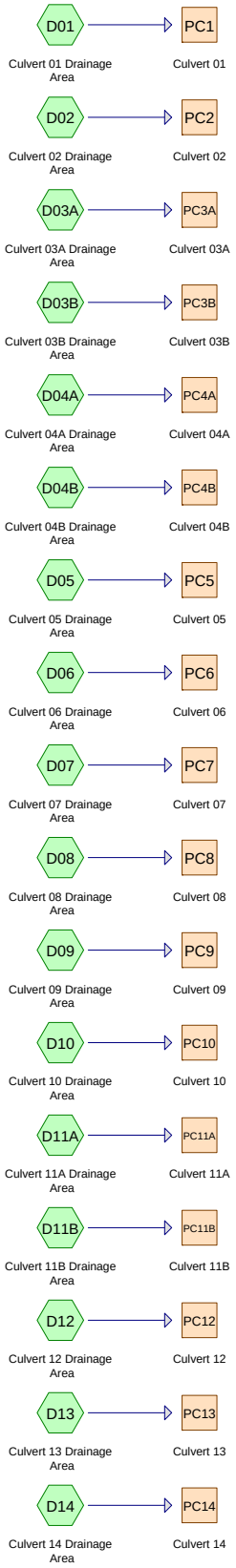
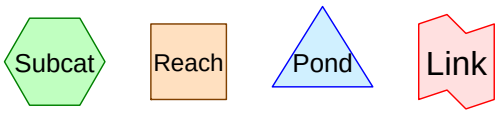




Drainage Diagram for Canton Mountain Wind Site Stormwater AnalysiS-HYDRAULICS

Prepared by {enter your company name here}, Printed 7/3/2012

HydroCAD® 9.10 s/n 02179 © 2009 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
35.327	77	Woods, Good, HSG D (D01, D02, D03A, D03B, D04A, D04B, D05, D06, D07, D08, D09, D10, D11A, D11B, D12, D13, D14)
0.230	91	Gravel roads, HSG D (D01)
35.557		**TOTAL AREA**

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
35.557	HSG D	D01, D02, D03A, D03B, D04A, D04B, D05, D06, D07, D08, D09, D10, D11A, D11B, D12, D13, D14
0.000	Other	
35.557		**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	PC1	1,183.00	1,182.00	40.0	0.0250	0.013	12.0	0.0	0.0
2	PC10	1,409.00	1,406.00	48.0	0.0625	0.010	12.0	0.0	0.0
3	PC11A	1,387.50	1,386.00	56.0	0.0268	0.010	12.0	0.0	0.0
4	PC11B	1,334.50	1,333.00	52.0	0.0288	0.010	12.0	0.0	0.0
5	PC12	1,509.00	1,508.00	55.0	0.0182	0.010	12.0	0.0	0.0
6	PC13	1,509.00	1,508.00	55.0	0.0182	0.010	12.0	0.0	0.0
7	PC14	1,506.00	1,504.00	37.0	0.0541	0.010	12.0	0.0	0.0
8	PC2	1,238.00	1,234.00	50.0	0.0800	0.013	12.0	0.0	0.0
9	PC3A	1,256.50	1,255.50	38.0	0.0263	0.010	15.0	0.0	0.0
10	PC3B	1,286.50	1,285.50	40.0	0.0250	0.010	15.0	0.0	0.0
11	PC4A	1,349.00	1,348.00	47.0	0.0213	0.010	18.0	0.0	0.0
12	PC4B	1,392.00	1,390.00	40.0	0.0500	0.010	15.0	0.0	0.0
13	PC5	1,427.00	1,426.00	40.0	0.0250	0.010	12.0	0.0	0.0
14	PC6	1,472.00	1,469.00	72.0	0.0417	0.010	18.0	0.0	0.0
15	PC7	1,476.00	1,472.00	76.0	0.0526	0.010	12.0	0.0	0.0
16	PC8	1,456.00	1,455.00	63.0	0.0159	0.010	12.0	0.0	0.0
17	PC9	1,433.00	1,432.00	50.0	0.0200	0.010	12.0	0.0	0.0

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment D01: Culvert 01 Drainage Runoff Area=60,000 sf 0.00% Impervious Runoff Depth>2.63"
Tc=5.0 min CN=79 Runoff=4.25 cfs 0.302 af

Subcatchment D02: Culvert 02 Drainage Runoff Area=62,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=4.10 cfs 0.291 af

Subcatchment D03A: Culvert 03A Drainage Runoff Area=197,110 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=13.04 cfs 0.926 af

Subcatchment D03B: Culvert 03B Drainage Runoff Area=130,270 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=8.62 cfs 0.612 af

Subcatchment D04A: Culvert 04A Drainage Runoff Area=235,300 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=15.56 cfs 1.105 af

Subcatchment D04B: Culvert 04B Drainage Runoff Area=156,175 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=10.33 cfs 0.733 af

Subcatchment D05: Culvert 05 Drainage Runoff Area=36,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=2.38 cfs 0.169 af

Subcatchment D06: Culvert 06 Drainage Runoff Area=110,000 sf 0.00% Impervious Runoff Depth>2.45"
Flow Length=1,200' Slope=0.3000 '/' Tc=7.3 min CN=77 Runoff=6.86 cfs 0.516 af

Subcatchment D07: Culvert 07 Drainage Runoff Area=36,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=2.38 cfs 0.169 af

Subcatchment D08: Culvert 08 Drainage Runoff Area=44,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=2.91 cfs 0.207 af

Subcatchment D09: Culvert 09 Drainage Runoff Area=24,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=1.59 cfs 0.113 af

Subcatchment D10: Culvert 10 Drainage Runoff Area=125,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=8.27 cfs 0.587 af

Subcatchment D11A: Culvert 11A Drainage Runoff Area=100,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=6.61 cfs 0.470 af

Subcatchment D11B: Culvert 11B Drainage Runoff Area=120,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=7.94 cfs 0.564 af

Subcatchment D12: Culvert 12 Drainage Runoff Area=23,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=1.52 cfs 0.108 af

Subcatchment D13: Culvert 13 Drainage Runoff Area=60,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=3.97 cfs 0.282 af

Subcatchment D14: Culvert 14 Drainage Runoff Area=30,000 sf 0.00% Impervious Runoff Depth>2.45"
Tc=5.0 min CN=77 Runoff=1.98 cfs 0.141 af

Reach PC1: Culvert 01 Avg. Flow Depth=0.65' Max Vel=7.85 fps Inflow=4.25 cfs 0.302 af
12.0" Round Pipe n=0.013 L=40.0' S=0.0250 '/' Capacity=5.63 cfs Outflow=4.24 cfs 0.302 af

Reach PC10: Culvert 10 Avg. Flow Depth=0.62' Max Vel=15.95 fps Inflow=8.27 cfs 0.587 af
12.0" Round Pipe n=0.010 L=48.0' S=0.0625 '/' Capacity=11.58 cfs Outflow=8.26 cfs 0.587 af

Reach PC11A: Culvert 11A Avg. Flow Depth=0.72' Max Vel=10.85 fps Inflow=6.61 cfs 0.470 af
12.0" Round Pipe n=0.010 L=56.0' S=0.0268 '/' Capacity=7.58 cfs Outflow=6.60 cfs 0.470 af

Reach PC11B: Culvert 11B Avg. Flow Depth=0.82' Max Vel=11.42 fps Inflow=7.94 cfs 0.564 af
12.0" Round Pipe n=0.010 L=52.0' S=0.0288 '/' Capacity=7.87 cfs Outflow=7.92 cfs 0.564 af

Reach PC12: Culvert 12 Avg. Flow Depth=0.34' Max Vel=6.53 fps Inflow=1.52 cfs 0.108 af
12.0" Round Pipe n=0.010 L=55.0' S=0.0182 '/' Capacity=6.25 cfs Outflow=1.52 cfs 0.108 af

Reach PC13: Culvert 13 Avg. Flow Depth=0.58' Max Vel=8.39 fps Inflow=3.97 cfs 0.282 af
12.0" Round Pipe n=0.010 L=55.0' S=0.0182 '/' Capacity=6.25 cfs Outflow=3.96 cfs 0.282 af

Reach PC14: Culvert 14 Avg. Flow Depth=0.29' Max Vel=10.40 fps Inflow=1.98 cfs 0.141 af
12.0" Round Pipe n=0.010 L=37.0' S=0.0541 '/' Capacity=10.77 cfs Outflow=1.98 cfs 0.141 af

Reach PC2: Culvert 02 Avg. Flow Depth=0.44' Max Vel=12.11 fps Inflow=4.10 cfs 0.291 af
12.0" Round Pipe n=0.013 L=50.0' S=0.0800 '/' Capacity=10.08 cfs Outflow=4.09 cfs 0.291 af

Reach PC3A: Culvert 03A Avg. Flow Depth=0.98' Max Vel=12.62 fps Inflow=13.04 cfs 0.926 af
15.0" Round Pipe n=0.010 L=38.0' S=0.0263 '/' Capacity=13.62 cfs Outflow=13.02 cfs 0.926 af

Reach PC3B: Culvert 03B Avg. Flow Depth=0.73' Max Vel=11.46 fps Inflow=8.62 cfs 0.612 af
15.0" Round Pipe n=0.010 L=40.0' S=0.0250 '/' Capacity=13.28 cfs Outflow=8.60 cfs 0.612 af

Reach PC4A: Culvert 04A Avg. Flow Depth=1.00' Max Vel=12.42 fps Inflow=15.56 cfs 1.105 af
18.0" Round Pipe n=0.010 L=47.0' S=0.0213 '/' Capacity=19.92 cfs Outflow=15.54 cfs 1.105 af

Reach PC4B: Culvert 04B Avg. Flow Depth=0.66' Max Vel=15.59 fps Inflow=10.33 cfs 0.733 af
15.0" Round Pipe n=0.010 L=40.0' S=0.0500 '/' Capacity=18.78 cfs Outflow=10.32 cfs 0.733 af

Reach PC5: Culvert 05 Avg. Flow Depth=0.39' Max Vel=8.29 fps Inflow=2.38 cfs 0.169 af
12.0" Round Pipe n=0.010 L=40.0' S=0.0250 '/' Capacity=7.32 cfs Outflow=2.38 cfs 0.169 af

Reach PC6: Culvert 06 Avg. Flow Depth=0.51' Max Vel=13.04 fps Inflow=6.86 cfs 0.516 af
18.0" Round Pipe n=0.010 L=72.0' S=0.0417 '/' Capacity=27.87 cfs Outflow=6.83 cfs 0.516 af

Reach PC7: Culvert 07 Avg. Flow Depth=0.32' Max Vel=10.85 fps Inflow=2.38 cfs 0.169 af
12.0" Round Pipe n=0.010 L=76.0' S=0.0526 '/' Capacity=10.63 cfs Outflow=2.37 cfs 0.169 af

Reach PC8: Culvert 08 Avg. Flow Depth=0.34' Max Vel=6.15 fps Inflow=2.91 cfs 0.207 af
12.0" Round Pipe x 2.00 n=0.010 L=63.0' S=0.0159 '/' Capacity=11.67 cfs Outflow=2.90 cfs 0.207 af

Reach PC9: Culvert 09 Avg. Flow Depth=0.34' Max Vel=6.84 fps Inflow=1.59 cfs 0.113 af
12.0" Round Pipe n=0.010 L=50.0' S=0.0200 '/' Capacity=6.55 cfs Outflow=1.58 cfs 0.113 af

Total Runoff Area = 35.557 ac Runoff Volume = 7.293 af Average Runoff Depth = 2.46"
100.00% Pervious = 35.557 ac 0.00% Impervious = 0.000 ac

Summary for Subcatchment D01: Culvert 01 Drainage Area

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

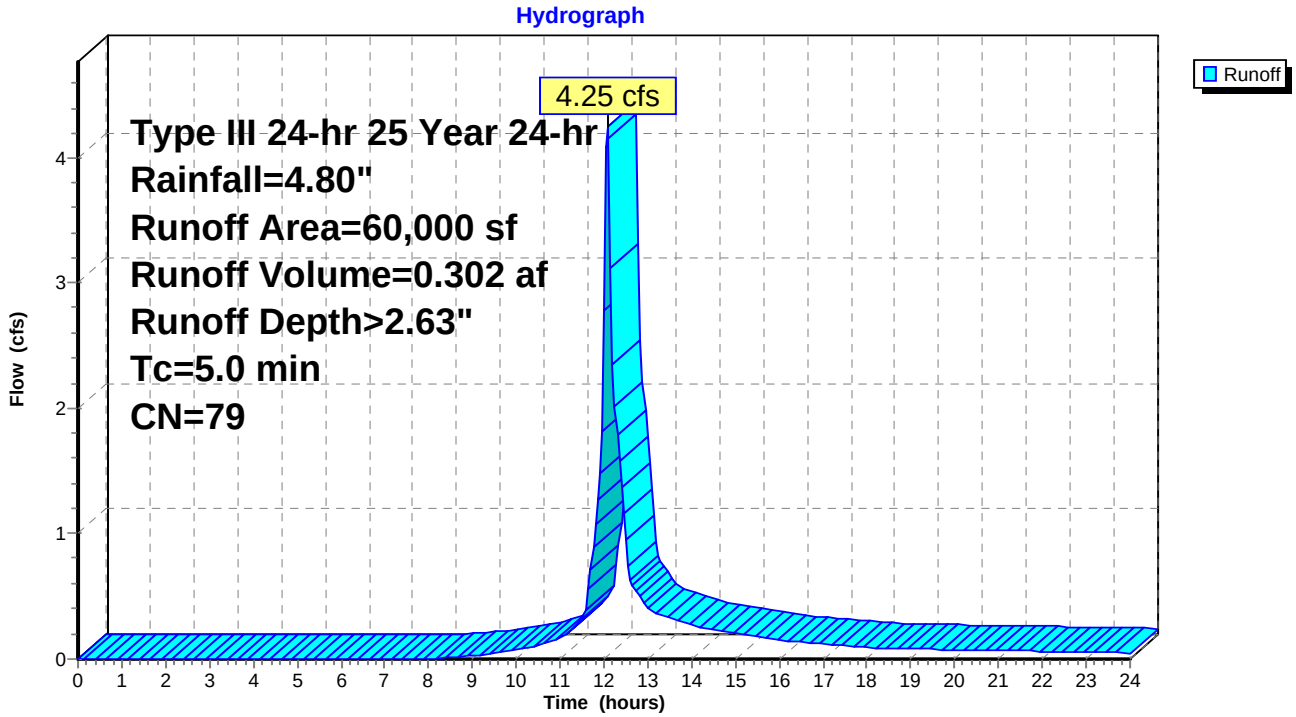
Runoff = 4.25 cfs @ 12.08 hrs, Volume= 0.302 af, Depth> 2.63"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
50,000	77	Woods, Good, HSG D
10,000	91	Gravel roads, HSG D
60,000	79	Weighted Average
60,000		100.00% Pervious Area

