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STORMWATER MANAGEMENT REPORT

Montclair Kimberley Academy
Block 302, Lot 16
Montclair Township,
Essex County, New Jersey

Prepared For:
Montclair Kimberley Academy,
201 Valley Rd, Montclair, NJ 07042

Mark S. Mayhew
New Jersey Professional Engineer #35596

VNHA #46124-400-21
#VAMAX22004
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ENGINEERS ● ENVIRONMENTAL CONSULTANTS ● SURVEYORS

Engineering for a Better Environment

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SECTION

APPENDICES

I. EXECUTIVE SUMMARY:

Montclair Kimberley Academy (the applicant) is proposing to construct a building addition on the center part of property connecting with the exisitng building of Montclair Kimberley Academy Upper School and a reconstruction of exisitng driveway. The project building is located at 6 Lloyd Road, Block 302, Lot 16 Montclair, NJ.

The project is proposing to increase building and impervious surfaces. To address the increase in impervious surfaces, the design includes construction of a underground stone storage facility to meet the stormwater requirements for the building addition and Green Infrastructure Manufactured Treatment Devices (MTDs) for the driveway improvements.

The project is designed to address the requirements of Montclair Township's and Essex County's stormwater management standards.

II. STORMWATER MANAGEMENT DESCRIPTION AND METHODOLOGY:

1. HYDROLOGIC ANALYSIS:

The existing (pre-development) and proposed (post-development) hydrologic characteristics for the design of the stormwater management system are based upon the 2-, 10-, and 100-year frequency storm events. The calculations have been developed in conformance with the requirements of the Montclair Township Land Use Ordinance and the New Jersey Department of Environmental Protection (NJDEP) codes (N.J.A.C.7:8).

Runoff characteristics were established for the existing and proposed scenarios with Bentley's Pond Pack (V8i), utilizing the USDSA/NRCS "TR-55" methodology, and hydrologic routings were performed for the same storm events under each scenario. In accordance with the most stringent stormwater management requirements, 'connected' impervious surfaces were considered separately from the previous surfaces for TR-55 runoff computations. For the purposes of water quantity analysis, all impervious surfaces were conservatively considered to be connected; therefore, impervious disconnections that occur throughout the site will provide a factor of safety towards the reduction in total volume and rate of runoff.

The stormwater management for the project has been analyzed for the pre-developed (existing) site condition and the post-developed (proposed) conditions. To understand the impact of the proposed site design on the existing hydrology, the project site limit is established based on the disturbed land cover and associated discharge storm drain structure points. Project site improvements have been covered by the four study points. The building addition with the underground stone storage facility are proposed at the POI-2 and driveway improvement with Manufactured Treatment Devices (MTDs) are proposed at the POI-4 to meet the stormwater management Runoff Quantity, Quality and Groundwater Recharge requirement criteria. Total Drainage area to POI-1 and POI-3 have been reduced by reducing the impervious area by shifting it to the POI-2 to address the stormwater management requirements. The drainage area was analyzed under existing and proposed

conditions to determine the hydrological impact. Refer to the Drainage Area Maps in Appendix-B for the improvement area study at the associated discharge points.

The Essex County 24-hrs rainfall frequency data for 2-year, 10-year and 100-year are 3.44 inches, 5.22 inches and 8.66 inches respectively based on the current rainfall (year 1950-1999) condition recorded by NOAA Atlas 14, Volume 2, Version 3. For the future/projected rainfall condition (year 2100) 2-year, 10-year and 100-year rainfall are 4.09 inches, 6.37 inches and 11.52 inches respectively. Existing (pre-development) and proposed (post-development) hydrology was determined based on the Future/Projected Rainfall condition to justify the safety factor scenario. Refer to the appendix- C and -D for stormwater routings used to develop the hydrology under existing and proposed site conditions.

Based on the "Soil Survey Geographic Database" (SSURGO) USDA soil survey report for Essex County, New Jersey, the Project site soils consist of BowrB- Urban and Boonton substratum complex, which is representative of hydrologic soil group "C". Refer to Appendix-A for the USDA Soil Survey report for the site.

2. WATER QUANTITY CONTROL:

As mentioned earlier, the building addition is within drainage area POI-2 and the roadway development within the POI-4. Therefore, the stormwater management quantity control requirement criteria N.J.A.C. – 7:8-5.6 apply. To address the water quantity aspect of the regulations, the underground stone storage systems are proposed with perforated pipes which are contained within the stone storage bed as mentioned in the detail plan sheets. An outlet structure is utilized to control discharge and direct same to a headwall. Refer to the plan for details and elevation information.

The water quantity design of the stormwater management system is determined based upon the future/projected (year 2100) Essex County rainfall 2-, 10-, and 100-year frequency storm events. The hydrology and corresponding runoff hydrographs were calculated using Bentley's Pond Pack (V8i) hydrologic modeling computer software and the United States Department of Agriculture, the National Resource Conservation Service (USDA/NRCS) Technical Release 55 (TR-55) "Urban Hydrology for Small Watersheds" methodology and NRCS Type 'D' rainfall distributions. In accordance with the current stormwater management regulations, impervious surfaces were considered separately from the previous surfaces for runoff computations.

Refer to Table-1 below for the allowable and proposed site flows for Future/Projected Essex County Rainfall (Year 2100) Condition.

Table 1 – Allowable vs. Proposed Stormwater Runoff Rates – On Site Discharge – For POI-1, POI-2 and POI-3

Storm Event	Existing Discharge Q (cfs)	Reduction Factors	Allowable Site Discharge Q (cfs)	Proposed Discharge Q (cfs)
2-YEAR	0.18	50%	**0.09**	**0.09**
10-YEAR	0.36	75%	**0.27**	**0.24**
100-YEAR	0.76	80%	**0.61**	**0.58**

Table 2 – Allowable vs. Proposed Stormwater Runoff Rates – On Site Discharge – For POI-4				
Storm Event	**Existing Discharge Q (cfs)**	**Reduction Factors**	**Allowable Site Discharge Q (cfs)**	**Proposed Discharge Q (cfs)**
2-YEAR	1.25	50%	**0.62**	**0.50**
10-YEAR	2.36	75%	**1.77**	**0.79**
100-YEAR	4.92	80%	**3.94**	**3.18**

As demonstrated in Table-1 and Table-2, water quantity control/peak rate reductions have been met for the proposed design in accordance with the governing agency requirements. Refer to Appendices - C and D for existing and proposed hydrology, respectively.

3. WATER QUALITY CONTROL:

The project meets the stormwater management water quality requirement standards of the NJDEP by proposing Green infrastructure Manufactured treatment divides at several locations along the proposed driveway which draining to the POI-4. POI-1, POI-2 and POI-3 does not have any vehicular area under exisitng or proposed condition.

The site proposes one Filtrerra Bioretention system and one Kraken Filter Bioretention system manufactured and provider by the Contech Engineered solutions LLC. The devices satisfy the requirements for the stormwater quality control and Green Infrastructure (GI) measures (N.J.A.C. 7:8-5.3) which have been approved by the New Jersey Department of Environmental Protection (NJDEP). Refer to the Appendix-E for the Water Quality Requirements and NJDEP certifications, specification and dimension detail for the MTDs device.

4. GROUNDWATER RECHARGE REQUIREMENT:

The project needs to meet the stormwater management requirement standards. In accordance with the NJDEP code N.J.A.C. 7:8-5.4.

Compliance with this groundwater recharge requirement was verified through a hydrologic and hydraulic analysis of the site in its pre-development and post-development condition. The pre-development and post-development hydrologic condition have been computed at the site location using the New Jersey Groundwater Recharge Spreadsheet (NJGSR-32). After evaluating the data for the SSURGO Web soil Survey, the site has been determined to be Udorthents classified as HSG ‘C’ soil. Refer to the Appendix-F to evaluate that the proposed development satisfies the required recharge deficit volume by providing the stone storage stormwater management facility.

Therefore, the site demonstrate that the groundwater recharge requirement has been met.

Drain Time Calculations:
All the underground storage systems have been covered with the Geotextile filter fabric and does not allow the infiltrate the basin.

5. STORMWATER MANAGEMENT FACILITY DESIGN SUMMARY:

1. Underground Stone Storage Facility- UGS-1 @ POI-2:

Table 3 – Runoff Summary for Proposed Stormwater Management Facility				
Storm Event	**Runoff Into Facility (cfs)**	**Runoff Out of Facility (cfs)**	**Depth of Water in Facility (ft.)**	**Water Surface Elevation (Ft.)**
2-YEAR	0.30	0.09	**1.53**	**467.53**
10-YEAR	0.47	0.24	**1.92**	**467.92**
100-YEAR	0.85	0.58	**2.33**	**468.33**

- Bottom Elevation of Facility = 466.00 ft.
- 1st Stage Orifice=3" diameter; Invert= 467.25 ft.
- 2nd Stage Weir=3" wide; Invert= 467.75 ft.
- Top Elevation of Facility =470.00 ft.
- Outlet Pipe=12" HDPE; Invert Out=465.50 ft.

2. Underground Stone Storage Facility- UGS-301 @ POI-4:

Table 4 – Runoff Summary for Proposed Stormwater Management Facility				
Storm Event	**Runoff Into Facility (cfs)**	**Runoff Out of Facility (cfs)**	**Depth of Water in Facility (ft.)**	**Water Surface Elevation (Ft.)**
2-YEAR	0.69	0.19	**1.27**	**475.77**
10-YEAR	1.14	0.26	**1.83**	**476.33**
100-YEAR	2.15	1.09	**2.17**	**476.67**

- Bottom Elevation of Facility = 474.50 ft.
- 1st Stage Orifice=3" diameter; Invert= 475.00 ft.
- 2nd Stage Weir=2' wide; Invert= 477.50 ft.
- Top Elevation of Facility =478.00 ft.
- Outlet Pipe=12" HDPE; Invert Out=474.50 ft.

3. Underground Stone Storage Facility- UGS-306 @ POI-4:

Table 5 – Runoff Summary for Proposed Stormwater Management Facility				
Storm Event	**Runoff Into Facility (cfs)**	**Runoff Out of Facility (cfs)**	**Depth of Water in Facility (ft.)**	**Water Surface Elevation (Ft.)**
2-YEAR	0.85	0.25	**1.79**	**455.29**
10-YEAR	1.37	0.36	**2.96**	**456.46**
100-YEAR	2.54	2.33	**3.45**	**456.95**

- Bottom Elevation of Facility = 453.50 ft.
- 1st Stage Orifice=3" diameter; Invert= 454.00 ft.
- 2nd Stage Weir=2' wide; Invert= 456.50 ft.
- Top Elevation of Facility =457.00 ft.
- Outlet Pipe=12" HDPE; Invert Out=453.00 ft.

4. <u>Manufactured treatment Devices (MTDs):</u>

Refer to the appendix-E for the certificate, specification and details of the stormwater management facility provided by the manufacturers.

6. SOIL TYPES:

1. BowrB- Boonton – Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes – representative of HSG-C.

7. REFERENCES:

1. "New Jersey Stormwater Best Management Practices Manual," published by the New Jersey Department of Environmental Protection (NJDEP), March 2021, latest revision.
2. "Soil Survey Geographic (SSURGO) Database for Essex County, New Jersey," published by the United States Department of Agriculture (USDA), Natural Resources Conservations Service (NRCS), latest revision.
3. Montclair Township Land Use Code, latest revision.
4. Storm Water Management Land Development standards of the Essex County, New Jersey.

Appendix – A:

GEOTECHNICAL INFORMATION

Appendix – A1:

GEOTECHNICAL INVESTIGATION REPORT

SOR CONSULTING ENGINEERS, INC.
Geotechnical Engineering - Materials Testing - Forensic Studies

98 Sand Park Rd., Cedar Grove, NJ 07009
(973) 239-6001 Fax (973) 239-8380

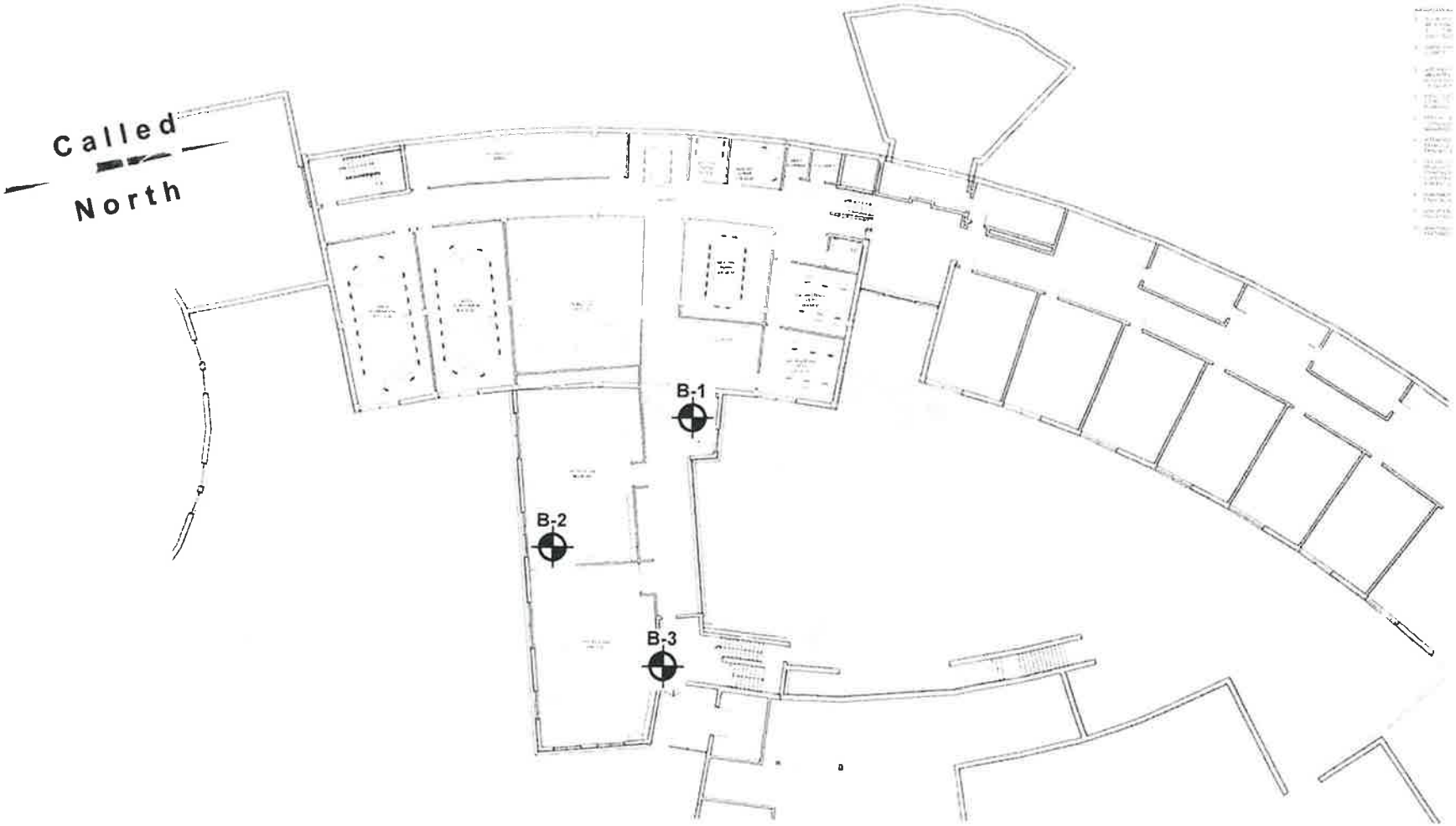
GEOTECHNICAL INVESTIGATION REPORT
MONTCLAIR KIMBERLEY ACADEMY – STEM ADDITION
MONTCLAIR, NEW JERSEY

FOR

MONTCLAIR KIMBERLEY ACADEMY
MONTCLAIR, NEW JERSEY

Prepared by: **Sor Consulting Engineers, Inc.**
98 Sand Park Road
Cedar Grove, New Jersey 07009

Report No. 23-C-23
Job No. 23-C-21
July 5, 2023



LEGEND

B-1 — Number and approximate location of test borings performed by SCE for this study.

NOTES

1. This drawing is part of Sor Consulting Engineers, Inc. Report No. 23-C-23 and should be read together with the report for complete evaluation.
2. General Layout was obtained from a plan provided by the Client.

BORING LOCATION PLAN
MONTCLAIR KIMBERLEY ACADEMY
MKA-STEM ADDITION
MONTCLAIR, NEW JERSEY

SOR CONSULTING ENGINEERS, INC.
Geotechnical Engineering – Materials Testing – Forensic Studies
98 Sand Park Road, Cedar Grove, New Jersey 07009

Prepared By : A.S	Approved By :	DRAWING NO. 23-C-21-1
Date : 06/29/2023	Date :	
Scale : NTS	Report No. : 23-C-23	Sheet No. 1 of 1

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING 1

CLIENT	MONTCLAIR KIMBERLEY ACADEMY							GSE	+480'
PROJEC	MKA-STEM ADDITION							DATUM	Ground Surface
LOCATIC	MONTCLAIR, NEW JERSEY							DATE START	06/27/23
GROUND WATER					CAS.	SAMP.	CORE	TUBE	DATE FINISH 06/27/23
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS			
27-Jun		NE		DIA.	4 1/4"	2" OD			JOB NO. 23-C-21
				WT.		140 lb			REPORT NO. 23-C-23
				FALL		30"			

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1				3		Topsoil 3"	
2		S-1	0-2'	6 6 8	12	Brown medium to fine Sand, some Silt, some medium to fine Gravel, trace brick (Fill)	
3				7 9 16	25	Same 3'-0"	
4		S-2	2'-4'	12		Brown coarse to fine Sand, some Silt, some coarse to fine Gravel	
5				15 15 20	35	Same	W=6.7% Permeability K=2.59 in/hr (K3)
6		U-1 S-3	4'-6'	13			
7				10 12 13	25	Same	
8		S-4	6'-8'	15			
9				15 15 17	32	Same	
10		S-5	8'-10'	20			
11				20 15 17	32	Same w/Rock Fragments	
12		S-6	10'-12'	25			
13							
14							
15							
16		S-7	15'-16'	50 50/2"	100/8"	Rock Fragments	
17						Test Boring Completed at 15'-8"	
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR ETD, Inc
DRILLING EQUIPMENT Geoprobe 7822 DT
SCE REPRESENTATIVE A Sencar

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING 2

CLIENT	MONTCLAIR KIMBERLEY ACADEMY								GSE	+482'
PROJEC	MKA-STEM ADDITION								DATUM	Ground Surface
LOCATIC	MONTCLAIR, NEW JERSEY								DATE START	06/27/23
GROUND WATER					CAS.	SAMP.	CORE	TUBE	DATE FINISH	06/27/23
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS				
27-Jun		NE		DIA.	4 1/4"	2" OD			JOB NO.	23-C-21
				WT.		140 lb			REPORT NO.	23-C-23
				FALL		30"				

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1				4 6		Topsoil 3"	
2		S-1	0-2'	7 6	13	Brown medium to fine Sand, some Silt, some medium to fine Gravel, trace Asphalt(Fill)	
3				6 8			
4		S-2	2'-4'	5 7	13	Same (Fill)	
5				7 5			
6		S-3	4'-6'	9 8	14	Brown to yellow brown coarse to fine Sand, some Silt, little medium to fine Gravel (Fill)	
7				6 5			
8		S-4	6'-8'	3 4	8	Same (Fill) 8'-0"	
9				6 8			
10		S-5	8'-10'	7 9	15	Brown coarse to fine Sand, some Silt, some coarse to fine Gravel	
11				7 8			
12		S-6	10'-12'	10 10	18	Same	W=8.6%
13							
14				15 20			
15		S-7	13'-15'	20 15	40	Same w/Rock Fragments	
16				15 20			
17		S-8	15'-17'	20 22	40	Same w/Rock Fragments	
18							
19							
20		S-9	20'-21'	50			
21				50/2"	100/8"	Same	
22						Test Boring Completed at 20'-8"	
23							
24							
25							
26							
27							
28							
29							
30							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR: ETD, Inc
DRILLING EQUIPMENT: Geoprobe 7822 DT
SCE REPRESENTATIVE: A Sencar

SOR CONSULTING ENGINEERS, INC.	TEST BORING LOG	BORING 3

CLIENT MONTCLAIR KIMBERLEY ACADEMY
PROJEC MKA-STEM ADDITION
LOCATIC MONTCLAIR, NEW JERSEY

GSE	+475'
DATUM	Ground Surface
DATE START	06/27/23
DATE FINISH	06/27/23
JOB NO.	23-C-21
REPORT NO.	23-C-23

GROUND WATER					CAS.	SAMP.	CORE	TUBE
DATE	TIME	DEPTH	CASING	TYPE	HSA	SS		
27-Jun		NE		DIA.	4 1/4"	2" OD		
				WT.		140 lb		
				FALL		30"		

DEPTH (ft.)	CASING BLOWS	SAMPLE TYPE/NO.	DEPTH	SAMPLER BLOWS PER 6"	N VALUE	DESCRIPTION	REMARKS
1		S-1	0-2'	5 9 11 8	20	Topsoil 3" Brown medium to fine Sand, some Silt, some medium to fine Gravel, trace Asphalt(Fill)	
2							
3		S-2	2'-4'	6 5 4 3	9	Same (Fill)	
4							
5		S-3	4'-6'	1 2 2 2	4	Same (Fill)	
6						6'-0"	
7		U-1		10			W=6.1%
8		S-4	6'-8'	8 8 8	16	Brown coarse to fine Sand, some Silt, some medium to fine Gravel	Permeability K=3.82 in/hr (K3)
9				12			
10		S-5	8'-10'	16 12 17	28	Same	
11				10			
12		S-6	10'-12'	15 18 20	33	Same	
13							
14							
15							
16				20			
17		S-7	15'-17'	30 35 50/3"	65	Same w/Rock Fragments	
18						Test Boring Completed at 16'-9"	
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

S - SPLIT SPOON SAMPLER
U - UNDISTURBED SAMPLE
C - CORE DRILLED

DRILLING CONTRACTOR ETD, Inc
DRILLING EQUIPMENT Geoprobe 7822 DT
SCE REPRESENTATIVE A Sencar

Appendix – A2:

USDA SOIL SURVEY REPORT

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 Essex County, New Jersey

August 22, 2023

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.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

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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: 1:1,670 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

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 1:12,000.

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: Essex County, New Jersey
Survey Area Data: Version 18, Aug 29, 2022

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

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BouD	Boonton - Urban land, Boonton substratum complex, 15 to 25 percent slopes	0.0	0.1%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	4.3	43.7%
USBOOB	Urban land, Boonton substratum - Boonton complex, red sandstone lowland, 0 to 8 percent slopes	2.9	29.5%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	2.6	26.7%
Totals for Area of Interest		**9.9**	**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.

Essex County, New Jersey

BouD—Boonton - Urban land, Boonton substratum complex, 15 to 25 percent slopes

Map Unit Setting

National map unit symbol: b06b
Elevation: 50 to 500 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

Boonton and similar soils: 60 percent
Urban land, boonton substratum: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton

Setting

Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy basal till derived from basalt

Typical profile

A - 0 to 5 inches: loam
BA - 5 to 8 inches: silt loam
BE - 8 to 17 inches: silt loam
Bt - 17 to 30 inches: silt loam
Btx1 - 30 to 40 inches: gravelly fine sandy loam
Btx2 - 40 to 47 inches: fine sandy loam
CBt1 - 47 to 58 inches: loamy sand
CBt2 - 58 to 72 inches: loamy sand

Properties and qualities

Slope: 15 to 25 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e

Hydrologic Soil Group: C
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Description of Urban Land, Boonton Substratum

Setting

Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Lower third of mountainflank, upper third of mountainflank, center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material
H2 - 12 to 47 inches: silt loam
2CBt1 - 47 to 58 inches: loamy sand
2CBt2 - 58 to 72 inches: loamy sand

Interpretive groups

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

Minor Components

Udorthents, boonton substratum

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Lower third of mountainflank, upper third of mountainflank, center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

BowrB—Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w8p8
Elevation: 20 to 560 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

Boonton, red sandstone lowland, and similar soils: 50 percent
Urban land, boonton red sandstone lowland substratum: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Boonton, Red Sandstone Lowland

Setting

Landform: Ground moraines
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy till derived from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: silt loam
BE - 3 to 10 inches: loam
Bw - 10 to 27 inches: gravelly loam
Bx1 - 27 to 40 inches: gravelly fine sandy loam
Bx2 - 40 to 67 inches: gravelly fine sandy loam
BCx - 67 to 83 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Description of Urban Land, Boonton Red Sandstone Lowland Substratum

Setting

Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear, convex
Across-slope shape: Linear, convex
Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material
H2 - 12 to 67 inches: gravelly loam
2CB - 67 to 83 inches: gravelly sandy loam

Interpretive groups

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

Minor Components

Udorthents, boonton red sandstone lowland substratum

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Hydric soil rating: No

USBOOB—Urban land, Boonton substratum - Boonton complex, red sandstone lowland, 0 to 8 percent slopes

Map Unit Setting

National map unit symbol: w9c3
Elevation: 0 to 560 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, boonton red sandstone lowland substratum: 60 percent
Boonton, red sandstone lowland, and similar soils: 30 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Urban Land, Boonton Red Sandstone Lowland Substratum

Setting

Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Surface covered by pavement, concrete, buildings, and other structures underlain by disturbed and natural soil material

Typical profile

H1 - 0 to 12 inches: material
H2 - 12 to 67 inches: gravelly loam
2CB - 67 to 83 inches: gravelly sandy loam

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8s
Hydric soil rating: Unranked

Description of Boonton, Red Sandstone Lowland

Setting

Landform: Ground moraines
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Coarse-loamy till derived from sandstone and shale

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
A - 1 to 3 inches: silt loam
BE - 3 to 10 inches: loam
Bw - 10 to 27 inches: gravelly loam
Bx1 - 27 to 40 inches: gravelly fine sandy loam
Bx2 - 40 to 67 inches: gravelly fine sandy loam
BCx - 67 to 83 inches: gravelly sandy loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 20 to 36 inches to fragipan
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F144AY037MA - Moist Dense Till Uplands
Hydric soil rating: No

Minor Components

Udorthents, boonton red sandstone lowland substratum

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (three-dimensional): Lower third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

YaohEh—Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky

Map Unit Setting

National map unit symbol: w9g0
Elevation: 50 to 660 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

Yalesville, very rocky, and similar soils: 50 percent
Holyoke, very rocky, and similar soils: 30 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Yalesville, Very Rocky

Setting

Landform: Ground moraines
Landform position (three-dimensional): Mountaintop
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Coarse-loamy till derived from basalt

Typical profile

Oa - 0 to 1 inches: highly decomposed plant material
A - 1 to 5 inches: loam
Bw1 - 5 to 19 inches: fine sandy loam
Bw2 - 19 to 31 inches: fine sandy loam
BC - 31 to 32 inches: fine sandy loam
R - 32 to 80 inches: bedrock

Properties and qualities

Slope: 35 to 60 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 20 to 39 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: C
Ecological site: F145XY013CT - Well Drained Till Uplands
Hydric soil rating: No

Description of Holyoke, Very Rocky

Setting

Landform: Ground moraines, hills, ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Mountaintop
Down-slope shape: Convex, linear
Across-slope shape: Linear, convex
Parent material: Loamy till derived from basalt

Typical profile

Oi - 0 to 1 inches: slightly decomposed plant material
Oa - 1 to 3 inches: highly decomposed plant material
A - 3 to 5 inches: loam
Bw1 - 5 to 14 inches: loam
Bw2 - 14 to 18 inches: loam
R - 18 to 80 inches: bedrock

Properties and qualities

Slope: 35 to 60 percent
Surface area covered with cobbles, stones or boulders: 10.0 percent
Depth to restrictive feature: 10 to 20 inches to lithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 4.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: D
Ecological site: F145XY011CT - Well Drained Shallow Till Uplands
Hydric soil rating: No

Minor Components

Rock outcrop

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: Unranked

Boonton, very rocky

Percent of map unit: 10 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Upper third of mountainflank, center third of mountainflank
Down-slope shape: Convex
Across-slope shape: Linear
Hydric soil rating: No

Soil Information for All Uses

Soil Properties and Qualities

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

Soil Qualities and Features

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

Hydrologic Soil Group (Montclair Kimberly Academy)

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

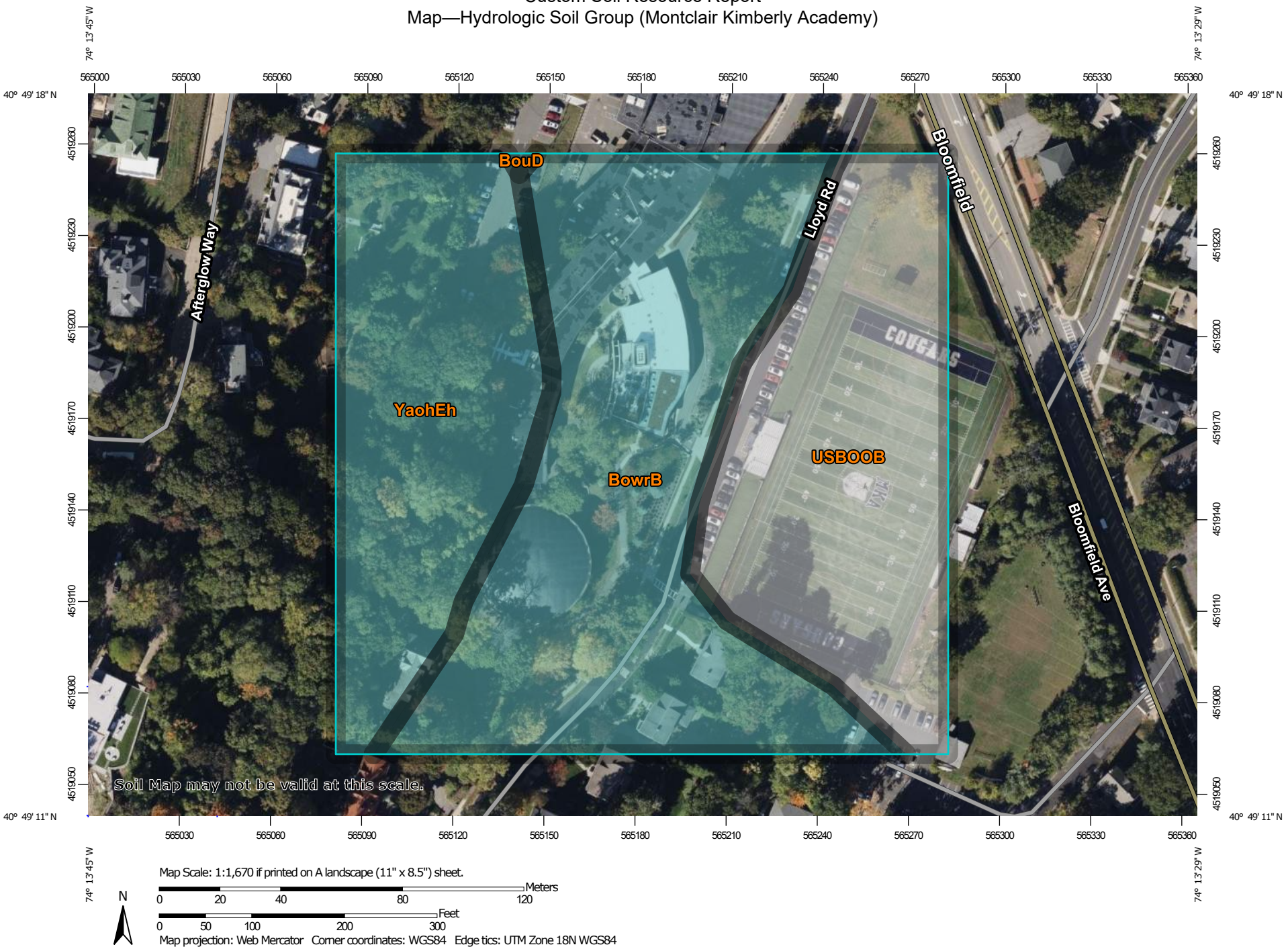
Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Map—Hydrologic Soil Group (Montclair Kimberly Academy)



MAP LEGEND

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

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

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 1:12,000.

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.

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Soil Survey Area: Essex County, New Jersey
Survey Area Data: Version 18, Aug 29, 2022

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

Date(s) aerial images were photographed: Oct 10, 2022—Oct 16, 2022

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

Table—Hydrologic Soil Group (Montclair Kimberly Academy)

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
BouD	Boonton - Urban land, Boonton substratum complex, 15 to 25 percent slopes	C	0.0	0.1%
BowrB	Boonton - Urban land, Boonton substratum complex, red sandstone lowland, 0 to 8 percent slopes	C	4.3	43.7%
USBOOB	Urban land, Boonton substratum - Boonton complex, red sandstone lowland, 0 to 8 percent slopes		2.9	29.5%
YaohEh	Yalesville - Holyoke complex, 35 to 60 percent slopes, very rocky	C	2.6	26.7%
Totals for Area of Interest			**9.9**	**100.0%**

Rating Options—Hydrologic Soil Group (Montclair Kimberly Academy)

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

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Appendix - B:

DRAINAGE AREA MAPS

DA TO PROPOSED INLET-301
Total Area = ±8530 SF
Imp Area = ±0 SF

UNDISTURBED DA
Total Area = ±118265 SF
Imp Area = ±14665 SF

DA TO PROPOSED INLET-302
Total Area = ±8860 SF
Imp Area = ±1350 SF

DA INLET-BYPASS ENTRANCE
Total Area = ±3475 SF
Imp Area = ±700 SF

POI-1

POI-2

POI-3

POI-4

LOT 16 BLOCK 302
N/F MONTCLAIR ACADEMY FOUNDATION
CONTAINING 289,875 S.F.± OR 6.655 Ac ±

LLOYD ROAD
(VARIABLE WIDTH RIGHT OF WAY PER TAX MAP)

DETAILED SURVEY PROJECT LIMIT LINE (TYP.)

NOTE:
THE GREEN HATCH REPRESENT THE IMPERVIOUS AREA.

Existing Draiange Area (SF)				
		Total DA	IMP	Grass
POI-1		9167	3823	5344
POI-2		17270	3843	13427
POI-3		2745	1370	1375

Existing Draiange Area - POI- 4 (SF)				
MTD INLET		Total DA	IMP	Grass
301		8530	0	8530
302		8860	1350	7510
			0	0
Bypass Entrance		3475	700	2775
		20865	2050	18815

Undisturbed Draiange Area - POI- 4 (SF)- Exisitng Condition				
INLET		Total DA	IMP	Grass
403		118265	14665	103600

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY

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BOUNDARY AND TOPOGRAPHIC EXISTING DRAINAGE AREA MAP
P/O LOT 16, BLOCK 302
PREPARED FOR
MONTCLAIR KIMBERLEY ACADEMY
SITUATED IN
MONTCLAIR TOWNSHIP ESSEX CO., N.J.
SCALE 1" = 20' AUGUST 31, 2023

DRAWN BY DATE	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY DATE	ESSEX CO. 3 PAGE 1–	46124–100–11	ESSEX	

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UNDISTURBED DA TO INLET-401
Total Area = ±61075 SF
Imp Area = ±12585 SF

UNDISTURBED DA TO INLET-402
Total Area = ±28110 SF
Imp Area = ±0 SF

UNDISTURBED DA TO INLET-403
Total Area = ±17730 SF
Imp Area = ±2080 SF

DA INLET-301
Total Area = ±8530 SF
Imp Area = ±6020 SF

DA INLET-302
Total Area = ±8860 SF
Imp Area = ±5432 SF

DA INLET-BYPASS ENTRANCE
Total Area = ±3475 SF
Imp Area = ±1485 SF

POI-1

POI-2

POI-3

POI-4

DETAILED SURVEY PROJECT LIMIT LINE (TYP.)

LOT 16 BLOCK 302
N/F MONTCLAIR ACADEMY FOUNDATION
CONTAINING 289,875 S.F± OR 6.655 Ac ±

LLOYD ROAD
(VARIABLE WIDTH RIGHT OF WAY PER TAX MAP)

LOT 8 BLOCK 304

LOT 9 BLOCK 304

NOTE:
THE GREEN HATCH REPRESENT THE IMPERVIOUS AREA.

Proposed Draiange Area (SF)

		Total DA	IMP	Grass
POI-1*		7065	2288	4777
POI-2		20172	3679	16493
	Additional Building for SWM		3263	
POI-3		1978	1295	683
NOTE:*	Impervious coverage associated with POI-1 is based on the the existing impervious coverage that is conveyed to the exisitng underground basin, where actual proposed is being reduced from 3,823 SF to 2,288 SF.			

Proposed Draiange Area - POI- 4 (SF)

MTD INLET		Total DA	IMP	Grass
301		8530	6020	2510
302		8860	5432	3428
			0	0
Bypass Entrance		3475	1485	1990
		20865	12937	7928

Undisturbed Draiange Area - POI- 4 (SF) - Proposed Condition

INLET		Total DA	IMP	Grass
401		61075	12585	48490
402		28110	0	28110
403		17730	2080	15650

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 feet

REV.	DESCRIPTION	DATE	DFT.BY	CKD.BY

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www.vannoteharvey.com Certificate of Authorization No. 24GA28073300

PROPOSED DRAINAGE AREA MAP
OF
P/O LOT 16, BLOCK 302
PREPARED FOR
MONTCLAIR KIMBERLEY ACADEMY
SITUATED IN
MONTCLAIR TOWNSHIP ESSEX CO., N.J.
SCALE 1"= 20' AUGUST 31, 2023

DRAWN BY DATE	FIELD BK	ORDER No.	FILE No.	SHEET No.
CHECKED BY DATE	ESSEX CO. 3 PAGE 1--	46124-100-11	ESSEX	

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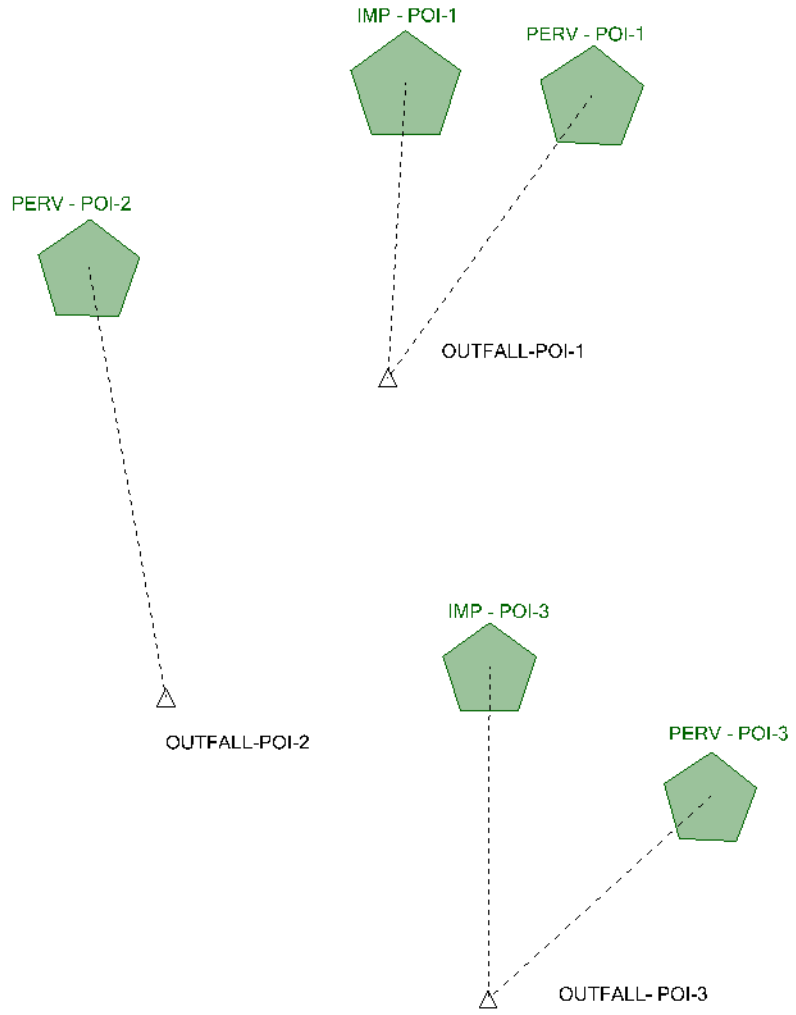
Appendix - C:

EXISTING HYDROLOGIC ROUTINGS - FUTURE/PROJECTED RAINFALL (YEAR 2100) CONDITION FOR 2-, 10-, AND 100- YEAR STORM EVENTS

POI-1, POI-2, AND POI-3

Project Summary	
Title	Kimberley Academy
Engineer	DP
Company	VNH/Pennoni
Date	8/31/2023

Notes



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User Notifications

Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	31
Label	PERV - POI-1
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.31 ft³/s Interp. peak flow= 0.30 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	33
Label	PERV - POI-2
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.19 ft³/s Interp. peak flow= 0.18 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	365
Label	PERV - POI-3
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.08 ft³/s Interp. peak flow= 0.08 ft³/s. Output increment for this catchment may be too large.
Source	Warning

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
IMP - POI-1	ESSEX CO. 2-YR (PROJ)	2	0.028	12.100	0.35
IMP - POI-1	ESSEX CO. 10-YR (PROJ)	10	0.045	12.100	0.55
IMP - POI-1	ESSEX CO. 100-YR (PROJ)	100	0.082	12.100	1.00
PERV - POI-1	ESSEX CO. 2-YR (PROJ)	2	0.021	12.100	0.30
PERV - POI-1	ESSEX CO. 10-YR (PROJ)	10	0.041	12.100	0.59
PERV - POI-1	ESSEX CO. 100-YR (PROJ)	100	0.090	12.100	1.24
PERV - POI-2	ESSEX CO. 2-YR (PROJ)	2	0.013	12.100	0.18
PERV - POI-2	ESSEX CO. 10-YR (PROJ)	10	0.025	12.100	0.36
PERV - POI-2	ESSEX CO. 100-YR (PROJ)	100	0.055	12.100	0.76
IMP - POI-3	ESSEX CO. 2-YR (PROJ)	2	0.010	12.100	0.13
IMP - POI-3	ESSEX CO. 10-YR (PROJ)	10	0.016	12.100	0.20
IMP - POI-3	ESSEX CO. 100-YR (PROJ)	100	0.030	12.100	0.36
PERV - POI-3	ESSEX CO. 2-YR (PROJ)	2	0.005	12.100	0.08
PERV - POI-3	ESSEX CO. 10-YR (PROJ)	10	0.011	12.100	0.15
PERV - POI-3	ESSEX CO. 100-YR (PROJ)	100	0.023	12.100	0.32

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
OUTFALL- POI-3	ESSEX CO. 2-YR (PROJ)	2	0.015	12.100	0.20
OUTFALL- POI-3	ESSEX CO. 10-YR (PROJ)	10	0.027	12.100	0.35
OUTFALL- POI-3	ESSEX CO. 100-YR (PROJ)	100	0.053	12.100	0.68
OUTFALL-POI-1	ESSEX CO. 2-YR (PROJ)	2	0.049	12.100	0.65
OUTFALL-POI-1	ESSEX CO. 10-YR (PROJ)	10	0.086	12.100	1.14
OUTFALL-POI-1	ESSEX CO. 100-YR (PROJ)	100	0.173	12.100	2.24

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ac-ft)	Time to Peak (hours)	Peak Flow (ft^3/s)
OUTFALL-POI-2	ESSEX CO. 2-YR (PROJ)	2	0.013	12.100	0.18
OUTFALL-POI-2	ESSEX CO. 10-YR (PROJ)	10	0.025	12.100	0.36
OUTFALL-POI-2	ESSEX CO. 100-YR (PROJ)	100	0.055	12.100	0.76

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time-Depth Curve: ESSEX CO. 100-YR (PROJ)	
Label	ESSEX CO. 100-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.1
0.500	0.1	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.2	0.2	0.2
1.500	0.2	0.2	0.2	0.2	0.3
2.000	0.3	0.3	0.3	0.3	0.3
2.500	0.4	0.4	0.4	0.4	0.4
3.000	0.4	0.5	0.5	0.5	0.5
3.500	0.5	0.5	0.6	0.6	0.6
4.000	0.6	0.6	0.6	0.7	0.7
4.500	0.7	0.7	0.7	0.7	0.8
5.000	0.8	0.8	0.8	0.8	0.9
5.500	0.9	0.9	0.9	0.9	1.0
6.000	1.0	1.0	1.0	1.0	1.1
6.500	1.1	1.1	1.1	1.2	1.2
7.000	1.2	1.2	1.3	1.3	1.3
7.500	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.6
8.500	1.7	1.7	1.7	1.8	1.8
9.000	1.8	1.9	1.9	1.9	2.0
9.500	2.0	2.1	2.1	2.2	2.2
10.000	2.3	2.3	2.4	2.5	2.5
10.500	2.6	2.6	2.7	2.8	2.9
11.000	3.0	3.1	3.2	3.4	3.5
11.500	3.7	3.9	4.1	4.4	4.8
12.000	5.5	6.7	7.1	7.4	7.7
12.500	7.9	8.0	8.2	8.3	8.4
13.000	8.5	8.6	8.7	8.8	8.9
13.500	8.9	9.0	9.1	9.1	9.2
14.000	9.2	9.3	9.3	9.4	9.4
14.500	9.5	9.5	9.6	9.6	9.7
15.000	9.7	9.7	9.8	9.8	9.8
15.500	9.9	9.9	9.9	10.0	10.0
16.000	10.0	10.1	10.1	10.1	10.1
16.500	10.2	10.2	10.2	10.3	10.3

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	10.3	10.3	10.4	10.4	10.4
17.500	10.4	10.5	10.5	10.5	10.5
18.000	10.5	10.6	10.6	10.6	10.6
18.500	10.6	10.7	10.7	10.7	10.7
19.000	10.7	10.8	10.8	10.8	10.8
19.500	10.8	10.8	10.9	10.9	10.9
20.000	10.9	10.9	11.0	11.0	11.0
20.500	11.0	11.0	11.0	11.1	11.1
21.000	11.1	11.1	11.1	11.1	11.2
21.500	11.2	11.2	11.2	11.2	11.2
22.000	11.2	11.3	11.3	11.3	11.3
22.500	11.3	11.3	11.3	11.4	11.4
23.000	11.4	11.4	11.4	11.4	11.4
23.500	11.5	11.5	11.5	11.5	11.5
24.000	11.5	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time-Depth Curve: ESSEX CO. 10-YR (PROJ)	
Label	ESSEX CO. 10-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.4	0.4	0.4
4.500	0.4	0.4	0.4	0.4	0.4
5.000	0.4	0.4	0.5	0.5	0.5
5.500	0.5	0.5	0.5	0.5	0.5
6.000	0.5	0.6	0.6	0.6	0.6
6.500	0.6	0.6	0.6	0.6	0.7
7.000	0.7	0.7	0.7	0.7	0.7
7.500	0.7	0.8	0.8	0.8	0.8
8.000	0.8	0.8	0.9	0.9	0.9
8.500	0.9	0.9	1.0	1.0	1.0
9.000	1.0	1.0	1.1	1.1	1.1
9.500	1.1	1.1	1.2	1.2	1.2
10.000	1.3	1.3	1.3	1.4	1.4
10.500	1.4	1.5	1.5	1.6	1.6
11.000	1.7	1.7	1.8	1.9	1.9
11.500	2.0	2.1	2.3	2.4	2.7
12.000	3.1	3.7	3.9	4.1	4.2
12.500	4.4	4.4	4.5	4.6	4.7
13.000	4.7	4.8	4.8	4.9	4.9
13.500	4.9	5.0	5.0	5.0	5.1
14.000	5.1	5.1	5.2	5.2	5.2
14.500	5.2	5.3	5.3	5.3	5.3
15.000	5.4	5.4	5.4	5.4	5.4
15.500	5.5	5.5	5.5	5.5	5.5
16.000	5.5	5.6	5.6	5.6	5.6
16.500	5.6	5.6	5.7	5.7	5.7

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	5.7	5.7	5.7	5.7	5.8
17.500	5.8	5.8	5.8	5.8	5.8
18.000	5.8	5.8	5.8	5.9	5.9
18.500	5.9	5.9	5.9	5.9	5.9
19.000	5.9	5.9	6.0	6.0	6.0
19.500	6.0	6.0	6.0	6.0	6.0
20.000	6.0	6.0	6.1	6.1	6.1
20.500	6.1	6.1	6.1	6.1	6.1
21.000	6.1	6.1	6.1	6.2	6.2
21.500	6.2	6.2	6.2	6.2	6.2
22.000	6.2	6.2	6.2	6.2	6.2
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.3	6.3	6.3	6.3	6.3
23.500	6.3	6.3	6.3	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time-Depth Curve: ESSEX CO. 2-YR (PROJ)	
Label	ESSEX CO. 2-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.5	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.6
9.000	0.6	0.7	0.7	0.7	0.7
9.500	0.7	0.7	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	0.9	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.4	1.6	1.7
12.000	2.0	2.4	2.5	2.6	2.7
12.500	2.8	2.8	2.9	2.9	3.0
13.000	3.0	3.1	3.1	3.1	3.1
13.500	3.2	3.2	3.2	3.2	3.3
14.000	3.3	3.3	3.3	3.3	3.4
14.500	3.4	3.4	3.4	3.4	3.4
15.000	3.4	3.5	3.5	3.5	3.5
15.500	3.5	3.5	3.5	3.5	3.5
16.000	3.6	3.6	3.6	3.6	3.6
16.500	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
17.000	3.7	3.7	3.7	3.7	3.7
17.500	3.7	3.7	3.7	3.7	3.7
18.000	3.7	3.7	3.8	3.8	3.8
18.500	3.8	3.8	3.8	3.8	3.8
19.000	3.8	3.8	3.8	3.8	3.8
19.500	3.8	3.8	3.9	3.9	3.9
20.000	3.9	3.9	3.9	3.9	3.9
20.500	3.9	3.9	3.9	3.9	3.9
21.000	3.9	3.9	3.9	4.0	4.0
21.500	4.0	4.0	4.0	4.0	4.0
22.000	4.0	4.0	4.0	4.0	4.0
22.500	4.0	4.0	4.0	4.0	4.0
23.000	4.0	4.0	4.1	4.1	4.1
23.500	4.1	4.1	4.1	4.1	4.1
24.000	4.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.35 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.35 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,823.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	0.028 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.028 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.19 ft³/s

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.500	0.00	0.00	0.00	0.00	0.00
1.750	0.00	0.00	0.00	0.00	0.00
2.000	0.00	0.00	0.00	0.00	0.00
2.250	0.00	0.00	0.00	0.00	0.00
2.500	0.00	0.00	0.00	0.00	0.00
2.750	0.00	0.00	0.00	0.00	0.00
3.000	0.00	0.00	0.00	0.00	0.00
3.250	0.00	0.00	0.00	0.00	0.00
3.500	0.00	0.00	0.00	0.00	0.00
3.750	0.00	0.00	0.00	0.00	0.00
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.01	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.01	0.01	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.01	0.01	0.01	0.01
7.250	0.01	0.01	0.01	0.01	0.01
7.500	0.01	0.01	0.01	0.01	0.01
7.750	0.01	0.01	0.01	0.01	0.01
8.000	0.01	0.01	0.01	0.01	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.01	0.01	0.01	0.01	0.01
8.750	0.01	0.01	0.01	0.01	0.01
9.000	0.01	0.01	0.01	0.01	0.01
9.250	0.01	0.01	0.01	0.01	0.01
9.500	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.750	0.01	0.01	0.02	0.02	0.02
10.000	0.02	0.02	0.02	0.02	0.02
10.250	0.02	0.02	0.02	0.02	0.02
10.500	0.02	0.02	0.02	0.02	0.02
10.750	0.02	0.02	0.03	0.03	0.03
11.000	0.03	0.03	0.03	0.03	0.04
11.250	0.04	0.04	0.04	0.04	0.05
11.500	0.05	0.05	0.06	0.07	0.07
11.750	0.08	0.09	0.11	0.12	0.16
12.000	0.21	0.28	0.35	0.28	0.17
12.250	0.13	0.10	0.09	0.07	0.07
12.500	0.07	0.06	0.05	0.05	0.05
12.750	0.04	0.04	0.04	0.04	0.04
13.000	0.03	0.03	0.03	0.03	0.03
13.250	0.03	0.03	0.03	0.02	0.02
13.500	0.02	0.02	0.02	0.02	0.02
13.750	0.02	0.02	0.02	0.02	0.02
14.000	0.02	0.02	0.02	0.02	0.02
14.250	0.02	0.02	0.02	0.02	0.01
14.500	0.01	0.01	0.01	0.01	0.01
14.750	0.01	0.01	0.01	0.01	0.01
15.000	0.01	0.01	0.01	0.01	0.01
15.250	0.01	0.01	0.01	0.01	0.01
15.500	0.01	0.01	0.01	0.01	0.01
15.750	0.01	0.01	0.01	0.01	0.01
16.000	0.01	0.01	0.01	0.01	0.01
16.250	0.01	0.01	0.01	0.01	0.01
16.500	0.01	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.55 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.55 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,823.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	0.045 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.045 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.19 ft³/s

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.850	0.00	0.00	0.00	0.00	0.00
1.100	0.00	0.00	0.00	0.00	0.00
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.01	0.01	0.01
2.600	0.01	0.01	0.01	0.01	0.01
2.850	0.01	0.01	0.01	0.01	0.01
3.100	0.01	0.01	0.01	0.01	0.01
3.350	0.01	0.01	0.01	0.01	0.01
3.600	0.01	0.01	0.01	0.01	0.01
3.850	0.01	0.01	0.01	0.01	0.01
4.100	0.01	0.01	0.01	0.01	0.01
4.350	0.01	0.01	0.01	0.01	0.01
4.600	0.01	0.01	0.01	0.01	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.02	0.02	0.02	0.02	0.02
8.600	0.02	0.02	0.02	0.02	0.02
8.850	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.100	0.02	0.02	0.02	0.02	0.02
9.350	0.02	0.02	0.02	0.02	0.02
9.600	0.02	0.02	0.02	0.02	0.02
9.850	0.02	0.02	0.03	0.03	0.03
10.100	0.03	0.03	0.03	0.03	0.03
10.350	0.03	0.03	0.03	0.03	0.03
10.600	0.03	0.03	0.04	0.04	0.04
10.850	0.04	0.04	0.04	0.05	0.05
11.100	0.05	0.05	0.06	0.06	0.06
11.350	0.07	0.07	0.07	0.07	0.08
11.600	0.10	0.10	0.11	0.12	0.14
11.850	0.17	0.19	0.26	0.33	0.43
12.100	0.55	0.43	0.26	0.20	0.16
12.350	0.13	0.11	0.11	0.10	0.09
12.600	0.08	0.07	0.07	0.07	0.07
12.850	0.06	0.06	0.06	0.05	0.05
13.100	0.05	0.05	0.04	0.04	0.04
13.350	0.04	0.04	0.04	0.03	0.03
13.600	0.03	0.03	0.03	0.03	0.03
13.850	0.03	0.03	0.03	0.03	0.03
14.100	0.03	0.03	0.03	0.03	0.02
14.350	0.02	0.02	0.02	0.02	0.02
14.600	0.02	0.02	0.02	0.02	0.02
14.850	0.02	0.02	0.02	0.02	0.02
15.100	0.02	0.02	0.02	0.02	0.02
15.350	0.02	0.02	0.02	0.02	0.02
15.600	0.02	0.02	0.02	0.02	0.02
15.850	0.02	0.02	0.02	0.02	0.02
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.01
21.600	0.01	0.01	0.01	0.01	0.01
21.850	0.01	0.01	0.01	0.01	0.01
22.100	0.01	0.01	0.01	0.01	0.01
22.350	0.01	0.01	0.01	0.01	0.01
22.600	0.01	0.01	0.01	0.01	0.01
22.850	0.01	0.01	0.01	0.01	0.01
23.100	0.01	0.01	0.01	0.01	0.01
23.350	0.01	0.01	0.01	0.01	0.01
23.600	0.01	0.01	0.01	0.01	0.01
23.850	0.01	0.01	0.01	0.01	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.00 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.00 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,823.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	0.082 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.082 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.19 ft³/s

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,823.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.450	0.00	0.00	0.00	0.00	0.00
0.700	0.00	0.00	0.00	0.00	0.01
0.950	0.01	0.01	0.01	0.01	0.01
1.200	0.01	0.01	0.01	0.01	0.01
1.450	0.01	0.01	0.01	0.01	0.01
1.700	0.01	0.01	0.01	0.01	0.01
1.950	0.01	0.01	0.01	0.01	0.01
2.200	0.01	0.01	0.01	0.01	0.01
2.450	0.01	0.01	0.01	0.01	0.01
2.700	0.01	0.01	0.01	0.01	0.01
2.950	0.01	0.01	0.01	0.01	0.01
3.200	0.01	0.01	0.01	0.01	0.01
3.450	0.01	0.01	0.01	0.01	0.01
3.700	0.01	0.01	0.01	0.01	0.01
3.950	0.01	0.01	0.01	0.01	0.01
4.200	0.01	0.01	0.01	0.01	0.02
4.450	0.02	0.02	0.02	0.02	0.02
4.700	0.02	0.02	0.02	0.02	0.02
4.950	0.02	0.02	0.02	0.02	0.02
5.200	0.02	0.02	0.02	0.02	0.02
5.450	0.02	0.02	0.02	0.02	0.02
5.700	0.02	0.02	0.02	0.02	0.02
5.950	0.02	0.02	0.02	0.02	0.02
6.200	0.02	0.02	0.02	0.02	0.02
6.450	0.02	0.02	0.02	0.02	0.02
6.700	0.02	0.02	0.02	0.02	0.02
6.950	0.02	0.02	0.02	0.02	0.02
7.200	0.02	0.02	0.02	0.02	0.02
7.450	0.02	0.02	0.02	0.02	0.02
7.700	0.03	0.03	0.03	0.03	0.03
7.950	0.03	0.03	0.03	0.03	0.03
8.200	0.03	0.03	0.03	0.03	0.03
8.450	0.03	0.03	0.03	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.700	0.03	0.03	0.03	0.03	0.03
8.950	0.03	0.03	0.03	0.03	0.03
9.200	0.03	0.03	0.04	0.04	0.04
9.450	0.04	0.04	0.04	0.04	0.04
9.700	0.04	0.04	0.04	0.04	0.05
9.950	0.05	0.05	0.05	0.05	0.05
10.200	0.05	0.05	0.05	0.05	0.05
10.450	0.05	0.06	0.06	0.06	0.06
10.700	0.07	0.07	0.07	0.08	0.08
10.950	0.08	0.08	0.09	0.09	0.10
11.200	0.10	0.11	0.11	0.12	0.12
11.450	0.13	0.13	0.15	0.18	0.19
11.700	0.19	0.22	0.25	0.30	0.35
11.950	0.47	0.60	0.79	1.00	0.79
12.200	0.47	0.35	0.29	0.24	0.21
12.450	0.19	0.19	0.17	0.14	0.13
12.700	0.13	0.12	0.12	0.11	0.11
12.950	0.10	0.10	0.09	0.09	0.08
13.200	0.08	0.08	0.07	0.07	0.07
13.450	0.07	0.06	0.06	0.06	0.06
13.700	0.05	0.05	0.05	0.05	0.05
13.950	0.05	0.05	0.05	0.05	0.05
14.200	0.05	0.05	0.04	0.04	0.04
14.450	0.04	0.04	0.04	0.04	0.04
14.700	0.04	0.04	0.04	0.04	0.03
14.950	0.03	0.03	0.03	0.03	0.03
15.200	0.03	0.03	0.03	0.03	0.03
15.450	0.03	0.03	0.03	0.03	0.03
15.700	0.03	0.03	0.03	0.03	0.03
15.950	0.03	0.03	0.03	0.03	0.03
16.200	0.03	0.03	0.03	0.03	0.03
16.450	0.03	0.03	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.02	0.02	0.02	0.02
18.700	0.02	0.02	0.02	0.02	0.02
18.950	0.02	0.02	0.02	0.02	0.02
19.200	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.450	0.02	0.02	0.02	0.02	0.02
19.700	0.02	0.02	0.02	0.02	0.02
19.950	0.02	0.02	0.02	0.02	0.02
20.200	0.02	0.02	0.02	0.02	0.02
20.450	0.02	0.02	0.02	0.02	0.02
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.13 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.13 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,370.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	0.010 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.010 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

Subsection: Unit Hydrograph Summary
Label: IMP - POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.950	0.00	0.00	0.00	0.00	0.00
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.00	0.00	0.00
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.00	0.00	0.00	0.00	0.00
8.200	0.00	0.00	0.00	0.00	0.00
8.450	0.00	0.00	0.00	0.00	0.00
8.700	0.00	0.00	0.00	0.00	0.00
8.950	0.00	0.00	0.00	0.00	0.00
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.00	0.00	0.00	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.01
10.950	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.200	0.01	0.01	0.01	0.01	0.02
11.450	0.02	0.02	0.02	0.02	0.02
11.700	0.02	0.03	0.03	0.04	0.04
11.950	0.06	0.08	0.10	0.13	0.10
12.200	0.06	0.04	0.04	0.03	0.03
12.450	0.02	0.02	0.02	0.02	0.02
12.700	0.02	0.02	0.01	0.01	0.01
12.950	0.01	0.01	0.01	0.01	0.01
13.200	0.01	0.01	0.01	0.01	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.00
14.700	0.00	0.00	0.00	0.00	0.00
14.950	0.00	0.00	0.00	0.00	0.00
15.200	0.00	0.00	0.00	0.00	0.00
15.450	0.00	0.00	0.00	0.00	0.00
15.700	0.00	0.00	0.00	0.00	0.00
15.950	0.00	0.00	0.00	0.00	0.00
16.200	0.00	0.00	0.00	0.00	0.00
16.450	0.00	0.00	0.00	0.00	0.00
16.700	0.00	0.00	0.00	0.00	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.20 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.20 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,370.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	0.016 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.016 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.450	0.00	0.00	0.00	0.00	0.00
1.700	0.00	0.00	0.00	0.00	0.00
1.950	0.00	0.00	0.00	0.00	0.00
2.200	0.00	0.00	0.00	0.00	0.00
2.450	0.00	0.00	0.00	0.00	0.00
2.700	0.00	0.00	0.00	0.00	0.00
2.950	0.00	0.00	0.00	0.00	0.00
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.00	0.00	0.00
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.02
10.950	0.02	0.02	0.02	0.02	0.02
11.200	0.02	0.02	0.02	0.02	0.02
11.450	0.03	0.03	0.03	0.03	0.04
11.700	0.04	0.04	0.05	0.06	0.07
11.950	0.09	0.12	0.16	0.20	0.16
12.200	0.09	0.07	0.06	0.05	0.04
12.450	0.04	0.04	0.03	0.03	0.03
12.700	0.03	0.02	0.02	0.02	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.02	0.02	0.01	0.01	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.00	0.00	0.00	0.00
16.700	0.00	0.00	0.00	0.00	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.36 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,370.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	0.030 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.030 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

Subsection: Unit Hydrograph Summary
Label: IMP - POI-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,370.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.600	0.00	0.00	0.00	0.00	0.00
0.850	0.00	0.00	0.00	0.00	0.00
1.100	0.00	0.00	0.00	0.00	0.00
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.01	0.01	0.01
3.850	0.01	0.01	0.01	0.01	0.01
4.100	0.01	0.01	0.01	0.01	0.01
4.350	0.01	0.01	0.01	0.01	0.01
4.600	0.01	0.01	0.01	0.01	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.01	0.01
9.600	0.01	0.01	0.02	0.02	0.02
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.02	0.02	0.03
10.850	0.03	0.03	0.03	0.03	0.03
11.100	0.03	0.04	0.04	0.04	0.04
11.350	0.04	0.04	0.05	0.05	0.06
11.600	0.06	0.07	0.07	0.08	0.09
11.850	0.11	0.13	0.17	0.21	0.28
12.100	0.36	0.28	0.17	0.13	0.10
12.350	0.09	0.07	0.07	0.07	0.06
12.600	0.05	0.05	0.05	0.04	0.04
12.850	0.04	0.04	0.04	0.03	0.03
13.100	0.03	0.03	0.03	0.03	0.03
13.350	0.03	0.02	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.02	0.02	0.02	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.31 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.30 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	5,344.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.021 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.021 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.67 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.00	0.00	0.00	0.00
10.100	0.00	0.00	0.00	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.01
10.850	0.01	0.01	0.01	0.01	0.01
11.100	0.01	0.02	0.02	0.02	0.02
11.350	0.02	0.02	0.02	0.03	0.03
11.600	0.04	0.04	0.04	0.05	0.06
11.850	0.07	0.09	0.12	0.16	0.22
12.100	0.30	0.25	0.15	0.12	0.10
12.350	0.08	0.07	0.07	0.06	0.06
12.600	0.05	0.05	0.05	0.04	0.04
12.850	0.04	0.04	0.04	0.04	0.03
13.100	0.03	0.03	0.03	0.03	0.03
13.350	0.03	0.03	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.02	0.02	0.02	0.02	0.02
14.600	0.02	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.01
21.600	0.01	0.01	0.01	0.01	0.01
21.850	0.01	0.01	0.01	0.01	0.01
22.100	0.01	0.01	0.01	0.01	0.01
22.350	0.01	0.01	0.01	0.01	0.01
22.600	0.01	0.01	0.01	0.01	0.01
22.850	0.01	0.01	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.60 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.59 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	5,344.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	0.041 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.041 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.67 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.00	0.00	0.00	0.00	0.00
8.200	0.00	0.00	0.00	0.00	0.00
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.01	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.02
10.200	0.02	0.02	0.02	0.02	0.02
10.450	0.02	0.02	0.02	0.02	0.02
10.700	0.02	0.02	0.03	0.03	0.03
10.950	0.03	0.03	0.03	0.04	0.04
11.200	0.04	0.05	0.05	0.05	0.05
11.450	0.06	0.06	0.07	0.08	0.09
11.700	0.09	0.11	0.13	0.15	0.18
11.950	0.25	0.33	0.45	0.59	0.48
12.200	0.29	0.22	0.18	0.15	0.13
12.450	0.12	0.12	0.11	0.09	0.09
12.700	0.08	0.08	0.08	0.07	0.07
12.950	0.07	0.06	0.06	0.06	0.05
13.200	0.05	0.05	0.05	0.05	0.05
13.450	0.04	0.04	0.04	0.04	0.04
13.700	0.04	0.04	0.04	0.03	0.03
13.950	0.03	0.03	0.03	0.03	0.03
14.200	0.03	0.03	0.03	0.03	0.03
14.450	0.03	0.03	0.03	0.03	0.03
14.700	0.03	0.03	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.950	0.02	0.02	0.02	0.02	0.02
15.200	0.02	0.02	0.02	0.02	0.02
15.450	0.02	0.02	0.02	0.02	0.02
15.700	0.02	0.02	0.02	0.02	0.02
15.950	0.02	0.02	0.02	0.02	0.02
16.200	0.02	0.02	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.01	0.01	0.01	0.01
17.450	0.01	0.01	0.01	0.01	0.01
17.700	0.01	0.01	0.01	0.01	0.01
17.950	0.01	0.01	0.01	0.01	0.01
18.200	0.01	0.01	0.01	0.01	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.26 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.24 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	5,344.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	0.090 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.090 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.67 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,344.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.01
5.500	0.01	0.01	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.01	0.01	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.01	0.01	0.01	0.01
7.250	0.01	0.01	0.01	0.01	0.01
7.500	0.01	0.01	0.01	0.01	0.02
7.750	0.02	0.02	0.02	0.02	0.02
8.000	0.02	0.02	0.02	0.02	0.02
8.250	0.02	0.02	0.02	0.02	0.02
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.02	0.02	0.02
9.000	0.02	0.02	0.03	0.03	0.03
9.250	0.03	0.03	0.03	0.03	0.03
9.500	0.03	0.03	0.03	0.03	0.04
9.750	0.04	0.04	0.04	0.04	0.04
10.000	0.04	0.04	0.04	0.04	0.05
10.250	0.05	0.05	0.05	0.05	0.05
10.500	0.05	0.05	0.06	0.06	0.06
10.750	0.07	0.07	0.07	0.08	0.08
11.000	0.09	0.09	0.10	0.10	0.11
11.250	0.11	0.12	0.13	0.13	0.14
11.500	0.15	0.17	0.20	0.21	0.22
11.750	0.25	0.29	0.35	0.42	0.56
12.000	0.72	0.97	1.24	1.00	0.60

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.250	0.45	0.37	0.31	0.27	0.25
12.500	0.24	0.22	0.19	0.18	0.17
12.750	0.16	0.15	0.15	0.14	0.13
13.000	0.13	0.12	0.11	0.11	0.11
13.250	0.10	0.10	0.09	0.09	0.09
13.500	0.08	0.08	0.07	0.07	0.07
13.750	0.07	0.07	0.07	0.07	0.07
14.000	0.07	0.06	0.06	0.06	0.06
14.250	0.06	0.06	0.06	0.06	0.06
14.500	0.05	0.05	0.05	0.05	0.05
14.750	0.05	0.05	0.05	0.05	0.05
15.000	0.04	0.04	0.04	0.04	0.04
15.250	0.04	0.04	0.04	0.04	0.04
15.500	0.04	0.04	0.04	0.04	0.04
15.750	0.04	0.04	0.04	0.04	0.04
16.000	0.04	0.04	0.04	0.04	0.04
16.250	0.04	0.03	0.03	0.03	0.03
16.500	0.03	0.03	0.03	0.03	0.03
16.750	0.03	0.03	0.03	0.03	0.03
17.000	0.03	0.03	0.03	0.03	0.03
17.250	0.03	0.03	0.03	0.03	0.03
17.500	0.03	0.03	0.03	0.03	0.03
17.750	0.03	0.03	0.03	0.03	0.02
18.000	0.02	0.02	0.02	0.02	0.02
18.250	0.02	0.02	0.02	0.02	0.02
18.500	0.02	0.02	0.02	0.02	0.02
18.750	0.02	0.02	0.02	0.02	0.02
19.000	0.02	0.02	0.02	0.02	0.02
19.250	0.02	0.02	0.02	0.02	0.02
19.500	0.02	0.02	0.02	0.02	0.02
19.750	0.02	0.02	0.02	0.02	0.02
20.000	0.02	0.02	0.02	0.02	0.02
20.250	0.02	0.02	0.02	0.02	0.02
20.500	0.02	0.02	0.02	0.02	0.02
20.750	0.02	0.02	0.02	0.02	0.02
21.000	0.02	0.02	0.02	0.02	0.02
21.250	0.02	0.02	0.02	0.02	0.02
21.500	0.02	0.02	0.02	0.02	0.02
21.750	0.02	0.02	0.02	0.02	0.02
22.000	0.02	0.02	0.02	0.02	0.02
22.250	0.02	0.02	0.02	0.02	0.02
22.500	0.02	0.02	0.02	0.02	0.02
22.750	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.000	0.02	0.02	0.02	0.02	0.02
23.250	0.02	0.02	0.02	0.02	0.02
23.500	0.02	0.02	0.02	0.02	0.02
23.750	0.02	0.02	0.02	0.02	0.02
24.000	0.02	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.19 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.18 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.013 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.013 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-2
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.00	0.00	0.00	0.00
9.700	0.00	0.00	0.00	0.00	0.00
9.950	0.00	0.00	0.00	0.00	0.00
10.200	0.00	0.00	0.00	0.00	0.00
10.450	0.00	0.00	0.00	0.00	0.00
10.700	0.01	0.01	0.01	0.01	0.01
10.950	0.01	0.01	0.01	0.01	0.01
11.200	0.01	0.01	0.01	0.01	0.01
11.450	0.01	0.02	0.02	0.02	0.02
11.700	0.03	0.03	0.04	0.04	0.05
11.950	0.07	0.10	0.14	0.18	0.15
12.200	0.09	0.07	0.06	0.05	0.04
12.450	0.04	0.04	0.04	0.03	0.03
12.700	0.03	0.03	0.03	0.02	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.02	0.02	0.02	0.02	0.02
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.01	0.01	0.01	0.01
16.700	0.01	0.01	0.01	0.01	0.01
16.950	0.01	0.01	0.01	0.01	0.01
17.200	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.450	0.01	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.36 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.36 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	0.025 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.025 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-2
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.050	0.00	0.00	0.00	0.00	0.00
7.300	0.00	0.00	0.00	0.00	0.00
7.550	0.00	0.00	0.00	0.00	0.00
7.800	0.00	0.00	0.00	0.00	0.00
8.050	0.00	0.00	0.00	0.00	0.00
8.300	0.00	0.00	0.00	0.00	0.00
8.550	0.00	0.00	0.00	0.00	0.00
8.800	0.00	0.00	0.00	0.00	0.00
9.050	0.00	0.00	0.00	0.00	0.00
9.300	0.01	0.01	0.01	0.01	0.01
9.550	0.01	0.01	0.01	0.01	0.01
9.800	0.01	0.01	0.01	0.01	0.01
10.050	0.01	0.01	0.01	0.01	0.01
10.300	0.01	0.01	0.01	0.01	0.01
10.550	0.01	0.01	0.01	0.01	0.02
10.800	0.02	0.02	0.02	0.02	0.02
11.050	0.02	0.02	0.02	0.03	0.03
11.300	0.03	0.03	0.03	0.03	0.04
11.550	0.04	0.05	0.05	0.06	0.07
11.800	0.08	0.09	0.11	0.15	0.20
12.050	0.27	0.36	0.29	0.18	0.13
12.300	0.11	0.09	0.08	0.08	0.07
12.550	0.07	0.06	0.05	0.05	0.05
12.800	0.05	0.04	0.04	0.04	0.04
13.050	0.04	0.03	0.03	0.03	0.03
13.300	0.03	0.03	0.03	0.03	0.03
13.550	0.02	0.02	0.02	0.02	0.02
13.800	0.02	0.02	0.02	0.02	0.02
14.050	0.02	0.02	0.02	0.02	0.02
14.300	0.02	0.02	0.02	0.02	0.02
14.550	0.02	0.02	0.02	0.02	0.02
14.800	0.02	0.01	0.01	0.01	0.01
15.050	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.300	0.01	0.01	0.01	0.01	0.01
15.550	0.01	0.01	0.01	0.01	0.01
15.800	0.01	0.01	0.01	0.01	0.01
16.050	0.01	0.01	0.01	0.01	0.01
16.300	0.01	0.01	0.01	0.01	0.01
16.550	0.01	0.01	0.01	0.01	0.01
16.800	0.01	0.01	0.01	0.01	0.01
17.050	0.01	0.01	0.01	0.01	0.01
17.300	0.01	0.01	0.01	0.01	0.01
17.550	0.01	0.01	0.01	0.01	0.01
17.800	0.01	0.01	0.01	0.01	0.01
18.050	0.01	0.01	0.01	0.01	0.01
18.300	0.01	0.01	0.01	0.01	0.01
18.550	0.01	0.01	0.01	0.01	0.01
18.800	0.01	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.01
20.550	0.01	0.01	0.01	0.01	0.01
20.800	0.01	0.01	0.01	0.01	0.01
21.050	0.01	0.01	0.01	0.01	0.01
21.300	0.01	0.01	0.01	0.01	0.01
21.550	0.01	0.01	0.01	0.01	0.01
21.800	0.01	0.01	0.01	0.01	0.01
22.050	0.01	0.01	0.01	0.01	0.01
22.300	0.01	0.01	0.01	0.01	0.01
22.550	0.01	0.01	0.01	0.01	0.01
22.800	0.01	0.01	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.00
23.550	0.00	0.00	0.00	0.00	0.00
23.800	0.00	0.00	0.00	0.00	0.00

