EVERETT M
BROOKS
COMPANY

PROJECT ADDRESS: Rumford Avenue
Newton

PROJECT NO.: 26736

SHEET: **OF:**

CALCULATIONS BY: ES **DATE:** 9/13/23

Watershed to Street

100 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	1.07 cfs	0.13 cfs
Peak Flow	0.081 af	0.011 af

25 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.74 cfs	0.09 cfs
Peak Flow	0.054 af	0.008 af

10 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.58 cfs	0.08 cfs
Peak Flow	0.042 af	0.006 af

2 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.33 cfs	0.05 cfs
Peak Flow	0.023 af	0.004 af

Watershed to Rear

100 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.47 cfs	0.15 cfs
Peak Flow	0.035 af	0.011 af

25 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.32 cfs	0.10 cfs
Peak Flow	0.024 af	0.007 af

10 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.25 cfs	0.07 cfs
Peak Flow	0.019 af	0.005 af

2 – Year Storm Event	Existing Conditions	Proposed Conditions
Peak Volume	0.14 cfs	0.03 cfs
Peak Flow	0.010 af	0.002 af

COMMONWEALTH OF MASSACHUSETTS
MICHAEL S. KOSMO
CIVIL
No. 31480
REGISTERED PROFESSIONAL ENGINEER
9/13/23

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COMPANY

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Phosphorus Load Calculation:

BMP Load = (IA x PLER)
BMP Load = Phosphorous load to the existing BMP
IA= Impervious area
PLER = Phosphorous rate

Land Use Category	Cover Type	P export rate (lb/acre/yr)*
Commercial (Com) and Industrial (Ind)	Directly connected impervious	1.78

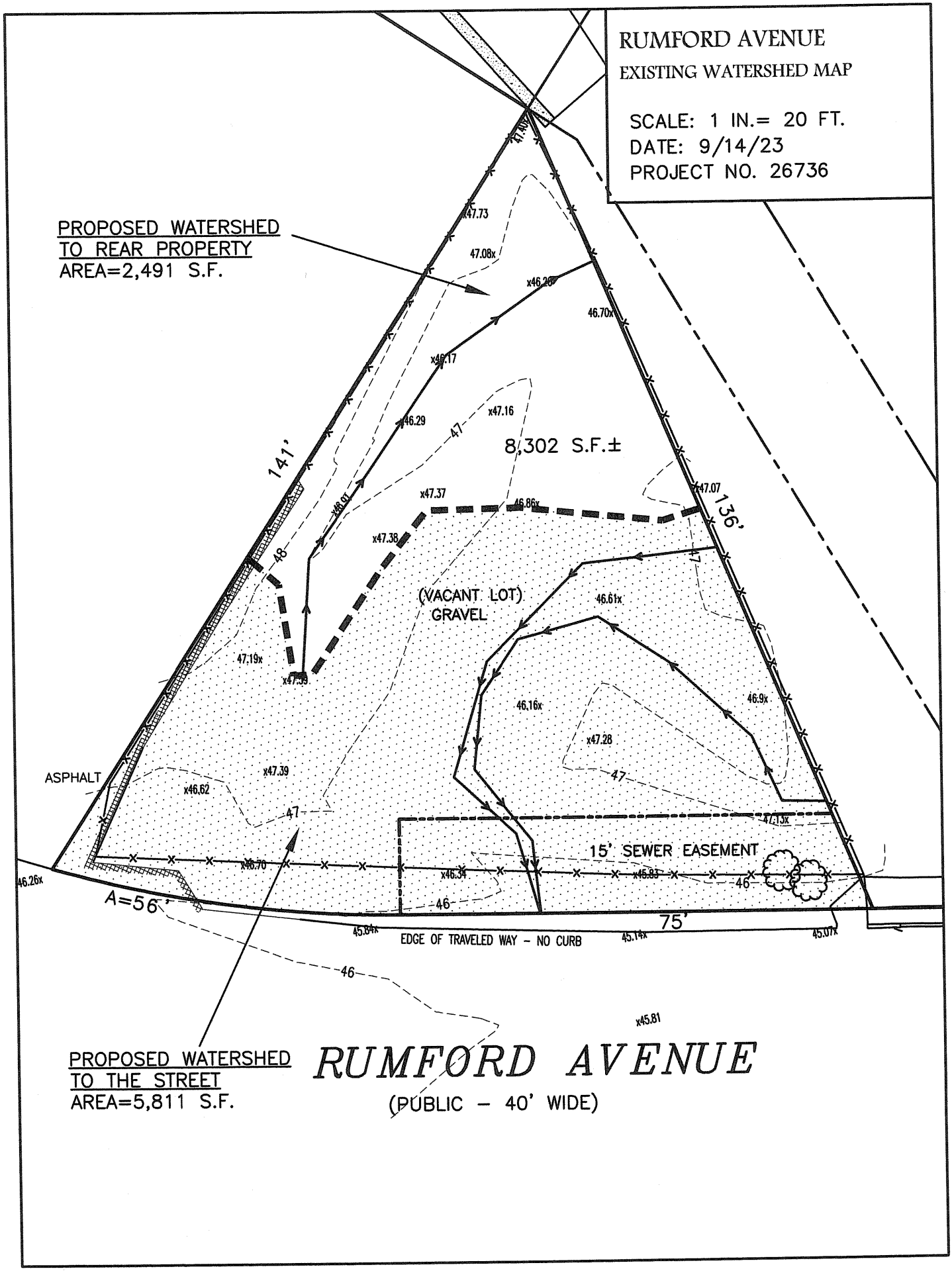
**Average annual phosphorous load (P Load) from Table 3-1 of EPA Stormwater Handbook.*

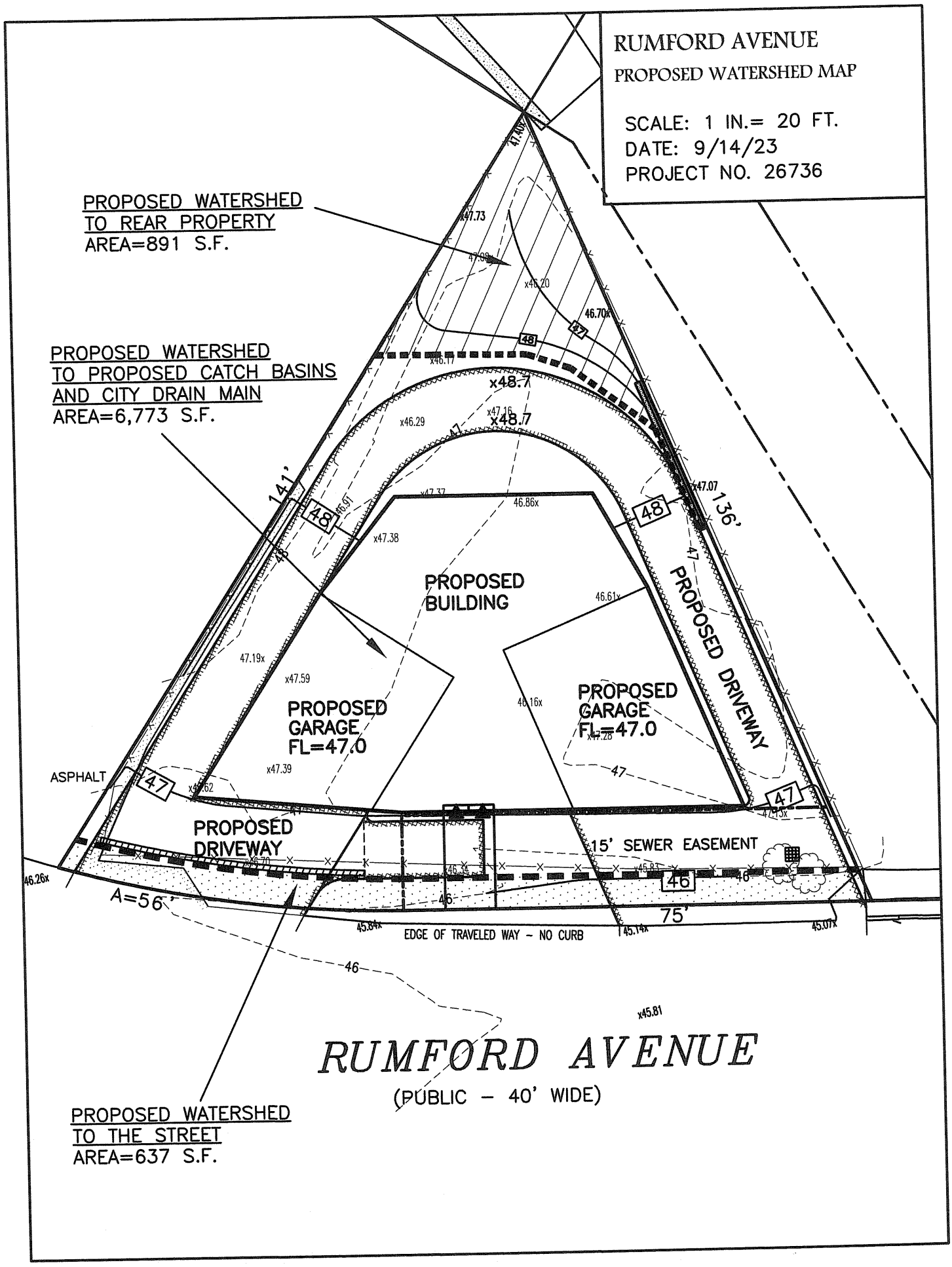
Existing Impervious Area = 239 s.f. (0.0055 ac)
Existing Load = 0.0055 ac X 1.78 lb/ac/yr = 0.0098 lbs/ year

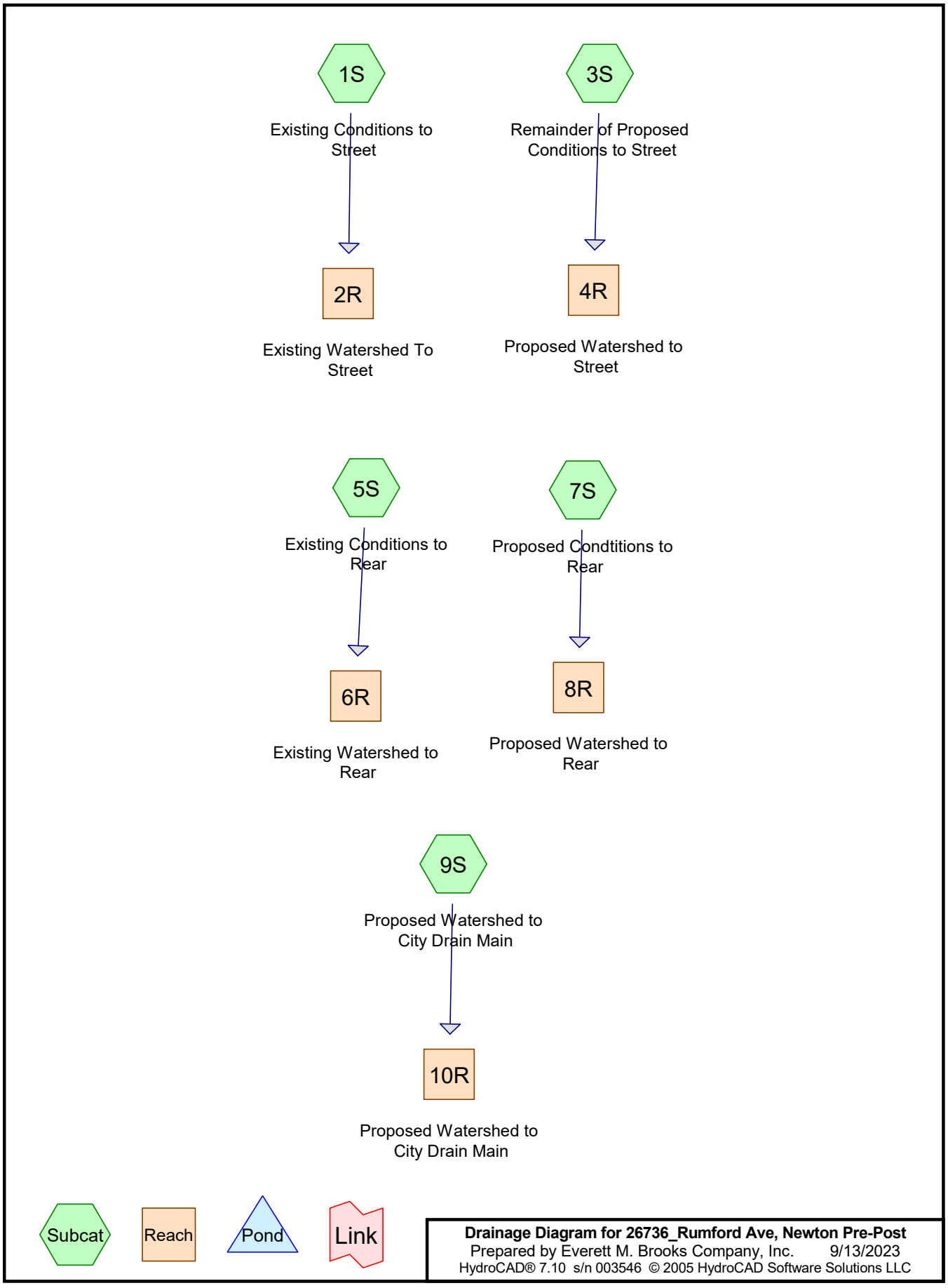
Proposed Impervious Area = 6,294 s.f. (0.1445 ac)
Proposed Load = 0.1445 ac X 1.78 lb/ac/yr = 0.2572 lbs/ year

BMP (Inflow to City Drainage Systems) =0.155 ac
BMP Load = 0.155 ac X 1.78 lb/ac/yr = 0.2759 lbs/ year

Total Phosphorous Reduction = 0.2759 / 0.2572 = 1.073 X 100% = 107% (> 50% reduction)


RUMFORD AVENUE
EXISTING WATERSHED MAP
SCALE: 1 IN.= 20 FT.
DATE: 9/14/23
PROJECT NO. 26736
PROPOSED WATERSHED
TO REAR PROPERTY
AREA=2,491 S.F.
8,302 S.F.±
(VACANT LOT)
GRAVEL
141'
136'
75'
A=56'
15' SEWER EASEMENT
ASPHALT
EDGE OF TRAVELED WAY - NO CURB
PROPOSED WATERSHED
TO THE STREET
AREA=5,811 S.F.
RUMFORD AVENUE
(PUBLIC – 40' WIDE)


RUMFORD AVENUE
PROPOSED WATERSHED MAP
SCALE: 1 IN.= 20 FT.
DATE: 9/14/23
PROJECT NO. 26736
PROPOSED WATERSHED TO REAR PROPERTY AREA=891 S.F.
PROPOSED WATERSHED TO PROPOSED CATCH BASINS AND CITY DRAIN MAIN AREA=6,773 S.F.
PROPOSED WATERSHED TO THE STREET AREA=637 S.F.
PROPOSED BUILDING
PROPOSED GARAGE FL=47.0
PROPOSED GARAGE FL=47.0
PROPOSED DRIVEWAY
PROPOSED DRIVEWAY
ASPHALT
15' SEWER EASEMENT
EDGE OF TRAVELED WAY - NO CURB
141'
136'
75'
A=56'
RUMFORD AVENUE
(PUBLIC – 40' WIDE)



Drainage Diagram for 26736_Rumford Ave, Newton Pre-Post
Prepared by Everett M. Brooks Company, Inc. 9/13/2023

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing Conditions to Street Runoff Area=0.130 ac Runoff Depth=2.14"
Tc=5.0 min CN=89 Runoff=0.33 cfs 0.023 af

Subcatchment 3S: Remainder of Proposed Conditions to Stre Runoff Area=0.015 ac Runoff Depth=3.03"
Tc=5.0 min CN=98 Runoff=0.05 cfs 0.004 af

Subcatchment 5S: Existing Conditions to Rear Runoff Area=0.057 ac Runoff Depth=2.14"
Tc=5.0 min CN=89 Runoff=0.14 cfs 0.010 af

Subcatchment 7S: Proposed Condtitions to Rear Runoff Area=0.020 ac Runoff Depth=1.45"
Tc=5.0 min CN=80 Runoff=0.03 cfs 0.002 af

Subcatchment 9S: Proposed Watershed to City Drain Main Runoff Area=0.155 ac Runoff Depth=2.60"
Tc=5.0 min CN=94 Runoff=0.46 cfs 0.034 af

Reach 2R: Existing Watershed To Street Inflow=0.33 cfs 0.023 af
Outflow=0.33 cfs 0.023 af

Reach 4R: Proposed Watershed to Street Inflow=0.05 cfs 0.004 af
Outflow=0.05 cfs 0.004 af

Reach 6R: Existing Watershed to Rear Inflow=0.14 cfs 0.010 af
Outflow=0.14 cfs 0.010 af

Reach 8R: Proposed Watershed to Rear Inflow=0.03 cfs 0.002 af
Outflow=0.03 cfs 0.002 af

Reach 10R: Proposed Watershed to City Drain Main Inflow=0.46 cfs 0.034 af
Outflow=0.46 cfs 0.034 af

Total Runoff Area = 0.377 ac Runoff Volume = 0.073 af Average Runoff Depth = 2.33"

Subcatchment 1S: Existing Conditions to Street

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

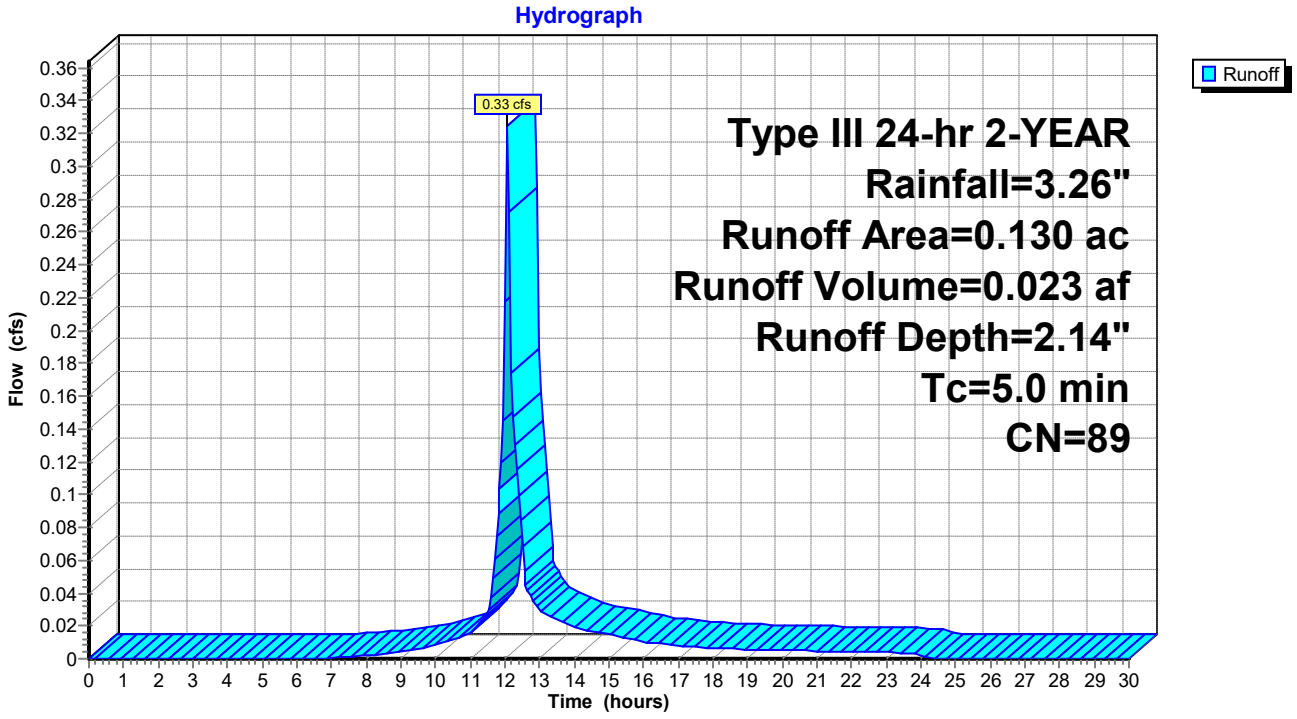
Runoff = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.26"

Area (ac)	CN	Description
0.128	89	Dirt roads, HSG D
0.002	98	Aphalt
0.130	89	Weighted Average

