



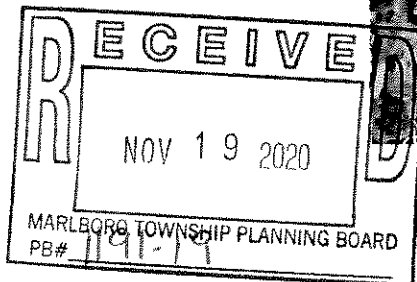
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STORMWATER MANAGEMENT REPORT & SITE DEVELOPMENT STORMWATER PLAN



FOR

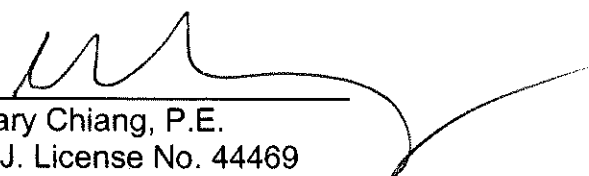
JONS COURT, LLC

TAX LOT 61.02 BLOCK 214.07

MARLBORO TOWNSHIP, MONMOUTH COUNTY
NEW JERSEY

Dated: March 1, 2019
Rev: October 9, 2020

GSC File No. 2085A


Gary Chiang, P.E.
N.J. License No. 44469

SITE DESCRIPTION

This report is prepared in support of a Land Development Application for an Amended Preliminary & Final Major Site Plan to develop land known as Tax Lot 61.02, Block 214.07, Marlboro Township, Monmouth County, New Jersey, as shown on Sheet 92 of the official Marlboro Township Tax Maps. The site is located within the Light Industrial (LI) Zone, contains 10.67 Acres, and is located along the westbound side of Vanderburg Road. This site previously received site plan approval in accordance with resolution of approval PB953-06, adopted on 9/20/06 for the construction of a 2-story, 49,928 square feet office building (known then as Jons Court, LLC).

The previously approved office building was never constructed; however, the shared stormwater management basin (shared with the adjacent Monmouth Worship Center to the west, Tax Lot 61.01) was constructed within the front southwesterly portion of the subject property and the associated outfall pipe was installed which discharges to the stormwater management basin on adjacent Tax Lot 60 to the east. The remainder of the front, southerly portion of the property is currently vacant; and the rear, northerly portion of the property is a wooded area protected by a conservation easement.

In 2019, the site plan was amended to for a 2-story 63,144 square foot (47,682 s.f. on the 1st floor and 15,462 s.f. on the 2nd floor) office/warehouse building with associated site improvements. This amended site plan received Planning Board approval on August 7, 2019, application #PB1191-19.

The site plan is now amended for a 2-story 62,602 square foot (47,488 s.f. on the 1st floor and 15,114 s.f. on the 2nd floor) office/warehouse building. All new site improvements include a paved parking area with circulation driveways, a stormwater collection system, regrade the existing stormwater management basin, site landscaping and site lighting are outside of the established 300 foot riparian buffer. All proposed site improvements will be located within the same footprint of disturbance as the previously approved office building.

The site is depicted on the USDA Web Soil Survey (Figure 1), and is shown to be underlain by Freehold sandy loam (FrkB) and Shrewsbury sandy loam (ShrA) series. Freehold (FrkB) series soils are described as sandy loam with 2 to 5% slopes, gently sloping, well drained soil on divides and depths to seasonal high ground water greater than 6 feet. Shrewsbury (ShrA) series soils are described as sandy loam with nearly level, poorly drained soil in depressional areas and depths to seasonal high ground water between the surface and 1 foot from October to June. Freehold series soils are included in Soil Hydrologic Group B. Shrewsbury series soils are included in Soil Hydrologic Group B/D.

Soil profile pits were excavated on December 20, 2005 and based on these test pits, the seasonal high groundwater is at elevation 122.3 within the area of the existing detention basin.

The information contained within the previously prepared and approved stormwater management reports for the Monmouth Worship Center & Jons Court, LLC have been utilized and relied upon for the proposed stormwater management layout, analysis and design.

PRE-DEVELOPMENT HYDROLOGY

The stormwater analysis is in accordance with the above referenced Monmouth Worship Center & Jons Court, LLC approved stormwater management basin design. The existing stormwater management basin peaked routed design outflows are provided in Table 1.

TABLE 1
STORMWATER MANAGEMENT BASIN PEAK ROUTED OUTFLOWS

Sub-Area	2-Year (c.f.s.)	10-Year (c.f.s.)	25-Year (c.f.s.)	100-Year (c.f.s.)
Stormwater Management Basin	7.2	28.0	30.5	44.3

POST-DEVELOPMENT HYDROLOGY

Proposed site improvements include constructing a 2-story 62,602 square foot (47,488 s.f. on the 1st floor and 15,114 s.f. on the 2nd floor) office/warehouse building. New site improvements include a paved parking area with circulation driveways, a stormwater collection system, regrade the existing stormwater management basin, site landscaping and site lighting. All proposed site improvements will be located within the same footprint of disturbance as the previously approved office building. In accordance with the Marlboro Township Ordinances, a quantitative hydrologic analysis for the site has been performed utilizing the TR-55 methodology. The hydrologic parameters were derived from the same sources as were the pre-developed parameters.

In analyzing the Post-Development site conditions, Tax Lots 61.01 & 61.02 were analyzed together since the existing basin was designed to collect stormwater runoff from both developed properties. Outflow from the existing basin discharges to the existing stormwater management basin on the OCM Jireh Church site on Tax Lot 60.

Post-Development, the disturbed area of the site will continue to drain via the same general drainage areas as previously approved.

- Post-1 (consisting of Sub-Areas 1 – 9 and offsite to basin) will drain to the existing detention basin.
- Bypass-1 is a small portion of the site which will continue to drain to the existing stormwater collection system within Vanderburg Road.
- Bypass-2 is a small portion of the site which will drain to the on-site wetlands within the northerly portion of the property.

A summary of the post-development hydrological parameters are presented in Table 2.

TABLE 2
SUMMARY OF HYDROLOGIC PARAMETERS

Sub-Area	Area (Ac.)	Runoff Curve (CN)	Tc (Hr.)
Post-1 (Sub-Areas 1-9) & Offsite to Basin	Impervious 6.97	98	0.17
	Pervious 2.31	61	0.17
Bypass-1	1.18	74	0.17
Bypass-2	0.31	61	0.17

A summary of the post-development peak runoff flows for various return frequency storms are presented in Table 3.

TABLE 3
SUMMARY OF POST- DEVELOPMENT PEAK RUNOFF FLOWS

Sub-Area	2-Year (c.f.s.)	10-Year (c.f.s.)	25-Year (c.f.s.)	100-Year (c.f.s.)
Post-1 & Offsite to Basin (To Basin)	19.2	31.4	41.3	57.8
Bypass-1	1.4	3.2	4.6	7.1
Bypass-2	0.1	0.5	0.8	1.3

STORMWATER MANAGEMENT DETENTION BASIN

As previously indicated, a stormwater management detention basin was approved and constructed as part of the Monmouth Worship Center site development. As part of this site plan, it is proposed to regrade and slightly enlarge the existing basin to accommodate the anticipated stormwater flows from the proposed site development.

Routed outflows from the basin are controlled by an existing outlet control structure. The existing outlet structure will be reconstructed with a 3" orifice at elevation 123.30, an 6" orifice at elevation 123.70 and two 4' wide weirs at elevation 124.60. The routed outflows from the basin will continue to discharge through the existing discharge pipe to the existing stormwater management basin on Tax Lot 60 to the east. In addition, if the basin receives stormwater runoff from storm events greater than the 100-year storm event, the basin is designed to allow the collected stormwater to overflow through the 25' wide emergency spillway at elevation 126.0. The basin has side slopes of 4 to 1 or gentler.

The reconfigured stormwater management basin, including the outlet structure, will not exceed the peak routed outflow from the previously approved design. A summary of the peak routed outflows from the reconfigured basin for various return frequency storms are presented in Table 4.

TABLE 4

STORMWATER MANAGEMENT SYSTEM PEAK ROUTED OUTFLOWS

	2-Year (c.f.s.)	10-Year (c.f.s.)	25-Year (c.f.s.)	100-Year (c.f.s.)
Stormwater Management Basin	6.2	18.1	27.1	40.8

A comparison of the previously approved basin peak routed outflows and the reconfigured basin routed outflows for various return frequency storms are presented in Table 5.

TABLE 5

**COMPARISON OF THE PREVIOUSLY APPROVED BASIN PEAK
ROUTED OUTFLOWS TO THE RECONFIGURED BASIN PEAK
ROUTED OUTFLOWS**

Storm Frequency (Year)	Previously Approved Basin Routed Outflows (c.f.s.)	Reconfigured Basin Routed Outflows (c.f.s.)	Difference in Flow (column (3-2)) (c.f.s.)
2	7.2	6.2	- 1.0
10	28.0	18.1	- 9.9
25	30.5	27.1	- 3.4
100	44.3	40.8	- 3.5

A comparison of the peak runoff flows for the various storm frequencies for Bypass-1 Existing Basin and Bypass-1 Reconfigured Basin areas are presented in Table 6.

TABLE 6

**COMPARISON OF PEAK RUNOFF FLOWS OF
BYPASS-1 EXISTING BASIN / BYPASS-1 RECONFIGURED BASIN**

Storm Frequency (year)	Bypass-1 Existing Basin Peak Flow (c.f.s.)	Bypass-1 Reconfigured Basin Peak Flow (c.f.s.)	Difference In Flow (column 3-2) (c.f.s.)
2	2.3	1.4	- 0.9
10	5.6	3.2	- 2.4
25	6.2	4.6	- 1.6
100	8.7	7.1	- 1.6

A comparison of the peak runoff flows for the various storm frequencies for Bypass-2 Existing Basin and Bypass-2 Reconfigured Basin areas are presented in Table 7.

TABLE 7
COMPARISON OF PEAK RUNOFF FLOWS OF
BYPASS-2 EXISTING BASIN / BYPASS-2 RECONFIGURED BASIN

Storm Frequency (year)	Bypass-2 Existing Basin Peak Flow (c.f.s.)	Bypass-2 Reconfigured Basin Peak Flow (c.f.s.)	Difference In Flow (column 3-2) (c.f.s.)
2	0.1	0.1	0.0
10	0.7	0.5	- 0.2
25	0.8	0.8	0.0
100	1.3	1.3	0.0

WATER QUALITY MEASURES

In order to satisfy the stormwater management water quality requirements, the existing stormwater management basin on Tax Lot 61.02 provides a percentage of the required TSS removal from the collected stormwater runoff before it discharges to the existing detention basin on Tax Lot 60, which provides additional TSS removal from the collected stormwater. The existing and reconfigured basin maintains the previously approved flat bottom and a 3-inch low flow orifice. The flat bottom allows for the required detention time to remove 60% of TSS before reaching the low flow orifice; the low flow orifice controls the outflow from the water quality basin. The stormwater discharged from this basin is then piped to the existing stormwater management basin on Tax Lot 60, which provides a TSS removal rate of at least 50%. Therefore, the two basins achieve the required TSS removal rate of 80%.

WATER QUALITY BASIN PEAK ROUTED OUTFLOW FOR THE WATER QUALITY STORM EVENT

In accordance with Figure 9.4-2 of the BMPM manual, to achieve a 60% TSS removal rate, a minimum of 10% of the stormwater quality design storm volume must remain in the basin 24 hours after the peak basin water surface and maximum runoff storage volume is achieved. Below is the TSS Removal Rate Calculation utilizing Figure 9.4-2 and is in the figures of this report.

- Combined water quality design storm maximum volume to basin = 26,449 c.f.
- 10% of maximum water quality design storm volume = 2,645 c.f.

2,645 c.f. must remain in the basin 24-hour after the peak basin water surface and maximum runoff storage volume is achieved.

- Water quality design storm time to peak = 2.07 hours
- Water quality design storm routing 24-hour after peak = 2.07 hr. + 24 hr. = 26.07 hr.
- Peak water surface at 26.07 hr. = 123.55
- Water quality basin volume at elevation 124.20 = 14,492 c.f.

14,492 c.f. > 2,645 c.f. required (Min. 10% of max storage is achieved 24 hr after peak basin water surface therefore 60% TSS removal is achieved.)

REMOVAL OF TOTAL SUSPENDED SOLIDS (TSS)

In accordance with Figure 9.4-2 and Equation 4-1 of the BMPM manual, the proposed water quality basin, in conjunction with the existing detention basin, meets the required Stormwater Pollutant Removal Criteria of 80% removal of total suspended solids. Below is the TSS Removal Rate Calculation utilizing Equation 4-1 (Figure 9.4-2 and is in the appendix of this report):

A = Proposed Water Quality Basin TSS Removal Percentage (60%)

B = Existing OCM Jireh Church site Detention Basin TSS Removal Percentage
(at least 50%)

$$R = A + B - [(A * B) / 100]$$

$$R = 60\% + 50\% - [(60\% * 50\%) / 100]$$

$$R = 80\%$$

GROUNDWATER RECHARGE

In accordance with Chapter 6 of the BMP manual and the previous approval, compliance with one of the following two groundwater recharge standards is required:

1. "That 100% of the site's average annual pre-developed groundwater recharge volume be maintained after development;" or
2. "That 100% of the difference between the site's pre- and post-development 2-year runoff volumes be infiltrated."

In accordance with the previously approved stormwater management reports for the Monmouth Worship Center and Jons Court, LLC, the following calculation demonstrates that the standard is met:

Required Recharge:

Total Pre-Developed 2-Year Runoff Volume	=	35,935 C.F.
Total Post-Developed 2-Year Runoff Volume	=	91,963 C.F.
Difference to be Infiltrated	=	56,028 C.F.

Provided Recharge:

Conservatively assumed permeability rate: 2 inches per hour = 0.17 feet per hour

Water Quality Basin Bottom Area = 25,517 square feet

Recharge Rate = $0.17 \times 25,517 = 4,338$ C.F. per hour.

Calculate for 24-hour period: $24 \text{ hours} \times 4,338 \text{ C.F./hour} = 104,112 \text{ C.F.}$

$104,112 \text{ C.F.} > 56,028 \text{ C.F. required} \sim \text{OK}$

NONSTRUCTURAL STRATEGIES

In addition, the stormwater management system complies with the New Jersey Stormwater Best Management Practices Manual (BMPM). The site is designed in accordance with the nonstructural stormwater management strategies, to the maximum extent practical. More precisely, to achieve the required design and performance standards, the following nonstructural strategies are being applied to the design of the site:

1. *Protect areas that provide water quality benefits.*

Stream corridor buffers and wetlands buffers are provided and protected in conservation easements. A stream encroachment line has been established and previously approved by the NJDEP. Areas are sufficiently protected that provide water quality benefits.

2. *Minimize impervious surfaces and break up or disconnect the flow of runoff over impervious surfaces.*

The impervious surfaces on the sites are disconnected by the provision of the first basin that receives and treats the runoff from the two sites prior to piping the outflow to the stormwater management basin on Tax Lot 60.

3. *Maximize the protection of natural drainage features and vegetation.*

All proposed development is outside of the stream encroachment line, freshwater wetlands and buffer lines, conservation easement, and the stream corridor buffer line. This manner of development protects the natural drainage features and vegetation.