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.76 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	0.055 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.055 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-2
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.00	0.00	0.00
5.750	0.00	0.00	0.00	0.00	0.00
6.000	0.00	0.00	0.00	0.00	0.00
6.250	0.00	0.00	0.00	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.01	0.01	0.01	0.01
7.250	0.01	0.01	0.01	0.01	0.01
7.500	0.01	0.01	0.01	0.01	0.01
7.750	0.01	0.01	0.01	0.01	0.01
8.000	0.01	0.01	0.01	0.01	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.01	0.01	0.01	0.01	0.01
8.750	0.01	0.01	0.01	0.01	0.01
9.000	0.01	0.01	0.02	0.02	0.02
9.250	0.02	0.02	0.02	0.02	0.02
9.500	0.02	0.02	0.02	0.02	0.02
9.750	0.02	0.02	0.02	0.02	0.02
10.000	0.03	0.03	0.03	0.03	0.03
10.250	0.03	0.03	0.03	0.03	0.03
10.500	0.03	0.03	0.04	0.04	0.04
10.750	0.04	0.04	0.05	0.05	0.05
11.000	0.05	0.06	0.06	0.06	0.07
11.250	0.07	0.07	0.08	0.08	0.09
11.500	0.09	0.10	0.12	0.13	0.13
11.750	0.15	0.18	0.21	0.25	0.34
12.000	0.44	0.59	0.76	0.61	0.37
12.250	0.28	0.22	0.19	0.16	0.15

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.500	0.15	0.13	0.11	0.11	0.10
12.750	0.10	0.09	0.09	0.09	0.08
13.000	0.08	0.07	0.07	0.07	0.06
13.250	0.06	0.06	0.06	0.05	0.05
13.500	0.05	0.05	0.05	0.04	0.04
13.750	0.04	0.04	0.04	0.04	0.04
14.000	0.04	0.04	0.04	0.04	0.04
14.250	0.04	0.04	0.04	0.03	0.03
14.500	0.03	0.03	0.03	0.03	0.03
14.750	0.03	0.03	0.03	0.03	0.03
15.000	0.03	0.03	0.03	0.03	0.03
15.250	0.03	0.02	0.02	0.02	0.02
15.500	0.02	0.02	0.02	0.02	0.02
15.750	0.02	0.02	0.02	0.02	0.02
16.000	0.02	0.02	0.02	0.02	0.02
16.250	0.02	0.02	0.02	0.02	0.02
16.500	0.02	0.02	0.02	0.02	0.02
16.750	0.02	0.02	0.02	0.02	0.02
17.000	0.02	0.02	0.02	0.02	0.02
17.250	0.02	0.02	0.02	0.02	0.02
17.500	0.02	0.02	0.02	0.02	0.02
17.750	0.02	0.02	0.02	0.02	0.02
18.000	0.02	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.08 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.08 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,375.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	0.005 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.005 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.950	0.00	0.00	0.00	0.00	0.00
10.200	0.00	0.00	0.00	0.00	0.00
10.450	0.00	0.00	0.00	0.00	0.00
10.700	0.00	0.00	0.00	0.00	0.00
10.950	0.00	0.00	0.00	0.00	0.00
11.200	0.00	0.00	0.01	0.01	0.01
11.450	0.01	0.01	0.01	0.01	0.01
11.700	0.01	0.01	0.01	0.02	0.02
11.950	0.03	0.04	0.06	0.08	0.06
12.200	0.04	0.03	0.02	0.02	0.02
12.450	0.02	0.02	0.02	0.01	0.01
12.700	0.01	0.01	0.01	0.01	0.01
12.950	0.01	0.01	0.01	0.01	0.01
13.200	0.01	0.01	0.01	0.01	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.00	0.00
13.950	0.00	0.00	0.00	0.00	0.00
14.200	0.00	0.00	0.00	0.00	0.00
14.450	0.00	0.00	0.00	0.00	0.00
14.700	0.00	0.00	0.00	0.00	0.00
14.950	0.00	0.00	0.00	0.00	0.00
15.200	0.00	0.00	0.00	0.00	0.00
15.450	0.00	0.00	0.00	0.00	0.00
15.700	0.00	0.00	0.00	0.00	0.00
15.950	0.00	0.00	0.00	0.00	0.00
16.200	0.00	0.00	0.00	0.00	0.00
16.450	0.00	0.00	0.00	0.00	0.00
16.700	0.00	0.00	0.00	0.00	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.15 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.15 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,375.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	0.011 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.011 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.100	0.00	0.00	0.00	0.00	0.00
8.350	0.00	0.00	0.00	0.00	0.00
8.600	0.00	0.00	0.00	0.00	0.00
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.00	0.00	0.00	0.00
10.100	0.00	0.00	0.00	0.00	0.00
10.350	0.00	0.00	0.00	0.00	0.01
10.600	0.01	0.01	0.01	0.01	0.01
10.850	0.01	0.01	0.01	0.01	0.01
11.100	0.01	0.01	0.01	0.01	0.01
11.350	0.01	0.01	0.01	0.02	0.02
11.600	0.02	0.02	0.02	0.03	0.03
11.850	0.04	0.05	0.06	0.08	0.12
12.100	0.15	0.12	0.07	0.06	0.05
12.350	0.04	0.03	0.03	0.03	0.03
12.600	0.02	0.02	0.02	0.02	0.02
12.850	0.02	0.02	0.02	0.02	0.02
13.100	0.01	0.01	0.01	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.00
15.850	0.00	0.00	0.00	0.00	0.00
16.100	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.350	0.00	0.00	0.00	0.00	0.00
16.600	0.00	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.32 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.32 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,375.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	0.023 ac-ft

Hydrograph Volume (Area under Hydrograph curve)	
Volume	0.023 ac-ft

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.43 ft³/s

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,375.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.00	0.00	0.00
7.600	0.00	0.00	0.00	0.00	0.00
7.850	0.00	0.00	0.00	0.00	0.00
8.100	0.00	0.00	0.00	0.00	0.00
8.350	0.00	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.01	0.01
9.600	0.01	0.01	0.01	0.01	0.01
9.850	0.01	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.02	0.02	0.02	0.02
10.850	0.02	0.02	0.02	0.02	0.02
11.100	0.02	0.03	0.03	0.03	0.03
11.350	0.03	0.03	0.04	0.04	0.04
11.600	0.05	0.05	0.06	0.06	0.08
11.850	0.09	0.11	0.14	0.19	0.25
12.100	0.32	0.26	0.15	0.12	0.09
12.350	0.08	0.07	0.06	0.06	0.06
12.600	0.05	0.05	0.04	0.04	0.04
12.850	0.04	0.04	0.03	0.03	0.03
13.100	0.03	0.03	0.03	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
13.350	0.02	0.02	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Subsection: Addition Summary
Label: OUTFALL- POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL- POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-3
<Catchment to Outflow Node>	IMP - POI-3

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	PERV - POI-3	0.005	12.100	0.08
Flow (From)	IMP - POI-3	0.010	12.100	0.13
Flow (In)	OUTFALL- POI -3	0.015	12.100	0.20

Summary for Hydrograph Addition at 'OUTFALL- POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-3
<Catchment to Outflow Node>	IMP - POI-3

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	PERV - POI-3	0.011	12.100	0.15
Flow (From)	IMP - POI-3	0.016	12.100	0.20
Flow (In)	OUTFALL- POI -3	0.027	12.100	0.35

Summary for Hydrograph Addition at 'OUTFALL- POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-3
<Catchment to Outflow Node>	IMP - POI-3

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	PERV - POI-3	0.023	12.100	0.32
Flow (From)	IMP - POI-3	0.030	12.100	0.36
Flow (In)	OUTFALL- POI -3	0.053	12.100	0.68

Subsection: Addition Summary
Label: OUTFALL-POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - POI-1	0.028	12.100	0.35
Flow (From)	PERV - POI-1	0.021	12.100	0.30
Flow (In)	OUTFALL-POI-1	0.049	12.100	0.65

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - POI-1	0.045	12.100	0.55
Flow (From)	PERV - POI-1	0.041	12.100	0.59
Flow (In)	OUTFALL-POI-1	0.086	12.100	1.14

Subsection: Addition Summary
Label: OUTFALL-POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - POI-1	0.082	12.100	1.00
Flow (From)	PERV - POI-1	0.090	12.100	1.24
Flow (In)	OUTFALL-POI-1	0.173	12.100	2.24

Subsection: Addition Summary
Label: OUTFALL-POI-2
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-2

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	PERV - POI-2	0.013	12.100	0.18
Flow (In)	OUTFALL-POI-2	0.013	12.100	0.18

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-2

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	PERV - POI-2	0.025	12.100	0.36
Flow (In)	OUTFALL-POI-2	0.025	12.100	0.36

Subsection: Addition Summary
Label: OUTFALL-POI-2
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	PERV - POI-2

Node Inflows

Inflow Type	Element	Volume (ac-ft)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	PERV - POI-2	0.055	12.100	0.76
Flow (In)	OUTFALL-POI-2	0.055	12.100	0.76

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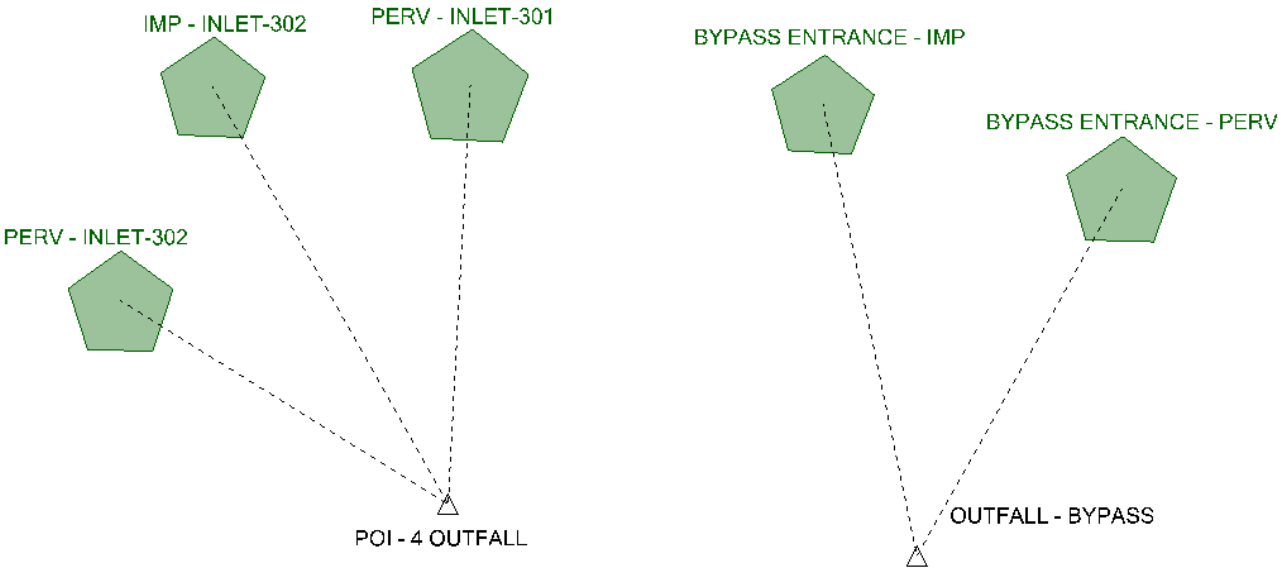
Project Summary	
Title	Kimberley Academy
Engineer	DP
Company	VNH/Pennoni
Date	8/31/2023

Notes



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Subsection: User Notifications

User Notifications

Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	410
Label	BYPASS ENTRANCE - PERV
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.16 ft³/s Interp. peak flow= 0.16 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	31
Label	PERV - INLET-301
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.49 ft³/s Interp. peak flow= 0.48 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	407
Label	PERV - INLET-302
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.43 ft³/s Interp. peak flow= 0.42 ft³/s. Output increment for this catchment may be too large.
Source	Warning

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
PERV - INLET-301	ESSEX CO. 2-YR (PROJ)	2	1,446.000	12.100	0.48
PERV - INLET-301	ESSEX CO. 10-YR (PROJ)	10	2,849.000	12.100	0.94
PERV - INLET-301	ESSEX CO. 100-YR (PROJ)	100	6,283.000	12.100	1.99
PERV - INLET-302	ESSEX CO. 2-YR (PROJ)	2	1,273.000	12.100	0.42
PERV - INLET-302	ESSEX CO. 10-YR (PROJ)	10	2,508.000	12.100	0.82
PERV - INLET-302	ESSEX CO. 100-YR (PROJ)	100	5,532.000	12.100	1.75
IMP - INLET-302	ESSEX CO. 2-YR (PROJ)	2	433.000	12.100	0.12
IMP - INLET-302	ESSEX CO. 10-YR (PROJ)	10	689.000	12.100	0.19
IMP - INLET-302	ESSEX CO. 100-YR (PROJ)	100	1,268.000	12.100	0.35
BYPASS ENTRANCE - IMP	ESSEX CO. 2-YR (PROJ)	2	225.000	12.100	0.06
BYPASS ENTRANCE - IMP	ESSEX CO. 10-YR (PROJ)	10	357.000	12.100	0.10
BYPASS ENTRANCE - IMP	ESSEX CO. 100-YR (PROJ)	100	657.000	12.100	0.18
BYPASS ENTRANCE - PERV	ESSEX CO. 2-YR (PROJ)	2	470.000	12.100	0.16
BYPASS ENTRANCE - PERV	ESSEX CO. 10-YR (PROJ)	10	927.000	12.100	0.30
BYPASS ENTRANCE - PERV	ESSEX CO. 100-YR (PROJ)	100	2,044.000	12.100	0.65

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
POI - 4 OUTFALL	ESSEX CO. 2-YR (PROJ)	2	3,152.000	12.100	1.03
POI - 4 OUTFALL	ESSEX CO. 10-YR (PROJ)	10	6,046.000	12.100	1.95
POI - 4 OUTFALL	ESSEX CO. 100-YR (PROJ)	100	13,084.000	12.100	4.09
OUTFALL - BYPASS	ESSEX CO. 2-YR (PROJ)	2	695.000	12.100	0.22
OUTFALL - BYPASS	ESSEX CO. 10-YR (PROJ)	10	1,284.000	12.100	0.41

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft^3)	Time to Peak (hours)	Peak Flow (ft^3/s)
OUTFALL - BYPASS	ESSEX CO. 100-YR (PROJ)	100	2,702.000	12.100	0.83

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time-Depth Curve: ESSEX CO. 100-YR (PROJ)	
Label	ESSEX CO. 100-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.1
0.500	0.1	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.2	0.2	0.2
1.500	0.2	0.2	0.2	0.2	0.3
2.000	0.3	0.3	0.3	0.3	0.3
2.500	0.4	0.4	0.4	0.4	0.4
3.000	0.4	0.5	0.5	0.5	0.5
3.500	0.5	0.5	0.6	0.6	0.6
4.000	0.6	0.6	0.6	0.7	0.7
4.500	0.7	0.7	0.7	0.7	0.8
5.000	0.8	0.8	0.8	0.8	0.9
5.500	0.9	0.9	0.9	0.9	1.0
6.000	1.0	1.0	1.0	1.0	1.1
6.500	1.1	1.1	1.1	1.2	1.2
7.000	1.2	1.2	1.3	1.3	1.3
7.500	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.6
8.500	1.7	1.7	1.7	1.8	1.8
9.000	1.8	1.9	1.9	1.9	2.0
9.500	2.0	2.1	2.1	2.2	2.2
10.000	2.3	2.3	2.4	2.5	2.5
10.500	2.6	2.6	2.7	2.8	2.9
11.000	3.0	3.1	3.2	3.4	3.5
11.500	3.7	3.9	4.1	4.4	4.8
12.000	5.5	6.7	7.1	7.4	7.7
12.500	7.9	8.0	8.2	8.3	8.4
13.000	8.5	8.6	8.7	8.8	8.9
13.500	8.9	9.0	9.1	9.1	9.2
14.000	9.2	9.3	9.3	9.4	9.4
14.500	9.5	9.5	9.6	9.6	9.7
15.000	9.7	9.7	9.8	9.8	9.8
15.500	9.9	9.9	9.9	10.0	10.0
16.000	10.0	10.1	10.1	10.1	10.1

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	10.2	10.2	10.2	10.3	10.3
17.000	10.3	10.3	10.4	10.4	10.4
17.500	10.4	10.5	10.5	10.5	10.5
18.000	10.5	10.6	10.6	10.6	10.6
18.500	10.6	10.7	10.7	10.7	10.7
19.000	10.7	10.8	10.8	10.8	10.8
19.500	10.8	10.8	10.9	10.9	10.9
20.000	10.9	10.9	11.0	11.0	11.0
20.500	11.0	11.0	11.0	11.1	11.1
21.000	11.1	11.1	11.1	11.1	11.2
21.500	11.2	11.2	11.2	11.2	11.2
22.000	11.2	11.3	11.3	11.3	11.3
22.500	11.3	11.3	11.3	11.4	11.4
23.000	11.4	11.4	11.4	11.4	11.4
23.500	11.5	11.5	11.5	11.5	11.5
24.000	11.5	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time-Depth Curve: ESSEX CO. 10-YR (PROJ)	
Label	ESSEX CO. 10-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.4	0.4	0.4
4.500	0.4	0.4	0.4	0.4	0.4
5.000	0.4	0.4	0.5	0.5	0.5
5.500	0.5	0.5	0.5	0.5	0.5
6.000	0.5	0.6	0.6	0.6	0.6
6.500	0.6	0.6	0.6	0.6	0.7
7.000	0.7	0.7	0.7	0.7	0.7
7.500	0.7	0.8	0.8	0.8	0.8
8.000	0.8	0.8	0.9	0.9	0.9
8.500	0.9	0.9	1.0	1.0	1.0
9.000	1.0	1.0	1.1	1.1	1.1
9.500	1.1	1.1	1.2	1.2	1.2
10.000	1.3	1.3	1.3	1.4	1.4
10.500	1.4	1.5	1.5	1.6	1.6
11.000	1.7	1.7	1.8	1.9	1.9
11.500	2.0	2.1	2.3	2.4	2.7
12.000	3.1	3.7	3.9	4.1	4.2
12.500	4.4	4.4	4.5	4.6	4.7
13.000	4.7	4.8	4.8	4.9	4.9
13.500	4.9	5.0	5.0	5.0	5.1
14.000	5.1	5.1	5.2	5.2	5.2
14.500	5.2	5.3	5.3	5.3	5.3
15.000	5.4	5.4	5.4	5.4	5.4
15.500	5.5	5.5	5.5	5.5	5.5
16.000	5.5	5.6	5.6	5.6	5.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	5.6	5.6	5.7	5.7	5.7
17.000	5.7	5.7	5.7	5.7	5.8
17.500	5.8	5.8	5.8	5.8	5.8
18.000	5.8	5.8	5.8	5.9	5.9
18.500	5.9	5.9	5.9	5.9	5.9
19.000	5.9	5.9	6.0	6.0	6.0
19.500	6.0	6.0	6.0	6.0	6.0
20.000	6.0	6.0	6.1	6.1	6.1
20.500	6.1	6.1	6.1	6.1	6.1
21.000	6.1	6.1	6.1	6.2	6.2
21.500	6.2	6.2	6.2	6.2	6.2
22.000	6.2	6.2	6.2	6.2	6.2
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.3	6.3	6.3	6.3	6.3
23.500	6.3	6.3	6.3	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time-Depth Curve: ESSEX CO. 2-YR (PROJ)	
Label	ESSEX CO. 2-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.5	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.6
9.000	0.6	0.7	0.7	0.7	0.7
9.500	0.7	0.7	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	0.9	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.4	1.6	1.7
12.000	2.0	2.4	2.5	2.6	2.7
12.500	2.8	2.8	2.9	2.9	3.0
13.000	3.0	3.1	3.1	3.1	3.1
13.500	3.2	3.2	3.2	3.2	3.3
14.000	3.3	3.3	3.3	3.3	3.4
14.500	3.4	3.4	3.4	3.4	3.4
15.000	3.4	3.5	3.5	3.5	3.5
15.500	3.5	3.5	3.5	3.5	3.5
16.000	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	3.6	3.6	3.6	3.6	3.6
17.000	3.7	3.7	3.7	3.7	3.7
17.500	3.7	3.7	3.7	3.7	3.7
18.000	3.7	3.7	3.8	3.8	3.8
18.500	3.8	3.8	3.8	3.8	3.8
19.000	3.8	3.8	3.8	3.8	3.8
19.500	3.8	3.8	3.9	3.9	3.9
20.000	3.9	3.9	3.9	3.9	3.9
20.500	3.9	3.9	3.9	3.9	3.9
21.000	3.9	3.9	3.9	4.0	4.0
21.500	4.0	4.0	4.0	4.0	4.0
22.000	4.0	4.0	4.0	4.0	4.0
22.500	4.0	4.0	4.0	4.0	4.0
23.000	4.0	4.0	4.1	4.1	4.1
23.500	4.1	4.1	4.1	4.1	4.1
24.000	4.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc =
R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc =
Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.06 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.06 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	700.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	224.869 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	225.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.22 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.250	0.00	0.00	0.00	0.00	0.00
6.500	0.00	0.00	0.00	0.00	0.00
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.00	0.00
8.750	0.00	0.00	0.00	0.00	0.00
9.000	0.00	0.00	0.00	0.00	0.00
9.250	0.00	0.00	0.00	0.00	0.00
9.500	0.00	0.00	0.00	0.00	0.00
9.750	0.00	0.00	0.00	0.00	0.00
10.000	0.00	0.00	0.00	0.00	0.00
10.250	0.00	0.00	0.00	0.00	0.00
10.500	0.00	0.00	0.00	0.00	0.00
10.750	0.00	0.00	0.00	0.00	0.01
11.000	0.01	0.01	0.01	0.01	0.01
11.250	0.01	0.01	0.01	0.01	0.01
11.500	0.01	0.01	0.01	0.01	0.01
11.750	0.01	0.02	0.02	0.02	0.03
12.000	0.04	0.05	0.06	0.05	0.03
12.250	0.02	0.02	0.02	0.01	0.01
12.500	0.01	0.01	0.01	0.01	0.01
12.750	0.01	0.01	0.01	0.01	0.01
13.000	0.01	0.01	0.01	0.01	0.01
13.250	0.01	0.00	0.00	0.00	0.00
13.500	0.00	0.00	0.00	0.00	0.00
13.750	0.00	0.00	0.00	0.00	0.00
14.000	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.250	0.00	0.00	0.00	0.00	0.00
14.500	0.00	0.00	0.00	0.00	0.00
14.750	0.00	0.00	0.00	0.00	0.00
15.000	0.00	0.00	0.00	0.00	0.00
15.250	0.00	0.00	0.00	0.00	0.00
15.500	0.00	0.00	0.00	0.00	0.00
15.750	0.00	0.00	0.00	0.00	0.00
16.000	0.00	0.00	0.00	0.00	0.00
16.250	0.00	0.00	0.00	0.00	0.00
16.500	0.00	0.00	0.00	0.00	0.00
16.750	0.00	0.00	0.00	0.00	0.00
17.000	0.00	0.00	0.00	0.00	0.00
17.250	0.00	0.00	0.00	0.00	0.00
17.500	0.00	0.00	0.00	0.00	0.00
17.750	0.00	0.00	0.00	0.00	0.00
18.000	0.00	0.00	0.00	0.00	0.00
18.250	0.00	0.00	0.00	0.00	0.00
18.500	0.00	0.00	0.00	0.00	0.00
18.750	0.00	0.00	0.00	0.00	0.00
19.000	0.00	0.00	0.00	0.00	0.00
19.250	0.00	0.00	0.00	0.00	0.00
19.500	0.00	0.00	0.00	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.10 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.10 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	700.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	357.669 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	357.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.22 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.00	0.00
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.00
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.00	0.00	0.00
7.600	0.00	0.00	0.00	0.00	0.00
7.850	0.00	0.00	0.00	0.00	0.00
8.100	0.00	0.00	0.00	0.00	0.00
8.350	0.00	0.00	0.00	0.00	0.00
8.600	0.00	0.00	0.00	0.00	0.00
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.00	0.00	0.00	0.00
10.100	0.00	0.00	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.850	0.01	0.01	0.01	0.01	0.01
11.100	0.01	0.01	0.01	0.01	0.01
11.350	0.01	0.01	0.01	0.01	0.02
11.600	0.02	0.02	0.02	0.02	0.03
11.850	0.03	0.04	0.05	0.06	0.08
12.100	0.10	0.08	0.05	0.04	0.03
12.350	0.02	0.02	0.02	0.02	0.02
12.600	0.01	0.01	0.01	0.01	0.01
12.850	0.01	0.01	0.01	0.01	0.01
13.100	0.01	0.01	0.01	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.00
14.100	0.00	0.00	0.00	0.00	0.00
14.350	0.00	0.00	0.00	0.00	0.00
14.600	0.00	0.00	0.00	0.00	0.00
14.850	0.00	0.00	0.00	0.00	0.00
15.100	0.00	0.00	0.00	0.00	0.00
15.350	0.00	0.00	0.00	0.00	0.00
15.600	0.00	0.00	0.00	0.00	0.00
15.850	0.00	0.00	0.00	0.00	0.00
16.100	0.00	0.00	0.00	0.00	0.00
16.350	0.00	0.00	0.00	0.00	0.00
16.600	0.00	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.18 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.18 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	700.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	657.922 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	657.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.22 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	700.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.950	0.00	0.00	0.00	0.00	0.00
1.200	0.00	0.00	0.00	0.00	0.00
1.450	0.00	0.00	0.00	0.00	0.00
1.700	0.00	0.00	0.00	0.00	0.00
1.950	0.00	0.00	0.00	0.00	0.00
2.200	0.00	0.00	0.00	0.00	0.00
2.450	0.00	0.00	0.00	0.00	0.00
2.700	0.00	0.00	0.00	0.00	0.00
2.950	0.00	0.00	0.00	0.00	0.00
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.00	0.00	0.00
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.00	0.00	0.00	0.00	0.00
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.01	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.01
10.950	0.01	0.02	0.02	0.02	0.02
11.200	0.02	0.02	0.02	0.02	0.02
11.450	0.02	0.02	0.03	0.03	0.03
11.700	0.04	0.04	0.05	0.06	0.06
11.950	0.09	0.11	0.14	0.18	0.14
12.200	0.09	0.06	0.05	0.04	0.04
12.450	0.04	0.03	0.03	0.03	0.02
12.700	0.02	0.02	0.02	0.02	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.01	0.01	0.01	0.01	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.00	0.00	0.00
16.200	0.00	0.00	0.00	0.00	0.00
16.450	0.00	0.00	0.00	0.00	0.00
16.700	0.00	0.00	0.00	0.00	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.16 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,775.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	471.008 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	470.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.87 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.00	0.00	0.00	0.00
10.100	0.00	0.00	0.00	0.00	0.00
10.350	0.00	0.00	0.00	0.00	0.00
10.600	0.00	0.00	0.00	0.00	0.00
10.850	0.01	0.01	0.01	0.01	0.01
11.100	0.01	0.01	0.01	0.01	0.01
11.350	0.01	0.01	0.01	0.01	0.02
11.600	0.02	0.02	0.02	0.03	0.03
11.850	0.04	0.05	0.06	0.08	0.12
12.100	0.16	0.13	0.08	0.06	0.05
12.350	0.04	0.04	0.03	0.03	0.03
12.600	0.03	0.02	0.02	0.02	0.02
12.850	0.02	0.02	0.02	0.02	0.02
13.100	0.02	0.02	0.02	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.31 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.30 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,775.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	927.723 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	927.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.87 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.00	0.00	0.00	0.00	0.00
8.200	0.00	0.00	0.00	0.00	0.00
8.450	0.00	0.00	0.00	0.00	0.00
8.700	0.00	0.00	0.00	0.00	0.00
8.950	0.00	0.00	0.00	0.00	0.00
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.02
10.950	0.02	0.02	0.02	0.02	0.02
11.200	0.02	0.02	0.03	0.03	0.03
11.450	0.03	0.03	0.04	0.04	0.05
11.700	0.05	0.06	0.07	0.08	0.10
11.950	0.13	0.17	0.23	0.30	0.25
12.200	0.15	0.11	0.09	0.08	0.07
12.450	0.06	0.06	0.06	0.05	0.05
12.700	0.04	0.04	0.04	0.04	0.04
12.950	0.03	0.03	0.03	0.03	0.03
13.200	0.03	0.03	0.03	0.02	0.02
13.450	0.02	0.02	0.02	0.02	0.02
13.700	0.02	0.02	0.02	0.02	0.02
13.950	0.02	0.02	0.02	0.02	0.02
14.200	0.02	0.02	0.02	0.02	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.01	0.01	0.01	0.01
16.700	0.01	0.01	0.01	0.01	0.01
16.950	0.01	0.01	0.01	0.01	0.01
17.200	0.01	0.01	0.01	0.01	0.01
17.450	0.01	0.01	0.01	0.01	0.01
17.700	0.01	0.01	0.01	0.01	0.01
17.950	0.01	0.01	0.01	0.01	0.01
18.200	0.01	0.01	0.01	0.01	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.65 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.65 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,775.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	2,046.082 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,044.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.87 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,775.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.00
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.02	0.02	0.02	0.02	0.02
9.600	0.02	0.02	0.02	0.02	0.02
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.03	0.03	0.03	0.03	0.03
10.600	0.03	0.03	0.03	0.04	0.04
10.850	0.04	0.04	0.04	0.04	0.05
11.100	0.05	0.05	0.06	0.06	0.06
11.350	0.07	0.07	0.07	0.08	0.09
11.600	0.10	0.11	0.11	0.13	0.15
11.850	0.18	0.22	0.29	0.37	0.50
12.100	0.65	0.52	0.31	0.24	0.19

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.350	0.16	0.14	0.13	0.13	0.11
12.600	0.10	0.09	0.09	0.08	0.08
12.850	0.08	0.07	0.07	0.07	0.06
13.100	0.06	0.06	0.05	0.05	0.05
13.350	0.05	0.05	0.04	0.04	0.04
13.600	0.04	0.04	0.04	0.04	0.04
13.850	0.04	0.03	0.03	0.03	0.03
14.100	0.03	0.03	0.03	0.03	0.03
14.350	0.03	0.03	0.03	0.03	0.03
14.600	0.03	0.03	0.03	0.03	0.03
14.850	0.02	0.02	0.02	0.02	0.02
15.100	0.02	0.02	0.02	0.02	0.02
15.350	0.02	0.02	0.02	0.02	0.02
15.600	0.02	0.02	0.02	0.02	0.02
15.850	0.02	0.02	0.02	0.02	0.02
16.100	0.02	0.02	0.02	0.02	0.02
16.350	0.02	0.02	0.02	0.02	0.02
16.600	0.02	0.02	0.02	0.02	0.02
16.850	0.02	0.02	0.02	0.02	0.02
17.100	0.02	0.02	0.02	0.02	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.01
21.600	0.01	0.01	0.01	0.01	0.01
21.850	0.01	0.01	0.01	0.01	0.01
22.100	0.01	0.01	0.01	0.01	0.01
22.350	0.01	0.01	0.01	0.01	0.01
22.600	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.850	0.01	0.01	0.01	0.01	0.01
23.100	0.01	0.01	0.01	0.01	0.01
23.350	0.01	0.01	0.01	0.01	0.01
23.600	0.01	0.01	0.01	0.01	0.01
23.850	0.01	0.01	0.01	0.01	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.13 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.12 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,350.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	433.676 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	433.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.42 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.000	0.00	0.00	0.00	0.00	0.00
3.250	0.00	0.00	0.00	0.00	0.00
3.500	0.00	0.00	0.00	0.00	0.00
3.750	0.00	0.00	0.00	0.00	0.00
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.00	0.00	0.00
5.750	0.00	0.00	0.00	0.00	0.00
6.000	0.00	0.00	0.00	0.00	0.00
6.250	0.00	0.00	0.00	0.00	0.00
6.500	0.00	0.00	0.00	0.00	0.00
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.00	0.00
8.750	0.00	0.00	0.00	0.00	0.00
9.000	0.00	0.00	0.00	0.00	0.00
9.250	0.00	0.00	0.00	0.00	0.00
9.500	0.00	0.00	0.00	0.00	0.01
9.750	0.01	0.01	0.01	0.01	0.01
10.000	0.01	0.01	0.01	0.01	0.01
10.250	0.01	0.01	0.01	0.01	0.01
10.500	0.01	0.01	0.01	0.01	0.01
10.750	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.000	0.01	0.01	0.01	0.01	0.01
11.250	0.01	0.01	0.01	0.02	0.02
11.500	0.02	0.02	0.02	0.02	0.02
11.750	0.03	0.03	0.04	0.04	0.06
12.000	0.07	0.10	0.12	0.10	0.06
12.250	0.04	0.04	0.03	0.03	0.02
12.500	0.02	0.02	0.02	0.02	0.02
12.750	0.02	0.01	0.01	0.01	0.01
13.000	0.01	0.01	0.01	0.01	0.01
13.250	0.01	0.01	0.01	0.01	0.01
13.500	0.01	0.01	0.01	0.01	0.01
13.750	0.01	0.01	0.01	0.01	0.01
14.000	0.01	0.01	0.01	0.01	0.01
14.250	0.01	0.01	0.01	0.01	0.01
14.500	0.01	0.01	0.00	0.00	0.00
14.750	0.00	0.00	0.00	0.00	0.00
15.000	0.00	0.00	0.00	0.00	0.00
15.250	0.00	0.00	0.00	0.00	0.00
15.500	0.00	0.00	0.00	0.00	0.00
15.750	0.00	0.00	0.00	0.00	0.00
16.000	0.00	0.00	0.00	0.00	0.00
16.250	0.00	0.00	0.00	0.00	0.00
16.500	0.00	0.00	0.00	0.00	0.00
16.750	0.00	0.00	0.00	0.00	0.00
17.000	0.00	0.00	0.00	0.00	0.00
17.250	0.00	0.00	0.00	0.00	0.00
17.500	0.00	0.00	0.00	0.00	0.00
17.750	0.00	0.00	0.00	0.00	0.00
18.000	0.00	0.00	0.00	0.00	0.00
18.250	0.00	0.00	0.00	0.00	0.00
18.500	0.00	0.00	0.00	0.00	0.00
18.750	0.00	0.00	0.00	0.00	0.00
19.000	0.00	0.00	0.00	0.00	0.00
19.250	0.00	0.00	0.00	0.00	0.00
19.500	0.00	0.00	0.00	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00
21.250	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.20 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.19 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,350.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	689.791 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	689.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.42 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.450	0.00	0.00	0.00	0.00	0.00
1.700	0.00	0.00	0.00	0.00	0.00
1.950	0.00	0.00	0.00	0.00	0.00
2.200	0.00	0.00	0.00	0.00	0.00
2.450	0.00	0.00	0.00	0.00	0.00
2.700	0.00	0.00	0.00	0.00	0.00
2.950	0.00	0.00	0.00	0.00	0.00
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.00	0.00	0.00
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.00	0.00	0.00
7.950	0.00	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.450	0.01	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.02
10.950	0.02	0.02	0.02	0.02	0.02
11.200	0.02	0.02	0.02	0.02	0.02
11.450	0.03	0.03	0.03	0.03	0.04
11.700	0.04	0.04	0.05	0.06	0.07
11.950	0.09	0.12	0.15	0.19	0.15
12.200	0.09	0.07	0.06	0.05	0.04
12.450	0.04	0.04	0.03	0.03	0.03
12.700	0.03	0.02	0.02	0.02	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.02	0.02	0.01	0.01	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.00	0.00	0.00	0.00	0.00
16.700	0.00	0.00	0.00	0.00	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.35 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.35 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,350.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	1,268.850 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,268.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.42 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,350.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.600	0.00	0.00	0.00	0.00	0.00
0.850	0.00	0.00	0.00	0.00	0.00
1.100	0.00	0.00	0.00	0.00	0.00
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.01	0.01	0.01	0.01	0.01
4.100	0.01	0.01	0.01	0.01	0.01
4.350	0.01	0.01	0.01	0.01	0.01
4.600	0.01	0.01	0.01	0.01	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.01	0.01
9.600	0.01	0.01	0.01	0.02	0.02
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.02	0.02	0.03
10.850	0.03	0.03	0.03	0.03	0.03
11.100	0.03	0.03	0.04	0.04	0.04
11.350	0.04	0.04	0.05	0.05	0.05
11.600	0.06	0.07	0.07	0.08	0.09
11.850	0.11	0.12	0.16	0.21	0.28
12.100	0.35	0.28	0.17	0.13	0.10
12.350	0.09	0.07	0.07	0.07	0.06
12.600	0.05	0.05	0.05	0.04	0.04
12.850	0.04	0.04	0.04	0.03	0.03
13.100	0.03	0.03	0.03	0.03	0.03
13.350	0.03	0.02	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.02	0.02	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.49 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.48 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	8,530.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	1,447.819 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,446.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.66 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.600	0.00	0.00	0.00	0.00	0.00
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.01	0.01
9.850	0.01	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.02
10.850	0.02	0.02	0.02	0.02	0.02
11.100	0.02	0.03	0.03	0.03	0.03
11.350	0.03	0.04	0.04	0.04	0.05
11.600	0.06	0.06	0.07	0.08	0.09
11.850	0.11	0.14	0.19	0.26	0.36
12.100	0.48	0.40	0.24	0.19	0.15
12.350	0.13	0.11	0.11	0.10	0.09
12.600	0.08	0.08	0.07	0.07	0.07
12.850	0.06	0.06	0.06	0.06	0.05
13.100	0.05	0.05	0.05	0.05	0.04
13.350	0.04	0.04	0.04	0.04	0.04
13.600	0.03	0.03	0.03	0.03	0.03
13.850	0.03	0.03	0.03	0.03	0.03
14.100	0.03	0.03	0.03	0.03	0.03
14.350	0.03	0.03	0.03	0.03	0.02
14.600	0.02	0.02	0.02	0.02	0.02
14.850	0.02	0.02	0.02	0.02	0.02
15.100	0.02	0.02	0.02	0.02	0.02
15.350	0.02	0.02	0.02	0.02	0.02
15.600	0.02	0.02	0.02	0.02	0.02
15.850	0.02	0.02	0.02	0.02	0.02
16.100	0.02	0.02	0.02	0.02	0.02
16.350	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.600	0.02	0.02	0.02	0.02	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.01
21.600	0.01	0.01	0.01	0.01	0.01
21.850	0.01	0.01	0.01	0.01	0.01
22.100	0.01	0.01	0.01	0.01	0.01
22.350	0.01	0.01	0.01	0.01	0.01
22.600	0.01	0.01	0.01	0.01	0.01
22.850	0.01	0.01	0.01	0.01	0.01
23.100	0.01	0.01	0.01	0.01	0.01
23.350	0.01	0.01	0.01	0.01	0.01
23.600	0.01	0.01	0.01	0.01	0.01
23.850	0.01	0.01	0.01	0.01	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.95 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.94 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	8,530.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	2,851.704 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,849.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.66 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.01	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.02	0.02	0.02	0.02	0.02
9.700	0.02	0.02	0.02	0.02	0.02
9.950	0.02	0.02	0.02	0.02	0.02
10.200	0.02	0.03	0.03	0.03	0.03
10.450	0.03	0.03	0.03	0.03	0.04
10.700	0.04	0.04	0.04	0.04	0.05
10.950	0.05	0.05	0.06	0.06	0.06
11.200	0.07	0.07	0.08	0.08	0.09
11.450	0.09	0.10	0.11	0.13	0.14
11.700	0.15	0.17	0.20	0.25	0.29
11.950	0.40	0.52	0.71	0.94	0.76
12.200	0.46	0.35	0.29	0.24	0.21
12.450	0.20	0.19	0.17	0.15	0.14
12.700	0.13	0.13	0.12	0.12	0.11
12.950	0.11	0.10	0.10	0.09	0.09
13.200	0.08	0.08	0.08	0.08	0.07
13.450	0.07	0.07	0.06	0.06	0.06
13.700	0.06	0.06	0.06	0.06	0.05
13.950	0.05	0.05	0.05	0.05	0.05
14.200	0.05	0.05	0.05	0.05	0.05

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.450	0.05	0.04	0.04	0.04	0.04
14.700	0.04	0.04	0.04	0.04	0.04
14.950	0.04	0.04	0.04	0.03	0.03
15.200	0.03	0.03	0.03	0.03	0.03
15.450	0.03	0.03	0.03	0.03	0.03
15.700	0.03	0.03	0.03	0.03	0.03
15.950	0.03	0.03	0.03	0.03	0.03
16.200	0.03	0.03	0.03	0.03	0.03
16.450	0.03	0.03	0.03	0.03	0.03
16.700	0.03	0.03	0.03	0.03	0.03
16.950	0.03	0.03	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.02	0.02	0.02	0.02
18.700	0.02	0.02	0.02	0.02	0.02
18.950	0.02	0.02	0.02	0.02	0.02
19.200	0.02	0.02	0.02	0.02	0.02
19.450	0.02	0.02	0.02	0.02	0.02
19.700	0.02	0.02	0.02	0.02	0.02
19.950	0.02	0.02	0.02	0.02	0.02
20.200	0.02	0.02	0.02	0.02	0.02
20.450	0.02	0.02	0.02	0.02	0.02
20.700	0.02	0.02	0.02	0.02	0.02
20.950	0.02	0.02	0.02	0.02	0.02
21.200	0.02	0.02	0.02	0.02	0.02
21.450	0.02	0.02	0.02	0.02	0.02
21.700	0.02	0.02	0.02	0.02	0.02
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	2.01 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.99 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	8,530.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	6,289.400 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	6,283.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.66 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	8,530.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.00	0.00
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.02	0.02	0.02	0.02
6.850	0.02	0.02	0.02	0.02	0.02
7.100	0.02	0.02	0.02	0.02	0.02
7.350	0.02	0.02	0.02	0.02	0.02
7.600	0.02	0.02	0.02	0.02	0.03
7.850	0.03	0.03	0.03	0.03	0.03
8.100	0.03	0.03	0.03	0.03	0.03
8.350	0.03	0.03	0.03	0.03	0.03
8.600	0.03	0.03	0.03	0.04	0.04
8.850	0.04	0.04	0.04	0.04	0.04
9.100	0.04	0.04	0.04	0.04	0.05
9.350	0.05	0.05	0.05	0.05	0.05
9.600	0.05	0.06	0.06	0.06	0.06
9.850	0.06	0.06	0.07	0.07	0.07
10.100	0.07	0.07	0.07	0.07	0.08
10.350	0.08	0.08	0.08	0.08	0.09
10.600	0.09	0.10	0.10	0.11	0.11
10.850	0.12	0.12	0.13	0.14	0.14
11.100	0.15	0.16	0.17	0.18	0.19
11.350	0.20	0.21	0.23	0.24	0.27
11.600	0.31	0.33	0.35	0.40	0.47

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.850	0.56	0.66	0.89	1.15	1.54
12.100	1.99	1.59	0.96	0.72	0.59
12.350	0.50	0.42	0.40	0.39	0.35
12.600	0.30	0.28	0.27	0.26	0.25
12.850	0.24	0.22	0.21	0.20	0.19
13.100	0.18	0.17	0.17	0.16	0.16
13.350	0.15	0.14	0.14	0.13	0.13
13.600	0.12	0.12	0.11	0.11	0.11
13.850	0.11	0.11	0.11	0.10	0.10
14.100	0.10	0.10	0.10	0.10	0.09
14.350	0.09	0.09	0.09	0.09	0.09
14.600	0.08	0.08	0.08	0.08	0.08
14.850	0.08	0.07	0.07	0.07	0.07
15.100	0.07	0.07	0.07	0.07	0.06
15.350	0.06	0.06	0.06	0.06	0.06
15.600	0.06	0.06	0.06	0.06	0.06
15.850	0.06	0.06	0.06	0.06	0.06
16.100	0.06	0.06	0.06	0.06	0.06
16.350	0.06	0.05	0.05	0.05	0.05
16.600	0.05	0.05	0.05	0.05	0.05
16.850	0.05	0.05	0.05	0.05	0.05
17.100	0.05	0.05	0.05	0.05	0.05
17.350	0.05	0.04	0.04	0.04	0.04
17.600	0.04	0.04	0.04	0.04	0.04
17.850	0.04	0.04	0.04	0.04	0.04
18.100	0.04	0.04	0.04	0.04	0.04
18.350	0.04	0.04	0.04	0.04	0.04
18.600	0.04	0.04	0.04	0.04	0.04
18.850	0.04	0.04	0.04	0.04	0.04
19.100	0.04	0.04	0.04	0.04	0.04
19.350	0.04	0.03	0.03	0.03	0.03
19.600	0.03	0.03	0.03	0.03	0.03
19.850	0.03	0.03	0.03	0.03	0.03
20.100	0.03	0.03	0.03	0.03	0.03
20.350	0.03	0.03	0.03	0.03	0.03
20.600	0.03	0.03	0.03	0.03	0.03
20.850	0.03	0.03	0.03	0.03	0.03
21.100	0.03	0.03	0.03	0.03	0.03
21.350	0.03	0.03	0.03	0.03	0.03
21.600	0.03	0.03	0.03	0.03	0.03
21.850	0.03	0.03	0.03	0.03	0.03
22.100	0.03	0.03	0.03	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.350	0.03	0.03	0.03	0.03	0.03
22.600	0.03	0.03	0.03	0.03	0.03
22.850	0.03	0.03	0.03	0.03	0.03
23.100	0.03	0.03	0.03	0.03	0.03
23.350	0.03	0.03	0.03	0.03	0.03
23.600	0.02	0.02	0.02	0.02	0.02
23.850	0.02	0.02	0.02	0.02	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.43 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.42 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	7,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	1,274.692 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,273.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.34 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.650	0.00	0.00	0.00	0.00	0.00
8.900	0.00	0.00	0.00	0.00	0.00
9.150	0.00	0.00	0.00	0.00	0.00
9.400	0.00	0.00	0.00	0.00	0.00
9.650	0.00	0.00	0.00	0.00	0.00
9.900	0.01	0.01	0.01	0.01	0.01
10.150	0.01	0.01	0.01	0.01	0.01
10.400	0.01	0.01	0.01	0.01	0.01
10.650	0.01	0.01	0.01	0.01	0.01
10.900	0.02	0.02	0.02	0.02	0.02
11.150	0.02	0.02	0.03	0.03	0.03
11.400	0.03	0.03	0.04	0.04	0.05
11.650	0.05	0.06	0.07	0.08	0.10
11.900	0.12	0.17	0.23	0.32	0.42
12.150	0.35	0.21	0.16	0.14	0.12
12.400	0.10	0.09	0.09	0.08	0.07
12.650	0.07	0.06	0.06	0.06	0.06
12.900	0.05	0.05	0.05	0.05	0.04
13.150	0.04	0.04	0.04	0.04	0.04
13.400	0.04	0.03	0.03	0.03	0.03
13.650	0.03	0.03	0.03	0.03	0.03
13.900	0.03	0.03	0.03	0.03	0.03
14.150	0.02	0.02	0.02	0.02	0.02
14.400	0.02	0.02	0.02	0.02	0.02
14.650	0.02	0.02	0.02	0.02	0.02
14.900	0.02	0.02	0.02	0.02	0.02
15.150	0.02	0.02	0.02	0.02	0.02
15.400	0.02	0.02	0.02	0.02	0.02
15.650	0.02	0.02	0.02	0.02	0.02
15.900	0.02	0.02	0.01	0.01	0.01
16.150	0.01	0.01	0.01	0.01	0.01
16.400	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.650	0.01	0.01	0.01	0.01	0.01
16.900	0.01	0.01	0.01	0.01	0.01
17.150	0.01	0.01	0.01	0.01	0.01
17.400	0.01	0.01	0.01	0.01	0.01
17.650	0.01	0.01	0.01	0.01	0.01
17.900	0.01	0.01	0.01	0.01	0.01
18.150	0.01	0.01	0.01	0.01	0.01
18.400	0.01	0.01	0.01	0.01	0.01
18.650	0.01	0.01	0.01	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.84 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.82 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	7,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	2,510.703 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,508.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.34 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.500	0.00	0.00	0.00	0.00	0.00
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.01
8.000	0.01	0.01	0.01	0.01	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.01	0.01	0.01	0.01	0.01
8.750	0.01	0.01	0.01	0.01	0.01
9.000	0.01	0.01	0.01	0.01	0.01
9.250	0.01	0.01	0.01	0.01	0.01
9.500	0.01	0.01	0.01	0.02	0.02
9.750	0.02	0.02	0.02	0.02	0.02
10.000	0.02	0.02	0.02	0.02	0.02
10.250	0.02	0.02	0.02	0.02	0.03
10.500	0.03	0.03	0.03	0.03	0.03
10.750	0.03	0.04	0.04	0.04	0.04
11.000	0.05	0.05	0.05	0.06	0.06
11.250	0.06	0.07	0.07	0.08	0.08
11.500	0.08	0.10	0.12	0.12	0.13
11.750	0.15	0.18	0.22	0.26	0.35
12.000	0.46	0.63	0.82	0.67	0.41
12.250	0.31	0.25	0.22	0.18	0.17
12.500	0.17	0.15	0.13	0.12	0.12
12.750	0.11	0.11	0.10	0.10	0.09
13.000	0.09	0.08	0.08	0.08	0.07
13.250	0.07	0.07	0.07	0.06	0.06
13.500	0.06	0.06	0.05	0.05	0.05
13.750	0.05	0.05	0.05	0.05	0.05
14.000	0.05	0.05	0.04	0.04	0.04
14.250	0.04	0.04	0.04	0.04	0.04

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.500	0.04	0.04	0.04	0.04	0.04
14.750	0.04	0.03	0.03	0.03	0.03
15.000	0.03	0.03	0.03	0.03	0.03
15.250	0.03	0.03	0.03	0.03	0.03
15.500	0.03	0.03	0.03	0.03	0.03
15.750	0.03	0.03	0.03	0.03	0.03
16.000	0.03	0.03	0.03	0.03	0.03
16.250	0.03	0.03	0.02	0.02	0.02
16.500	0.02	0.02	0.02	0.02	0.02
16.750	0.02	0.02	0.02	0.02	0.02
17.000	0.02	0.02	0.02	0.02	0.02
17.250	0.02	0.02	0.02	0.02	0.02
17.500	0.02	0.02	0.02	0.02	0.02
17.750	0.02	0.02	0.02	0.02	0.02
18.000	0.02	0.02	0.02	0.02	0.02
18.250	0.02	0.02	0.02	0.02	0.02
18.500	0.02	0.02	0.02	0.02	0.02
18.750	0.02	0.02	0.02	0.02	0.02
19.000	0.02	0.02	0.02	0.02	0.02
19.250	0.02	0.02	0.02	0.02	0.02
19.500	0.02	0.02	0.02	0.02	0.02
19.750	0.02	0.02	0.02	0.02	0.02
20.000	0.02	0.02	0.02	0.02	0.02
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.77 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.75 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	7,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	5,537.326 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5,532.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	2.34 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	7,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.900	0.00	0.00	0.00	0.00	0.00
4.150	0.00	0.00	0.00	0.00	0.00
4.400	0.00	0.00	0.00	0.00	0.00
4.650	0.00	0.00	0.00	0.00	0.00
4.900	0.00	0.01	0.01	0.01	0.01
5.150	0.01	0.01	0.01	0.01	0.01
5.400	0.01	0.01	0.01	0.01	0.01
5.650	0.01	0.01	0.01	0.01	0.01
5.900	0.01	0.01	0.01	0.01	0.01
6.150	0.01	0.01	0.01	0.01	0.01
6.400	0.01	0.01	0.01	0.01	0.01
6.650	0.01	0.01	0.01	0.01	0.01
6.900	0.02	0.02	0.02	0.02	0.02
7.150	0.02	0.02	0.02	0.02	0.02
7.400	0.02	0.02	0.02	0.02	0.02
7.650	0.02	0.02	0.02	0.02	0.02
7.900	0.02	0.02	0.02	0.02	0.02
8.150	0.03	0.03	0.03	0.03	0.03
8.400	0.03	0.03	0.03	0.03	0.03
8.650	0.03	0.03	0.03	0.03	0.03
8.900	0.03	0.03	0.03	0.03	0.04
9.150	0.04	0.04	0.04	0.04	0.04
9.400	0.04	0.04	0.05	0.05	0.05
9.650	0.05	0.05	0.05	0.05	0.05
9.900	0.06	0.06	0.06	0.06	0.06
10.150	0.06	0.06	0.07	0.07	0.07
10.400	0.07	0.07	0.07	0.08	0.08
10.650	0.09	0.09	0.10	0.10	0.10
10.900	0.11	0.11	0.12	0.13	0.14
11.150	0.14	0.15	0.16	0.17	0.18
11.400	0.19	0.20	0.21	0.24	0.28
11.650	0.29	0.31	0.35	0.41	0.49

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.900	0.58	0.78	1.01	1.36	1.75
12.150	1.40	0.84	0.64	0.52	0.44
12.400	0.37	0.35	0.34	0.30	0.26
12.650	0.25	0.24	0.23	0.22	0.21
12.900	0.20	0.19	0.18	0.17	0.16
13.150	0.15	0.15	0.14	0.14	0.13
13.400	0.13	0.12	0.12	0.11	0.10
13.650	0.10	0.10	0.10	0.10	0.10
13.900	0.09	0.09	0.09	0.09	0.09
14.150	0.09	0.09	0.08	0.08	0.08
14.400	0.08	0.08	0.08	0.08	0.07
14.650	0.07	0.07	0.07	0.07	0.07
14.900	0.07	0.06	0.06	0.06	0.06
15.150	0.06	0.06	0.06	0.06	0.06
15.400	0.06	0.06	0.06	0.06	0.05
15.650	0.05	0.05	0.05	0.05	0.05
15.900	0.05	0.05	0.05	0.05	0.05
16.150	0.05	0.05	0.05	0.05	0.05
16.400	0.05	0.05	0.05	0.05	0.05
16.650	0.05	0.05	0.05	0.04	0.04
16.900	0.04	0.04	0.04	0.04	0.04
17.150	0.04	0.04	0.04	0.04	0.04
17.400	0.04	0.04	0.04	0.04	0.04
17.650	0.04	0.04	0.04	0.04	0.04
17.900	0.04	0.03	0.03	0.03	0.03
18.150	0.03	0.03	0.03	0.03	0.03
18.400	0.03	0.03	0.03	0.03	0.03
18.650	0.03	0.03	0.03	0.03	0.03
18.900	0.03	0.03	0.03	0.03	0.03
19.150	0.03	0.03	0.03	0.03	0.03
19.400	0.03	0.03	0.03	0.03	0.03
19.650	0.03	0.03	0.03	0.03	0.03
19.900	0.03	0.03	0.03	0.03	0.03
20.150	0.03	0.03	0.03	0.03	0.03
20.400	0.03	0.03	0.03	0.03	0.03
20.650	0.03	0.03	0.03	0.03	0.03
20.900	0.03	0.03	0.03	0.03	0.03
21.150	0.03	0.03	0.03	0.03	0.03
21.400	0.03	0.03	0.03	0.03	0.03
21.650	0.03	0.03	0.03	0.03	0.03
21.900	0.03	0.03	0.03	0.03	0.03
22.150	0.03	0.03	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.400	0.02	0.02	0.02	0.02	0.02
22.650	0.02	0.02	0.02	0.02	0.02
22.900	0.02	0.02	0.02	0.02	0.02
23.150	0.02	0.02	0.02	0.02	0.02
23.400	0.02	0.02	0.02	0.02	0.02
23.650	0.02	0.02	0.02	0.02	0.02
23.900	0.02	0.02	0.02	(N/A)	(N/A)

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - IMP	224.695	12.100	0.06
Flow (From)	BYPASS ENTRANCE - PERV	470.405	12.100	0.16
Flow (In)	OUTFALL - BYPASS	695.100	12.100	0.22

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - IMP	357.398	12.100	0.10
Flow (From)	BYPASS ENTRANCE - PERV	926.706	12.100	0.30
Flow (In)	OUTFALL - BYPASS	1,284.104	12.100	0.41

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - IMP	657.432	12.100	0.18
Flow (From)	BYPASS ENTRANCE - PERV	2,044.161	12.100	0.65
Flow (In)	OUTFALL - BYPASS	2,701.594	12.100	0.83

Subsection: Addition Summary
Label: POI - 4 OUTFALL
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-301
<Catchment to Outflow Node>	PERV - INLET-302

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-302	433.340	12.100	0.12
Flow (From)	PERV - INLET-301	1,445.966	12.100	0.48
Flow (From)	PERV - INLET-302	1,273.060	12.100	0.42
Flow (In)	POI - 4 OUTFALL	3,152.366	12.100	1.03

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-301
<Catchment to Outflow Node>	PERV - INLET-302

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - INLET-302	689.268	12.100	0.19
Flow (From)	PERV - INLET-301	2,848.576	12.100	0.94
Flow (From)	PERV - INLET-302	2,507.949	12.100	0.82
Flow (In)	POI - 4 OUTFALL	6,045.794	12.100	1.95

Subsection: Addition Summary
Label: POI - 4 OUTFALL
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-301
<Catchment to Outflow Node>	PERV - INLET-302

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-302	1,267.905	12.100	0.35
Flow (From)	PERV - INLET-301	6,283.494	12.100	1.99
Flow (From)	PERV - INLET-302	5,532.127	12.100	1.75
Flow (In)	POI - 4 OUTFALL	13,083.526	12.100	4.09

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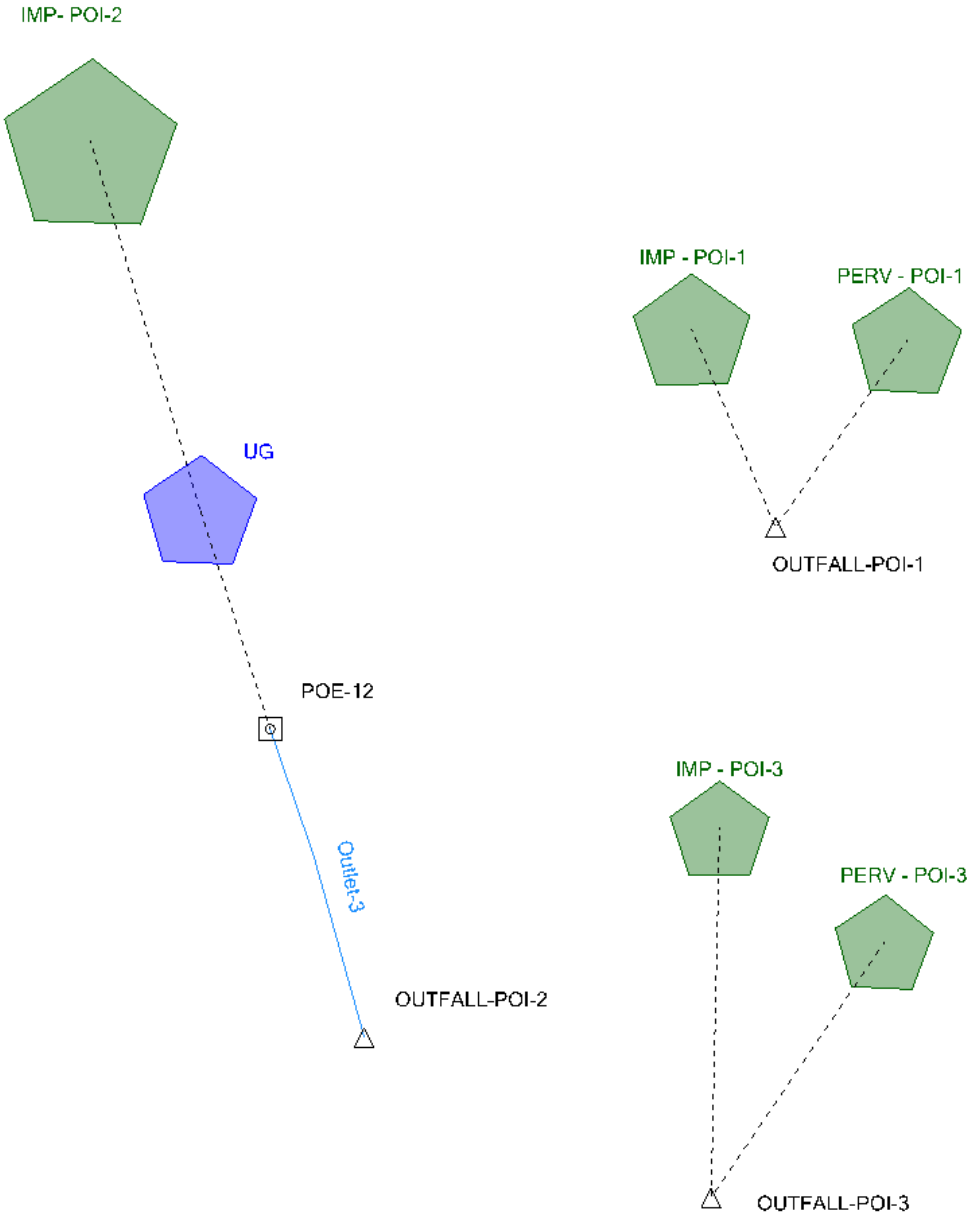
Appendix - D:

PROPOSED HYDROLOGIC ROUTINGS - FUTURE/PROJECTED RAINFALL (YEAR 2100) CONDITION FOR 2-, 10-, AND 100- YEAR STORM EVENTS

POI-1, POI-2, AND POI-3

Project Summary	
Title	Kimberley Academy
Engineer	DP
Company	VNH/Pennoni
Date	8/31/2023

Notes



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Subsection: User Notifications

User Notifications

Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	31
Label	PERV - POI-1
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.27 ft³/s Interp. peak flow= 0.27 ft³/s. Output increment for this catchment may be too large.
Source	Warning

Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	365
Label	PERV - POI-3
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.04 ft³/s Interp. peak flow= 0.04 ft³/s. Output increment for this catchment may be too large.
Source	Warning

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
IMP - POI-1	ESSEX CO. 2-YR (PROJ)	2	734.000	12.100	0.21
IMP - POI-1	ESSEX CO. 10-YR (PROJ)	10	1,168.000	12.100	0.33
IMP - POI-1	ESSEX CO. 100-YR (PROJ)	100	2,149.000	12.100	0.60
PERV - POI-1	ESSEX CO. 2-YR (PROJ)	2	810.000	12.100	0.27
PERV - POI-1	ESSEX CO. 10-YR (PROJ)	10	1,595.000	12.100	0.52
PERV - POI-1	ESSEX CO. 100-YR (PROJ)	100	3,519.000	12.100	1.11
IMP - POI-3	ESSEX CO. 2-YR (PROJ)	2	416.000	12.100	0.12
IMP - POI-3	ESSEX CO. 10-YR (PROJ)	10	661.000	12.100	0.19
IMP - POI-3	ESSEX CO. 100-YR (PROJ)	100	1,216.000	12.100	0.34
PERV - POI-3	ESSEX CO. 2-YR (PROJ)	2	116.000	12.100	0.04
PERV - POI-3	ESSEX CO. 10-YR (PROJ)	10	228.000	12.100	0.07
PERV - POI-3	ESSEX CO. 100-YR (PROJ)	100	503.000	12.100	0.16
IMP- POI-2	ESSEX CO. 2-YR (PROJ)	2	1,047.000	12.100	0.30
IMP- POI-2	ESSEX CO. 10-YR (PROJ)	10	1,666.000	12.100	0.47
IMP- POI-2	ESSEX CO. 100-YR (PROJ)	100	3,065.000	12.100	0.85

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
OUTFALL-POI-1	ESSEX CO. 2-YR (PROJ)	2	1,544.000	12.100	0.48
OUTFALL-POI-1	ESSEX CO. 10-YR (PROJ)	10	2,763.000	12.100	0.85
OUTFALL-POI-1	ESSEX CO. 100-YR (PROJ)	100	5,668.000	12.100	1.71
OUTFALL-POI-3	ESSEX CO. 2-YR (PROJ)	2	531.000	12.100	0.16
OUTFALL-POI-3	ESSEX CO. 10-YR (PROJ)	10	889.000	12.100	0.26

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
OUTFALL-POI-3	ESSEX CO. 100-YR (PROJ)	100	1,719.000	12.100	0.50
OUTFALL-POI-2	ESSEX CO. 2-YR (PROJ)	2	583.000	12.300	0.09
OUTFALL-POI-2	ESSEX CO. 10-YR (PROJ)	10	1,199.000	12.200	0.24
OUTFALL-POI-2	ESSEX CO. 100-YR (PROJ)	100	2,592.000	12.150	0.58

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft³)
UG (IN)	ESSEX CO. 2-YR (PROJ)	2	1,047.000	12.100	0.30	(N/A)	(N/A)
UG (OUT)	ESSEX CO. 2-YR (PROJ)	2	583.000	12.300	0.09	467.53	576.000
UG (IN)	ESSEX CO. 10-YR (PROJ)	10	1,666.000	12.100	0.47	(N/A)	(N/A)
UG (OUT)	ESSEX CO. 10-YR (PROJ)	10	1,199.000	12.200	0.24	467.92	743.000
UG (IN)	ESSEX CO. 100-YR (PROJ)	100	3,065.000	12.100	0.85	(N/A)	(N/A)
UG (OUT)	ESSEX CO. 100-YR (PROJ)	100	2,592.000	12.150	0.58	468.33	908.000

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time-Depth Curve: ESSEX CO. 100-YR (PROJ)	
Label	ESSEX CO. 100-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.1
0.500	0.1	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.2	0.2	0.2
1.500	0.2	0.2	0.2	0.2	0.3
2.000	0.3	0.3	0.3	0.3	0.3
2.500	0.4	0.4	0.4	0.4	0.4
3.000	0.4	0.5	0.5	0.5	0.5
3.500	0.5	0.5	0.6	0.6	0.6
4.000	0.6	0.6	0.6	0.7	0.7
4.500	0.7	0.7	0.7	0.7	0.8
5.000	0.8	0.8	0.8	0.8	0.9
5.500	0.9	0.9	0.9	0.9	1.0
6.000	1.0	1.0	1.0	1.0	1.1
6.500	1.1	1.1	1.1	1.2	1.2
7.000	1.2	1.2	1.3	1.3	1.3
7.500	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.6
8.500	1.7	1.7	1.7	1.8	1.8
9.000	1.8	1.9	1.9	1.9	2.0
9.500	2.0	2.1	2.1	2.2	2.2
10.000	2.3	2.3	2.4	2.5	2.5
10.500	2.6	2.6	2.7	2.8	2.9
11.000	3.0	3.1	3.2	3.4	3.5
11.500	3.7	3.9	4.1	4.4	4.8
12.000	5.5	6.7	7.1	7.4	7.7
12.500	7.9	8.0	8.2	8.3	8.4
13.000	8.5	8.6	8.7	8.8	8.9
13.500	8.9	9.0	9.1	9.1	9.2
14.000	9.2	9.3	9.3	9.4	9.4
14.500	9.5	9.5	9.6	9.6	9.7
15.000	9.7	9.7	9.8	9.8	9.8
15.500	9.9	9.9	9.9	10.0	10.0
16.000	10.0	10.1	10.1	10.1	10.1

