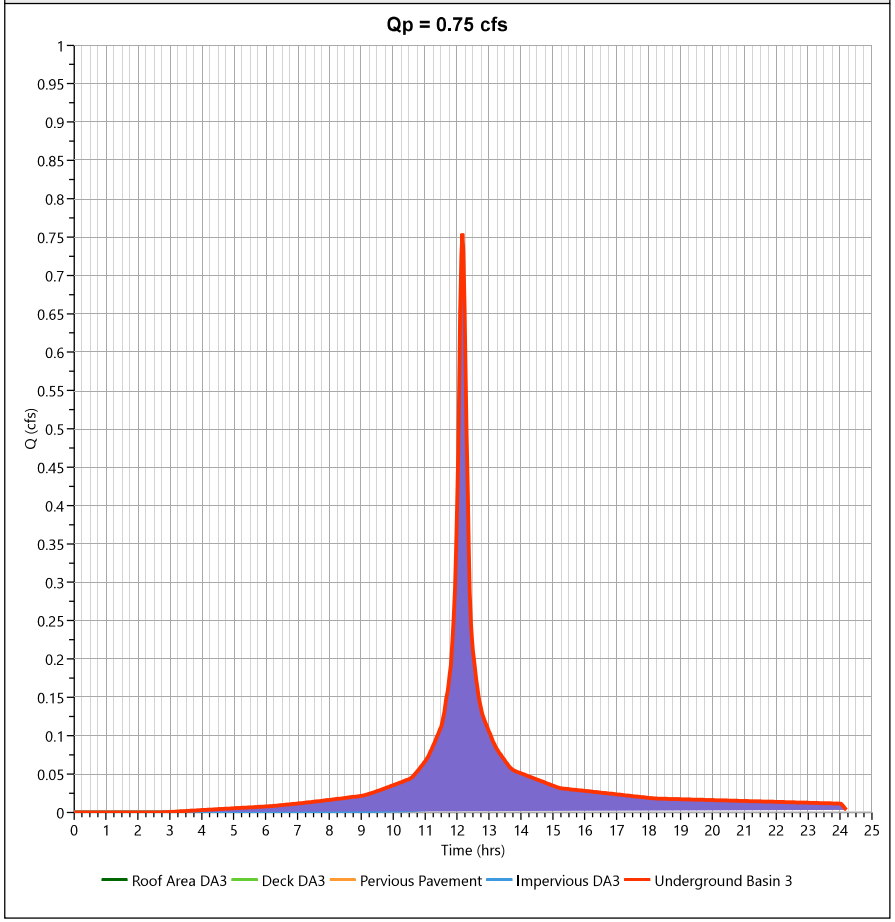
Hydrology Studio v 3.0.0.24

06-14-2022

Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 0.754 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,137 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

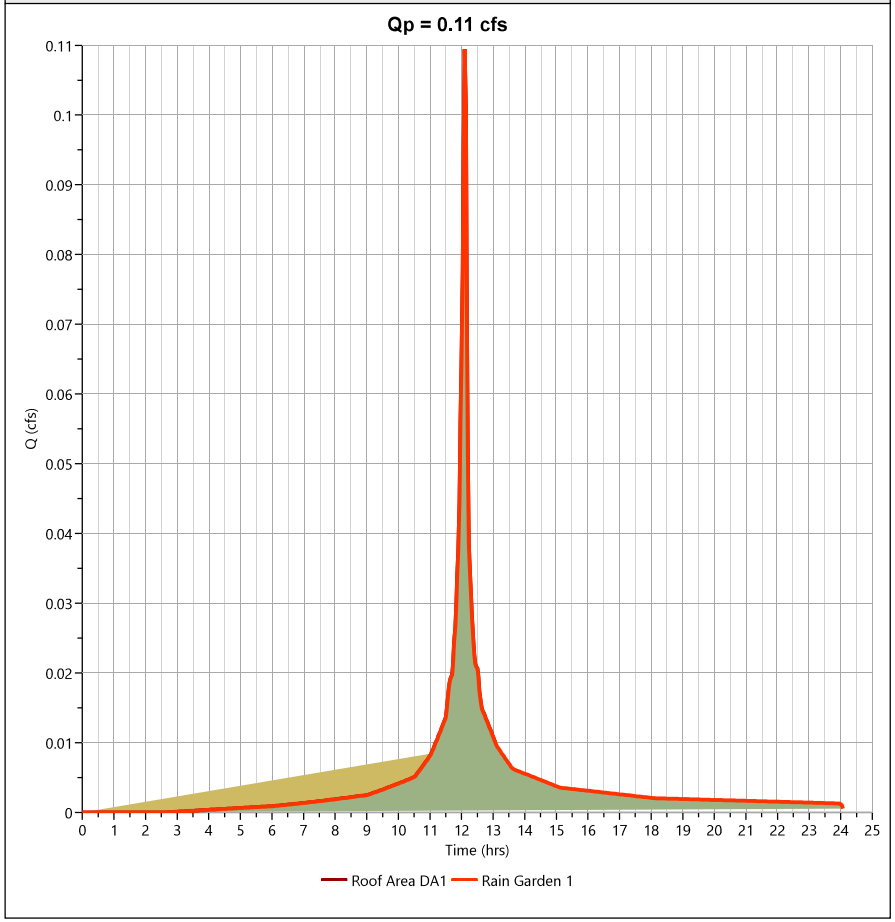
Hydrology Studio v 3.0.0.24

06-14-2022

Post Rain Garden 1

Hyd. No. 14

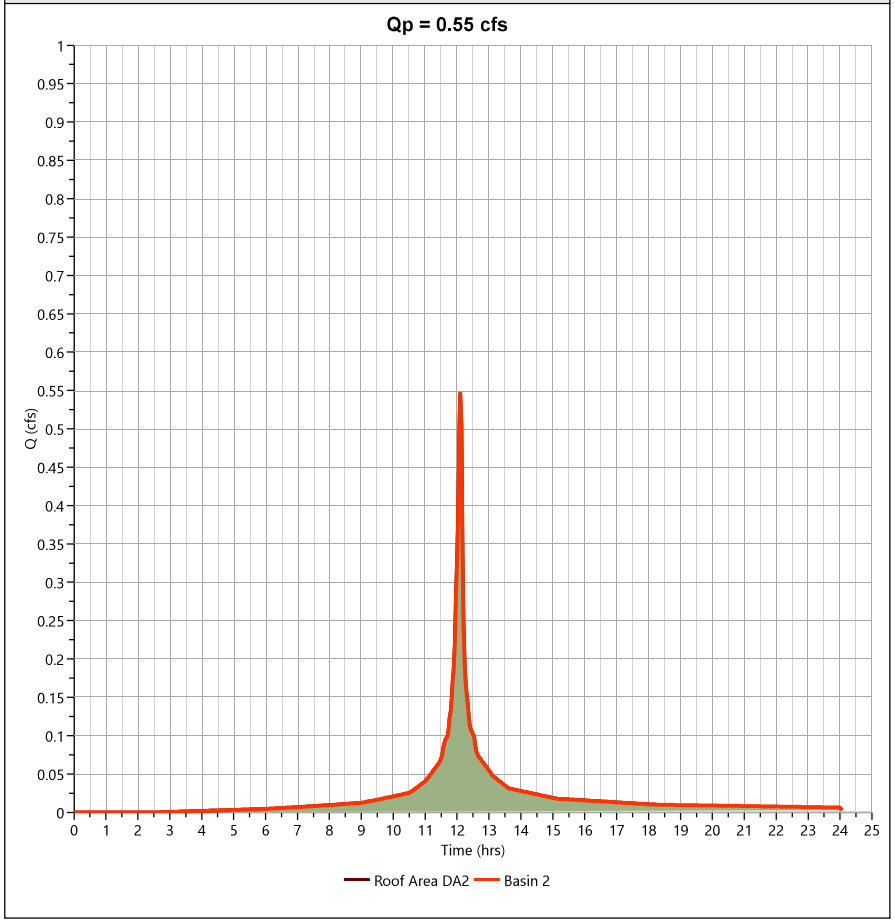
Hydrograph Type	= Junction	Peak Flow	= 0.109 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 352 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 0.547 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,760 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



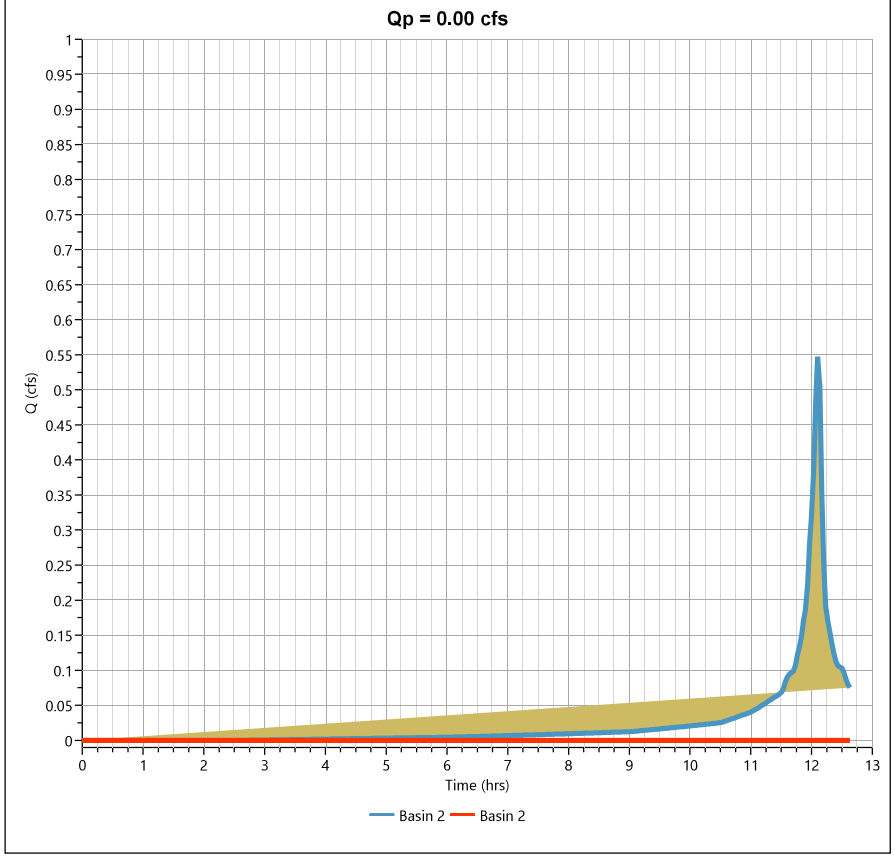
Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.53 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 13.17 ft
Pond Name	= Basin 2	Max. Storage	= 231 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

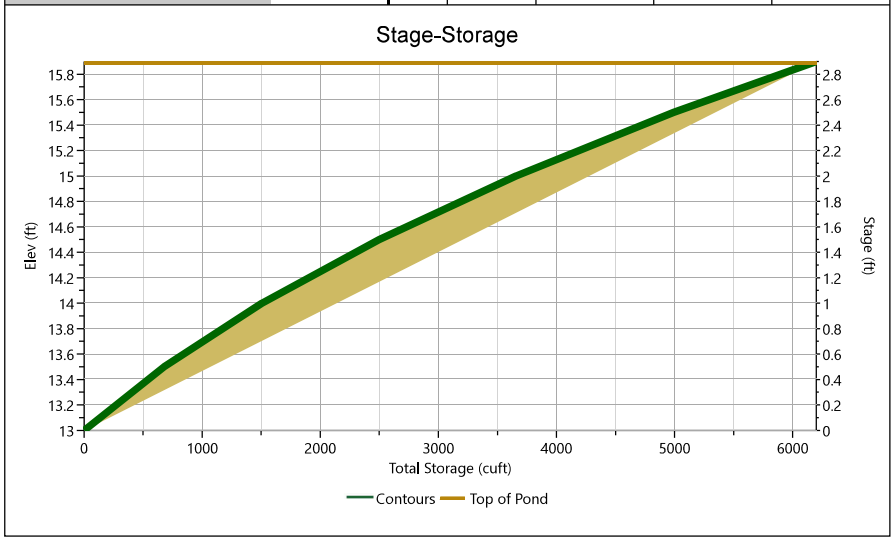
Basin 2

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	13.00
Voids (%)	100.00
Volume Calc	Ave End Area

Stage / Storage Table

Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	13.00	1,201	0.000	0.000
0.50	13.50	1,509	678	678
1.00	14.00	1,814	831	1,508
1.50	14.50	2,151	991	2,500
2.00	15.00	2,486	1,159	3,659
2.50	15.50	2,844	1,333	4,991
2.90	15.90	3,202	1,209	6,200



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

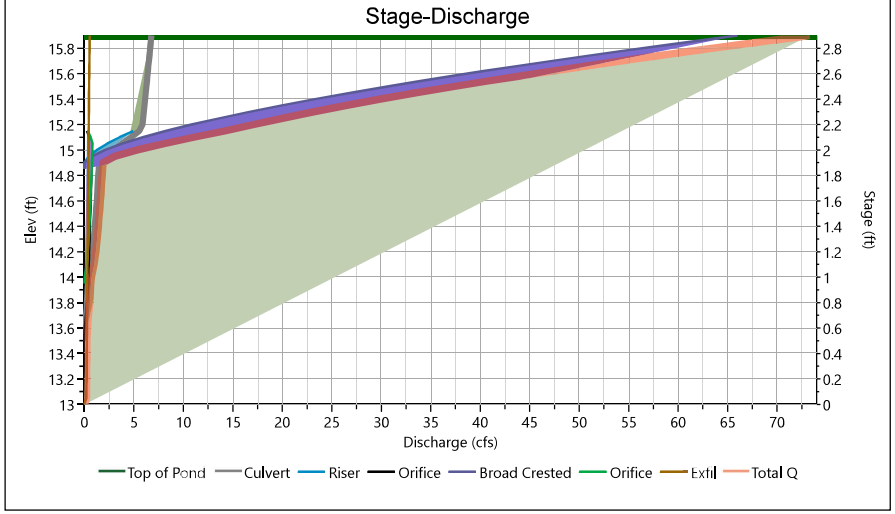
Basin 2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices 1*	Orifices 2*	Orifices 3	Orifice Plate	
Rise, in	12	3.5	1		Orifice Dia, in	
Span, in	12	3.5	24		No. Orifices	
No. Barrels	1	2	1		Invert Elevation, ft	
Invert Elevation, ft	12.19	13.50	13.98		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	30					
Barrel Slope, %	.3					
N-Value, n	0.013					

Weirs	Riser*	Weirs 1	Weirs 2	Weirs 3	Ancillary	
Shape / Type	Box	Broad Crested			Exfiltration, in/hr	7.20**
Crest Elevation, ft	14.9	14.9				
Crest Length, ft	12	20				
Angle, deg						
Weir Coefficient, Cw	3.3	3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	13.00	0.000	0.000	0.000	0.000		0.000	0.000				0.000		0.000
0.50	13.50	678	0.000 oc	0.000	0.000		0.000	0.000				0.252		0.251
1.00	14.00	1,508	0.402 oc	0.383	0.019		0.000	0.000				0.302		0.704
1.50	14.50	2,500	1.150 oc	0.595	0.555		0.000	0.000				0.359		1.508
2.00	15.00	3,659	2.795 oc	0.749	0.794		1.252	2.087				0.414		5.296
2.50	15.50	4,991	6.264 oc	0.000	0.000		0.000	30.67				0.474		37.41
2.90	15.90	6,200	6.766 oc	0.000	0.000		0.000	66.00				0.534		73.30

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

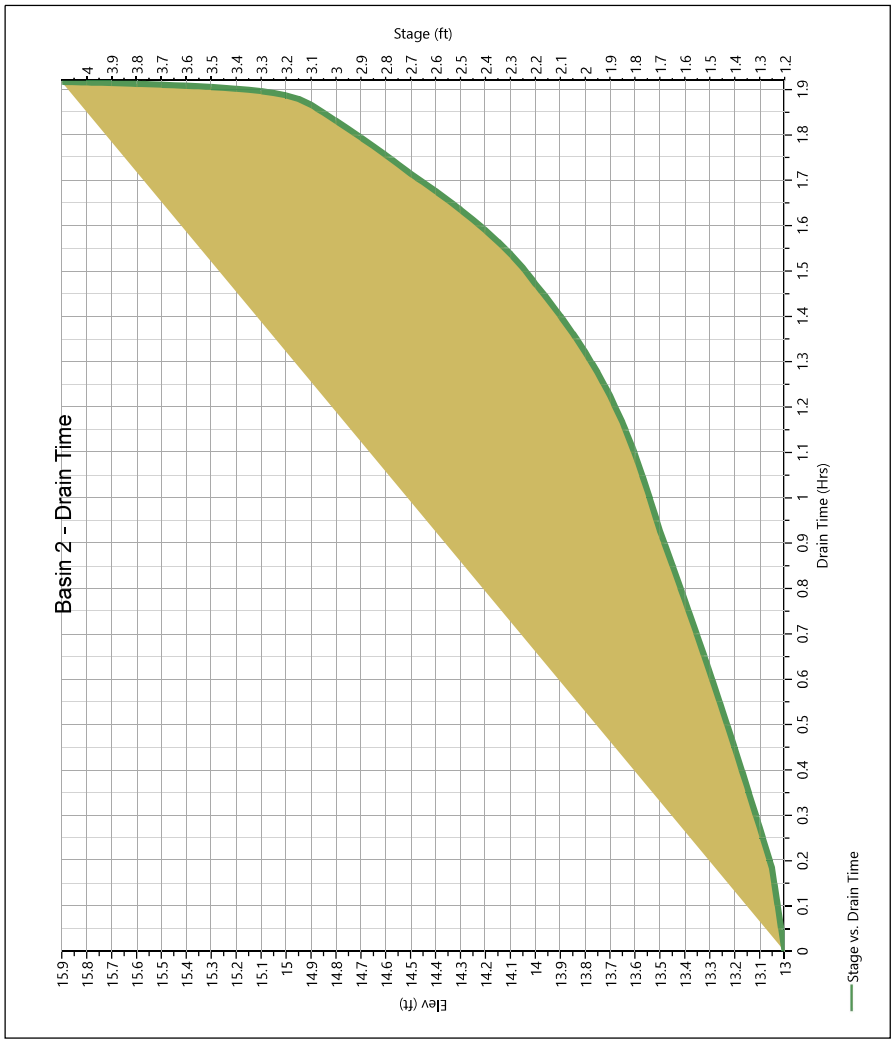
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

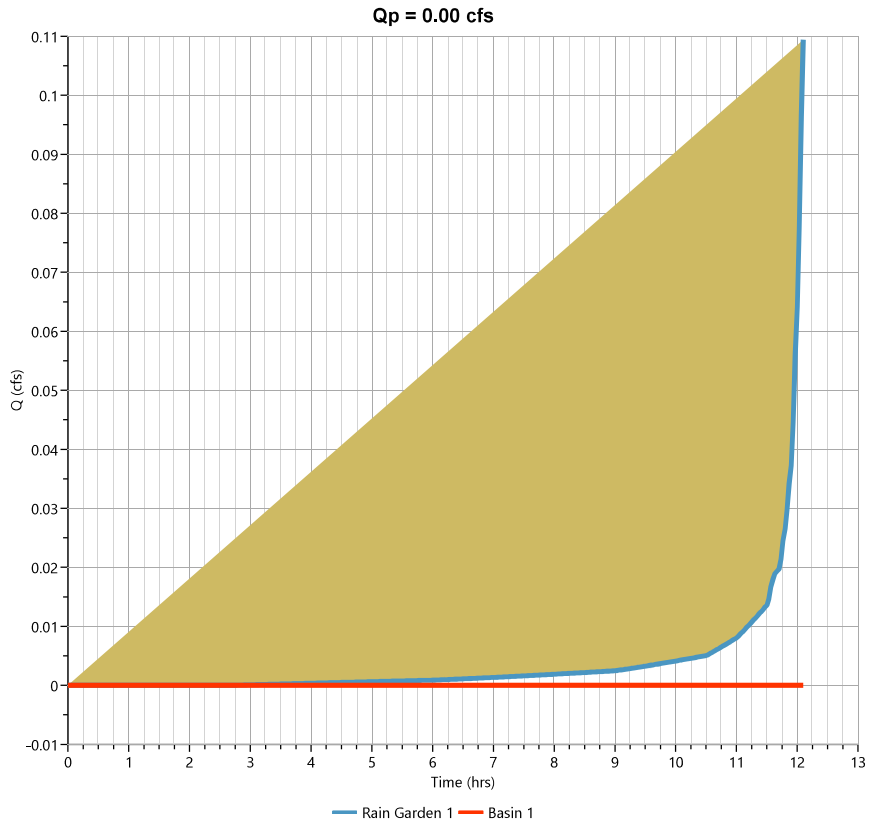
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.03 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.09 ft
Pond Name	= BASIN 1	Max. Storage	= 58.9 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

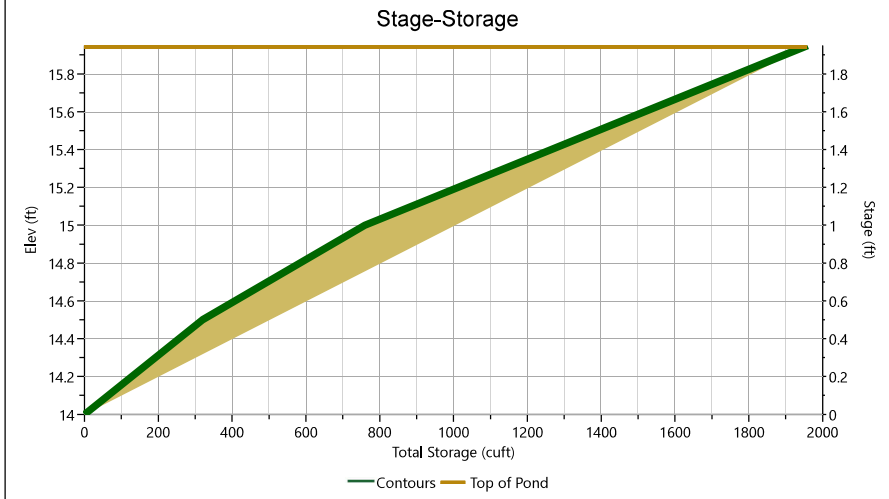
06-14-2022

BASIN 1

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	14.00
Voids (%)	100.00
Volume Calc	None

Stage / Storage Table				
Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	14.00	520	0.000	0.000
0.50	14.50	760	320	320
1.00	15.00	999	440	760
1.95	15.95	1,526	1,199	1,959



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Stage-Discharge

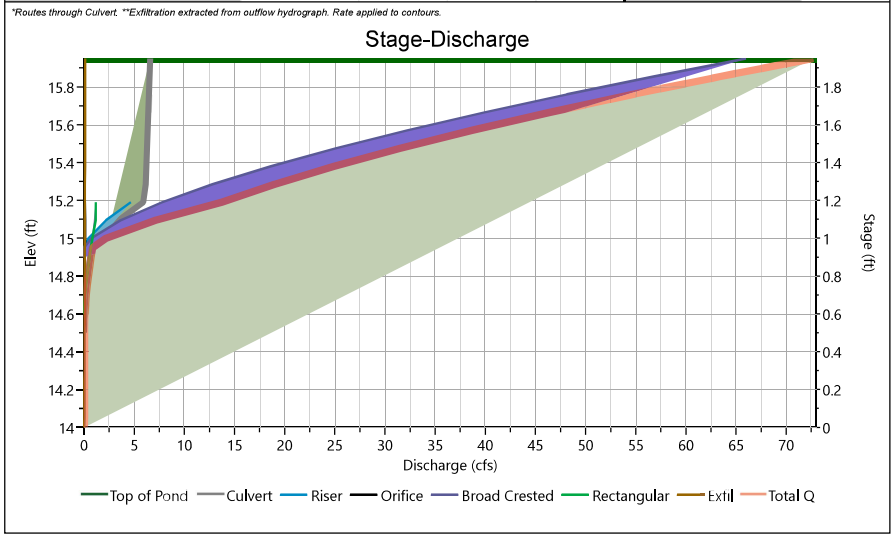
Culvert / Orifices	Culvert	Orifices		
		1*	2	3
Rise, in	12	2.5		
Span, in	12	2.5		
No. Barrels	1	1		
Invert Elevation, ft	10.23	14.50		
Orifice Coefficient, Co	0.60	0.60		
Length, ft	100			
Barrel Slope, %	.3			
N-Value, n	0.013			

Weirs	Riser*	Weirs		
		1	2*	3
Shape / Type	Box	Broad Crested	Rectangular	
Crest Elevation, ft	14.95	14.95	14.6	
Crest Length, ft	12	20	1	
Angle, deg				
Weir Coefficient, Cw	3.3	3.3	3.3	

Orifice Plate	
Orifice Dia, in	
No. Orifices	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Ancillary	
Exfiltration, in/hr	3.25**

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	14.00	0.000	0.000	0.000			0.000	0.000	0.000			0.000		0.000
0.50	14.50	320	0.000 oc	0.000			0.000	0.000	0.000			0.057		0.057
1.00	15.00	760	1.381 oc	0.103			0.443	0.738	0.835			0.075		2.194
1.95	15.95	1,959	6.585 oc	0.000			0.000	66.00	0.000			0.115		72.70

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

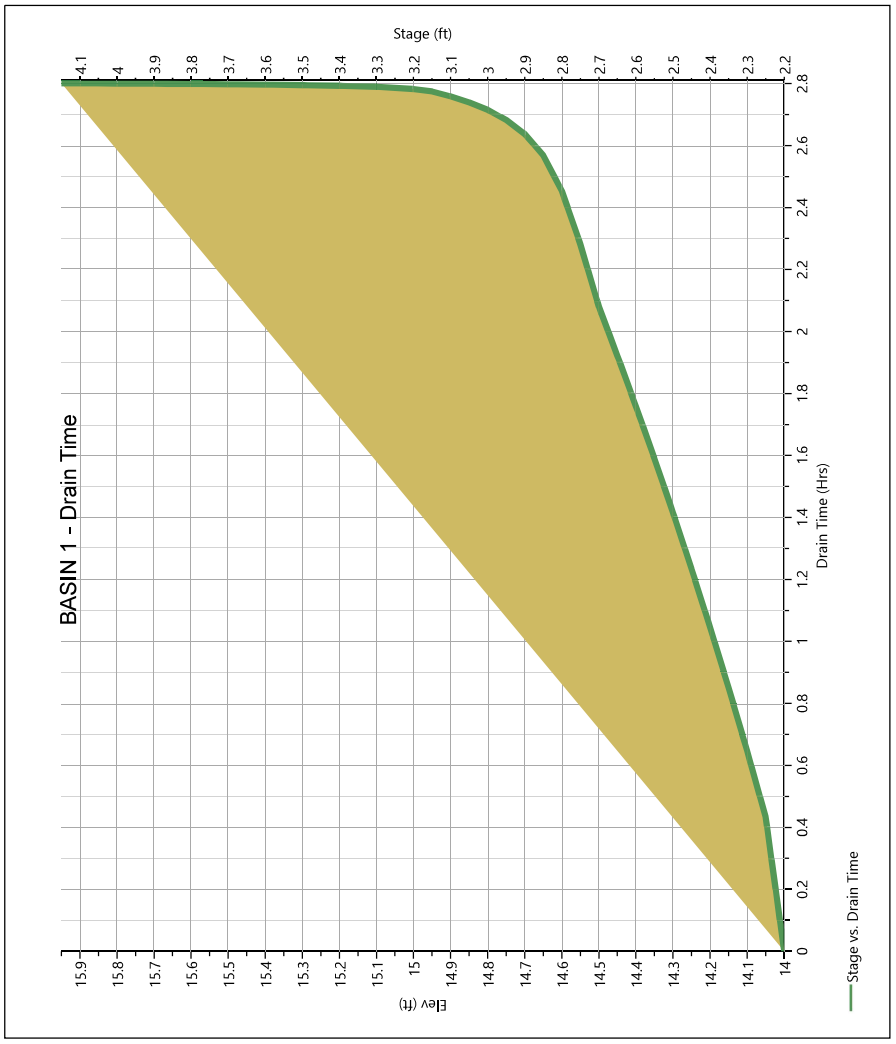
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Pond Drawdown



Hydrograph Report

Project Name:

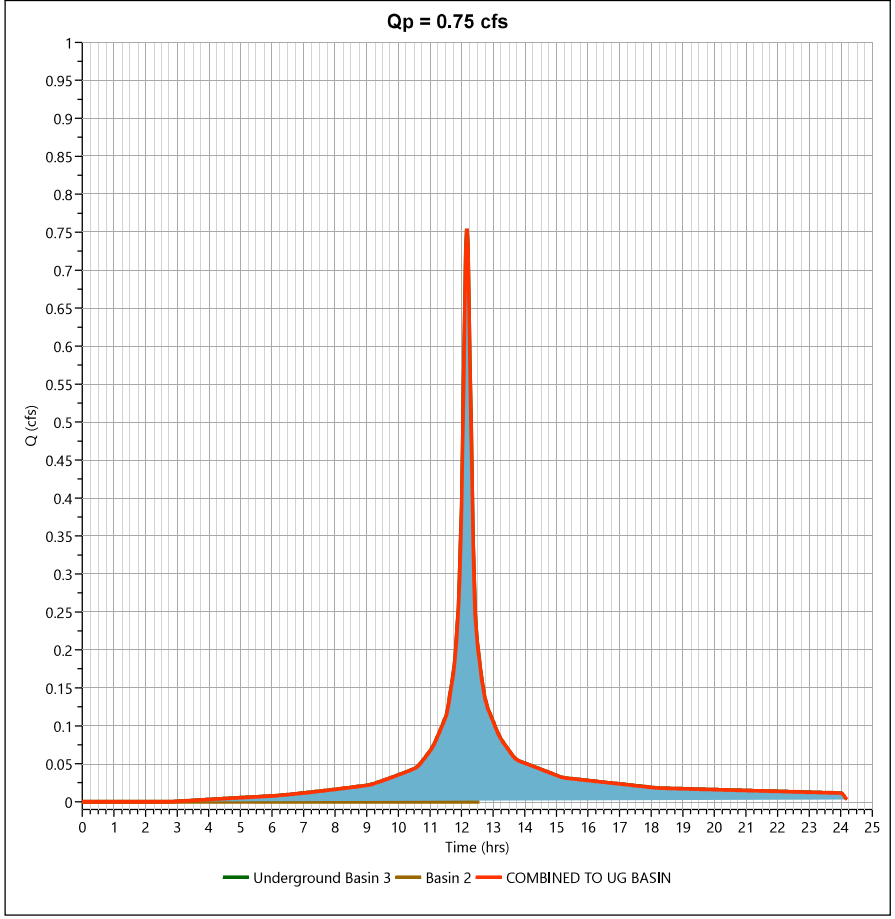
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 0.754 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,137 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

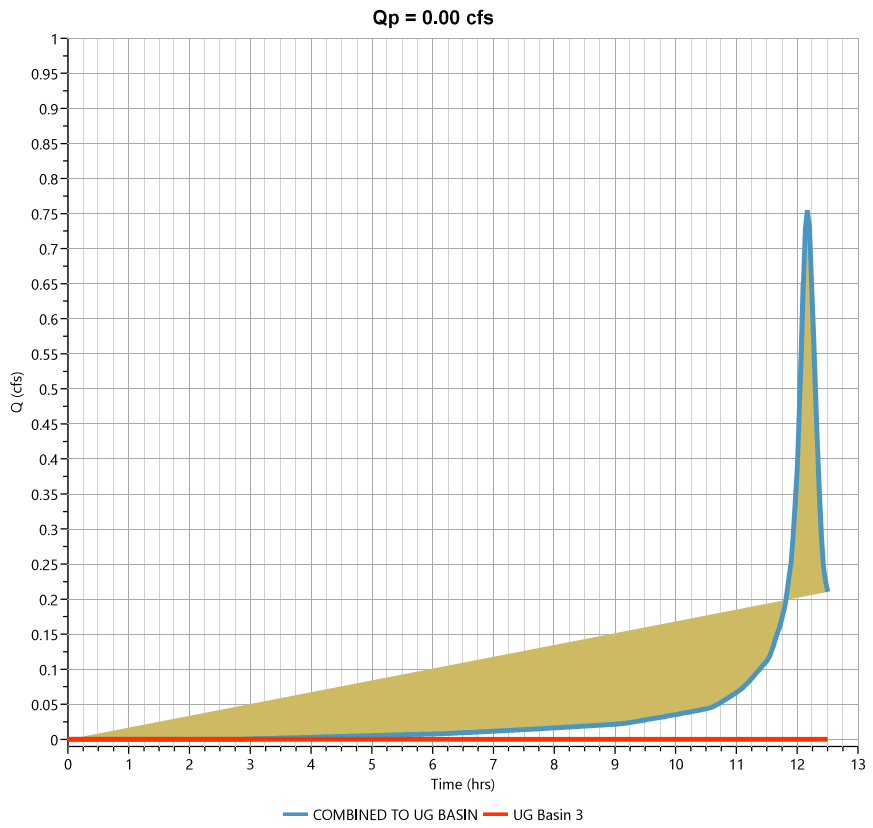
06-14-2022

Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.47 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 11.82 ft
Pond Name	= UG BASIN	Max. Storage	= 59.6 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

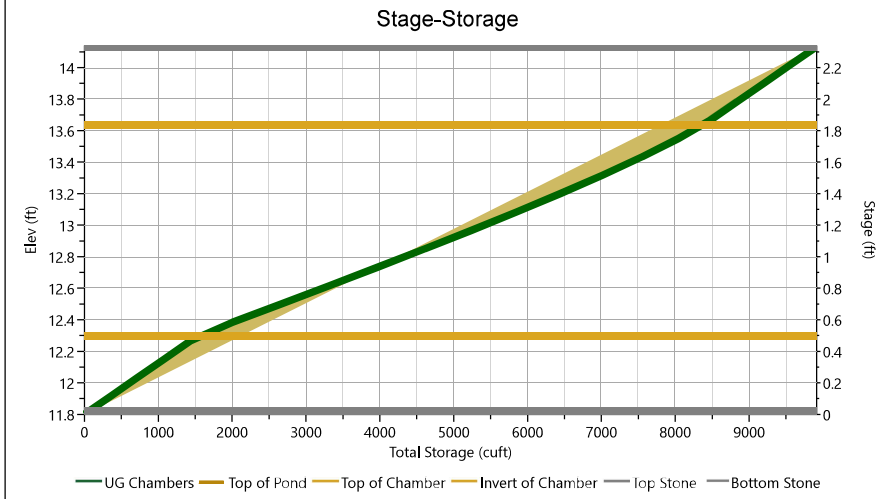
UG BASIN

Stage-Storage

StormTech® SC-310™ Chamber	
Description	**Input**
Chamber Height, in	16
Chamber Shape	Arch
Chamber Width, in	34
Installed Length, ft	7.12
No. Chambers	309
Bare Chamber Stor, cuft	4,542
No. Rows	20
Space Between Rows, in	6
Stone Above, in	6
Stone Below, in	6
Stone Sides, in	12
Stone Ends, in	12
Encasement Voids, %	40.00
Encasement Bottom Elevation, ft	11.80

Stage / Storage Table

Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.0	11.80	7,703	0.000	0.000
1.4	11.92	7,703	359	359
2.8	12.03	7,703	359	719
4.2	12.15	7,703	359	1,078
5.6	12.27	7,703	359	1,438
7.0	12.38	7,703	564	2,002
8.4	12.50	7,703	660	2,662
9.8	12.62	7,703	656	3,318
11.2	12.73	7,703	650	3,967
12.6	12.85	7,703	640	4,608
14.0	12.97	7,703	628	5,236
15.4	13.08	7,703	613	5,849
16.8	13.20	7,703	594	6,443
18.2	13.32	7,703	569	7,013
19.6	13.43	7,703	538	7,550
21.0	13.55	7,703	494	8,044
22.4	13.67	7,703	433	8,477
23.8	13.78	7,703	359	8,837
25.2	13.90	7,703	359	9,196
26.6	14.02	7,703	359	9,555
28.0	14.13	7,703	359	9,915



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Stage-Discharge

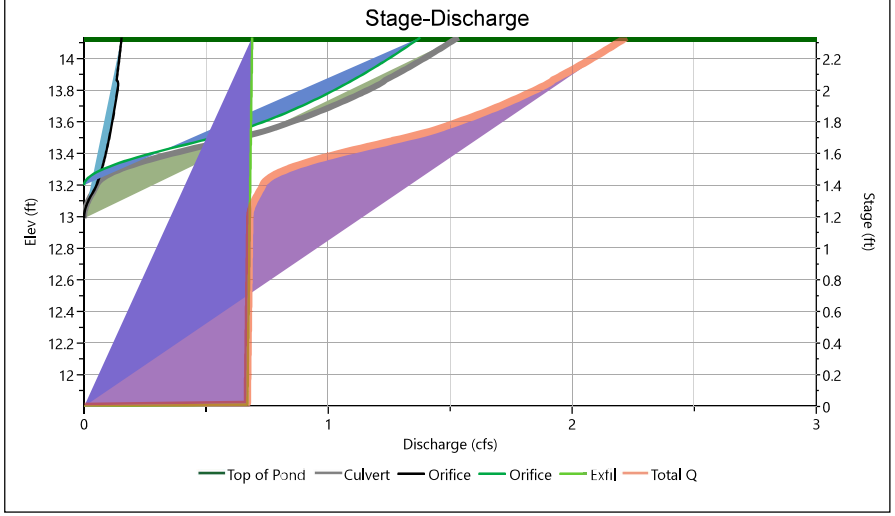
Culvert / Orifices	Culvert	Orifices		
		1*	2*	3
Rise, in	12	2.5	4.5	
Span, in	12	2.5	4.5	
No. Barrels	1	1	3	
Invert Elevation, ft	12.20	13.00	13.20	
Orifice Coefficient, Co	0.60	0.60	0.60	
Length, ft	30			
Barrel Slope, %	.3			
N-Value, n	0.013			

Weirs	Riser*	Weirs		
		1*	2	3
Shape / Type		Rectangular		
Crest Elevation, ft		14.13		
Crest Length, ft		5		
Angle, deg				
Weir Coefficient, Cw		3.3		

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Ancillary	
Exfiltration, in/hr	3.75**

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	11.80	0.000	0.000	0.000	0.000			0.000				0.000		0.000
0.12	11.92	359	0.000	0.000	0.000			0.000				0.670		0.670
0.23	12.03	719	0.000	0.000	0.000			0.000				0.671		0.671
0.35	12.15	1,078	0.000	0.000	0.000			0.000				0.672		0.672
0.47	12.27	1,438	0.000	0.000	0.000			0.000				0.673		0.673
0.58	12.38	2,002	0.000	0.000	0.000			0.000				0.674		0.674
0.70	12.50	2,662	0.000	0.000	0.000			0.000				0.675		0.675
0.82	12.62	3,318	0.000	0.000	0.000			0.000				0.676		0.676
0.93	12.73	3,967	0.000	0.000	0.000			0.000				0.677		0.677
1.05	12.85	4,608	0.000	0.000	0.000			0.000				0.678		0.678
1.17	12.97	5,236	0.000	0.000	0.000			0.000				0.679		0.679
1.28	13.08	5,849	0.013 oc	0.013	0.000			0.000				0.680		0.692
1.40	13.20	6,443	0.051 oc	0.051	0.000			0.000				0.681		0.732
1.52	13.32	7,013	0.180 oc	0.076	0.104			0.000				0.682		0.862
1.63	13.43	7,550	0.452 oc	0.094	0.358			0.000				0.683		1.135
1.75	13.55	8,044	0.758 oc	0.110	0.649			0.000				0.684		1.442
1.87	13.67	8,477	0.966 oc	0.123	0.843			0.000				0.685		1.651
1.98	13.78	8,837	1.139 oc	0.135	1.004			0.000				0.686		1.825
2.10	13.90	9,196	1.278 oc	0.136	1.142			0.000				0.687		1.965
2.22	14.02	9,555	1.411 oc	0.145	1.265			0.000				0.688		2.098
2.33	14.13	9,915	1.535 oc	0.154	1.378			0.003				0.689		2.223

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

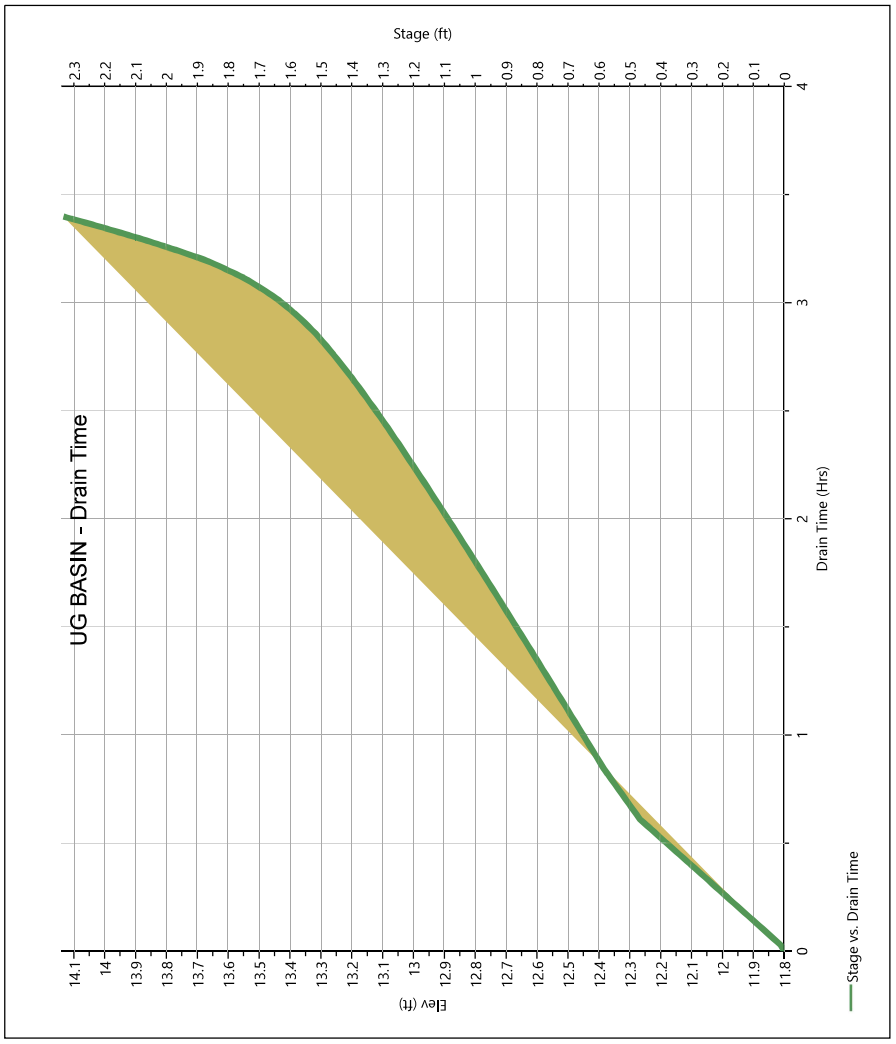
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN

Pond Drawdown



Hydrograph Report

Project Name:

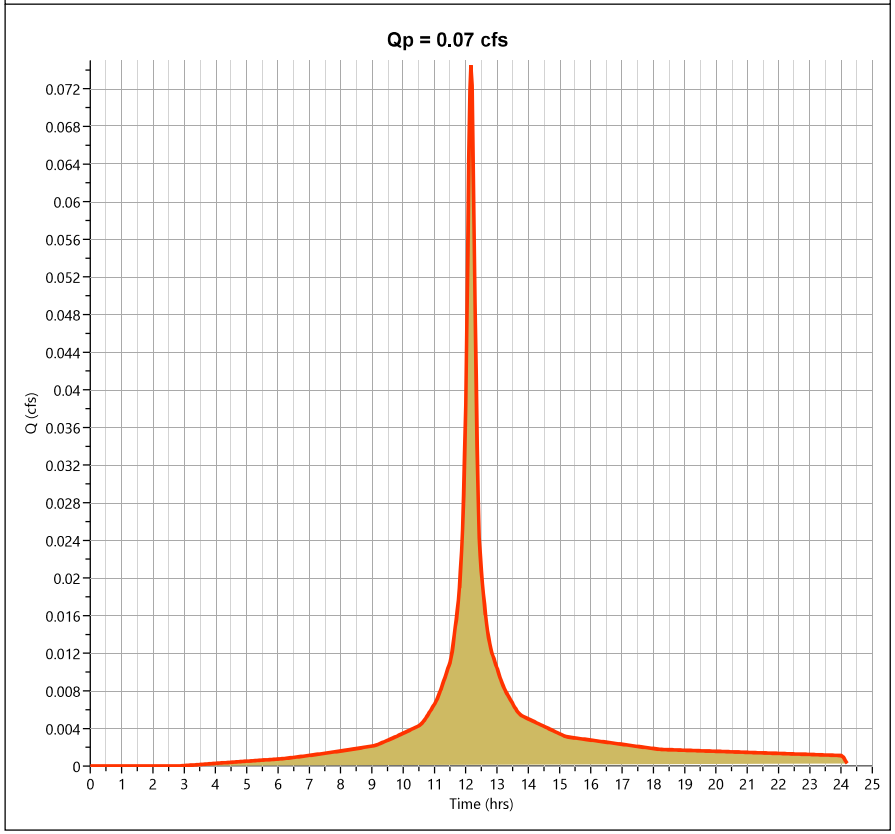
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.075 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 310 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

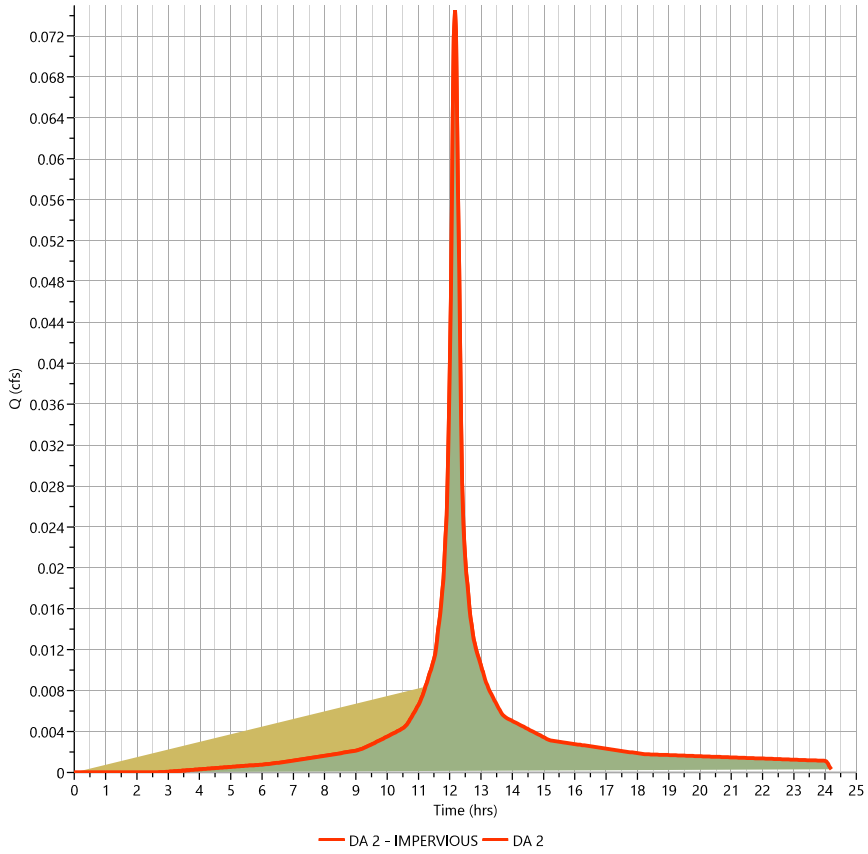
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.075 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 310 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac

Qp = 0.07 cfs



Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

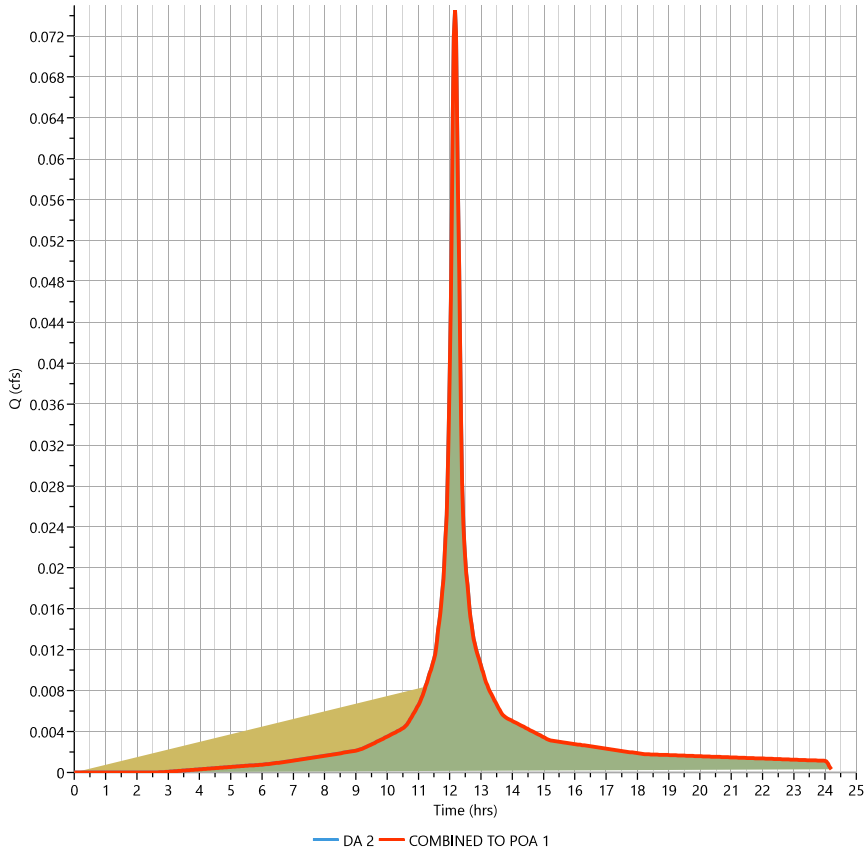
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.075 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 310 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac

Qp = 0.07 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

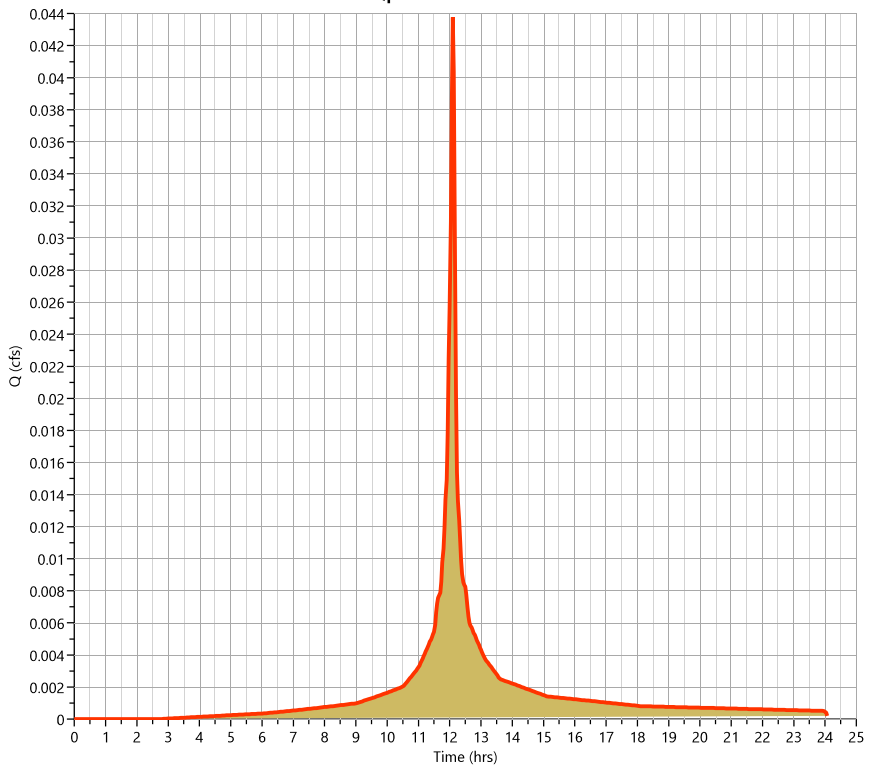
06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.044 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 141 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.04 cfs



Hydrograph Report

Project Name:

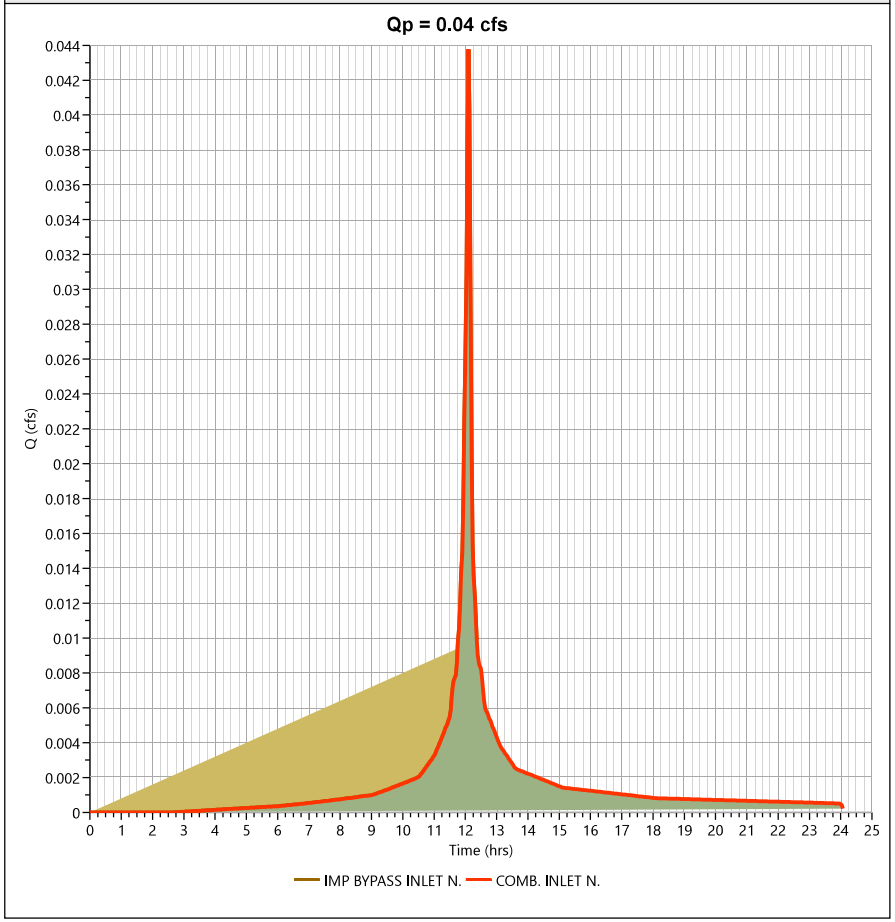
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.044 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 141 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

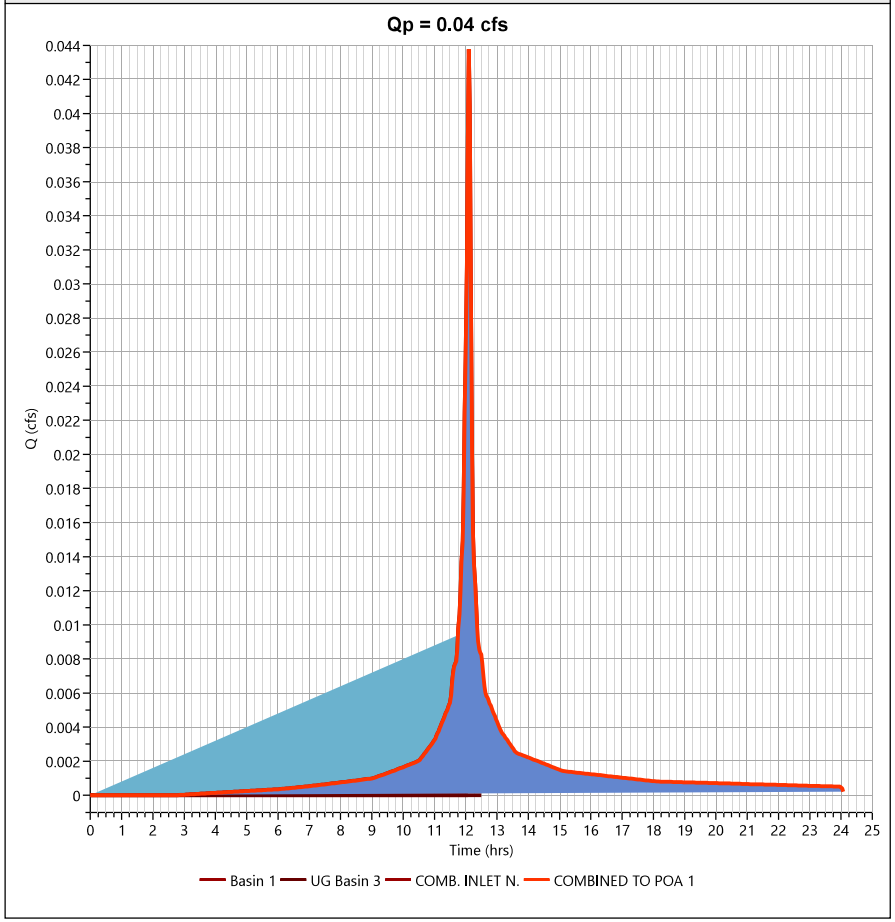
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.044 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 141 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

