



Existing Conditions



Proposed Conditions-1



Bypass



Roof Area



Roof Recharge System

Detention Pond



AP-1



Routing Diagram for Panagakos-Phillips-Rd Updated Detention Pond
Prepared by CEC, Inc., Printed 8/1/2022
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Summary for Subcatchment 1S: Roof Area

Runoff = 0.25 cfs @ 12.11 hrs, Volume= 0.021 af, Depth> 3.11"
 Routed to Pond R-1 : Roof Recharge System

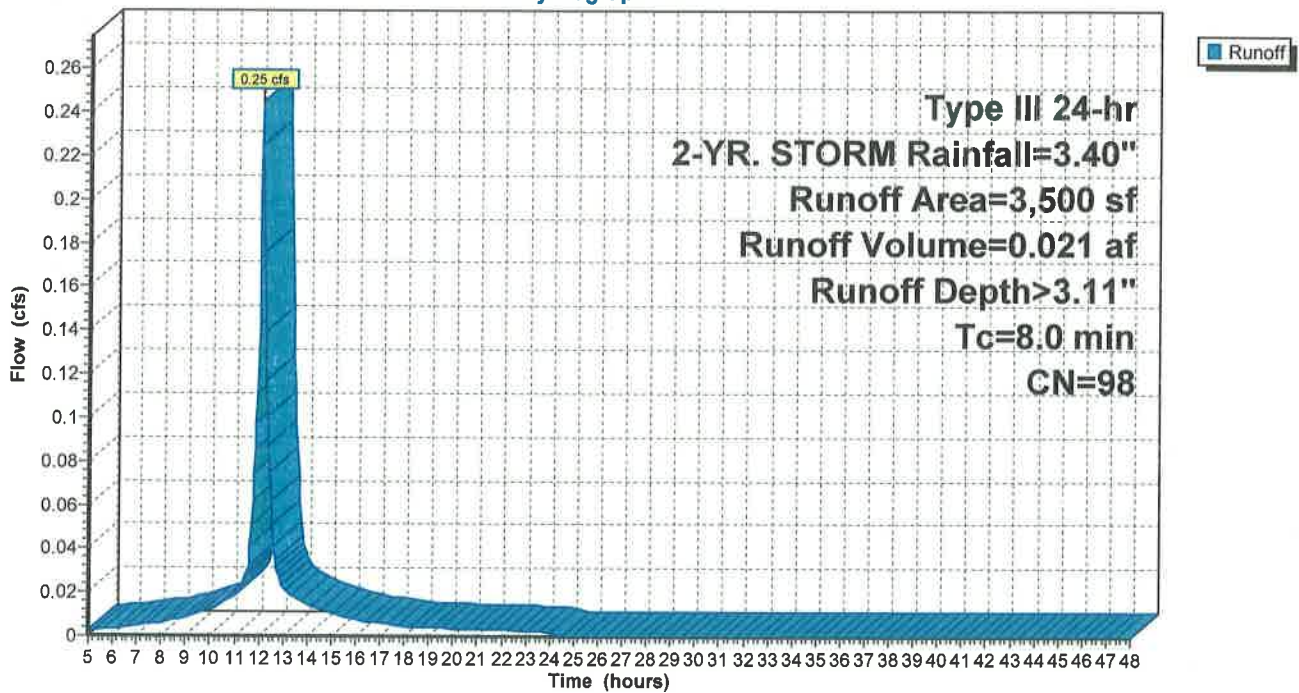
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YR. STORM Rainfall=3.40"

Area (sf)	CN	Description
* 3,500	98	Roof Area
3,500		100.00% Impervious Area

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

Subcatchment 1S: Roof Area

Hydrograph



Summary for Subcatchment EC: Existing Conditions

Runoff = 0.06 cfs @ 12.45 hrs, Volume= 0.020 af, Depth= 0.17"

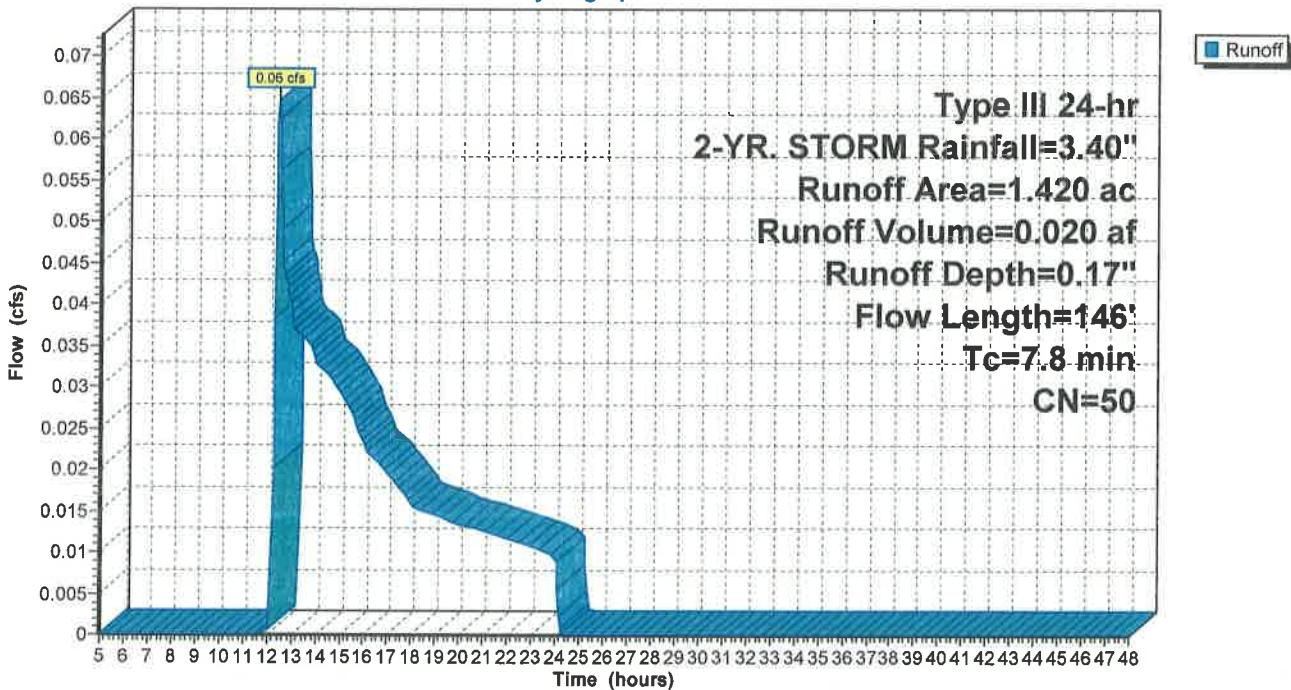
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YR. STORM Rainfall=3.40"

Area (ac)	CN	Description
0.600	36	Woods, Fair, HSG A
0.820	60	Woods, Fair, HSG B
1.420	50	Weighted Average
1.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1080	0.14		Sheet Flow, A-B
1.7	96	0.0360	0.95		Woods: Light underbrush n= 0.400 P2= 3.40"
					Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
7.8	146	Total			

Subcatchment EC: Existing Conditions

Hydrograph



Summary for Subcatchment PC-1: Proposed Conditions-1

Runoff = 1.02 cfs @ 12.09 hrs, Volume= 0.074 af, Depth= 1.70"
 Routed to Pond DP : Detention Pond

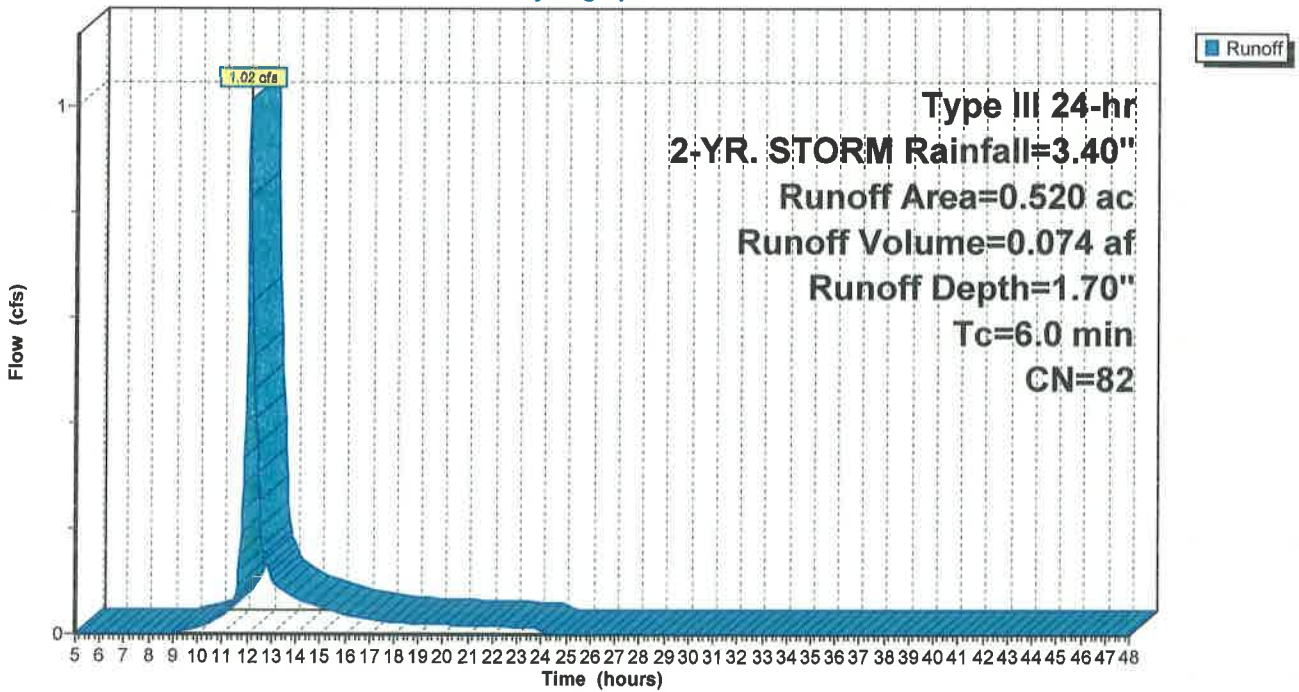
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YR. STORM Rainfall=3.40"

Area (ac)	CN	Description
0.040	39	>75% Grass cover, Good, HSG A
0.160	61	>75% Grass cover, Good, HSG B
* 0.320	98	Impervious
0.520	82	Weighted Average
0.200		38.46% Pervious Area
0.320		61.54% Impervious Area

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

Subcatchment PC-1: Proposed Conditions-1

Hydrograph



Summary for Subcatchment PC-2: Bypass

Runoff = 0.12 cfs @ 12.32 hrs, Volume= 0.021 af, Depth= 0.31"
 Routed to Pond AP : AP-1

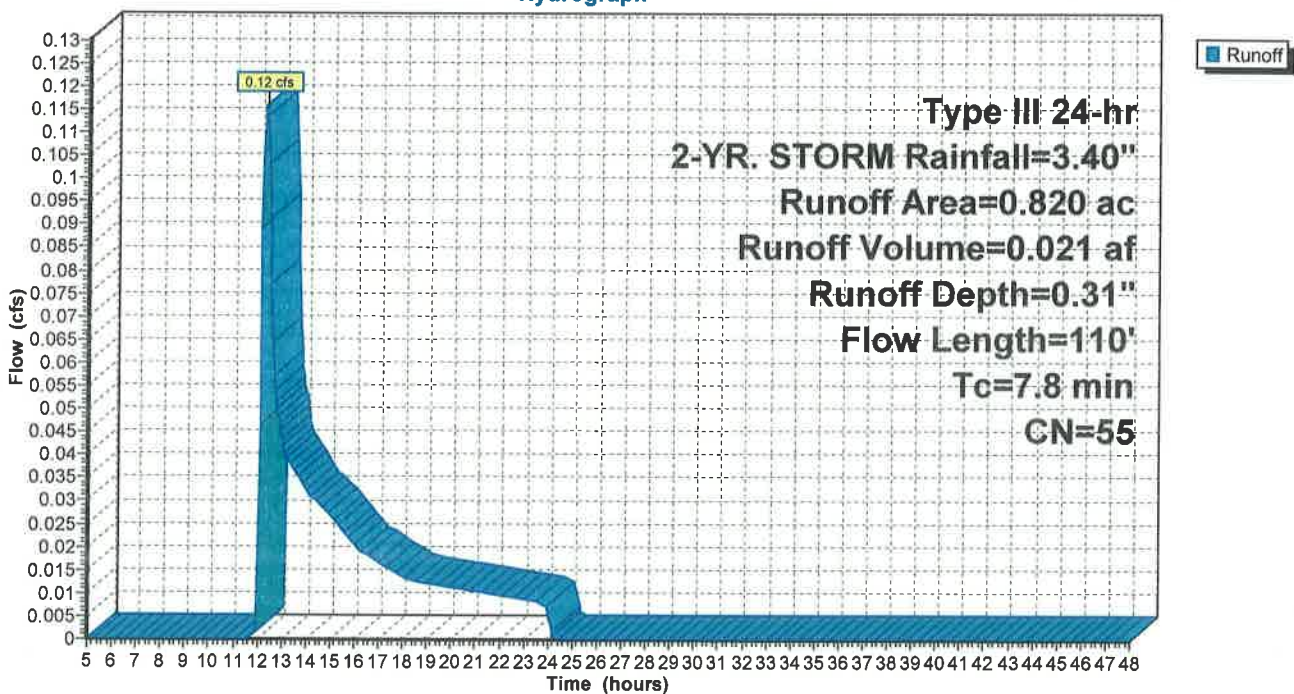
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 2-YR. STORM Rainfall=3.40"

Area (ac)	CN	Description
0.220	36	Woods, Fair, HSG A
0.300	60	Woods, Fair, HSG B
0.050	98	Paved parking, HSG A
0.050	39	>75% Grass cover, Good, HSG A
0.200	61	>75% Grass cover, Good, HSG B
0.820	55	Weighted Average
0.770		93.90% Pervious Area
0.050		6.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0740	0.12		Sheet Flow, A-B
0.7	60	0.0920	1.52		Woods: Light underbrush n= 0.400 P2= 3.40"
					Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
7.8	110	Total			

Subcatchment PC-2: Bypass

Hydrograph



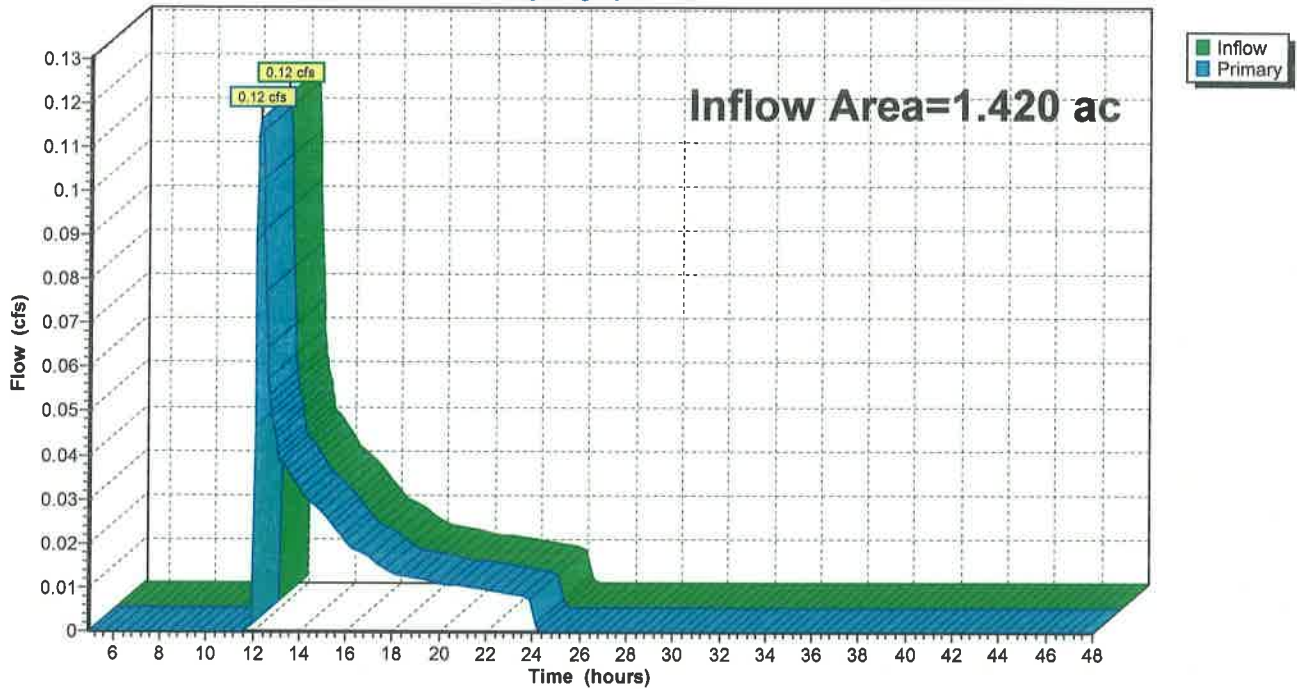
Summary for Pond AP: AP-1

Inflow Area = 1.420 ac, 31.71% Impervious, Inflow Depth = 0.18" for 2-YR. STORM event
Inflow = 0.12 cfs @ 12.32 hrs, Volume= 0.021 af
Primary = 0.12 cfs @ 12.32 hrs, Volume= 0.021 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2

Pond AP: AP-1

Hydrograph



Summary for Pond DP: Detention Pond

Inflow Area = 0.600 ac, 66.69% Impervious, Inflow Depth = 1.69" for 2-YR. STORM event
 Inflow = 1.23 cfs @ 12.10 hrs, Volume= 0.085 af
 Outflow = 0.01 cfs @ 11.05 hrs, Volume= 0.032 af, Atten= 99%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 11.05 hrs, Volume= 0.032 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond AP : AP-1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 89.23' @ 24.04 hrs Surf.Area= 2,806 sf Storage= 3,146 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 897.7 min (1,718.2 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	8,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	2,300	0	0
88.50	2,500	1,200	1,200
89.00	2,700	1,300	2,500
90.00	3,150	2,925	5,425
91.00	3,800	3,475	8,900

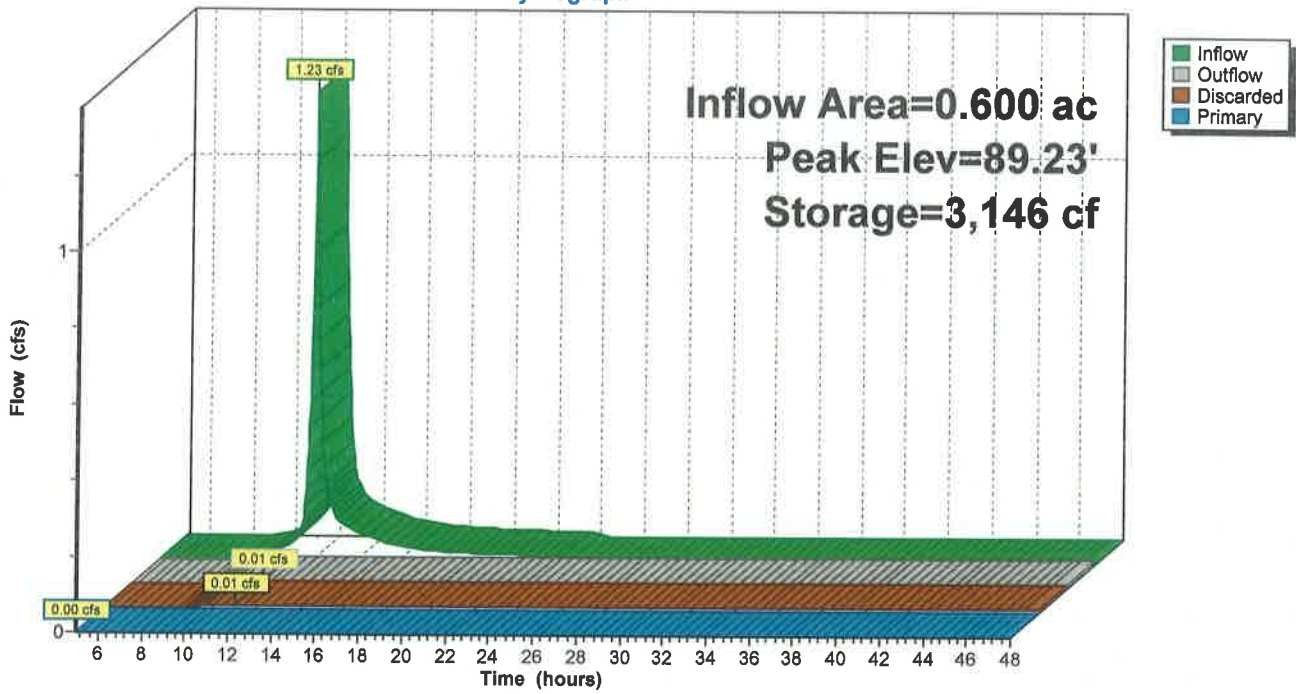
Device	Routing	Invert	Outlet Devices
#1	Discarded	88.00'	0.01 cfs Exfiltration at all elevations
#2	Primary	90.00'	4.0" Vert. 89.4 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 11.05 hrs HW=88.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=88.00' TW=0.00' (Dynamic Tailwater)
 ↑2=89.4 (Controls 0.00 cfs)