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	10.2	10.2	10.2	10.3	10.3
17.000	10.3	10.3	10.4	10.4	10.4
17.500	10.4	10.5	10.5	10.5	10.5
18.000	10.5	10.6	10.6	10.6	10.6
18.500	10.6	10.7	10.7	10.7	10.7
19.000	10.7	10.8	10.8	10.8	10.8
19.500	10.8	10.8	10.9	10.9	10.9
20.000	10.9	10.9	11.0	11.0	11.0
20.500	11.0	11.0	11.0	11.1	11.1
21.000	11.1	11.1	11.1	11.1	11.2
21.500	11.2	11.2	11.2	11.2	11.2
22.000	11.2	11.3	11.3	11.3	11.3
22.500	11.3	11.3	11.3	11.4	11.4
23.000	11.4	11.4	11.4	11.4	11.4
23.500	11.5	11.5	11.5	11.5	11.5
24.000	11.5	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time-Depth Curve: ESSEX CO. 10-YR (PROJ)	
Label	ESSEX CO. 10-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.4	0.4	0.4
4.500	0.4	0.4	0.4	0.4	0.4
5.000	0.4	0.4	0.5	0.5	0.5
5.500	0.5	0.5	0.5	0.5	0.5
6.000	0.5	0.6	0.6	0.6	0.6
6.500	0.6	0.6	0.6	0.6	0.7
7.000	0.7	0.7	0.7	0.7	0.7
7.500	0.7	0.8	0.8	0.8	0.8
8.000	0.8	0.8	0.9	0.9	0.9
8.500	0.9	0.9	1.0	1.0	1.0
9.000	1.0	1.0	1.1	1.1	1.1
9.500	1.1	1.1	1.2	1.2	1.2
10.000	1.3	1.3	1.3	1.4	1.4
10.500	1.4	1.5	1.5	1.6	1.6
11.000	1.7	1.7	1.8	1.9	1.9
11.500	2.0	2.1	2.3	2.4	2.7
12.000	3.1	3.7	3.9	4.1	4.2
12.500	4.4	4.4	4.5	4.6	4.7
13.000	4.7	4.8	4.8	4.9	4.9
13.500	4.9	5.0	5.0	5.0	5.1
14.000	5.1	5.1	5.2	5.2	5.2
14.500	5.2	5.3	5.3	5.3	5.3
15.000	5.4	5.4	5.4	5.4	5.4
15.500	5.5	5.5	5.5	5.5	5.5
16.000	5.5	5.6	5.6	5.6	5.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	5.6	5.6	5.7	5.7	5.7
17.000	5.7	5.7	5.7	5.7	5.8
17.500	5.8	5.8	5.8	5.8	5.8
18.000	5.8	5.8	5.8	5.9	5.9
18.500	5.9	5.9	5.9	5.9	5.9
19.000	5.9	5.9	6.0	6.0	6.0
19.500	6.0	6.0	6.0	6.0	6.0
20.000	6.0	6.0	6.1	6.1	6.1
20.500	6.1	6.1	6.1	6.1	6.1
21.000	6.1	6.1	6.1	6.2	6.2
21.500	6.2	6.2	6.2	6.2	6.2
22.000	6.2	6.2	6.2	6.2	6.2
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.3	6.3	6.3	6.3	6.3
23.500	6.3	6.3	6.3	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time-Depth Curve: ESSEX CO. 2-YR (PROJ)	
Label	ESSEX CO. 2-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.5	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.6
9.000	0.6	0.7	0.7	0.7	0.7
9.500	0.7	0.7	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	0.9	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.4	1.6	1.7
12.000	2.0	2.4	2.5	2.6	2.7
12.500	2.8	2.8	2.9	2.9	3.0
13.000	3.0	3.1	3.1	3.1	3.1
13.500	3.2	3.2	3.2	3.2	3.3
14.000	3.3	3.3	3.3	3.3	3.4
14.500	3.4	3.4	3.4	3.4	3.4
15.000	3.4	3.5	3.5	3.5	3.5
15.500	3.5	3.5	3.5	3.5	3.5
16.000	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	3.6	3.6	3.6	3.6	3.6
17.000	3.7	3.7	3.7	3.7	3.7
17.500	3.7	3.7	3.7	3.7	3.7
18.000	3.7	3.7	3.8	3.8	3.8
18.500	3.8	3.8	3.8	3.8	3.8
19.000	3.8	3.8	3.8	3.8	3.8
19.500	3.8	3.8	3.9	3.9	3.9
20.000	3.9	3.9	3.9	3.9	3.9
20.500	3.9	3.9	3.9	3.9	3.9
21.000	3.9	3.9	3.9	4.0	4.0
21.500	4.0	4.0	4.0	4.0	4.0
22.000	4.0	4.0	4.0	4.0	4.0
22.500	4.0	4.0	4.0	4.0	4.0
23.000	4.0	4.0	4.1	4.1	4.1
23.500	4.1	4.1	4.1	4.1	4.1
24.000	4.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.21 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.21 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2,288.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	735.000 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	734.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.71 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.950	0.00	0.00	0.00	0.00	0.00
2.200	0.00	0.00	0.00	0.00	0.00
2.450	0.00	0.00	0.00	0.00	0.00
2.700	0.00	0.00	0.00	0.00	0.00
2.950	0.00	0.00	0.00	0.00	0.00
3.200	0.00	0.00	0.00	0.00	0.00
3.450	0.00	0.00	0.00	0.00	0.00
3.700	0.00	0.00	0.00	0.00	0.00
3.950	0.00	0.00	0.00	0.00	0.00
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.00
6.950	0.00	0.00	0.00	0.00	0.00
7.200	0.00	0.00	0.00	0.00	0.00
7.450	0.00	0.00	0.00	0.00	0.00
7.700	0.00	0.00	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.01	0.01	0.01	0.01	0.01
9.700	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.950	0.01	0.01	0.01	0.01	0.01
10.200	0.01	0.01	0.01	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.02	0.02
10.950	0.02	0.02	0.02	0.02	0.02
11.200	0.02	0.02	0.02	0.02	0.03
11.450	0.03	0.03	0.03	0.04	0.04
11.700	0.04	0.05	0.05	0.06	0.07
11.950	0.10	0.13	0.17	0.21	0.17
12.200	0.10	0.07	0.06	0.05	0.04
12.450	0.04	0.04	0.04	0.03	0.03
12.700	0.03	0.03	0.02	0.02	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.02	0.02	0.02	0.02	0.01
13.450	0.01	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.01	0.01	0.01	0.01
16.700	0.01	0.01	0.01	0.01	0.00
16.950	0.00	0.00	0.00	0.00	0.00
17.200	0.00	0.00	0.00	0.00	0.00
17.450	0.00	0.00	0.00	0.00	0.00
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.33 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.33 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2,288.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	1,169.068 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,168.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.71 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.050	0.00	0.00	0.00	0.00	0.00
1.300	0.00	0.00	0.00	0.00	0.00
1.550	0.00	0.00	0.00	0.00	0.00
1.800	0.00	0.00	0.00	0.00	0.00
2.050	0.00	0.00	0.00	0.00	0.00
2.300	0.00	0.00	0.00	0.00	0.00
2.550	0.00	0.00	0.00	0.00	0.00
2.800	0.00	0.00	0.00	0.00	0.00
3.050	0.00	0.00	0.00	0.00	0.00
3.300	0.00	0.00	0.00	0.00	0.00
3.550	0.00	0.00	0.00	0.00	0.00
3.800	0.00	0.00	0.00	0.00	0.00
4.050	0.00	0.00	0.00	0.00	0.00
4.300	0.00	0.00	0.00	0.00	0.00
4.550	0.00	0.00	0.00	0.00	0.00
4.800	0.00	0.00	0.00	0.00	0.00
5.050	0.00	0.00	0.00	0.00	0.01
5.300	0.01	0.01	0.01	0.01	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.01	0.01	0.01
6.050	0.01	0.01	0.01	0.01	0.01
6.300	0.01	0.01	0.01	0.01	0.01
6.550	0.01	0.01	0.01	0.01	0.01
6.800	0.01	0.01	0.01	0.01	0.01
7.050	0.01	0.01	0.01	0.01	0.01
7.300	0.01	0.01	0.01	0.01	0.01
7.550	0.01	0.01	0.01	0.01	0.01
7.800	0.01	0.01	0.01	0.01	0.01
8.050	0.01	0.01	0.01	0.01	0.01
8.300	0.01	0.01	0.01	0.01	0.01
8.550	0.01	0.01	0.01	0.01	0.01
8.800	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.050	0.01	0.01	0.01	0.01	0.01
9.300	0.01	0.01	0.01	0.01	0.01
9.550	0.01	0.01	0.01	0.01	0.01
9.800	0.01	0.01	0.01	0.02	0.02
10.050	0.02	0.02	0.02	0.02	0.02
10.300	0.02	0.02	0.02	0.02	0.02
10.550	0.02	0.02	0.02	0.02	0.02
10.800	0.02	0.02	0.03	0.03	0.03
11.050	0.03	0.03	0.03	0.03	0.04
11.300	0.04	0.04	0.04	0.04	0.04
11.550	0.05	0.06	0.06	0.06	0.07
11.800	0.08	0.10	0.12	0.15	0.20
12.050	0.26	0.33	0.26	0.16	0.12
12.300	0.09	0.08	0.07	0.06	0.06
12.550	0.06	0.05	0.04	0.04	0.04
12.800	0.04	0.04	0.04	0.03	0.03
13.050	0.03	0.03	0.03	0.03	0.03
13.300	0.02	0.02	0.02	0.02	0.02
13.550	0.02	0.02	0.02	0.02	0.02
13.800	0.02	0.02	0.02	0.02	0.02
14.050	0.02	0.02	0.02	0.02	0.02
14.300	0.01	0.01	0.01	0.01	0.01
14.550	0.01	0.01	0.01	0.01	0.01
14.800	0.01	0.01	0.01	0.01	0.01
15.050	0.01	0.01	0.01	0.01	0.01
15.300	0.01	0.01	0.01	0.01	0.01
15.550	0.01	0.01	0.01	0.01	0.01
15.800	0.01	0.01	0.01	0.01	0.01
16.050	0.01	0.01	0.01	0.01	0.01
16.300	0.01	0.01	0.01	0.01	0.01
16.550	0.01	0.01	0.01	0.01	0.01
16.800	0.01	0.01	0.01	0.01	0.01
17.050	0.01	0.01	0.01	0.01	0.01
17.300	0.01	0.01	0.01	0.01	0.01
17.550	0.01	0.01	0.01	0.01	0.01
17.800	0.01	0.01	0.01	0.01	0.01
18.050	0.01	0.01	0.01	0.01	0.01
18.300	0.01	0.01	0.01	0.01	0.01
18.550	0.01	0.01	0.01	0.01	0.01
18.800	0.01	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.00
20.550	0.00	0.00	0.00	0.00	0.00
20.800	0.00	0.00	0.00	0.00	0.00
21.050	0.00	0.00	0.00	0.00	0.00
21.300	0.00	0.00	0.00	0.00	0.00
21.550	0.00	0.00	0.00	0.00	0.00
21.800	0.00	0.00	0.00	0.00	0.00
22.050	0.00	0.00	0.00	0.00	0.00
22.300	0.00	0.00	0.00	0.00	0.00
22.550	0.00	0.00	0.00	0.00	0.00
22.800	0.00	0.00	0.00	0.00	0.00
23.050	0.00	0.00	0.00	0.00	0.00
23.300	0.00	0.00	0.00	0.00	0.00
23.550	0.00	0.00	0.00	0.00	0.00
23.800	0.00	0.00	0.00	0.00	0.00

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.60 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.60 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	2,288.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	2,150.466 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,149.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.71 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,288.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.500	0.00	0.00	0.00	0.00	0.00
0.750	0.00	0.00	0.00	0.00	0.00
1.000	0.00	0.00	0.00	0.00	0.00
1.250	0.00	0.00	0.00	0.00	0.00
1.500	0.01	0.01	0.01	0.01	0.01
1.750	0.01	0.01	0.01	0.01	0.01
2.000	0.01	0.01	0.01	0.01	0.01
2.250	0.01	0.01	0.01	0.01	0.01
2.500	0.01	0.01	0.01	0.01	0.01
2.750	0.01	0.01	0.01	0.01	0.01
3.000	0.01	0.01	0.01	0.01	0.01
3.250	0.01	0.01	0.01	0.01	0.01
3.500	0.01	0.01	0.01	0.01	0.01
3.750	0.01	0.01	0.01	0.01	0.01
4.000	0.01	0.01	0.01	0.01	0.01
4.250	0.01	0.01	0.01	0.01	0.01
4.500	0.01	0.01	0.01	0.01	0.01
4.750	0.01	0.01	0.01	0.01	0.01
5.000	0.01	0.01	0.01	0.01	0.01
5.250	0.01	0.01	0.01	0.01	0.01
5.500	0.01	0.01	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.01	0.01	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.01	0.01	0.01	0.01
7.250	0.01	0.01	0.01	0.01	0.01
7.500	0.01	0.01	0.01	0.01	0.02
7.750	0.02	0.02	0.02	0.02	0.02
8.000	0.02	0.02	0.02	0.02	0.02
8.250	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.02	0.02	0.02
9.000	0.02	0.02	0.02	0.02	0.02
9.250	0.02	0.02	0.02	0.02	0.02
9.500	0.02	0.02	0.02	0.02	0.03
9.750	0.03	0.03	0.03	0.03	0.03
10.000	0.03	0.03	0.03	0.03	0.03
10.250	0.03	0.03	0.03	0.03	0.03
10.500	0.03	0.03	0.04	0.04	0.04
10.750	0.04	0.04	0.04	0.05	0.05
11.000	0.05	0.05	0.06	0.06	0.06
11.250	0.07	0.07	0.07	0.07	0.08
11.500	0.08	0.09	0.11	0.11	0.11
11.750	0.13	0.15	0.18	0.21	0.28
12.000	0.36	0.47	0.60	0.47	0.28
12.250	0.21	0.17	0.15	0.12	0.12
12.500	0.11	0.10	0.09	0.08	0.08
12.750	0.07	0.07	0.07	0.06	0.06
13.000	0.06	0.06	0.05	0.05	0.05
13.250	0.05	0.04	0.04	0.04	0.04
13.500	0.04	0.04	0.03	0.03	0.03
13.750	0.03	0.03	0.03	0.03	0.03
14.000	0.03	0.03	0.03	0.03	0.03
14.250	0.03	0.03	0.03	0.03	0.03
14.500	0.02	0.02	0.02	0.02	0.02
14.750	0.02	0.02	0.02	0.02	0.02
15.000	0.02	0.02	0.02	0.02	0.02
15.250	0.02	0.02	0.02	0.02	0.02
15.500	0.02	0.02	0.02	0.02	0.02
15.750	0.02	0.02	0.02	0.02	0.02
16.000	0.02	0.02	0.02	0.02	0.02
16.250	0.02	0.02	0.02	0.02	0.02
16.500	0.02	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.12 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.12 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,295.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	416.007 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	416.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.40 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.00	0.00
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.00
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.00	0.00	0.00
7.600	0.00	0.00	0.00	0.00	0.00
7.850	0.00	0.00	0.00	0.00	0.00
8.100	0.00	0.00	0.00	0.00	0.00
8.350	0.00	0.00	0.00	0.00	0.00
8.600	0.00	0.00	0.00	0.00	0.00
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.01
9.850	0.01	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.01
10.850	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.100	0.01	0.01	0.01	0.01	0.01
11.350	0.01	0.01	0.02	0.02	0.02
11.600	0.02	0.02	0.02	0.03	0.03
11.850	0.04	0.04	0.06	0.07	0.09
12.100	0.12	0.09	0.06	0.04	0.03
12.350	0.03	0.02	0.02	0.02	0.02
12.600	0.02	0.02	0.02	0.01	0.01
12.850	0.01	0.01	0.01	0.01	0.01
13.100	0.01	0.01	0.01	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.00	0.00
14.600	0.00	0.00	0.00	0.00	0.00
14.850	0.00	0.00	0.00	0.00	0.00
15.100	0.00	0.00	0.00	0.00	0.00
15.350	0.00	0.00	0.00	0.00	0.00
15.600	0.00	0.00	0.00	0.00	0.00
15.850	0.00	0.00	0.00	0.00	0.00
16.100	0.00	0.00	0.00	0.00	0.00
16.350	0.00	0.00	0.00	0.00	0.00
16.600	0.00	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.19 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.19 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,295.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	661.689 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	661.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.40 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.500	0.00	0.00	0.00	0.00	0.00
1.750	0.00	0.00	0.00	0.00	0.00
2.000	0.00	0.00	0.00	0.00	0.00
2.250	0.00	0.00	0.00	0.00	0.00
2.500	0.00	0.00	0.00	0.00	0.00
2.750	0.00	0.00	0.00	0.00	0.00
3.000	0.00	0.00	0.00	0.00	0.00
3.250	0.00	0.00	0.00	0.00	0.00
3.500	0.00	0.00	0.00	0.00	0.00
3.750	0.00	0.00	0.00	0.00	0.00
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.00	0.00	0.00
5.750	0.00	0.00	0.00	0.00	0.00
6.000	0.00	0.00	0.00	0.00	0.00
6.250	0.00	0.00	0.00	0.00	0.00
6.500	0.00	0.00	0.00	0.00	0.00
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.01	0.01	0.01	0.01	0.01
8.750	0.01	0.01	0.01	0.01	0.01
9.000	0.01	0.01	0.01	0.01	0.01
9.250	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.500	0.01	0.01	0.01	0.01	0.01
9.750	0.01	0.01	0.01	0.01	0.01
10.000	0.01	0.01	0.01	0.01	0.01
10.250	0.01	0.01	0.01	0.01	0.01
10.500	0.01	0.01	0.01	0.01	0.01
10.750	0.01	0.01	0.01	0.01	0.02
11.000	0.02	0.02	0.02	0.02	0.02
11.250	0.02	0.02	0.02	0.02	0.02
11.500	0.03	0.03	0.03	0.03	0.04
11.750	0.04	0.05	0.06	0.07	0.09
12.000	0.11	0.15	0.19	0.15	0.09
12.250	0.07	0.05	0.05	0.04	0.04
12.500	0.03	0.03	0.03	0.03	0.02
12.750	0.02	0.02	0.02	0.02	0.02
13.000	0.02	0.02	0.02	0.02	0.02
13.250	0.01	0.01	0.01	0.01	0.01
13.500	0.01	0.01	0.01	0.01	0.01
13.750	0.01	0.01	0.01	0.01	0.01
14.000	0.01	0.01	0.01	0.01	0.01
14.250	0.01	0.01	0.01	0.01	0.01
14.500	0.01	0.01	0.01	0.01	0.01
14.750	0.01	0.01	0.01	0.01	0.01
15.000	0.01	0.01	0.01	0.01	0.01
15.250	0.01	0.01	0.01	0.01	0.01
15.500	0.01	0.01	0.01	0.01	0.01
15.750	0.01	0.01	0.01	0.01	0.01
16.000	0.01	0.01	0.01	0.01	0.00
16.250	0.00	0.00	0.00	0.00	0.00
16.500	0.00	0.00	0.00	0.00	0.00
16.750	0.00	0.00	0.00	0.00	0.00
17.000	0.00	0.00	0.00	0.00	0.00
17.250	0.00	0.00	0.00	0.00	0.00
17.500	0.00	0.00	0.00	0.00	0.00
17.750	0.00	0.00	0.00	0.00	0.00
18.000	0.00	0.00	0.00	0.00	0.00
18.250	0.00	0.00	0.00	0.00	0.00
18.500	0.00	0.00	0.00	0.00	0.00
18.750	0.00	0.00	0.00	0.00	0.00
19.000	0.00	0.00	0.00	0.00	0.00
19.250	0.00	0.00	0.00	0.00	0.00
19.500	0.00	0.00	0.00	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00
21.250	0.00	0.00	0.00	0.00	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.34 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.34 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,295.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	1,217.156 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,216.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - POI-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.40 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,295.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.600	0.00	0.00	0.00	0.00	0.00
0.850	0.00	0.00	0.00	0.00	0.00
1.100	0.00	0.00	0.00	0.00	0.00
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.01	0.01
4.350	0.01	0.01	0.01	0.01	0.01
4.600	0.01	0.01	0.01	0.01	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.01	0.01
9.600	0.01	0.01	0.01	0.01	0.01
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.02	0.02	0.02
10.850	0.03	0.03	0.03	0.03	0.03
11.100	0.03	0.03	0.04	0.04	0.04
11.350	0.04	0.04	0.04	0.05	0.05
11.600	0.06	0.06	0.07	0.07	0.09
11.850	0.10	0.12	0.16	0.20	0.27
12.100	0.34	0.27	0.16	0.12	0.10
12.350	0.08	0.07	0.07	0.06	0.06
12.600	0.05	0.05	0.04	0.04	0.04
12.850	0.04	0.04	0.03	0.03	0.03
13.100	0.03	0.03	0.03	0.03	0.03
13.350	0.02	0.02	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.30 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.30 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	1,048.210 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,047.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP- POI-2
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.00	0.00
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.00
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.600	0.01	0.01	0.01	0.01	0.01
9.850	0.01	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.02	0.02	0.02
10.850	0.02	0.02	0.02	0.02	0.03
11.100	0.03	0.03	0.03	0.03	0.03
11.350	0.04	0.04	0.04	0.04	0.05
11.600	0.05	0.06	0.06	0.07	0.08
11.850	0.09	0.11	0.14	0.18	0.24
12.100	0.30	0.24	0.14	0.11	0.09
12.350	0.07	0.06	0.06	0.06	0.05
12.600	0.04	0.04	0.04	0.04	0.04
12.850	0.03	0.03	0.03	0.03	0.03
13.100	0.03	0.03	0.02	0.02	0.02
13.350	0.02	0.02	0.02	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01
19.100	0.01	0.01	0.01	0.01	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.47 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.47 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	1,667.251 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,666.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP- POI-2
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.900	0.00	0.00	0.00	0.00	0.00
1.150	0.00	0.00	0.00	0.00	0.00
1.400	0.00	0.00	0.00	0.00	0.00
1.650	0.00	0.00	0.00	0.00	0.00
1.900	0.00	0.00	0.00	0.00	0.00
2.150	0.00	0.00	0.00	0.00	0.00
2.400	0.00	0.00	0.00	0.00	0.00
2.650	0.00	0.00	0.00	0.00	0.00
2.900	0.00	0.00	0.00	0.01	0.01
3.150	0.01	0.01	0.01	0.01	0.01
3.400	0.01	0.01	0.01	0.01	0.01
3.650	0.01	0.01	0.01	0.01	0.01
3.900	0.01	0.01	0.01	0.01	0.01
4.150	0.01	0.01	0.01	0.01	0.01
4.400	0.01	0.01	0.01	0.01	0.01
4.650	0.01	0.01	0.01	0.01	0.01
4.900	0.01	0.01	0.01	0.01	0.01
5.150	0.01	0.01	0.01	0.01	0.01
5.400	0.01	0.01	0.01	0.01	0.01
5.650	0.01	0.01	0.01	0.01	0.01
5.900	0.01	0.01	0.01	0.01	0.01
6.150	0.01	0.01	0.01	0.01	0.01
6.400	0.01	0.01	0.01	0.01	0.01
6.650	0.01	0.01	0.01	0.01	0.01
6.900	0.01	0.01	0.01	0.01	0.01
7.150	0.01	0.01	0.01	0.01	0.01
7.400	0.01	0.01	0.01	0.01	0.01
7.650	0.01	0.01	0.01	0.01	0.01
7.900	0.01	0.01	0.01	0.01	0.01
8.150	0.01	0.01	0.01	0.01	0.01
8.400	0.01	0.01	0.01	0.01	0.01
8.650	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.900	0.01	0.01	0.01	0.01	0.02
9.150	0.02	0.02	0.02	0.02	0.02
9.400	0.02	0.02	0.02	0.02	0.02
9.650	0.02	0.02	0.02	0.02	0.02
9.900	0.02	0.02	0.02	0.02	0.02
10.150	0.02	0.02	0.02	0.02	0.02
10.400	0.02	0.03	0.03	0.03	0.03
10.650	0.03	0.03	0.03	0.03	0.04
10.900	0.04	0.04	0.04	0.04	0.04
11.150	0.05	0.05	0.05	0.05	0.06
11.400	0.06	0.06	0.06	0.07	0.08
11.650	0.09	0.09	0.10	0.12	0.14
11.900	0.17	0.22	0.28	0.37	0.47
12.150	0.37	0.22	0.17	0.14	0.11
12.400	0.10	0.09	0.09	0.08	0.07
12.650	0.06	0.06	0.06	0.06	0.05
12.900	0.05	0.05	0.05	0.04	0.04
13.150	0.04	0.04	0.04	0.04	0.03
13.400	0.03	0.03	0.03	0.03	0.03
13.650	0.03	0.03	0.03	0.02	0.02
13.900	0.02	0.02	0.02	0.02	0.02
14.150	0.02	0.02	0.02	0.02	0.02
14.400	0.02	0.02	0.02	0.02	0.02
14.650	0.02	0.02	0.02	0.02	0.02
14.900	0.02	0.02	0.02	0.02	0.01
15.150	0.01	0.01	0.01	0.01	0.01
15.400	0.01	0.01	0.01	0.01	0.01
15.650	0.01	0.01	0.01	0.01	0.01
15.900	0.01	0.01	0.01	0.01	0.01
16.150	0.01	0.01	0.01	0.01	0.01
16.400	0.01	0.01	0.01	0.01	0.01
16.650	0.01	0.01	0.01	0.01	0.01
16.900	0.01	0.01	0.01	0.01	0.01
17.150	0.01	0.01	0.01	0.01	0.01
17.400	0.01	0.01	0.01	0.01	0.01
17.650	0.01	0.01	0.01	0.01	0.01
17.900	0.01	0.01	0.01	0.01	0.01
18.150	0.01	0.01	0.01	0.01	0.01
18.400	0.01	0.01	0.01	0.01	0.01
18.650	0.01	0.01	0.01	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.86 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.85 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	3,263.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	3,066.857 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3,065.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP- POI-2
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.02 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,263.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.450	0.00	0.00	0.00	0.00	0.00
0.700	0.00	0.00	0.00	0.00	0.00
0.950	0.00	0.01	0.01	0.01	0.01
1.200	0.01	0.01	0.01	0.01	0.01
1.450	0.01	0.01	0.01	0.01	0.01
1.700	0.01	0.01	0.01	0.01	0.01
1.950	0.01	0.01	0.01	0.01	0.01
2.200	0.01	0.01	0.01	0.01	0.01
2.450	0.01	0.01	0.01	0.01	0.01
2.700	0.01	0.01	0.01	0.01	0.01
2.950	0.01	0.01	0.01	0.01	0.01
3.200	0.01	0.01	0.01	0.01	0.01
3.450	0.01	0.01	0.01	0.01	0.01
3.700	0.01	0.01	0.01	0.01	0.01
3.950	0.01	0.01	0.01	0.01	0.01
4.200	0.01	0.01	0.01	0.01	0.01
4.450	0.01	0.01	0.01	0.01	0.01
4.700	0.01	0.01	0.01	0.01	0.01
4.950	0.01	0.01	0.01	0.01	0.01
5.200	0.01	0.01	0.01	0.01	0.01
5.450	0.01	0.01	0.01	0.01	0.01
5.700	0.01	0.01	0.01	0.01	0.01
5.950	0.01	0.01	0.01	0.02	0.02
6.200	0.02	0.02	0.02	0.02	0.02
6.450	0.02	0.02	0.02	0.02	0.02
6.700	0.02	0.02	0.02	0.02	0.02
6.950	0.02	0.02	0.02	0.02	0.02
7.200	0.02	0.02	0.02	0.02	0.02
7.450	0.02	0.02	0.02	0.02	0.02
7.700	0.02	0.02	0.02	0.02	0.02
7.950	0.02	0.02	0.02	0.02	0.02
8.200	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.450	0.02	0.02	0.02	0.02	0.03
8.700	0.03	0.03	0.03	0.03	0.03
8.950	0.03	0.03	0.03	0.03	0.03
9.200	0.03	0.03	0.03	0.03	0.03
9.450	0.03	0.03	0.03	0.03	0.04
9.700	0.04	0.04	0.04	0.04	0.04
9.950	0.04	0.04	0.04	0.04	0.04
10.200	0.04	0.04	0.04	0.04	0.05
10.450	0.05	0.05	0.05	0.05	0.05
10.700	0.06	0.06	0.06	0.06	0.07
10.950	0.07	0.07	0.08	0.08	0.08
11.200	0.09	0.09	0.10	0.10	0.11
11.450	0.11	0.12	0.13	0.15	0.16
11.700	0.16	0.19	0.22	0.26	0.30
11.950	0.40	0.51	0.67	0.85	0.67
12.200	0.40	0.30	0.24	0.21	0.18
12.450	0.16	0.16	0.14	0.12	0.11
12.700	0.11	0.11	0.10	0.10	0.09
12.950	0.09	0.08	0.08	0.07	0.07
13.200	0.07	0.07	0.06	0.06	0.06
13.450	0.06	0.05	0.05	0.05	0.05
13.700	0.05	0.05	0.04	0.04	0.04
13.950	0.04	0.04	0.04	0.04	0.04
14.200	0.04	0.04	0.04	0.04	0.04
14.450	0.04	0.04	0.03	0.03	0.03
14.700	0.03	0.03	0.03	0.03	0.03
14.950	0.03	0.03	0.03	0.03	0.03
15.200	0.03	0.03	0.03	0.03	0.03
15.450	0.03	0.03	0.03	0.02	0.02
15.700	0.02	0.02	0.02	0.02	0.02
15.950	0.02	0.02	0.02	0.02	0.02
16.200	0.02	0.02	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP- POI-2 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.27 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.27 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	4,777.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	810.813 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	810.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.49 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.950	0.00	0.00	0.00	0.00	0.00
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.00	0.00	0.00	0.00
9.700	0.00	0.00	0.00	0.00	0.00
9.950	0.00	0.00	0.00	0.00	0.00
10.200	0.00	0.00	0.00	0.00	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.01	0.01	0.01	0.01	0.01
10.950	0.01	0.01	0.01	0.01	0.01
11.200	0.02	0.02	0.02	0.02	0.02
11.450	0.02	0.02	0.03	0.03	0.03
11.700	0.04	0.04	0.05	0.06	0.08
11.950	0.11	0.14	0.20	0.27	0.22
12.200	0.14	0.10	0.09	0.07	0.06
12.450	0.06	0.06	0.05	0.05	0.04
12.700	0.04	0.04	0.04	0.04	0.03
12.950	0.03	0.03	0.03	0.03	0.03
13.200	0.03	0.03	0.02	0.02	0.02
13.450	0.02	0.02	0.02	0.02	0.02
13.700	0.02	0.02	0.02	0.02	0.02
13.950	0.02	0.02	0.02	0.02	0.02
14.200	0.02	0.02	0.02	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.01	0.01	0.01	0.01
16.700	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
16.950	0.01	0.01	0.01	0.01	0.01
17.200	0.01	0.01	0.01	0.01	0.01
17.450	0.01	0.01	0.01	0.01	0.01
17.700	0.01	0.01	0.01	0.01	0.01
17.950	0.01	0.01	0.01	0.01	0.01
18.200	0.01	0.01	0.01	0.01	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.53 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.52 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	4,777.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	1,597.021 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,595.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.49 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.01	0.01
8.750	0.01	0.01	0.01	0.01	0.01
9.000	0.01	0.01	0.01	0.01	0.01
9.250	0.01	0.01	0.01	0.01	0.01
9.500	0.01	0.01	0.01	0.01	0.01
9.750	0.01	0.01	0.01	0.01	0.01
10.000	0.01	0.01	0.01	0.01	0.01
10.250	0.01	0.01	0.02	0.02	0.02
10.500	0.02	0.02	0.02	0.02	0.02
10.750	0.02	0.02	0.02	0.03	0.03
11.000	0.03	0.03	0.03	0.04	0.04
11.250	0.04	0.04	0.05	0.05	0.05
11.500	0.05	0.06	0.07	0.08	0.08
11.750	0.10	0.11	0.14	0.16	0.22
12.000	0.29	0.40	0.52	0.42	0.26
12.250	0.20	0.16	0.14	0.12	0.11
12.500	0.11	0.10	0.08	0.08	0.07
12.750	0.07	0.07	0.07	0.06	0.06
13.000	0.06	0.05	0.05	0.05	0.05
13.250	0.05	0.04	0.04	0.04	0.04
13.500	0.04	0.04	0.03	0.03	0.03
13.750	0.03	0.03	0.03	0.03	0.03
14.000	0.03	0.03	0.03	0.03	0.03
14.250	0.03	0.03	0.03	0.03	0.03
14.500	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.750	0.02	0.02	0.02	0.02	0.02
15.000	0.02	0.02	0.02	0.02	0.02
15.250	0.02	0.02	0.02	0.02	0.02
15.500	0.02	0.02	0.02	0.02	0.02
15.750	0.02	0.02	0.02	0.02	0.02
16.000	0.02	0.02	0.02	0.02	0.02
16.250	0.02	0.02	0.02	0.02	0.02
16.500	0.02	0.02	0.02	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.12 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.11 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	4,777.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	3,522.211 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3,519.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.49 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	4,777.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.050	0.00	0.00	0.00	0.00	0.00
4.300	0.00	0.00	0.00	0.00	0.00
4.550	0.00	0.00	0.00	0.00	0.00
4.800	0.00	0.00	0.00	0.00	0.00
5.050	0.00	0.00	0.00	0.00	0.00
5.300	0.00	0.00	0.00	0.00	0.00
5.550	0.00	0.00	0.00	0.01	0.01
5.800	0.01	0.01	0.01	0.01	0.01
6.050	0.01	0.01	0.01	0.01	0.01
6.300	0.01	0.01	0.01	0.01	0.01
6.550	0.01	0.01	0.01	0.01	0.01
6.800	0.01	0.01	0.01	0.01	0.01
7.050	0.01	0.01	0.01	0.01	0.01
7.300	0.01	0.01	0.01	0.01	0.01
7.550	0.01	0.01	0.01	0.01	0.01
7.800	0.01	0.01	0.01	0.01	0.02
8.050	0.02	0.02	0.02	0.02	0.02
8.300	0.02	0.02	0.02	0.02	0.02
8.550	0.02	0.02	0.02	0.02	0.02
8.800	0.02	0.02	0.02	0.02	0.02
9.050	0.02	0.02	0.02	0.02	0.02
9.300	0.03	0.03	0.03	0.03	0.03
9.550	0.03	0.03	0.03	0.03	0.03
9.800	0.03	0.03	0.04	0.04	0.04
10.050	0.04	0.04	0.04	0.04	0.04
10.300	0.04	0.04	0.04	0.05	0.05
10.550	0.05	0.05	0.05	0.06	0.06
10.800	0.06	0.07	0.07	0.07	0.08
11.050	0.08	0.09	0.09	0.10	0.10
11.300	0.11	0.11	0.12	0.13	0.13
11.550	0.15	0.18	0.19	0.19	0.23
11.800	0.26	0.31	0.37	0.50	0.64

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.050	0.86	1.11	0.89	0.54	0.41
12.300	0.33	0.28	0.24	0.22	0.22
12.550	0.19	0.17	0.16	0.15	0.14
12.800	0.14	0.13	0.13	0.12	0.11
13.050	0.11	0.10	0.10	0.09	0.09
13.300	0.09	0.08	0.08	0.08	0.07
13.550	0.07	0.07	0.07	0.06	0.06
13.800	0.06	0.06	0.06	0.06	0.06
14.050	0.06	0.06	0.06	0.05	0.05
14.300	0.05	0.05	0.05	0.05	0.05
14.550	0.05	0.05	0.05	0.05	0.04
14.800	0.04	0.04	0.04	0.04	0.04
15.050	0.04	0.04	0.04	0.04	0.04
15.300	0.04	0.04	0.04	0.04	0.04
15.550	0.04	0.03	0.03	0.03	0.03
15.800	0.03	0.03	0.03	0.03	0.03
16.050	0.03	0.03	0.03	0.03	0.03
16.300	0.03	0.03	0.03	0.03	0.03
16.550	0.03	0.03	0.03	0.03	0.03
16.800	0.03	0.03	0.03	0.03	0.03
17.050	0.03	0.03	0.03	0.03	0.03
17.300	0.03	0.03	0.03	0.02	0.02
17.550	0.02	0.02	0.02	0.02	0.02
17.800	0.02	0.02	0.02	0.02	0.02
18.050	0.02	0.02	0.02	0.02	0.02
18.300	0.02	0.02	0.02	0.02	0.02
18.550	0.02	0.02	0.02	0.02	0.02
18.800	0.02	0.02	0.02	0.02	0.02
19.050	0.02	0.02	0.02	0.02	0.02
19.300	0.02	0.02	0.02	0.02	0.02
19.550	0.02	0.02	0.02	0.02	0.02
19.800	0.02	0.02	0.02	0.02	0.02
20.050	0.02	0.02	0.02	0.02	0.02
20.300	0.02	0.02	0.02	0.02	0.02
20.550	0.02	0.02	0.02	0.02	0.02
20.800	0.02	0.02	0.02	0.02	0.02
21.050	0.02	0.02	0.02	0.02	0.02
21.300	0.02	0.02	0.02	0.02	0.02
21.550	0.02	0.02	0.02	0.02	0.02
21.800	0.02	0.02	0.02	0.02	0.02
22.050	0.02	0.02	0.02	0.02	0.02
22.300	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-1 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.550	0.02	0.02	0.02	0.02	0.02
22.800	0.02	0.02	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.01
23.550	0.01	0.01	0.01	0.01	0.01
23.800	0.01	0.01	0.01	0.01	0.01

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.04 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.04 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	683.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	115.927 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	116.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.21 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.650	0.00	0.00	0.00	0.00	0.00
10.900	0.00	0.00	0.00	0.00	0.00
11.150	0.00	0.00	0.00	0.00	0.00
11.400	0.00	0.00	0.00	0.00	0.00
11.650	0.00	0.01	0.01	0.01	0.01
11.900	0.01	0.02	0.02	0.03	0.04
12.150	0.03	0.02	0.02	0.01	0.01
12.400	0.01	0.01	0.01	0.01	0.01
12.650	0.01	0.01	0.01	0.01	0.01
12.900	0.00	0.00	0.00	0.00	0.00
13.150	0.00	0.00	0.00	0.00	0.00
13.400	0.00	0.00	0.00	0.00	0.00
13.650	0.00	0.00	0.00	0.00	0.00
13.900	0.00	0.00	0.00	0.00	0.00
14.150	0.00	0.00	0.00	0.00	0.00
14.400	0.00	0.00	0.00	0.00	0.00
14.650	0.00	0.00	0.00	0.00	0.00
14.900	0.00	0.00	0.00	0.00	0.00
15.150	0.00	0.00	0.00	0.00	0.00
15.400	0.00	0.00	0.00	0.00	0.00
15.650	0.00	0.00	0.00	0.00	0.00
15.900	0.00	0.00	0.00	0.00	0.00
16.150	0.00	0.00	0.00	0.00	0.00
16.400	0.00	0.00	0.00	0.00	0.00
16.650	0.00	0.00	0.00	0.00	0.00
16.900	0.00	0.00	0.00	0.00	0.00
17.150	0.00	0.00	0.00	0.00	0.00
17.400	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.08 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.07 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	683.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	228.337 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	228.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.21 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.250	0.00	0.00	0.00	0.00	0.00
9.500	0.00	0.00	0.00	0.00	0.00
9.750	0.00	0.00	0.00	0.00	0.00
10.000	0.00	0.00	0.00	0.00	0.00
10.250	0.00	0.00	0.00	0.00	0.00
10.500	0.00	0.00	0.00	0.00	0.00
10.750	0.00	0.00	0.00	0.00	0.00
11.000	0.00	0.00	0.00	0.01	0.01
11.250	0.01	0.01	0.01	0.01	0.01
11.500	0.01	0.01	0.01	0.01	0.01
11.750	0.01	0.02	0.02	0.02	0.03
12.000	0.04	0.06	0.07	0.06	0.04
12.250	0.03	0.02	0.02	0.02	0.02
12.500	0.02	0.01	0.01	0.01	0.01
12.750	0.01	0.01	0.01	0.01	0.01
13.000	0.01	0.01	0.01	0.01	0.01
13.250	0.01	0.01	0.01	0.01	0.01
13.500	0.01	0.01	0.00	0.00	0.00
13.750	0.00	0.00	0.00	0.00	0.00
14.000	0.00	0.00	0.00	0.00	0.00
14.250	0.00	0.00	0.00	0.00	0.00
14.500	0.00	0.00	0.00	0.00	0.00
14.750	0.00	0.00	0.00	0.00	0.00
15.000	0.00	0.00	0.00	0.00	0.00
15.250	0.00	0.00	0.00	0.00	0.00
15.500	0.00	0.00	0.00	0.00	0.00
15.750	0.00	0.00	0.00	0.00	0.00
16.000	0.00	0.00	0.00	0.00	0.00
16.250	0.00	0.00	0.00	0.00	0.00
16.500	0.00	0.00	0.00	0.00	0.00
16.750	0.00	0.00	0.00	0.00	0.00
17.000	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.250	0.00	0.00	0.00	0.00	0.00
17.500	0.00	0.00	0.00	0.00	0.00
17.750	0.00	0.00	0.00	0.00	0.00
18.000	0.00	0.00	0.00	0.00	0.00
18.250	0.00	0.00	0.00	0.00	0.00
18.500	0.00	0.00	0.00	0.00	0.00
18.750	0.00	0.00	0.00	0.00	0.00
19.000	0.00	0.00	0.00	0.00	0.00
19.250	0.00	0.00	0.00	0.00	0.00
19.500	0.00	0.00	0.00	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00
21.250	0.00	0.00	0.00	0.00	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.16 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.16 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	683.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	503.594 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	503.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - POI-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.21 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	683.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.00	0.00	0.00
7.600	0.00	0.00	0.00	0.00	0.00
7.850	0.00	0.00	0.00	0.00	0.00
8.100	0.00	0.00	0.00	0.00	0.00
8.350	0.00	0.00	0.00	0.00	0.00
8.600	0.00	0.00	0.00	0.00	0.00
8.850	0.00	0.00	0.00	0.00	0.00
9.100	0.00	0.00	0.00	0.00	0.00
9.350	0.00	0.00	0.00	0.00	0.00
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.01
10.850	0.01	0.01	0.01	0.01	0.01
11.100	0.01	0.01	0.01	0.01	0.02
11.350	0.02	0.02	0.02	0.02	0.02
11.600	0.03	0.03	0.03	0.03	0.04
11.850	0.04	0.05	0.07	0.09	0.12
12.100	0.16	0.13	0.08	0.06	0.05
12.350	0.04	0.03	0.03	0.03	0.03
12.600	0.02	0.02	0.02	0.02	0.02
12.850	0.02	0.02	0.02	0.02	0.02
13.100	0.01	0.01	0.01	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - POI-3 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.00	0.00	0.00	0.00	0.00
15.850	0.00	0.00	0.00	0.00	0.00
16.100	0.00	0.00	0.00	0.00	0.00
16.350	0.00	0.00	0.00	0.00	0.00
16.600	0.00	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Subsection: Addition Summary
Label: OUTFALL-POI-1
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - POI-1	734.431	12.100	0.21
Flow (From)	PERV - POI-1	809.775	12.100	0.27
Flow (In)	OUTFALL-POI-1	1,544.205	12.100	0.48

Subsection: Addition Summary
Label: OUTFALL-POI-1
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - POI-1	1,168.182	12.100	0.33
Flow (From)	PERV - POI-1	1,595.269	12.100	0.52
Flow (In)	OUTFALL-POI-1	2,763.452	12.100	0.85

Subsection: Addition Summary
Label: OUTFALL-POI-1
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-1'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-1
<Catchment to Outflow Node>	PERV - POI-1

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - POI-1	2,148.864	12.100	0.60
Flow (From)	PERV - POI-1	3,518.904	12.100	1.11
Flow (In)	OUTFALL-POI-1	5,667.768	12.100	1.71

Subsection: Addition Summary
Label: OUTFALL-POI-2
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
Outlet-3	UG

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	583.007	12.300	0.09
Flow (In)	OUTFALL-POI-2	583.007	12.300	0.09

Subsection: Addition Summary
Label: OUTFALL-POI-2
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
Outlet-3	UG

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	1,199.034	12.200	0.24
Flow (In)	OUTFALL-POI-2	1,199.034	12.200	0.24

Summary for Hydrograph Addition at 'OUTFALL-POI-2'

Upstream Link	Upstream Node
Outlet-3	UG

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-3	2,591.933	12.150	0.58
Flow (In)	OUTFALL-POI-2	2,591.933	12.150	0.58

Subsection: Addition Summary
Label: OUTFALL-POI-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-3
<Catchment to Outflow Node>	PERV - POI-3

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - POI-3	415.685	12.100	0.12
Flow (From)	PERV - POI-3	115.779	12.100	0.04
Flow (In)	OUTFALL-POI-3	531.464	12.100	0.16

Subsection: Addition Summary
Label: OUTFALL-POI-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-3
<Catchment to Outflow Node>	PERV - POI-3

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - POI-3	661.187	12.100	0.19
Flow (From)	PERV - POI-3	228.086	12.100	0.07
Flow (In)	OUTFALL-POI-3	889.273	12.100	0.26

Subsection: Addition Summary
Label: OUTFALL-POI-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL-POI-3'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - POI-3
<Catchment to Outflow Node>	PERV - POI-3

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - POI-3	1,216.250	12.100	0.34
Flow (From)	PERV - POI-3	503.122	12.100	0.16
Flow (In)	OUTFALL-POI-3	1,719.371	12.100	0.50

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	466.00	466.00	466.00	466.00	466.00
0.250	466.00	466.00	466.00	466.00	466.00
0.500	466.00	466.00	466.00	466.00	466.00
0.750	466.00	466.00	466.00	466.00	466.00
1.000	466.00	466.00	466.00	466.00	466.00
1.250	466.00	466.00	466.00	466.00	466.00
1.500	466.00	466.00	466.00	466.00	466.01
1.750	466.01	466.01	466.01	466.01	466.01
2.000	466.01	466.01	466.01	466.01	466.01
2.250	466.01	466.02	466.02	466.02	466.02
2.500	466.02	466.02	466.02	466.02	466.02
2.750	466.03	466.03	466.03	466.03	466.03
3.000	466.03	466.03	466.04	466.04	466.04
3.250	466.04	466.04	466.04	466.04	466.05
3.500	466.05	466.05	466.05	466.05	466.06
3.750	466.06	466.06	466.06	466.06	466.06
4.000	466.07	466.07	466.07	466.07	466.07
4.250	466.08	466.08	466.08	466.08	466.08
4.500	466.09	466.09	466.09	466.09	466.09
4.750	466.10	466.10	466.10	466.10	466.11
5.000	466.11	466.11	466.11	466.11	466.12
5.250	466.12	466.12	466.12	466.13	466.13
5.500	466.13	466.13	466.14	466.14	466.14
5.750	466.14	466.15	466.15	466.15	466.15
6.000	466.16	466.16	466.16	466.16	466.17
6.250	466.17	466.17	466.17	466.18	466.18
6.500	466.18	466.19	466.19	466.19	466.20
6.750	466.20	466.20	466.21	466.21	466.21
7.000	466.22	466.22	466.22	466.23	466.23
7.250	466.23	466.24	466.24	466.24	466.25
7.500	466.25	466.25	466.26	466.26	466.27
7.750	466.27	466.27	466.28	466.28	466.29
8.000	466.29	466.30	466.30	466.30	466.31
8.250	466.31	466.32	466.32	466.33	466.33
8.500	466.34	466.34	466.34	466.35	466.35
8.750	466.36	466.36	466.37	466.37	466.38
9.000	466.38	466.39	466.39	466.40	466.40
9.250	466.41	466.42	466.42	466.43	466.43
9.500	466.44	466.45	466.45	466.46	466.47
9.750	466.47	466.48	466.49	466.50	466.50

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	466.51	466.52	466.52	466.53	466.54
10.250	466.54	466.55	466.56	466.56	466.57
10.500	466.58	466.59	466.59	466.60	466.61
10.750	466.62	466.63	466.64	466.65	466.66
11.000	466.67	466.68	466.70	466.71	466.72
11.250	466.74	466.75	466.77	466.78	466.80
11.500	466.82	466.84	466.86	466.89	466.91
11.750	466.94	466.97	467.01	467.05	467.11
12.000	467.17	467.26	467.37	467.46	467.51
12.250	467.52	467.53	467.52	467.51	467.50
12.500	467.49	467.48	467.47	467.46	467.44
12.750	467.43	467.42	467.41	467.41	467.40
13.000	467.39	467.38	467.38	467.37	467.36
13.250	467.36	467.35	467.35	467.34	467.34
13.500	467.33	467.33	467.33	467.32	467.32
13.750	467.32	467.31	467.31	467.31	467.31
14.000	467.31	467.31	467.30	467.30	467.30
14.250	467.30	467.30	467.30	467.30	467.30
14.500	467.29	467.29	467.29	467.29	467.29
14.750	467.29	467.29	467.29	467.29	467.29
15.000	467.29	467.28	467.28	467.28	467.28
15.250	467.28	467.28	467.28	467.28	467.28
15.500	467.28	467.28	467.28	467.28	467.28
15.750	467.28	467.28	467.28	467.28	467.28
16.000	467.28	467.28	467.28	467.28	467.28
16.250	467.28	467.28	467.27	467.27	467.27
16.500	467.27	467.27	467.27	467.27	467.27
16.750	467.27	467.27	467.27	467.27	467.27
17.000	467.27	467.27	467.27	467.27	467.27
17.250	467.27	467.27	467.27	467.27	467.27
17.500	467.27	467.27	467.27	467.27	467.27
17.750	467.27	467.27	467.27	467.27	467.27
18.000	467.27	467.27	467.27	467.27	467.27
18.250	467.27	467.27	467.27	467.27	467.27
18.500	467.27	467.27	467.27	467.27	467.27
18.750	467.27	467.27	467.27	467.27	467.27
19.000	467.27	467.27	467.27	467.27	467.27
19.250	467.27	467.27	467.27	467.27	467.27
19.500	467.27	467.27	467.26	467.26	467.26
19.750	467.26	467.26	467.26	467.26	467.26
20.000	467.26	467.26	467.26	467.26	467.26

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	467.26	467.26	467.26	467.26	467.26
20.500	467.26	467.26	467.26	467.26	467.26
20.750	467.26	467.26	467.26	467.26	467.26
21.000	467.26	467.26	467.26	467.26	467.26
21.250	467.26	467.26	467.26	467.26	467.26
21.500	467.26	467.26	467.26	467.26	467.26
21.750	467.26	467.26	467.26	467.26	467.26
22.000	467.26	467.26	467.26	467.26	467.26
22.250	467.26	467.26	467.26	467.26	467.26
22.500	467.26	467.26	467.26	467.26	467.26
22.750	467.26	467.26	467.26	467.26	467.26
23.000	467.26	467.26	467.26	467.26	467.26
23.250	467.26	467.26	467.26	467.26	467.26
23.500	467.26	467.26	467.26	467.26	467.26
23.750	467.26	467.26	467.26	467.26	467.26
24.000	467.26	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	466.00	466.00	466.00	466.00	466.00
0.250	466.00	466.00	466.00	466.00	466.00
0.500	466.00	466.00	466.00	466.00	466.00
0.750	466.00	466.00	466.00	466.00	466.00
1.000	466.00	466.00	466.00	466.01	466.01
1.250	466.01	466.01	466.01	466.01	466.01
1.500	466.01	466.02	466.02	466.02	466.02
1.750	466.02	466.02	466.03	466.03	466.03
2.000	466.03	466.03	466.04	466.04	466.04
2.250	466.04	466.04	466.05	466.05	466.05
2.500	466.05	466.06	466.06	466.06	466.06
2.750	466.07	466.07	466.07	466.07	466.08
3.000	466.08	466.08	466.09	466.09	466.09
3.250	466.10	466.10	466.10	466.10	466.11
3.500	466.11	466.11	466.12	466.12	466.12
3.750	466.13	466.13	466.13	466.14	466.14
4.000	466.14	466.15	466.15	466.15	466.16
4.250	466.16	466.16	466.17	466.17	466.18
4.500	466.18	466.18	466.19	466.19	466.19
4.750	466.20	466.20	466.21	466.21	466.21
5.000	466.22	466.22	466.23	466.23	466.23
5.250	466.24	466.24	466.25	466.25	466.25
5.500	466.26	466.26	466.27	466.27	466.28
5.750	466.28	466.28	466.29	466.29	466.30
6.000	466.30	466.31	466.31	466.31	466.32
6.250	466.32	466.33	466.33	466.34	466.34
6.500	466.35	466.35	466.36	466.36	466.37
6.750	466.37	466.38	466.38	466.39	466.40
7.000	466.40	466.41	466.41	466.42	466.42
7.250	466.43	466.44	466.44	466.45	466.45
7.500	466.46	466.47	466.47	466.48	466.49
7.750	466.49	466.50	466.50	466.51	466.52
8.000	466.52	466.53	466.53	466.54	466.54
8.250	466.55	466.55	466.56	466.57	466.57
8.500	466.58	466.58	466.59	466.60	466.60
8.750	466.61	466.62	466.62	466.63	466.64
9.000	466.64	466.65	466.66	466.66	466.67
9.250	466.68	466.68	466.69	466.70	466.71
9.500	466.72	466.72	466.73	466.74	466.75
9.750	466.76	466.77	466.78	466.79	466.80

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	466.81	466.82	466.83	466.84	466.85
10.250	466.86	466.87	466.88	466.89	466.90
10.500	466.92	466.93	466.94	466.95	466.97
10.750	466.98	467.00	467.01	467.03	467.04
11.000	467.06	467.08	467.10	467.12	467.14
11.250	467.16	467.18	467.20	467.23	467.25
11.500	467.28	467.30	467.33	467.35	467.37
11.750	467.39	467.42	467.45	467.48	467.53
12.000	467.59	467.68	467.80	467.89	467.92
12.250	467.91	467.88	467.84	467.81	467.78
12.500	467.75	467.72	467.70	467.67	467.65
12.750	467.62	467.60	467.58	467.56	467.54
13.000	467.52	467.50	467.48	467.47	467.46
13.250	467.44	467.43	467.42	467.41	467.40
13.500	467.39	467.39	467.38	467.37	467.37
13.750	467.36	467.36	467.35	467.35	467.34
14.000	467.34	467.34	467.34	467.33	467.33
14.250	467.33	467.33	467.32	467.32	467.32
14.500	467.32	467.32	467.32	467.32	467.31
14.750	467.31	467.31	467.31	467.31	467.31
15.000	467.31	467.30	467.30	467.30	467.30
15.250	467.30	467.30	467.30	467.30	467.30
15.500	467.30	467.30	467.30	467.29	467.29
15.750	467.29	467.29	467.29	467.29	467.29
16.000	467.29	467.29	467.29	467.29	467.29
16.250	467.29	467.29	467.29	467.29	467.29
16.500	467.29	467.29	467.29	467.29	467.29
16.750	467.29	467.29	467.29	467.29	467.28
17.000	467.28	467.28	467.28	467.28	467.28
17.250	467.28	467.28	467.28	467.28	467.28
17.500	467.28	467.28	467.28	467.28	467.28
17.750	467.28	467.28	467.28	467.28	467.28
18.000	467.28	467.28	467.28	467.28	467.28
18.250	467.28	467.28	467.28	467.28	467.28
18.500	467.28	467.28	467.28	467.28	467.28
18.750	467.27	467.27	467.27	467.27	467.27
19.000	467.27	467.27	467.27	467.27	467.27
19.250	467.27	467.27	467.27	467.27	467.27
19.500	467.27	467.27	467.27	467.27	467.27
19.750	467.27	467.27	467.27	467.27	467.27
20.000	467.27	467.27	467.27	467.27	467.27

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	467.27	467.27	467.27	467.27	467.27
20.500	467.27	467.27	467.27	467.27	467.27
20.750	467.27	467.27	467.27	467.27	467.27
21.000	467.27	467.27	467.27	467.27	467.27
21.250	467.27	467.27	467.27	467.27	467.27
21.500	467.27	467.27	467.27	467.27	467.27
21.750	467.27	467.27	467.27	467.27	467.27
22.000	467.27	467.27	467.27	467.27	467.27
22.250	467.27	467.27	467.27	467.27	467.27
22.500	467.27	467.27	467.27	467.27	467.27
22.750	467.27	467.27	467.27	467.27	467.27
23.000	467.27	467.27	467.27	467.27	467.27
23.250	467.27	467.27	467.27	467.27	467.27
23.500	467.27	467.27	467.27	467.27	467.27
23.750	467.27	467.27	467.27	467.27	467.27
24.000	467.27	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	466.00	466.00	466.00	466.00	466.00
0.250	466.00	466.00	466.00	466.00	466.00
0.500	466.00	466.00	466.00	466.00	466.01
0.750	466.01	466.01	466.01	466.01	466.02
1.000	466.02	466.02	466.03	466.03	466.03
1.250	466.04	466.04	466.04	466.05	466.05
1.500	466.06	466.06	466.06	466.07	466.07
1.750	466.08	466.08	466.09	466.09	466.10
2.000	466.10	466.11	466.11	466.12	466.12
2.250	466.13	466.13	466.14	466.14	466.15
2.500	466.15	466.16	466.17	466.17	466.18
2.750	466.18	466.19	466.20	466.20	466.21
3.000	466.21	466.22	466.23	466.23	466.24
3.250	466.25	466.25	466.26	466.26	466.27
3.500	466.28	466.28	466.29	466.30	466.30
3.750	466.31	466.32	466.32	466.33	466.34
4.000	466.35	466.35	466.36	466.37	466.37
4.250	466.38	466.39	466.40	466.40	466.41
4.500	466.42	466.42	466.43	466.44	466.45
4.750	466.45	466.46	466.47	466.48	466.48
5.000	466.49	466.50	466.51	466.51	466.52
5.250	466.53	466.53	466.54	466.54	466.55
5.500	466.56	466.56	466.57	466.58	466.58
5.750	466.59	466.60	466.60	466.61	466.62
6.000	466.62	466.63	466.64	466.64	466.65
6.250	466.66	466.67	466.67	466.68	466.69
6.500	466.70	466.70	466.71	466.72	466.73
6.750	466.73	466.74	466.75	466.76	466.77
7.000	466.78	466.78	466.79	466.80	466.81
7.250	466.82	466.83	466.84	466.85	466.86
7.500	466.87	466.88	466.89	466.89	466.90
7.750	466.91	466.92	466.93	466.94	466.95
8.000	466.96	466.98	466.99	467.00	467.01
8.250	467.02	467.03	467.04	467.05	467.06
8.500	467.07	467.08	467.09	467.10	467.11
8.750	467.12	467.13	467.14	467.16	467.17
9.000	467.18	467.19	467.20	467.21	467.23
9.250	467.24	467.25	467.26	467.27	467.28
9.500	467.29	467.30	467.31	467.31	467.32
9.750	467.32	467.33	467.33	467.34	467.34

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	467.35	467.35	467.35	467.36	467.36
10.250	467.36	467.36	467.37	467.37	467.37
10.500	467.37	467.38	467.38	467.38	467.39
10.750	467.39	467.40	467.40	467.41	467.41
11.000	467.42	467.43	467.43	467.44	467.45
11.250	467.46	467.47	467.48	467.49	467.50
11.500	467.51	467.53	467.55	467.57	467.60
11.750	467.63	467.66	467.71	467.77	467.84
12.000	467.94	468.07	468.23	468.33	468.31
12.250	468.23	468.15	468.08	468.02	467.97
12.500	467.93	467.89	467.86	467.83	467.80
12.750	467.77	467.75	467.73	467.71	467.70
13.000	467.68	467.66	467.64	467.62	467.60
13.250	467.59	467.57	467.56	467.54	467.53
13.500	467.51	467.50	467.48	467.47	467.46
13.750	467.45	467.44	467.43	467.43	467.42
14.000	467.42	467.41	467.41	467.40	467.40
14.250	467.39	467.39	467.39	467.38	467.38
14.500	467.38	467.37	467.37	467.37	467.37
14.750	467.36	467.36	467.36	467.36	467.35
15.000	467.35	467.35	467.35	467.34	467.34
15.250	467.34	467.34	467.34	467.34	467.34
15.500	467.33	467.33	467.33	467.33	467.33
15.750	467.33	467.33	467.33	467.33	467.33
16.000	467.33	467.32	467.32	467.32	467.32
16.250	467.32	467.32	467.32	467.32	467.32
16.500	467.32	467.32	467.32	467.32	467.32
16.750	467.32	467.32	467.31	467.31	467.31
17.000	467.31	467.31	467.31	467.31	467.31
17.250	467.31	467.31	467.31	467.31	467.31
17.500	467.31	467.31	467.31	467.31	467.30
17.750	467.30	467.30	467.30	467.30	467.30
18.000	467.30	467.30	467.30	467.30	467.30
18.250	467.30	467.30	467.30	467.30	467.30
18.500	467.30	467.30	467.30	467.30	467.30
18.750	467.30	467.30	467.29	467.29	467.29
19.000	467.29	467.29	467.29	467.29	467.29
19.250	467.29	467.29	467.29	467.29	467.29
19.500	467.29	467.29	467.29	467.29	467.29
19.750	467.29	467.29	467.29	467.29	467.29
20.000	467.29	467.29	467.29	467.29	467.29

Subsection: Time vs. Elevation
Label: UG (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	467.29	467.29	467.29	467.29	467.29
20.500	467.29	467.29	467.29	467.29	467.29
20.750	467.29	467.29	467.29	467.29	467.29
21.000	467.29	467.29	467.29	467.29	467.29
21.250	467.29	467.29	467.29	467.29	467.29
21.500	467.29	467.29	467.29	467.29	467.29
21.750	467.29	467.29	467.29	467.29	467.29
22.000	467.29	467.29	467.29	467.28	467.28
22.250	467.28	467.28	467.28	467.28	467.28
22.500	467.28	467.28	467.28	467.28	467.28
22.750	467.28	467.28	467.28	467.28	467.28
23.000	467.28	467.28	467.28	467.28	467.28
23.250	467.28	467.28	467.28	467.28	467.28
23.500	467.28	467.28	467.28	467.28	467.28
23.750	467.28	467.28	467.28	467.28	467.28
24.000	467.28	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	0.000	0.000	1.000	1.000
1.500	1.000	1.000	1.000	1.000	1.000
1.750	2.000	2.000	2.000	2.000	2.000
2.000	3.000	3.000	3.000	3.000	4.000
2.250	4.000	4.000	4.000	5.000	5.000
2.500	5.000	6.000	6.000	6.000	7.000
2.750	7.000	7.000	8.000	8.000	8.000
3.000	9.000	9.000	10.000	10.000	10.000
3.250	11.000	11.000	12.000	12.000	12.000
3.500	13.000	13.000	14.000	14.000	15.000
3.750	15.000	16.000	16.000	17.000	17.000
4.000	18.000	18.000	19.000	19.000	20.000
4.250	20.000	21.000	21.000	22.000	22.000
4.500	23.000	23.000	24.000	25.000	25.000
4.750	26.000	26.000	27.000	27.000	28.000
5.000	29.000	29.000	30.000	30.000	31.000
5.250	32.000	32.000	33.000	34.000	34.000
5.500	35.000	35.000	36.000	37.000	37.000
5.750	38.000	39.000	39.000	40.000	41.000
6.000	42.000	43.000	43.000	44.000	45.000
6.250	46.000	47.000	48.000	49.000	50.000
6.500	51.000	52.000	52.000	53.000	54.000
6.750	55.000	56.000	57.000	59.000	60.000
7.000	61.000	62.000	63.000	64.000	65.000
7.250	66.000	67.000	68.000	70.000	71.000
7.500	72.000	73.000	74.000	76.000	77.000
7.750	78.000	80.000	81.000	82.000	83.000
8.000	85.000	86.000	87.000	89.000	90.000
8.250	92.000	94.000	95.000	97.000	98.000
8.500	100.000	102.000	103.000	105.000	106.000
8.750	108.000	110.000	112.000	113.000	115.000
9.000	117.000	119.000	120.000	122.000	124.000
9.250	126.000	128.000	130.000	132.000	134.000
9.500	137.000	139.000	141.000	144.000	146.000
9.750	149.000	152.000	154.000	157.000	160.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	162.000	164.000	167.000	169.000	172.000
10.250	174.000	177.000	179.000	182.000	185.000
10.500	187.000	190.000	193.000	196.000	200.000
10.750	203.000	207.000	211.000	215.000	219.000
11.000	223.000	228.000	232.000	237.000	243.000
11.250	248.000	254.000	261.000	267.000	274.000
11.500	282.000	289.000	298.000	308.000	319.000
11.750	330.000	344.000	359.000	377.000	399.000
12.000	427.000	465.000	509.000	548.000	568.000
12.250	575.000	576.000	574.000	571.000	566.000
12.500	562.000	557.000	552.000	547.000	542.000
12.750	537.000	533.000	529.000	525.000	522.000
13.000	519.000	516.000	513.000	510.000	507.000
13.250	505.000	503.000	501.000	499.000	497.000
13.500	495.000	493.000	492.000	490.000	489.000
13.750	488.000	487.000	486.000	485.000	484.000
14.000	483.000	483.000	482.000	481.000	481.000
14.250	480.000	480.000	479.000	479.000	478.000
14.500	478.000	478.000	477.000	477.000	476.000
14.750	476.000	476.000	475.000	475.000	475.000
15.000	474.000	474.000	474.000	473.000	473.000
15.250	473.000	473.000	472.000	472.000	472.000
15.500	472.000	472.000	471.000	471.000	471.000
15.750	471.000	471.000	471.000	471.000	471.000
16.000	470.000	470.000	470.000	470.000	470.000
16.250	470.000	470.000	470.000	470.000	470.000
16.500	470.000	469.000	469.000	469.000	469.000
16.750	469.000	469.000	469.000	469.000	469.000
17.000	469.000	469.000	468.000	468.000	468.000
17.250	468.000	468.000	468.000	468.000	468.000
17.500	468.000	468.000	468.000	467.000	467.000
17.750	467.000	467.000	467.000	467.000	467.000
18.000	467.000	467.000	467.000	467.000	467.000
18.250	466.000	466.000	466.000	466.000	466.000
18.500	466.000	466.000	466.000	466.000	466.000
18.750	466.000	466.000	466.000	466.000	466.000
19.000	466.000	466.000	466.000	466.000	466.000
19.250	466.000	466.000	466.000	466.000	466.000
19.500	466.000	466.000	466.000	466.000	466.000
19.750	466.000	465.000	465.000	465.000	465.000
20.000	465.000	465.000	465.000	465.000	465.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	465.000	465.000	465.000	465.000	465.000
20.500	465.000	465.000	465.000	465.000	465.000
20.750	465.000	465.000	465.000	465.000	465.000
21.000	465.000	465.000	465.000	465.000	465.000
21.250	465.000	465.000	465.000	465.000	465.000
21.500	465.000	465.000	465.000	465.000	465.000
21.750	465.000	465.000	465.000	465.000	465.000
22.000	465.000	465.000	464.000	464.000	464.000
22.250	464.000	464.000	464.000	464.000	464.000
22.500	464.000	464.000	464.000	464.000	464.000
22.750	464.000	464.000	464.000	464.000	464.000
23.000	464.000	464.000	464.000	464.000	464.000
23.250	464.000	464.000	464.000	464.000	464.000
23.500	464.000	464.000	464.000	464.000	464.000
23.750	464.000	464.000	464.000	464.000	464.000
24.000	464.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	1.000
1.000	1.000	1.000	1.000	1.000	2.000
1.250	2.000	2.000	3.000	3.000	3.000
1.500	4.000	4.000	4.000	5.000	5.000
1.750	6.000	6.000	7.000	7.000	8.000
2.000	8.000	9.000	9.000	10.000	11.000
2.250	11.000	12.000	12.000	13.000	14.000
2.500	14.000	15.000	16.000	16.000	17.000
2.750	18.000	19.000	19.000	20.000	21.000
3.000	21.000	22.000	23.000	24.000	25.000
3.250	25.000	26.000	27.000	28.000	29.000
3.500	29.000	30.000	31.000	32.000	33.000
3.750	34.000	35.000	36.000	36.000	37.000
4.000	38.000	39.000	40.000	41.000	42.000
4.250	44.000	45.000	46.000	47.000	48.000
4.500	49.000	51.000	52.000	53.000	54.000
4.750	55.000	57.000	58.000	59.000	60.000
5.000	62.000	63.000	64.000	65.000	67.000
5.250	68.000	69.000	70.000	72.000	73.000
5.500	74.000	76.000	77.000	78.000	80.000
5.750	81.000	82.000	84.000	85.000	87.000
6.000	88.000	90.000	91.000	93.000	94.000
6.250	96.000	98.000	99.000	101.000	103.000
6.500	104.000	106.000	108.000	110.000	111.000
6.750	113.000	115.000	117.000	119.000	121.000
7.000	123.000	125.000	127.000	129.000	131.000
7.250	133.000	135.000	137.000	139.000	141.000
7.500	144.000	146.000	148.000	151.000	153.000
7.750	156.000	158.000	160.000	162.000	164.000
8.000	166.000	168.000	170.000	172.000	175.000
8.250	177.000	179.000	181.000	183.000	185.000
8.500	188.000	190.000	192.000	195.000	197.000
8.750	199.000	202.000	204.000	207.000	209.000
9.000	212.000	214.000	217.000	220.000	223.000
9.250	225.000	228.000	231.000	234.000	237.000
9.500	241.000	244.000	247.000	251.000	254.000
9.750	258.000	261.000	265.000	269.000	273.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	277.000	281.000	285.000	289.000	293.000
10.250	298.000	302.000	307.000	311.000	316.000
10.500	321.000	326.000	331.000	336.000	342.000
10.750	348.000	354.000	360.000	366.000	373.000
11.000	380.000	387.000	395.000	403.000	412.000
11.250	421.000	430.000	440.000	450.000	461.000
11.500	471.000	481.000	491.000	501.000	510.000
11.750	520.000	531.000	543.000	558.000	578.000
12.000	605.000	642.000	691.000	731.000	743.000
12.250	736.000	724.000	709.000	695.000	682.000
12.500	671.000	660.000	649.000	638.000	627.000
12.750	617.000	607.000	598.000	589.000	581.000
13.000	573.000	566.000	559.000	552.000	546.000
13.250	541.000	536.000	532.000	528.000	524.000
13.500	520.000	517.000	514.000	511.000	509.000
13.750	506.000	504.000	502.000	501.000	499.000
14.000	498.000	497.000	495.000	494.000	493.000
14.250	493.000	492.000	491.000	490.000	489.000
14.500	489.000	488.000	487.000	487.000	486.000
14.750	486.000	485.000	484.000	484.000	483.000
15.000	483.000	482.000	482.000	481.000	481.000
15.250	480.000	480.000	480.000	479.000	479.000
15.500	479.000	479.000	478.000	478.000	478.000
15.750	478.000	477.000	477.000	477.000	477.000
16.000	477.000	477.000	476.000	476.000	476.000
16.250	476.000	476.000	476.000	476.000	475.000
16.500	475.000	475.000	475.000	475.000	475.000
16.750	475.000	474.000	474.000	474.000	474.000
17.000	474.000	474.000	474.000	473.000	473.000
17.250	473.000	473.000	473.000	473.000	473.000
17.500	473.000	472.000	472.000	472.000	472.000
17.750	472.000	472.000	472.000	471.000	471.000
18.000	471.000	471.000	471.000	471.000	471.000
18.250	471.000	470.000	470.000	470.000	470.000
18.500	470.000	470.000	470.000	470.000	470.000
18.750	470.000	470.000	470.000	470.000	470.000
19.000	470.000	470.000	470.000	469.000	469.000
19.250	469.000	469.000	469.000	469.000	469.000
19.500	469.000	469.000	469.000	469.000	469.000
19.750	469.000	469.000	469.000	469.000	469.000
20.000	469.000	469.000	469.000	469.000	469.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	469.000	469.000	469.000	469.000	469.000
20.500	469.000	468.000	468.000	468.000	468.000
20.750	468.000	468.000	468.000	468.000	468.000
21.000	468.000	468.000	468.000	468.000	468.000
21.250	468.000	468.000	468.000	468.000	468.000
21.500	468.000	468.000	468.000	468.000	468.000
21.750	468.000	468.000	468.000	468.000	468.000
22.000	468.000	467.000	467.000	467.000	467.000
22.250	467.000	467.000	467.000	467.000	467.000
22.500	467.000	467.000	467.000	467.000	467.000
22.750	467.000	467.000	467.000	467.000	467.000
23.000	467.000	467.000	467.000	467.000	467.000
23.250	467.000	467.000	467.000	467.000	467.000
23.500	466.000	466.000	466.000	466.000	466.000
23.750	466.000	466.000	466.000	466.000	466.000
24.000	466.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	1.000	1.000	2.000
0.750	2.000	3.000	3.000	4.000	5.000
1.000	5.000	6.000	7.000	8.000	9.000
1.250	10.000	11.000	12.000	13.000	14.000
1.500	15.000	16.000	17.000	18.000	19.000
1.750	21.000	22.000	23.000	24.000	26.000
2.000	27.000	28.000	30.000	31.000	33.000
2.250	34.000	35.000	37.000	38.000	40.000
2.500	42.000	43.000	45.000	47.000	49.000
2.750	51.000	53.000	54.000	56.000	58.000
3.000	60.000	62.000	64.000	66.000	68.000
3.250	70.000	72.000	74.000	76.000	78.000
3.500	81.000	83.000	85.000	87.000	89.000
3.750	92.000	94.000	96.000	99.000	101.000
4.000	104.000	106.000	108.000	111.000	113.000
4.250	116.000	118.000	121.000	123.000	126.000
4.500	129.000	131.000	134.000	136.000	139.000
4.750	142.000	144.000	147.000	150.000	153.000
5.000	156.000	159.000	161.000	163.000	166.000
5.250	168.000	170.000	173.000	175.000	177.000
5.500	180.000	182.000	185.000	187.000	190.000
5.750	192.000	194.000	197.000	200.000	202.000
6.000	205.000	207.000	210.000	213.000	215.000
6.250	218.000	221.000	224.000	227.000	230.000
6.500	233.000	236.000	239.000	242.000	245.000
6.750	248.000	251.000	254.000	257.000	261.000
7.000	264.000	268.000	271.000	275.000	278.000
7.250	282.000	285.000	289.000	293.000	297.000
7.500	300.000	304.000	308.000	312.000	316.000
7.750	320.000	324.000	328.000	332.000	336.000
8.000	341.000	345.000	349.000	353.000	358.000
8.250	362.000	366.000	370.000	374.000	379.000
8.500	383.000	388.000	392.000	397.000	401.000
8.750	406.000	410.000	415.000	420.000	424.000
9.000	429.000	434.000	439.000	444.000	449.000
9.250	455.000	460.000	465.000	470.000	474.000
9.500	477.000	481.000	483.000	486.000	489.000
9.750	491.000	493.000	495.000	496.000	498.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	500.000	501.000	502.000	504.000	505.000
10.250	506.000	507.000	508.000	509.000	511.000
10.500	512.000	513.000	514.000	516.000	517.000
10.750	519.000	522.000	524.000	526.000	529.000
11.000	531.000	534.000	537.000	541.000	544.000
11.250	548.000	553.000	557.000	562.000	566.000
11.500	571.000	578.000	586.000	596.000	607.000
11.750	618.000	634.000	653.000	678.000	709.000
12.000	751.000	805.000	868.000	908.000	902.000
12.250	870.000	836.000	807.000	782.000	763.000
12.500	746.000	732.000	717.000	703.000	691.000
12.750	681.000	672.000	664.000	656.000	648.000
13.000	640.000	632.000	625.000	617.000	609.000
13.250	602.000	595.000	589.000	582.000	576.000
13.500	570.000	564.000	559.000	553.000	549.000
13.750	545.000	541.000	538.000	535.000	532.000
14.000	529.000	527.000	525.000	523.000	521.000
14.250	520.000	518.000	517.000	515.000	514.000
14.500	513.000	511.000	510.000	509.000	508.000
14.750	507.000	506.000	505.000	504.000	503.000
15.000	502.000	501.000	500.000	499.000	498.000
15.250	498.000	497.000	496.000	496.000	495.000
15.500	495.000	494.000	494.000	493.000	493.000
15.750	493.000	492.000	492.000	492.000	491.000
16.000	491.000	491.000	490.000	490.000	490.000
16.250	490.000	489.000	489.000	489.000	489.000
16.500	488.000	488.000	488.000	487.000	487.000
16.750	487.000	487.000	486.000	486.000	486.000
17.000	486.000	485.000	485.000	485.000	485.000
17.250	484.000	484.000	484.000	484.000	484.000
17.500	483.000	483.000	483.000	483.000	482.000
17.750	482.000	482.000	482.000	481.000	481.000
18.000	481.000	481.000	480.000	480.000	480.000
18.250	480.000	479.000	479.000	479.000	479.000
18.500	479.000	479.000	479.000	479.000	478.000
18.750	478.000	478.000	478.000	478.000	478.000
19.000	478.000	478.000	478.000	478.000	478.000
19.250	478.000	478.000	477.000	477.000	477.000
19.500	477.000	477.000	477.000	477.000	477.000
19.750	477.000	477.000	477.000	477.000	477.000
20.000	477.000	477.000	477.000	476.000	476.000