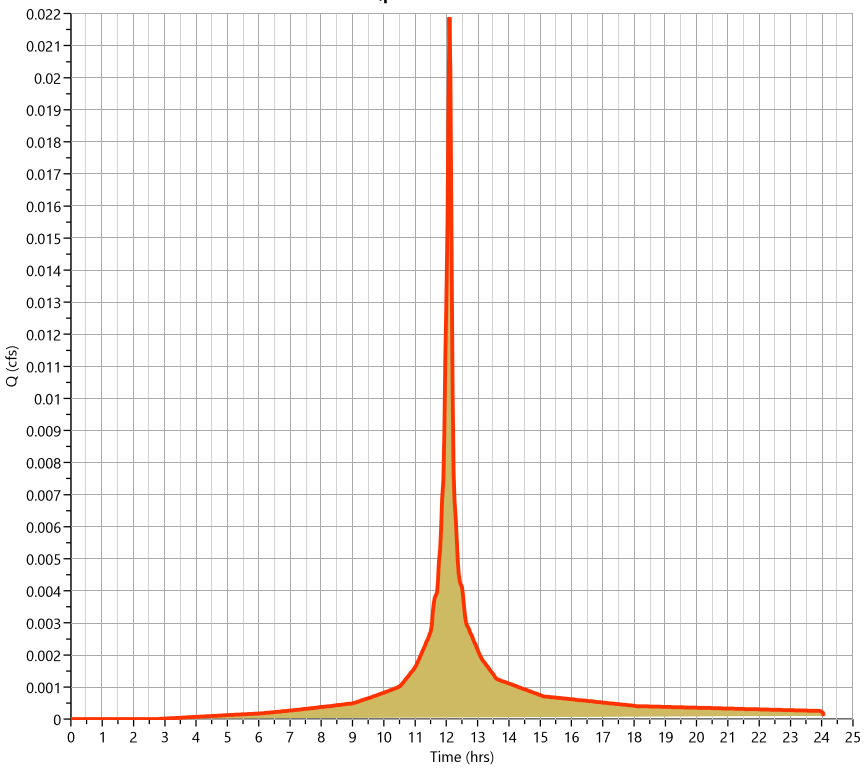
06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.022 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 70.4 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.02 cfs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 1-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 1.25 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

Qp = 0.00 cfs

Hydrograph Report

Project Name:

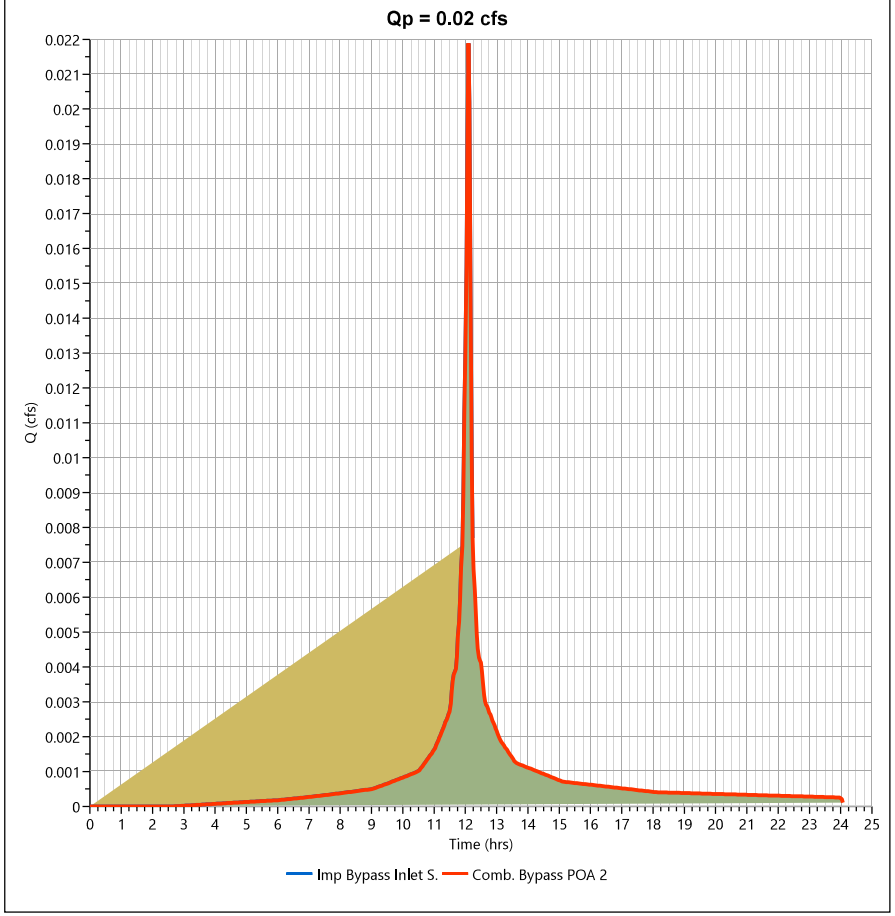
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.022 cfs
Storm Frequency	= 1-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 70.4 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



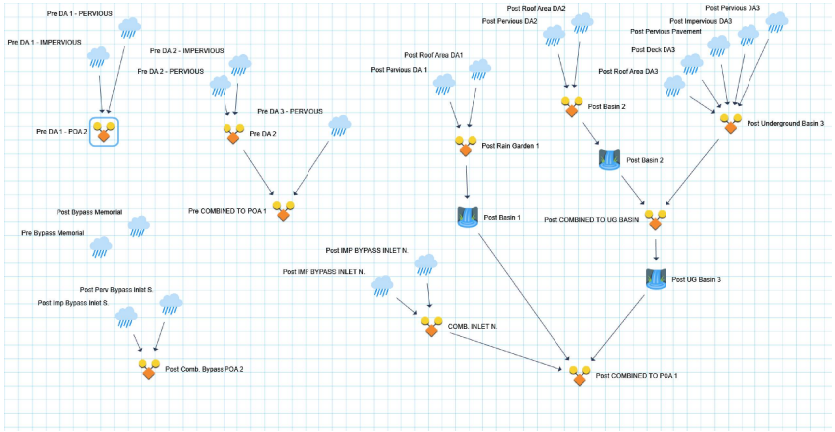
HYDROGRAPH SUMMARY REPORTS – EMERGENCY SPILLWAY

Basin Model

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022



Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.120	12.13	474	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.000	24.00	0.095	—		
3	NRCS Runoff	Post Roof Area DA3	0.801	12.17	3,546	—		
4	NRCS Runoff	Post Deck DA3	0.884	12.17	3,913	—		
5	NRCS Runoff	Post Pervious Pavement	0.414	12.17	1,834	—		
6	NRCS Runoff	Post Pervious DA 1	0.000	24.00	1.47	—		
7	NRCS Runoff	Post Roof Area DA1	0.323	12.10	1,112	—		
8	NRCS Runoff	Post Pervious DA2	0.000	24.00	2.64	—		
9	NRCS Runoff	Post Roof Area DA2	1.617	12.10	5,558	—		
10	Junction	Pre DA 1 - POA 2	0.120	12.13	474	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.000	24.00	0.323	—		
12	NRCS Runoff	Post Impervious DA3	0.138	12.17	611	—		
13	Junction	Post Underground Basin 3	2.237	12.17	9,905	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.323	12.10	1,113	6, 7		
15	Junction	Post Basin 2	1.617	12.10	5,561	8, 9		
16	Pond Route	Post Basin 2	0.000	14.00	-0.001	15	13.89	1,317
17	Pond Route	Post Basin 1	0.000	13.67	0.001	14	14.45	286
18	Junction	Post COMBINED TO UG BASIN	2.237	12.17	9,905	13, 16		
19	Pond Route	Post UG Basin 3	0.000	11.57	0.000	18	12.31	1,608
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.221	12.17	978	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.000	0.00	0.000	—		
22	Junction	Pre DA 2	0.221	12.17	978	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.000	24.00	1.47	—		
24	Junction	Pre COMBINED TO POA 1	0.221	12.17	980	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.000	24.00	2.35	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.129	12.10	445	—		
27	Junction	COMB. INLET N.	0.129	12.10	447	25, 26		
28	Junction	Post COMBINED TO POA 1	0.129	12.10	447	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.000	24.00	0.969	—		
30	NRCS Runoff	Post Bypass Memorial	0.000	24.00	2.59	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.065	12.10	222	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.000	24.00	1.18	—		
33	Junction	Post Comb. Bypass POA 2	0.065	12.10	223	31, 32		

Hydrograph Report

Project Name:

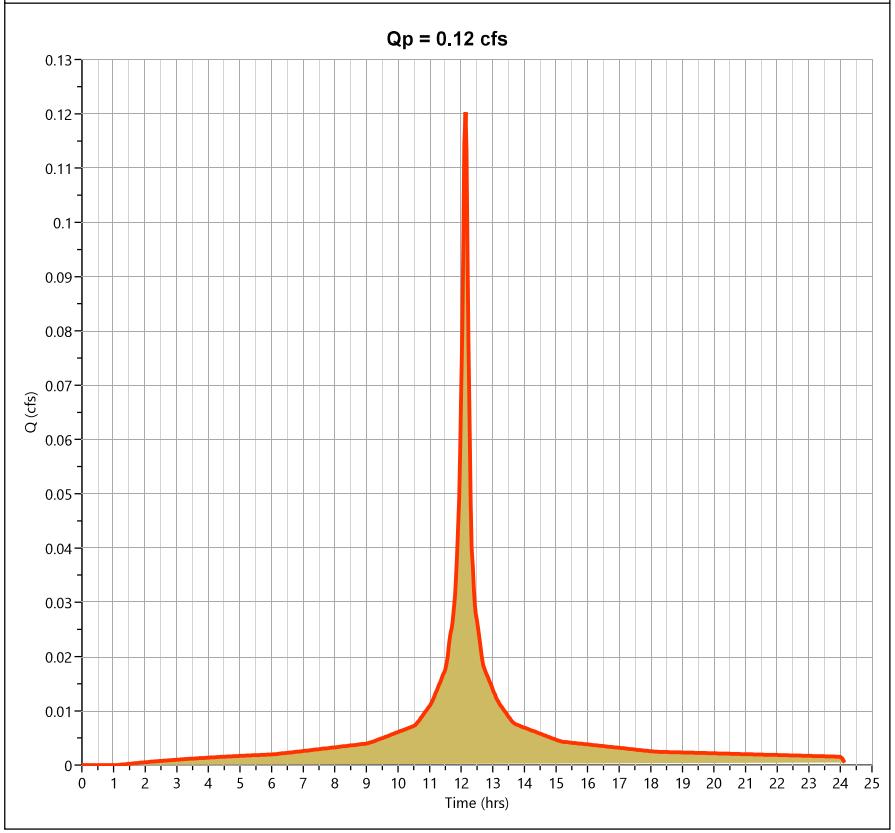
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.120 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 474 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

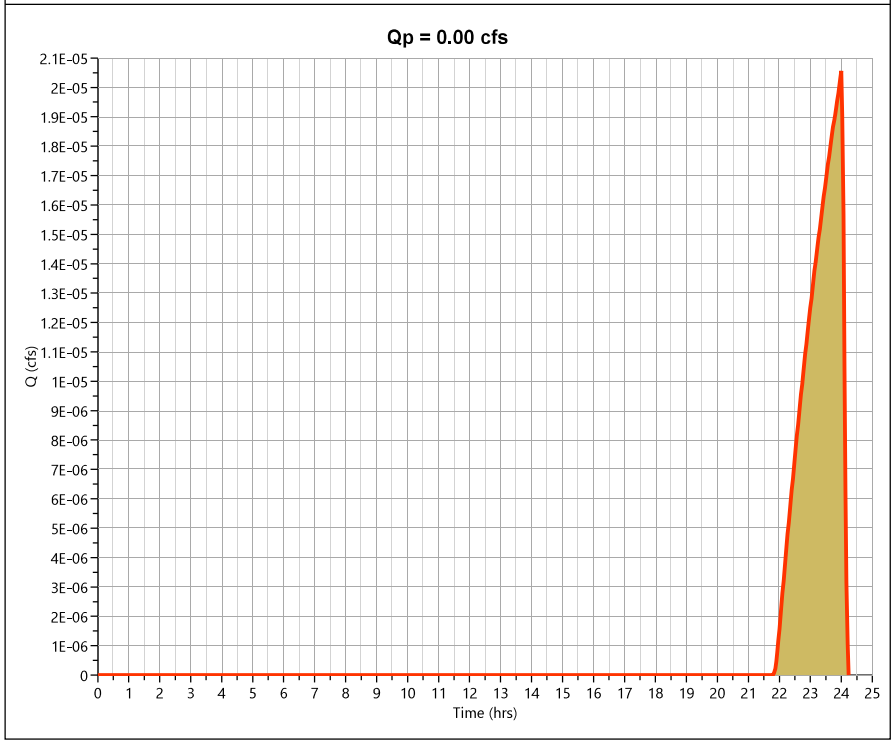
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.095 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

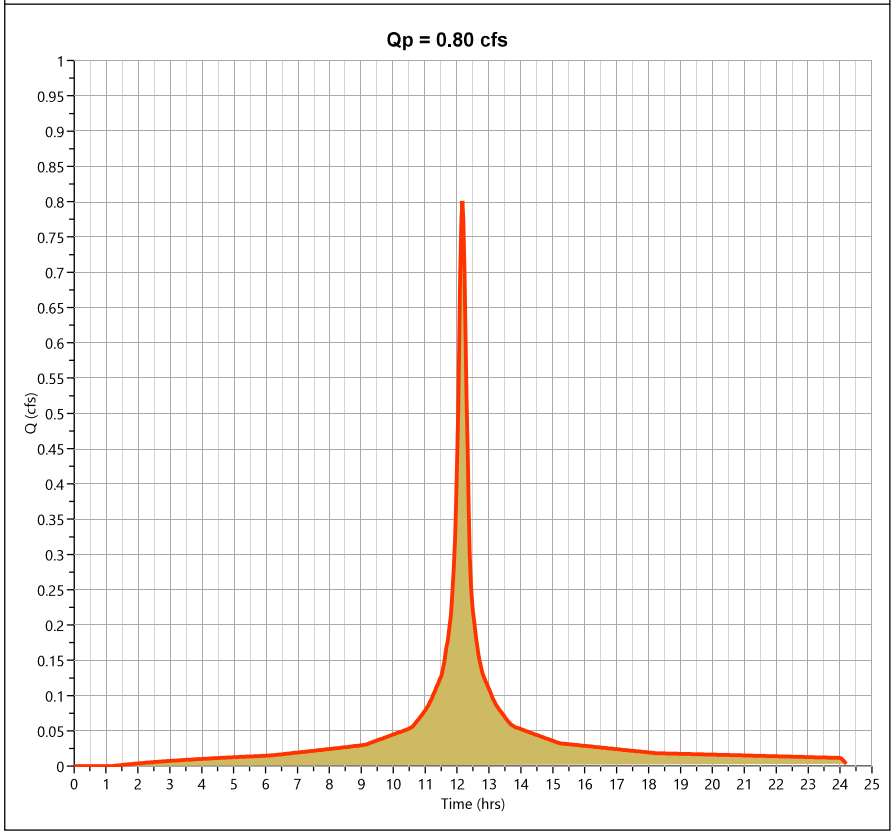
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.801 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,546 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

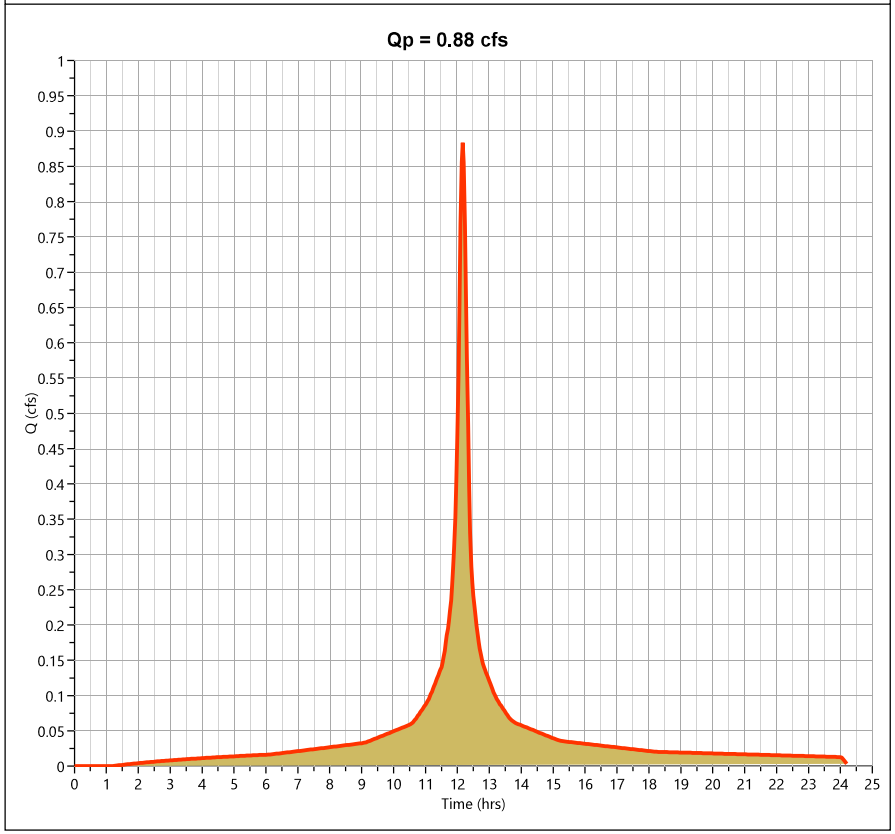
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.884 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,913 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

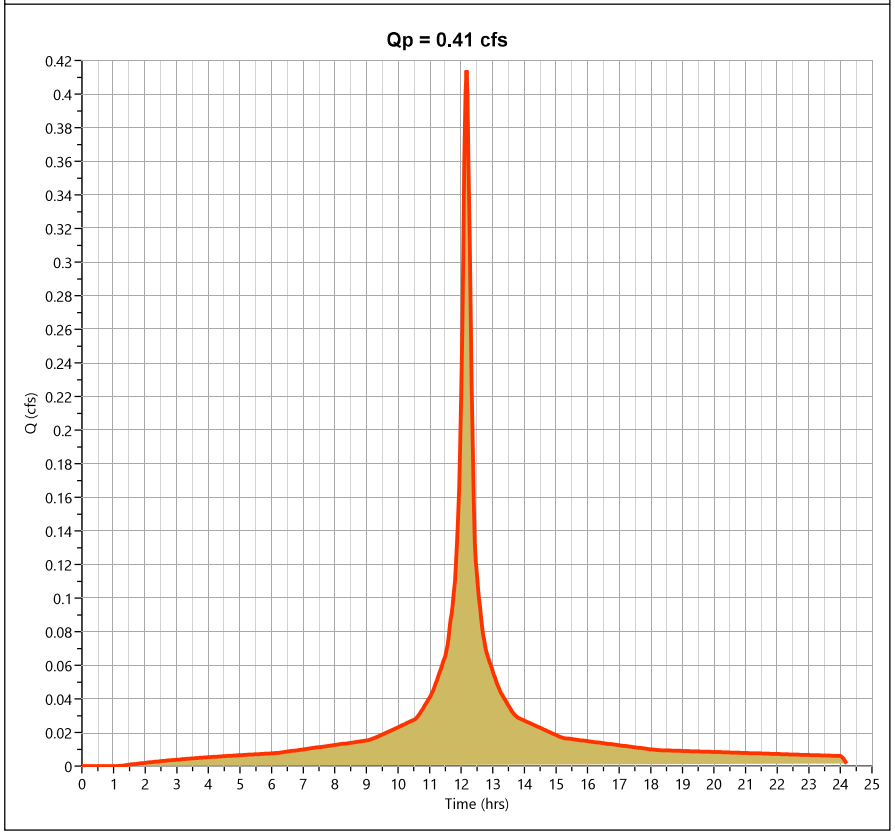
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.414 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,834 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

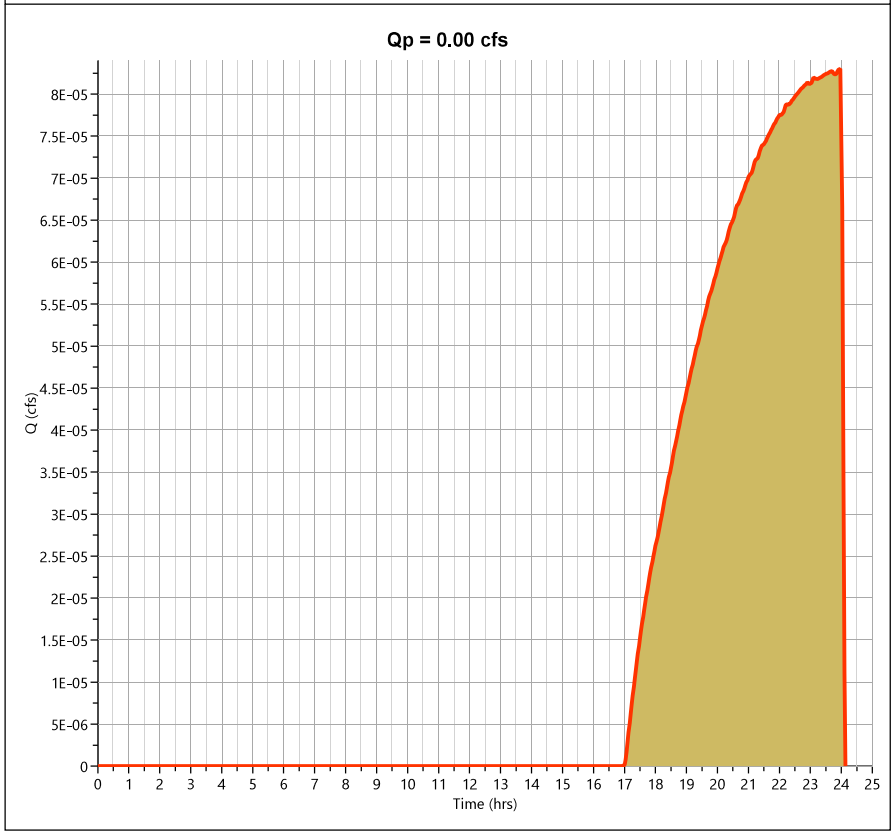
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.47 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

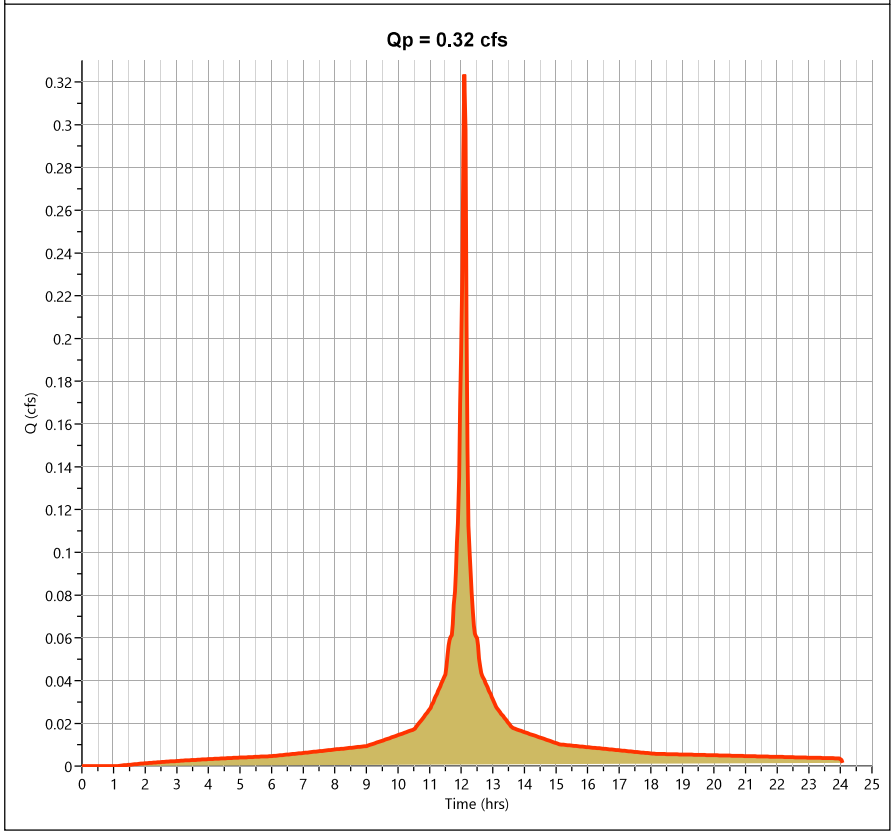
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.323 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,112 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

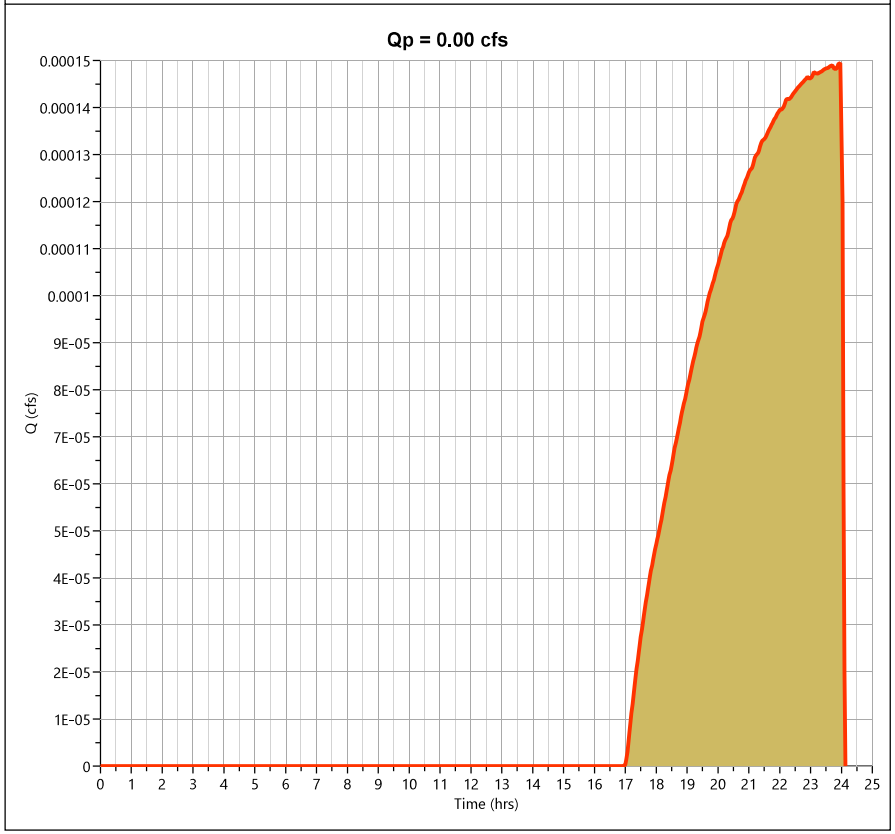
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

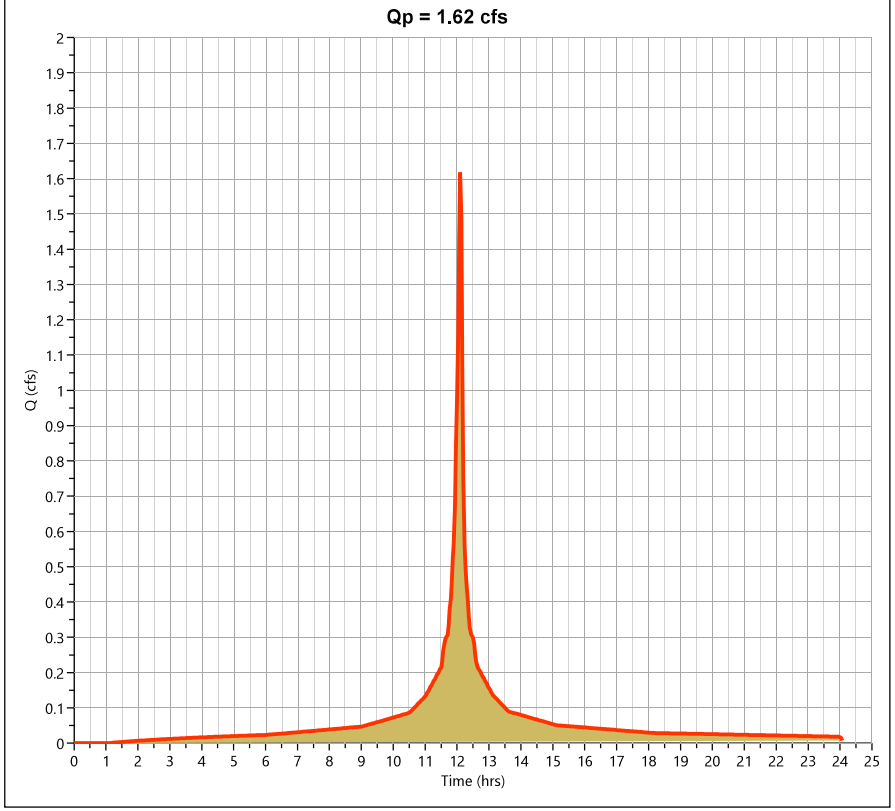
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.64 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.617 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 5,558 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

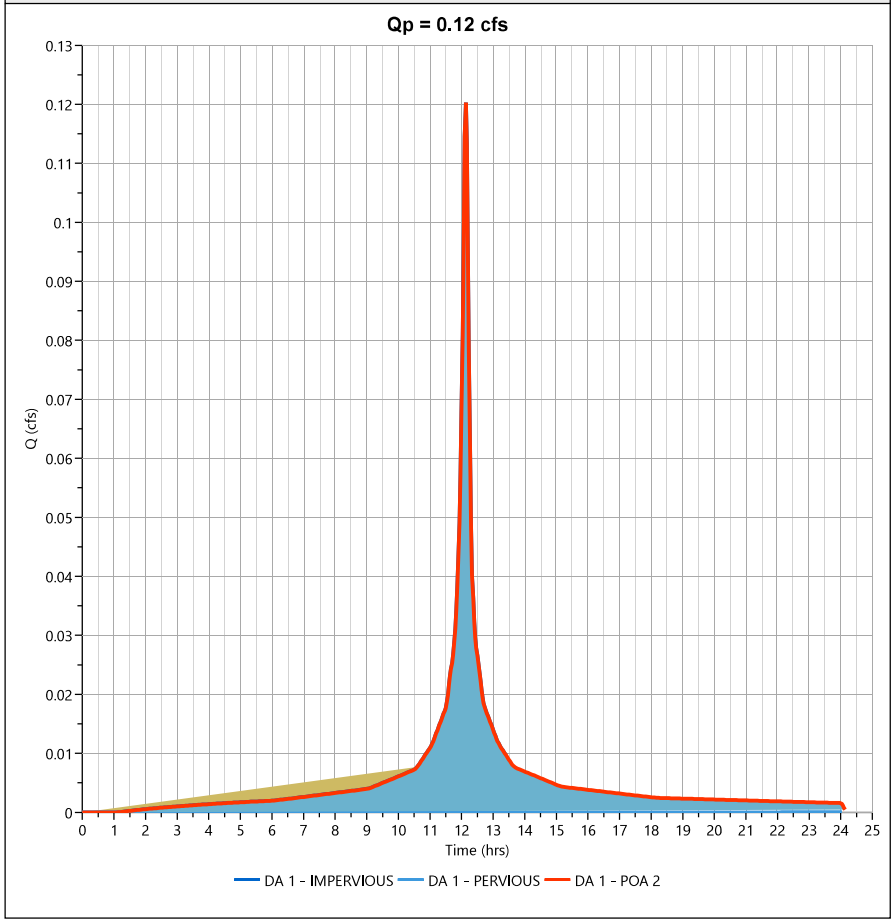


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.120 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 474 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

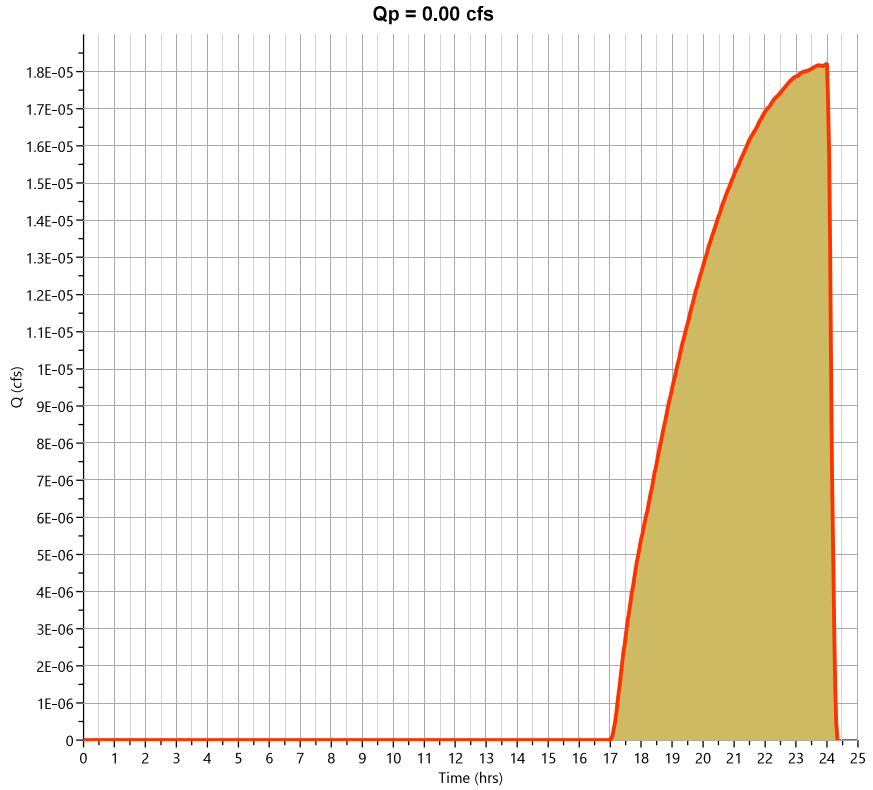
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.323 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

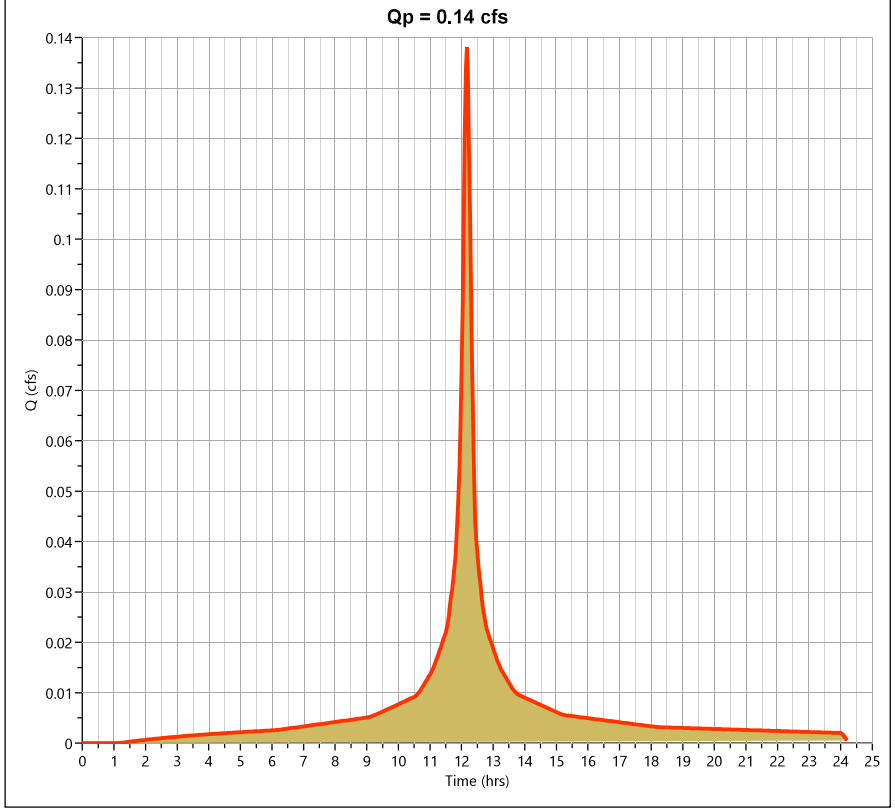
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.138 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 611 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

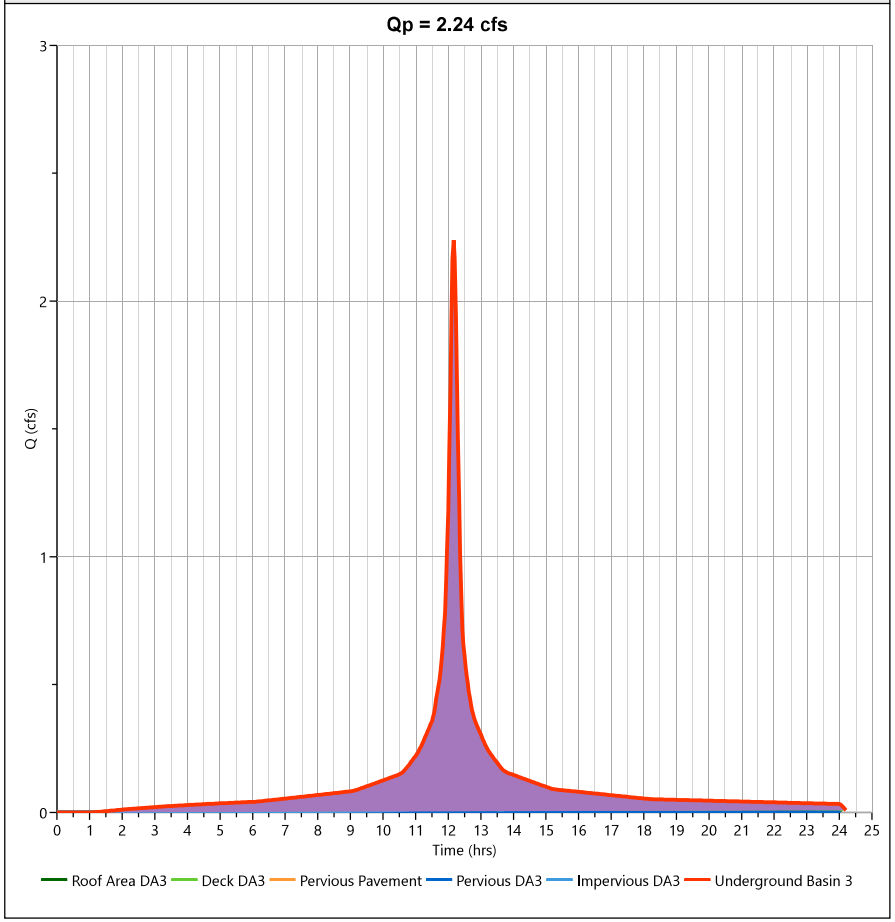
Hydrology Studio v 3.0.0.24

06-14-2022

Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 2.237 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 9,905 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

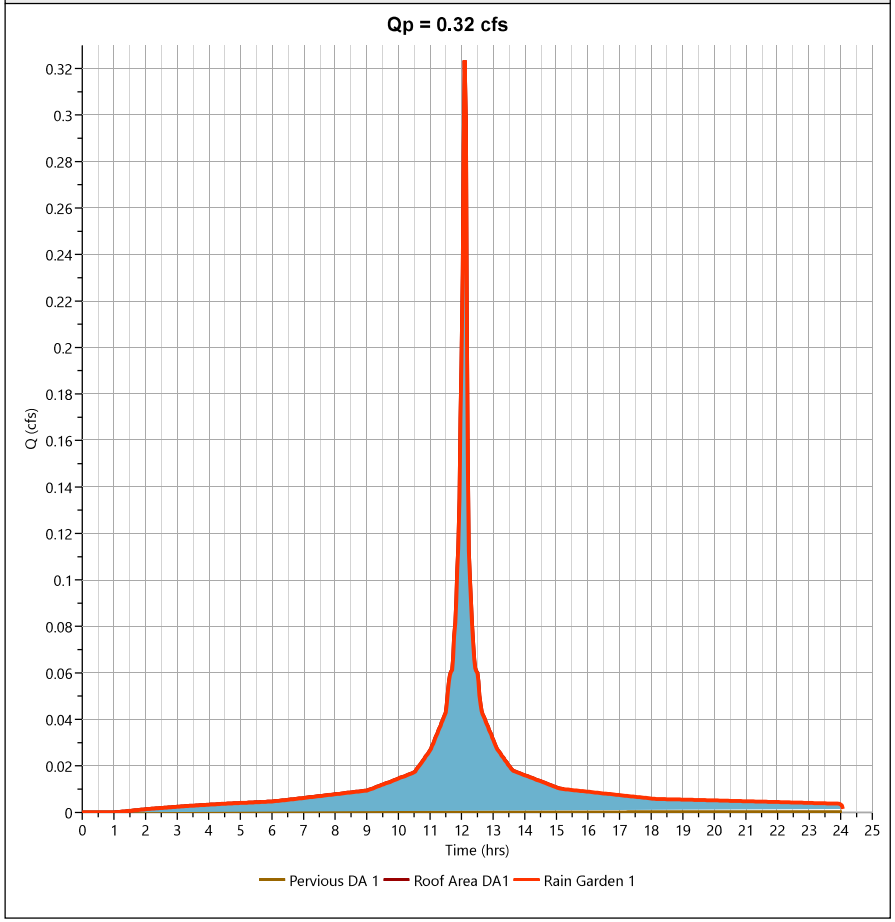
Hydrology Studio v 3.0.0.24

06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.323 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,113 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

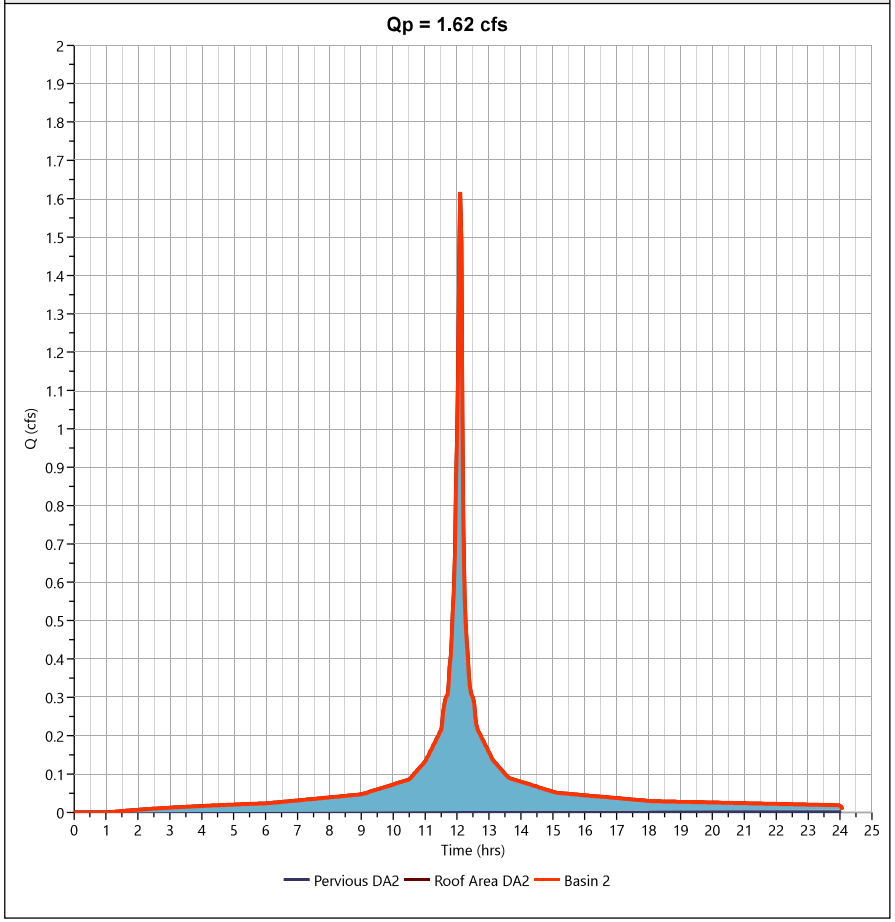
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 1.617 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,561 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

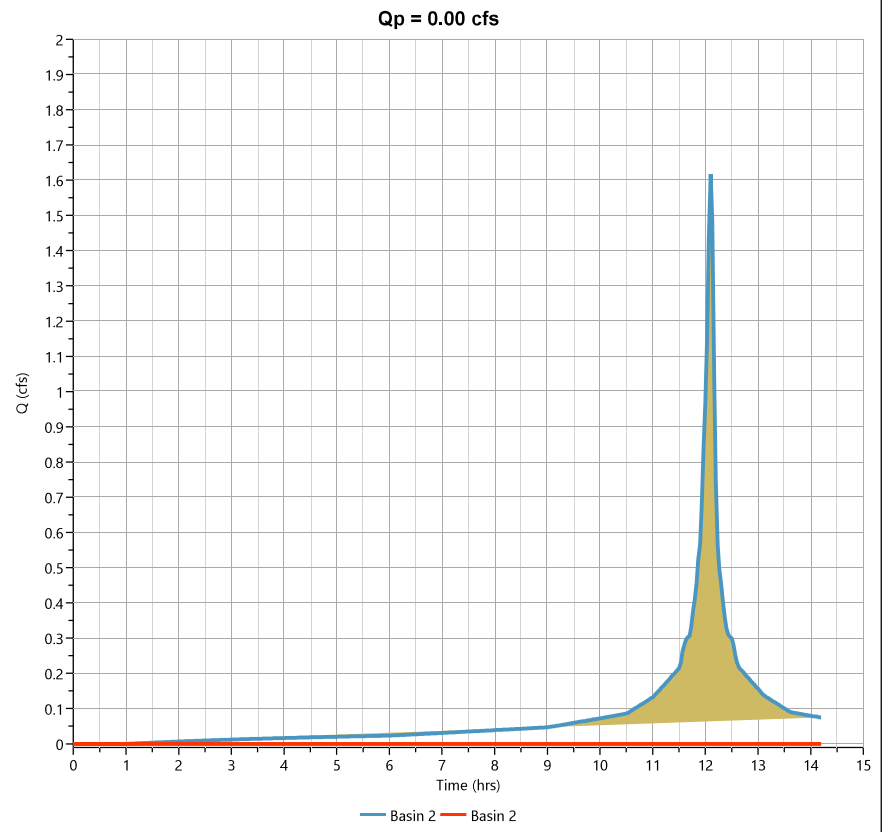
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 14.00 hrs
Time Interval	= 2 min	Hydrograph Volume	= -0.001 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 13.89 ft
Pond Name	= Basin 2	Max. Storage	= 1,317 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

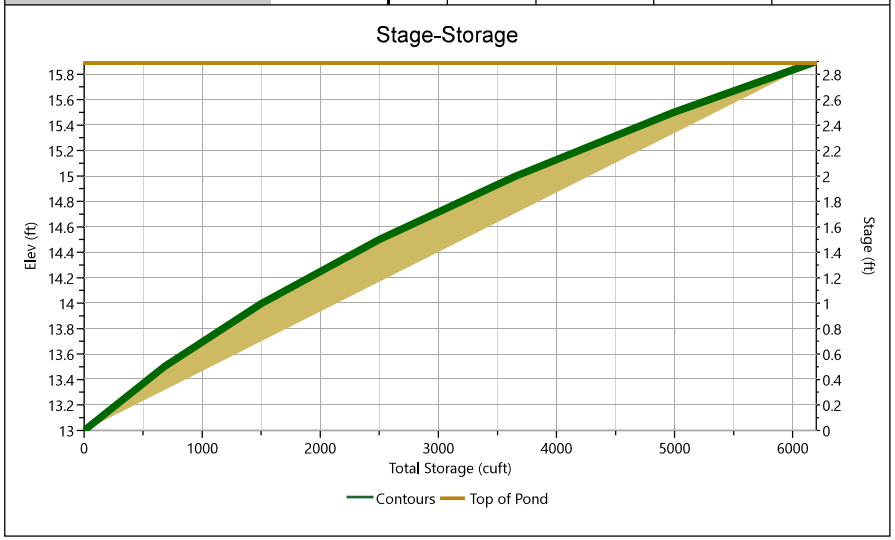
06-14-2022

Basin 2

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	13.00
Voids (%)	100.00
Volume Calc	None

Stage / Storage Table				
Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	13.00	1,201	0.000	0.000
0.50	13.50	1,509	678	678
1.00	14.00	1,814	831	1,508
1.50	14.50	2,151	991	2,500
2.00	15.00	2,486	1,159	3,659
2.50	15.50	2,844	1,333	4,991
2.90	15.90	3,202	1,209	6,200



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

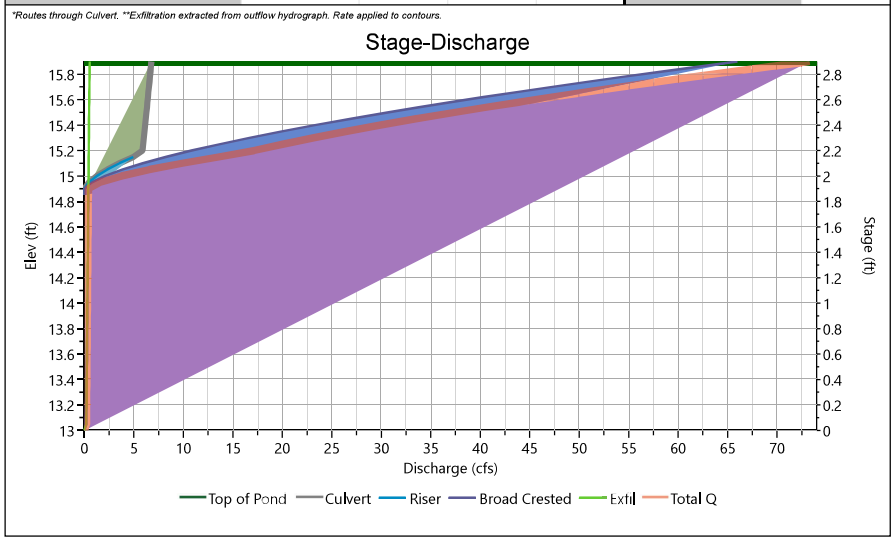
06-14-2022

Basin 2

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate	
		1*	2*	3		
Rise, in	12	3.5	1		Orifice Dia, in	
Span, in	12	3.5	24		No. Orifices	
No. Barrels	1	2	1		Invert Elevation, ft	
Invert Elevation, ft	12.19	13.50	13.98		Height, ft	
Orifice Coefficient, Co	0.60	0.60	0.60		Orifice Coefficient, Co	
Length, ft	30					
Barrel Slope, %	.3					
N-Value, n	0.013					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1	2	3		
Shape / Type	Box	Broad Crested			Exfiltration, in/hr	7.20**
Crest Elevation, ft	14.9	14.9				
Crest Length, ft	12	20				
Angle, deg						
Weir Coefficient, Cw	3.3	3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	13.00	0.000	0.000	0.000	0.000		0.000	0.000				0.000		0.000
0.50	13.50	678	0.000 oc	0.000	0.000		0.000	0.000				0.252		0.251
1.00	14.00	1,508	0.000 oc	0.000	0.000		0.000	0.000				0.302		0.302
1.50	14.50	2,500	0.000 oc	0.000	0.000		0.000	0.000				0.359		0.359
2.00	15.00	3,659	1.252 oc	0.000	0.000		1.252	2.087				0.414		3.754
2.50	15.50	4,991	6.264 oc	0.000	0.000		0.000	30.67				0.474		37.41
2.90	15.90	6,200	6.766 oc	0.000	0.000		0.000	66.00				0.534		73.30

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

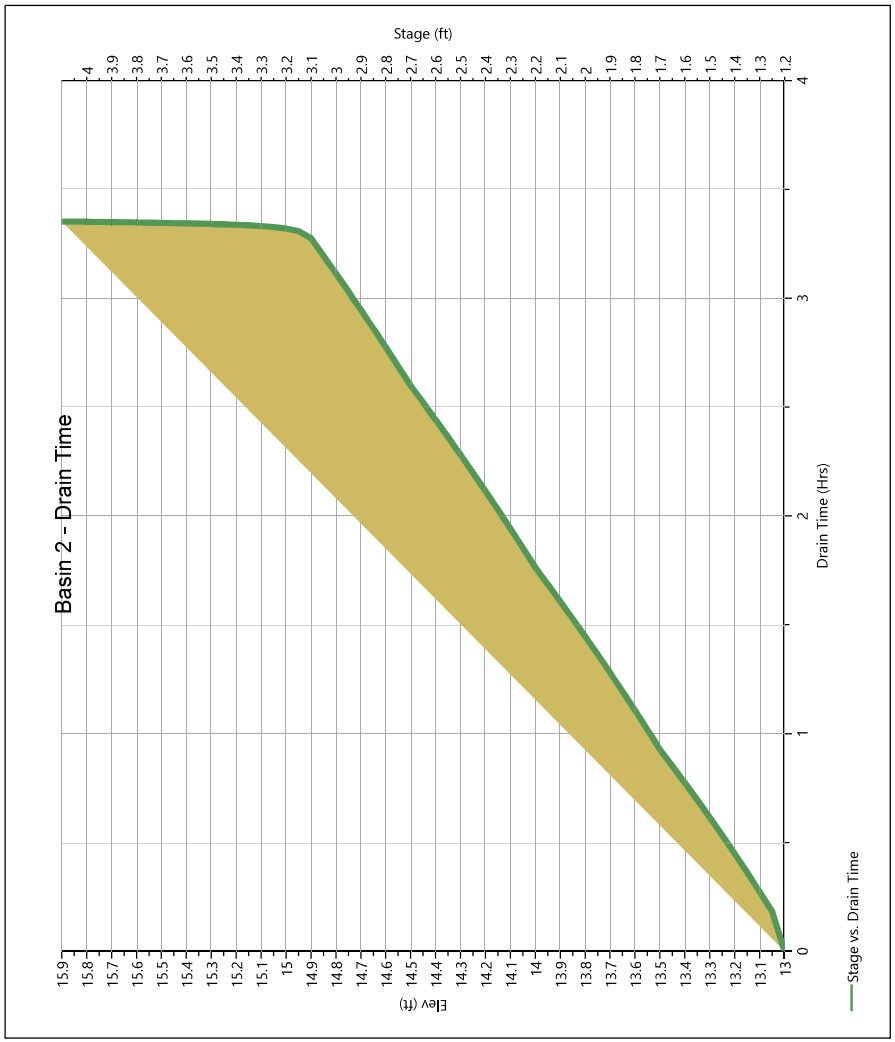
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Basin 2

Pond Drawdown



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

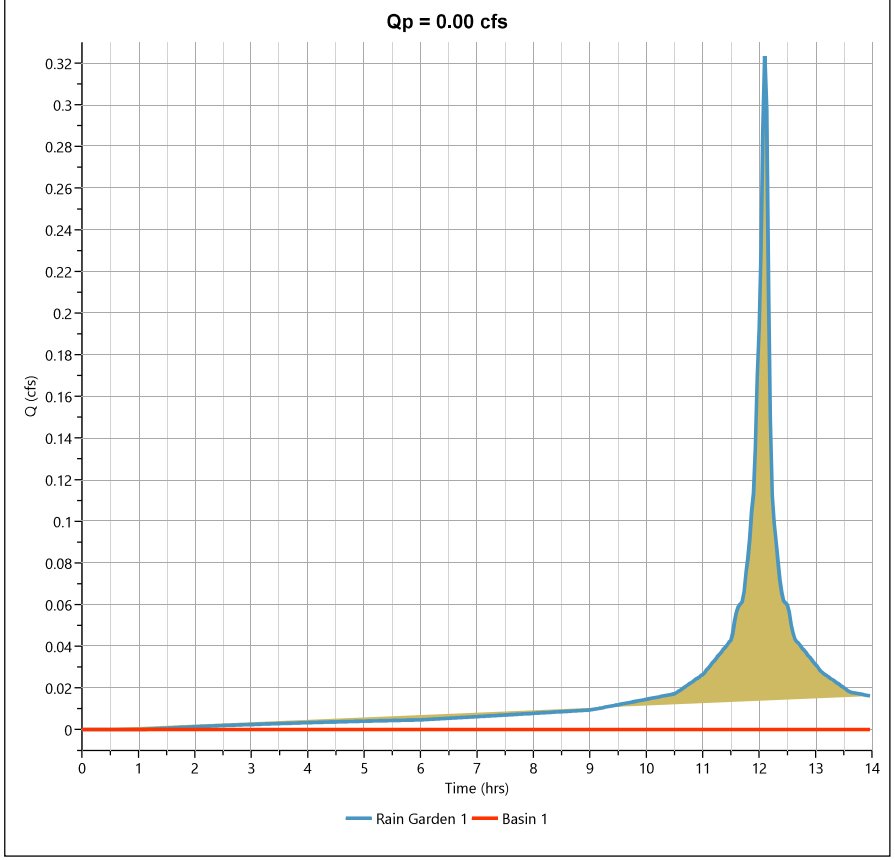
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 13.67 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.001 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.45 ft
Pond Name	= BASIN 1	Max. Storage	= 286 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

