Stormwater Management System Report
Addendum 1

LOGAL, LLC

PROPOSED SITE IMPROVEMENTS

100 DUCHAINE BOULEVARD
NEW BEDFORD, MASSACHUSETTS

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Project No. 1998

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Section 1

Hydrologic Overview

1.0 HYDROLOGIC OVERVIEW

1.1 Purpose of Addendum

The purpose of this Addendum is to address a revision to the re-development program for the proposed site. We have revised the layout of the proposed paved loading area to better accommodate turning maneuvers of the trucks accessing the loading docks. This has required us to eliminate one of the bioretention areas previously proposed and replace that with a subsurface detention system. Any updated Post-Development Hydrologic Summary and comparison with the previously submitted Pre-Development Analysis is included in the following sections.

1.3 Pre-Development Hydrologic Summary

A summary of the pre development hydrologic conditions for the 2, 10, 25, and 100-year storm events is submitted in Table 1.3 below. These numbers remain unchanged from the previous submittal.

Table 1.3 – Pre Development Hydrologic Summary

Storm Event	Analysis Point AP-1 Rate of Flow (c.f.s.)	Analysis Point AP-2 Rate of Flow (c.f.s.)	Analysis Point AP-3 Rate of Flow (c.f.s.)	Analysis Point AP-4 Rate of Flow (c.f.s.)	Analysis Point AP-5 Rate of Flow (c.f.s.)
2-year storm	2.62	2.60	11.36	3.22	7.68
10-year storm	3.65	4.55	17.17	5.17	11.35
25-year storm	4.28	5.81	20.74	6.39	13.60
100-year storm	5.39	8.07	26.96	8.55	17.50

1.4 Post Development Hydrologic Summary

In the developed condition, the site is now comprised of eight (8) watershed areas as shown on the attached Post Development Watershed Plan. The designated post development analysis points correspond to the previously described pre development analysis points. The watershed designations and corresponding analysis points for each of the post development watersheds are as follows:

- Subcatchment POST 1 is a 1.89 acre portion of the overall watershed area consisting of a proposed gravel trailer parking lot and grassed area abutting the access drive. Stormwater run-off flows overland from the gravel lot to a rip rap waterway that discharges to a sediment forebay. The forebay is hydraulically connected to a bioretention area (Basin-1) which will discharge runoff at a controlled rate towards an existing bordering vegetated wetland system (WET-1) being considered Analysis Point 2 in the hydrologic calculations. (POST 1 remains unchanged from the Original Stormwater Management System Report)

- Subcatchment POST 1A is a 1.10 acre portion of the overall watershed area which consists of existing grass and wooded areas which will continue to flow unattenuated towards the existing bordering vegetated

wetland (WET-1) being considered Analysis Point 1 in the hydrologic calculations. (POST 1A remains unchanged from the Original Stormwater Management System Report)

- Subcatchment POST 2 is now a 1.30 acre portion of the overall watershed area consisting of the new loading dock area and access driveways that will flow through a subsurface detention system prior to discharge at a controlled rate to Analysis Point 3.

- NEW Subcatchment POST 2A is 2.32 acre portion of the overall watershed area consisting a portion of the existing roof area and smaller areas surrounding the existing building that will continue to flow via an existing 24" drainage line to Analysis Point 3.

- Subcatchment POST 3 is a 0.68 acre portion of the overall watershed area consisting of the existing paved loading area and associated landscaped areas that will now flow through a proposed bioretention area prior to discharge at a controlled rate to an existing bordering vegetated wetland system (WET-2) being taken as Analysis Point 4 in the hydrologic calculations. (POST 3 remains unchanged from the Original Stormwater Management System Report)

- Subcatchment POST 3A is 1.09 acre portion of the overall watershed area consisting of the undeveloped areas surrounding the existing bordering vegetated wetland system (WET-2) that will continue to flow unattenuated towards the wetland being taken as Analysis Point 4 in the hydrologic calculations. (POST 3A remains unchanged from the Original Stormwater Management System Report)

- Subcatchment POST 4 is a 1.90 acre portion of the overall watershed area consisting of a portion of the remaining concrete slab, the new paved parking area and existing paved access driveways that will now flow through a proposed sediment forebay and bioretention area prior to discharging at a controlled rate to another existing bordering vegetated wetland system (WET-3), being taken as Analysis Point 5 in the hydrologic calculations. (POST 4 remains unchanged from the Original Stormwater Management System Report)

- Subcatchment POST 4A is a 0.82 acre portion of the overall watershed area consisting of portions of the existing paved access drive, and vegetated areas surrounding an existing bordering vegetated wetland system (WET-3), which will continue to flow unattenuated towards the wetland. (POST 4A remains unchanged from the Original Stormwater Management System Report)

A summary of the post-development hydrologic conditions for the 2, 10, 25, and 100-year storm events is submitted in Table 1.4 below.

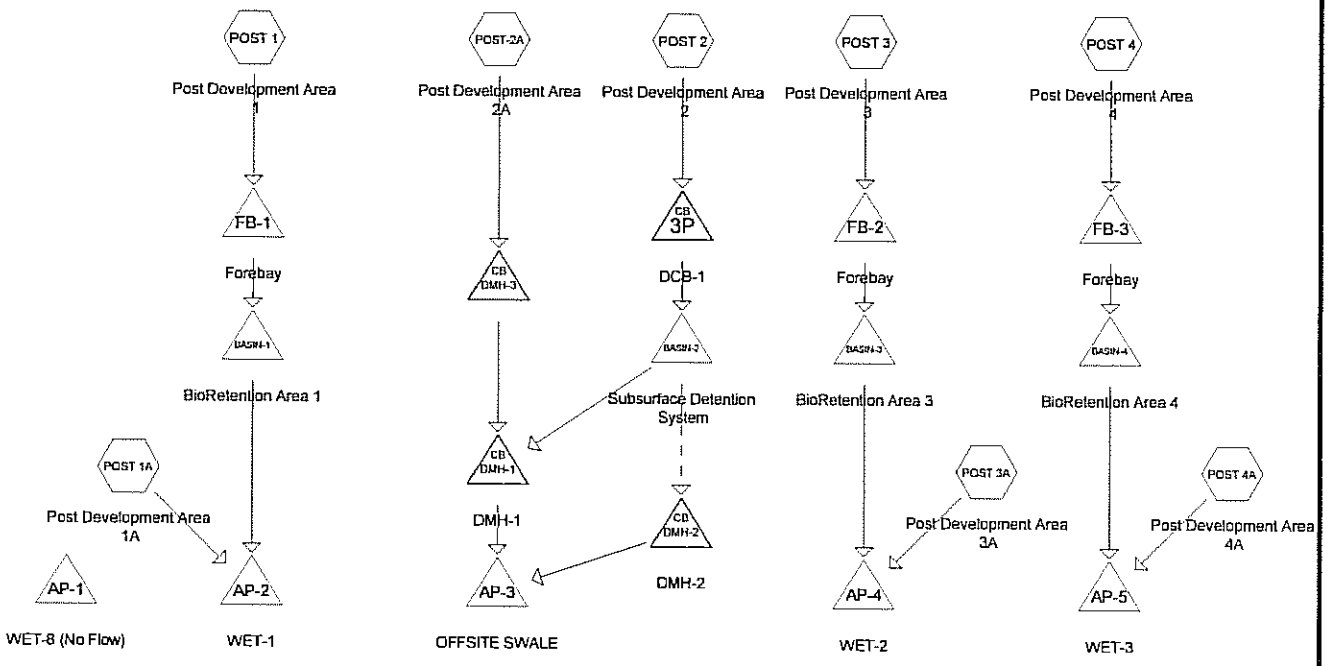
Table 1.4 – Post Development Hydrologic Summary

Storm Event	Analysis Point AP-1 Rate of Flow (c.f.s.)	Analysis Point AP-2 Rate of Flow (c.f.s.)	Analysis Point AP-3 Rate of Flow (c.f.s.)	Analysis Point AP-4 Rate of Flow (c.f.s.)	Analysis Point AP-5 Rate of Flow (c.f.s.)
2-year storm	N/A	1.19	7.92	2.07	6.49
10-year storm	N/A	2.38	11.64	3.73	9.70
25-year storm	N/A	3.07	13.85	4.85	11.47
100-year storm	N/A	7.54	18.06	8.03	15.33

The hydrologic analysis indicates that the stormwater management system design for the site meets or reduces peak runoff rates for the 2, 10, 25, and 100 year, 24 hour, Type III storm events from the pre developed levels at the subject analysis points. The analysis shows that the proposed re-development of this project area will not result in an increase in the rates of runoff to the respective analysis points.

Section 2

Updated Post Development Hydrologic Analysis



Subcat Reach Pond Link

Routing Diagram for 1998-POST-WS-TEST-SUBSURFACE POND 2
Prepared by Field Engineering Co. Inc., Printed 5/21/2014

Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1: Post Development Runoff Area=81,936 sf 4.31% Impervious Runoff Depth=2.02"
Tc=6.0 min CN=85 Runoff=4.45 cfs 13,768 cf

Subcatchment POST 1A: Post Development Runoff Area=47,737 sf 0.00% Impervious Runoff Depth=1.01"
Tc=6.0 min CN=70 Runoff=1.19 cfs 4,010 cf

Subcatchment POST 2: Post Development Runoff Area=56,802 sf 85.28% Impervious Runoff Depth=2.94"
Tc=6.0 min CN=95 Runoff=4.22 cfs 13,912 cf

Subcatchment POST 3: Post Development Runoff Area=29,735 sf 63.13% Impervious Runoff Depth=2.36"
Tc=6.0 min CN=89 Runoff=1.87 cfs 5,841 cf

Subcatchment POST 3A: Post Runoff Area=47,475 sf 35.05% Impervious Runoff Depth=1.64"
Tc=6.0 min CN=80 Runoff=2.08 cfs 6,474 cf

Subcatchment POST 4: Post Development Runoff Area=82,787 sf 85.50% Impervious Runoff Depth=2.94"
Tc=6.0 min CN=95 Runoff=6.16 cfs 20,276 cf

Subcatchment POST 4A: Post Runoff Area=35,765 sf 10.20% Impervious Runoff Depth=1.18"
Tc=6.0 min CN=73 Runoff=1.08 cfs 3,516 cf

Subcatchment POST-2A: Post Runoff Area=77,418 sf 100.00% Impervious Runoff Depth=3.27"
Tc=6.0 min CN=98 Runoff=6.05 cfs 21,074 cf

Pond 3P: DCB-1 Peak Elev=76.89' Inflow=4.22 cfs 13,912 cf
12.0" Round Culvert x 2.00 n=0.013 L=6.0' S=0.0133 '/' Outflow=4.22 cfs 13,912 cf

Pond AP-1: WET-8 (No Flow)
Primary=0.00 cfs 0 cf

Pond AP-2: WET-1 Inflow=1.19 cfs 5,694 cf
Primary=1.19 cfs 5,694 cf

Pond AP-3: OFFSITE SWALE Inflow=7.92 cfs 33,878 cf
Primary=7.92 cfs 33,878 cf

Pond AP-4: WET-2 Inflow=2.20 cfs 11,324 cf
Primary=2.20 cfs 11,324 cf

Pond AP-5: WET-3 Inflow=6.49 cfs 19,286 cf
Primary=6.49 cfs 19,286 cf

Pond BASIN-1: BioRetention Area 1 Peak Elev=78.53' Storage=7,831 cf Inflow=3.93 cfs 9,328 cf
Outflow=0.08 cfs 1,684 cf

Pond BASIN-2: Subsurface Detention Peak Elev=76.63' Storage=4,187 cf Inflow=4.22 cfs 13,912 cf
Primary=1.42 cfs 7,558 cf Secondary=1.49 cfs 5,247 cf Outflow=2.90 cfs 12,804 cf

Pond BASIN-3: BioRetention Area 3 Peak Elev=76.55' Storage=2,089 cf Inflow=1.83 cfs 4,902 cf
Outflow=0.26 cfs 4,850 cf

Pond BASIN-4: BioRetention Area 4 Peak Elev=78.36' Storage=4,584 cf Inflow=6.06 cfs 19,003 cf
Outflow=5.48 cfs 15,770 cf

Pond DMH-1: DMH-1 Peak Elev=76.41' Inflow=6.70 cfs 28,631 cf
18.0" Round Culvert x 2.00 n=0.010 L=50.0' S=0.0044 '/' Outflow=6.70 cfs 28,631 cf

Pond DMH-2: DMH-2 Peak Elev=76.44' Inflow=1.49 cfs 5,247 cf
18.0" Round Culvert n=0.011 L=50.0' S=0.0074 '/' Outflow=1.49 cfs 5,247 cf

Pond DMH-3: Peak Elev=77.38' Inflow=6.05 cfs 21,074 cf
24.0" Round Culvert n=0.013 L=171.0' S=0.0040 '/' Outflow=6.05 cfs 21,074 cf

Pond FB-1: Forebay Peak Elev=78.53' Storage=4,523 cf Inflow=4.45 cfs 13,768 cf
Outflow=3.93 cfs 9,328 cf

Pond FB-2: Forebay Peak Elev=76.78' Storage=1,099 cf Inflow=1.87 cfs 5,841 cf
Outflow=1.83 cfs 4,902 cf

Pond FB-3: Forebay Peak Elev=78.46' Storage=1,475 cf Inflow=6.16 cfs 20,276 cf
Outflow=6.06 cfs 19,003 cf

Total Runoff Area = 459,655 sf Runoff Volume = 88,871 cf Average Runoff Depth = 2.32"
47.95% Pervious = 220,424 sf 52.05% Impervious = 239,231 sf

Summary for Subcatchment POST 1: Post Development Area 1

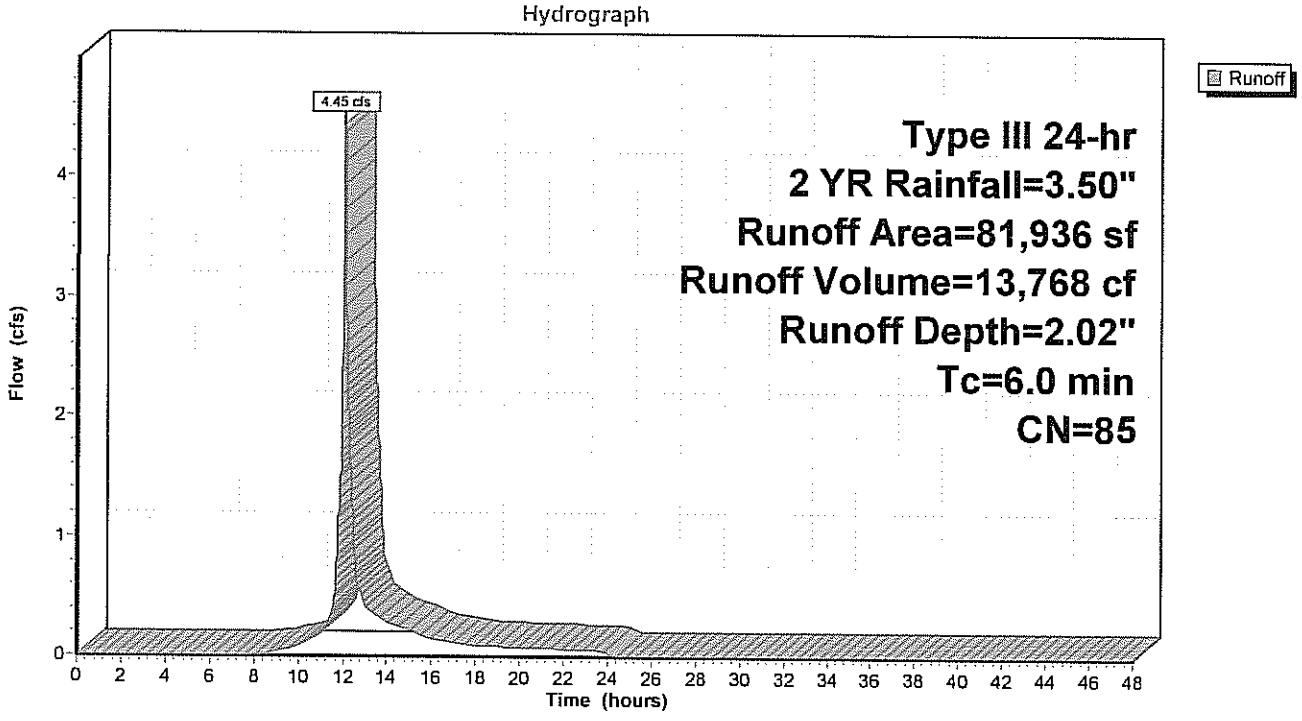
Runoff = 4.45 cfs @ 12.09 hrs, Volume= 13,768 cf, Depth= 2.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
51,749	89	Gravel roads, HSG C
3,528	98	Paved parking, HSG C
26,659	74	>75% Grass cover, Good, HSG C
81,936	85	Weighted Average
78,408		95.69% Pervious Area
3,528		4.31% Impervious Area

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

Subcatchment POST 1: Post Development Area 1



Summary for Subcatchment POST 1A: Post Development Area 1A

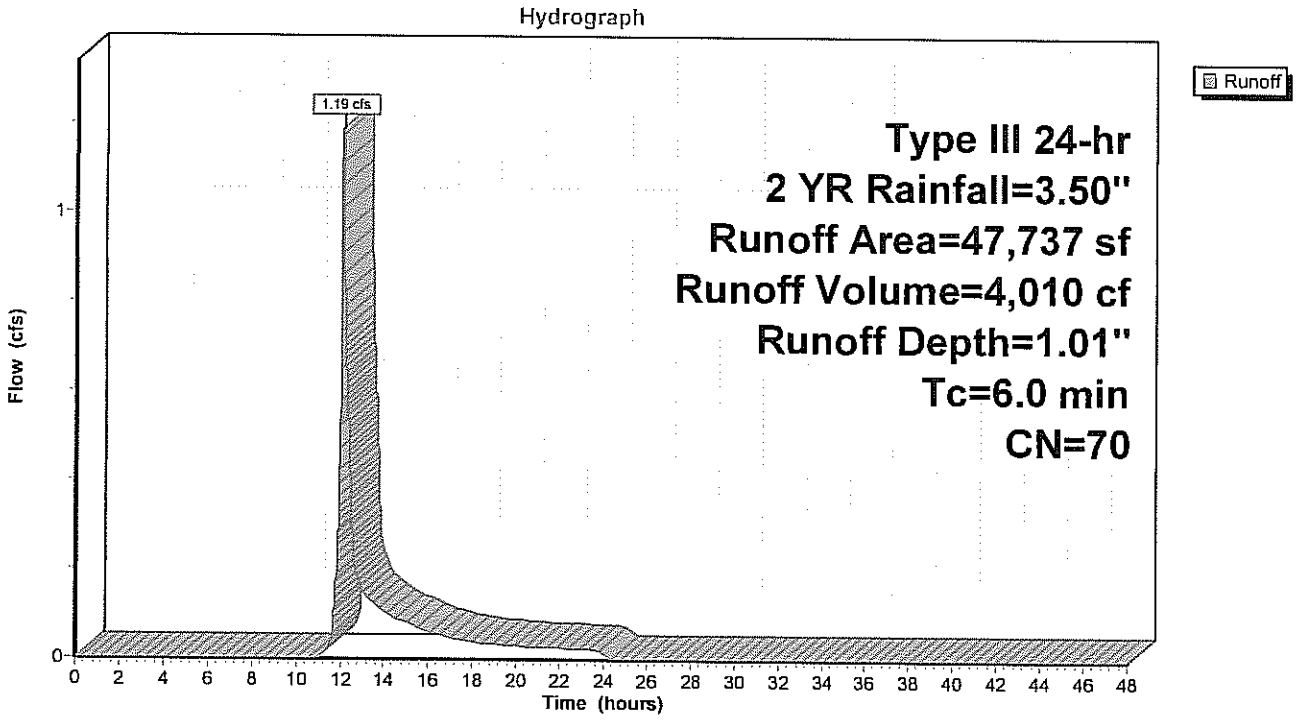
Runoff = 1.19 cfs @ 12.10 hrs, Volume= 4,010 cf, Depth= 1.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
942	89	Gravel roads, HSG C
46,795	70	Woods, Good, HSG C
47,737	70	Weighted Average
47,737		100.00% Pervious Area

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

Subcatchment POST 1A: Post Development Area 1A



Summary for Subcatchment POST 2: Post Development Area 2

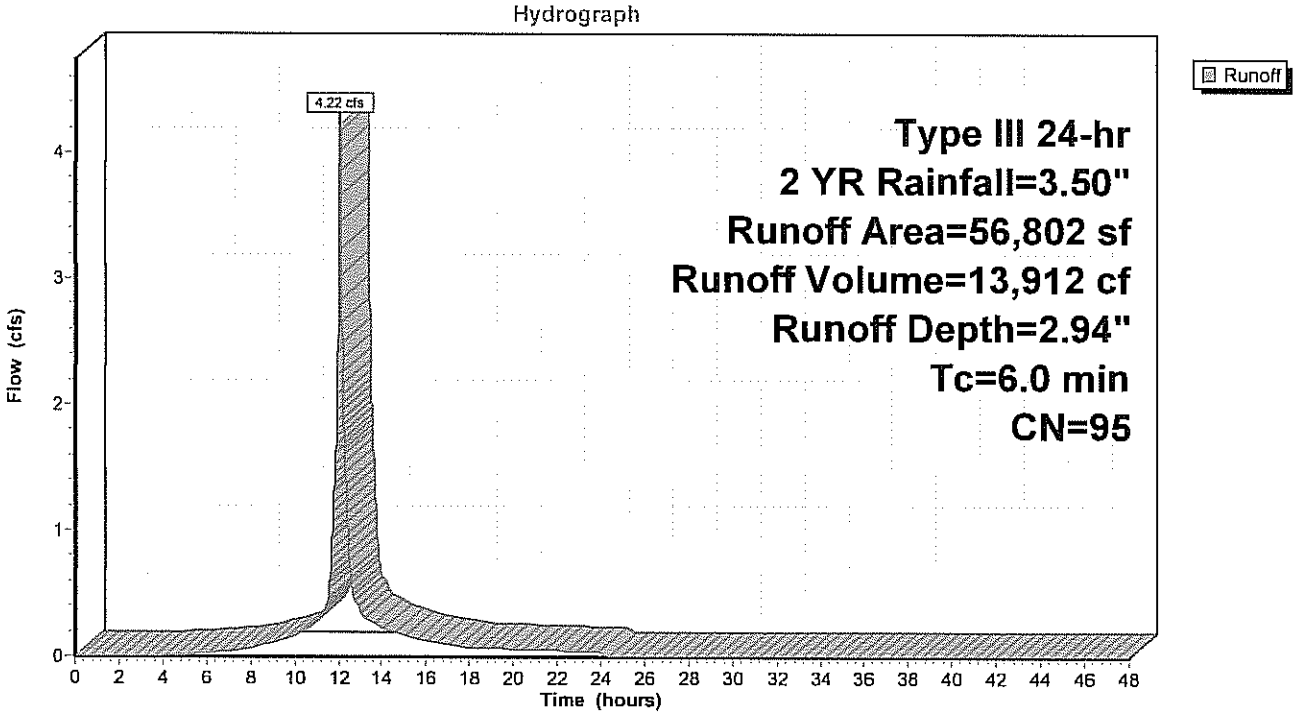
Runoff = 4.22 cfs @ 12.08 hrs, Volume= 13,912 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
48,439	98	Paved parking, HSG C
2,831	89	Gravel roads, HSG C
5,532	74	>75% Grass cover, Good, HSG C
56,802	95	Weighted Average
8,363		14.72% Pervious Area
48,439		85.28% Impervious Area

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

Subcatchment POST 2: Post Development Area 2



Summary for Subcatchment POST 3: Post Development Area 3

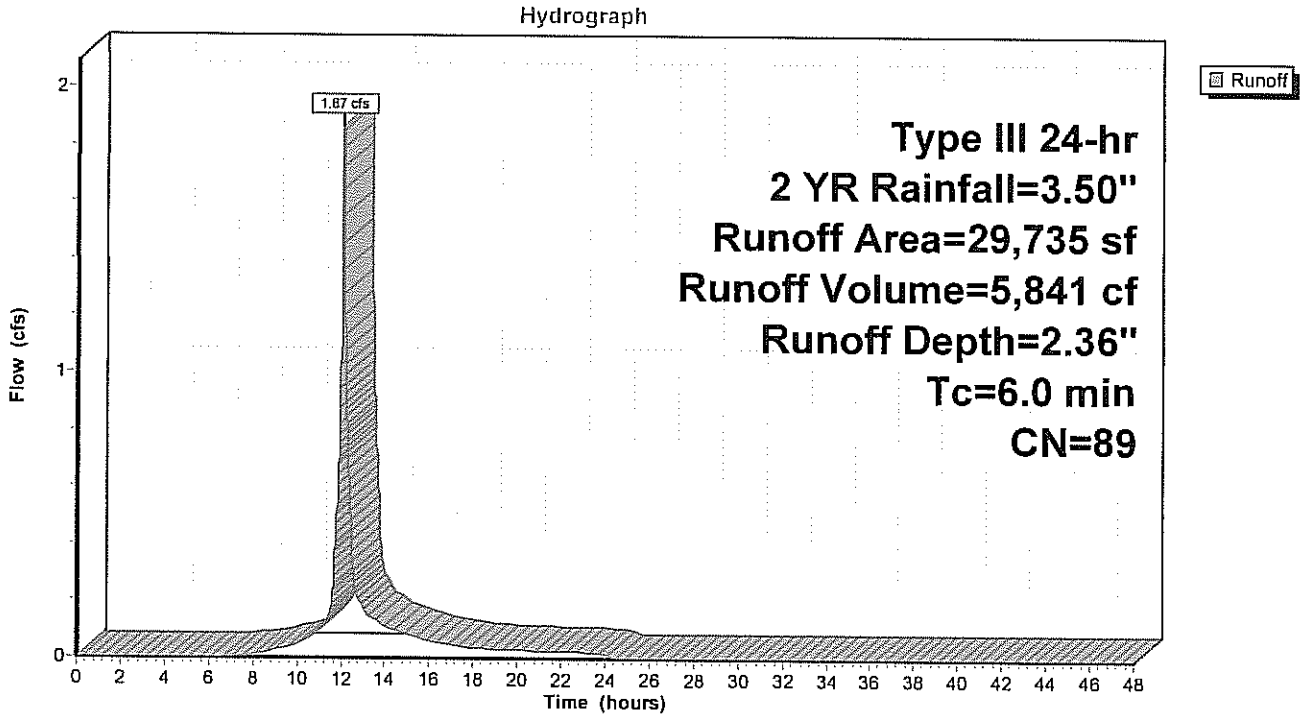
Runoff = 1.87 cfs @ 12.09 hrs, Volume= 5,841 cf, Depth= 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
18,773	98	Paved parking, HSG C
10,962	74	>75% Grass cover, Good, HSG C
29,735	89	Weighted Average
10,962		36.87% Pervious Area
18,773		63.13% Impervious Area

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

Subcatchment POST 3: Post Development Area 3



Summary for Subcatchment POST 3A: Post Development Area 3A

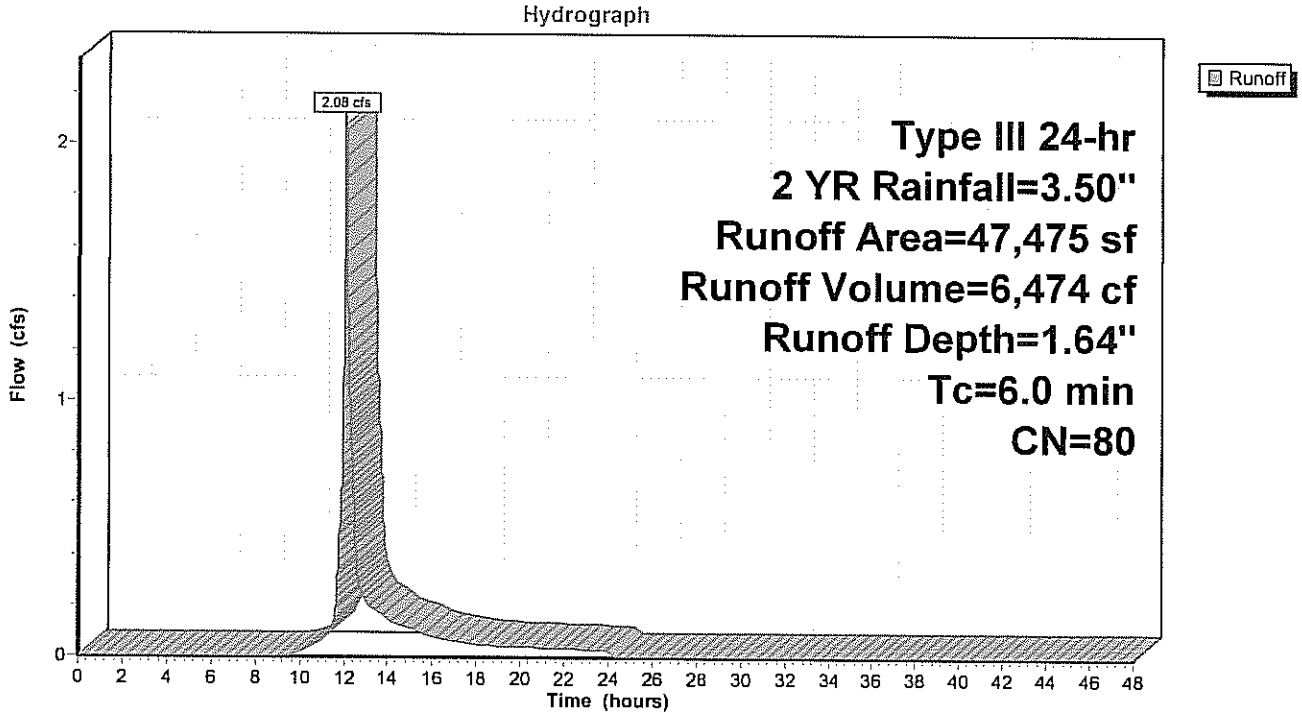
Runoff = 2.08 cfs @ 12.09 hrs, Volume= 6,474 cf, Depth= 1.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
14,950	98	Roofs, HSG C
1,689	98	Paved parking, HSG C
30,836	70	Woods, Good, HSG C
47,475	80	Weighted Average
30,836		64.95% Pervious Area
16,639		35.05% Impervious Area

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

Subcatchment POST 3A: Post Development Area 3A



Summary for Subcatchment POST 4: Post Development Area 4

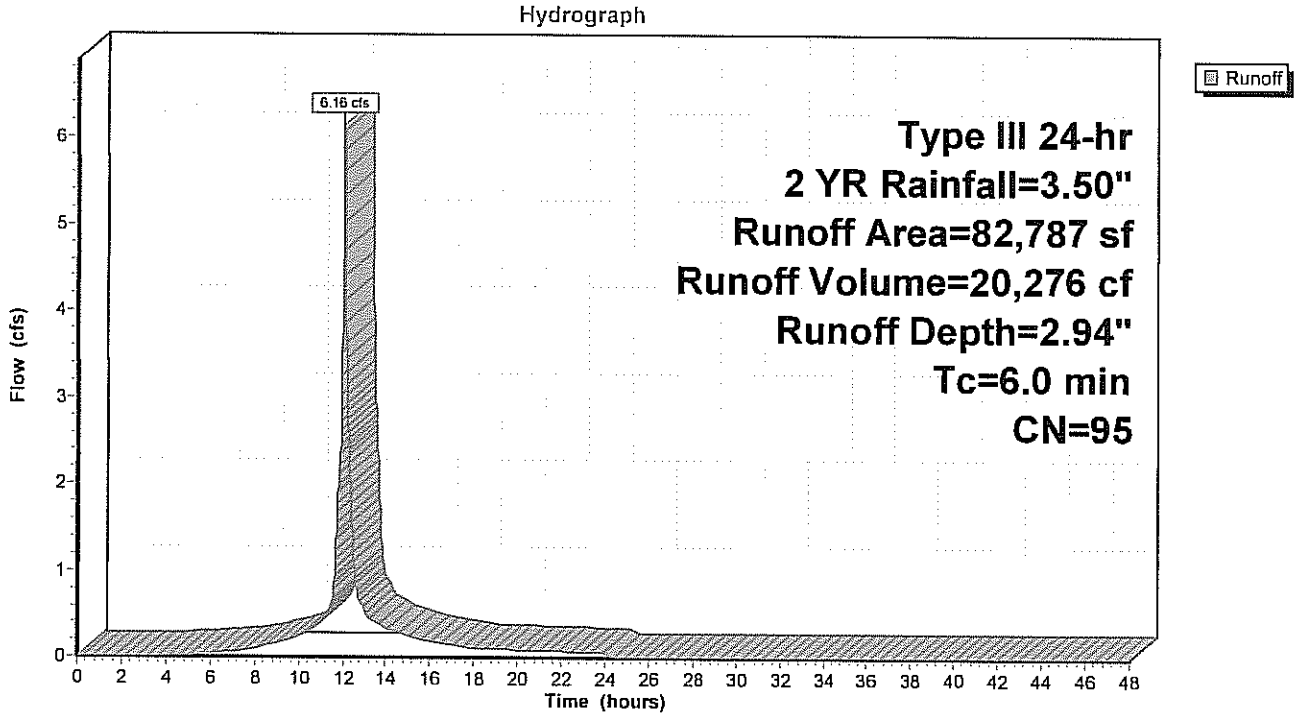
Runoff = 6.16 cfs @ 12.08 hrs, Volume= 20,276 cf, Depth= 2.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
70,785	98	Paved parking, HSG C
12,002	74	>75% Grass cover, Good, HSG C
82,787	95	Weighted Average
12,002		14.50% Pervious Area
70,785		85.50% Impervious Area

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

Subcatchment POST 4: Post Development Area 4



Summary for Subcatchment POST 4A: Post Development Area 4A

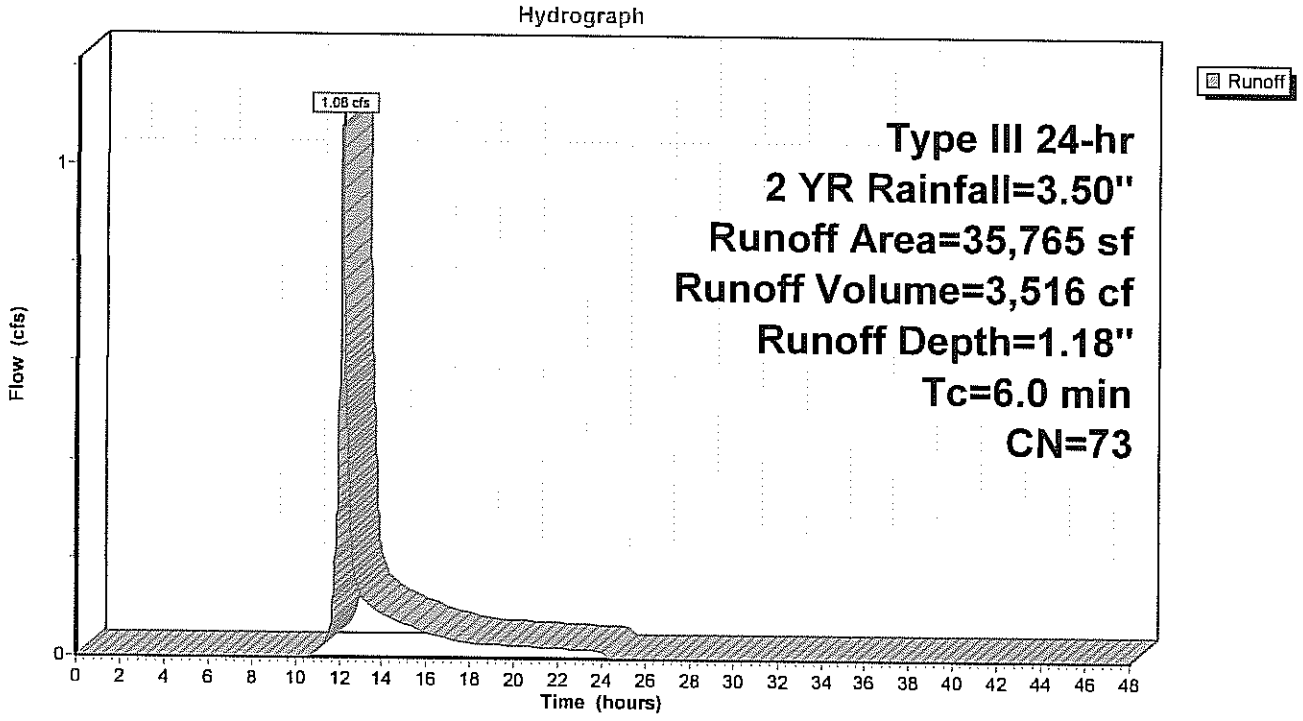
Runoff = 1.08 cfs @ 12.10 hrs, Volume= 3,516 cf, Depth= 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
32,116	70	Woods, Good, HSG C
3,649	98	Paved parking, HSG C
35,765	73	Weighted Average
32,116		89.80% Pervious Area
3,649		10.20% Impervious Area

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

Subcatchment POST 4A: Post Development Area 4A



Summary for Subcatchment POST-2A: Post Development Area 2A

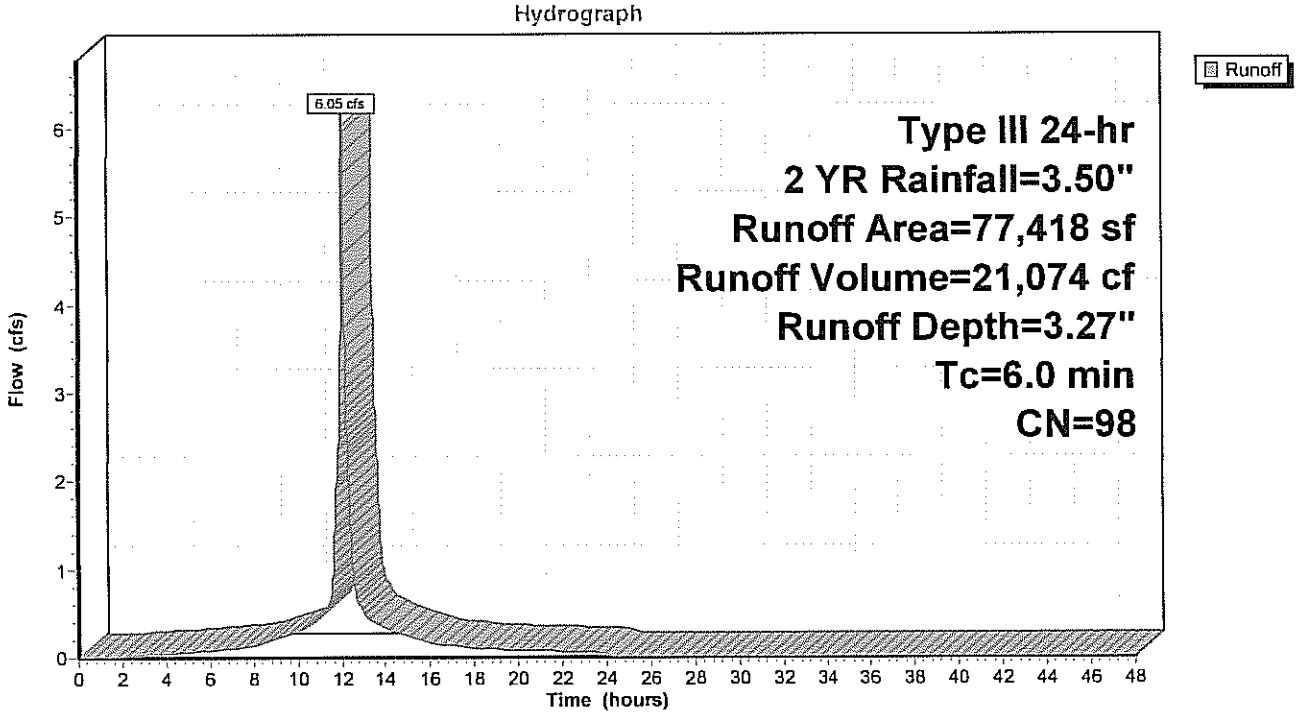
Runoff = 6.05 cfs @ 12.08 hrs, Volume= 21,074 cf, Depth= 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2 YR Rainfall=3.50"

Area (sf)	CN	Description
77,418	98	Roofs, HSG C
77,418		100.00% Impervious Area

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

Subcatchment POST-2A: Post Development Area 2A



Summary for Pond 3P: DCB-1

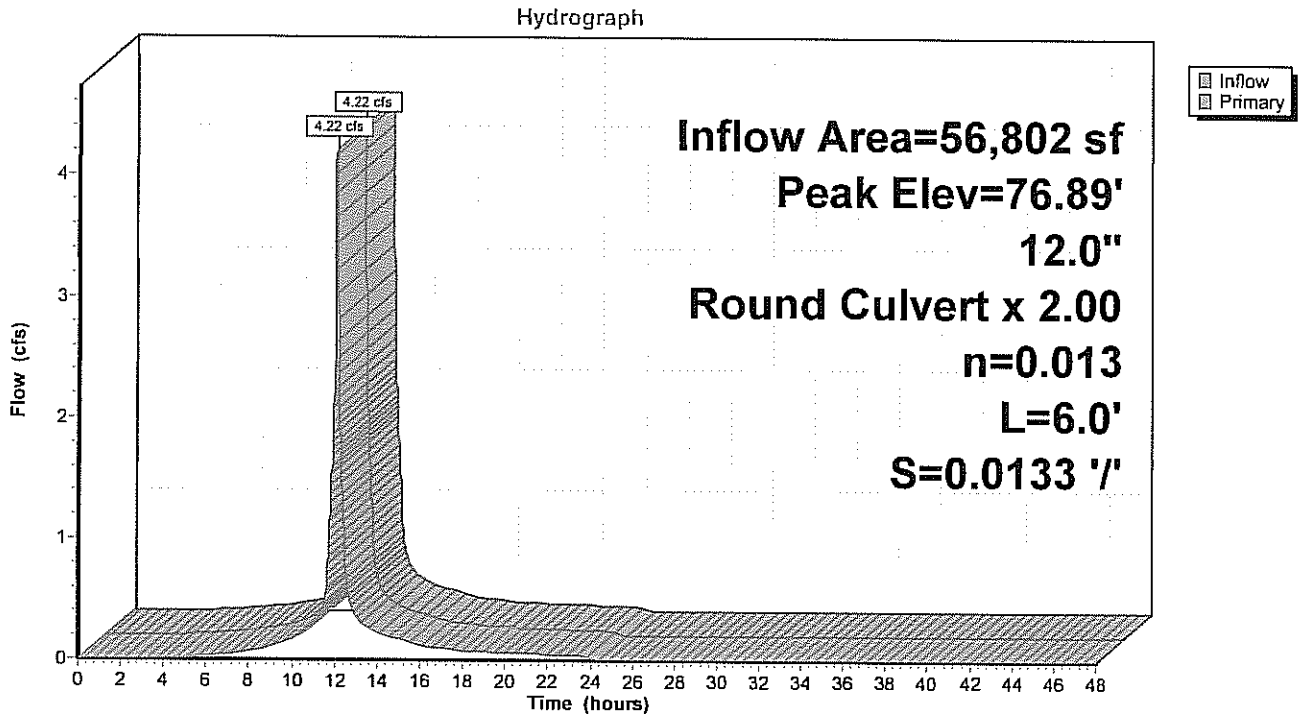
Inflow Area = 56,802 sf, 85.28% Impervious, Inflow Depth = 2.94" for 2 YR event
Inflow = 4.22 cfs @ 12.08 hrs, Volume= 13,912 cf
Outflow = 4.22 cfs @ 12.08 hrs, Volume= 13,912 cf, Atten= 0%, Lag= 0.0 min
Primary = 4.22 cfs @ 12.08 hrs, Volume= 13,912 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.89' @ 12.08 hrs
Flood Elev= 78.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	**12.0" Round Culvert X 2.00** L= 6.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.00' / 75.92' S= 0.0133 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=4.22 cfs @ 12.08 hrs HW=76.89' TW=76.52' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.22 cfs @ 3.79 fps)

Pond 3P: DCB-1

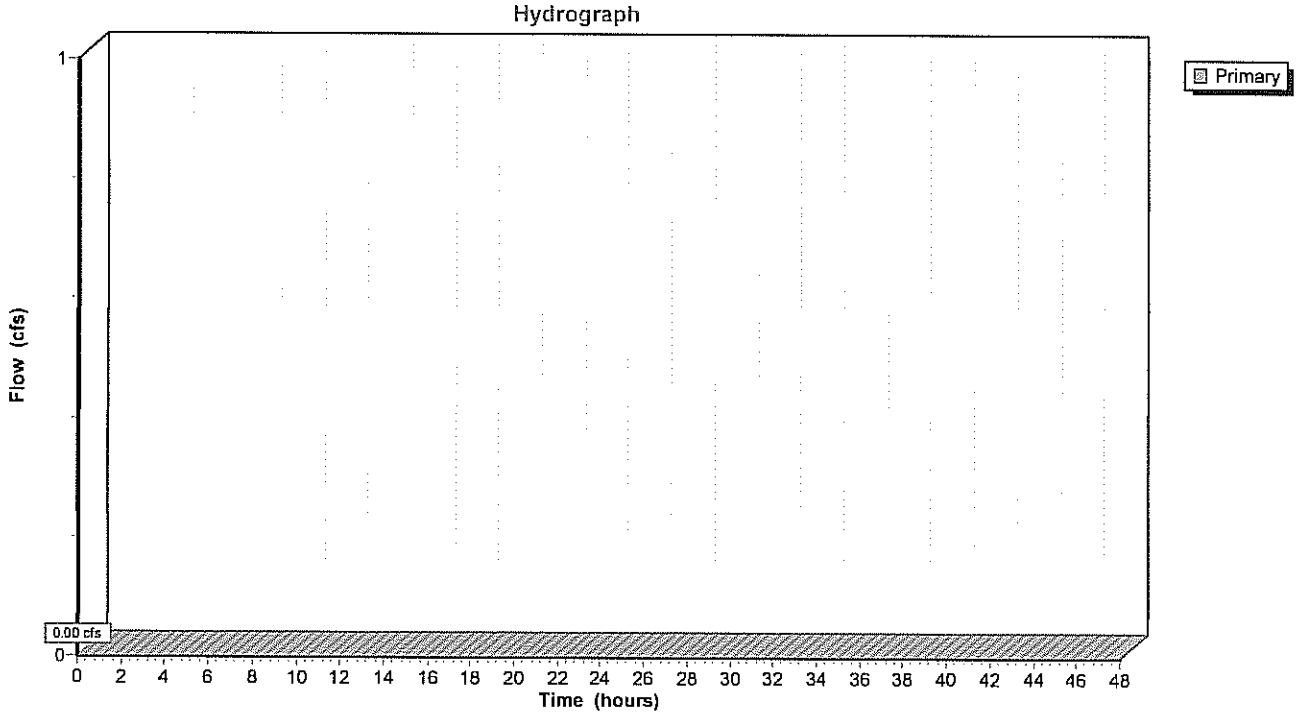


Summary for Pond AP-1: WET-8 (No Flow)

[40] Hint: Not Described (Outflow=Inflow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)

Pond AP-1: WET-8 (No Flow)