Subsection: Time vs. Volume
Label: UG
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	476.000	476.000	476.000	476.000	476.000
20.500	476.000	476.000	476.000	476.000	476.000
20.750	476.000	476.000	476.000	476.000	475.000
21.000	475.000	475.000	475.000	475.000	475.000
21.250	475.000	475.000	475.000	475.000	475.000
21.500	475.000	475.000	475.000	475.000	475.000
21.750	474.000	474.000	474.000	474.000	474.000
22.000	474.000	474.000	474.000	474.000	474.000
22.250	474.000	474.000	474.000	474.000	474.000
22.500	474.000	473.000	473.000	473.000	473.000
22.750	473.000	473.000	473.000	473.000	473.000
23.000	473.000	473.000	473.000	473.000	473.000
23.250	473.000	473.000	473.000	472.000	472.000
23.500	472.000	472.000	472.000	472.000	472.000
23.750	472.000	472.000	472.000	472.000	472.000
24.000	472.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Elevation vs. Volume Curve
Label: UG
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
466.00	0.000
466.15	39.950
466.30	87.650
466.45	139.930
466.60	195.560
466.75	253.730
466.90	313.860
467.05	375.470
467.20	438.140
467.35	501.500
467.50	565.210
467.65	628.910
467.80	692.270
467.95	754.940
468.10	816.550
468.25	876.680
468.40	934.850
468.55	990.480
468.70	1,042.770
468.85	1,090.460
469.00	1,130.410
470.00	1,330.410

Subsection: Elevation vs. Volume Curve
Label: UG
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
466.00	0.000
466.15	39.950
466.30	87.650
466.45	139.930
466.60	195.560
466.75	253.730
466.90	313.860
467.05	375.470
467.20	438.140
467.35	501.500
467.50	565.210
467.65	628.910
467.80	692.270
467.95	754.940
468.10	816.550
468.25	876.680
468.40	934.850
468.55	990.480
468.70	1,042.770
468.85	1,090.460
469.00	1,130.410
470.00	1,330.410

Subsection: Elevation vs. Volume Curve
Label: UG
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
466.00	0.000
466.15	39.950
466.30	87.650
466.45	139.930
466.60	195.560
466.75	253.730
466.90	313.860
467.05	375.470
467.20	438.140
467.35	501.500
467.50	565.210
467.65	628.910
467.80	692.270
467.95	754.940
468.10	816.550
468.25	876.680
468.40	934.850
468.55	990.480
468.70	1,042.770
468.85	1,090.460
469.00	1,130.410
470.00	1,330.410

Subsection: Outlet Input Data
Label: POND-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	466.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 5	Forward	TW	467.25	470.00
Rectangular Weir	Weir - 5	Forward	TW	467.75	470.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir - 5 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	467.75 ft
Weir Length	0.25 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 5 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.25 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 5 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
467.75	0.00	(N/A)	0.00
468.00	0.09	(N/A)	0.00
468.50	0.49	(N/A)	0.00
469.00	1.05	(N/A)	0.00
469.50	1.74	(N/A)	0.00
470.00	2.53	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
H=.00; Htw=.00; Qfree=.00;
H=.25; Htw=.00; Qfree=.09;
H=.75; Htw=.00; Qfree=.49;
H=1.25; Htw=.00; Qfree=1.05;
H=1.75; Htw=.00; Qfree=1.74;
H=2.25; Htw=.00; Qfree=2.53;

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 5 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.08	(N/A)	0.00
467.75	0.14	(N/A)	0.00
468.00	0.19	(N/A)	0.00
468.50	0.25	(N/A)	0.00
469.00	0.30	(N/A)	0.00
469.50	0.34	(N/A)	0.00
470.00	0.38	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.13
H =.38
H =.63
H =1.13
H =1.63
H =2.13
H =2.63

Subsection: Composite Rating Curve
Label: POND-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)	Contributing Structures
466.00	0.00	(N/A)	0.00	None Contributing
466.50	0.00	(N/A)	0.00	None Contributing
467.00	0.00	(N/A)	0.00	None Contributing
467.25	0.00	(N/A)	0.00	None Contributing
467.50	0.08	(N/A)	0.00	Orifice - 5
467.75	0.14	(N/A)	0.00	Orifice - 5 + Weir - 5
468.00	0.28	(N/A)	0.00	Orifice - 5 + Weir - 5
468.50	0.74	(N/A)	0.00	Orifice - 5 + Weir - 5
469.00	1.35	(N/A)	0.00	Orifice - 5 + Weir - 5
469.50	2.08	(N/A)	0.00	Orifice - 5 + Weir - 5
470.00	2.91	(N/A)	0.00	Orifice - 5 + Weir - 5

Subsection: Outlet Input Data
Label: POND-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	466.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 5	Forward	TW	467.25	470.00
Rectangular Weir	Weir - 5	Forward	TW	467.75	470.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir - 5 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	467.75 ft
Weir Length	0.25 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 5 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.25 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 5 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
467.75	0.00	(N/A)	0.00
468.00	0.09	(N/A)	0.00
468.50	0.49	(N/A)	0.00
469.00	1.05	(N/A)	0.00
469.50	1.74	(N/A)	0.00
470.00	2.53	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
H=.00; Htw=.00; Qfree=.00;
H=.25; Htw=.00; Qfree=.09;
H=.75; Htw=.00; Qfree=.49;
H=1.25; Htw=.00; Qfree=1.05;
H=1.75; Htw=.00; Qfree=1.74;
H=2.25; Htw=.00; Qfree=2.53;

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 5 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.08	(N/A)	0.00
467.75	0.14	(N/A)	0.00
468.00	0.19	(N/A)	0.00
468.50	0.25	(N/A)	0.00
469.00	0.30	(N/A)	0.00
469.50	0.34	(N/A)	0.00
470.00	0.38	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.13
H =.38
H =.63
H =1.13
H =1.63
H =2.13
H =2.63

Subsection: Composite Rating Curve
Label: POND-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.08	(N/A)	0.00
467.75	0.14	(N/A)	0.00
468.00	0.28	(N/A)	0.00
468.50	0.74	(N/A)	0.00
469.00	1.35	(N/A)	0.00
469.50	2.08	(N/A)	0.00
470.00	2.91	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
None Contributing
None Contributing
Orifice - 5
Orifice - 5 + Weir - 5
Orifice - 5 + Weir - 5
Orifice - 5 + Weir - 5
Orifice - 5 + Weir - 5
Orifice - 5 + Weir - 5
Orifice - 5 + Weir - 5

Subsection: Outlet Input Data
Label: POND-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	466.00 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	470.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 5	Forward	TW	467.25	470.00
Rectangular Weir	Weir - 5	Forward	TW	467.75	470.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Weir - 5 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	467.75 ft
Weir Length	0.25 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: Orifice - 5 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	467.25 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 5 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.00	(N/A)	0.00
467.75	0.00	(N/A)	0.00
468.00	0.09	(N/A)	0.00
468.50	0.49	(N/A)	0.00
469.00	1.05	(N/A)	0.00
469.50	1.74	(N/A)	0.00
470.00	2.53	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
HW & TW below Inv.El.=467.750
H=.00; Htw=.00; Qfree=.00;
H=.25; Htw=.00; Qfree=.09;
H=.75; Htw=.00; Qfree=.49;
H=1.25; Htw=.00; Qfree=1.05;
H=1.75; Htw=.00; Qfree=1.74;
H=2.25; Htw=.00; Qfree=2.53;

Subsection: Individual Outlet Curves
Label: POND-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 5 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
466.00	0.00	(N/A)	0.00
466.50	0.00	(N/A)	0.00
467.00	0.00	(N/A)	0.00
467.25	0.00	(N/A)	0.00
467.50	0.08	(N/A)	0.00
467.75	0.14	(N/A)	0.00
468.00	0.19	(N/A)	0.00
468.50	0.25	(N/A)	0.00
469.00	0.30	(N/A)	0.00
469.50	0.34	(N/A)	0.00
470.00	0.38	(N/A)	0.00

Computation Messages
HW & TW below invert
HW & TW below invert
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.13
H =.38
H =.63
H =1.13
H =1.63
H =2.13
H =2.63

Subsection: Composite Rating Curve
Label: POND-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)	Contributing Structures
466.00	0.00	(N/A)	0.00	None Contributing
466.50	0.00	(N/A)	0.00	None Contributing
467.00	0.00	(N/A)	0.00	None Contributing
467.25	0.00	(N/A)	0.00	None Contributing
467.50	0.08	(N/A)	0.00	Orifice - 5
467.75	0.14	(N/A)	0.00	Orifice - 5 + Weir - 5
468.00	0.28	(N/A)	0.00	Orifice - 5 + Weir - 5
468.50	0.74	(N/A)	0.00	Orifice - 5 + Weir - 5
469.00	1.35	(N/A)	0.00	Orifice - 5 + Weir - 5
469.50	2.08	(N/A)	0.00	Orifice - 5 + Weir - 5
470.00	2.91	(N/A)	0.00	Orifice - 5 + Weir - 5

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.09 ft³/s
Time to Peak	12.300 hours
Hydrograph Volume	583.007 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.000	0.00	0.00	0.04	0.07	0.09
12.250	0.09	0.09	0.09	0.09	0.08
12.500	0.08	0.08	0.07	0.07	0.07
12.750	0.06	0.06	0.06	0.05	0.05
13.000	0.05	0.04	0.04	0.04	0.04
13.250	0.04	0.03	0.03	0.03	0.03
13.500	0.03	0.03	0.03	0.02	0.02
13.750	0.02	0.02	0.02	0.02	0.02
14.000	0.02	0.02	0.02	0.02	0.02
14.250	0.02	0.02	0.02	0.02	0.02
14.500	0.01	0.01	0.01	0.01	0.01
14.750	0.01	0.01	0.01	0.01	0.01
15.000	0.01	0.01	0.01	0.01	0.01
15.250	0.01	0.01	0.01	0.01	0.01
15.500	0.01	0.01	0.01	0.01	0.01
15.750	0.01	0.01	0.01	0.01	0.01
16.000	0.01	0.01	0.01	0.01	0.01
16.250	0.01	0.01	0.01	0.01	0.01
16.500	0.01	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.250	0.00	0.00	0.00	0.00	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.24 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	1,199.034 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.400	0.00	0.00	0.01	0.02	0.03
11.650	0.03	0.04	0.05	0.06	0.07
11.900	0.08	0.09	0.11	0.13	0.17
12.150	0.22	0.24	0.23	0.21	0.19
12.400	0.18	0.16	0.14	0.14	0.13
12.650	0.13	0.12	0.11	0.11	0.10
12.900	0.10	0.09	0.09	0.08	0.08
13.150	0.07	0.07	0.06	0.06	0.06
13.400	0.05	0.05	0.05	0.05	0.04
13.650	0.04	0.04	0.04	0.04	0.03
13.900	0.03	0.03	0.03	0.03	0.03
14.150	0.03	0.03	0.03	0.03	0.03
14.400	0.02	0.02	0.02	0.02	0.02
14.650	0.02	0.02	0.02	0.02	0.02
14.900	0.02	0.02	0.02	0.02	0.02
15.150	0.02	0.02	0.02	0.02	0.02
15.400	0.02	0.02	0.02	0.02	0.02
15.650	0.01	0.01	0.01	0.01	0.01
15.900	0.01	0.01	0.01	0.01	0.01
16.150	0.01	0.01	0.01	0.01	0.01
16.400	0.01	0.01	0.01	0.01	0.01
16.650	0.01	0.01	0.01	0.01	0.01
16.900	0.01	0.01	0.01	0.01	0.01
17.150	0.01	0.01	0.01	0.01	0.01
17.400	0.01	0.01	0.01	0.01	0.01
17.650	0.01	0.01	0.01	0.01	0.01
17.900	0.01	0.01	0.01	0.01	0.01
18.150	0.01	0.01	0.01	0.01	0.01
18.400	0.01	0.01	0.01	0.01	0.01
18.650	0.01	0.01	0.01	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Peak Discharge	0.58 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	2,591.869 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.300	0.00	0.00	0.01	0.01	0.01
9.550	0.02	0.02	0.02	0.02	0.02
9.800	0.03	0.03	0.03	0.03	0.03
10.050	0.03	0.03	0.04	0.04	0.04
10.300	0.04	0.04	0.04	0.04	0.04
10.550	0.04	0.04	0.04	0.05	0.05
10.800	0.05	0.05	0.05	0.05	0.06
11.050	0.06	0.06	0.06	0.07	0.07
11.300	0.07	0.08	0.08	0.08	0.09
11.550	0.09	0.10	0.10	0.11	0.11
11.800	0.12	0.13	0.15	0.19	0.25
12.050	0.35	0.49	0.58	0.57	0.49
12.300	0.42	0.35	0.30	0.26	0.24
12.550	0.22	0.20	0.19	0.17	0.16
12.800	0.15	0.14	0.14	0.13	0.13
13.050	0.12	0.12	0.11	0.11	0.10
13.300	0.10	0.10	0.09	0.09	0.09
13.550	0.08	0.08	0.07	0.07	0.07
13.800	0.06	0.06	0.06	0.06	0.06
14.050	0.05	0.05	0.05	0.05	0.05
14.300	0.05	0.05	0.04	0.04	0.04
14.550	0.04	0.04	0.04	0.04	0.04
14.800	0.04	0.04	0.04	0.03	0.03
15.050	0.03	0.03	0.03	0.03	0.03
15.300	0.03	0.03	0.03	0.03	0.03
15.550	0.03	0.03	0.03	0.03	0.03
15.800	0.03	0.03	0.03	0.03	0.03
16.050	0.02	0.02	0.02	0.02	0.02
16.300	0.02	0.02	0.02	0.02	0.02
16.550	0.02	0.02	0.02	0.02	0.02
16.800	0.02	0.02	0.02	0.02	0.02
17.050	0.02	0.02	0.02	0.02	0.02
17.300	0.02	0.02	0.02	0.02	0.02
17.550	0.02	0.02	0.02	0.02	0.02
17.800	0.02	0.02	0.02	0.02	0.02
18.050	0.02	0.02	0.02	0.02	0.02
18.300	0.02	0.02	0.02	0.02	0.02

Subsection: Diverted Hydrograph
Label: Outlet-3
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.550	0.02	0.02	0.02	0.02	0.02
18.800	0.02	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.01
20.550	0.01	0.01	0.01	0.01	0.01
20.800	0.01	0.01	0.01	0.01	0.01
21.050	0.01	0.01	0.01	0.01	0.01
21.300	0.01	0.01	0.01	0.01	0.01
21.550	0.01	0.01	0.01	0.01	0.01
21.800	0.01	0.01	0.01	0.01	0.01
22.050	0.01	0.01	0.01	0.01	0.01
22.300	0.01	0.01	0.01	0.01	0.01
22.550	0.01	0.01	0.01	0.01	0.01
22.800	0.01	0.01	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.01
23.550	0.01	0.01	0.01	0.01	0.01
23.800	0.01	0.01	0.01	0.01	0.01

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
466.00	0.00	0.000	0.00	0.00	0.00	0.00
466.50	0.00	158.473	0.00	0.00	0.00	1.76
467.00	0.00	354.933	0.00	0.00	0.00	3.94
467.25	0.00	459.260	0.00	0.00	0.00	5.10
467.50	0.08	565.210	0.00	0.00	0.08	6.36
467.75	0.14	671.150	0.00	0.00	0.14	7.60
468.00	0.28	775.477	0.00	0.00	0.28	8.90
468.50	0.74	971.937	0.00	0.00	0.74	11.54
469.00	1.35	1,130.410	0.00	0.00	1.35	13.91
469.50	2.08	1,230.410	0.00	0.00	2.08	15.75
470.00	2.91	1,330.410	0.00	0.00	2.91	17.70

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
466.00	0.00	0.000	0.00	0.00	0.00	0.00
466.50	0.00	158.473	0.00	0.00	0.00	1.76
467.00	0.00	354.933	0.00	0.00	0.00	3.94
467.25	0.00	459.260	0.00	0.00	0.00	5.10
467.50	0.08	565.210	0.00	0.00	0.08	6.36
467.75	0.14	671.150	0.00	0.00	0.14	7.60
468.00	0.28	775.477	0.00	0.00	0.28	8.90
468.50	0.74	971.937	0.00	0.00	0.74	11.54
469.00	1.35	1,130.410	0.00	0.00	1.35	13.91
469.50	2.08	1,230.410	0.00	0.00	2.08	15.75
470.00	2.91	1,330.410	0.00	0.00	2.91	17.70

Subsection: Elevation-Volume-Flow Table (Pond)
Label: UG
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
466.00	0.00	0.000	0.00	0.00	0.00	0.00
466.50	0.00	158.473	0.00	0.00	0.00	1.76
467.00	0.00	354.933	0.00	0.00	0.00	3.94
467.25	0.00	459.260	0.00	0.00	0.00	5.10
467.50	0.08	565.210	0.00	0.00	0.08	6.36
467.75	0.14	671.150	0.00	0.00	0.14	7.60
468.00	0.28	775.477	0.00	0.00	0.28	8.90
468.50	0.74	971.937	0.00	0.00	0.74	11.54
469.00	1.35	1,130.410	0.00	0.00	1.35	13.91
469.50	2.08	1,230.410	0.00	0.00	2.08	15.75
470.00	2.91	1,330.410	0.00	0.00	2.91	17.70

Subsection: Level Pool Pond Routing Summary
Label: UG (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.30 ft³/s	Time to Peak (Flow, In)	12.100 hours
Infiltration (Peak)	0.00 ft³/s	Time to Peak (Infiltration)	9.950 hours
Flow (Peak Outlet)	0.09 ft³/s	Time to Peak (Flow, Outlet)	12.300 hours

Elevation (Water Surface, Peak)	467.53 ft
Volume (Peak)	575.898 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	1,047.000 ft³
Volume (Total Infiltration)	1.000 ft³
Volume (Total Outlet Outflow)	583.000 ft³
Volume (Retained)	463.000 ft³
Volume (Unrouted)	-1.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: UG (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.47 ft³/s	Time to Peak (Flow, In)	12.100 hours
Infiltration (Peak)	0.00 ft³/s	Time to Peak (Infiltration)	7.850 hours
Flow (Peak Outlet)	0.24 ft³/s	Time to Peak (Flow, Outlet)	12.200 hours

Elevation (Water Surface, Peak)	467.92 ft
Volume (Peak)	743.336 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	1,666.000 ft³
Volume (Total Infiltration)	1.000 ft³
Volume (Total Outlet Outflow)	1,199.000 ft³
Volume (Retained)	465.000 ft³
Volume (Unrouted)	-1.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: UG (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	Constant
Infiltration Rate (Constant)	0.00 ft³/s

Initial Conditions	
Elevation (Water Surface, Initial)	466.00 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.85 ft³/s	Time to Peak (Flow, In)	12.100 hours
Infiltration (Peak)	0.00 ft³/s	Time to Peak (Infiltration)	5.050 hours
Flow (Peak Outlet)	0.58 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	468.33 ft
Volume (Peak)	908.387 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	3,065.000 ft³
Volume (Total Infiltration)	1.000 ft³
Volume (Total Outlet Outflow)	2,592.000 ft³
Volume (Retained)	470.000 ft³
Volume (Unrouted)	-2.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Pond Infiltration Hydrograph
Label: UG (INF)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.00 ft³/s
Time to Peak	14.650 hours
Hydrograph Volume	0.000 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.00	(N/A)	(N/A)	(N/A)

Subsection: Pond Infiltration Hydrograph
Label: UG (INF)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.00 ft³/s
Time to Peak	13.200 hours
Hydrograph Volume	0.000 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.00	(N/A)	(N/A)	(N/A)

Subsection: Pond Infiltration Hydrograph
Label: UG (INF)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Peak Discharge	0.00 ft³/s
Time to Peak	11.350 hours
Hydrograph Volume	0.000 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.000	0.00	0.00	(N/A)	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: UG (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.09 ft³/s
Time to Peak	12.300 hours
Hydrograph Volume	583.007 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.000	0.00	0.00	0.04	0.07	0.09
12.250	0.09	0.09	0.09	0.09	0.08
12.500	0.08	0.08	0.07	0.07	0.07
12.750	0.06	0.06	0.06	0.05	0.05
13.000	0.05	0.04	0.04	0.04	0.04
13.250	0.04	0.03	0.03	0.03	0.03
13.500	0.03	0.03	0.03	0.02	0.02
13.750	0.02	0.02	0.02	0.02	0.02
14.000	0.02	0.02	0.02	0.02	0.02
14.250	0.02	0.02	0.02	0.02	0.02
14.500	0.01	0.01	0.01	0.01	0.01
14.750	0.01	0.01	0.01	0.01	0.01
15.000	0.01	0.01	0.01	0.01	0.01
15.250	0.01	0.01	0.01	0.01	0.01
15.500	0.01	0.01	0.01	0.01	0.01
15.750	0.01	0.01	0.01	0.01	0.01
16.000	0.01	0.01	0.01	0.01	0.01
16.250	0.01	0.01	0.01	0.01	0.01
16.500	0.01	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: UG (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.250	0.00	0.00	0.00	0.00	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: UG (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.24 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	1,199.034 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
11.400	0.00	0.00	0.01	0.02	0.03
11.650	0.03	0.04	0.05	0.06	0.07
11.900	0.08	0.09	0.11	0.13	0.17
12.150	0.22	0.24	0.23	0.21	0.19
12.400	0.18	0.16	0.14	0.14	0.13
12.650	0.13	0.12	0.11	0.11	0.10
12.900	0.10	0.09	0.09	0.08	0.08
13.150	0.07	0.07	0.06	0.06	0.06
13.400	0.05	0.05	0.05	0.05	0.04
13.650	0.04	0.04	0.04	0.04	0.03
13.900	0.03	0.03	0.03	0.03	0.03
14.150	0.03	0.03	0.03	0.03	0.03
14.400	0.02	0.02	0.02	0.02	0.02
14.650	0.02	0.02	0.02	0.02	0.02
14.900	0.02	0.02	0.02	0.02	0.02
15.150	0.02	0.02	0.02	0.02	0.02
15.400	0.02	0.02	0.02	0.02	0.02
15.650	0.01	0.01	0.01	0.01	0.01
15.900	0.01	0.01	0.01	0.01	0.01
16.150	0.01	0.01	0.01	0.01	0.01
16.400	0.01	0.01	0.01	0.01	0.01
16.650	0.01	0.01	0.01	0.01	0.01
16.900	0.01	0.01	0.01	0.01	0.01
17.150	0.01	0.01	0.01	0.01	0.01
17.400	0.01	0.01	0.01	0.01	0.01
17.650	0.01	0.01	0.01	0.01	0.01
17.900	0.01	0.01	0.01	0.01	0.01
18.150	0.01	0.01	0.01	0.01	0.01
18.400	0.01	0.01	0.01	0.01	0.01
18.650	0.01	0.01	0.01	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: UG (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: UG (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Peak Discharge	0.58 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	2,591.869 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.300	0.00	0.00	0.01	0.01	0.01
9.550	0.02	0.02	0.02	0.02	0.02
9.800	0.03	0.03	0.03	0.03	0.03
10.050	0.03	0.03	0.04	0.04	0.04
10.300	0.04	0.04	0.04	0.04	0.04
10.550	0.04	0.04	0.04	0.05	0.05
10.800	0.05	0.05	0.05	0.05	0.06
11.050	0.06	0.06	0.06	0.07	0.07
11.300	0.07	0.08	0.08	0.08	0.09
11.550	0.09	0.10	0.10	0.11	0.11
11.800	0.12	0.13	0.15	0.19	0.25
12.050	0.35	0.49	0.58	0.57	0.49
12.300	0.42	0.35	0.30	0.26	0.24
12.550	0.22	0.20	0.19	0.17	0.16
12.800	0.15	0.14	0.14	0.13	0.13
13.050	0.12	0.12	0.11	0.11	0.10
13.300	0.10	0.10	0.09	0.09	0.09
13.550	0.08	0.08	0.07	0.07	0.07
13.800	0.06	0.06	0.06	0.06	0.06
14.050	0.05	0.05	0.05	0.05	0.05
14.300	0.05	0.05	0.04	0.04	0.04
14.550	0.04	0.04	0.04	0.04	0.04
14.800	0.04	0.04	0.04	0.03	0.03
15.050	0.03	0.03	0.03	0.03	0.03
15.300	0.03	0.03	0.03	0.03	0.03
15.550	0.03	0.03	0.03	0.03	0.03
15.800	0.03	0.03	0.03	0.03	0.03
16.050	0.02	0.02	0.02	0.02	0.02
16.300	0.02	0.02	0.02	0.02	0.02
16.550	0.02	0.02	0.02	0.02	0.02
16.800	0.02	0.02	0.02	0.02	0.02
17.050	0.02	0.02	0.02	0.02	0.02
17.300	0.02	0.02	0.02	0.02	0.02
17.550	0.02	0.02	0.02	0.02	0.02
17.800	0.02	0.02	0.02	0.02	0.02
18.050	0.02	0.02	0.02	0.02	0.02
18.300	0.02	0.02	0.02	0.02	0.02

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: UG (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.550	0.02	0.02	0.02	0.02	0.02
18.800	0.02	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.01
20.550	0.01	0.01	0.01	0.01	0.01
20.800	0.01	0.01	0.01	0.01	0.01
21.050	0.01	0.01	0.01	0.01	0.01
21.300	0.01	0.01	0.01	0.01	0.01
21.550	0.01	0.01	0.01	0.01	0.01
21.800	0.01	0.01	0.01	0.01	0.01
22.050	0.01	0.01	0.01	0.01	0.01
22.300	0.01	0.01	0.01	0.01	0.01
22.550	0.01	0.01	0.01	0.01	0.01
22.800	0.01	0.01	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.01
23.550	0.01	0.01	0.01	0.01	0.01
23.800	0.01	0.01	0.01	0.01	0.01

Summary for Hydrograph Addition at 'UG'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP- POI-2

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP- POI-2	1,047.398	12.100	0.30
Flow (In)	UG	1,047.398	12.100	0.30

Subsection: Pond Inflow Summary
Label: UG (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'UG'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP- POI-2

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP- POI-2	1,665.987	12.100	0.47
Flow (In)	UG	1,665.987	12.100	0.47

Subsection: Pond Inflow Summary
Label: UG (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'UG'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP- POI-2

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP- POI-2	3,064.573	12.100	0.85
Flow (In)	UG	3,064.573	12.100	0.85

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www.vannoteharvey.com

UNDERGROUND STONE STORAGE SYSTEM STAGE STORAGE TABLE

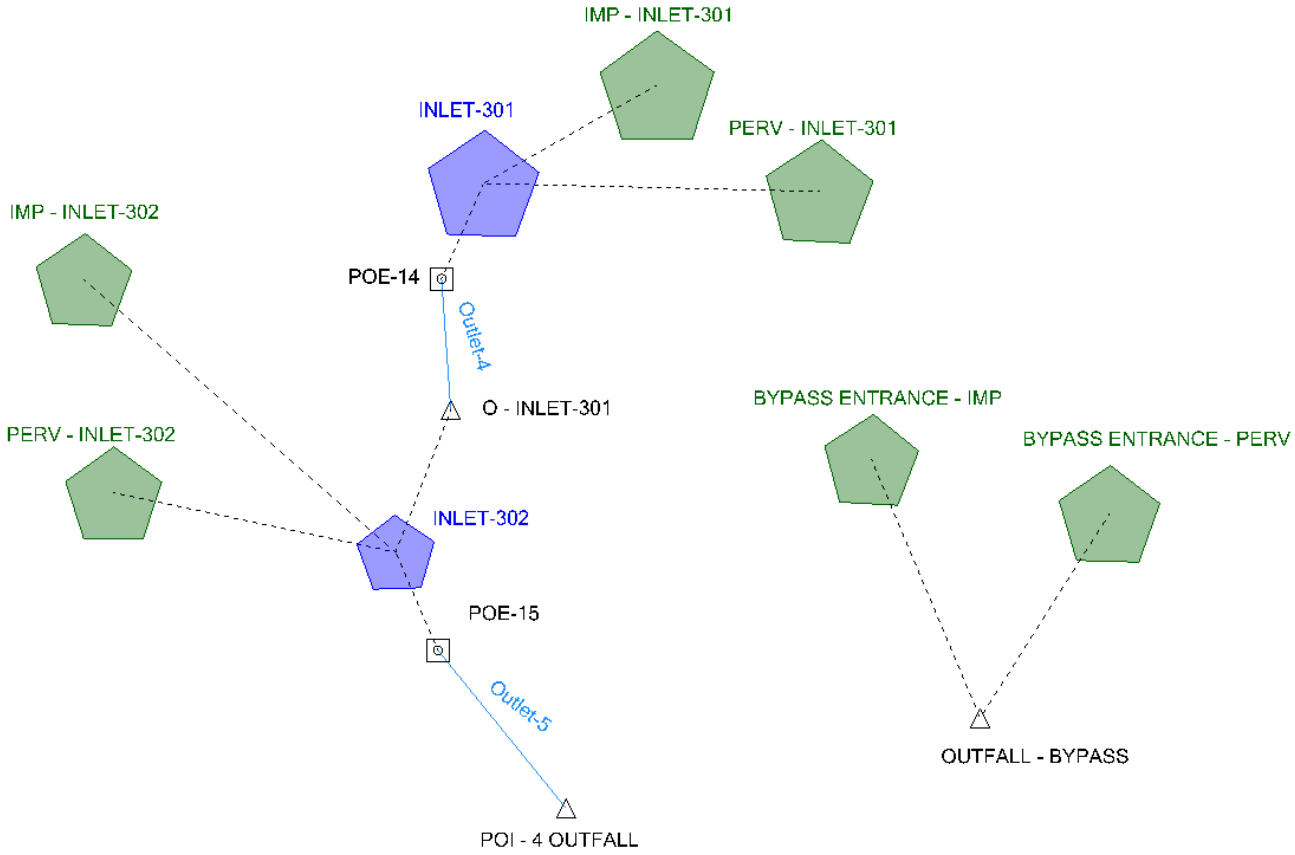
Pipe Manifold Description		
Pipe Diameter =	3	ft.
Basin Bottom/Pipe Invert =	466.0	ft.
Length of Pipe =	45.0	ft.
# of Pipes =	3	
Width of Stone Between Pipes =	1.00	ft.
Depth of Stone Above Pipes =	1.0	ft.
Void Ratio =	0.40	

Depth Above Invert	Elevation	Cross-Section Area of Pipe(s)	Volume in Pipe	Volume in Stone	Incremental Storage Volume	Total Storage Volume
(FT)	(FT)	(SF)	(CF)	(CF)	(CF)	(CF)
0.00	466.00	0.00	0.00	0.00	0.00	0.00
0.15	466.15	0.40	17.91	25.24	43.14	43.14
0.30	466.30	1.11	49.76	44.89	51.51	94.66
0.45	466.45	2.00	89.88	61.25	56.47	151.13
0.60	466.60	3.02	136.01	75.20	60.08	211.21
0.75	466.75	4.15	186.72	87.31	62.83	274.03
0.90	466.90	5.35	240.95	98.02	64.94	338.97
1.05	467.05	6.62	297.85	107.66	66.54	405.51
1.20	467.20	7.93	356.66	116.54	67.69	473.19
1.35	467.35	9.26	416.71	124.92	68.43	541.62
1.50	467.50	10.61	477.37	133.05	68.80	610.42
1.65	467.65	11.96	538.04	141.19	68.80	679.22
1.80	467.80	13.29	598.09	149.57	68.43	747.65
1.95	467.95	14.60	656.90	158.44	67.69	815.34
2.10	468.10	15.86	713.79	168.08	66.54	881.87
2.25	468.25	17.07	768.02	178.79	64.94	946.81
2.40	468.40	18.19	818.73	190.91	62.83	1009.64
2.55	468.55	19.22	864.86	204.86	60.08	1069.72
2.70	468.70	20.11	904.98	221.21	56.47	1126.19
2.85	468.85	20.82	936.84	240.87	51.51	1177.70
3.00	469.00	21.22	954.74	266.10	43.14	1220.85
4.00	470.00	21.22	954.74	482.10	216.00	1436.85

POI-4

Project Summary	
Title	Kimberley Academy
Engineer	DP
Company	VNH/Pennoni
Date	8/31/2023

Notes



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Subsection: User Notifications

User Notifications

Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	410
Label	BYPASS ENTRANCE - PERV
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.11 ft³/s Interp. peak flow= 0.11 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	31
Label	PERV - INLET-301
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.14 ft³/s Interp. peak flow= 0.14 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	7
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Catchment
Element Id	407
Label	PERV - INLET-302
Time	(N/A)
Message	The difference between calculated peak flow and interpolated peak flow 2.0 % is greater than 1.5 %. Computed peak flow= 0.20 ft³/s Interp. peak flow= 0.19 ft³/s. Output increment for this catchment may be too large.
Source	Warning
Message Id	67
Scenario	ESSEX CO. 2-YR (PROJ)
Element Type	Composite Outlet Structure
Element Id	416
Label	INLET-302
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure INLET-302. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning

Subsection: User Notifications

User Notifications

Message Id	67
Scenario	ESSEX CO. 10-YR (PROJ)
Element Type	Composite Outlet Structure
Element Id	416
Label	INLET-302
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure INLET-302. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning
Message Id	67
Scenario	ESSEX CO. 100-YR (PROJ)
Element Type	Composite Outlet Structure
Element Id	416
Label	INLET-302
Time	(N/A)
Message	Flow direction set to reverse for one ore more structures in composite outlet structure INLET-302. To eliminate this warning, edit outlet data and select forward only. If reverse flow analysis is required, then the tailwater conditions must be set to interconnected pond.
Source	Warning

Subsection: Master Network Summary

Catchments Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
IMP - INLET-301	ESSEX CO. 2-YR (PROJ)	2	1,932.000	12.100	0.55
IMP - INLET-301	ESSEX CO. 10-YR (PROJ)	10	3,074.000	12.100	0.87
IMP - INLET-301	ESSEX CO. 100-YR (PROJ)	100	5,654.000	12.100	1.57
PERV - INLET-301	ESSEX CO. 2-YR (PROJ)	2	425.000	12.100	0.14
PERV - INLET-301	ESSEX CO. 10-YR (PROJ)	10	838.000	12.100	0.28
PERV - INLET-301	ESSEX CO. 100-YR (PROJ)	100	1,849.000	12.100	0.58
PERV - INLET-302	ESSEX CO. 2-YR (PROJ)	2	581.000	12.100	0.19
PERV - INLET-302	ESSEX CO. 10-YR (PROJ)	10	1,145.000	12.100	0.38
PERV - INLET-302	ESSEX CO. 100-YR (PROJ)	100	2,525.000	12.100	0.80
IMP - INLET-302	ESSEX CO. 2-YR (PROJ)	2	1,744.000	12.100	0.50
IMP - INLET-302	ESSEX CO. 10-YR (PROJ)	10	2,773.000	12.100	0.78
IMP - INLET-302	ESSEX CO. 100-YR (PROJ)	100	5,102.000	12.100	1.42
BYPASS ENTRANCE - IMP	ESSEX CO. 2-YR (PROJ)	2	477.000	12.100	0.14
BYPASS ENTRANCE - IMP	ESSEX CO. 10-YR (PROJ)	10	758.000	12.100	0.21
BYPASS ENTRANCE - IMP	ESSEX CO. 100-YR (PROJ)	100	1,395.000	12.100	0.39
BYPASS ENTRANCE - PERV	ESSEX CO. 2-YR (PROJ)	2	337.000	12.100	0.11
BYPASS ENTRANCE - PERV	ESSEX CO. 10-YR (PROJ)	10	665.000	12.100	0.22
BYPASS ENTRANCE - PERV	ESSEX CO. 100-YR (PROJ)	100	1,466.000	12.100	0.46

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
POI - 4 OUTFALL	ESSEX CO. 2-YR (PROJ)	2	4,003.000	12.800	0.25
POI - 4 OUTFALL	ESSEX CO. 10-YR (PROJ)	10	7,108.000	12.950	0.36

Subsection: Master Network Summary

Node Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)
POI - 4 OUTFALL	ESSEX CO. 100-YR (PROJ)	100	14,312.000	12.150	2.33
OUTFALL - BYPASS	ESSEX CO. 2-YR (PROJ)	2	814.000	12.100	0.25
OUTFALL - BYPASS	ESSEX CO. 10-YR (PROJ)	10	1,423.000	12.100	0.43
OUTFALL - BYPASS	ESSEX CO. 100-YR (PROJ)	100	2,861.000	12.100	0.85

Pond Summary

Label	Scenario	Return Event (years)	Hydrograph Volume (ft³)	Time to Peak (hours)	Peak Flow (ft³/s)	Maximum Water Surface Elevation (ft)	Maximum Pond Storage (ft³)
INLET-301 (IN)	ESSEX CO. 2-YR (PROJ)	2	2,358.000	12.100	0.69	(N/A)	(N/A)
INLET-301 (OUT)	ESSEX CO. 2-YR (PROJ)	2	2,010.000	12.350	0.19	475.77	950.000
INLET-301 (IN)	ESSEX CO. 10-YR (PROJ)	10	3,912.000	12.100	1.14	(N/A)	(N/A)
INLET-301 (OUT)	ESSEX CO. 10-YR (PROJ)	10	3,549.000	12.400	0.26	476.33	1,434.000
INLET-301 (IN)	ESSEX CO. 100-YR (PROJ)	100	7,503.000	12.100	2.15	(N/A)	(N/A)
INLET-301 (OUT)	ESSEX CO. 100-YR (PROJ)	100	7,106.000	12.200	1.09	477.67	2,375.000
INLET-302 (IN)	ESSEX CO. 2-YR (PROJ)	2	4,334.000	12.100	0.85	(N/A)	(N/A)
INLET-302 (OUT)	ESSEX CO. 2-YR (PROJ)	2	4,003.000	12.800	0.25	455.29	1,242.000
INLET-302 (IN)	ESSEX CO. 10-YR (PROJ)	10	7,467.000	12.100	1.37	(N/A)	(N/A)
INLET-302 (OUT)	ESSEX CO. 10-YR (PROJ)	10	7,108.000	12.950	0.36	456.46	2,017.000
INLET-302 (IN)	ESSEX CO. 100-YR (PROJ)	100	14,733.000	12.100	2.54	(N/A)	(N/A)
INLET-302 (OUT)	ESSEX CO. 100-YR (PROJ)	100	14,312.000	12.150	2.33	456.95	2,199.000

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time-Depth Curve: ESSEX CO. 100-YR (PROJ)	
Label	ESSEX CO. 100-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	100 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.1
0.500	0.1	0.1	0.1	0.1	0.1
1.000	0.1	0.1	0.2	0.2	0.2
1.500	0.2	0.2	0.2	0.2	0.3
2.000	0.3	0.3	0.3	0.3	0.3
2.500	0.4	0.4	0.4	0.4	0.4
3.000	0.4	0.5	0.5	0.5	0.5
3.500	0.5	0.5	0.6	0.6	0.6
4.000	0.6	0.6	0.6	0.7	0.7
4.500	0.7	0.7	0.7	0.7	0.8
5.000	0.8	0.8	0.8	0.8	0.9
5.500	0.9	0.9	0.9	0.9	1.0
6.000	1.0	1.0	1.0	1.0	1.1
6.500	1.1	1.1	1.1	1.2	1.2
7.000	1.2	1.2	1.3	1.3	1.3
7.500	1.3	1.4	1.4	1.4	1.5
8.000	1.5	1.5	1.6	1.6	1.6
8.500	1.7	1.7	1.7	1.8	1.8
9.000	1.8	1.9	1.9	1.9	2.0
9.500	2.0	2.1	2.1	2.2	2.2
10.000	2.3	2.3	2.4	2.5	2.5
10.500	2.6	2.6	2.7	2.8	2.9
11.000	3.0	3.1	3.2	3.4	3.5
11.500	3.7	3.9	4.1	4.4	4.8
12.000	5.5	6.7	7.1	7.4	7.7
12.500	7.9	8.0	8.2	8.3	8.4
13.000	8.5	8.6	8.7	8.8	8.9
13.500	8.9	9.0	9.1	9.1	9.2
14.000	9.2	9.3	9.3	9.4	9.4
14.500	9.5	9.5	9.6	9.6	9.7
15.000	9.7	9.7	9.8	9.8	9.8
15.500	9.9	9.9	9.9	10.0	10.0
16.000	10.0	10.1	10.1	10.1	10.1

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	10.2	10.2	10.2	10.3	10.3
17.000	10.3	10.3	10.4	10.4	10.4
17.500	10.4	10.5	10.5	10.5	10.5
18.000	10.5	10.6	10.6	10.6	10.6
18.500	10.6	10.7	10.7	10.7	10.7
19.000	10.7	10.8	10.8	10.8	10.8
19.500	10.8	10.8	10.9	10.9	10.9
20.000	10.9	10.9	11.0	11.0	11.0
20.500	11.0	11.0	11.0	11.1	11.1
21.000	11.1	11.1	11.1	11.1	11.2
21.500	11.2	11.2	11.2	11.2	11.2
22.000	11.2	11.3	11.3	11.3	11.3
22.500	11.3	11.3	11.3	11.4	11.4
23.000	11.4	11.4	11.4	11.4	11.4
23.500	11.5	11.5	11.5	11.5	11.5
24.000	11.5	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time-Depth Curve: ESSEX CO. 10-YR (PROJ)	
Label	ESSEX CO. 10-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	10 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.1	0.1	0.1
1.000	0.1	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.2	0.2	0.2	0.2	0.2
2.500	0.2	0.2	0.2	0.2	0.2
3.000	0.2	0.2	0.3	0.3	0.3
3.500	0.3	0.3	0.3	0.3	0.3
4.000	0.3	0.3	0.4	0.4	0.4
4.500	0.4	0.4	0.4	0.4	0.4
5.000	0.4	0.4	0.5	0.5	0.5
5.500	0.5	0.5	0.5	0.5	0.5
6.000	0.5	0.6	0.6	0.6	0.6
6.500	0.6	0.6	0.6	0.6	0.7
7.000	0.7	0.7	0.7	0.7	0.7
7.500	0.7	0.8	0.8	0.8	0.8
8.000	0.8	0.8	0.9	0.9	0.9
8.500	0.9	0.9	1.0	1.0	1.0
9.000	1.0	1.0	1.1	1.1	1.1
9.500	1.1	1.1	1.2	1.2	1.2
10.000	1.3	1.3	1.3	1.4	1.4
10.500	1.4	1.5	1.5	1.6	1.6
11.000	1.7	1.7	1.8	1.9	1.9
11.500	2.0	2.1	2.3	2.4	2.7
12.000	3.1	3.7	3.9	4.1	4.2
12.500	4.4	4.4	4.5	4.6	4.7
13.000	4.7	4.8	4.8	4.9	4.9
13.500	4.9	5.0	5.0	5.0	5.1
14.000	5.1	5.1	5.2	5.2	5.2
14.500	5.2	5.3	5.3	5.3	5.3
15.000	5.4	5.4	5.4	5.4	5.4
15.500	5.5	5.5	5.5	5.5	5.5
16.000	5.5	5.6	5.6	5.6	5.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	5.6	5.6	5.7	5.7	5.7
17.000	5.7	5.7	5.7	5.7	5.8
17.500	5.8	5.8	5.8	5.8	5.8
18.000	5.8	5.8	5.8	5.9	5.9
18.500	5.9	5.9	5.9	5.9	5.9
19.000	5.9	5.9	6.0	6.0	6.0
19.500	6.0	6.0	6.0	6.0	6.0
20.000	6.0	6.0	6.1	6.1	6.1
20.500	6.1	6.1	6.1	6.1	6.1
21.000	6.1	6.1	6.1	6.2	6.2
21.500	6.2	6.2	6.2	6.2	6.2
22.000	6.2	6.2	6.2	6.2	6.2
22.500	6.3	6.3	6.3	6.3	6.3
23.000	6.3	6.3	6.3	6.3	6.3
23.500	6.3	6.3	6.3	6.4	6.4
24.000	6.4	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time-Depth Curve: ESSEX CO. 2-YR (PROJ)	
Label	ESSEX CO. 2-YR (PROJ)
Start Time	0.000 hours
Increment	0.100 hours
End Time	24.000 hours
Return Event	2 years

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
0.000	0.0	0.0	0.0	0.0	0.0
0.500	0.0	0.0	0.0	0.0	0.0
1.000	0.0	0.1	0.1	0.1	0.1
1.500	0.1	0.1	0.1	0.1	0.1
2.000	0.1	0.1	0.1	0.1	0.1
2.500	0.1	0.1	0.1	0.1	0.1
3.000	0.2	0.2	0.2	0.2	0.2
3.500	0.2	0.2	0.2	0.2	0.2
4.000	0.2	0.2	0.2	0.2	0.2
4.500	0.2	0.3	0.3	0.3	0.3
5.000	0.3	0.3	0.3	0.3	0.3
5.500	0.3	0.3	0.3	0.3	0.3
6.000	0.3	0.4	0.4	0.4	0.4
6.500	0.4	0.4	0.4	0.4	0.4
7.000	0.4	0.4	0.4	0.5	0.5
7.500	0.5	0.5	0.5	0.5	0.5
8.000	0.5	0.5	0.6	0.6	0.6
8.500	0.6	0.6	0.6	0.6	0.6
9.000	0.6	0.7	0.7	0.7	0.7
9.500	0.7	0.7	0.8	0.8	0.8
10.000	0.8	0.8	0.9	0.9	0.9
10.500	0.9	0.9	1.0	1.0	1.0
11.000	1.1	1.1	1.1	1.2	1.2
11.500	1.3	1.4	1.4	1.6	1.7
12.000	2.0	2.4	2.5	2.6	2.7
12.500	2.8	2.8	2.9	2.9	3.0
13.000	3.0	3.1	3.1	3.1	3.1
13.500	3.2	3.2	3.2	3.2	3.3
14.000	3.3	3.3	3.3	3.3	3.4
14.500	3.4	3.4	3.4	3.4	3.4
15.000	3.4	3.5	3.5	3.5	3.5
15.500	3.5	3.5	3.5	3.5	3.5
16.000	3.6	3.6	3.6	3.6	3.6

Subsection: Time-Depth Curve
Label: ESSEX CO.
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

CUMULATIVE RAINFALL (in)
Output Time Increment = 0.100 hours
Time on left represents time for first value in each row.

Time (hours)	Depth (in)	Depth (in)	Depth (in)	Depth (in)	Depth (in)
16.500	3.6	3.6	3.6	3.6	3.6
17.000	3.7	3.7	3.7	3.7	3.7
17.500	3.7	3.7	3.7	3.7	3.7
18.000	3.7	3.7	3.8	3.8	3.8
18.500	3.8	3.8	3.8	3.8	3.8
19.000	3.8	3.8	3.8	3.8	3.8
19.500	3.8	3.8	3.9	3.9	3.9
20.000	3.9	3.9	3.9	3.9	3.9
20.500	3.9	3.9	3.9	3.9	3.9
21.000	3.9	3.9	3.9	4.0	4.0
21.500	4.0	4.0	4.0	4.0	4.0
22.000	4.0	4.0	4.0	4.0	4.0
22.500	4.0	4.0	4.0	4.0	4.0
23.000	4.0	4.0	4.1	4.1	4.1
23.500	4.1	4.1	4.1	4.1	4.1
24.000	4.1	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time of Concentration Calculations
Label: IMP - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: IMP - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.009 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.68 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	165.00 ft
Is Paved?	True
Slope	0.100 ft/ft
Average Velocity	6.43 ft/s
Segment Time of Concentration	0.007 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Time of Concentration Calculations
Label: PERV - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time of Concentration Results

Segment #1: TR-55 Sheet Flow	
Hydraulic Length	100.00 ft
Manning's n	0.011
Slope	0.030 ft/ft
2 Year 24 Hour Depth	3.4 in
Average Velocity	1.67 ft/s
Segment Time of Concentration	0.017 hours

Segment #2: TR-55 Shallow Concentrated Flow	
Hydraulic Length	200.00 ft
Is Paved?	True
Slope	0.011 ft/ft
Average Velocity	2.13 ft/s
Segment Time of Concentration	0.026 hours

Time of Concentration (Composite)	
Time of Concentration (Composite)	0.083 hours

==== SCS Channel Flow

Tc = R = Qa / Wp
V = (1.49 * (R**(2/3)) * (Sf**-0.5)) / n

(Lf / V) / 3600

Where:
R= Hydraulic radius
Aq= Flow area, square feet
Wp= Wetted perimeter, feet
V= Velocity, ft/sec
Sf= Slope, ft/ft
n= Manning's n
Tc= Time of concentration, hours
Lf= Flow length, feet

==== SCS TR-55 Shallow Concentration Flow

Tc = Unpaved surface:
V = 16.1345 * (Sf**0.5)

Paved Surface:
V = 20.3282 * (Sf**0.5)

(Lf / V) / 3600

Where:
V= Velocity, ft/sec
Sf= Slope, ft/ft
Tc= Time of concentration, hours
Lf= Flow length, feet

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method (Computational Notes)

Definition of Terms

At	Total area (acres): At = Ai+Ap
Ai	Impervious area (acres)
Ap	Pervious area (acres)
CNi	Runoff curve number for impervious area
CNp	Runoff curve number for pervious area
fLoss	f loss constant infiltration (depth/time)
gKs	Saturated Hydraulic Conductivity (depth/time)
Md	Volumetric Moisture Deficit
Psi	Capillary Suction (length)
hK	Horton Infiltration Decay Rate (time^-1)
fo	Initial Infiltration Rate (depth/time)
fc	Ultimate(capacity)Infiltration Rate (depth/time)
Ia	Initial Abstraction (length)
dt	Computational increment (duration of unit excess rainfall) Default dt is smallest value of 0.1333Tc, rtm, and th (Smallest dt is then adjusted to match up with Tp)
UDdt	User specified override computational main time increment (only used if UDdt is => .1333Tc)
D(t)	Point on distribution curve (fraction of P) for time step t
K	2 / (1 + (Tr/Tp)): default K = 0.75: (for Tr/Tp = 1.67)
Ks	Hydrograph shape factor = Unit Conversions * K: = ((1hr/3600sec) * (1ft/12in) * ((5280ft)**2/sq.mi)) * K Default Ks = 645.333 * 0.75 = 484
Lag	Lag time from center of excess runoff (dt) to Tp: Lag = 0.6Tc
P	Total precipitation depth, inches
Pa(t)	Accumulated rainfall at time step t
Pi(t)	Incremental rainfall at time step t
qp	Peak discharge (cfs) for 1in. runoff, for 1hr, for 1 sq.mi. = (Ks * A * Q) / Tp (where Q = 1in. runoff, A=sq.mi.)
Qu(t)	Unit hydrograph ordinate (cfs) at time step t
Q(t)	Final hydrograph ordinate (cfs) at time step t
Rai(t)	Accumulated runoff (inches) at time step t for impervious area
Rap(t)	Accumulated runoff (inches) at time step t for pervious area
Rii(t)	Incremental runoff (inches) at time step t for impervious area
Rip(t)	Incremental runoff (inches) at time step t for pervious area
R(t)	Incremental weighted total runoff (inches)
Rtm	Time increment for rainfall table
Si	S for impervious area: Si = (1000/CNi) - 10
Sp	S for pervious area: Sp = (1000/CNp) - 10
t	Time step (row) number
Tc	Time of concentration
Tb	Time (hrs) of entire unit hydrograph: Tb = Tp + Tr
Tp	Time (hrs) to peak of a unit hydrograph: Tp = (dt/2) + Lag
Tr	Time (hrs) of receding limb of unit hydrograph: Tr = ratio of Tp

Subsection: Unit Hydrograph Equations

Unit Hydrograph Method
Computational Notes
Precipitation

Column (1)	Time for time step t
Column (2)	D(t) = Point on distribution curve for time step t
Column (3)	Pi(t) = Pa(t) - Pa(t-1): Col.(4) - Preceding Col.(4)
Column (4)	Pa(t) = D(t) x P: Col.(2) x P

Pervious Area Runoff (using SCS Runoff CN Method)

Column (5)	Rap(t) = Accumulated pervious runoff for time step t
	If (Pa(t) is <= 0.2Sp) then use: Rap(t) = 0.0
	If (Pa(t) is > 0.2Sp) then use:
	
	Rap(t) = (Col.(4)-0.2Sp)**2 / (Col.(4)+0.8Sp)

Column (6)	Rip(t) = Incremental pervious runoff for time step t Rip(t) = Rap(t) - Rap(t-1) Rip(t) = Col.(5) for current row - Col.(5) for preceding row.

Impervious Area Runoff

Column (7 & 8)...	Did not specify to use impervious areas.

Incremental Weighted Runoff

Column (9)	R(t) = (Ap/At) x Rip(t) + (Ai/At) x Rii(t) R(t) = (Ap/At) x Col.(6) + (Ai/At) x Col.(8)

SCS Unit Hydrograph Method

Column (10)	Q(t) is computed with the SCS unit hydrograph method using R(t) and Qu(t).

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.14 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,485.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	477.043 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	477.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.46 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
2.750	0.00	0.00	0.00	0.00	0.00
3.000	0.00	0.00	0.00	0.00	0.00
3.250	0.00	0.00	0.00	0.00	0.00
3.500	0.00	0.00	0.00	0.00	0.00
3.750	0.00	0.00	0.00	0.00	0.00
4.000	0.00	0.00	0.00	0.00	0.00
4.250	0.00	0.00	0.00	0.00	0.00
4.500	0.00	0.00	0.00	0.00	0.00
4.750	0.00	0.00	0.00	0.00	0.00
5.000	0.00	0.00	0.00	0.00	0.00
5.250	0.00	0.00	0.00	0.00	0.00
5.500	0.00	0.00	0.00	0.00	0.00
5.750	0.00	0.00	0.00	0.00	0.00
6.000	0.00	0.00	0.00	0.00	0.00
6.250	0.00	0.00	0.00	0.00	0.00
6.500	0.00	0.00	0.00	0.00	0.00
6.750	0.00	0.00	0.00	0.00	0.00
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.00	0.00
8.750	0.00	0.00	0.00	0.00	0.00
9.000	0.00	0.00	0.00	0.00	0.00
9.250	0.00	0.00	0.00	0.00	0.01
9.500	0.01	0.01	0.01	0.01	0.01
9.750	0.01	0.01	0.01	0.01	0.01
10.000	0.01	0.01	0.01	0.01	0.01
10.250	0.01	0.01	0.01	0.01	0.01
10.500	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.750	0.01	0.01	0.01	0.01	0.01
11.000	0.01	0.01	0.01	0.01	0.01
11.250	0.01	0.02	0.02	0.02	0.02
11.500	0.02	0.02	0.02	0.03	0.03
11.750	0.03	0.03	0.04	0.05	0.06
12.000	0.08	0.11	0.14	0.11	0.06
12.250	0.05	0.04	0.03	0.03	0.03
12.500	0.03	0.02	0.02	0.02	0.02
12.750	0.02	0.02	0.02	0.01	0.01
13.000	0.01	0.01	0.01	0.01	0.01
13.250	0.01	0.01	0.01	0.01	0.01
13.500	0.01	0.01	0.01	0.01	0.01
13.750	0.01	0.01	0.01	0.01	0.01
14.000	0.01	0.01	0.01	0.01	0.01
14.250	0.01	0.01	0.01	0.01	0.01
14.500	0.01	0.01	0.01	0.01	0.01
14.750	0.01	0.01	0.00	0.00	0.00
15.000	0.00	0.00	0.00	0.00	0.00
15.250	0.00	0.00	0.00	0.00	0.00
15.500	0.00	0.00	0.00	0.00	0.00
15.750	0.00	0.00	0.00	0.00	0.00
16.000	0.00	0.00	0.00	0.00	0.00
16.250	0.00	0.00	0.00	0.00	0.00
16.500	0.00	0.00	0.00	0.00	0.00
16.750	0.00	0.00	0.00	0.00	0.00
17.000	0.00	0.00	0.00	0.00	0.00
17.250	0.00	0.00	0.00	0.00	0.00
17.500	0.00	0.00	0.00	0.00	0.00
17.750	0.00	0.00	0.00	0.00	0.00
18.000	0.00	0.00	0.00	0.00	0.00
18.250	0.00	0.00	0.00	0.00	0.00
18.500	0.00	0.00	0.00	0.00	0.00
18.750	0.00	0.00	0.00	0.00	0.00
19.000	0.00	0.00	0.00	0.00	0.00
19.250	0.00	0.00	0.00	0.00	0.00
19.500	0.00	0.00	0.00	0.00	0.00
19.750	0.00	0.00	0.00	0.00	0.00
20.000	0.00	0.00	0.00	0.00	0.00
20.250	0.00	0.00	0.00	0.00	0.00
20.500	0.00	0.00	0.00	0.00	0.00
20.750	0.00	0.00	0.00	0.00	0.00
21.000	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
21.250	0.00	0.00	0.00	0.00	0.00
21.500	0.00	0.00	0.00	0.00	0.00
21.750	0.00	0.00	0.00	0.00	0.00
22.000	0.00	0.00	0.00	0.00	0.00
22.250	0.00	0.00	0.00	0.00	0.00
22.500	0.00	0.00	0.00	0.00	0.00
22.750	0.00	0.00	0.00	0.00	0.00
23.000	0.00	0.00	0.00	0.00	0.00
23.250	0.00	0.00	0.00	0.00	0.00
23.500	0.00	0.00	0.00	0.00	0.00
23.750	0.00	0.00	0.00	0.00	0.00
24.000	0.00	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.22 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.21 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,485.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	758.770 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	758.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.46 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.00	0.00	0.00	0.00	0.00
3.350	0.00	0.00	0.00	0.00	0.00
3.600	0.00	0.00	0.00	0.00	0.00
3.850	0.00	0.00	0.00	0.00	0.00
4.100	0.00	0.00	0.00	0.00	0.00
4.350	0.00	0.00	0.00	0.00	0.00
4.600	0.00	0.00	0.00	0.00	0.00
4.850	0.00	0.00	0.00	0.00	0.00
5.100	0.00	0.00	0.00	0.00	0.00
5.350	0.00	0.00	0.00	0.00	0.00
5.600	0.00	0.00	0.00	0.00	0.00
5.850	0.00	0.00	0.00	0.00	0.00
6.100	0.00	0.00	0.00	0.00	0.00
6.350	0.00	0.00	0.00	0.00	0.00
6.600	0.00	0.00	0.00	0.00	0.00
6.850	0.00	0.00	0.00	0.00	0.00
7.100	0.00	0.00	0.00	0.00	0.00
7.350	0.00	0.00	0.00	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.350	0.01	0.01	0.01	0.01	0.01
9.600	0.01	0.01	0.01	0.01	0.01
9.850	0.01	0.01	0.01	0.01	0.01
10.100	0.01	0.01	0.01	0.01	0.01
10.350	0.01	0.01	0.01	0.01	0.01
10.600	0.01	0.01	0.01	0.01	0.02
10.850	0.02	0.02	0.02	0.02	0.02
11.100	0.02	0.02	0.02	0.02	0.02
11.350	0.03	0.03	0.03	0.03	0.03
11.600	0.04	0.04	0.04	0.05	0.05
11.850	0.06	0.08	0.10	0.13	0.17
12.100	0.21	0.17	0.10	0.08	0.06
12.350	0.05	0.04	0.04	0.04	0.04
12.600	0.03	0.03	0.03	0.03	0.03
12.850	0.02	0.02	0.02	0.02	0.02
13.100	0.02	0.02	0.02	0.02	0.02
13.350	0.02	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.39 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.39 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	1,485.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	1,395.735 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,395.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - IMP
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.46 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,485.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.600	0.00	0.00	0.00	0.00	0.00
0.850	0.00	0.00	0.00	0.00	0.00
1.100	0.00	0.00	0.00	0.00	0.00
1.350	0.00	0.00	0.00	0.00	0.00
1.600	0.00	0.00	0.00	0.00	0.00
1.850	0.00	0.00	0.00	0.00	0.00
2.100	0.00	0.00	0.00	0.00	0.00
2.350	0.00	0.00	0.00	0.00	0.00
2.600	0.00	0.00	0.00	0.00	0.00
2.850	0.00	0.00	0.00	0.00	0.00
3.100	0.01	0.01	0.01	0.01	0.01
3.350	0.01	0.01	0.01	0.01	0.01
3.600	0.01	0.01	0.01	0.01	0.01
3.850	0.01	0.01	0.01	0.01	0.01
4.100	0.01	0.01	0.01	0.01	0.01
4.350	0.01	0.01	0.01	0.01	0.01
4.600	0.01	0.01	0.01	0.01	0.01
4.850	0.01	0.01	0.01	0.01	0.01
5.100	0.01	0.01	0.01	0.01	0.01
5.350	0.01	0.01	0.01	0.01	0.01
5.600	0.01	0.01	0.01	0.01	0.01
5.850	0.01	0.01	0.01	0.01	0.01
6.100	0.01	0.01	0.01	0.01	0.01
6.350	0.01	0.01	0.01	0.01	0.01
6.600	0.01	0.01	0.01	0.01	0.01
6.850	0.01	0.01	0.01	0.01	0.01
7.100	0.01	0.01	0.01	0.01	0.01
7.350	0.01	0.01	0.01	0.01	0.01
7.600	0.01	0.01	0.01	0.01	0.01
7.850	0.01	0.01	0.01	0.01	0.01
8.100	0.01	0.01	0.01	0.01	0.01
8.350	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.600	0.01	0.01	0.01	0.01	0.01
8.850	0.01	0.01	0.01	0.01	0.01
9.100	0.01	0.01	0.01	0.01	0.01
9.350	0.01	0.01	0.01	0.02	0.02
9.600	0.02	0.02	0.02	0.02	0.02
9.850	0.02	0.02	0.02	0.02	0.02
10.100	0.02	0.02	0.02	0.02	0.02
10.350	0.02	0.02	0.02	0.02	0.02
10.600	0.02	0.02	0.03	0.03	0.03
10.850	0.03	0.03	0.03	0.03	0.03
11.100	0.04	0.04	0.04	0.04	0.04
11.350	0.05	0.05	0.05	0.05	0.06
11.600	0.07	0.07	0.07	0.09	0.10
11.850	0.12	0.14	0.18	0.23	0.31
12.100	0.39	0.31	0.18	0.14	0.11
12.350	0.09	0.08	0.07	0.07	0.06
12.600	0.06	0.05	0.05	0.05	0.05
12.850	0.04	0.04	0.04	0.04	0.04
13.100	0.03	0.03	0.03	0.03	0.03
13.350	0.03	0.03	0.03	0.02	0.02
13.600	0.02	0.02	0.02	0.02	0.02
13.850	0.02	0.02	0.02	0.02	0.02
14.100	0.02	0.02	0.02	0.02	0.02
14.350	0.02	0.02	0.02	0.02	0.02
14.600	0.02	0.02	0.01	0.01	0.01
14.850	0.01	0.01	0.01	0.01	0.01
15.100	0.01	0.01	0.01	0.01	0.01
15.350	0.01	0.01	0.01	0.01	0.01
15.600	0.01	0.01	0.01	0.01	0.01
15.850	0.01	0.01	0.01	0.01	0.01
16.100	0.01	0.01	0.01	0.01	0.01
16.350	0.01	0.01	0.01	0.01	0.01
16.600	0.01	0.01	0.01	0.01	0.01
16.850	0.01	0.01	0.01	0.01	0.01
17.100	0.01	0.01	0.01	0.01	0.01
17.350	0.01	0.01	0.01	0.01	0.01
17.600	0.01	0.01	0.01	0.01	0.01
17.850	0.01	0.01	0.01	0.01	0.01
18.100	0.01	0.01	0.01	0.01	0.01
18.350	0.01	0.01	0.01	0.01	0.01
18.600	0.01	0.01	0.01	0.01	0.01
18.850	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - IMP Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.100	0.01	0.01	0.01	0.01	0.01
19.350	0.01	0.01	0.01	0.01	0.01
19.600	0.01	0.01	0.01	0.01	0.01
19.850	0.01	0.01	0.01	0.01	0.01
20.100	0.01	0.01	0.01	0.01	0.01
20.350	0.01	0.01	0.01	0.01	0.01
20.600	0.01	0.01	0.01	0.01	0.01
20.850	0.01	0.01	0.01	0.01	0.01
21.100	0.01	0.01	0.01	0.01	0.01
21.350	0.01	0.01	0.01	0.01	0.01
21.600	0.01	0.01	0.01	0.01	0.01
21.850	0.01	0.01	0.01	0.01	0.01
22.100	0.01	0.01	0.01	0.01	0.01
22.350	0.01	0.01	0.01	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.11 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.11 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,990.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	337.768 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	337.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.62 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.600	0.00	0.00	0.00	0.00	0.00
9.850	0.00	0.00	0.00	0.00	0.00
10.100	0.00	0.00	0.00	0.00	0.00
10.350	0.00	0.00	0.00	0.00	0.00
10.600	0.00	0.00	0.00	0.00	0.00
10.850	0.00	0.00	0.00	0.00	0.00
11.100	0.01	0.01	0.01	0.01	0.01
11.350	0.01	0.01	0.01	0.01	0.01
11.600	0.01	0.01	0.02	0.02	0.02
11.850	0.03	0.03	0.04	0.06	0.08
12.100	0.11	0.09	0.06	0.04	0.04
12.350	0.03	0.03	0.02	0.02	0.02
12.600	0.02	0.02	0.02	0.02	0.02
12.850	0.02	0.01	0.01	0.01	0.01
13.100	0.01	0.01	0.01	0.01	0.01
13.350	0.01	0.01	0.01	0.01	0.01
13.600	0.01	0.01	0.01	0.01	0.01
13.850	0.01	0.01	0.01	0.01	0.01
14.100	0.01	0.01	0.01	0.01	0.01
14.350	0.01	0.01	0.01	0.01	0.01
14.600	0.01	0.01	0.01	0.01	0.01
14.850	0.01	0.00	0.00	0.00	0.00
15.100	0.00	0.00	0.00	0.00	0.00
15.350	0.00	0.00	0.00	0.00	0.00
15.600	0.00	0.00	0.00	0.00	0.00
15.850	0.00	0.00	0.00	0.00	0.00
16.100	0.00	0.00	0.00	0.00	0.00
16.350	0.00	0.00	0.00	0.00	0.00
16.600	0.00	0.00	0.00	0.00	0.00
16.850	0.00	0.00	0.00	0.00	0.00
17.100	0.00	0.00	0.00	0.00	0.00
17.350	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.600	0.00	0.00	0.00	0.00	0.00
17.850	0.00	0.00	0.00	0.00	0.00
18.100	0.00	0.00	0.00	0.00	0.00
18.350	0.00	0.00	0.00	0.00	0.00
18.600	0.00	0.00	0.00	0.00	0.00
18.850	0.00	0.00	0.00	0.00	0.00
19.100	0.00	0.00	0.00	0.00	0.00
19.350	0.00	0.00	0.00	0.00	0.00
19.600	0.00	0.00	0.00	0.00	0.00
19.850	0.00	0.00	0.00	0.00	0.00
20.100	0.00	0.00	0.00	0.00	0.00
20.350	0.00	0.00	0.00	0.00	0.00
20.600	0.00	0.00	0.00	0.00	0.00
20.850	0.00	0.00	0.00	0.00	0.00
21.100	0.00	0.00	0.00	0.00	0.00
21.350	0.00	0.00	0.00	0.00	0.00
21.600	0.00	0.00	0.00	0.00	0.00
21.850	0.00	0.00	0.00	0.00	0.00
22.100	0.00	0.00	0.00	0.00	0.00
22.350	0.00	0.00	0.00	0.00	0.00
22.600	0.00	0.00	0.00	0.00	0.00
22.850	0.00	0.00	0.00	0.00	0.00
23.100	0.00	0.00	0.00	0.00	0.00
23.350	0.00	0.00	0.00	0.00	0.00
23.600	0.00	0.00	0.00	0.00	0.00
23.850	0.00	0.00	0.00	0.00	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.22 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.22 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,990.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	665.286 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	665.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.62 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.550	0.00	0.00	0.00	0.00	0.00
7.800	0.00	0.00	0.00	0.00	0.00
8.050	0.00	0.00	0.00	0.00	0.00
8.300	0.00	0.00	0.00	0.00	0.00
8.550	0.00	0.00	0.00	0.00	0.00
8.800	0.00	0.00	0.00	0.00	0.00
9.050	0.00	0.00	0.00	0.00	0.00
9.300	0.00	0.00	0.00	0.00	0.00
9.550	0.00	0.00	0.00	0.00	0.00
9.800	0.00	0.00	0.00	0.00	0.01
10.050	0.01	0.01	0.01	0.01	0.01
10.300	0.01	0.01	0.01	0.01	0.01
10.550	0.01	0.01	0.01	0.01	0.01
10.800	0.01	0.01	0.01	0.01	0.01
11.050	0.01	0.01	0.01	0.02	0.02
11.300	0.02	0.02	0.02	0.02	0.02
11.550	0.03	0.03	0.03	0.03	0.04
11.800	0.05	0.06	0.07	0.09	0.12
12.050	0.17	0.22	0.18	0.11	0.08
12.300	0.07	0.06	0.05	0.05	0.04
12.550	0.04	0.03	0.03	0.03	0.03
12.800	0.03	0.03	0.03	0.02	0.02
13.050	0.02	0.02	0.02	0.02	0.02
13.300	0.02	0.02	0.02	0.02	0.02
13.550	0.01	0.01	0.01	0.01	0.01
13.800	0.01	0.01	0.01	0.01	0.01
14.050	0.01	0.01	0.01	0.01	0.01
14.300	0.01	0.01	0.01	0.01	0.01
14.550	0.01	0.01	0.01	0.01	0.01
14.800	0.01	0.01	0.01	0.01	0.01
15.050	0.01	0.01	0.01	0.01	0.01
15.300	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.550	0.01	0.01	0.01	0.01	0.01
15.800	0.01	0.01	0.01	0.01	0.01
16.050	0.01	0.01	0.01	0.01	0.01
16.300	0.01	0.01	0.01	0.01	0.01
16.550	0.01	0.01	0.01	0.01	0.01
16.800	0.01	0.01	0.01	0.01	0.01
17.050	0.01	0.01	0.01	0.01	0.01
17.300	0.01	0.01	0.01	0.01	0.01
17.550	0.01	0.01	0.01	0.01	0.00
17.800	0.00	0.00	0.00	0.00	0.00
18.050	0.00	0.00	0.00	0.00	0.00
18.300	0.00	0.00	0.00	0.00	0.00
18.550	0.00	0.00	0.00	0.00	0.00
18.800	0.00	0.00	0.00	0.00	0.00
19.050	0.00	0.00	0.00	0.00	0.00
19.300	0.00	0.00	0.00	0.00	0.00
19.550	0.00	0.00	0.00	0.00	0.00
19.800	0.00	0.00	0.00	0.00	0.00
20.050	0.00	0.00	0.00	0.00	0.00
20.300	0.00	0.00	0.00	0.00	0.00
20.550	0.00	0.00	0.00	0.00	0.00
20.800	0.00	0.00	0.00	0.00	0.00
21.050	0.00	0.00	0.00	0.00	0.00
21.300	0.00	0.00	0.00	0.00	0.00
21.550	0.00	0.00	0.00	0.00	0.00
21.800	0.00	0.00	0.00	0.00	0.00
22.050	0.00	0.00	0.00	0.00	0.00
22.300	0.00	0.00	0.00	0.00	0.00
22.550	0.00	0.00	0.00	0.00	0.00
22.800	0.00	0.00	0.00	0.00	0.00
23.050	0.00	0.00	0.00	0.00	0.00
23.300	0.00	0.00	0.00	0.00	0.00
23.550	0.00	0.00	0.00	0.00	0.00
23.800	0.00	0.00	0.00	0.00	0.00