4. *Minimize the decrease in the time of concentration from pre- to post-construction.*

To the maximum extent practical, the sites were designed to minimize the decrease in pre-construction "time of concentration".

5. *Minimize land disturbance including clearing and grading.*

The sites have been graded to minimize the fill material needed for the developments and to reduce the amount disturbance to the wooded areas within the northerly portion of the site.

6. *Minimize soil compaction.*

After any required rough grading of the site, heavy construction machinery on-site will be minimal.

7. *Provide low-maintenance landscaping that encourages retention and planting of native vegetation and minimizes the use of lawns, fertilizers and pesticides.*

A detailed landscape plan has been provided which meets this strategy.

8. *Provide vegetated open-channel conveyance systems....*

The existing water quality basin was designed without a concrete low flow channel and with a flat grass bottom to provide a vegetated conveyance system for the sites.

9. *Provide other source controls to prevent or minimize the release of pollutants into stormwater runoff.*

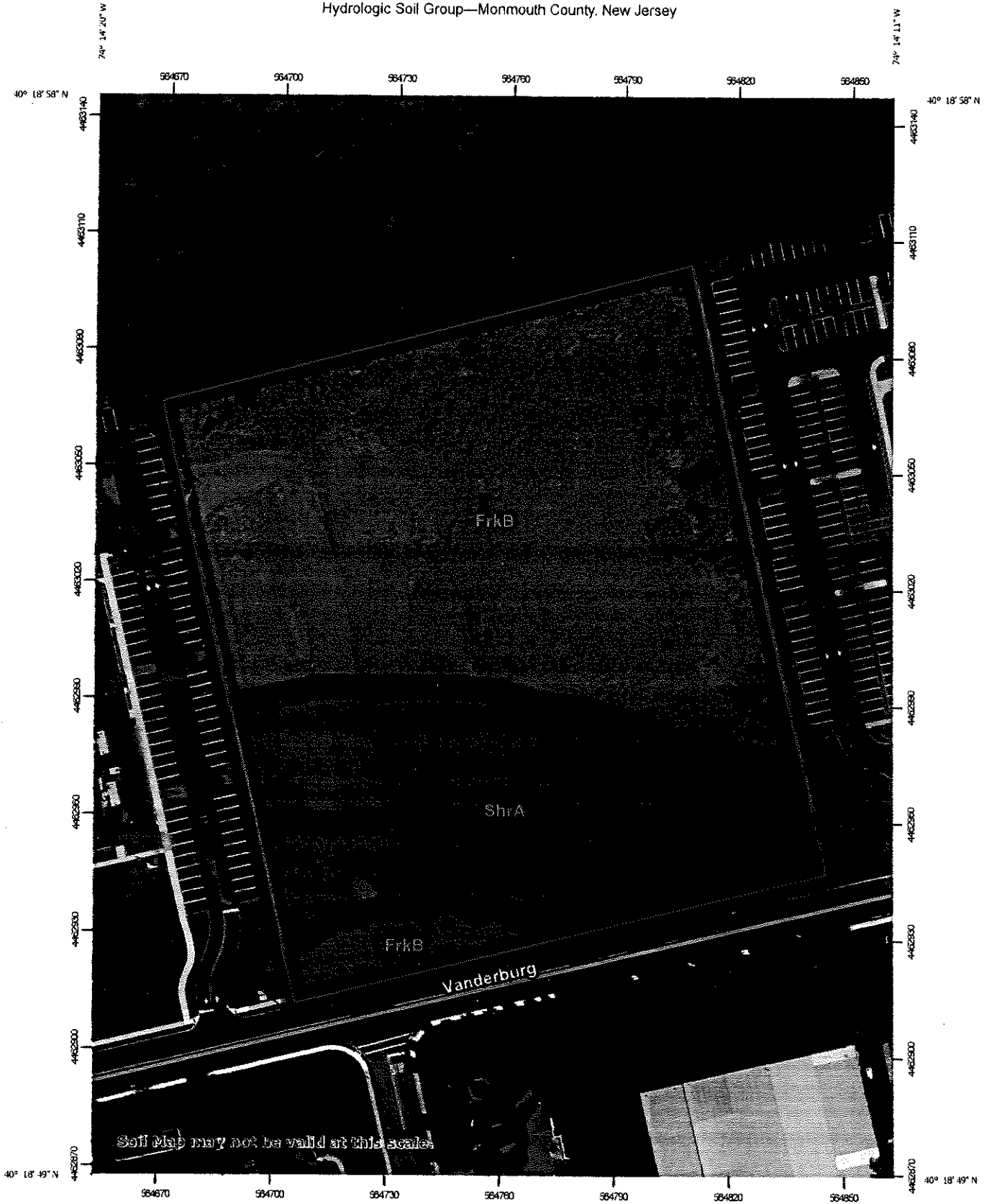
- (a) Trash and debris are prevented from the drainage systems through the use of the proper types of inlet castings and trash racks for the outlet structure.
- (b) The sites are subject to and have been designed in accordance with the standards established under the Soil Erosion and Sediment Control Act.

CONCLUSIONS

The proposed stormwater management system, in conjunction with those previously approved and constructed, has been designed to meet the BMPM water quality and groundwater recharge standards, the nonstructural stormwater management strategy requirements and reduces the rates of stormwater flow from the site.

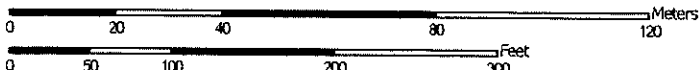
FIGURES

Hydrologic Soil Group—Monmouth County, New Jersey



Soil Map may not be valid at this scale.

Map Scale: 1:1,350 if printed on A portrait (8.5" x 11") sheet.



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



Figure 1



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

10/4/2018



TEST PIT LOG

Job Name: **Jons Court, LLC**
 Job Number: **2085A**
 Block: **214.07** Tax Lot: **61.02**

Test Pit No: **1**
 Date: **12/20/05**
 Weather: **20° F**

Depth	Color/Hue	Color Descriptor	Texture	Mottle or Fragments
0 - 12"			Topsoil	-
12" - 33"	10YR 4/6	Dark Yellowish Brown	Friable Angular Blocky Clay Loam	-
33" - 48"	10YR 5/6	Yellowish Brown	Friable Subangular Blocky Silt Loam	-
48" - 120"	10YR 4/6	Dark Yellowish Brown	Friable Angular Blocky Clay Loam 10% Gravel	Common Medium Distinct Strong Brown (7.5YR 5/8) Mottles @ 33"

Comments
Seasonal High Ground Water at Elevation = 121.4 Ground Water at Elevation = 119.1 Soil Type: Shrewsbury sandy loam, (ShrA) Hydrological Soil Group: Type B/D



TEST PIT LOG

Job Name: Jons Court, LLC
Job Number: 2085A
Block: 214.07 Tax Lot: 61.02

Test Pit No: 2
Date: 12/20/05
Weather: 20° F

Depth	Color/Hue	Color Descriptor	Texture	Mottle or Fragments
0 - 12"			Topsoil	-
12" - 49"	10YR 4/6	Dark Yellowish Brown	Friable Angular Blocky Clay Loam	-
49" - 96"	10YR 5/6	Yellowish Brown	Friable Angular Blocky Clay Loam 10% Gravel	-
96" - 120"	2.5 Y 3/0	Very Dark Grayish Brown	Firm Angular Blocky Loamy Clay 10% Gravel	-

Comments
Seasonal High Ground Water at Elevation = 122.3 Ground Water at Elevation = 121.4 Soil Type: Freehold sandy loam, (FrkB) Hydrological Soil Group: Type B

POST-DEVELOPMENT HYDROLOGY

Hydrograph Report

Hyd. No. 1

Impervious to Basin Onsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.858 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.10 hrs
Time interval	=	1 min	Hyd. volume	=	30,233 cuft
Drainage area	=	2.630 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	3.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

9.93	0.394
10.10	0.414
10.27	0.446
10.43	0.482
10.60	0.519
10.77	0.555
10.93	0.592
11.10	0.638
11.27	0.756
11.43	0.892
11.60	1.138
11.77	2.227
11.93	3.588
12.10	7.858 <<
12.27	4.129
12.43	2.488
12.60	1.287
12.77	0.940
12.93	0.803
13.10	0.676
13.27	0.622
13.43	0.586
13.60	0.550
13.77	0.514
13.93	0.478
14.10	0.444
14.27	0.424
14.43	0.407

...End

Hydrograph Report

Hyd. No. 1

Impervious to Basin Onsite

Hydrograph type	= SCS Runoff	Peak discharge	= 12.10 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 47,380 cuft
Drainage area	= 2.630 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 5.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

9.82	0.606
9.98	0.633
10.15	0.668
10.32	0.721
10.48	0.777
10.65	0.832
10.82	0.888
10.98	0.943
11.15	1.041
11.32	1.242
11.48	1.452
11.65	2.152
11.82	4.057
11.98	6.927
12.15	11.23
12.32	5.276
12.48	3.215
12.65	1.693
12.82	1.380
12.98	1.169
13.15	1.001
13.32	0.937
13.48	0.882
13.65	0.827
13.82	0.772
13.98	0.717
14.15	0.670
14.32	0.642
14.48	0.616

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 1

Impervious to Basin Onsite

Hydrograph type	= SCS Runoff	Peak discharge	= 15.39 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 60,730 cuft
Drainage area	= 2.630 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 6.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow
(hrs cfs)

9.78	0.772
9.95	0.806
10.12	0.845
10.28	0.911
10.45	0.981
10.62	1.051
10.78	1.122
10.95	1.192
11.12	1.291
11.28	1.533
11.45	1.800
11.62	2.396
11.78	4.658
11.95	7.496
12.12	15.33
12.28	7.513
12.45	4.598
12.62	2.366
12.78	1.807
12.95	1.539
13.12	1.300
13.28	1.205
13.45	1.135
13.62	1.065
13.78	0.995
13.95	0.925
14.12	0.861
14.28	0.822
14.45	0.789

...End

Hydrograph Report

Hyd. No. 1

Impervious to Basin Onsite

Hydrograph type	= SCS Runoff	Peak discharge	= 20.79 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.10 hrs
Time interval	= 1 min	Hyd. volume	= 82,673 cuft
Drainage area	= 2.630 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 8.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow
(hrs cfs)

9.75	1.042
9.92	1.088
10.08	1.137
10.25	1.219
10.42	1.314
10.58	1.409
10.75	1.503
10.92	1.598
11.08	1.708
11.25	2.005
11.42	2.366
11.58	2.903
11.75	5.610
11.92	9.094
12.08	20.32
12.25	11.81
12.42	6.897
12.58	3.616
12.75	2.511
12.92	2.149
13.08	1.803
13.25	1.644
13.42	1.550
13.58	1.456
13.75	1.362
13.92	1.267
14.08	1.176
14.25	1.119
14.42	1.074

...End

Hydrograph Report

Hyd. No. 2

Pervious to Basin On-site

Hydrograph type	= SCS Runoff	Peak discharge	= 0.515 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.15 hrs
Time interval	= 1 min	Hyd. volume	= 2,532 cuft
Drainage area	= 1.320 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 3.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print Interval = 10)

Time -- Outflow		Time -- Outflow	
(hrs	cfs)	(hrs	cfs)
11.93	0.028	18.10	0.029
12.10	0.450	18.27	0.029
12.27	0.418	18.43	0.028
12.43	0.310	18.60	0.028
12.60	0.176	18.77	0.028
12.77	0.135	18.93	0.027
12.93	0.120	19.10	0.027
13.10	0.103	19.27	0.027
13.27	0.098	19.43	0.026
13.43	0.094		
13.60	0.090	...End	
13.77	0.086		
13.93	0.081		
14.10	0.076		
14.27	0.074		
14.43	0.072		
14.60	0.069		
14.77	0.067		
14.93	0.065		
15.10	0.062		
15.27	0.059		
15.43	0.057		
15.60	0.054		
15.77	0.051		
15.93	0.048		
16.10	0.045		
16.27	0.044		
16.43	0.043		
16.60	0.041		
16.77	0.040		
16.93	0.039		
17.10	0.037		
17.27	0.036		
17.43	0.035		
17.60	0.033		
17.77	0.032		
17.93	0.031		

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 2

Pervious to Basin On-site

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.921 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	1 min	Hyd. volume	=	7,143 cuft
Drainage area	=	1.320 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	5.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.65	0.099
11.82	0.293
11.98	0.783
12.15	1.886
12.32	1.101
12.48	0.729
12.65	0.400
12.82	0.334
12.98	0.289
13.15	0.251
13.32	0.238
13.48	0.227
13.65	0.215
13.82	0.203
13.98	0.190
14.15	0.179
14.32	0.173
14.48	0.167
14.65	0.161
14.82	0.155
14.98	0.148
15.15	0.142
15.32	0.135
15.48	0.129
15.65	0.122
15.82	0.115
15.98	0.108
16.15	0.102
16.32	0.099

...End

Hydrograph Report

Hyd. No. 2

Pervious to Basin On-site

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.275 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.12 hrs
Time interval	=	1 min	Hyd. volume	=	11,582 cuft
Drainage area	=	1.320 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	6.60 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.53	0.169
11.70	0.362
11.87	0.813
12.03	2.266
12.20	2.692
12.37	1.573
12.53	0.937
12.70	0.567
12.87	0.492
13.03	0.419
13.20	0.374
13.37	0.356
13.53	0.338
13.70	0.319
13.87	0.300
14.03	0.280
14.20	0.265
14.37	0.256
14.53	0.247
14.70	0.237
14.87	0.228
15.03	0.218
15.20	0.208
15.37	0.198
15.53	0.187
15.70	0.177
15.87	0.166

...End

Hydrograph Report

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Hyd. No. 2

Pervious to Basin On-site

Hydrograph type	=	SCS Runoff	Peak discharge	=	5.770 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.12 hrs
Time interval	=	1 min	Hyd. volume	=	19,859 cuft
Drainage area	=	1.320 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.32	0.295
11.48	0.380
11.65	0.627
11.82	1.368
11.98	2.813
12.15	5.527
12.32	2.911
12.48	1.855
12.65	0.999
12.82	0.825
12.98	0.706
13.15	0.609
13.32	0.575
13.48	0.545
13.65	0.514
13.82	0.482
13.98	0.450
14.15	0.422
14.32	0.406
14.48	0.391
14.65	0.376
14.82	0.360
14.98	0.344
15.15	0.328
15.32	0.312
15.48	0.296

...End

Hydrograph Report

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Hyd. No. 3

Impervious to Basin Offsite

Hydrograph type	= SCS Runoff	Peak discharge	= 10.95 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.18 hrs
Time interval	= 1 min	Hyd. volume	= 50,514 cuft
Drainage area	= 4.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 16.8 min
Total precip.	= 3.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow

(hrs	cfs)
9.42	0.550
9.58	0.580
9.75	0.610
9.92	0.640
10.08	0.671
10.25	0.713
10.42	0.770
10.58	0.830
10.75	0.891
10.92	0.952
11.08	1.017
11.25	1.145
11.42	1.354
11.58	1.621
11.75	2.635
11.92	4.603
12.08	9.063
12.25	10.06
12.42	5.952
12.58	3.319
12.75	1.925
12.92	1.480
13.08	1.254
13.25	1.093
13.42	1.015
13.58	0.955
13.75	0.895
13.92	0.835
14.08	0.776
14.25	0.729
14.42	0.697
14.58	0.668
14.75	0.639
14.92	0.611
15.08	0.582
15.25	0.553