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

Subcatchment D01: Culvert 01 Drainage Area



Summary for Subcatchment D02: Culvert 02 Drainage Area

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

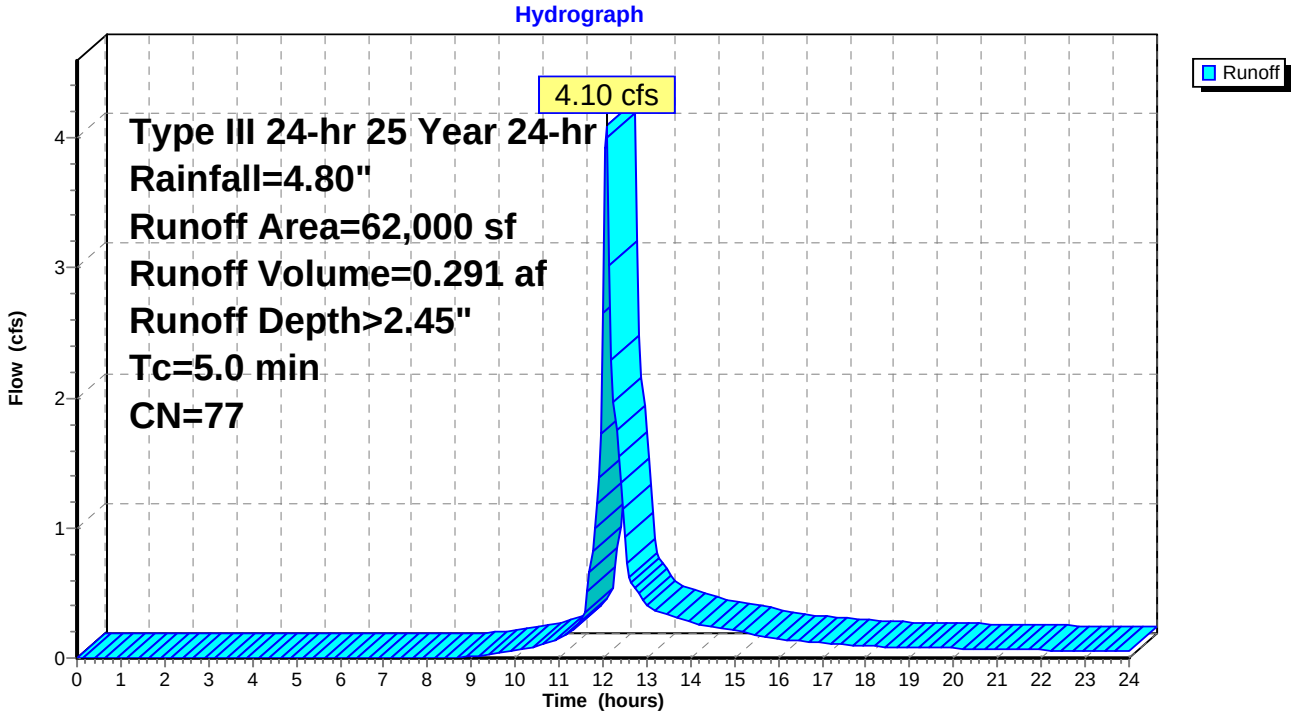
Runoff = 4.10 cfs @ 12.08 hrs, Volume= 0.291 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
62,000	77	Woods, Good, HSG D
62,000		100.00% Pervious Area

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

Subcatchment D02: Culvert 02 Drainage Area



Summary for Subcatchment D03A: Culvert 03A Drainage Area

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

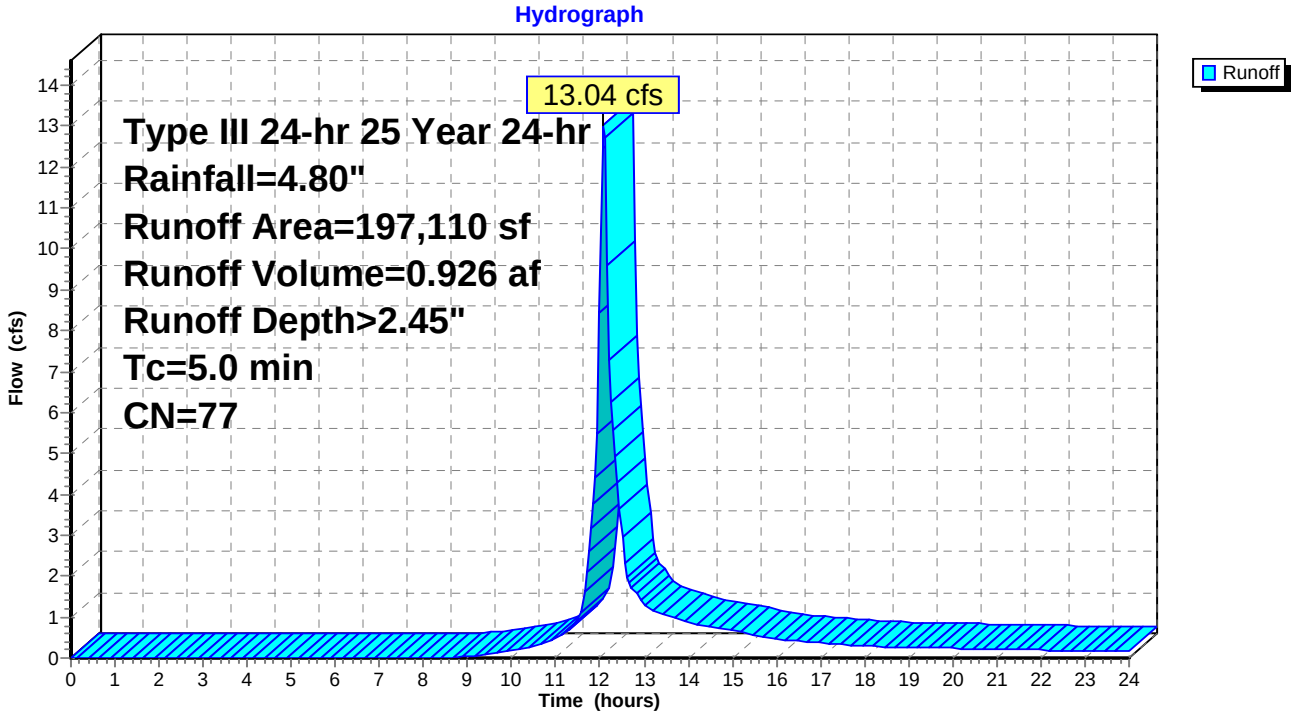
Runoff = 13.04 cfs @ 12.08 hrs, Volume= 0.926 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
197,110	77	Woods, Good, HSG D
197,110		100.00% Pervious Area

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

Subcatchment D03A: Culvert 03A Drainage Area



Summary for Subcatchment D03B: Culvert 03B Drainage Area

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

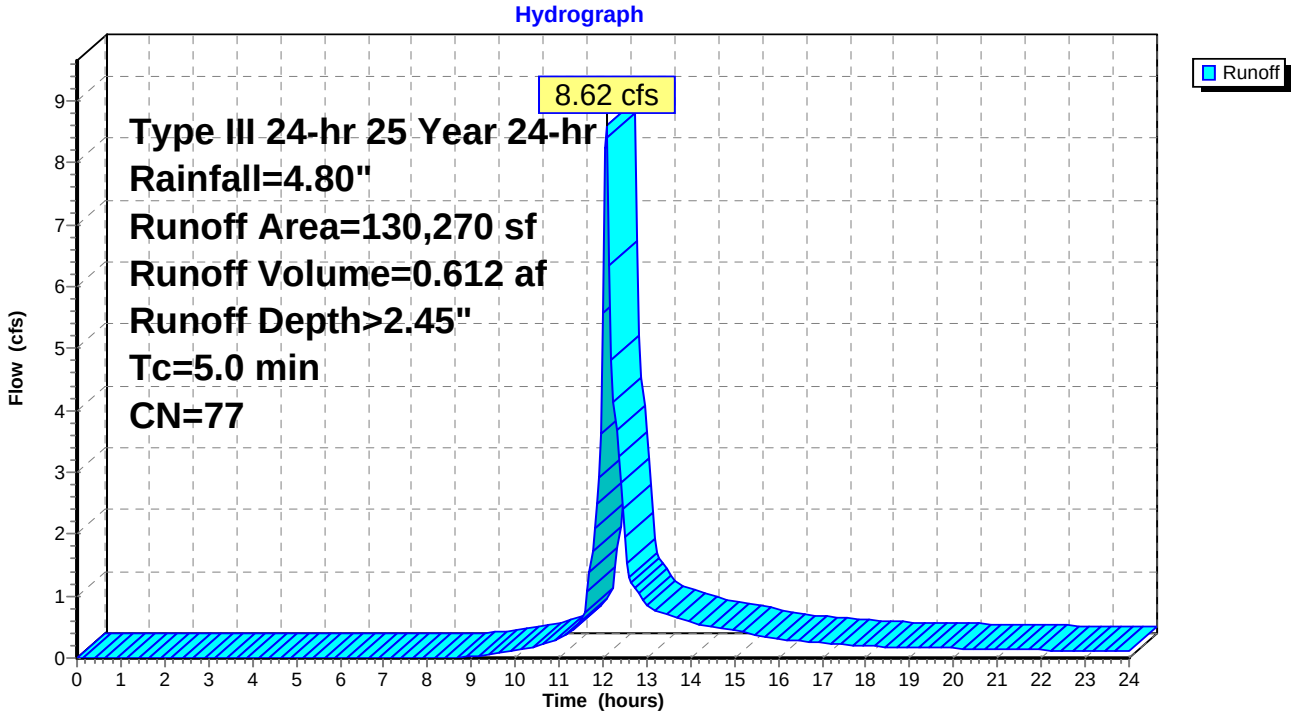
Runoff = 8.62 cfs @ 12.08 hrs, Volume= 0.612 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
130,270	77	Woods, Good, HSG D
130,270		100.00% Pervious Area

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

Subcatchment D03B: Culvert 03B Drainage Area



Summary for Subcatchment D04A: Culvert 04A Drainage Area

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

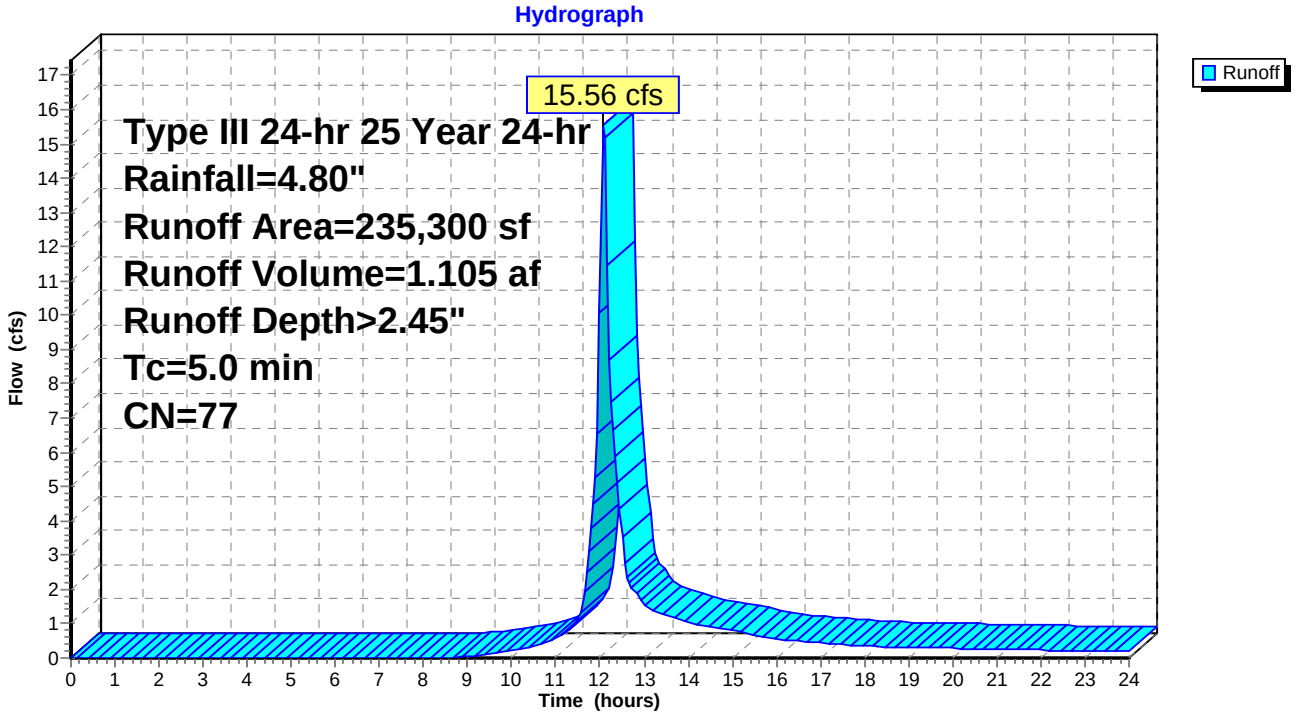
Runoff = 15.56 cfs @ 12.08 hrs, Volume= 1.105 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
235,300	77	Woods, Good, HSG D
235,300		100.00% Pervious Area

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

Subcatchment D04A: Culvert 04A Drainage Area



Summary for Subcatchment D04B: Culvert 04B Drainage Area

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

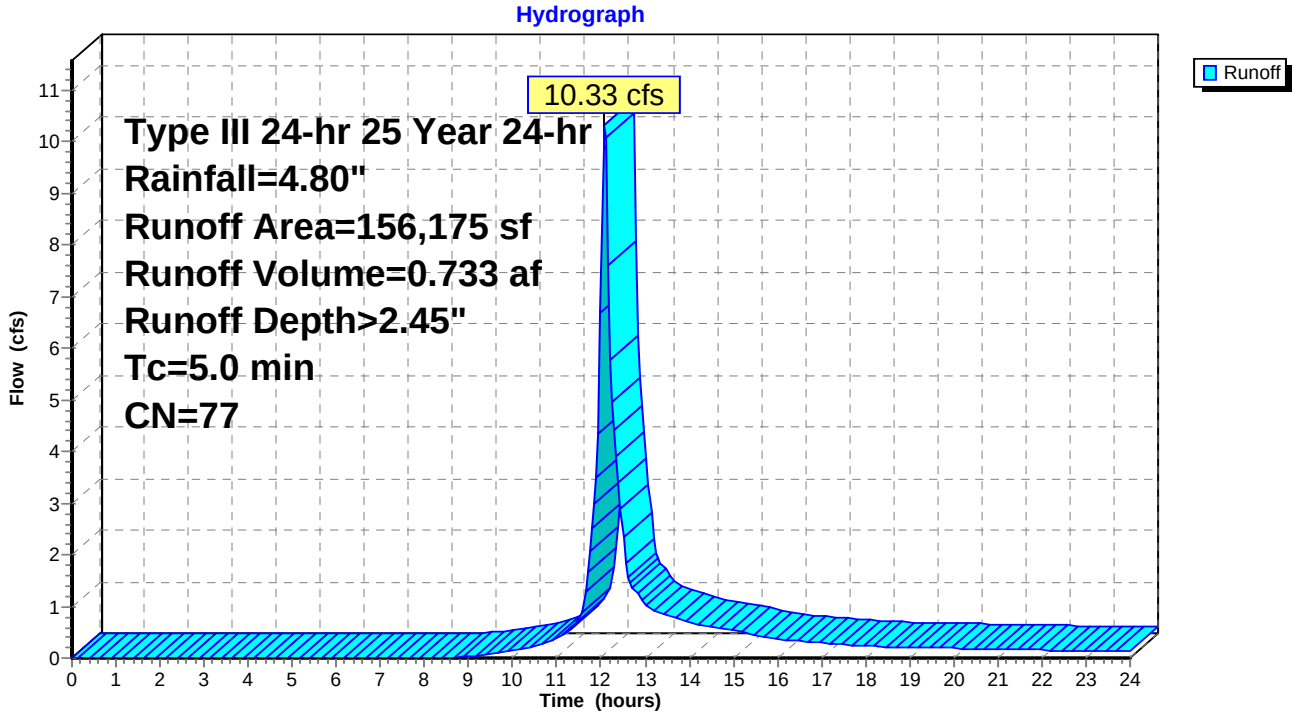
Runoff = 10.33 cfs @ 12.08 hrs, Volume= 0.733 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
156,175	77	Woods, Good, HSG D
156,175		100.00% Pervious Area