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.47 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.46 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	1,990.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	1,467.281 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,466.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: BYPASS ENTRANCE - PERV
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.62 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	1,990.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.650	0.00	0.00	0.00	0.00	0.00
4.900	0.00	0.00	0.00	0.00	0.00
5.150	0.00	0.00	0.00	0.00	0.00
5.400	0.00	0.00	0.00	0.00	0.00
5.650	0.00	0.00	0.00	0.00	0.00
5.900	0.00	0.00	0.00	0.00	0.00
6.150	0.00	0.00	0.00	0.00	0.00
6.400	0.00	0.00	0.00	0.00	0.00
6.650	0.00	0.00	0.00	0.00	0.00
6.900	0.00	0.00	0.00	0.00	0.00
7.150	0.00	0.00	0.00	0.00	0.00
7.400	0.01	0.01	0.01	0.01	0.01
7.650	0.01	0.01	0.01	0.01	0.01
7.900	0.01	0.01	0.01	0.01	0.01
8.150	0.01	0.01	0.01	0.01	0.01
8.400	0.01	0.01	0.01	0.01	0.01
8.650	0.01	0.01	0.01	0.01	0.01
8.900	0.01	0.01	0.01	0.01	0.01
9.150	0.01	0.01	0.01	0.01	0.01
9.400	0.01	0.01	0.01	0.01	0.01
9.650	0.01	0.01	0.01	0.01	0.01
9.900	0.01	0.02	0.02	0.02	0.02
10.150	0.02	0.02	0.02	0.02	0.02
10.400	0.02	0.02	0.02	0.02	0.02
10.650	0.02	0.02	0.03	0.03	0.03
10.900	0.03	0.03	0.03	0.03	0.04
11.150	0.04	0.04	0.04	0.05	0.05
11.400	0.05	0.05	0.06	0.06	0.07
11.650	0.08	0.08	0.09	0.11	0.13
11.900	0.15	0.21	0.27	0.36	0.46
12.150	0.37	0.22	0.17	0.14	0.12
12.400	0.10	0.09	0.09	0.08	0.07

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.650	0.07	0.06	0.06	0.06	0.05
12.900	0.05	0.05	0.05	0.04	0.04
13.150	0.04	0.04	0.04	0.04	0.03
13.400	0.03	0.03	0.03	0.03	0.03
13.650	0.03	0.03	0.03	0.03	0.03
13.900	0.03	0.02	0.02	0.02	0.02
14.150	0.02	0.02	0.02	0.02	0.02
14.400	0.02	0.02	0.02	0.02	0.02
14.650	0.02	0.02	0.02	0.02	0.02
14.900	0.02	0.02	0.02	0.02	0.02
15.150	0.02	0.02	0.02	0.02	0.02
15.400	0.01	0.01	0.01	0.01	0.01
15.650	0.01	0.01	0.01	0.01	0.01
15.900	0.01	0.01	0.01	0.01	0.01
16.150	0.01	0.01	0.01	0.01	0.01
16.400	0.01	0.01	0.01	0.01	0.01
16.650	0.01	0.01	0.01	0.01	0.01
16.900	0.01	0.01	0.01	0.01	0.01
17.150	0.01	0.01	0.01	0.01	0.01
17.400	0.01	0.01	0.01	0.01	0.01
17.650	0.01	0.01	0.01	0.01	0.01
17.900	0.01	0.01	0.01	0.01	0.01
18.150	0.01	0.01	0.01	0.01	0.01
18.400	0.01	0.01	0.01	0.01	0.01
18.650	0.01	0.01	0.01	0.01	0.01
18.900	0.01	0.01	0.01	0.01	0.01
19.150	0.01	0.01	0.01	0.01	0.01
19.400	0.01	0.01	0.01	0.01	0.01
19.650	0.01	0.01	0.01	0.01	0.01
19.900	0.01	0.01	0.01	0.01	0.01
20.150	0.01	0.01	0.01	0.01	0.01
20.400	0.01	0.01	0.01	0.01	0.01
20.650	0.01	0.01	0.01	0.01	0.01
20.900	0.01	0.01	0.01	0.01	0.01
21.150	0.01	0.01	0.01	0.01	0.01
21.400	0.01	0.01	0.01	0.01	0.01
21.650	0.01	0.01	0.01	0.01	0.01
21.900	0.01	0.01	0.01	0.01	0.01
22.150	0.01	0.01	0.01	0.01	0.01
22.400	0.01	0.01	0.01	0.01	0.01
22.650	0.01	0.01	0.01	0.01	0.01
22.900	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: BYPASS ENTRANCE - PERV Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
23.150	0.01	0.01	0.01	0.01	0.01
23.400	0.01	0.01	0.01	0.01	0.01
23.650	0.01	0.01	0.01	0.01	0.01
23.900	0.01	0.01	0.01	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.56 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.55 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	6,020.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	1,933.872 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,932.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.88 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.250	0.00	0.00	0.00	0.00	0.00
1.500	0.00	0.00	0.00	0.00	0.00
1.750	0.00	0.00	0.00	0.00	0.00
2.000	0.00	0.00	0.00	0.00	0.00
2.250	0.00	0.00	0.00	0.00	0.00
2.500	0.00	0.00	0.00	0.00	0.00
2.750	0.00	0.00	0.00	0.00	0.00
3.000	0.00	0.00	0.00	0.00	0.00
3.250	0.01	0.01	0.01	0.01	0.01
3.500	0.01	0.01	0.01	0.01	0.01
3.750	0.01	0.01	0.01	0.01	0.01
4.000	0.01	0.01	0.01	0.01	0.01
4.250	0.01	0.01	0.01	0.01	0.01
4.500	0.01	0.01	0.01	0.01	0.01
4.750	0.01	0.01	0.01	0.01	0.01
5.000	0.01	0.01	0.01	0.01	0.01
5.250	0.01	0.01	0.01	0.01	0.01
5.500	0.01	0.01	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.01	0.01	0.01	0.01	0.01
6.500	0.01	0.01	0.01	0.01	0.01
6.750	0.01	0.01	0.01	0.01	0.01
7.000	0.01	0.01	0.01	0.01	0.01
7.250	0.01	0.01	0.01	0.01	0.01
7.500	0.01	0.01	0.01	0.01	0.01
7.750	0.01	0.01	0.01	0.01	0.01
8.000	0.01	0.01	0.01	0.01	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.02	0.02	0.02
9.000	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.250	0.02	0.02	0.02	0.02	0.02
9.500	0.02	0.02	0.02	0.02	0.02
9.750	0.02	0.02	0.02	0.02	0.02
10.000	0.03	0.03	0.03	0.03	0.03
10.250	0.03	0.03	0.03	0.03	0.03
10.500	0.03	0.03	0.03	0.03	0.04
10.750	0.04	0.04	0.04	0.04	0.04
11.000	0.05	0.05	0.05	0.05	0.06
11.250	0.06	0.06	0.07	0.07	0.07
11.500	0.07	0.08	0.10	0.10	0.11
11.750	0.12	0.14	0.17	0.20	0.26
12.000	0.33	0.44	0.55	0.44	0.26
12.250	0.20	0.16	0.14	0.11	0.11
12.500	0.10	0.09	0.08	0.08	0.07
12.750	0.07	0.07	0.06	0.06	0.06
13.000	0.05	0.05	0.05	0.05	0.04
13.250	0.04	0.04	0.04	0.04	0.04
13.500	0.03	0.03	0.03	0.03	0.03
13.750	0.03	0.03	0.03	0.03	0.03
14.000	0.03	0.03	0.03	0.03	0.03
14.250	0.03	0.02	0.02	0.02	0.02
14.500	0.02	0.02	0.02	0.02	0.02
14.750	0.02	0.02	0.02	0.02	0.02
15.000	0.02	0.02	0.02	0.02	0.02
15.250	0.02	0.02	0.02	0.02	0.02
15.500	0.02	0.02	0.02	0.02	0.02
15.750	0.02	0.02	0.02	0.02	0.02
16.000	0.02	0.02	0.02	0.01	0.01
16.250	0.01	0.01	0.01	0.01	0.01
16.500	0.01	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.87 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.87 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	6,020.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	3,075.958 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	3,074.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.88 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.750	0.00	0.00	0.00	0.00	0.00
1.000	0.00	0.00	0.00	0.00	0.00
1.250	0.00	0.00	0.00	0.00	0.00
1.500	0.00	0.00	0.01	0.01	0.01
1.750	0.01	0.01	0.01	0.01	0.01
2.000	0.01	0.01	0.01	0.01	0.01
2.250	0.01	0.01	0.01	0.01	0.01
2.500	0.01	0.01	0.01	0.01	0.01
2.750	0.01	0.01	0.01	0.01	0.01
3.000	0.01	0.01	0.01	0.01	0.01
3.250	0.01	0.01	0.01	0.01	0.01
3.500	0.01	0.01	0.01	0.01	0.01
3.750	0.01	0.01	0.01	0.01	0.01
4.000	0.01	0.01	0.01	0.01	0.01
4.250	0.01	0.01	0.01	0.01	0.01
4.500	0.01	0.01	0.01	0.01	0.01
4.750	0.01	0.01	0.01	0.01	0.01
5.000	0.01	0.01	0.01	0.01	0.01
5.250	0.01	0.01	0.01	0.01	0.01
5.500	0.01	0.01	0.01	0.01	0.01
5.750	0.01	0.01	0.01	0.01	0.01
6.000	0.01	0.01	0.01	0.01	0.01
6.250	0.02	0.02	0.02	0.02	0.02
6.500	0.02	0.02	0.02	0.02	0.02
6.750	0.02	0.02	0.02	0.02	0.02
7.000	0.02	0.02	0.02	0.02	0.02
7.250	0.02	0.02	0.02	0.02	0.02
7.500	0.02	0.02	0.02	0.02	0.02
7.750	0.02	0.02	0.02	0.02	0.02
8.000	0.02	0.02	0.02	0.02	0.02
8.250	0.02	0.02	0.02	0.02	0.02
8.500	0.02	0.02	0.02	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.750	0.03	0.03	0.03	0.03	0.03
9.000	0.03	0.03	0.03	0.03	0.03
9.250	0.03	0.03	0.03	0.03	0.03
9.500	0.03	0.03	0.03	0.04	0.04
9.750	0.04	0.04	0.04	0.04	0.04
10.000	0.04	0.04	0.04	0.04	0.04
10.250	0.04	0.04	0.05	0.05	0.05
10.500	0.05	0.05	0.05	0.05	0.06
10.750	0.06	0.06	0.06	0.07	0.07
11.000	0.07	0.08	0.08	0.09	0.09
11.250	0.09	0.10	0.10	0.11	0.11
11.500	0.12	0.13	0.15	0.16	0.17
11.750	0.19	0.22	0.26	0.31	0.40
12.000	0.52	0.68	0.87	0.68	0.41
12.250	0.31	0.25	0.21	0.18	0.17
12.500	0.16	0.15	0.13	0.12	0.11
12.750	0.11	0.10	0.10	0.09	0.09
13.000	0.08	0.08	0.08	0.07	0.07
13.250	0.07	0.06	0.06	0.06	0.06
13.500	0.05	0.05	0.05	0.05	0.05
13.750	0.05	0.05	0.05	0.04	0.04
14.000	0.04	0.04	0.04	0.04	0.04
14.250	0.04	0.04	0.04	0.04	0.04
14.500	0.04	0.04	0.03	0.03	0.03
14.750	0.03	0.03	0.03	0.03	0.03
15.000	0.03	0.03	0.03	0.03	0.03
15.250	0.03	0.03	0.03	0.03	0.03
15.500	0.03	0.03	0.03	0.03	0.03
15.750	0.02	0.02	0.02	0.02	0.02
16.000	0.02	0.02	0.02	0.02	0.02
16.250	0.02	0.02	0.02	0.02	0.02
16.500	0.02	0.02	0.02	0.02	0.02
16.750	0.02	0.02	0.02	0.02	0.02
17.000	0.02	0.02	0.02	0.02	0.02
17.250	0.02	0.02	0.02	0.02	0.02
17.500	0.02	0.02	0.02	0.02	0.02
17.750	0.02	0.02	0.02	0.02	0.02
18.000	0.02	0.02	0.02	0.02	0.02
18.250	0.02	0.02	0.02	0.02	0.02
18.500	0.02	0.02	0.02	0.02	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.58 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.57 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	6,020.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	5,658.131 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5,654.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.88 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	6,020.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.400	0.00	0.00	0.00	0.00	0.00
0.650	0.00	0.01	0.01	0.01	0.01
0.900	0.01	0.01	0.01	0.01	0.01
1.150	0.01	0.01	0.01	0.01	0.01
1.400	0.01	0.01	0.01	0.01	0.01
1.650	0.01	0.01	0.01	0.02	0.02
1.900	0.02	0.02	0.02	0.02	0.02
2.150	0.02	0.02	0.02	0.02	0.02
2.400	0.02	0.02	0.02	0.02	0.02
2.650	0.02	0.02	0.02	0.02	0.02
2.900	0.02	0.02	0.02	0.02	0.02
3.150	0.02	0.02	0.02	0.02	0.02
3.400	0.02	0.02	0.02	0.02	0.02
3.650	0.02	0.02	0.02	0.02	0.02
3.900	0.02	0.02	0.02	0.02	0.02
4.150	0.02	0.02	0.02	0.02	0.02
4.400	0.02	0.02	0.02	0.02	0.02
4.650	0.02	0.02	0.02	0.02	0.02
4.900	0.02	0.02	0.03	0.03	0.03
5.150	0.03	0.03	0.03	0.03	0.03
5.400	0.03	0.03	0.03	0.03	0.03
5.650	0.03	0.03	0.03	0.03	0.03
5.900	0.03	0.03	0.03	0.03	0.03
6.150	0.03	0.03	0.03	0.03	0.03
6.400	0.03	0.03	0.03	0.03	0.03
6.650	0.03	0.03	0.03	0.03	0.03
6.900	0.03	0.03	0.03	0.03	0.04
7.150	0.04	0.04	0.04	0.04	0.04
7.400	0.04	0.04	0.04	0.04	0.04
7.650	0.04	0.04	0.04	0.04	0.04
7.900	0.04	0.04	0.04	0.04	0.04
8.150	0.04	0.04	0.04	0.04	0.04

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.400	0.04	0.04	0.05	0.05	0.05
8.650	0.05	0.05	0.05	0.05	0.05
8.900	0.05	0.05	0.05	0.05	0.05
9.150	0.05	0.05	0.05	0.06	0.06
9.400	0.06	0.06	0.06	0.06	0.06
9.650	0.07	0.07	0.07	0.07	0.07
9.900	0.07	0.07	0.07	0.08	0.08
10.150	0.08	0.08	0.08	0.08	0.08
10.400	0.08	0.09	0.09	0.09	0.10
10.650	0.10	0.10	0.11	0.11	0.12
10.900	0.12	0.13	0.13	0.14	0.15
11.150	0.16	0.16	0.17	0.18	0.19
11.400	0.20	0.20	0.21	0.24	0.28
11.650	0.29	0.30	0.35	0.40	0.48
11.900	0.56	0.73	0.94	1.24	1.57
12.150	1.24	0.74	0.56	0.45	0.38
12.400	0.32	0.30	0.29	0.26	0.23
12.650	0.21	0.20	0.19	0.19	0.18
12.900	0.17	0.16	0.15	0.14	0.14
13.150	0.13	0.13	0.12	0.12	0.11
13.400	0.11	0.10	0.10	0.09	0.09
13.650	0.09	0.09	0.08	0.08	0.08
13.900	0.08	0.08	0.08	0.08	0.08
14.150	0.07	0.07	0.07	0.07	0.07
14.400	0.07	0.07	0.07	0.06	0.06
14.650	0.06	0.06	0.06	0.06	0.06
14.900	0.05	0.05	0.05	0.05	0.05
15.150	0.05	0.05	0.05	0.05	0.05
15.400	0.05	0.05	0.05	0.05	0.05
15.650	0.05	0.05	0.05	0.04	0.04
15.900	0.04	0.04	0.04	0.04	0.04
16.150	0.04	0.04	0.04	0.04	0.04
16.400	0.04	0.04	0.04	0.04	0.04
16.650	0.04	0.04	0.04	0.04	0.04
16.900	0.04	0.04	0.04	0.04	0.04
17.150	0.04	0.03	0.03	0.03	0.03
17.400	0.03	0.03	0.03	0.03	0.03
17.650	0.03	0.03	0.03	0.03	0.03
17.900	0.03	0.03	0.03	0.03	0.03
18.150	0.03	0.03	0.03	0.03	0.03
18.400	0.03	0.03	0.03	0.03	0.03
18.650	0.03	0.03	0.03	0.03	0.03

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.900	0.03	0.03	0.03	0.03	0.03
19.150	0.03	0.03	0.03	0.03	0.03
19.400	0.03	0.03	0.03	0.03	0.03
19.650	0.03	0.03	0.03	0.03	0.02
19.900	0.02	0.02	0.02	0.02	0.02
20.150	0.02	0.02	0.02	0.02	0.02
20.400	0.02	0.02	0.02	0.02	0.02
20.650	0.02	0.02	0.02	0.02	0.02
20.900	0.02	0.02	0.02	0.02	0.02
21.150	0.02	0.02	0.02	0.02	0.02
21.400	0.02	0.02	0.02	0.02	0.02
21.650	0.02	0.02	0.02	0.02	0.02
21.900	0.02	0.02	0.02	0.02	0.02
22.150	0.02	0.02	0.02	0.02	0.02
22.400	0.02	0.02	0.02	0.02	0.02
22.650	0.02	0.02	0.02	0.02	0.02
22.900	0.02	0.02	0.02	0.02	0.02
23.150	0.02	0.02	0.02	0.02	0.02
23.400	0.02	0.02	0.02	0.02	0.02
23.650	0.02	0.02	0.02	0.02	0.02
23.900	0.02	0.02	0.02	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.50 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.50 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	5,432.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	3.9 in
Runoff Volume (Pervious)	1,744.982 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,744.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.70 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
1.300	0.00	0.00	0.00	0.00	0.00
1.550	0.00	0.00	0.00	0.00	0.00
1.800	0.00	0.00	0.00	0.00	0.00
2.050	0.00	0.00	0.00	0.00	0.00
2.300	0.00	0.00	0.00	0.00	0.00
2.550	0.00	0.00	0.00	0.00	0.00
2.800	0.00	0.00	0.00	0.00	0.00
3.050	0.00	0.00	0.00	0.00	0.00
3.300	0.00	0.00	0.00	0.00	0.00
3.550	0.00	0.01	0.01	0.01	0.01
3.800	0.01	0.01	0.01	0.01	0.01
4.050	0.01	0.01	0.01	0.01	0.01
4.300	0.01	0.01	0.01	0.01	0.01
4.550	0.01	0.01	0.01	0.01	0.01
4.800	0.01	0.01	0.01	0.01	0.01
5.050	0.01	0.01	0.01	0.01	0.01
5.300	0.01	0.01	0.01	0.01	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.01	0.01	0.01
6.050	0.01	0.01	0.01	0.01	0.01
6.300	0.01	0.01	0.01	0.01	0.01
6.550	0.01	0.01	0.01	0.01	0.01
6.800	0.01	0.01	0.01	0.01	0.01
7.050	0.01	0.01	0.01	0.01	0.01
7.300	0.01	0.01	0.01	0.01	0.01
7.550	0.01	0.01	0.01	0.01	0.01
7.800	0.01	0.01	0.01	0.01	0.01
8.050	0.01	0.01	0.01	0.01	0.01
8.300	0.01	0.01	0.01	0.01	0.01
8.550	0.01	0.01	0.01	0.01	0.01
8.800	0.01	0.01	0.01	0.01	0.01
9.050	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.300	0.02	0.02	0.02	0.02	0.02
9.550	0.02	0.02	0.02	0.02	0.02
9.800	0.02	0.02	0.02	0.02	0.02
10.050	0.02	0.02	0.02	0.02	0.02
10.300	0.03	0.03	0.03	0.03	0.03
10.550	0.03	0.03	0.03	0.03	0.03
10.800	0.04	0.04	0.04	0.04	0.04
11.050	0.04	0.05	0.05	0.05	0.05
11.300	0.06	0.06	0.06	0.06	0.07
11.550	0.08	0.09	0.09	0.10	0.11
11.800	0.13	0.15	0.18	0.23	0.30
12.050	0.39	0.50	0.40	0.24	0.18
12.300	0.14	0.12	0.10	0.10	0.09
12.550	0.08	0.07	0.07	0.06	0.06
12.800	0.06	0.06	0.05	0.05	0.05
13.050	0.05	0.04	0.04	0.04	0.04
13.300	0.04	0.04	0.03	0.03	0.03
13.550	0.03	0.03	0.03	0.03	0.03
13.800	0.03	0.03	0.03	0.03	0.02
14.050	0.02	0.02	0.02	0.02	0.02
14.300	0.02	0.02	0.02	0.02	0.02
14.550	0.02	0.02	0.02	0.02	0.02
14.800	0.02	0.02	0.02	0.02	0.02
15.050	0.02	0.02	0.02	0.02	0.02
15.300	0.02	0.02	0.02	0.02	0.01
15.550	0.01	0.01	0.01	0.01	0.01
15.800	0.01	0.01	0.01	0.01	0.01
16.050	0.01	0.01	0.01	0.01	0.01
16.300	0.01	0.01	0.01	0.01	0.01
16.550	0.01	0.01	0.01	0.01	0.01
16.800	0.01	0.01	0.01	0.01	0.01
17.050	0.01	0.01	0.01	0.01	0.01
17.300	0.01	0.01	0.01	0.01	0.01
17.550	0.01	0.01	0.01	0.01	0.01
17.800	0.01	0.01	0.01	0.01	0.01
18.050	0.01	0.01	0.01	0.01	0.01
18.300	0.01	0.01	0.01	0.01	0.01
18.550	0.01	0.01	0.01	0.01	0.01
18.800	0.01	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.01
20.550	0.01	0.01	0.01	0.01	0.01
20.800	0.01	0.01	0.01	0.01	0.01
21.050	0.01	0.01	0.01	0.01	0.01
21.300	0.01	0.01	0.01	0.01	0.01
21.550	0.01	0.01	0.01	0.01	0.01
21.800	0.01	0.01	0.01	0.01	0.01
22.050	0.01	0.01	0.01	0.01	0.01
22.300	0.01	0.01	0.01	0.01	0.01
22.550	0.01	0.01	0.01	0.01	0.01
22.800	0.01	0.01	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.01
23.550	0.01	0.01	0.01	0.01	0.01
23.800	0.01	0.01	0.01	0.01	0.01

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.79 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.78 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	5,432.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	6.1 in
Runoff Volume (Pervious)	2,775.515 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,773.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.70 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.800	0.00	0.00	0.00	0.00	0.00
1.050	0.00	0.00	0.00	0.00	0.00
1.300	0.00	0.00	0.00	0.00	0.00
1.550	0.00	0.00	0.00	0.00	0.01
1.800	0.01	0.01	0.01	0.01	0.01
2.050	0.01	0.01	0.01	0.01	0.01
2.300	0.01	0.01	0.01	0.01	0.01
2.550	0.01	0.01	0.01	0.01	0.01
2.800	0.01	0.01	0.01	0.01	0.01
3.050	0.01	0.01	0.01	0.01	0.01
3.300	0.01	0.01	0.01	0.01	0.01
3.550	0.01	0.01	0.01	0.01	0.01
3.800	0.01	0.01	0.01	0.01	0.01
4.050	0.01	0.01	0.01	0.01	0.01
4.300	0.01	0.01	0.01	0.01	0.01
4.550	0.01	0.01	0.01	0.01	0.01
4.800	0.01	0.01	0.01	0.01	0.01
5.050	0.01	0.01	0.01	0.01	0.01
5.300	0.01	0.01	0.01	0.01	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.01	0.01	0.01
6.050	0.01	0.01	0.01	0.01	0.01
6.300	0.01	0.01	0.01	0.01	0.01
6.550	0.01	0.01	0.02	0.02	0.02
6.800	0.02	0.02	0.02	0.02	0.02
7.050	0.02	0.02	0.02	0.02	0.02
7.300	0.02	0.02	0.02	0.02	0.02
7.550	0.02	0.02	0.02	0.02	0.02
7.800	0.02	0.02	0.02	0.02	0.02
8.050	0.02	0.02	0.02	0.02	0.02
8.300	0.02	0.02	0.02	0.02	0.02
8.550	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.800	0.02	0.02	0.02	0.02	0.02
9.050	0.02	0.03	0.03	0.03	0.03
9.300	0.03	0.03	0.03	0.03	0.03
9.550	0.03	0.03	0.03	0.03	0.03
9.800	0.03	0.03	0.04	0.04	0.04
10.050	0.04	0.04	0.04	0.04	0.04
10.300	0.04	0.04	0.04	0.04	0.04
10.550	0.04	0.05	0.05	0.05	0.05
10.800	0.06	0.06	0.06	0.06	0.07
11.050	0.07	0.07	0.08	0.08	0.09
11.300	0.09	0.09	0.10	0.10	0.11
11.550	0.12	0.14	0.15	0.15	0.17
11.800	0.20	0.24	0.28	0.36	0.47
12.050	0.62	0.78	0.62	0.37	0.28
12.300	0.22	0.19	0.16	0.15	0.15
12.550	0.13	0.11	0.11	0.10	0.10
12.800	0.09	0.09	0.08	0.08	0.08
13.050	0.07	0.07	0.07	0.06	0.06
13.300	0.06	0.06	0.05	0.05	0.05
13.550	0.05	0.04	0.04	0.04	0.04
13.800	0.04	0.04	0.04	0.04	0.04
14.050	0.04	0.04	0.04	0.04	0.04
14.300	0.04	0.03	0.03	0.03	0.03
14.550	0.03	0.03	0.03	0.03	0.03
14.800	0.03	0.03	0.03	0.03	0.03
15.050	0.03	0.02	0.02	0.02	0.02
15.300	0.02	0.02	0.02	0.02	0.02
15.550	0.02	0.02	0.02	0.02	0.02
15.800	0.02	0.02	0.02	0.02	0.02
16.050	0.02	0.02	0.02	0.02	0.02
16.300	0.02	0.02	0.02	0.02	0.02
16.550	0.02	0.02	0.02	0.02	0.02
16.800	0.02	0.02	0.02	0.02	0.02
17.050	0.02	0.02	0.02	0.02	0.02
17.300	0.02	0.02	0.02	0.02	0.02
17.550	0.02	0.02	0.02	0.02	0.02
17.800	0.02	0.01	0.01	0.01	0.01
18.050	0.01	0.01	0.01	0.01	0.01
18.300	0.01	0.01	0.01	0.01	0.01
18.550	0.01	0.01	0.01	0.01	0.01
18.800	0.01	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.01	0.01	0.01	0.01	0.01
20.550	0.01	0.01	0.01	0.01	0.01
20.800	0.01	0.01	0.01	0.01	0.01
21.050	0.01	0.01	0.01	0.01	0.01
21.300	0.01	0.01	0.01	0.01	0.01
21.550	0.01	0.01	0.01	0.01	0.01
21.800	0.01	0.01	0.01	0.01	0.01
22.050	0.01	0.01	0.01	0.01	0.01
22.300	0.01	0.01	0.01	0.01	0.01
22.550	0.01	0.01	0.01	0.01	0.01
22.800	0.01	0.01	0.01	0.01	0.01
23.050	0.01	0.01	0.01	0.01	0.01
23.300	0.01	0.01	0.01	0.01	0.01
23.550	0.01	0.01	0.01	0.01	0.01
23.800	0.01	0.01	0.01	0.01	0.01

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	1.43 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	1.42 ft³/s

Drainage Area	
SCS CN (Composite)	98.000
Area (User Defined)	5,432.00 ft²
Maximum Retention (Pervious)	0.2 in
Maximum Retention (Pervious, 20 percent)	0.0 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	11.3 in
Runoff Volume (Pervious)	5,105.476 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	5,102.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: IMP - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.70 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	5,432.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
0.400	0.00	0.00	0.00	0.00	0.00
0.650	0.00	0.01	0.01	0.01	0.01
0.900	0.01	0.01	0.01	0.01	0.01
1.150	0.01	0.01	0.01	0.01	0.01
1.400	0.01	0.01	0.01	0.01	0.01
1.650	0.01	0.01	0.01	0.01	0.01
1.900	0.01	0.01	0.01	0.01	0.02
2.150	0.02	0.02	0.02	0.02	0.02
2.400	0.02	0.02	0.02	0.02	0.02
2.650	0.02	0.02	0.02	0.02	0.02
2.900	0.02	0.02	0.02	0.02	0.02
3.150	0.02	0.02	0.02	0.02	0.02
3.400	0.02	0.02	0.02	0.02	0.02
3.650	0.02	0.02	0.02	0.02	0.02
3.900	0.02	0.02	0.02	0.02	0.02
4.150	0.02	0.02	0.02	0.02	0.02
4.400	0.02	0.02	0.02	0.02	0.02
4.650	0.02	0.02	0.02	0.02	0.02
4.900	0.02	0.02	0.02	0.02	0.02
5.150	0.02	0.02	0.02	0.02	0.02
5.400	0.02	0.02	0.02	0.02	0.02
5.650	0.02	0.02	0.02	0.02	0.02
5.900	0.02	0.02	0.02	0.02	0.03
6.150	0.03	0.03	0.03	0.03	0.03
6.400	0.03	0.03	0.03	0.03	0.03
6.650	0.03	0.03	0.03	0.03	0.03
6.900	0.03	0.03	0.03	0.03	0.03
7.150	0.03	0.03	0.03	0.03	0.03
7.400	0.03	0.03	0.03	0.03	0.03
7.650	0.04	0.04	0.04	0.04	0.04
7.900	0.04	0.04	0.04	0.04	0.04
8.150	0.04	0.04	0.04	0.04	0.04

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.400	0.04	0.04	0.04	0.04	0.04
8.650	0.04	0.04	0.04	0.04	0.04
8.900	0.04	0.04	0.04	0.05	0.05
9.150	0.05	0.05	0.05	0.05	0.05
9.400	0.05	0.05	0.06	0.06	0.06
9.650	0.06	0.06	0.06	0.06	0.06
9.900	0.06	0.07	0.07	0.07	0.07
10.150	0.07	0.07	0.07	0.07	0.07
10.400	0.08	0.08	0.08	0.08	0.09
10.650	0.09	0.09	0.10	0.10	0.11
10.900	0.11	0.11	0.12	0.13	0.13
11.150	0.14	0.15	0.15	0.16	0.17
11.400	0.18	0.18	0.19	0.22	0.25
11.650	0.26	0.27	0.31	0.36	0.43
11.900	0.50	0.66	0.85	1.12	1.42
12.150	1.12	0.67	0.50	0.41	0.35
12.400	0.29	0.27	0.26	0.24	0.20
12.650	0.19	0.18	0.17	0.17	0.16
12.900	0.15	0.15	0.14	0.13	0.12
13.150	0.12	0.11	0.11	0.11	0.10
13.400	0.10	0.09	0.09	0.08	0.08
13.650	0.08	0.08	0.08	0.07	0.07
13.900	0.07	0.07	0.07	0.07	0.07
14.150	0.07	0.07	0.06	0.06	0.06
14.400	0.06	0.06	0.06	0.06	0.06
14.650	0.06	0.05	0.05	0.05	0.05
14.900	0.05	0.05	0.05	0.05	0.05
15.150	0.04	0.04	0.04	0.04	0.04
15.400	0.04	0.04	0.04	0.04	0.04
15.650	0.04	0.04	0.04	0.04	0.04
15.900	0.04	0.04	0.04	0.04	0.04
16.150	0.04	0.04	0.04	0.04	0.04
16.400	0.04	0.04	0.04	0.04	0.04
16.650	0.03	0.03	0.03	0.03	0.03
16.900	0.03	0.03	0.03	0.03	0.03
17.150	0.03	0.03	0.03	0.03	0.03
17.400	0.03	0.03	0.03	0.03	0.03
17.650	0.03	0.03	0.03	0.03	0.03
17.900	0.03	0.03	0.03	0.03	0.03
18.150	0.03	0.03	0.03	0.03	0.03
18.400	0.02	0.02	0.02	0.02	0.02
18.650	0.02	0.02	0.02	0.02	0.02

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: IMP - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
18.900	0.02	0.02	0.02	0.02	0.02
19.150	0.02	0.02	0.02	0.02	0.02
19.400	0.02	0.02	0.02	0.02	0.02
19.650	0.02	0.02	0.02	0.02	0.02
19.900	0.02	0.02	0.02	0.02	0.02
20.150	0.02	0.02	0.02	0.02	0.02
20.400	0.02	0.02	0.02	0.02	0.02
20.650	0.02	0.02	0.02	0.02	0.02
20.900	0.02	0.02	0.02	0.02	0.02
21.150	0.02	0.02	0.02	0.02	0.02
21.400	0.02	0.02	0.02	0.02	0.02
21.650	0.02	0.02	0.02	0.02	0.02
21.900	0.02	0.02	0.02	0.02	0.02
22.150	0.02	0.02	0.02	0.02	0.02
22.400	0.02	0.02	0.02	0.02	0.02
22.650	0.02	0.02	0.02	0.02	0.02
22.900	0.02	0.02	0.02	0.02	0.02
23.150	0.02	0.02	0.02	0.02	0.02
23.400	0.02	0.02	0.02	0.02	0.02
23.650	0.02	0.02	0.02	0.02	0.02
23.900	0.02	0.02	0.02	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.14 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.14 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	426.029 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	425.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.78 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.400	0.00	0.00	0.00	0.00	0.00
9.650	0.00	0.00	0.00	0.00	0.00
9.900	0.00	0.00	0.00	0.00	0.00
10.150	0.00	0.00	0.00	0.00	0.00
10.400	0.00	0.00	0.00	0.00	0.00
10.650	0.00	0.00	0.00	0.00	0.00
10.900	0.01	0.01	0.01	0.01	0.01
11.150	0.01	0.01	0.01	0.01	0.01
11.400	0.01	0.01	0.01	0.01	0.02
11.650	0.02	0.02	0.02	0.03	0.03
11.900	0.04	0.06	0.08	0.11	0.14
12.150	0.12	0.07	0.06	0.05	0.04
12.400	0.03	0.03	0.03	0.03	0.02
12.650	0.02	0.02	0.02	0.02	0.02
12.900	0.02	0.02	0.02	0.02	0.01
13.150	0.01	0.01	0.01	0.01	0.01
13.400	0.01	0.01	0.01	0.01	0.01
13.650	0.01	0.01	0.01	0.01	0.01
13.900	0.01	0.01	0.01	0.01	0.01
14.150	0.01	0.01	0.01	0.01	0.01
14.400	0.01	0.01	0.01	0.01	0.01
14.650	0.01	0.01	0.01	0.01	0.01
14.900	0.01	0.01	0.01	0.01	0.01
15.150	0.01	0.01	0.01	0.01	0.01
15.400	0.01	0.01	0.01	0.01	0.01
15.650	0.01	0.01	0.01	0.01	0.01
15.900	0.01	0.01	0.01	0.00	0.00
16.150	0.00	0.00	0.00	0.00	0.00
16.400	0.00	0.00	0.00	0.00	0.00
16.650	0.00	0.00	0.00	0.00	0.00
16.900	0.00	0.00	0.00	0.00	0.00
17.150	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.400	0.00	0.00	0.00	0.00	0.00
17.650	0.00	0.00	0.00	0.00	0.00
17.900	0.00	0.00	0.00	0.00	0.00
18.150	0.00	0.00	0.00	0.00	0.00
18.400	0.00	0.00	0.00	0.00	0.00
18.650	0.00	0.00	0.00	0.00	0.00
18.900	0.00	0.00	0.00	0.00	0.00
19.150	0.00	0.00	0.00	0.00	0.00
19.400	0.00	0.00	0.00	0.00	0.00
19.650	0.00	0.00	0.00	0.00	0.00
19.900	0.00	0.00	0.00	0.00	0.00
20.150	0.00	0.00	0.00	0.00	0.00
20.400	0.00	0.00	0.00	0.00	0.00
20.650	0.00	0.00	0.00	0.00	0.00
20.900	0.00	0.00	0.00	0.00	0.00
21.150	0.00	0.00	0.00	0.00	0.00
21.400	0.00	0.00	0.00	0.00	0.00
21.650	0.00	0.00	0.00	0.00	0.00
21.900	0.00	0.00	0.00	0.00	0.00
22.150	0.00	0.00	0.00	0.00	0.00
22.400	0.00	0.00	0.00	0.00	0.00
22.650	0.00	0.00	0.00	0.00	0.00
22.900	0.00	0.00	0.00	0.00	0.00
23.150	0.00	0.00	0.00	0.00	0.00
23.400	0.00	0.00	0.00	0.00	0.00
23.650	0.00	0.00	0.00	0.00	0.00
23.900	0.00	0.00	0.00	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.28 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.28 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	839.130 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	838.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.78 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.300	0.00	0.00	0.00	0.00	0.00
7.550	0.00	0.00	0.00	0.00	0.00
7.800	0.00	0.00	0.00	0.00	0.00
8.050	0.00	0.00	0.00	0.00	0.00
8.300	0.00	0.00	0.00	0.00	0.00
8.550	0.00	0.00	0.00	0.00	0.00
8.800	0.00	0.00	0.00	0.00	0.00
9.050	0.00	0.00	0.00	0.00	0.00
9.300	0.00	0.00	0.00	0.00	0.00
9.550	0.00	0.00	0.01	0.01	0.01
9.800	0.01	0.01	0.01	0.01	0.01
10.050	0.01	0.01	0.01	0.01	0.01
10.300	0.01	0.01	0.01	0.01	0.01
10.550	0.01	0.01	0.01	0.01	0.01
10.800	0.01	0.01	0.01	0.01	0.02
11.050	0.02	0.02	0.02	0.02	0.02
11.300	0.02	0.02	0.03	0.03	0.03
11.550	0.03	0.04	0.04	0.04	0.05
11.800	0.06	0.07	0.09	0.12	0.15
12.050	0.21	0.28	0.22	0.14	0.10
12.300	0.08	0.07	0.06	0.06	0.06
12.550	0.05	0.04	0.04	0.04	0.04
12.800	0.04	0.03	0.03	0.03	0.03
13.050	0.03	0.03	0.03	0.02	0.02
13.300	0.02	0.02	0.02	0.02	0.02
13.550	0.02	0.02	0.02	0.02	0.02
13.800	0.02	0.02	0.02	0.02	0.02
14.050	0.02	0.02	0.01	0.01	0.01
14.300	0.01	0.01	0.01	0.01	0.01
14.550	0.01	0.01	0.01	0.01	0.01
14.800	0.01	0.01	0.01	0.01	0.01
15.050	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.300	0.01	0.01	0.01	0.01	0.01
15.550	0.01	0.01	0.01	0.01	0.01
15.800	0.01	0.01	0.01	0.01	0.01
16.050	0.01	0.01	0.01	0.01	0.01
16.300	0.01	0.01	0.01	0.01	0.01
16.550	0.01	0.01	0.01	0.01	0.01
16.800	0.01	0.01	0.01	0.01	0.01
17.050	0.01	0.01	0.01	0.01	0.01
17.300	0.01	0.01	0.01	0.01	0.01
17.550	0.01	0.01	0.01	0.01	0.01
17.800	0.01	0.01	0.01	0.01	0.01
18.050	0.01	0.01	0.01	0.01	0.01
18.300	0.01	0.01	0.01	0.01	0.01
18.550	0.01	0.01	0.01	0.01	0.01
18.800	0.01	0.01	0.01	0.01	0.01
19.050	0.01	0.01	0.01	0.01	0.01
19.300	0.01	0.01	0.01	0.01	0.01
19.550	0.01	0.01	0.01	0.01	0.01
19.800	0.01	0.01	0.01	0.01	0.01
20.050	0.01	0.01	0.01	0.01	0.01
20.300	0.00	0.00	0.00	0.00	0.00
20.550	0.00	0.00	0.00	0.00	0.00
20.800	0.00	0.00	0.00	0.00	0.00
21.050	0.00	0.00	0.00	0.00	0.00
21.300	0.00	0.00	0.00	0.00	0.00
21.550	0.00	0.00	0.00	0.00	0.00
21.800	0.00	0.00	0.00	0.00	0.00
22.050	0.00	0.00	0.00	0.00	0.00
22.300	0.00	0.00	0.00	0.00	0.00
22.550	0.00	0.00	0.00	0.00	0.00
22.800	0.00	0.00	0.00	0.00	0.00
23.050	0.00	0.00	0.00	0.00	0.00
23.300	0.00	0.00	0.00	0.00	0.00
23.550	0.00	0.00	0.00	0.00	0.00
23.800	0.00	0.00	0.00	0.00	0.00

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.59 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.58 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	2,510.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	1,850.691 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,849.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	0.78 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	2,510.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.00	0.00	0.00
6.450	0.00	0.00	0.00	0.00	0.00
6.700	0.00	0.00	0.00	0.00	0.01
6.950	0.01	0.01	0.01	0.01	0.01
7.200	0.01	0.01	0.01	0.01	0.01
7.450	0.01	0.01	0.01	0.01	0.01
7.700	0.01	0.01	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.01	0.01	0.01	0.01	0.01
9.200	0.01	0.01	0.01	0.01	0.01
9.450	0.01	0.02	0.02	0.02	0.02
9.700	0.02	0.02	0.02	0.02	0.02
9.950	0.02	0.02	0.02	0.02	0.02
10.200	0.02	0.02	0.02	0.02	0.02
10.450	0.02	0.02	0.03	0.03	0.03
10.700	0.03	0.03	0.03	0.04	0.04
10.950	0.04	0.04	0.04	0.05	0.05
11.200	0.05	0.05	0.06	0.06	0.06
11.450	0.07	0.07	0.08	0.09	0.10
11.700	0.10	0.12	0.14	0.17	0.20
11.950	0.26	0.34	0.45	0.58	0.47
12.200	0.28	0.21	0.17	0.15	0.12

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.450	0.12	0.11	0.10	0.09	0.08
12.700	0.08	0.08	0.07	0.07	0.07
12.950	0.06	0.06	0.06	0.05	0.05
13.200	0.05	0.05	0.05	0.04	0.04
13.450	0.04	0.04	0.04	0.04	0.03
13.700	0.03	0.03	0.03	0.03	0.03
13.950	0.03	0.03	0.03	0.03	0.03
14.200	0.03	0.03	0.03	0.03	0.03
14.450	0.03	0.03	0.03	0.02	0.02
14.700	0.02	0.02	0.02	0.02	0.02
14.950	0.02	0.02	0.02	0.02	0.02
15.200	0.02	0.02	0.02	0.02	0.02
15.450	0.02	0.02	0.02	0.02	0.02
15.700	0.02	0.02	0.02	0.02	0.02
15.950	0.02	0.02	0.02	0.02	0.02
16.200	0.02	0.02	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.01	0.01	0.01
16.950	0.01	0.01	0.01	0.01	0.01
17.200	0.01	0.01	0.01	0.01	0.01
17.450	0.01	0.01	0.01	0.01	0.01
17.700	0.01	0.01	0.01	0.01	0.01
17.950	0.01	0.01	0.01	0.01	0.01
18.200	0.01	0.01	0.01	0.01	0.01
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-301 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.20 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.19 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,428.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	2.0 in
Runoff Volume (Pervious)	581.843 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	581.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.07 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Storm Event	ESSEX CO. 2-YR (PROJ)
Return Event	2 years
Duration	24.000 hours
Depth	4.1 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
9.200	0.00	0.00	0.00	0.00	0.00
9.450	0.00	0.00	0.00	0.00	0.00
9.700	0.00	0.00	0.00	0.00	0.00
9.950	0.00	0.00	0.00	0.00	0.00
10.200	0.00	0.00	0.00	0.00	0.00
10.450	0.00	0.00	0.00	0.00	0.01
10.700	0.01	0.01	0.01	0.01	0.01
10.950	0.01	0.01	0.01	0.01	0.01
11.200	0.01	0.01	0.01	0.01	0.01
11.450	0.02	0.02	0.02	0.02	0.02
11.700	0.03	0.03	0.04	0.05	0.06
11.950	0.08	0.10	0.14	0.19	0.16
12.200	0.10	0.08	0.06	0.05	0.05
12.450	0.04	0.04	0.04	0.03	0.03
12.700	0.03	0.03	0.03	0.03	0.02
12.950	0.02	0.02	0.02	0.02	0.02
13.200	0.02	0.02	0.02	0.02	0.02
13.450	0.02	0.01	0.01	0.01	0.01
13.700	0.01	0.01	0.01	0.01	0.01
13.950	0.01	0.01	0.01	0.01	0.01
14.200	0.01	0.01	0.01	0.01	0.01
14.450	0.01	0.01	0.01	0.01	0.01
14.700	0.01	0.01	0.01	0.01	0.01
14.950	0.01	0.01	0.01	0.01	0.01
15.200	0.01	0.01	0.01	0.01	0.01
15.450	0.01	0.01	0.01	0.01	0.01
15.700	0.01	0.01	0.01	0.01	0.01
15.950	0.01	0.01	0.01	0.01	0.01
16.200	0.01	0.01	0.01	0.01	0.01
16.450	0.01	0.01	0.01	0.01	0.01
16.700	0.01	0.01	0.01	0.01	0.01
16.950	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 2 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.200	0.01	0.01	0.01	0.01	0.01
17.450	0.01	0.01	0.01	0.01	0.01
17.700	0.00	0.00	0.00	0.00	0.00
17.950	0.00	0.00	0.00	0.00	0.00
18.200	0.00	0.00	0.00	0.00	0.00
18.450	0.00	0.00	0.00	0.00	0.00
18.700	0.00	0.00	0.00	0.00	0.00
18.950	0.00	0.00	0.00	0.00	0.00
19.200	0.00	0.00	0.00	0.00	0.00
19.450	0.00	0.00	0.00	0.00	0.00
19.700	0.00	0.00	0.00	0.00	0.00
19.950	0.00	0.00	0.00	0.00	0.00
20.200	0.00	0.00	0.00	0.00	0.00
20.450	0.00	0.00	0.00	0.00	0.00
20.700	0.00	0.00	0.00	0.00	0.00
20.950	0.00	0.00	0.00	0.00	0.00
21.200	0.00	0.00	0.00	0.00	0.00
21.450	0.00	0.00	0.00	0.00	0.00
21.700	0.00	0.00	0.00	0.00	0.00
21.950	0.00	0.00	0.00	0.00	0.00
22.200	0.00	0.00	0.00	0.00	0.00
22.450	0.00	0.00	0.00	0.00	0.00
22.700	0.00	0.00	0.00	0.00	0.00
22.950	0.00	0.00	0.00	0.00	0.00
23.200	0.00	0.00	0.00	0.00	0.00
23.450	0.00	0.00	0.00	0.00	0.00
23.700	0.00	0.00	0.00	0.00	0.00
23.950	0.00	0.00	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.38 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.38 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,428.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	4.0 in
Runoff Volume (Pervious)	1,146.030 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	1,145.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.07 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Storm Event	ESSEX CO. 10-YR (PROJ)
Return Event	10 years
Duration	24.000 hours
Depth	6.4 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
7.000	0.00	0.00	0.00	0.00	0.00
7.250	0.00	0.00	0.00	0.00	0.00
7.500	0.00	0.00	0.00	0.00	0.00
7.750	0.00	0.00	0.00	0.00	0.00
8.000	0.00	0.00	0.00	0.00	0.00
8.250	0.00	0.00	0.00	0.00	0.00
8.500	0.00	0.00	0.00	0.00	0.00
8.750	0.00	0.00	0.00	0.00	0.00
9.000	0.00	0.00	0.00	0.00	0.01
9.250	0.01	0.01	0.01	0.01	0.01
9.500	0.01	0.01	0.01	0.01	0.01
9.750	0.01	0.01	0.01	0.01	0.01
10.000	0.01	0.01	0.01	0.01	0.01
10.250	0.01	0.01	0.01	0.01	0.01
10.500	0.01	0.01	0.01	0.01	0.02
10.750	0.02	0.02	0.02	0.02	0.02
11.000	0.02	0.02	0.02	0.03	0.03
11.250	0.03	0.03	0.03	0.03	0.04
11.500	0.04	0.04	0.05	0.06	0.06
11.750	0.07	0.08	0.10	0.12	0.16
12.000	0.21	0.29	0.38	0.30	0.19
12.250	0.14	0.12	0.10	0.08	0.08
12.500	0.08	0.07	0.06	0.06	0.05
12.750	0.05	0.05	0.05	0.05	0.04
13.000	0.04	0.04	0.04	0.04	0.03
13.250	0.03	0.03	0.03	0.03	0.03
13.500	0.03	0.03	0.02	0.02	0.02
13.750	0.02	0.02	0.02	0.02	0.02
14.000	0.02	0.02	0.02	0.02	0.02
14.250	0.02	0.02	0.02	0.02	0.02
14.500	0.02	0.02	0.02	0.02	0.02
14.750	0.02	0.02	0.02	0.02	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 10 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
15.000	0.01	0.01	0.01	0.01	0.01
15.250	0.01	0.01	0.01	0.01	0.01
15.500	0.01	0.01	0.01	0.01	0.01
15.750	0.01	0.01	0.01	0.01	0.01
16.000	0.01	0.01	0.01	0.01	0.01
16.250	0.01	0.01	0.01	0.01	0.01
16.500	0.01	0.01	0.01	0.01	0.01
16.750	0.01	0.01	0.01	0.01	0.01
17.000	0.01	0.01	0.01	0.01	0.01
17.250	0.01	0.01	0.01	0.01	0.01
17.500	0.01	0.01	0.01	0.01	0.01
17.750	0.01	0.01	0.01	0.01	0.01
18.000	0.01	0.01	0.01	0.01	0.01
18.250	0.01	0.01	0.01	0.01	0.01
18.500	0.01	0.01	0.01	0.01	0.01
18.750	0.01	0.01	0.01	0.01	0.01
19.000	0.01	0.01	0.01	0.01	0.01
19.250	0.01	0.01	0.01	0.01	0.01
19.500	0.01	0.01	0.01	0.01	0.01
19.750	0.01	0.01	0.01	0.01	0.01
20.000	0.01	0.01	0.01	0.01	0.01
20.250	0.01	0.01	0.01	0.01	0.01
20.500	0.01	0.01	0.01	0.01	0.01
20.750	0.01	0.01	0.01	0.01	0.01
21.000	0.01	0.01	0.01	0.01	0.01
21.250	0.01	0.01	0.01	0.01	0.01
21.500	0.01	0.01	0.01	0.01	0.01
21.750	0.01	0.01	0.01	0.01	0.01
22.000	0.01	0.01	0.01	0.01	0.01
22.250	0.01	0.01	0.01	0.01	0.01
22.500	0.01	0.01	0.01	0.01	0.01
22.750	0.01	0.01	0.01	0.01	0.01
23.000	0.01	0.01	0.01	0.01	0.01
23.250	0.01	0.01	0.01	0.01	0.01
23.500	0.01	0.01	0.01	0.01	0.01
23.750	0.01	0.01	0.01	0.01	0.01
24.000	0.01	(N/A)	(N/A)	(N/A)	(N/A)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

Computational Time Increment	0.011 hours
Time to Peak (Computed)	12.111 hours
Flow (Peak, Computed)	0.81 ft³/s
Output Increment	0.050 hours
Time to Flow (Peak Interpolated Output)	12.100 hours
Flow (Peak Interpolated Output)	0.80 ft³/s

Drainage Area	
SCS CN (Composite)	79.000
Area (User Defined)	3,428.00 ft²
Maximum Retention (Pervious)	2.7 in
Maximum Retention (Pervious, 20 percent)	0.5 in

Cumulative Runoff	
Cumulative Runoff Depth (Pervious)	8.8 in
Runoff Volume (Pervious)	2,527.557 ft³

Hydrograph Volume (Area under Hydrograph curve)	
Volume	2,525.000 ft³

SCS Unit Hydrograph Parameters	
Time of Concentration (Composite)	0.083 hours
Computational Time Increment	0.011 hours
Unit Hydrograph Shape Factor	483.432
K Factor	0.749

Subsection: Unit Hydrograph Summary
Label: PERV - INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

SCS Unit Hydrograph Parameters	
Receding/Rising, Tr/Tp	1.670
Unit peak, qp	1.07 ft^3/s
Unit peak time, Tp	0.056 hours
Unit receding limb, Tr	0.222 hours
Total unit time, Tb	0.278 hours

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Storm Event	ESSEX CO. 100-YR (PROJ)
Return Event	100 years
Duration	24.000 hours
Depth	11.5 in
Time of Concentration (Composite)	0.083 hours
Area (User Defined)	3,428.00 ft²

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
4.200	0.00	0.00	0.00	0.00	0.00
4.450	0.00	0.00	0.00	0.00	0.00
4.700	0.00	0.00	0.00	0.00	0.00
4.950	0.00	0.00	0.00	0.00	0.00
5.200	0.00	0.00	0.00	0.00	0.00
5.450	0.00	0.00	0.00	0.00	0.00
5.700	0.00	0.00	0.00	0.00	0.00
5.950	0.00	0.00	0.00	0.00	0.00
6.200	0.00	0.00	0.01	0.01	0.01
6.450	0.01	0.01	0.01	0.01	0.01
6.700	0.01	0.01	0.01	0.01	0.01
6.950	0.01	0.01	0.01	0.01	0.01
7.200	0.01	0.01	0.01	0.01	0.01
7.450	0.01	0.01	0.01	0.01	0.01
7.700	0.01	0.01	0.01	0.01	0.01
7.950	0.01	0.01	0.01	0.01	0.01
8.200	0.01	0.01	0.01	0.01	0.01
8.450	0.01	0.01	0.01	0.01	0.01
8.700	0.01	0.01	0.01	0.01	0.01
8.950	0.02	0.02	0.02	0.02	0.02
9.200	0.02	0.02	0.02	0.02	0.02
9.450	0.02	0.02	0.02	0.02	0.02
9.700	0.02	0.02	0.02	0.02	0.03
9.950	0.03	0.03	0.03	0.03	0.03
10.200	0.03	0.03	0.03	0.03	0.03
10.450	0.03	0.03	0.04	0.04	0.04
10.700	0.04	0.04	0.05	0.05	0.05
10.950	0.05	0.05	0.06	0.06	0.07
11.200	0.07	0.07	0.08	0.08	0.09
11.450	0.09	0.09	0.11	0.13	0.13
11.700	0.14	0.16	0.19	0.23	0.27
11.950	0.36	0.46	0.62	0.80	0.64

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
12.200	0.38	0.29	0.24	0.20	0.17
12.450	0.16	0.16	0.14	0.12	0.11
12.700	0.11	0.10	0.10	0.09	0.09
12.950	0.09	0.08	0.08	0.07	0.07
13.200	0.07	0.07	0.06	0.06	0.06
13.450	0.06	0.05	0.05	0.05	0.05
13.700	0.05	0.05	0.04	0.04	0.04
13.950	0.04	0.04	0.04	0.04	0.04
14.200	0.04	0.04	0.04	0.04	0.04
14.450	0.04	0.04	0.03	0.03	0.03
14.700	0.03	0.03	0.03	0.03	0.03
14.950	0.03	0.03	0.03	0.03	0.03
15.200	0.03	0.03	0.03	0.03	0.03
15.450	0.03	0.03	0.03	0.02	0.02
15.700	0.02	0.02	0.02	0.02	0.02
15.950	0.02	0.02	0.02	0.02	0.02
16.200	0.02	0.02	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.01	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01

Subsection: Unit Hydrograph (Hydrograph Table) Return Event: 100 years
Label: PERV - INLET-302 Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - PERV	337.336	12.100	0.11
Flow (From)	BYPASS ENTRANCE - IMP	476.674	12.100	0.14
Flow (In)	OUTFALL - BYPASS	814.009	12.100	0.25

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - PERV	664.556	12.100	0.22
Flow (From)	BYPASS ENTRANCE - IMP	758.195	12.100	0.21
Flow (In)	OUTFALL - BYPASS	1,422.752	12.100	0.43

Subsection: Addition Summary
Label: OUTFALL - BYPASS
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'OUTFALL - BYPASS'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	BYPASS ENTRANCE - PERV
<Catchment to Outflow Node>	BYPASS ENTRANCE - IMP

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	BYPASS ENTRANCE - PERV	1,465.903	12.100	0.46
Flow (From)	BYPASS ENTRANCE - IMP	1,394.695	12.100	0.39
Flow (In)	OUTFALL - BYPASS	2,860.599	12.100	0.85

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
Outlet-5	INLET-302

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-5	4,003.394	12.800	0.25
Flow (In)	POI - 4 OUTFALL	4,003.394	12.800	0.25

Subsection: Addition Summary
Label: POI - 4 OUTFALL
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
Outlet-5	INLET-302

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-5	7,108.055	12.950	0.36
Flow (In)	POI - 4 OUTFALL	7,108.055	12.950	0.36

Subsection: Addition Summary
Label: POI - 4 OUTFALL
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'POI - 4 OUTFALL'

Upstream Link	Upstream Node
Outlet-5	INLET-302

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	Outlet-5	14,311.721	12.150	2.33
Flow (In)	POI - 4 OUTFALL	14,311.721	12.150	2.33

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	474.50	474.50	474.50	474.50	474.50
0.250	474.50	474.50	474.50	474.50	474.50
0.500	474.50	474.50	474.50	474.50	474.50
0.750	474.50	474.50	474.50	474.50	474.50
1.000	474.50	474.50	474.50	474.50	474.50
1.250	474.50	474.50	474.50	474.50	474.50
1.500	474.50	474.50	474.50	474.50	474.50
1.750	474.51	474.51	474.51	474.51	474.51
2.000	474.51	474.51	474.51	474.51	474.51
2.250	474.51	474.51	474.51	474.52	474.52
2.500	474.52	474.52	474.52	474.52	474.52
2.750	474.52	474.52	474.53	474.53	474.53
3.000	474.53	474.53	474.53	474.53	474.54
3.250	474.54	474.54	474.54	474.54	474.54
3.500	474.54	474.55	474.55	474.55	474.55
3.750	474.55	474.55	474.55	474.56	474.56
4.000	474.56	474.56	474.56	474.56	474.57
4.250	474.57	474.57	474.57	474.57	474.58
4.500	474.58	474.58	474.58	474.58	474.59
4.750	474.59	474.59	474.59	474.59	474.60
5.000	474.60	474.60	474.60	474.60	474.61
5.250	474.61	474.61	474.61	474.61	474.62
5.500	474.62	474.62	474.62	474.62	474.63
5.750	474.63	474.63	474.63	474.64	474.64
6.000	474.64	474.64	474.65	474.65	474.65
6.250	474.65	474.66	474.66	474.66	474.66
6.500	474.67	474.67	474.67	474.67	474.68
6.750	474.68	474.68	474.69	474.69	474.69
7.000	474.69	474.70	474.70	474.70	474.71
7.250	474.71	474.71	474.72	474.72	474.72
7.500	474.73	474.73	474.73	474.74	474.74
7.750	474.74	474.75	474.75	474.76	474.76
8.000	474.76	474.77	474.77	474.77	474.78
8.250	474.78	474.79	474.79	474.80	474.80
8.500	474.80	474.81	474.81	474.82	474.82
8.750	474.83	474.83	474.83	474.84	474.84
9.000	474.85	474.85	474.86	474.86	474.87
9.250	474.87	474.88	474.88	474.89	474.90
9.500	474.90	474.91	474.92	474.92	474.93
9.750	474.93	474.94	474.95	474.96	474.96

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	474.97	474.98	474.99	474.99	475.00
10.250	475.01	475.01	475.02	475.03	475.03
10.500	475.04	475.04	475.05	475.05	475.06
10.750	475.06	475.07	475.07	475.08	475.08
11.000	475.09	475.10	475.10	475.11	475.12
11.250	475.12	475.13	475.14	475.15	475.15
11.500	475.16	475.17	475.19	475.20	475.21
11.750	475.23	475.25	475.27	475.30	475.34
12.000	475.40	475.48	475.58	475.68	475.73
12.250	475.75	475.76	475.77	475.76	475.75
12.500	475.74	475.73	475.72	475.70	475.68
12.750	475.67	475.65	475.63	475.62	475.60
13.000	475.58	475.56	475.54	475.52	475.51
13.250	475.49	475.47	475.45	475.43	475.42
13.500	475.40	475.39	475.37	475.36	475.34
13.750	475.33	475.32	475.31	475.29	475.28
14.000	475.27	475.26	475.26	475.25	475.24
14.250	475.23	475.22	475.22	475.21	475.20
14.500	475.20	475.19	475.19	475.18	475.18
14.750	475.17	475.17	475.16	475.16	475.15
15.000	475.15	475.14	475.14	475.14	475.13
15.250	475.13	475.13	475.12	475.12	475.12
15.500	475.11	475.11	475.11	475.11	475.11
15.750	475.10	475.10	475.10	475.10	475.10
16.000	475.09	475.09	475.09	475.09	475.09
16.250	475.09	475.09	475.09	475.08	475.08
16.500	475.08	475.08	475.08	475.08	475.08
16.750	475.08	475.08	475.07	475.07	475.07
17.000	475.07	475.07	475.07	475.07	475.07
17.250	475.07	475.07	475.07	475.07	475.06
17.500	475.06	475.06	475.06	475.06	475.06
17.750	475.06	475.06	475.06	475.06	475.06
18.000	475.06	475.06	475.06	475.06	475.05
18.250	475.05	475.05	475.05	475.05	475.05
18.500	475.05	475.05	475.05	475.05	475.05
18.750	475.05	475.05	475.05	475.05	475.05
19.000	475.05	475.05	475.05	475.05	475.05
19.250	475.05	475.05	475.05	475.05	475.05
19.500	475.05	475.05	475.04	475.04	475.04
19.750	475.04	475.04	475.04	475.04	475.04
20.000	475.04	475.04	475.04	475.04	475.04

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	475.04	475.04	475.04	475.04	475.04
20.500	475.04	475.04	475.04	475.04	475.04
20.750	475.04	475.04	475.04	475.04	475.04
21.000	475.04	475.04	475.04	475.04	475.04
21.250	475.04	475.04	475.04	475.04	475.04
21.500	475.04	475.04	475.04	475.04	475.04
21.750	475.04	475.04	475.04	475.04	475.04
22.000	475.04	475.04	475.04	475.04	475.04
22.250	475.04	475.04	475.04	475.04	475.04
22.500	475.04	475.04	475.04	475.04	475.03
22.750	475.03	475.03	475.03	475.03	475.03
23.000	475.03	475.03	475.03	475.03	475.03
23.250	475.03	475.03	475.03	475.03	475.03
23.500	475.03	475.03	475.03	475.03	475.03
23.750	475.03	475.03	475.03	475.03	475.03
24.000	475.03	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	474.50	474.50	474.50	474.50	474.50
0.250	474.50	474.50	474.50	474.50	474.50
0.500	474.50	474.50	474.50	474.50	474.50
0.750	474.50	474.50	474.50	474.50	474.50
1.000	474.50	474.50	474.50	474.50	474.51
1.250	474.51	474.51	474.51	474.51	474.51
1.500	474.51	474.51	474.52	474.52	474.52
1.750	474.52	474.52	474.52	474.52	474.53
2.000	474.53	474.53	474.53	474.53	474.54
2.250	474.54	474.54	474.54	474.54	474.55
2.500	474.55	474.55	474.55	474.56	474.56
2.750	474.56	474.56	474.57	474.57	474.57
3.000	474.57	474.58	474.58	474.58	474.58
3.250	474.59	474.59	474.59	474.59	474.60
3.500	474.60	474.60	474.61	474.61	474.61
3.750	474.61	474.62	474.62	474.62	474.63
4.000	474.63	474.63	474.64	474.64	474.64
4.250	474.65	474.65	474.65	474.66	474.66
4.500	474.66	474.67	474.67	474.67	474.68
4.750	474.68	474.68	474.69	474.69	474.69
5.000	474.70	474.70	474.70	474.71	474.71
5.250	474.72	474.72	474.72	474.73	474.73
5.500	474.73	474.74	474.74	474.75	474.75
5.750	474.75	474.76	474.76	474.76	474.77
6.000	474.77	474.78	474.78	474.78	474.79
6.250	474.79	474.80	474.80	474.81	474.81
6.500	474.82	474.82	474.82	474.83	474.83
6.750	474.84	474.84	474.85	474.85	474.86
7.000	474.86	474.87	474.88	474.88	474.89
7.250	474.89	474.90	474.90	474.91	474.92
7.500	474.92	474.93	474.93	474.94	474.95
7.750	474.95	474.96	474.96	474.97	474.98
8.000	474.98	474.99	475.00	475.00	475.01
8.250	475.01	475.02	475.02	475.03	475.03
8.500	475.04	475.04	475.04	475.05	475.05
8.750	475.05	475.05	475.06	475.06	475.06
9.000	475.07	475.07	475.07	475.07	475.08
9.250	475.08	475.08	475.08	475.09	475.09
9.500	475.09	475.09	475.10	475.10	475.10
9.750	475.10	475.11	475.11	475.11	475.12

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	475.12	475.12	475.12	475.13	475.13
10.250	475.13	475.14	475.14	475.14	475.14
10.500	475.15	475.15	475.15	475.16	475.16
10.750	475.17	475.17	475.18	475.18	475.19
11.000	475.20	475.20	475.21	475.22	475.23
11.250	475.24	475.25	475.26	475.27	475.29
11.500	475.30	475.31	475.33	475.36	475.38
11.750	475.40	475.43	475.47	475.52	475.59
12.000	475.68	475.80	475.97	476.14	476.24
12.250	476.29	476.31	476.33	476.33	476.32
12.500	476.31	476.30	476.29	476.27	476.25
12.750	476.23	476.21	476.18	476.16	476.14
13.000	476.11	476.09	476.06	476.03	476.01
13.250	475.98	475.95	475.93	475.90	475.88
13.500	475.85	475.82	475.80	475.77	475.75
13.750	475.72	475.70	475.68	475.65	475.63
14.000	475.61	475.59	475.57	475.55	475.53
14.250	475.51	475.49	475.47	475.45	475.43
14.500	475.42	475.40	475.39	475.37	475.36
14.750	475.34	475.33	475.32	475.31	475.30
15.000	475.29	475.28	475.27	475.26	475.25
15.250	475.25	475.24	475.23	475.22	475.22
15.500	475.21	475.21	475.20	475.20	475.19
15.750	475.19	475.18	475.18	475.17	475.17
16.000	475.17	475.16	475.16	475.16	475.15
16.250	475.15	475.15	475.15	475.14	475.14
16.500	475.14	475.14	475.13	475.13	475.13
16.750	475.13	475.13	475.12	475.12	475.12
17.000	475.12	475.12	475.12	475.11	475.11
17.250	475.11	475.11	475.11	475.11	475.11
17.500	475.10	475.10	475.10	475.10	475.10
17.750	475.10	475.10	475.10	475.10	475.09
18.000	475.09	475.09	475.09	475.09	475.09
18.250	475.09	475.09	475.09	475.09	475.08
18.500	475.08	475.08	475.08	475.08	475.08
18.750	475.08	475.08	475.08	475.08	475.08
19.000	475.08	475.08	475.08	475.08	475.08
19.250	475.07	475.07	475.07	475.07	475.07
19.500	475.07	475.07	475.07	475.07	475.07
19.750	475.07	475.07	475.07	475.07	475.07
20.000	475.07	475.07	475.07	475.07	475.07

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	475.07	475.07	475.07	475.07	475.07
20.500	475.07	475.07	475.07	475.07	475.07
20.750	475.07	475.07	475.06	475.06	475.06
21.000	475.06	475.06	475.06	475.06	475.06
21.250	475.06	475.06	475.06	475.06	475.06
21.500	475.06	475.06	475.06	475.06	475.06
21.750	475.06	475.06	475.06	475.06	475.06
22.000	475.06	475.06	475.06	475.06	475.06
22.250	475.06	475.06	475.06	475.06	475.06
22.500	475.06	475.06	475.06	475.06	475.06
22.750	475.06	475.06	475.06	475.05	475.05
23.000	475.05	475.05	475.05	475.05	475.05
23.250	475.05	475.05	475.05	475.05	475.05
23.500	475.05	475.05	475.05	475.05	475.05
23.750	475.05	475.05	475.05	475.05	475.05
24.000	475.05	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	474.50	474.50	474.50	474.50	474.50
0.250	474.50	474.50	474.50	474.50	474.50
0.500	474.50	474.50	474.50	474.50	474.51
0.750	474.51	474.51	474.51	474.51	474.52
1.000	474.52	474.52	474.52	474.53	474.53
1.250	474.53	474.54	474.54	474.54	474.55
1.500	474.55	474.55	474.56	474.56	474.57
1.750	474.57	474.57	474.58	474.58	474.59
2.000	474.59	474.60	474.60	474.61	474.61
2.250	474.62	474.62	474.63	474.63	474.64
2.500	474.64	474.65	474.65	474.66	474.66
2.750	474.67	474.67	474.68	474.68	474.69
3.000	474.69	474.70	474.70	474.71	474.72
3.250	474.72	474.73	474.73	474.74	474.75
3.500	474.75	474.76	474.76	474.77	474.78
3.750	474.78	474.79	474.79	474.80	474.81
4.000	474.81	474.82	474.83	474.83	474.84
4.250	474.85	474.85	474.86	474.87	474.87
4.500	474.88	474.89	474.89	474.90	474.91
4.750	474.92	474.92	474.93	474.94	474.94
5.000	474.95	474.96	474.97	474.97	474.98
5.250	474.99	475.00	475.00	475.01	475.02
5.500	475.02	475.03	475.03	475.03	475.04
5.750	475.04	475.05	475.05	475.05	475.06
6.000	475.06	475.06	475.07	475.07	475.07
6.250	475.07	475.08	475.08	475.08	475.08
6.500	475.09	475.09	475.09	475.09	475.09
6.750	475.10	475.10	475.10	475.10	475.10
7.000	475.11	475.11	475.11	475.11	475.11
7.250	475.12	475.12	475.12	475.12	475.12
7.500	475.13	475.13	475.13	475.13	475.13
7.750	475.13	475.14	475.14	475.14	475.14
8.000	475.14	475.15	475.15	475.15	475.15
8.250	475.15	475.15	475.16	475.16	475.16
8.500	475.16	475.16	475.17	475.17	475.17
8.750	475.17	475.17	475.17	475.18	475.18
9.000	475.18	475.18	475.18	475.19	475.19
9.250	475.19	475.19	475.20	475.20	475.20
9.500	475.21	475.21	475.22	475.22	475.22
9.750	475.23	475.23	475.24	475.24	475.25