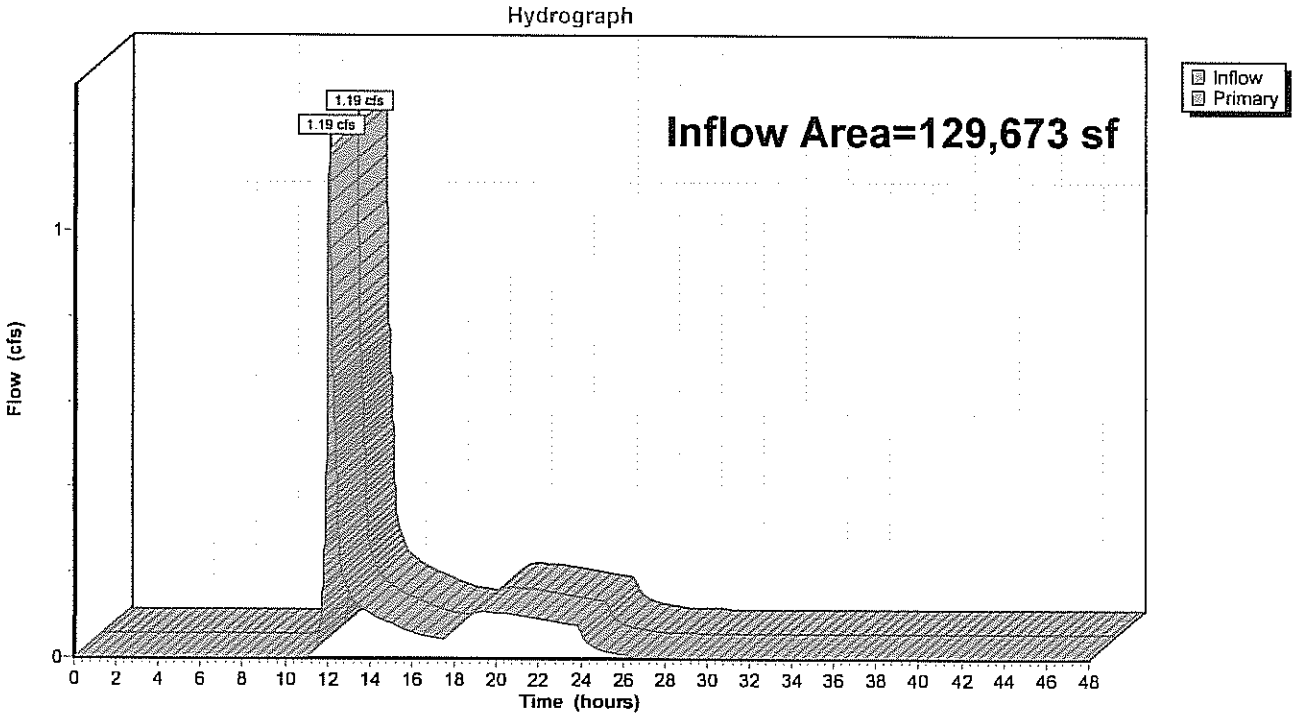
Summary for Pond AP-2: WET-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 129,673 sf, 2.72% Impervious, Inflow Depth = 0.53" for 2 YR event
Inflow = 1.19 cfs @ 12.10 hrs, Volume= 5,694 cf
Primary = 1.19 cfs @ 12.10 hrs, Volume= 5,694 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-2: WET-1



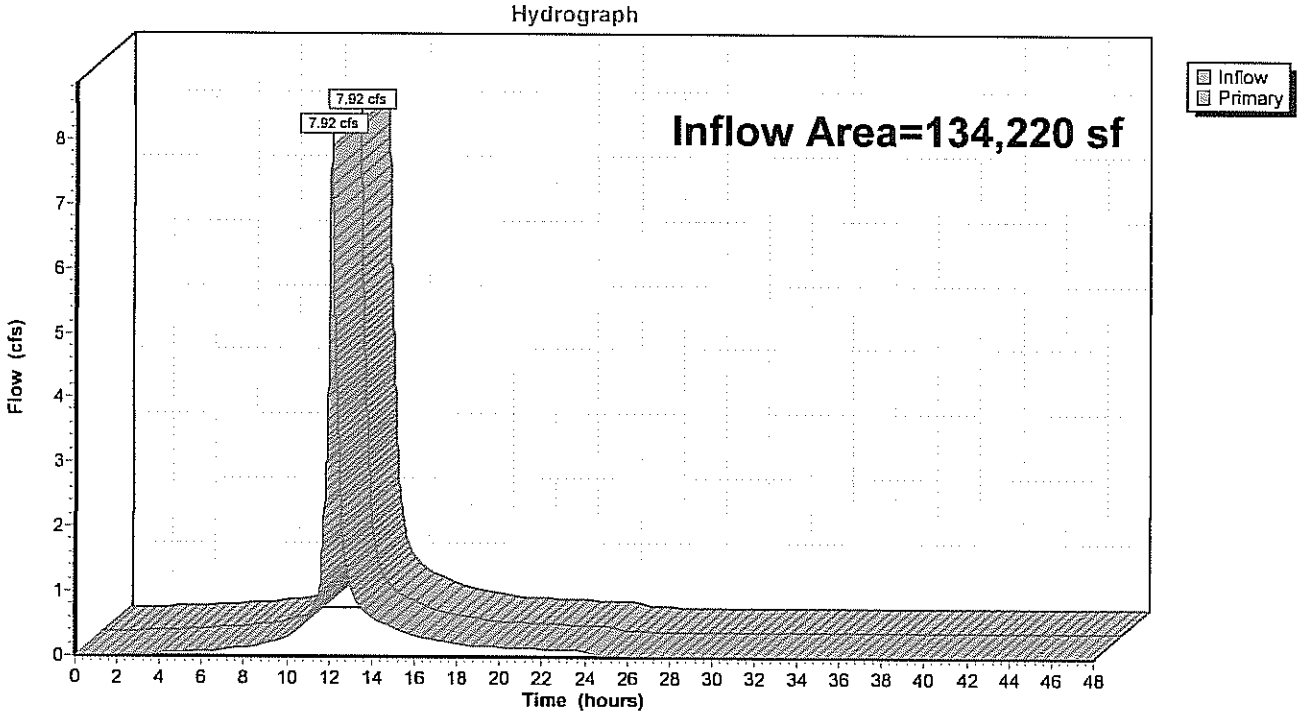
Summary for Pond AP-3: OFFSITE SWALE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 3.03" for 2 YR event
Inflow = 7.92 cfs @ 12.10 hrs, Volume= 33,878 cf
Primary = 7.92 cfs @ 12.10 hrs, Volume= 33,878 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-3: OFFSITE SWALE



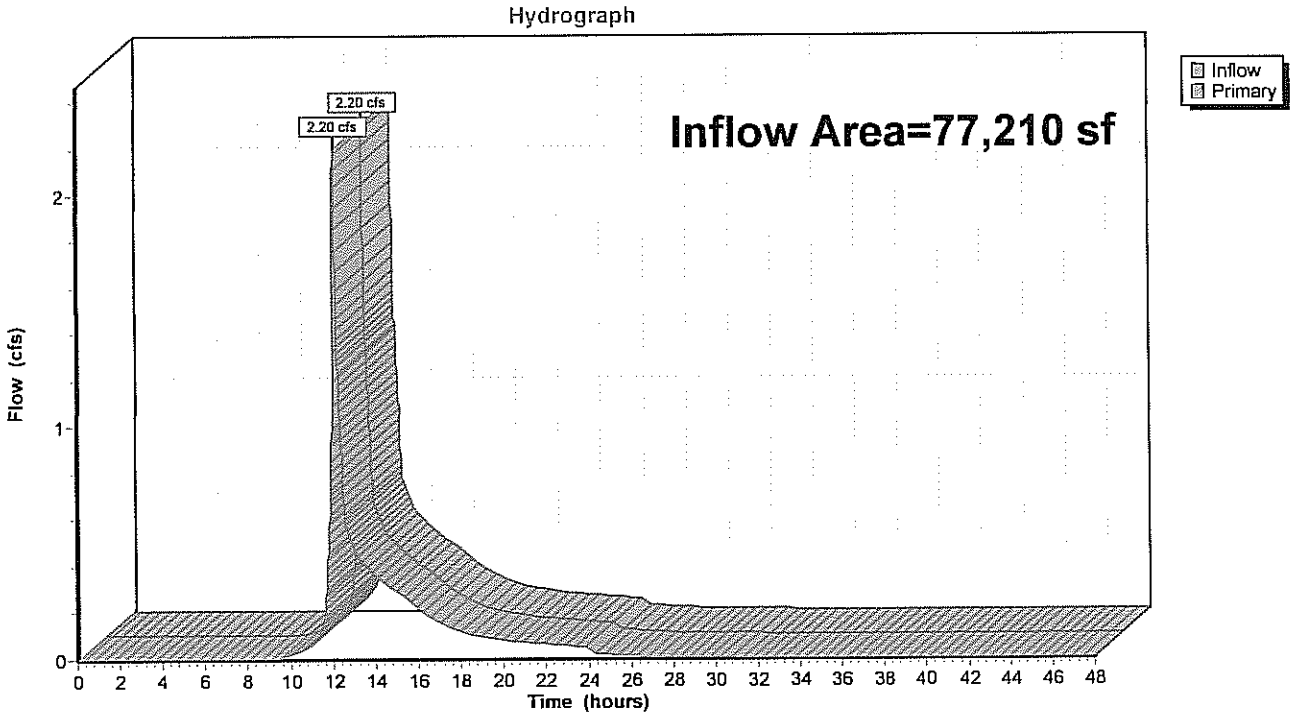
Summary for Pond AP-4: WET-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 77,210 sf, 45.86% Impervious, Inflow Depth > 1.76" for 2 YR event
Inflow = 2.20 cfs @ 12.09 hrs, Volume= 11,324 cf
Primary = 2.20 cfs @ 12.09 hrs, Volume= 11,324 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-4: WET-2



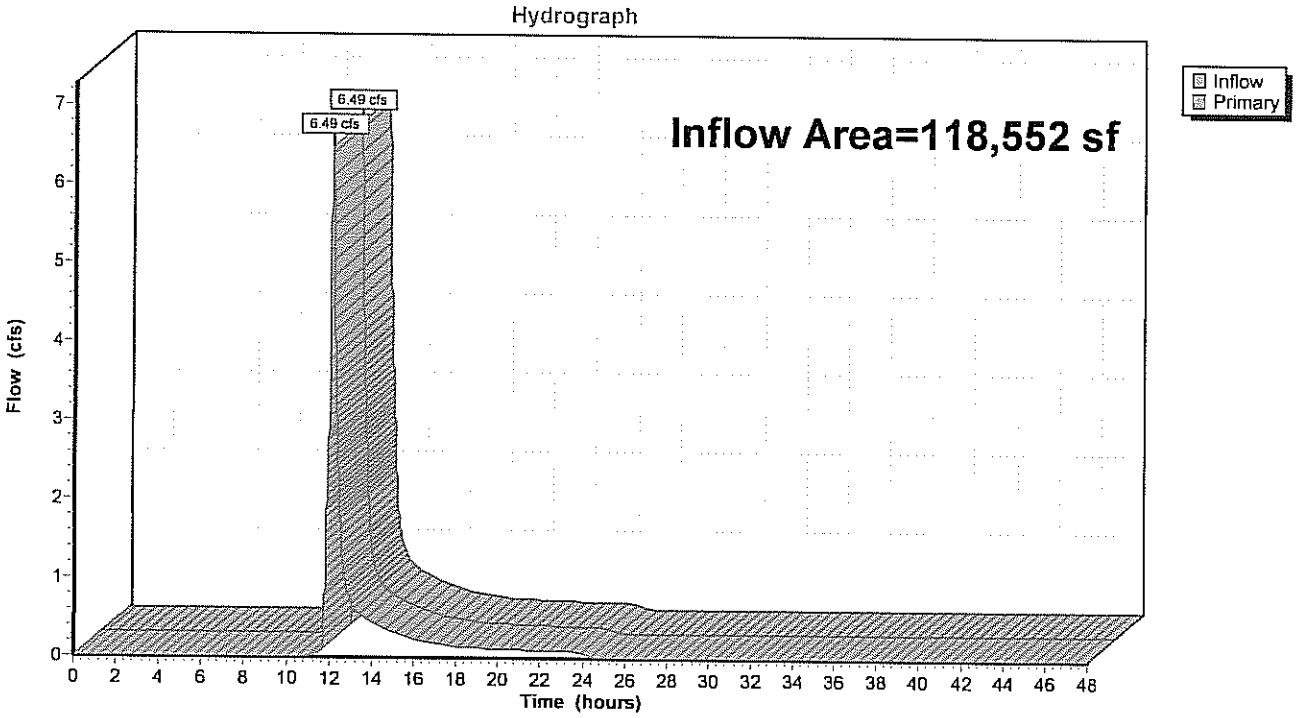
Summary for Pond AP-5: WET-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 118,552 sf, 62.79% Impervious, Inflow Depth = 1.95" for 2 YR event
Inflow = 6.49 cfs @ 12.12 hrs, Volume= 19,286 cf
Primary = 6.49 cfs @ 12.12 hrs, Volume= 19,286 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-5: WET-3



Summary for Pond BASIN-1: BioRetention Area 1

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 1.37" for 2 YR event
Inflow = 3.93 cfs @ 12.13 hrs, Volume= 9,328 cf
Outflow = 0.08 cfs @ 19.73 hrs, Volume= 1,684 cf, Atten= 98%, Lag= 456.0 min
Primary = 0.08 cfs @ 19.73 hrs, Volume= 1,684 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.53' @ 19.73 hrs Surf.Area= 5,834 sf Storage= 7,831 cf
Flood Elev= 80.00' Surf.Area= 7,310 sf Storage= 17,464 cf

Plug-Flow detention time= 567.1 min calculated for 1,684 cf (18% of inflow)
Center-of-Mass det. time= 424.4 min (1,294.5 - 870.1)

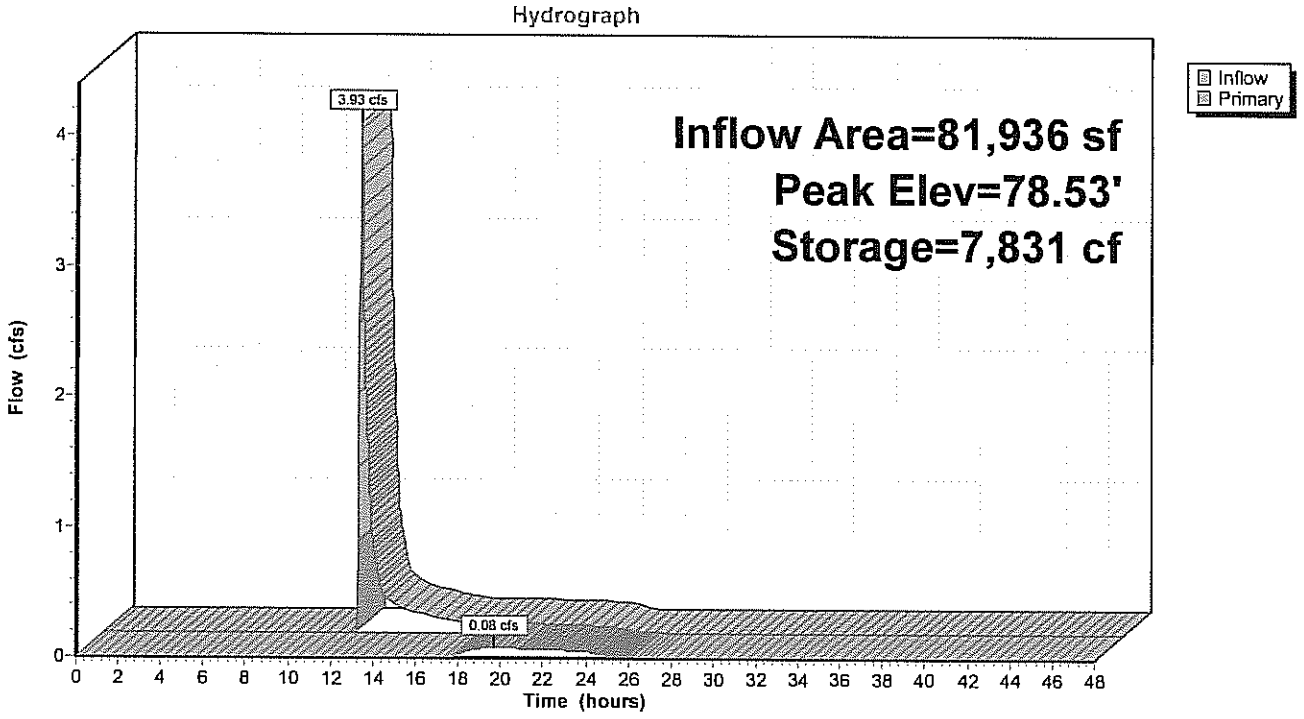
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	17,464 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	4,407	0	0
78.00	5,319	4,863	4,863
79.00	6,286	5,803	10,666
80.00	7,310	6,798	17,464

Device	Routing	Invert	Outlet Devices
#1	Primary	78.50'	**5.0' long x 25.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.08 cfs @ 19.73 hrs HW=78.53' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.08 cfs @ 0.48 fps)

Pond BASIN-1: BioRetention Area 1



Summary for Pond BASIN-2: Subsurface Detention System

Inflow Area =	56,802 sf,	85.28% Impervious,	Inflow Depth =	2.94"	for 2 YR event
Inflow =	4.22 cfs @	12.08 hrs, Volume=	13,912 cf		
Outflow =	2.90 cfs @	12.20 hrs, Volume=	12,804 cf,	Atten= 31%,	Lag= 6.8 min
Primary =	1.42 cfs @	12.21 hrs, Volume=	7,558 cf		
Secondary =	1.49 cfs @	12.18 hrs, Volume=	5,247 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.63' @ 12.17 hrs Surf.Area= 5,296 sf Storage= 4,187 cf
Flood Elev= 78.10' Surf.Area= 5,296 sf Storage= 6,011 cf

Plug-Flow detention time= 120.4 min calculated for 12,804 cf (92% of inflow)
Center-of-Mass det. time= 79.1 min (857.4 - 778.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.37'	3,201 cf	**68.33'W x 77.50'L x 2.04'H Field A** 10,812 cf Overall - 2,811 cf Embedded = 8,001 cf x 40.0% Voids
#2A	75.87'	2,811 cf	**Cultec C-100HD** x 200 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 20 rows
		6,011 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.42' S= 0.0090 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Secondary	75.87'	**18.0" Round Culvert** L= 24.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.87' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=1.42 cfs @ 12.21 hrs HW=76.61' TW=76.22' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 1.42 cfs @ 3.16 fps)

Secondary OutFlow Max=1.50 cfs @ 12.18 hrs HW=76.62' TW=76.44' (Dynamic Tailwater)
↑—**2=Culvert** (Outlet Controls 1.50 cfs @ 2.46 fps)

Pond BASIN-2: Subsurface Detention System - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)
Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
Row Length Adjustment= +0.50' x 1.86 sf x 20 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

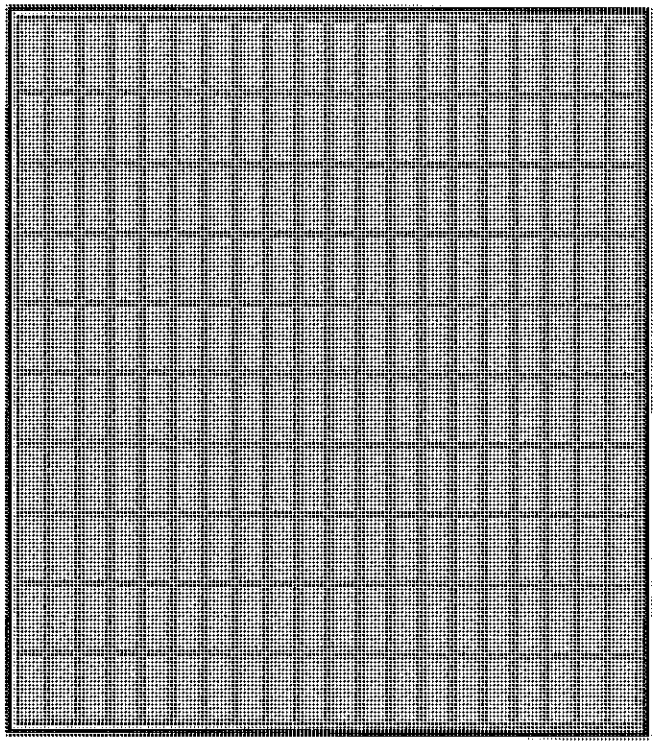
10 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 75.50' Row Length +12.0" End Stone x 2 = 77.50' Base Length
20 Rows x 36.0" Wide + 4.0" Spacing x 19 + 12.0" Side Stone x 2 = 68.33' Base Width
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

200 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 20 Rows = 2,810.9 cf Chamber Storage

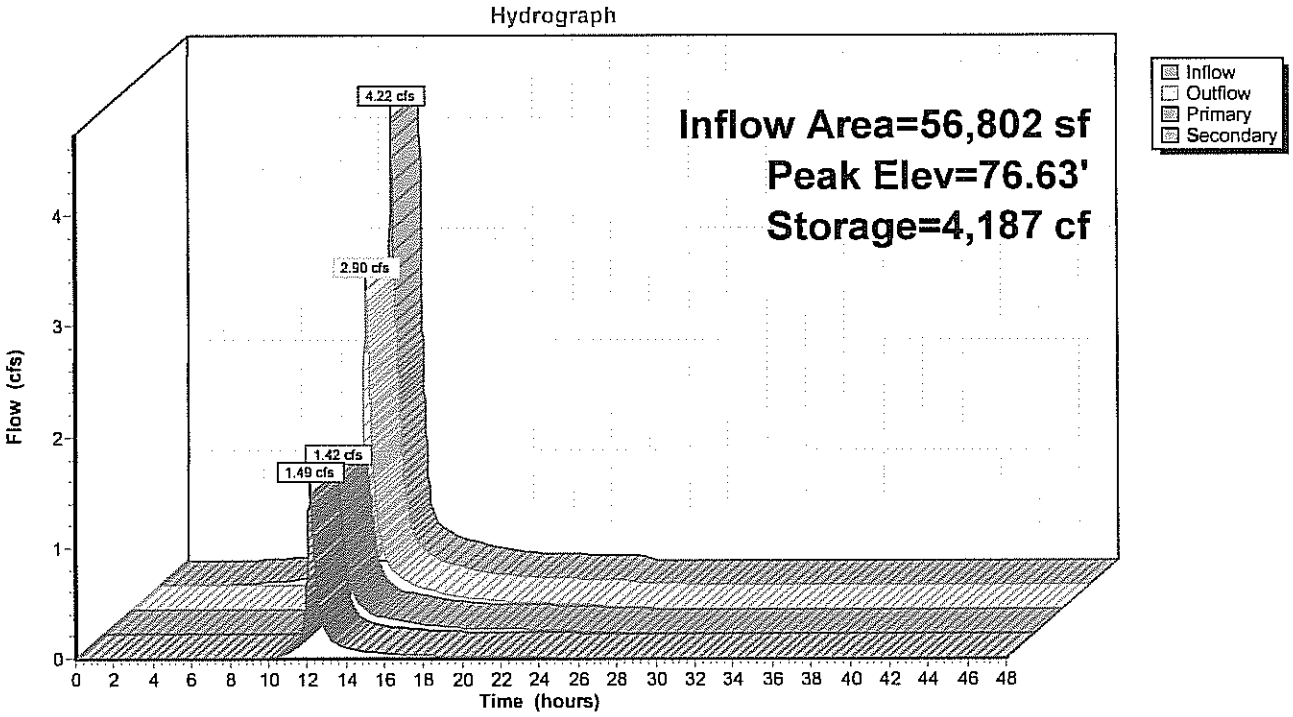
10,812.3 cf Field - 2,810.9 cf Chambers = 8,001.5 cf Stone x 40.0% Voids = 3,200.6 cf Stone Storage

Chamber Storage + Stone Storage = 6,011.4 cf = 0.138 af
Overall Storage Efficiency = 55.6%

200 Chambers
400.5 cy Field
296.4 cy Stone



Pond BASIN-2: Subsurface Detention System



Summary for Pond BASIN-3: BioRetention Area 3

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 1.98" for 2 YR event
Inflow = 1.83 cfs @ 12.10 hrs, Volume= 4,902 cf
Outflow = 0.26 cfs @ 12.66 hrs, Volume= 4,850 cf, Atten= 86%, Lag= 33.3 min
Primary = 0.26 cfs @ 12.66 hrs, Volume= 4,850 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.55' @ 12.66 hrs Surf.Area= 4,030 sf Storage= 2,089 cf
Flood Elev= 78.00' Surf.Area= 5,167 sf Storage= 8,763 cf

Plug-Flow detention time= 154.7 min calculated for 4,849 cf (99% of inflow)
Center-of-Mass det. time= 148.6 min (992.4 - 843.7)

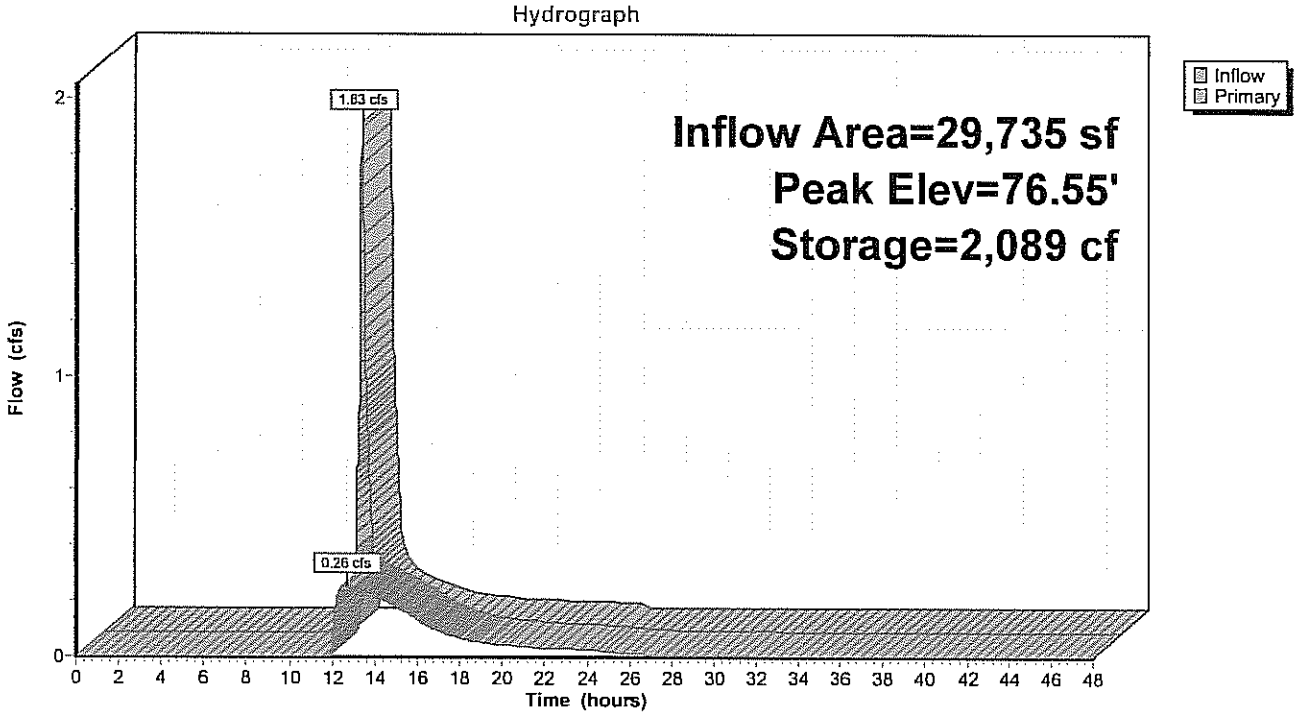
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	8,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	3,624	0	0
77.00	4,367	3,996	3,996
78.00	5,167	4,767	8,763

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**12.0" Round 12" HDPE** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	76.00'	**4.0" Vert. 4" Orifice** C= 0.600
#3	Device 1	76.60'	**4.0' long x 1.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.5' Crest Height

Primary OutFlow Max=0.26 cfs @ 12.66 hrs HW=76.55' TW=0.00' (Dynamic Tailwater)
↑**1=12" HDPE** (Passes 0.26 cfs of 3.69 cfs potential flow)
↑**2=4" Orifice** (Orifice Controls 0.26 cfs @ 2.96 fps)
3=Sharp-Crested Rectangular Weir (Controls 0.00 cfs)

Pond BASIN-3: BioRetention Area 3



Summary for Pond BASIN-4: BioRetention Area 4

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 2.75" for 2 YR event
Inflow = 6.06 cfs @ 12.09 hrs, Volume= 19,003 cf
Outflow = 5.48 cfs @ 12.13 hrs, Volume= 15,770 cf, Atten= 10%, Lag= 2.4 min
Primary = 5.48 cfs @ 12.13 hrs, Volume= 15,770 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.36' @ 12.13 hrs Surf.Area= 3,877 sf Storage= 4,584 cf
Flood Elev= 79.00' Surf.Area= 4,374 sf Storage= 7,218 cf

Plug-Flow detention time= 107.4 min calculated for 15,770 cf (83% of inflow)
Center-of-Mass det. time= 40.1 min (841.5 - 801.4)

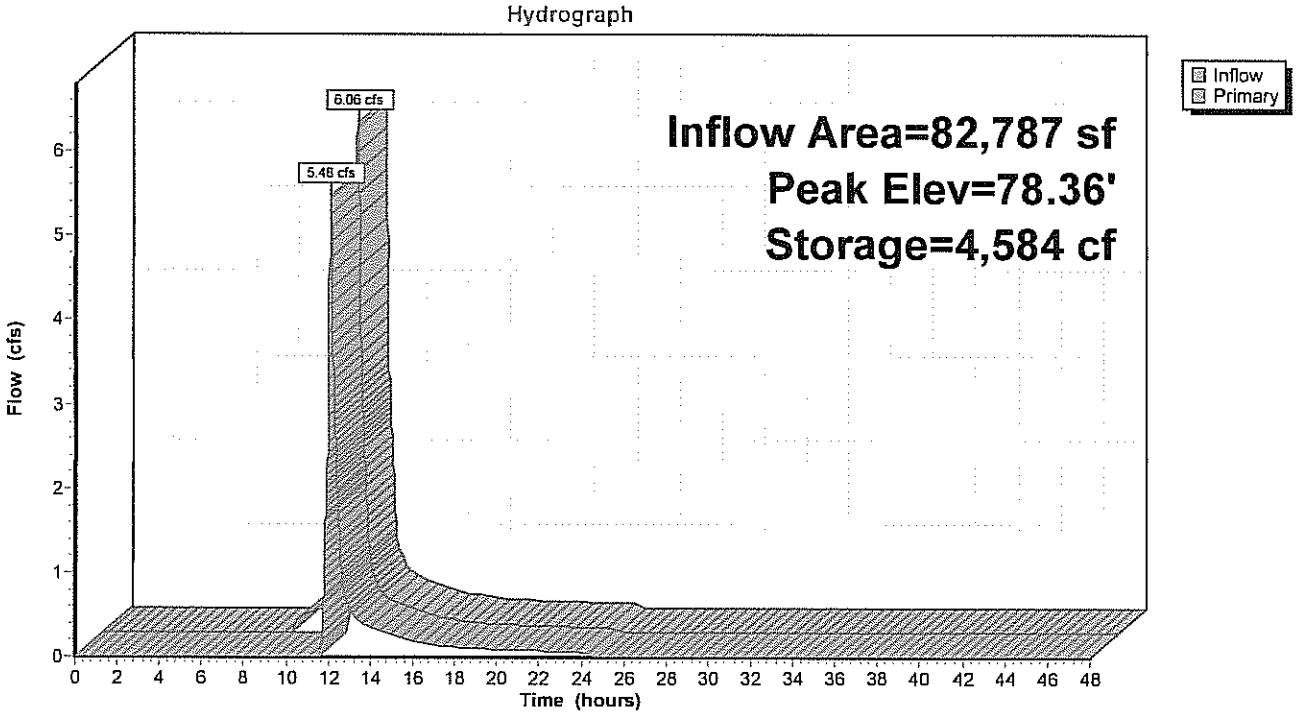
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	7,218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	2,871	0	0
78.00	3,595	3,233	3,233
79.00	4,374	3,985	7,218

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=5.48 cfs @ 12.13 hrs HW=78.36' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 5.48 cfs @ 1.51 fps)

Pond BASIN-4: BioRetention Area 4



Summary for Pond DMH-1: DMH-1

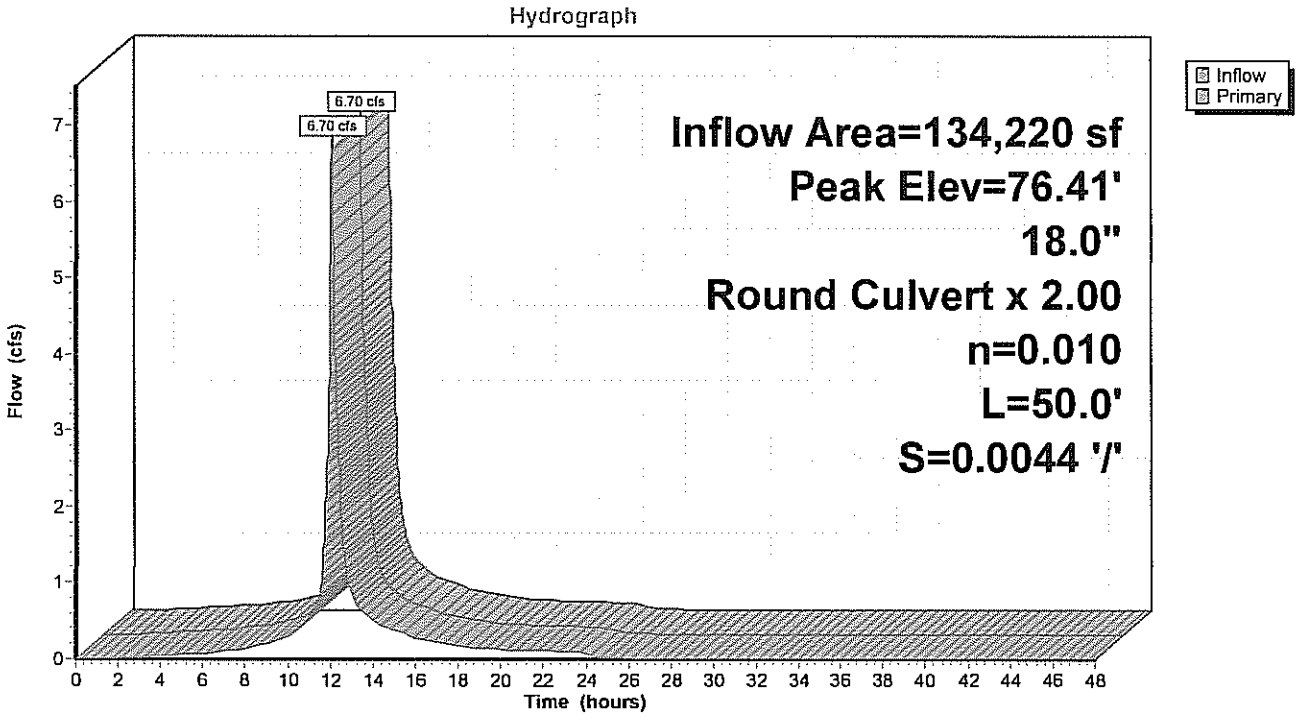
Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 2.56" for 2 YR event
Inflow = 6.70 cfs @ 12.09 hrs, Volume= 28,631 cf
Outflow = 6.70 cfs @ 12.09 hrs, Volume= 28,631 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.70 cfs @ 12.09 hrs, Volume= 28,631 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.41' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.42'	**18.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.42' / 75.20' S= 0.0044 '/' Cc= 0.900 n= 0.010 Cast iron, coated, Flow Area= 1.77 sf

Primary OutFlow Max=6.69 cfs @ 12.09 hrs HW=76.41' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 6.69 cfs @ 3.84 fps)

Pond DMH-1: DMH-1



Summary for Pond DMH-2: DMH-2

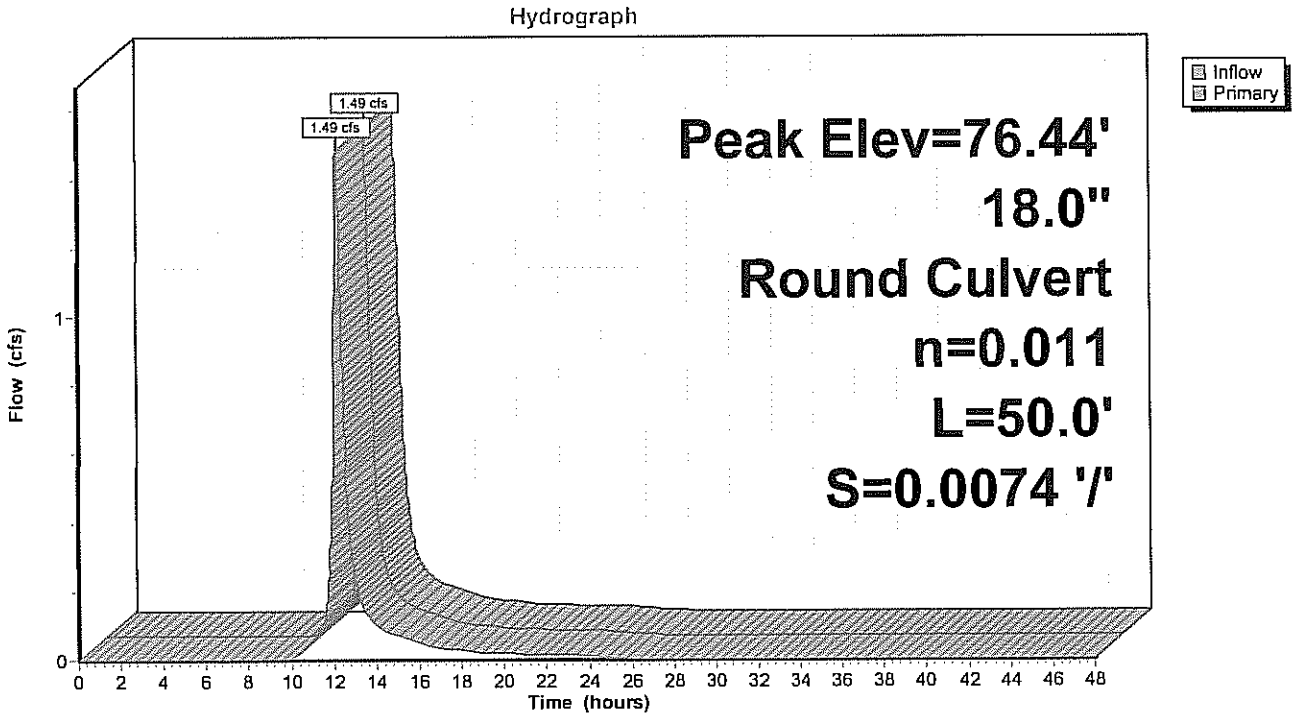
Inflow	=	1.49 cfs @	12.18 hrs, Volume=	5,247 cf
Outflow	=	1.49 cfs @	12.18 hrs, Volume=	5,247 cf, Atten= 0%, Lag= 0.0 min
Primary	=	1.49 cfs @	12.18 hrs, Volume=	5,247 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.44' @ 12.18 hrs
Flood Elev= 79.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.50' S= 0.0074 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=1.49 cfs @ 12.18 hrs HW=76.44' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 1.49 cfs @ 3.54 fps)

Pond DMH-2: DMH-2



Summary for Pond DMH-3:

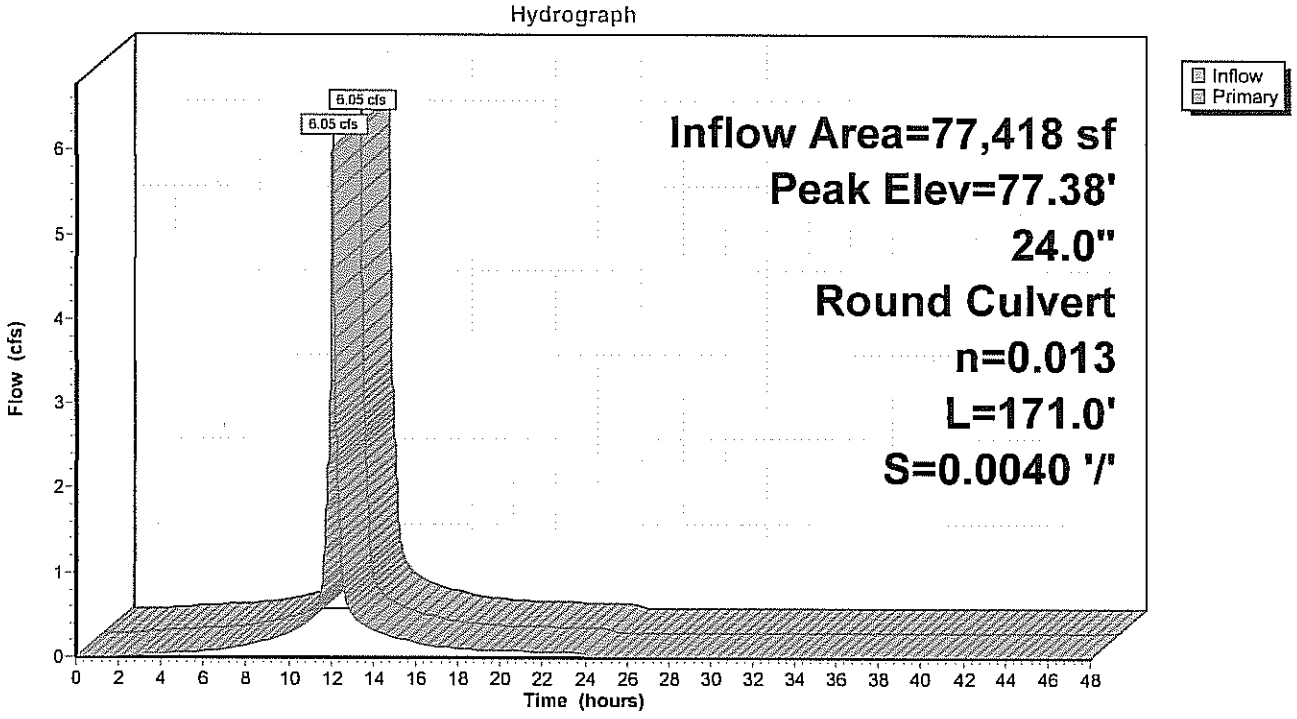
Inflow Area = 77,418 sf,100.00% Impervious, Inflow Depth = 3.27" for 2 YR event
Inflow = 6.05 cfs @ 12.08 hrs, Volume= 21,074 cf
Outflow = 6.05 cfs @ 12.08 hrs, Volume= 21,074 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.05 cfs @ 12.08 hrs, Volume= 21,074 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.38' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.14'	**24.0" Round Culvert** L= 171.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.14' / 75.45' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=6.04 cfs @ 12.08 hrs HW=77.38' TW=76.41' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 6.04 cfs @ 4.24 fps)

Pond DMH-3:



Summary for Pond FB-1: Forebay

[87] Warning: Oscillations may require smaller dt or Finer Routing (severity=4)

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 2.02" for 2 YR event
Inflow = 4.45 cfs @ 12.09 hrs, Volume= 13,768 cf
Outflow = 3.93 cfs @ 12.13 hrs, Volume= 9,328 cf, Atten= 12%, Lag= 2.6 min
Primary = 3.93 cfs @ 12.13 hrs, Volume= 9,328 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.53' @ 19.73 hrs Surf.Area= 2,627 sf Storage= 4,523 cf
Flood Elev= 79.00' Surf.Area= 2,991 sf Storage= 5,837 cf

Plug-Flow detention time= 146.9 min calculated for 9,328 cf (68% of inflow)
Center-of-Mass det. time= 48.0 min (870.1 - 822.2)

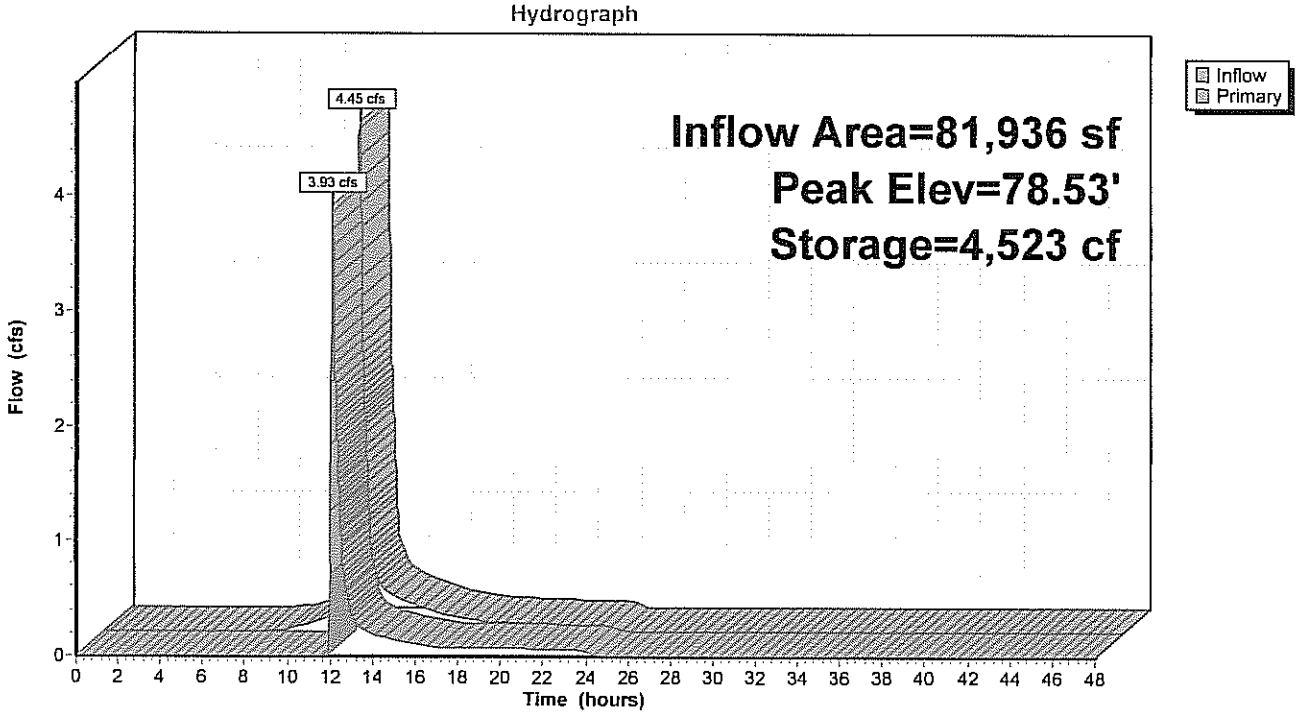
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	5,837 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	1,200	0	0
77.00	1,518	1,359	1,359
78.00	2,227	1,873	3,232
78.50	2,602	1,207	4,439
79.00	2,991	1,398	5,837

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=3.92 cfs @ 12.13 hrs HW=78.29' TW=77.21' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 3.92 cfs @ 1.36 fps)

Pond FB-1: Forebay



Summary for Pond FB-2: Forebay

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 2.36" for 2 YR event
Inflow = 1.87 cfs @ 12.09 hrs, Volume= 5,841 cf
Outflow = 1.83 cfs @ 12.10 hrs, Volume= 4,902 cf, Atten= 2%, Lag= 1.0 min
Primary = 1.83 cfs @ 12.10 hrs, Volume= 4,902 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.78' @ 12.10 hrs Surf.Area= 907 sf Storage= 1,099 cf
Flood Elev= 77.00' Surf.Area= 982 sf Storage= 1,304 cf

Plug-Flow detention time= 103.2 min calculated for 4,902 cf (84% of inflow)
Center-of-Mass det. time= 36.2 min (843.7 - 807.6)