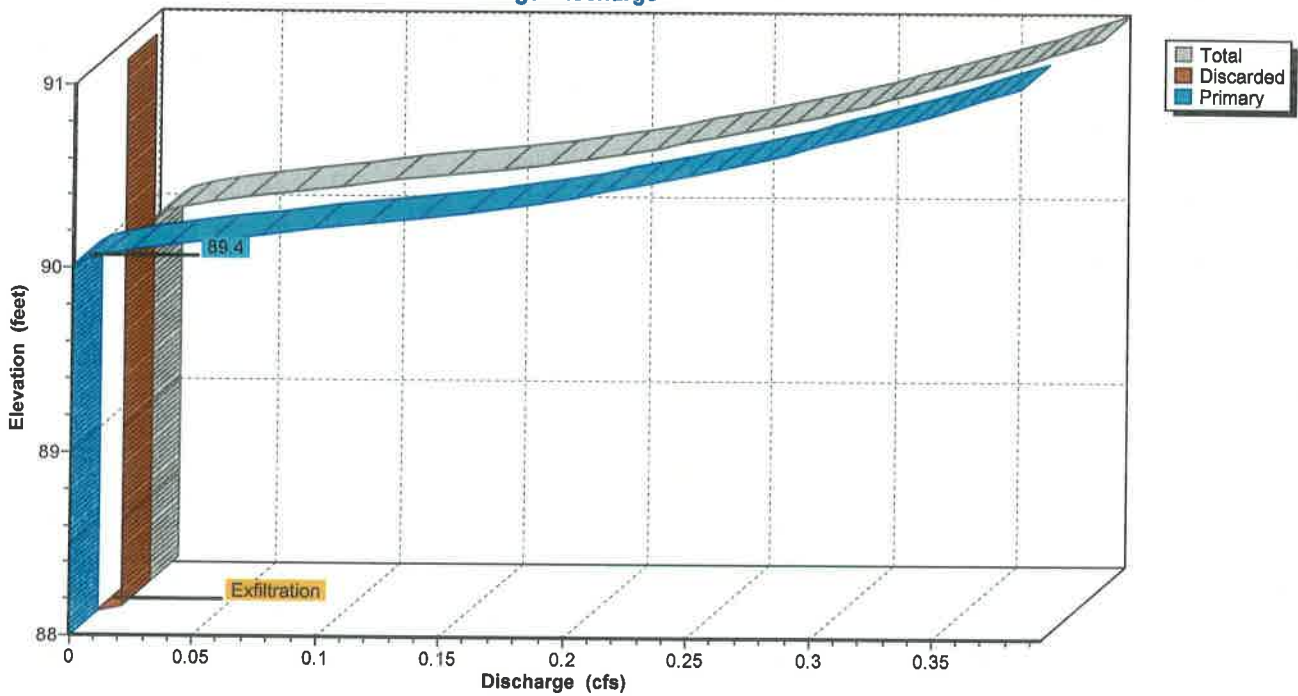
Pond DP: Detention Pond

Hydrograph



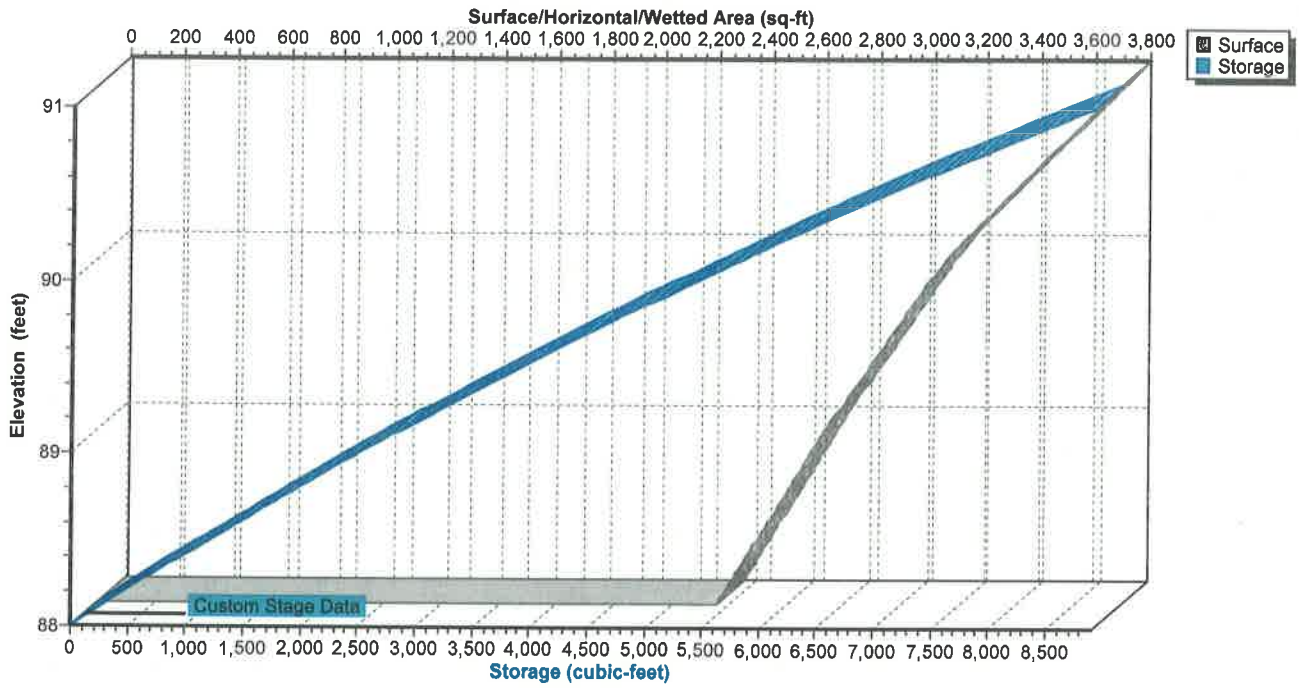
Pond DP: Detention Pond

Stage-Discharge



Pond DP: Detention Pond

Stage-Area-Storage



Summary for Pond R-1: Roof Recharge System

Inflow Area = 0.080 ac, 100.00% Impervious, Inflow Depth > 3.11" for 2-YR. STORM event
 Inflow = 0.25 cfs @ 12.11 hrs, Volume= 0.021 af
 Outflow = 0.24 cfs @ 12.13 hrs, Volume= 0.021 af, Atten= 3%, Lag= 1.3 min
 Discarded = 0.01 cfs @ 9.85 hrs, Volume= 0.010 af
 Primary = 0.23 cfs @ 12.13 hrs, Volume= 0.011 af
 Routed to Pond DP : Detention Pond

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 91.75' @ 12.13 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.1 min (769.4 - 767.3)

Volume	Invert	Avail.Storage	Storage Description
#1	91.40'	0.002 af	Cultec R-180 x 4 Effective Size= 33.6"W x 20.0"H => 3.44 sf x 6.33'L = 21.8 cf Overall Size= 36.0"W x 20.5"H x 7.33'L with 1.00' Overlap Row Length Adjustment= +1.00' x 3.44 sf x 1 rows

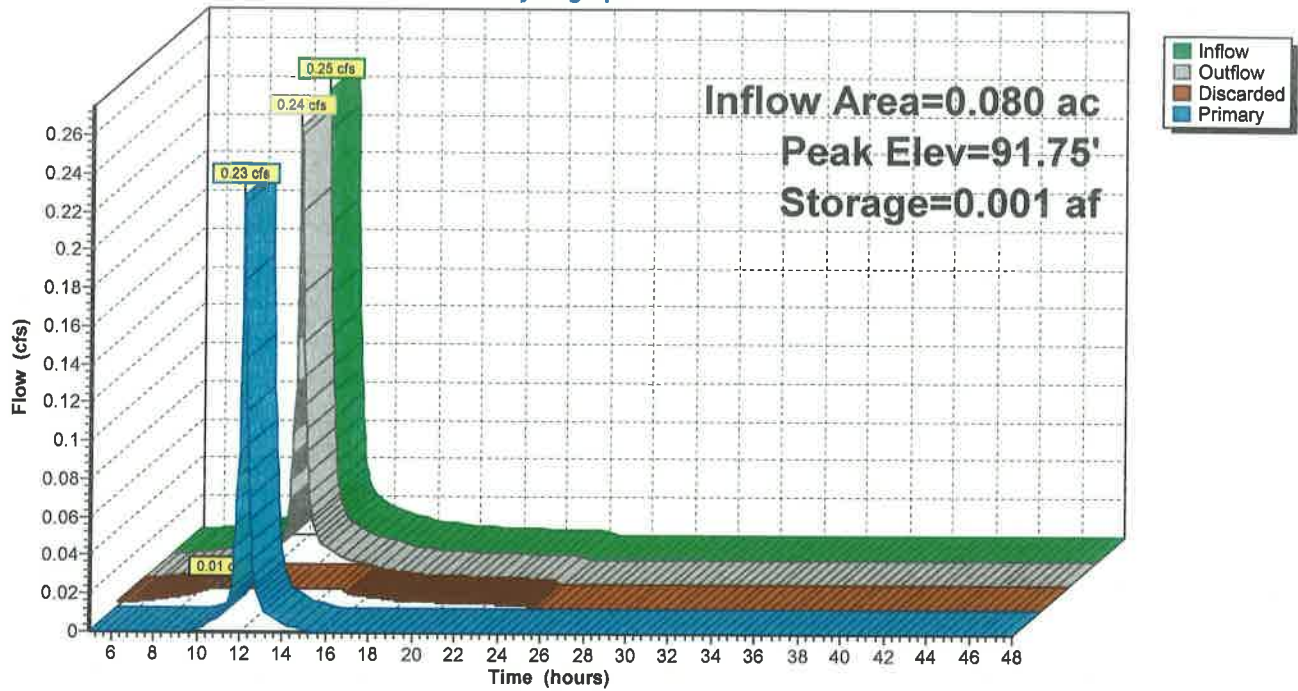
Device	Routing	Invert	Outlet Devices
#1	Discarded	91.40'	0.01 cfs Exfiltration at all elevations
#2	Primary	91.40'	6.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 91.40' / 90.50' S= 0.0150 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 9.85 hrs HW=91.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.22 cfs @ 12.13 hrs HW=91.74' TW=88.47' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.22 cfs @ 1.57 fps)

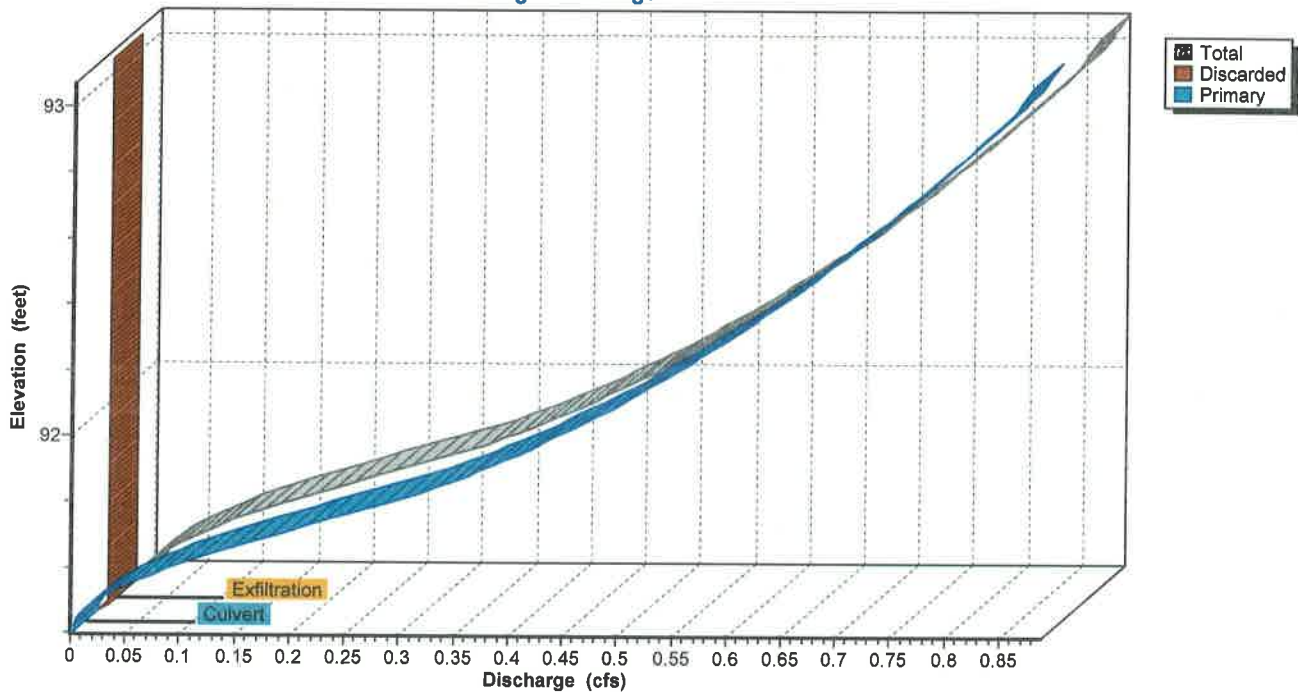
Pond R-1: Roof Recharge System

Hydrograph

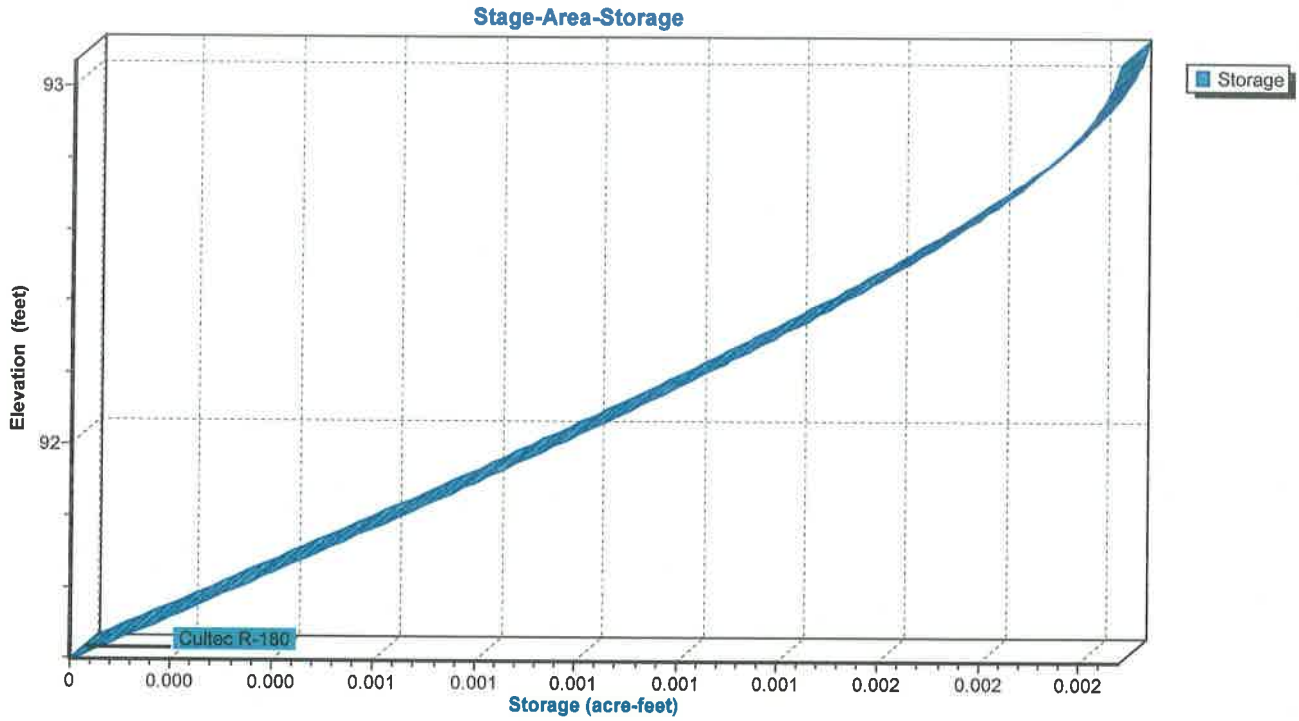


Pond R-1: Roof Recharge System

Stage-Discharge



Pond R-1: Roof Recharge System



Summary for Subcatchment 1S: Roof Area

Runoff = 0.35 cfs @ 12.11 hrs, Volume= 0.030 af, Depth> 4.45"
 Routed to Pond R-1 : Roof Recharge System

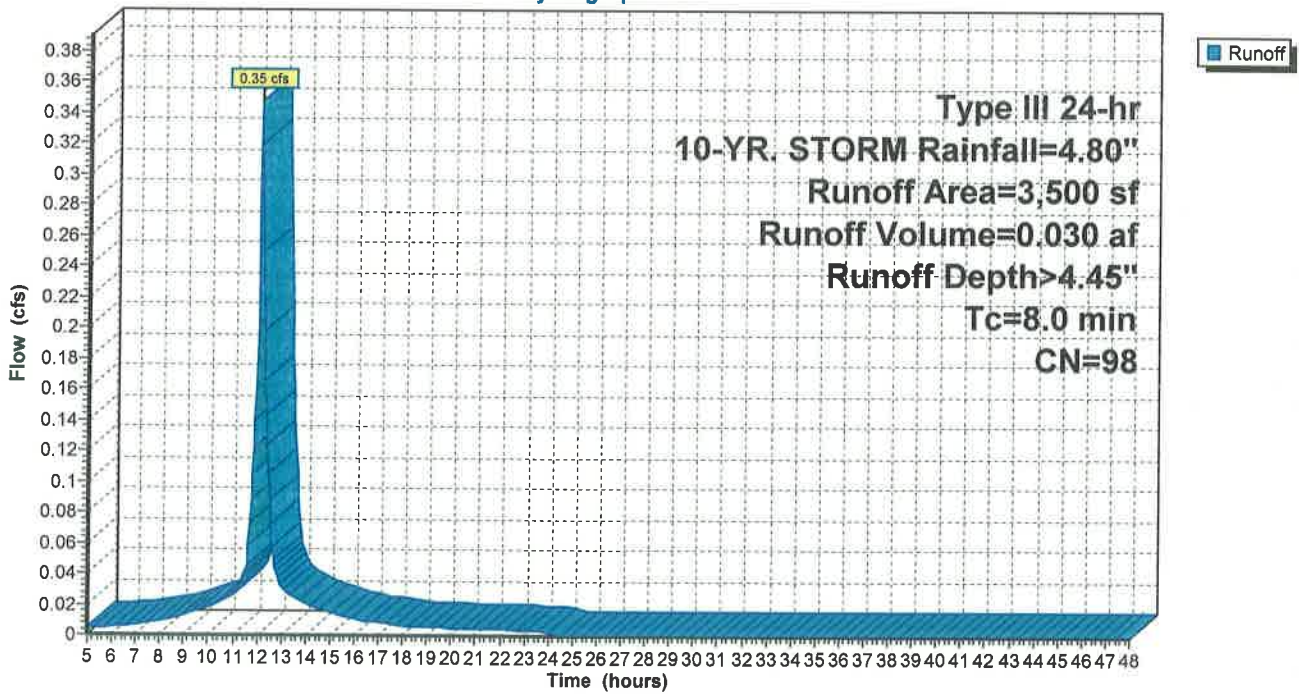
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR. STORM Rainfall=4.80"

Area (sf)	CN	Description
* 3,500	98	Roof Area
3,500		100.00% Impervious Area

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

Subcatchment 1S: Roof Area

Hydrograph



Summary for Subcatchment EC: Existing Conditions

Runoff = 0.55 cfs @ 12.17 hrs, Volume= 0.072 af, Depth= 0.61"

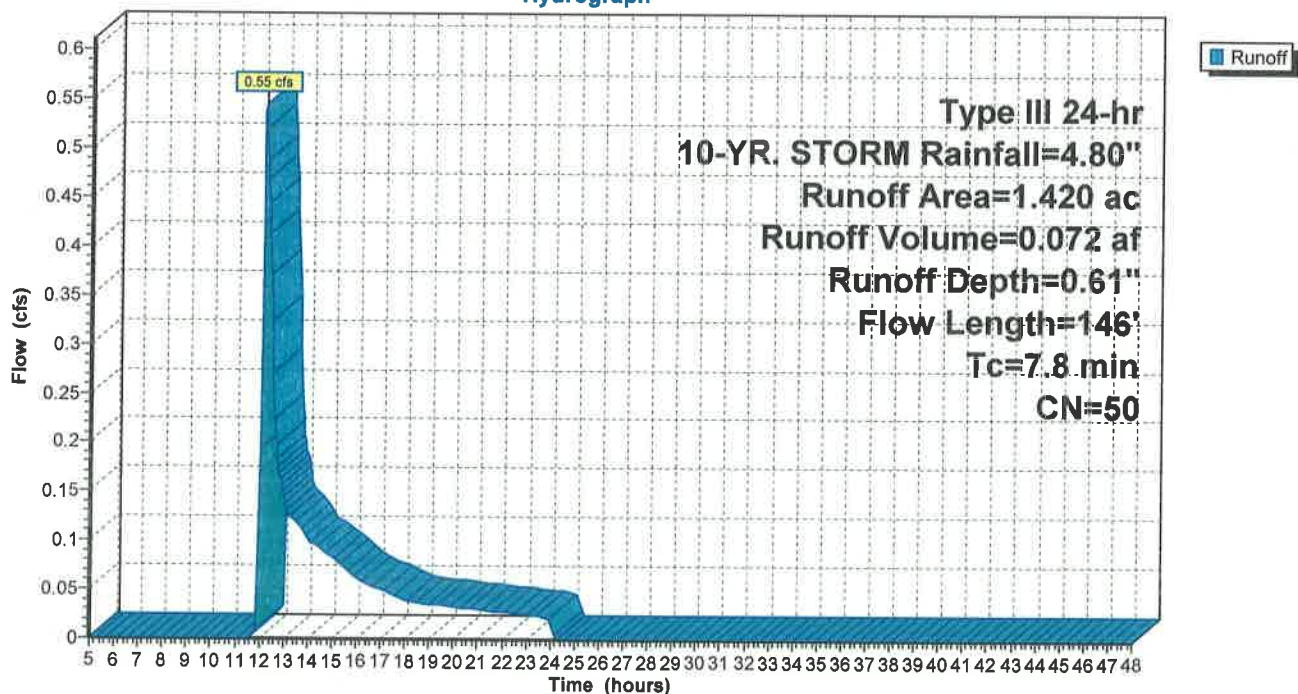
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR. STORM Rainfall=4.80"

Area (ac)	CN	Description
0.600	36	Woods, Fair, HSG A
0.820	60	Woods, Fair, HSG B
1.420	50	Weighted Average
1.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1080	0.14		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
1.7	96	0.0360	0.95		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
7.8	146	Total			

Subcatchment EC: Existing Conditions

Hydrograph



Summary for Subcatchment PC-1: Proposed Conditions-1

Runoff = 1.73 cfs @ 12.09 hrs, Volume= 0.126 af, Depth= 2.90"
 Routed to Pond DP : Detention Pond

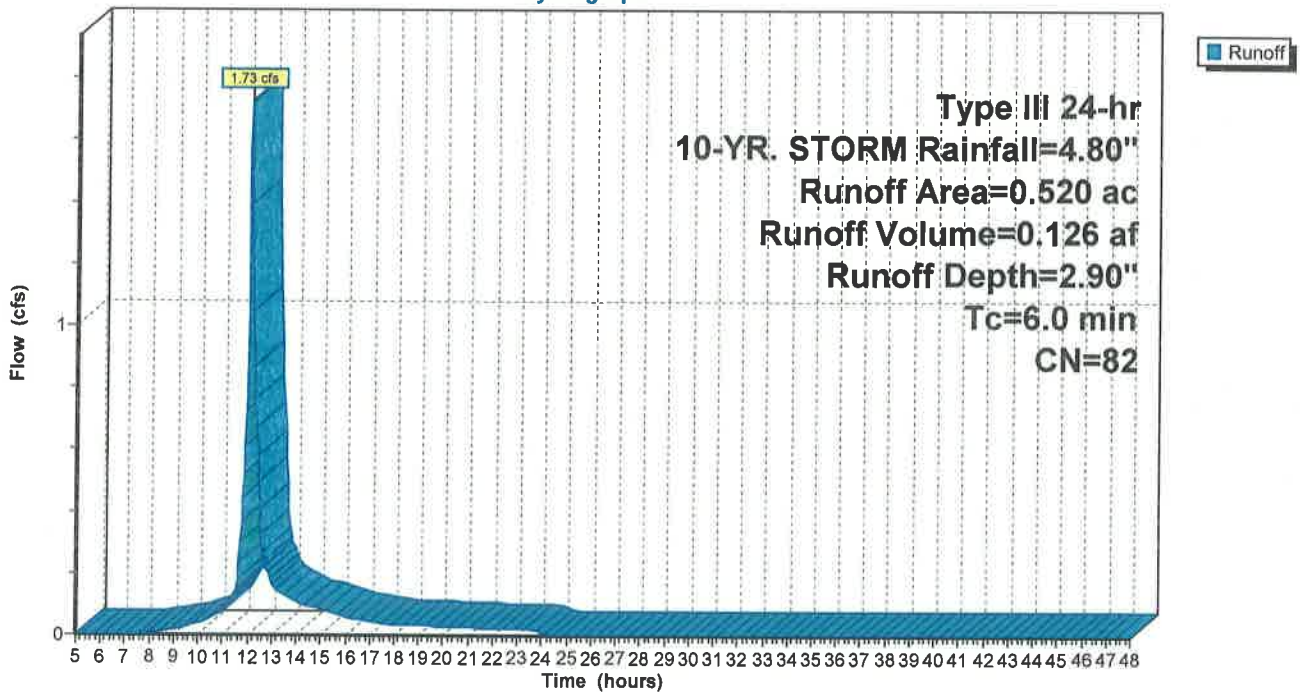
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR. STORM Rainfall=4.80"