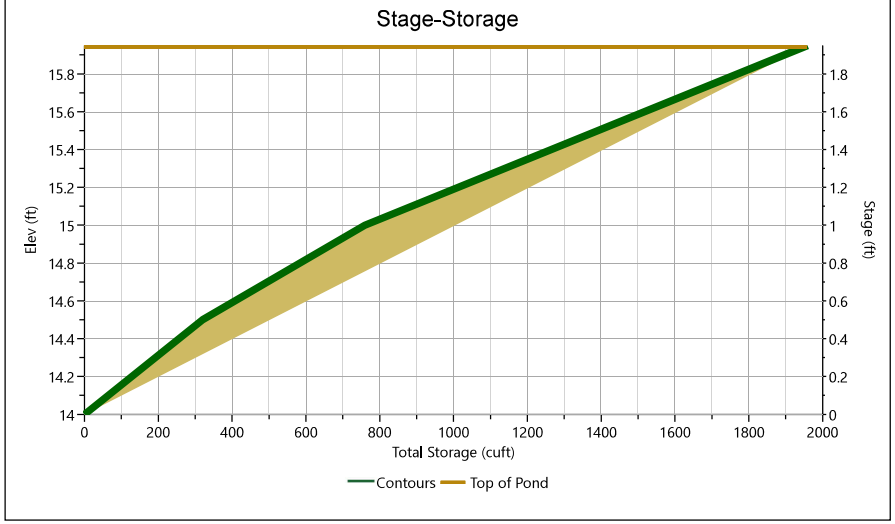
06-14-2022

BASIN 1

Stage-Storage

User Defined Contours	
Description	Input
Bottom Elevation, ft	14.00
Voids (%)	100.00
Volume Calc	None

Stage / Storage Table				
Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.00	14.00	520	0.000	0.000
0.50	14.50	760	320	320
1.00	15.00	999	440	760
1.95	15.95	1,526	1,199	1,959



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

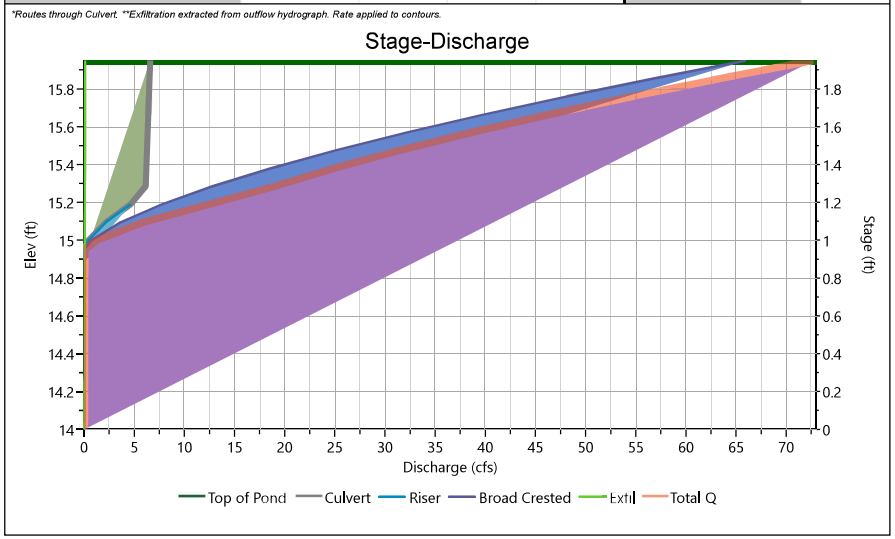
06-14-2022

BASIN 1

Stage-Discharge

Culvert / Orifices	Culvert	Orifices			Orifice Plate	
		1*	2	3		
Rise, in	12	2.5			Orifice Dia, in	
Span, in	12	2.5			No. Orifices	
No. Barrels	1	1			Invert Elevation, ft	
Invert Elevation, ft	10.23	14.50			Height, ft	
Orifice Coefficient, Co	0.60	0.60			Orifice Coefficient, Co	
Length, ft	100					
Barrel Slope, %	.3					
N-Value, n	0.013					
Weirs	**Riser***	**Weirs**			**Ancillary**	
		1	2*	3		
Shape / Type	Box	Broad Crested	Rectangular		Exfiltration, in/hr	3.25**
Crest Elevation, ft	14.95	14.95	14.6			
Crest Length, ft	12	20	1			
Angle, deg						
Weir Coefficient, Cw	3.3	3.3	3.3			

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	14.00	0.000	0.000	0.000			0.000	0.000	0.000			0.000		0.000
0.50	14.50	320	0.000 oc	0.000			0.000	0.000	0.000			0.057		0.057
1.00	15.00	760	0.443 oc	0.000			0.443	0.738	0.000			0.075		1.256
1.95	15.95	1,959	6.585 oc	0.000			0.000	66.00	0.000			0.115		72.70

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

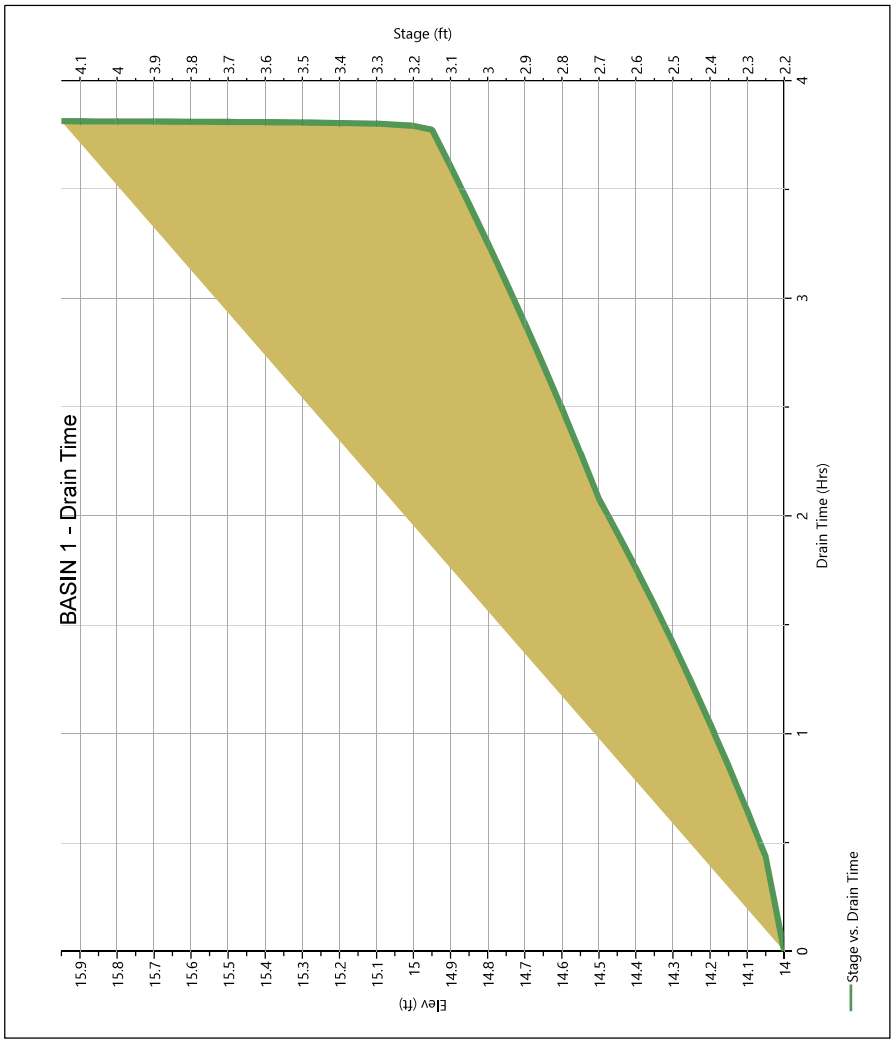
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

BASIN 1

Pond Drawdown



Hydrograph Report

Project Name:

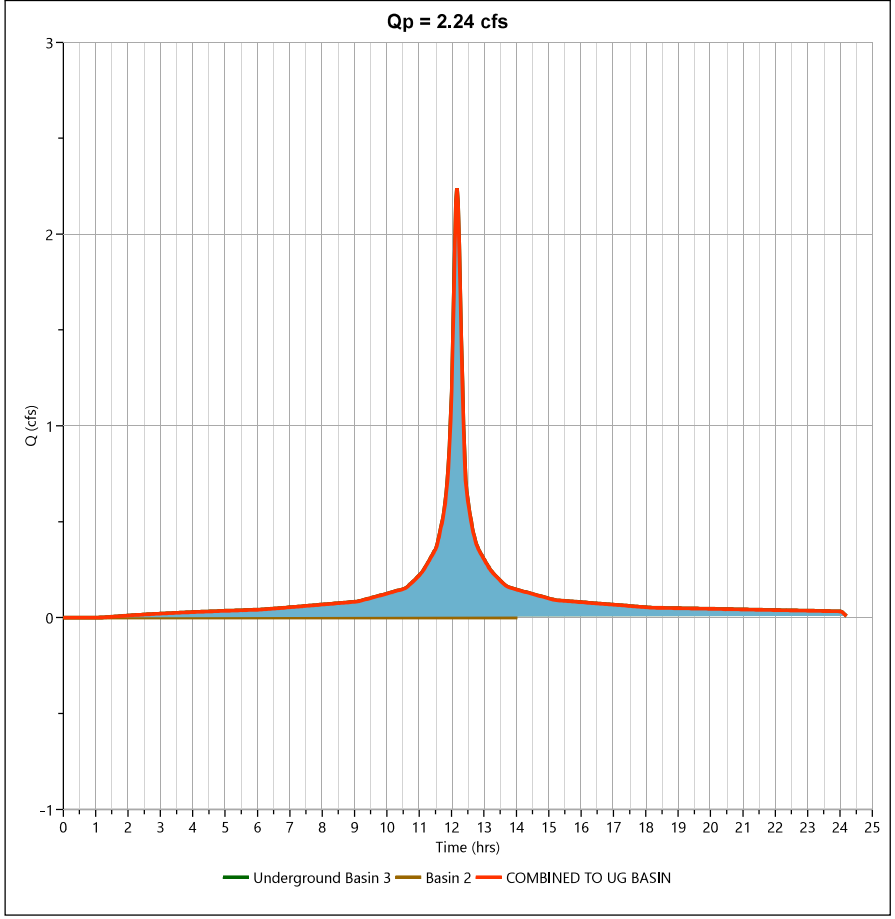
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 2.237 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 9,905 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

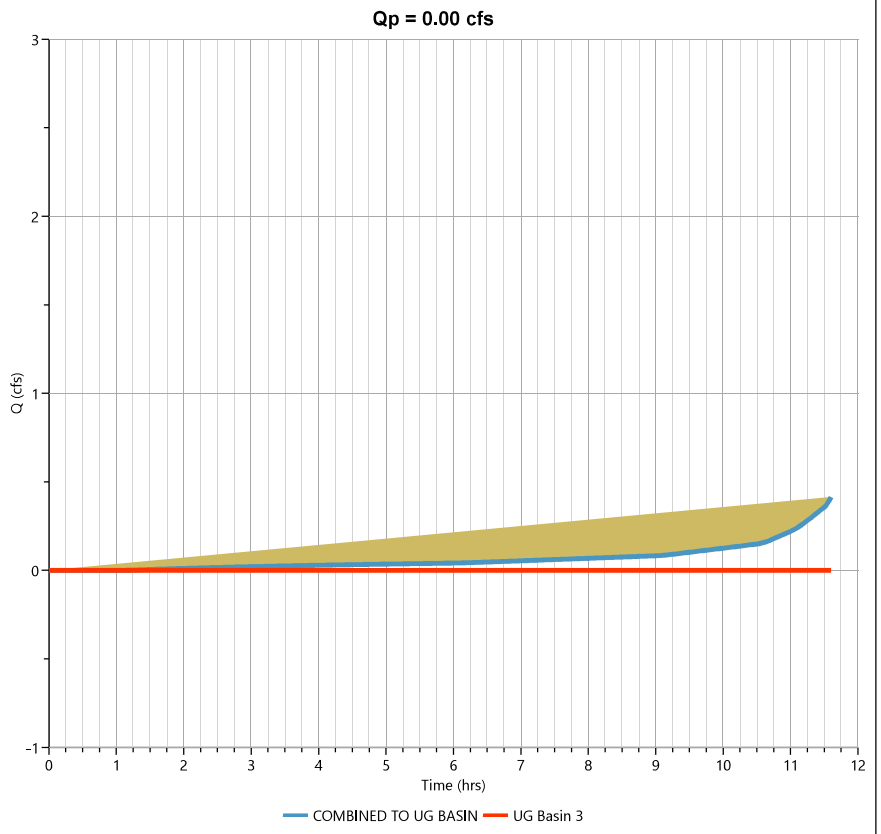
06-14-2022

Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 11.57 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 12.31 ft
Pond Name	= UG BASIN 3	Max. Storage	= 1,608 cuft

Pond Routing by Storage Indication Method



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

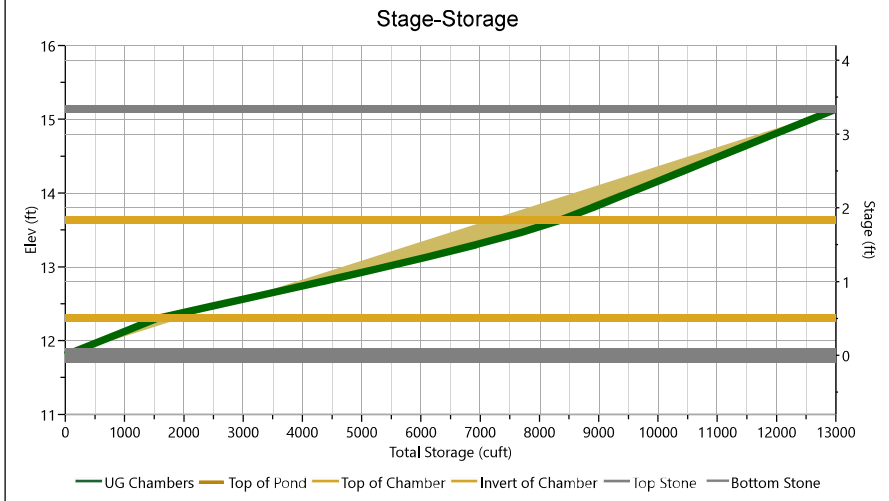
UG BASIN 3

Stage-Storage

StormTech® SC-310™ Chamber	
Description	**Input**
Chamber Height, in	16
Chamber Shape	Arch
Chamber Width, in	34
Installed Length, ft	7.12
No. Chambers	309
Bare Chamber Stor, cuft	4,542
No. Rows	20
Space Between Rows, in	6
Stone Above, in	18
Stone Below, in	6
Stone Sides, in	12
Stone Ends, in	12
Encasement Voids, %	40.00
Encasement Bottom Elevation, ft	11.80

Stage / Storage Table

Stage (in)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
0.0	11.80	7,703	0.000	0.000
2.0	11.97	7,703	514	514
4.0	12.13	7,703	514	1,027
6.0	12.30	7,703	514	1,541
8.0	12.47	7,703	933	2,474
10.0	12.63	7,703	938	3,411
12.0	12.80	7,703	924	4,335
14.0	12.97	7,703	902	5,236
16.0	13.13	7,703	870	6,106
18.0	13.30	7,703	826	6,933
20.0	13.47	7,703	764	7,697
22.0	13.63	7,703	655	8,352
24.0	13.80	7,703	536	8,888
26.0	13.97	7,703	514	9,401
28.0	14.13	7,703	514	9,915
30.0	14.30	7,703	514	10,428
32.0	14.47	7,703	514	10,942
34.0	14.63	7,703	514	11,456
36.0	14.80	7,703	514	11,969
38.0	14.97	7,703	514	12,483
40.0	15.13	7,703	514	12,996



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN 3

Stage-Discharge

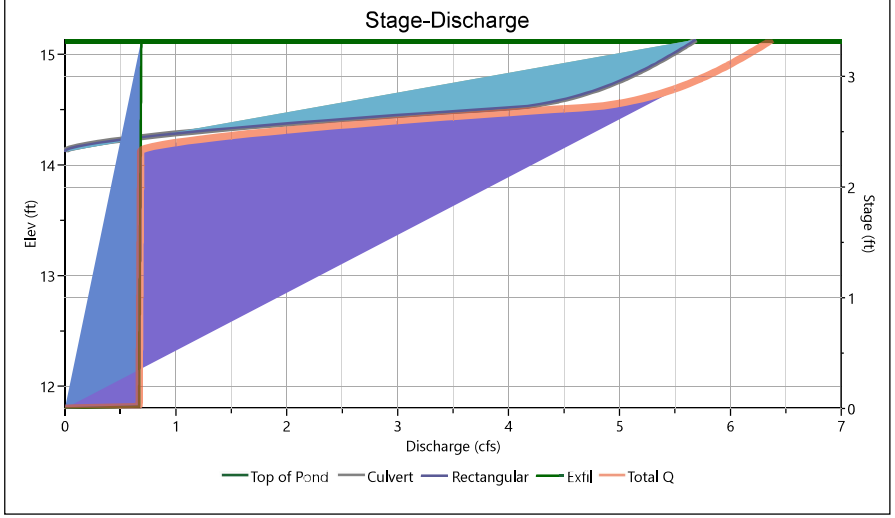
Culvert / Orifices	Culvert	Orifices		
		1*	2*	3
Rise, in	12	2.5	4.5	
Span, in	12	2.5	4.5	
No. Barrels	1	1	3	
Invert Elevation, ft	12.20	13.00	13.20	
Orifice Coefficient, Co	0.60	0.60	0.60	
Length, ft	30			
Barrel Slope, %	.3			
N-Value, n	0.013			

Weirs	Riser*	Weirs		
		1*	2	3
Shape / Type		Rectangular		
Crest Elevation, ft		14.13		
Crest Length, ft		5		
Angle, deg				
Weir Coefficient, Cw		3.3		

Perforated Riser	
Hole Diameter, in	
No. holes	
Invert Elevation, ft	
Height, ft	
Orifice Coefficient, Co	

Ancillary	
Exfiltration, in/hr	3.75**

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours.



Pond Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN 3

Stage-Storage-Discharge Summary

Stage (ft)	Elev. (ft)	Storage (cuft)	Culvert (cfs)	Orifices, cfs			Riser (cfs)	Weirs, cfs			Pf Riser (cfs)	Exfil (cfs)	User (cfs)	Total (cfs)
				1	2	3		1	2	3				
0.00	11.80	0.000	0.000	0.000	0.000			0.000				0.000		0.000
0.17	11.97	514	0.000	0.000	0.000			0.000				0.670		0.670
0.33	12.13	1,027	0.000	0.000	0.000			0.000				0.671		0.671
0.50	12.30	1,541	0.000	0.000	0.000			0.000				0.672		0.672
0.67	12.47	2,474	0.000	0.000	0.000			0.000				0.673		0.673
0.83	12.63	3,411	0.000	0.000	0.000			0.000				0.674		0.674
1.00	12.80	4,335	0.000	0.000	0.000			0.000				0.675		0.675
1.17	12.97	5,236	0.000	0.000	0.000			0.000				0.676		0.676
1.33	13.13	6,106	0.000	0.000	0.000			0.000				0.677		0.677
1.50	13.30	6,933	0.000	0.000	0.000			0.000				0.678		0.678
1.67	13.47	7,697	0.000	0.000	0.000			0.000				0.679		0.679
1.83	13.63	8,352	0.000	0.000	0.000			0.000				0.680		0.680
2.00	13.80	8,888	0.000	0.000	0.000			0.000				0.681		0.681
2.17	13.97	9,401	0.000	0.000	0.000			0.000				0.682		0.682
2.33	14.13	9,915	0.003 oc	0.000	0.000			0.003				0.683		0.686
2.50	14.30	10,428	1.157 oc	0.000	0.000			1.157				0.684		1.840
2.67	14.47	10,942	3.223 oc	0.000	0.000			3.223				0.685		3.908
2.83	14.63	11,456	4.645 oc	0.000	0.000			4.645 s				0.686		5.331
3.00	14.80	11,969	5.090 oc	0.000	0.000			5.090 s				0.687		5.777
3.17	14.97	12,483	5.412 oc	0.000	0.000			5.412 s				0.688		6.100
3.33	15.13	12,996	5.691 oc	0.000	0.000			5.691 s				0.689		6.379

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir

Pond Report

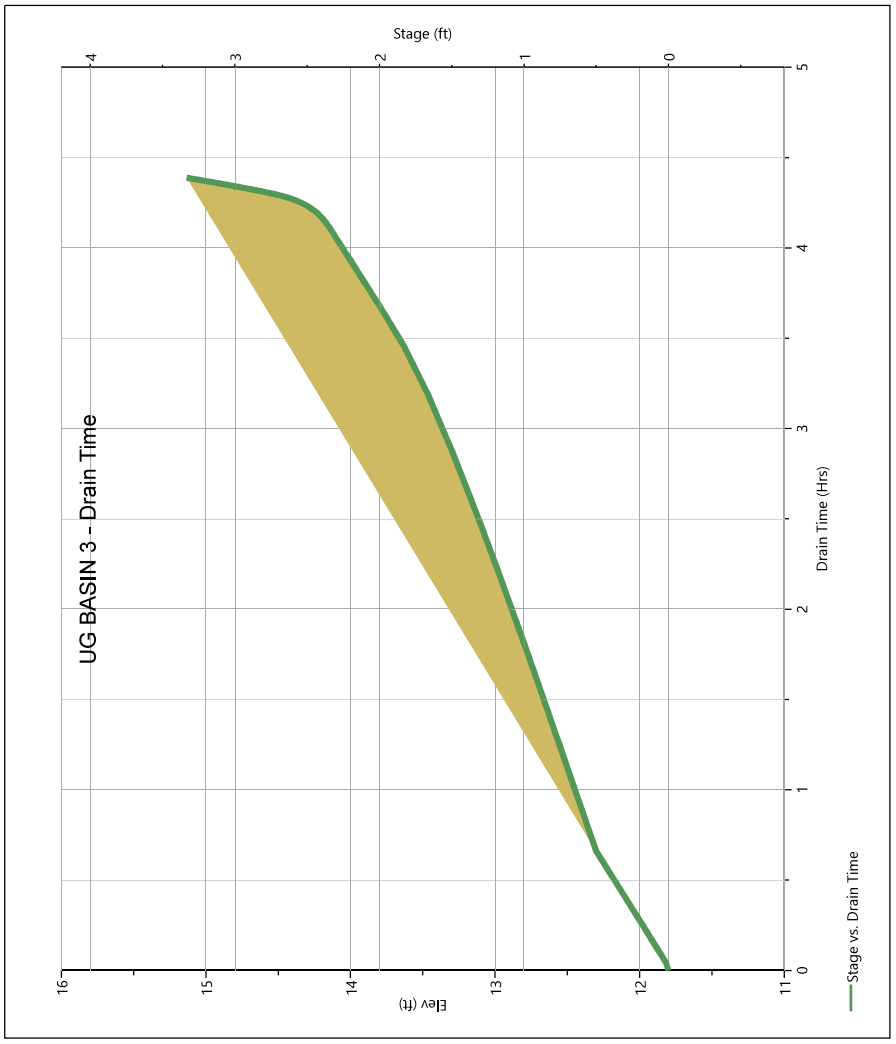
Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

UG BASIN 3

Pond Drawdown



Hydrograph Report

Project Name:

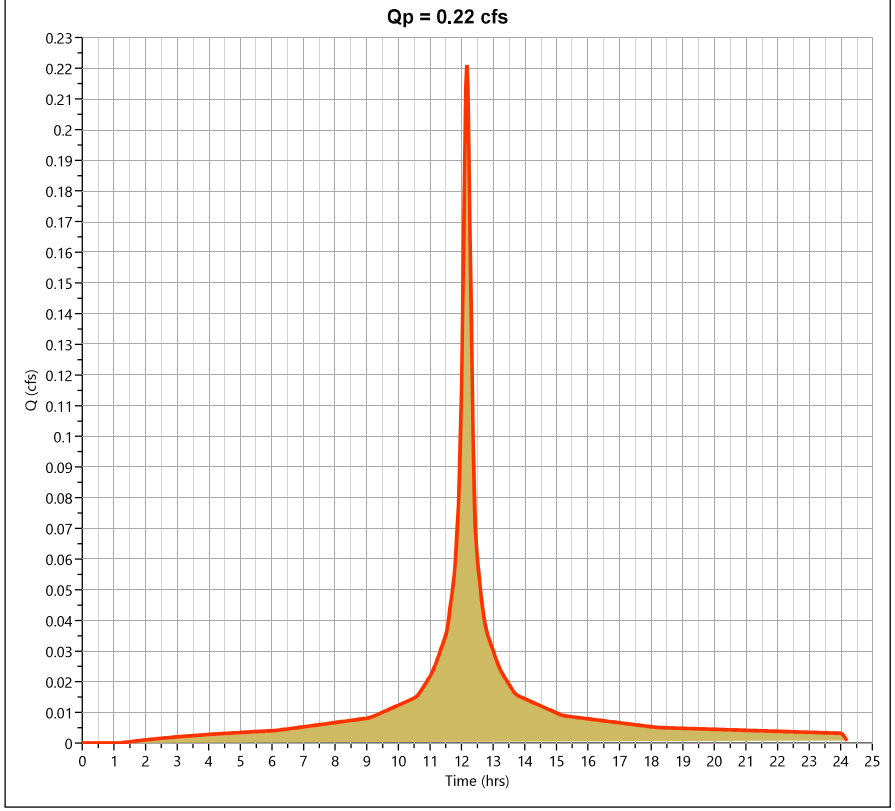
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 978 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 0.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.000 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

Qp = 0.00 cfs

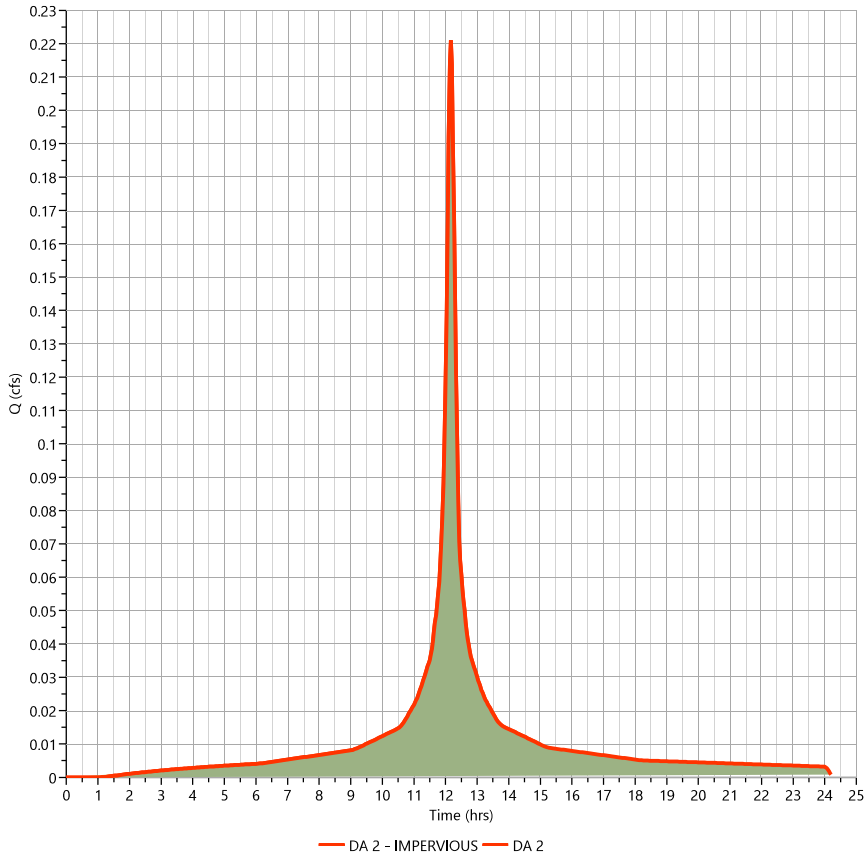
Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 978 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac

Qp = 0.22 cfs



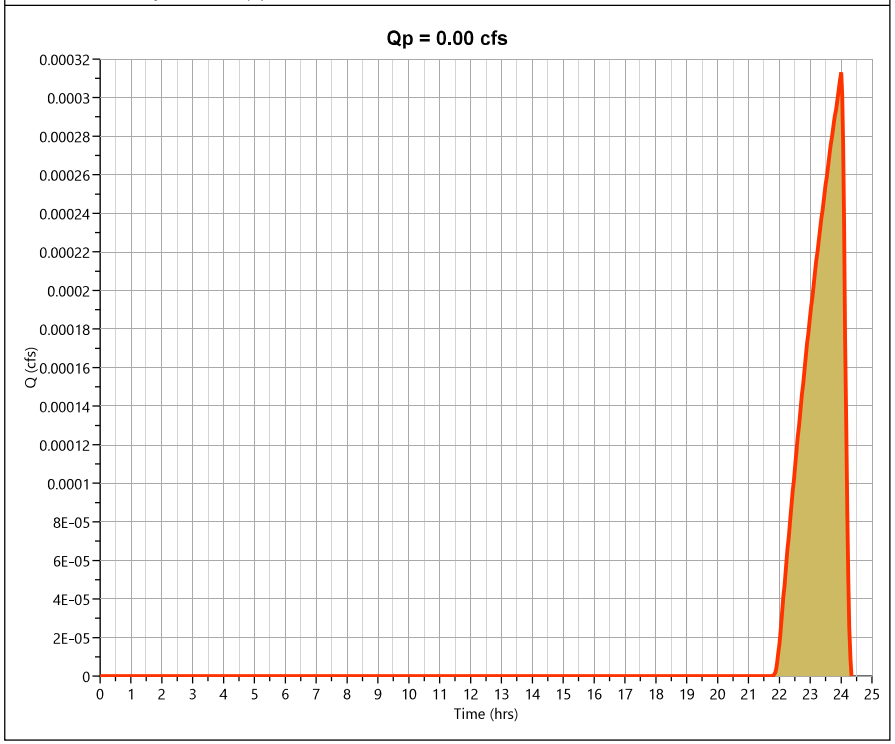
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.47 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

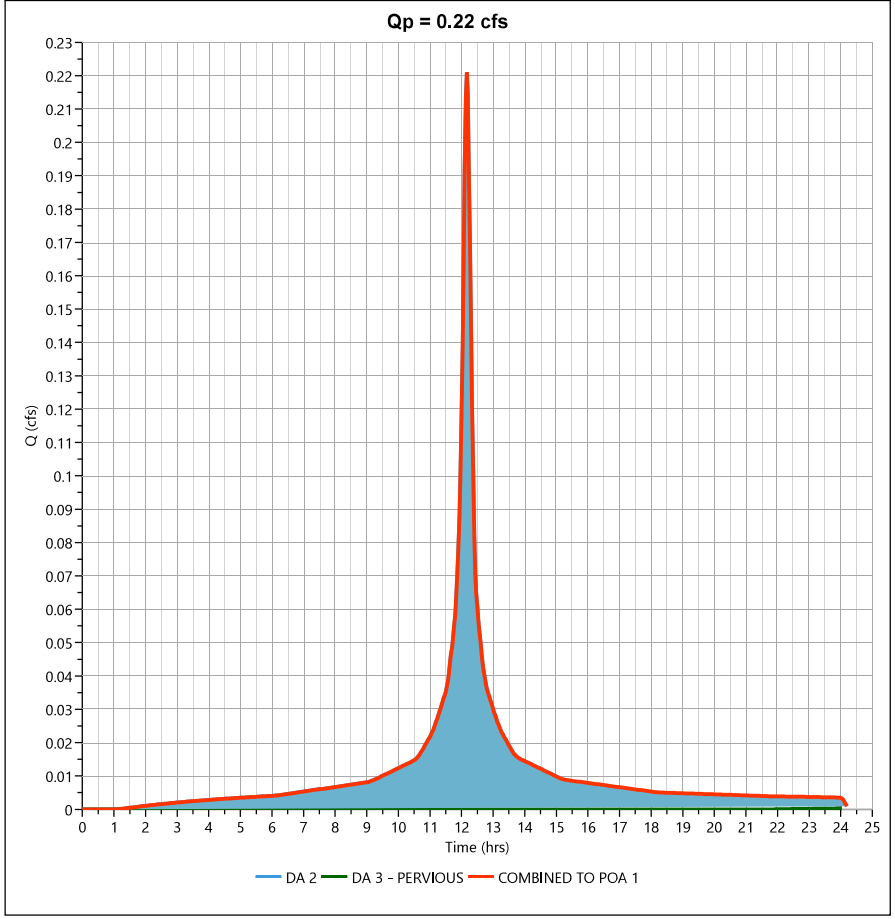


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.221 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 980 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

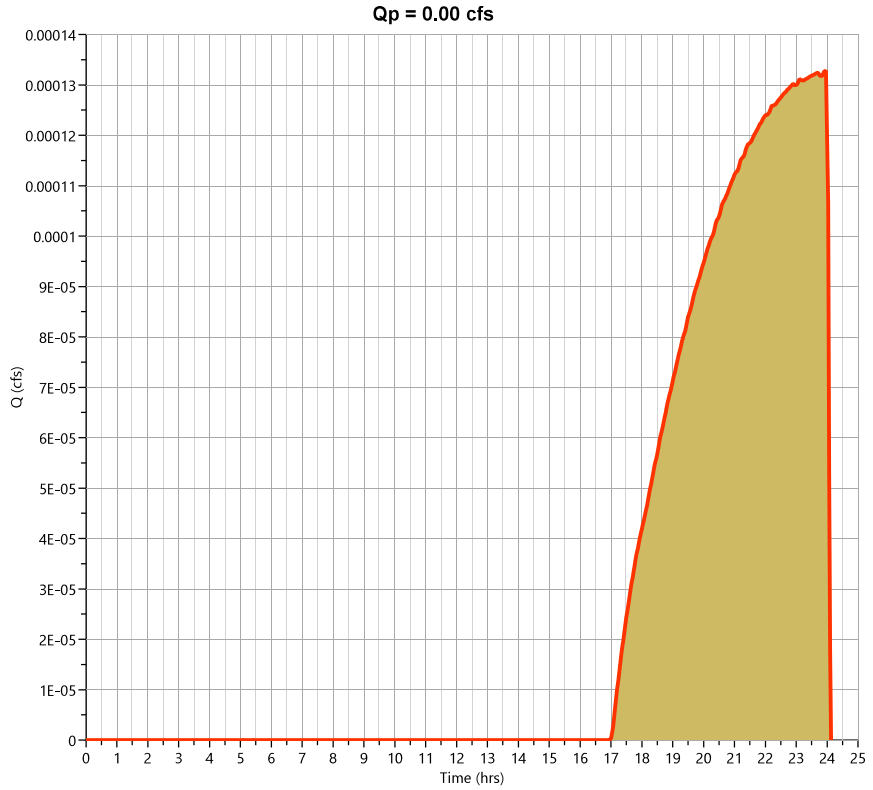
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.35 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

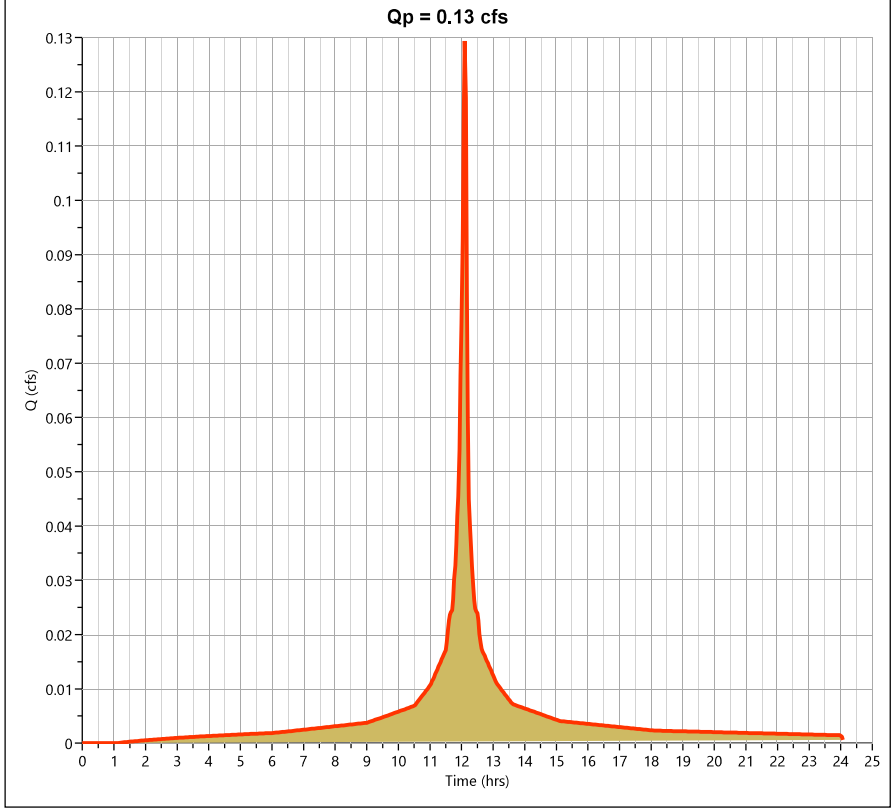
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 445 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

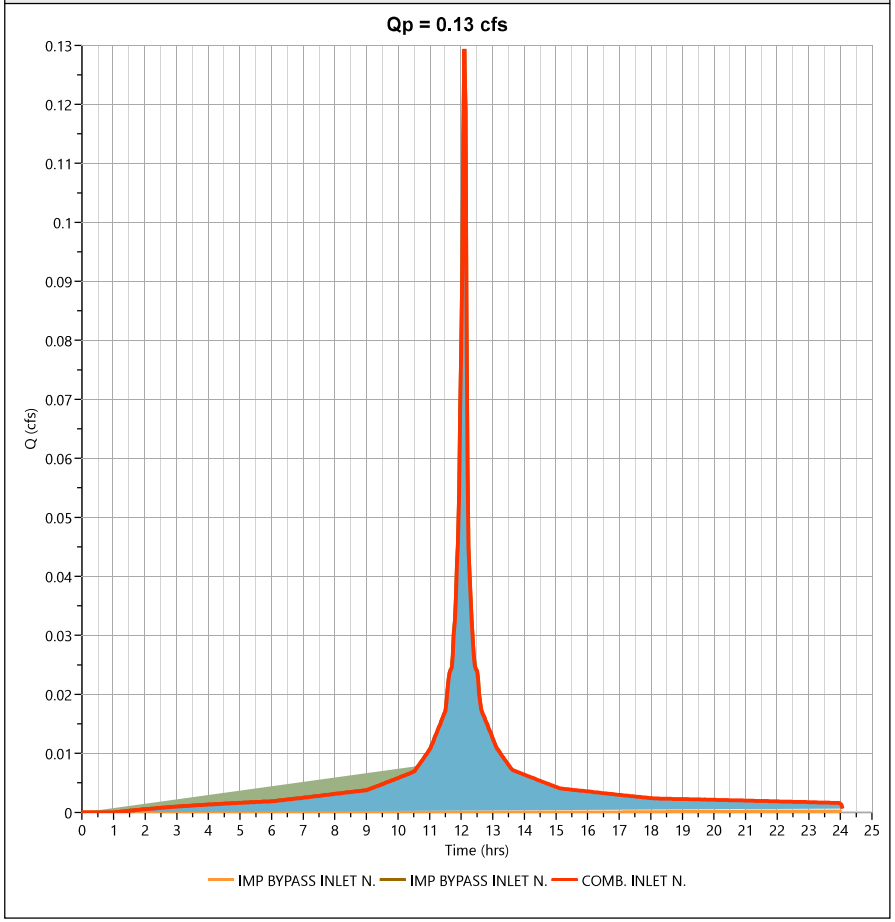
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 447 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

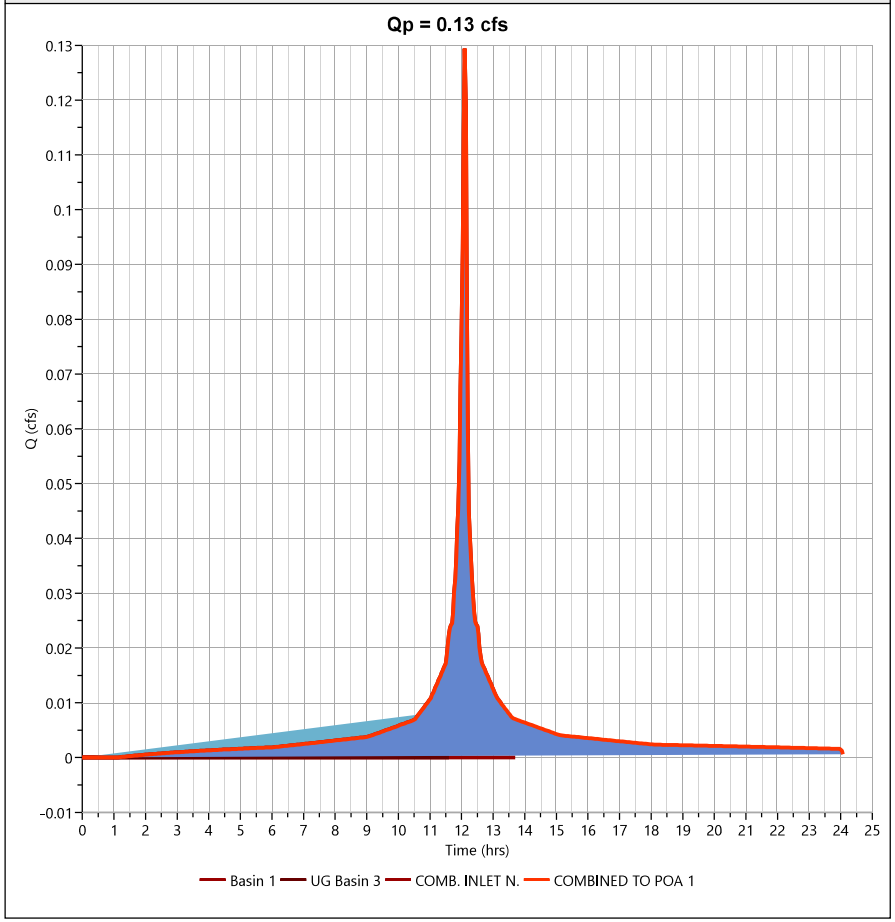
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.129 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 447 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

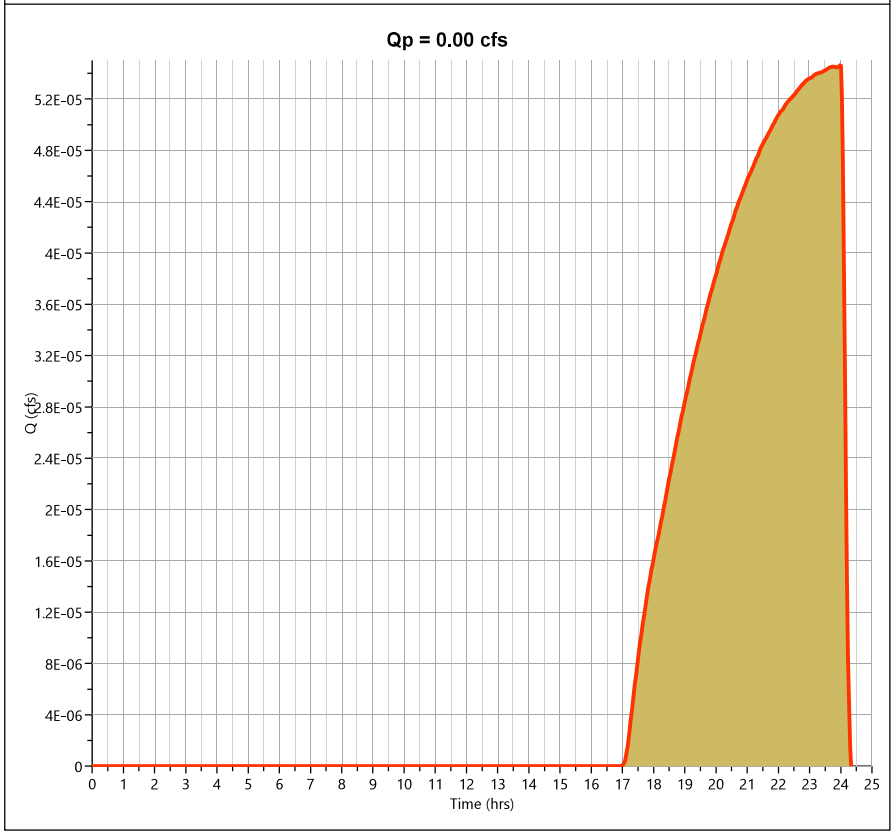
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 0.969 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

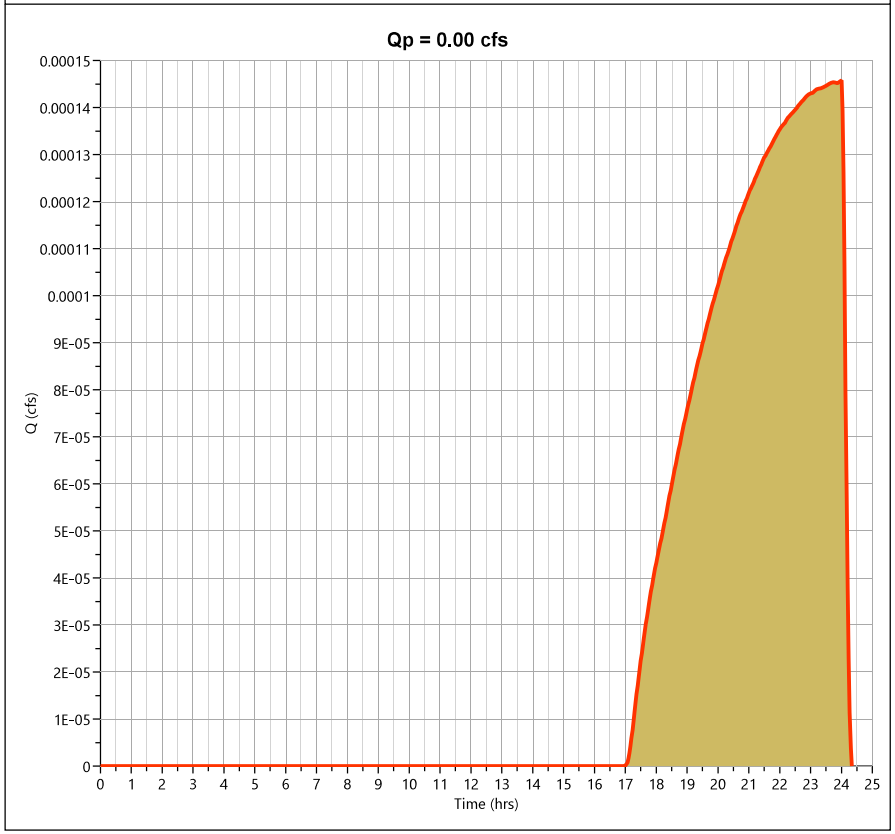
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 2.59 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

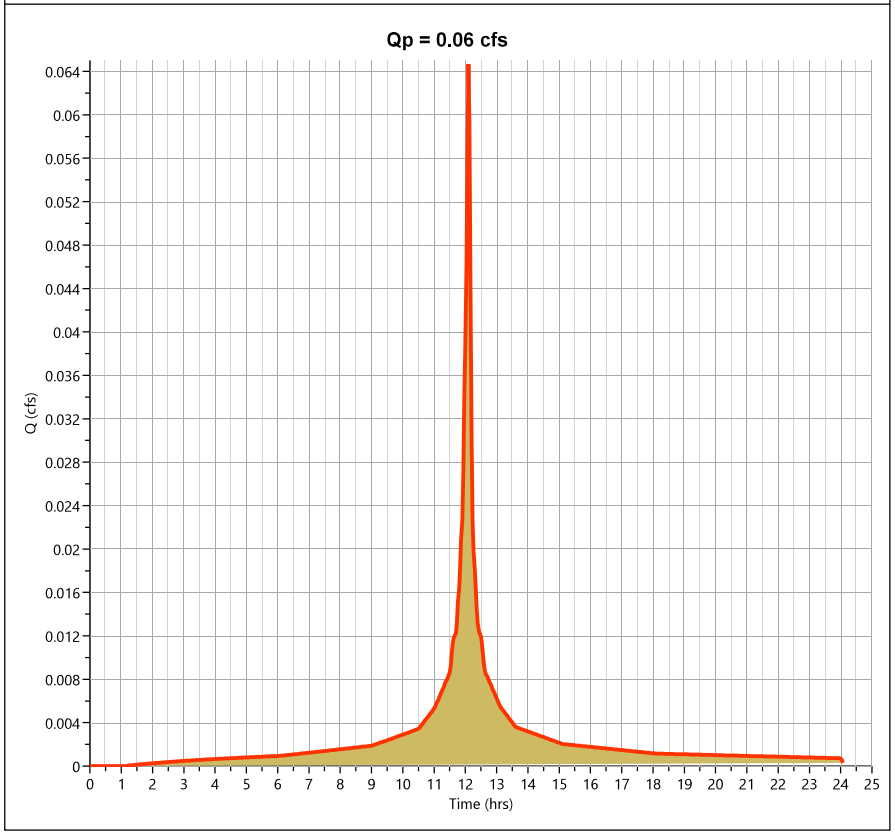
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.065 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 222 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

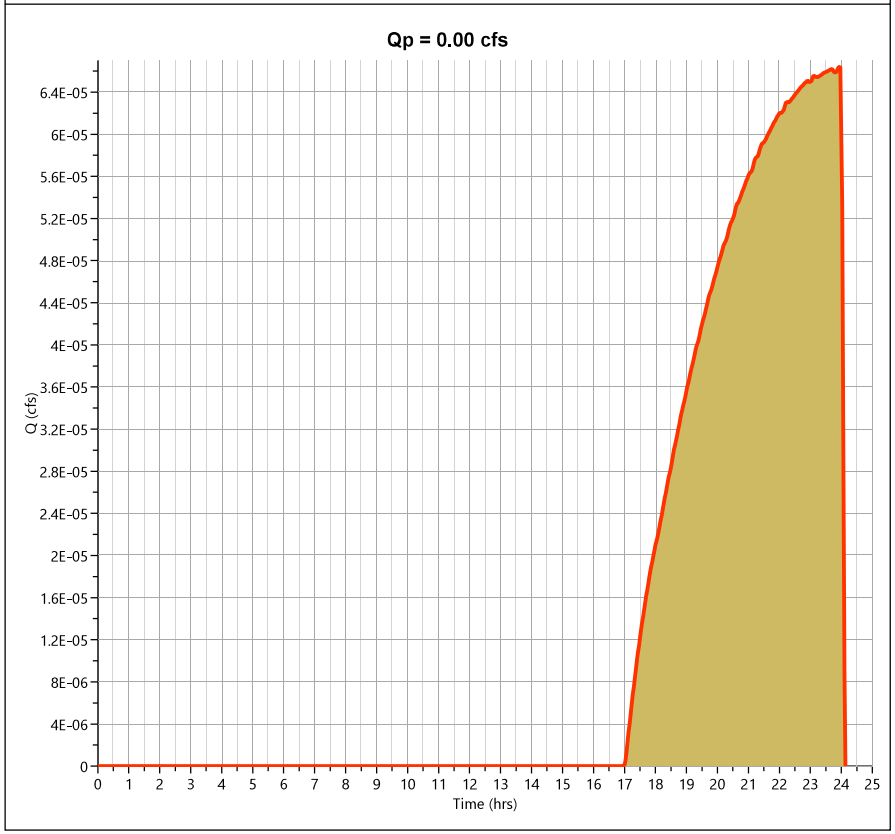
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.000 cfs
Storm Frequency	= 2-yr	Time to Peak	= 24.00 hrs
Time Interval	= 2 min	Runoff Volume	= 1.18 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 3.50 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

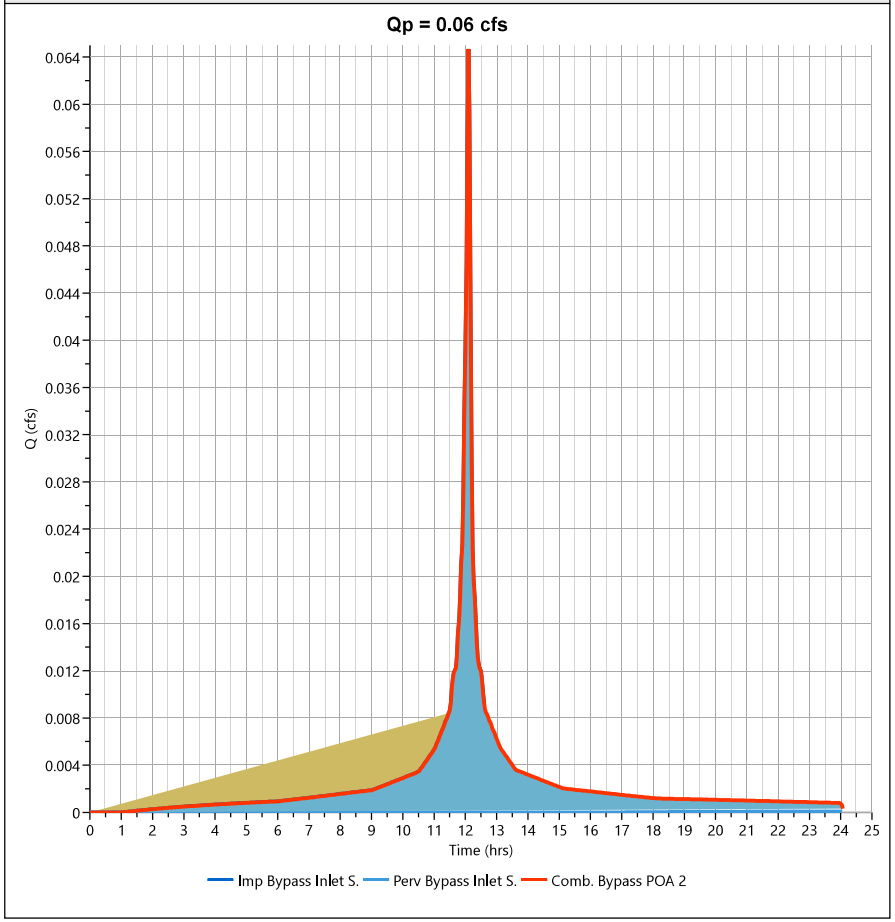
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.065 cfs
Storm Frequency	= 2-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 223 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.187	12.13	753	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.002	12.97	38.7	—		
3	NRCS Runoff	Post Roof Area DA3	1.248	12.17	5,626	—		
4	NRCS Runoff	Post Deck DA3	1.377	12.17	6,208	—		
5	NRCS Runoff	Post Pervious Pavement	0.646	12.17	2,910	—		
6	NRCS Runoff	Post Pervious DA 1	0.003	12.50	49.8	—		
7	NRCS Runoff	Post Roof Area DA1	0.504	12.10	1,764	—		
8	NRCS Runoff	Post Pervious DA2	0.005	12.50	89.7	—		
9	NRCS Runoff	Post Roof Area DA2	2.519	12.10	8,818	—		
10	Junction	Pre DA 1 - POA 2	0.187	12.13	791	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.001	12.60	11.0	—		
12	NRCS Runoff	Post Impervious DA3	0.215	12.17	970	—		
13	Junction	Post Underground Basin 3	3.486	12.17	15,725	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.504	12.10	1,814	6, 7		
15	Junction	Post Basin 2	2.519	12.10	8,908	8, 9		
16	Pond Route	Post Basin 2	0.000	14.57	0.000	15	14.51	2,516
17	Pond Route	Post Basin 1	0.000	15.77	0.001	14	14.75	538
18	Junction	Post COMBINED TO UG BASIN	3.486	12.17	15,725	13, 16		
19	Pond Route	Post UG Basin 3	0.000	12.33	0.000	18	12.66	3,570
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.344	12.17	1,552	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.021	13.30	570	—		
22	Junction	Pre DA 2	0.344	12.17	2,122	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.026	13.00	598	—		
24	Junction	Pre COMBINED TO POA 1	0.344	12.17	2,720	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.005	12.50	79.7	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.202	12.10	705	—		
27	Junction	COMB. INLET N.	0.202	12.10	785	25, 26		
28	Junction	Post COMBINED TO POA 1	0.202	12.10	785	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.002	12.60	32.9	—		
30	NRCS Runoff	Post Bypass Memorial	0.005	12.60	87.7	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.101	12.10	353	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.002	12.50	39.9	—		
33	Junction	Post Comb. Bypass POA 2	0.101	12.10	393	31, 32		

