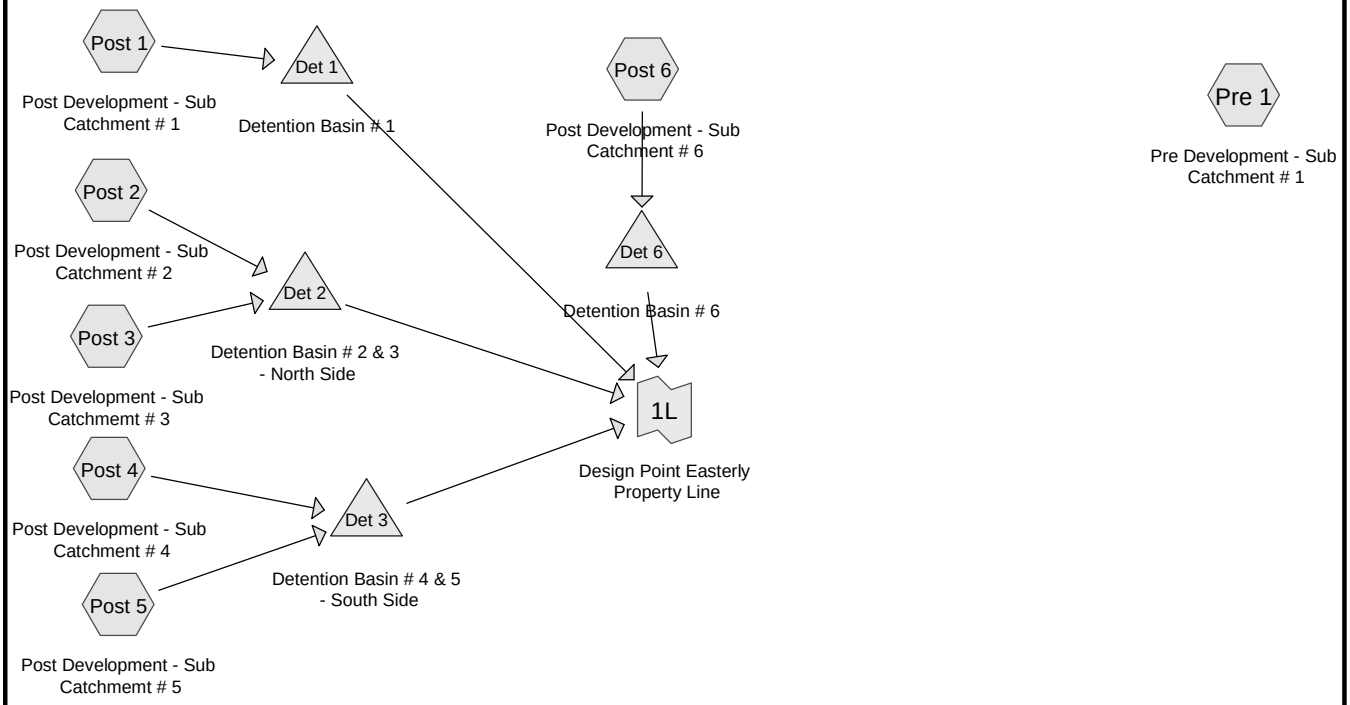
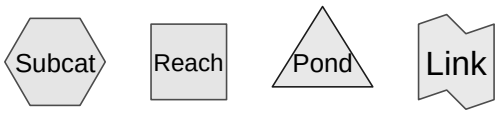




Routing Diagram for Hydrology Calculations 04-16-21
Prepared by DiVesta Civil Engineering Associates, Inc., Printed 4/27/2021
HydroCAD® 10.00-19 s/n 02695 © 2016 HydroCAD Software Solutions LLC

Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Post 1: Post Development - Runoff Area=800 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment Post 2: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=2.17"
Tc=0.0 min CN=89 Runoff=0.08 cfs 0.005 af

Subcatchment Post 3: Post Development - Runoff Area=351 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment Post 4: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=2.17"
Tc=0.0 min CN=89 Runoff=0.08 cfs 0.005 af

Subcatchment Post 5: Post Development - Runoff Area=384 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=98 Runoff=0.03 cfs 0.002 af

Subcatchment Post 6: Post Development - Runoff Area=48 sf 100.00% Impervious Runoff Depth=3.07"
Tc=5.0 min CN=98 Runoff=0.00 cfs 0.000 af

Subcatchment Pre 1: Pre Development - Sub Runoff Area=3,813 sf 0.00% Impervious Runoff Depth=1.41"
Tc=5.0 min CN=79 Runoff=0.15 cfs 0.010 af

Pond Det 1: Detention Basin # 1 Peak Elev=101.25' Storage=200 cf Inflow=0.06 cfs 0.005 af
Outflow=0.00 cfs 0.000 af

Pond Det 2: Detention Basin # 2 & 3 - North Side Peak Elev=99.33' Storage=91 cf Inflow=0.10 cfs 0.007 af
Discarded=0.01 cfs 0.006 af Primary=0.03 cfs 0.001 af Outflow=0.04 cfs 0.007 af

Pond Det 3: Detention Basin # 4 & 5 - South Side Peak Elev=92.66' Storage=94 cf Inflow=0.10 cfs 0.007 af
Discarded=0.01 cfs 0.006 af Primary=0.02 cfs 0.001 af Outflow=0.03 cfs 0.007 af

Pond Det 6: Detention Basin # 6 Peak Elev=101.25' Storage=12 cf Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Link 1L: Design Point Easterly Property Line Inflow=0.05 cfs 0.002 af
Primary=0.05 cfs 0.002 af

Total Runoff Area = 0.177 ac Runoff Volume = 0.029 af Average Runoff Depth = 1.98"
63.55% Pervious = 0.113 ac 36.45% Impervious = 0.065 ac

Summary for Subcatchment Post 1: Post Development - Sub Catchment # 1

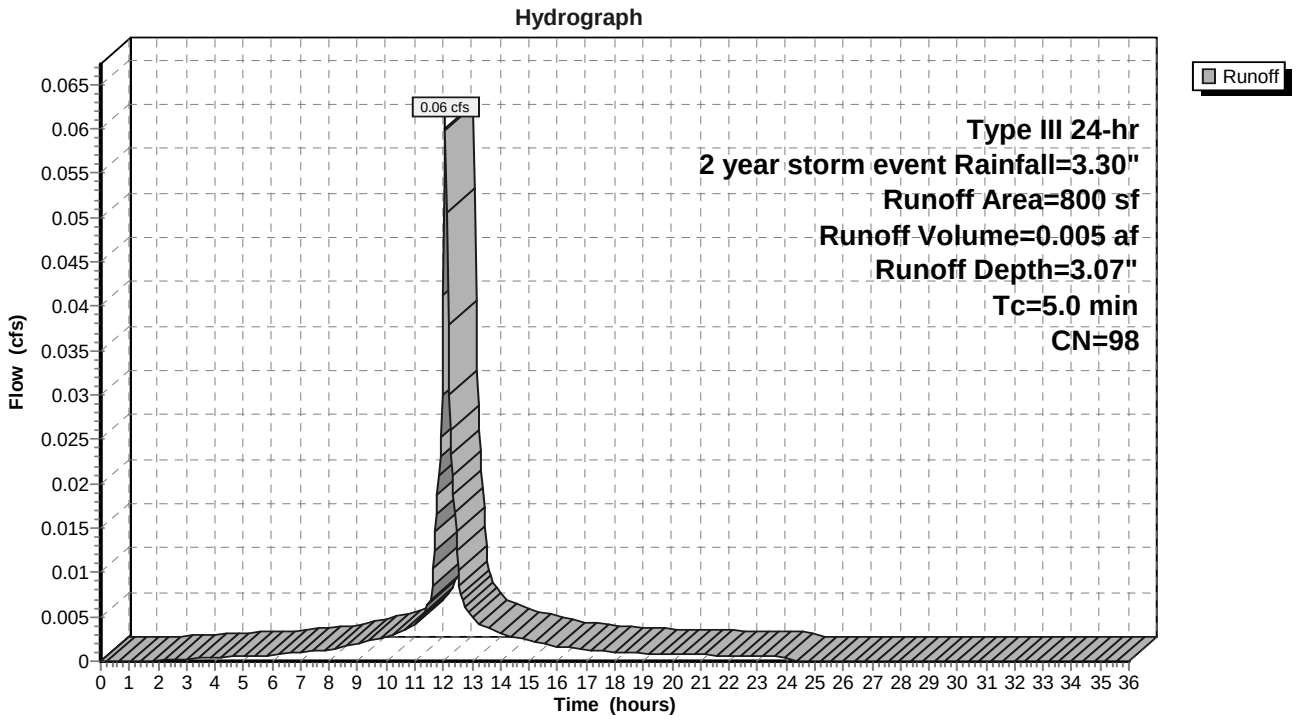
Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	800	98	Pool
	800		100.00% Impervious Area

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

Subcatchment Post 1: Post Development - Sub Catchment # 1



Summary for Subcatchment Post 2: Post Development - Sub Catchment # 2

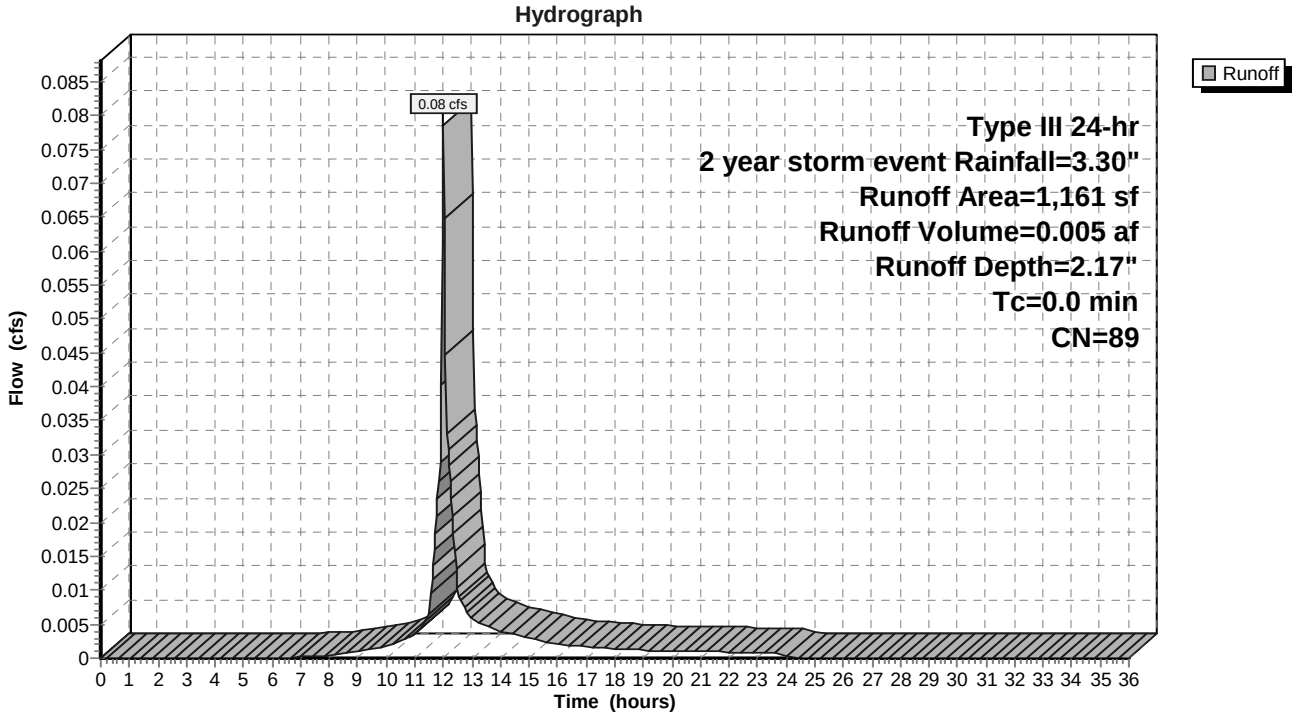
Runoff = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 2: Post Development - Sub Catchment # 2



Summary for Subcatchment Post 3: Post Development - Sub Catchmemt # 3

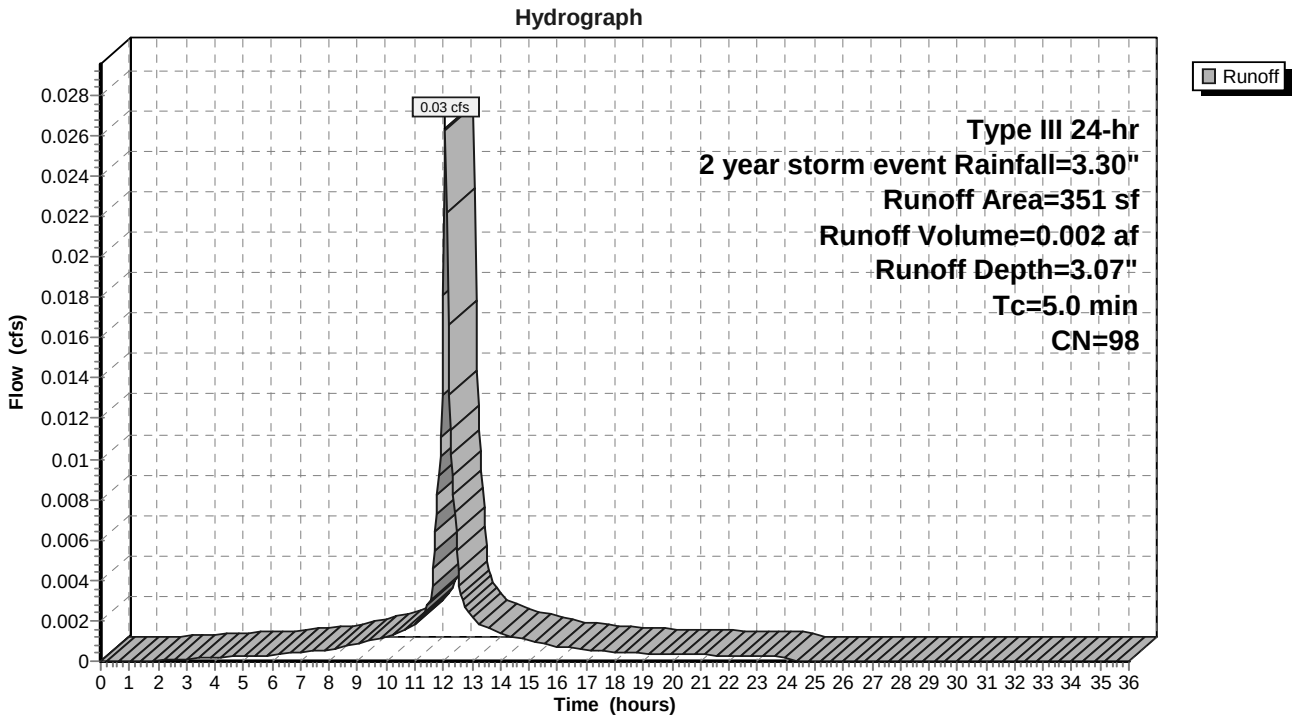
Runoff = 0.03 cfs @ 12.07 hrs, Volume= 0.002 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	351	98	North terrace
	351		100.00% Impervious Area

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

Subcatchment Post 3: Post Development - Sub Catchmemt # 3



Summary for Subcatchment Post 4: Post Development - Sub Catchment # 4

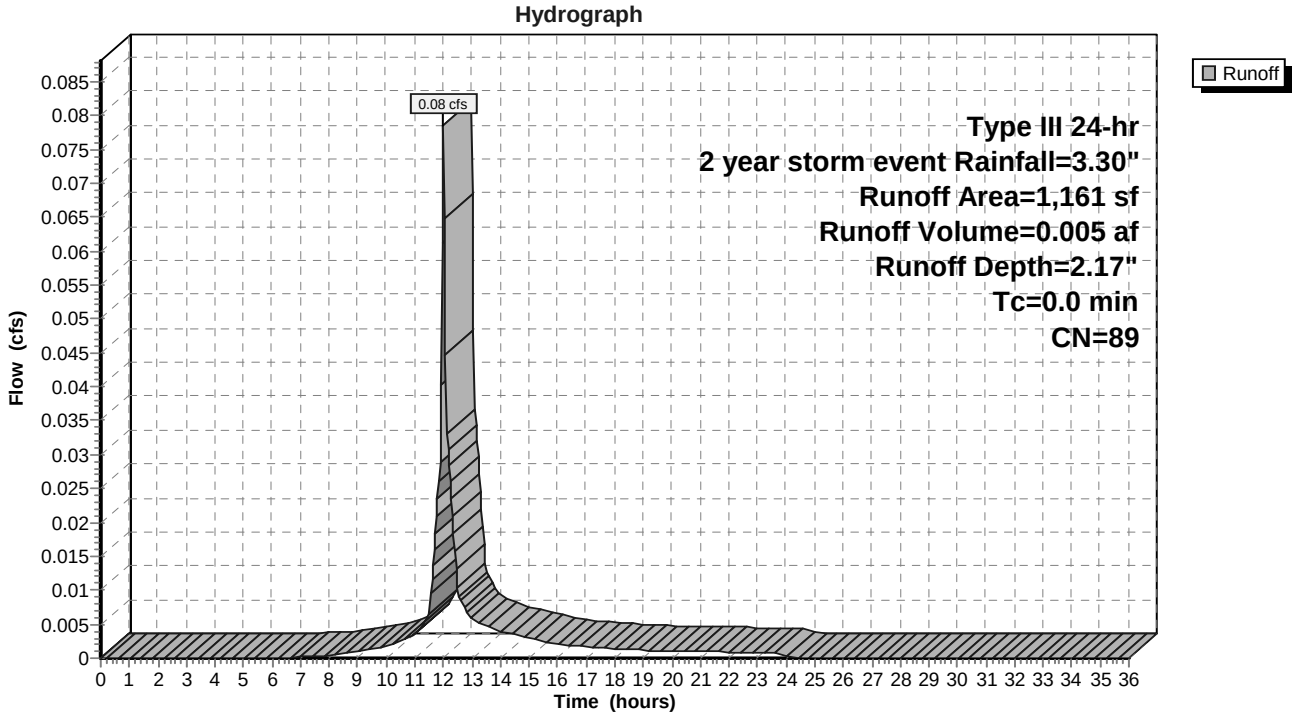
Runoff = 0.08 cfs @ 12.00 hrs, Volume= 0.005 af, Depth= 2.17"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 4: Post Development - Sub Catchment # 4



Summary for Subcatchment Post 5: Post Development - Sub Catchmemt # 5

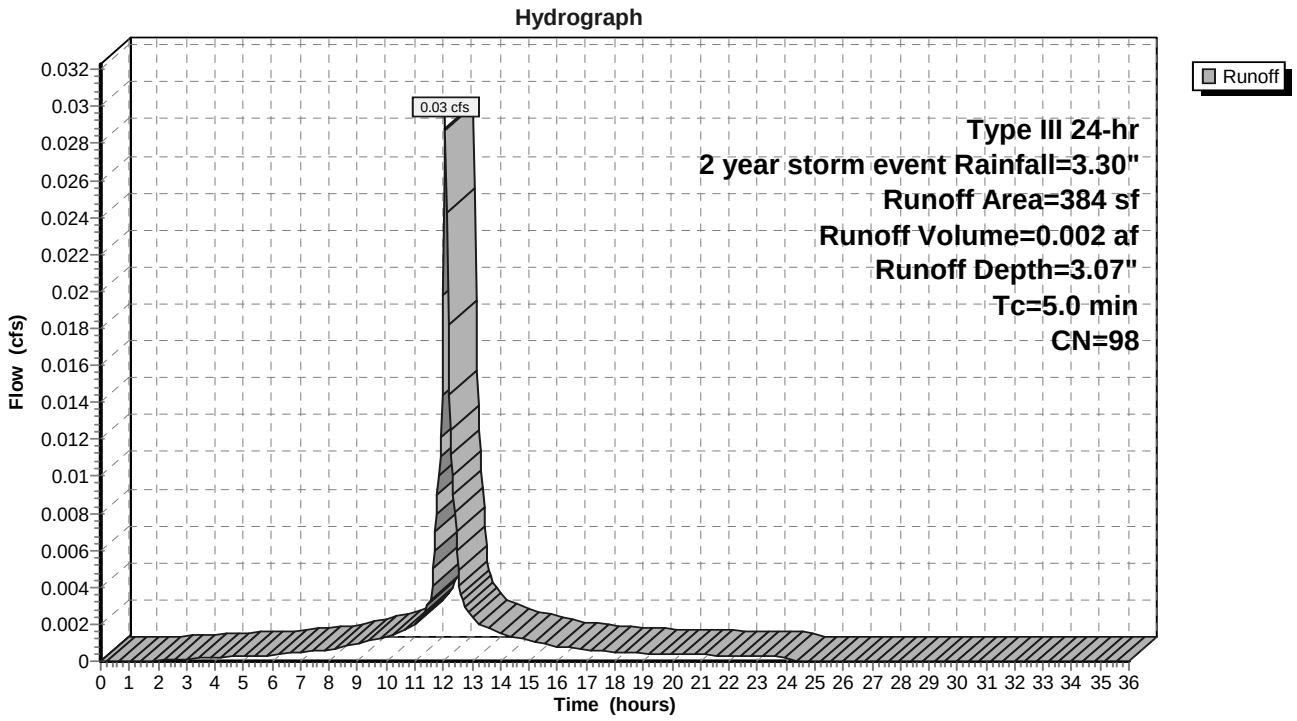
Runoff = 0.03 cfs @ 12.07 hrs, Volume= 0.002 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	384	98	North terrace
	384		100.00% Impervious Area

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

Subcatchment Post 5: Post Development - Sub Catchmemt # 5



Summary for Subcatchment Post 6: Post Development - Sub Catchment # 6

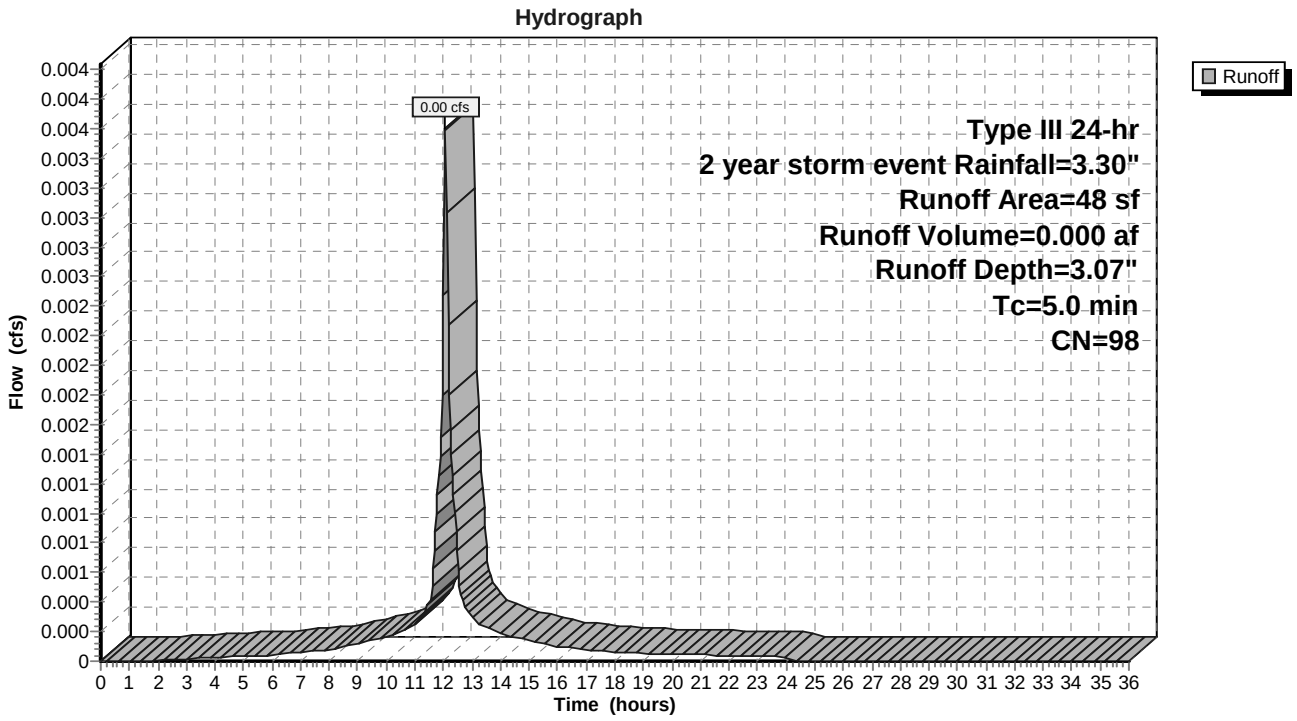
Runoff = 0.00 cfs @ 12.07 hrs, Volume= 0.000 af, Depth= 3.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

