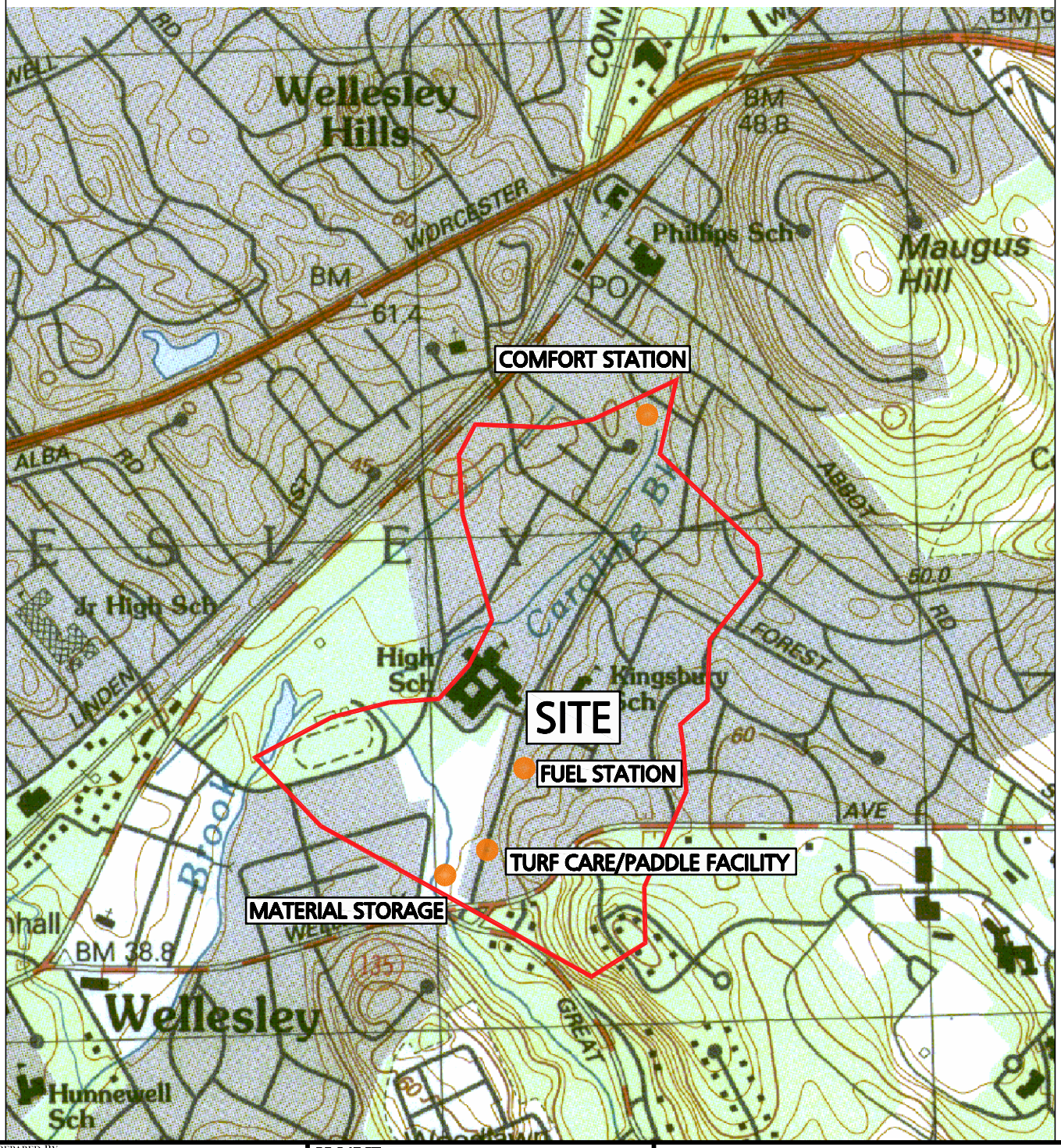
3 Exhibits



PREPARED BY:

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PROJECT:
WELLESLEY COUNTRY CLUB
300 WELLESLEY AVENUE
WELLESLEY, MA

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USGS MAP

PROJECT NO.	1828-02	DATE:	10/29/12
SCALE:	1"=1000'	DWG. NAME:	EXHIBITS
DESIGNED BY:	PLC	CHECKED BY:	PLC

APPLICANT/OWNER: NEW ENGLAND CONSTRUCTION

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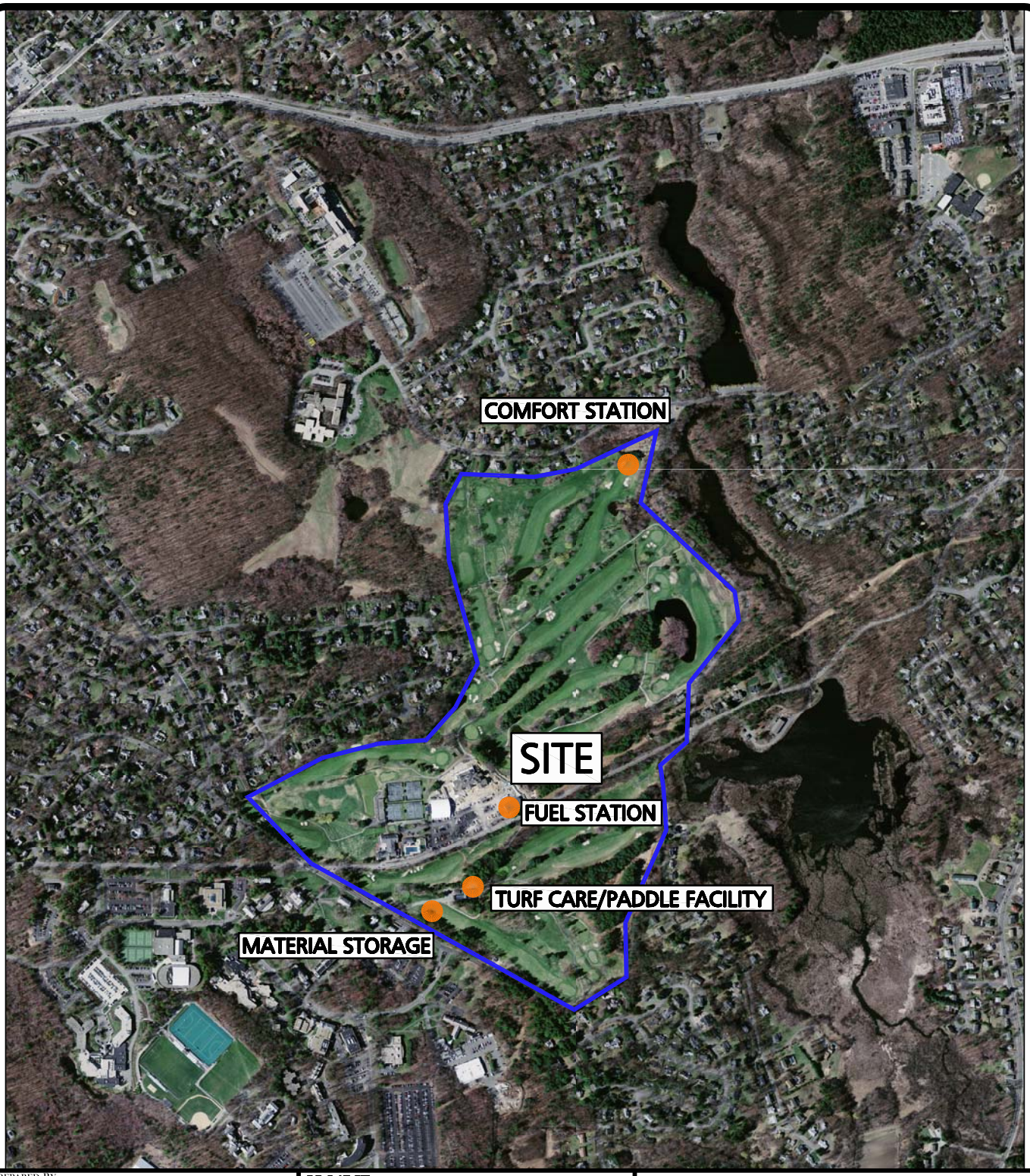
SHEET No.
FIG-1



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PROJECT:

WELLESLEY COUNTRY CLUB
300 WELLESLEY AVE
WELLESLEY, MA, MA

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AERIAL PHOTO

PROJECT NO.	1828-02	DATE:	10/29/12
SCALE:	1"=1000'	DWG. NAME:	EXHIBITS
DESIGNED BY:	PLC	CHECKED BY:	PLC

APPLICANT/OWNER: WELLESLEY COUNTRY CLUB

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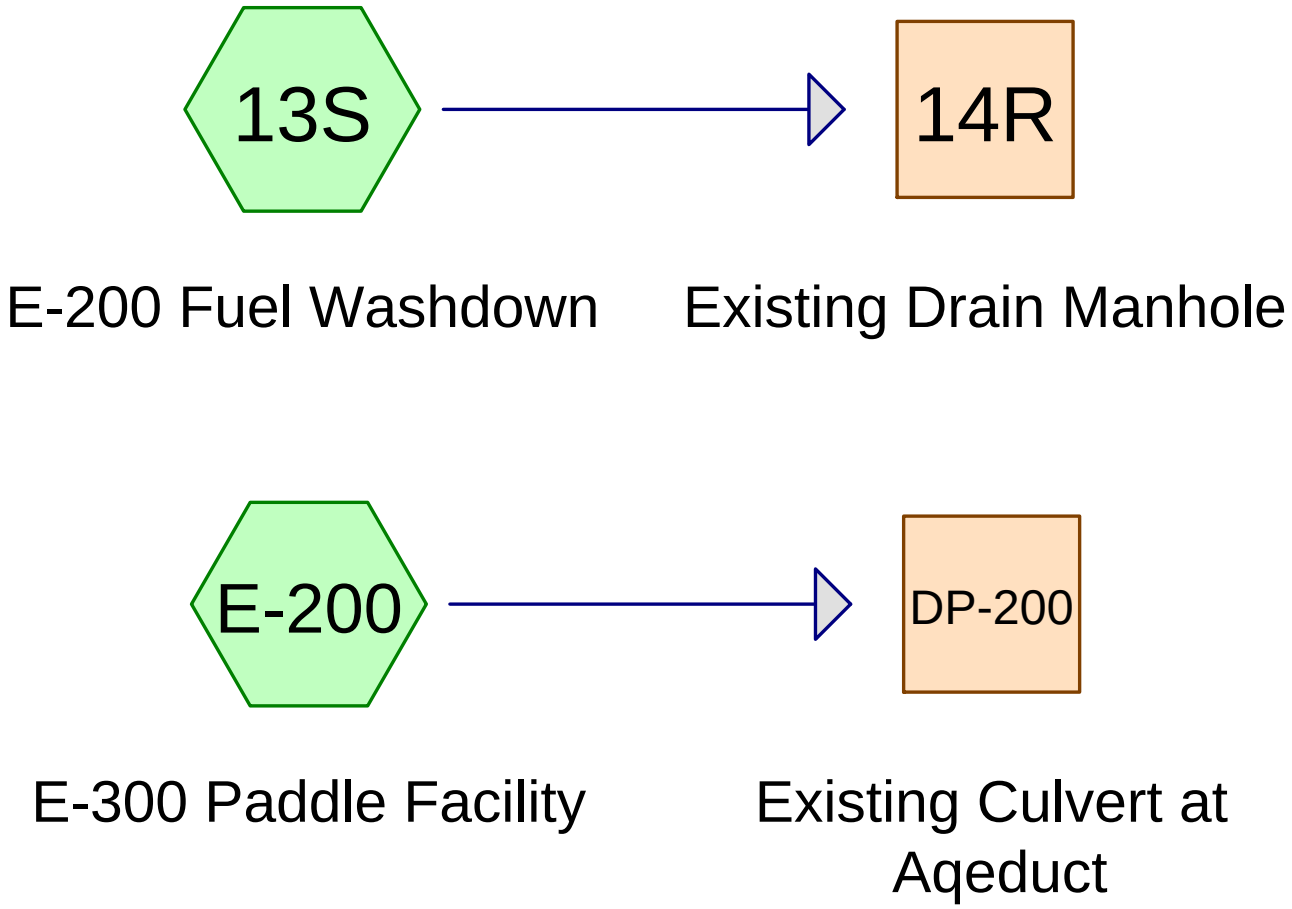
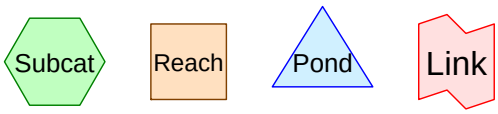
SHEET No.

FIG-2

4 HydroCad Worksheets





Drainage Diagram for Existing Conditions
Prepared by Allen & Major Associates, Printed 10/26/2012
HydroCAD® 9.10 s/n 02881 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
2.480	36	Woods, Fair, HSG A (E-200)
7.195	39	>75% Grass cover, Good, HSG A (13S, E-200)
1.373	76	Gravel roads, HSG A (13S, E-200)
0.385	98	Existing Building (13S, E-200)
1.273	98	Paved parking, HSG D (13S, E-200)
12.707		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
11.048	HSG A	13S, E-200
0.000	HSG B	
0.000	HSG C	
1.273	HSG D	13S, E-200
0.385	Other	13S, E-200
12.707		**TOTAL AREA**

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 13S: E-200 Fuel Washdown Runoff Area=80,434 sf 68.13% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=3.14 cfs 0.224 af

Subcatchment E-200: E-300 Paddle Facility Runoff Area=10.860 ac 3.68% Impervious Runoff Depth=0.03"
Flow Length=929' Tc=16.8 min CN=45 Runoff=0.04 cfs 0.030 af

Reach 14R: Existing Drain Manhole Inflow=3.14 cfs 0.224 af
Outflow=3.14 cfs 0.224 af

Reach DP-200: Existing Culvert at Aqeduct Inflow=0.04 cfs 0.030 af
Outflow=0.04 cfs 0.030 af

Total Runoff Area = 12.707 ac Runoff Volume = 0.255 af Average Runoff Depth = 0.24"
86.95% Pervious = 11.048 ac 13.05% Impervious = 1.658 ac

Summary for Subcatchment 13S: E-200 Fuel Washdown

Existing watershed at Equipment Service station

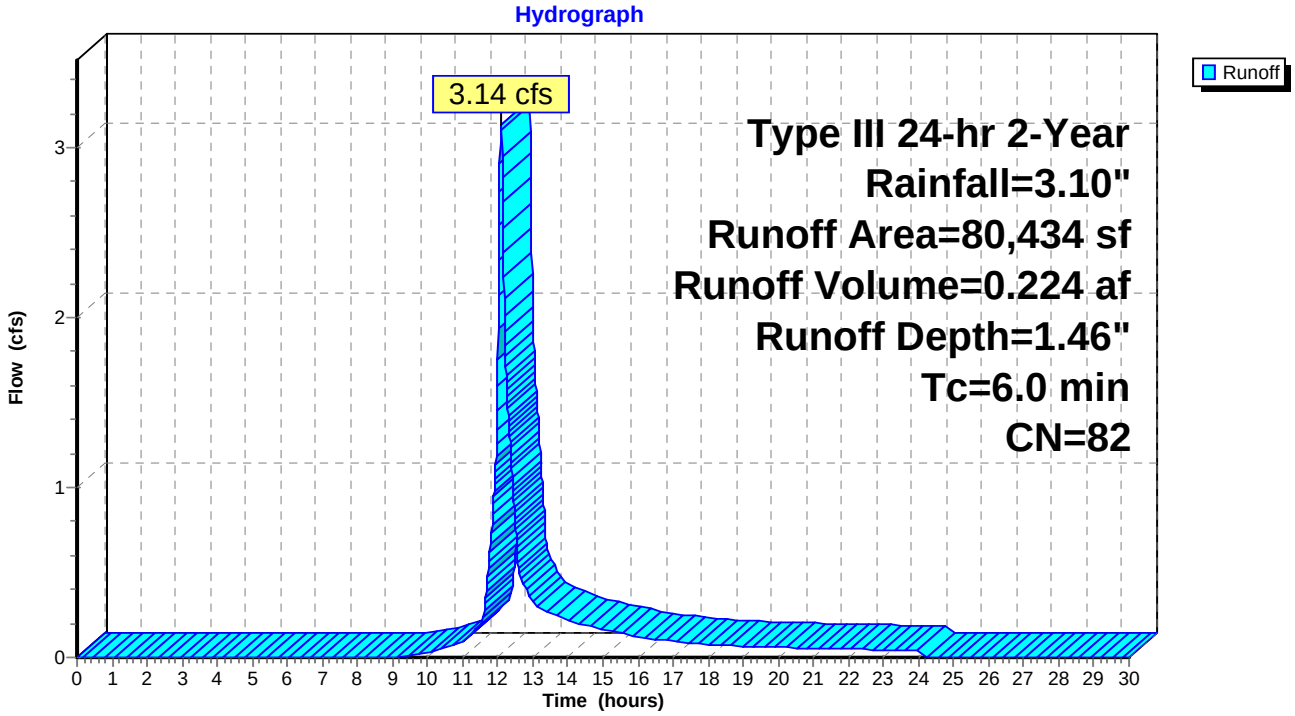
Runoff = 3.14 cfs @ 12.09 hrs, Volume= 0.224 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	19,820	39	>75% Grass cover, Good, HSG A
	5,814	76	Gravel roads, HSG A
*	7,207	98	Existing Building
	47,593	98	Paved parking, HSG D
	80,434	82	Weighted Average
	25,634		31.87% Pervious Area
	54,800		68.13% Impervious Area

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

Subcatchment 13S: E-200 Fuel Washdown



Summary for Subcatchment E-200: E-300 Paddle Facility

Existing watershed at Equipment Service station

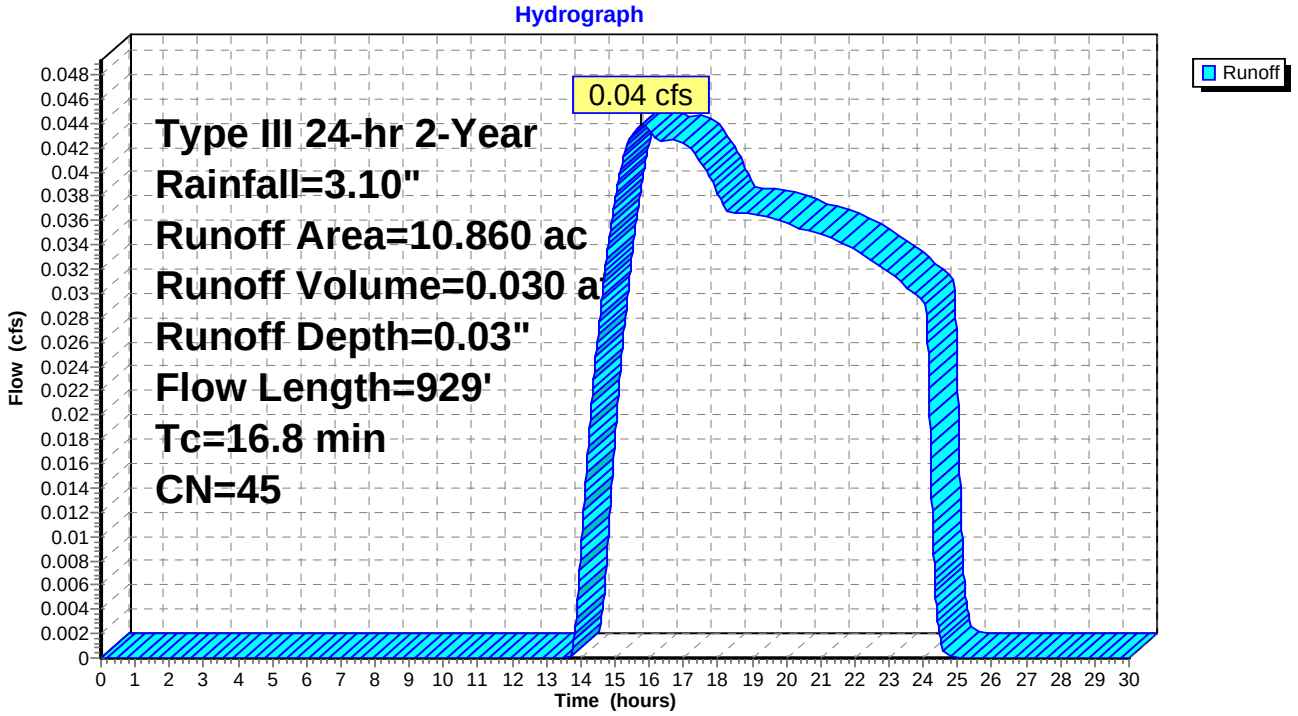
Runoff = 0.04 cfs @ 15.77 hrs, Volume= 0.030 af, Depth= 0.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (ac)	CN	Description
	6.740	39	>75% Grass cover, Good, HSG A
	1.240	76	Gravel roads, HSG A
*	0.220	98	Existing Building
	0.180	98	Paved parking, HSG D
	2.480	36	Woods, Fair, HSG A
	10.860	45	Weighted Average
	10.460		96.32% Pervious Area
	0.400		3.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: E-300 Paddle Facility



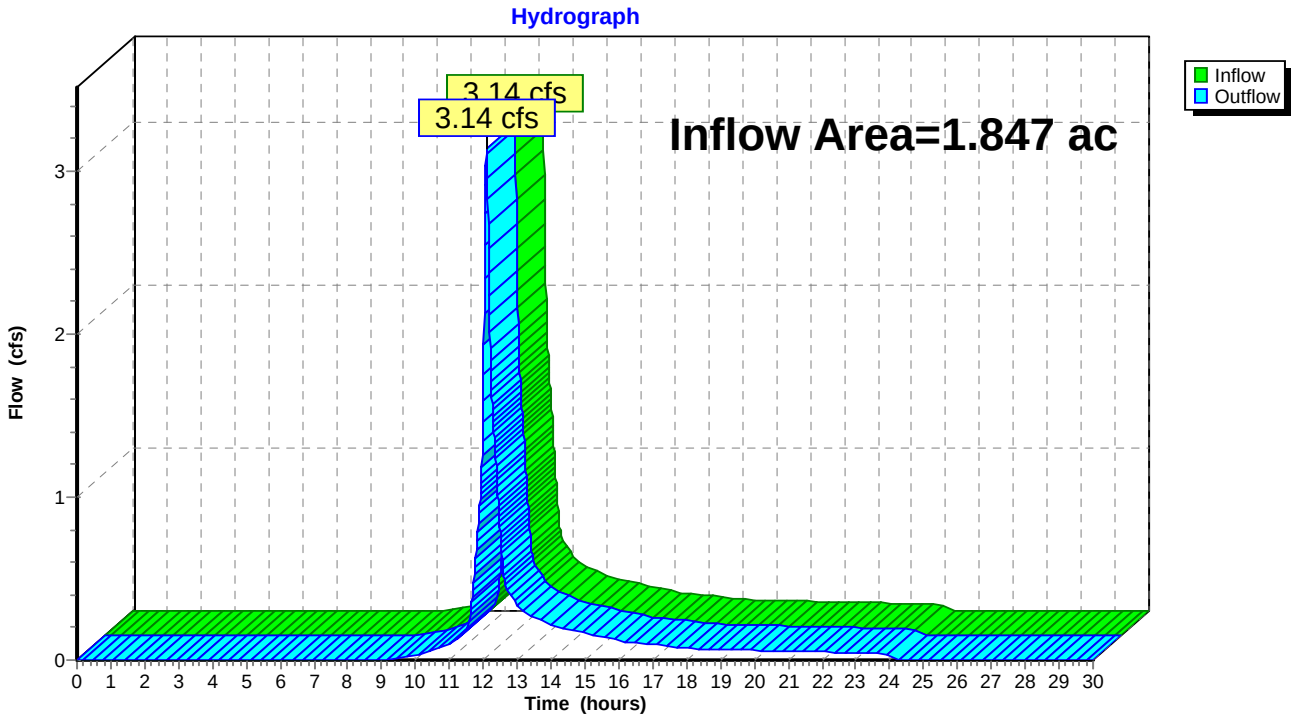
Summary for Reach 14R: Existing Drain Manhole

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

Inflow Area =	1.847 ac,	68.13% Impervious,	Inflow Depth =	1.46"	for 2-Year event
Inflow =	3.14 cfs @	12.09 hrs,	Volume=	0.224 af	
Outflow =	3.14 cfs @	12.09 hrs,	Volume=	0.224 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 14R: Existing Drain Manhole



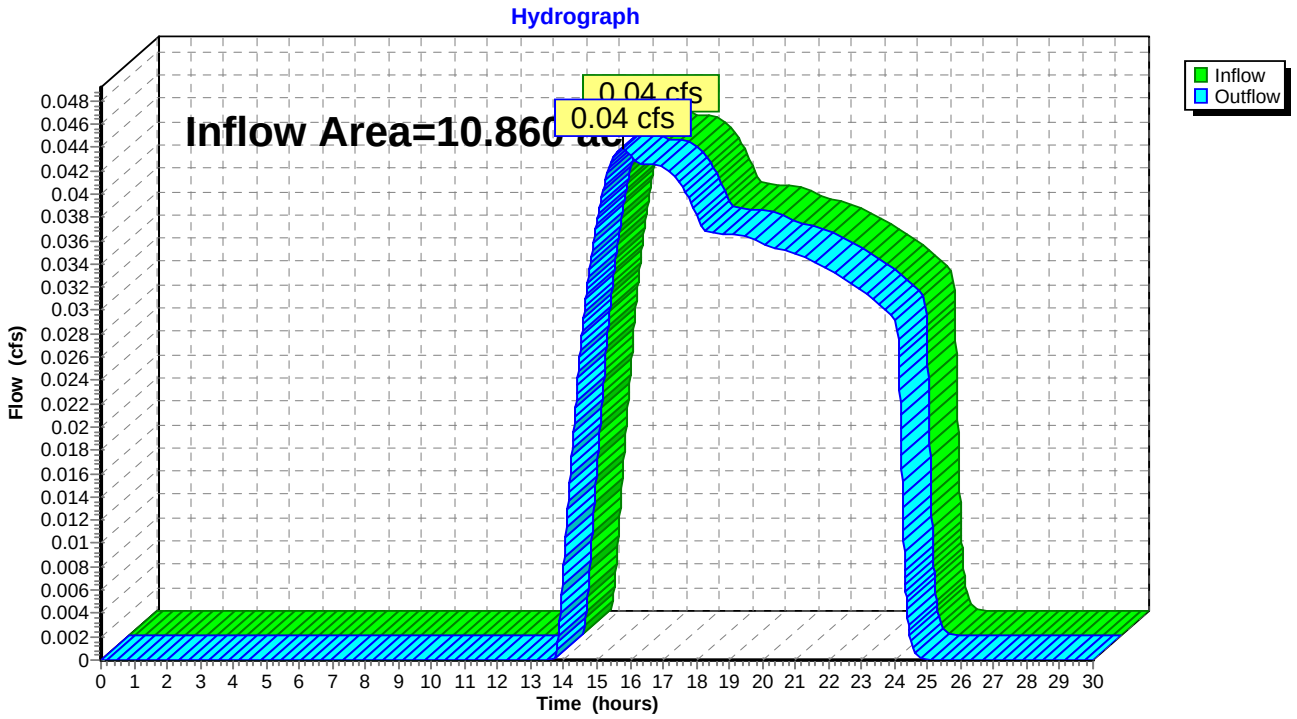
Summary for Reach DP-200: Existing Culvert at Aqeduct

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

Inflow Area =	10.860 ac,	3.68% Impervious,	Inflow Depth =	0.03"	for 2-Year event
Inflow =	0.04 cfs @	15.77 hrs,	Volume=	0.030 af	
Outflow =	0.04 cfs @	15.77 hrs,	Volume=	0.030 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: Existing Culvert at Aqeduct



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 13S: E-200 Fuel Washdown Runoff Area=80,434 sf 68.13% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=5.89 cfs 0.419 af

Subcatchment E-200: E-300 Paddle Facility Runoff Area=10.860 ac 3.68% Impervious Runoff Depth=0.32"
Flow Length=929' Tc=16.8 min CN=45 Runoff=1.17 cfs 0.292 af

Reach 14R: Existing Drain Manhole Inflow=5.89 cfs 0.419 af
Outflow=5.89 cfs 0.419 af

Reach DP-200: Existing Culvert at Aqeduct Inflow=1.17 cfs 0.292 af
Outflow=1.17 cfs 0.292 af

Total Runoff Area = 12.707 ac Runoff Volume = 0.712 af Average Runoff Depth = 0.67"
86.95% Pervious = 11.048 ac 13.05% Impervious = 1.658 ac

Summary for Subcatchment 13S: E-200 Fuel Washdown

Existing watershed at Equipment Service station

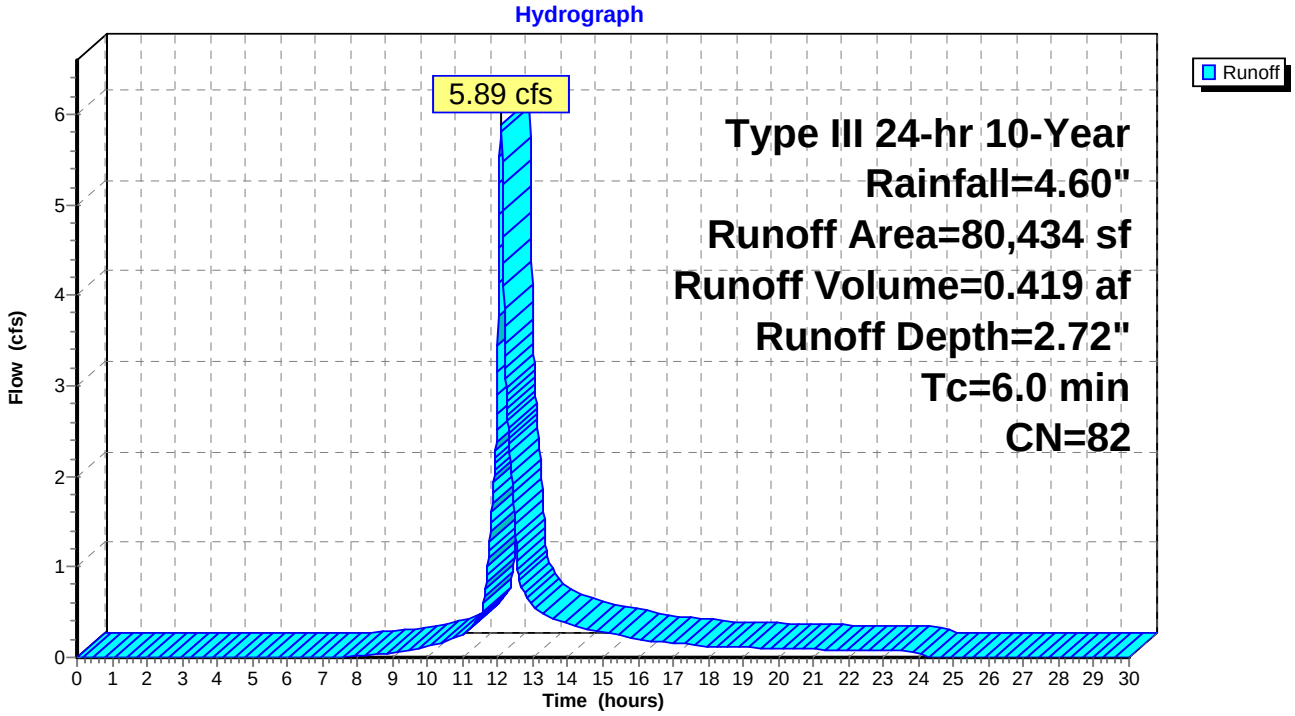
Runoff = 5.89 cfs @ 12.09 hrs, Volume= 0.419 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	19,820	39	>75% Grass cover, Good, HSG A
	5,814	76	Gravel roads, HSG A
*	7,207	98	Existing Building
	47,593	98	Paved parking, HSG D
	80,434	82	Weighted Average
	25,634		31.87% Pervious Area
	54,800		68.13% Impervious Area

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

Subcatchment 13S: E-200 Fuel Washdown



Summary for Subcatchment E-200: E-300 Paddle Facility

Existing watershed at Equipment Service station

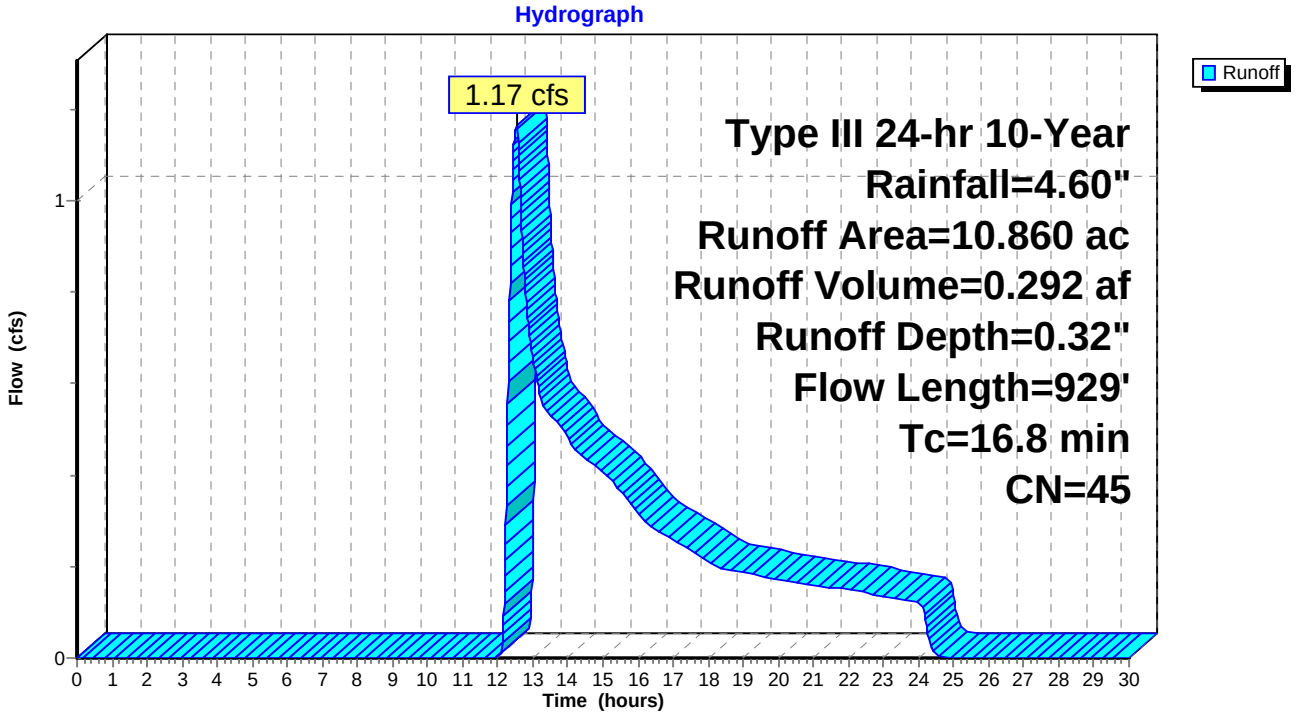
Runoff = 1.17 cfs @ 12.52 hrs, Volume= 0.292 af, Depth= 0.32"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
	6.740	39	>75% Grass cover, Good, HSG A
	1.240	76	Gravel roads, HSG A
*	0.220	98	Existing Building
	0.180	98	Paved parking, HSG D
	2.480	36	Woods, Fair, HSG A
	10.860	45	Weighted Average
	10.460		96.32% Pervious Area
	0.400		3.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: E-300 Paddle Facility



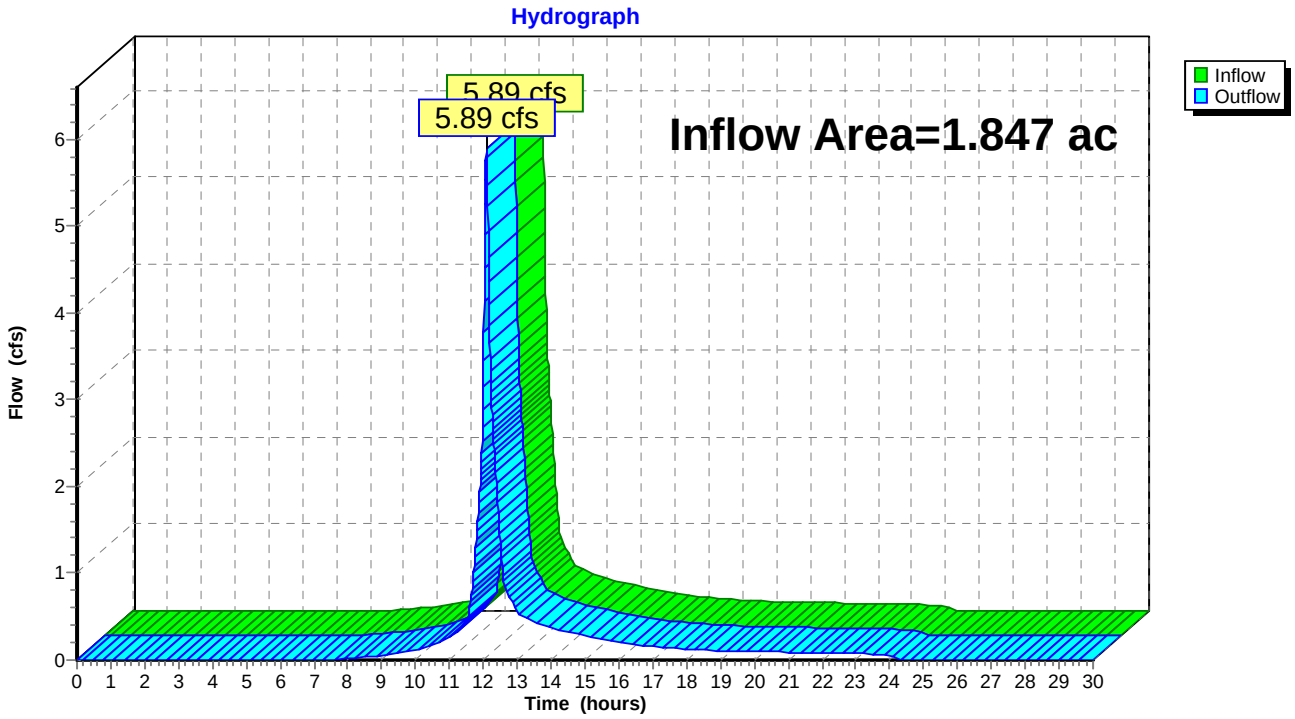
Summary for Reach 14R: Existing Drain Manhole

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

Inflow Area =	1.847 ac,	68.13% Impervious,	Inflow Depth =	2.72"	for 10-Year event
Inflow =	5.89 cfs @	12.09 hrs,	Volume=	0.419 af	
Outflow =	5.89 cfs @	12.09 hrs,	Volume=	0.419 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 14R: Existing Drain Manhole



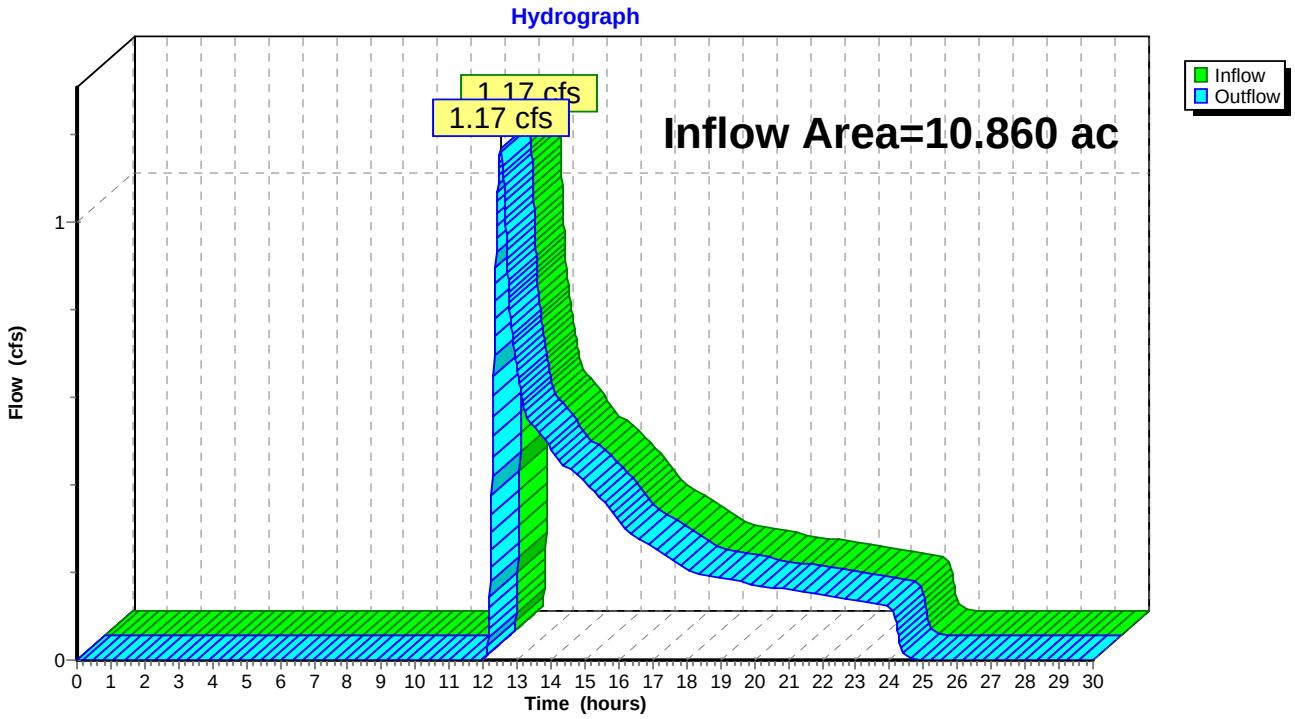
Summary for Reach DP-200: Existing Culvert at Aqeduct

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

Inflow Area =	10.860 ac,	3.68% Impervious,	Inflow Depth =	0.32"	for 10-Year event
Inflow =	1.17 cfs @	12.52 hrs,	Volume=	0.292 af	
Outflow =	1.17 cfs @	12.52 hrs,	Volume=	0.292 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: Existing Culvert at Aqeduct



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 13S: E-200 Fuel Washdown Runoff Area=80,434 sf 68.13% Impervious Runoff Depth=3.48"
Tc=6.0 min CN=82 Runoff=7.51 cfs 0.536 af

Subcatchment E-200: E-300 Paddle Facility Runoff Area=10.860 ac 3.68% Impervious Runoff Depth=0.59"
Flow Length=929' Tc=16.8 min CN=45 Runoff=2.97 cfs 0.537 af

Reach 14R: Existing Drain Manhole Inflow=7.51 cfs 0.536 af
Outflow=7.51 cfs 0.536 af

Reach DP-200: Existing Culvert at Aqeduct Inflow=2.97 cfs 0.537 af
Outflow=2.97 cfs 0.537 af

Total Runoff Area = 12.707 ac Runoff Volume = 1.073 af Average Runoff Depth = 1.01"
86.95% Pervious = 11.048 ac 13.05% Impervious = 1.658 ac

Summary for Subcatchment 13S: E-200 Fuel Washdown

Existing watershed at Equipment Service station

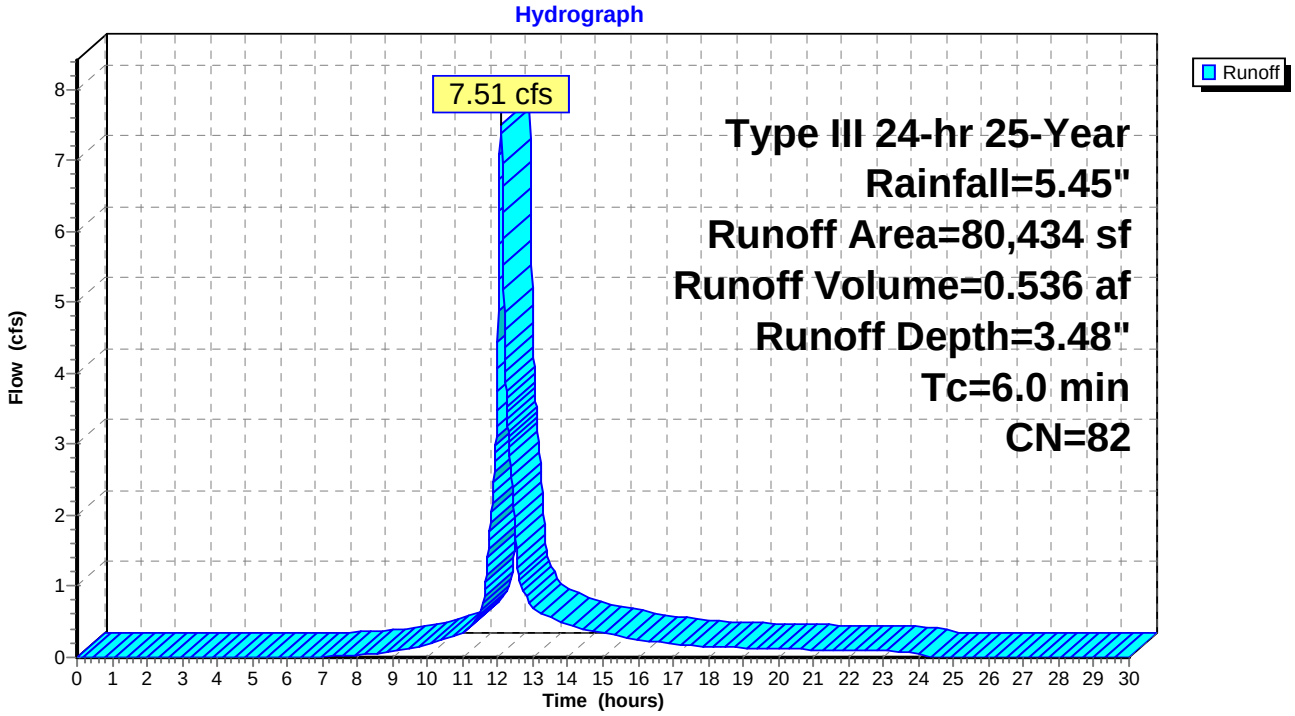
Runoff = 7.51 cfs @ 12.09 hrs, Volume= 0.536 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

	Area (sf)	CN	Description
	19,820	39	>75% Grass cover, Good, HSG A
	5,814	76	Gravel roads, HSG A
*	7,207	98	Existing Building
	47,593	98	Paved parking, HSG D
	80,434	82	Weighted Average
	25,634		31.87% Pervious Area
	54,800		68.13% Impervious Area

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

Subcatchment 13S: E-200 Fuel Washdown



Summary for Subcatchment E-200: E-300 Paddle Facility

Existing watershed at Equipment Service station

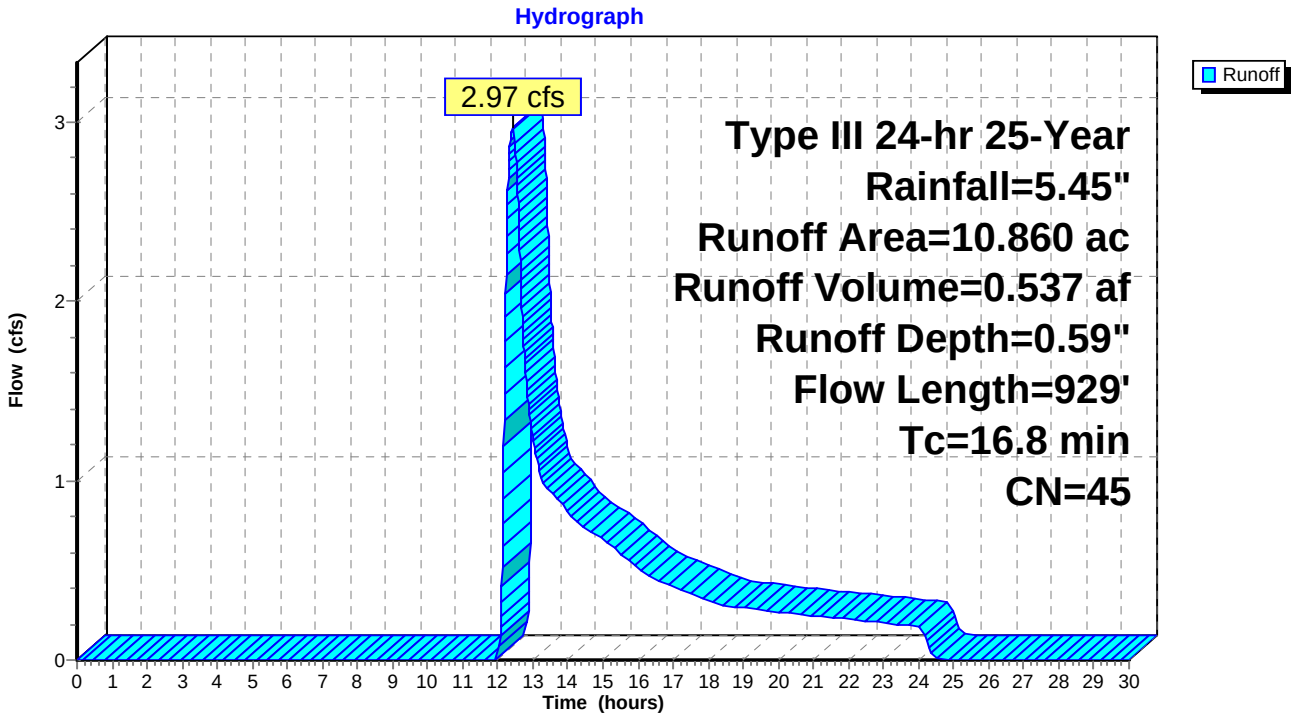
Runoff = 2.97 cfs @ 12.42 hrs, Volume= 0.537 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