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

Subcatchment 1S: Existing Conditions to Street



Subcatchment 3S: Remainder of Proposed Conditions to Street

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

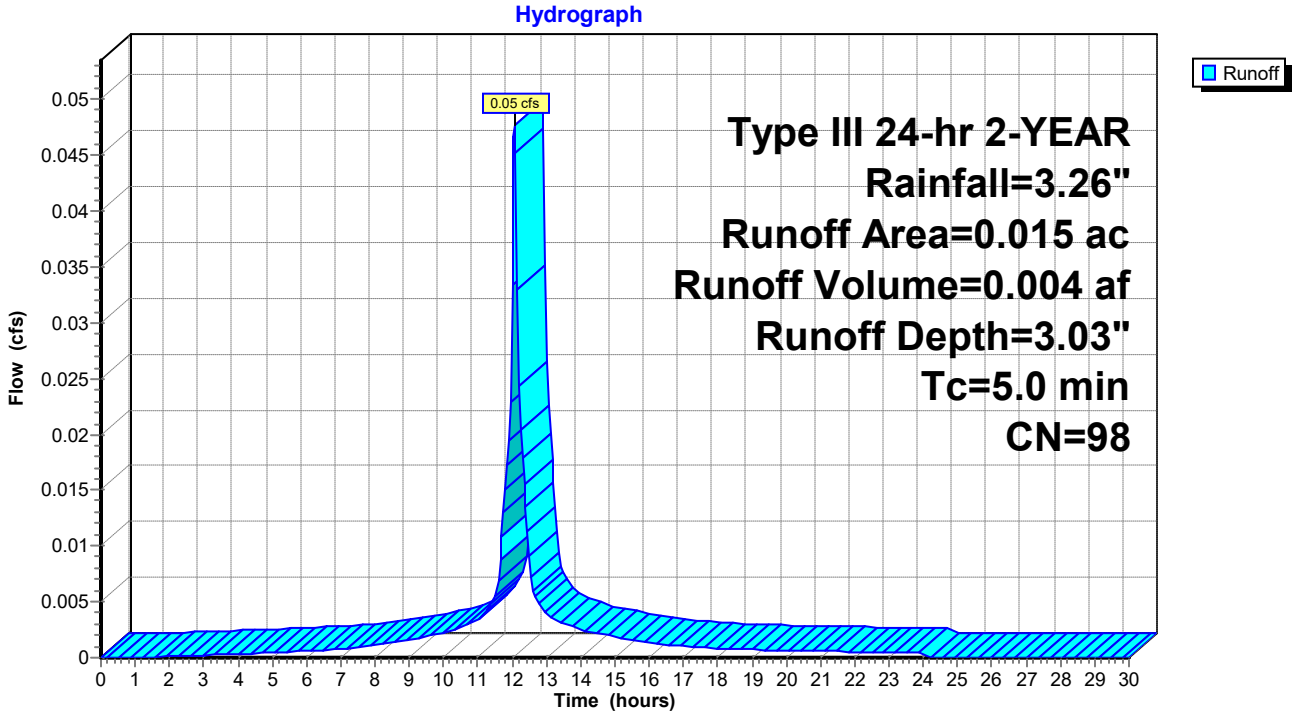
Runoff = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Depth= 3.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.26"

Area (ac)	CN	Description
0.015	98	Proposed Concrete Sidewalk

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

Subcatchment 3S: Remainder of Proposed Conditions to Street



Subcatchment 5S: Existing Conditions to Rear

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

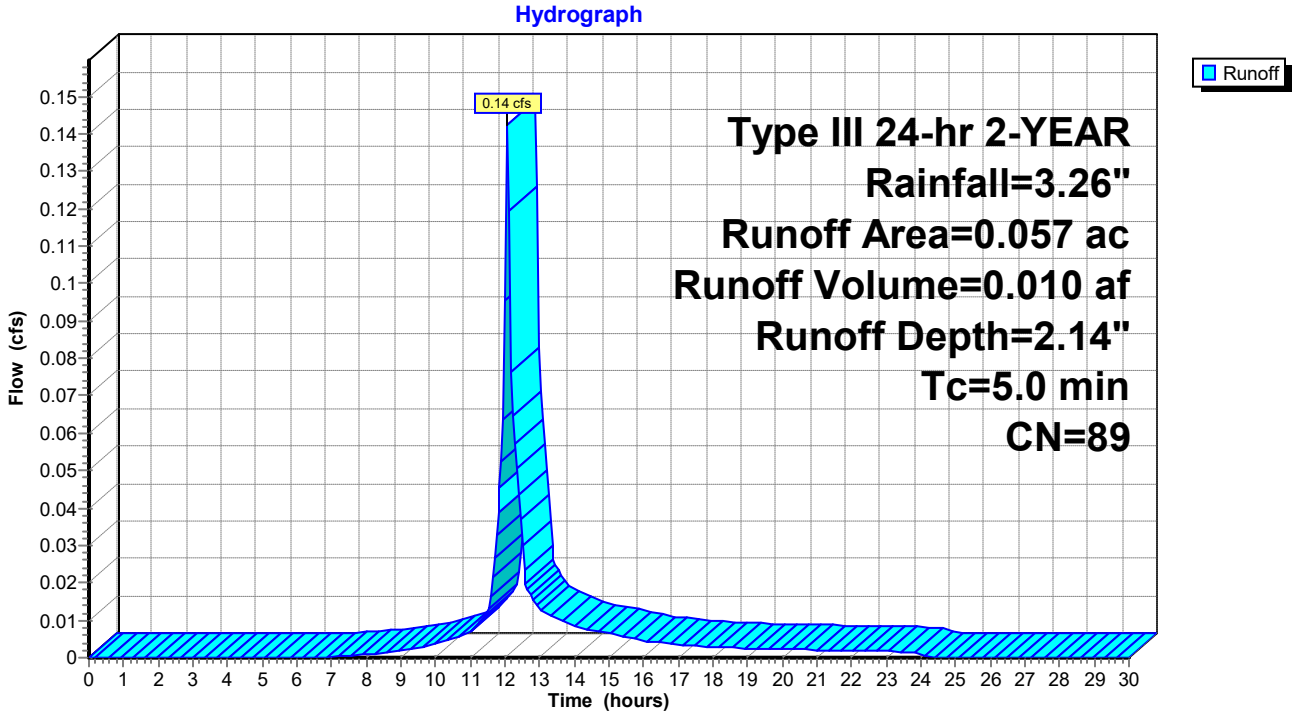
Runoff = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af, Depth= 2.14"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.26"

Area (ac)	CN	Description
0.057	89	Dirt roads, HSG D

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

Subcatchment 5S: Existing Conditions to Rear



Subcatchment 7S: Proposed Condtitions to Rear

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

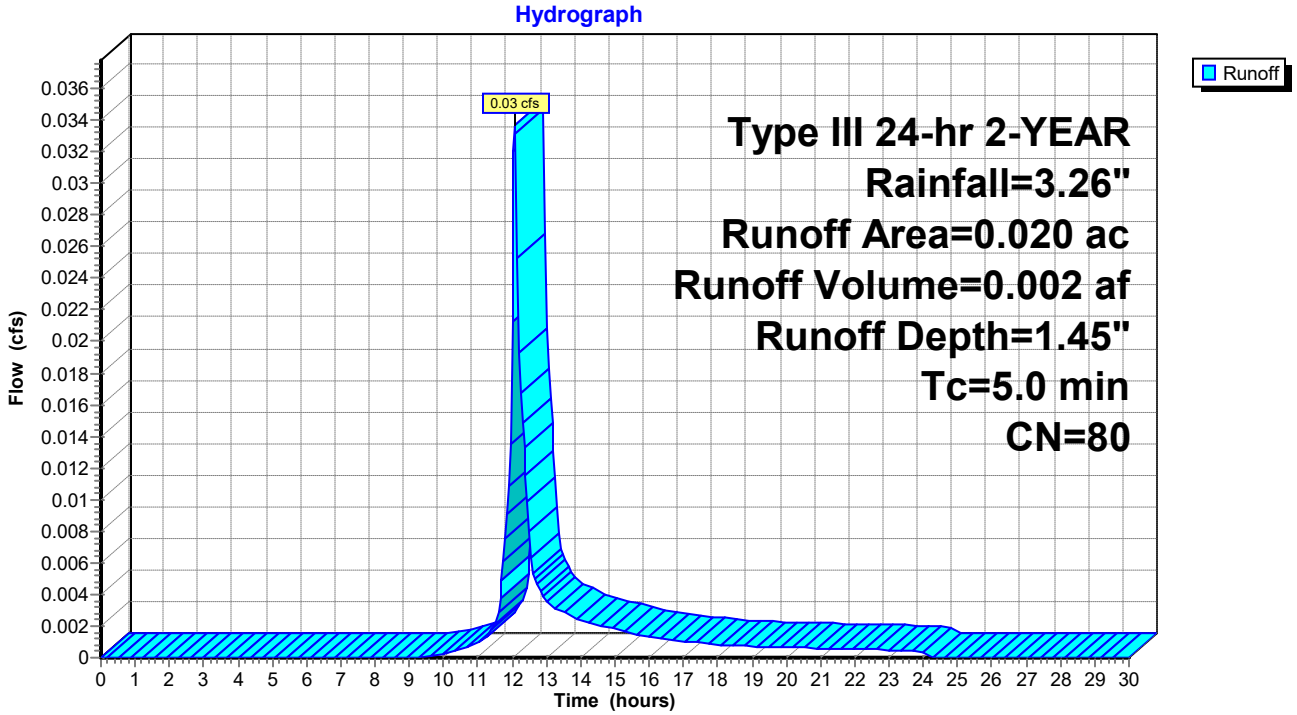
Runoff = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Depth= 1.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.26"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D

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

Subcatchment 7S: Proposed Condtitions to Rear



Subcatchment 9S: Proposed Watershed to City Drain Main

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

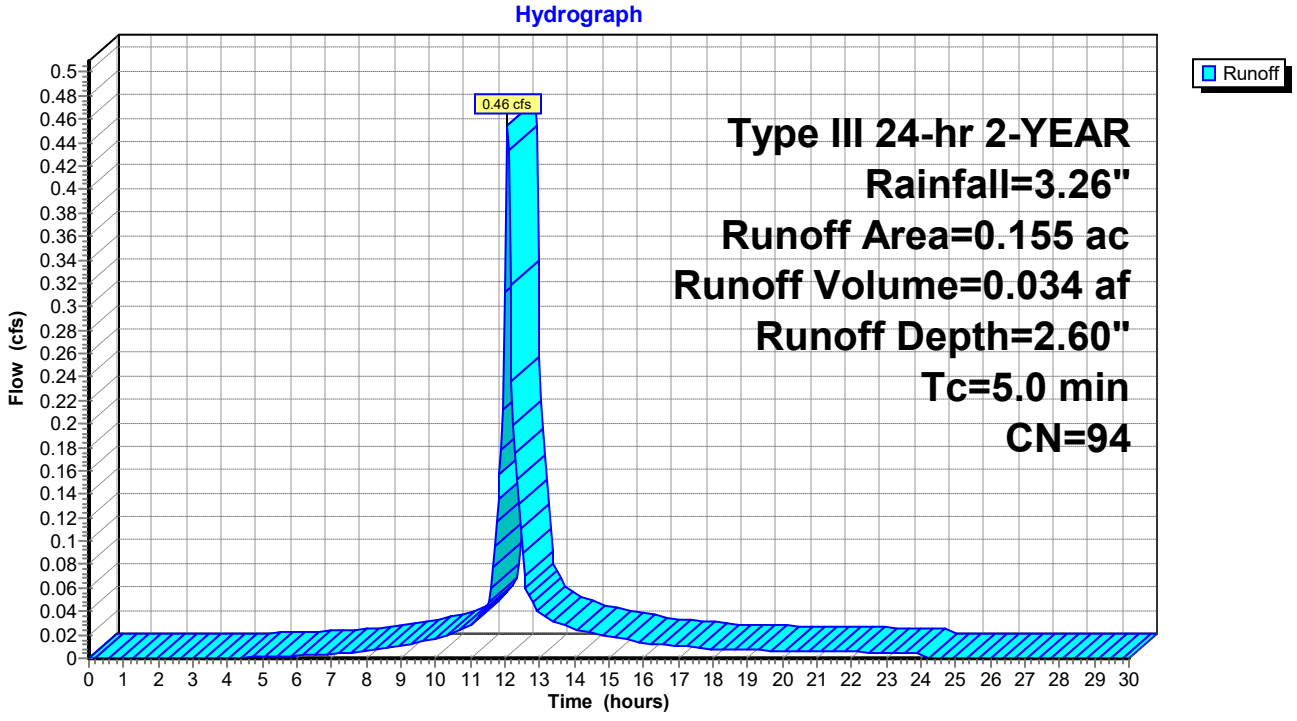
Runoff = 0.46 cfs @ 12.07 hrs, Volume= 0.034 af, Depth= 2.60"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-YEAR Rainfall=3.26"

Area (ac)	CN	Description
0.070	98	Proposed Roof Runoff
0.052	98	Proposed Asphalt Driveway
0.033	80	>75% Grass cover, Good, HSG D
0.155	94	Weighted Average

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

Subcatchment 9S: Proposed Watershed to City Drain Main



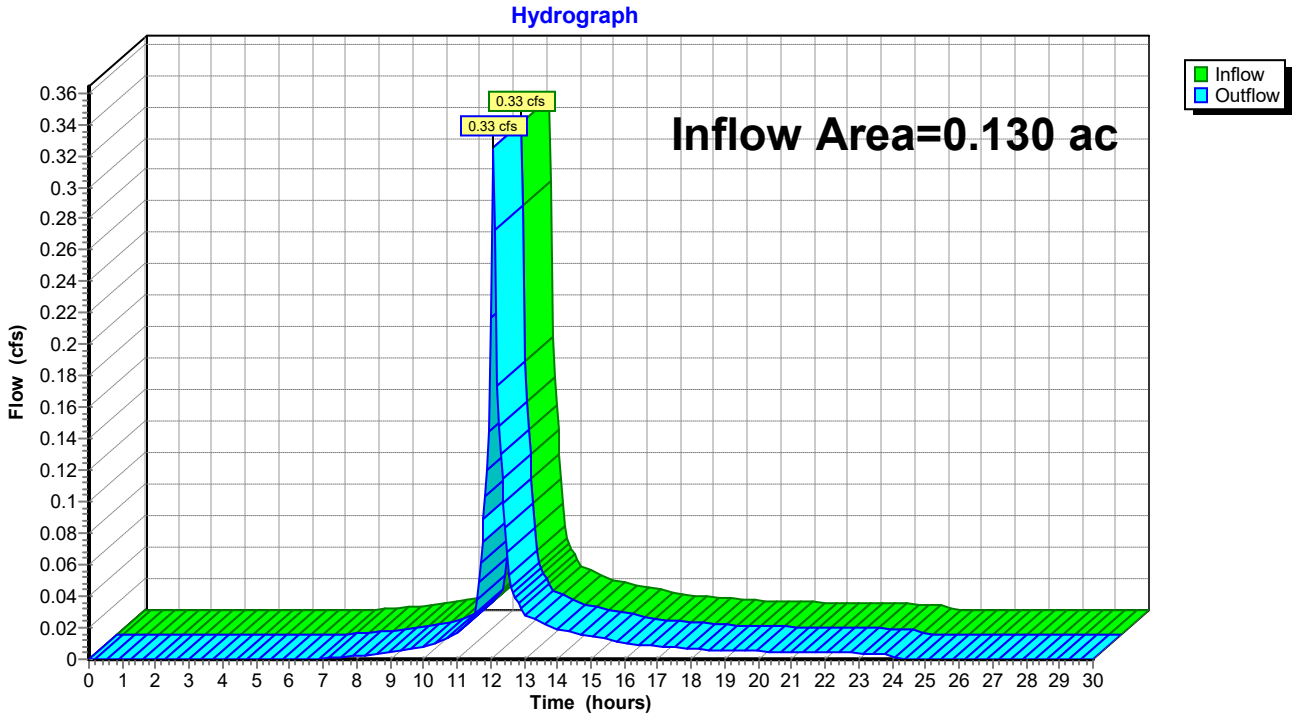
Reach 2R: Existing Watershed To Street

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

Inflow Area = 0.130 ac, Inflow Depth = 2.14" for 2-YEAR event
Inflow = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af
Outflow = 0.33 cfs @ 12.07 hrs, Volume= 0.023 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 2R: Existing Watershed To Street



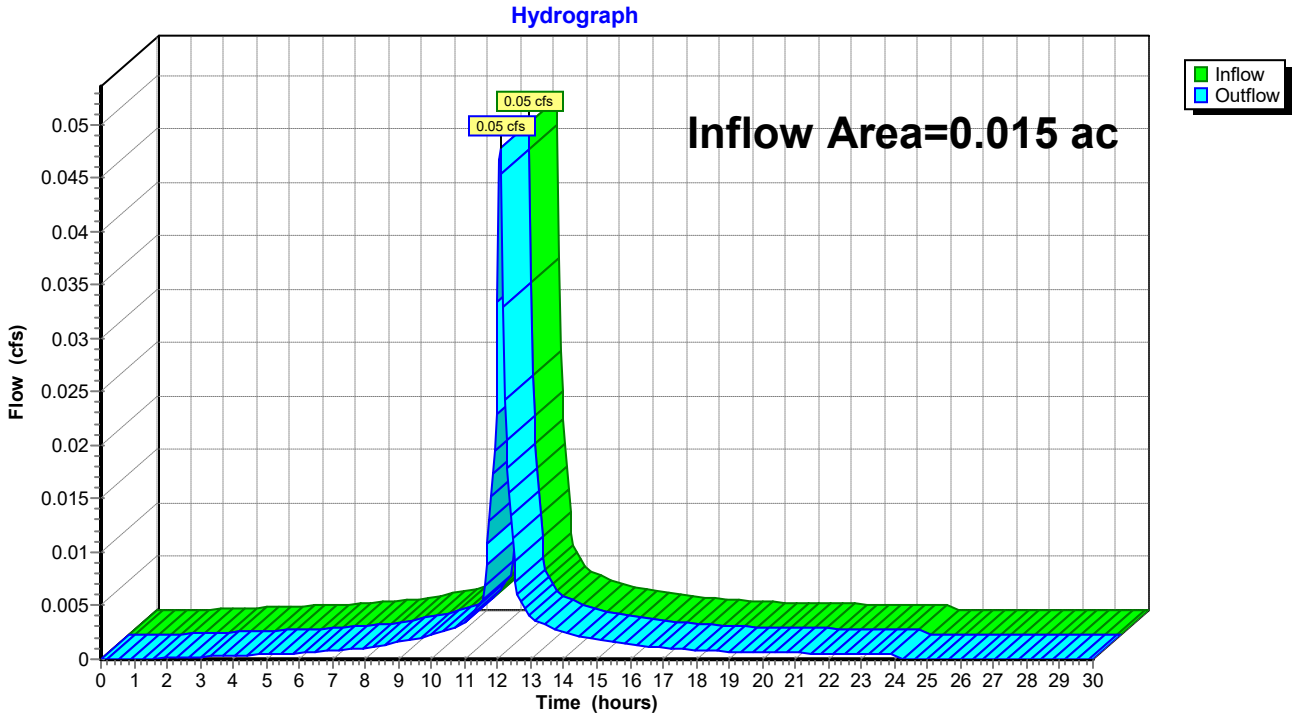
Reach 4R: Proposed Watershed to Street

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

Inflow Area = 0.015 ac, Inflow Depth = 3.03" for 2-YEAR event
Inflow = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af
Outflow = 0.05 cfs @ 12.07 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 4R: Proposed Watershed to Street