	Area (sf)	CN	Description
*	48	98	Pool
	48		100.00% Impervious Area

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

Subcatchment Post 6: Post Development - Sub Catchment # 6



Summary for Subcatchment Pre 1: Pre Development - Sub Catchment # 1

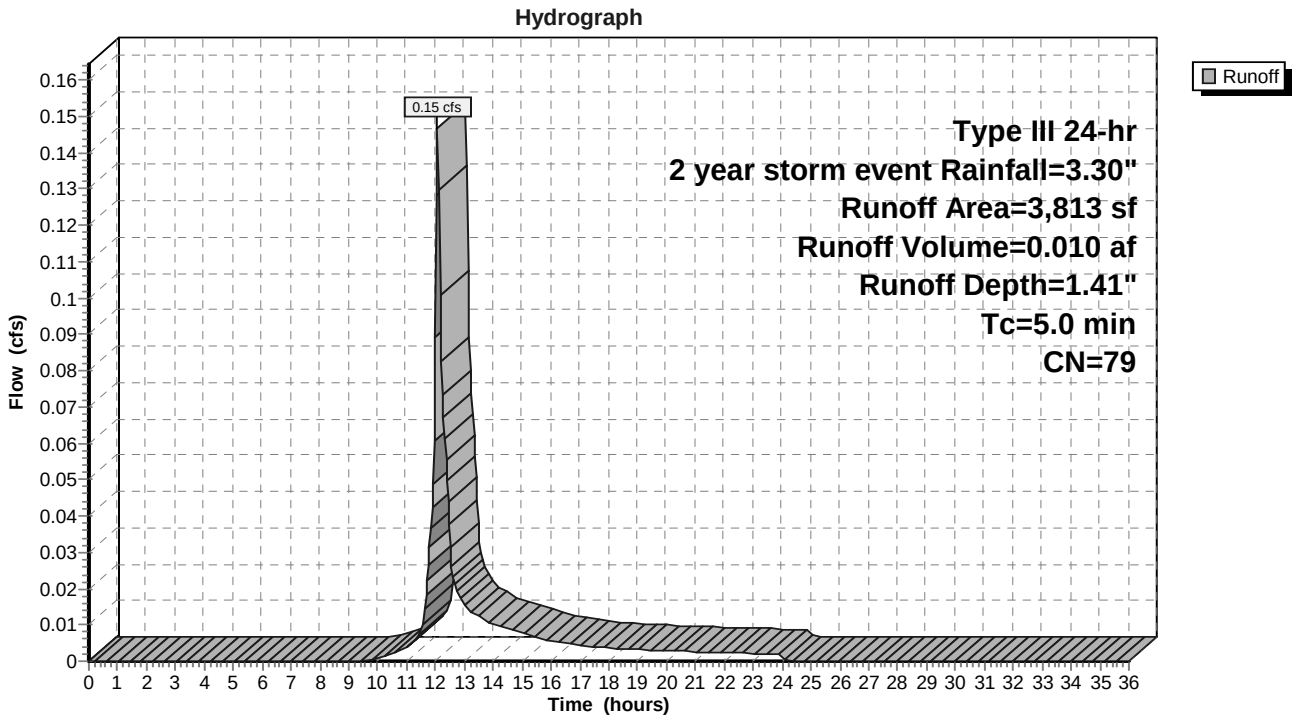
Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 1.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 2 year storm event Rainfall=3.30"

Area (sf)	CN	Description
3,813	79	50-75% Grass cover, Fair, HSG C
3,813		100.00% Pervious Area

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

Subcatchment Pre 1: Pre Development - Sub Catchment # 1



Summary for Pond Det 1: Detention Basin # 1

Inflow Area = 0.018 ac,100.00% Impervious, Inflow Depth = 3.07" for 2 year storm event event
Inflow = 0.06 cfs @ 12.07 hrs, Volume= 0.005 af
Outflow = 0.00 cfs @ 22.00 hrs, Volume= 0.000 af, Atten= 99%, Lag= 595.6 min
Primary = 0.00 cfs @ 22.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 22.00 hrs Surf.Area= 800 sf Storage= 200 cf

Plug-Flow detention time= 1,146.4 min calculated for 0.000 af (2% of inflow)
Center-of-Mass det. time= 624.1 min (1,379.0 - 754.8)

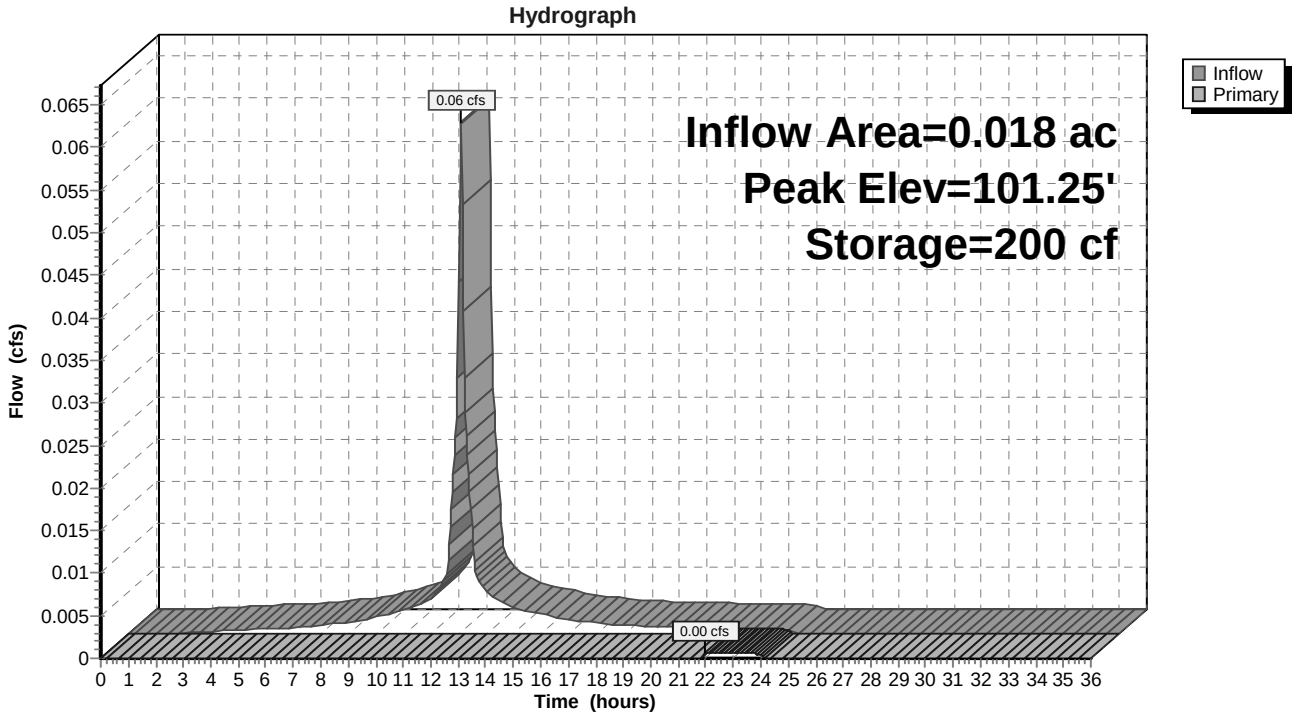
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	800	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**20.0' long x 1.5' 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) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32

Primary OutFlow Max=0.00 cfs @ 22.00 hrs HW=101.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.03 fps)

Pond Det 1: Detention Basin # 1



Summary for Pond Det 2: Detention Basin # 2 & 3 - North Side

Inflow Area = 0.035 ac, 63.89% Impervious, Inflow Depth = 2.38" for 2 year storm event event
Inflow = 0.10 cfs @ 12.01 hrs, Volume= 0.007 af
Outflow = 0.04 cfs @ 12.26 hrs, Volume= 0.007 af, Atten= 63%, Lag= 14.8 min
Discarded = 0.01 cfs @ 11.24 hrs, Volume= 0.006 af
Primary = 0.03 cfs @ 12.26 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 99.33' @ 12.26 hrs Surf.Area= 125 sf Storage= 91 cf

Plug-Flow detention time= 90.9 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 90.9 min (880.4 - 789.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	98.00'	60 cf	**5.00'W x 25.00'L x 1.54'H Field A** 193 cf Overall - 43 cf Embedded = 150 cf x 40.0% Voids
#2A	98.50'	43 cf	**Cultec C-100HD** x 3 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 1 rows
		103 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.20'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	99.30'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Discarded	98.00'	**2.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 11.24 hrs HW=98.02' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.03 cfs @ 12.26 hrs HW=99.33' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.03 cfs @ 1.22 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.58 fps)

Pond Det 2: Detention Basin # 2 & 3 - North Side - 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 1 rows

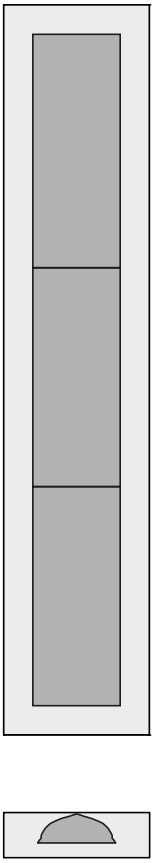
3 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 23.00' Row Length +12.0" End Stone x 2 = 25.00' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

3 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 42.8 cf Chamber Storage

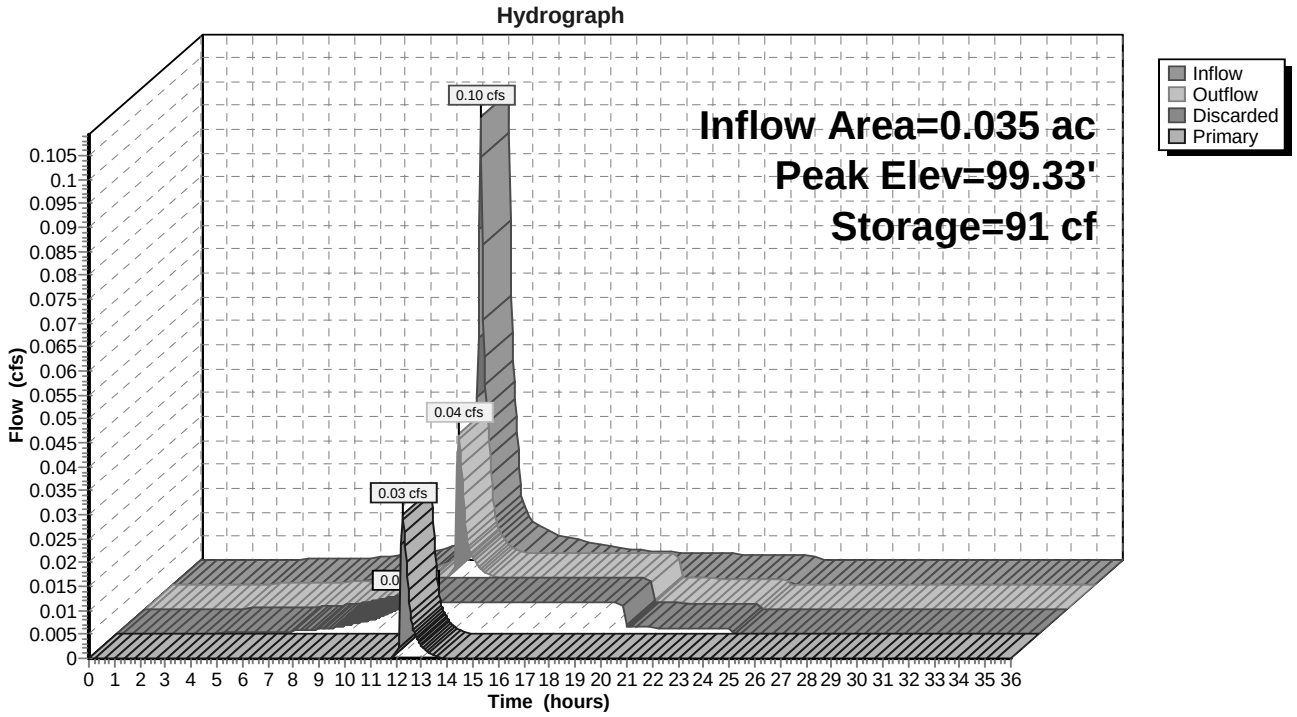
192.7 cf Field - 42.8 cf Chambers = 149.9 cf Stone x 40.0% Voids = 60.0 cf Stone Storage

Chamber Storage + Stone Storage = 102.8 cf = 0.002 af
Overall Storage Efficiency = 53.3%
Overall System Size = 25.00' x 5.00' x 1.54'

3 Chambers
7.1 cy Field
5.6 cy Stone



Pond Det 2: Detention Basin # 2 & 3 - North Side



Summary for Pond Det 3: Detention Basin # 4 & 5 - South Side

Inflow Area = 0.035 ac, 64.66% Impervious, Inflow Depth = 2.40" for 2 year storm event event
Inflow = 0.10 cfs @ 12.01 hrs, Volume= 0.007 af
Outflow = 0.03 cfs @ 12.33 hrs, Volume= 0.007 af, Atten= 69%, Lag= 19.2 min
Discarded = 0.01 cfs @ 11.44 hrs, Volume= 0.006 af
Primary = 0.02 cfs @ 12.33 hrs, Volume= 0.001 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 92.66' @ 12.33 hrs Surf.Area= 163 sf Storage= 94 cf

Plug-Flow detention time= 68.3 min calculated for 0.007 af (100% of inflow)
Center-of-Mass det. time= 68.3 min (856.8 - 788.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.60'	77 cf	**5.00'W x 32.50'L x 1.54'H Field A** 251 cf Overall - 57 cf Embedded = 194 cf x 40.0% Voids
#2A	92.10'	57 cf	**Cultec C-100HD** x 4 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 1 rows
		134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	92.55'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	93.00'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Discarded	91.60'	**2.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 11.44 hrs HW=91.62' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.02 cfs @ 12.33 hrs HW=92.66' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.02 cfs @ 1.15 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond Det 3: Detention Basin # 4 & 5 - South Side - 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 1 rows

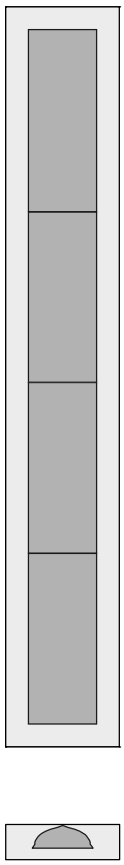
4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

4 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 56.8 cf Chamber Storage

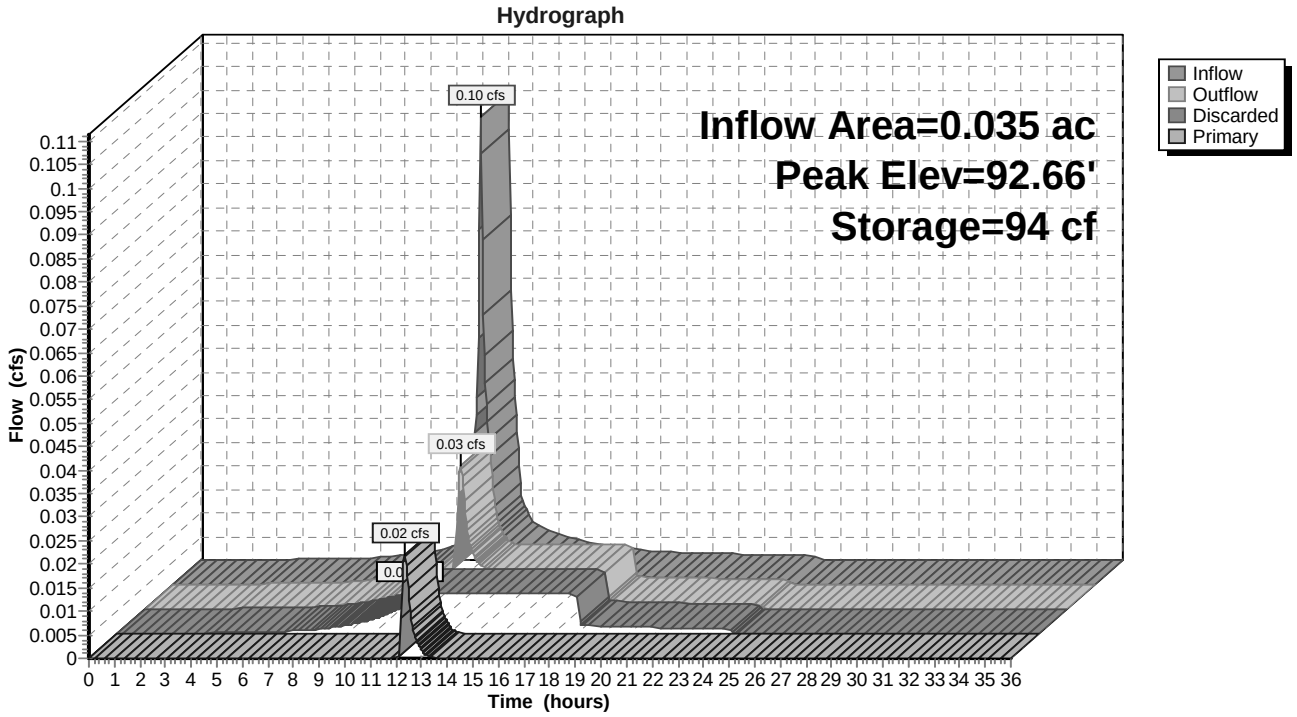
250.5 cf Field - 56.8 cf Chambers = 193.7 cf Stone x 40.0% Voids = 77.5 cf Stone Storage

Chamber Storage + Stone Storage = 134.3 cf = 0.003 af
Overall Storage Efficiency = 53.6%
Overall System Size = 32.50' x 5.00' x 1.54'

4 Chambers
9.3 cy Field
7.2 cy Stone



Pond Det 3: Detention Basin # 4 & 5 - South Side



Summary for Pond Det 6: Detention Basin # 6

Inflow Area = 0.001 ac,100.00% Impervious, Inflow Depth = 3.07" for 2 year storm event event
Inflow = 0.00 cfs @ 12.07 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 22.00 hrs, Volume= 0.000 af, Atten= 99%, Lag= 595.6 min
Primary = 0.00 cfs @ 22.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 22.00 hrs Surf.Area= 48 sf Storage= 12 cf

Plug-Flow detention time= 1,146.4 min calculated for 0.000 af (2% of inflow)
Center-of-Mass det. time= 624.1 min (1,379.0 - 754.8)

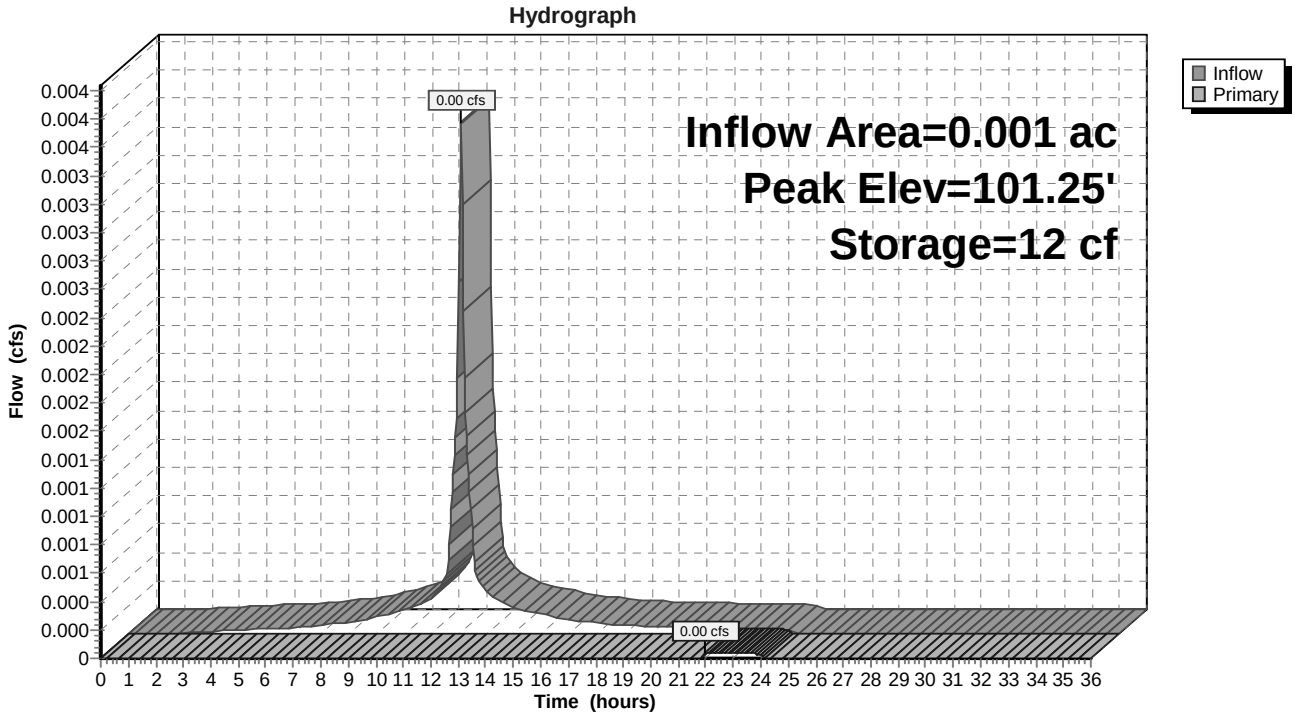
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	12 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	48	12	12

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**6.0' 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=0.00 cfs @ 22.00 hrs HW=101.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.02 fps)