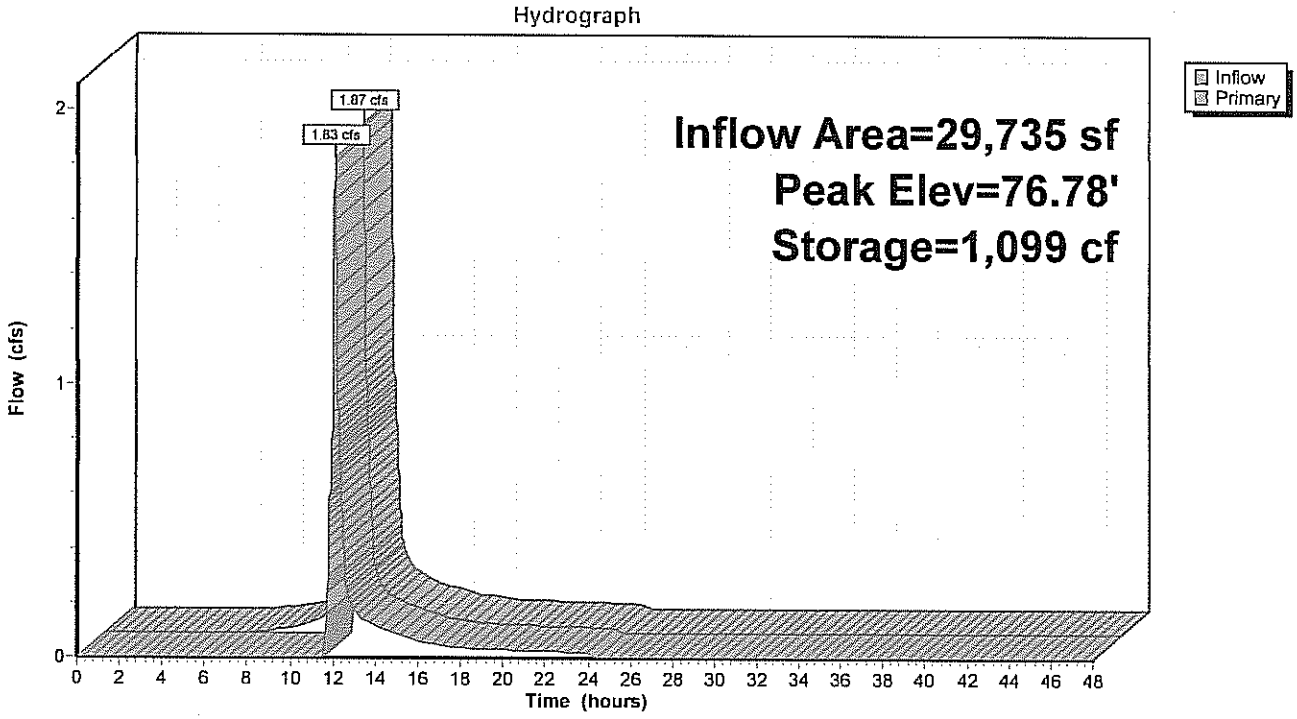
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	1,304 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.00	350	0	0
76.00	638	494	494
77.00	982	810	1,304

Device	Routing	Invert	Outlet Devices
#1	Primary	76.60'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=1.83 cfs @ 12.10 hrs HW=76.78' TW=76.27' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.83 cfs @ 1.00 fps)

Pond FB-2: Forebay



Summary for Pond FB-3: Forebay

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 2.94" for 2 YR event
Inflow = 6.16 cfs @ 12.08 hrs, Volume= 20,276 cf
Outflow = 6.06 cfs @ 12.09 hrs, Volume= 19,003 cf, Atten= 2%, Lag= 0.4 min
Primary = 6.06 cfs @ 12.09 hrs, Volume= 19,003 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.46' @ 12.10 hrs Surf.Area= 1,296 sf Storage= 1,475 cf
Flood Elev= 78.80' Surf.Area= 1,439 sf Storage= 1,941 cf

Plug-Flow detention time= 57.4 min calculated for 18,999 cf (94% of inflow)
Center-of-Mass det. time= 23.2 min (801.4 - 778.3)

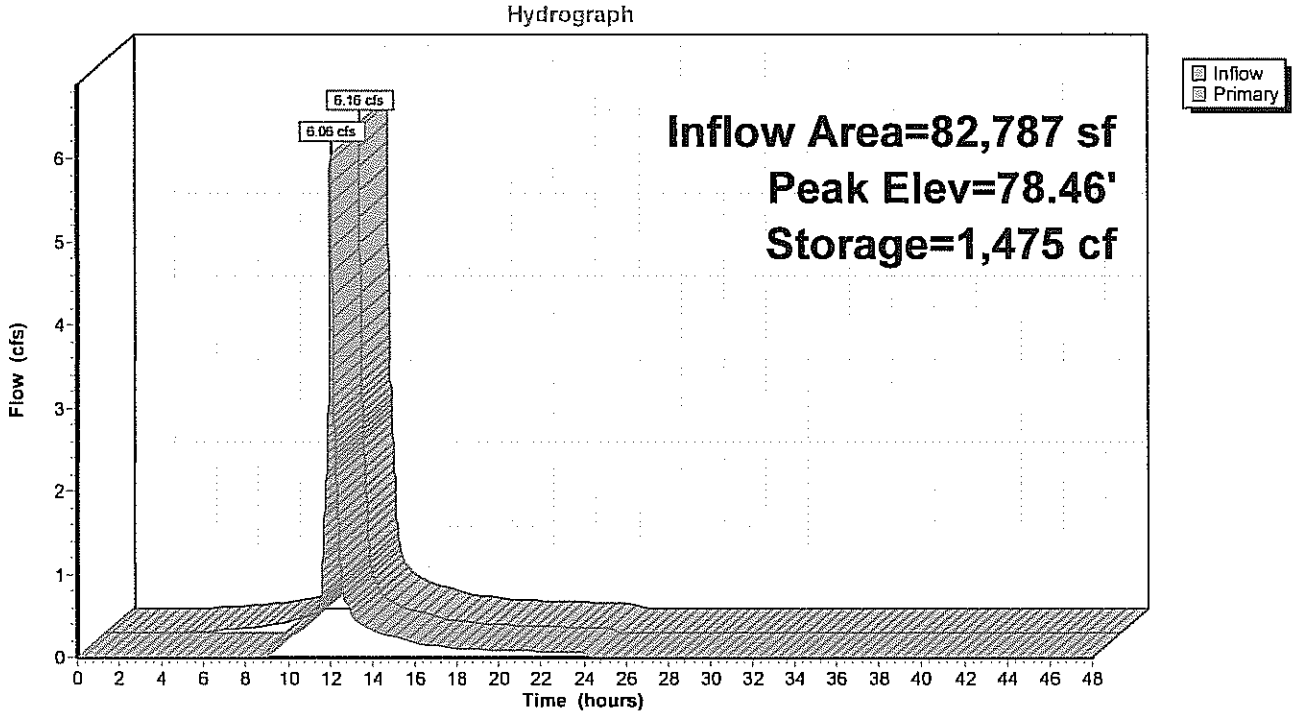
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	1,941 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	743	0	0
78.00	1,104	924	924
78.80	1,439	1,017	1,941

Device	Routing	Invert	Outlet Devices
#1	Primary	78.30'	**38.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=6.06 cfs @ 12.09 hrs HW=78.46' TW=78.34' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 6.06 cfs @ 1.01 fps)

Pond FB-3: Forebay



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1: Post Development Runoff Area=81,936 sf 4.31% Impervious Runoff Depth=3.18"
Tc=6.0 min CN=85 Runoff=6.96 cfs 21,738 cf

Subcatchment POST 1A: Post Development Runoff Area=47,737 sf 0.00% Impervious Runoff Depth=1.89"
Tc=6.0 min CN=70 Runoff=2.38 cfs 7,516 cf

Subcatchment POST 2: Post Development Runoff Area=56,802 sf 85.28% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=95 Runoff=5.94 cfs 19,982 cf

Subcatchment POST 3: Post Development Runoff Area=29,735 sf 63.13% Impervious Runoff Depth=3.58"
Tc=6.0 min CN=89 Runoff=2.79 cfs 8,873 cf

Subcatchment POST 3A: Post Runoff Area=47,475 sf 35.05% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=80 Runoff=3.48 cfs 10,758 cf

Subcatchment POST 4: Post Development Runoff Area=82,787 sf 85.50% Impervious Runoff Depth=4.22"
Tc=6.0 min CN=95 Runoff=8.66 cfs 29,124 cf

Subcatchment POST 4A: Post Runoff Area=35,765 sf 10.20% Impervious Runoff Depth=2.12"
Tc=6.0 min CN=73 Runoff=2.03 cfs 6,333 cf

Subcatchment POST-2A: Post Runoff Area=77,418 sf 100.00% Impervious Runoff Depth=4.56"
Tc=6.0 min CN=98 Runoff=8.34 cfs 29,441 cf

Pond 3P: DCB-1 Peak Elev=77.20' Inflow=5.94 cfs 19,982 cf
12.0" Round Culvert x 2.00 n=0.013 L=6.0' S=0.0133 '/' Outflow=5.94 cfs 19,982 cf

Pond AP-1: WET-8 (No Flow)
Primary=0.00 cfs 0 cf

Pond AP-2: WET-1 Inflow=2.38 cfs 17,170 cf
Primary=2.38 cfs 17,170 cf

Pond AP-3: OFFSITE SWALE Inflow=11.64 cfs 48,316 cf
Primary=11.64 cfs 48,316 cf

Pond AP-4: WET-2 Inflow=3.73 cfs 18,638 cf
Primary=3.73 cfs 18,638 cf

Pond AP-5: WET-3 Inflow=9.70 cfs 30,950 cf
Primary=9.70 cfs 30,950 cf

Pond BASIN-1: BioRetention Area 1 Peak Elev=78.63' Storage=8,423 cf Inflow=6.62 cfs 17,299 cf
Outflow=0.65 cfs 9,654 cf

Pond BASIN-2: Subsurface Detention Peak Elev=76.90' Storage=4,938 cf Inflow=5.94 cfs 19,982 cf
Primary=2.13 cfs 10,718 cf Secondary=2.53 cfs 8,156 cf Outflow=4.66 cfs 18,874 cf

Pond BASIN-3: BioRetention Area 3 Peak Elev=76.75' Storage=2,911 cf Inflow=2.75 cfs 7,934 cf
Outflow=1.05 cfs 7,880 cf

Pond BASIN-4: BioRetention Area 4 Peak Elev=78.45' Storage=4,932 cf Inflow=8.46 cfs 27,850 cf
Outflow=7.80 cfs 24,617 cf

Pond DMH-1: DMH-1 Peak Elev=76.64' Inflow=9.42 cfs 40,160 cf
18.0" Round Culvert x 2.00 n=0.010 L=50.0' S=0.0044 '/' Outflow=9.42 cfs 40,160 cf

Pond DMH-2: DMH-2 Peak Elev=76.65' Inflow=2.53 cfs 8,156 cf
18.0" Round Culvert n=0.011 L=50.0' S=0.0074 '/' Outflow=2.53 cfs 8,156 cf

Pond DMH-3: Peak Elev=77.65' Inflow=8.34 cfs 29,441 cf
24.0" Round Culvert n=0.013 L=171.0' S=0.0040 '/' Outflow=8.34 cfs 29,441 cf

Pond FB-1: Forebay Peak Elev=78.63' Storage=4,792 cf Inflow=6.96 cfs 21,738 cf
Outflow=6.62 cfs 17,299 cf

Pond FB-2: Forebay Peak Elev=76.84' Storage=1,149 cf Inflow=2.79 cfs 8,873 cf
Outflow=2.75 cfs 7,934 cf

Pond FB-3: Forebay Peak Elev=78.53' Storage=1,562 cf Inflow=8.66 cfs 29,124 cf
Outflow=8.46 cfs 27,850 cf

Total Runoff Area = 459,655 sf Runoff Volume = 133,764 cf Average Runoff Depth = 3.49"
47.95% Pervious = 220,424 sf 52.05% Impervious = 239,231 sf

Summary for Subcatchment POST 1: Post Development Area 1

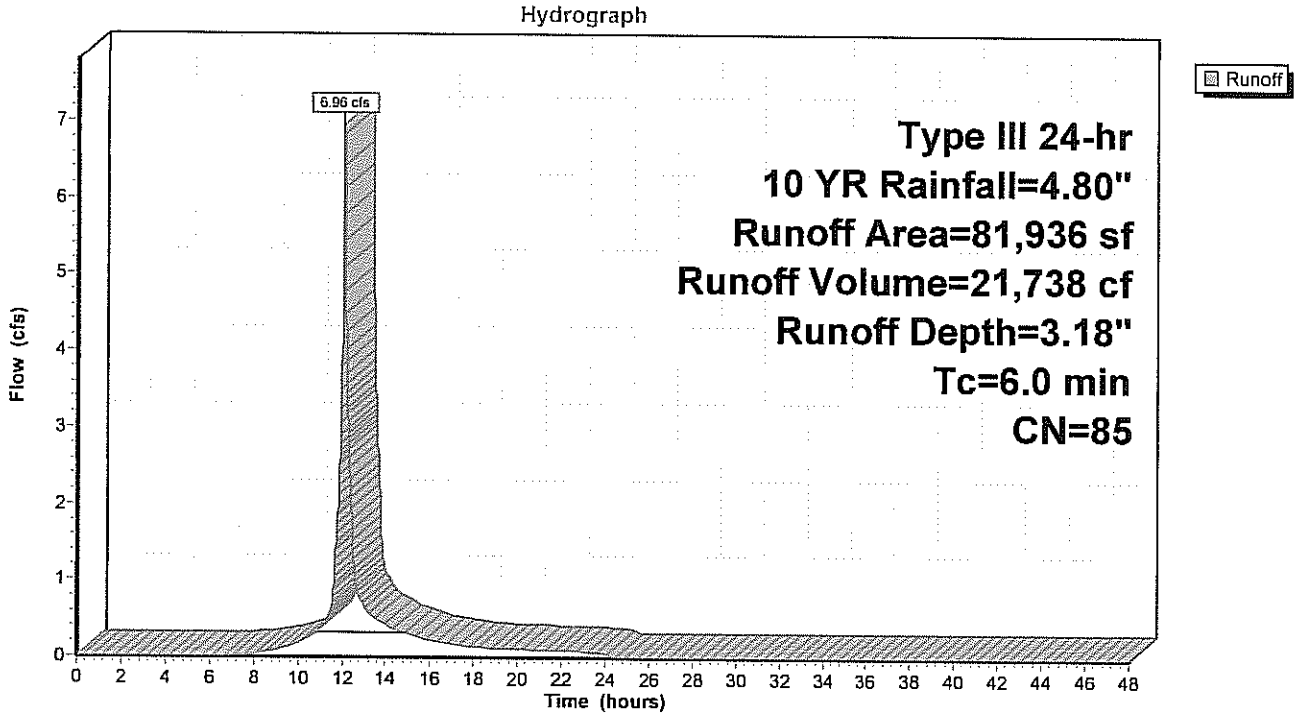
Runoff = 6.96 cfs @ 12.09 hrs, Volume= 21,738 cf, Depth= 3.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
51,749	89	Gravel roads, HSG C
3,528	98	Paved parking, HSG C
26,659	74	>75% Grass cover, Good, HSG C
81,936	85	Weighted Average
78,408		95.69% Pervious Area
3,528		4.31% Impervious Area

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

Subcatchment POST 1: Post Development Area 1



Summary for Subcatchment POST 1A: Post Development Area 1A

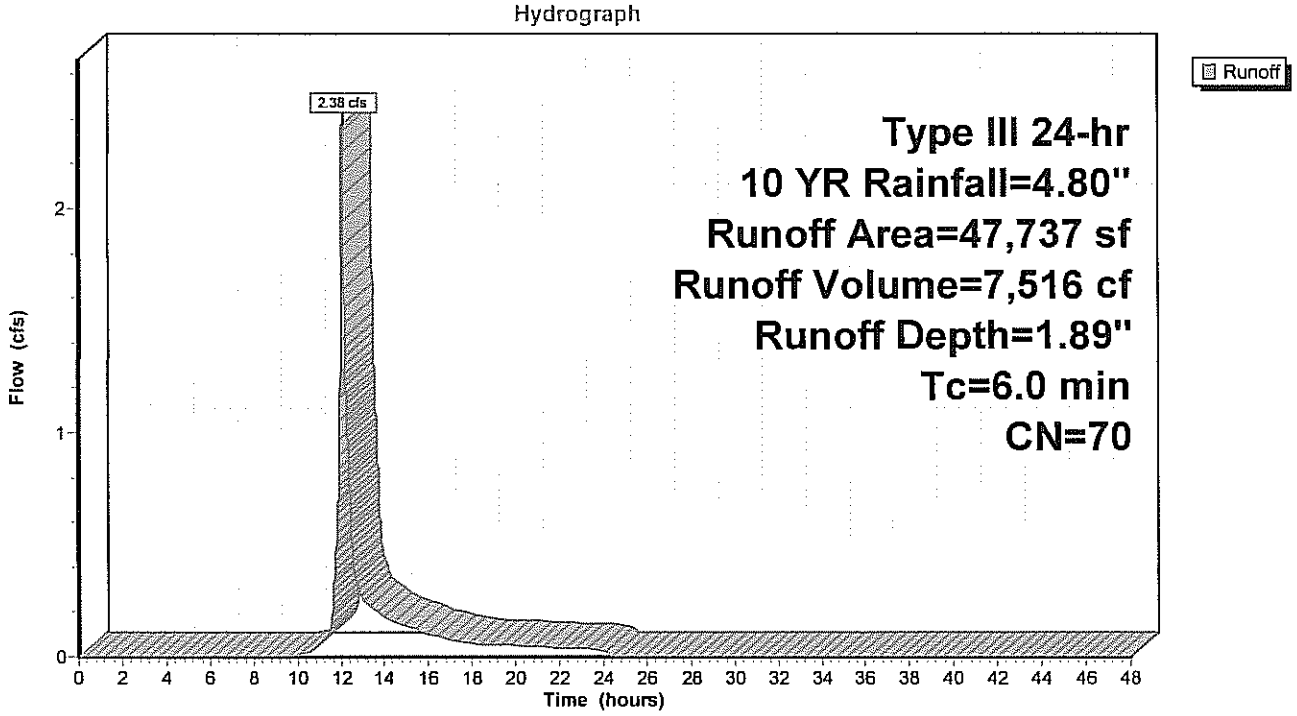
Runoff = 2.38 cfs @ 12.09 hrs, Volume= 7,516 cf, Depth= 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
942	89	Gravel roads, HSG C
46,795	70	Woods, Good, HSG C
47,737	70	Weighted Average
47,737		100.00% Pervious Area

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

Subcatchment POST 1A: Post Development Area 1A



Summary for Subcatchment POST 2: Post Development Area 2

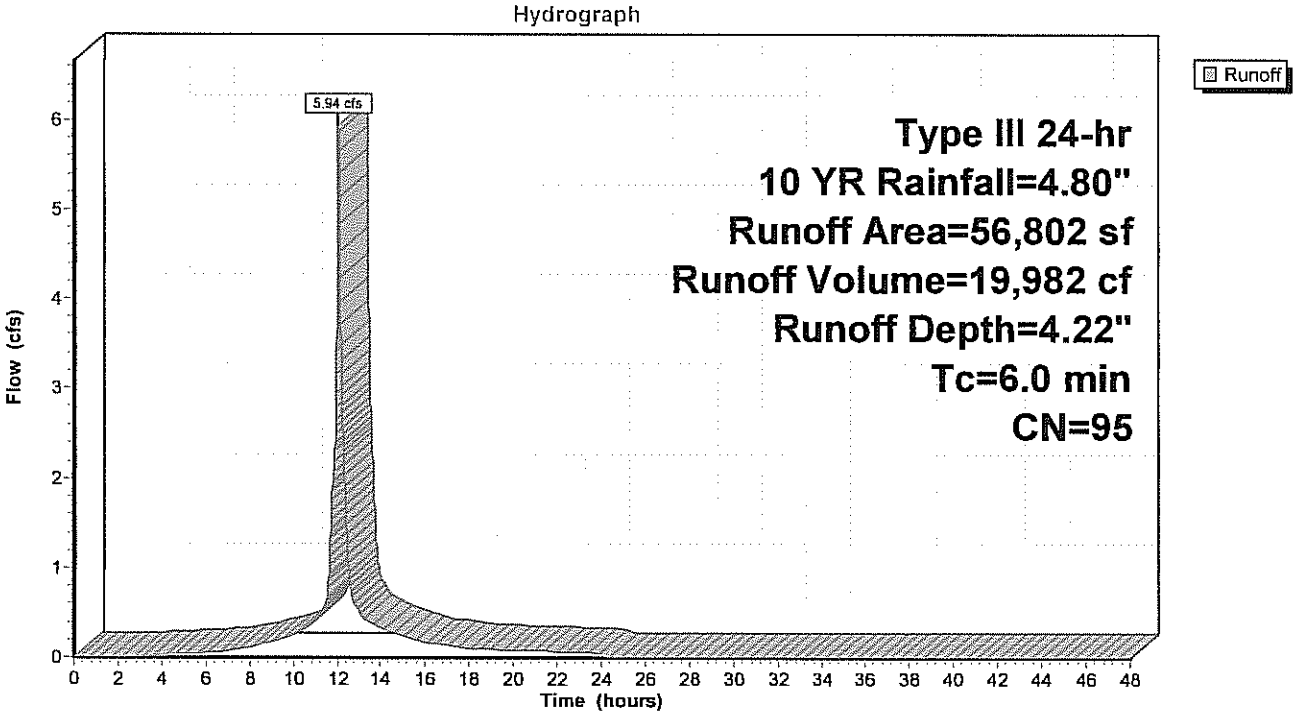
Runoff = 5.94 cfs @ 12.08 hrs, Volume= 19,982 cf, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
48,439	98	Paved parking, HSG C
2,831	89	Gravel roads, HSG C
5,532	74	>75% Grass cover, Good, HSG C
56,802	95	Weighted Average
8,363		14.72% Pervious Area
48,439		85.28% Impervious Area

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

Subcatchment POST 2: Post Development Area 2



Summary for Subcatchment POST 3: Post Development Area 3

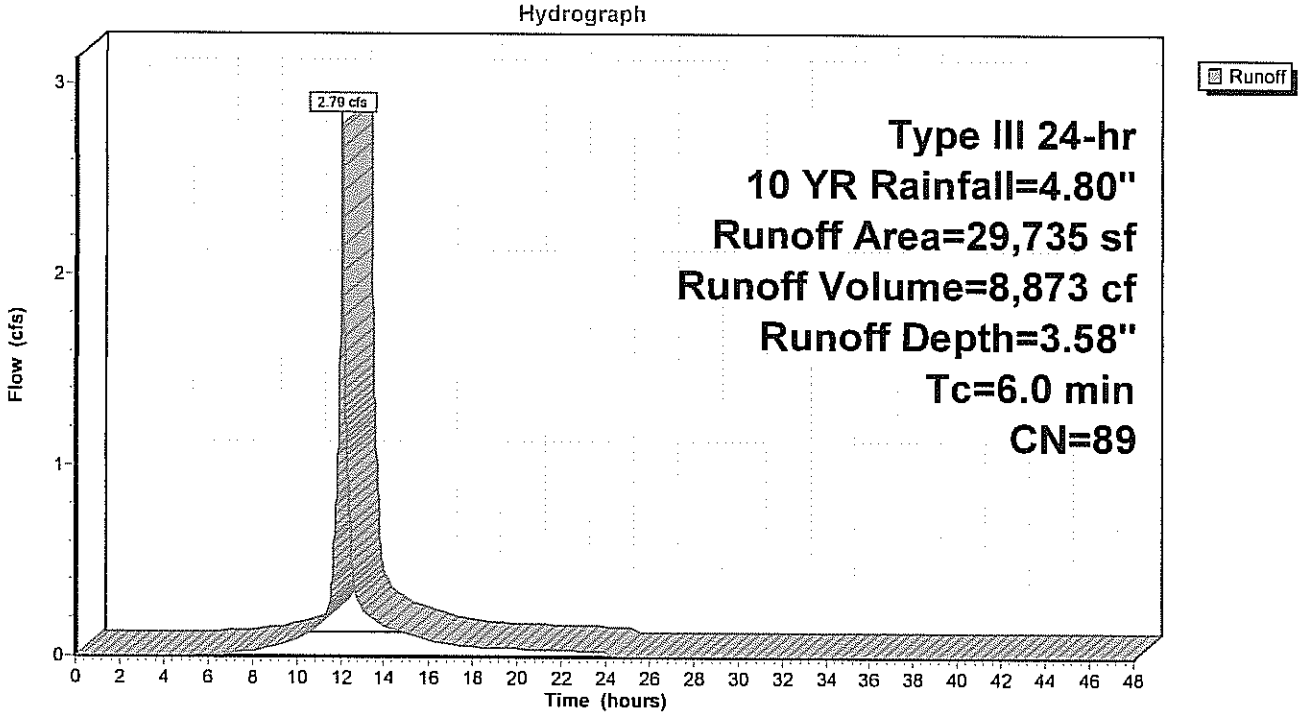
Runoff = 2.79 cfs @ 12.09 hrs, Volume= 8,873 cf, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
18,773	98	Paved parking, HSG C
10,962	74	>75% Grass cover, Good, HSG C
29,735	89	Weighted Average
10,962		36.87% Pervious Area
18,773		63.13% Impervious Area

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

Subcatchment POST 3: Post Development Area 3



Summary for Subcatchment POST 3A: Post Development Area 3A

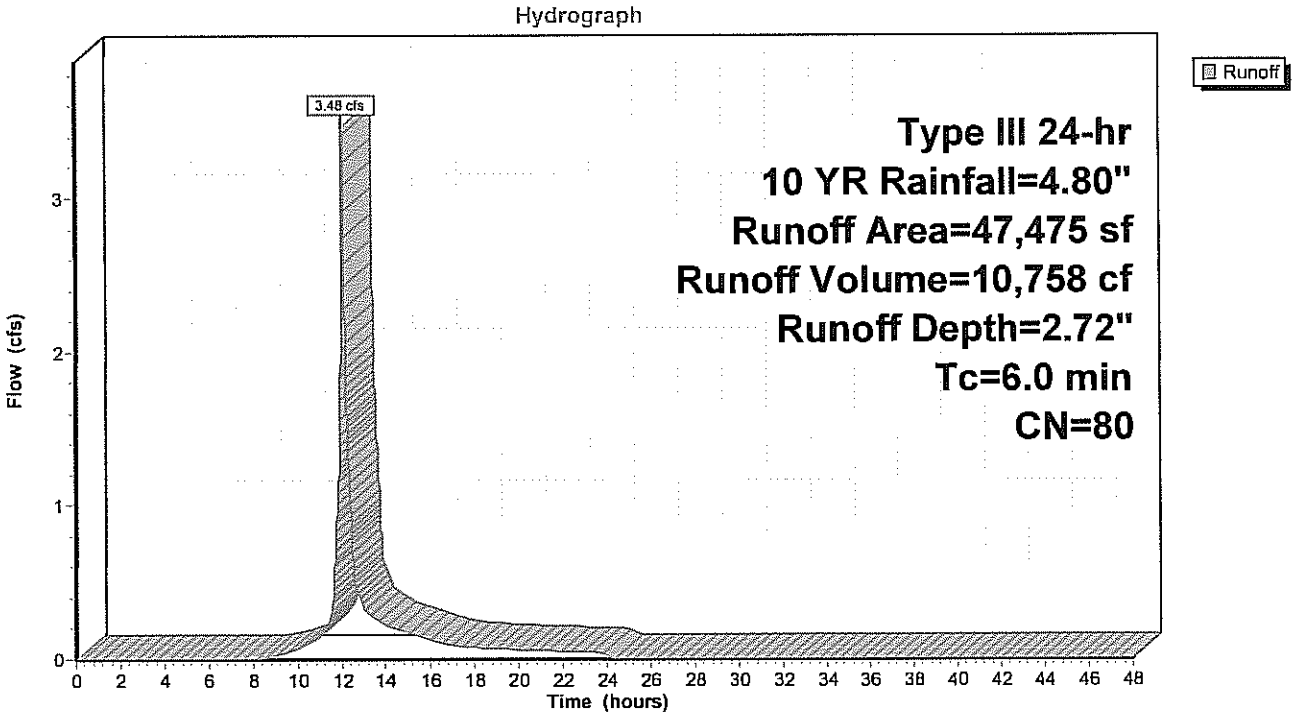
Runoff = 3.48 cfs @ 12.09 hrs, Volume= 10,758 cf, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
14,950	98	Roofs, HSG C
1,689	98	Paved parking, HSG C
30,836	70	Woods, Good, HSG C
47,475	80	Weighted Average
30,836		64.95% Pervious Area
16,639		35.05% Impervious Area

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

Subcatchment POST 3A: Post Development Area 3A



Summary for Subcatchment POST 4: Post Development Area 4

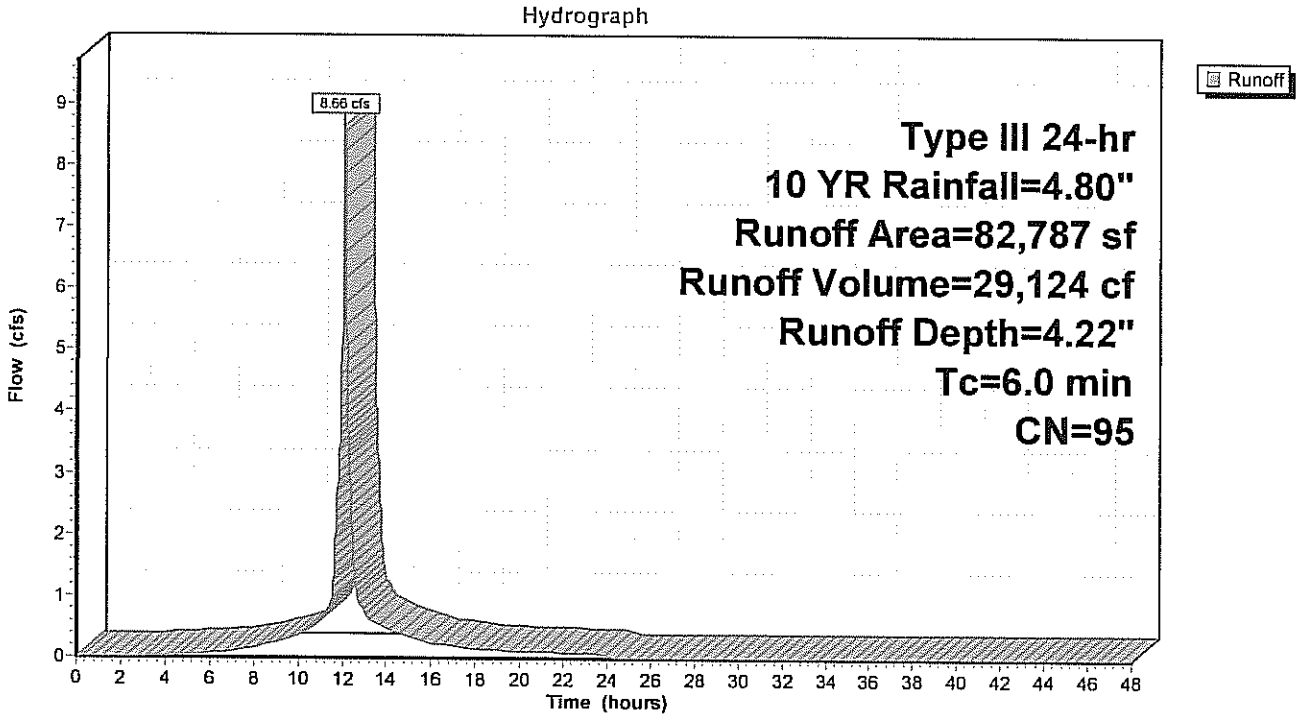
Runoff = 8.66 cfs @ 12.08 hrs, Volume= 29,124 cf, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
70,785	98	Paved parking, HSG C
12,002	74	>75% Grass cover, Good, HSG C
82,787	95	Weighted Average
12,002		14.50% Pervious Area
70,785		85.50% Impervious Area

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

Subcatchment POST 4: Post Development Area 4



Summary for Subcatchment POST 4A: Post Development Area 4A

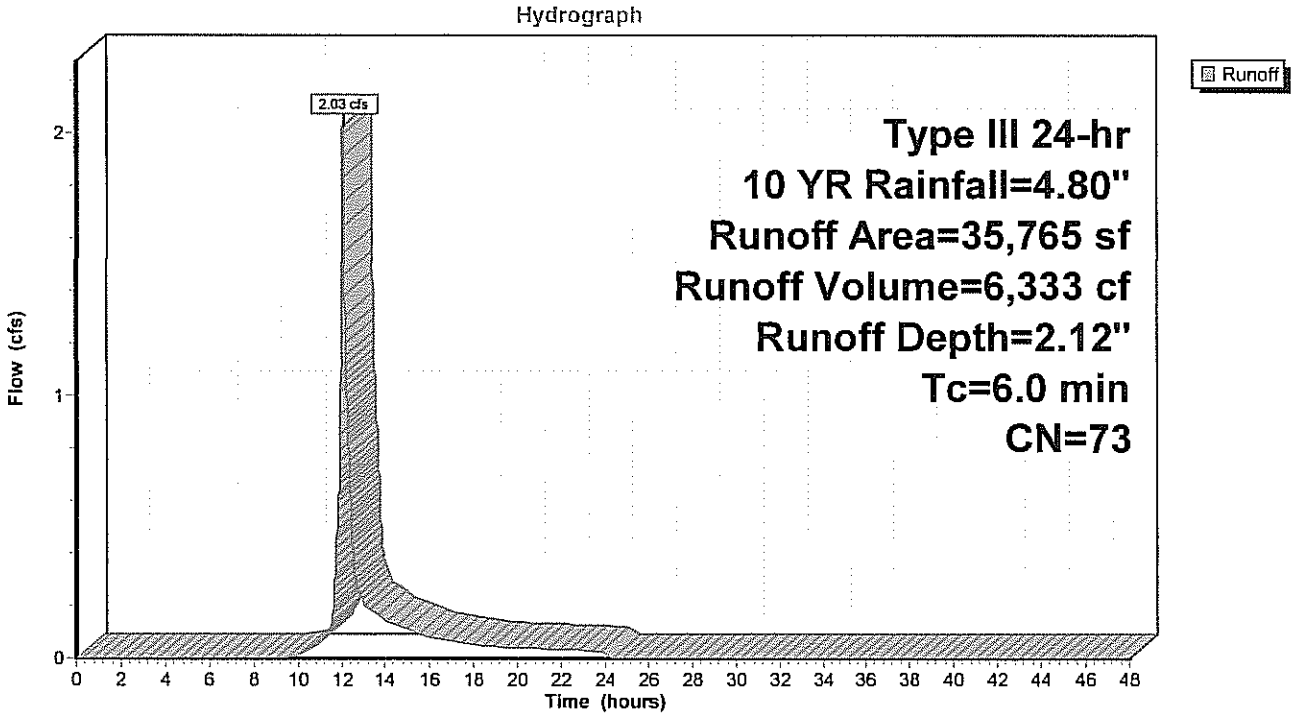
Runoff = 2.03 cfs @ 12.09 hrs, Volume= 6,333 cf, Depth= 2.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
32,116	70	Woods, Good, HSG C
3,649	98	Paved parking, HSG C
35,765	73	Weighted Average
32,116		89.80% Pervious Area
3,649		10.20% Impervious Area

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

Subcatchment POST 4A: Post Development Area 4A



Summary for Subcatchment POST-2A: Post Development Area 2A

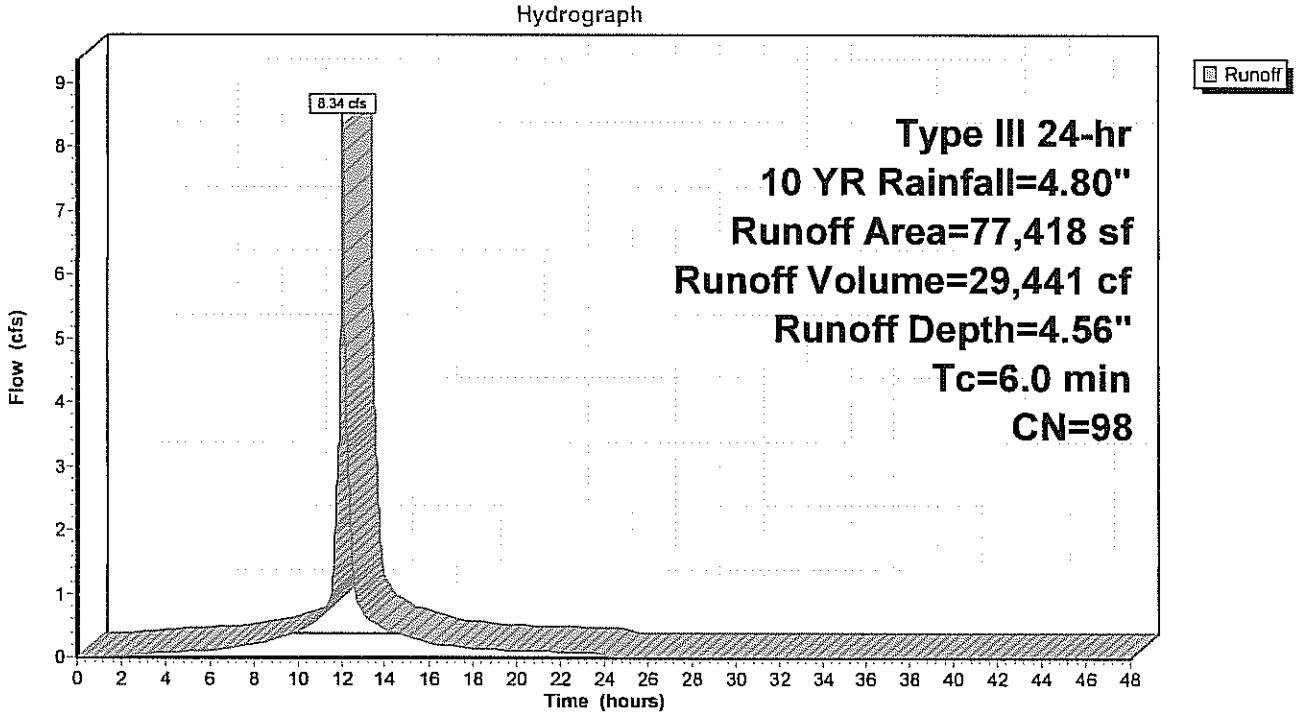
Runoff = 8.34 cfs @ 12.08 hrs, Volume= 29,441 cf, Depth= 4.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10 YR Rainfall=4.80"

Area (sf)	CN	Description
77,418	98	Roofs, HSG C
77,418		100.00% Impervious Area

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

Subcatchment POST-2A: Post Development Area 2A



Summary for Pond 3P: DCB-1

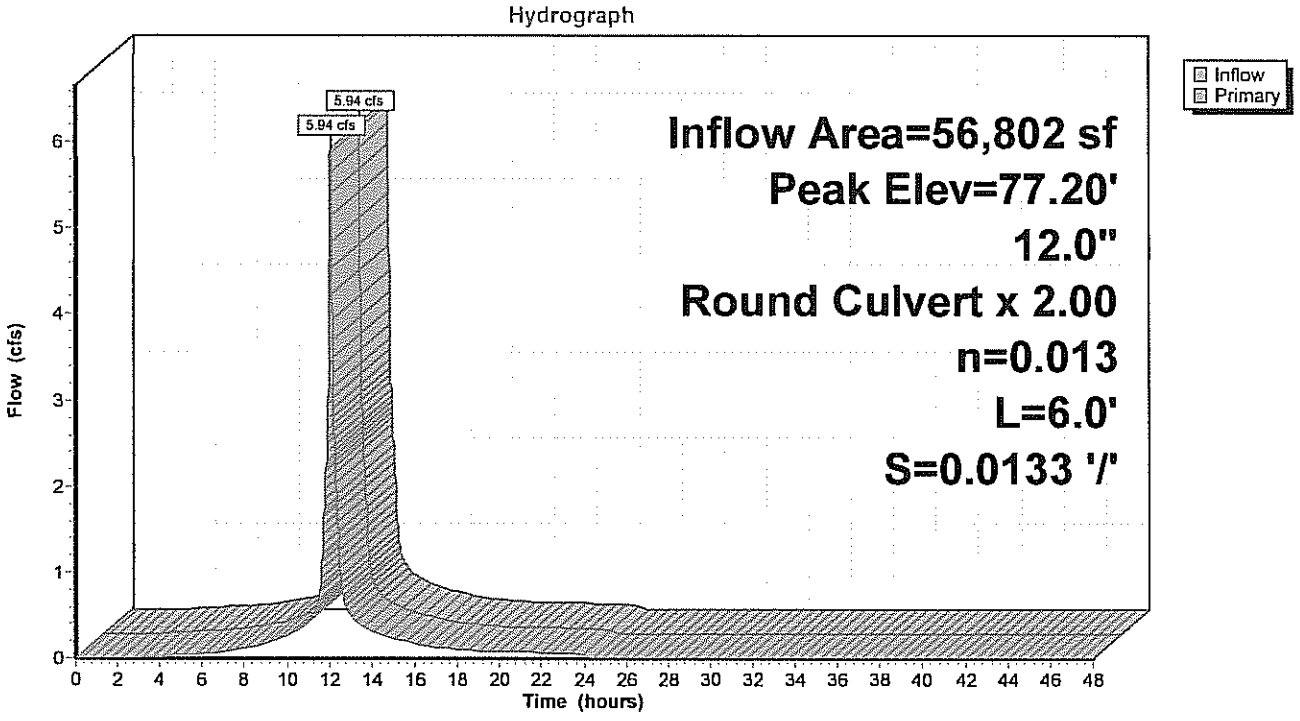
Inflow Area = 56,802 sf, 85.28% Impervious, Inflow Depth = 4.22" for 10 YR event
Inflow = 5.94 cfs @ 12.08 hrs, Volume= 19,982 cf
Outflow = 5.94 cfs @ 12.08 hrs, Volume= 19,982 cf, Atten= 0%, Lag= 0.0 min
Primary = 5.94 cfs @ 12.08 hrs, Volume= 19,982 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.20' @ 12.11 hrs
Flood Elev= 78.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	**12.0" Round Culvert X 2.00** L= 6.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.00' / 75.92' S= 0.0133 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=5.96 cfs @ 12.08 hrs HW=77.14' TW=76.75' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 5.96 cfs @ 3.80 fps)

Pond 3P: DCB-1

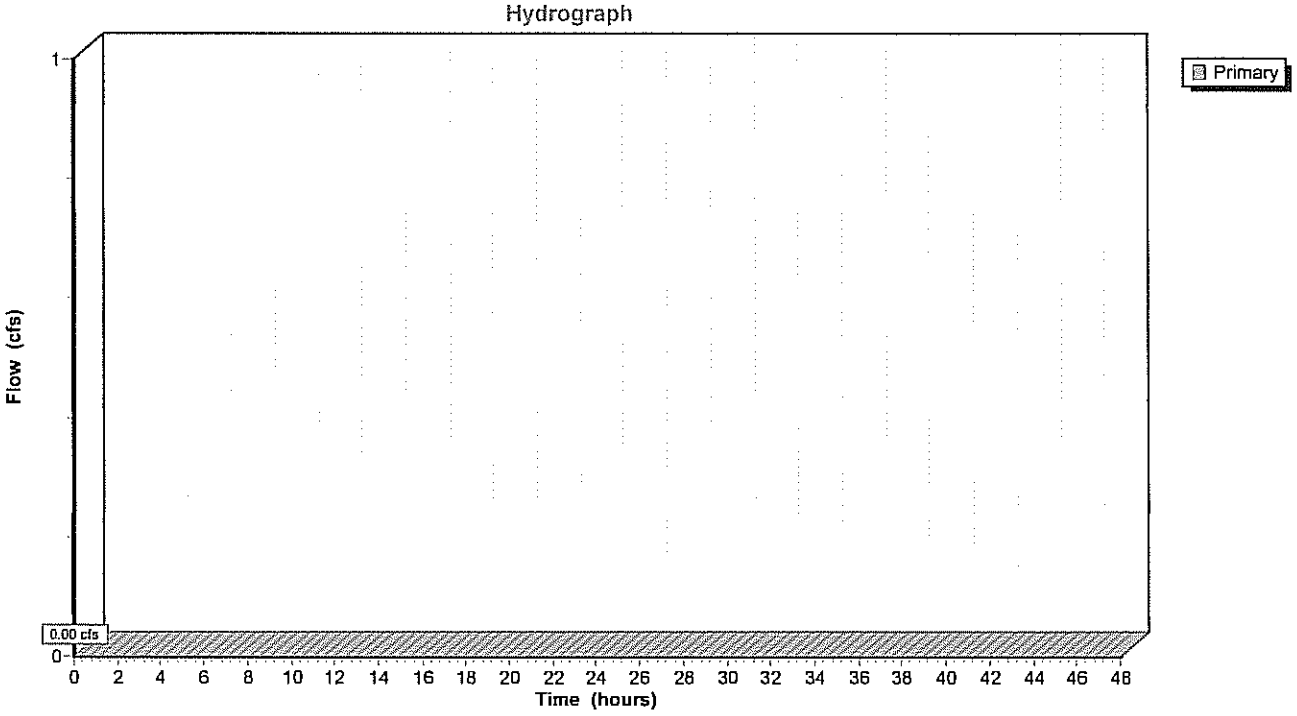


Summary for Pond AP-1: WET-8 (No Flow)

[40] Hint: Not Described (Outflow=Inflow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)

Pond AP-1: WET-8 (No Flow)



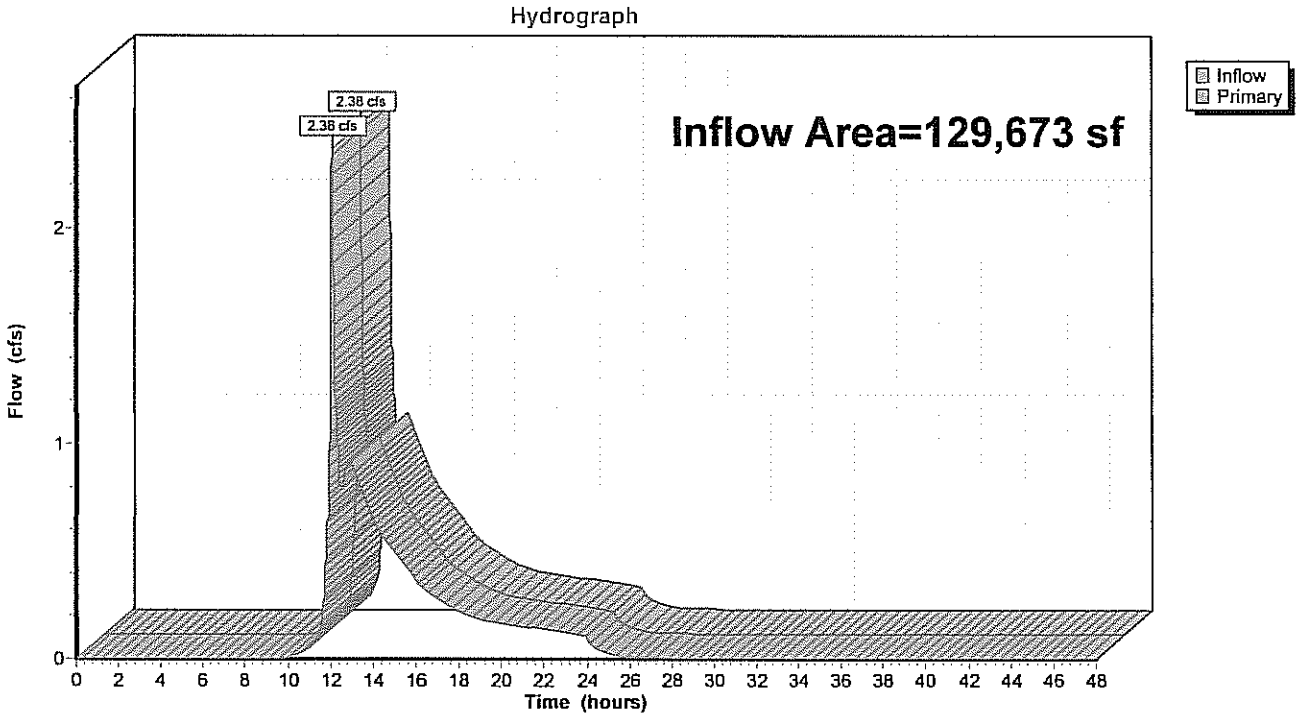
Summary for Pond AP-2: WET-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 129,673 sf, 2.72% Impervious, Inflow Depth = 1.59" for 10 YR event
Inflow = 2.38 cfs @ 12.09 hrs, Volume= 17,170 cf
Primary = 2.38 cfs @ 12.09 hrs, Volume= 17,170 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-2: WET-1