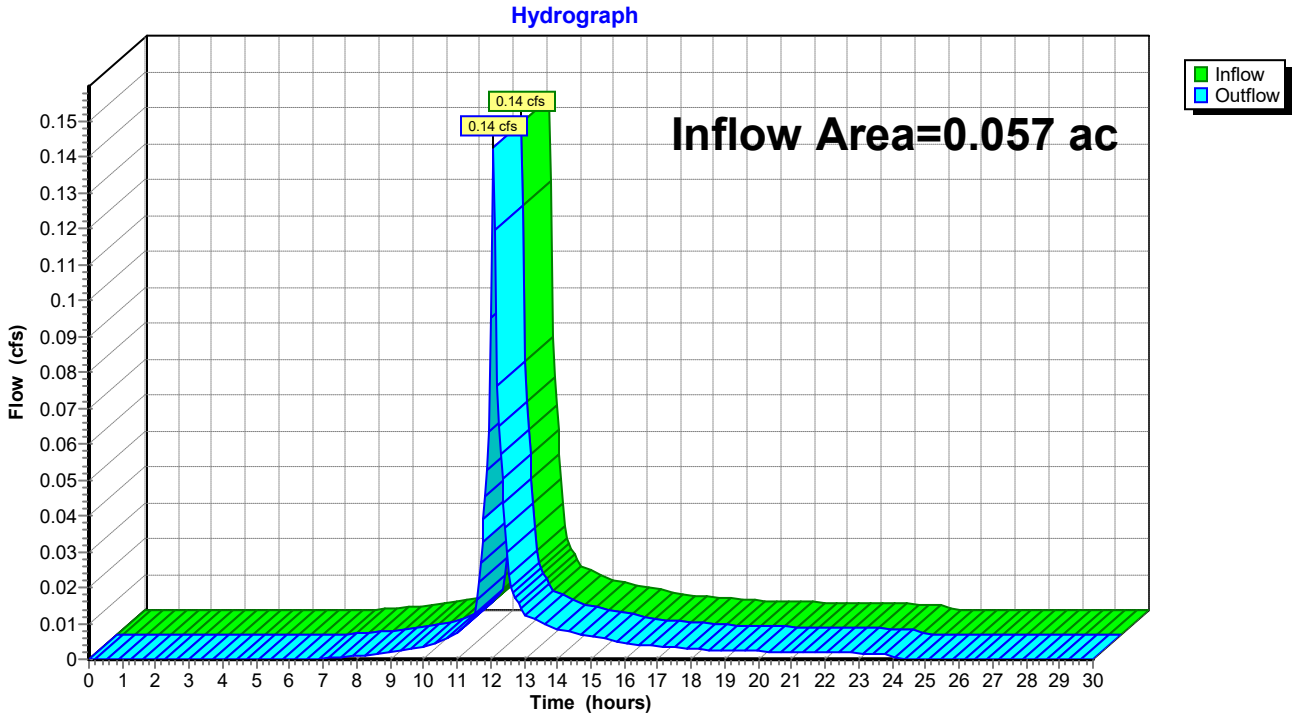
Reach 6R: Existing Watershed to Rear

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

Inflow Area = 0.057 ac, Inflow Depth = 2.14" for 2-YEAR event
Inflow = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af
Outflow = 0.14 cfs @ 12.07 hrs, Volume= 0.010 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 6R: Existing Watershed to Rear



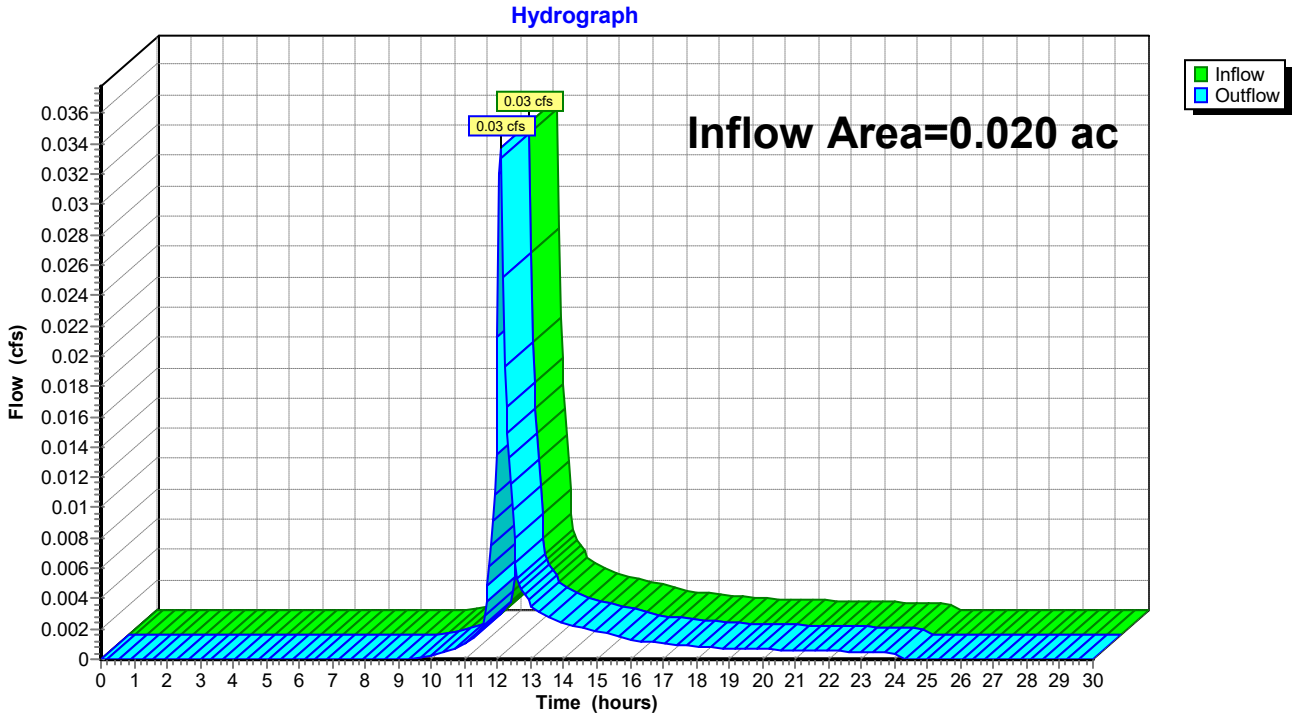
Reach 8R: Proposed Watershed to Rear

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

Inflow Area = 0.020 ac, Inflow Depth = 1.45" for 2-YEAR event
Inflow = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af
Outflow = 0.03 cfs @ 12.08 hrs, Volume= 0.002 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 8R: Proposed Watershed to Rear



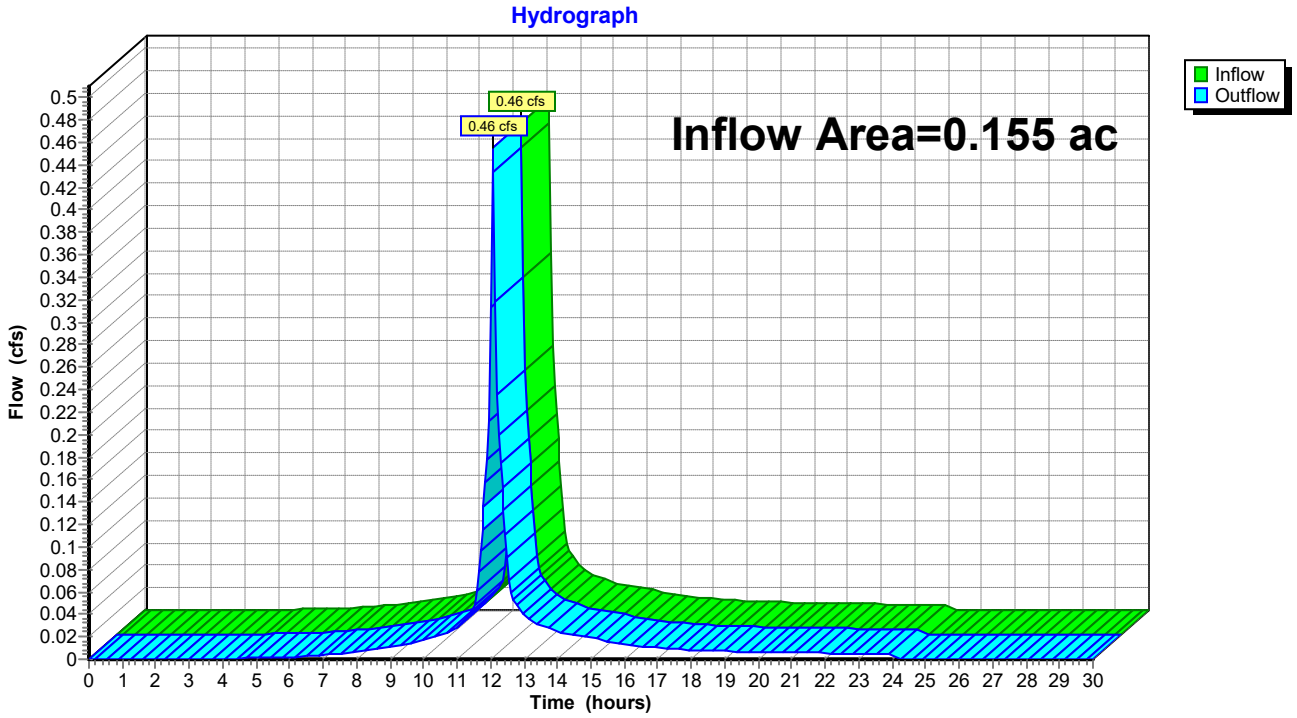
Reach 10R: Proposed Watershed to City Drain Main

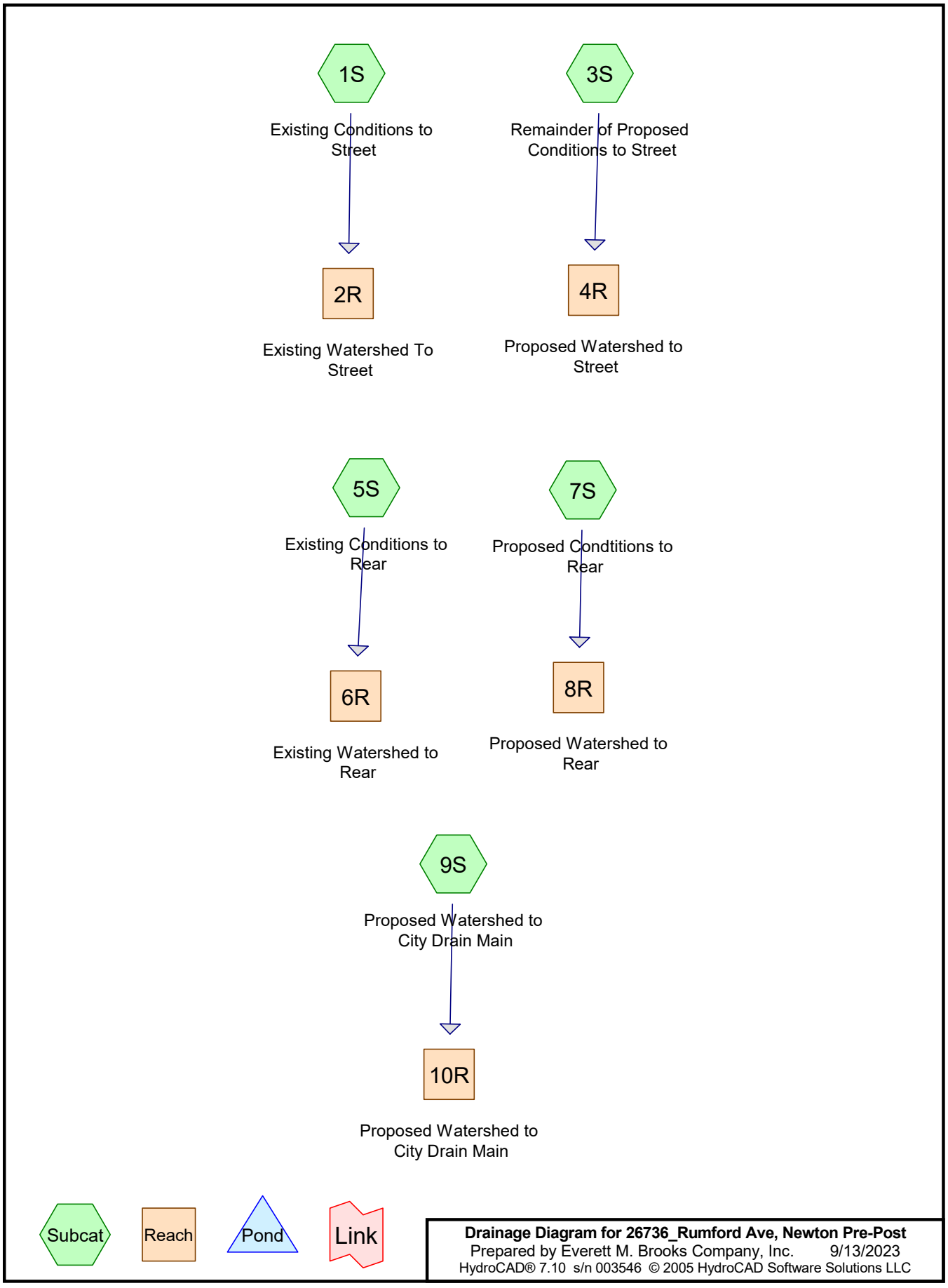
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.155 ac, Inflow Depth = 2.60" for 2-YEAR event
Inflow = 0.46 cfs @ 12.07 hrs, Volume= 0.034 af
Outflow = 0.46 cfs @ 12.07 hrs, Volume= 0.034 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 10R: Proposed Watershed to City Drain Main





Drainage Diagram for 26736_Rumford Ave, Newton Pre-Post
Prepared by Everett M. Brooks Company, Inc. 9/13/2023

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing Conditions to Street Runoff Area=0.130 ac Runoff Depth=3.90"
Tc=5.0 min CN=89 Runoff=0.58 cfs 0.042 af

Subcatchment 3S: Remainder of Proposed Conditions to Stre Runoff Area=0.015 ac Runoff Depth=4.89"
Tc=5.0 min CN=98 Runoff=0.08 cfs 0.006 af

Subcatchment 5S: Existing Conditions to Rear Runoff Area=0.057 ac Runoff Depth=3.90"
Tc=5.0 min CN=89 Runoff=0.25 cfs 0.019 af

Subcatchment 7S: Proposed Condtitions to Rear Runoff Area=0.020 ac Runoff Depth=3.01"
Tc=5.0 min CN=80 Runoff=0.07 cfs 0.005 af

Subcatchment 9S: Proposed Watershed to City Drain Main Runoff Area=0.155 ac Runoff Depth=4.44"
Tc=5.0 min CN=94 Runoff=0.75 cfs 0.057 af

Reach 2R: Existing Watershed To Street Inflow=0.58 cfs 0.042 af
Outflow=0.58 cfs 0.042 af

Reach 4R: Proposed Watershed to Street Inflow=0.08 cfs 0.006 af
Outflow=0.08 cfs 0.006 af

Reach 6R: Existing Watershed to Rear Inflow=0.25 cfs 0.019 af
Outflow=0.25 cfs 0.019 af

Reach 8R: Proposed Watershed to Rear Inflow=0.07 cfs 0.005 af
Outflow=0.07 cfs 0.005 af

Reach 10R: Proposed Watershed to City Drain Main Inflow=0.75 cfs 0.057 af
Outflow=0.75 cfs 0.057 af

Total Runoff Area = 0.377 ac Runoff Volume = 0.129 af Average Runoff Depth = 4.11"

Subcatchment 1S: Existing Conditions to Street

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

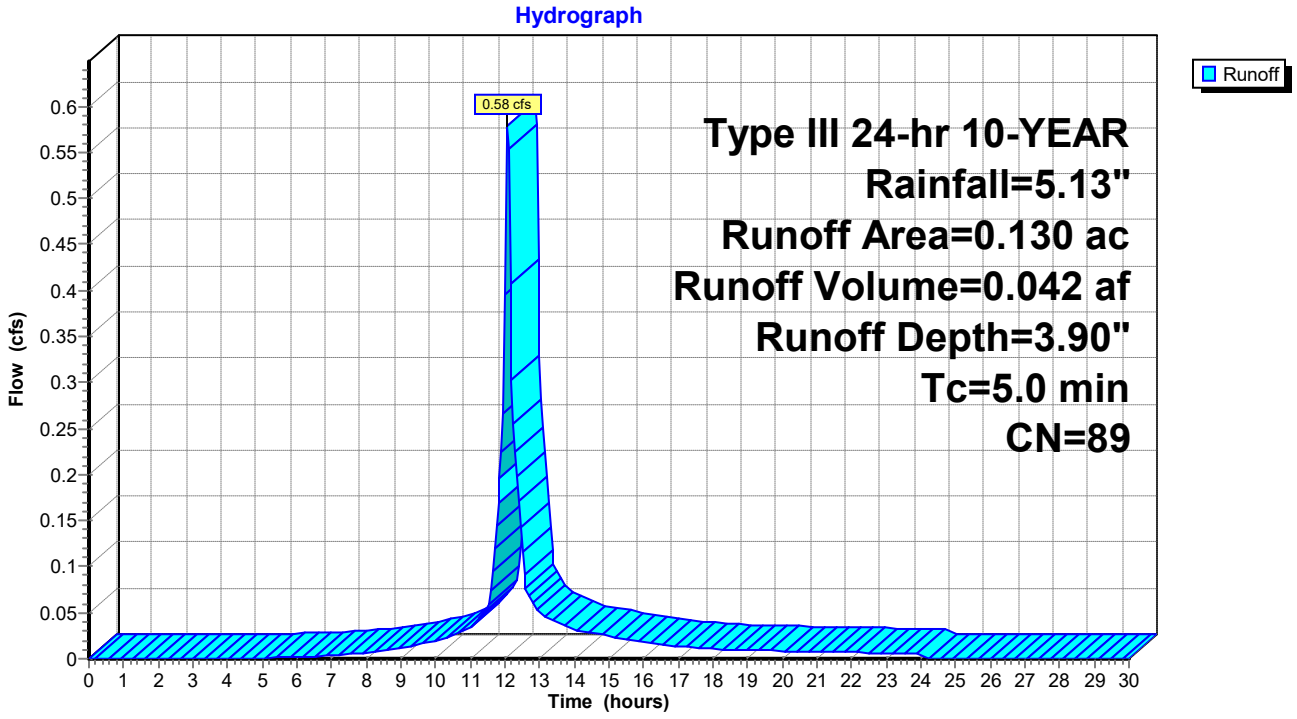
Runoff = 0.58 cfs @ 12.07 hrs, Volume= 0.042 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.13"

Area (ac)	CN	Description
0.128	89	Dirt roads, HSG D
0.002	98	Aphalt
0.130	89	Weighted Average

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

Subcatchment 1S: Existing Conditions to Street



Subcatchment 3S: Remainder of Proposed Conditions to Street

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

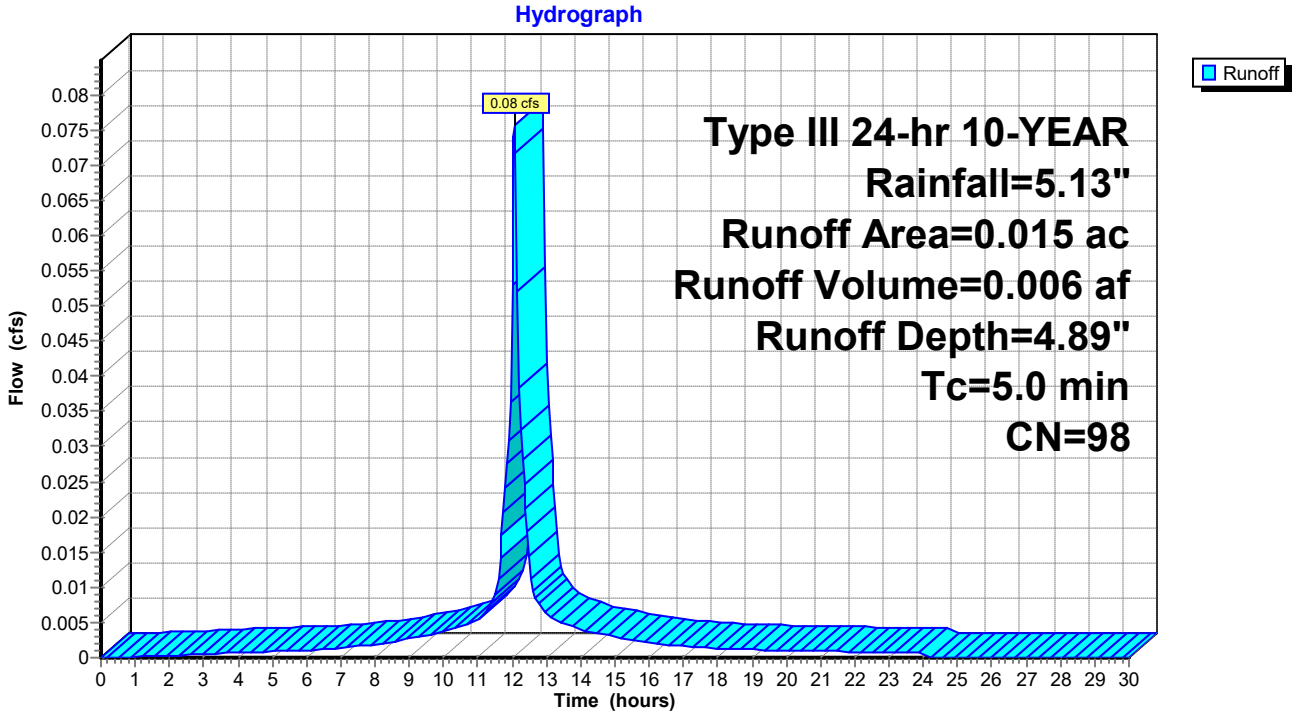
Runoff = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Depth= 4.89"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.13"