Pond Det 6: Detention Basin # 6

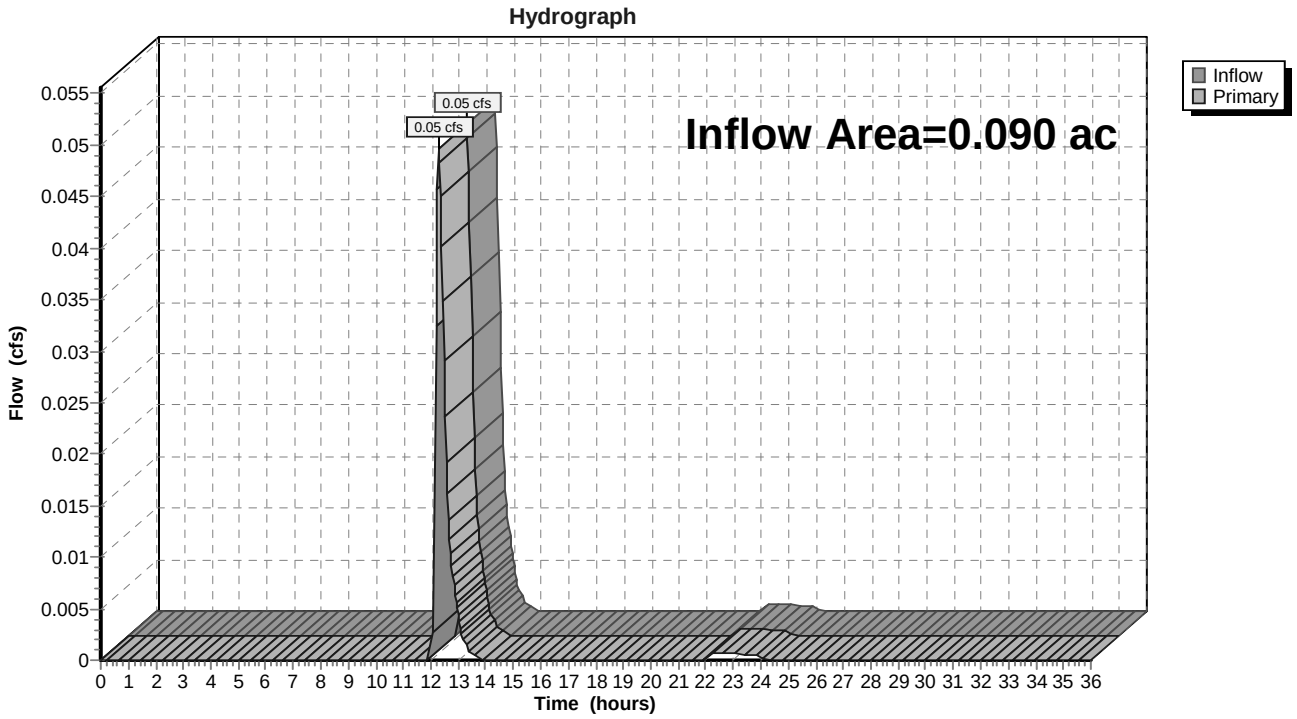


Summary for Link 1L: Design Point Easterly Property Line

Inflow Area = 0.090 ac, 72.04% Impervious, Inflow Depth = 0.24" for 2 year storm event event
Inflow = 0.05 cfs @ 12.29 hrs, Volume= 0.002 af
Primary = 0.05 cfs @ 12.29 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link 1L: Design Point Easterly Property Line



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Post 1: Post Development - Runoff Area=800 sf 100.00% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.007 af

Subcatchment Post 2: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=3.77"
Tc=0.0 min CN=89 Runoff=0.13 cfs 0.008 af

Subcatchment Post 3: Post Development - Runoff Area=351 sf 100.00% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment Post 4: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=3.77"
Tc=0.0 min CN=89 Runoff=0.13 cfs 0.008 af

Subcatchment Post 5: Post Development - Runoff Area=384 sf 100.00% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.04 cfs 0.003 af

Subcatchment Post 6: Post Development - Runoff Area=48 sf 100.00% Impervious Runoff Depth=4.76"
Tc=5.0 min CN=98 Runoff=0.01 cfs 0.000 af

Subcatchment Pre 1: Pre Development - Sub Runoff Area=3,813 sf 0.00% Impervious Runoff Depth=2.80"
Tc=5.0 min CN=79 Runoff=0.29 cfs 0.020 af

Pond Det 1: Detention Basin # 1 Peak Elev=101.26' Storage=200 cf Inflow=0.09 cfs 0.007 af
Outflow=0.05 cfs 0.005 af

Pond Det 2: Detention Basin # 2 & 3 - North Peak Elev=99.49' Storage=100 cf Inflow=0.16 cfs 0.012 af
Discarded=0.01 cfs 0.008 af Primary=0.14 cfs 0.004 af Outflow=0.15 cfs 0.012 af

Pond Det 3: Detention Basin # 4 & 5 - South Peak Elev=92.93' Storage=119 cf Inflow=0.16 cfs 0.012 af
Discarded=0.01 cfs 0.008 af Primary=0.09 cfs 0.003 af Outflow=0.10 cfs 0.012 af

Pond Det 6: Detention Basin # 6 Peak Elev=101.25' Storage=12 cf Inflow=0.01 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Link 1L: Design Point Easterly Property Line Inflow=0.22 cfs 0.013 af
Primary=0.22 cfs 0.013 af

Total Runoff Area = 0.177 ac Runoff Volume = 0.052 af Average Runoff Depth = 3.50"
63.55% Pervious = 0.113 ac 36.45% Impervious = 0.065 ac

Summary for Subcatchment Post 1: Post Development - Sub Catchment # 1

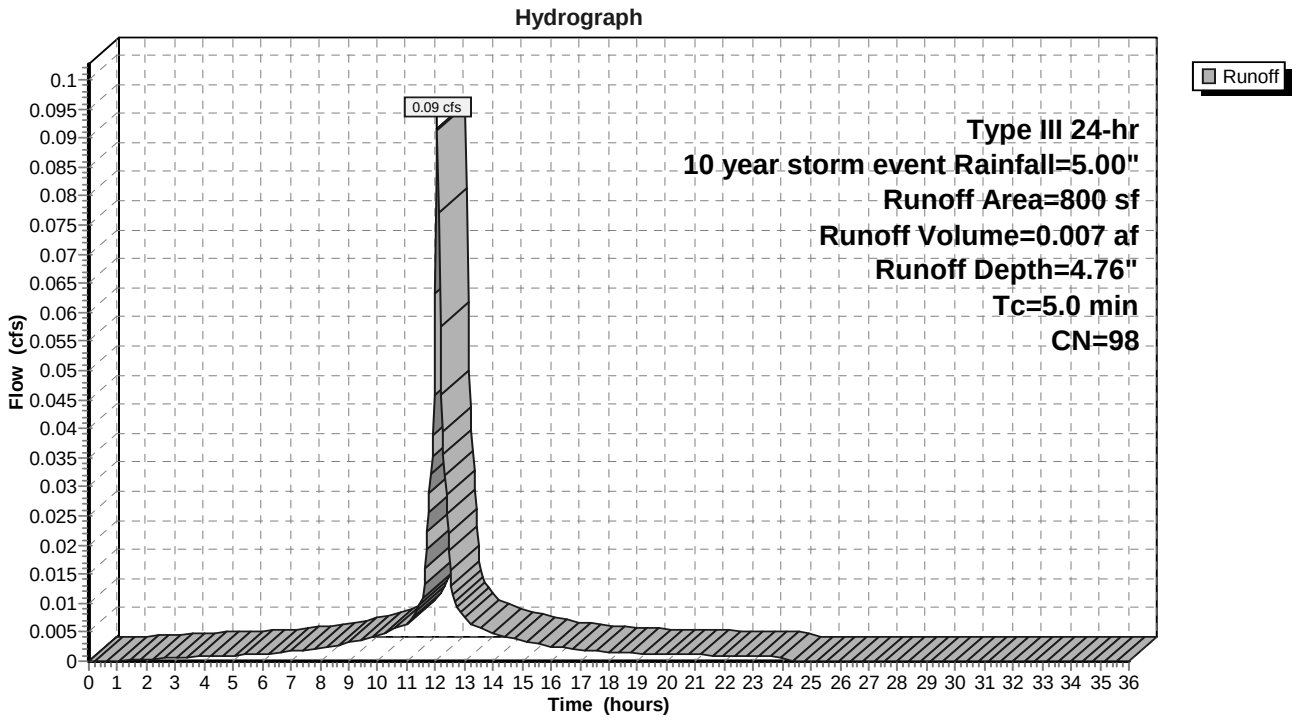
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	800	98	Pool
	800		100.00% Impervious Area

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

Subcatchment Post 1: Post Development - Sub Catchment # 1



Summary for Subcatchment Post 2: Post Development - Sub Catchment # 2

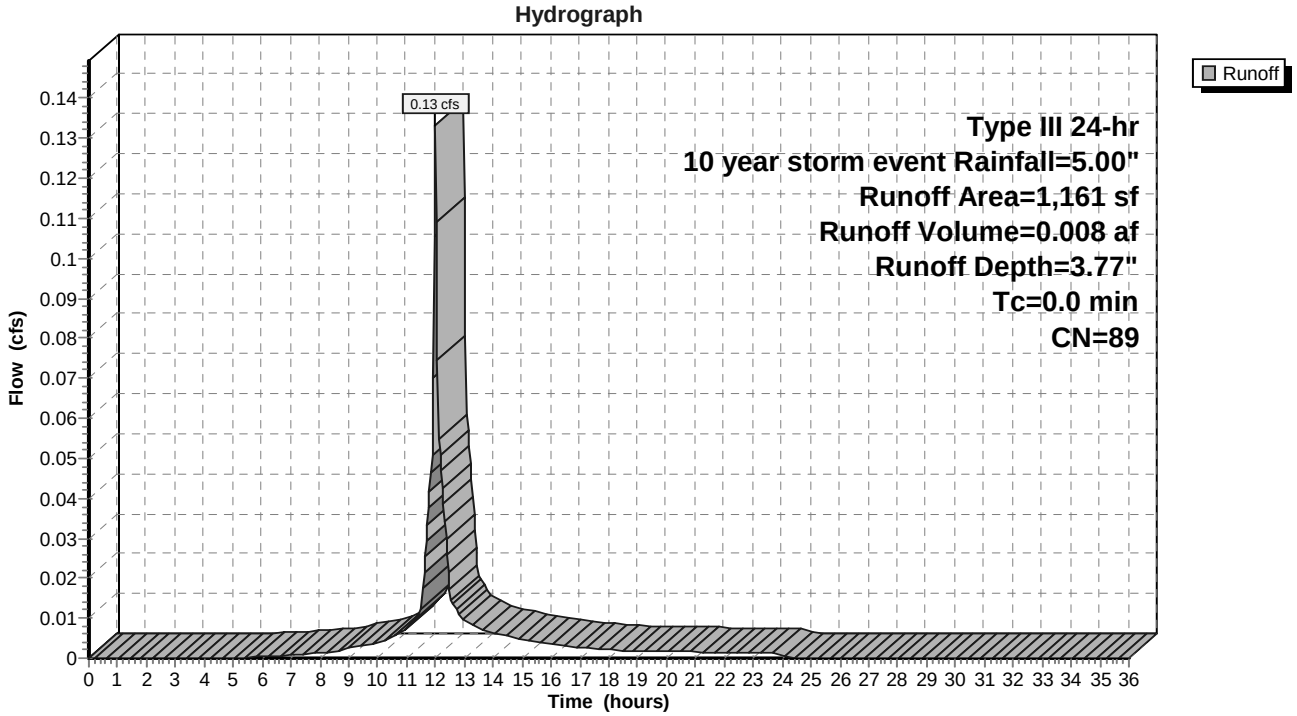
Runoff = 0.13 cfs @ 12.00 hrs, Volume= 0.008 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 2: Post Development - Sub Catchment # 2



Summary for Subcatchment Post 3: Post Development - Sub Catchmemt # 3

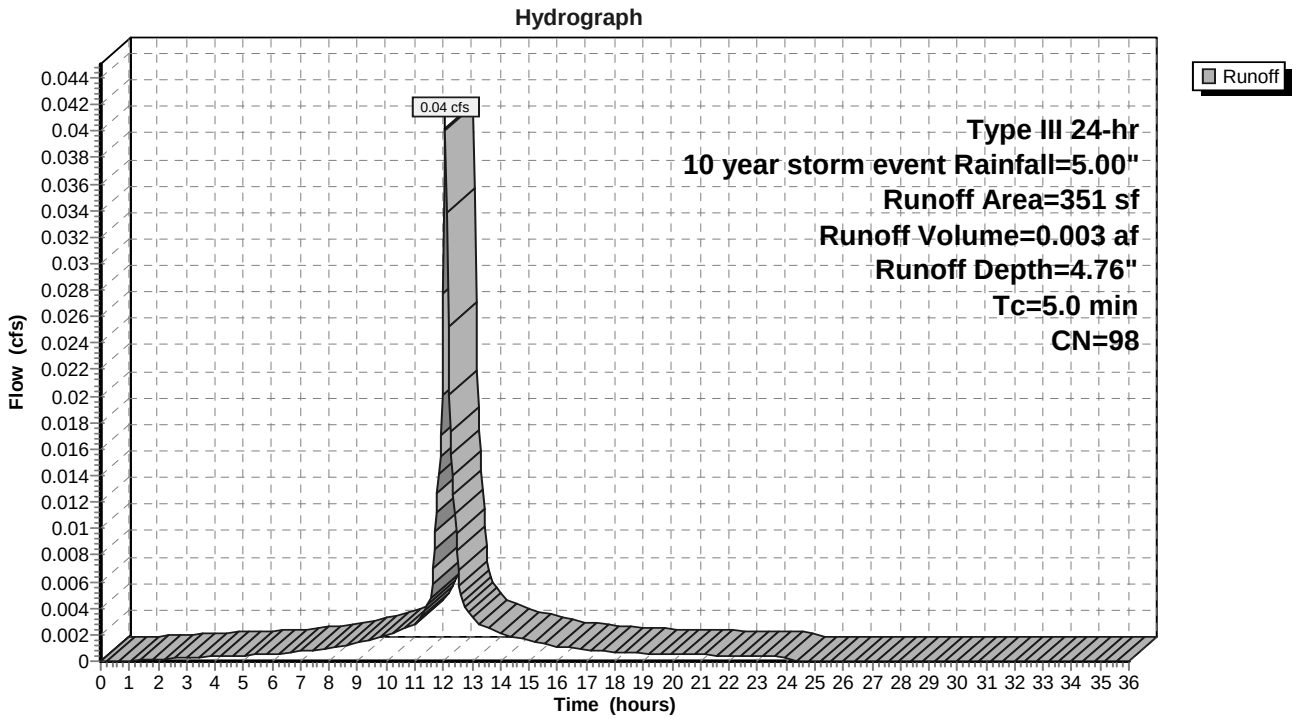
Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	351	98	North terrace
	351		100.00% Impervious Area

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

Subcatchment Post 3: Post Development - Sub Catchmemt # 3



Summary for Subcatchment Post 4: Post Development - Sub Catchment # 4

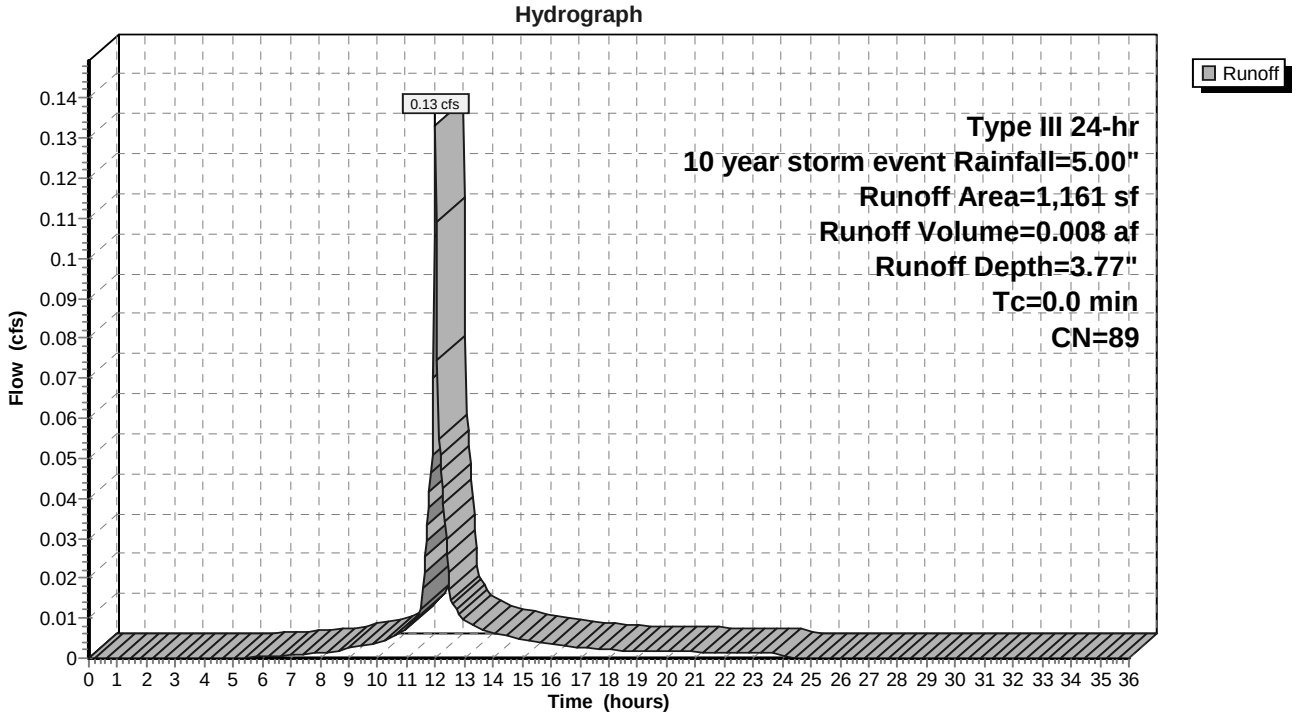
Runoff = 0.13 cfs @ 12.00 hrs, Volume= 0.008 af, Depth= 3.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 4: Post Development - Sub Catchment # 4



Summary for Subcatchment Post 5: Post Development - Sub Catchmemt # 5

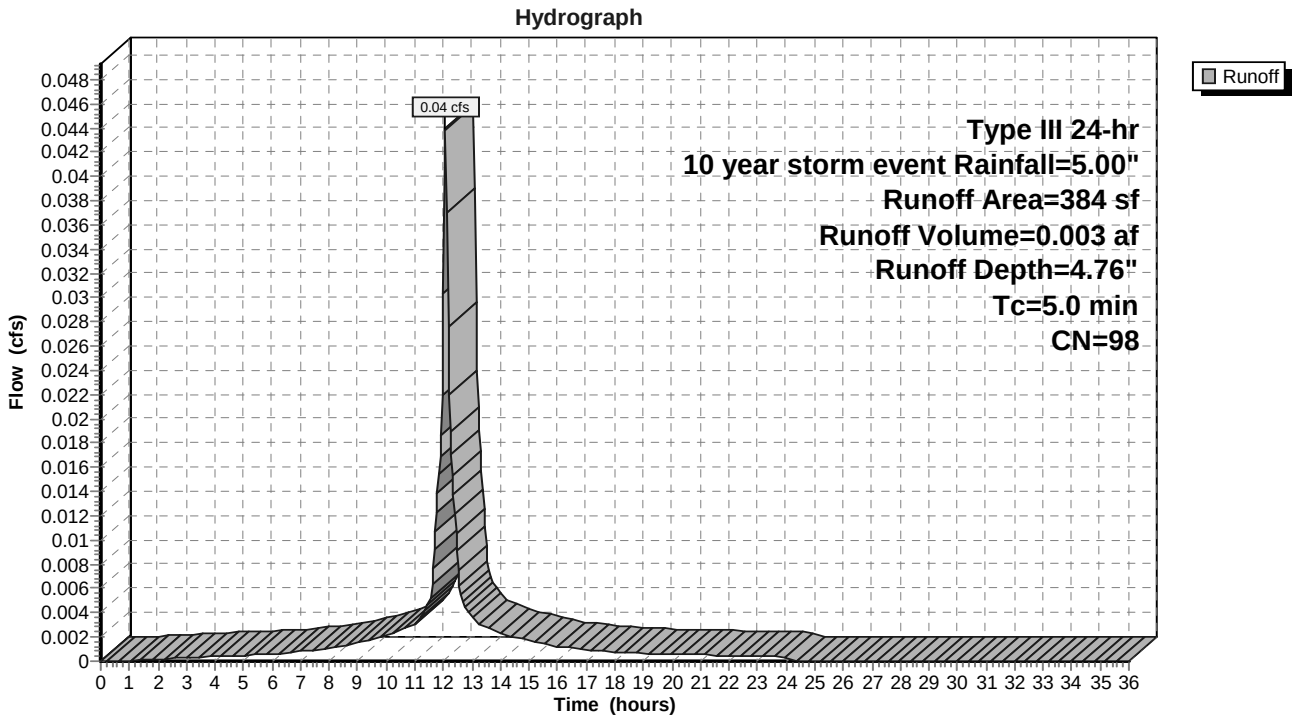
Runoff = 0.04 cfs @ 12.07 hrs, Volume= 0.003 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	384	98	North terrace
	384		100.00% Impervious Area

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

Subcatchment Post 5: Post Development - Sub Catchmemt # 5



Summary for Subcatchment Post 6: Post Development - Sub Catchment # 6

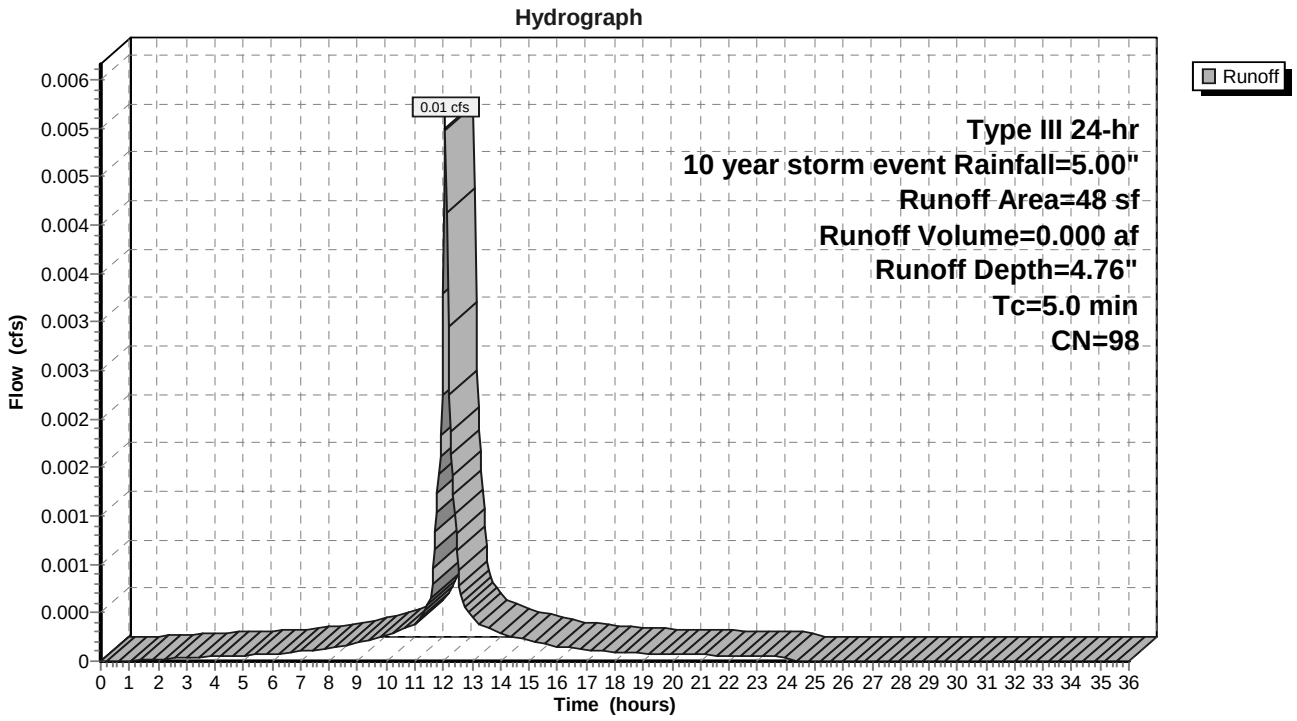
Runoff = 0.01 cfs @ 12.07 hrs, Volume= 0.000 af, Depth= 4.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