Hydrograph Report

Project Name:

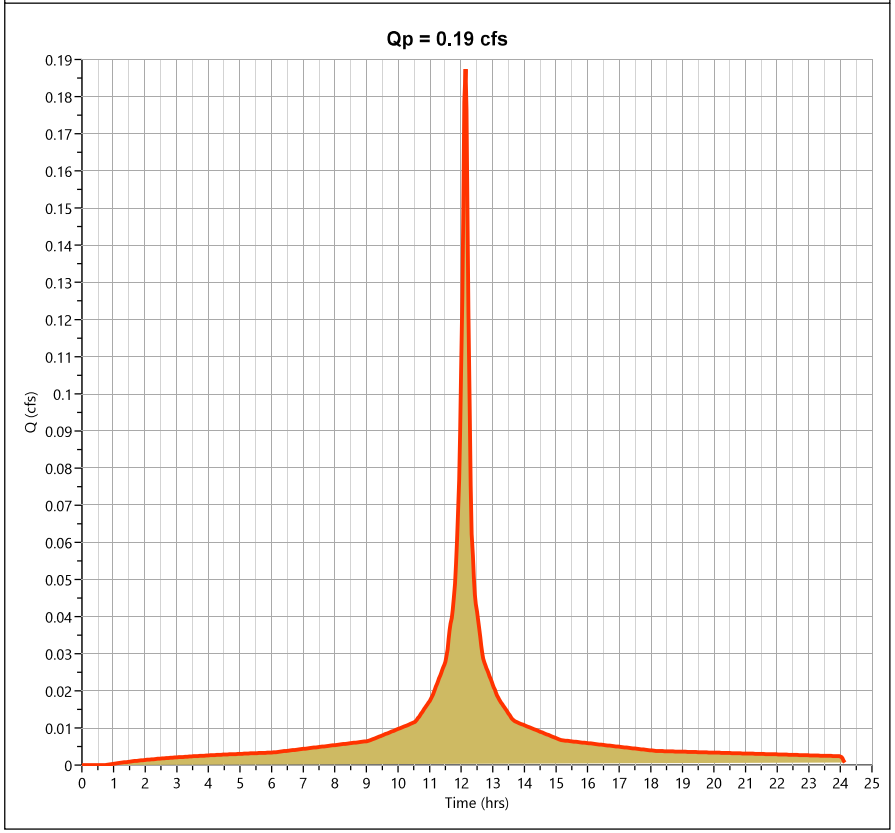
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.187 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 753 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

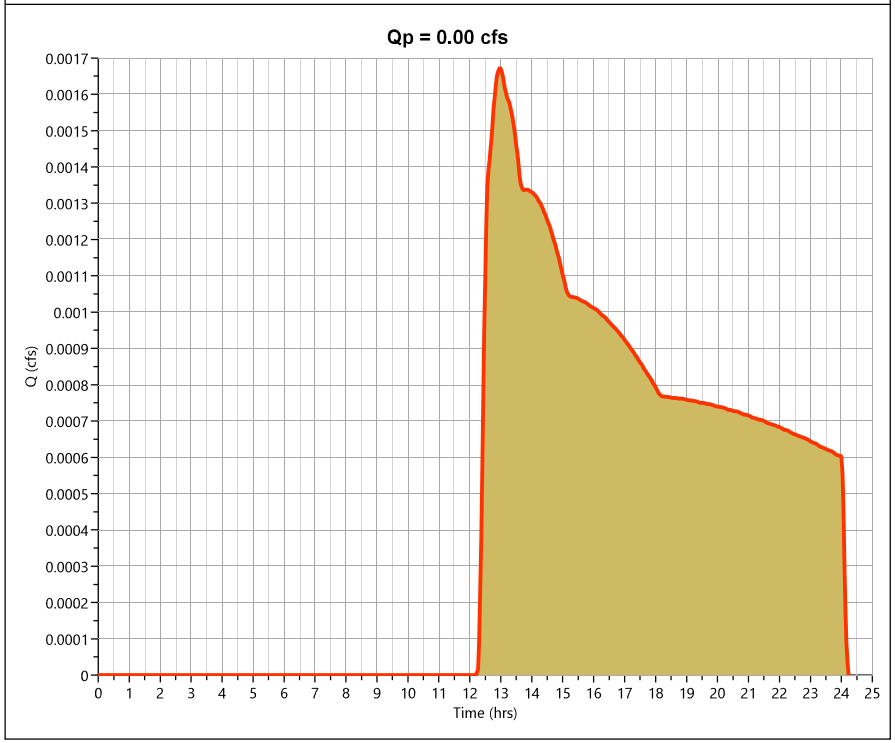
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.97 hrs
Time Interval	= 2 min	Runoff Volume	= 38.7 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

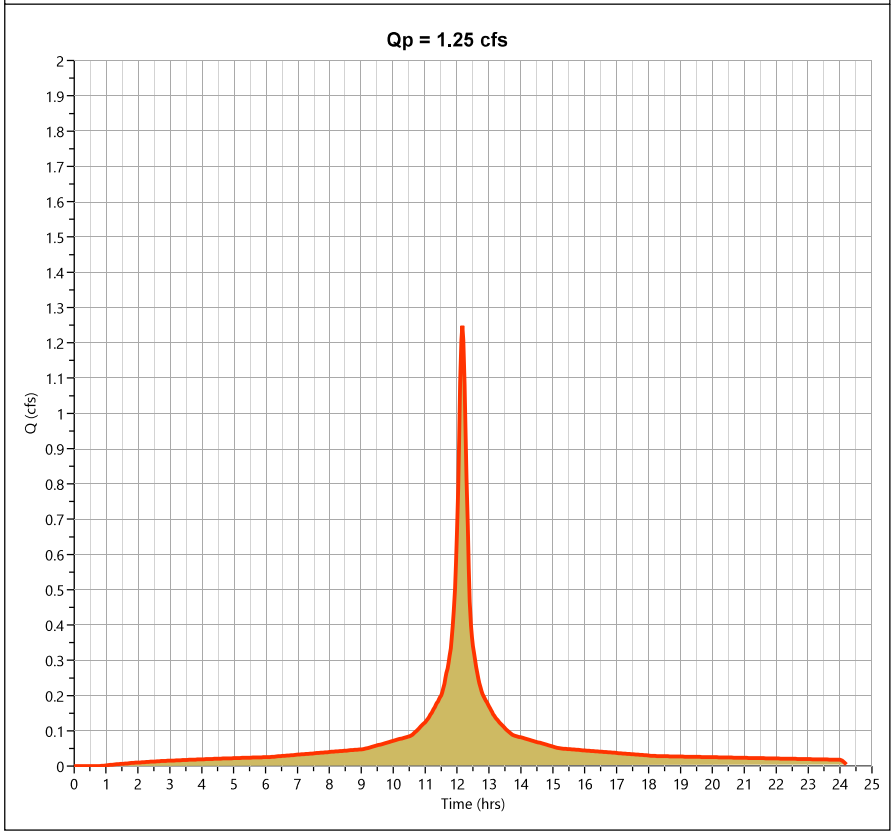
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.248 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 5,626 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

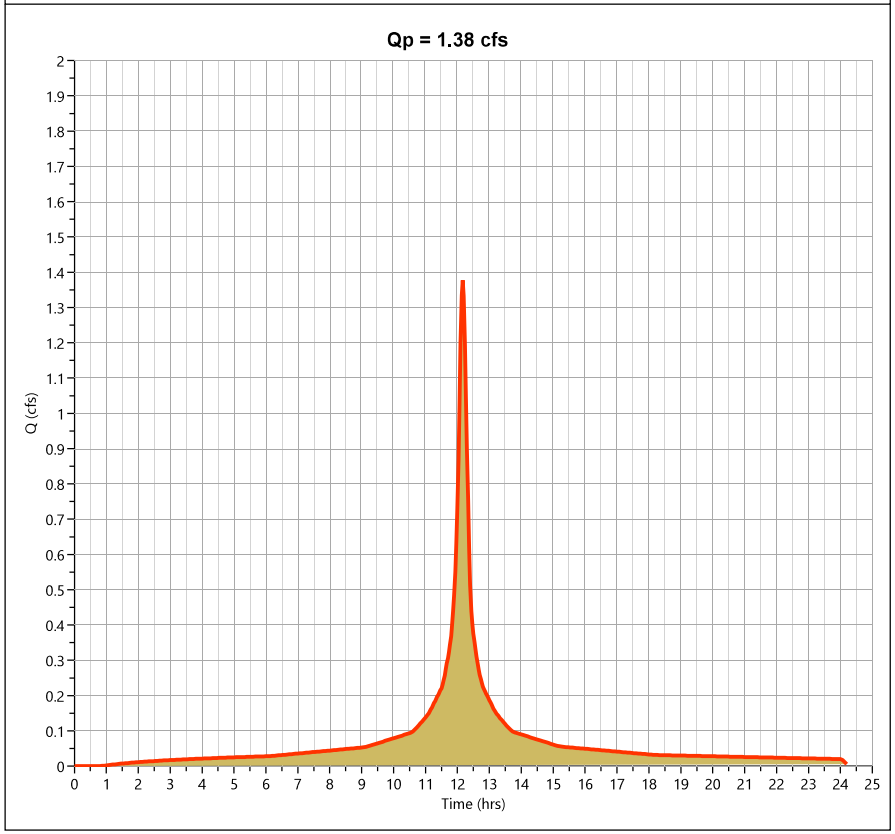
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.377 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 6,208 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

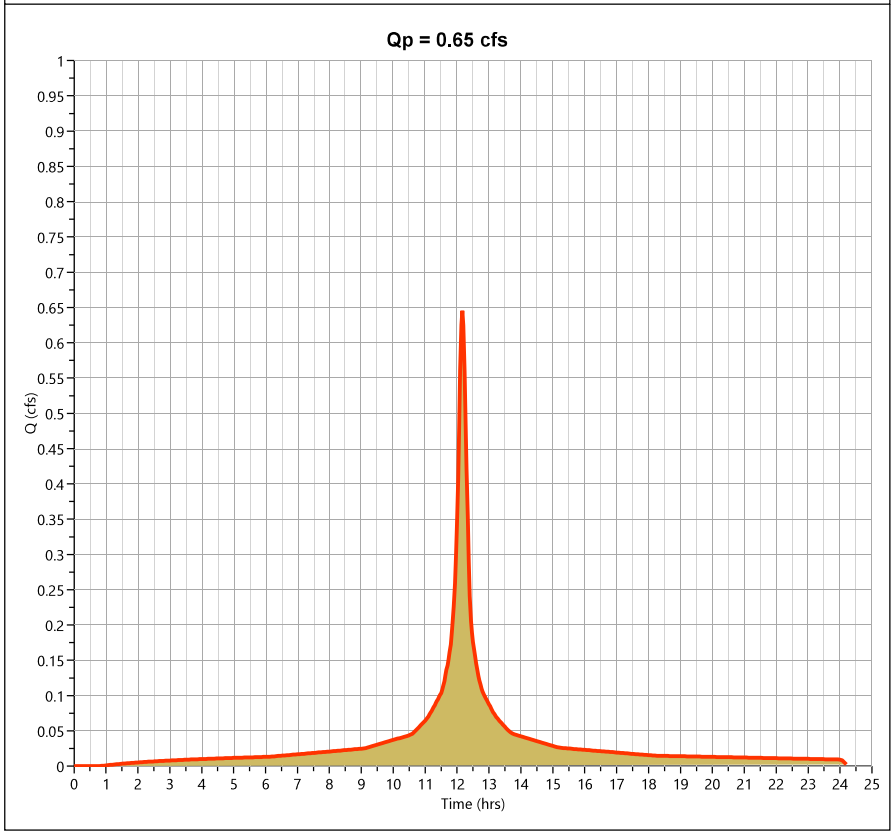
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.646 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 2,910 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

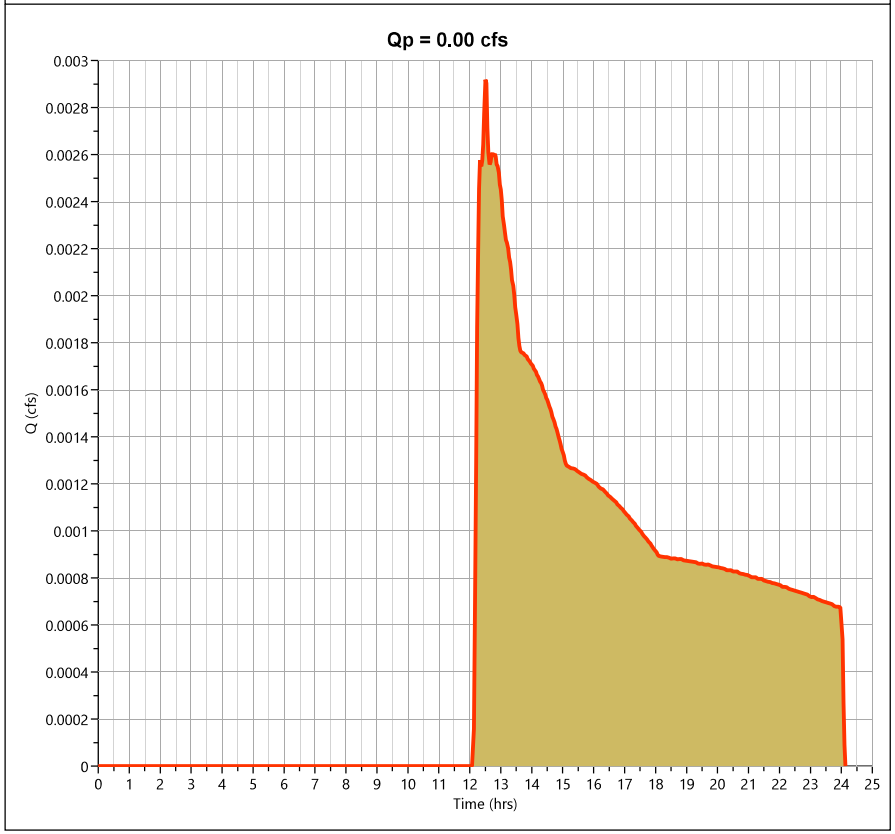
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.003 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 49.8 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

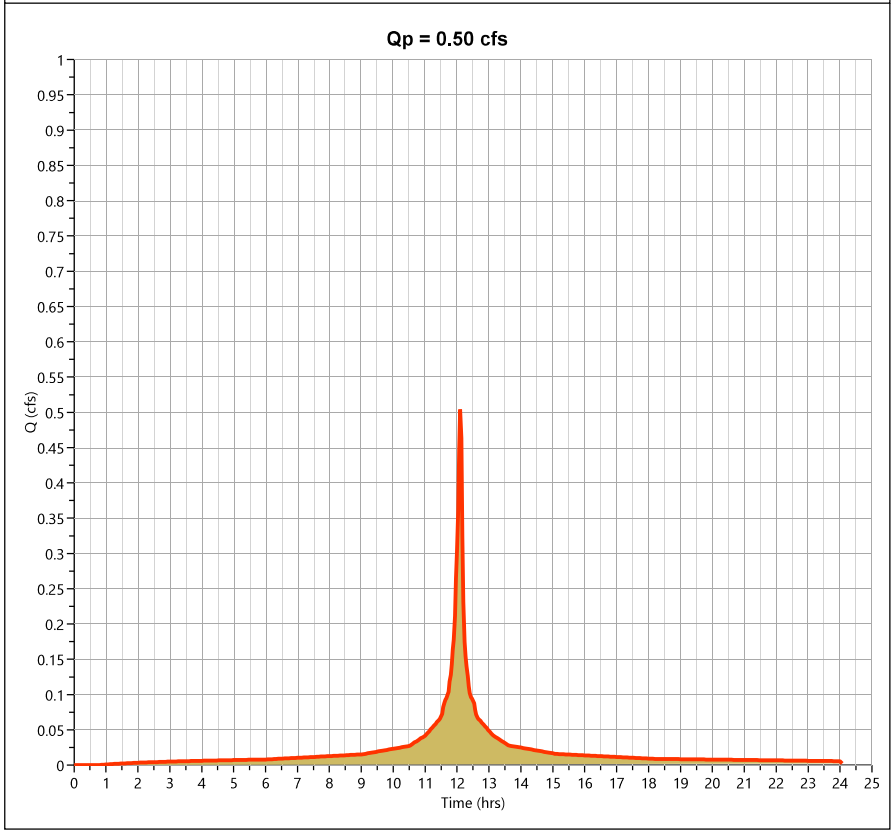
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.504 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,764 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

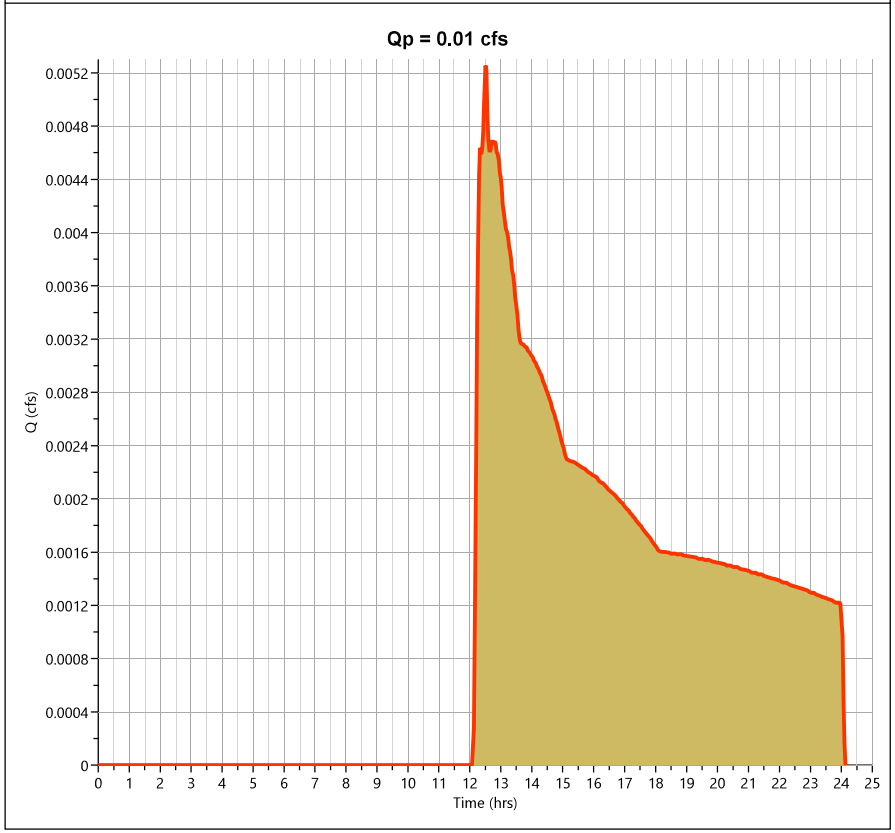
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 89.7 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

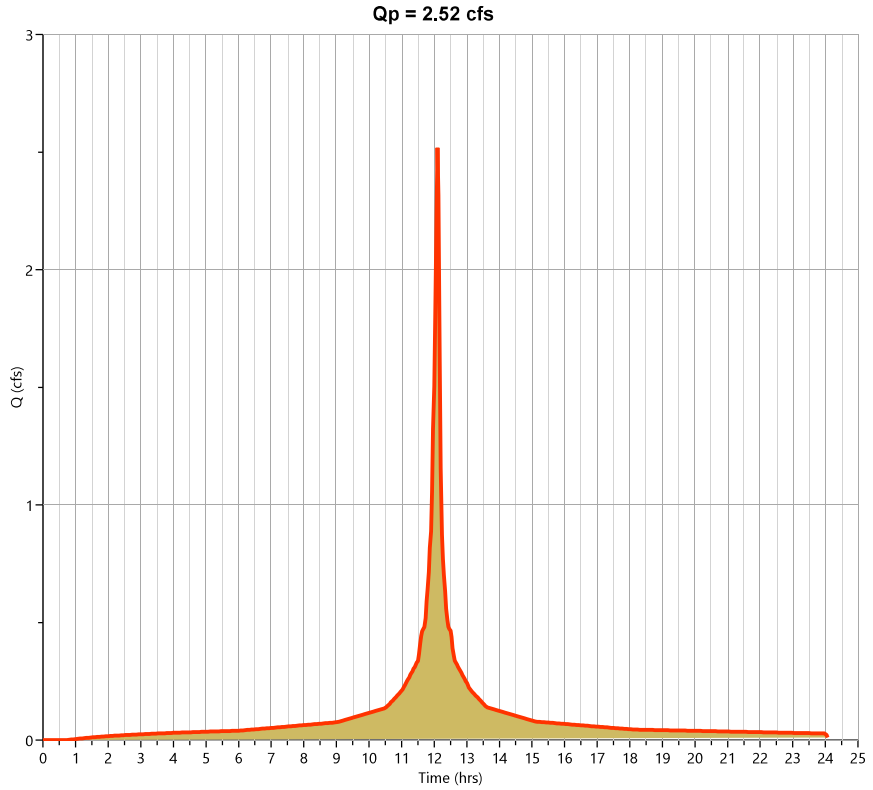
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.519 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 8,818 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

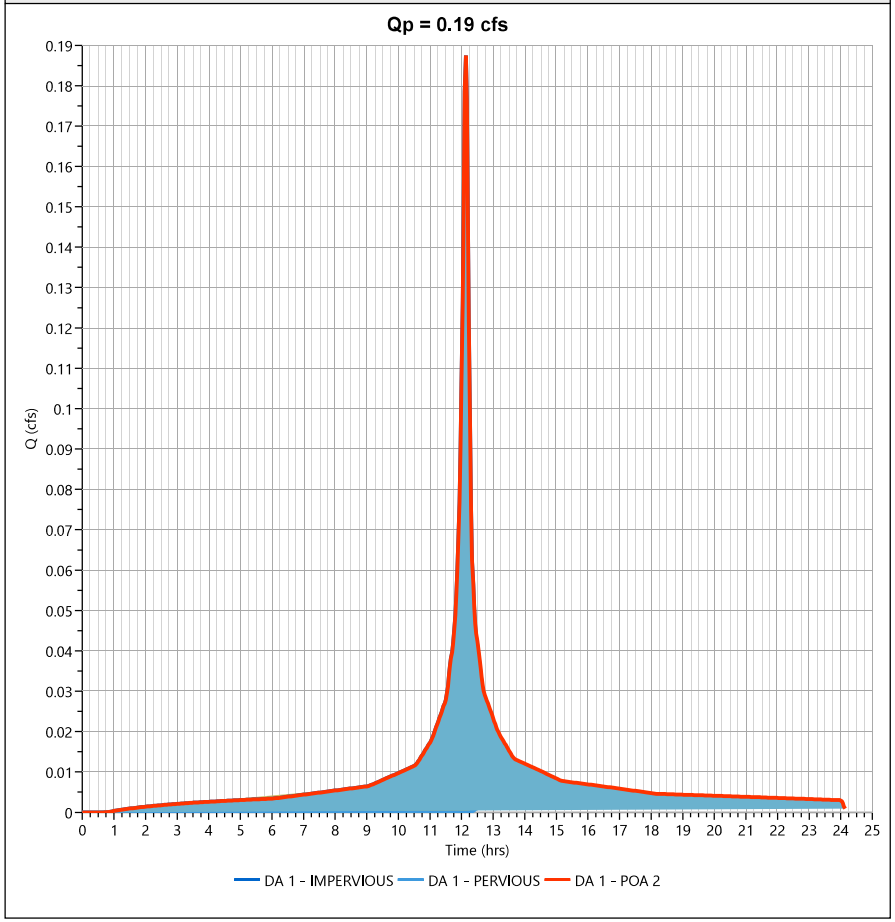
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.187 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 791 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

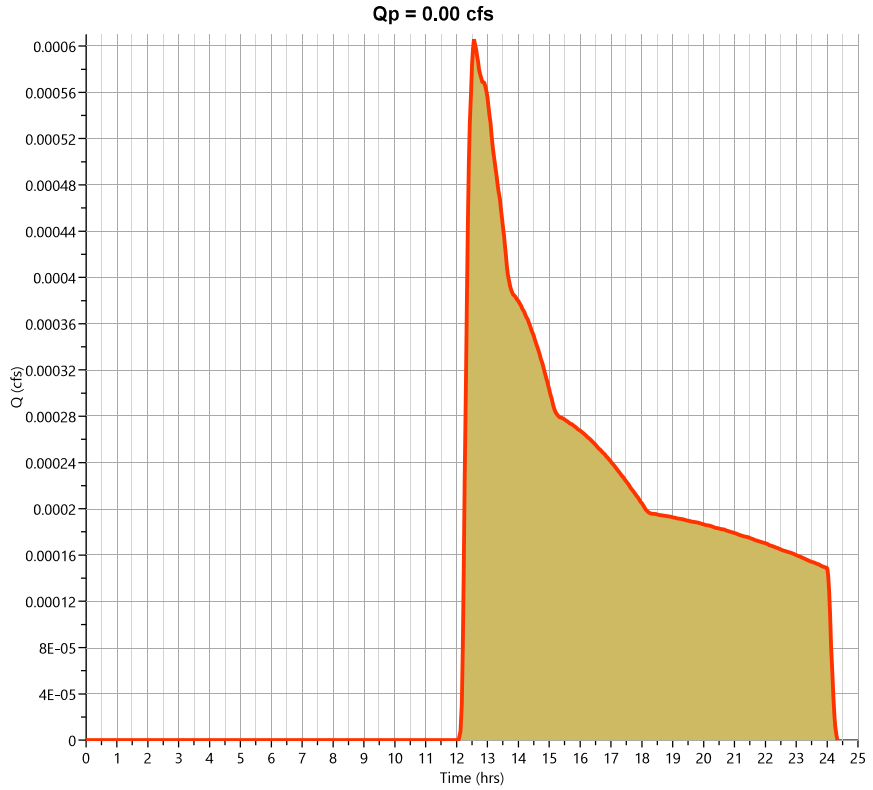
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.001 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 11.0 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

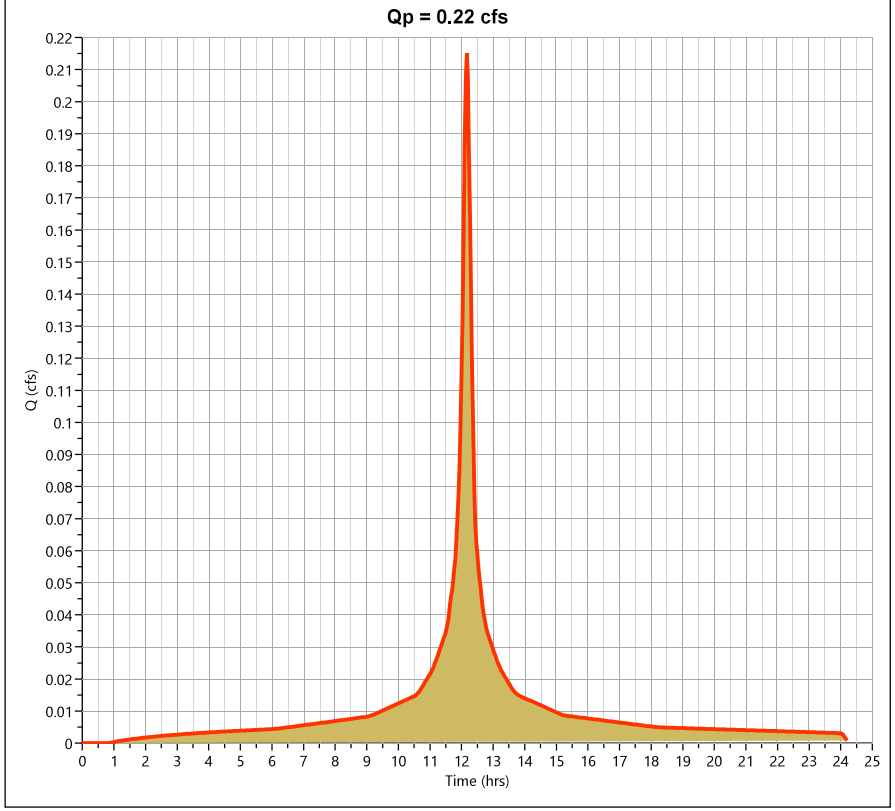
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

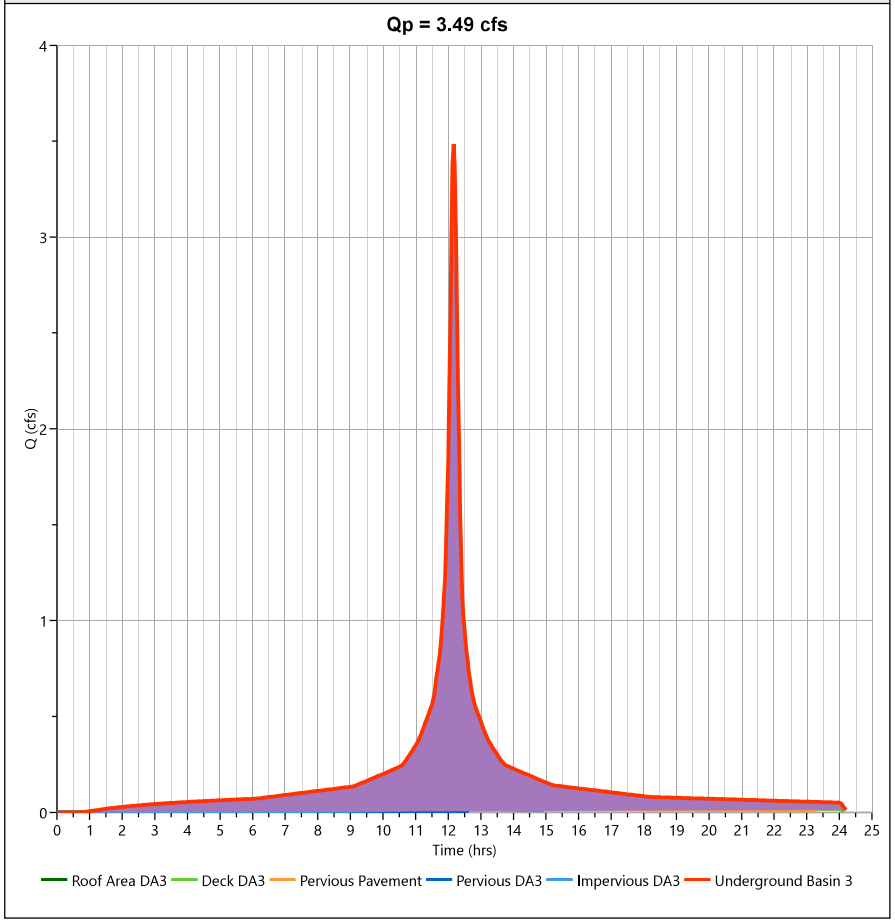
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.215 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 970 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 3.486 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 15,725 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac

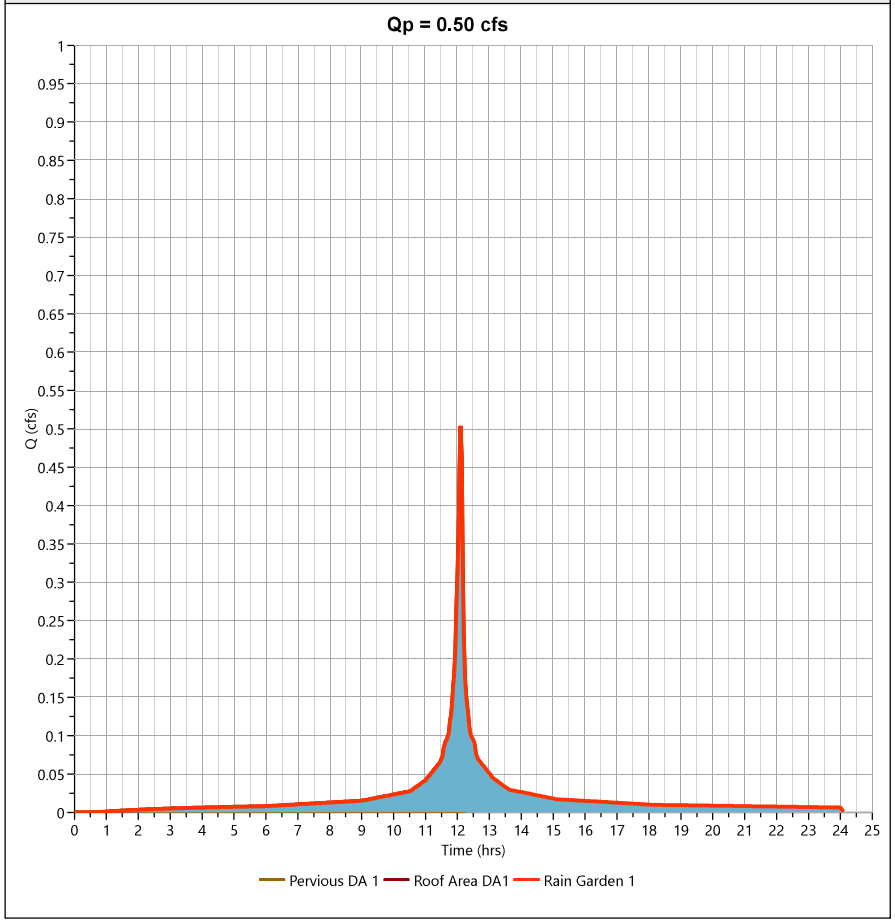


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.504 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,814 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

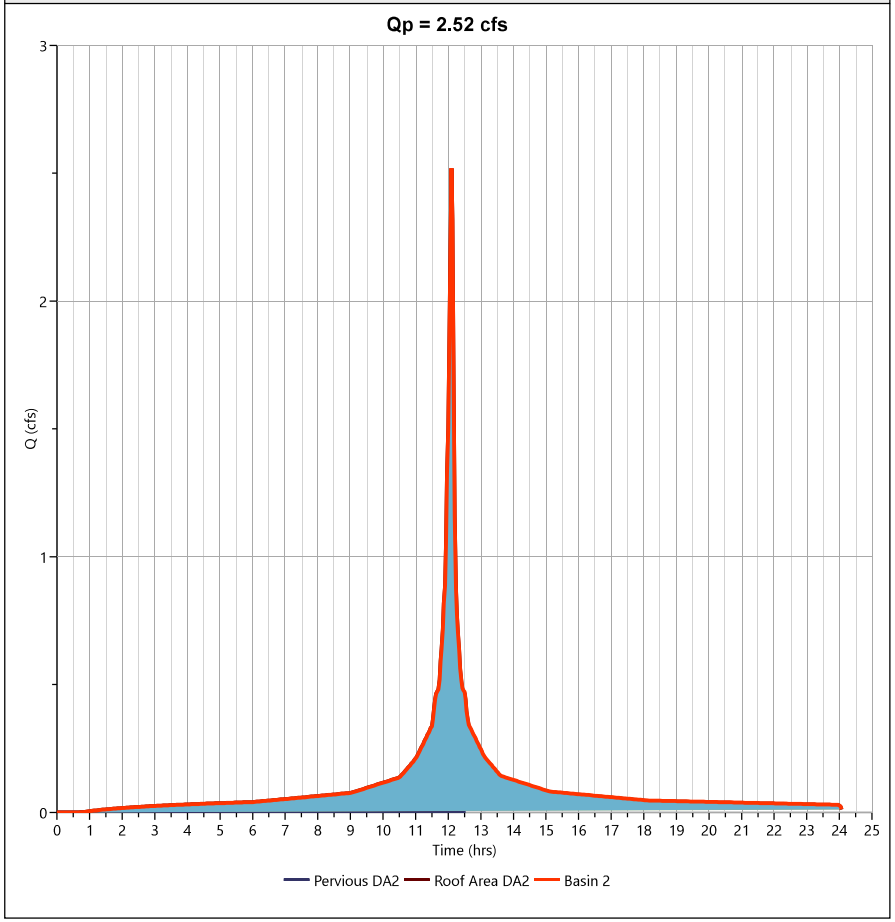
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 2.519 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 8,908 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

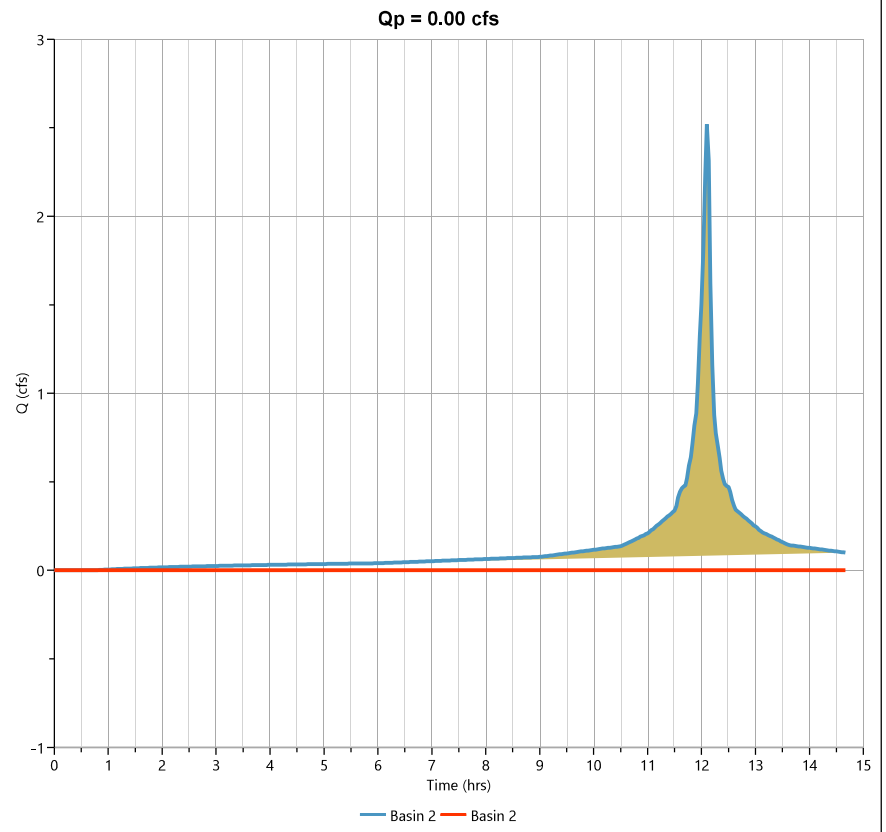
Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 14.57 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 14.51 ft
Pond Name	= Basin 2	Max. Storage	= 2,516 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 8.78 hrs



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

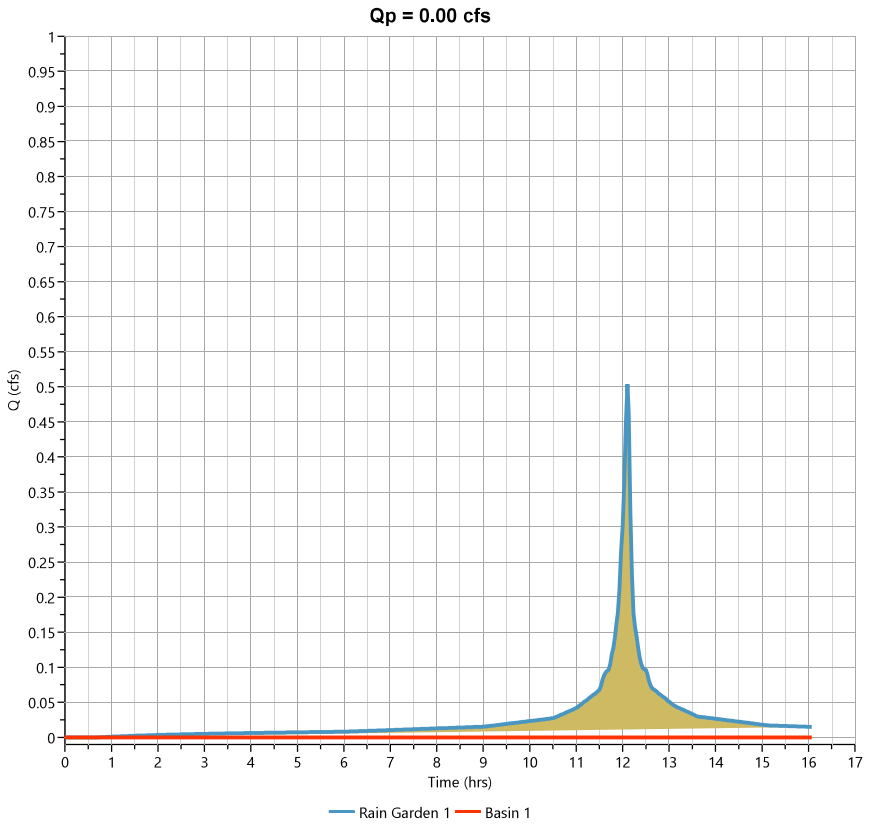
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 15.77 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.001 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.75 ft
Pond Name	= BASIN 1	Max. Storage	= 538 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Project Name:

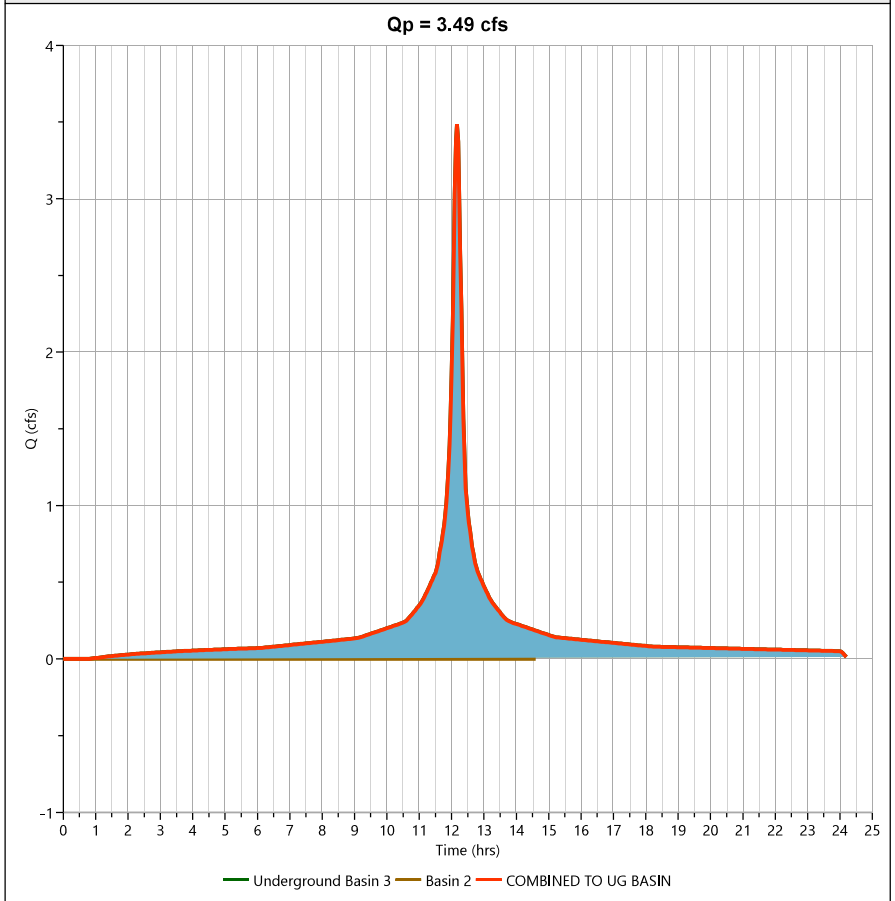
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 3.486 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 15,725 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

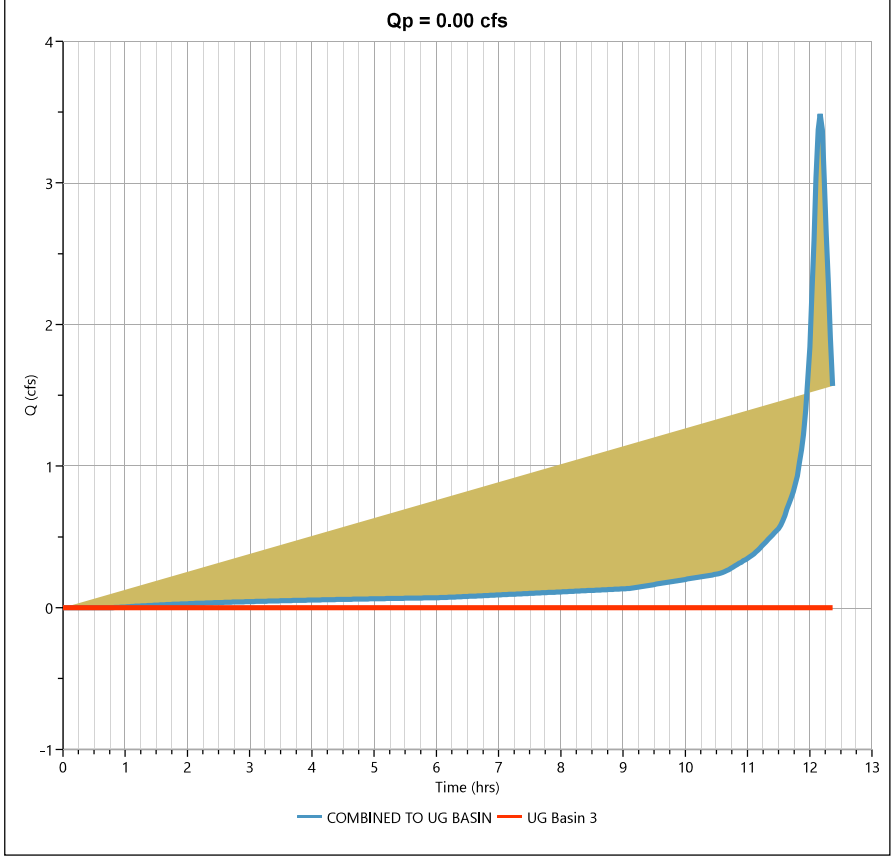


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.33 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 12.66 ft
Pond Name	= UG BASIN 3	Max. Storage	= 3,570 cuft

Pond Routing by Storage Indication Method

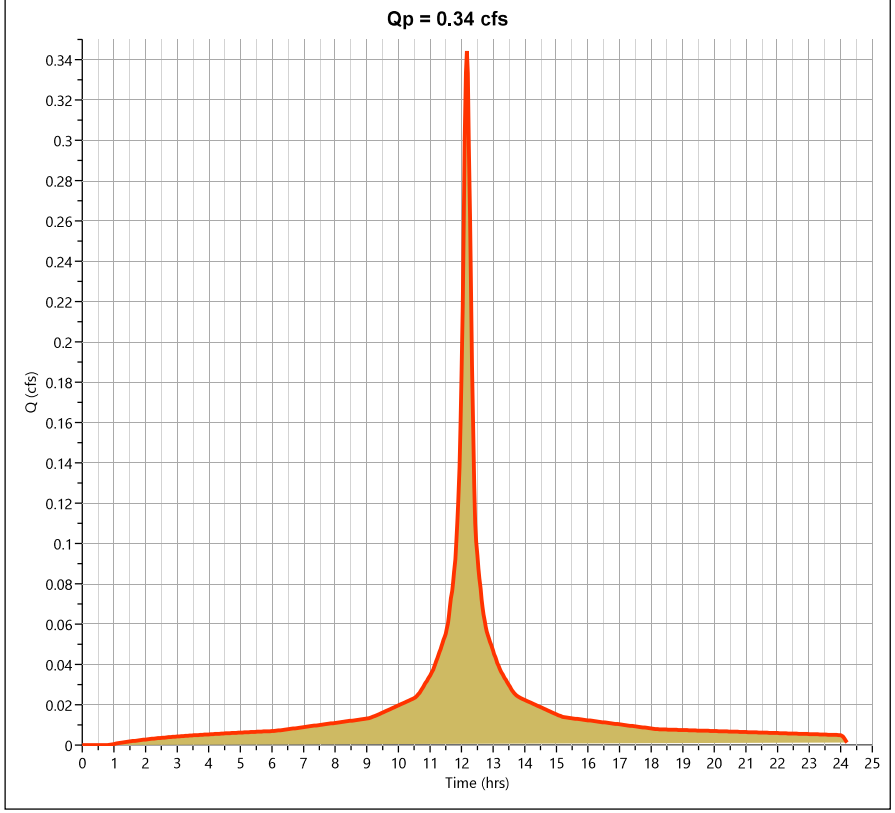


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,552 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



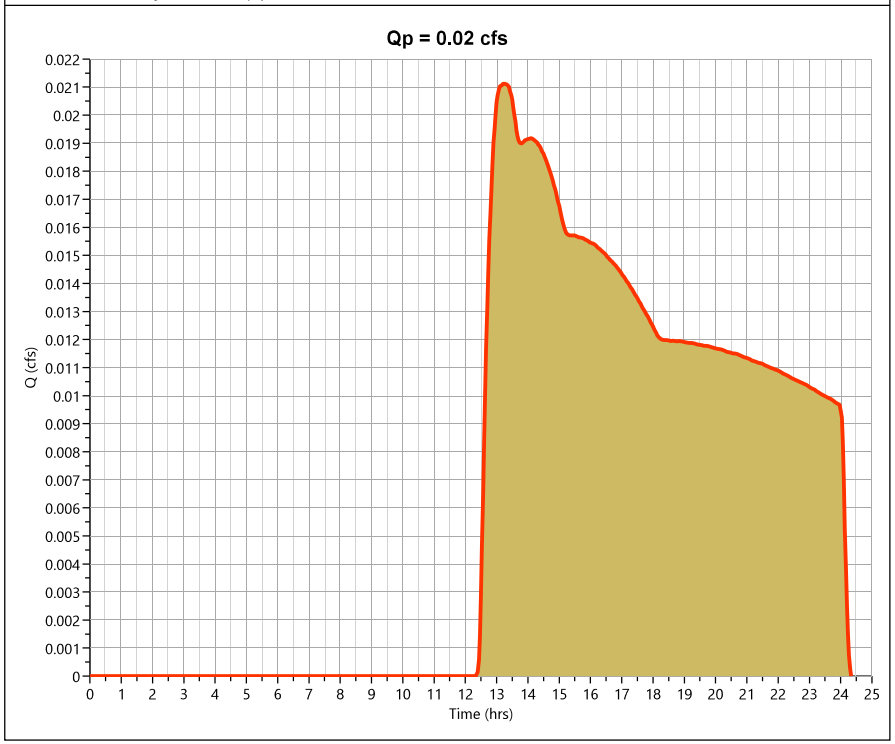
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.021 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.30 hrs
Time Interval	= 2 min	Runoff Volume	= 570 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

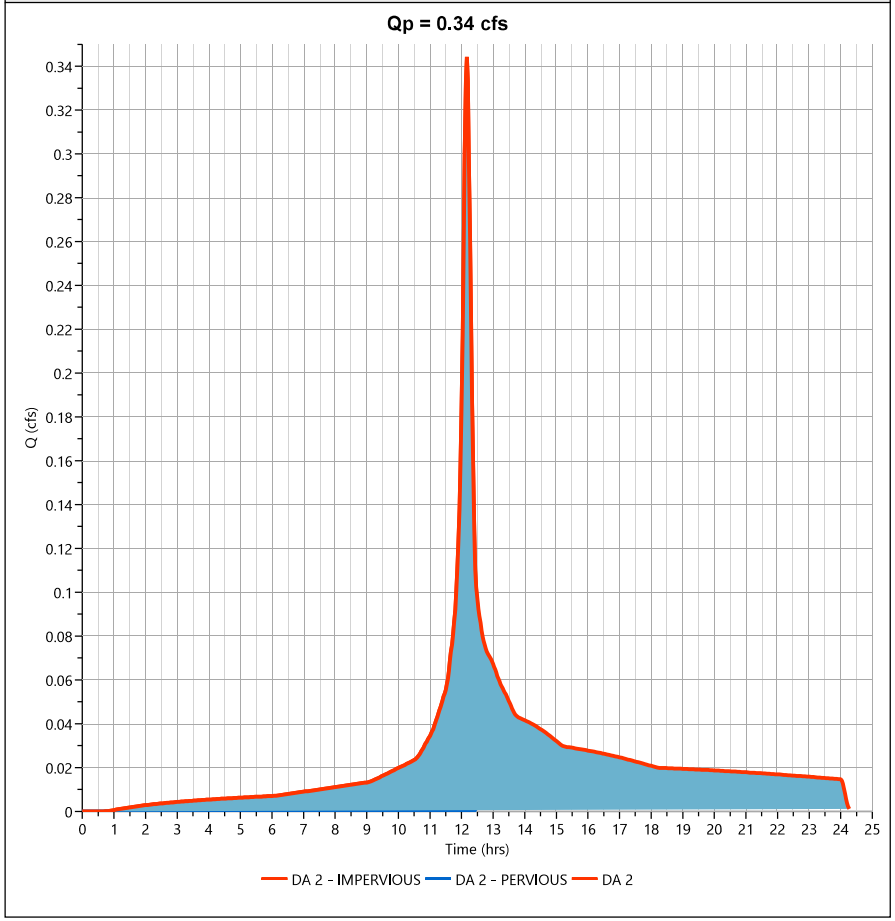


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,122 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



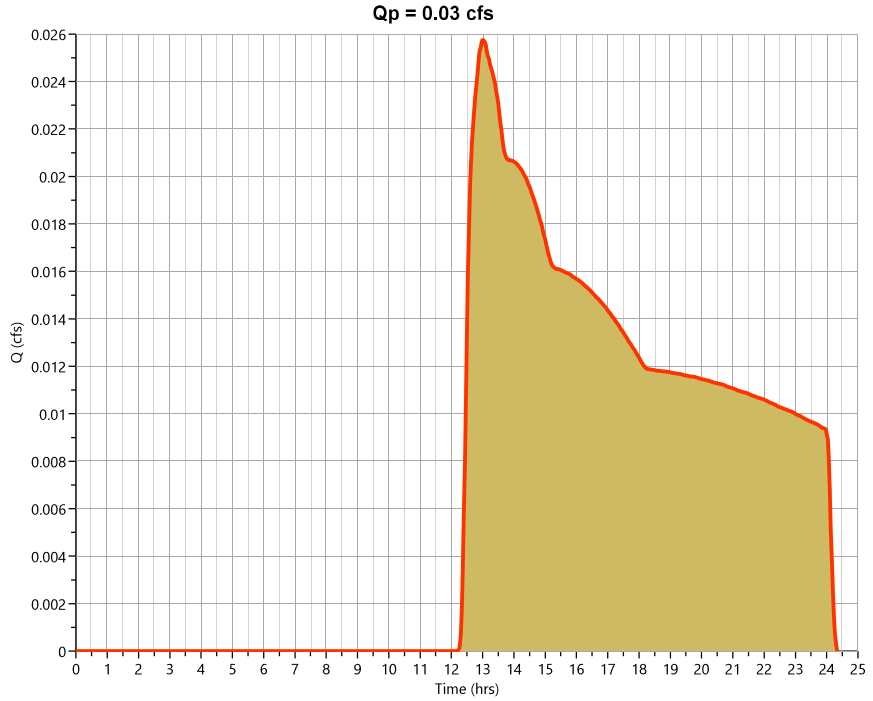
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.026 cfs
Storm Frequency	= 10-yr	Time to Peak	= 13.00 hrs
Time Interval	= 2 min	Runoff Volume	= 598 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

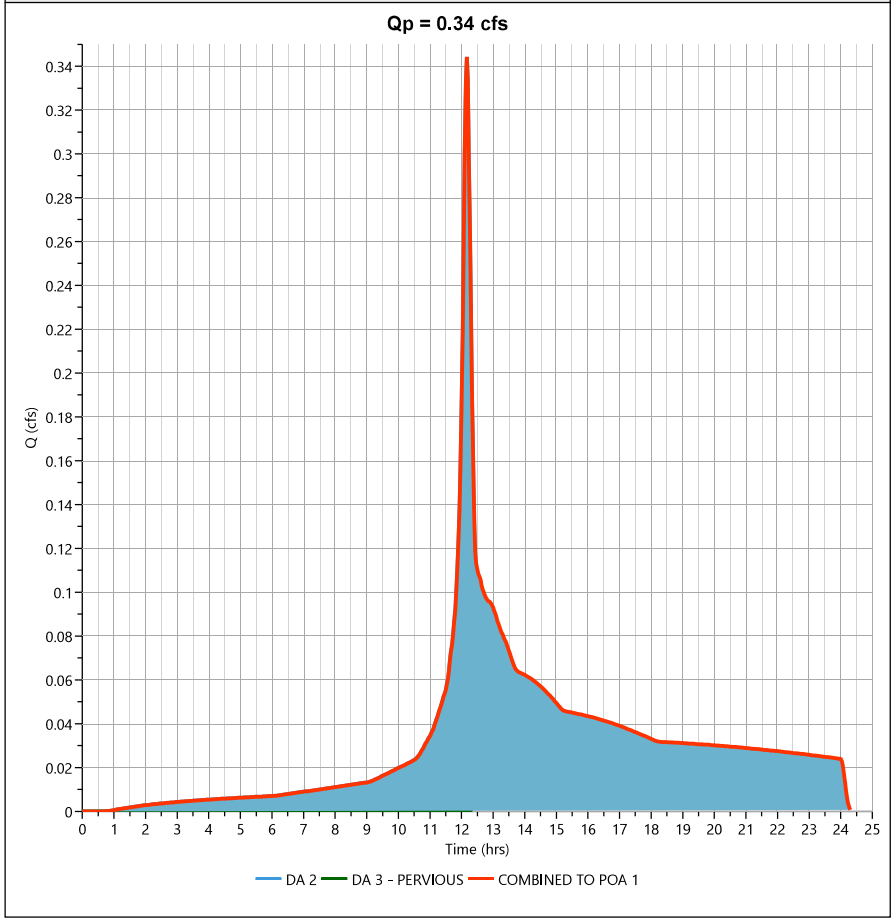


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.344 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,720 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