Area (ac)	CN	Description
0.015	98	Proposed Concrete Sidewalk

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

Subcatchment 3S: Remainder of Proposed Conditions to Street



Subcatchment 5S: Existing Conditions to Rear

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

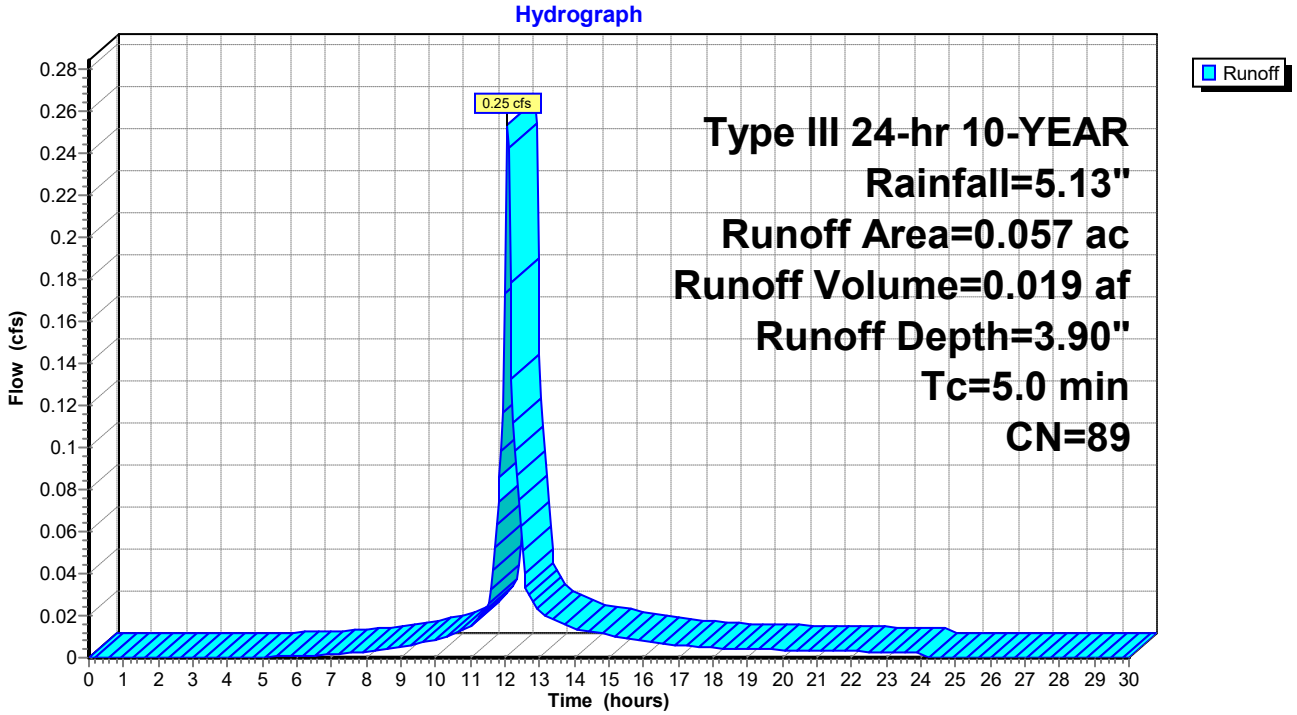
Runoff = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af, Depth= 3.90"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.13"

Area (ac)	CN	Description
0.057	89	Dirt roads, HSG D

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

Subcatchment 5S: Existing Conditions to Rear



Subcatchment 7S: Proposed Condtitions to Rear

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

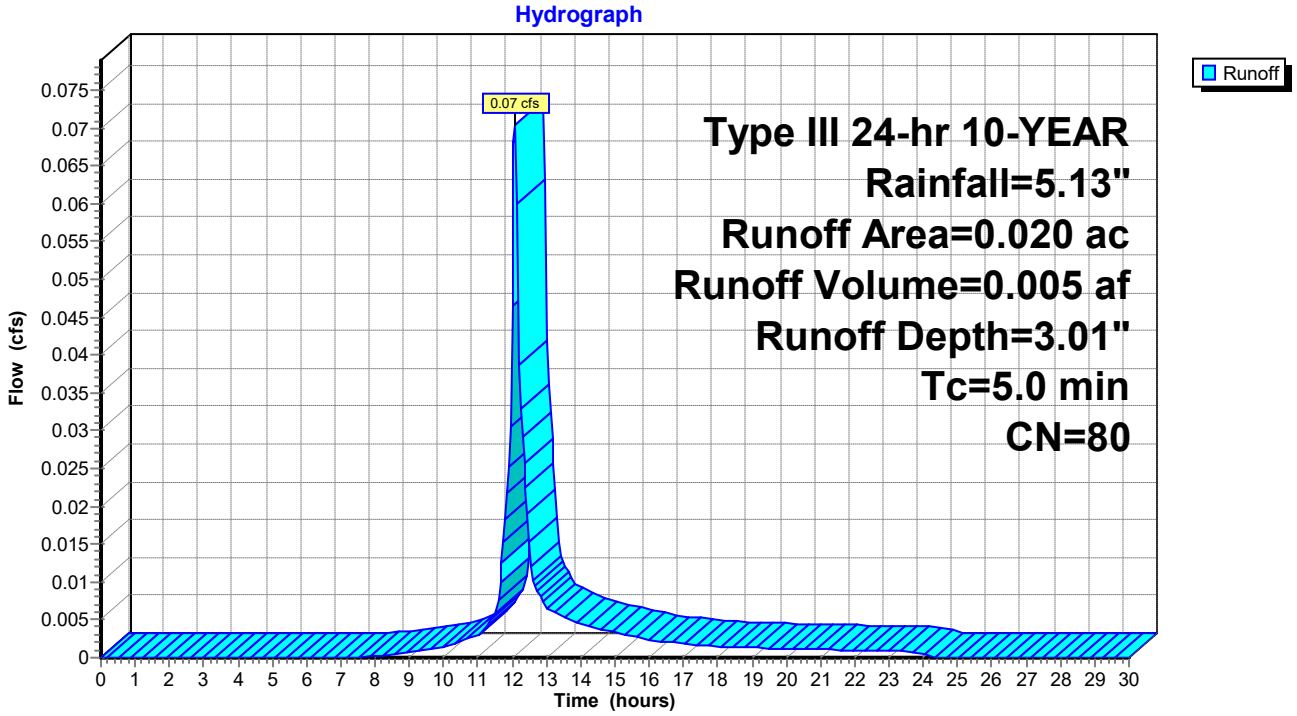
Runoff = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Depth= 3.01"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.13"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D

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

Subcatchment 7S: Proposed Condtitions to Rear



Subcatchment 9S: Proposed Watershed to City Drain Main

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

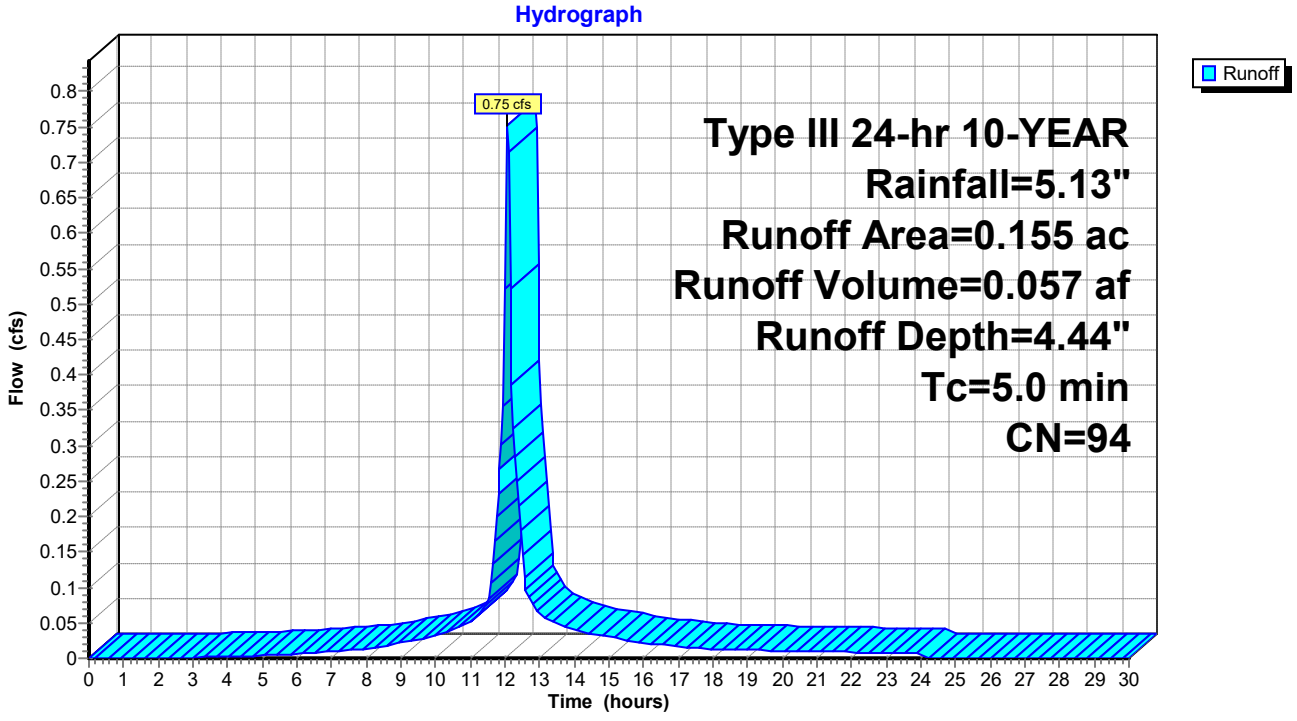
Runoff = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af, Depth= 4.44"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-YEAR Rainfall=5.13"

Area (ac)	CN	Description
0.070	98	Proposed Roof Runoff
0.052	98	Proposed Asphalt Driveway
0.033	80	>75% Grass cover, Good, HSG D
0.155	94	Weighted Average

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

Subcatchment 9S: Proposed Watershed to City Drain Main



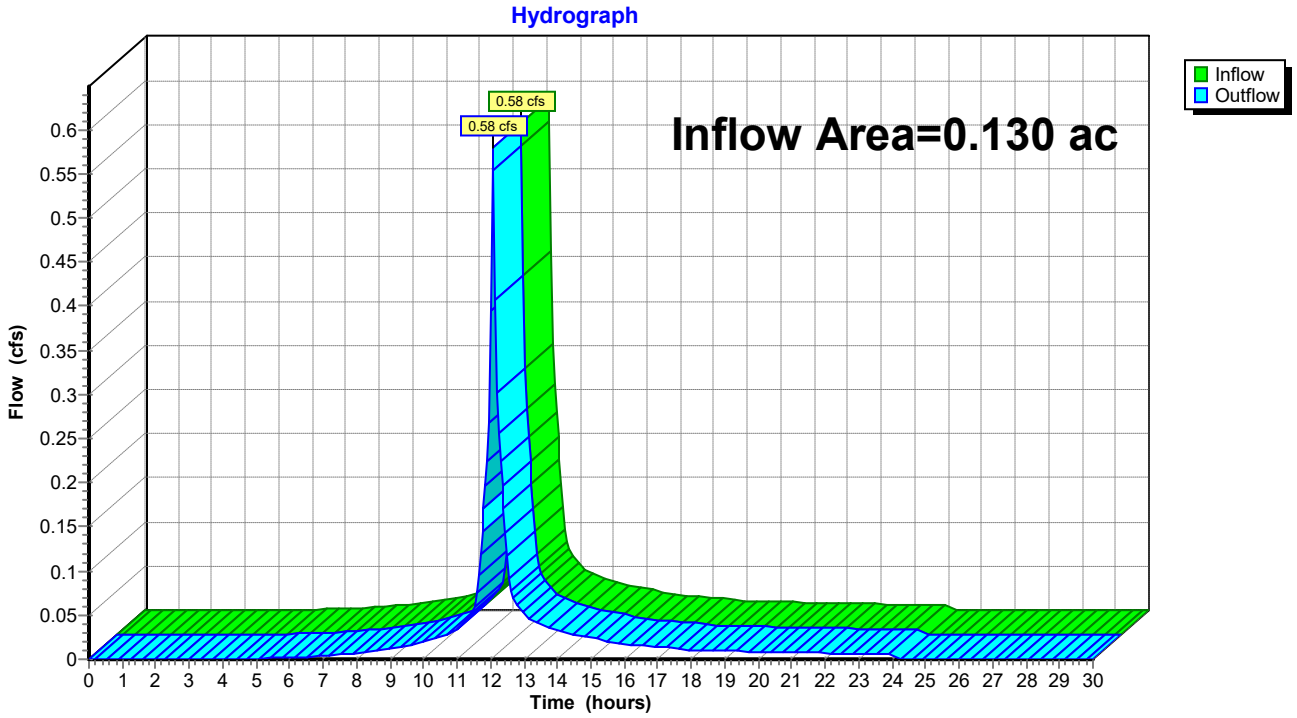
Reach 2R: Existing Watershed To Street

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

Inflow Area = 0.130 ac, Inflow Depth = 3.90" for 10-YEAR event
Inflow = 0.58 cfs @ 12.07 hrs, Volume= 0.042 af
Outflow = 0.58 cfs @ 12.07 hrs, Volume= 0.042 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 2R: Existing Watershed To Street



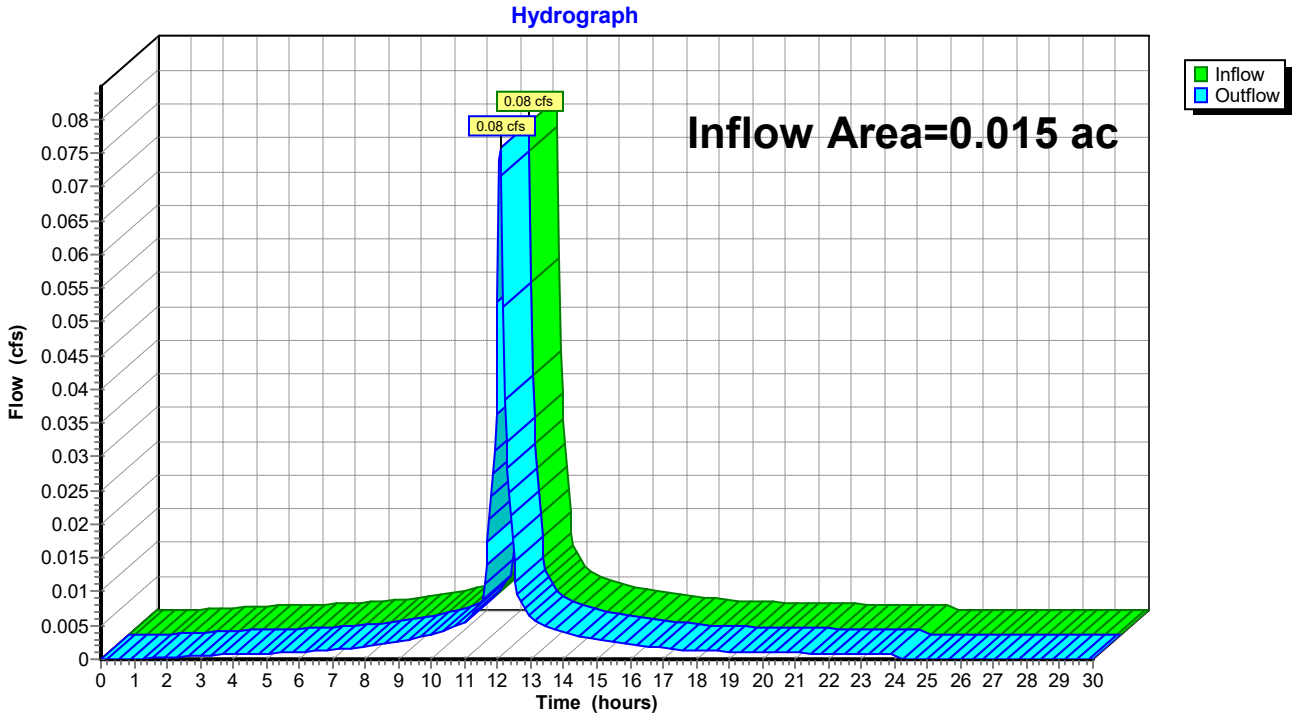
Reach 4R: Proposed Watershed to Street

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

Inflow Area = 0.015 ac, Inflow Depth = 4.89" for 10-YEAR event
Inflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af
Outflow = 0.08 cfs @ 12.07 hrs, Volume= 0.006 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 4R: Proposed Watershed to Street



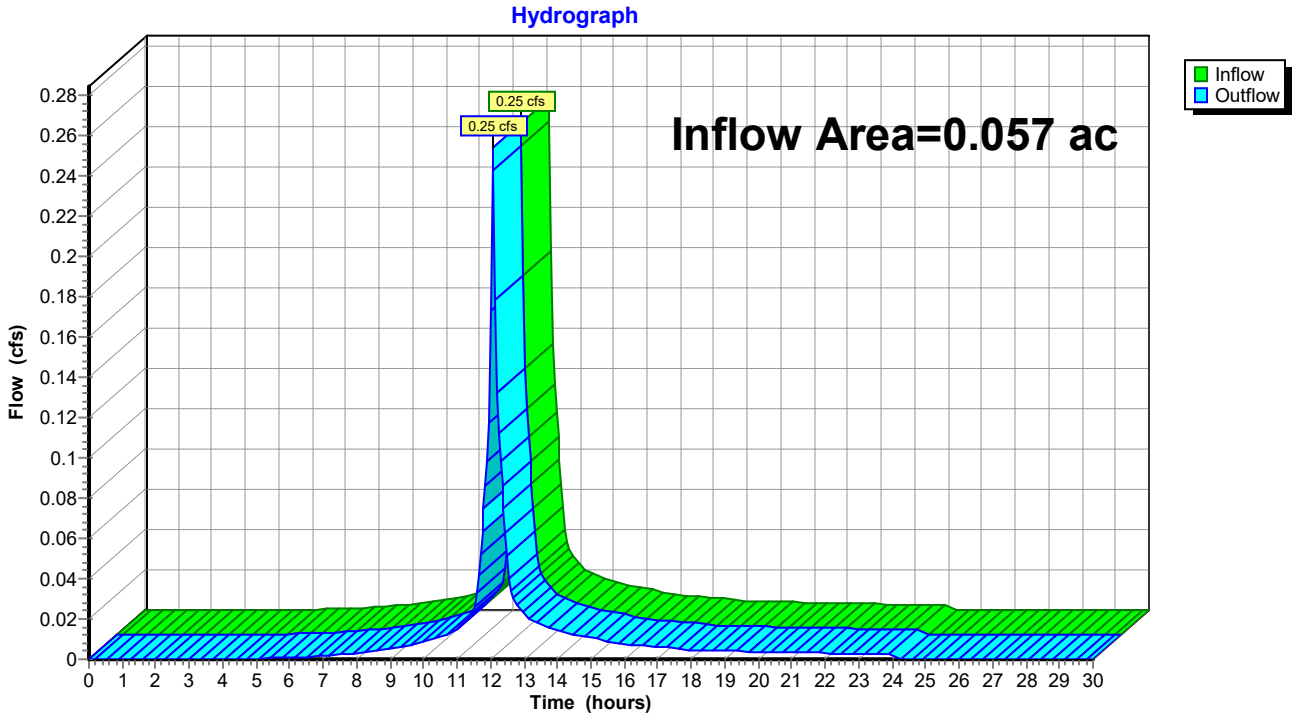
Reach 6R: Existing Watershed to Rear

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

Inflow Area = 0.057 ac, Inflow Depth = 3.90" for 10-YEAR event
Inflow = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af
Outflow = 0.25 cfs @ 12.07 hrs, Volume= 0.019 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 6R: Existing Watershed to Rear