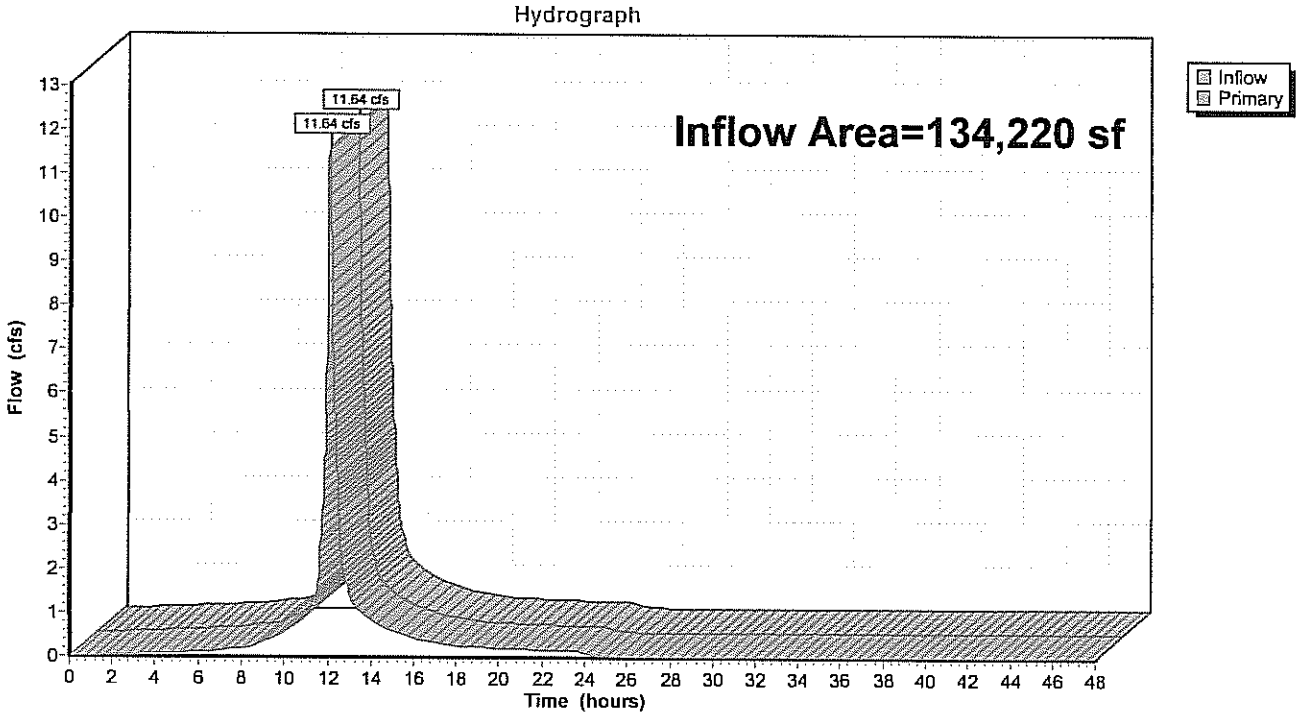
Summary for Pond AP-3: OFFSITE SWALE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 4.32" for 10 YR event
Inflow = 11.64 cfs @ 12.11 hrs, Volume= 48,316 cf
Primary = 11.64 cfs @ 12.11 hrs, Volume= 48,316 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-3: OFFSITE SWALE



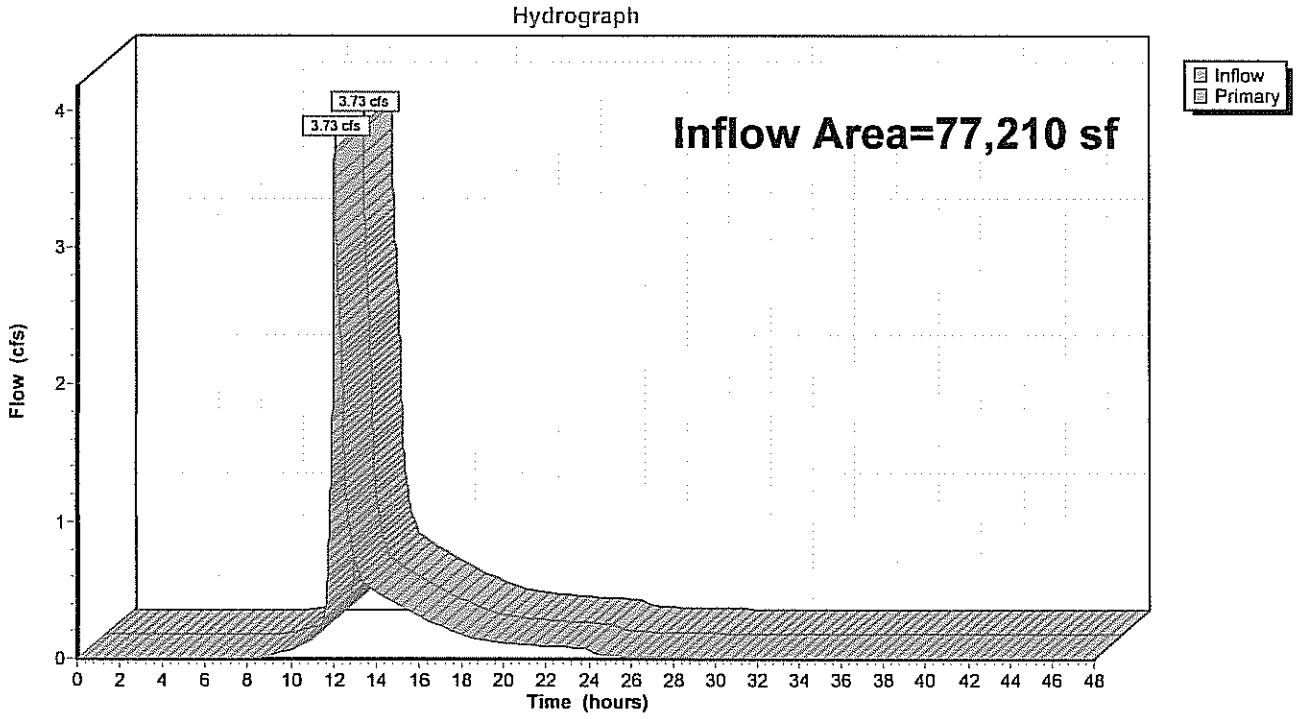
Summary for Pond AP-4: WET-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 77,210 sf, 45.86% Impervious, Inflow Depth > 2.90" for 10 YR event
Inflow = 3.73 cfs @ 12.09 hrs, Volume= 18,638 cf
Primary = 3.73 cfs @ 12.09 hrs, Volume= 18,638 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-4: WET-2



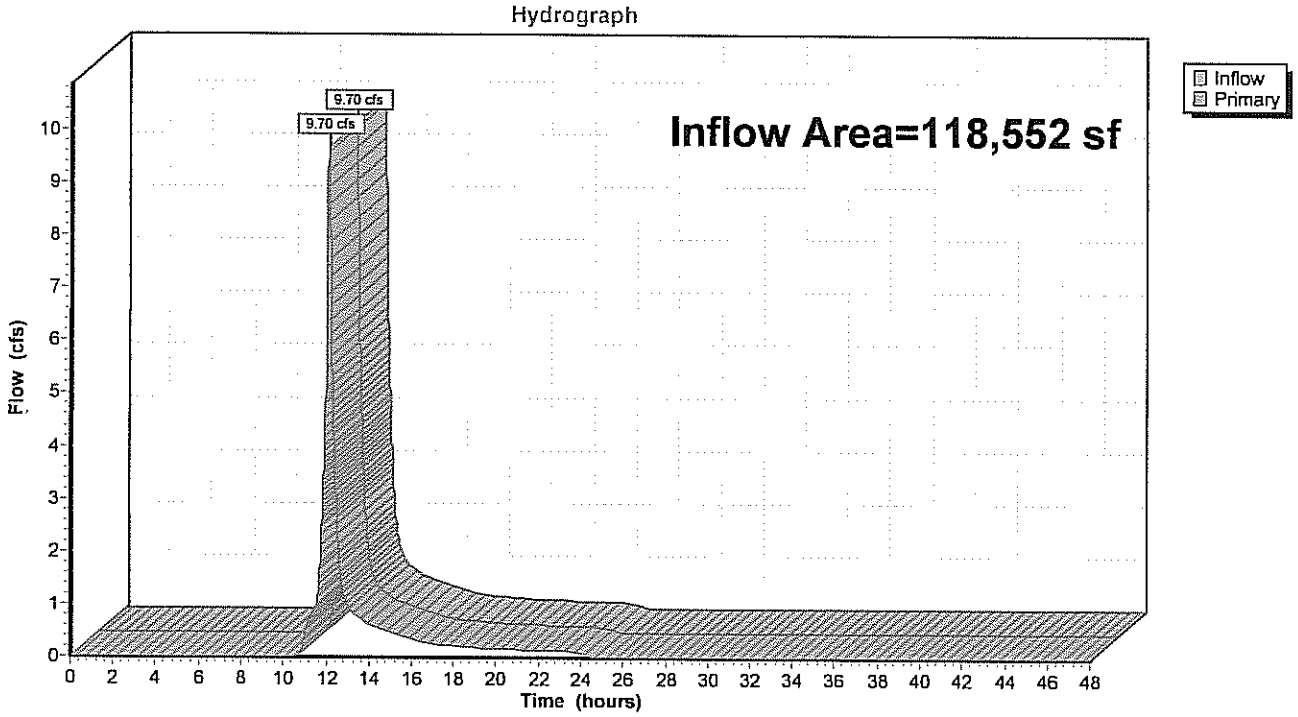
Summary for Pond AP-5: WET-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 118,552 sf, 62.79% Impervious, Inflow Depth = 3.13" for 10 YR event
Inflow = 9.70 cfs @ 12.12 hrs, Volume= 30,950 cf
Primary = 9.70 cfs @ 12.12 hrs, Volume= 30,950 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-5: WET-3



Summary for Pond BASIN-1: BioRetention Area 1

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 2.53" for 10 YR event
Inflow = 6.62 cfs @ 12.11 hrs, Volume= 17,299 cf
Outflow = 0.65 cfs @ 13.00 hrs, Volume= 9,654 cf, Atten= 90%, Lag= 53.3 min
Primary = 0.65 cfs @ 13.00 hrs, Volume= 9,654 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.63' @ 13.00 hrs Surf.Area= 5,931 sf Storage= 8,423 cf
Flood Elev= 80.00' Surf.Area= 7,310 sf Storage= 17,464 cf

Plug-Flow detention time= 251.0 min calculated for 9,652 cf (56% of inflow)
Center-of-Mass det. time= 130.2 min (985.6 - 855.3)

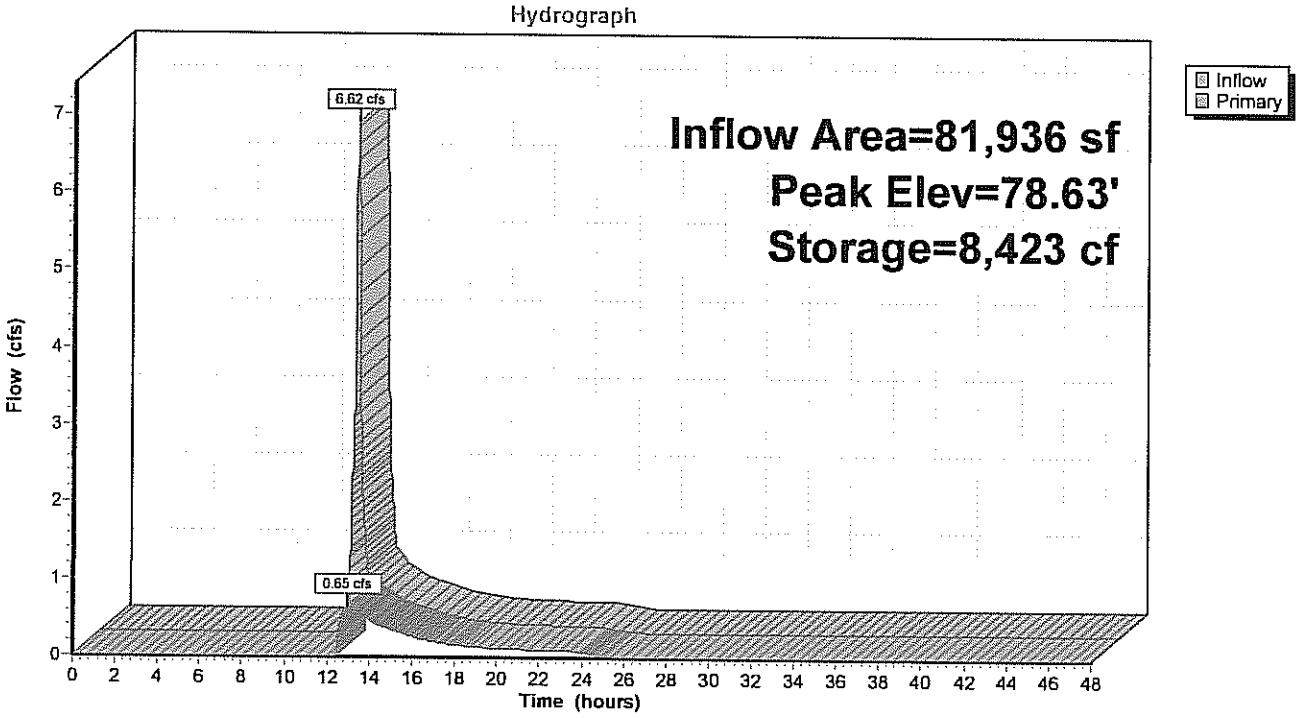
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	17,464 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	4,407	0	0
78.00	5,319	4,863	4,863
79.00	6,286	5,803	10,666
80.00	7,310	6,798	17,464

Device	Routing	Invert	Outlet Devices
#1	Primary	78.50'	**5.0' long x 25.0' breadth Broad-Crested Rectangular Weir**
			Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60
			Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=0.65 cfs @ 13.00 hrs HW=78.63' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 0.65 cfs @ 0.98 fps)

Pond BASIN-1: BioRetention Area 1



Summary for Pond BASIN-2: Subsurface Detention System

Inflow Area =	56,802 sf,	85.28% Impervious,	Inflow Depth =	4.22"	for 10 YR event
Inflow =	5.94 cfs @	12.08 hrs, Volume=	19,982 cf		
Outflow =	4.66 cfs @	12.18 hrs, Volume=	18,874 cf,	Atten= 22%,	Lag= 5.5 min
Primary =	2.13 cfs @	12.18 hrs, Volume=	10,718 cf		
Secondary =	2.53 cfs @	12.17 hrs, Volume=	8,156 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.90' @ 12.15 hrs Surf.Area= 5,296 sf Storage= 4,938 cf
Flood Elev= 78.10' Surf.Area= 5,296 sf Storage= 6,011 cf

Plug-Flow detention time= 97.6 min calculated for 18,870 cf (94% of inflow)
Center-of-Mass det. time= 66.7 min (836.0 - 769.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.37'	3,201 cf	**68.33'W x 77.50'L x 2.04'H Field A** 10,812 cf Overall - 2,811 cf Embedded = 8,001 cf x 40.0% Voids
#2A	75.87'	2,811 cf	**Cultec C-100HD** x 200 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 20 rows
		6,011 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.42' S= 0.0090 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Secondary	75.87'	**18.0" Round Culvert** L= 24.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.87' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=2.13 cfs @ 12.18 hrs HW=76.88' TW=76.47' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.13 cfs @ 3.34 fps)

Secondary OutFlow Max=2.66 cfs @ 12.17 hrs HW=76.89' TW=76.65' (Dynamic Tailwater)
↑—**2=Culvert** (Outlet Controls 2.66 cfs @ 2.93 fps)

Pond BASIN-2: Subsurface Detention System - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)
Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
Row Length Adjustment= +0.50' x 1.86 sf x 20 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

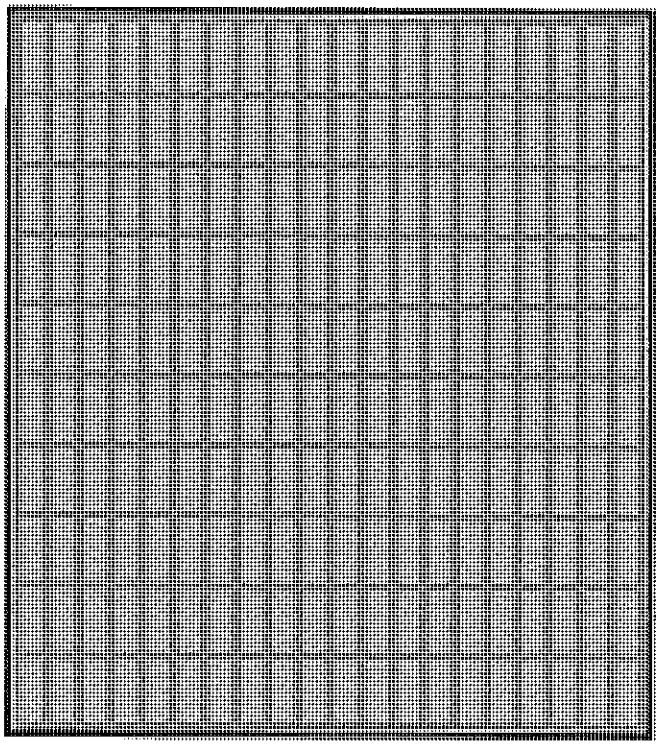
10 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 75.50' Row Length +12.0" End Stone x 2 = 77.50' Base Length
20 Rows x 36.0" Wide + 4.0" Spacing x 19 + 12.0" Side Stone x 2 = 68.33' Base Width
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

200 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 20 Rows = 2,810.9 cf Chamber Storage

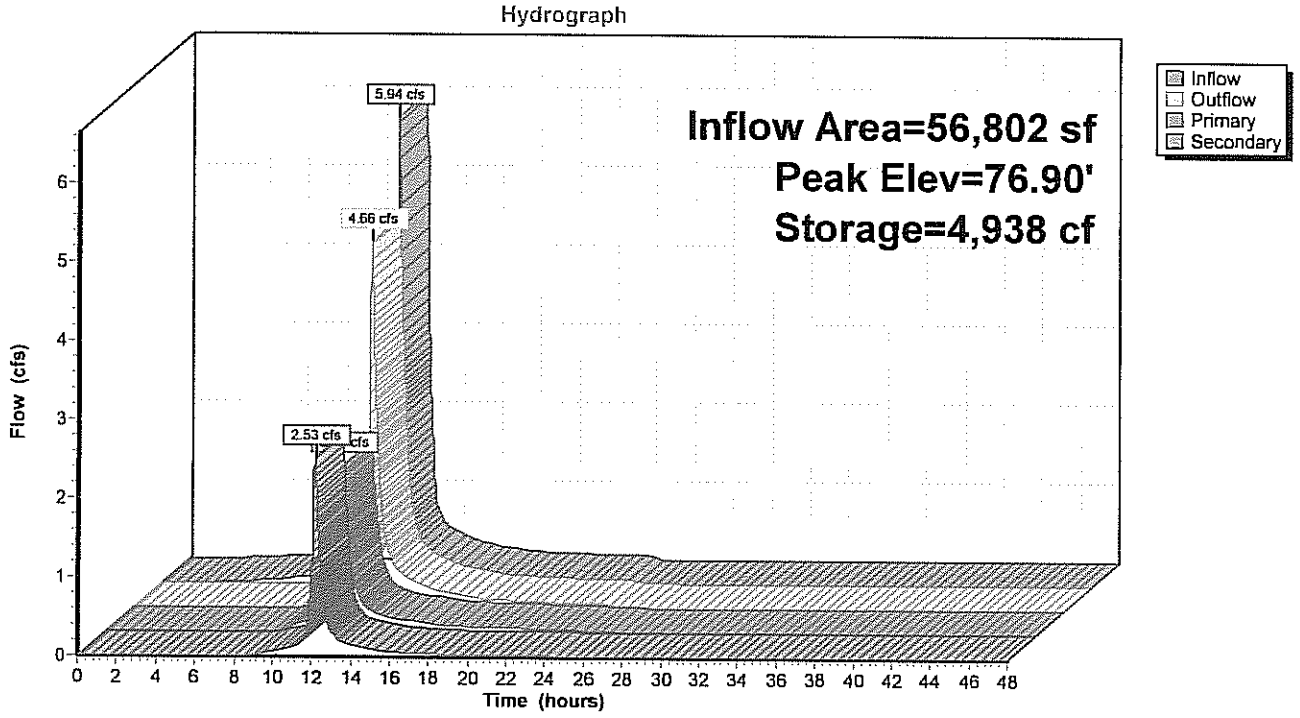
10,812.3 cf Field - 2,810.9 cf Chambers = 8,001.5 cf Stone x 40.0% Voids = 3,200.6 cf Stone Storage

Chamber Storage + Stone Storage = 6,011.4 cf = 0.138 af
Overall Storage Efficiency = 55.6%

200 Chambers
400.5 cy Field
296.4 cy Stone



Pond BASIN-2: Subsurface Detention System



Summary for Pond BASIN-3: BioRetention Area 3

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 3.20" for 10 YR event
Inflow = 2.75 cfs @ 12.10 hrs, Volume= 7,934 cf
Outflow = 1.05 cfs @ 12.34 hrs, Volume= 7,880 cf, Atten= 62%, Lag= 14.6 min
Primary = 1.05 cfs @ 12.34 hrs, Volume= 7,880 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.75' @ 12.34 hrs Surf.Area= 4,178 sf Storage= 2,911 cf
Flood Elev= 78.00' Surf.Area= 5,167 sf Storage= 8,763 cf

Plug-Flow detention time= 124.7 min calculated for 7,879 cf (99% of inflow)
Center-of-Mass det. time= 120.8 min (946.6 - 825.8)

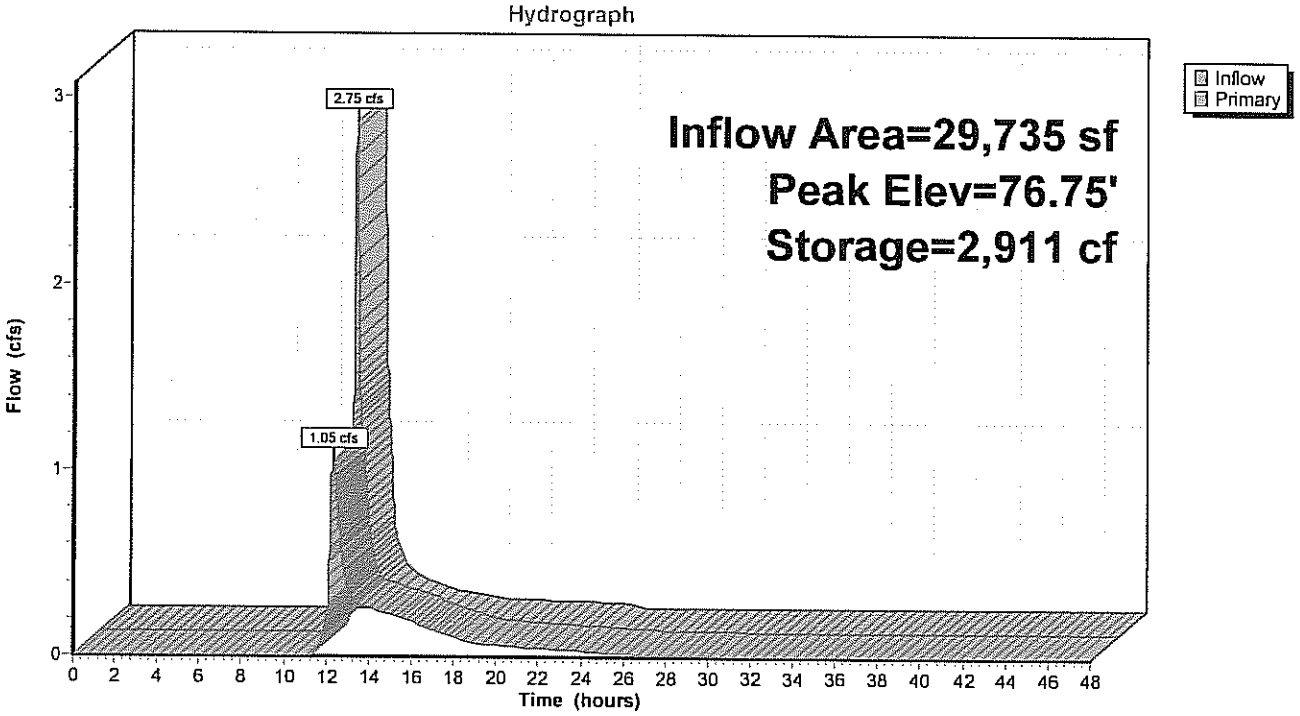
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	8,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	3,624	0	0
77.00	4,367	3,996	3,996
78.00	5,167	4,767	8,763

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**12.0" Round 12" HDPE** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	76.00'	**4.0" Vert. 4" Orifice** C= 0.600
#3	Device 1	76.60'	**4.0' long x 1.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.5' Crest Height

Primary OutFlow Max=1.05 cfs @ 12.34 hrs HW=76.75' TW=0.00' (Dynamic Tailwater)
↑—**1=12" HDPE** (Passes 1.05 cfs of 4.16 cfs potential flow)
↑—**2=4" Orifice** (Orifice Controls 0.32 cfs @ 3.67 fps)
—**3=Sharp-Crested Rectangular Weir** (Weir Controls 0.73 cfs @ 1.27 fps)

Pond BASIN-3: BioRetention Area 3



Summary for Pond BASIN-4: BioRetention Area 4

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 4.04" for 10 YR event
Inflow = 8.46 cfs @ 12.09 hrs, Volume= 27,850 cf
Outflow = 7.80 cfs @ 12.13 hrs, Volume= 24,617 cf, Atten= 8%, Lag= 2.1 min
Primary = 7.80 cfs @ 12.13 hrs, Volume= 24,617 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.45' @ 12.13 hrs Surf.Area= 3,946 sf Storage= 4,932 cf
Flood Elev= 79.00' Surf.Area= 4,374 sf Storage= 7,218 cf

Plug-Flow detention time= 88.1 min calculated for 24,612 cf (88% of inflow)
Center-of-Mass det. time= 35.0 min (823.6 - 788.6)

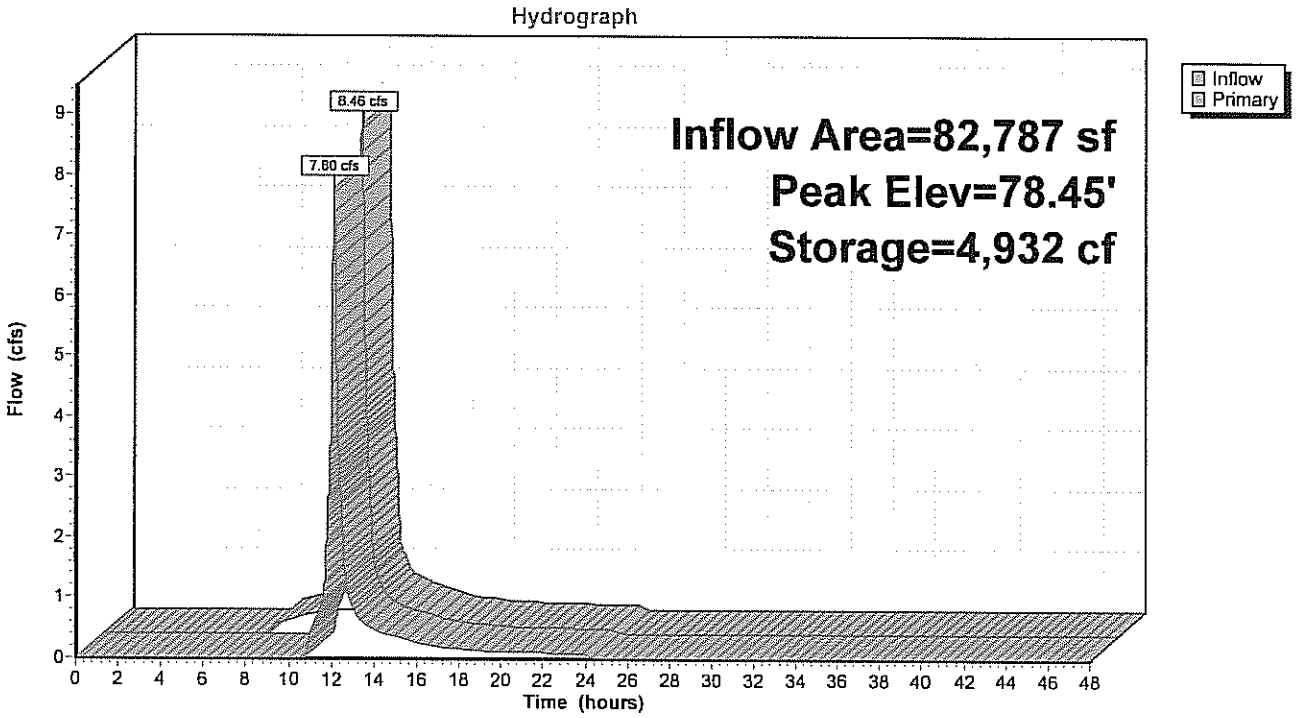
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	7,218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	2,871	0	0
78.00	3,595	3,233	3,233
79.00	4,374	3,985	7,218

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=7.79 cfs @ 12.13 hrs HW=78.45' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 7.79 cfs @ 1.73 fps)

Pond BASIN-4: BioRetention Area 4



Summary for Pond DMH-1: DMH-1

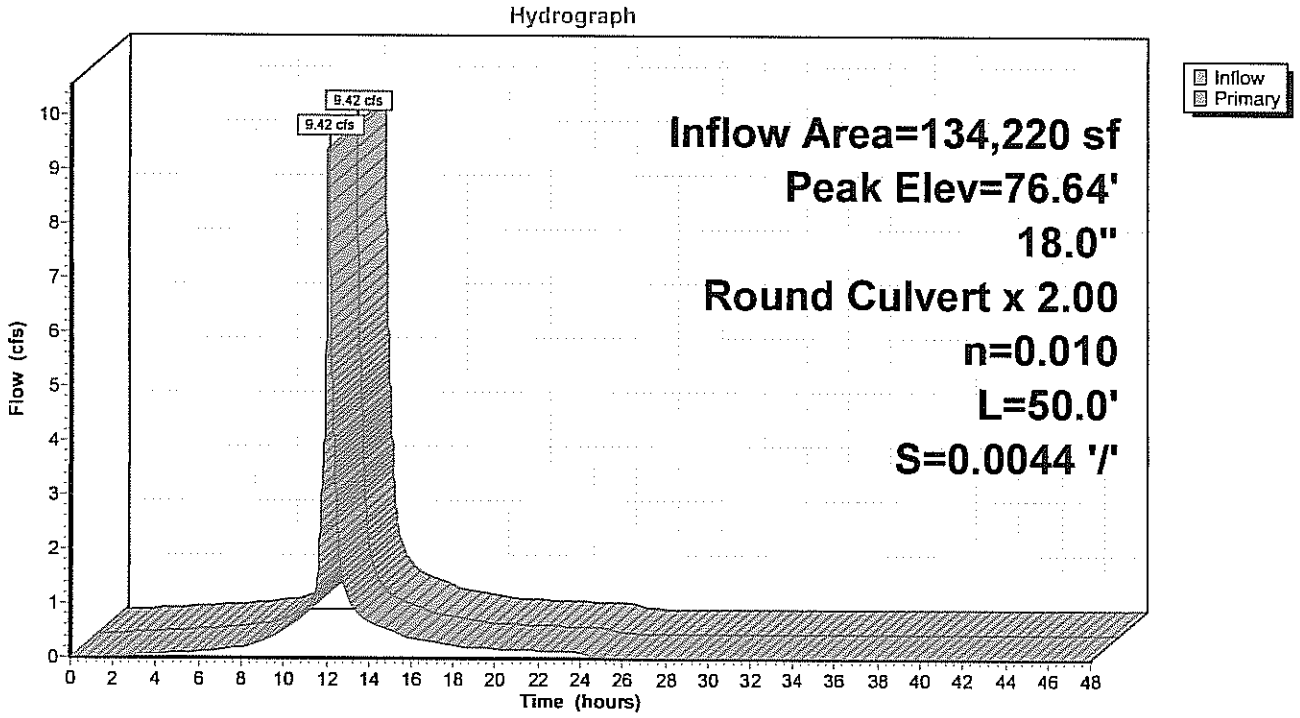
Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 3.59" for 10 YR event
Inflow = 9.42 cfs @ 12.10 hrs, Volume= 40,160 cf
Outflow = 9.42 cfs @ 12.10 hrs, Volume= 40,160 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.42 cfs @ 12.10 hrs, Volume= 40,160 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.64' @ 12.10 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.42'	**18.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.42' / 75.20' S= 0.0044 '/' Cc= 0.900 n= 0.010 Cast iron, coated, Flow Area= 1.77 sf

Primary OutFlow Max=9.42 cfs @ 12.10 hrs HW=76.64' TW=0.00' (Dynamic Tailwater)
└**1=Culvert** (Barrel Controls 9.42 cfs @ 4.15 fps)

Pond DMH-1: DMH-1



Summary for Pond DMH-2: DMH-2

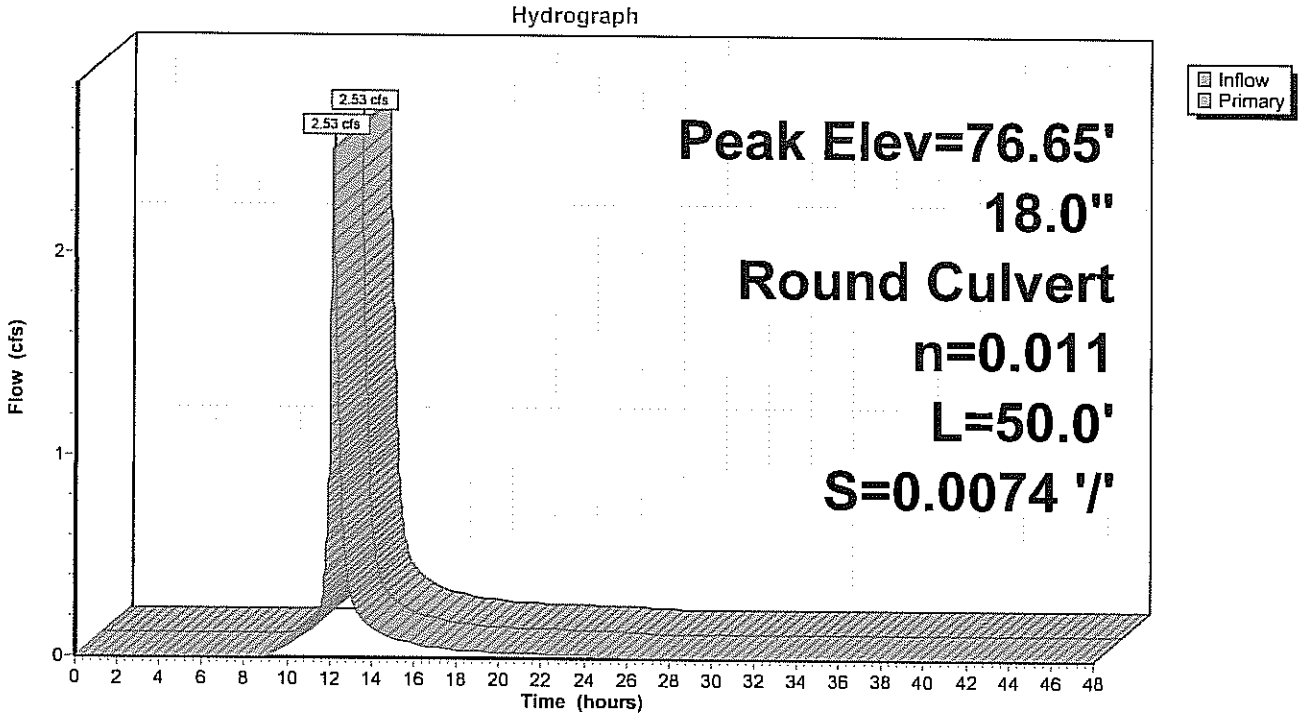
Inflow	=	2.53 cfs @	12.17 hrs, Volume=	8,156 cf
Outflow	=	2.53 cfs @	12.17 hrs, Volume=	8,156 cf, Atten= 0%, Lag= 0.0 min
Primary	=	2.53 cfs @	12.17 hrs, Volume=	8,156 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.65' @ 12.17 hrs
Flood Elev= 79.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.50' S= 0.0074 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=2.53 cfs @ 12.17 hrs HW=76.65' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 2.53 cfs @ 3.96 fps)

Pond DMH-2: DMH-2



Summary for Pond DMH-3:

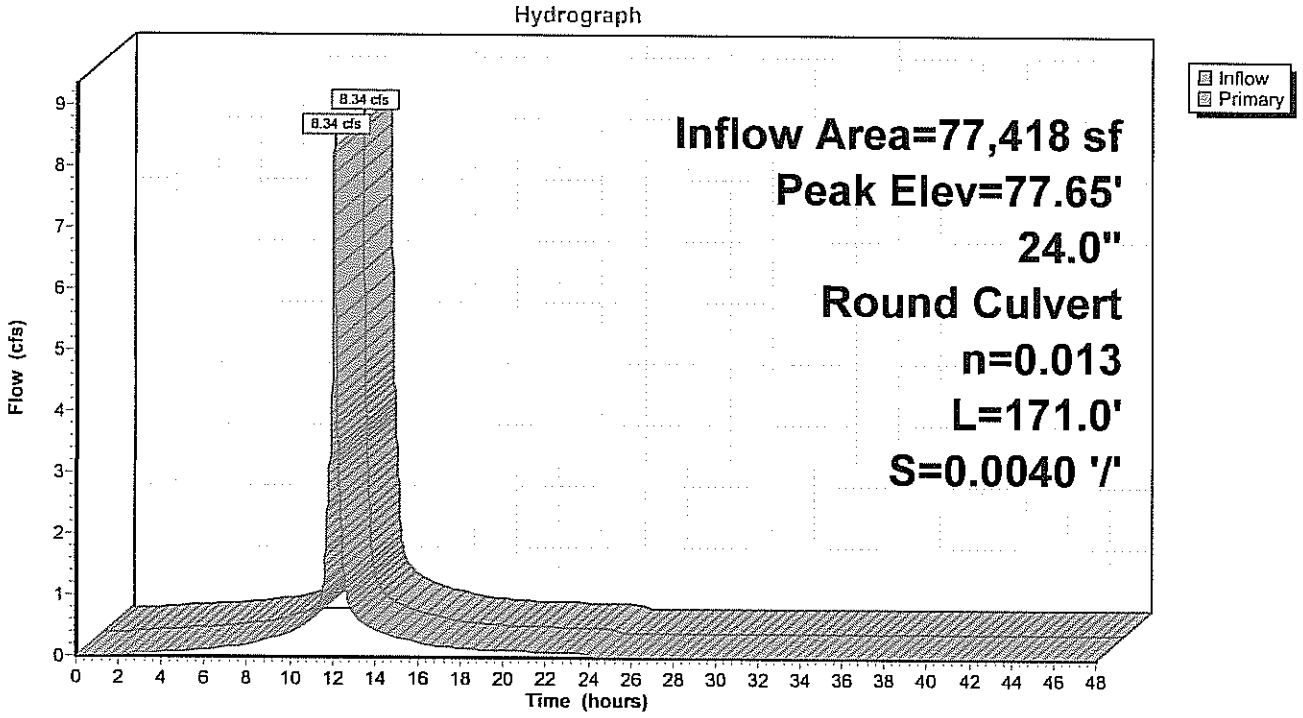
Inflow Area = 77,418 sf,100.00% Impervious, Inflow Depth = 4.56" for 10 YR event
Inflow = 8.34 cfs @ 12.08 hrs, Volume= 29,441 cf
Outflow = 8.34 cfs @ 12.08 hrs, Volume= 29,441 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.34 cfs @ 12.08 hrs, Volume= 29,441 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.65' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.14'	**24.0" Round Culvert** L= 171.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.14' / 75.45' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=8.33 cfs @ 12.08 hrs HW=77.64' TW=76.63' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 8.33 cfs @ 4.56 fps)

Pond DMH-3:



Summary for Pond FB-1: Forebay

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 3.18" for 10 YR event
Inflow = 6.96 cfs @ 12.09 hrs, Volume= 21,738 cf
Outflow = 6.62 cfs @ 12.11 hrs, Volume= 17,299 cf, Atten= 5%, Lag= 1.6 min
Primary = 6.62 cfs @ 12.11 hrs, Volume= 17,299 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.63' @ 13.00 hrs Surf.Area= 2,705 sf Storage= 4,792 cf
Flood Elev= 79.00' Surf.Area= 2,991 sf Storage= 5,837 cf

Plug-Flow detention time= 123.2 min calculated for 17,295 cf (80% of inflow)
Center-of-Mass det. time= 46.2 min (855.3 - 809.1)

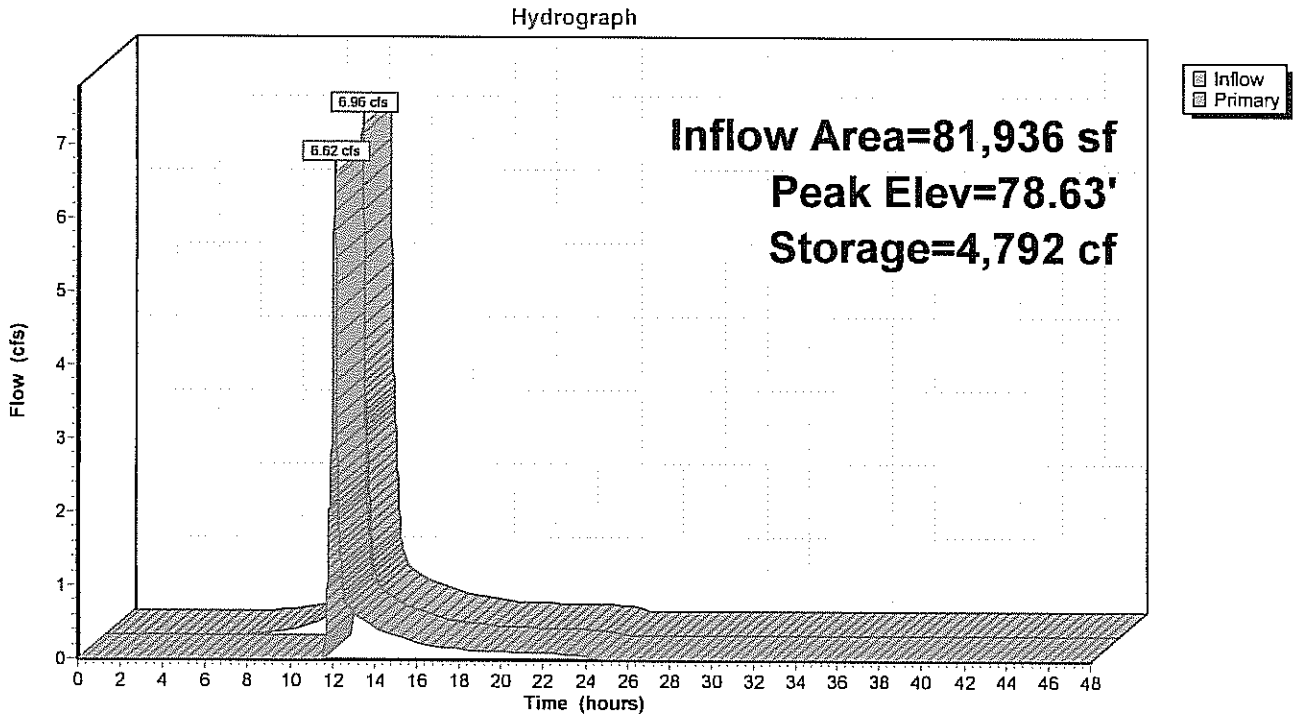
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	5,837 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	1,200	0	0
77.00	1,518	1,359	1,359
78.00	2,227	1,873	3,232
78.50	2,602	1,207	4,439
79.00	2,991	1,398	5,837

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=6.61 cfs @ 12.11 hrs HW=78.41' TW=77.81' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 6.61 cfs @ 1.63 fps)

Pond FB-1: Forebay



Summary for Pond FB-2: Forebay

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 3.58" for 10 YR event
Inflow = 2.79 cfs @ 12.09 hrs, Volume= 8,873 cf
Outflow = 2.75 cfs @ 12.10 hrs, Volume= 7,934 cf, Atten= 2%, Lag= 0.9 min
Primary = 2.75 cfs @ 12.10 hrs, Volume= 7,934 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.84' @ 12.10 hrs Surf.Area= 926 sf Storage= 1,149 cf
Flood Elev= 77.00' Surf.Area= 982 sf Storage= 1,304 cf

Plug-Flow detention time= 80.5 min calculated for 7,932 cf (89% of inflow)
Center-of-Mass det. time= 30.0 min (825.8 - 795.8)

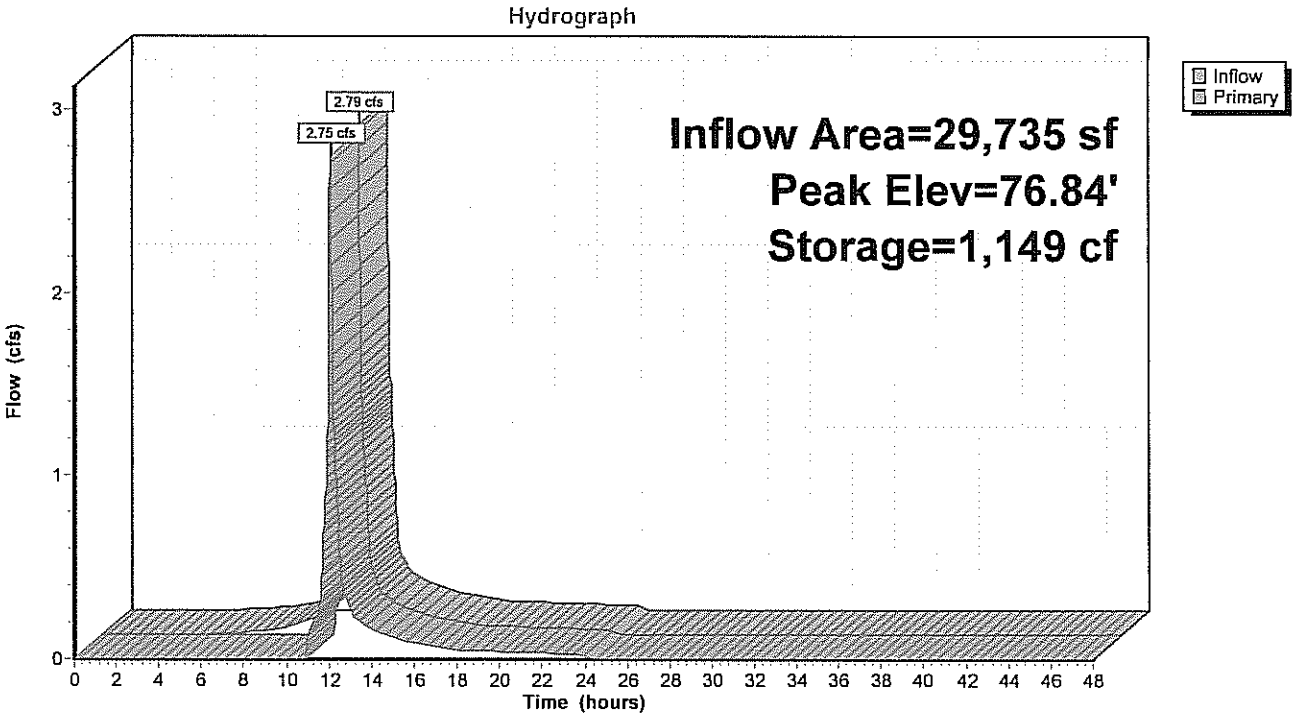
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	1,304 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.00	350	0	0
76.00	638	494	494
77.00	982	810	1,304