Area (ac)	CN	Description
0.040	39	>75% Grass cover, Good, HSG A
0.160	61	>75% Grass cover, Good, HSG B
* 0.320	98	Impervious
0.520	82	Weighted Average
0.200		38.46% Pervious Area
0.320		61.54% Impervious Area

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

Subcatchment PC-1: Proposed Conditions-1

Hydrograph



Summary for Subcatchment PC-2: Bypass

Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.060 af, Depth= 0.88"
 Routed to Pond AP : AP-1

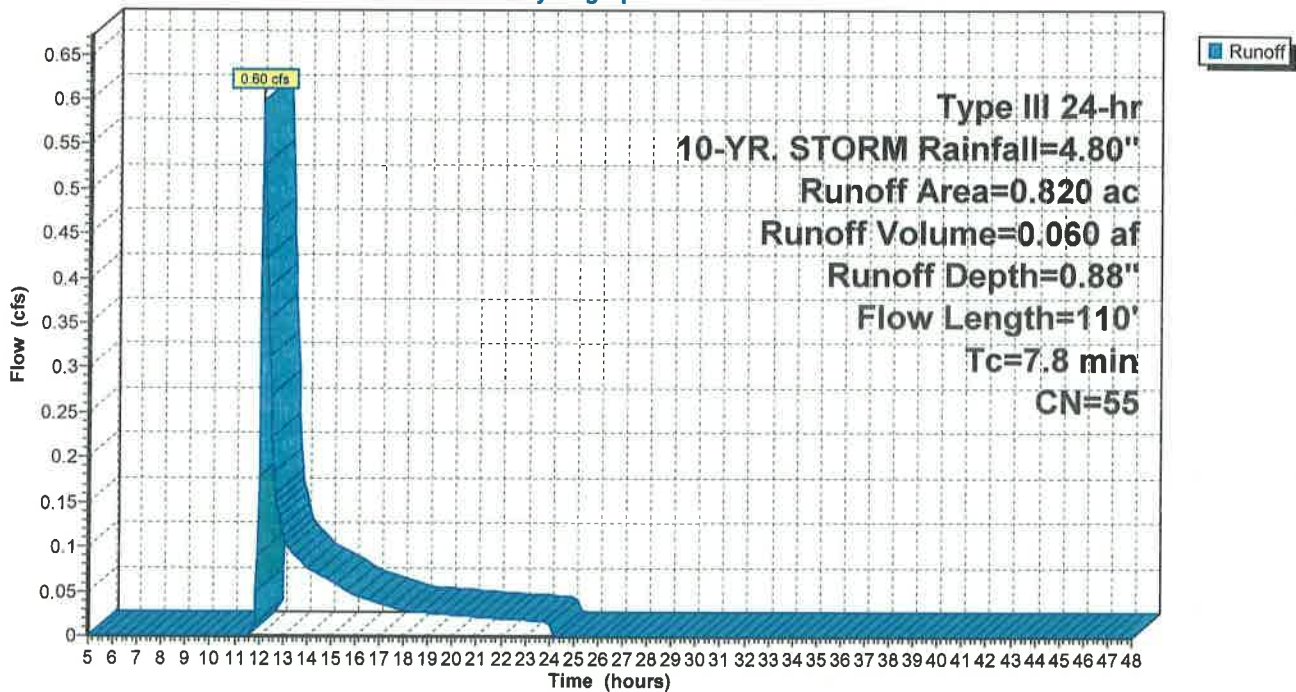
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 10-YR. STORM Rainfall=4.80"

Area (ac)	CN	Description
0.220	36	Woods, Fair, HSG A
0.300	60	Woods, Fair, HSG B
0.050	98	Paved parking, HSG A
0.050	39	>75% Grass cover, Good, HSG A
0.200	61	>75% Grass cover, Good, HSG B
0.820	55	Weighted Average
0.770		93.90% Pervious Area
0.050		6.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0740	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
0.7	60	0.0920	1.52		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
7.8	110	Total			

Subcatchment PC-2: Bypass

Hydrograph



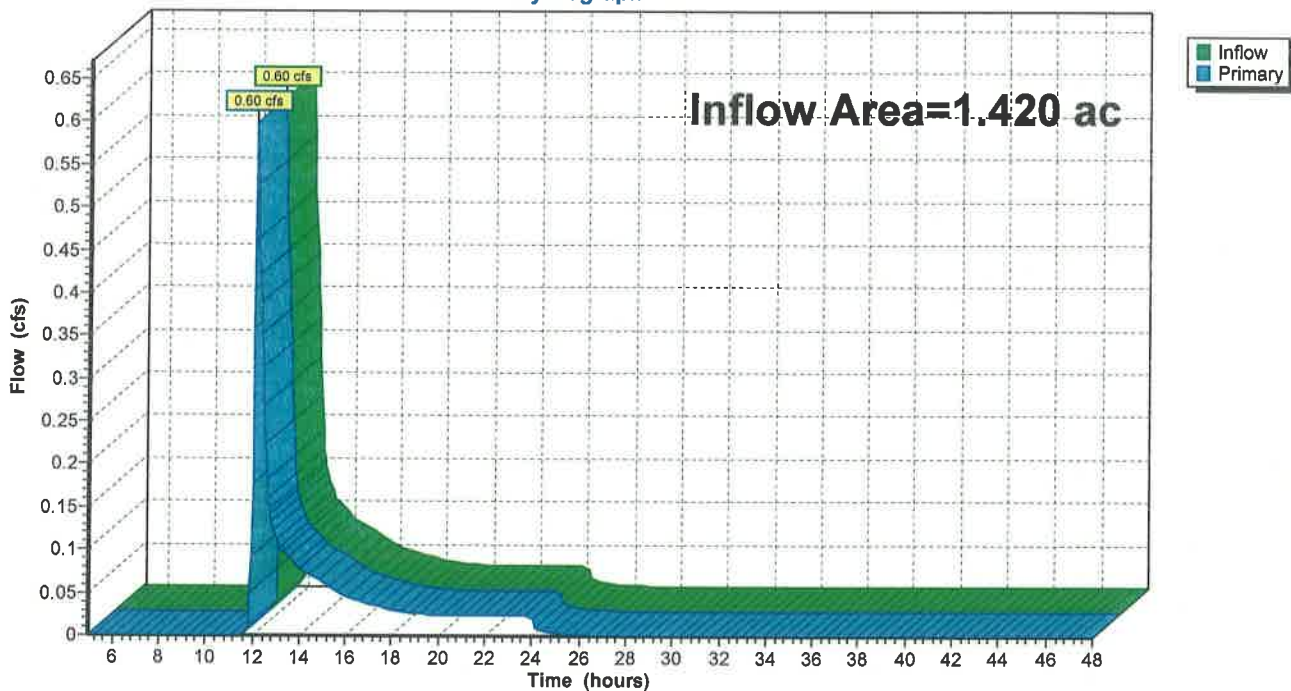
Summary for Pond AP: AP-1

Inflow Area = 1.420 ac, 31.71% Impervious, Inflow Depth = 0.53" for 10-YR. STORM event
Inflow = 0.60 cfs @ 12.14 hrs, Volume= 0.063 af
Primary = 0.60 cfs @ 12.14 hrs, Volume= 0.063 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2

Pond AP: AP-1

Hydrograph



Summary for Pond DP: Detention Pond

Inflow Area = 0.600 ac, 66.69% Impervious, Inflow Depth = 2.87" for 10-YR. STORM event
 Inflow = 2.04 cfs @ 12.10 hrs, Volume= 0.144 af
 Outflow = 0.02 cfs @ 24.02 hrs, Volume= 0.035 af, Atten= 99%, Lag= 715.6 min
 Discarded = 0.01 cfs @ 9.85 hrs, Volume= 0.033 af
 Primary = 0.01 cfs @ 24.02 hrs, Volume= 0.002 af
 Routed to Pond AP : AP-1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 90.06' @ 24.02 hrs Surf.Area= 3,186 sf Storage= 5,602 cf

Plug-Flow detention time= 983.2 min calculated for 0.035 af (25% of inflow)
 Center-of-Mass det. time= 852.5 min (1,659.9 - 807.3)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	8,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	2,300	0	0
88.50	2,500	1,200	1,200
89.00	2,700	1,300	2,500
90.00	3,150	2,925	5,425
91.00	3,800	3,475	8,900

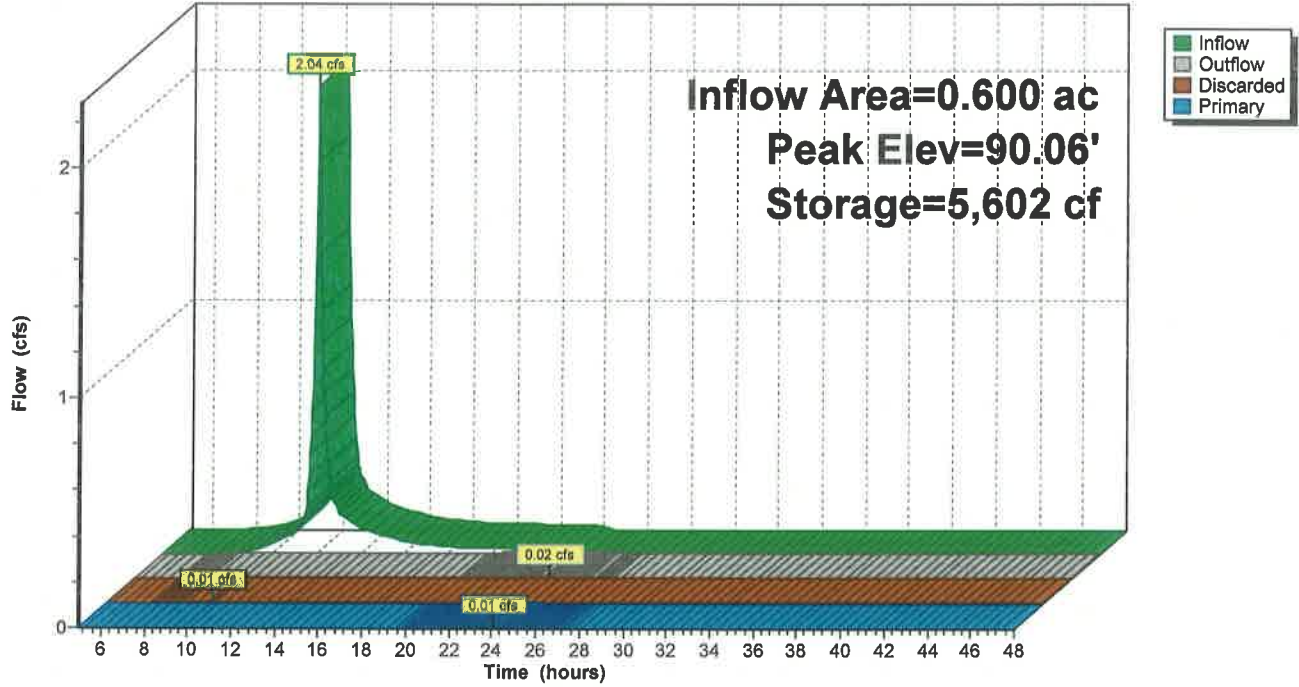
Device	Routing	Invert	Outlet Devices
#1	Discarded	88.00'	0.01 cfs Exfiltration at all elevations
#2	Primary	90.00'	4.0" Vert. 89.4 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 9.85 hrs HW=88.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.01 cfs @ 24.02 hrs HW=90.06' TW=0.00' (Dynamic Tailwater)
 ↑2=89.4 (Orifice Controls 0.01 cfs @ 0.80 fps)

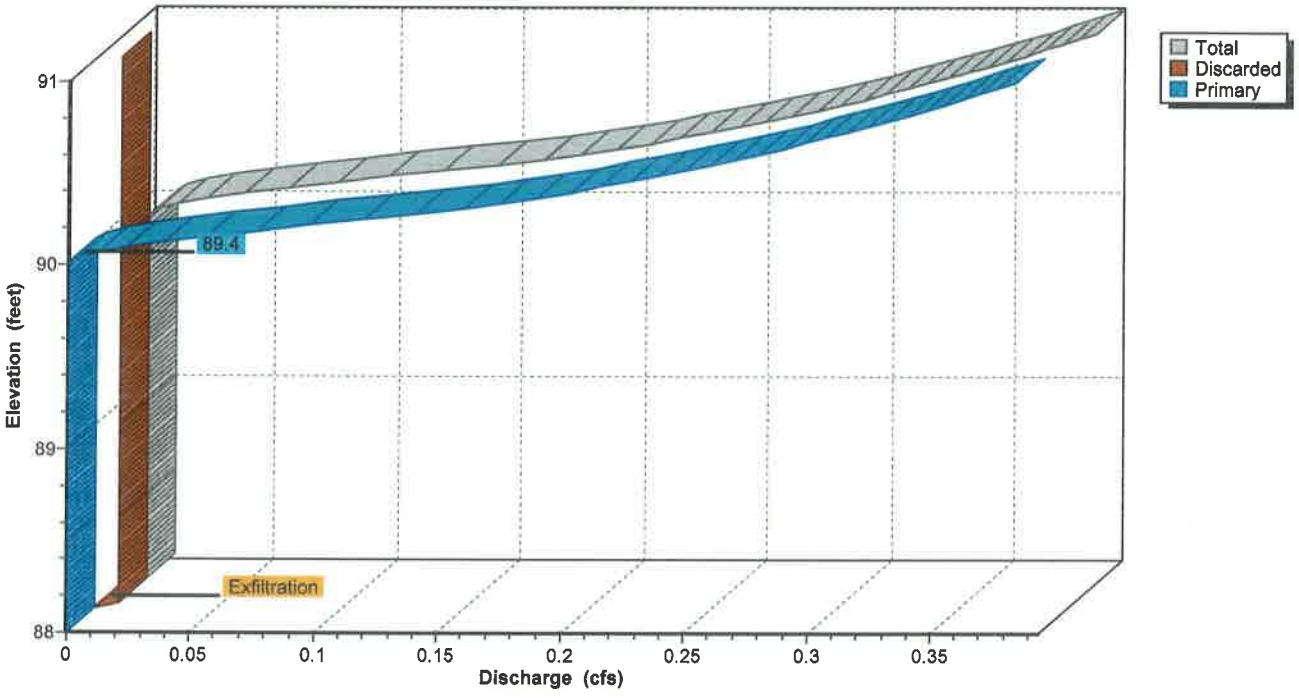
Pond DP: Detention Pond

Hydrograph



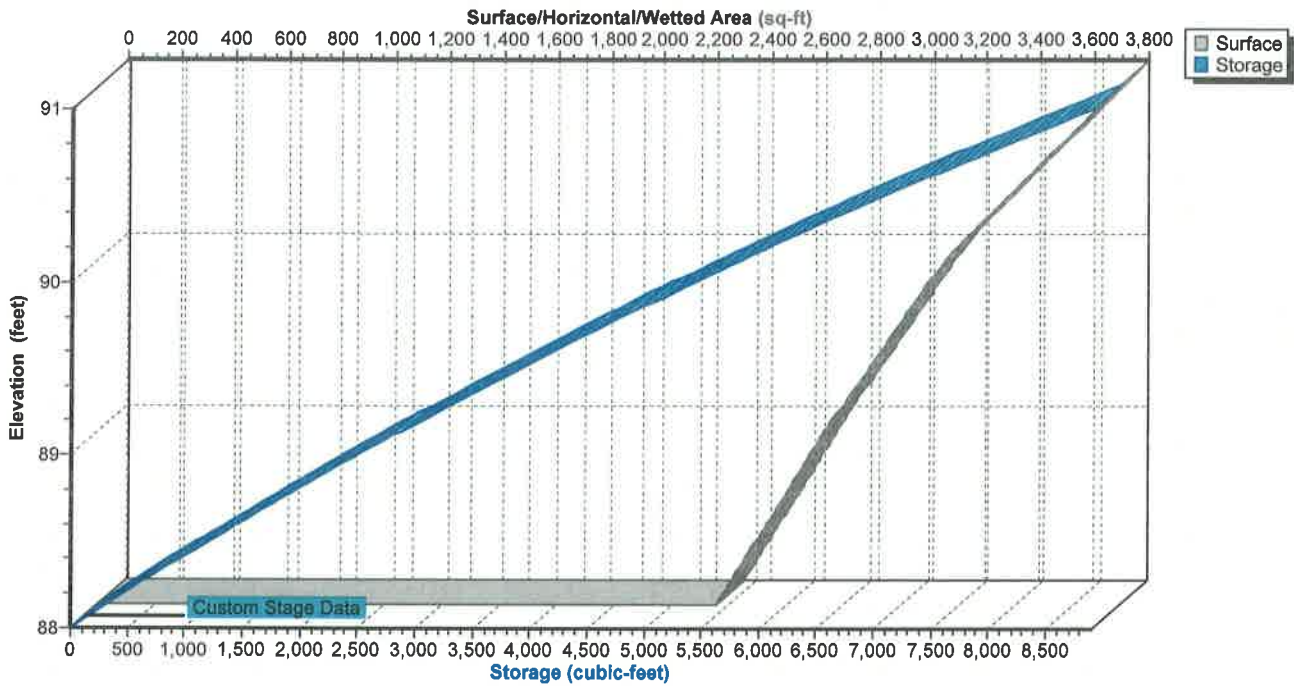
Pond DP: Detention Pond

Stage-Discharge



Pond DP: Detention Pond

Stage-Area-Storage



Summary for Pond R-1: Roof Recharge System

Inflow Area = 0.080 ac, 100.00% Impervious, Inflow Depth > 4.45" for 10-YR. STORM event
 Inflow = 0.35 cfs @ 12.11 hrs, Volume= 0.030 af
 Outflow = 0.34 cfs @ 12.13 hrs, Volume= 0.030 af, Atten= 3%, Lag= 1.3 min
 Discarded = 0.01 cfs @ 8.75 hrs, Volume= 0.012 af
 Primary = 0.33 cfs @ 12.13 hrs, Volume= 0.018 af
 Routed to Pond DP : Detention Pond

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 91.84' @ 12.13 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.2 min (766.7 - 764.5)

Volume	Invert	Avail.Storage	Storage Description
#1	91.40'	0.002 af	Cultec R-180 x 4 Effective Size= 33.6"W x 20.0"H => 3.44 sf x 6.33'L = 21.8 cf Overall Size= 36.0"W x 20.5"H x 7.33'L with 1.00' Overlap Row Length Adjustment= +1.00' x 3.44 sf x 1 rows

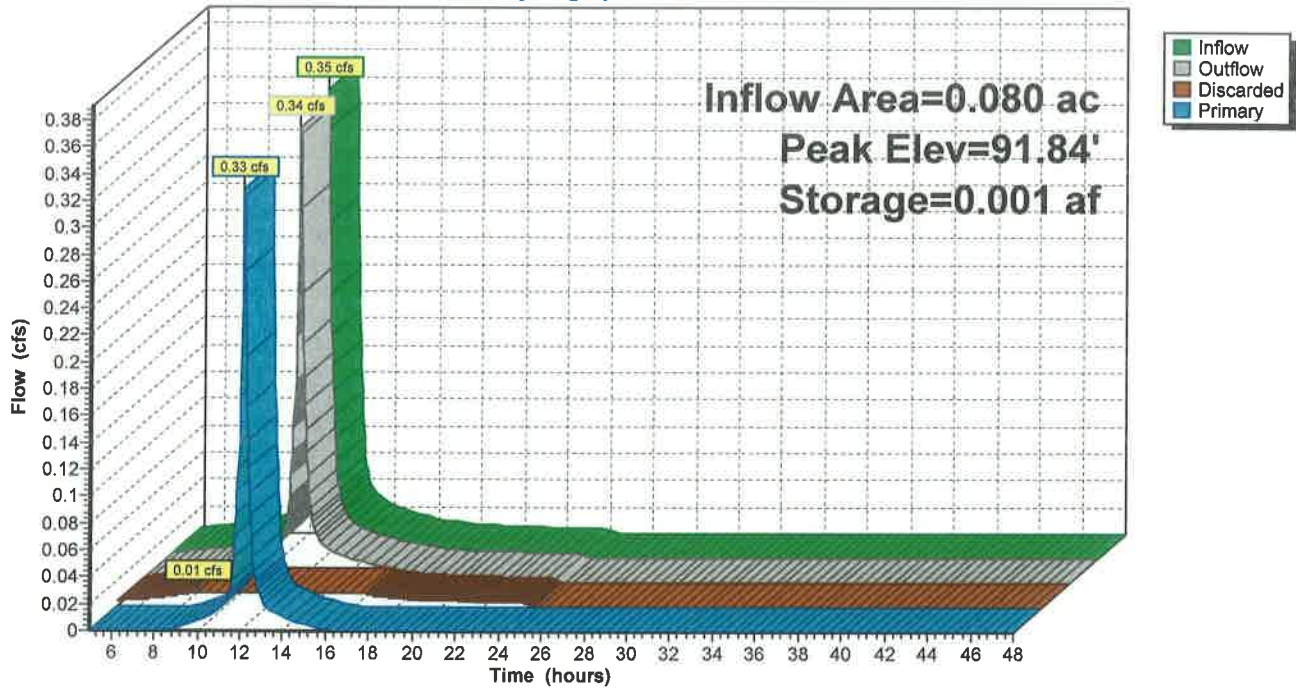
Device	Routing	Invert	Outlet Devices
#1	Discarded	91.40'	0.01 cfs Exfiltration at all elevations
#2	Primary	91.40'	6.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 91.40' / 90.50' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 8.75 hrs HW=91.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.32 cfs @ 12.13 hrs HW=91.83' TW=88.89' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.32 cfs @ 1.77 fps)

