

_70575.00_Proposed Conditions_Ox Ridge - 2020-05-22 Revised

Prepared by Microsoft

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Page 2

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
3.420	77	2 acre lots, 12% imp, HSG C (P2a)
0.260	79	<50% Grass cover, Poor, HSG B (P1a)
0.920	61	>75% Grass cover, Good, HSG B (P2c1, P2c2)
4.460	74	>75% Grass cover, Good, HSG C (P1a, P2b, P2c1, P2c2)
0.060	80	>75% Grass cover, Good, HSG D (P2b)
0.170	87	Dirt roads, HSG C (P2b, P2c1)
0.028	98	Paved parking, HSG A (1S)
2.100	98	Paved parking, HSG B (P1a, P2c1, P2c2)
1.460	98	Paved parking, HSG C (P1a, P2c1)
1.834	98	Roofs, HSG A (P1b)
0.420	82	Woods/grass comb., Fair, HSG D (P2b)
0.170	73	Woods/grass comb., Poor, HSG B (P2c1, P2c2)
0.730	82	Woods/grass comb., Poor, HSG C (P1a, P2b)
0.300	86	Woods/grass comb., Poor, HSG D (P2c1)
16.332	83	TOTAL AREA

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Page 3

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	P1a	0.00	0.00	939.0	0.0200	0.015	15.0	0.0	0.0
2	P2a	0.00	0.00	1,010.0	0.0495	0.015	15.0	0.0	0.0
3	P2c1	0.00	0.00	723.0	0.0409	0.015	15.0	0.0	0.0
4	P2c2	0.00	0.00	477.0	0.0545	0.015	15.0	0.0	0.0
5	2P	185.50	185.00	13.0	0.0385	0.012	30.0	0.0	0.0
6	C1	194.30	193.50	15.0	0.0533	0.011	30.0	0.0	0.0
7	C1	194.30	193.50	15.0	0.0533	0.011	30.0	0.0	0.0

Summary for Subcatchment 1S: UD/FD Flow

Runoff = 0.10 cfs @ 12.08 hrs, Volume= 0.008 af, Depth> 3.34"

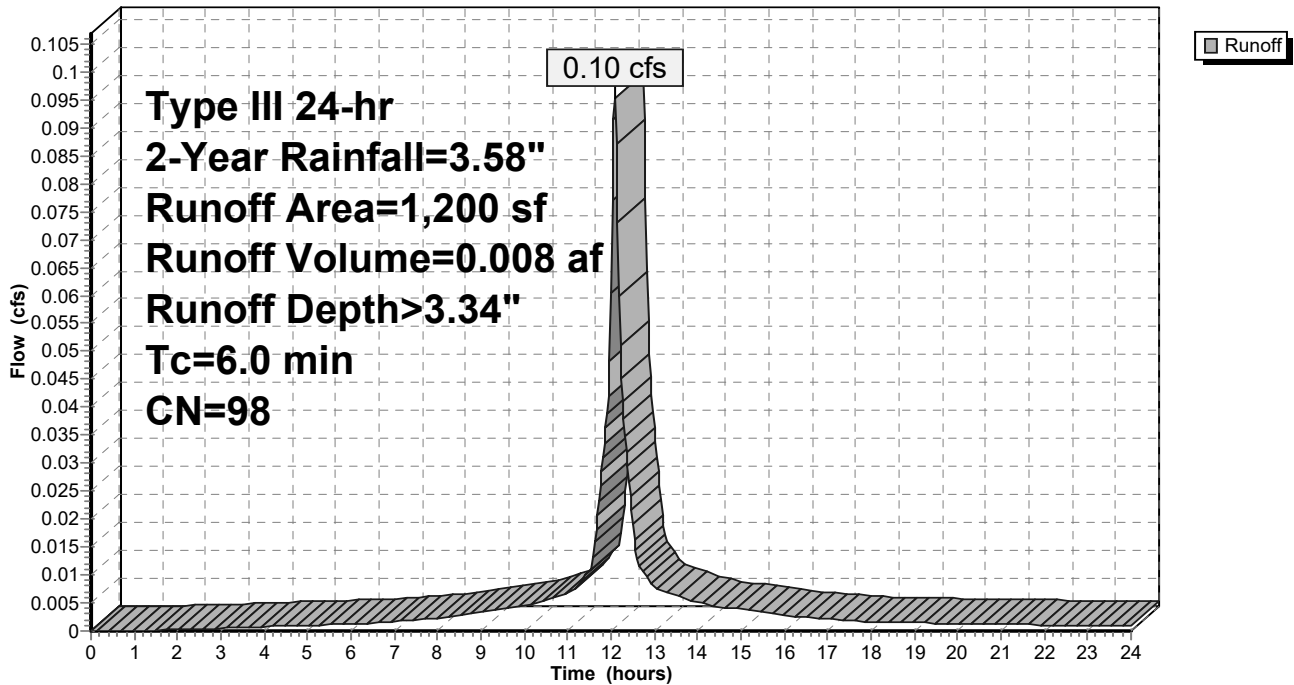
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.58"

Area (sf)	CN	Description
1,200	98	Paved parking, HSG A
1,200		100.00% Impervious Area

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

Subcatchment 1S: UD/FD Flow

Hydrograph



Summary for Subcatchment P1a: Off-Site Open Space

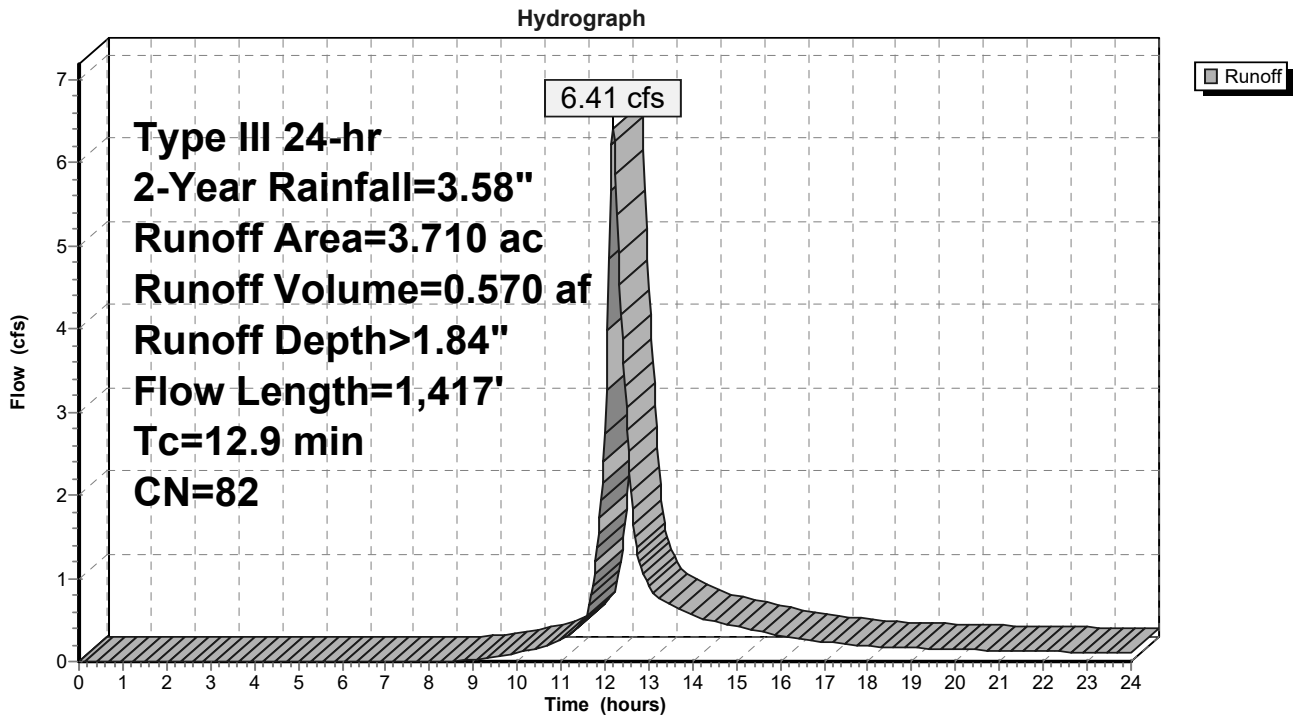
Runoff = 6.41 cfs @ 12.18 hrs, Volume= 0.570 af, Depth> 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
0.160	98	Paved parking, HSG B
0.260	79	<50% Grass cover, Poor, HSG B
0.860	98	Paved parking, HSG C
1.970	74	>75% Grass cover, Good, HSG C
0.460	82	Woods/grass comb., Poor, HSG C
3.710	82	Weighted Average
2.690		72.51% Pervious Area
1.020		27.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	108	0.0648	0.20		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
1.5	370	0.0622	4.02		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
2.4	939	0.0200	6.45	7.92	Pipe Channel, Pipe 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
12.9	1,417	Total			

Subcatchment P1a: Off-Site Open Space



Summary for Subcatchment P1b: Proposed Building

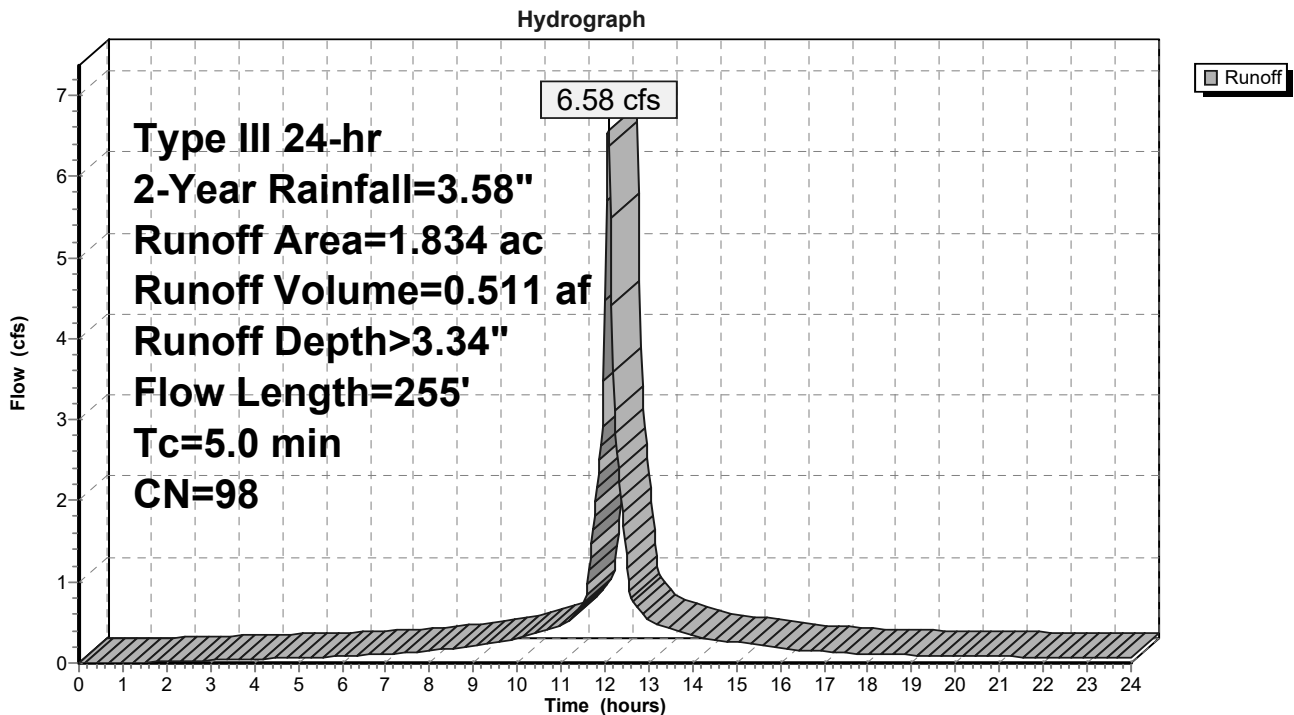
Runoff = 6.58 cfs @ 12.07 hrs, Volume= 0.511 af, Depth> 3.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
1.834	98	Roofs, HSG A
1.834		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	255		0.85		Direct Entry, Pipe flow

Subcatchment P1b: Proposed Building



Summary for Subcatchment P2a: Residential

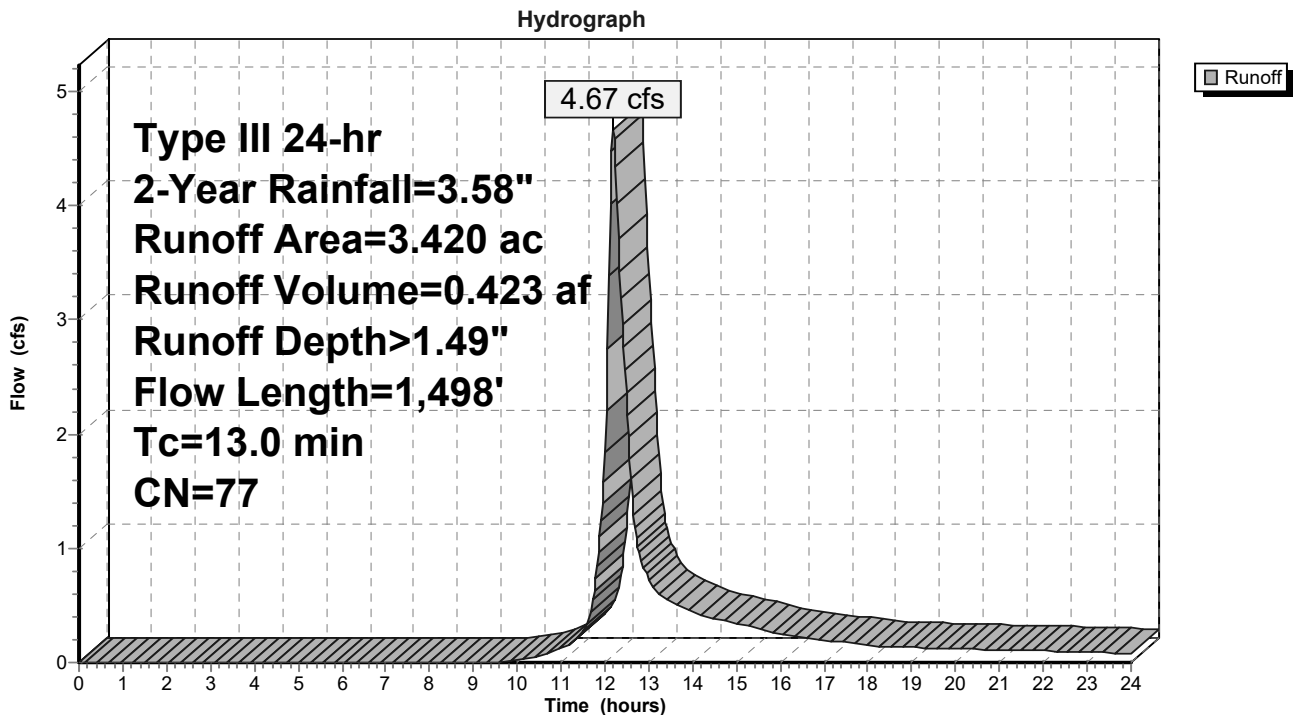
Runoff = 4.67 cfs @ 12.19 hrs, Volume= 0.423 af, Depth> 1.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
3.420	77	2 acre lots, 12% imp, HSG C
3.010		88.00% Pervious Area
0.410		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0200	0.18		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.4	71	0.0280	2.69		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.5	165	0.1393	6.01		Shallow Concentrated Flow, Woods Unpaved Kv= 16.1 fps
1.1	152	0.0131	2.32		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
1.7	1,010	0.0495	10.15	12.46	Pipe Channel, Pipe Flow 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
13.0	1,498	Total			

Subcatchment P2a: Residential



Summary for Subcatchment P2b: Off-Site Wetlands

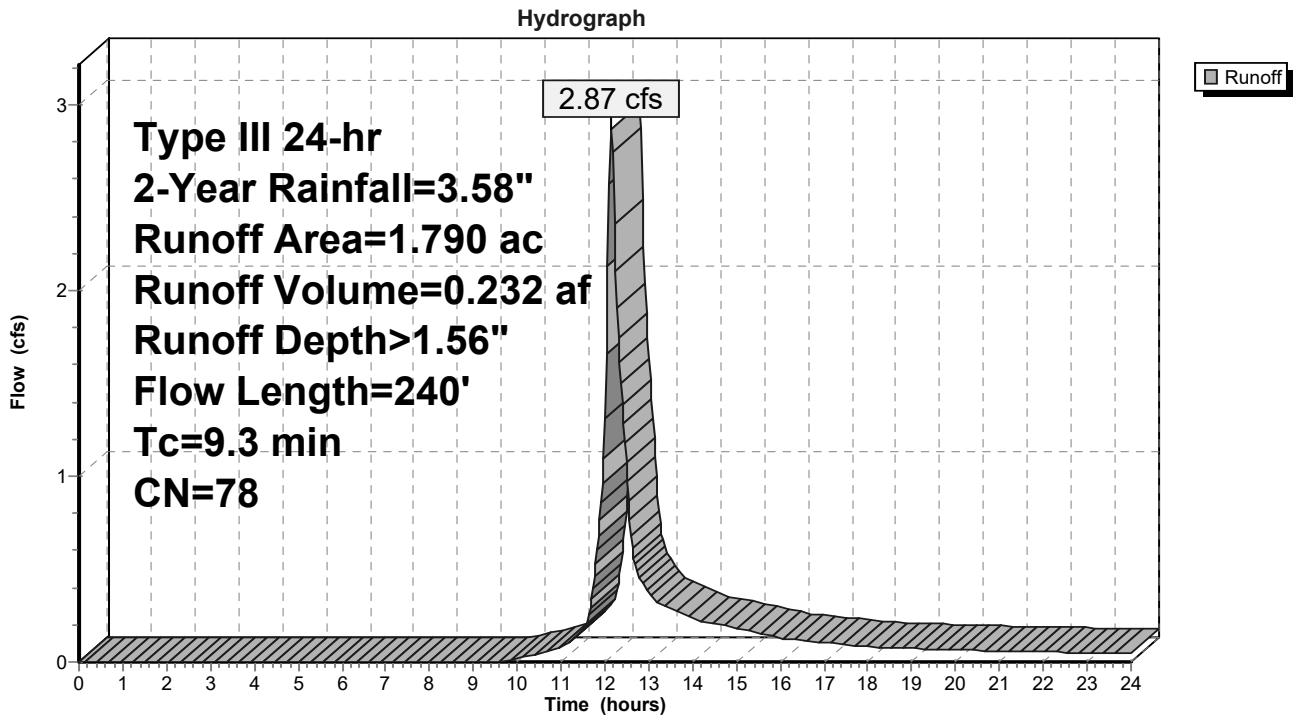
Runoff = 2.87 cfs @ 12.14 hrs, Volume= 0.232 af, Depth> 1.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
0.920	74	>75% Grass cover, Good, HSG C
0.120	87	Dirt roads, HSG C
0.270	82	Woods/grass comb., Poor, HSG C
0.060	80	>75% Grass cover, Good, HSG D
0.420	82	Woods/grass comb., Fair, HSG D
1.790	78	Weighted Average
1.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0230	0.19		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.5	140	0.0820	4.61		Shallow Concentrated Flow, Meadow/Wood Unpaved Kv= 16.1 fps
9.3	240	Total			

Subcatchment P2b: Off-Site Wetlands



Summary for Subcatchment P2c1: Upper Parking

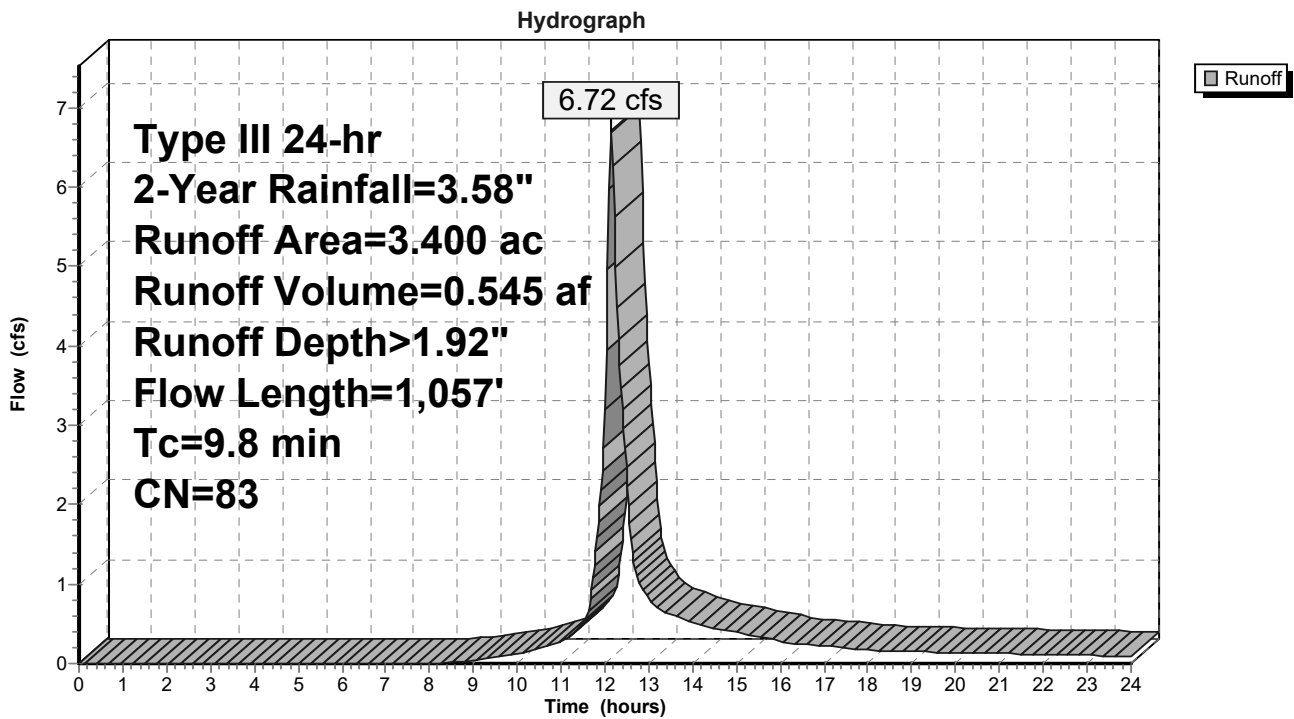
Runoff = 6.72 cfs @ 12.14 hrs, Volume= 0.545 af, Depth> 1.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
0.660	98	Paved parking, HSG B
0.190	61	>75% Grass cover, Good, HSG B
0.120	73	Woods/grass comb., Poor, HSG B
0.600	98	Paved parking, HSG C
1.480	74	>75% Grass cover, Good, HSG C
0.050	87	Dirt roads, HSG C
0.300	86	Woods/grass comb., Poor, HSG D
3.400	83	Weighted Average
2.140		62.94% Pervious Area
1.260		37.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0873	0.22		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
0.7	170	0.0676	4.19		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.3	64	0.0234	3.11		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.3	723	0.0409	9.23	11.32	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
9.8	1,057	Total			

