

SITEC

ENVIRONMENTAL

Civil and Environmental Engineering
Land Use Planning and Permitting
Hazardous and Solid Waste Consulting

769 Plain Street, Unit C
Marshfield, Massachusetts 02050
Tel. (781) 319-0100 FAX (781) 834-4783

DRAINAGE SUMMARY

Proposed Residence Relocation & Addition
247 Lakeview Avenue
Cambridge, Massachusetts

RECEIVED

JUN 16 2017

CAMBRIDGE HISTORICAL COMMISSION

EXISTING CONDITIONS

The property at 247 Lakeview Avenue in Cambridge, Massachusetts is approximately 13,350 square feet in area and consists of a single family dwelling, a paved driveway, concrete pads, sidewalk and lawn area. Under existing conditions, stormwater runoff from the site flows overland in an easterly direction from Lakeview Avenue toward the rear of the property. The rear of this property, as well as the surrounding properties, is a low-lying area subject to periodic ponding during prolonged rainfall events.

The soil type for the property is mapped as Scio-Urban Land complex, 0 to 8 percent slopes (Map Unit 621B). This particular soil is not mapped within a definite Hydrologic Soil Group because of the variations that are typically found with this parent soil type, which is the reason it is given the name "complex". This soil type is a mix of the "Scio" and "Urban Land" soil types. Scio is mapped under Hydrologic Soil Group B/D, which does not provide certainty as to which soil type is present on the site. The Urban Land soil type is typically assumed to be Hydrologic Soil Group D since it usually consists of buildings and other impervious surfaces with disturbed subsoil. Five soil evaluations were completed on the site by a Certified Soil Evaluator and the parent soil type was determined to be silt loam / clay loam and shallow high groundwater table with a depth ranging between 15" -60" from the surface. Due to the shallow groundwater table and the restrictive nature of the silt loam / clay loam parent soil, the drainage calculations performed for the site assume that the existing soils at the site fall within Hydrologic Soil Group D.

PROPOSED CONDITIONS

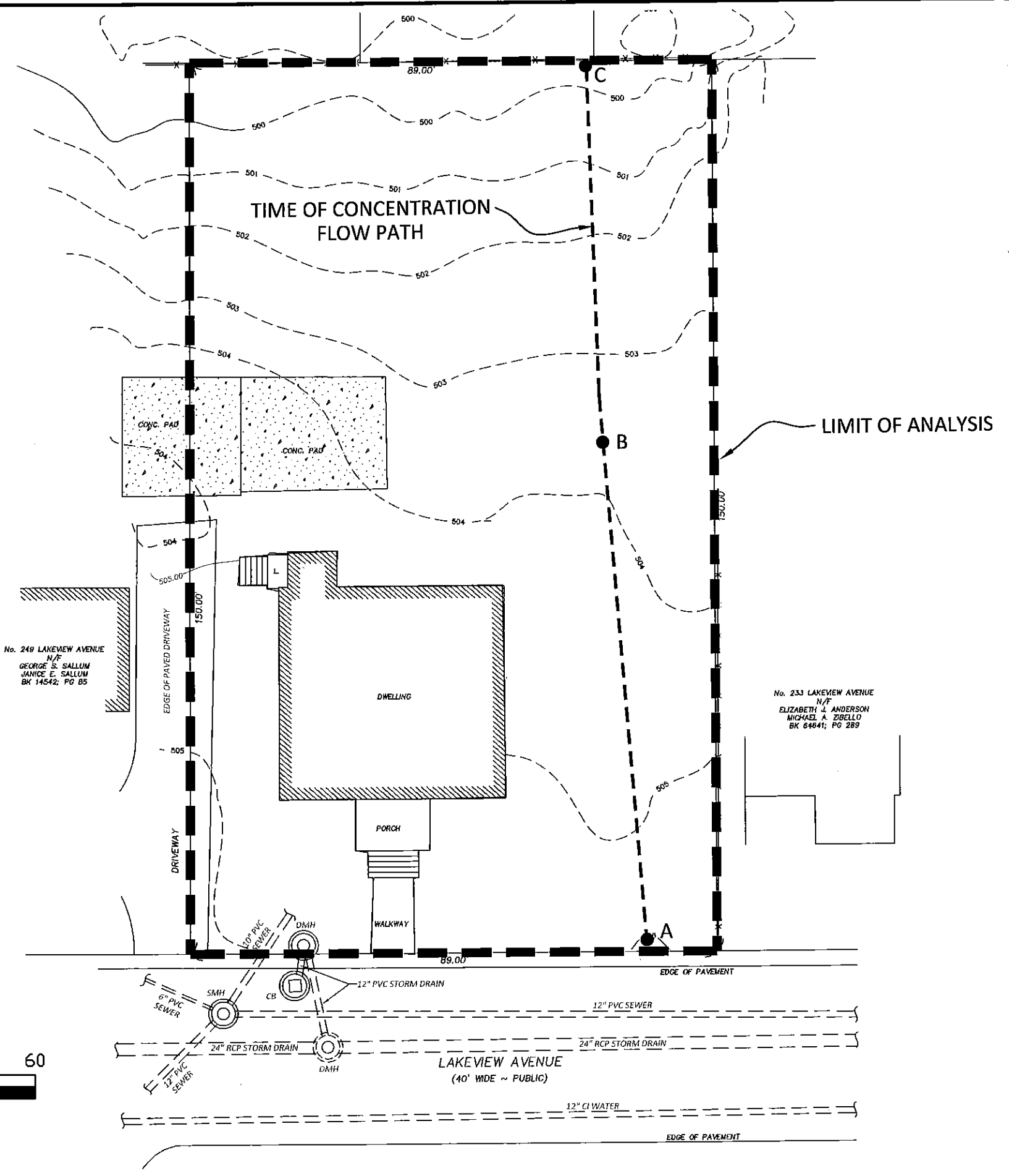
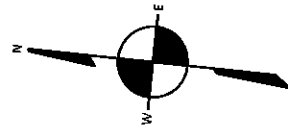
Under proposed conditions, the existing dwelling will be relocated approximately 11' to the south and be expanded. The paved driveway will be replaced and enlarged. Additionally, the rear portion of the site is proposed to be raised by approximately four

feet with the construction of a retaining wall that will be installed along the northerly, easterly and southerly perimeter of the property. In an effort to improve conditions of the low-lying area in the rear of the property, this project proposes to infiltrate stormwater to the maximum extent practical and then convey the remaining stormwater runoff, utilizing a pump station, to the City of Cambridge street drain system. Through surficial grading, stormwater runoff from the majority of the property will flow to a leaching catch basin to be installed in the rear of the property. The catch basin will be fitted with an emergency overflow pipe that will convey overflow to a pump station. The pump station will lift overflow from the leaching catch basin, as well as roof runoff from the roof drain collection system, to a second drywell structure located in the front portion of the property. Similarly, the drywell will be fitted with an emergency overflow pipe that will convey overflow to a City of Cambridge drain manhole in the front of the property. A summary of the pre-construction and post-construction stormwater discharges is shown below. The table presents the existing stormwater runoff rates and the proposed stormwater runoff rates to the rear of the property.

**EXISTING AND PROPOSED PEAK STORM WATER DISCHARGE
(TO REAR OF PROPERTY)**

<u>Storm</u>	<u>Existing</u>	<u>Proposed</u>	<u>Net Decrease & %</u>
<u>2 Year</u>	0.62 cfs	0.03 cfs	- 0.59 cfs (-95.1%)
<u>10 Year</u>	1.07 cfs	0.05 cfs	- 1.02 cfs (-95.3%)
<u>25 Year</u>	1.36 cfs	0.06 cfs	- 1.30 cfs (-95.6%)
<u>100 Year</u>	1.73 cfs	0.08 cfs	- 1.65 cfs (-95.4%)

Under existing conditions, stormwater runoff from approximately 13,350 square feet (or the entire property) flows in an easterly direction to the rear of the property, contributing to the neighborhood drainage issues that periodically occur. Under proposed conditions, the runoff area contributing to the rear of the property will be reduced to 630 square feet. This drastic reduction in the runoff is achieved by the installation of the proposed infiltration structures and the connection of the overflow piping to the City of Cambridge street drain system.



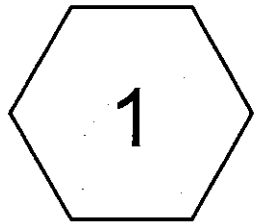
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 job no.: SE17-1297

project: PROPOSED RESIDENCE RELOCATION & ADDITION 247 LAKEVIEW AVENUE CAMBRIDGE, MA
 drawing title: EXISTING CONDITIONS DRAINAGE AREA PLAN
 sheet: 1 of 2

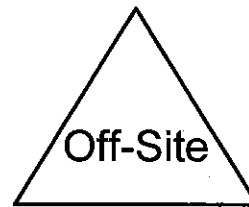
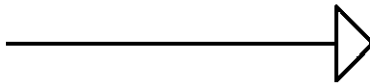
769 Plain Street, Unit C
 Marshfield, MA 02050
 PHONE (781) 319-0100
 FAX (781) 834-4783

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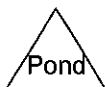




Existing Site



Rear of Property (East Side)



Existing Conditions Drainage Calculations

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Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 1: Existing Site

Runoff = 0.62 cfs @ 12.07 hrs, Volume= 0.040 af, Depth> 1.57"

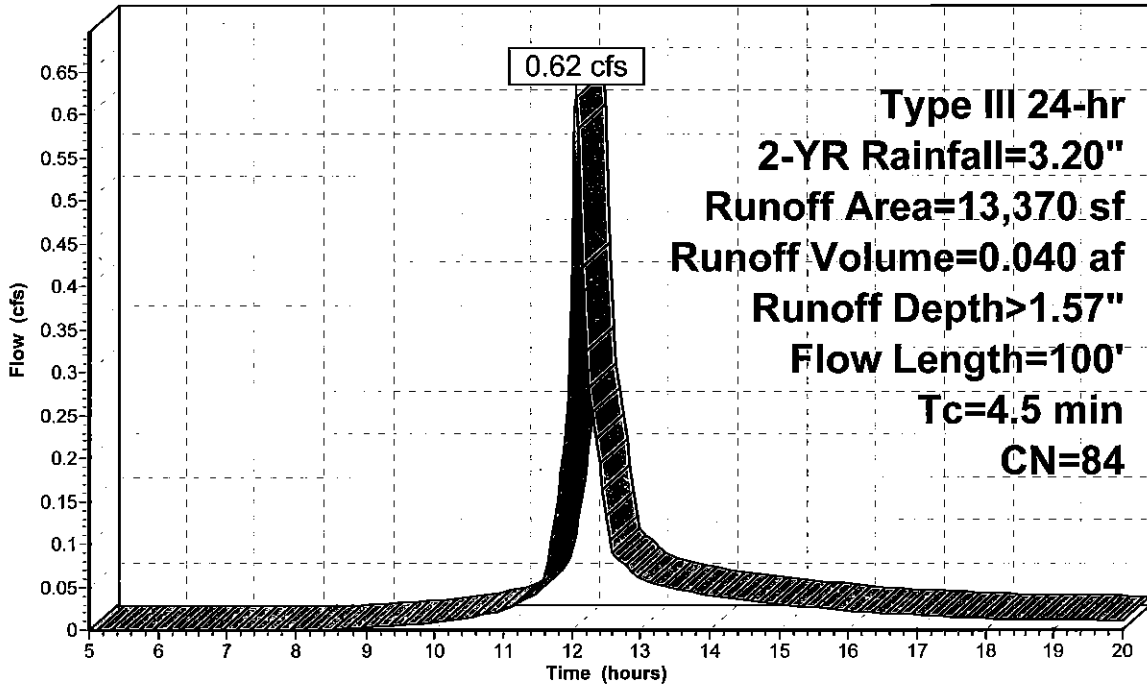
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
2,620	98	Dwelling and Walks
10,750	80	>75% Grass cover, Good, HSG D
13,370	84	Weighted Average
10,750		80.40% Pervious Area
2,620		19.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.0440	0.20		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.4	50	0.0760	1.93		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
4.5	100	Total			

Subcatchment 1: Existing Site

Hydrograph



Existing Conditions Drainage Calculations

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Type III 24-hr 2-YR Rainfall=3.20"

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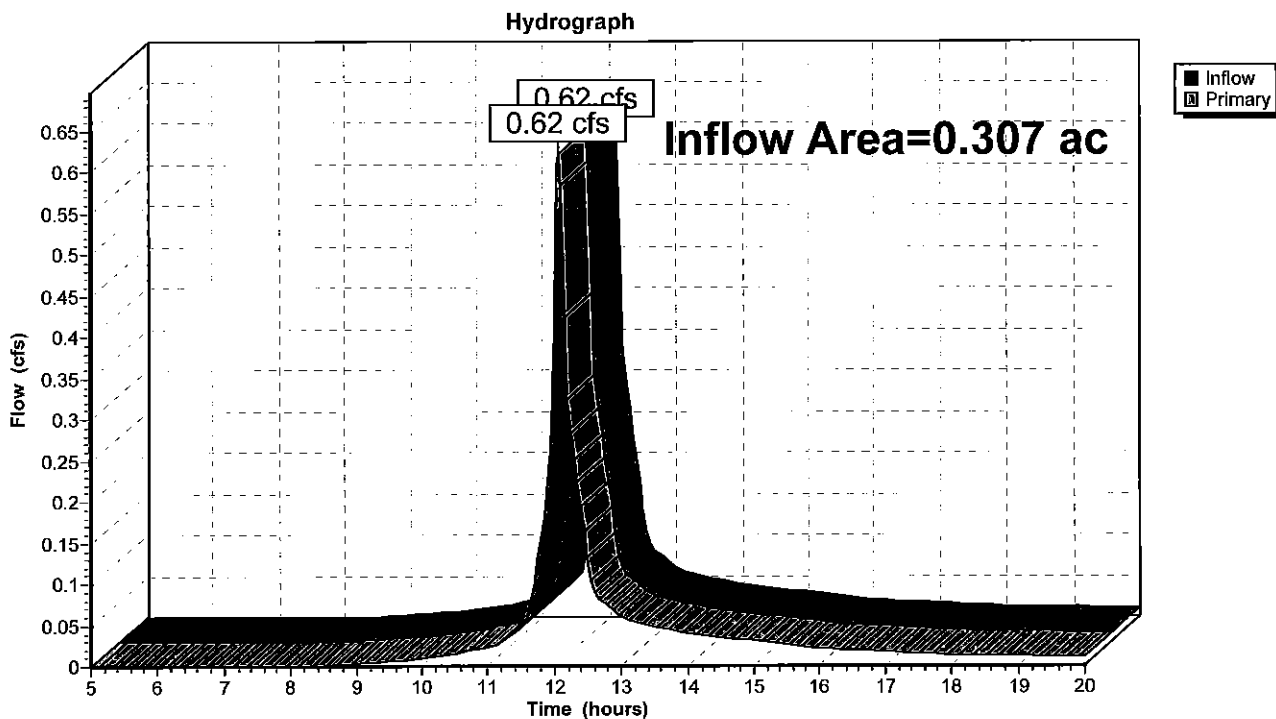
Page 3

Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.307 ac, 19.60% Impervious, Inflow Depth > 1.57" for 2-YR event
Inflow = 0.62 cfs @ 12.07 hrs, Volume= 0.040 af
Primary = 0.62 cfs @ 12.07 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Existing Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 1: Existing Site

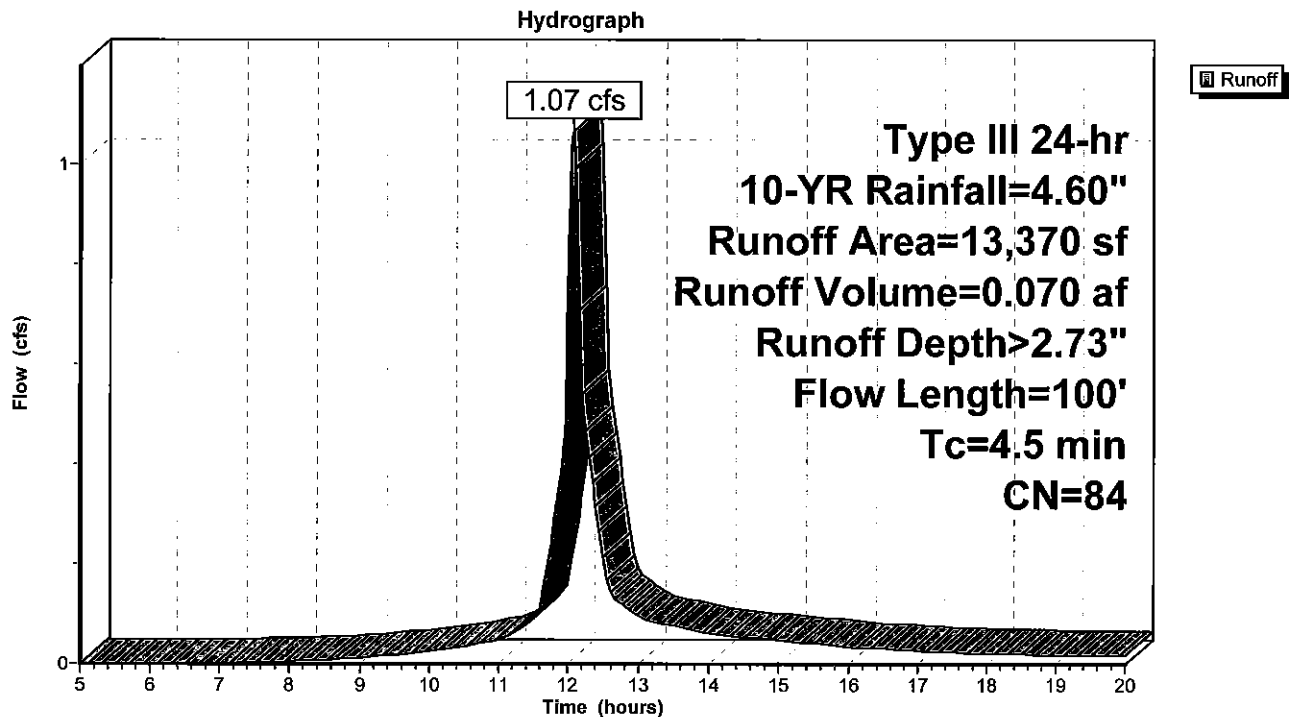
Runoff = 1.07 cfs @ 12.07 hrs, Volume= 0.070 af, Depth> 2.73"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
* 2,620	98	Dwelling and Walks
10,750	80	>75% Grass cover, Good, HSG D
13,370	84	Weighted Average
10,750		80.40% Pervious Area
2,620		19.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.0440	0.20		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.4	50	0.0760	1.93		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
4.5	100	Total			