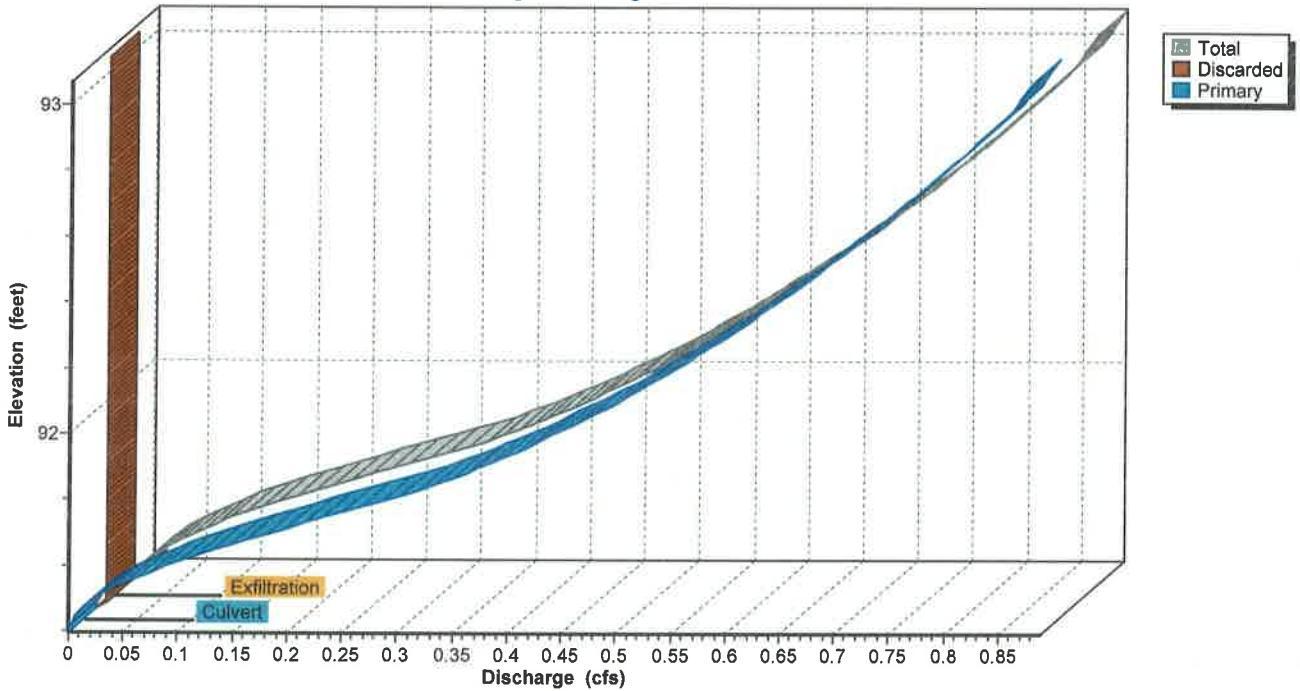
Pond R-1: Roof Recharge System

Hydrograph

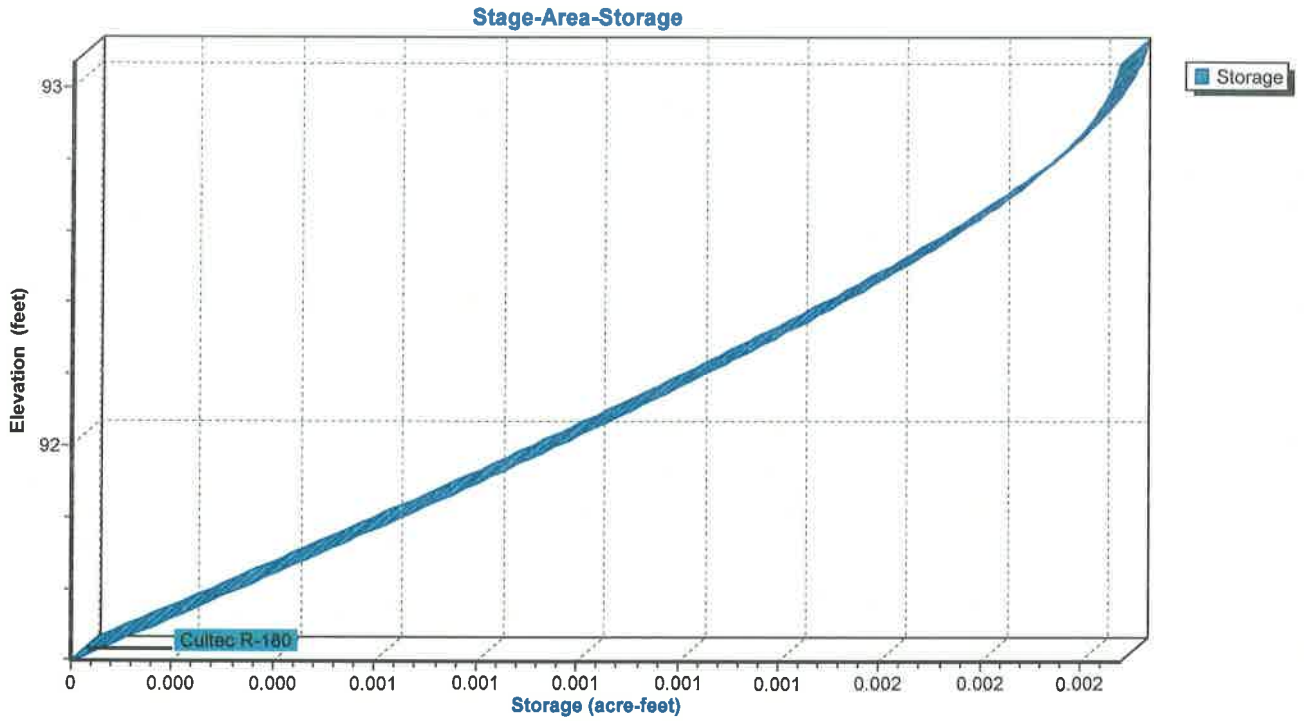


Pond R-1: Roof Recharge System

Stage-Discharge



Pond R-1: Roof Recharge System



Summary for Subcatchment 1S: Roof Area

Runoff = 0.41 cfs @ 12.11 hrs, Volume= 0.035 af, Depth> 5.21"
 Routed to Pond R-1 : Roof Recharge System

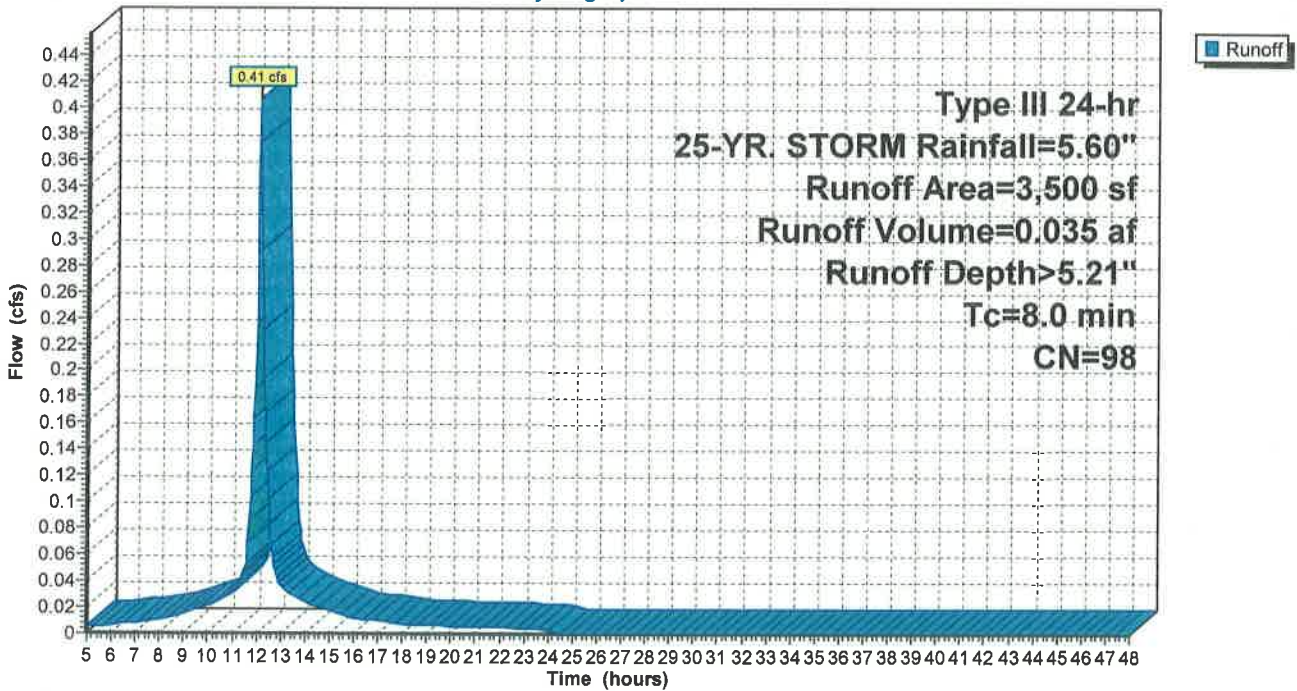
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR. STORM Rainfall=5.60"

Area (sf)	CN	Description
* 3,500	98	Roof Area
3,500		100.00% Impervious Area

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

Subcatchment 1S: Roof Area

Hydrograph



Summary for Subcatchment EC: Existing Conditions

Runoff = 1.07 cfs @ 12.15 hrs, Volume= 0.113 af, Depth= 0.95"

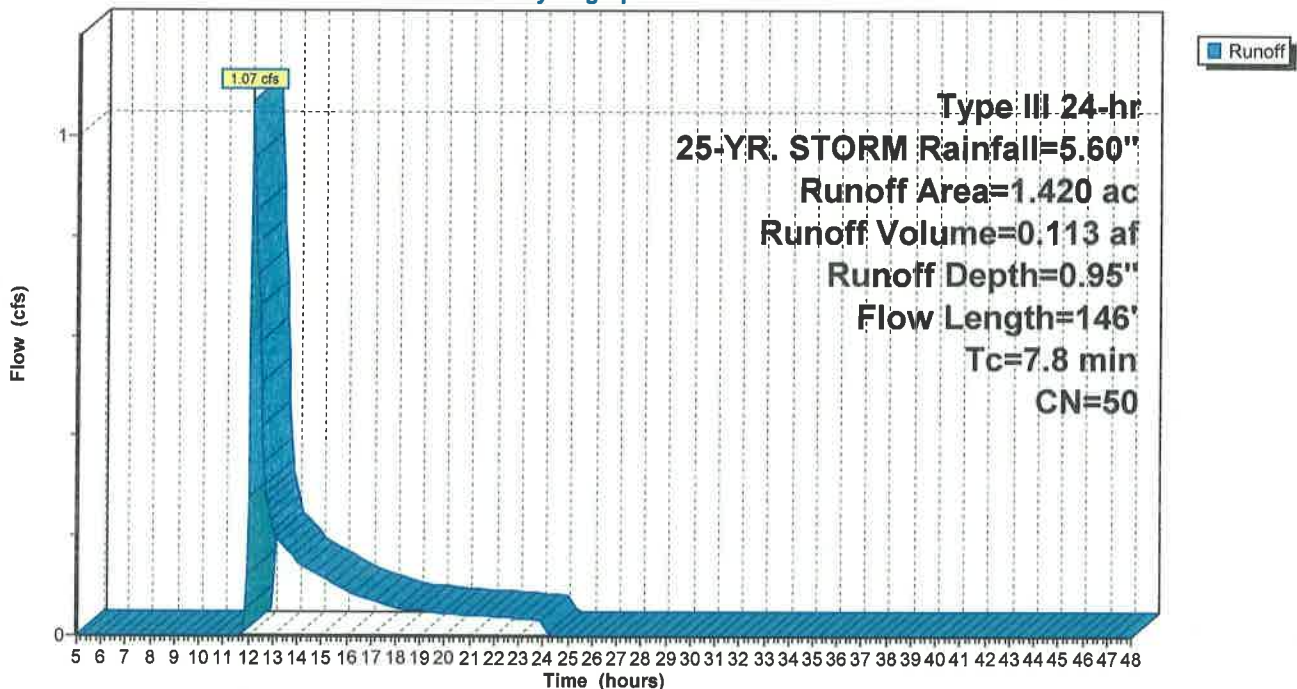
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR. STORM Rainfall=5.60"

Area (ac)	CN	Description
0.600	36	Woods, Fair, HSG A
0.820	60	Woods, Fair, HSG B
1.420	50	Weighted Average
1.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1080	0.14		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.40"
1.7	96	0.0360	0.95		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
7.8	146	Total			

Subcatchment EC: Existing Conditions

Hydrograph



Summary for Subcatchment PC-1: Proposed Conditions-1

Runoff = 2.15 cfs @ 12.09 hrs, Volume= 0.157 af, Depth= 3.62"
 Routed to Pond DP : Detention Pond

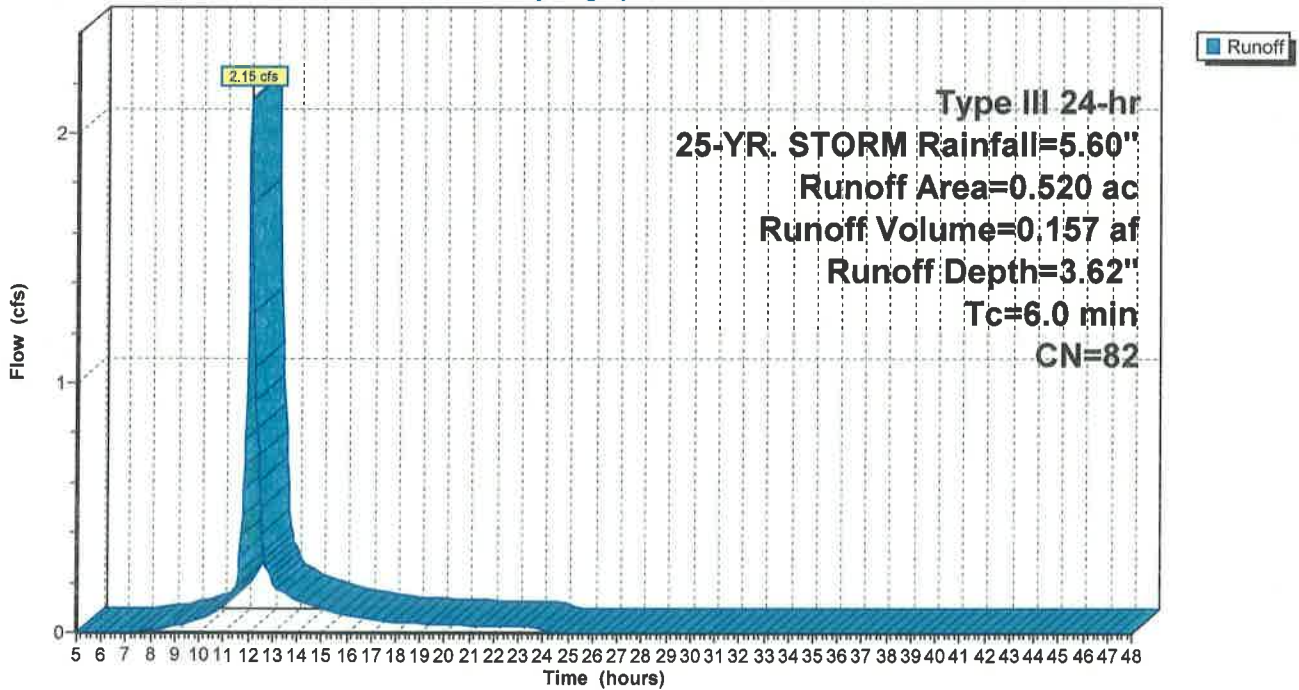
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR. STORM Rainfall=5.60"

Area (ac)	CN	Description
0.040	39	>75% Grass cover, Good, HSG A
0.160	61	>75% Grass cover, Good, HSG B
* 0.320	98	Impervious
0.520	82	Weighted Average
0.200		38.46% Pervious Area
0.320		61.54% Impervious Area

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

Subcatchment PC-1: Proposed Conditions-1

Hydrograph



Summary for Subcatchment PC-2: Bypass

Runoff = 0.98 cfs @ 12.13 hrs, Volume= 0.088 af, Depth= 1.29"
 Routed to Pond AP : AP-1

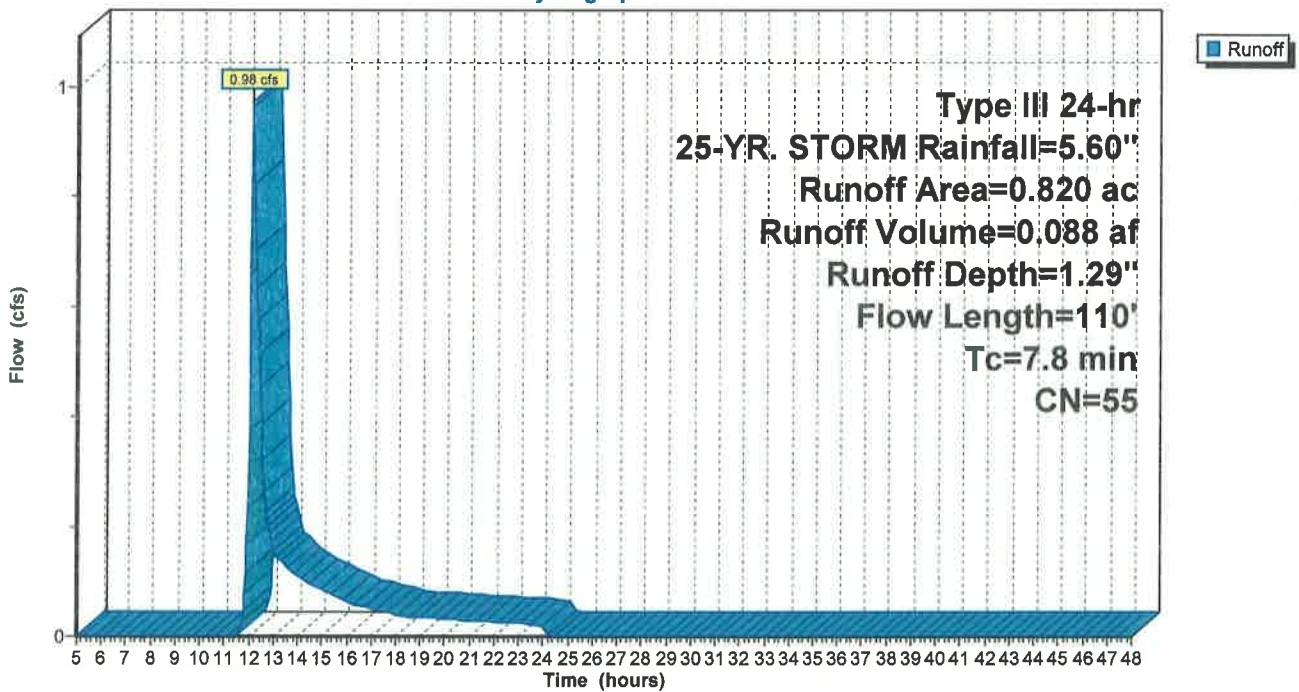
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 25-YR. STORM Rainfall=5.60"

Area (ac)	CN	Description
0.220	36	Woods, Fair, HSG A
0.300	60	Woods, Fair, HSG B
0.050	98	Paved parking, HSG A
0.050	39	>75% Grass cover, Good, HSG A
0.200	61	>75% Grass cover, Good, HSG B
0.820	55	Weighted Average
0.770		93.90% Pervious Area
0.050		6.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0740	0.12		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.40"
0.7	60	0.0920	1.52		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
7.8	110	Total			

Subcatchment PC-2: Bypass

Hydrograph



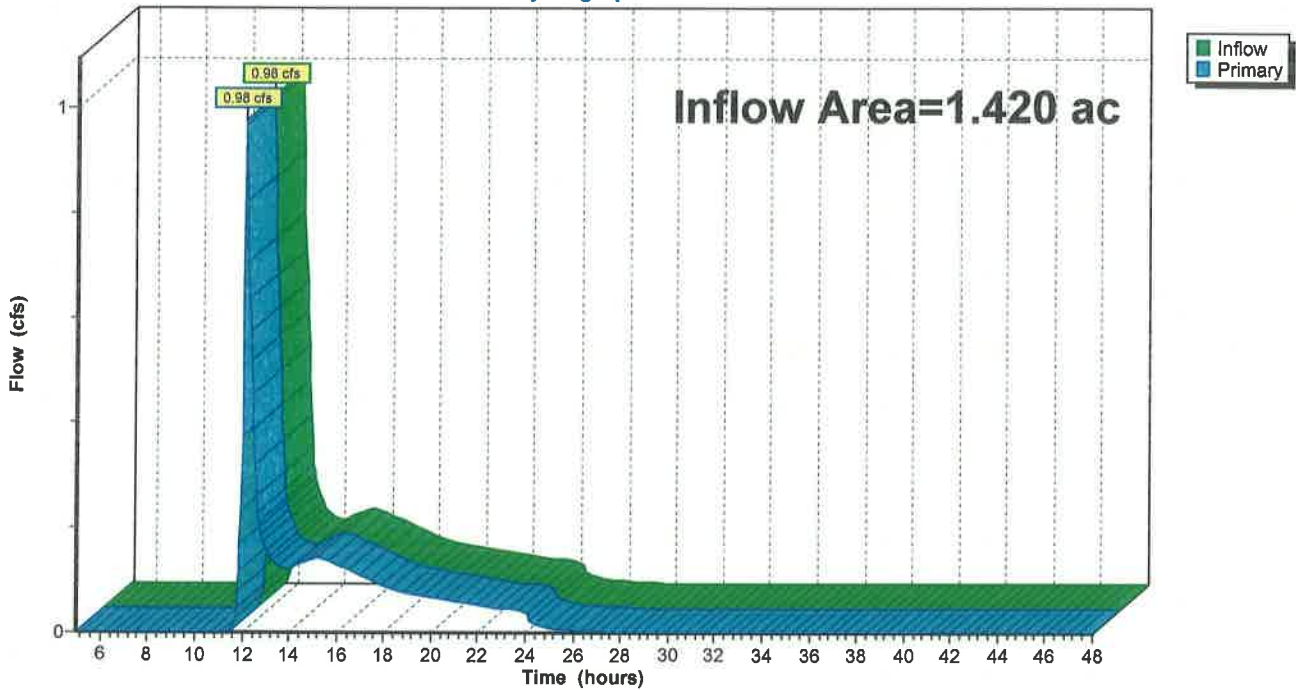
Summary for Pond AP: AP-1

Inflow Area = 1.420 ac, 31.71% Impervious, Inflow Depth = 1.05" for 25-YR. STORM event
Inflow = 0.98 cfs @ 12.13 hrs, Volume= 0.125 af
Primary = 0.98 cfs @ 12.13 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2

Pond AP: AP-1

Hydrograph



Summary for Pond DP: Detention Pond

Inflow Area = 0.600 ac, 66.69% Impervious, Inflow Depth = 3.58" for 25-YR. STORM event
 Inflow = 2.51 cfs @ 12.10 hrs, Volume= 0.179 af
 Outflow = 0.08 cfs @ 15.88 hrs, Volume= 0.070 af, Atten= 97%, Lag= 226.8 min
 Discarded = 0.01 cfs @ 9.35 hrs, Volume= 0.034 af
 Primary = 0.07 cfs @ 15.88 hrs, Volume= 0.036 af
 Routed to Pond AP : AP-1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 90.18' @ 15.88 hrs Surf.Area= 3,266 sf Storage= 5,997 cf