Subcatchment P2c1: Upper Parking



Summary for Subcatchment P2c2: Lower Parking

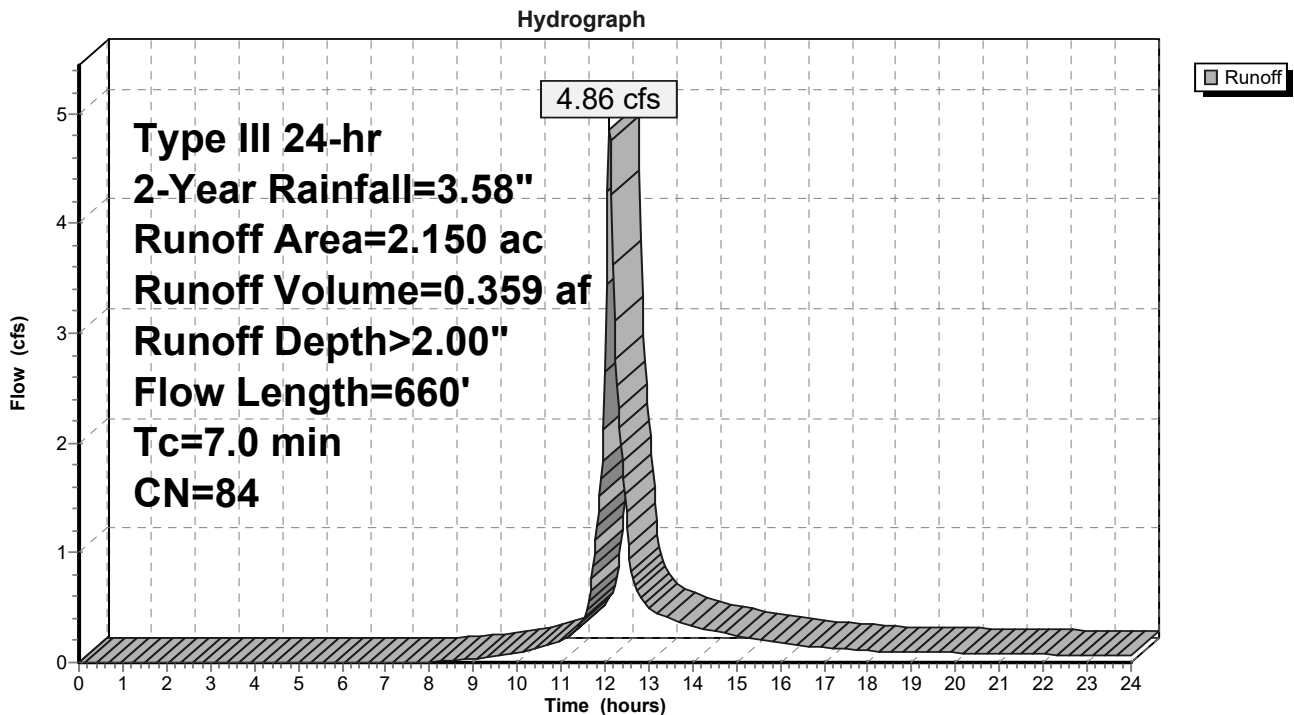
Runoff = 4.86 cfs @ 12.10 hrs, Volume= 0.359 af, Depth> 2.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 2-Year Rainfall=3.58"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG B
0.730	61	>75% Grass cover, Good, HSG B
0.050	73	Woods/grass comb., Poor, HSG B
0.090	74	>75% Grass cover, Good, HSG C
2.150	84	Weighted Average
0.870		40.47% Pervious Area
1.280		59.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0590	0.28		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.3	83	0.0480	4.45		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
0.7	477	0.0545	10.65	13.07	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
7.0	660	Total			

Subcatchment P2c2: Lower Parking



Summary for Pond 2P: DMH

[57] Hint: Peaked at 186.81' (Flood elevation advised)

Inflow Area = 14.542 ac, 40.11% Impervious, Inflow Depth = 0.93" for 2-Year event
 Inflow = 11.77 cfs @ 12.42 hrs, Volume= 1.131 af
 Outflow = 11.77 cfs @ 12.42 hrs, Volume= 1.131 af, Atten= 0%, Lag= 0.0 min
 Primary = 11.77 cfs @ 12.42 hrs, Volume= 1.131 af

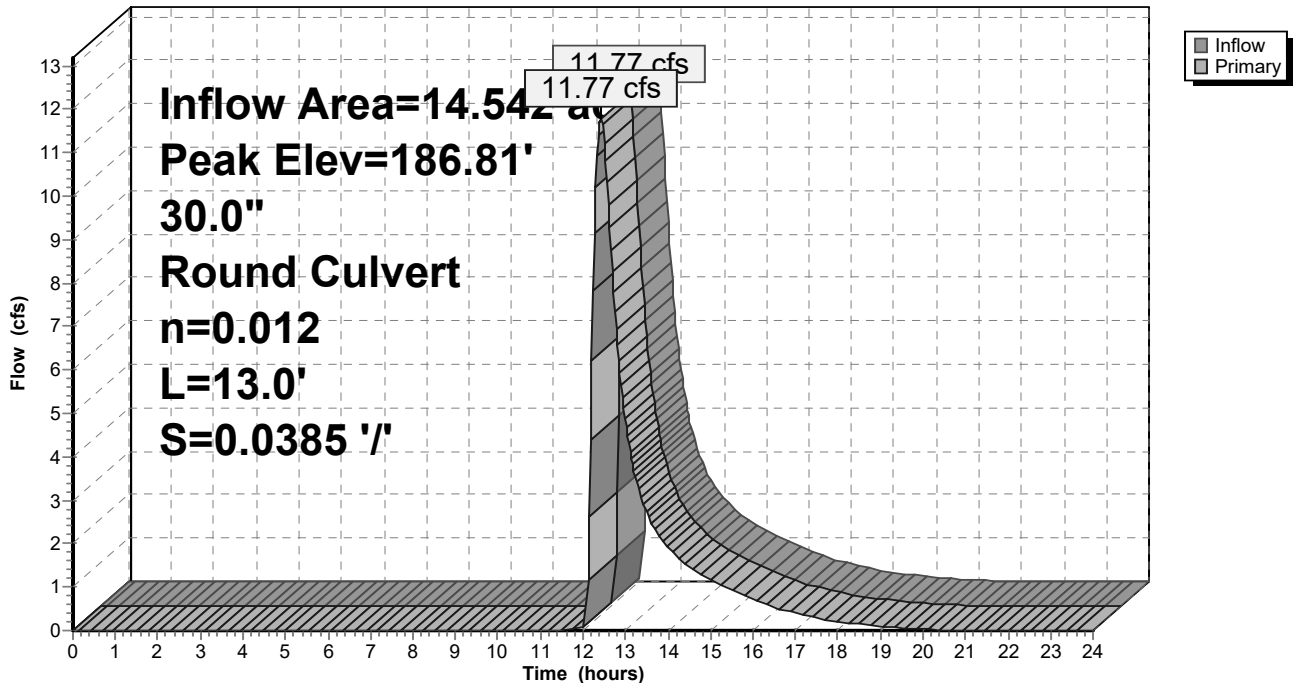
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 186.81' @ 12.42 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	30.0" Round Pipe P-70 L= 13.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 185.50' / 185.00' S= 0.0385 '/ Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf

Primary OutFlow Max=11.77 cfs @ 12.42 hrs HW=186.81' (Free Discharge)
 ↳ **1=Pipe P-70** (Barrel Controls 11.77 cfs @ 6.58 fps)

Pond 2P: DMH

Hydrograph



Summary for Pond C1: Detention 1

Inflow Area = 14.514 ac, 39.99% Impervious, Inflow Depth > 1.99" for 2-Year event
 Inflow = 26.57 cfs @ 12.13 hrs, Volume= 2.408 af
 Outflow = 12.66 cfs @ 12.42 hrs, Volume= 1.985 af, Atten= 52%, Lag= 17.7 min
 Discarded = 0.91 cfs @ 12.42 hrs, Volume= 0.862 af
 Primary = 11.75 cfs @ 12.42 hrs, Volume= 1.123 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 195.27' @ 12.42 hrs Surf.Area= 0.438 ac Storage= 0.854 af

Plug-Flow detention time= 146.8 min calculated for 1.983 af (82% of inflow)
 Center-of-Mass det. time= 75.0 min (892.9 - 817.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	191.67'	0.474 af	102.10'W x 186.67'L x 6.00'H Field A 2.625 af Overall - 1.440 af Embedded = 1.185 af x 40.0% Voids
#2A	194.17'	1.106 af	StormTrap ST2 SingleTrap 3-0 x 110 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 10 Rows of 11 Chambers 84.79' x 169.35' Core + 6.66' Border = 98.10' x 182.67' System
		1.581 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	194.30'	30.0" Round Culvert 1 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	194.30'	30.0" Round Culvert 2 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Discarded	191.67'	0.450 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 190.67'

Discarded OutFlow Max=0.91 cfs @ 12.42 hrs HW=195.27' (Free Discharge)
 ↳ **3=Exfiltration** (Controls 0.91 cfs)

Primary OutFlow Max=11.74 cfs @ 12.42 hrs HW=195.27' (Free Discharge)
 ↳ **1=Culvert 1** (Inlet Controls 5.87 cfs @ 3.35 fps)
 ↳ **2=Culvert 2** (Inlet Controls 5.87 cfs @ 3.35 fps)

Pond C1: Detention 1 - Chamber Wizard Field A

Chamber Model = StormTrap ST2 SingleTrap 3-0 (StormTrap ST2 SingleTrap® Type II+IV)

Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf

Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

11 Chambers/Row x 15.40' Long = 169.35' Row Length +79.9" Border x 2 +24.0" End Stone x 2 = 186.67' Base Length

10 Rows x 101.7" Wide + 79.9" Side Border x 2 + 24.0" Side Stone x 2 = 102.10' Base Width

30.0" Base + 42.0" Chamber Height = 6.00' Field Height

110 Chambers x 354.0 cf + 9,253.4 cf Border = 48,192.5 cf Chamber Storage

110 Chambers x 456.9 cf + 12,461.9 cf Border = 62,721.3 cf Displacement

114,356.7 cf Field - 62,721.3 cf Chambers = 51,635.4 cf Stone x 40.0% Voids = 20,654.2 cf Stone Storage

Chamber Storage + Stone Storage = 68,846.6 cf = 1.581 af

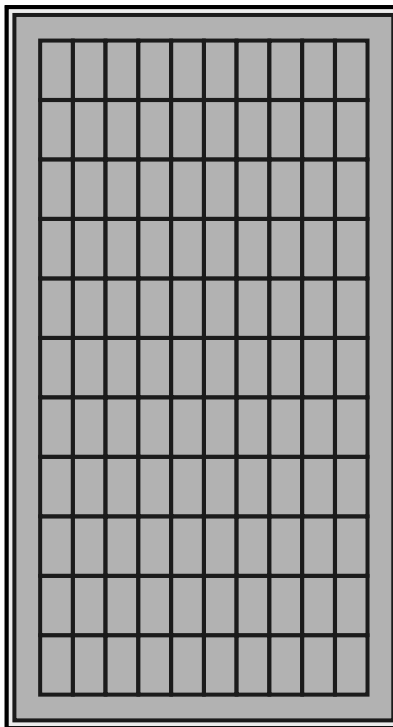
Overall Storage Efficiency = 60.2%

Overall System Size = 186.67' x 102.10' x 6.00'

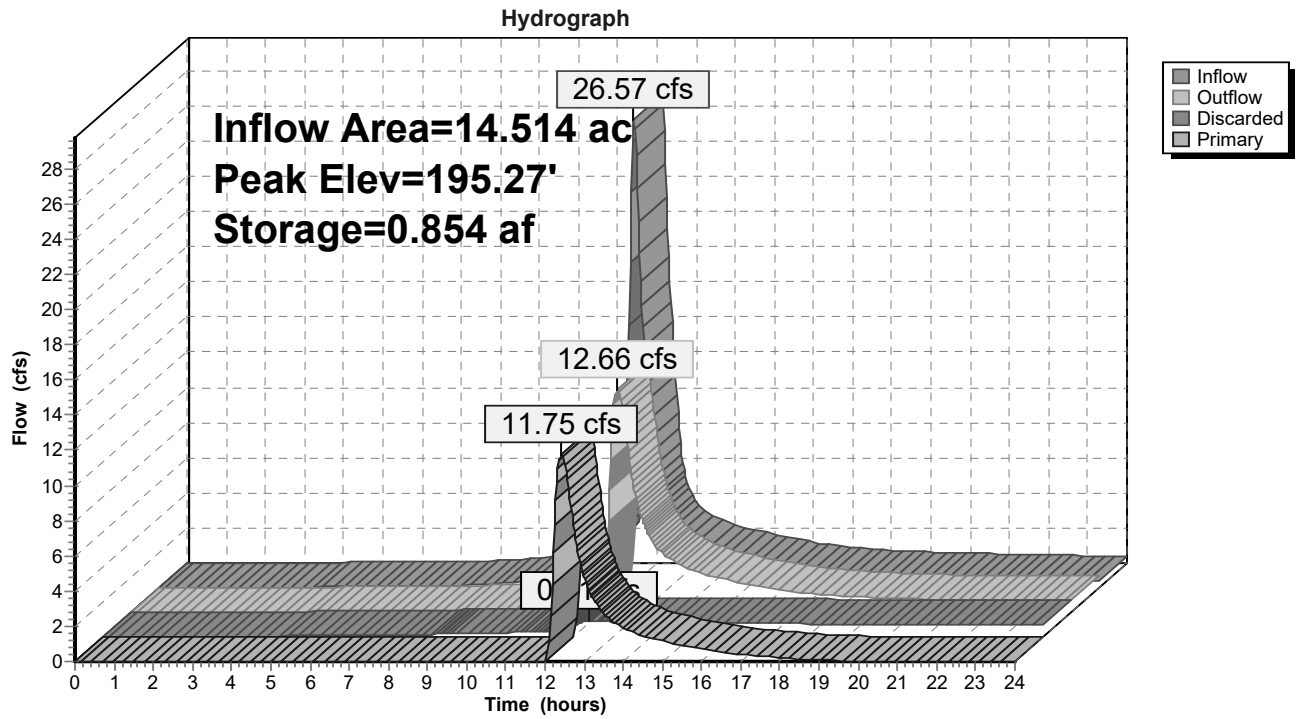
110 Chambers (plus border)

4,235.4 cy Field

1,912.4 cy Stone



Pond C1: Detention 1

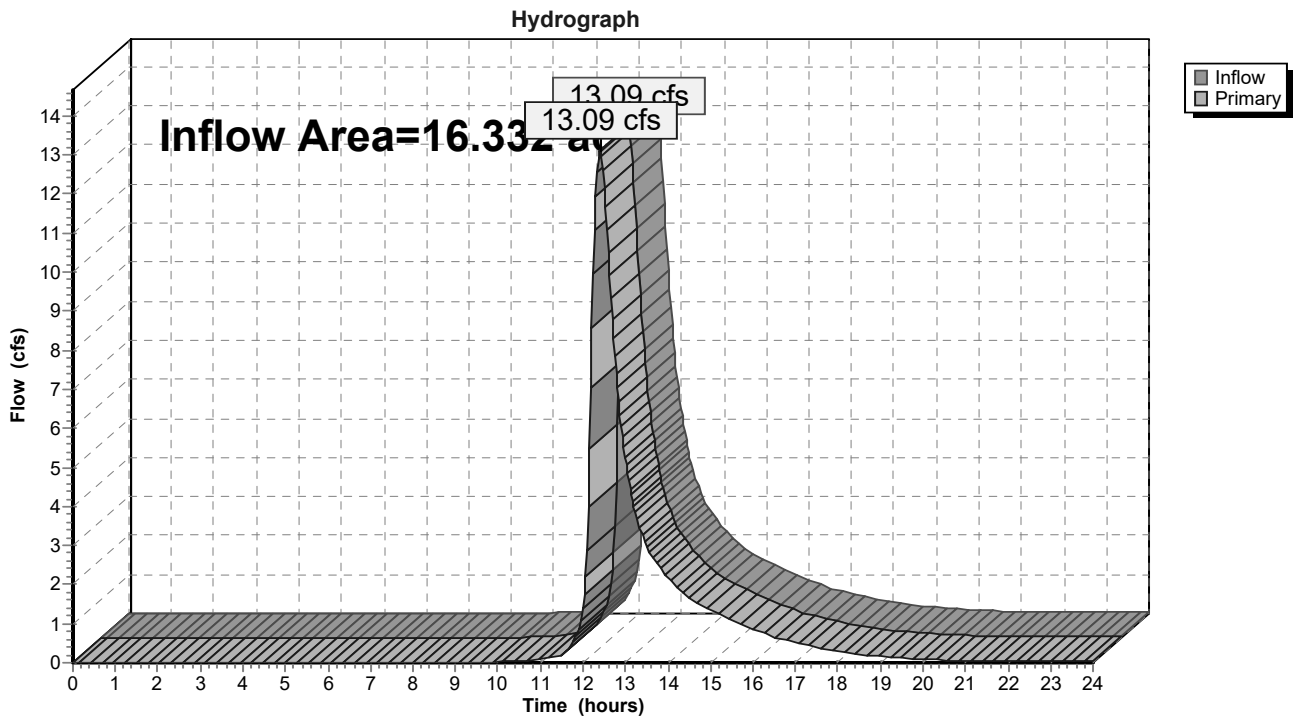


Summary for Link W: Total to Wetlands

Inflow Area = 16.332 ac, 35.71% Impervious, Inflow Depth > 1.00" for 2-Year event
Inflow = 13.09 cfs @ 12.40 hrs, Volume= 1.363 af
Primary = 13.09 cfs @ 12.40 hrs, Volume= 1.363 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link W: Total to Wetlands



Summary for Subcatchment 1S: UD/FD Flow

Runoff = 0.15 cfs @ 12.08 hrs, Volume= 0.012 af, Depth> 5.20"

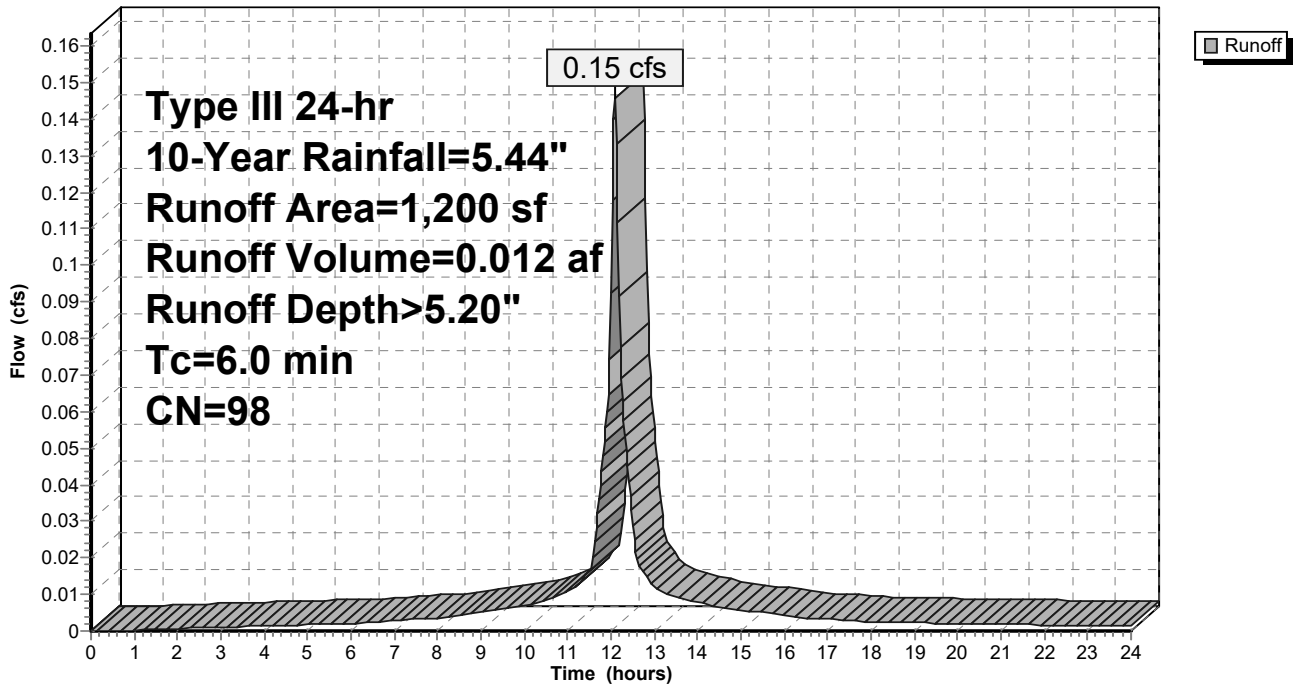
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (sf)	CN	Description
1,200	98	Paved parking, HSG A
1,200		100.00% Impervious Area

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

Subcatchment 1S: UD/FD Flow

Hydrograph



Summary for Subcatchment P1a: Off-Site Open Space

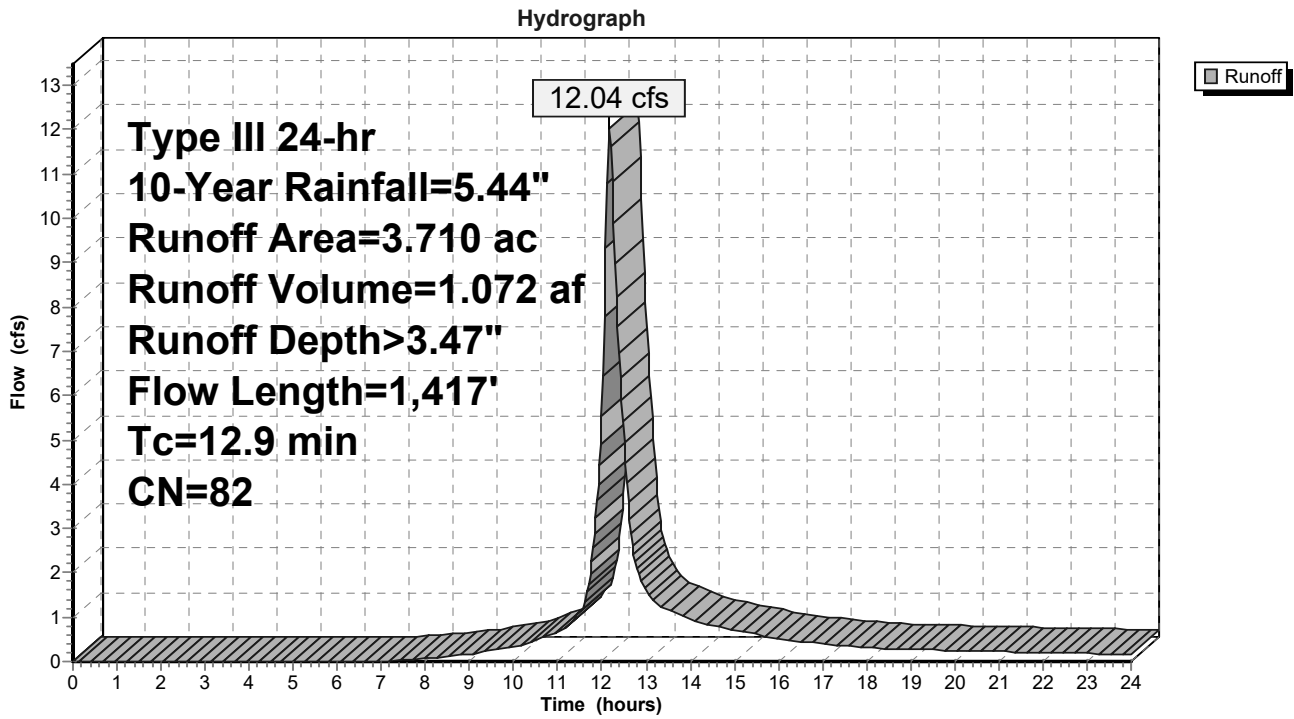
Runoff = 12.04 cfs @ 12.18 hrs, Volume= 1.072 af, Depth> 3.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
0.160	98	Paved parking, HSG B
0.260	79	<50% Grass cover, Poor, HSG B
0.860	98	Paved parking, HSG C
1.970	74	>75% Grass cover, Good, HSG C
0.460	82	Woods/grass comb., Poor, HSG C
3.710	82	Weighted Average
2.690		72.51% Pervious Area
1.020		27.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	108	0.0648	0.20		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
1.5	370	0.0622	4.02		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
2.4	939	0.0200	6.45	7.92	Pipe Channel, Pipe 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
12.9	1,417	Total			