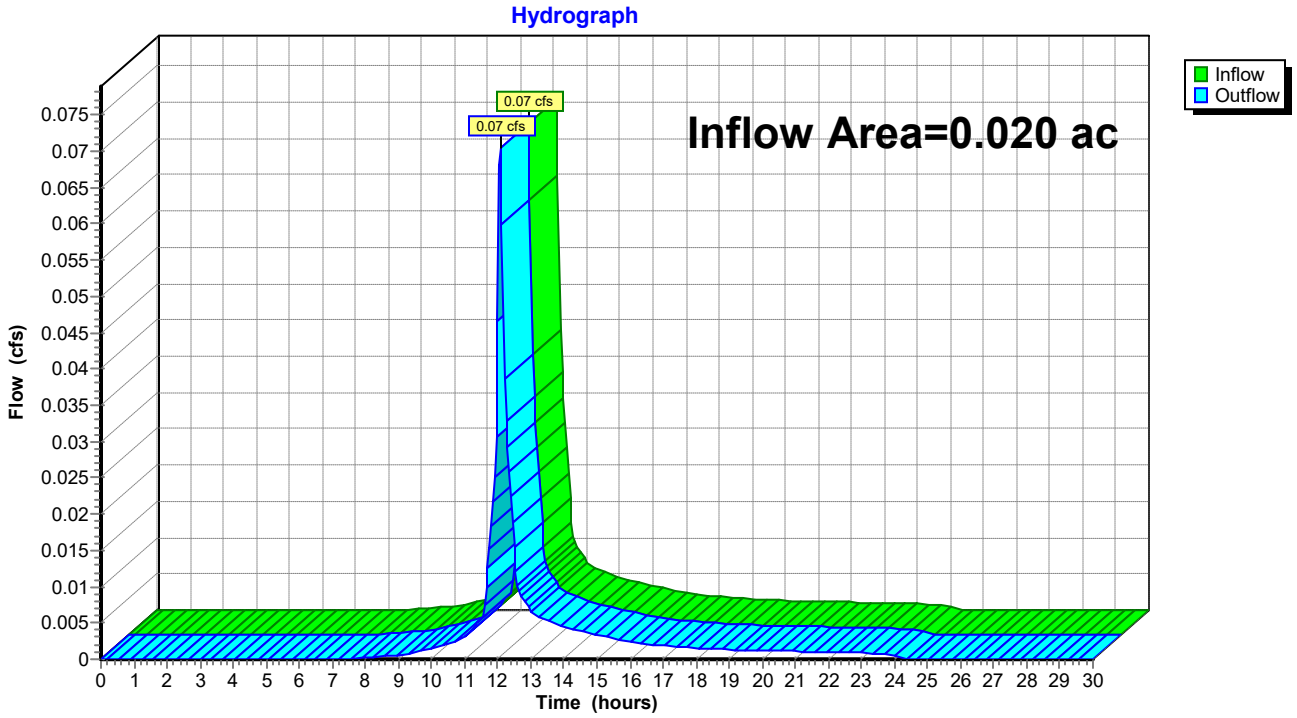
Reach 8R: Proposed Watershed to Rear

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

Inflow Area = 0.020 ac, Inflow Depth = 3.01" for 10-YEAR event
Inflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af
Outflow = 0.07 cfs @ 12.08 hrs, Volume= 0.005 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 8R: Proposed Watershed to Rear



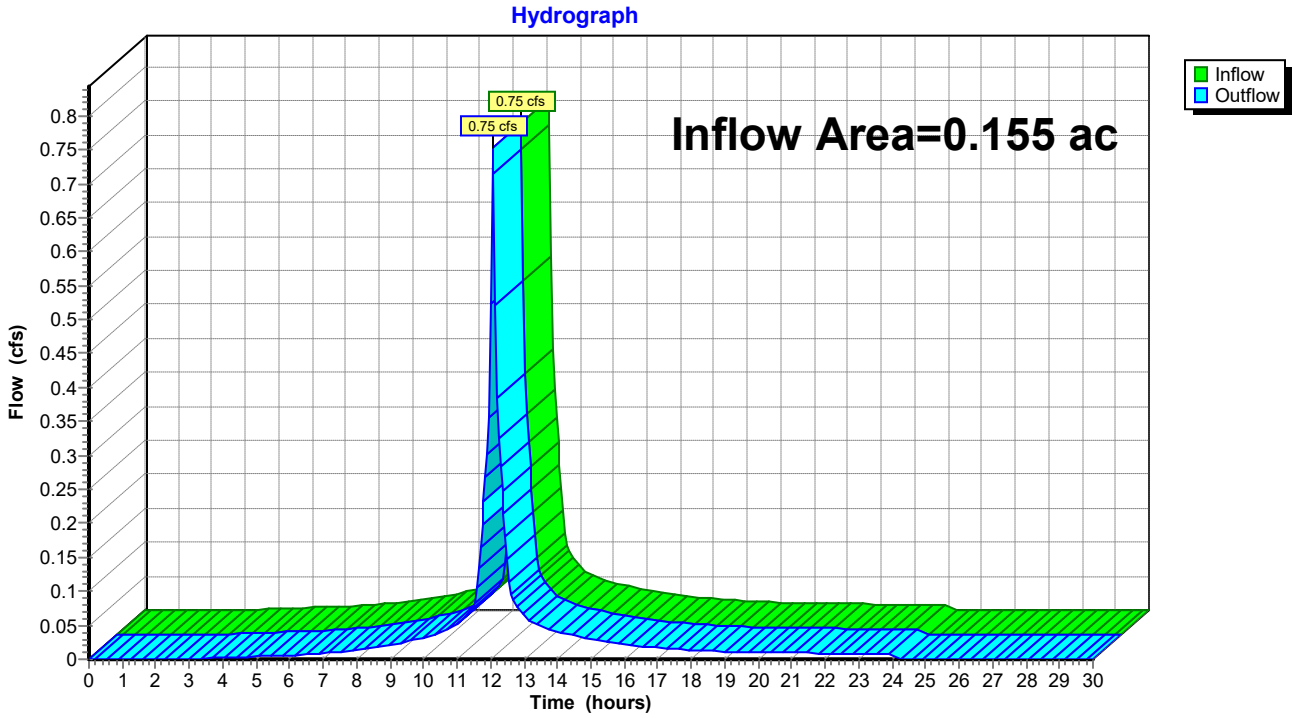
Reach 10R: Proposed Watershed to City Drain Main

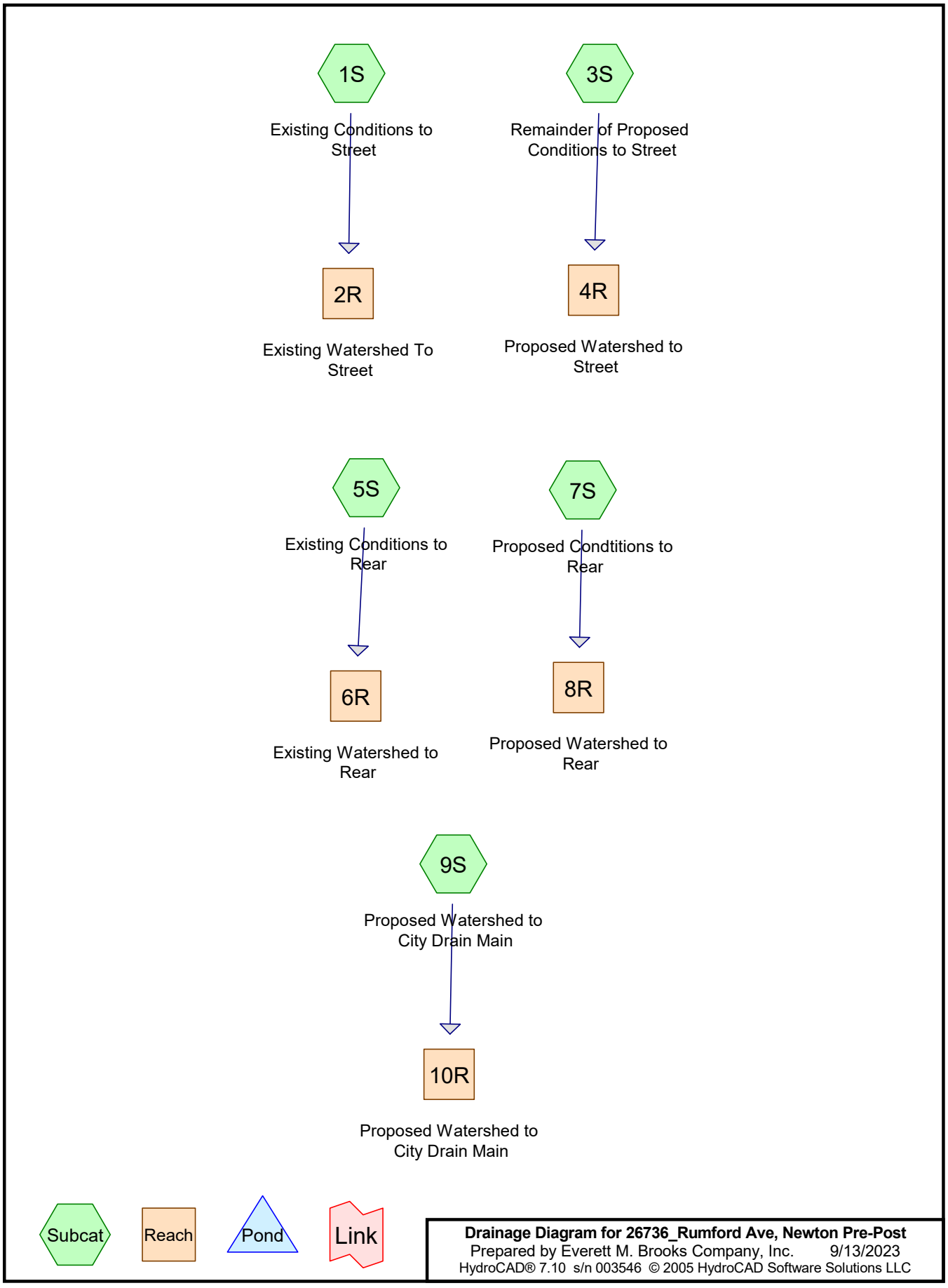
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.155 ac, Inflow Depth = 4.44" for 10-YEAR event
Inflow = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af
Outflow = 0.75 cfs @ 12.07 hrs, Volume= 0.057 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 10R: Proposed Watershed to City Drain Main





Drainage Diagram for 26736_Rumford Ave, Newton Pre-Post
Prepared by Everett M. Brooks Company, Inc. 9/13/2023

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing Conditions to Street Runoff Area=0.130 ac Runoff Depth=5.03"
Tc=5.0 min CN=89 Runoff=0.74 cfs 0.054 af

Subcatchment 3S: Remainder of Proposed Conditions to Stre Runoff Area=0.015 ac Runoff Depth=6.06"
Tc=5.0 min CN=98 Runoff=0.09 cfs 0.008 af

Subcatchment 5S: Existing Conditions to Rear Runoff Area=0.057 ac Runoff Depth=5.03"
Tc=5.0 min CN=89 Runoff=0.32 cfs 0.024 af

Subcatchment 7S: Proposed Condtitions to Rear Runoff Area=0.020 ac Runoff Depth=4.05"
Tc=5.0 min CN=80 Runoff=0.10 cfs 0.007 af

Subcatchment 9S: Proposed Watershed to City Drain Main Runoff Area=0.155 ac Runoff Depth=5.59"
Tc=5.0 min CN=94 Runoff=0.94 cfs 0.072 af

Reach 2R: Existing Watershed To Street Inflow=0.74 cfs 0.054 af
Outflow=0.74 cfs 0.054 af

Reach 4R: Proposed Watershed to Street Inflow=0.09 cfs 0.008 af
Outflow=0.09 cfs 0.008 af

Reach 6R: Existing Watershed to Rear Inflow=0.32 cfs 0.024 af
Outflow=0.32 cfs 0.024 af

Reach 8R: Proposed Watershed to Rear Inflow=0.10 cfs 0.007 af
Outflow=0.10 cfs 0.007 af

Reach 10R: Proposed Watershed to City Drain Main Inflow=0.94 cfs 0.072 af
Outflow=0.94 cfs 0.072 af

Total Runoff Area = 0.377 ac Runoff Volume = 0.165 af Average Runoff Depth = 5.25"

Subcatchment 1S: Existing Conditions to Street

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

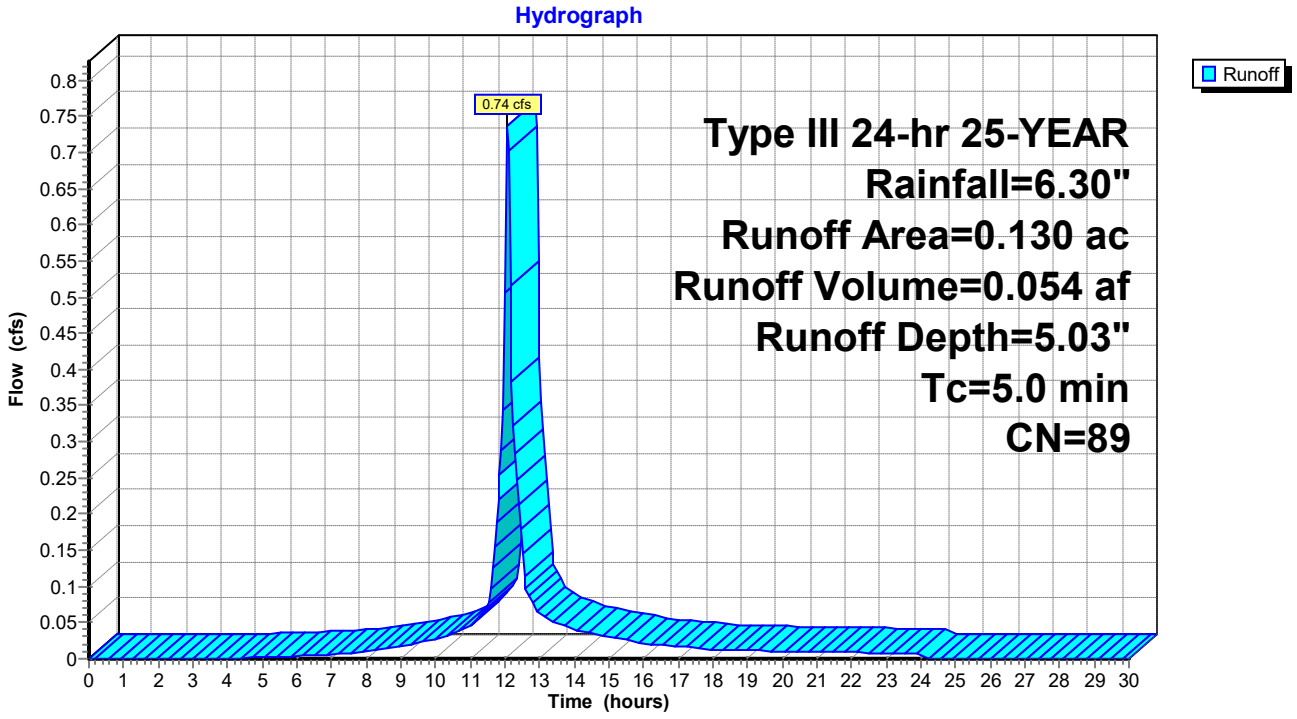
Runoff = 0.74 cfs @ 12.07 hrs, Volume= 0.054 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.30"

Area (ac)	CN	Description
0.128	89	Dirt roads, HSG D
0.002	98	Aphalt
0.130	89	Weighted Average

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

Subcatchment 1S: Existing Conditions to Street



Subcatchment 3S: Remainder of Proposed Conditions to Street

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

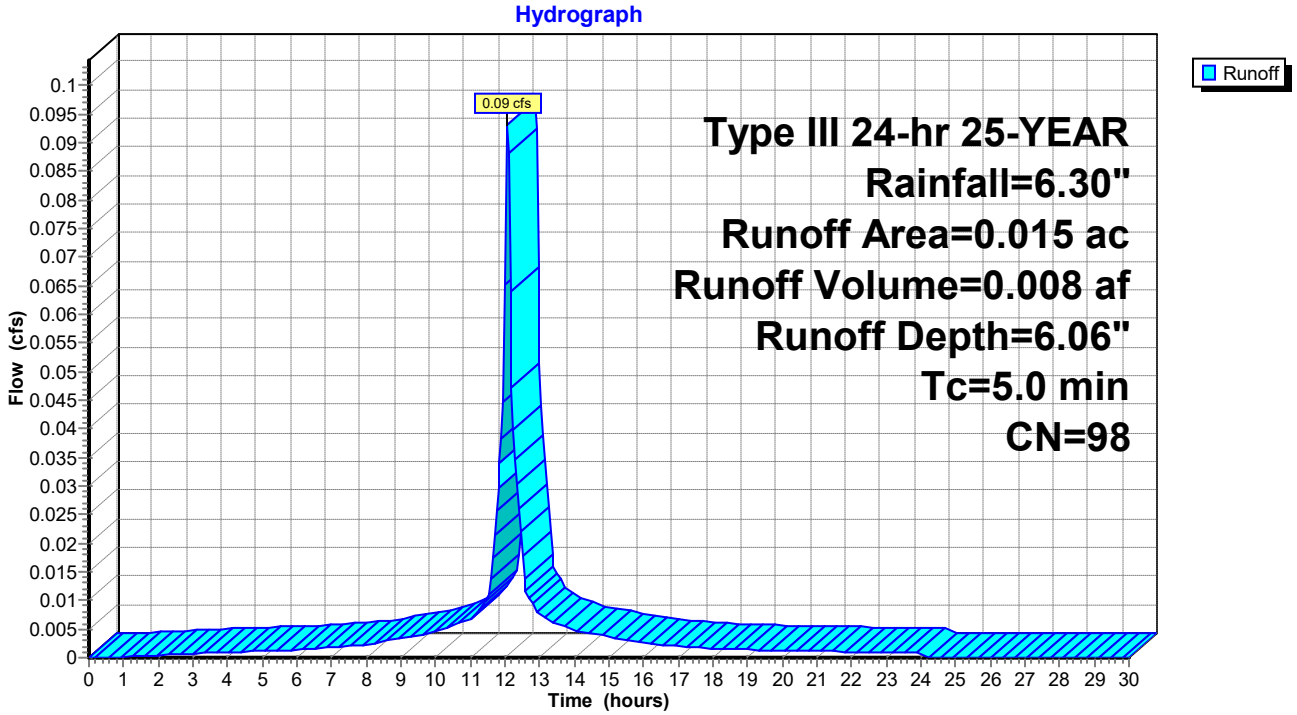
Runoff = 0.09 cfs @ 12.07 hrs, Volume= 0.008 af, Depth= 6.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.30"