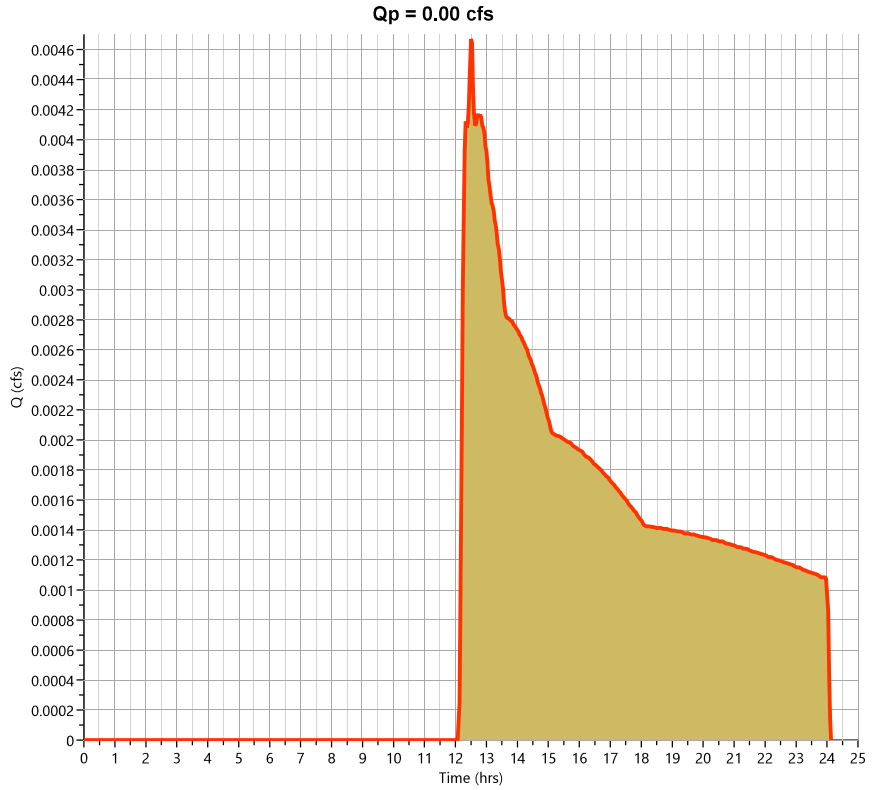
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 79.7 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

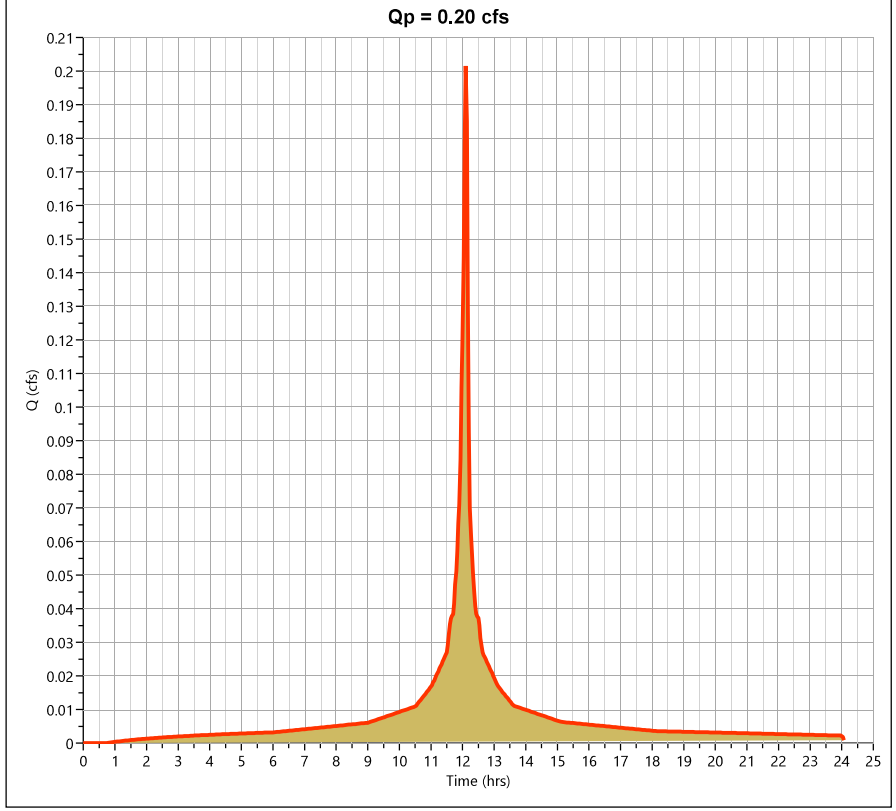
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.202 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 705 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

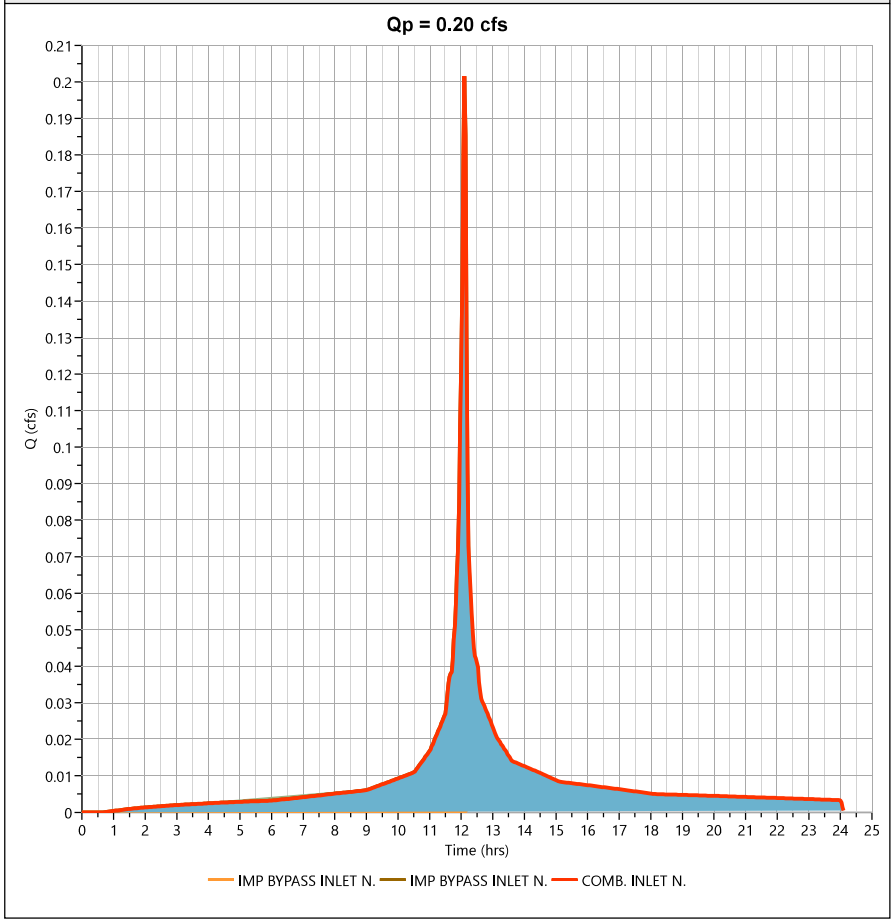
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.202 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 785 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

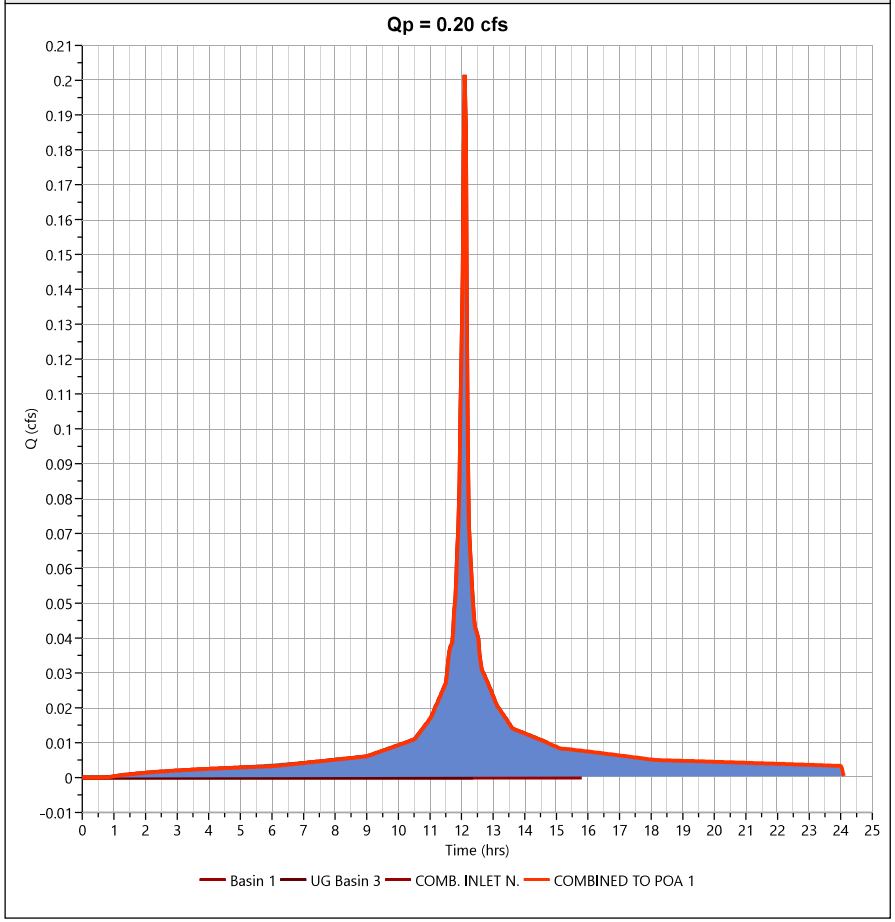
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.202 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 785 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

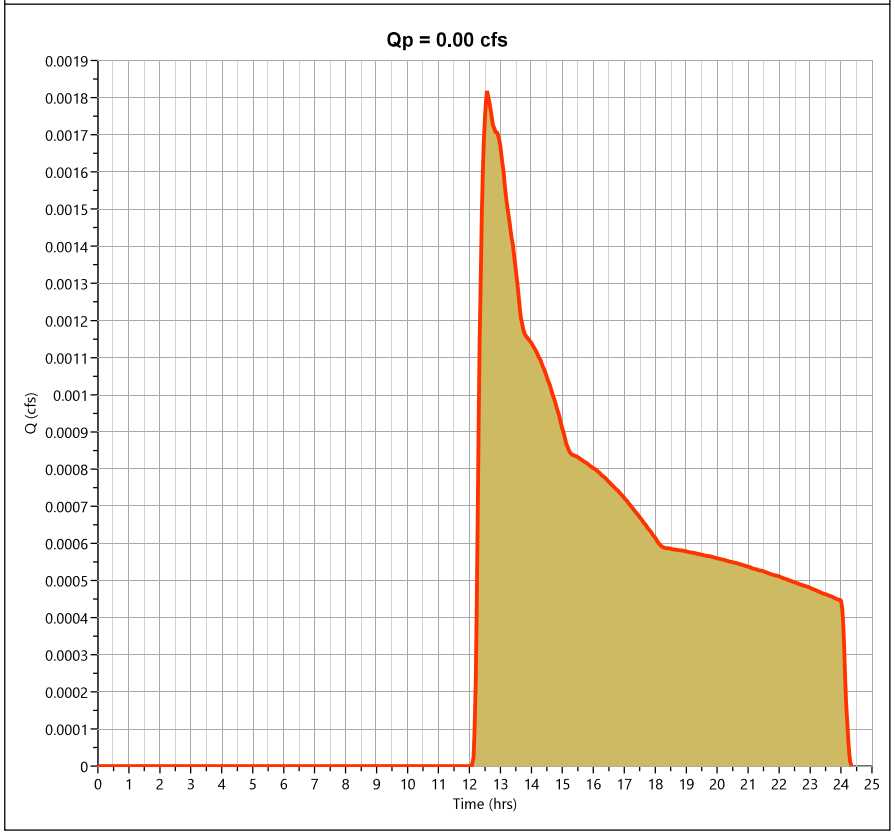
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 32.9 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

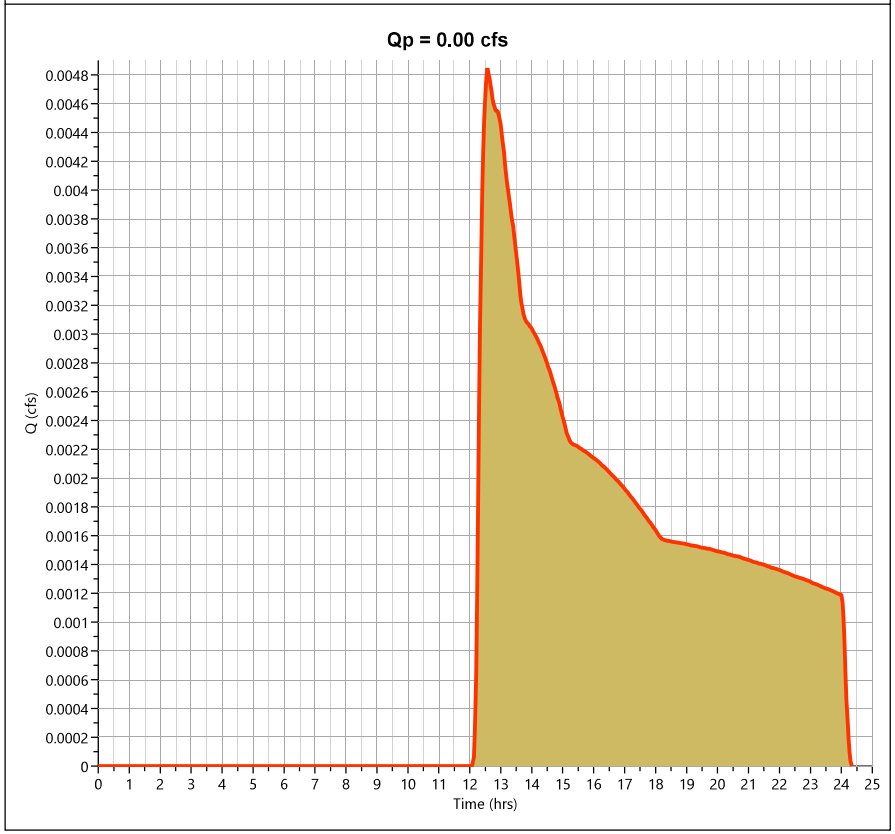
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.005 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Runoff Volume	= 87.7 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

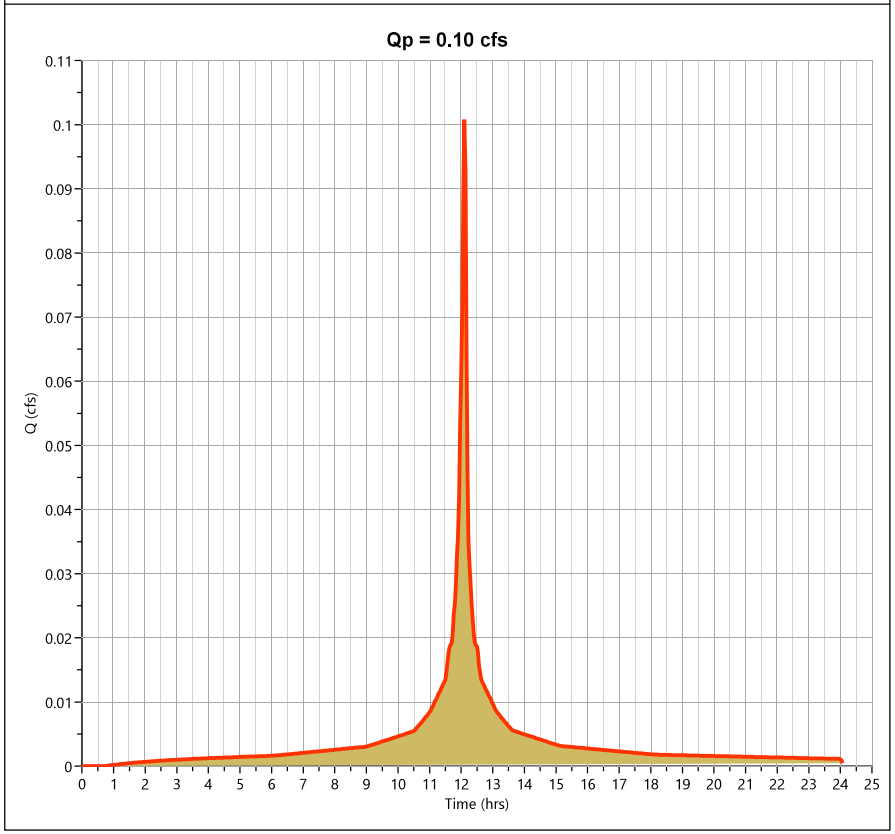
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.101 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 353 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

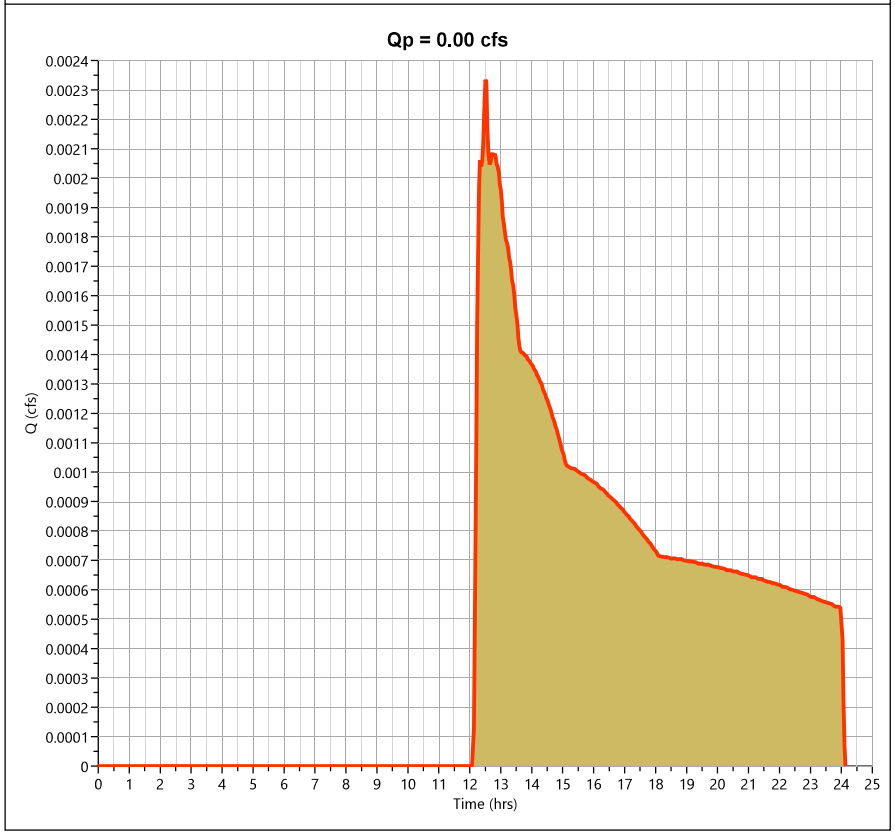
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.002 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Runoff Volume	= 39.9 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 5.42 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

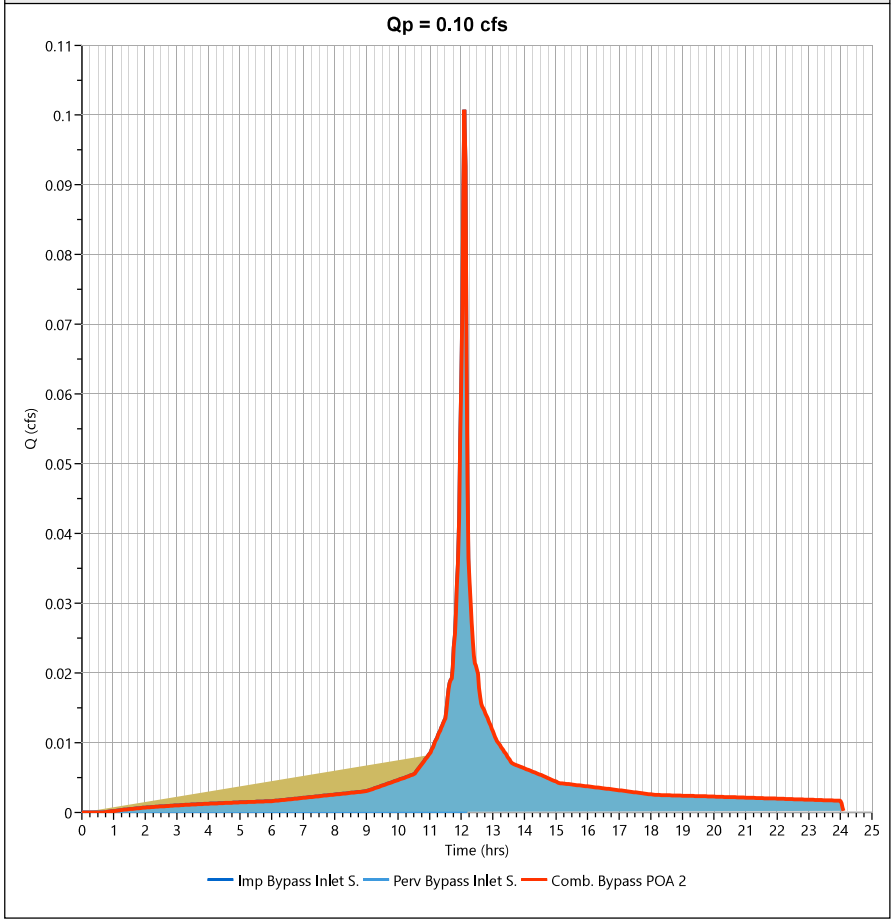
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.101 cfs
Storm Frequency	= 10-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 393 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 25-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.234	12.13	947	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.010	12.27	100	—		
3	NRCS Runoff	Post Roof Area DA3	1.559	12.17	7,079	—		
4	NRCS Runoff	Post Deck DA3	1.721	12.17	7,812	—		
5	NRCS Runoff	Post Pervious Pavement	0.806	12.17	3,662	—		
6	NRCS Runoff	Post Pervious DA 1	0.020	12.13	116	—		
7	NRCS Runoff	Post Roof Area DA1	0.629	12.10	2,219	—		
8	NRCS Runoff	Post Pervious DA2	0.036	12.13	210	—		
9	NRCS Runoff	Post Roof Area DA2	3.147	12.10	11,096	—		
10	Junction	Pre DA 1 - POA 2	0.240	12.13	1,047	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.003	12.30	25.6	—		
12	NRCS Runoff	Post Impervious DA3	0.269	12.17	1,221	—		
13	Junction	Post Underground Basin 3	4.357	12.17	19,799	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.645	12.10	2,336	6, 7		
15	Junction	Post Basin 2	3.175	12.10	11,306	8, 9		
16	Pond Route	Post Basin 2	0.075	12.60	29.8	15	14.90	3,434
17	Pond Route	Post Basin 1	0.057	12.50	34.8	14	14.95	718
18	Junction	Post COMBINED TO UG BASIN	4.357	12.17	19,829	13, 16		
19	Pond Route	Post UG Basin 3	0.000	12.20	0.000	18	12.96	5,212
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.430	12.17	1,953	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.120	12.37	1,574	—		
22	Junction	Pre DA 2	0.486	12.20	3,527	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.140	12.33	1,549	—		
24	Junction	Pre COMBINED TO POA 1	0.588	12.20	5,077	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.032	12.13	186	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.252	12.10	888	—		
27	Junction	COMB. INLET N.	0.277	12.10	1,074	25, 26		
28	Junction	Post COMBINED TO POA 1	0.277	12.10	1,109	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.009	12.30	76.9	—		
30	NRCS Runoff	Post Bypass Memorial	0.024	12.30	205	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.126	12.10	444	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.016	12.13	93.2	—		
33	Junction	Post Comb. Bypass POA 2	0.139	12.10	537	31, 32		

Hydrograph Report

Project Name:

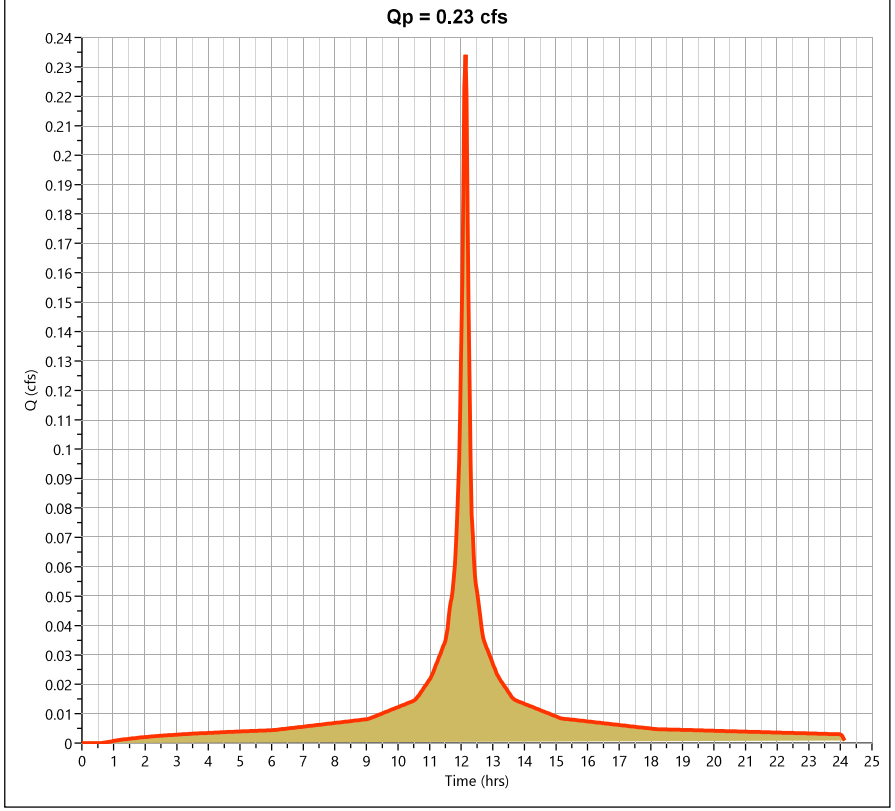
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.234 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 947 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

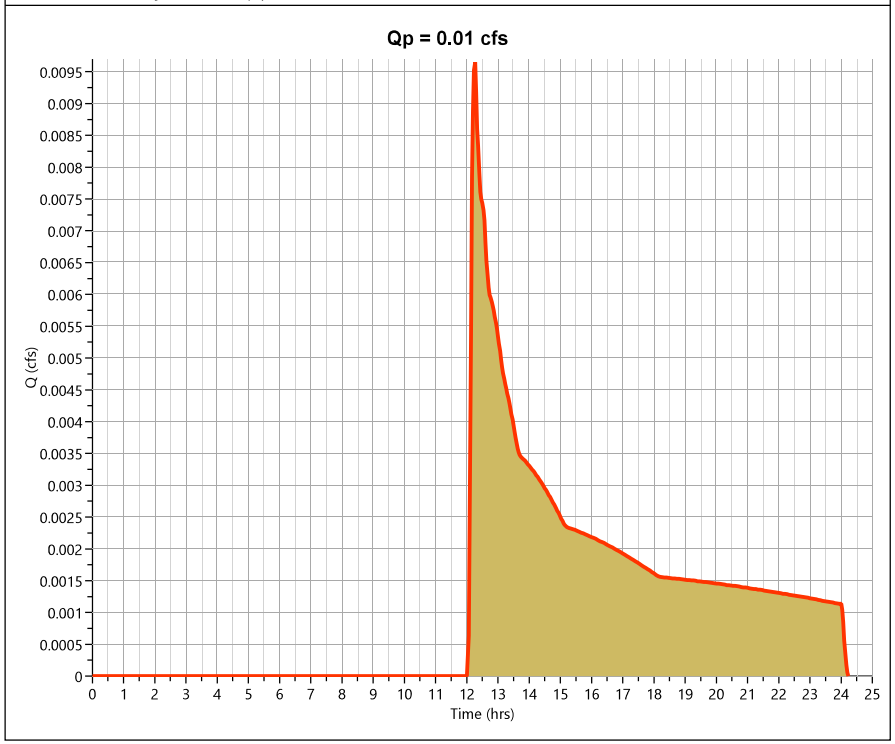
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.010 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Runoff Volume	= 100 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

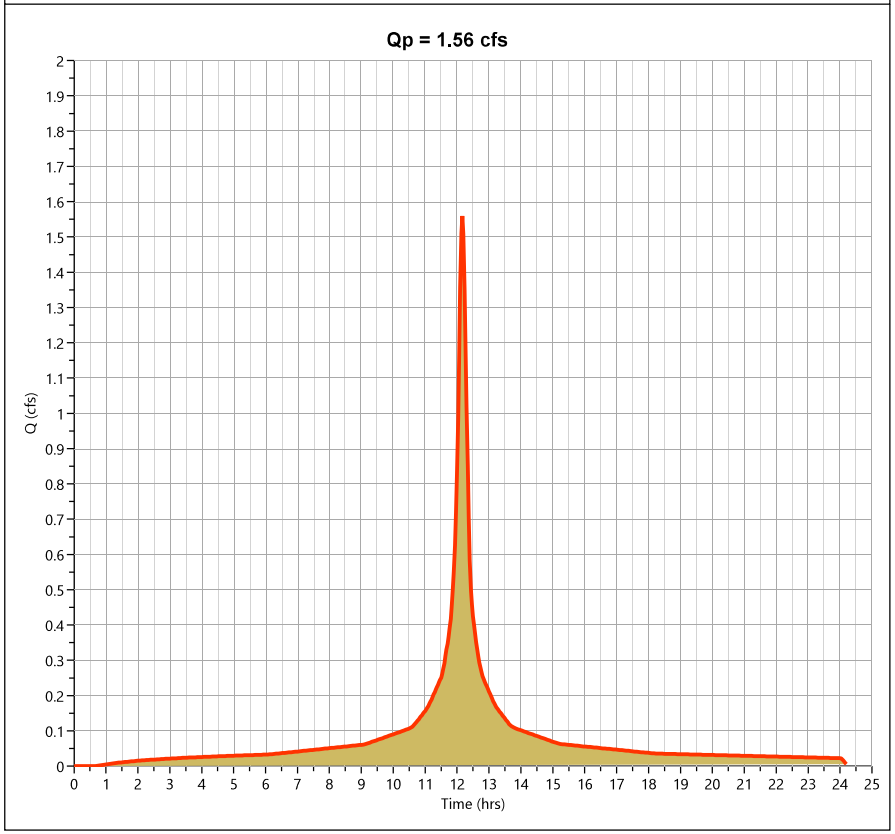
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.559 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 7,079 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

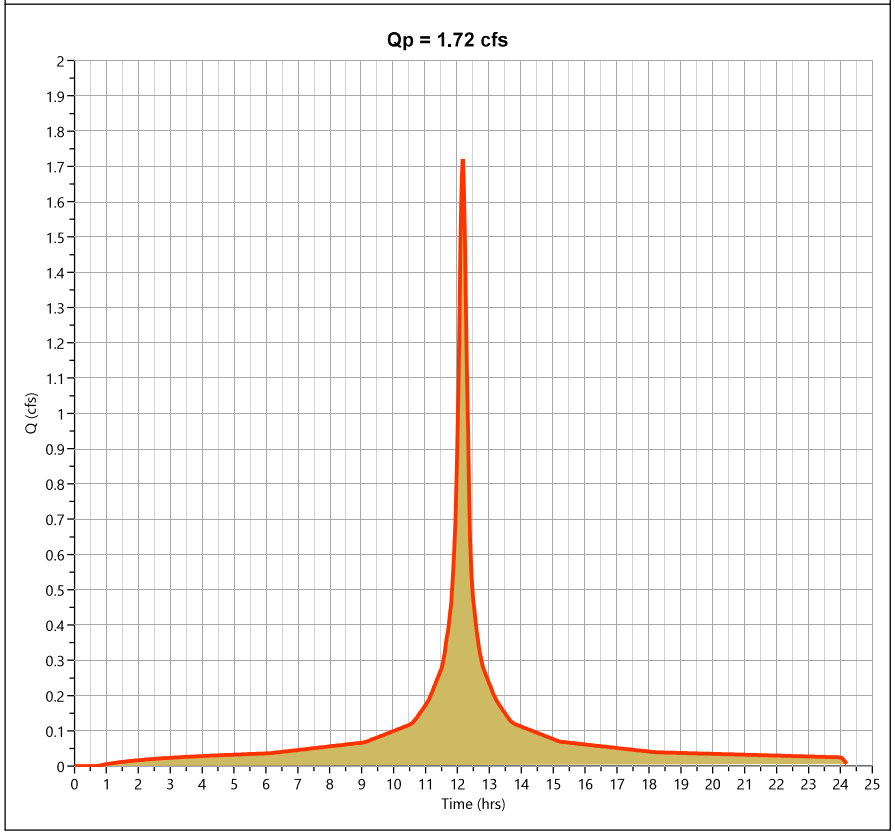
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.721 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 7,812 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

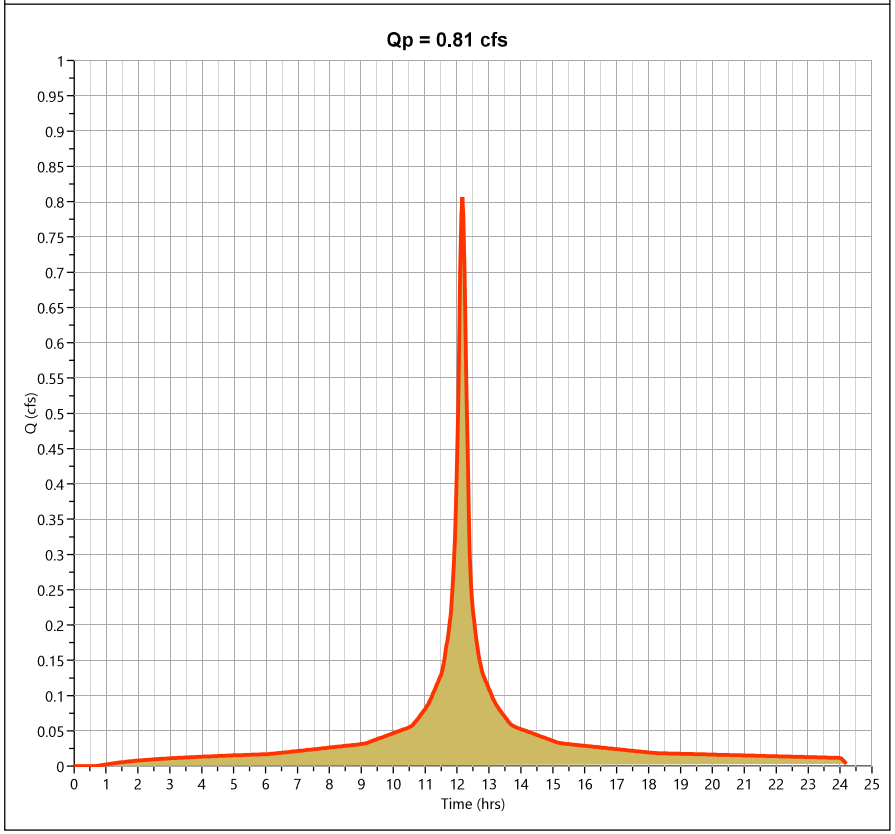
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.806 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 3,662 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

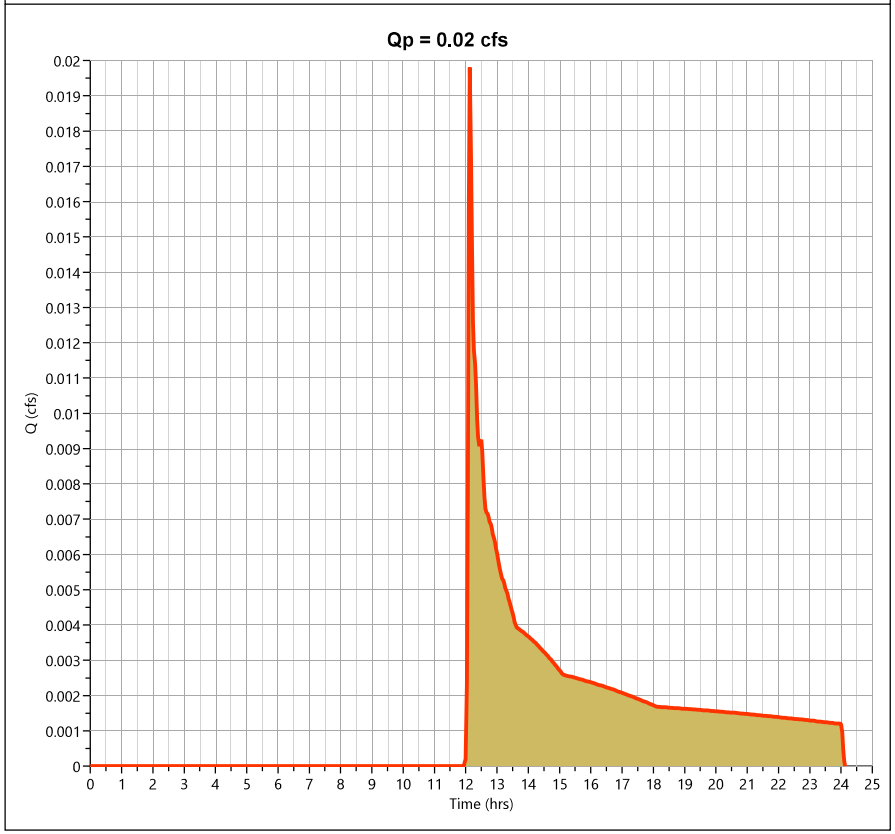
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.020 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 116 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

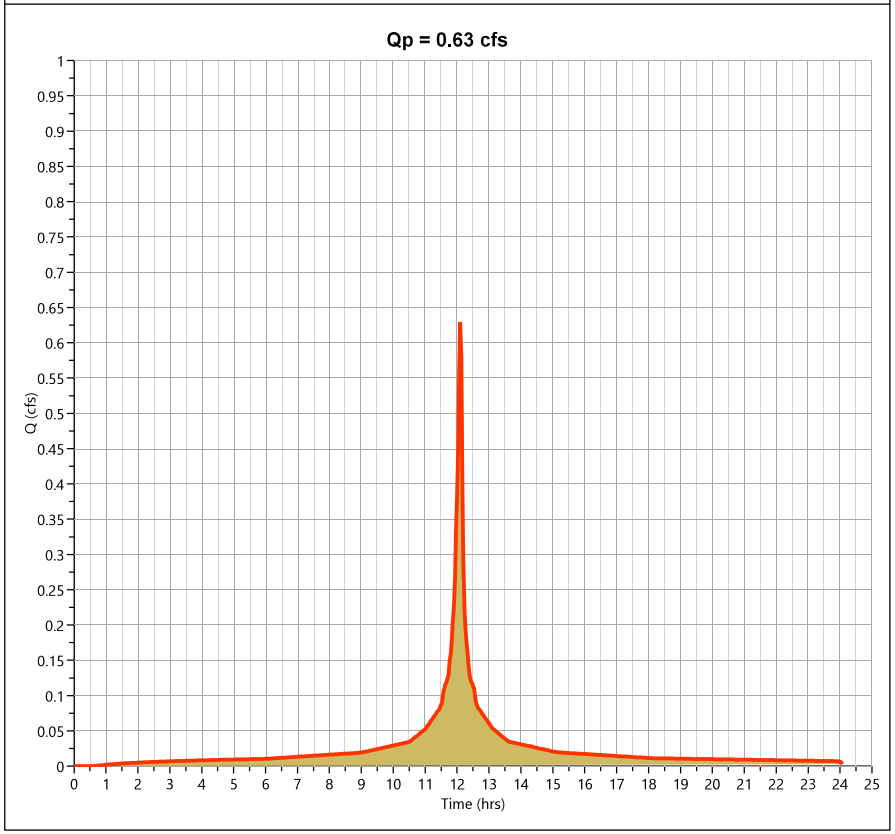
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.629 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 2,219 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

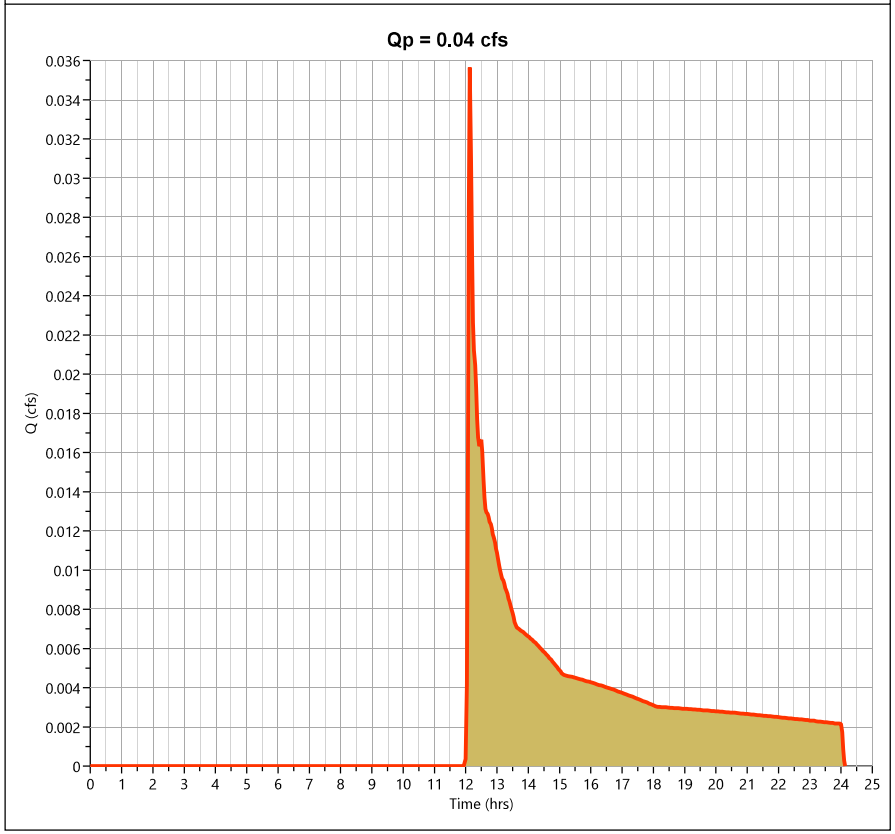
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.036 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 210 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

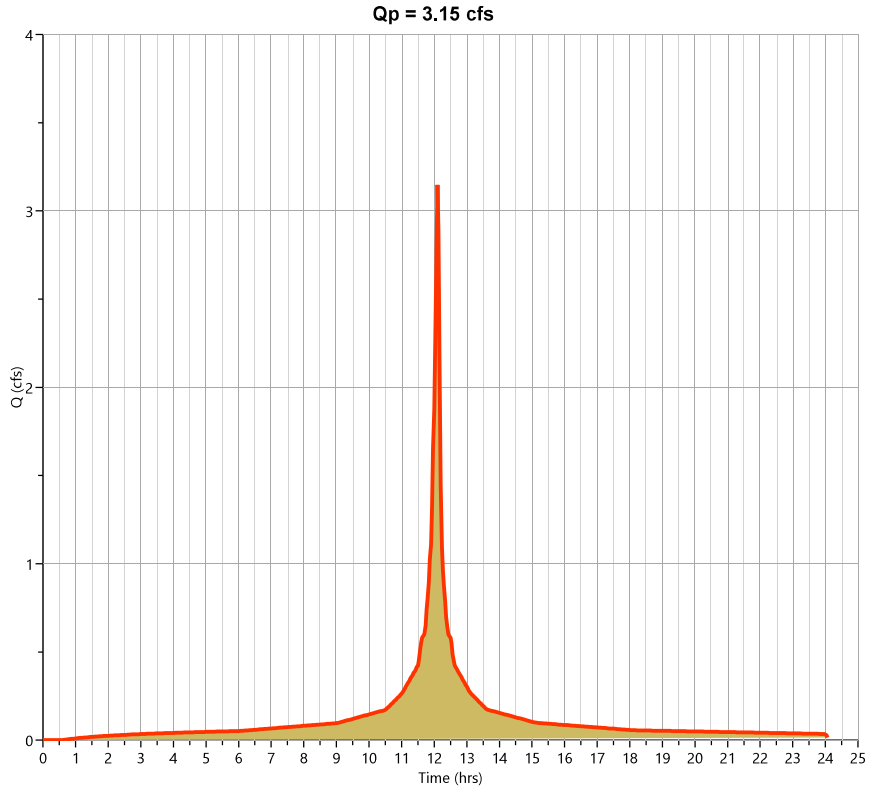
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 3.147 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 11,096 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

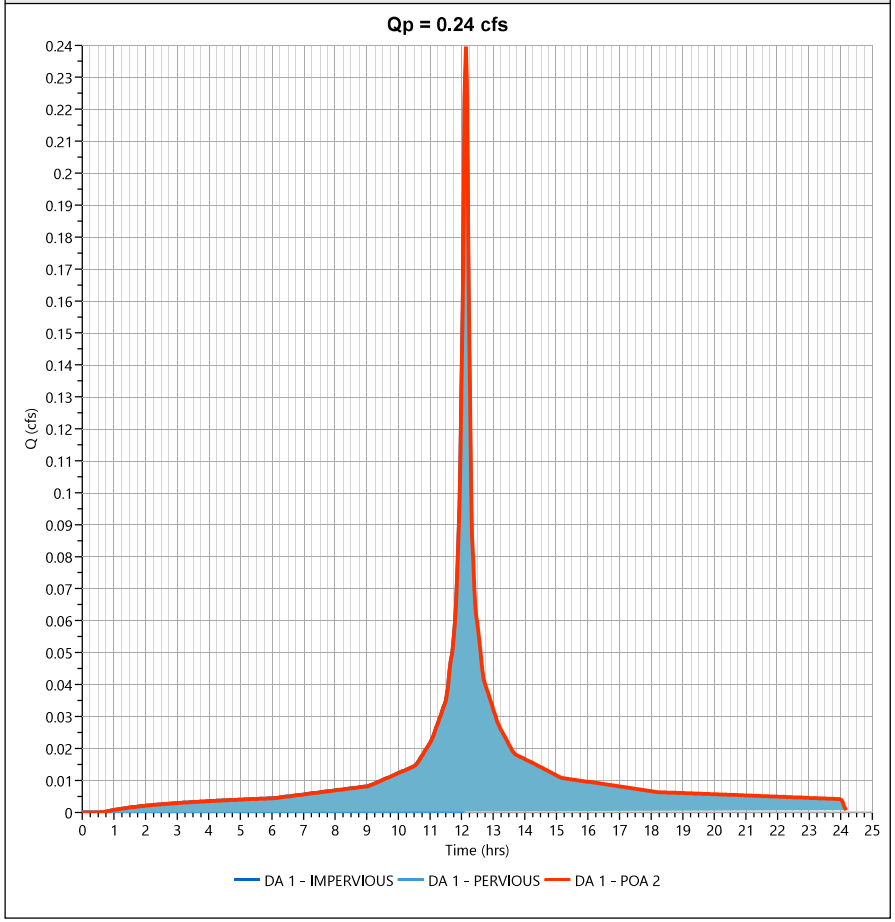
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.240 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,047 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

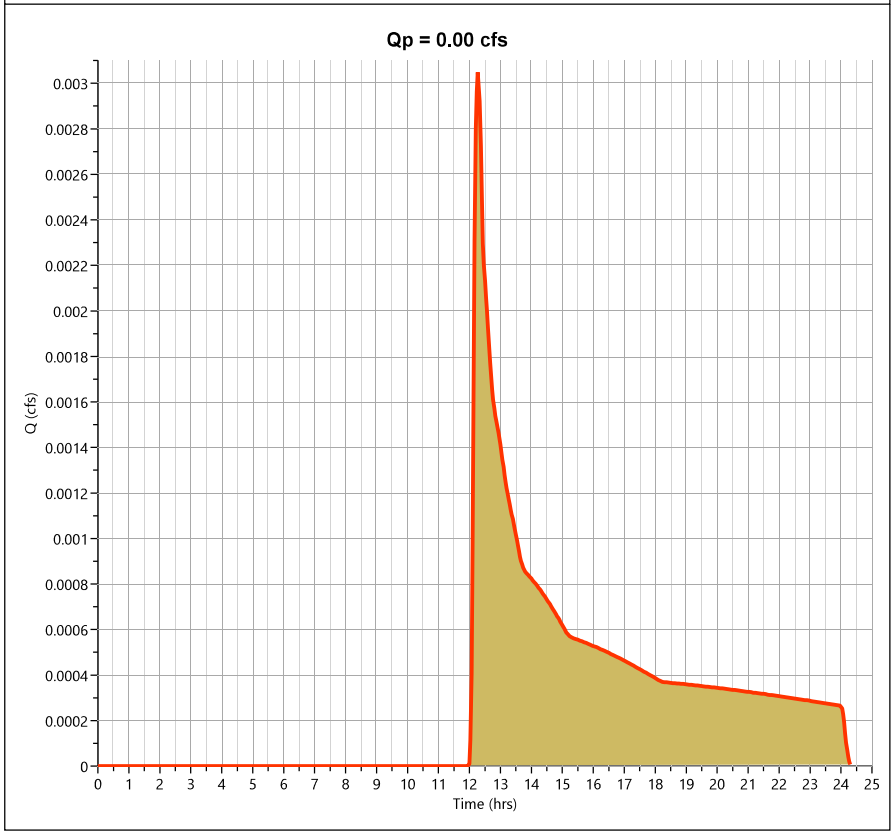
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.003 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 25.6 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

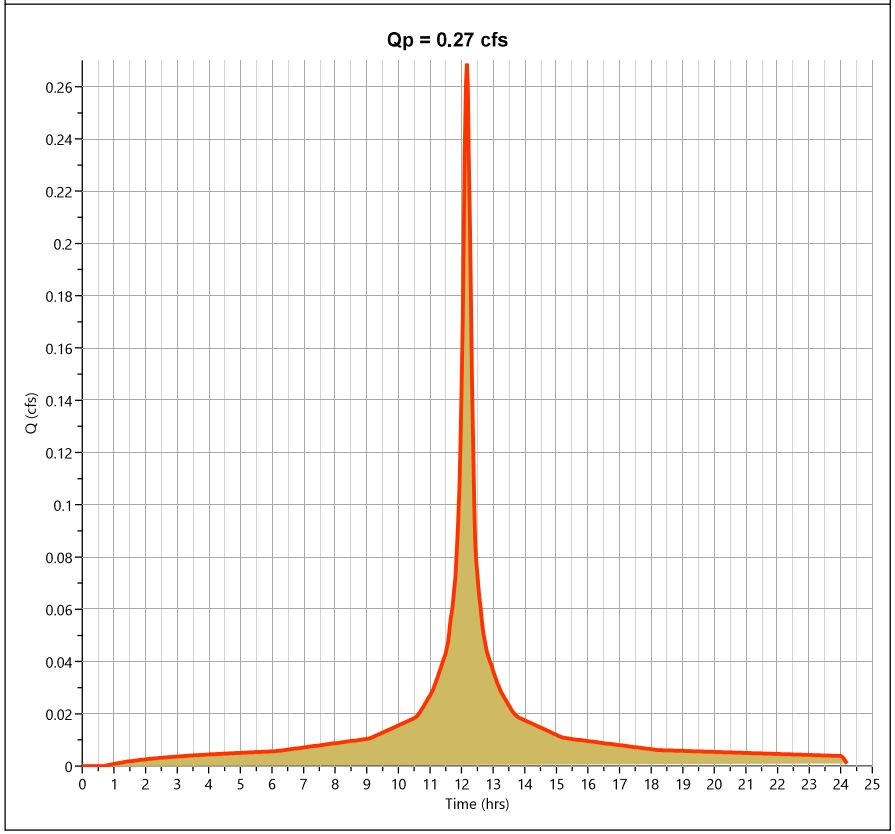
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

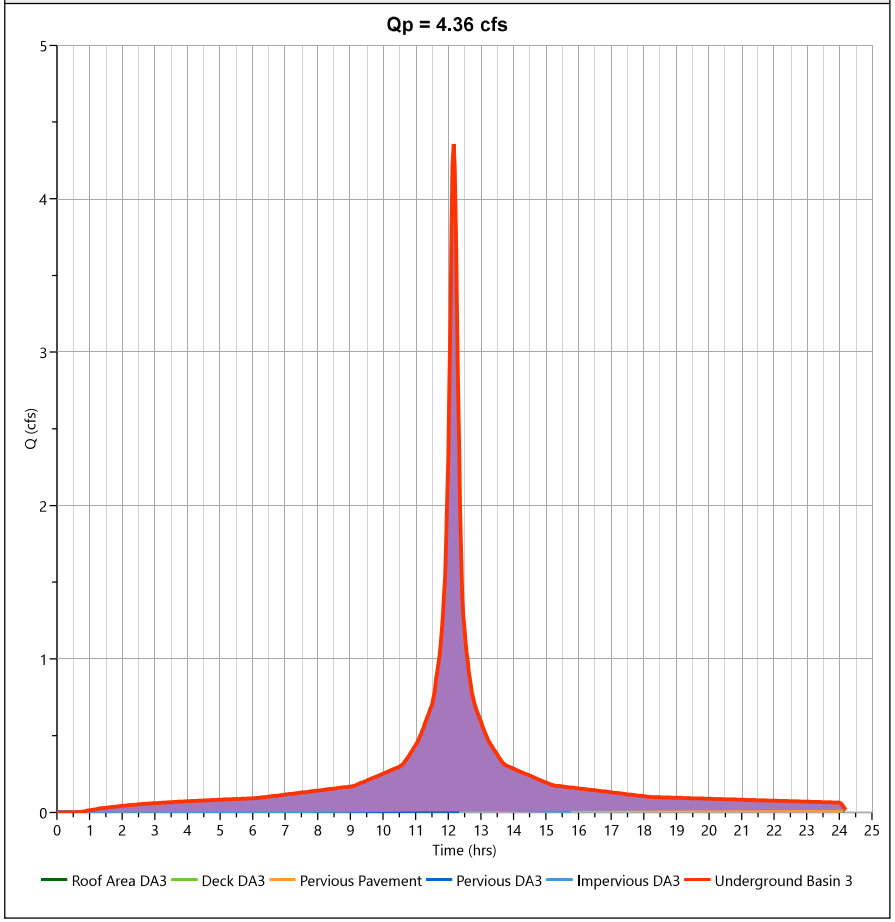
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.269 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,221 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 4.357 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 19,799 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac

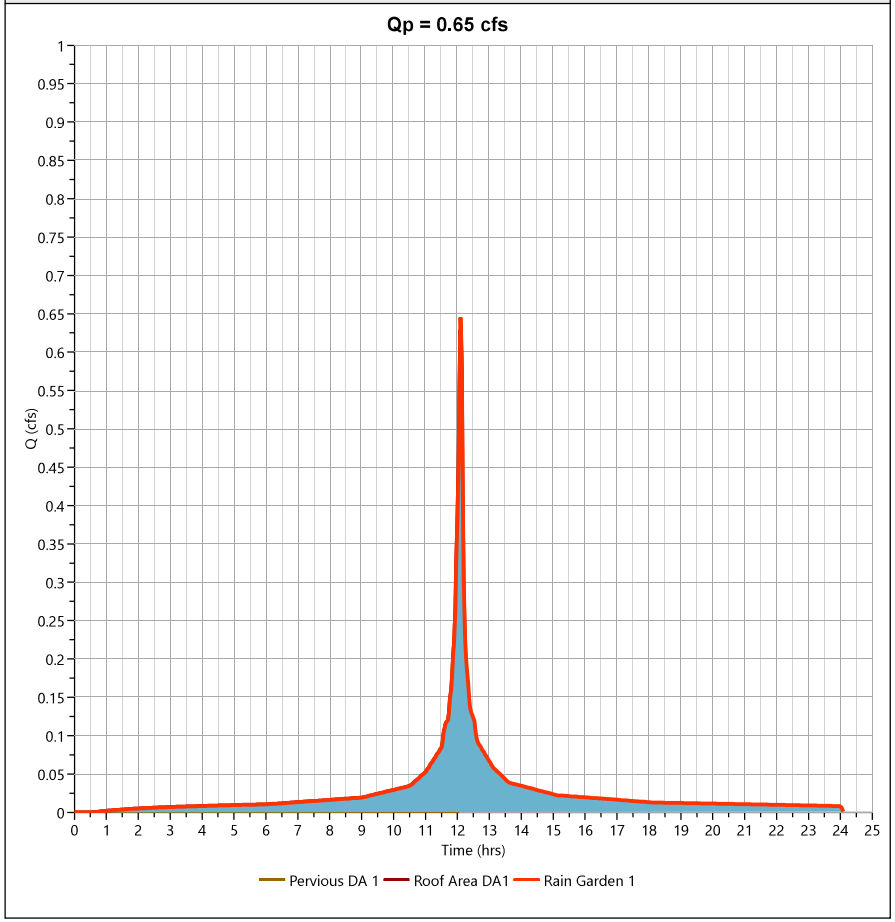


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.645 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,336 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

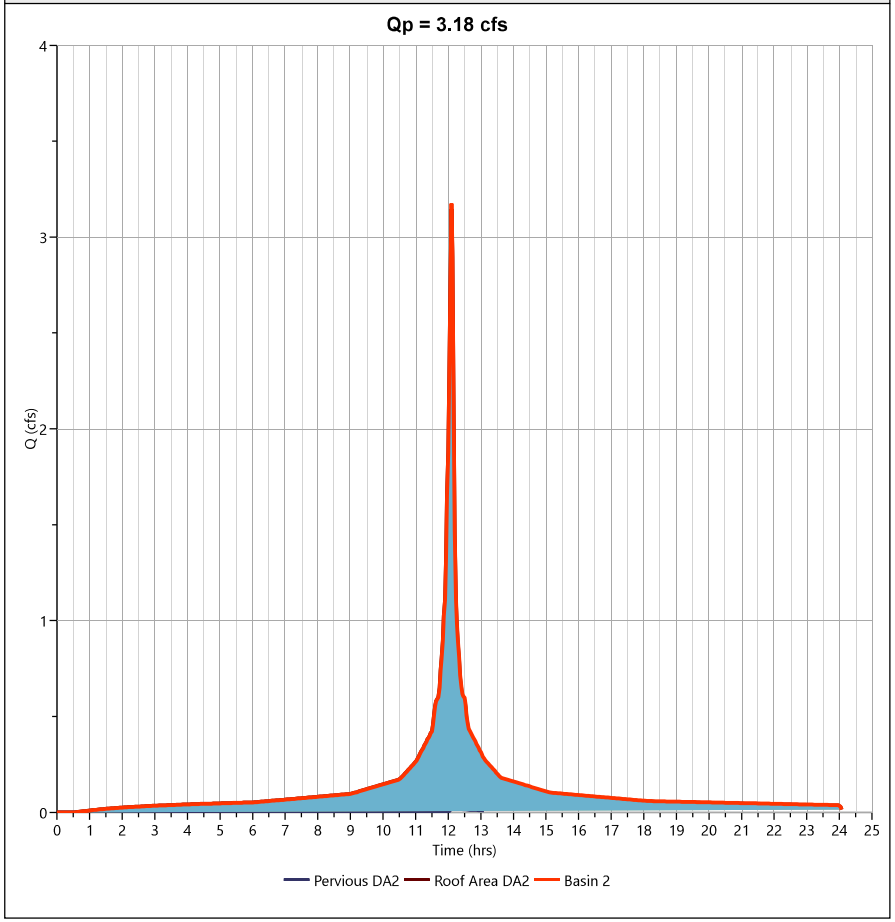
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 3.175 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 11,306 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

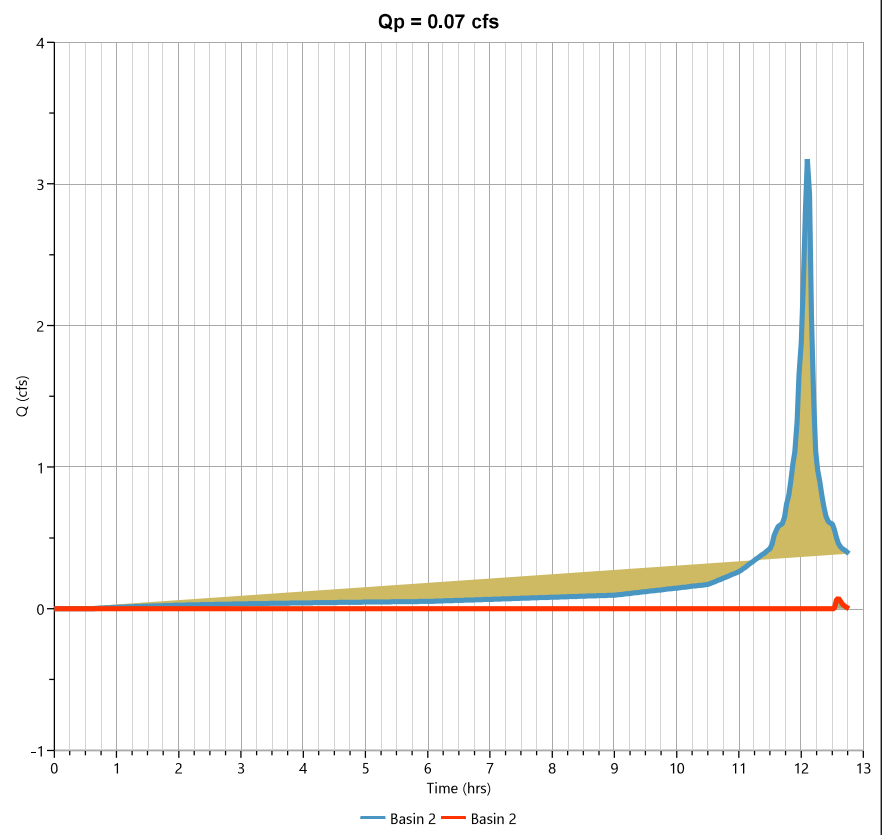
Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 0.075 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.60 hrs
Time Interval	= 2 min	Hydrograph Volume	= 29.8 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 14.90 ft
Pond Name	= Basin 2	Max. Storage	= 3,434 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 11 min



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

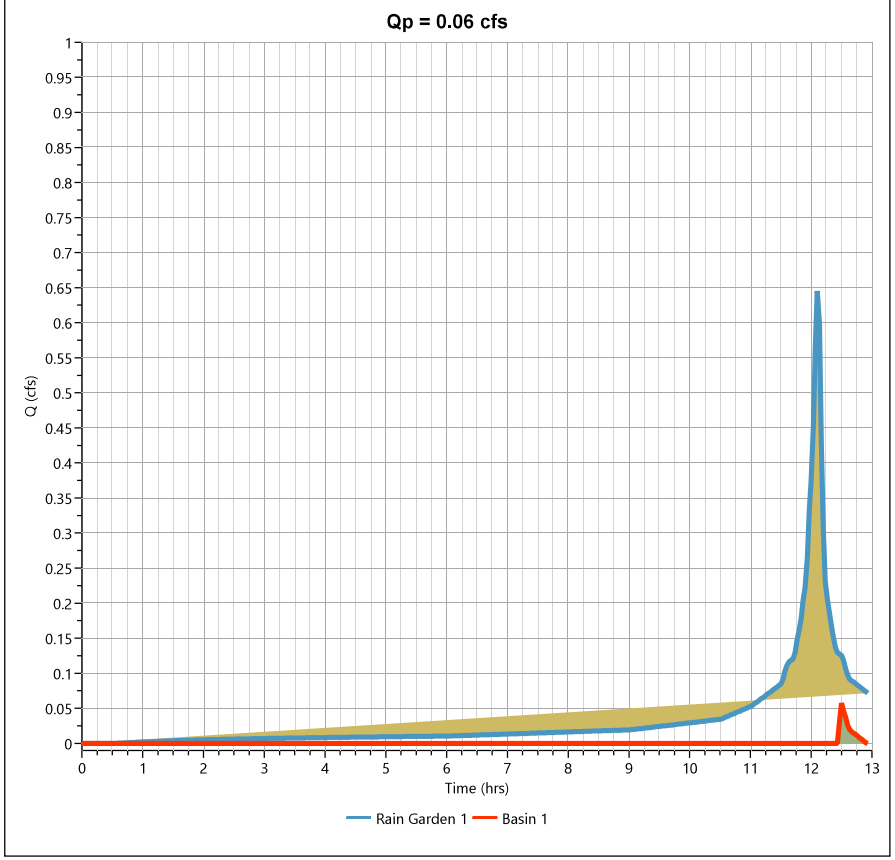
Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 0.057 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.50 hrs
Time Interval	= 2 min	Hydrograph Volume	= 34.8 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 14.95 ft
Pond Name	= BASIN 1	Max. Storage	= 718 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2 min



Hydrograph Report

Project Name:

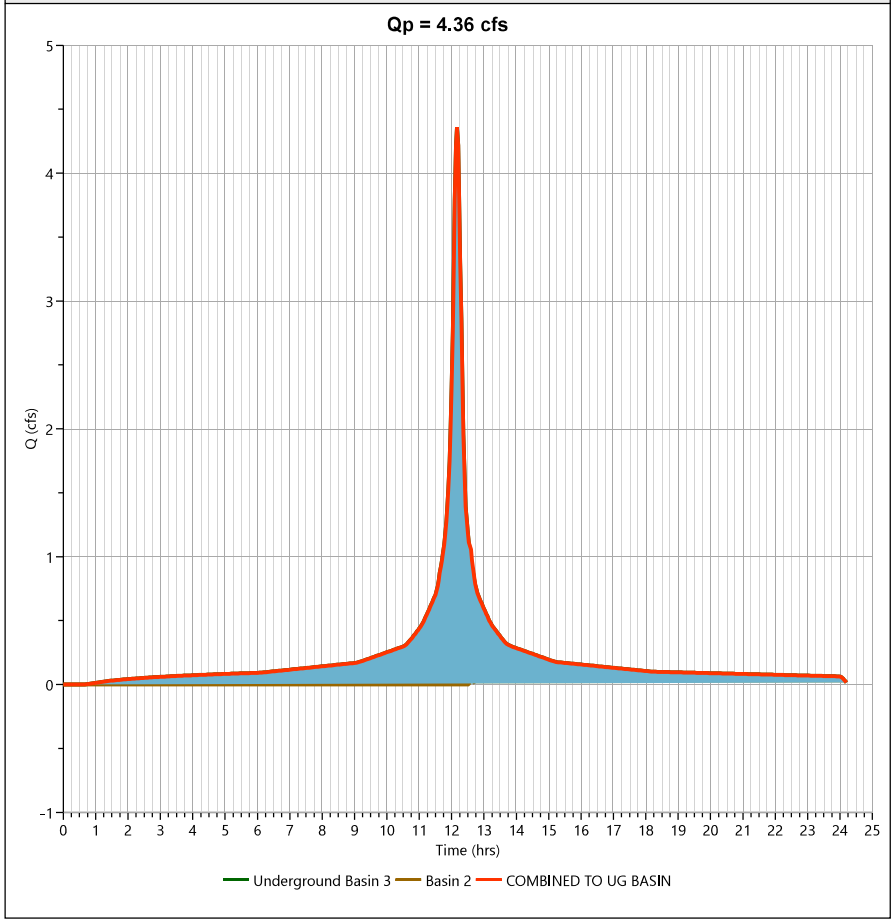
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 4.357 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 19,829 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

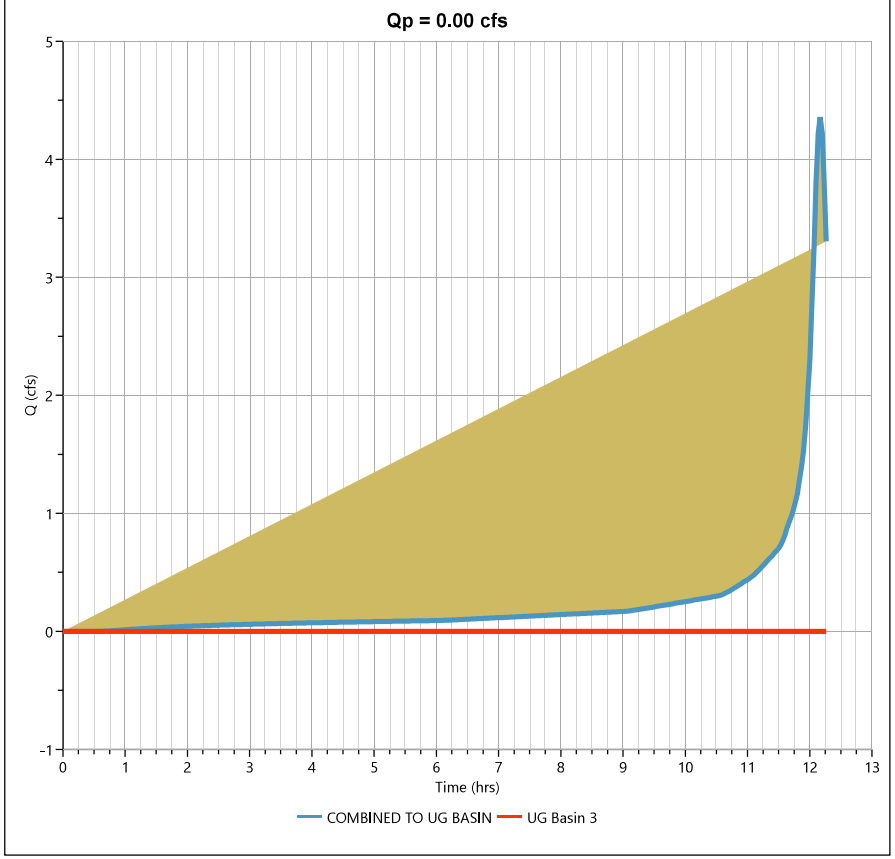


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.000 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 0.000 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 12.96 ft
Pond Name	= UG BASIN 3	Max. Storage	= 5,212 cuft

Pond Routing by Storage Indication Method

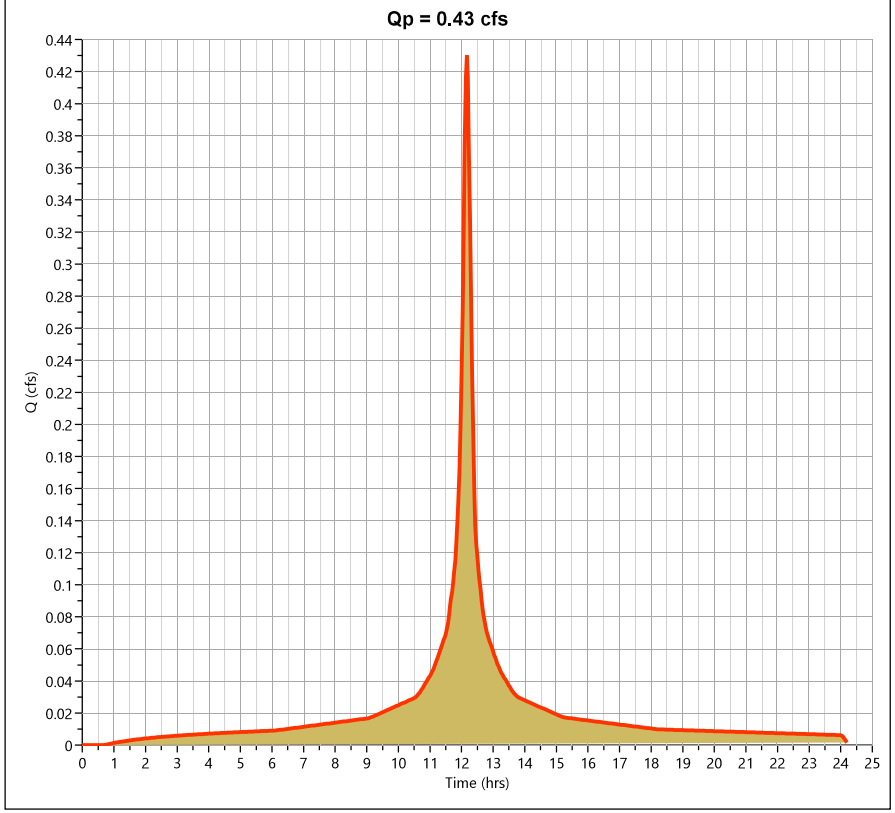


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.430 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,953 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



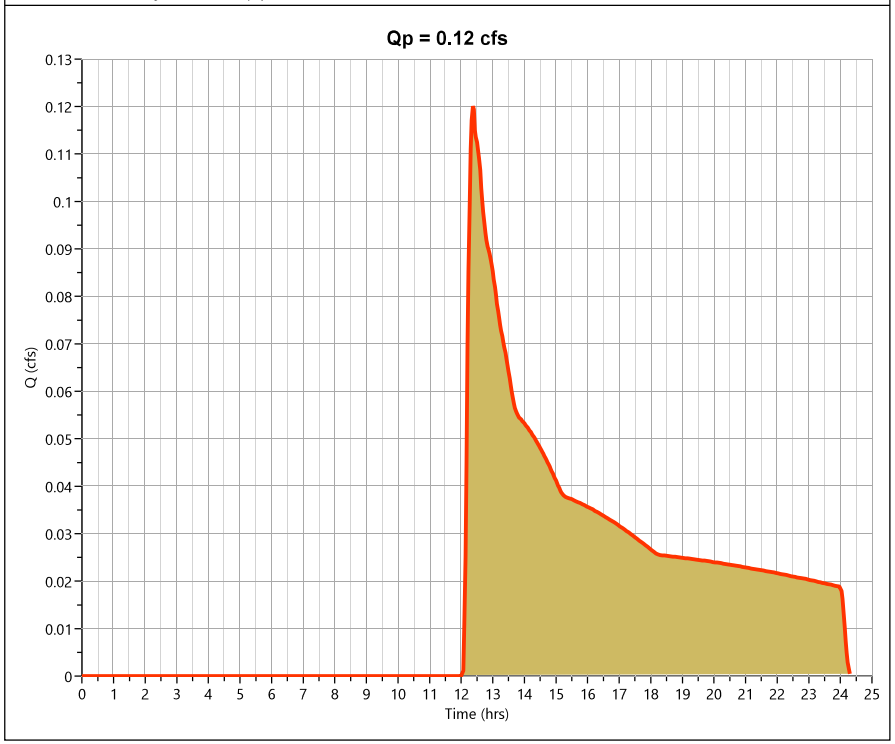
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.120 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.37 hrs
Time Interval	= 2 min	Runoff Volume	= 1,574 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed

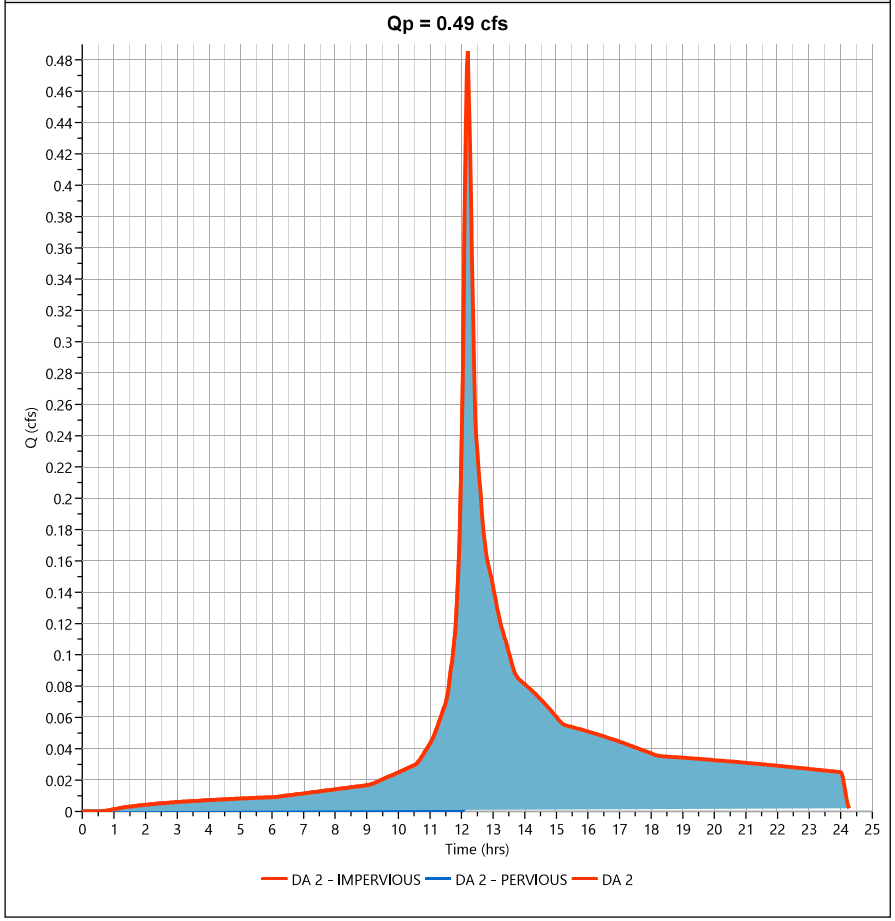


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 0.486 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,527 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



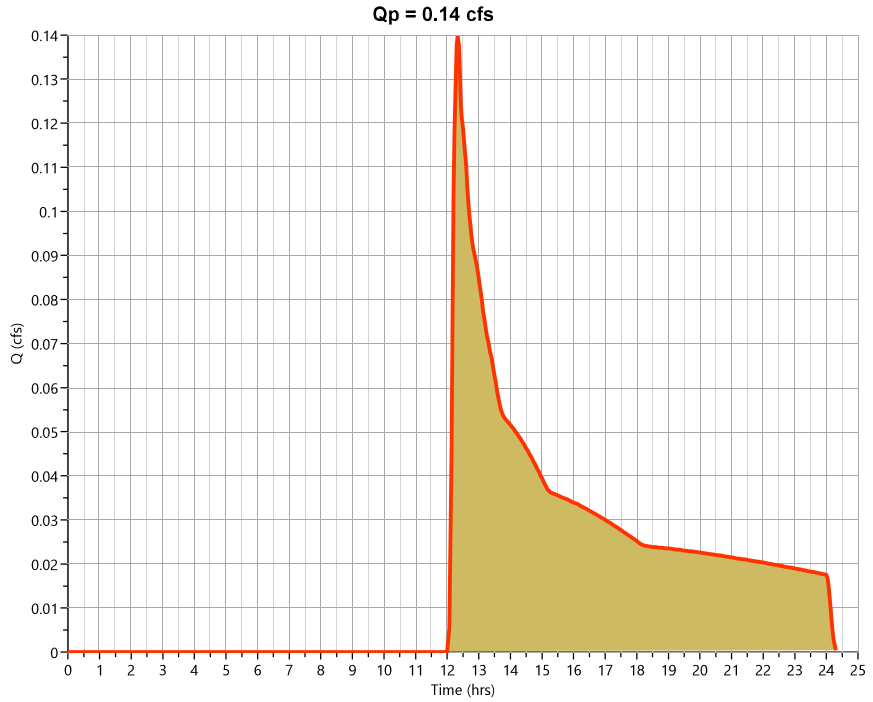
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.140 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.33 hrs
Time Interval	= 2 min	Runoff Volume	= 1,549 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

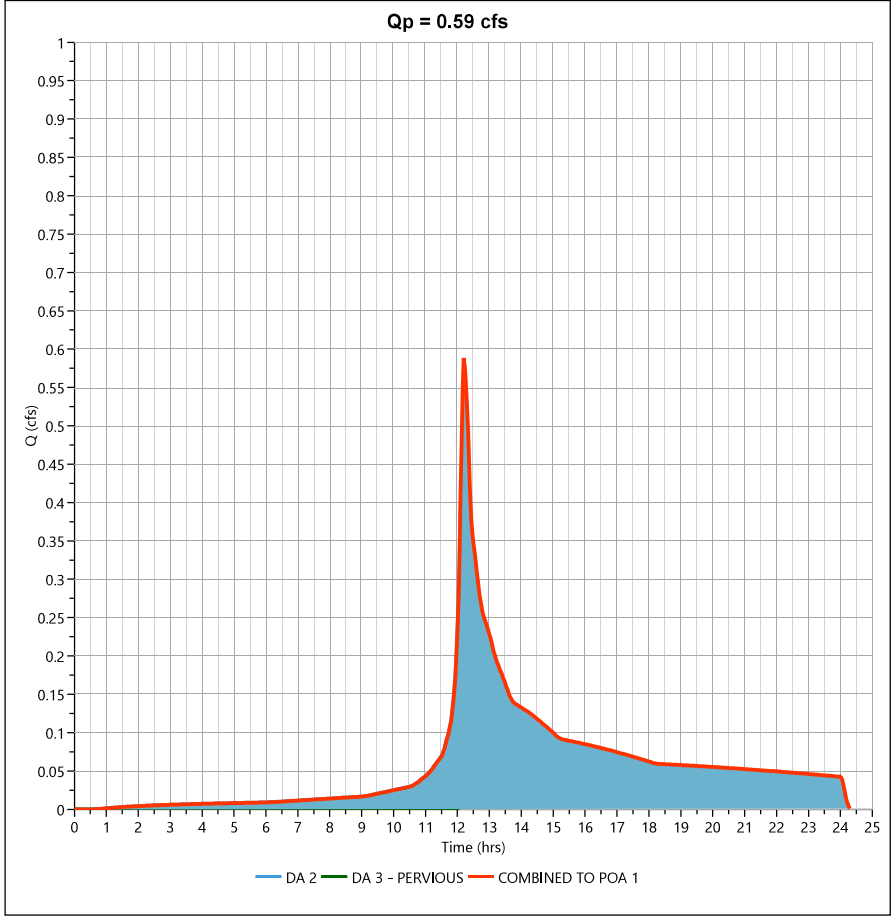


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 0.588 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 5,077 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

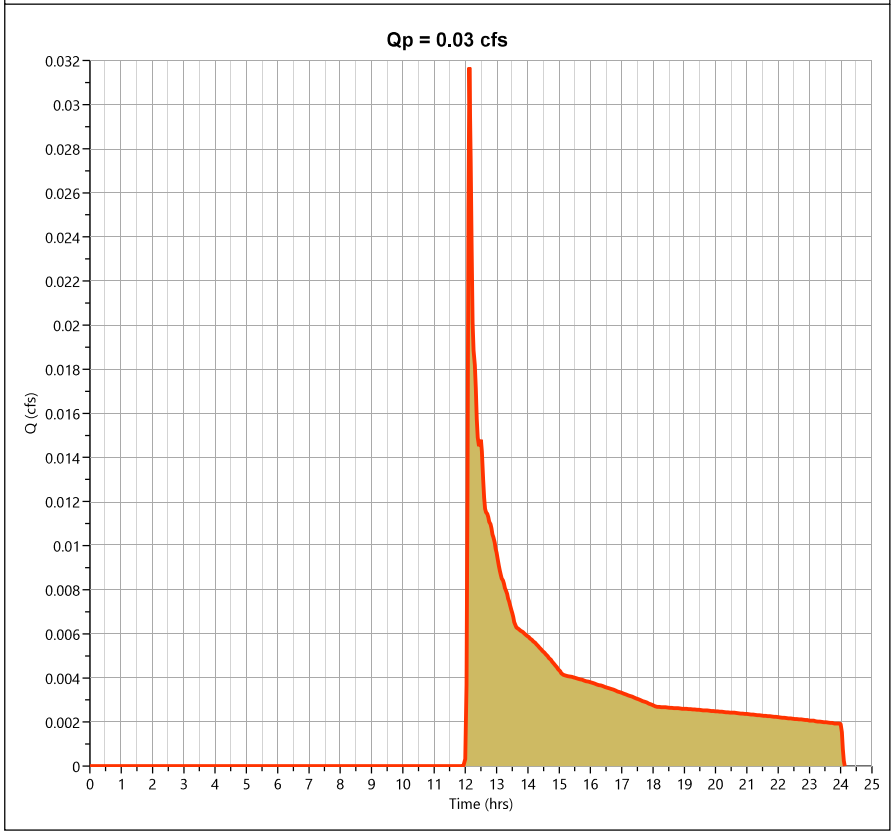
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.032 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 186 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

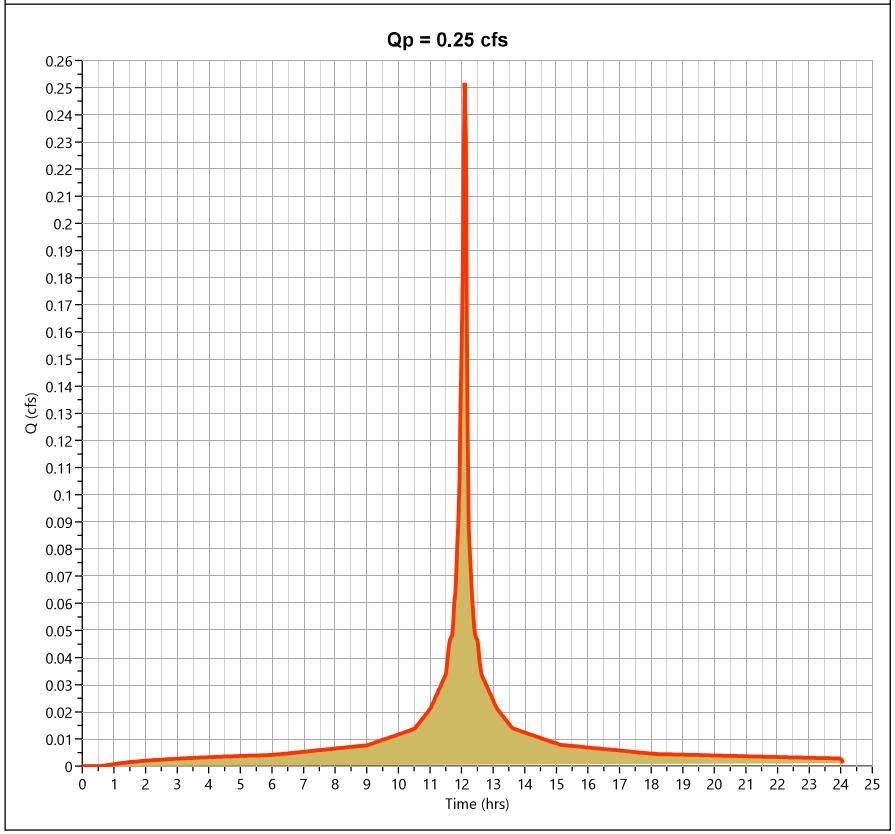
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.252 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 888 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

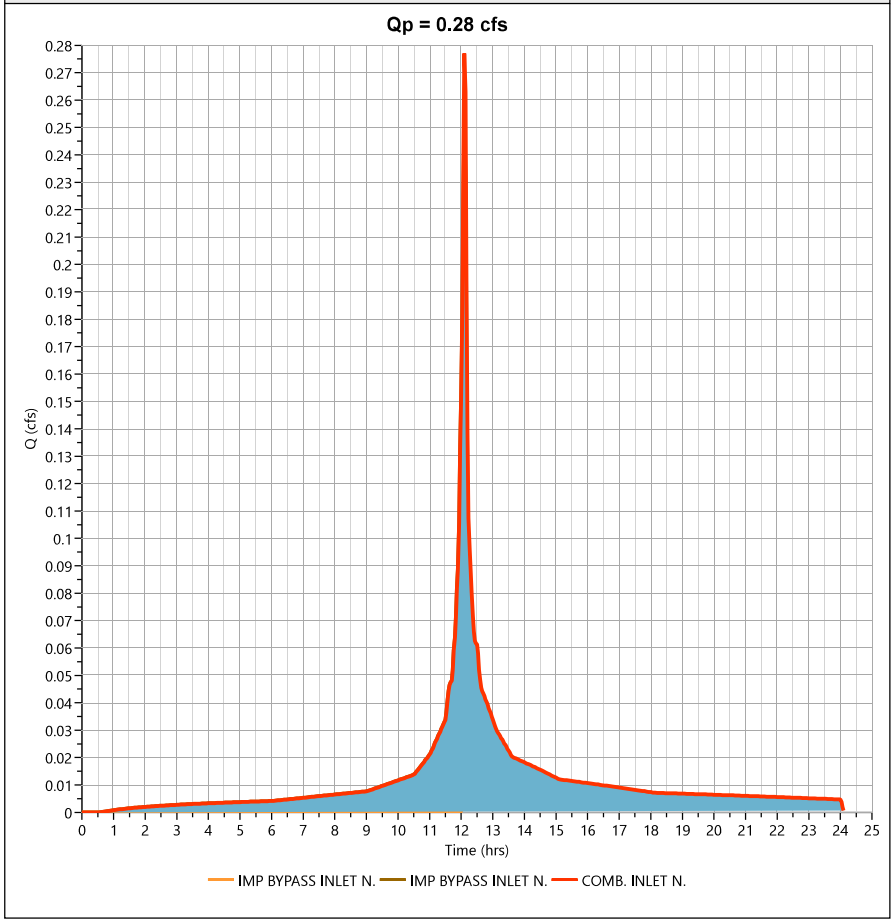
Hydrology Studio v 3.0.0.24

06-14-2022

COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.277 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,074 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

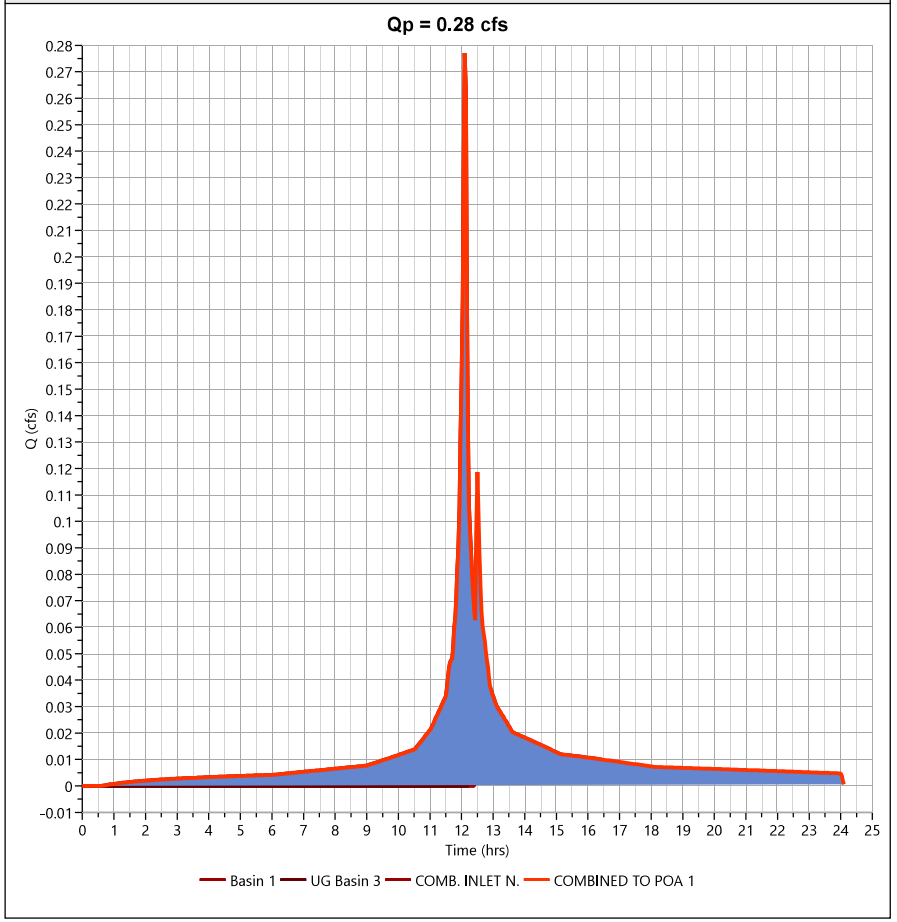
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 0.277 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,109 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

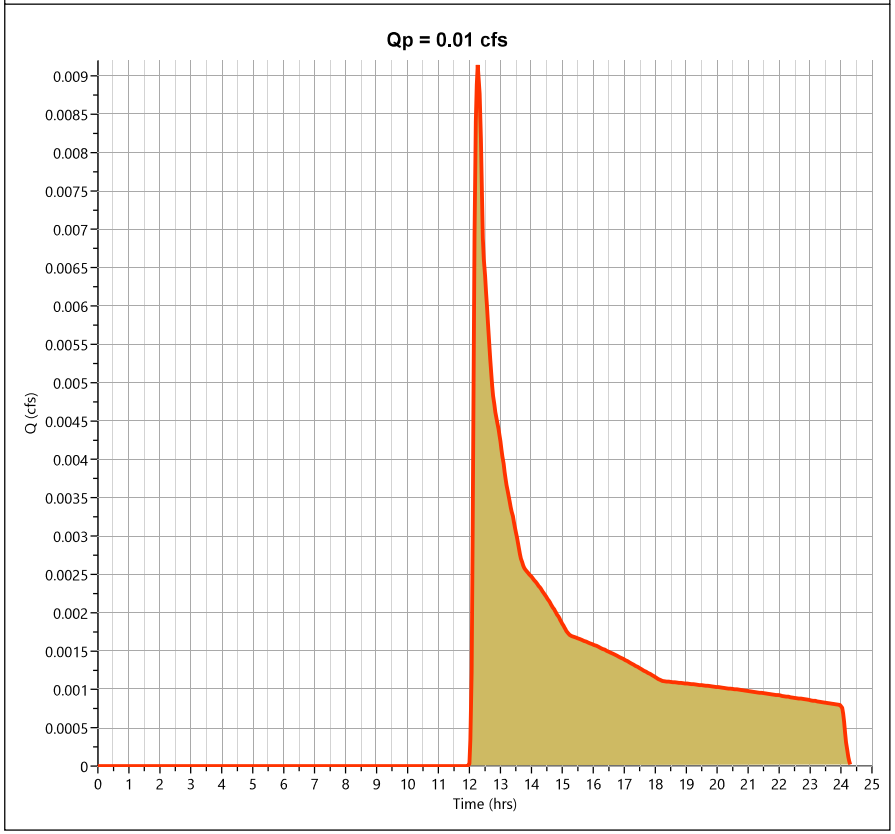
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.009 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 76.9 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

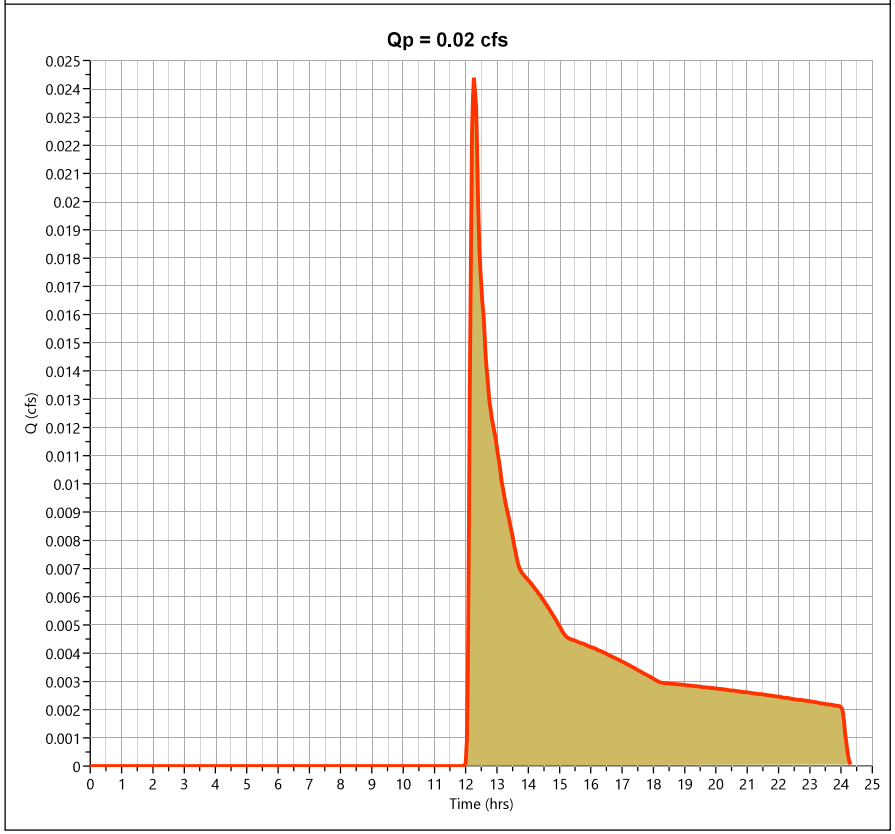
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.024 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.30 hrs
Time Interval	= 2 min	Runoff Volume	= 205 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

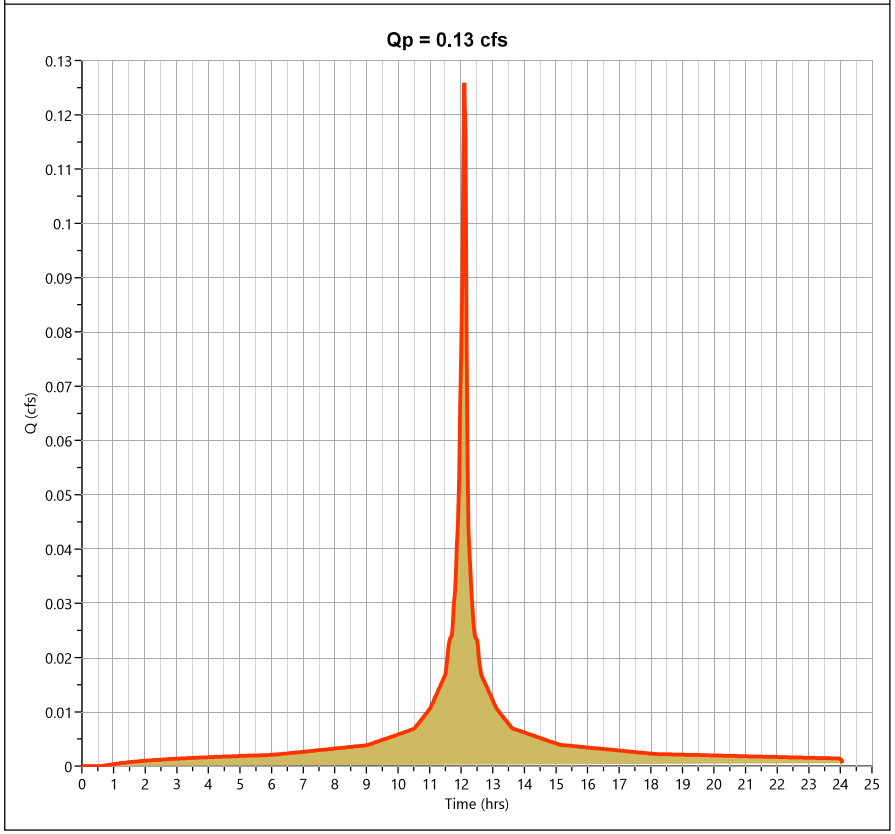
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.126 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 444 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

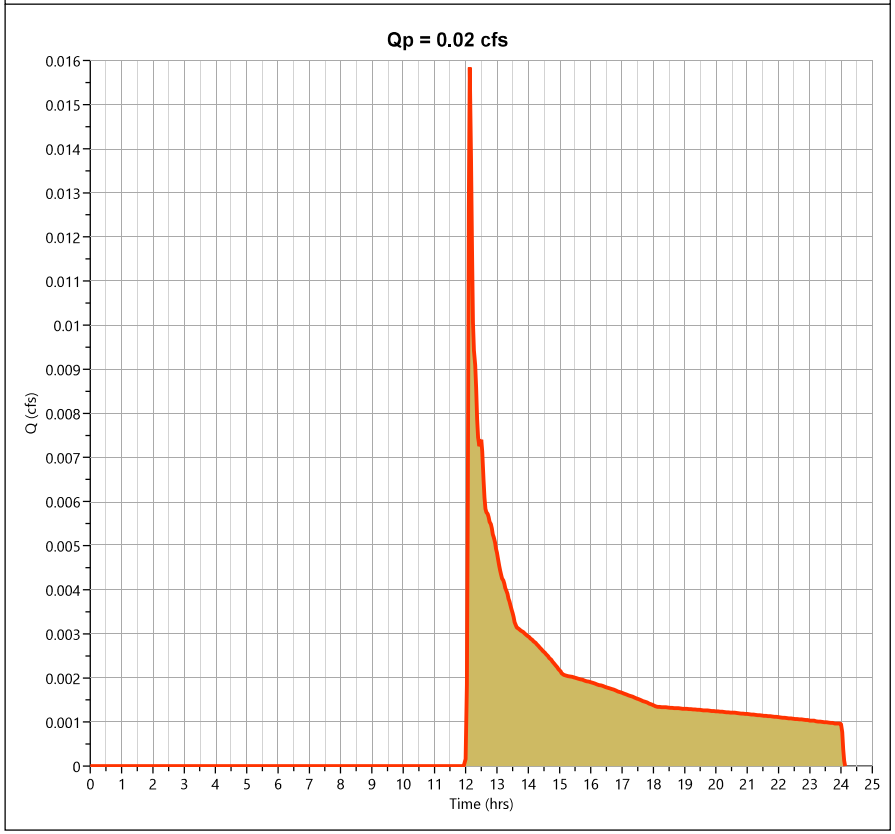
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.016 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 93.2 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 6.76 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

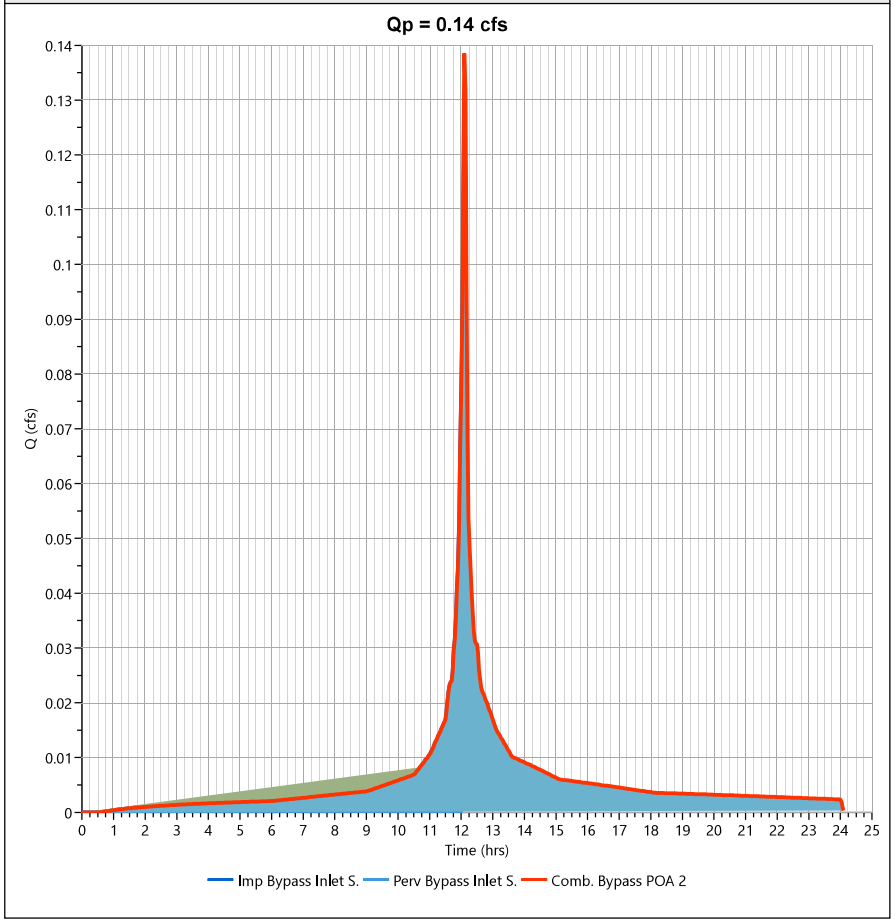
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.139 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 537 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



Hydrograph 100-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.322	12.13	1,311	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.060	12.17	273	—		
3	NRCS Runoff	Post Roof Area DA3	2.141	12.17	9,802	—		
4	NRCS Runoff	Post Deck DA3	2.363	12.17	10,816	—		
5	NRCS Runoff	Post Pervious Pavement	1.108	12.17	5,070	—		
6	NRCS Runoff	Post Pervious DA 1	0.083	12.13	295	—		
7	NRCS Runoff	Post Roof Area DA1	0.864	12.10	3,073	—		
8	NRCS Runoff	Post Pervious DA2	0.149	12.13	530	—		
9	NRCS Runoff	Post Roof Area DA2	4.321	12.10	15,364	—		
10	Junction	Pre DA 1 - POA 2	0.379	12.13	1,584	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.014	12.20	64.8	—		
12	NRCS Runoff	Post Impervious DA3	0.369	12.17	1,690	—		
13	Junction	Post Underground Basin 3	5.994	12.17	27,444	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.946	12.10	3,368	6, 7		
15	Junction	Post Basin 2	4.468	12.10	15,895	8, 9		
16	Pond Route	Post Basin 2	3.504	12.13	2,202	15	15.01	3,667
17	Pond Route	Post Basin 1	1.000	12.13	551	14	15.00	753
18	Junction	Post COMBINED TO UG BASIN	9.311	12.13	29,646	13, 16		
19	Pond Route	Post UG Basin 3	0.553	12.73	881	18	14.23	10,225
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.591	12.17	2,704	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.810	12.20	4,475	—		
22	Junction	Pre DA 2	1.381	12.20	7,179	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.809	12.20	4,218	—		
24	Junction	Pre COMBINED TO POA 1	2.190	12.20	11,397	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.132	12.13	471	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.346	12.10	1,229	—		
27	Junction	COMB. INLET N.	0.476	12.10	1,701	25, 26		
28	Junction	Post COMBINED TO POA 1	1.450	12.13	3,133	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.041	12.20	194	—		
30	NRCS Runoff	Post Bypass Memorial	0.108	12.20	519	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.173	12.10	615	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.066	12.13	236	—		
33	Junction	Post Comb. Bypass POA 2	0.238	12.10	850	31, 32		

Hydrograph Report

Project Name:

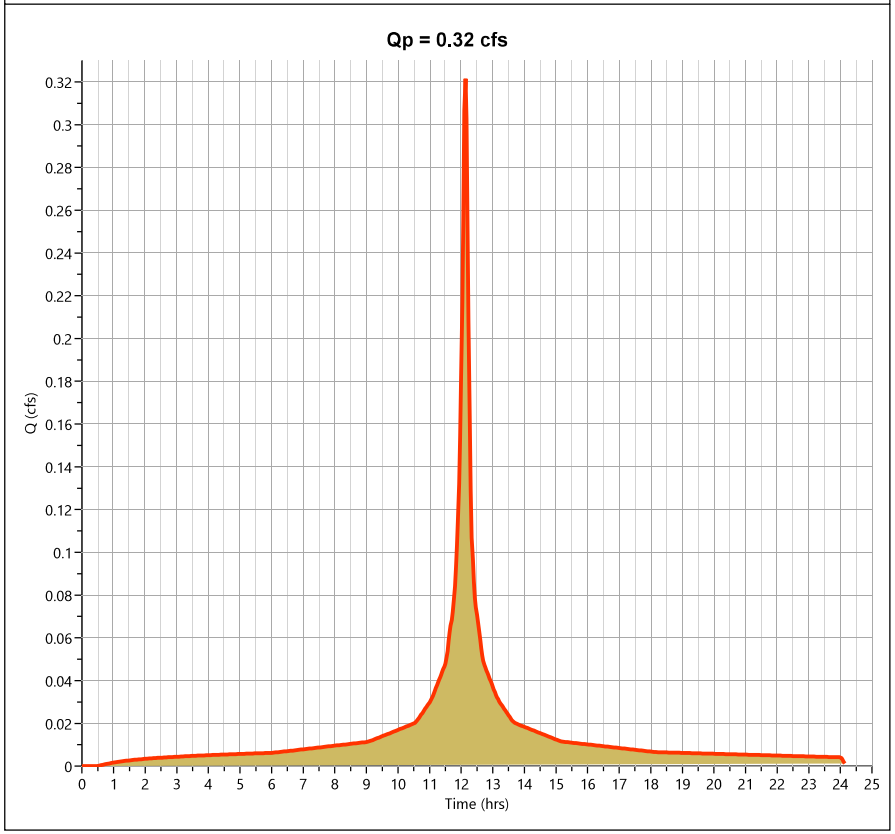
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 1 - IMPERVIOUS

Hyd. No. 1

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.322 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 1,311 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

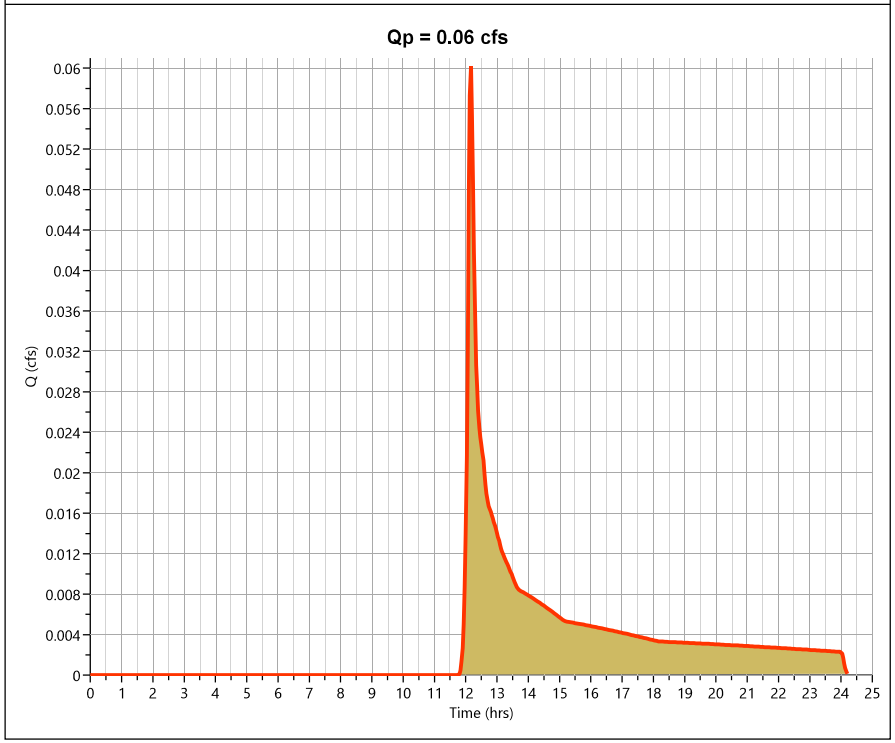
Pre DA 1 - PERVIOUS

Hyd. No. 2

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.060 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 273 cuft
Drainage Area	= 0.05 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 9.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.04	39	open space
0.01	30	wooded
0.05	**37**	Weighted CN Method Employed



Hydrograph Report

Project Name:

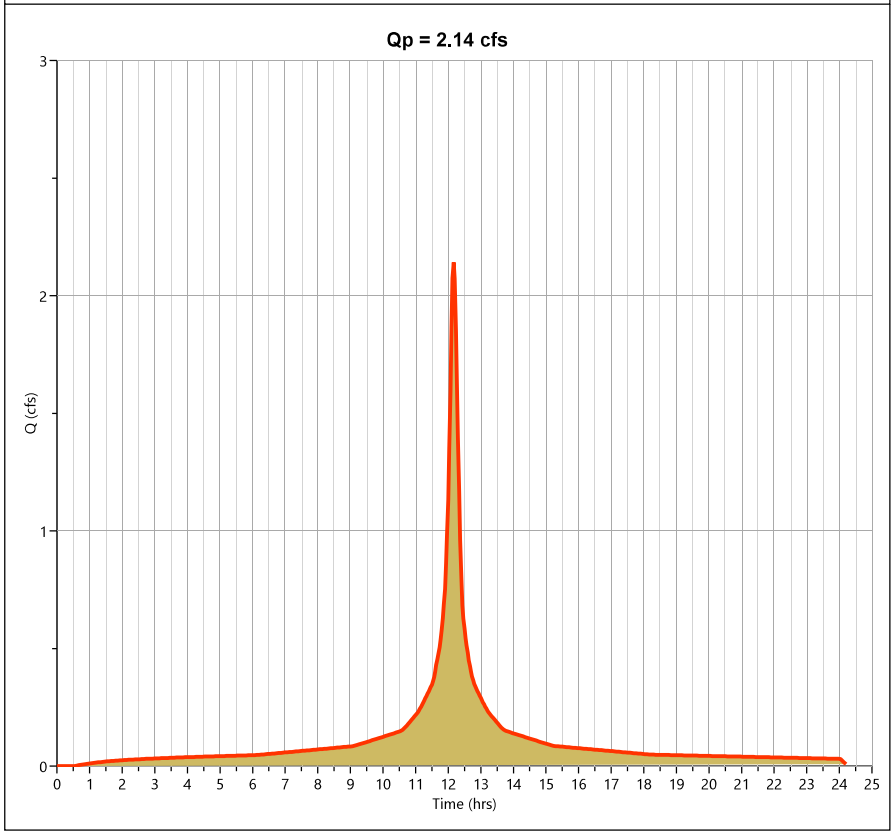
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA3