Subcatchment P1a: Off-Site Open Space



Summary for Subcatchment P1b: Proposed Building

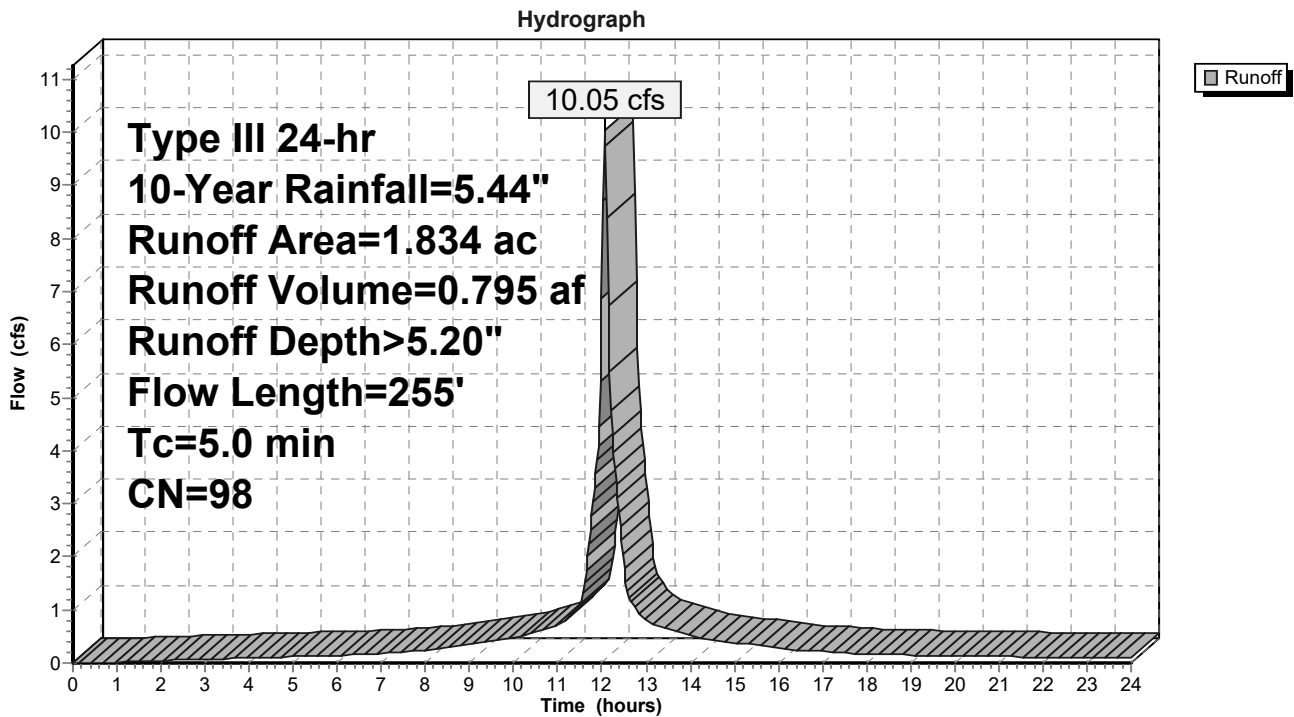
Runoff = 10.05 cfs @ 12.07 hrs, Volume= 0.795 af, Depth> 5.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
1.834	98	Roofs, HSG A
1.834		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	255		0.85		Direct Entry, Pipe flow

Subcatchment P1b: Proposed Building



Summary for Subcatchment P2a: Residential

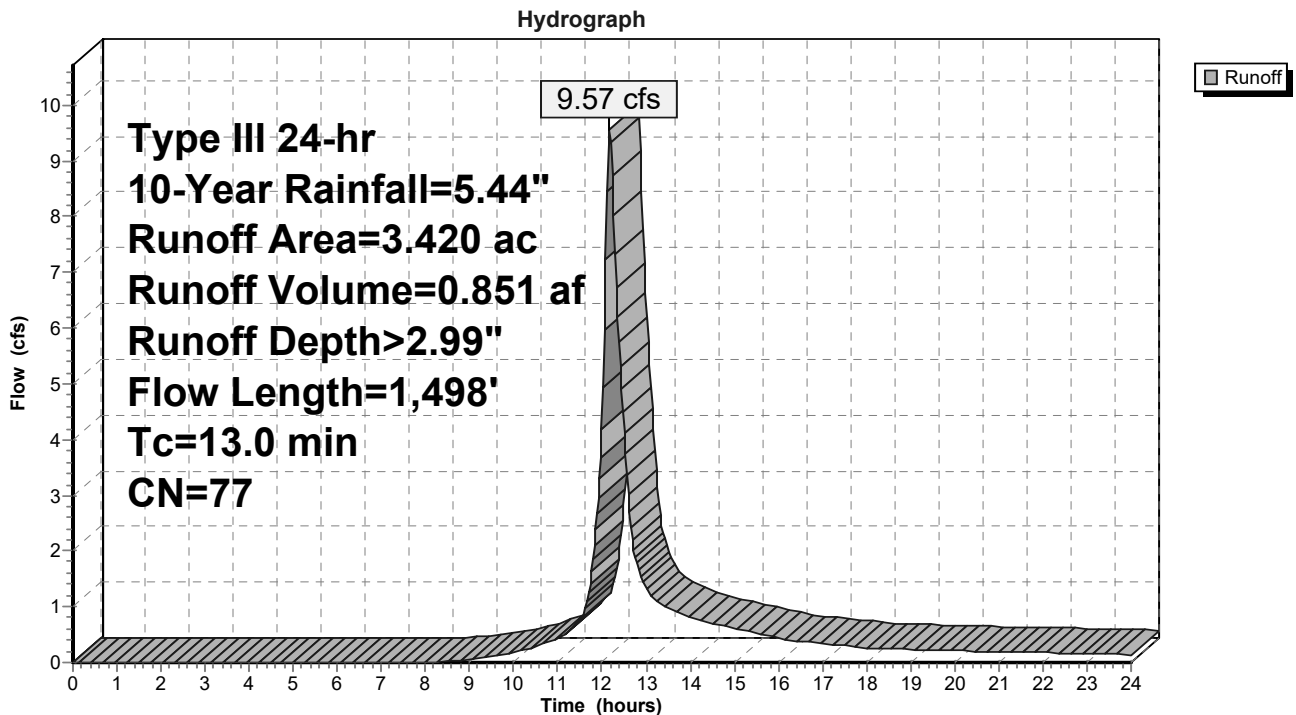
Runoff = 9.57 cfs @ 12.18 hrs, Volume= 0.851 af, Depth> 2.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
3.420	77	2 acre lots, 12% imp, HSG C
3.010		88.00% Pervious Area
0.410		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0200	0.18		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.4	71	0.0280	2.69		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.5	165	0.1393	6.01		Shallow Concentrated Flow, Woods Unpaved Kv= 16.1 fps
1.1	152	0.0131	2.32		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
1.7	1,010	0.0495	10.15	12.46	Pipe Channel, Pipe Flow 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
13.0	1,498	Total			

Subcatchment P2a: Residential



Summary for Subcatchment P2b: Off-Site Wetlands

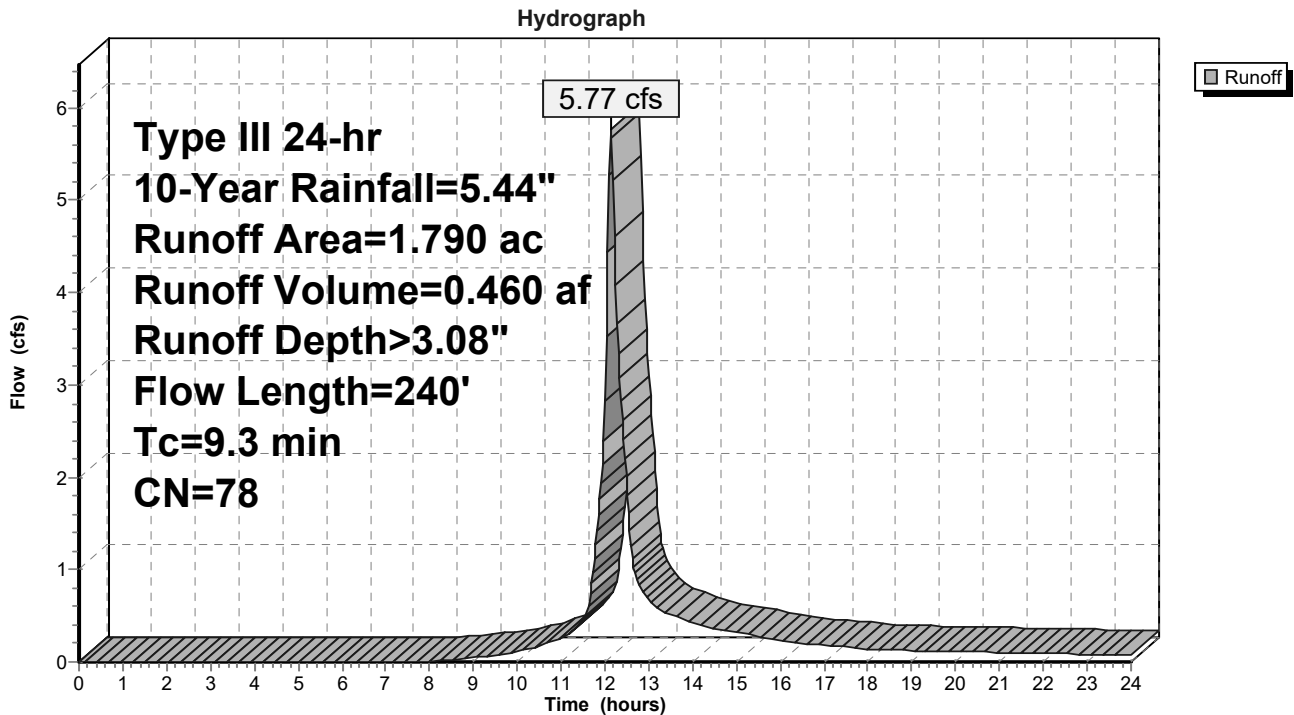
Runoff = 5.77 cfs @ 12.13 hrs, Volume= 0.460 af, Depth> 3.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
0.920	74	>75% Grass cover, Good, HSG C
0.120	87	Dirt roads, HSG C
0.270	82	Woods/grass comb., Poor, HSG C
0.060	80	>75% Grass cover, Good, HSG D
0.420	82	Woods/grass comb., Fair, HSG D
1.790	78	Weighted Average
1.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0230	0.19		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.5	140	0.0820	4.61		Shallow Concentrated Flow, Meadow/Wood Unpaved Kv= 16.1 fps
9.3	240	Total			

Subcatchment P2b: Off-Site Wetlands



Summary for Subcatchment P2c1: Upper Parking

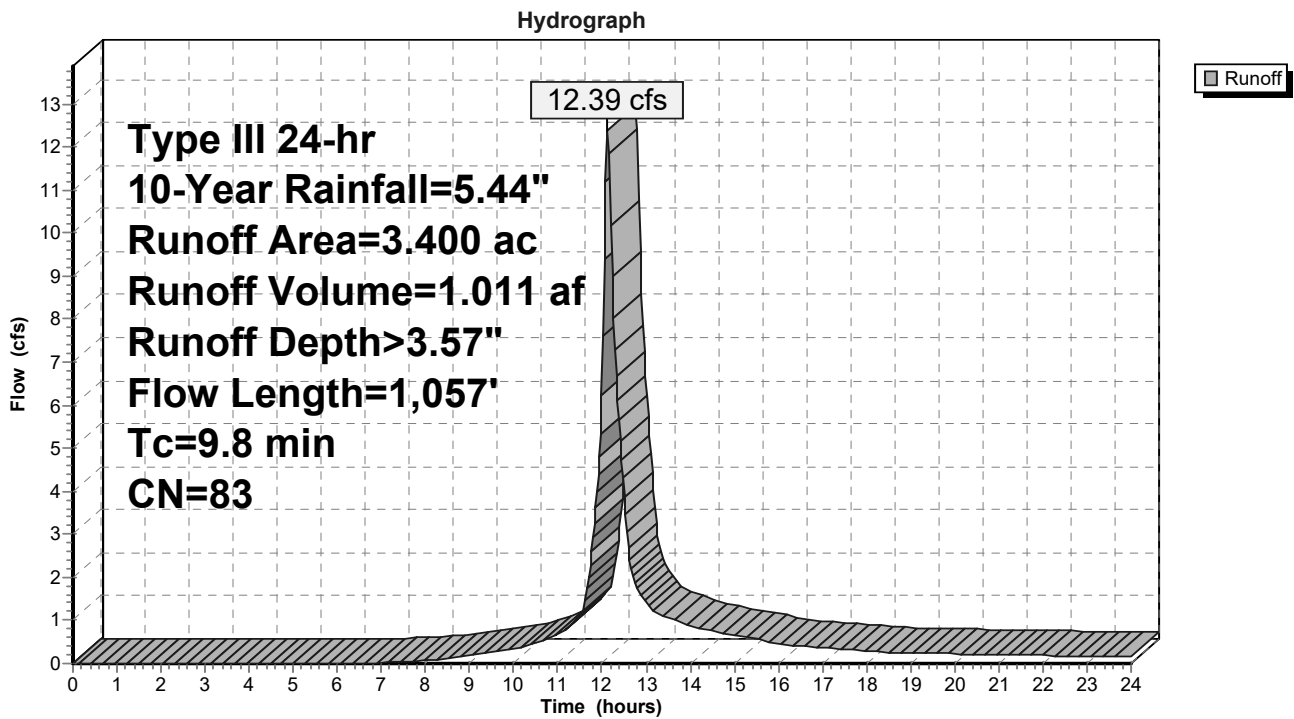
Runoff = 12.39 cfs @ 12.14 hrs, Volume= 1.011 af, Depth> 3.57"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
0.660	98	Paved parking, HSG B
0.190	61	>75% Grass cover, Good, HSG B
0.120	73	Woods/grass comb., Poor, HSG B
0.600	98	Paved parking, HSG C
1.480	74	>75% Grass cover, Good, HSG C
0.050	87	Dirt roads, HSG C
0.300	86	Woods/grass comb., Poor, HSG D
3.400	83	Weighted Average
2.140		62.94% Pervious Area
1.260		37.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0873	0.22		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
0.7	170	0.0676	4.19		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.3	64	0.0234	3.11		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.3	723	0.0409	9.23	11.32	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
9.8	1,057	Total			

Subcatchment P2c1: Upper Parking



Summary for Subcatchment P2c2: Lower Parking

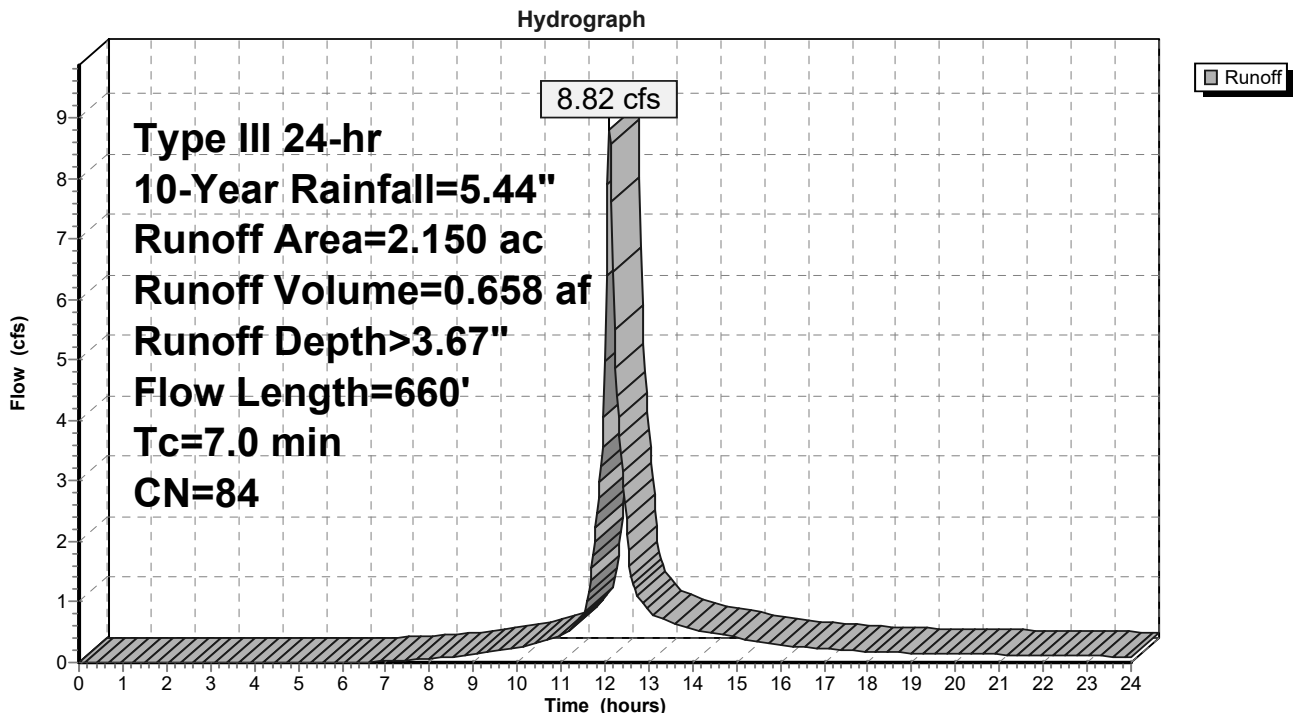
Runoff = 8.82 cfs @ 12.10 hrs, Volume= 0.658 af, Depth> 3.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 10-Year Rainfall=5.44"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG B
0.730	61	>75% Grass cover, Good, HSG B
0.050	73	Woods/grass comb., Poor, HSG B
0.090	74	>75% Grass cover, Good, HSG C
2.150	84	Weighted Average
0.870		40.47% Pervious Area
1.280		59.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0590	0.28		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.3	83	0.0480	4.45		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
0.7	477	0.0545	10.65	13.07	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
7.0	660	Total			

Subcatchment P2c2: Lower Parking



Summary for Pond 2P: DMH

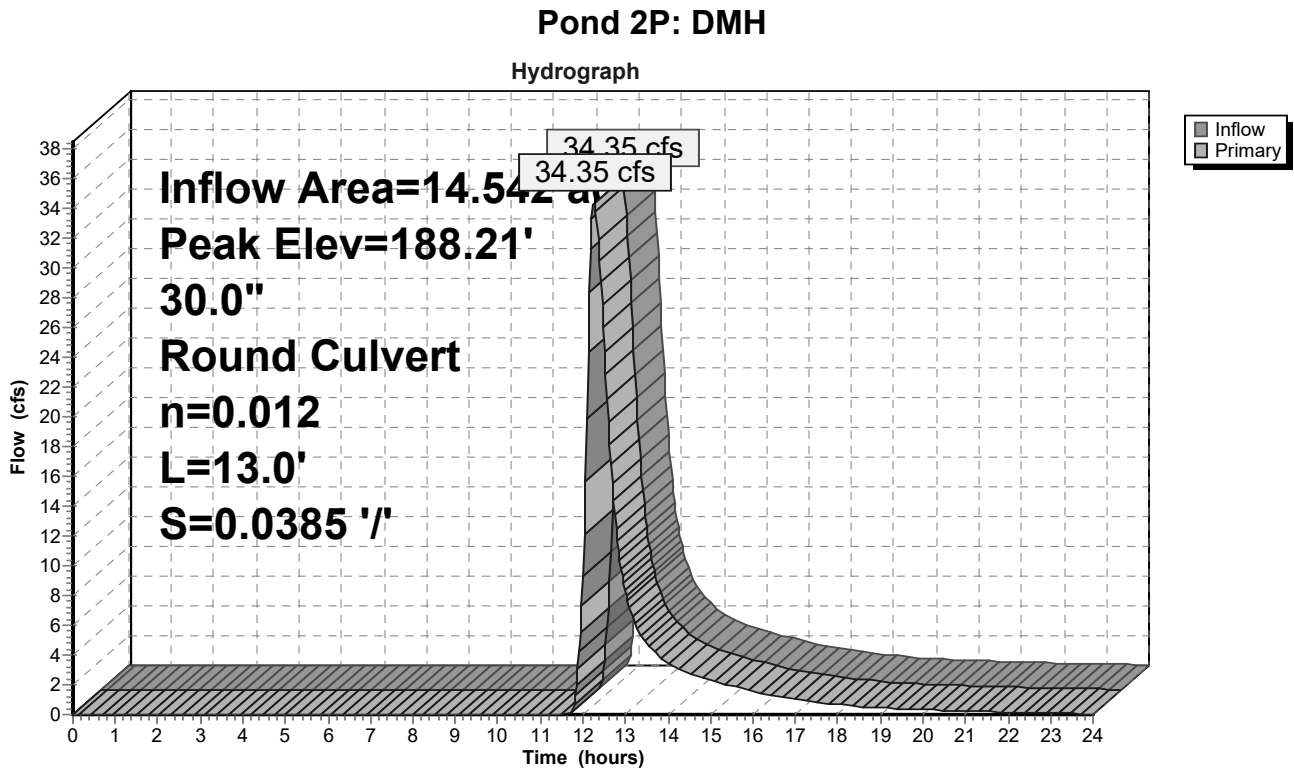
[57] Hint: Peaked at 188.21' (Flood elevation advised)

Inflow Area = 14.542 ac, 40.11% Impervious, Inflow Depth > 2.41" for 10-Year event
 Inflow = 34.35 cfs @ 12.26 hrs, Volume= 2.921 af
 Outflow = 34.35 cfs @ 12.26 hrs, Volume= 2.921 af, Atten= 0%, Lag= 0.0 min
 Primary = 34.35 cfs @ 12.26 hrs, Volume= 2.921 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 188.21' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	30.0" Round Pipe P-70 L= 13.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 185.50' / 185.00' S= 0.0385 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf

Primary OutFlow Max=34.29 cfs @ 12.26 hrs HW=188.21' (Free Discharge)
 ↳ **1=Pipe P-70** (Barrel Controls 34.29 cfs @ 8.02 fps)



Summary for Pond C1: Detention 1

Inflow Area = 14.514 ac, 39.99% Impervious, Inflow Depth > 3.63" for 10-Year event
 Inflow = 48.58 cfs @ 12.13 hrs, Volume= 4.387 af
 Outflow = 35.36 cfs @ 12.26 hrs, Volume= 3.882 af, Atten= 27%, Lag= 8.1 min
 Discarded = 1.08 cfs @ 12.26 hrs, Volume= 0.973 af
 Primary = 34.28 cfs @ 12.26 hrs, Volume= 2.909 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 196.09' @ 12.26 hrs Surf.Area= 0.438 ac Storage= 1.166 af

Plug-Flow detention time= 97.6 min calculated for 3.882 af (88% of inflow)
 Center-of-Mass det. time= 43.7 min (848.2 - 804.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	191.67'	0.474 af	102.10'W x 186.67'L x 6.00'H Field A 2.625 af Overall - 1.440 af Embedded = 1.185 af x 40.0% Voids
#2A	194.17'	1.106 af	StormTrap ST2 SingleTrap 3-0 x 110 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 10 Rows of 11 Chambers 84.79' x 169.35' Core + 6.66' Border = 98.10' x 182.67' System
		1.581 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	194.30'	30.0" Round Culvert 1 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	194.30'	30.0" Round Culvert 2 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Discarded	191.67'	0.450 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 190.67'

Discarded OutFlow Max=1.08 cfs @ 12.26 hrs HW=196.09' (Free Discharge)
 ↳ **3=Exfiltration** (Controls 1.08 cfs)

Primary OutFlow Max=34.22 cfs @ 12.26 hrs HW=196.09' (Free Discharge)
 ↳ **1=Culvert 1** (Inlet Controls 17.11 cfs @ 4.55 fps)
 ↳ **2=Culvert 2** (Inlet Controls 17.11 cfs @ 4.55 fps)

Pond C1: Detention 1 - Chamber Wizard Field A

Chamber Model = StormTrap ST2 SingleTrap 3-0 (StormTrap ST2 SingleTrap® Type II+IV)

Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf

Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

11 Chambers/Row x 15.40' Long = 169.35' Row Length +79.9" Border x 2 +24.0" End Stone x 2 = 186.67' Base Length

10 Rows x 101.7" Wide + 79.9" Side Border x 2 + 24.0" Side Stone x 2 = 102.10' Base Width

30.0" Base + 42.0" Chamber Height = 6.00' Field Height

110 Chambers x 354.0 cf + 9,253.4 cf Border = 48,192.5 cf Chamber Storage

110 Chambers x 456.9 cf + 12,461.9 cf Border = 62,721.3 cf Displacement

114,356.7 cf Field - 62,721.3 cf Chambers = 51,635.4 cf Stone x 40.0% Voids = 20,654.2 cf Stone Storage

Chamber Storage + Stone Storage = 68,846.6 cf = 1.581 af

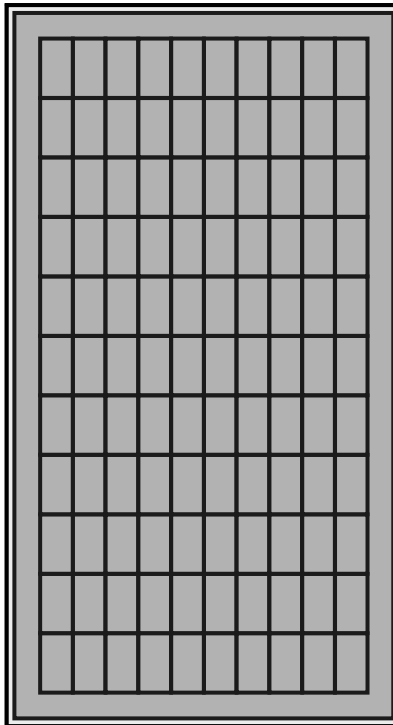
Overall Storage Efficiency = 60.2%

Overall System Size = 186.67' x 102.10' x 6.00'