...End

Hydrograph Report

Hyd. No. 3

Impervious to Basin Offsite

Hydrograph type	= SCS Runoff	Peak discharge	= 16.86 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.18 hrs
Time interval	= 1 min	Hyd. volume	= 79,163 cuft
Drainage area	= 4.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 16.8 min
Total precip.	= 5.20 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

9.28	0.845
9.45	0.890
9.62	0.935
9.78	0.981
9.95	1.026
10.12	1.074
10.28	1.144
10.45	1.233
10.62	1.325
10.78	1.418
10.95	1.511
11.12	1.618
11.28	1.846
11.45	2.181
11.62	2.687
11.78	4.617
11.95	7.919
12.12	15.58
12.28	14.36
12.45	8.026
12.62	4.518
12.78	2.739
12.95	2.200
13.12	1.861
13.28	1.646
13.45	1.538
13.62	1.447
13.78	1.355
13.95	1.263
14.12	1.173
14.28	1.107
14.45	1.060
14.62	1.016
14.78	0.972
14.95	0.928
15.12	0.884

...End

Hydrograph Report

Hyd. No. 3

Impervious to Basin Offsite

Hydrograph type	= SCS Runoff	Peak discharge	= 21.45 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.18 hrs
Time interval	= 1 min	Hyd. volume	= 101,469 cuft
Drainage area	= 4.340 ac	Curve number	= 98
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 16.8 min
Total precip.	= 6.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow	Time -- Outflow
(hrs cfs)	(hrs cfs)
9.23 1.073	
9.40 1.130	
9.57 1.187	
9.73 1.244	
9.90 1.301	
10.07 1.359	
10.23 1.437	
10.40 1.545	
10.57 1.663	
10.73 1.780	
10.90 1.898	
11.07 2.019	
11.23 2.251	
11.40 2.651	
11.57 3.139	
11.73 4.910	
11.90 8.643	
12.07 16.63	
12.23 20.33	
12.40 12.43	
12.57 6.868	
12.73 3.919	
12.90 2.933	
13.07 2.486	
13.23 2.153	
13.40 1.990	
13.57 1.873	
13.73 1.756	
13.90 1.639	
14.07 1.523	
14.23 1.427	
14.40 1.363	
14.57 1.307	
14.73 1.251	
14.90 1.195	
15.07 1.139	
15.23 1.083	

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Hyd. No. 3

Impervious to Basin Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	28.97 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.18 hrs
Time interval	=	1 min	Hyd. volume	=	138,132 cuft
Drainage area	=	4.340 ac	Curve number	=	98
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	16.8 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)	Time -- Outflow (hrs cfs)
9.20 1.451	
9.37 1.528	
9.53 1.604	
9.70 1.680	
9.87 1.757	
10.03 1.834	
10.20 1.929	
10.37 2.070	
10.53 2.227	
10.70 2.385	
10.87 2.544	
11.03 2.703	
11.20 2.966	
11.37 3.473	
11.53 4.083	
11.70 5.903	
11.87 10.56	
12.03 19.35	
12.20 28.70	
12.37 19.09	
12.53 10.38	
12.70 5.821	
12.87 4.108	
13.03 3.471	
13.20 2.972	
13.37 2.719	
13.53 2.558	
13.70 2.401	
13.87 2.243	
14.03 2.086	
14.20 1.948	
14.37 1.855	
14.53 1.779	
14.70 1.703	
14.87 1.628	
15.03 1.552	
15.20 1.477	

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Hyd. No. 4

Pervious to Basin Offsite

Hydrograph type	= SCS Runoff	Peak discharge	= 0.655 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.22 hrs
Time interval	= 1 min	Hyd. volume	= 3,070 cuft
Drainage area	= 0.990 ac	Curve number	= 68
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 16.8 min
Total precip.	= 3.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)	Time -- Outflow (hrs cfs)
11.77 0.037	
11.93 0.126	
12.10 0.468	
12.27 0.643	
12.43 0.460	
12.60 0.285	
12.77 0.177	
12.93 0.144	
13.10 0.124	
13.27 0.111	
13.43 0.105	
13.60 0.100	
13.77 0.095	
13.93 0.090	
14.10 0.084	
14.27 0.080	
14.43 0.077	
14.60 0.075	
14.77 0.072	
14.93 0.069	
15.10 0.066	
15.27 0.063	
15.43 0.061	
15.60 0.058	
15.77 0.054	
15.93 0.051	
16.10 0.048	
16.27 0.046	
16.43 0.044	
16.60 0.043	
16.77 0.042	
16.93 0.040	
17.10 0.039	
17.27 0.038	
17.43 0.036	
17.60 0.035	
17.77 0.033	

Hydrograph Report

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Hyd. No. 4

Pervious to Basin Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	1.737 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.20 hrs
Time interval	=	1 min	Hyd. volume	=	7,362 cuft
Drainage area	=	0.990 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	16.8 min
Total precip.	=	5.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.45	0.089
11.62	0.128
11.78	0.266
11.95	0.569
12.12	1.480
12.28	1.601
12.45	1.015
12.62	0.603
12.78	0.377
12.95	0.308
13.12	0.264
13.28	0.236
13.45	0.222
13.62	0.211
13.78	0.199
13.95	0.187
14.12	0.174
14.28	0.166
14.45	0.159
14.62	0.153
14.78	0.148
14.95	0.141
15.12	0.135
15.28	0.129
15.45	0.123
15.62	0.116
15.78	0.110
15.95	0.103
16.12	0.097
16.28	0.092
16.45	0.089

...End

Hydrograph Report

Hyd. No. 4

Pervious to Basin Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	2.702 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.20 hrs
Time interval	=	1 min	Hyd. volume	=	11,242 cuft
Drainage area	=	0.990 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	16.8 min
Total precip.	=	6.60 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow
(hrs cfs)

11.27	0.137
11.43	0.178
11.60	0.238
11.77	0.452
11.93	0.907
12.10	2.205
12.27	2.522
12.43	1.595
12.60	0.937
12.77	0.567
12.93	0.453
13.10	0.387
13.27	0.343
13.43	0.321
13.60	0.304
13.77	0.287
13.93	0.269
14.10	0.251
14.27	0.237
14.43	0.228
14.60	0.219
14.77	0.210
14.93	0.202
15.10	0.193
15.27	0.184
15.43	0.175
15.60	0.165
15.77	0.156
15.93	0.147
16.10	0.138

...End

Hydrograph Report

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Hyd. No. 4

Pervious to Basin Offsite

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.403 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.18 hrs
Time interval	=	1 min	Hyd. volume	=	18,199 cuft
Drainage area	=	0.990 ac	Curve number	=	68
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	16.8 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.02	0.222
11.18	0.257
11.35	0.319
11.52	0.399
11.68	0.597
11.85	1.181
12.02	2.402
12.18	4.403 <<
12.35	3.322
12.52	1.899
12.68	1.086
12.85	0.752
13.02	0.638
13.18	0.547
13.35	0.500
13.52	0.473
13.68	0.446
13.85	0.418
14.02	0.390
14.18	0.365
14.35	0.348
14.52	0.335
14.68	0.321
14.85	0.308
15.02	0.294
15.18	0.281
15.35	0.267
15.52	0.253
15.68	0.239
15.85	0.225

...End

Hydrograph Report

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Hyd. No. 5

Combined On-site/Off-site

Hydrograph type = Combine
Storm frequency = 2 yrs
Time interval = 1 min
Inflow hyds. = 1, 2, 3, 4

Peak discharge = 19.19 cfs
Time to peak = 12.13 hrs
Hyd. volume = 86,350 cuft
Contrib. drain. area = 9.280 ac

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 + (cfs)	Hyd. 4 = (cfs)	Outflow (cfs)
9.67	0.365	0.000	0.595	0.000	0.960
9.83	0.383	0.000	0.625	0.000	1.008
10.00	0.401	0.000	0.655	0.000	1.056
10.17	0.425	0.000	0.690	0.000	1.115
10.33	0.461	0.000	0.740	0.000	1.201
10.50	0.497	0.000	0.800	0.000	1.297
10.67	0.533	0.000	0.861	0.000	1.394
10.83	0.570	0.000	0.921	0.000	1.491
11.00	0.606	0.000	0.983	0.000	1.589
11.17	0.678	0.000	1.067	0.000	1.745
11.33	0.810	0.000	1.243	0.000	2.053
11.50	0.947	0.000	1.468	0.002	2.416
11.67	1.489	0.000	1.971	0.014	3.474
11.83	2.750	0.000	3.545	0.063	6.358
12.00	4.981	0.123	6.237	0.213	11.55
12.17	6.856	0.514	10.94	0.617	18.92
12.33	3.280	0.371	8.114	0.589	12.35
12.50	1.963	0.256	4.393	0.382	6.994
12.67	1.063	0.149	2.463	0.230	3.904
12.83	0.886	0.129	1.633	0.159	2.806
13.00	0.748	0.113	1.365	0.136	2.362
13.17	0.647	0.100	1.160	0.118	2.024
13.33	0.607	0.096	1.048	0.108	1.860
13.50	0.572	0.092	0.985	0.103	1.752
13.67	0.536	0.088	0.925	0.098	1.647
13.83	0.500	0.084	0.865	0.093	1.542
14.00	0.464	0.079	0.805	0.087	1.436
14.17	0.435	0.075	0.750	0.082	1.342
14.33	0.417	0.073	0.712	0.079	1.280
14.50	0.400	0.071	0.682	0.076	1.229
14.67	0.383	0.068	0.654	0.074	1.179
14.83	0.366	0.066	0.625	0.071	1.128
15.00	0.348	0.064	0.596	0.068	1.076
15.17	0.331	0.061	0.568	0.065	1.025
15.33	0.314	0.058	0.539	0.062	0.974

...End

Hydrograph Report

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Hyd. No. 5

Combined On-site/Off-site

Hydrograph type = Combine
Storm frequency = 10 yrs
Time interval = 1 min
Inflow hyds. = 1, 2, 3, 4

Peak discharge = 31.42 cfs
Time to peak = 12.13 hrs
Hyd. volume = 141,048 cuft
Contrib. drain. area = 9.280 ac

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 + (cfs)	Hyd. 4 = (cfs)	Outflow (cfs)
9.83	0.609	0.000	0.994	0.000	1.603
10.00	0.636	0.000	1.039	0.001	1.676
10.17	0.673	0.000	1.092	0.004	1.768
10.33	0.727	0.000	1.169	0.009	1.905
10.50	0.782	0.000	1.261	0.015	2.058
10.67	0.838	0.000	1.353	0.022	2.213
10.83	0.893	0.000	1.446	0.031	2.370
11.00	0.949	0.000	1.539	0.040	2.528
11.17	1.059	0.007	1.669	0.052	2.787
11.33	1.263	0.023	1.940	0.071	3.297
11.50	1.474	0.046	2.286	0.097	3.903
11.67	2.312	0.112	3.064	0.154	5.641
11.83	4.258	0.321	5.496	0.337	10.41
12.00	7.687	0.915	9.638	0.756	19.00
12.17	10.55	1.819	16.85	1.695	30.91
12.33	5.038	1.063	12.48	1.448	20.02
12.50	3.014	0.687	6.746	0.873	11.32
12.67	1.631	0.387	3.781	0.510	6.309
12.83	1.359	0.330	2.506	0.347	4.542
13.00	1.148	0.284	2.094	0.294	3.821
13.17	0.992	0.249	1.779	0.253	3.273
13.33	0.932	0.237	1.608	0.231	3.008
13.50	0.877	0.226	1.511	0.219	2.832
13.67	0.822	0.214	1.419	0.207	2.662
13.83	0.767	0.202	1.327	0.195	2.491
14.00	0.712	0.189	1.235	0.183	2.319
14.17	0.667	0.178	1.150	0.171	2.167
14.33	0.640	0.172	1.092	0.164	2.067
14.50	0.613	0.167	1.047	0.158	1.984
14.67	0.587	0.160	1.003	0.152	1.901
14.83	0.560	0.154	0.958	0.146	1.819
15.00	0.534	0.148	0.914	0.140	1.736
15.17	0.508	0.141	0.870	0.133	1.653

...End

Hydrograph Report

Hyd. No. 5

Combined On-site/Off-site

Hydrograph type = Combine
Storm frequency = 25 yrs
Time interval = 1 min
Inflow hyds. = 1, 2, 3, 4

Peak discharge = 41.27 cfs
Time to peak = 12.13 hrs
Hyd. volume = 185,023 cuft
Contrib. drain. area = 9.280 ac

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 + (cfs)	Hyd. 4 = (cfs)	Outflow (cfs)
9.83	0.782	0.000	1.278	0.023	2.084
10.00	0.816	0.000	1.335	0.030	2.182
10.17	0.863	0.000	1.401	0.038	2.302
10.33	0.932	0.007	1.500	0.047	2.485
10.50	1.002	0.017	1.616	0.058	2.692
10.67	1.072	0.028	1.733	0.071	2.904
10.83	1.143	0.042	1.851	0.084	3.120
11.00	1.213	0.057	1.968	0.100	3.338
11.17	1.353	0.079	2.133	0.119	3.683
11.33	1.613	0.113	2.478	0.152	4.357
11.50	1.881	0.158	2.918	0.197	5.154
11.67	2.949	0.300	3.908	0.294	7.451
11.83	5.425	0.705	7.005	0.605	13.74
12.00	9.783	1.704	12.27	1.264	25.02
12.17	13.41	3.041	21.43	2.659	40.54
12.33	6.402	1.688	15.86	2.194	26.15
12.50	3.830	1.070	8.572	1.289	14.76
12.67	2.073	0.597	4.804	0.746	8.220
12.83	1.727	0.506	3.184	0.504	5.921
13.00	1.459	0.434	2.661	0.426	4.979
13.17	1.260	0.379	2.261	0.365	4.265
13.33	1.184	0.360	2.043	0.332	3.918
13.50	1.114	0.342	1.919	0.315	3.689
13.67	1.044	0.323	1.803	0.297	3.467
13.83	0.974	0.303	1.686	0.280	3.243
14.00	0.904	0.284	1.569	0.261	3.019
14.17	0.847	0.267	1.461	0.245	2.820
14.33	0.812	0.258	1.387	0.233	2.690
14.50	0.779	0.249	1.329	0.224	2.581
14.67	0.745	0.239	1.273	0.216	2.474
14.83	0.712	0.230	1.217	0.207	2.366
15.00	0.678	0.220	1.162	0.198	2.258
15.17	0.645	0.210	1.106	0.189	2.149

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 5

Combined On-site/Off-site

Hydrograph type = Combine
Storm frequency = 100 yrs
Time interval = 1 min
Inflow hyds. = 1, 2, 3, 4

Peak discharge = 57.80 cfs
Time to peak = 12.13 hrs
Hyd. volume = 258,863 cuft
Contrib. drain. area = 9.280 ac

