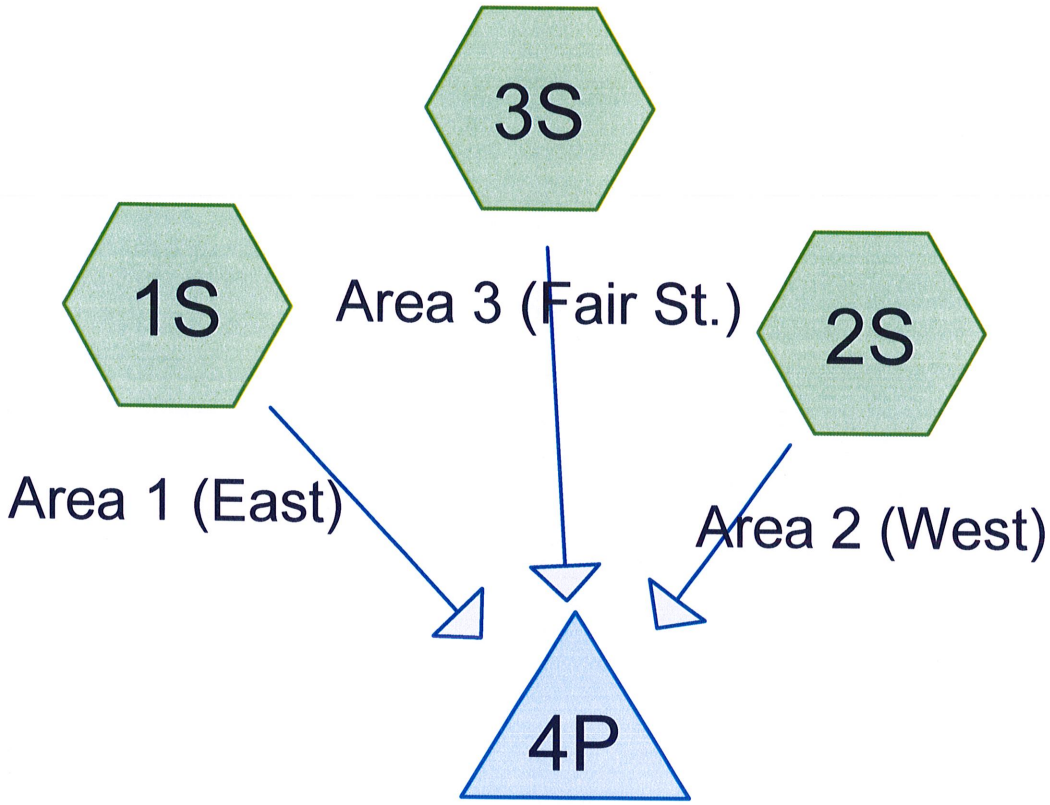
APPENDIX D



Existing CB1A (Point of Analysis)

Subcat Reach Pond Link

Routing Diagram for PreDevelopmentStorm.revised2
Prepared by Microsoft, Printed 7/22/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.060	39	>75% Grass cover, Good, HSG A (1S)
0.080	61	>75% Grass cover, Good, HSG B (2S)
0.831	98	Paved parking, HSG A (1S, 2S)
0.752	98	Paved parking, HSG B (2S)
0.444	98	Paved roads w/curbs & sewers, HSG B (3S)
0.503	98	Roofs, HSG B (1S)
2.670	**96**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.891	HSG A	1S, 2S
1.779	HSG B	1S, 2S, 3S
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.670		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.060	0.080	0.000	0.000	0.000	0.140	>75% Grass cover, Good	1S, 2S
0.831	0.752	0.000	0.000	0.000	1.583	Paved parking	1S, 2S
0.000	0.444	0.000	0.000	0.000	0.444	Paved roads w/curbs & sewers	3S
0.000	0.503	0.000	0.000	0.000	0.503	Roofs	1S
0.891	**1.779**	**0.000**	**0.000**	**0.000**	**2.670**	**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)	Inside-Fill (inches)
1	1S	0.00	0.00	165.0	0.0420	0.017	15.0	0.0	0.0
2	1S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0
3	2S	0.00	0.00	52.0	0.0100	0.015	24.0	0.0	0.0
4	3S	0.00	0.00	128.0	0.0470	0.017	15.0	0.0	0.0
5	3S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>1.81"
Flow Length=475' Tc=3.0 min CN=94 Runoff=2.21 cfs 0.120 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>1.98"
Flow Length=482' Tc=4.0 min CN=96 Runoff=4.02 cfs 0.235 af

Subcatchment 3S: Area 3 (Fair St.) Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>2.14"
Flow Length=517' Tc=1.7 min CN=98 Runoff=1.44 cfs 0.079 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=7.55 cfs 0.434 af
Primary=7.55 cfs 0.434 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.434 af Average Runoff Depth = 1.95"
5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

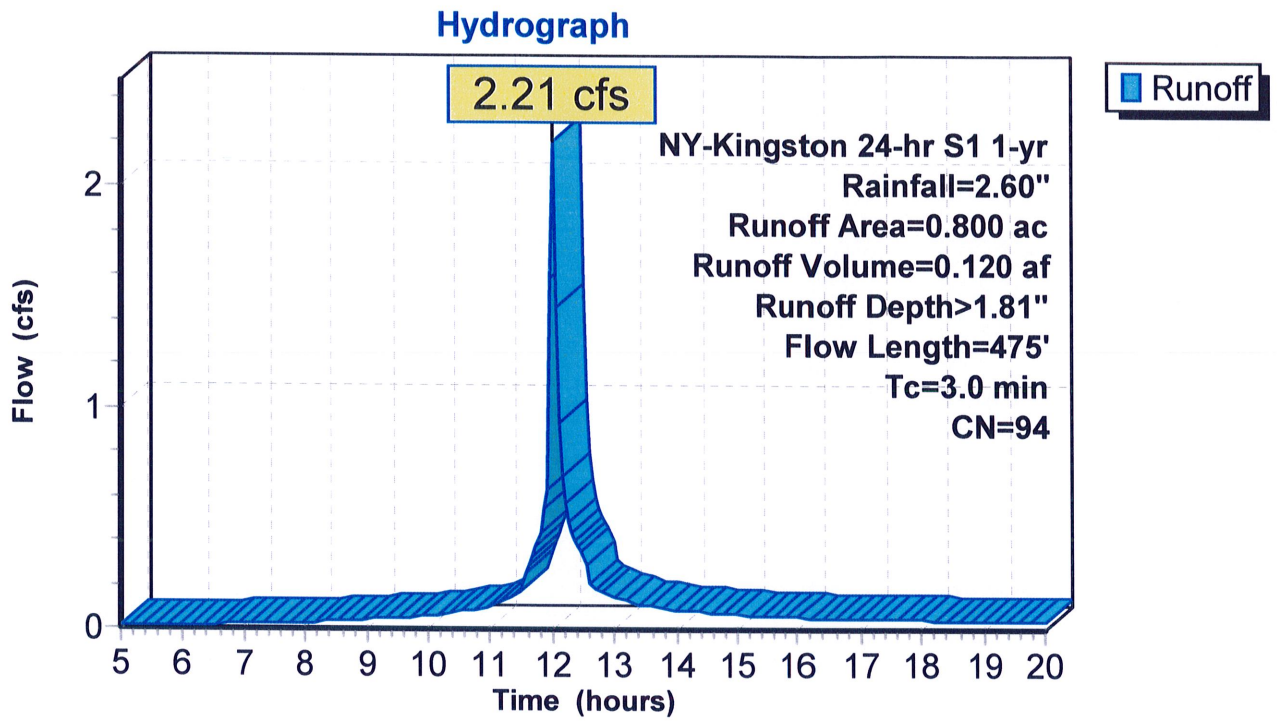
Runoff = 2.21 cfs @ 12.00 hrs, Volume= 0.120 af, Depth> 1.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.237	98	Paved parking, HSG A
0.060	39	>75% Grass cover, Good, HSG A
0.800	94	Weighted Average
0.060		7.50% Pervious Area
0.740		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	37	0.2297	9.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	165	0.0420	8.25	10.12	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
3.0	475	Total			

Subcatchment 1S: Area 1 (East)



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

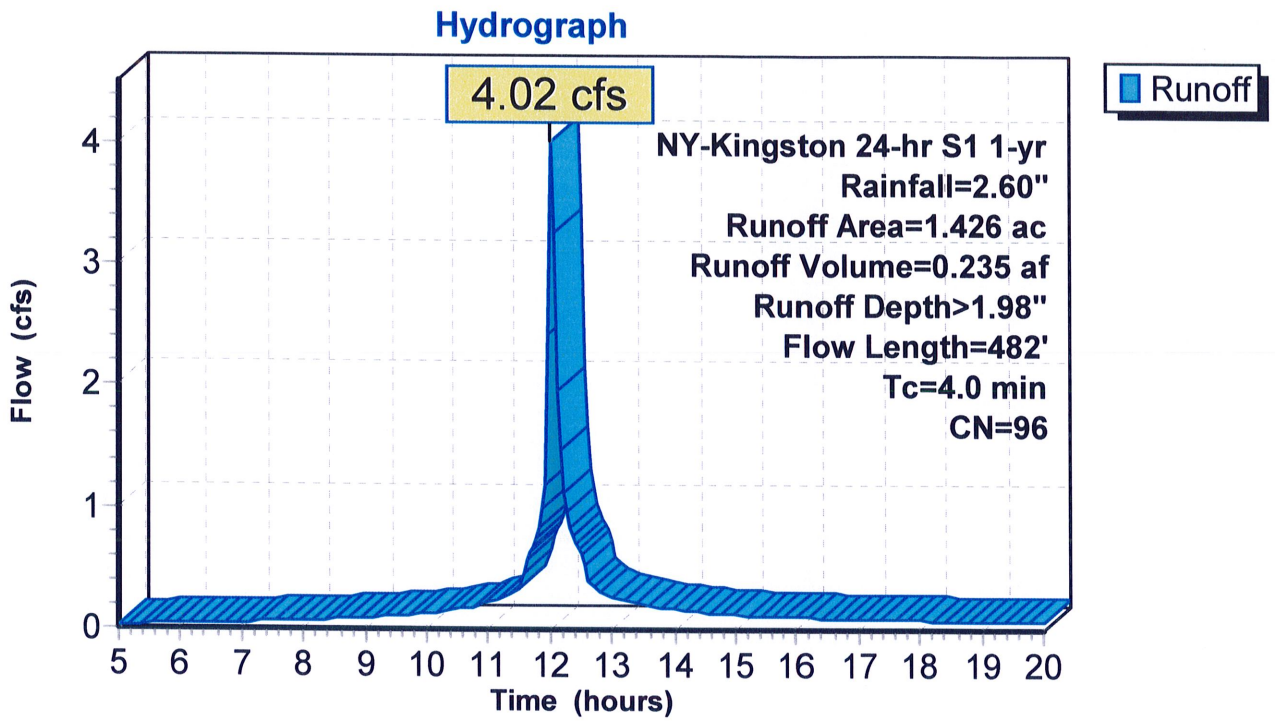
Runoff = 4.02 cfs @ 12.01 hrs, Volume= 0.235 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.752	98	Paved parking, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.3800	0.48		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
2.2	380	0.0210	2.94		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	52	0.0100	6.24	19.61	**Pipe Channel, Pipe Flow (diam. and slope assumed)** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
4.0	482	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

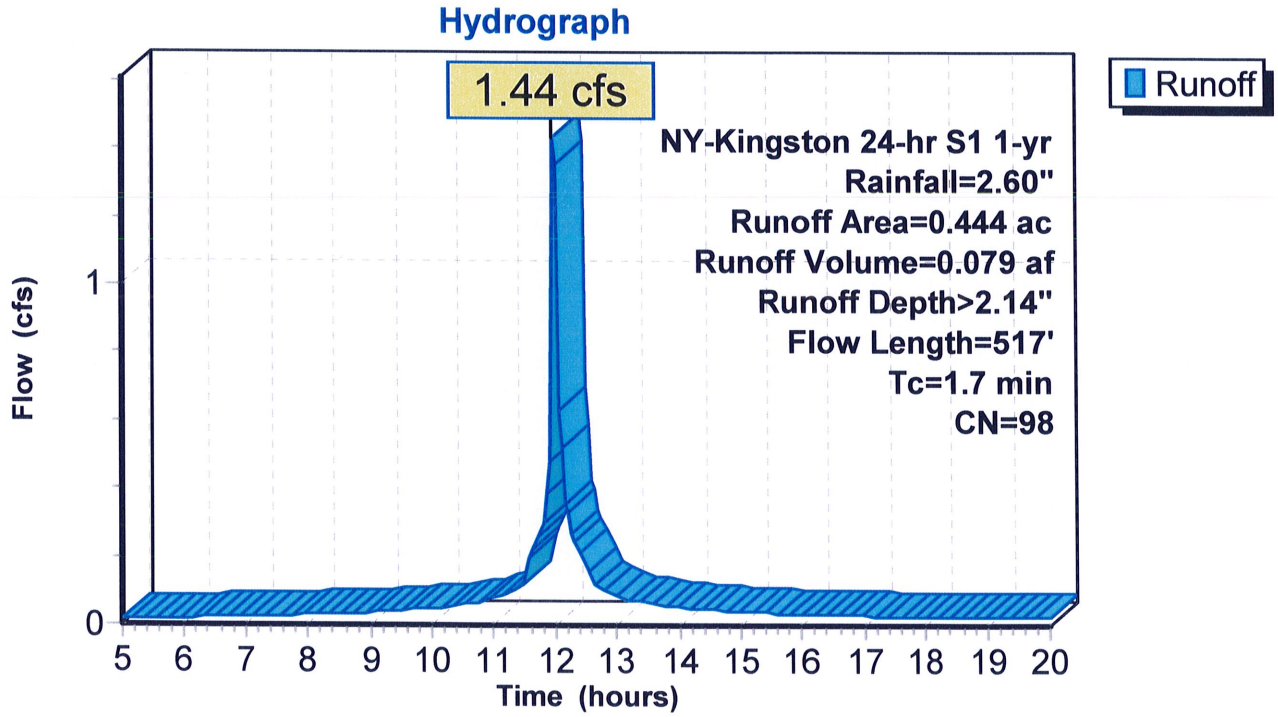
Runoff = 1.44 cfs @ 11.98 hrs, Volume= 0.079 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.444	98	Paved roads w/curbs & sewers, HSG B
0.444		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.1200	2.80		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.4	116	0.0689	5.33		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.7	517	Total			

Subcatchment 3S: Area 3 (Fair St.)



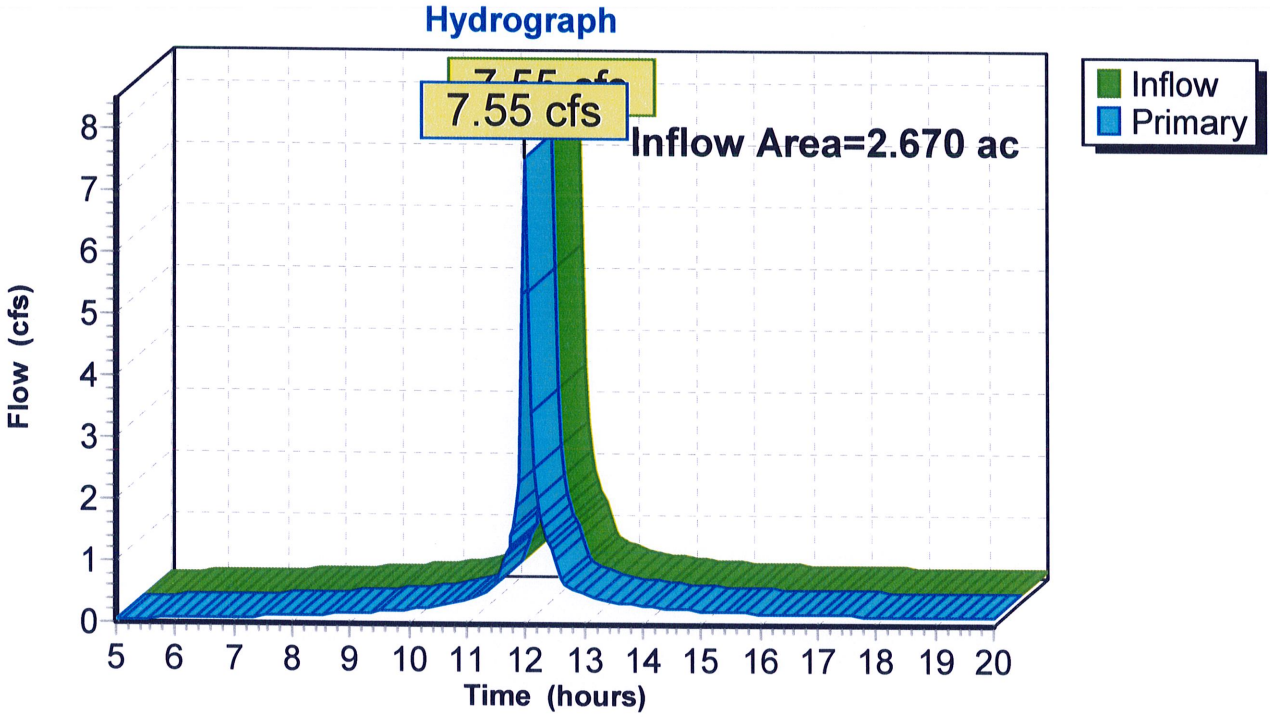
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 1.95" for 1-yr event
Inflow = 7.55 cfs @ 12.00 hrs, Volume= 0.434 af
Primary = 7.55 cfs @ 12.00 hrs, Volume= 0.434 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>3.66"
Flow Length=475' Tc=3.0 min CN=94 Runoff=3.89 cfs 0.244 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>3.83"
Flow Length=482' Tc=4.0 min CN=96 Runoff=6.82 cfs 0.455 af

Subcatchment 3S: Area 3 (Fair St.) Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>3.97"
Flow Length=517' Tc=1.7 min CN=98 Runoff=2.35 cfs 0.147 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=12.87 cfs 0.845 af
Primary=12.87 cfs 0.845 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.845 af Average Runoff Depth = 3.80"
5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 3.89 cfs @ 12.00 hrs, Volume= 0.244 af, Depth> 3.66"

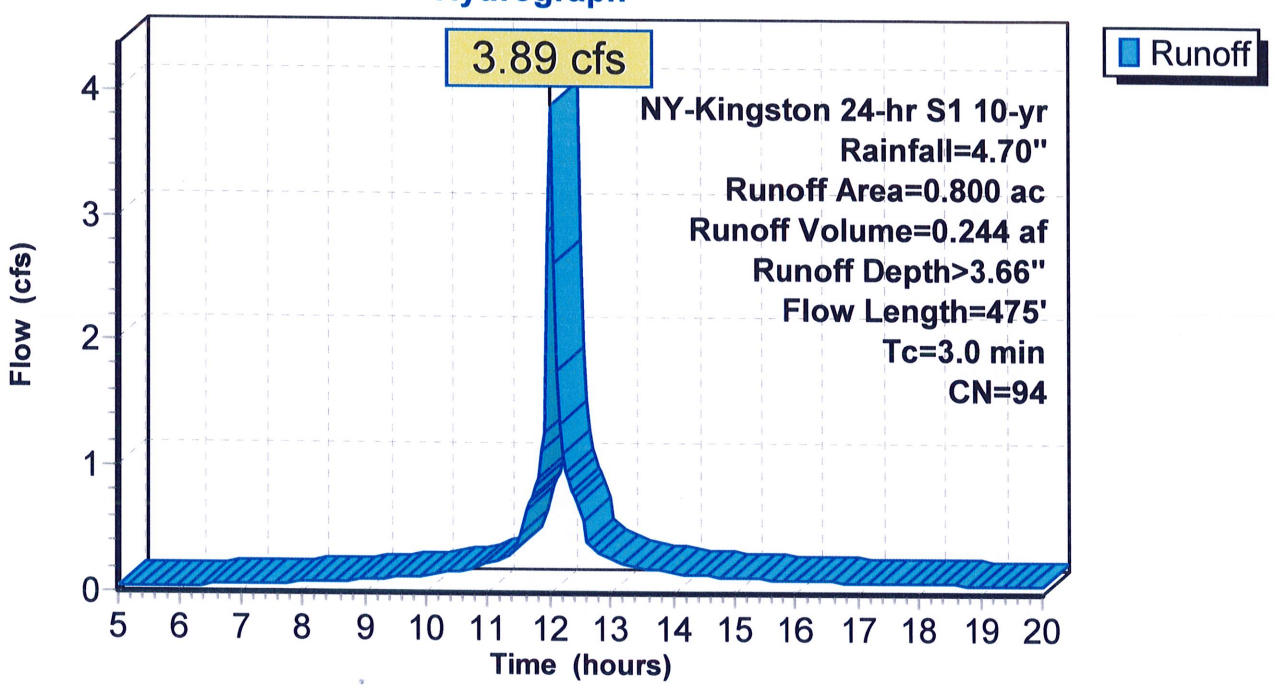
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.237	98	Paved parking, HSG A
0.060	39	>75% Grass cover, Good, HSG A
0.800	94	Weighted Average
0.060		7.50% Pervious Area
0.740		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	37	0.2297	9.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	165	0.0420	8.25	10.12	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
3.0	475	Total			

Subcatchment 1S: Area 1 (East)