Plug-Flow detention time= 687.3 min calculated for 0.070 af (39% of inflow)
 Center-of-Mass det. time= 575.0 min (1,376.9 - 801.9)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	8,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	2,300	0	0
88.50	2,500	1,200	1,200
89.00	2,700	1,300	2,500
90.00	3,150	2,925	5,425
91.00	3,800	3,475	8,900

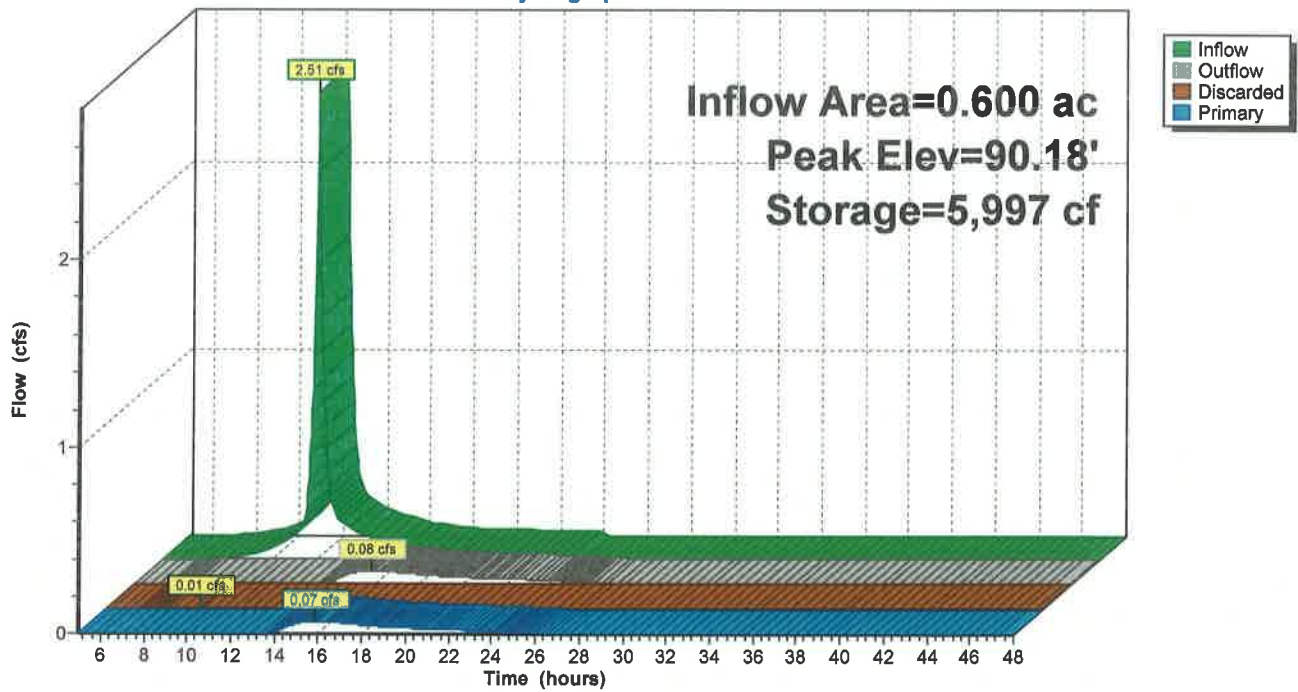
Device	Routing	Invert	Outlet Devices
#1	Discarded	88.00'	0.01 cfs Exfiltration at all elevations
#2	Primary	90.00'	4.0" Vert. 89.4 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 9.35 hrs HW=88.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.07 cfs @ 15.88 hrs HW=90.18' TW=0.00' (Dynamic Tailwater)
 ↑2=89.4 (Orifice Controls 0.07 cfs @ 1.44 fps)

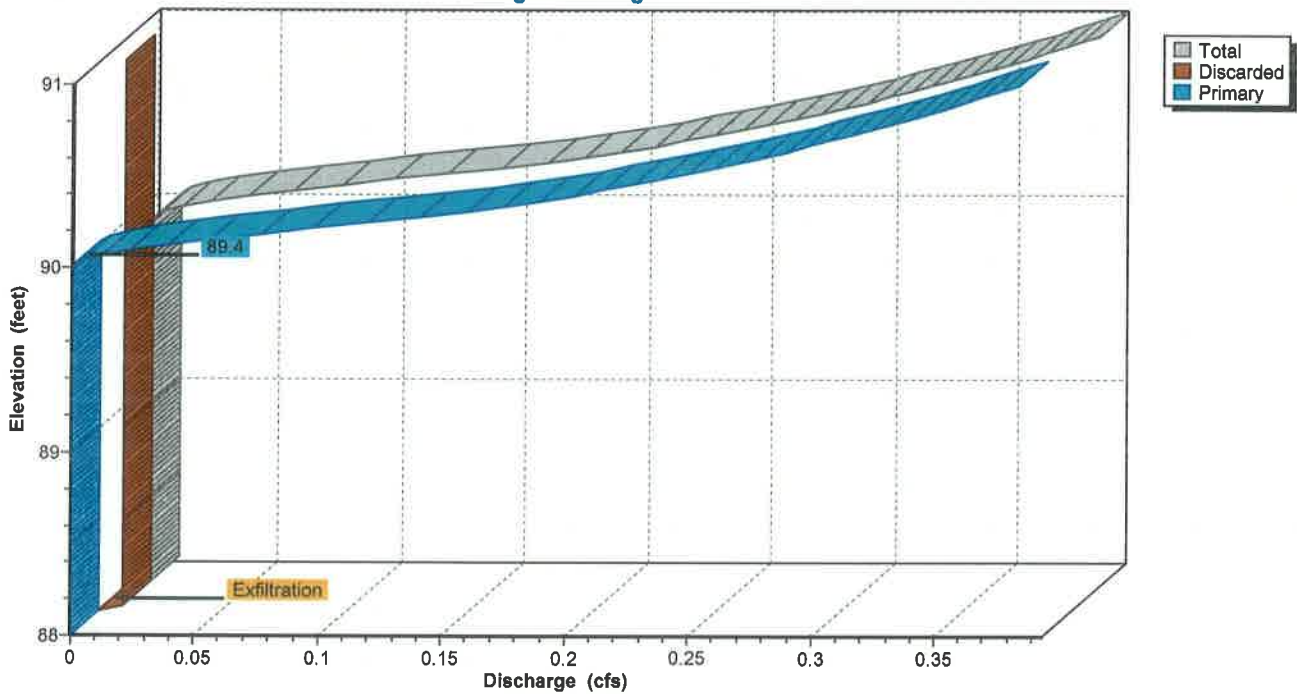
Pond DP: Detention Pond

Hydrograph



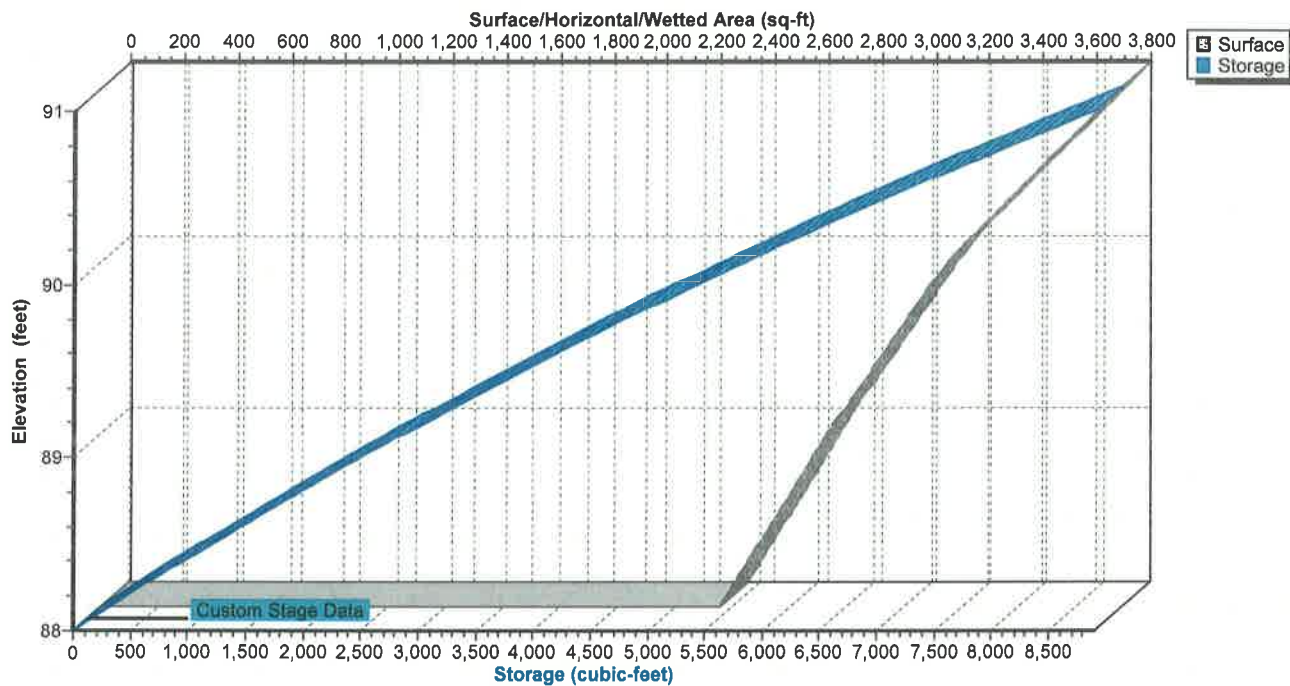
Pond DP: Detention Pond

Stage-Discharge



Pond DP: Detention Pond

Stage-Area-Storage



Summary for Pond R-1: Roof Recharge System

Inflow Area = 0.080 ac, 100.00% Impervious, Inflow Depth > 5.21" for 25-YR. STORM event
 Inflow = 0.41 cfs @ 12.11 hrs, Volume= 0.035 af
 Outflow = 0.39 cfs @ 12.13 hrs, Volume= 0.035 af, Atten= 4%, Lag= 1.4 min
 Discarded = 0.01 cfs @ 8.30 hrs, Volume= 0.013 af
 Primary = 0.38 cfs @ 12.13 hrs, Volume= 0.022 af
 Routed to Pond DP : Detention Pond

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 91.91' @ 12.14 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.3 min (765.8 - 763.5)

Volume	Invert	Avail.Storage	Storage Description
#1	91.40'	0.002 af	Cultec R-180 x 4 Effective Size= 33.6"W x 20.0"H => 3.44 sf x 6.33'L = 21.8 cf Overall Size= 36.0"W x 20.5"H x 7.33'L with 1.00' Overlap Row Length Adjustment= +1.00' x 3.44 sf x 1 rows

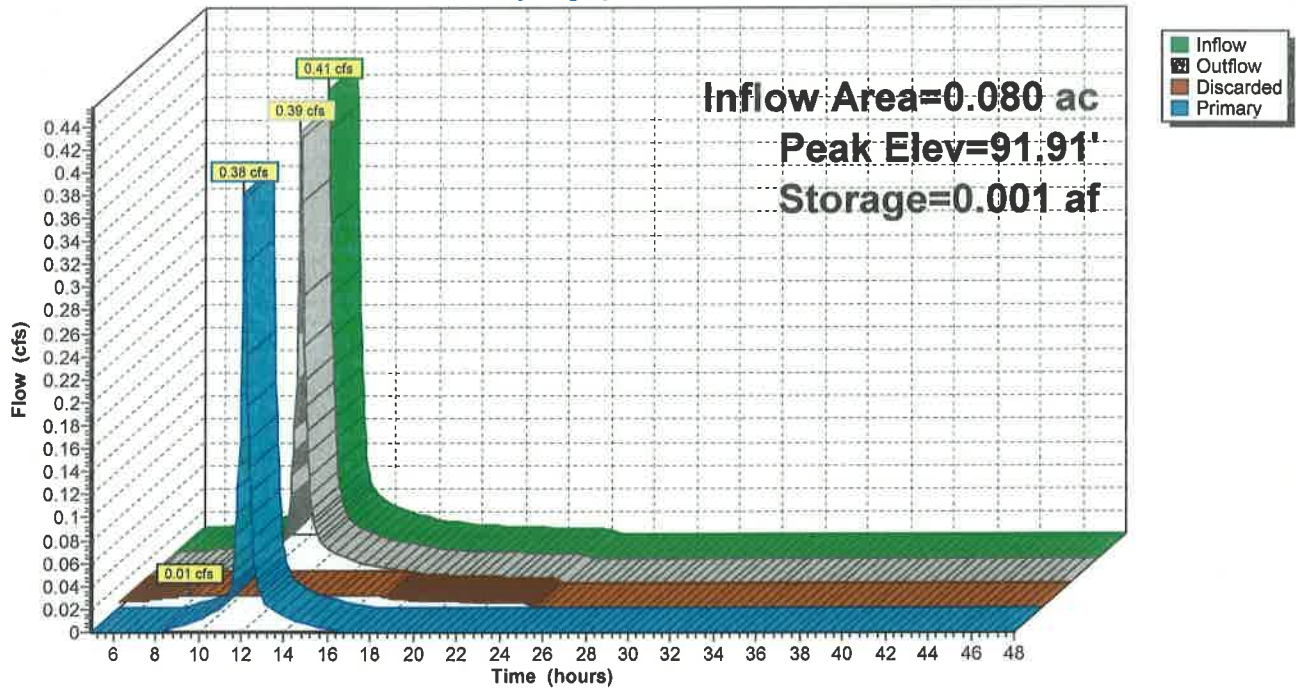
Device	Routing	Invert	Outlet Devices
#1	Discarded	91.40'	0.01 cfs Exfiltration at all elevations
#2	Primary	91.40'	6.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 91.40' / 90.50' S= 0.0150 ' /' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 8.30 hrs HW=91.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.37 cfs @ 12.13 hrs HW=91.90' TW=89.15' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.37 cfs @ 1.90 fps)

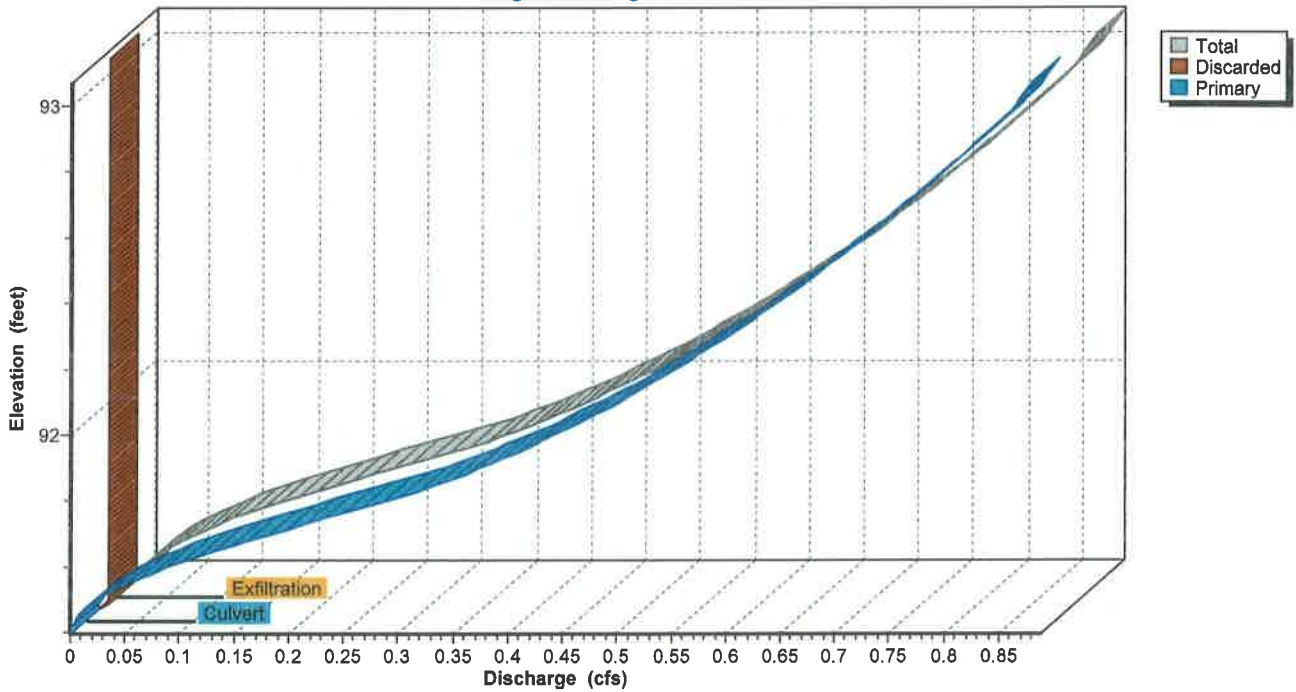
Pond R-1: Roof Recharge System

Hydrograph

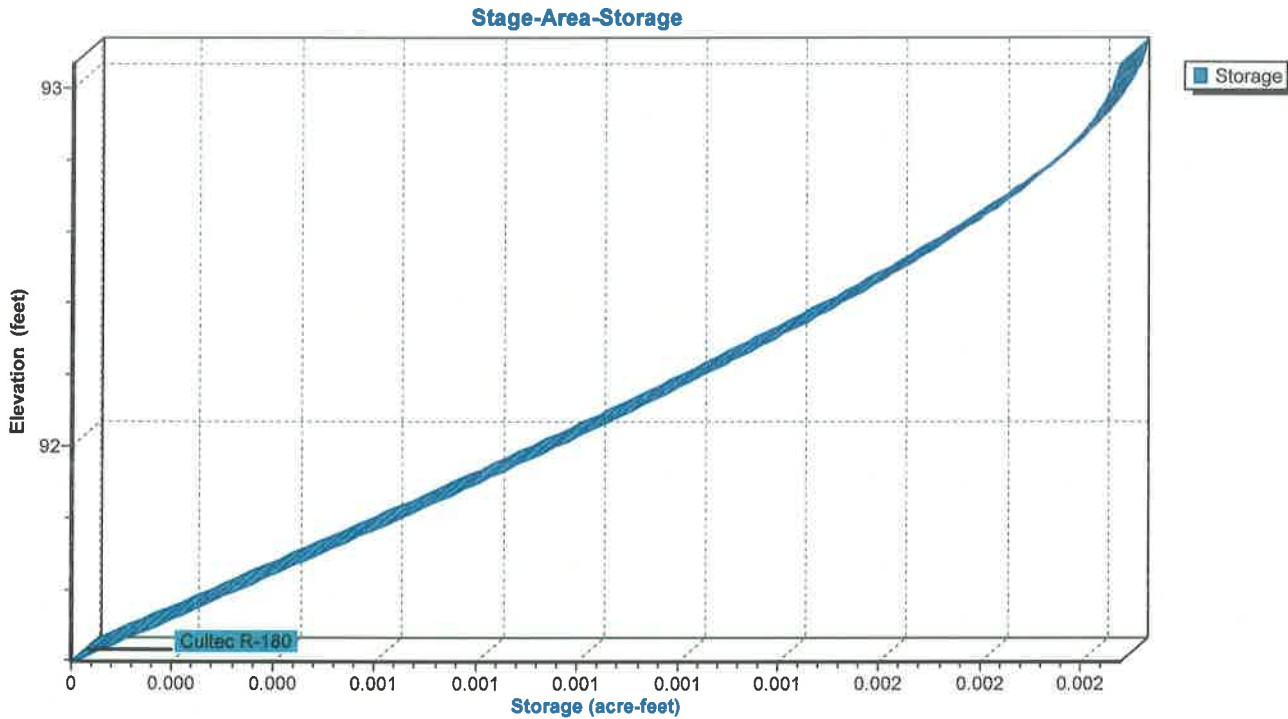


Pond R-1: Roof Recharge System

Stage-Discharge



Pond R-1: Roof Recharge System



Summary for Subcatchment 1S: Roof Area

Runoff = 0.51 cfs @ 12.11 hrs, Volume= 0.044 af, Depth> 6.55"
 Routed to Pond R-1 : Roof Recharge System

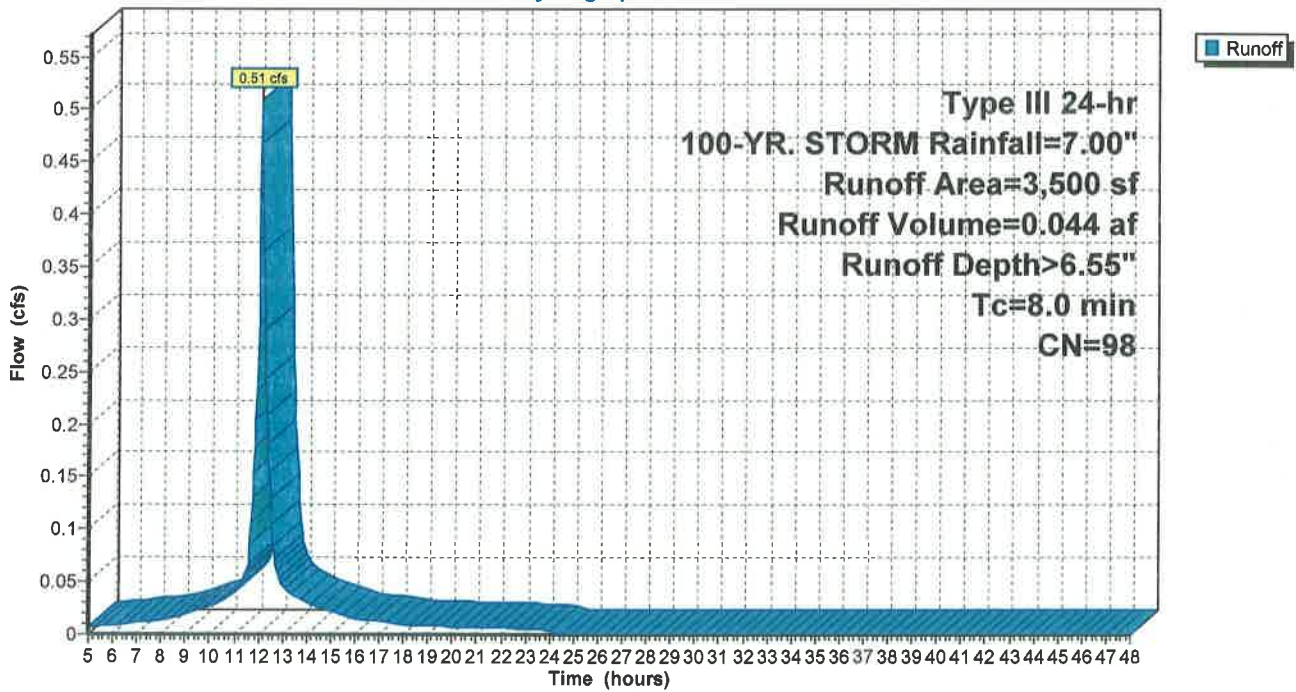
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR. STORM Rainfall=7.00"