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Hyd. 1 + (cfs)	Hyd. 2 + (cfs)	Hyd. 3 + (cfs)	Hyd. 4 = (cfs)	Outflow (cfs)
9.83	1.065	0.045	1.742	0.085	2.937
10.00	1.111	0.058	1.818	0.097	3.084
10.17	1.174	0.072	1.906	0.110	3.263
10.33	1.267	0.091	2.039	0.127	3.524
10.50	1.361	0.111	2.195	0.148	3.816
10.67	1.456	0.135	2.354	0.170	4.114
10.83	1.551	0.160	2.512	0.193	4.416
11.00	1.646	0.188	2.670	0.219	4.723
11.17	1.834	0.231	2.892	0.252	5.209
11.33	2.185	0.303	3.359	0.311	6.158
11.50	2.547	0.389	3.953	0.390	7.279
11.67	3.991	0.682	5.291	0.561	10.53
11.83	7.338	1.460	9.477	1.106	19.38
12.00	13.22	3.197	16.59	2.189	35.20
12.17	18.11	5.264	28.94	4.359	56.68
12.33	8.642	2.797	21.41	3.485	36.34
12.50	5.169	1.744	11.57	1.999	20.48
12.67	2.797	0.964	6.484	1.146	11.39
12.83	2.330	0.813	4.297	0.769	8.210
13.00	1.968	0.694	3.591	0.648	6.901
13.17	1.701	0.604	3.050	0.554	5.910
13.33	1.597	0.572	2.756	0.503	5.429
13.50	1.503	0.542	2.590	0.475	5.110
13.67	1.409	0.511	2.432	0.448	4.800
13.83	1.314	0.479	2.275	0.421	4.489
14.00	1.220	0.447	2.117	0.393	4.177
14.17	1.143	0.420	1.971	0.367	3.902
14.33	1.096	0.405	1.871	0.349	3.721
14.50	1.051	0.390	1.794	0.336	3.570
14.67	1.006	0.374	1.718	0.323	3.421
14.83	0.961	0.359	1.643	0.309	3.271
15.00	0.915	0.343	1.567	0.296	3.121
15.17	0.870	0.327	1.492	0.282	2.971

...End

WORKSHEET 2: RUNOFF CURVE NUMBER AND RUNOFF

Project: Jons Court By: GC Date: 12/19/2018

Location: Marlboro Checked: _____ Date: _____

Mark One: Present Developed Bypass-1

1. Runoff Curve Number (CN)

Soil Name and Hydrologic Group (Appendix A)	Cover Description (Cover Type, Treatment, Hydrologic Condition, Percent Impervious, Unconnected/Connected Impervious Area Ratio)	CN*			Area		Product of CN x Area
		Table 2-2	Table 2-3	Table 2-4	X	Acres Mi ² %	
(ShrA, FrkB) B Soils	Open Space (Good Condition)	61				0.77	46.97
(DocB, EveB) A Soils	Impervious	98				0.41	40.18
TOTALS						1.18	87.15

* Use only one CN source per line

$$CN_{weighted} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{87.15}{1.18} = 73.86 \quad \text{Use CN} = \boxed{74}$$

2. Runoff

Frequencyyr

Rainfall, P (24 hour)..... in

Runoff, Qin

(Use P and CN with Table 2-1, Fig. 2-1, or eqs. 2-3 and 2-4)

Storm #1	Storm #2	Storm #3

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 7

Bypass-1

Hydrograph type	= SCS Runoff	Peak discharge	= 1.404 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 5,018 cuft
Drainage area	= 1.180 ac	Curve number	= 74
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 3.40 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.57	0.071
11.73	0.173
11.90	0.384
12.07	1.209
12.23	1.013
12.40	0.636
12.57	0.358
12.73	0.241
12.90	0.210
13.07	0.179
13.23	0.163
13.40	0.155
13.57	0.147
13.73	0.139
13.90	0.131
14.07	0.122
14.23	0.116
14.40	0.112
14.57	0.108
14.73	0.104
14.90	0.100
15.07	0.096
15.23	0.091
15.40	0.087
15.57	0.082
15.73	0.078
15.90	0.073

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 7

Bypass-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	3.150 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.12 hrs
Time interval	=	1 min	Hyd. volume	=	10,815 cuft
Drainage area	=	1.180 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	5.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.28	0.162
11.45	0.207
11.62	0.303
11.78	0.669
11.95	1.267
12.12	3.150 <<
12.28	1.739
12.45	1.118
12.62	0.589
12.78	0.456
12.95	0.392
13.12	0.334
13.28	0.312
13.45	0.295
13.62	0.279
13.78	0.262
13.95	0.245
14.12	0.228
14.28	0.219
14.45	0.211
14.62	0.203
14.78	0.194
14.95	0.186
15.12	0.177
15.28	0.169
15.45	0.160

...End

Hydrograph Report

Hyd. No. 7

Bypass-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	4.624 cfs
Storm frequency	=	25 yrs	Time to peak	=	12.12 hrs
Time interval	=	1 min	Hyd. volume	=	15,830 cuft
Drainage area	=	1.180 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	6.60 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.15	0.233
11.32	0.295
11.48	0.367
11.65	0.585
11.82	1.218
11.98	2.367
12.15	4.393
12.32	2.238
12.48	1.407
12.65	0.753
12.82	0.619
12.98	0.528
13.15	0.455
13.32	0.428
13.48	0.405
13.65	0.381
13.82	0.357
13.98	0.333
14.15	0.312
14.32	0.300
14.48	0.288
14.65	0.276
14.82	0.265
14.98	0.253
15.15	0.241

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 7

Bypass-1

Hydrograph type	=	SCS Runoff	Peak discharge	=	7.131 cfs
Storm frequency	=	100 yrs	Time to peak	=	12.12 hrs
Time interval	=	1 min	Hyd. volume	=	24,578 cuft
Drainage area	=	1.180 ac	Curve number	=	74
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	8.90 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

10.93	0.357
11.10	0.400
11.27	0.492
11.43	0.606
11.60	0.808
11.77	1.681
11.93	2.932
12.10	7.102
12.27	3.977
12.43	2.463
12.60	1.290
12.77	0.949
12.93	0.815
13.10	0.688
13.27	0.635
13.43	0.601
13.60	0.566
13.77	0.530
13.93	0.494
14.10	0.460
14.27	0.440
14.43	0.423
14.60	0.405
14.77	0.388
14.93	0.371

...End

Hydrograph Report

Hyd. No. 8

Bypass-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.121 cfs
Storm frequency	=	2 yrs	Time to peak	=	12.15 hrs
Time interval	=	1 min	Hyd. volume	=	595 cuft
Drainage area	=	0.310 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	3.40 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)	Time -- Outflow (hrs cfs)
11.93 0.006	18.10 0.007
12.10 0.106	18.27 0.007
12.27 0.098	18.43 0.007
12.43 0.073	18.60 0.007
12.60 0.041	18.77 0.007
12.77 0.032	18.93 0.006
12.93 0.028	19.10 0.006
13.10 0.024	19.27 0.006
13.27 0.023	19.43 0.006
13.43 0.022	
13.60 0.021	...End
13.77 0.020	
13.93 0.019	
14.10 0.018	
14.27 0.017	
14.43 0.017	
14.60 0.016	
14.77 0.016	
14.93 0.015	
15.10 0.015	
15.27 0.014	
15.43 0.013	
15.60 0.013	
15.77 0.012	
15.93 0.011	
16.10 0.011	
16.27 0.010	
16.43 0.010	
16.60 0.010	
16.77 0.009	
16.93 0.009	
17.10 0.009	
17.27 0.008	
17.43 0.008	
17.60 0.008	
17.77 0.008	
17.93 0.007	

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 8

Bypass-2

Hydrograph type	=	SCS Runoff	Peak discharge	=	0.451 cfs
Storm frequency	=	10 yrs	Time to peak	=	12.13 hrs
Time interval	=	1 min	Hyd. volume	=	1,678 cuft
Drainage area	=	0.310 ac	Curve number	=	61
Basin Slope	=	0.0 %	Hydraulic length	=	0 ft
Tc method	=	USER	Time of conc. (Tc)	=	10.0 min
Total precip.	=	5.20 in	Distribution	=	Type III
Storm duration	=	24 hrs	Shape factor	=	484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.65	0.023
11.82	0.069
11.98	0.184
12.15	0.443
12.32	0.259
12.48	0.171
12.65	0.094
12.82	0.079
12.98	0.068
13.15	0.059
13.32	0.056
13.48	0.053
13.65	0.051
13.82	0.048
13.98	0.045
14.15	0.042
14.32	0.041
14.48	0.039
14.65	0.038
14.82	0.036
14.98	0.035
15.15	0.033
15.32	0.032
15.48	0.030
15.65	0.029
15.82	0.027
15.98	0.025
16.15	0.024
16.32	0.023

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 8

Bypass-2

Hydrograph type	= SCS Runoff	Peak discharge	= 0.769 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 2,720 cuft
Drainage area	= 0.310 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 6.60 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow (hrs cfs)

11.53	0.040
11.70	0.085
11.87	0.191
12.03	0.532
12.20	0.632
12.37	0.369
12.53	0.220
12.70	0.133
12.87	0.116
13.03	0.098
13.20	0.088
13.37	0.084
13.53	0.079
13.70	0.075
13.87	0.070
14.03	0.066
14.20	0.062
14.37	0.060
14.53	0.058
14.70	0.056
14.87	0.053
15.03	0.051
15.20	0.049
15.37	0.046
15.53	0.044
15.70	0.042
15.87	0.039

...End

Hydrograph Report

Hyd. No. 8

Bypass-2

Hydrograph type	= SCS Runoff	Peak discharge	= 1.355 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.12 hrs
Time interval	= 1 min	Hyd. volume	= 4,664 cuft
Drainage area	= 0.310 ac	Curve number	= 61
Basin Slope	= 0.0 %	Hydraulic length	= 0 ft
Tc method	= USER	Time of conc. (Tc)	= 10.0 min
Total precip.	= 8.90 in	Distribution	= Type III
Storm duration	= 24 hrs	Shape factor	= 484

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time -- Outflow
(hrs cfs)

11.32	0.069
11.48	0.089
11.65	0.147
11.82	0.321
11.98	0.661
12.15	1.298
12.32	0.684
12.48	0.436
12.65	0.235
12.82	0.194
12.98	0.166
13.15	0.143
13.32	0.135
13.48	0.128
13.65	0.121
13.82	0.113
13.98	0.106
14.15	0.099
14.32	0.095
14.48	0.092
14.65	0.088
14.82	0.085
14.98	0.081
15.15	0.077
15.32	0.073
15.48	0.070

...End

Inlet #1

Inlet #1 - Type 'N' Inlet

GSC - 2085A

Total Area = 0.14 Acres

Soils	'A' Grass =	<u>0</u> Acres
	'B' Grass =	<u>0</u> Acres
	'C' Grass =	<u>0.02</u> Acres
	'D' Grass =	<u>0</u> Acres

Runoff C Value	0.25
Runoff C Value	0.25
Runoff C Value	0.51
Runoff C Value	0.65

Soils	'A' Gravel =	<u>0</u> Acres
	'B' Wood =	<u>0</u> Acres
	'C' Wood =	<u>0</u> Acres
	'D' Wood =	<u>0</u> Acres

Runoff C Value	0.57
Runoff C Value	0.25
Runoff C Value	0.45
Runoff C Value	0.59

Impervious	<u>0.12</u> Acres
Total =	0.14 Acres

Runoff C Value
0.99

$$C = \frac{(\text{Runoff C Value}) \times \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.01	'D'	0.00	Impervious	0.12
-----	------	-----	------	-----	------	-----	------	------------	------

C = 0.92

$Q_{25} = C \times I \times A$

$I_{25} = \underline{6.60}$ in/hr

Q₂₅ = 0.9 cfs

Inlet #2

Inlet #2 - Type 'N' Inlet

GSC - 2085A

Total Area = 0.15 Acres

Soils
 'A' Grass = 0 Acres
 'B' Grass = 0 Acres
 'C' Grass = 0.04 Acres
 'D' Grass = 0 Acres

Runoff
 C Value
 0.25
 0.25
 0.51
 0.65

Soils
 'A' Gravel = 0 Acres
 'B' Wood = 0 Acres
 'C' Wood = 0 Acres
 'D' Wood = 0 Acres

Runoff
 C Value
 0.57
 0.25
 0.45
 0.59

Impervious 0.11 Acres
 Total = 0.15 Acres

Runoff
 C Value
 0.99

$$C = \frac{(\text{Runoff C Value}) \cdot \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.02	'D'	0.00	Impervious	0.11
-----	------	-----	------	-----	------	-----	------	------------	------

C = 0.86

Q₂₅ = 0.9 cfs

Q₂₅ = C * I * A

I₂₅ = 6.60 in/hr

Inlet #3

Inlet #3 - Type 'N' Inlet

GSC - 2085A

Total Area =	0.29 Acres	Soils	'A' Grass =	0 Acres	Runoff C Value	0.25	'A' Wood =	0 Acres	Runoff C Value	0.25	Impervious	0.13 Acres	Runoff C Value	0.99
			'B' Grass =	0 Acres		0.25	'B' Wood =	0 Acres		0.25				
			'C' Grass =	0.16 Acres		0.51	'C' Wood =	0 Acres		0.45				
			'D' Grass =	0 Acres		0.65	'D' Wood =	0 Acres		0.59	Total =	0.29 Acres		

$$C = \frac{(\text{Runoff C Value}) \cdot \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.08	'D'	0.00	Impervious	0.13
-----	------	-----	------	-----	------	-----	------	------------	------

C = 0.73

Q₂₅ = 1.4 cfs

Q₂₅ = C*I*A

I₂₅ = **6.60** in/hr

Inlet #4

Inlet #4 - Type 'N' Inlet

GSC - 2085A

Total Area = 0.06 Acres

Soils	'A' Grass =	<u>0</u> Acres
	'B' Grass =	<u>0</u> Acres
	'C' Grass =	<u>0</u> Acres
	'D' Grass =	<u>0</u> Acres

Runoff C Value	Soils
0.25	'A' Gravel =
0.57	'B' Wood =
0.51	'C' Wood =
0.65	'D' Wood =

Runoff C Value	Impervious	Acres
0.25	<u>0.06</u>	0.06
0.25		
0.45		
0.59		
Total = 0.06 Acres		

Runoff C Value
0.99

$$C = \frac{(\text{Runoff C Value}) \times (\text{Individual Area})}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.00	'D'	Impervious	0.06
-----	------	-----	------	-----	------	-----	------------	------

C = 0.99

$Q_{25} = C \cdot I \cdot A$

$I_{25} = \underline{6.60}$ in/hr

$Q_{25} = 0.4$ cfs

Inlet #5

Inlet #5 - Type 'N' Inlet

GSC - 2085A

Total Area = **0.32** Acres

Soils
 'A' Grass = **0** Acres
 'B' Grass = **0** Acres
 'C' Grass = **0.03** Acres
 'D' Grass = **0** Acres

Runoff
 C Value
 'A' Gravel = **0** Acres
 'B' Wood = **0** Acres
 'C' Wood = **0** Acres
 'D' Wood = **0** Acres

Runoff
 C Value
 0.25
 0.25
 0.51
 0.65

Impervious **0.29** Acres
 Total = 0.32 Acres

Runoff
 C Value
 0.57
 0.25
 0.45
 0.59

$$C = \frac{(\text{Runoff C Value}) \times \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'C'	0.02	'D'	Impervious
					0.29