Hydrograph



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

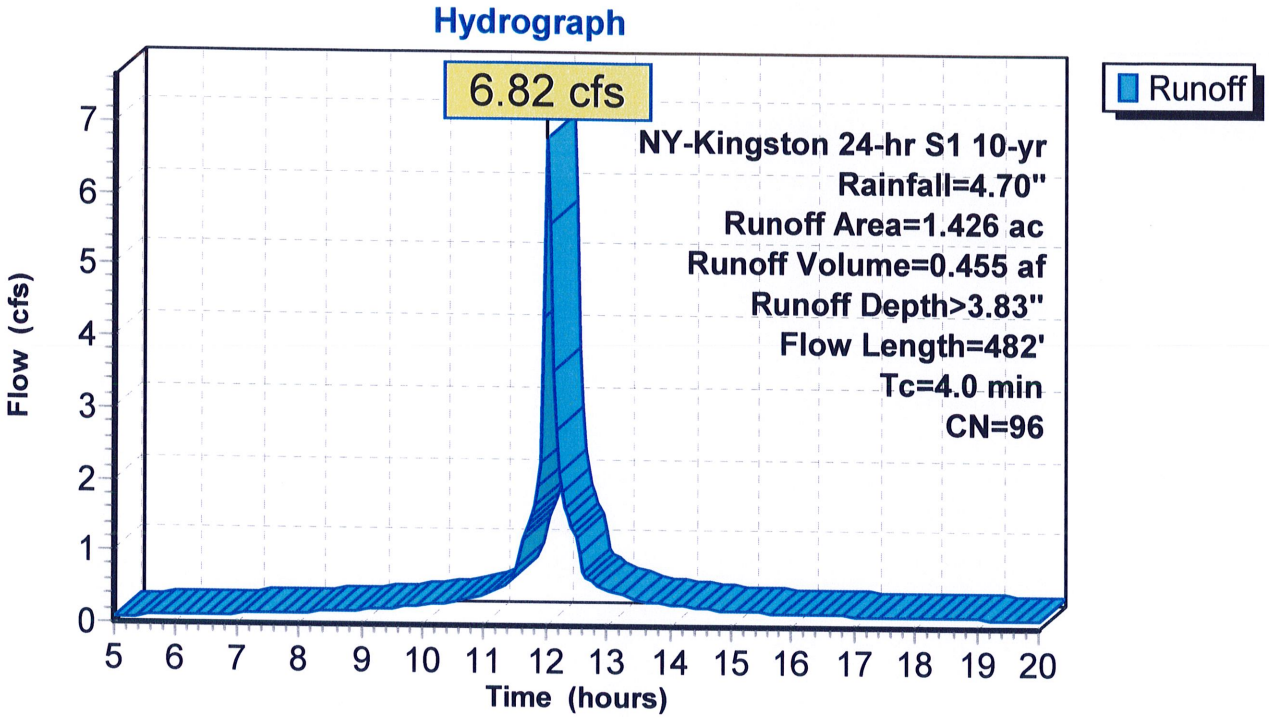
Runoff = 6.82 cfs @ 12.01 hrs, Volume= 0.455 af, Depth> 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.752	98	Paved parking, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.3800	0.48		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
2.2	380	0.0210	2.94		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	52	0.0100	6.24	19.61	**Pipe Channel, Pipe Flow (diam. and slope assumed)** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
4.0	482	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

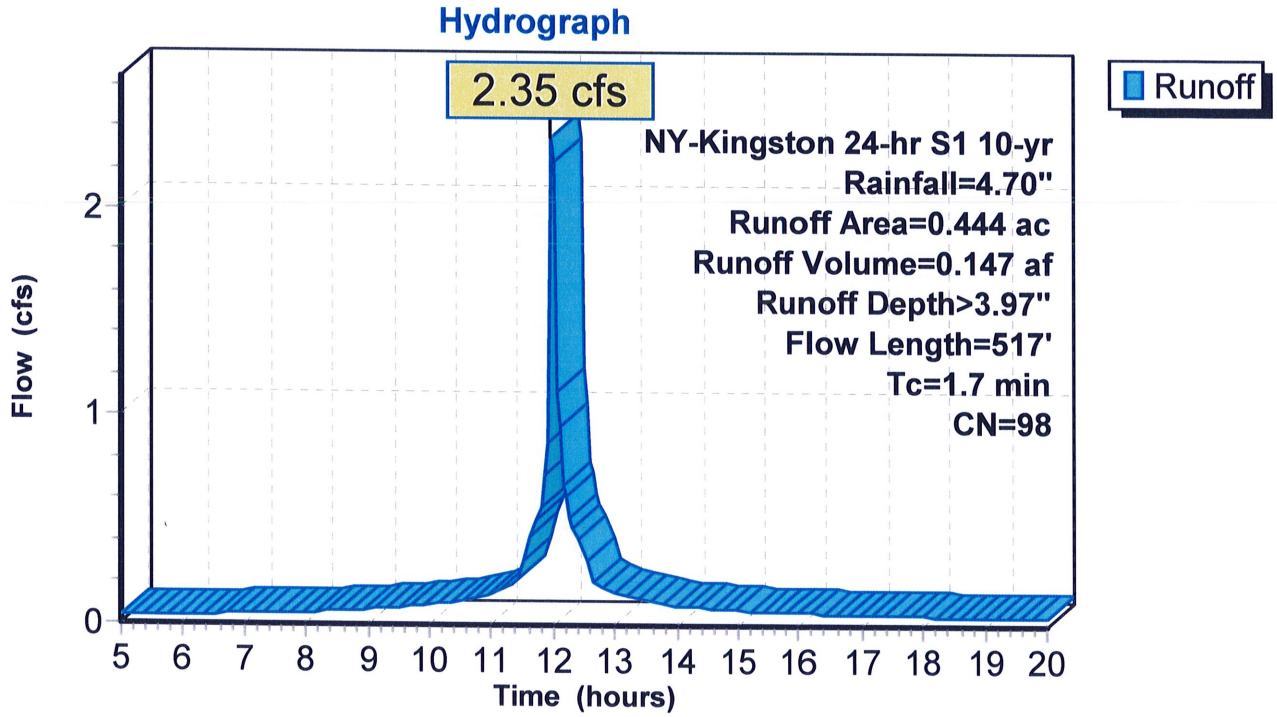
Runoff = 2.35 cfs @ 11.98 hrs, Volume= 0.147 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.444	98	Paved roads w/curbs & sewers, HSG B
0.444		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.1200	2.80		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.4	116	0.0689	5.33		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.7	517	Total			

Subcatchment 3S: Area 3 (Fair St.)



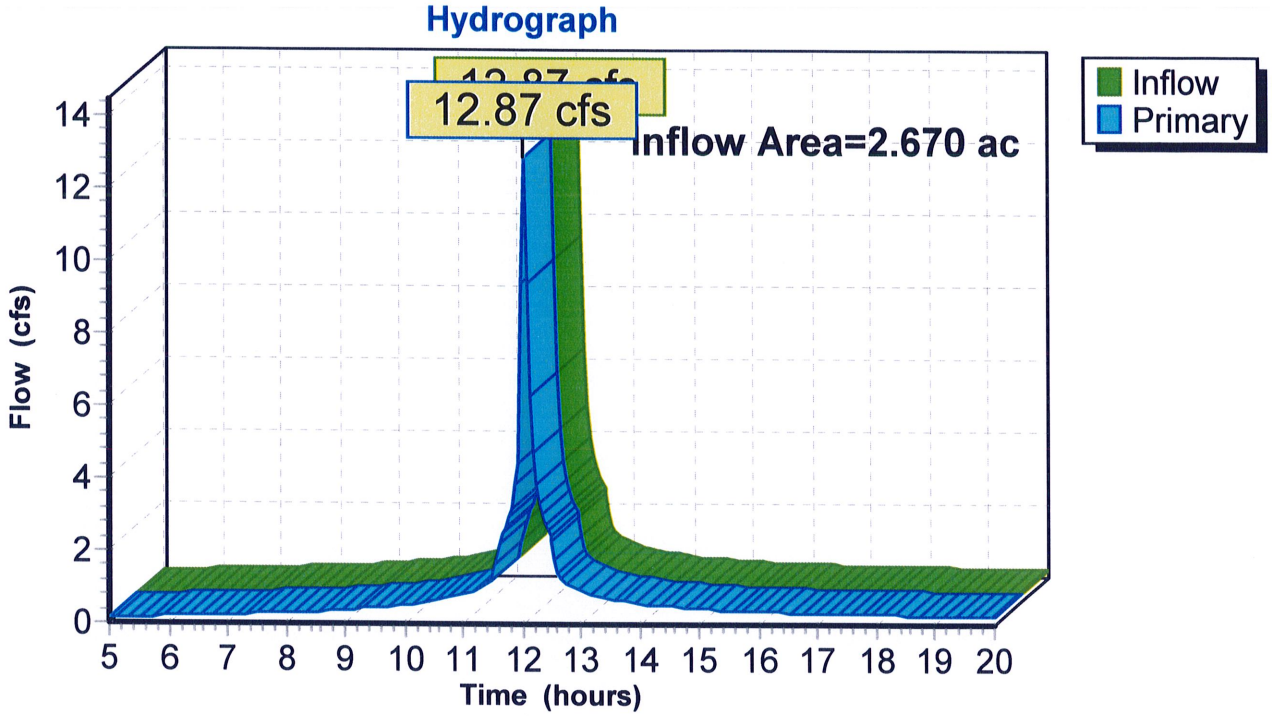
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 3.80" for 10-yr event
Inflow = 12.87 cfs @ 12.00 hrs, Volume= 0.845 af
Primary = 12.87 cfs @ 12.00 hrs, Volume= 0.845 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>4.70"
Flow Length=475' Tc=3.0 min CN=94 Runoff=4.79 cfs 0.313 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>4.86"
Flow Length=482' Tc=4.0 min CN=96 Runoff=8.33 cfs 0.578 af

Subcatchment 3S: Area 3 (Fair St.) Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>4.99"
Flow Length=517' Tc=1.7 min CN=98 Runoff=2.85 cfs 0.185 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=15.75 cfs 1.075 af
Primary=15.75 cfs 1.075 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.075 af Average Runoff Depth = 4.83"
5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

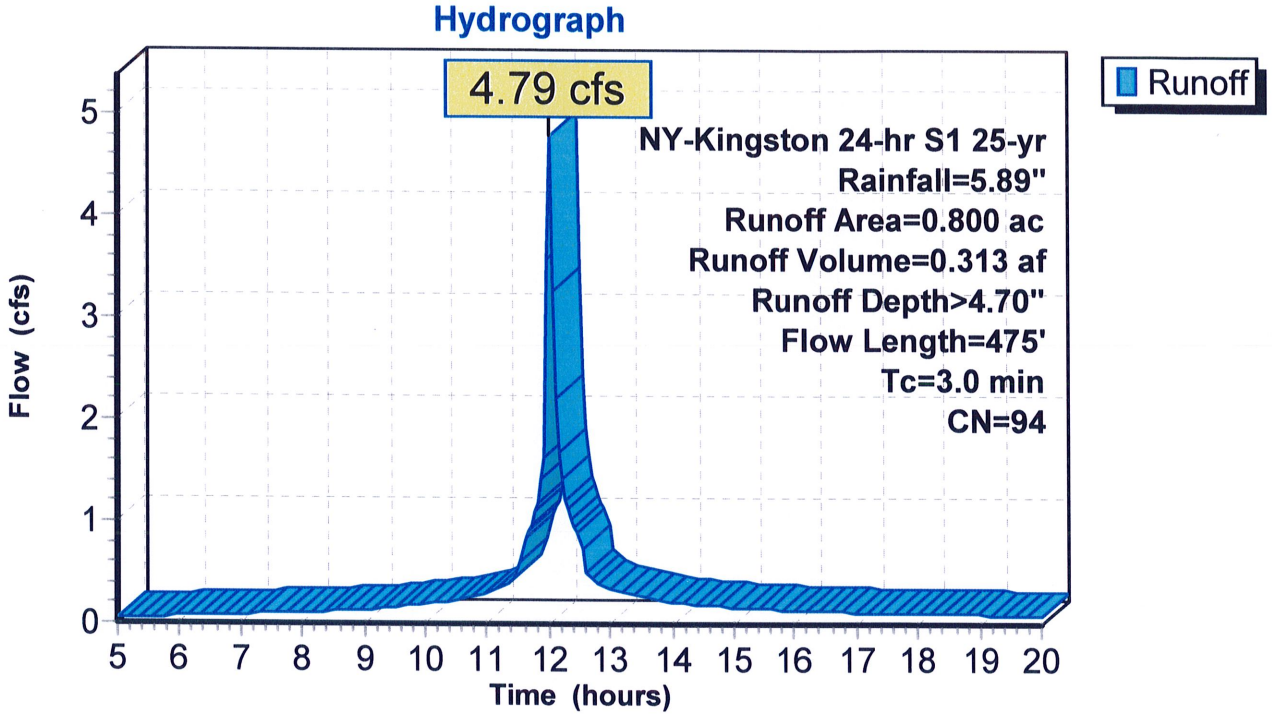
Runoff = 4.79 cfs @ 12.00 hrs, Volume= 0.313 af, Depth> 4.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.237	98	Paved parking, HSG A
0.060	39	>75% Grass cover, Good, HSG A
0.800	94	Weighted Average
0.060		7.50% Pervious Area
0.740		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	37	0.2297	9.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	165	0.0420	8.25	10.12	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
3.0	475	Total			

Subcatchment 1S: Area 1 (East)



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

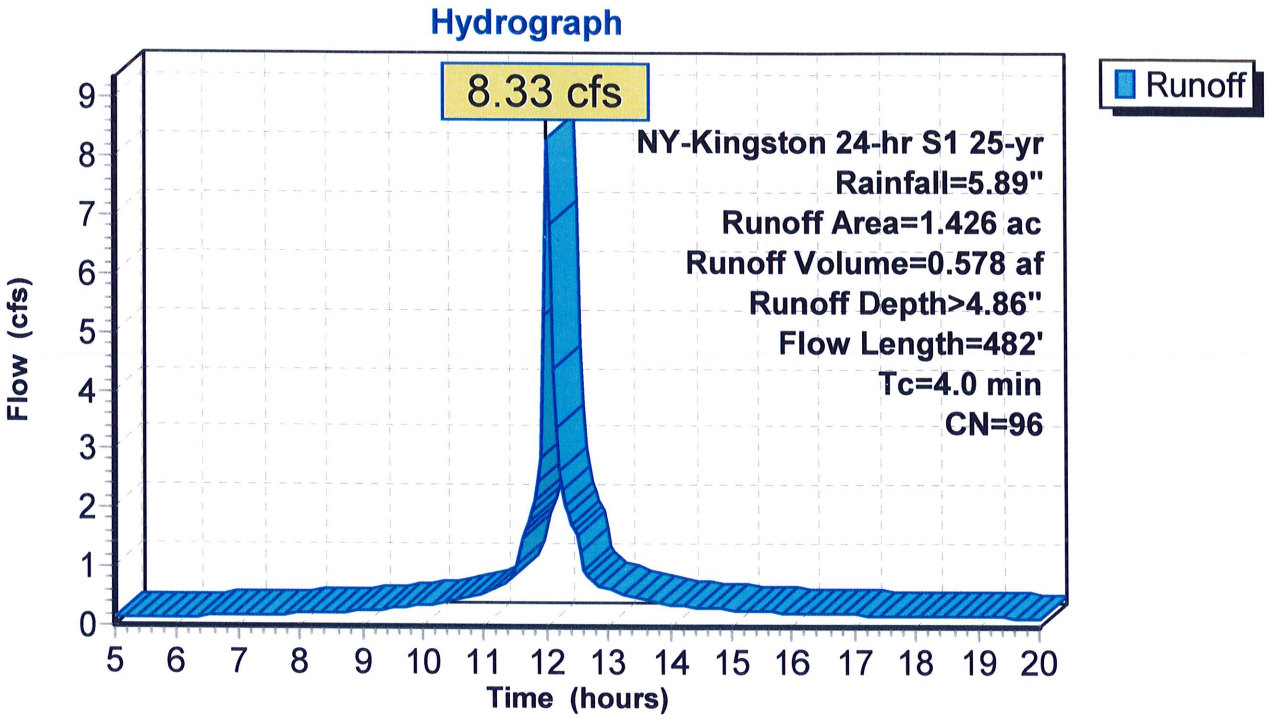
Runoff = 8.33 cfs @ 12.01 hrs, Volume= 0.578 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.752	98	Paved parking, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.3800	0.48		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
2.2	380	0.0210	2.94		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	52	0.0100	6.24	19.61	**Pipe Channel, Pipe Flow (diam. and slope assumed)** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
4.0	482	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

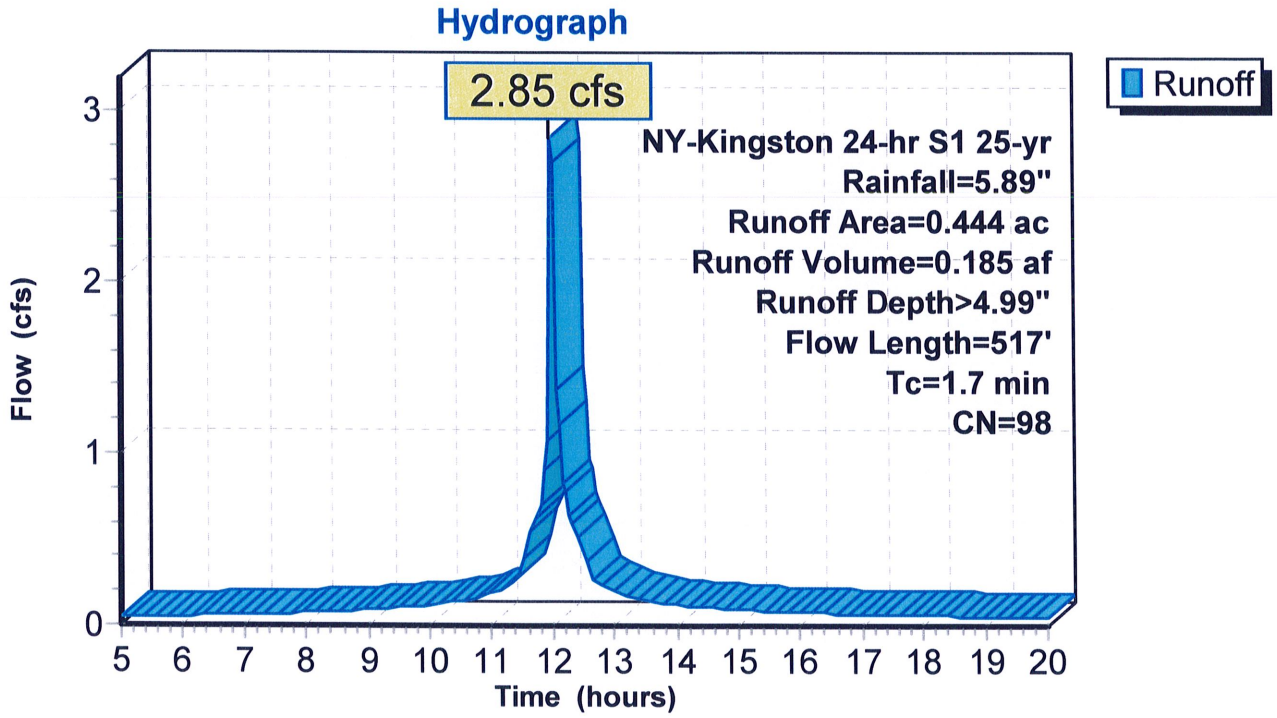
Runoff = 2.85 cfs @ 11.98 hrs, Volume= 0.185 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.444	98	Paved roads w/curbs & sewers, HSG B
0.444		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.1200	2.80		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.4	116	0.0689	5.33		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.7	517	Total			

Subcatchment 3S: Area 3 (Fair St.)



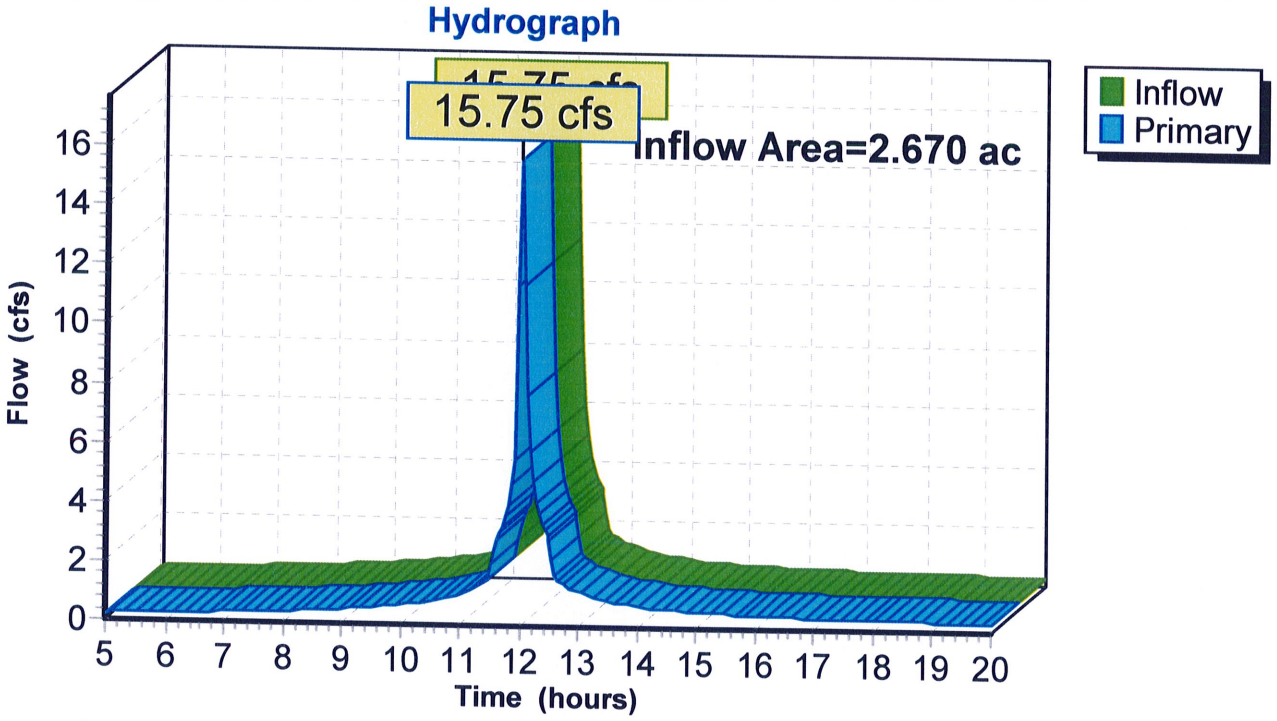
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 4.83" for 25-yr event
Inflow = 15.75 cfs @ 12.00 hrs, Volume= 1.075 af
Primary = 15.75 cfs @ 12.00 hrs, Volume= 1.075 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.800 ac 92.50% Impervious Runoff Depth>6.81"
Flow Length=475' Tc=3.0 min CN=94 Runoff=6.41 cfs 0.454 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>6.95"
Flow Length=482' Tc=4.0 min CN=96 Runoff=11.07 cfs 0.826 af

Subcatchment 3S: Area 3 (Fair St.) Runoff Area=0.444 ac 100.00% Impervious Runoff Depth>7.05"
Flow Length=517' Tc=1.7 min CN=98 Runoff=3.75 cfs 0.261 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=20.95 cfs 1.541 af
Primary=20.95 cfs 1.541 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.541 af Average Runoff Depth = 6.92"
5.24% Pervious = 0.140 ac 94.76% Impervious = 2.530 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