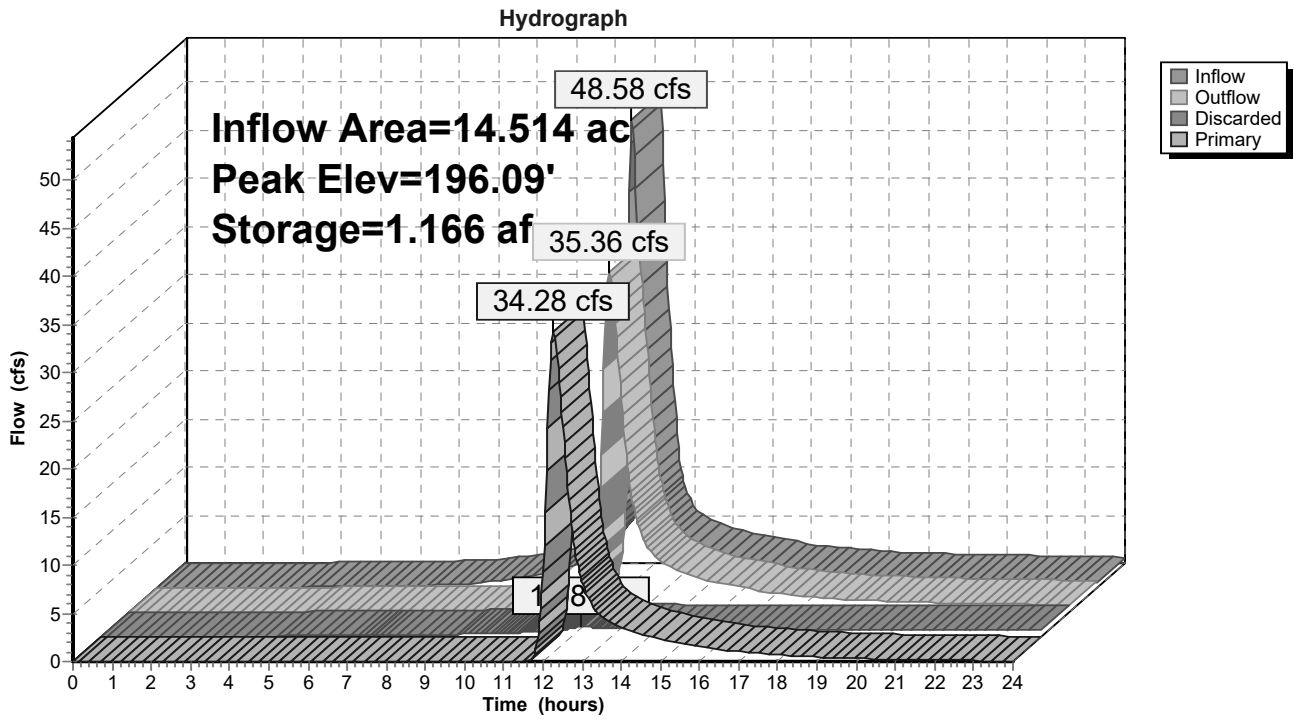
110 Chambers (plus border)

4,235.4 cy Field

1,912.4 cy Stone



Pond C1: Detention 1

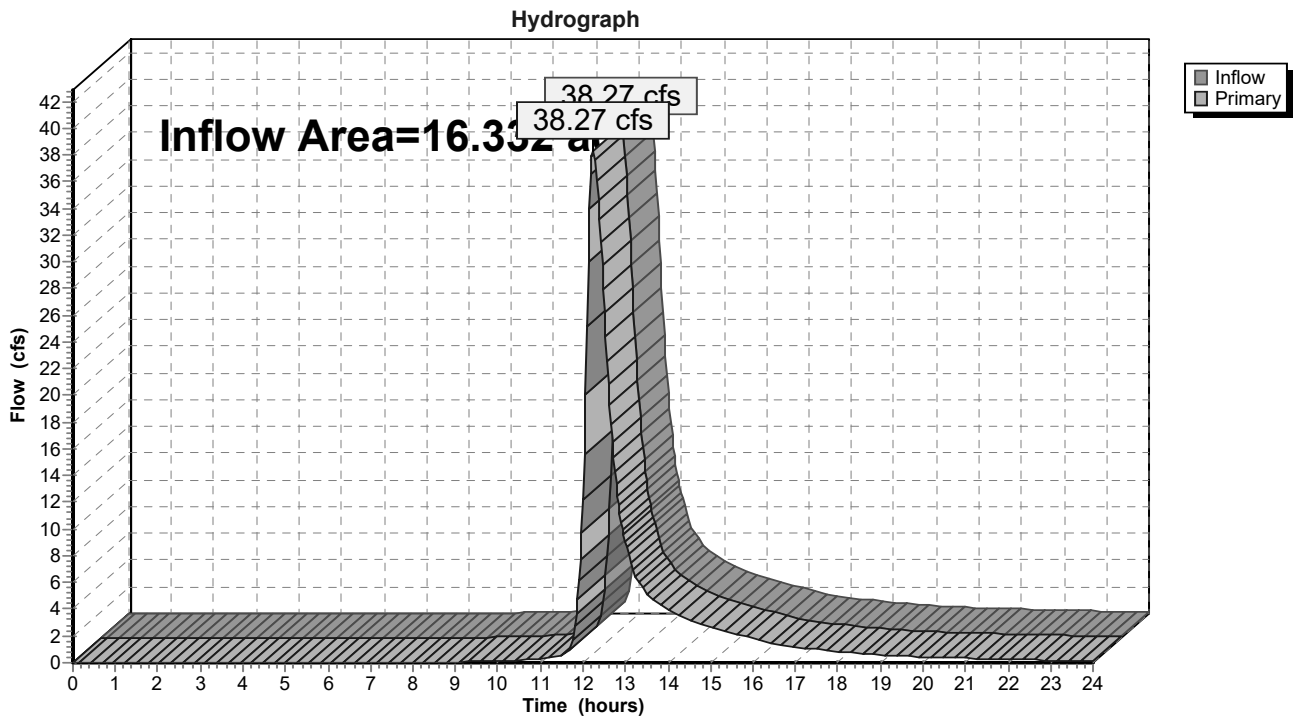


Summary for Link W: Total to Wetlands

Inflow Area = 16.332 ac, 35.71% Impervious, Inflow Depth > 2.48" for 10-Year event
 Inflow = 38.27 cfs @ 12.24 hrs, Volume= 3.381 af
 Primary = 38.27 cfs @ 12.24 hrs, Volume= 3.381 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link W: Total to Wetlands



Summary for Subcatchment 1S: UD/FD Flow

Runoff = 0.18 cfs @ 12.08 hrs, Volume= 0.015 af, Depth> 6.35"

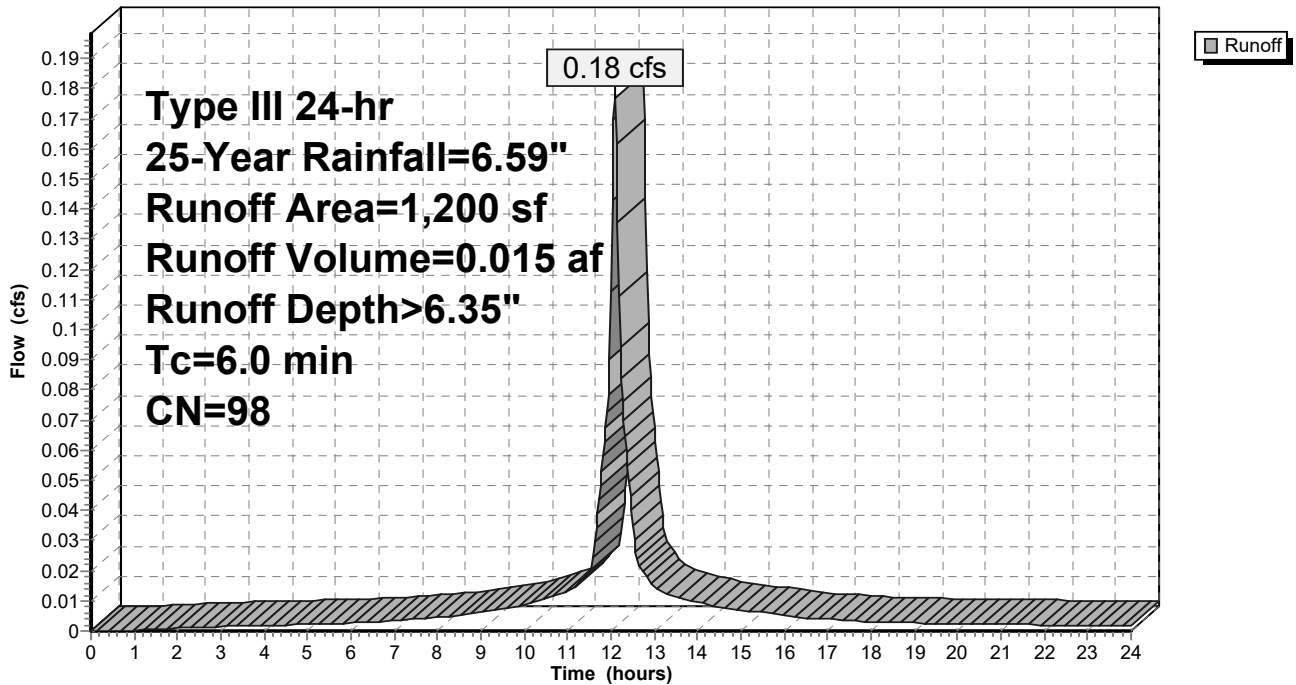
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (sf)	CN	Description
1,200	98	Paved parking, HSG A
1,200		100.00% Impervious Area

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

Subcatchment 1S: UD/FD Flow

Hydrograph



Summary for Subcatchment P1a: Off-Site Open Space

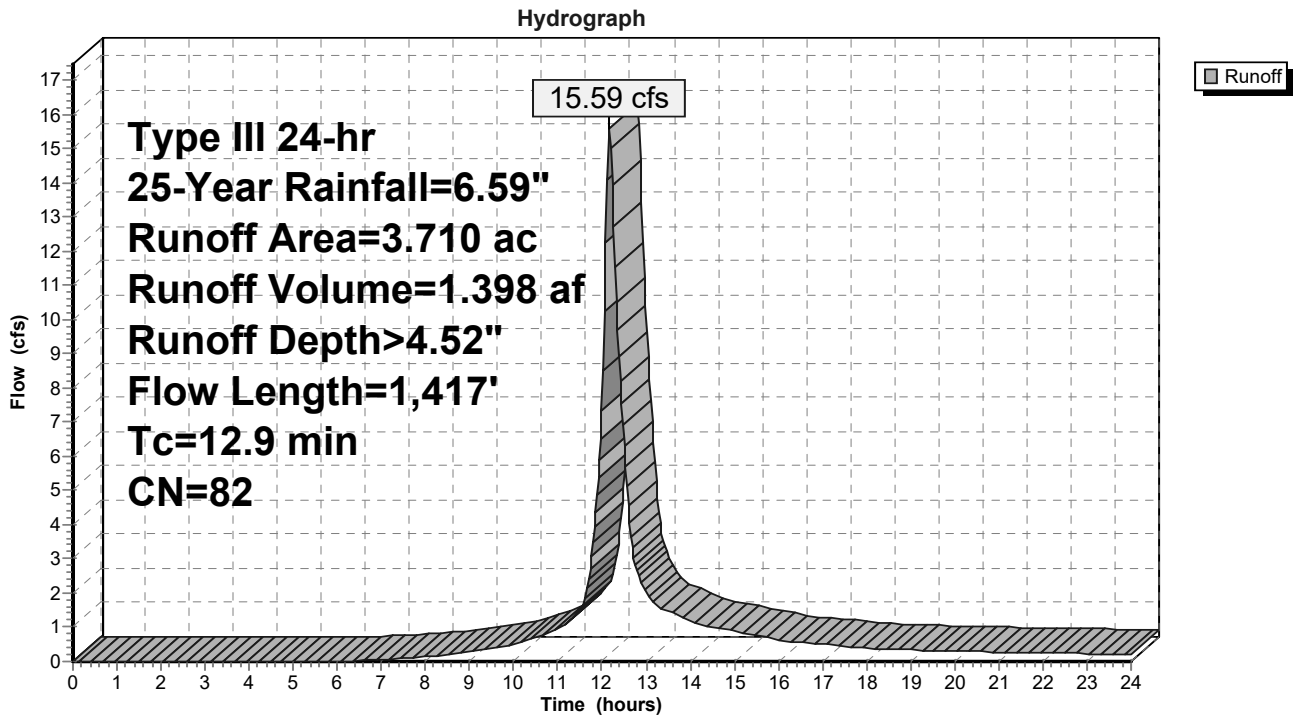
Runoff = 15.59 cfs @ 12.18 hrs, Volume= 1.398 af, Depth> 4.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
0.160	98	Paved parking, HSG B
0.260	79	<50% Grass cover, Poor, HSG B
0.860	98	Paved parking, HSG C
1.970	74	>75% Grass cover, Good, HSG C
0.460	82	Woods/grass comb., Poor, HSG C
3.710	82	Weighted Average
2.690		72.51% Pervious Area
1.020		27.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	108	0.0648	0.20		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
1.5	370	0.0622	4.02		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
2.4	939	0.0200	6.45	7.92	Pipe Channel, Pipe 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
12.9	1,417	Total			

Subcatchment P1a: Off-Site Open Space



Summary for Subcatchment P1b: Proposed Building

Runoff = 12.20 cfs @ 12.07 hrs, Volume= 0.970 af, Depth> 6.35"

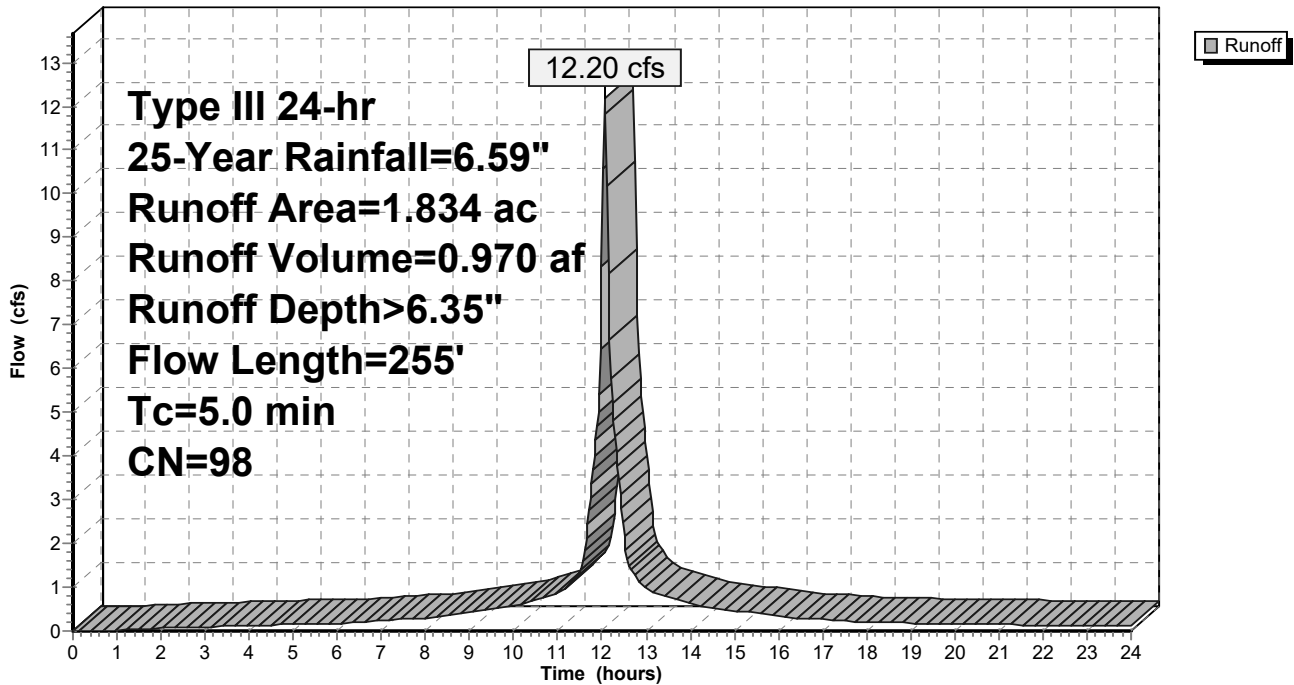
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
1.834	98	Roofs, HSG A
1.834		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	255		0.85		Direct Entry, Pipe flow

Subcatchment P1b: Proposed Building

Hydrograph



Summary for Subcatchment P2a: Residential

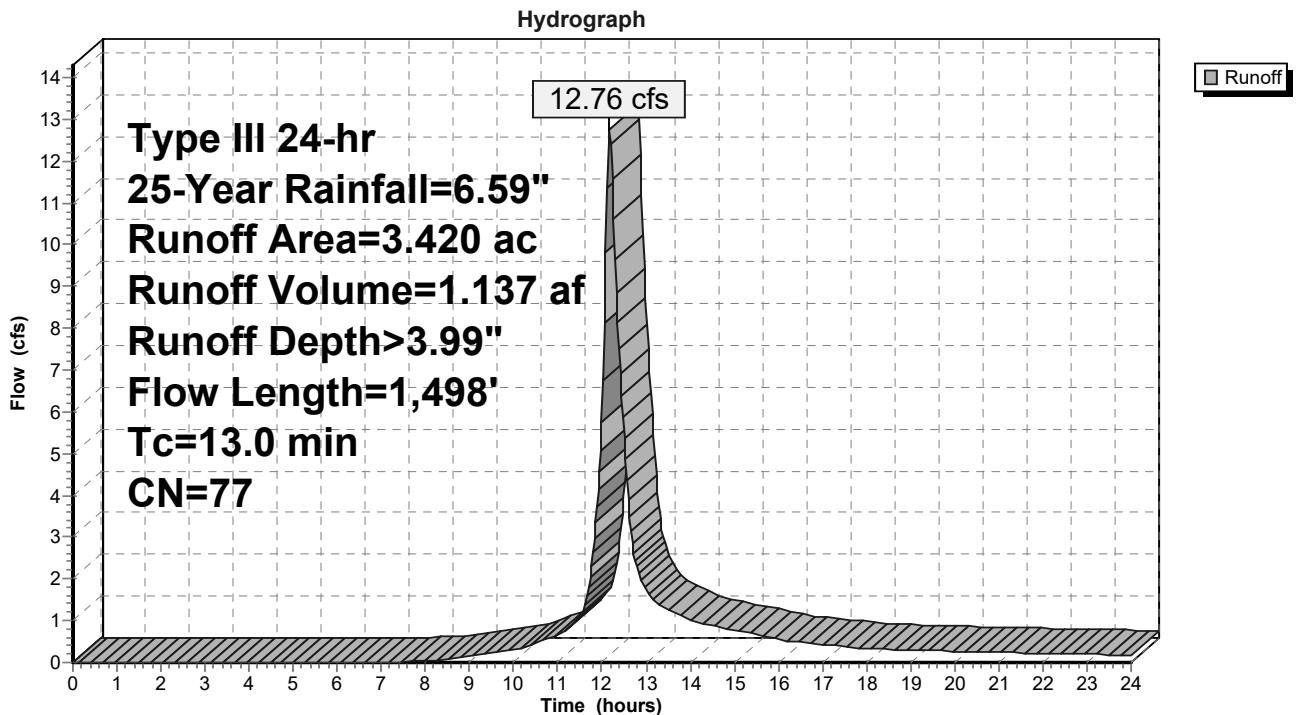
Runoff = 12.76 cfs @ 12.18 hrs, Volume= 1.137 af, Depth> 3.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
3.420	77	2 acre lots, 12% imp, HSG C
3.010		88.00% Pervious Area
0.410		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0200	0.18		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.4	71	0.0280	2.69		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.5	165	0.1393	6.01		Shallow Concentrated Flow, Woods Unpaved Kv= 16.1 fps
1.1	152	0.0131	2.32		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
1.7	1,010	0.0495	10.15	12.46	Pipe Channel, Pipe Flow 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
13.0	1,498	Total			

Subcatchment P2a: Residential



Summary for Subcatchment P2b: Off-Site Wetlands

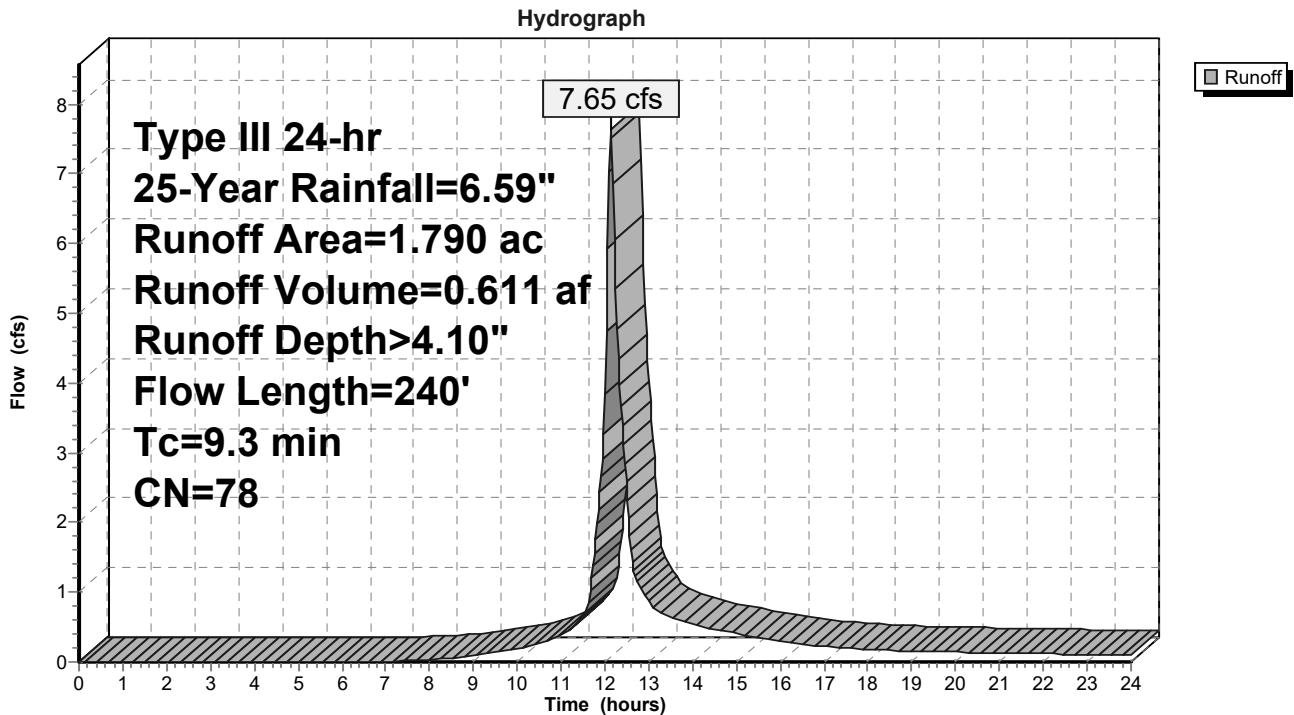
Runoff = 7.65 cfs @ 12.13 hrs, Volume= 0.611 af, Depth> 4.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
0.920	74	>75% Grass cover, Good, HSG C
0.120	87	Dirt roads, HSG C
0.270	82	Woods/grass comb., Poor, HSG C
0.060	80	>75% Grass cover, Good, HSG D
0.420	82	Woods/grass comb., Fair, HSG D
1.790	78	Weighted Average
1.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0230	0.19		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.5	140	0.0820	4.61		Shallow Concentrated Flow, Meadow/Wood Unpaved Kv= 16.1 fps
9.3	240	Total			