C = 0.95

$Q_{25} = C \times I \times A$

$I_{25} = 3.15$ in/hr

$Q_{25} = 1.0$ cfs

Inlet #6

Inlet #6 - Type 'E' Inlet

GSC - 2085A

Total Area = 0.64 Acres

Soils
 'A' Grass = 0 Acres
 'B' Grass = 0 Acres
 'C' Grass = 0 Acres
 'D' Grass = 0 Acres

Runoff C Value
 'A' Gravel = 0 Acres
 'B' Wood = 0 Acres
 'C' Wood = 0 Acres
 'D' Wood = 0 Acres

Runoff C Value
 0.25
 0.25
 0.51
 0.65

Runoff C Value
 0.57
 0.25
 0.45
 0.59

Runoff C Value
 0.99

Impervious 0.64 Acres

Total = 0.64 Acres

$$C = \frac{(\text{Runoff C Value}) \times \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.00	'D'	0.00	Impervious	0.63
-----	------	-----	------	-----	------	-----	------	------------	------

C = 0.99

$Q_{25} = C \times I \times A$

$I_{25} = \underline{6.60}$ in/hr

Q₂₅ = 4.2 cfs

Inlet #7

Inlet #7 - Type 'N' Inlet

GSC - 2085A

Total Area = 0.43 Acres

Soils	'A' Grass =	'B' Grass =	'C' Grass =	'D' Grass =	Acres
	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	Acres
	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	Acres
	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	Acres
	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	Acres

Runoff C Value	Soils
0.25	'A' Gravel =
0.25	'B' Wood =
0.51	'C' Wood =
0.65	'D' Wood =

Runoff C Value	Acres
<u>0</u>	Acres
<u>0</u>	Acres
<u>0</u>	Acres
<u>0</u>	Acres

Runoff C Value	Impervious
0.57	Impervious
0.25	
0.45	
0.59	

Runoff C Value	Acres
<u>0.43</u>	Acres

Total = 0.43 Acres

$$C = \frac{(\text{Runoff C Value}) \cdot \text{Individual Area}}{\text{Total Area}}$$

'A'	'B'	'C'	'D'	Impervious
0.00	0.00	0.00	0.00	0.43

C = 0.99

$Q_{25} = C \cdot I \cdot A$

$I_{25} = \underline{6.60}$ in/hr

$Q_{25} = 2.9$ cfs

Inlet #8

Inlet #8 - Type 'N' Inlet

GSC - 2085A

Total Area = 0.82 Acres

Soils	'A' Grass =	<u>0</u> Acres	Runoff C Value	0.25
	'B' Grass =	<u>0</u> Acres		0.25
	'C' Grass =	<u>0.01</u> Acres		0.51
	'D' Grass =	<u>0</u> Acres		0.65

Soils 'A' Gravel = 0 Acres
 'B' Wood = 0 Acres
 'C' Wood = 0 Acres
 'D' Wood = 0 Acres

Runoff C Value 0.57 Impervious 0.81 Acres
 Total = 0.82 Acres

Runoff C Value 0.99

$$C = \frac{(\text{Runoff C Value}) \cdot \text{Individual Area}}{\text{Total Area}}$$

'A'	0.00	'B'	0.00	'C'	0.01	'D'	0.00	Impervious	0.80
-----	------	-----	------	-----	------	-----	------	------------	------

C = 0.98

$Q_{25} = C \cdot I \cdot A$

$Q_{25} = 5.4 \text{ cfs}$

$I_{25} = \underline{6.60} \text{ in/hr}$

Hydraflow Storm Sewer Tabulation

Station Line	Len (ft)	Drng Area (ac)		Rnoff coeff (C)	Area x C		Tc (min)		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev (ft)		HGL Elev (ft)		Grnd / Rim Elev (ft)		Line ID		
		Incr	Total		Incr	Total	Inlet	Syst					Size (in)	Slope (%)	Up	Dn	Up	Dn	Up	Dn		Up	Dn
4	3	172.0	0.14	0.14	0.92	0.13	0.13	10.0	10.0	6.3	4.57	2.14	15	0.50	125.55	124.69	125.91	125.26	127.60	128.85	Inlet 1 to 2		
3	2	142.0	0.15	0.29	0.90	0.14	0.26	10.0	14.3	5.5	4.57	2.37	15	0.50	124.69	123.98	125.17	124.92	128.85	127.00	Inlet 2 to 3		
2	1	82.0	0.29	0.58	0.73	0.21	0.48	10.0	16.1	5.2	4.57	2.90	15	0.50	123.98	123.57	124.69	124.56	127.00	127.50	Inlet 3 to 4		
1	End	27.0	0.06	0.64	0.99	0.06	0.53	10.0	16.7	5.1	6.46	3.38	15	1.00	123.57	123.30	124.23	124.27	127.50	125.00	Inlet 4 to FES 4-1		
Project File: FES 4-1.stm										IDF File: NJDEP.IDF										Total number of lines: 4		Run Date: 10-30-2020	

NOTES: Intensity = 93.87 / (Inlet time + 13.10) ^ 0.86; Return period = 25 Yrs.; Initial tailwater elevation = 124.27 (ft)

Hydraflow Storm Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID	
			Incr (ac)	Total (ac)		Incr (min)	Syst (min)	Total (min)	Incr (min)					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)		Up (ft)
3	2	121.0	0.32	0.32	0.95	0.30	0.30	10.0	10.0	6.3	1.92	6.61	1.64	18	0.40	124.92	124.44	125.71	125.66	127.20	127.15	Inlet 5 to 6	
2	1	235.0	0.64	0.96	0.99	0.63	0.94	10.0	11.9	5.9	5.55	6.64	3.60	18	0.40	124.44	123.50	125.54	124.93	127.15	126.05	Inlet 6 to 7	
1	End	33.0	0.43	1.39	0.99	0.43	1.36	10.0	13.1	5.7	7.75	8.18	4.89	18	0.61	123.50	123.30	124.73	124.59	126.05	125.00	Inlet 7 to FES 7-1	
Project File: FES 7-1.stm										IDF File: NJDEP.IDF										Total number of lines: 3		Run Date: 10-30-2020	

NOTES: Intensity = 93.87 / (Inlet time + 13.10) ^ 0.86; Return period = 25 Yrs.; Initial tailwater elevation = 124.59 (ft)

Hydraflow Storm Sewer Tabulation

Station Line	To Line	Len (ft)	Drng Area		Rnoff coeff (C)	Area x C		Tc		Rain (l) (in/hr)	Total flow (cfs)	Cap full (cfs)	Vel (ft/s)	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID			
			Incr (ac)	Total (ac)		Incr (min)	Syst (min)	Incr (min)	Total					Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)		Up (ft)	Dn (ft)	
1	End	26.0	0.82	0.82	0.98	0.80	0.80	10.0	10.0	6.3	5.08	7.43	4.55	18	0.50	123.43	123.30	124.34	124.20	127.58	125.00	Inlet 8 to FES 8-1			
Project File: FES 8-1.stm											IDF File: NUDEP.IDF											Total number of lines: 1		Run Date: 10-29-2020	

NOTES: Intensity = 93.87 / (Inlet time + 13.10) ^ 0.86; Return period = 25 Yrs.; Initial tailwater elevation = 124.20 (ft)

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 6

Basin Routing

Hydrograph type	= Reservoir	Peak discharge	= 6.238 cfs
Storm frequency	= 2 yrs	Time to peak	= 12.53 hrs
Time interval	= 1 min	Hyd. volume	= 79,832 cuft
Inflow hyd. No.	= 5 - Combined On-site/Off-site	Reservoir name	= Basin
Max. Elevation	= 124.94 ft	Max. Storage	= 45,465 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.50	2.416	123.95	0.170	0.163	----	----	----	----	----	----	----	0.334
11.67	3.474	124.00	0.179	0.231	----	----	----	----	----	----	----	0.410
11.83	6.358	124.09	0.193	0.351	----	----	----	----	----	----	----	0.544
12.00	11.55	124.25	0.215	0.518	----	----	----	----	----	----	----	0.733
12.17	18.92	124.58	0.254	0.751	----	----	----	----	----	----	----	1.005
12.33	12.35	124.85	0.282	0.898	----	----	3.296	----	----	----	----	4.476
12.50	6.994	124.93	0.290	0.937	----	----	4.974	----	----	----	----	6.201
12.67	3.904	124.92	0.289	0.929	----	----	4.581	----	----	----	----	5.798
12.83	2.806	124.87	0.284	0.908	----	----	3.695	----	----	----	----	4.887
13.00	2.362	124.83	0.280	0.888	----	----	2.933	----	----	----	----	4.102
13.17	2.024	124.80	0.277	0.872	----	----	2.301	----	----	----	----	3.450
13.33	1.860	124.77	0.274	0.858	----	----	1.899	----	----	----	----	3.031
13.50	1.752	124.75	0.272	0.846	----	----	1.576	----	----	----	----	2.694
13.67	1.647	124.73	0.270	0.837	----	----	1.314	----	----	----	----	2.420
13.83	1.542	124.72	0.269	0.829	----	----	1.095	----	----	----	----	2.193
14.00	1.436	124.71	0.268	0.822	----	----	0.910	----	----	----	----	1.999
14.17	1.342	124.70	0.266	0.816	----	----	0.775	----	----	----	----	1.857
14.33	1.280	124.69	0.265	0.810	----	----	0.690	----	----	----	----	1.766
14.50	1.229	124.68	0.264	0.805	----	----	0.612	----	----	----	----	1.681
14.67	1.179	124.67	0.263	0.800	----	----	0.538	----	----	----	----	1.601
14.83	1.128	124.66	0.262	0.795	----	----	0.469	----	----	----	----	1.526
15.00	1.076	124.65	0.261	0.790	----	----	0.404	----	----	----	----	1.456
15.17	1.025	124.64	0.261	0.786	----	----	0.341	----	----	----	----	1.388
15.33	0.974	124.63	0.260	0.782	----	----	0.282	----	----	----	----	1.323
15.50	0.922	124.63	0.259	0.778	----	----	0.224	----	----	----	----	1.261
15.67	0.870	124.62	0.258	0.774	----	----	0.168	----	----	----	----	1.200
15.83	0.818	124.61	0.258	0.770	----	----	0.113	----	----	----	----	1.141
16.00	0.766	124.61	0.257	0.766	----	----	0.059	----	----	----	----	1.082
16.17	0.721	124.60	0.256	0.763	----	----	0.007	----	----	----	----	1.026
16.33	0.692	124.59	0.256	0.759	----	----	----	----	----	----	----	1.014
16.50	0.669	124.59	0.255	0.754	----	----	----	----	----	----	----	1.009
16.67	0.647	124.58	0.254	0.750	----	----	----	----	----	----	----	1.004
16.83	0.624	124.57	0.253	0.745	----	----	----	----	----	----	----	0.999
17.00	0.602	124.56	0.252	0.741	----	----	----	----	----	----	----	0.993
17.17	0.579	124.56	0.251	0.736	----	----	----	----	----	----	----	0.987
17.33	0.556	124.55	0.250	0.730	----	----	----	----	----	----	----	0.981
17.50	0.534	124.54	0.249	0.725	----	----	----	----	----	----	----	0.974
17.67	0.511	124.53	0.248	0.719	----	----	----	----	----	----	----	0.967
17.83	0.488	124.52	0.247	0.713	----	----	----	----	----	----	----	0.960
18.00	0.465	124.51	0.246	0.707	----	----	----	----	----	----	----	0.953

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18.17	0.446	124.50	0.245	0.701	----	----	----	----	----	----	----	0.946
18.33	0.436	124.49	0.244	0.694	----	----	----	----	----	----	----	0.938
18.50	0.429	124.48	0.243	0.687	----	----	----	----	----	----	----	0.929
18.67	0.422	124.47	0.241	0.680	----	----	----	----	----	----	----	0.921
18.83	0.415	124.46	0.240	0.673	----	----	----	----	----	----	----	0.913
19.00	0.409	124.45	0.239	0.666	----	----	----	----	----	----	----	0.905
19.17	0.402	124.44	0.238	0.659	----	----	----	----	----	----	----	0.897
19.33	0.395	124.43	0.237	0.652	----	----	----	----	----	----	----	0.889
19.50	0.388	124.42	0.235	0.645	----	----	----	----	----	----	----	0.881
19.67	0.381	124.41	0.234	0.639	----	----	----	----	----	----	----	0.873
19.83	0.375	124.40	0.233	0.632	----	----	----	----	----	----	----	0.864
20.00	0.368	124.39	0.232	0.624	----	----	----	----	----	----	----	0.856
20.17	0.361	124.38	0.230	0.616	----	----	----	----	----	----	----	0.847
20.33	0.354	124.37	0.229	0.609	----	----	----	----	----	----	----	0.838
20.50	0.347	124.36	0.228	0.601	----	----	----	----	----	----	----	0.829
20.67	0.340	124.35	0.227	0.594	----	----	----	----	----	----	----	0.821
20.83	0.334	124.34	0.226	0.586	----	----	----	----	----	----	----	0.812
21.00	0.327	124.33	0.224	0.579	----	----	----	----	----	----	----	0.803
21.17	0.320	124.32	0.223	0.572	----	----	----	----	----	----	----	0.795
21.33	0.313	124.31	0.222	0.564	----	----	----	----	----	----	----	0.786
21.50	0.306	124.30	0.221	0.556	----	----	----	----	----	----	----	0.777
21.67	0.299	124.29	0.219	0.548	----	----	----	----	----	----	----	0.767
21.83	0.292	124.28	0.218	0.540	----	----	----	----	----	----	----	0.758
22.00	0.285	124.27	0.217	0.531	----	----	----	----	----	----	----	0.748
22.17	0.384	124.26	0.216	0.524	----	----	----	----	----	----	----	0.740
22.33	0.316	124.25	0.215	0.517	----	----	----	----	----	----	----	0.732
22.50	0.289	124.24	0.214	0.509	----	----	----	----	----	----	----	0.723
22.67	0.284	124.23	0.212	0.502	----	----	----	----	----	----	----	0.714
22.83	0.279	124.22	0.211	0.494	----	----	----	----	----	----	----	0.705
23.00	0.274	124.22	0.210	0.486	----	----	----	----	----	----	----	0.696
23.17	0.268	124.21	0.209	0.479	----	----	----	----	----	----	----	0.688
23.33	0.263	124.20	0.208	0.471	----	----	----	----	----	----	----	0.679
23.50	0.258	124.19	0.207	0.461	----	----	----	----	----	----	----	0.668
23.67	0.253	124.18	0.205	0.452	----	----	----	----	----	----	----	0.658
23.83	0.248	124.17	0.204	0.443	----	----	----	----	----	----	----	0.647
24.00	0.243	124.16	0.203	0.434	----	----	----	----	----	----	----	0.637
24.17	0.104	124.16	0.202	0.424	----	----	----	----	----	----	----	0.626
24.33	0.013	124.14	0.200	0.411	----	----	----	----	----	----	----	0.611
24.50	0.000	124.13	0.198	0.397	----	----	----	----	----	----	----	0.596
24.67	0.000	124.12	0.197	0.384	----	----	----	----	----	----	----	0.580
24.83	0.000	124.11	0.195	0.370	----	----	----	----	----	----	----	0.566
25.00	0.000	124.10	0.193	0.357	----	----	----	----	----	----	----	0.550
25.17	0.000	124.08	0.192	0.342	----	----	----	----	----	----	----	0.534
25.33	0.000	124.07	0.190	0.327	----	----	----	----	----	----	----	0.517
25.50	0.000	124.06	0.189	0.313	----	----	----	----	----	----	----	0.502
25.67	0.000	124.05	0.187	0.299	----	----	----	----	----	----	----	0.487
25.83	0.000	124.04	0.186	0.286	----	----	----	----	----	----	----	0.472
26.00	0.000	124.03	0.184	0.273	----	----	----	----	----	----	----	0.458
26.17	0.000	124.02	0.183	0.261	----	----	----	----	----	----	----	0.444
26.33	0.000	124.01	0.181	0.249	----	----	----	----	----	----	----	0.430
26.50	0.000	124.01	0.180	0.237	----	----	----	----	----	----	----	0.417
26.67	0.000	124.00	0.179	0.226	----	----	----	----	----	----	----	0.405
26.83	0.000	123.99	0.177	0.215	----	----	----	----	----	----	----	0.392
27.00	0.000	123.98	0.176	0.204	----	----	----	----	----	----	----	0.380