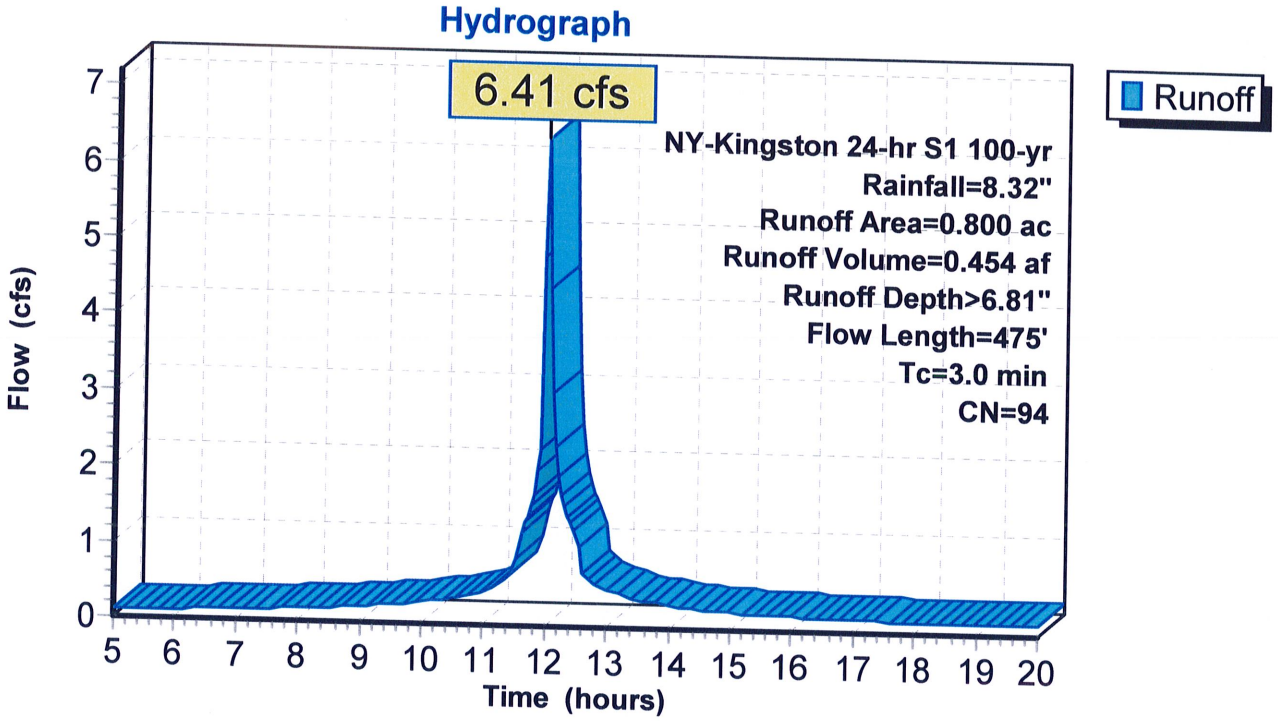
Runoff = 6.41 cfs @ 12.00 hrs, Volume= 0.454 af, Depth> 6.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.237	98	Paved parking, HSG A
0.060	39	>75% Grass cover, Good, HSG A
0.800	94	Weighted Average
0.060		7.50% Pervious Area
0.740		92.50% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	37	0.2297	9.73		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.3	165	0.0420	8.25	10.12	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
3.0	475	Total			

Subcatchment 1S: Area 1 (East)



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

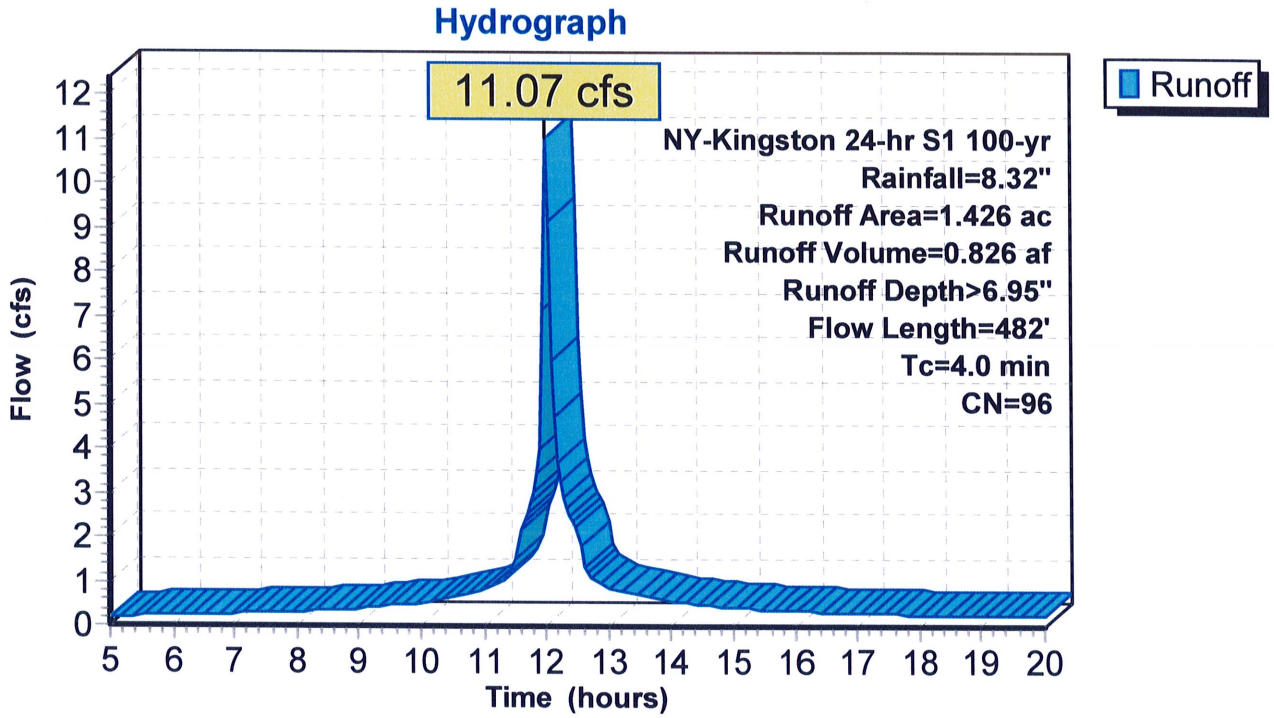
Runoff = 11.07 cfs @ 12.01 hrs, Volume= 0.826 af, Depth> 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.752	98	Paved parking, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
1.7	50	0.3800	0.48		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.16"
2.2	380	0.0210	2.94		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.1	52	0.0100	6.24	19.61	**Pipe Channel, Pipe Flow (diam. and slope assumed)** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
4.0	482	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Fair St.)

[49] Hint: Tc<2dt may require smaller dt

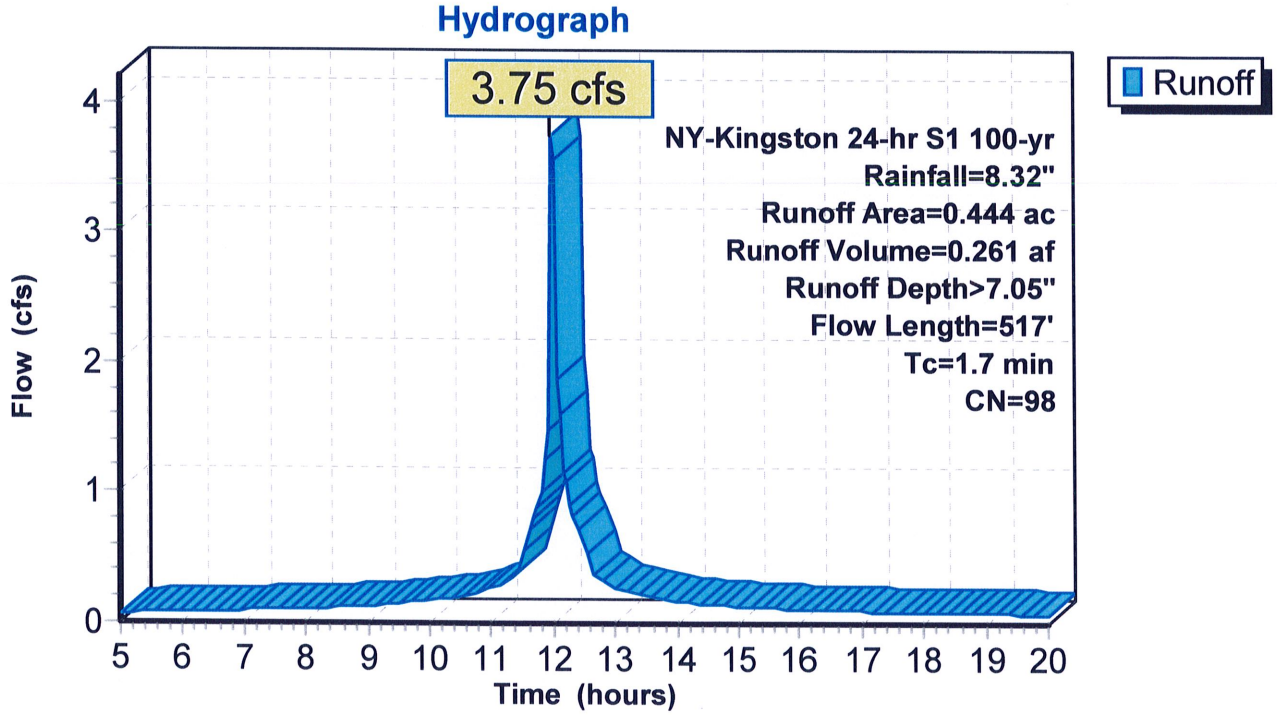
Runoff = 3.75 cfs @ 11.98 hrs, Volume= 0.261 af, Depth> 7.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.444	98	Paved roads w/curbs & sewers, HSG B
0.444		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.6	100	0.1200	2.80		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.4	116	0.0689	5.33		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel,** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel,** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.7	517	Total			

Subcatchment 3S: Area 3 (Fair St.)



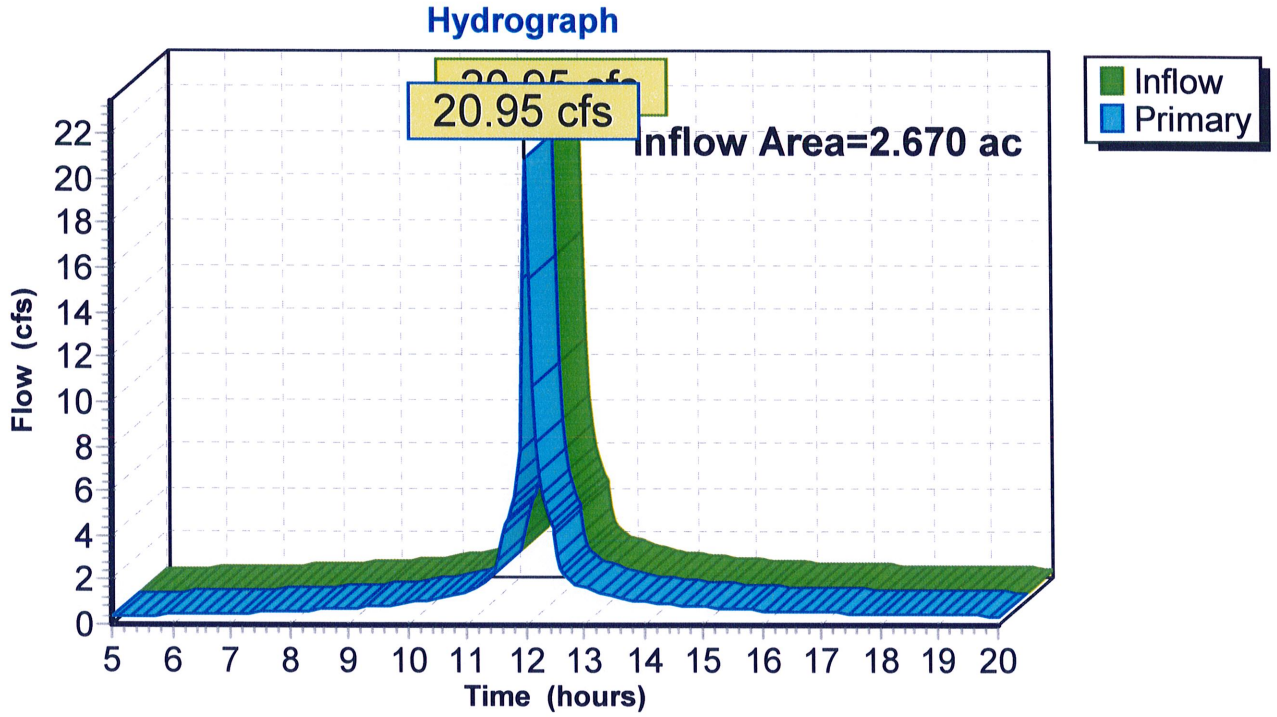
Summary for Pond 4P: Existing CB1A (Point of Analysis)

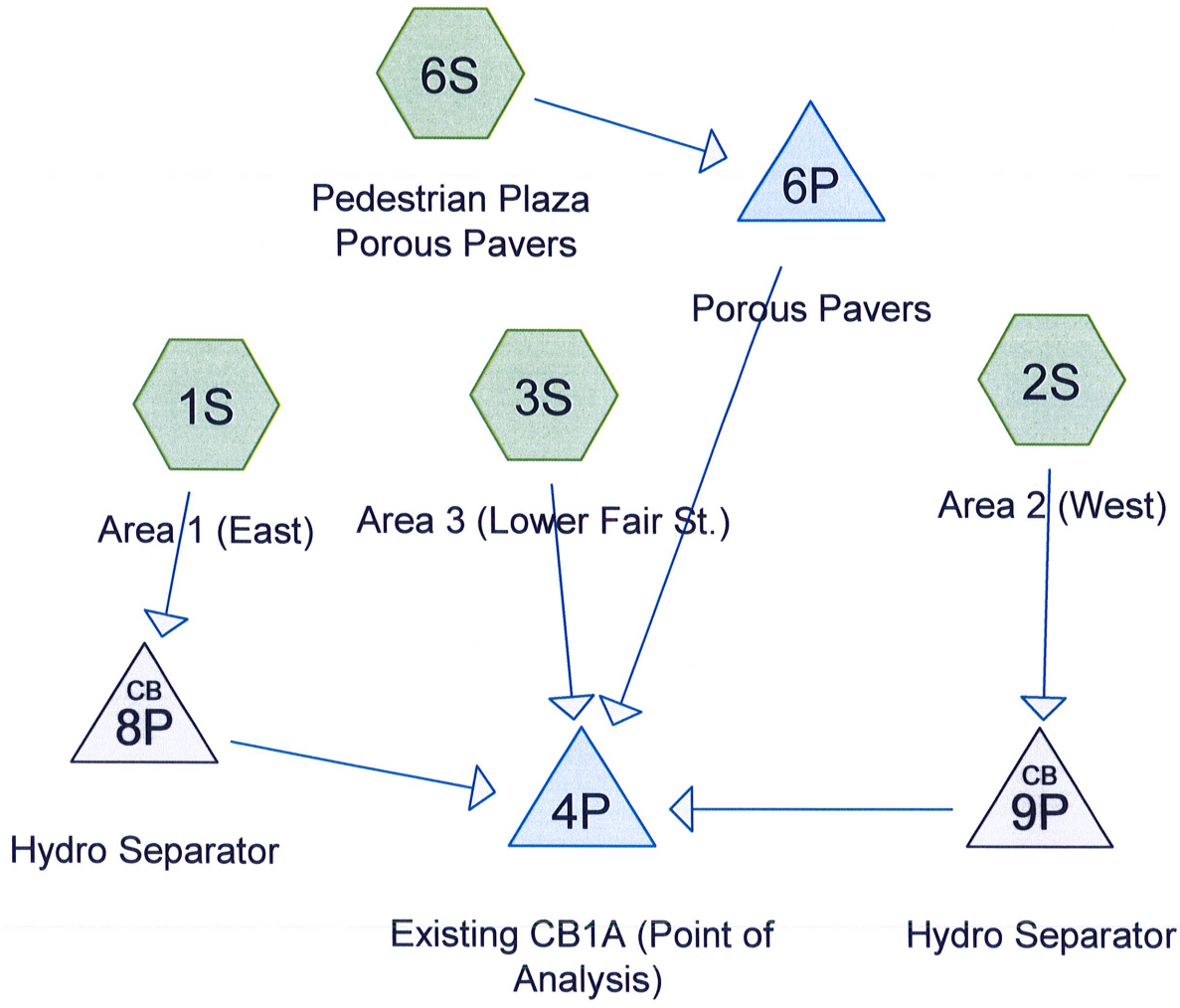
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 2.670 ac, 94.76% Impervious, Inflow Depth > 6.92" for 100-yr event
Inflow = 20.95 cfs @ 12.00 hrs, Volume= 1.541 af
Primary = 20.95 cfs @ 12.00 hrs, Volume= 1.541 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)





Subcat Reach Pond Link

Routing Diagram for PostDevelopment
Prepared by Microsoft, Printed 7/22/2019

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.155	39	>75% Grass cover, Good, HSG A (1S)
0.080	61	>75% Grass cover, Good, HSG B (2S)
0.682	98	Paved parking, HSG A (1S, 2S)
0.298	98	Paved roads w/curbs & sewers, HSG B (3S)
0.200	40	Porous Pavers (6S)
1.255	98	Roofs, HSG B (1S, 2S)
2.670	**89**	**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.837	HSG A	1S, 2S
1.633	HSG B	1S, 2S, 3S
0.000	HSG C	
0.000	HSG D	
0.200	Other	6S
2.670		**TOTAL AREA**

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchmer Numbers
0.155	0.080	0.000	0.000	0.000	0.235	>75% Grass cover, Good	1S, 2S
0.682	0.000	0.000	0.000	0.000	0.682	Paved parking	1S, 2S
0.000	0.298	0.000	0.000	0.000	0.298	Paved roads w/curbs & sewers	3S
0.000	0.000	0.000	0.000	0.200	0.200	Porous Pavers	6S
0.000	1.255	0.000	0.000	0.000	1.255	Roofs	1S, 2S
0.837	**1.633**	**0.000**	**0.000**	**0.200**	**2.670**	**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)	Inside-Fill (inches)
1	1S	0.00	0.00	30.0	0.0150	0.013	12.0	0.0	0.0
2	1S	0.00	0.00	101.0	0.0300	0.013	15.0	0.0	0.0
3	2S	0.00	0.00	30.0	0.0300	0.013	12.0	0.0	0.0
4	2S	0.00	0.00	241.0	0.0189	0.013	15.0	0.0	0.0
5	3S	0.00	0.00	128.0	0.0470	0.017	15.0	0.0	0.0
6	3S	0.00	0.00	173.0	0.0100	0.015	24.0	0.0	0.0
7	6P	171.00	163.00	70.0	0.1143	0.010	8.0	0.0	0.0
8	6P	163.00	162.50	30.0	0.0167	0.013	12.0	0.0	0.0
9	6P	162.50	153.56	213.0	0.0420	0.017	15.0	0.0	0.0
10	6P	153.50	152.62	88.0	0.0100	0.015	24.0	0.0	0.0
11	8P	152.00	147.00	290.0	0.0172	0.015	15.0	0.0	0.0
12	9P	150.70	150.00	70.0	0.0100	0.013	15.0	0.0	0.0

Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>1.20"
Flow Length=231' Tc=2.4 min CN=86 Runoff=1.46 cfs 0.074 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>1.98"
Flow Length=371' Tc=2.8 min CN=96 Runoff=4.25 cfs 0.235 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>2.14"
Flow Length=371' Tc=1.3 min CN=98 Runoff=0.98 cfs 0.053 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth=0.00"
Tc=6.0 min CN=40 Runoff=0.00 cfs 0.000 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=6.63 cfs 0.362 af
Primary=6.63 cfs 0.362 af

Pond 6P: Porous Pavers Peak Elev=175.00' Storage=0.000 af Inflow=0.00 cfs 0.000 af
Outflow=0.00 cfs 0.000 af

Pond 8P: Hydro Separator Peak Elev=152.58' Inflow=1.46 cfs 0.074 af
15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=1.46 cfs 0.074 af

Pond 9P: Hydro Separator Peak Elev=151.84' Inflow=4.25 cfs 0.235 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=4.25 cfs 0.235 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.362 af Average Runoff Depth = 1.63"
16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 1.46 cfs @ 11.99 hrs, Volume= 0.074 af, Depth> 1.20"

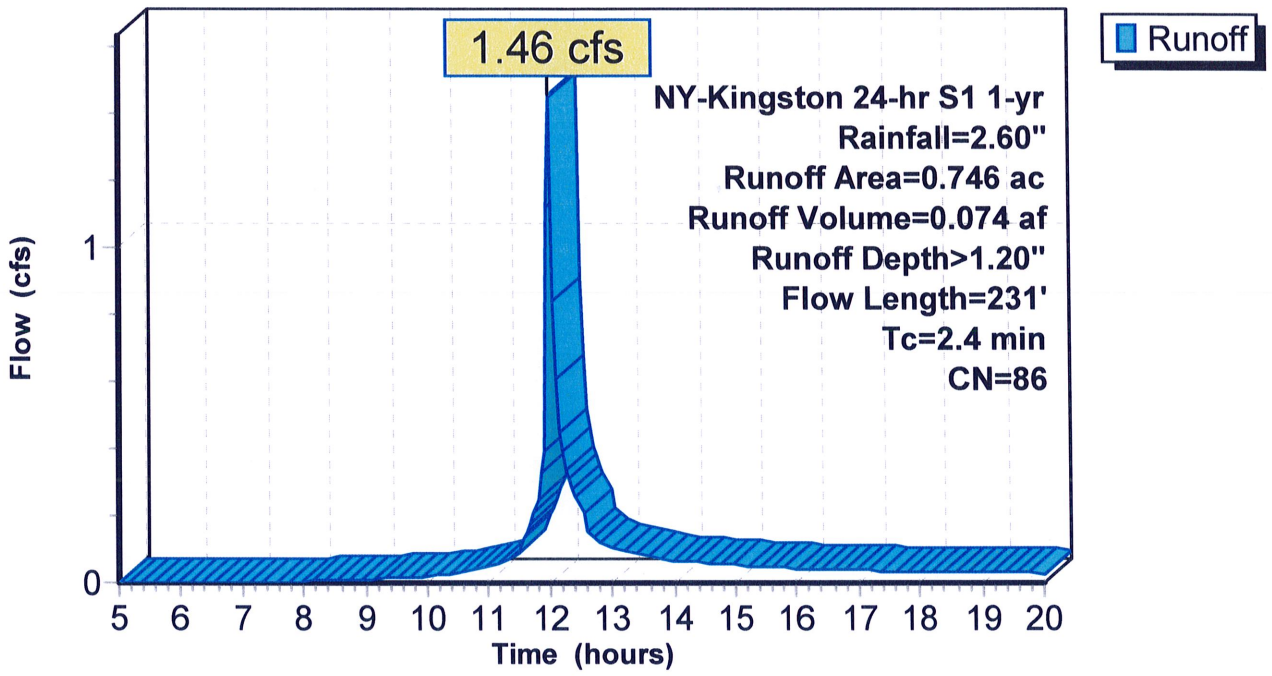
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.088	98	Paved parking, HSG A
0.155	39	>75% Grass cover, Good, HSG A
0.746	86	Weighted Average
0.155		20.78% Pervious Area
0.591		79.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.4	231	Total			