Subcatchment 1: Existing Site



Existing Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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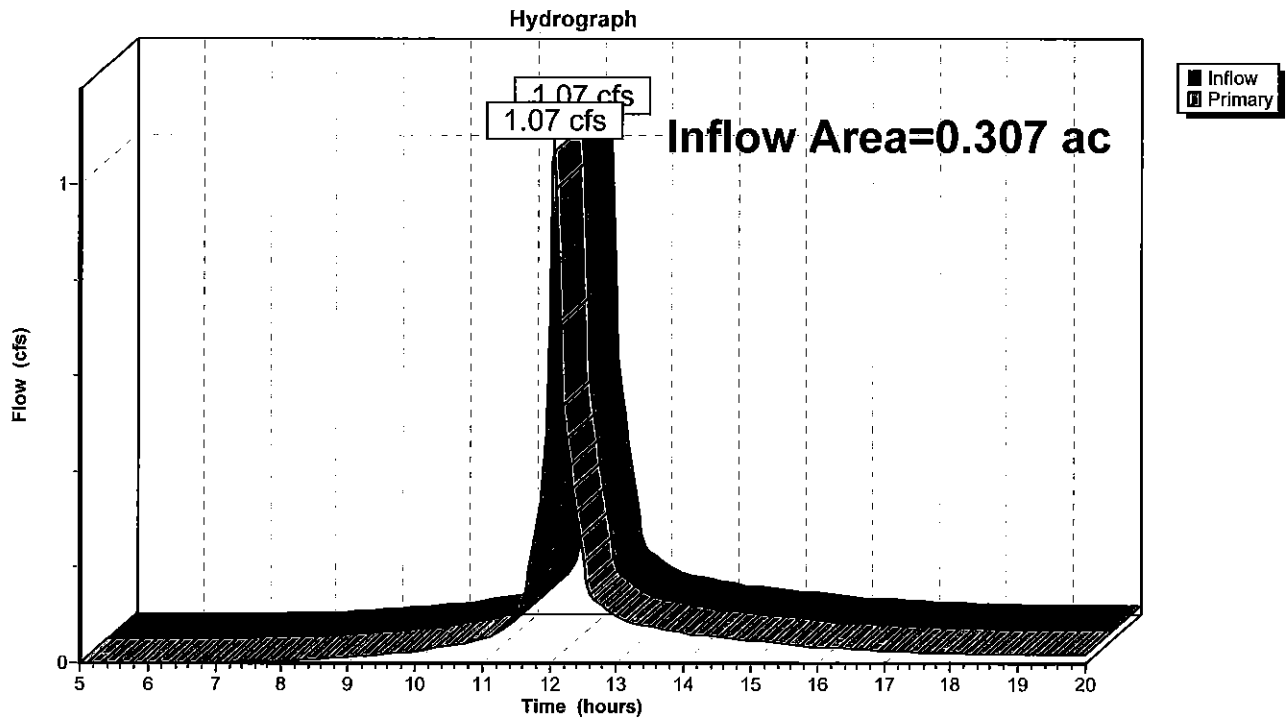
Page 5

Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.307 ac, 19.60% Impervious, Inflow Depth > 2.73" for 10-YR event
Inflow = 1.07 cfs @ 12.07 hrs, Volume= 0.070 af
Primary = 1.07 cfs @ 12.07 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Existing Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Subcatchment 1: Existing Site

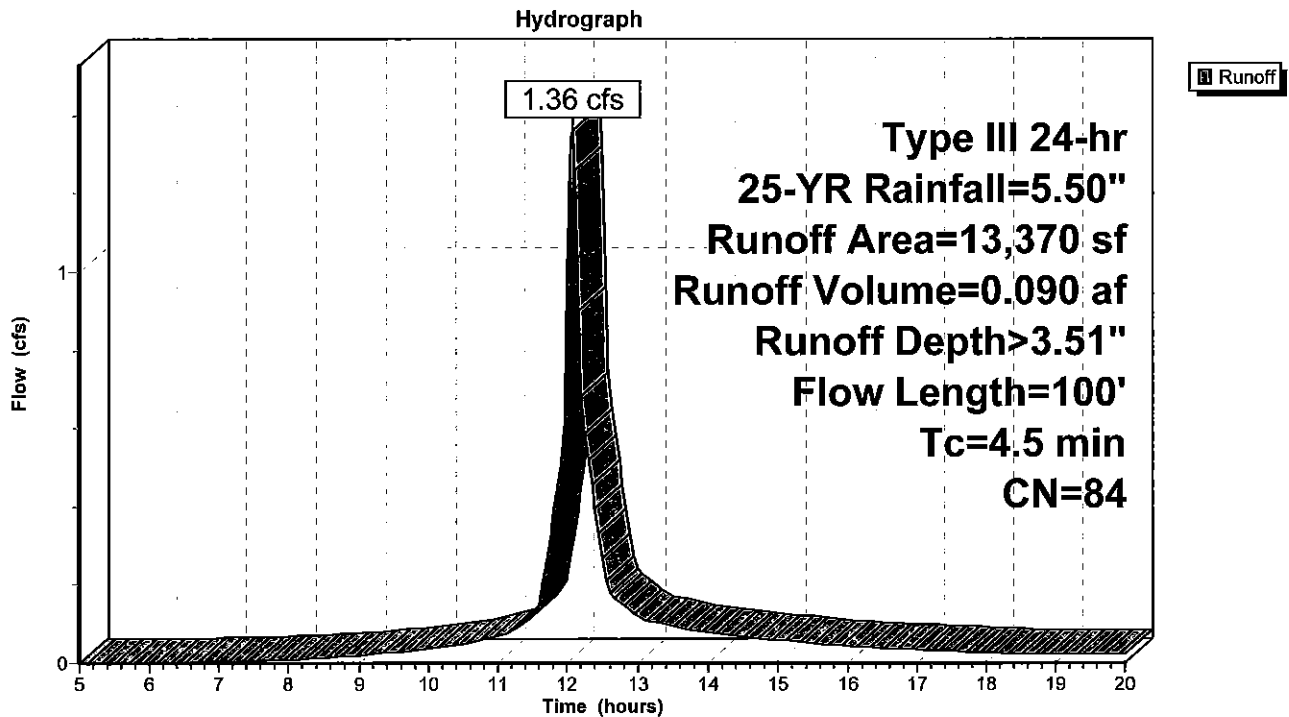
Runoff = 1.36 cfs @ 12.07 hrs, Volume= 0.090 af, Depth> 3.51"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
2,620	98	Dwelling and Walks
10,750	80	>75% Grass cover, Good, HSG D
13,370	84	Weighted Average
10,750		80.40% Pervious Area
2,620		19.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.0440	0.20		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
0.4	50	0.0760	1.93		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
4.5	100	Total			

Subcatchment 1: Existing Site



Existing Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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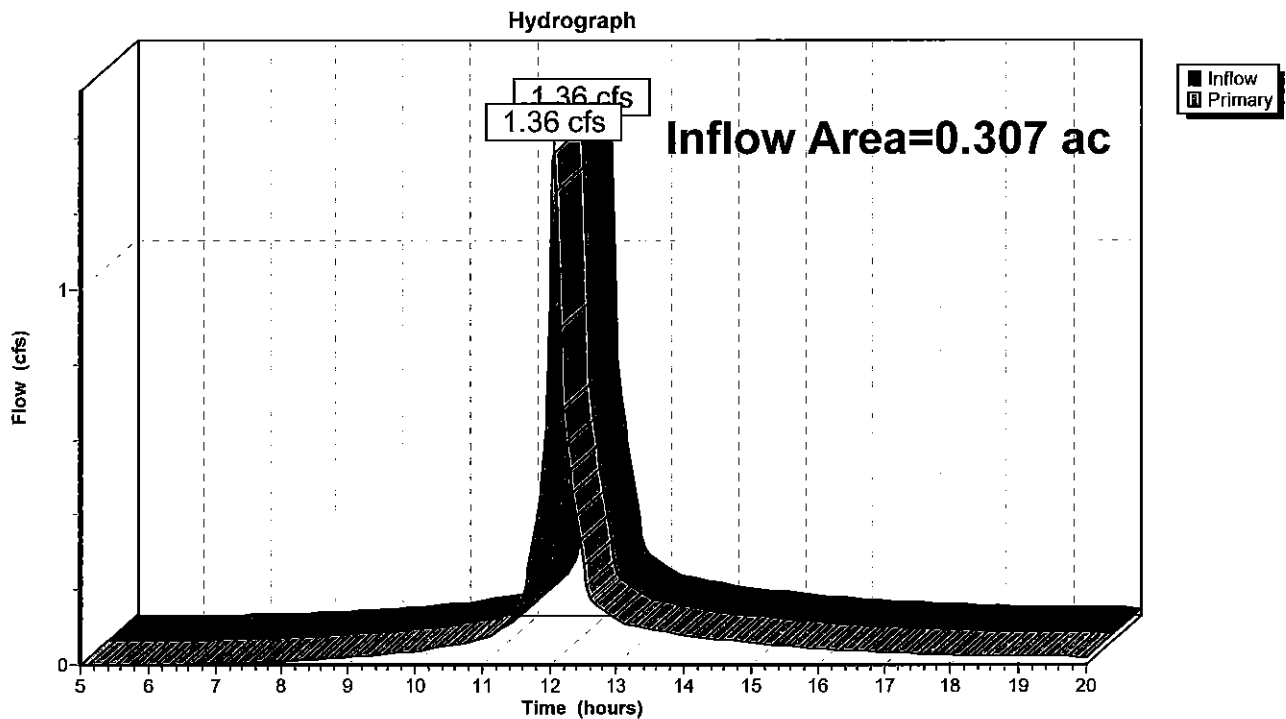
Page 7

Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.307 ac, 19.60% Impervious, Inflow Depth > 3.51" for 25-YR event
Inflow = 1.36 cfs @ 12.07 hrs, Volume= 0.090 af
Primary = 1.36 cfs @ 12.07 hrs, Volume= 0.090 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Existing Conditions Drainage Calculations

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Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Subcatchment 1: Existing Site

Runoff = 1.73 cfs @ 12.07 hrs, Volume= 0.115 af, Depth> 4.49"

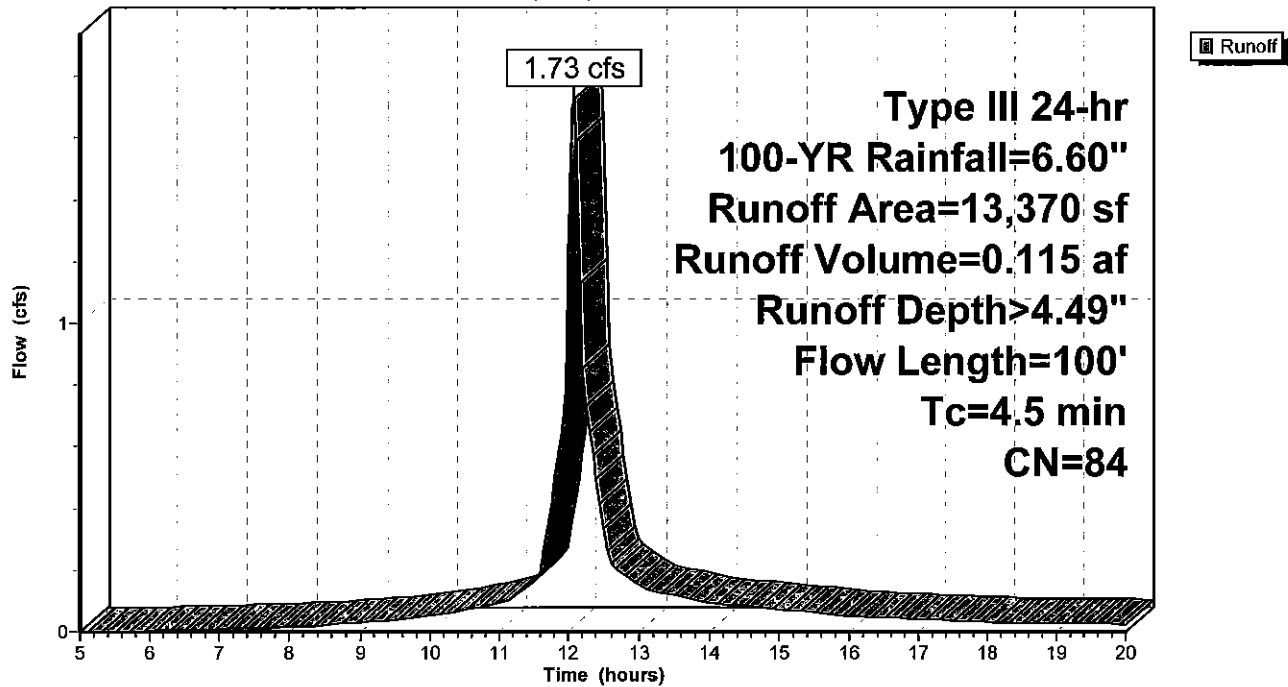
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.60"

Area (sf)	CN	Description
* 2,620	98	Dwelling and Walks
10,750	80	>75% Grass cover, Good, HSG D
13,370	84	Weighted Average
10,750		80.40% Pervious Area
2,620		19.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.1	50	0.0440	0.20		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
0.4	50	0.0760	1.93		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
4.5	100	Total			

Subcatchment 1: Existing Site

Hydrograph



Existing Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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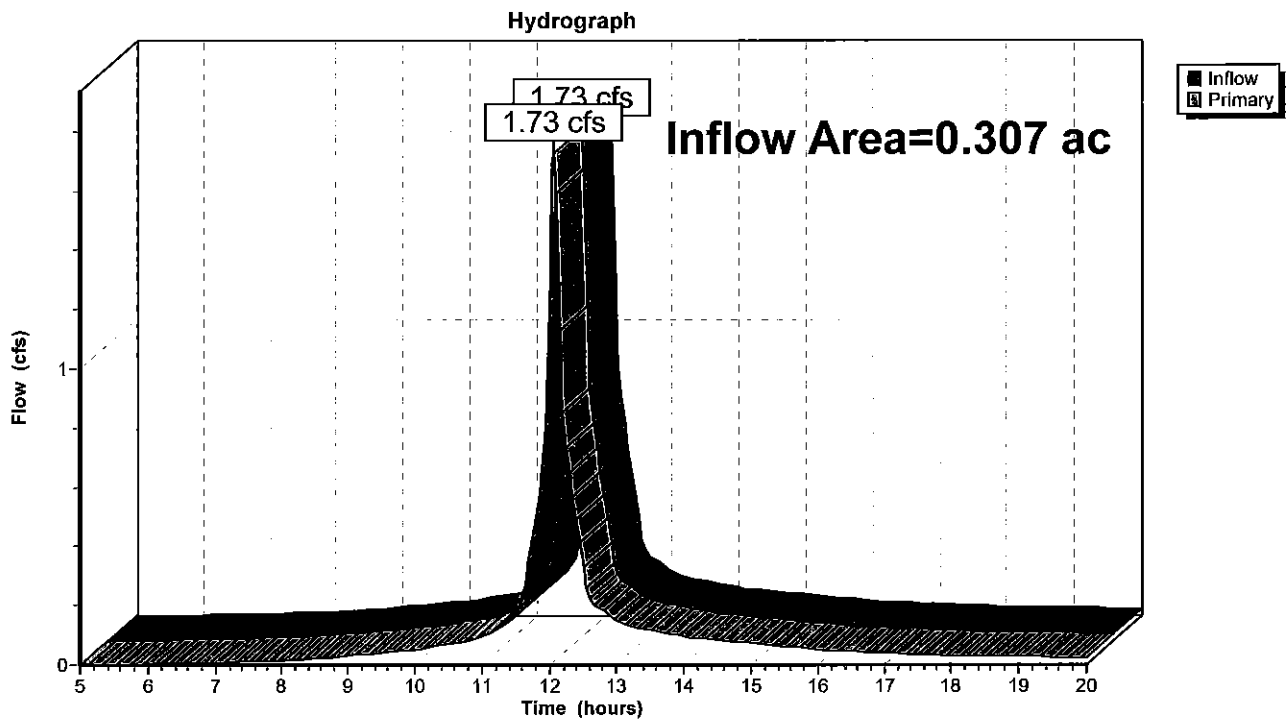
Page 9

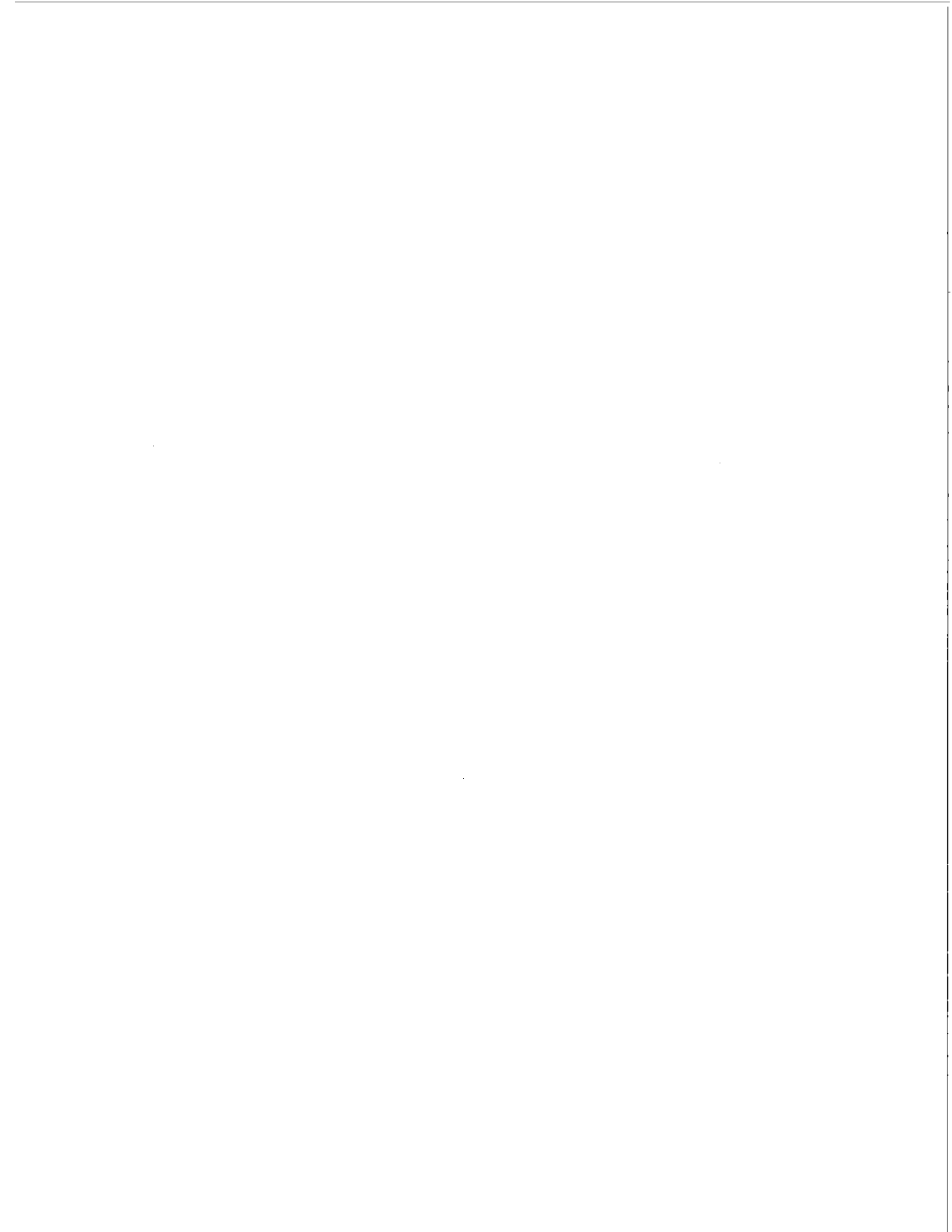
Summary for Pond Off-Site: Rear of Property (East Side)