	Area (ac)	CN	Description
	6.740	39	>75% Grass cover, Good, HSG A
	1.240	76	Gravel roads, HSG A
*	0.220	98	Existing Building
	0.180	98	Paved parking, HSG D
	2.480	36	Woods, Fair, HSG A
	10.860	45	Weighted Average
	10.460		96.32% Pervious Area
	0.400		3.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: E-300 Paddle Facility



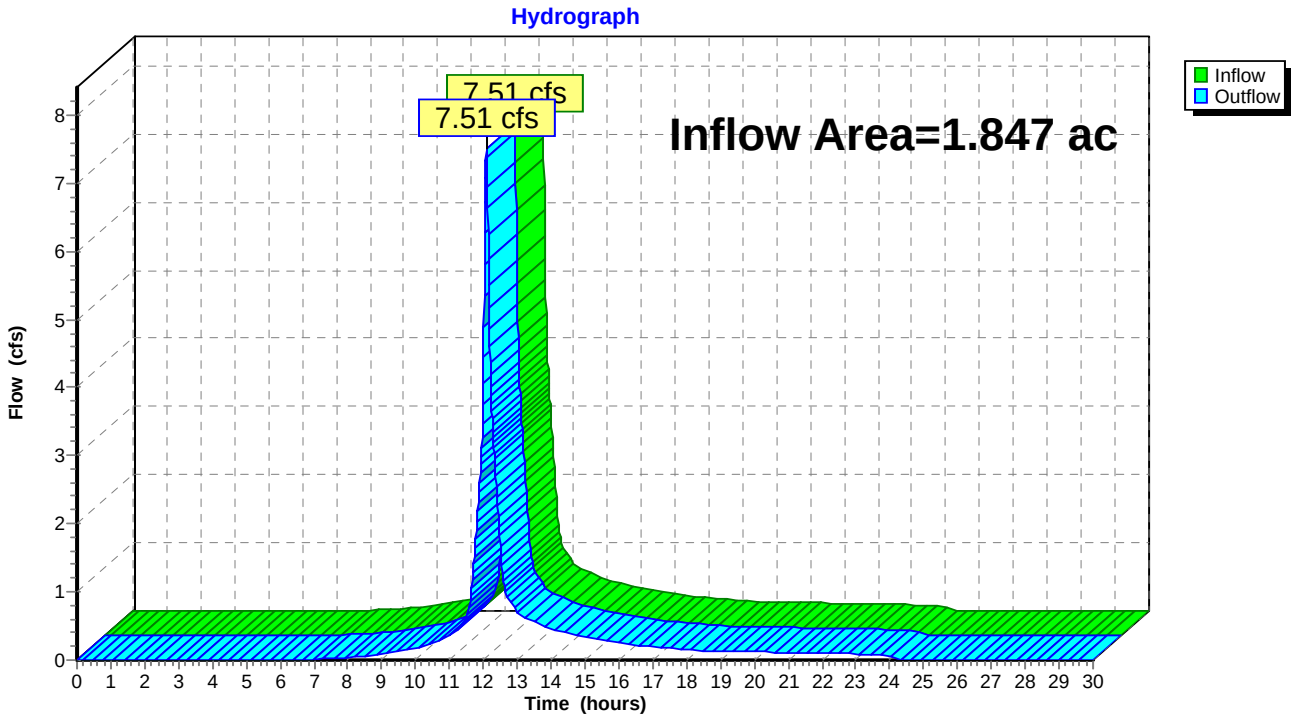
Summary for Reach 14R: Existing Drain Manhole

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

Inflow Area =	1.847 ac,	68.13% Impervious,	Inflow Depth =	3.48"	for 25-Year event
Inflow =	7.51 cfs @	12.09 hrs,	Volume=	0.536 af	
Outflow =	7.51 cfs @	12.09 hrs,	Volume=	0.536 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 14R: Existing Drain Manhole



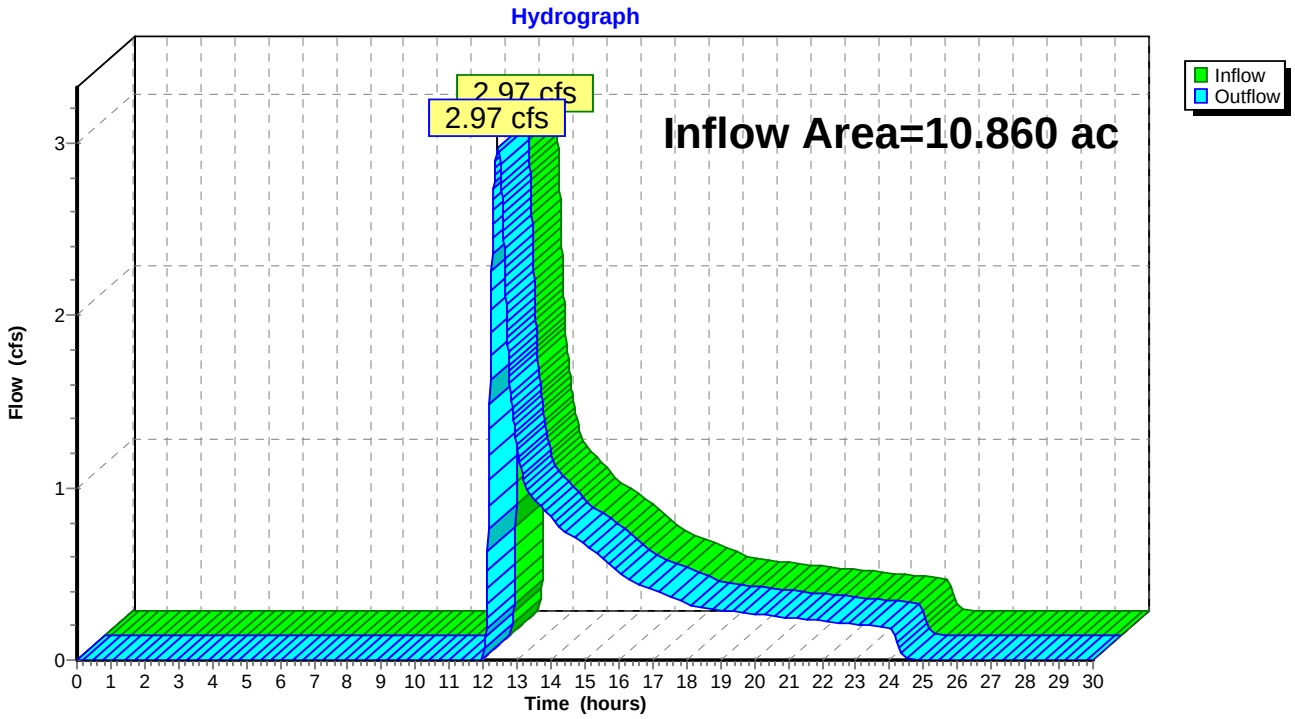
Summary for Reach DP-200: Existing Culvert at Aqeduct

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

Inflow Area =	10.860 ac,	3.68% Impervious,	Inflow Depth =	0.59"	for 25-Year event
Inflow =	2.97 cfs @	12.42 hrs,	Volume=	0.537 af	
Outflow =	2.97 cfs @	12.42 hrs,	Volume=	0.537 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: Existing Culvert at Aqeduct



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 13S: E-200 Fuel Washdown Runoff Area=80,434 sf 68.13% Impervious Runoff Depth=4.54"
Tc=6.0 min CN=82 Runoff=9.71 cfs 0.699 af

Subcatchment E-200: E-300 Paddle Facility Runoff Area=10.860 ac 3.68% Impervious Runoff Depth=1.05"
Flow Length=929' Tc=16.8 min CN=45 Runoff=6.85 cfs 0.954 af

Reach 14R: Existing Drain Manhole Inflow=9.71 cfs 0.699 af
Outflow=9.71 cfs 0.699 af

Reach DP-200: Existing Culvert at Aqeduct Inflow=6.85 cfs 0.954 af
Outflow=6.85 cfs 0.954 af

Total Runoff Area = 12.707 ac Runoff Volume = 1.653 af Average Runoff Depth = 1.56"
86.95% Pervious = 11.048 ac 13.05% Impervious = 1.658 ac

Summary for Subcatchment 13S: E-200 Fuel Washdown

Existing watershed at Equipment Service station

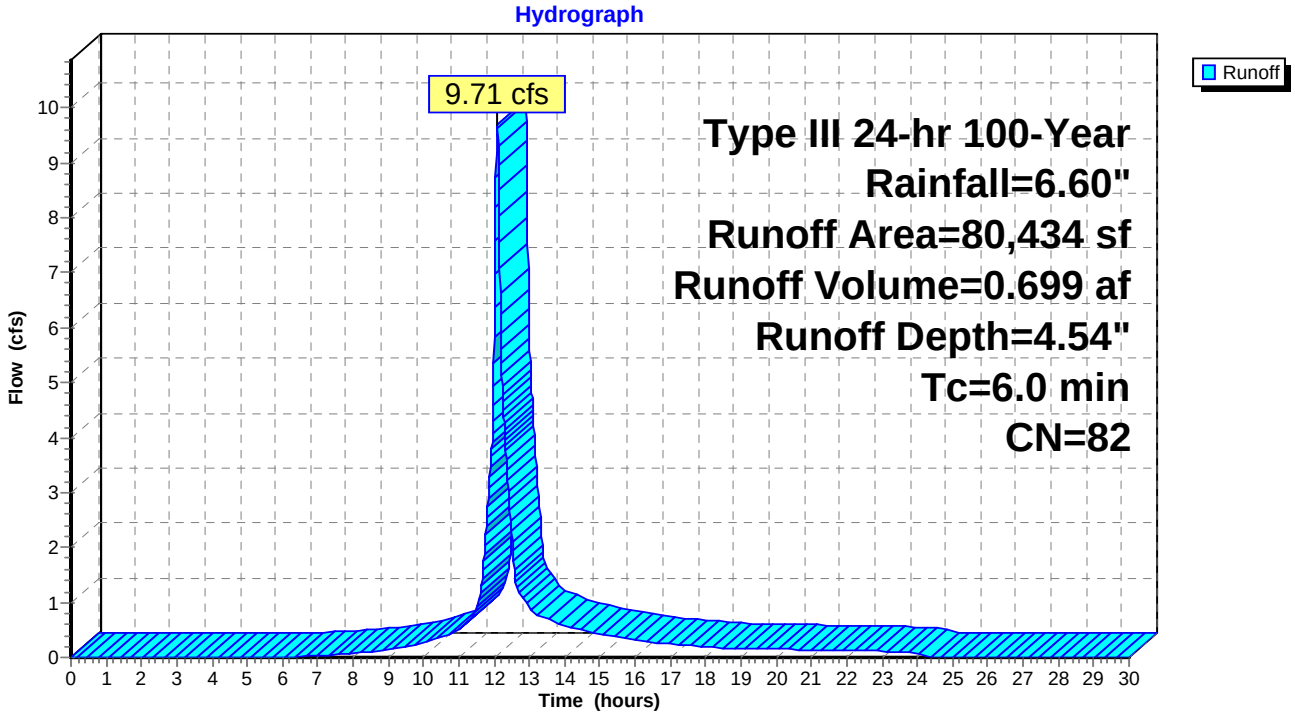
Runoff = 9.71 cfs @ 12.09 hrs, Volume= 0.699 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

	Area (sf)	CN	Description
	19,820	39	>75% Grass cover, Good, HSG A
	5,814	76	Gravel roads, HSG A
*	7,207	98	Existing Building
	47,593	98	Paved parking, HSG D
	80,434	82	Weighted Average
	25,634		31.87% Pervious Area
	54,800		68.13% Impervious Area

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

Subcatchment 13S: E-200 Fuel Washdown



Summary for Subcatchment E-200: E-300 Paddle Facility

Existing watershed at Equipment Service station

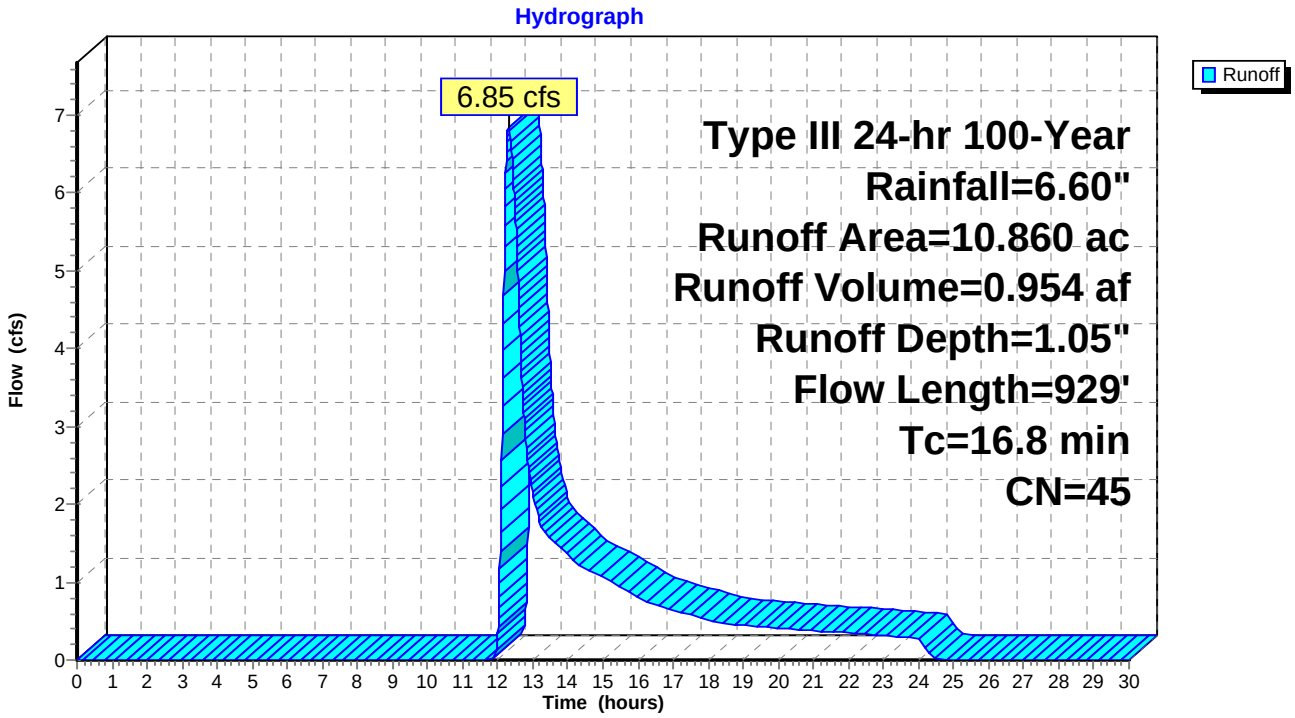
Runoff = 6.85 cfs @ 12.30 hrs, Volume= 0.954 af, Depth= 1.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

	Area (ac)	CN	Description
	6.740	39	>75% Grass cover, Good, HSG A
	1.240	76	Gravel roads, HSG A
*	0.220	98	Existing Building
	0.180	98	Paved parking, HSG D
	2.480	36	Woods, Fair, HSG A
	10.860	45	Weighted Average
	10.460		96.32% Pervious Area
	0.400		3.68% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: E-300 Paddle Facility



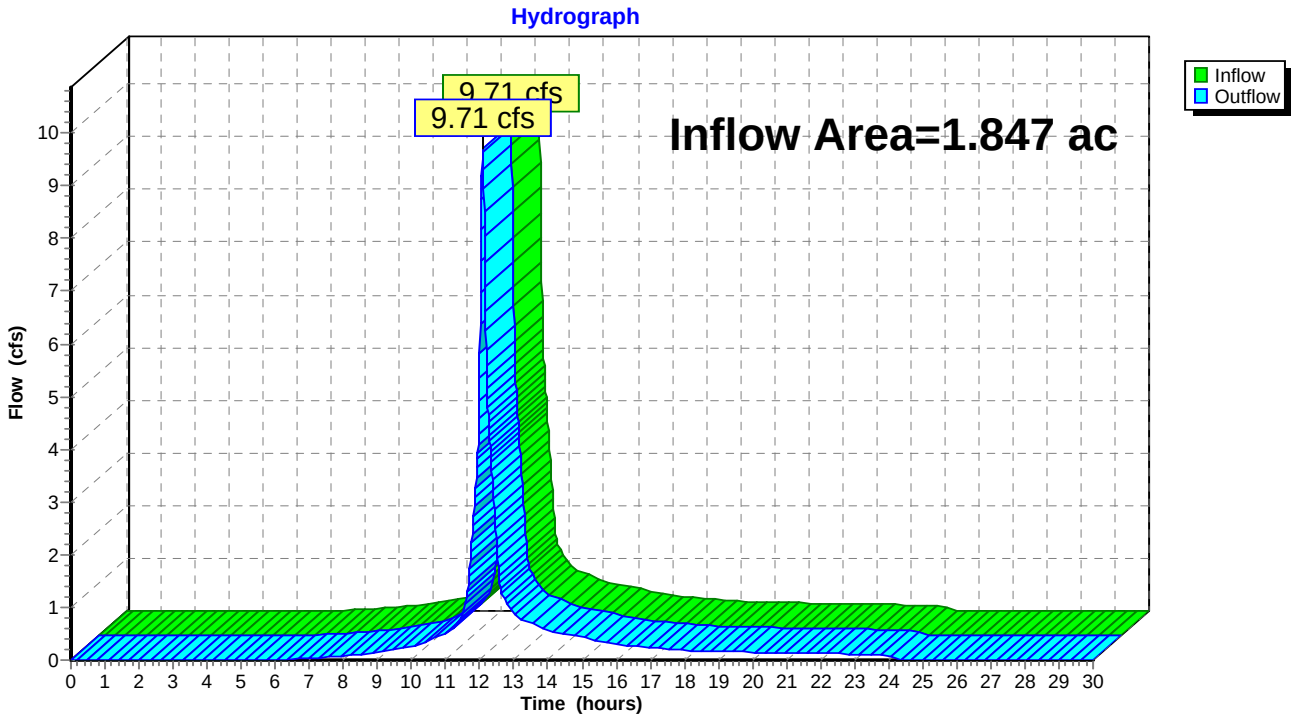
Summary for Reach 14R: Existing Drain Manhole

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

Inflow Area = 1.847 ac, 68.13% Impervious, Inflow Depth = 4.54" for 100-Year event
Inflow = 9.71 cfs @ 12.09 hrs, Volume= 0.699 af
Outflow = 9.71 cfs @ 12.09 hrs, Volume= 0.699 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 14R: Existing Drain Manhole



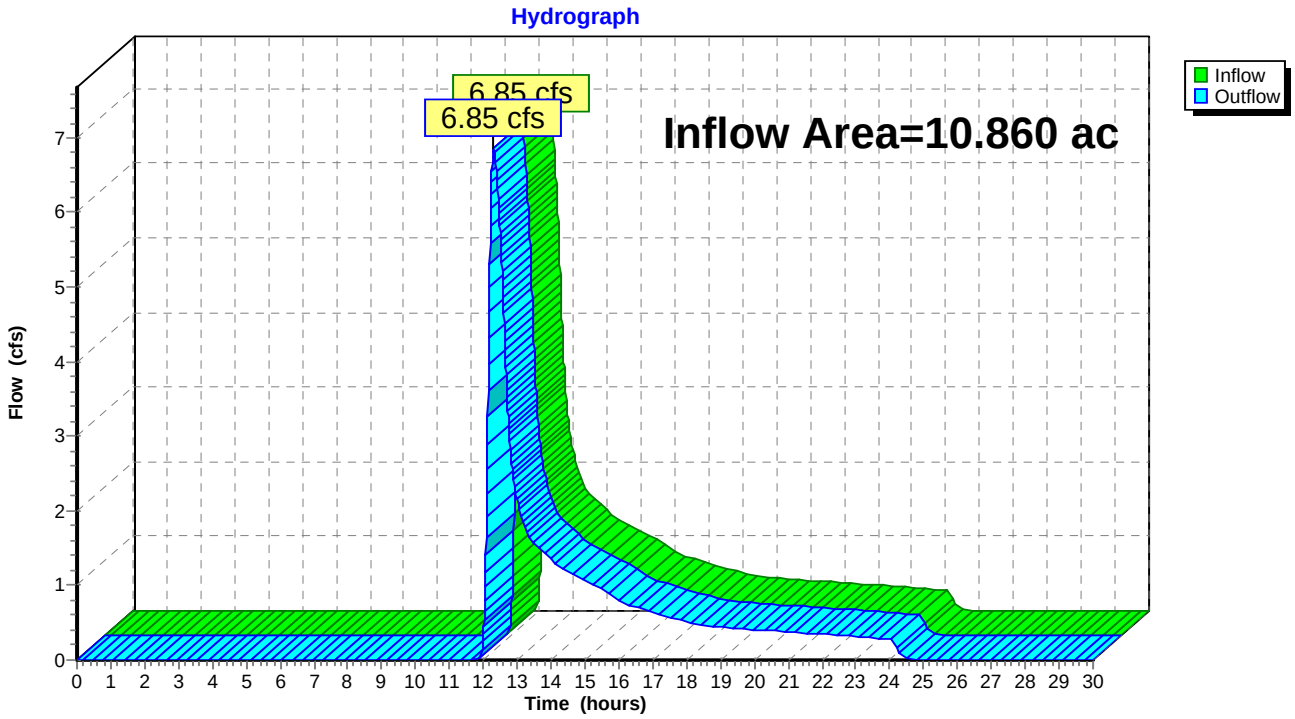
Summary for Reach DP-200: Existing Culvert at Aqeduct

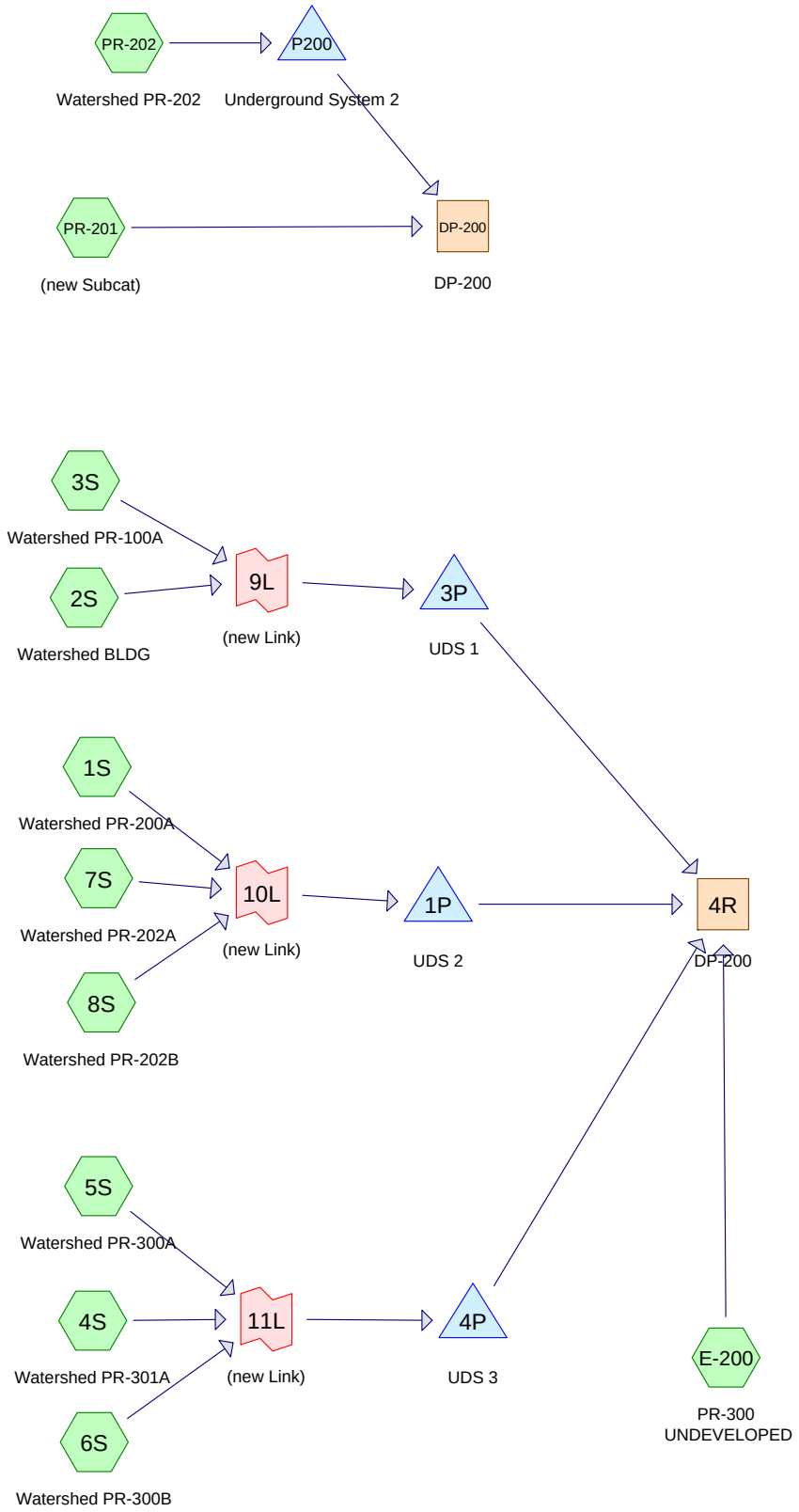
[40] Hint: Not Described (Outflow=Inflow)

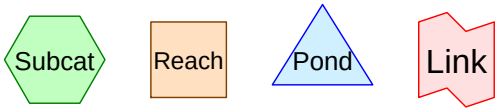
Inflow Area =	10.860 ac,	3.68% Impervious,	Inflow Depth =	1.05"	for 100-Year event
Inflow =	6.85 cfs @	12.30 hrs,	Volume=	0.954 af	
Outflow =	6.85 cfs @	12.30 hrs,	Volume=	0.954 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: Existing Culvert at Aqeduct







Drainage Diagram for Proposed Conditions
Prepared by Allen & Major Associates, Printed 10/26/2012
HydroCAD® 9.10 s/n 02881 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.525	36	Woods, Fair, HSG A (E-200)
7.588	39	>75% Grass cover, Good, HSG A (1S, 3S, 4S, 5S, 6S, 7S, 8S, E-200, PR-201, PR-202)
1.247	76	Gravel roads, HSG A (5S, E-200)
0.140	98	(2S)
0.053	98	Buildings (PR-202)
3.167	98	Paved parking, HSG A (1S, 3S, 4S, 5S, 6S, 7S, 8S, PR-201, PR-202)
12.720		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
12.527	HSG A	1S, 3S, 4S, 5S, 6S, 7S, 8S, E-200, PR-201, PR-202
0.000	HSG B	
0.000	HSG C	
0.000	HSG D	
0.193	Other	2S, PR-202
12.720		**TOTAL AREA**

Pipe Listing (all nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Fill (inches)
1	P200	134.70	134.00	35.0	0.0200	0.013	12.0	0.0	0.0

Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Watershed PR-200A Runoff Area=0.410 ac 77.32% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=0.80 cfs 0.057 af

Subcatchment 2S: Watershed BLDG Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.42 cfs 0.033 af

Subcatchment 3S: Watershed PR-100A Runoff Area=0.810 ac 98.77% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=97 Runoff=2.40 cfs 0.186 af

Subcatchment 4S: Watershed PR-301A Runoff Area=0.145 ac 45.52% Impervious Runoff Depth=0.59"
Tc=6.0 min CN=66 Runoff=0.08 cfs 0.007 af

Subcatchment 5S: Watershed PR-300A Runoff Area=0.340 ac 71.76% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=82 Runoff=0.58 cfs 0.041 af

Subcatchment 6S: Watershed PR-300B Runoff Area=0.370 ac 77.84% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=0.73 cfs 0.052 af

Subcatchment 7S: Watershed PR-202A Runoff Area=0.090 ac 53.33% Impervious Runoff Depth=0.77"
Tc=6.0 min CN=70 Runoff=0.07 cfs 0.006 af

Subcatchment 8S: Watershed PR-202B Runoff Area=0.050 ac 62.00% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=76 Runoff=0.06 cfs 0.005 af

Subcatchment E-200: PR-300 Runoff Area=8.505 ac 0.00% Impervious Runoff Depth=0.02"
Flow Length=929' Tc=16.8 min CN=44 Runoff=0.02 cfs 0.016 af

Subcatchment PR-201: (new Subcat) Runoff Area=37,231 sf 74.21% Impervious Runoff Depth=1.53"
Tc=6.0 min CN=83 Runoff=1.53 cfs 0.109 af

Subcatchment PR-202: Watershed PR-202 Runoff Area=43,806 sf 78.77% Impervious Runoff Depth=1.67"
Tc=6.0 min CN=85 Runoff=1.97 cfs 0.140 af

Reach 4R: DP-200 Inflow=0.02 cfs 0.016 af
Outflow=0.02 cfs 0.016 af

Reach DP-200: DP-200 Inflow=1.53 cfs 0.109 af
Outflow=1.53 cfs 0.109 af

Pond 1P: UDS 2 Peak Elev=128.61' Storage=0.011 af Inflow=0.94 cfs 0.067 af
Discarded=0.31 cfs 0.067 af Primary=0.00 cfs 0.000 af Outflow=0.31 cfs 0.067 af

Pond 3P: UDS 1 Peak Elev=124.72' Storage=0.047 af Inflow=2.82 cfs 0.220 af
Discarded=0.64 cfs 0.220 af Primary=0.00 cfs 0.000 af Outflow=0.64 cfs 0.220 af

Pond 4P: UDS 3 Peak Elev=133.02' Storage=0.016 af Inflow=1.38 cfs 0.100 af
Discarded=0.46 cfs 0.100 af Primary=0.00 cfs 0.000 af Outflow=0.46 cfs 0.100 af

Pond P200: Underground System 2 Peak Elev=134.22' Storage=0.037 af Inflow=1.97 cfs 0.140 af
Discarded=0.37 cfs 0.140 af Primary=0.00 cfs 0.000 af Outflow=0.37 cfs 0.140 af

Link 9L: (new Link) Inflow=2.82 cfs 0.220 af
Primary=2.82 cfs 0.220 af

Link 10L: (new Link) Inflow=0.94 cfs 0.067 af
Primary=0.94 cfs 0.067 af

Link 11L: (new Link) Inflow=1.38 cfs 0.100 af
Primary=1.38 cfs 0.100 af

Total Runoff Area = 12.720 ac Runoff Volume = 0.652 af Average Runoff Depth = 0.62"
73.58% Pervious = 9.360 ac 26.42% Impervious = 3.360 ac

Summary for Subcatchment 1S: Watershed PR-200A

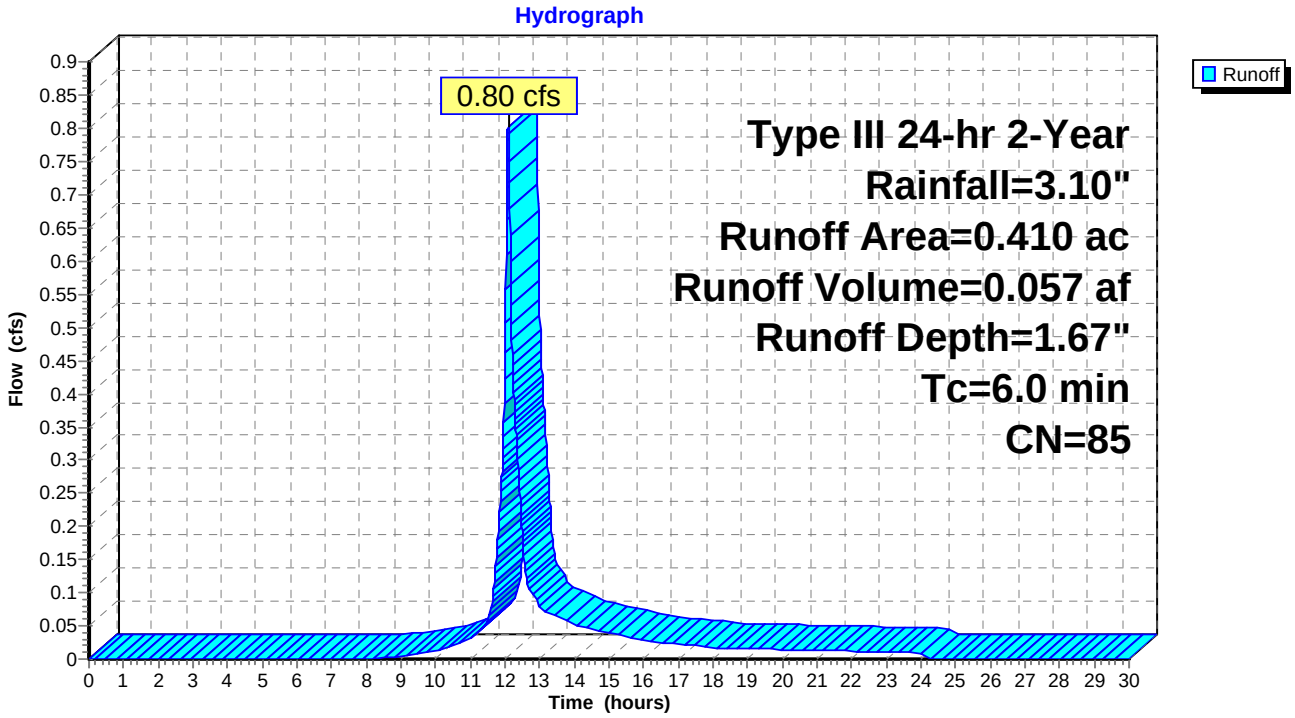
Runoff = 0.80 cfs @ 12.09 hrs, Volume= 0.057 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.093	39	>75% Grass cover, Good, HSG A
0.317	98	Paved parking, HSG A
0.410	85	Weighted Average
0.093		22.68% Pervious Area
0.317		77.32% Impervious Area

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

Subcatchment 1S: Watershed PR-200A



Summary for Subcatchment 2S: Watershed BLDG

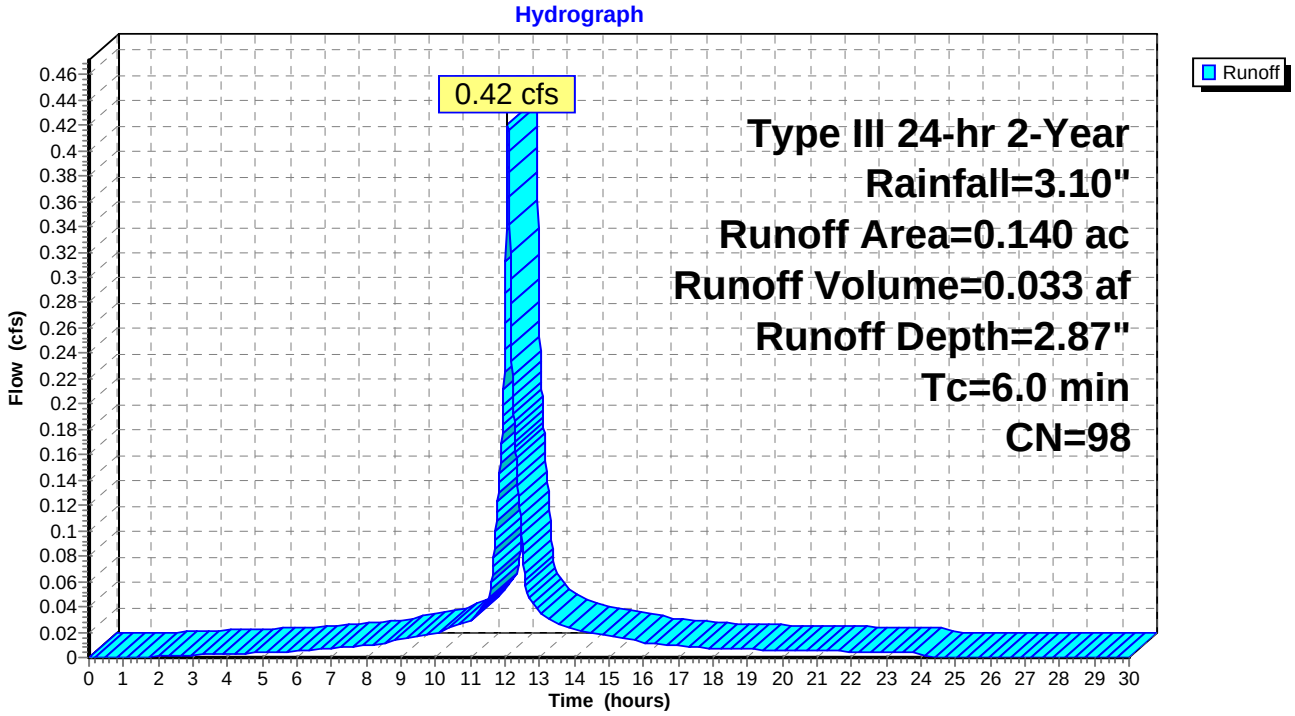
Runoff = 0.42 cfs @ 12.08 hrs, Volume= 0.033 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (ac)	CN	Description
*	0.140	98	
	0.140		100.00% Impervious Area

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

Subcatchment 2S: Watershed BLDG



Summary for Subcatchment 3S: Watershed PR-100A

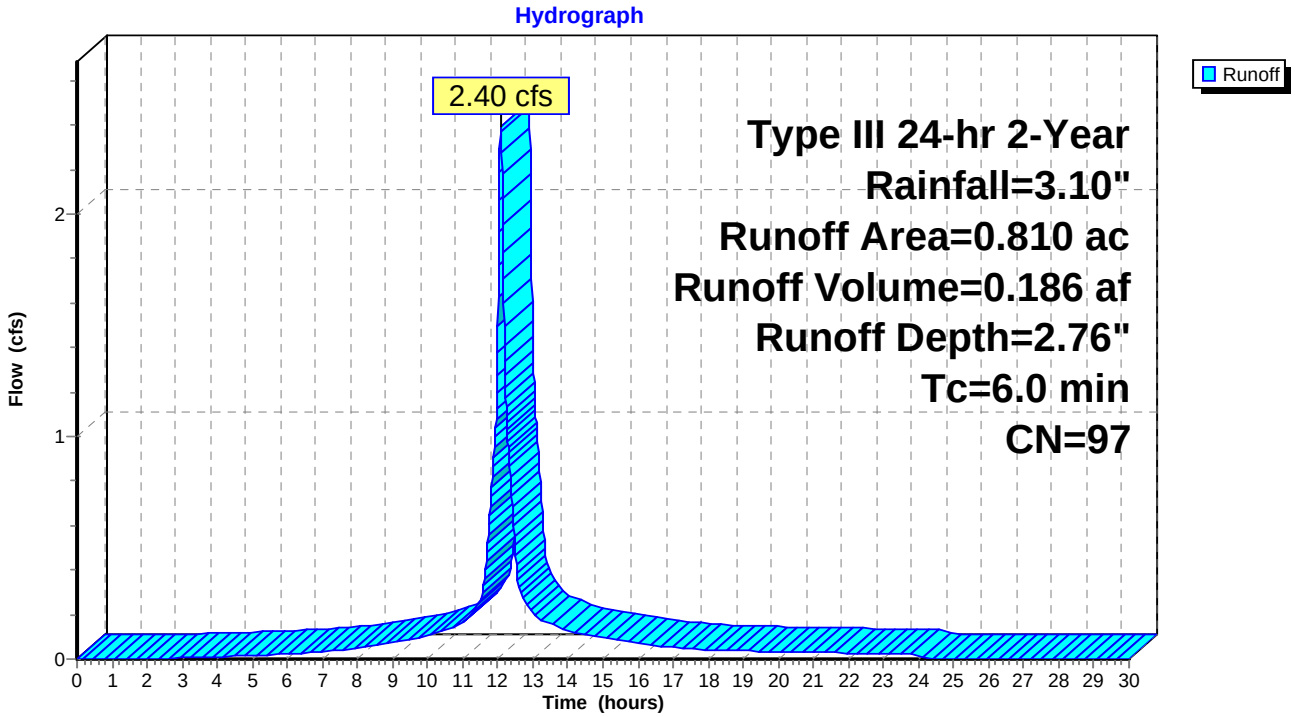
Runoff = 2.40 cfs @ 12.08 hrs, Volume= 0.186 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.010	39	>75% Grass cover, Good, HSG A
0.800	98	Paved parking, HSG A
0.810	97	Weighted Average
0.010		1.23% Pervious Area
0.800		98.77% Impervious Area

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

Subcatchment 3S: Watershed PR-100A



Summary for Subcatchment 4S: Watershed PR-301A

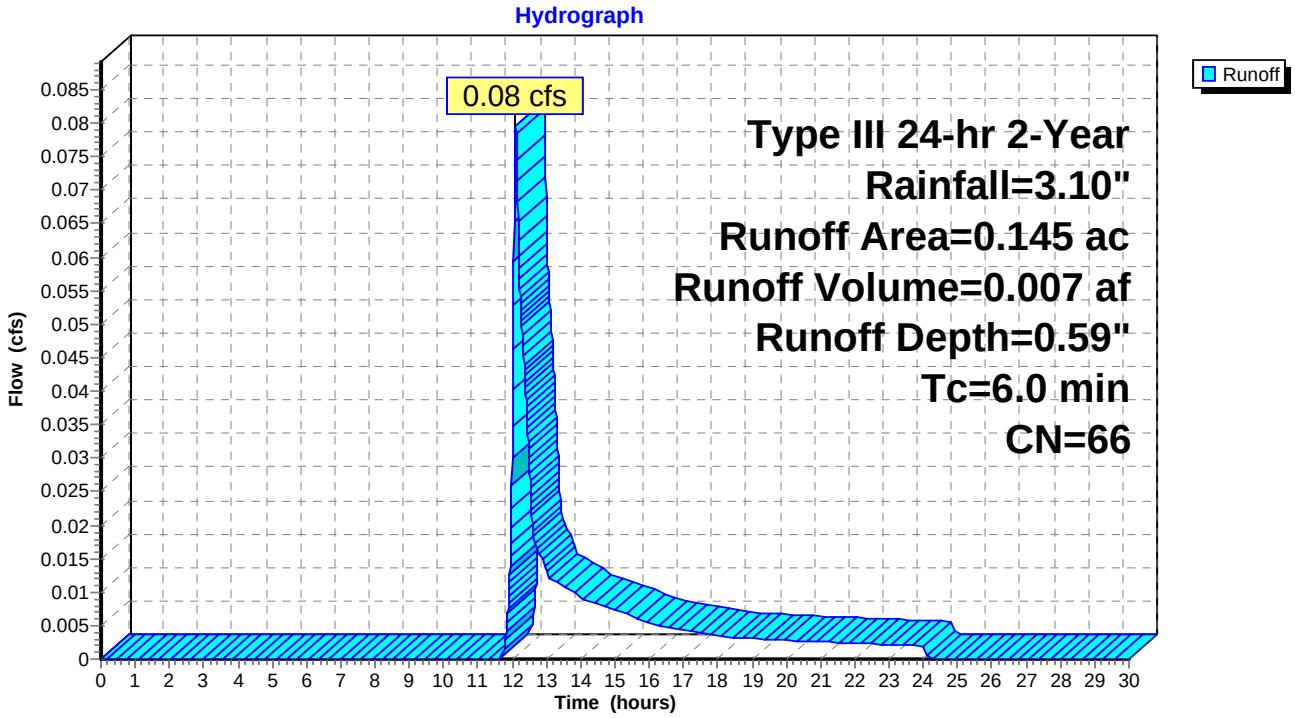
Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.007 af, Depth= 0.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (ac)	CN	Description
	0.079	39	>75% Grass cover, Good, HSG A
*	0.066	98	Paved parking, HSG A
	0.145	66	Weighted Average
	0.079		54.48% Pervious Area
	0.066		45.52% Impervious Area

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

Subcatchment 4S: Watershed PR-301A



Summary for Subcatchment 5S: Watershed PR-300A

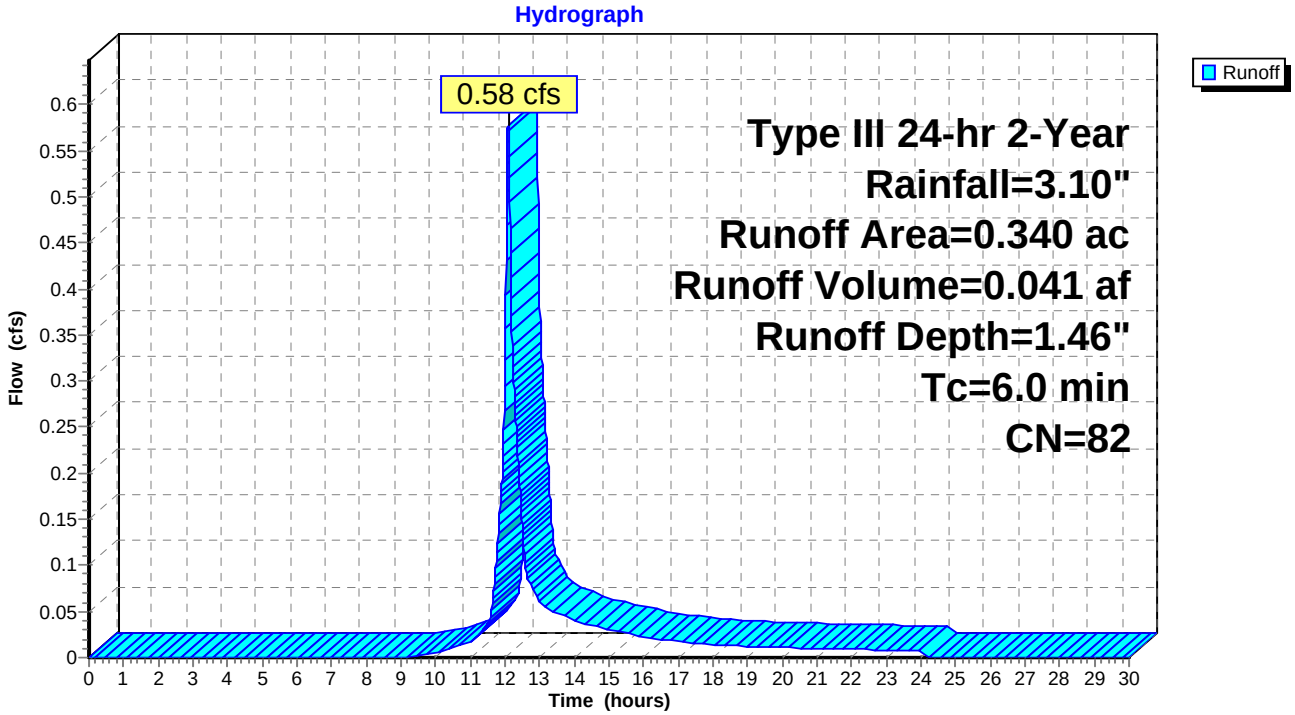
Runoff = 0.58 cfs @ 12.09 hrs, Volume= 0.041 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.089	39	>75% Grass cover, Good, HSG A
0.007	76	Gravel roads, HSG A
0.244	98	Paved parking, HSG A
0.340	82	Weighted Average
0.096		28.24% Pervious Area
0.244		71.76% Impervious Area