Device	Routing	Invert	Outlet Devices
#1	Primary	76.60'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=2.75 cfs @ 12.10 hrs HW=76.84' TW=76.55' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 2.75 cfs @ 1.16 fps)

Pond FB-2: Forebay



Summary for Pond FB-3: Forebay

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 4.22" for 10 YR event
Inflow = 8.66 cfs @ 12.08 hrs, Volume= 29,124 cf
Outflow = 8.46 cfs @ 12.09 hrs, Volume= 27,850 cf, Atten= 2%, Lag= 0.4 min
Primary = 8.46 cfs @ 12.09 hrs, Volume= 27,850 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.53' @ 12.11 hrs Surf.Area= 1,324 sf Storage= 1,562 cf
Flood Elev= 78.80' Surf.Area= 1,439 sf Storage= 1,941 cf

Plug-Flow detention time= 44.8 min calculated for 27,850 cf (96% of inflow)
Center-of-Mass det. time= 19.3 min (788.6 - 769.3)

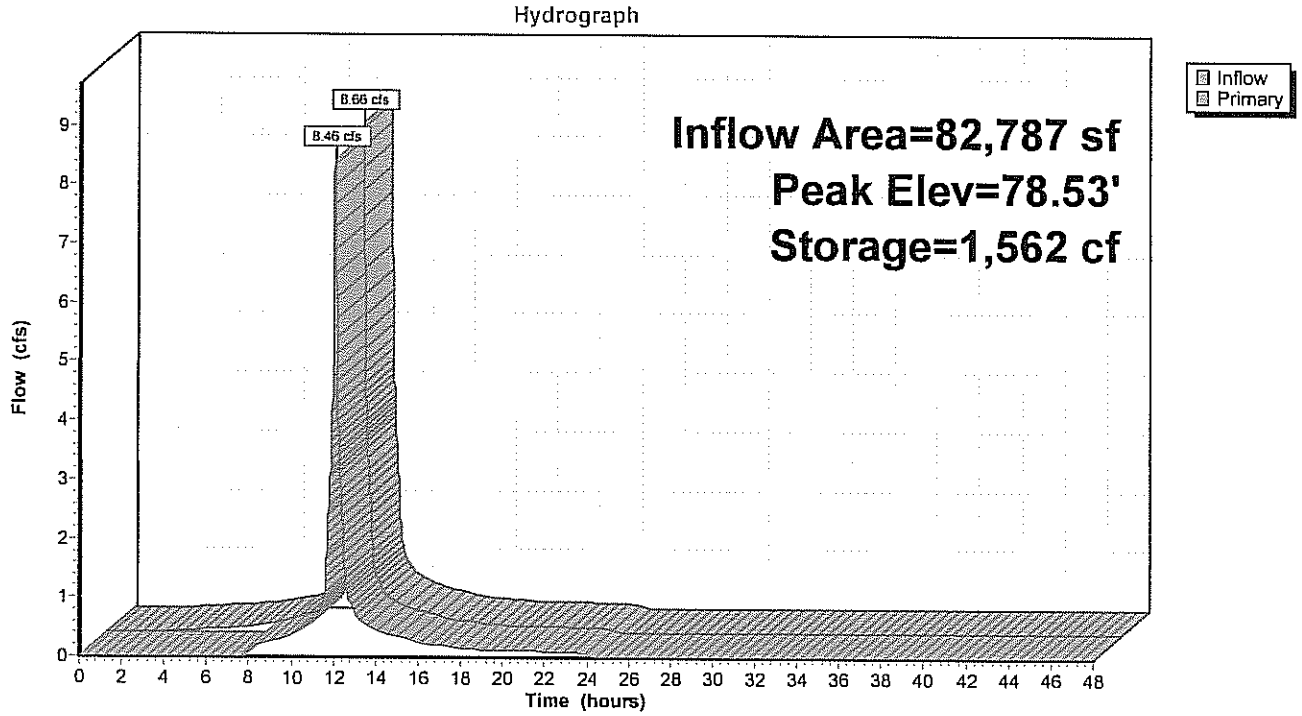
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	1,941 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	743	0	0
78.00	1,104	924	924
78.80	1,439	1,017	1,941

Device	Routing	Invert	Outlet Devices
#1	Primary	78.30'	**38.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=8.46 cfs @ 12.09 hrs HW=78.52' TW=78.43' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 8.46 cfs @ 1.01 fps)

Pond FB-3: Forebay



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1: Post Development Runoff Area=81,936 sf 4.31% Impervious Runoff Depth=3.83"
Tc=6.0 min CN=85 Runoff=8.33 cfs 26,171 cf

Subcatchment POST 1A: Post Development Runoff Area=47,737 sf 0.00% Impervious Runoff Depth=2.41"
Tc=6.0 min CN=70 Runoff=3.07 cfs 9,604 cf

Subcatchment POST 2: Post Development Runoff Area=56,802 sf 85.28% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=95 Runoff=6.86 cfs 23,266 cf

Subcatchment POST 3: Post Development Runoff Area=29,735 sf 63.13% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=89 Runoff=3.29 cfs 10,537 cf

Subcatchment POST 3A: Post Runoff Area=47,475 sf 35.05% Impervious Runoff Depth=3.33"
Tc=6.0 min CN=80 Runoff=4.25 cfs 13,188 cf

Subcatchment POST 4: Post Development Runoff Area=82,787 sf 85.50% Impervious Runoff Depth=4.92"
Tc=6.0 min CN=95 Runoff=10.00 cfs 33,910 cf

Subcatchment POST 4A: Post Runoff Area=35,765 sf 10.20% Impervious Runoff Depth=2.68"
Tc=6.0 min CN=73 Runoff=2.57 cfs 7,984 cf

Subcatchment POST-2A: Post Runoff Area=77,418 sf 100.00% Impervious Runoff Depth=5.26"
Tc=6.0 min CN=98 Runoff=9.57 cfs 33,951 cf

Pond 3P: DCB-1 Peak Elev=77.48' Inflow=6.86 cfs 23,266 cf
12.0" Round Culvert x 2.00 n=0.013 L=6.0' S=0.0133 '/' Outflow=6.86 cfs 23,266 cf

Pond AP-1: WET-8 (No Flow)
Primary=0.00 cfs 0 cf

Pond AP-2: WET-1 Inflow=3.07 cfs 23,691 cf
Primary=3.07 cfs 23,691 cf

Pond AP-3: OFFSITE SWALE Inflow=13.85 cfs 56,109 cf
Primary=13.85 cfs 56,109 cf

Pond AP-4: WET-2 Inflow=4.85 cfs 22,731 cf
Primary=4.85 cfs 22,731 cf

Pond AP-5: WET-3 Inflow=11.47 cfs 37,387 cf
Primary=11.47 cfs 37,387 cf

Pond BASIN-1: BioRetention Area 1 Peak Elev=78.76' Storage=9,156 cf Inflow=7.67 cfs 21,732 cf
Outflow=1.73 cfs 14,087 cf

Pond BASIN-2: Subsurface Detention Peak Elev=77.06' Storage=5,262 cf Inflow=6.86 cfs 23,266 cf
Primary=2.51 cfs 12,366 cf Secondary=3.13 cfs 9,792 cf Outflow=5.61 cfs 22,158 cf

Pond BASIN-3: BioRetention Area 3 Peak Elev=76.81' Storage=3,180 cf Inflow=3.15 cfs 9,598 cf
Outflow=1.61 cfs 9,544 cf

Pond BASIN-4: BioRetention Area 4 Peak Elev=78.49' Storage=5,101 cf Inflow=9.75 cfs 32,636 cf
Outflow=9.06 cfs 29,403 cf

Pond DMH-1: DMH-1 Peak Elev=76.78' Inflow=11.00 cfs 46,316 cf
18.0" Round Culvert x 2.00 n=0.010 L=50.0' S=0.0044 '/' Outflow=11.00 cfs 46,316 cf

Pond DMH-2: DMH-2 Peak Elev=76.76' Inflow=3.13 cfs 9,792 cf
18.0" Round Culvert n=0.011 L=50.0' S=0.0074 '/' Outflow=3.13 cfs 9,792 cf

Pond DMH-3: Peak Elev=77.79' Inflow=9.57 cfs 33,951 cf
24.0" Round Culvert n=0.013 L=171.0' S=0.0040 '/' Outflow=9.57 cfs 33,951 cf

Pond FB-1: Forebay Peak Elev=78.76' Storage=5,132 cf Inflow=8.33 cfs 26,171 cf
Outflow=7.67 cfs 21,732 cf

Pond FB-2: Forebay Peak Elev=76.87' Storage=1,184 cf Inflow=3.29 cfs 10,537 cf
Outflow=3.15 cfs 9,598 cf

Pond FB-3: Forebay Peak Elev=78.56' Storage=1,610 cf Inflow=10.00 cfs 33,910 cf
Outflow=9.75 cfs 32,636 cf

Total Runoff Area = 459,655 sf Runoff Volume = 158,610 cf Average Runoff Depth = 4.14"
47.95% Pervious = 220,424 sf 52.05% Impervious = 239,231 sf

Summary for Subcatchment POST 1: Post Development Area 1

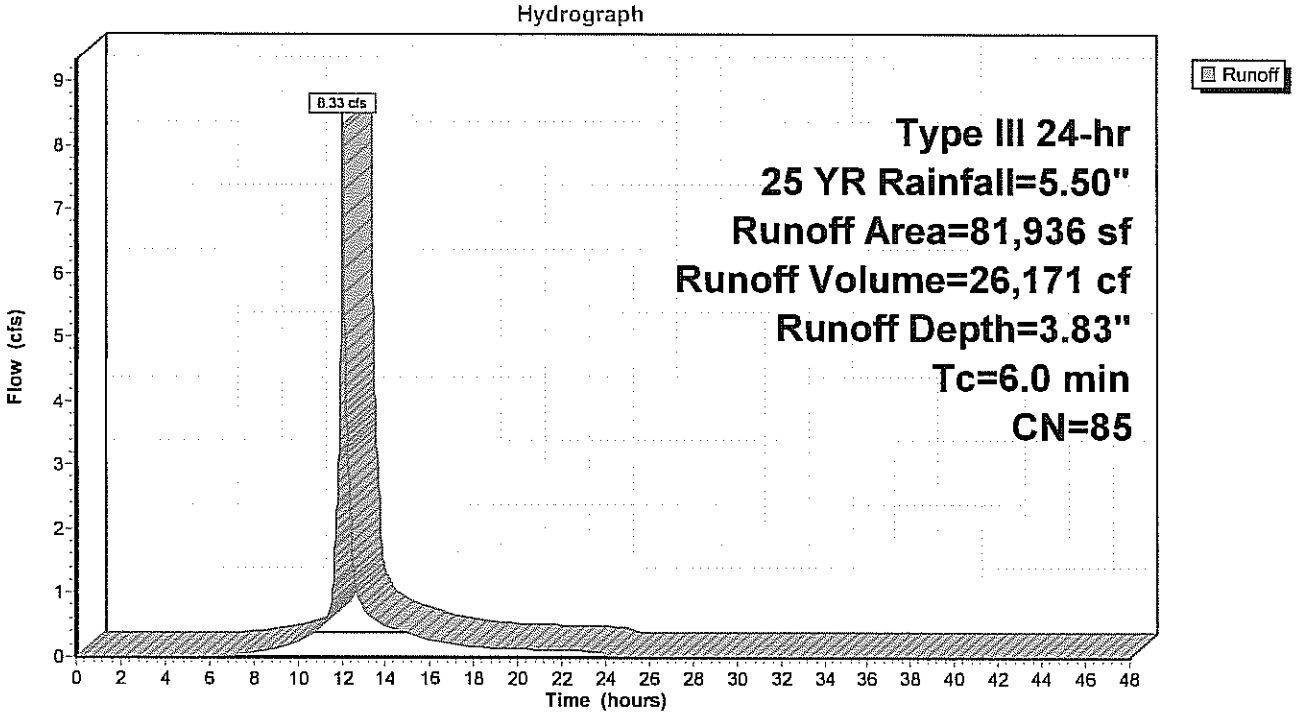
Runoff = 8.33 cfs @ 12.09 hrs, Volume= 26,171 cf, Depth= 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
51,749	89	Gravel roads, HSG C
3,528	98	Paved parking, HSG C
26,659	74	>75% Grass cover, Good, HSG C
81,936	85	Weighted Average
78,408		95.69% Pervious Area
3,528		4.31% Impervious Area

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

Subcatchment POST 1: Post Development Area 1



Summary for Subcatchment POST 1A: Post Development Area 1A

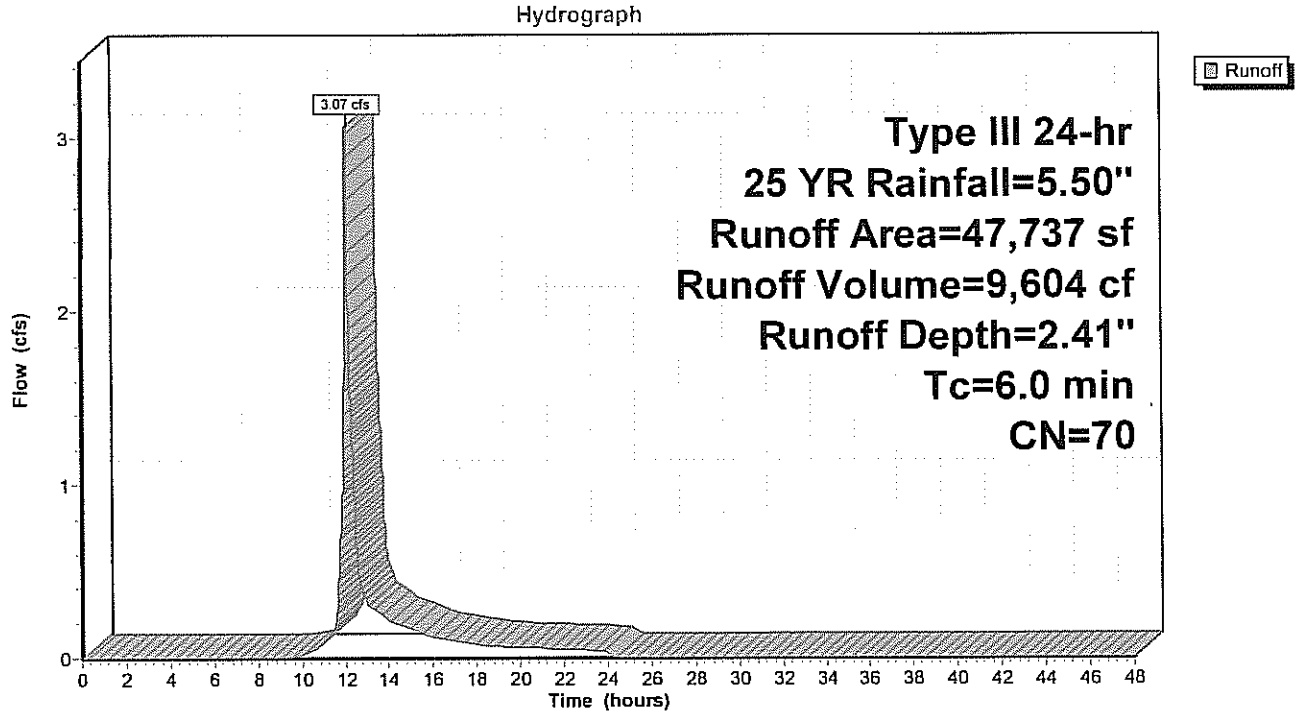
Runoff = 3.07 cfs @ 12.09 hrs, Volume= 9,604 cf, Depth= 2.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
942	89	Gravel roads, HSG C
46,795	70	Woods, Good, HSG C
47,737	70	Weighted Average
47,737		100.00% Pervious Area

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

Subcatchment POST 1A: Post Development Area 1A



Summary for Subcatchment POST 2: Post Development Area 2

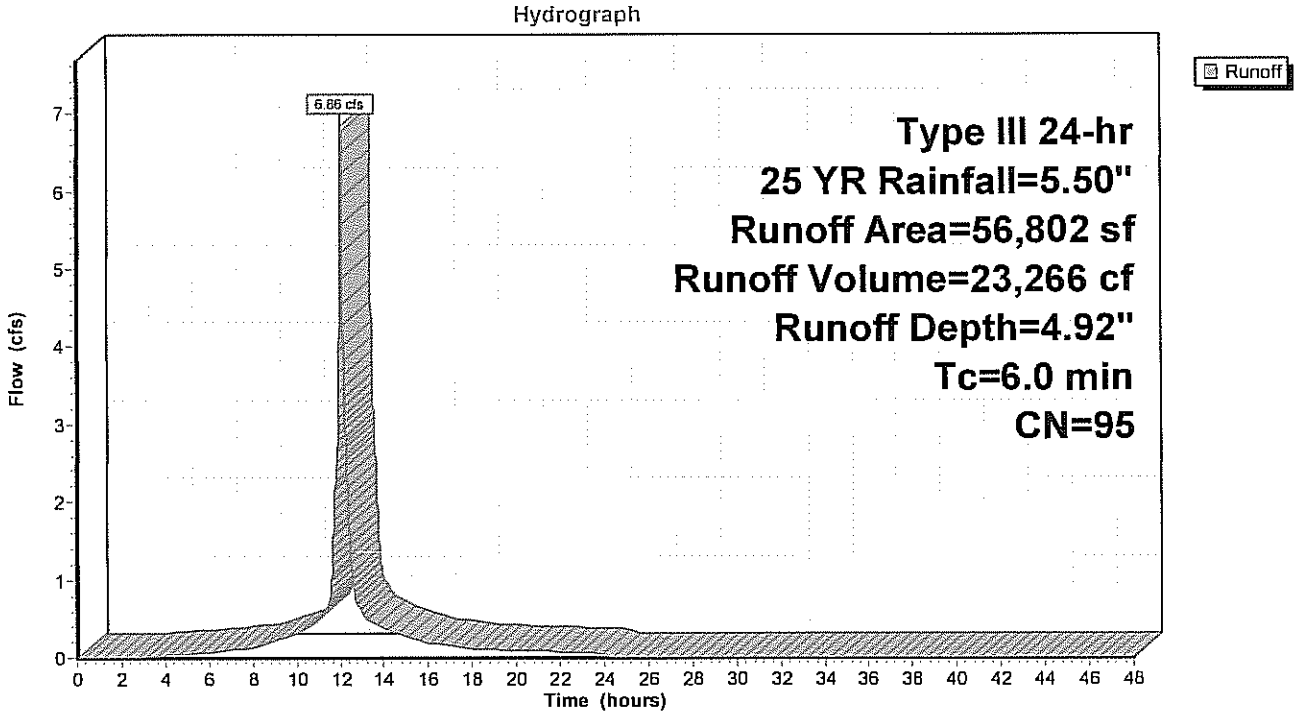
Runoff = 6.86 cfs @ 12.08 hrs, Volume= 23,266 cf, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
48,439	98	Paved parking, HSG C
2,831	89	Gravel roads, HSG C
5,532	74	>75% Grass cover, Good, HSG C
56,802	95	Weighted Average
8,363		14.72% Pervious Area
48,439		85.28% Impervious Area

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

Subcatchment POST 2: Post Development Area 2



Summary for Subcatchment POST 3: Post Development Area 3

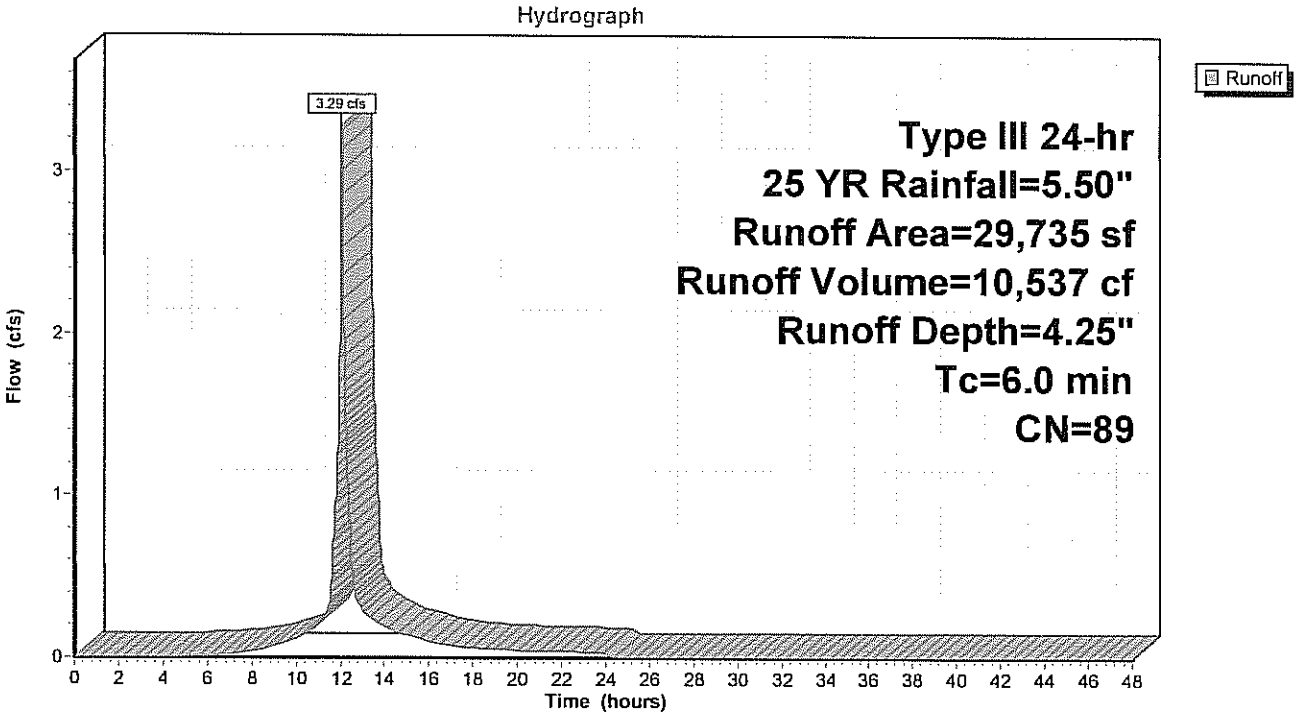
Runoff = 3.29 cfs @ 12.09 hrs, Volume= 10,537 cf, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
18,773	98	Paved parking, HSG C
10,962	74	>75% Grass cover, Good, HSG C
29,735	89	Weighted Average
10,962		36.87% Pervious Area
18,773		63.13% Impervious Area

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

Subcatchment POST 3: Post Development Area 3



Summary for Subcatchment POST 3A: Post Development Area 3A

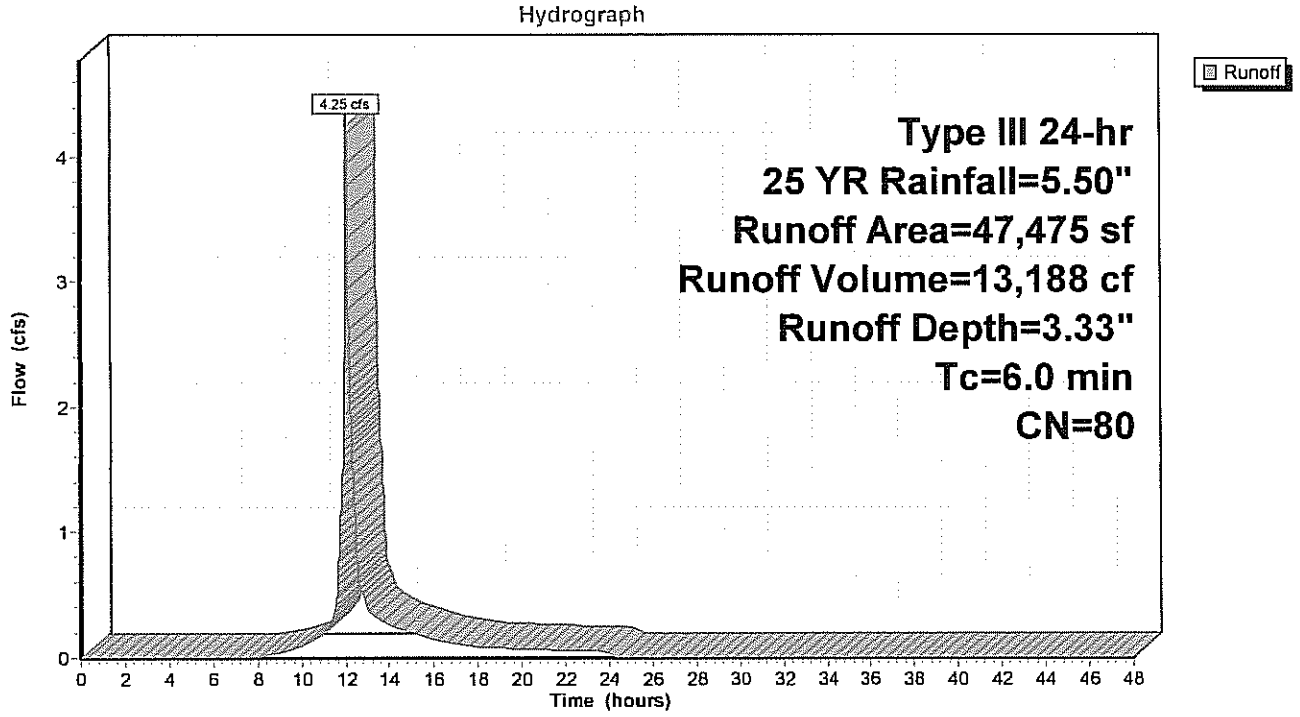
Runoff = 4.25 cfs @ 12.09 hrs, Volume= 13,188 cf, Depth= 3.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
14,950	98	Roofs, HSG C
1,689	98	Paved parking, HSG C
30,836	70	Woods, Good, HSG C
47,475	80	Weighted Average
30,836		64.95% Pervious Area
16,639		35.05% Impervious Area

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

Subcatchment POST 3A: Post Development Area 3A



Summary for Subcatchment POST 4: Post Development Area 4

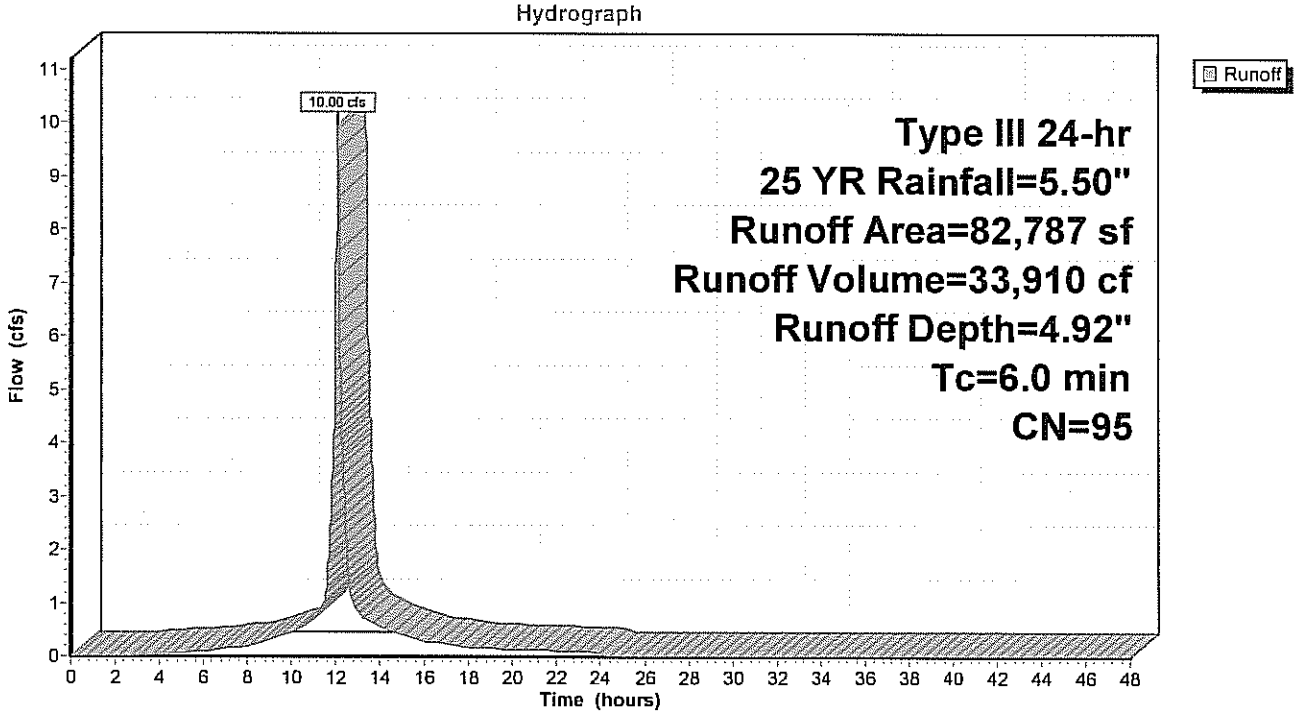
Runoff = 10.00 cfs @ 12.08 hrs, Volume= 33,910 cf, Depth= 4.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
70,785	98	Paved parking, HSG C
12,002	74	>75% Grass cover, Good, HSG C
82,787	95	Weighted Average
12,002		14.50% Pervious Area
70,785		85.50% Impervious Area

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

Subcatchment POST 4: Post Development Area 4



Summary for Subcatchment POST 4A: Post Development Area 4A

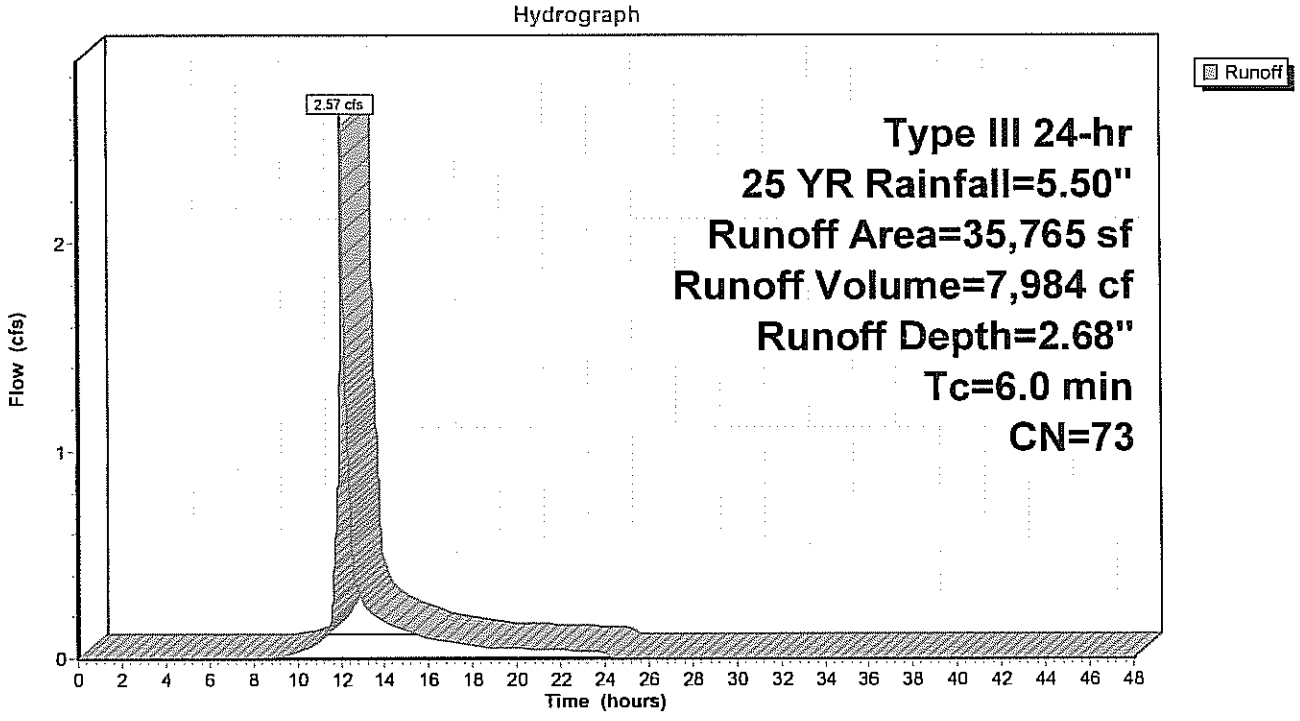
Runoff = 2.57 cfs @ 12.09 hrs, Volume= 7,984 cf, Depth= 2.68"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
32,116	70	Woods, Good, HSG C
3,649	98	Paved parking, HSG C
35,765	73	Weighted Average
32,116		89.80% Pervious Area
3,649		10.20% Impervious Area

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

Subcatchment POST 4A: Post Development Area 4A



Summary for Subcatchment POST-2A: Post Development Area 2A

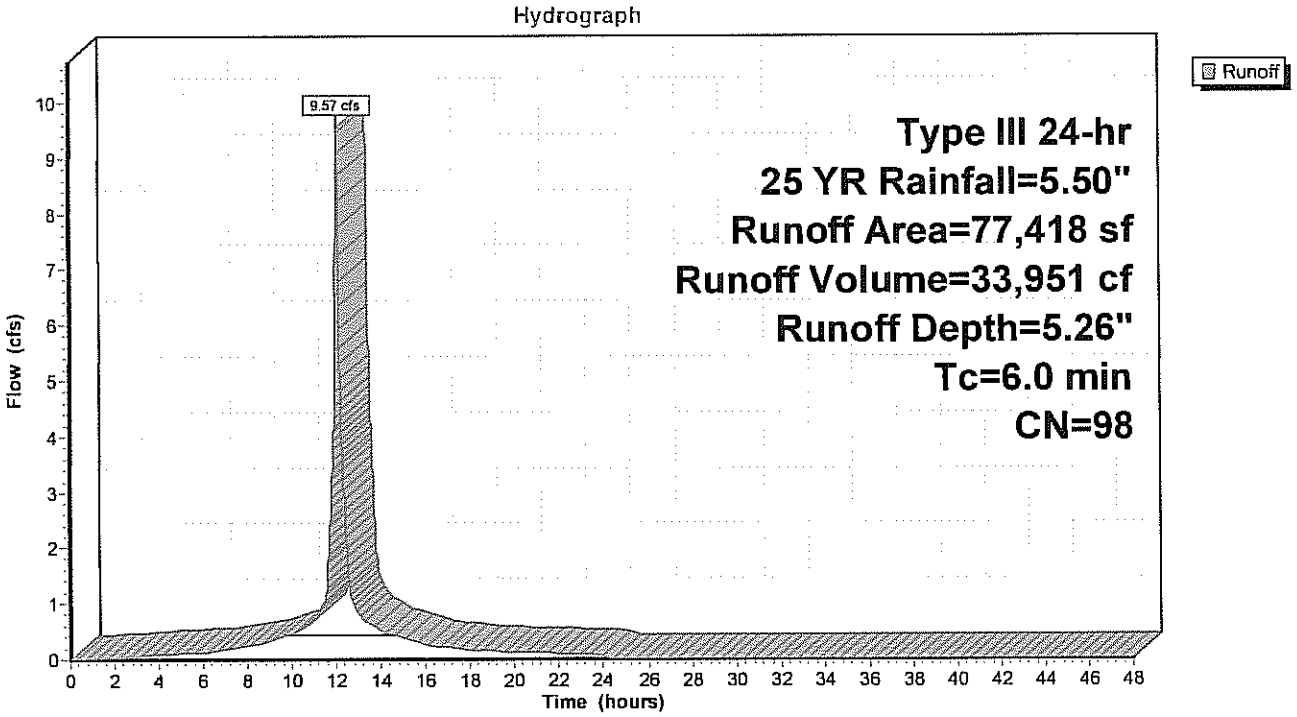
Runoff = 9.57 cfs @ 12.08 hrs, Volume= 33,951 cf, Depth= 5.26"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25 YR Rainfall=5.50"

Area (sf)	CN	Description
77,418	98	Roofs, HSG C
77,418		100.00% Impervious Area

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

Subcatchment POST-2A: Post Development Area 2A



Summary for Pond 3P: DCB-1

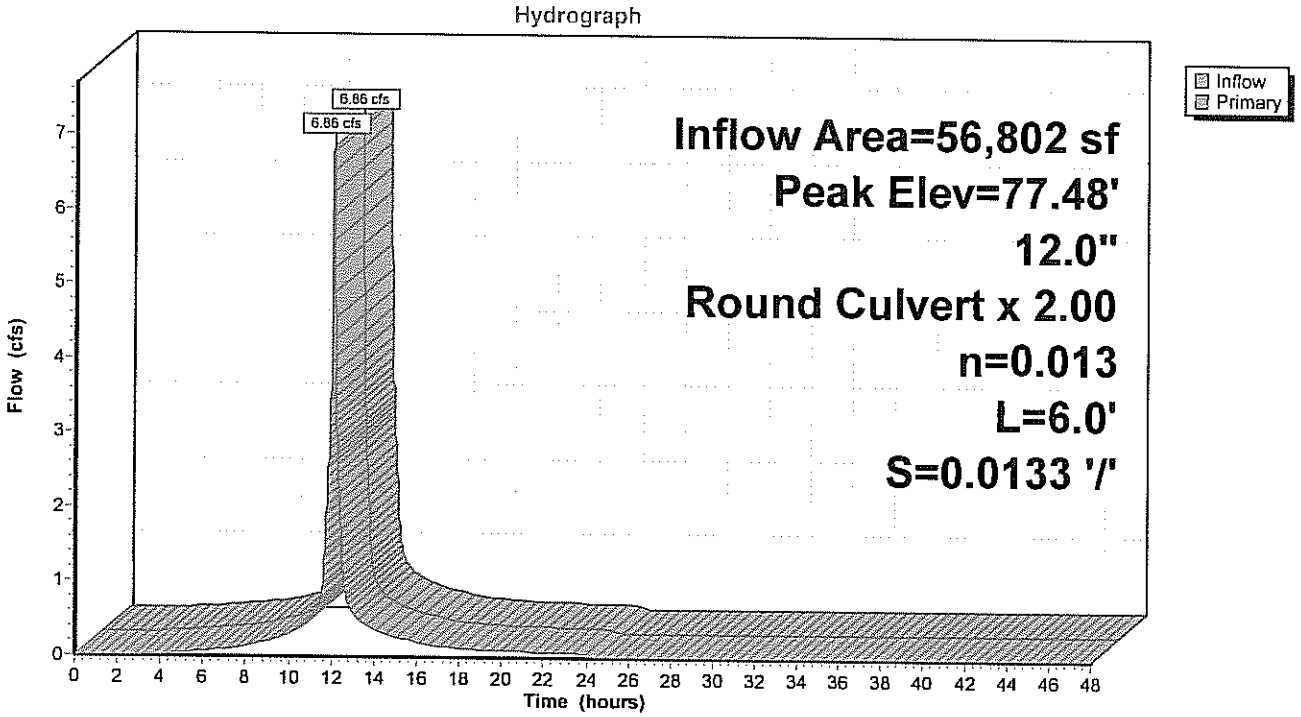
Inflow Area = 56,802 sf, 85.28% Impervious, Inflow Depth = 4.92" for 25 YR event
Inflow = 6.86 cfs @ 12.08 hrs, Volume= 23,266 cf
Outflow = 6.86 cfs @ 12.08 hrs, Volume= 23,266 cf, Atten= 0%, Lag= 0.0 min
Primary = 6.86 cfs @ 12.08 hrs, Volume= 23,266 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.48' @ 12.11 hrs
Flood Elev= 78.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	**12.0" Round Culvert X 2.00** L= 6.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.00' / 75.92' S= 0.0133 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=6.83 cfs @ 12.08 hrs HW=77.42' TW=76.90' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 6.83 cfs @ 4.35 fps)

Pond 3P: DCB-1

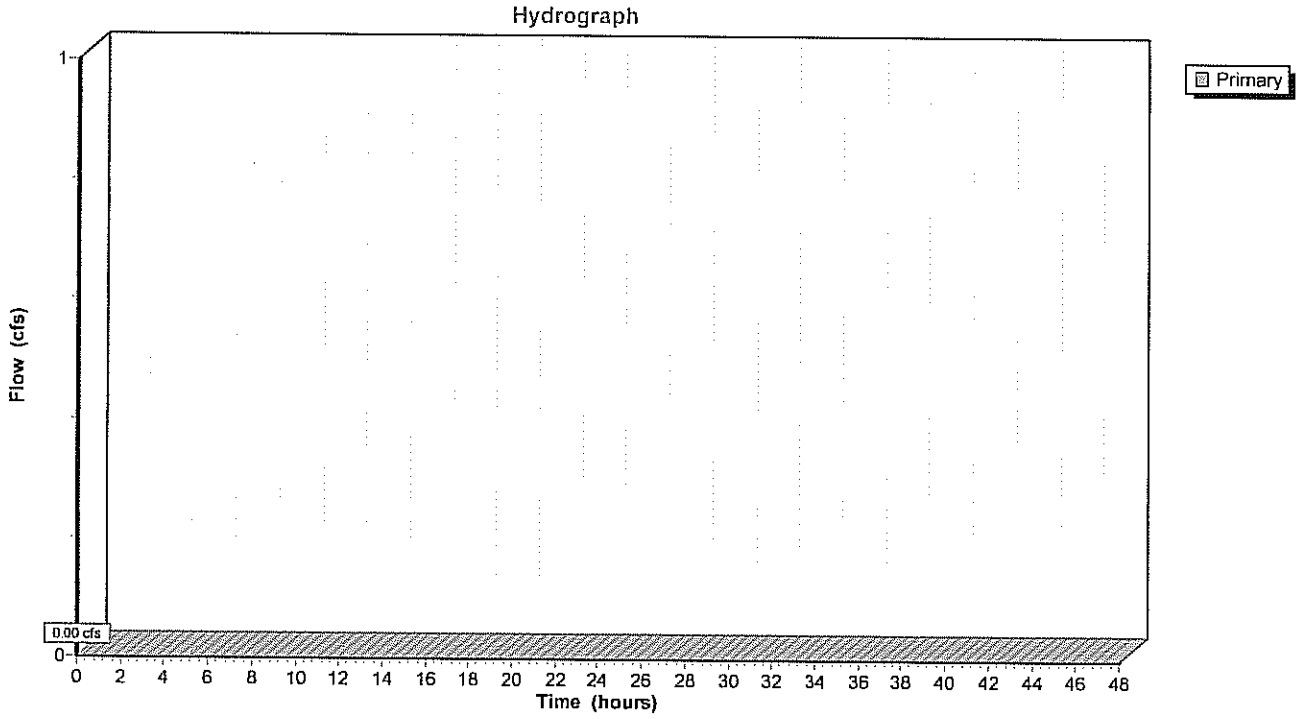


Summary for Pond AP-1: WET-8 (No Flow)

[40] Hint: Not Described (Outflow=Inflow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)

Pond AP-1: WET-8 (No Flow)



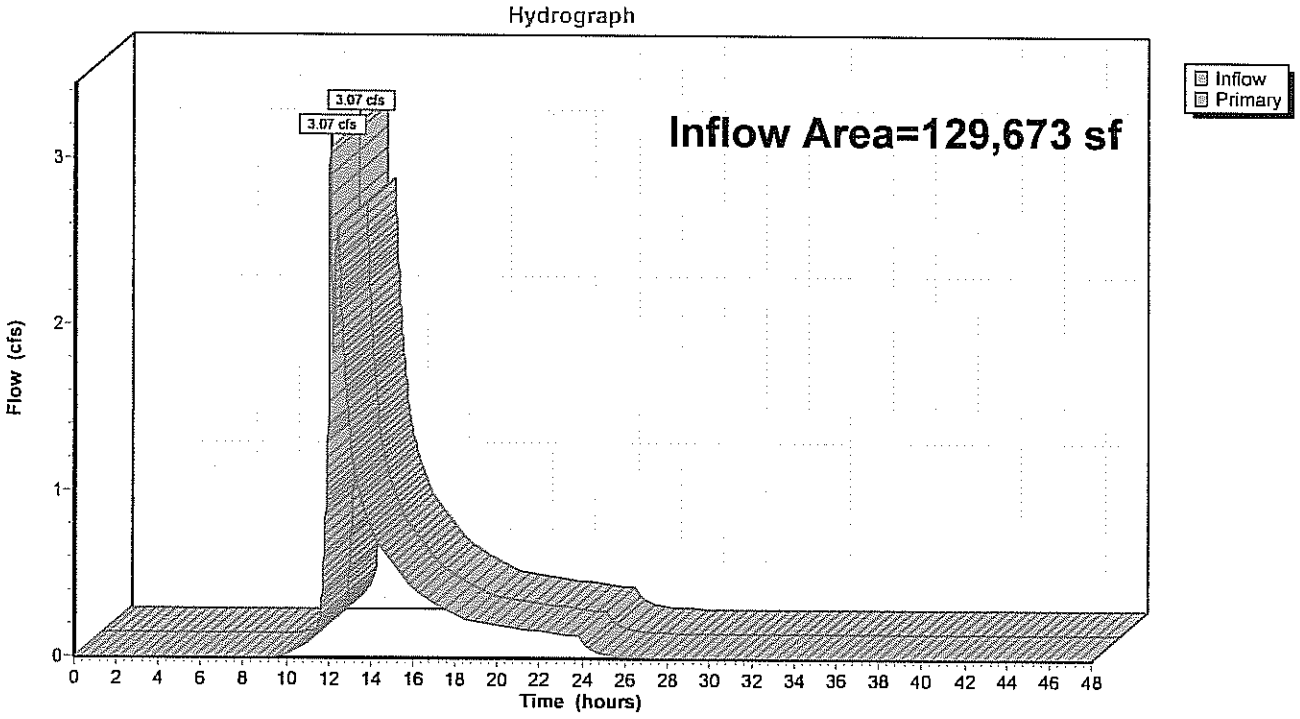
Summary for Pond AP-2: WET-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 129,673 sf, 2.72% Impervious, Inflow Depth = 2.19" for 25 YR event
Inflow = 3.07 cfs @ 12.09 hrs, Volume= 23,691 cf
Primary = 3.07 cfs @ 12.09 hrs, Volume= 23,691 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-2: WET-1