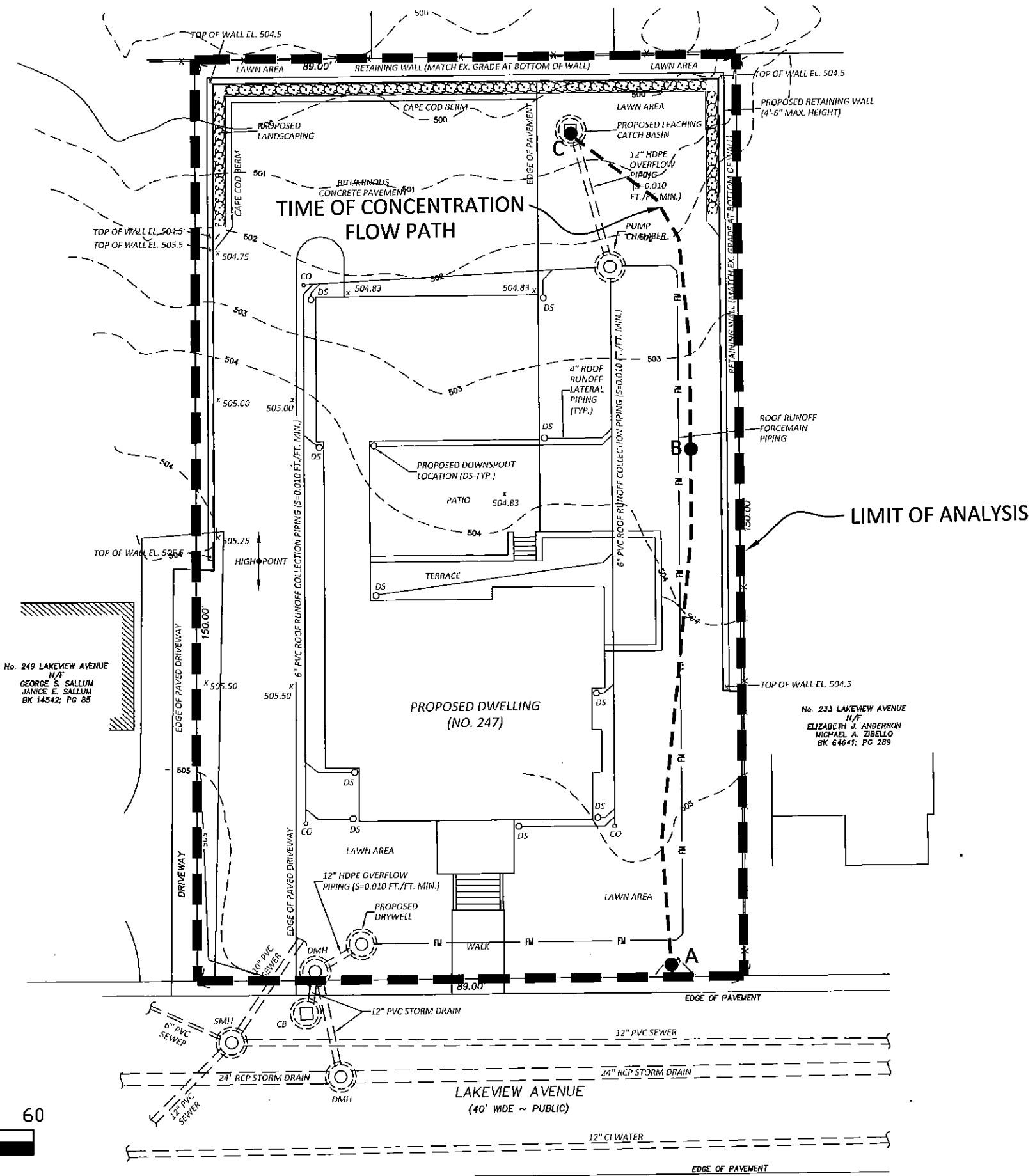
Inflow Area = 0.307 ac, 19.60% Impervious, Inflow Depth > 4.49" for 100-YR event
Inflow = 1.73 cfs @ 12.07 hrs, Volume= 0.115 af
Primary = 1.73 cfs @ 12.07 hrs, Volume= 0.115 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)







project: PROPOSED RESIDENCE RELOCATION & ADDITION 247 LAKEVIEW AVENUE CAMBRIDGE, MA <i>drawing title:</i> PROPOSED CONDITIONS DRAINAGE AREA PLAN	scale: 1" = 20'
	date: JUN. 14, 2017 job no.: SE17-1297
sheet: 2 of 2	

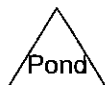
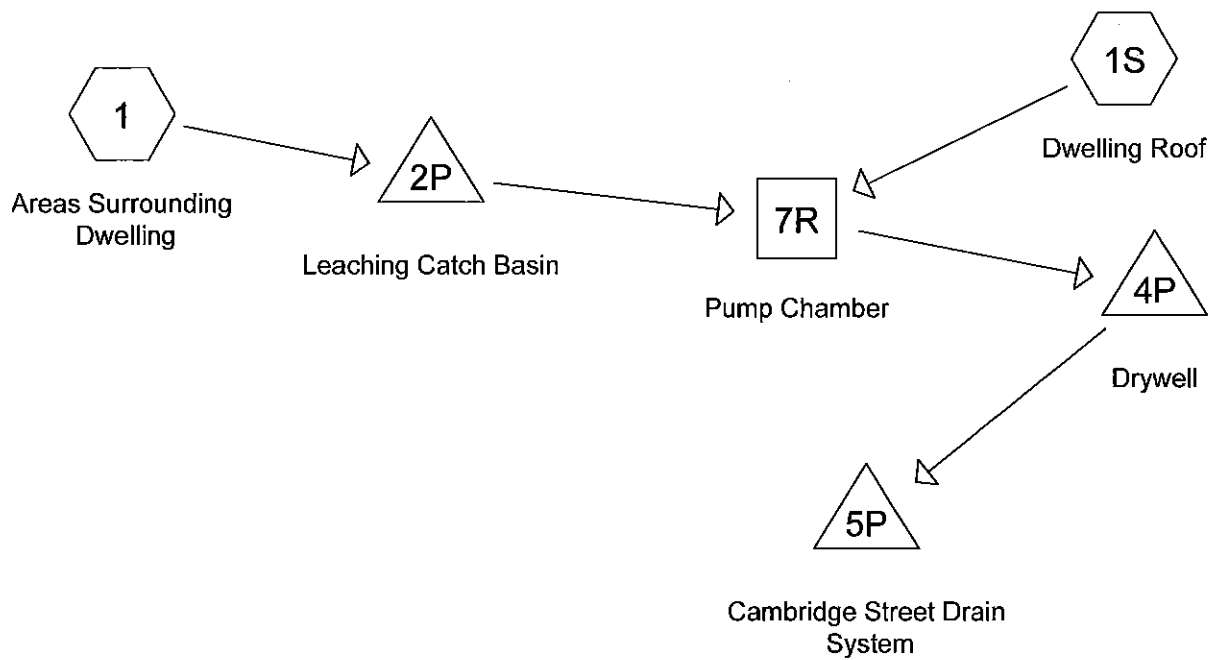
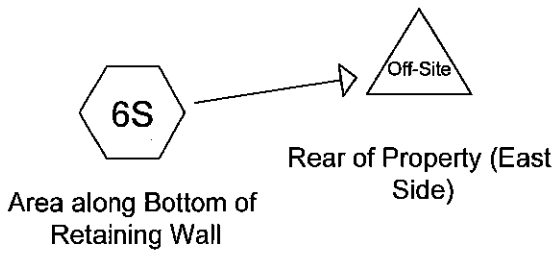
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 N/F
 GEORGE S. SALLUM
 JANICE E. SALLUM
 BK 14542; PG 85

No. 233 LAKEVIEW AVENUE
 N/F
 ELIZABETH J. ANDERSON
 MICHAEL A. ZIBELLO
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SITEC
ENVIRONMENTAL
 Civil and Environmental Engineering
 Land Use Planning and Surveying
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769 Plain Street, Unit C
 Marshfield, MA 02050
 PHONE (781) 319-0100
 FAX (781) 834-4783





Routing Diagram for Proposed Conditions Drainage Calculations
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Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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Page 2

Summary for Subcatchment 1: Areas Surrounding Dwelling

Runoff = 0.56 cfs @ 12.10 hrs, Volume= 0.039 af, Depth> 2.04"

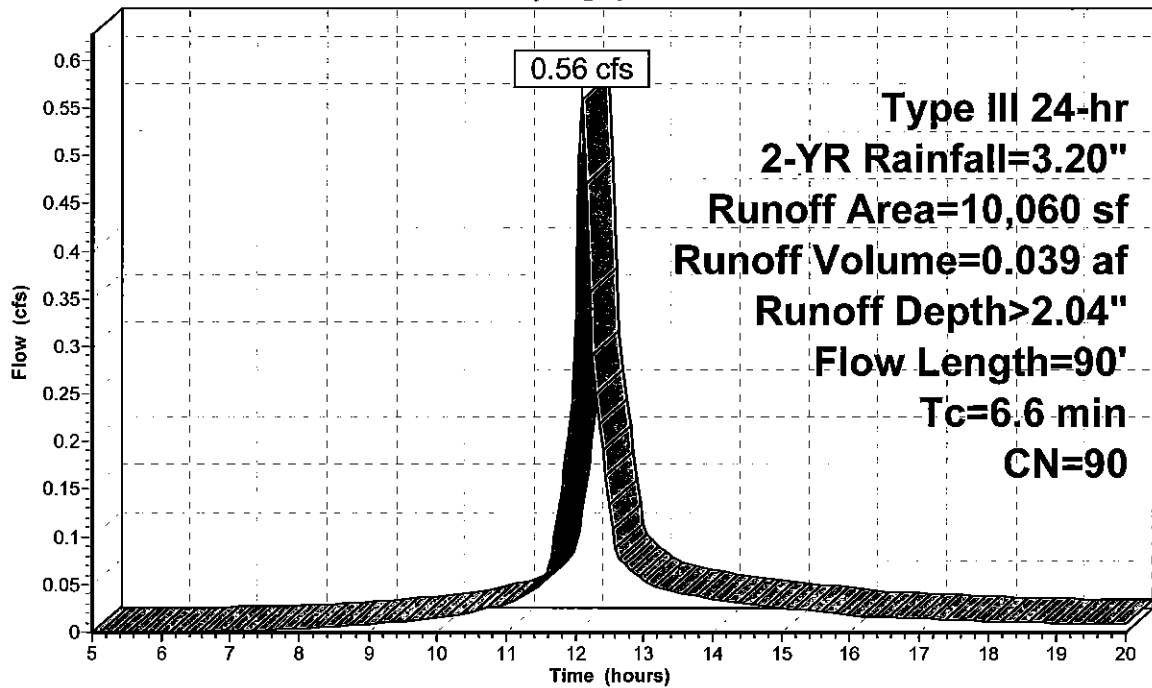
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

	Area (sf)	CN	Description
*	4,458	98	Paved Driveway
	4,392	80	>75% Grass cover, Good, HSG D
*	950	98	Patio and Terrace
*	260	98	Porch and Walk
	10,060	90	Weighted Average
	4,392		43.66% Pervious Area
	5,668		56.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
1.0	40	0.0100	0.70		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
6.6	90	Total			

Subcatchment 1: Areas Surrounding Dwelling

Hydrograph



Runoff

Type III 24-hr
2-YR Rainfall=3.20"
Runoff Area=10,060 sf
Runoff Volume=0.039 af
Runoff Depth>2.04"
Flow Length=90'
Tc=6.6 min
CN=90

Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 1S: Dwelling Roof

Runoff = 0.21 cfs @ 12.01 hrs, Volume= 0.014 af, Depth> 2.77"

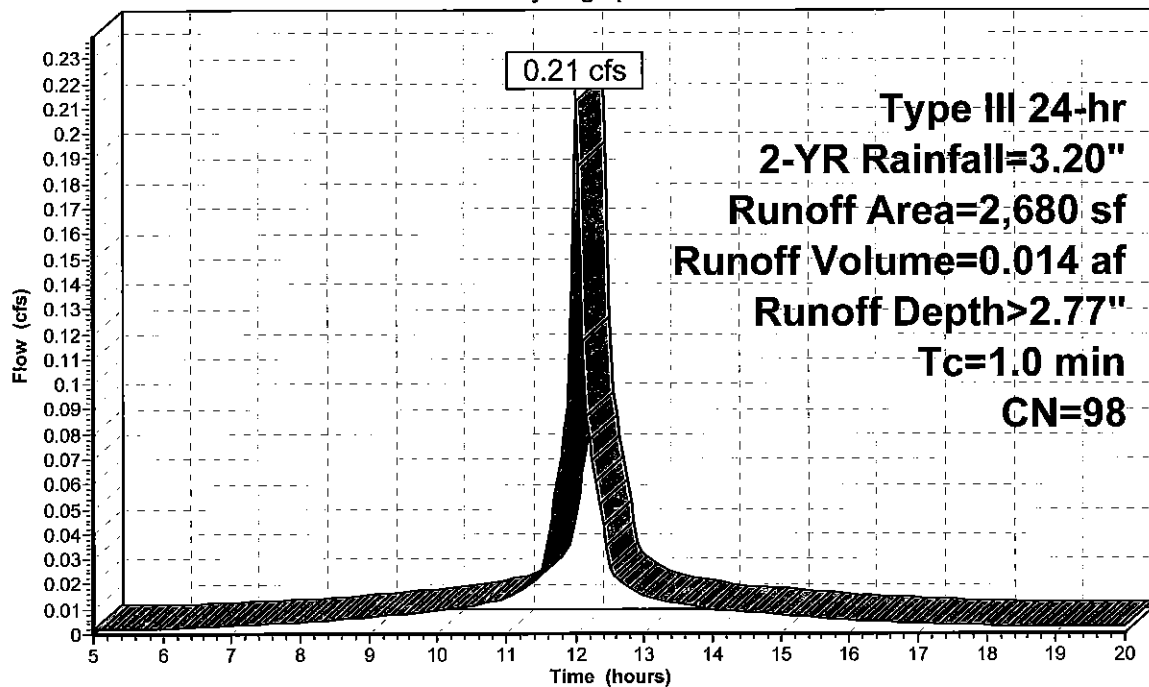
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
* 2,680	98	Building Roof
2,680		100.00% Impervious Area

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

Subcatchment 1S: Dwelling Roof

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Subcatchment 6S: Area along Bottom of Retaining Wall

Runoff = 0.03 cfs @ 12.01 hrs, Volume= 0.002 af, Depth> 1.30"

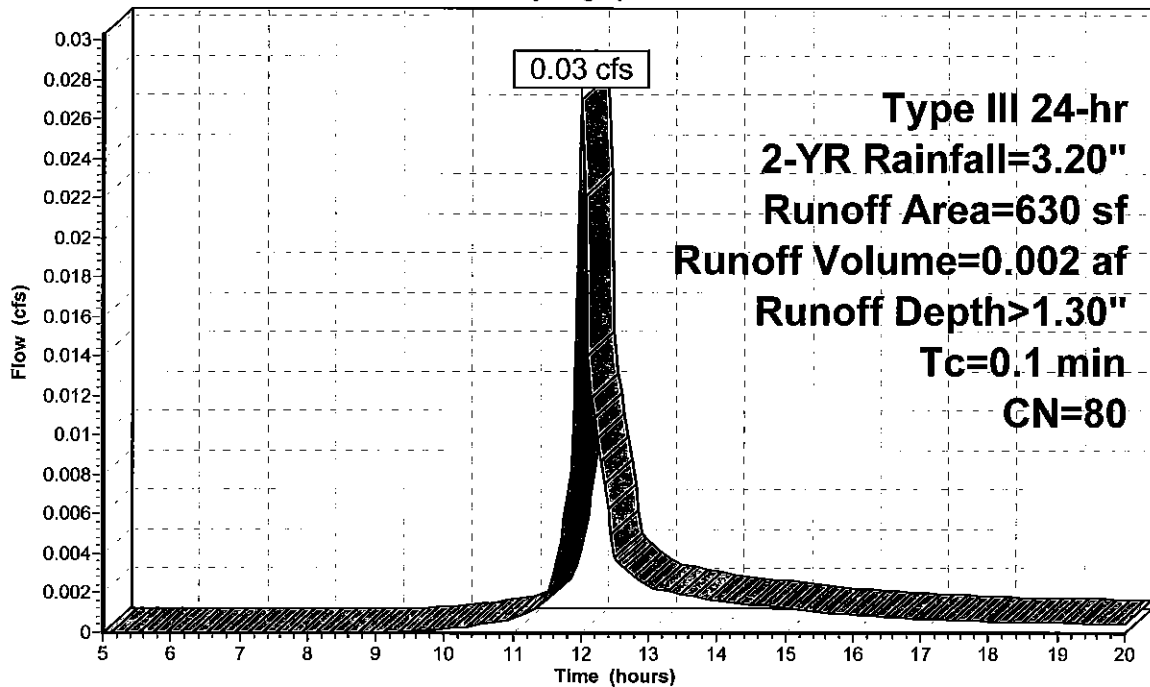
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR Rainfall=3.20"