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

Subcatchment D04B: Culvert 04B Drainage Area



Summary for Subcatchment D05: Culvert 05 Drainage Area

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

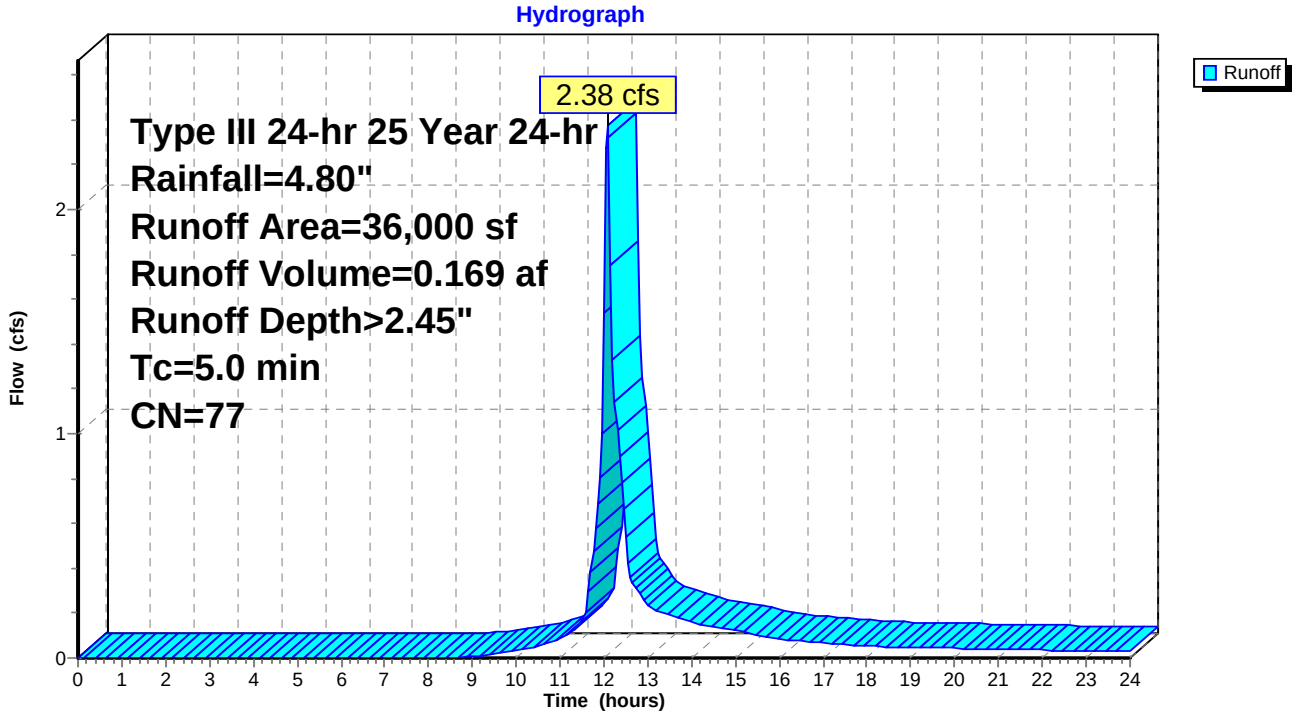
Runoff = 2.38 cfs @ 12.08 hrs, Volume= 0.169 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
36,000	77	Woods, Good, HSG D
36,000		100.00% Pervious Area

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

Subcatchment D05: Culvert 05 Drainage Area



Summary for Subcatchment D06: Culvert 06 Drainage Area

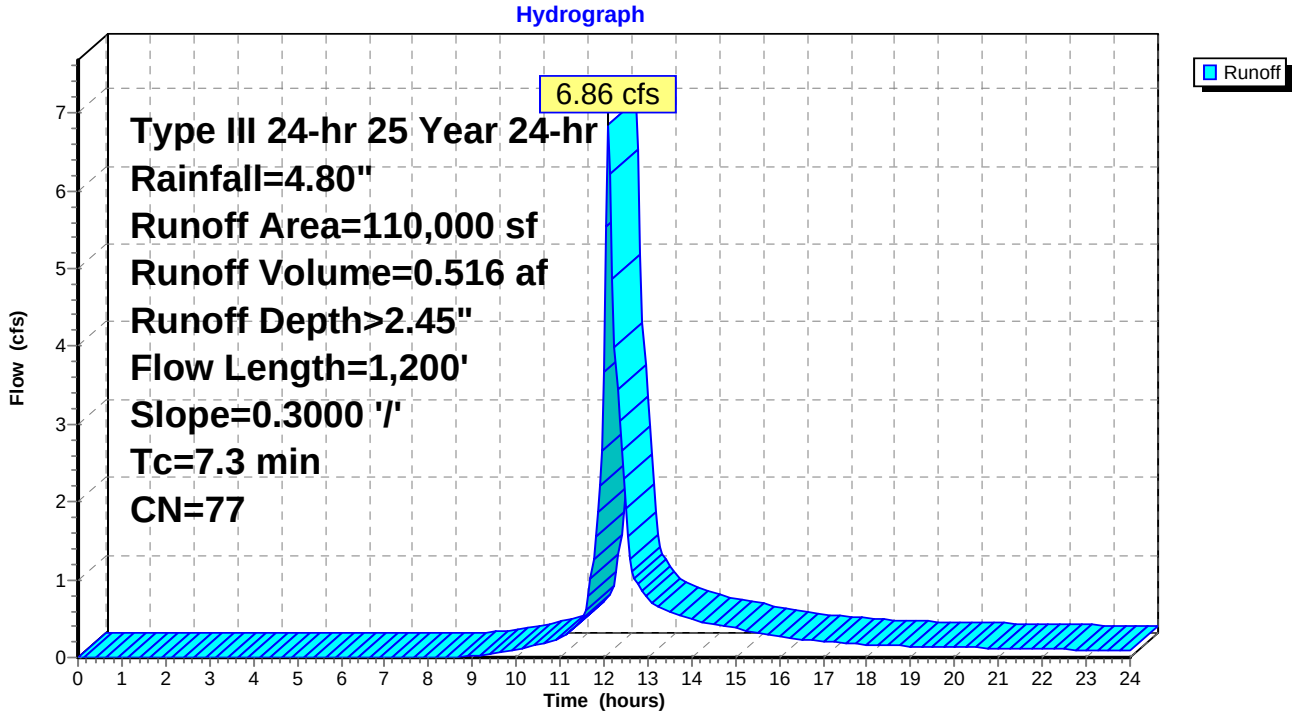
Runoff = 6.86 cfs @ 12.11 hrs, Volume= 0.516 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
110,000	77	Woods, Good, HSG D
110,000		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.3	1,200	0.3000	2.74		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps

Subcatchment D06: Culvert 06 Drainage Area



Summary for Subcatchment D07: Culvert 07 Drainage Area

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

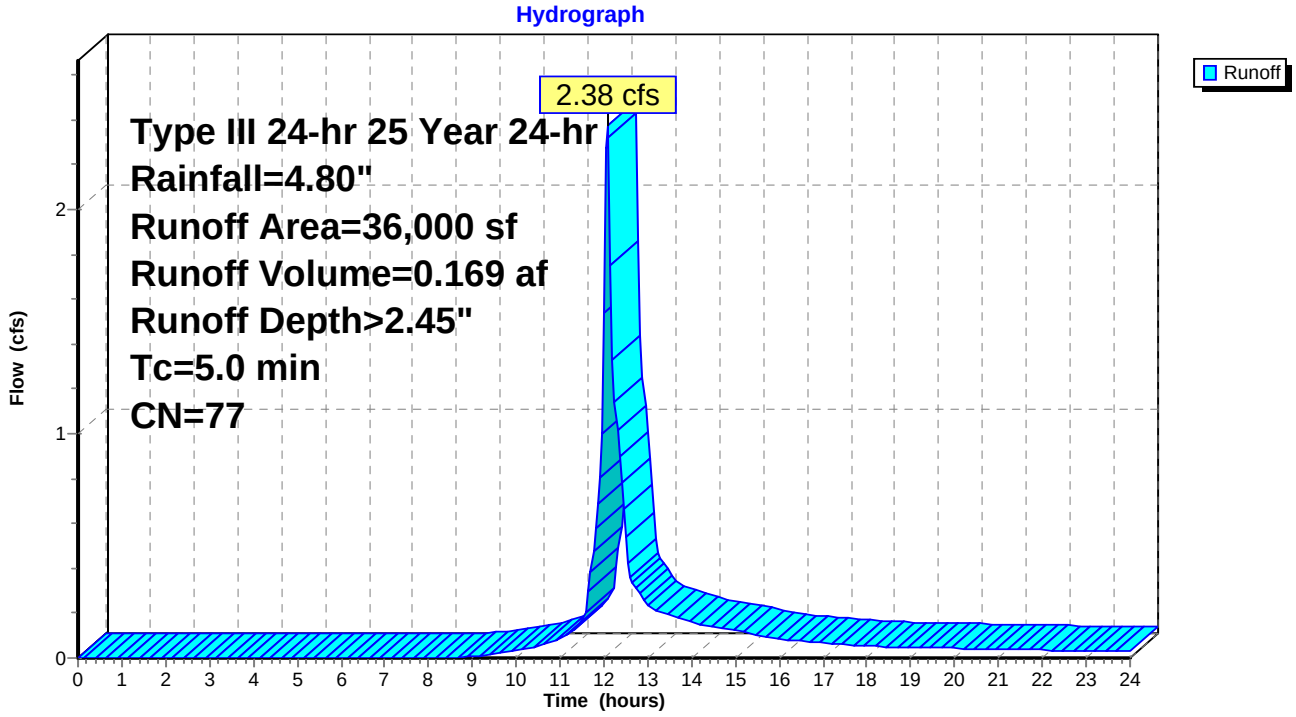
Runoff = 2.38 cfs @ 12.08 hrs, Volume= 0.169 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
36,000	77	Woods, Good, HSG D
36,000		100.00% Pervious Area

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

Subcatchment D07: Culvert 07 Drainage Area



Summary for Subcatchment D08: Culvert 08 Drainage Area

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

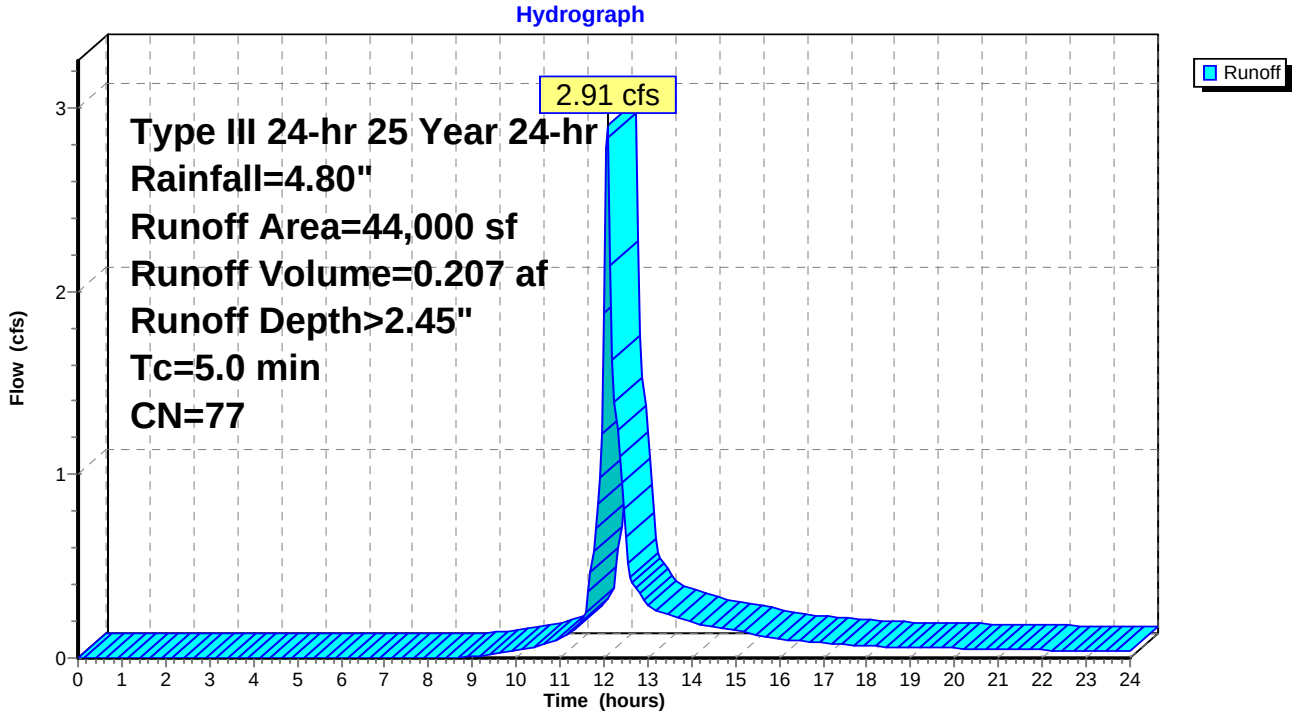
Runoff = 2.91 cfs @ 12.08 hrs, Volume= 0.207 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
44,000	77	Woods, Good, HSG D
44,000		100.00% Pervious Area

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

Subcatchment D08: Culvert 08 Drainage Area



Summary for Subcatchment D09: Culvert 09 Drainage Area

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

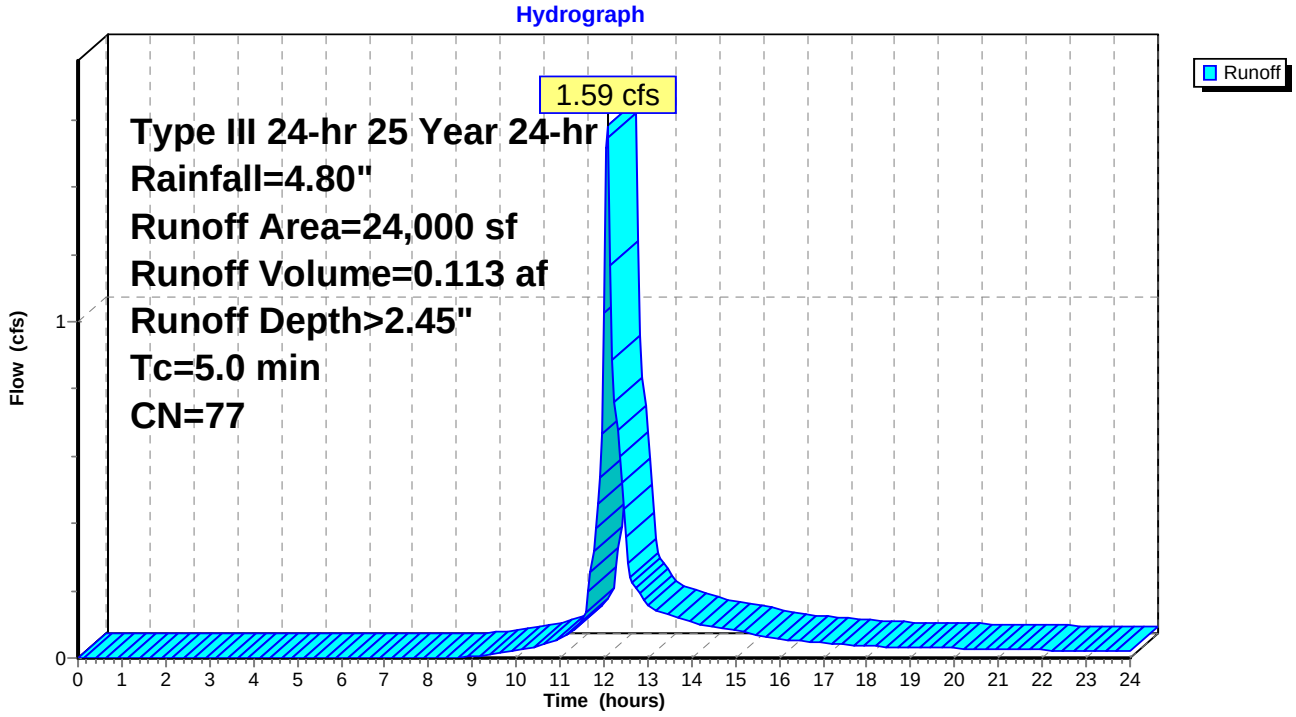
Runoff = 1.59 cfs @ 12.08 hrs, Volume= 0.113 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
24,000	77	Woods, Good, HSG D
24,000		100.00% Pervious Area