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Basin Routing

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
27.17	0.000	123.97	0.174	0.194	----	----	----	----	----	----	----	0.368
27.33	0.000	123.96	0.173	0.184	----	----	----	----	----	----	----	0.357
27.50	0.000	123.95	0.172	0.174	----	----	----	----	----	----	----	0.346
27.67	0.000	123.95	0.171	0.164	----	----	----	----	----	----	----	0.335
27.83	0.000	123.94	0.169	0.155	----	----	----	----	----	----	----	0.325
28.00	0.000	123.93	0.168	0.146	----	----	----	----	----	----	----	0.315

...End

Hydrograph Report

Hyd. No. 6

Basin Routing

Hydrograph type	= Reservoir	Peak discharge	= 18.05 cfs
Storm frequency	= 10 yrs	Time to peak	= 12.37 hrs
Time interval	= 1 min	Hyd. volume	= 133,998 cuft
Inflow hyd. No.	= 5 - Combined On-site/Off-site	Reservoir name	= Basin
Max. Elevation	= 125.35 ft	Max. Storage	= 58,610 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.83	10.41	124.51	0.246	0.707	----	----	----	----	----	----	----	0.953
12.00	19.00	124.77	0.274	0.854	----	----	1.791	----	----	----	----	2.918
12.17	30.91	125.17	0.312	1.042	----	----	10.93	----	----	----	----	12.29
12.33	20.02	125.34	0.327	1.116	----	----	16.47	----	----	----	----	17.92
12.50	11.32	125.30	0.324	1.100	----	----	15.10	----	----	----	----	16.52
12.67	6.309	125.19	0.314	1.051	----	----	11.54	----	----	----	----	12.91
12.83	4.542	125.08	0.304	1.003	----	----	8.448	----	----	----	----	9.755
13.00	3.821	124.99	0.296	0.965	----	----	6.325	----	----	----	----	7.586
13.17	3.273	124.93	0.290	0.934	----	----	4.797	----	----	----	----	6.020
13.33	3.008	124.88	0.285	0.910	----	----	3.781	----	----	----	----	4.976
13.50	2.832	124.84	0.281	0.893	----	----	3.107	----	----	----	----	4.281
13.67	2.662	124.82	0.279	0.880	----	----	2.604	----	----	----	----	3.763
13.83	2.491	124.80	0.277	0.869	----	----	2.231	----	----	----	----	3.378
14.00	2.319	124.78	0.275	0.860	----	----	1.974	----	----	----	----	3.110
14.17	2.167	124.76	0.273	0.852	----	----	1.744	----	----	----	----	2.870
14.33	2.067	124.75	0.272	0.845	----	----	1.545	----	----	----	----	2.662
14.50	1.984	124.74	0.271	0.839	----	----	1.377	----	----	----	----	2.486
14.67	1.901	124.73	0.270	0.834	----	----	1.233	----	----	----	----	2.337
14.83	1.819	124.72	0.269	0.829	----	----	1.107	----	----	----	----	2.205
15.00	1.736	124.71	0.268	0.825	----	----	0.994	----	----	----	----	2.087
15.17	1.653	124.71	0.267	0.822	----	----	0.890	----	----	----	----	1.979
15.33	1.570	124.70	0.267	0.818	----	----	0.800	----	----	----	----	1.885
15.50	1.486	124.69	0.266	0.814	----	----	0.745	----	----	----	----	1.825
15.67	1.402	124.68	0.265	0.810	----	----	0.686	----	----	----	----	1.762
15.83	1.318	124.68	0.264	0.806	----	----	0.624	----	----	----	----	1.695
16.00	1.234	124.67	0.264	0.801	----	----	0.560	----	----	----	----	1.625
16.17	1.161	124.66	0.263	0.797	----	----	0.494	----	----	----	----	1.553
16.33	1.115	124.65	0.262	0.792	----	----	0.430	----	----	----	----	1.484
16.50	1.078	124.65	0.261	0.788	----	----	0.370	----	----	----	----	1.419
16.67	1.042	124.64	0.260	0.784	----	----	0.315	----	----	----	----	1.359
16.83	1.005	124.63	0.260	0.780	----	----	0.263	----	----	----	----	1.303
17.00	0.969	124.63	0.259	0.777	----	----	0.214	----	----	----	----	1.250
17.17	0.932	124.62	0.258	0.774	----	----	0.168	----	----	----	----	1.200
17.33	0.895	124.62	0.258	0.771	----	----	0.124	----	----	----	----	1.153
17.50	0.859	124.61	0.257	0.768	----	----	0.082	----	----	----	----	1.107
17.67	0.822	124.61	0.257	0.765	----	----	0.041	----	----	----	----	1.062
17.83	0.785	124.60	0.256	0.762	----	----	0.001	----	----	----	----	1.019
18.00	0.748	124.59	0.256	0.759	----	----	----	----	----	----	----	1.015
18.17	0.717	124.59	0.255	0.755	----	----	----	----	----	----	----	1.010
18.33	0.701	124.58	0.254	0.752	----	----	----	----	----	----	----	1.006

Continues on next page...

Basin Routing

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
18.50	0.690	124.58	0.254	0.748	-----	-----	-----	-----	-----	-----	-----	1.001
18.67	0.679	124.57	0.253	0.744	-----	-----	-----	-----	-----	-----	-----	0.997
18.83	0.668	124.56	0.252	0.740	-----	-----	-----	-----	-----	-----	-----	0.992
19.00	0.657	124.56	0.251	0.736	-----	-----	-----	-----	-----	-----	-----	0.987
19.17	0.646	124.55	0.251	0.731	-----	-----	-----	-----	-----	-----	-----	0.982
19.33	0.635	124.54	0.250	0.727	-----	-----	-----	-----	-----	-----	-----	0.977
19.50	0.624	124.54	0.249	0.723	-----	-----	-----	-----	-----	-----	-----	0.972
19.67	0.613	124.53	0.248	0.718	-----	-----	-----	-----	-----	-----	-----	0.966
19.83	0.602	124.52	0.247	0.714	-----	-----	-----	-----	-----	-----	-----	0.961
20.00	0.591	124.51	0.246	0.709	-----	-----	-----	-----	-----	-----	-----	0.956
20.17	0.580	124.51	0.246	0.704	-----	-----	-----	-----	-----	-----	-----	0.950
20.33	0.569	124.50	0.245	0.700	-----	-----	-----	-----	-----	-----	-----	0.944
20.50	0.558	124.49	0.244	0.694	-----	-----	-----	-----	-----	-----	-----	0.938
20.67	0.547	124.48	0.243	0.689	-----	-----	-----	-----	-----	-----	-----	0.932
20.83	0.536	124.47	0.242	0.684	-----	-----	-----	-----	-----	-----	-----	0.926
21.00	0.525	124.47	0.241	0.678	-----	-----	-----	-----	-----	-----	-----	0.919
21.17	0.514	124.46	0.240	0.673	-----	-----	-----	-----	-----	-----	-----	0.913
21.33	0.503	124.45	0.239	0.667	-----	-----	-----	-----	-----	-----	-----	0.906

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 6

Basin Routing

Hydrograph type	= Reservoir	Peak discharge	= 27.05 cfs
Storm frequency	= 25 yrs	Time to peak	= 12.32 hrs
Time interval	= 1 min	Hyd. volume	= 177,655 cuft
Inflow hyd. No.	= 5 - Combined On-site/Off-site	Reservoir name	= Basin
Max. Elevation	= 125.60 ft	Max. Storage	= 66,659 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.67	7.451	124.65	0.262	0.793	----	----	0.443	----	----	----	----	1.498
11.83	13.74	124.82	0.279	0.881	----	----	2.670	----	----	----	----	3.831
12.00	25.02	125.06	0.302	0.996	----	----	8.022	----	----	----	----	9.320
12.17	40.54	125.45	0.336	1.158	----	----	20.11	----	----	----	----	21.60
12.33	26.15	125.60	0.348	1.213	----	----	25.47	----	----	----	----	27.04
12.50	14.76	125.49	0.340	1.175	----	----	21.67	----	----	----	----	23.19
12.67	8.220	125.33	0.326	1.109	----	----	15.85	----	----	----	----	17.28
12.83	5.921	125.18	0.313	1.048	----	----	11.28	----	----	----	----	12.64
13.00	4.979	125.07	0.303	1.002	----	----	8.383	----	----	----	----	9.689
13.17	4.265	125.00	0.296	0.968	----	----	6.446	----	----	----	----	7.711
13.33	3.918	124.94	0.291	0.940	----	----	5.081	----	----	----	----	6.311
13.50	3.689	124.90	0.287	0.920	----	----	4.149	----	----	----	----	5.356
13.67	3.467	124.87	0.284	0.905	----	----	3.566	----	----	----	----	4.755
13.83	3.243	124.84	0.281	0.893	----	----	3.107	----	----	----	----	4.281
14.00	3.019	124.82	0.279	0.883	----	----	2.729	----	----	----	----	3.891
14.17	2.820	124.81	0.278	0.875	----	----	2.407	----	----	----	----	3.560
14.33	2.690	124.79	0.276	0.867	----	----	2.173	----	----	----	----	3.316
14.50	2.581	124.78	0.275	0.861	----	----	1.993	----	----	----	----	3.129
14.67	2.474	124.77	0.274	0.855	----	----	1.834	----	----	----	----	2.963
14.83	2.366	124.76	0.273	0.850	----	----	1.690	----	----	----	----	2.813
15.00	2.258	124.75	0.272	0.845	----	----	1.558	----	----	----	----	2.675
15.17	2.149	124.74	0.271	0.841	----	----	1.433	----	----	----	----	2.545
15.33	2.041	124.73	0.270	0.837	----	----	1.314	----	----	----	----	2.421
15.50	1.932	124.73	0.270	0.833	----	----	1.199	----	----	----	----	2.301
15.67	1.823	124.72	0.269	0.829	----	----	1.087	----	----	----	----	2.184
15.83	1.714	124.71	0.268	0.825	----	----	0.976	----	----	----	----	2.069
16.00	1.604	124.70	0.267	0.821	----	----	0.868	----	----	----	----	1.956
16.17	1.509	124.70	0.266	0.817	----	----	0.782	----	----	----	----	1.866
16.33	1.449	124.69	0.266	0.813	----	----	0.722	----	----	----	----	1.801
16.50	1.401	124.68	0.265	0.809	----	----	0.665	----	----	----	----	1.738
16.67	1.354	124.68	0.264	0.805	----	----	0.609	----	----	----	----	1.678
16.83	1.306	124.67	0.263	0.801	----	----	0.555	----	----	----	----	1.620
17.00	1.258	124.66	0.263	0.797	----	----	0.503	----	----	----	----	1.563
17.17	1.211	124.66	0.262	0.794	----	----	0.453	----	----	----	----	1.509
17.33	1.163	124.65	0.261	0.790	----	----	0.403	----	----	----	----	1.455
17.50	1.115	124.64	0.261	0.787	----	----	0.355	----	----	----	----	1.402

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 6

Basin Routing

Hydrograph type	= Reservoir	Peak discharge	= 40.77 cfs
Storm frequency	= 100 yrs	Time to peak	= 12.30 hrs
Time interval	= 1 min	Hyd. volume	= 251,128 cuft
Inflow hyd. No.	= 5 - Combined On-site/Off-site	Reservoir name	= Basin
Max. Elevation	= 125.93 ft	Max. Storage	= 77,274 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
11.00	4.723	124.71	0.268	0.825	----	----	1.000	----	----	----	----	2.094
11.17	5.209	124.76	0.273	0.852	----	----	1.749	----	----	----	----	2.874
11.33	6.158	124.81	0.278	0.878	----	----	2.543	----	----	----	----	3.700
11.50	7.279	124.87	0.284	0.904	----	----	3.540	----	----	----	----	4.727
11.67	10.53	124.93	0.290	0.935	----	----	4.882	----	----	----	----	6.107
11.83	19.38	125.07	0.303	0.999	----	----	8.226	----	----	----	----	9.528
12.00	35.20	125.31	0.324	1.102	----	----	15.27	----	----	----	----	16.70
12.17	56.68	125.78	0.363	1.279	----	----	32.91	----	----	----	----	34.55
12.33	36.34	125.92	0.373	1.325	----	----	38.66	----	----	----	----	40.36
12.50	20.48	125.74	0.360	1.266	----	----	31.32	----	----	----	----	32.94
12.67	11.39	125.51	0.341	1.179	----	----	22.10	----	----	----	----	23.62
12.83	8.210	125.31	0.325	1.103	----	----	15.40	----	----	----	----	16.83
13.00	6.901	125.18	0.313	1.049	----	----	11.35	----	----	----	----	12.72
13.17	5.910	125.09	0.305	1.009	----	----	8.769	----	----	----	----	10.08
13.33	5.429	125.02	0.299	0.979	----	----	7.085	----	----	----	----	8.363
13.50	5.110	124.98	0.294	0.957	----	----	5.916	----	----	----	----	7.168
13.67	4.800	124.94	0.291	0.940	----	----	5.084	----	----	----	----	6.315
13.83	4.489	124.91	0.288	0.927	----	----	4.455	----	----	----	----	5.670
14.00	4.177	124.89	0.286	0.916	----	----	3.987	----	----	----	----	5.188
14.17	3.902	124.87	0.284	0.906	----	----	3.606	----	----	----	----	4.795
14.33	3.721	124.85	0.282	0.897	----	----	3.281	----	----	----	----	4.461
14.50	3.570	124.84	0.281	0.890	----	----	3.013	----	----	----	----	4.184
14.67	3.421	124.83	0.280	0.884	----	----	2.786	----	----	----	----	3.951
14.83	3.271	124.82	0.279	0.879	----	----	2.587	----	----	----	----	3.745
15.00	3.121	124.81	0.278	0.875	----	----	2.406	----	----	----	----	3.559
15.17	2.971	124.80	0.277	0.870	----	----	2.249	----	----	----	----	3.396
15.33	2.820	124.79	0.276	0.865	----	----	2.116	----	----	----	----	3.257
15.50	2.669	124.78	0.275	0.860	----	----	1.980	----	----	----	----	3.116
15.67	2.518	124.77	0.274	0.856	----	----	1.842	----	----	----	----	2.971
15.83	2.367	124.76	0.273	0.851	----	----	1.702	----	----	----	----	2.825
16.00	2.216	124.75	0.272	0.845	----	----	1.560	----	----	----	----	2.678
16.17	2.084	124.74	0.271	0.840	----	----	1.419	----	----	----	----	2.531
16.33	2.001	124.73	0.270	0.836	----	----	1.289	----	----	----	----	2.395
16.50	1.935	124.72	0.269	0.832	----	----	1.176	----	----	----	----	2.278
16.67	1.869	124.72	0.269	0.828	----	----	1.077	----	----	----	----	2.174
16.83	1.803	124.71	0.268	0.825	----	----	0.988	----	----	----	----	2.081