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

Subcatchment 5S: Watershed PR-300A



Summary for Subcatchment 6S: Watershed PR-300B

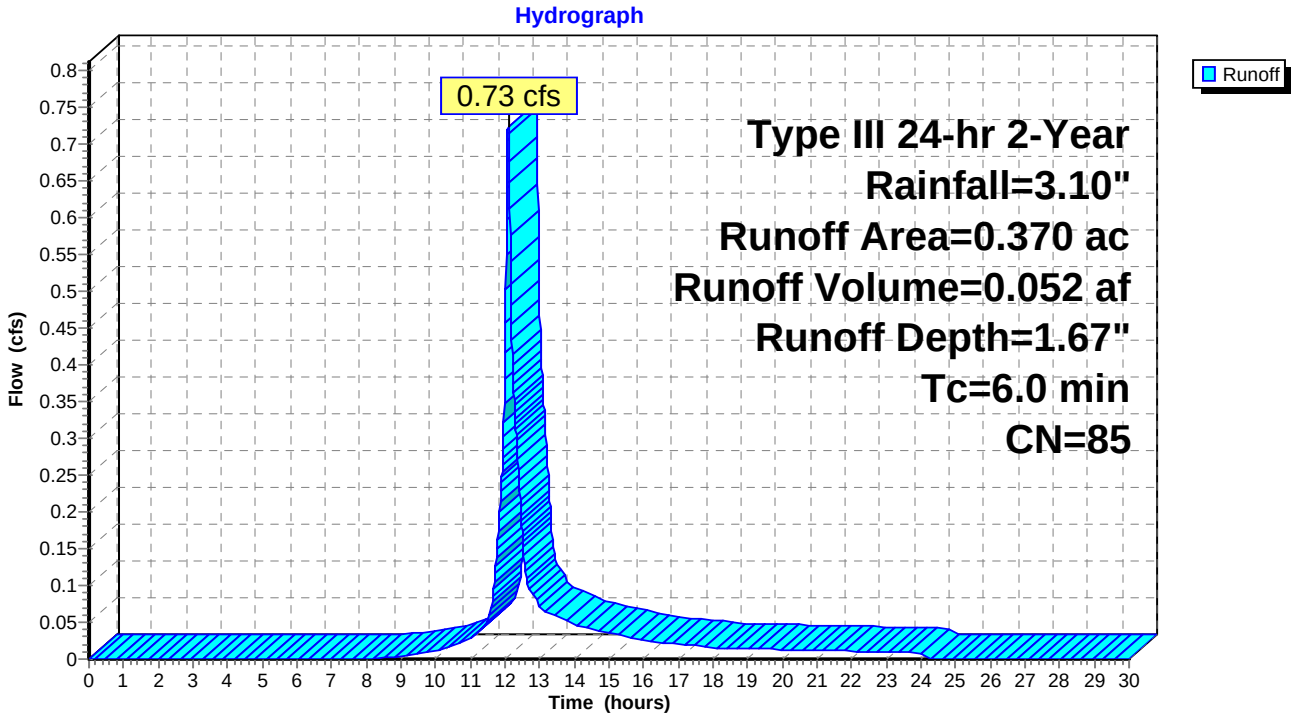
Runoff = 0.73 cfs @ 12.09 hrs, Volume= 0.052 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.082	39	>75% Grass cover, Good, HSG A
0.288	98	Paved parking, HSG A
0.370	85	Weighted Average
0.082		22.16% Pervious Area
0.288		77.84% Impervious Area

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

Subcatchment 6S: Watershed PR-300B



Summary for Subcatchment 7S: Watershed PR-202A

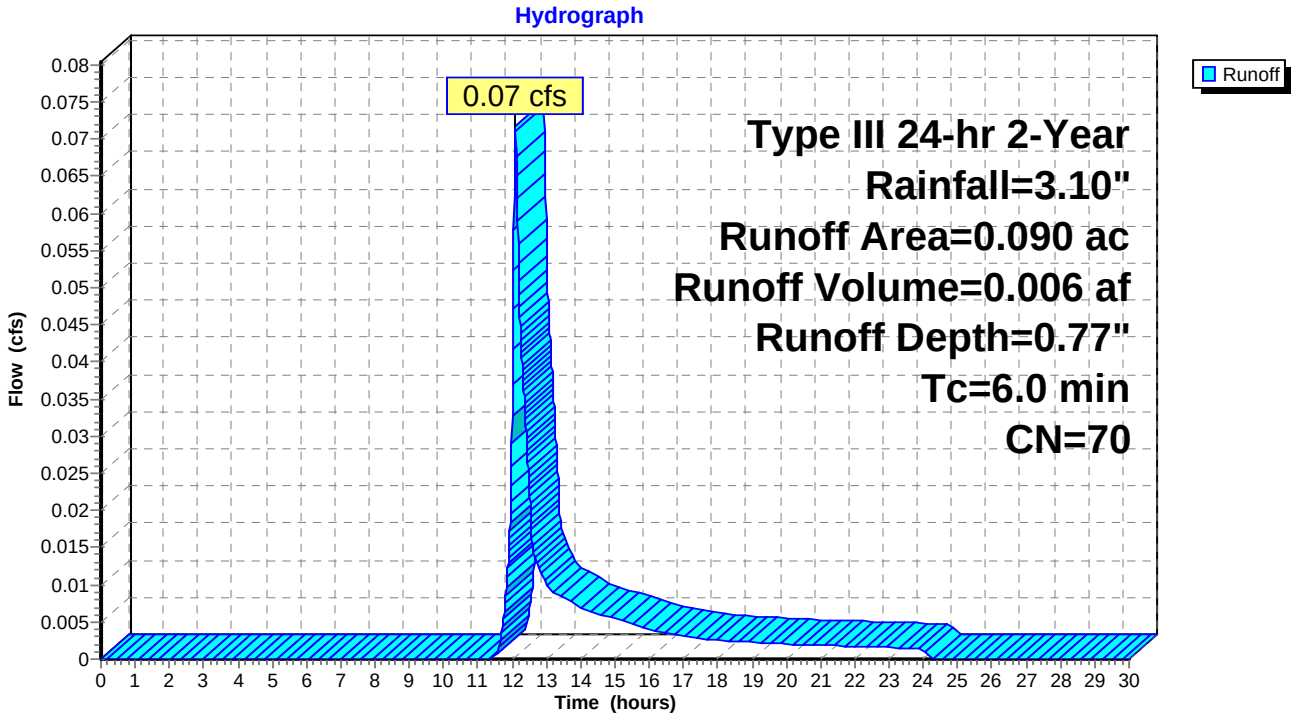
Runoff = 0.07 cfs @ 12.10 hrs, Volume= 0.006 af, Depth= 0.77"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.042	39	>75% Grass cover, Good, HSG A
0.048	98	Paved parking, HSG A
0.090	70	Weighted Average
0.042		46.67% Pervious Area
0.048		53.33% Impervious Area

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

Subcatchment 7S: Watershed PR-202A



Summary for Subcatchment 8S: Watershed PR-202B

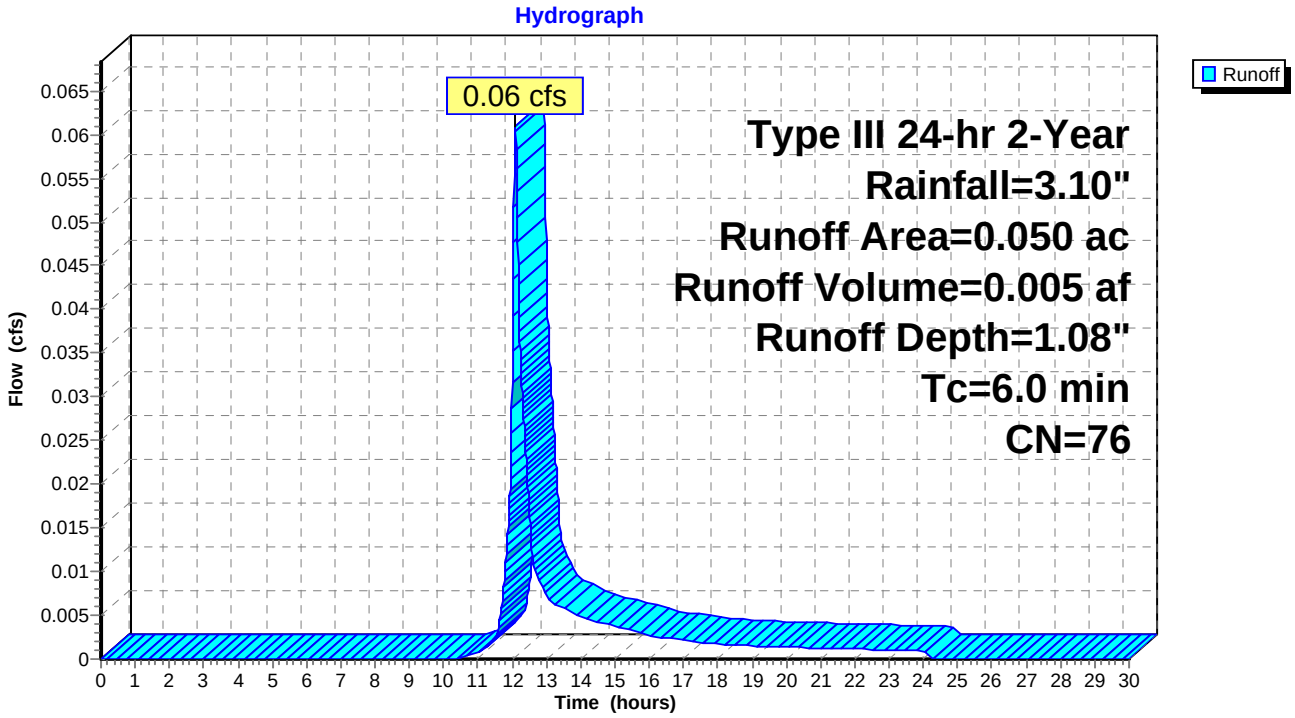
Runoff = 0.06 cfs @ 12.09 hrs, Volume= 0.005 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
0.019	39	>75% Grass cover, Good, HSG A
0.031	98	Paved parking, HSG A
0.050	76	Weighted Average
0.019		38.00% Pervious Area
0.031		62.00% Impervious Area

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

Subcatchment 8S: Watershed PR-202B



Summary for Subcatchment E-200: PR-300 UNDEVELOPED

Existing watershed at Equipment Service station

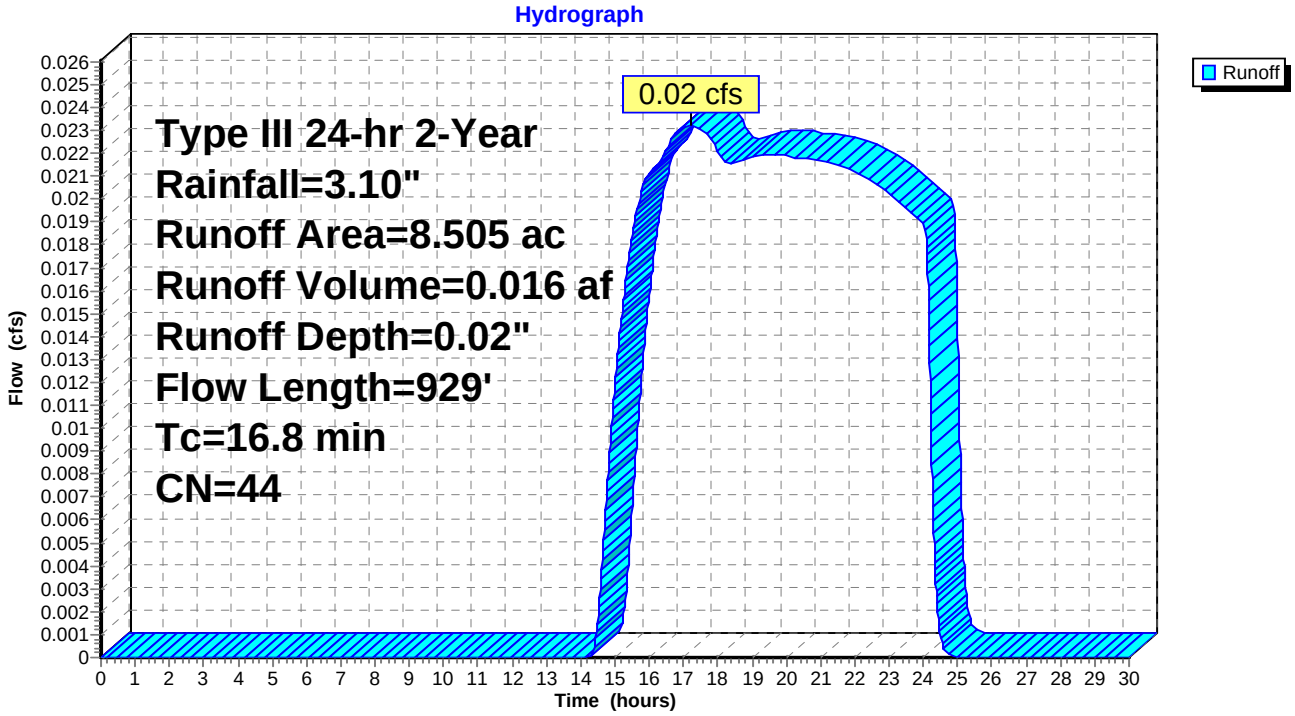
Runoff = 0.02 cfs @ 17.23 hrs, Volume= 0.016 af, Depth= 0.02"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (ac)	CN	Description
6.740	39	>75% Grass cover, Good, HSG A
1.240	76	Gravel roads, HSG A
0.525	36	Woods, Fair, HSG A
8.505	44	Weighted Average
8.505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: PR-300 UNDEVELOPED



Summary for Subcatchment PR-201: (new Subcat)

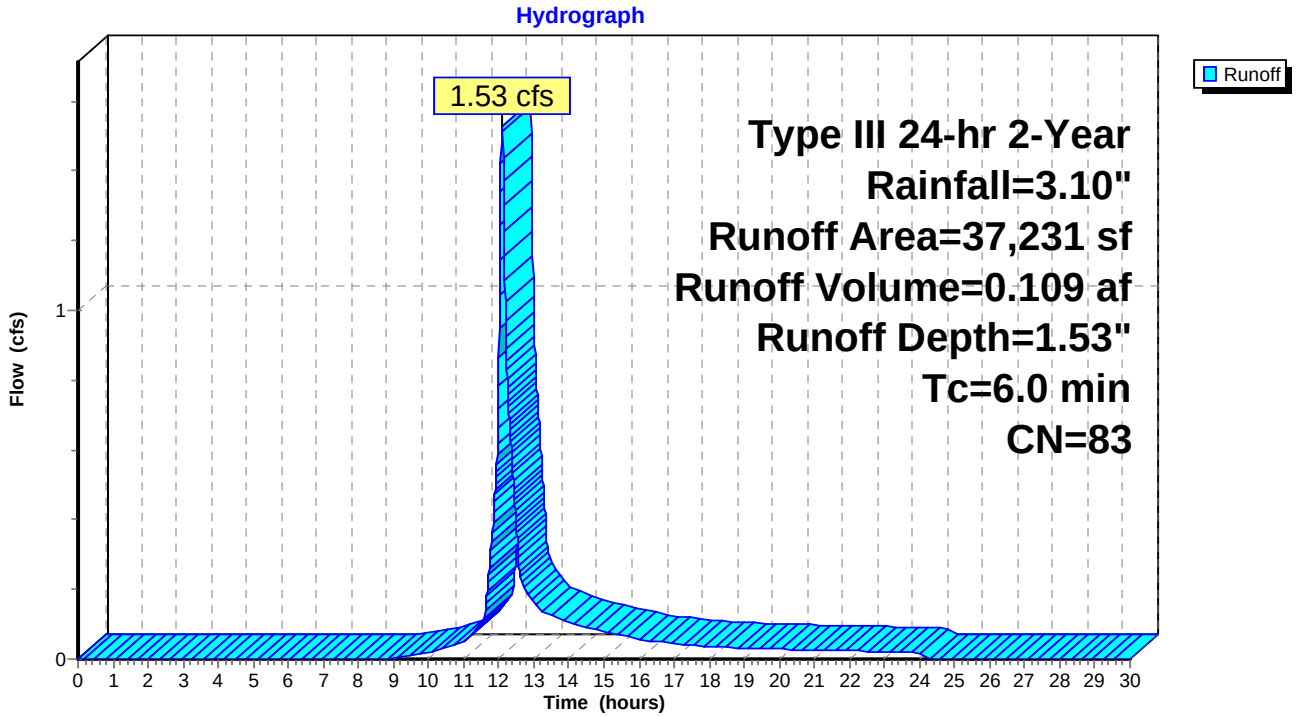
Runoff = 1.53 cfs @ 12.09 hrs, Volume= 0.109 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
9,603	39	>75% Grass cover, Good, HSG A
27,628	98	Paved parking, HSG A
37,231	83	Weighted Average
9,603		25.79% Pervious Area
27,628		74.21% Impervious Area

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

Subcatchment PR-201: (new Subcat)



Summary for Subcatchment PR-202: Watershed PR-202

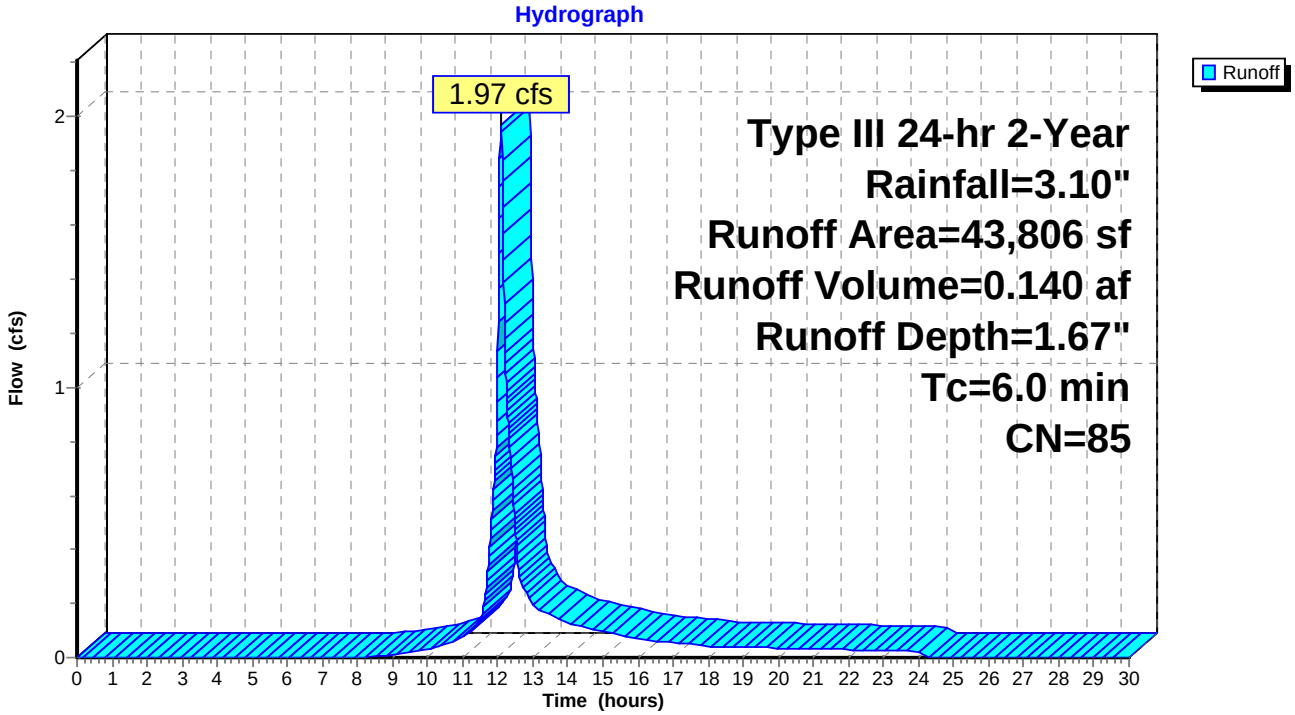
Runoff = 1.97 cfs @ 12.09 hrs, Volume= 0.140 af, Depth= 1.67"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	9,298	39	>75% Grass cover, Good, HSG A
*	2,327	98	Buildings
	32,181	98	Paved parking, HSG A
	43,806	85	Weighted Average
	9,298		21.23% Pervious Area
	34,508		78.77% Impervious Area

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

Subcatchment PR-202: Watershed PR-202



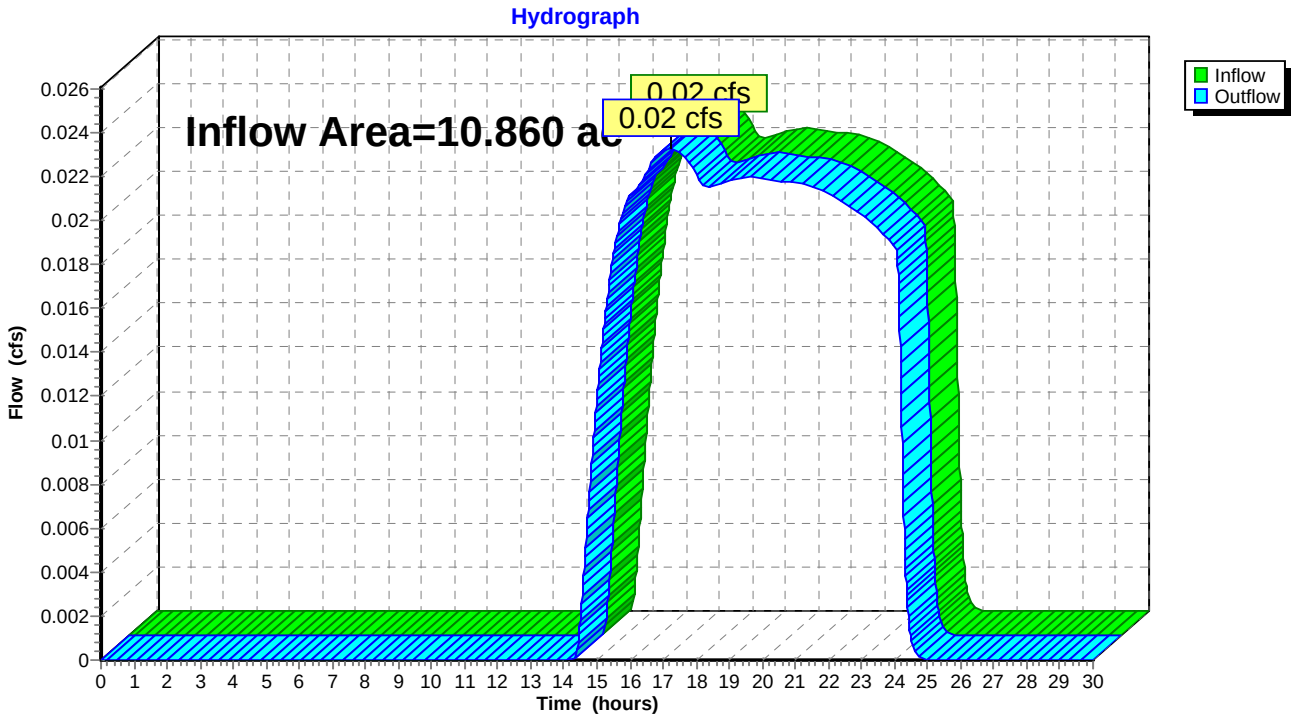
Summary for Reach 4R: DP-200

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

Inflow Area = 10.860 ac, 17.81% Impervious, Inflow Depth = 0.02" for 2-Year event
Inflow = 0.02 cfs @ 17.23 hrs, Volume= 0.016 af
Outflow = 0.02 cfs @ 17.23 hrs, Volume= 0.016 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 4R: DP-200



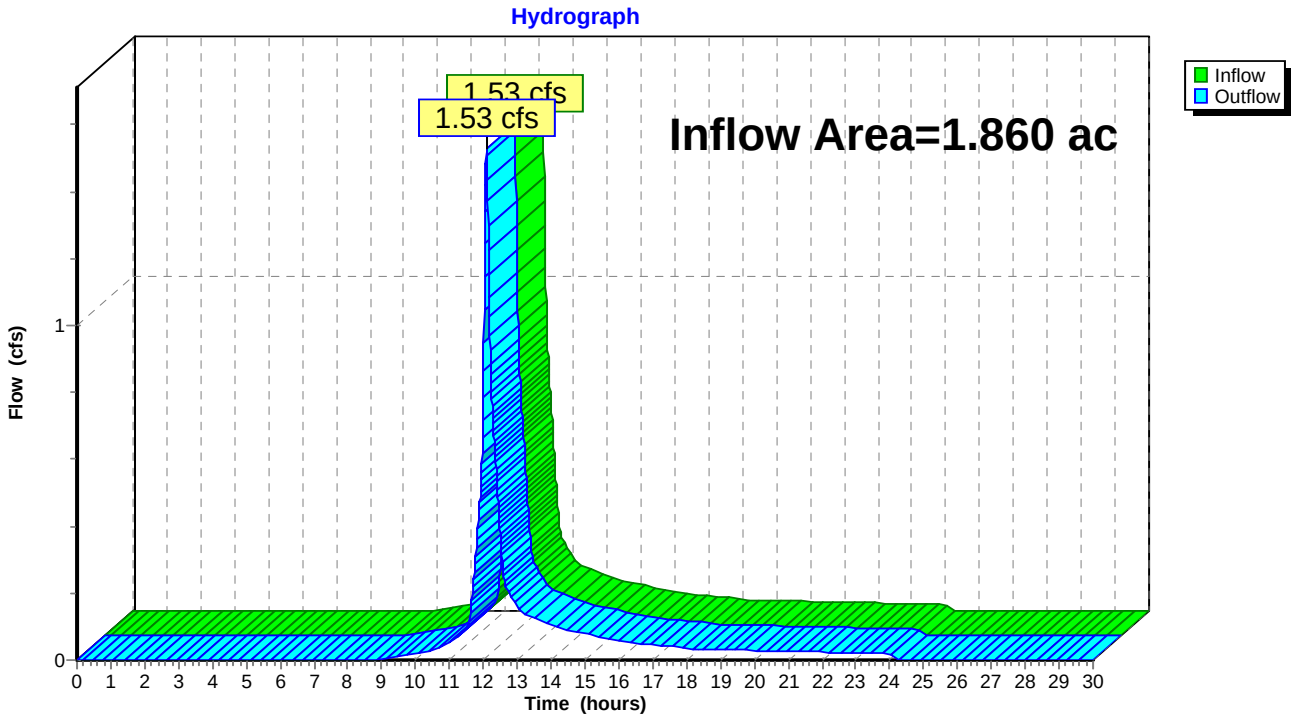
Summary for Reach DP-200: DP-200

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

Inflow Area = 1.860 ac, 76.68% Impervious, Inflow Depth = 0.70" for 2-Year event
Inflow = 1.53 cfs @ 12.09 hrs, Volume= 0.109 af
Outflow = 1.53 cfs @ 12.09 hrs, Volume= 0.109 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: DP-200



Summary for Pond 1P: UDS 2

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.067 af
Outflow = 0.31 cfs @ 12.42 hrs, Volume= 0.067 af, Atten= 67%, Lag= 19.5 min
Discarded = 0.31 cfs @ 12.42 hrs, Volume= 0.067 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 128.61' @ 12.42 hrs Surf.Area= 0.037 ac Storage= 0.011 af

Plug-Flow detention time= 7.6 min calculated for 0.067 af (100% of inflow)
Center-of-Mass det. time= 7.6 min (841.4 - 833.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.00'	0.037 af	**6.25'W x 258.32'L x 3.50'H Field A** 0.130 af Overall - 0.038 af Embedded = 0.092 af x 40.0% Voids
#2A	128.50'	0.038 af	**StormTech SC-740** x 36 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	131.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.31 cfs @ 12.42 hrs HW=128.61' (Free Discharge)
└**1=Exfiltration** (Controls 0.31 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UDS 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

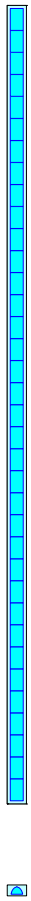
36 Chambers/Row x 7.12' Long = 256.32' + 12.0" End Stone x 2 = 258.32' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

36 Chambers x 45.9 cf = 1,653.8 cf Chamber Storage

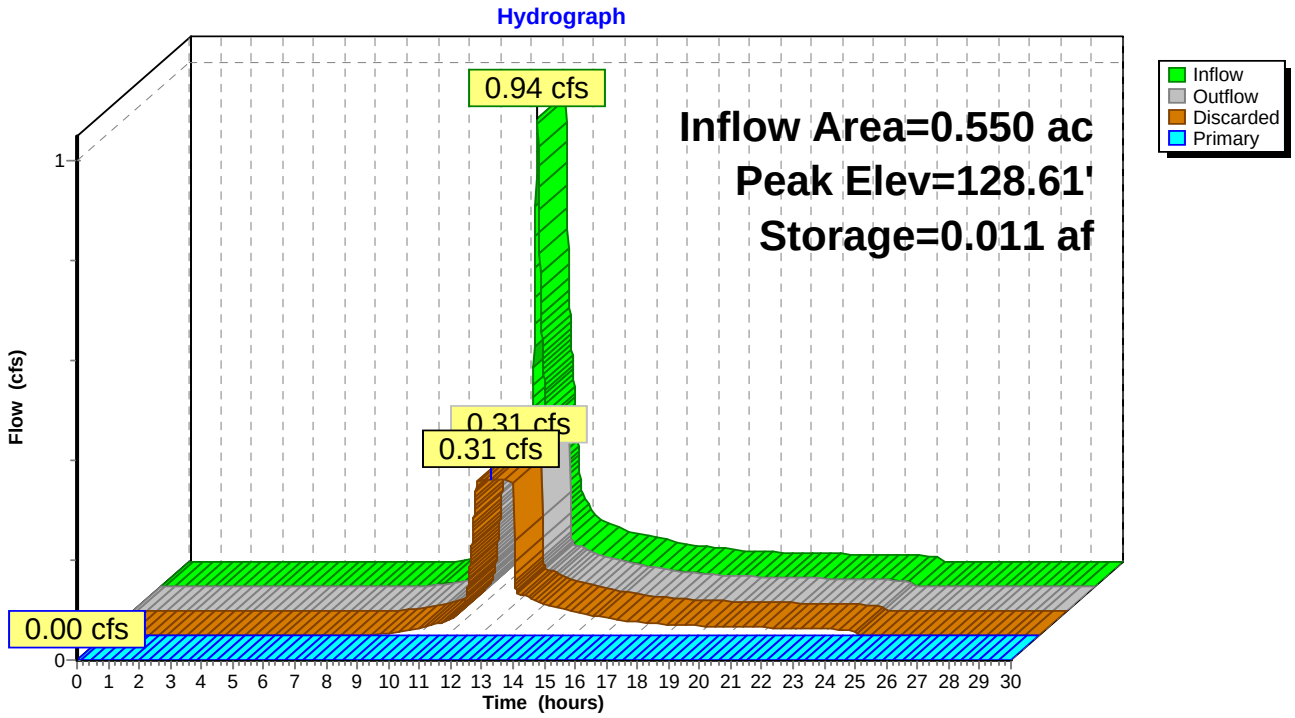
5,650.8 cf Field - 1,653.8 cf Chambers = 3,996.9 cf Stone x 40.0% Voids = 1,598.8 cf Stone Storage

Stone + Chamber Storage = 3,252.6 cf = 0.075 af

36 Chambers
209.3 cy Field
148.0 cy Stone



Pond 1P: UDS 2


Hydrograph
0.94 cfs
Inflow Area=0.550 ac
Peak Elev=128.61'
Storage=0.011 af
0.31 cfs
0.31 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Time (hours)

Summary for Pond 3P: UDS 1

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 2.82 cfs @ 12.08 hrs, Volume= 0.220 af
Outflow = 0.64 cfs @ 12.48 hrs, Volume= 0.220 af, Atten= 77%, Lag= 23.7 min
Discarded = 0.64 cfs @ 12.48 hrs, Volume= 0.220 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 124.72' @ 12.48 hrs Surf.Area= 0.075 ac Storage= 0.047 af

Plug-Flow detention time= 16.1 min calculated for 0.220 af (100% of inflow)
Center-of-Mass det. time= 16.0 min (781.4 - 765.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	123.70'	0.067 af	**30.00'W x 108.80'L x 3.50'H Field A** 0.262 af Overall - 0.095 af Embedded = 0.167 af x 40.0% Voids
#2A	124.20'	0.095 af	**StormTech SC-740** x 90 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.162 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	123.70'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	127.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.64 cfs @ 12.48 hrs HW=124.72' (Free Discharge)
└─**1=Exfiltration** (Controls 0.64 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.70' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: UDS 1 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

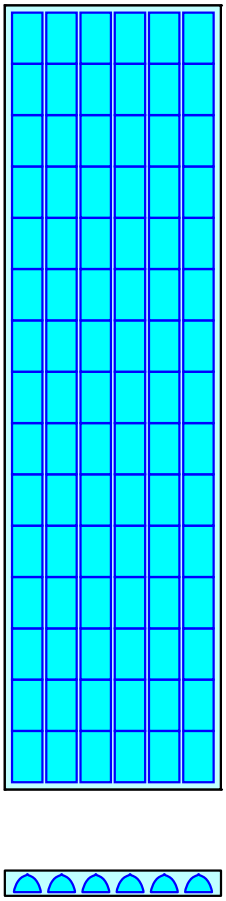
15 Chambers/Row x 7.12' Long = 106.80' + 12.0" End Stone x 2 = 108.80' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

90 Chambers x 45.9 cf = 4,134.6 cf Chamber Storage

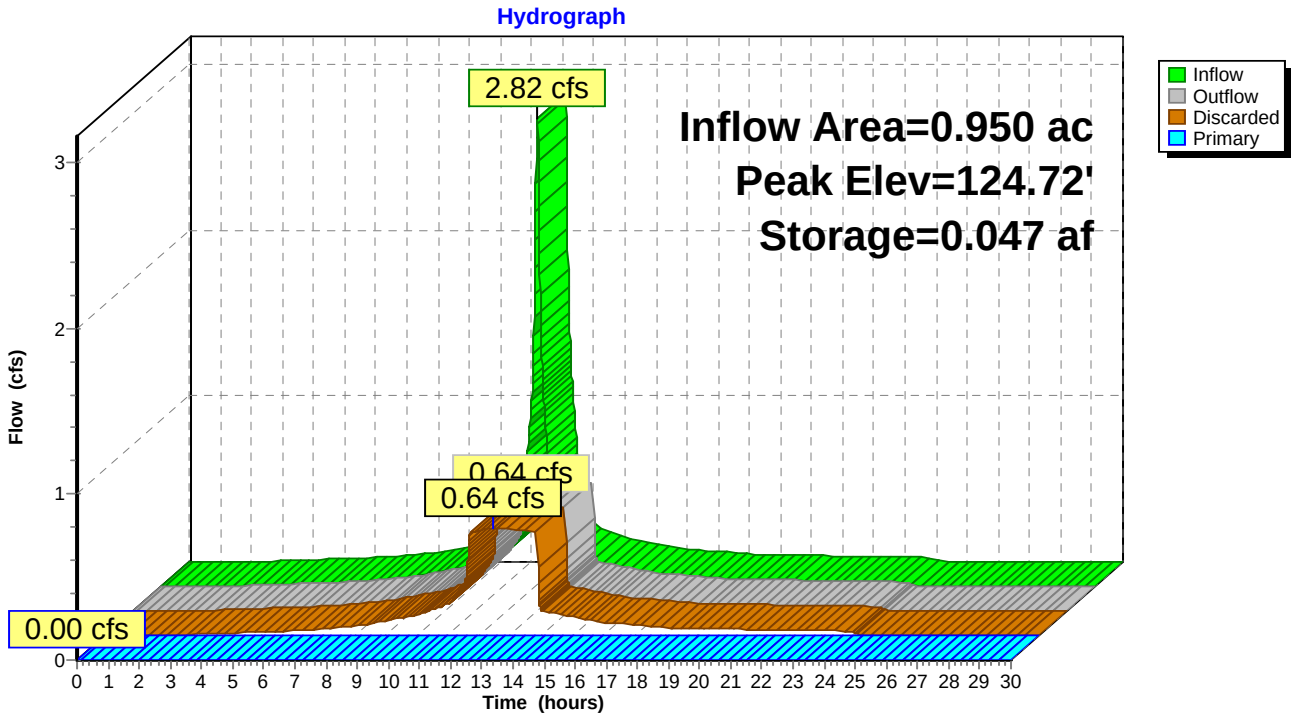
11,424.0 cf Field - 4,134.6 cf Chambers = 7,289.4 cf Stone x 40.0% Voids = 2,915.8 cf Stone Storage

Stone + Chamber Storage = 7,050.4 cf = 0.162 af

90 Chambers
423.1 cy Field
270.0 cy Stone



Pond 3P: UDS 1


Hydrograph
2.82 cfs
Inflow Area=0.950 ac
Peak Elev=124.72'
Storage=0.047 af
0.64 cfs
0.64 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 4P: UDS 3

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af
Outflow = 0.46 cfs @ 12.42 hrs, Volume= 0.100 af, Atten= 67%, Lag= 19.9 min
Discarded = 0.46 cfs @ 12.42 hrs, Volume= 0.100 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 133.02' @ 12.42 hrs Surf.Area= 0.054 ac Storage= 0.016 af

Plug-Flow detention time= 7.7 min calculated for 0.100 af (100% of inflow)
Center-of-Mass det. time= 7.7 min (844.2 - 836.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.40'	0.054 af	**6.25'W x 379.36'L x 3.50'H Field A** 0.191 af Overall - 0.056 af Embedded = 0.135 af x 40.0% Voids
#2A	132.90'	0.056 af	**StormTech SC-740** x 53 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.110 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.40'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	135.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.46 cfs @ 12.42 hrs HW=133.02' (Free Discharge)
└─**1=Exfiltration** (Controls 0.46 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.40' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: UDS 3 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

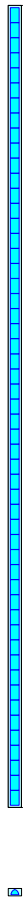
53 Chambers/Row x 7.12' Long = 377.36' + 12.0" End Stone x 2 = 379.36' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

53 Chambers x 45.9 cf = 2,434.8 cf Chamber Storage

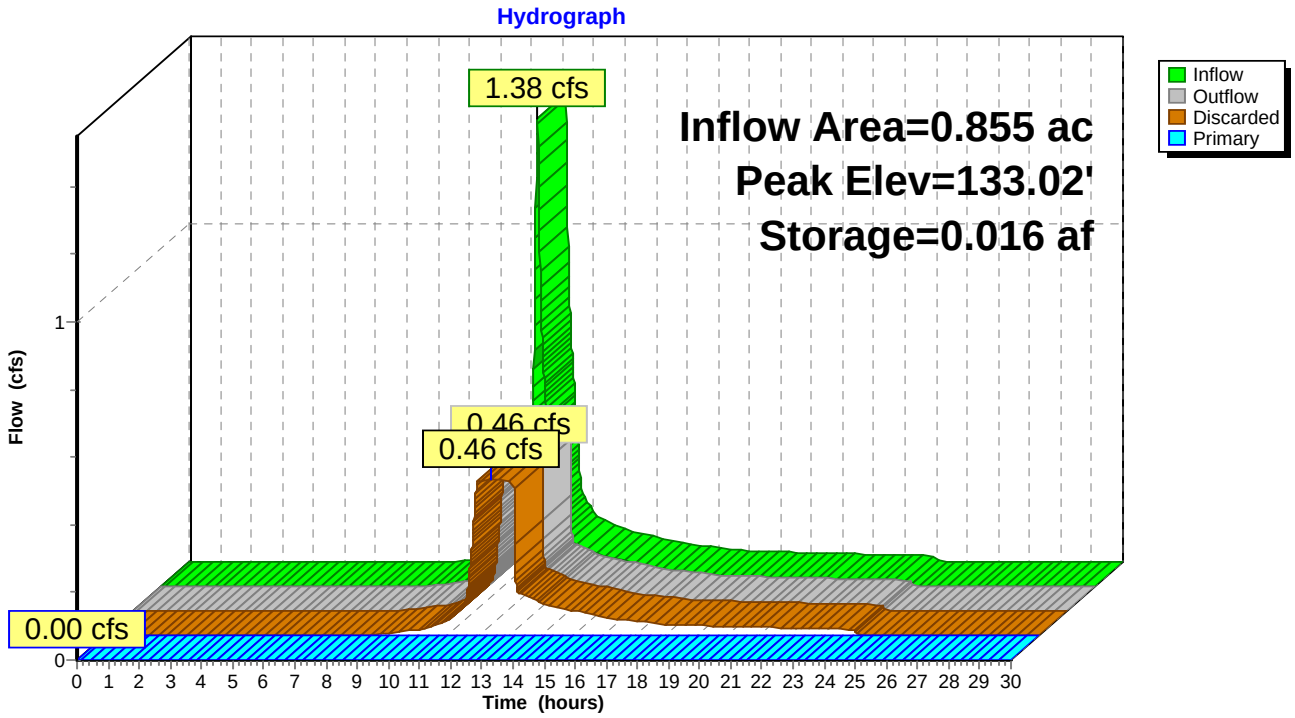
8,298.5 cf Field - 2,434.8 cf Chambers = 5,863.7 cf Stone x 40.0% Voids = 2,345.5 cf Stone Storage

Stone + Chamber Storage = 4,780.3 cf = 0.110 af

53 Chambers
307.4 cy Field
217.2 cy Stone



Pond 4P: UDS 3


Hydrograph
1.38 cfs
Inflow Area=0.855 ac
Peak Elev=133.02'
Storage=0.016 af
0.46 cfs
0.46 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond P200: Underground System 2

Inflow Area =	1.006 ac, 78.77% Impervious, Inflow Depth = 1.67" for 2-Year event				
Inflow =	1.97 cfs @	12.09 hrs,	Volume=	0.140 af	
Outflow =	0.37 cfs @	12.55 hrs,	Volume=	0.140 af,	Atten= 81%, Lag= 27.7 min
Discarded =	0.37 cfs @	12.55 hrs,	Volume=	0.140 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 134.22' @ 12.55 hrs Surf.Area= 0.045 ac Storage= 0.037 af

Plug-Flow detention time= 26.3 min calculated for 0.140 af (100% of inflow)
Center-of-Mass det. time= 26.3 min (853.8 - 827.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.94'	0.040 af	**20.50'W x 94.56'L x 3.50'H Field A** 0.156 af Overall - 0.055 af Embedded = 0.101 af x 40.0% Voids
#2A	133.44'	0.055 af	**StormTech SC-740** x 52 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.70'	**12.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.70' / 134.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	135.94'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	132.94'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.37 cfs @ 12.55 hrs HW=134.22' (Free Discharge)
└─**3=Exfiltration** (Controls 0.37 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.94' (Free Discharge)
└─**1=Culvert** (Controls 0.00 cfs)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond P200: Underground System 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

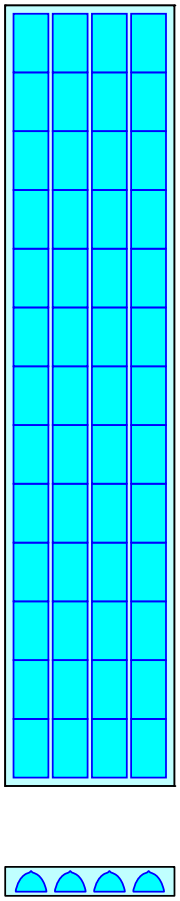
13 Chambers/Row x 7.12' Long = 92.56' + 12.0" End Stone x 2 = 94.56' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

52 Chambers x 45.9 cf = 2,388.9 cf Chamber Storage

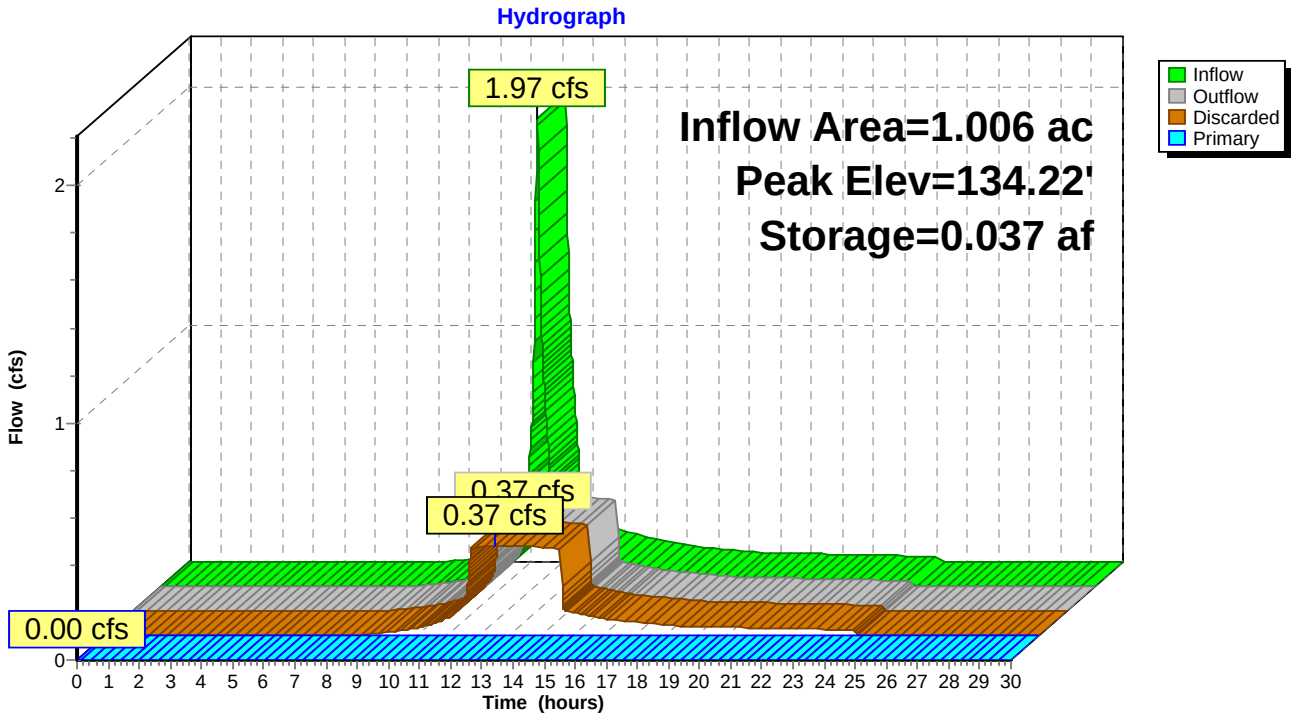
6,784.7 cf Field - 2,388.9 cf Chambers = 4,395.8 cf Stone x 40.0% Voids = 1,758.3 cf Stone Storage

Stone + Chamber Storage = 4,147.2 cf = 0.095 af

52 Chambers
251.3 cy Field
162.8 cy Stone



Pond P200: Underground System 2

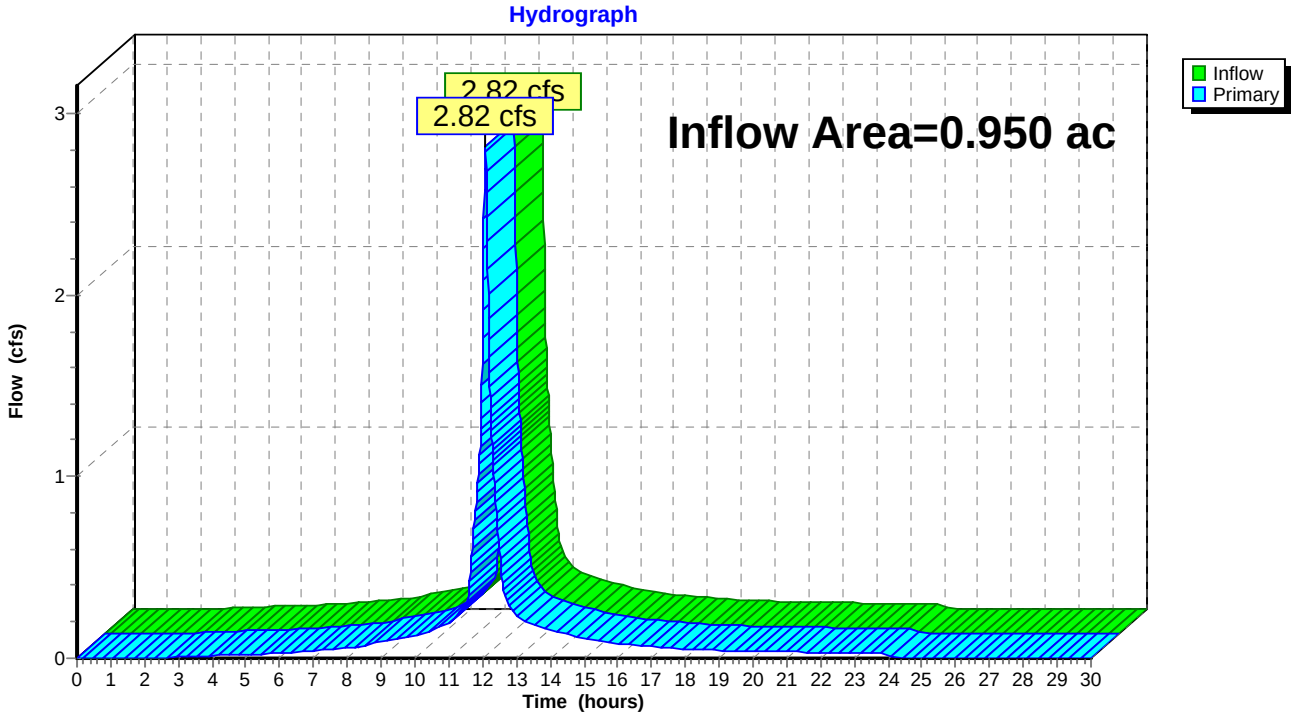


Summary for Link 9L: (new Link)