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

Subcatchment D09: Culvert 09 Drainage Area



Summary for Subcatchment D10: Culvert 10 Drainage Area

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

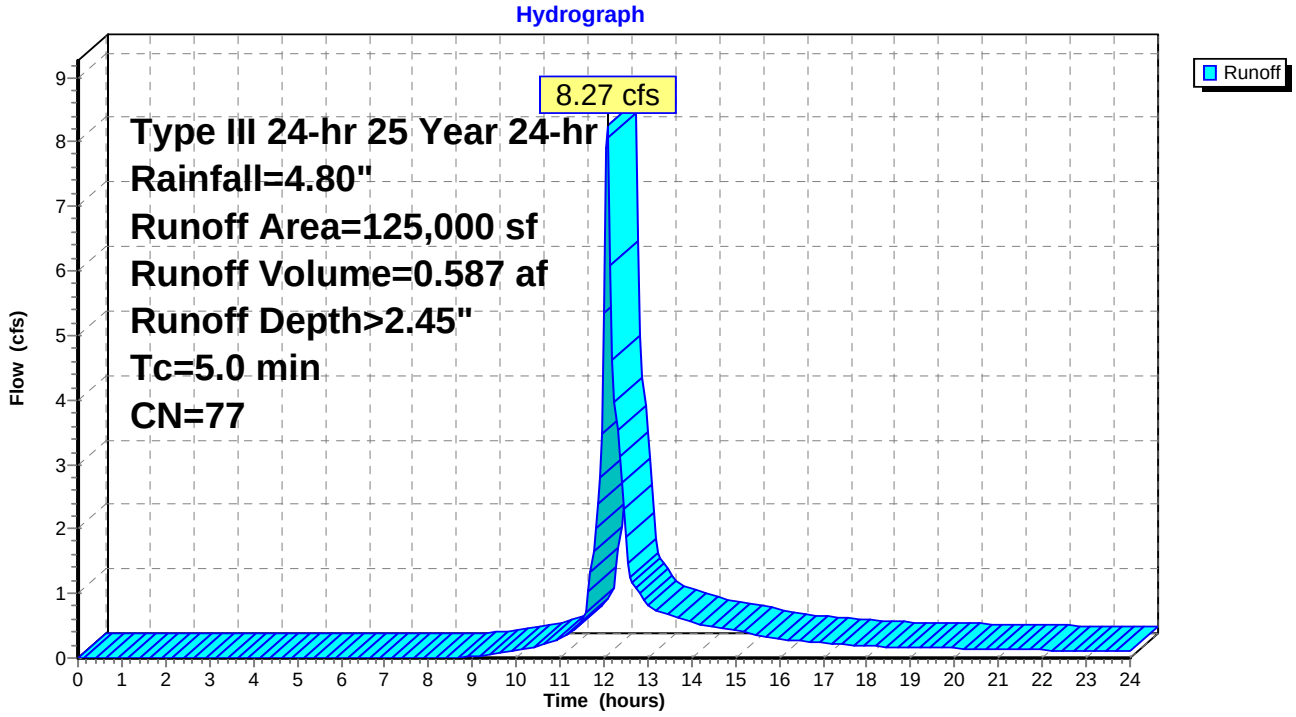
Runoff = 8.27 cfs @ 12.08 hrs, Volume= 0.587 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
125,000	77	Woods, Good, HSG D
125,000		100.00% Pervious Area

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

Subcatchment D10: Culvert 10 Drainage Area



Summary for Subcatchment D11A: Culvert 11A Drainage Area

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

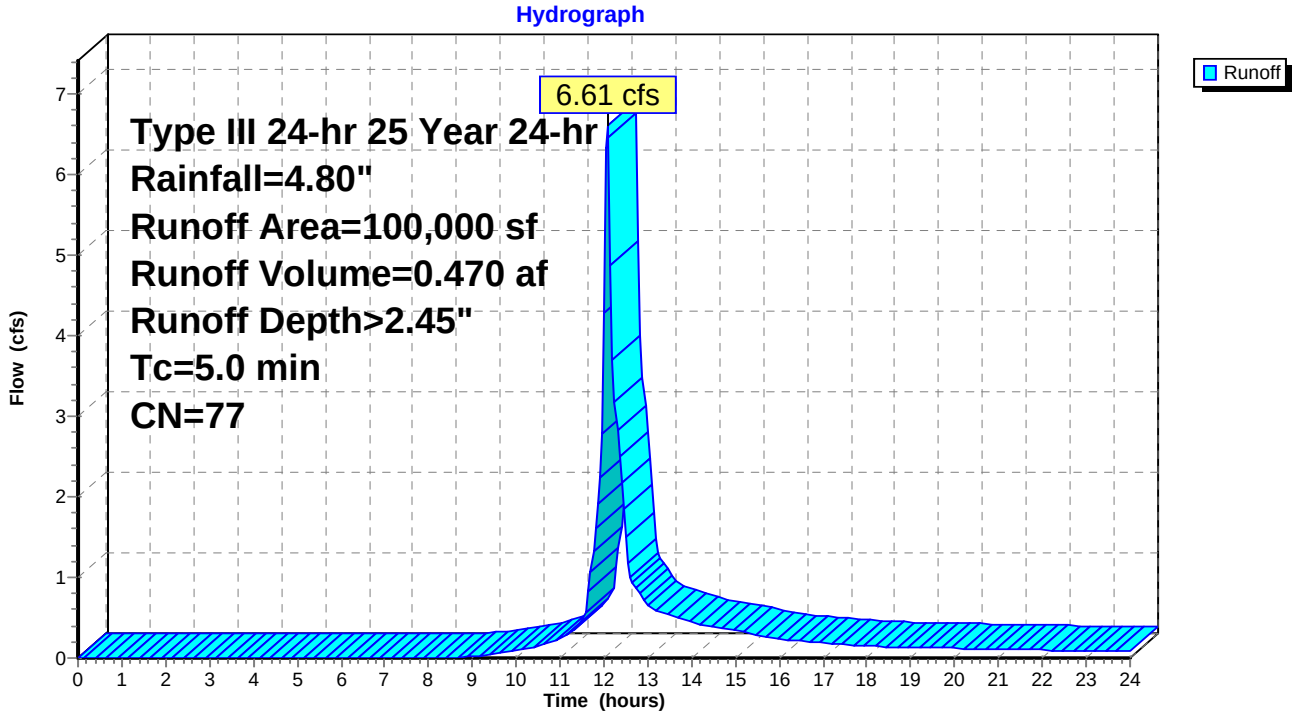
Runoff = 6.61 cfs @ 12.08 hrs, Volume= 0.470 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
100,000	77	Woods, Good, HSG D
100,000		100.00% Pervious Area

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

Subcatchment D11A: Culvert 11A Drainage Area



Summary for Subcatchment D11B: Culvert 11B Drainage Area

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

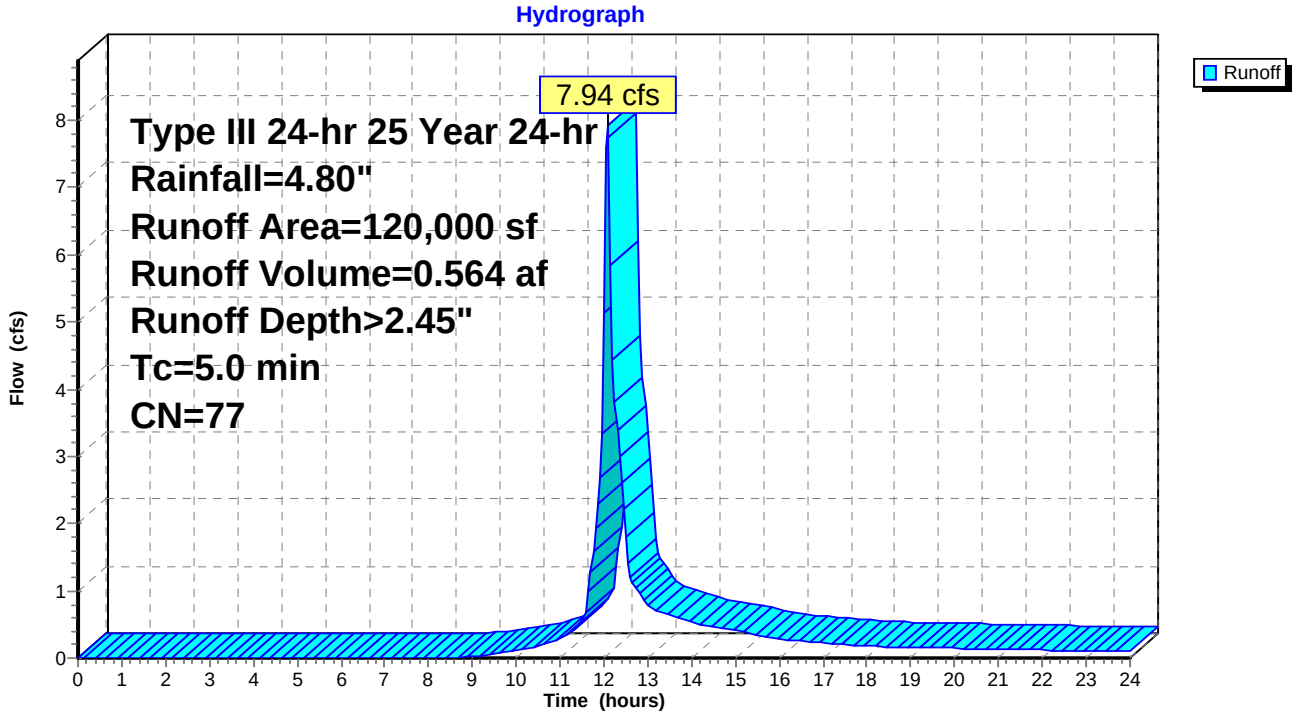
Runoff = 7.94 cfs @ 12.08 hrs, Volume= 0.564 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
120,000	77	Woods, Good, HSG D
120,000		100.00% Pervious Area

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

Subcatchment D11B: Culvert 11B Drainage Area



Summary for Subcatchment D12: Culvert 12 Drainage Area

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

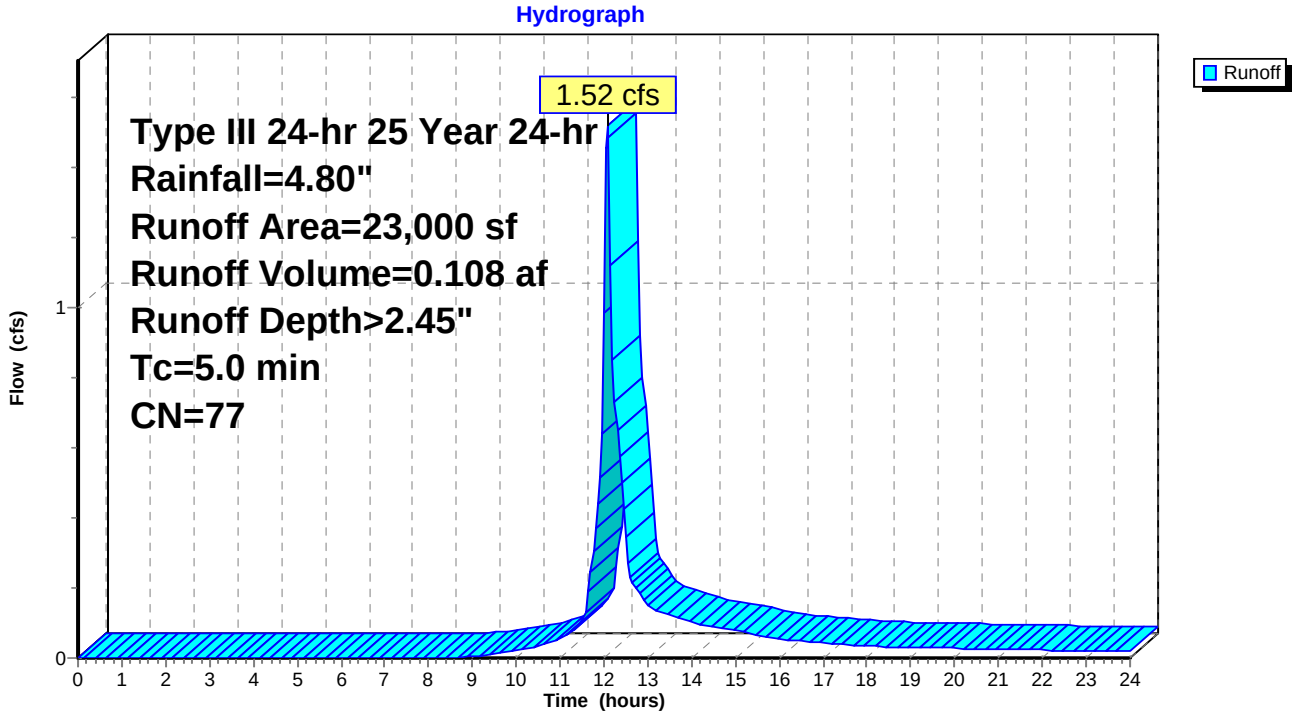
Runoff = 1.52 cfs @ 12.08 hrs, Volume= 0.108 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
23,000	77	Woods, Good, HSG D
23,000		100.00% Pervious Area

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

Subcatchment D12: Culvert 12 Drainage Area



Summary for Subcatchment D13: Culvert 13 Drainage Area

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

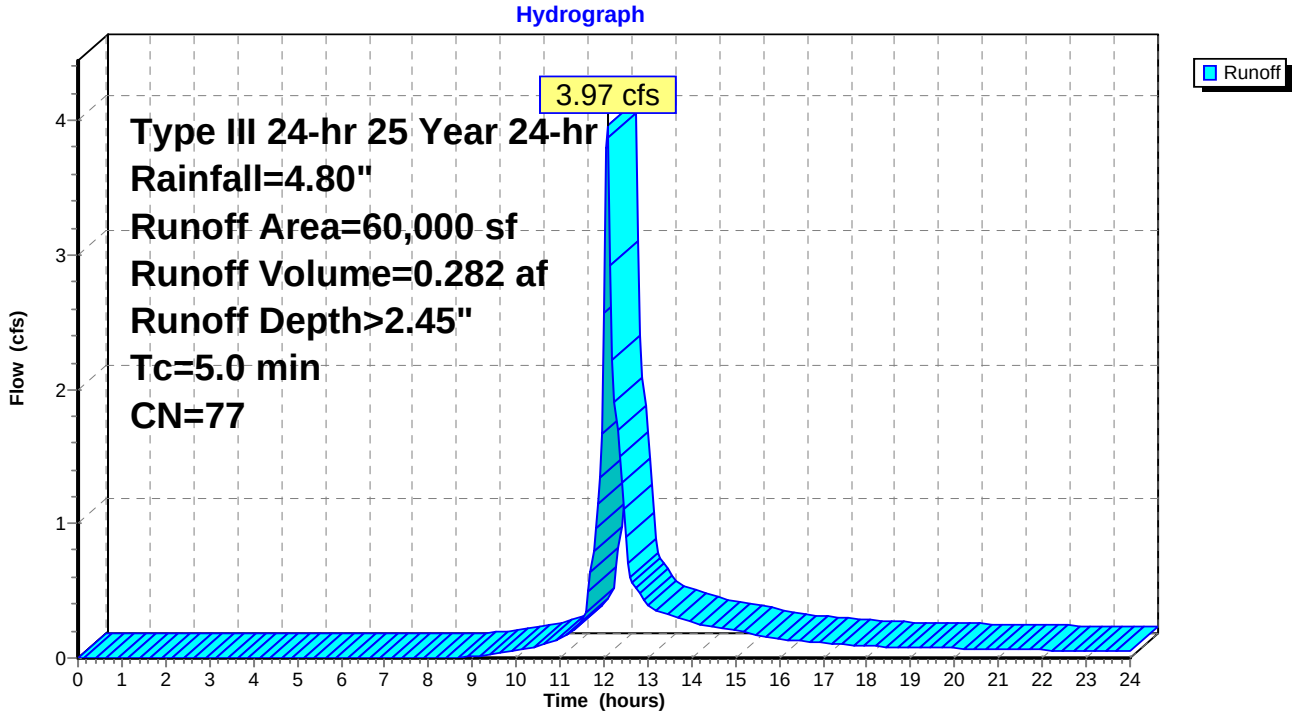
Runoff = 3.97 cfs @ 12.08 hrs, Volume= 0.282 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
60,000	77	Woods, Good, HSG D
60,000		100.00% Pervious Area