Area (sf)	CN	Description
* 3,500	98	Roof Area
3,500		100.00% Impervious Area

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

Subcatchment 1S: Roof Area

Hydrograph



Summary for Subcatchment EC: Existing Conditions

Runoff = 2.20 cfs @ 12.13 hrs, Volume= 0.197 af, Depth= 1.67"

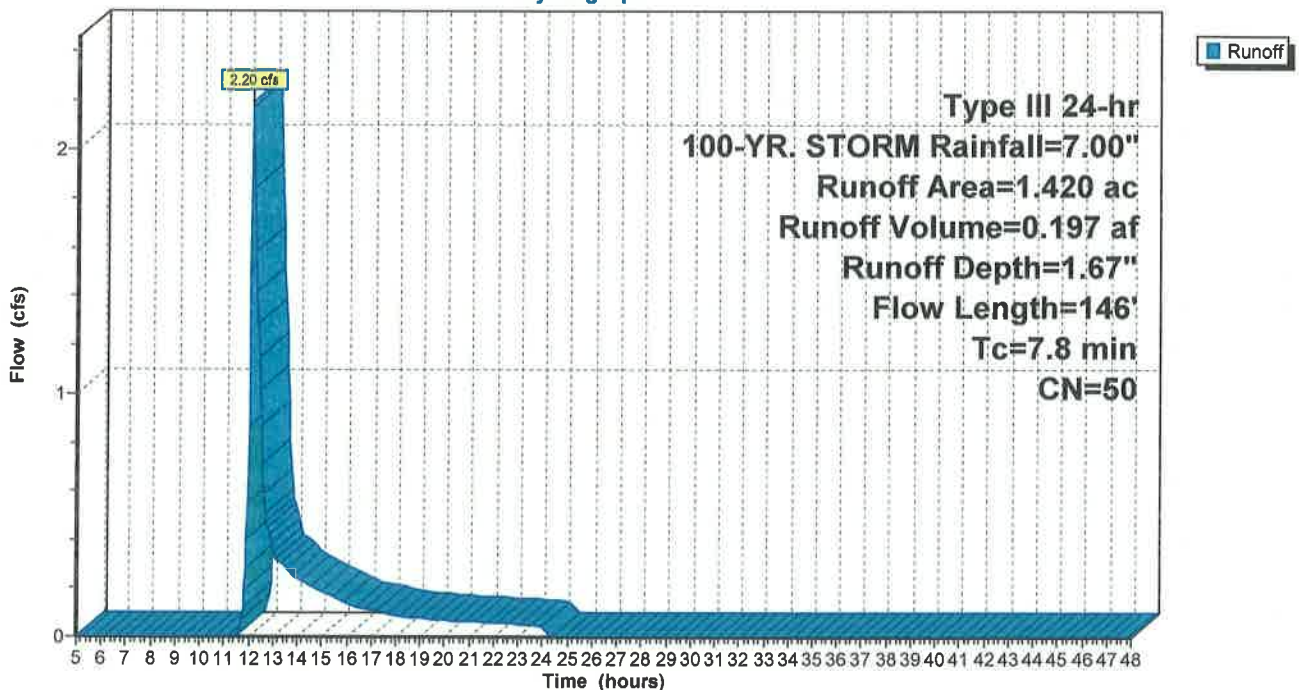
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR. STORM Rainfall=7.00"

Area (ac)	CN	Description
0.600	36	Woods, Fair, HSG A
0.820	60	Woods, Fair, HSG B
1.420	50	Weighted Average
1.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1080	0.14		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
1.7	96	0.0360	0.95		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
7.8	146	Total			

Subcatchment EC: Existing Conditions

Hydrograph



Summary for Subcatchment PC-1: Proposed Conditions-1

Runoff = 2.89 cfs @ 12.09 hrs, Volume= 0.213 af, Depth= 4.92"
 Routed to Pond DP : Detention Pond

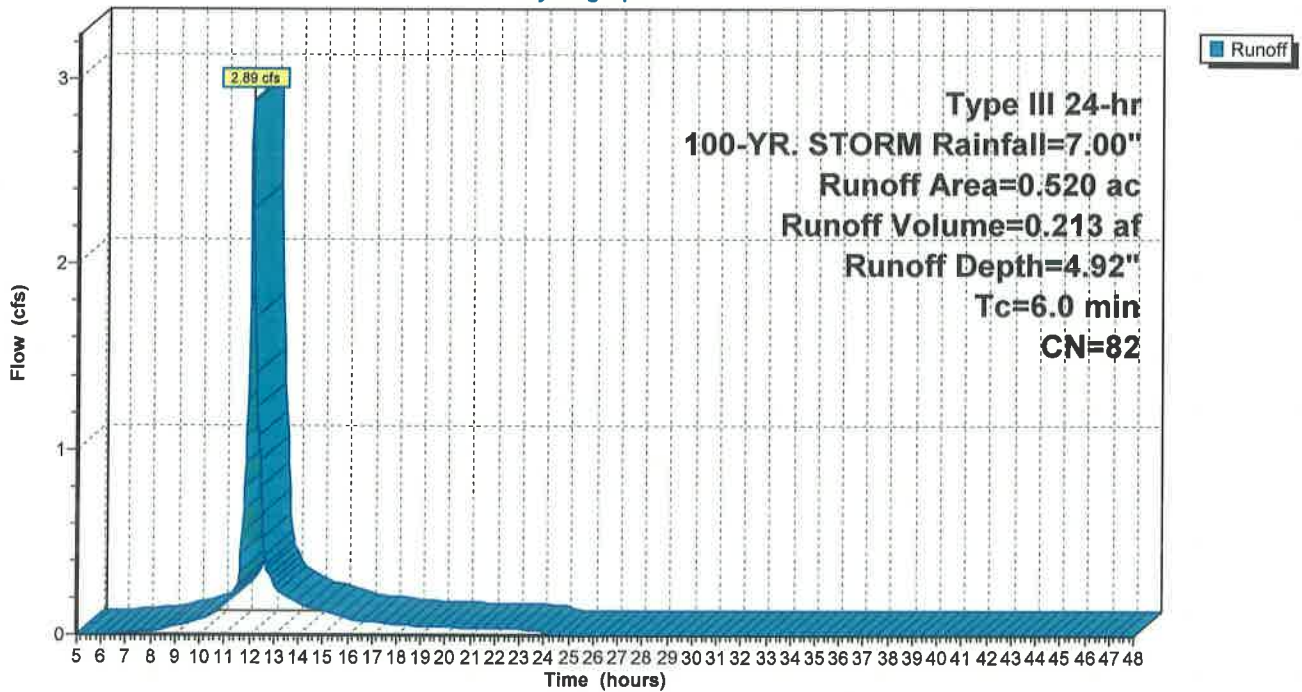
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR. STORM Rainfall=7.00"

Area (ac)	CN	Description
0.040	39	>75% Grass cover, Good, HSG A
0.160	61	>75% Grass cover, Good, HSG B
* 0.320	98	Impervious
0.520	82	Weighted Average
0.200		38.46% Pervious Area
0.320		61.54% Impervious Area

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

Subcatchment PC-1: Proposed Conditions-1

Hydrograph



Summary for Subcatchment PC-2: Bypass

Runoff = 1.76 cfs @ 12.12 hrs, Volume= 0.145 af, Depth= 2.12"
 Routed to Pond AP : AP-1

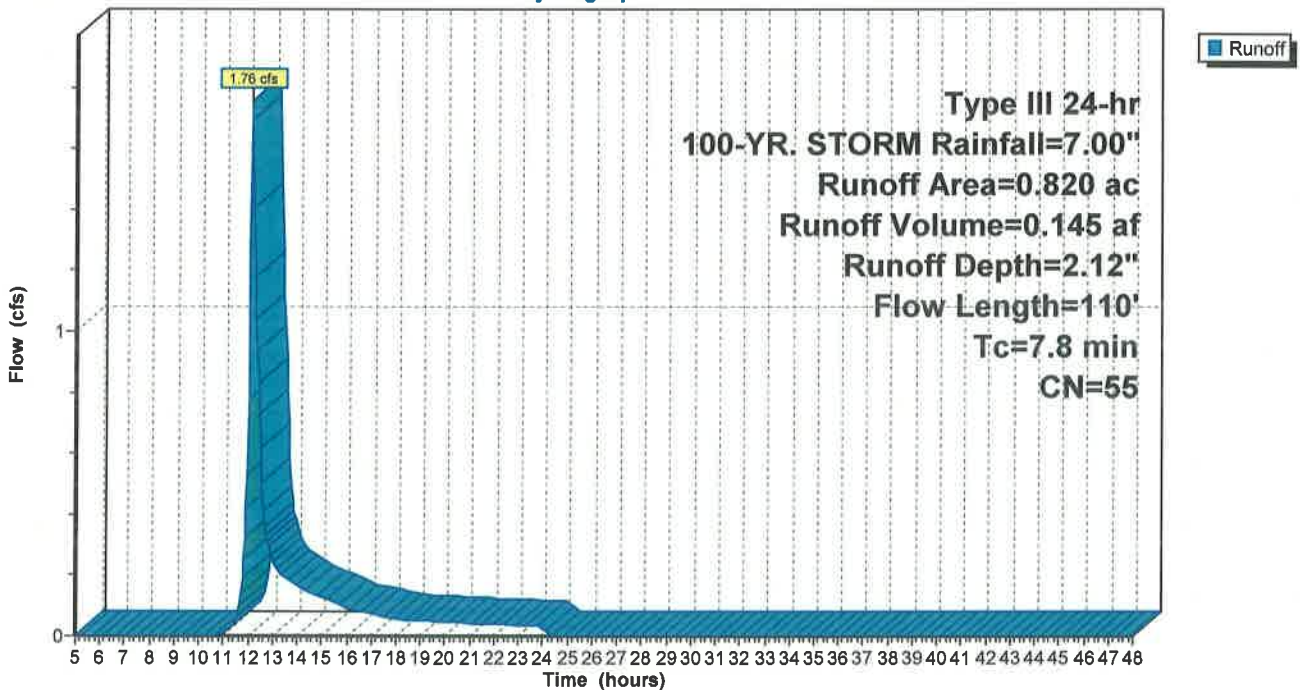
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr 100-YR. STORM Rainfall=7.00"

Area (ac)	CN	Description
0.220	36	Woods, Fair, HSG A
0.300	60	Woods, Fair, HSG B
0.050	98	Paved parking, HSG A
0.050	39	>75% Grass cover, Good, HSG A
0.200	61	>75% Grass cover, Good, HSG B
0.820	55	Weighted Average
0.770		93.90% Pervious Area
0.050		6.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0740	0.12		Sheet Flow, A-B
					Woods: Light underbrush n= 0.400 P2= 3.40"
0.7	60	0.0920	1.52		Shallow Concentrated Flow, B-C
					Woodland Kv= 5.0 fps
7.8	110	Total			

Subcatchment PC-2: Bypass

Hydrograph



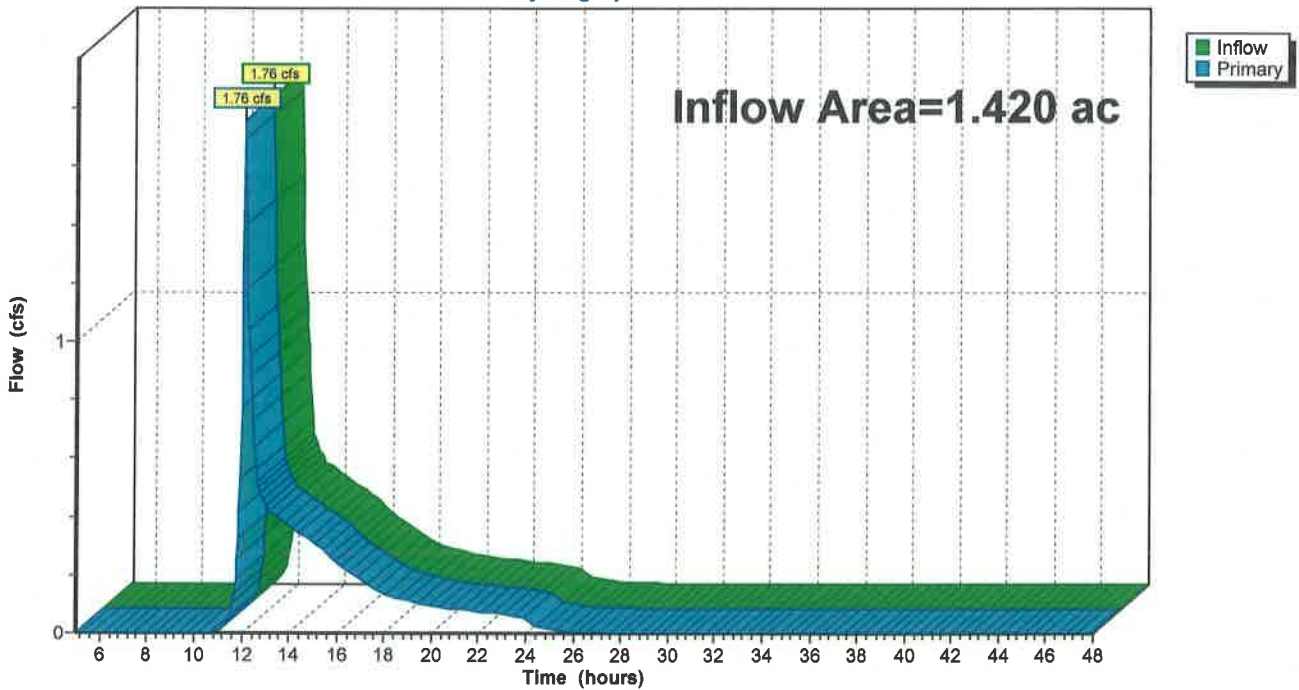
Summary for Pond AP: AP-1

Inflow Area = 1.420 ac, 31.71% Impervious, Inflow Depth = 2.06" for 100-YR. STORM event
Inflow = 1.76 cfs @ 12.12 hrs, Volume= 0.244 af
Primary = 1.76 cfs @ 12.12 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2

Pond AP: AP-1

Hydrograph



Summary for Pond DP: Detention Pond

Inflow Area = 0.600 ac, 66.69% Impervious, Inflow Depth = 4.86" for 100-YR. STORM event
 Inflow = 3.32 cfs @ 12.09 hrs, Volume= 0.243 af
 Outflow = 0.22 cfs @ 13.73 hrs, Volume= 0.133 af, Atten= 93%, Lag= 98.0 min
 Discarded = 0.01 cfs @ 8.50 hrs, Volume= 0.034 af
 Primary = 0.21 cfs @ 13.73 hrs, Volume= 0.099 af
 Routed to Pond AP : AP-1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 90.41' @ 13.73 hrs Surf.Area= 3,416 sf Storage= 6,766 cf

Plug-Flow detention time= 458.4 min calculated for 0.133 af (55% of inflow)
 Center-of-Mass det. time= 359.7 min (1,154.0 - 794.3)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	8,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	2,300	0	0
88.50	2,500	1,200	1,200
89.00	2,700	1,300	2,500
90.00	3,150	2,925	5,425
91.00	3,800	3,475	8,900

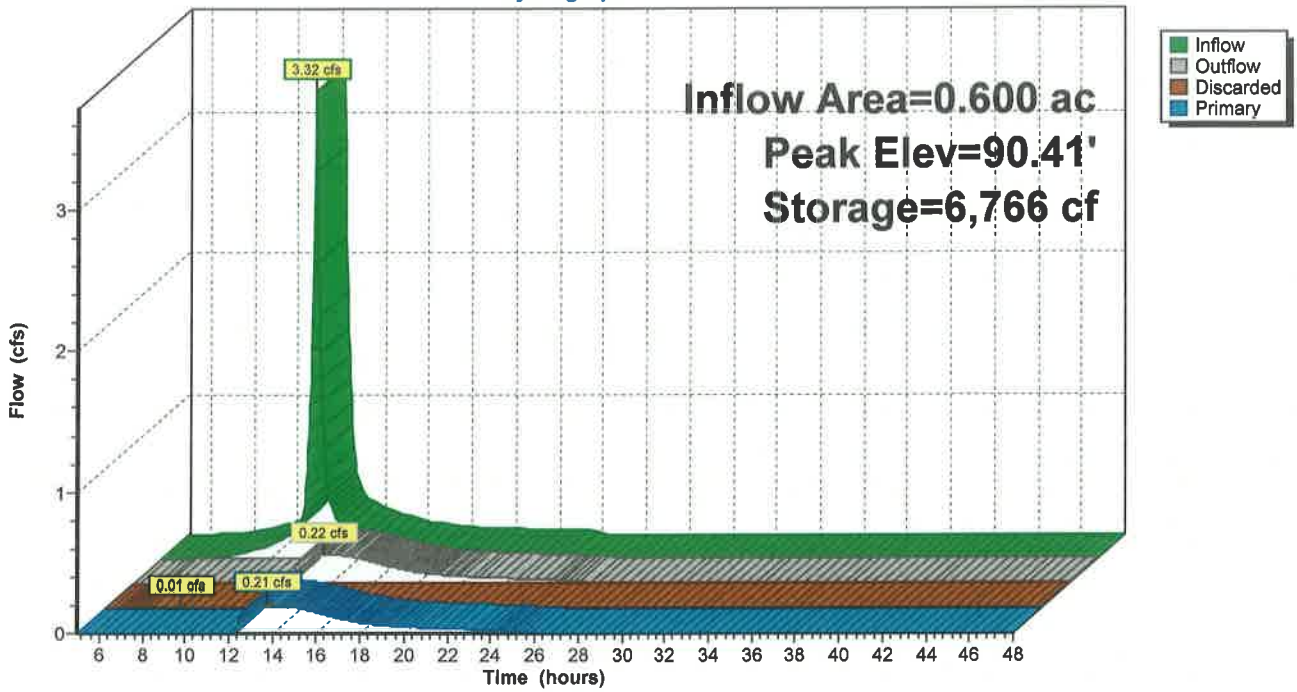
Device	Routing	Invert	Outlet Devices
#1	Discarded	88.00'	0.01 cfs Exfiltration at all elevations
#2	Primary	90.00'	4.0" Vert. 89.4 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 8.50 hrs HW=88.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.21 cfs @ 13.73 hrs HW=90.41' TW=0.00' (Dynamic Tailwater)
 ↑2=89.4 (Orifice Controls 0.21 cfs @ 2.37 fps)

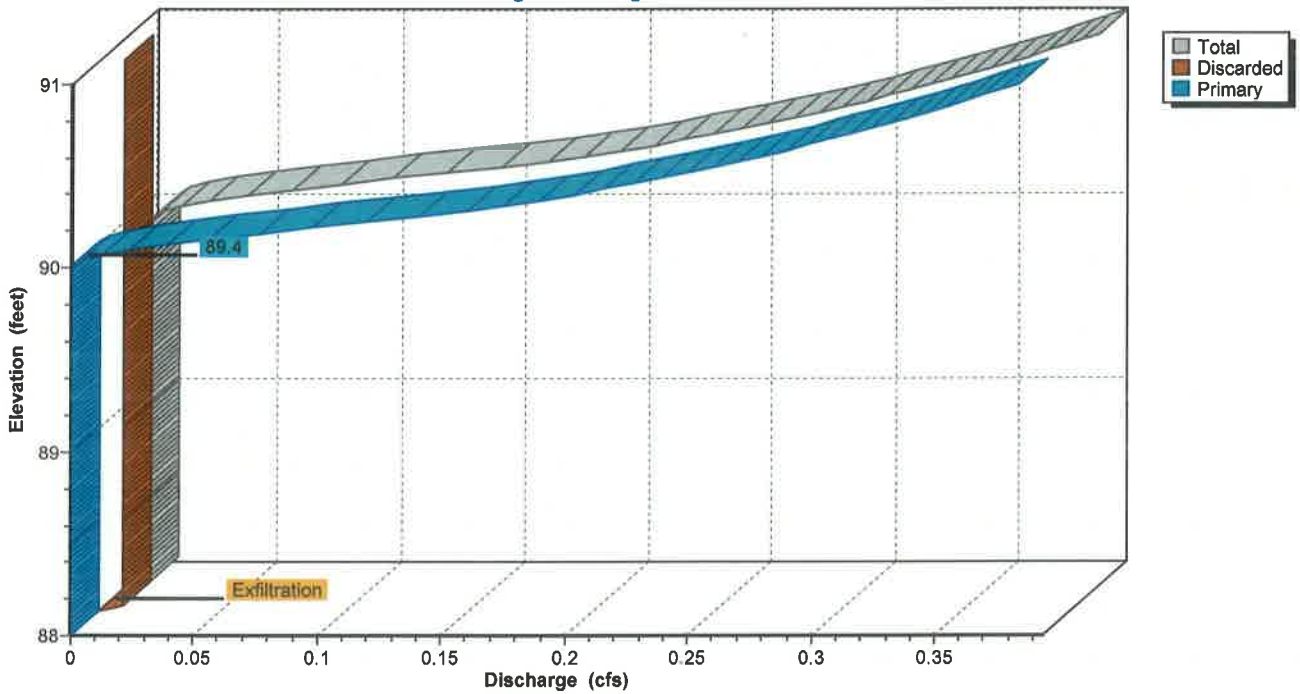
Pond DP: Detention Pond

Hydrograph



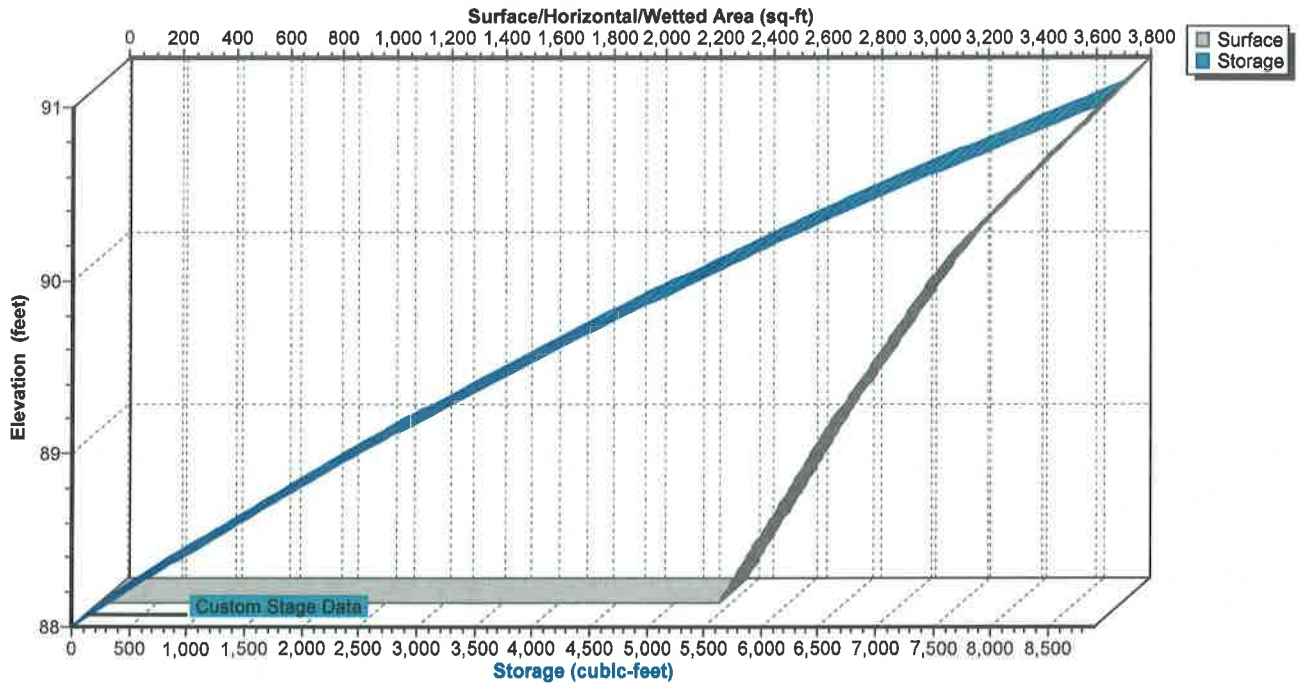
Pond DP: Detention Pond

Stage-Discharge



Pond DP: Detention Pond

Stage-Area-Storage



Summary for Pond R-1: Roof Recharge System

Inflow Area = 0.080 ac, 100.00% Impervious, Inflow Depth > 6.55" for 100-YR. STORM event
 Inflow = 0.51 cfs @ 12.11 hrs, Volume= 0.044 af
 Outflow = 0.49 cfs @ 12.14 hrs, Volume= 0.044 af, Atten= 5%, Lag= 1.8 min
 Discarded = 0.01 cfs @ 7.30 hrs, Volume= 0.014 af
 Primary = 0.48 cfs @ 12.14 hrs, Volume= 0.030 af
 Routed to Pond DP : Detention Pond