Hyd. No. 3

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.141 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 9,802 cuft
Drainage Area	= 0.29 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 10.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

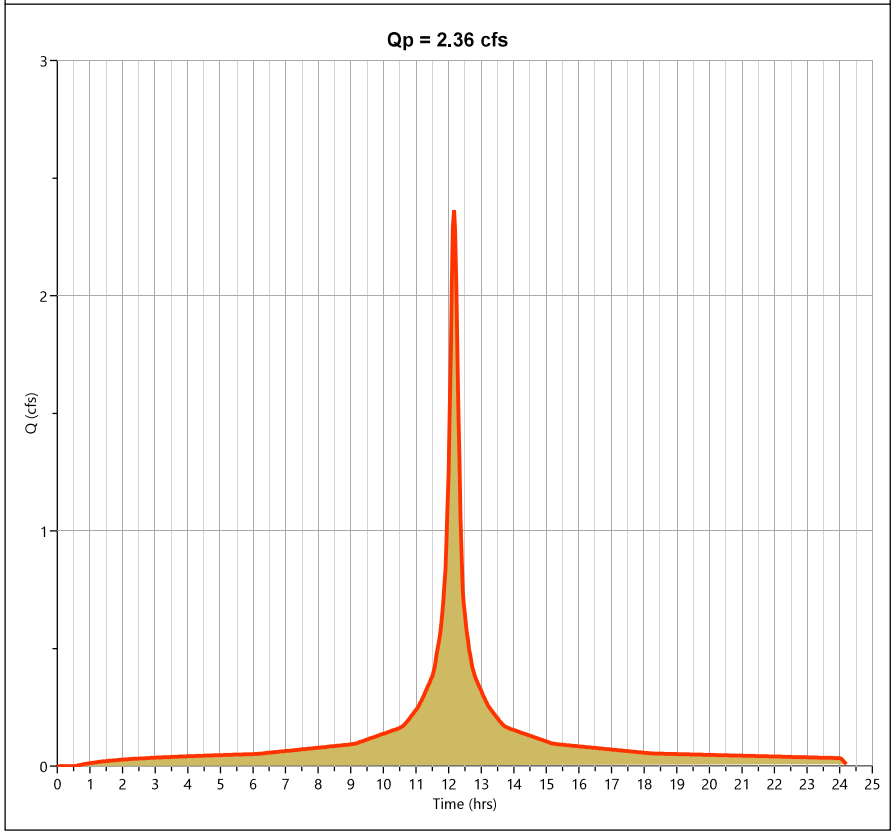
Hydrology Studio v 3.0.0.24

06-14-2022

Post Deck DA3

Hyd. No. 4

Hydrograph Type	= NRCS Runoff	Peak Flow	= 2.363 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 10,816 cuft
Drainage Area	= 0.32 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

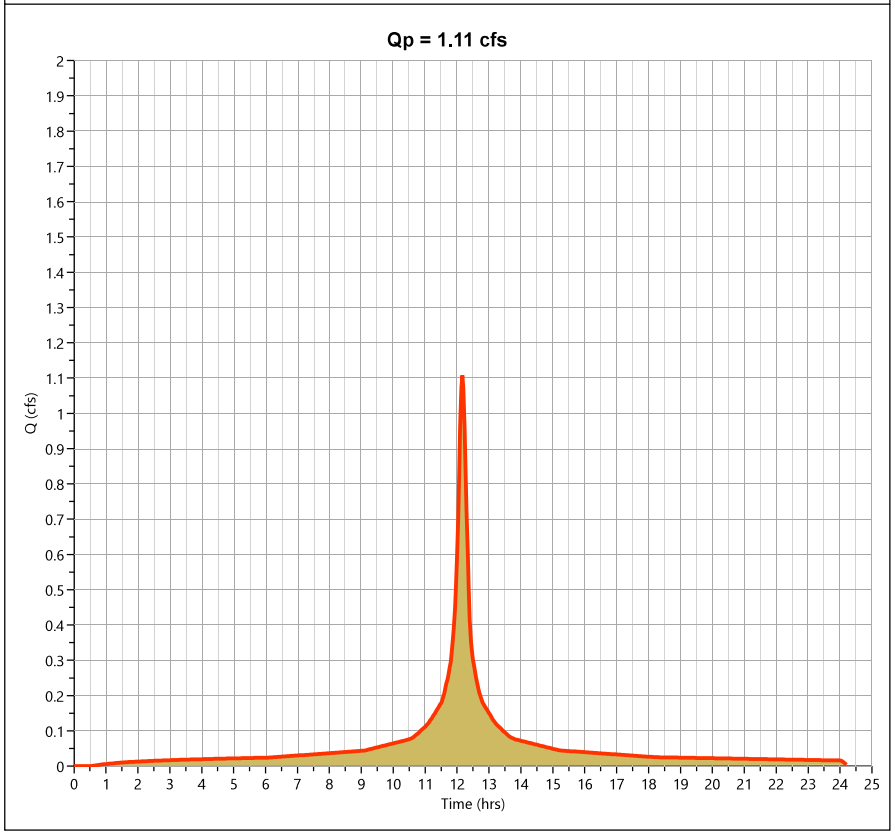
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious Pavement

Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 1.108 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 5,070 cuft
Drainage Area	= 0.15 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

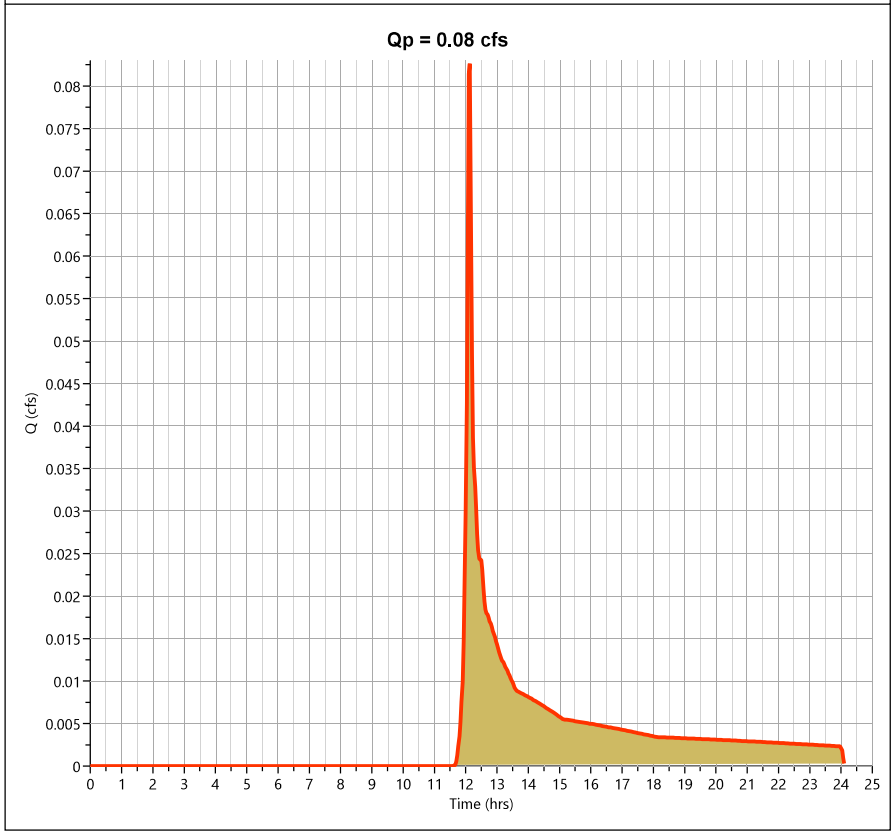
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA 1

Hyd. No. 6

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.083 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 295 cuft
Drainage Area	= 0.05 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

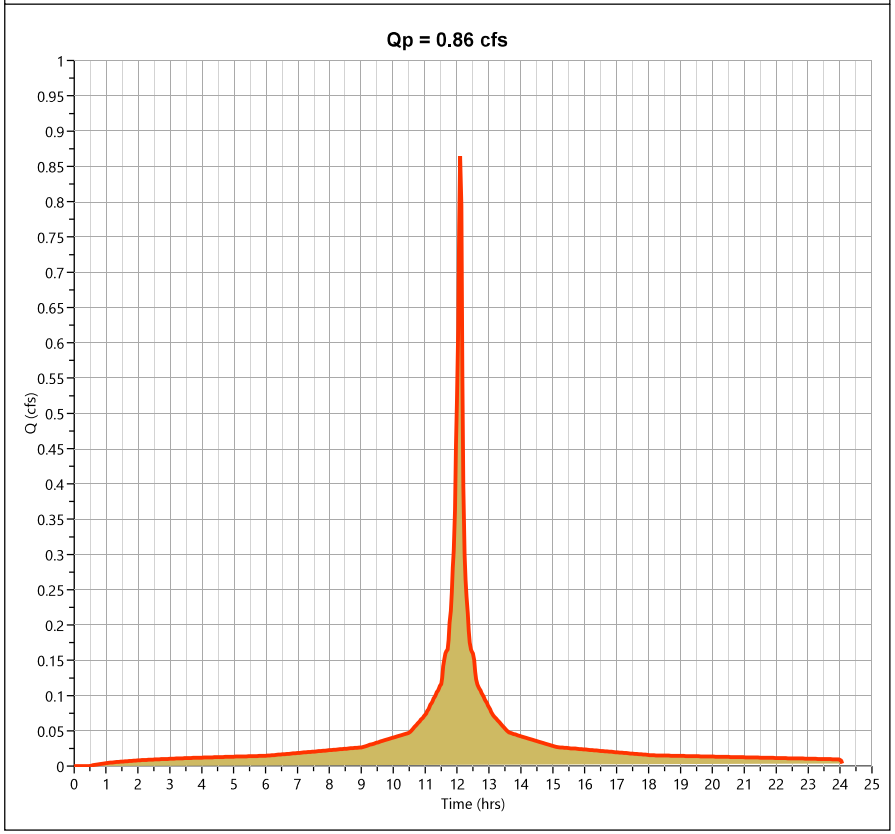
Hydrology Studio v 3.0.0.24

06-14-2022

Post Roof Area DA1

Hyd. No. 7

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.864 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 3,073 cuft
Drainage Area	= 0.1 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

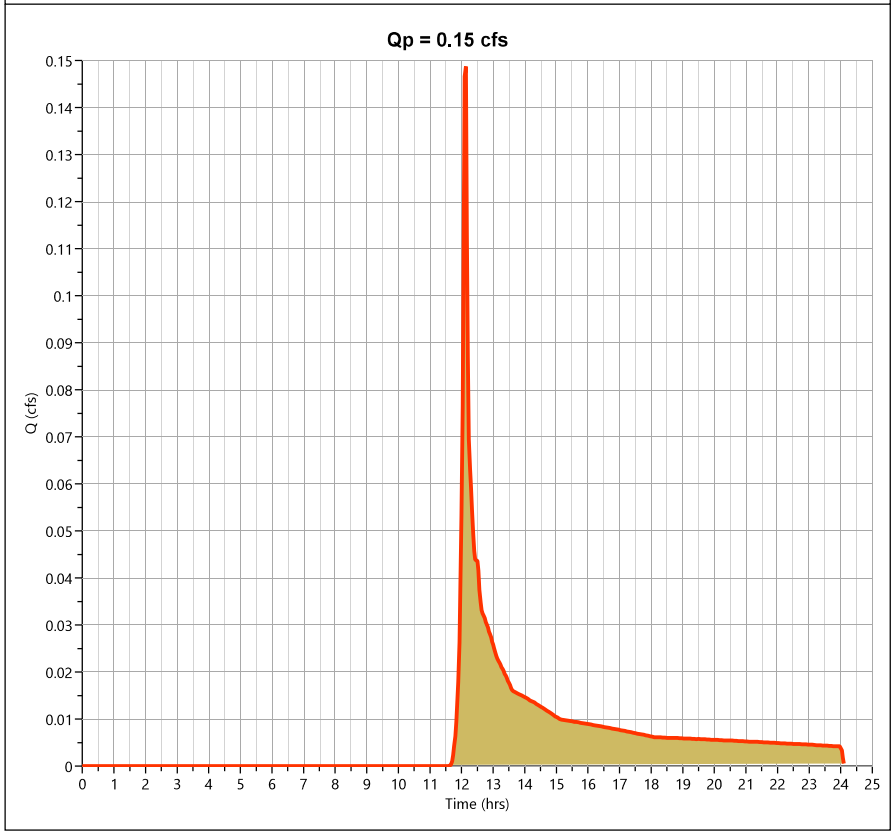
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA2

Hyd. No. 8

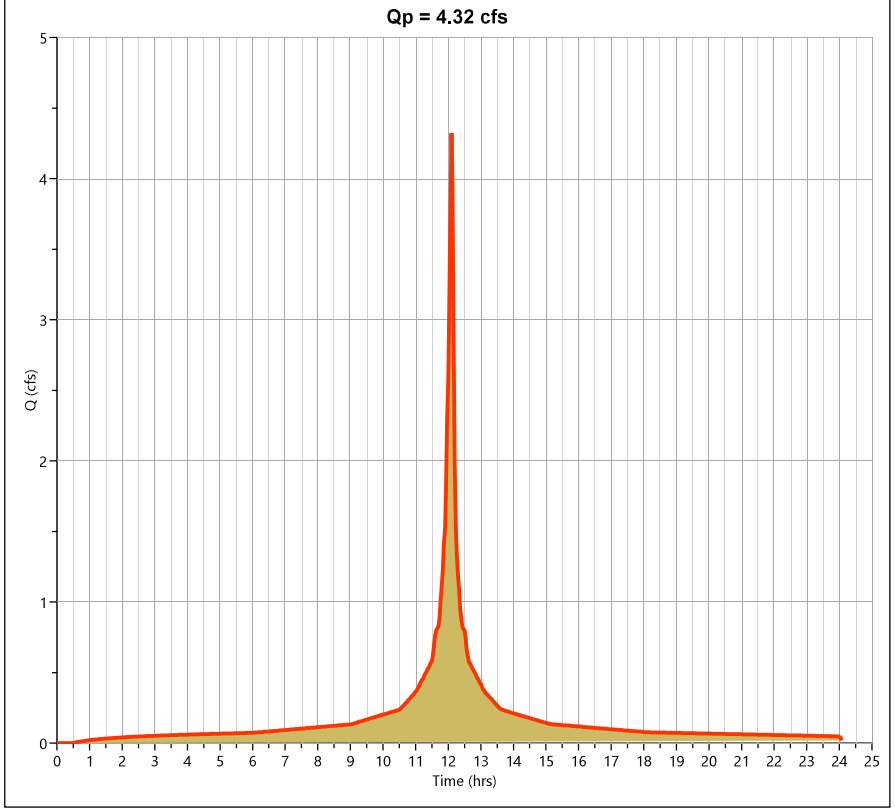
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.149 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 530 cuft
Drainage Area	= 0.09 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Post Roof Area DA2

Hyd. No. 9

Hydrograph Type	= NRCS Runoff	Peak Flow	= 4.321 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 15,364 cuft
Drainage Area	= 0.5 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

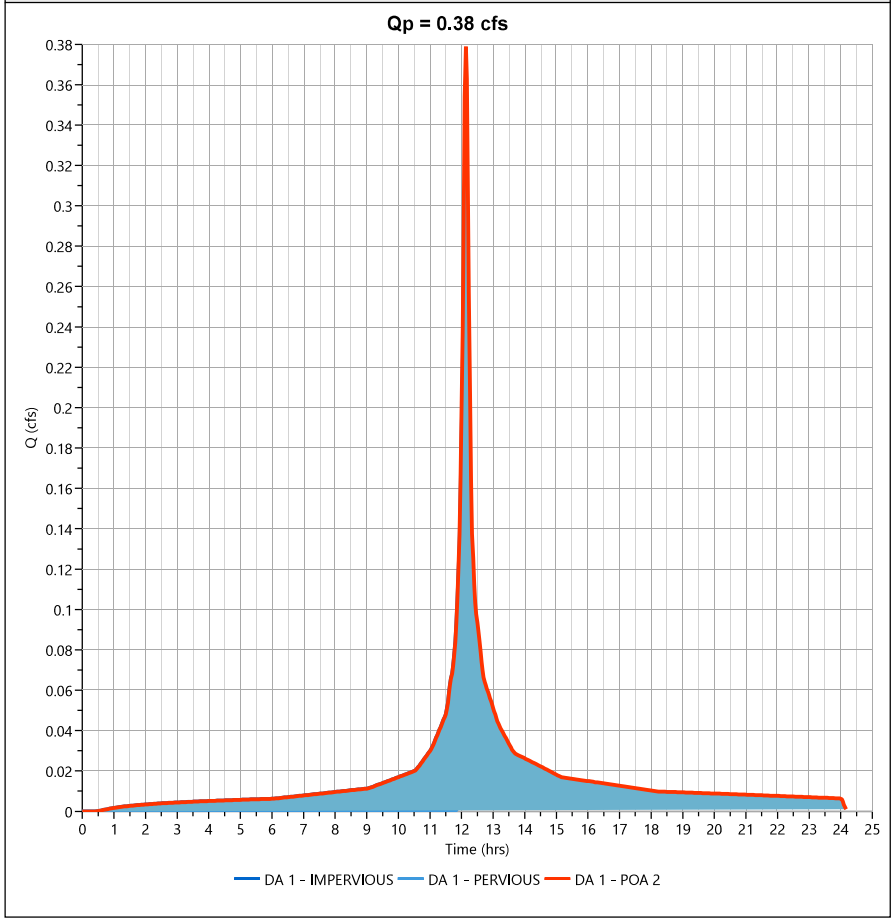


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 1 - POA 2

Hyd. No. 10

Hydrograph Type	= Junction	Peak Flow	= 0.379 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,584 cuft
Inflow Hydrographs	= 1, 2	Total Contrib. Area	= 0.09 ac



Hydrograph Report

Project Name:

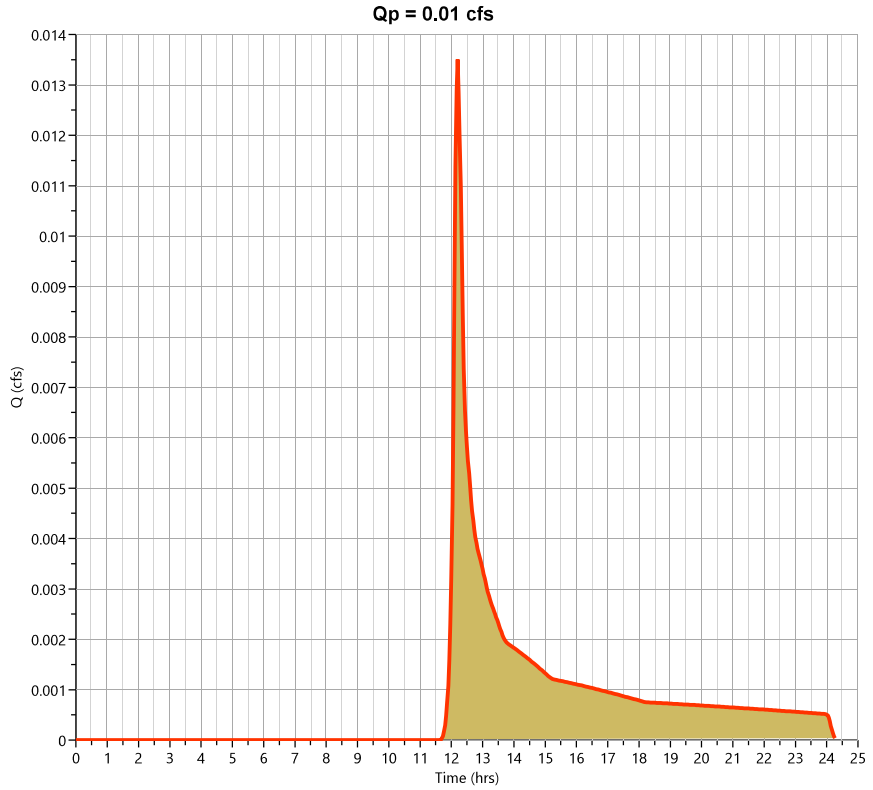
Hydrology Studio v 3.0.0.24

06-14-2022

Post Pervious DA3

Hyd. No. 11

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.014 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 64.8 cuft
Drainage Area	= 0.01 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

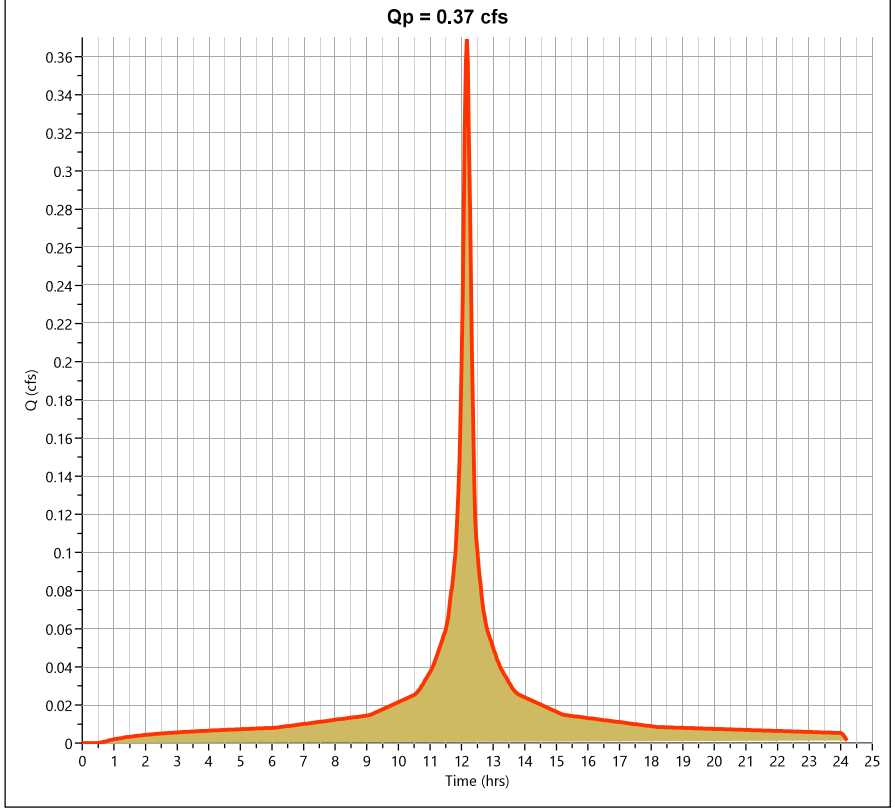
Hydrology Studio v 3.0.0.24

06-14-2022

Post Impervious DA3

Hyd. No. 12

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.369 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 1,690 cuft
Drainage Area	= 0.05 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 12.8 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

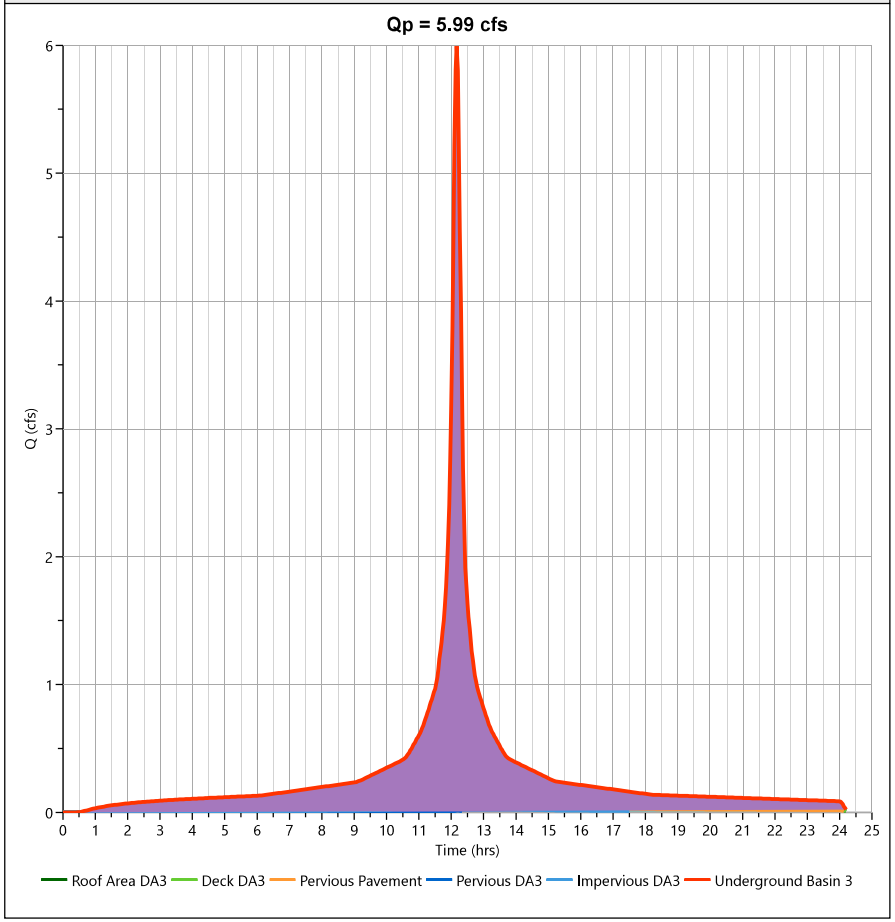
Hydrology Studio v 3.0.0.24

06-14-2022

Post Underground Basin 3

Hyd. No. 13

Hydrograph Type	= Junction	Peak Flow	= 5.994 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Hydrograph Volume	= 27,444 cuft
Inflow Hydrographs	= 3, 4, 5, 11, 12	Total Contrib. Area	= 0.82 ac



Hydrograph Report

Project Name:

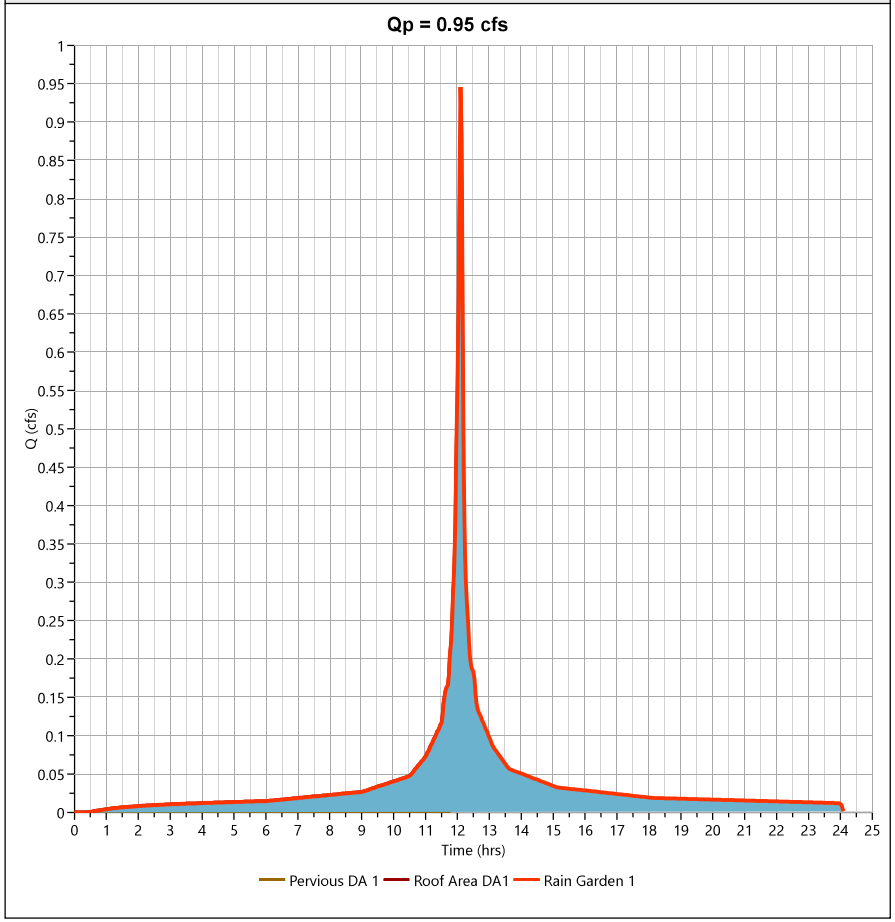
Hydrology Studio v 3.0.0.24

06-14-2022

Post Rain Garden 1

Hyd. No. 14

Hydrograph Type	= Junction	Peak Flow	= 0.946 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,368 cuft
Inflow Hydrographs	= 6, 7	Total Contrib. Area	= 0.15 ac



Hydrograph Report

Project Name:

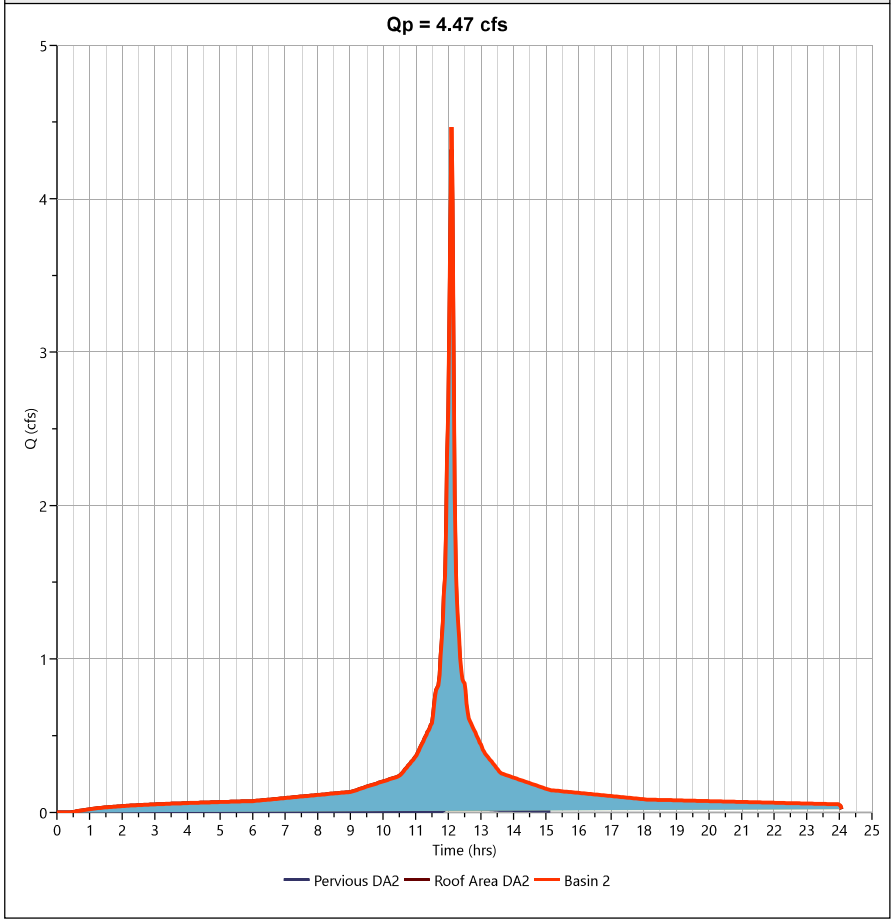
Hydrology Studio v 3.0.0.24

06-14-2022

Post Basin 2

Hyd. No. 15

Hydrograph Type	= Junction	Peak Flow	= 4.468 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 15,895 cuft
Inflow Hydrographs	= 8, 9	Total Contrib. Area	= 0.59 ac



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

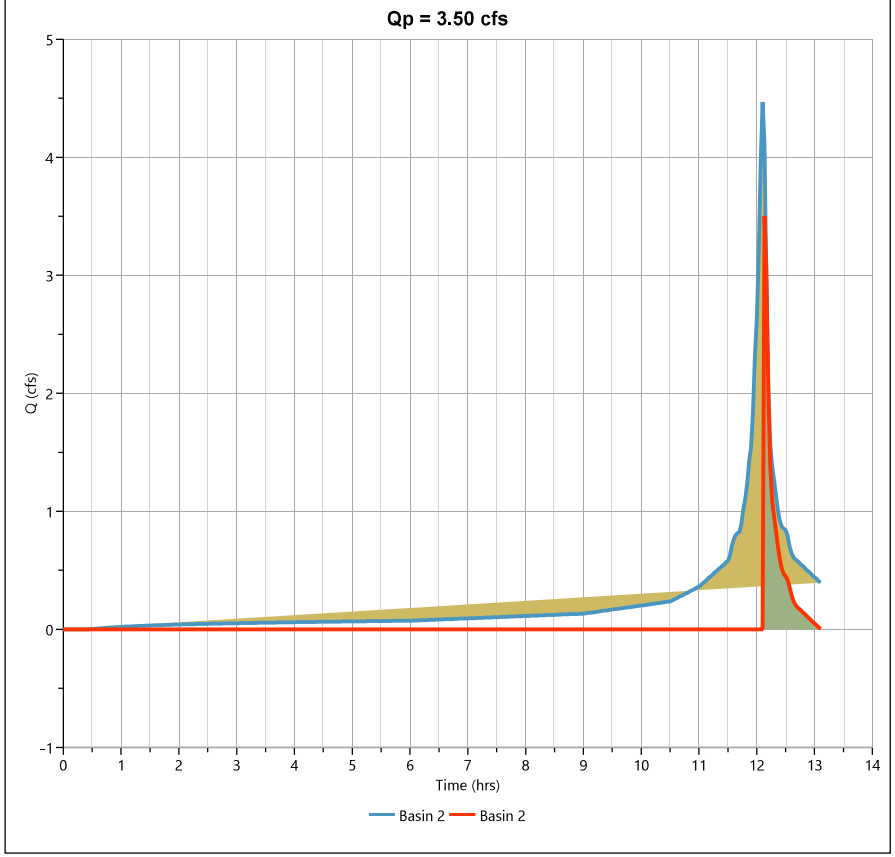
06-14-2022

Post Basin 2

Hyd. No. 16

Hydrograph Type	= Pond Route	Peak Flow	= 3.504 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 2,202 cuft
Inflow Hydrograph	= 15 - Basin 2	Max. Elevation	= 15.01 ft
Pond Name	= Basin 2	Max. Storage	= 3,667 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

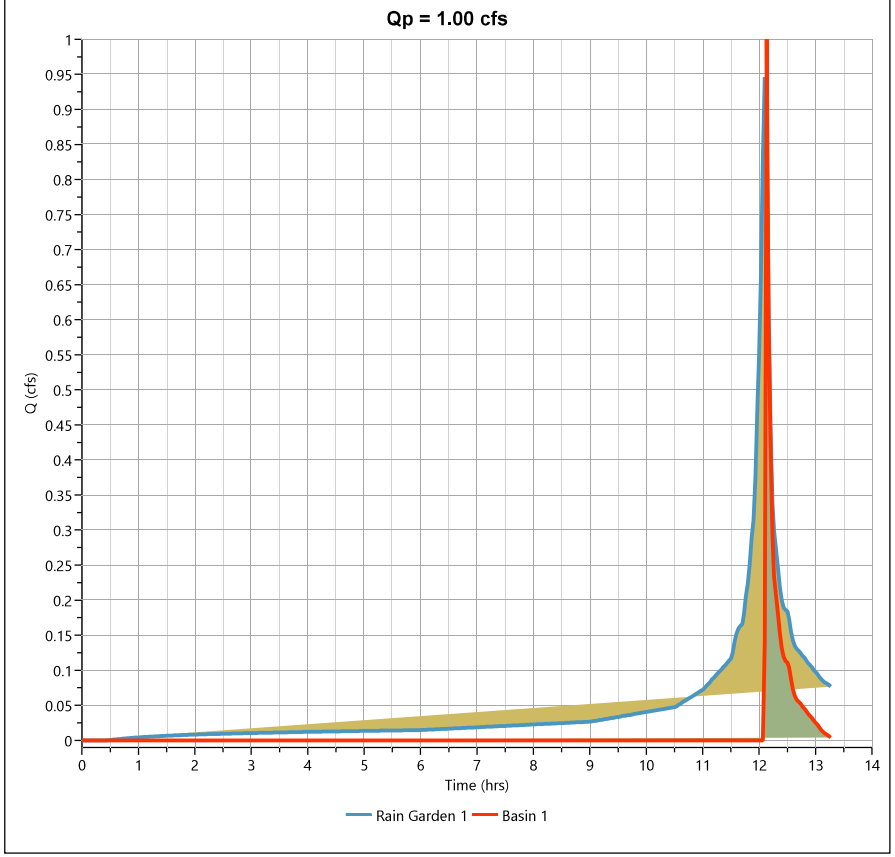
06-14-2022

Post Basin 1

Hyd. No. 17

Hydrograph Type	= Pond Route	Peak Flow	= 1.000 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 551 cuft
Inflow Hydrograph	= 14 - Rain Garden 1	Max. Elevation	= 15.00 ft
Pond Name	= BASIN 1	Max. Storage	= 753 cuft

Pond Routing by Storage Indication Method



Hydrograph Report

Project Name:

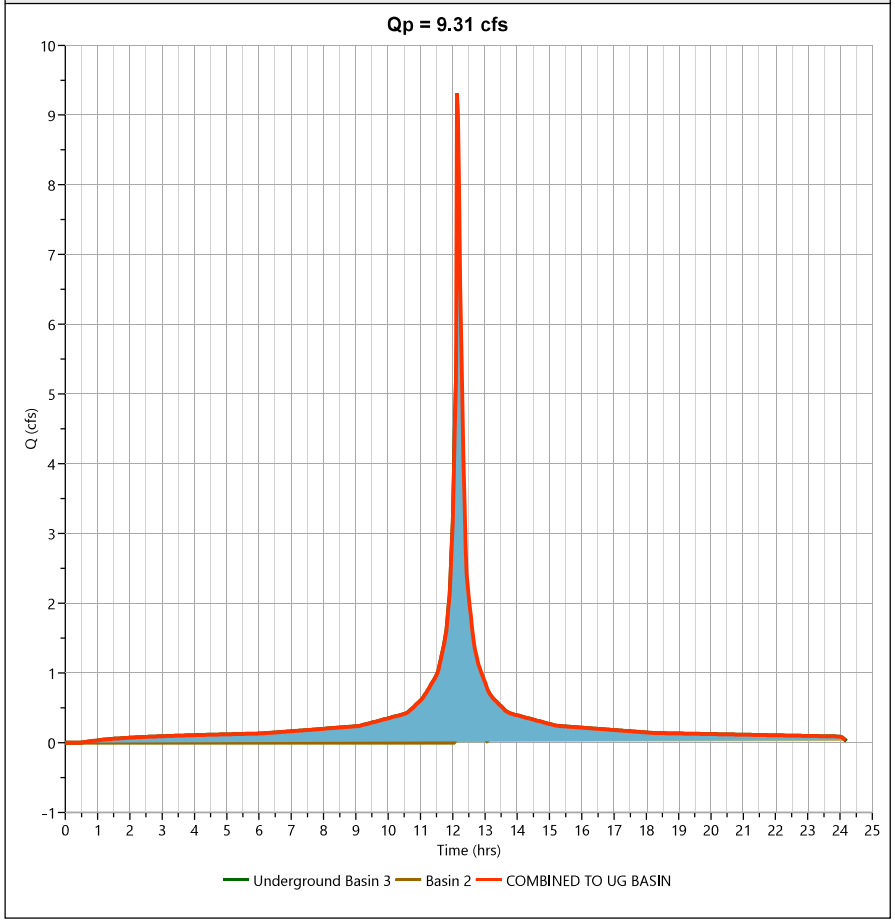
Hydrology Studio v 3.0.0.24

06-14-2022

Post COMBINED TO UG BASIN

Hyd. No. 18

Hydrograph Type	= Junction	Peak Flow	= 9.311 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 29,646 cuft
Inflow Hydrographs	= 13, 16	Total Contrib. Area	= 0.82 ac

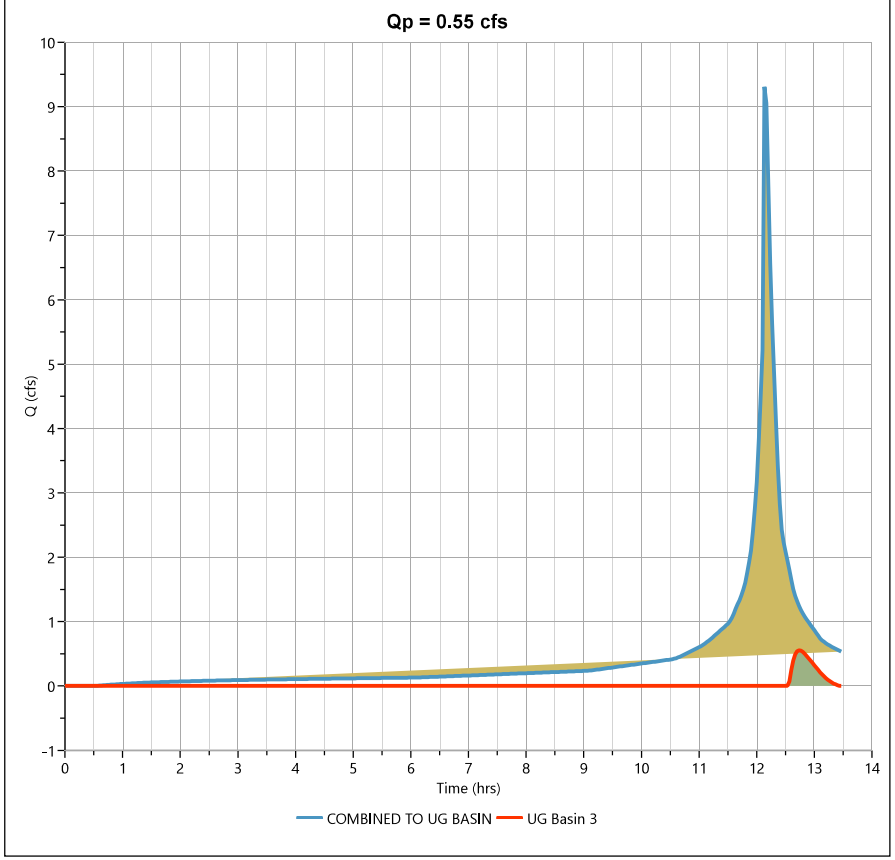


Post UG Basin 3

Hyd. No. 19

Hydrograph Type	= Pond Route	Peak Flow	= 0.553 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.73 hrs
Time Interval	= 2 min	Hydrograph Volume	= 881 cuft
Inflow Hydrograph	= 18 - COMBINED TO UG BASIN	Max. Elevation	= 14.23 ft
Pond Name	= UG BASIN 3	Max. Storage	= 10,225 cuft

Pond Routing by Storage Indication Method *Center of mass detention time = 35 min*

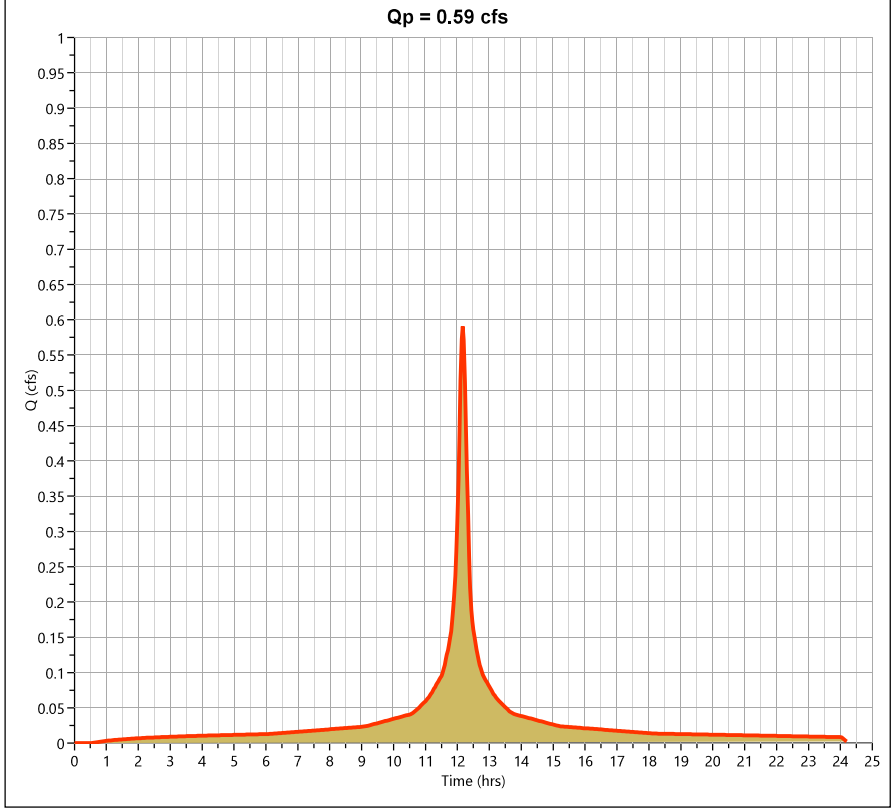


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre DA 2 - IMPERVIOUS

Hyd. No. 20

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.591 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.17 hrs
Time Interval	= 2 min	Runoff Volume	= 2,704 cuft
Drainage Area	= 0.08 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

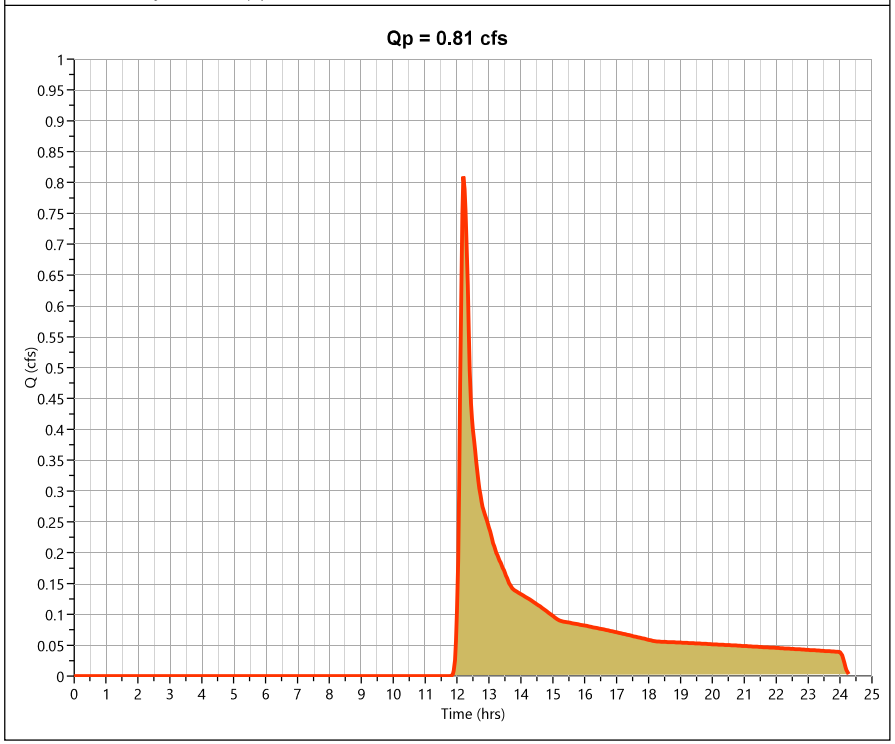
Pre DA 2 - PERVIOUS

Hyd. No. 21

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.810 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 4,475 cuft
Drainage Area	= 0.86 ac	Curve Number	= 36*
Tc Method	= User	Time of Conc. (Tc)	= 11.1 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.58	39	OPEN SPACE
0.28	30	WOODS
0.86	**36**	Weighted CN Method Employed



Hydrograph Report

Project Name:

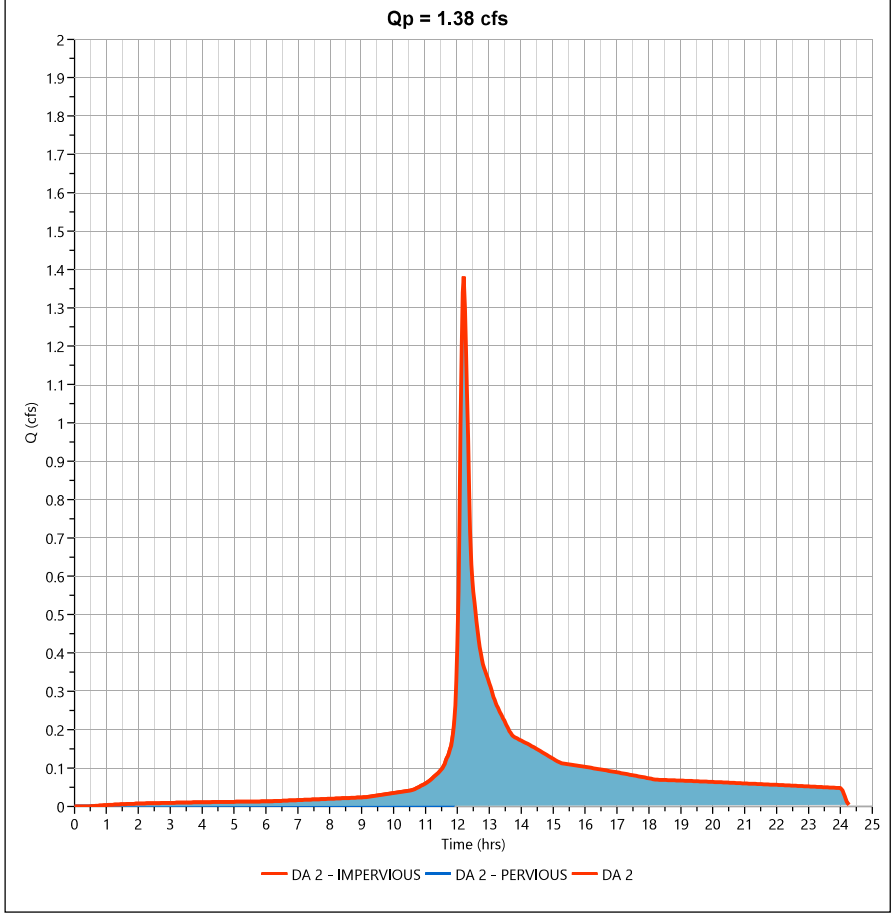
Hydrology Studio v 3.0.0.24

06-14-2022

Pre DA 2

Hyd. No. 22

Hydrograph Type	= Junction	Peak Flow	= 1.381 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 7,179 cuft
Inflow Hydrographs	= 20, 21	Total Contrib. Area	= 0.94 ac



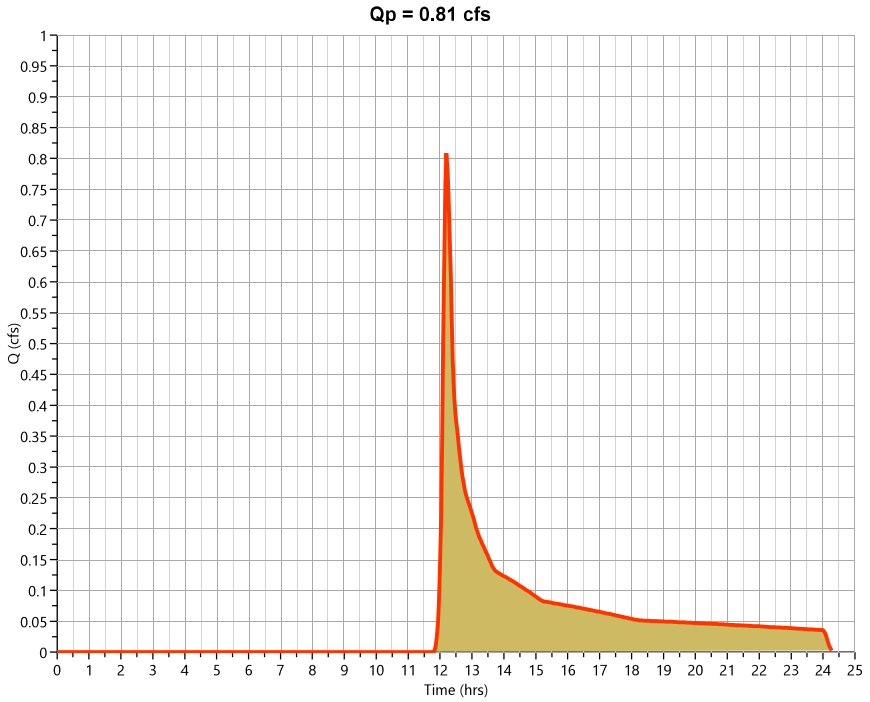
Pre DA 3 - PERVIOUS

Hyd. No. 23

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.809 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 4,218 cuft
Drainage Area	= 0.75 ac	Curve Number	= 37*
Tc Method	= User	Time of Conc. (Tc)	= 10.3 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484

*** Composite CN Worksheet**

AREA (ac)	CN	DESCRIPTION
0.62	39	OPEN SPACE
0.13	30	WOODS
0.75	**37**	Weighted CN Method Employed

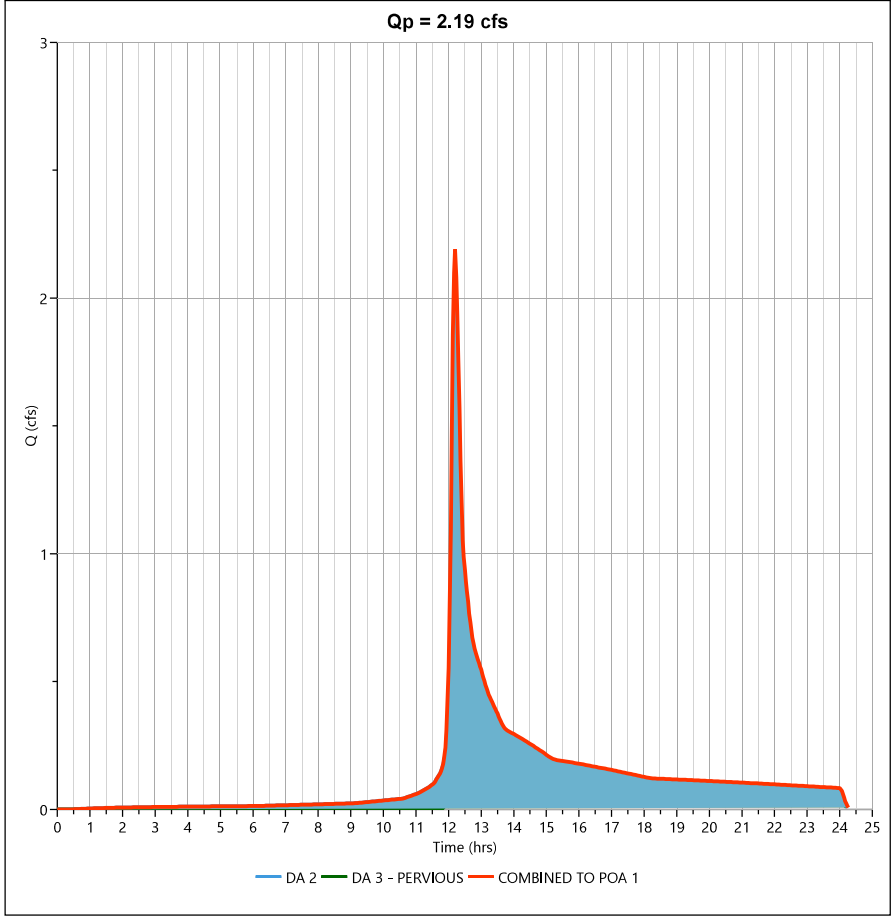


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Pre COMBINED TO POA 1

Hyd. No. 24

Hydrograph Type	= Junction	Peak Flow	= 2.190 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Hydrograph Volume	= 11,397 cuft
Inflow Hydrographs	= 22, 23	Total Contrib. Area	= 1.69 ac



Hydrograph Report

Project Name:

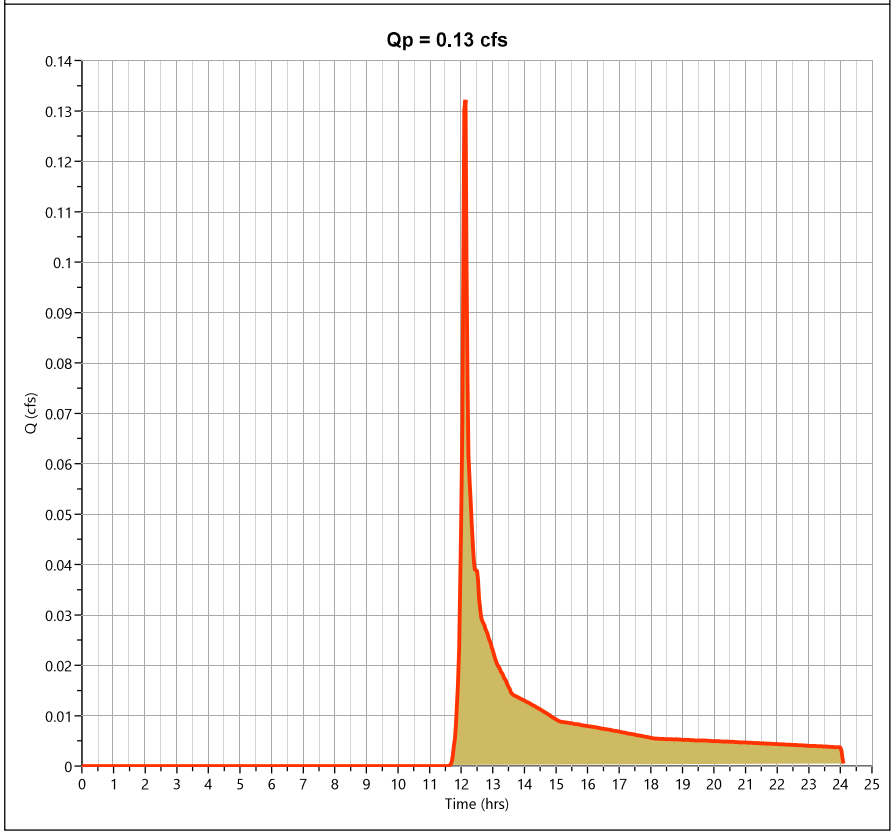
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 25

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.132 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 471 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

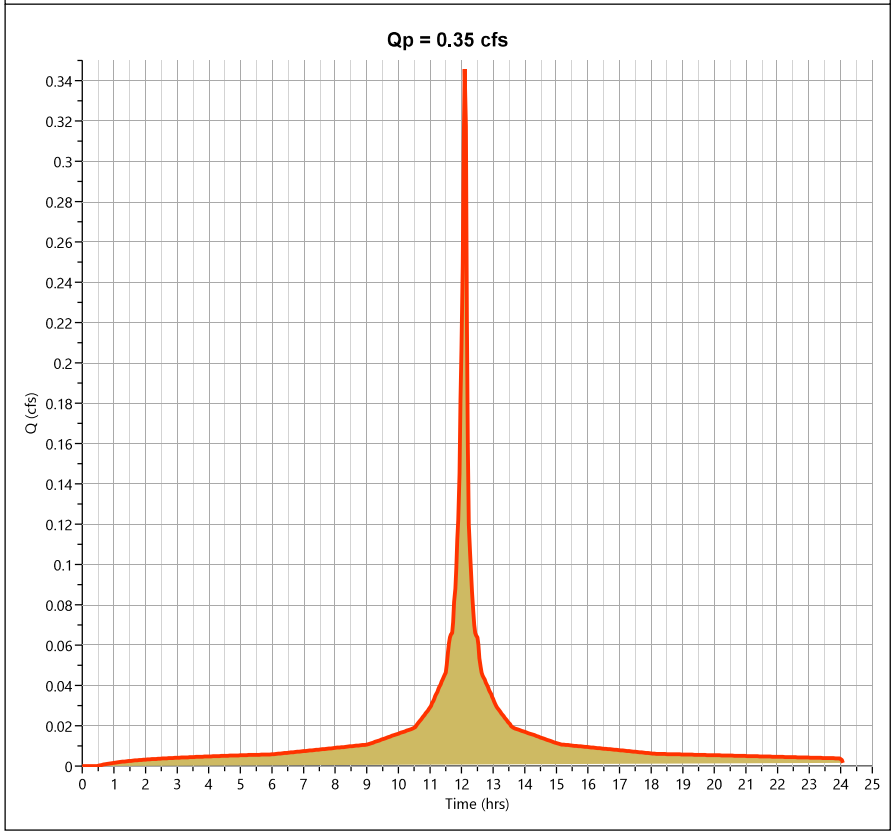
Hydrology Studio v 3.0.0.24

06-14-2022

Post IMP BYPASS INLET N.