	Area (sf)	CN	Description
*	48	98	Pool
	48		100.00% Impervious Area

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

Subcatchment Post 6: Post Development - Sub Catchment # 6



Summary for Subcatchment Pre 1: Pre Development - Sub Catchment # 1

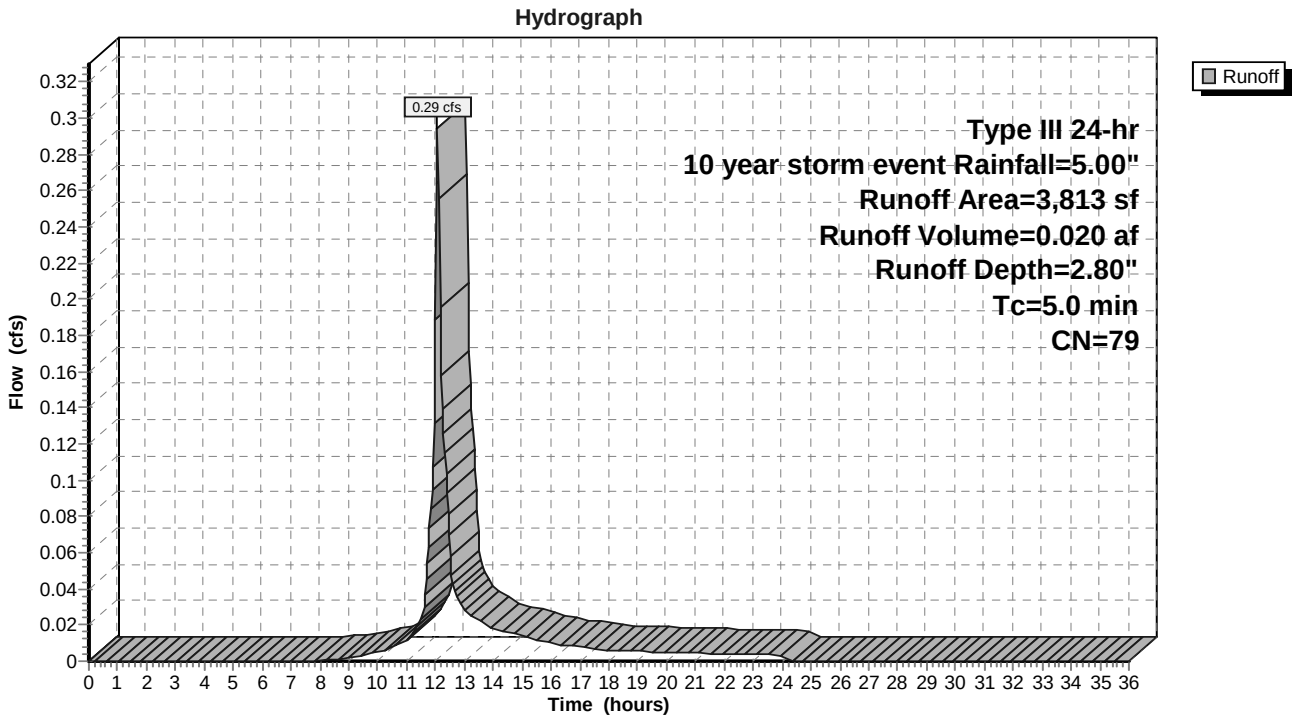
Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 2.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 10 year storm event Rainfall=5.00"

Area (sf)	CN	Description
3,813	79	50-75% Grass cover, Fair, HSG C
3,813		100.00% Pervious Area

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

Subcatchment Pre 1: Pre Development - Sub Catchment # 1



Summary for Pond Det 1: Detention Basin # 1

Inflow Area = 0.018 ac,100.00% Impervious, Inflow Depth = 4.76" for 10 year storm event event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 0.007 af
Outflow = 0.05 cfs @ 12.38 hrs, Volume= 0.005 af, Atten= 48%, Lag= 18.3 min
Primary = 0.05 cfs @ 12.38 hrs, Volume= 0.005 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.26' @ 12.38 hrs Surf.Area= 800 sf Storage= 200 cf

Plug-Flow detention time= 276.6 min calculated for 0.005 af (72% of inflow)
Center-of-Mass det. time= 185.3 min (932.4 - 747.1)

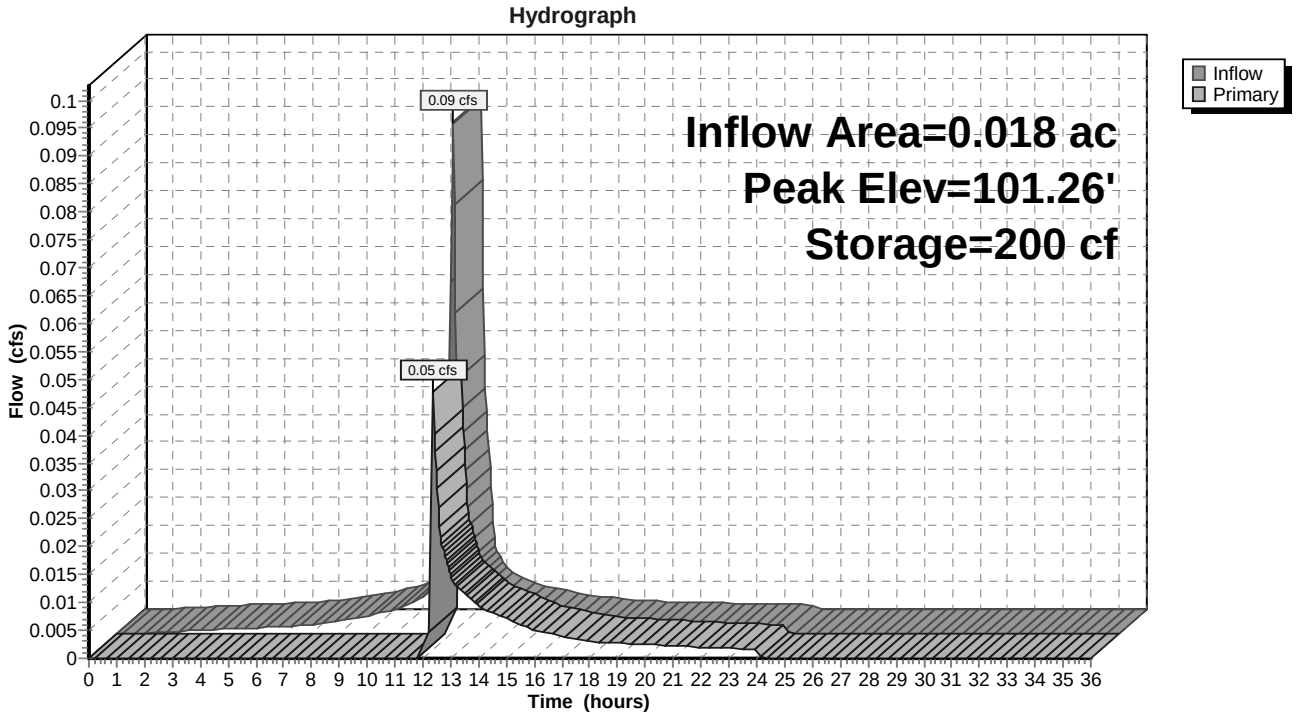
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	800	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**20.0' long x 1.5' 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) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32

Primary OutFlow Max=0.04 cfs @ 12.38 hrs HW=101.26' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.04 cfs @ 0.24 fps)

Pond Det 1: Detention Basin # 1



Summary for Pond Det 2: Detention Basin # 2 & 3 - North Side

Inflow Area = 0.035 ac, 63.89% Impervious, Inflow Depth = 4.00" for 10 year storm event event
Inflow = 0.16 cfs @ 12.01 hrs, Volume= 0.012 af
Outflow = 0.15 cfs @ 12.04 hrs, Volume= 0.012 af, Atten= 8%, Lag= 2.1 min
Discarded = 0.01 cfs @ 10.28 hrs, Volume= 0.008 af
Primary = 0.14 cfs @ 12.04 hrs, Volume= 0.004 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 99.49' @ 12.04 hrs Surf.Area= 125 sf Storage= 100 cf

Plug-Flow detention time= 74.1 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 73.9 min (851.2 - 777.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	98.00'	60 cf	**5.00'W x 25.00'L x 1.54'H Field A** 193 cf Overall - 43 cf Embedded = 150 cf x 40.0% Voids
#2A	98.50'	43 cf	**Cultec C-100HD** x 3 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 1 rows
		103 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	99.20'	**2.5" Vert. Orifice/Grate** C= 0.600
#2	Primary	99.30'	**4.0" Vert. Orifice/Grate** C= 0.600
#3	Discarded	98.00'	**2.250 in/hr Exfiltration over Surface area**

Discarded OutFlow Max=0.01 cfs @ 10.28 hrs HW=98.02' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.14 cfs @ 12.04 hrs HW=99.48' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 2.04 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.07 cfs @ 1.46 fps)

Pond Det 2: Detention Basin # 2 & 3 - North Side - 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 1 rows

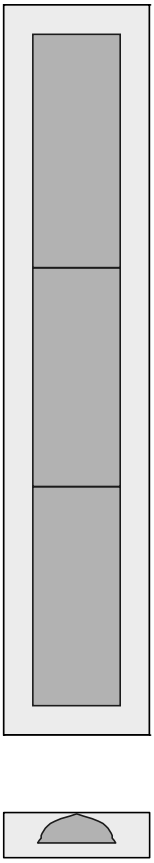
3 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 23.00' Row Length +12.0" End Stone x 2 = 25.00' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

3 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 42.8 cf Chamber Storage

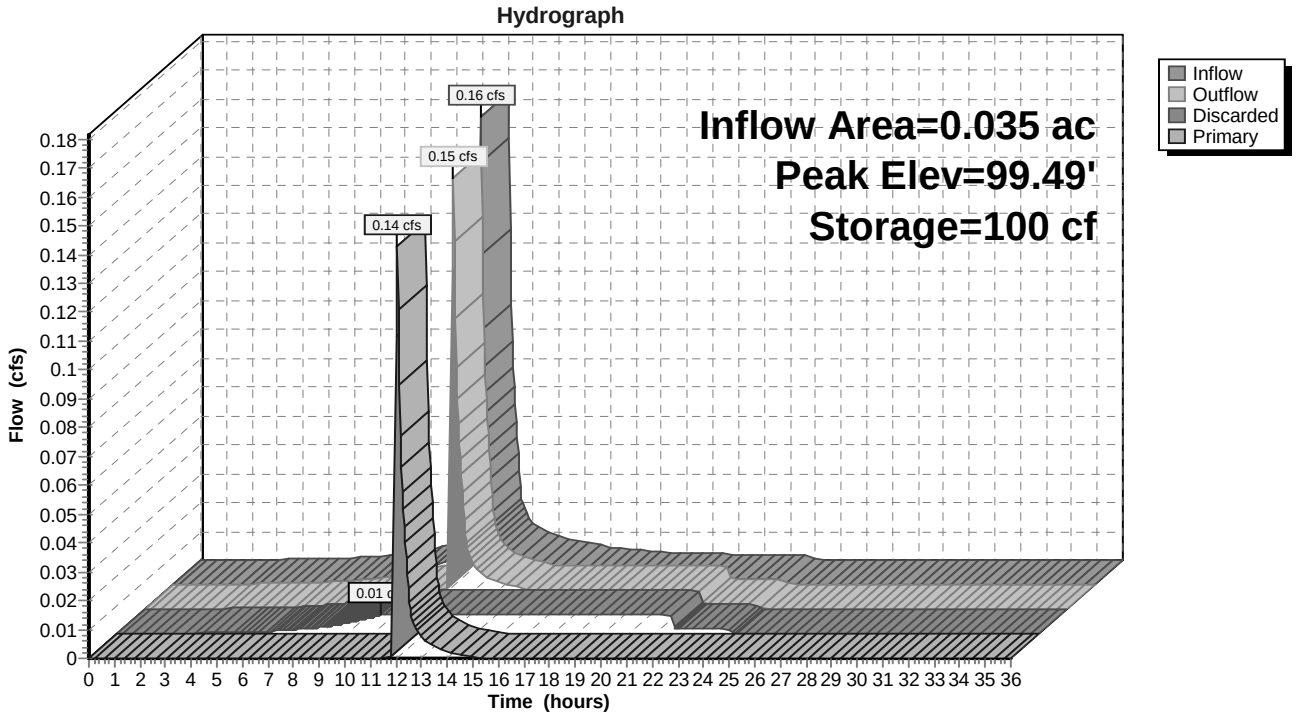
192.7 cf Field - 42.8 cf Chambers = 149.9 cf Stone x 40.0% Voids = 60.0 cf Stone Storage

Chamber Storage + Stone Storage = 102.8 cf = 0.002 af
Overall Storage Efficiency = 53.3%
Overall System Size = 25.00' x 5.00' x 1.54'

3 Chambers
7.1 cy Field
5.6 cy Stone



Pond Det 2: Detention Basin # 2 & 3 - North Side



Summary for Pond Det 3: Detention Basin # 4 & 5 - South Side

Inflow Area =	0.035 ac, 64.66% Impervious, Inflow Depth = 4.02" for 10 year storm event event				
Inflow =	0.16 cfs @	12.01 hrs,	Volume=	0.012 af	
Outflow =	0.10 cfs @	12.12 hrs,	Volume=	0.012 af,	Atten= 42%, Lag= 6.8 min
Discarded =	0.01 cfs @	10.72 hrs,	Volume=	0.008 af	
Primary =	0.09 cfs @	12.12 hrs,	Volume=	0.003 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 92.93' @ 12.12 hrs Surf.Area= 163 sf Storage= 119 cf

Plug-Flow detention time= 58.0 min calculated for 0.012 af (100% of inflow)
Center-of-Mass det. time= 58.0 min (834.5 - 776.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.60'	77 cf	**5.00'W x 32.50'L x 1.54'H Field A** 251 cf Overall - 57 cf Embedded = 194 cf x 40.0% Voids
#2A	92.10'	57 cf	**Cultec C-100HD** x 4 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 1 rows
		134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	92.55'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	93.00'	**4.0" Vert. Orifice/Grate**	C= 0.600
#3	Discarded	91.60'	**2.250 in/hr Exfiltration over Surface area**	

Discarded OutFlow Max=0.01 cfs @ 10.72 hrs HW=91.62' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.09 cfs @ 12.12 hrs HW=92.93' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.09 cfs @ 2.54 fps)
└─**2=Orifice/Grate** (Controls 0.00 cfs)

Pond Det 3: Detention Basin # 4 & 5 - South Side - 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 1 rows

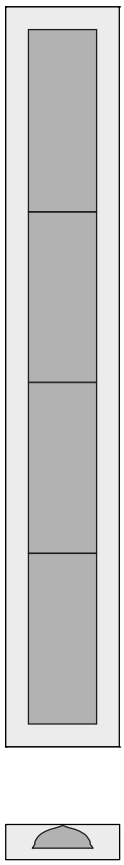
4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

4 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 56.8 cf Chamber Storage

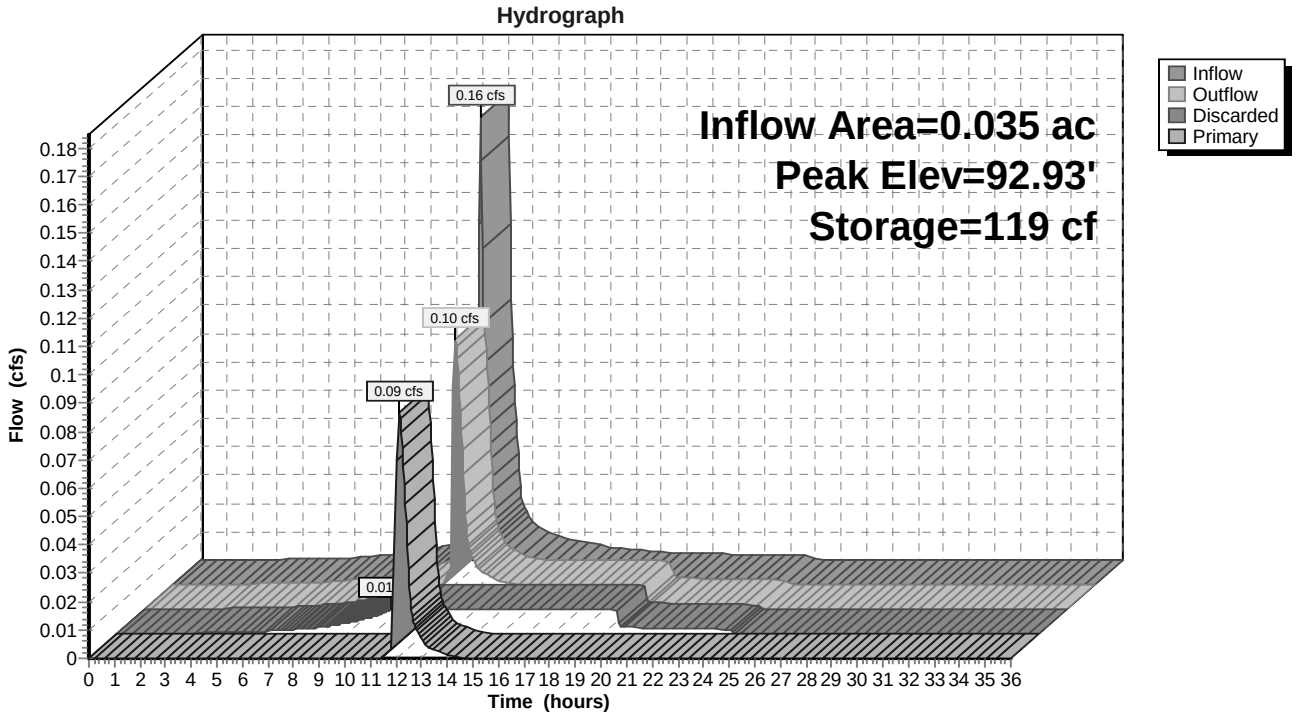
250.5 cf Field - 56.8 cf Chambers = 193.7 cf Stone x 40.0% Voids = 77.5 cf Stone Storage

Chamber Storage + Stone Storage = 134.3 cf = 0.003 af
Overall Storage Efficiency = 53.6%
Overall System Size = 32.50' x 5.00' x 1.54'

4 Chambers
9.3 cy Field
7.2 cy Stone



Pond Det 3: Detention Basin # 4 & 5 - South Side



Summary for Pond Det 6: Detention Basin # 6

Inflow Area = 0.001 ac,100.00% Impervious, Inflow Depth = 4.76" for 10 year storm event event
Inflow = 0.01 cfs @ 12.07 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 12.38 hrs, Volume= 0.000 af, Atten= 48%, Lag= 18.3 min
Primary = 0.00 cfs @ 12.38 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 12.36 hrs Surf.Area= 48 sf Storage= 12 cf

Plug-Flow detention time= 276.6 min calculated for 0.000 af (72% of inflow)
Center-of-Mass det. time= 185.3 min (932.4 - 747.1)

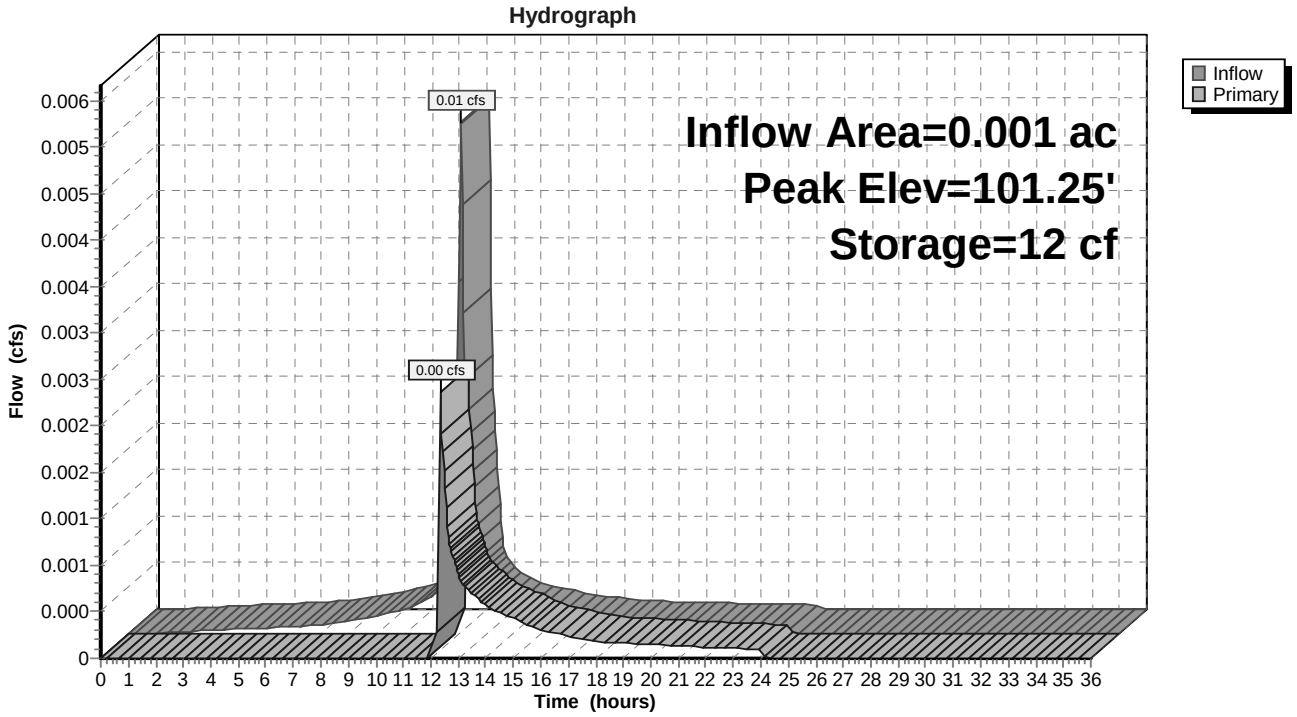
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	12 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	48	12	12

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**6.0' 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=0.00 cfs @ 12.38 hrs HW=101.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.13 fps)

Pond Det 6: Detention Basin # 6

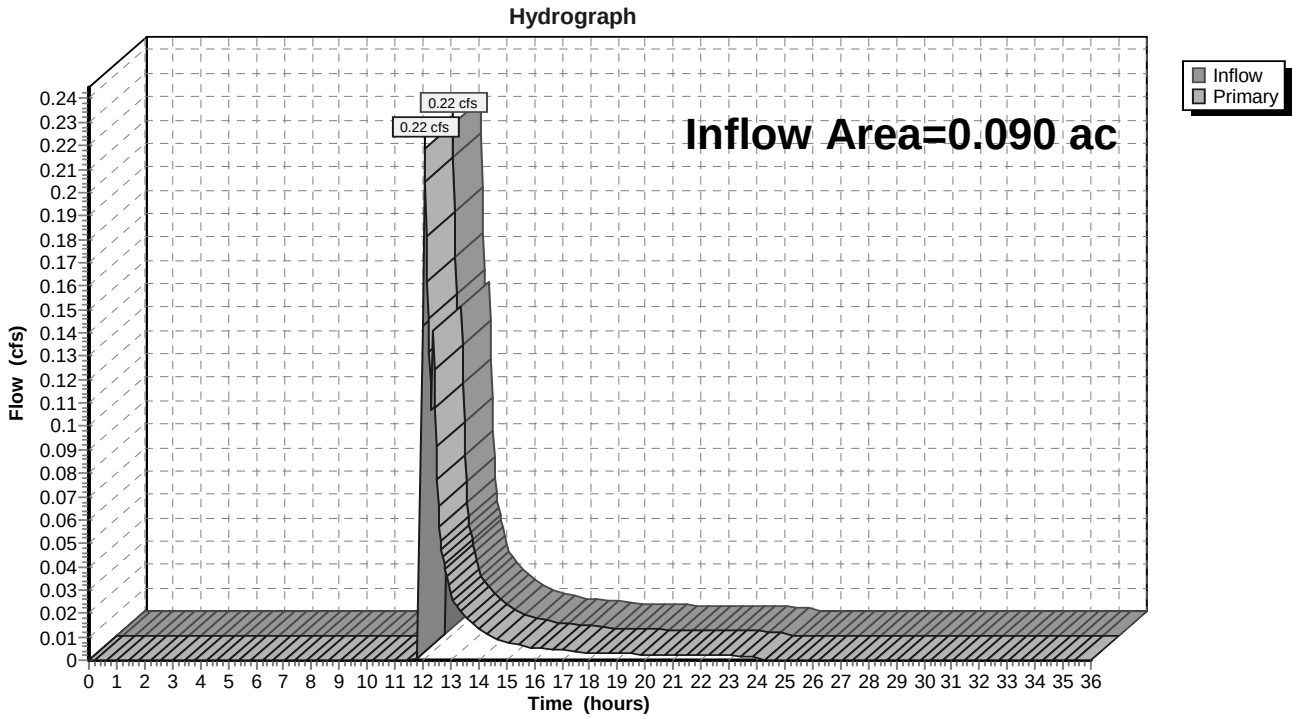


Summary for Link 1L: Design Point Easterly Property Line

Inflow Area = 0.090 ac, 72.04% Impervious, Inflow Depth = 1.74" for 10 year storm event event
Inflow = 0.22 cfs @ 12.06 hrs, Volume= 0.013 af
Primary = 0.22 cfs @ 12.06 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link 1L: Design Point Easterly Property Line