Subcatchment P2b: Off-Site Wetlands



Summary for Subcatchment P2c1: Upper Parking

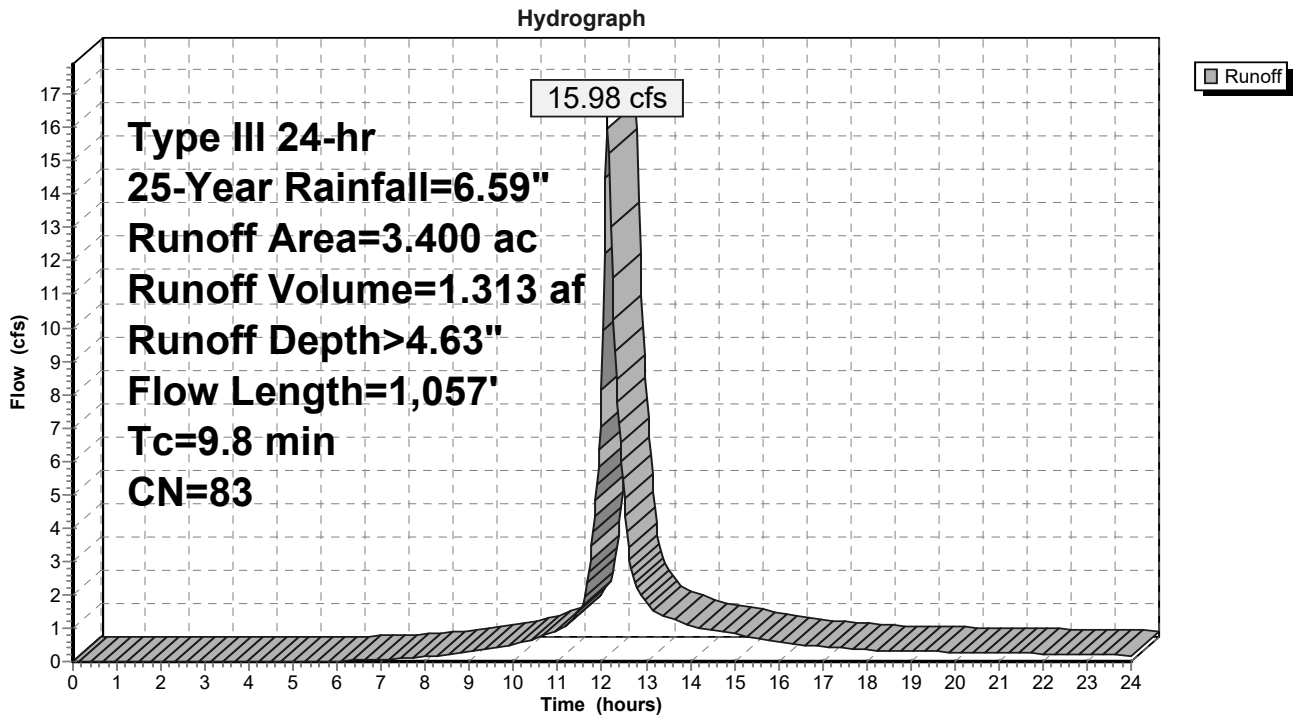
Runoff = 15.98 cfs @ 12.13 hrs, Volume= 1.313 af, Depth> 4.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
0.660	98	Paved parking, HSG B
0.190	61	>75% Grass cover, Good, HSG B
0.120	73	Woods/grass comb., Poor, HSG B
0.600	98	Paved parking, HSG C
1.480	74	>75% Grass cover, Good, HSG C
0.050	87	Dirt roads, HSG C
0.300	86	Woods/grass comb., Poor, HSG D
3.400	83	Weighted Average
2.140		62.94% Pervious Area
1.260		37.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0873	0.22		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
0.7	170	0.0676	4.19		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.3	64	0.0234	3.11		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.3	723	0.0409	9.23	11.32	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
9.8	1,057	Total			

Subcatchment P2c1: Upper Parking



Summary for Subcatchment P2c2: Lower Parking

Runoff = 11.29 cfs @ 12.10 hrs, Volume= 0.850 af, Depth> 4.75"

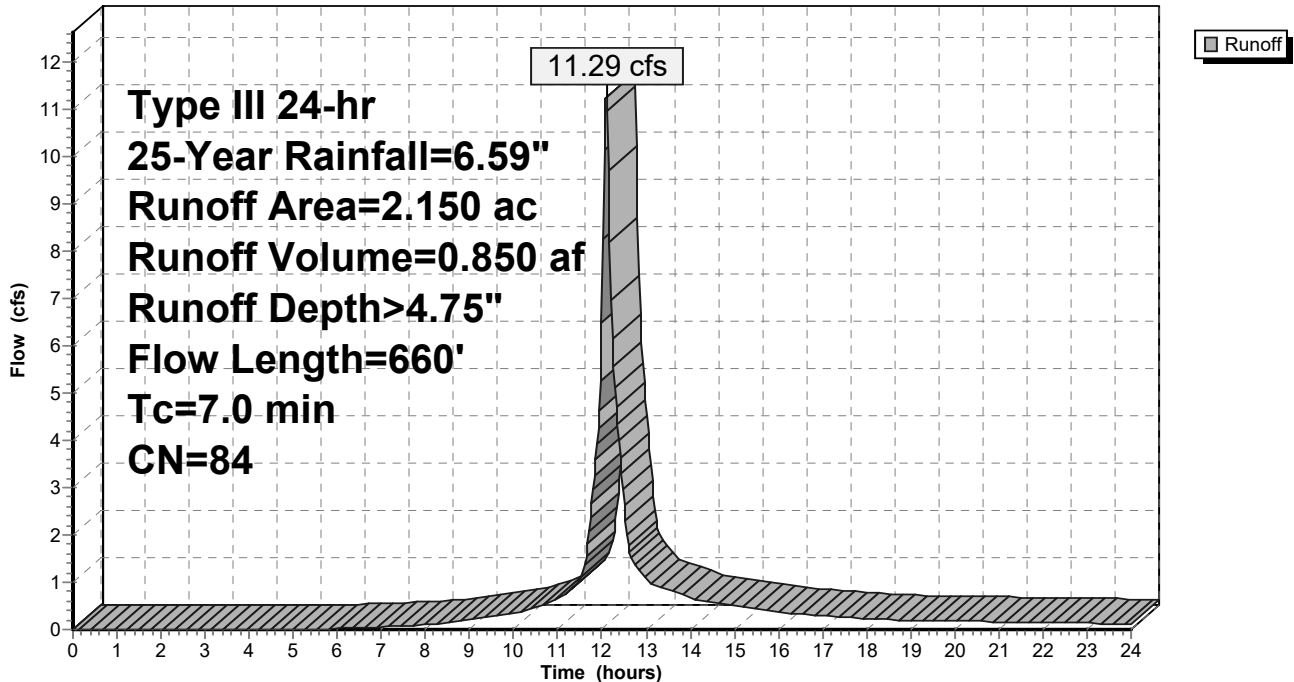
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 25-Year Rainfall=6.59"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG B
0.730	61	>75% Grass cover, Good, HSG B
0.050	73	Woods/grass comb., Poor, HSG B
0.090	74	>75% Grass cover, Good, HSG C
2.150	84	Weighted Average
0.870		40.47% Pervious Area
1.280		59.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0590	0.28		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.3	83	0.0480	4.45		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
0.7	477	0.0545	10.65	13.07	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
7.0	660	Total			

Subcatchment P2c2: Lower Parking

Hydrograph



Summary for Pond 2P: DMH

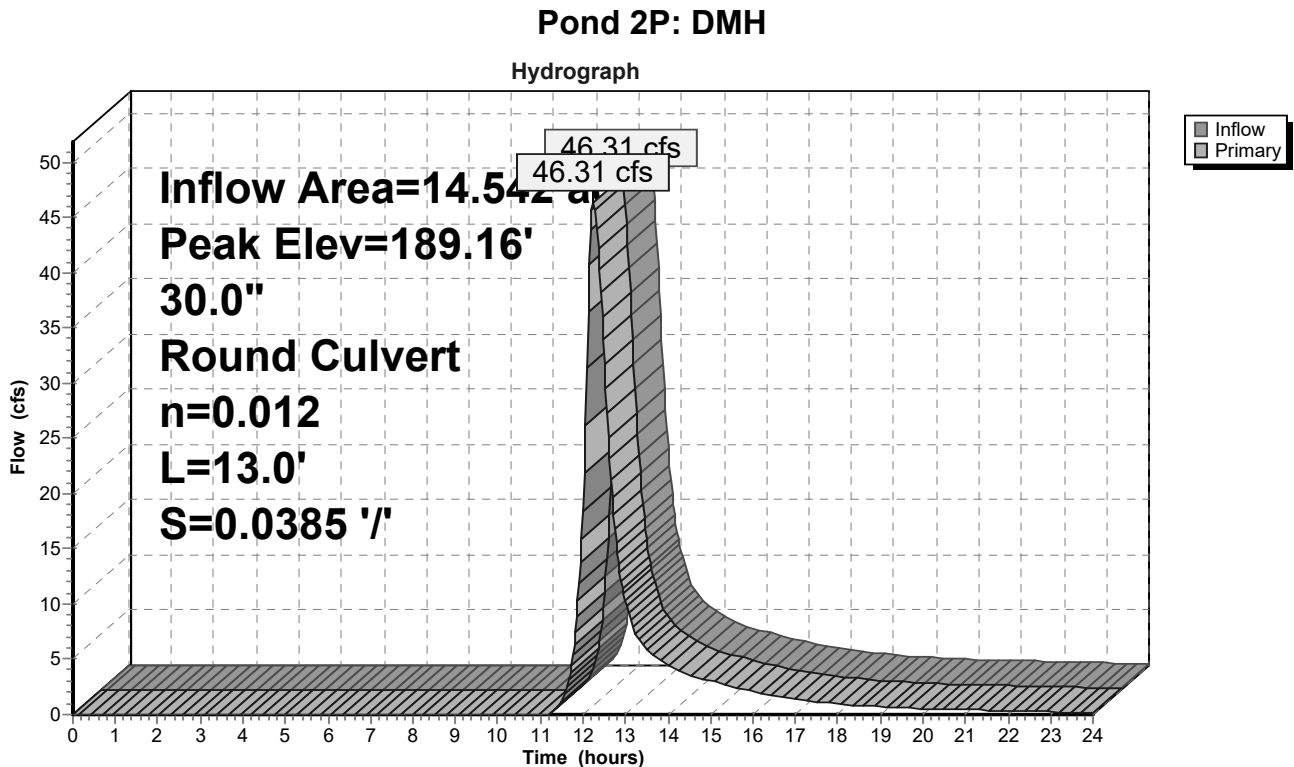
[57] Hint: Peaked at 189.16' (Flood elevation advised)

Inflow Area = 14.542 ac, 40.11% Impervious, Inflow Depth > 3.40" for 25-Year event
 Inflow = 46.31 cfs @ 12.25 hrs, Volume= 4.124 af
 Outflow = 46.31 cfs @ 12.25 hrs, Volume= 4.124 af, Atten= 0%, Lag= 0.0 min
 Primary = 46.31 cfs @ 12.25 hrs, Volume= 4.124 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 189.16' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	30.0" Round Pipe P-70 L= 13.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 185.50' / 185.00' S= 0.0385 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf

Primary OutFlow Max=46.22 cfs @ 12.25 hrs HW=189.16' (Free Discharge)
 ↳ **1=Pipe P-70** (Barrel Controls 46.22 cfs @ 9.42 fps)



Summary for Pond C1: Detention 1

Inflow Area = 14.514 ac, 39.99% Impervious, Inflow Depth > 4.69" for 25-Year event
 Inflow = 62.53 cfs @ 12.13 hrs, Volume= 5.669 af
 Outflow = 47.38 cfs @ 12.25 hrs, Volume= 5.143 af, Atten= 24%, Lag= 7.3 min
 Discarded = 1.16 cfs @ 12.25 hrs, Volume= 1.034 af
 Primary = 46.23 cfs @ 12.25 hrs, Volume= 4.110 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 196.50' @ 12.25 hrs Surf.Area= 0.438 ac Storage= 1.322 af

Plug-Flow detention time= 84.1 min calculated for 5.137 af (91% of inflow)
 Center-of-Mass det. time= 38.5 min (837.0 - 798.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	191.67'	0.474 af	102.10'W x 186.67'L x 6.00'H Field A 2.625 af Overall - 1.440 af Embedded = 1.185 af x 40.0% Voids
#2A	194.17'	1.106 af	StormTrap ST2 SingleTrap 3-0 x 110 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 10 Rows of 11 Chambers 84.79' x 169.35' Core + 6.66' Border = 98.10' x 182.67' System
		1.581 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	194.30'	30.0" Round Culvert 1 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	194.30'	30.0" Round Culvert 2 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Discarded	191.67'	0.450 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 190.67'

Discarded OutFlow Max=1.16 cfs @ 12.25 hrs HW=196.50' (Free Discharge)
 ↳ **3=Exfiltration** (Controls 1.16 cfs)

Primary OutFlow Max=46.15 cfs @ 12.25 hrs HW=196.50' (Free Discharge)
 ↳ **1=Culvert 1** (Inlet Controls 23.07 cfs @ 5.05 fps)
 ↳ **2=Culvert 2** (Inlet Controls 23.07 cfs @ 5.05 fps)

Pond C1: Detention 1 - Chamber Wizard Field A

Chamber Model = StormTrap ST2 SingleTrap 3-0 (StormTrap ST2 SingleTrap® Type II+IV)

Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf

Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

11 Chambers/Row x 15.40' Long = 169.35' Row Length +79.9" Border x 2 +24.0" End Stone x 2 =
186.67' Base Length

10 Rows x 101.7" Wide + 79.9" Side Border x 2 + 24.0" Side Stone x 2 = 102.10' Base Width

30.0" Base + 42.0" Chamber Height = 6.00' Field Height

110 Chambers x 354.0 cf + 9,253.4 cf Border = 48,192.5 cf Chamber Storage

110 Chambers x 456.9 cf + 12,461.9 cf Border = 62,721.3 cf Displacement

114,356.7 cf Field - 62,721.3 cf Chambers = 51,635.4 cf Stone x 40.0% Voids = 20,654.2 cf Stone
Storage

Chamber Storage + Stone Storage = 68,846.6 cf = 1.581 af

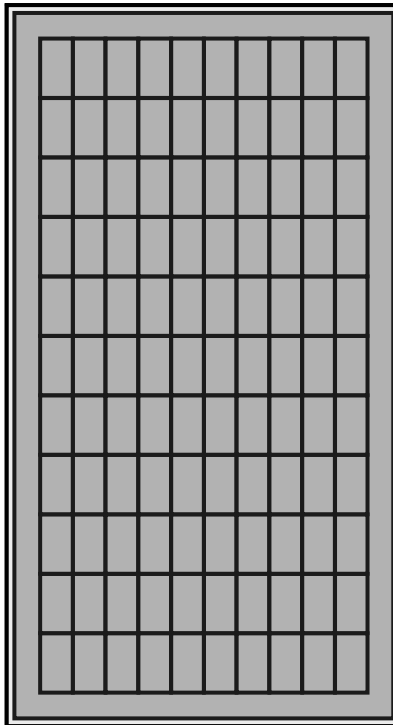
Overall Storage Efficiency = 60.2%

Overall System Size = 186.67' x 102.10' x 6.00'

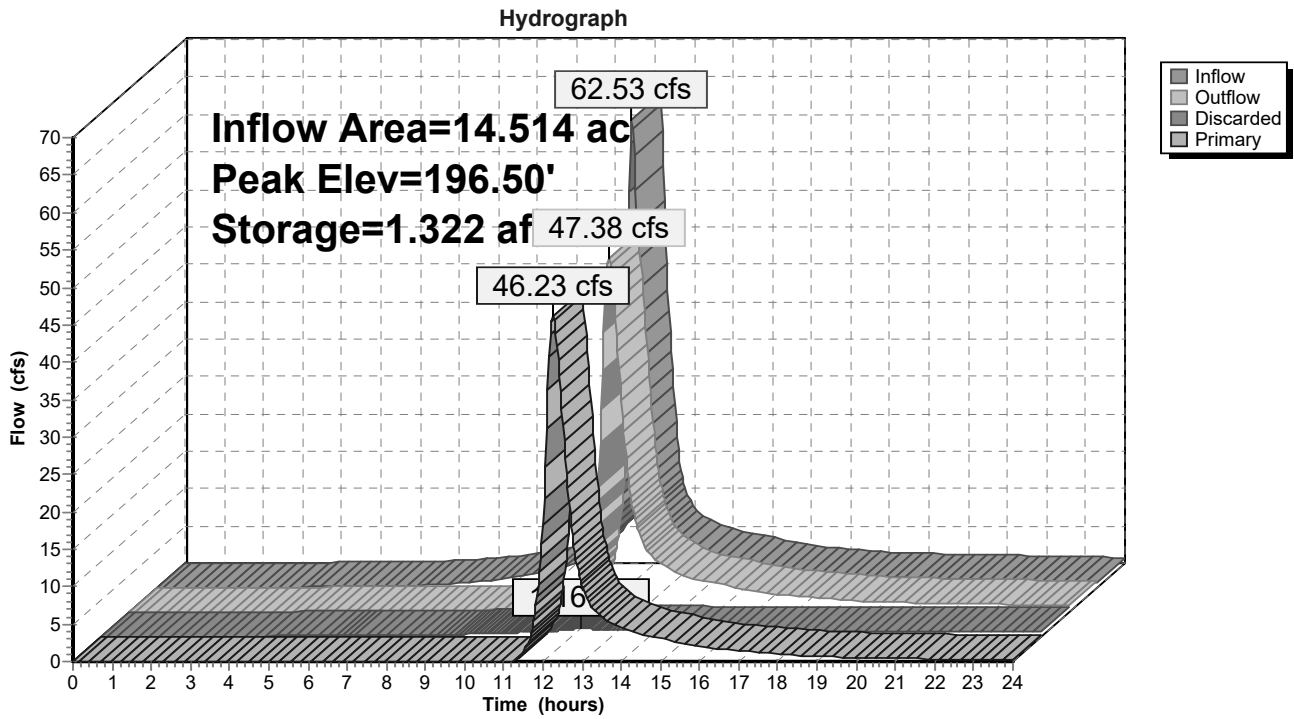
110 Chambers (plus border)

4,235.4 cy Field

1,912.4 cy Stone



Pond C1: Detention 1

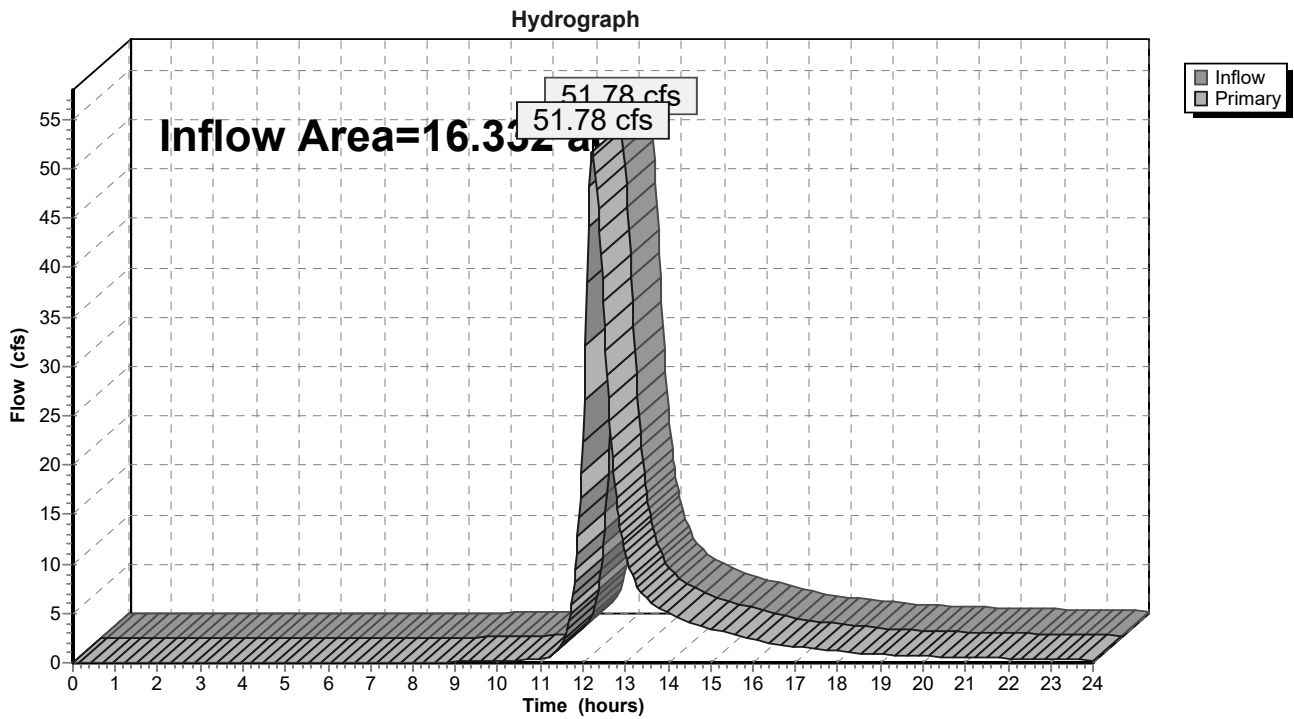


Summary for Link W: Total to Wetlands

Inflow Area = 16.332 ac, 35.71% Impervious, Inflow Depth > 3.48" for 25-Year event
 Inflow = 51.78 cfs @ 12.22 hrs, Volume= 4.736 af
 Primary = 51.78 cfs @ 12.22 hrs, Volume= 4.736 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link W: Total to Wetlands



Summary for Subcatchment 1S: UD/FD Flow

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.017 af, Depth> 7.22"

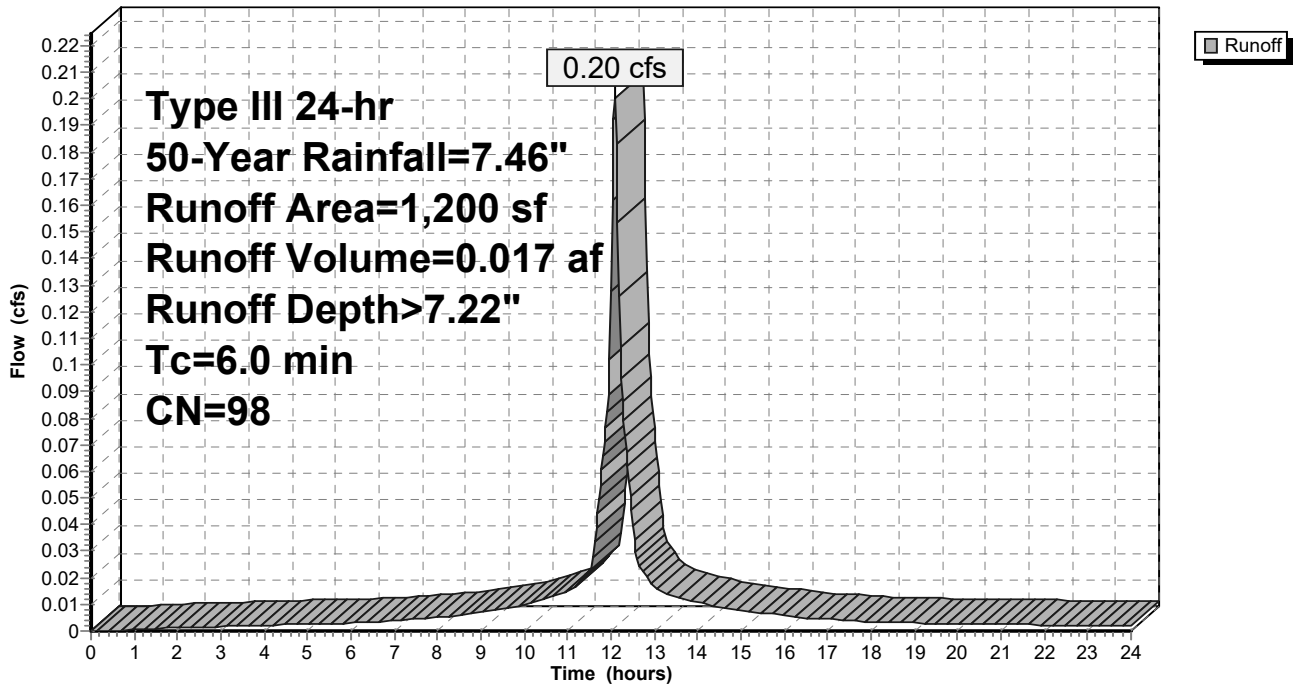
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (sf)	CN	Description
1,200	98	Paved parking, HSG A
1,200		100.00% Impervious Area