Area (sf)	CN	Description
630	80	>75% Grass cover, Good, HSG D
630		100.00% Pervious Area

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

Subcatchment 6S: Area along Bottom of Retaining Wall

Hydrograph



Runoff

Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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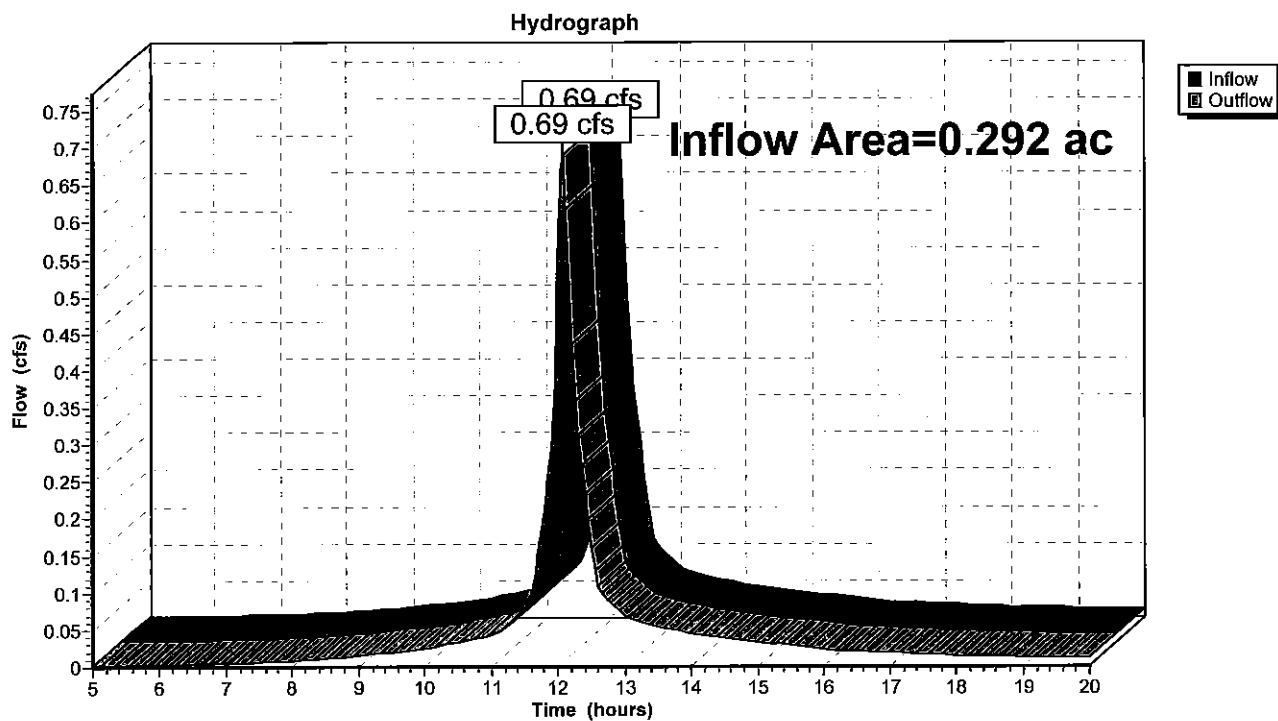
Page 5

Summary for Reach 7R: Pump Chamber

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 2.19" for 2-YR event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af
Outflow = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: Pump Chamber



Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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Page 6

Summary for Pond 2P: Leaching Catch Basin

Inflow Area = 0.231 ac, 56.34% Impervious, Inflow Depth > 2.04" for 2-YR event
 Inflow = 0.56 cfs @ 12.10 hrs, Volume= 0.039 af
 Outflow = 0.56 cfs @ 12.10 hrs, Volume= 0.039 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.000 af
 Primary = 0.56 cfs @ 12.10 hrs, Volume= 0.039 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.01' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.039 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (775.1 - 775.1)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.56' S= 0.0200 ' / ' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=4.01' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.13 cfs @ 12.10 hrs HW=4.01' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.13 cfs @ 2.72 fps)

Proposed Conditions Drainage Calculations

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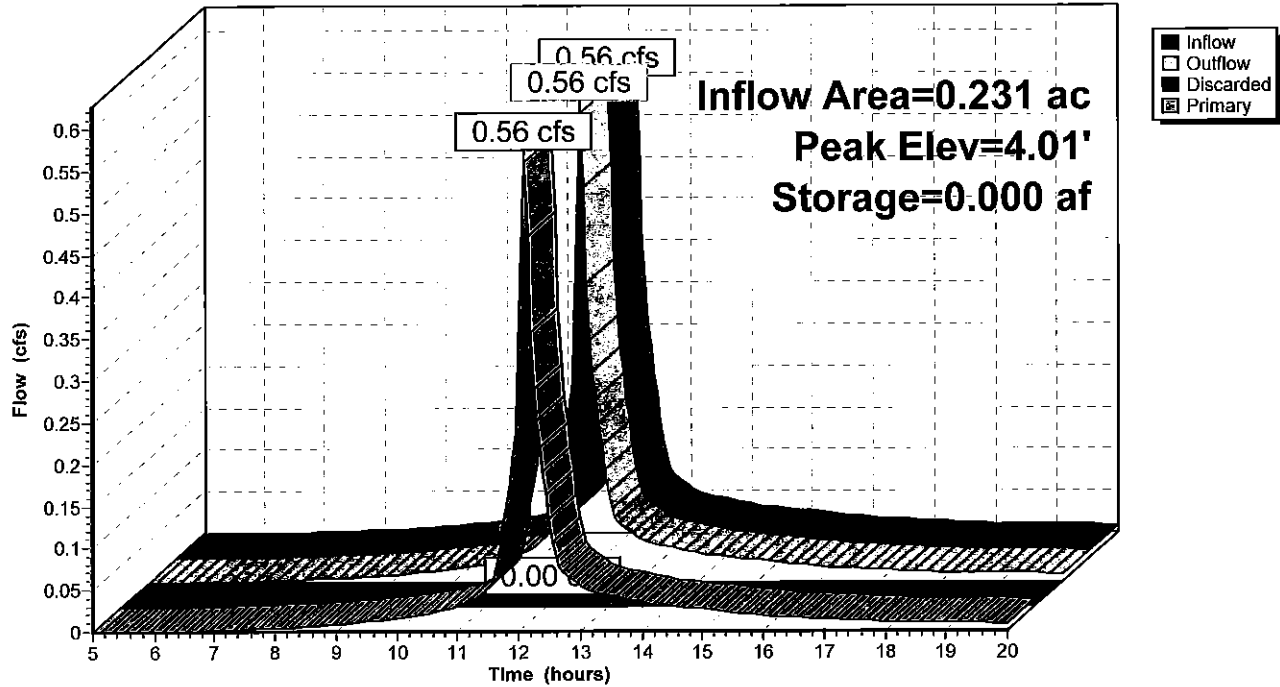
Type III 24-hr 2-YR Rainfall=3.20"

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Page 7

Pond 2P: Leaching Catch Basin

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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Summary for Pond 4P: Drywell

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 2.19" for 2-YR event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af
Outflow = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.000 af
Primary = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.01' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.053 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (764.4 - 764.4)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.70' S= 0.0500 ' / Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=4.01' (Free Discharge)
↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.14 cfs @ 12.08 hrs HW=4.01' (Free Discharge)
↳ **1=Culvert** (Inlet Controls 2.14 cfs @ 2.72 fps)

Proposed Conditions Drainage Calculations

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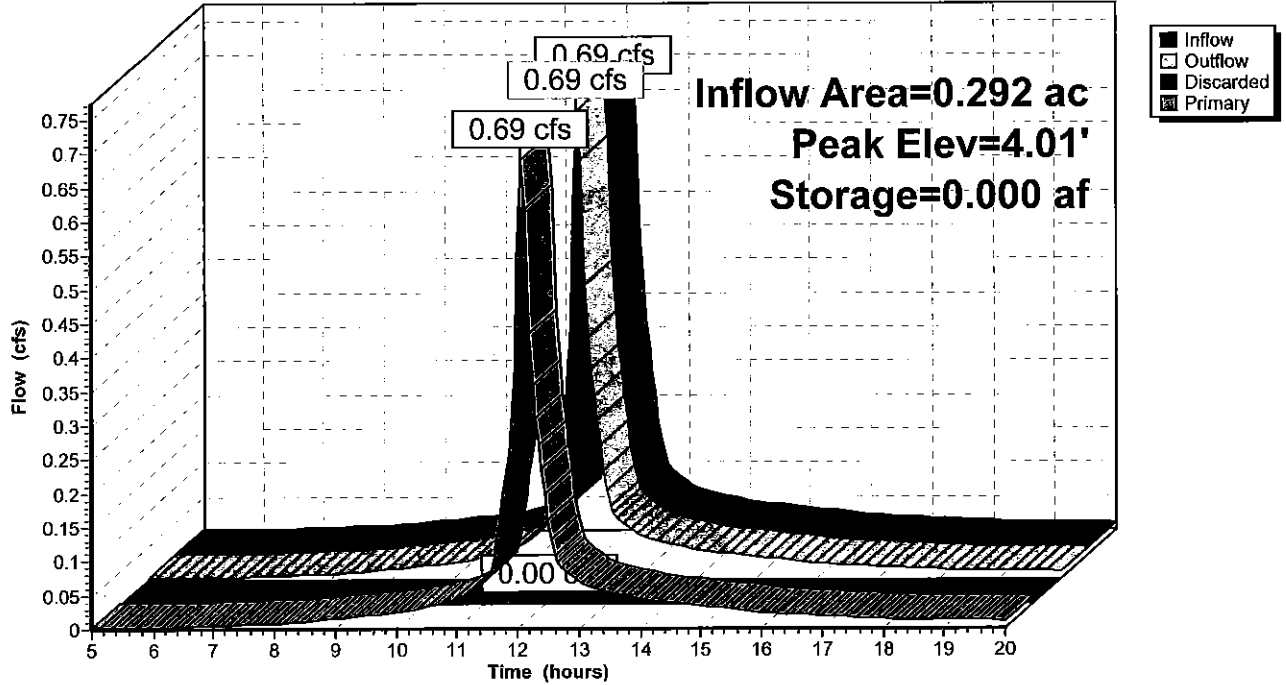
Type III 24-hr 2-YR Rainfall=3.20"

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Page 9

Pond 4P: Drywell

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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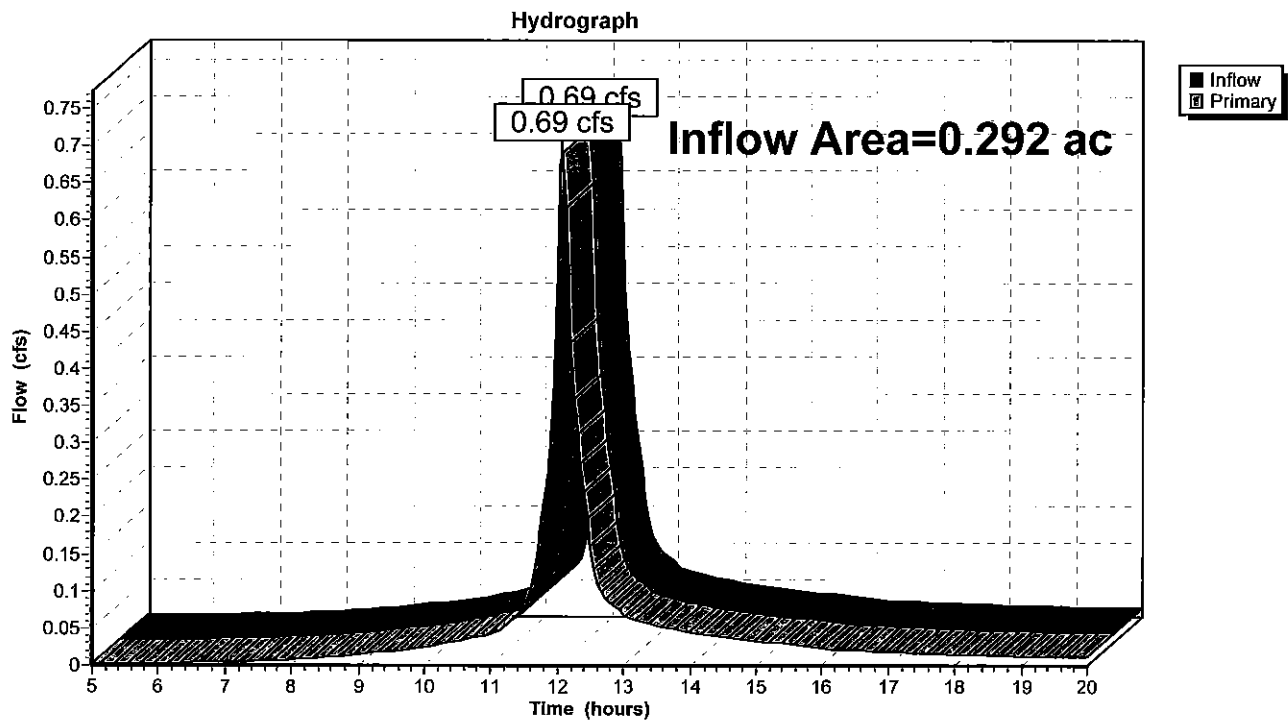
Page 10

Summary for Pond 5P: Cambridge Street Drain System

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 2.19" for 2-YR event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af
Primary = 0.69 cfs @ 12.08 hrs, Volume= 0.053 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 5P: Cambridge Street Drain System



Proposed Conditions Drainage Calculations

Type III 24-hr 2-YR Rainfall=3.20"

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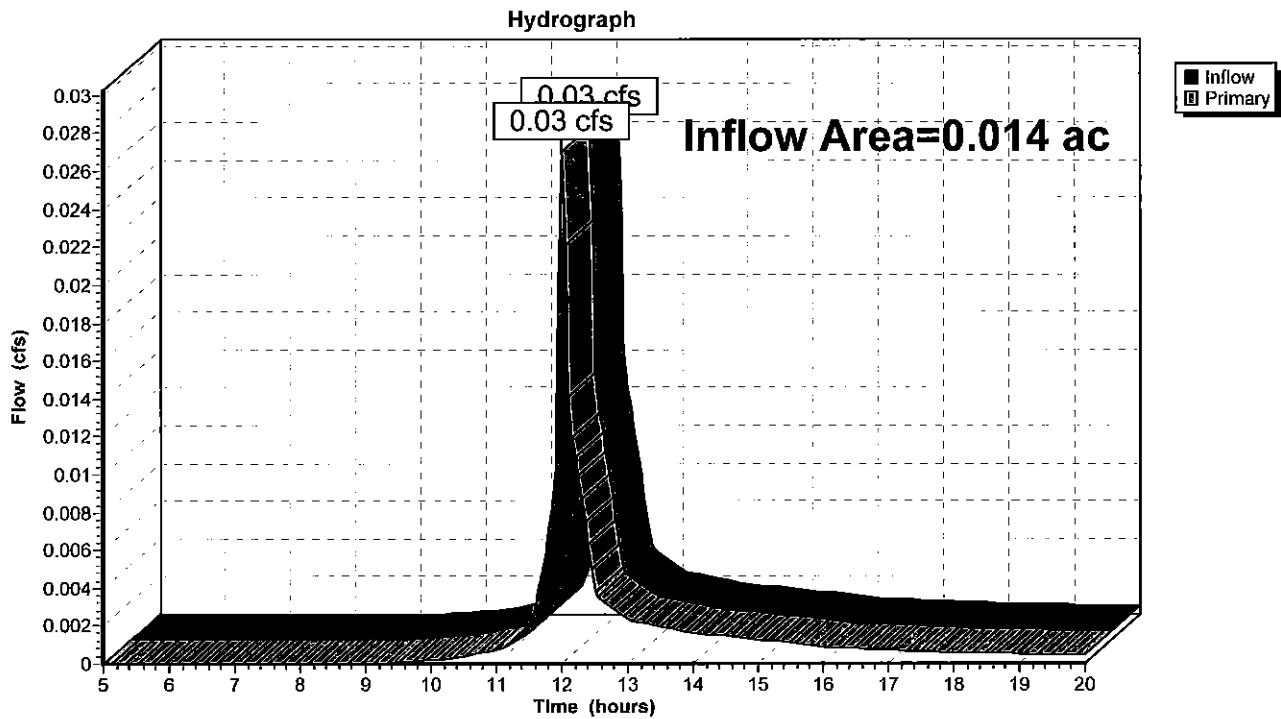
Page 11

Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.014 ac, 0.00% Impervious, Inflow Depth > 1.30" for 2-YR event
Inflow = 0.03 cfs @ 12.01 hrs, Volume= 0.002 af
Primary = 0.03 cfs @ 12.01 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 1: Areas Surrounding Dwelling

Runoff = 0.88 cfs @ 12.10 hrs, Volume= 0.063 af, Depth> 3.30"

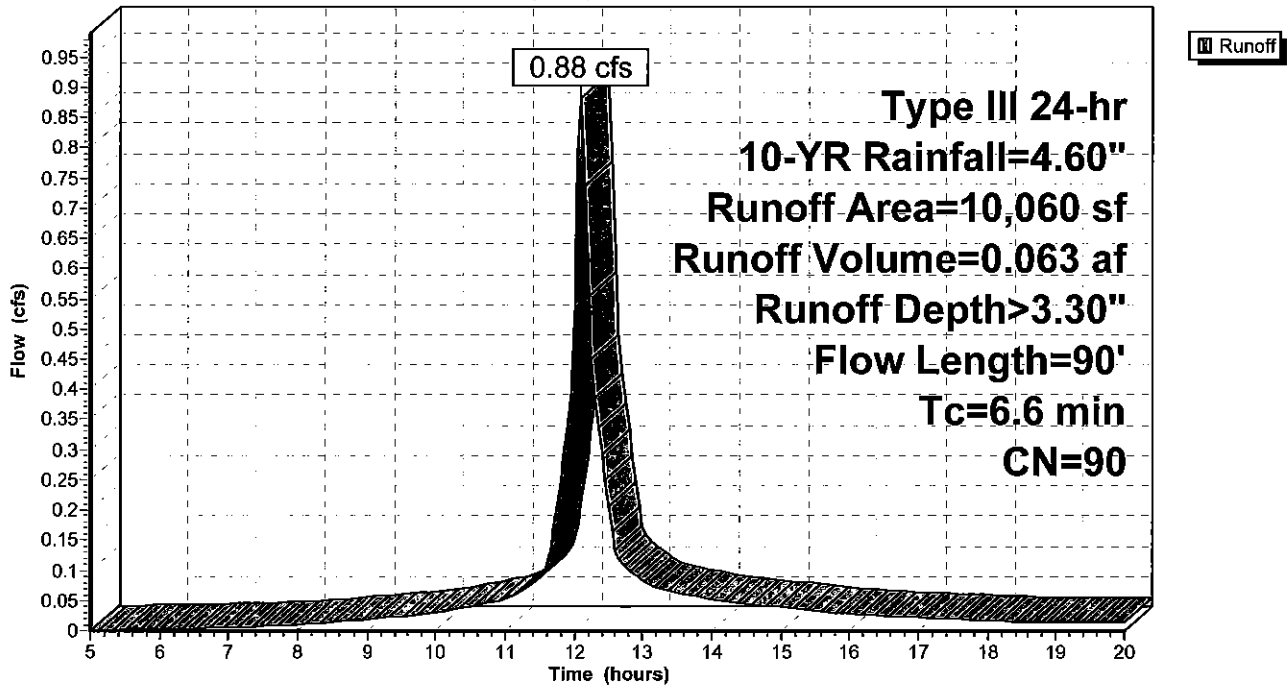
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