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 92.06' @ 12.14 hrs Surf.Area= 0.001 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.3 min (764.8 - 762.5)

Volume	Invert	Avail.Storage	Storage Description
#1	91.40'	0.002 af	Cultec R-180 x 4 Effective Size= 33.6"W x 20.0"H => 3.44 sf x 6.33'L = 21.8 cf Overall Size= 36.0"W x 20.5"H x 7.33'L with 1.00' Overlap Row Length Adjustment= +1.00' x 3.44 sf x 1 rows

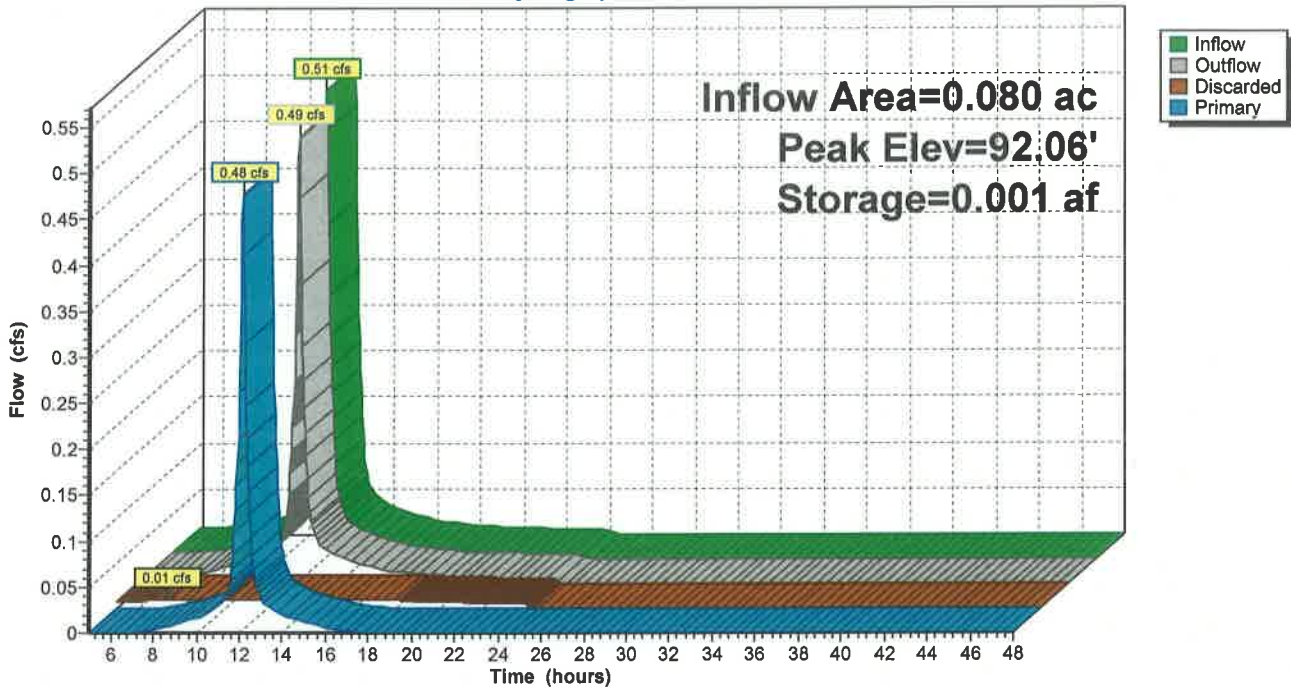
Device	Routing	Invert	Outlet Devices
#1	Discarded	91.40'	0.01 cfs Exfiltration at all elevations
#2	Primary	91.40'	6.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 91.40' / 90.50' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 7.30 hrs HW=91.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.47 cfs @ 12.14 hrs HW=92.05' TW=89.62' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.47 cfs @ 2.39 fps)

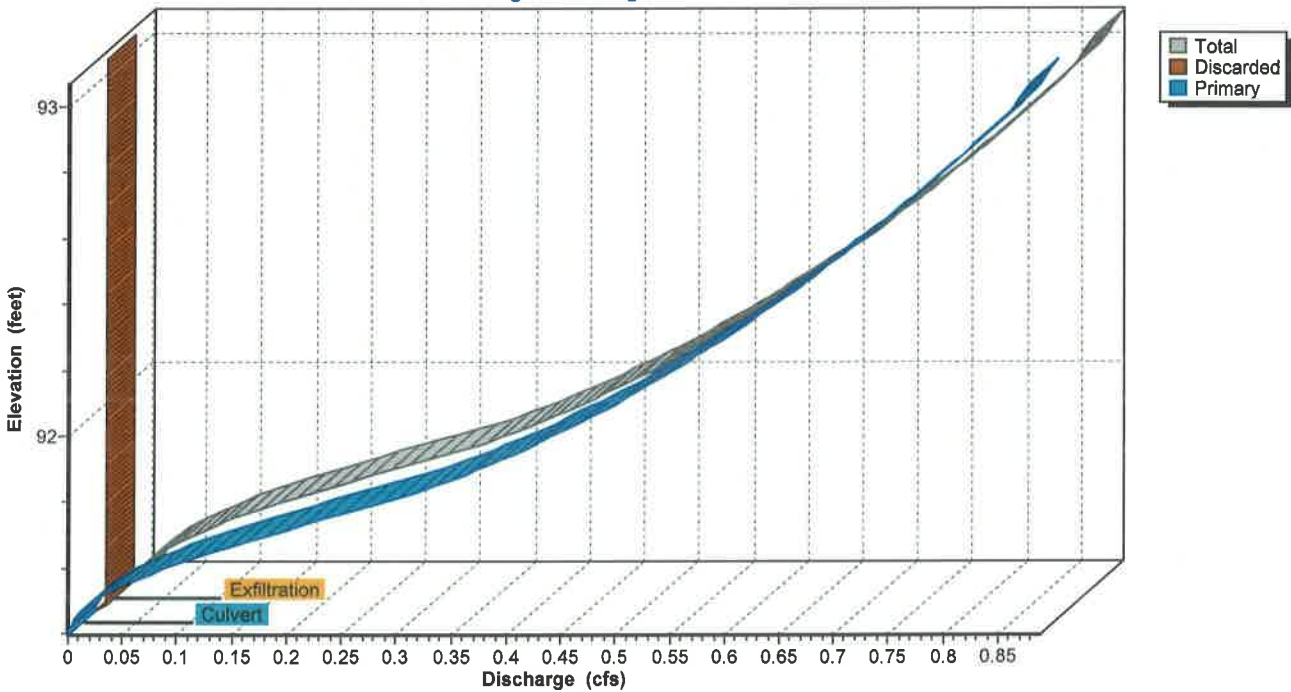
Pond R-1: Roof Recharge System

Hydrograph

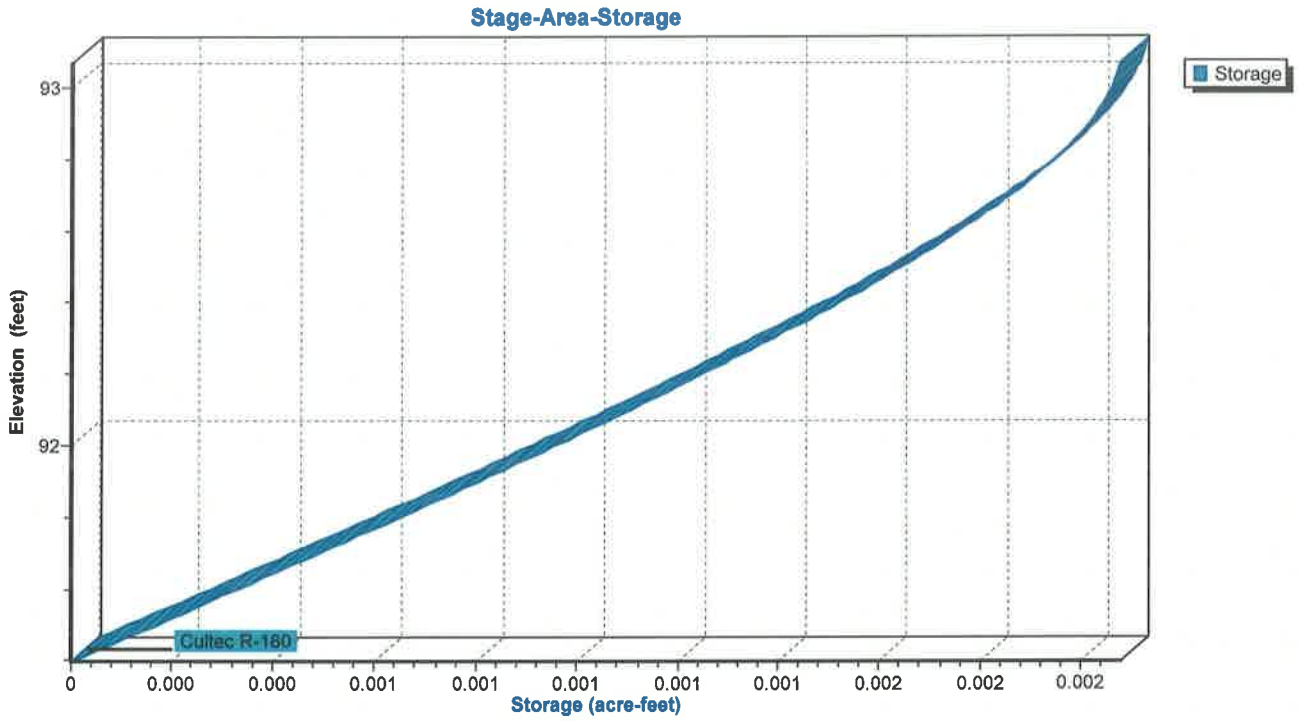


Pond R-1: Roof Recharge System

Stage-Discharge



Pond R-1: Roof Recharge System



Summary for Subcatchment 1S: Roof Area

Runoff = 0.25 cfs @ 12.11 hrs, Volume= 0.021 af, Depth> 3.20"
 Routed to Pond R-1 : Roof Recharge System

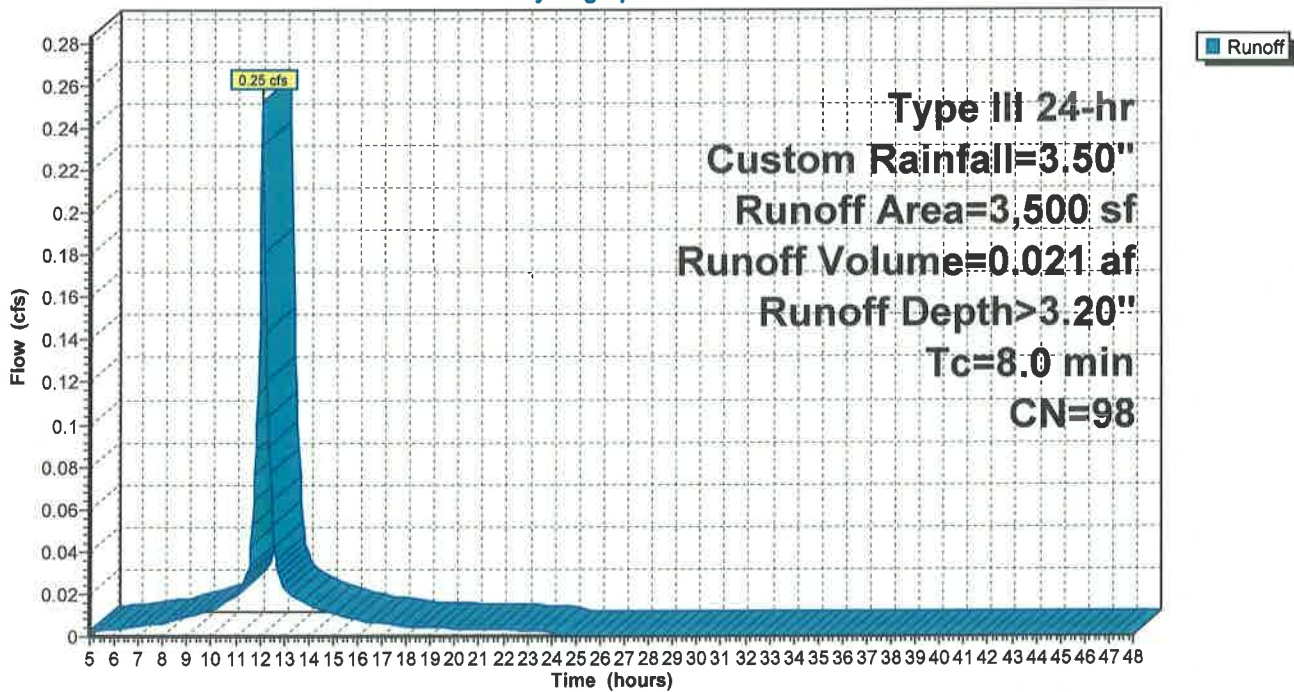
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr Custom Rainfall=3.50"

Area (sf)	CN	Description
* 3,500	98	Roof Area
3,500		100.00% Impervious Area

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

Subcatchment 1S: Roof Area

Hydrograph



Summary for Subcatchment EC: Existing Conditions

Runoff = 0.08 cfs @ 12.43 hrs, Volume= 0.023 af, Depth= 0.20"

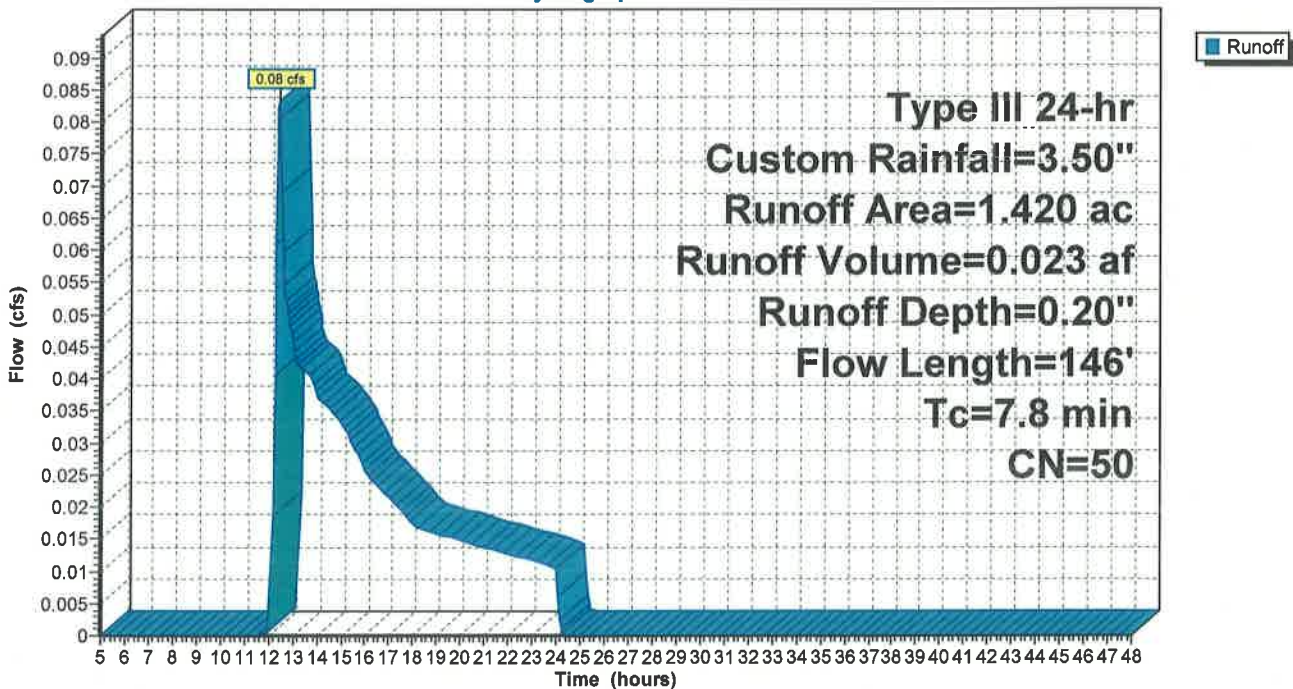
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr Custom Rainfall=3.50"

Area (ac)	CN	Description
0.600	36	Woods, Fair, HSG A
0.820	60	Woods, Fair, HSG B
1.420	50	Weighted Average
1.420		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.1	50	0.1080	0.14		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
1.7	96	0.0360	0.95		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
7.8	146	Total			

Subcatchment EC: Existing Conditions

Hydrograph



Summary for Subcatchment PC-1: Proposed Conditions-1

Runoff = 1.06 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 1.78"
 Routed to Pond DP : Detention Pond

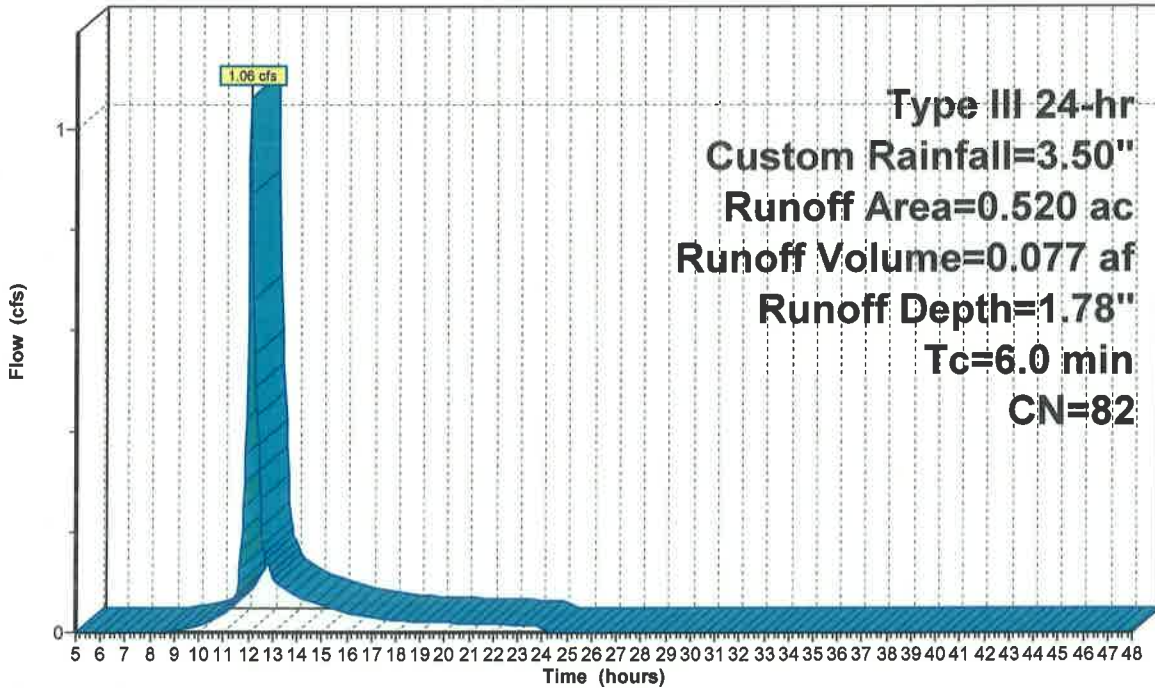
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr Custom Rainfall=3.50"

Area (ac)	CN	Description
0.040	39	>75% Grass cover, Good, HSG A
0.160	61	>75% Grass cover, Good, HSG B
* 0.320	98	Impervious
0.520	82	Weighted Average
0.200		38.46% Pervious Area
0.320		61.54% Impervious Area

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

Subcatchment PC-1: Proposed Conditions-1

Hydrograph



Runoff

Summary for Subcatchment PC-2: Bypass

Runoff = 0.13 cfs @ 12.30 hrs, Volume= 0.024 af, Depth= 0.35"
 Routed to Pond AP : AP-1

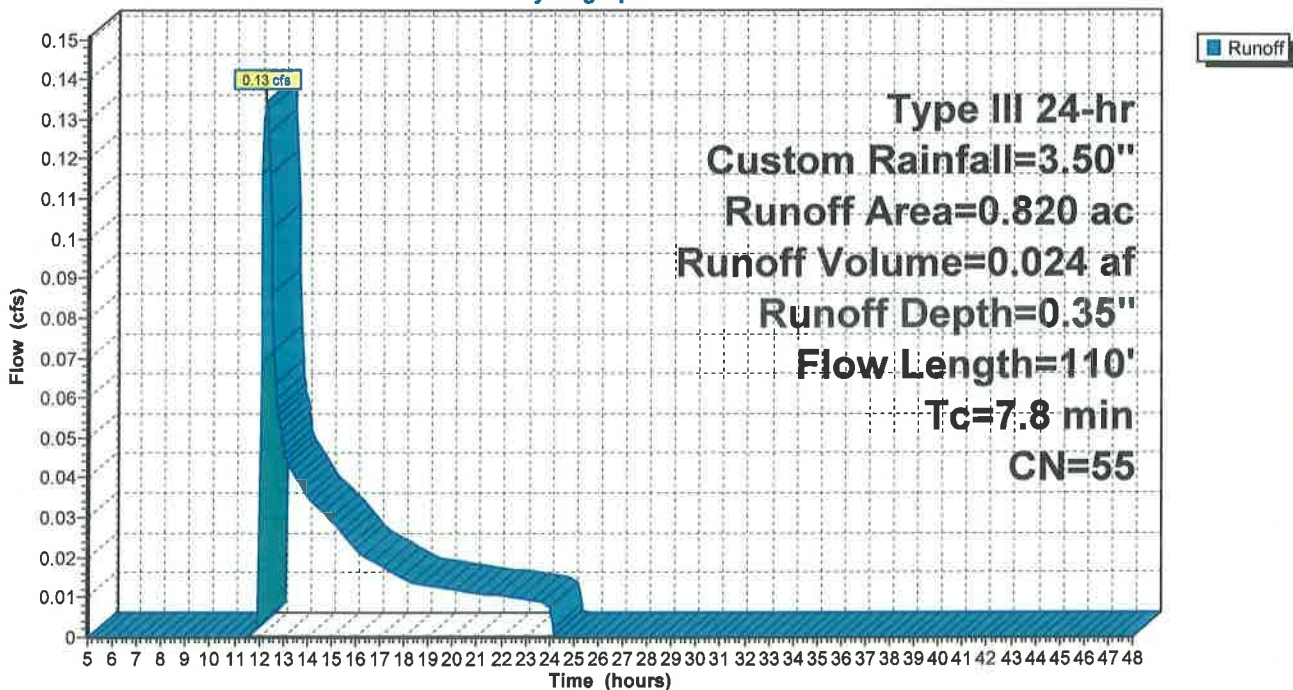
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs
 Type III 24-hr Custom Rainfall=3.50"