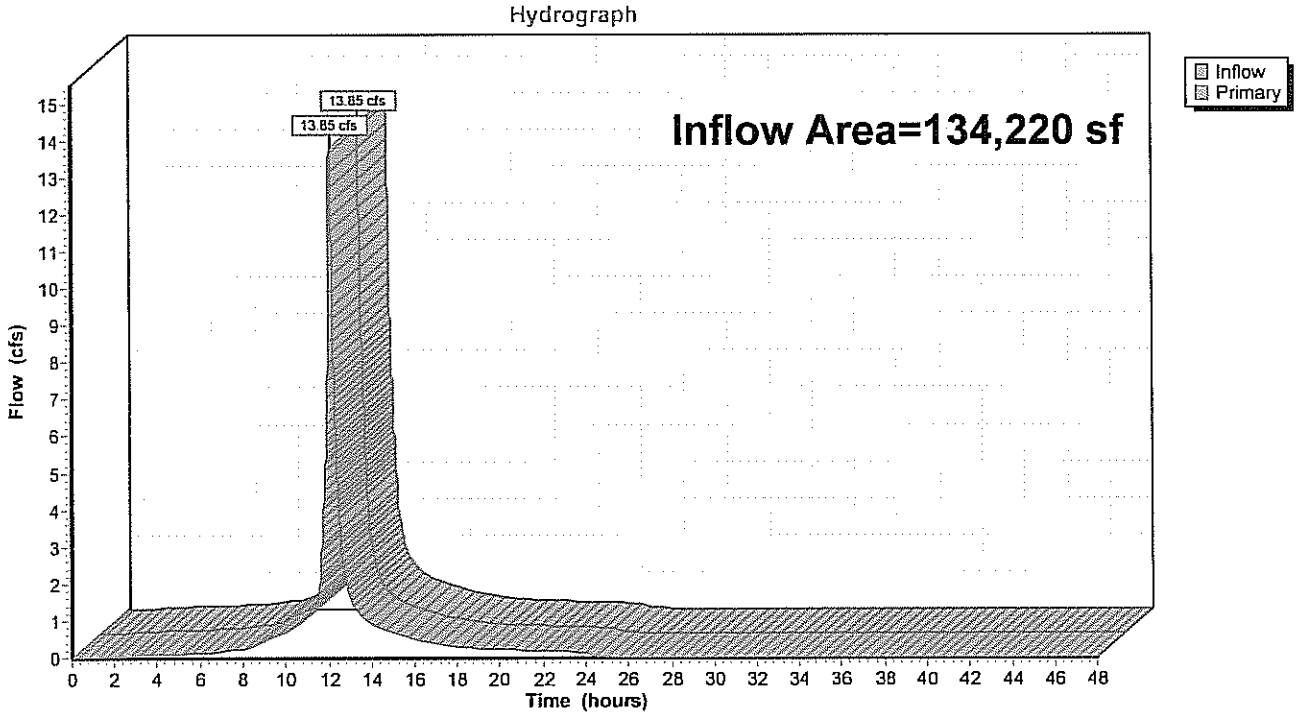
Summary for Pond AP-3: OFFSITE SWALE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 5.02" for 25 YR event
Inflow = 13.85 cfs @ 12.11 hrs, Volume= 56,109 cf
Primary = 13.85 cfs @ 12.11 hrs, Volume= 56,109 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-3: OFFSITE SWALE



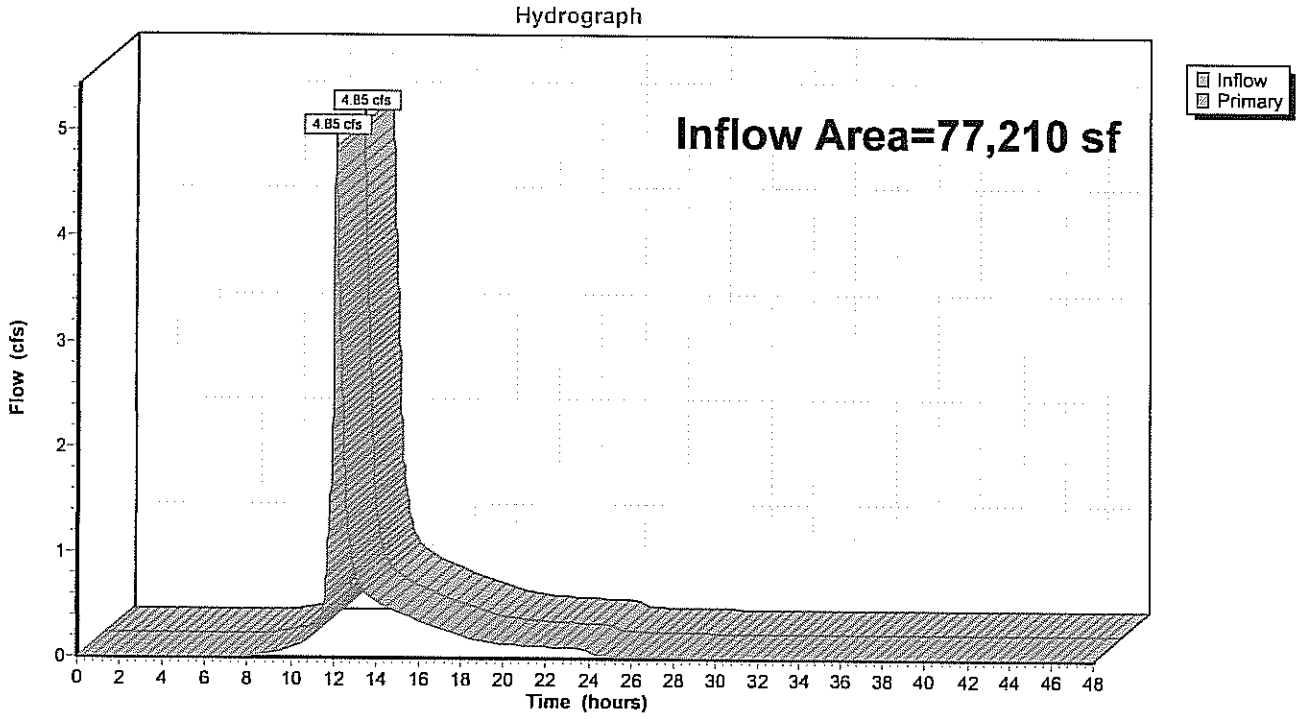
Summary for Pond AP-4: WET-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area =	77,210 sf,	45.86% Impervious,	Inflow Depth >	3.53"	for 25 YR event
Inflow =	4.85 cfs @	12.11 hrs, Volume=	22,731 cf		
Primary =	4.85 cfs @	12.11 hrs, Volume=	22,731 cf,	Atten= 0%,	Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-4: WET-2



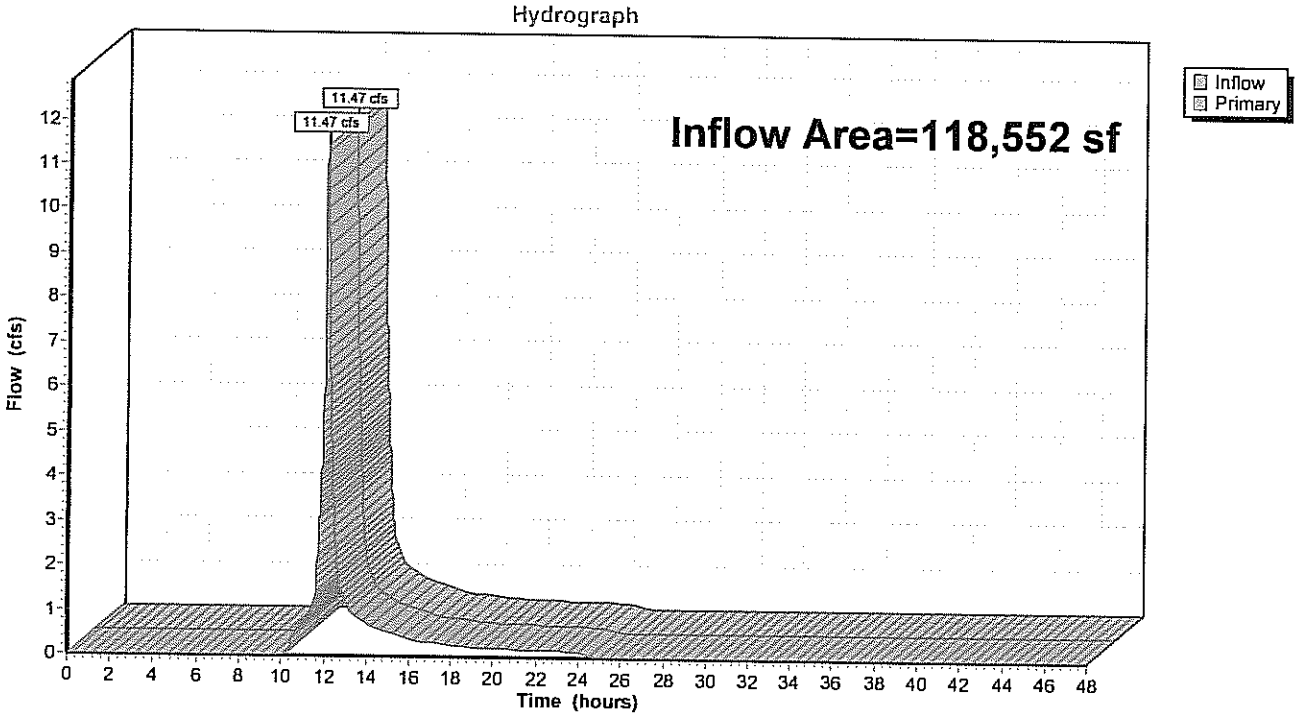
Summary for Pond AP-5: WET-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 118,552 sf, 62.79% Impervious, Inflow Depth = 3.78" for 25 YR event
Inflow = 11.47 cfs @ 12.12 hrs, Volume= 37,387 cf
Primary = 11.47 cfs @ 12.12 hrs, Volume= 37,387 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-5: WET-3



Summary for Pond BASIN-1: BioRetention Area 1

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 3.18" for 25 YR event
Inflow = 7.67 cfs @ 12.10 hrs, Volume= 21,732 cf
Outflow = 1.73 cfs @ 12.52 hrs, Volume= 14,087 cf, Atten= 77%, Lag= 25.1 min
Primary = 1.73 cfs @ 12.52 hrs, Volume= 14,087 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.76' @ 12.52 hrs Surf.Area= 6,049 sf Storage= 9,156 cf
Flood Elev= 80.00' Surf.Area= 7,310 sf Storage= 17,464 cf

Plug-Flow detention time= 198.7 min calculated for 14,084 cf (65% of inflow)
Center-of-Mass det. time= 92.7 min (938.5 - 845.7)

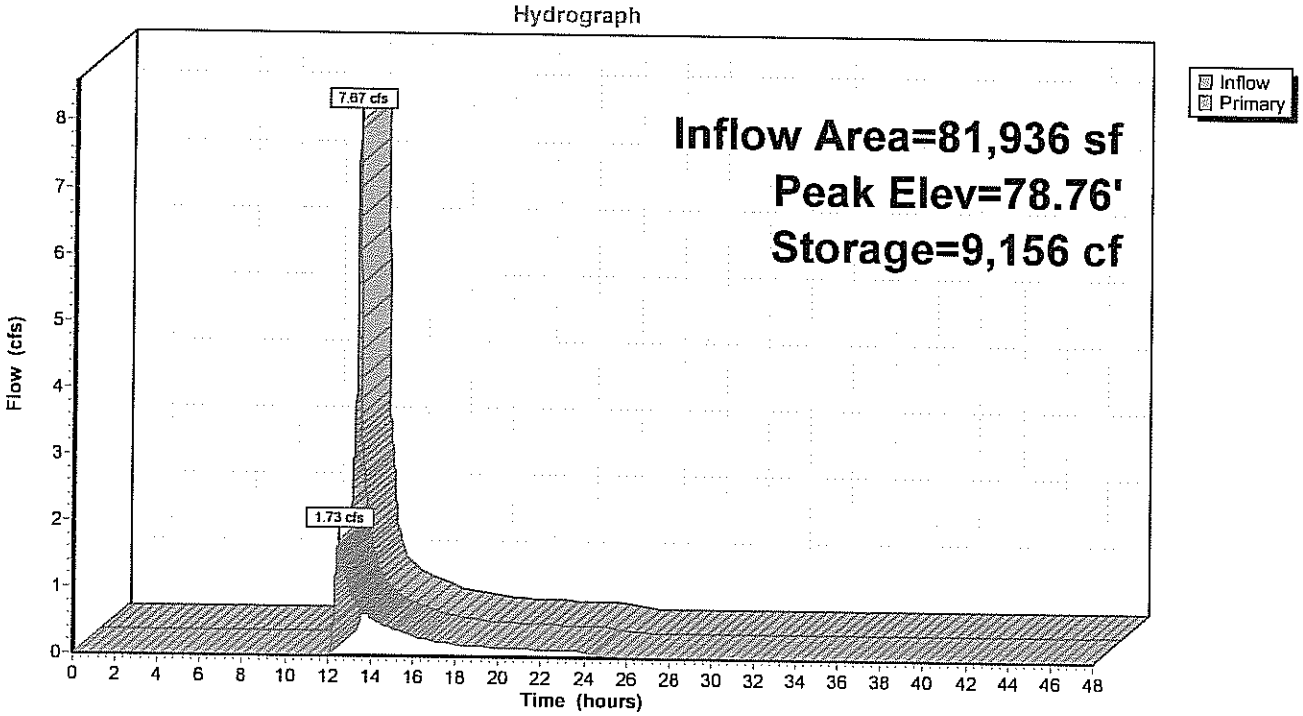
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	17,464 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	4,407	0	0
78.00	5,319	4,863	4,863
79.00	6,286	5,803	10,666
80.00	7,310	6,798	17,464

Device	Routing	Invert	Outlet Devices
#1	Primary	78.50'	**5.0' long x 25.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=1.73 cfs @ 12.52 hrs HW=78.76' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 1.73 cfs @ 1.36 fps)

Pond BASIN-1: BioRetention Area 1



Summary for Pond BASIN-2: Subsurface Detention System

Inflow Area =	56,802 sf,	85.28% Impervious,	Inflow Depth =	4.92"	for 25 YR event
Inflow =	6.86 cfs @	12.08 hrs, Volume=	23,266 cf		
Outflow =	5.61 cfs @	12.17 hrs, Volume=	22,158 cf,	Atten= 18%,	Lag= 5.4 min
Primary =	2.51 cfs @	12.18 hrs, Volume=	12,366 cf		
Secondary =	3.13 cfs @	12.14 hrs, Volume=	9,792 cf		

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.06' @ 12.14 hrs Surf.Area= 5,296 sf Storage= 5,262 cf
Flood Elev= 78.10' Surf.Area= 5,296 sf Storage= 6,011 cf

Plug-Flow detention time= 89.2 min calculated for 22,153 cf (95% of inflow)
Center-of-Mass det. time= 62.0 min (827.8 - 765.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	75.37'	3,201 cf	**68.33'W x 77.50'L x 2.04'H Field A** 10,812 cf Overall - 2,811 cf Embedded = 8,001 cf x 40.0% Voids
#2A	75.87'	2,811 cf	**Cultec C-100HD** x 200 Inside #1 Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap Row Length Adjustment= +0.50' x 1.86 sf x 20 rows
		6,011 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**12.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.42' S= 0.0090 '/' Cc= 0.900 n= 0.011, Flow Area= 0.79 sf
#2	Secondary	75.87'	**18.0" Round Culvert** L= 24.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.87' S= 0.0000 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=2.51 cfs @ 12.18 hrs HW=77.02' TW=76.57' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 2.51 cfs @ 3.48 fps)

Secondary OutFlow Max=3.58 cfs @ 12.14 hrs HW=77.06' TW=76.76' (Dynamic Tailwater)
↑—**2=Culvert** (Barrel Controls 3.58 cfs @ 3.28 fps)

Pond BASIN-2: Subsurface Detention System - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)
Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
Row Length Adjustment= +0.50' x 1.86 sf x 20 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

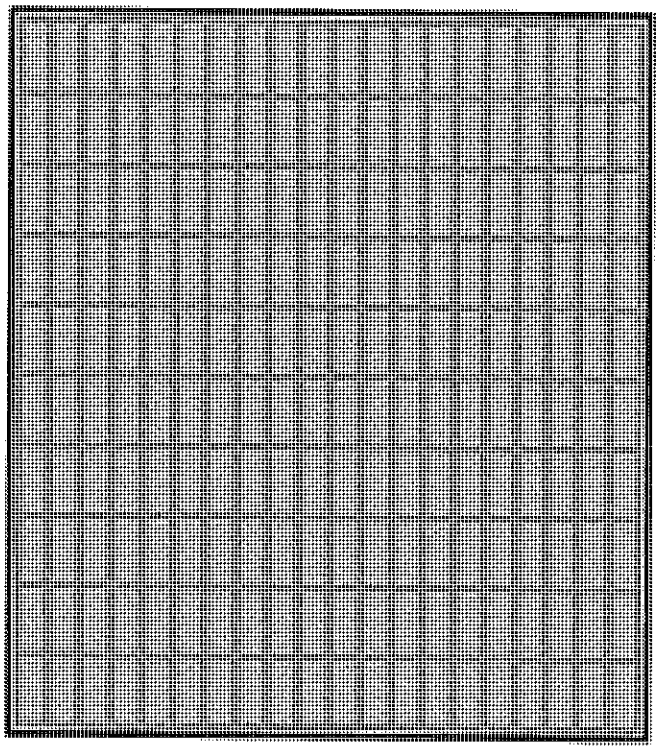
10 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 75.50' Row Length +12.0" End Stone x 2 = 77.50' Base Length
20 Rows x 36.0" Wide + 4.0" Spacing x 19 + 12.0" Side Stone x 2 = 68.33' Base Width
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

200 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 20 Rows = 2,810.9 cf Chamber Storage

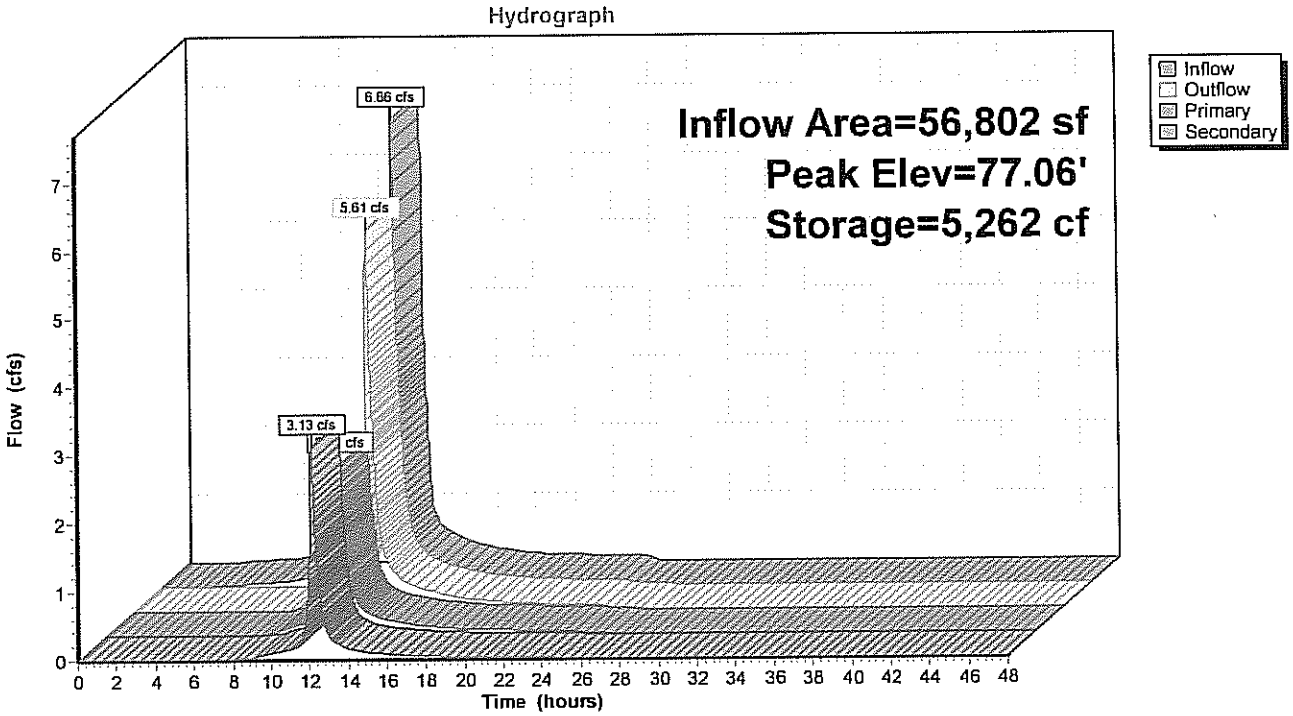
10,812.3 cf Field - 2,810.9 cf Chambers = 8,001.5 cf Stone x 40.0% Voids = 3,200.6 cf Stone Storage

Chamber Storage + Stone Storage = 6,011.4 cf = 0.138 af
Overall Storage Efficiency = 55.6%

200 Chambers
400.5 cy Field
296.4 cy Stone



Pond BASIN-2: Subsurface Detention System



Summary for Pond BASIN-3: BioRetention Area 3

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 3.87" for 25 YR event
Inflow = 3.15 cfs @ 12.09 hrs, Volume= 9,598 cf
Outflow = 1.61 cfs @ 12.25 hrs, Volume= 9,544 cf, Atten= 49%, Lag= 9.2 min
Primary = 1.61 cfs @ 12.25 hrs, Volume= 9,544 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.81' @ 12.25 hrs Surf.Area= 4,226 sf Storage= 3,180 cf
Flood Elev= 78.00' Surf.Area= 5,167 sf Storage= 8,763 cf

Plug-Flow detention time= 112.8 min calculated for 9,544 cf (99% of inflow)
Center-of-Mass det. time= 109.3 min (928.3 - 819.0)

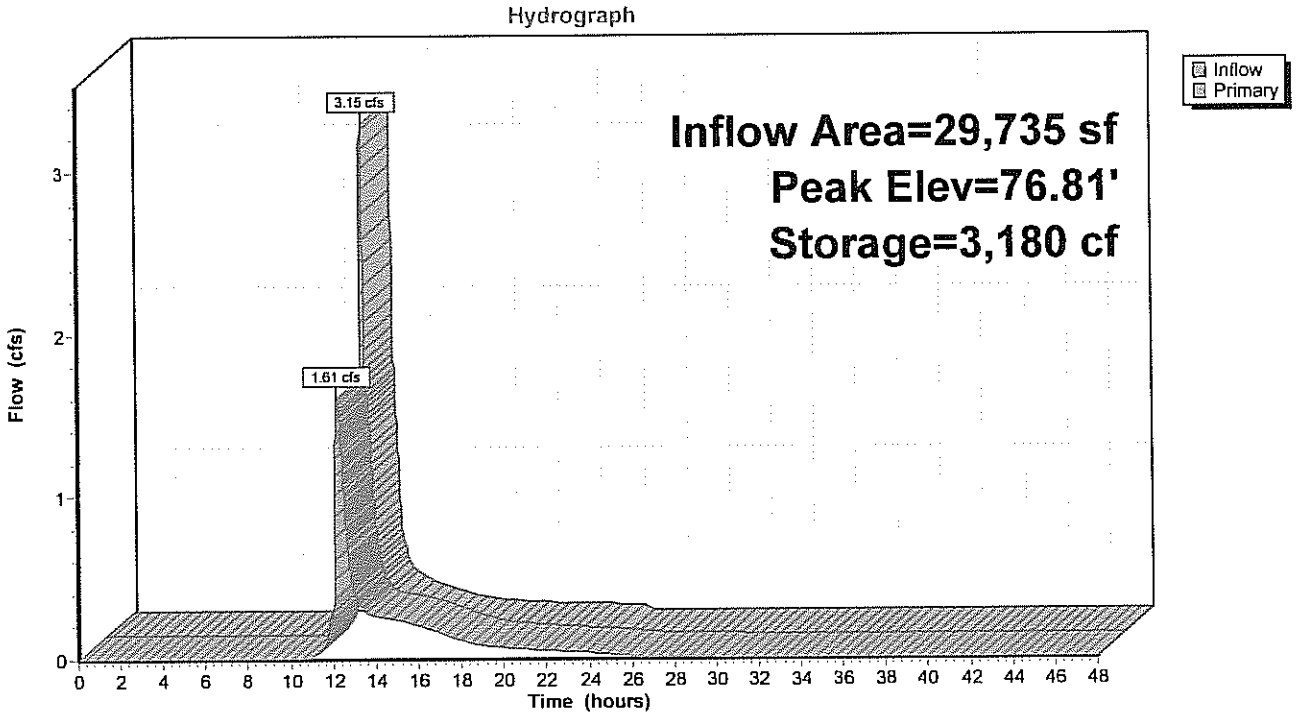
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	8,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	3,624	0	0
77.00	4,367	3,996	3,996
78.00	5,167	4,767	8,763

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**12.0" Round 12" HDPE** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	76.00'	**4.0" Vert. 4" Orifice** C= 0.600
#3	Device 1	76.60'	**4.0' long x 1.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.5' Crest Height

Primary OutFlow Max=1.61 cfs @ 12.25 hrs HW=76.81' TW=0.00' (Dynamic Tailwater)
↑**1=12" HDPE** (Passes 1.61 cfs of 4.30 cfs potential flow)
↑**2=4" Orifice** (Orifice Controls 0.34 cfs @ 3.86 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 1.27 cfs @ 1.53 fps)

Pond BASIN-3: BioRetention Area 3



Summary for Pond BASIN-4: BioRetention Area 4

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 4.73" for 25 YR event
Inflow = 9.75 cfs @ 12.09 hrs, Volume= 32,636 cf
Outflow = 9.06 cfs @ 12.12 hrs, Volume= 29,403 cf, Atten= 7%, Lag= 2.0 min
Primary = 9.06 cfs @ 12.12 hrs, Volume= 29,403 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.49' @ 12.12 hrs Surf.Area= 3,979 sf Storage= 5,101 cf
Flood Elev= 79.00' Surf.Area= 4,374 sf Storage= 7,218 cf

Plug-Flow detention time= 80.9 min calculated for 29,397 cf (90% of inflow)
Center-of-Mass det. time= 33.2 min (816.7 - 783.5)

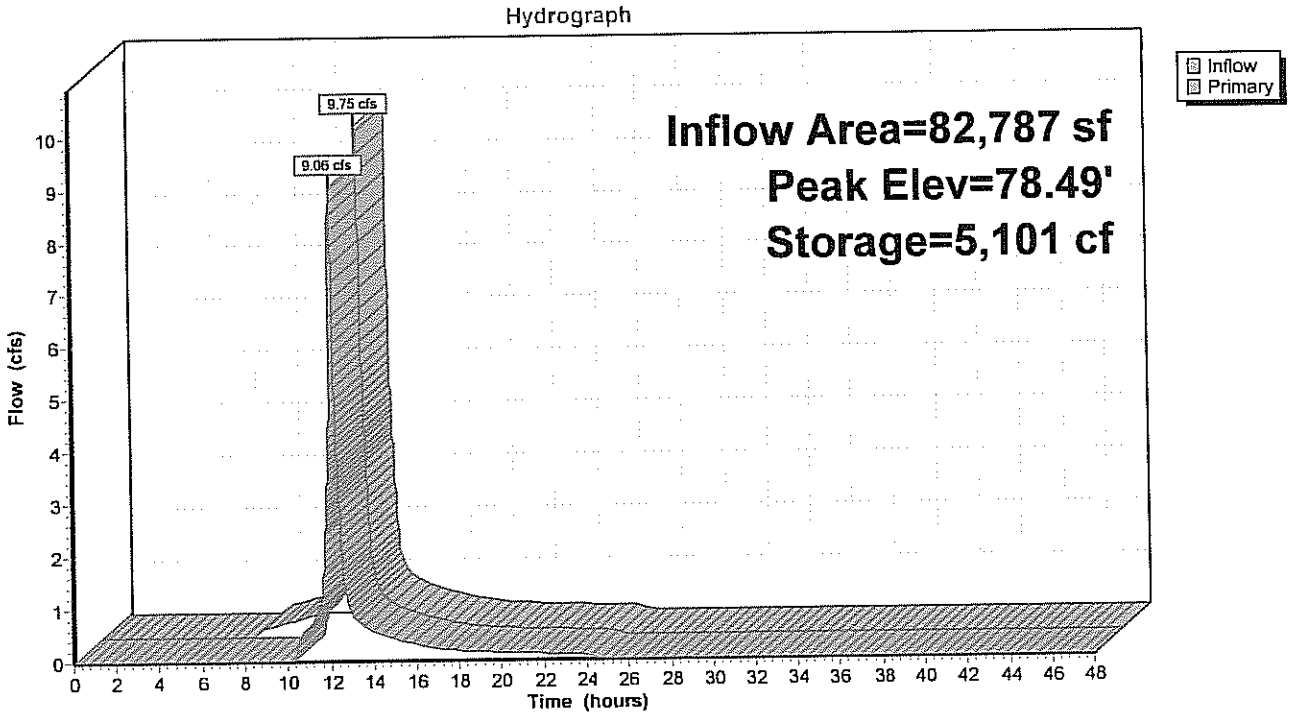
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	7,218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	2,871	0	0
78.00	3,595	3,233	3,233
79.00	4,374	3,985	7,218

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=9.04 cfs @ 12.12 hrs HW=78.49' TW=0.00' (Dynamic Tailwater)
1=Broad-Crested Rectangular Weir (Weir Controls 9.04 cfs @ 1.84 fps)

Pond BASIN-4: BioRetention Area 4



Summary for Pond DMH-1: DMH-1

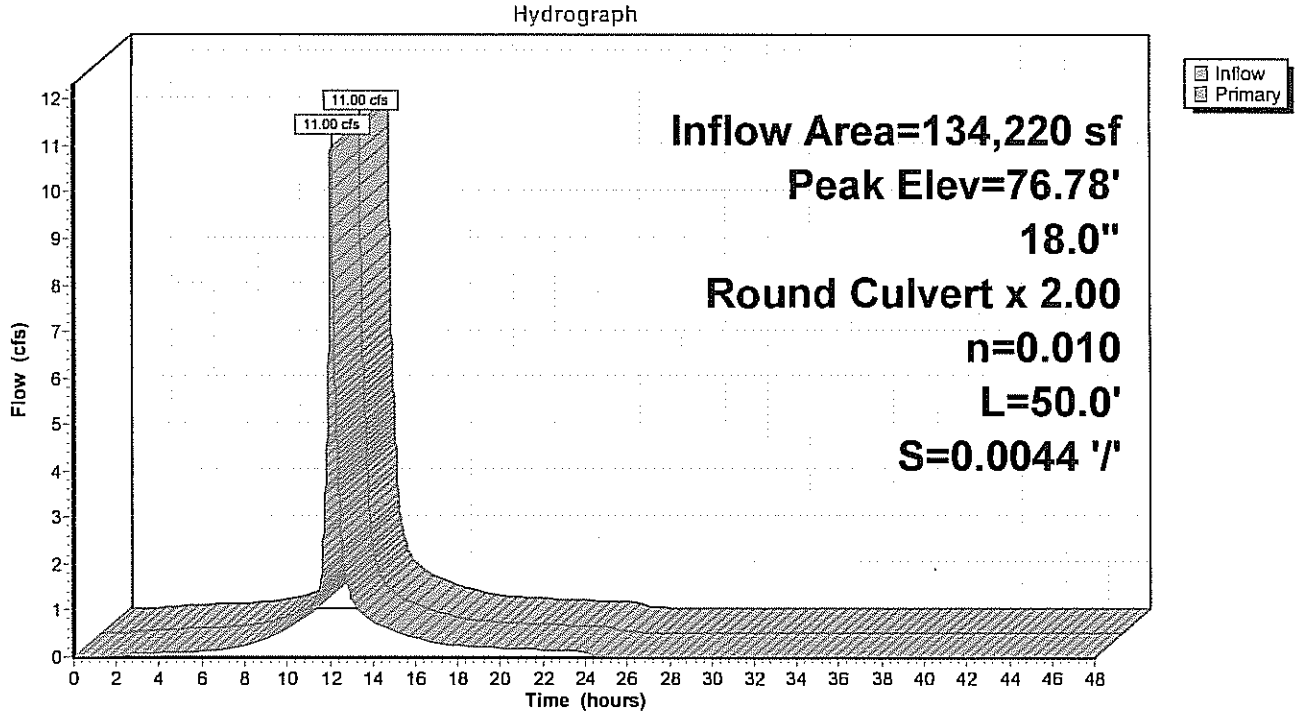
Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 4.14" for 25 YR event
Inflow = 11.00 cfs @ 12.10 hrs, Volume= 46,316 cf
Outflow = 11.00 cfs @ 12.10 hrs, Volume= 46,316 cf, Atten= 0%, Lag= 0.0 min
Primary = 11.00 cfs @ 12.10 hrs, Volume= 46,316 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.78' @ 12.10 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.42'	**18.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.42' / 75.20' S= 0.0044 '/' Cc= 0.900 n= 0.010 Cast iron, coated, Flow Area= 1.77 sf

Primary OutFlow Max=10.99 cfs @ 12.10 hrs HW=76.78' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 10.99 cfs @ 4.31 fps)

Pond DMH-1: DMH-1



Summary for Pond DMH-2: DMH-2

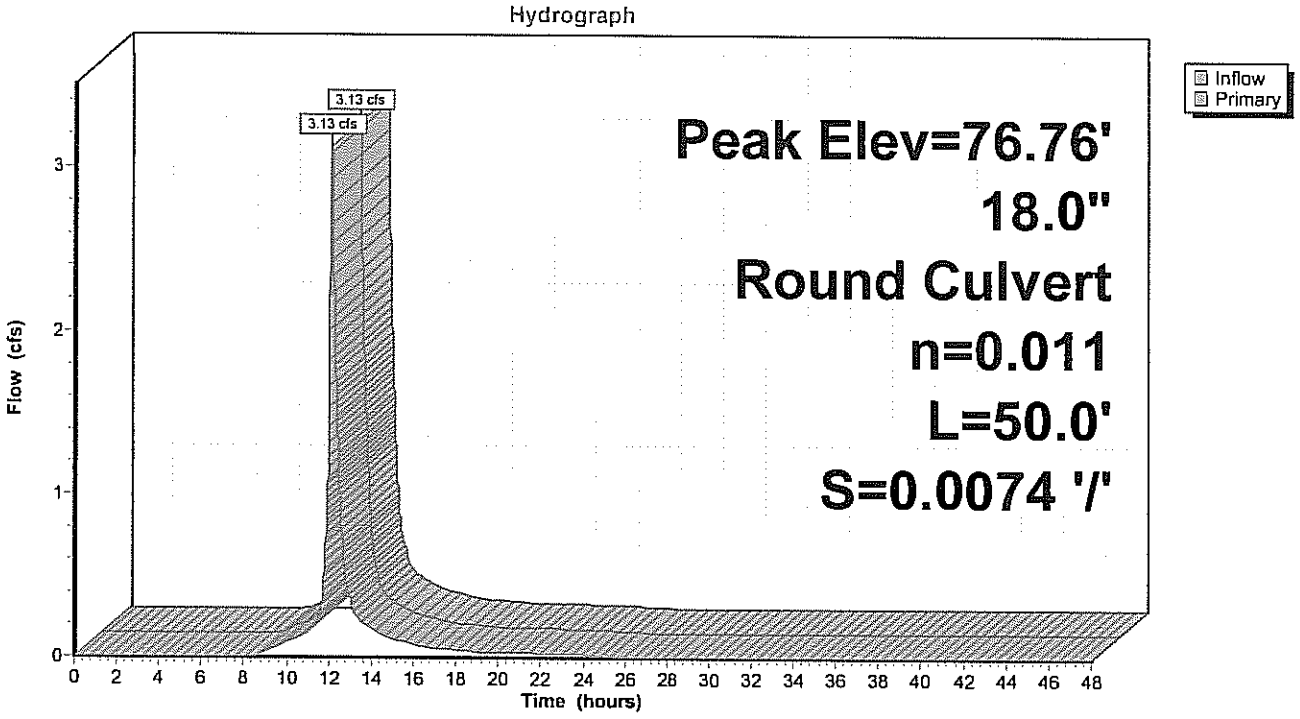
Inflow	=	3.13 cfs @	12.14 hrs, Volume=	9,792 cf
Outflow	=	3.13 cfs @	12.14 hrs, Volume=	9,792 cf, Atten= 0%, Lag= 0.0 min
Primary	=	3.13 cfs @	12.14 hrs, Volume=	9,792 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.76' @ 12.14 hrs
Flood Elev= 79.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.50' S= 0.0074 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=3.13 cfs @ 12.14 hrs HW=76.76' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 3.13 cfs @ 4.14 fps)

Pond DMH-2: DMH-2



Summary for Pond DMH-3:

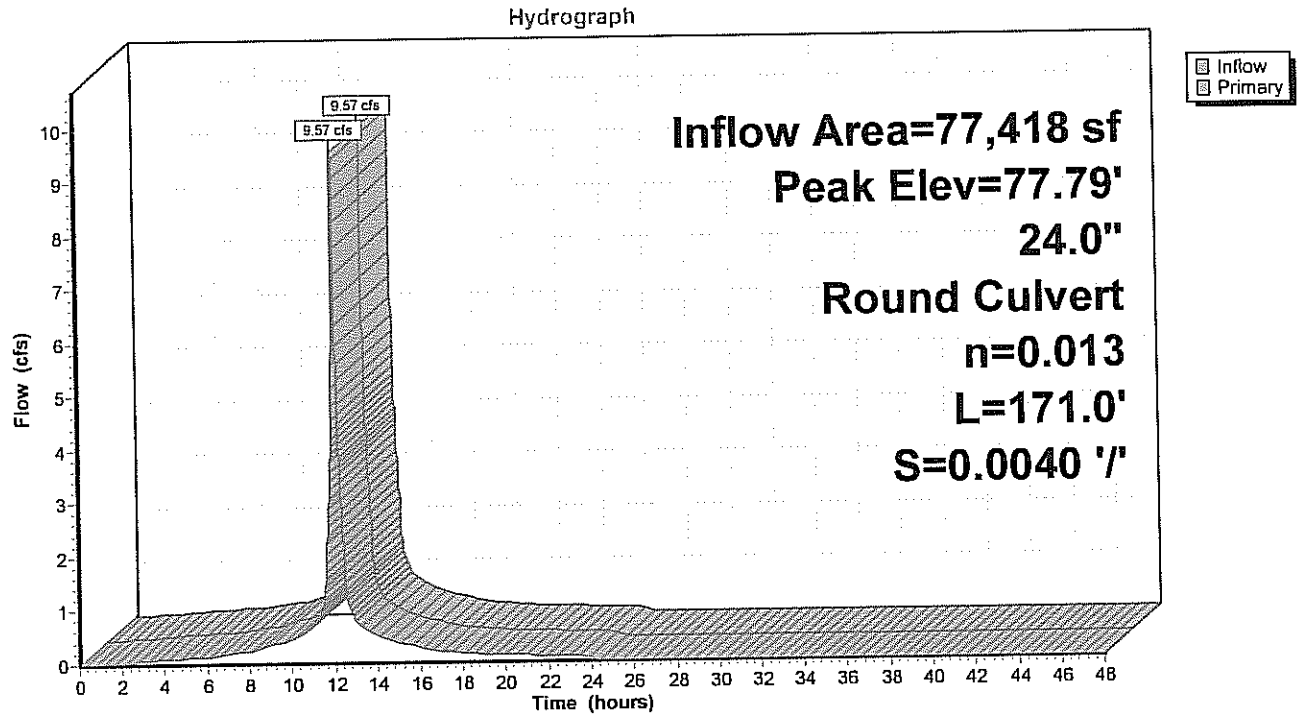
Inflow Area = 77,418 sf,100.00% Impervious, Inflow Depth = 5.26" for 25 YR event
Inflow = 9.57 cfs @ 12.08 hrs, Volume= 33,951 cf
Outflow = 9.57 cfs @ 12.08 hrs, Volume= 33,951 cf, Atten= 0%, Lag= 0.0 min
Primary = 9.57 cfs @ 12.08 hrs, Volume= 33,951 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.79' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.14'	**24.0" Round Culvert** L= 171.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.14' / 75.45' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=9.56 cfs @ 12.08 hrs HW=77.79' TW=76.76' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 9.56 cfs @ 4.69 fps)

Pond DMH-3:



Summary for Pond FB-1: Forebay

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 3.83" for 25 YR event
Inflow = 8.33 cfs @ 12.09 hrs, Volume= 26,171 cf
Outflow = 7.67 cfs @ 12.10 hrs, Volume= 21,732 cf, Atten= 8%, Lag= 0.7 min
Primary = 7.67 cfs @ 12.10 hrs, Volume= 21,732 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.76' @ 12.51 hrs Surf.Area= 2,801 sf Storage= 5,132 cf
Flood Elev= 79.00' Surf.Area= 2,991 sf Storage= 5,837 cf

Plug-Flow detention time= 110.9 min calculated for 21,732 cf (83% of inflow)
Center-of-Mass det. time= 41.8 min (845.7 - 803.9)

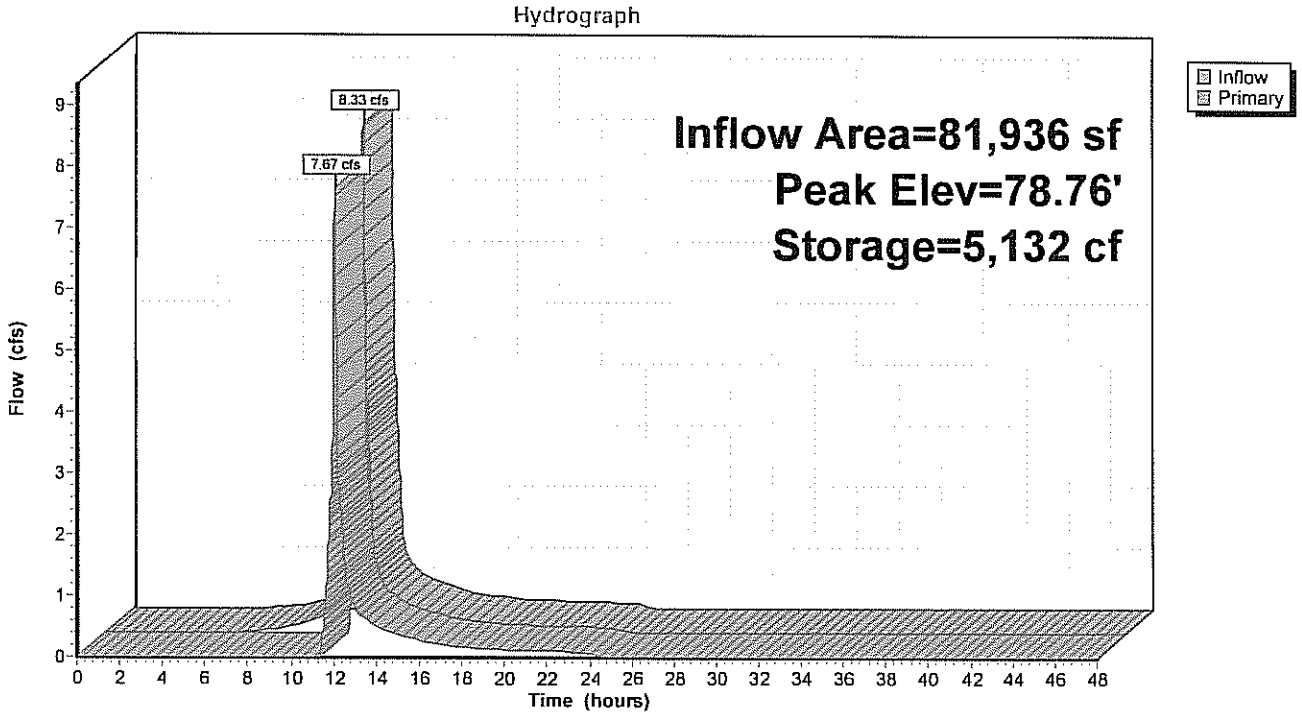
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	5,837 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	1,200	0	0
77.00	1,518	1,359	1,359
78.00	2,227	1,873	3,232
78.50	2,602	1,207	4,439
79.00	2,991	1,398	5,837

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=7.66 cfs @ 12.10 hrs HW=78.45' TW=78.09' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 7.66 cfs @ 1.69 fps)

Pond FB-1: Forebay



Summary for Pond FB-2: Forebay

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 4.25" for 25 YR event
Inflow = 3.29 cfs @ 12.09 hrs, Volume= 10,537 cf
Outflow = 3.15 cfs @ 12.09 hrs, Volume= 9,598 cf, Atten= 4%, Lag= 0.5 min
Primary = 3.15 cfs @ 12.09 hrs, Volume= 9,598 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.87' @ 12.12 hrs Surf.Area= 939 sf Storage= 1,184 cf
Flood Elev= 77.00' Surf.Area= 982 sf Storage= 1,304 cf

Plug-Flow detention time= 72.5 min calculated for 9,596 cf (91% of inflow)
Center-of-Mass det. time= 27.9 min (819.0 - 791.1)

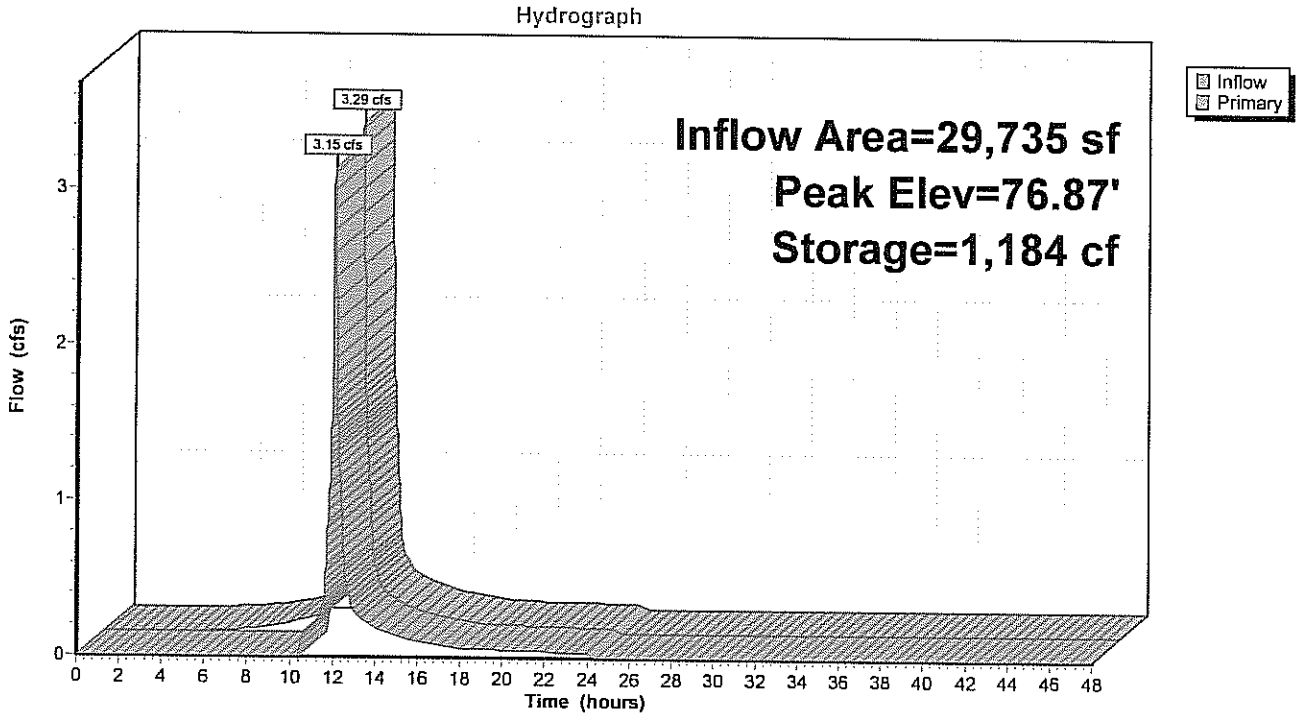
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	1,304 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.00	350	0	0
76.00	638	494	494
77.00	982	810	1,304

Device	Routing	Invert	Outlet Devices
#1	Primary	76.60'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=3.15 cfs @ 12.09 hrs HW=76.87' TW=76.67' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 3.15 cfs @ 1.18 fps)

Pond FB-2: Forebay



Summary for Pond FB-3: Forebay

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 4.92" for 25 YR event
Inflow = 10.00 cfs @ 12.08 hrs, Volume= 33,910 cf
Outflow = 9.75 cfs @ 12.09 hrs, Volume= 32,636 cf, Atten= 2%, Lag= 0.4 min
Primary = 9.75 cfs @ 12.09 hrs, Volume= 32,636 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.56' @ 12.11 hrs Surf.Area= 1,339 sf Storage= 1,610 cf
Flood Elev= 78.80' Surf.Area= 1,439 sf Storage= 1,941 cf

Plug-Flow detention time= 40.2 min calculated for 32,636 cf (96% of inflow)
Center-of-Mass det. time= 17.7 min (783.5 - 765.8)