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 2.77" for 2-Year event
Inflow = 2.82 cfs @ 12.08 hrs, Volume= 0.220 af
Primary = 2.82 cfs @ 12.08 hrs, Volume= 0.220 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 9L: (new Link)

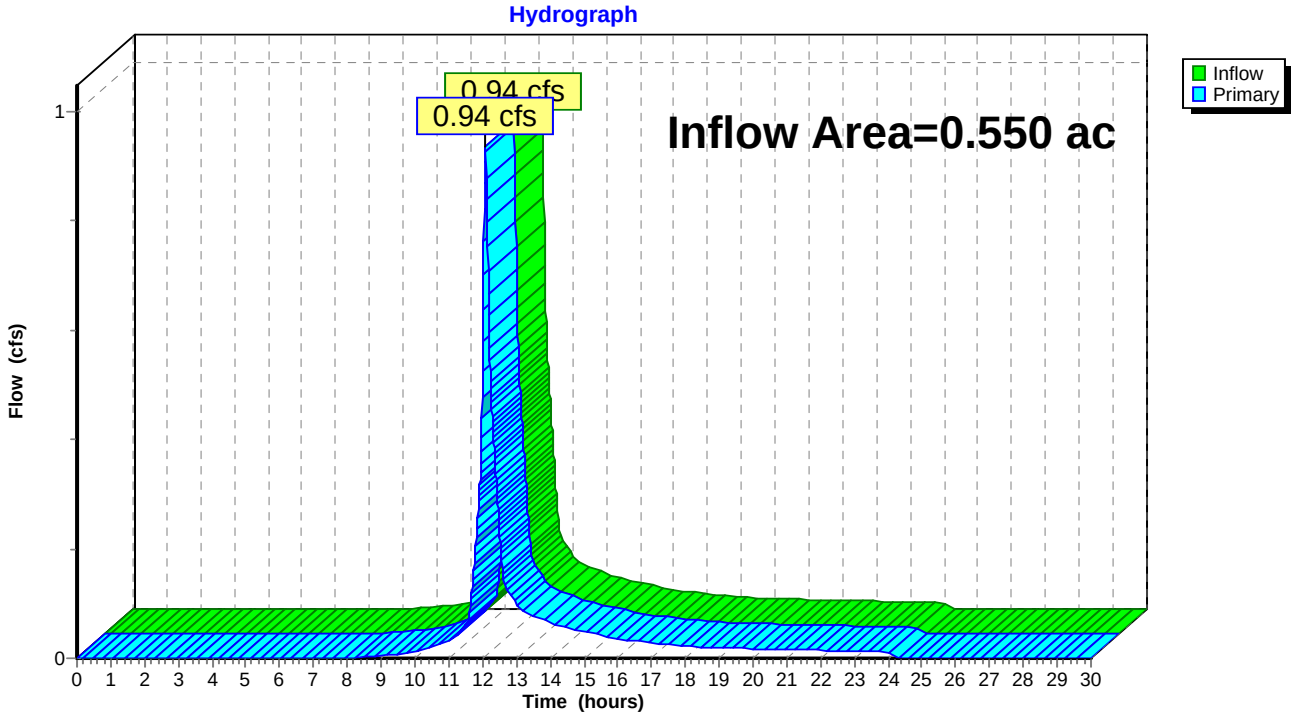


Summary for Link 10L: (new Link)

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 1.47" for 2-Year event
Inflow = 0.94 cfs @ 12.09 hrs, Volume= 0.067 af
Primary = 0.94 cfs @ 12.09 hrs, Volume= 0.067 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 10L: (new Link)

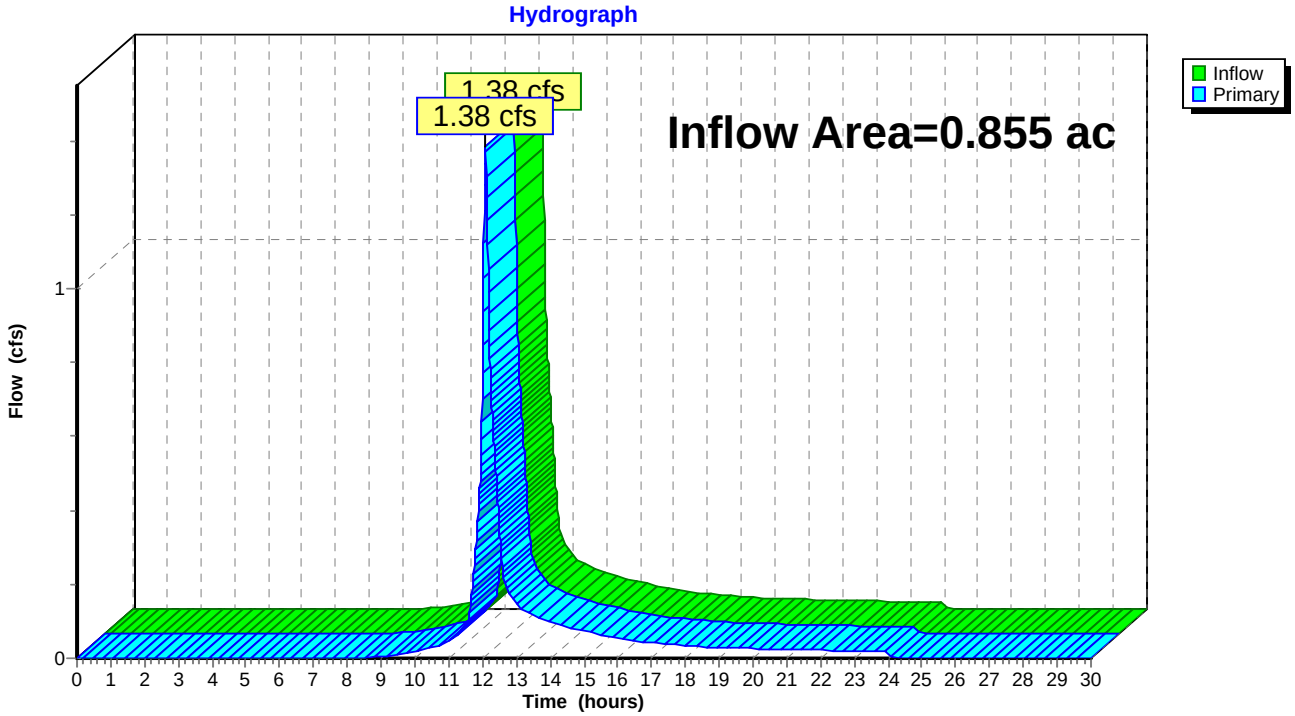


Summary for Link 11L: (new Link)

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 1.40" for 2-Year event
Inflow = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af
Primary = 1.38 cfs @ 12.09 hrs, Volume= 0.100 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 11L: (new Link)



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Watershed PR-200A Runoff Area=0.410 ac 77.32% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=1.43 cfs 0.103 af

Subcatchment 2S: Watershed BLDG Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.63 cfs 0.051 af

Subcatchment 3S: Watershed PR-100A Runoff Area=0.810 ac 98.77% Impervious Runoff Depth=4.25"
Tc=6.0 min CN=97 Runoff=3.61 cfs 0.287 af

Subcatchment 4S: Watershed PR-301A Runoff Area=0.145 ac 45.52% Impervious Runoff Depth=1.46"
Tc=6.0 min CN=66 Runoff=0.23 cfs 0.018 af

Subcatchment 5S: Watershed PR-300A Runoff Area=0.340 ac 71.76% Impervious Runoff Depth=2.72"
Tc=6.0 min CN=82 Runoff=1.09 cfs 0.077 af

Subcatchment 6S: Watershed PR-300B Runoff Area=0.370 ac 77.84% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=1.29 cfs 0.093 af

Subcatchment 7S: Watershed PR-202A Runoff Area=0.090 ac 53.33% Impervious Runoff Depth=1.74"
Tc=6.0 min CN=70 Runoff=0.18 cfs 0.013 af

Subcatchment 8S: Watershed PR-202B Runoff Area=0.050 ac 62.00% Impervious Runoff Depth=2.21"
Tc=6.0 min CN=76 Runoff=0.13 cfs 0.009 af

Subcatchment E-200: PR-300 Runoff Area=8.505 ac 0.00% Impervious Runoff Depth=0.29"
Flow Length=929' Tc=16.8 min CN=44 Runoff=0.71 cfs 0.202 af

Subcatchment PR-201: (new Subcat) Runoff Area=37,231 sf 74.21% Impervious Runoff Depth=2.81"
Tc=6.0 min CN=83 Runoff=2.81 cfs 0.200 af

Subcatchment PR-202: Watershed PR-202 Runoff Area=43,806 sf 78.77% Impervious Runoff Depth=3.00"
Tc=6.0 min CN=85 Runoff=3.51 cfs 0.251 af

Reach 4R: DP-200 Inflow=0.71 cfs 0.202 af
Outflow=0.71 cfs 0.202 af

Reach DP-200: DP-200 Inflow=2.81 cfs 0.203 af
Outflow=2.81 cfs 0.203 af

Pond 1P: UDS 2 Peak Elev=129.46' Storage=0.034 af Inflow=1.74 cfs 0.125 af
Discarded=0.32 cfs 0.125 af Primary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.125 af

Pond 3P: UDS 1 Peak Elev=125.50' Storage=0.093 af Inflow=4.24 cfs 0.338 af
Discarded=0.65 cfs 0.338 af Primary=0.00 cfs 0.000 af Outflow=0.65 cfs 0.338 af

Pond 4P: UDS 3 Peak Elev=133.91' Storage=0.051 af Inflow=2.61 cfs 0.187 af
Discarded=0.47 cfs 0.187 af Primary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.187 af

Pond P200: Underground System 2 Peak Elev=135.99' Storage=0.087 af Inflow=3.51 cfs 0.251 af
Discarded=0.38 cfs 0.249 af Primary=0.12 cfs 0.002 af Outflow=0.50 cfs 0.251 af

Link 9L: (new Link) Inflow=4.24 cfs 0.338 af
Primary=4.24 cfs 0.338 af

Link 10L: (new Link) Inflow=1.74 cfs 0.125 af
Primary=1.74 cfs 0.125 af

Link 11L: (new Link) Inflow=2.61 cfs 0.187 af
Primary=2.61 cfs 0.187 af

Total Runoff Area = 12.720 ac Runoff Volume = 1.304 af Average Runoff Depth = 1.23"
73.58% Pervious = 9.360 ac 26.42% Impervious = 3.360 ac

Summary for Subcatchment 1S: Watershed PR-200A

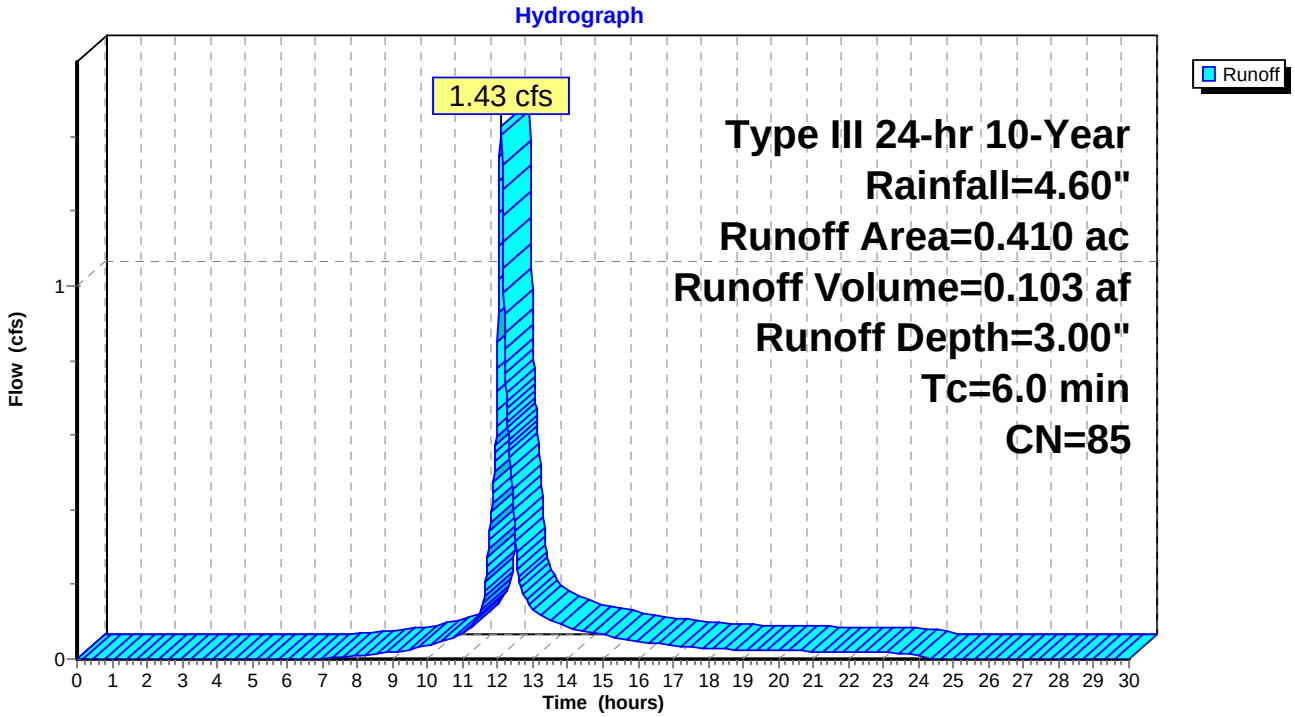
Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.103 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.093	39	>75% Grass cover, Good, HSG A
0.317	98	Paved parking, HSG A
0.410	85	Weighted Average
0.093		22.68% Pervious Area
0.317		77.32% Impervious Area

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

Subcatchment 1S: Watershed PR-200A



Summary for Subcatchment 2S: Watershed BLDG

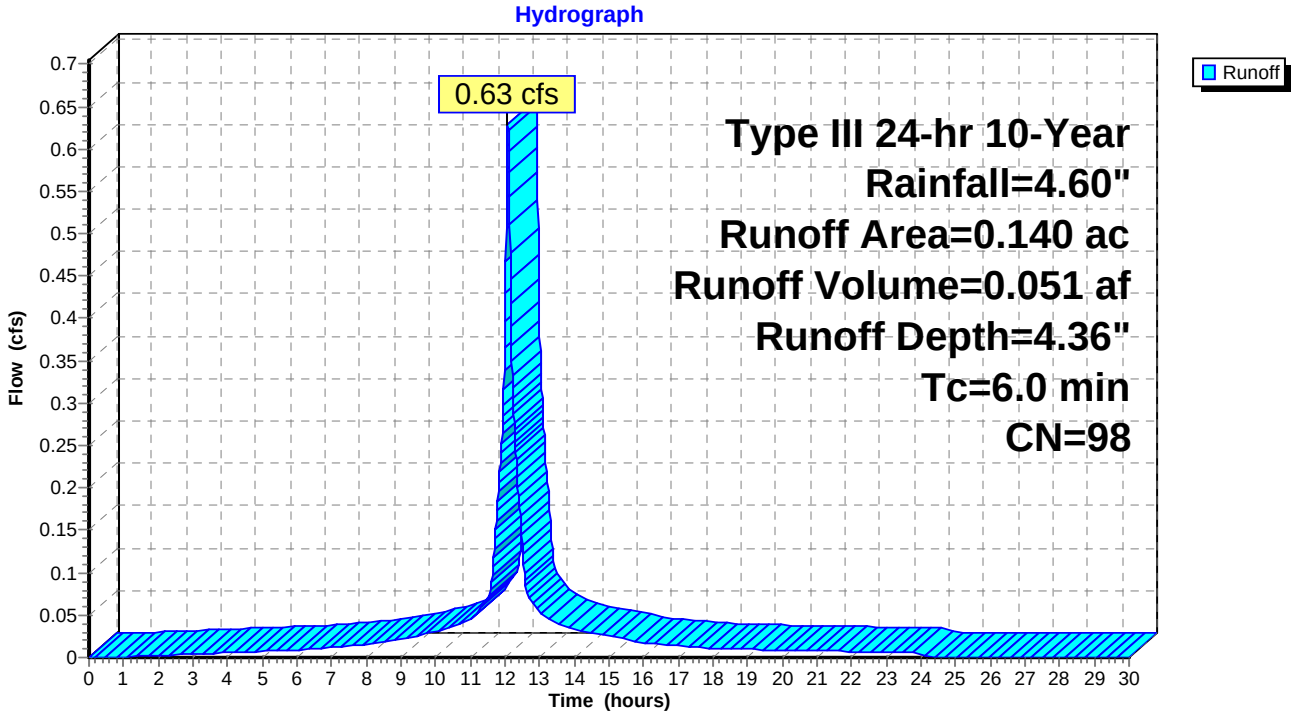
Runoff = 0.63 cfs @ 12.08 hrs, Volume= 0.051 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
*	0.140	98	
	0.140		100.00% Impervious Area

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

Subcatchment 2S: Watershed BLDG



Summary for Subcatchment 3S: Watershed PR-100A

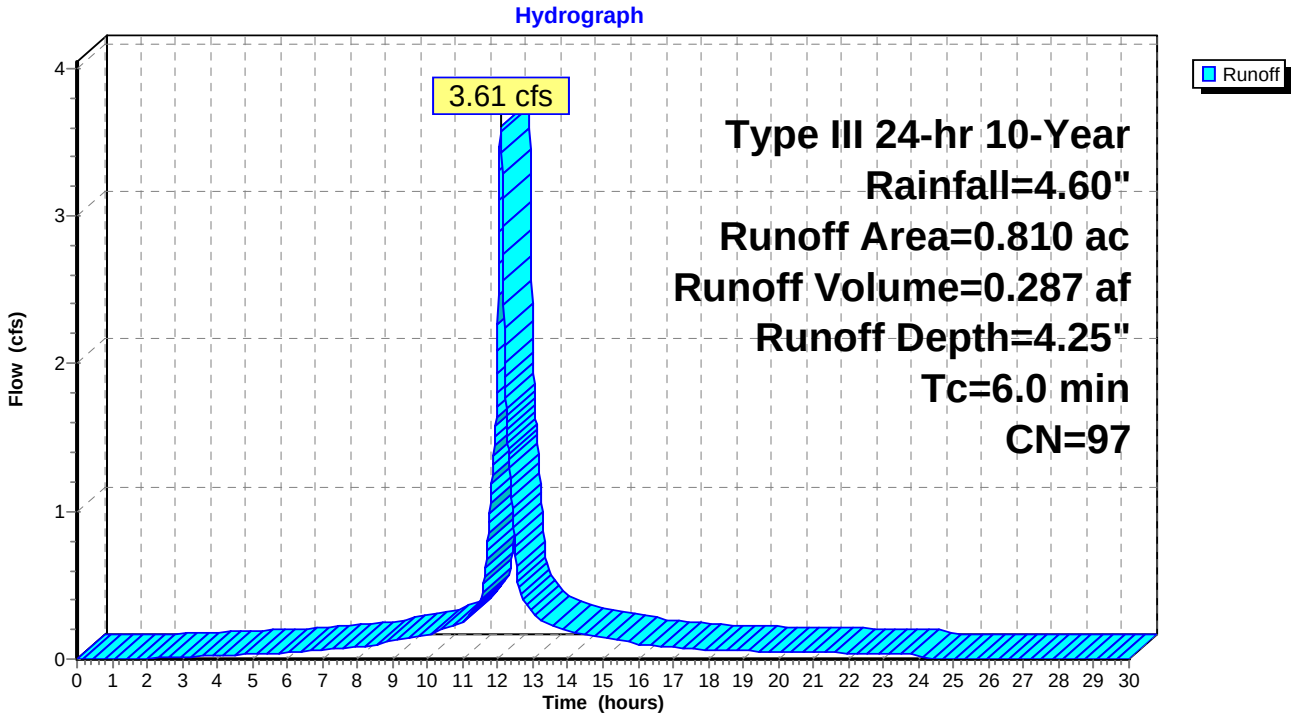
Runoff = 3.61 cfs @ 12.08 hrs, Volume= 0.287 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.010	39	>75% Grass cover, Good, HSG A
0.800	98	Paved parking, HSG A
0.810	97	Weighted Average
0.010		1.23% Pervious Area
0.800		98.77% Impervious Area

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

Subcatchment 3S: Watershed PR-100A



Summary for Subcatchment 4S: Watershed PR-301A

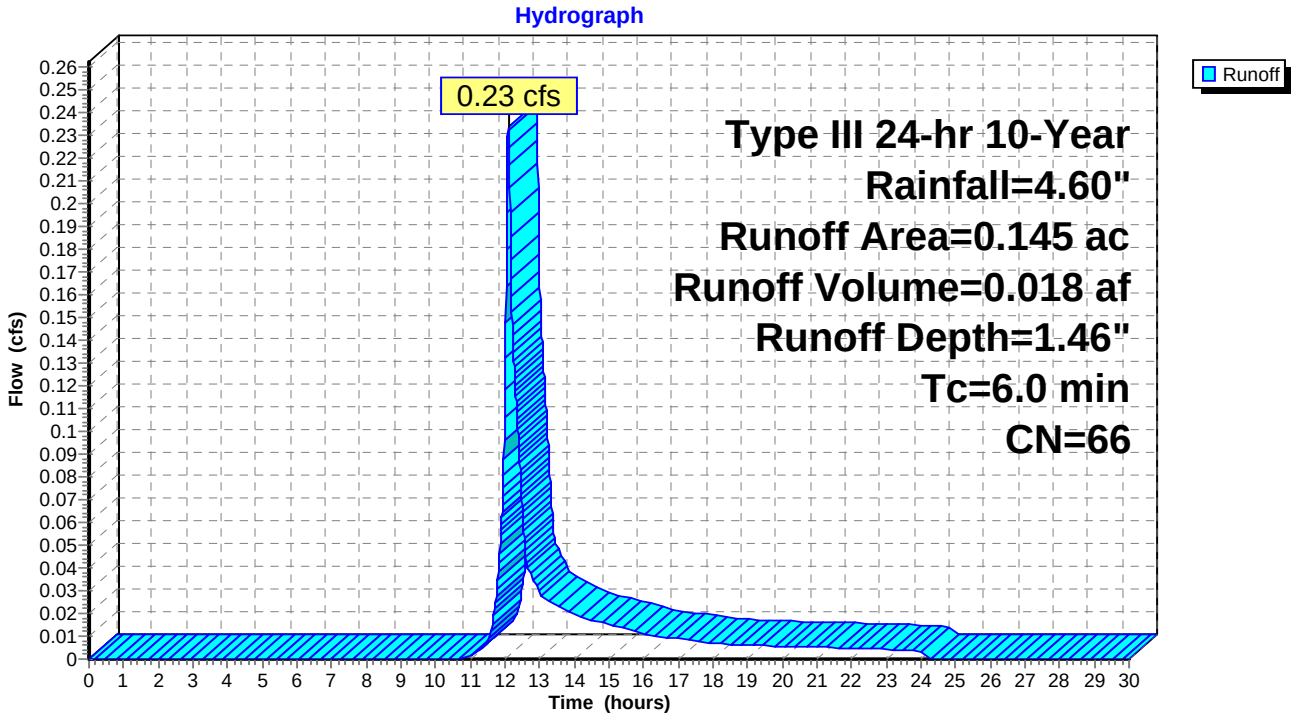
Runoff = 0.23 cfs @ 12.10 hrs, Volume= 0.018 af, Depth= 1.46"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (ac)	CN	Description
	0.079	39	>75% Grass cover, Good, HSG A
*	0.066	98	Paved parking, HSG A
	0.145	66	Weighted Average
	0.079		54.48% Pervious Area
	0.066		45.52% Impervious Area

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

Subcatchment 4S: Watershed PR-301A



Summary for Subcatchment 5S: Watershed PR-300A

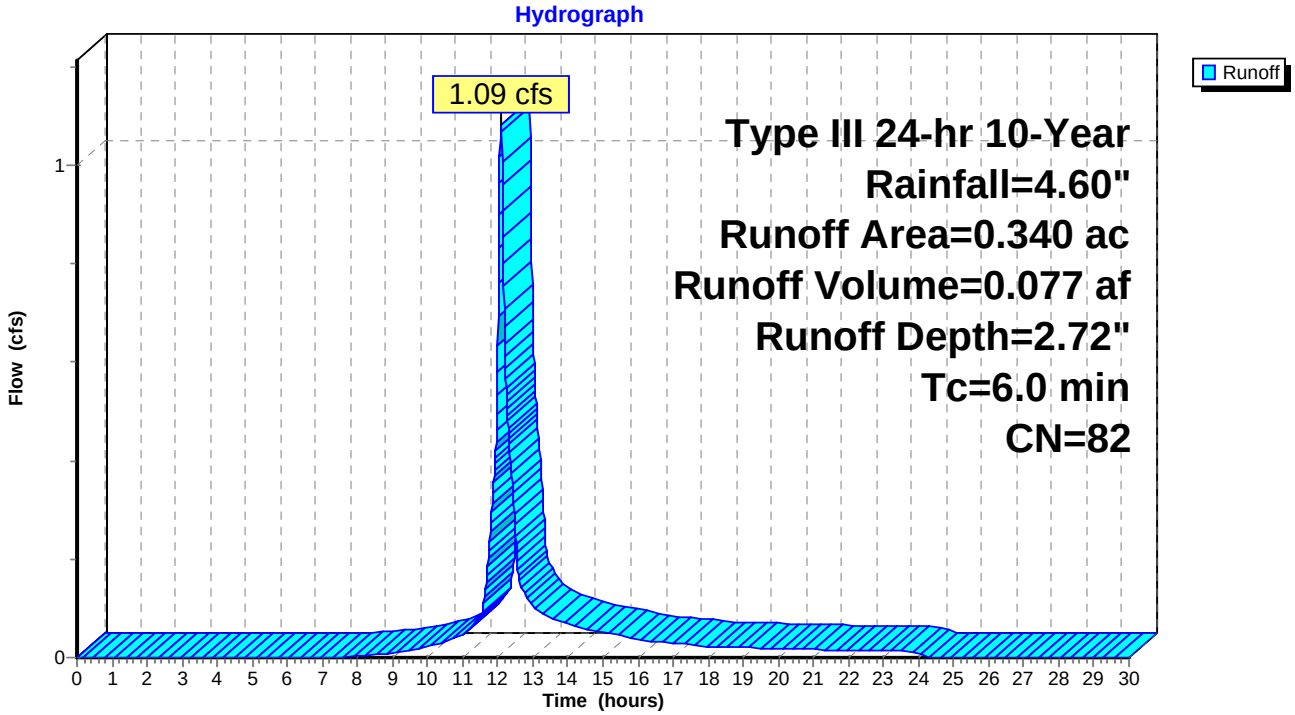
Runoff = 1.09 cfs @ 12.09 hrs, Volume= 0.077 af, Depth= 2.72"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.089	39	>75% Grass cover, Good, HSG A
0.007	76	Gravel roads, HSG A
0.244	98	Paved parking, HSG A
0.340	82	Weighted Average
0.096		28.24% Pervious Area
0.244		71.76% Impervious Area

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

Subcatchment 5S: Watershed PR-300A



Summary for Subcatchment 6S: Watershed PR-300B

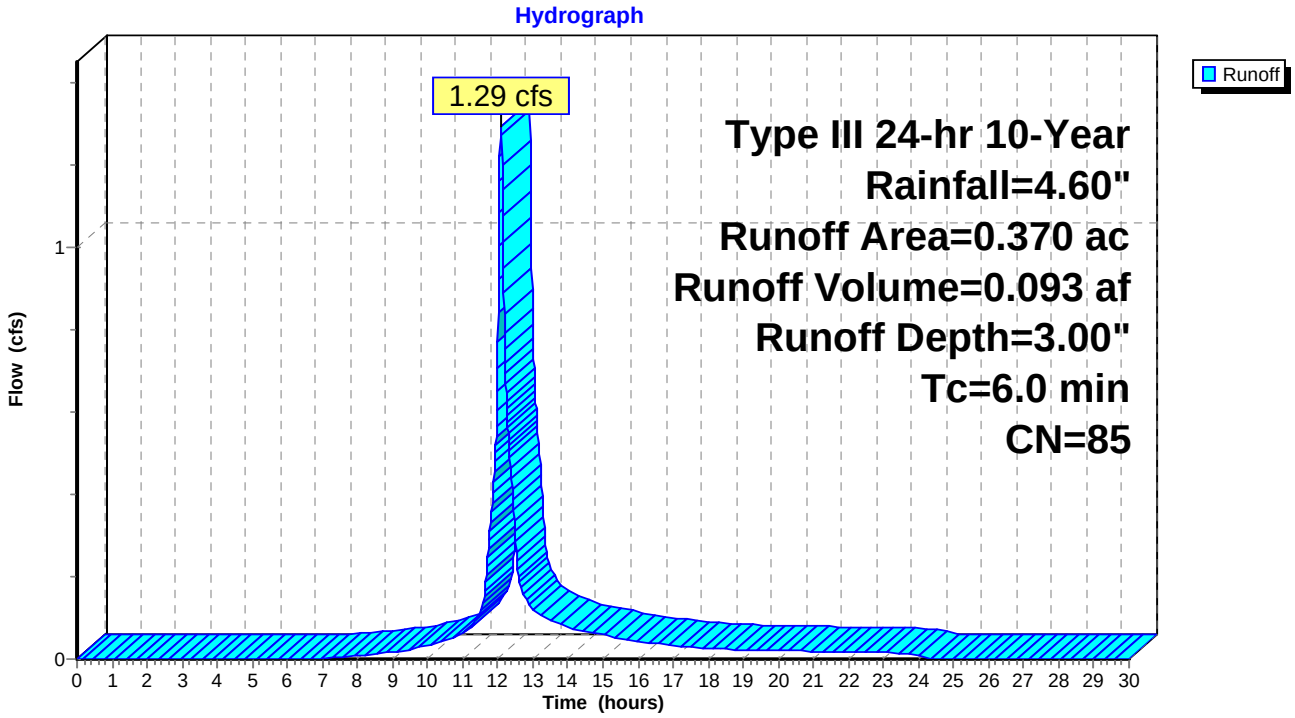
Runoff = 1.29 cfs @ 12.09 hrs, Volume= 0.093 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.082	39	>75% Grass cover, Good, HSG A
0.288	98	Paved parking, HSG A
0.370	85	Weighted Average
0.082		22.16% Pervious Area
0.288		77.84% Impervious Area

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

Subcatchment 6S: Watershed PR-300B



Summary for Subcatchment 7S: Watershed PR-202A

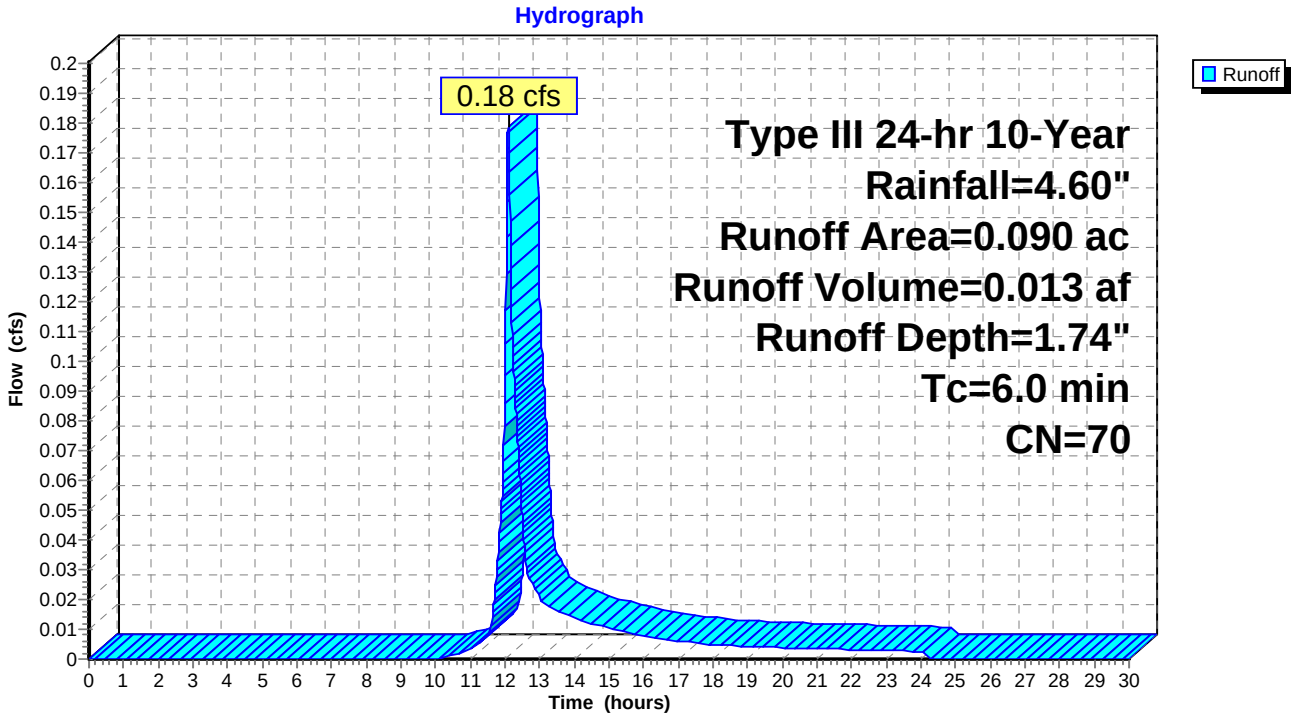
Runoff = 0.18 cfs @ 12.09 hrs, Volume= 0.013 af, Depth= 1.74"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.042	39	>75% Grass cover, Good, HSG A
0.048	98	Paved parking, HSG A
0.090	70	Weighted Average
0.042		46.67% Pervious Area
0.048		53.33% Impervious Area

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

Subcatchment 7S: Watershed PR-202A



Summary for Subcatchment 8S: Watershed PR-202B

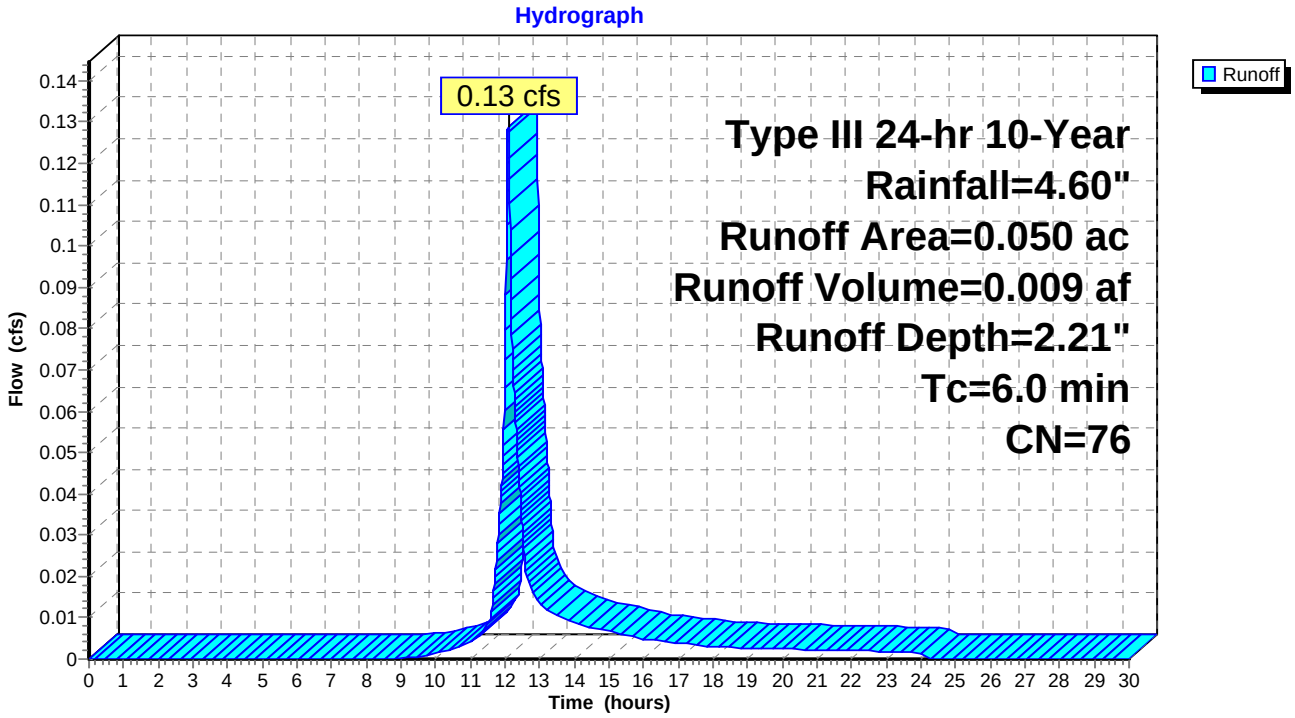
Runoff = 0.13 cfs @ 12.09 hrs, Volume= 0.009 af, Depth= 2.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
0.019	39	>75% Grass cover, Good, HSG A
0.031	98	Paved parking, HSG A
0.050	76	Weighted Average
0.019		38.00% Pervious Area
0.031		62.00% Impervious Area

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

Subcatchment 8S: Watershed PR-202B



Summary for Subcatchment E-200: PR-300 UNDEVELOPED

Existing watershed at Equipment Service station

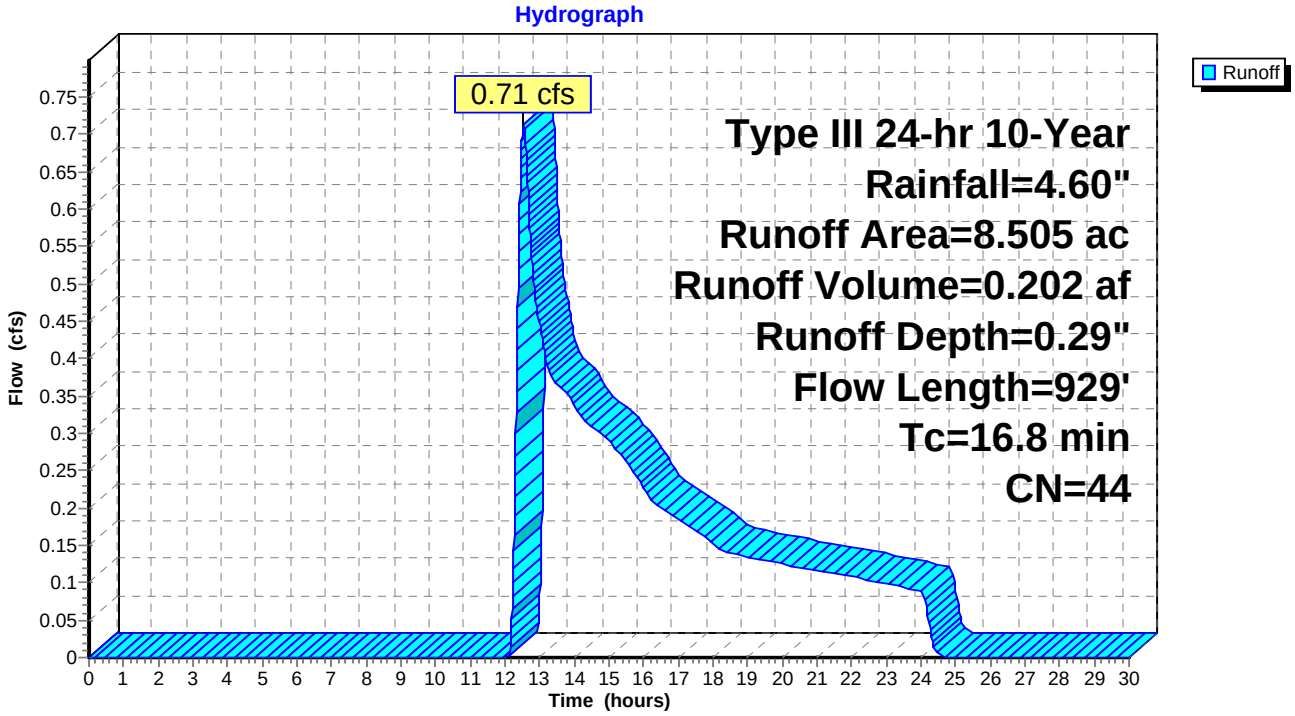
Runoff = 0.71 cfs @ 12.54 hrs, Volume= 0.202 af, Depth= 0.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (ac)	CN	Description
6.740	39	>75% Grass cover, Good, HSG A
1.240	76	Gravel roads, HSG A
0.525	36	Woods, Fair, HSG A
8.505	44	Weighted Average
8.505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: PR-300 UNDEVELOPED



Summary for Subcatchment PR-201: (new Subcat)

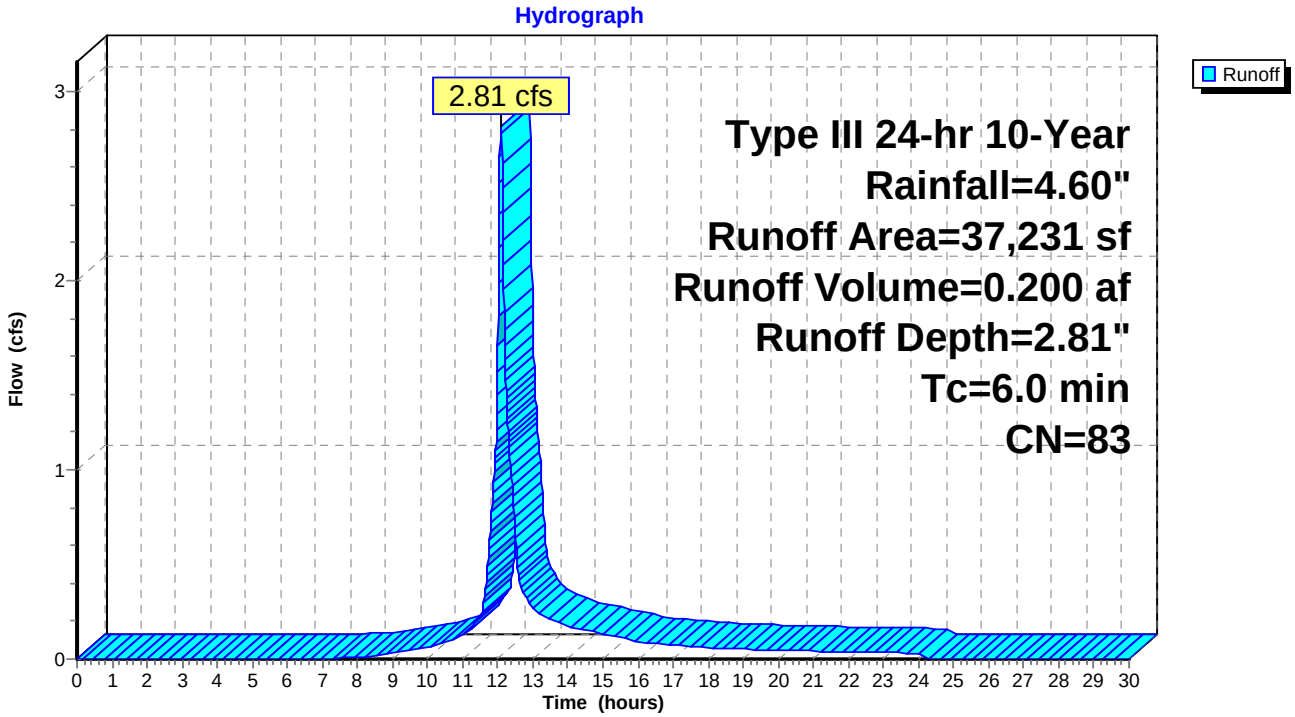
Runoff = 2.81 cfs @ 12.09 hrs, Volume= 0.200 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
9,603	39	>75% Grass cover, Good, HSG A
27,628	98	Paved parking, HSG A
37,231	83	Weighted Average
9,603		25.79% Pervious Area
27,628		74.21% Impervious Area

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

Subcatchment PR-201: (new Subcat)



Summary for Subcatchment PR-202: Watershed PR-202

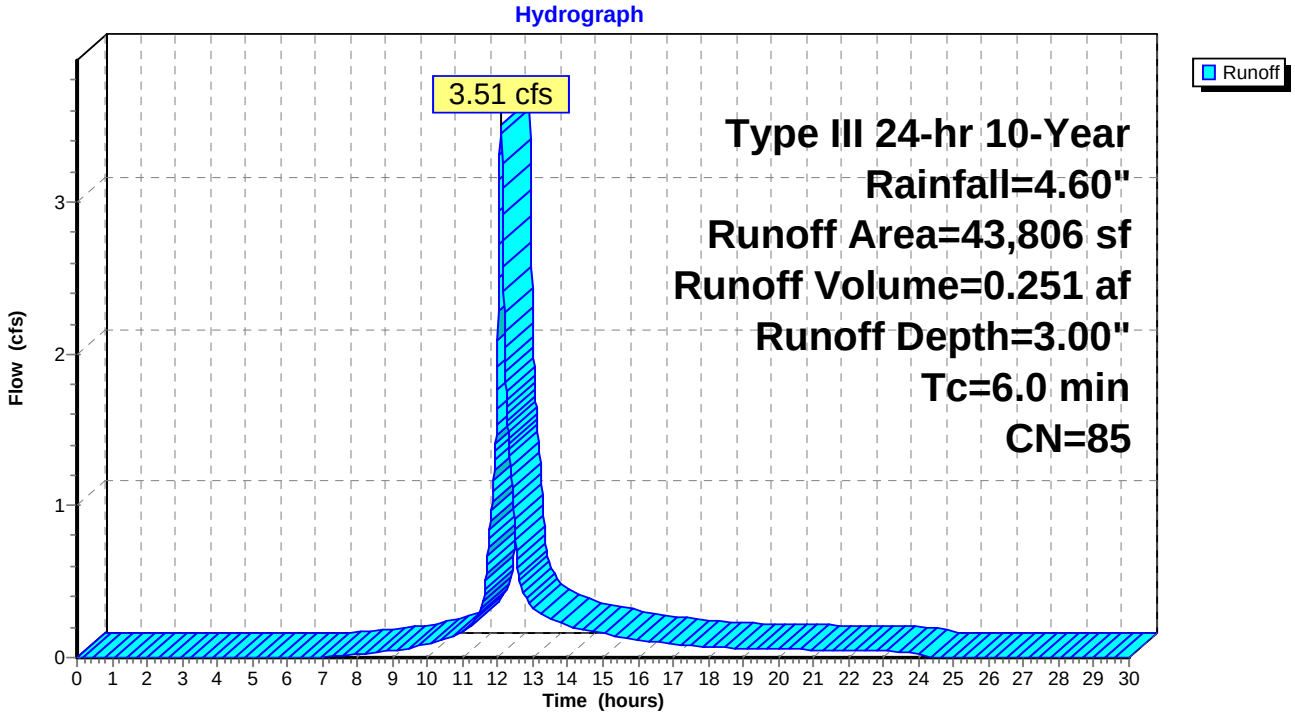
Runoff = 3.51 cfs @ 12.09 hrs, Volume= 0.251 af, Depth= 3.00"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	9,298	39	>75% Grass cover, Good, HSG A
*	2,327	98	Buildings
	32,181	98	Paved parking, HSG A
	43,806	85	Weighted Average
	9,298		21.23% Pervious Area
	34,508		78.77% Impervious Area