Area (ac)	CN	Description
0.220	36	Woods, Fair, HSG A
0.300	60	Woods, Fair, HSG B
0.050	98	Paved parking, HSG A
0.050	39	>75% Grass cover, Good, HSG A
0.200	61	>75% Grass cover, Good, HSG B
0.820	55	Weighted Average
0.770		93.90% Pervious Area
0.050		6.10% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.1	50	0.0740	0.12		Sheet Flow, A-B Woods: Light underbrush n= 0.400 P2= 3.40"
0.7	60	0.0920	1.52		Shallow Concentrated Flow, B-C Woodland Kv= 5.0 fps
7.8	110	Total			

Subcatchment PC-2: Bypass

Hydrograph



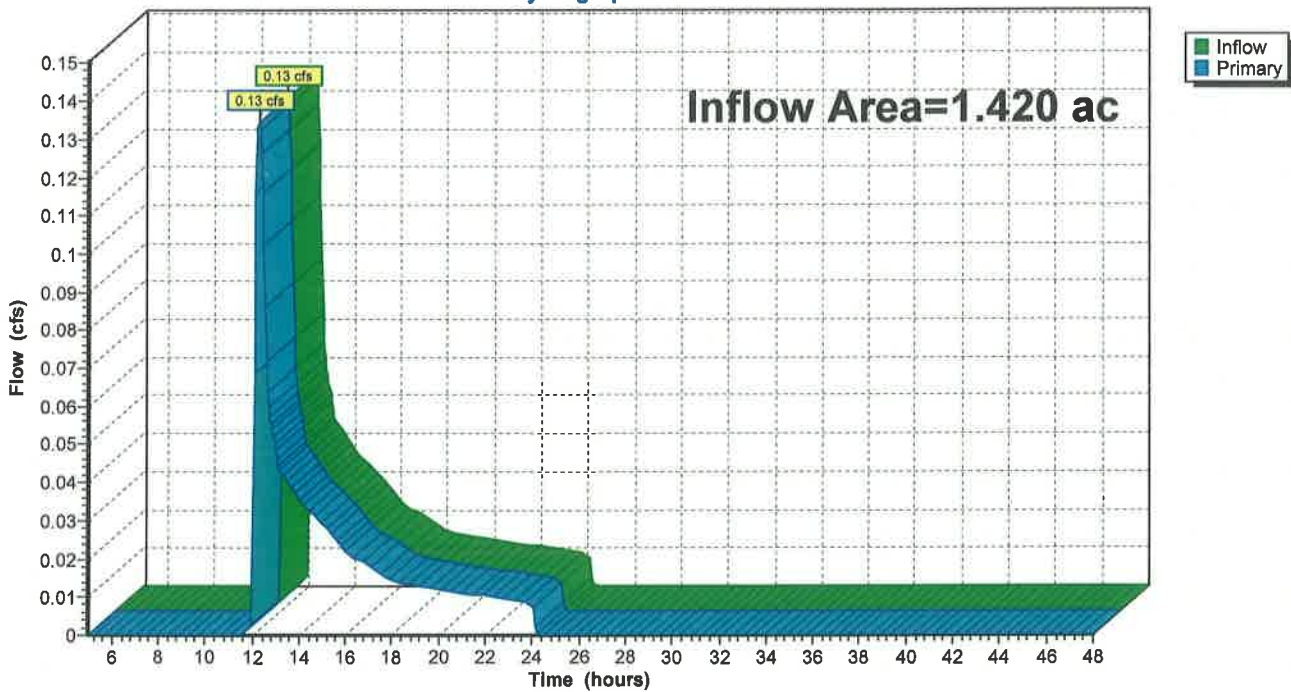
Summary for Pond AP: AP-1

Inflow Area = 1.420 ac, 31.71% Impervious, Inflow Depth = 0.20" for Custom event
Inflow = 0.13 cfs @ 12.30 hrs, Volume= 0.024 af
Primary = 0.13 cfs @ 12.30 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2

Pond AP: AP-1

Hydrograph



Panagakos-Phillips-Rd Updated Detention Pond

Type III 24-hr Custom Rainfall=3.50"

Prepared by CEC, Inc.

Printed 8/1/2022

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Summary for Pond DP: Detention Pond

Inflow Area = 0.600 ac, 66.69% Impervious, Inflow Depth = 1.77" for Custom event
 Inflow = 1.29 cfs @ 12.10 hrs, Volume= 0.089 af
 Outflow = 0.01 cfs @ 10.95 hrs, Volume= 0.032 af, Atten= 99%, Lag= 0.0 min
 Discarded = 0.01 cfs @ 10.95 hrs, Volume= 0.032 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
 Routed to Pond AP : AP-1

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 89.30' @ 24.05 hrs Surf.Area= 2,833 sf Storage= 3,318 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 895.6 min (1,714.9 - 819.3)

Volume	Invert	Avail.Storage	Storage Description
#1	88.00'	8,900 cf	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
88.00	2,300	0	0
88.50	2,500	1,200	1,200
89.00	2,700	1,300	2,500
90.00	3,150	2,925	5,425
91.00	3,800	3,475	8,900

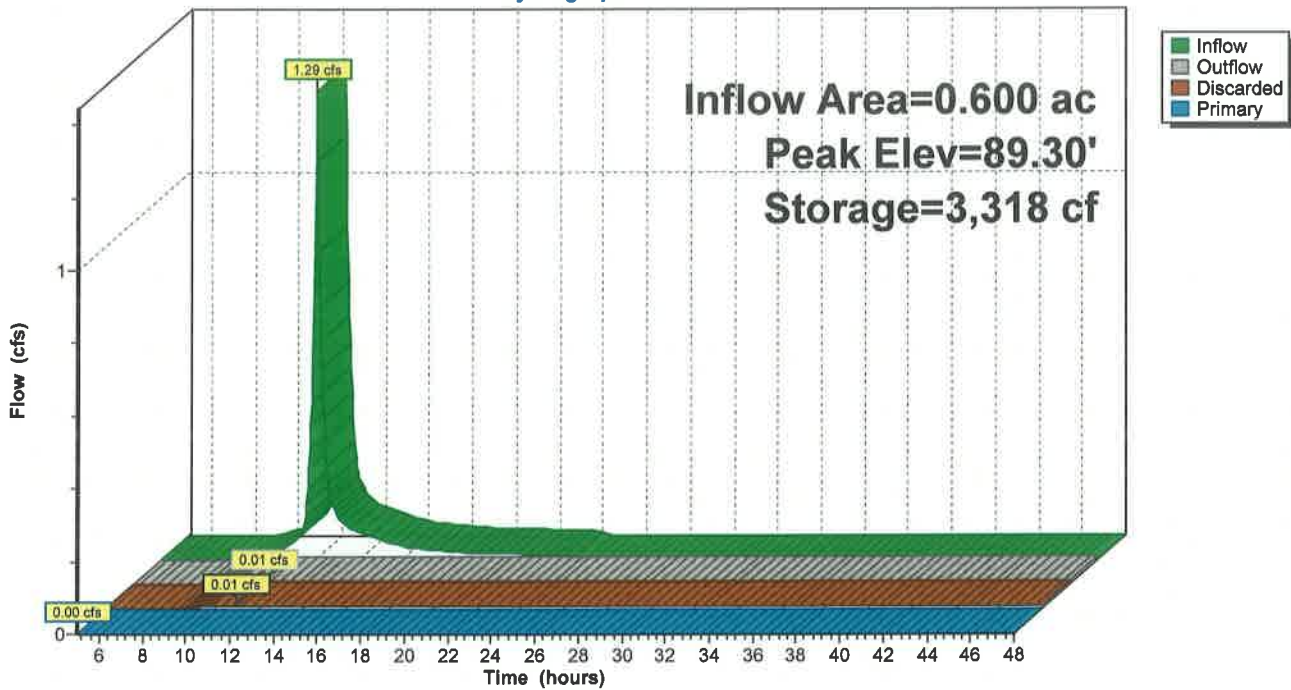
Device	Routing	Invert	Outlet Devices
#1	Discarded	88.00'	0.01 cfs Exfiltration at all elevations
#2	Primary	90.00'	4.0" Vert. 89.4 C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.01 cfs @ 10.95 hrs HW=88.03' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=88.00' TW=0.00' (Dynamic Tailwater)
 ↑2=89.4 (Controls 0.00 cfs)

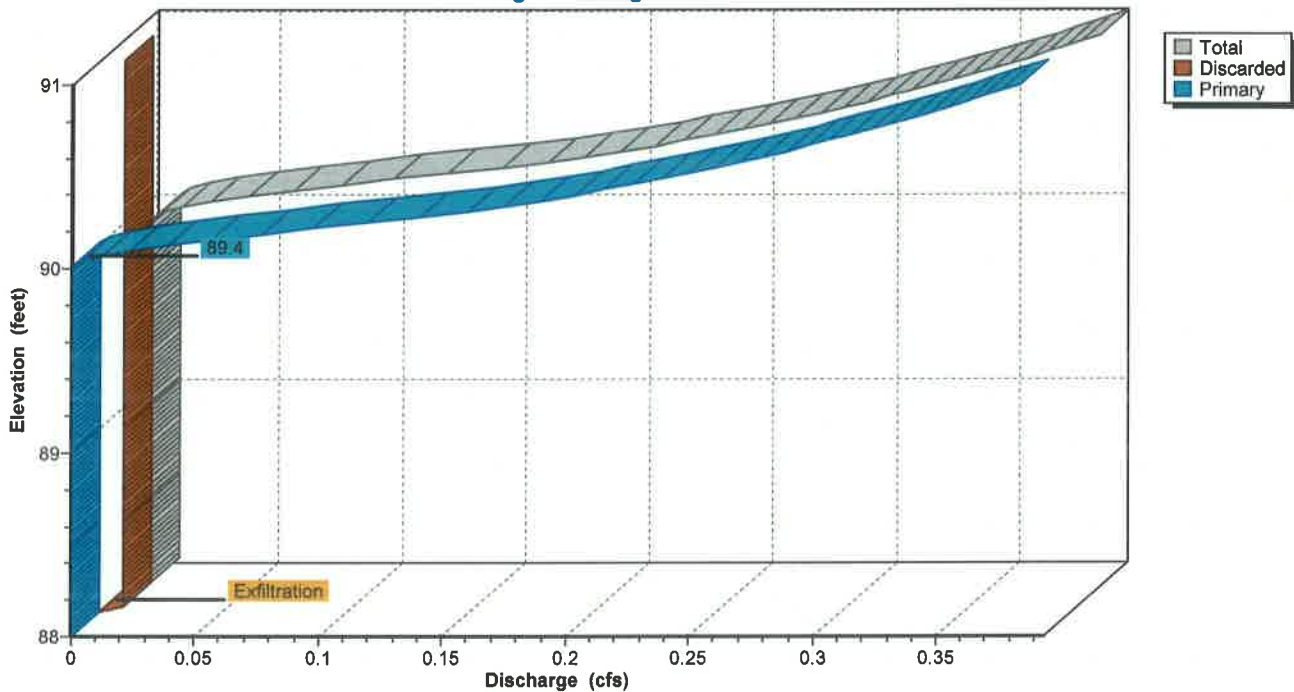
Pond DP: Detention Pond

Hydrograph



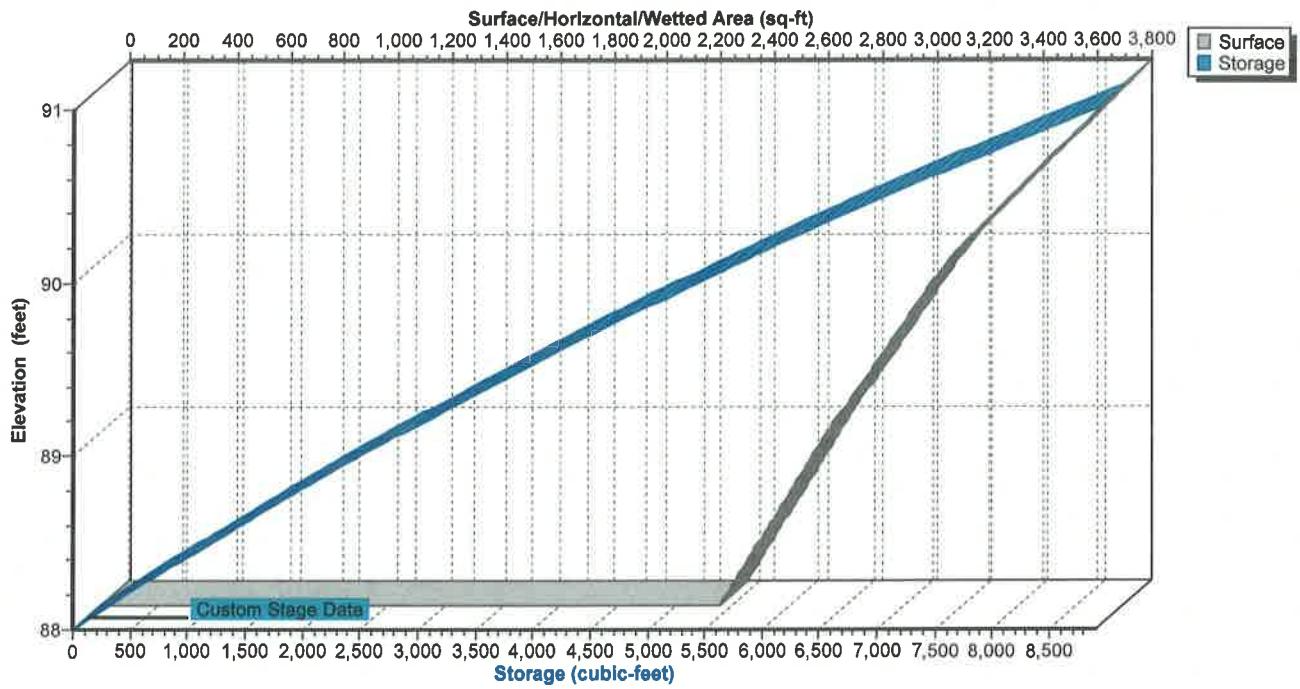
Pond DP: Detention Pond

Stage-Discharge



Pond DP: Detention Pond

Stage-Area-Storage



Summary for Pond R-1: Roof Recharge System

Inflow Area = 0.080 ac, 100.00% Impervious, Inflow Depth > 3.20" for Custom event
 Inflow = 0.25 cfs @ 12.11 hrs, Volume= 0.021 af
 Outflow = 0.25 cfs @ 12.13 hrs, Volume= 0.021 af, Atten= 3%, Lag= 1.3 min
 Discarded = 0.01 cfs @ 9.75 hrs, Volume= 0.010 af
 Primary = 0.24 cfs @ 12.13 hrs, Volume= 0.011 af
 Routed to Pond DP : Detention Pond

Routing by Dyn-Stor-Ind method, Time Span= 5.00-48.00 hrs, dt= 0.05 hrs / 2
 Peak Elev= 91.75' @ 12.13 hrs Surf.Area= 0.002 ac Storage= 0.001 af

Plug-Flow detention time= (not calculated: outflow precedes inflow)
 Center-of-Mass det. time= 2.1 min (769.1 - 767.0)

Volume	Invert	Avail.Storage	Storage Description
#1	91.40'	0.002 af	Cultec R-180 x 4 Effective Size= 33.6"W x 20.0"H => 3.44 sf x 6.33'L = 21.8 cf Overall Size= 36.0"W x 20.5"H x 7.33'L with 1.00' Overlap Row Length Adjustment= +1.00' x 3.44 sf x 1 rows

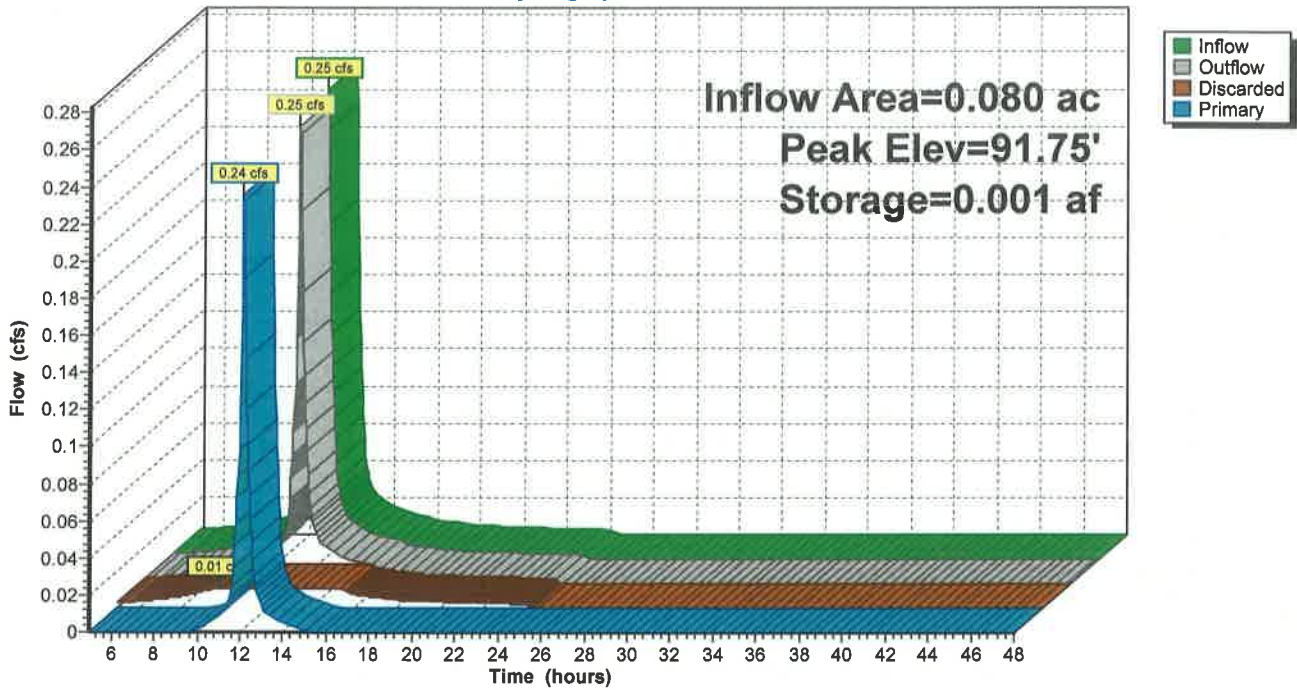
Device	Routing	Invert	Outlet Devices
#1	Discarded	91.40'	0.01 cfs Exfiltration at all elevations
#2	Primary	91.40'	6.0" Round Culvert L= 60.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 91.40' / 90.50' S= 0.0150 '/ Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Discarded OutFlow Max=0.01 cfs @ 9.75 hrs HW=91.42' (Free Discharge)
 ↑1=Exfiltration (Exfiltration Controls 0.01 cfs)

Primary OutFlow Max=0.23 cfs @ 12.13 hrs HW=91.75' TW=88.50' (Dynamic Tailwater)
 ↑2=Culvert (Inlet Controls 0.23 cfs @ 1.58 fps)

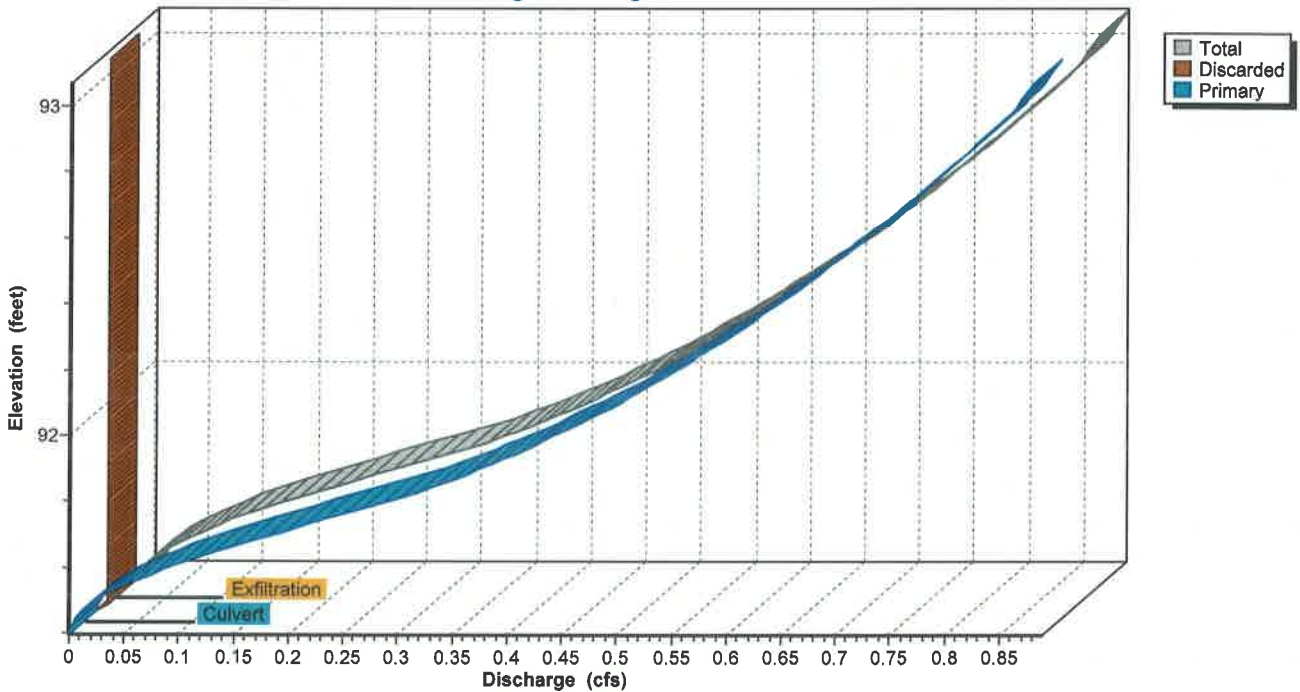
Pond R-1: Roof Recharge System

Hydrograph



Pond R-1: Roof Recharge System

Stage-Discharge



Pond R-1: Roof Recharge System