Area (ac)	CN	Description
0.015	98	Proposed Concrete Sidewalk

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

Subcatchment 3S: Remainder of Proposed Conditions to Street



Subcatchment 5S: Existing Conditions to Rear

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

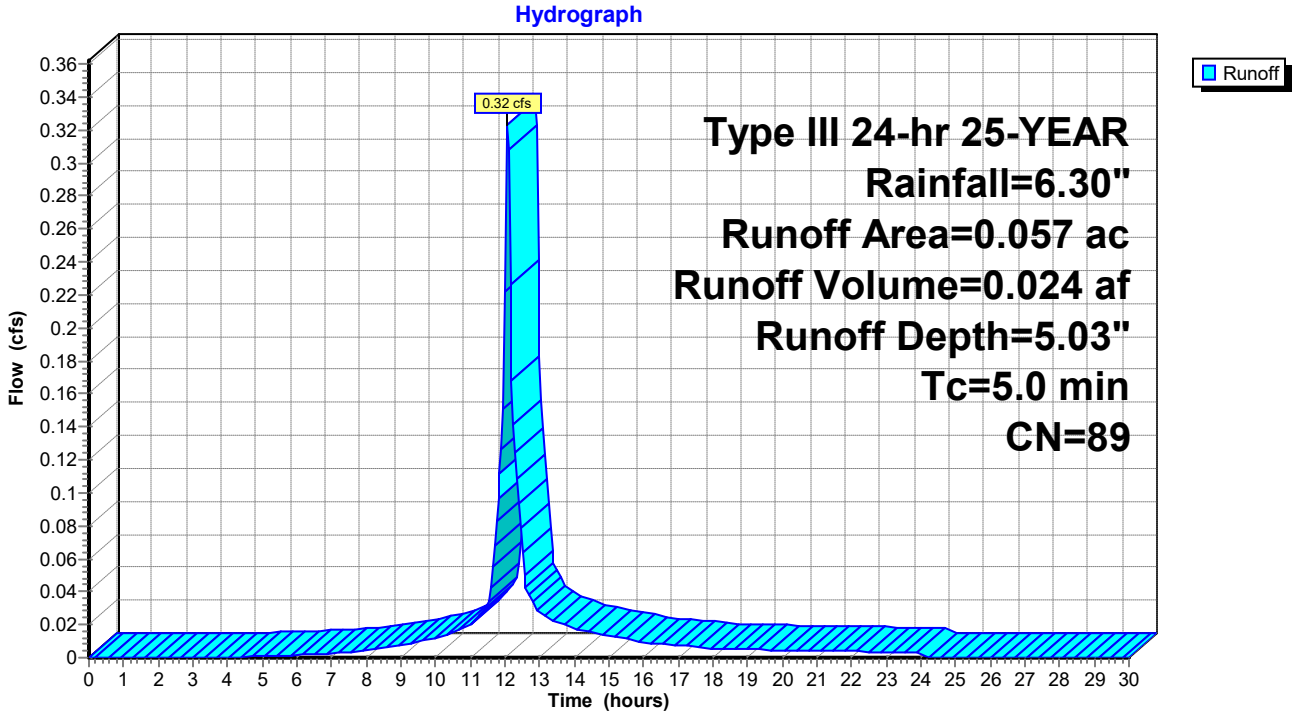
Runoff = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af, Depth= 5.03"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.30"

Area (ac)	CN	Description
0.057	89	Dirt roads, HSG D

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

Subcatchment 5S: Existing Conditions to Rear



Subcatchment 7S: Proposed Condtitions to Rear

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

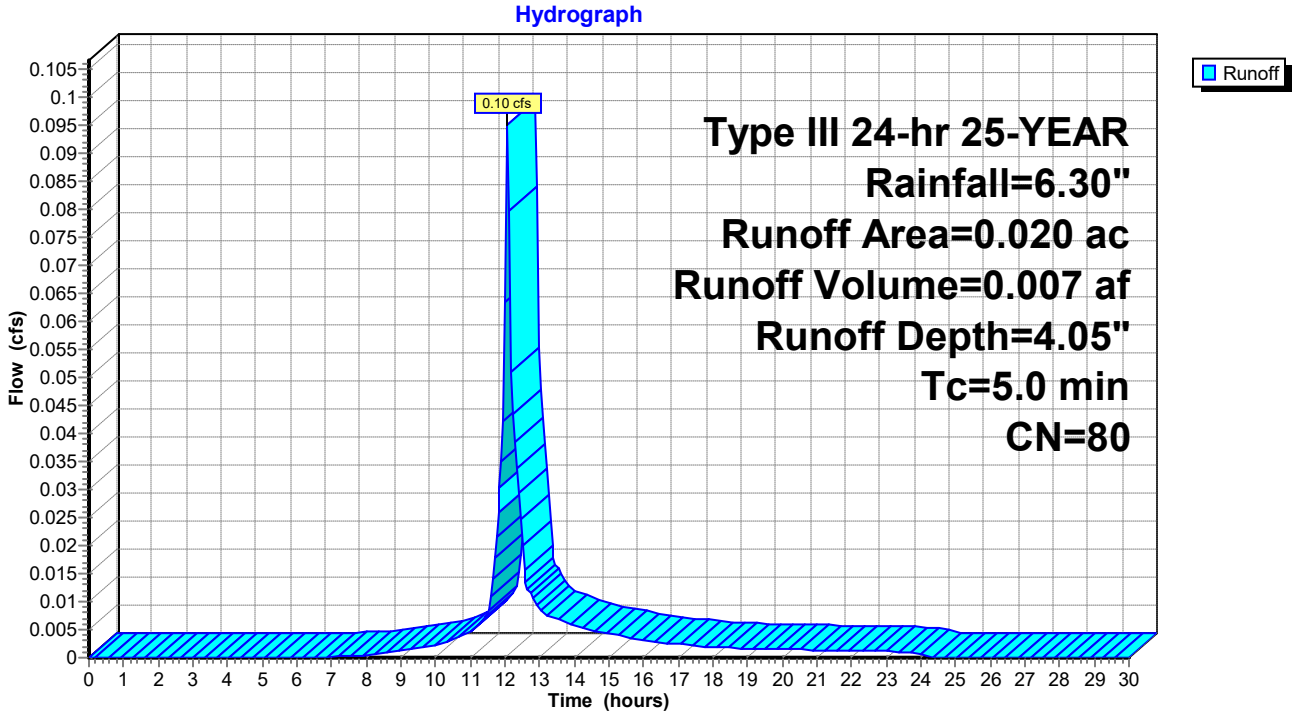
Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af, Depth= 4.05"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.30"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D

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

Subcatchment 7S: Proposed Condtitions to Rear



Subcatchment 9S: Proposed Watershed to City Drain Main

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

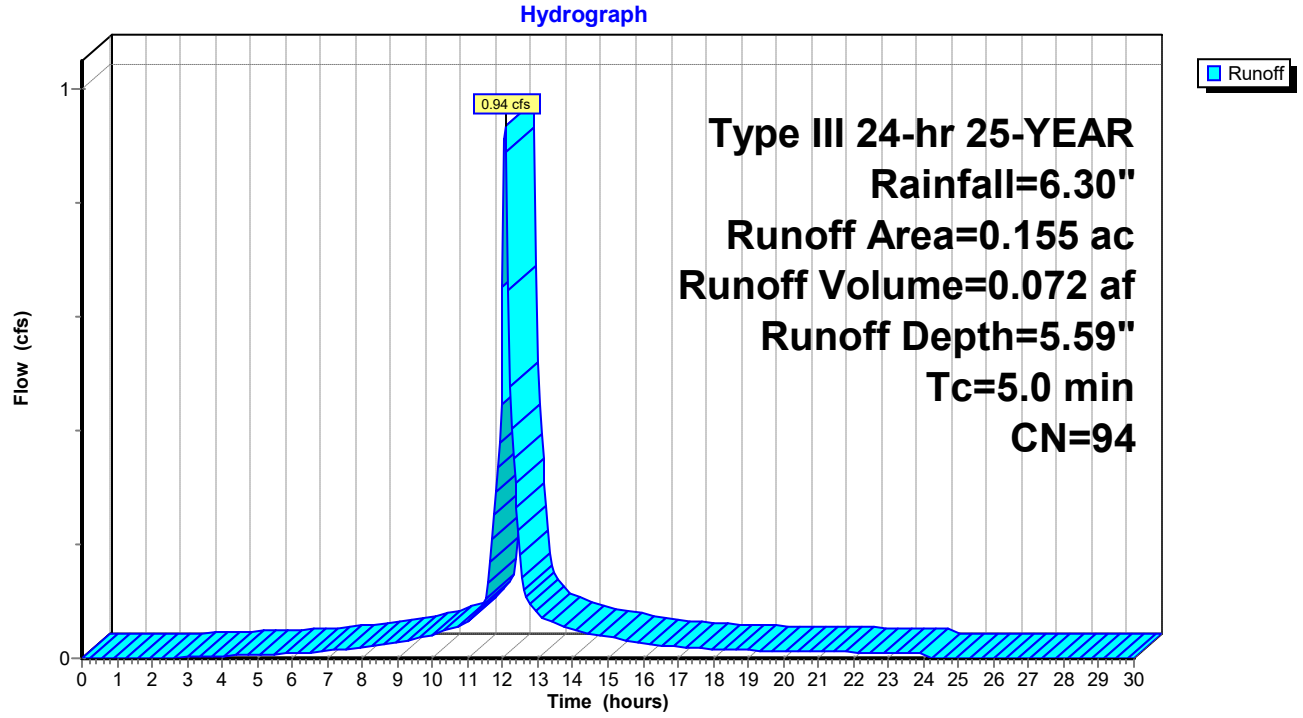
Runoff = 0.94 cfs @ 12.07 hrs, Volume= 0.072 af, Depth= 5.59"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 25-YEAR Rainfall=6.30"

Area (ac)	CN	Description
0.070	98	Proposed Roof Runoff
0.052	98	Proposed Asphalt Driveway
0.033	80	>75% Grass cover, Good, HSG D
0.155	94	Weighted Average

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

Subcatchment 9S: Proposed Watershed to City Drain Main



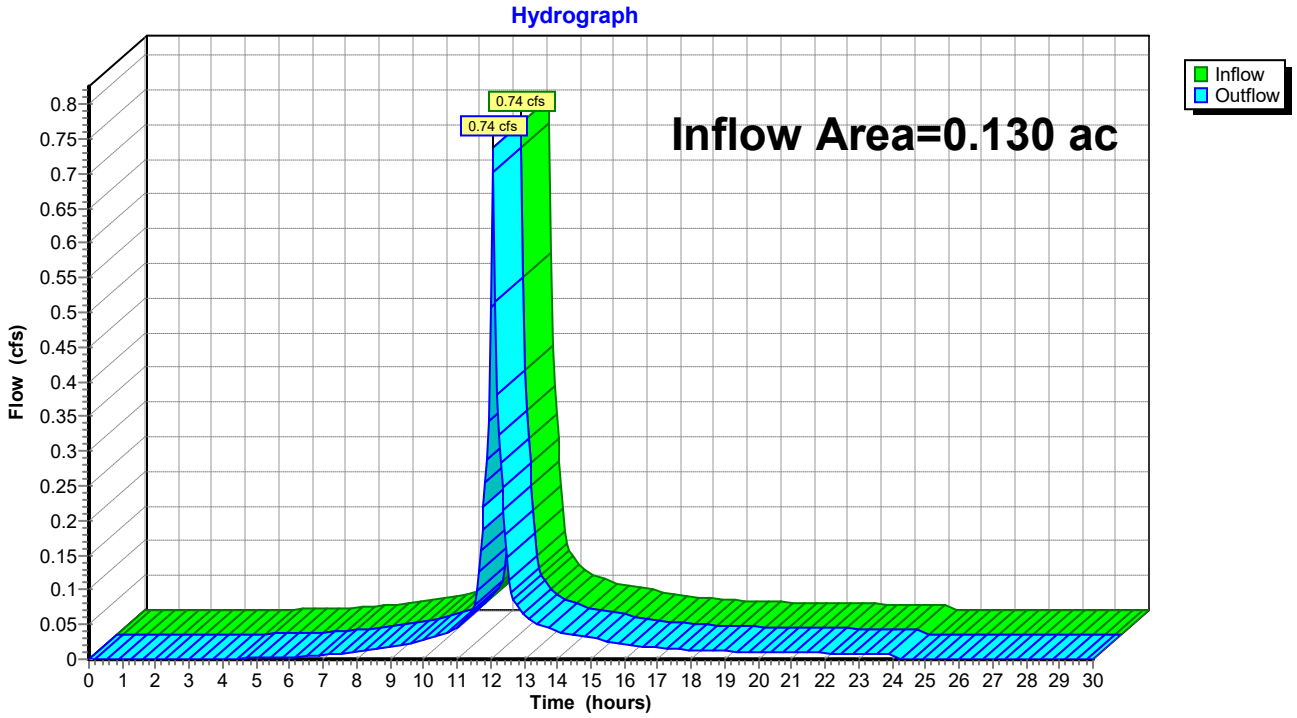
Reach 2R: Existing Watershed To Street

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

Inflow Area = 0.130 ac, Inflow Depth = 5.03" for 25-YEAR event
Inflow = 0.74 cfs @ 12.07 hrs, Volume= 0.054 af
Outflow = 0.74 cfs @ 12.07 hrs, Volume= 0.054 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 2R: Existing Watershed To Street



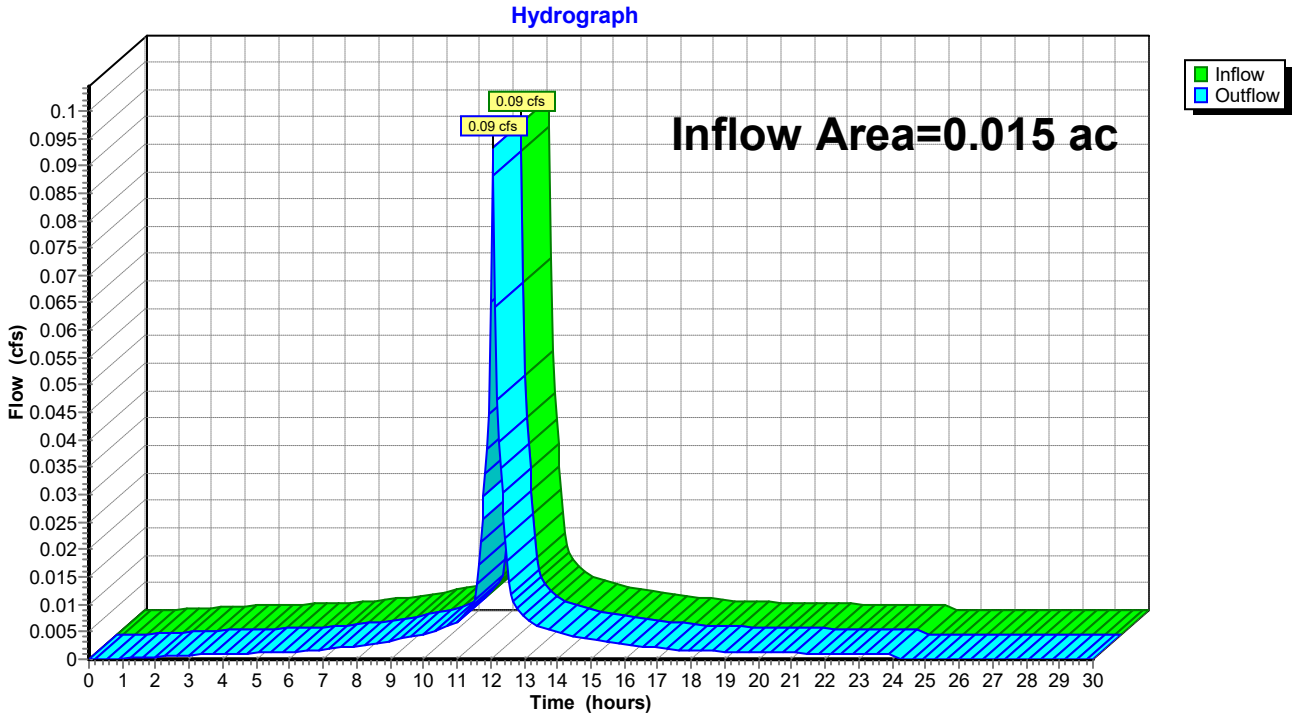
Reach 4R: Proposed Watershed to Street

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

Inflow Area = 0.015 ac, Inflow Depth = 6.06" for 25-YEAR event
Inflow = 0.09 cfs @ 12.07 hrs, Volume= 0.008 af
Outflow = 0.09 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 4R: Proposed Watershed to Street



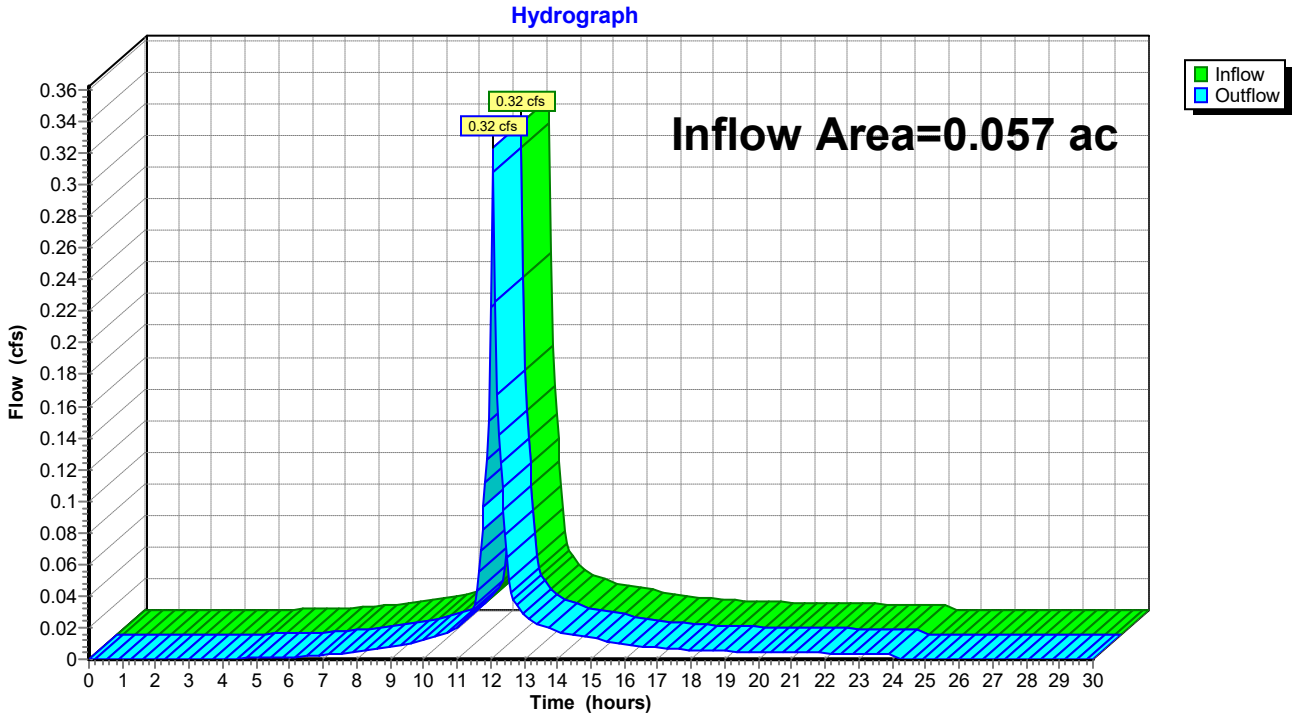
Reach 6R: Existing Watershed to Rear

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

Inflow Area = 0.057 ac, Inflow Depth = 5.03" for 25-YEAR event
Inflow = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af
Outflow = 0.32 cfs @ 12.07 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 6R: Existing Watershed to Rear



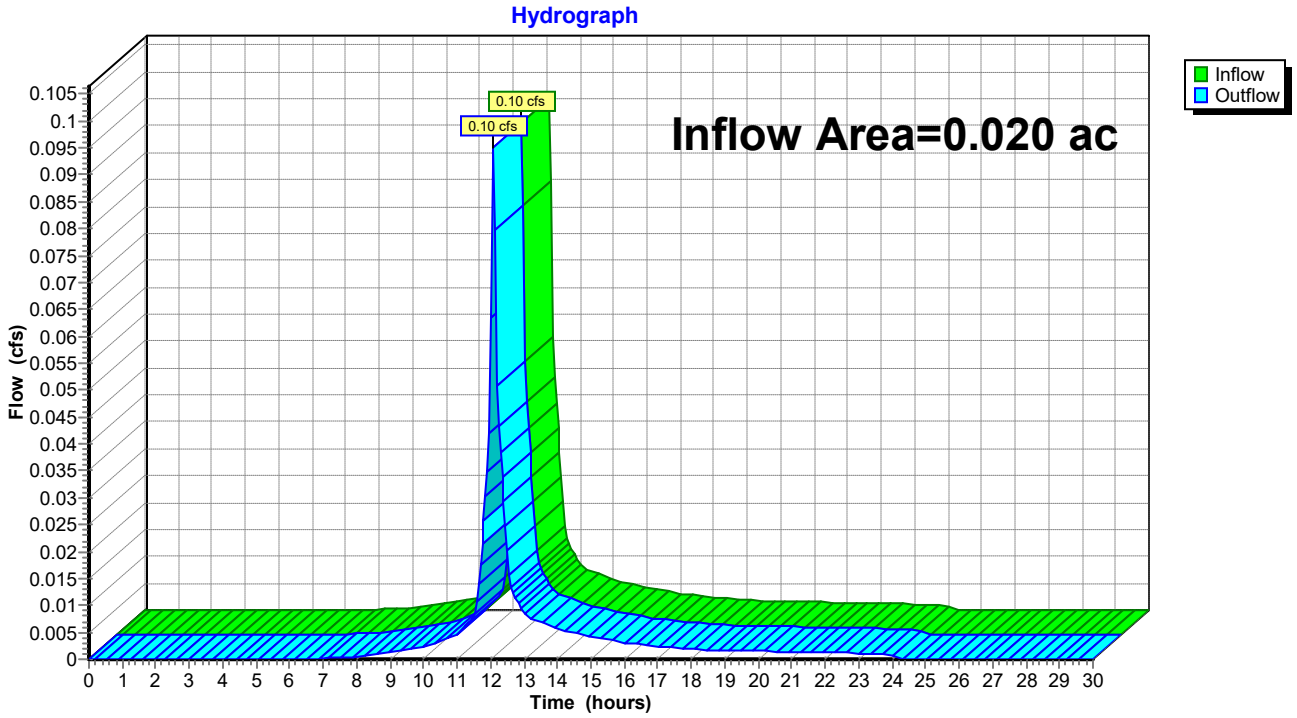
Reach 8R: Proposed Watershed to Rear

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

Inflow Area = 0.020 ac, Inflow Depth = 4.05" for 25-YEAR event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af
Outflow = 0.10 cfs @ 12.07 hrs, Volume= 0.007 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 8R: Proposed Watershed to Rear