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

Subcatchment PR-202: Watershed PR-202



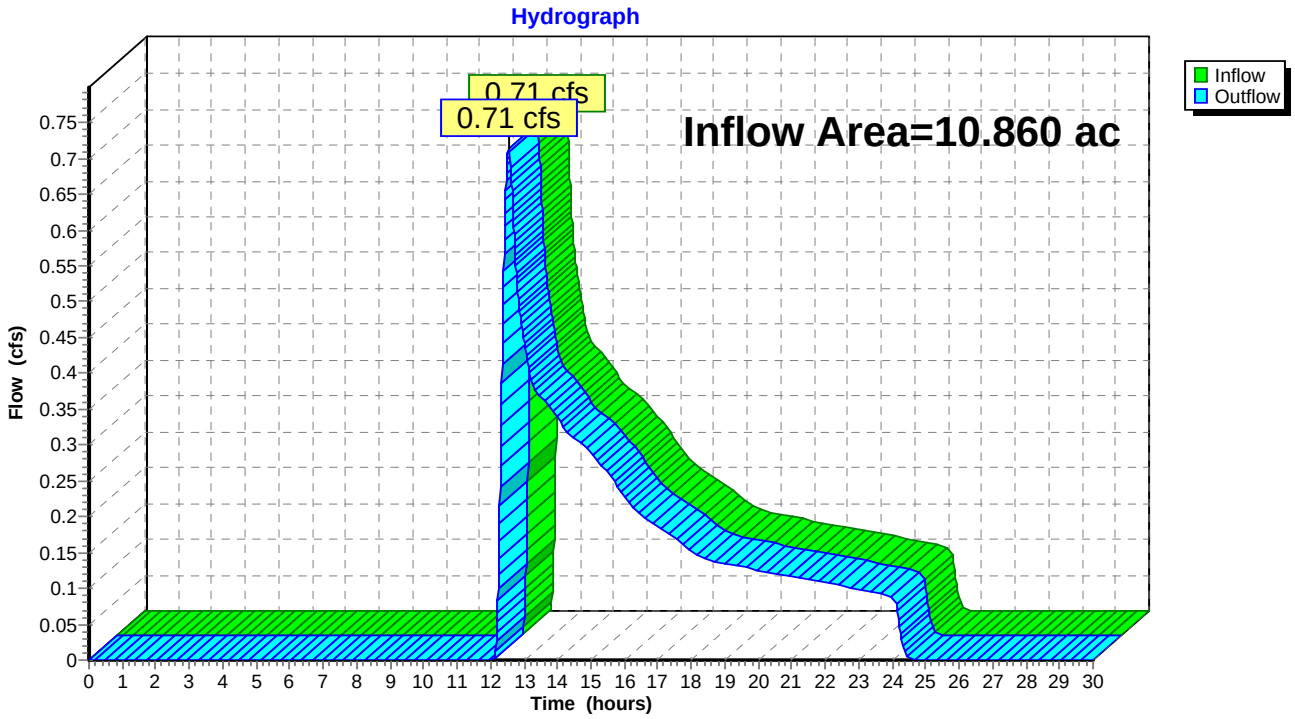
Summary for Reach 4R: DP-200

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

Inflow Area = 10.860 ac, 17.81% Impervious, Inflow Depth = 0.22" for 10-Year event
Inflow = 0.71 cfs @ 12.54 hrs, Volume= 0.202 af
Outflow = 0.71 cfs @ 12.54 hrs, Volume= 0.202 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 4R: DP-200



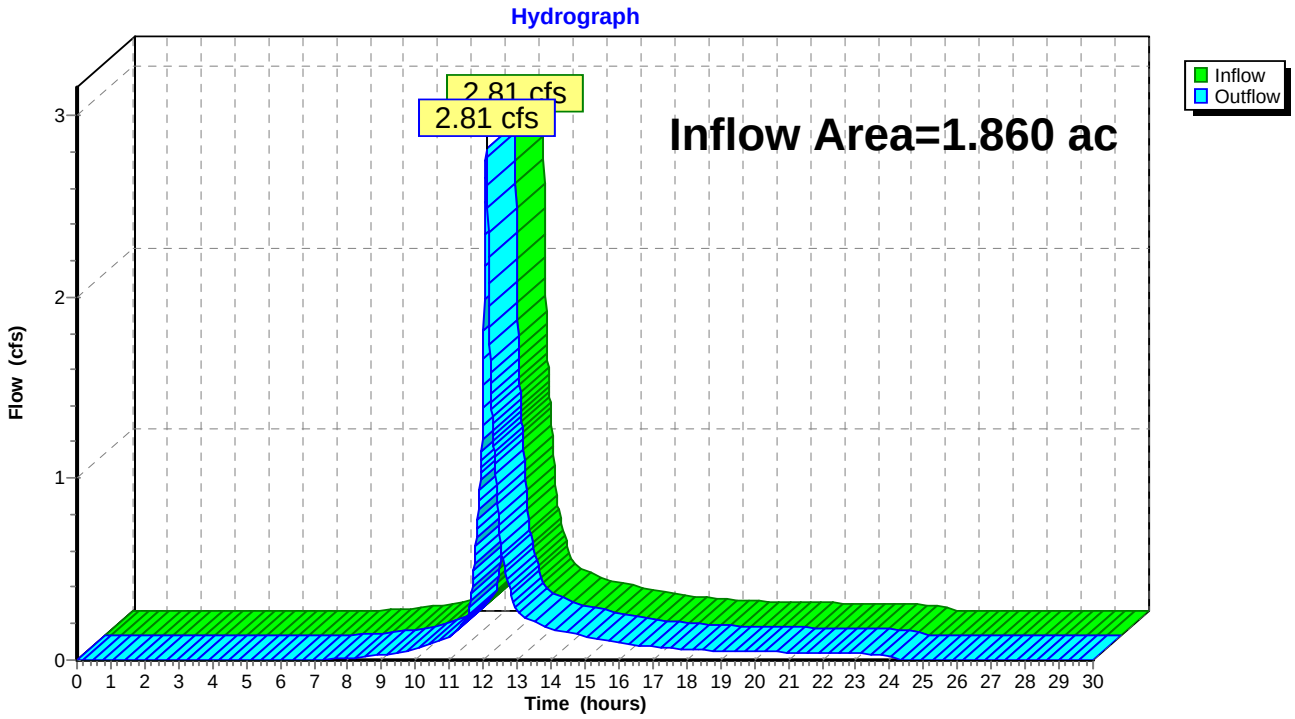
Summary for Reach DP-200: DP-200

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

Inflow Area = 1.860 ac, 76.68% Impervious, Inflow Depth = 1.31" for 10-Year event
Inflow = 2.81 cfs @ 12.09 hrs, Volume= 0.203 af
Outflow = 2.81 cfs @ 12.09 hrs, Volume= 0.203 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: DP-200



Summary for Pond 1P: UDS 2

Inflow Area =	0.550 ac, 72.00% Impervious, Inflow Depth = 2.72" for 10-Year event				
Inflow =	1.74 cfs @	12.09 hrs,	Volume=	0.125 af	
Outflow =	0.32 cfs @	12.55 hrs,	Volume=	0.125 af,	Atten= 82%, Lag= 27.7 min
Discarded =	0.32 cfs @	12.55 hrs,	Volume=	0.125 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 129.46' @ 12.55 hrs Surf.Area= 0.037 ac Storage= 0.034 af

Plug-Flow detention time= 28.1 min calculated for 0.125 af (100% of inflow)
Center-of-Mass det. time= 28.1 min (845.1 - 817.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.00'	0.037 af	**6.25'W x 258.32'L x 3.50'H Field A** 0.130 af Overall - 0.038 af Embedded = 0.092 af x 40.0% Voids
#2A	128.50'	0.038 af	**StormTech SC-740** x 36 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	131.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.32 cfs @ 12.55 hrs HW=129.46' (Free Discharge)
└**1=Exfiltration** (Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UDS 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

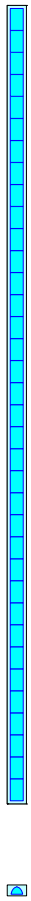
36 Chambers/Row x 7.12' Long = 256.32' + 12.0" End Stone x 2 = 258.32' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

36 Chambers x 45.9 cf = 1,653.8 cf Chamber Storage

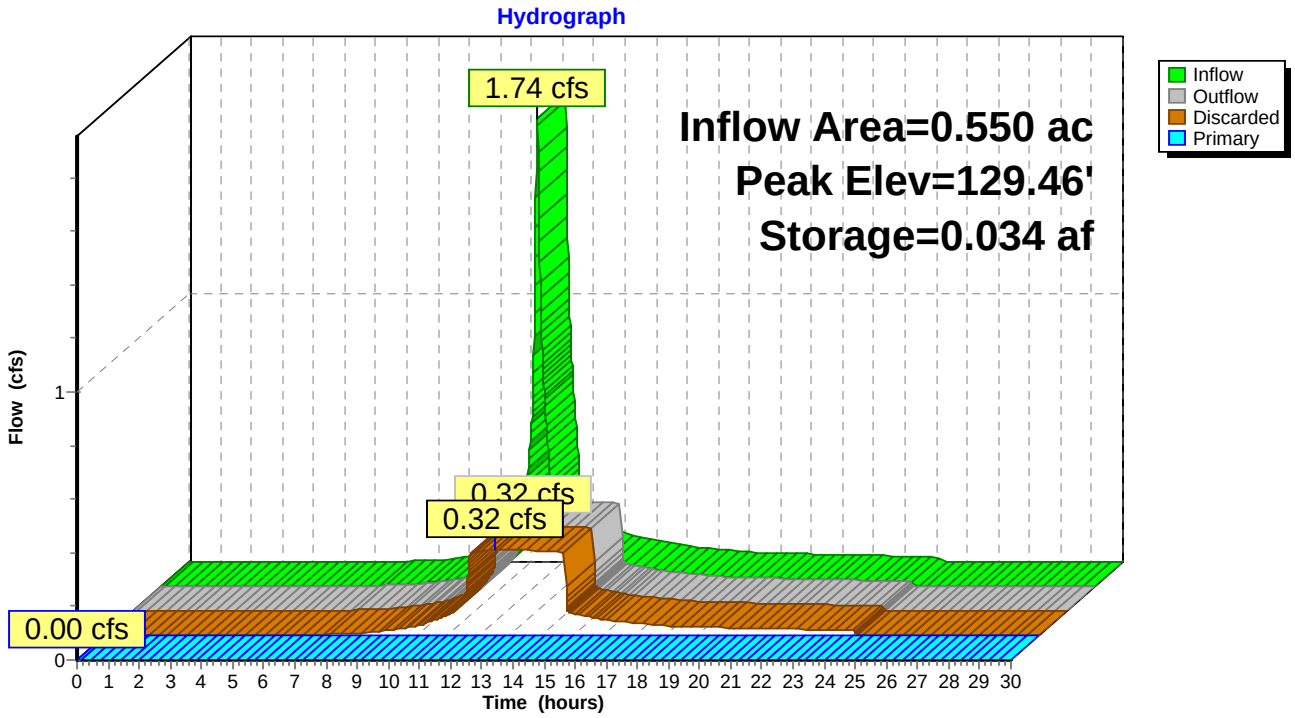
5,650.8 cf Field - 1,653.8 cf Chambers = 3,996.9 cf Stone x 40.0% Voids = 1,598.8 cf Stone Storage

Stone + Chamber Storage = 3,252.6 cf = 0.075 af

36 Chambers
209.3 cy Field
148.0 cy Stone



Pond 1P: UDS 2


Hydrograph
1.74 cfs
Inflow Area=0.550 ac
Peak Elev=129.46'
Storage=0.034 af
0.32 cfs
0.32 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
1
0
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Time (hours)

Summary for Pond 3P: UDS 1

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 4.27" for 10-Year event
Inflow = 4.24 cfs @ 12.08 hrs, Volume= 0.338 af
Outflow = 0.65 cfs @ 12.56 hrs, Volume= 0.338 af, Atten= 85%, Lag= 28.7 min
Discarded = 0.65 cfs @ 12.56 hrs, Volume= 0.338 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 125.50' @ 12.56 hrs Surf.Area= 0.075 ac Storage= 0.093 af

Plug-Flow detention time= 35.3 min calculated for 0.338 af (100% of inflow)
Center-of-Mass det. time= 35.3 min (791.6 - 756.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	123.70'	0.067 af	**30.00'W x 108.80'L x 3.50'H Field A** 0.262 af Overall - 0.095 af Embedded = 0.167 af x 40.0% Voids
#2A	124.20'	0.095 af	**StormTech SC-740** x 90 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.162 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	123.70'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	127.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.65 cfs @ 12.56 hrs HW=125.50' (Free Discharge)
└─**1=Exfiltration** (Controls 0.65 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.70' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: UDS 1 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

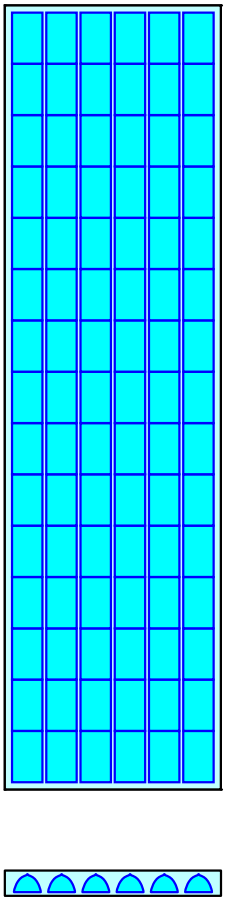
15 Chambers/Row x 7.12' Long = 106.80' + 12.0" End Stone x 2 = 108.80' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

90 Chambers x 45.9 cf = 4,134.6 cf Chamber Storage

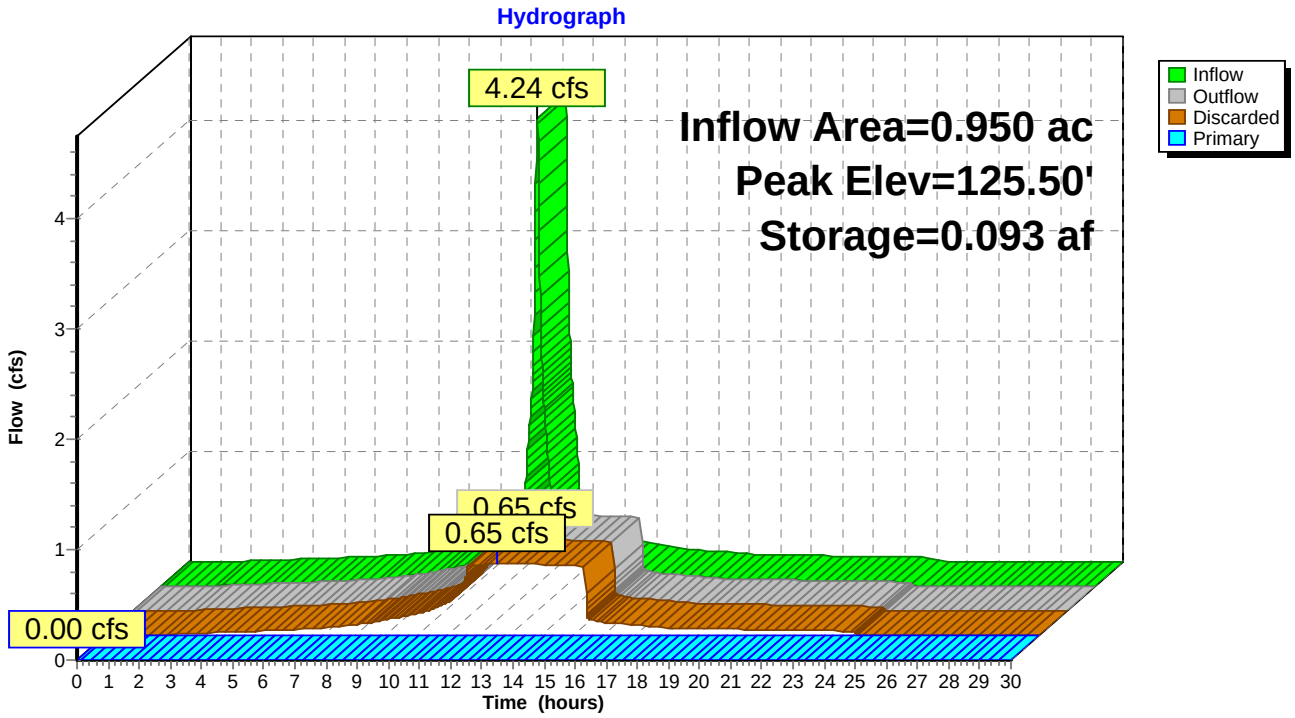
11,424.0 cf Field - 4,134.6 cf Chambers = 7,289.4 cf Stone x 40.0% Voids = 2,915.8 cf Stone Storage

Stone + Chamber Storage = 7,050.4 cf = 0.162 af

90 Chambers
423.1 cy Field
270.0 cy Stone



Pond 3P: UDS 1


Hydrograph
4.24 cfs
Inflow Area=0.950 ac
Peak Elev=125.50'
Storage=0.093 af
0.65 cfs
0.65 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 4P: UDS 3

Inflow Area =	0.855 ac, 69.94% Impervious, Inflow Depth = 2.63" for 10-Year event				
Inflow =	2.61 cfs @	12.09 hrs,	Volume=	0.187 af	
Outflow =	0.47 cfs @	12.56 hrs,	Volume=	0.187 af,	Atten= 82%, Lag= 28.1 min
Discarded =	0.47 cfs @	12.56 hrs,	Volume=	0.187 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 133.91' @ 12.56 hrs Surf.Area= 0.054 ac Storage= 0.051 af

Plug-Flow detention time= 29.6 min calculated for 0.187 af (100% of inflow)
Center-of-Mass det. time= 29.6 min (849.0 - 819.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.40'	0.054 af	**6.25'W x 379.36'L x 3.50'H Field A** 0.191 af Overall - 0.056 af Embedded = 0.135 af x 40.0% Voids
#2A	132.90'	0.056 af	**StormTech SC-740** x 53 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.110 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.40'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	135.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.47 cfs @ 12.56 hrs HW=133.91' (Free Discharge)
└─**1=Exfiltration** (Controls 0.47 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.40' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: UDS 3 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

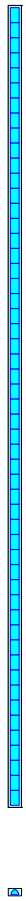
53 Chambers/Row x 7.12' Long = 377.36' + 12.0" End Stone x 2 = 379.36' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

53 Chambers x 45.9 cf = 2,434.8 cf Chamber Storage

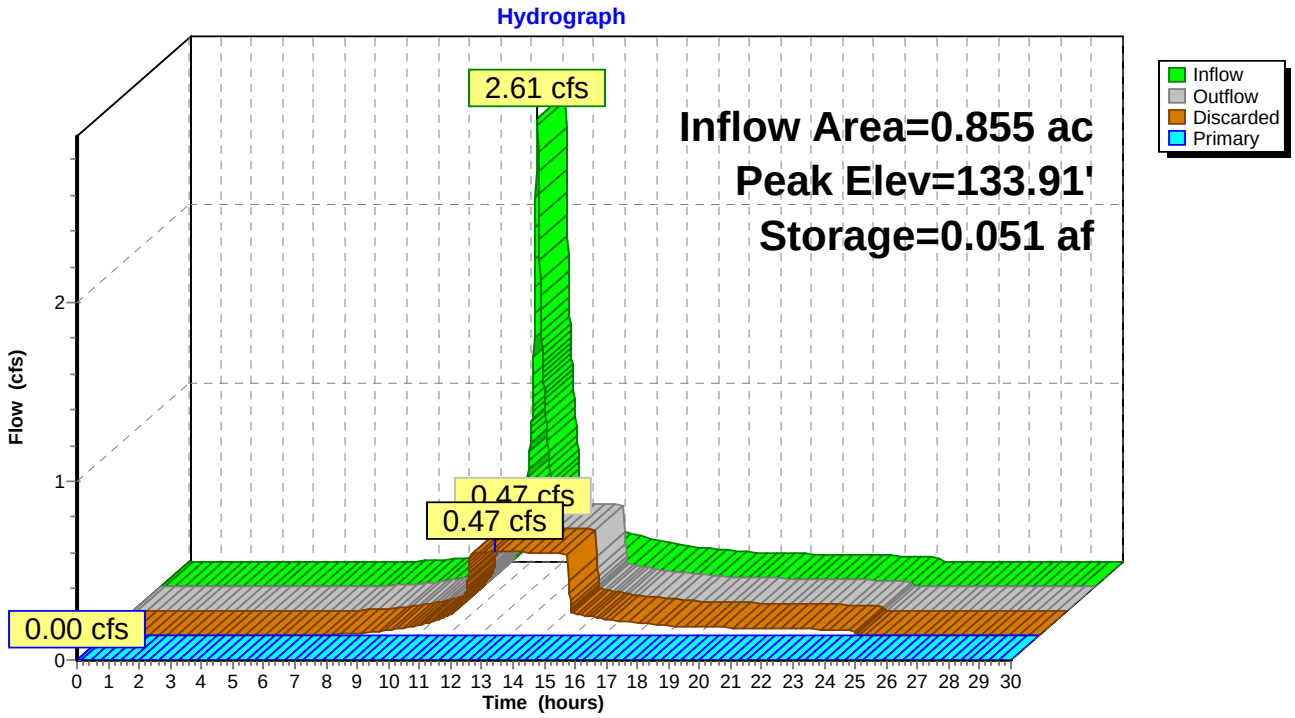
8,298.5 cf Field - 2,434.8 cf Chambers = 5,863.7 cf Stone x 40.0% Voids = 2,345.5 cf Stone Storage

Stone + Chamber Storage = 4,780.3 cf = 0.110 af

53 Chambers
307.4 cy Field
217.2 cy Stone



Pond 4P: UDS 3


Hydrograph
2.61 cfs
Inflow Area=0.855 ac
Peak Elev=133.91'
Storage=0.051 af
0.47 cfs
0.47 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
1
2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Time (hours)

Summary for Pond P200: Underground System 2

Inflow Area =	1.006 ac, 78.77% Impervious, Inflow Depth = 3.00" for 10-Year event				
Inflow =	3.51 cfs @	12.09 hrs,	Volume=	0.251 af	
Outflow =	0.50 cfs @	12.61 hrs,	Volume=	0.251 af,	Atten= 86%, Lag= 31.6 min
Discarded =	0.38 cfs @	12.61 hrs,	Volume=	0.249 af	
Primary =	0.12 cfs @	12.61 hrs,	Volume=	0.002 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 135.99' @ 12.61 hrs Surf.Area= 0.045 ac Storage= 0.087 af

Plug-Flow detention time= 75.4 min calculated for 0.251 af (100% of inflow)
Center-of-Mass det. time= 75.3 min (886.1 - 810.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.94'	0.040 af	**20.50'W x 94.56'L x 3.50'H Field A** 0.156 af Overall - 0.055 af Embedded = 0.101 af x 40.0% Voids
#2A	133.44'	0.055 af	**StormTech SC-740** x 52 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.70'	**12.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.70' / 134.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	135.94'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	132.94'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.38 cfs @ 12.61 hrs HW=135.99' (Free Discharge)
└─**3=Exfiltration** (Controls 0.38 cfs)

Primary OutFlow Max=0.12 cfs @ 12.61 hrs HW=135.99' (Free Discharge)
└─**1=Culvert** (Passes 0.12 cfs of 3.36 cfs potential flow)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 0.12 cfs @ 0.61 fps)

Pond P200: Underground System 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

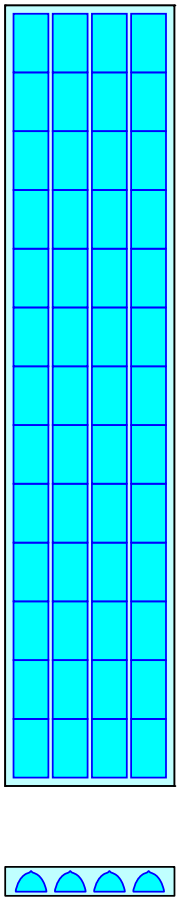
13 Chambers/Row x 7.12' Long = 92.56' + 12.0" End Stone x 2 = 94.56' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

52 Chambers x 45.9 cf = 2,388.9 cf Chamber Storage

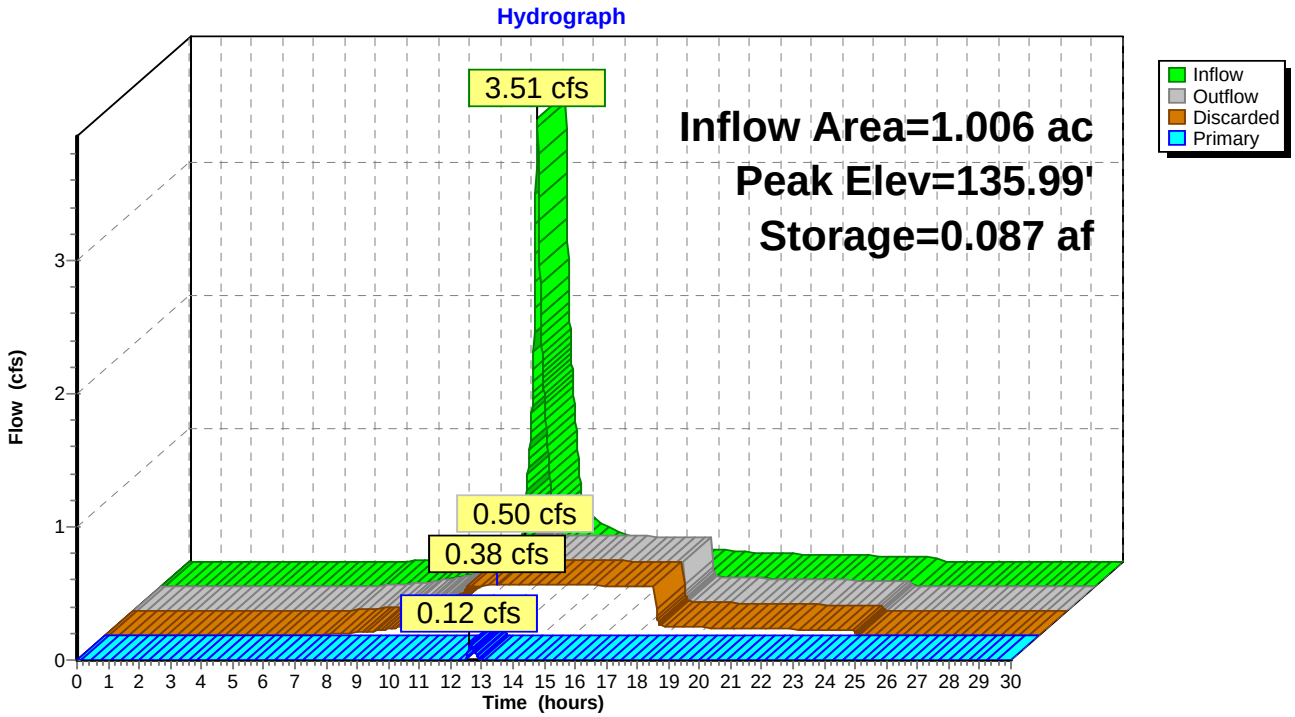
6,784.7 cf Field - 2,388.9 cf Chambers = 4,395.8 cf Stone x 40.0% Voids = 1,758.3 cf Stone Storage

Stone + Chamber Storage = 4,147.2 cf = 0.095 af

52 Chambers
251.3 cy Field
162.8 cy Stone



Pond P200: Underground System 2

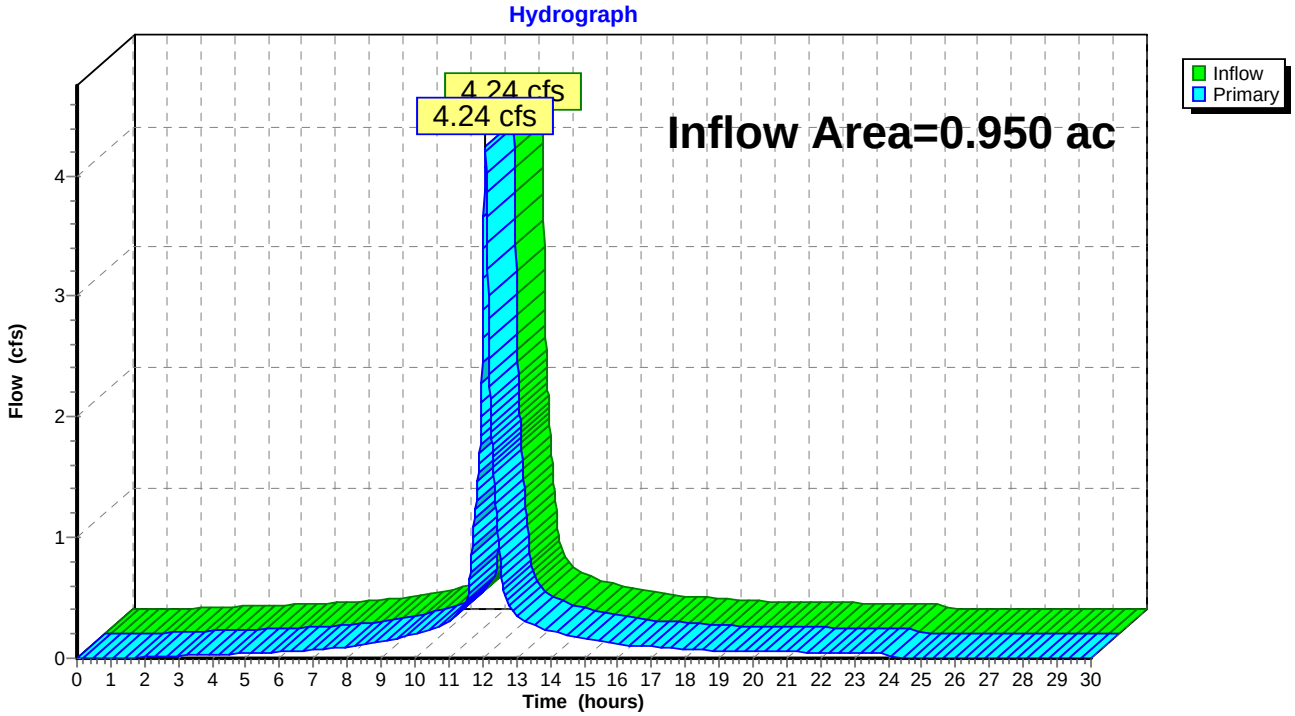


Summary for Link 9L: (new Link)

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 4.27" for 10-Year event
Inflow = 4.24 cfs @ 12.08 hrs, Volume= 0.338 af
Primary = 4.24 cfs @ 12.08 hrs, Volume= 0.338 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 9L: (new Link)

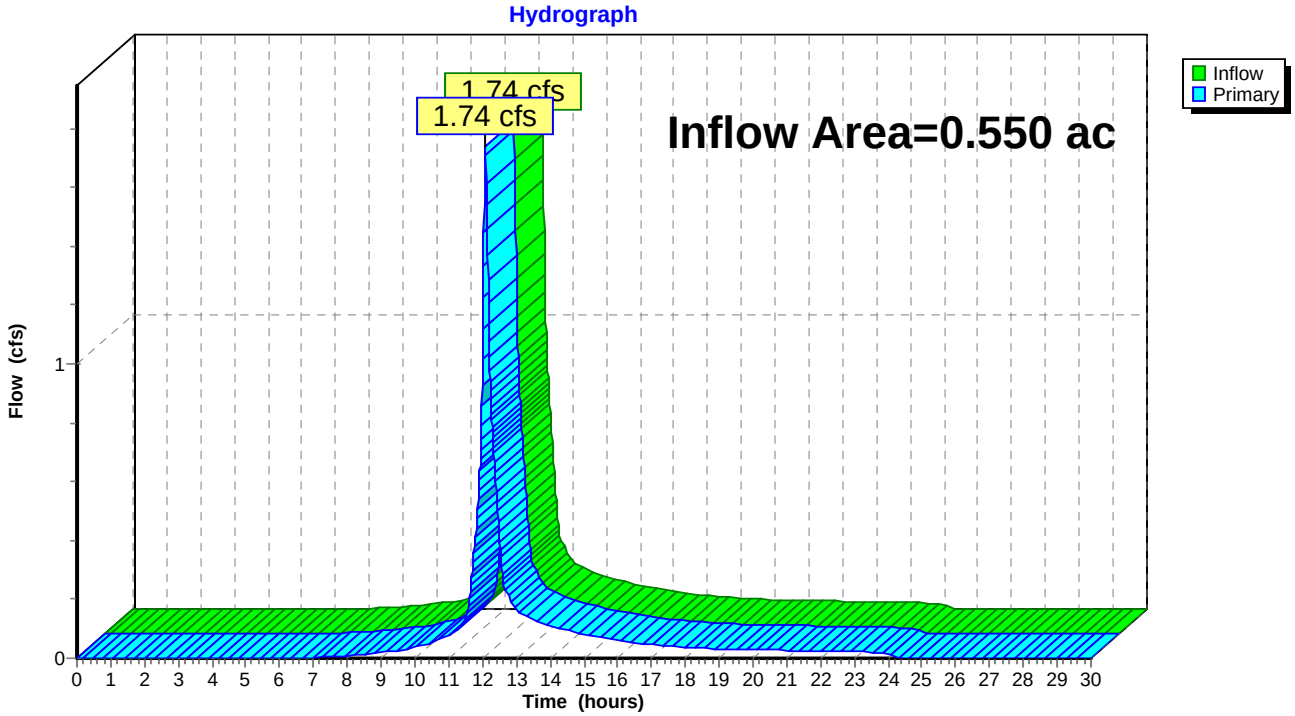


Summary for Link 10L: (new Link)

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 2.72" for 10-Year event
Inflow = 1.74 cfs @ 12.09 hrs, Volume= 0.125 af
Primary = 1.74 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 10L: (new Link)

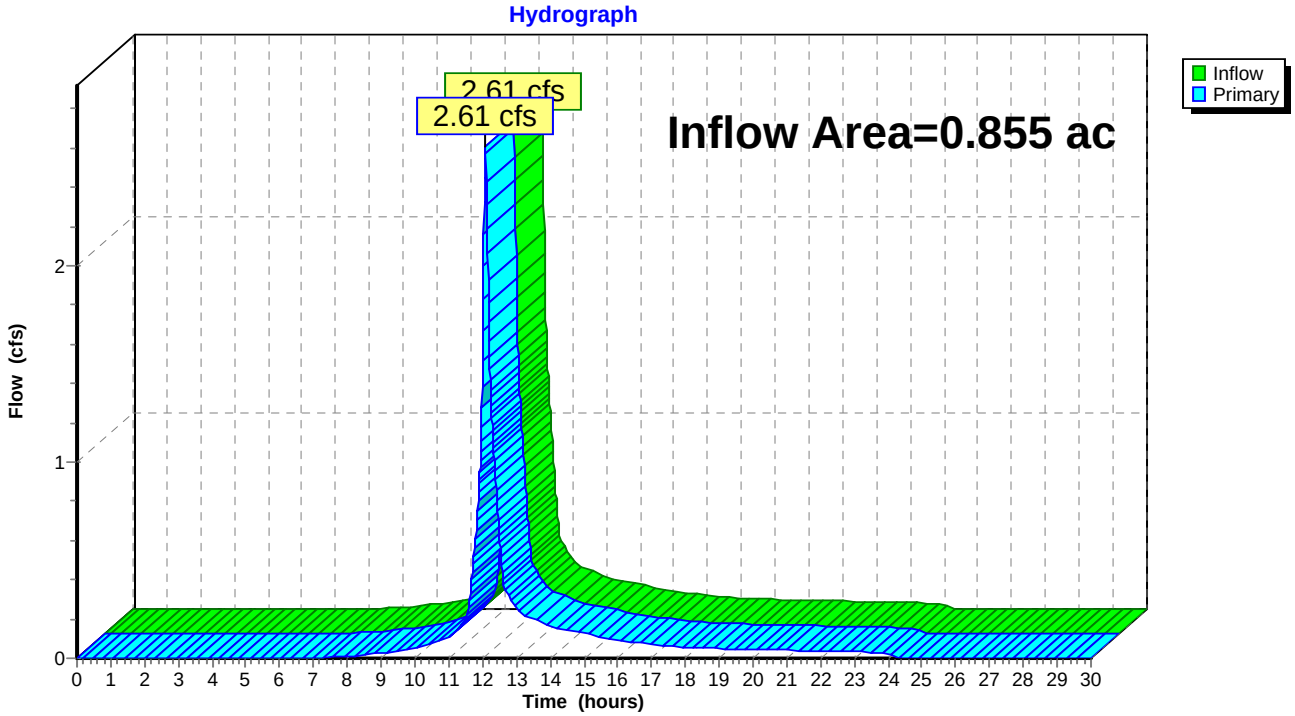


Summary for Link 11L: (new Link)

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 2.63" for 10-Year event
Inflow = 2.61 cfs @ 12.09 hrs, Volume= 0.187 af
Primary = 2.61 cfs @ 12.09 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 11L: (new Link)



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Watershed PR-200A Runoff Area=0.410 ac 77.32% Impervious Runoff Depth=3.79"
Tc=6.0 min CN=85 Runoff=1.79 cfs 0.129 af

Subcatchment 2S: Watershed BLDG Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=5.21"
Tc=6.0 min CN=98 Runoff=0.75 cfs 0.061 af

Subcatchment 3S: Watershed PR-100A Runoff Area=0.810 ac 98.77% Impervious Runoff Depth=5.10"
Tc=6.0 min CN=97 Runoff=4.30 cfs 0.344 af

Subcatchment 4S: Watershed PR-301A Runoff Area=0.145 ac 45.52% Impervious Runoff Depth=2.04"
Tc=6.0 min CN=66 Runoff=0.34 cfs 0.025 af

Subcatchment 5S: Watershed PR-300A Runoff Area=0.340 ac 71.76% Impervious Runoff Depth=3.48"
Tc=6.0 min CN=82 Runoff=1.38 cfs 0.099 af

Subcatchment 6S: Watershed PR-300B Runoff Area=0.370 ac 77.84% Impervious Runoff Depth=3.79"
Tc=6.0 min CN=85 Runoff=1.62 cfs 0.117 af

Subcatchment 7S: Watershed PR-202A Runoff Area=0.090 ac 53.33% Impervious Runoff Depth=2.38"
Tc=6.0 min CN=70 Runoff=0.25 cfs 0.018 af

Subcatchment 8S: Watershed PR-202B Runoff Area=0.050 ac 62.00% Impervious Runoff Depth=2.91"
Tc=6.0 min CN=76 Runoff=0.17 cfs 0.012 af

Subcatchment E-200: PR-300 Runoff Area=8.505 ac 0.00% Impervious Runoff Depth=0.54"
Flow Length=929' Tc=16.8 min CN=44 Runoff=1.99 cfs 0.383 af

Subcatchment PR-201: (new Subcat) Runoff Area=37,231 sf 74.21% Impervious Runoff Depth=3.58"
Tc=6.0 min CN=83 Runoff=3.56 cfs 0.255 af

Subcatchment PR-202: Watershed PR-202 Runoff Area=43,806 sf 78.77% Impervious Runoff Depth=3.79"
Tc=6.0 min CN=85 Runoff=4.40 cfs 0.317 af

Reach 4R: DP-200 Inflow=1.99 cfs 0.383 af
Outflow=1.99 cfs 0.383 af

Reach DP-200: DP-200 Inflow=3.56 cfs 0.291 af
Outflow=3.56 cfs 0.291 af

Pond 1P: UDS 2 Peak Elev=130.07' Storage=0.049 af Inflow=2.21 cfs 0.159 af
Discarded=0.32 cfs 0.159 af Primary=0.00 cfs 0.000 af Outflow=0.32 cfs 0.159 af

Pond 3P: UDS 1 Peak Elev=126.02' Storage=0.120 af Inflow=5.04 cfs 0.405 af
Discarded=0.66 cfs 0.405 af Primary=0.00 cfs 0.000 af Outflow=0.66 cfs 0.405 af

Pond 4P: UDS 3 Peak Elev=134.55' Storage=0.075 af Inflow=3.34 cfs 0.240 af
Discarded=0.47 cfs 0.240 af Primary=0.00 cfs 0.000 af Outflow=0.47 cfs 0.240 af

Pond P200: Underground System 2 Peak Elev=136.20' Storage=0.091 af Inflow=4.40 cfs 0.317 af
Discarded=0.38 cfs 0.282 af Primary=1.48 cfs 0.036 af Outflow=1.86 cfs 0.317 af

Link 9L: (new Link) Inflow=5.04 cfs 0.405 af
Primary=5.04 cfs 0.405 af

Link 10L: (new Link) Inflow=2.21 cfs 0.159 af
Primary=2.21 cfs 0.159 af

Link 11L: (new Link) Inflow=3.34 cfs 0.240 af
Primary=3.34 cfs 0.240 af

Total Runoff Area = 12.720 ac Runoff Volume = 1.759 af Average Runoff Depth = 1.66"
73.58% Pervious = 9.360 ac 26.42% Impervious = 3.360 ac

Summary for Subcatchment 1S: Watershed PR-200A

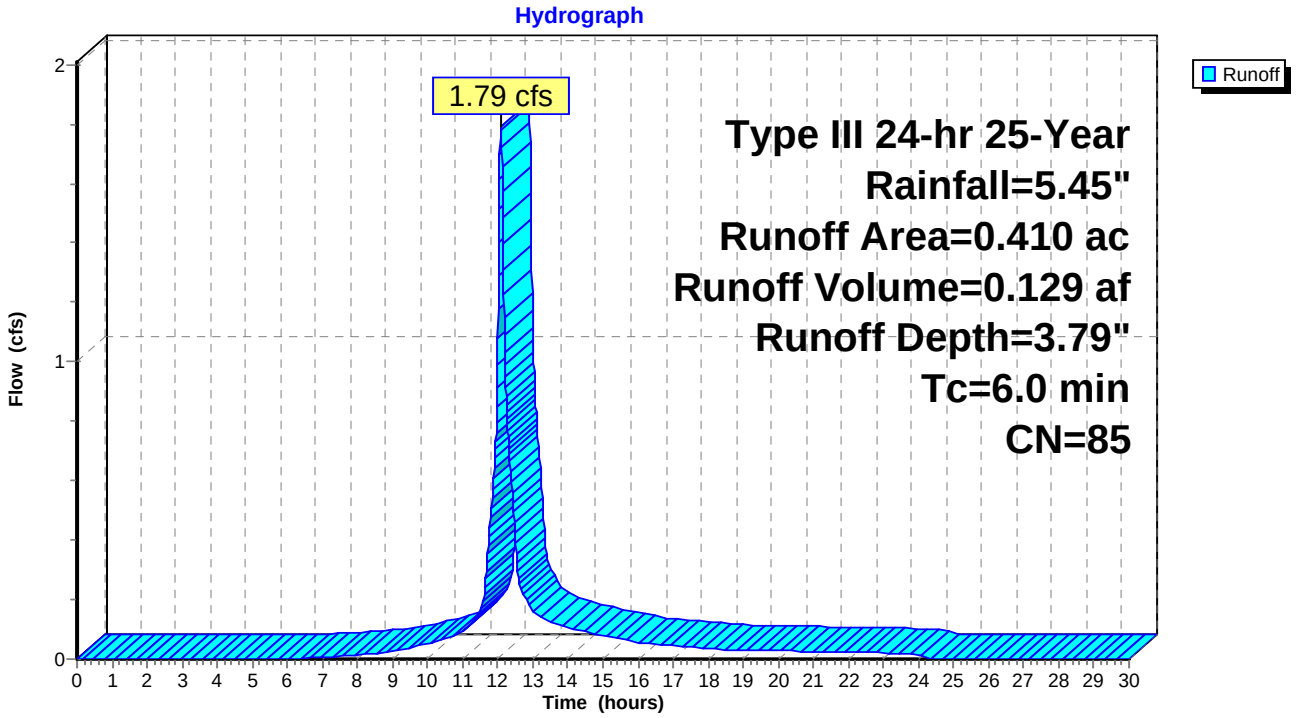
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.129 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.093	39	>75% Grass cover, Good, HSG A
0.317	98	Paved parking, HSG A
0.410	85	Weighted Average
0.093		22.68% Pervious Area
0.317		77.32% Impervious Area

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

Subcatchment 1S: Watershed PR-200A



Summary for Subcatchment 2S: Watershed BLDG

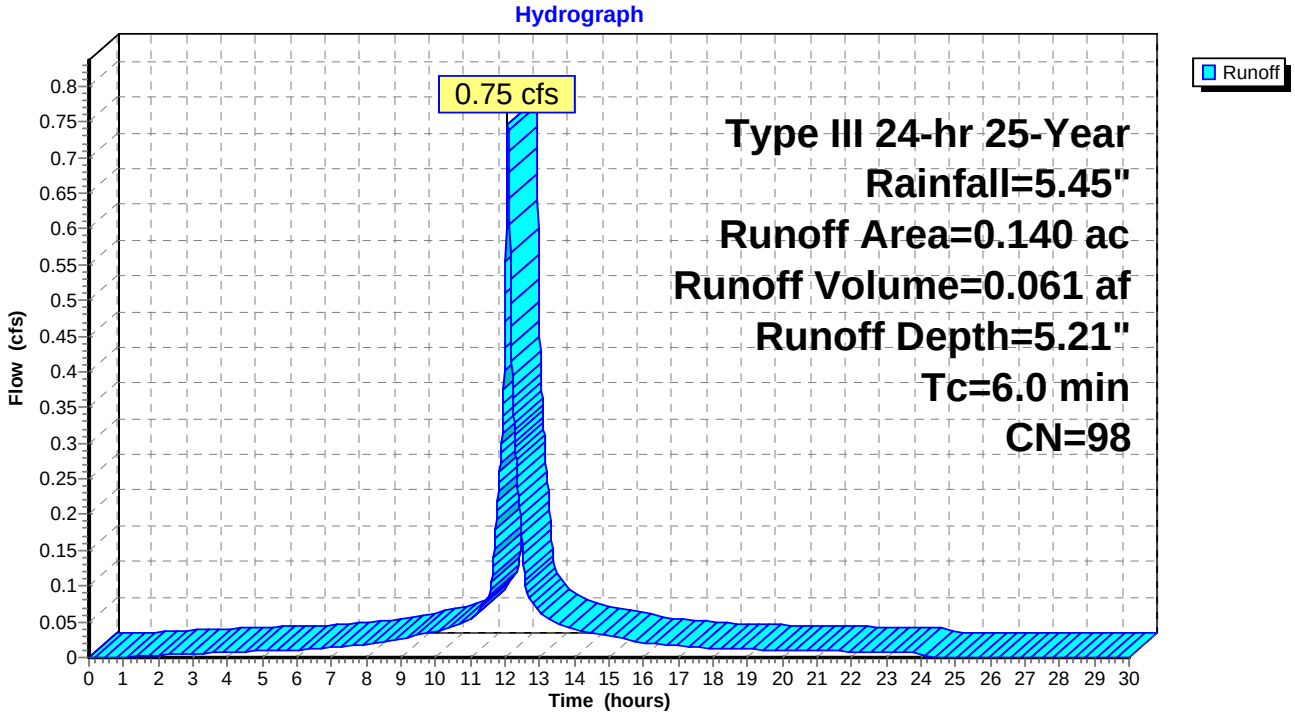
Runoff = 0.75 cfs @ 12.08 hrs, Volume= 0.061 af, Depth= 5.21"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

	Area (ac)	CN	Description
*	0.140	98	
	0.140		100.00% Impervious Area

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

Subcatchment 2S: Watershed BLDG



Summary for Subcatchment 3S: Watershed PR-100A

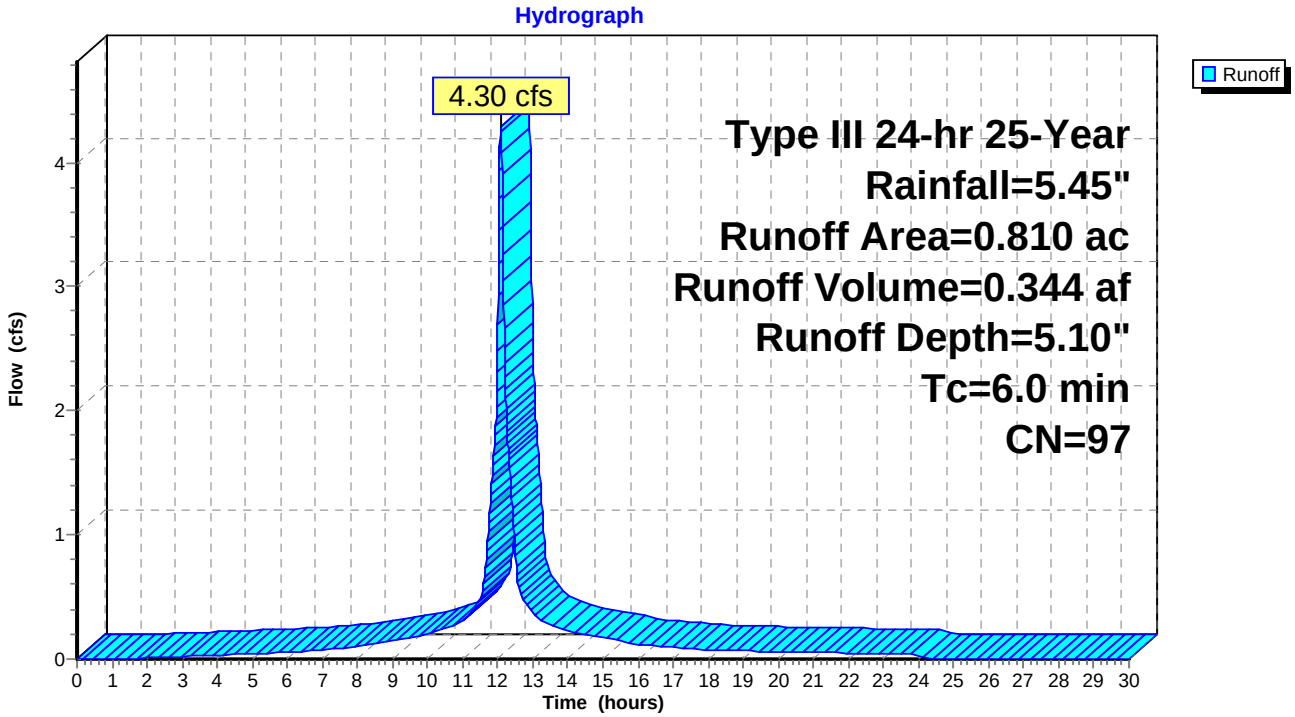
Runoff = 4.30 cfs @ 12.08 hrs, Volume= 0.344 af, Depth= 5.10"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.010	39	>75% Grass cover, Good, HSG A
0.800	98	Paved parking, HSG A
0.810	97	Weighted Average
0.010		1.23% Pervious Area
0.800		98.77% Impervious Area