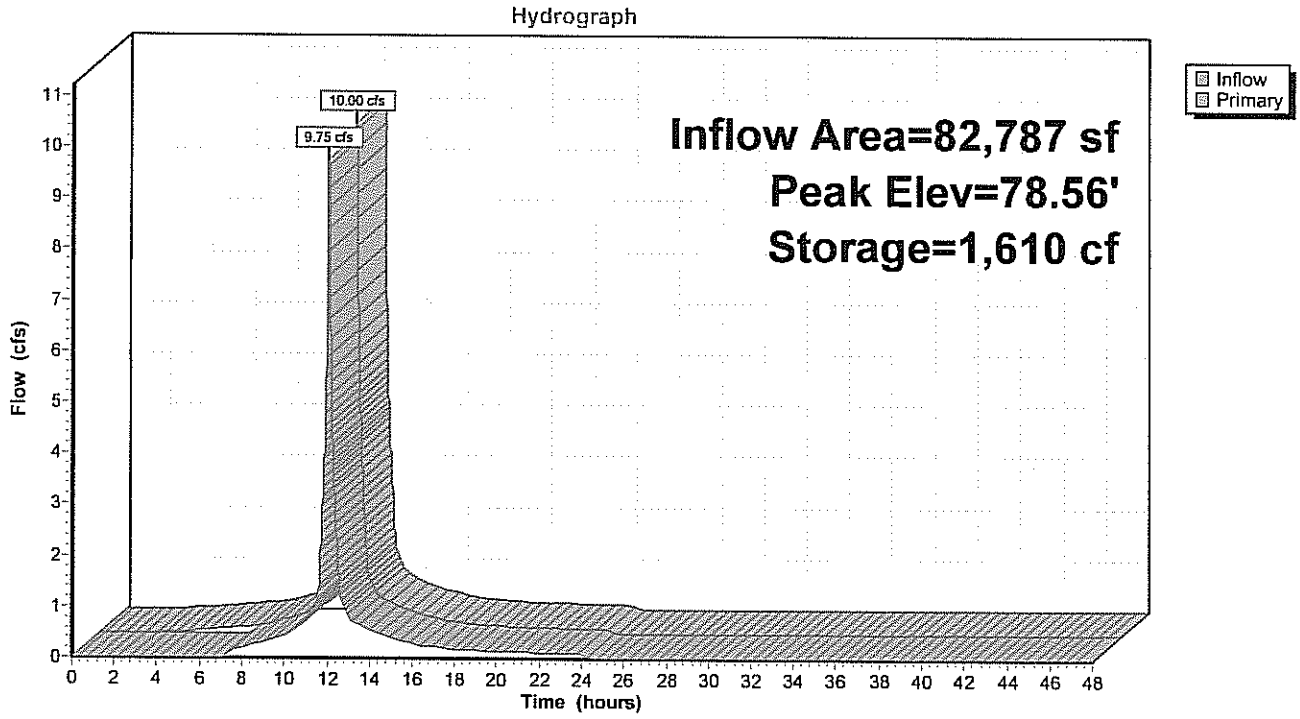
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	1,941 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	743	0	0
78.00	1,104	924	924
78.80	1,439	1,017	1,941

Device	Routing	Invert	Outlet Devices
#1	Primary	78.30'	**38.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=9.75 cfs @ 12.09 hrs HW=78.56' TW=78.47' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 9.75 cfs @ 1.00 fps)

Pond FB-3: Forebay



Time span=0.00-48.00 hrs, dt=0.01 hrs, 4801 points x 4
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Dyn-Stor-Ind method - Pond routing by Dyn-Stor-Ind method

Subcatchment POST 1: Post Development Runoff Area=81,936 sf 4.31% Impervious Runoff Depth=5.25"
Tc=6.0 min CN=85 Runoff=11.26 cfs 35,865 cf

Subcatchment POST 1A: Post Development Runoff Area=47,737 sf 0.00% Impervious Runoff Depth=3.62"
Tc=6.0 min CN=70 Runoff=4.65 cfs 14,394 cf

Subcatchment POST 2: Post Development Runoff Area=56,802 sf 85.28% Impervious Runoff Depth=6.41"
Tc=6.0 min CN=95 Runoff=8.82 cfs 30,322 cf

Subcatchment POST 3: Post Development Runoff Area=29,735 sf 63.13% Impervious Runoff Depth=5.71"
Tc=6.0 min CN=89 Runoff=4.34 cfs 14,144 cf

Subcatchment POST 3A: Post Runoff Area=47,475 sf 35.05% Impervious Runoff Depth=4.69"
Tc=6.0 min CN=80 Runoff=5.94 cfs 18,572 cf

Subcatchment POST 4: Post Development Runoff Area=82,787 sf 85.50% Impervious Runoff Depth=6.41"
Tc=6.0 min CN=95 Runoff=12.85 cfs 44,193 cf

Subcatchment POST 4A: Post Runoff Area=35,765 sf 10.20% Impervious Runoff Depth=3.94"
Tc=6.0 min CN=73 Runoff=3.79 cfs 11,729 cf

Subcatchment POST-2A: Post Runoff Area=77,418 sf 100.00% Impervious Runoff Depth=6.76"
Tc=6.0 min CN=98 Runoff=12.21 cfs 43,618 cf

Pond 3P: DCB-1 Peak Elev=78.12' Inflow=8.82 cfs 30,322 cf
12.0" Round Culvert x 2.00 n=0.013 L=6.0' S=0.0133 '/' Outflow=8.82 cfs 30,322 cf

Pond AP-1: WET-8 (No Flow)
Primary=0.00 cfs 0 cf

Pond AP-2: WET-1 Inflow=6.96 cfs 38,175 cf
Primary=6.96 cfs 38,175 cf

Pond AP-3: OFFSITE SWALE Inflow=18.06 cfs 72,831 cf
Primary=18.06 cfs 72,831 cf

Pond AP-4: WET-2 Inflow=8.03 cfs 31,723 cf
Primary=8.03 cfs 31,723 cf

Pond AP-5: WET-3 Inflow=15.33 cfs 51,415 cf
Primary=15.33 cfs 51,415 cf

Pond BASIN-1: BioRetention Area 1 Peak Elev=78.99' Storage=10,616 cf Inflow=8.46 cfs 31,425 cf
Outflow=4.66 cfs 23,781 cf

Pond BASIN-2: Subsurface Detention Peak Elev=77.38' Storage=5,948 cf Inflow=8.82 cfs 30,322 cf
Primary=2.92 cfs 15,704 cf Secondary=4.43 cfs 13,509 cf Outflow=7.24 cfs 29,213 cf

Pond BASIN-3: BioRetention Area 3 Peak Elev=76.93' Storage=3,682 cf Inflow=4.09 cfs 13,205 cf
Outflow=2.85 cfs 13,150 cf

Pond BASIN-4: BioRetention Area 4 Peak Elev=78.58' Storage=5,437 cf Inflow=12.52 cfs 42,919 cf
Outflow=11.75 cfs 39,686 cf

Pond DMH-1: DMH-1 Peak Elev=77.03' Inflow=13.94 cfs 59,322 cf
18.0" Round Culvert x 2.00 n=0.010 L=50.0' S=0.0044 '/' Outflow=13.94 cfs 59,322 cf

Pond DMH-2: DMH-2 Peak Elev=76.97' Inflow=4.43 cfs 13,509 cf
18.0" Round Culvert n=0.011 L=50.0' S=0.0074 '/' Outflow=4.43 cfs 13,509 cf

Pond DMH-3: Peak Elev=78.10' Inflow=12.21 cfs 43,618 cf
24.0" Round Culvert n=0.013 L=171.0' S=0.0040 '/' Outflow=12.21 cfs 43,618 cf

Pond FB-1: Forebay Peak Elev=79.00' Storage=5,835 cf Inflow=11.26 cfs 35,865 cf
Outflow=8.46 cfs 31,425 cf

Pond FB-2: Forebay Peak Elev=76.99' Storage=1,291 cf Inflow=4.34 cfs 14,144 cf
Outflow=4.09 cfs 13,205 cf

Pond FB-3: Forebay Peak Elev=78.64' Storage=1,713 cf Inflow=12.85 cfs 44,193 cf
Outflow=12.52 cfs 42,919 cf

Total Runoff Area = 459,655 sf Runoff Volume = 212,836 cf Average Runoff Depth = 5.56"
47.95% Pervious = 220,424 sf 52.05% Impervious = 239,231 sf

Summary for Subcatchment POST 1: Post Development Area 1

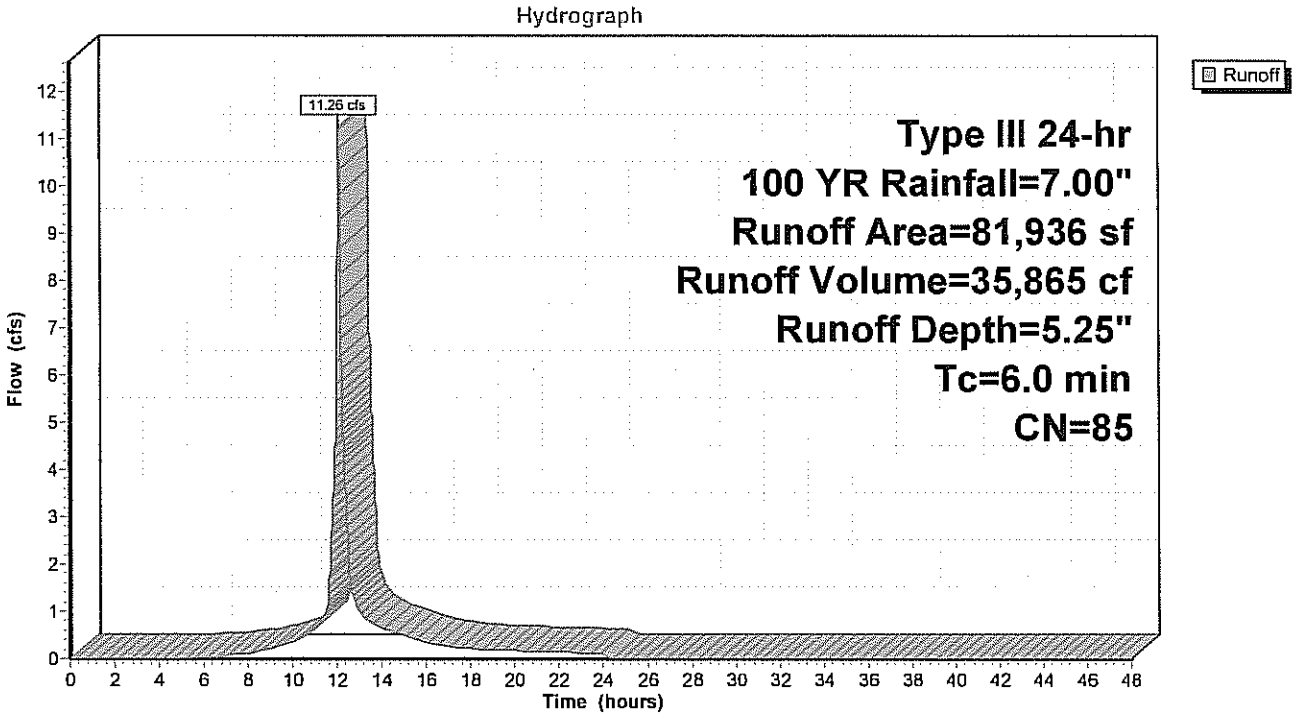
Runoff = 11.26 cfs @ 12.09 hrs, Volume= 35,865 cf, Depth= 5.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
51,749	89	Gravel roads, HSG C
3,528	98	Paved parking, HSG C
26,659	74	>75% Grass cover, Good, HSG C
81,936	85	Weighted Average
78,408		95.69% Pervious Area
3,528		4.31% Impervious Area

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

Subcatchment POST 1: Post Development Area 1



Summary for Subcatchment POST 1A: Post Development Area 1A

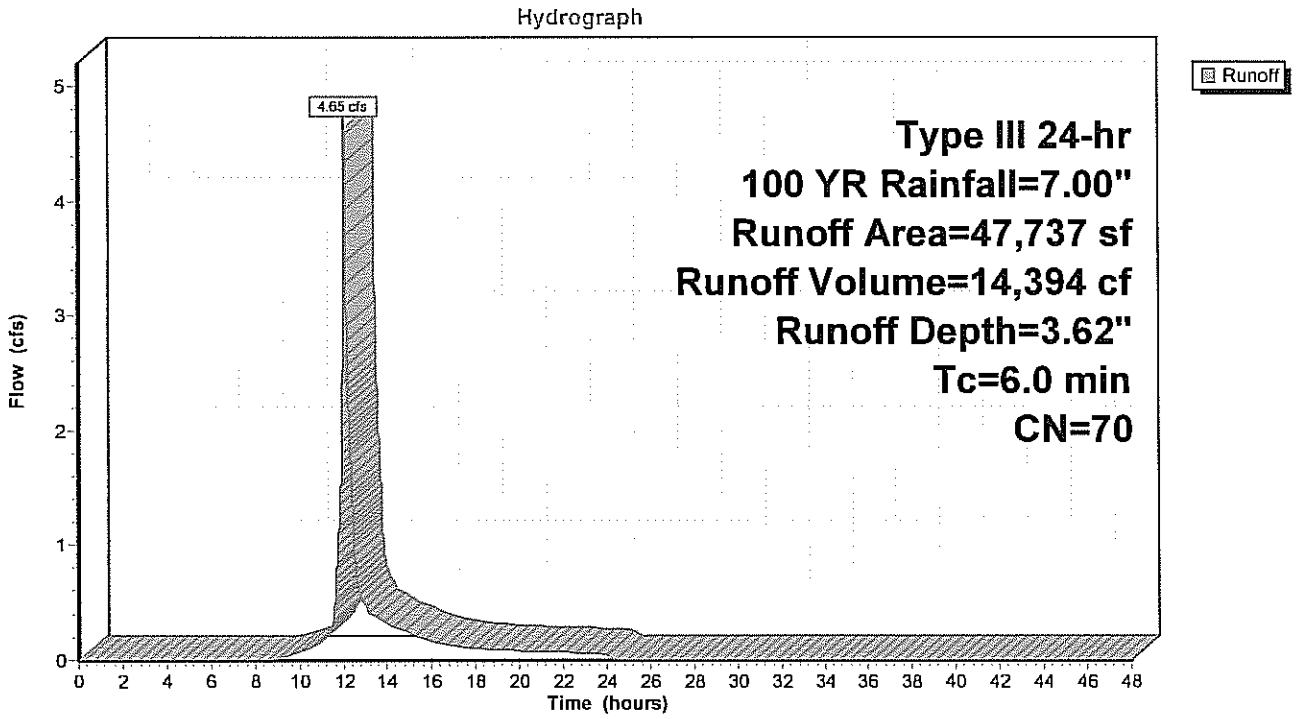
Runoff = 4.65 cfs @ 12.09 hrs, Volume= 14,394 cf, Depth= 3.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
942	89	Gravel roads, HSG C
46,795	70	Woods, Good, HSG C
47,737	70	Weighted Average
47,737		100.00% Pervious Area

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

Subcatchment POST 1A: Post Development Area 1A



Summary for Subcatchment POST 2: Post Development Area 2

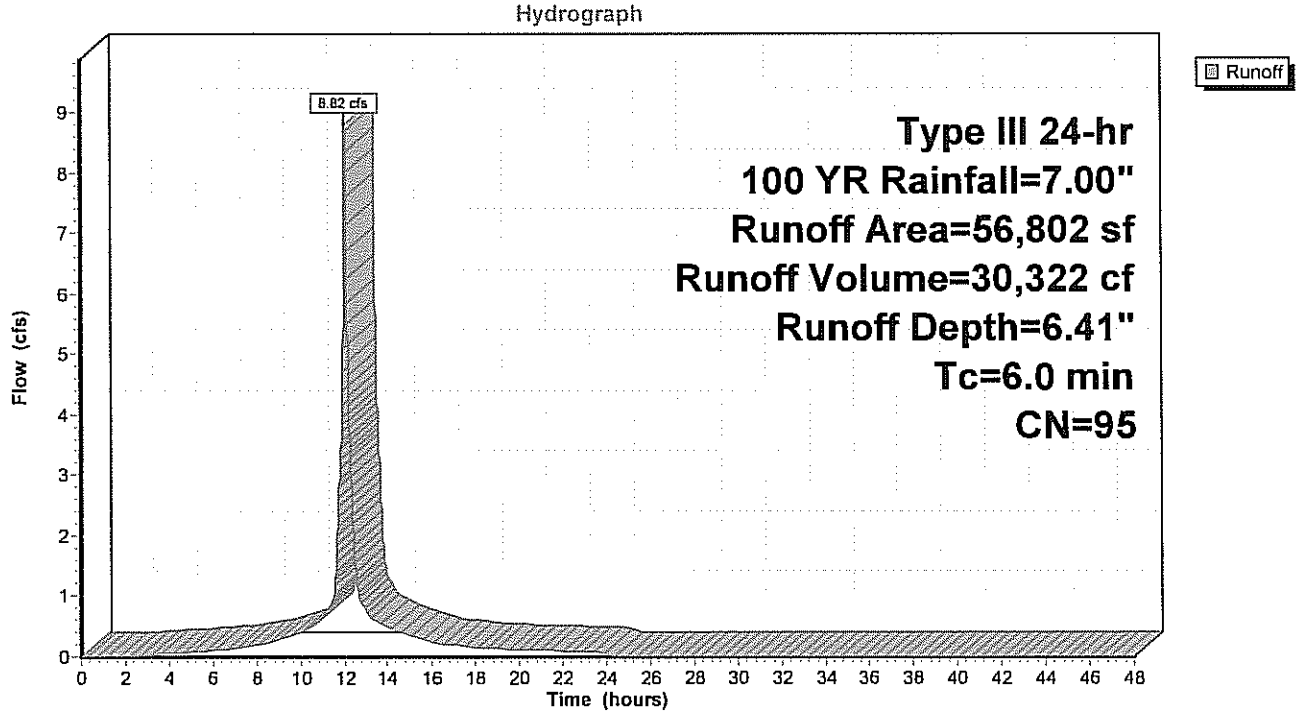
Runoff = 8.82 cfs @ 12.08 hrs, Volume= 30,322 cf, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
48,439	98	Paved parking, HSG C
2,831	89	Gravel roads, HSG C
5,532	74	>75% Grass cover, Good, HSG C
56,802	95	Weighted Average
8,363		14.72% Pervious Area
48,439		85.28% Impervious Area

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

Subcatchment POST 2: Post Development Area 2



Summary for Subcatchment POST 3: Post Development Area 3

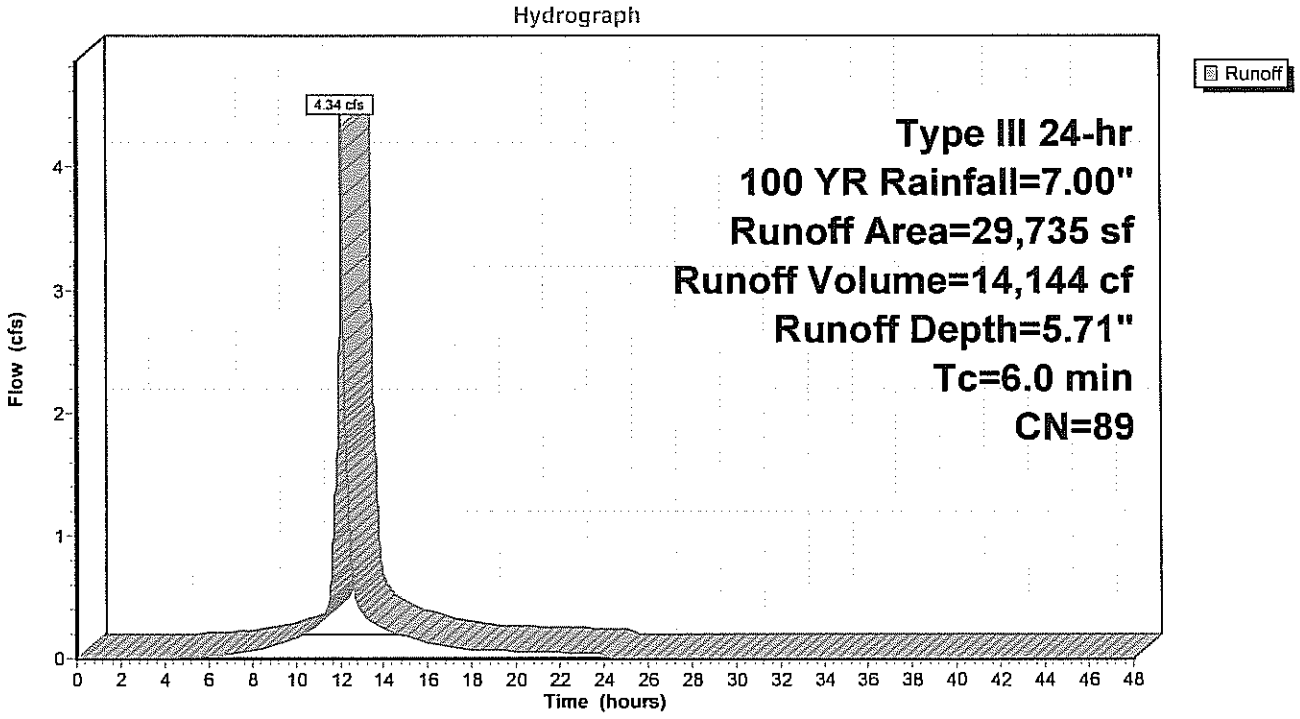
Runoff = 4.34 cfs @ 12.08 hrs, Volume= 14,144 cf, Depth= 5.71"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
18,773	98	Paved parking, HSG C
10,962	74	>75% Grass cover, Good, HSG C
29,735	89	Weighted Average
10,962		36.87% Pervious Area
18,773		63.13% Impervious Area

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

Subcatchment POST 3: Post Development Area 3



Summary for Subcatchment POST 3A: Post Development Area 3A

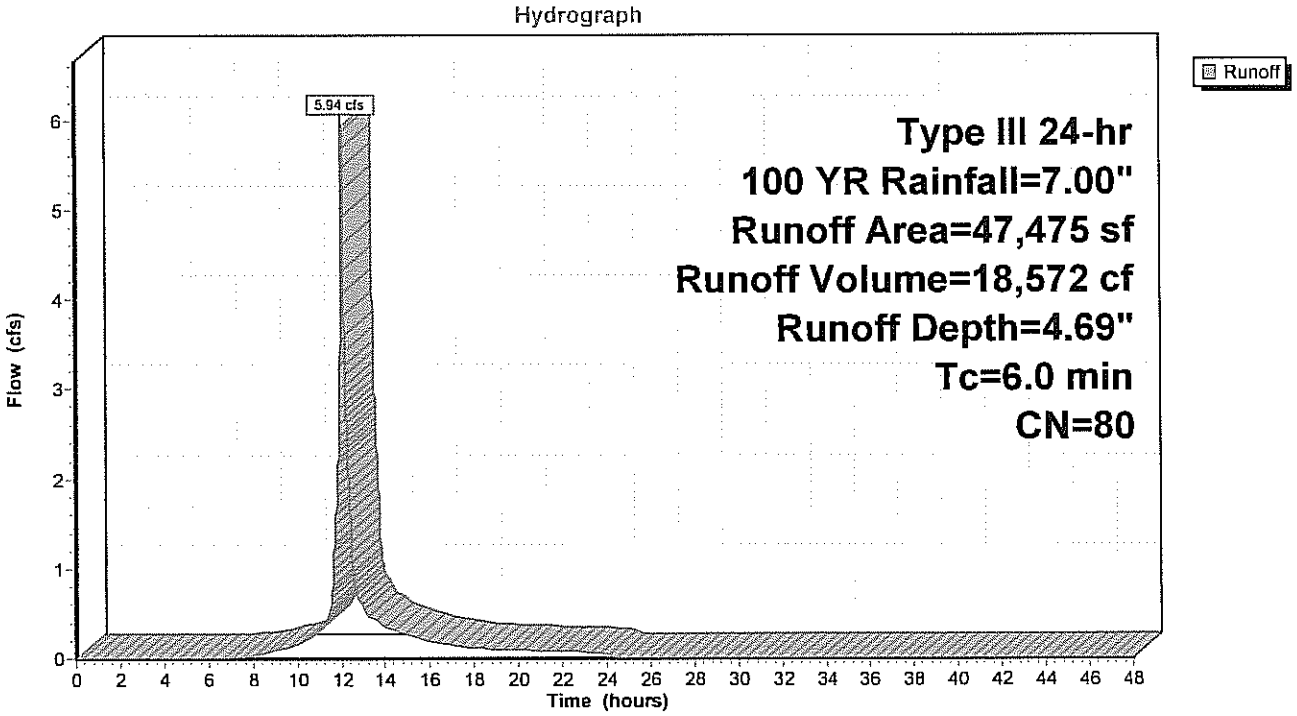
Runoff = 5.94 cfs @ 12.09 hrs, Volume= 18,572 cf, Depth= 4.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
14,950	98	Roofs, HSG C
1,689	98	Paved parking, HSG C
30,836	70	Woods, Good, HSG C
47,475	80	Weighted Average
30,836		64.95% Pervious Area
16,639		35.05% Impervious Area

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

Subcatchment POST 3A: Post Development Area 3A



Summary for Subcatchment POST 4: Post Development Area 4

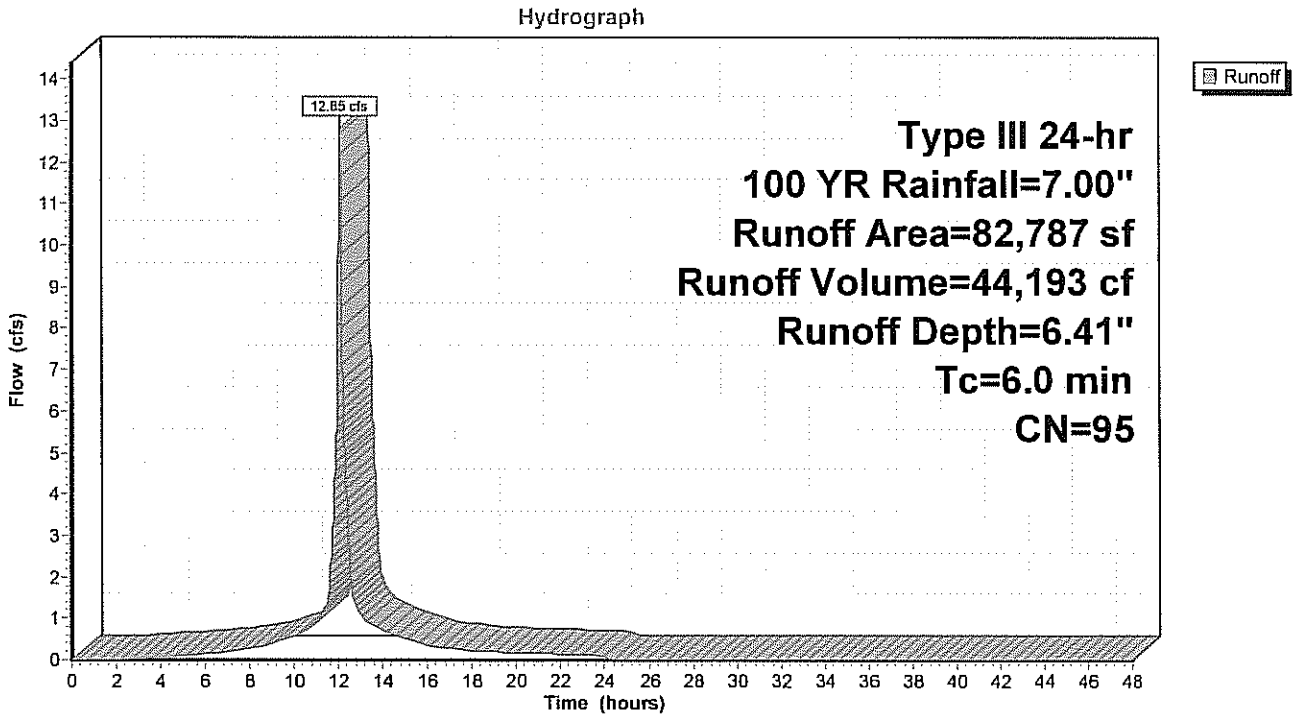
Runoff = 12.85 cfs @ 12.08 hrs, Volume= 44,193 cf, Depth= 6.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
70,785	98	Paved parking, HSG C
12,002	74	>75% Grass cover, Good, HSG C
82,787	95	Weighted Average
12,002		14.50% Pervious Area
70,785		85.50% Impervious Area

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

Subcatchment POST 4: Post Development Area 4



Summary for Subcatchment POST 4A: Post Development Area 4A

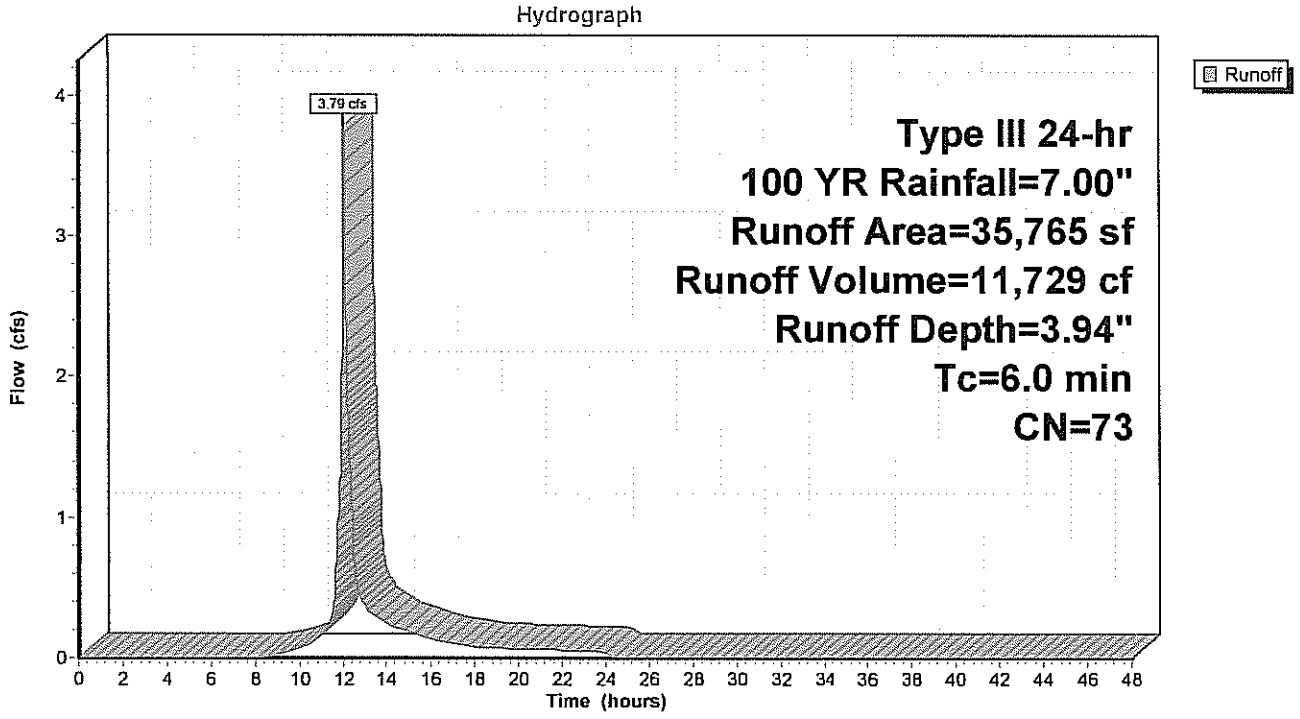
Runoff = 3.79 cfs @ 12.09 hrs, Volume= 11,729 cf, Depth= 3.94"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
32,116	70	Woods, Good, HSG C
3,649	98	Paved parking, HSG C
35,765	73	Weighted Average
32,116		89.80% Pervious Area
3,649		10.20% Impervious Area

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

Subcatchment POST 4A: Post Development Area 4A



Summary for Subcatchment POST-2A: Post Development Area 2A

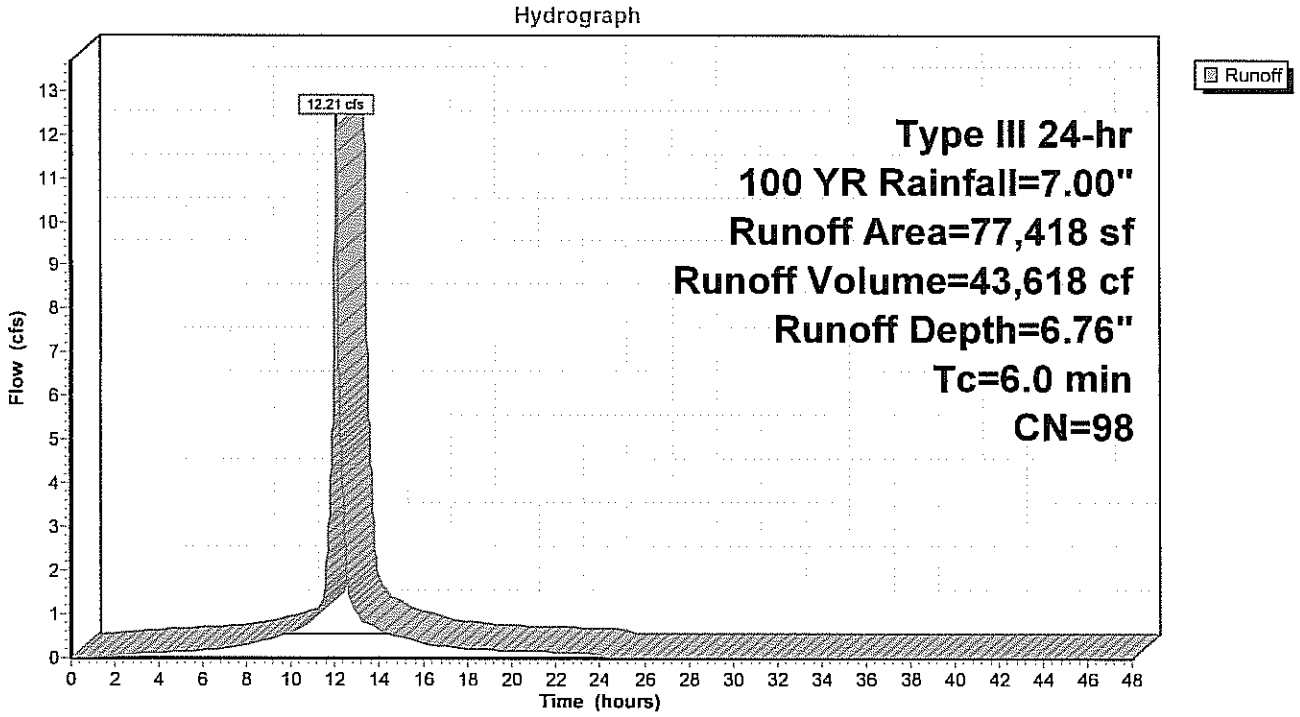
Runoff = 12.21 cfs @ 12.08 hrs, Volume= 43,618 cf, Depth= 6.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 100 YR Rainfall=7.00"

Area (sf)	CN	Description
77,418	98	Roofs, HSG C
77,418		100.00% Impervious Area

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

Subcatchment POST-2A: Post Development Area 2A



Summary for Pond 3P: DCB-1

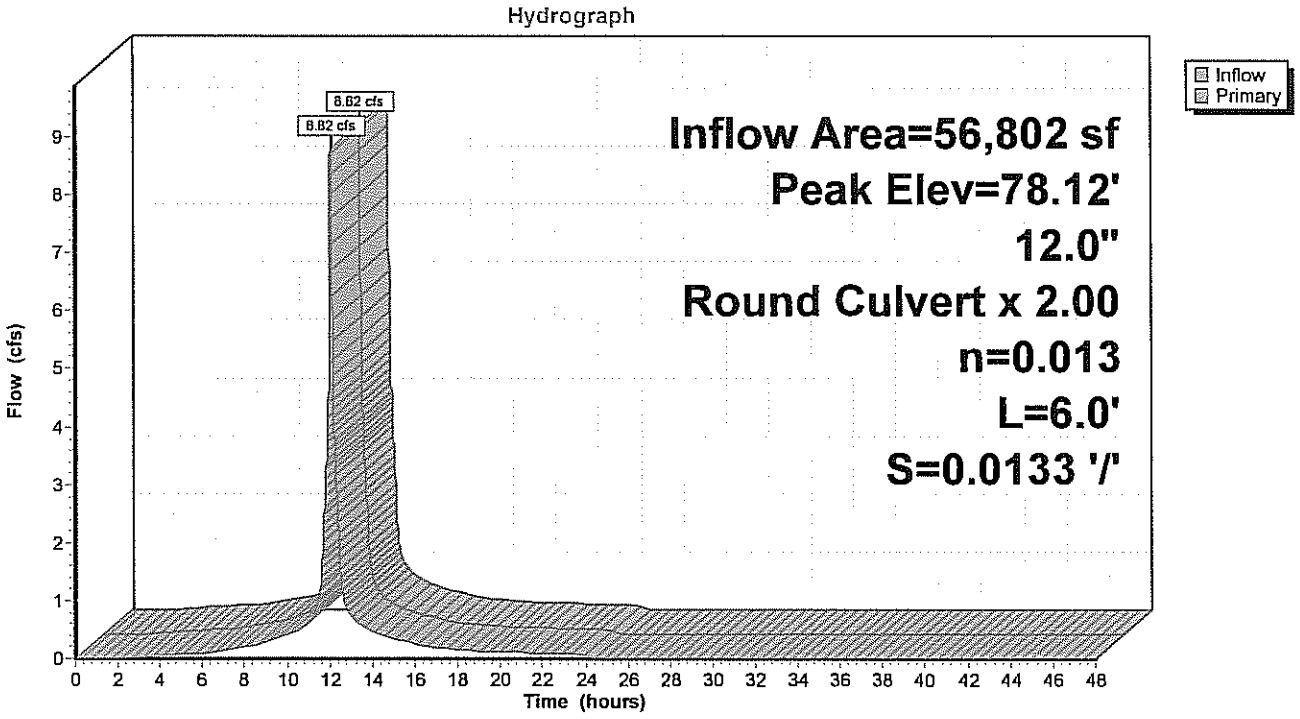
Inflow Area = 56,802 sf, 85.28% Impervious, Inflow Depth = 6.41" for 100 YR event
Inflow = 8.82 cfs @ 12.08 hrs, Volume= 30,322 cf
Outflow = 8.82 cfs @ 12.08 hrs, Volume= 30,322 cf, Atten= 0%, Lag= 0.0 min
Primary = 8.82 cfs @ 12.08 hrs, Volume= 30,322 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.12' @ 12.10 hrs
Flood Elev= 78.40'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.00'	**12.0" Round Culvert X 2.00** L= 6.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.00' / 75.92' S= 0.0133 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=8.78 cfs @ 12.08 hrs HW=78.07' TW=77.21' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 8.78 cfs @ 5.59 fps)

Pond 3P: DCB-1

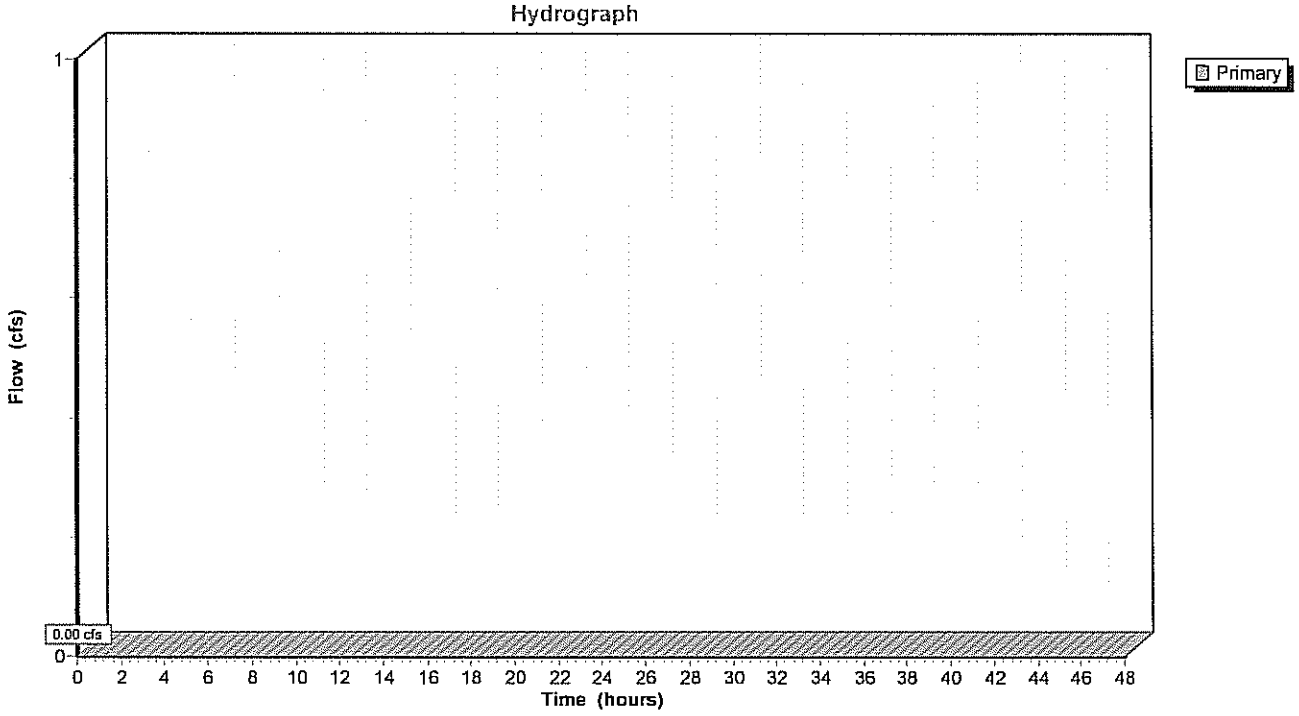


Summary for Pond AP-1: WET-8 (No Flow)

[40] Hint: Not Described (Outflow=Inflow)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=0.00' TW=0.00' (Dynamic Tailwater)

Pond AP-1: WET-8 (No Flow)



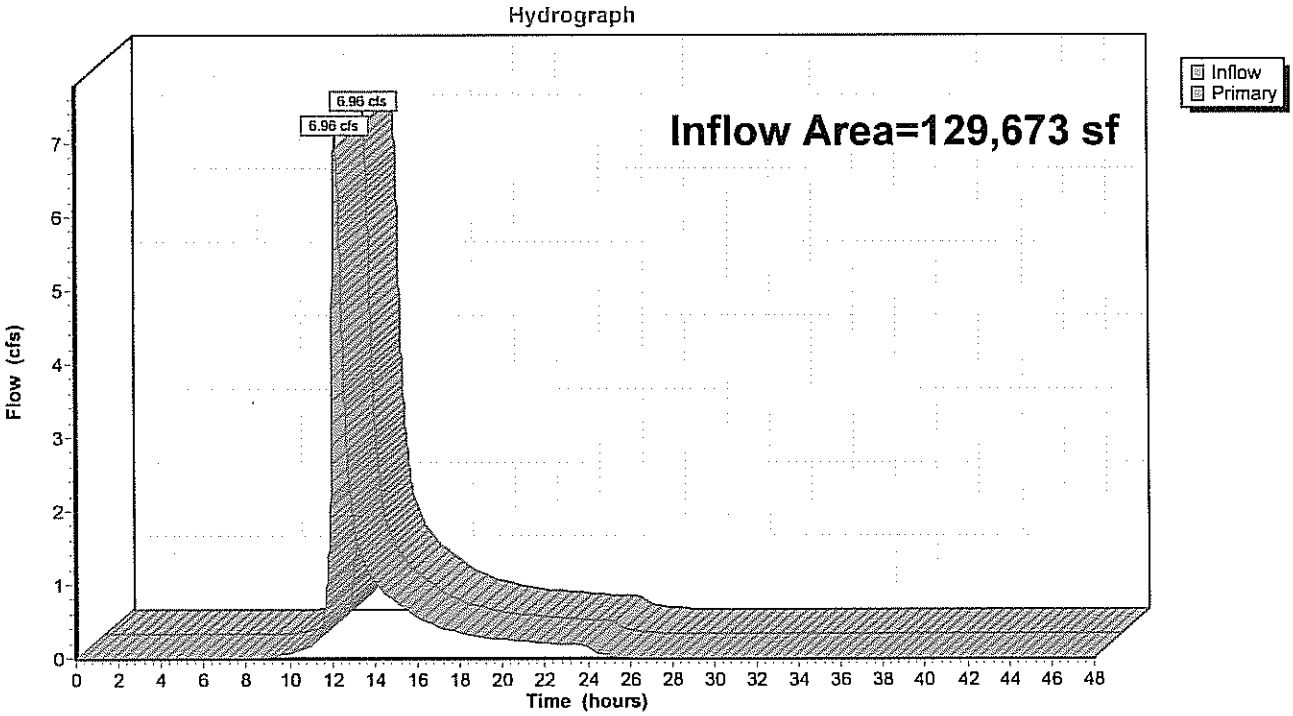
Summary for Pond AP-2: WET-1

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 129,673 sf, 2.72% Impervious, Inflow Depth = 3.53" for 100 YR event
Inflow = 6.96 cfs @ 12.20 hrs, Volume= 38,175 cf
Primary = 6.96 cfs @ 12.20 hrs, Volume= 38,175 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-2: WET-1



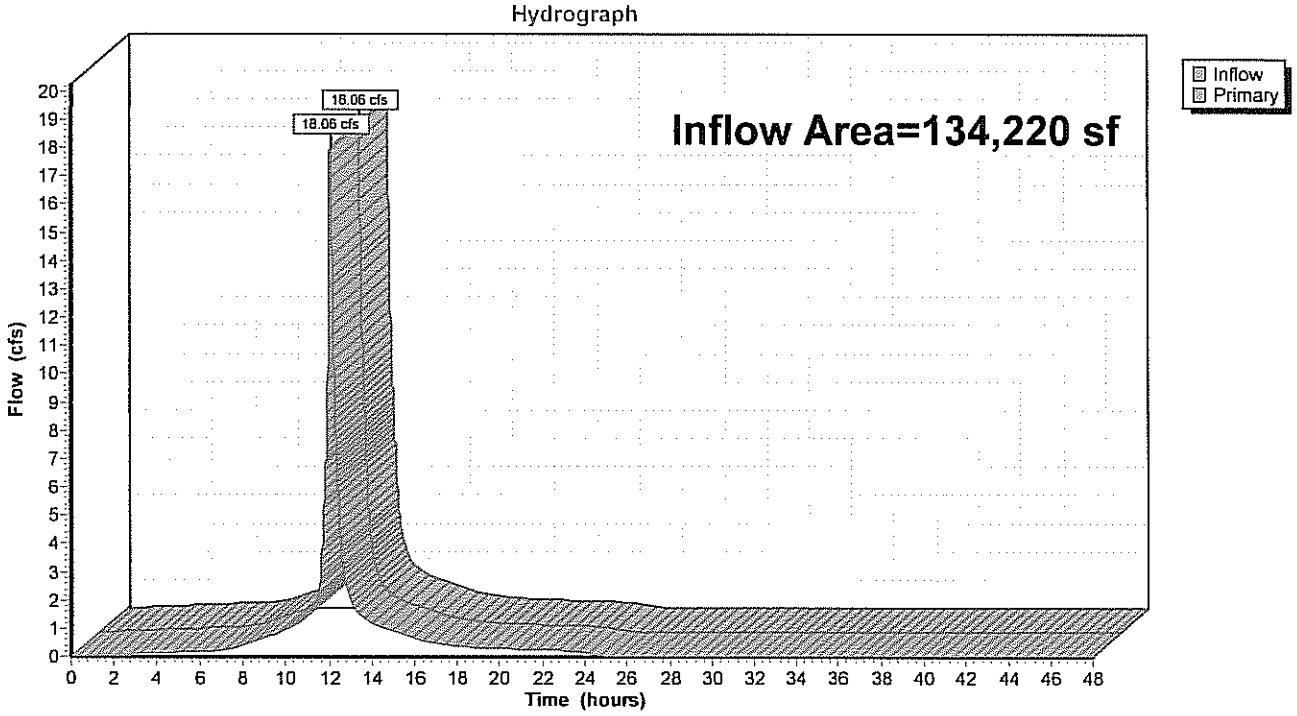
Summary for Pond AP-3: OFFSITE SWALE

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 6.51" for 100 YR event
Inflow = 18.06 cfs @ 12.10 hrs, Volume= 72,831 cf
Primary = 18.06 cfs @ 12.10 hrs, Volume= 72,831 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-3: OFFSITE SWALE