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	475.25	475.26	475.26	475.27	475.27
10.250	475.28	475.28	475.29	475.29	475.30
10.500	475.30	475.31	475.31	475.32	475.33
10.750	475.34	475.35	475.36	475.37	475.38
11.000	475.40	475.41	475.42	475.44	475.46
11.250	475.48	475.50	475.52	475.54	475.56
11.500	475.59	475.62	475.66	475.70	475.75
11.750	475.80	475.86	475.94	476.04	476.18
12.000	476.36	476.63	476.99	477.43	477.67
12.250	477.62	477.58	477.55	477.53	477.52
12.500	477.51	477.51	477.49	477.48	477.46
12.750	477.43	477.41	477.38	477.35	477.31
13.000	477.28	477.24	477.20	477.16	477.11
13.250	477.07	477.02	476.98	476.95	476.91
13.500	476.87	476.83	476.79	476.75	476.71
13.750	476.67	476.63	476.59	476.55	476.51
14.000	476.48	476.44	476.41	476.38	476.34
14.250	476.31	476.28	476.25	476.21	476.18
14.500	476.15	476.12	476.09	476.06	476.03
14.750	476.00	475.97	475.94	475.92	475.89
15.000	475.86	475.84	475.81	475.78	475.76
15.250	475.74	475.71	475.69	475.67	475.65
15.500	475.63	475.60	475.59	475.57	475.55
15.750	475.53	475.51	475.49	475.48	475.46
16.000	475.44	475.43	475.41	475.40	475.39
16.250	475.38	475.37	475.36	475.35	475.34
16.500	475.33	475.32	475.31	475.30	475.29
16.750	475.29	475.28	475.27	475.27	475.26
17.000	475.26	475.25	475.25	475.24	475.24
17.250	475.23	475.23	475.22	475.22	475.22
17.500	475.21	475.21	475.21	475.20	475.20
17.750	475.20	475.19	475.19	475.19	475.18
18.000	475.18	475.18	475.18	475.17	475.17
18.250	475.17	475.17	475.17	475.16	475.16
18.500	475.16	475.16	475.16	475.15	475.15
18.750	475.15	475.15	475.15	475.15	475.15
19.000	475.15	475.14	475.14	475.14	475.14
19.250	475.14	475.14	475.14	475.14	475.14
19.500	475.14	475.14	475.13	475.13	475.13
19.750	475.13	475.13	475.13	475.13	475.13
20.000	475.13	475.13	475.13	475.13	475.13

Subsection: Time vs. Elevation
Label: INLET-301 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	475.13	475.13	475.13	475.12	475.12
20.500	475.12	475.12	475.12	475.12	475.12
20.750	475.12	475.12	475.12	475.12	475.12
21.000	475.12	475.12	475.12	475.12	475.12
21.250	475.12	475.12	475.12	475.11	475.11
21.500	475.11	475.11	475.11	475.11	475.11
21.750	475.11	475.11	475.11	475.11	475.11
22.000	475.11	475.11	475.11	475.11	475.11
22.250	475.11	475.11	475.11	475.11	475.11
22.500	475.10	475.10	475.10	475.10	475.10
22.750	475.10	475.10	475.10	475.10	475.10
23.000	475.10	475.10	475.10	475.10	475.10
23.250	475.10	475.10	475.10	475.10	475.10
23.500	475.10	475.10	475.10	475.09	475.09
23.750	475.09	475.09	475.09	475.09	475.09
24.000	475.09	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	453.50	453.50	453.50	453.50	453.50
0.250	453.50	453.50	453.50	453.50	453.50
0.500	453.50	453.50	453.50	453.50	453.50
0.750	453.50	453.50	453.50	453.50	453.50
1.000	453.50	453.50	453.50	453.50	453.50
1.250	453.50	453.50	453.50	453.50	453.50
1.500	453.50	453.50	453.50	453.50	453.50
1.750	453.51	453.51	453.51	453.51	453.51
2.000	453.51	453.51	453.51	453.51	453.51
2.250	453.51	453.51	453.52	453.52	453.52
2.500	453.52	453.52	453.52	453.52	453.52
2.750	453.52	453.53	453.53	453.53	453.53
3.000	453.53	453.53	453.53	453.53	453.54
3.250	453.54	453.54	453.54	453.54	453.54
3.500	453.54	453.55	453.55	453.55	453.55
3.750	453.55	453.55	453.56	453.56	453.56
4.000	453.56	453.56	453.56	453.57	453.57
4.250	453.57	453.57	453.57	453.58	453.58
4.500	453.58	453.58	453.58	453.59	453.59
4.750	453.59	453.59	453.59	453.60	453.60
5.000	453.60	453.60	453.60	453.61	453.61
5.250	453.61	453.61	453.61	453.62	453.62
5.500	453.62	453.62	453.63	453.63	453.63
5.750	453.63	453.63	453.64	453.64	453.64
6.000	453.64	453.65	453.65	453.65	453.65
6.250	453.66	453.66	453.66	453.66	453.67
6.500	453.67	453.67	453.68	453.68	453.68
6.750	453.68	453.69	453.69	453.69	453.70
7.000	453.70	453.70	453.71	453.71	453.71
7.250	453.72	453.72	453.72	453.73	453.73
7.500	453.73	453.74	453.74	453.74	453.75
7.750	453.75	453.75	453.76	453.76	453.77
8.000	453.77	453.77	453.78	453.78	453.79
8.250	453.79	453.79	453.80	453.80	453.81
8.500	453.81	453.82	453.82	453.82	453.83
8.750	453.83	453.84	453.84	453.85	453.85
9.000	453.86	453.86	453.87	453.87	453.88
9.250	453.88	453.89	453.90	453.90	453.91
9.500	453.91	453.92	453.93	453.93	453.94
9.750	453.95	453.95	453.96	453.97	453.98

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	453.99	453.99	454.00	454.01	454.01
10.250	454.02	454.03	454.03	454.04	454.05
10.500	454.05	454.06	454.07	454.07	454.08
10.750	454.09	454.10	454.11	454.11	454.12
11.000	454.13	454.14	454.15	454.16	454.17
11.250	454.19	454.20	454.21	454.22	454.24
11.500	454.25	454.27	454.29	454.31	454.33
11.750	454.36	454.38	454.42	454.46	454.52
12.000	454.59	454.69	454.83	454.97	455.06
12.250	455.12	455.16	455.20	455.22	455.24
12.500	455.26	455.27	455.28	455.29	455.29
12.750	455.29	455.29	455.29	455.29	455.29
13.000	455.28	455.28	455.27	455.26	455.25
13.250	455.24	455.23	455.21	455.20	455.18
13.500	455.16	455.14	455.12	455.10	455.08
13.750	455.06	455.04	455.01	454.99	454.97
14.000	454.95	454.92	454.90	454.88	454.85
14.250	454.83	454.81	454.79	454.77	454.74
14.500	454.72	454.70	454.68	454.66	454.64
14.750	454.62	454.60	454.58	454.56	454.54
15.000	454.52	454.50	454.48	454.46	454.44
15.250	454.43	454.41	454.40	454.38	454.37
15.500	454.36	454.35	454.33	454.32	454.31
15.750	454.30	454.30	454.29	454.28	454.27
16.000	454.26	454.26	454.25	454.24	454.24
16.250	454.23	454.23	454.22	454.22	454.21
16.500	454.21	454.20	454.20	454.19	454.19
16.750	454.19	454.18	454.18	454.18	454.17
17.000	454.17	454.17	454.17	454.16	454.16
17.250	454.16	454.16	454.15	454.15	454.15
17.500	454.15	454.14	454.14	454.14	454.14
17.750	454.14	454.13	454.13	454.13	454.13
18.000	454.13	454.13	454.12	454.12	454.12
18.250	454.12	454.12	454.12	454.12	454.11
18.500	454.11	454.11	454.11	454.11	454.11
18.750	454.11	454.11	454.11	454.11	454.10
19.000	454.10	454.10	454.10	454.10	454.10
19.250	454.10	454.10	454.10	454.10	454.10
19.500	454.10	454.10	454.10	454.09	454.09
19.750	454.09	454.09	454.09	454.09	454.09
20.000	454.09	454.09	454.09	454.09	454.09

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	454.09	454.09	454.09	454.09	454.09
20.500	454.09	454.09	454.09	454.09	454.09
20.750	454.08	454.08	454.08	454.08	454.08
21.000	454.08	454.08	454.08	454.08	454.08
21.250	454.08	454.08	454.08	454.08	454.08
21.500	454.08	454.08	454.08	454.08	454.08
21.750	454.08	454.08	454.08	454.08	454.08
22.000	454.08	454.08	454.08	454.08	454.08
22.250	454.08	454.07	454.07	454.07	454.07
22.500	454.07	454.07	454.07	454.07	454.07
22.750	454.07	454.07	454.07	454.07	454.07
23.000	454.07	454.07	454.07	454.07	454.07
23.250	454.07	454.07	454.07	454.07	454.07
23.500	454.07	454.07	454.07	454.07	454.07
23.750	454.07	454.07	454.07	454.07	454.06
24.000	454.06	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	453.50	453.50	453.50	453.50	453.50
0.250	453.50	453.50	453.50	453.50	453.50
0.500	453.50	453.50	453.50	453.50	453.50
0.750	453.50	453.50	453.50	453.50	453.50
1.000	453.50	453.50	453.50	453.50	453.51
1.250	453.51	453.51	453.51	453.51	453.51
1.500	453.51	453.51	453.52	453.52	453.52
1.750	453.52	453.52	453.52	453.53	453.53
2.000	453.53	453.53	453.53	453.53	453.54
2.250	453.54	453.54	453.54	453.55	453.55
2.500	453.55	453.55	453.55	453.56	453.56
2.750	453.56	453.56	453.57	453.57	453.57
3.000	453.57	453.58	453.58	453.58	453.59
3.250	453.59	453.59	453.59	453.60	453.60
3.500	453.60	453.61	453.61	453.61	453.61
3.750	453.62	453.62	453.62	453.63	453.63
4.000	453.63	453.64	453.64	453.64	453.65
4.250	453.65	453.65	453.66	453.66	453.66
4.500	453.67	453.67	453.67	453.68	453.68
4.750	453.68	453.69	453.69	453.69	453.70
5.000	453.70	453.71	453.71	453.71	453.72
5.250	453.72	453.72	453.73	453.73	453.74
5.500	453.74	453.74	453.75	453.75	453.75
5.750	453.76	453.76	453.77	453.77	453.77
6.000	453.78	453.78	453.79	453.79	453.80
6.250	453.80	453.80	453.81	453.81	453.82
6.500	453.82	453.83	453.83	453.84	453.84
6.750	453.85	453.85	453.86	453.86	453.87
7.000	453.87	453.88	453.89	453.89	453.90
7.250	453.90	453.91	453.91	453.92	453.93
7.500	453.93	453.94	453.95	453.95	453.96
7.750	453.97	453.97	453.98	453.99	453.99
8.000	454.00	454.01	454.01	454.02	454.02
8.250	454.03	454.03	454.04	454.04	454.05
8.500	454.05	454.06	454.06	454.07	454.07
8.750	454.08	454.08	454.09	454.09	454.10
9.000	454.10	454.11	454.11	454.12	454.12
9.250	454.12	454.13	454.13	454.14	454.14
9.500	454.15	454.15	454.16	454.16	454.17
9.750	454.17	454.18	454.18	454.19	454.20

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	454.20	454.21	454.21	454.22	454.22
10.250	454.23	454.23	454.24	454.25	454.25
10.500	454.26	454.26	454.27	454.28	454.28
10.750	454.29	454.30	454.31	454.32	454.33
11.000	454.34	454.35	454.37	454.38	454.40
11.250	454.41	454.43	454.45	454.47	454.49
11.500	454.51	454.53	454.56	454.59	454.63
11.750	454.67	454.72	454.78	454.85	454.95
12.000	455.08	455.25	455.48	455.73	455.90
12.250	456.01	456.11	456.18	456.24	456.29
12.500	456.33	456.37	456.39	456.41	456.43
12.750	456.44	456.45	456.46	456.46	456.46
13.000	456.46	456.46	456.45	456.44	456.43
13.250	456.42	456.40	456.38	456.36	456.34
13.500	456.32	456.29	456.27	456.24	456.21
13.750	456.18	456.15	456.12	456.09	456.06
14.000	456.02	455.99	455.97	455.94	455.91
14.250	455.88	455.85	455.82	455.79	455.76
14.500	455.73	455.70	455.66	455.63	455.59
14.750	455.56	455.52	455.49	455.46	455.42
15.000	455.39	455.36	455.32	455.29	455.26
15.250	455.22	455.19	455.16	455.13	455.10
15.500	455.06	455.03	455.00	454.97	454.94
15.750	454.91	454.89	454.86	454.83	454.81
16.000	454.78	454.76	454.73	454.71	454.69
16.250	454.66	454.64	454.62	454.60	454.58
16.500	454.56	454.54	454.52	454.50	454.48
16.750	454.46	454.45	454.43	454.42	454.40
17.000	454.39	454.38	454.37	454.35	454.34
17.250	454.33	454.32	454.32	454.31	454.30
17.500	454.29	454.29	454.28	454.27	454.27
17.750	454.26	454.25	454.25	454.24	454.24
18.000	454.23	454.23	454.22	454.22	454.22
18.250	454.21	454.21	454.21	454.20	454.20
18.500	454.20	454.19	454.19	454.19	454.19
18.750	454.18	454.18	454.18	454.18	454.18
19.000	454.17	454.17	454.17	454.17	454.17
19.250	454.17	454.16	454.16	454.16	454.16
19.500	454.16	454.16	454.16	454.16	454.15
19.750	454.15	454.15	454.15	454.15	454.15
20.000	454.15	454.15	454.15	454.15	454.14

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	454.14	454.14	454.14	454.14	454.14
20.500	454.14	454.14	454.14	454.14	454.14
20.750	454.14	454.14	454.14	454.14	454.13
21.000	454.13	454.13	454.13	454.13	454.13
21.250	454.13	454.13	454.13	454.13	454.13
21.500	454.13	454.13	454.13	454.13	454.13
21.750	454.13	454.13	454.12	454.12	454.12
22.000	454.12	454.12	454.12	454.12	454.12
22.250	454.12	454.12	454.12	454.12	454.12
22.500	454.12	454.12	454.12	454.12	454.12
22.750	454.12	454.12	454.11	454.11	454.11
23.000	454.11	454.11	454.11	454.11	454.11
23.250	454.11	454.11	454.11	454.11	454.11
23.500	454.11	454.11	454.11	454.11	454.11
23.750	454.11	454.11	454.11	454.10	454.10
24.000	454.10	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
0.000	453.50	453.50	453.50	453.50	453.50
0.250	453.50	453.50	453.50	453.50	453.50
0.500	453.50	453.50	453.50	453.50	453.51
0.750	453.51	453.51	453.51	453.51	453.52
1.000	453.52	453.52	453.52	453.53	453.53
1.250	453.53	453.54	453.54	453.54	453.55
1.500	453.55	453.56	453.56	453.56	453.57
1.750	453.57	453.58	453.58	453.58	453.59
2.000	453.59	453.60	453.60	453.61	453.61
2.250	453.62	453.62	453.63	453.63	453.64
2.500	453.64	453.65	453.65	453.66	453.66
2.750	453.67	453.68	453.68	453.69	453.69
3.000	453.70	453.70	453.71	453.72	453.72
3.250	453.73	453.73	453.74	453.74	453.75
3.500	453.76	453.76	453.77	453.78	453.78
3.750	453.79	453.79	453.80	453.81	453.81
4.000	453.82	453.83	453.83	453.84	453.85
4.250	453.85	453.86	453.87	453.88	453.88
4.500	453.89	453.90	453.90	453.91	453.92
4.750	453.93	453.93	453.94	453.95	453.96
5.000	453.97	453.97	453.98	453.99	454.00
5.250	454.00	454.01	454.02	454.02	454.03
5.500	454.03	454.04	454.05	454.05	454.06
5.750	454.06	454.07	454.07	454.08	454.08
6.000	454.09	454.09	454.10	454.10	454.11
6.250	454.11	454.12	454.12	454.13	454.13
6.500	454.14	454.14	454.15	454.15	454.16
6.750	454.16	454.16	454.17	454.17	454.18
7.000	454.18	454.19	454.19	454.19	454.20
7.250	454.20	454.21	454.21	454.21	454.22
7.500	454.22	454.23	454.23	454.23	454.24
7.750	454.24	454.25	454.25	454.25	454.26
8.000	454.26	454.26	454.27	454.27	454.28
8.250	454.28	454.28	454.29	454.29	454.29
8.500	454.30	454.30	454.31	454.31	454.31
8.750	454.32	454.32	454.32	454.33	454.33
9.000	454.33	454.34	454.34	454.35	454.35
9.250	454.36	454.36	454.37	454.37	454.38
9.500	454.38	454.39	454.40	454.40	454.41
9.750	454.42	454.43	454.43	454.44	454.45

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
10.000	454.46	454.47	454.48	454.49	454.49
10.250	454.50	454.51	454.52	454.53	454.54
10.500	454.55	454.56	454.58	454.59	454.61
10.750	454.63	454.64	454.66	454.69	454.71
11.000	454.73	454.76	454.79	454.82	454.86
11.250	454.89	454.93	454.98	455.02	455.07
11.500	455.12	455.17	455.24	455.31	455.39
11.750	455.47	455.58	455.71	455.87	456.09
12.000	456.43	456.79	456.95	456.95	456.91
12.250	456.86	456.76	456.70	456.66	456.63
12.500	456.61	456.60	456.58	456.57	456.57
12.750	456.56	456.56	456.56	456.55	456.55
13.000	456.55	456.54	456.54	456.54	456.54
13.250	456.53	456.53	456.53	456.53	456.52
13.500	456.52	456.52	456.52	456.51	456.51
13.750	456.51	456.51	456.51	456.51	456.51
14.000	456.51	456.50	456.50	456.50	456.50
14.250	456.50	456.50	456.49	456.49	456.48
14.500	456.47	456.46	456.45	456.44	456.42
14.750	456.41	456.39	456.37	456.35	456.33
15.000	456.31	456.29	456.26	456.24	456.21
15.250	456.18	456.15	456.12	456.10	456.07
15.500	456.04	456.01	455.98	455.96	455.93
15.750	455.91	455.88	455.85	455.83	455.80
16.000	455.77	455.74	455.71	455.68	455.65
16.250	455.62	455.59	455.56	455.53	455.50
16.500	455.47	455.44	455.41	455.38	455.36
16.750	455.33	455.30	455.27	455.24	455.22
17.000	455.19	455.16	455.13	455.11	455.08
17.250	455.05	455.03	455.00	454.98	454.95
17.500	454.93	454.90	454.88	454.86	454.83
17.750	454.81	454.79	454.77	454.75	454.73
18.000	454.71	454.69	454.67	454.65	454.64
18.250	454.62	454.60	454.58	454.57	454.55
18.500	454.54	454.52	454.51	454.49	454.48
18.750	454.46	454.45	454.44	454.43	454.42
19.000	454.41	454.40	454.39	454.38	454.37
19.250	454.37	454.36	454.35	454.35	454.34
19.500	454.34	454.33	454.33	454.32	454.32
19.750	454.31	454.31	454.31	454.30	454.30
20.000	454.30	454.29	454.29	454.29	454.28

Subsection: Time vs. Elevation
Label: INLET-302 (OUT)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Elevation (ft)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)	Elevation (ft)
20.250	454.28	454.28	454.28	454.27	454.27
20.500	454.27	454.27	454.27	454.26	454.26
20.750	454.26	454.26	454.26	454.26	454.25
21.000	454.25	454.25	454.25	454.25	454.25
21.250	454.25	454.25	454.24	454.24	454.24
21.500	454.24	454.24	454.24	454.24	454.24
21.750	454.23	454.23	454.23	454.23	454.23
22.000	454.23	454.23	454.23	454.23	454.23
22.250	454.22	454.22	454.22	454.22	454.22
22.500	454.22	454.22	454.22	454.22	454.22
22.750	454.21	454.21	454.21	454.21	454.21
23.000	454.21	454.21	454.21	454.21	454.21
23.250	454.21	454.20	454.20	454.20	454.20
23.500	454.20	454.20	454.20	454.20	454.20
23.750	454.20	454.20	454.19	454.19	454.19
24.000	454.19	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	1.000	1.000	1.000	1.000
1.500	1.000	2.000	2.000	2.000	3.000
1.750	3.000	3.000	4.000	4.000	4.000
2.000	5.000	5.000	6.000	6.000	7.000
2.250	7.000	8.000	8.000	9.000	9.000
2.500	10.000	10.000	11.000	11.000	12.000
2.750	13.000	13.000	14.000	15.000	15.000
3.000	16.000	17.000	18.000	18.000	19.000
3.250	20.000	21.000	21.000	22.000	23.000
3.500	24.000	25.000	25.000	26.000	27.000
3.750	28.000	29.000	30.000	31.000	32.000
4.000	32.000	33.000	34.000	35.000	36.000
4.250	37.000	38.000	39.000	40.000	41.000
4.500	42.000	43.000	44.000	45.000	46.000
4.750	47.000	48.000	50.000	51.000	52.000
5.000	53.000	54.000	55.000	56.000	57.000
5.250	58.000	60.000	61.000	62.000	63.000
5.500	64.000	65.000	67.000	68.000	69.000
5.750	70.000	72.000	73.000	74.000	75.000
6.000	77.000	78.000	79.000	80.000	82.000
6.250	83.000	85.000	87.000	88.000	90.000
6.500	92.000	94.000	95.000	97.000	99.000
6.750	101.000	103.000	105.000	107.000	108.000
7.000	110.000	112.000	114.000	116.000	119.000
7.250	121.000	123.000	125.000	127.000	129.000
7.500	131.000	134.000	136.000	138.000	141.000
7.750	143.000	145.000	148.000	150.000	153.000
8.000	155.000	157.000	160.000	163.000	165.000
8.250	168.000	170.000	173.000	176.000	178.000
8.500	181.000	184.000	187.000	191.000	194.000
8.750	197.000	200.000	203.000	207.000	210.000
9.000	213.000	217.000	220.000	224.000	228.000
9.250	231.000	235.000	239.000	243.000	247.000
9.500	252.000	256.000	261.000	265.000	270.000
9.750	275.000	280.000	285.000	290.000	296.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	301.000	307.000	313.000	319.000	325.000
10.250	329.000	334.000	338.000	343.000	347.000
10.500	351.000	354.000	358.000	362.000	366.000
10.750	370.000	374.000	378.000	383.000	387.000
11.000	391.000	396.000	400.000	406.000	411.000
11.250	417.000	423.000	429.000	435.000	442.000
11.500	449.000	457.000	466.000	477.000	489.000
11.750	501.000	517.000	536.000	561.000	594.000
12.000	641.000	706.000	790.000	873.000	921.000
12.250	941.000	949.000	950.000	946.000	938.000
12.500	930.000	920.000	908.000	895.000	880.000
12.750	866.000	852.000	837.000	822.000	807.000
13.000	791.000	776.000	760.000	745.000	729.000
13.250	714.000	698.000	683.000	669.000	655.000
13.500	641.000	628.000	616.000	604.000	593.000
13.750	583.000	572.000	563.000	554.000	545.000
14.000	537.000	530.000	522.000	515.000	509.000
14.250	503.000	497.000	492.000	486.000	481.000
14.500	476.000	472.000	467.000	463.000	459.000
14.750	455.000	451.000	447.000	444.000	440.000
15.000	437.000	434.000	431.000	428.000	425.000
15.250	422.000	420.000	417.000	415.000	413.000
15.500	411.000	409.000	407.000	405.000	404.000
15.750	402.000	400.000	399.000	398.000	396.000
16.000	395.000	394.000	393.000	392.000	391.000
16.250	390.000	389.000	388.000	387.000	386.000
16.500	385.000	384.000	383.000	383.000	382.000
16.750	381.000	380.000	380.000	379.000	378.000
17.000	378.000	377.000	376.000	376.000	375.000
17.250	375.000	374.000	373.000	373.000	372.000
17.500	372.000	371.000	371.000	370.000	370.000
17.750	369.000	369.000	368.000	368.000	367.000
18.000	367.000	366.000	366.000	365.000	365.000
18.250	364.000	364.000	363.000	363.000	363.000
18.500	362.000	362.000	362.000	361.000	361.000
18.750	361.000	361.000	360.000	360.000	360.000
19.000	360.000	359.000	359.000	359.000	359.000
19.250	359.000	358.000	358.000	358.000	358.000
19.500	358.000	357.000	357.000	357.000	357.000
19.750	357.000	357.000	357.000	356.000	356.000
20.000	356.000	356.000	356.000	356.000	356.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	355.000	355.000	355.000	355.000	355.000
20.500	355.000	355.000	354.000	354.000	354.000
20.750	354.000	354.000	354.000	354.000	354.000
21.000	354.000	353.000	353.000	353.000	353.000
21.250	353.000	353.000	353.000	353.000	352.000
21.500	352.000	352.000	352.000	352.000	352.000
21.750	352.000	352.000	352.000	351.000	351.000
22.000	351.000	351.000	351.000	351.000	351.000
22.250	351.000	351.000	350.000	350.000	350.000
22.500	350.000	350.000	350.000	350.000	350.000
22.750	350.000	349.000	349.000	349.000	349.000
23.000	349.000	349.000	349.000	349.000	349.000
23.250	348.000	348.000	348.000	348.000	348.000
23.500	348.000	348.000	348.000	348.000	347.000
23.750	347.000	347.000	347.000	347.000	347.000
24.000	347.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	1.000	1.000
1.000	1.000	2.000	2.000	3.000	3.000
1.250	4.000	4.000	5.000	5.000	6.000
1.500	7.000	8.000	8.000	9.000	10.000
1.750	11.000	12.000	13.000	13.000	14.000
2.000	15.000	16.000	17.000	19.000	20.000
2.250	21.000	22.000	23.000	24.000	25.000
2.500	27.000	28.000	29.000	30.000	32.000
2.750	33.000	34.000	35.000	37.000	38.000
3.000	40.000	41.000	42.000	44.000	45.000
3.250	47.000	48.000	50.000	51.000	53.000
3.500	54.000	56.000	58.000	59.000	61.000
3.750	62.000	64.000	66.000	67.000	69.000
4.000	71.000	72.000	74.000	76.000	78.000
4.250	79.000	81.000	83.000	85.000	87.000
4.500	90.000	92.000	94.000	96.000	98.000
4.750	101.000	103.000	105.000	107.000	110.000
5.000	112.000	114.000	117.000	119.000	121.000
5.250	124.000	126.000	129.000	131.000	133.000
5.500	136.000	138.000	141.000	143.000	146.000
5.750	148.000	151.000	153.000	156.000	158.000
6.000	161.000	163.000	166.000	169.000	171.000
6.250	174.000	177.000	180.000	183.000	186.000
6.500	190.000	193.000	196.000	200.000	203.000
6.750	207.000	210.000	214.000	217.000	221.000
7.000	225.000	229.000	232.000	236.000	240.000
7.250	244.000	248.000	252.000	256.000	261.000
7.500	265.000	269.000	273.000	278.000	282.000
7.750	287.000	292.000	297.000	302.000	307.000
8.000	312.000	317.000	322.000	326.000	330.000
8.250	334.000	338.000	341.000	344.000	347.000
8.500	350.000	353.000	355.000	358.000	360.000
8.750	363.000	365.000	367.000	369.000	371.000
9.000	373.000	375.000	376.000	378.000	380.000
9.250	382.000	384.000	386.000	388.000	390.000
9.500	392.000	394.000	396.000	398.000	400.000
9.750	402.000	404.000	407.000	409.000	411.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	413.000	415.000	418.000	420.000	422.000
10.250	425.000	427.000	429.000	432.000	434.000
10.500	436.000	439.000	442.000	445.000	449.000
10.750	453.000	457.000	461.000	466.000	471.000
11.000	476.000	482.000	488.000	495.000	502.000
11.250	510.000	519.000	528.000	538.000	548.000
11.500	558.000	570.000	586.000	604.000	622.000
11.750	643.000	669.000	702.000	742.000	796.000
12.000	873.000	982.000	1,130.000	1,275.000	1,362.000
12.250	1,403.000	1,424.000	1,434.000	1,434.000	1,430.000
12.500	1,424.000	1,415.000	1,402.000	1,386.000	1,369.000
12.750	1,351.000	1,332.000	1,313.000	1,292.000	1,272.000
13.000	1,250.000	1,228.000	1,206.000	1,183.000	1,160.000
13.250	1,137.000	1,114.000	1,091.000	1,068.000	1,045.000
13.500	1,023.000	1,000.000	978.000	956.000	934.000
13.750	913.000	893.000	873.000	853.000	834.000
14.000	816.000	797.000	780.000	762.000	746.000
14.250	729.000	713.000	697.000	681.000	667.000
14.500	653.000	640.000	628.000	617.000	606.000
14.750	595.000	585.000	576.000	567.000	558.000
15.000	550.000	542.000	534.000	527.000	520.000
15.250	514.000	508.000	502.000	497.000	492.000
15.500	487.000	483.000	479.000	474.000	471.000
15.750	467.000	464.000	460.000	457.000	454.000
16.000	451.000	449.000	446.000	444.000	441.000
16.250	439.000	437.000	435.000	433.000	431.000
16.500	429.000	428.000	426.000	424.000	423.000
16.750	421.000	420.000	418.000	417.000	416.000
17.000	414.000	413.000	412.000	411.000	409.000
17.250	408.000	407.000	406.000	405.000	404.000
17.500	403.000	402.000	401.000	400.000	399.000
17.750	398.000	397.000	396.000	395.000	394.000
18.000	394.000	393.000	392.000	391.000	390.000
18.250	390.000	389.000	388.000	388.000	387.000
18.500	386.000	386.000	385.000	385.000	384.000
18.750	384.000	383.000	383.000	383.000	382.000
19.000	382.000	381.000	381.000	381.000	380.000
19.250	380.000	380.000	379.000	379.000	379.000
19.500	378.000	378.000	378.000	378.000	377.000
19.750	377.000	377.000	377.000	376.000	376.000
20.000	376.000	376.000	375.000	375.000	375.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	375.000	375.000	374.000	374.000	374.000
20.500	374.000	374.000	373.000	373.000	373.000
20.750	373.000	373.000	372.000	372.000	372.000
21.000	372.000	372.000	371.000	371.000	371.000
21.250	371.000	371.000	370.000	370.000	370.000
21.500	370.000	370.000	370.000	369.000	369.000
21.750	369.000	369.000	369.000	368.000	368.000
22.000	368.000	368.000	368.000	368.000	367.000
22.250	367.000	367.000	367.000	367.000	366.000
22.500	366.000	366.000	366.000	366.000	366.000
22.750	365.000	365.000	365.000	365.000	365.000
23.000	365.000	364.000	364.000	364.000	364.000
23.250	364.000	363.000	363.000	363.000	363.000
23.500	363.000	363.000	362.000	362.000	362.000
23.750	362.000	362.000	362.000	361.000	361.000
24.000	361.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	1.000	1.000	2.000	3.000
0.750	4.000	5.000	6.000	7.000	9.000
1.000	10.000	11.000	13.000	15.000	16.000
1.250	18.000	20.000	22.000	23.000	25.000
1.500	27.000	30.000	32.000	34.000	36.000
1.750	38.000	40.000	43.000	45.000	48.000
2.000	50.000	52.000	55.000	58.000	60.000
2.250	63.000	65.000	68.000	71.000	73.000
2.500	76.000	79.000	82.000	85.000	89.000
2.750	92.000	96.000	99.000	103.000	106.000
3.000	110.000	113.000	117.000	121.000	124.000
3.250	128.000	132.000	136.000	139.000	143.000
3.500	147.000	151.000	155.000	159.000	163.000
3.750	167.000	171.000	175.000	179.000	184.000
4.000	188.000	193.000	197.000	202.000	207.000
4.250	211.000	216.000	221.000	226.000	231.000
4.500	236.000	241.000	246.000	251.000	256.000
4.750	261.000	266.000	271.000	277.000	282.000
5.000	287.000	293.000	299.000	304.000	310.000
5.250	316.000	322.000	327.000	331.000	335.000
5.500	339.000	343.000	346.000	350.000	353.000
5.750	356.000	359.000	361.000	364.000	366.000
6.000	368.000	371.000	373.000	375.000	377.000
6.250	379.000	381.000	382.000	384.000	386.000
6.500	388.000	390.000	391.000	393.000	394.000
6.750	396.000	398.000	399.000	401.000	402.000
7.000	404.000	406.000	407.000	409.000	410.000
7.250	412.000	413.000	415.000	416.000	418.000
7.500	419.000	421.000	422.000	424.000	425.000
7.750	426.000	428.000	429.000	431.000	432.000
8.000	434.000	435.000	437.000	438.000	439.000
8.250	441.000	442.000	444.000	445.000	447.000
8.500	448.000	449.000	451.000	452.000	454.000
8.750	455.000	456.000	458.000	459.000	461.000
9.000	462.000	464.000	465.000	467.000	469.000
9.250	471.000	474.000	476.000	479.000	481.000
9.500	484.000	487.000	490.000	493.000	497.000
9.750	500.000	503.000	507.000	511.000	514.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	518.000	522.000	526.000	530.000	534.000
10.250	538.000	542.000	547.000	551.000	555.000
10.500	560.000	564.000	570.000	576.000	583.000
10.750	590.000	599.000	607.000	617.000	626.000
11.000	637.000	648.000	661.000	674.000	689.000
11.250	705.000	722.000	739.000	758.000	778.000
11.500	799.000	824.000	857.000	894.000	934.000
11.750	979.000	1,034.000	1,104.000	1,191.000	1,307.000
12.000	1,466.000	1,686.000	1,974.000	2,267.000	2,375.000
12.250	2,357.000	2,338.000	2,326.000	2,318.000	2,313.000
12.500	2,311.000	2,308.000	2,303.000	2,294.000	2,283.000
12.750	2,270.000	2,256.000	2,240.000	2,223.000	2,201.000
13.000	2,178.000	2,153.000	2,127.000	2,097.000	2,066.000
13.250	2,034.000	2,001.000	1,970.000	1,942.000	1,913.000
13.500	1,882.000	1,851.000	1,819.000	1,787.000	1,755.000
13.750	1,722.000	1,690.000	1,658.000	1,626.000	1,594.000
14.000	1,564.000	1,535.000	1,506.000	1,477.000	1,449.000
14.250	1,421.000	1,393.000	1,365.000	1,338.000	1,311.000
14.500	1,284.000	1,257.000	1,231.000	1,205.000	1,180.000
14.750	1,154.000	1,129.000	1,105.000	1,080.000	1,057.000
15.000	1,034.000	1,011.000	989.000	967.000	945.000
15.250	925.000	905.000	885.000	866.000	848.000
15.500	830.000	813.000	796.000	779.000	763.000
15.750	748.000	733.000	718.000	703.000	690.000
16.000	676.000	664.000	652.000	641.000	631.000
16.250	621.000	612.000	604.000	595.000	588.000
16.500	580.000	573.000	567.000	560.000	554.000
16.750	549.000	543.000	538.000	533.000	528.000
17.000	524.000	519.000	515.000	512.000	508.000
17.250	504.000	501.000	498.000	494.000	491.000
17.500	489.000	486.000	483.000	480.000	478.000
17.750	475.000	473.000	470.000	468.000	466.000
18.000	464.000	462.000	460.000	457.000	456.000
18.250	454.000	452.000	450.000	449.000	447.000
18.500	446.000	445.000	443.000	442.000	441.000
18.750	440.000	439.000	438.000	437.000	436.000
19.000	435.000	434.000	433.000	432.000	432.000
19.250	431.000	430.000	429.000	429.000	428.000
19.500	427.000	427.000	426.000	426.000	425.000
19.750	425.000	424.000	424.000	423.000	423.000
20.000	422.000	422.000	421.000	421.000	420.000

Subsection: Time vs. Volume
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	420.000	419.000	419.000	418.000	418.000
20.500	418.000	417.000	417.000	416.000	416.000
20.750	416.000	415.000	415.000	414.000	414.000
21.000	414.000	413.000	413.000	412.000	412.000
21.250	412.000	411.000	411.000	411.000	410.000
21.500	410.000	409.000	409.000	409.000	408.000
21.750	408.000	408.000	407.000	407.000	407.000
22.000	406.000	406.000	406.000	405.000	405.000
22.250	405.000	404.000	404.000	403.000	403.000
22.500	403.000	402.000	402.000	402.000	401.000
22.750	401.000	401.000	400.000	400.000	400.000
23.000	399.000	399.000	399.000	398.000	398.000
23.250	398.000	397.000	397.000	397.000	396.000
23.500	396.000	396.000	395.000	395.000	395.000
23.750	394.000	394.000	394.000	393.000	393.000
24.000	393.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	0.000	0.000
1.000	0.000	0.000	0.000	0.000	0.000
1.250	0.000	1.000	1.000	1.000	1.000
1.500	1.000	1.000	2.000	2.000	2.000
1.750	3.000	3.000	3.000	4.000	4.000
2.000	4.000	5.000	5.000	5.000	6.000
2.250	6.000	7.000	7.000	8.000	8.000
2.500	9.000	9.000	10.000	10.000	11.000
2.750	12.000	12.000	13.000	13.000	14.000
3.000	15.000	15.000	16.000	16.000	17.000
3.250	18.000	19.000	19.000	20.000	21.000
3.500	21.000	22.000	23.000	24.000	24.000
3.750	25.000	26.000	27.000	28.000	28.000
4.000	29.000	30.000	31.000	32.000	33.000
4.250	34.000	34.000	35.000	36.000	37.000
4.500	38.000	39.000	40.000	41.000	42.000
4.750	43.000	44.000	45.000	46.000	47.000
5.000	48.000	49.000	50.000	51.000	52.000
5.250	53.000	54.000	55.000	56.000	57.000
5.500	58.000	59.000	60.000	61.000	62.000
5.750	63.000	65.000	66.000	67.000	68.000
6.000	69.000	70.000	71.000	73.000	74.000
6.250	76.000	77.000	79.000	80.000	82.000
6.500	83.000	85.000	86.000	88.000	90.000
6.750	91.000	93.000	95.000	96.000	98.000
7.000	100.000	102.000	104.000	105.000	107.000
7.250	109.000	111.000	113.000	115.000	117.000
7.500	119.000	121.000	123.000	125.000	127.000
7.750	129.000	131.000	134.000	136.000	138.000
8.000	140.000	142.000	145.000	147.000	149.000
8.250	152.000	154.000	156.000	159.000	162.000
8.500	164.000	167.000	170.000	173.000	176.000
8.750	179.000	182.000	185.000	188.000	191.000
9.000	194.000	197.000	200.000	203.000	207.000
9.250	210.000	214.000	217.000	221.000	225.000
9.500	229.000	233.000	237.000	242.000	246.000
9.750	250.000	255.000	260.000	265.000	270.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	276.000	281.000	286.000	291.000	295.000
10.250	299.000	303.000	307.000	312.000	316.000
10.500	321.000	325.000	330.000	335.000	340.000
10.750	345.000	351.000	356.000	362.000	369.000
11.000	375.000	382.000	389.000	396.000	404.000
11.250	412.000	421.000	430.000	439.000	449.000
11.500	459.000	470.000	484.000	499.000	515.000
11.750	533.000	554.000	580.000	612.000	653.000
12.000	708.000	785.000	889.000	995.000	1,067.000
12.250	1,111.000	1,143.000	1,168.000	1,186.000	1,201.000
12.500	1,214.000	1,224.000	1,232.000	1,236.000	1,239.000
12.750	1,241.000	1,242.000	1,241.000	1,239.000	1,236.000
13.000	1,233.000	1,228.000	1,222.000	1,215.000	1,207.000
13.250	1,199.000	1,189.000	1,179.000	1,167.000	1,155.000
13.500	1,141.000	1,127.000	1,112.000	1,096.000	1,079.000
13.750	1,063.000	1,046.000	1,029.000	1,011.000	993.000
14.000	976.000	958.000	941.000	923.000	906.000
14.250	889.000	872.000	855.000	838.000	822.000
14.500	805.000	789.000	773.000	757.000	742.000
14.750	726.000	711.000	696.000	682.000	667.000
15.000	653.000	639.000	625.000	611.000	598.000
15.250	586.000	574.000	563.000	553.000	544.000
15.500	535.000	526.000	518.000	510.000	503.000
15.750	496.000	489.000	483.000	477.000	472.000
16.000	466.000	461.000	457.000	452.000	448.000
16.250	444.000	440.000	437.000	433.000	430.000
16.500	427.000	424.000	421.000	418.000	415.000
16.750	413.000	410.000	408.000	406.000	404.000
17.000	402.000	400.000	398.000	396.000	394.000
17.250	392.000	391.000	389.000	387.000	386.000
17.500	384.000	383.000	382.000	380.000	379.000
17.750	378.000	376.000	375.000	374.000	373.000
18.000	371.000	370.000	369.000	368.000	367.000
18.250	366.000	365.000	364.000	363.000	362.000
18.500	361.000	361.000	360.000	359.000	358.000
18.750	358.000	357.000	356.000	356.000	355.000
19.000	354.000	354.000	353.000	353.000	352.000
19.250	352.000	351.000	351.000	350.000	350.000
19.500	350.000	349.000	349.000	348.000	348.000
19.750	348.000	347.000	347.000	347.000	346.000
20.000	346.000	346.000	345.000	345.000	345.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	344.000	344.000	344.000	344.000	343.000
20.500	343.000	343.000	343.000	342.000	342.000
20.750	342.000	342.000	341.000	341.000	341.000
21.000	341.000	340.000	340.000	340.000	340.000
21.250	340.000	339.000	339.000	339.000	339.000
21.500	338.000	338.000	338.000	338.000	338.000
21.750	337.000	337.000	337.000	337.000	337.000
22.000	336.000	336.000	336.000	336.000	336.000
22.250	335.000	335.000	335.000	335.000	335.000
22.500	334.000	334.000	334.000	334.000	334.000
22.750	333.000	333.000	333.000	333.000	333.000
23.000	332.000	332.000	332.000	332.000	332.000
23.250	331.000	331.000	331.000	331.000	331.000
23.500	330.000	330.000	330.000	330.000	330.000
23.750	329.000	329.000	329.000	329.000	329.000
24.000	328.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	0.000	0.000	0.000	0.000
0.750	0.000	0.000	0.000	1.000	1.000
1.000	1.000	2.000	2.000	2.000	3.000
1.250	3.000	4.000	4.000	5.000	6.000
1.500	6.000	7.000	7.000	8.000	9.000
1.750	10.000	11.000	11.000	12.000	13.000
2.000	14.000	15.000	16.000	17.000	18.000
2.250	19.000	20.000	21.000	22.000	23.000
2.500	24.000	25.000	26.000	27.000	28.000
2.750	30.000	31.000	32.000	33.000	34.000
3.000	36.000	37.000	38.000	40.000	41.000
3.250	42.000	44.000	45.000	46.000	48.000
3.500	49.000	51.000	52.000	53.000	55.000
3.750	56.000	58.000	59.000	61.000	62.000
4.000	64.000	65.000	67.000	68.000	70.000
4.250	72.000	73.000	75.000	77.000	79.000
4.500	81.000	83.000	85.000	87.000	89.000
4.750	91.000	93.000	95.000	97.000	99.000
5.000	101.000	104.000	106.000	108.000	110.000
5.250	112.000	114.000	116.000	119.000	121.000
5.500	123.000	125.000	127.000	130.000	132.000
5.750	134.000	136.000	139.000	141.000	143.000
6.000	145.000	148.000	150.000	153.000	155.000
6.250	158.000	160.000	163.000	166.000	169.000
6.500	172.000	175.000	178.000	181.000	184.000
6.750	187.000	191.000	194.000	197.000	201.000
7.000	204.000	208.000	211.000	215.000	218.000
7.250	222.000	226.000	230.000	233.000	237.000
7.500	241.000	245.000	249.000	253.000	258.000
7.750	262.000	267.000	271.000	276.000	281.000
8.000	285.000	289.000	293.000	296.000	299.000
8.250	303.000	306.000	310.000	313.000	317.000
8.500	320.000	324.000	327.000	331.000	334.000
8.750	337.000	341.000	344.000	347.000	350.000
9.000	353.000	356.000	359.000	363.000	366.000
9.250	369.000	372.000	376.000	379.000	383.000
9.500	386.000	390.000	393.000	397.000	400.000
9.750	404.000	408.000	411.000	415.000	419.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	422.000	426.000	430.000	434.000	438.000
10.250	442.000	446.000	450.000	454.000	458.000
10.500	462.000	466.000	471.000	476.000	482.000
10.750	488.000	494.000	501.000	508.000	515.000
11.000	523.000	532.000	541.000	551.000	562.000
11.250	573.000	586.000	599.000	613.000	628.000
11.500	643.000	660.000	682.000	707.000	733.000
11.750	764.000	801.000	848.000	905.000	978.000
12.000	1,077.000	1,210.000	1,384.000	1,565.000	1,685.000
12.250	1,758.000	1,820.000	1,866.000	1,901.000	1,928.000
12.500	1,952.000	1,971.000	1,984.000	1,994.000	2,001.000
12.750	2,007.000	2,012.000	2,015.000	2,017.000	2,017.000
13.000	2,016.000	2,014.000	2,011.000	2,006.000	2,000.000
13.250	1,994.000	1,987.000	1,978.000	1,969.000	1,958.000
13.500	1,945.000	1,931.000	1,916.000	1,900.000	1,883.000
13.750	1,865.000	1,846.000	1,827.000	1,807.000	1,787.000
14.000	1,765.000	1,745.000	1,726.000	1,708.000	1,689.000
14.250	1,670.000	1,650.000	1,629.000	1,608.000	1,586.000
14.500	1,563.000	1,539.000	1,515.000	1,491.000	1,466.000
14.750	1,440.000	1,414.000	1,388.000	1,364.000	1,339.000
15.000	1,314.000	1,289.000	1,264.000	1,239.000	1,213.000
15.250	1,188.000	1,164.000	1,139.000	1,115.000	1,091.000
15.500	1,067.000	1,043.000	1,020.000	997.000	974.000
15.750	952.000	931.000	910.000	890.000	870.000
16.000	850.000	831.000	813.000	795.000	778.000
16.250	761.000	744.000	728.000	712.000	697.000
16.500	682.000	667.000	653.000	640.000	626.000
16.750	613.000	600.000	589.000	578.000	567.000
17.000	558.000	549.000	540.000	532.000	525.000
17.250	518.000	511.000	504.000	498.000	493.000
17.500	487.000	482.000	477.000	472.000	468.000
17.750	464.000	460.000	456.000	452.000	449.000
18.000	445.000	442.000	439.000	436.000	433.000
18.250	431.000	428.000	426.000	424.000	421.000
18.500	419.000	417.000	416.000	414.000	412.000
18.750	410.000	409.000	407.000	406.000	405.000
19.000	403.000	402.000	401.000	400.000	399.000
19.250	398.000	397.000	396.000	395.000	394.000
19.500	393.000	392.000	391.000	390.000	390.000
19.750	389.000	388.000	388.000	387.000	386.000
20.000	386.000	385.000	384.000	384.000	383.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	383.000	382.000	382.000	381.000	381.000
20.500	380.000	380.000	379.000	379.000	378.000
20.750	378.000	377.000	377.000	377.000	376.000
21.000	376.000	375.000	375.000	375.000	374.000
21.250	374.000	373.000	373.000	373.000	372.000
21.500	372.000	372.000	371.000	371.000	370.000
21.750	370.000	370.000	369.000	369.000	369.000
22.000	368.000	368.000	368.000	367.000	367.000
22.250	367.000	366.000	366.000	365.000	365.000
22.500	365.000	364.000	364.000	364.000	363.000
22.750	363.000	363.000	362.000	362.000	362.000
23.000	361.000	361.000	361.000	360.000	360.000
23.250	360.000	359.000	359.000	359.000	358.000
23.500	358.000	358.000	357.000	357.000	357.000
23.750	356.000	356.000	356.000	355.000	355.000
24.000	355.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
0.000	0.000	0.000	0.000	0.000	0.000
0.250	0.000	0.000	0.000	0.000	0.000
0.500	0.000	1.000	1.000	2.000	3.000
0.750	4.000	4.000	5.000	7.000	8.000
1.000	9.000	10.000	12.000	13.000	15.000
1.250	16.000	18.000	19.000	21.000	23.000
1.500	25.000	27.000	29.000	30.000	32.000
1.750	34.000	37.000	39.000	41.000	43.000
2.000	45.000	47.000	50.000	52.000	54.000
2.250	57.000	59.000	61.000	64.000	66.000
2.500	69.000	71.000	74.000	77.000	80.000
2.750	83.000	86.000	90.000	93.000	96.000
3.000	99.000	103.000	106.000	109.000	112.000
3.250	116.000	119.000	123.000	126.000	130.000
3.500	133.000	137.000	140.000	144.000	147.000
3.750	151.000	154.000	158.000	162.000	166.000
4.000	171.000	175.000	179.000	183.000	188.000
4.250	192.000	196.000	201.000	205.000	210.000
4.500	214.000	219.000	224.000	228.000	233.000
4.750	238.000	242.000	247.000	252.000	257.000
5.000	263.000	268.000	273.000	279.000	284.000
5.250	289.000	293.000	296.000	300.000	304.000
5.500	308.000	312.000	316.000	320.000	324.000
5.750	327.000	331.000	335.000	338.000	342.000
6.000	345.000	349.000	352.000	355.000	359.000
6.250	362.000	366.000	369.000	372.000	375.000
6.500	379.000	382.000	385.000	388.000	391.000
6.750	394.000	397.000	400.000	403.000	406.000
7.000	409.000	412.000	415.000	418.000	421.000
7.250	423.000	426.000	429.000	432.000	435.000
7.500	437.000	440.000	443.000	445.000	448.000
7.750	451.000	453.000	456.000	459.000	462.000
8.000	464.000	467.000	470.000	472.000	475.000
8.250	478.000	481.000	483.000	486.000	489.000
8.500	491.000	494.000	497.000	499.000	502.000
8.750	505.000	507.000	510.000	513.000	515.000
9.000	518.000	521.000	524.000	527.000	530.000
9.250	534.000	537.000	541.000	545.000	550.000
9.500	554.000	559.000	564.000	569.000	574.000
9.750	579.000	585.000	591.000	597.000	603.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
10.000	609.000	615.000	621.000	628.000	635.000
10.250	641.000	648.000	655.000	662.000	670.000
10.500	678.000	687.000	697.000	707.000	719.000
10.750	732.000	747.000	762.000	778.000	796.000
11.000	815.000	835.000	858.000	882.000	908.000
11.250	937.000	967.000	999.000	1,033.000	1,069.000
11.500	1,106.000	1,148.000	1,198.000	1,253.000	1,311.000
11.750	1,375.000	1,455.000	1,550.000	1,662.000	1,810.000
12.000	2,002.000	2,140.000	2,197.000	2,199.000	2,182.000
12.250	2,164.000	2,130.000	2,107.000	2,091.000	2,080.000
12.500	2,075.000	2,071.000	2,065.000	2,061.000	2,059.000
12.750	2,058.000	2,057.000	2,056.000	2,055.000	2,053.000
13.000	2,052.000	2,051.000	2,050.000	2,049.000	2,048.000
13.250	2,047.000	2,046.000	2,045.000	2,044.000	2,043.000
13.500	2,043.000	2,042.000	2,041.000	2,040.000	2,040.000
13.750	2,039.000	2,039.000	2,038.000	2,038.000	2,037.000
14.000	2,037.000	2,036.000	2,036.000	2,035.000	2,035.000
14.250	2,034.000	2,033.000	2,031.000	2,029.000	2,025.000
14.500	2,021.000	2,016.000	2,011.000	2,004.000	1,998.000
14.750	1,990.000	1,982.000	1,974.000	1,964.000	1,952.000
15.000	1,940.000	1,926.000	1,912.000	1,897.000	1,882.000
15.250	1,865.000	1,848.000	1,830.000	1,812.000	1,793.000
15.500	1,774.000	1,754.000	1,737.000	1,720.000	1,703.000
15.750	1,686.000	1,668.000	1,650.000	1,632.000	1,612.000
16.000	1,593.000	1,573.000	1,552.000	1,530.000	1,509.000
16.250	1,487.000	1,465.000	1,442.000	1,419.000	1,396.000
16.500	1,375.000	1,353.000	1,331.000	1,310.000	1,288.000
16.750	1,267.000	1,245.000	1,224.000	1,203.000	1,182.000
17.000	1,161.000	1,140.000	1,119.000	1,099.000	1,078.000
17.250	1,058.000	1,038.000	1,019.000	999.000	980.000
17.500	962.000	944.000	926.000	908.000	891.000
17.750	875.000	858.000	842.000	827.000	811.000
18.000	796.000	782.000	767.000	753.000	740.000
18.250	727.000	714.000	701.000	689.000	677.000
18.500	665.000	654.000	643.000	632.000	622.000
18.750	612.000	602.000	594.000	585.000	578.000
19.000	570.000	564.000	557.000	551.000	546.000
19.250	541.000	536.000	531.000	527.000	523.000
19.500	519.000	515.000	511.000	508.000	505.000
19.750	502.000	499.000	497.000	494.000	492.000
20.000	489.000	487.000	485.000	483.000	481.000

Subsection: Time vs. Volume
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Time vs. Volume (ft³)

Output Time increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)	Volume (ft³)
20.250	479.000	478.000	476.000	474.000	473.000
20.500	471.000	470.000	468.000	467.000	466.000
20.750	465.000	463.000	462.000	461.000	460.000
21.000	459.000	458.000	457.000	456.000	455.000
21.250	454.000	453.000	452.000	452.000	451.000
21.500	450.000	449.000	448.000	447.000	447.000
21.750	446.000	445.000	444.000	444.000	443.000
22.000	442.000	442.000	441.000	440.000	439.000
22.250	439.000	438.000	437.000	437.000	436.000
22.500	435.000	435.000	434.000	433.000	433.000
22.750	432.000	431.000	431.000	430.000	429.000
23.000	429.000	428.000	428.000	427.000	426.000
23.250	426.000	425.000	424.000	424.000	423.000
23.500	422.000	422.000	421.000	421.000	420.000
23.750	419.000	419.000	418.000	417.000	417.000
24.000	416.000	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Elevation vs. Volume Curve
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
474.50	0.000
474.65	81.500
474.80	178.800
474.95	285.460
475.10	398.940
475.25	517.620
475.40	640.280
475.55	765.960
475.70	893.810
475.85	1,023.070
476.00	1,153.020
476.15	1,282.970
476.30	1,412.230
476.45	1,540.080
476.60	1,665.760
476.75	1,788.430
476.90	1,907.100
477.05	2,020.580
477.20	2,127.240
477.35	2,224.550
477.50	2,306.040
478.00	2,510.040

Subsection: Elevation vs. Volume Curve
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
474.50	0.000
474.65	81.500
474.80	178.800
474.95	285.460
475.10	398.940
475.25	517.620
475.40	640.280
475.55	765.960
475.70	893.810
475.85	1,023.070
476.00	1,153.020
476.15	1,282.970
476.30	1,412.230
476.45	1,540.080
476.60	1,665.760
476.75	1,788.430
476.90	1,907.100
477.05	2,020.580
477.20	2,127.240
477.35	2,224.550
477.50	2,306.040
478.00	2,510.040

Subsection: Elevation vs. Volume Curve
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
474.50	0.000
474.65	81.500
474.80	178.800
474.95	285.460
475.10	398.940
475.25	517.620
475.40	640.280
475.55	765.960
475.70	893.810
475.85	1,023.070
476.00	1,153.020
476.15	1,282.970
476.30	1,412.230
476.45	1,540.080
476.60	1,665.760
476.75	1,788.430
476.90	1,907.100
477.05	2,020.580
477.20	2,127.240
477.35	2,224.550
477.50	2,306.040
478.00	2,510.040

Subsection: Elevation vs. Volume Curve
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
453.50	0.000
453.65	71.910
453.80	157.760
453.95	251.880
454.10	352.010
454.25	456.720
454.40	564.950
454.55	675.850
454.70	788.660
454.85	902.710
455.00	1,017.370
455.15	1,132.040
455.30	1,246.090
455.45	1,358.900
455.60	1,469.790
455.75	1,578.020
455.90	1,682.730
456.05	1,782.860
456.20	1,876.980
456.35	1,962.840
456.50	2,034.740
457.00	2,214.740

Subsection: Elevation vs. Volume Curve
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
453.50	0.000
453.65	71.910
453.80	157.760
453.95	251.880
454.10	352.010
454.25	456.720
454.40	564.950
454.55	675.850
454.70	788.660
454.85	902.710
455.00	1,017.370
455.15	1,132.040
455.30	1,246.090
455.45	1,358.900
455.60	1,469.790
455.75	1,578.020
455.90	1,682.730
456.05	1,782.860
456.20	1,876.980
456.35	1,962.840
456.50	2,034.740
457.00	2,214.740

Subsection: Elevation vs. Volume Curve
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Elevation-Volume

Pond Elevation (ft)	Pond Volume (ft^3)
453.50	0.000
453.65	71.910
453.80	157.760
453.95	251.880
454.10	352.010
454.25	456.720
454.40	564.950
454.55	675.850
454.70	788.660
454.85	902.710
455.00	1,017.370
455.15	1,132.040
455.30	1,246.090
455.45	1,358.900
455.60	1,469.790
455.75	1,578.020
455.90	1,682.730
456.05	1,782.860
456.20	1,876.980
456.35	1,962.840
456.50	2,034.740
457.00	2,214.740

Subsection: Outlet Input Data
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	474.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	478.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 301	Forward	TW	475.00	478.00
Rectangular Weir	Weir - 301	Forward	TW	477.50	478.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 301 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	475.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 301 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	477.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 301 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 301 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.00	(N/A)	0.00
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301 + Weir - 301
Orifice - 301 + Weir - 301

Subsection: Outlet Input Data
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	474.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	478.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 301	Forward	TW	475.00	478.00
Rectangular Weir	Weir - 301	Forward	TW	477.50	478.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 301 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	475.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 301 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	477.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 301 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 301 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.00	(N/A)	0.00
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301 + Weir - 301
Orifice - 301 + Weir - 301

Subsection: Outlet Input Data
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	474.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	478.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 301	Forward	TW	475.00	478.00
Rectangular Weir	Weir - 301	Forward	TW	477.50	478.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 301 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	475.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 301 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	477.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 301 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 301 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.00	(N/A)	0.00
476.00	0.00	(N/A)	0.00
476.50	0.00	(N/A)	0.00
477.00	0.00	(N/A)	0.00
477.50	0.00	(N/A)	0.00
478.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
HW & TW below Inv.El.=477.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
474.50	0.00	(N/A)	0.00
475.00	0.00	(N/A)	0.00
475.50	0.14	(N/A)	0.00
476.00	0.22	(N/A)	0.00
476.50	0.28	(N/A)	0.00
477.00	0.32	(N/A)	0.00
477.50	0.36	(N/A)	0.00
478.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301
Orifice - 301 + Weir - 301
Orifice - 301 + Weir - 301

Subsection: Outlet Input Data
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	453.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	457.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 302	Forward	TW	454.00	457.00
Rectangular Weir	Weir - 302	Forward	TW	456.50	457.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 302 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	454.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 302 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	456.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 302 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 302 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302 + Weir - 302
Orifice - 302 + Weir - 302

Subsection: Outlet Input Data
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	453.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	457.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 302	Forward	TW	454.00	457.00
Rectangular Weir	Weir - 302	Forward	TW	456.50	457.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 302 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	454.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 302 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	456.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 302 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 302 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302 + Weir - 302
Orifice - 302 + Weir - 302

Subsection: Outlet Input Data
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Requested Pond Water Surface Elevations	
Minimum (Headwater)	453.50 ft
Increment (Headwater)	0.50 ft
Maximum (Headwater)	457.00 ft

Outlet Connectivity

Structure Type	Outlet ID	Direction	Outfall	E1 (ft)	E2 (ft)
Orifice-Circular	Orifice - 302	Forward	TW	454.00	457.00
Rectangular Weir	Weir - 302	Forward	TW	456.50	457.00
Tailwater Settings	Tailwater			(N/A)	(N/A)

Structure ID: Orifice - 302 Structure Type: Orifice-Circular	
Number of Openings	1
Elevation	454.00 ft
Orifice Diameter	3.0 in
Orifice Coefficient	0.600

Structure ID: Weir - 302 Structure Type: Rectangular Weir	
Number of Openings	1
Elevation	456.50 ft
Weir Length	2.00 ft
Weir Coefficient	3.00 (ft^0.5)/s

Structure ID: TW Structure Type: TW Setup, DS Channel	
Tailwater Type	Free Outfall

Convergence Tolerances	
Maximum Iterations	30
Tailwater Tolerance (Minimum)	0.01 ft
Tailwater Tolerance (Maximum)	0.50 ft
Headwater Tolerance (Minimum)	0.01 ft
Headwater Tolerance (Maximum)	0.50 ft
Flow Tolerance (Minimum)	0.001 ft³/s
Flow Tolerance (Maximum)	10.000 ft³/s

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Orifice - 302 (Orifice-Circular)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	0.40	(N/A)	0.00

Computation Messages
HW & TW below invert
Upstream HW & DNstream TW < Inv.El
H =.38
H =.88
H =1.38
H =1.88
H =2.38
H =2.88

Subsection: Individual Outlet Curves
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

RATING TABLE FOR ONE OUTLET TYPE
Structure ID = Weir - 302 (Rectangular Weir)

Upstream ID = (Pond Water Surface)
Downstream ID = Tailwater (Pond Outfall)

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.00	(N/A)	0.00
455.00	0.00	(N/A)	0.00
455.50	0.00	(N/A)	0.00
456.00	0.00	(N/A)	0.00
456.50	0.00	(N/A)	0.00
457.00	2.12	(N/A)	0.00

Computation Messages
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
HW & TW below Inv.El.=456.500
H=.00; Htw=.00; Qfree=.00;
H=.50; Htw=.00; Qfree=2.12;

Subsection: Composite Rating Curve
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Composite Outflow Summary

Water Surface Elevation (ft)	Flow (ft^3/s)	Tailwater Elevation (ft)	Convergence Error (ft)
453.50	0.00	(N/A)	0.00
454.00	0.00	(N/A)	0.00
454.50	0.14	(N/A)	0.00
455.00	0.22	(N/A)	0.00
455.50	0.28	(N/A)	0.00
456.00	0.32	(N/A)	0.00
456.50	0.36	(N/A)	0.00
457.00	2.52	(N/A)	0.00

Contributing Structures
None Contributing
None Contributing
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302
Orifice - 302 + Weir - 302
Orifice - 302 + Weir - 302

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-301
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
474.50	0.00	0.000	0.00	0.00	0.00	0.00
475.00	0.00	323.287	0.00	0.00	0.00	3.59
475.50	0.14	724.067	0.00	0.00	0.14	8.19
476.00	0.22	1,153.020	0.00	0.00	0.22	13.03
476.50	0.28	1,581.973	0.00	0.00	0.28	17.85
477.00	0.32	1,982.753	0.00	0.00	0.32	22.35
477.50	0.36	2,306.040	0.00	0.00	0.36	25.99
478.00	2.52	2,510.040	0.00	0.00	2.52	30.41

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-301
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
474.50	0.00	0.000	0.00	0.00	0.00	0.00
475.00	0.00	323.287	0.00	0.00	0.00	3.59
475.50	0.14	724.067	0.00	0.00	0.14	8.19
476.00	0.22	1,153.020	0.00	0.00	0.22	13.03
476.50	0.28	1,581.973	0.00	0.00	0.28	17.85
477.00	0.32	1,982.753	0.00	0.00	0.32	22.35
477.50	0.36	2,306.040	0.00	0.00	0.36	25.99
478.00	2.52	2,510.040	0.00	0.00	2.52	30.41

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-301
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
474.50	0.00	0.000	0.00	0.00	0.00	0.00
475.00	0.00	323.287	0.00	0.00	0.00	3.59
475.50	0.14	724.067	0.00	0.00	0.14	8.19
476.00	0.22	1,153.020	0.00	0.00	0.22	13.03
476.50	0.28	1,581.973	0.00	0.00	0.28	17.85
477.00	0.32	1,982.753	0.00	0.00	0.32	22.35
477.50	0.36	2,306.040	0.00	0.00	0.36	25.99
478.00	2.52	2,510.040	0.00	0.00	2.52	30.41

Subsection: Level Pool Pond Routing Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.69 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	0.19 ft³/s	Time to Peak (Flow, Outlet)	12.350 hours

Elevation (Water Surface, Peak)	475.77 ft
Volume (Peak)	949.896 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	2,358.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	2,010.000 ft³
Volume (Retained)	345.000 ft³
Volume (Unrouted)	-3.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.14 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	0.26 ft³/s	Time to Peak (Flow, Outlet)	12.400 hours

Elevation (Water Surface, Peak)	476.33 ft
Volume (Peak)	1,434.436 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	3,912.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	3,549.000 ft³
Volume (Retained)	359.000 ft³
Volume (Unrouted)	-5.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	474.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	2.15 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	1.09 ft³/s	Time to Peak (Flow, Outlet)	12.200 hours

Elevation (Water Surface, Peak)	477.67 ft
Volume (Peak)	2,375.045 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	7,503.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	7,106.000 ft³
Volume (Retained)	388.000 ft³
Volume (Unrouted)	-9.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.19 ft³/s
Time to Peak	12.350 hours
Hydrograph Volume	2,009.566 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.200	0.00	0.00	0.00	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.02	0.02	0.02	0.02	0.02
10.950	0.02	0.03	0.03	0.03	0.03
11.200	0.03	0.04	0.04	0.04	0.04
11.450	0.04	0.05	0.05	0.05	0.06
11.700	0.06	0.07	0.07	0.08	0.09
11.950	0.10	0.12	0.14	0.16	0.17
12.200	0.18	0.18	0.19	0.19	0.18
12.450	0.18	0.18	0.18	0.18	0.18
12.700	0.17	0.17	0.17	0.16	0.16
12.950	0.16	0.16	0.15	0.15	0.15
13.200	0.15	0.14	0.14	0.13	0.13
13.450	0.12	0.12	0.11	0.11	0.10
13.700	0.10	0.10	0.09	0.09	0.09
13.950	0.08	0.08	0.08	0.07	0.07
14.200	0.07	0.07	0.06	0.06	0.06
14.450	0.06	0.06	0.06	0.05	0.05
14.700	0.05	0.05	0.05	0.05	0.05
14.950	0.04	0.04	0.04	0.04	0.04
15.200	0.04	0.04	0.04	0.04	0.03
15.450	0.03	0.03	0.03	0.03	0.03
15.700	0.03	0.03	0.03	0.03	0.03
15.950	0.03	0.03	0.03	0.03	0.03
16.200	0.03	0.03	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.26 ft³/s
Time to Peak	12.400 hours
Hydrograph Volume	3,548.597 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.100	0.00	0.00	0.00	0.00	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.02	0.02
8.850	0.02	0.02	0.02	0.02	0.02
9.100	0.02	0.02	0.02	0.02	0.02
9.350	0.02	0.02	0.03	0.03	0.03
9.600	0.03	0.03	0.03	0.03	0.03
9.850	0.03	0.03	0.03	0.03	0.03
10.100	0.04	0.04	0.04	0.04	0.04
10.350	0.04	0.04	0.04	0.04	0.04
10.600	0.04	0.05	0.05	0.05	0.05
10.850	0.05	0.05	0.06	0.06	0.06
11.100	0.06	0.06	0.07	0.07	0.07
11.350	0.08	0.08	0.08	0.09	0.09
11.600	0.10	0.10	0.11	0.12	0.13
11.850	0.14	0.15	0.16	0.17	0.19
12.100	0.22	0.24	0.25	0.25	0.26
12.350	0.26	0.26	0.26	0.26	0.26
12.600	0.25	0.25	0.25	0.25	0.24
12.850	0.24	0.24	0.24	0.23	0.23
13.100	0.23	0.22	0.22	0.22	0.21
13.350	0.21	0.21	0.20	0.20	0.19
13.600	0.19	0.19	0.18	0.18	0.17
13.850	0.17	0.17	0.16	0.16	0.16
14.100	0.15	0.15	0.15	0.15	0.14
14.350	0.14	0.13	0.12	0.12	0.12
14.600	0.11	0.11	0.10	0.10	0.10
14.850	0.09	0.09	0.09	0.08	0.08
15.100	0.08	0.08	0.07	0.07	0.07
15.350	0.07	0.06	0.06	0.06	0.06
15.600	0.06	0.06	0.06	0.05	0.05
15.850	0.05	0.05	0.05	0.05	0.05
16.100	0.05	0.05	0.04	0.04	0.04
16.350	0.04	0.04	0.04	0.04	0.04
16.600	0.04	0.04	0.04	0.04	0.04
16.850	0.04	0.04	0.04	0.03	0.03
17.100	0.03	0.03	0.03	0.03	0.03

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.350	0.03	0.03	0.03	0.03	0.03
17.600	0.03	0.03	0.03	0.03	0.03
17.850	0.03	0.03	0.03	0.03	0.03
18.100	0.03	0.03	0.03	0.03	0.03
18.350	0.02	0.02	0.02	0.02	0.02
18.600	0.02	0.02	0.02	0.02	0.02
18.850	0.02	0.02	0.02	0.02	0.02
19.100	0.02	0.02	0.02	0.02	0.02
19.350	0.02	0.02	0.02	0.02	0.02
19.600	0.02	0.02	0.02	0.02	0.02
19.850	0.02	0.02	0.02	0.02	0.02
20.100	0.02	0.02	0.02	0.02	0.02
20.350	0.02	0.02	0.02	0.02	0.02
20.600	0.02	0.02	0.02	0.02	0.02
20.850	0.02	0.02	0.02	0.02	0.02
21.100	0.02	0.02	0.02	0.02	0.02
21.350	0.02	0.02	0.02	0.02	0.02
21.600	0.02	0.02	0.02	0.02	0.02
21.850	0.02	0.02	0.02	0.02	0.02
22.100	0.02	0.02	0.02	0.02	0.02
22.350	0.02	0.02	0.02	0.02	0.02
22.600	0.02	0.02	0.02	0.02	0.02
22.850	0.02	0.02	0.02	0.02	0.02
23.100	0.02	0.02	0.02	0.02	0.02
23.350	0.02	0.02	0.02	0.02	0.02
23.600	0.01	0.01	0.01	0.01	0.01
23.850	0.01	0.01	0.01	0.01	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Peak Discharge	1.09 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	7,105.959 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.300	0.00	0.00	0.00	0.00	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.02	0.02	0.02
6.050	0.02	0.02	0.02	0.02	0.02
6.300	0.02	0.02	0.02	0.02	0.02
6.550	0.03	0.03	0.03	0.03	0.03
6.800	0.03	0.03	0.03	0.03	0.03
7.050	0.03	0.03	0.03	0.03	0.03
7.300	0.03	0.03	0.04	0.04	0.04
7.550	0.04	0.04	0.04	0.04	0.04
7.800	0.04	0.04	0.04	0.04	0.04
8.050	0.04	0.04	0.04	0.04	0.04
8.300	0.04	0.05	0.05	0.05	0.05
8.550	0.05	0.05	0.05	0.05	0.05
8.800	0.05	0.05	0.05	0.05	0.05
9.050	0.05	0.05	0.05	0.05	0.06
9.300	0.06	0.06	0.06	0.06	0.06
9.550	0.06	0.06	0.06	0.06	0.07
9.800	0.07	0.07	0.07	0.07	0.07
10.050	0.07	0.08	0.08	0.08	0.08
10.300	0.08	0.08	0.08	0.09	0.09
10.550	0.09	0.09	0.09	0.10	0.10
10.800	0.10	0.10	0.11	0.11	0.11
11.050	0.12	0.12	0.13	0.13	0.14
11.300	0.14	0.15	0.15	0.15	0.16
11.550	0.16	0.17	0.18	0.18	0.19
11.800	0.20	0.21	0.23	0.24	0.26
12.050	0.29	0.32	0.36	1.09	0.90
12.300	0.70	0.58	0.49	0.44	0.41
12.550	0.39	0.36	0.36	0.36	0.36
12.800	0.36	0.35	0.35	0.35	0.35
13.050	0.34	0.34	0.34	0.33	0.33
13.300	0.33	0.32	0.32	0.31	0.31
13.550	0.31	0.30	0.30	0.30	0.29
13.800	0.29	0.29	0.28	0.28	0.27
14.050	0.27	0.27	0.26	0.26	0.26
14.300	0.25	0.25	0.24	0.24	0.24

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: INLET-301 (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.550	0.23	0.23	0.23	0.22	0.22
14.800	0.22	0.21	0.21	0.20	0.20
15.050	0.20	0.19	0.19	0.18	0.18
15.300	0.18	0.17	0.17	0.17	0.16
15.550	0.16	0.16	0.15	0.15	0.15
15.800	0.15	0.14	0.14	0.13	0.13
16.050	0.12	0.12	0.12	0.11	0.11
16.300	0.11	0.10	0.10	0.10	0.09
16.550	0.09	0.09	0.09	0.09	0.08
16.800	0.08	0.08	0.08	0.08	0.07
17.050	0.07	0.07	0.07	0.07	0.07
17.300	0.07	0.07	0.06	0.06	0.06
17.550	0.06	0.06	0.06	0.06	0.06
17.800	0.06	0.06	0.05	0.05	0.05
18.050	0.05	0.05	0.05	0.05	0.05
18.300	0.05	0.05	0.05	0.05	0.05
18.550	0.05	0.05	0.04	0.04	0.04
18.800	0.04	0.04	0.04	0.04	0.04
19.050	0.04	0.04	0.04	0.04	0.04
19.300	0.04	0.04	0.04	0.04	0.04
19.550	0.04	0.04	0.04	0.04	0.04
19.800	0.04	0.04	0.04	0.04	0.04
20.050	0.04	0.04	0.04	0.04	0.04
20.300	0.04	0.04	0.04	0.04	0.04
20.550	0.04	0.04	0.04	0.04	0.03
20.800	0.03	0.03	0.03	0.03	0.03
21.050	0.03	0.03	0.03	0.03	0.03
21.300	0.03	0.03	0.03	0.03	0.03
21.550	0.03	0.03	0.03	0.03	0.03
21.800	0.03	0.03	0.03	0.03	0.03
22.050	0.03	0.03	0.03	0.03	0.03
22.300	0.03	0.03	0.03	0.03	0.03
22.550	0.03	0.03	0.03	0.03	0.03
22.800	0.03	0.03	0.03	0.03	0.03
23.050	0.03	0.03	0.03	0.03	0.03
23.300	0.03	0.03	0.03	0.03	0.03
23.550	0.03	0.03	0.03	0.03	0.03
23.800	0.03	0.03	0.03	0.03	0.03