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

Subcatchment 3S: Watershed PR-100A



Summary for Subcatchment 4S: Watershed PR-301A

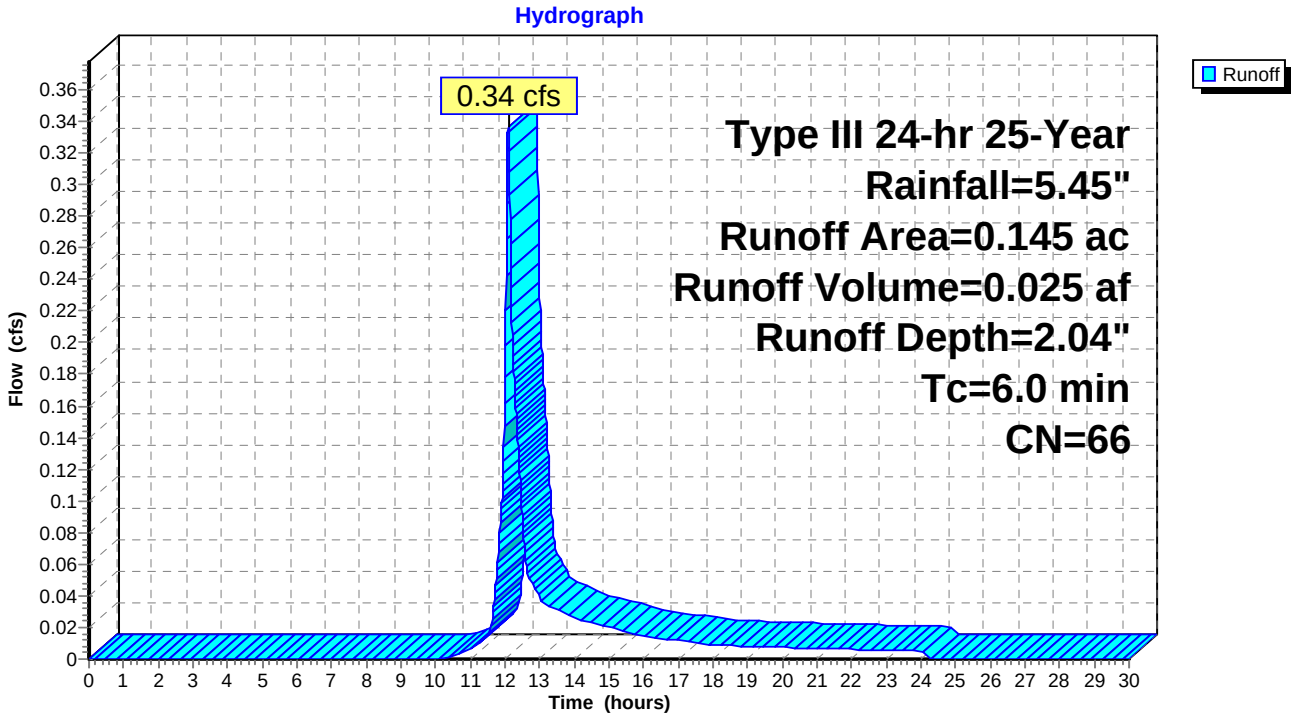
Runoff = 0.34 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 2.04"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

	Area (ac)	CN	Description
	0.079	39	>75% Grass cover, Good, HSG A
*	0.066	98	Paved parking, HSG A
	0.145	66	Weighted Average
	0.079		54.48% Pervious Area
	0.066		45.52% Impervious Area

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

Subcatchment 4S: Watershed PR-301A



Summary for Subcatchment 5S: Watershed PR-300A

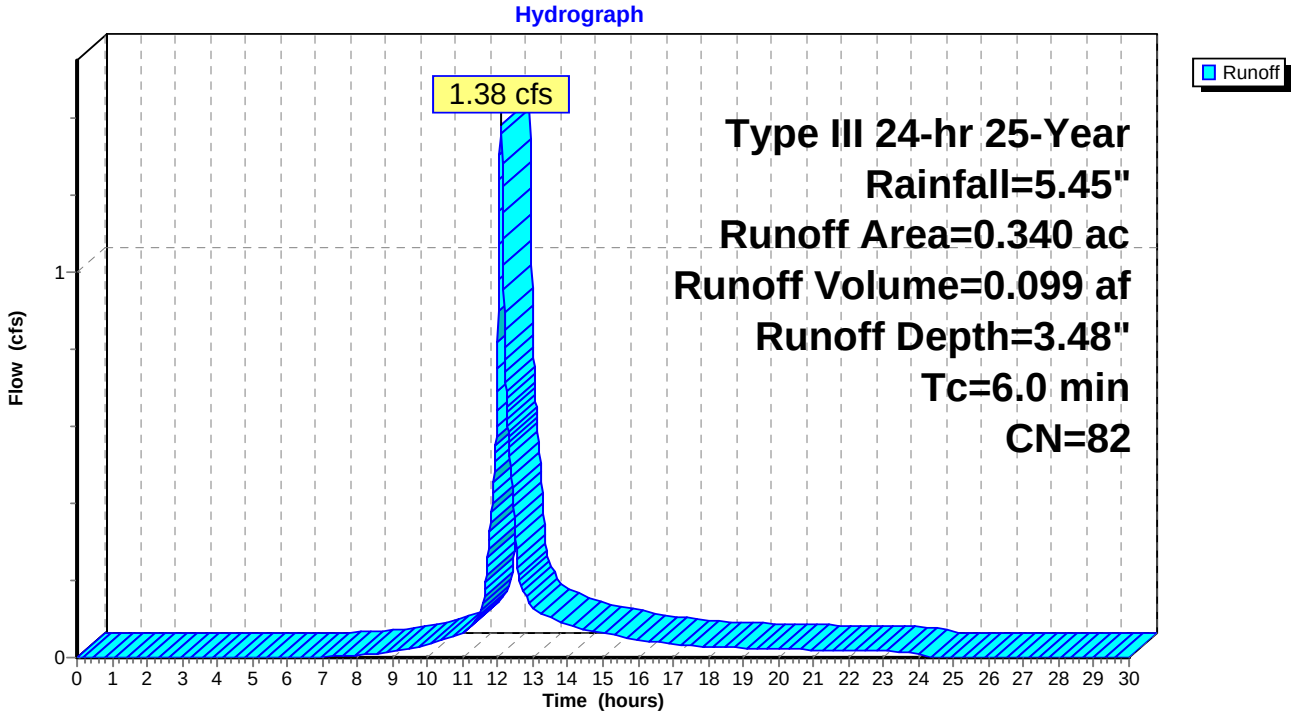
Runoff = 1.38 cfs @ 12.09 hrs, Volume= 0.099 af, Depth= 3.48"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.089	39	>75% Grass cover, Good, HSG A
0.007	76	Gravel roads, HSG A
0.244	98	Paved parking, HSG A
0.340	82	Weighted Average
0.096		28.24% Pervious Area
0.244		71.76% Impervious Area

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

Subcatchment 5S: Watershed PR-300A



Summary for Subcatchment 6S: Watershed PR-300B

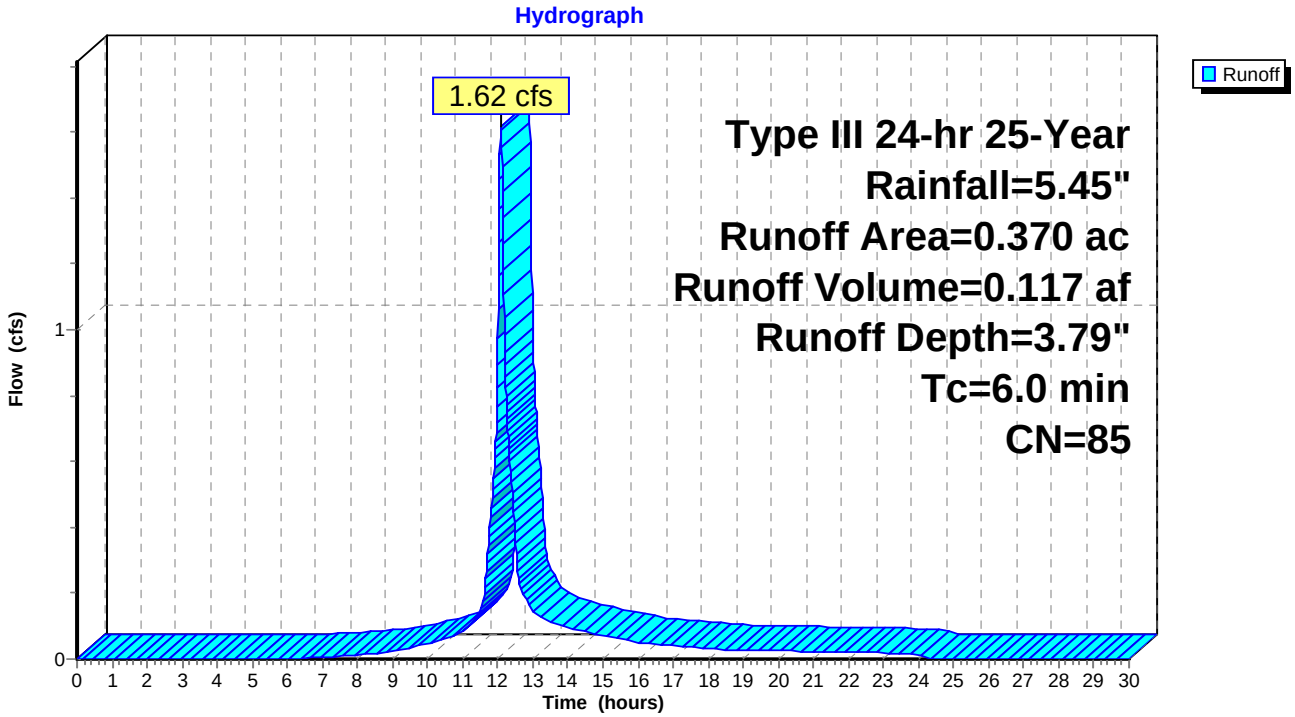
Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.117 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.082	39	>75% Grass cover, Good, HSG A
0.288	98	Paved parking, HSG A
0.370	85	Weighted Average
0.082		22.16% Pervious Area
0.288		77.84% Impervious Area

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

Subcatchment 6S: Watershed PR-300B



Summary for Subcatchment 7S: Watershed PR-202A

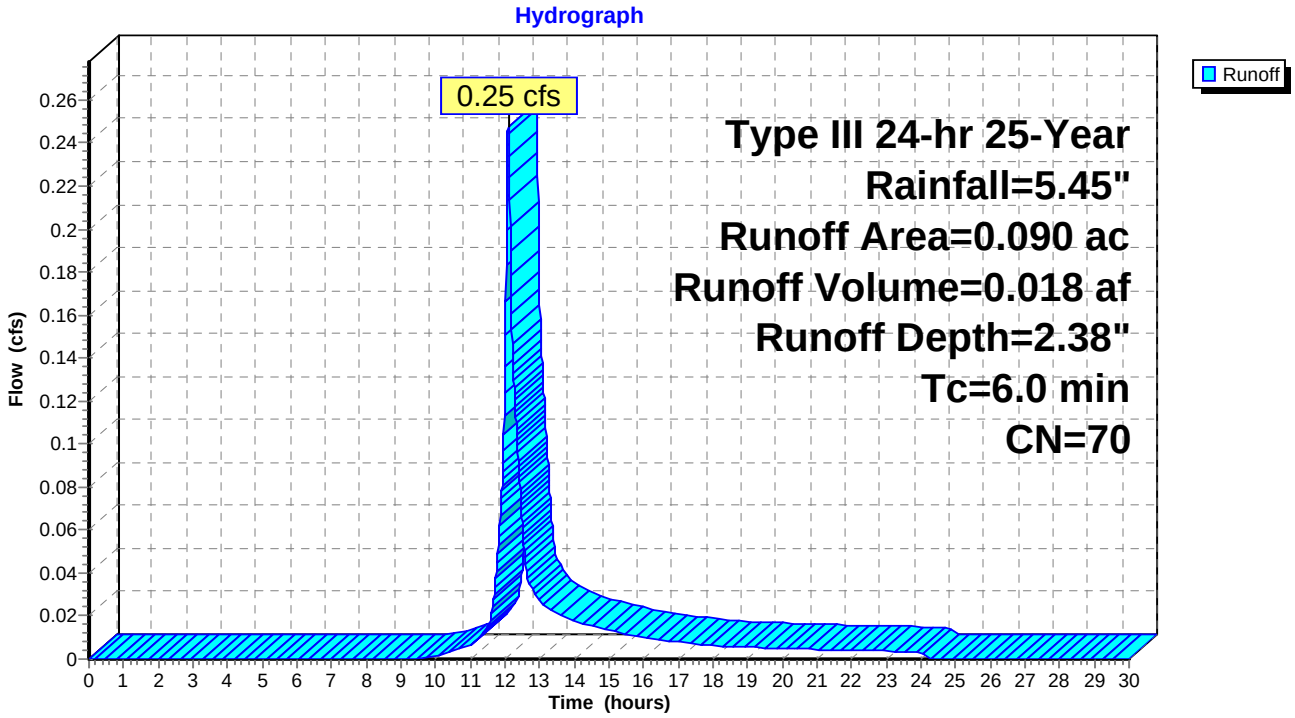
Runoff = 0.25 cfs @ 12.09 hrs, Volume= 0.018 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.042	39	>75% Grass cover, Good, HSG A
0.048	98	Paved parking, HSG A
0.090	70	Weighted Average
0.042		46.67% Pervious Area
0.048		53.33% Impervious Area

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

Subcatchment 7S: Watershed PR-202A



Summary for Subcatchment 8S: Watershed PR-202B

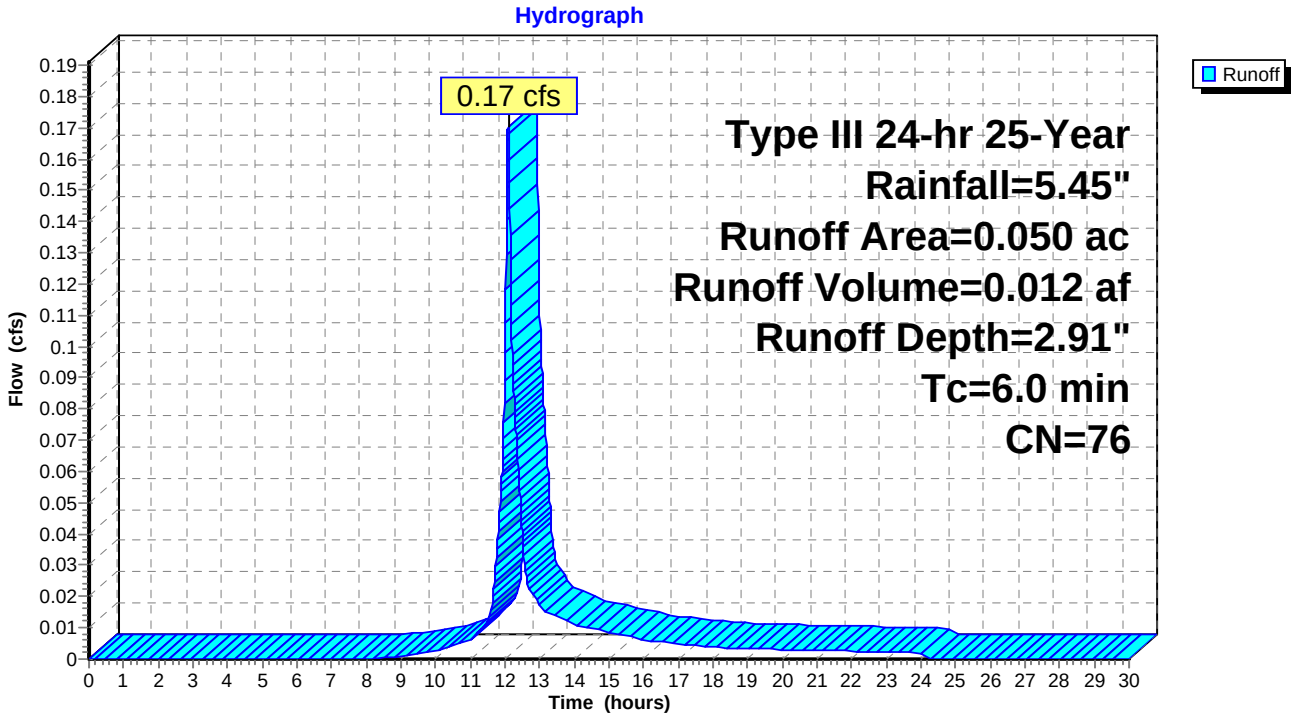
Runoff = 0.17 cfs @ 12.09 hrs, Volume= 0.012 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
0.019	39	>75% Grass cover, Good, HSG A
0.031	98	Paved parking, HSG A
0.050	76	Weighted Average
0.019		38.00% Pervious Area
0.031		62.00% Impervious Area

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

Subcatchment 8S: Watershed PR-202B



Summary for Subcatchment E-200: PR-300 UNDEVELOPED

Existing watershed at Equipment Service station

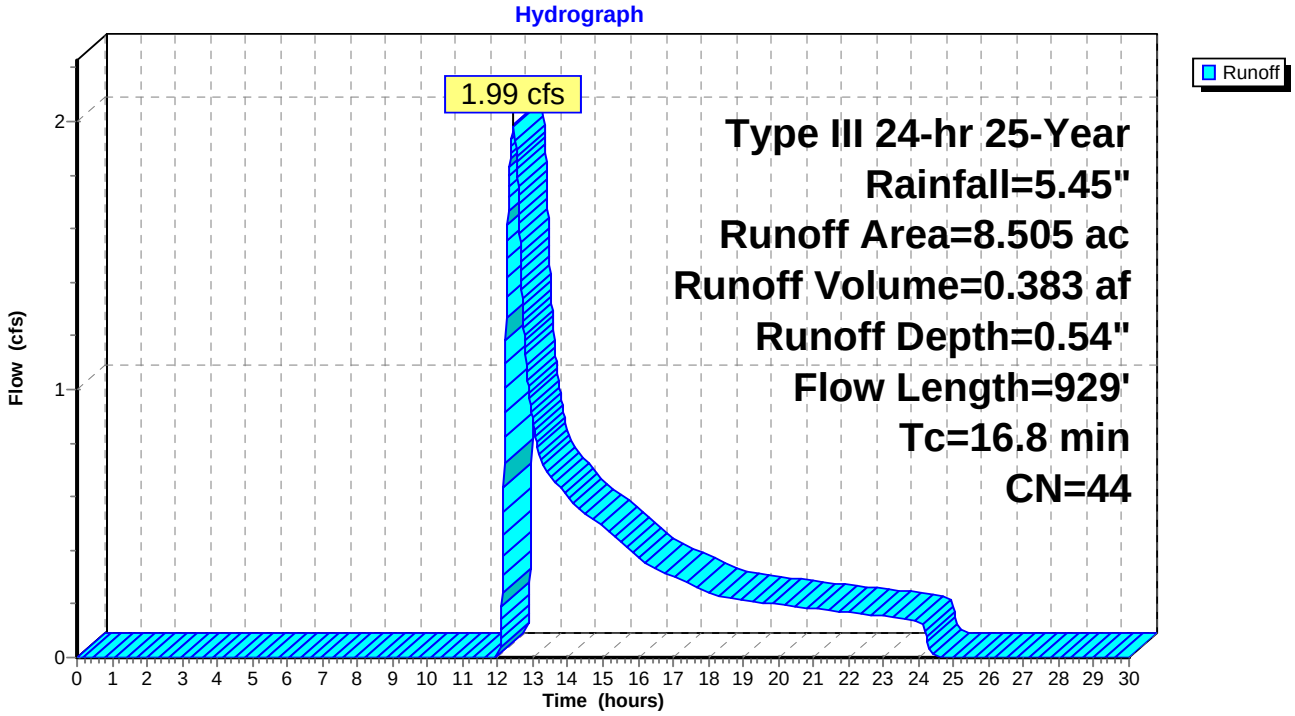
Runoff = 1.99 cfs @ 12.45 hrs, Volume= 0.383 af, Depth= 0.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (ac)	CN	Description
6.740	39	>75% Grass cover, Good, HSG A
1.240	76	Gravel roads, HSG A
0.525	36	Woods, Fair, HSG A
8.505	44	Weighted Average
8.505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: PR-300 UNDEVELOPED



Summary for Subcatchment PR-201: (new Subcat)

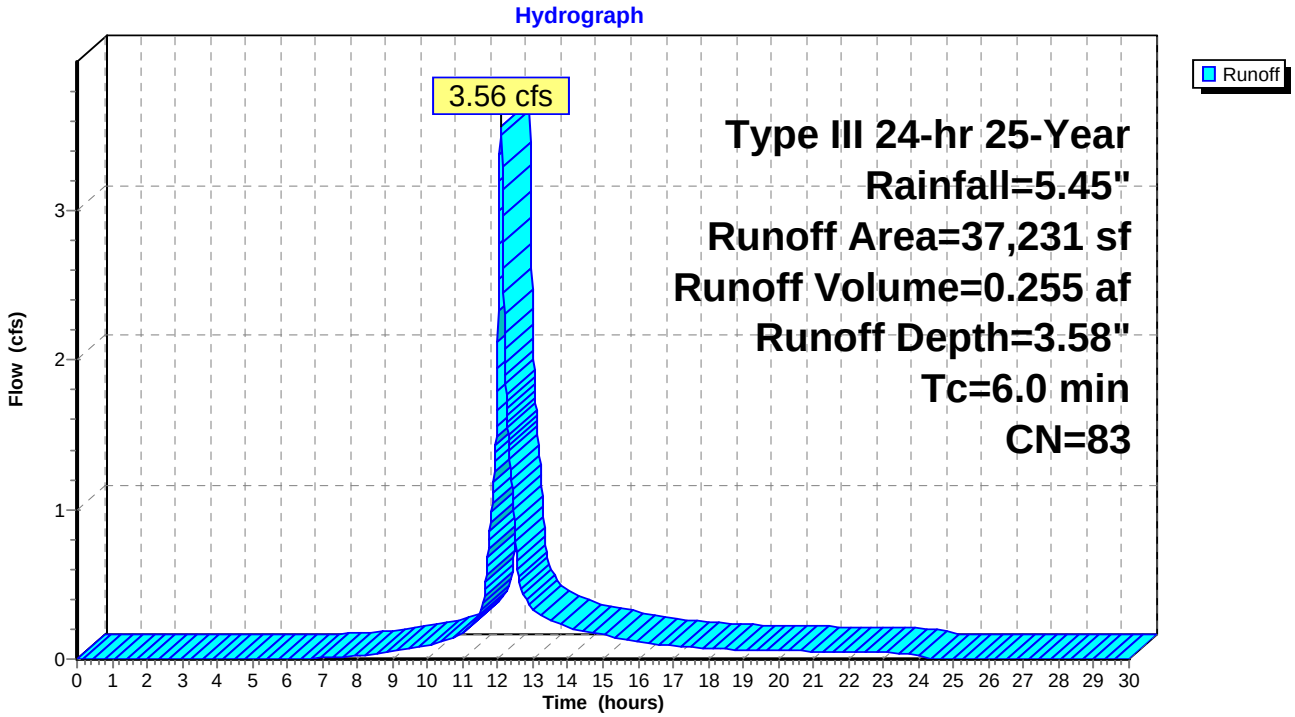
Runoff = 3.56 cfs @ 12.09 hrs, Volume= 0.255 af, Depth= 3.58"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

Area (sf)	CN	Description
9,603	39	>75% Grass cover, Good, HSG A
27,628	98	Paved parking, HSG A
37,231	83	Weighted Average
9,603		25.79% Pervious Area
27,628		74.21% Impervious Area

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

Subcatchment PR-201: (new Subcat)



Summary for Subcatchment PR-202: Watershed PR-202

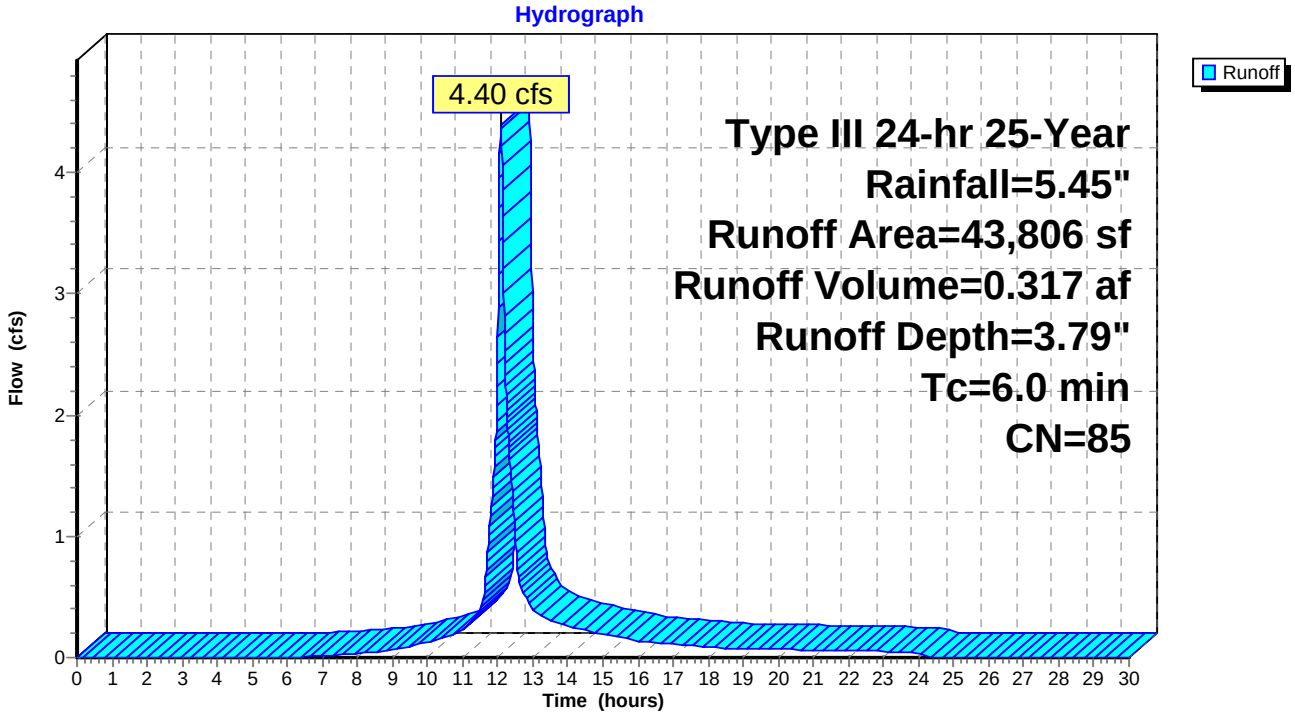
Runoff = 4.40 cfs @ 12.09 hrs, Volume= 0.317 af, Depth= 3.79"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.45"

	Area (sf)	CN	Description
	9,298	39	>75% Grass cover, Good, HSG A
*	2,327	98	Buildings
	32,181	98	Paved parking, HSG A
	43,806	85	Weighted Average
	9,298		21.23% Pervious Area
	34,508		78.77% Impervious Area

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

Subcatchment PR-202: Watershed PR-202



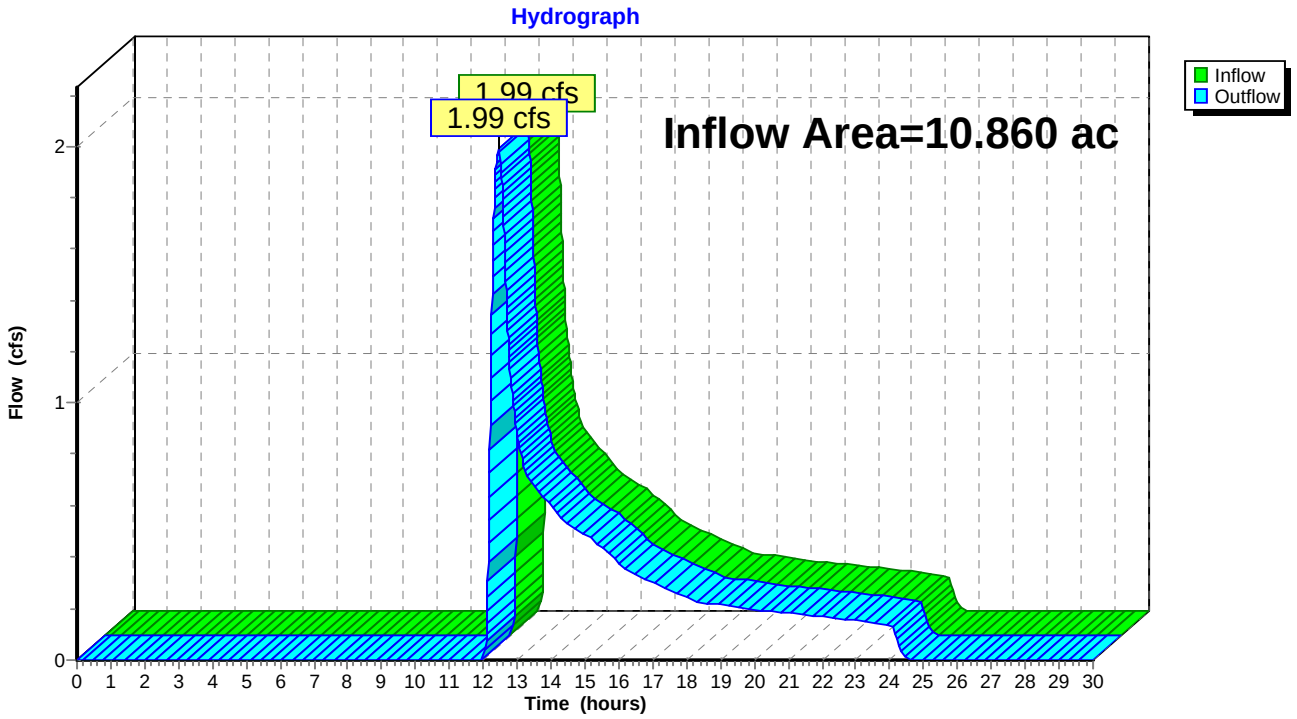
Summary for Reach 4R: DP-200

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

Inflow Area =	10.860 ac,	17.81% Impervious,	Inflow Depth =	0.42"	for 25-Year event
Inflow =	1.99 cfs @	12.45 hrs,	Volume=	0.383 af	
Outflow =	1.99 cfs @	12.45 hrs,	Volume=	0.383 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 4R: DP-200



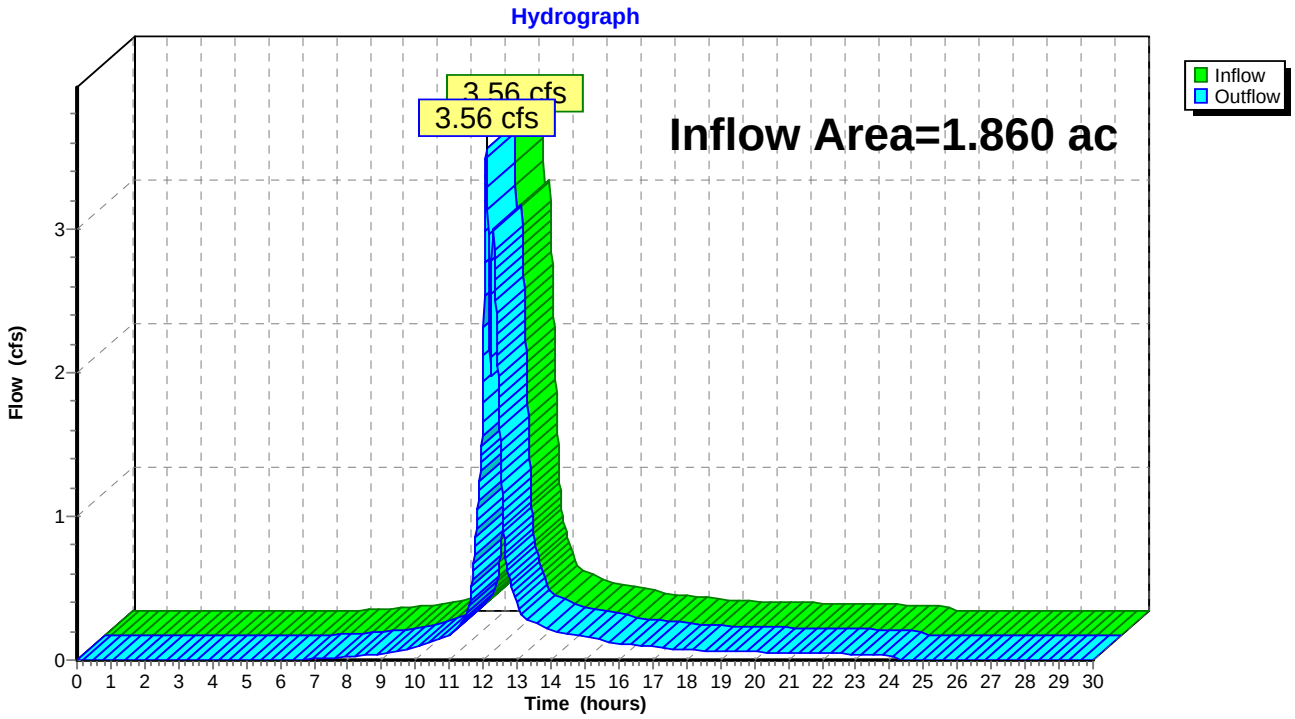
Summary for Reach DP-200: DP-200

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

Inflow Area =	1.860 ac,	76.68% Impervious,	Inflow Depth =	1.88"	for 25-Year event
Inflow =	3.56 cfs @	12.09 hrs,	Volume=	0.291 af	
Outflow =	3.56 cfs @	12.09 hrs,	Volume=	0.291 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: DP-200



Summary for Pond 1P: UDS 2

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 3.48" for 25-Year event
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 0.159 af
Outflow = 0.32 cfs @ 12.60 hrs, Volume= 0.159 af, Atten= 85%, Lag= 31.0 min
Discarded = 0.32 cfs @ 12.60 hrs, Volume= 0.159 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 130.07' @ 12.60 hrs Surf.Area= 0.037 ac Storage= 0.049 af

Plug-Flow detention time= 44.4 min calculated for 0.159 af (100% of inflow)
Center-of-Mass det. time= 44.4 min (854.8 - 810.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.00'	0.037 af	**6.25'W x 258.32'L x 3.50'H Field A** 0.130 af Overall - 0.038 af Embedded = 0.092 af x 40.0% Voids
#2A	128.50'	0.038 af	**StormTech SC-740** x 36 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	131.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.32 cfs @ 12.60 hrs HW=130.07' (Free Discharge)
└**1=Exfiltration** (Controls 0.32 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UDS 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

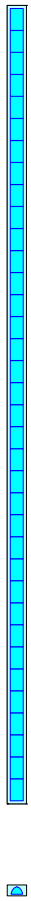
36 Chambers/Row x 7.12' Long = 256.32' + 12.0" End Stone x 2 = 258.32' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

36 Chambers x 45.9 cf = 1,653.8 cf Chamber Storage

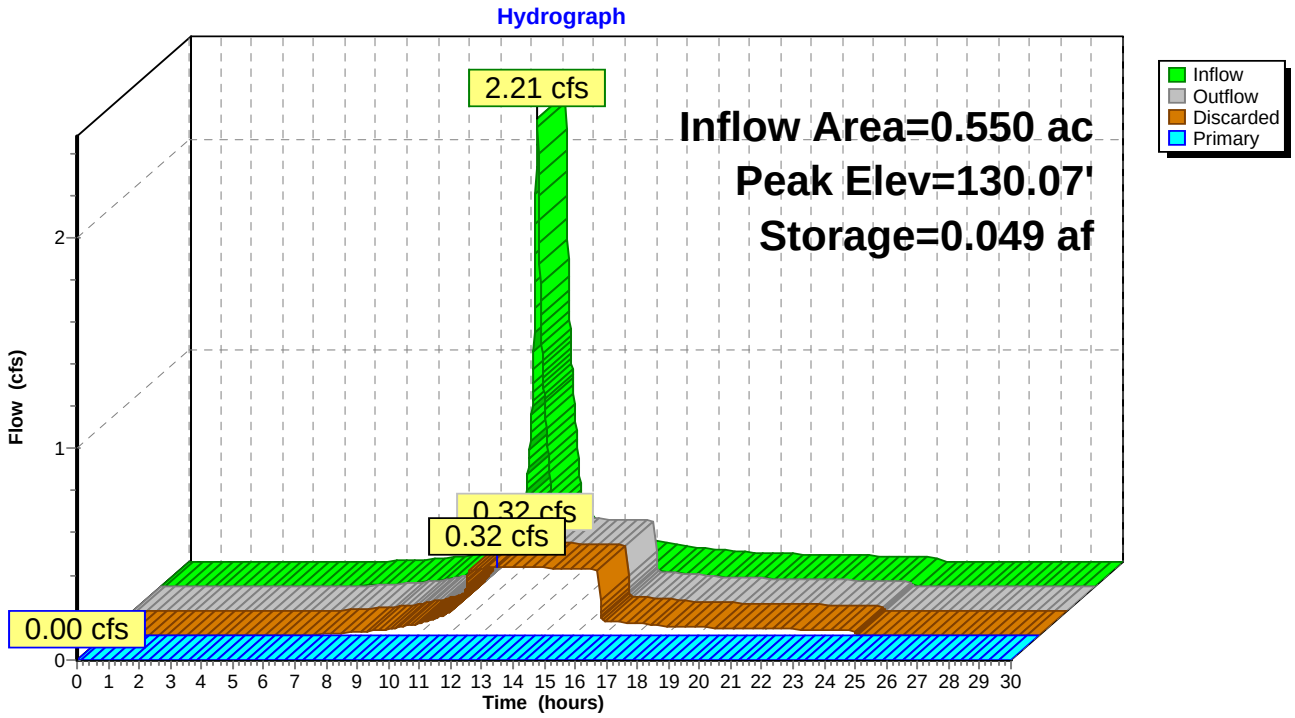
5,650.8 cf Field - 1,653.8 cf Chambers = 3,996.9 cf Stone x 40.0% Voids = 1,598.8 cf Stone Storage

Stone + Chamber Storage = 3,252.6 cf = 0.075 af

36 Chambers
209.3 cy Field
148.0 cy Stone



Pond 1P: UDS 2


Hydrograph
2.21 cfs
Inflow Area=0.550 ac
Peak Elev=130.07'
Storage=0.049 af
0.32 cfs
0.32 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
0
1
2
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
Time (hours)

Summary for Pond 3P: UDS 1

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 5.11" for 25-Year event
Inflow = 5.04 cfs @ 12.08 hrs, Volume= 0.405 af
Outflow = 0.66 cfs @ 12.61 hrs, Volume= 0.405 af, Atten= 87%, Lag= 31.3 min
Discarded = 0.66 cfs @ 12.61 hrs, Volume= 0.405 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 126.02' @ 12.61 hrs Surf.Area= 0.075 ac Storage= 0.120 af

Plug-Flow detention time= 47.9 min calculated for 0.405 af (100% of inflow)
Center-of-Mass det. time= 47.9 min (800.8 - 752.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	123.70'	0.067 af	**30.00'W x 108.80'L x 3.50'H Field A** 0.262 af Overall - 0.095 af Embedded = 0.167 af x 40.0% Voids
#2A	124.20'	0.095 af	**StormTech SC-740** x 90 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.162 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	123.70'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	127.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.66 cfs @ 12.61 hrs HW=126.02' (Free Discharge)
└─**1=Exfiltration** (Controls 0.66 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.70' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: UDS 1 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

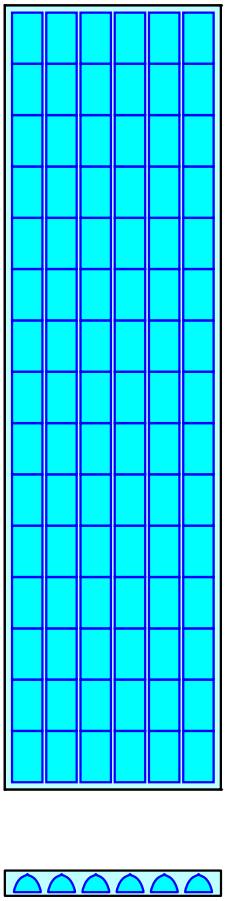
15 Chambers/Row x 7.12' Long = 106.80' + 12.0" End Stone x 2 = 108.80' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

90 Chambers x 45.9 cf = 4,134.6 cf Chamber Storage

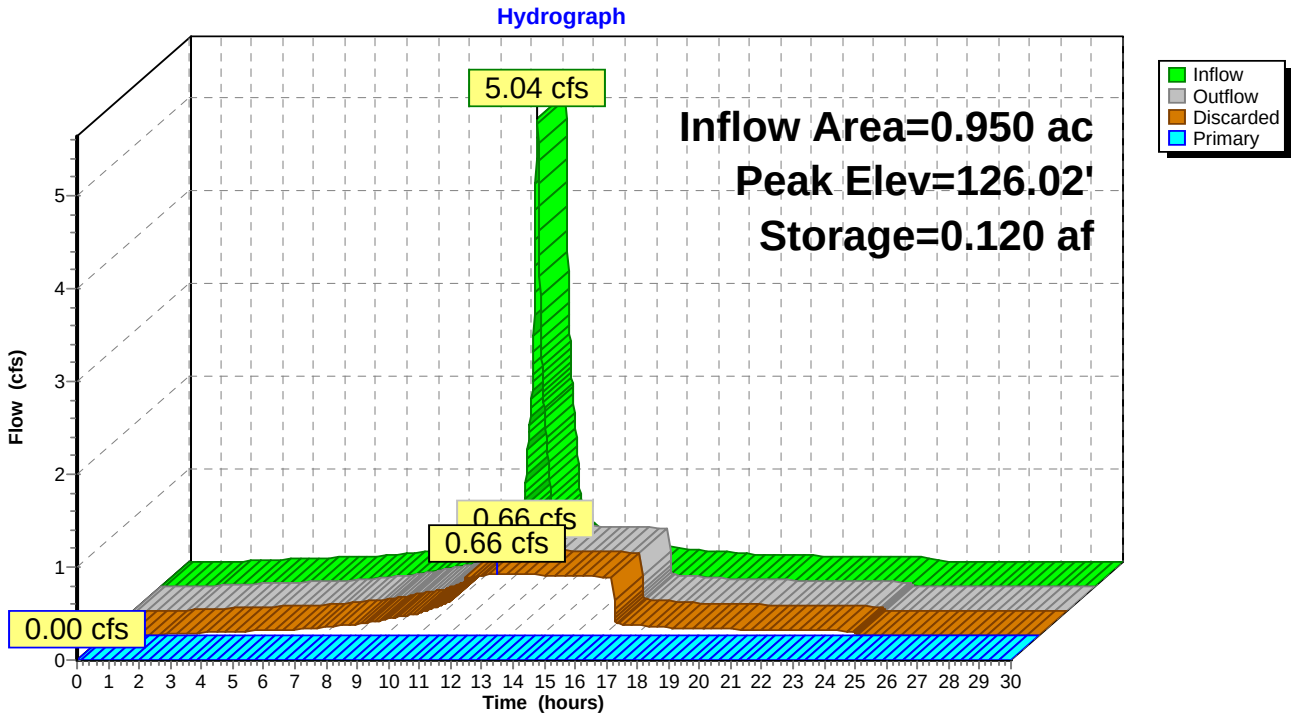
11,424.0 cf Field - 4,134.6 cf Chambers = 7,289.4 cf Stone x 40.0% Voids = 2,915.8 cf Stone Storage

Stone + Chamber Storage = 7,050.4 cf = 0.162 af

90 Chambers
423.1 cy Field
270.0 cy Stone



Pond 3P: UDS 1


Hydrograph
5.04 cfs
Inflow Area=0.950 ac
Peak Elev=126.02'
Storage=0.120 af
0.66 cfs
0.66 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 4P: UDS 3

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 3.37" for 25-Year event
Inflow = 3.34 cfs @ 12.09 hrs, Volume= 0.240 af
Outflow = 0.47 cfs @ 12.62 hrs, Volume= 0.240 af, Atten= 86%, Lag= 31.9 min
Discarded = 0.47 cfs @ 12.62 hrs, Volume= 0.240 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 134.55' @ 12.62 hrs Surf.Area= 0.054 ac Storage= 0.075 af

Plug-Flow detention time= 47.2 min calculated for 0.240 af (100% of inflow)
Center-of-Mass det. time= 47.2 min (860.0 - 812.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.40'	0.054 af	**6.25'W x 379.36'L x 3.50'H Field A** 0.191 af Overall - 0.056 af Embedded = 0.135 af x 40.0% Voids
#2A	132.90'	0.056 af	**StormTech SC-740** x 53 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.110 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.40'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	135.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.47 cfs @ 12.62 hrs HW=134.55' (Free Discharge)
└**1=Exfiltration** (Controls 0.47 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.40' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: UDS 3 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

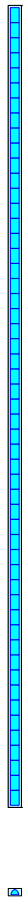
53 Chambers/Row x 7.12' Long = 377.36' + 12.0" End Stone x 2 = 379.36' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

53 Chambers x 45.9 cf = 2,434.8 cf Chamber Storage

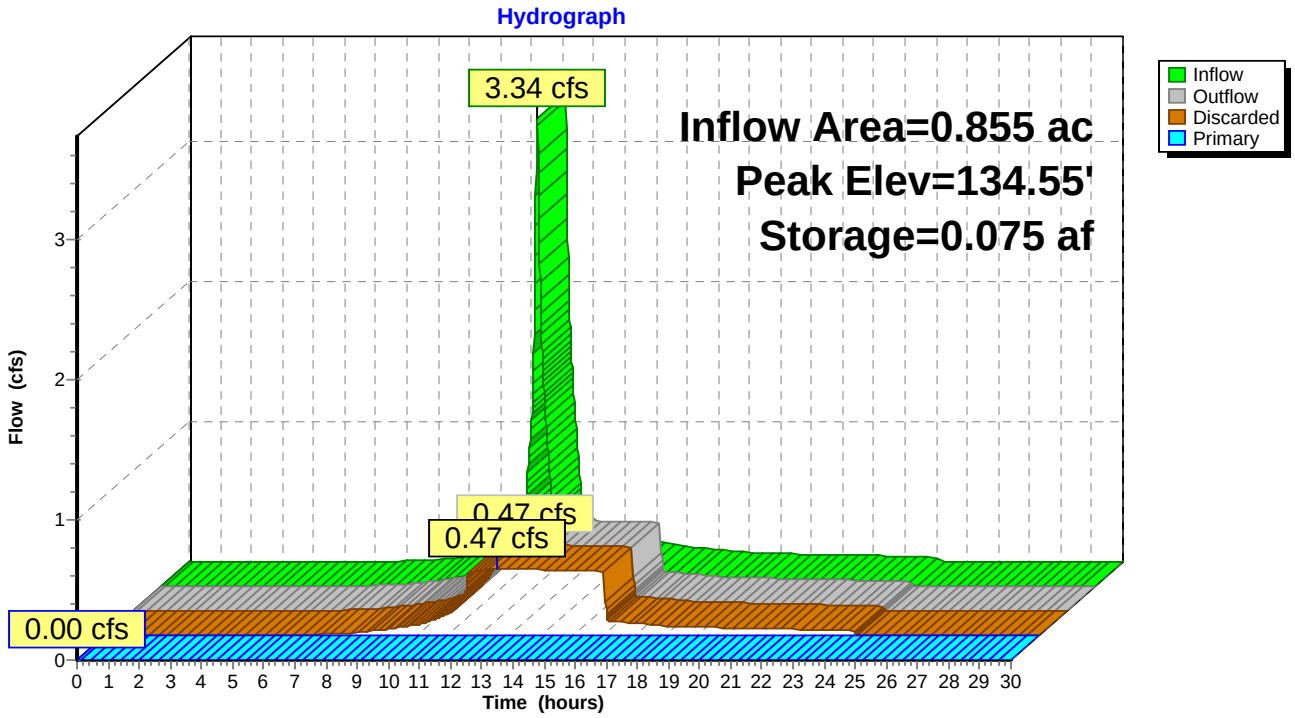
8,298.5 cf Field - 2,434.8 cf Chambers = 5,863.7 cf Stone x 40.0% Voids = 2,345.5 cf Stone Storage