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

Subcatchment D13: Culvert 13 Drainage Area



Summary for Subcatchment D14: Culvert 14 Drainage Area

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

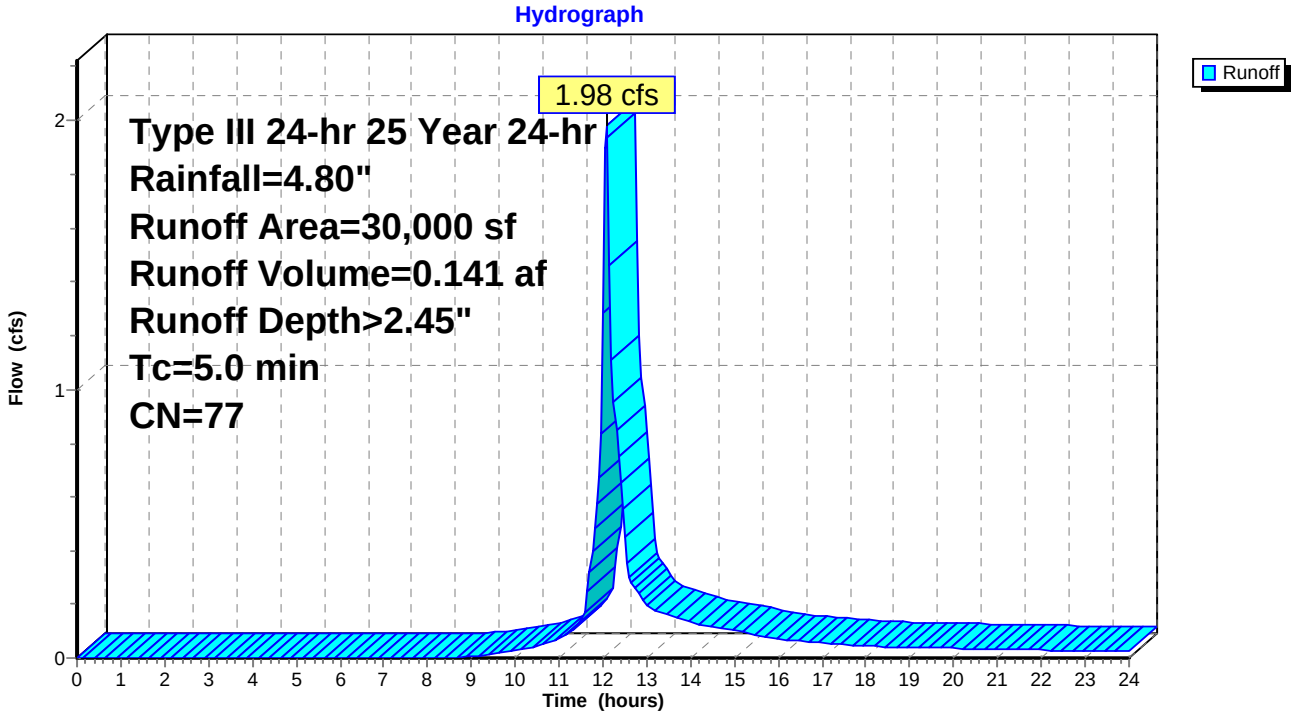
Runoff = 1.98 cfs @ 12.08 hrs, Volume= 0.141 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year 24-hr Rainfall=4.80"

Area (sf)	CN	Description
30,000	77	Woods, Good, HSG D
30,000		100.00% Pervious Area

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

Subcatchment D14: Culvert 14 Drainage Area



Summary for Reach PC1: Culvert 01

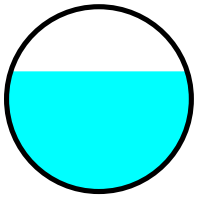
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.377 ac, 0.00% Impervious, Inflow Depth > 2.63" for 25 Year 24-hr event
Inflow = 4.25 cfs @ 12.08 hrs, Volume= 0.302 af
Outflow = 4.24 cfs @ 12.08 hrs, Volume= 0.302 af, Atten= 0%, Lag= 0.2 min

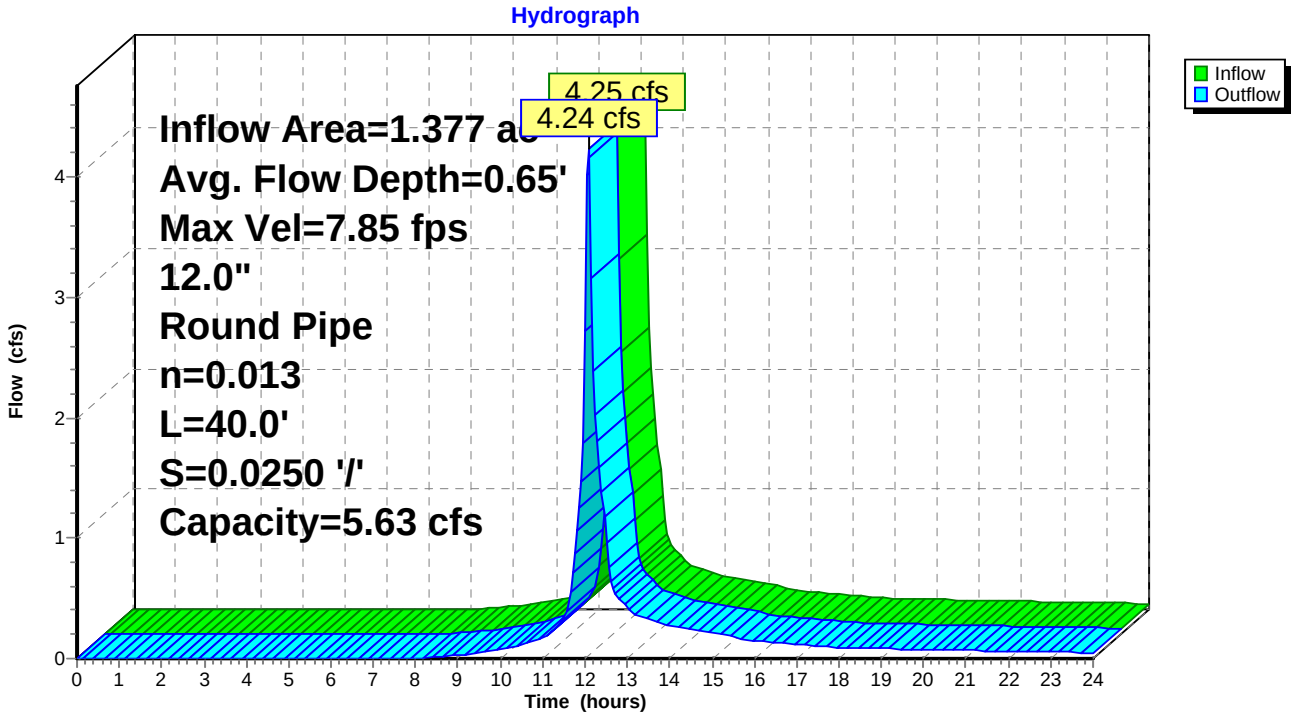
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.85 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.96 fps, Avg. Travel Time= 0.2 min

Peak Storage= 22 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.65'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 5.63 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 40.0' Slope= 0.0250 '/'
Inlet Invert= 1,183.00', Outlet Invert= 1,182.00'



Reach PC1: Culvert 01



Summary for Reach PC10: Culvert 10

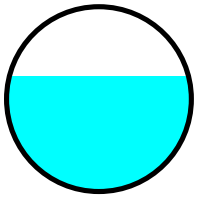
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.870 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 8.27 cfs @ 12.08 hrs, Volume= 0.587 af
Outflow = 8.26 cfs @ 12.08 hrs, Volume= 0.587 af, Atten= 0%, Lag= 0.1 min

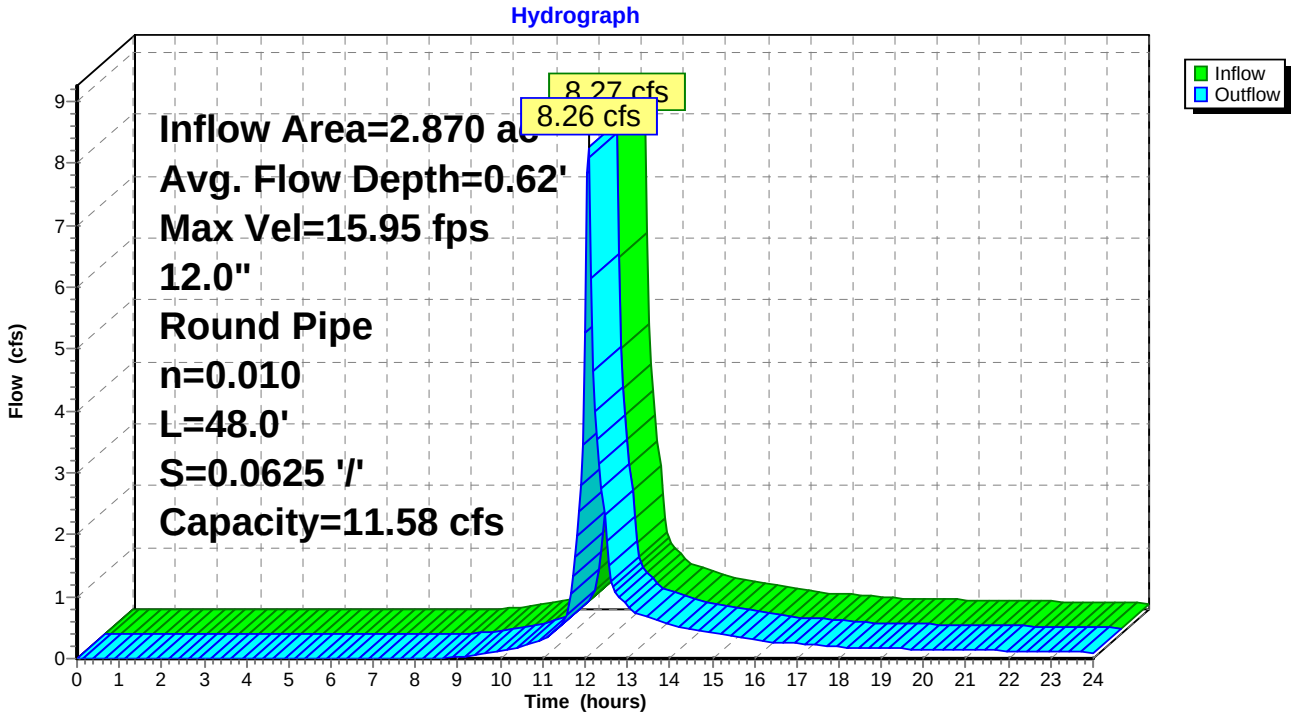
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.95 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 6.06 fps, Avg. Travel Time= 0.1 min

Peak Storage= 25 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.62'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 11.58 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 48.0' Slope= 0.0625 '/'
Inlet Invert= 1,409.00', Outlet Invert= 1,406.00'



Reach PC10: Culvert 10



Summary for Reach PC11A: Culvert 11A

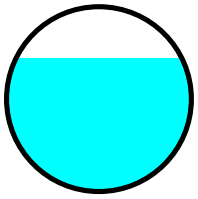
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.296 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 6.61 cfs @ 12.08 hrs, Volume= 0.470 af
Outflow = 6.60 cfs @ 12.08 hrs, Volume= 0.470 af, Atten= 0%, Lag= 0.2 min

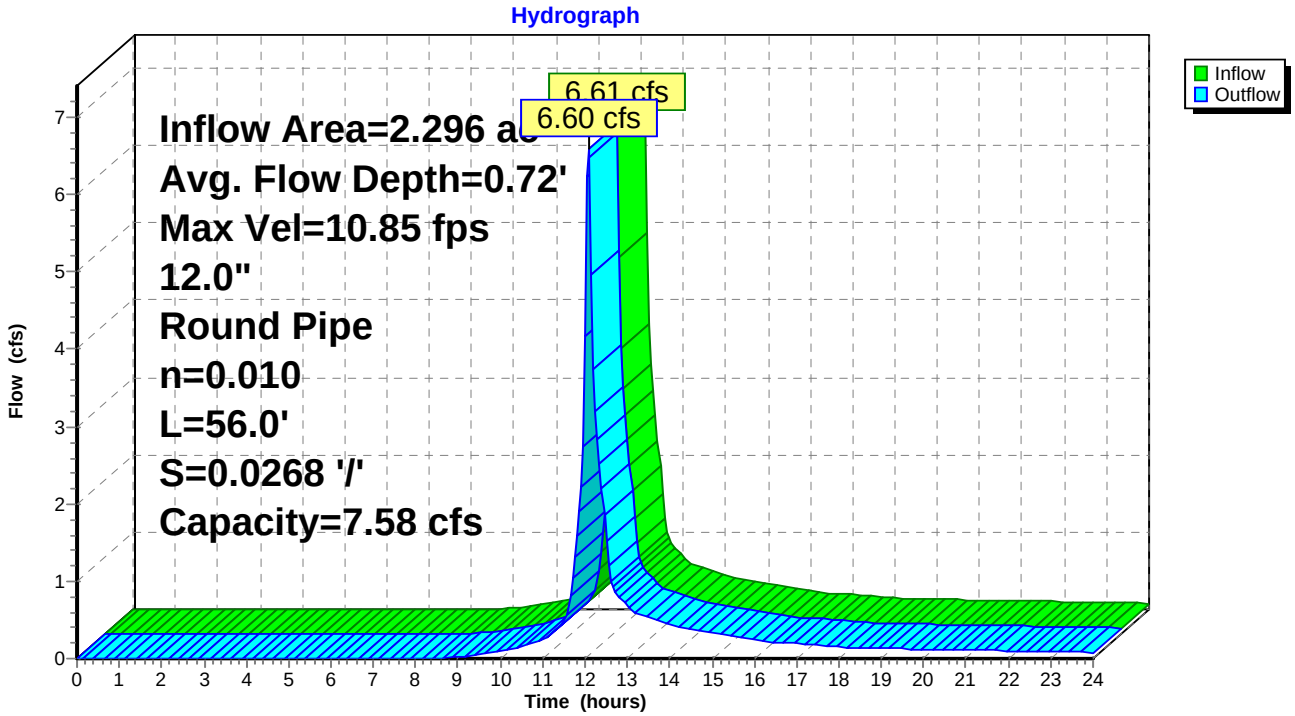
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.85 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.21 fps, Avg. Travel Time= 0.2 min

Peak Storage= 34 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.72'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.58 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 56.0' Slope= 0.0268 '/'
Inlet Invert= 1,387.50', Outlet Invert= 1,386.00'



Reach PC11A: Culvert 11A



Summary for Reach PC11B: Culvert 11B

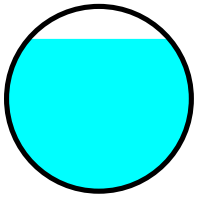
[52] Hint: Inlet/Outlet conditions not evaluated
[55] Hint: Peak inflow is 101% of Manning's capacity

Inflow Area = 2.755 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 7.94 cfs @ 12.08 hrs, Volume= 0.564 af
Outflow = 7.92 cfs @ 12.08 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.2 min

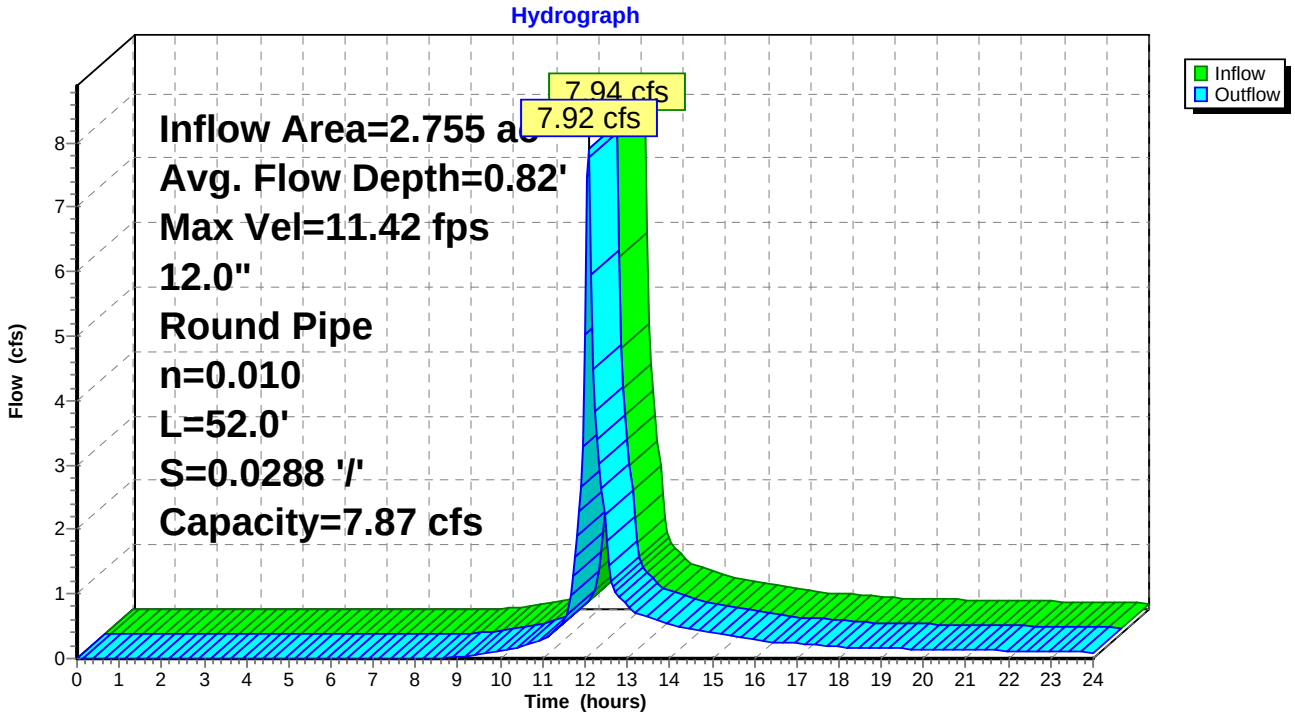
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.42 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.56 fps, Avg. Travel Time= 0.2 min