Subcatchment 1S: Area 1 (East)

Hydrograph



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

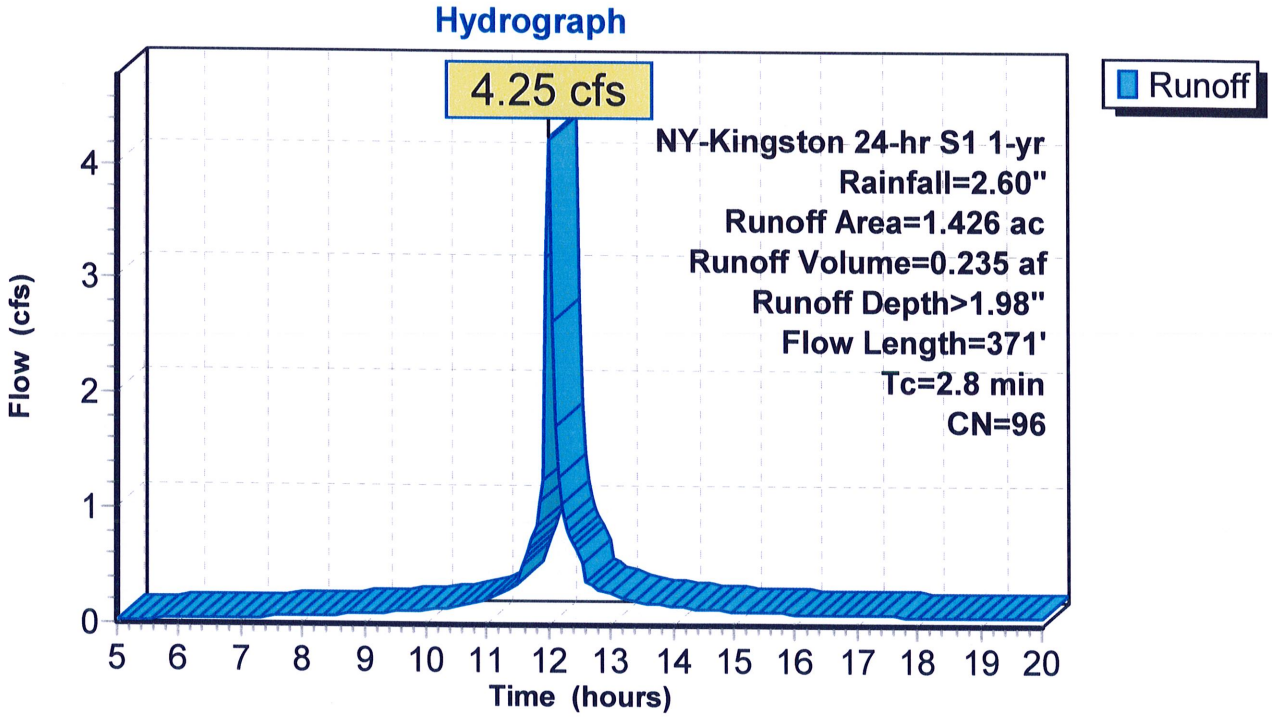
Runoff = 4.25 cfs @ 11.99 hrs, Volume= 0.235 af, Depth> 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.752	98	Roofs, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.6	241	0.0189	7.24	8.88	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.8	371	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

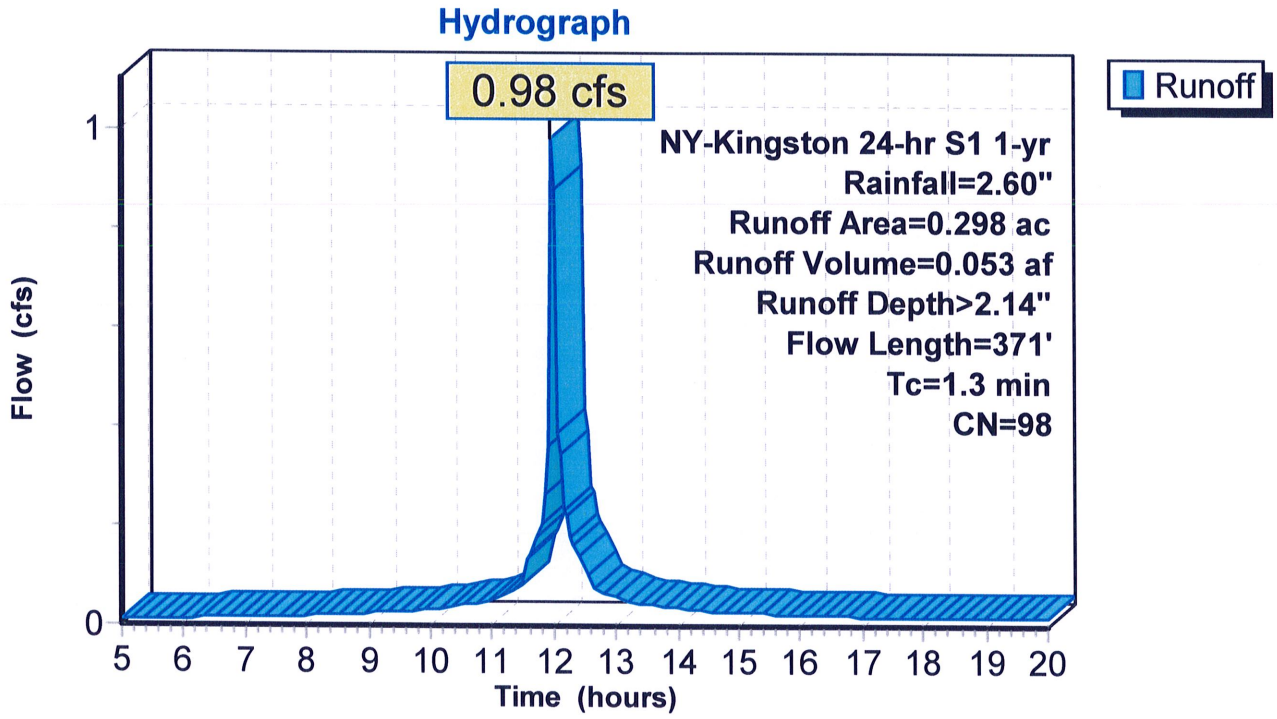
Runoff = 0.98 cfs @ 11.97 hrs, Volume= 0.053 af, Depth> 2.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

Area (ac)	CN	Description
0.298	98	Paved roads w/curbs & sewers, HSG B
0.298		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.1	20	0.0650	5.18		**Shallow Concentrated Flow, Flow to Existing CB** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel, Existing 15" Clay** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel, Existing 24" to Analysis Point** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.3	371	Total			

Subcatchment 3S: Area 3 (Lower Fair St.)



Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers

[45] Hint: Runoff=Zero

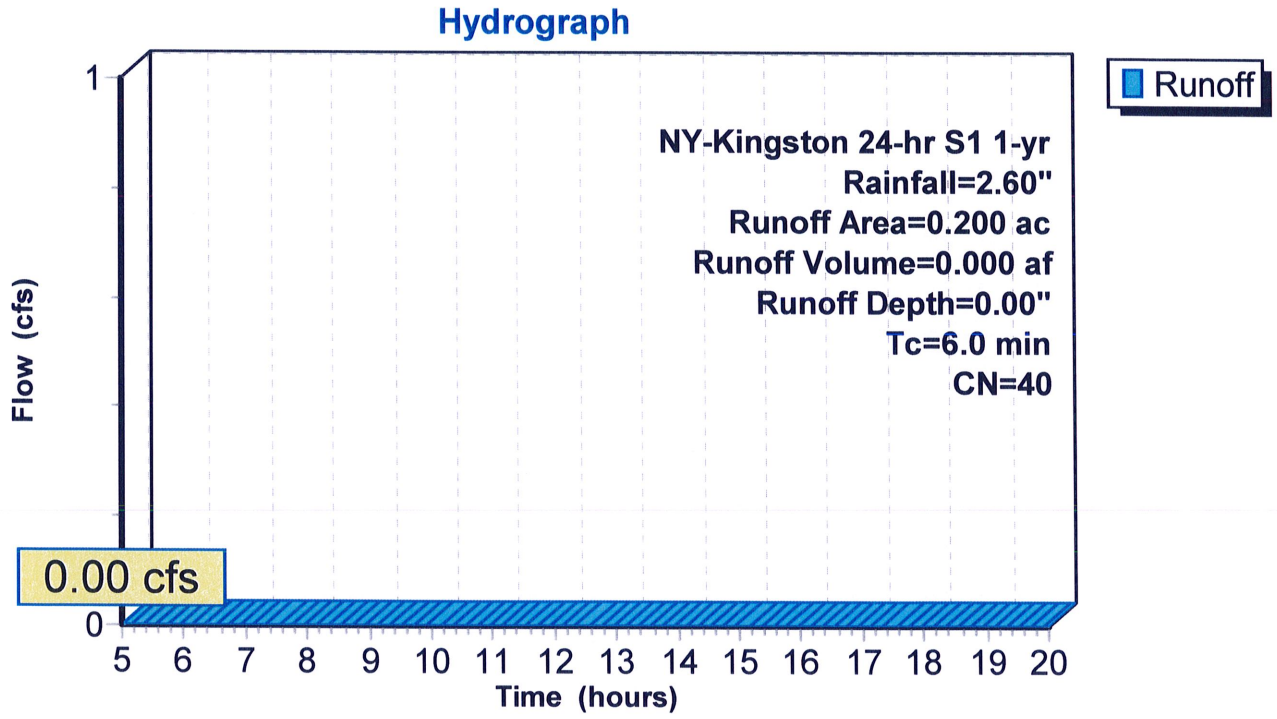
Runoff = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Depth= 0.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 1-yr Rainfall=2.60"

	Area (ac)	CN	Description
*	0.200	40	Porous Pavers
	0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Extended Tc Due to Permeable Pavers**

Subcatchment 6S: Pedestrian Plaza Porous Pavers



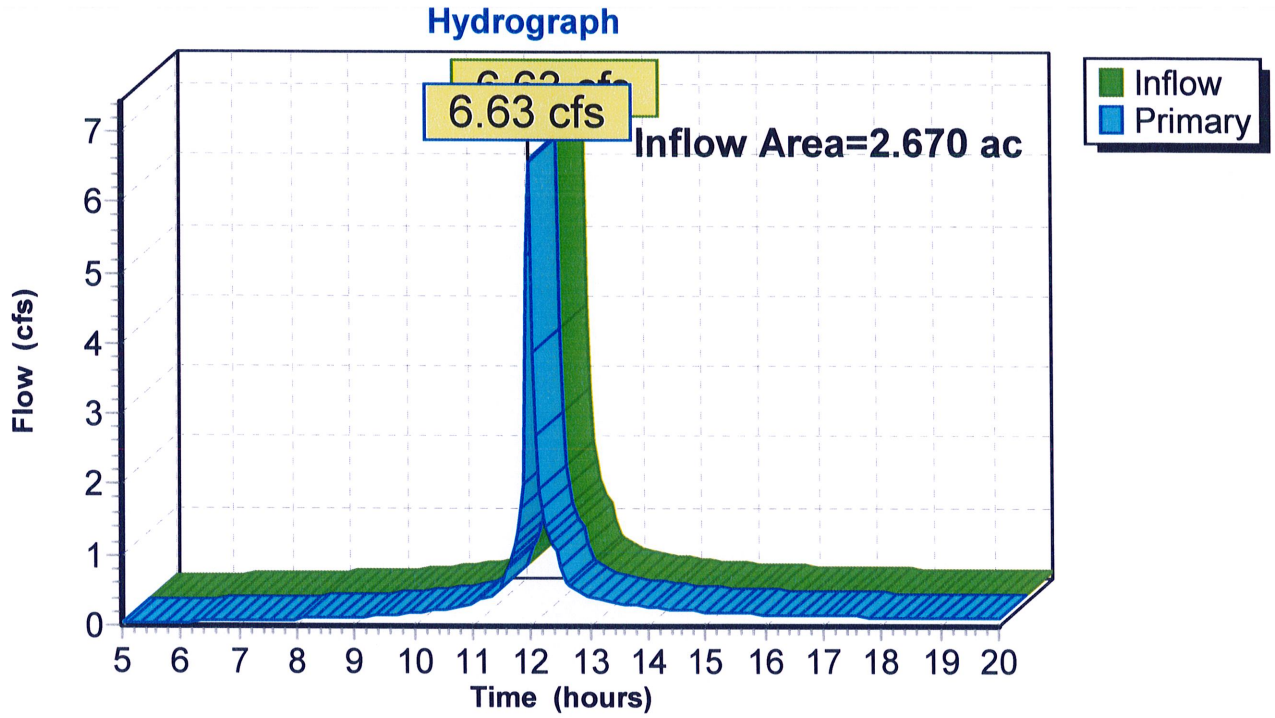
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 1.63" for 1-yr event
Inflow = 6.63 cfs @ 11.99 hrs, Volume= 0.362 af
Primary = 6.63 cfs @ 11.99 hrs, Volume= 0.362 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Summary for Pond 6P: Porous Pavers

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth = 0.00" for 1-yr event
Inflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 175.00' @ 5.00 hrs Surf.Area= 0.129 ac Storage= 0.000 af

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

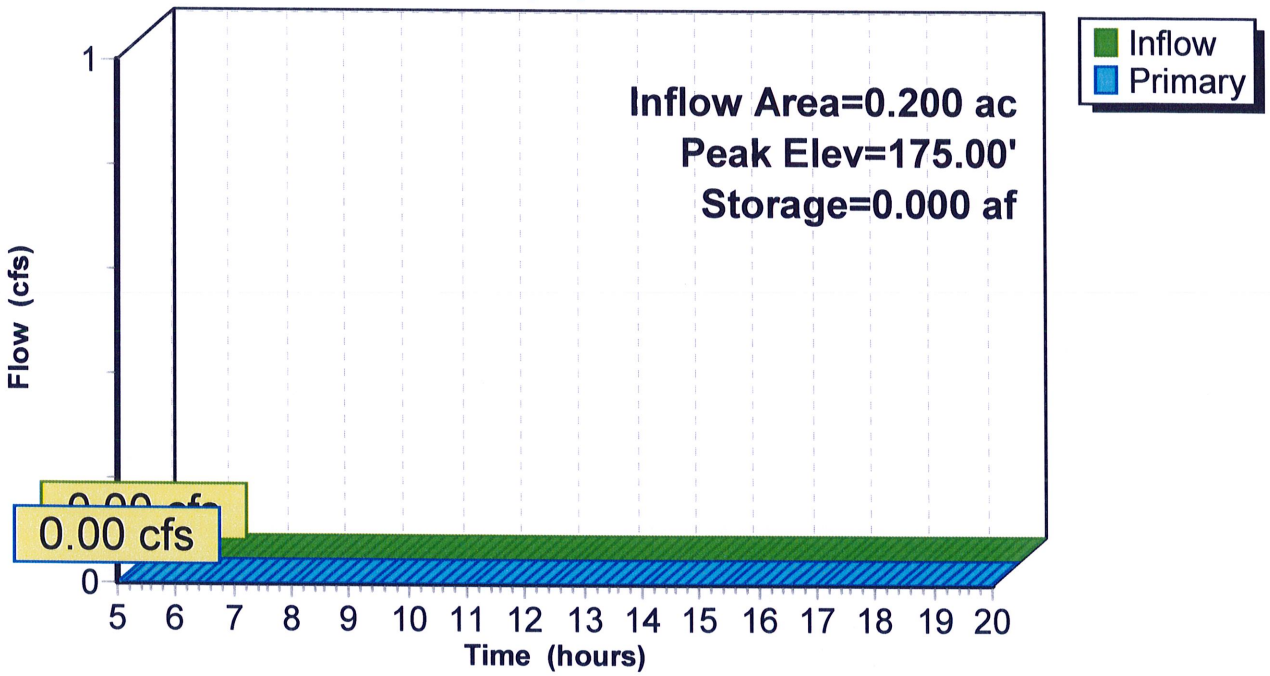
Volume	Invert	Avail.Storage	Storage Description
#1	175.00'	0.233 af	**40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0** 0.582 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	**8.0" Round Culvert** L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	**12.0" Round Outlet Sewer** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	**15.0" Round 15" City Sewers** L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	**24.0" Round 24" City Sewer to Analysis Point** L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=175.00' (Free Discharge)
- **1=Culvert** (Passes 0.00 cfs of 3.22 cfs potential flow)
  - **2=Outlet Sewer** (Passes 0.00 cfs of 7.56 cfs potential flow)
    - **3=15" City Sewers** (Passes 0.00 cfs of 6.23 cfs potential flow)
      - **4=24" City Sewer to Analysis Point** (Passes 0.00 cfs of 29.31 cfs potential flow)

Pond 6P: Porous Pavers

Hydrograph



Summary for Pond 8P: Hydro Separator

[57] Hint: Peaked at 152.58' (Flood elevation advised)

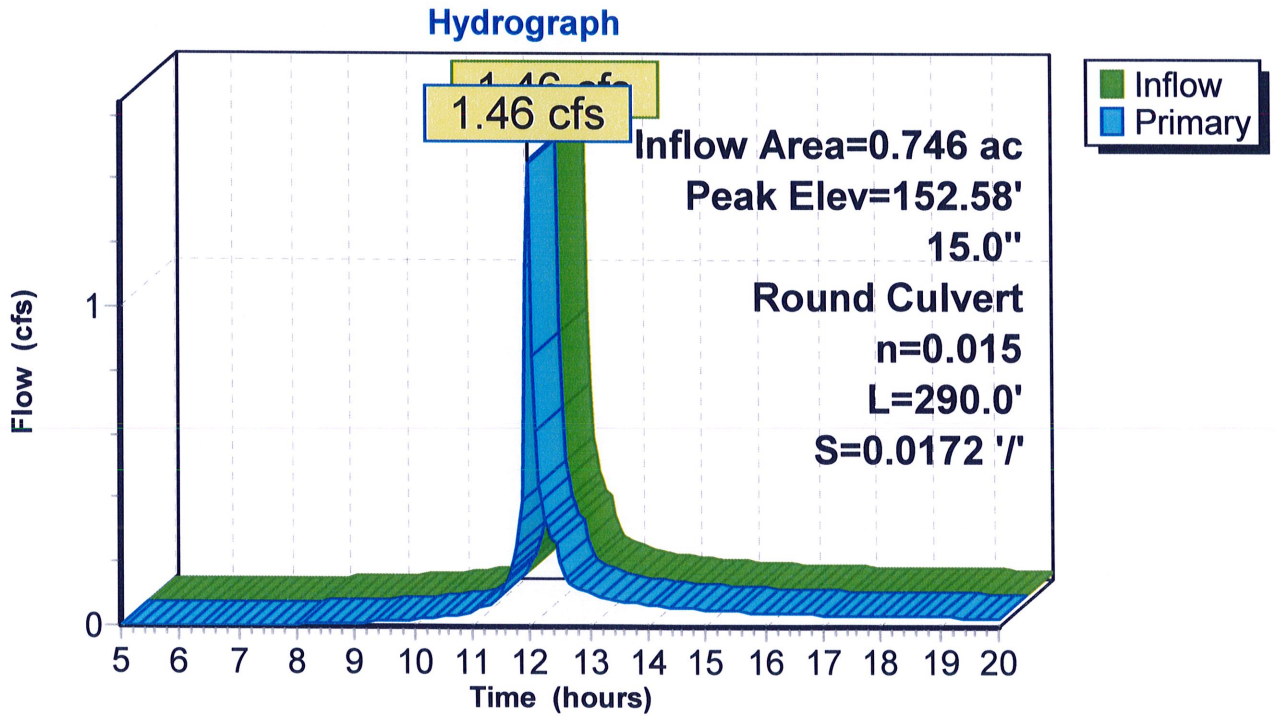
Inflow Area =	0.746 ac, 79.22% Impervious,	Inflow Depth >	1.20"	for 1-yr event
Inflow =	1.46 cfs @ 11.99 hrs,	Volume=	0.074 af	
Outflow =	1.46 cfs @ 11.99 hrs,	Volume=	0.074 af,	Atten= 0%, Lag= 0.0 min
Primary =	1.46 cfs @ 11.99 hrs,	Volume=	0.074 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.58' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**15.0" Round Outlet to Analysis Point** L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf

Primary OutFlow Max=1.40 cfs @ 11.99 hrs HW=152.57' (Free Discharge)
↑—**1=Outlet to Analysis Point** (Inlet Controls 1.40 cfs @ 2.57 fps)

Pond 8P: Hydro Separator



Summary for Pond 9P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 151.84' (Flood elevation advised)