Hyd. No. 26

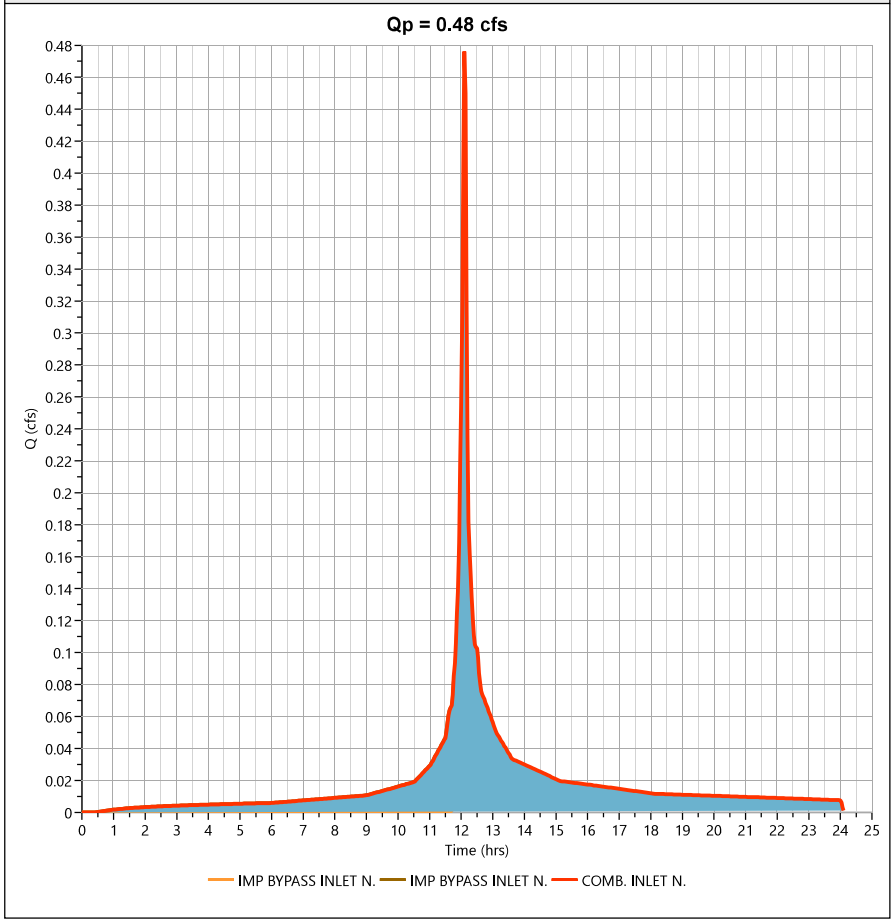
Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.346 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 1,229 cuft
Drainage Area	= 0.04 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



COMB. INLET N.

Hyd. No. 27

Hydrograph Type	= Junction	Peak Flow	= 0.476 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 1,701 cuft
Inflow Hydrographs	= 25, 26	Total Contrib. Area	= 0.12 ac

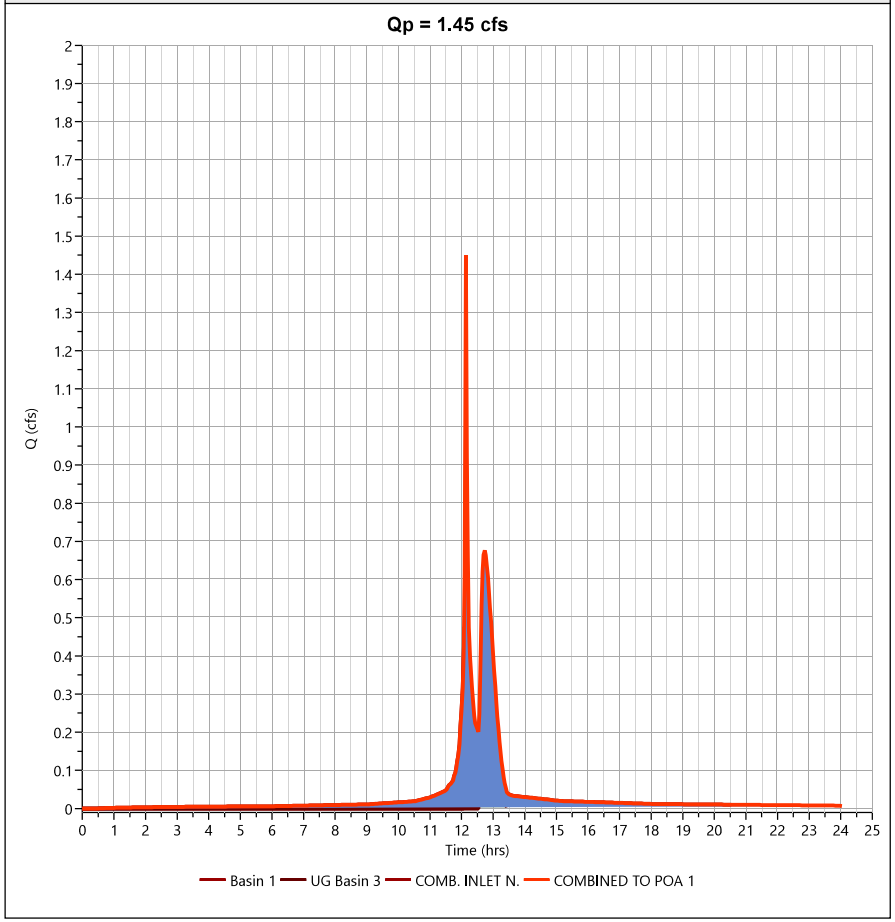


Hydrograph Report
Project Name:
Hydrology Studio v 3.0.0.24
06-14-2022

Post COMBINED TO POA 1

Hyd. No. 28

Hydrograph Type	= Junction	Peak Flow	= 1.450 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Hydrograph Volume	= 3,133 cuft
Inflow Hydrographs	= 17, 19, 27	Total Contrib. Area	= 0.12 ac



Hydrograph Report

Project Name:

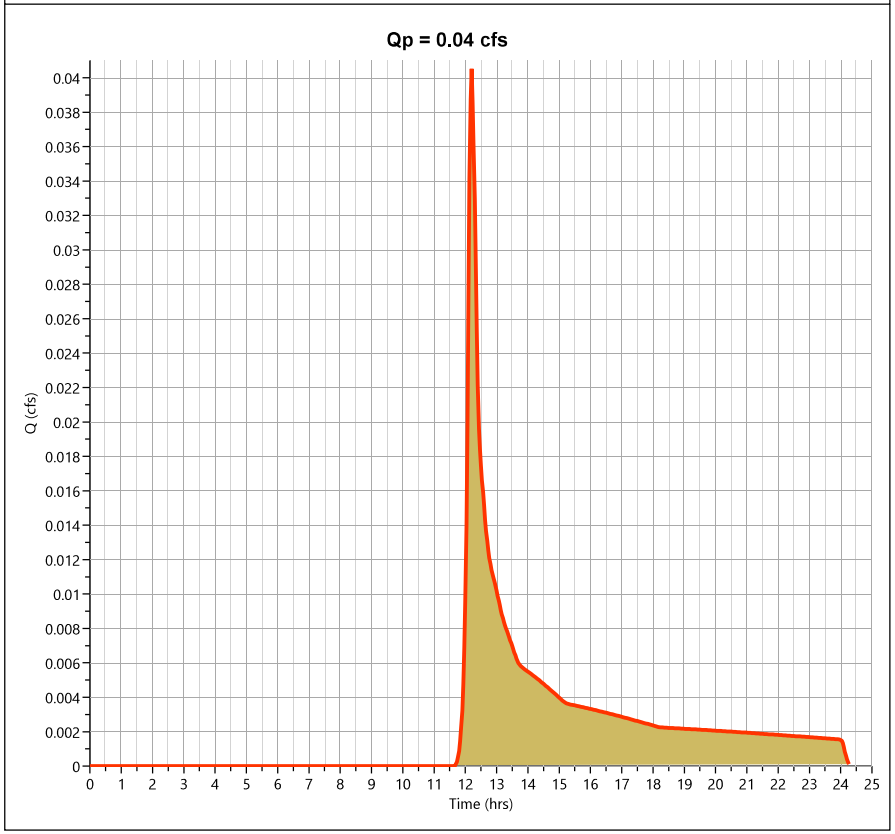
Hydrology Studio v 3.0.0.24

06-14-2022

Pre Bypass Memorial

Hyd. No. 29

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.041 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 194 cuft
Drainage Area	= 0.03 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

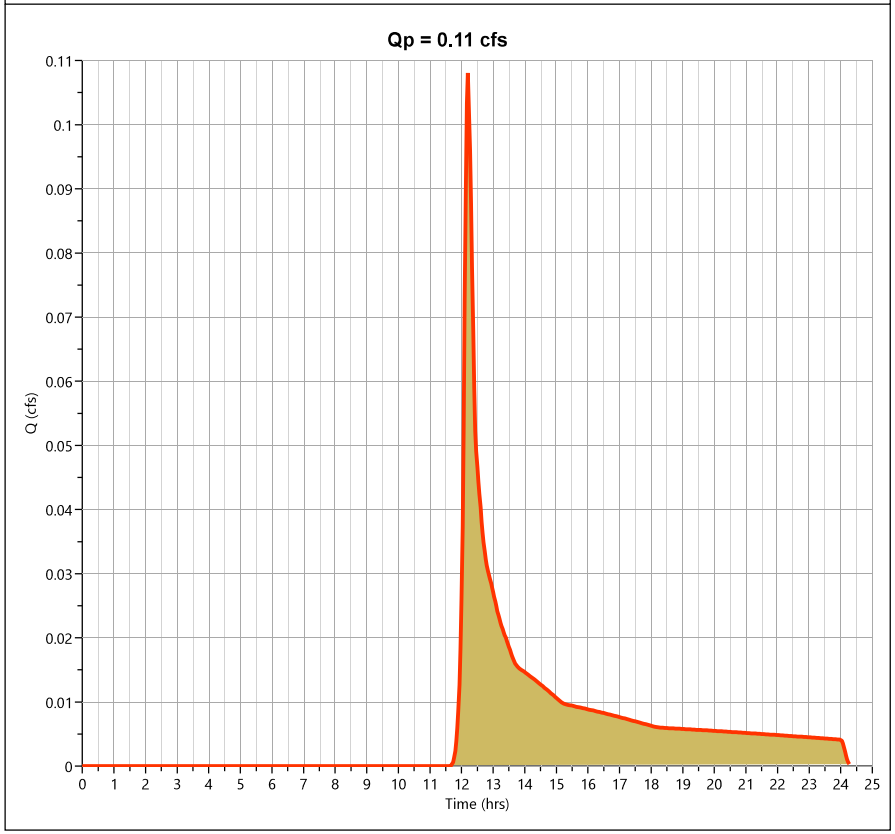
Hydrology Studio v 3.0.0.24

06-14-2022

Post Bypass Memorial

Hyd. No. 30

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.108 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.20 hrs
Time Interval	= 2 min	Runoff Volume	= 519 cuft
Drainage Area	= 0.08 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 12.9 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

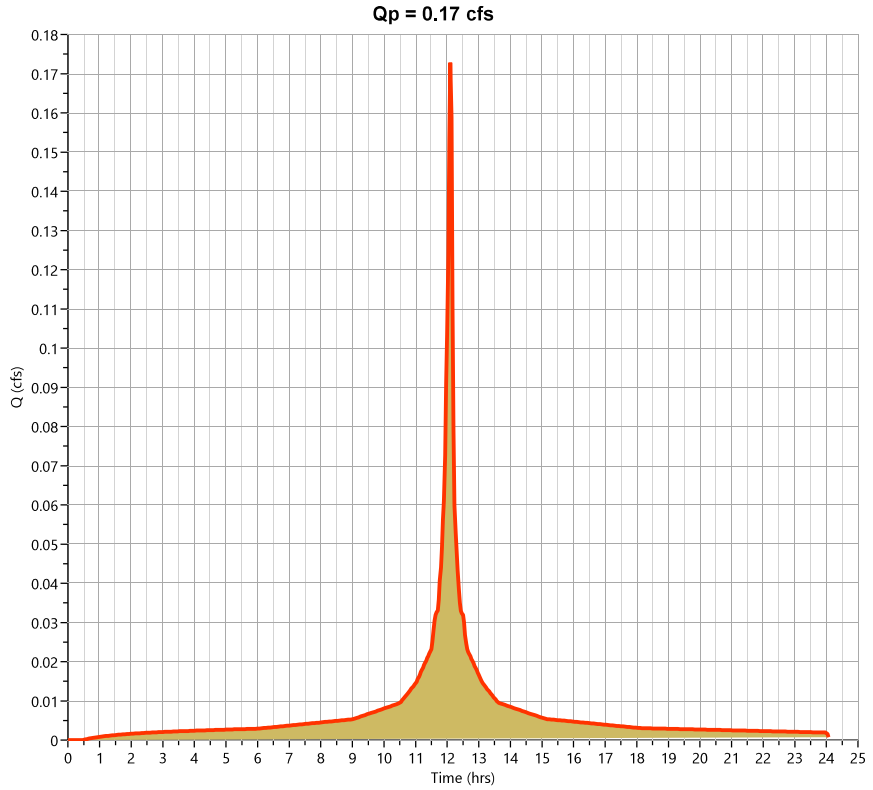
Hydrology Studio v 3.0.0.24

06-14-2022

Post Imp Bypass Inlet S.

Hyd. No. 31

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.173 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Runoff Volume	= 615 cuft
Drainage Area	= 0.02 ac	Curve Number	= 98
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

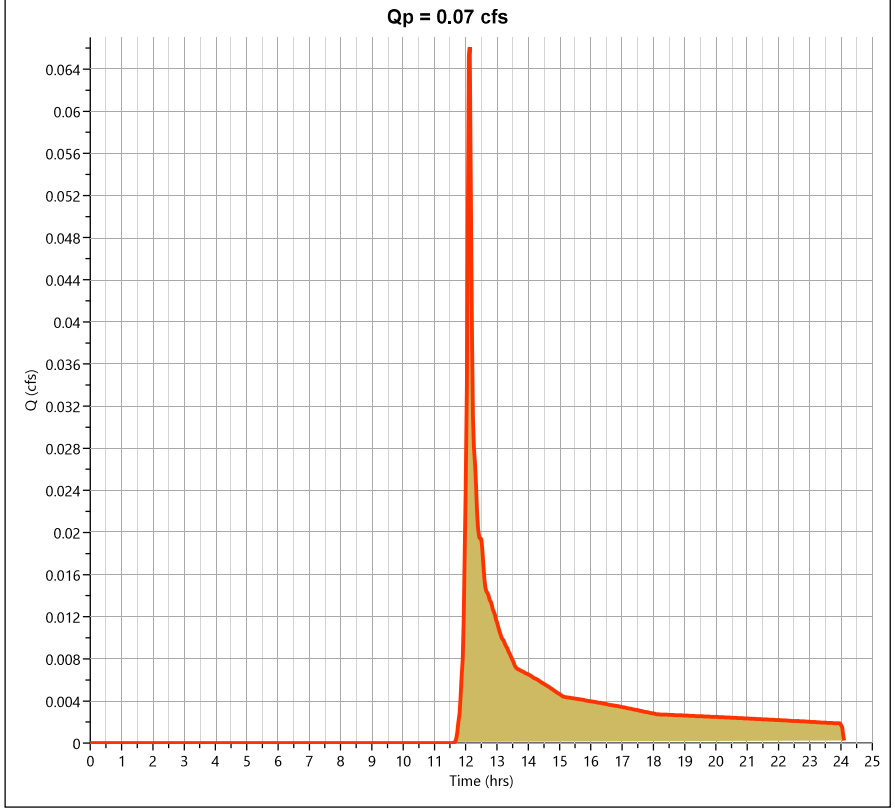
Hydrology Studio v 3.0.0.24

06-14-2022

Post Perv Bypass Inlet S.

Hyd. No. 32

Hydrograph Type	= NRCS Runoff	Peak Flow	= 0.066 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.13 hrs
Time Interval	= 2 min	Runoff Volume	= 236 cuft
Drainage Area	= 0.04 ac	Curve Number	= 39
Tc Method	= User	Time of Conc. (Tc)	= 6.0 min
Total Rainfall	= 9.27 in	Design Storm	= NOAA-D
Storm Duration	= 24 hrs	Shape Factor	= 484



Hydrograph Report

Project Name:

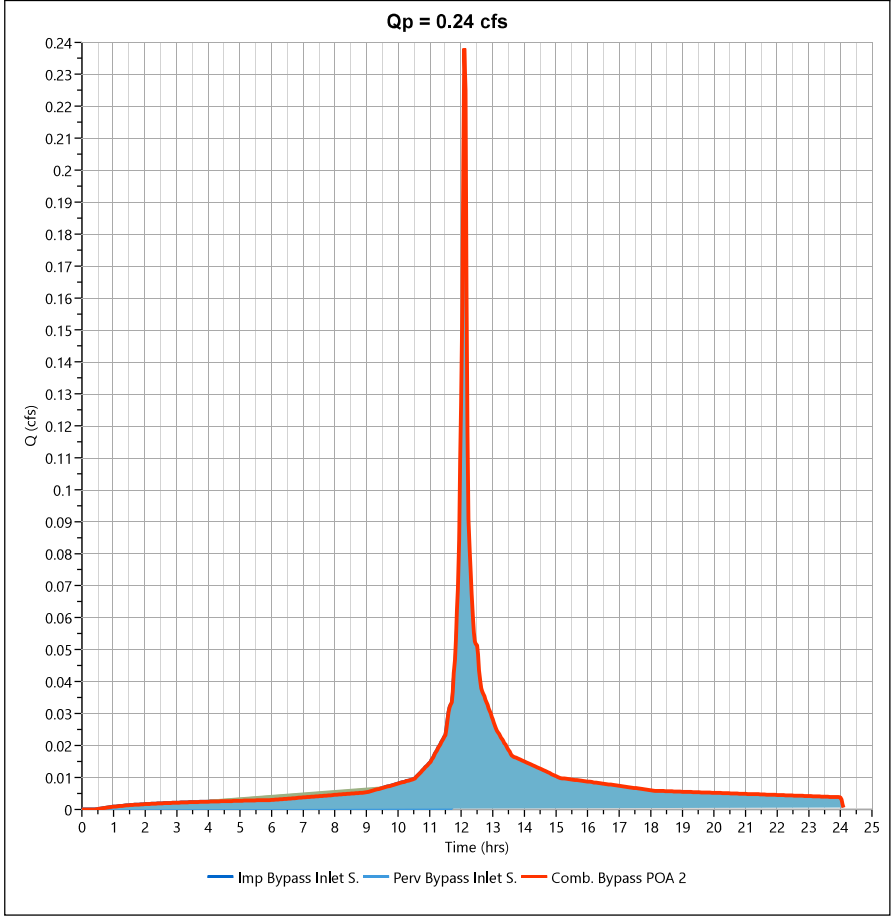
Hydrology Studio v 3.0.0.24

06-14-2022

Post Comb. Bypass POA 2

Hyd. No. 33

Hydrograph Type	= Junction	Peak Flow	= 0.238 cfs
Storm Frequency	= 100-yr	Time to Peak	= 12.10 hrs
Time Interval	= 2 min	Hydrograph Volume	= 850 cuft
Inflow Hydrographs	= 31, 32	Total Contrib. Area	= 0.06 ac



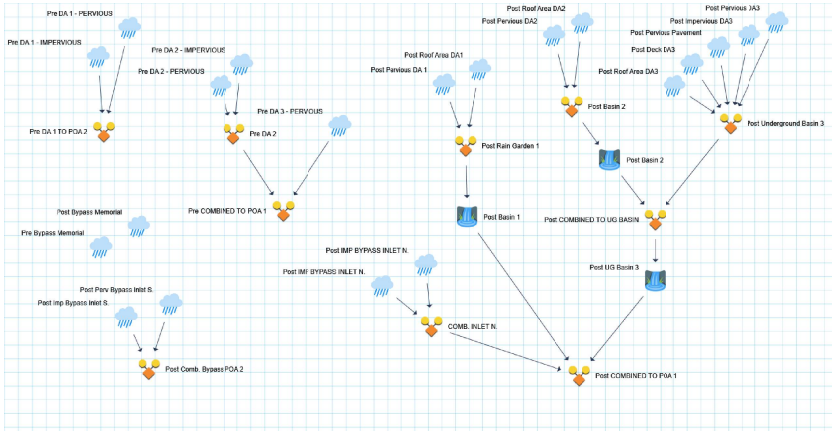
HYDROGRAPH SUMMARY REPORTS – STABILITY ANALYSIS

Basin Model

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022



Hydrograph 2-yr Summary

Hydrology Studio v 3.0.0.24

Project Name:

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.120	12.13	474	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.000	24.00	0.095	—		
3	NRCS Runoff	Post Roof Area DA3	0.801	12.17	3,546	—		
4	NRCS Runoff	Post Deck DA3	0.884	12.17	3,913	—		
5	NRCS Runoff	Post Pervious Pavement	0.414	12.17	1,834	—		
6	NRCS Runoff	Post Pervious DA 1	0.000	24.00	1.47	—		
7	NRCS Runoff	Post Roof Area DA1	0.323	12.10	1,112	—		
8	NRCS Runoff	Post Pervious DA2	0.000	24.00	2.64	—		
9	NRCS Runoff	Post Roof Area DA2	1.617	12.10	5,558	—		
10	Junction	Pre DA 1 TO POA 2	0.120	12.13	474	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.000	24.00	0.323	—		
12	NRCS Runoff	Post Impervious DA3	0.138	12.17	611	—		
13	Junction	Post Underground Basin 3	2.237	12.17	9,905	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.323	12.10	1,113	6, 7		
15	Junction	Post Basin 2	1.617	12.10	5,561	8, 9		
16	Pond Route	Post Basin 2	0.790	12.20	5,554	15	14.18	1,190
17	Pond Route	Post Basin 1	0.229	12.17	1,104	14	14.74	209
18	Junction	Post COMBINED TO UG BASIN	3.018	12.17	15,459	13, 16		
19	Pond Route	Post UG Basin 3	2.614	12.23	15,223	18	13.64	6,335
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.221	12.17	978	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.000	0.00	0.000	—		
22	Junction	Pre DA 2	0.221	12.17	978	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.000	24.00	1.47	—		
24	Junction	Pre COMBINED TO POA 1	0.221	12.17	980	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.000	24.00	2.35	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.129	12.10	445	—		
27	Junction	COMB. INLET N.	0.129	12.10	447	25, 26		
28	Junction	Post COMBINED TO POA 1	2.856	12.23	16,774	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.000	24.00	0.969	—		
30	NRCS Runoff	Post Bypass Memorial	0.000	24.00	2.59	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.065	12.10	222	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.000	24.00	1.18	—		
33	Junction	Post Comb. Bypass POA 2	0.065	12.10	223	31, 32		

Hydrograph 10-yr Summary

Project Name:

Hydrology Studio v 3.0.0.24

06-14-2022

Hyd. No.	Hydrograph Type	Hydrograph Name	Peak Flow (cfs)	Time to Peak (hrs)	Hydrograph Volume (cuft)	Inflow Hyd(s)	Maximum Elevation (ft)	Maximum Storage (cuft)
1	NRCS Runoff	Pre DA 1 - IMPERVIOUS	0.187	12.13	753	—		
2	NRCS Runoff	Pre DA 1 - PERVIOUS	0.002	12.97	38.7	—		
3	NRCS Runoff	Post Roof Area DA3	1.248	12.17	5,626	—		
4	NRCS Runoff	Post Deck DA3	1.377	12.17	6,208	—		
5	NRCS Runoff	Post Pervious Pavement	0.646	12.17	2,910	—		
6	NRCS Runoff	Post Pervious DA 1	0.003	12.50	49.8	—		
7	NRCS Runoff	Post Roof Area DA1	0.504	12.10	1,764	—		
8	NRCS Runoff	Post Pervious DA2	0.005	12.50	89.7	—		
9	NRCS Runoff	Post Roof Area DA2	2.519	12.10	8,818	—		
10	Junction	Pre DA 1 TO POA 2	0.187	12.13	791	1, 2		
11	NRCS Runoff	Post Pervious DA3	0.001	12.60	11.0	—		
12	NRCS Runoff	Post Impervious DA3	0.215	12.17	970	—		
13	Junction	Post Underground Basin 3	3.486	12.17	15,725	3, 4, 5, 11, 12		
14	Junction	Post Rain Garden 1	0.504	12.10	1,814	6, 7		
15	Junction	Post Basin 2	2.519	12.10	8,908	8, 9		
16	Pond Route	Post Basin 2	1.136	12.20	8,901	15	14.49	1,794
17	Pond Route	Post Basin 1	0.374	12.17	1,805	14	14.81	266
18	Junction	Post COMBINED TO UG BASIN	4.607	12.17	24,627	13, 16		
19	Pond Route	Post UG Basin 3	3.795	12.27	24,379	18	14.01	6,942
20	NRCS Runoff	Pre DA 2 - IMPERVIOUS	0.344	12.17	1,552	—		
21	NRCS Runoff	Pre DA 2 - PERVIOUS	0.021	13.30	570	—		
22	Junction	Pre DA 2	0.344	12.17	2,122	20, 21		
23	NRCS Runoff	Pre DA 3 - PERVIOUS	0.026	13.00	598	—		
24	Junction	Pre COMBINED TO POA 1	0.344	12.17	2,720	22, 23		
25	NRCS Runoff	Post IMP BYPASS INLET N.	0.005	12.50	79.7	—		
26	NRCS Runoff	Post IMP BYPASS INLET N.	0.202	12.10	705	—		
27	Junction	COMB. INLET N.	0.202	12.10	785	25, 26		
28	Junction	Post COMBINED TO POA 1	4.150	12.23	26,968	17, 19, 27		
29	NRCS Runoff	Pre Bypass Memorial	0.002	12.60	32.9	—		
30	NRCS Runoff	Post Bypass Memorial	0.005	12.60	87.7	—		
31	NRCS Runoff	Post Imp Bypass Inlet S.	0.101	12.10	353	—		
32	NRCS Runoff	Post Perv Bypass Inlet S.	0.002	12.50	39.9	—		
33	Junction	Post Comb. Bypass POA 2	0.101	12.10	393	31, 32		

STORMWATER COLLECTION CALCULATION (PIPE SIZING)

DYNAMIC ENGINEERING

Stormwater Collection System Calculations

Project: SURFSIDE CROSSING
Job #: 2241-99-002
Location: MEMORIAL DRIVE & 8TH AVE
Design Storm: 25

Computed By: SMM
Checked By: SRC
Date: 6/14/2022
Revised: -

NOTES:
1) Design method used is Rational Method
2) Refer to Weighted Runoff Coefficient table for calculation of incremental areas and C values

PIPE SECTION		SUBCATCHMENT AREA	INCREMENTAL		CUMULATIVE	TIME OF CONCENTRATION			I	PEAK RUNOFF		PIPING INPUT			PIPING DATA			
FROM	TO	Area (Acres)	"C"	A x C Ac	A x C (acres)	Tc to Inlet (min)	Tc in Pipe (min.)	Final Tc (min)	(In/Hr)	Q to Inlet (CFS)	Q cum. for Pipe (CFS)	Dia. (In)	Length (Ft)	Man. "n"	Slope (ft/ft)	Pipe Capacity (cfs)	Full Pipe Velocity (fps)	Actual Pipe Velocity (fps)
OCS 101	SWMH 102	0.17	0.95	0.16	0.16	10.00	0.14	10.00	6.80	1.09	1.09	12	29.0	0.011	0.0044	2.79	3.55	3.18
SWMH 102	SWMH 103	0.00	0.95	0.00	0.16	10.00	0.30	10.14	6.80	0.00	1.09	12	53.0	0.011	0.0030	2.31	2.94	2.87
OCS 201	SWMH 202	0.05	0.95	0.04	0.04	10.00	0.20	10.00	6.80	0.27	0.27	12	45.0	0.011	0.0050	2.98	3.80	1.43
OCS 301	SWMH 202	0.05	0.95	0.04	0.04	10.00	0.14	10.00	6.80	0.27	0.27	12	78.0	0.011	0.0280	7.04	8.97	2.00
SWMH 202	EX 203	0.00	0.95	0.00	0.08	10.00	0.24	10.20	6.80	0.00	0.54	12	42.0	0.011	0.0030	2.31	2.94	1.97

INFILTRATION BASIN DRAIN TIME

DYNAMIC ENGINEERING

Infiltration Basin Drain time Calculations

Project:	Surfside Crossing	Computed By:	SMM
Job #:	2241-99-002	Checked By:	SRC
Location:	Memorial Drive & 8th Ave, Neptune, NJ	Date:	6/14/2022
		Revised:	0

Basin Name: **Basin 1**

Volume of Runoff to be Infiltrated =	939	cubic feet			
Surface Area of Infiltration Area =	520	square feet			
Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =	1.81	feet	=	21.67	inches
Field Tested Recharge Rate =	6.5	inches per hour			
Design Recharge Rate * =	3.25	inches per hour			

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 6.67 hours**

**Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate*

***Note : Time to Empty Basin must be less than 72 hours. Therefore;* Drain time is less than 72 Hours, therefore, design is acceptable

DYNAMIC ENGINEERING

Infiltration Basin Drain time Calculations

Project:	Surfside Crossing	Computed By:	SMM
Job #:	2241-99-002	Checked By:	SRC
Location:	Memorial Drive & 8th Ave, Neptune, NJ	Date:	6/14/2022
		Revised:	0

Basin Name: **Basin 2**

Volume of Runoff to be Infiltrated =	5,077	cubic feet			
Surface Area of Infiltration Area =	1,201	square feet			
Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =	4.23	feet	=	50.73	inches
Field Tested Recharge Rate =	14.4	inches per hour			
Design Recharge Rate * =	7.2	inches per hour			

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 7.05 hours**

**Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate*

***Note : Time to Empty Basin must be less than 72 hours. Therefore;* Drain time is less than 72 Hours, therefore, design is acceptable

DYNAMIC ENGINEERING

Infiltration Basin Drain time Calculations

Project:	Surfside Crossing	Computed By:	SMM
Job #:	2241-99-002	Checked By:	SRC
Location:	Memorial Drive & 8th Ave, Neptune, NJ	Date:	6/14/2022
		Revised:	0

Basin Name: **Basin 2**

Volume of Runoff to be Infiltrated =	6,303	cubic feet			
Surface Area of Infiltration Area =	8,430	square feet			
Effective Depth of Runoff to be Infiltrated = Volume of Runoff to be Infiltrated / Surface Area of Infiltration Area =	0.75	feet	=	8.97	inches
Field Tested Recharge Rate =	7.5	inches per hour			
Design Recharge Rate * =	3.75	inches per hour			

Effective Depth of Runoff to be Infiltrated / Design Recharge Rate = Time to Empty Basin = 2.39 hours**

**Note : Factor of Safety of 2 is applied to the Field Tested Recharge Rate to establish the Design Recharge Rate*

***Note : Time to Empty Basin must be less than 72 hours. Therefore;* Drain time is less than 72 Hours, therefore, design is acceptable

RUNOFF RATE REDUCTIONS

DYNAMIC ENGINEERING

Runoff Rate Reduction Performance

Project: Surfside Crossing
Job #: 2241-99-002
Location: Neptune, NJ

Computed By: SMM
Checked By: SRC
Date: 6/10/2022

FLOW TO POA 1

Design Storm	Existing Runoff Rate from Disturbed Area (CFS)	Hydrograph #	Runoff Rate Required Reduction	Maximum Total Allowable Runoff Rate (CFS)	Proposed Runoff Rate (CFS)	Hydrograph #
2 Year	0.22	24	50%	0.11	0.13	28
10 Year	0.34	24	25%	0.26	0.20	28
25 Year	0.59	24	0%	0.59	0.44	28
100 Year	2.19	24	20%	1.75	1.69	28

FLOW TO POA 2

Design Storm	Existing Runoff Rate from Disturbed Area	Hydrograph #	Runoff Rate Required	Maximum Total Allowable Runoff	Proposed Runoff Rate (CFS)	Hydrograph #
2 Year	0.12	10	50%	0.06	0.065*	33
10 Year	0.19	10	25%	0.14	0.10	33
25 Year	0.24	10	0%	0.24	0.14	33
100 Year	0.38	10	20%	0.30	0.24	33

FLOW TO POA 3

Design Storm	Existing Runoff Rate from Disturbed Area	Hydrograph #	Runoff Rate Required	Maximum Total Allowable Runoff	Proposed Runoff Rate (CFS)	Hydrograph #
2 Year	0.00	29	50%	0.00	0.00	30
10 Year	0.002	29	25%	0.00	0.005*	30
25 Year	0.01	29	0%	0.01	0.02*	30
100 Year	0.04	29	20%	0.03	0.108*	30

NJGRS SPREADSHEETS

New Jersey Groundwater Recharge Spreadsheet Version 2.0 November 2003

Annual Groundwater Recharge Analysis (based on GSR-32)

Select Township ↓	Average Annual P (in)	Climatic Factor
MONMOUTH CO., NEPTUNE TWP	47.4	1.55

Project Name:	**Surfside Crossing**
Description:	**78 Multi-Family Unit Dwelling**
Analysis Date:	**05/10/22**

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.43	Woods	Fort Mott	17.1	26,693
2	0.12	Impervious areas	Fort Mott	0.0	-
3	1.26	Open space	Fort Mott	17.5	79,948
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	1.8			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				16.2	106,641

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	1.46	Impervious areas	Fort Mott	0.0	-
2	0.35	Open space	Fort Mott	17.5	22,208
3	0				
4	0				
5	0				
6	0				
7	0				
8	0				
9	0				
10	0				
11	0				
12	0				
13	0				
14	0				
15	0				
Total =	1.8			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				3.4	22,208

Annual Recharge Requirements Calculation ↓

% of Pre-Developed Annual Recharge to Preserve =	100%	Total Impervious Area (sq.ft)
		63,598
Post-Development Annual Recharge Deficit=	***84,433***	(cubic feet)

Recharge Efficiency Parameters Calculations (area averages)

RWC=	1.70	(in)	DRWC=	0.00	(in)
ERWC =	0.38	(in)	EDRWC=	0.00	(in)

Procedure to fill the Pre-Development and Post-Development Conditions Tables

For each land segment, first enter the area, then select TR-55 Land Cover, then select Soil. Start from the top of the table and proceed downward. Don't leave blank rows (with A=0) in between your segment entries. Rows with A=0 will not be displayed or used in calculations. For impervious areas outside of standard lots select "Impervious Areas" as the Land Cover. Soil type for impervious areas are only required if an infiltration facility will be built within these areas.

Project Name	Description	Analysis Date	BMP or LID Type
Surfside Crossing	78 Multi-Family Unit Dwelling	05/10/22	BASIN 1

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	520.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	6.0	in
Upper level of the BMP surface (negative if above ground)	dBMPu	-23.5	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	0.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	0	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.38	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	2.11	in
Inches of Rainfall to capture	Pdesign	2.34	in
Recharge Provided Avg. over Imp. Area		35.8	in
Runoff Captured Avg. over imp. Area		35.8	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.01	unitless
BMP Volume	VBMP	260	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK

BMP Location---> Location is selected as distributed or undetermined

Parameters from Annual Recharge Worksheet

Parameter	Symbol	Value	Unit
Post-D Deficit Recharge (or desired recharge volume)	Vdef	10,421	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	63,598	sq.ft
Root Zone Water Capacity	RWC	1.70	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.55	no units
Average Annual P	Pavg	47.4	in
Recharge Requirement over Imp. Area	dr	2.0	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		11,717	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		78.2%	%
%Runoff Infiltrated		6.0%	%
%Runoff Recharged		6.0%	%
%Rainfall Recharged		4.7%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

Project Name	Description	Analysis Date	BMP or LID Type
Surfside Crossing	78 Multi-Family Unit Dwelling	05/10/22	BASIN 2

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	1201.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	6.0	in
Upper level of the BMP surface (negative if above ground)	dBMPu	-34.8	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	0.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	0	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.38	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	2.11	in
Inches of Rainfall to capture	Pdesign	2.34	in
Recharge Provided Avg. over Imp. Area		35.8	in
Runoff Captured Avg. over imp. Area		35.8	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.05	unitless
BMP Volume	VBMP	601	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK

BMP Location---> Location is selected as distributed or undetermined

Parameters from Annual Recharge Worksheet

Parameter	Symbol	Value	Unit
Post-D Deficit Recharge (or desired recharge volume)	Vdef	26,000	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	22,216	sq.ft
Root Zone Water Capacity	RWC	1.70	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.55	no units
Average Annual P	Pavg	47.4	in
Recharge Requirement over Imp. Area	dr	4.9	in

System Performance Calculated Parameters

Parameter		Value	Unit
Annual BMP Recharge Volume		27,061	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		78.2%	%
%Runoff Infiltrated		39.4%	%
%Runoff Recharged		13.8%	%
%Rainfall Recharged		10.8%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

Project Name	Description	Analysis Date	BMP or LID Type
Surfside Crossing	78 Multi-Family Unit Dwelling	05/10/22	UG BASIN

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	8430.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	14.4	in
Upper level of the BMP surface (negative if above ground)	dBMPu	30.0	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	48.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	0	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.38	in
ERWC Modified to consider dEXC	EDRWC	0.00	in
Empty Portion of RWC under Infilt. BMP	RERWC	0.00	in

Recharge Design Parameters

Parameter	Symbol	Value	Unit
Inches of Runoff to capture	Qdesign	2.11	in
Inches of Rainfall to capture	Pdesign	2.34	in
Recharge Provided Avg. over Imp. Area		35.8	in
Runoff Captured Avg. over imp. Area		35.8	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.13	unitless
BMP Volume	VBMP	10,116	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> Solve Problem to satisfy Annual Recharge
dBMP Check---> OK
dEXC Check---> OK

BMP Location---> Location is selected as distributed or undetermined

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	84,433	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	63,598	sq.ft
Root Zone Water Capacity	RWC	1.70	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.55	no units
Average Annual P	Pavg	47.4	in
Recharge Requirement over Imp. Area	dr	15.9	in

System Performance Calculated Parameters

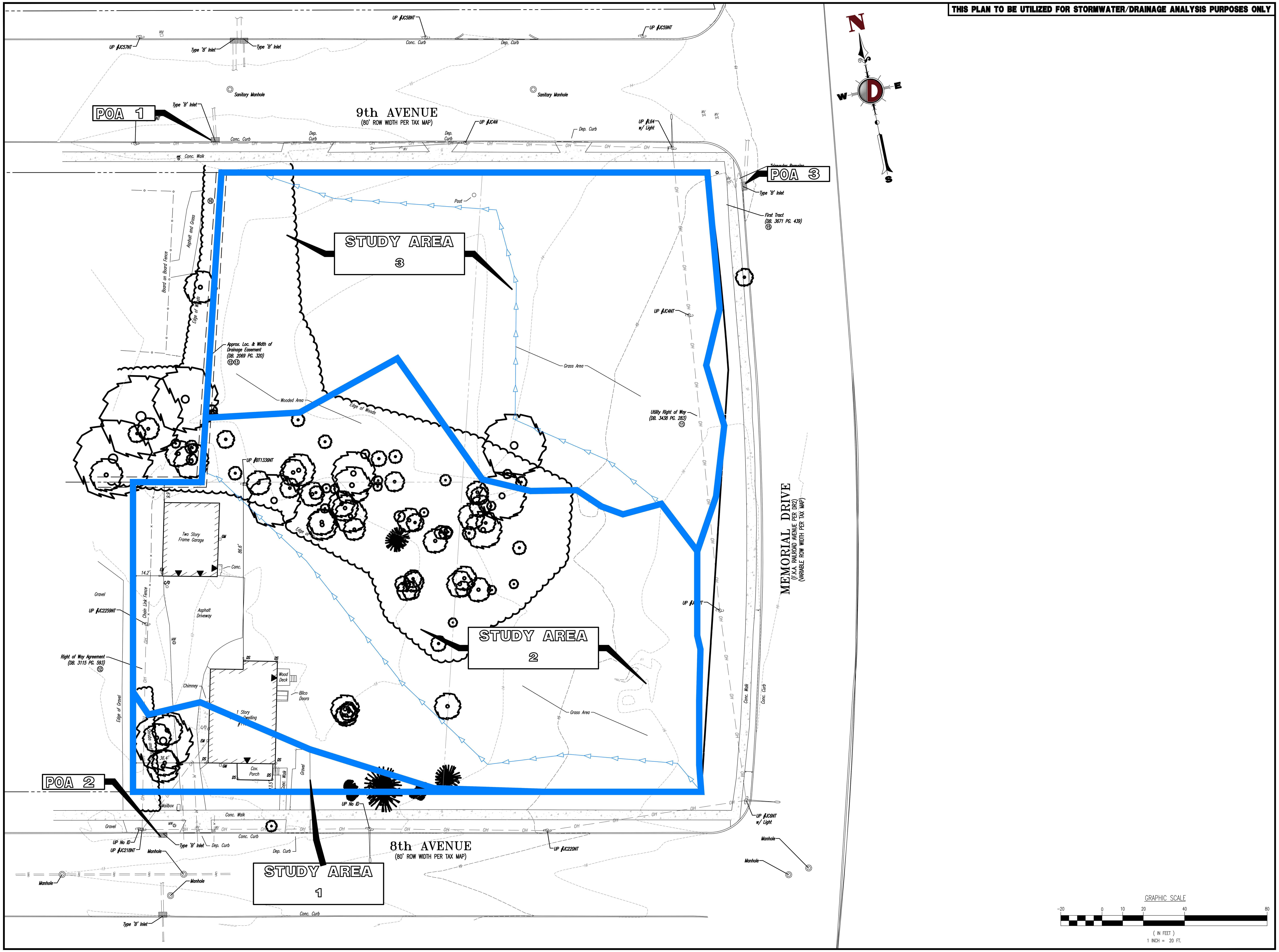
Annual BMP Recharge Volume		189,946	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		78.2%	%
%Runoff Infiltrated		96.7%	%
%Runoff Recharged		96.7%	%
%Rainfall Recharged		75.6%	%

OTHER NOTES

Pdesign is accurate only after BMP dimensions are updated to make rech volume= deficit volume. The portion of BMP infiltration prior to filling and the area occupied by BMP are ignored in these calculations. Results are sensetive to dBMP, make sure dBMP selected is small enough for BMP to empty in less than 3 days. For land Segment Location of BMP if you select "impervious areas" RWC will be minimal but not zero as determined by the soil type and a shallow root zone for this Land Cover allowing consideration of lateral flow and other losses.

How to solve for different recharge volumes: By default the spreadsheet assigns the values of total deficit recharge volume "Vdef" and total proposed impervious area "Aimp" from the "Annual Recharge" sheet to "Vdef" and "Aimp" on this page. This allows solution for a single BMP to handle the entire recharge requirement assuming the runoff from entire impervious area is available to the BMP.
To solve for a smaller BMP or a LID-IMP to recharge only part of the recharge requirement, set Vdef to your target value and Aimp to impervious area directly connected to your infiltration facility and then solve for ABMP or dBMP. To go back to the default configuration clik the "Default Vdef & Aimp" button.

DRAINAGE AREA MAPS



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REV.	DATE	COMMENTS	BY

THIS PLAN SET IS FOR PERMITTING PURPOSES ONLY AND MAY NOT BE USED FOR CONSTRUCTION

DRAWN BY: MR | DESIGNED BY: SMM | CHECKED BY: SRC | CHECKED BY: –

PROJECT: SURFSIDE CROSSING
PROPOSED MULTI-FAMILY DWELLINGS
BLOCK 405, LOTS 5, 6, & 7
1102 9TH AVENUE, 105 8TH AVENUE, & MEMORIAL DRIVE
NEPTUNE TOWNSHIP, MONMOUTH COUNTY, NEW JERSEY

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www.dynamicec.com

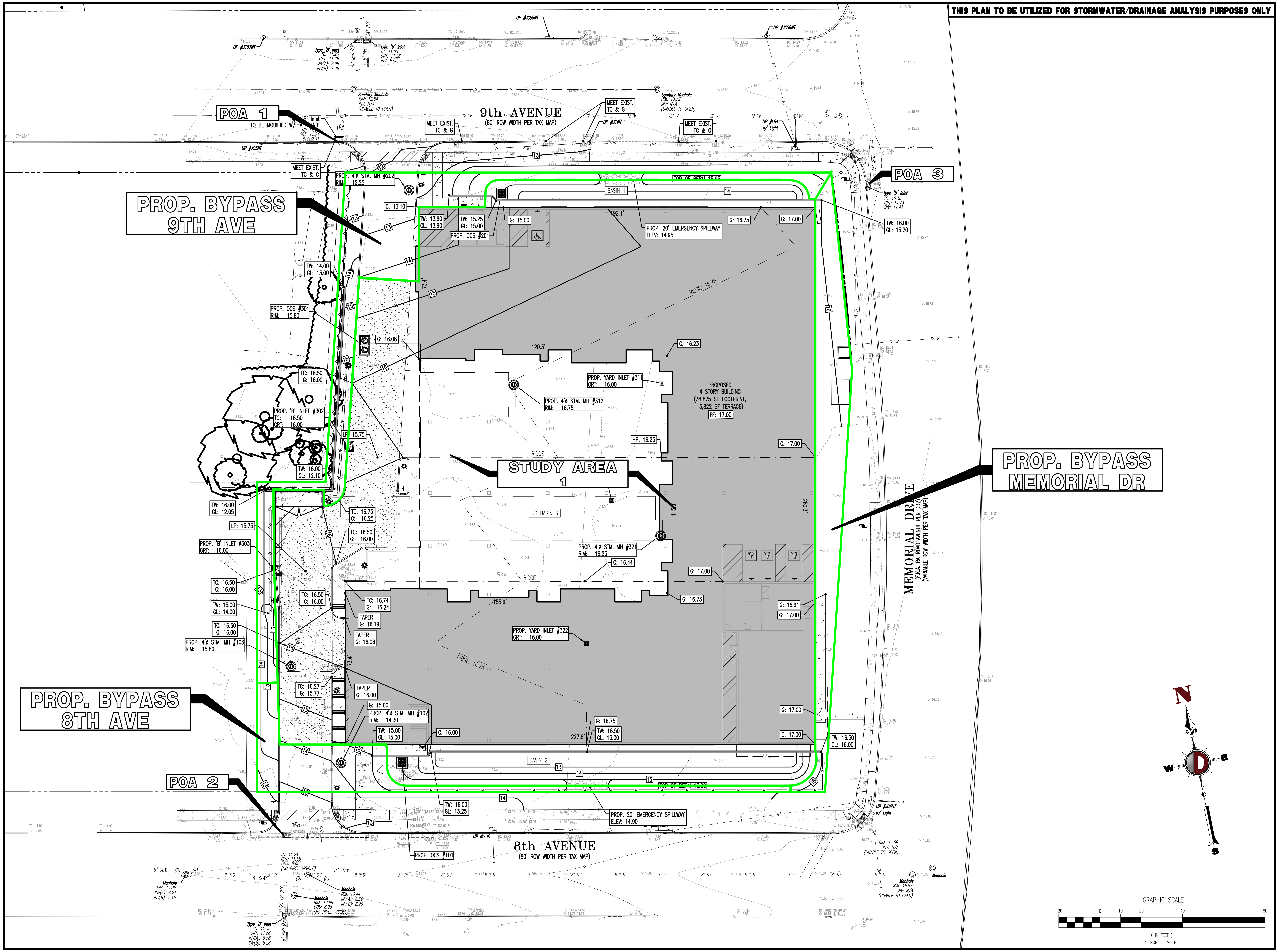
JUSTIN A. GEONNOTTI
PROFESSIONAL ENGINEER

STEVEN R. CATTANI
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 40014

TITLE: EXISTING DRAINAGE AREA MAP

SCALE: (H) 1"=20' (V) | DATE: 06/13/22
PROJECT No: 2241-99-002

SHEET No: 1 OF 26 | Rev. #: 0



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REV.	DATE	COMMENTS	BY

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DRAWN BY:	DESIGNED BY:	CHECKED BY:
MWD	SMM	SRC

PROJECT: SURFSIDE CROSSING
PROPOSED MULTI-FAMILY DWELLINGS
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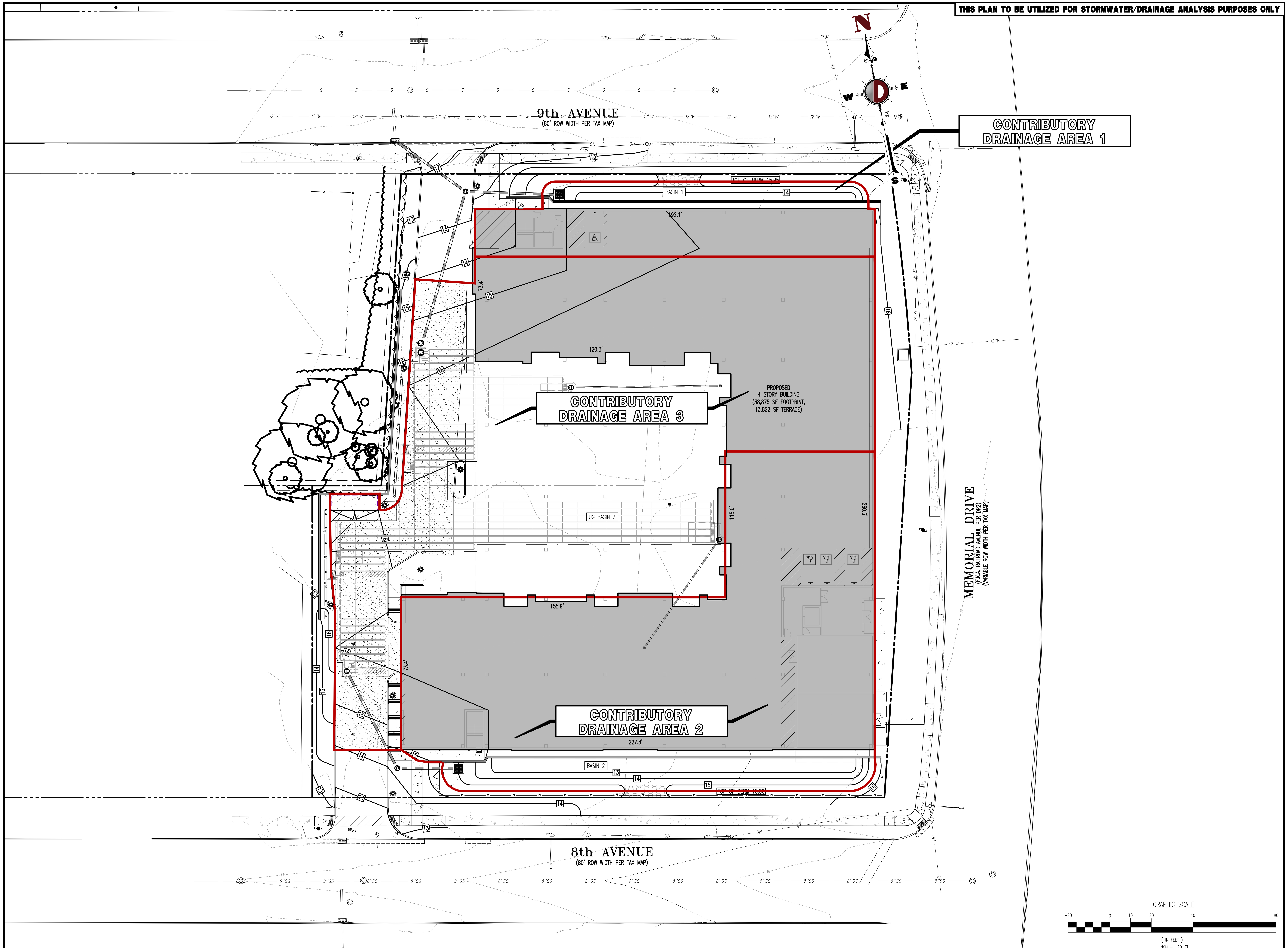
JUSTIN A. GEONNOTTI
PROFESSIONAL ENGINEER

STEVEN R. CATTANI
PROFESSIONAL ENGINEER
NEW JERSEY LICENSE No. 40014

TITLE: PROPOSED DRAINAGE AREA MAP

SCALE: (H) 1"=20' (V)
DATE: 06/13/22
PROJECT No: 2241-99-002
SHEET No: 2 OF 26
Rev. #: 0



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File: P:\DECPC PROJECTS\2241 Ster Developers LLC Springhill Properties\99-002 Neptune\Dwg\DA Maps\2241990020A0.dwg, ---> 03 INLET AREA MAP

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REV.	DATE	COMMENTS	BY

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DRAWN BY: MR
DESIGNED BY: SMM
CHECKED BY: SRC
CHECKED BY: –

PROJECT: **SURFSIDE CROSSING**
PROPOSED MULTI-FAMILY DWELLINGS
BLOCK 405, LOTS 5, 6, & 7
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STEVEN R. CATTANI
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TITLE: CONTRIBUTORY AREA MAP

SCALE: (H) 1"=20' (V)
DATE: 06/13/22
PROJECT No: 2241-99-002

SHEET No: 3 OF 26
Rev. #: 0

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