...End

WATER QUALITY STORM

A. Storage Volume, Depth, and Duration

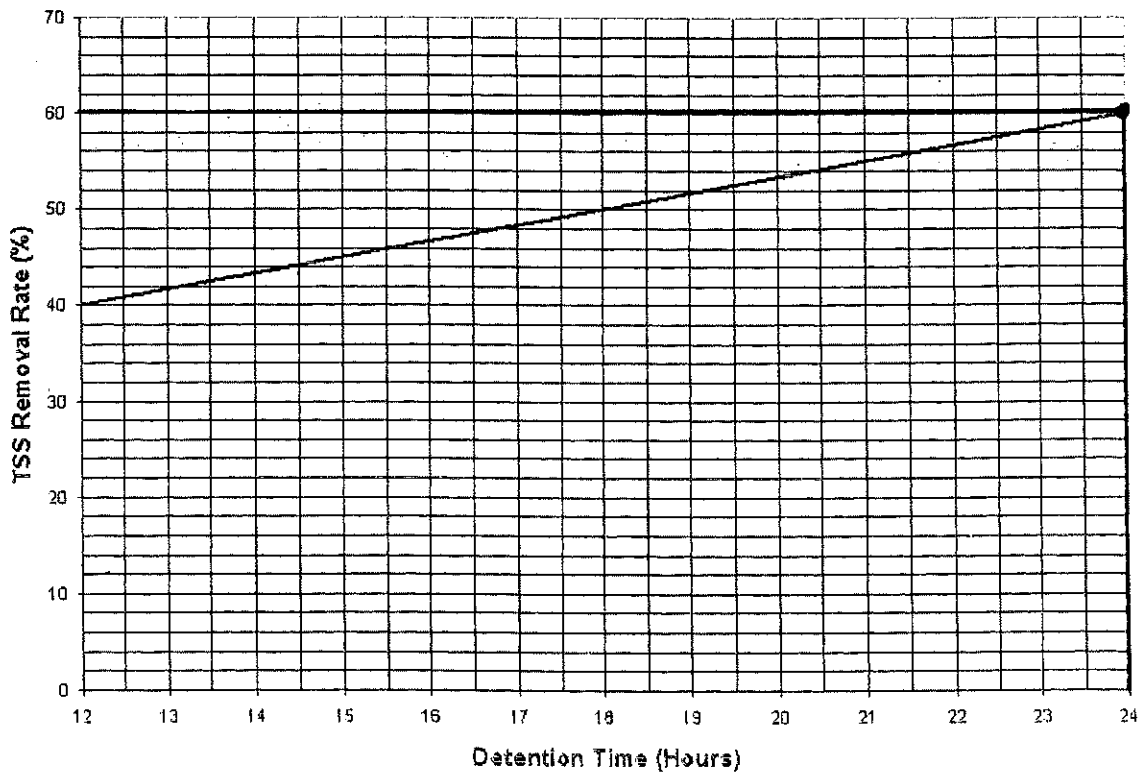
Extended detention basins should be designed to treat the runoff volume generated by the stormwater quality design storm. Techniques to compute this volume are discussed in *Chapter 5: Computing Stormwater Runoff Rates and Volumes*. To achieve a 60 percent TSS removal rate, a minimum of 10 percent of this runoff volume must remain in the basin 24 hours after the peak basin water surface and constant runoff storage volume is achieved. This applies to all types of land developments.

It should be noted that the time from when the maximum storage volume is achieved until only 10 percent of that volume remains in an extended detention basin is defined as the basin's detention time. As noted above, a 24-hour detention time is required in an extended detention basin in order to achieve a 60 percent TSS removal rate. Figure 9.4-2 below can be used to determine the TSS removal rates at extended detention basins with detention times of 12 to 24 hours. The minimum diameter of any outlet orifice must be 2.5 inches.

The lowest elevation in an extended detention basin, excluding low flow channels, must be at least 1 foot above the seasonal high groundwater table. The lowest elevation in any low flow channel, including any underdrain pipes and bedding material, must be at or above the seasonal high groundwater table.

To enhance safety by minimizing standing water depths, the vertical distance between the basin bottom and the elevation of the first stormwater quantity control outlet (normally set equal to the maximum stormwater quality design storm water surface) should be no greater than 3 feet wherever practical.

Figure 9.4-2: TSS Removal Rate vs. Detention Time



Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 13

Combined WQ to Basin

Hydrograph type = Combine
Storm frequency = 1 yrs
Time interval = 1 min
Inflow hyds. = 9, 10, 11, 12

Peak discharge = 16.12 cfs
Time to peak = 1.15 hrs
Hyd. volume = 26,449 cuft WQ VOLUME
Contrib. drain. area= 9.280 ac

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Hyd. 9 + (cfs)	Hyd. 10 + (cfs)	Hyd. 11 + (cfs)	Hyd. 12 = (cfs)	Outflow (cfs)
0.67	0.485	0.000 <<	0.538	0.000	1.023
0.83	0.885	0.000 <<	1.106	0.000	1.991
1.00	3.907	0.000 <<	3.684	0.000	7.592
1.17	6.446	0.000 <<	9.507	0.000	15.95
1.33	1.805	0.000 <<	6.438	0.011	8.254
1.50	1.029	0.000 <<	2.329	0.023	3.381
1.67	0.823	0.000 <<	1.552	0.028	2.403
1.83	0.616	0.000 <<	1.241	0.028	1.885
2.00	0.260	0.000 <<	0.684	0.017	0.960

...End

Hydrograph Report

Hydraflow Hydrographs Extension for AutoCAD® Civil 3D® 2009 by Autodesk, Inc. v6.066

Tuesday, Oct 27, 2020

Hyd. No. 14

Detention Time

Hydrograph type	= Reservoir	Peak discharge	= 0.684 cfs
Storm frequency	= 1 yrs	Time to peak	= 2.08 hrs <i>WR PEAK TIME</i>
Time interval	= 1 min	Hyd. volume	= 23,583 cuft
Inflow hyd. No.	= 13 - Combined WQ to Basin	Reservoir name	= Basin
Max. Elevation	= 124.20 ft	Max. Storage	= 24,320 cuft

Storage Indication method used.

Hydrograph Discharge Table

(Printed values >= 5.00% of Qp. Print interval = 10)

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
1.00	7.592	123.44	0.035	-----	-----	-----	-----	-----	-----	-----	-----	0.035
1.17	15.95	123.74	0.131	0.006	-----	-----	-----	-----	-----	-----	-----	0.138
1.33	8.254	124.01	0.181	0.242	-----	-----	-----	-----	-----	-----	-----	0.423
1.50	3.381	124.11	0.196	0.373	-----	-----	-----	-----	-----	-----	-----	0.569
1.67	2.403	124.16	0.202	0.424	-----	-----	-----	-----	-----	-----	-----	0.626
1.83	1.885	124.19	0.206	0.459	-----	-----	-----	-----	-----	-----	-----	0.666
→ 2.00	0.960	124.20	0.208	0.474	-----	-----	-----	-----	-----	-----	-----	0.683
2.17	0.315	124.20	0.208	0.474	-----	-----	-----	-----	-----	-----	-----	0.682
2.33	0.040	124.19	0.207	0.462	-----	-----	-----	-----	-----	-----	-----	0.669
2.50	0.000	124.18	0.205	0.447	-----	-----	-----	-----	-----	-----	-----	0.652
2.67	0.000	124.16	0.203	0.432	-----	-----	-----	-----	-----	-----	-----	0.635
2.83	0.000	124.15	0.201	0.418	-----	-----	-----	-----	-----	-----	-----	0.619
3.00	0.000	124.14	0.199	0.404	-----	-----	-----	-----	-----	-----	-----	0.603
3.17	0.000	124.13	0.198	0.390	-----	-----	-----	-----	-----	-----	-----	0.588
3.33	0.000	124.11	0.196	0.377	-----	-----	-----	-----	-----	-----	-----	0.573
3.50	0.000	124.10	0.194	0.364	-----	-----	-----	-----	-----	-----	-----	0.559
3.67	0.000	124.09	0.193	0.349	-----	-----	-----	-----	-----	-----	-----	0.542
3.83	0.000	124.08	0.191	0.335	-----	-----	-----	-----	-----	-----	-----	0.526
4.00	0.000	124.07	0.189	0.320	-----	-----	-----	-----	-----	-----	-----	0.510
4.17	0.000	124.06	0.188	0.306	-----	-----	-----	-----	-----	-----	-----	0.494
4.33	0.000	124.05	0.186	0.293	-----	-----	-----	-----	-----	-----	-----	0.479
4.50	0.000	124.04	0.185	0.280	-----	-----	-----	-----	-----	-----	-----	0.465
4.67	0.000	124.03	0.183	0.267	-----	-----	-----	-----	-----	-----	-----	0.451
4.83	0.000	124.02	0.182	0.255	-----	-----	-----	-----	-----	-----	-----	0.437
5.00	0.000	124.01	0.181	0.243	-----	-----	-----	-----	-----	-----	-----	0.424
5.17	0.000	124.00	0.179	0.232	-----	-----	-----	-----	-----	-----	-----	0.411
5.33	0.000	123.99	0.178	0.220	-----	-----	-----	-----	-----	-----	-----	0.398
5.50	0.000	123.98	0.177	0.210	-----	-----	-----	-----	-----	-----	-----	0.386
5.67	0.000	123.97	0.175	0.199	-----	-----	-----	-----	-----	-----	-----	0.374
5.83	0.000	123.97	0.174	0.189	-----	-----	-----	-----	-----	-----	-----	0.363
6.00	0.000	123.96	0.172	0.179	-----	-----	-----	-----	-----	-----	-----	0.351
6.17	0.000	123.95	0.171	0.169	-----	-----	-----	-----	-----	-----	-----	0.340
6.33	0.000	123.94	0.170	0.160	-----	-----	-----	-----	-----	-----	-----	0.330
6.50	0.000	123.94	0.169	0.151	-----	-----	-----	-----	-----	-----	-----	0.320
6.67	0.000	123.93	0.168	0.143	-----	-----	-----	-----	-----	-----	-----	0.310
6.83	0.000	123.92	0.166	0.136	-----	-----	-----	-----	-----	-----	-----	0.302
7.00	0.000	123.91	0.165	0.129	-----	-----	-----	-----	-----	-----	-----	0.294
7.17	0.000	123.91	0.164	0.122	-----	-----	-----	-----	-----	-----	-----	0.286
7.33	0.000	123.90	0.163	0.116	-----	-----	-----	-----	-----	-----	-----	0.279
7.50	0.000	123.90	0.162	0.109	-----	-----	-----	-----	-----	-----	-----	0.271

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Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
7.67	0.000	123.89	0.161	0.103	----	----	----	----	----	----	----	0.264
7.83	0.000	123.88	0.160	0.097	----	----	----	----	----	----	----	0.257
8.00	0.000	123.88	0.159	0.091	----	----	----	----	----	----	----	0.250
8.17	0.000	123.87	0.158	0.086	----	----	----	----	----	----	----	0.244
8.33	0.000	123.87	0.157	0.080	----	----	----	----	----	----	----	0.237
8.50	0.000	123.86	0.156	0.075	----	----	----	----	----	----	----	0.231
8.67	0.000	123.86	0.155	0.071	----	----	----	----	----	----	----	0.226
8.83	0.000	123.85	0.154	0.067	----	----	----	----	----	----	----	0.221
9.00	0.000	123.85	0.153	0.064	----	----	----	----	----	----	----	0.217
9.17	0.000	123.84	0.152	0.060	----	----	----	----	----	----	----	0.213
9.33	0.000	123.84	0.151	0.057	----	----	----	----	----	----	----	0.208
9.50	0.000	123.83	0.150	0.054	----	----	----	----	----	----	----	0.204
9.67	0.000	123.83	0.150	0.050	----	----	----	----	----	----	----	0.200
9.83	0.000	123.82	0.149	0.047	----	----	----	----	----	----	----	0.196
10.00	0.000	123.82	0.148	0.044	----	----	----	----	----	----	----	0.192
10.17	0.000	123.81	0.147	0.041	----	----	----	----	----	----	----	0.188
10.33	0.000	123.81	0.146	0.038	----	----	----	----	----	----	----	0.184
10.50	0.000	123.81	0.146	0.035	----	----	----	----	----	----	----	0.181
10.67	0.000	123.80	0.145	0.032	----	----	----	----	----	----	----	0.177
10.83	0.000	123.80	0.144	0.029	----	----	----	----	----	----	----	0.174
11.00	0.000	123.79	0.143	0.027	----	----	----	----	----	----	----	0.170
11.17	0.000	123.79	0.143	0.024	----	----	----	----	----	----	----	0.167
11.33	0.000	123.79	0.142	0.023	----	----	----	----	----	----	----	0.165
11.50	0.000	123.78	0.141	0.022	----	----	----	----	----	----	----	0.163
11.67	0.000	123.78	0.140	0.021	----	----	----	----	----	----	----	0.161
11.83	0.000	123.77	0.140	0.019	----	----	----	----	----	----	----	0.159
12.00	0.000	123.77	0.139	0.018	----	----	----	----	----	----	----	0.157
12.17	0.000	123.77	0.138	0.017	----	----	----	----	----	----	----	0.155
12.33	0.000	123.76	0.137	0.016	----	----	----	----	----	----	----	0.153
12.50	0.000	123.76	0.137	0.015	----	----	----	----	----	----	----	0.151
12.67	0.000	123.76	0.136	0.014	----	----	----	----	----	----	----	0.149
12.83	0.000	123.75	0.135	0.012	----	----	----	----	----	----	----	0.148
13.00	0.000	123.75	0.135	0.011	----	----	----	----	----	----	----	0.146
13.17	0.000	123.75	0.134	0.010	----	----	----	----	----	----	----	0.144
13.33	0.000	123.74	0.133	0.009	----	----	----	----	----	----	----	0.142
13.50	0.000	123.74	0.133	0.008	----	----	----	----	----	----	----	0.141
13.67	0.000	123.74	0.132	0.007	----	----	----	----	----	----	----	0.139
13.83	0.000	123.73	0.131	0.006	----	----	----	----	----	----	----	0.137
14.00	0.000	123.73	0.131	0.005	----	----	----	----	----	----	----	0.136
14.17	0.000	123.73	0.130	0.004	----	----	----	----	----	----	----	0.134
14.33	0.000	123.72	0.129	0.003	----	----	----	----	----	----	----	0.132
14.50	0.000	123.72	0.129	0.002	----	----	----	----	----	----	----	0.131
14.67	0.000	123.72	0.128	0.001	----	----	----	----	----	----	----	0.129
14.83	0.000	123.72	0.127	0.001	----	----	----	----	----	----	----	0.129
15.00	0.000	123.71	0.127	0.001	----	----	----	----	----	----	----	0.128
15.17	0.000	123.71	0.126	0.001	----	----	----	----	----	----	----	0.127
15.33	0.000	123.71	0.125	0.001	----	----	----	----	----	----	----	0.126
15.50	0.000	123.70	0.125	0.001	----	----	----	----	----	----	----	0.126
15.67	0.000	123.70	0.124	0.001	----	----	----	----	----	----	----	0.125
15.83	0.000	123.70	0.123	0.001	----	----	----	----	----	----	----	0.124
16.00	0.000	123.70	0.123	0.001	----	----	----	----	----	----	----	0.124
16.17	0.000	123.69	0.122	0.001	----	----	----	----	----	----	----	0.123
16.33	0.000	123.69	0.121	0.001	----	----	----	----	----	----	----	0.122
16.50	0.000	123.69	0.121	0.001	----	----	----	----	----	----	----	0.121