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Post 1: Post Development - Runoff Area=800 sf 100.00% Impervious Runoff Depth=5.46"
Tc=5.0 min CN=98 Runoff=0.10 cfs 0.008 af

Subcatchment Post 2: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=4.45"
Tc=0.0 min CN=89 Runoff=0.16 cfs 0.010 af

Subcatchment Post 3: Post Development - Runoff Area=351 sf 100.00% Impervious Runoff Depth=5.46"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment Post 4: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=4.45"
Tc=0.0 min CN=89 Runoff=0.16 cfs 0.010 af

Subcatchment Post 5: Post Development - Runoff Area=384 sf 100.00% Impervious Runoff Depth=5.46"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment Post 6: Post Development - Runoff Area=48 sf 100.00% Impervious Runoff Depth=5.46"
Tc=5.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment Pre 1: Pre Development - Sub Runoff Area=3,813 sf 0.00% Impervious Runoff Depth=3.41"
Tc=5.0 min CN=79 Runoff=0.36 cfs 0.025 af

Pond Det 1: Detention Basin # 1 Peak Elev=101.26' Storage=200 cf Inflow=0.10 cfs 0.008 af
Outflow=0.03 cfs 0.000 af

Pond Det 2: Detention Basin # 2 & 3 - North Peak Elev=99.52' Storage=102 cf Inflow=0.19 cfs 0.014 af
Discarded=0.01 cfs 0.008 af Primary=0.17 cfs 0.005 af Outflow=0.18 cfs 0.014 af

Pond Det 3: Detention Basin # 4 & 5 - South Peak Elev=93.09' Storage=131 cf Inflow=0.19 cfs 0.014 af
Discarded=0.01 cfs 0.009 af Primary=0.13 cfs 0.005 af Outflow=0.13 cfs 0.014 af

Pond Det 6: Detention Basin # 6 Peak Elev=101.25' Storage=12 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Link 1L: Design Point Easterly Property Line Inflow=0.27 cfs 0.010 af
Primary=0.27 cfs 0.010 af

Total Runoff Area = 0.177 ac Runoff Volume = 0.061 af Average Runoff Depth = 4.14"
63.55% Pervious = 0.113 ac 36.45% Impervious = 0.065 ac

Summary for Subcatchment Post 1: Post Development - Sub Catchment # 1

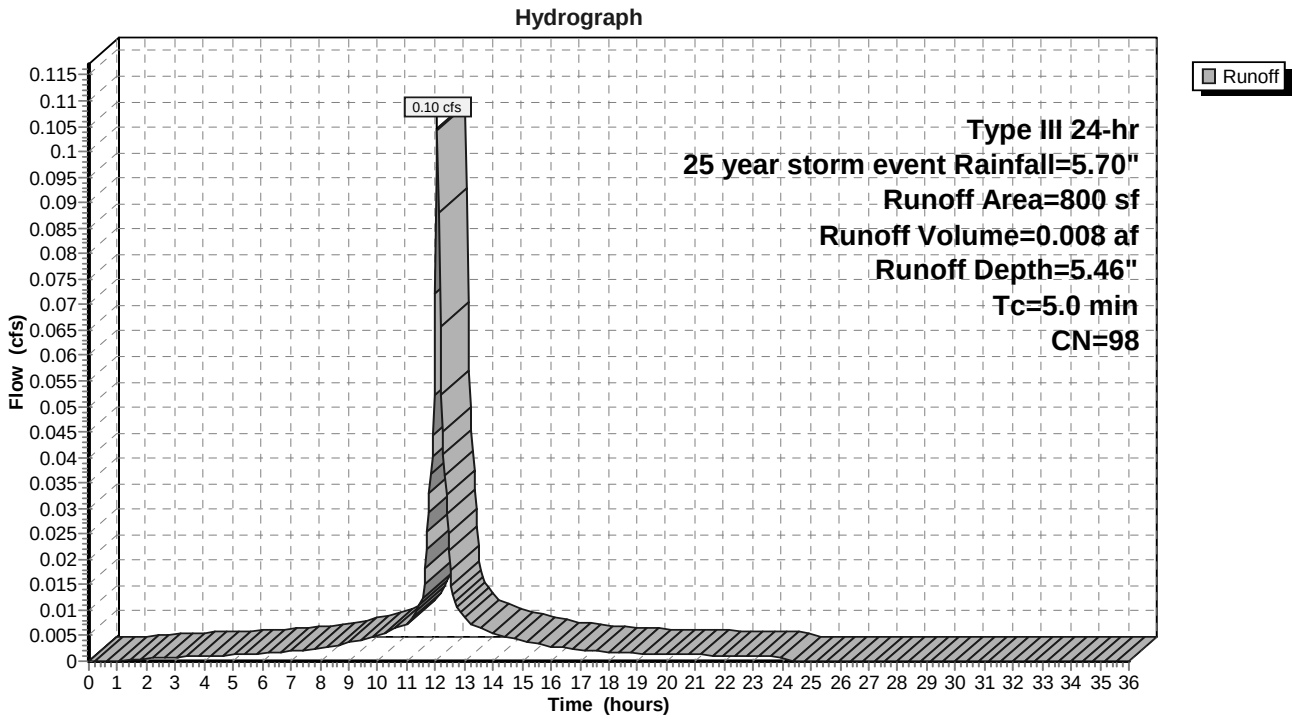
Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	800	98	Pool
	800		100.00% Impervious Area

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

Subcatchment Post 1: Post Development - Sub Catchment # 1



Summary for Subcatchment Post 2: Post Development - Sub Catchment # 2

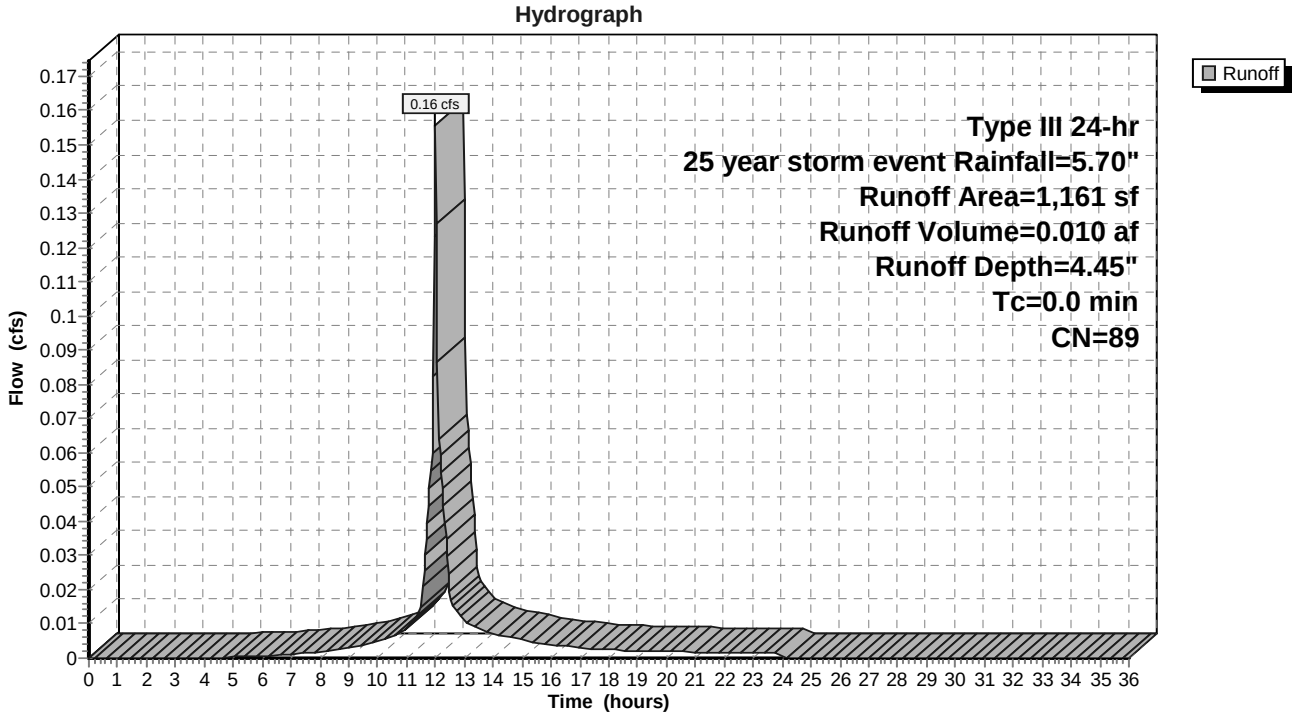
Runoff = 0.16 cfs @ 12.00 hrs, Volume= 0.010 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 2: Post Development - Sub Catchment # 2



Summary for Subcatchment Post 3: Post Development - Sub Catchmemt # 3

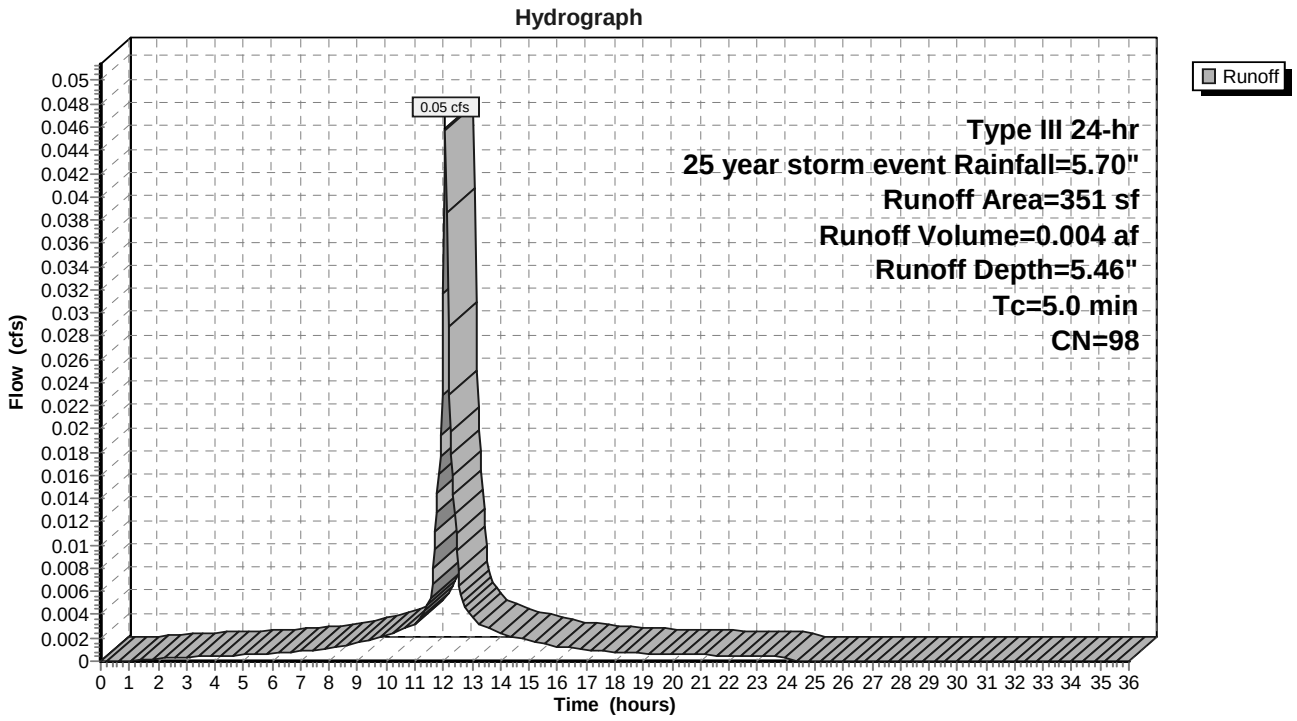
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	351	98	North terrace
	351		100.00% Impervious Area

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

Subcatchment Post 3: Post Development - Sub Catchmemt # 3



Summary for Subcatchment Post 4: Post Development - Sub Catchment # 4

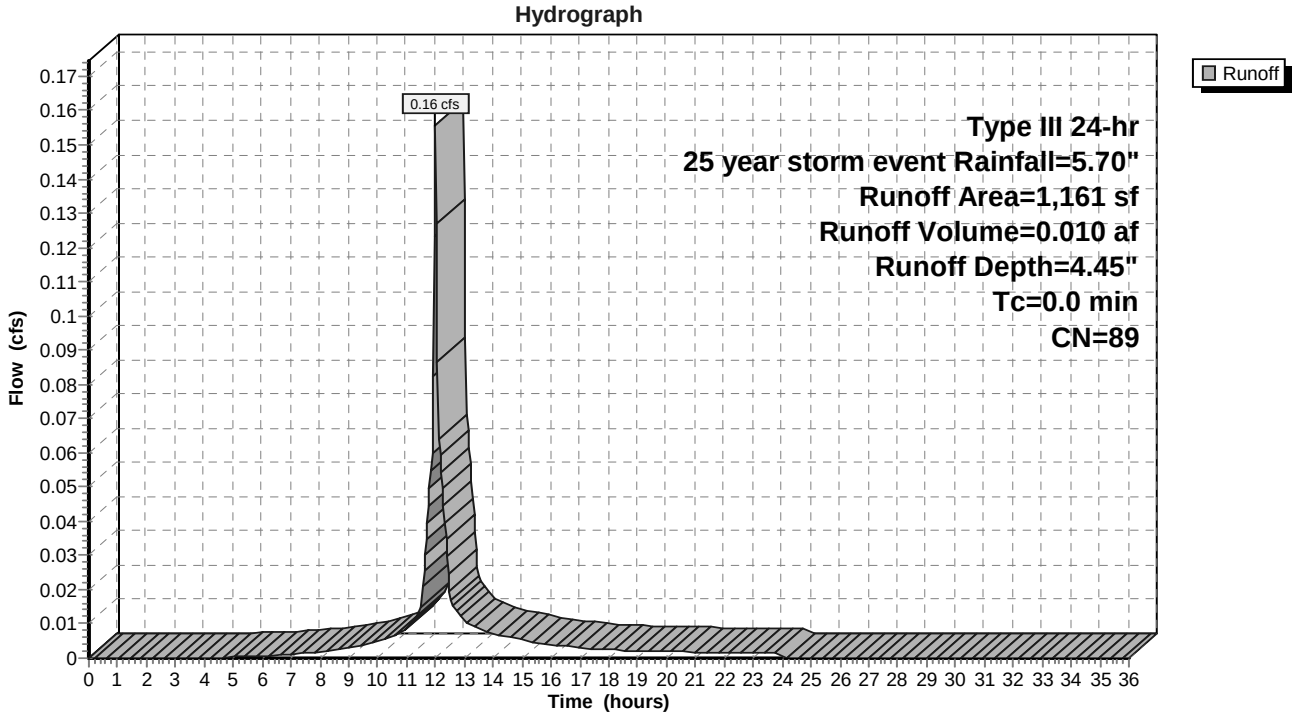
Runoff = 0.16 cfs @ 12.00 hrs, Volume= 0.010 af, Depth= 4.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 4: Post Development - Sub Catchment # 4



Summary for Subcatchment Post 5: Post Development - Sub Catchmemt # 5

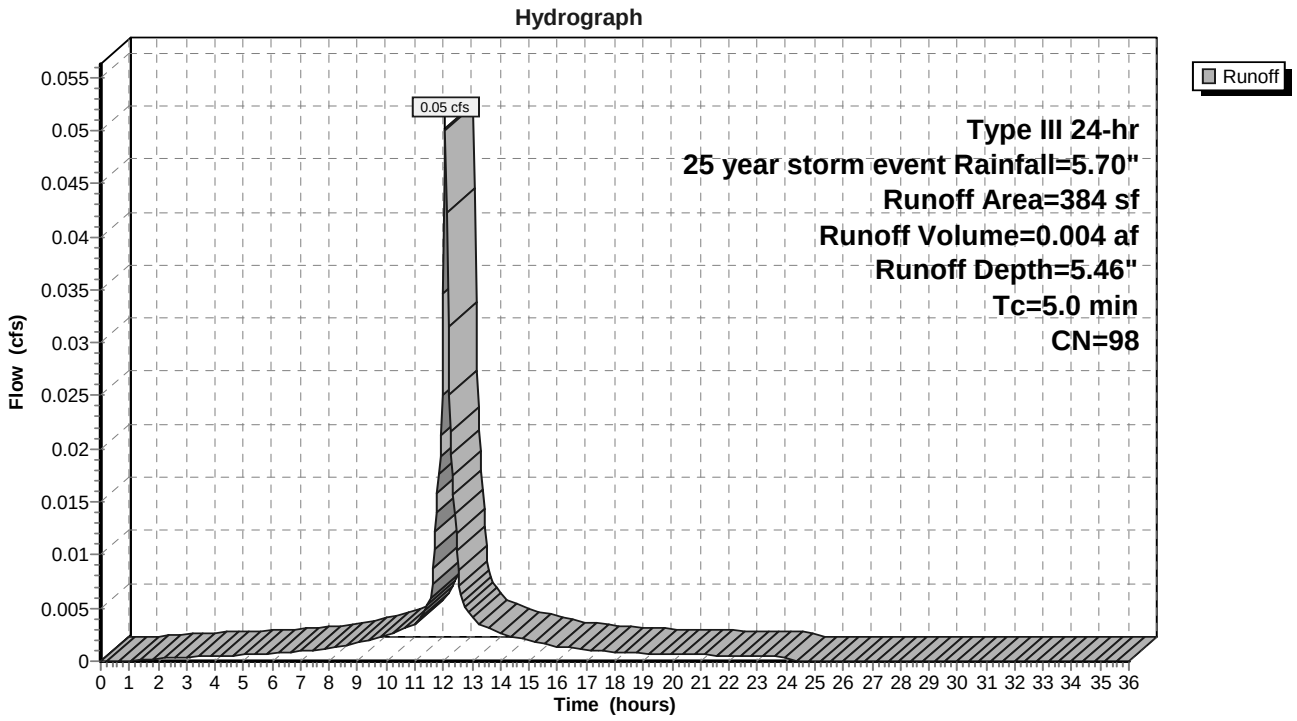
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	384	98	North terrace
	384		100.00% Impervious Area

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

Subcatchment Post 5: Post Development - Sub Catchmemt # 5



Summary for Subcatchment Post 6: Post Development - Sub Catchment # 6

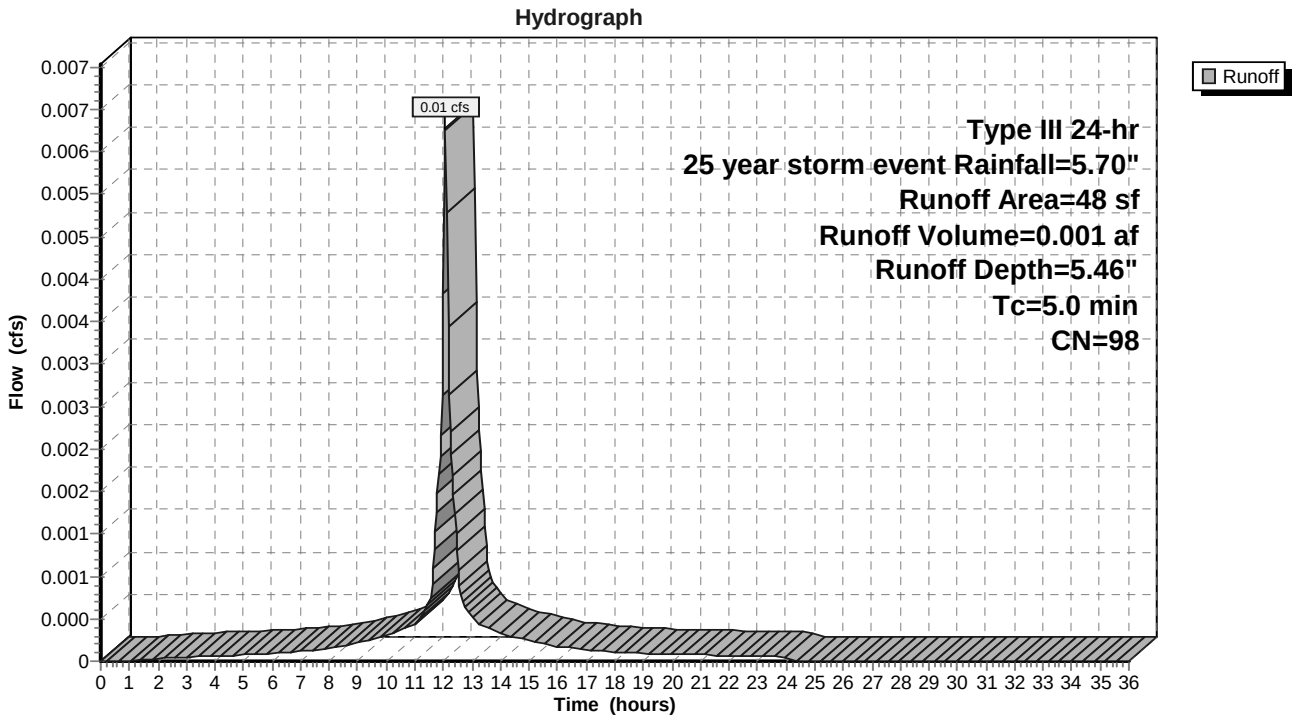
Runoff = 0.01 cfs @ 12.07 hrs, Volume= 0.001 af, Depth= 5.46"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