	Area (sf)	CN	Description
*	4,458	98	Paved Driveway
	4,392	80	>75% Grass cover, Good, HSG D
*	950	98	Patio and Terrace
*	260	98	Porch and Walk
	10,060	90	Weighted Average
	4,392		43.66% Pervious Area
	5,668		56.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB Grass: Short n= 0.150 P2= 3.20"
1.0	40	0.0100	0.70		Shallow Concentrated Flow, BC Short Grass Pasture Kv= 7.0 fps
6.6	90	Total			

Subcatchment 1: Areas Surrounding Dwelling

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 1S: Dwelling Roof

Runoff = 0.31 cfs @ 12.01 hrs, Volume= 0.021 af, Depth> 4.05"

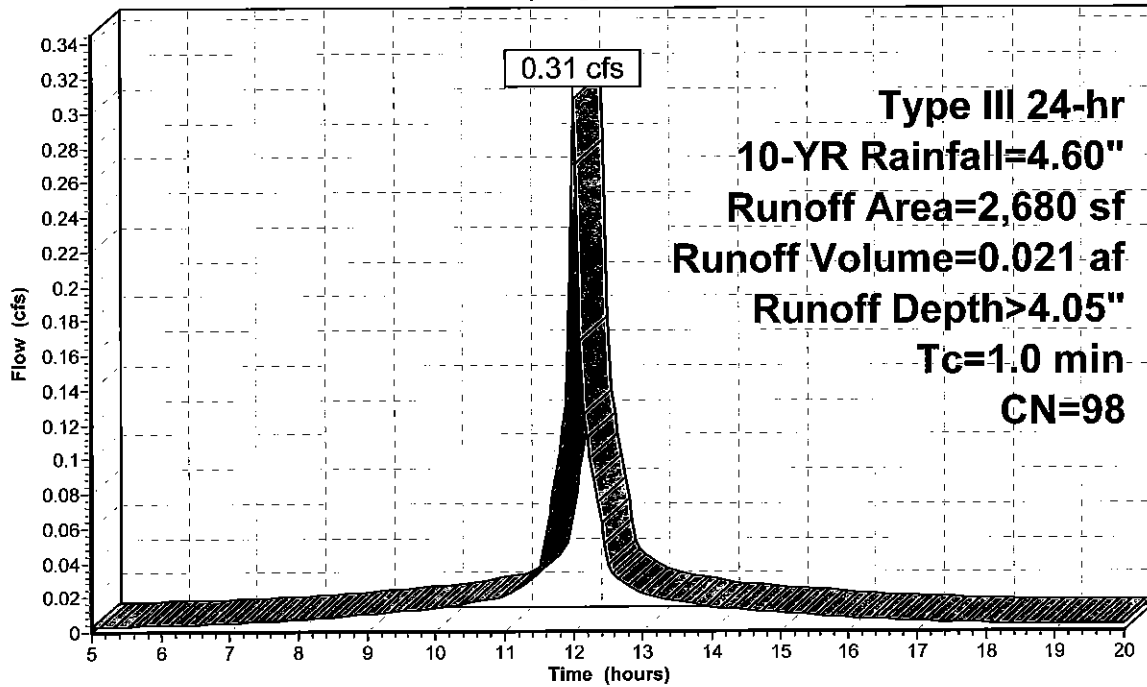
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
* 2,680	98	Building Roof
2,680		100.00% Impervious Area

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

Subcatchment 1S: Dwelling Roof

Hydrograph



Runoff

Type III 24-hr
10-YR Rainfall=4.60"
Runoff Area=2,680 sf
Runoff Volume=0.021 af
Runoff Depth>4.05"
Tc=1.0 min
CN=98

Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Subcatchment 6S: Area along Bottom of Retaining Wall

Runoff = 0.05 cfs @ 12.01 hrs, Volume= 0.003 af, Depth> 2.38"

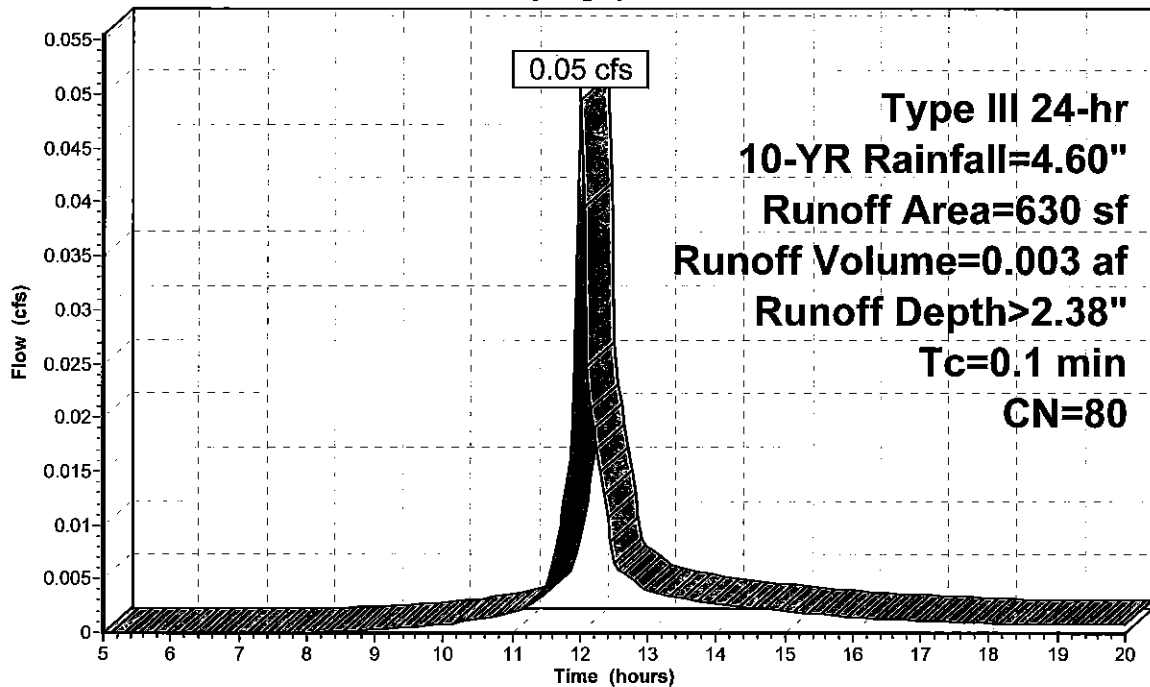
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YR Rainfall=4.60"

Area (sf)	CN	Description
630	80	>75% Grass cover, Good, HSG D
630		100.00% Pervious Area

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

Subcatchment 6S: Area along Bottom of Retaining Wall

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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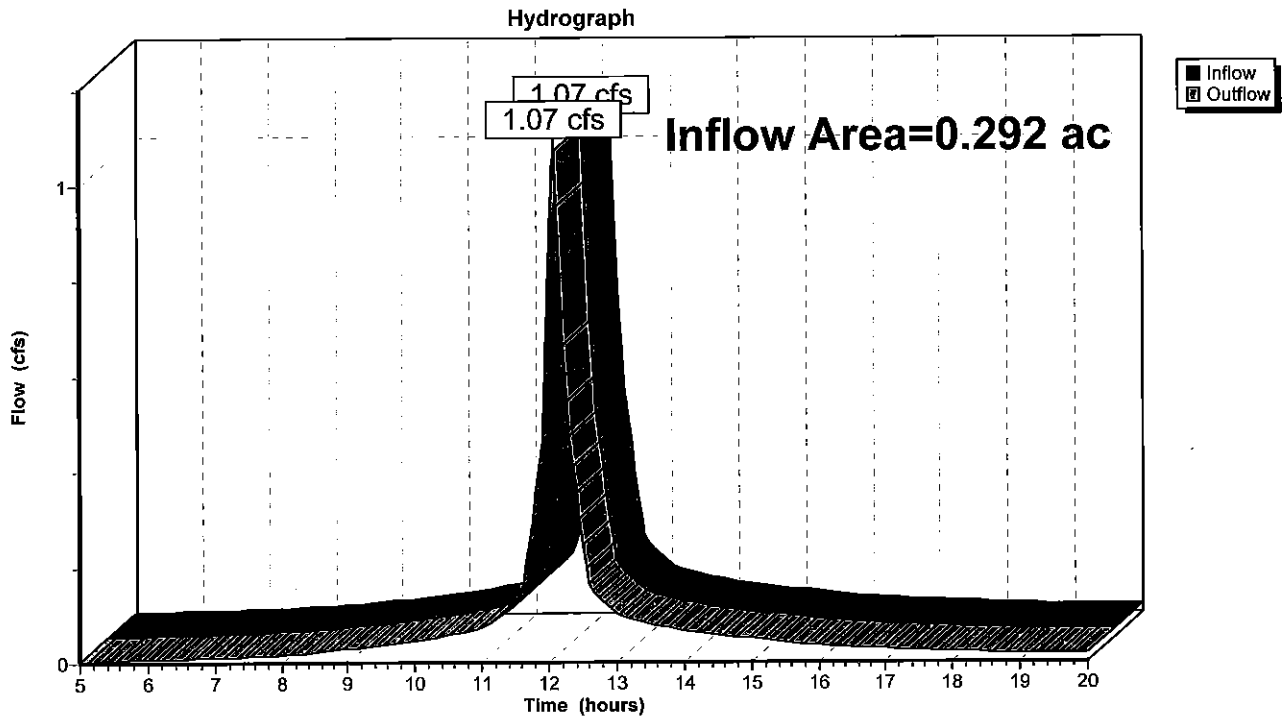
Page 15

Summary for Reach 7R: Pump Chamber

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 3.46" for 10-YR event
Inflow = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af
Outflow = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: Pump Chamber



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 2P: Leaching Catch Basin

Inflow Area = 0.231 ac, 56.34% Impervious, Inflow Depth > 3.30" for 10-YR event
 Inflow = 0.88 cfs @ 12.10 hrs, Volume= 0.063 af
 Outflow = 0.88 cfs @ 12.10 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.000 af
 Primary = 0.88 cfs @ 12.10 hrs, Volume= 0.063 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.02' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.063 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (763.6 - 763.6)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.56' S= 0.0200 '/ Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.14 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 2.14 cfs @ 2.73 fps)

Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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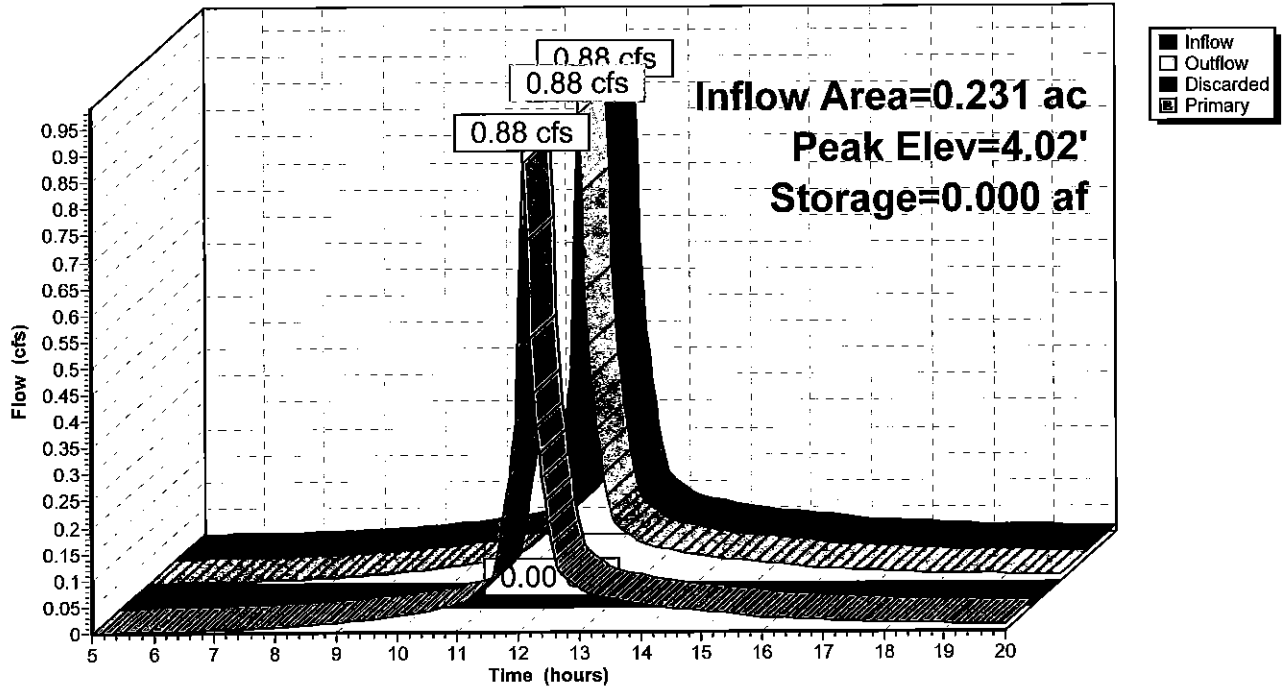
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Pond 2P: Leaching Catch Basin

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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Summary for Pond 4P: Drywell

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 3.46" for 10-YR event
 Inflow = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af
 Outflow = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.000 af
 Primary = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.02' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.084 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (755.8 - 755.8)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.70' S= 0.0500 ' / Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=4.02' (Free Discharge)
 ↑**2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.15 cfs @ 12.08 hrs HW=4.02' (Free Discharge)
 ↑**1=Culvert** (Inlet Controls 2.15 cfs @ 2.74 fps)

Proposed Conditions Drainage Calculations

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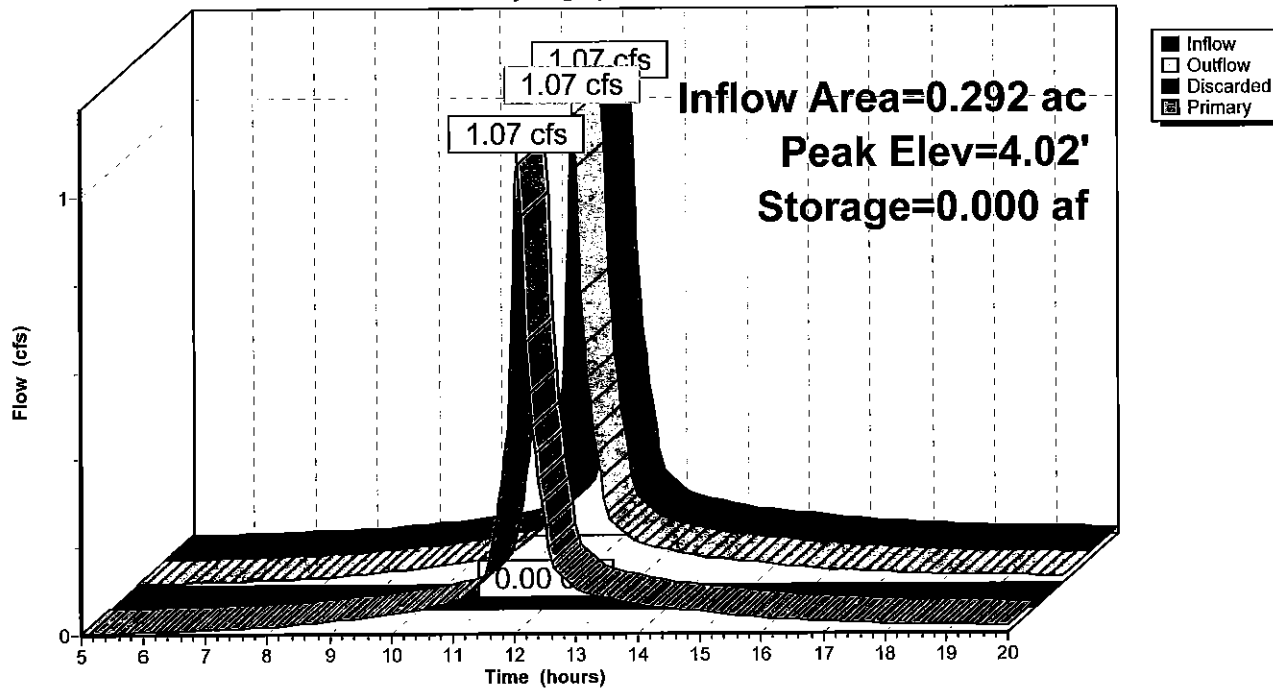
Type III 24-hr 10-YR Rainfall=4.60"