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

Subcatchment 1S: UD/FD Flow

Hydrograph



Summary for Subcatchment P1a: Off-Site Open Space

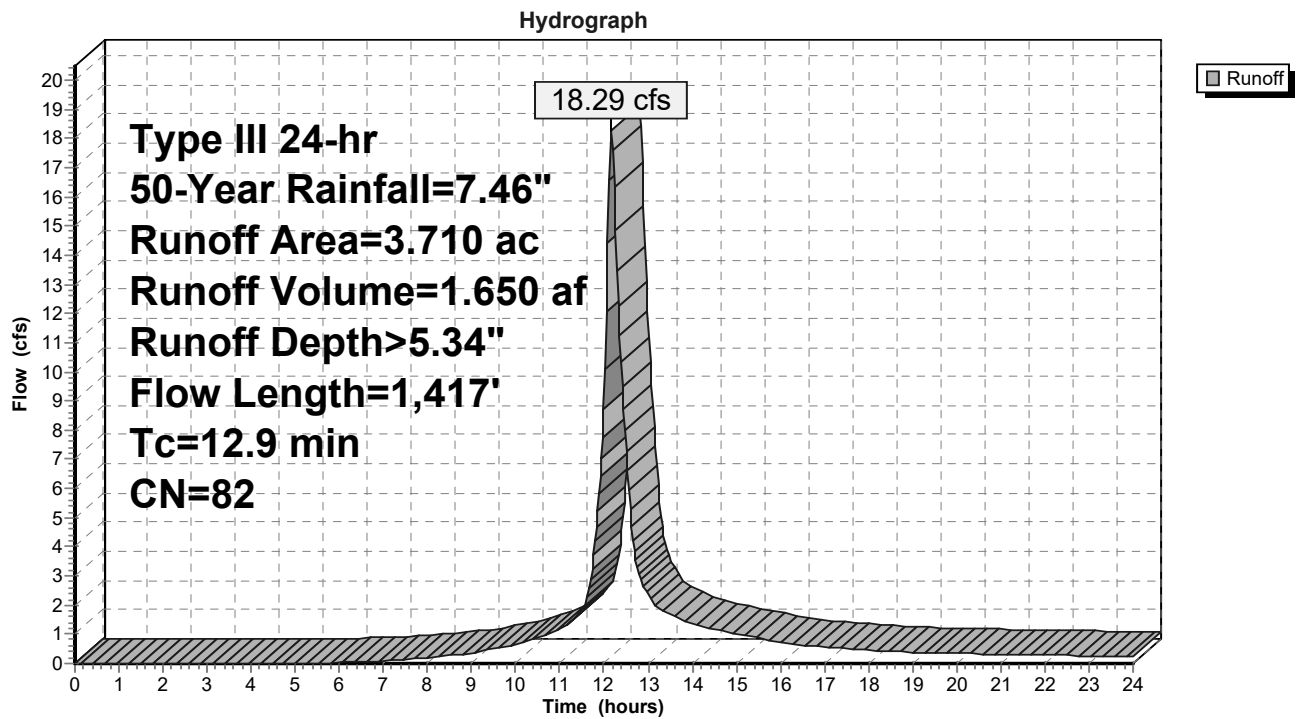
Runoff = 18.29 cfs @ 12.17 hrs, Volume= 1.650 af, Depth> 5.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
0.160	98	Paved parking, HSG B
0.260	79	<50% Grass cover, Poor, HSG B
0.860	98	Paved parking, HSG C
1.970	74	>75% Grass cover, Good, HSG C
0.460	82	Woods/grass comb., Poor, HSG C
3.710	82	Weighted Average
2.690		72.51% Pervious Area
1.020		27.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	108	0.0648	0.20		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
1.5	370	0.0622	4.02		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
2.4	939	0.0200	6.45	7.92	Pipe Channel, Pipe 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
12.9	1,417	Total			

Subcatchment P1a: Off-Site Open Space



Summary for Subcatchment P1b: Proposed Building

Runoff = 13.82 cfs @ 12.07 hrs, Volume= 1.103 af, Depth> 7.22"

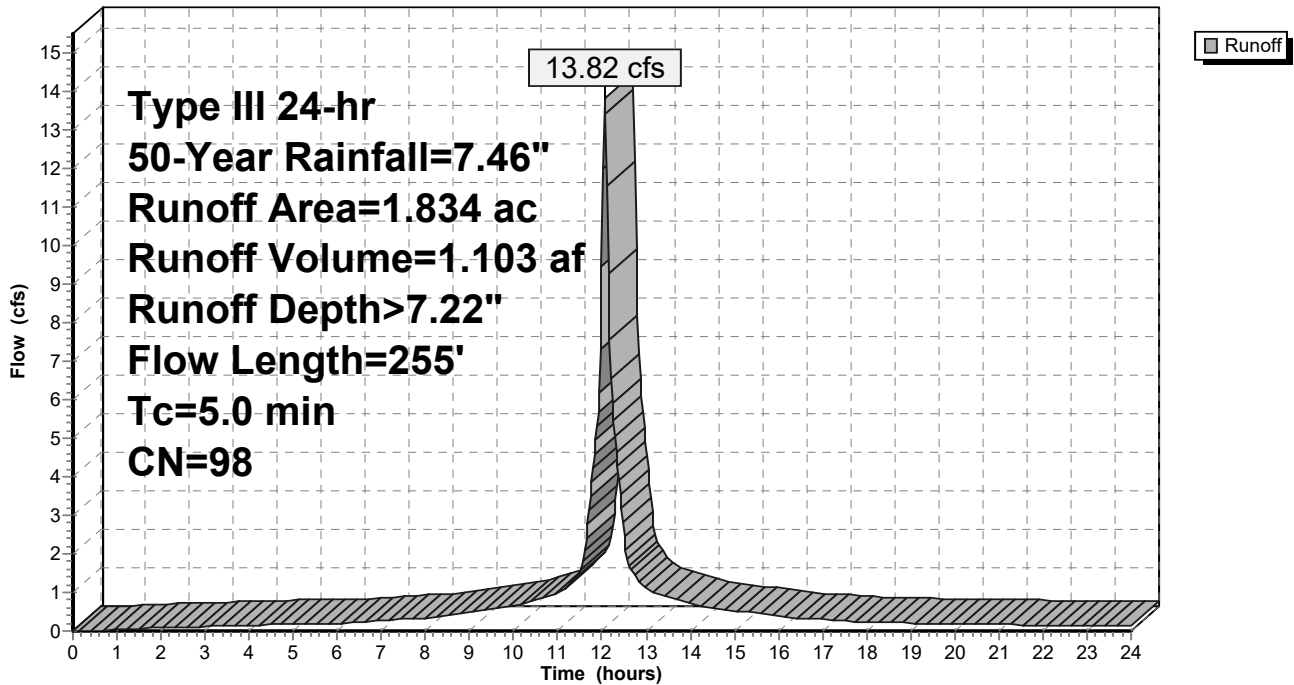
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
1.834	98	Roofs, HSG A
1.834		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	255		0.85		Direct Entry, Pipe flow

Subcatchment P1b: Proposed Building

Hydrograph



Summary for Subcatchment P2a: Residential

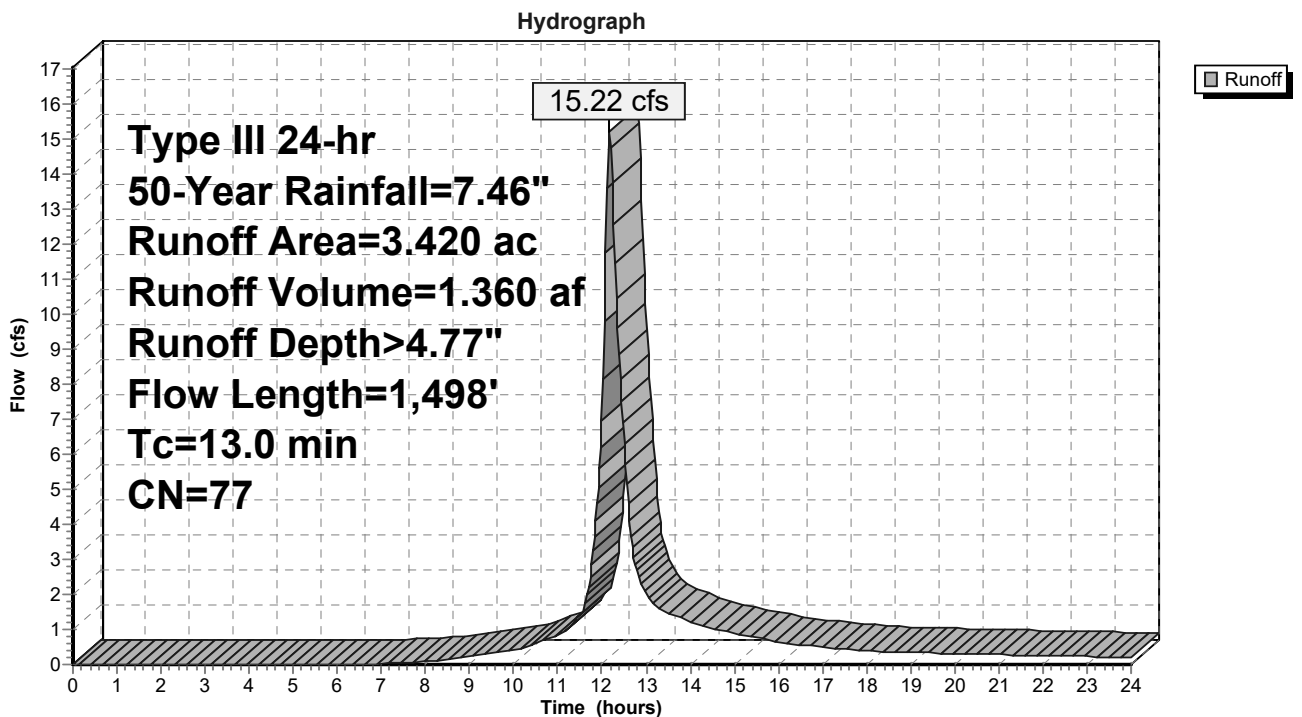
Runoff = 15.22 cfs @ 12.18 hrs, Volume= 1.360 af, Depth> 4.77"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
3.420	77	2 acre lots, 12% imp, HSG C
3.010		88.00% Pervious Area
0.410		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0200	0.18		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.4	71	0.0280	2.69		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.5	165	0.1393	6.01		Shallow Concentrated Flow, Woods Unpaved Kv= 16.1 fps
1.1	152	0.0131	2.32		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
1.7	1,010	0.0495	10.15	12.46	Pipe Channel, Pipe Flow 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
13.0	1,498	Total			

Subcatchment P2a: Residential



Summary for Subcatchment P2b: Off-Site Wetlands

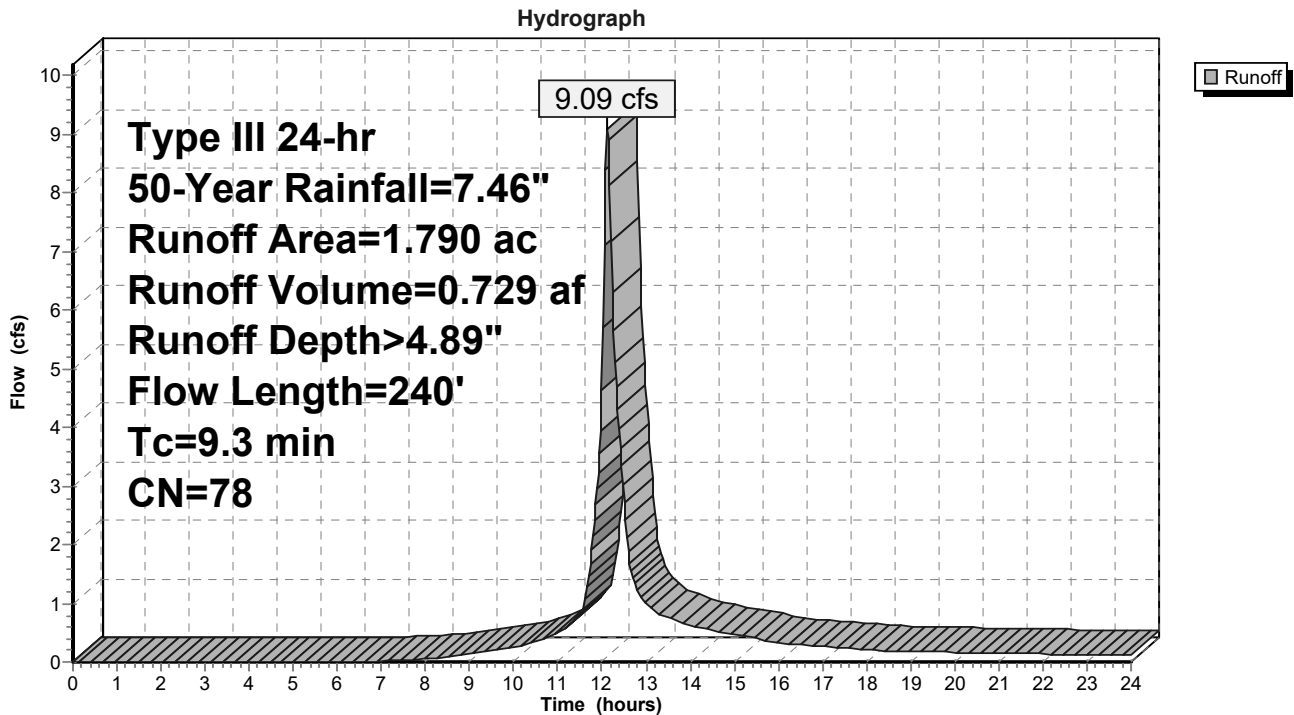
Runoff = 9.09 cfs @ 12.13 hrs, Volume= 0.729 af, Depth> 4.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
0.920	74	>75% Grass cover, Good, HSG C
0.120	87	Dirt roads, HSG C
0.270	82	Woods/grass comb., Poor, HSG C
0.060	80	>75% Grass cover, Good, HSG D
0.420	82	Woods/grass comb., Fair, HSG D
1.790	78	Weighted Average
1.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0230	0.19		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.5	140	0.0820	4.61		Shallow Concentrated Flow, Meadow/Wood Unpaved Kv= 16.1 fps
9.3	240	Total			

Subcatchment P2b: Off-Site Wetlands



Summary for Subcatchment P2c1: Upper Parking

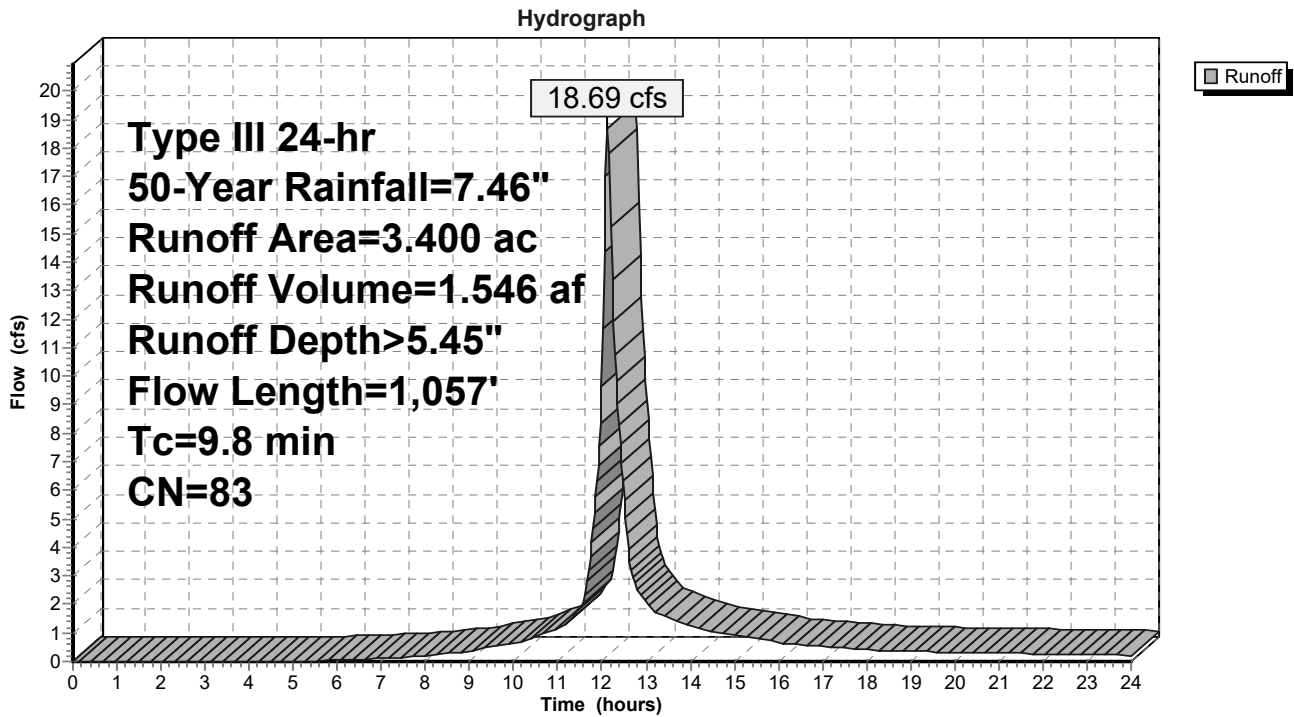
Runoff = 18.69 cfs @ 12.13 hrs, Volume= 1.546 af, Depth> 5.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
0.660	98	Paved parking, HSG B
0.190	61	>75% Grass cover, Good, HSG B
0.120	73	Woods/grass comb., Poor, HSG B
0.600	98	Paved parking, HSG C
1.480	74	>75% Grass cover, Good, HSG C
0.050	87	Dirt roads, HSG C
0.300	86	Woods/grass comb., Poor, HSG D
3.400	83	Weighted Average
2.140		62.94% Pervious Area
1.260		37.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0873	0.22		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
0.7	170	0.0676	4.19		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.3	64	0.0234	3.11		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.3	723	0.0409	9.23	11.32	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
9.8	1,057	Total			

Subcatchment P2c1: Upper Parking



Summary for Subcatchment P2c2: Lower Parking

Runoff = 13.16 cfs @ 12.10 hrs, Volume= 0.998 af, Depth> 5.57"

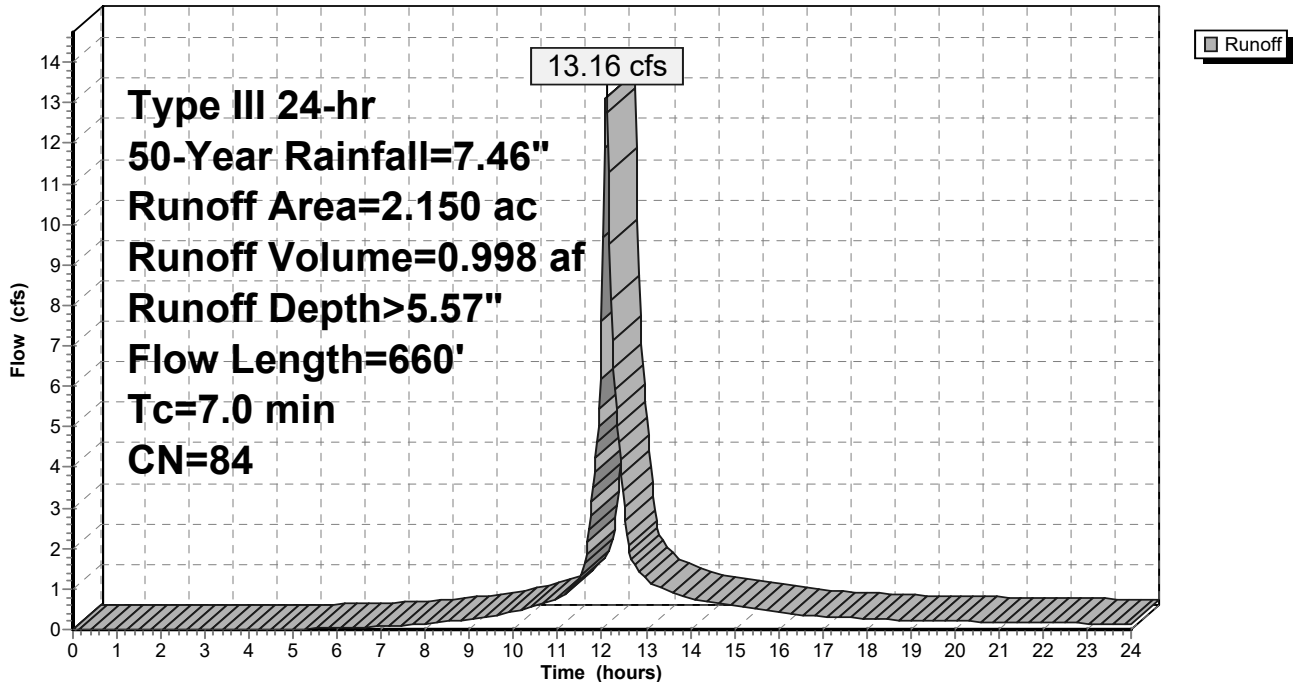
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 50-Year Rainfall=7.46"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG B
0.730	61	>75% Grass cover, Good, HSG B
0.050	73	Woods/grass comb., Poor, HSG B
0.090	74	>75% Grass cover, Good, HSG C
2.150	84	Weighted Average
0.870		40.47% Pervious Area
1.280		59.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0590	0.28		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.3	83	0.0480	4.45		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
0.7	477	0.0545	10.65	13.07	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
7.0	660	Total			

Subcatchment P2c2: Lower Parking

Hydrograph



Summary for Pond 2P: DMH

[57] Hint: Peaked at 189.70' (Flood elevation advised)

Inflow Area = 14.542 ac, 40.11% Impervious, Inflow Depth > 4.18" for 50-Year event
 Inflow = 53.31 cfs @ 12.25 hrs, Volume= 5.060 af
 Outflow = 53.31 cfs @ 12.25 hrs, Volume= 5.060 af, Atten= 0%, Lag= 0.0 min
 Primary = 53.31 cfs @ 12.25 hrs, Volume= 5.060 af

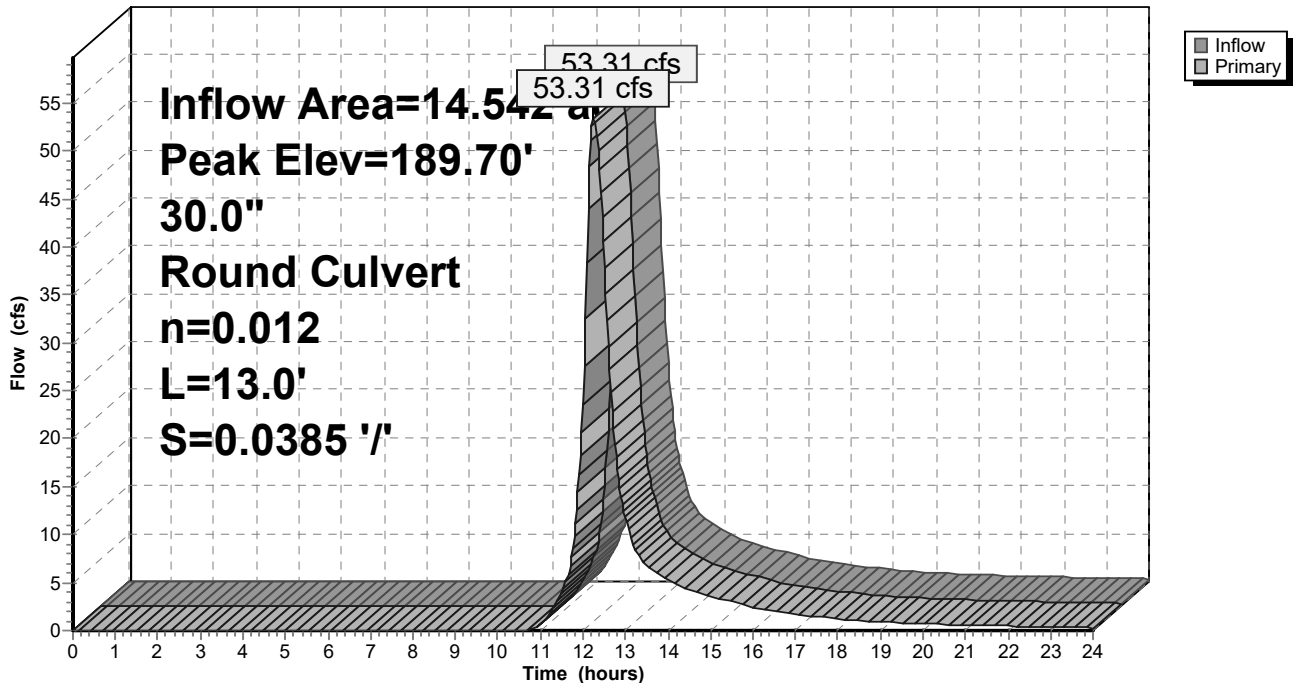
Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 189.70' @ 12.25 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	30.0" Round Pipe P-70 L= 13.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 185.50' / 185.00' S= 0.0385 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf

Primary OutFlow Max=53.24 cfs @ 12.25 hrs HW=189.70' (Free Discharge)
 ↳ **1=Pipe P-70** (Barrel Controls 53.24 cfs @ 10.84 fps)

Pond 2P: DMH

Hydrograph



Summary for Pond C1: Detention 1

Inflow Area = 14.514 ac, 39.99% Impervious, Inflow Depth > 5.50" for 50-Year event
 Inflow = 73.14 cfs @ 12.13 hrs, Volume= 6.657 af
 Outflow = 54.44 cfs @ 12.25 hrs, Volume= 6.119 af, Atten= 26%, Lag= 7.5 min
 Discarded = 1.22 cfs @ 12.25 hrs, Volume= 1.076 af
 Primary = 53.22 cfs @ 12.25 hrs, Volume= 5.043 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 196.82' @ 12.25 hrs Surf.Area= 0.438 ac Storage= 1.441 af

Plug-Flow detention time= 77.4 min calculated for 6.119 af (92% of inflow)
 Center-of-Mass det. time= 36.1 min (830.8 - 794.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	191.67'	0.474 af	102.10'W x 186.67'L x 6.00'H Field A 2.625 af Overall - 1.440 af Embedded = 1.185 af x 40.0% Voids
#2A	194.17'	1.106 af	StormTrap ST2 SingleTrap 3-0 x 110 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 10 Rows of 11 Chambers 84.79' x 169.35' Core + 6.66' Border = 98.10' x 182.67' System
		1.581 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	194.30'	30.0" Round Culvert 1 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	194.30'	30.0" Round Culvert 2 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Discarded	191.67'	0.450 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 190.67'

Discarded OutFlow Max=1.22 cfs @ 12.25 hrs HW=196.81' (Free Discharge)
 ↳ **3=Exfiltration** (Controls 1.22 cfs)

Primary OutFlow Max=53.08 cfs @ 12.25 hrs HW=196.81' (Free Discharge)
 ↳ **1=Culvert 1** (Inlet Controls 26.54 cfs @ 5.41 fps)
 ↳ **2=Culvert 2** (Inlet Controls 26.54 cfs @ 5.41 fps)

Pond C1: Detention 1 - Chamber Wizard Field A

Chamber Model = StormTrap ST2 SingleTrap 3-0 (StormTrap ST2 SingleTrap® Type II+IV)

Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf

Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

11 Chambers/Row x 15.40' Long = 169.35' Row Length +79.9" Border x 2 +24.0" End Stone x 2 =
186.67' Base Length

10 Rows x 101.7" Wide + 79.9" Side Border x 2 + 24.0" Side Stone x 2 = 102.10' Base Width

30.0" Base + 42.0" Chamber Height = 6.00' Field Height

110 Chambers x 354.0 cf + 9,253.4 cf Border = 48,192.5 cf Chamber Storage

110 Chambers x 456.9 cf + 12,461.9 cf Border = 62,721.3 cf Displacement

114,356.7 cf Field - 62,721.3 cf Chambers = 51,635.4 cf Stone x 40.0% Voids = 20,654.2 cf Stone
Storage

Chamber Storage + Stone Storage = 68,846.6 cf = 1.581 af

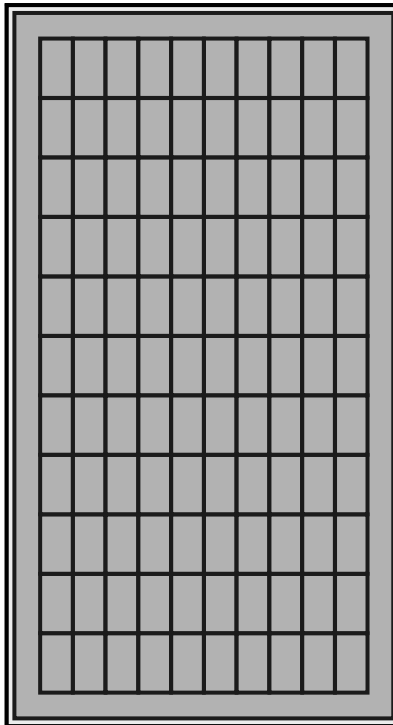
Overall Storage Efficiency = 60.2%

Overall System Size = 186.67' x 102.10' x 6.00'

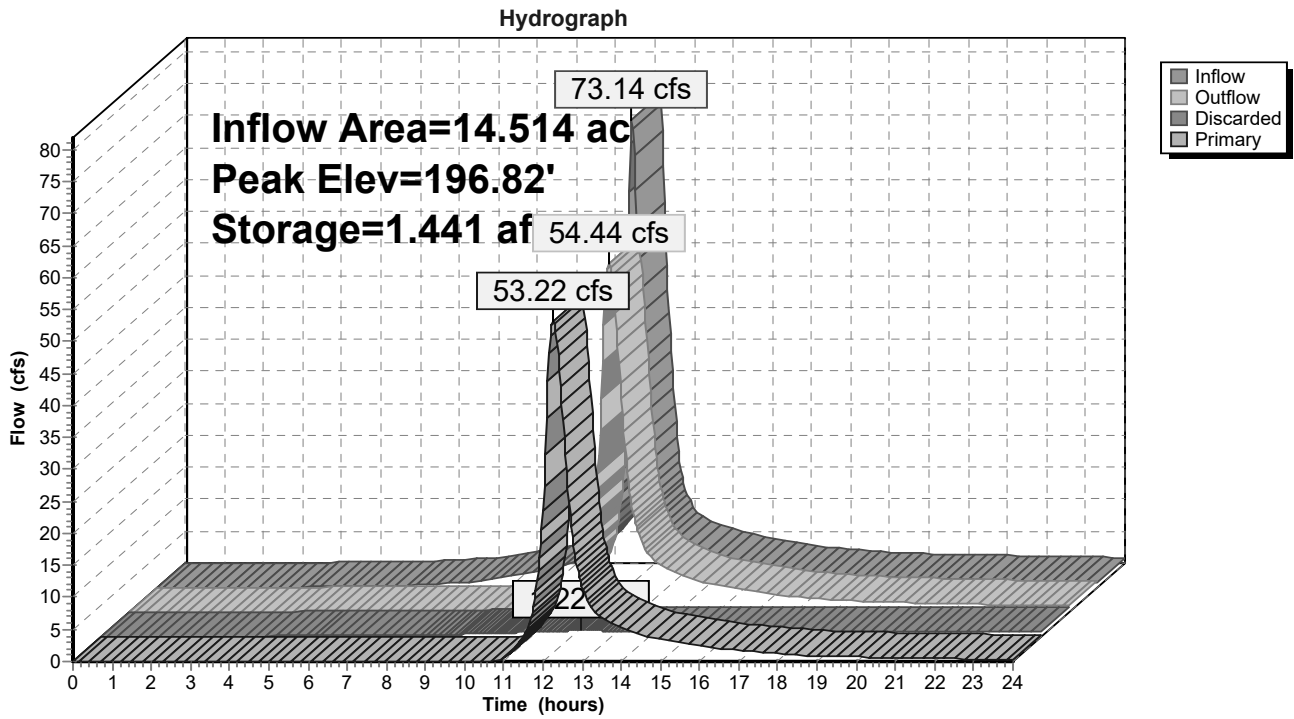
110 Chambers (plus border)

4,235.4 cy Field

1,912.4 cy Stone



Pond C1: Detention 1

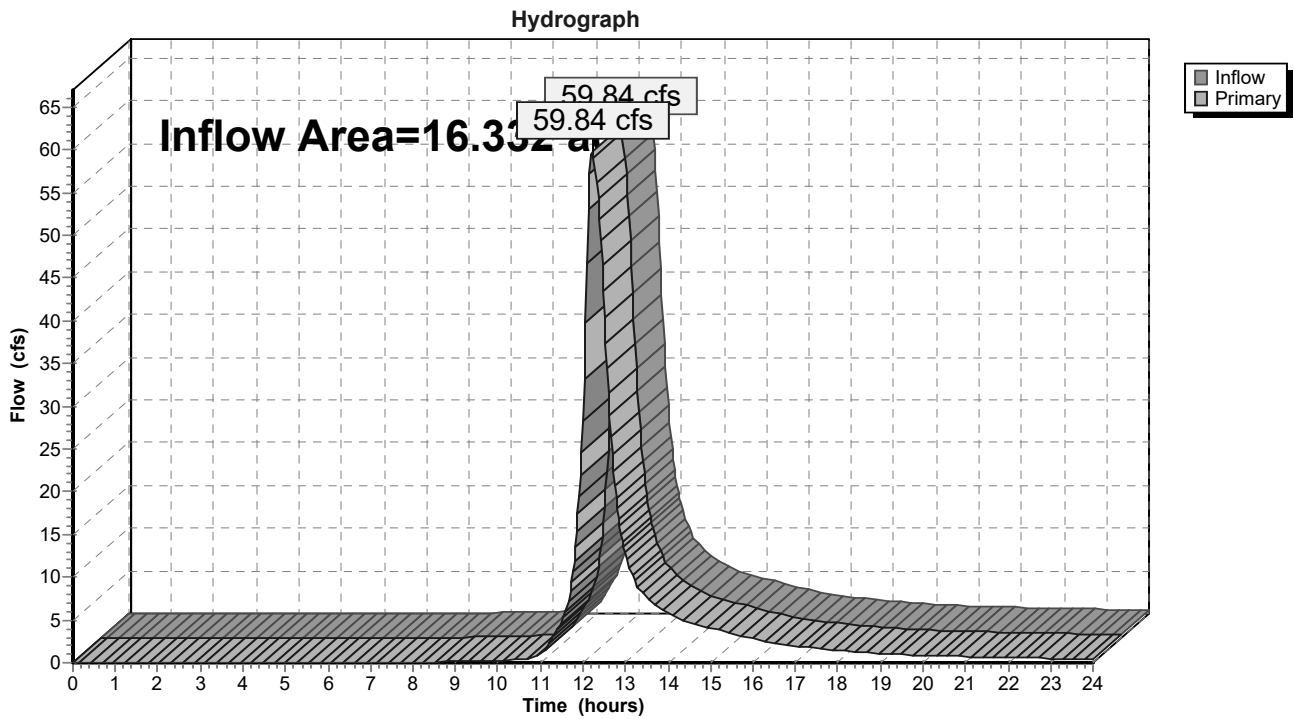


Summary for Link W: Total to Wetlands

Inflow Area = 16.332 ac, 35.71% Impervious, Inflow Depth > 4.25" for 50-Year event
Inflow = 59.84 cfs @ 12.21 hrs, Volume= 5.788 af
Primary = 59.84 cfs @ 12.21 hrs, Volume= 5.788 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link W: Total to Wetlands



Summary for Subcatchment 1S: UD/FD Flow

Runoff = 0.23 cfs @ 12.08 hrs, Volume= 0.019 af, Depth> 8.13"

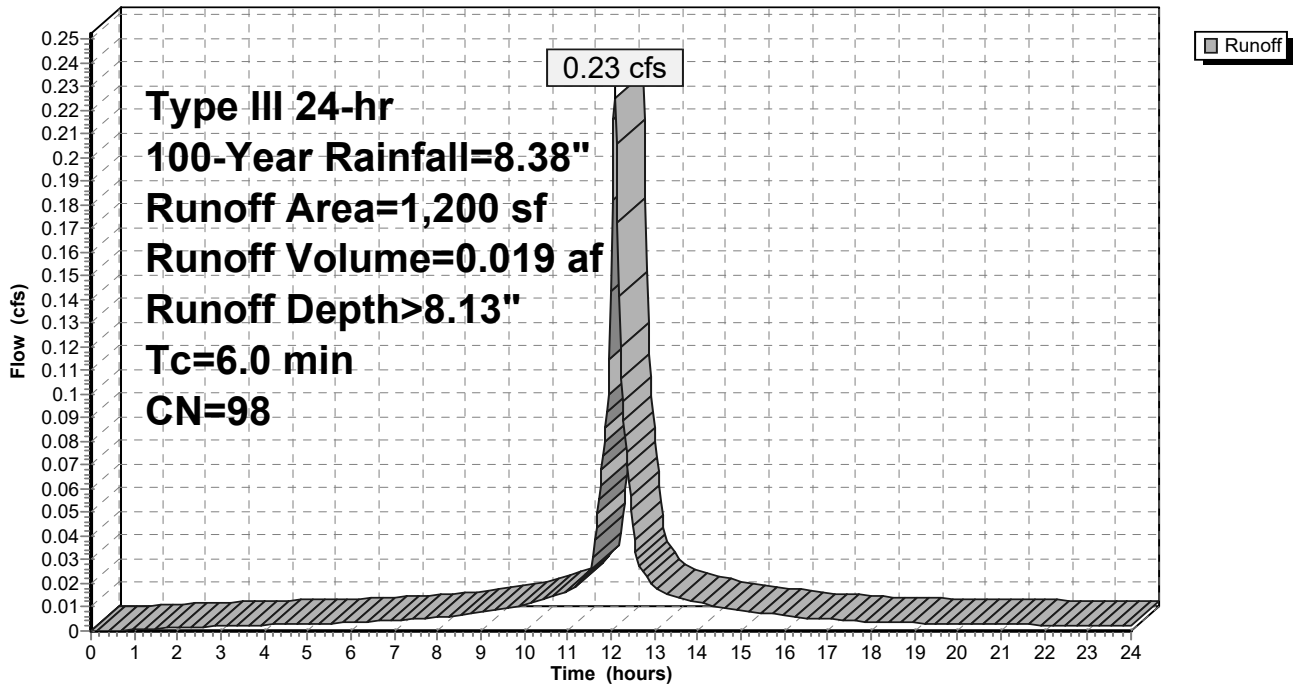
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (sf)	CN	Description
1,200	98	Paved parking, HSG A
1,200		100.00% Impervious Area

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

Subcatchment 1S: UD/FD Flow

Hydrograph



Summary for Subcatchment P1a: Off-Site Open Space

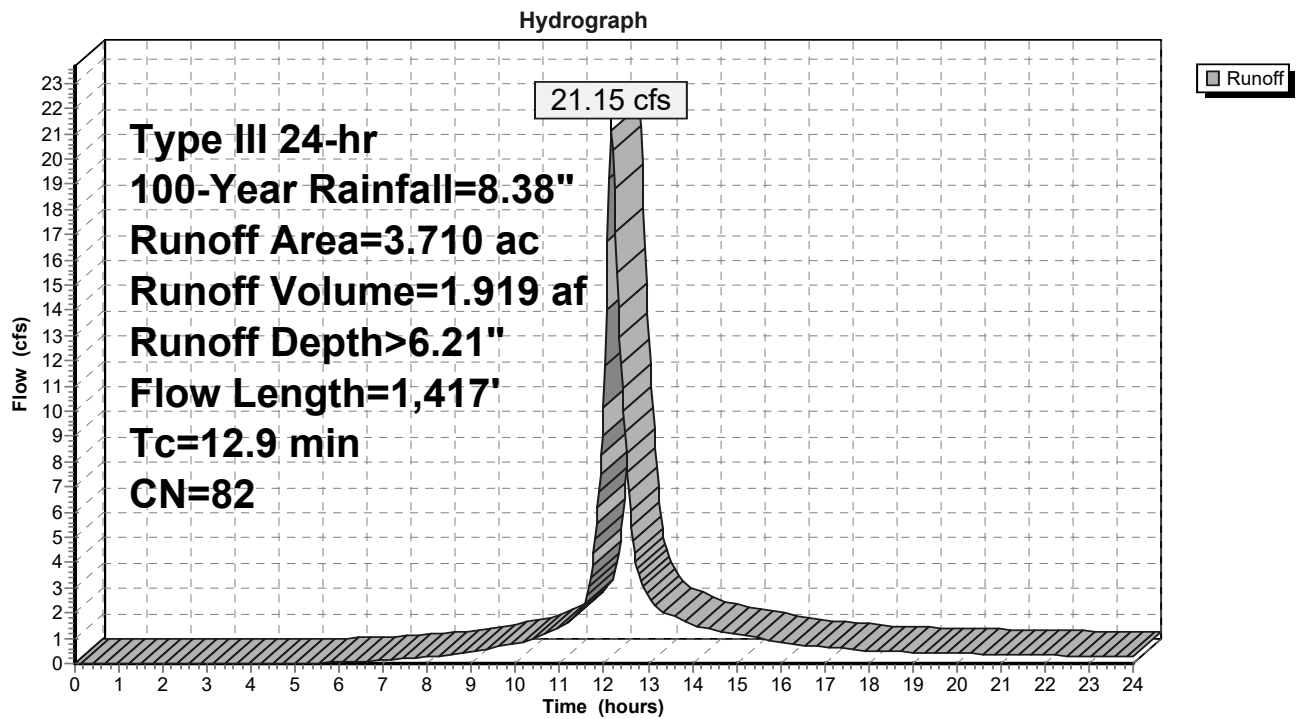
Runoff = 21.15 cfs @ 12.17 hrs, Volume= 1.919 af, Depth> 6.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
0.160	98	Paved parking, HSG B
0.260	79	<50% Grass cover, Poor, HSG B
0.860	98	Paved parking, HSG C
1.970	74	>75% Grass cover, Good, HSG C
0.460	82	Woods/grass comb., Poor, HSG C
3.710	82	Weighted Average
2.690		72.51% Pervious Area
1.020		27.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.0	108	0.0648	0.20		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
1.5	370	0.0622	4.02		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
2.4	939	0.0200	6.45	7.92	Pipe Channel, Pipe 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
12.9	1,417	Total			

Subcatchment P1a: Off-Site Open Space



Summary for Subcatchment P1b: Proposed Building

Runoff = 15.53 cfs @ 12.07 hrs, Volume= 1.243 af, Depth> 8.14"

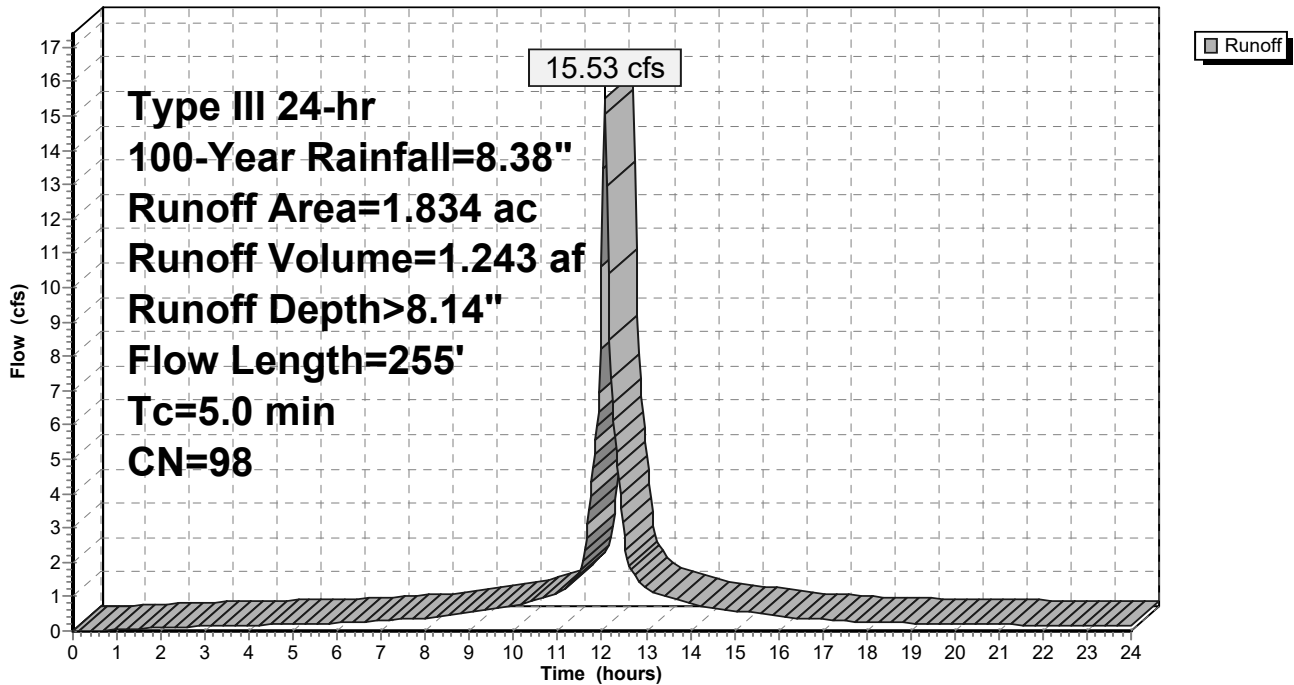
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
1.834	98	Roofs, HSG A
1.834		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0	255		0.85		Direct Entry, Pipe flow

Subcatchment P1b: Proposed Building

Hydrograph



Summary for Subcatchment P2a: Residential

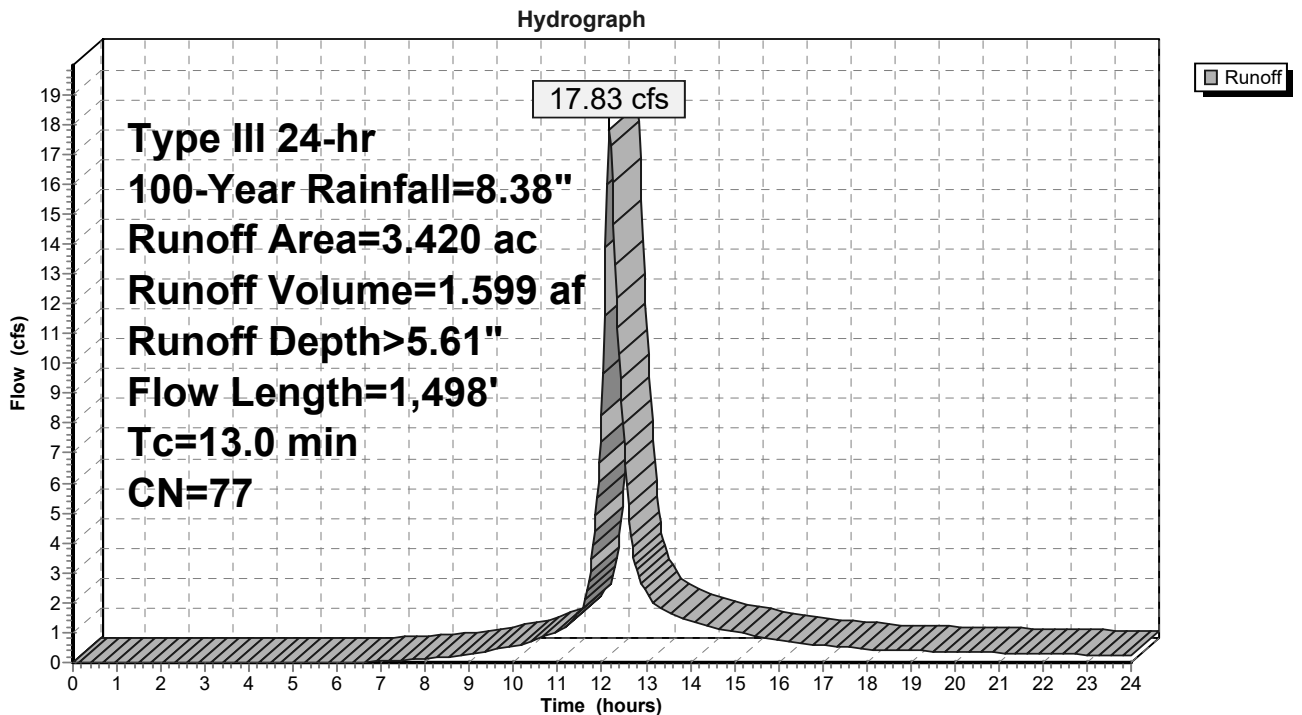
Runoff = 17.83 cfs @ 12.18 hrs, Volume= 1.599 af, Depth> 5.61"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
3.420	77	2 acre lots, 12% imp, HSG C
3.010		88.00% Pervious Area
0.410		12.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.3	100	0.0200	0.18		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.4	71	0.0280	2.69		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.5	165	0.1393	6.01		Shallow Concentrated Flow, Woods Unpaved Kv= 16.1 fps
1.1	152	0.0131	2.32		Shallow Concentrated Flow, Road Paved Kv= 20.3 fps
1.7	1,010	0.0495	10.15	12.46	Pipe Channel, Pipe Flow 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
13.0	1,498	Total			