	Area (sf)	CN	Description
*	48	98	Pool
	48		100.00% Impervious Area

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

Subcatchment Post 6: Post Development - Sub Catchment # 6



Summary for Subcatchment Pre 1: Pre Development - Sub Catchment # 1

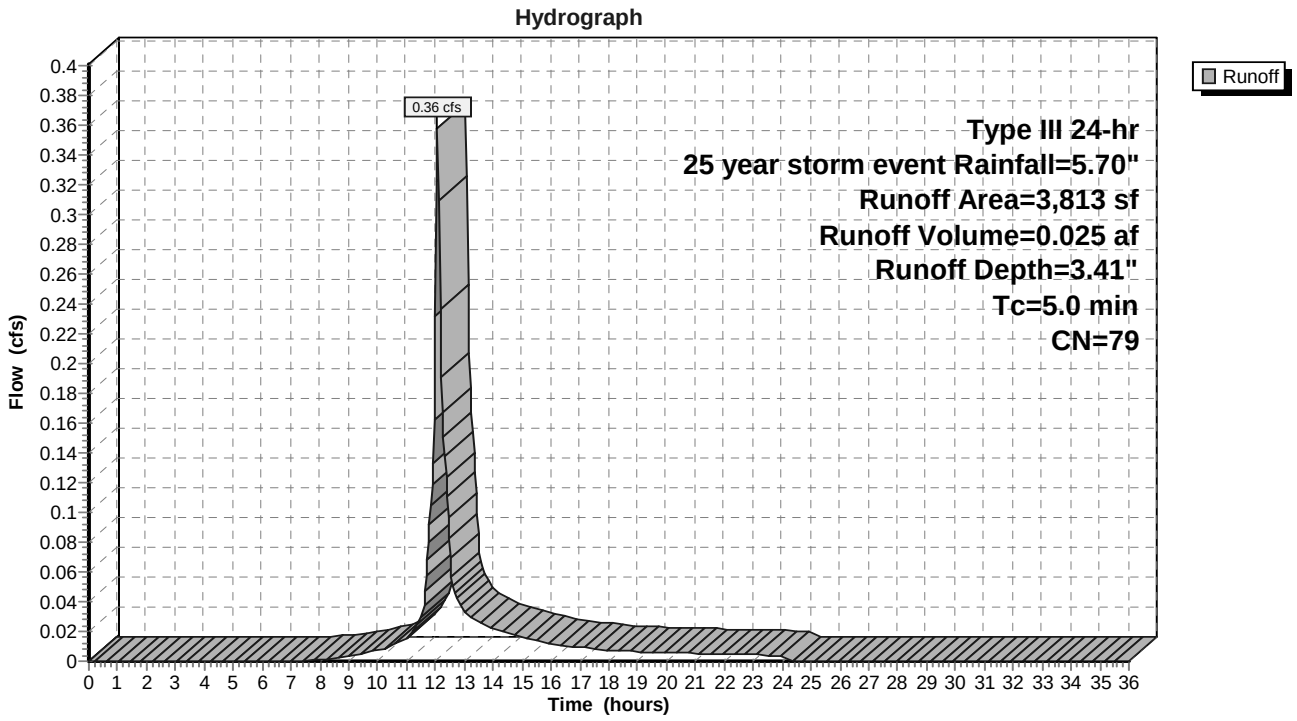
Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 3.41"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 25 year storm event Rainfall=5.70"

Area (sf)	CN	Description
3,813	79	50-75% Grass cover, Fair, HSG C
3,813		100.00% Pervious Area

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

Subcatchment Pre 1: Pre Development - Sub Catchment # 1



Summary for Pond Det 1: Detention Basin # 1

Inflow Area = 0.018 ac,100.00% Impervious, Inflow Depth = 5.46" for 25 year storm event event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.03 cfs @ 12.17 hrs, Volume= 0.000 af, Atten= 74%, Lag= 5.6 min
Primary = 0.03 cfs @ 12.17 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.26' @ 12.18 hrs Surf.Area= 800 sf Storage= 200 cf

Plug-Flow detention time= 556.3 min calculated for 0.000 af (2% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

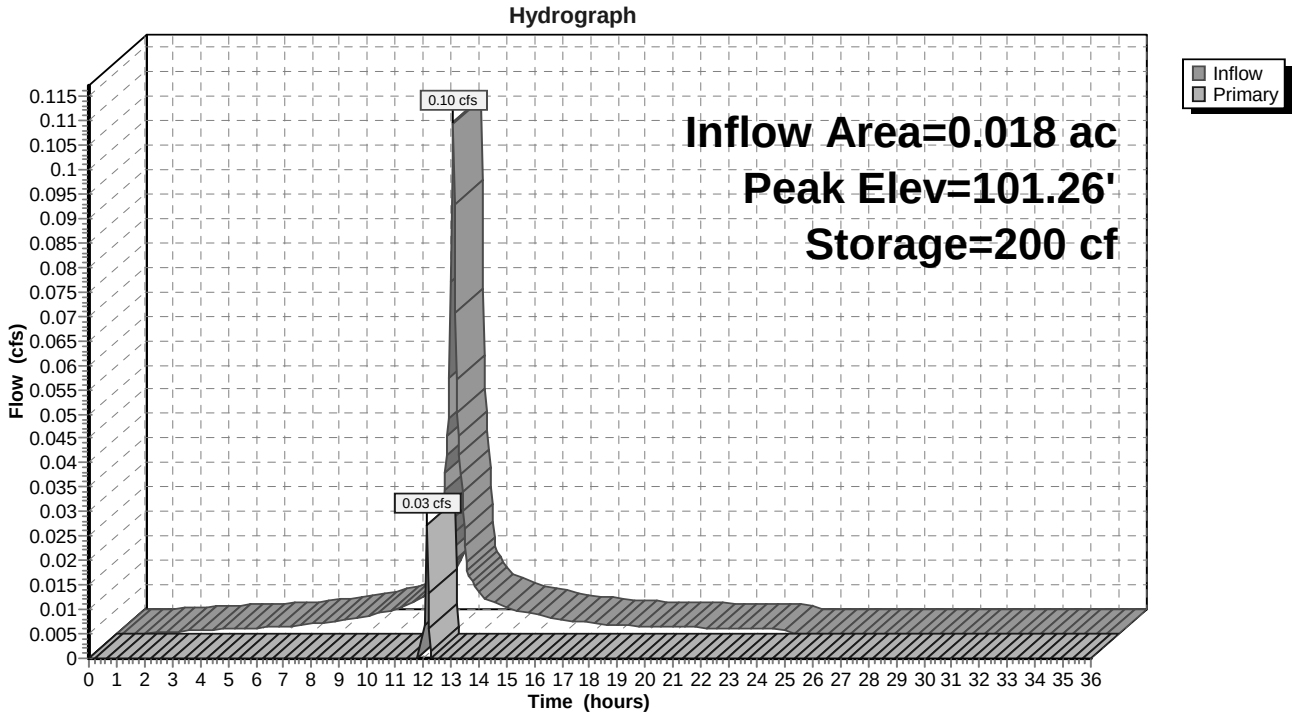
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	800	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**20.0' long x 1.5' 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) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32

Primary OutFlow Max=0.02 cfs @ 12.17 hrs HW=101.26' (Free Discharge)
└─**1=Broad-Crested Rectangular Weir** (Weir Controls 0.02 cfs @ 0.20 fps)

Pond Det 1: Detention Basin # 1



Summary for Pond Det 2: Detention Basin # 2 & 3 - North Side

Inflow Area =	0.035 ac,	63.89% Impervious,	Inflow Depth =	4.68"	for 25 year storm event event
Inflow =	0.19 cfs @	12.01 hrs,	Volume=	0.014 af	
Outflow =	0.18 cfs @	12.03 hrs,	Volume=	0.014 af,	Atten= 6%, Lag= 1.1 min
Discarded =	0.01 cfs @	9.84 hrs,	Volume=	0.008 af	
Primary =	0.17 cfs @	12.03 hrs,	Volume=	0.005 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 99.52' @ 12.03 hrs Surf.Area= 125 sf Storage= 102 cf

Plug-Flow detention time= 69.6 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 69.5 min (843.2 - 773.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	98.00'	60 cf	**5.00'W x 25.00'L x 1.54'H Field A** 193 cf Overall - 43 cf Embedded = 150 cf x 40.0% Voids
#2A	98.50'	43 cf	**Cultec C-100HD** x 3 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 1 rows
		103 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	99.20'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	99.30'	**4.0" Vert. Orifice/Grate**	C= 0.600
#3	Discarded	98.00'	**2.250 in/hr Exfiltration over Surface area**	

Discarded OutFlow Max=0.01 cfs @ 9.84 hrs HW=98.02' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.17 cfs @ 12.03 hrs HW=99.51' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.07 cfs @ 2.20 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 1.57 fps)

Pond Det 2: Detention Basin # 2 & 3 - North Side - 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 1 rows

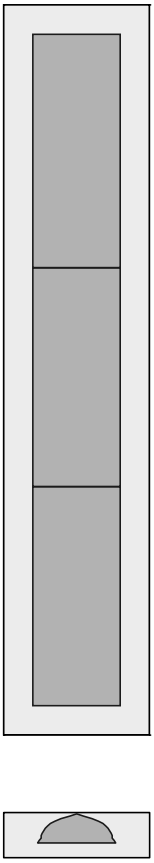
3 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 23.00' Row Length +12.0" End Stone x 2 = 25.00' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

3 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 42.8 cf Chamber Storage

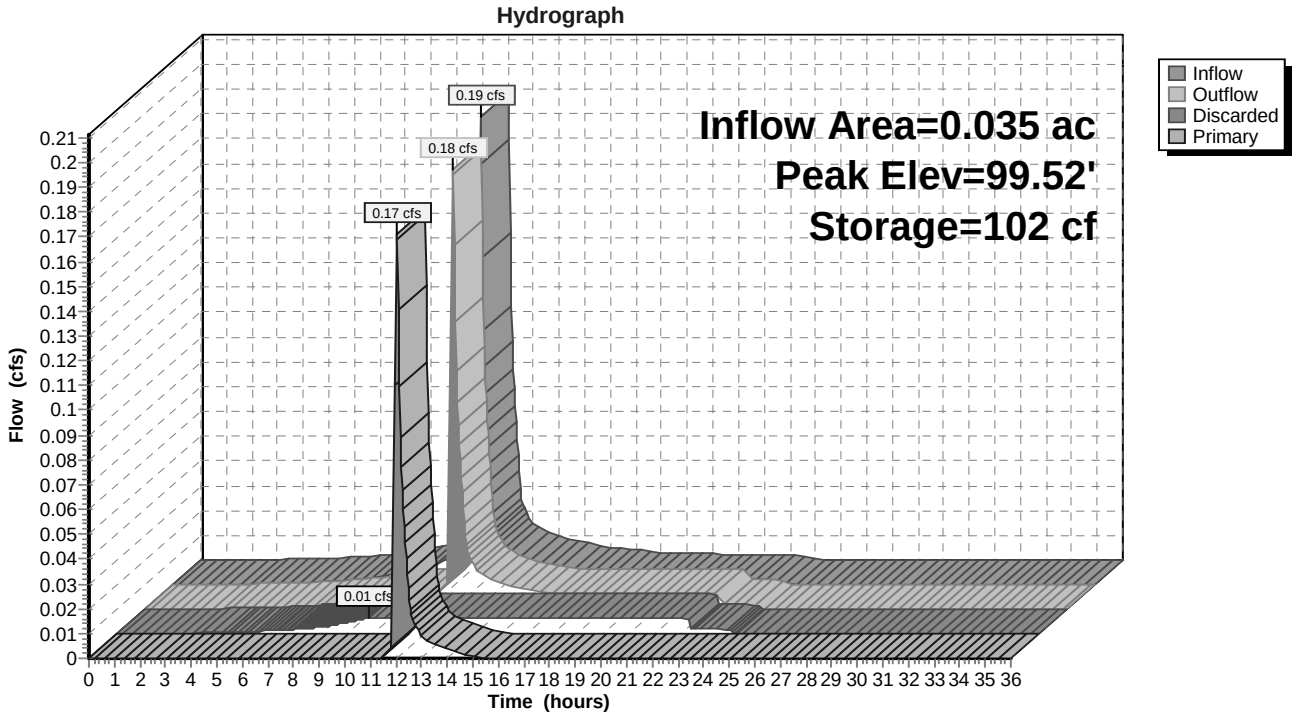
192.7 cf Field - 42.8 cf Chambers = 149.9 cf Stone x 40.0% Voids = 60.0 cf Stone Storage

Chamber Storage + Stone Storage = 102.8 cf = 0.002 af
Overall Storage Efficiency = 53.3%
Overall System Size = 25.00' x 5.00' x 1.54'

3 Chambers
7.1 cy Field
5.6 cy Stone



Pond Det 2: Detention Basin # 2 & 3 - North Side



Summary for Pond Det 3: Detention Basin # 4 & 5 - South Side

Inflow Area =	0.035 ac, 64.66% Impervious, Inflow Depth = 4.70" for 25 year storm event event				
Inflow =	0.19 cfs @	12.01 hrs,	Volume=	0.014 af	
Outflow =	0.13 cfs @	12.09 hrs,	Volume=	0.014 af,	Atten= 30%, Lag= 4.9 min
Discarded =	0.01 cfs @	10.36 hrs,	Volume=	0.009 af	
Primary =	0.13 cfs @	12.09 hrs,	Volume=	0.005 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 93.09' @ 12.09 hrs Surf.Area= 163 sf Storage= 131 cf

Plug-Flow detention time= 55.4 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 55.3 min (828.3 - 773.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.60'	77 cf	**5.00'W x 32.50'L x 1.54'H Field A** 251 cf Overall - 57 cf Embedded = 194 cf x 40.0% Voids
#2A	92.10'	57 cf	**Cultec C-100HD** x 4 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 1 rows
		134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	92.55'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	93.00'	**4.0" Vert. Orifice/Grate**	C= 0.600
#3	Discarded	91.60'	**2.250 in/hr Exfiltration over Surface area**	

Discarded OutFlow Max=0.01 cfs @ 10.36 hrs HW=91.62' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.12 cfs @ 12.09 hrs HW=93.08' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.11 cfs @ 3.14 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.97 fps)

Pond Det 3: Detention Basin # 4 & 5 - South Side - 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 1 rows

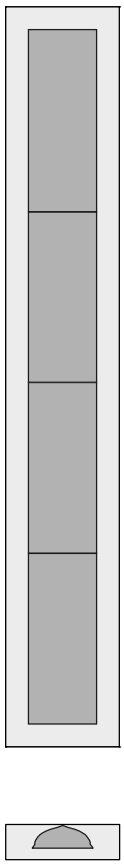
4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

4 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 56.8 cf Chamber Storage

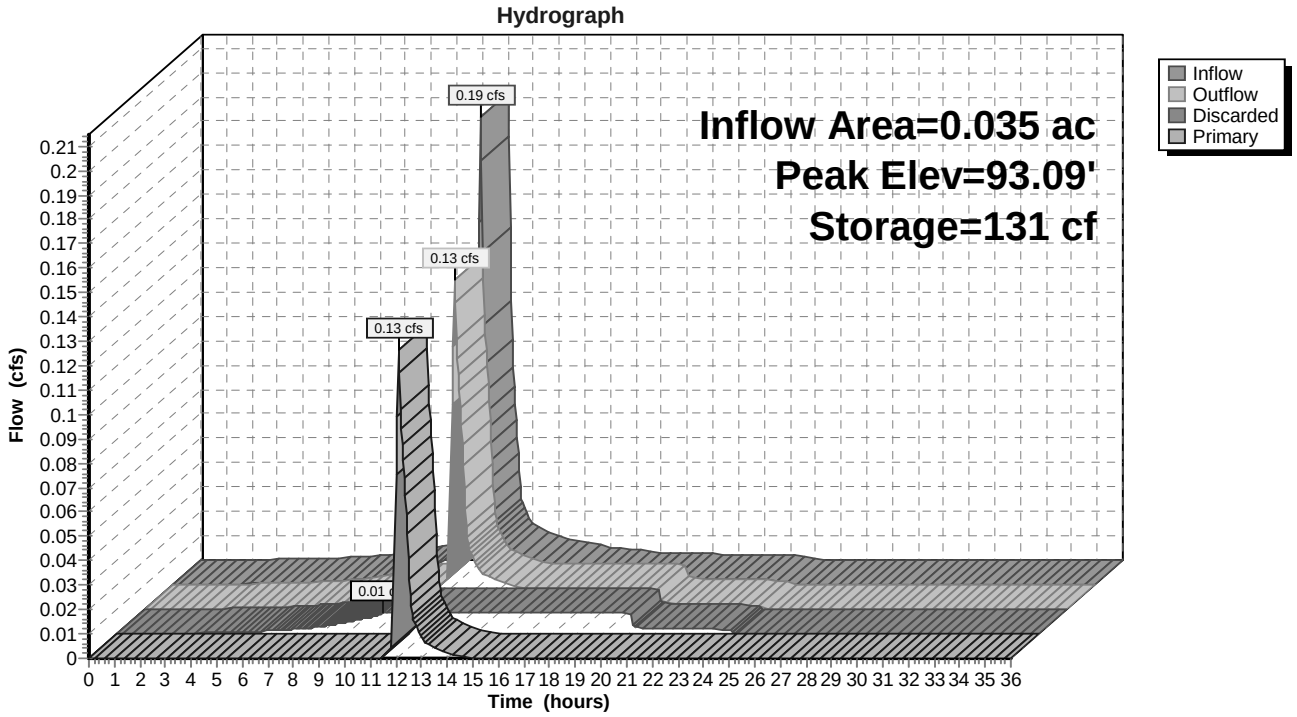
250.5 cf Field - 56.8 cf Chambers = 193.7 cf Stone x 40.0% Voids = 77.5 cf Stone Storage

Chamber Storage + Stone Storage = 134.3 cf = 0.003 af
Overall Storage Efficiency = 53.6%
Overall System Size = 32.50' x 5.00' x 1.54'

4 Chambers
9.3 cy Field
7.2 cy Stone



Pond Det 3: Detention Basin # 4 & 5 - South Side



Summary for Pond Det 6: Detention Basin # 6

Inflow Area = 0.001 ac,100.00% Impervious, Inflow Depth = 5.46" for 25 year storm event event
Inflow = 0.01 cfs @ 12.07 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 12.17 hrs, Volume= 0.000 af, Atten= 74%, Lag= 5.6 min
Primary = 0.00 cfs @ 12.17 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 12.16 hrs Surf.Area= 48 sf Storage= 12 cf

Plug-Flow detention time= 556.3 min calculated for 0.000 af (2% of inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

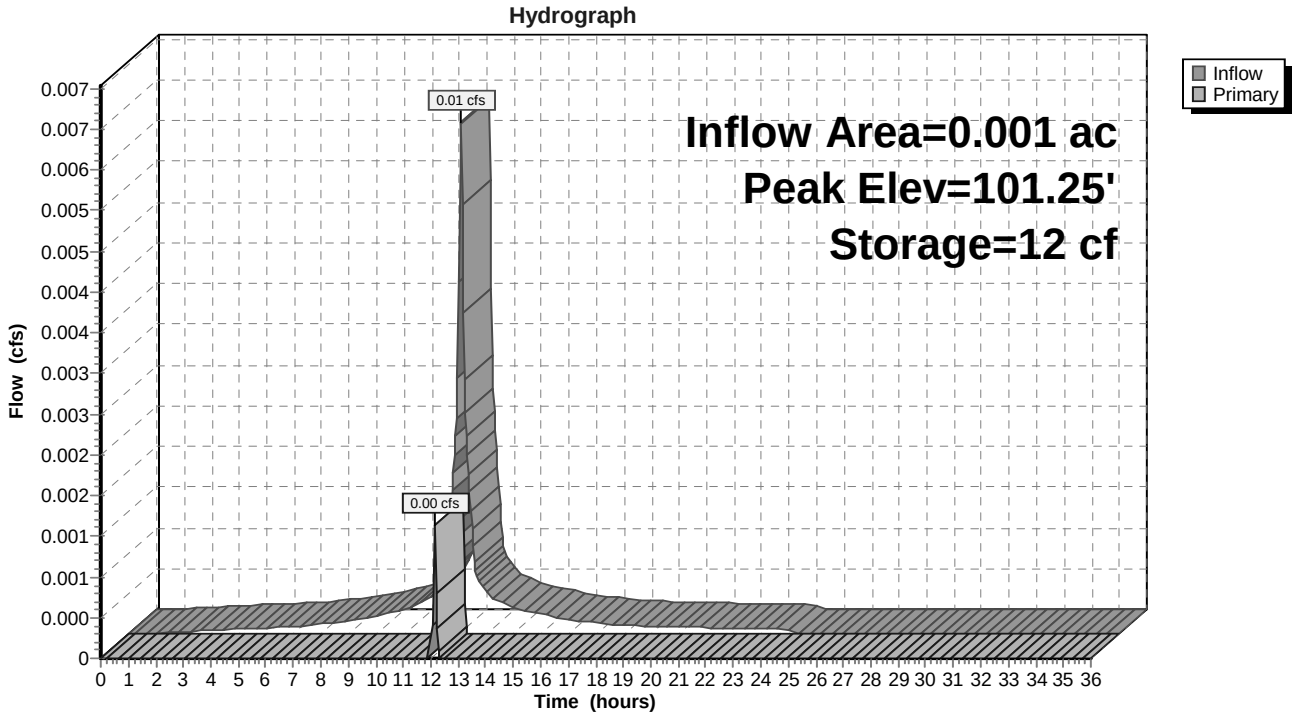
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	12 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	48	12	12

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**6.0' 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=0.00 cfs @ 12.17 hrs HW=101.25' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 0.00 cfs @ 0.10 fps)

Pond Det 6: Detention Basin # 6

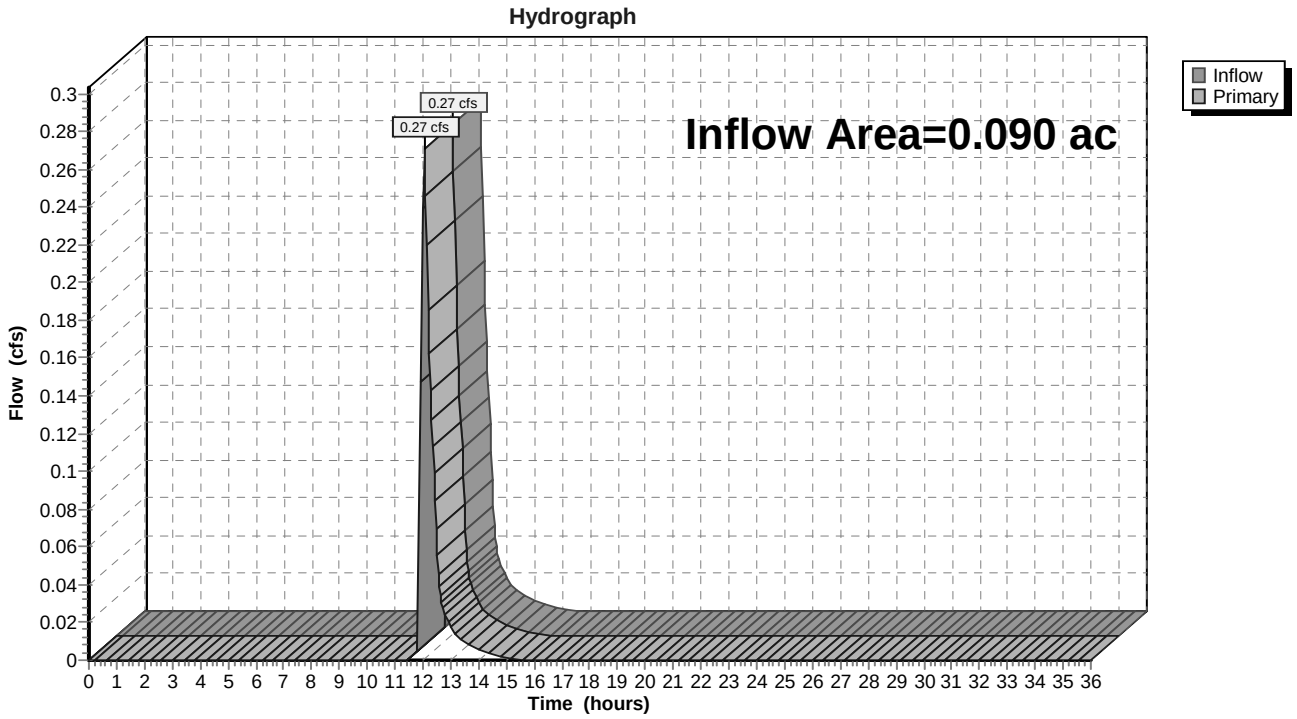


Summary for Link 1L: Design Point Easterly Property Line

Inflow Area = 0.090 ac, 72.04% Impervious, Inflow Depth = 1.38" for 25 year storm event event
Inflow = 0.27 cfs @ 12.06 hrs, Volume= 0.010 af
Primary = 0.27 cfs @ 12.06 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link 1L: Design Point Easterly Property Line



Time span=0.00-36.00 hrs, dt=0.04 hrs, 901 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment Post 1: Post Development - Runoff Area=800 sf 100.00% Impervious Runoff Depth=6.16"
Tc=5.0 min CN=98 Runoff=0.12 cfs 0.009 af