Subsection: Pond Inflow Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Summary for Hydrograph Addition at 'INLET-301'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-301
<Catchment to Outflow Node>	PERV - INLET-301

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-301	1,932.374	12.100	0.55
Flow (From)	PERV - INLET-301	425.483	12.100	0.14
Flow (In)	INLET-301	2,357.858	12.100	0.69

Subsection: Pond Inflow Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'INLET-301'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-301
<Catchment to Outflow Node>	PERV - INLET-301

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-301	3,073.626	12.100	0.87
Flow (From)	PERV - INLET-301	838.209	12.100	0.28
Flow (In)	INLET-301	3,911.835	12.100	1.14

Subsection: Pond Inflow Summary
Label: INLET-301 (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'INLET-301'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-301
<Catchment to Outflow Node>	PERV - INLET-301

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-301	5,653.917	12.100	1.57
Flow (From)	PERV - INLET-301	1,848.953	12.100	0.58
Flow (In)	INLET-301	7,502.870	12.100	2.15

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-302
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
453.50	0.00	0.000	0.00	0.00	0.00	0.00
454.00	0.00	285.257	0.00	0.00	0.00	3.17
454.50	0.14	638.883	0.00	0.00	0.14	7.24
455.00	0.22	1,017.370	0.00	0.00	0.22	11.53
455.50	0.28	1,395.863	0.00	0.00	0.28	15.79
456.00	0.32	1,749.483	0.00	0.00	0.32	19.76
456.50	0.36	2,034.740	0.00	0.00	0.36	22.97
457.00	2.52	2,214.740	0.00	0.00	2.52	27.13

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-302
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
453.50	0.00	0.000	0.00	0.00	0.00	0.00
454.00	0.00	285.257	0.00	0.00	0.00	3.17
454.50	0.14	638.883	0.00	0.00	0.14	7.24
455.00	0.22	1,017.370	0.00	0.00	0.22	11.53
455.50	0.28	1,395.863	0.00	0.00	0.28	15.79
456.00	0.32	1,749.483	0.00	0.00	0.32	19.76
456.50	0.36	2,034.740	0.00	0.00	0.36	22.97
457.00	2.52	2,214.740	0.00	0.00	2.52	27.13

Subsection: Elevation-Volume-Flow Table (Pond)
Label: INLET-302
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Elevation (ft)	Outflow (ft³/s)	Storage (ft³)	Area (ft²)	Infiltration (ft³/s)	Flow (Total) (ft³/s)	2S/t + O (ft³/s)
453.50	0.00	0.000	0.00	0.00	0.00	0.00
454.00	0.00	285.257	0.00	0.00	0.00	3.17
454.50	0.14	638.883	0.00	0.00	0.14	7.24
455.00	0.22	1,017.370	0.00	0.00	0.22	11.53
455.50	0.28	1,395.863	0.00	0.00	0.28	15.79
456.00	0.32	1,749.483	0.00	0.00	0.32	19.76
456.50	0.36	2,034.740	0.00	0.00	0.36	22.97
457.00	2.52	2,214.740	0.00	0.00	2.52	27.13

Subsection: Level Pool Pond Routing Summary
Label: INLET-302 (IN)
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	0.85 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	0.25 ft³/s	Time to Peak (Flow, Outlet)	12.800 hours

Elevation (Water Surface, Peak)	455.29 ft
Volume (Peak)	1,241.514 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	4,334.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	4,003.000 ft³
Volume (Retained)	325.000 ft³
Volume (Unrouted)	-6.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: INLET-302 (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	1.37 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	0.36 ft³/s	Time to Peak (Flow, Outlet)	12.950 hours

Elevation (Water Surface, Peak)	456.46 ft
Volume (Peak)	2,017.304 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	7,467.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	7,108.000 ft³
Volume (Retained)	350.000 ft³
Volume (Unrouted)	-9.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Level Pool Pond Routing Summary
Label: INLET-302 (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Infiltration	
Infiltration Method (Computed)	No Infiltration

Initial Conditions	
Elevation (Water Surface, Initial)	453.50 ft
Volume (Initial)	0.000 ft³
Flow (Initial Outlet)	0.00 ft³/s
Flow (Initial Infiltration)	0.00 ft³/s
Flow (Initial, Total)	0.00 ft³/s
Time Increment	0.050 hours

Inflow/Outflow Hydrograph Summary			
Flow (Peak In)	2.54 ft³/s	Time to Peak (Flow, In)	12.100 hours
Flow (Peak Outlet)	2.33 ft³/s	Time to Peak (Flow, Outlet)	12.150 hours

Elevation (Water Surface, Peak)	456.95 ft
Volume (Peak)	2,198.502 ft³

Mass Balance (ft³)	
Volume (Initial)	0.000 ft³
Volume (Total Inflow)	14,733.000 ft³
Volume (Total Infiltration)	0.000 ft³
Volume (Total Outlet Outflow)	14,312.000 ft³
Volume (Retained)	407.000 ft³
Volume (Unrouted)	-14.000 ft³
Error (Mass Balance)	0.1 %

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.25 ft³/s
Time to Peak	12.800 hours
Hydrograph Volume	4,003.354 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.100	0.00	0.00	0.00	0.01	0.01
10.350	0.01	0.01	0.01	0.02	0.02
10.600	0.02	0.02	0.02	0.03	0.03
10.850	0.03	0.03	0.04	0.04	0.04
11.100	0.04	0.05	0.05	0.05	0.06
11.350	0.06	0.07	0.07	0.07	0.08
11.600	0.08	0.09	0.10	0.10	0.11
11.850	0.12	0.13	0.15	0.16	0.17
12.100	0.20	0.22	0.23	0.23	0.24
12.350	0.24	0.25	0.25	0.25	0.25
12.600	0.25	0.25	0.25	0.25	0.25
12.850	0.25	0.25	0.25	0.25	0.25
13.100	0.25	0.25	0.25	0.25	0.25
13.350	0.24	0.24	0.24	0.24	0.24
13.600	0.23	0.23	0.23	0.23	0.23
13.850	0.22	0.22	0.22	0.21	0.21
14.100	0.21	0.20	0.20	0.20	0.19
14.350	0.19	0.19	0.18	0.18	0.18
14.600	0.17	0.17	0.17	0.16	0.16
14.850	0.16	0.15	0.15	0.15	0.14
15.100	0.14	0.13	0.13	0.12	0.12
15.350	0.12	0.11	0.11	0.10	0.10
15.600	0.10	0.09	0.09	0.09	0.09
15.850	0.08	0.08	0.08	0.08	0.07
16.100	0.07	0.07	0.07	0.07	0.07
16.350	0.06	0.06	0.06	0.06	0.06
16.600	0.06	0.06	0.06	0.05	0.05
16.850	0.05	0.05	0.05	0.05	0.05
17.100	0.05	0.05	0.05	0.05	0.04
17.350	0.04	0.04	0.04	0.04	0.04
17.600	0.04	0.04	0.04	0.04	0.04
17.850	0.04	0.04	0.04	0.04	0.04
18.100	0.04	0.04	0.04	0.03	0.03
18.350	0.03	0.03	0.03	0.03	0.03
18.600	0.03	0.03	0.03	0.03	0.03
18.850	0.03	0.03	0.03	0.03	0.03
19.100	0.03	0.03	0.03	0.03	0.03

Subsection: Pond Routed Hydrograph (total out) Return Event: 2 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 2-YR (PROJ)
Scenario: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.350	0.03	0.03	0.03	0.03	0.03
19.600	0.03	0.03	0.03	0.03	0.03
19.850	0.03	0.03	0.03	0.03	0.03
20.100	0.03	0.03	0.03	0.03	0.03
20.350	0.03	0.03	0.03	0.03	0.02
20.600	0.02	0.02	0.02	0.02	0.02
20.850	0.02	0.02	0.02	0.02	0.02
21.100	0.02	0.02	0.02	0.02	0.02
21.350	0.02	0.02	0.02	0.02	0.02
21.600	0.02	0.02	0.02	0.02	0.02
21.850	0.02	0.02	0.02	0.02	0.02
22.100	0.02	0.02	0.02	0.02	0.02
22.350	0.02	0.02	0.02	0.02	0.02
22.600	0.02	0.02	0.02	0.02	0.02
22.850	0.02	0.02	0.02	0.02	0.02
23.100	0.02	0.02	0.02	0.02	0.02
23.350	0.02	0.02	0.02	0.02	0.02
23.600	0.02	0.02	0.02	0.02	0.02
23.850	0.02	0.02	0.02	0.02	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.36 ft³/s
Time to Peak	12.950 hours
Hydrograph Volume	7,108.050 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.000	0.00	0.00	0.00	0.00	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.03	0.03	0.03
9.000	0.03	0.03	0.03	0.03	0.03
9.250	0.04	0.04	0.04	0.04	0.04
9.500	0.04	0.04	0.05	0.05	0.05
9.750	0.05	0.05	0.05	0.06	0.06
10.000	0.06	0.06	0.06	0.06	0.06
10.250	0.07	0.07	0.07	0.07	0.07
10.500	0.07	0.08	0.08	0.08	0.08
10.750	0.08	0.09	0.09	0.09	0.10
11.000	0.10	0.10	0.11	0.11	0.11
11.250	0.12	0.12	0.13	0.13	0.14
11.500	0.15	0.15	0.15	0.16	0.16
11.750	0.17	0.18	0.19	0.20	0.21
12.000	0.23	0.25	0.28	0.30	0.31
12.250	0.32	0.33	0.34	0.34	0.35
12.500	0.35	0.35	0.36	0.36	0.36
12.750	0.36	0.36	0.36	0.36	0.36
13.000	0.36	0.36	0.36	0.36	0.36
13.250	0.36	0.36	0.35	0.35	0.35
13.500	0.35	0.35	0.35	0.34	0.34
13.750	0.34	0.34	0.33	0.33	0.33
14.000	0.33	0.32	0.32	0.32	0.32
14.250	0.31	0.31	0.31	0.30	0.30
14.500	0.30	0.30	0.29	0.29	0.29
14.750	0.28	0.28	0.28	0.27	0.27
15.000	0.26	0.26	0.26	0.25	0.25
15.250	0.25	0.24	0.24	0.24	0.23
15.500	0.23	0.22	0.22	0.22	0.21
15.750	0.21	0.20	0.20	0.20	0.19
16.000	0.19	0.18	0.18	0.18	0.17
16.250	0.17	0.17	0.16	0.16	0.16
16.500	0.15	0.15	0.15	0.14	0.14
16.750	0.13	0.13	0.12	0.12	0.12
17.000	0.11	0.11	0.11	0.10	0.10

Subsection: Pond Routed Hydrograph (total out) Return Event: 10 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 10-YR (PROJ)
Scenario: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.250	0.10	0.09	0.09	0.09	0.09
17.500	0.08	0.08	0.08	0.08	0.08
17.750	0.08	0.07	0.07	0.07	0.07
18.000	0.07	0.07	0.07	0.06	0.06
18.250	0.06	0.06	0.06	0.06	0.06
18.500	0.06	0.06	0.06	0.05	0.05
18.750	0.05	0.05	0.05	0.05	0.05
19.000	0.05	0.05	0.05	0.05	0.05
19.250	0.05	0.05	0.05	0.05	0.05
19.500	0.05	0.05	0.05	0.04	0.04
19.750	0.04	0.04	0.04	0.04	0.04
20.000	0.04	0.04	0.04	0.04	0.04
20.250	0.04	0.04	0.04	0.04	0.04
20.500	0.04	0.04	0.04	0.04	0.04
20.750	0.04	0.04	0.04	0.04	0.04
21.000	0.04	0.04	0.04	0.04	0.04
21.250	0.04	0.04	0.04	0.04	0.04
21.500	0.04	0.04	0.04	0.04	0.04
21.750	0.04	0.04	0.04	0.04	0.04
22.000	0.04	0.04	0.04	0.04	0.04
22.250	0.03	0.03	0.03	0.03	0.03
22.500	0.03	0.03	0.03	0.03	0.03
22.750	0.03	0.03	0.03	0.03	0.03
23.000	0.03	0.03	0.03	0.03	0.03
23.250	0.03	0.03	0.03	0.03	0.03
23.500	0.03	0.03	0.03	0.03	0.03
23.750	0.03	0.03	0.03	0.03	0.03
24.000	0.03	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

Peak Discharge	2.33 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	14,311.721 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.200	0.00	0.00	0.00	0.00	0.01
5.450	0.01	0.01	0.01	0.01	0.01
5.700	0.02	0.02	0.02	0.02	0.02
5.950	0.02	0.03	0.03	0.03	0.03
6.200	0.03	0.03	0.03	0.04	0.04
6.450	0.04	0.04	0.04	0.04	0.04
6.700	0.05	0.05	0.05	0.05	0.05
6.950	0.05	0.05	0.05	0.06	0.06
7.200	0.06	0.06	0.06	0.06	0.06
7.450	0.06	0.06	0.07	0.07	0.07
7.700	0.07	0.07	0.07	0.07	0.07
7.950	0.07	0.08	0.08	0.08	0.08
8.200	0.08	0.08	0.08	0.08	0.08
8.450	0.09	0.09	0.09	0.09	0.09
8.700	0.09	0.09	0.09	0.09	0.09
8.950	0.10	0.10	0.10	0.10	0.10
9.200	0.10	0.10	0.10	0.11	0.11
9.450	0.11	0.11	0.11	0.12	0.12
9.700	0.12	0.12	0.12	0.13	0.13
9.950	0.13	0.13	0.14	0.14	0.14
10.200	0.14	0.15	0.15	0.15	0.15
10.450	0.15	0.15	0.15	0.16	0.16
10.700	0.16	0.16	0.17	0.17	0.17
10.950	0.18	0.18	0.18	0.19	0.19
11.200	0.20	0.20	0.21	0.22	0.22
11.450	0.23	0.23	0.24	0.25	0.26
11.700	0.26	0.27	0.28	0.30	0.31
11.950	0.33	0.36	1.63	2.31	2.33
12.200	2.13	1.91	1.51	1.23	1.03
12.450	0.91	0.85	0.80	0.72	0.68
12.700	0.66	0.64	0.63	0.62	0.60
12.950	0.59	0.57	0.56	0.54	0.53
13.200	0.52	0.51	0.50	0.49	0.48
13.450	0.47	0.46	0.45	0.44	0.43
13.700	0.42	0.42	0.41	0.41	0.40
13.950	0.39	0.39	0.38	0.38	0.37
14.200	0.37	0.36	0.36	0.36	0.36

Subsection: Pond Routed Hydrograph (total out) Return Event: 100 years
Label: INLET-302 (OUT) Storm Event: ESSEX CO. 100-YR (PROJ)
Scenario: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.450	0.36	0.36	0.36	0.36	0.36
14.700	0.36	0.36	0.36	0.35	0.35
14.950	0.35	0.35	0.35	0.34	0.34
15.200	0.34	0.34	0.34	0.33	0.33
15.450	0.33	0.33	0.32	0.32	0.32
15.700	0.32	0.31	0.31	0.31	0.31
15.950	0.30	0.30	0.30	0.30	0.29
16.200	0.29	0.29	0.29	0.28	0.28
16.450	0.28	0.27	0.27	0.27	0.26
16.700	0.26	0.26	0.25	0.25	0.25
16.950	0.25	0.24	0.24	0.24	0.23
17.200	0.23	0.23	0.22	0.22	0.22
17.450	0.21	0.21	0.21	0.20	0.20
17.700	0.20	0.19	0.19	0.19	0.18
17.950	0.18	0.18	0.17	0.17	0.17
18.200	0.17	0.16	0.16	0.16	0.15
18.450	0.15	0.15	0.15	0.15	0.14
18.700	0.14	0.13	0.13	0.13	0.12
18.950	0.12	0.12	0.12	0.11	0.11
19.200	0.11	0.11	0.10	0.10	0.10
19.450	0.10	0.10	0.10	0.09	0.09
19.700	0.09	0.09	0.09	0.09	0.09
19.950	0.09	0.09	0.08	0.08	0.08
20.200	0.08	0.08	0.08	0.08	0.08
20.450	0.08	0.08	0.08	0.08	0.08
20.700	0.08	0.08	0.08	0.07	0.07
20.950	0.07	0.07	0.07	0.07	0.07
21.200	0.07	0.07	0.07	0.07	0.07
21.450	0.07	0.07	0.07	0.07	0.07
21.700	0.07	0.07	0.07	0.07	0.07
21.950	0.07	0.07	0.07	0.07	0.07
22.200	0.07	0.06	0.06	0.06	0.06
22.450	0.06	0.06	0.06	0.06	0.06
22.700	0.06	0.06	0.06	0.06	0.06
22.950	0.06	0.06	0.06	0.06	0.06
23.200	0.06	0.06	0.06	0.06	0.06
23.450	0.06	0.06	0.06	0.06	0.06
23.700	0.06	0.06	0.06	0.06	0.06
23.950	0.06	0.06	(N/A)	(N/A)	(N/A)

Summary for Hydrograph Addition at 'INLET-302'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-302
Outlet-4	INLET-301

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - INLET-302	1,743.631	12.100	0.50
Flow (From)	PERV - INLET-302	581.099	12.100	0.19
Flow (From)	Outlet-4	2,009.613	12.350	0.19
Flow (In)	INLET-302	4,334.342	12.100	0.85

Subsection: Pond Inflow Summary
Label: INLET-302 (IN)
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Summary for Hydrograph Addition at 'INLET-302'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-302
Outlet-4	INLET-301

Node Inflows

Inflow Type	Element	Volume (ft³)	Time to Peak (hours)	Flow (Peak) (ft³/s)
Flow (From)	IMP - INLET-302	2,773.411	12.100	0.78
Flow (From)	PERV - INLET-302	1,144.774	12.100	0.38
Flow (From)	Outlet-4	3,548.597	12.400	0.26
Flow (In)	INLET-302	7,466.782	12.100	1.37

Subsection: Pond Inflow Summary
Label: INLET-302 (IN)
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Summary for Hydrograph Addition at 'INLET-302'

Upstream Link	Upstream Node
<Catchment to Outflow Node>	IMP - INLET-302
<Catchment to Outflow Node>	PERV - INLET-302
Outlet-4	INLET-301

Node Inflows

Inflow Type	Element	Volume (ft^3)	Time to Peak (hours)	Flow (Peak) (ft^3/s)
Flow (From)	IMP - INLET-302	5,101.674	12.100	1.42
Flow (From)	PERV - INLET-302	2,525.184	12.100	0.80
Flow (From)	Outlet-4	7,105.959	12.200	1.09
Flow (In)	INLET-302	14,732.816	12.100	2.54

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.19 ft³/s
Time to Peak	12.350 hours
Hydrograph Volume	2,009.566 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.200	0.00	0.00	0.00	0.01	0.01
10.450	0.01	0.01	0.01	0.01	0.01
10.700	0.02	0.02	0.02	0.02	0.02
10.950	0.02	0.03	0.03	0.03	0.03
11.200	0.03	0.04	0.04	0.04	0.04
11.450	0.04	0.05	0.05	0.05	0.06
11.700	0.06	0.07	0.07	0.08	0.09
11.950	0.10	0.12	0.14	0.16	0.17
12.200	0.18	0.18	0.19	0.19	0.18
12.450	0.18	0.18	0.18	0.18	0.18
12.700	0.17	0.17	0.17	0.16	0.16
12.950	0.16	0.16	0.15	0.15	0.15
13.200	0.15	0.14	0.14	0.13	0.13
13.450	0.12	0.12	0.11	0.11	0.10
13.700	0.10	0.10	0.09	0.09	0.09
13.950	0.08	0.08	0.08	0.07	0.07
14.200	0.07	0.07	0.06	0.06	0.06
14.450	0.06	0.06	0.06	0.05	0.05
14.700	0.05	0.05	0.05	0.05	0.05
14.950	0.04	0.04	0.04	0.04	0.04
15.200	0.04	0.04	0.04	0.04	0.03
15.450	0.03	0.03	0.03	0.03	0.03
15.700	0.03	0.03	0.03	0.03	0.03
15.950	0.03	0.03	0.03	0.03	0.03
16.200	0.03	0.03	0.02	0.02	0.02
16.450	0.02	0.02	0.02	0.02	0.02
16.700	0.02	0.02	0.02	0.02	0.02
16.950	0.02	0.02	0.02	0.02	0.02
17.200	0.02	0.02	0.02	0.02	0.02
17.450	0.02	0.02	0.02	0.02	0.02
17.700	0.02	0.02	0.02	0.02	0.02
17.950	0.02	0.02	0.02	0.02	0.02
18.200	0.02	0.02	0.02	0.02	0.02
18.450	0.02	0.01	0.01	0.01	0.01
18.700	0.01	0.01	0.01	0.01	0.01
18.950	0.01	0.01	0.01	0.01	0.01
19.200	0.01	0.01	0.01	0.01	0.01

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.450	0.01	0.01	0.01	0.01	0.01
19.700	0.01	0.01	0.01	0.01	0.01
19.950	0.01	0.01	0.01	0.01	0.01
20.200	0.01	0.01	0.01	0.01	0.01
20.450	0.01	0.01	0.01	0.01	0.01
20.700	0.01	0.01	0.01	0.01	0.01
20.950	0.01	0.01	0.01	0.01	0.01
21.200	0.01	0.01	0.01	0.01	0.01
21.450	0.01	0.01	0.01	0.01	0.01
21.700	0.01	0.01	0.01	0.01	0.01
21.950	0.01	0.01	0.01	0.01	0.01
22.200	0.01	0.01	0.01	0.01	0.01
22.450	0.01	0.01	0.01	0.01	0.01
22.700	0.01	0.01	0.01	0.01	0.01
22.950	0.01	0.01	0.01	0.01	0.01
23.200	0.01	0.01	0.01	0.01	0.01
23.450	0.01	0.01	0.01	0.01	0.01
23.700	0.01	0.01	0.01	0.01	0.01
23.950	0.01	0.01	(N/A)	(N/A)	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.26 ft³/s
Time to Peak	12.400 hours
Hydrograph Volume	3,548.597 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.100	0.00	0.00	0.00	0.00	0.01
8.350	0.01	0.01	0.01	0.01	0.01
8.600	0.01	0.01	0.01	0.02	0.02
8.850	0.02	0.02	0.02	0.02	0.02
9.100	0.02	0.02	0.02	0.02	0.02
9.350	0.02	0.02	0.03	0.03	0.03
9.600	0.03	0.03	0.03	0.03	0.03
9.850	0.03	0.03	0.03	0.03	0.03
10.100	0.04	0.04	0.04	0.04	0.04
10.350	0.04	0.04	0.04	0.04	0.04
10.600	0.04	0.05	0.05	0.05	0.05
10.850	0.05	0.05	0.06	0.06	0.06
11.100	0.06	0.06	0.07	0.07	0.07
11.350	0.08	0.08	0.08	0.09	0.09
11.600	0.10	0.10	0.11	0.12	0.13
11.850	0.14	0.15	0.16	0.17	0.19
12.100	0.22	0.24	0.25	0.25	0.26
12.350	0.26	0.26	0.26	0.26	0.26
12.600	0.25	0.25	0.25	0.25	0.24
12.850	0.24	0.24	0.24	0.23	0.23
13.100	0.23	0.22	0.22	0.22	0.21
13.350	0.21	0.21	0.20	0.20	0.19
13.600	0.19	0.19	0.18	0.18	0.17
13.850	0.17	0.17	0.16	0.16	0.16
14.100	0.15	0.15	0.15	0.15	0.14
14.350	0.14	0.13	0.12	0.12	0.12
14.600	0.11	0.11	0.10	0.10	0.10
14.850	0.09	0.09	0.09	0.08	0.08
15.100	0.08	0.08	0.07	0.07	0.07
15.350	0.07	0.06	0.06	0.06	0.06
15.600	0.06	0.06	0.06	0.05	0.05
15.850	0.05	0.05	0.05	0.05	0.05
16.100	0.05	0.05	0.04	0.04	0.04
16.350	0.04	0.04	0.04	0.04	0.04
16.600	0.04	0.04	0.04	0.04	0.04
16.850	0.04	0.04	0.04	0.03	0.03
17.100	0.03	0.03	0.03	0.03	0.03

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.350	0.03	0.03	0.03	0.03	0.03
17.600	0.03	0.03	0.03	0.03	0.03
17.850	0.03	0.03	0.03	0.03	0.03
18.100	0.03	0.03	0.03	0.03	0.03
18.350	0.02	0.02	0.02	0.02	0.02
18.600	0.02	0.02	0.02	0.02	0.02
18.850	0.02	0.02	0.02	0.02	0.02
19.100	0.02	0.02	0.02	0.02	0.02
19.350	0.02	0.02	0.02	0.02	0.02
19.600	0.02	0.02	0.02	0.02	0.02
19.850	0.02	0.02	0.02	0.02	0.02
20.100	0.02	0.02	0.02	0.02	0.02
20.350	0.02	0.02	0.02	0.02	0.02
20.600	0.02	0.02	0.02	0.02	0.02
20.850	0.02	0.02	0.02	0.02	0.02
21.100	0.02	0.02	0.02	0.02	0.02
21.350	0.02	0.02	0.02	0.02	0.02
21.600	0.02	0.02	0.02	0.02	0.02
21.850	0.02	0.02	0.02	0.02	0.02
22.100	0.02	0.02	0.02	0.02	0.02
22.350	0.02	0.02	0.02	0.02	0.02
22.600	0.02	0.02	0.02	0.02	0.02
22.850	0.02	0.02	0.02	0.02	0.02
23.100	0.02	0.02	0.02	0.02	0.02
23.350	0.02	0.02	0.02	0.02	0.02
23.600	0.01	0.01	0.01	0.01	0.01
23.850	0.01	0.01	0.01	0.01	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Peak Discharge	1.09 ft³/s
Time to Peak	12.200 hours
Hydrograph Volume	7,105.959 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.300	0.00	0.00	0.00	0.00	0.01
5.550	0.01	0.01	0.01	0.01	0.01
5.800	0.01	0.01	0.02	0.02	0.02
6.050	0.02	0.02	0.02	0.02	0.02
6.300	0.02	0.02	0.02	0.02	0.02
6.550	0.03	0.03	0.03	0.03	0.03
6.800	0.03	0.03	0.03	0.03	0.03
7.050	0.03	0.03	0.03	0.03	0.03
7.300	0.03	0.03	0.04	0.04	0.04
7.550	0.04	0.04	0.04	0.04	0.04
7.800	0.04	0.04	0.04	0.04	0.04
8.050	0.04	0.04	0.04	0.04	0.04
8.300	0.04	0.05	0.05	0.05	0.05
8.550	0.05	0.05	0.05	0.05	0.05
8.800	0.05	0.05	0.05	0.05	0.05
9.050	0.05	0.05	0.05	0.05	0.06
9.300	0.06	0.06	0.06	0.06	0.06
9.550	0.06	0.06	0.06	0.06	0.07
9.800	0.07	0.07	0.07	0.07	0.07
10.050	0.07	0.08	0.08	0.08	0.08
10.300	0.08	0.08	0.08	0.09	0.09
10.550	0.09	0.09	0.09	0.10	0.10
10.800	0.10	0.10	0.11	0.11	0.11
11.050	0.12	0.12	0.13	0.13	0.14
11.300	0.14	0.15	0.15	0.15	0.16
11.550	0.16	0.17	0.18	0.18	0.19
11.800	0.20	0.21	0.23	0.24	0.26
12.050	0.29	0.32	0.36	1.09	0.90
12.300	0.70	0.58	0.49	0.44	0.41
12.550	0.39	0.36	0.36	0.36	0.36
12.800	0.36	0.35	0.35	0.35	0.35
13.050	0.34	0.34	0.34	0.33	0.33
13.300	0.33	0.32	0.32	0.31	0.31
13.550	0.31	0.30	0.30	0.30	0.29
13.800	0.29	0.29	0.28	0.28	0.27
14.050	0.27	0.27	0.26	0.26	0.26
14.300	0.25	0.25	0.24	0.24	0.24

Subsection: Diverted Hydrograph
Label: Outlet-4
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.550	0.23	0.23	0.23	0.22	0.22
14.800	0.22	0.21	0.21	0.20	0.20
15.050	0.20	0.19	0.19	0.18	0.18
15.300	0.18	0.17	0.17	0.17	0.16
15.550	0.16	0.16	0.15	0.15	0.15
15.800	0.15	0.14	0.14	0.13	0.13
16.050	0.12	0.12	0.12	0.11	0.11
16.300	0.11	0.10	0.10	0.10	0.09
16.550	0.09	0.09	0.09	0.09	0.08
16.800	0.08	0.08	0.08	0.08	0.07
17.050	0.07	0.07	0.07	0.07	0.07
17.300	0.07	0.07	0.06	0.06	0.06
17.550	0.06	0.06	0.06	0.06	0.06
17.800	0.06	0.06	0.05	0.05	0.05
18.050	0.05	0.05	0.05	0.05	0.05
18.300	0.05	0.05	0.05	0.05	0.05
18.550	0.05	0.05	0.04	0.04	0.04
18.800	0.04	0.04	0.04	0.04	0.04
19.050	0.04	0.04	0.04	0.04	0.04
19.300	0.04	0.04	0.04	0.04	0.04
19.550	0.04	0.04	0.04	0.04	0.04
19.800	0.04	0.04	0.04	0.04	0.04
20.050	0.04	0.04	0.04	0.04	0.04
20.300	0.04	0.04	0.04	0.04	0.04
20.550	0.04	0.04	0.04	0.04	0.03
20.800	0.03	0.03	0.03	0.03	0.03
21.050	0.03	0.03	0.03	0.03	0.03
21.300	0.03	0.03	0.03	0.03	0.03
21.550	0.03	0.03	0.03	0.03	0.03
21.800	0.03	0.03	0.03	0.03	0.03
22.050	0.03	0.03	0.03	0.03	0.03
22.300	0.03	0.03	0.03	0.03	0.03
22.550	0.03	0.03	0.03	0.03	0.03
22.800	0.03	0.03	0.03	0.03	0.03
23.050	0.03	0.03	0.03	0.03	0.03
23.300	0.03	0.03	0.03	0.03	0.03
23.550	0.03	0.03	0.03	0.03	0.03
23.800	0.03	0.03	0.03	0.03	0.03

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

Peak Discharge	0.25 ft³/s
Time to Peak	12.800 hours
Hydrograph Volume	4,003.354 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
10.100	0.00	0.00	0.00	0.01	0.01
10.350	0.01	0.01	0.01	0.02	0.02
10.600	0.02	0.02	0.02	0.03	0.03
10.850	0.03	0.03	0.04	0.04	0.04
11.100	0.04	0.05	0.05	0.05	0.06
11.350	0.06	0.07	0.07	0.07	0.08
11.600	0.08	0.09	0.10	0.10	0.11
11.850	0.12	0.13	0.15	0.16	0.17
12.100	0.20	0.22	0.23	0.23	0.24
12.350	0.24	0.25	0.25	0.25	0.25
12.600	0.25	0.25	0.25	0.25	0.25
12.850	0.25	0.25	0.25	0.25	0.25
13.100	0.25	0.25	0.25	0.25	0.25
13.350	0.24	0.24	0.24	0.24	0.24
13.600	0.23	0.23	0.23	0.23	0.23
13.850	0.22	0.22	0.22	0.21	0.21
14.100	0.21	0.20	0.20	0.20	0.19
14.350	0.19	0.19	0.18	0.18	0.18
14.600	0.17	0.17	0.17	0.16	0.16
14.850	0.16	0.15	0.15	0.15	0.14
15.100	0.14	0.13	0.13	0.12	0.12
15.350	0.12	0.11	0.11	0.10	0.10
15.600	0.10	0.09	0.09	0.09	0.09
15.850	0.08	0.08	0.08	0.08	0.07
16.100	0.07	0.07	0.07	0.07	0.07
16.350	0.06	0.06	0.06	0.06	0.06
16.600	0.06	0.06	0.06	0.05	0.05
16.850	0.05	0.05	0.05	0.05	0.05
17.100	0.05	0.05	0.05	0.05	0.04
17.350	0.04	0.04	0.04	0.04	0.04
17.600	0.04	0.04	0.04	0.04	0.04
17.850	0.04	0.04	0.04	0.04	0.04
18.100	0.04	0.04	0.04	0.03	0.03
18.350	0.03	0.03	0.03	0.03	0.03
18.600	0.03	0.03	0.03	0.03	0.03
18.850	0.03	0.03	0.03	0.03	0.03
19.100	0.03	0.03	0.03	0.03	0.03

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 2-YR (PROJ)

Return Event: 2 years
Storm Event: ESSEX CO. 2-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
19.350	0.03	0.03	0.03	0.03	0.03
19.600	0.03	0.03	0.03	0.03	0.03
19.850	0.03	0.03	0.03	0.03	0.03
20.100	0.03	0.03	0.03	0.03	0.03
20.350	0.03	0.03	0.03	0.03	0.02
20.600	0.02	0.02	0.02	0.02	0.02
20.850	0.02	0.02	0.02	0.02	0.02
21.100	0.02	0.02	0.02	0.02	0.02
21.350	0.02	0.02	0.02	0.02	0.02
21.600	0.02	0.02	0.02	0.02	0.02
21.850	0.02	0.02	0.02	0.02	0.02
22.100	0.02	0.02	0.02	0.02	0.02
22.350	0.02	0.02	0.02	0.02	0.02
22.600	0.02	0.02	0.02	0.02	0.02
22.850	0.02	0.02	0.02	0.02	0.02
23.100	0.02	0.02	0.02	0.02	0.02
23.350	0.02	0.02	0.02	0.02	0.02
23.600	0.02	0.02	0.02	0.02	0.02
23.850	0.02	0.02	0.02	0.02	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

Peak Discharge	0.36 ft³/s
Time to Peak	12.950 hours
Hydrograph Volume	7,108.050 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
8.000	0.00	0.00	0.00	0.00	0.01
8.250	0.01	0.01	0.01	0.01	0.01
8.500	0.02	0.02	0.02	0.02	0.02
8.750	0.02	0.02	0.03	0.03	0.03
9.000	0.03	0.03	0.03	0.03	0.03
9.250	0.04	0.04	0.04	0.04	0.04
9.500	0.04	0.04	0.05	0.05	0.05
9.750	0.05	0.05	0.05	0.06	0.06
10.000	0.06	0.06	0.06	0.06	0.06
10.250	0.07	0.07	0.07	0.07	0.07
10.500	0.07	0.08	0.08	0.08	0.08
10.750	0.08	0.09	0.09	0.09	0.10
11.000	0.10	0.10	0.11	0.11	0.11
11.250	0.12	0.12	0.13	0.13	0.14
11.500	0.15	0.15	0.15	0.16	0.16
11.750	0.17	0.18	0.19	0.20	0.21
12.000	0.23	0.25	0.28	0.30	0.31
12.250	0.32	0.33	0.34	0.34	0.35
12.500	0.35	0.35	0.36	0.36	0.36
12.750	0.36	0.36	0.36	0.36	0.36
13.000	0.36	0.36	0.36	0.36	0.36
13.250	0.36	0.36	0.35	0.35	0.35
13.500	0.35	0.35	0.35	0.34	0.34
13.750	0.34	0.34	0.33	0.33	0.33
14.000	0.33	0.32	0.32	0.32	0.32
14.250	0.31	0.31	0.31	0.30	0.30
14.500	0.30	0.30	0.29	0.29	0.29
14.750	0.28	0.28	0.28	0.27	0.27
15.000	0.26	0.26	0.26	0.25	0.25
15.250	0.25	0.24	0.24	0.24	0.23
15.500	0.23	0.22	0.22	0.22	0.21
15.750	0.21	0.20	0.20	0.20	0.19
16.000	0.19	0.18	0.18	0.18	0.17
16.250	0.17	0.17	0.16	0.16	0.16
16.500	0.15	0.15	0.15	0.14	0.14
16.750	0.13	0.13	0.12	0.12	0.12
17.000	0.11	0.11	0.11	0.10	0.10

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 10-YR (PROJ)

Return Event: 10 years
Storm Event: ESSEX CO. 10-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
17.250	0.10	0.09	0.09	0.09	0.09
17.500	0.08	0.08	0.08	0.08	0.08
17.750	0.08	0.07	0.07	0.07	0.07
18.000	0.07	0.07	0.07	0.06	0.06
18.250	0.06	0.06	0.06	0.06	0.06
18.500	0.06	0.06	0.06	0.05	0.05
18.750	0.05	0.05	0.05	0.05	0.05
19.000	0.05	0.05	0.05	0.05	0.05
19.250	0.05	0.05	0.05	0.05	0.05
19.500	0.05	0.05	0.05	0.04	0.04
19.750	0.04	0.04	0.04	0.04	0.04
20.000	0.04	0.04	0.04	0.04	0.04
20.250	0.04	0.04	0.04	0.04	0.04
20.500	0.04	0.04	0.04	0.04	0.04
20.750	0.04	0.04	0.04	0.04	0.04
21.000	0.04	0.04	0.04	0.04	0.04
21.250	0.04	0.04	0.04	0.04	0.04
21.500	0.04	0.04	0.04	0.04	0.04
21.750	0.04	0.04	0.04	0.04	0.04
22.000	0.04	0.04	0.04	0.04	0.04
22.250	0.03	0.03	0.03	0.03	0.03
22.500	0.03	0.03	0.03	0.03	0.03
22.750	0.03	0.03	0.03	0.03	0.03
23.000	0.03	0.03	0.03	0.03	0.03
23.250	0.03	0.03	0.03	0.03	0.03
23.500	0.03	0.03	0.03	0.03	0.03
23.750	0.03	0.03	0.03	0.03	0.03
24.000	0.03	(N/A)	(N/A)	(N/A)	(N/A)

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

Peak Discharge	2.33 ft³/s
Time to Peak	12.150 hours
Hydrograph Volume	14,311.721 ft³

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
5.200	0.00	0.00	0.00	0.00	0.01
5.450	0.01	0.01	0.01	0.01	0.01
5.700	0.02	0.02	0.02	0.02	0.02
5.950	0.02	0.03	0.03	0.03	0.03
6.200	0.03	0.03	0.03	0.04	0.04
6.450	0.04	0.04	0.04	0.04	0.04
6.700	0.05	0.05	0.05	0.05	0.05
6.950	0.05	0.05	0.05	0.06	0.06
7.200	0.06	0.06	0.06	0.06	0.06
7.450	0.06	0.06	0.07	0.07	0.07
7.700	0.07	0.07	0.07	0.07	0.07
7.950	0.07	0.08	0.08	0.08	0.08
8.200	0.08	0.08	0.08	0.08	0.08
8.450	0.09	0.09	0.09	0.09	0.09
8.700	0.09	0.09	0.09	0.09	0.09
8.950	0.10	0.10	0.10	0.10	0.10
9.200	0.10	0.10	0.10	0.11	0.11
9.450	0.11	0.11	0.11	0.12	0.12
9.700	0.12	0.12	0.12	0.13	0.13
9.950	0.13	0.13	0.14	0.14	0.14
10.200	0.14	0.15	0.15	0.15	0.15
10.450	0.15	0.15	0.15	0.16	0.16
10.700	0.16	0.16	0.17	0.17	0.17
10.950	0.18	0.18	0.18	0.19	0.19
11.200	0.20	0.20	0.21	0.22	0.22
11.450	0.23	0.23	0.24	0.25	0.26
11.700	0.26	0.27	0.28	0.30	0.31
11.950	0.33	0.36	1.63	2.31	2.33
12.200	2.13	1.91	1.51	1.23	1.03
12.450	0.91	0.85	0.80	0.72	0.68
12.700	0.66	0.64	0.63	0.62	0.60
12.950	0.59	0.57	0.56	0.54	0.53
13.200	0.52	0.51	0.50	0.49	0.48
13.450	0.47	0.46	0.45	0.44	0.43
13.700	0.42	0.42	0.41	0.41	0.40
13.950	0.39	0.39	0.38	0.38	0.37
14.200	0.37	0.36	0.36	0.36	0.36

Subsection: Diverted Hydrograph
Label: Outlet-5
Scenario: ESSEX CO. 100-YR (PROJ)

Return Event: 100 years
Storm Event: ESSEX CO. 100-YR (PROJ)

HYDROGRAPH ORDINATES (ft³/s)
Output Time Increment = 0.050 hours
Time on left represents time for first value in each row.

Time (hours)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)	Flow (ft³/s)
14.450	0.36	0.36	0.36	0.36	0.36
14.700	0.36	0.36	0.36	0.35	0.35
14.950	0.35	0.35	0.35	0.34	0.34
15.200	0.34	0.34	0.34	0.33	0.33
15.450	0.33	0.33	0.32	0.32	0.32
15.700	0.32	0.31	0.31	0.31	0.31
15.950	0.30	0.30	0.30	0.30	0.29
16.200	0.29	0.29	0.29	0.28	0.28
16.450	0.28	0.27	0.27	0.27	0.26
16.700	0.26	0.26	0.25	0.25	0.25
16.950	0.25	0.24	0.24	0.24	0.23
17.200	0.23	0.23	0.22	0.22	0.22
17.450	0.21	0.21	0.21	0.20	0.20
17.700	0.20	0.19	0.19	0.19	0.18
17.950	0.18	0.18	0.17	0.17	0.17
18.200	0.17	0.16	0.16	0.16	0.15
18.450	0.15	0.15	0.15	0.15	0.14
18.700	0.14	0.13	0.13	0.13	0.12
18.950	0.12	0.12	0.12	0.11	0.11
19.200	0.11	0.11	0.10	0.10	0.10
19.450	0.10	0.10	0.10	0.09	0.09
19.700	0.09	0.09	0.09	0.09	0.09
19.950	0.09	0.09	0.08	0.08	0.08
20.200	0.08	0.08	0.08	0.08	0.08
20.450	0.08	0.08	0.08	0.08	0.08
20.700	0.08	0.08	0.08	0.07	0.07
20.950	0.07	0.07	0.07	0.07	0.07
21.200	0.07	0.07	0.07	0.07	0.07
21.450	0.07	0.07	0.07	0.07	0.07
21.700	0.07	0.07	0.07	0.07	0.07
21.950	0.07	0.07	0.07	0.07	0.07
22.200	0.07	0.06	0.06	0.06	0.06
22.450	0.06	0.06	0.06	0.06	0.06
22.700	0.06	0.06	0.06	0.06	0.06
22.950	0.06	0.06	0.06	0.06	0.06
23.200	0.06	0.06	0.06	0.06	0.06
23.450	0.06	0.06	0.06	0.06	0.06
23.700	0.06	0.06	0.06	0.06	0.06
23.950	0.06	0.06	(N/A)	(N/A)	(N/A)

Index

van note - harvey associates
103 College Road East
Princeton, New Jersey 08540
609-987-2323 Fax: 609-987-0005
www.vannoteharvey.com

UNDERGROUND STONE STORAGE SYSTEM STAGE STORAGE TABLE- UGS-301

Pipe Manifold Description		
Pipe Diameter =	3	ft.
Basin Bottom/Pipe Invert =	474.5	ft.
Length of Pipe =	85.0	ft.
# of Pipes =	3	
Width of Stone Between Pipes =	1.00	ft.
Depth of Stone Above Pipes =	0.5	ft.
Void Ratio =	0.40	

Depth Above Invert	Elevation	Cross-Section Area of Pipe(s)	Volume in Pipe	Volume in Stone	Incremental Storage Volume	Total Storage Volume
(FT)	(FT)	(SF)	(CF)	(CF)	(CF)	(CF)
0.00	474.50	0.00	0.00	0.00	0.00	0.00
0.15	474.65	0.40	33.83	47.67	81.50	81.50
0.30	474.80	1.11	94.00	84.80	97.30	178.80
0.45	474.95	2.00	169.77	115.69	106.67	285.46
0.60	475.10	3.02	256.91	142.04	113.48	398.94
0.75	475.25	4.15	352.69	164.92	118.67	517.62
0.90	475.40	5.35	455.13	185.15	122.66	640.28
1.05	475.55	6.62	562.60	203.36	125.68	765.96
1.20	475.70	7.93	673.68	220.13	127.85	893.81
1.35	475.85	9.26	787.11	235.95	129.26	1023.07
1.50	476.00	10.61	901.70	251.32	129.95	1153.02
1.65	476.15	11.96	1016.29	266.68	129.95	1282.97
1.80	476.30	13.29	1129.72	282.51	129.26	1412.23
1.95	476.45	14.60	1240.80	299.28	127.85	1540.08
2.10	476.60	15.86	1348.27	317.49	125.68	1665.76
2.25	476.75	17.07	1450.71	337.72	122.66	1788.43
2.40	476.90	18.19	1546.50	360.60	118.67	1907.10
2.55	477.05	19.22	1633.63	386.95	113.48	2020.58
2.70	477.20	20.11	1709.41	417.84	106.67	2127.24
2.85	477.35	20.82	1769.58	454.97	97.30	2224.55
3.00	477.50	21.22	1803.40	502.64	81.50	2306.04
3.50	478.00	21.22	1803.40	706.64	204.00	2510.04

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www.vannoteharvey.com

UNDERGROUND STONE STORAGE SYSTEM STAGE STORAGE TABLE- UGS-306

Pipe Manifold Description		
Pipe Diameter =	3	ft.
Basin Bottom/Pipe Invert =	453.5	ft.
Length of Pipe =	75.0	ft.
# of Pipes =	3	
Width of Stone Between Pipes =	1.00	ft.
Depth of Stone Above Pipes =	0.5	ft.
Void Ratio =	0.40	

Depth Above Invert	Elevation	Cross-Section Area of Pipe(s)	Volume in Pipe	Volume in Stone	Incremental Storage Volume	Total Storage Volume
(FT)	(FT)	(SF)	(CF)	(CF)	(CF)	(CF)
0.00	453.50	0.00	0.00	0.00	0.00	0.00
0.15	453.65	0.40	29.85	42.06	71.91	71.91
0.30	453.80	1.11	82.94	74.82	85.86	157.76
0.45	453.95	2.00	149.80	102.08	94.12	251.88
0.60	454.10	3.02	226.68	125.33	100.13	352.01
0.75	454.25	4.15	311.20	145.52	104.71	456.72
0.90	454.40	5.35	401.59	163.36	108.23	564.95
1.05	454.55	6.62	496.41	179.44	110.89	675.85
1.20	454.70	7.93	594.43	194.23	112.81	788.66
1.35	454.85	9.26	694.51	208.20	114.05	902.71
1.50	455.00	10.61	795.62	221.75	114.66	1017.37
1.65	455.15	11.96	896.73	235.31	114.66	1132.04
1.80	455.30	13.29	996.81	249.28	114.05	1246.09
1.95	455.45	14.60	1094.83	264.07	112.81	1358.90
2.10	455.60	15.86	1189.65	280.14	110.89	1469.79
2.25	455.75	17.07	1280.04	297.98	108.23	1578.02
2.40	455.90	18.19	1364.56	318.18	104.71	1682.73
2.55	456.05	19.22	1441.44	341.43	100.13	1782.86
2.70	456.20	20.11	1508.30	368.68	94.12	1876.98
2.85	456.35	20.82	1561.39	401.44	85.86	1962.84
3.00	456.50	21.22	1591.24	443.50	71.91	2034.74
3.50	457.00	21.22	1591.24	623.50	180.00	2214.74

Appendix - E:

NEW JERSEY STORM WATER MANAGEMENT WATER QUALITY FOR MANUFACTURED TREATMENT DEVICE

Montclair Kimberly Academy (MTD-2)
Montclair, NJ
11/17/23

Sizing Basis:
Filterra High Capacity biofiltration system has received final certification from the NJDEP for 80% TSS removal. Per the NJDEP, Filterra HC is considered a Green Infrastructure (GI) MTD. The sizing for the Filterra HC system under NJDEP regulations is based on the methodology outlined in Chapter 5 of the NJDEP BMP Manual. The NRCS method is utilized to determine a water quality flow rate for the drainage area in question. To validate the sizing, the parameters below were assumed.

Design Parameters:
Design Storm = NJDEP Water Quality Design Storm (1.25-inch/2-hour storm event)
Filterra HC Media Flow Rate = 300 inches/hour
Allowable Ponding in Filterra = 9”

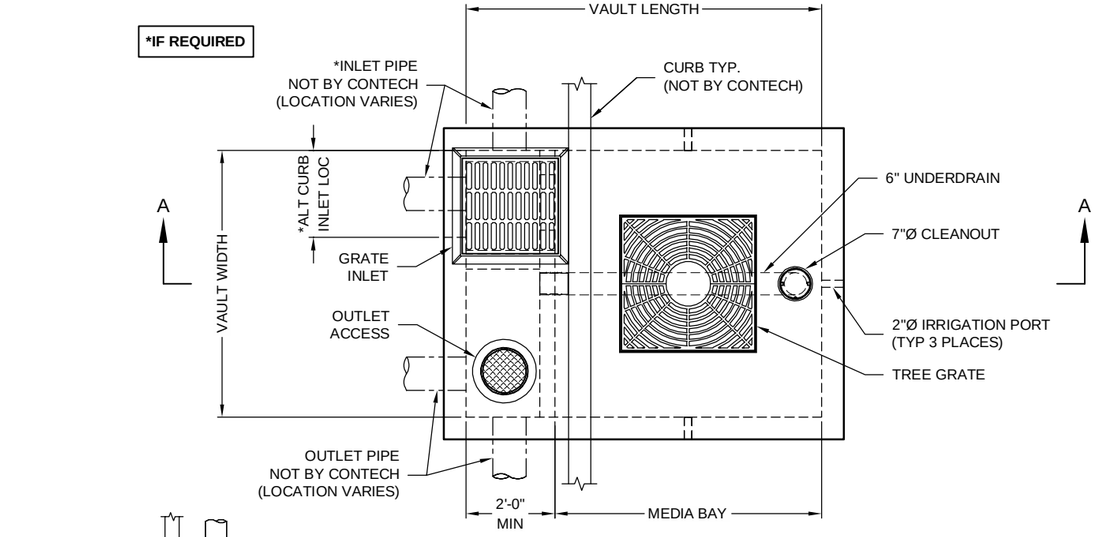
Design Summary:
Utilizing NRCS Method and HydroCAD software, a hydrograph can be derived to represent the design storm. The WQ flow is routed to an appropriately sized Filterra unit. Since the Filterra system can provide up to 9” of ponding, some flow attenuation is possible. The Filterra system is able to accommodate a portion of the water quality volume in the head space above the media and release it at the system’s NJDEP certified maximum treatment flow rate.

Site Designation	Impervious Area (sf)	Pervious Area (sf)	Tc (min)	Filterra HC Model Size
MTD 2	5,432	3,428	5	6'x8' Peak Diversion Filterra HC

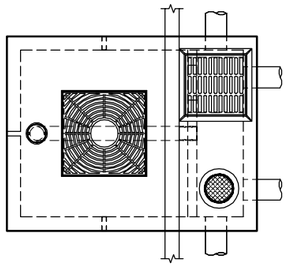
Thank you for the opportunity to present this to you and your client. Please do not hesitate to contact me should you have any additional questions.

Sincerely,

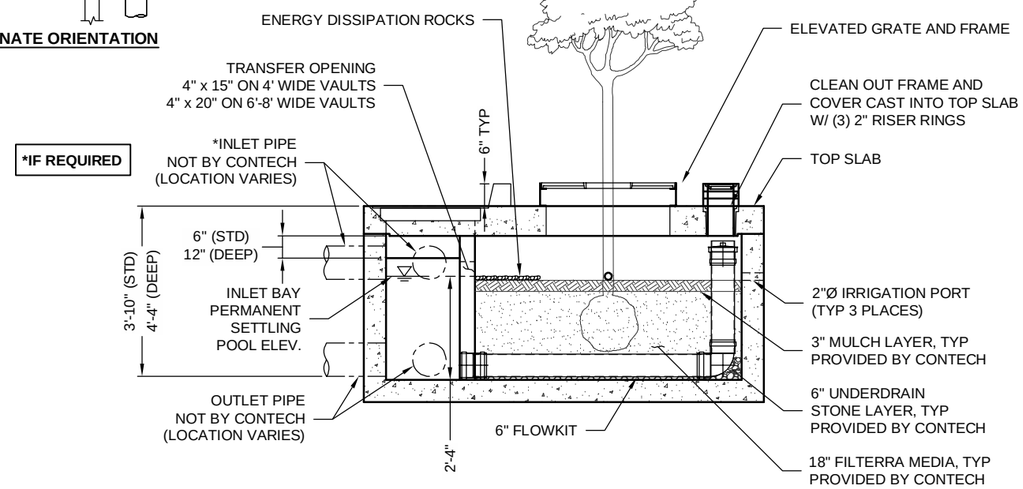
Taylor Murdock
Stormwater Design Engineer
Contech Engineered Solutions, LLC.



PLAN VIEW



ALTERNATE ORIENTATION



SECTION A-A
(STANDARD DEPTH SHOWN)

INTERNAL PIPE CONFIGURATION MAY VARY
DEPENDING UPON OUTLET LOCATION.

FTPD-G-HC STANDARD HEIGHT CONFIGURATION

DESIGNATION (OPTIONS: -P)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	GRATE INLET/ OUTLET ACCESS SIZE	TREE GRATE QTY & SIZE
FTPD0404-G-HC	ALL	4 x 4	4 x 6	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD0406-G-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD045058-G-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	1.4	12"SQ/12"Ø	(1) 3' x 3'
FTPD0604-G-HC	ALL	6 x 4	6 x 6	1'-8"	1.4	24"SQ/12"Ø	(1) 2.5' x 2.5'
FTPD0606-G-HC	ALL	6 x 6	6 x 8	1'-8"	1.4	24"SQ/12"Ø	(1) 3' x 3'
FTPD0608-G-HC	ALL	6 x 8	6 x 10	1'-8"	1.4	24"SQ/12"Ø	(1) 4' x 4'
FTPD0610-G-HC	ALL	6 x 10	6 x 12	1'-8"	1.4	24"SQ/12"Ø	(1) 4' x 4'
FTPD0710-G-HC	ALL	7 x 10	7 x 13	2'-6"	2.1	24"SQ/24"Ø	(1) 4' x 4'
FTPD08105-G-HC	ALL	8 x 10.5	8 x 14	3'-0"	2.5	24"SQ/24"Ø	(1) 4' x 4'
FTPD08125-G-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	2.5	24"SQ/24"Ø	(2) 4' x 4'
FTPD09115-G-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"SQ/24"Ø	(2) 4' x 4'

N/A = NOT AVAILABLE

FTPD-GD-HC DEEP OPTION CONFIGURATION

DESIGNATION (OPTIONS: -P)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	GRATE INLET/ OUTLET ACCESS SIZE	TREE GRATE QTY & SIZE
FTPD0404-GD-HC	ALL	4 x 4	4 x 6	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD0406-GD-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD045058-GD-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	4.6	12"SQ/12"Ø	(1) 3' x 3'
FTPD0604-GD-HC	ALL	6 x 4	6 x 6	1'-8"	4.6	24"SQ/12"Ø	(1) 2.5' x 2.5'
FTPD0606-GD-HC	ALL	6 x 6	6 x 8	1'-8"	4.6	24"SQ/12"Ø	(1) 3' x 3'
FTPD0608-GD-HC	ALL	6 x 8	6 x 10	1'-8"	4.6	24"SQ/12"Ø	(1) 4' x 4'
FTPD0610-GD-HC	ALL	6 x 10	6 x 12	1'-8"	4.6	24"SQ/12"Ø	(1) 4' x 4'
FTPD0710-GD-HC	ALL	7 x 10	7 x 13	2'-6"	6.8	24"SQ/24"Ø	(1) 4' x 4'
FTPD08105-GD-HC	ALL	8 x 10.5	8 x 14	3'-0"	8.2	24"SQ/24"Ø	(1) 4' x 4'
FTPD08125-GD-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	8.2	24"SQ/24"Ø	(2) 4' x 4'
FTPD09115-GD-HC	OR,WA ONLY	9 x 11.5	9 x 15	3'-0"	8.2	24"SQ/24"Ø	(2) 4' x 4'

N/A = NOT AVAILABLE

* MAX BYPASS FLOW IS INTERNAL WEIR FLOW . SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE GRATE INLET FLOW CAPACITY
** 3' x 3' TREE GRATE ON FTPD0404-G UNITS IS INSTALLED OVER A SMALLER 30" x 30" MAX OPENING FOR STRUCTURAL REASONS

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,277,274; 6,569,321; 7,625,485; 7,425,261; 7,833,412; RELATED FOREIGN PATENTS.

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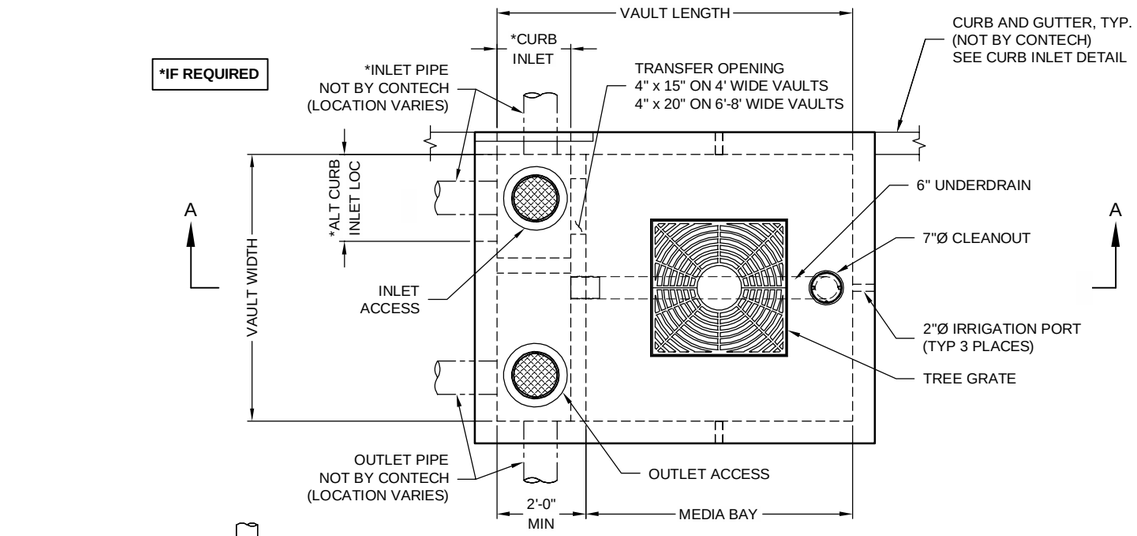
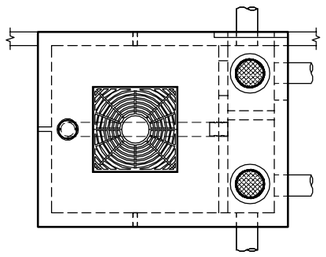
FILTERRA HC PEAK DIVERSION - GRATE (FTPD-G-HC) CONFIGURATION DETAIL

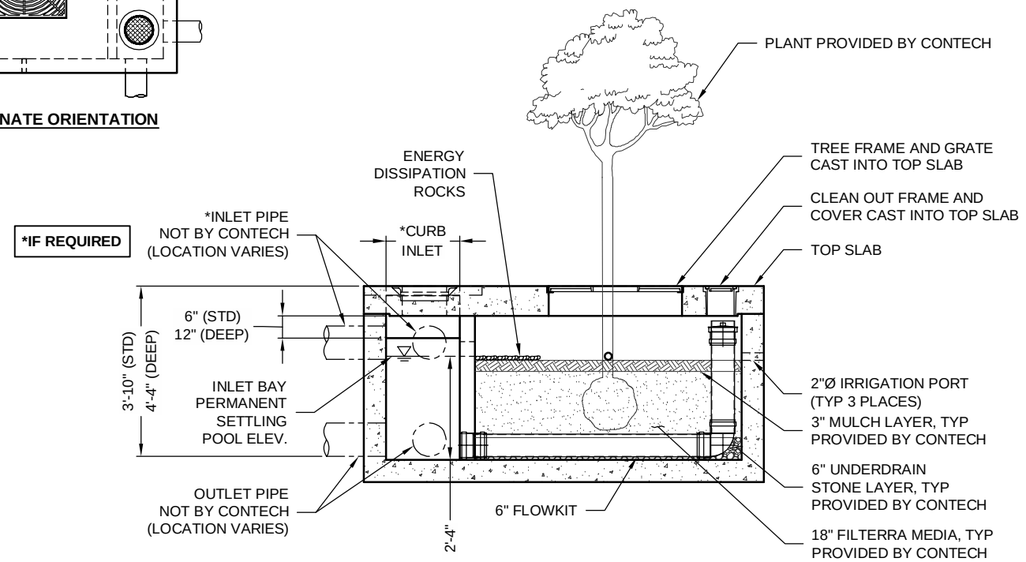
I:\STORMWATER\COMMOPS\54 FILTERRA\40 STANDARD DRAWINGS\FT-HC - FILTERRA HC (NEW JERSEY ONLY)\FTPD-G-HC - FILTERRA HC PEAK DIVERSION - GRATE CONFIG DTL.DWG 9/8/2022 11:34 AM



PLAN VIEW



ALTERNATE ORIENTATION



SECTION A-A
(STANDARD DEPTH SHOWN)

INTERNAL PIPE CONFIGURATION MAY VARY DEPENDING UPON OUTLET LOCATION.

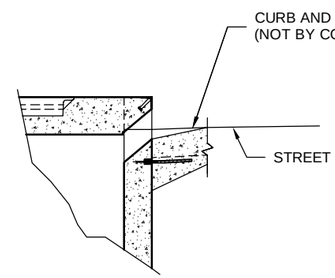
FTPD-HC STANDARD HEIGHT CONFIGURATION

DESIGNATION (OPTIONS: -P, -T, -PT)	DESIGNATION (OPTIONS: -P, -T, -PT)	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	INLET/ OUTLET ACCESS DIA	TREE GRATE QTY & SIZE
FTPD0404-HC	ALL	4 x 4	4 x 6	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0406-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD045058-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0604-HC	ALL	6 x 4	6 x 6	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0606-HC	ALL	6 x 6	6 x 8	1'-8"	1.4	12"/12"	(1) 3' x 3'
FTPD0608-HC	ALL	6 x 8	6 x 10	1'-8"	1.4	12"/12"	(1) 4' x 4'
FTPD0610-HC	ALL	6 x 10	6 x 12	1'-8"	1.4	12"/12"	(1) 4' x 4'
FTPD0710-HC	ALL	7 x 10	7 x 13	2'-6"	2.1	24"/24"	(1) 4' x 4'
FTPD08105-HC	ALL	8 x 10.5	8 x 14	3'-0"	2.5	24"/24"	(1) 4' x 4'
FTPD08125-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	2.5	24"/24"	(2) 4' x 4'
FTPD09115-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"/24"	(2) 4' x 4'
N/A = NOT AVAILABLE							

FTPD-D-HC DEEP OPTION CONFIGURATION

DESIGNATION (OPTIONS: -P, -T, -PT)	AVAILABILITY	MEDIA BAY SIZE	VAULT SIZE (W x L)	WEIR LENGTH/ MAX CURB OPENING	*MAX BYPASS FLOW (CFS)	INLET/ OUTLET ACCESS DIA	TREE GRATE QTY & SIZE
FTPD0404-D-HC	ALL	4 x 4	4 x 6	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0406-D-HC	N/A DE, MD, NJ, PA, VA, WV	4 x 6	4 x 8	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD045058-D-HC	DE, MD, NJ, PA, VA, WV ONLY	4.5 x 5.83	4.5 x 7.83	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0604-D-HC	ALL	6 x 4	6 x 6	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0606-D-HC	ALL	6 x 6	6 x 8	1'-8"	4.6	12"/12"	(1) 3' x 3'
FTPD0608-D-HC	ALL	6 x 8	6 x 10	1'-8"	4.6	12"/12"	(1) 4' x 4'
FTPD0610-D-HC	ALL	6 x 10	6 x 12	1'-8"	4.6	12"/12"	(1) 4' x 4'
FTPD0710-D-HC	ALL	7 x 10	7 x 13	2'-6"	6.8	24"/24"	(1) 4' x 4'
FTPD08105-D-HC	ALL	8 x 10.5	8 x 14	3'-0"	8.2	24"/24"	(1) 4' x 4'
FTPD08125-D-HC	N/A OR, WA	8 x 12.5	8 x 16	3'-0"	8.2	24"/24"	(2) 4' x 4'
FTPD09115-D-HC	OR, WA ONLY	9 x 11.5	9 x 15	3'-0"	2.5	24"/24"	(2) 4' x 4'
N/A = NOT AVAILABLE							

*MAX BYPASS FLOW IS INTERNAL WEIR FLOW. SITE SPECIFIC ANALYSIS IS REQUIRED TO DETERMINE CURB INLET FLOW CAPACITY



CURB INLET DETAIL

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FILTERRA HC PEAK DIVERSION (FTPD-HC) CONFIGURATION DETAIL

I:\STORMWATER\COMMOPS\54 FILTERRA\40 STANDARD DRAWINGS\FT-HC - FILTERRA HC (NEW JERSEY ONLY)\FTPD-HC - FILTERRA PEAK DIVERSION CONFIG DTL.DWG 9/8/2022 11:36 AM

Summary for Subcatchment 2S: DA 2

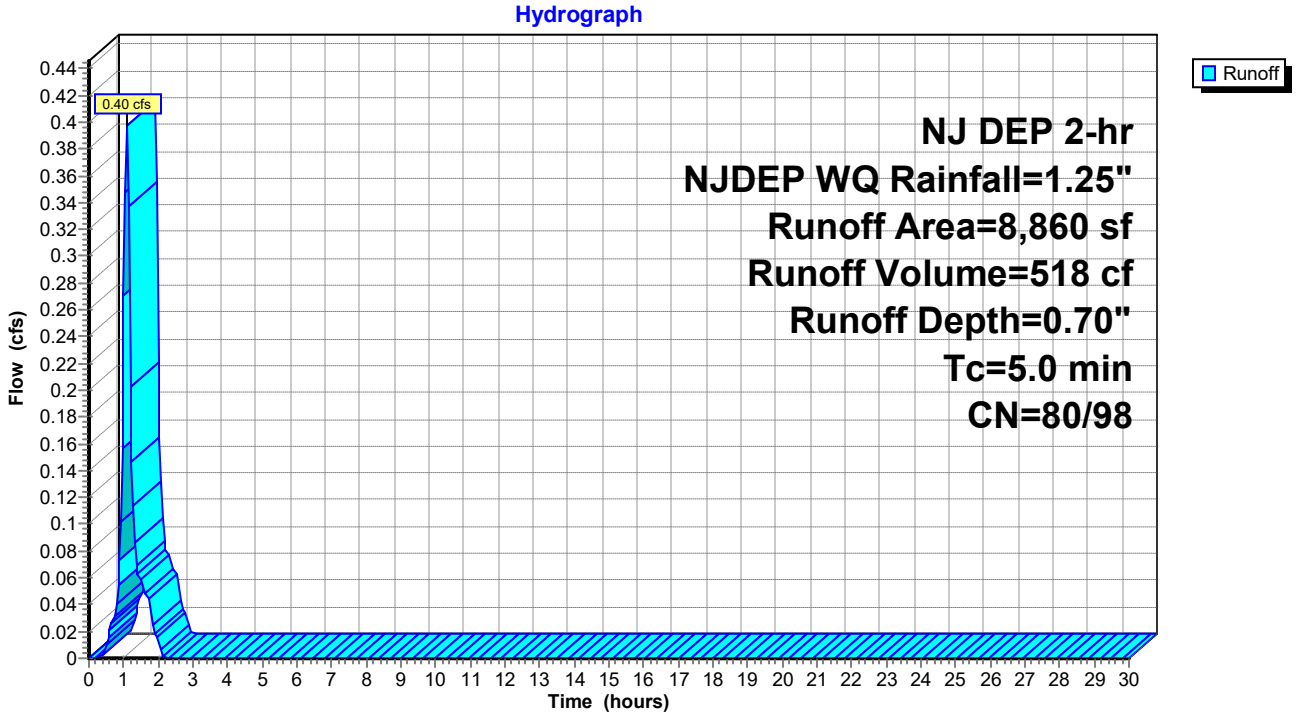
Runoff = 0.40 cfs @ 1.10 hrs, Volume= 518 cf, Depth= 0.70"
Routed to Pond 2P : Filterra 6x8

Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.04 hrs
NJ DEP 2-hr NJDEP WQ Rainfall=1.25"

	Area (sf)	CN	Description
*	5,432	98	
*	3,428	80	
	8,860	91	Weighted Average
	3,428	80	38.69% Pervious Area
	5,432	98	61.31% Impervious Area

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

Subcatchment 2S: DA 2



Summary for Pond 2P: Filterra 6x8

Inflow Area = 8,860 sf, 61.31% Impervious, Inflow Depth = 0.70" for NJDEP WQ event
Inflow = 0.40 cfs @ 1.10 hrs, Volume= 518 cf
Outflow = 0.33 cfs @ 1.04 hrs, Volume= 601 cf, Atten= 16%, Lag= 0.0 min
Primary = 0.33 cfs @ 1.04 hrs, Volume= 601 cf

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 0.35' @ 1.14 hrs Surf.Area= 48 sf Storage= 17 cf

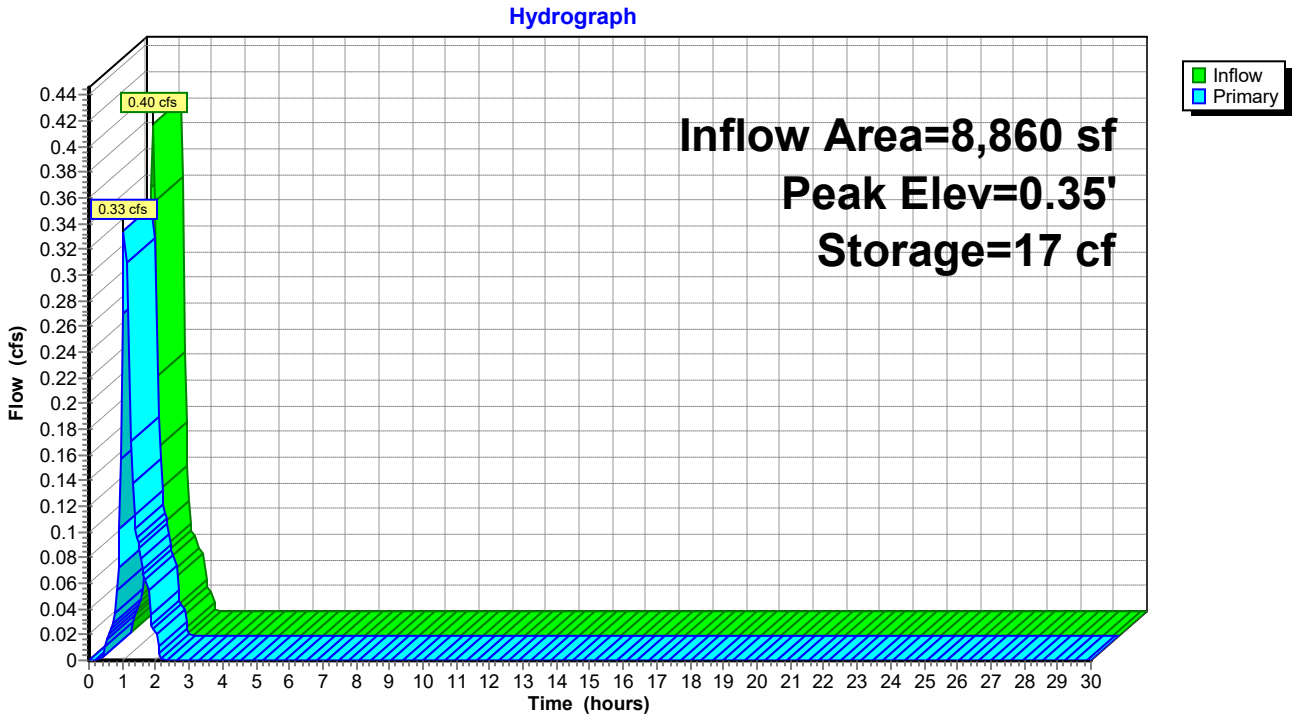
Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.6 min (73.2 - 70.5)

Volume	Invert	Avail.Storage	Storage Description
#1	0.00'	36 cf	**6.00'W x 8.00'L x 0.75'H Prismatoid**

Device	Routing	Invert	Outlet Devices
#1	Primary	0.00'	**300.000 in/hr Exfiltration over Surface area**

Primary OutFlow Max=0.33 cfs @ 1.04 hrs HW=0.02' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.33 cfs @ 0.01 fps)

Pond 2P: Filterra 6x8



State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATER QUALITY
Bureau of Stormwater Permitting
401 East State Street
P.O. Box 420 Mail Code 401-02B
Trenton, NJ 08625-0420
Tel. (609) 633-7021 • Fax (609) 777-0432
www.nj.gov/dep/dwq/bnpc_home.htm

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Acting Commissioner

February 12, 2021

Derek M. Berg
Director – Stormwater Regulatory Management - East
Contech Engineered Solutions LLC
71 US Route 1, Suite F
Scarborough, ME 04074

Re: MTD Lab Certification
Filterra® HC Bioretention System
Off-line Installation Approved

TSS Removal Rate 80%

Dear Mr. Berg:

The Stormwater Management rules under N.J.A.C. 7:8-5.5(b) and 5.7(c) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Contech Engineered Solutions LLC has requested a Laboratory Certification for the Filterra® HC Bioretention System (Filterra® HC.)