Subcatchment P2a: Residential



Summary for Subcatchment P2b: Off-Site Wetlands

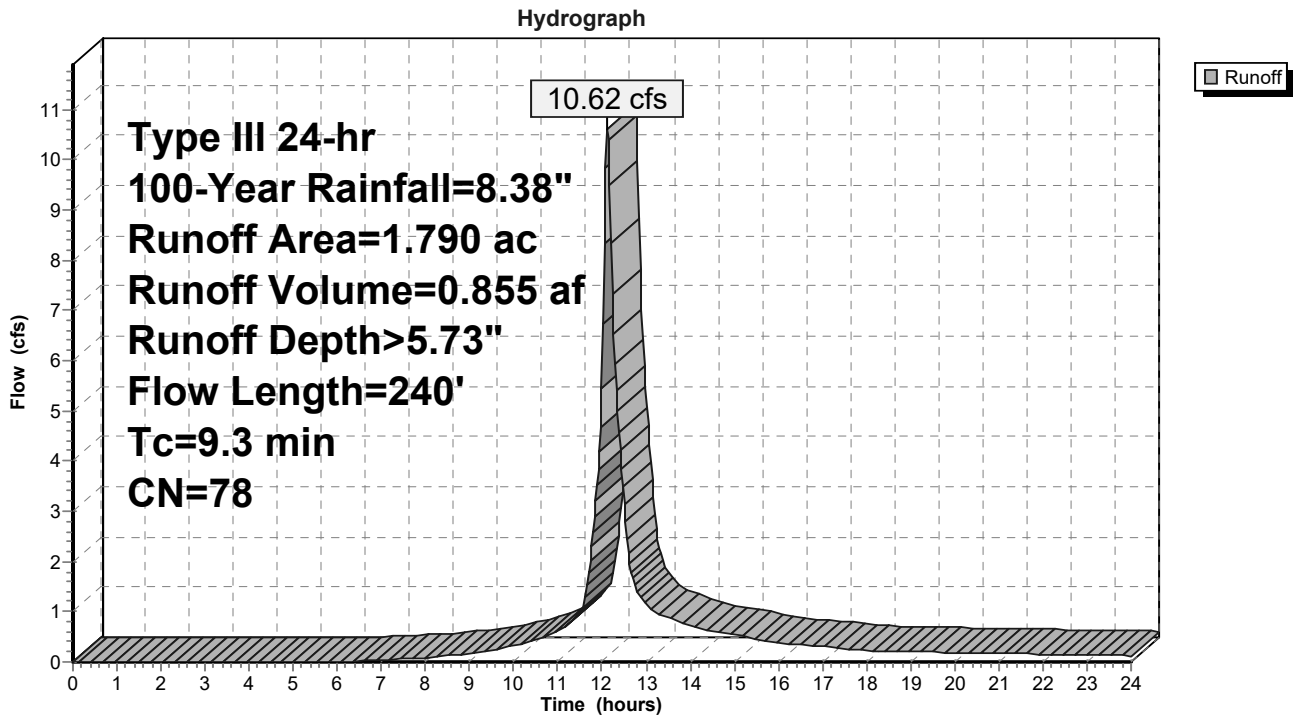
Runoff = 10.62 cfs @ 12.13 hrs, Volume= 0.855 af, Depth> 5.73"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
0.920	74	>75% Grass cover, Good, HSG C
0.120	87	Dirt roads, HSG C
0.270	82	Woods/grass comb., Poor, HSG C
0.060	80	>75% Grass cover, Good, HSG D
0.420	82	Woods/grass comb., Fair, HSG D
1.790	78	Weighted Average
1.790		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
8.8	100	0.0230	0.19		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.5	140	0.0820	4.61		Shallow Concentrated Flow, Meadow/Wood Unpaved Kv= 16.1 fps
9.3	240	Total			

Subcatchment P2b: Off-Site Wetlands



Summary for Subcatchment P2c1: Upper Parking

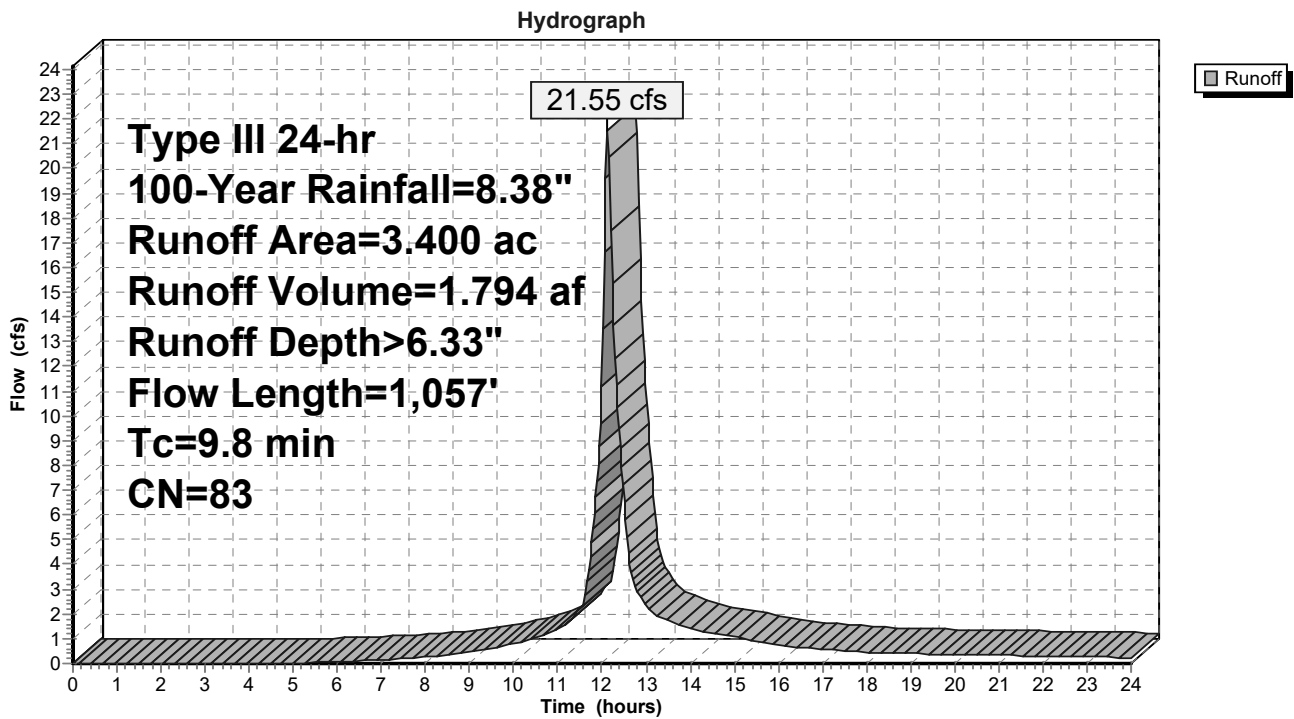
Runoff = 21.55 cfs @ 12.13 hrs, Volume= 1.794 af, Depth> 6.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
0.660	98	Paved parking, HSG B
0.190	61	>75% Grass cover, Good, HSG B
0.120	73	Woods/grass comb., Poor, HSG B
0.600	98	Paved parking, HSG C
1.480	74	>75% Grass cover, Good, HSG C
0.050	87	Dirt roads, HSG C
0.300	86	Woods/grass comb., Poor, HSG D
3.400	83	Weighted Average
2.140		62.94% Pervious Area
1.260		37.06% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.5	100	0.0873	0.22		Sheet Flow, Grass Grass: Dense n= 0.240 P2= 3.58"
0.7	170	0.0676	4.19		Shallow Concentrated Flow, Grass Unpaved Kv= 16.1 fps
0.3	64	0.0234	3.11		Shallow Concentrated Flow, Pave Paved Kv= 20.3 fps
1.3	723	0.0409	9.23	11.32	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
9.8	1,057	Total			

Subcatchment P2c1: Upper Parking



Summary for Subcatchment P2c2: Lower Parking

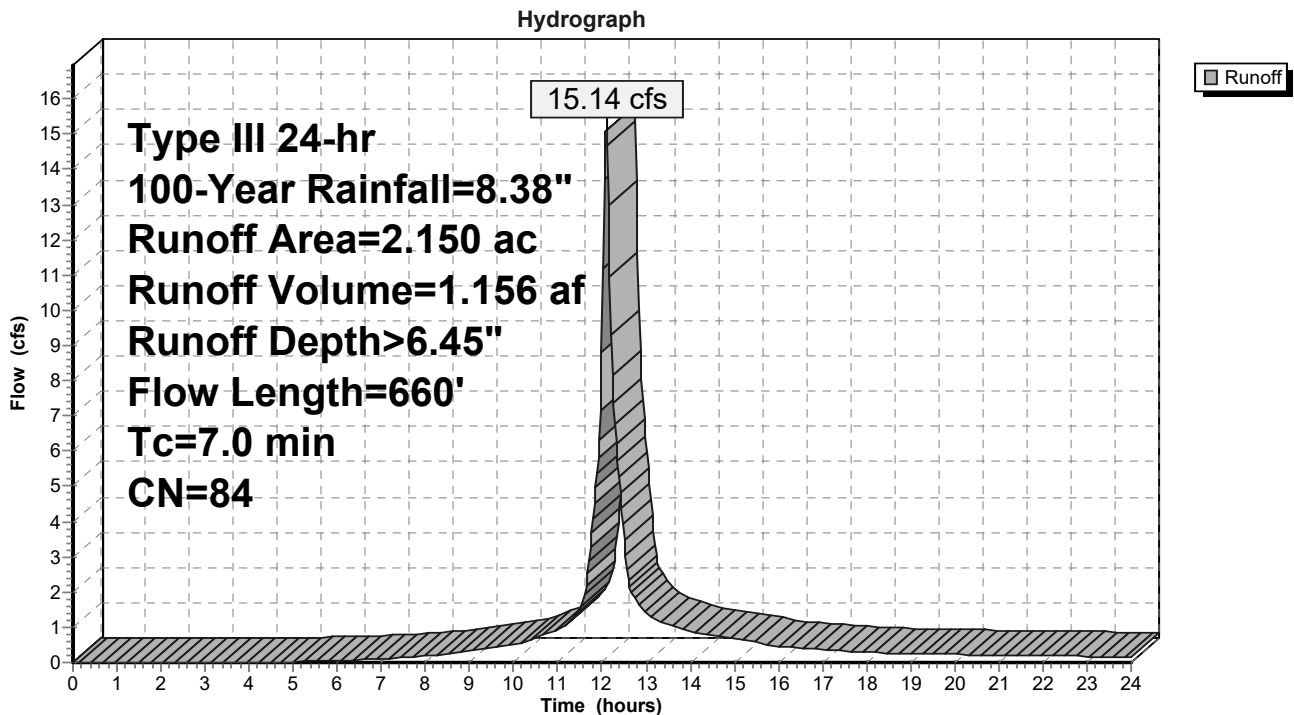
Runoff = 15.14 cfs @ 12.10 hrs, Volume= 1.156 af, Depth> 6.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Type III 24-hr 100-Year Rainfall=8.38"

Area (ac)	CN	Description
1.280	98	Paved parking, HSG B
0.730	61	>75% Grass cover, Good, HSG B
0.050	73	Woods/grass comb., Poor, HSG B
0.090	74	>75% Grass cover, Good, HSG C
2.150	84	Weighted Average
0.870		40.47% Pervious Area
1.280		59.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0	100	0.0590	0.28		Sheet Flow, Grass Grass: Short n= 0.150 P2= 3.58"
0.3	83	0.0480	4.45		Shallow Concentrated Flow, Paved Paved Kv= 20.3 fps
0.7	477	0.0545	10.65	13.07	Pipe Channel, RCP_Round 15" 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.015 Concrete sewer w/manholes & inlets
7.0	660	Total			

Subcatchment P2c2: Lower Parking



Summary for Pond 2P: DMH

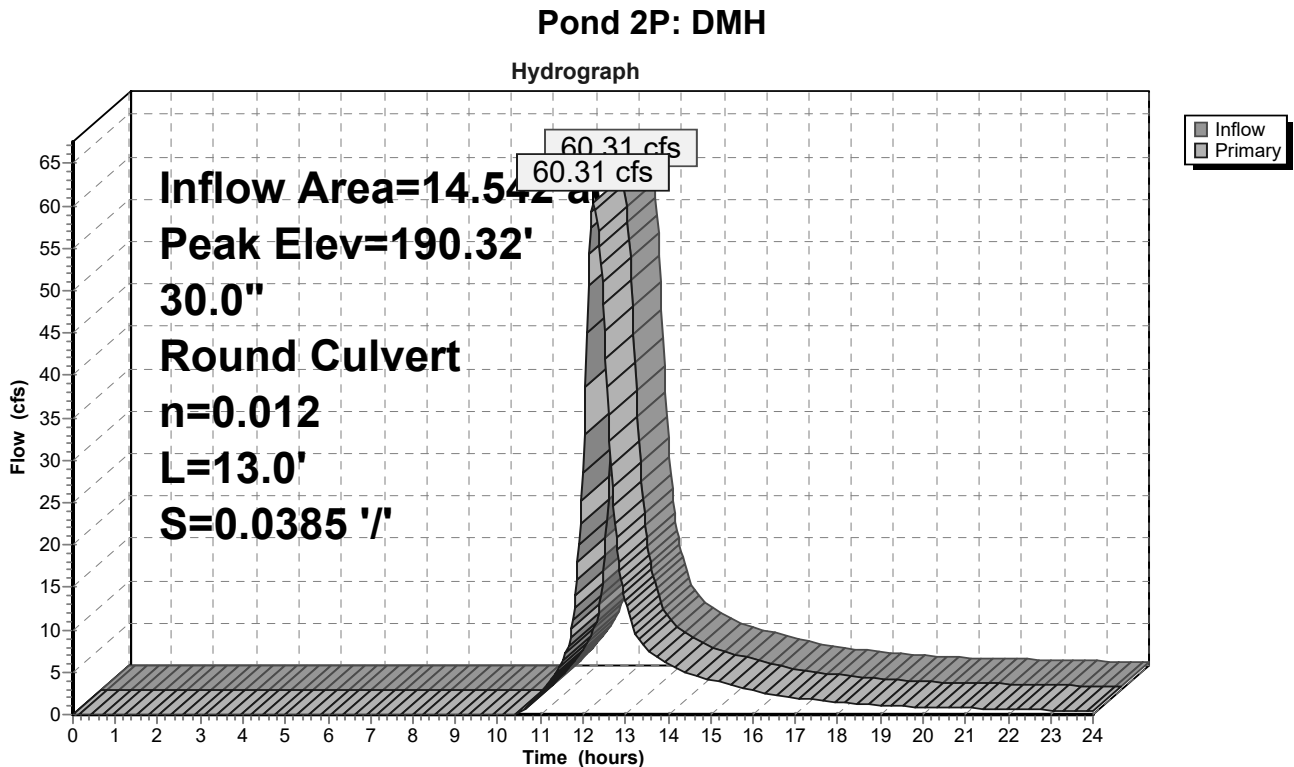
[57] Hint: Peaked at 190.32' (Flood elevation advised)

Inflow Area = 14.542 ac, 40.11% Impervious, Inflow Depth > 5.01" for 100-Year event
 Inflow = 60.31 cfs @ 12.26 hrs, Volume= 6.065 af
 Outflow = 60.31 cfs @ 12.26 hrs, Volume= 6.065 af, Atten= 0%, Lag= 0.0 min
 Primary = 60.31 cfs @ 12.26 hrs, Volume= 6.065 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 190.32' @ 12.26 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	185.50'	30.0" Round Pipe P-70 L= 13.0' RCP, rounded edge headwall, Ke= 0.100 Inlet / Outlet Invert= 185.50' / 185.00' S= 0.0385 '/' Cc= 0.900 n= 0.012 Concrete pipe, finished, Flow Area= 4.91 sf

Primary OutFlow Max=60.23 cfs @ 12.26 hrs HW=190.31' (Free Discharge)
 ↳1=Pipe P-70 (Barrel Controls 60.23 cfs @ 12.27 fps)



Summary for Pond C1: Detention 1

Inflow Area = 14.514 ac, 39.99% Impervious, Inflow Depth > 6.38" for 100-Year event
 Inflow = 84.36 cfs @ 12.13 hrs, Volume= 7.712 af
 Outflow = 61.50 cfs @ 12.26 hrs, Volume= 7.164 af, Atten= 27%, Lag= 7.9 min
 Discarded = 1.29 cfs @ 12.26 hrs, Volume= 1.118 af
 Primary = 60.21 cfs @ 12.26 hrs, Volume= 6.047 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs
 Peak Elev= 197.17' @ 12.26 hrs Surf.Area= 0.438 ac Storage= 1.575 af

Plug-Flow detention time= 71.7 min calculated for 7.164 af (93% of inflow)
 Center-of-Mass det. time= 34.3 min (825.5 - 791.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	191.67'	0.474 af	102.10'W x 186.67'L x 6.00'H Field A 2.625 af Overall - 1.440 af Embedded = 1.185 af x 40.0% Voids
#2A	194.17'	1.106 af	StormTrap ST2 SingleTrap 3-0 x 110 Inside #1 Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf 10 Rows of 11 Chambers 84.79' x 169.35' Core + 6.66' Border = 98.10' x 182.67' System
		1.581 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	194.30'	30.0" Round Culvert 1 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#2	Primary	194.30'	30.0" Round Culvert 2 L= 15.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 194.30' / 193.50' S= 0.0533 '/ Cc= 0.900 n= 0.011 Concrete pipe, straight & clean, Flow Area= 4.91 sf
#3	Discarded	191.67'	0.450 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 190.67'

Discarded OutFlow Max=1.29 cfs @ 12.26 hrs HW=197.17' (Free Discharge)
 ↳ **3=Exfiltration** (Controls 1.29 cfs)

Primary OutFlow Max=60.13 cfs @ 12.26 hrs HW=197.17' (Free Discharge)
 ↳ **1=Culvert 1** (Inlet Controls 30.06 cfs @ 6.12 fps)
 ↳ **2=Culvert 2** (Inlet Controls 30.06 cfs @ 6.12 fps)

Pond C1: Detention 1 - Chamber Wizard Field A

Chamber Model = StormTrap ST2 SingleTrap 3-0 (StormTrap ST2 SingleTrap® Type II+IV)

Inside= 101.7"W x 36.0"H => 22.99 sf x 15.40'L = 354.0 cf

Outside= 101.7"W x 42.0"H => 29.68 sf x 15.40'L = 456.9 cf

11 Chambers/Row x 15.40' Long = 169.35' Row Length +79.9" Border x 2 +24.0" End Stone x 2 = 186.67' Base Length

10 Rows x 101.7" Wide + 79.9" Side Border x 2 + 24.0" Side Stone x 2 = 102.10' Base Width

30.0" Base + 42.0" Chamber Height = 6.00' Field Height

110 Chambers x 354.0 cf + 9,253.4 cf Border = 48,192.5 cf Chamber Storage

110 Chambers x 456.9 cf + 12,461.9 cf Border = 62,721.3 cf Displacement

114,356.7 cf Field - 62,721.3 cf Chambers = 51,635.4 cf Stone x 40.0% Voids = 20,654.2 cf Stone Storage

Chamber Storage + Stone Storage = 68,846.6 cf = 1.581 af

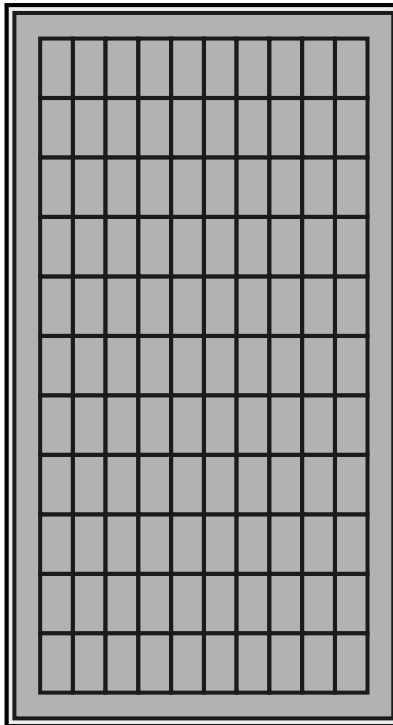
Overall Storage Efficiency = 60.2%

Overall System Size = 186.67' x 102.10' x 6.00'

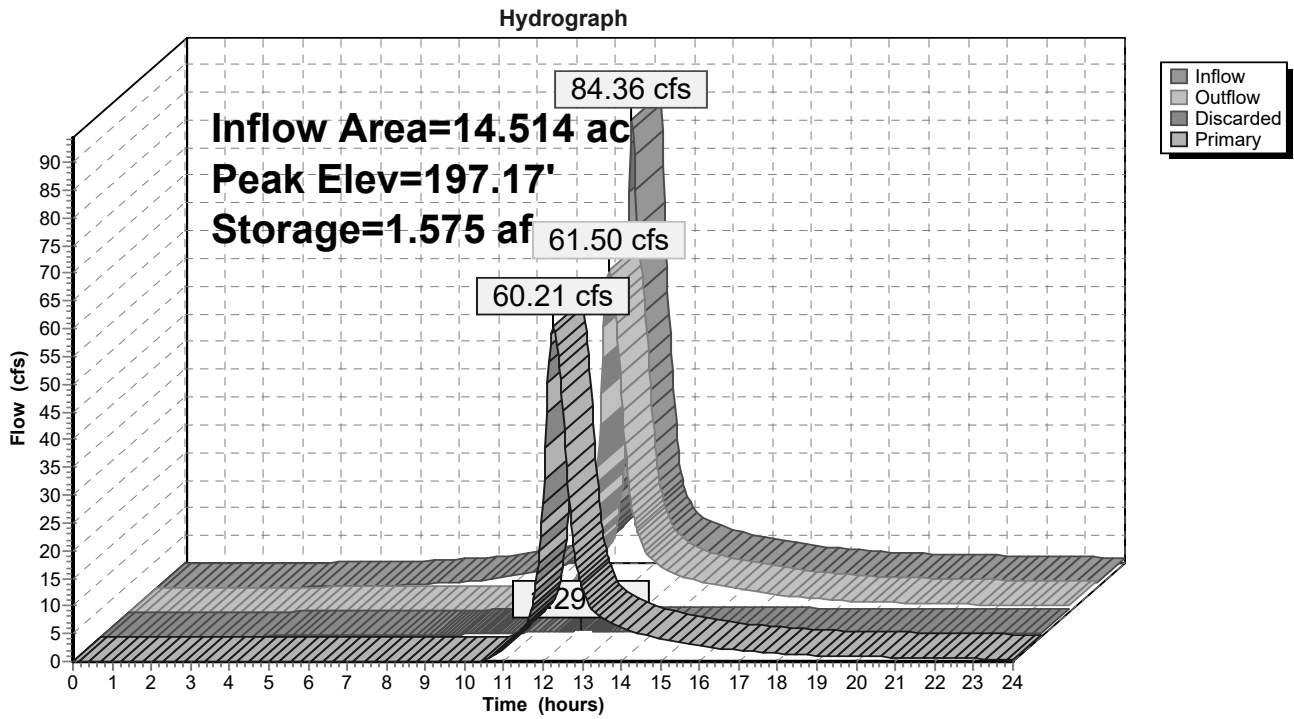
110 Chambers (plus border)

4,235.4 cy Field

1,912.4 cy Stone



Pond C1: Detention 1



Summary for Link W: Total to Wetlands

Inflow Area = 16.332 ac, 35.71% Impervious, Inflow Depth > 5.09" for 100-Year event
Inflow = 67.69 cfs @ 12.22 hrs, Volume= 6.921 af
Primary = 67.69 cfs @ 12.22 hrs, Volume= 6.921 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.03 hrs

Link W: Total to Wetlands