Subcatchment Post 2: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=5.12"
Tc=0.0 min CN=89 Runoff=0.18 cfs 0.011 af

Subcatchment Post 3: Post Development - Runoff Area=351 sf 100.00% Impervious Runoff Depth=6.16"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment Post 4: Post Development - Runoff Area=1,161 sf 52.97% Impervious Runoff Depth=5.12"
Tc=0.0 min CN=89 Runoff=0.18 cfs 0.011 af

Subcatchment Post 5: Post Development - Runoff Area=384 sf 100.00% Impervious Runoff Depth=6.16"
Tc=5.0 min CN=98 Runoff=0.06 cfs 0.005 af

Subcatchment Post 6: Post Development - Runoff Area=48 sf 100.00% Impervious Runoff Depth=6.16"
Tc=5.0 min CN=98 Runoff=0.01 cfs 0.001 af

Subcatchment Pre 1: Pre Development - Sub Runoff Area=3,813 sf 0.00% Impervious Runoff Depth=4.04"
Tc=5.0 min CN=79 Runoff=0.42 cfs 0.029 af

Pond Det 1: Detention Basin # 1 Peak Elev=101.25' Storage=200 cf Inflow=0.12 cfs 0.009 af
Outflow=0.00 cfs 0.000 af

Pond Det 2: Detention Basin # 2 & 3 - North Peak Elev=99.54' Storage=103 cf Inflow=0.21 cfs 0.016 af
Discarded=0.01 cfs 0.009 af Primary=0.19 cfs 0.007 af Outflow=0.20 cfs 0.015 af

Pond Det 3: Detention Basin # 4 & 5 - South Peak Elev=93.18' Storage=134 cf Inflow=0.22 cfs 0.016 af
Discarded=0.01 cfs 0.010 af Primary=0.18 cfs 0.006 af Outflow=0.19 cfs 0.016 af

Pond Det 6: Detention Basin # 6 Peak Elev=101.25' Storage=12 cf Inflow=0.01 cfs 0.001 af
Outflow=0.00 cfs 0.000 af

Link 1L: Design Point Easterly Property Line Inflow=0.37 cfs 0.013 af
Primary=0.37 cfs 0.013 af

Total Runoff Area = 0.177 ac Runoff Volume = 0.071 af Average Runoff Depth = 4.80"
63.55% Pervious = 0.113 ac 36.45% Impervious = 0.065 ac

Summary for Subcatchment Post 1: Post Development - Sub Catchment # 1

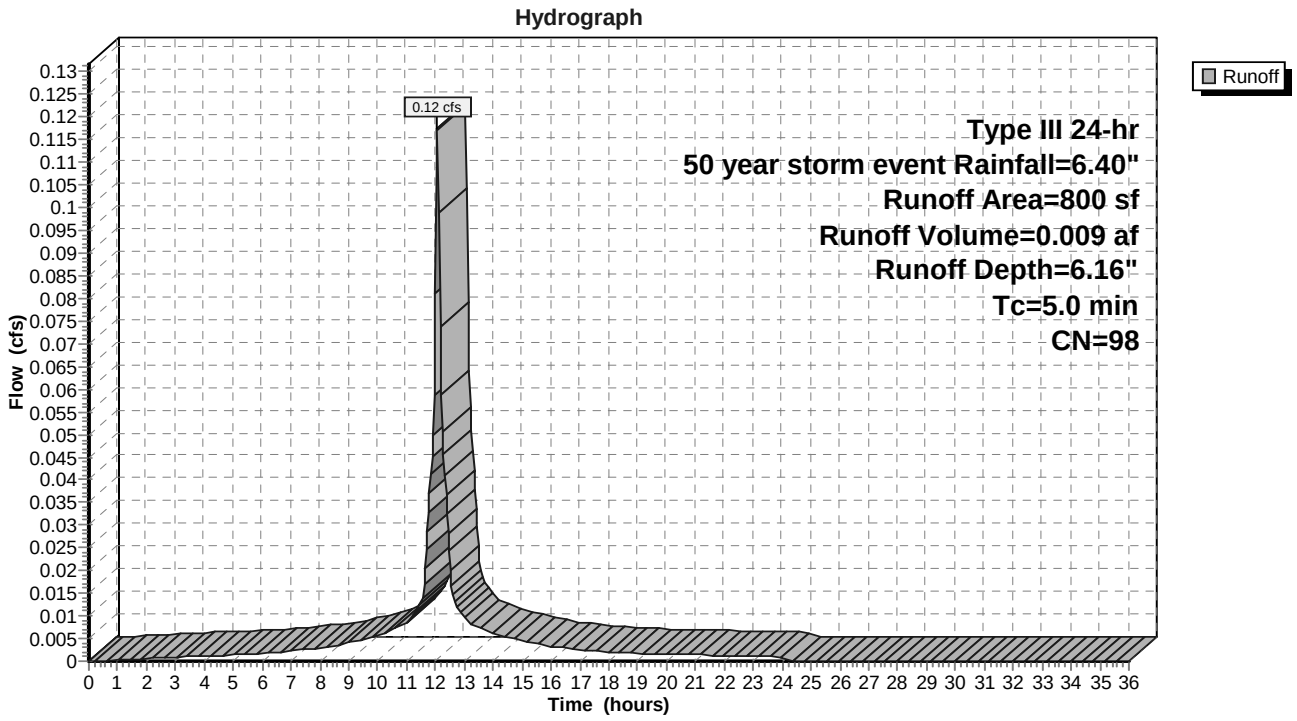
Runoff = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	800	98	Pool
	800		100.00% Impervious Area

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

Subcatchment Post 1: Post Development - Sub Catchment # 1



Summary for Subcatchment Post 2: Post Development - Sub Catchment # 2

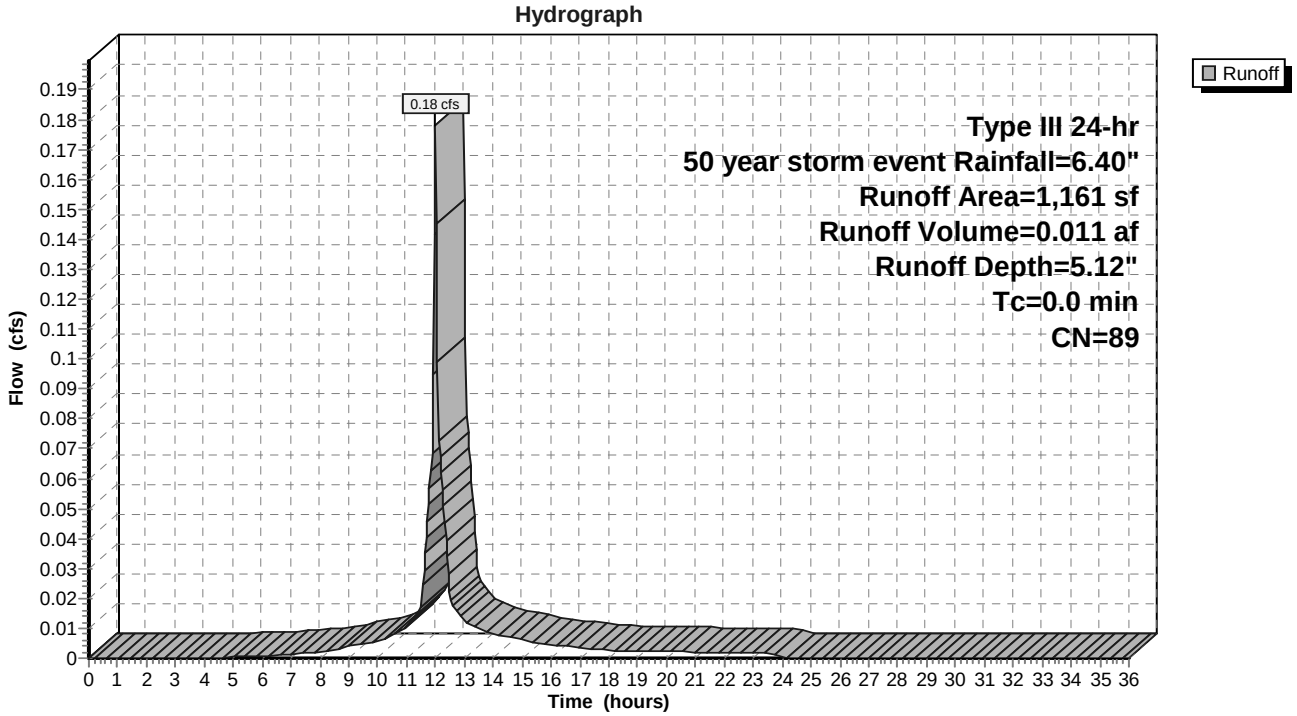
Runoff = 0.18 cfs @ 12.00 hrs, Volume= 0.011 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 2: Post Development - Sub Catchment # 2



Summary for Subcatchment Post 3: Post Development - Sub Catchmemt # 3

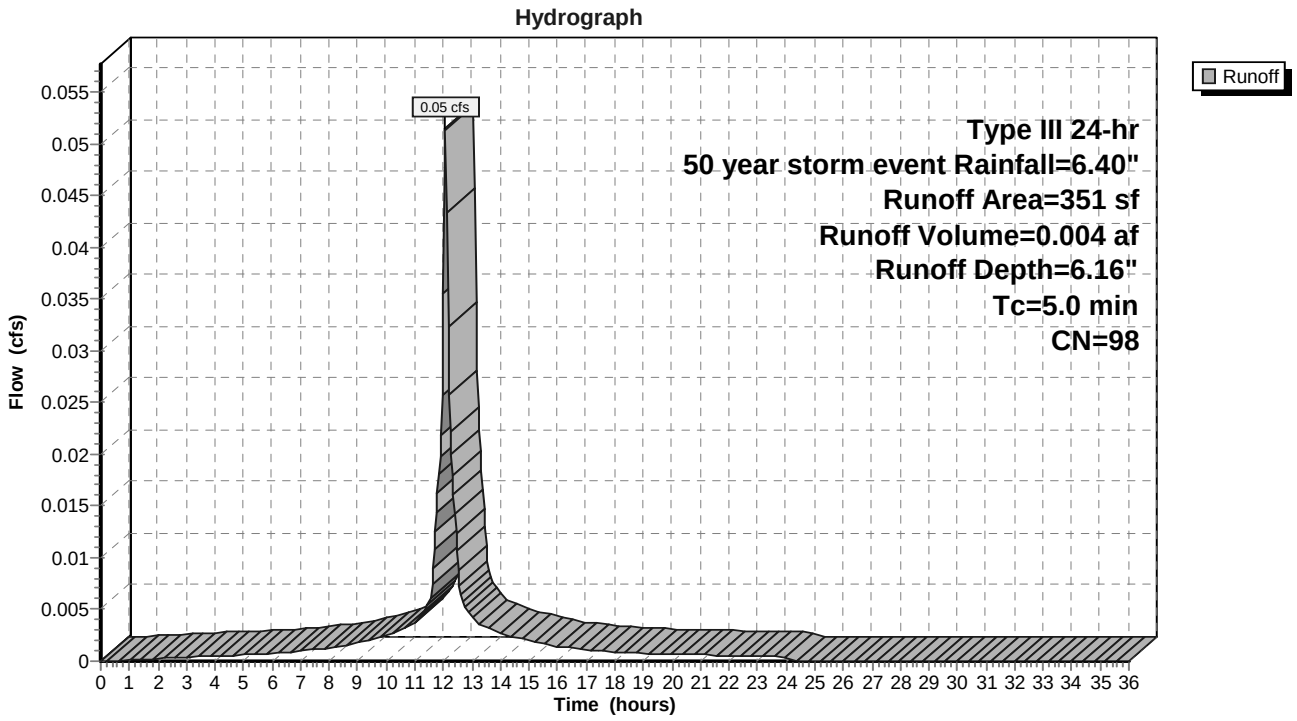
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	351	98	North terrace
	351		100.00% Impervious Area

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

Subcatchment Post 3: Post Development - Sub Catchmemt # 3



Summary for Subcatchment Post 4: Post Development - Sub Catchment # 4

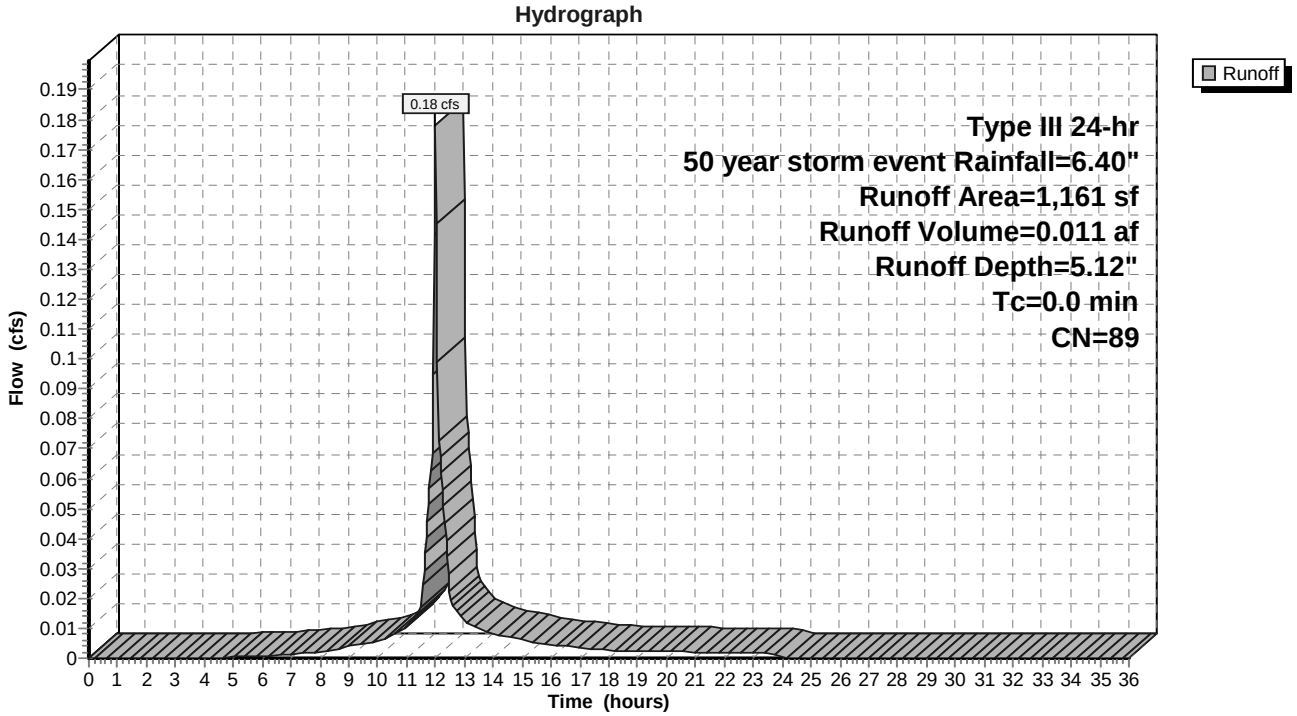
Runoff = 0.18 cfs @ 12.00 hrs, Volume= 0.011 af, Depth= 5.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	525	98	half pool house roof
*	90	98	half terrace in front of pool house
	546	79	50-75% Grass cover, Fair, HSG C
	1,161	89	Weighted Average
	546		47.03% Pervious Area
	615		52.97% Impervious Area

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

Subcatchment Post 4: Post Development - Sub Catchment # 4



Summary for Subcatchment Post 5: Post Development - Sub Catchmemt # 5

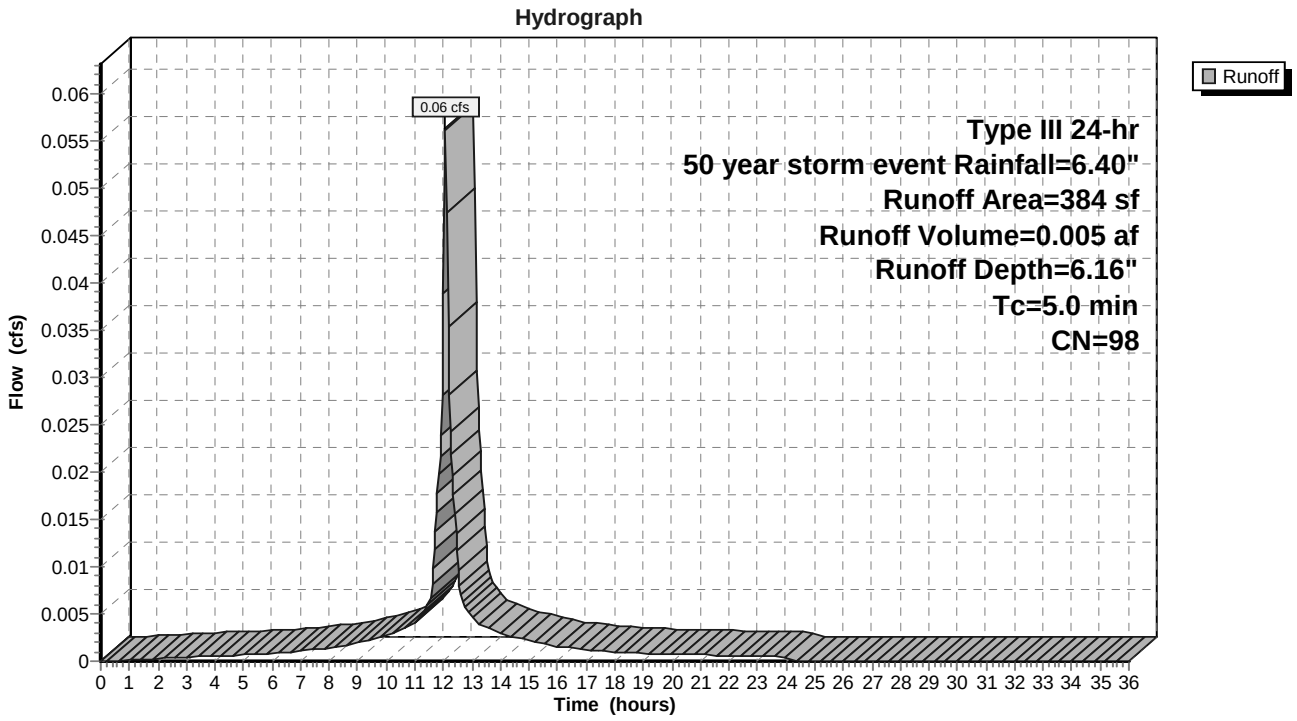
Runoff = 0.06 cfs @ 12.07 hrs, Volume= 0.005 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	384	98	North terrace
	384		100.00% Impervious Area

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

Subcatchment Post 5: Post Development - Sub Catchmemt # 5



Summary for Subcatchment Post 6: Post Development - Sub Catchment # 6

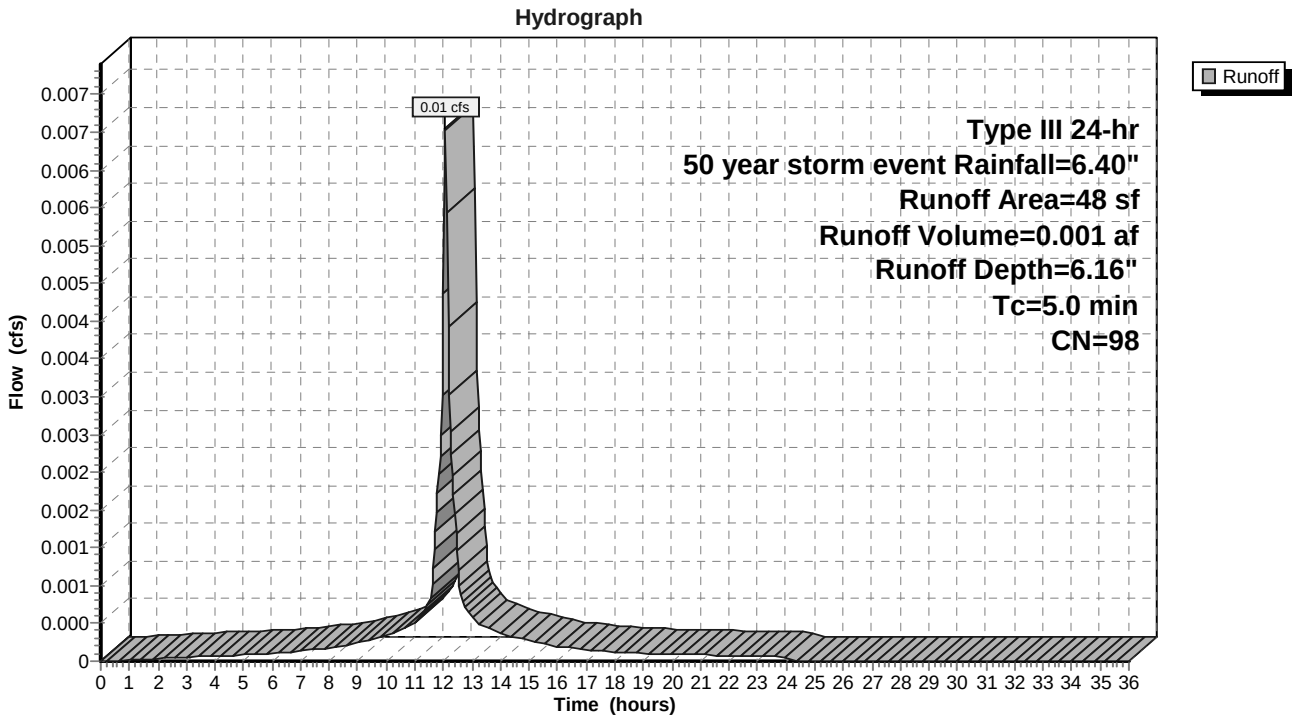
Runoff = 0.01 cfs @ 12.07 hrs, Volume= 0.001 af, Depth= 6.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

	Area (sf)	CN	Description
*	48	98	Pool
	48		100.00% Impervious Area

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

Subcatchment Post 6: Post Development - Sub Catchment # 6



Summary for Subcatchment Pre 1: Pre Development - Sub Catchment # 1

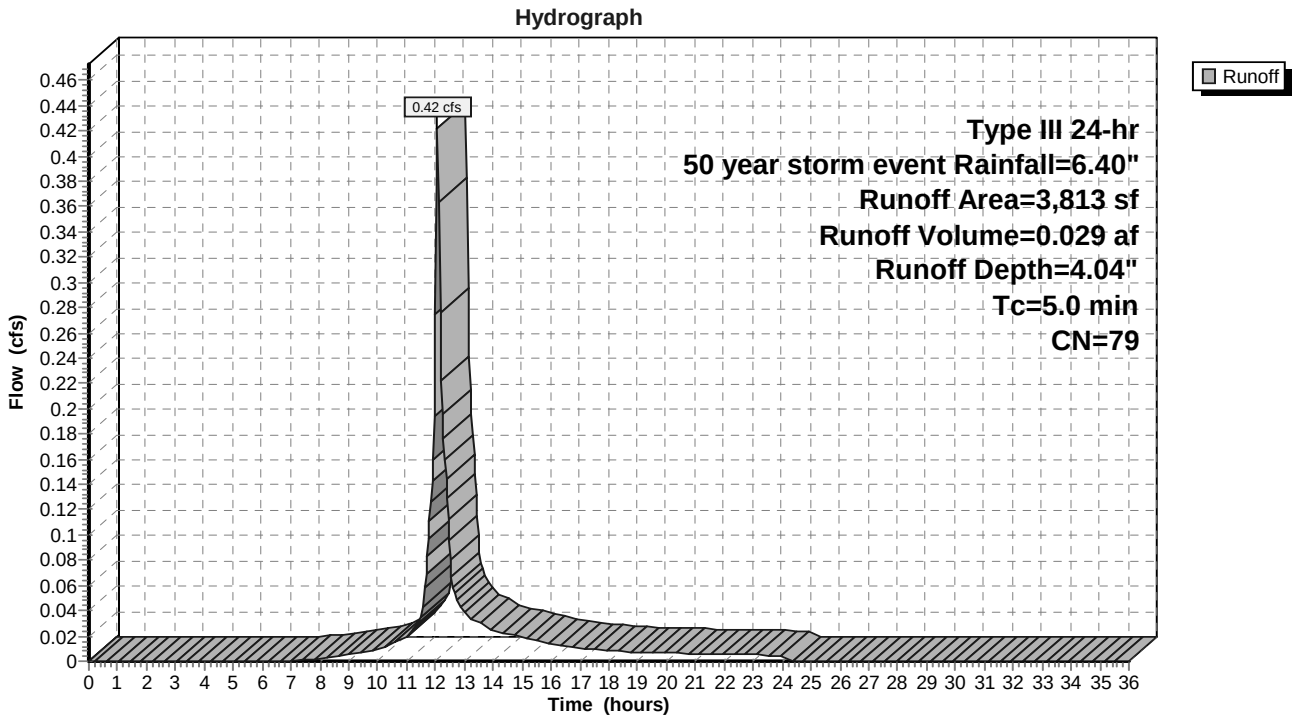
Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 4.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Type III 24-hr 50 year storm event Rainfall=6.40"