Peak Storage= 36 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.82'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.87 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 52.0' Slope= 0.0288 '/'
Inlet Invert= 1,334.50', Outlet Invert= 1,333.00'



Reach PC11B: Culvert 11B



Summary for Reach PC12: Culvert 12

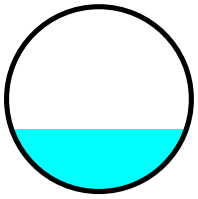
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.528 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 1.52 cfs @ 12.08 hrs, Volume= 0.108 af
Outflow = 1.52 cfs @ 12.08 hrs, Volume= 0.108 af, Atten= 0%, Lag= 0.3 min

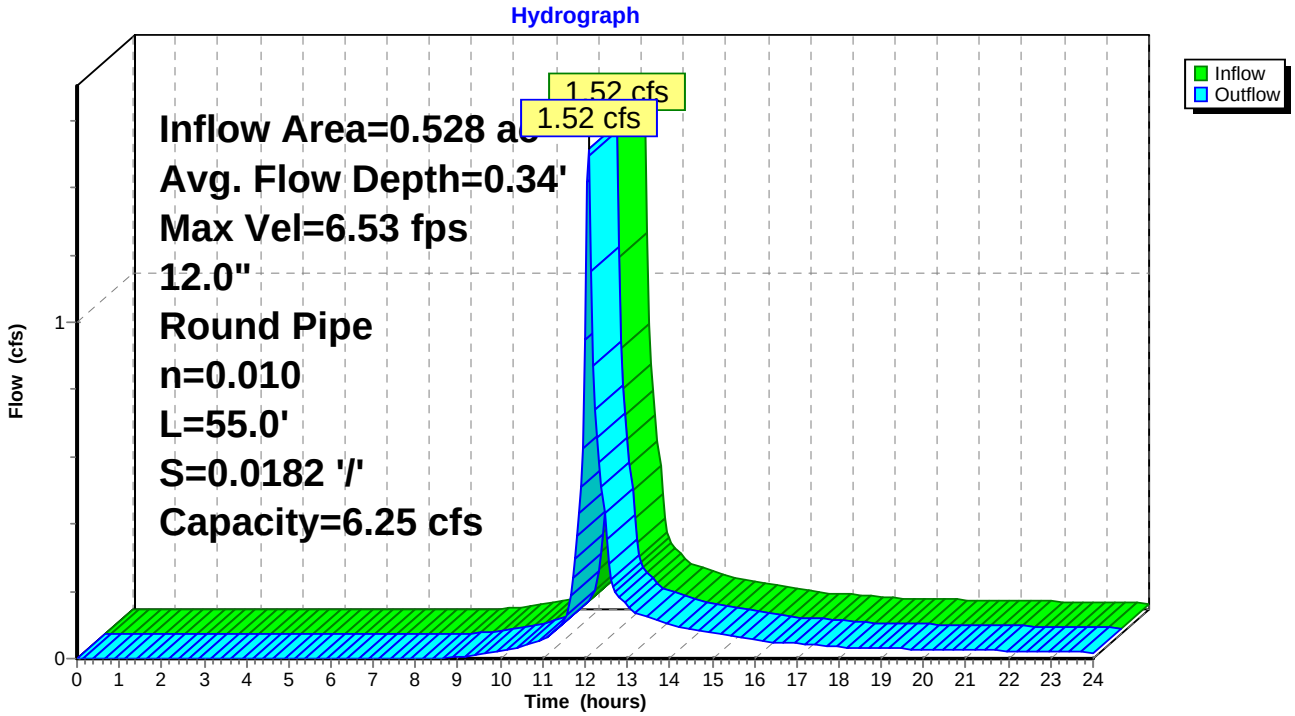
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.53 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.38 fps, Avg. Travel Time= 0.4 min

Peak Storage= 13 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.25 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 55.0' Slope= 0.0182 '/'
Inlet Invert= 1,509.00', Outlet Invert= 1,508.00'



Reach PC12: Culvert 12



Summary for Reach PC13: Culvert 13

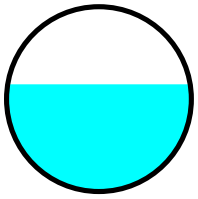
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.377 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 3.97 cfs @ 12.08 hrs, Volume= 0.282 af
Outflow = 3.96 cfs @ 12.08 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.3 min

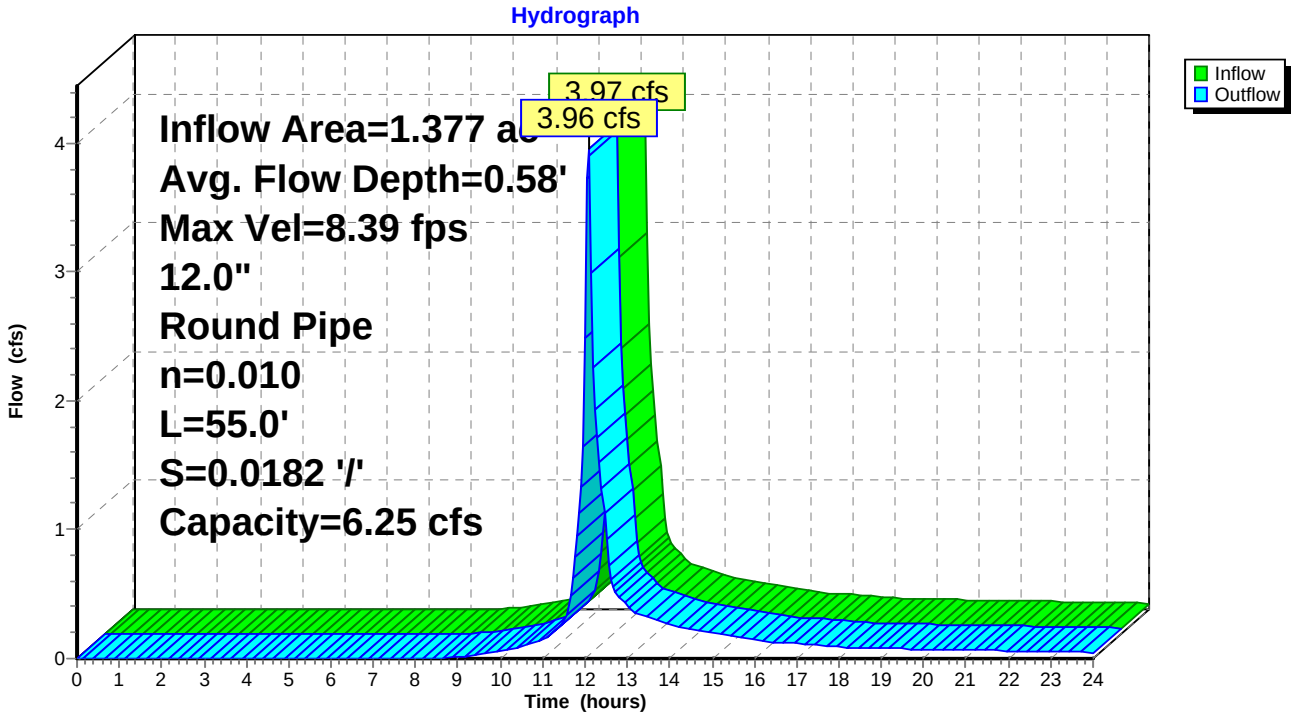
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.39 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.16 fps, Avg. Travel Time= 0.3 min

Peak Storage= 26 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.58'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.25 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 55.0' Slope= 0.0182 '/'
Inlet Invert= 1,509.00', Outlet Invert= 1,508.00'



Reach PC13: Culvert 13



Summary for Reach PC14: Culvert 14

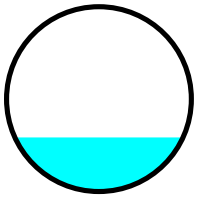
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.689 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 1.98 cfs @ 12.08 hrs, Volume= 0.141 af
Outflow = 1.98 cfs @ 12.08 hrs, Volume= 0.141 af, Atten= 0%, Lag= 0.1 min

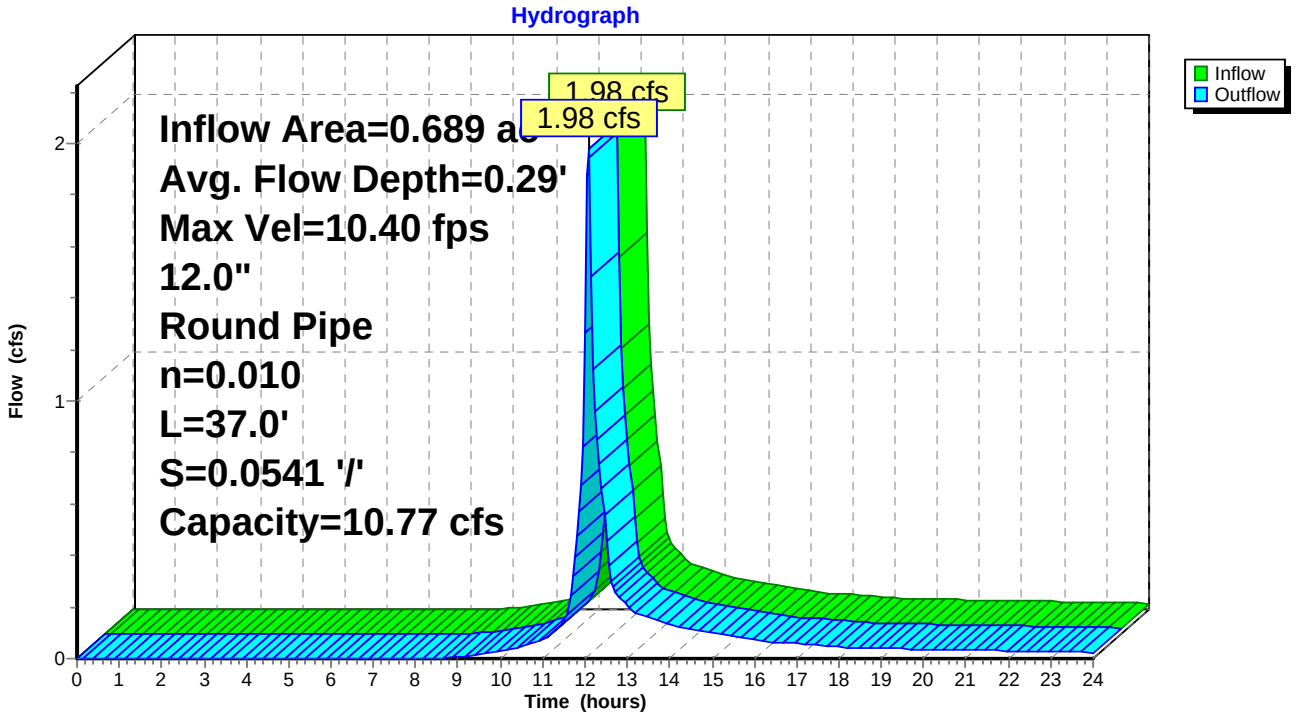
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.40 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.77 fps, Avg. Travel Time= 0.2 min

Peak Storage= 7 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.29'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 10.77 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 37.0' Slope= 0.0541 '/'
Inlet Invert= 1,506.00', Outlet Invert= 1,504.00'



Reach PC14: Culvert 14



Summary for Reach PC2: Culvert 02

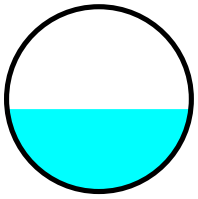
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.423 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 4.10 cfs @ 12.08 hrs, Volume= 0.291 af
Outflow = 4.09 cfs @ 12.08 hrs, Volume= 0.291 af, Atten= 0%, Lag= 0.2 min

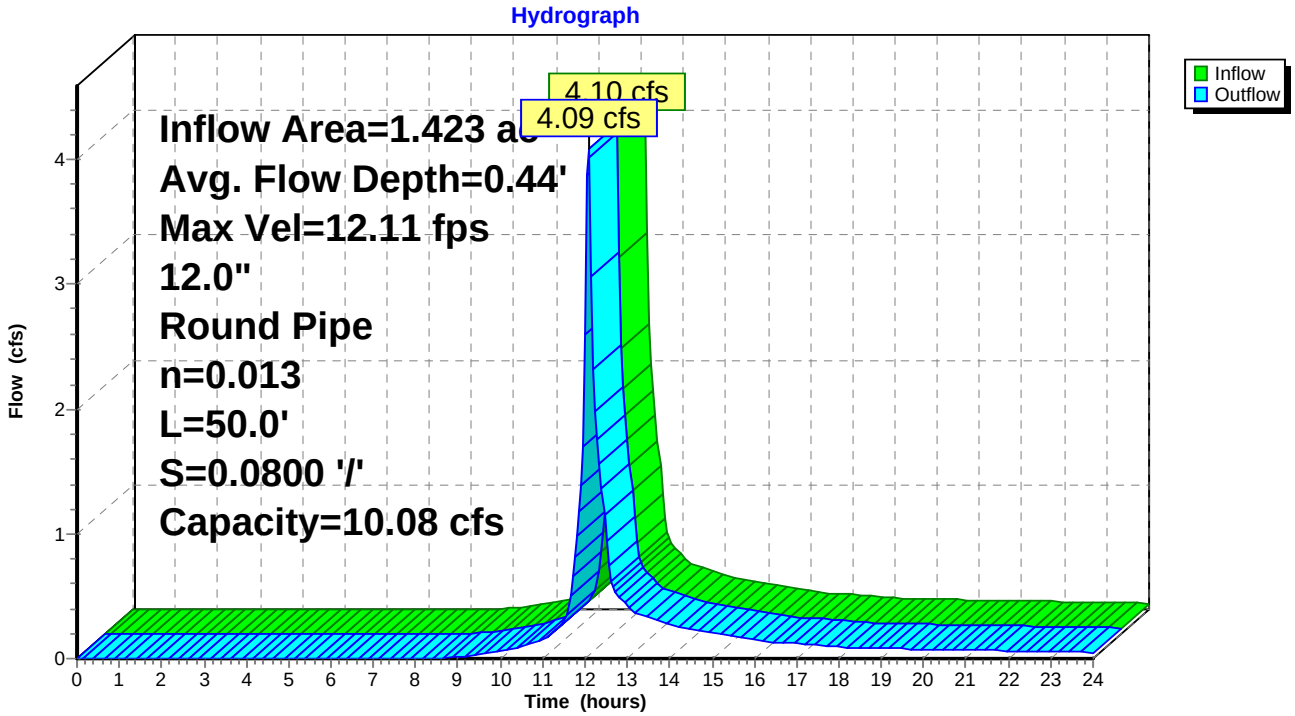
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.11 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.47 fps, Avg. Travel Time= 0.2 min

Peak Storage= 17 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.44'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 10.08 cfs

12.0" Round Pipe
n= 0.013 Corrugated PE, smooth interior
Length= 50.0' Slope= 0.0800 '/'
Inlet Invert= 1,238.00', Outlet Invert= 1,234.00'



Reach PC2: Culvert 02



Summary for Reach PC3A: Culvert 03A

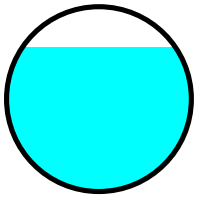
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 4.525 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 13.04 cfs @ 12.08 hrs, Volume= 0.926 af
Outflow = 13.02 cfs @ 12.08 hrs, Volume= 0.926 af, Atten= 0%, Lag= 0.1 min