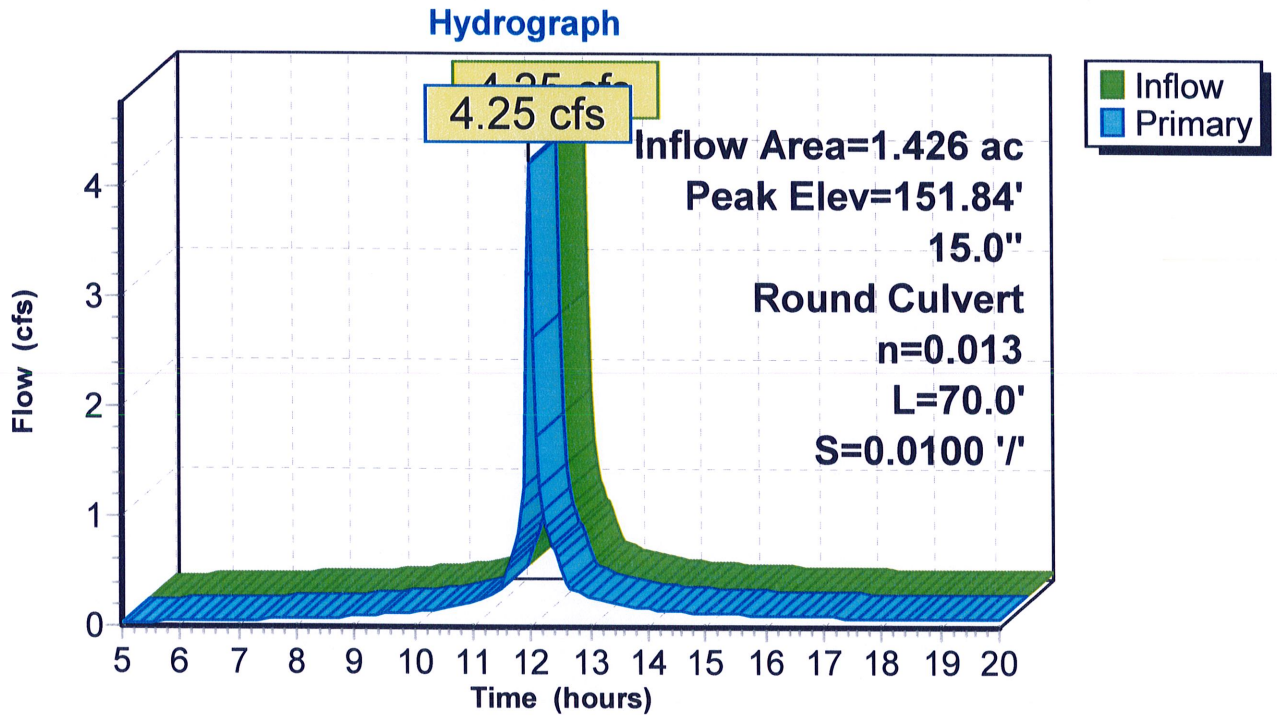
Inflow Area	=	1.426 ac,	94.39% Impervious,	Inflow Depth >	1.98" for 1-yr event
Inflow	=	4.25 cfs @	11.99 hrs, Volume=	0.235 af	
Outflow	=	4.25 cfs @	11.99 hrs, Volume=	0.235 af,	Atten= 0%, Lag= 0.0 min
Primary	=	4.25 cfs @	11.99 hrs, Volume=	0.235 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 151.84' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	**15.0" Round Proposed Outlet to City Sewer** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.13 cfs @ 11.99 hrs HW=151.82' (Free Discharge)
↑—**1=Proposed Outlet to City Sewer** (Barrel Controls 4.13 cfs @ 4.72 fps)

Pond 9P: Hydro Separator



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>2.92"
Flow Length=231' Tc=2.4 min CN=86 Runoff=3.11 cfs 0.181 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>3.83"
Flow Length=371' Tc=2.8 min CN=96 Runoff=7.18 cfs 0.455 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>3.97"
Flow Length=371' Tc=1.3 min CN=98 Runoff=1.61 cfs 0.099 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>0.12"
Tc=6.0 min CN=40 Runoff=0.00 cfs 0.002 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=11.79 cfs 0.737 af
Primary=11.79 cfs 0.737 af

Pond 6P: Porous Pavers Peak Elev=175.00' Storage=0.000 af Inflow=0.00 cfs 0.002 af
Outflow=0.00 cfs 0.002 af

Pond 8P: Hydro Separator Peak Elev=152.91' Inflow=3.11 cfs 0.181 af
15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=3.11 cfs 0.181 af

Pond 9P: Hydro Separator Peak Elev=152.91' Inflow=7.18 cfs 0.455 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=7.18 cfs 0.455 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.737 af Average Runoff Depth = 3.31"
16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

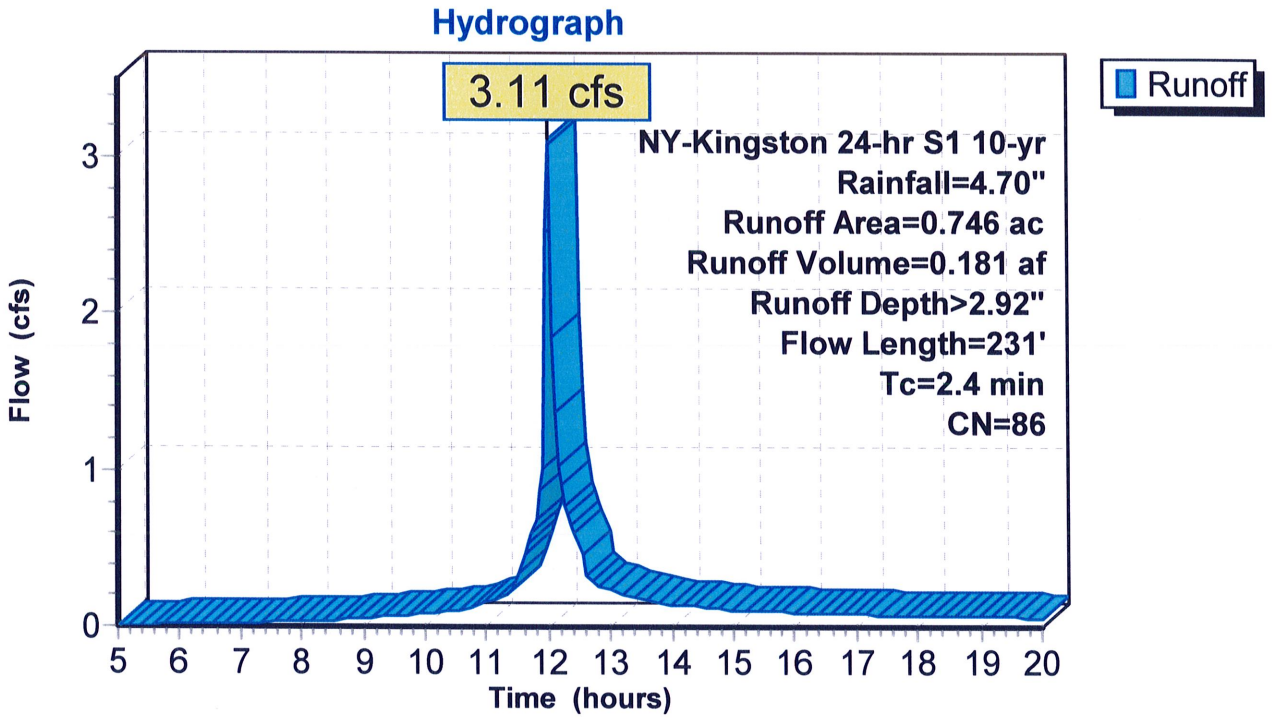
Runoff = 3.11 cfs @ 11.99 hrs, Volume= 0.181 af, Depth> 2.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.088	98	Paved parking, HSG A
0.155	39	>75% Grass cover, Good, HSG A
0.746	86	Weighted Average
0.155		20.78% Pervious Area
0.591		79.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.4	231	Total			

Subcatchment 1S: Area 1 (East)



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

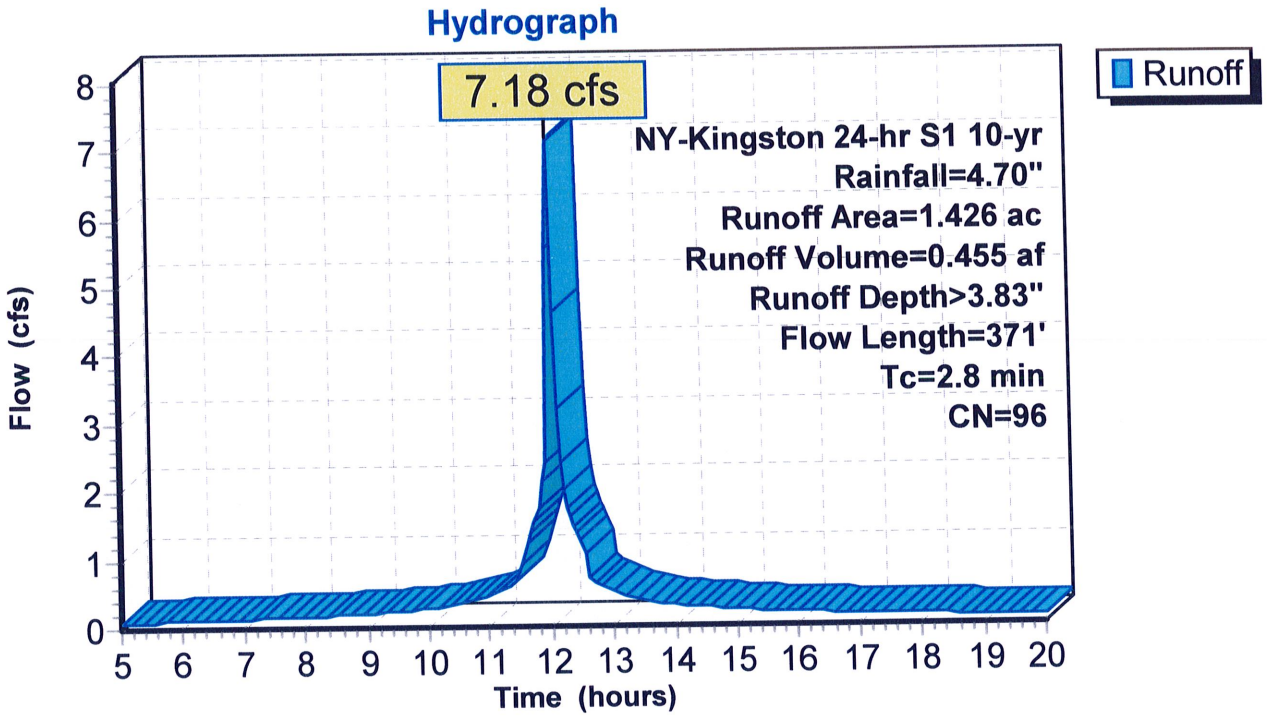
Runoff = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af, Depth> 3.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.752	98	Roofs, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.6	241	0.0189	7.24	8.88	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.8	371	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

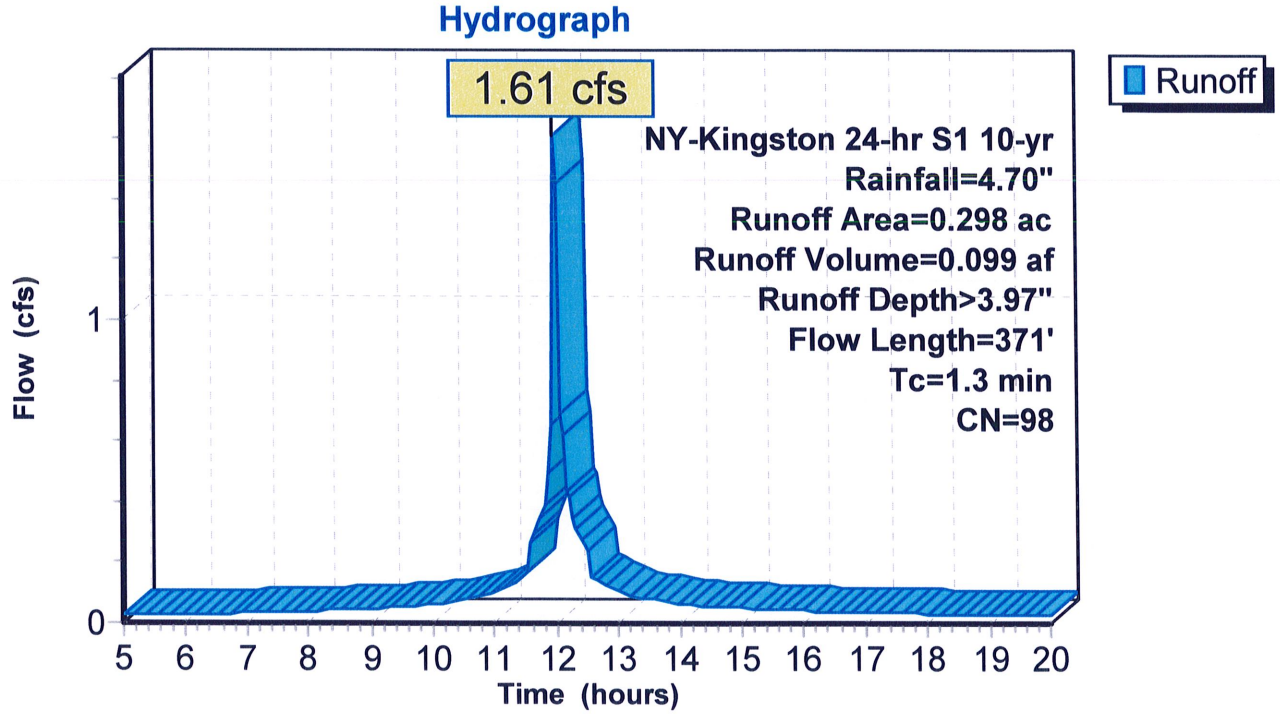
Runoff = 1.61 cfs @ 11.97 hrs, Volume= 0.099 af, Depth> 3.97"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

Area (ac)	CN	Description
0.298	98	Paved roads w/curbs & sewers, HSG B
0.298		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.1	20	0.0650	5.18		**Shallow Concentrated Flow, Flow to Existing CB** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel, Existing 15" Clay** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel, Existing 24" to Analysis Point** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.3	371	Total			

Subcatchment 3S: Area 3 (Lower Fair St.)



Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers

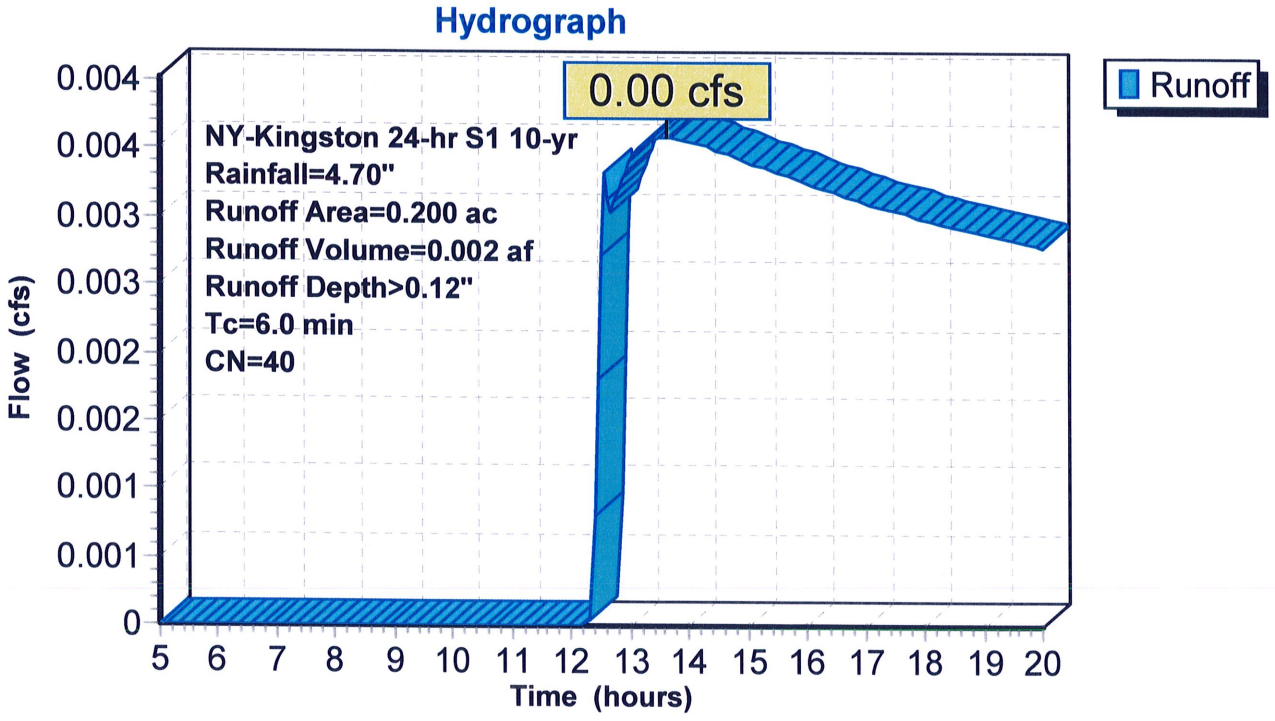
Runoff = 0.00 cfs @ 13.65 hrs, Volume= 0.002 af, Depth> 0.12"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 10-yr Rainfall=4.70"

	Area (ac)	CN	Description
*	0.200	40	Porous Pavers
	0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Extended Tc Due to Permeable Pavers**

Subcatchment 6S: Pedestrian Plaza Porous Pavers



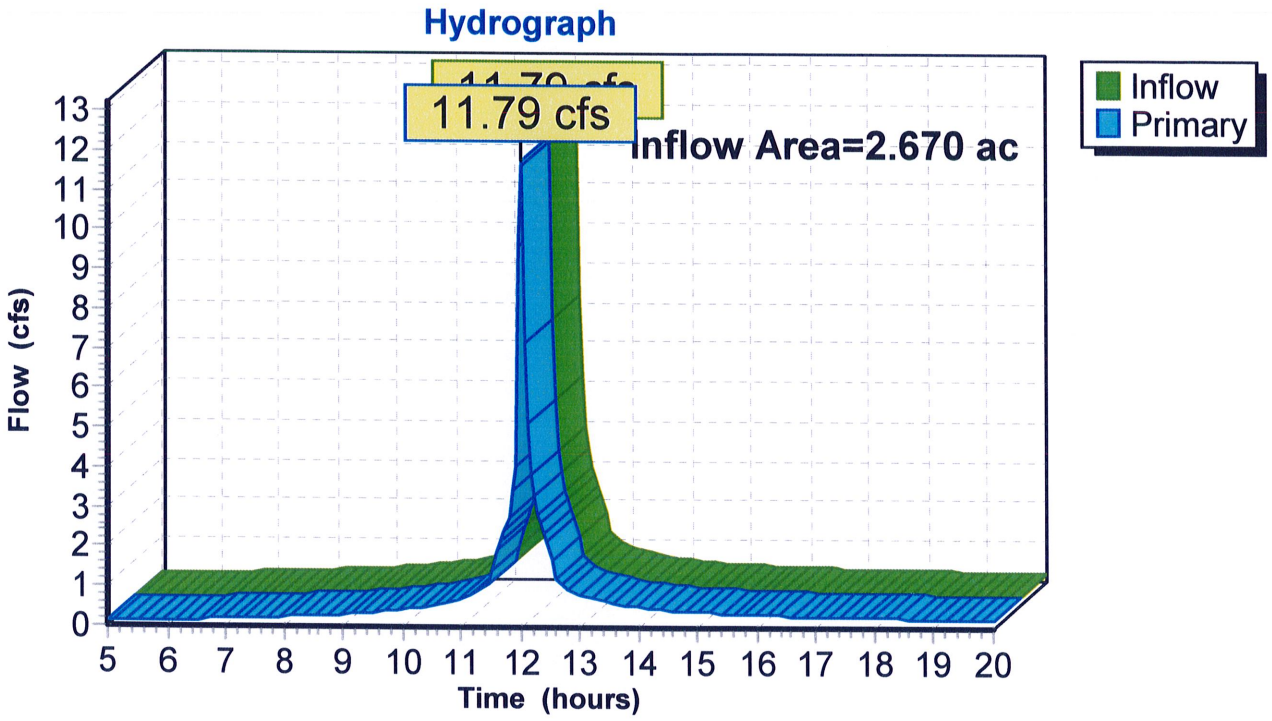
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 3.31" for 10-yr event
Inflow = 11.79 cfs @ 11.99 hrs, Volume= 0.737 af
Primary = 11.79 cfs @ 11.99 hrs, Volume= 0.737 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Summary for Pond 6P: Porous Pavers

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 0.12" for 10-yr event
Inflow = 0.00 cfs @ 13.65 hrs, Volume= 0.002 af
Outflow = 0.00 cfs @ 13.61 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min
Primary = 0.00 cfs @ 13.61 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 175.00' @ 13.61 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.002 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (964.9 - 964.7)

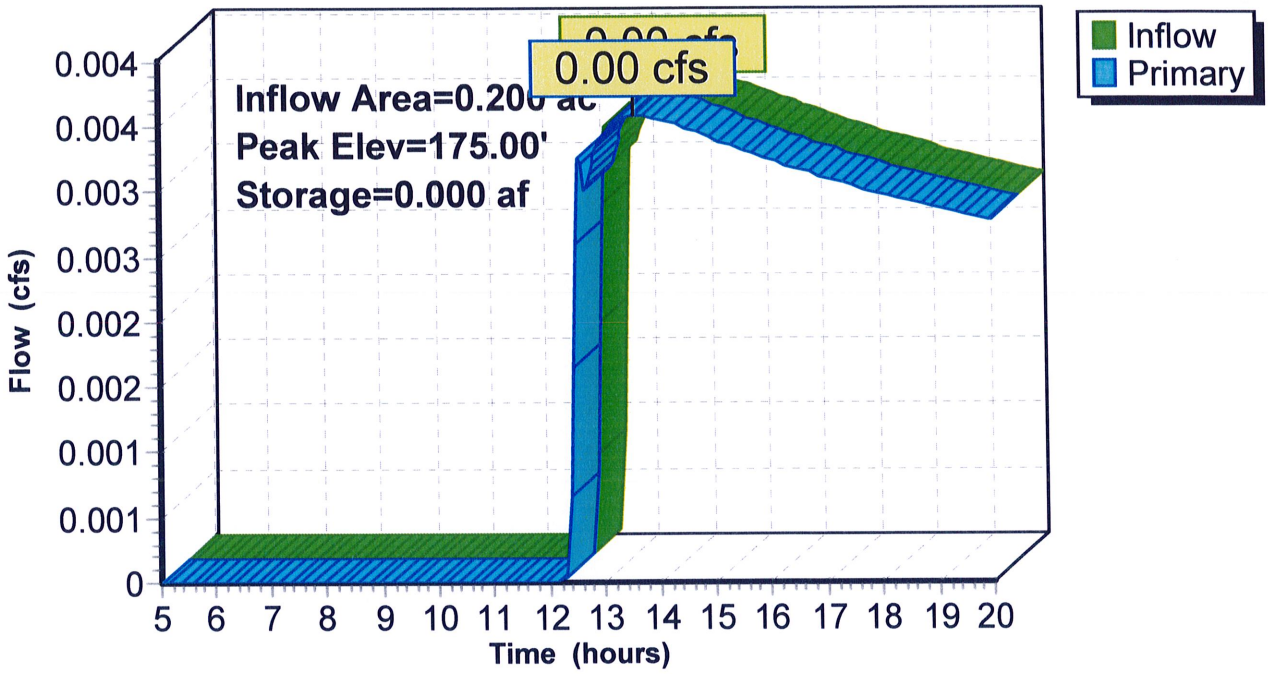
Volume	Invert	Avail.Storage	Storage Description
#1	175.00'	0.233 af	**40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0** 0.582 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	**8.0" Round Culvert** L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	**12.0" Round Outlet Sewer** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	**15.0" Round 15" City Sewers** L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	**24.0" Round 24" City Sewer to Analysis Point** L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 13.61 hrs HW=175.00' (Free Discharge)
↑**1=Culvert** (Inlet Controls 3.22 cfs @ 9.22 fps)
↑**2=Outlet Sewer** (Passes 3.22 cfs of 7.56 cfs potential flow)
↑**3=15" City Sewers** (Passes 3.22 cfs of 6.23 cfs potential flow)
↑**4=24" City Sewer to Analysis Point** (Passes 3.22 cfs of 29.31 cfs potential flow)