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
16.67	0.000	123.68	0.120	0.001	----	----	----	----	----	----	----	0.121
16.83	0.000	123.68	0.120	0.001	----	----	----	----	----	----	----	0.120
17.00	0.000	123.68	0.119	0.001	----	----	----	----	----	----	----	0.119
17.17	0.000	123.68	0.118	0.000	----	----	----	----	----	----	----	0.119
17.33	0.000	123.67	0.118	0.000	----	----	----	----	----	----	----	0.118
17.50	0.000	123.67	0.117	0.000	----	----	----	----	----	----	----	0.117
17.67	0.000	123.67	0.116	0.000	----	----	----	----	----	----	----	0.117
17.83	0.000	123.67	0.116	0.000	----	----	----	----	----	----	----	0.116
18.00	0.000	123.66	0.115	0.000	----	----	----	----	----	----	----	0.115
18.17	0.000	123.66	0.115	0.000	----	----	----	----	----	----	----	0.115
18.33	0.000	123.66	0.114	0.000	----	----	----	----	----	----	----	0.115
18.50	0.000	123.66	0.113	0.000	----	----	----	----	----	----	----	0.114
18.67	0.000	123.65	0.113	0.000	----	----	----	----	----	----	----	0.113
18.83	0.000	123.65	0.112	0.000	----	----	----	----	----	----	----	0.113
19.00	0.000	123.65	0.111	----	----	----	----	----	----	----	----	0.112
19.17	0.000	123.65	0.111	----	----	----	----	----	----	----	----	0.111
19.33	0.000	123.64	0.110	----	----	----	----	----	----	----	----	0.111
19.50	0.000	123.64	0.109	----	----	----	----	----	----	----	----	0.110
19.67	0.000	123.64	0.109	----	----	----	----	----	----	----	----	0.109
19.83	0.000	123.64	0.108	----	----	----	----	----	----	----	----	0.109
20.00	0.000	123.63	0.107	----	----	----	----	----	----	----	----	0.108
20.17	0.000	123.63	0.107	----	----	----	----	----	----	----	----	0.107
20.33	0.000	123.63	0.106	----	----	----	----	----	----	----	----	0.107
20.50	0.000	123.63	0.106	----	----	----	----	----	----	----	----	0.106
20.67	0.000	123.62	0.105	----	----	----	----	----	----	----	----	0.106
20.83	0.000	123.62	0.105	----	----	----	----	----	----	----	----	0.105
21.00	0.000	123.62	0.104	----	----	----	----	----	----	----	----	0.105
21.17	0.000	123.62	0.103	----	----	----	----	----	----	----	----	0.104
21.33	0.000	123.62	0.103	----	----	----	----	----	----	----	----	0.103
21.50	0.000	123.61	0.102	----	----	----	----	----	----	----	----	0.103
21.67	0.000	123.61	0.102	----	----	----	----	----	----	----	----	0.102
21.83	0.000	123.61	0.101	----	----	----	----	----	----	----	----	0.102
22.00	0.000	123.61	0.100	----	----	----	----	----	----	----	----	0.101
22.17	0.000	123.60	0.100	----	----	----	----	----	----	----	----	0.100
22.33	0.000	123.60	0.099	----	----	----	----	----	----	----	----	0.100
22.50	0.000	123.60	0.099	----	----	----	----	----	----	----	----	0.099
22.67	0.000	123.60	0.098	----	----	----	----	----	----	----	----	0.099
22.83	0.000	123.60	0.098	----	----	----	----	----	----	----	----	0.098
23.00	0.000	123.59	0.097	----	----	----	----	----	----	----	----	0.098
23.17	0.000	123.59	0.097	----	----	----	----	----	----	----	----	0.097
23.33	0.000	123.59	0.096	----	----	----	----	----	----	----	----	0.097
23.50	0.000	123.59	0.096	----	----	----	----	----	----	----	----	0.096
23.67	0.000	123.58	0.095	----	----	----	----	----	----	----	----	0.096
23.83	0.000	123.58	0.095	----	----	----	----	----	----	----	----	0.095
24.00	0.000	123.58	0.094	----	----	----	----	----	----	----	----	0.095
24.17	0.000	123.58	0.094	----	----	----	----	----	----	----	----	0.094
24.33	0.000	123.58	0.093	----	----	----	----	----	----	----	----	0.094
24.50	0.000	123.58	0.093	----	----	----	----	----	----	----	----	0.093
24.67	0.000	123.57	0.092	----	----	----	----	----	----	----	----	0.093
24.83	0.000	123.57	0.092	----	----	----	----	----	----	----	----	0.092
25.00	0.000	123.57	0.091	----	----	----	----	----	----	----	----	0.092
25.17	0.000	123.57	0.091	----	----	----	----	----	----	----	----	0.091
25.33	0.000	123.57	0.090	----	----	----	----	----	----	----	----	0.091
25.50	0.000	123.57	0.089	----	----	----	----	----	----	----	----	0.090
25.67	0.000	123.57	0.089	----	----	----	----	----	----	----	----	0.090
25.83	0.000	123.56	0.088	----	----	----	----	----	----	----	----	0.089
26.00	0.000	123.56	0.088	----	----	----	----	----	----	----	----	0.088
26.17	0.000	123.56	0.087	----	----	----	----	----	----	----	----	0.088
26.33	0.000	123.56	0.087	----	----	----	----	----	----	----	----	0.087
26.50	0.000	123.56	0.087	----	----	----	----	----	----	----	----	0.087
26.67	0.000	123.56	0.086	----	----	----	----	----	----	----	----	0.087
26.83	0.000	123.56	0.086	----	----	----	----	----	----	----	----	0.086

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
25.67	0.000	123.56	0.085	----	----	----	----	----	----	----	----	0.085
25.83	0.000	123.56	0.085	----	----	----	----	----	----	----	----	0.085
26.00	0.000	123.55	0.084	----	----	----	----	----	----	----	----	0.084
26.17	0.000	123.55	0.083	----	----	----	----	----	----	----	----	0.083
26.33	0.000	123.55	0.083	----	----	----	----	----	----	----	----	0.083
26.50	0.000	123.55	0.082	----	----	----	----	----	----	----	----	0.082
26.67	0.000	123.55	0.081	----	----	----	----	----	----	----	----	0.081
26.83	0.000	123.54	0.081	----	----	----	----	----	----	----	----	0.081
27.00	0.000	123.54	0.080	----	----	----	----	----	----	----	----	0.080
27.17	0.000	123.54	0.080	----	----	----	----	----	----	----	----	0.080
27.33	0.000	123.54	0.079	----	----	----	----	----	----	----	----	0.079
27.50	0.000	123.54	0.078	----	----	----	----	----	----	----	----	0.078
27.67	0.000	123.54	0.078	----	----	----	----	----	----	----	----	0.078
27.83	0.000	123.53	0.077	----	----	----	----	----	----	----	----	0.077
28.00	0.000	123.53	0.076	----	----	----	----	----	----	----	----	0.076
28.17	0.000	123.53	0.076	----	----	----	----	----	----	----	----	0.076
28.33	0.000	123.53	0.075	----	----	----	----	----	----	----	----	0.075
28.50	0.000	123.53	0.075	----	----	----	----	----	----	----	----	0.075
28.67	0.000	123.53	0.074	----	----	----	----	----	----	----	----	0.074
28.83	0.000	123.52	0.073	----	----	----	----	----	----	----	----	0.073
29.00	0.000	123.52	0.073	----	----	----	----	----	----	----	----	0.073
29.17	0.000	123.52	0.072	----	----	----	----	----	----	----	----	0.072
29.33	0.000	123.52	0.072	----	----	----	----	----	----	----	----	0.072
29.50	0.000	123.52	0.071	----	----	----	----	----	----	----	----	0.071
29.67	0.000	123.52	0.071	----	----	----	----	----	----	----	----	0.071
29.83	0.000	123.51	0.070	----	----	----	----	----	----	----	----	0.070
30.00	0.000	123.51	0.070	----	----	----	----	----	----	----	----	0.070
30.17	0.000	123.51	0.069	----	----	----	----	----	----	----	----	0.069
30.33	0.000	123.51	0.068	----	----	----	----	----	----	----	----	0.068
30.50	0.000	123.51	0.068	----	----	----	----	----	----	----	----	0.068
30.67	0.000	123.51	0.067	----	----	----	----	----	----	----	----	0.067
30.83	0.000	123.50	0.066	----	----	----	----	----	----	----	----	0.066
31.00	0.000	123.50	0.065	----	----	----	----	----	----	----	----	0.065
31.17	0.000	123.50	0.065	----	----	----	----	----	----	----	----	0.065
31.33	0.000	123.50	0.064	----	----	----	----	----	----	----	----	0.064
31.50	0.000	123.50	0.063	----	----	----	----	----	----	----	----	0.063
31.67	0.000	123.50	0.063	----	----	----	----	----	----	----	----	0.063
31.83	0.000	123.50	0.062	----	----	----	----	----	----	----	----	0.062
32.00	0.000	123.49	0.061	----	----	----	----	----	----	----	----	0.061
32.17	0.000	123.49	0.061	----	----	----	----	----	----	----	----	0.061
32.33	0.000	123.49	0.060	----	----	----	----	----	----	----	----	0.060
32.50	0.000	123.49	0.059	----	----	----	----	----	----	----	----	0.059
32.67	0.000	123.49	0.059	----	----	----	----	----	----	----	----	0.059
32.83	0.000	123.49	0.058	----	----	----	----	----	----	----	----	0.058
33.00	0.000	123.49	0.058	----	----	----	----	----	----	----	----	0.058
33.17	0.000	123.48	0.057	----	----	----	----	----	----	----	----	0.057
33.33	0.000	123.48	0.056	----	----	----	----	----	----	----	----	0.056
33.50	0.000	123.48	0.056	----	----	----	----	----	----	----	----	0.056
33.67	0.000	123.48	0.055	----	----	----	----	----	----	----	----	0.055
33.83	0.000	123.48	0.055	----	----	----	----	----	----	----	----	0.055
34.00	0.000	123.48	0.054	----	----	----	----	----	----	----	----	0.054
34.17	0.000	123.48	0.054	----	----	----	----	----	----	----	----	0.054
34.33	0.000	123.48	0.053	----	----	----	----	----	----	----	----	0.053
34.50	0.000	123.48	0.052	----	----	----	----	----	----	----	----	0.052

Hydrograph Discharge Table

Time (hrs)	Inflow cfs	Elevation ft	Clv A cfs	Clv B cfs	Clv C cfs	PfRsr cfs	Wr A cfs	Wr B cfs	Wr C cfs	Wr D cfs	Exfil cfs	Outflow cfs
34.67	0.000	123.47	0.052	----	----	----	----	----	----	----	----	0.052
34.83	0.000	123.47	0.051	----	----	----	----	----	----	----	----	0.051
35.00	0.000	123.47	0.051	----	----	----	----	----	----	----	----	0.051
35.17	0.000	123.47	0.050	----	----	----	----	----	----	----	----	0.050
35.33	0.000	123.47	0.050	----	----	----	----	----	----	----	----	0.050
35.50	0.000	123.47	0.049	----	----	----	----	----	----	----	----	0.049
35.67	0.000	123.47	0.049	----	----	----	----	----	----	----	----	0.049
35.83	0.000	123.47	0.048	----	----	----	----	----	----	----	----	0.048
36.00	0.000	123.46	0.048	----	----	----	----	----	----	----	----	0.048
36.17	0.000	123.46	0.047	----	----	----	----	----	----	----	----	0.047
36.33	0.000	123.46	0.047	----	----	----	----	----	----	----	----	0.047
36.50	0.000	123.46	0.046	----	----	----	----	----	----	----	----	0.046
36.67	0.000	123.46	0.046	----	----	----	----	----	----	----	----	0.046
36.83	0.000	123.46	0.045	----	----	----	----	----	----	----	----	0.045
37.00	0.000	123.46	0.045	----	----	----	----	----	----	----	----	0.045
37.17	0.000	123.46	0.044	----	----	----	----	----	----	----	----	0.044
37.33	0.000	123.46	0.044	----	----	----	----	----	----	----	----	0.044
37.50	0.000	123.46	0.043	----	----	----	----	----	----	----	----	0.043
37.67	0.000	123.45	0.043	----	----	----	----	----	----	----	----	0.043
37.83	0.000	123.45	0.042	----	----	----	----	----	----	----	----	0.042
38.00	0.000	123.45	0.042	----	----	----	----	----	----	----	----	0.042
38.17	0.000	123.45	0.041	----	----	----	----	----	----	----	----	0.041
38.33	0.000	123.45	0.041	----	----	----	----	----	----	----	----	0.041
38.50	0.000	123.45	0.041	----	----	----	----	----	----	----	----	0.041
38.67	0.000	123.45	0.040	----	----	----	----	----	----	----	----	0.040
38.83	0.000	123.45	0.040	----	----	----	----	----	----	----	----	0.040
39.00	0.000	123.45	0.039	----	----	----	----	----	----	----	----	0.039
39.17	0.000	123.45	0.039	----	----	----	----	----	----	----	----	0.039
39.33	0.000	123.45	0.038	----	----	----	----	----	----	----	----	0.038
39.50	0.000	123.44	0.038	----	----	----	----	----	----	----	----	0.038
39.67	0.000	123.44	0.038	----	----	----	----	----	----	----	----	0.038
39.83	0.000	123.44	0.037	----	----	----	----	----	----	----	----	0.037
40.00	0.000	123.44	0.037	----	----	----	----	----	----	----	----	0.037
40.17	0.000	123.44	0.036	----	----	----	----	----	----	----	----	0.036
40.33	0.000	123.44	0.036	----	----	----	----	----	----	----	----	0.036
40.50	0.000	123.44	0.036	----	----	----	----	----	----	----	----	0.036
40.67	0.000	123.44	0.035	----	----	----	----	----	----	----	----	0.035
40.83	0.000	123.44	0.035	----	----	----	----	----	----	----	----	0.035
41.00	0.000	123.44	0.035	----	----	----	----	----	----	----	----	0.035
41.17	0.000	123.44	0.035	----	----	----	----	----	----	----	----	0.035
41.33	0.000	123.44	0.034	----	----	----	----	----	----	----	----	0.034

...End