Stone + Chamber Storage = 4,780.3 cf = 0.110 af

53 Chambers
307.4 cy Field
217.2 cy Stone



Pond 4P: UDS 3


Hydrograph
3.34 cfs
Inflow Area=0.855 ac
Peak Elev=134.55'
Storage=0.075 af
0.47 cfs
0.47 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond P200: Underground System 2

Inflow Area = 1.006 ac, 78.77% Impervious, Inflow Depth = 3.79" for 25-Year event
Inflow = 4.40 cfs @ 12.09 hrs, Volume= 0.317 af
Outflow = 1.86 cfs @ 12.30 hrs, Volume= 0.317 af, Atten= 58%, Lag= 12.6 min
Discarded = 0.38 cfs @ 12.30 hrs, Volume= 0.282 af
Primary = 1.48 cfs @ 12.30 hrs, Volume= 0.036 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 136.20' @ 12.30 hrs Surf.Area= 0.045 ac Storage= 0.091 af

Plug-Flow detention time= 69.8 min calculated for 0.317 af (100% of inflow)
Center-of-Mass det. time= 69.8 min (874.1 - 804.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.94'	0.040 af	**20.50'W x 94.56'L x 3.50'H Field A** 0.156 af Overall - 0.055 af Embedded = 0.101 af x 40.0% Voids
#2A	133.44'	0.055 af	**StormTech SC-740** x 52 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.70'	**12.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.70' / 134.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	135.94'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	132.94'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.38 cfs @ 12.30 hrs HW=136.20' (Free Discharge)
└─**3=Exfiltration** (Controls 0.38 cfs)

Primary OutFlow Max=1.47 cfs @ 12.30 hrs HW=136.20' (Free Discharge)
└─**1=Culvert** (Passes 1.47 cfs of 3.78 cfs potential flow)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 1.47 cfs @ 1.44 fps)

Pond P200: Underground System 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

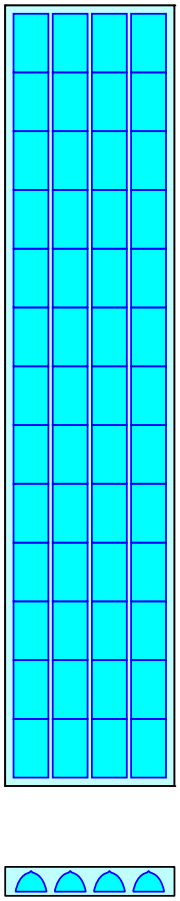
13 Chambers/Row x 7.12' Long = 92.56' + 12.0" End Stone x 2 = 94.56' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

52 Chambers x 45.9 cf = 2,388.9 cf Chamber Storage

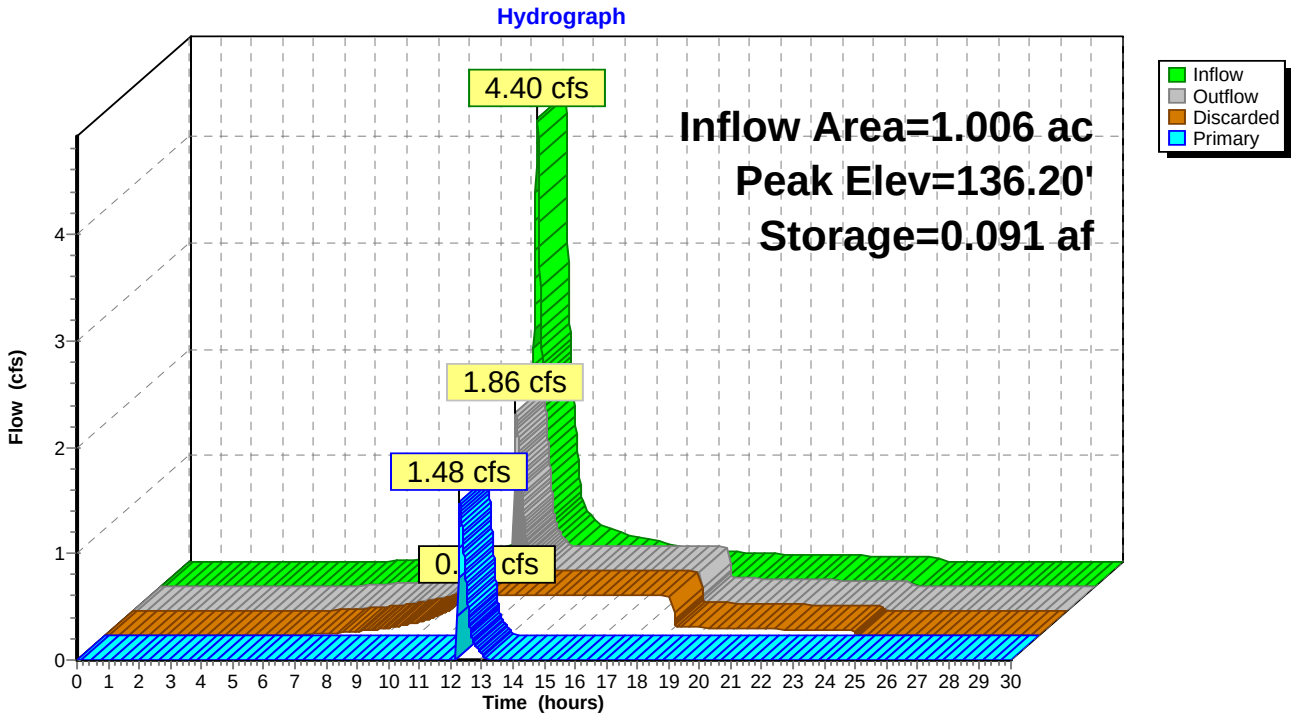
6,784.7 cf Field - 2,388.9 cf Chambers = 4,395.8 cf Stone x 40.0% Voids = 1,758.3 cf Stone Storage

Stone + Chamber Storage = 4,147.2 cf = 0.095 af

52 Chambers
251.3 cy Field
162.8 cy Stone



Pond P200: Underground System 2

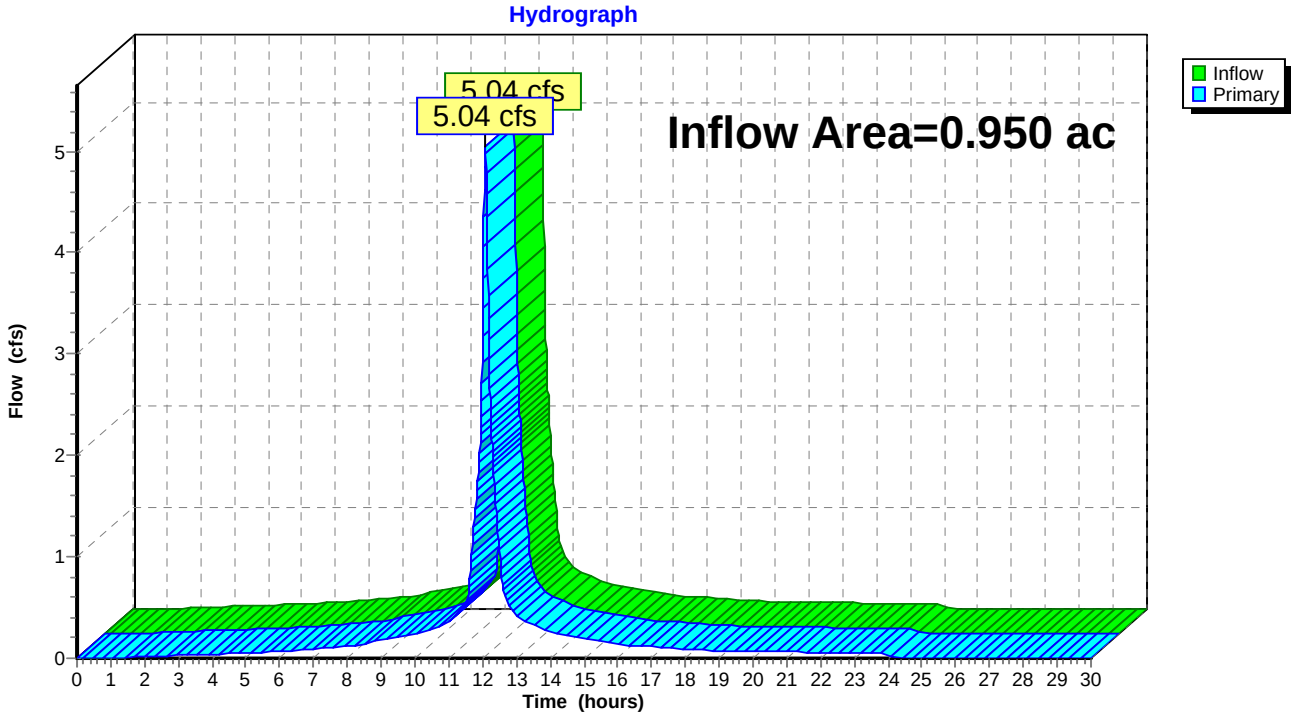


Summary for Link 9L: (new Link)

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 5.11" for 25-Year event
Inflow = 5.04 cfs @ 12.08 hrs, Volume= 0.405 af
Primary = 5.04 cfs @ 12.08 hrs, Volume= 0.405 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 9L: (new Link)

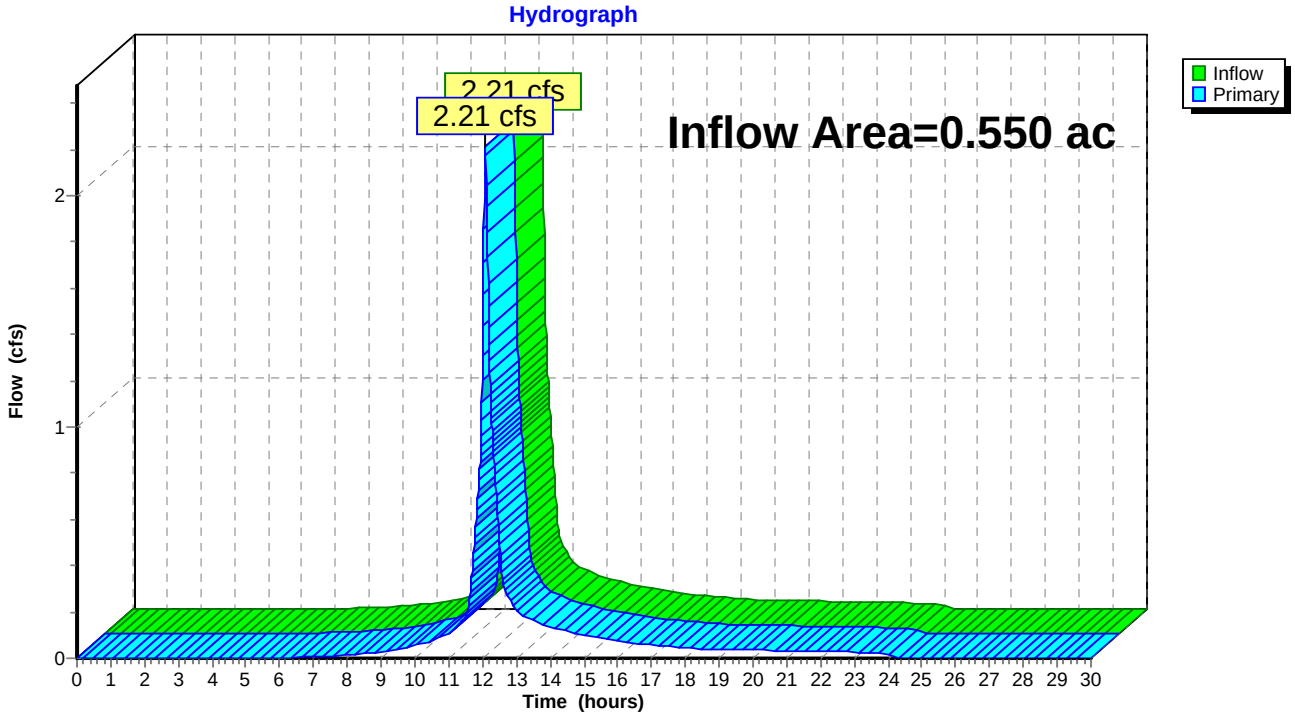


Summary for Link 10L: (new Link)

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 3.48" for 25-Year event
Inflow = 2.21 cfs @ 12.09 hrs, Volume= 0.159 af
Primary = 2.21 cfs @ 12.09 hrs, Volume= 0.159 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 10L: (new Link)

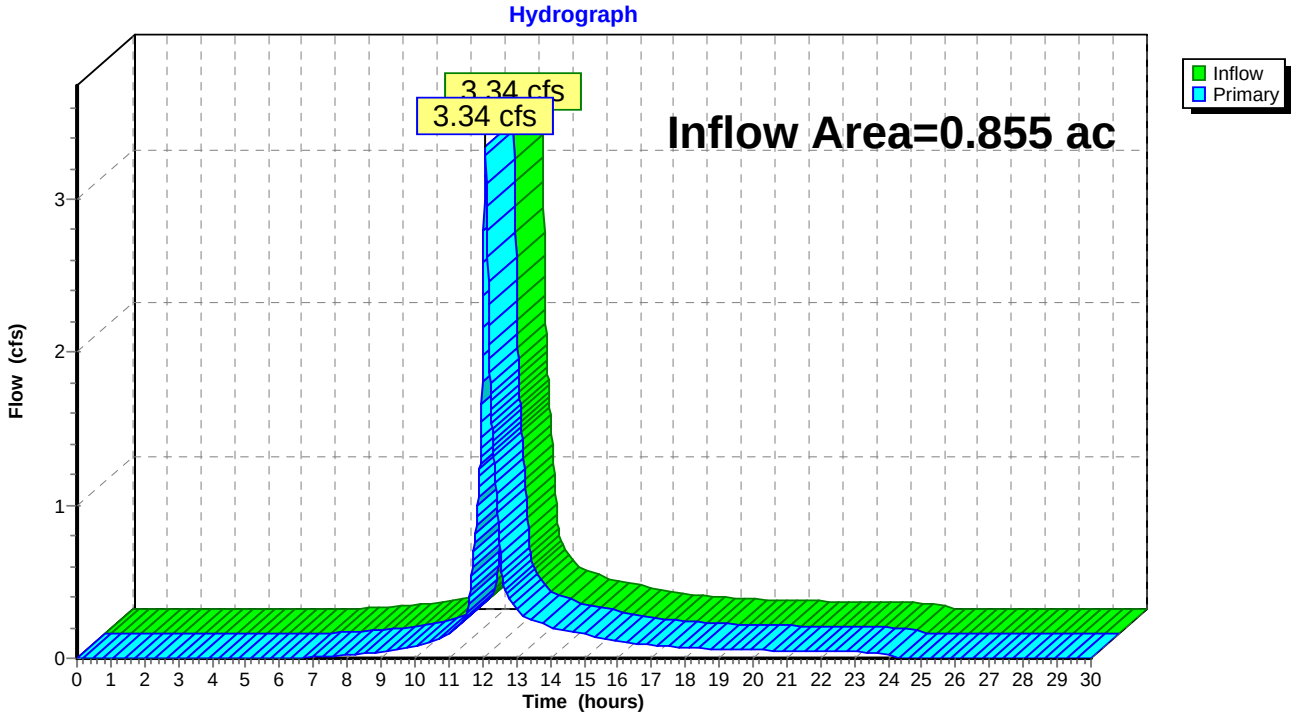


Summary for Link 11L: (new Link)

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 3.37" for 25-Year event
Inflow = 3.34 cfs @ 12.09 hrs, Volume= 0.240 af
Primary = 3.34 cfs @ 12.09 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 11L: (new Link)



Time span=0.00-30.00 hrs, dt=0.01 hrs, 3001 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Watershed PR-200A Runoff Area=0.410 ac 77.32% Impervious Runoff Depth=4.87"
Tc=6.0 min CN=85 Runoff=2.28 cfs 0.166 af

Subcatchment 2S: Watershed BLDG Runoff Area=0.140 ac 100.00% Impervious Runoff Depth=6.36"
Tc=6.0 min CN=98 Runoff=0.91 cfs 0.074 af

Subcatchment 3S: Watershed PR-100A Runoff Area=0.810 ac 98.77% Impervious Runoff Depth=6.24"
Tc=6.0 min CN=97 Runoff=5.22 cfs 0.421 af

Subcatchment 4S: Watershed PR-301A Runoff Area=0.145 ac 45.52% Impervious Runoff Depth=2.89"
Tc=6.0 min CN=66 Runoff=0.49 cfs 0.035 af

Subcatchment 5S: Watershed PR-300A Runoff Area=0.340 ac 71.76% Impervious Runoff Depth=4.54"
Tc=6.0 min CN=82 Runoff=1.79 cfs 0.129 af

Subcatchment 6S: Watershed PR-300B Runoff Area=0.370 ac 77.84% Impervious Runoff Depth=4.87"
Tc=6.0 min CN=85 Runoff=2.06 cfs 0.150 af

Subcatchment 7S: Watershed PR-202A Runoff Area=0.090 ac 53.33% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=70 Runoff=0.35 cfs 0.025 af

Subcatchment 8S: Watershed PR-202B Runoff Area=0.050 ac 62.00% Impervious Runoff Depth=3.90"
Tc=6.0 min CN=76 Runoff=0.23 cfs 0.016 af

Subcatchment E-200: PR-300 Runoff Area=8.505 ac 0.00% Impervious Runoff Depth=0.98"
Flow Length=929' Tc=16.8 min CN=44 Runoff=4.74 cfs 0.694 af

Subcatchment PR-201: (new Subcat) Runoff Area=37,231 sf 74.21% Impervious Runoff Depth=4.65"
Tc=6.0 min CN=83 Runoff=4.59 cfs 0.331 af

Subcatchment PR-202: Watershed PR-202 Runoff Area=43,806 sf 78.77% Impervious Runoff Depth=4.87"
Tc=6.0 min CN=85 Runoff=5.60 cfs 0.408 af

Reach 4R: DP-200 Inflow=4.74 cfs 0.694 af
Outflow=4.74 cfs 0.694 af

Reach DP-200: DP-200 Inflow=7.21 cfs 0.417 af
Outflow=7.21 cfs 0.417 af

Pond 1P: UDS 2 Peak Elev=131.23' Storage=0.071 af Inflow=2.86 cfs 0.207 af
Discarded=0.33 cfs 0.207 af Primary=0.00 cfs 0.000 af Outflow=0.33 cfs 0.207 af

Pond 3P: UDS 1 Peak Elev=127.06' Storage=0.158 af Inflow=6.13 cfs 0.496 af
Discarded=0.68 cfs 0.496 af Primary=0.00 cfs 0.000 af Outflow=0.68 cfs 0.496 af

Pond 4P: UDS 3 Peak Elev=135.86' Storage=0.109 af Inflow=4.34 cfs 0.314 af
Discarded=0.49 cfs 0.314 af Primary=0.00 cfs 0.000 af Outflow=0.49 cfs 0.314 af

Pond P200: Underground System 2 Peak Elev=136.40' Storage=0.095 af Inflow=5.60 cfs 0.408 af
Discarded=0.38 cfs 0.322 af Primary=3.72 cfs 0.086 af Outflow=4.10 cfs 0.408 af

Link 9L: (new Link) Inflow=6.13 cfs 0.496 af
Primary=6.13 cfs 0.496 af

Link 10L: (new Link) Inflow=2.86 cfs 0.207 af
Primary=2.86 cfs 0.207 af

Link 11L: (new Link) Inflow=4.34 cfs 0.314 af
Primary=4.34 cfs 0.314 af

Total Runoff Area = 12.720 ac Runoff Volume = 2.451 af Average Runoff Depth = 2.31"
73.58% Pervious = 9.360 ac 26.42% Impervious = 3.360 ac

Summary for Subcatchment 1S: Watershed PR-200A

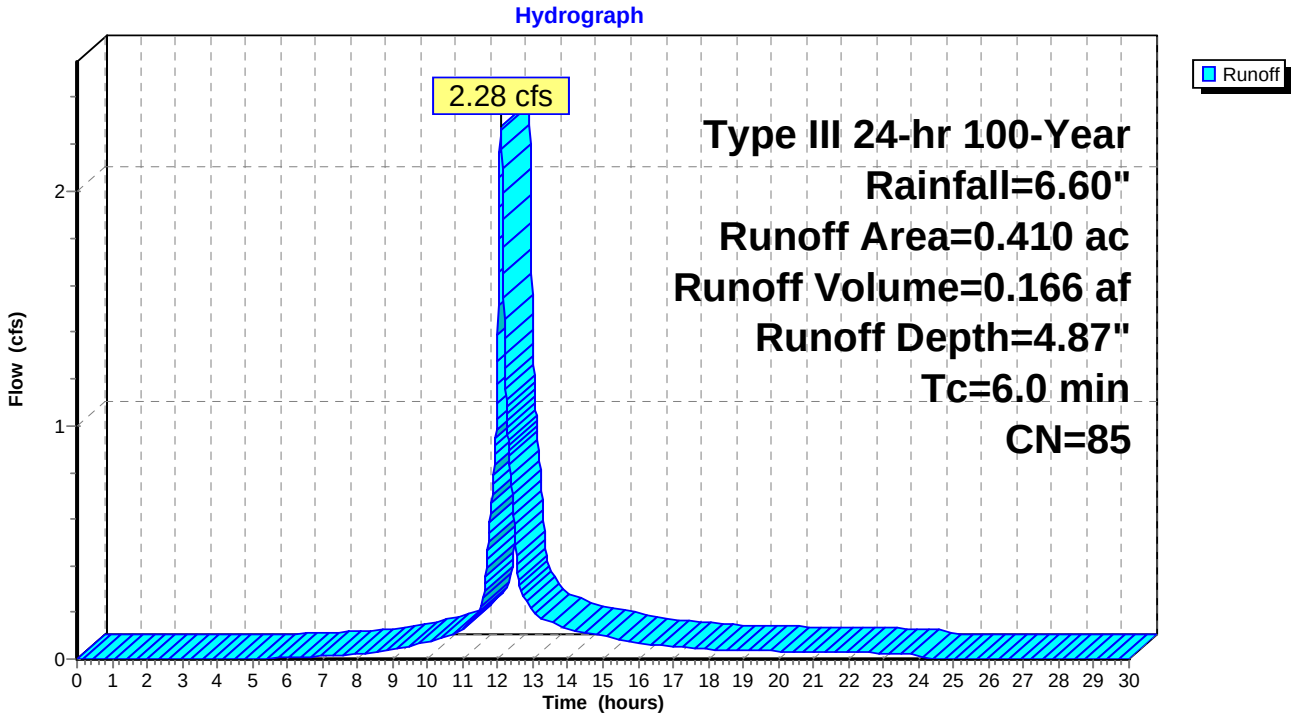
Runoff = 2.28 cfs @ 12.09 hrs, Volume= 0.166 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.093	39	>75% Grass cover, Good, HSG A
0.317	98	Paved parking, HSG A
0.410	85	Weighted Average
0.093		22.68% Pervious Area
0.317		77.32% Impervious Area

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

Subcatchment 1S: Watershed PR-200A



Summary for Subcatchment 2S: Watershed BLDG

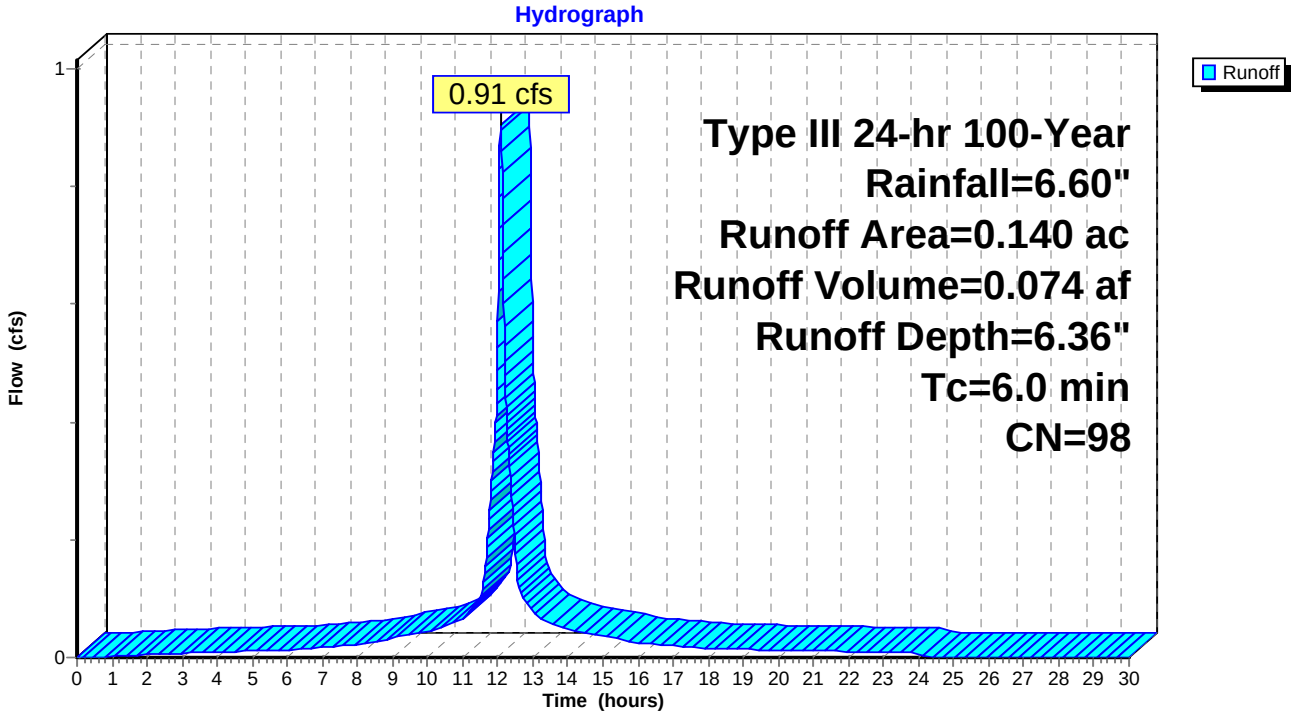
Runoff = 0.91 cfs @ 12.08 hrs, Volume= 0.074 af, Depth= 6.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

	Area (ac)	CN	Description
*	0.140	98	
	0.140		100.00% Impervious Area

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

Subcatchment 2S: Watershed BLDG



Summary for Subcatchment 3S: Watershed PR-100A

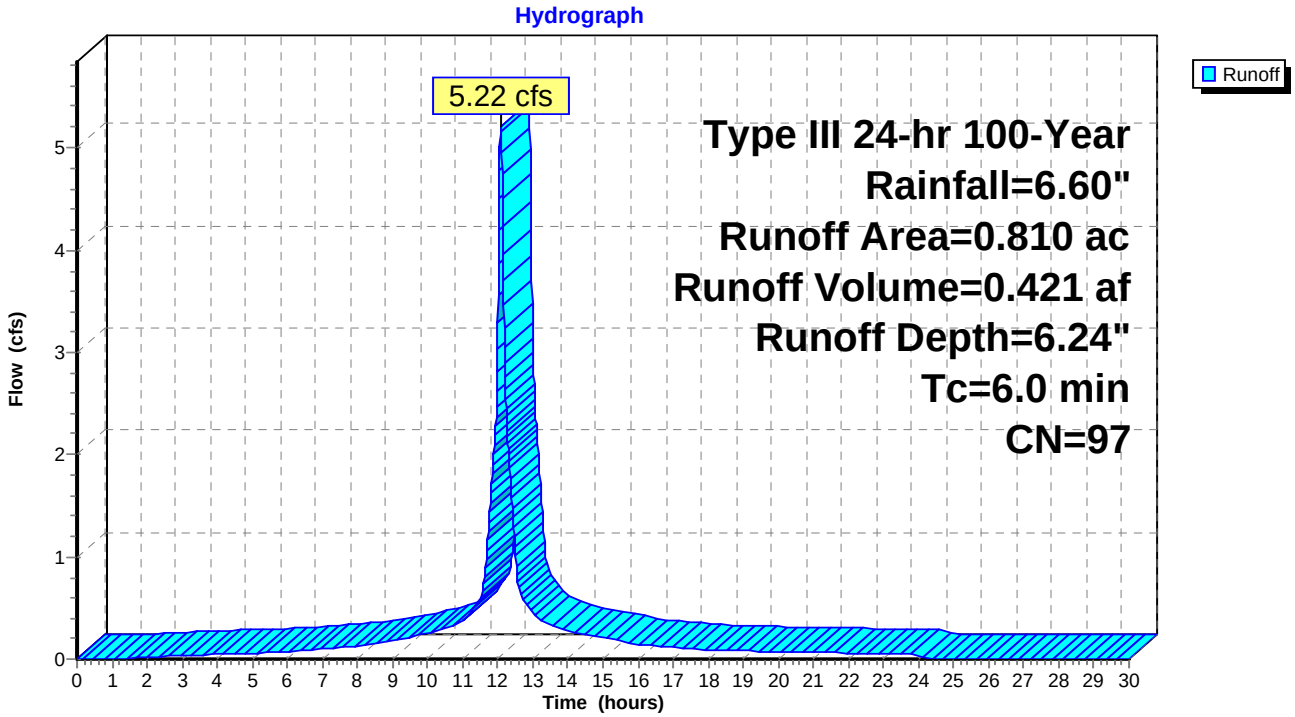
Runoff = 5.22 cfs @ 12.08 hrs, Volume= 0.421 af, Depth= 6.24"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.010	39	>75% Grass cover, Good, HSG A
0.800	98	Paved parking, HSG A
0.810	97	Weighted Average
0.010		1.23% Pervious Area
0.800		98.77% Impervious Area

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

Subcatchment 3S: Watershed PR-100A



Summary for Subcatchment 4S: Watershed PR-301A

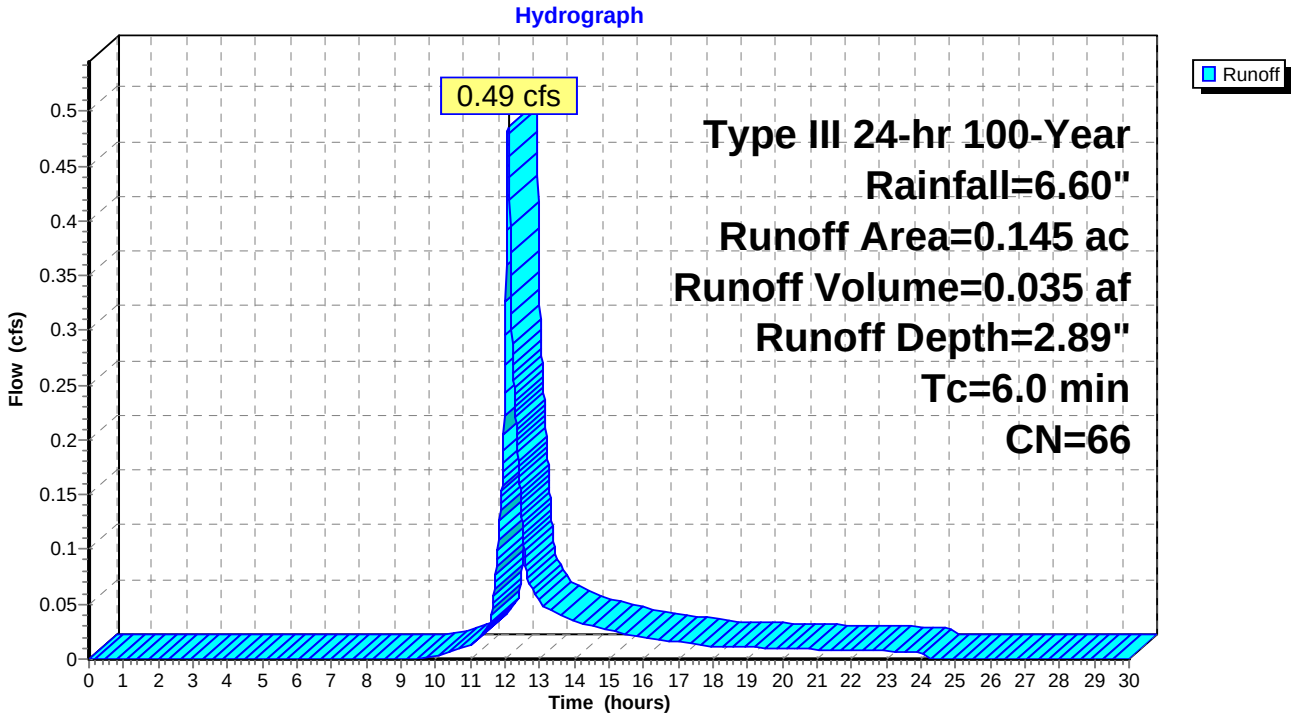
Runoff = 0.49 cfs @ 12.09 hrs, Volume= 0.035 af, Depth= 2.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

	Area (ac)	CN	Description
	0.079	39	>75% Grass cover, Good, HSG A
*	0.066	98	Paved parking, HSG A
	0.145	66	Weighted Average
	0.079		54.48% Pervious Area
	0.066		45.52% Impervious Area

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

Subcatchment 4S: Watershed PR-301A



Summary for Subcatchment 5S: Watershed PR-300A

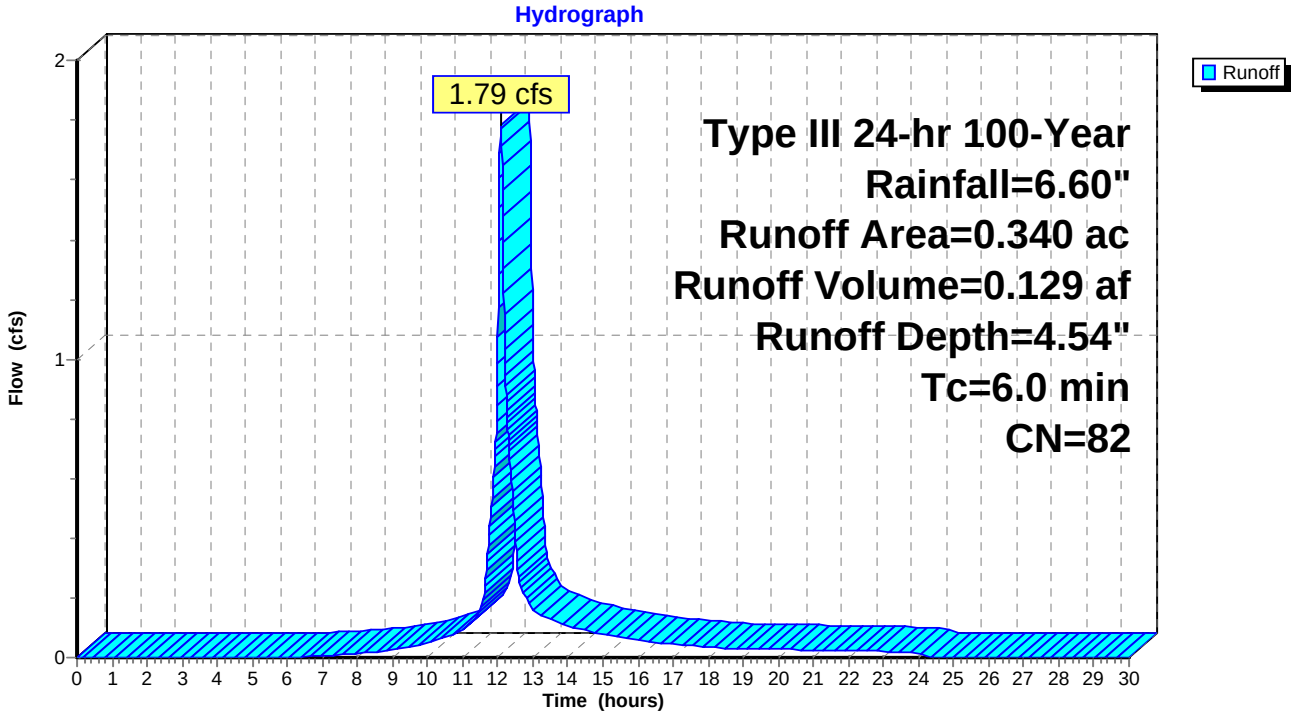
Runoff = 1.79 cfs @ 12.09 hrs, Volume= 0.129 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.089	39	>75% Grass cover, Good, HSG A
0.007	76	Gravel roads, HSG A
0.244	98	Paved parking, HSG A
0.340	82	Weighted Average
0.096		28.24% Pervious Area
0.244		71.76% Impervious Area

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

Subcatchment 5S: Watershed PR-300A



Summary for Subcatchment 6S: Watershed PR-300B

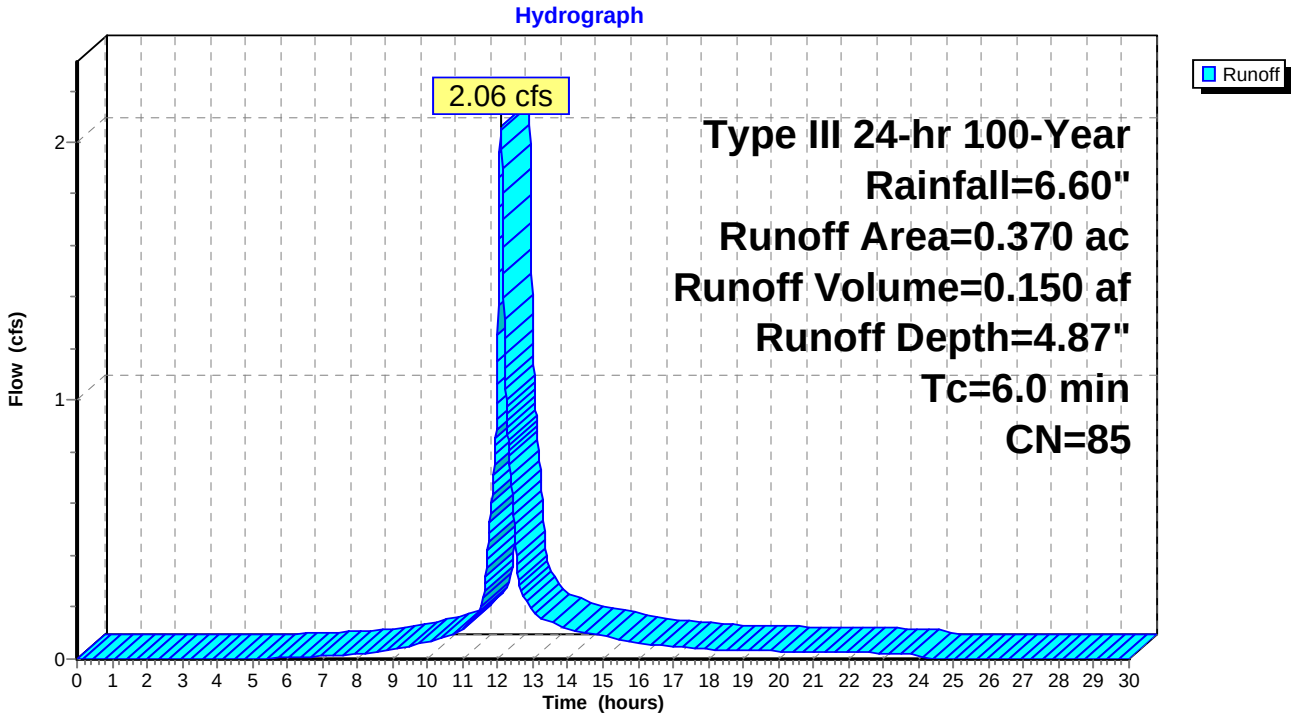
Runoff = 2.06 cfs @ 12.09 hrs, Volume= 0.150 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.082	39	>75% Grass cover, Good, HSG A
0.288	98	Paved parking, HSG A
0.370	85	Weighted Average
0.082		22.16% Pervious Area
0.288		77.84% Impervious Area

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

Subcatchment 6S: Watershed PR-300B



Summary for Subcatchment 7S: Watershed PR-202A

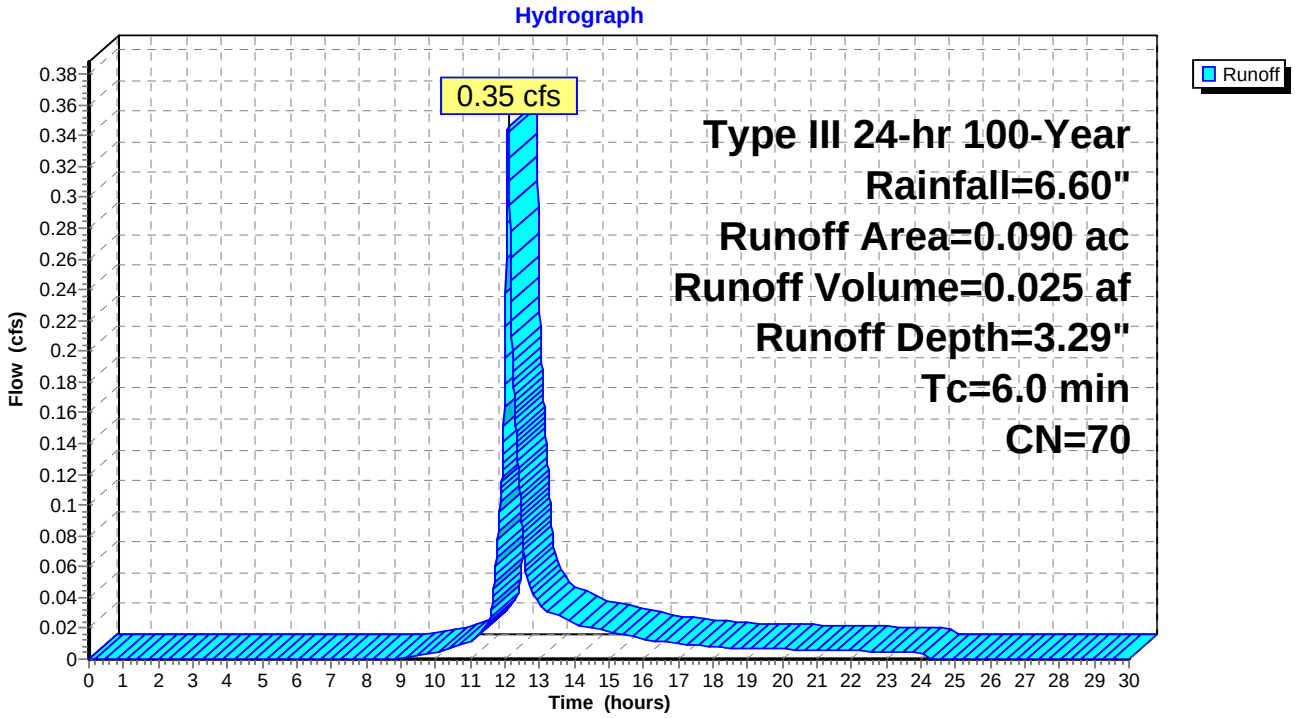
Runoff = 0.35 cfs @ 12.09 hrs, Volume= 0.025 af, Depth= 3.29"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.042	39	>75% Grass cover, Good, HSG A
0.048	98	Paved parking, HSG A
0.090	70	Weighted Average
0.042		46.67% Pervious Area
0.048		53.33% Impervious Area

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

Subcatchment 7S: Watershed PR-202A



Summary for Subcatchment 8S: Watershed PR-202B

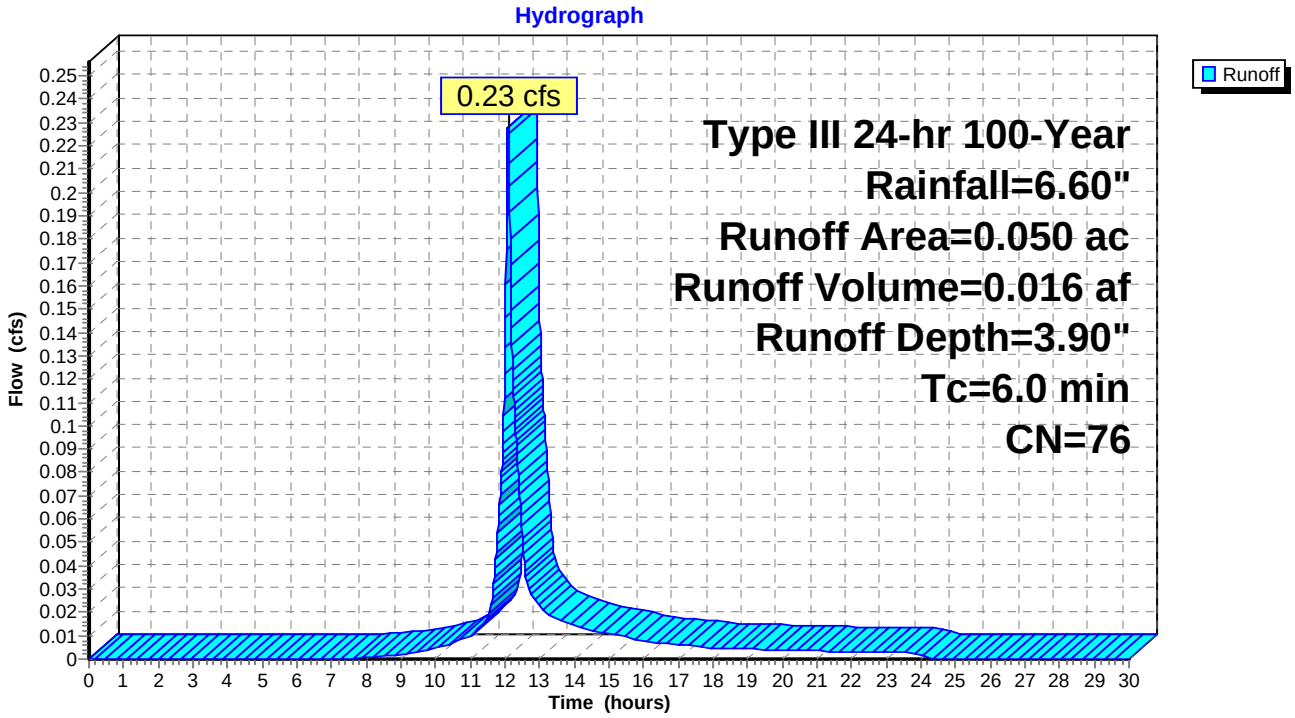
Runoff = 0.23 cfs @ 12.09 hrs, Volume= 0.016 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
0.019	39	>75% Grass cover, Good, HSG A
0.031	98	Paved parking, HSG A
0.050	76	Weighted Average
0.019		38.00% Pervious Area
0.031		62.00% Impervious Area