Pond 6P: Porous Pavers

Hydrograph



Summary for Pond 8P: Hydro Separator

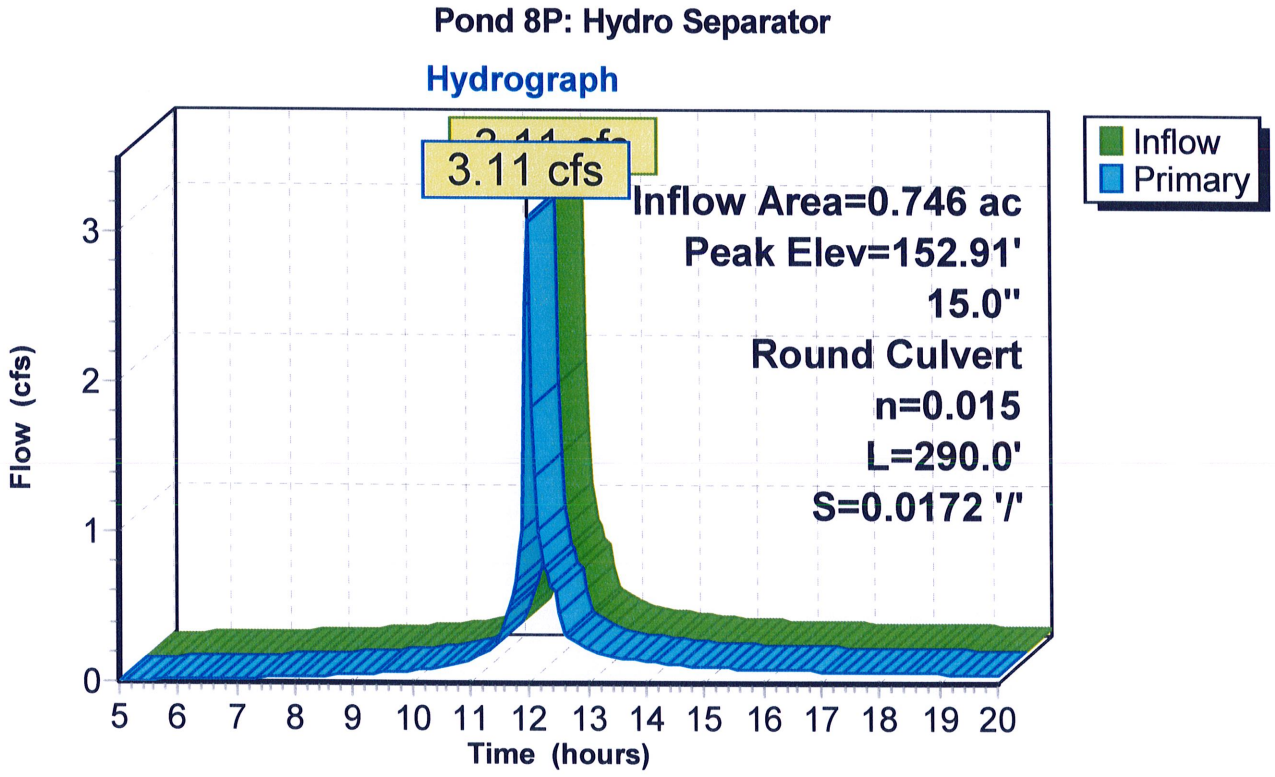
[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 152.91' (Flood elevation advised)

Inflow Area =	0.746 ac,	79.22% Impervious,	Inflow Depth >	2.92"	for 10-yr event
Inflow =	3.11 cfs @	11.99 hrs,	Volume=	0.181 af	
Outflow =	3.11 cfs @	11.99 hrs,	Volume=	0.181 af,	Atten= 0%, Lag= 0.0 min
Primary =	3.11 cfs @	11.99 hrs,	Volume=	0.181 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.91' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**15.0" Round Outlet to Analysis Point** L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf

Primary OutFlow Max=2.98 cfs @ 11.99 hrs HW=152.89' (Free Discharge)
1=Outlet to Analysis Point (Inlet Controls 2.98 cfs @ 3.20 fps)



Summary for Pond 9P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 152.91' (Flood elevation advised)

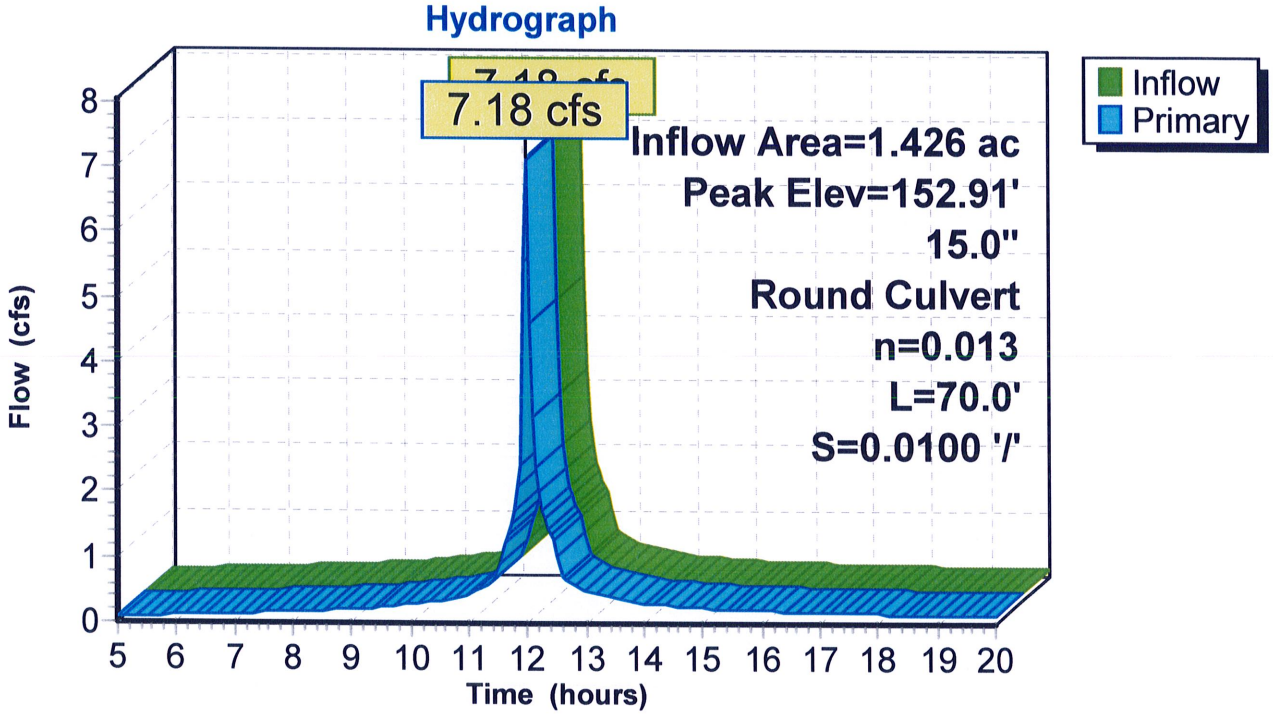
Inflow Area = 1.426 ac, 94.39% Impervious, Inflow Depth > 3.83" for 10-yr event
Inflow = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af
Outflow = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af, Atten= 0%, Lag= 0.0 min
Primary = 7.18 cfs @ 11.99 hrs, Volume= 0.455 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 152.91' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	**15.0" Round Proposed Outlet to City Sewer** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.98 cfs @ 11.99 hrs HW=152.82' (Free Discharge)
↑—**1=Proposed Outlet to City Sewer** (Barrel Controls 6.98 cfs @ 5.69 fps)

Pond 9P: Hydro Separator



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>3.94"
Flow Length=231' Tc=2.4 min CN=86 Runoff=4.02 cfs 0.245 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>4.86"
Flow Length=371' Tc=2.8 min CN=96 Runoff=8.76 cfs 0.578 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>4.99"
Flow Length=371' Tc=1.3 min CN=98 Runoff=1.95 cfs 0.124 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>0.36"
Tc=6.0 min CN=40 Runoff=0.02 cfs 0.006 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=14.60 cfs 0.953 af
Primary=14.60 cfs 0.953 af

Pond 6P: Porous Pavers Peak Elev=175.00' Storage=0.000 af Inflow=0.02 cfs 0.006 af
Outflow=0.02 cfs 0.006 af

Pond 8P: Hydro Separator Peak Elev=153.09' Inflow=4.02 cfs 0.245 af
15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=4.02 cfs 0.245 af

Pond 9P: Hydro Separator Peak Elev=153.72' Inflow=8.76 cfs 0.578 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=8.76 cfs 0.578 af

Total Runoff Area = 2.670 ac Runoff Volume = 0.953 af Average Runoff Depth = 4.28"
16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 4.02 cfs @ 11.99 hrs, Volume= 0.245 af, Depth> 3.94"

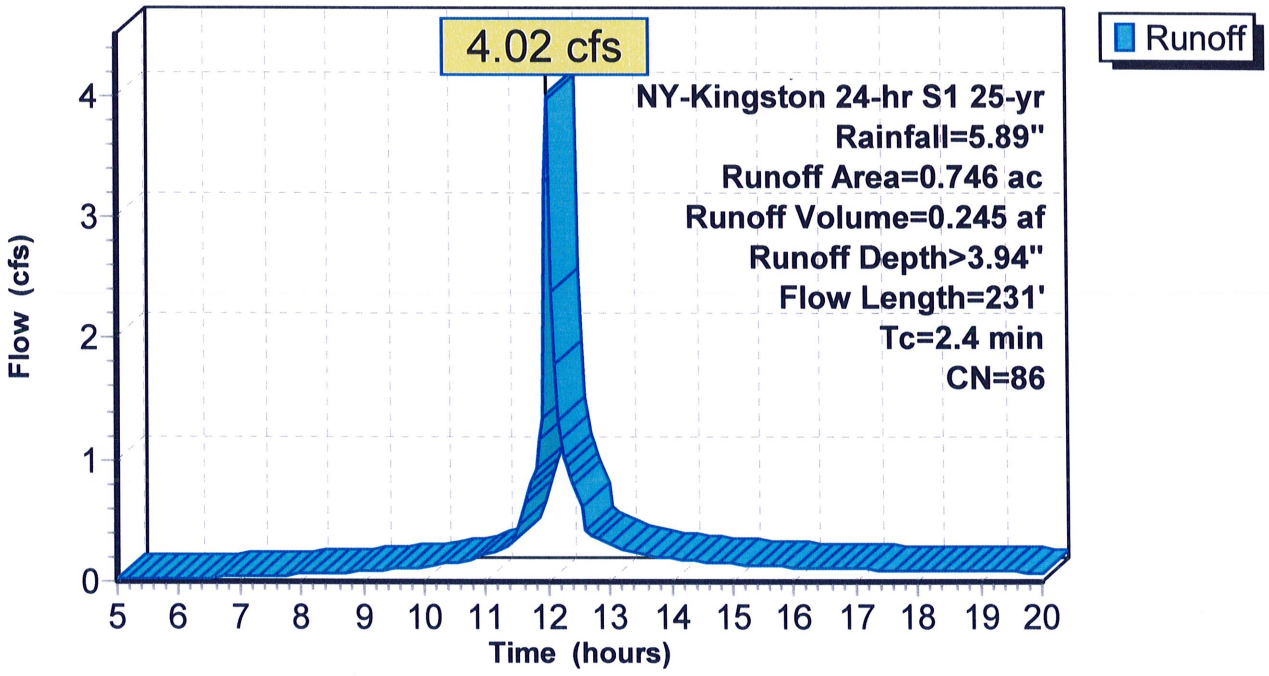
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.088	98	Paved parking, HSG A
0.155	39	>75% Grass cover, Good, HSG A
0.746	86	Weighted Average
0.155		20.78% Pervious Area
0.591		79.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.4	231	Total			

Subcatchment 1S: Area 1 (East)

Hydrograph



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

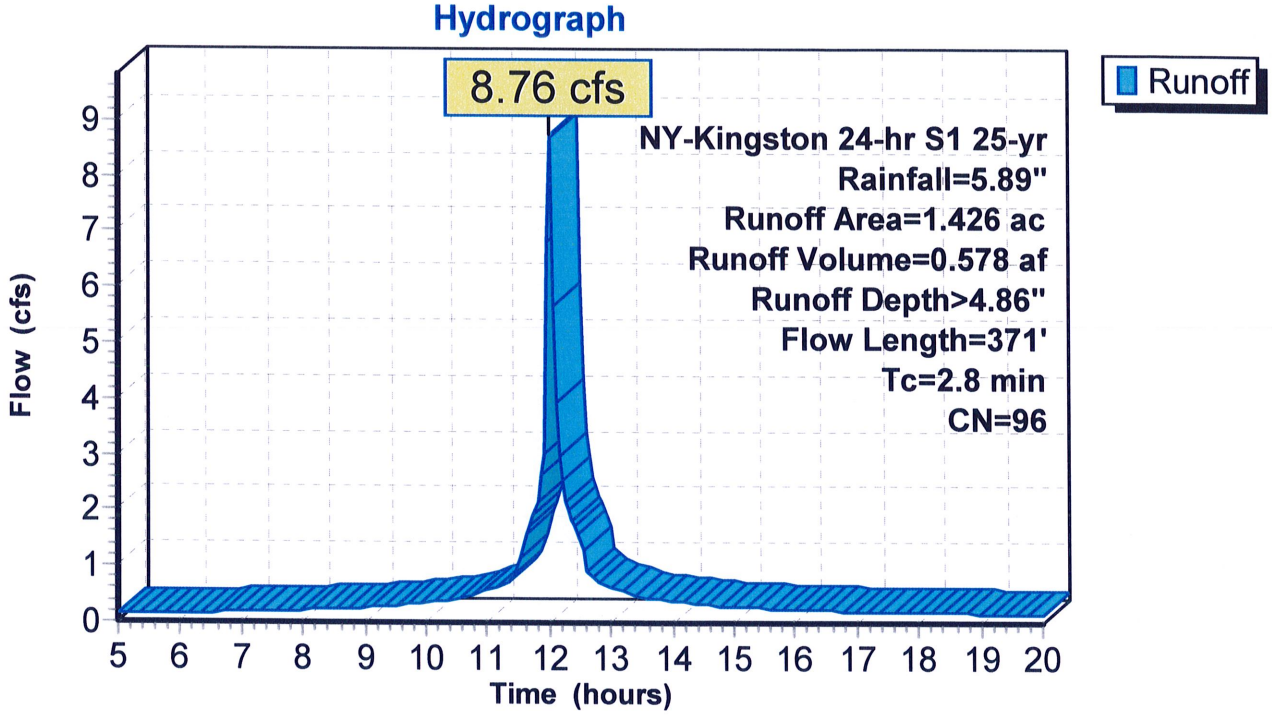
Runoff = 8.76 cfs @ 11.99 hrs, Volume= 0.578 af, Depth> 4.86"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.752	98	Roofs, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.6	241	0.0189	7.24	8.88	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.8	371	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

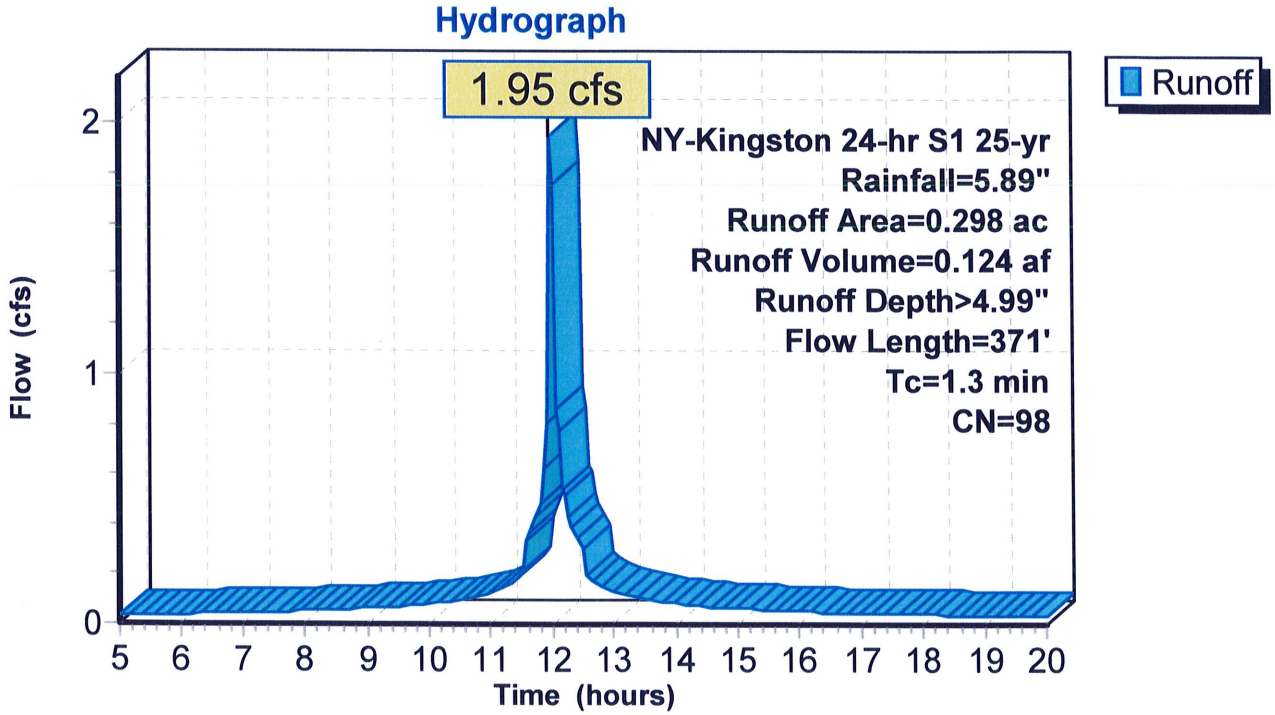
Runoff = 1.95 cfs @ 11.97 hrs, Volume= 0.124 af, Depth> 4.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

Area (ac)	CN	Description
0.298	98	Paved roads w/curbs & sewers, HSG B
0.298		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.1	20	0.0650	5.18		**Shallow Concentrated Flow, Flow to Existing CB** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel, Existing 15" Clay** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel, Existing 24" to Analysis Point** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.3	371	Total			

Subcatchment 3S: Area 3 (Lower Fair St.)



Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers

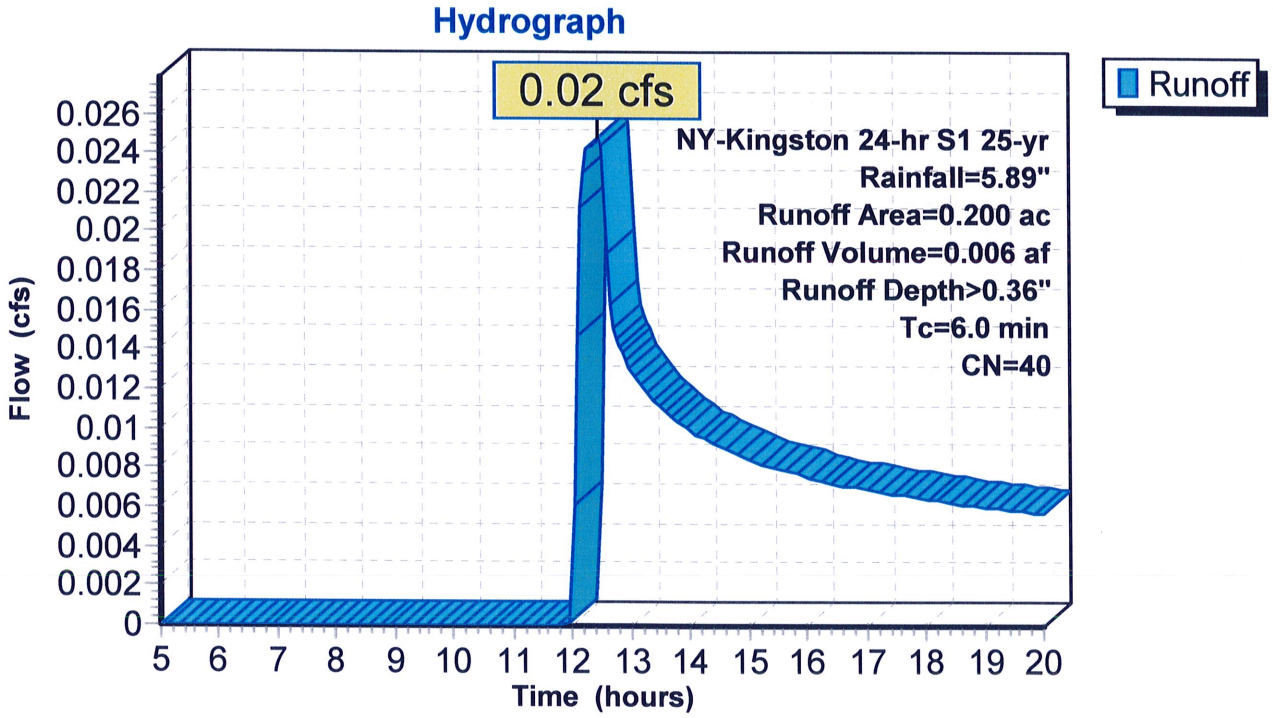
Runoff = 0.02 cfs @ 12.46 hrs, Volume= 0.006 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 25-yr Rainfall=5.89"

	Area (ac)	CN	Description
*	0.200	40	Porous Pavers
	0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Extended Tc Due to Permeable Pavers**

Subcatchment 6S: Pedestrian Plaza Porous Pavers



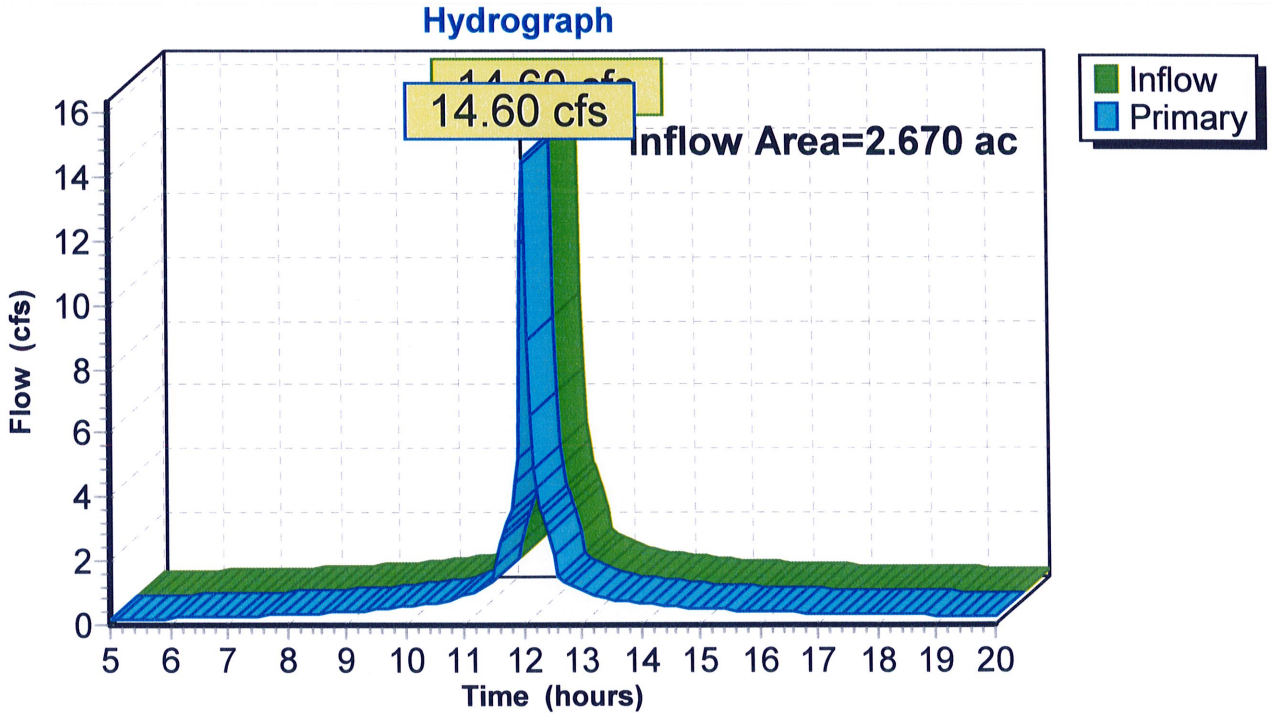
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 4.28" for 25-yr event
Inflow = 14.60 cfs @ 11.99 hrs, Volume= 0.953 af
Primary = 14.60 cfs @ 11.99 hrs, Volume= 0.953 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Summary for Pond 6P: Porous Pavers

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 0.36" for 25-yr event
Inflow = 0.02 cfs @ 12.46 hrs, Volume= 0.006 af
Outflow = 0.02 cfs @ 12.50 hrs, Volume= 0.006 af, Atten= 0%, Lag= 2.7 min
Primary = 0.02 cfs @ 12.50 hrs, Volume= 0.006 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 175.00' @ 12.50 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.006 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (911.0 - 910.8)

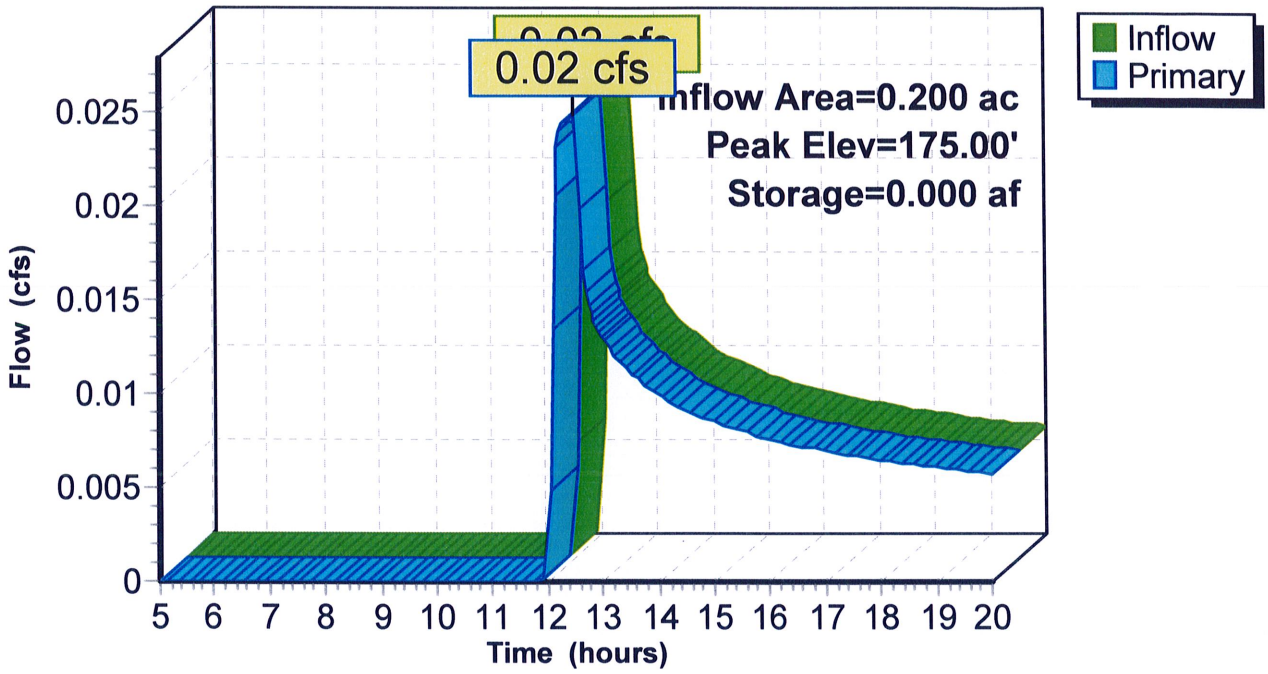
Volume	Invert	Avail.Storage	Storage Description
#1	175.00'	0.233 af	**40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0** 0.582 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	**8.0" Round Culvert** L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	**12.0" Round Outlet Sewer** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	**15.0" Round 15" City Sewers** L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	**24.0" Round 24" City Sewer to Analysis Point** L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 12.50 hrs HW=175.00' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.22 cfs @ 9.22 fps)
↑—**2=Outlet Sewer** (Passes 3.22 cfs of 7.56 cfs potential flow)
↑—**3=15" City Sewers** (Passes 3.22 cfs of 6.23 cfs potential flow)
↑—**4=24" City Sewer to Analysis Point** (Passes 3.22 cfs of 29.31 cfs potential flow)

Pond 6P: Porous Pavers

Hydrograph



Summary for Pond 8P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 153.09' (Flood elevation advised)

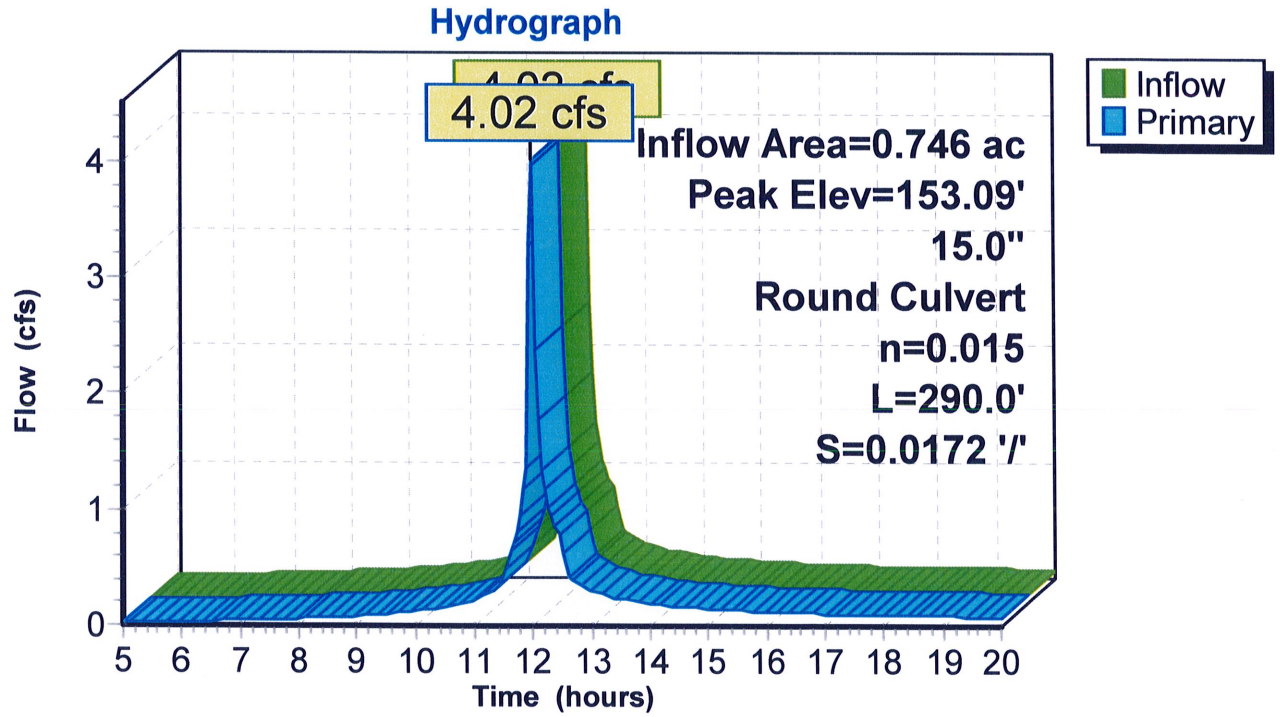
Inflow Area =	0.746 ac,	79.22% Impervious,	Inflow Depth >	3.94"	for 25-yr event
Inflow =	4.02 cfs @	11.99 hrs,	Volume=	0.245 af	
Outflow =	4.02 cfs @	11.99 hrs,	Volume=	0.245 af,	Atten= 0%, Lag= 0.0 min
Primary =	4.02 cfs @	11.99 hrs,	Volume=	0.245 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 153.09' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**15.0" Round Outlet to Analysis Point** L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf

Primary OutFlow Max=3.84 cfs @ 11.99 hrs HW=153.05' (Free Discharge)
↑**1=Outlet to Analysis Point** (Inlet Controls 3.84 cfs @ 3.49 fps)

Pond 8P: Hydro Separator



Summary for Pond 9P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 153.72' (Flood elevation advised)

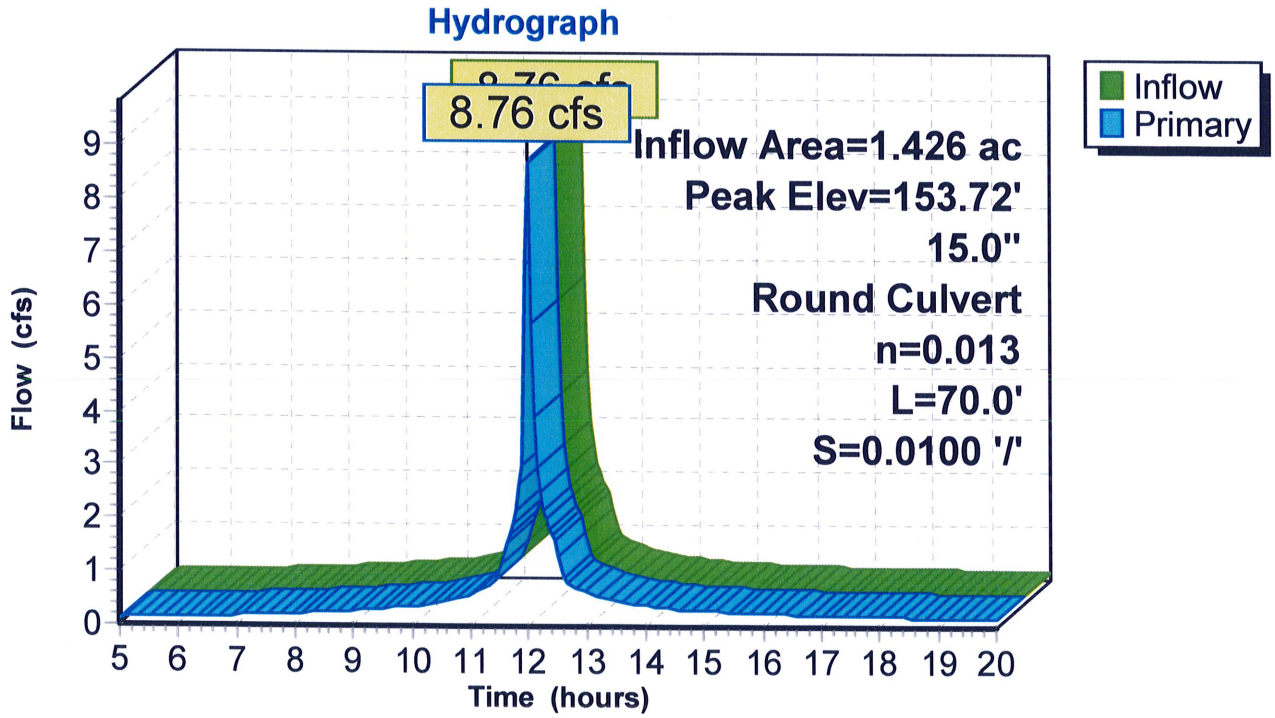
Inflow Area	=	1.426 ac,	94.39% Impervious,	Inflow Depth >	4.86" for 25-yr event
Inflow	=	8.76 cfs @	11.99 hrs,	Volume=	0.578 af
Outflow	=	8.76 cfs @	11.99 hrs,	Volume=	0.578 af, Atten= 0%, Lag= 0.0 min
Primary	=	8.76 cfs @	11.99 hrs,	Volume=	0.578 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 153.72' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	**15.0" Round Proposed Outlet to City Sewer** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=8.53 cfs @ 11.99 hrs HW=153.60' (Free Discharge)
↑—**1=Proposed Outlet to City Sewer** (Barrel Controls 8.53 cfs @ 6.95 fps)

Pond 9P: Hydro Separator



Time span=5.00-20.00 hrs, dt=0.05 hrs, 301 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Area 1 (East) Runoff Area=0.746 ac 79.22% Impervious Runoff Depth>6.06"
Flow Length=231' Tc=2.4 min CN=86 Runoff=5.65 cfs 0.377 af

Subcatchment 2S: Area 2 (West) Runoff Area=1.426 ac 94.39% Impervious Runoff Depth>6.95"
Flow Length=371' Tc=2.8 min CN=96 Runoff=11.62 cfs 0.826 af

Subcatchment 3S: Area 3 (Lower Fair St.) Runoff Area=0.298 ac 100.00% Impervious Runoff Depth>7.05"
Flow Length=371' Tc=1.3 min CN=98 Runoff=2.57 cfs 0.175 af

Subcatchment 6S: Pedestrian Plaza Porous Runoff Area=0.200 ac 0.00% Impervious Runoff Depth>1.15"
Tc=6.0 min CN=40 Runoff=0.19 cfs 0.019 af

Pond 4P: Existing CB1A (Point of Analysis) Inflow=19.78 cfs 1.397 af
Primary=19.78 cfs 1.397 af

Pond 6P: Porous Pavers Peak Elev=175.00' Storage=0.000 af Inflow=0.19 cfs 0.019 af
Outflow=0.19 cfs 0.019 af

Pond 8P: Hydro Separator Peak Elev=153.53' Inflow=5.65 cfs 0.377 af
15.0" Round Culvert n=0.015 L=290.0' S=0.0172 '/' Outflow=5.65 cfs 0.377 af

Pond 9P: Hydro Separator Peak Elev=155.60' Inflow=11.62 cfs 0.826 af
15.0" Round Culvert n=0.013 L=70.0' S=0.0100 '/' Outflow=11.62 cfs 0.826 af

Total Runoff Area = 2.670 ac Runoff Volume = 1.397 af Average Runoff Depth = 6.28"
16.29% Pervious = 0.435 ac 83.71% Impervious = 2.235 ac

Summary for Subcatchment 1S: Area 1 (East)

[49] Hint: Tc<2dt may require smaller dt

Runoff = 5.65 cfs @ 11.99 hrs, Volume= 0.377 af, Depth> 6.06"

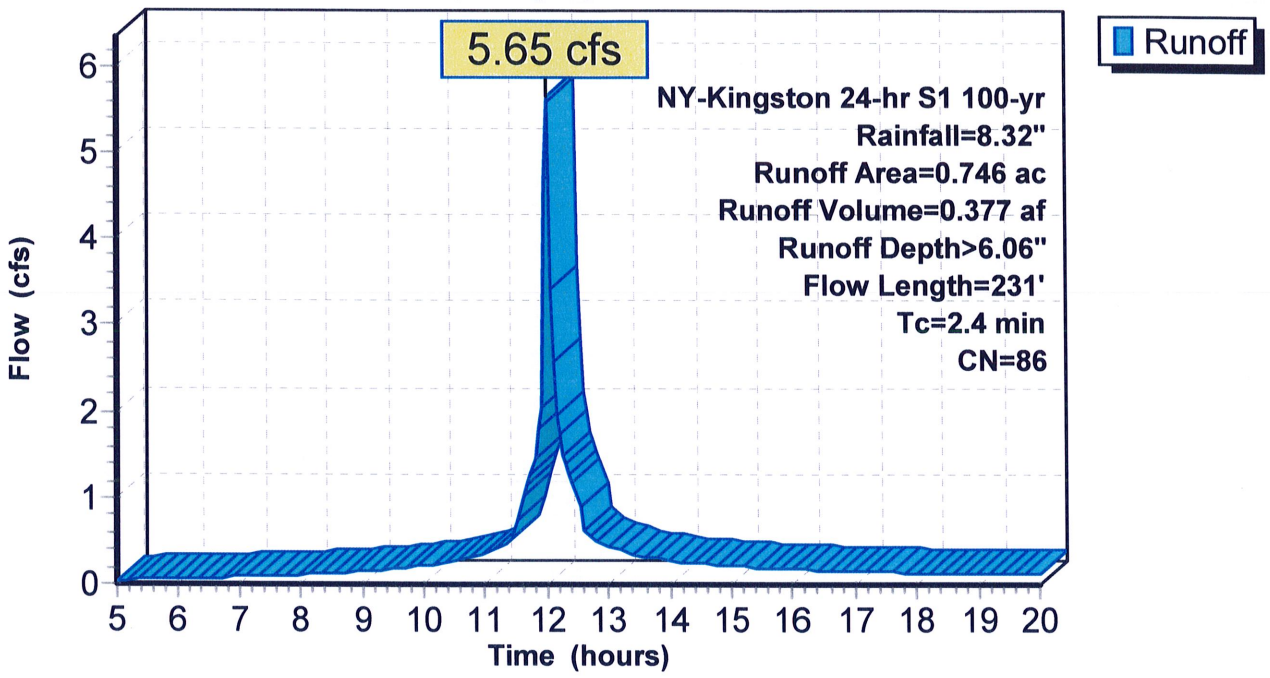
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.503	98	Roofs, HSG B
0.088	98	Paved parking, HSG A
0.155	39	>75% Grass cover, Good, HSG A
0.746	86	Weighted Average
0.155		20.78% Pervious Area
0.591		79.22% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0150	5.56	4.36	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.2	101	0.0300	9.12	11.19	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.4	231	Total			

Subcatchment 1S: Area 1 (East)

Hydrograph



Summary for Subcatchment 2S: Area 2 (West)

[49] Hint: Tc<2dt may require smaller dt

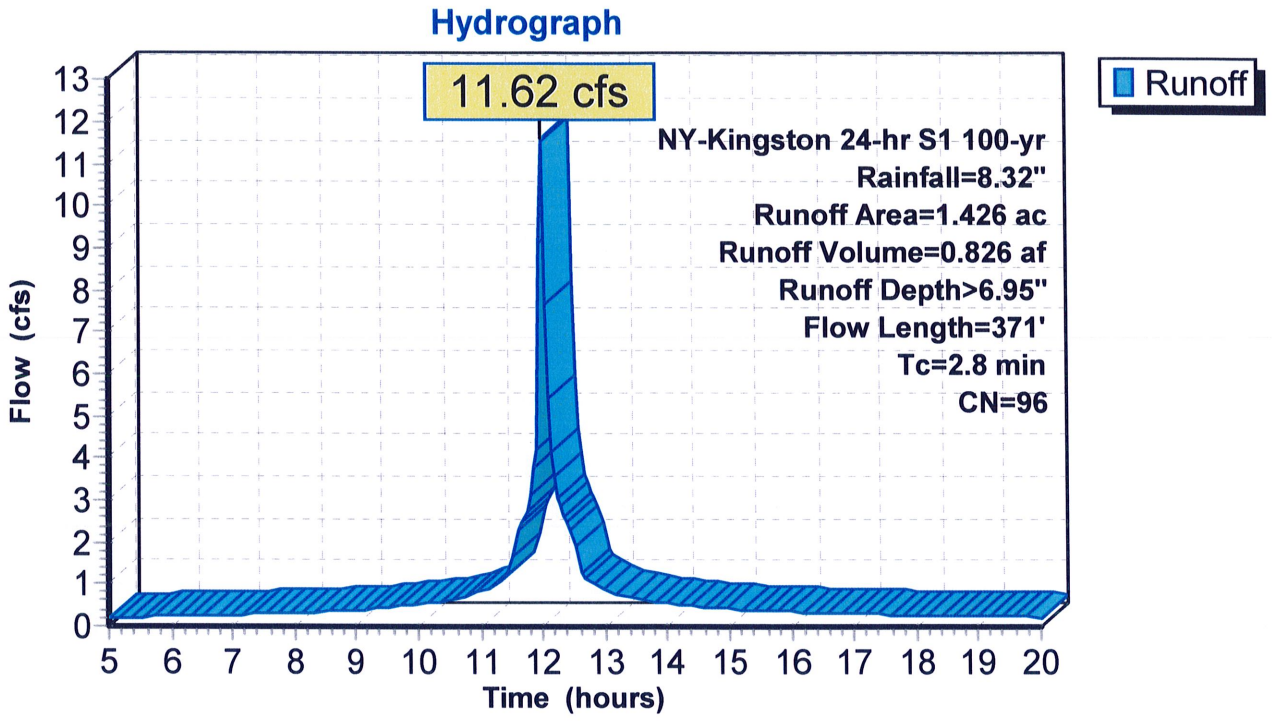
Runoff = 11.62 cfs @ 11.99 hrs, Volume= 0.826 af, Depth> 6.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.752	98	Roofs, HSG B
0.594	98	Paved parking, HSG A
0.080	61	>75% Grass cover, Good, HSG B
1.426	96	Weighted Average
0.080		5.61% Pervious Area
1.346		94.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
2.1	100	0.0050	0.79		**Sheet Flow, Roof Flow** Smooth surfaces n= 0.011 P2= 3.16"
0.1	30	0.0300	7.86	6.17	**Pipe Channel, Roof Drains** 12.0" Round Area= 0.8 sf Perim= 3.1' r= 0.25' n= 0.013 Corrugated PE, smooth interior
0.6	241	0.0189	7.24	8.88	**Pipe Channel, Garage Drains to Treatment** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
2.8	371	Total			

Subcatchment 2S: Area 2 (West)



Summary for Subcatchment 3S: Area 3 (Lower Fair St.)