Area (sf)	CN	Description
3,813	79	50-75% Grass cover, Fair, HSG C
3,813		100.00% Pervious Area

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

Subcatchment Pre 1: Pre Development - Sub Catchment # 1



Summary for Pond Det 1: Detention Basin # 1

Inflow Area = 0.018 ac,100.00% Impervious, Inflow Depth = 6.16" for 50 year storm event event
Inflow = 0.12 cfs @ 12.07 hrs, Volume= 0.009 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 12.12 hrs Surf.Area= 800 sf Storage= 200 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

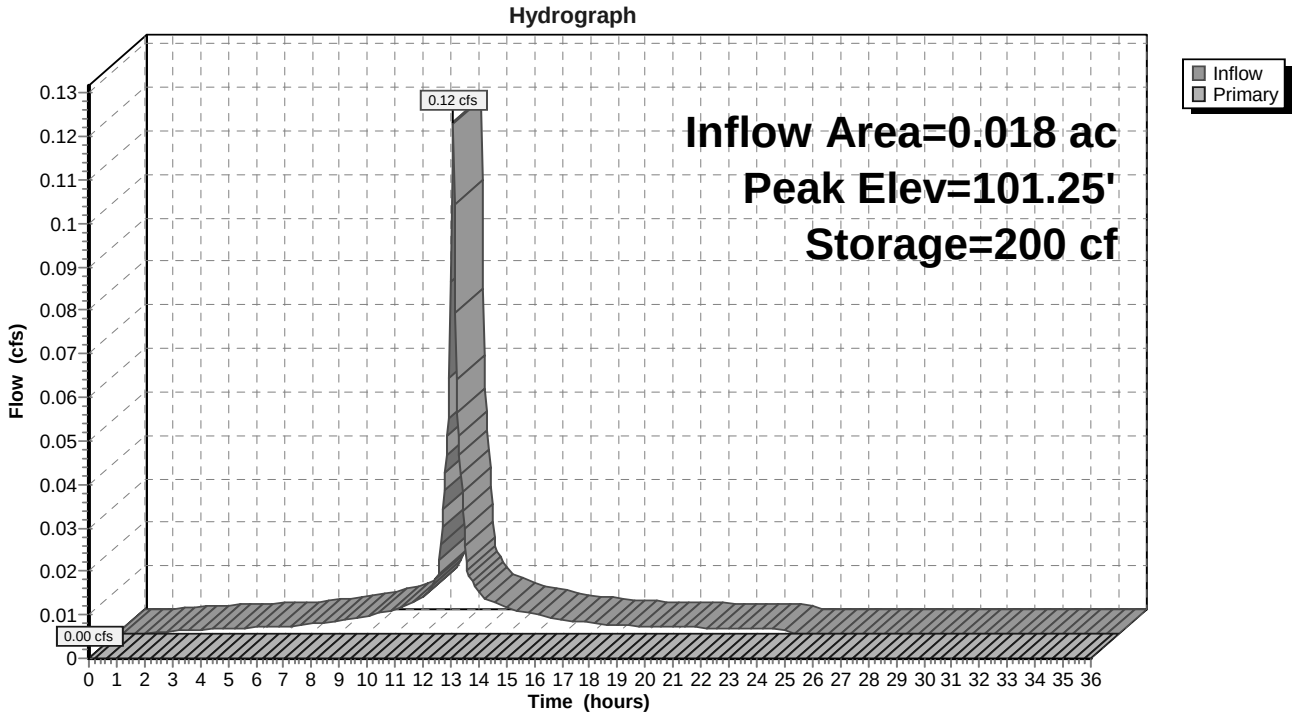
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	200 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	800	200	200

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**20.0' long x 1.5' 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) 2.62 2.64 2.64 2.68 2.75 2.86 2.92 3.07 3.07 3.03 3.28 3.32

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.75' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Det 1: Detention Basin # 1



Summary for Pond Det 2: Detention Basin # 2 & 3 - North Side

Inflow Area =	0.035 ac,	63.89% Impervious,	Inflow Depth =	5.36"	for 50 year storm event event
Inflow =	0.21 cfs @	12.01 hrs,	Volume=	0.016 af	
Outflow =	0.20 cfs @	12.02 hrs,	Volume=	0.015 af,	Atten= 7%, Lag= 0.6 min
Discarded =	0.01 cfs @	9.40 hrs,	Volume=	0.009 af	
Primary =	0.19 cfs @	12.02 hrs,	Volume=	0.007 af	

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 99.54' @ 12.02 hrs Surf.Area= 125 sf Storage= 103 cf

Plug-Flow detention time= 67.6 min calculated for 0.015 af (100% of inflow)
Center-of-Mass det. time= 66.4 min (836.9 - 770.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	98.00'	60 cf	**5.00'W x 25.00'L x 1.54'H Field A** 193 cf Overall - 43 cf Embedded = 150 cf x 40.0% Voids
#2A	98.50'	43 cf	**Cultec C-100HD** x 3 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 1 rows
		103 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	99.20'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	99.30'	**4.0" Vert. Orifice/Grate**	C= 0.600
#3	Discarded	98.00'	**2.250 in/hr Exfiltration over Surface area**	

Discarded OutFlow Max=0.01 cfs @ 9.40 hrs HW=98.02' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.19 cfs @ 12.02 hrs HW=99.54' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.08 cfs @ 2.32 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.65 fps)

Pond Det 2: Detention Basin # 2 & 3 - North Side - 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 1 rows

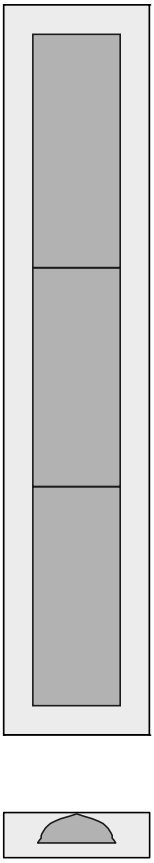
3 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 23.00' Row Length +12.0" End Stone x 2 = 25.00' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

3 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 42.8 cf Chamber Storage

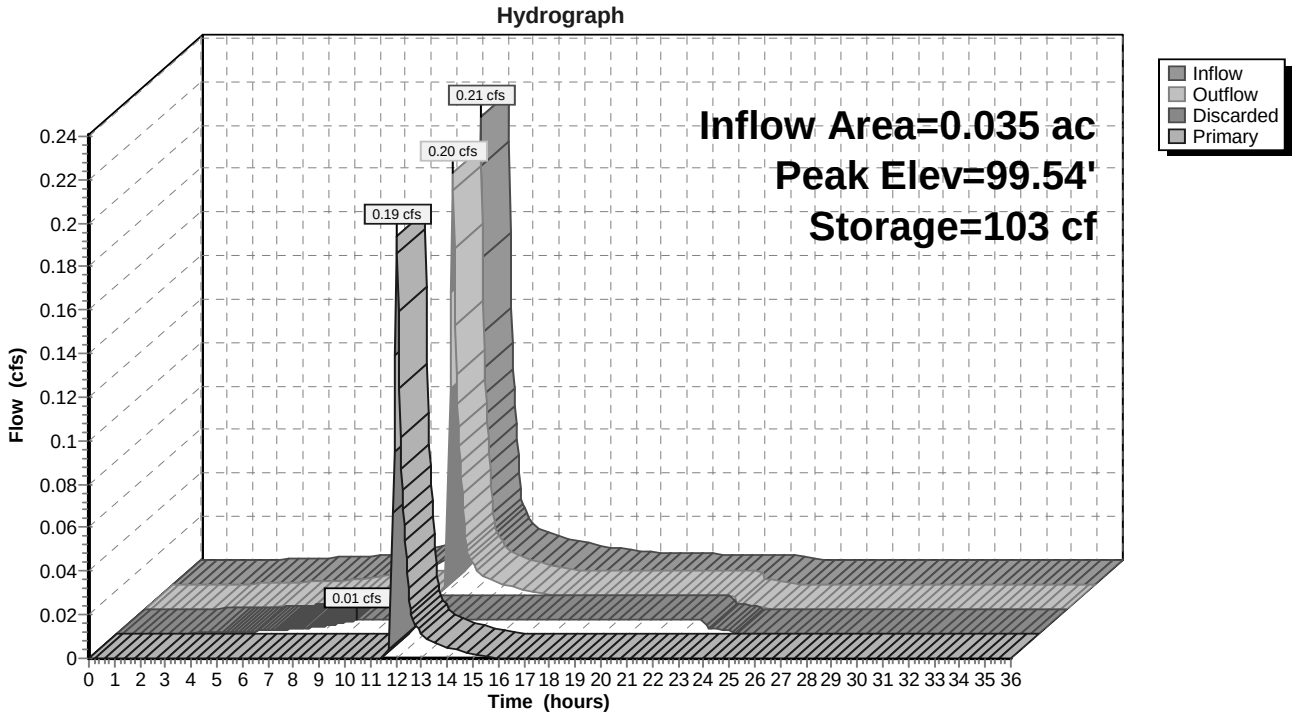
192.7 cf Field - 42.8 cf Chambers = 149.9 cf Stone x 40.0% Voids = 60.0 cf Stone Storage

Chamber Storage + Stone Storage = 102.8 cf = 0.002 af
Overall Storage Efficiency = 53.3%
Overall System Size = 25.00' x 5.00' x 1.54'

3 Chambers
7.1 cy Field
5.6 cy Stone



Pond Det 2: Detention Basin # 2 & 3 - North Side



Summary for Pond Det 3: Detention Basin # 4 & 5 - South Side

Inflow Area = 0.035 ac, 64.66% Impervious, Inflow Depth = 5.38" for 50 year storm event event
Inflow = 0.22 cfs @ 12.01 hrs, Volume= 0.016 af
Outflow = 0.19 cfs @ 12.05 hrs, Volume= 0.016 af, Atten= 12%, Lag= 2.6 min
Discarded = 0.01 cfs @ 10.04 hrs, Volume= 0.010 af
Primary = 0.18 cfs @ 12.05 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs
Peak Elev= 93.18' @ 12.05 hrs Surf.Area= 163 sf Storage= 134 cf

Plug-Flow detention time= 53.1 min calculated for 0.016 af (100% of inflow)
Center-of-Mass det. time= 53.0 min (822.9 - 769.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	91.60'	77 cf	**5.00'W x 32.50'L x 1.54'H Field A** 251 cf Overall - 57 cf Embedded = 194 cf x 40.0% Voids
#2A	92.10'	57 cf	**Cultec C-100HD** x 4 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 1 rows
		134 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices	
#1	Primary	92.55'	**2.5" Vert. Orifice/Grate**	C= 0.600
#2	Primary	93.00'	**4.0" Vert. Orifice/Grate**	C= 0.600
#3	Discarded	91.60'	**2.250 in/hr Exfiltration over Surface area**	

Discarded OutFlow Max=0.01 cfs @ 10.04 hrs HW=91.62' (Free Discharge)
└─**3=Exfiltration** (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.17 cfs @ 12.05 hrs HW=93.16' (Free Discharge)
├─**1=Orifice/Grate** (Orifice Controls 0.12 cfs @ 3.42 fps)
└─**2=Orifice/Grate** (Orifice Controls 0.06 cfs @ 1.36 fps)

Pond Det 3: Detention Basin # 4 & 5 - South Side - 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 1 rows

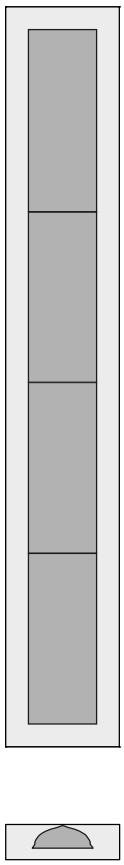
4 Chambers/Row x 7.50' Long +0.50' Row Adjustment = 30.50' Row Length +12.0" End Stone x 2 = 32.50' Base Length
1 Rows x 36.0" Wide + 12.0" Side Stone x 2 = 5.00' Base Width
6.0" Base + 12.5" Chamber Height = 1.54' Field Height

4 Chambers x 14.0 cf +0.50' Row Adjustment x 1.86 sf x 1 Rows = 56.8 cf Chamber Storage

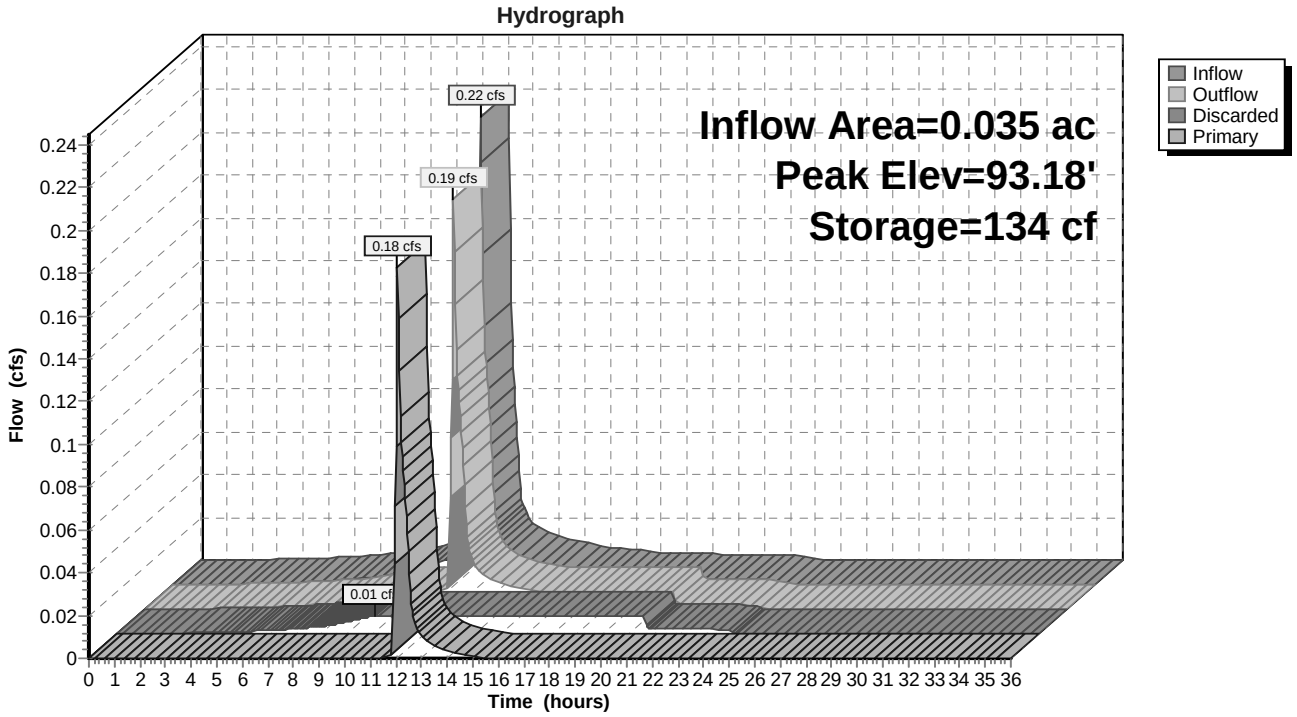
250.5 cf Field - 56.8 cf Chambers = 193.7 cf Stone x 40.0% Voids = 77.5 cf Stone Storage

Chamber Storage + Stone Storage = 134.3 cf = 0.003 af
Overall Storage Efficiency = 53.6%
Overall System Size = 32.50' x 5.00' x 1.54'

4 Chambers
9.3 cy Field
7.2 cy Stone



Pond Det 3: Detention Basin # 4 & 5 - South Side



Summary for Pond Det 6: Detention Basin # 6

Inflow Area = 0.001 ac,100.00% Impervious, Inflow Depth = 6.16" for 50 year storm event event
Inflow = 0.01 cfs @ 12.07 hrs, Volume= 0.001 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs / 2
Peak Elev= 101.25' @ 12.12 hrs Surf.Area= 48 sf Storage= 12 cf

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

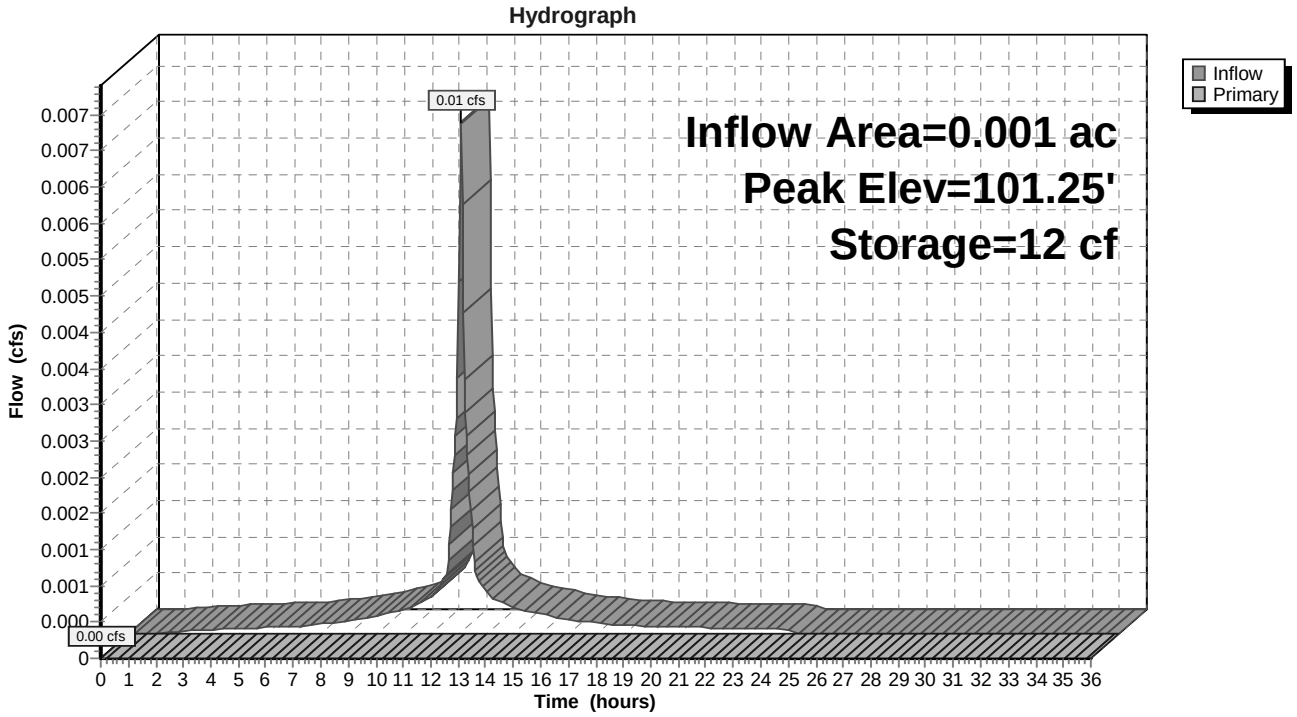
Volume	Invert	Avail.Storage	Storage Description
#1	100.75'	12 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
100.75	0	0	0
101.25	48	12	12

Device	Routing	Invert	Outlet Devices
#1	Primary	101.25'	**6.0' 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

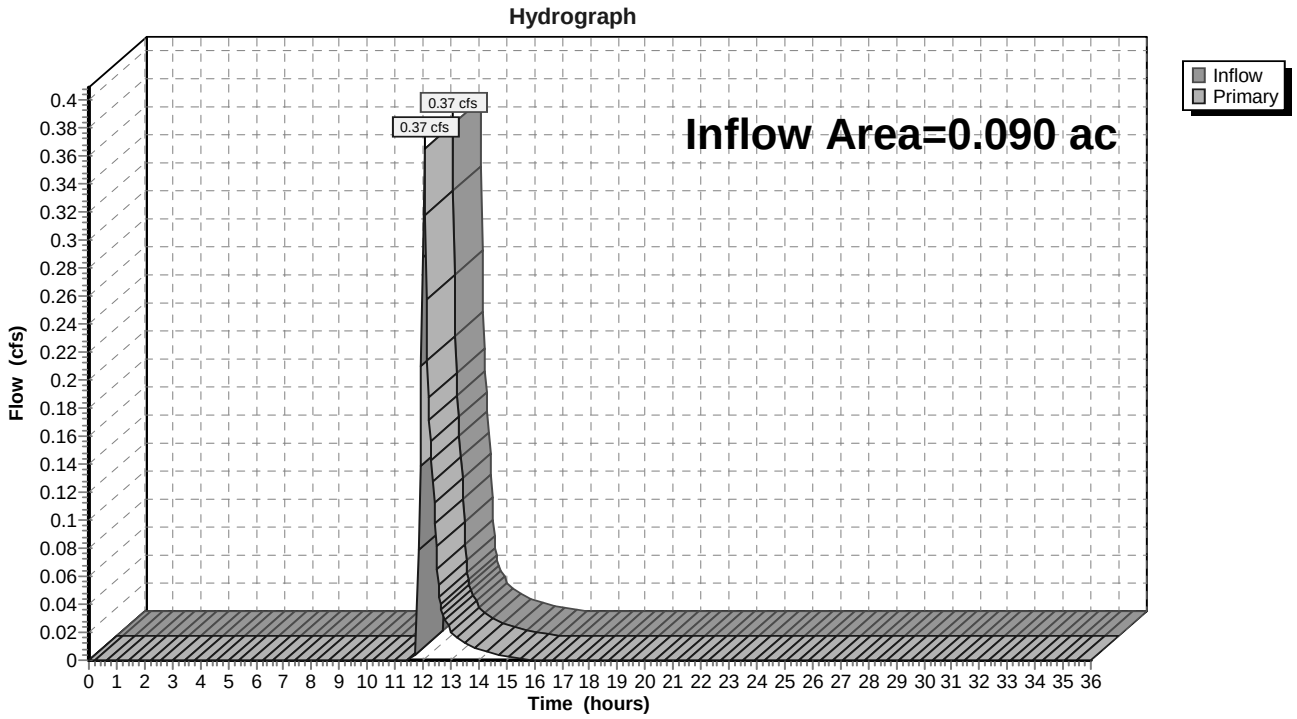
Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=100.75' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond Det 6: Detention Basin # 6



Summary for Link 1L: Design Point Easterly Property Line

Inflow Area = 0.090 ac, 72.04% Impervious, Inflow Depth = 1.73" for 50 year storm event event
Inflow = 0.37 cfs @ 12.04 hrs, Volume= 0.013 af
Primary = 0.37 cfs @ 12.04 hrs, Volume= 0.013 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-36.00 hrs, dt= 0.04 hrs

Link 1L: Design Point Easterly Property Line