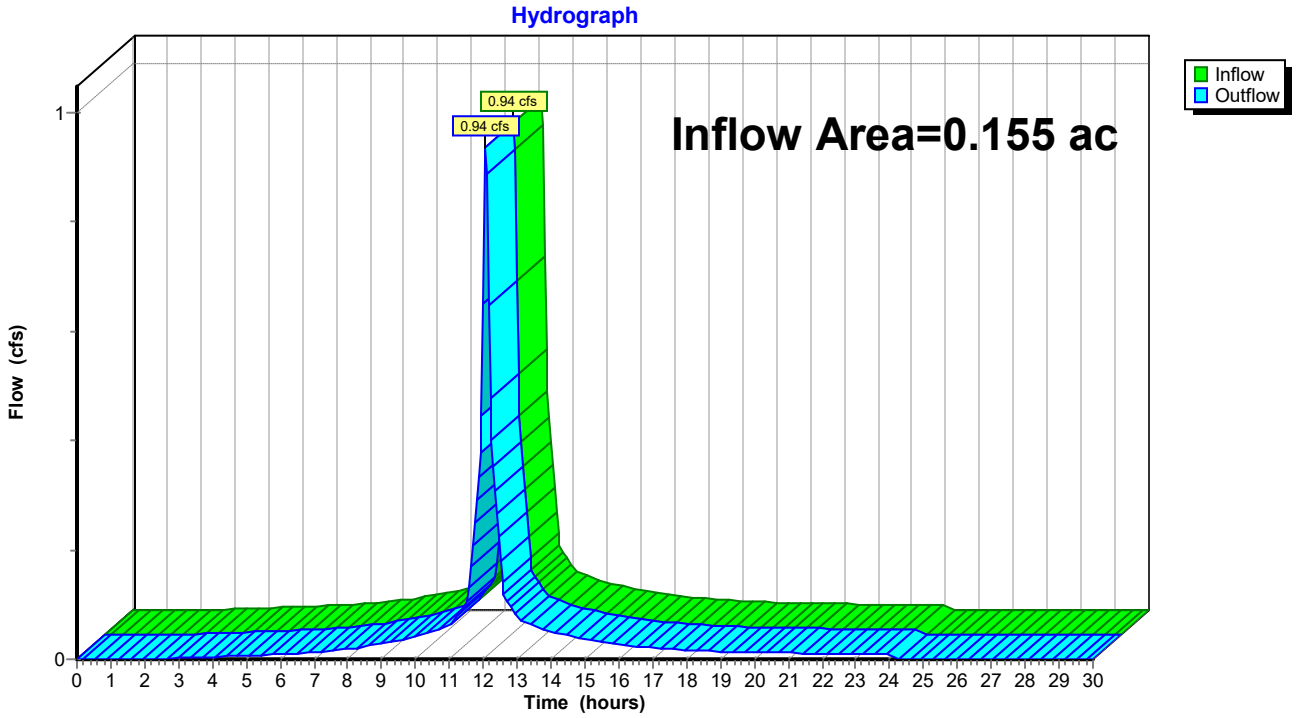
Reach 10R: Proposed Watershed to City Drain Main

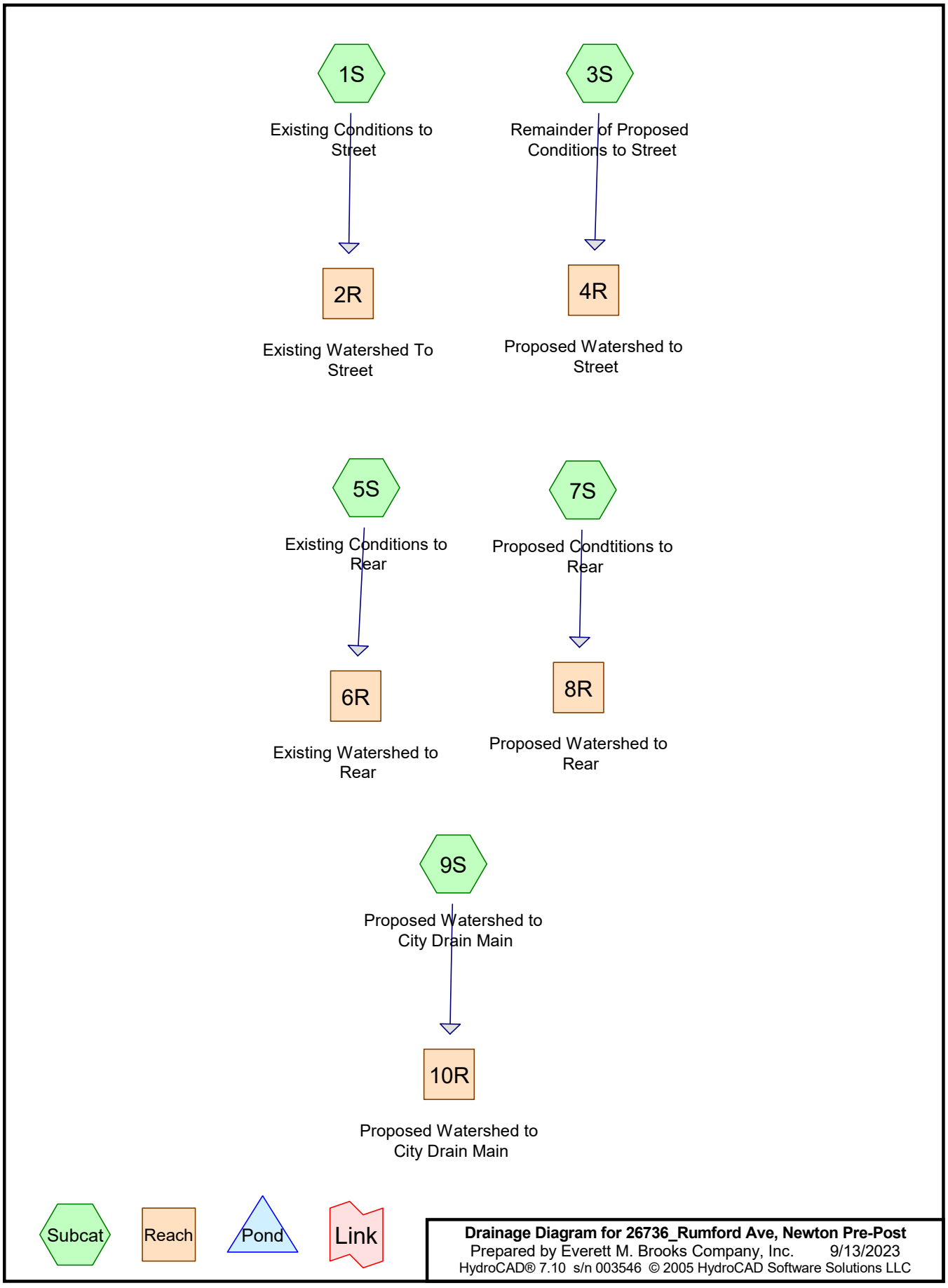
[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 0.155 ac, Inflow Depth = 5.59" for 25-YEAR event
Inflow = 0.94 cfs @ 12.07 hrs, Volume= 0.072 af
Outflow = 0.94 cfs @ 12.07 hrs, Volume= 0.072 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 10R: Proposed Watershed to City Drain Main





Drainage Diagram for 26736_Rumford Ave, Newton Pre-Post
Prepared by Everett M. Brooks Company, Inc. 9/13/2023

Time span=0.00-30.00 hrs, dt=0.05 hrs, 601 points
Runoff by SCS TR-20 method, UH=SCS
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: Existing Conditions to Street Runoff Area=0.130 ac Runoff Depth=7.45"
Tc=5.0 min CN=89 Runoff=1.07 cfs 0.081 af

Subcatchment 3S: Remainder of Proposed Conditions to Stre Runoff Area=0.015 ac Runoff Depth=8.54"
Tc=5.0 min CN=98 Runoff=0.13 cfs 0.011 af

Subcatchment 5S: Existing Conditions to Rear Runoff Area=0.057 ac Runoff Depth=7.45"
Tc=5.0 min CN=89 Runoff=0.47 cfs 0.035 af

Subcatchment 7S: Proposed Condtitions to Rear Runoff Area=0.020 ac Runoff Depth=6.36"
Tc=5.0 min CN=80 Runoff=0.15 cfs 0.011 af

Subcatchment 9S: Proposed Watershed to City Drain Main Runoff Area=0.155 ac Runoff Depth=8.06"
Tc=5.0 min CN=94 Runoff=1.32 cfs 0.104 af

Reach 2R: Existing Watershed To Street Inflow=1.07 cfs 0.081 af
Outflow=1.07 cfs 0.081 af

Reach 4R: Proposed Watershed to Street Inflow=0.13 cfs 0.011 af
Outflow=0.13 cfs 0.011 af

Reach 6R: Existing Watershed to Rear Inflow=0.47 cfs 0.035 af
Outflow=0.47 cfs 0.035 af

Reach 8R: Proposed Watershed to Rear Inflow=0.15 cfs 0.011 af
Outflow=0.15 cfs 0.011 af

Reach 10R: Proposed Watershed to City Drain Main Inflow=1.32 cfs 0.104 af
Outflow=1.32 cfs 0.104 af

Total Runoff Area = 0.377 ac Runoff Volume = 0.242 af Average Runoff Depth = 7.69"

Subcatchment 1S: Existing Conditions to Street

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

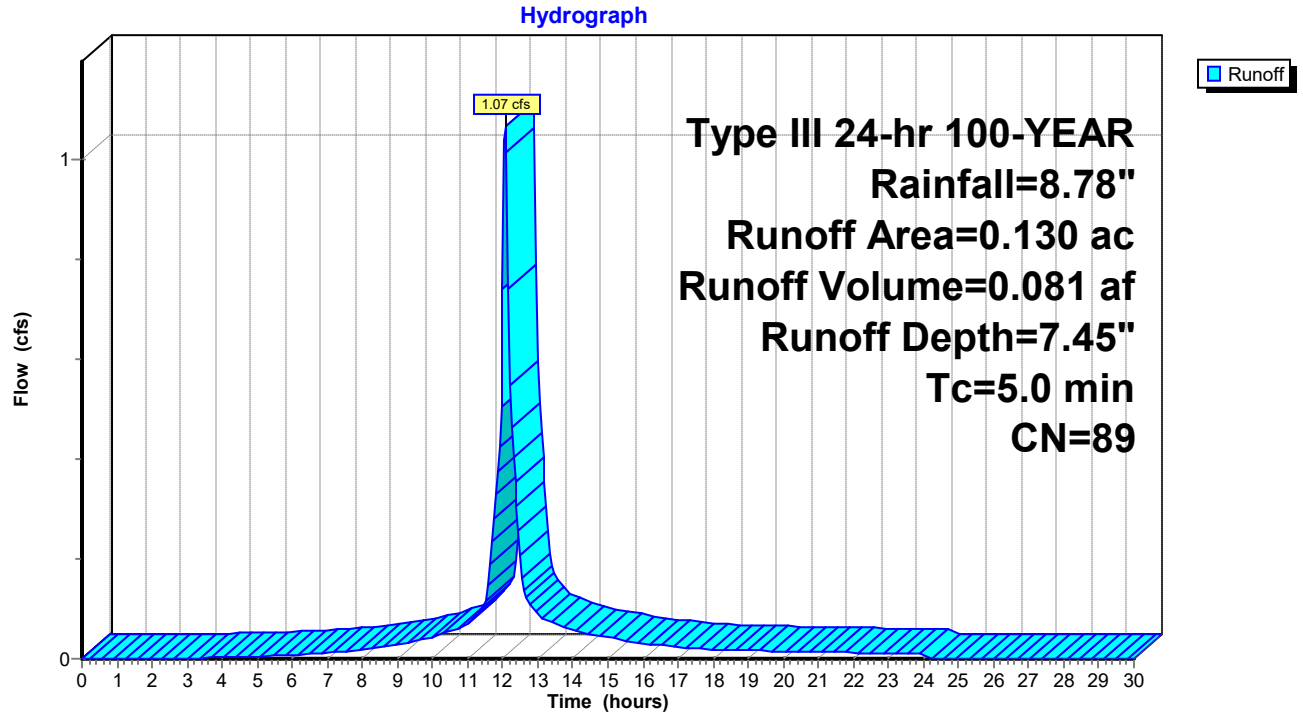
Runoff = 1.07 cfs @ 12.07 hrs, Volume= 0.081 af, Depth= 7.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=8.78"

Area (ac)	CN	Description
0.128	89	Dirt roads, HSG D
0.002	98	Aphalt
0.130	89	Weighted Average

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

Subcatchment 1S: Existing Conditions to Street



Subcatchment 3S: Remainder of Proposed Conditions to Street

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

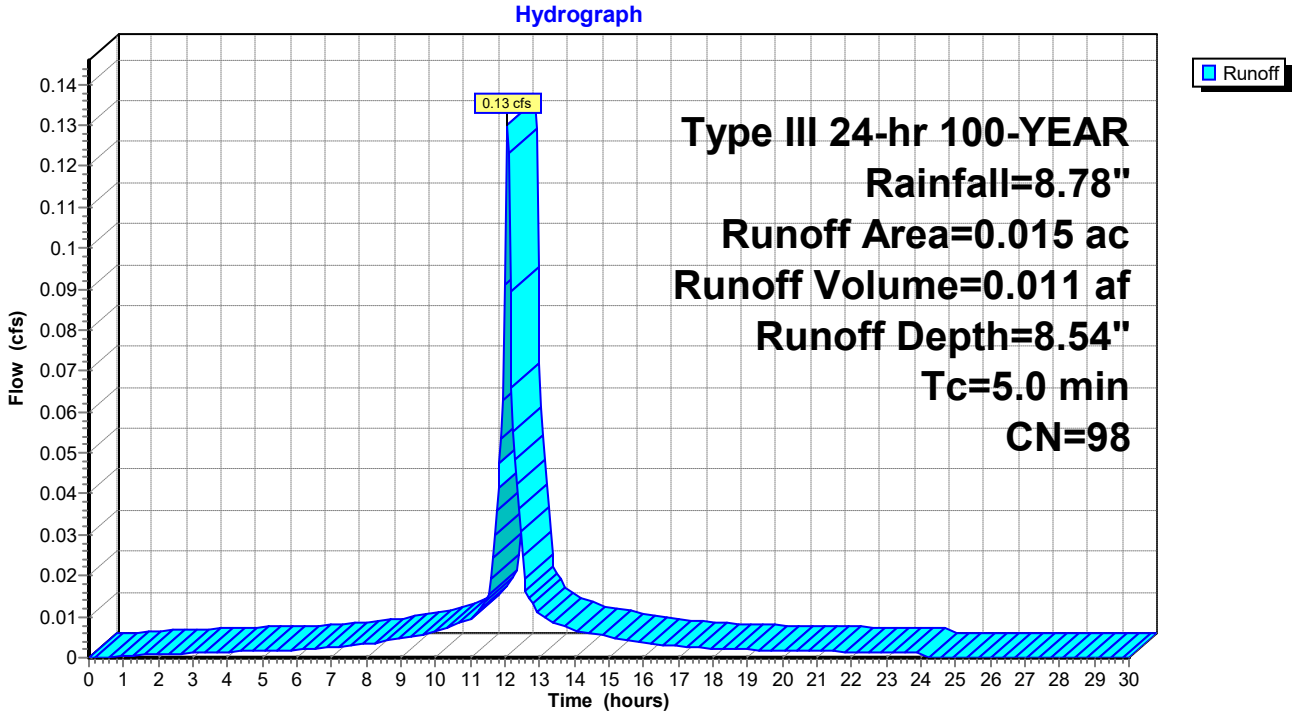
Runoff = 0.13 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 8.54"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=8.78"

Area (ac)	CN	Description
0.015	98	Proposed Concrete Sidewalk

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

Subcatchment 3S: Remainder of Proposed Conditions to Street



Subcatchment 5S: Existing Conditions to Rear

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

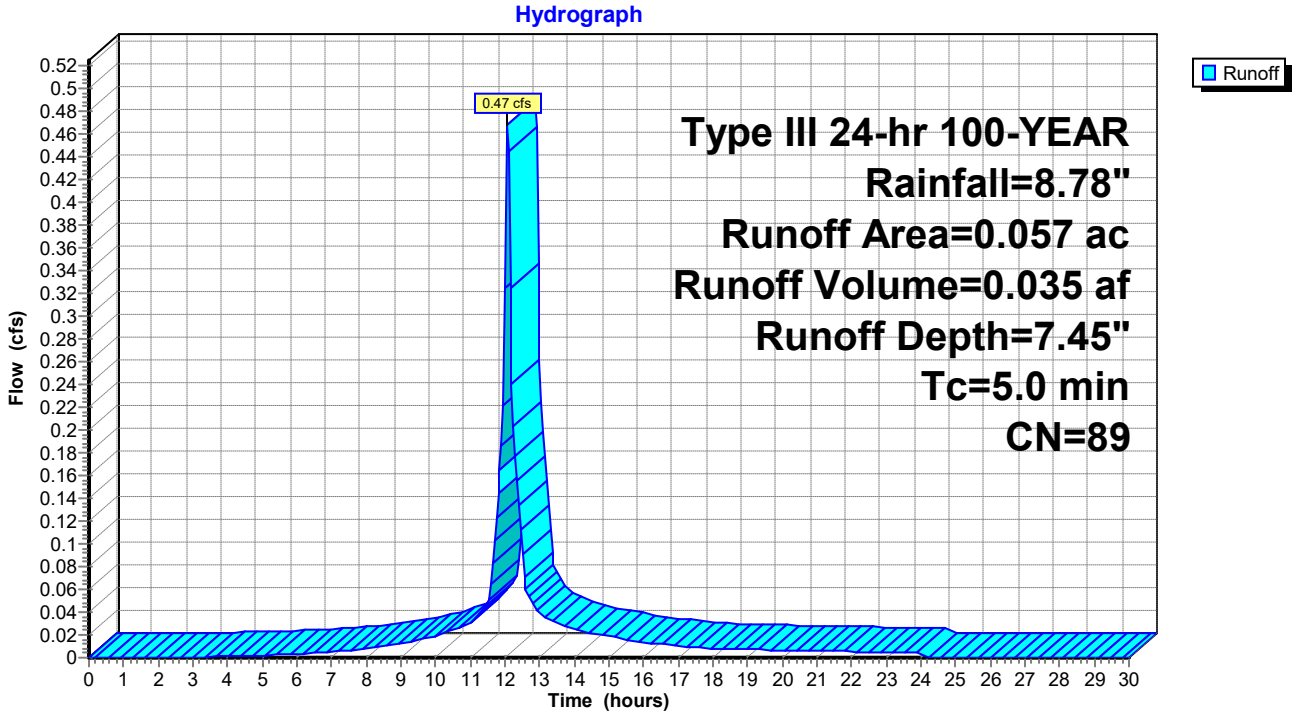
Runoff = 0.47 cfs @ 12.07 hrs, Volume= 0.035 af, Depth= 7.45"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=8.78"

Area (ac)	CN	Description
0.057	89	Dirt roads, HSG D

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

Subcatchment 5S: Existing Conditions to Rear



Subcatchment 7S: Proposed Condtitions to Rear

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

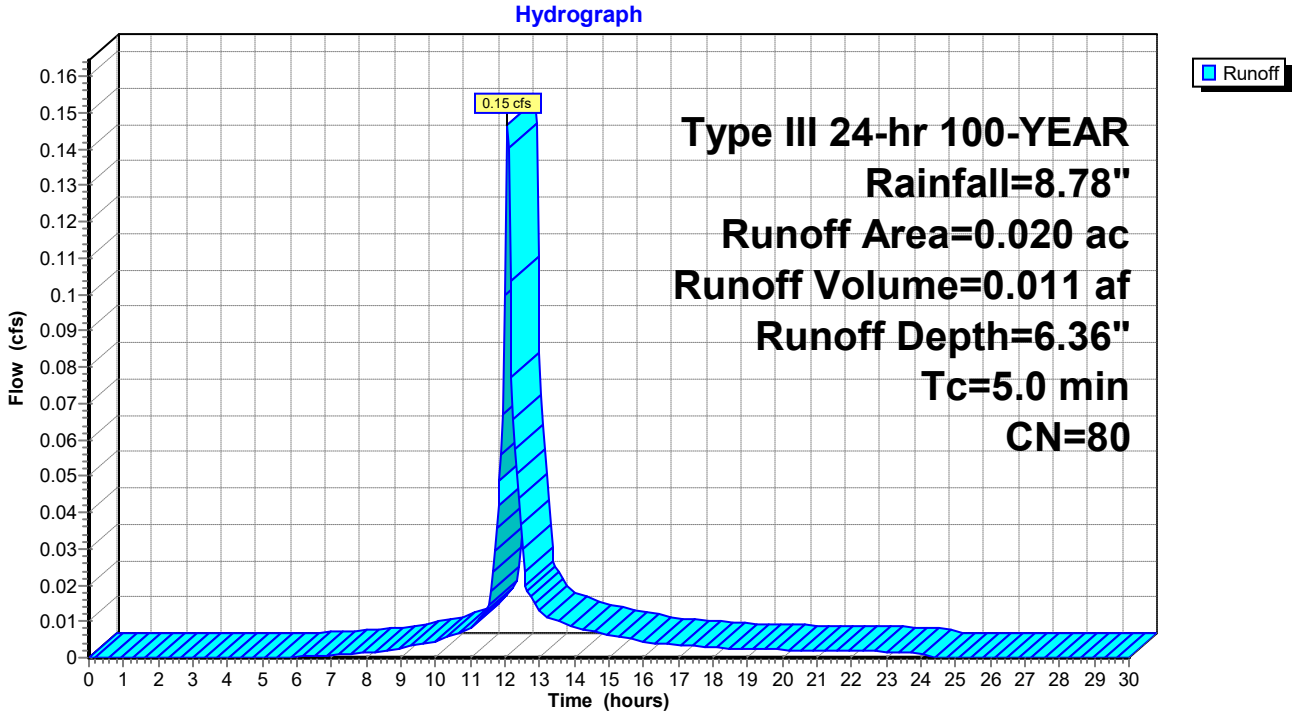
Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af, Depth= 6.36"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=8.78"

Area (ac)	CN	Description
0.020	80	>75% Grass cover, Good, HSG D

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

Subcatchment 7S: Proposed Condtitions to Rear



Subcatchment 9S: Proposed Watershed to City Drain Main

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

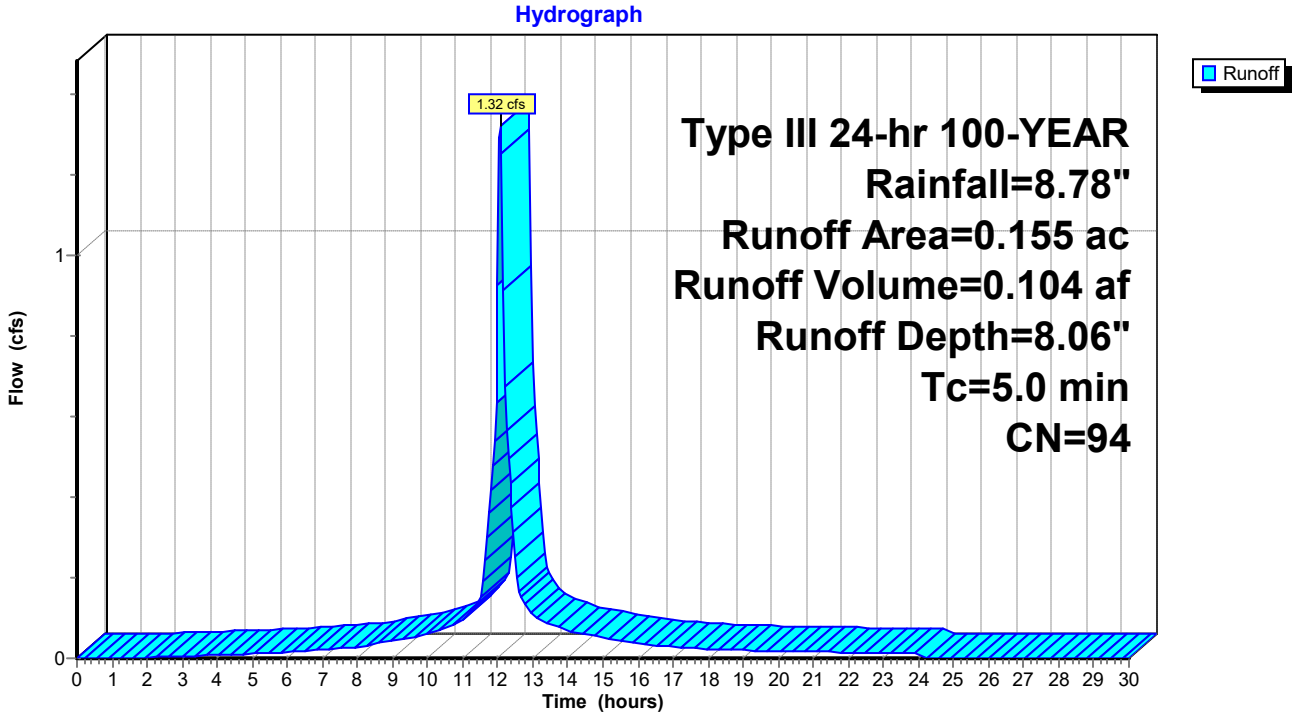
Runoff = 1.32 cfs @ 12.07 hrs, Volume= 0.104 af, Depth= 8.06"

Runoff by SCS TR-20 method, UH=SCS, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-YEAR Rainfall=8.78"

Area (ac)	CN	Description
0.070	98	Proposed Roof Runoff
0.052	98	Proposed Asphalt Driveway
0.033	80	>75% Grass cover, Good, HSG D
0.155	94	Weighted Average

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

Subcatchment 9S: Proposed Watershed to City Drain Main



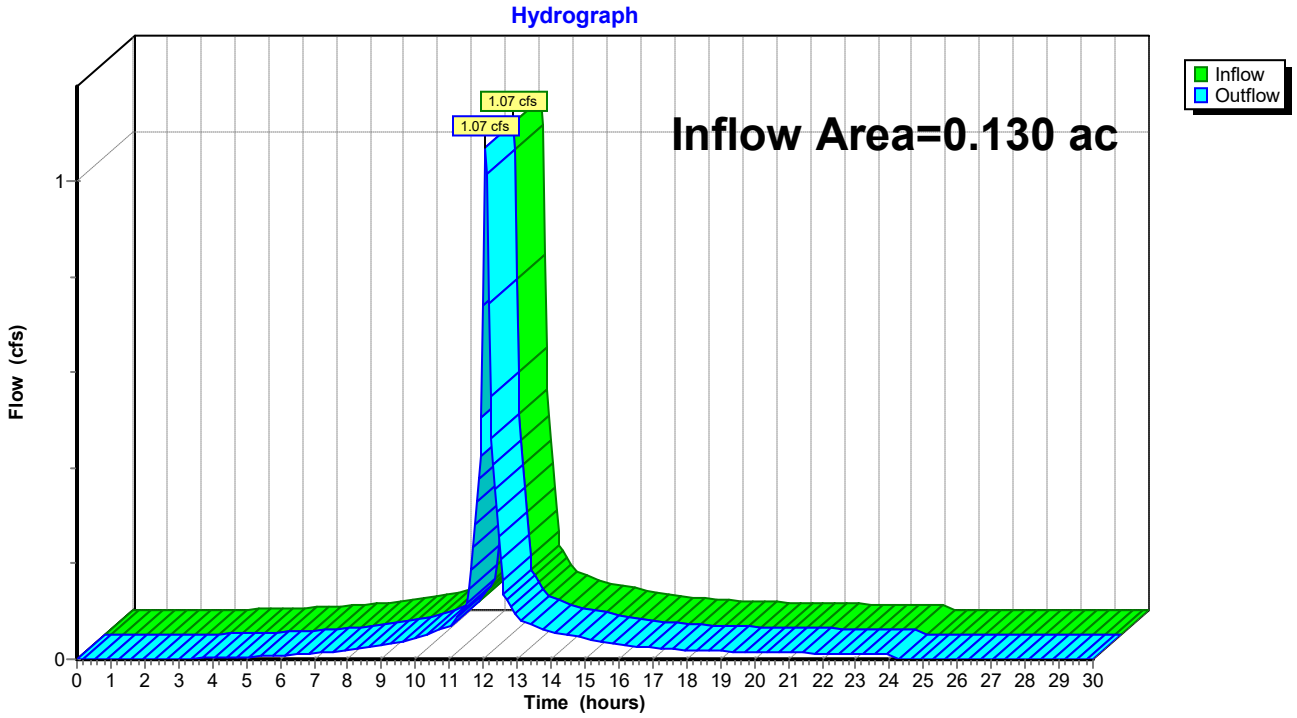
Reach 2R: Existing Watershed To Street

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

Inflow Area = 0.130 ac, Inflow Depth = 7.45" for 100-YEAR event
Inflow = 1.07 cfs @ 12.07 hrs, Volume= 0.081 af
Outflow = 1.07 cfs @ 12.07 hrs, Volume= 0.081 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 2R: Existing Watershed To Street



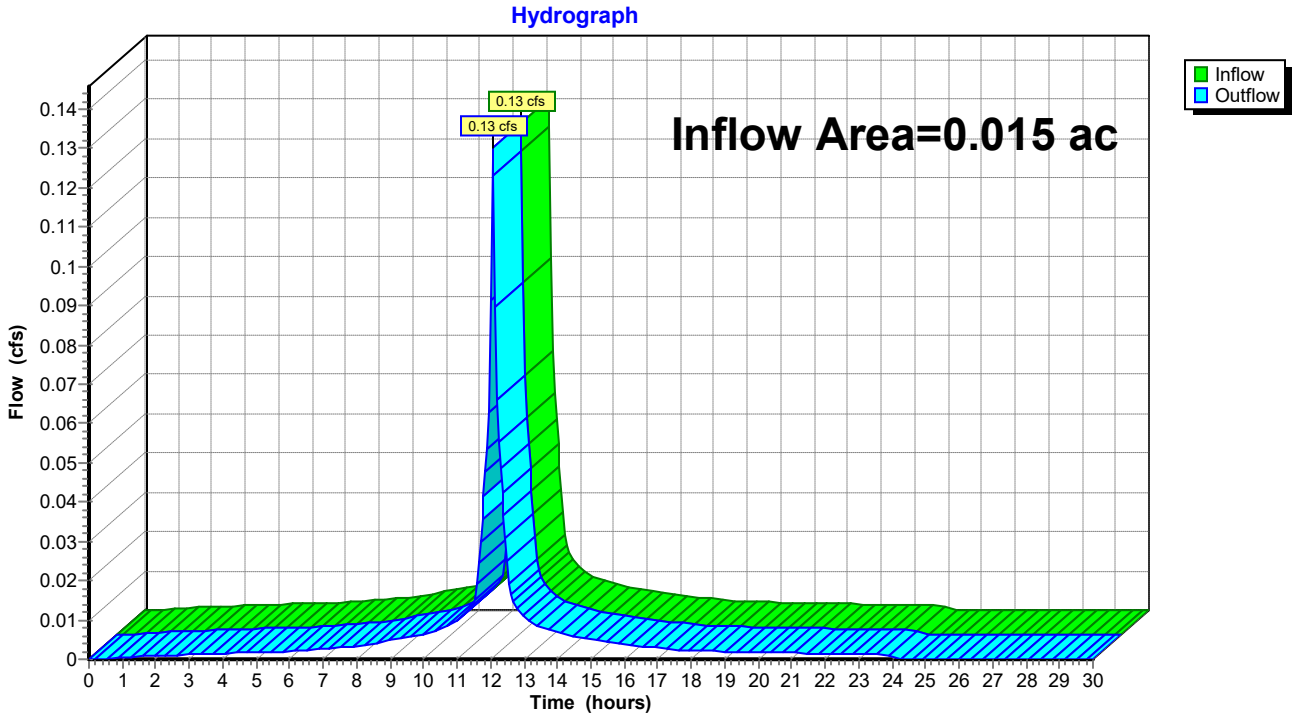
Reach 4R: Proposed Watershed to Street

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

Inflow Area = 0.015 ac, Inflow Depth = 8.54" for 100-YEAR event
Inflow = 0.13 cfs @ 12.07 hrs, Volume= 0.011 af
Outflow = 0.13 cfs @ 12.07 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 4R: Proposed Watershed to Street



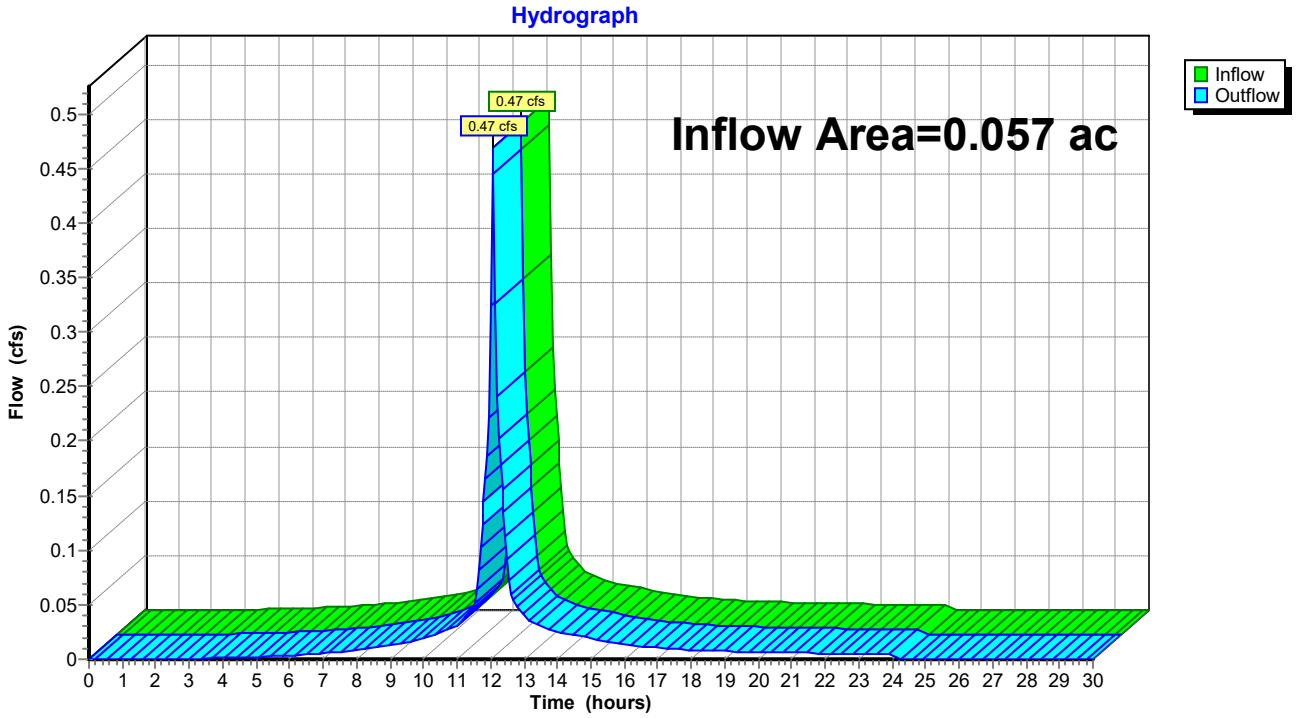
Reach 6R: Existing Watershed to Rear

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

Inflow Area = 0.057 ac, Inflow Depth = 7.45" for 100-YEAR event
Inflow = 0.47 cfs @ 12.07 hrs, Volume= 0.035 af
Outflow = 0.47 cfs @ 12.07 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 6R: Existing Watershed to Rear



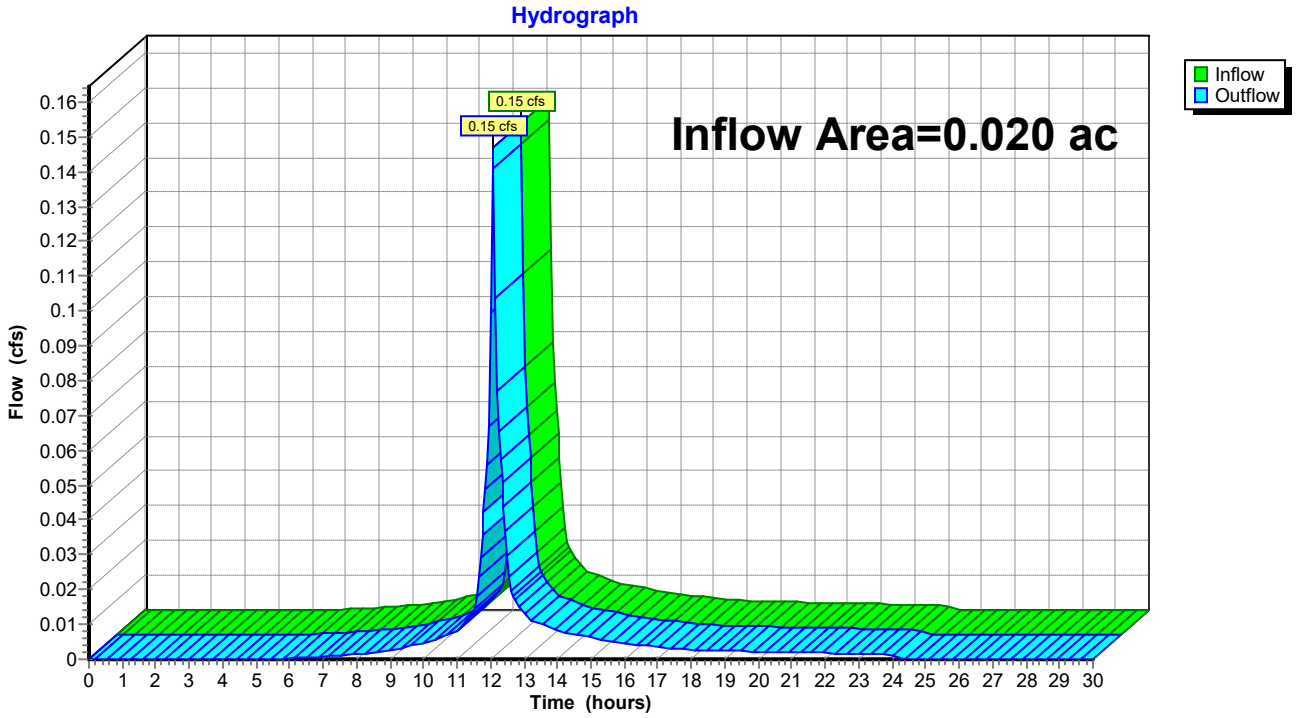
Reach 8R: Proposed Watershed to Rear

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

Inflow Area = 0.020 ac, Inflow Depth = 6.36" for 100-YEAR event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af
Outflow = 0.15 cfs @ 12.07 hrs, Volume= 0.011 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 8R: Proposed Watershed to Rear



Reach 10R: Proposed Watershed to City Drain Main

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

Inflow Area = 0.155 ac, Inflow Depth = 8.06" for 100-YEAR event
Inflow = 1.32 cfs @ 12.07 hrs, Volume= 0.104 af
Outflow = 1.32 cfs @ 12.07 hrs, Volume= 0.104 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-30.00 hrs, dt= 0.05 hrs

Reach 10R: Proposed Watershed to City Drain Main