[49] Hint: Tc<2dt may require smaller dt

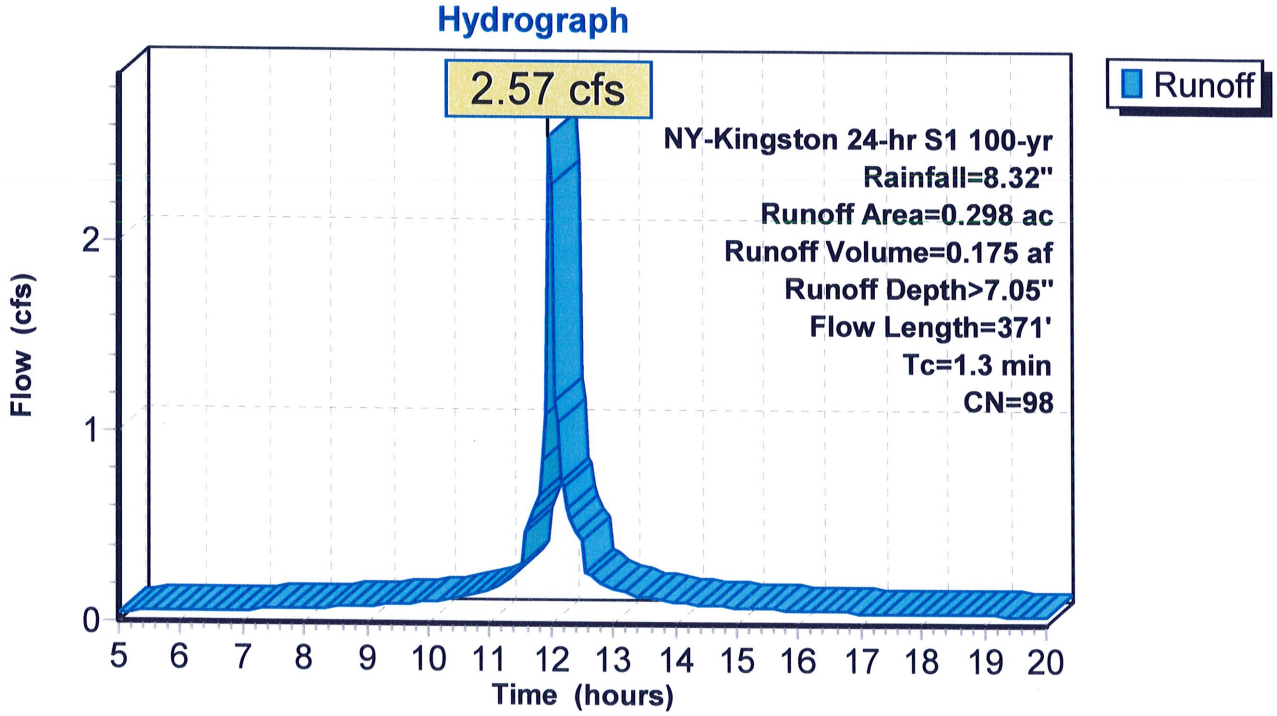
Runoff = 2.57 cfs @ 11.97 hrs, Volume= 0.175 af, Depth> 7.05"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

Area (ac)	CN	Description
0.298	98	Paved roads w/curbs & sewers, HSG B
0.298		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	50	0.0400	1.57		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.16"
0.1	20	0.0650	5.18		**Shallow Concentrated Flow, Flow to Existing CB** Paved Kv= 20.3 fps
0.2	128	0.0470	8.73	10.71	**Pipe Channel, Existing 15" Clay** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.017 Clay tile
0.5	173	0.0100	6.24	19.61	**Pipe Channel, Existing 24" to Analysis Point** 24.0" Round Area= 3.1 sf Perim= 6.3' r= 0.50' n= 0.015
1.3	371	Total			

Subcatchment 3S: Area 3 (Lower Fair St.)



Summary for Subcatchment 6S: Pedestrian Plaza Porous Pavers

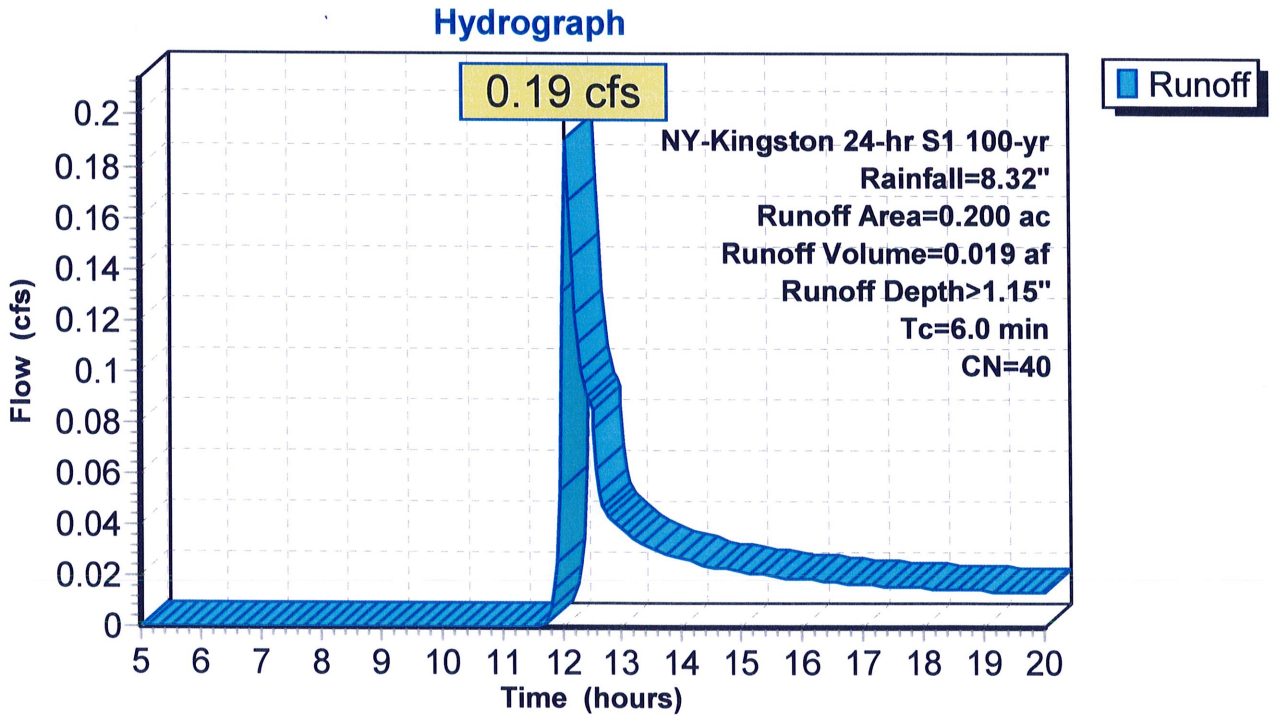
Runoff = 0.19 cfs @ 12.06 hrs, Volume= 0.019 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
NY-Kingston 24-hr S1 100-yr Rainfall=8.32"

	Area (ac)	CN	Description
*	0.200	40	Porous Pavers
	0.200		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, Extended Tc Due to Permeable Pavers**

Subcatchment 6S: Pedestrian Plaza Porous Pavers



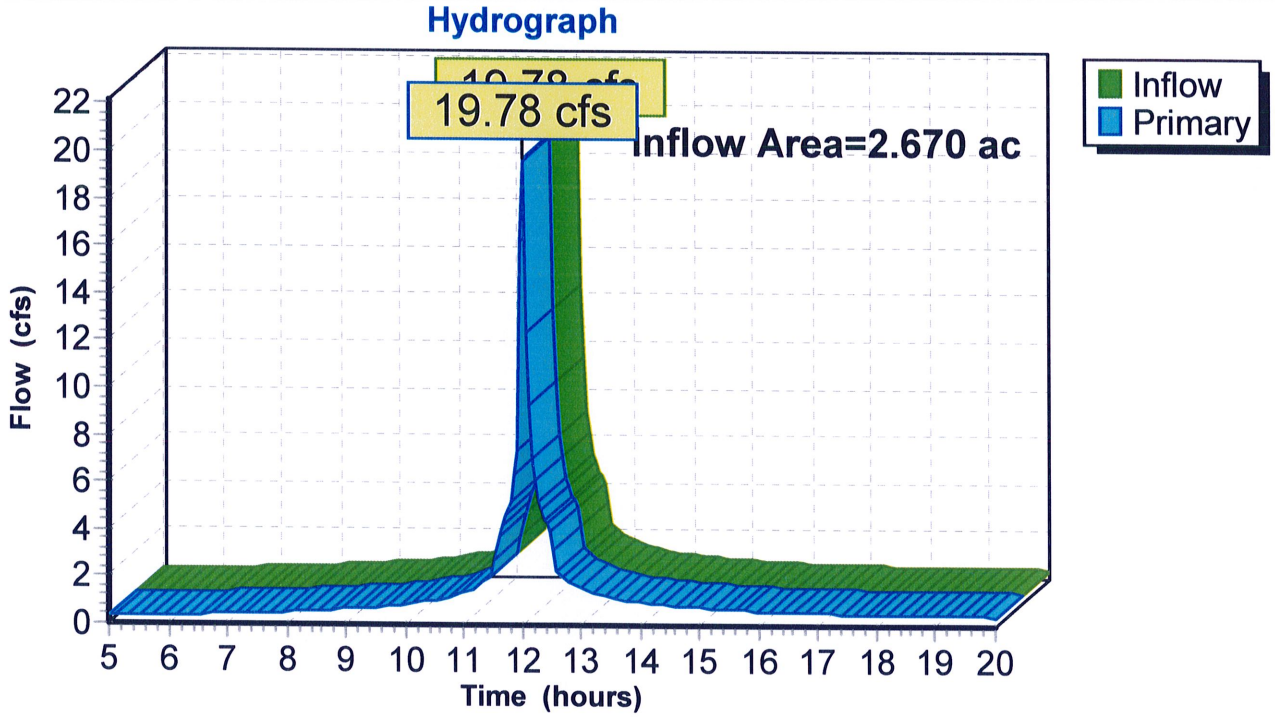
Summary for Pond 4P: Existing CB1A (Point of Analysis)

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

Inflow Area = 2.670 ac, 83.71% Impervious, Inflow Depth > 6.28" for 100-yr event
Inflow = 19.78 cfs @ 11.99 hrs, Volume= 1.397 af
Primary = 19.78 cfs @ 11.99 hrs, Volume= 1.397 af, Atten= 0%, Lag= 0.0 min

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

Pond 4P: Existing CB1A (Point of Analysis)



Summary for Pond 6P: Porous Pavers

Inflow Area = 0.200 ac, 0.00% Impervious, Inflow Depth > 1.15" for 100-yr event
Inflow = 0.19 cfs @ 12.06 hrs, Volume= 0.019 af
Outflow = 0.19 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 1%, Lag= 0.5 min
Primary = 0.19 cfs @ 12.07 hrs, Volume= 0.019 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 175.00' @ 12.07 hrs Surf.Area= 0.129 ac Storage= 0.000 af

Plug-Flow detention time= 0.5 min calculated for 0.019 af (100% of inflow)
Center-of-Mass det. time= 0.3 min (868.3 - 867.9)

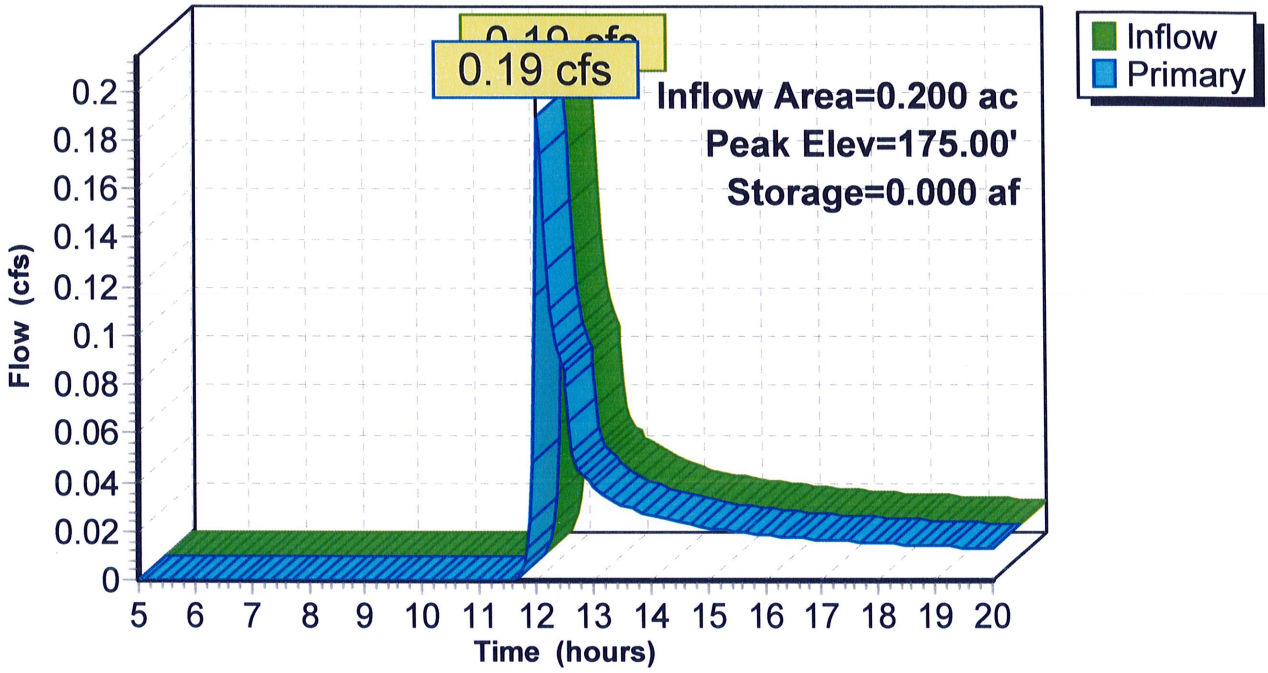
Volume	Invert	Avail.Storage	Storage Description
#1	175.00'	0.233 af	**40.00'W x 140.00'L x 4.00'H Prismatoid Z=1.0** 0.582 af Overall x 40.0% Voids

Device	Routing	Invert	Outlet Devices
#1	Primary	171.00'	**8.0" Round Culvert** L= 70.0' Ke= 0.500 Inlet / Outlet Invert= 171.00' / 163.00' S= 0.1143 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#2	Device 1	163.00'	**12.0" Round Outlet Sewer** L= 30.0' Ke= 0.500 Inlet / Outlet Invert= 163.00' / 162.50' S= 0.0167 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.79 sf
#3	Device 2	162.50'	**15.0" Round 15" City Sewers** L= 213.0' Ke= 0.500 Inlet / Outlet Invert= 162.50' / 153.56' S= 0.0420 '/' Cc= 0.900 n= 0.017, Flow Area= 1.23 sf
#4	Device 3	153.50'	**24.0" Round 24" City Sewer to Analysis Point** L= 88.0' Ke= 0.500 Inlet / Outlet Invert= 153.50' / 152.62' S= 0.0100 '/' Cc= 0.900 n= 0.015 Concrete sewer w/manholes & inlets, Flow Area= 3.14 sf

Primary OutFlow Max=3.22 cfs @ 12.07 hrs HW=175.00' (Free Discharge)
└**1=Culvert** (Inlet Controls 3.22 cfs @ 9.22 fps)
└**2=Outlet Sewer** (Passes 3.22 cfs of 7.57 cfs potential flow)
└**3=15" City Sewers** (Passes 3.22 cfs of 6.23 cfs potential flow)
└**4=24" City Sewer to Analysis Point** (Passes 3.22 cfs of 29.31 cfs potential flow)

Pond 6P: Porous Pavers

Hydrograph



Summary for Pond 8P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 153.53' (Flood elevation advised)

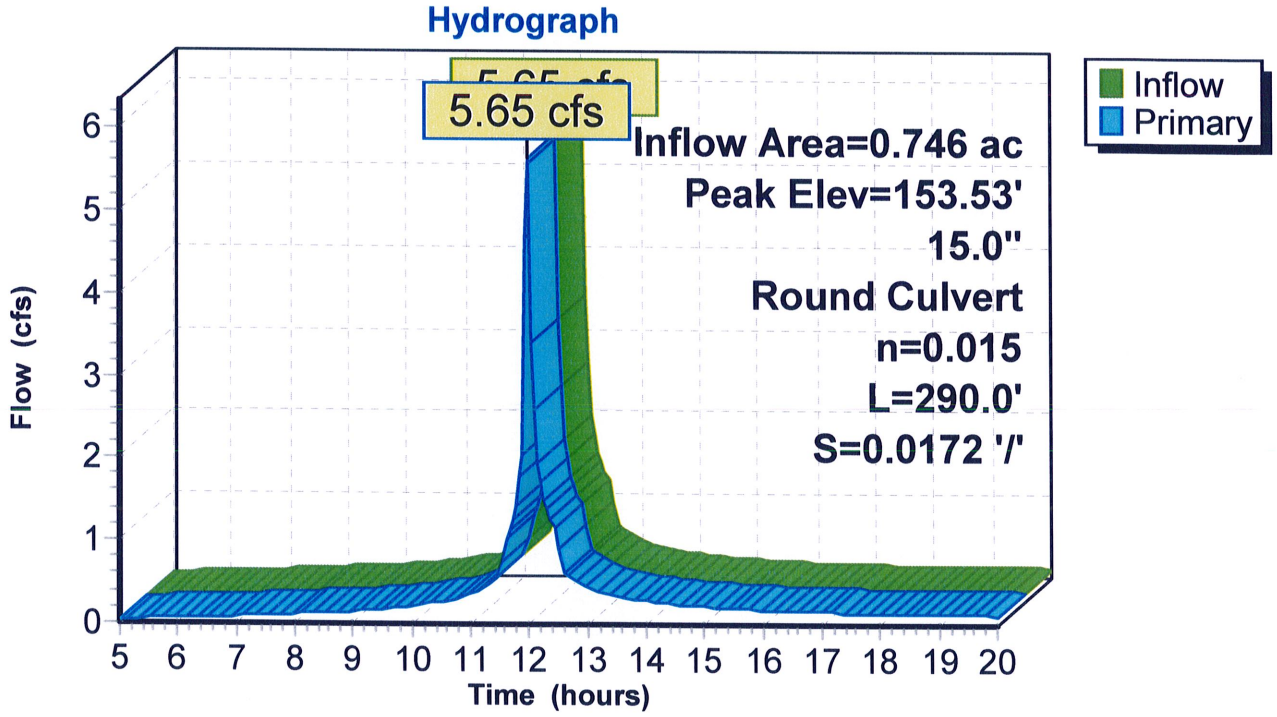
Inflow Area =	0.746 ac, 79.22% Impervious, Inflow Depth >	6.06"	for	100-yr event
Inflow =	5.65 cfs @ 11.99 hrs, Volume=	0.377 af		
Outflow =	5.65 cfs @ 11.99 hrs, Volume=	0.377 af, Atten= 0%, Lag= 0.0 min		
Primary =	5.65 cfs @ 11.99 hrs, Volume=	0.377 af		

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 153.53' @ 11.99 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	152.00'	**15.0" Round Outlet to Analysis Point** L= 290.0' Ke= 0.500 Inlet / Outlet Invert= 152.00' / 147.00' S= 0.0172 '/' Cc= 0.900 n= 0.015, Flow Area= 1.23 sf

Primary OutFlow Max=5.41 cfs @ 11.99 hrs HW=153.46' (Free Discharge)
↑—**1=Outlet to Analysis Point** (Inlet Controls 5.41 cfs @ 4.41 fps)

Pond 8P: Hydro Separator



Summary for Pond 9P: Hydro Separator

[82] Warning: Early inflow requires earlier time span
[57] Hint: Peaked at 155.60' (Flood elevation advised)

Inflow Area =	1.426 ac,	94.39% Impervious,	Inflow Depth >	6.95"	for 100-yr event
Inflow =	11.62 cfs @	11.99 hrs,	Volume=	0.826 af	
Outflow =	11.62 cfs @	11.99 hrs,	Volume=	0.826 af,	Atten= 0%, Lag= 0.0 min
Primary =	11.62 cfs @	11.99 hrs,	Volume=	0.826 af	

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 155.60' @ 12.00 hrs

Device	Routing	Invert	Outlet Devices
#1	Primary	150.70'	**15.0" Round Proposed Outlet to City Sewer** L= 70.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 150.70' / 150.00' S= 0.0100 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=11.33 cfs @ 11.99 hrs HW=155.39' (Free Discharge)
└**1=Proposed Outlet to City Sewer** (Barrel Controls 11.33 cfs @ 9.23 fps)

Pond 9P: Hydro Separator