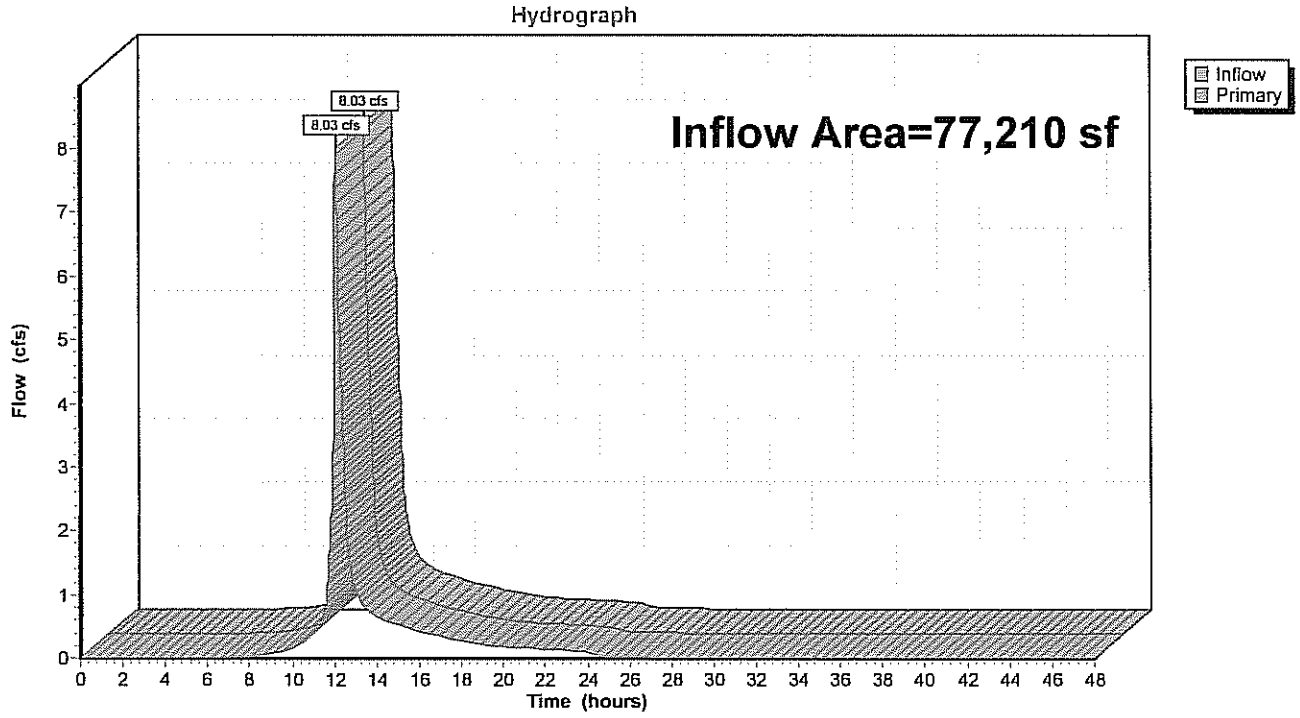
Summary for Pond AP-4: WET-2

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 77,210 sf, 45.86% Impervious, Inflow Depth = 4.93" for 100 YR event
Inflow = 8.03 cfs @ 12.11 hrs, Volume= 31,723 cf
Primary = 8.03 cfs @ 12.11 hrs, Volume= 31,723 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-4: WET-2



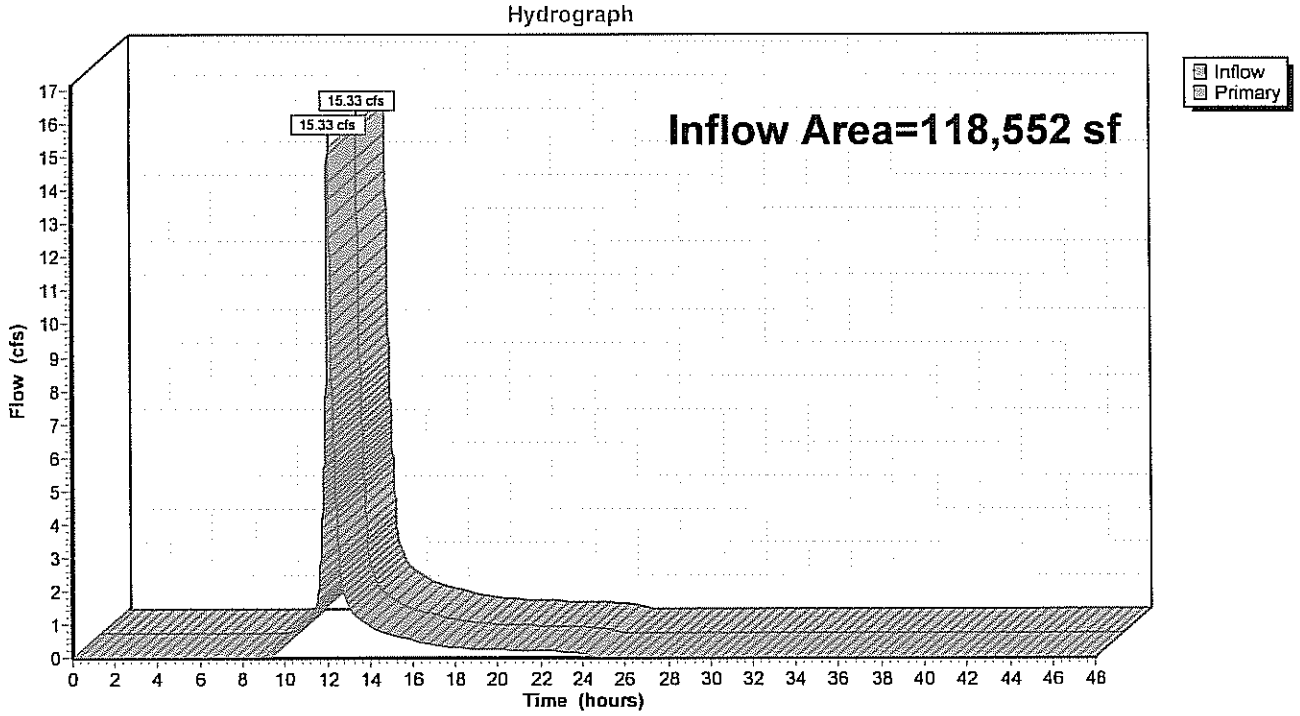
Summary for Pond AP-5: WET-3

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 118,552 sf, 62.79% Impervious, Inflow Depth = 5.20" for 100 YR event
Inflow = 15.33 cfs @ 12.11 hrs, Volume= 51,415 cf
Primary = 15.33 cfs @ 12.11 hrs, Volume= 51,415 cf, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4

Pond AP-5: WET-3



Summary for Pond BASIN-1: BioRetention Area 1

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 4.60" for 100 YR event
Inflow = 8.46 cfs @ 12.10 hrs, Volume= 31,425 cf
Outflow = 4.66 cfs @ 12.30 hrs, Volume= 23,781 cf, Atten= 45%, Lag= 12.1 min
Primary = 4.66 cfs @ 12.30 hrs, Volume= 23,781 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.99' @ 12.30 hrs Surf.Area= 6,278 sf Storage= 10,616 cf
Flood Elev= 80.00' Surf.Area= 7,310 sf Storage= 17,464 cf

Plug-Flow detention time= 147.0 min calculated for 23,781 cf (76% of inflow)
Center-of-Mass det. time= 60.9 min (891.6 - 830.7)

Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	17,464 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	4,407	0	0
78.00	5,319	4,863	4,863
79.00	6,286	5,803	10,666
80.00	7,310	6,798	17,464

Device	Routing	Invert	Outlet Devices
#1	Primary	78.50'	**5.0' long x 25.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.68 2.70 2.70 2.64 2.63 2.64 2.64 2.63

Primary OutFlow Max=4.66 cfs @ 12.30 hrs HW=78.99' TW=0.00' (Dynamic Tailwater)
↑**1=Broad-Crested Rectangular Weir** (Weir Controls 4.66 cfs @ 1.89 fps)

Pond BASIN-2: Subsurface Detention System - Chamber Wizard Field A

Chamber Model = Cultec C-100HD (Cultec Contactor® 100HD)
Effective Size= 32.1"W x 12.0"H => 1.86 sf x 7.50'L = 14.0 cf
Overall Size= 36.0"W x 12.5"H x 8.00'L with 0.50' Overlap
Row Length Adjustment= +0.50' x 1.86 sf x 20 rows

36.0" Wide + 4.0" Spacing = 40.0" C-C Row Spacing

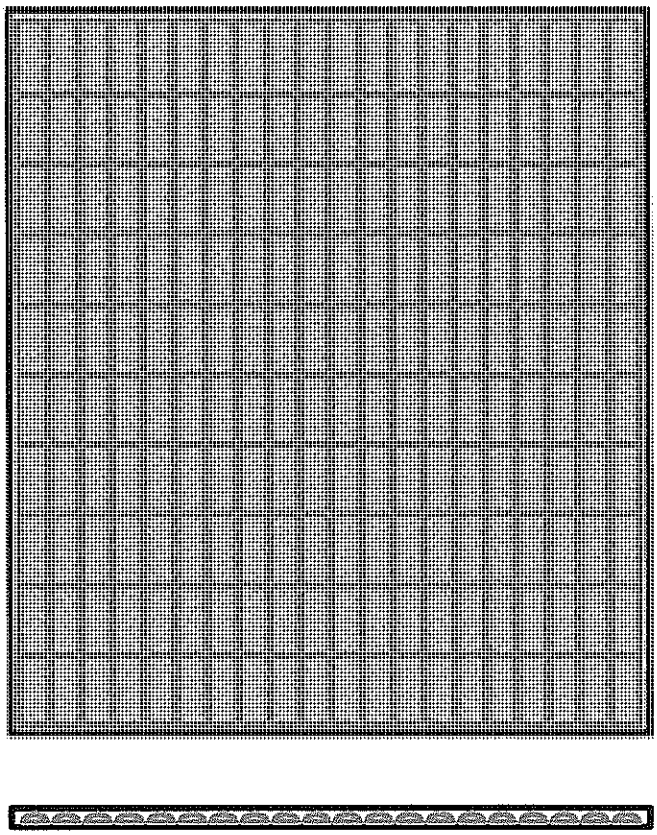
10 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 75.50' Row Length +12.0" End Stone x 2 = 77.50' Base Length
20 Rows x 36.0" Wide + 4.0" Spacing x 19 + 12.0" Side Stone x 2 = 68.33' Base Width
6.0" Base + 12.5" Chamber Height + 6.0" Cover = 2.04' Field Height

200 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 20 Rows = 2,810.9 cf Chamber Storage

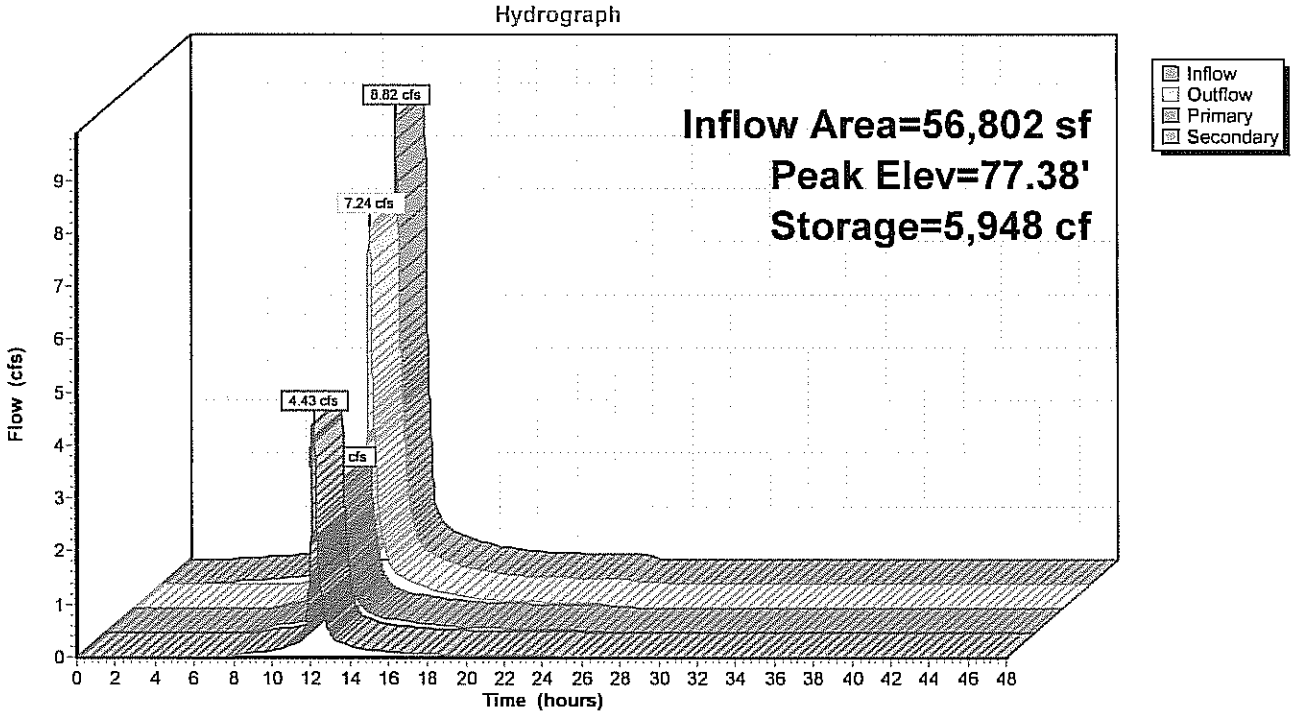
10,812.3 cf Field - 2,810.9 cf Chambers = 8,001.5 cf Stone x 40.0% Voids = 3,200.6 cf Stone Storage

Chamber Storage + Stone Storage = 6,011.4 cf = 0.138 af
Overall Storage Efficiency = 55.6%

200 Chambers
400.5 cy Field
296.4 cy Stone



Pond BASIN-2: Subsurface Detention System



Summary for Pond BASIN-3: BioRetention Area 3

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 5.33" for 100 YR event
Inflow = 4.09 cfs @ 12.10 hrs, Volume= 13,205 cf
Outflow = 2.85 cfs @ 12.18 hrs, Volume= 13,150 cf, Atten= 30%, Lag= 5.2 min
Primary = 2.85 cfs @ 12.18 hrs, Volume= 13,150 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.93' @ 12.18 hrs Surf.Area= 4,313 sf Storage= 3,682 cf
Flood Elev= 78.00' Surf.Area= 5,167 sf Storage= 8,763 cf

Plug-Flow detention time= 96.2 min calculated for 13,148 cf (100% of inflow)
Center-of-Mass det. time= 93.8 min (901.5 - 807.7)

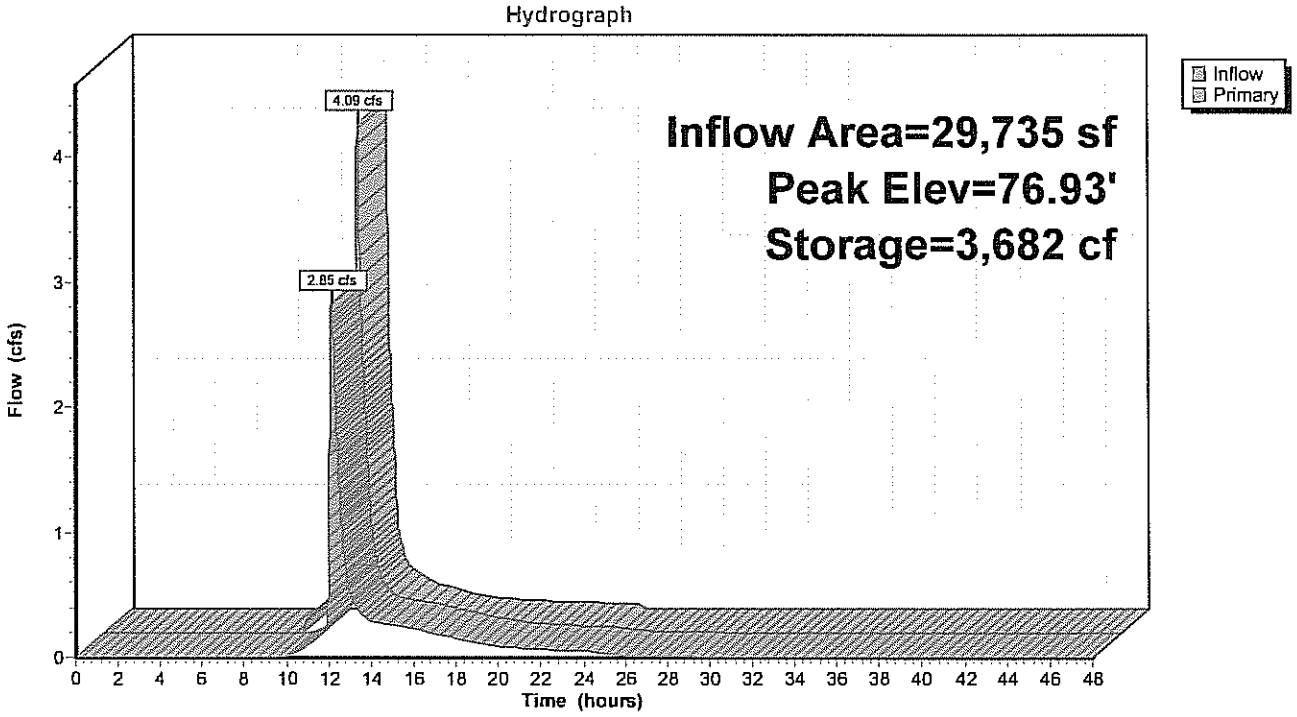
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	8,763 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	3,624	0	0
77.00	4,367	3,996	3,996
78.00	5,167	4,767	8,763

Device	Routing	Invert	Outlet Devices
#1	Primary	75.00'	**12.0" Round 12" HDPE** L= 30.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.00' / 74.80' S= 0.0067 '/' Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 0.79 sf
#2	Device 1	76.00'	**4.0" Vert. 4" Orifice** C= 0.600
#3	Device 1	76.60'	**4.0' long x 1.50' rise Sharp-Crested Rectangular Weir** 2 End Contraction(s) 1.5' Crest Height

Primary OutFlow Max=2.85 cfs @ 12.18 hrs HW=76.93' TW=0.00' (Dynamic Tailwater)
↑**1=12" HDPE** (Passes 2.85 cfs of 4.52 cfs potential flow)
↑**2=4" Orifice** (Orifice Controls 0.37 cfs @ 4.20 fps)
3=Sharp-Crested Rectangular Weir (Weir Controls 2.48 cfs @ 1.92 fps)

Pond BASIN-3: BioRetention Area 3



Summary for Pond BASIN-4: BioRetention Area 4

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 6.22" for 100 YR event
Inflow = 12.52 cfs @ 12.09 hrs, Volume= 42,919 cf
Outflow = 11.75 cfs @ 12.12 hrs, Volume= 39,686 cf, Atten= 6%, Lag= 1.9 min
Primary = 11.75 cfs @ 12.12 hrs, Volume= 39,686 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.58' @ 12.12 hrs Surf.Area= 4,044 sf Storage= 5,437 cf
Flood Elev= 79.00' Surf.Area= 4,374 sf Storage= 7,218 cf

Plug-Flow detention time= 69.4 min calculated for 39,678 cf (92% of inflow)
Center-of-Mass det. time= 30.1 min (805.2 - 775.1)

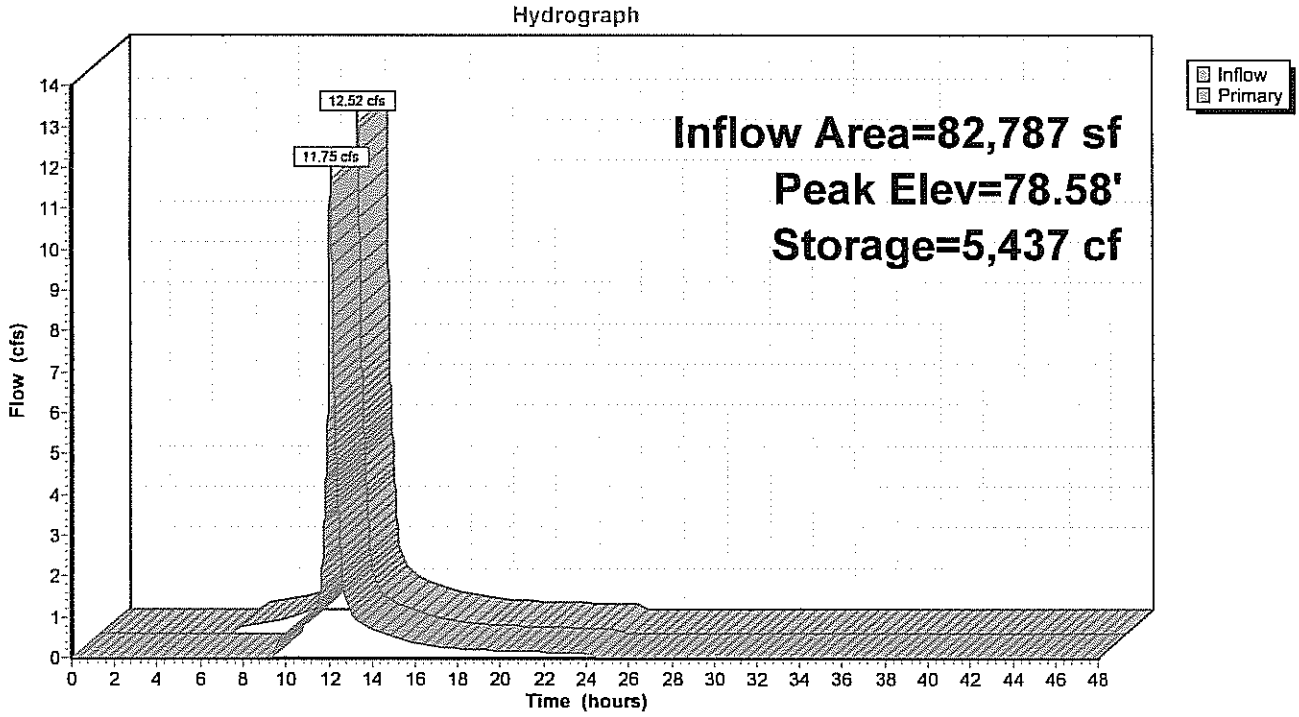
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	7,218 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	2,871	0	0
78.00	3,595	3,233	3,233
79.00	4,374	3,985	7,218

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 8.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.43 2.54 2.70 2.69 2.68 2.68 2.66 2.64 2.64 2.64 2.65 2.65 2.66 2.66 2.68 2.70 2.74

Primary OutFlow Max=11.74 cfs @ 12.12 hrs HW=78.58' TW=0.00' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 11.74 cfs @ 2.04 fps)

Pond BASIN-4: BioRetention Area 4



Summary for Pond DMH-1: DMH-1

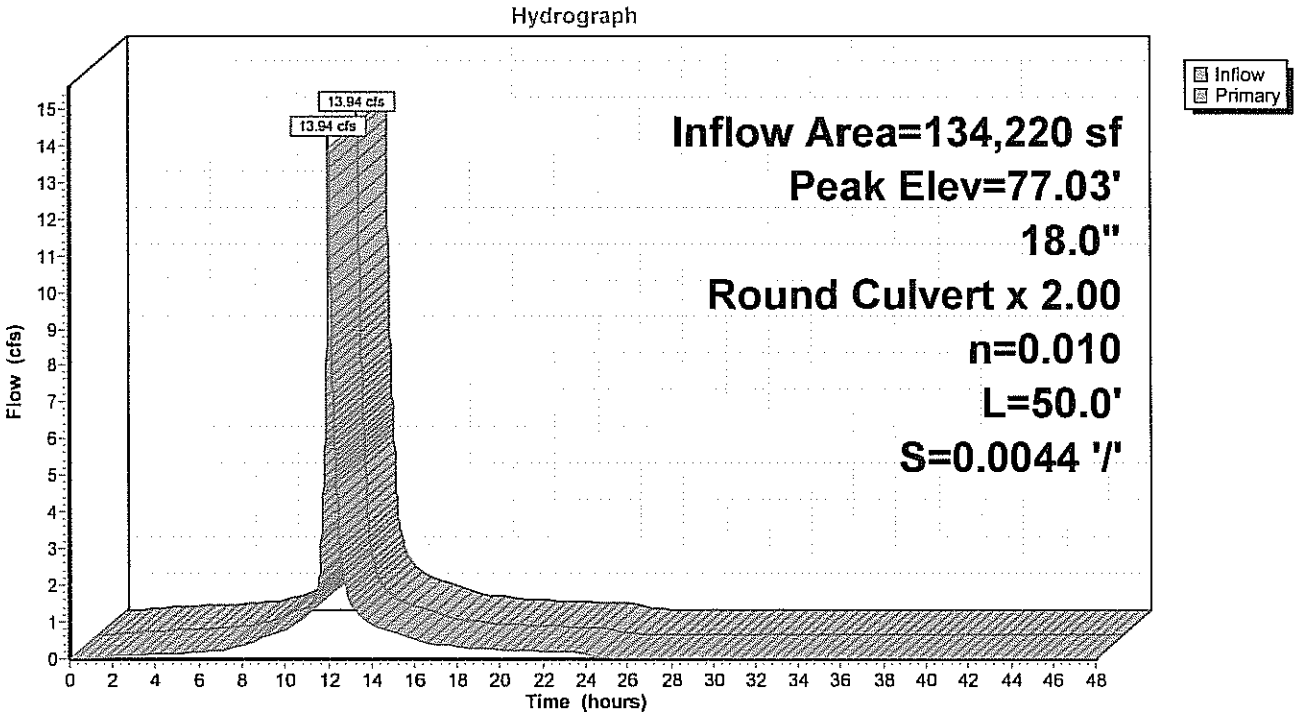
Inflow Area = 134,220 sf, 93.77% Impervious, Inflow Depth = 5.30" for 100 YR event
Inflow = 13.94 cfs @ 12.09 hrs, Volume= 59,322 cf
Outflow = 13.94 cfs @ 12.09 hrs, Volume= 59,322 cf, Atten= 0%, Lag= 0.0 min
Primary = 13.94 cfs @ 12.09 hrs, Volume= 59,322 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 77.03' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.42'	**18.0" Round Culvert X 2.00** L= 50.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.42' / 75.20' S= 0.0044 '/' Cc= 0.900 n= 0.010 Cast iron, coated, Flow Area= 1.77 sf

Primary OutFlow Max=13.92 cfs @ 12.09 hrs HW=77.03' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 13.92 cfs @ 4.57 fps)

Pond DMH-1: DMH-1



Summary for Pond DMH-2: DMH-2

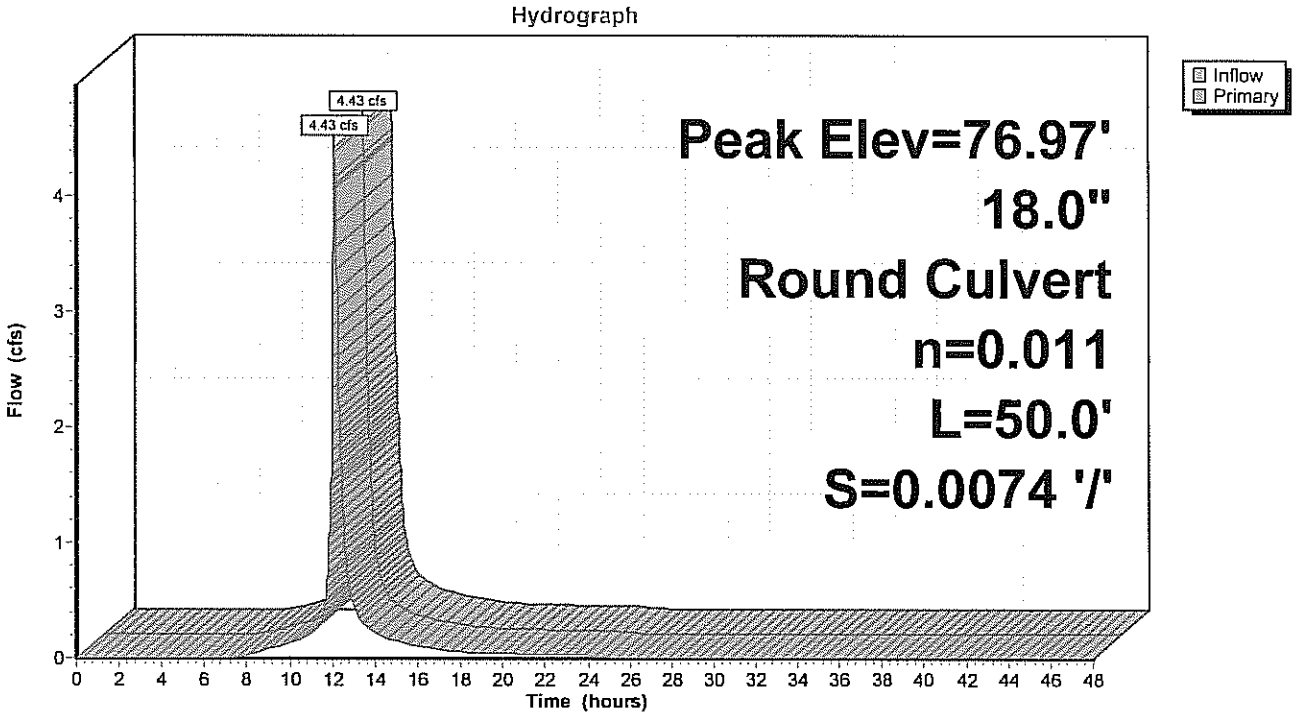
Inflow	=	4.43 cfs @	12.14 hrs, Volume=	13,509 cf
Outflow	=	4.43 cfs @	12.14 hrs, Volume=	13,509 cf, Atten= 0%, Lag= 0.0 min
Primary	=	4.43 cfs @	12.14 hrs, Volume=	13,509 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.97' @ 12.14 hrs
Flood Elev= 79.20'

Device	Routing	Invert	Outlet Devices
#1	Primary	75.87'	**18.0" Round Culvert** L= 50.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 75.87' / 75.50' S= 0.0074 '/' Cc= 0.900 n= 0.011, Flow Area= 1.77 sf

Primary OutFlow Max=4.43 cfs @ 12.14 hrs HW=76.97' TW=0.00' (Dynamic Tailwater)
↑—**1=Culvert** (Barrel Controls 4.43 cfs @ 4.44 fps)

Pond DMH-2: DMH-2



Summary for Pond DMH-3:

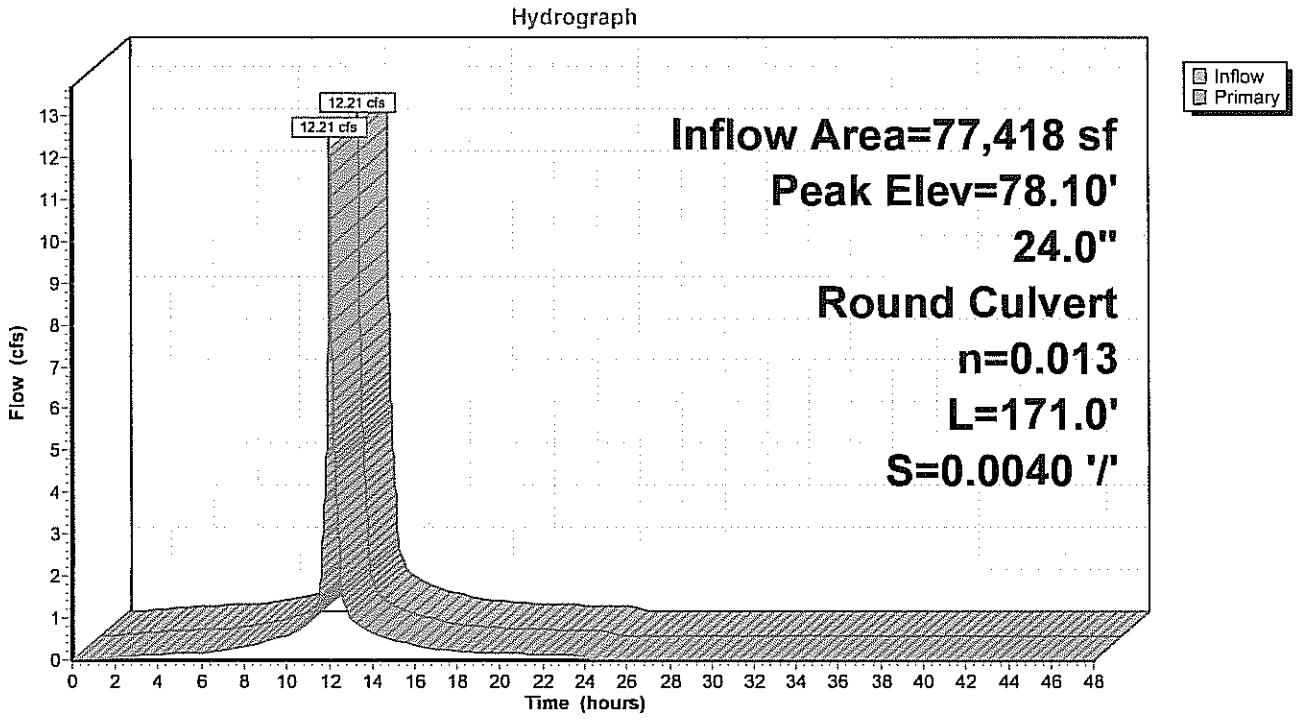
Inflow Area = 77,418 sf,100.00% Impervious, Inflow Depth = 6.76" for 100 YR event
Inflow = 12.21 cfs @ 12.08 hrs, Volume= 43,618 cf
Outflow = 12.21 cfs @ 12.08 hrs, Volume= 43,618 cf, Atten= 0%, Lag= 0.0 min
Primary = 12.21 cfs @ 12.08 hrs, Volume= 43,618 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.10' @ 12.09 hrs
Flood Elev= 79.80'

Device	Routing	Invert	Outlet Devices
#1	Primary	76.14'	**24.0" Round Culvert** L= 171.0' RCP, groove end projecting, Ke= 0.200 Inlet / Outlet Invert= 76.14' / 75.45' S= 0.0040 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 3.14 sf

Primary OutFlow Max=12.18 cfs @ 12.08 hrs HW=78.10' TW=77.02' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 12.18 cfs @ 4.92 fps)

Pond DMH-3:



Summary for Pond FB-1: Forebay

Inflow Area = 81,936 sf, 4.31% Impervious, Inflow Depth = 5.25" for 100 YR event
Inflow = 11.26 cfs @ 12.09 hrs, Volume= 35,865 cf
Outflow = 8.46 cfs @ 12.10 hrs, Volume= 31,425 cf, Atten= 25%, Lag= 0.7 min
Primary = 8.46 cfs @ 12.10 hrs, Volume= 31,425 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 79.00' @ 12.29 hrs Surf.Area= 2,990 sf Storage= 5,835 cf
Flood Elev= 79.00' Surf.Area= 2,991 sf Storage= 5,837 cf

Plug-Flow detention time= 92.0 min calculated for 31,425 cf (88% of inflow)
Center-of-Mass det. time= 35.6 min (830.7 - 795.1)

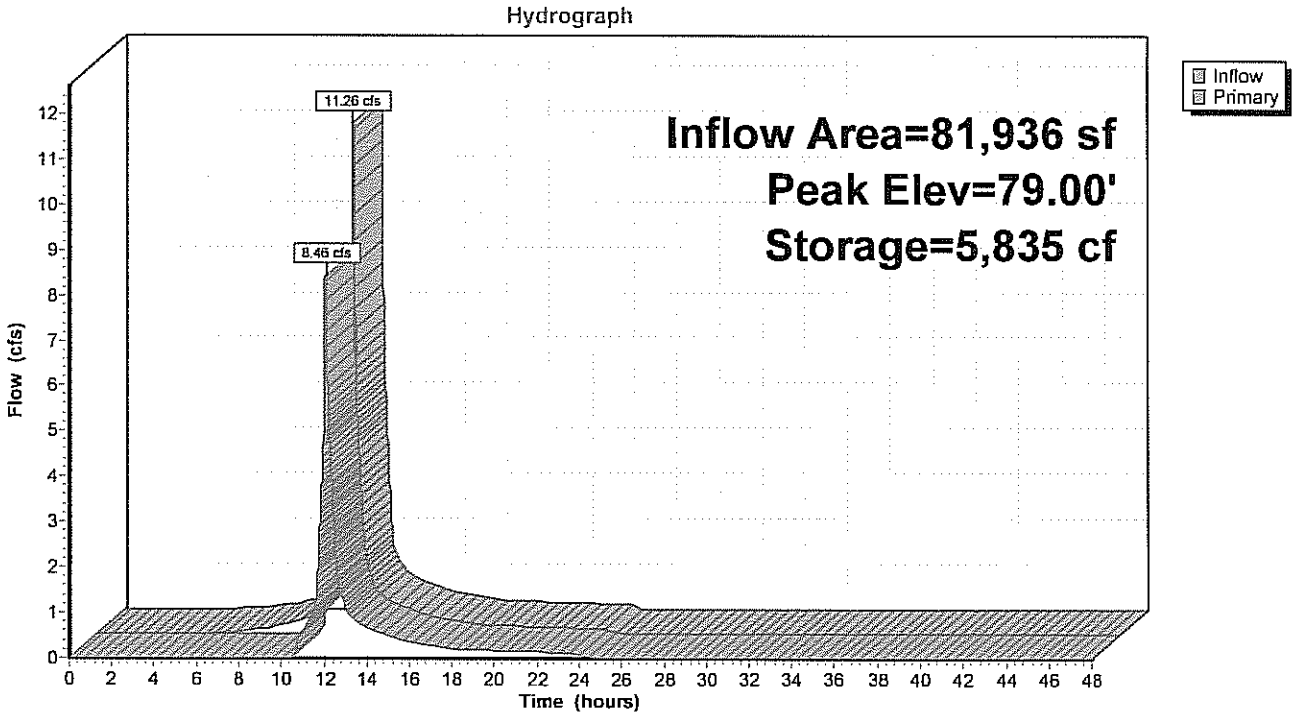
Volume	Invert	Avail.Storage	Storage Description
#1	76.00'	5,837 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
76.00	1,200	0	0
77.00	1,518	1,359	1,359
78.00	2,227	1,873	3,232
78.50	2,602	1,207	4,439
79.00	2,991	1,398	5,837

Device	Routing	Invert	Outlet Devices
#1	Primary	78.00'	**10.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Primary OutFlow Max=8.46 cfs @ 12.10 hrs HW=78.77' TW=78.70' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 8.46 cfs @ 1.10 fps)

Pond FB-1: Forebay



Summary for Pond FB-2: Forebay

Inflow Area = 29,735 sf, 63.13% Impervious, Inflow Depth = 5.71" for 100 YR event
Inflow = 4.34 cfs @ 12.08 hrs, Volume= 14,144 cf
Outflow = 4.09 cfs @ 12.10 hrs, Volume= 13,205 cf, Atten= 6%, Lag= 0.6 min
Primary = 4.09 cfs @ 12.10 hrs, Volume= 13,205 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 76.99' @ 12.13 hrs Surf.Area= 977 sf Storage= 1,291 cf
Flood Elev= 77.00' Surf.Area= 982 sf Storage= 1,304 cf

Plug-Flow detention time= 60.2 min calculated for 13,203 cf (93% of inflow)
Center-of-Mass det. time= 24.5 min (807.7 - 783.2)

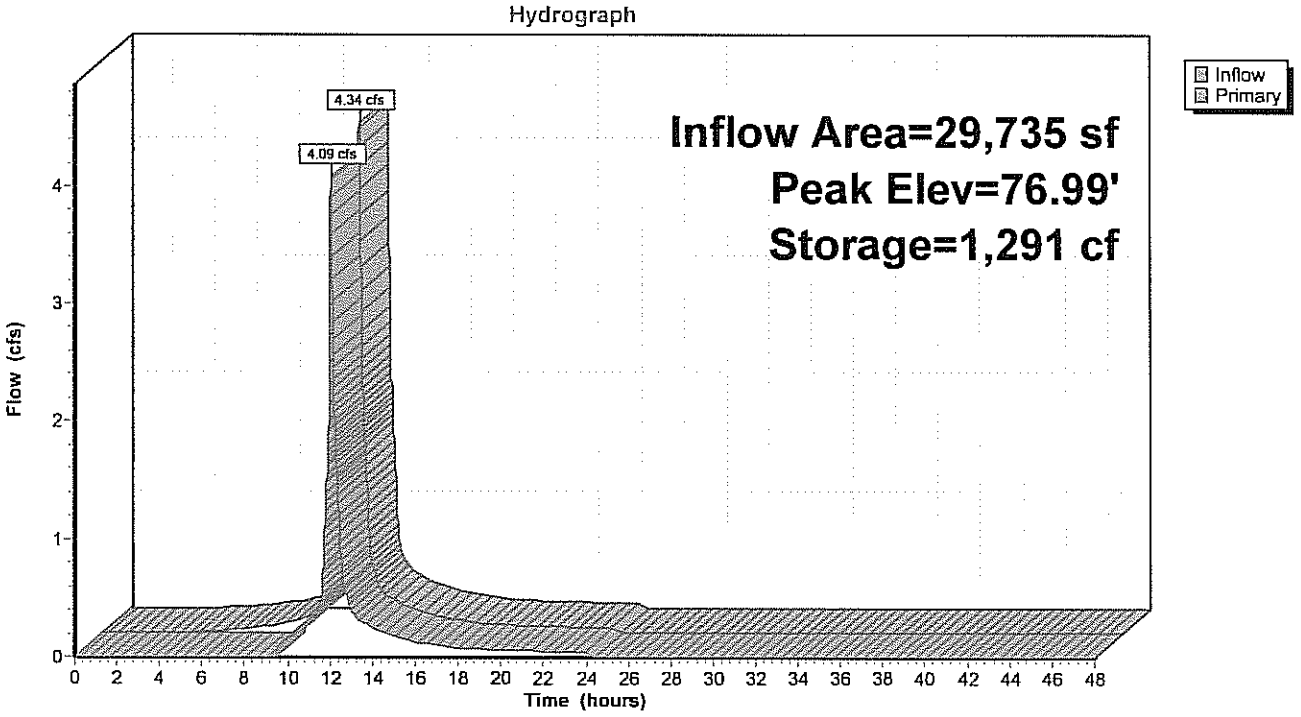
Volume	Invert	Avail.Storage	Storage Description
#1	75.00'	1,304 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
75.00	350	0	0
76.00	638	494	494
77.00	982	810	1,304

Device	Routing	Invert	Outlet Devices
#1	Primary	76.60'	**10.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88

Primary OutFlow Max=4.08 cfs @ 12.10 hrs HW=76.97' TW=76.86' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 4.08 cfs @ 1.09 fps)

Pond FB-2: Forebay



Summary for Pond FB-3: Forebay

Inflow Area = 82,787 sf, 85.50% Impervious, Inflow Depth = 6.41" for 100 YR event
Inflow = 12.85 cfs @ 12.08 hrs, Volume= 44,193 cf
Outflow = 12.52 cfs @ 12.09 hrs, Volume= 42,919 cf, Atten= 3%, Lag= 0.4 min
Primary = 12.52 cfs @ 12.09 hrs, Volume= 42,919 cf

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs / 4
Peak Elev= 78.64' @ 12.11 hrs Surf.Area= 1,371 sf Storage= 1,713 cf
Flood Elev= 78.80' Surf.Area= 1,439 sf Storage= 1,941 cf

Plug-Flow detention time= 33.0 min calculated for 42,919 cf (97% of inflow)
Center-of-Mass det. time= 15.1 min (775.1 - 760.0)

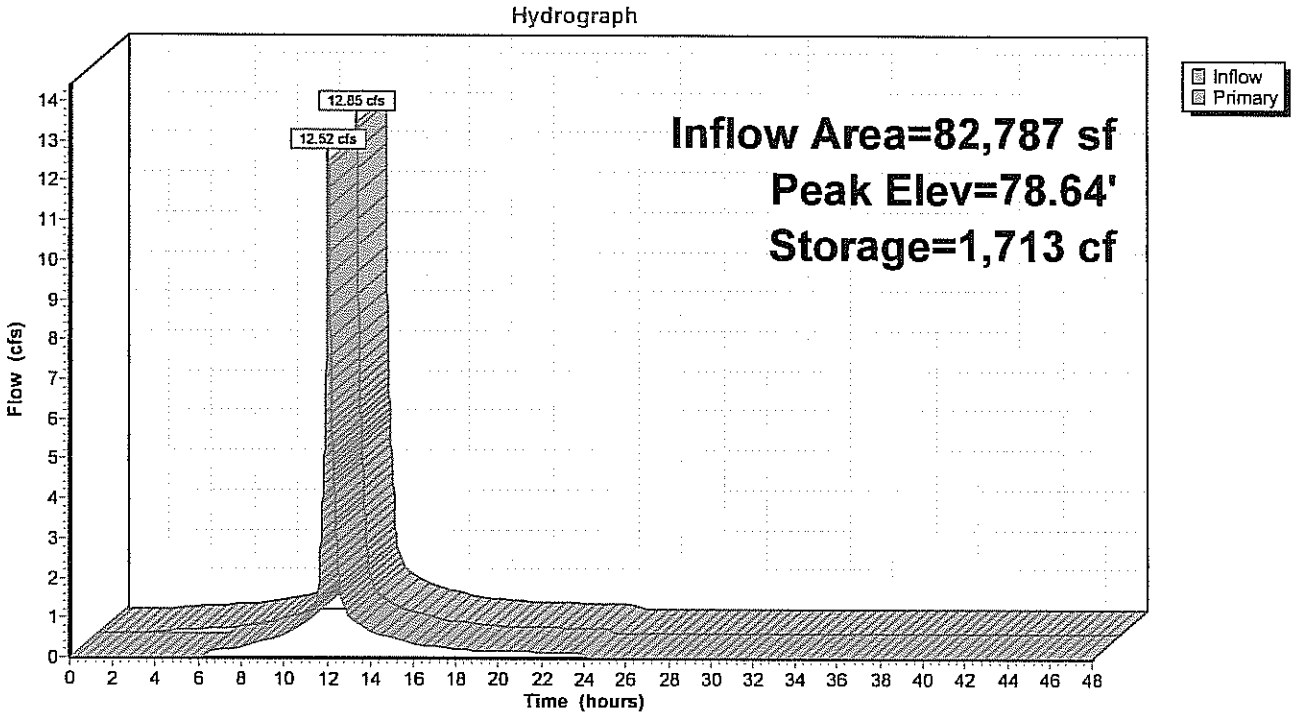
Volume	Invert	Avail.Storage	Storage Description
#1	77.00'	1,941 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
77.00	743	0	0
78.00	1,104	924	924
78.80	1,439	1,017	1,941

Device	Routing	Invert	Outlet Devices
#1	Primary	78.30'	**38.0' long x 1.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 Coef. (English) 2.69 2.72 2.75 2.85 2.98 3.08 3.20 3.28 3.31 3.30 3.31 3.32

Primary OutFlow Max=12.51 cfs @ 12.09 hrs HW=78.63' TW=78.56' (Dynamic Tailwater)
↑—**1=Broad-Crested Rectangular Weir** (Weir Controls 12.51 cfs @ 1.00 fps)

Pond FB-3: Forebay



Appendix A

Updated Post Development Watershed Plan