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Pond 4P: Drywell

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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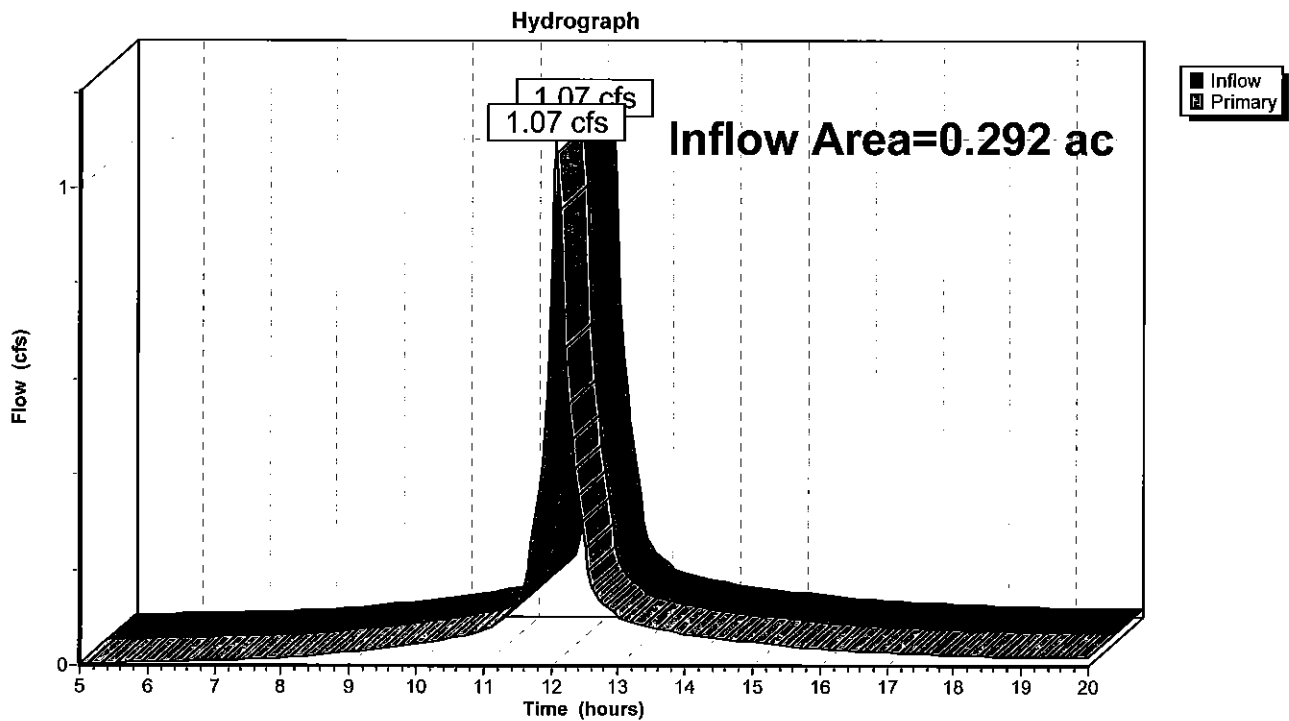
Page 20

Summary for Pond 5P: Cambridge Street Drain System

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 3.46" for 10-YR event
Inflow = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af
Primary = 1.07 cfs @ 12.08 hrs, Volume= 0.084 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 5P: Cambridge Street Drain System



Proposed Conditions Drainage Calculations

Type III 24-hr 10-YR Rainfall=4.60"

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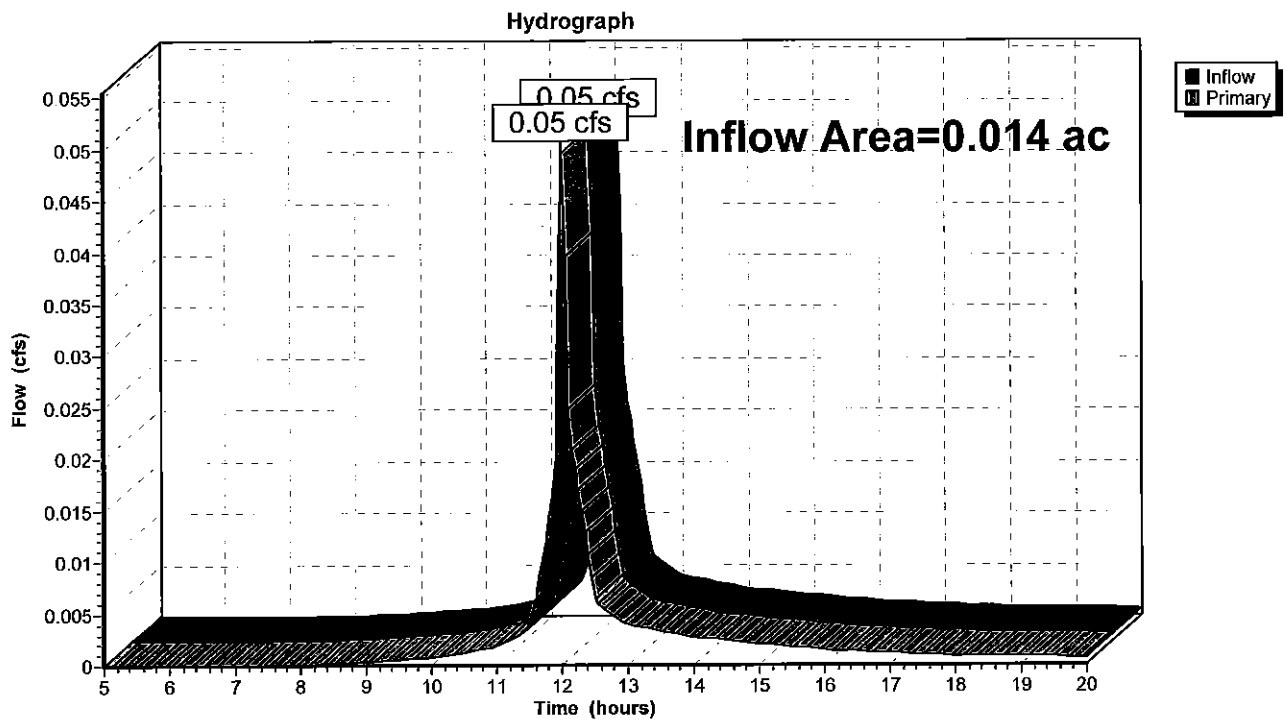
Page 21

Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.014 ac, 0.00% Impervious, Inflow Depth > 2.38" for 10-YR event
Inflow = 0.05 cfs @ 12.01 hrs, Volume= 0.003 af
Primary = 0.05 cfs @ 12.01 hrs, Volume= 0.003 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Subcatchment 1: Areas Surrounding Dwelling

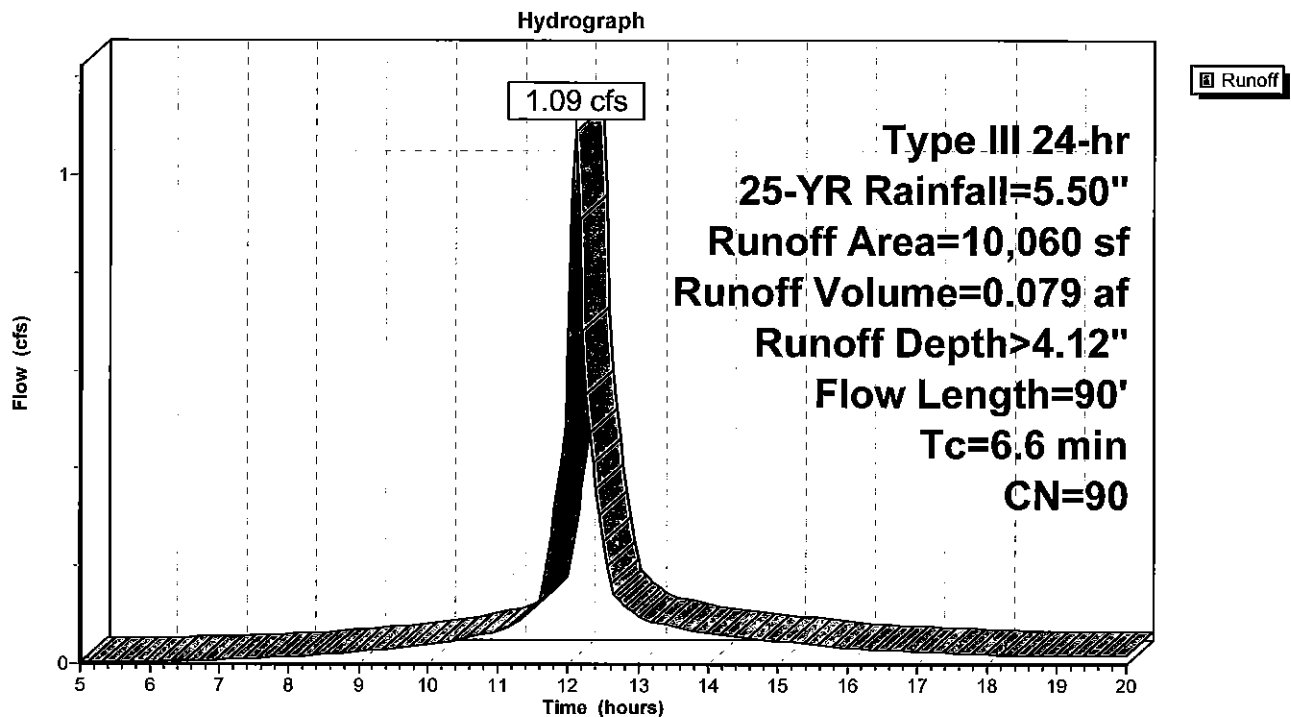
Runoff = 1.09 cfs @ 12.10 hrs, Volume= 0.079 af, Depth> 4.12"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
* 4,458	98	Paved Driveway
4,392	80	>75% Grass cover, Good, HSG D
* 950	98	Patio and Terrace
* 260	98	Porch and Walk
10,060	90	Weighted Average
4,392		43.66% Pervious Area
5,668		56.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	40	0.0100	0.70		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
6.6	90	Total			

Subcatchment 1: Areas Surrounding Dwelling



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Subcatchment 1S: Dwelling Roof

Runoff = 0.37 cfs @ 12.01 hrs, Volume= 0.025 af, Depth> 4.87"

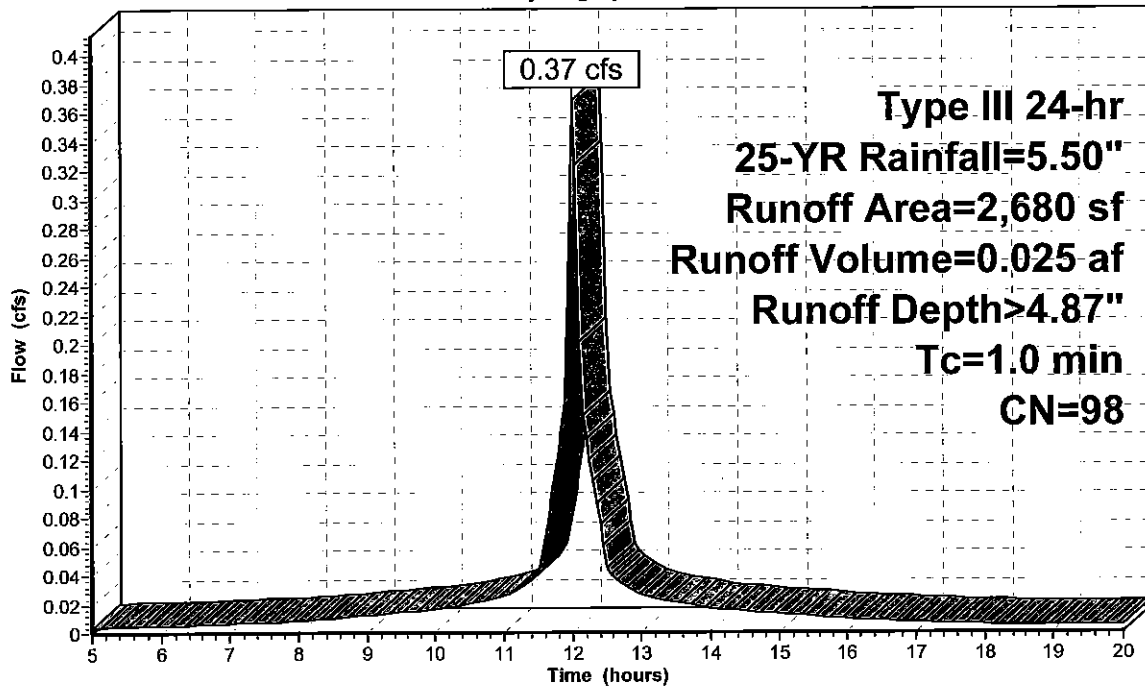
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
* 2,680	98	Building Roof
2,680		100.00% Impervious Area

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

Subcatchment 1S: Dwelling Roof

Hydrograph



Runoff

Type III 24-hr
25-YR Rainfall=5.50"
Runoff Area=2,680 sf
Runoff Volume=0.025 af
Runoff Depth>4.87"
Tc=1.0 min
CN=98

Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Subcatchment 6S: Area along Bottom of Retaining Wall

Runoff = 0.06 cfs @ 12.00 hrs, Volume= 0.004 af, Depth> 3.13"

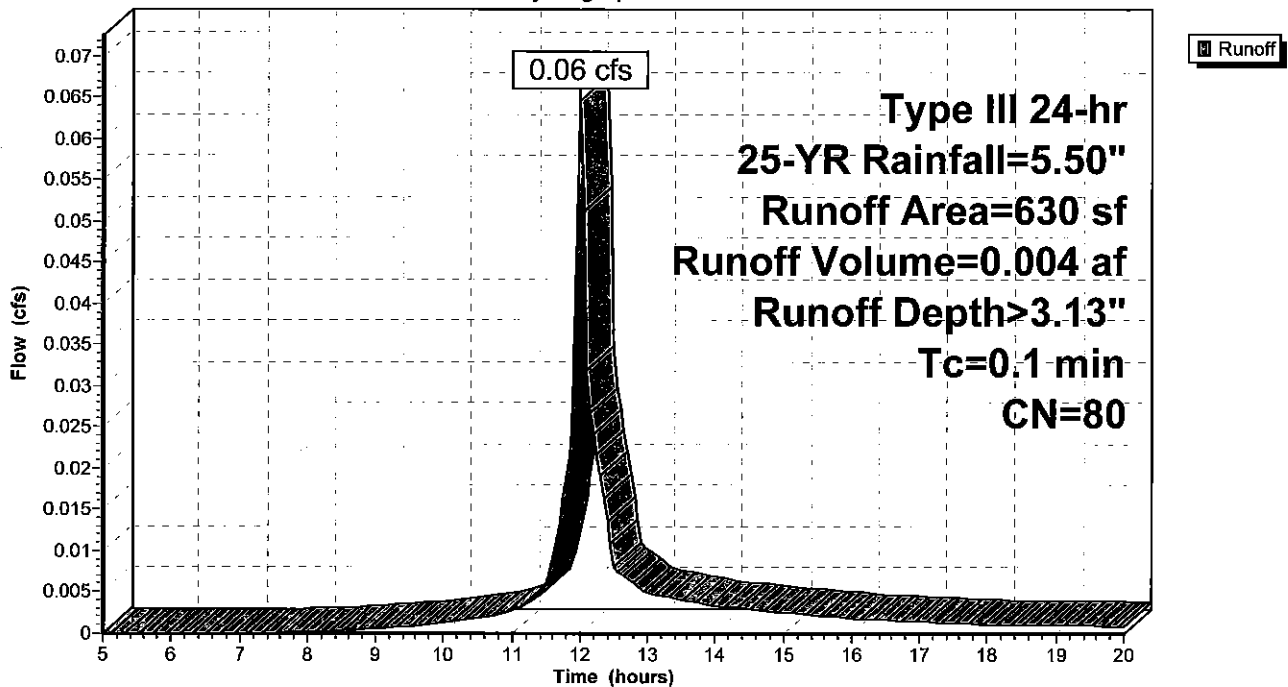
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR Rainfall=5.50"

Area (sf)	CN	Description
630	80	>75% Grass cover, Good, HSG D
630		100.00% Pervious Area

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

Subcatchment 6S: Area along Bottom of Retaining Wall

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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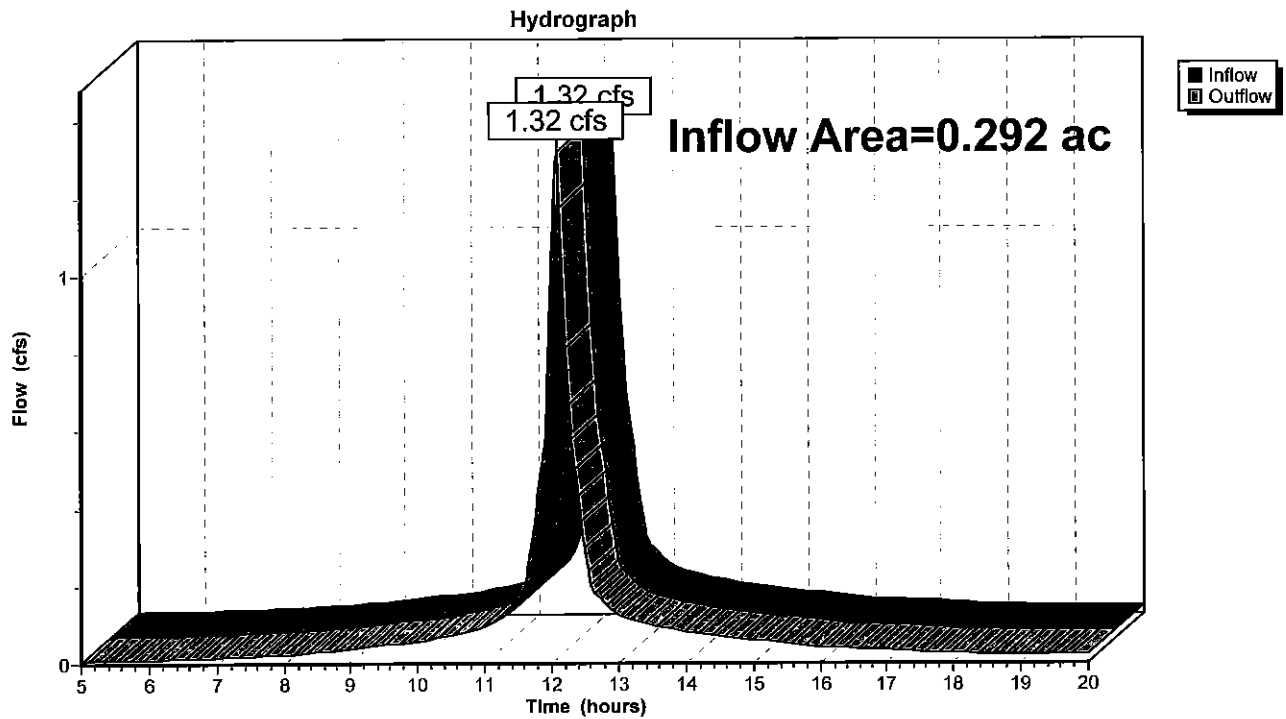
Page 25

Summary for Reach 7R: Pump Chamber

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 4.28" for 25-YR event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af
Outflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: Pump Chamber



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Pond 2P: Leaching Catch Basin

Inflow Area = 0.231 ac, 56.34% Impervious, Inflow Depth > 4.12" for 25-YR event
 Inflow = 1.09 cfs @ 12.10 hrs, Volume= 0.079 af
 Outflow = 1.09 cfs @ 12.10 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.000 af
 Primary = 1.09 cfs @ 12.10 hrs, Volume= 0.079 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.02' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.079 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (758.8 - 758.8)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.56' S= 0.0200 '/ Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳2=Exfiltration (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.15 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳1=Culvert (Inlet Controls 2.15 cfs @ 2.74 fps)

Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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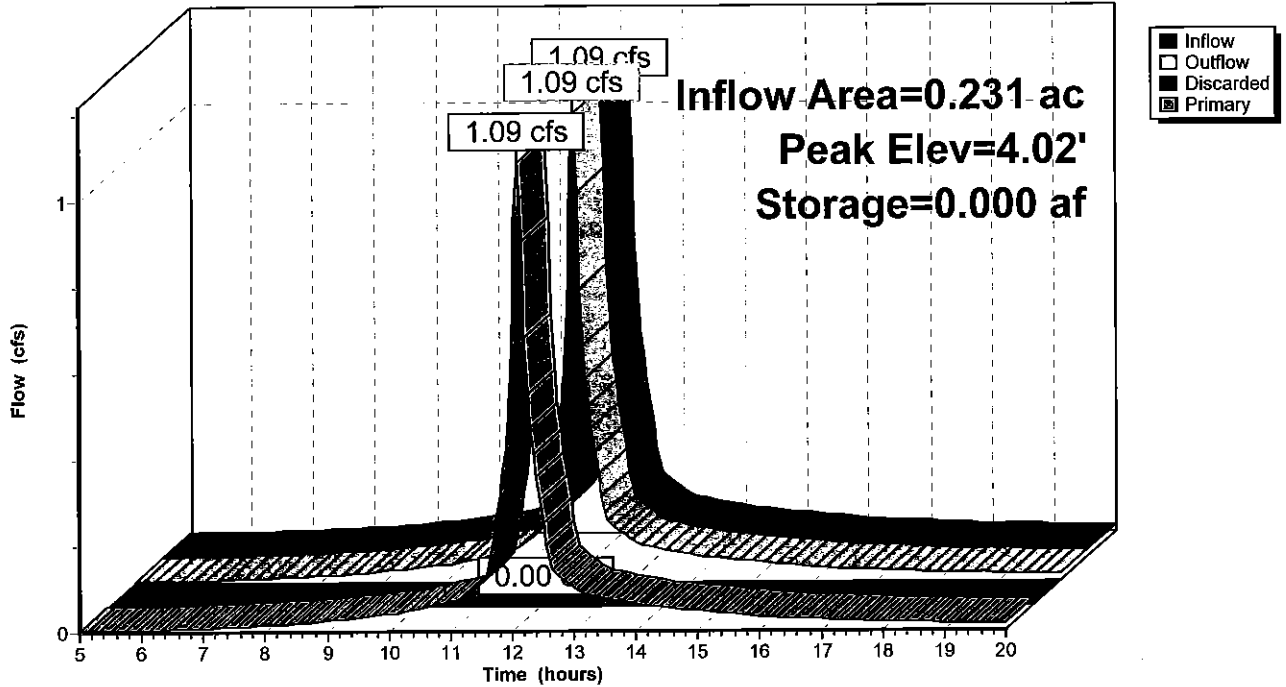
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Pond 2P: Leaching Catch Basin

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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Summary for Pond 4P: Drywell

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 4.28" for 25-YR event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af
Outflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min
Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.000 af
Primary = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 4.02' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.104 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (752.1 - 752.1)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.70' S= 0.0500 '/ Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=4.02' (Free Discharge)
↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.16 cfs @ 12.08 hrs HW=4.02' (Free Discharge)
↳ **1=Culvert** (Inlet Controls 2.16 cfs @ 2.75 fps)

Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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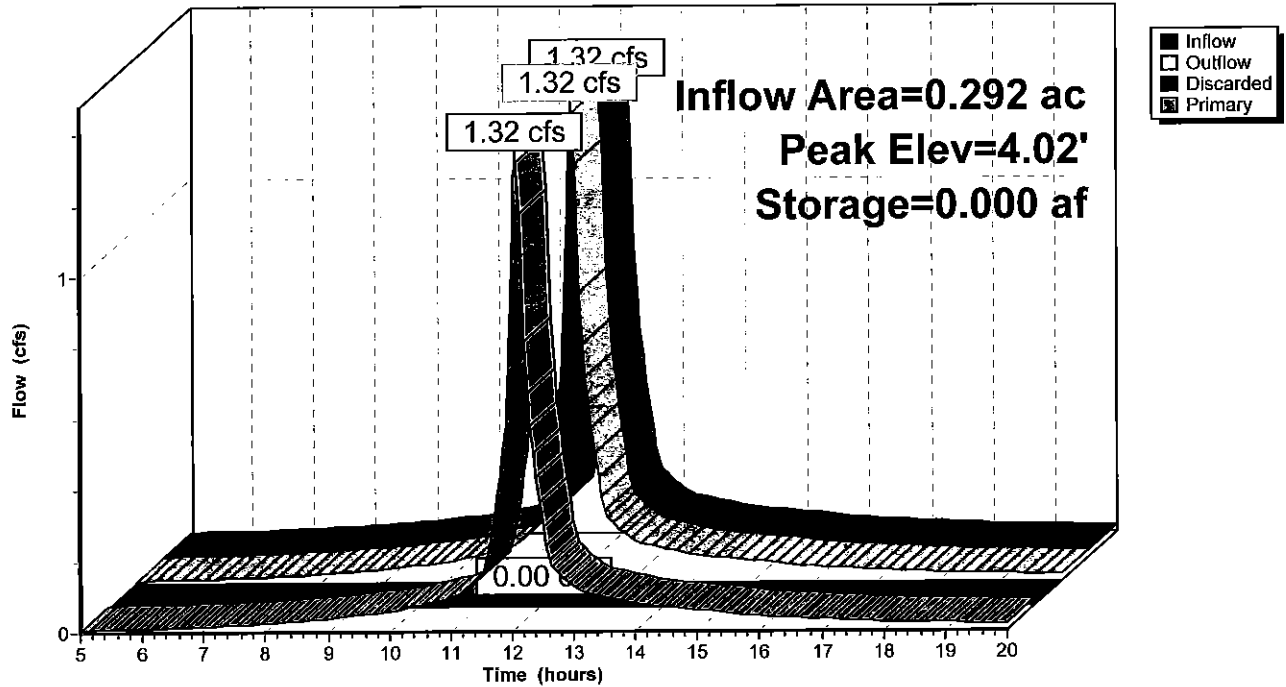
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Pond 4P: Drywell

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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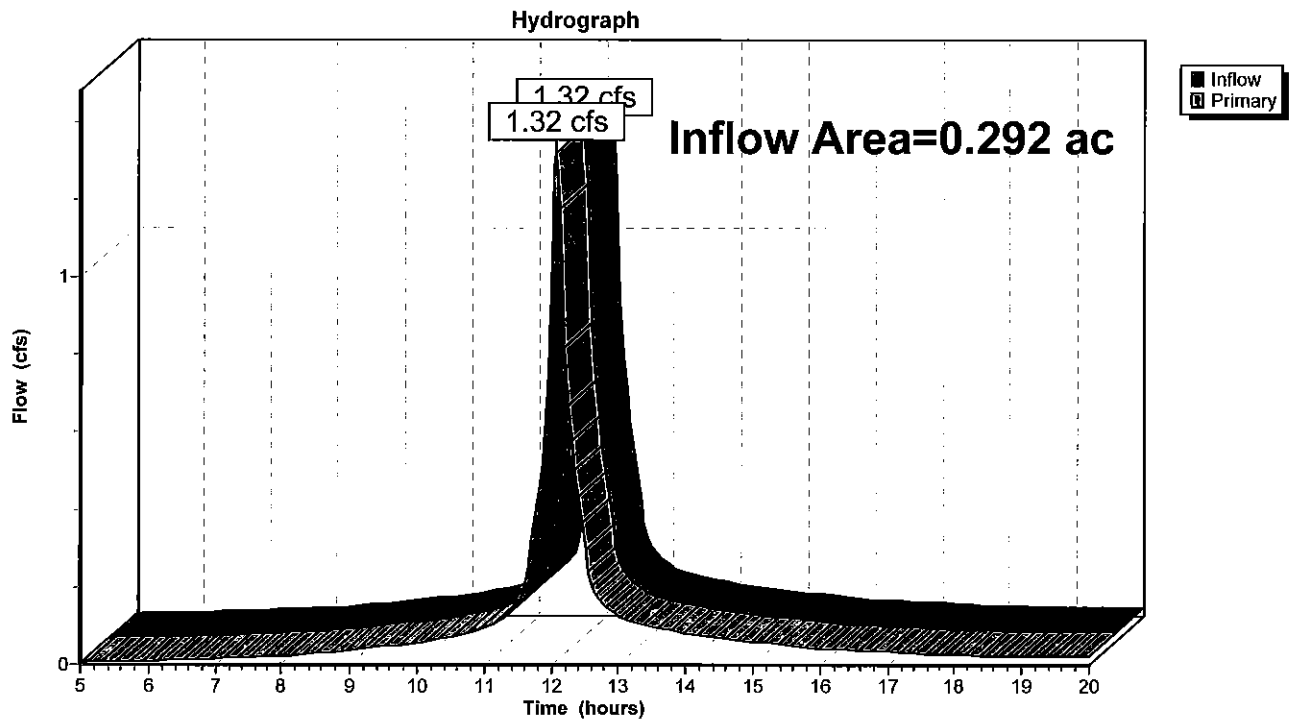
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Summary for Pond 5P: Cambridge Street Drain System

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 4.28" for 25-YR event
Inflow = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af
Primary = 1.32 cfs @ 12.08 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 5P: Cambridge Street Drain System



Proposed Conditions Drainage Calculations

Type III 24-hr 25-YR Rainfall=5.50"

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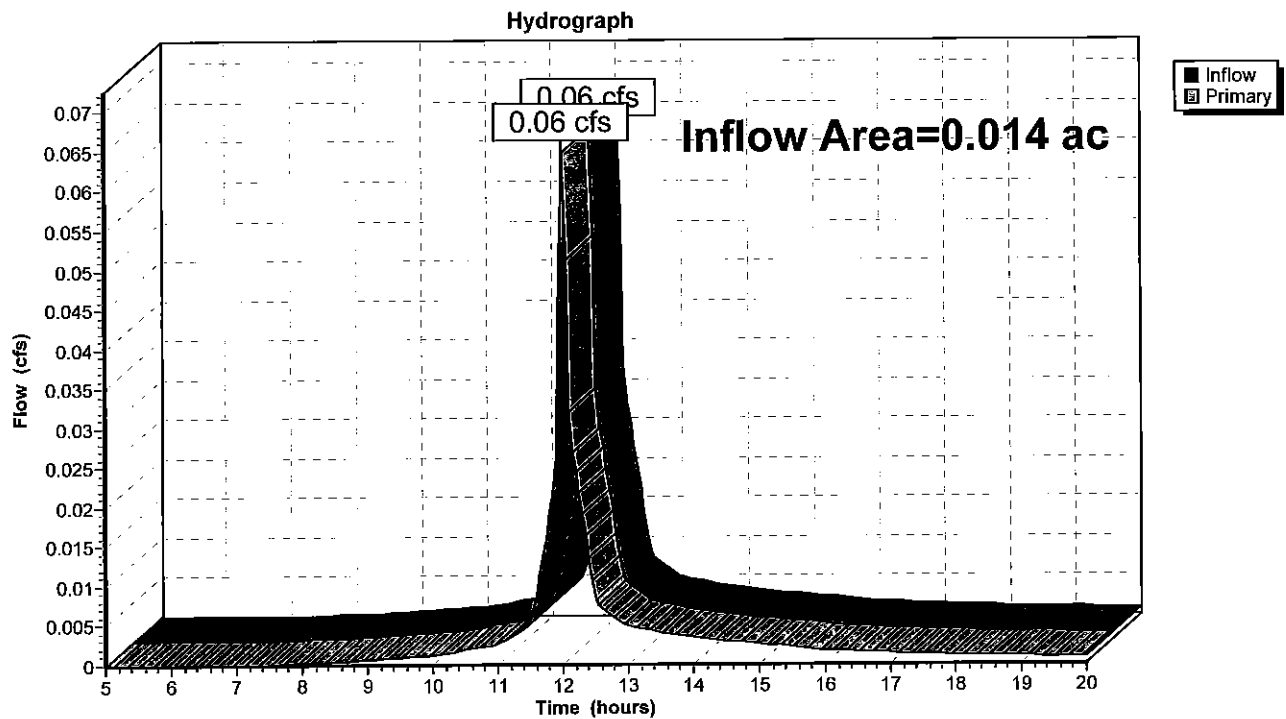
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Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.014 ac, 0.00% Impervious, Inflow Depth > 3.13" for 25-YR event
Inflow = 0.06 cfs @ 12.00 hrs, Volume= 0.004 af
Primary = 0.06 cfs @ 12.00 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Subcatchment 1: Areas Surrounding Dwelling

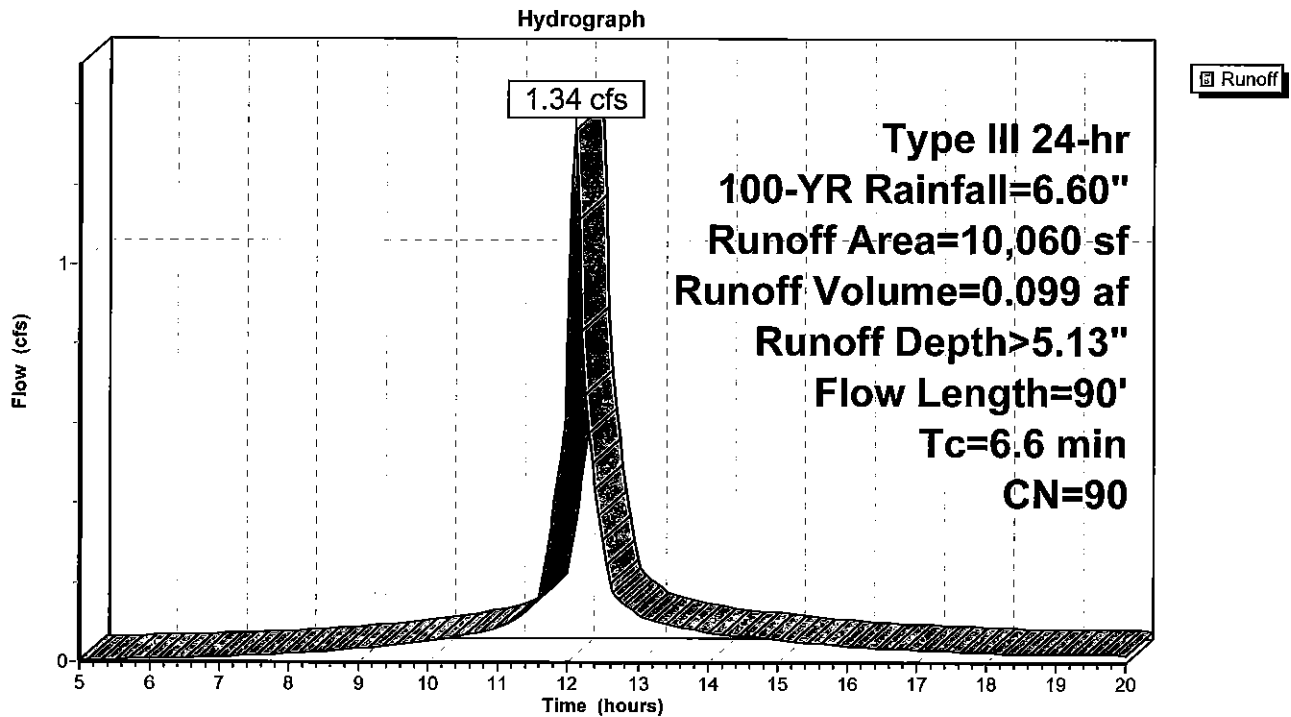
Runoff = 1.34 cfs @ 12.10 hrs, Volume= 0.099 af, Depth> 5.13"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YR Rainfall=6.60"

	Area (sf)	CN	Description
*	4,458	98	Paved Driveway
	4,392	80	>75% Grass cover, Good, HSG D
*	950	98	Patio and Terrace
*	260	98	Porch and Walk
	10,060	90	Weighted Average
	4,392		43.66% Pervious Area
	5,668		56.34% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.6	50	0.0200	0.15		Sheet Flow, AB
					Grass: Short n= 0.150 P2= 3.20"
1.0	40	0.0100	0.70		Shallow Concentrated Flow, BC
					Short Grass Pasture Kv= 7.0 fps
6.6	90	Total			

Subcatchment 1: Areas Surrounding Dwelling



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Subcatchment 1S: Dwelling Roof

Runoff = 0.44 cfs @ 12.01 hrs, Volume= 0.030 af, Depth> 5.87"

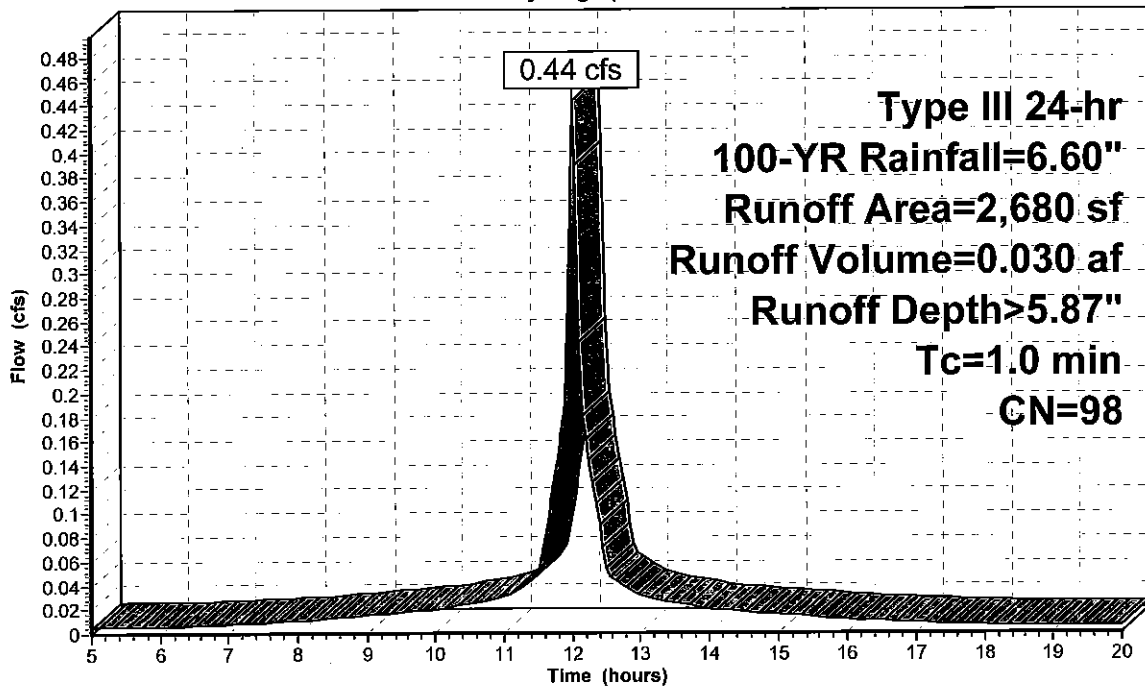
Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR Rainfall=6.60"