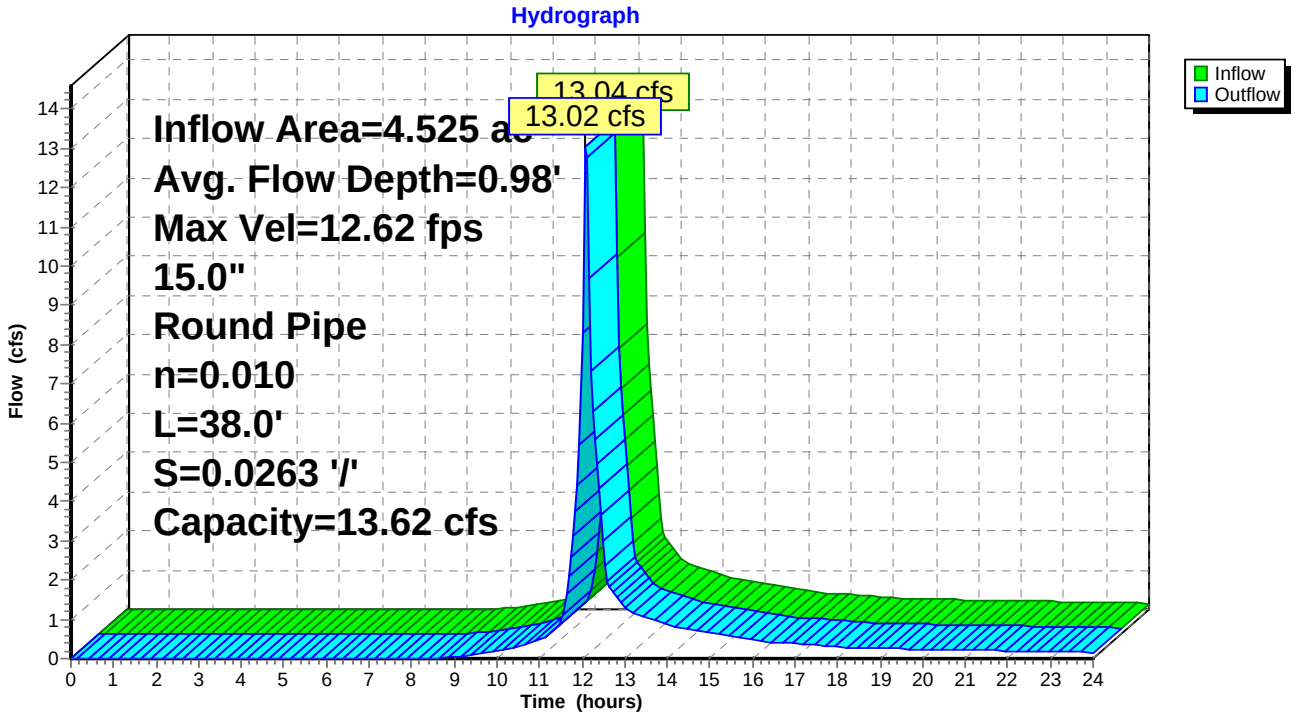
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.62 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.98 fps, Avg. Travel Time= 0.1 min

Peak Storage= 39 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.98'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 13.62 cfs

15.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 38.0' Slope= 0.0263 '/'
Inlet Invert= 1,256.50', Outlet Invert= 1,255.50'



Reach PC3A: Culvert 03A



Summary for Reach PC3B: Culvert 03B

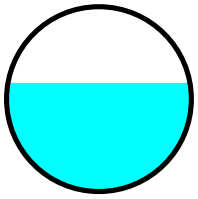
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.991 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 8.62 cfs @ 12.08 hrs, Volume= 0.612 af
Outflow = 8.60 cfs @ 12.08 hrs, Volume= 0.612 af, Atten= 0%, Lag= 0.1 min

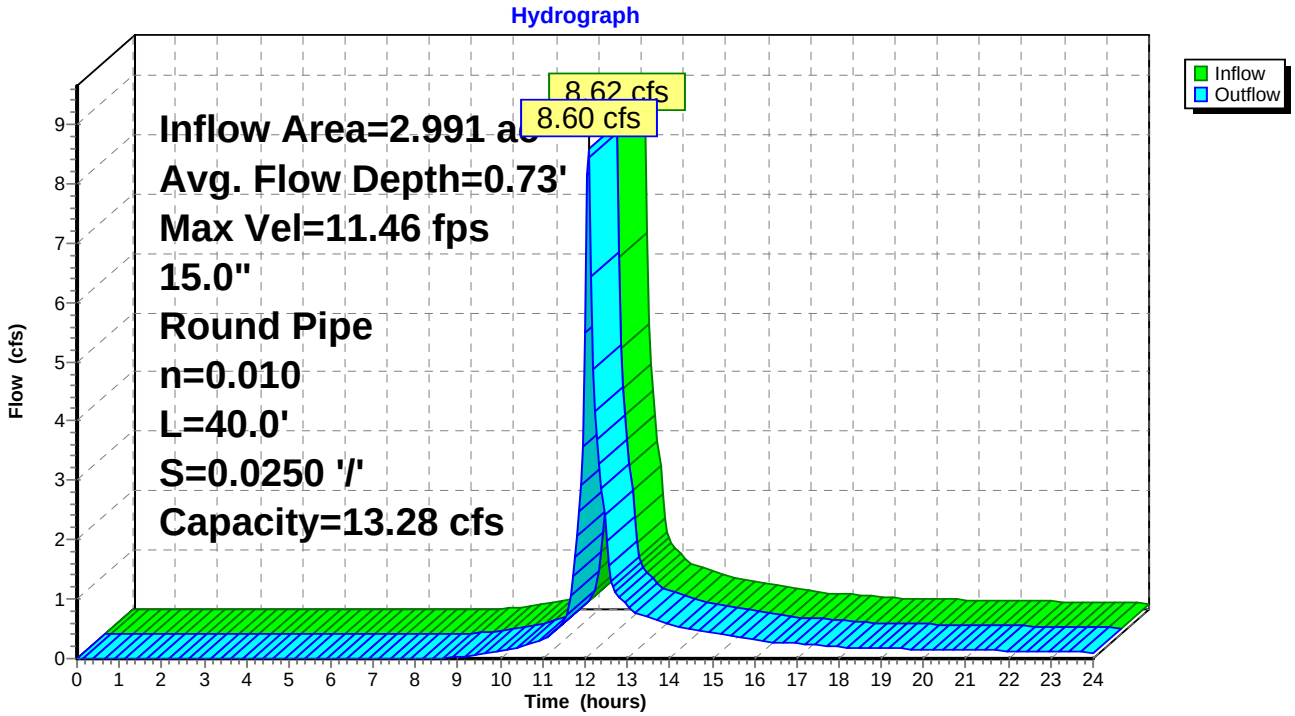
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 11.46 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.33 fps, Avg. Travel Time= 0.2 min

Peak Storage= 30 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.73'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 13.28 cfs

15.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 40.0' Slope= 0.0250 '/'
Inlet Invert= 1,286.50', Outlet Invert= 1,285.50'



Reach PC3B: Culvert 03B



Summary for Reach PC4A: Culvert 04A

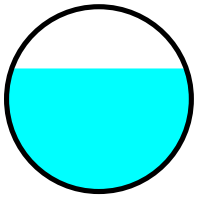
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 5.402 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 15.56 cfs @ 12.08 hrs, Volume= 1.105 af
Outflow = 15.54 cfs @ 12.08 hrs, Volume= 1.105 af, Atten= 0%, Lag= 0.2 min

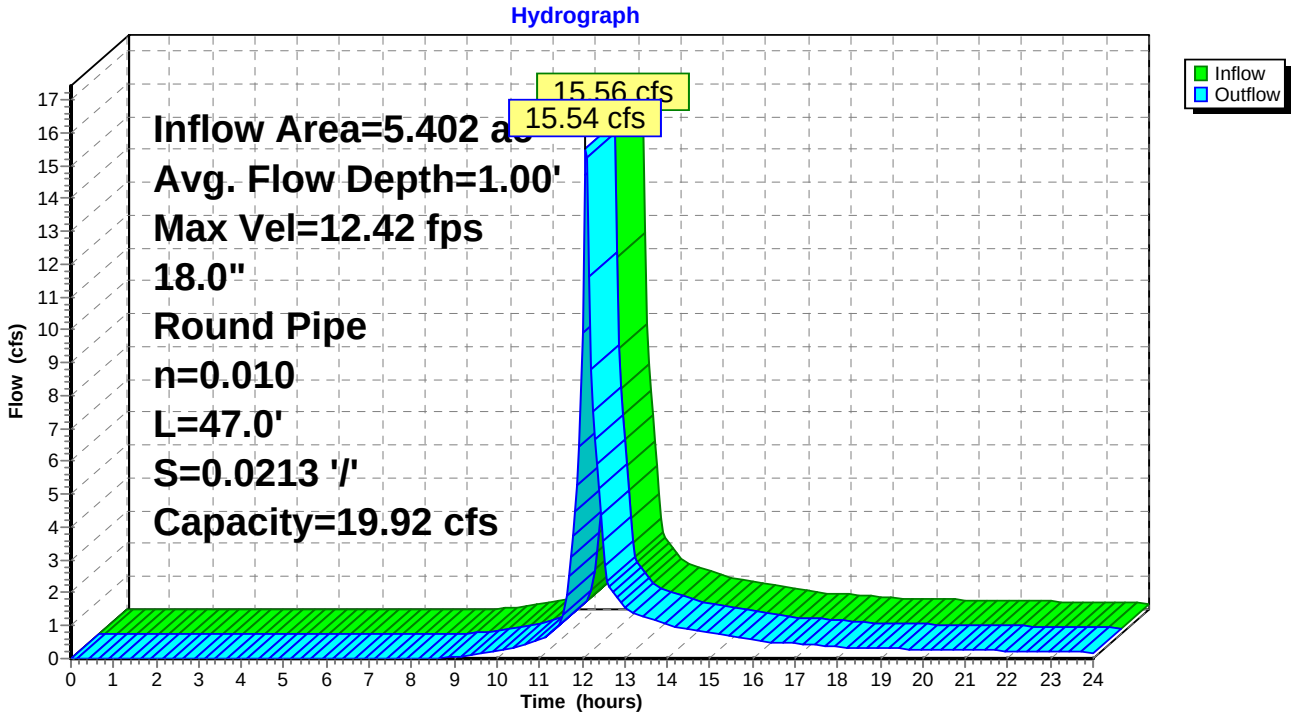
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 12.42 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.76 fps, Avg. Travel Time= 0.2 min

Peak Storage= 59 cf @ 12.08 hrs
Average Depth at Peak Storage= 1.00'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 19.92 cfs

18.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 47.0' Slope= 0.0213 '/'
Inlet Invert= 1,349.00', Outlet Invert= 1,348.00'



Reach PC4A: Culvert 04A



Summary for Reach PC4B: Culvert 04B

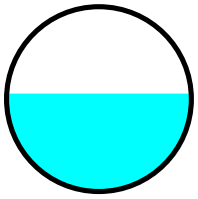
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 3.585 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 10.33 cfs @ 12.08 hrs, Volume= 0.733 af
Outflow = 10.32 cfs @ 12.08 hrs, Volume= 0.733 af, Atten= 0%, Lag= 0.1 min

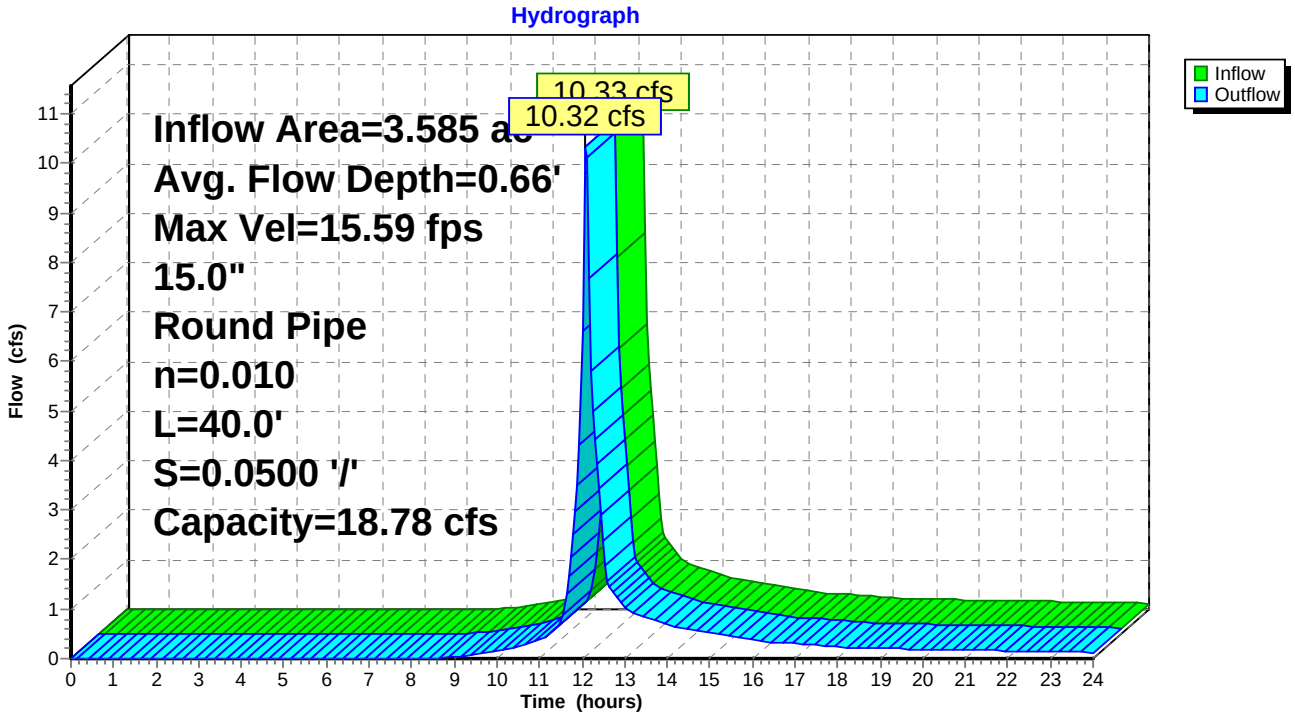
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 15.59 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 5.83 fps, Avg. Travel Time= 0.1 min

Peak Storage= 26 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.66'
Bank-Full Depth= 1.25', Capacity at Bank-Full= 18.78 cfs

15.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 40.0' Slope= 0.0500 '/'
Inlet Invert= 1,392.00', Outlet Invert= 1,390.00'



Reach PC4B: Culvert 04B



Summary for Reach PC5: Culvert 05

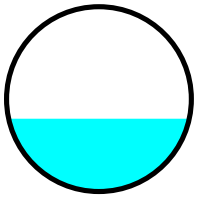
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.826 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 2.38 cfs @ 12.08 hrs, Volume= 0.169 af
Outflow = 2.38 cfs @ 12.08 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.2 min

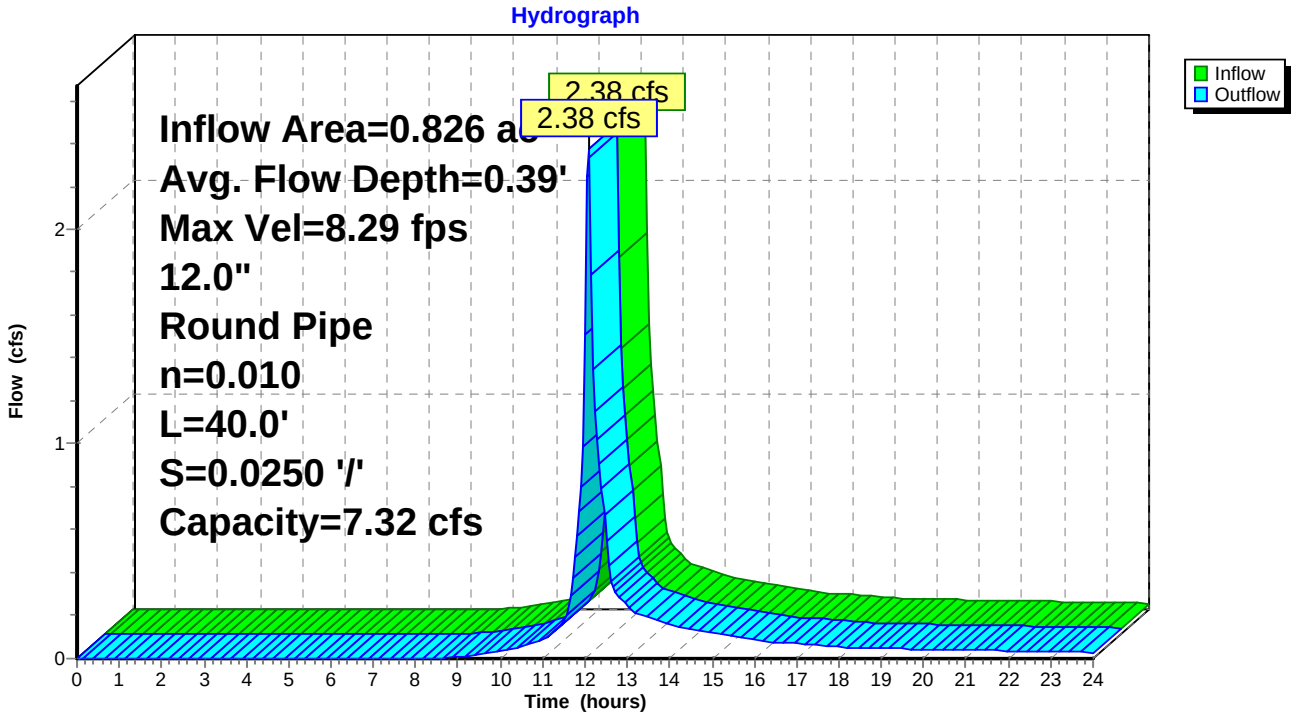
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 8.29 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.03 fps, Avg. Travel Time= 0.2 min