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

Subcatchment 8S: Watershed PR-202B



Summary for Subcatchment E-200: PR-300 UNDEVELOPED

Existing watershed at Equipment Service station

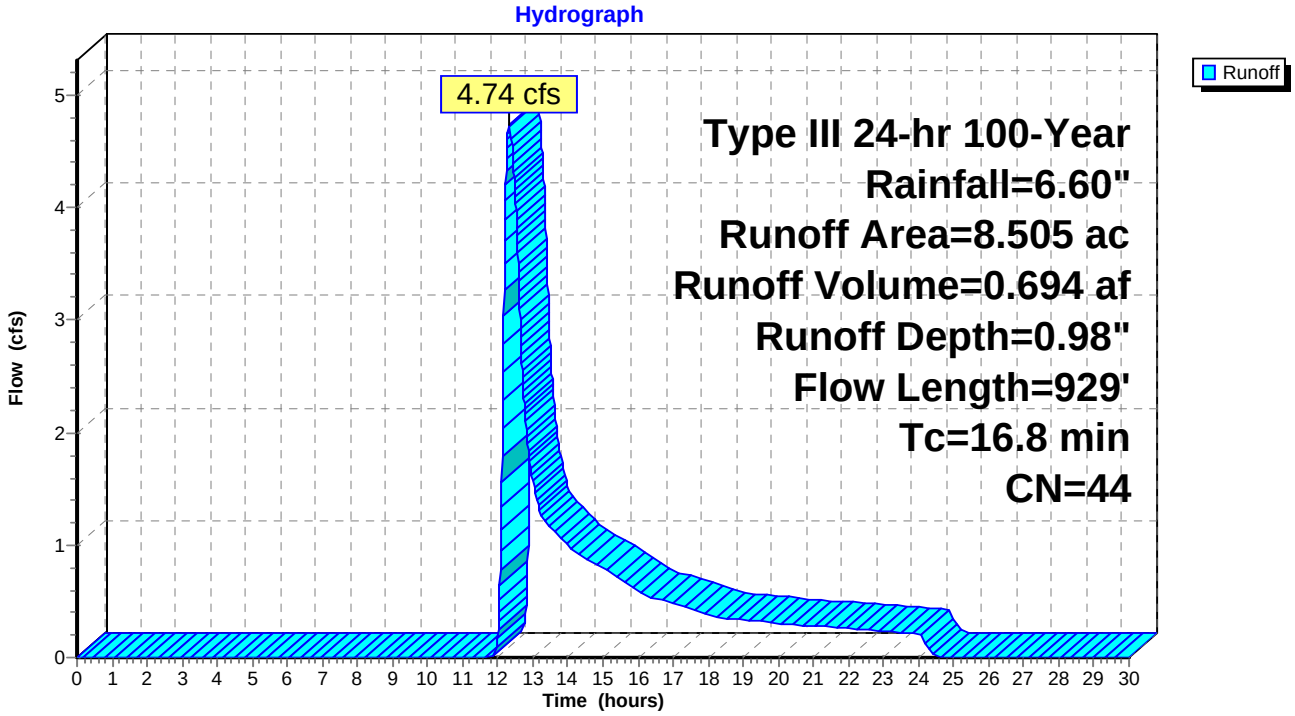
Runoff = 4.74 cfs @ 12.32 hrs, Volume= 0.694 af, Depth= 0.98"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (ac)	CN	Description
6.740	39	>75% Grass cover, Good, HSG A
1.240	76	Gravel roads, HSG A
0.525	36	Woods, Fair, HSG A
8.505	44	Weighted Average
8.505		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.4	50	0.0720	0.24		**Sheet Flow, A-B** Grass: Short n= 0.150 P2= 3.10"
1.0	80	0.0400	1.40		**Shallow Concentrated Flow, B-C** Short Grass Pasture Kv= 7.0 fps
12.4	799	0.0235	1.07		**Shallow Concentrated Flow, C-DP** Short Grass Pasture Kv= 7.0 fps
16.8	929	Total			

Subcatchment E-200: PR-300 UNDEVELOPED



Summary for Subcatchment PR-201: (new Subcat)

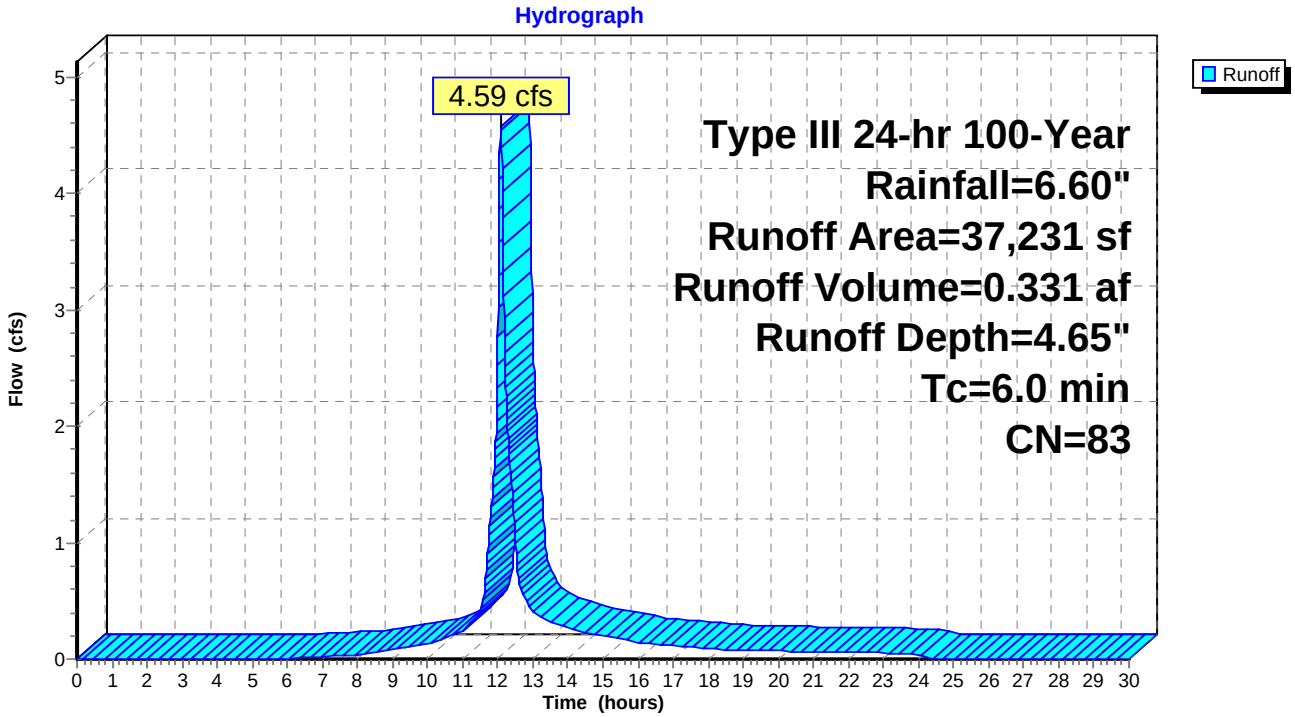
Runoff = 4.59 cfs @ 12.09 hrs, Volume= 0.331 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

Area (sf)	CN	Description
9,603	39	>75% Grass cover, Good, HSG A
27,628	98	Paved parking, HSG A
37,231	83	Weighted Average
9,603		25.79% Pervious Area
27,628		74.21% Impervious Area

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

Subcatchment PR-201: (new Subcat)



Summary for Subcatchment PR-202: Watershed PR-202

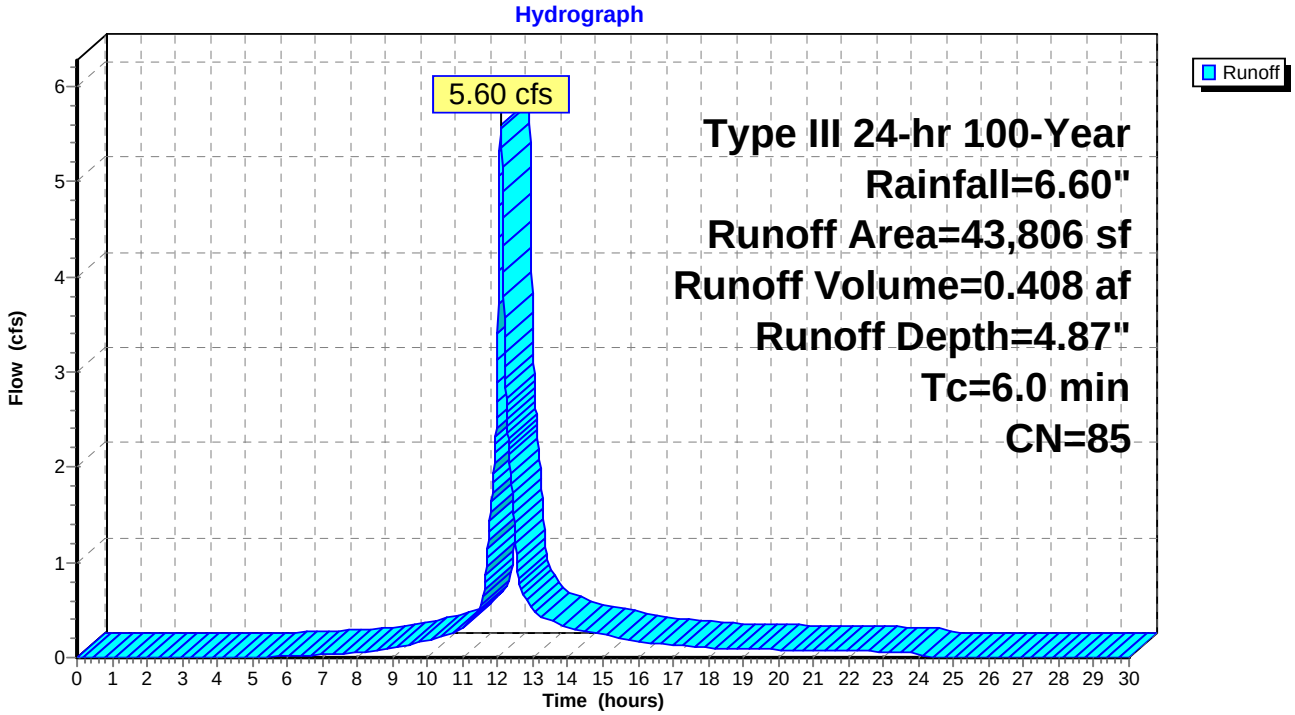
Runoff = 5.60 cfs @ 12.09 hrs, Volume= 0.408 af, Depth= 4.87"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Type III 24-hr 100-Year Rainfall=6.60"

	Area (sf)	CN	Description
	9,298	39	>75% Grass cover, Good, HSG A
*	2,327	98	Buildings
	32,181	98	Paved parking, HSG A
	43,806	85	Weighted Average
	9,298		21.23% Pervious Area
	34,508		78.77% Impervious Area

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

Subcatchment PR-202: Watershed PR-202



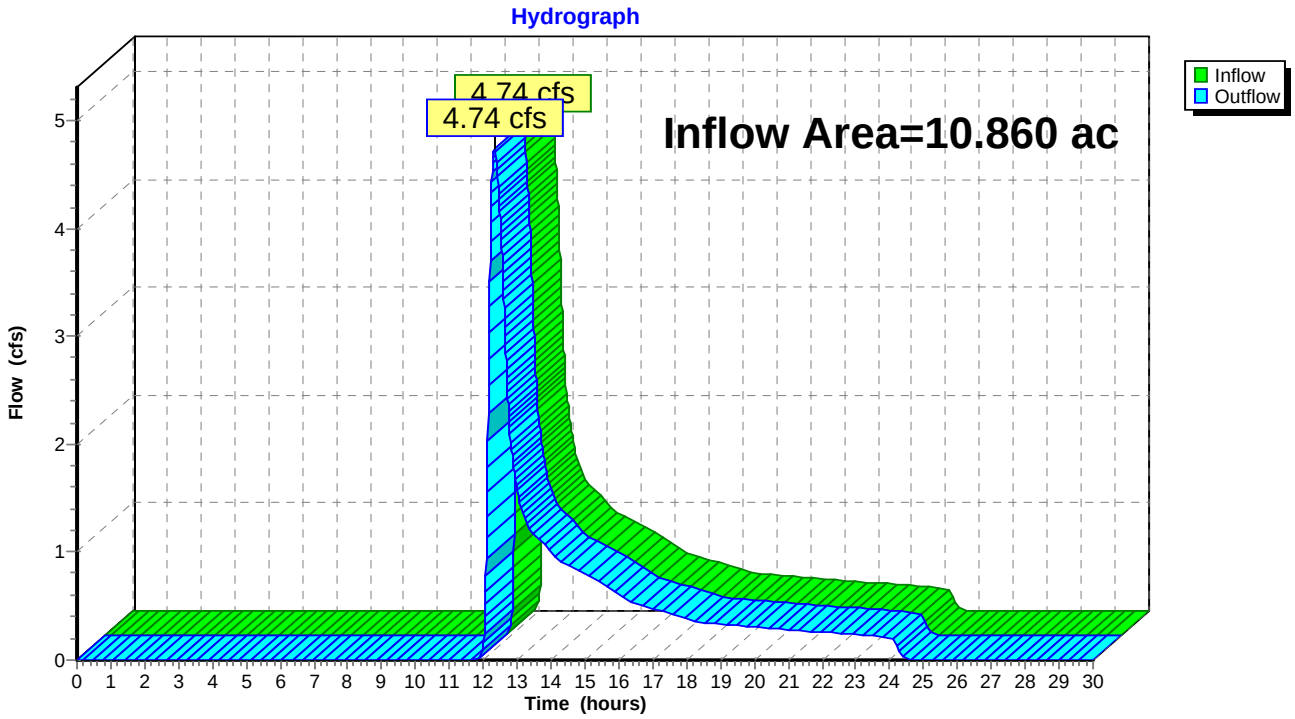
Summary for Reach 4R: DP-200

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

Inflow Area =	10.860 ac,	17.81% Impervious,	Inflow Depth =	0.77"	for 100-Year event
Inflow =	4.74 cfs @	12.32 hrs,	Volume=	0.694 af	
Outflow =	4.74 cfs @	12.32 hrs,	Volume=	0.694 af,	Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach 4R: DP-200



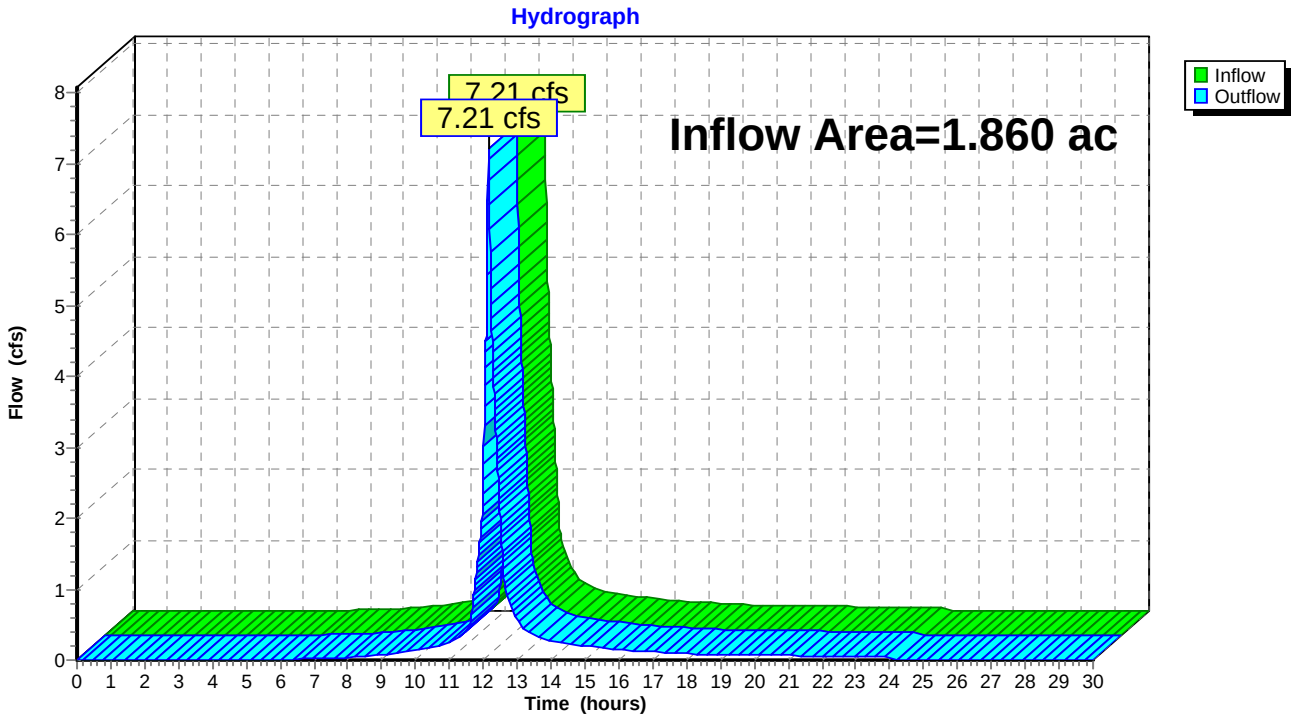
Summary for Reach DP-200: DP-200

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

Inflow Area = 1.860 ac, 76.68% Impervious, Inflow Depth = 2.69" for 100-Year event
Inflow = 7.21 cfs @ 12.15 hrs, Volume= 0.417 af
Outflow = 7.21 cfs @ 12.15 hrs, Volume= 0.417 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Reach DP-200: DP-200



Summary for Pond 1P: UDS 2

Inflow Area =	0.550 ac, 72.00% Impervious, Inflow Depth = 4.52" for 100-Year event				
Inflow =	2.86 cfs @	12.09 hrs,	Volume=	0.207 af	
Outflow =	0.33 cfs @	12.76 hrs,	Volume=	0.207 af,	Atten= 88%, Lag= 40.6 min
Discarded =	0.33 cfs @	12.76 hrs,	Volume=	0.207 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 131.23' @ 12.76 hrs Surf.Area= 0.037 ac Storage= 0.071 af

Plug-Flow detention time= 69.0 min calculated for 0.207 af (100% of inflow)
Center-of-Mass det. time= 69.0 min (872.2 - 803.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	128.00'	0.037 af	**6.25'W x 258.32'L x 3.50'H Field A** 0.130 af Overall - 0.038 af Embedded = 0.092 af x 40.0% Voids
#2A	128.50'	0.038 af	**StormTech SC-740** x 36 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	128.00'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	131.50'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.33 cfs @ 12.76 hrs HW=131.23' (Free Discharge)
└**1=Exfiltration** (Controls 0.33 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=128.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: UDS 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

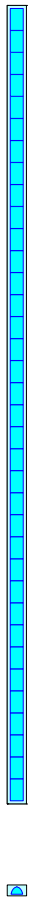
36 Chambers/Row x 7.12' Long = 256.32' + 12.0" End Stone x 2 = 258.32' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

36 Chambers x 45.9 cf = 1,653.8 cf Chamber Storage

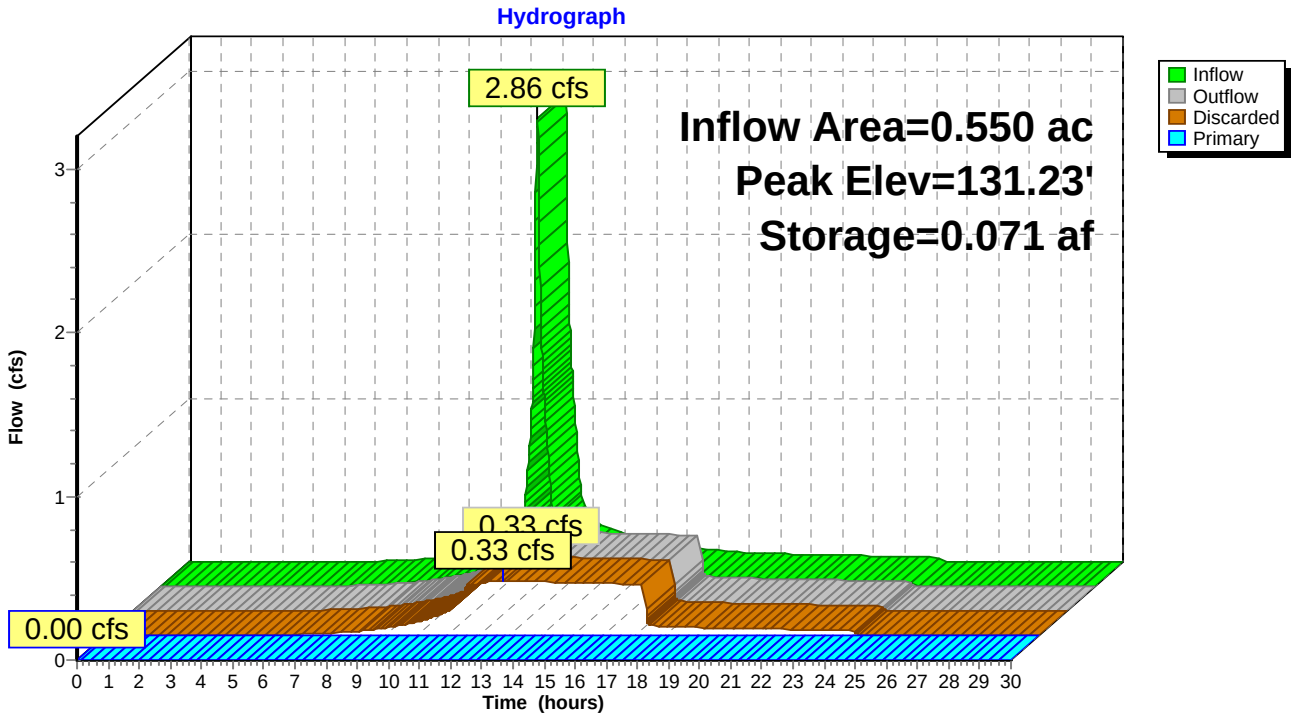
5,650.8 cf Field - 1,653.8 cf Chambers = 3,996.9 cf Stone x 40.0% Voids = 1,598.8 cf Stone Storage

Stone + Chamber Storage = 3,252.6 cf = 0.075 af

36 Chambers
209.3 cy Field
148.0 cy Stone



Pond 1P: UDS 2


Hydrograph
2.86 cfs
Inflow Area=0.550 ac
Peak Elev=131.23'
Storage=0.071 af
0.33 cfs
0.33 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 3P: UDS 1

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 6.13 cfs @ 12.08 hrs, Volume= 0.496 af
Outflow = 0.68 cfs @ 12.72 hrs, Volume= 0.496 af, Atten= 89%, Lag= 38.2 min
Discarded = 0.68 cfs @ 12.72 hrs, Volume= 0.496 af
Primary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 127.06' @ 12.72 hrs Surf.Area= 0.075 ac Storage= 0.158 af

Plug-Flow detention time= 66.3 min calculated for 0.496 af (100% of inflow)
Center-of-Mass det. time= 66.3 min (815.7 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	123.70'	0.067 af	**30.00'W x 108.80'L x 3.50'H Field A** 0.262 af Overall - 0.095 af Embedded = 0.167 af x 40.0% Voids
#2A	124.20'	0.095 af	**StormTech SC-740** x 90 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.162 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	123.70'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	127.20'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.68 cfs @ 12.72 hrs HW=127.06' (Free Discharge)
└─**1=Exfiltration** (Controls 0.68 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=123.70' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 3P: UDS 1 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

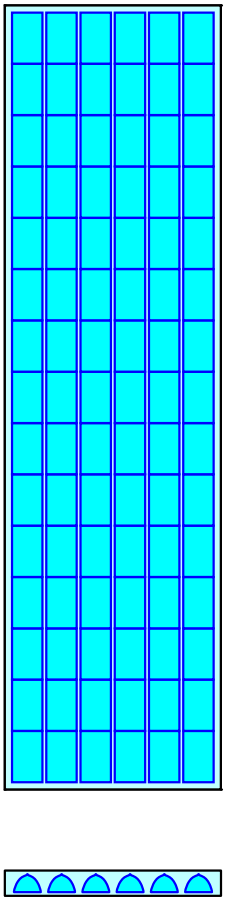
15 Chambers/Row x 7.12' Long = 106.80' + 12.0" End Stone x 2 = 108.80' Base Length
6 Rows x 51.0" Wide + 6.0" Spacing x 5 + 12.0" Side Stone x 2 = 30.00' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

90 Chambers x 45.9 cf = 4,134.6 cf Chamber Storage

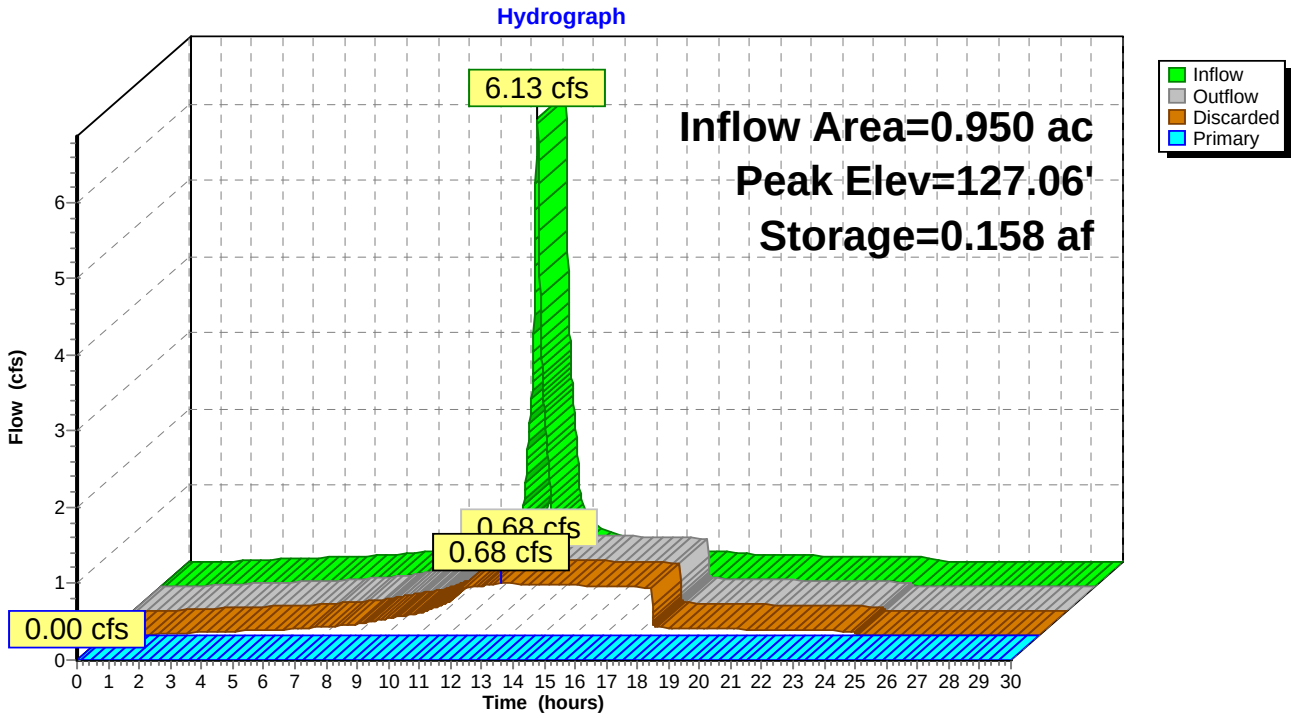
11,424.0 cf Field - 4,134.6 cf Chambers = 7,289.4 cf Stone x 40.0% Voids = 2,915.8 cf Stone Storage

Stone + Chamber Storage = 7,050.4 cf = 0.162 af

90 Chambers
423.1 cy Field
270.0 cy Stone



Pond 3P: UDS 1


Hydrograph
6.13 cfs
Inflow Area=0.950 ac
Peak Elev=127.06'
Storage=0.158 af
0.68 cfs
0.68 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond 4P: UDS 3

Inflow Area =	0.855 ac, 69.94% Impervious, Inflow Depth = 4.41" for 100-Year event				
Inflow =	4.34 cfs @	12.09 hrs,	Volume=	0.314 af	
Outflow =	0.49 cfs @	12.81 hrs,	Volume=	0.314 af,	Atten= 89%, Lag= 43.4 min
Discarded =	0.49 cfs @	12.81 hrs,	Volume=	0.314 af	
Primary =	0.00 cfs @	0.00 hrs,	Volume=	0.000 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 135.86' @ 12.81 hrs Surf.Area= 0.054 ac Storage= 0.109 af

Plug-Flow detention time= 73.8 min calculated for 0.314 af (100% of inflow)
Center-of-Mass det. time= 73.8 min (879.4 - 805.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.40'	0.054 af	**6.25'W x 379.36'L x 3.50'H Field A** 0.191 af Overall - 0.056 af Embedded = 0.135 af x 40.0% Voids
#2A	132.90'	0.056 af	**StormTech SC-740** x 53 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.110 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Discarded	132.40'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 84.50'
#2	Primary	135.90'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Discarded OutFlow Max=0.49 cfs @ 12.81 hrs HW=135.86' (Free Discharge)
└─**1=Exfiltration** (Controls 0.49 cfs)

Primary OutFlow Max=0.00 cfs @ 0.00 hrs HW=132.40' (Free Discharge)
└─**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 4P: UDS 3 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

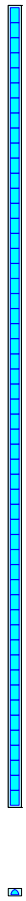
53 Chambers/Row x 7.12' Long = 377.36' + 12.0" End Stone x 2 = 379.36' Base Length
1 Rows x 51.0" Wide + 12.0" Side Stone x 2 = 6.25' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

53 Chambers x 45.9 cf = 2,434.8 cf Chamber Storage

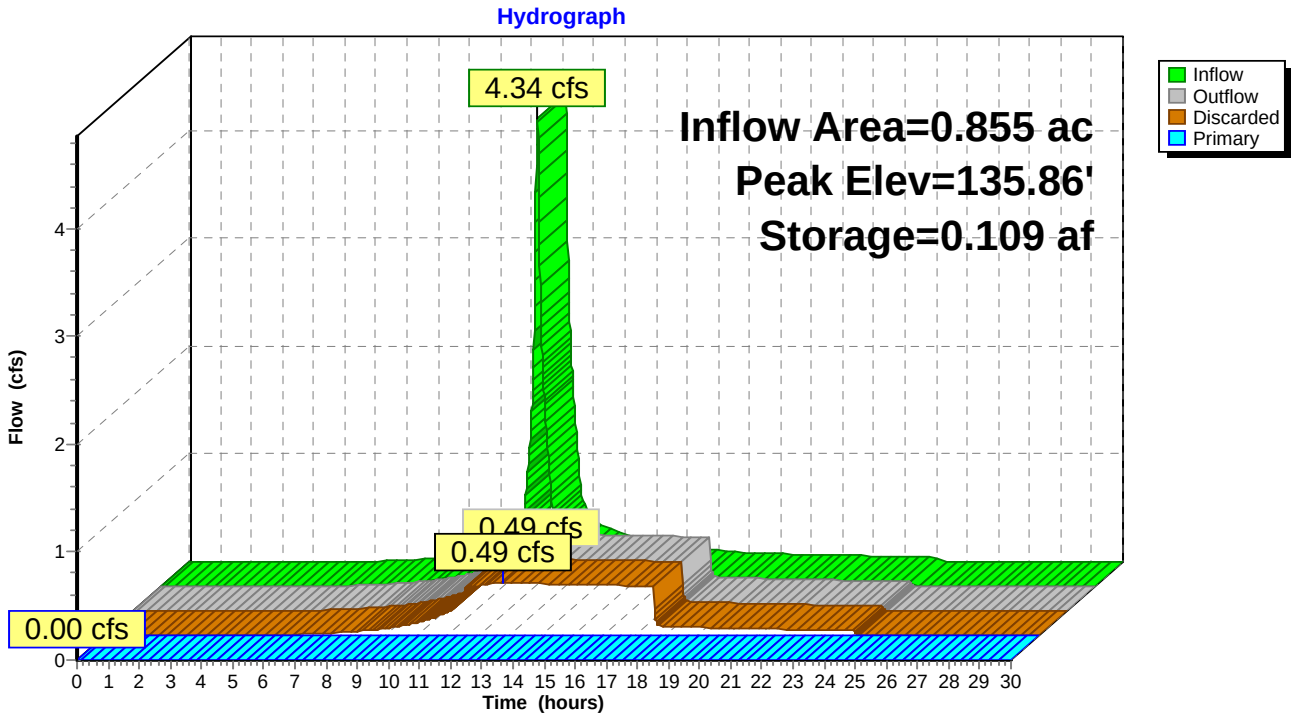
8,298.5 cf Field - 2,434.8 cf Chambers = 5,863.7 cf Stone x 40.0% Voids = 2,345.5 cf Stone Storage

Stone + Chamber Storage = 4,780.3 cf = 0.110 af

53 Chambers
307.4 cy Field
217.2 cy Stone



Pond 4P: UDS 3


Hydrograph
4.34 cfs
Inflow Area=0.855 ac
Peak Elev=135.86'
Storage=0.109 af
0.49 cfs
0.49 cfs
0.00 cfs
Inflow
Outflow
Discarded
Primary
Flow (cfs)
Time (hours)

Summary for Pond P200: Underground System 2

Inflow Area =	1.006 ac, 78.77% Impervious, Inflow Depth = 4.87" for 100-Year event				
Inflow =	5.60 cfs @	12.09 hrs,	Volume=	0.408 af	
Outflow =	4.10 cfs @	12.16 hrs,	Volume=	0.408 af,	Atten= 27%, Lag= 4.5 min
Discarded =	0.38 cfs @	12.16 hrs,	Volume=	0.322 af	
Primary =	3.72 cfs @	12.16 hrs,	Volume=	0.086 af	

Routing by Stor-Ind method, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs
Peak Elev= 136.40' @ 12.16 hrs Surf.Area= 0.045 ac Storage= 0.095 af

Plug-Flow detention time= 64.0 min calculated for 0.408 af (100% of inflow)
Center-of-Mass det. time= 64.0 min (861.1 - 797.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	132.94'	0.040 af	**20.50'W x 94.56'L x 3.50'H Field A** 0.156 af Overall - 0.055 af Embedded = 0.101 af x 40.0% Voids
#2A	133.44'	0.055 af	**StormTech SC-740** x 52 Inside #1 Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap
		0.095 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	134.70'	**12.0" Round Culvert** L= 35.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 134.70' / 134.00' S= 0.0200 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior
#2	Device 1	135.94'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#3	Discarded	132.94'	**8.270 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 0.00'

Discarded OutFlow Max=0.38 cfs @ 12.16 hrs HW=136.40' (Free Discharge)
└─**3=Exfiltration** (Controls 0.38 cfs)

Primary OutFlow Max=3.72 cfs @ 12.16 hrs HW=136.40' (Free Discharge)
└─**1=Culvert** (Passes 3.72 cfs of 4.14 cfs potential flow)
└─**2=Broad-Crested Rectangular Weir** (Weir Controls 3.72 cfs @ 2.02 fps)

Pond P200: Underground System 2 - Chamber Wizard Field A

Chamber Model = StormTech SC-740
Effective Size= 44.6"W x 30.0"H => 6.45 sf x 7.12'L = 45.9 cf
Overall Size= 51.0"W x 30.0"H x 7.56'L with 0.44' Overlap

51.0" Wide + 6.0" Spacing = 57.0" C-C

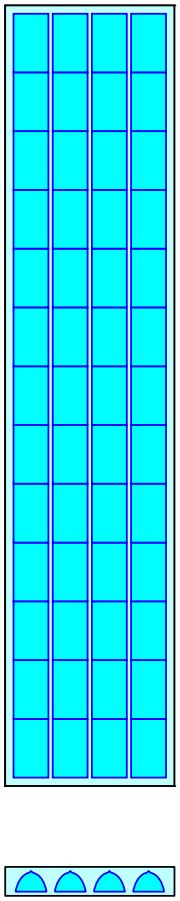
13 Chambers/Row x 7.12' Long = 92.56' + 12.0" End Stone x 2 = 94.56' Base Length
4 Rows x 51.0" Wide + 6.0" Spacing x 3 + 12.0" Side Stone x 2 = 20.50' Base Width
6.0" Base + 30.0" Chamber Height + 6.0" Cover = 3.50' Field Height

52 Chambers x 45.9 cf = 2,388.9 cf Chamber Storage

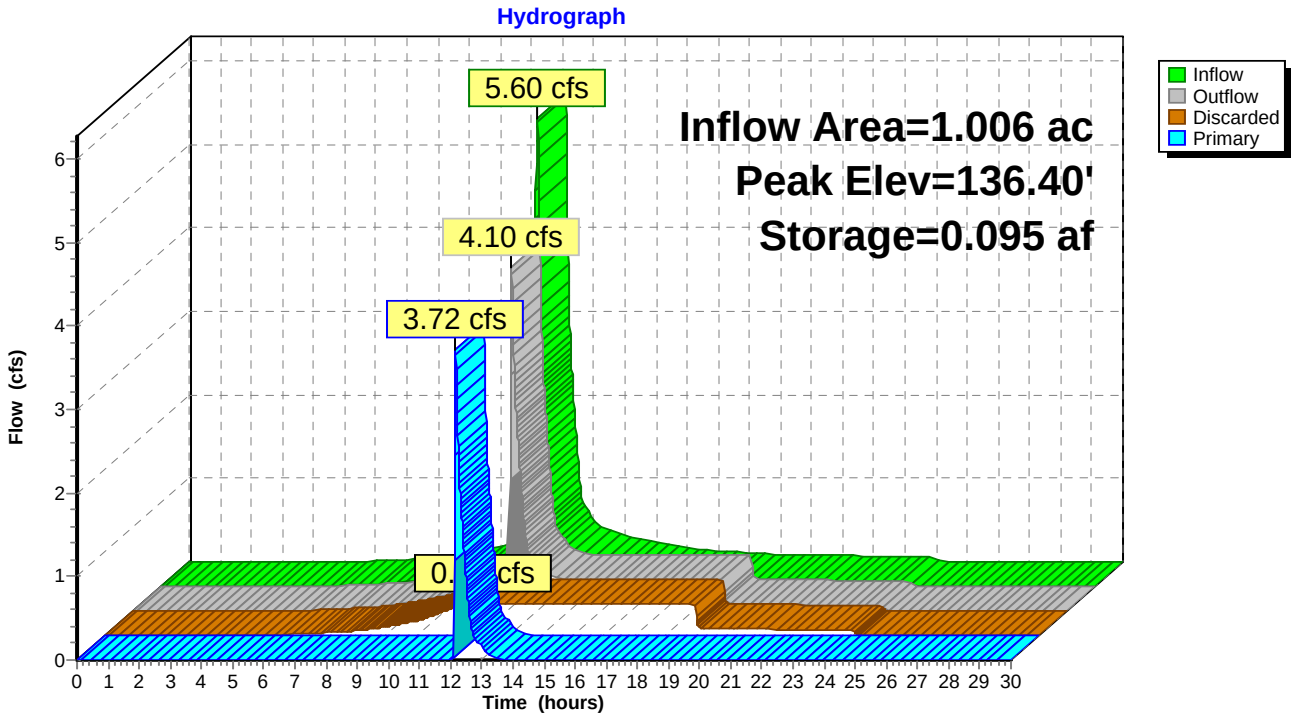
6,784.7 cf Field - 2,388.9 cf Chambers = 4,395.8 cf Stone x 40.0% Voids = 1,758.3 cf Stone Storage

Stone + Chamber Storage = 4,147.2 cf = 0.095 af

52 Chambers
251.3 cy Field
162.8 cy Stone



Pond P200: Underground System 2

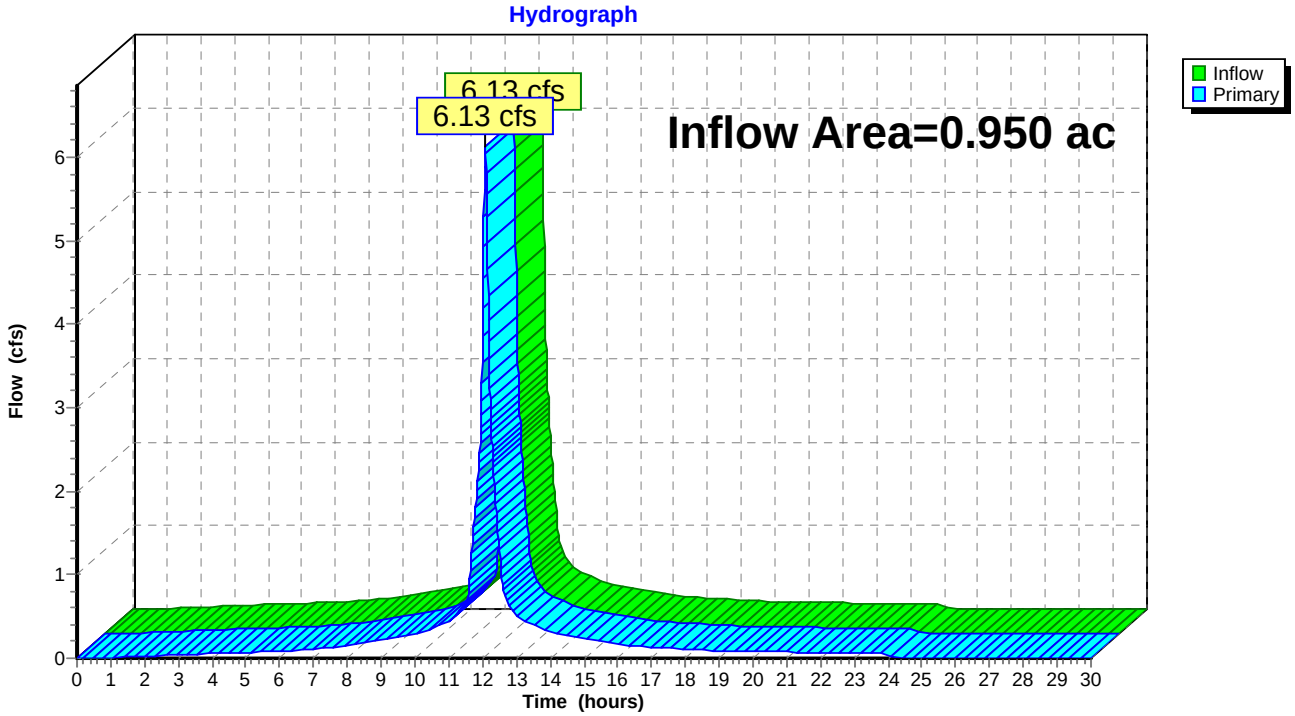


Summary for Link 9L: (new Link)

Inflow Area = 0.950 ac, 98.95% Impervious, Inflow Depth = 6.26" for 100-Year event
Inflow = 6.13 cfs @ 12.08 hrs, Volume= 0.496 af
Primary = 6.13 cfs @ 12.08 hrs, Volume= 0.496 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 9L: (new Link)

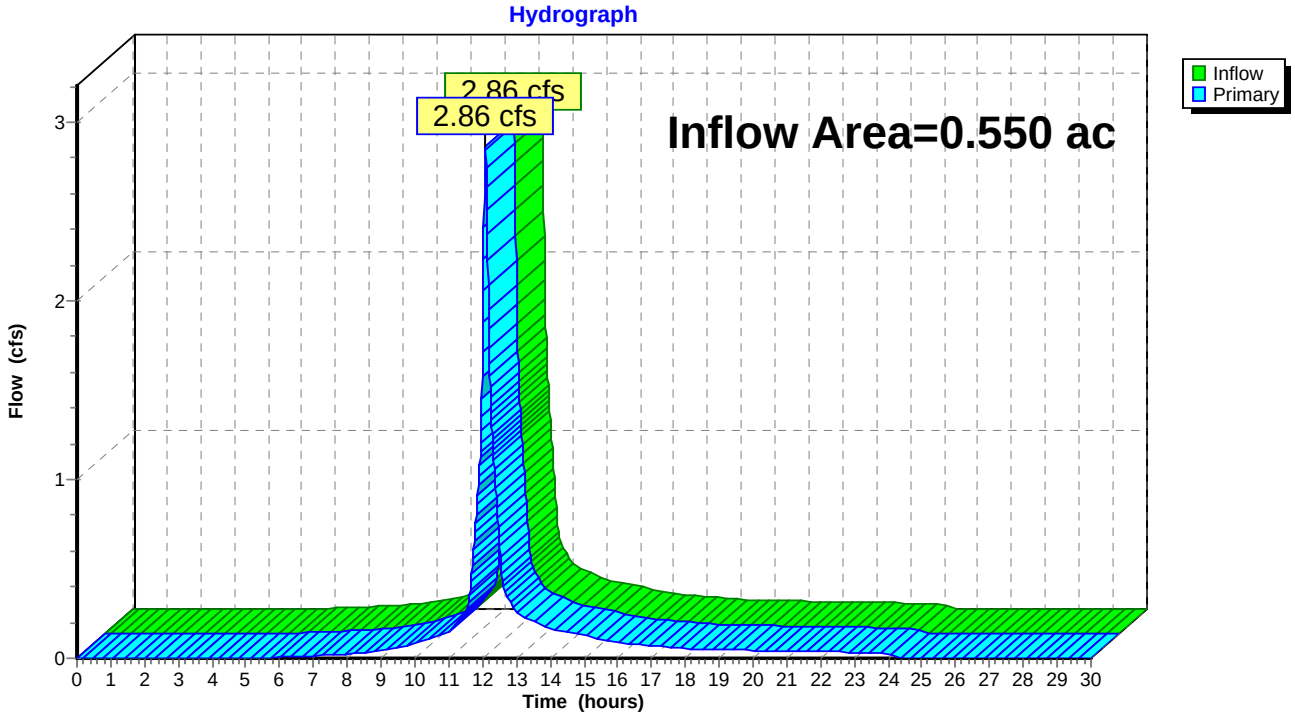


Summary for Link 10L: (new Link)

Inflow Area = 0.550 ac, 72.00% Impervious, Inflow Depth = 4.52" for 100-Year event
Inflow = 2.86 cfs @ 12.09 hrs, Volume= 0.207 af
Primary = 2.86 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.0 min

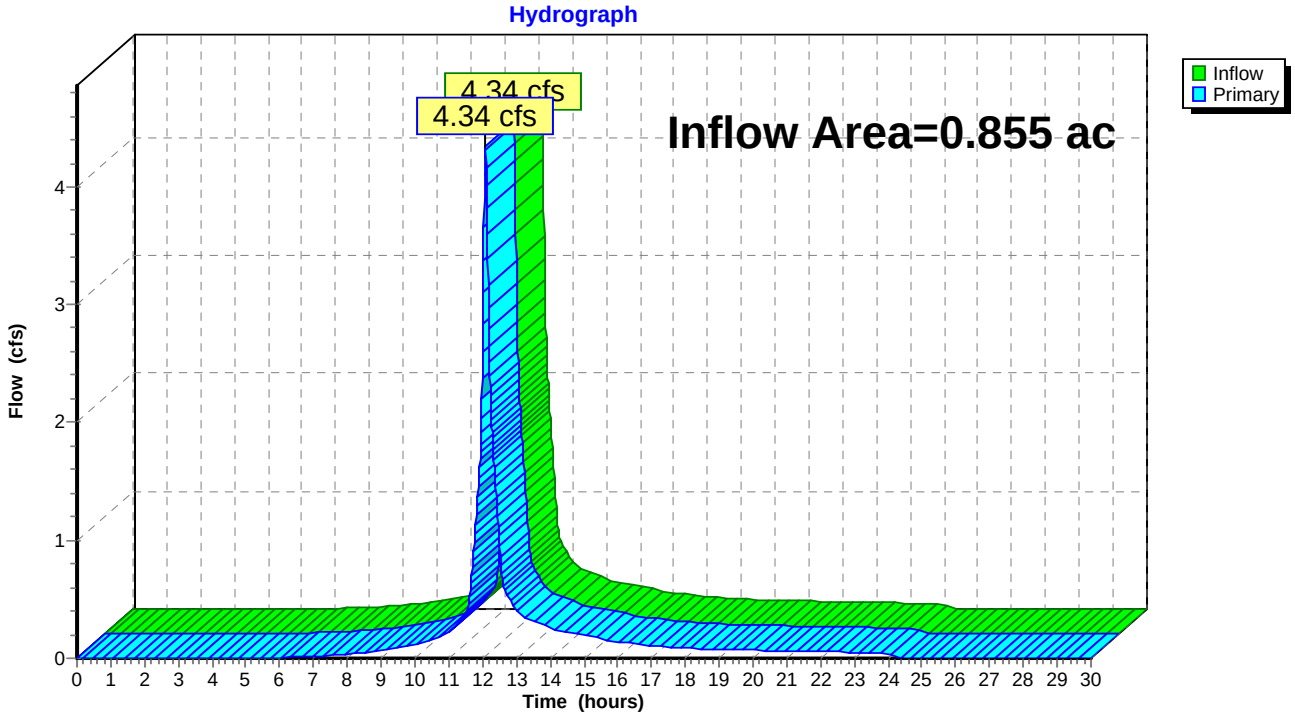
Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 10L: (new Link)



Summary for Link 11L: (new Link)

Inflow Area = 0.855 ac, 69.94% Impervious, Inflow Depth = 4.41" for 100-Year event
Inflow = 4.34 cfs @ 12.09 hrs, Volume= 0.314 af
Primary = 4.34 cfs @ 12.09 hrs, Volume= 0.314 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-30.00 hrs, dt= 0.01 hrs

Link 11L: (new Link)