Area (sf)	CN	Description
2,680	98	Building Roof
2,680		100.00% Impervious Area

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

Subcatchment 1S: Dwelling Roof

Hydrograph



Runoff

Type III 24-hr
 100-YR Rainfall=6.60"
 Runoff Area=2,680 sf
 Runoff Volume=0.030 af
 Runoff Depth>5.87"
 Tc=1.0 min
 CN=98

Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Subcatchment 6S: Area along Bottom of Retaining Wall

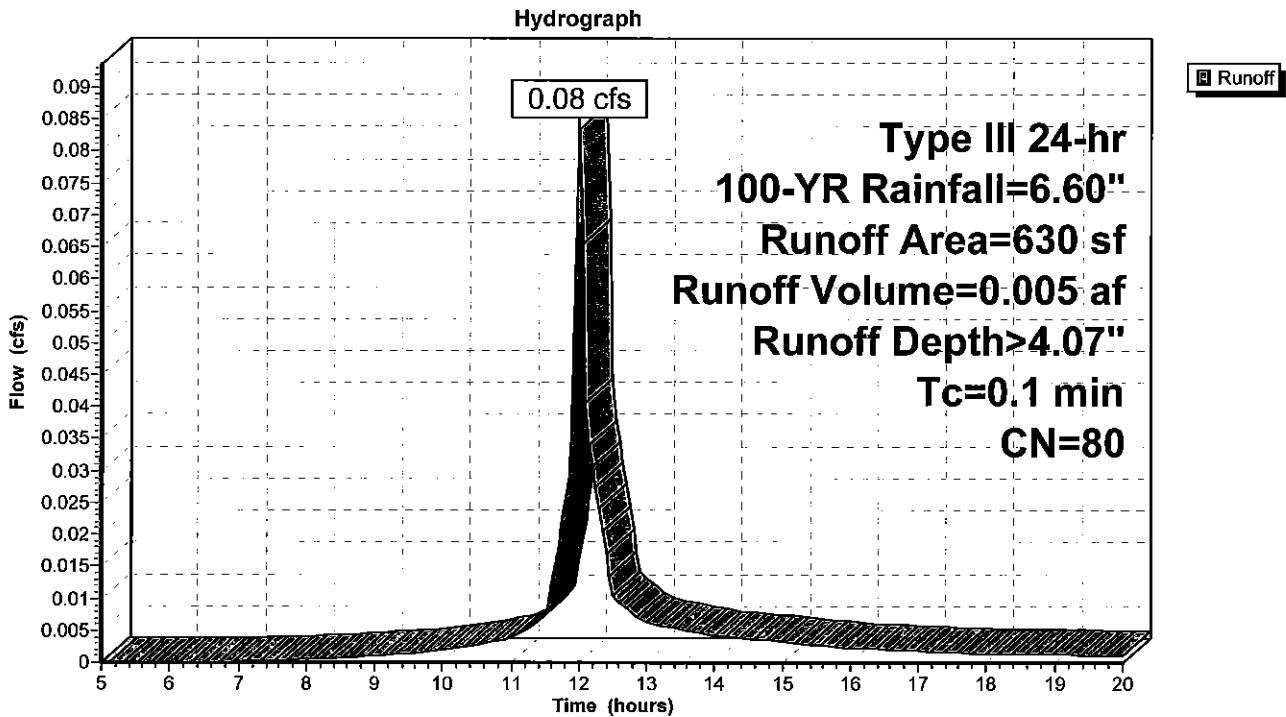
Runoff = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Depth> 4.07"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR Rainfall=6.60"

Area (sf)	CN	Description
630	80	>75% Grass cover, Good, HSG D
630		100.00% Pervious Area

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

Subcatchment 6S: Area along Bottom of Retaining Wall



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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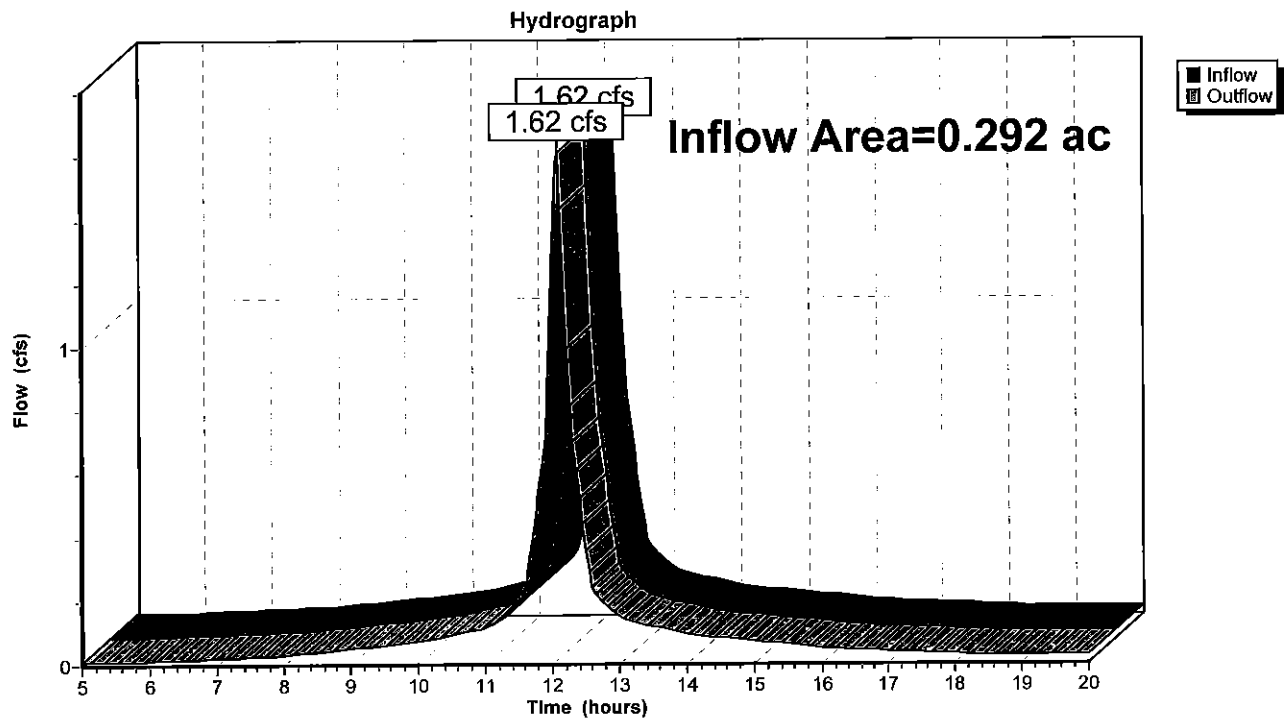
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Summary for Reach 7R: Pump Chamber

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 5.29" for 100-YR event
Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af
Outflow = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Reach 7R: Pump Chamber



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Pond 2P: Leaching Catch Basin

Inflow Area = 0.231 ac, 56.34% Impervious, Inflow Depth > 5.13" for 100-YR event
 Inflow = 1.34 cfs @ 12.10 hrs, Volume= 0.099 af
 Outflow = 1.34 cfs @ 12.10 hrs, Volume= 0.099 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.10 hrs, Volume= 0.000 af
 Primary = 1.34 cfs @ 12.10 hrs, Volume= 0.099 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.02' @ 12.10 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.098 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (754.4 - 754.4)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 22.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.56' S= 0.0200 ' / ' Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.16 cfs @ 12.10 hrs HW=4.02' (Free Discharge)
 ↳ **1=Culvert** (Inlet Controls 2.16 cfs @ 2.75 fps)

Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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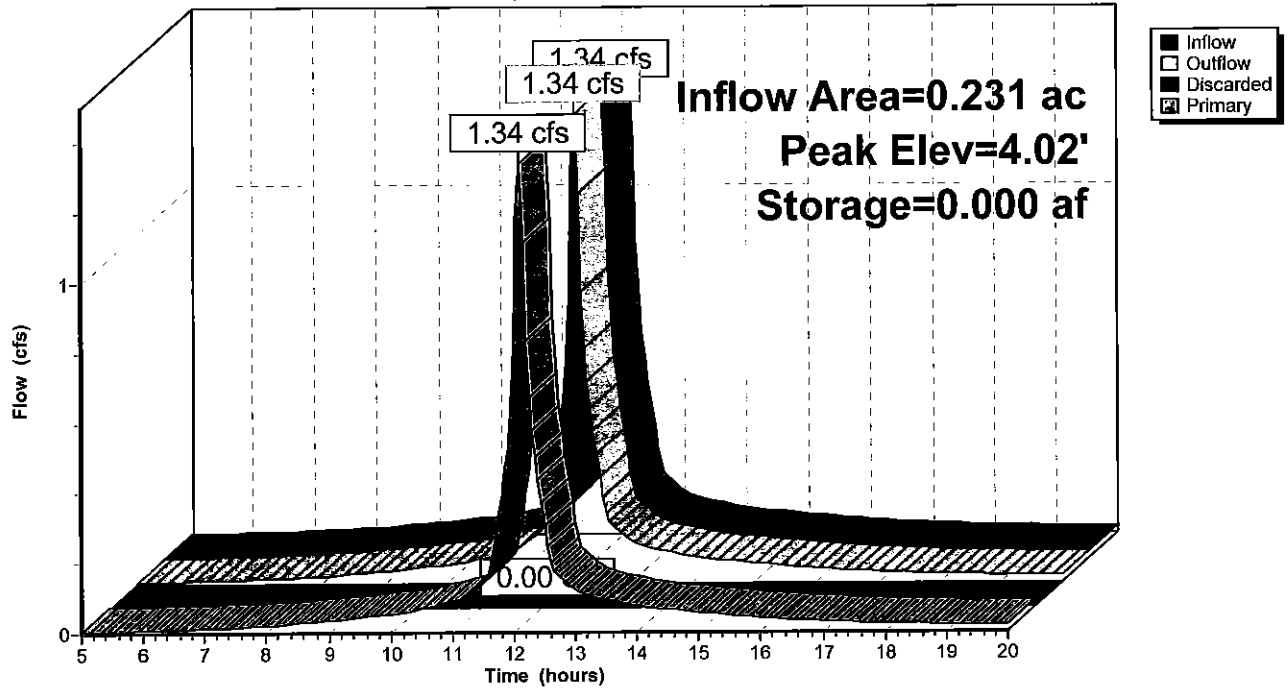
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Pond 2P: Leaching Catch Basin

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Pond 4P: Drywell

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 5.29" for 100-YR event
 Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af
 Outflow = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min
 Discarded = 0.00 cfs @ 12.08 hrs, Volume= 0.000 af
 Primary = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 4.03' @ 12.08 hrs Surf.Area= 0.000 ac Storage= 0.000 af

Plug-Flow detention time= 0.0 min calculated for 0.128 af (100% of inflow)
 Center-of-Mass det. time= 0.0 min (748.7 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	4.00'	0.001 af	4.00'D x 4.00'H Vertical Cone/Cylinder

Device	Routing	Invert	Outlet Devices
#1	Primary	3.00'	12.0" Round Culvert L= 6.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 3.00' / 2.70' S= 0.0500 '/ Cc= 0.900 n= 0.010, Flow Area= 0.79 sf
#2	Discarded	4.00'	0.270 in/hr Exfiltration over Surface area

Discarded OutFlow Max=0.00 cfs @ 12.08 hrs HW=4.03' (Free Discharge)
 ↕ **2=Exfiltration** (Exfiltration Controls 0.00 cfs)

Primary OutFlow Max=2.17 cfs @ 12.08 hrs HW=4.03' (Free Discharge)
 ↕ **1=Culvert** (Inlet Controls 2.17 cfs @ 2.76 fps)

Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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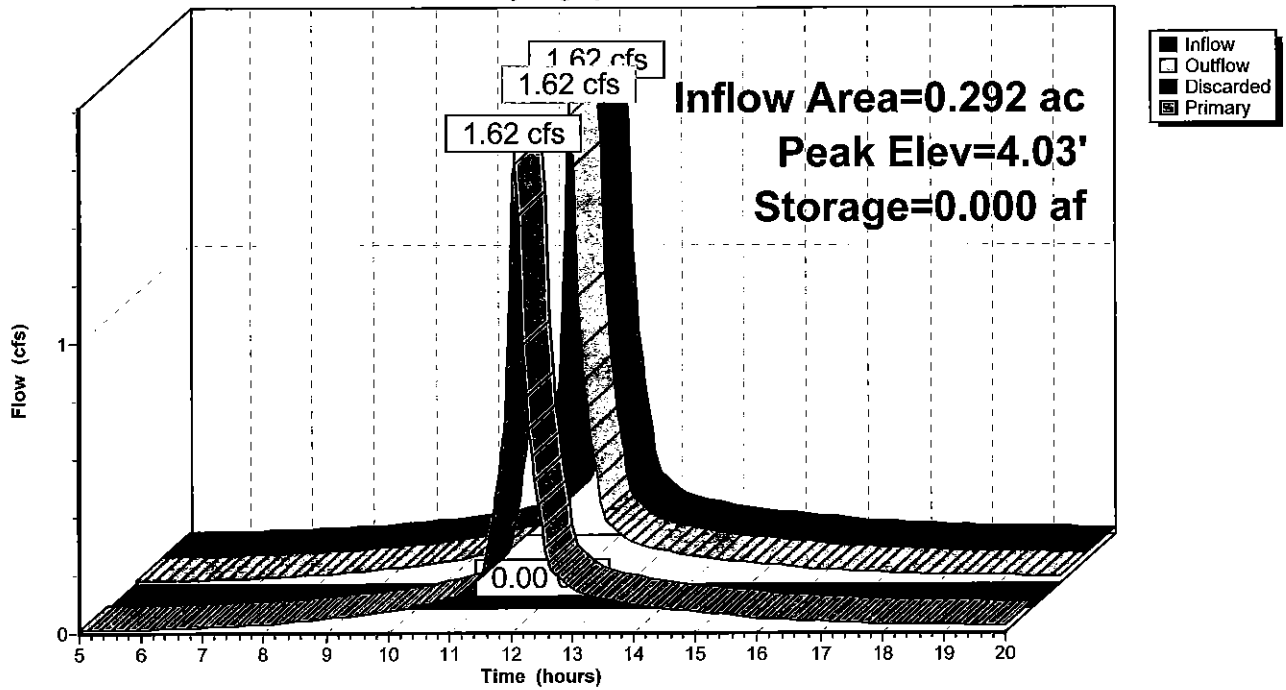
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Pond 4P: Drywell

Hydrograph



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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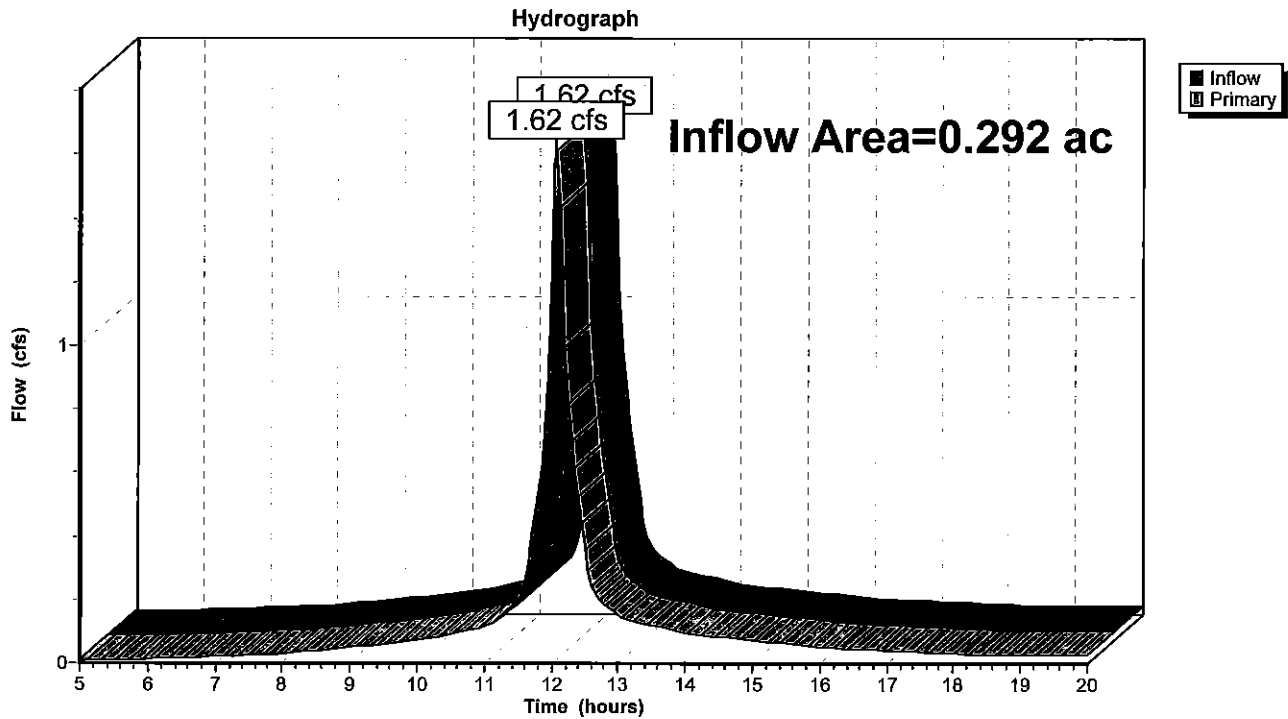
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Summary for Pond 5P: Cambridge Street Drain System

Inflow Area = 0.292 ac, 65.53% Impervious, Inflow Depth > 5.29" for 100-YR event
Inflow = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af
Primary = 1.62 cfs @ 12.08 hrs, Volume= 0.129 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond 5P: Cambridge Street Drain System



Proposed Conditions Drainage Calculations

Type III 24-hr 100-YR Rainfall=6.60"

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Summary for Pond Off-Site: Rear of Property (East Side)

Inflow Area = 0.014 ac, 0.00% Impervious, Inflow Depth > 4.07" for 100-YR event
Inflow = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af
Primary = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Pond Off-Site: Rear of Property (East Side)