Peak Storage= 11 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.39'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 7.32 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 40.0' Slope= 0.0250 '/'
Inlet Invert= 1,427.00', Outlet Invert= 1,426.00'



Reach PC5: Culvert 05



Summary for Reach PC6: Culvert 06

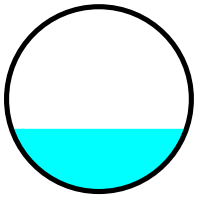
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 2.525 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 6.86 cfs @ 12.11 hrs, Volume= 0.516 af
Outflow = 6.83 cfs @ 12.11 hrs, Volume= 0.516 af, Atten= 0%, Lag= 0.1 min

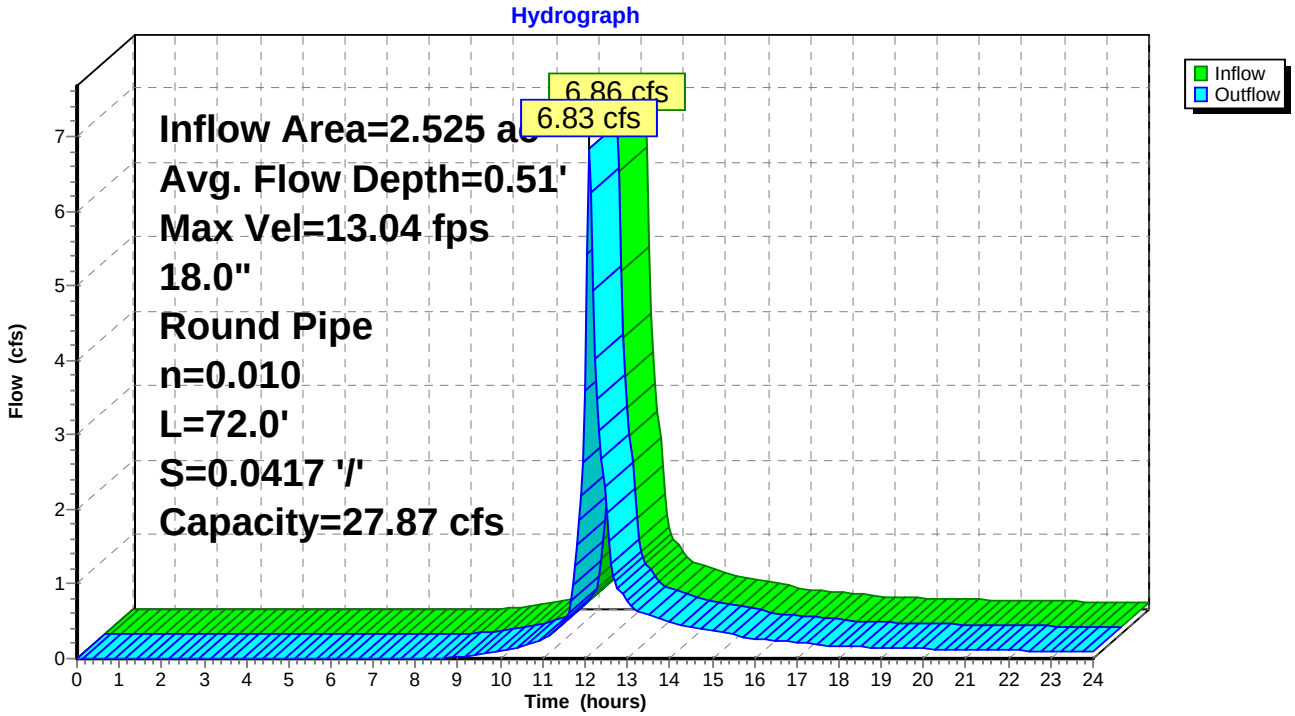
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 13.04 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 4.81 fps, Avg. Travel Time= 0.2 min

Peak Storage= 38 cf @ 12.11 hrs
Average Depth at Peak Storage= 0.51'
Bank-Full Depth= 1.50', Capacity at Bank-Full= 27.87 cfs

18.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 72.0' Slope= 0.0417 '/'
Inlet Invert= 1,472.00', Outlet Invert= 1,469.00'



Reach PC6: Culvert 06



Summary for Reach PC7: Culvert 07

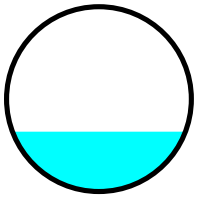
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.826 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 2.38 cfs @ 12.08 hrs, Volume= 0.169 af
Outflow = 2.37 cfs @ 12.08 hrs, Volume= 0.169 af, Atten= 0%, Lag= 0.3 min

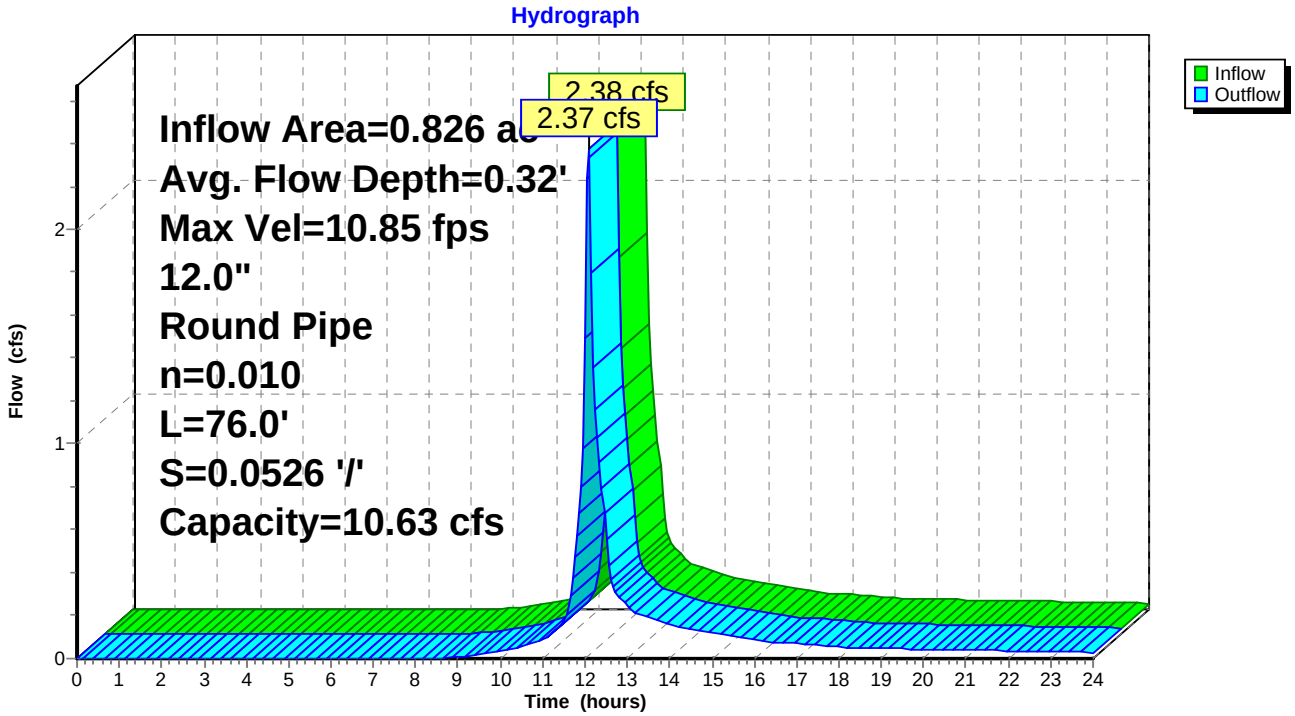
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 10.85 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 3.95 fps, Avg. Travel Time= 0.3 min

Peak Storage= 17 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.32'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 10.63 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 76.0' Slope= 0.0526 '/'
Inlet Invert= 1,476.00', Outlet Invert= 1,472.00'



Reach PC7: Culvert 07



Summary for Reach PC8: Culvert 08

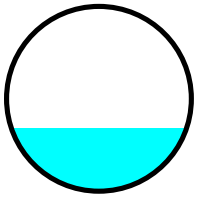
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 1.010 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 2.91 cfs @ 12.08 hrs, Volume= 0.207 af
Outflow = 2.90 cfs @ 12.09 hrs, Volume= 0.207 af, Atten= 0%, Lag= 0.4 min

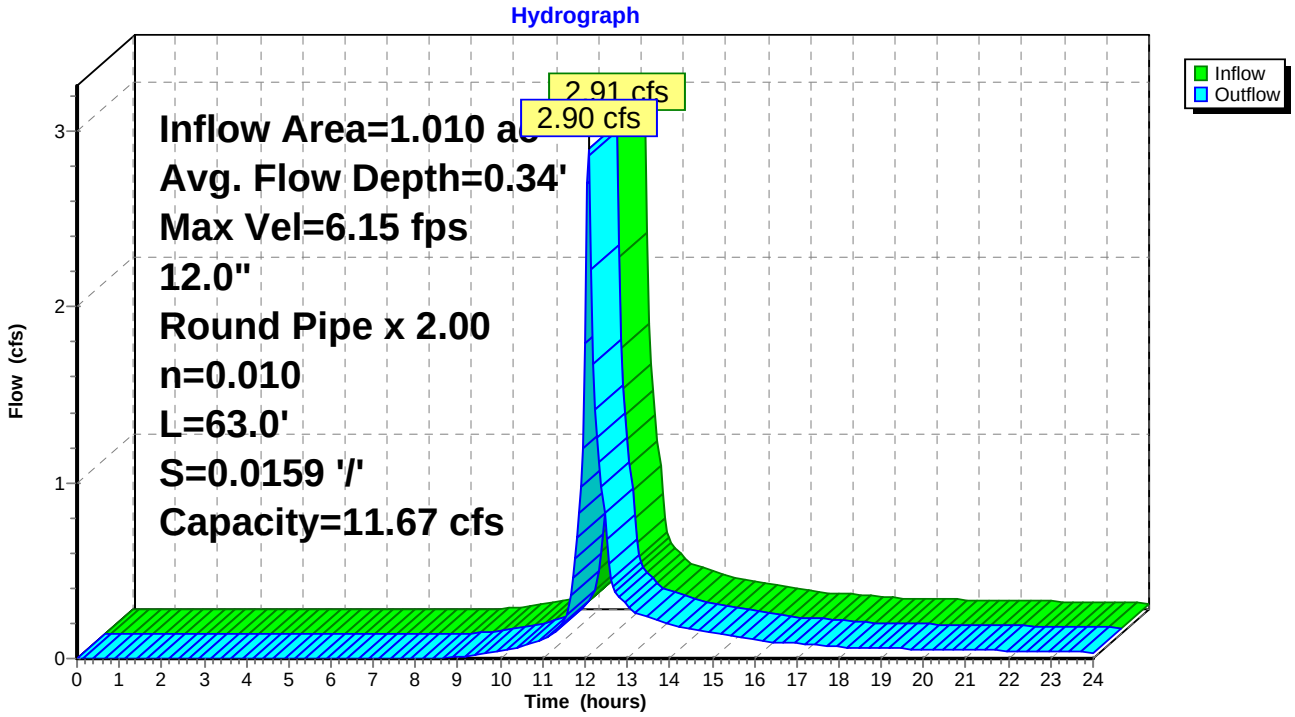
Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.15 fps, Min. Travel Time= 0.2 min
Avg. Velocity = 2.23 fps, Avg. Travel Time= 0.5 min

Peak Storage= 30 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 11.67 cfs

A factor of 2.00 has been applied to the storage and discharge capacity
12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 63.0' Slope= 0.0159 '/'
Inlet Invert= 1,456.00', Outlet Invert= 1,455.00'



Reach PC8: Culvert 08



Summary for Reach PC9: Culvert 09

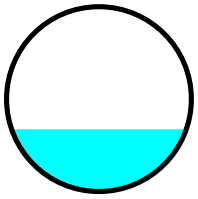
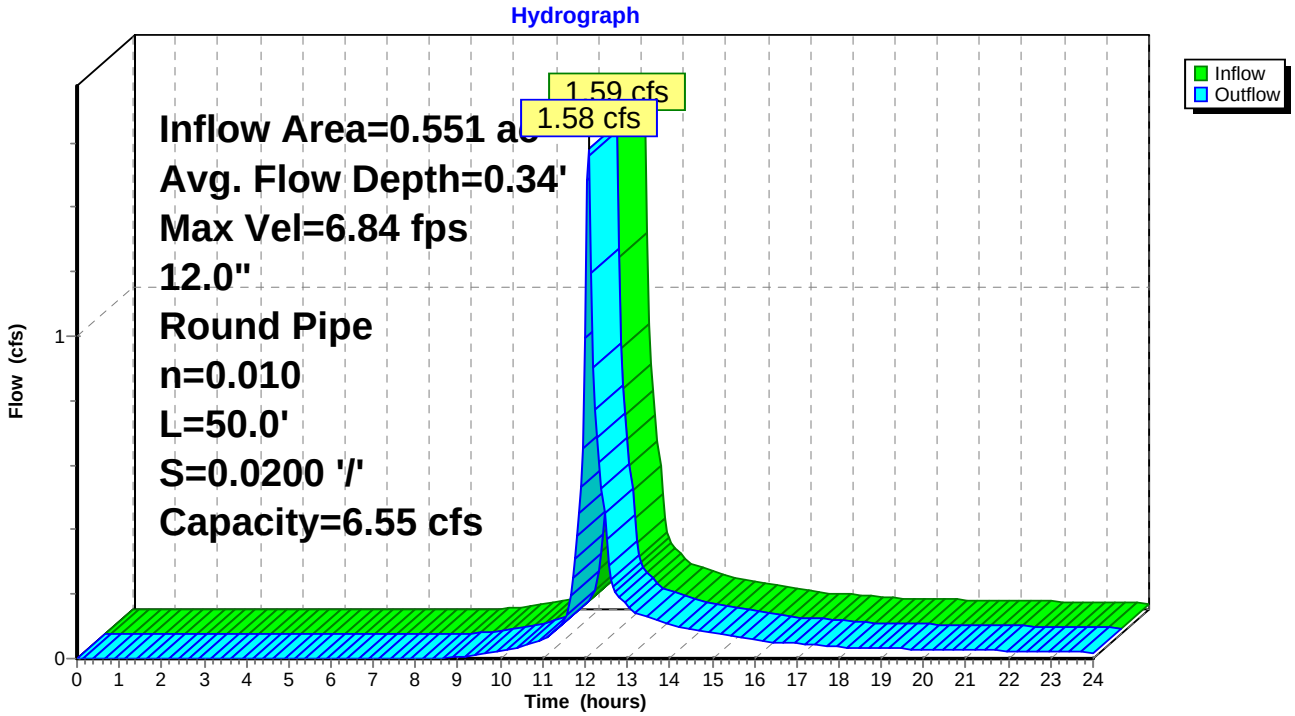
[52] Hint: Inlet/Outlet conditions not evaluated

Inflow Area = 0.551 ac, 0.00% Impervious, Inflow Depth > 2.45" for 25 Year 24-hr event
Inflow = 1.59 cfs @ 12.08 hrs, Volume= 0.113 af
Outflow = 1.58 cfs @ 12.08 hrs, Volume= 0.113 af, Atten= 0%, Lag= 0.3 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.84 fps, Min. Travel Time= 0.1 min
Avg. Velocity = 2.49 fps, Avg. Travel Time= 0.3 min

Peak Storage= 12 cf @ 12.08 hrs
Average Depth at Peak Storage= 0.34'
Bank-Full Depth= 1.00', Capacity at Bank-Full= 6.55 cfs

12.0" Round Pipe
n= 0.010 PVC, smooth interior
Length= 50.0' Slope= 0.0200 '/'
Inlet Invert= 1,433.00', Outlet Invert= 1,432.00'



Reach PC9: Culvert 09