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated January 2021) for this device is published online at http://www.njcat.org/uploads/newDocs/NJCATFilterraTechnologyVerificationReportFinal._.pdf.

The NJDEP certifies the use of the Filterra® HC stormwater treatment unit by Contech Engineered Solutions LLC at a TSS removal rate of 80% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-5.5. The MTFR is calculated based on a verified loading rate of 3.12 gpm/ft^2 of effective filtration treatment area.

2. The Filterra® HC stormwater treatment unit shall be installed using the same configuration reviewed by NJCAT, and sized in accordance with the criteria specified in item 7 below.

3. This device cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the Filterra® HC. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at https://www.conteches.com/Portals/0/Documents/Maintenance%20Guides/Filterra%20HC%20OM%20Packet.pdf for any changes to the maintenance requirements.

6. For an MTD to be considered "green infrastructure" (GI) in accordance with the March 2, 2020 amendments to the Stormwater Management rules at N.J.A.C. 7:8, the MTD must meet the GI definition noted at amended N.J.A.C. 7:8-1.2. Specifically, the MTD shall (1) treat stormwater runoff through infiltration into subsoil; and/or (2) treat stormwater runoff through filtration by vegetation or soil; or (3) store stormwater runoff for reuse.

   The Filterra® HC filters stormwater runoff through an engineered biofiltration soil media and, thus, meets the definition of GI. Filterra® HC can be configured with or without a precast vault. Installations that will not include a precast vault will additionally need to comply the NJDEP Stormwater BMP Manual conditions regarding separation from the seasonal high water table and, if infiltration is proposed as an outlet, minimum vertical saturated hydraulic conductivity of the subsoil. Installations without a precast vault that do not rely on infiltration are required to maintain at least a one-foot separation from the seasonal high water table measured from the lowest point of the system. Installations without a precast vault that utilize infiltration are required to have the most hydraulically restrictive soil layer below the MTD meet the minimum tested vertical saturated hydraulic conductivity of one inch per hour and have at least two feet of separation from the seasonal high water table measured from the lowest point of the system.

7. Sizing Requirement:

   The example below demonstrates the sizing procedure for the Filterra® HC:

   Example: A 0.25-acre impervious site is to be treated to 80% TSS removal using the Filterra® HC. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs.

   The selection of the appropriate model of Filterra® HC is based upon both the maximum inflow drainage area and the MTFR. It is necessary to calculate the required model using both methods and to use the largest model determined by the two methods.

   Inflow Drainage Area Evaluation:

   The drainage area to the Filterra® HC in this example is 0.25 acres. Included in Table 1 below, all of the Filterra® HC models are designed with a maximum allowable drainage area greater than 0.25 acres. Specifically, the Filterra® HC with a 4'x4' media bay and a maximum allowable drainage area of 0.40 acres would be the smallest model able to treat runoff without exceeding the maximum allowable drainage area.

   Maximum Treatment Flow Rate (MTFR) Evaluation:

   The site runoff (Q) was based on the following:
   time of concentration = 10 minutes
   i = 3.2 in/hr (page 5-8, Fig. 5-3 of the NJ Stormwater BMP Manual)
   c = 0.99 (runoff coefficient for impervious)
   Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs

   Given the site runoff is 0.79 cfs and based on the MTFR's listed in Table 1 below, the Filterra® HC with a 16'x8' media bay and an MTFR of 0.889 cfs would be the smallest model that could be used to treat the impervious area without exceeding the MTFR. If using more than one unit for treating runoff, the units should be configured such that the flowrate to each unit does not exceed the design MTFR for each unit and ensuring the entire 0.25 acre area is treated.

The MTFR evaluation results will be used since that method results in the highest minimum configuration determined by the two methods.

The sizing table corresponding to the available system models is noted below:

Table 1. Filterra® HC MTFRs and Maximum Allowable Drainage Areas

	Available Filterra® Media Bay Sizes (feet)	Effective Filtration Treatment Area (ft^2)	Treatment Flow Rate (cfs)	Maximum Allowable Drainage Area (ac)
Standard Configuration Filterra and Filterra Biosape Vaults	4x4	16	0.111	0.40
	4x6 or 6x4	24	0.167	0.60
	4.5x7.83 or 7.83x4.5 (Nominal 4x8/8x4)	35.24	0.245	0.89
	6x6	36	0.250	0.91
	6x8 or 8x6	48	0.333	1.21
	6x10 or 10x6	60	0.417	1.51
	6x12 or 12x6	72	0.500	1.81
	7x13 or 13x7	91	0.632	2.29
	14x8	112	0.778	2.82
	16x8	128	0.889	3.22
	18x8	144	1.000	3.62
	20x8	160	1.111	4.03
	22x8	176	1.222	4.43
Peak Diversion Filterra Vaults	4x4	16	0.111	0.40
	4.5x5.83 (Nominal 4x6)	26.24	0.182	0.66
	6x4	24	0.167	0.60
	6x6	36	0.250	0.91
	6x8	48	0.333	1.21
	6x10 or 10x6	60	0.417	1.51
	7x10	70	0.486	1.76
	8x10.5	84	0.583	2.11
	8x12.5	100	0.694	2.52
	Custom and/or Filterra Bioscape	Media Area in ft^2	0.00694 * (Media Area in ft^2)	0.0252 * (Media Area in ft^2)

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact me at (609) 633-7021.

Sincerely,

Gabriel Mahon, Chief
Bureau of Stormwater Permitting

Attachment: Maintenance Plan
cc: Chron File
Richard Magee, NJCAT
Vince Mazzei, NJDEP – Water & Land Management
Nancy Kempel, NJDEP– BSTP
Keith Stampfel, NJDEP – DLRP
Dennis Contois, NJDEP – DLRP

Filterra HC
Owner's Manual

filterra®

Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

filterra®
Bioretention Systems

Table of Contents

CONTECH®
ENGINEERED SOLUTIONS

Introduction

Thank you for your purchase of the Filterra® HC Bioretention System. Filterra HC is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra HC system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra HC system.

Included with your purchase is Activation of the Filterra HC system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra HC systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra HC box sizing (per local regulations) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra HC units as shown in approved plans. A comprehensive installation manual covering all Filterra configurations is available at www.ContechES.com.

Activation Overview

Activation of the Filterra HC system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra HC systems.

Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra HC systems.

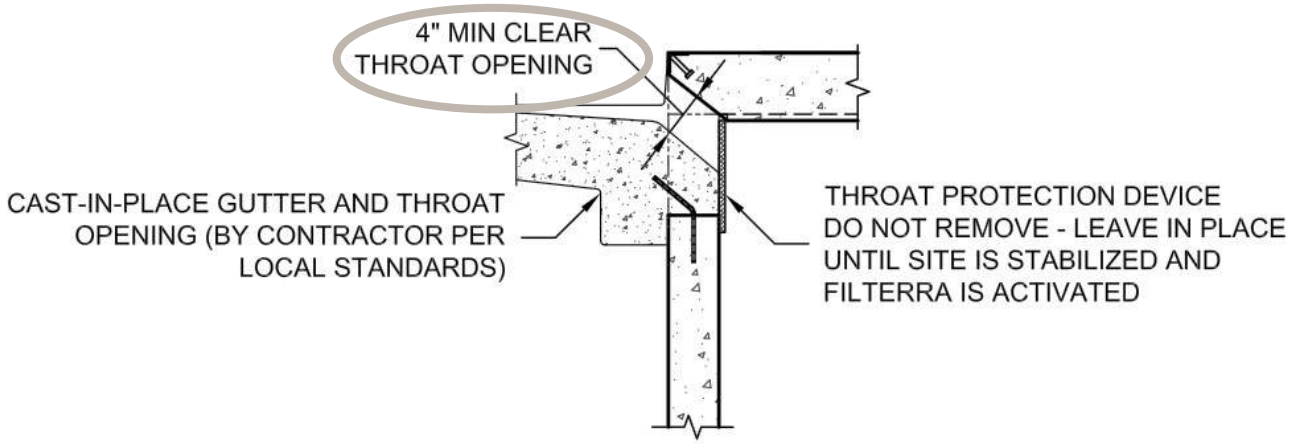
Minimum Requirements

The minimum requirements for Filterra HC Activation are as follows:

1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.

2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra HC system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra HC system.

3. Filterra HC throat opening (if applicable) should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra HC Plant Selection Overview

Plant Lists are available on the Contech website highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra HC system. Plants installed in the Filterra HC system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra HC system.

The "Planting Requirements for Filterra HC Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra HC systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra HC system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra HC system or runoff protection devices
- Removal of any Filterra HC system components
- Failure to prevent construction related runoff from entering the Filterra HC system
- Failure to properly store and protect any Filterra HC components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

Routine maintenance is included by the manufacturer on all Filterra HC systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra HC systems also contain diversion bypass or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.

Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan the media in the Filterra HC system.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra HC is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The Filterra HC system is also subjected to various materials entering the inlet, including trash, silt, leaves, etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra HC system flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

If the system is not maintained on regular intervals, is subject to a catastrophic spill or other event, or subject to unusual pollutant loading, full media bed replacement could be required. Please contact Contech for further evaluation if you feel this may be necessary.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency;

e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the (maintenance) Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.

Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra HC (where the cleaned runoff drains to, such as drop inlet) and block off the inlet of the Filterra HC. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra HC and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation & pruning or replacement as necessary
6. Clean area around Filterra HC
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working near traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media for the Filterra HC system, available from the Supplier.

	Available Filterra® HC Media Bay Sizes (feet)	Filter Surface Area (ft^2)	Mulch Volume at 3" Depth (ft^2)	# of 2 ft^2 Mulch Bags
Standard Configuration Filterra and Filterra Biosape Vaults	4x4	16	4	2
	4x6 or 6x4	24	6	3
	4.5x7.83 or 7.83x4.5 (Nominal 4x8/8x4)	35.24	9	5
	6x6	36	9	5
	6x8 or 8x6	48	12	6
	6x10 or 10x6	60	15	8
	6x12 or 12x6	72	18	9
	7x13 or 13x7	91	23	12
	14x8	112	28	14
	16x8	128	32	16
	18x8	144	36	18
	20x8	160	40	20
	22x8	176	44	22
Peak Diversion Filterra Vaults	4x4	16	4	2
	4.5x5.83 or 5.83x4.5 (Nominal 4x6/6x4)	26.24	7	4
	6x6	36	9	5
	6x8	48	12	6
	6x10 or 10x6	60	15	8
	7x10	70	18	9
	8x10.5	84	21	11
	8x12.5	100	25	13
	Custom and/or Filterra Bioscape	Media Area in ft^2	0.25 x (Media Area in ft^2)	0.125 x (Media Area in ft^2)

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.

1. Inspection of Filterra HC and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).

2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra HC box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____

- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____

4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3″.
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra HC inlet to allow for entry of trash during a storm event.
- Replace Filterra HC grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.

5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no

6. Clean area around Filterra HC

- Clean area around unit and remove all refuse to be disposed of appropriately.

7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra HC.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra HC HC.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra HC.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra HC Inspection & Maintenance Log

Filterra HC System Size/Model: _____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

CONTECH® ENGINEERED SOLUTIONS

Project Name:________________________________ Company:________________________________

Site Contact Name: ______________________________ Site Contact Phone/Email: ____________________

Site Owner/End User Name:____________________ Site Owner/End User Phone/Email: ____________________

Preferred Activation Date: ____________________________ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Attach additional sheets as necessary.

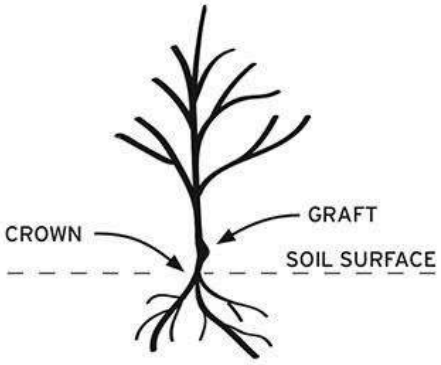
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra HC systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

____ ____________________

Signature Date

Appendix 2 – Planting Requirements for Filterra® HC Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra HC systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra HC systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25-30 feet.
- A 7-15 gallon container size shall be used.
- For precast Filterra HC systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some of the faster growing species, or species known to produce basal sprouts

Plant Installation

- During transport protect the plant leaves from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively, the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that has been meeting Contech Engineered Solutions' mulch specifications can be used in the Filterra HC system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra HC system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra HC plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore, irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore, if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water. Therefore, for a 6' by 6' Filterra HC approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five-gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra HC system. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.

Notes

filterra®
Bioretention Systems

CONTECH®
ENGINEERED SOLUTIONS

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PDF 1/21

HC Kraken Filter Design Summary

Montclair Kimberly Academy
Montclair, NJ
11/17/23

Information Provided by Engineer:

- Impervious drainage area = 6,020 sf (0.14 ac)
- Pervious drainage area = 2,510 sf (0.06 ac)
- Presiding agency = NJDEP
- Required TSS removal rate = 80%

Information Determined by Contech:

- Water quality flow rate = 0.43 cfs

HC Kraken Filter Information and Cartridge Data:

The High-Capacity Kraken Filter Stormwater Treatment Device is a state-of-the-art stormwater filtration system utilizing pretreatment and advanced membrane filtration to ensure a high level of trash, TSS, metals, nutrients, and hydrocarbons removal. The HC Kraken Filter works by initially passing stormwater through a pretreatment chamber to capture trash, hydrocarbons, and sediments. Once runoff is pretreated, it is directed to the filter chamber where membrane filtration begins. When the water level reaches the top of the membrane filters, the treated water will then pass down the riser tube, collect in the underdrain manifold and flow to the discharge chamber. **The High-Capacity Kraken Filter has received final certification from the NJDEP for 80% TSS removal as a stand-alone treatment system.**

- HC Kraken Filter cartridge height = 30 inches (nominal)
- HC Kraken Filter cartridge surface area = 168.2 square feet
- HC Kraken Filter cartridge loading rate = 0.101 gallons/minute per square foot
- HC Kraken Filter cartridge treatment flow = 0.038 cfs
- **Hydraulic head required: 38.5" inches** (with 30-inch cartridge)

Design Summary:

The High-Capacity Kraken Filter is sized based on the NJDEP certification, which lists an approved treatment flow rate and maximum impervious acreage limit per cartridge in Table 1. The number of cartridges required based on the impervious drainage area is compared with the number of cartridges required based on the treatment flow rate; the larger number of cartridges governs the sizing.

The HC Kraken Filter for this site was sized to provide **12 cartridges** in order to meet the hydraulic load requirement (calculations shown below). To house this number of cartridges, Contech Engineered Solutions recommends a 60" HC Kraken Filter Manhole.

$$N_{cartridges\ hyd.load} = \frac{Q_{treat}}{Q_{cartridge}} = \frac{0.43\ cfs}{0.038\ {}^{cfs}/_{cartridge}} = 11.32 \Rightarrow (12)\ 30"\ Cartridges$$

$$N_{cartridges\ mass\ load} = \frac{Area_{site}}{Max\ Area_{cartridge}} = \frac{0.14\ acres}{0.032\ {}^{acres}/_{cartridge}} = 4.38 \Rightarrow (5)\ 30"\ Cartridges$$

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7037 Ridge Road, Suite 350 | Hanover, MD 21076
Office: 443-457-1500 Fax: 410-740-8492

HC Kraken Filter Design Summary

Maintenance:

Maintenance of Stormwater best management practices is required per the New Jersey Administrative Code 7:8-5.8. Recommendations for maintenance are included in chapters 8 & 9 of the New Jersey Stormwater Best Management Practices Manual. To comply with requirements, CONTECH offers a network of Preferred Service Providers that have the capability to perform all necessary inspections, compliance reporting and cleaning services. CONTECH recommends inspecting the system annually and maintaining the system at the recommendation of the annual inspection. Full maintenance is typically required every 24-36 months. Disposal of material should be handled in accordance with local regulations. Please contact CONTECH's Maintenance Department for all questions regarding maintenance at (503) 258-3157 or visit our website at www.conteches.com/maintenance.

Thank you for the opportunity to present this information to you and your client. If you have any questions, please call me at (443-457-1529).

Sincerely,

Taylor Murdock
Stormwater Design Engineer
Contech Engineered Solutions LLC

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conteches.com

7037 Ridge Road, Suite 350 | Hanover, MD 21076
Office: 443-457-1500 Fax: 410-740-8492

Summary for Subcatchment 1S: DA 1

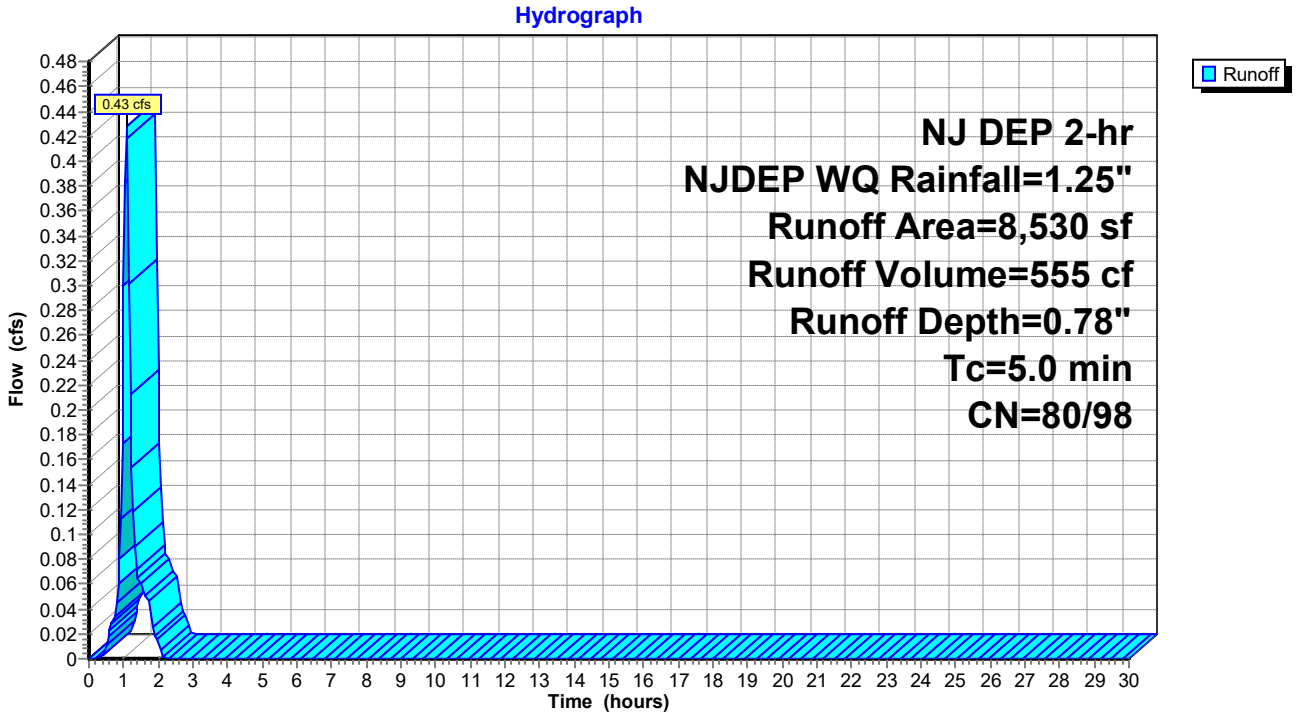
Runoff = 0.43 cfs @ 1.09 hrs, Volume= 555 cf, Depth= 0.78"

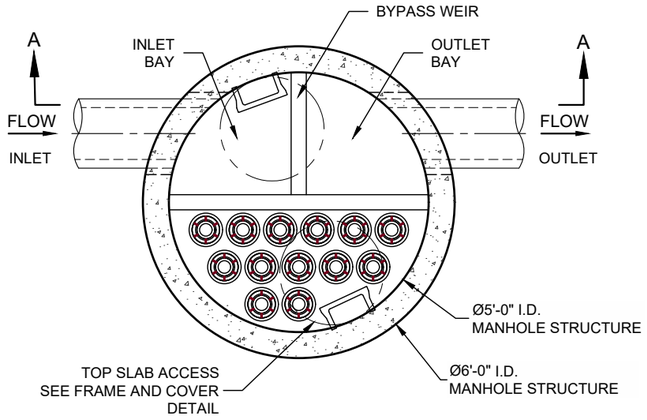
Runoff by SCS TR-20 method, UH=SCS, Split Pervious/Imperv., Time Span= 0.00-30.00 hrs, dt= 0.04 hrs
NJ DEP 2-hr NJDEP WQ Rainfall=1.25"

	Area (sf)	CN	Description
*	6,020	98	
*	2,510	80	
	8,530	93	Weighted Average
	2,510	80	29.43% Pervious Area
	6,020	98	70.57% Impervious Area

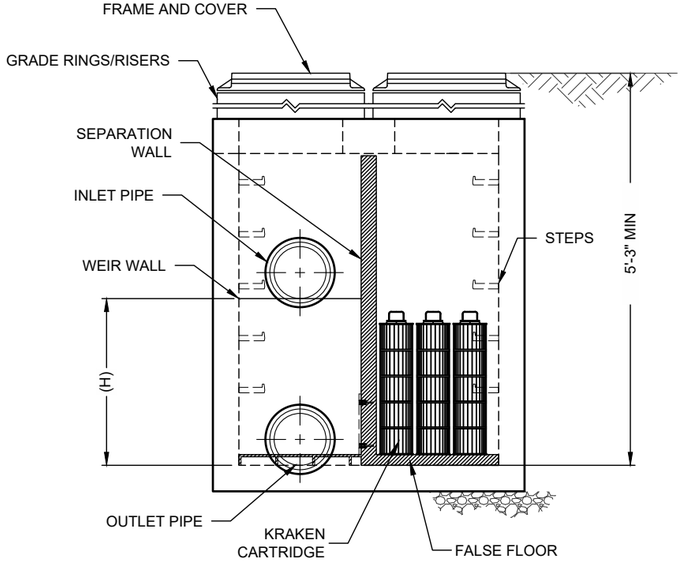
Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Subcatchment 1S: DA 1





PLAN VIEW



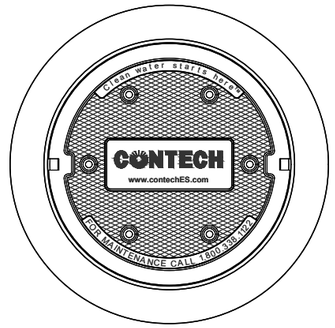
SECTION A-A

KRAKEN FILTER DESIGN NOTES

KRAKEN FILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC TO FLOWRATE. PEAK CONVEYANCE CAPACITY TO BE CALCULATED BY ENGINEER OF RECORD.
AN Ø5'-0" MANHOLE KRAKEN FILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (13) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION.
ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE.

CARTRIDGE SELECTION

CARTRIDGE HEIGHT	30"	20"	10"
RECOMMENDED HYDRAULIC DROP (H)	38.5"	28.5"	18.5"
SPECIFIC FLOW RATE (gpm/sf)	0.10	0.10	0.10
CARTRIDGE FLOW RATE (gpm)	17	10.6	4.9



FRAME AND COVER

(24" ROUND)
(NOT TO SCALE)

SITE SPECIFIC DATA REQUIREMENTS

STRUCTURE ID	*
WATER QUALITY FLOW RATE (cfs)	*
PEAK FLOW RATE (cfs)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
CARTRIDGE HEIGHT (SEE TABLE ABOVE)	*
NUMBER OF CARTRIDGES REQUIRED	*
CARTRIDGE FLOW RATE	*

PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE #1	*	*	*
INLET PIPE #2	*	*	*
OUTLET PIPE	*	*	*

RIM ELEVATION	*

ANTI-FLOTATION BALLAST	WIDTH	HEIGHT
	*	*

NOTES/SPECIAL REQUIREMENTS:

* PER ENGINEER OF RECORD

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
4. KRAKEN FILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE KRAKEN FILTER STRUCTURE.
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING US PATENTS: 9,604,160;10,307,696; 10,369,496; 11,260,321; RELATED FOREIGN PATENTS OR OTHER PATENT PENDING

CONTECH ENGINEERED SOLUTIONS LLC
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KFMH60
KRAKEN FILTER
STANDARD DETAIL

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WATERSHED PROTECTION AND RESTORATION
BUREAU OF NJPDES STORMWATER PERMITTING & WATER QUALITY MANAGEMENT
P.O. Box 420 Mail Code 501-02A
Trenton, New Jersey 08625-0420
609-633-7021 / Fax: 609-777-0432
www.njstormwater.org

PHILIP D. MURPHY
Governor

SHEILA Y. OLIVER
Lt. Governor

SHAWN M. LATOURETTE
Commissioner

November 18, 2022

Zachariha J. Kent
Vice President of Product Management
Bio Clean Environmental Services, Inc., a Quikrete Company
398 Via El Centro
Oceanside, CA 92058

Re: MTD Lab Certification
Bio Clean High Capacity Kraken Filter Stormwater Treatment Device
Online Installation

TSS Removal Rate 80%

Dear Mr. Kent:

The Stormwater Management rules under N.J.A.C. 7:8-5.2(f) and 5.2(j) allow the use of manufactured treatment devices (MTDs) for compliance with the design and performance standards at N.J.A.C. 7:8-5 if the pollutant removal rates have been verified by the New Jersey Corporation for Advanced Technology (NJCAT) and have been certified by the New Jersey Department of Environmental Protection (NJDEP). Bio Clean Environmental Services, Inc., a Quikrete company, has requested a Laboratory Certification for the Bio Clean High Capacity Kraken Filter Stormwater Treatment Device (High Capacity Kraken Filter).

The project falls under the "Procedure for Obtaining Verification of a Stormwater Manufactured Treatment Device from New Jersey Corporation for Advance Technology" dated January 25, 2013. The applicable protocol is the "New Jersey Department of Environmental Protection Laboratory Protocol to Assess Total Suspended Solids Removal by a Filtration Manufactured Treatment Device" dated January 25, 2013.

NJCAT verification documents submitted to the NJDEP indicate that the requirements of the aforementioned protocol have been met or exceeded. The NJCAT letter also included a recommended certification TSS removal rate and the required maintenance plan. The NJCAT Verification Report with the Verification Appendix (dated October 2022) for this device is published online at http://www.njcat.org/uploads/newDocs/HCKrakenFilterNJCATFinalReport.pdf.

The NJDEP certifies the use of the High Capacity Kraken Filter by Bio Clean Environmental Services, Inc. at a TSS removal rate of 80% when designed, operated, and maintained in accordance with the information provided in the Verification Appendix and the following conditions:

1. The maximum treatment flow rate (MTFR) for the manufactured treatment device (MTD) is calculated using the New Jersey Water Quality Design Storm (1.25 inches in 2 hrs) in N.J.A.C. 7:8-

5.5. The MTFR is calculated based on a verified loading rate of 0.101 gpm/ft^2 of effective membrane filter area.

2. The High Capacity Kraken Filter shall be installed using the same configuration reviewed by NJCAT, and sized in accordance with the criteria specified in item 6 below.

3. This device cannot be used in series with another MTD or a media filter (such as a sand filter) to achieve an enhanced removal rate for total suspended solids (TSS) removal under N.J.A.C. 7:8-5.5.

4. Additional design criteria for MTDs can be found in Chapter 11.3 of the New Jersey Stormwater Best Management Practices (NJ Stormwater BMP) Manual, which can be found online at www.njstormwater.org.

5. The maintenance plan for a site using this device shall incorporate, at a minimum, the maintenance requirements for the High Capacity Kraken Filter. A copy of the maintenance plan is attached to this certification. However, it is recommended to review the maintenance website at https://www.conteches.com/kraken for any changes to the maintenance requirements.

6. Sizing Requirement:

The example below demonstrates the sizing procedure for the High Capacity Kraken Filter:

Example: A 0.25-acre impervious site is to be treated to 80% TSS removal using a High Capacity Kraken Filter. The impervious site runoff (Q) based on the New Jersey Water Quality Design Storm was determined to be 0.79 cfs or 354.58 gpm.

The selection of the appropriate model of a High Capacity Kraken Filter is based upon both the maximum inflow drainage area and the MTFR. It is necessary to calculate the required model using both methods and to use the largest model determined by the two methods.

Inflow Drainage Area Evaluation:

The drainage area to the High Capacity Kraken Filter in this example is 0.25 acres. Based upon the information in Table 1 below, the following number of cartridges are required in a High Capacity Kraken Filter to treat the impervious area without exceeding the maximum allowable drainage area:

a. Twenty-eight (28) 10" cartridges;
b. Thirteen (13) 20" cartridges; or
c. Eight (8) 30" cartridges.

Maximum Treatment Flow Rate (MTFR) Evaluation:

The site runoff (Q) was based on the following:

time of concentration = 10 minutes
i = 3.2 in/hr (page 74, Fig. 5-16 of Chapter 5 of the NJ Stormwater BMP Manual)
c = 0.99 (runoff coefficient for impervious)
Q = ciA = 0.99 x 3.2 x 0.25 = 0.79 cfs (354.58 gpm)
(Note: 1 cfs = 448.83 gpm)

Given the site runoff is 0.79 cfs and based on Table 1 below, the following minimum numbers of cartridges are required in a High Capacity Kraken Filter without exceeding the MTFR of the individual model:

a. Seventy-two (72) 10" cartridges;
b. Thirty-three (33) 20" cartridges; or
c. Twenty-one (21) 30" cartridges.

The MTFR evaluation results will be used since that method results in the highest minimum configuration determined by the two methods.

The sizing table corresponding to the available system models is noted below. Additional specifications regarding each model can be found in the NJCAT Verification Report in the Verification Appendix under Table A-1.

Table 1. High Capacity Kraken Filter Cartridge MTFRs and Maximum Allowable Drainage Area

Cartridge Height (in)	Cartridge Maximum Treatment Flow Rate (MTFR) (cfs)	Maximum Allowable Drainage Area (acres)
30	0.038	0.032
20	0.024	0.020
10	0.011	0.009

Be advised a detailed maintenance plan is mandatory for any project with a Stormwater BMP subject to the Stormwater Management Rules, N.J.A.C. 7:8. The plan must include all of the items identified in the Stormwater Management Rules, N.J.A.C. 7:8-5.8. Such items include, but are not limited to, the list of inspection and maintenance equipment and tools, specific corrective and preventative maintenance tasks, indication of problems in the system, and training of maintenance personnel. Additional information can be found in Chapter 8: Maintenance and Retrofit of Stormwater Management Measures.

If you have any questions regarding the above information, please contact Changi Wu of my office at chang.i.wu@dep.nj.gov.

Sincerely,

Gabriel Mahon

Gabriel Mahon, Chief
Bureau of NJPDES Stormwater Permitting & Water Quality Management
Division of Watershed Protection and Restoration
New Jersey Department of Environmental Protection

Attachment: Maintenance Plan

cc: Richard Magee, NJCAT

CONTECH®
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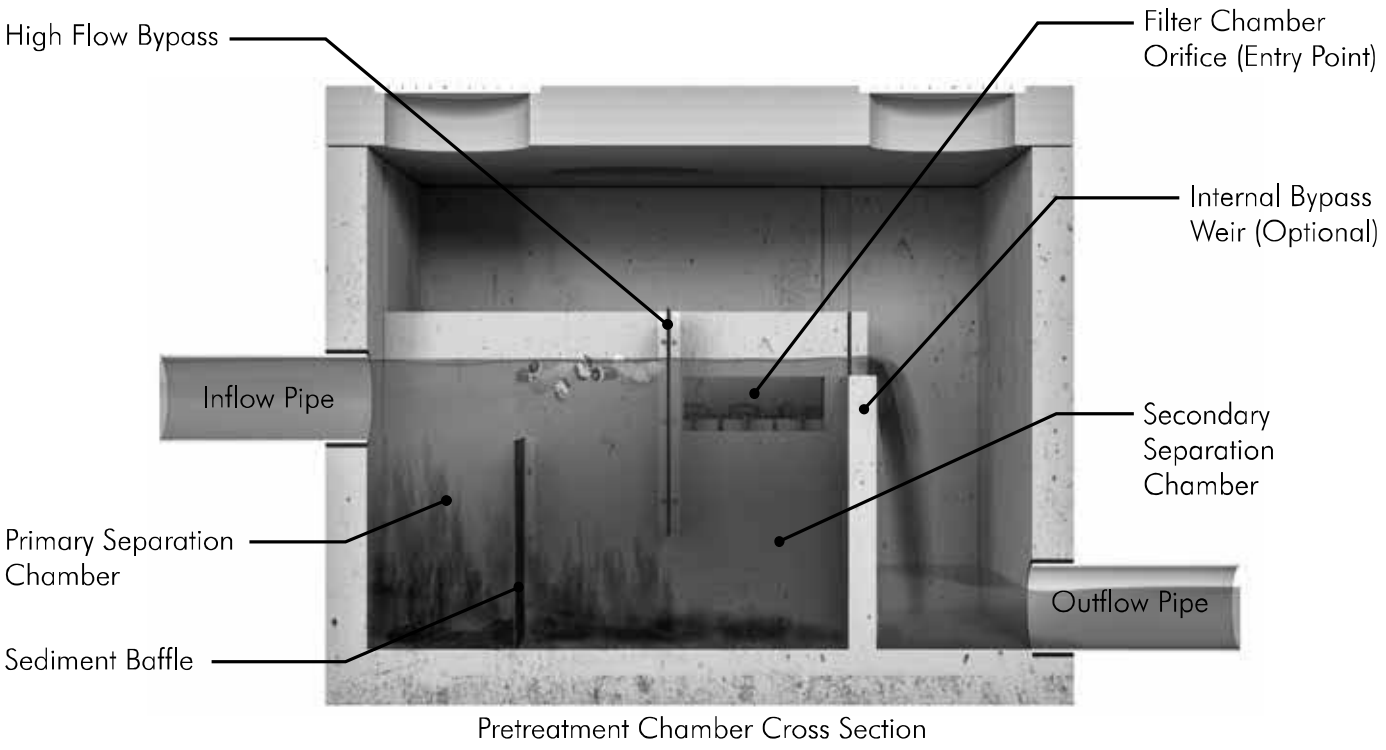
Kraken® Filter
Operation & Maintenance Manual

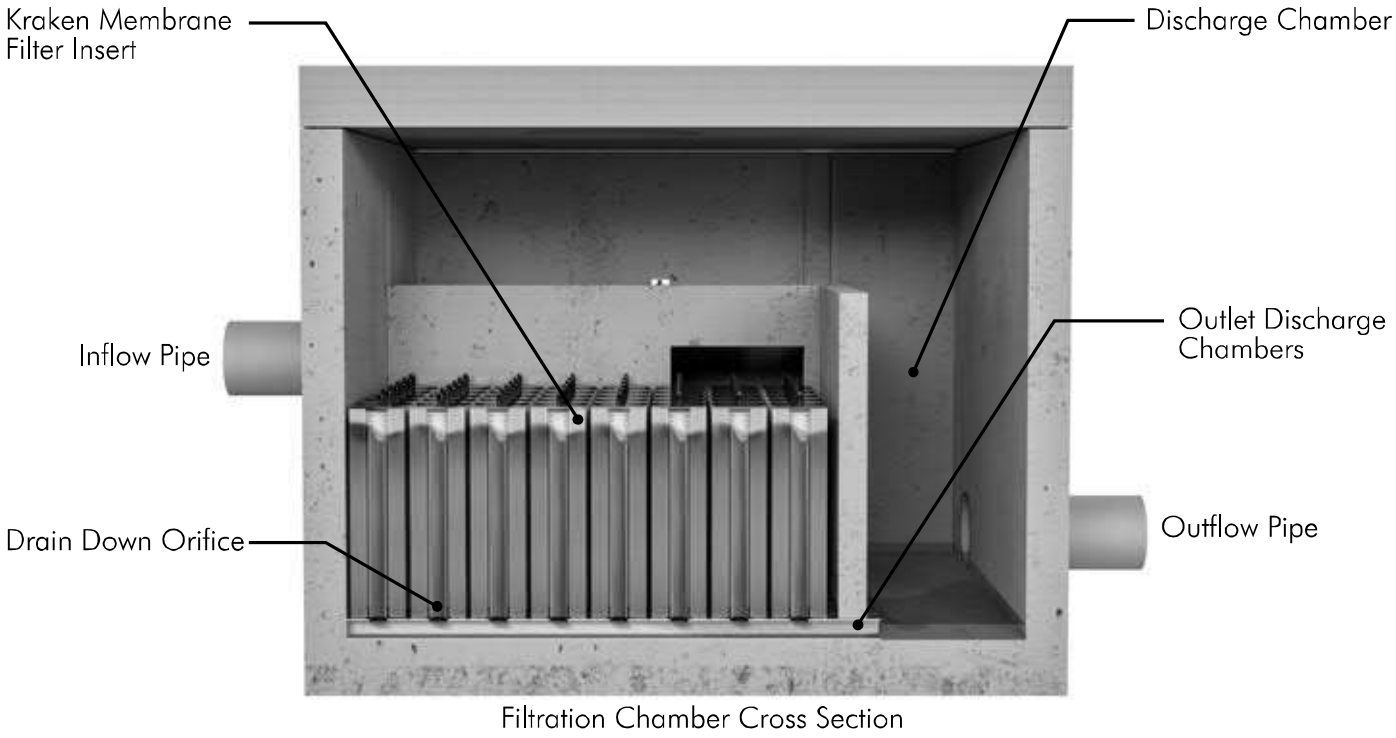
Operation & Maintenance

The Kraken® Filter is designed at a minimal loading rate of only 0.05 gpm/sq ft of media surface to maximize longevity and minimize maintenance requirements. Passive backwash and pretreatment also help to minimize system maintenance requirements. The Kraken® Filter is estimated to be able to handle up to at least 18 months sediment loading with no maintenance or loss of treatment capacity assuming 600 pounds of sediment per acre of impervious surface annually.

Yet, as with all stormwater BMPs, inspection and maintenance on the Kraken® Filter is necessary. Stormwater regulations require that all BMPs be inspected and maintained to ensure they are operating as designed to allow for effective pollutant removal and to provide protection to receiving water bodies. It is recommended that inspections be performed multiple times during the first year to assess the site specific loading conditions. This is recommended because pollutant loading and pollutant characteristics can vary greatly from site to site. Variables such as nearby soil erosion or construction sites, winter sanding on roads, amount of daily traffic and land use can increase pollutant loading on the system. Observations made during the first year of inspections can be used to estimate inspection and maintenance intervals for subsequent years to ensure appropriate maintenance is provided. Without appropriate maintenance, a BMP will exceed its storage capacity which can negatively affect its continued performance in removing and retaining captured pollutants.



Pre-Treatment Chamber Diagram



Filter Chamber Diagram

Inspection Equipment

Following is a list of equipment to allow for simple and effective inspection of the Kraken® Filter:

- Contech Inspection Form
- Flashlight
- Manhole hook or appropriate tools to access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure
- Protective clothing and eye protection

Inspection Steps

The core to any successful stormwater BMP maintenance program is routine inspections. The inspection steps required on the Kraken® Filter are quick and easy. As mentioned above, the first year should be seen as the maintenance interval establishment phase. During the first year, more frequent inspections should occur in order to gather loading data and maintenance requirements for that specific site. This information can be used to plan future inspection and maintenance intervals.

The Kraken® Filter can be inspected through visual observation without entry into the system. All necessary pre-inspection steps must be carried out before inspection occurs, especially traffic control and other safety measures to protect the inspector and near-by pedestrians from any dangers associated with an open access hatch or manhole. Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system. Once these access covers have been safely opened the inspection process can proceed:

- Prepare the inspection form by writing in the necessary information including project name, location, date & time, unit number and other info (see inspection form).
- Observe the inside of the system through the access hatches. If minimal light is available and vision into the unit is impaired, utilize a flashlight to see inside the system and all of its chambers.
- Look for any obstructions in the inflow pipe, pre-treatment chamber, filter chambers, discharge chamber or outflow pipe. Write down any observations on the inspection form.
- Through observation and/or digital photographs, estimate the amount of floatable debris accumulated in the pre-treatment chamber. Record this information on the inspection form. Next, utilizing a tape measure or measuring stick, estimate the amount of sediment accumulated in the primary and secondary sedimentation chambers. Record this depth on the inspection form. Through visual observation, inspect the condition of the filter cartridges. Look for excessive build-up of sediments on the surface and any build-up on the top of the cartridges. Record this information on the inspection form.
- Finalize inspection report for analysis by the maintenance manager to determine if maintenance is required.

Maintenance Indicators

Based upon observations made during inspection, maintenance of the system may be required based on the following indicators:

- Missing or damaged internal components or cartridges
- Obstructions in the system or its inlet or outlet
- Accumulation of floatables in the pre-treatment chambers in which the length and width of the chamber behind oil/floatables skimmer is fully impacted
- Accumulation of sediment in the primary sedimentation chamber of more than 18" in depth
- Accumulation of sediment in the secondary sedimentation chamber of more than 6" in depth
- Accumulation of sediment in the filter chambers of more than 3" on average
- Substantial build-up of sediments on the filter membrane of the filter cartridges which will have a very dark appearance indicating the membrane may be fully saturated with sediment

The Kraken Filter vault is a robust system and is designed for treating and bypassing (when required) flow rates calculated by the Engineer of Record. Under the designed conditions with routine maintenance and inspections, the Kraken Filter should function for many years. The Kraken Filter can fail under certain conditions, such as: severe damage and cracking through the vault walls, internal weir and baffle walls falling out of place, blockages of the flow path such as inlet or outlet, filters not reset properly, excessive debris or sediment accumulation within the vault and on the filters. With proper maintenance these risks can be avoided. Contech representatives are also available for troubleshooting.

Maintenance Equipment

While maintenance can be done fully by hand, it is recommended that a vacuum truck be utilized to minimize time required to maintain the Kraken® Filter:

- Contech Maintenance Form
- Flashlight
- Manhole hook or appropriate tools to access hatches and covers
- Appropriate traffic control signage and procedures
- Measuring pole and/or tape measure
- Protective clothing and eye protection
- Vacuum truck
- Trash can
- Pressure washer

Note: entering a confined space requires appropriate safety and certification. It is generally not required for routine inspections of the system. Entry into the system will be required if it is determined the cartridge filters need washing/cleaning

Maintenance Procedures

It is recommended that maintenance occurs at least three days after the most recent rain event to allow for drain down of the system and any upstream detention systems designed to drain down over an extended period of time. Maintaining the system while flows are still entering it will increase the time and complexity required for maintenance. Cleaning of the pre-treatment chamber can be performed from finish surface without entry into the vault utilizing a vacuum truck. Once all safety measures have been set up, cleaning of the pre-treatment chamber can proceed as follows:

- Following rules for confined space entry, use a gas meter to detect the presence of any hazardous gases. If hazardous gases are present, do not enter the vault. Following appropriate confined space procedures, take steps, such as utilizing a venting system, to address the hazard. Once it is determined to be safe, enter utilizing appropriate entry equipment such as a ladder and tripod with harness.

- Once entry into the system has been established the maintenance technician should position themselves to stand in the pre-treatment chamber. From here, the removal of the cartridges can commence.

- Threaded couplings are used now, but old systems will have the pressure fitted coupling. Each cartridge that is pressure fitted in place will include a handle for easy removal. To remove a cartridge, simply grab the handle and pull straight up. It may be required to gently shift pressure from side to side while pulling up to break the pressure seal. Removal of the cartridge should be done by hand with minimal effort and requires no tools.

- Once the cartridges are removed, they should be lifted out from the vault and brought up to finish surface for cleaning. Using a large garbage can and a standard garden hose (low pressure nozzle), each cartridge should be rinsed off from the outside to remove accumulated sediments and debris. Once each cartridge is rinsed, it should be placed to the side for re-installation.

- Each filter chamber should be power washed and vacuumed clean before re-inserting the cleaned cartridges.
- After all cartridges have been washed, they can be replaced back into the vault. To replace each cartridge, simply slide cartridge over each pressure fitted coupler. Threaded couplings are used now, but old systems will have the pressure fitted coupling. Push down on the handle to ensure the cartridge has been fully seated and the bottom of the cartridge is making contact with the floor.
- The last step is to replace all access hatch lids and remove all traffic control.
- All removed debris and pollutants shall be disposed of following local and state requirements.

Maintenance Sequence

1. Remove access hatches set up vacuum truck to clean the pretreatment chamber.

2. Insert vacuum hose in the sedimentation chamber and vacuum out all trash, sediment and standing water.

3. Assess the condition of the filter cartridges and determine if cleaning is required.

4. To wash cartridges, remove from vault. Place over trash can and use a garden hose to spray clean.

5. Once cleaned, install back into the vault. This completes maintenance. Ensure access lids are properly replaced.

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SUPPORT

DRAWINGS AND SPECIFICATIONS ARE AVAILABLE AT WWW.CONTECHES.COM

Appendix - F:

NEW JERSEY GROUNDWATER RECHARGE SPREADSHEET

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
ESSEX CO., MONTCLAIR TOWN	49.0	1.64

Project Name:	KIMBERLEY ACADEMY
Description:	Entire Site
Analysis Date:	11/17/23

Pre-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.89	Meadow, Pasture, Grassland or range	Boonton	14.9	48,095
2	0.25	Impervious areas	Boonton	0.0	-
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Total =	1.1			Total Annual Recharge (in)	Total Annual Recharge (cu-ft)
				11.6	48,095

Post-Developed Conditions

Land Segment	Area (acres)	TR-55 Land Cover	Soil	Annual Recharge (in)	Annual Recharge (cu.ft)
1	0.61	adow, Pasture, Grassland or ra	Boonton	14.9	32,964
2	0.53	Impervious areas	Boonton	0.0	-
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
Total =	1.1			Total Annual Recharge (in)	Total Annual Recharge (cu.ft)
				8.0	32,964

Annual Recharge Requirements Calculation ↓

% of Pre-Developed Annual Recharge to Preserve =	100%	Total Impervious Area (sq.ft)
		23,087
Post-Development Annual Recharge Deficit=	*15,131*	(cubic feet)

Recharge Efficiency Parameters Calculations (area averages)

RWC=	#N/A	(in)	DRWC=	#N/A	(in)
ERWC =	#N/A	(in)	EDRWC=	#N/A	(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
KIMBERLEY ACADEMY	Entire Site	11/17/23	POI-1 to 4

Recharge BMP Input Parameters

Parameter	Symbol	Value	Unit
BMP Area	ABMP	520.0	sq.ft
BMP Effective Depth, this is the design variable	dBMP	5.3	in
Upper level of the BMP surface (negative if above ground)	dBMPu	12.0	in
Depth of lower surface of BMP, must be>=dBMPu	dEXC	54.0	in
Post-development Land Segment Location of BMP , Input Zero if Location is distributed or undetermined	SegBMP	1	unitless

Root Zone Water capacity Calculated Parameters

Parameter	Symbol	Value	Unit
Empty Portion of RWC under Post-D Natural Recharge	ERWC	0.66	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	0.22	in
Inches of Rainfall to capture	Pdesign	0.30	in
Recharge Provided Avg. over Imp. Area		14.0	in
Runoff Captured Avg. over imp. Area		14.0	in

BMP Calculated Size Parameters

ABMP/Aimp	Aratio	0.04	unitless
BMP Volume	VBMP	231	cu.ft

CALCULATION CHECK MESSAGES

Volume Balance-> OK
dBMP Check---> OK
dEXC Check---> OK
BMP Location---> OK

Parameters from Annual Recharge Worksheet

Post-D Deficit Recharge (or desired recharge volume)	Vdef	15,131	cu.ft
Post-D Impervious Area (or target Impervious Area)	Aimp	12,940	sq.ft
Root Zone Water Capacity	RWC	3.69	in
RWC Modified to consider dEXC	DRWC	0.00	in
Climatic Factor	C-factor	1.64	no units
Average Annual P	Pavg	49.0	in
Recharge Requirement over Imp. Area	dr	7.9	in

System Performance Calculated Parameters

Annual BMP Recharge Volume		15,131	cu.ft
Avg BMP Recharge Efficiency		100.0%	Represents % Infiltration Recharged
%Rainfall became Runoff		78.5%	%
%Runoff Infiltrated		36.5%	%
%Runoff Recharged		20.4%	%
%Rainfall Recharged		16.1%	%

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.

Appendix – G:

STORM SEWER CALCULATIONS

- Since 1894 -

Storm Sewer Computations

Project: Montclair kimberley Academy

Job No. VAMAX22004
Date: 11/17/2023

Design Storm: 100 Years

Notes: *C* = 0.99 (Impervious) *C* = 0.25 (Woods) *C* = 0.35 (Lawn)
*STORM PIPE INFORMATION SHOWN ON PLANS (LENGTH/SLOPE/INVERT) MAY VARY SLIGHTLY, DUE TO ROUNDING, FROM THE INFORMATION PROVIDED ON THESE SHEETS. CALCULATIONS SHOWN HEREON HAVE ACCOUNTED FOR THESE VARIATIONS.

LOCATION		Imp. Area	Runoff Coef.	Wooded Grass Area	Runoff Coef.	ACRES		RUNOFF			TIME CONC. (min)			Intensity	Flow, Q (cfs)		PIPE SUPPLIED								
FROM	TO	(Acre)	C	(Acre)	C	"A"	Total	"C"	CxA	ΣCxA	INLET	PIPE	TOTAL	I (in/hr)	Design	Cap	Top Up	Inv. Up	Inv. Dn	Fall (ft)	L (ft)	Dia (in)	Type	"N"	S (%)	V (fps)
Start Run																										
UG-OS	MH-1	100-YEAR FLOW = 0.58 CFS (from Bentley, Pond Pack system)													0.58	48.70	470.00	465.50	460.10	5.40	6	12	HDPE	0.009	90.00	0.74
Start Run																										
MTD-INLET-301	UGS-302	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													2.15	18.15	491.00	475.00	474.50	0.50	4	12	HDPE	0.009	12.50	2.74
UGS-OS-303	MH-304	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													1.09	23.94	479.00	474.50	464.50	10.00	46	12	HDPE	0.009	21.74	1.39
MH-304	MH-305	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													1.09	22.60	474.00	464.50	455.00	9.50	49	12	HDPE	0.009	19.39	1.39
MH-305	UGS-306	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													1.09	16.23	468.00	454.00	453.50	0.50	5	12	HDPE	0.009	10.00	1.39
MTD-INLET-307	UGS-308	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													2.22	18.15	458.00	454.00	453.50	0.50	4	12	HDPE	0.009	12.50	2.83
UG-OS-309	EX-MH-310	100-YEAR FLOW = 1.09 CFS (from Bentley, Pond Pack system)													2.33	9.40	458.00	453.50	451.22	2.28	68	12	HDPE	0.009	3.35	2.97
INLET-401	INLET-402	0.29	0.99	1.11	0.35	1.40	1.40	0.482	0.67	0.67	5.0	0.00	5.00	9.33	6.29	20.96	510.11	507.00	485.00	22.00	132	12	HDPE	0.009	16.67	8.01
INLET-402	INLET-403	0.00	0.99	0.65	0.35	0.65	2.04	0.35	0.23	0.90	5.0	0.00	5.00	9.33	8.40	17.46	492.57	485.00	480.95	4.05	35	12	HDPE	0.009	11.57	10.70
INLET-403	MH-404	0.05	0.99	0.36	0.35	0.41	2.45	0.425	0.17	1.07	5.0	0.00	5.00	9.33	10.01	13.79	486.57	480.95	478.57	2.38	33	12	HDPE	0.009	7.21	12.75
MH-404	MH-405	0.00	0.99	0.00	0.35	0.00	2.45	0	0.00	1.07	5.0	0.00	5.00	9.33	10.01	15.55	485.28	478.57	476.00	2.57	28	12	HDPE	0.009	9.18	12.75
MH-405	EW-406	0.00	0.99	0.00	0.35	0.00	2.45	0	0.00	1.07	5.0	0.00	5.00	9.33	10.01	17.78	481.83	476.00	470.00	6.00	50	12	HDPE	0.009	12.00	12.75

Project: Montclair kimberley Academy

Hydraulic Grade Line Computations
VNHA# VAMAX22004

Assumes Pipes Flowing Full
Q=Aci=As calculated in Pipe Calculations

Downstream Structure	Upstream Structure	100YR Q	Pipe Diameter (in)	Pipe Length (ft)	Mannings "n"	WP (ft.)	Cross Area (sf)	Kp	Velocity (ft/s)	Velocity Head (ft.)	Friction Slope sf	Friction Head Loss (ft.)	Inlet/Manhole Coeff (K)	Inlet/Manhole Loss (ft.)	Downstream HGL Elev.	Upstream HGL Elev.	Ups. Grate/Rim Elevation
MH-1	UG-OS	0.58	12	6	0.009	3.14	0.79	51.2	0.74	0.008	0.0001	0.001	0.50	0.00	461.10	461.11	470.00
UGS-302	MTD-INLET-301	2.15	12	4	0.009	3.14	0.79	51.2	2.74	0.116	0.0018	0.007	0.50	0.06	475.50	475.57	491.00
MH-304	UGS-OS-303	1.09	12	46	0.009	3.14	0.79	51.2	1.39	0.030	0.0005	0.021	0.15	0.00	454.56	454.59	479.00
MH-305	MH-304	1.09	12	49	0.009	3.14	0.79	51.2	1.39	0.030	0.0005	0.022	0.45	0.01	454.52	454.56	474.00
UGS-306	MH-305	1.09	12	5	0.009	3.14	0.79	51.2	1.39	0.030	0.0005	0.002	0.75	0.02	454.50	454.52	468.00
UGS-308	MTD-INLET-307	2.22	12	4	0.009	3.14	0.79	51.2	2.83	0.124	0.0019	0.008	0.50	0.06	454.50	454.57	458.00
EX-MH-310	UG-OS-309	2.33	12	68	0.009	3.14	0.79	51.2	2.97	0.137	0.0021	0.141	0.15	0.02	452.22	452.38	458.00
INLET-402	INLET-401	6.29	12	132	0.009	3.14	0.79	51.2	8.01	0.997	0.0151	1.993	0.50	0.50	482.35	484.85	510.11
INLET-403	INLET-402	8.40	12	35	0.009	3.14	0.79	51.2	10.70	1.776	0.0269	0.942	0.70	1.24	480.17	482.35	492.57
MH-404	INLET-403	10.01	12	33	0.009	3.14	0.79	51.2	12.75	2.525	0.0383	1.262	0.75	1.89	477.01	480.17	486.57
MH-405	MH-404	10.01	12	28	0.009	3.14	0.79	51.2	12.75	2.525	0.0383	1.071	0.75	1.89	474.05	477.01	485.28
EW-406	MH-405	10.01	12	50	0.009	3.14	0.79	51.2	12.75	2.525	0.0383	1.913	0.45	1.14	471.00	474.05	481.83

Appendix – H:

SWALE DESIGN CALCULATIONS

Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 17 2023

SWALE TO INLET 401

Trapezoidal

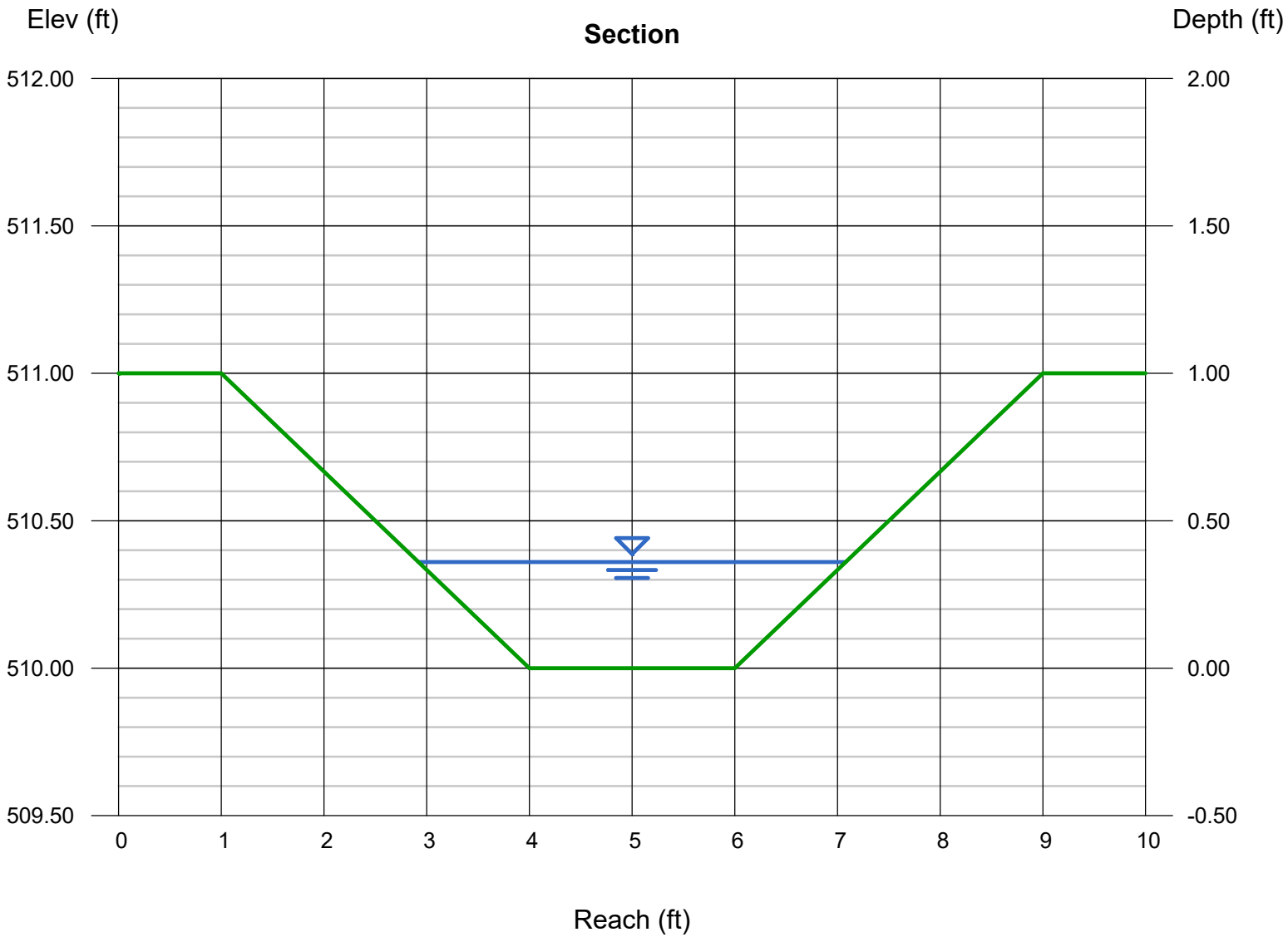
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 510.00
Slope (%)	= 2.77
N-Value	= 0.011

Calculations

Compute by:	Known Q
Known Q (cfs)	= 10.00

Highlighted

Depth (ft)	= 0.36
Q (cfs)	= 10.00
Area (sqft)	= 1.11
Velocity (ft/s)	= 9.02
Wetted Perim (ft)	= 4.28
Crit Depth, Yc (ft)	= 0.67
Top Width (ft)	= 4.16
EGL (ft)	= 1.62



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 17 2023

SWALE TO INLET 402

Trapezoidal

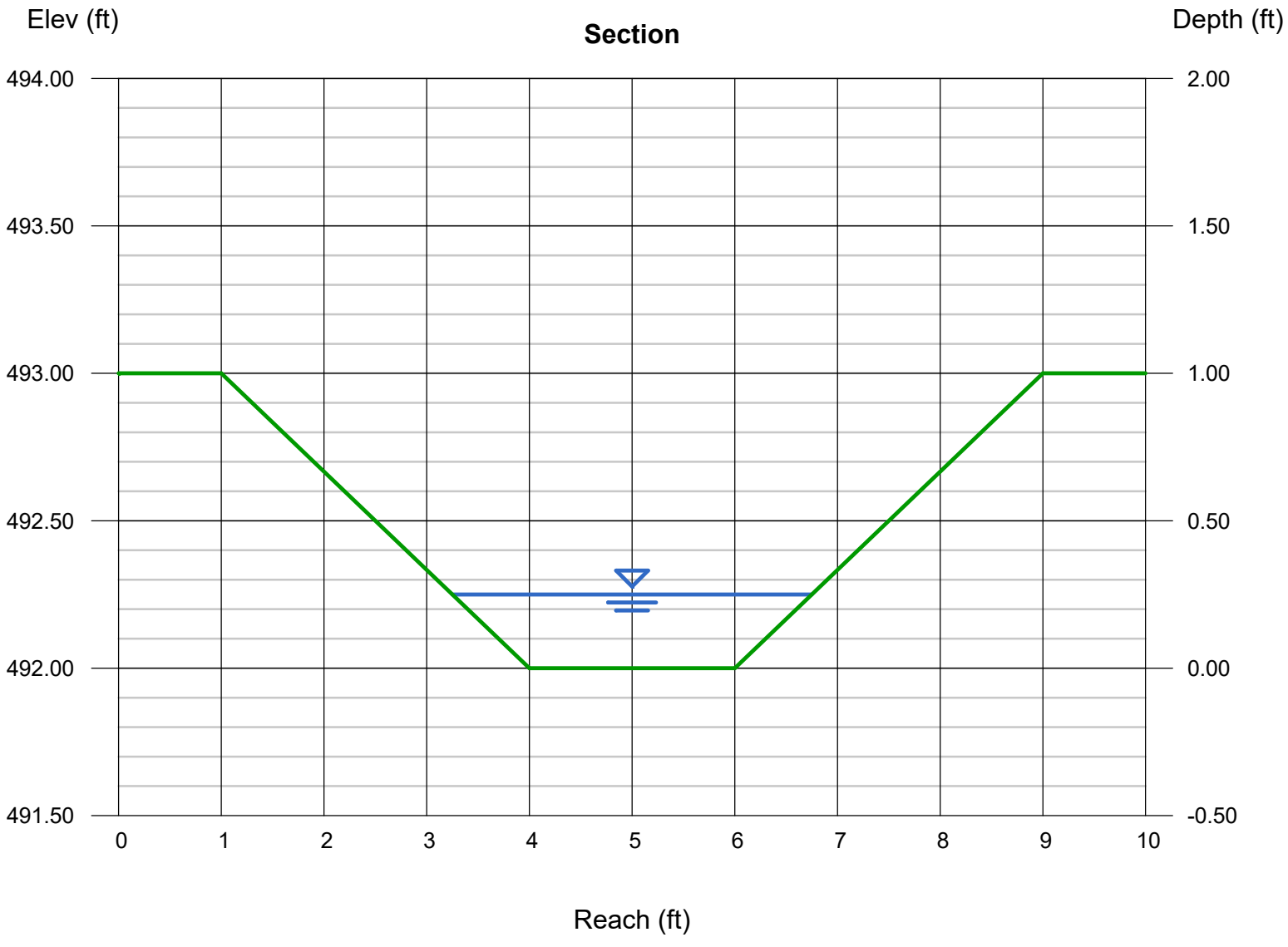
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 492.00
Slope (%)	= 16.67
N-Value	= 0.011

Calculations

Compute by:	Known Q
Known Q (cfs)	= 12.00

Highlighted

Depth (ft)	= 0.25
Q (cfs)	= 12.00
Area (sqft)	= 0.69
Velocity (ft/s)	= 17.45
Wetted Perim (ft)	= 3.58
Crit Depth, Yc (ft)	= 0.73
Top Width (ft)	= 3.50
EGL (ft)	= 4.99



Channel Report

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Friday, Nov 17 2023

SWALE TO INLET 403

Trapezoidal

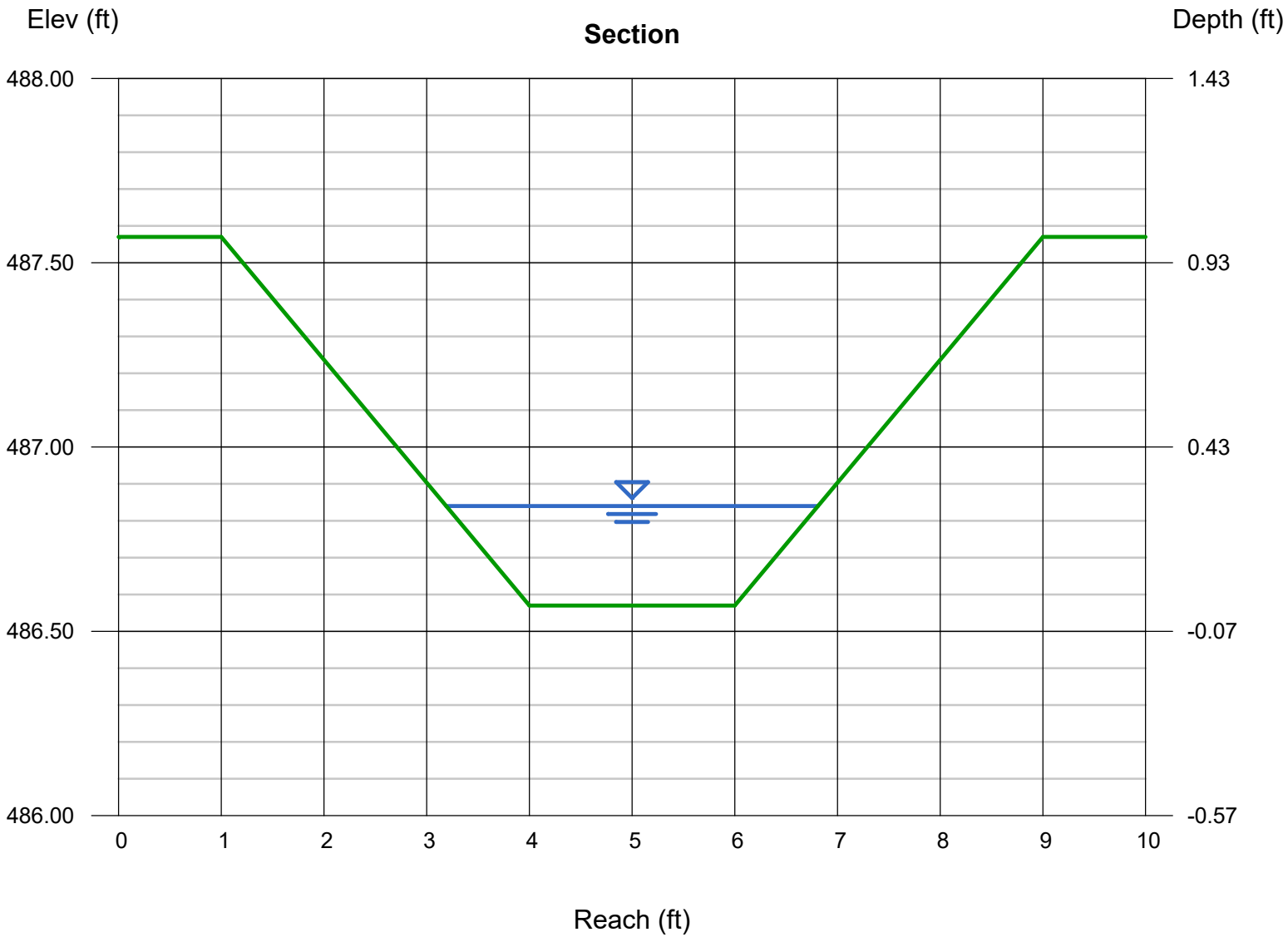
Bottom Width (ft)	= 2.00
Side Slopes (z:1)	= 3.00, 3.00
Total Depth (ft)	= 1.00
Invert Elev (ft)	= 486.57
Slope (%)	= 12.00
N-Value	= 0.011

Calculations

Compute by:	Known Q
Known Q (cfs)	= 12.00

Highlighted

Depth (ft)	= 0.27
Q (cfs)	= 12.00
Area (sqft)	= 0.76
Velocity (ft/s)	= 15.82
Wetted Perim (ft)	= 3.71
Crit Depth, Yc (ft)	= 0.73
Top Width (ft)	= 3.62
EGL (ft)	= 4.16



Appendix – I:

CONDUIT OUTLET PROTECTION CALCULATION

van note - harvey associates
103 College Road East
Princeton, New Jersey 08540
609-987-2323 Fax: 609-987-0005
www.vannoteharvey.com
Since 1894

CONDUIT OUTLET CHANNEL PROTECTION

Project: Montclair Kimberly Academy

Location: 6 Lloyd Rd, Montclair, NJ 07042 **Date:** 11/16/2023

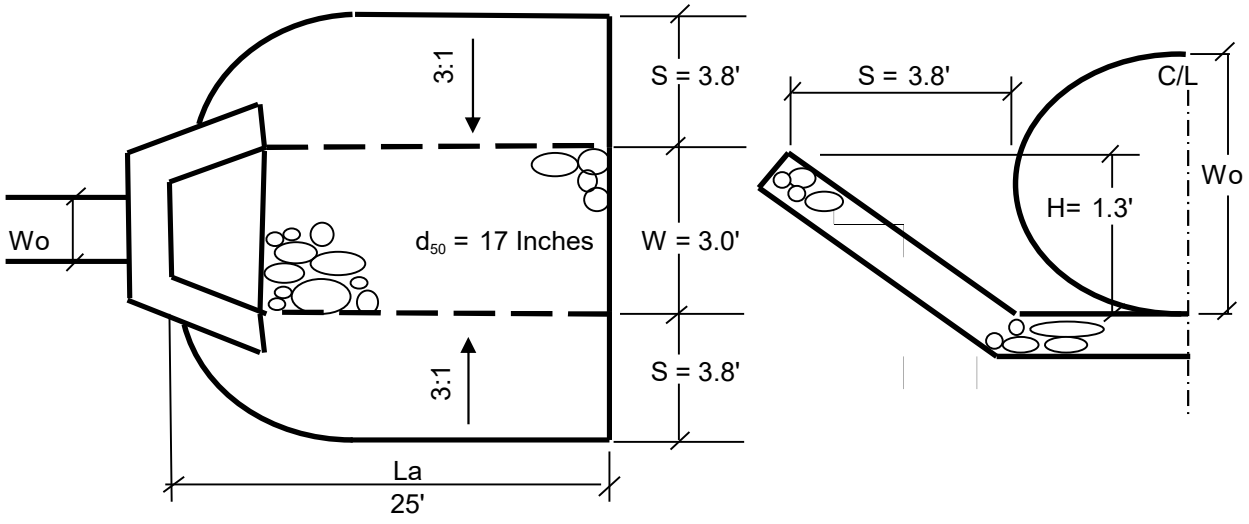
Condition where TW < 0.5Do

$La = ((1.8q/Wo) / Do^{1/2}) + 7Do$

HW/FES#: **Culvert (DS)**

W = Maximum of (3Wo) and Wc
H = Maximum of (TW + 1.0) and (2/3 Do)
S = 3H
$d_{50} = (.016/TW) \times (Q/Wo)^{4/3}$ (3" Min.)
Thickness = 3 d_{50}
Thickness = 2 d_{50} if Filter Fabric is installed

Pipe Height:	12	in.	(Do)
Pipe Width:	12	in.	(Wo)
Flow:	10.1	cfs	(Q) 100-yr
Channel Width:	1.0	feet	(Wc)
Tailwater:	0.25	feet	(TW)



Remarks: