

STORMWATER MANAGEMENT REPORT

PREPARED FOR

GINGRAS DEVELOPMENT, LLC

Eleanor Rd.
Somers, Conn.

BY

WENTWORTH CIVIL ENGINEERS, LLC

177 WEST TOWN STREET
LEBANON, CONNECTICUT 06249

DATE: 11-02-20
REVISED 12-01-20

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STORMWATER MANAGEMENT REPORT

Project & Site

The site lies at the northern terminus of Eleanor Road in Somers, CT. This parcel consists of 22+ acres of land and is currently vacant. A residential development of attached and detached single family dwellings is proposed. The project consists of extending Eleanor Road approximately 900 feet and building 18 new buildings. The site is proposed to be served by public water and onsite septic systems.

Drainage Evaluation, Methodology and References

Pre vs. Post development analysis and proposed detention basin were analyzed and designed using the NRCS TR-55 drainage design manual for 2, 10, 25, 50 & 100 year Type III storm events. The detention basin will also act as a water quality basin and was sized and designed to treat the first 1" rainfall storm event (Water Quality Volume) as per CT DEEP 2004 Stormwater Quality Manual.

Current Drainage Patterns

The site slopes both southerly and southeasterly. The southern flow is sheet flow over sandy loams with very little runoff as most runoff is infiltrated into the soil. The majority of the site drains to a large wetland and watercourse system that bisects the eastern portion of the property and ultimately discharges under Route 190 to Gulf Stream.

Proposed Drainage Patterns

Developed site will utilize the same drainage patterns as exist currently. The site will drain via a catch basin and pipe system to a proposed water quality / detention basin located next to the existing terminus of Eleanor Road abutting the wetlands.

The developed onsite storm water treatment design includes the following:

- Onsite detention of peak storm water flows for 2 through 100 year storm events.
- Treatment of 1" Water Quality Volume through water quality / detention basin prior to discharge to the wetlands.

Developed Conditions

- Stormwater Quality:

The site was designed to minimize impervious surfaces and maximize travel time and infiltration of developed storm water flows. All onsite paved roadway, parking and driveway areas drain into a combination water quality / detention basin. The basin has a sediment fore bay that discharges through a filter berm and into the main body of the basin. Travel distance is maximized through the basin to encourage pollutant and sediment treatment during smaller storm events. An underdrain around the inside toe of slope within the basin will allow the 1 inch and smaller storm events to slowly drain out over a 12-24 hour period. A permanent pool will be located below the underdrain elevation with micro pools ranging between 6" and 18" deep and planted with wetlands vegetation in order to maximize nutrient retention and removal from stormwater.

The basin has been sized to retain the first flush 1" storm event that compromise about 85 – 90% of annual storms (water quality volume or WQV).

- Pre vs. Post Development Analysis and Large Storm Peak Flow Attenuation:

The site was analyzed for pre vs. post development conditions for 2, 10, 25, 50 & 100 year Type III storm events. The majority of the developed site stormwater will be intercepted and discharged to the proposed detention / water quality basin. The detention basin has been designed to keep post development peak flow rates approximately the same or reduced relative to existing conditions. The resulting peak flows are as follows:

		<u>2yr</u>	<u>10 yr</u>	<u>25yr</u>	<u>100yr</u>
Exist.	Point A	5.5 cfs	20.8 cfs	32.5 cfs	52.6 cfs
Dev.	Point A	5.7 cfs	17.7 cfs	28.0 cfs	47.0 cfs

Maintenance of Water Recharge Potential

Open space areas of 91% are being maintained on the site. Post developed landscape design include large portion of open space to remain wooded (63% wooded), lawn and landscaped. Much of the proposed lawn and existing wooded areas will continue to recharge groundwater water through rainwater infiltration into sandy loam soils for all storm events.

Erosion & Sedimentation Control

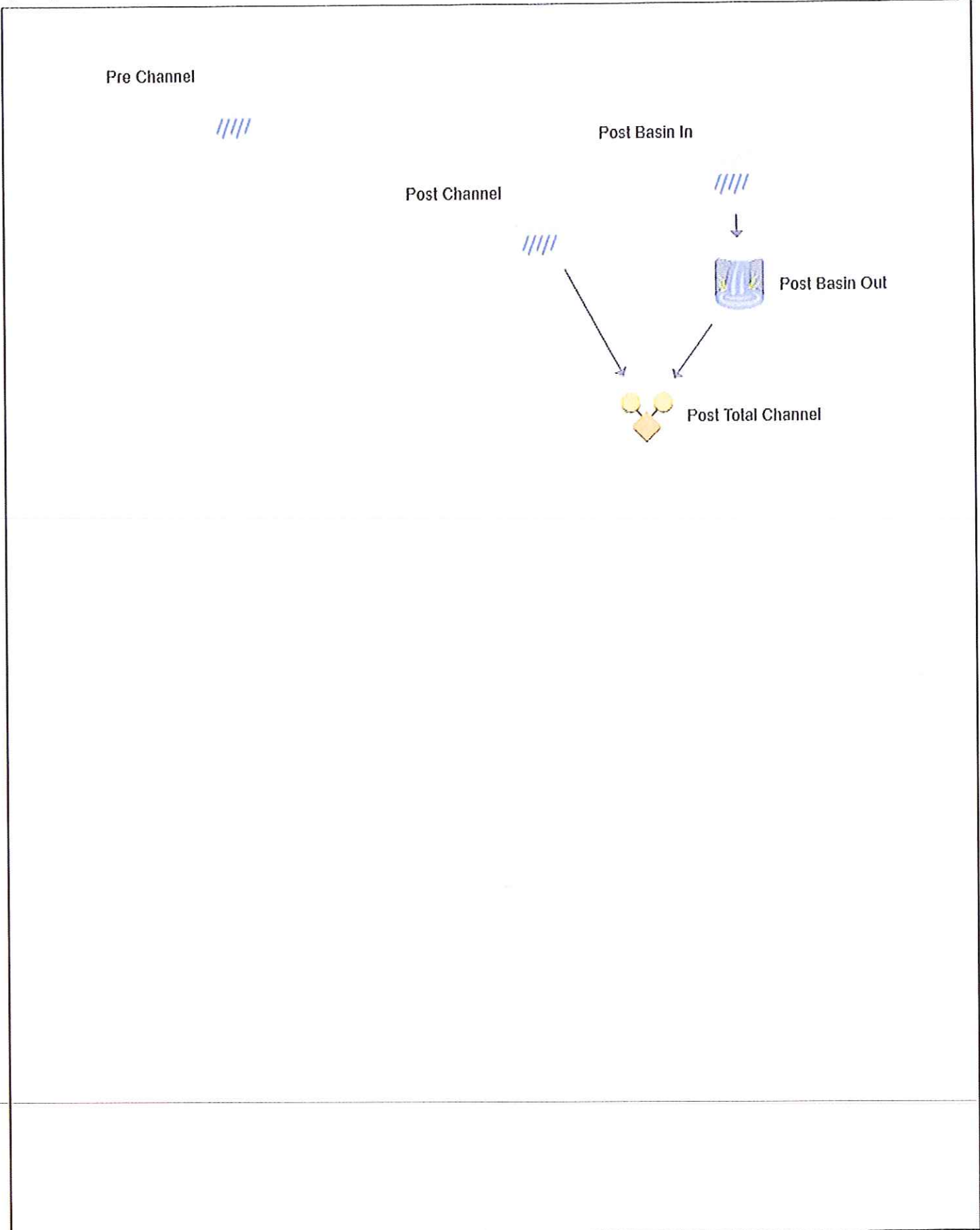
Design plans include site specific erosion and sedimentation control design measures. Site specific design plans and notes are provided to minimize short term impacts during construction of the project.

Maintenance and Operation

Maintenance and operation of notes for privately owned onsite drainage facilities have been included as part of design plans and as a standalone plan as part of this report.

Basin Model

Hydrology Studio v 3.0.0.16



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Hydrology Studio v 3.0.0.16

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Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Pre Channel

Hyd. No. 1

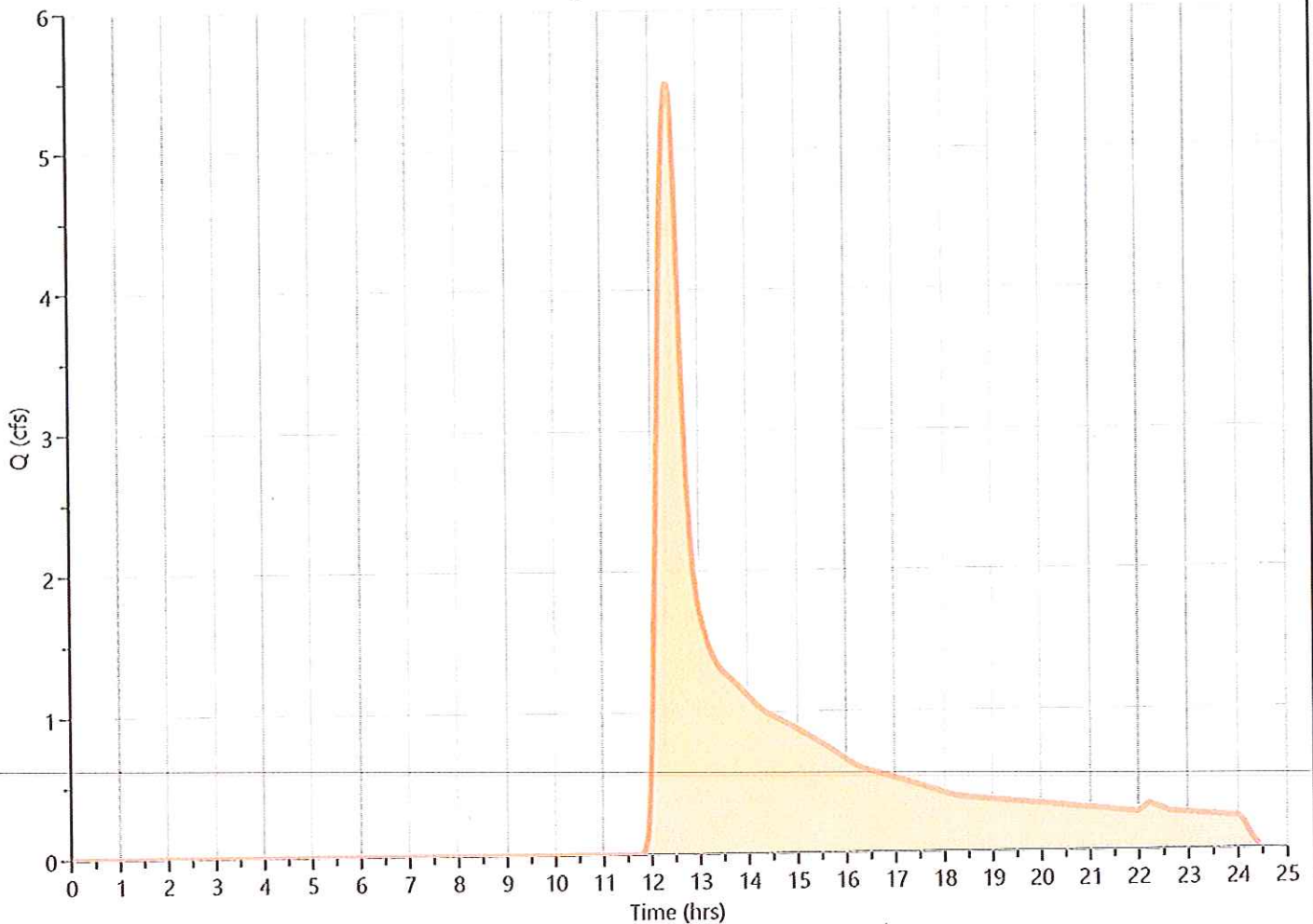
Hydrograph Type = NRCS Runoff
 Storm Frequency = 2-yr
 Time Interval = 2 min
 Drainage Area = 17.65 ac
 Tc Method = User
 Total Rainfall = 3.22 in
 Storm Duration = 24 hrs

Peak Flow = 5.481 cfs
 Time to Peak = 12.40 hrs
 Runoff Volume = 34,454 cuft
 Curve Number = 63*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA(ac)	CN	DESCRIPTION
0.18	98	Impervious
0.85	39	Lawn A
0.75	80	Lawn D
4.05	35	Woods A
4.0	70	Woods C
7.8	77	Woods D
17.65	63	Weighted CN Method Employed

Qp = 5.48 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Channel

Hyd. No. 2

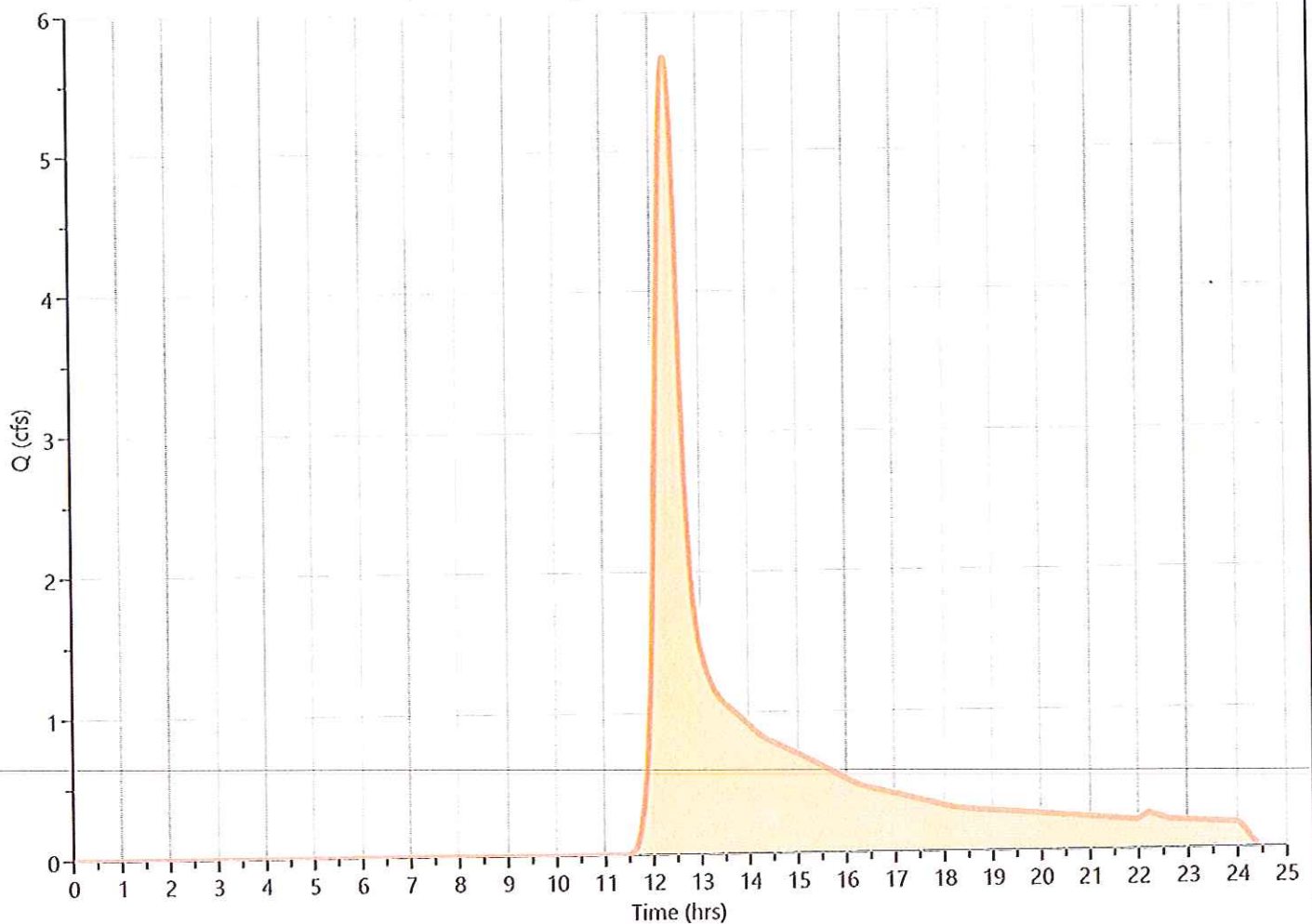
Hydrograph Type = NRCS Runoff
 Storm Frequency = 2-yr
 Time Interval = 2 min
 Drainage Area = 11.03 ac
 Tc Method = User
 Total Rainfall = 3.22 in
 Storm Duration = 24 hrs

Peak Flow = 5.686 cfs
 Time to Peak = 12.33 hrs
 Runoff Volume = 30,930 cuft
 Curve Number = 68.33*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.2	98	Impervious
0.93	36	Woods A
3.0	70	Woods C
5.29	77	Woods D
1.11	39	Lawn A
0.5	80	Lawn D
11.03	68	Weighted CN Method Employed

Qp = 5.69 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Basin In

Hyd. No. 5

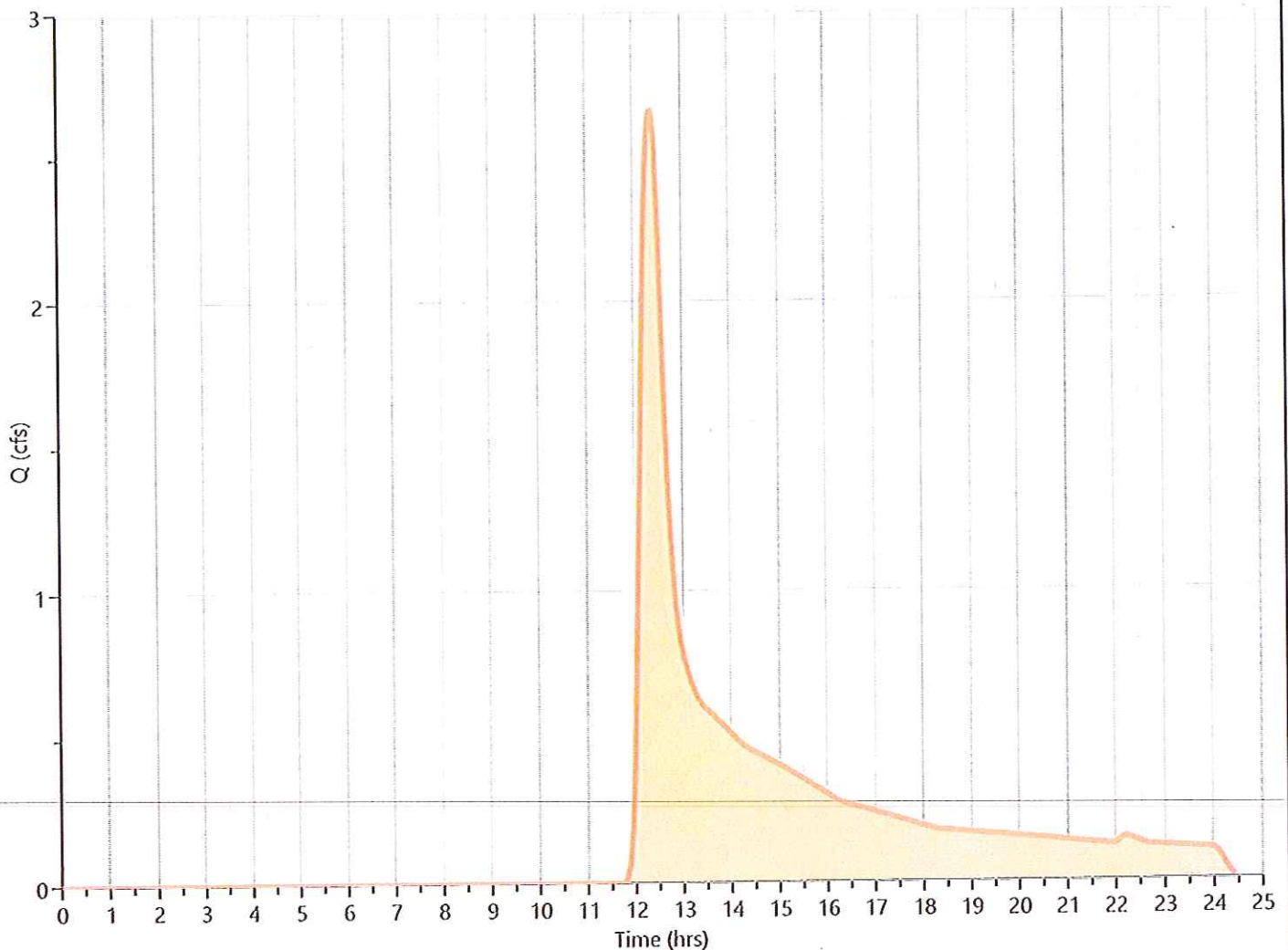
Hydrograph Type = NRCS Runoff
 Storm Frequency = 2-yr
 Time Interval = 2 min
 Drainage Area = 7.7 ac
 Tc Method = User
 Total Rainfall = 3.22 in
 Storm Duration = 24 hrs

Peak Flow = 2.662 cfs
 Time to Peak = 12.37 hrs
 Runoff Volume = 16,175 cuft
 Curve Number = 64*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA(ac)	CN	DESCRIPTION
2.33	93	Impervious
3.69	39	Lawn A
0.82	80	Lawn D
0.21	30	Woods A
0.65	77	Woods D
7.7	64	Weighted CN Method Employed

Qp = 2.66 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Basin Out

Hyd. No. 6

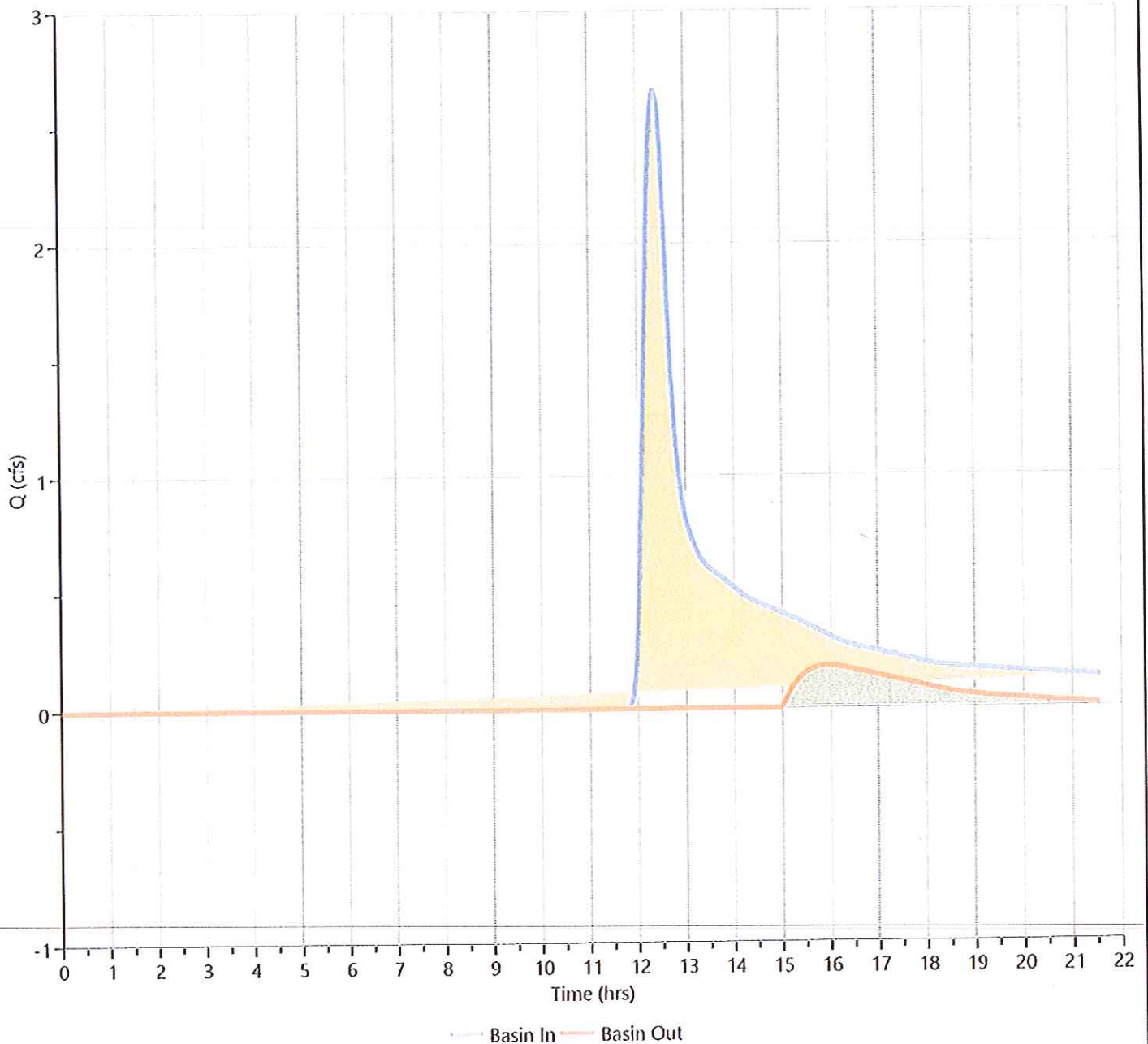
Hydrograph Type = Pond Route
 Storm Frequency = 2-yr
 Time Interval = 2 min
 Inflow Hydrograph = 5 - Basin In
 Pond Name = Basin 1

Peak Flow = 0.180 cfs
 Time to Peak = 15.97 hrs
 Hydrograph Volume = 1,998 cuft
 Max. Elevation = 324.89 ft
 Max. Storage = 9,000 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 2.13 hrs

Qp = 0.18 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11

Project Name:

11-02-2020

Post Total Channel

Hyd. No. 7

Hydrograph Type = Junction

Storm Frequency = 2-yr

Time Interval = 2 min

Inflow Hydrographs = 2, 6

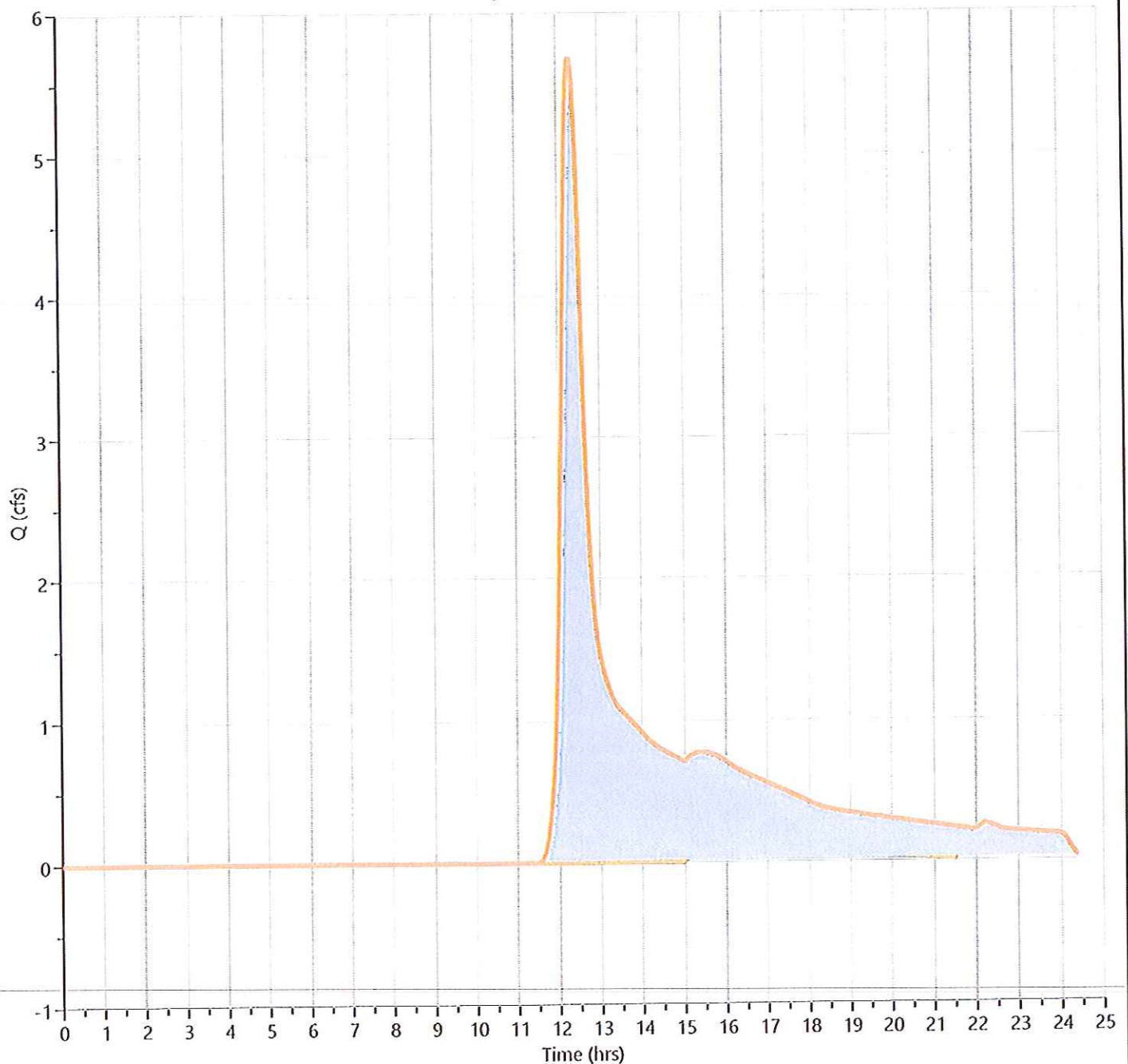
Peak Flow = 5.686 cfs

Time to Peak = 12.33 hrs

Hydrograph Volume = 32,929 cuft

Total Contrib. Area = 11.03 ac

Qp = 5.69 cfs



Channel Basin Out Total Channel

Hydrology Studio v 3.0.0.16

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Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Pre Channel

Hyd. No. 1

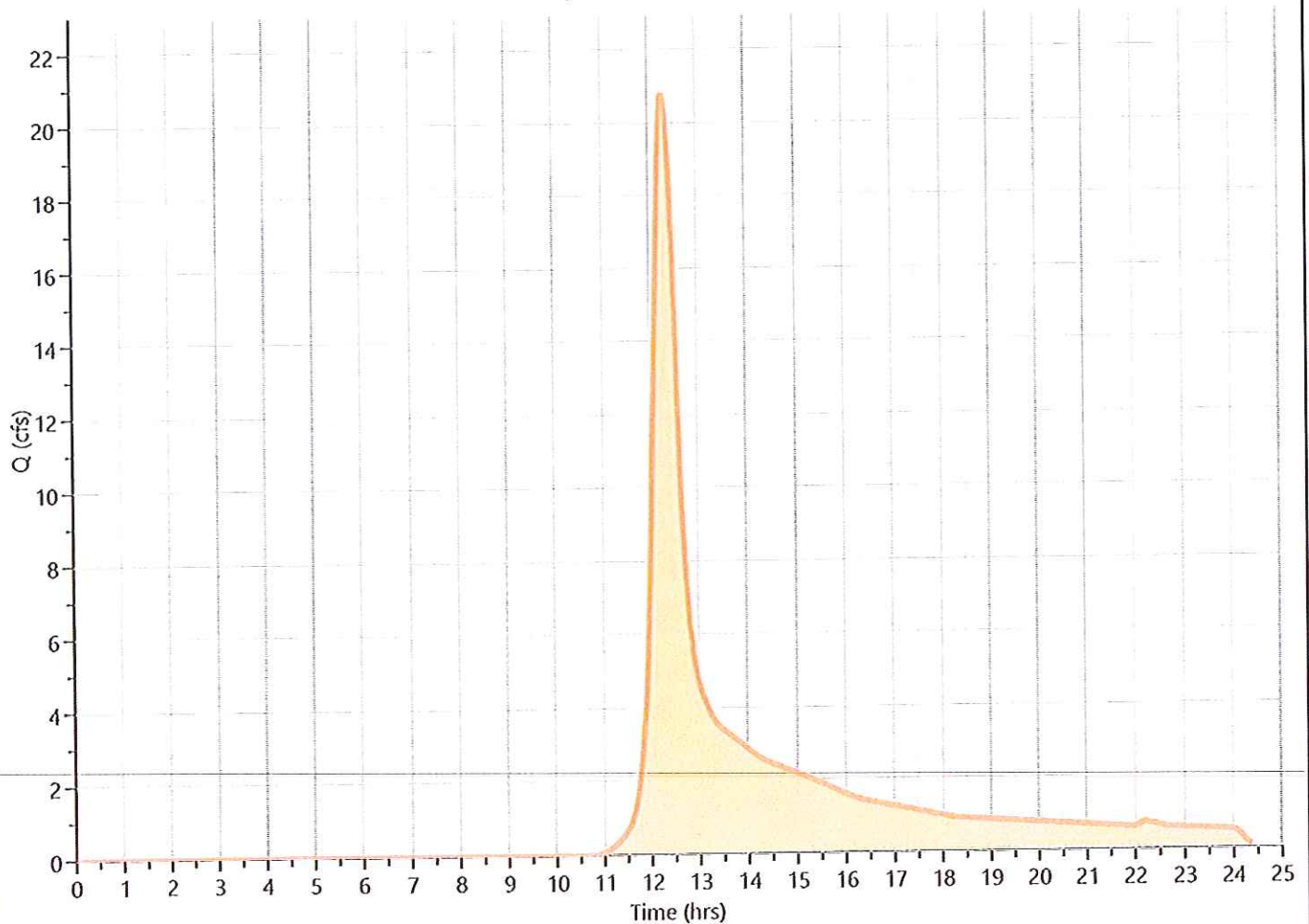
Hydrograph Type = NRCS Runoff
 Storm Frequency = 10-yr
 Time Interval = 2 min
 Drainage Area = 17.65 ac
 Tc Method = User
 Total Rainfall = 5.16 in
 Storm Duration = 24 hrs

Peak Flow = 20.81 cfs
 Time to Peak = 12.30 hrs
 Runoff Volume = 105,069 cuft
 Curve Number = 63*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.18	98	Impervious
0.88	39	Lawn A
0.75	80	Lawn D
4.08	35	Woods A
4.0	70	Woods C
7.8	77	Woods D
17.65	63	Weighted CN Method Employed

Qp = 20.81 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Channel

Hyd. No. 2

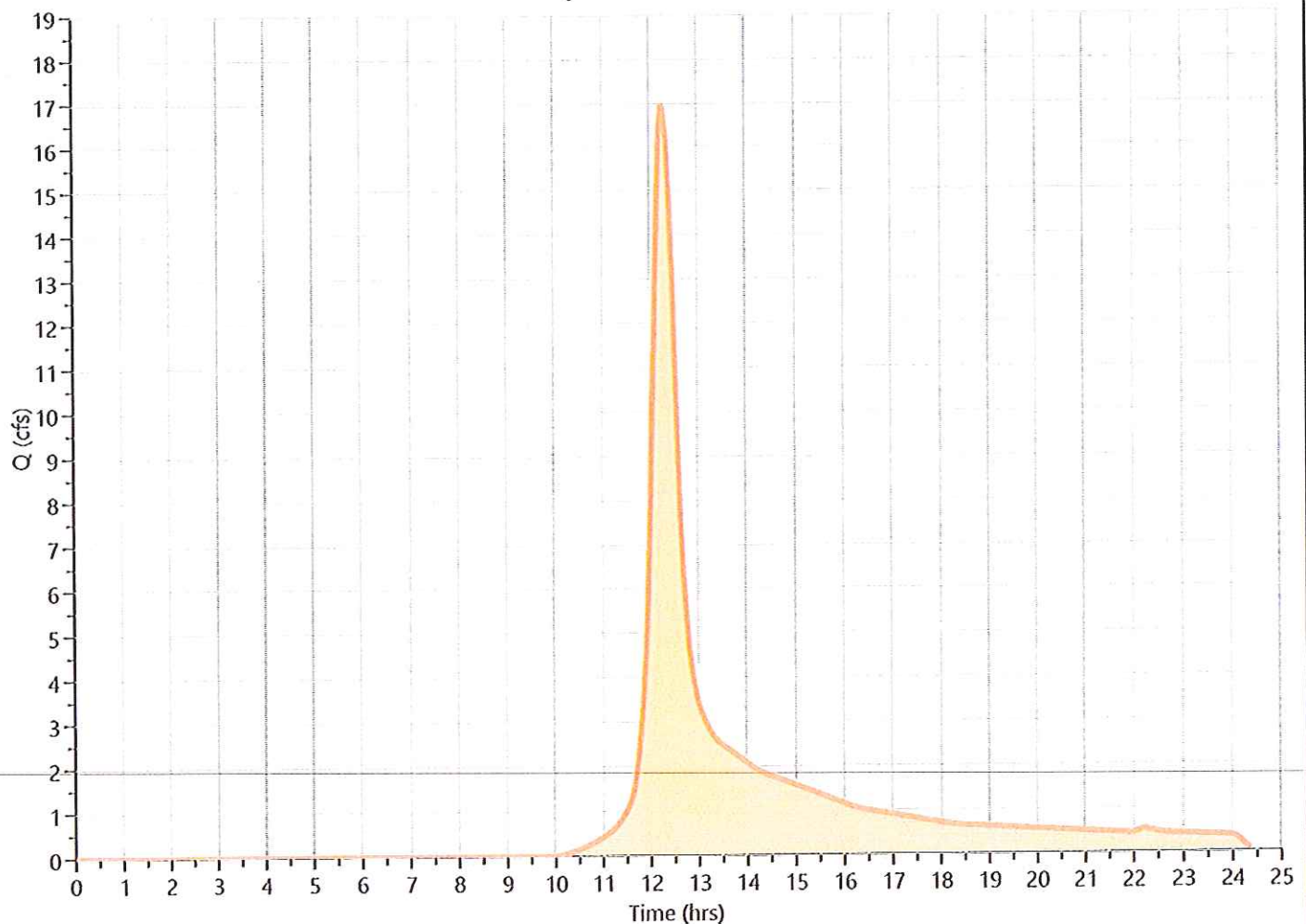
Hydrograph Type = NRCS Runoff
 Storm Frequency = 10-yr
 Time Interval = 2 min
 Drainage Area = 11.03 ac
 Tc Method = User
 Total Rainfall = 5.16 in
 Storm Duration = 24 hrs

Peak Flow = 16.95 cfs
 Time to Peak = 12.27 hrs
 Runoff Volume = 82,348 cuft
 Curve Number = 68.33*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.2	98	Impervious
0.93	35	Woods A
3.0	70	Woods C
5.29	77	Woods D
1.11	39	Lawn A
0.5	80	Lawn D
11.03	68	Weighted CN Method Employed

Qp = 16.95 cfs



Hydrograph Report

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11-02-2020

Post Basin In

Hyd. No. 5

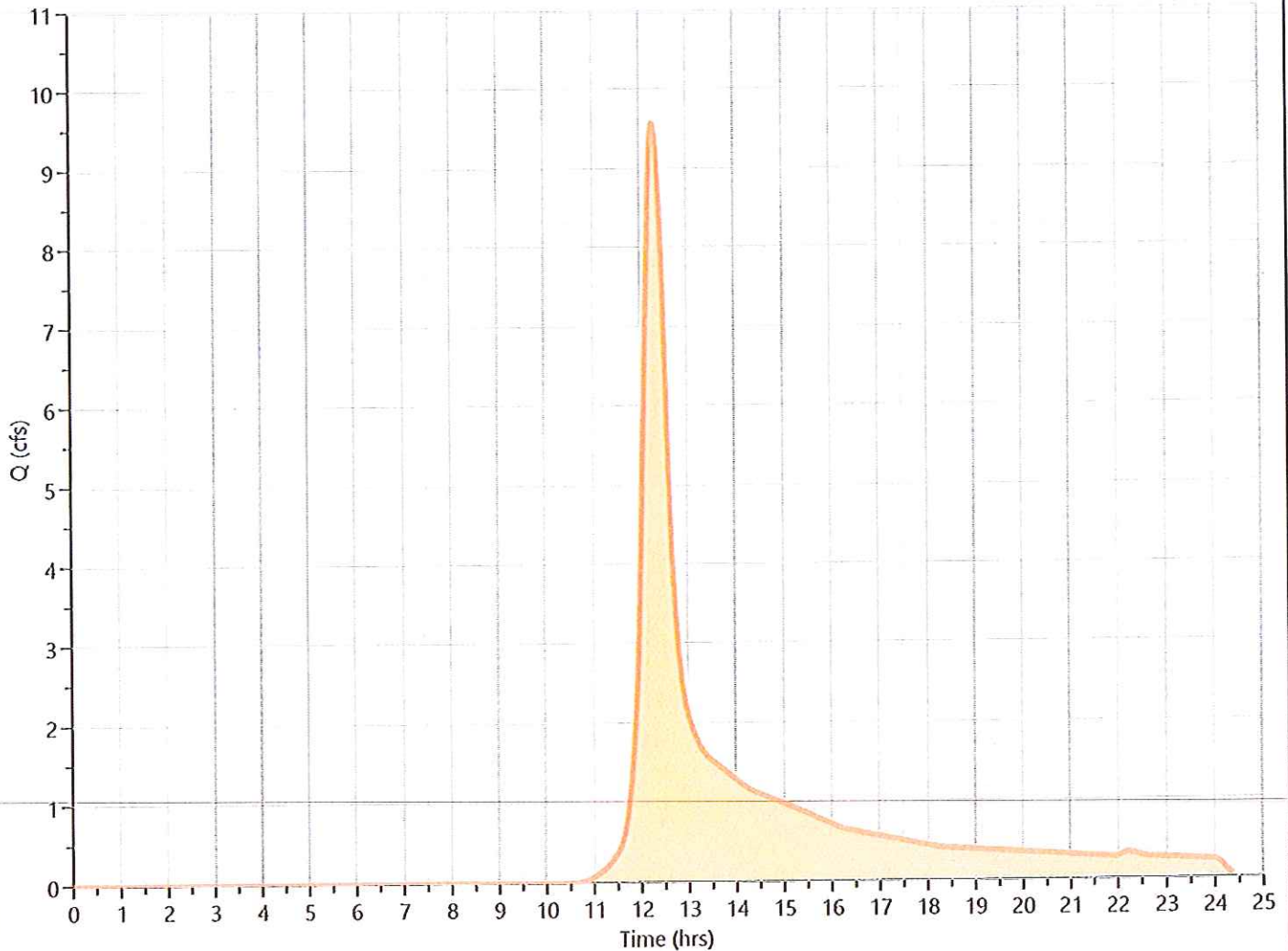
Hydrograph Type = NRCS Runoff
 Storm Frequency = 10-yr
 Time Interval = 2 min
 Drainage Area = 7.7 ac
 Tc Method = User
 Total Rainfall = 5.16 in
 Storm Duration = 24 hrs

Peak Flow = 9.580 cfs
 Time to Peak = 12.30 hrs
 Runoff Volume = 47,951 cuft
 Curve Number = 64*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
2.33	98	Impervious
3.69	39	Lawn A
0.82	80	Lawn D
0.21	30	Woods A
0.65	77	Woods D
7.7	64	Weighted CN Method Employed

Qp = 9.58 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

16
Project Name:

11-02-2020

Post Basin Out

Hyd. No. 6

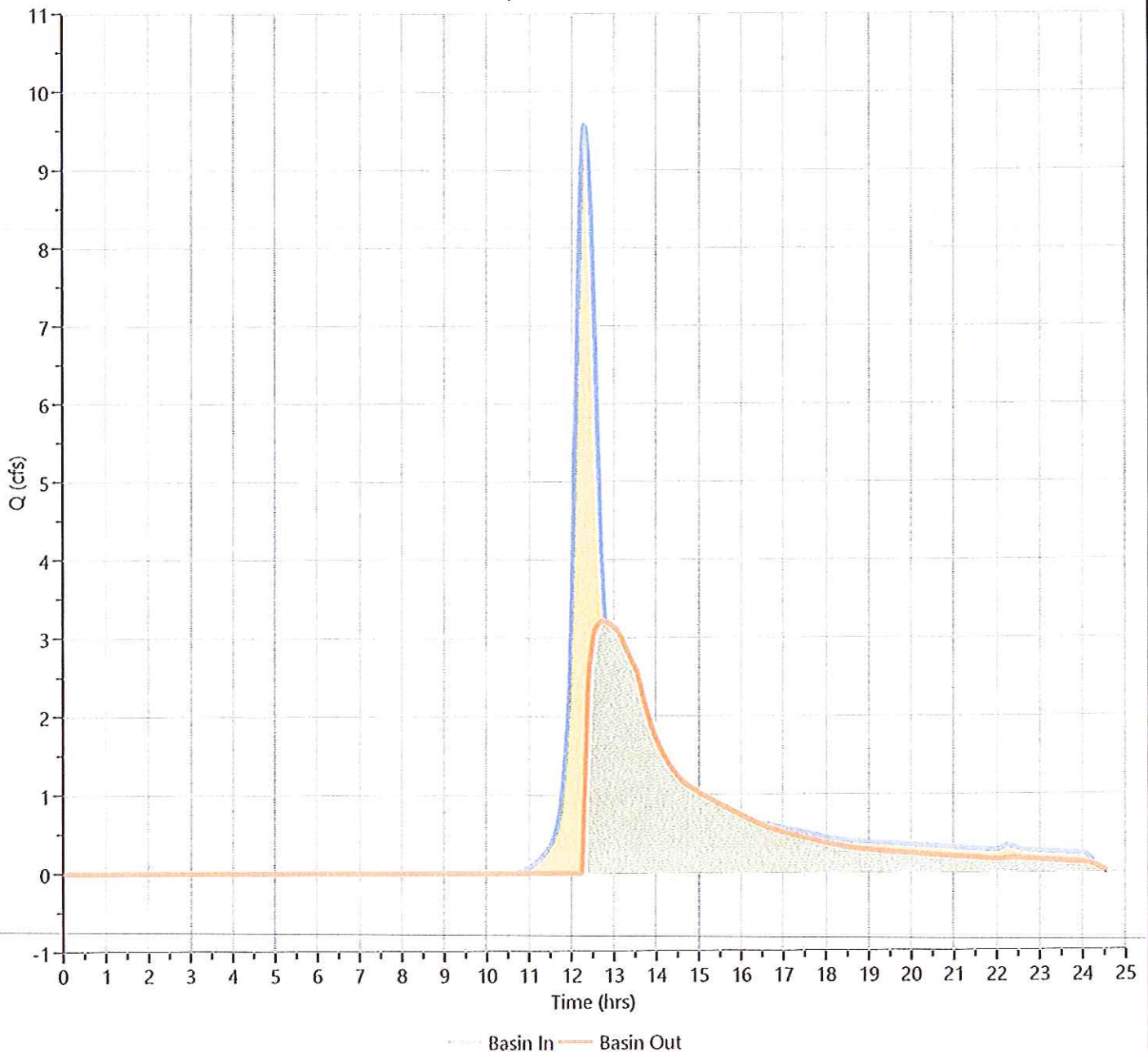
Hydrograph Type = Pond Route
Storm Frequency = 10-yr
Time Interval = 2 min
Inflow Hydrograph = 5 - Basin In
Pond Name = Basin 1

Peak Flow = 3.208 cfs
Time to Peak = 12.77 hrs
Hydrograph Volume = 32,964 cuft
Max. Elevation = 325.52 ft
Max. Storage = 16,228 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 34 min

$Q_p = 3.21$ cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

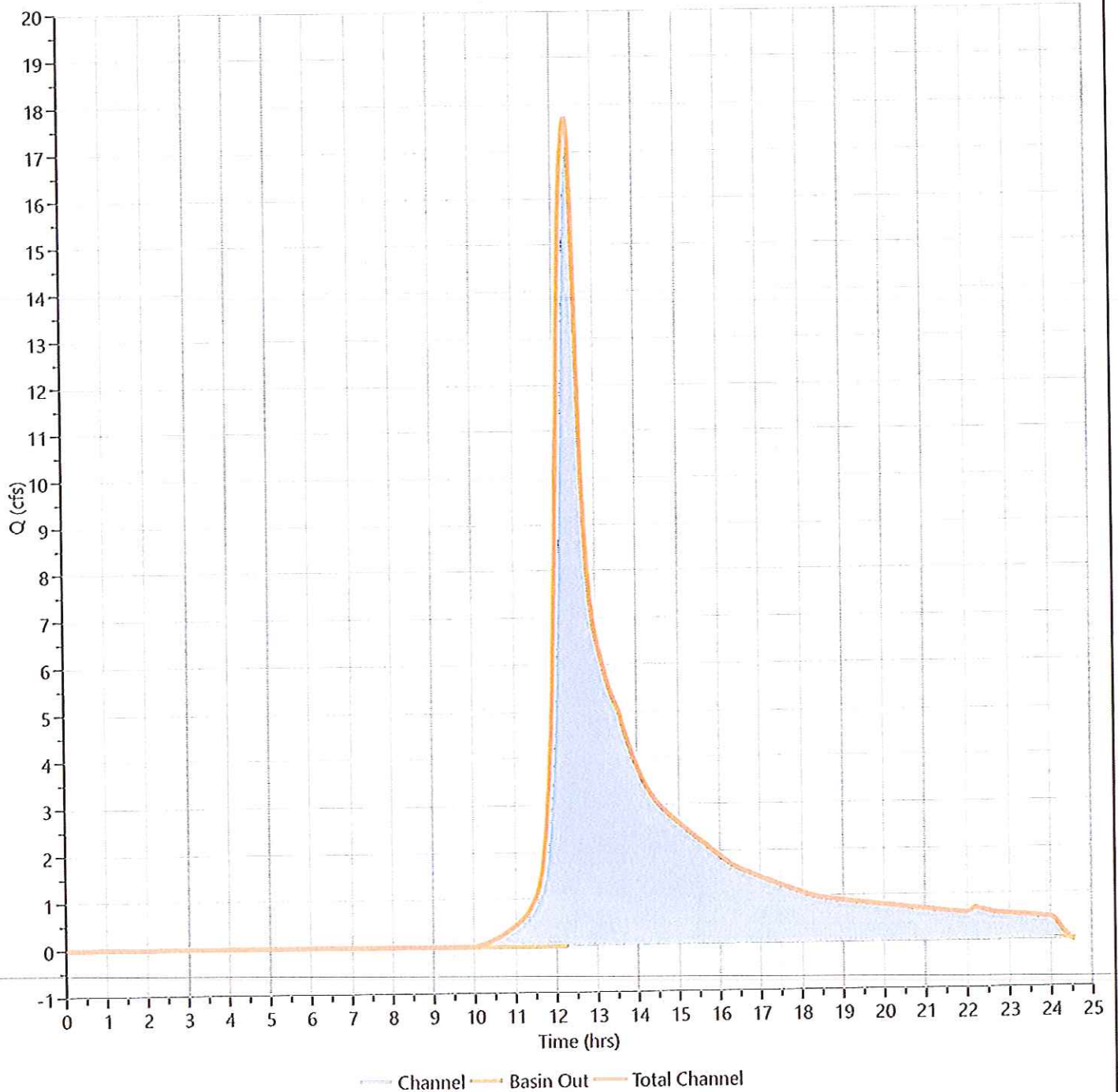
11-02-2020

Post Total Channel

Hyd. No. 7

Hydrograph Type = Junction
Storm Frequency = 10-yr
Time Interval = 2 min
Inflow Hydrographs = 2, 6

Peak Flow = 17.74 cfs
Time to Peak = 12.37 hrs
Hydrograph Volume = 115,312 cuft
Total Contrib. Area = 11.03 ac

 $Q_p = 17.74 \text{ cfs}$ 

[illegible]

Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Pre Channel

Hyd. No. 1

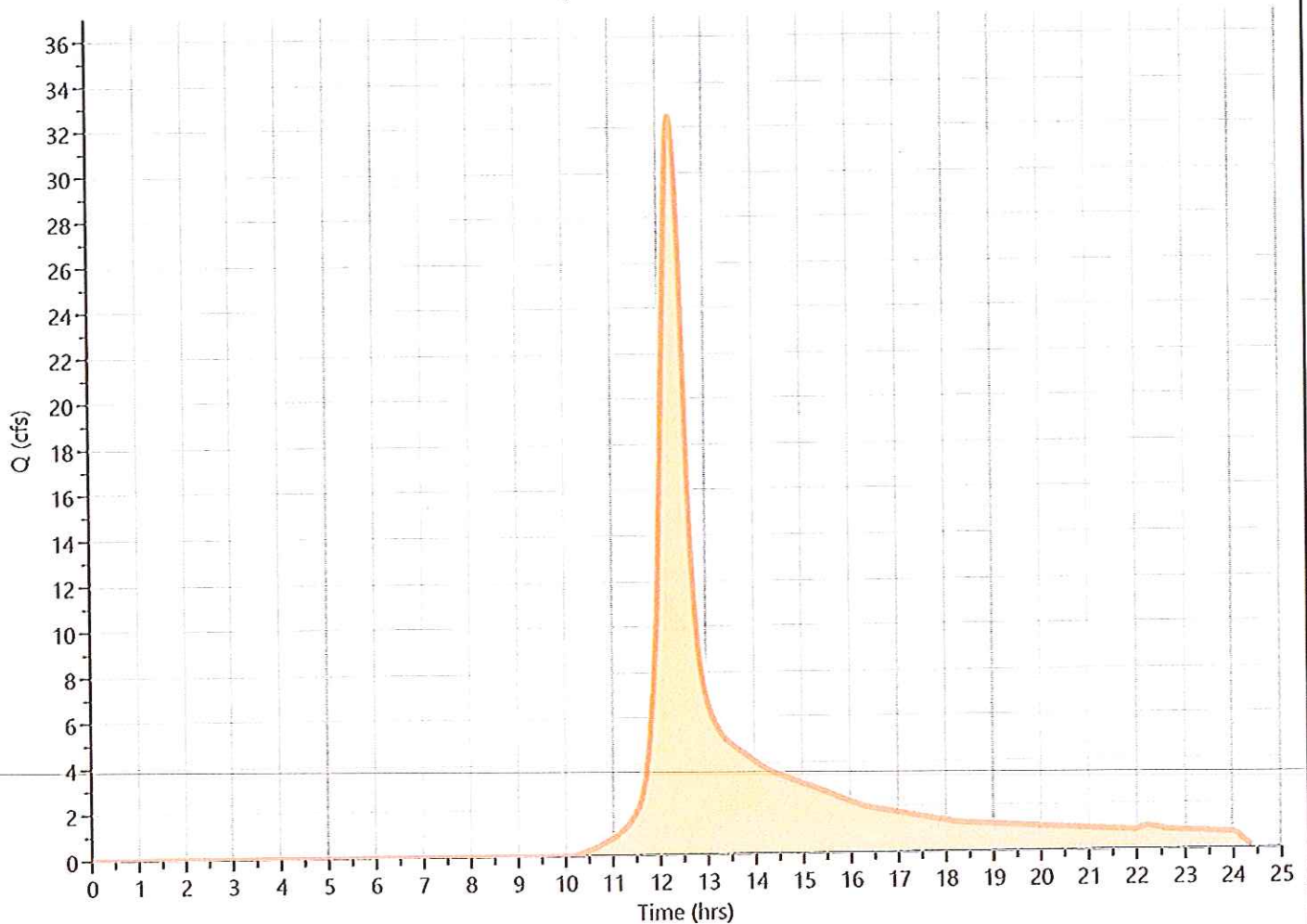
Hydrograph Type = NRCS Runoff
 Storm Frequency = 25-yr
 Time Interval = 2 min
 Drainage Area = 17.65 ac
 Tc Method = User
 Total Rainfall = 6.36 in
 Storm Duration = 24 hrs

Peak Flow = 32.52 cfs
 Time to Peak = 12.27 hrs
 Runoff Volume = 158,566 cuft
 Curve Number = 63*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.18	98	Impervious
0.83	39	Lawn A
0.75	80	Lawn D
4.06	36	Woods A
4.0	70	Woods C
7.8	77	Woods D
17.65	63	Weighted CN Method Employed

Qp = 32.52 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Channel

Hyd. No. 2

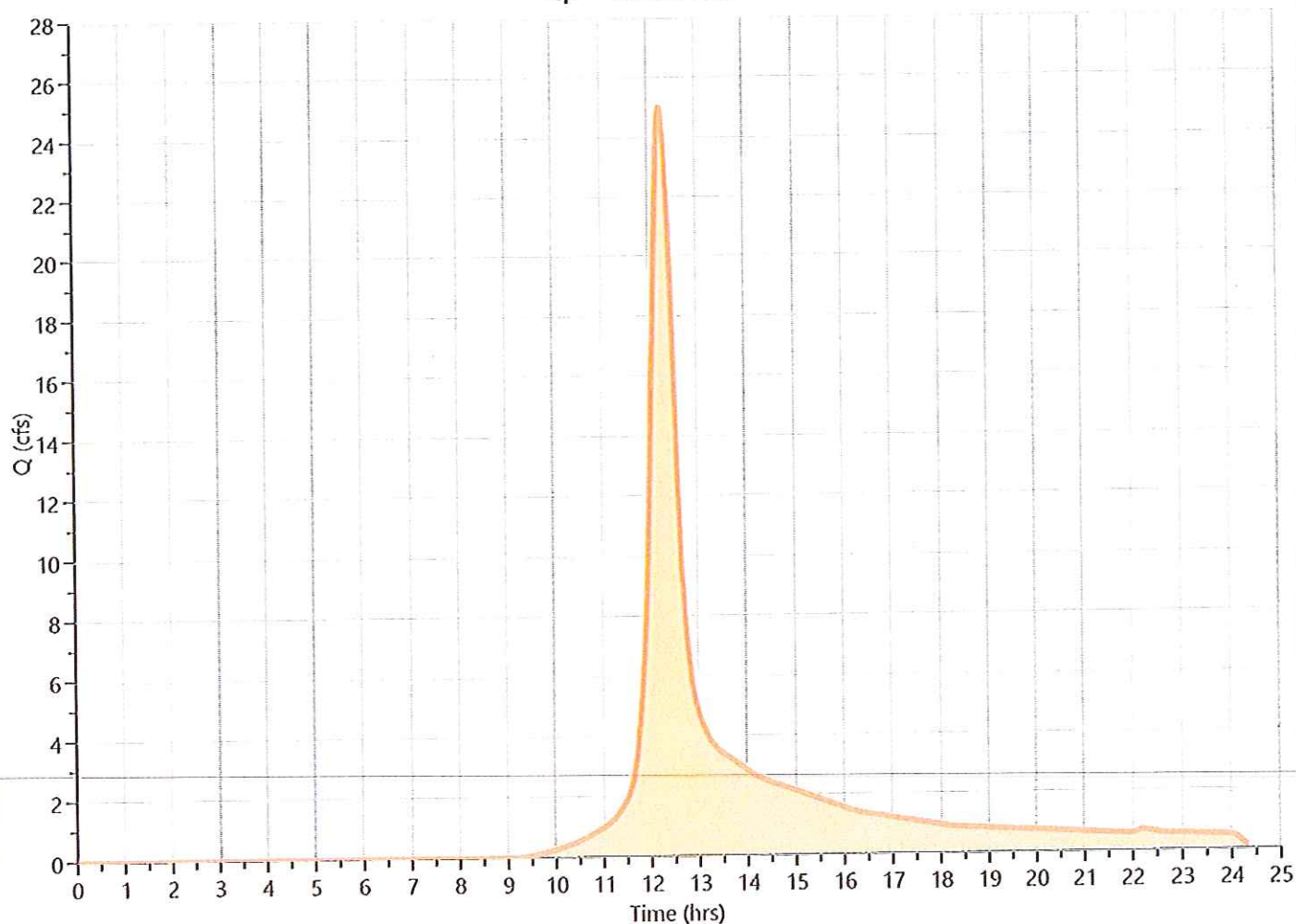
Hydrograph Type = NRCS Runoff
Storm Frequency = 25-yr
Time Interval = 2 min
Drainage Area = 11.03 ac
Tc Method = User
Total Rainfall = 6.36 in
Storm Duration = 24 hrs

Peak Flow = 25.05 cfs
Time to Peak = 12.27 hrs
Runoff Volume = 119,485 cuft
Curve Number = 68.33*
Time of Conc. (Tc) = 23.0 min
Design Storm = Type III
Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.2	98	Impervious
0.93	35	Woods A
3.0	70	Woods C
5.29	77	Woods D
1.11	39	Lawn A
0.5	80	Lawn D
11.03	68	Weighted CN Method Employed

Qp = 25.05 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Basin In

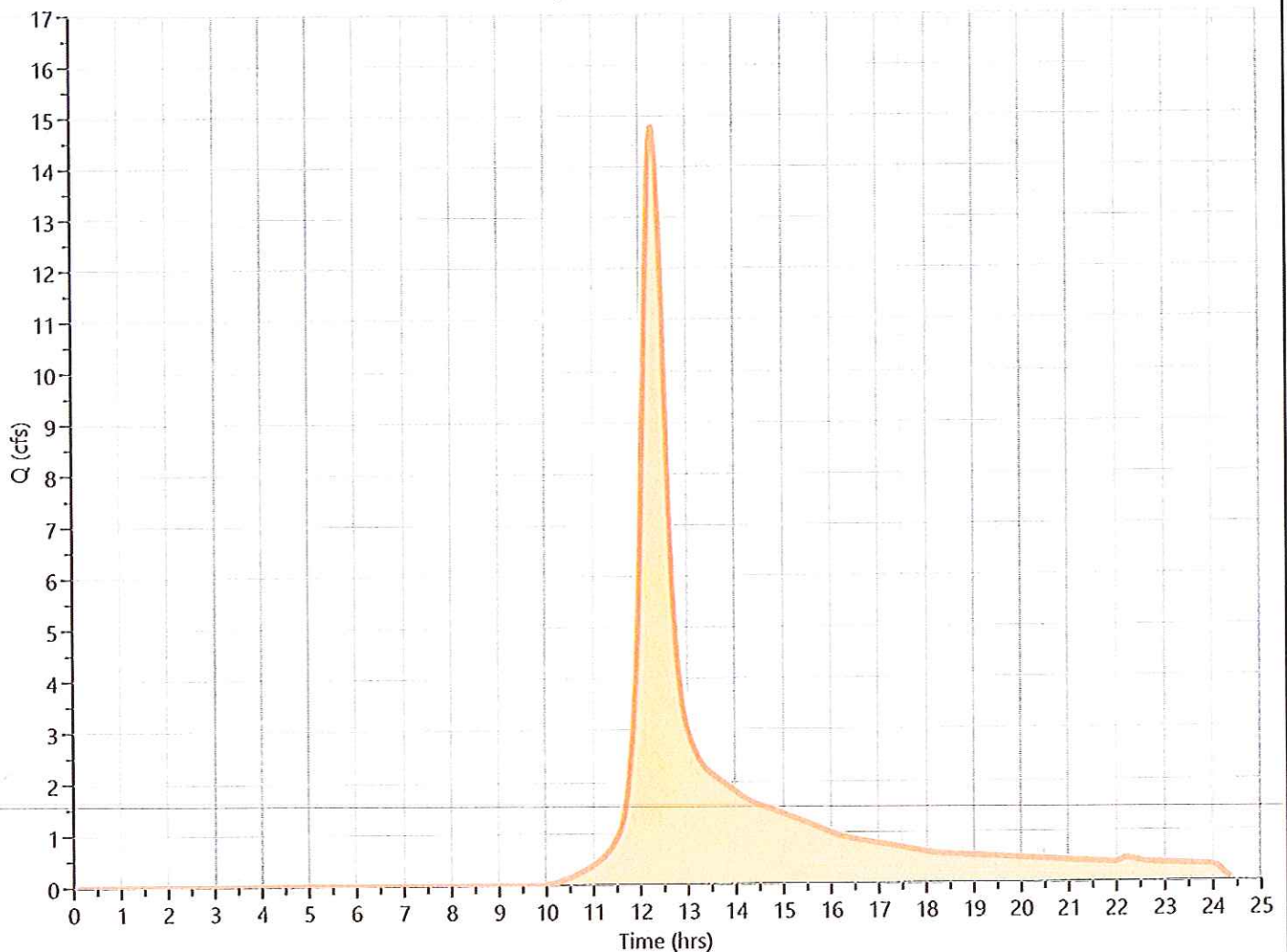
Hyd. No. 5

Hydrograph Type	= NRCS Runoff	Peak Flow	= 14.80 cfs
Storm Frequency	= 25-yr	Time to Peak	= 12.27 hrs
Time Interval	= 2 min	Runoff Volume	= 71,794 cuft
Drainage Area	= 7.7 ac	Curve Number	= 64*
Tc Method	= User	Time of Conc. (Tc)	= 23.0 min
Total Rainfall	= 6.36 in	Design Storm	= Type III
Storm Duration	= 24 hrs	Shape Factor	= 484

* Composite CN Worksheet

AREA(ac)	CN	DESCRIPTION
2.33	98	Impervious
3.69	39	Lawn A
0.82	80	Lawn D
0.21	30	Woods A
0.65	77	Woods D
7.7	64	Weighted CN Method Employed

Qp = 14.80 cfs



Hydrograph Report

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11-02-2020

Post Basin Out

Hyd. No. 6

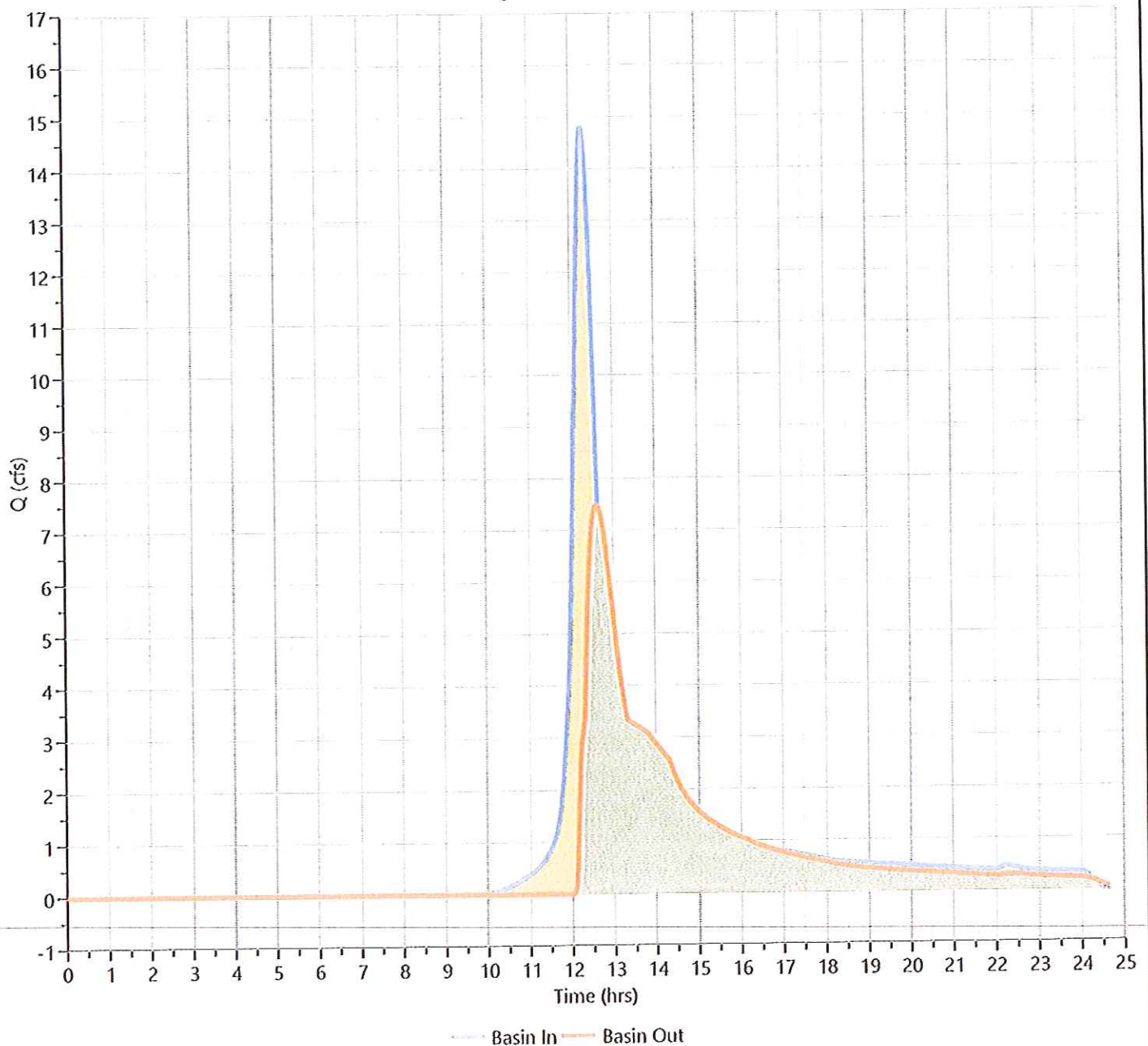
Hydrograph Type = Pond Route
 Storm Frequency = 25-yr
 Time Interval = 2 min
 Inflow Hydrograph = 5 - Basin In
 Pond Name = Basin 1

Peak Flow = 7.478 cfs
 Time to Peak = 12.63 hrs
 Hydrograph Volume = 56,325 cuft
 Max. Elevation = 326.06 ft
 Max. Storage = 22,458 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 33 min

Qp = 7.48 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Total Channel

Hyd. No. 7

Hydrograph Type = Junction

Storm Frequency = 25-yr

Time Interval = 2 min

Inflow Hydrographs = 2, 6

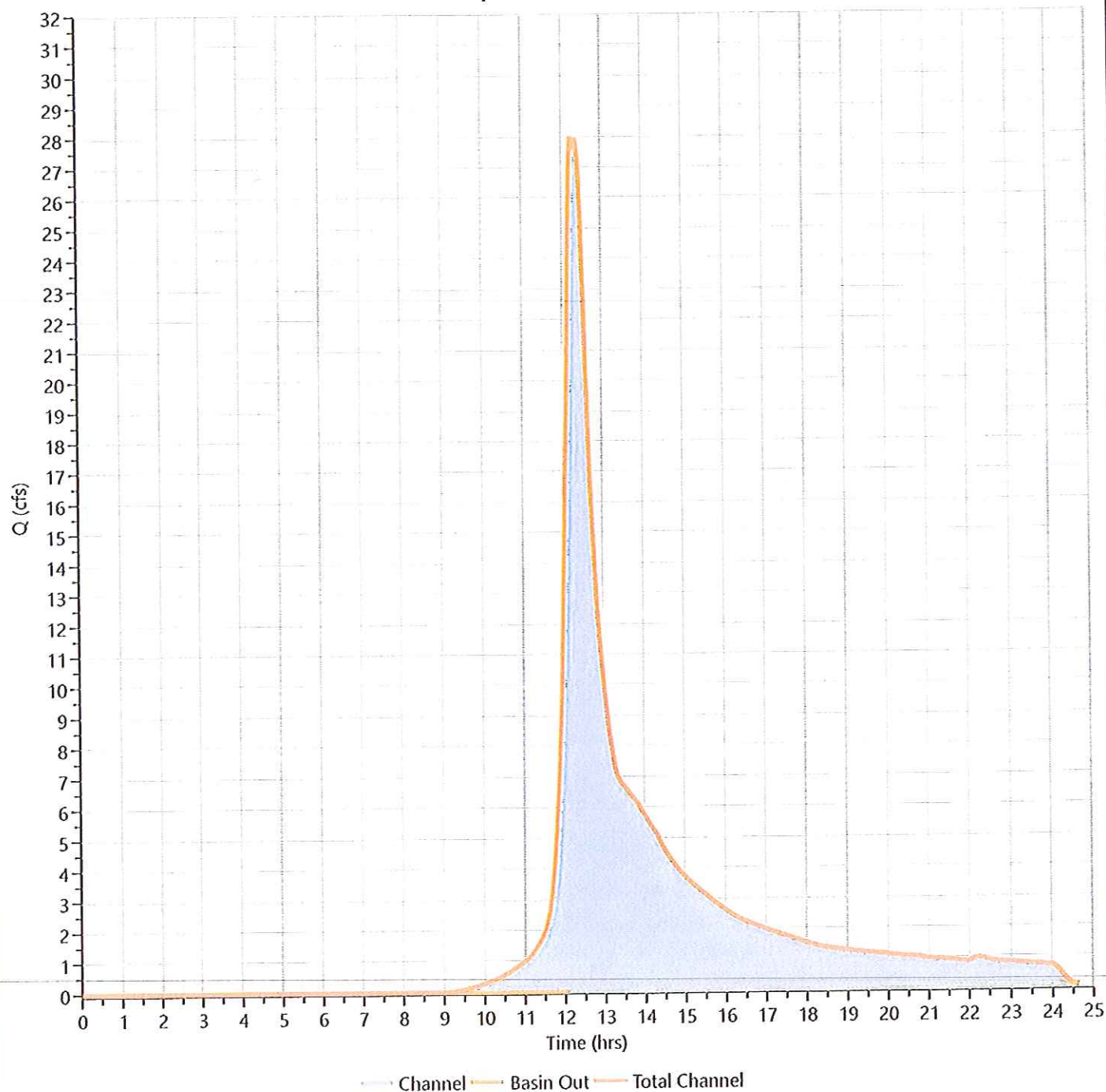
Peak Flow = 28.00 cfs

Time to Peak = 12.30 hrs

Hydrograph Volume = 175,811 cuft

Total Contrib. Area = 11.03 ac

Qp = 28.00 cfs



[illegible]

Hydrograph Report

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11-02-2020

Pre Channel

Hyd. No. 1

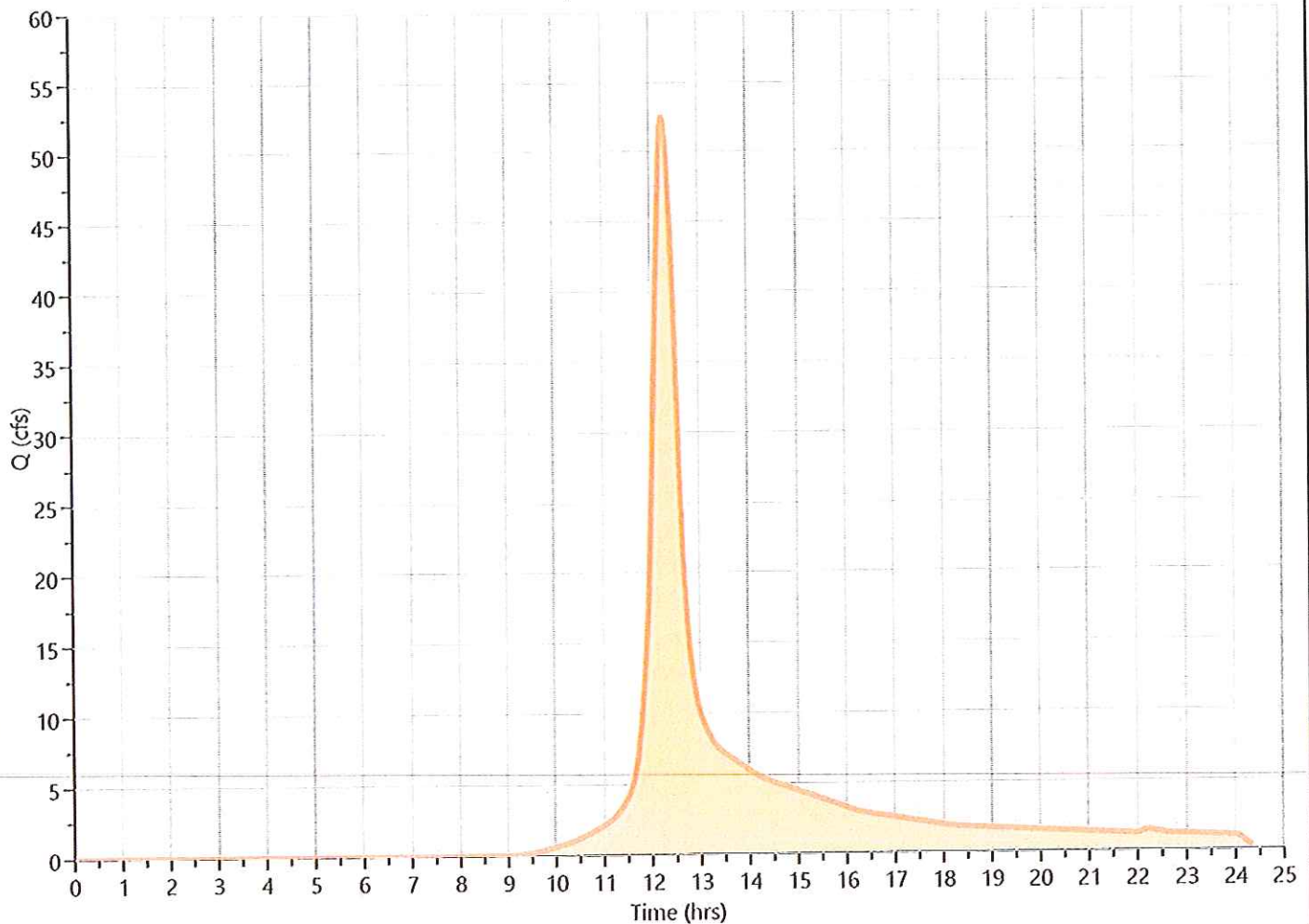
Hydrograph Type = NRCS Runoff
 Storm Frequency = 100-yr
 Time Interval = 2 min
 Drainage Area = 17.65 ac
 Tc Method = User
 Total Rainfall = 8.22 in
 Storm Duration = 24 hrs

Peak Flow = 52.60 cfs
 Time to Peak = 12.27 hrs
 Runoff Volume = 250,576 cuft
 Curve Number = 63*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.18	98	Impervious
0.86	39	Lawn A
0.75	80	Lawn D
4.06	36	Woods A
4.0	70	Woods C
7.8	77	Woods D
17.65	63	Weighted CN Method Employed

Qp = 52.60 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Channel

Hyd. No. 2

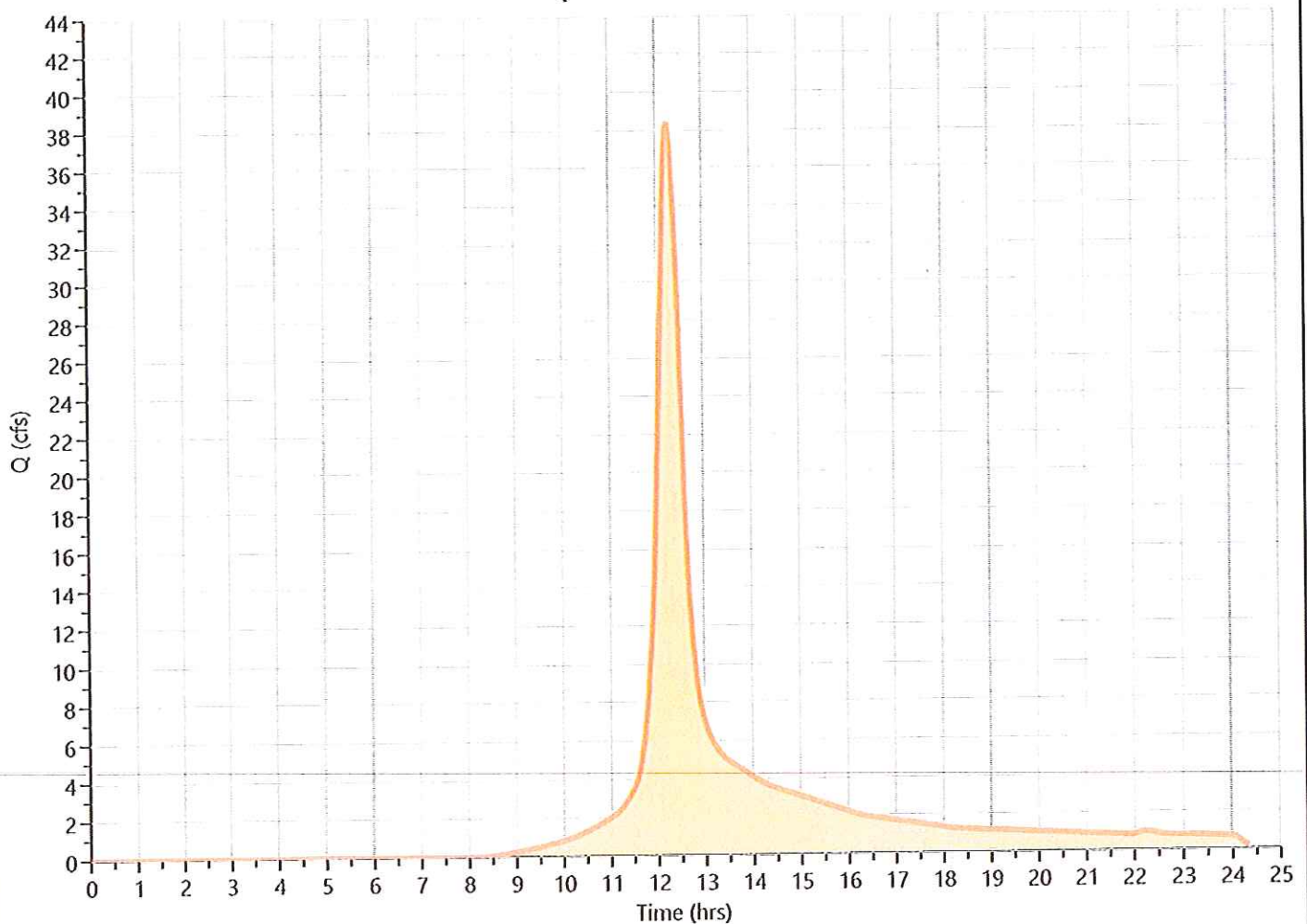
Hydrograph Type = NRCS Runoff
 Storm Frequency = 100-yr
 Time Interval = 2 min
 Drainage Area = 11.03 ac
 Tc Method = User
 Total Rainfall = 8.22 in
 Storm Duration = 24 hrs

Peak Flow = 38.42 cfs
 Time to Peak = 12.27 hrs
 Runoff Volume = 181,728 cuft
 Curve Number = 68.33*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
0.2	98	Impervious
0.93	35	Woods A
3.0	70	Woods C
5.29	77	Woods D
1.11	39	Lawn A
0.5	80	Lawn D
11.03	68	Weighted CN Method Employed

Qp = 38.42 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Basin In

Hyd. No. 5

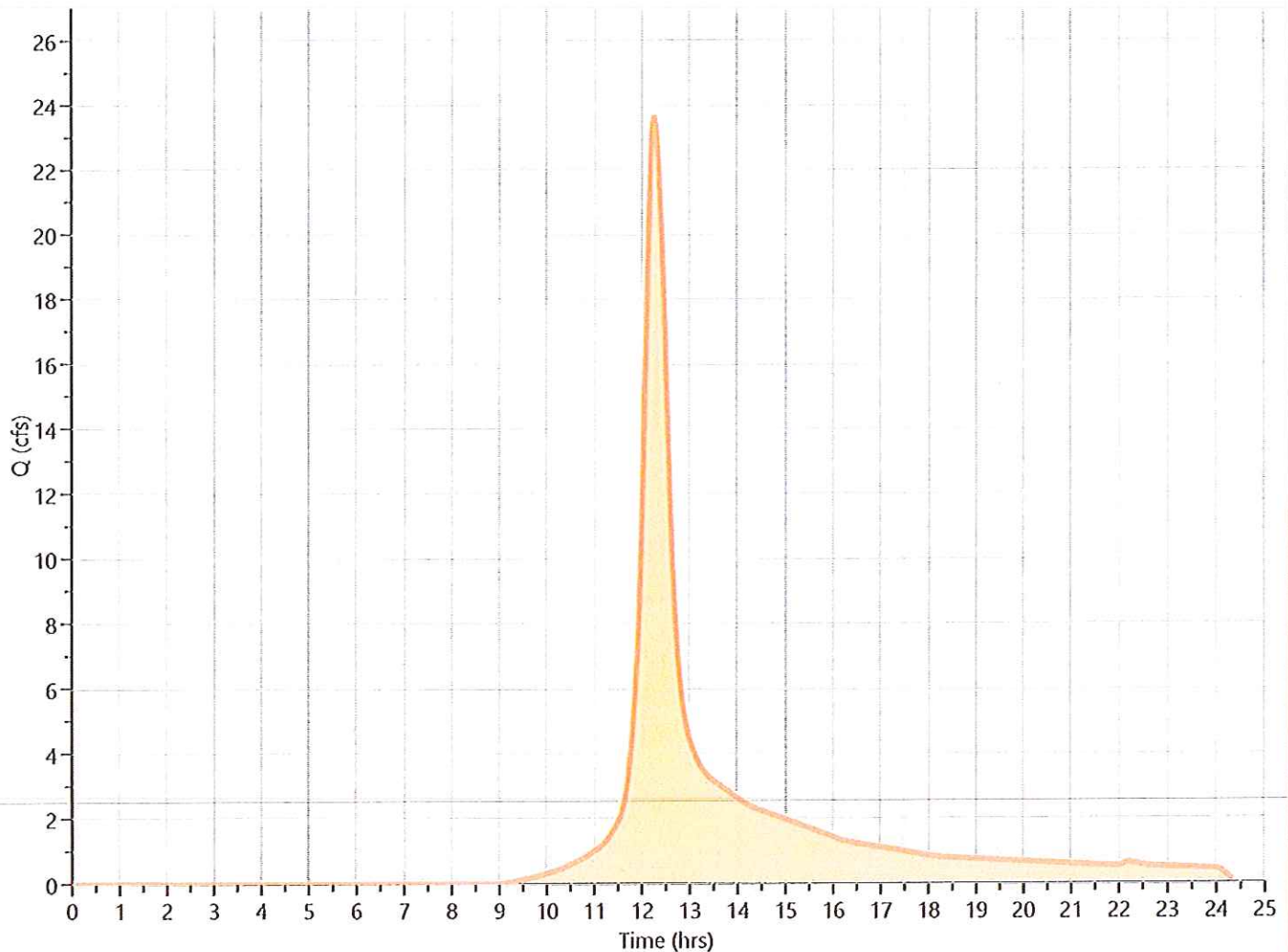
Hydrograph Type = NRCS Runoff
 Storm Frequency = 100-yr
 Time Interval = 2 min
 Drainage Area = 7.7 ac
 Tc Method = User
 Total Rainfall = 8.22 in
 Storm Duration = 24 hrs

Peak Flow = 23.68 cfs
 Time to Peak = 12.27 hrs
 Runoff Volume = 112,591 cuft
 Curve Number = 64*
 Time of Conc. (Tc) = 23.0 min
 Design Storm = Type III
 Shape Factor = 484

* Composite CN Worksheet

AREA (ac)	CN	DESCRIPTION
2.33	98	Impervious
3.69	39	Lawn A
0.82	80	Lawn D
0.21	30	Woods A
0.65	77	Woods D
7.7	64	Weighted CN Method Employed

Qp = 23.68 cfs



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Basin Out

Hyd. No. 6

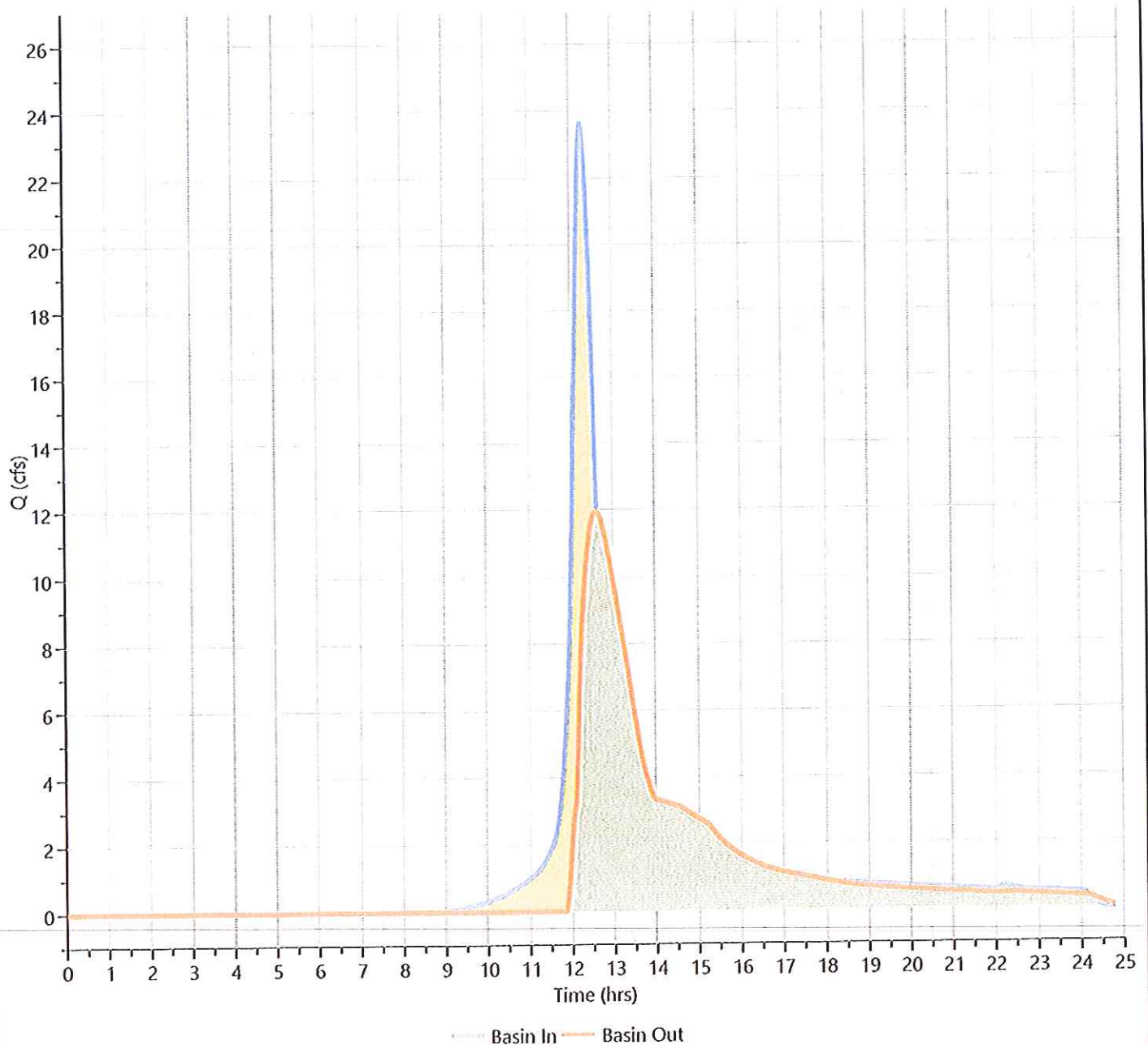
Hydrograph Type = Pond Route
 Storm Frequency = 100-yr
 Time Interval = 2 min
 Inflow Hydrograph = 5 - Basin In
 Pond Name = Basin 1

Peak Flow = 11.96 cfs
 Time to Peak = 12.60 hrs
 Hydrograph Volume = 96,449 cuft
 Max. Elevation = 326.86 ft
 Max. Storage = 34,320 cuft

Pond Routing by Storage Indication Method

Center of mass detention time = 34 min

$Q_p = 11.96 \text{ cfs}$



Hydrograph Report

Hydrology Studio v 3.0.0.16

11-02-2020

Post Total Channel

Hyd. No. 7

Hydrograph Type = Junction

Storm Frequency = 100-yr

Time Interval = 2 min

Inflow Hydrographs = 2, 6

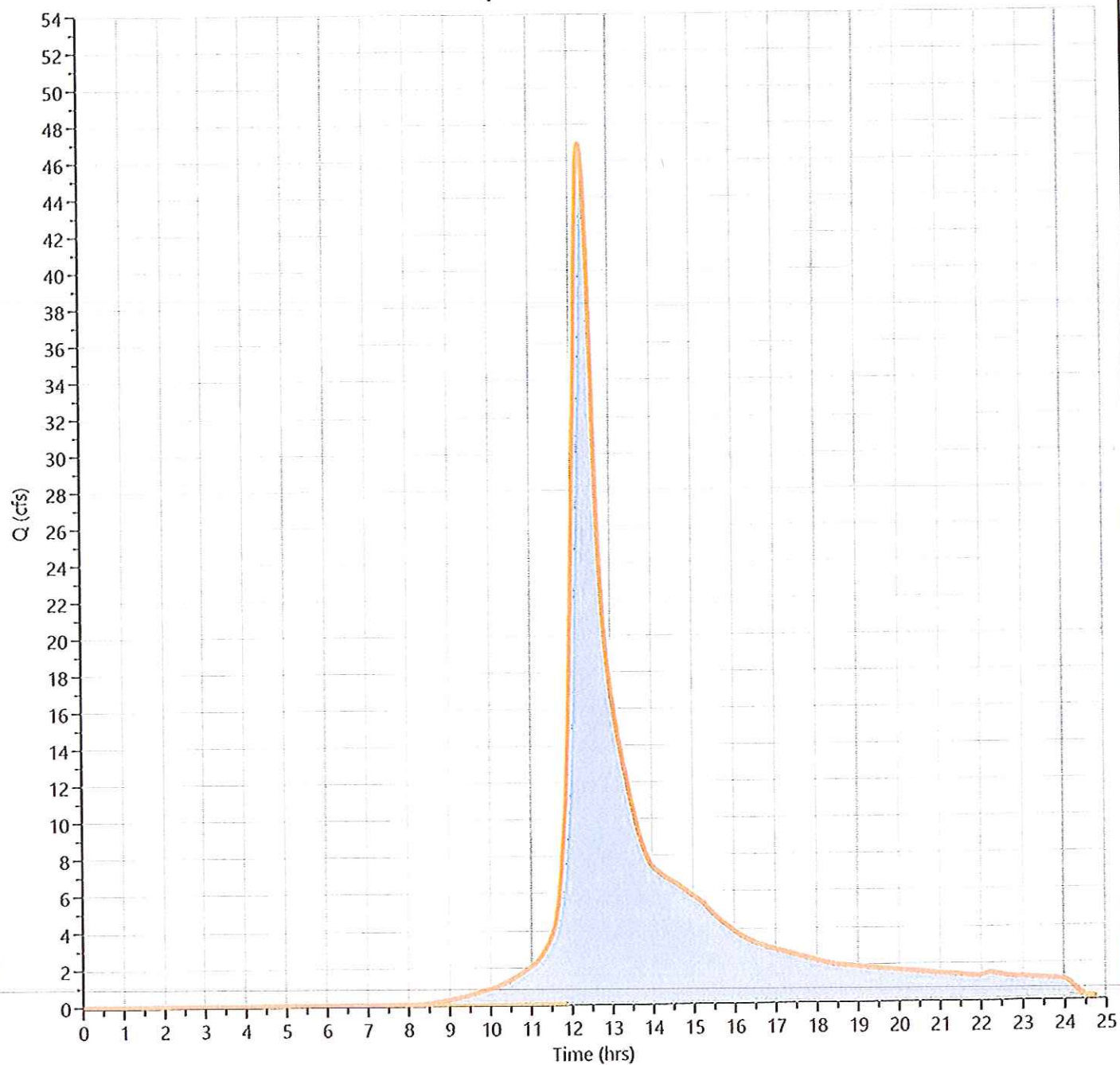
Peak Flow = 47.00 cfs

Time to Peak = 12.30 hrs

Hydrograph Volume = 278,177 cuft

Total Contrib. Area = 11.03 ac

Qp = 47.00 cfs



Channel Basin Out Total Channel

Pond Report

Hydrology Studio v 3.0.0.16

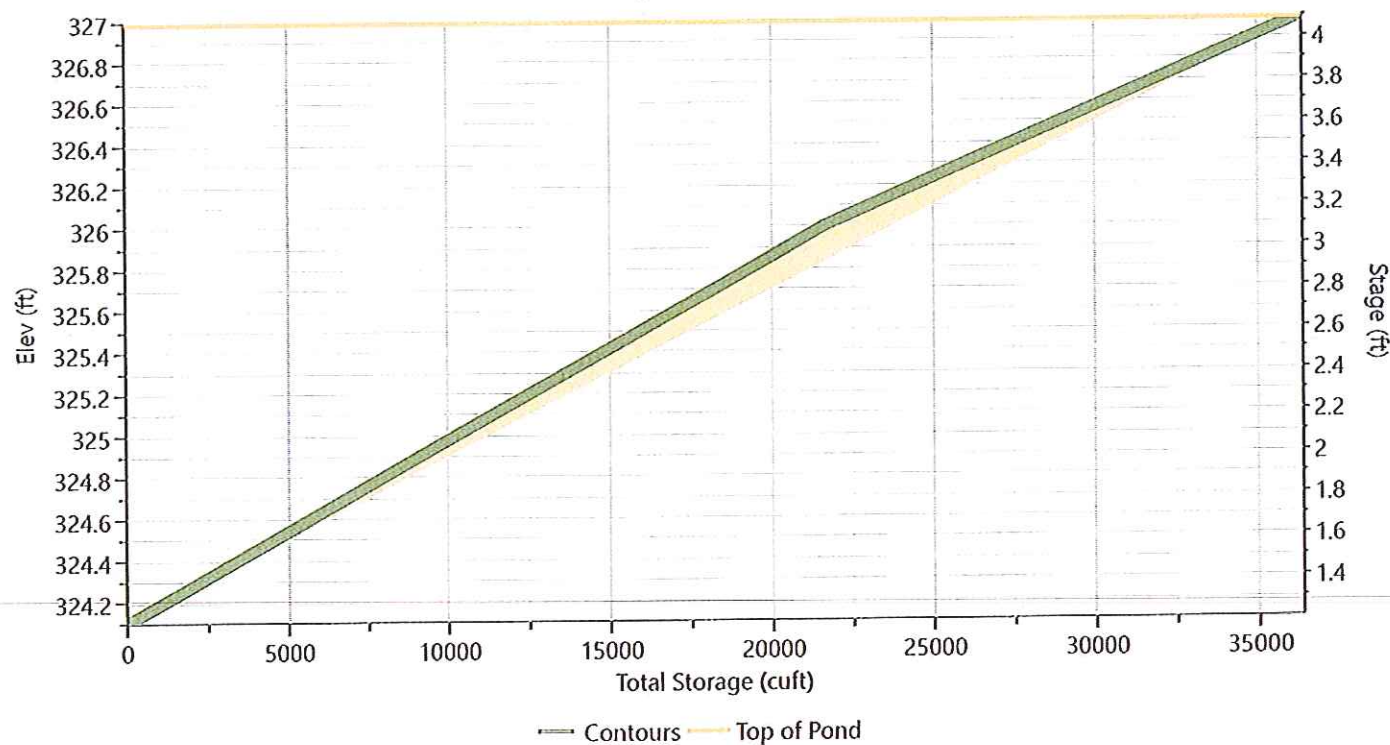
11-02-2020

Basin 1

Stage-Storage

User Defined Contours		Stage / Storage Table				
Description	Input	Stage (ft)	Elevation (ft)	Contour Area (sqft)	Incr. Storage (cuft)	Total Storage (cuft)
Bottom Elevation, ft	324.10	0.00	324.10	9,265	0.000	0.000
Voids (%)	100.00	1.90	326.00	13,530	21,655	21,655
Volume Calc	Rectangular	2.90	327.00	15,830	14,680	36,335

Stage-Storage



Pond Report

Hydrology Studio v 3.0.0.16

31
Project Name:

11-02-2020

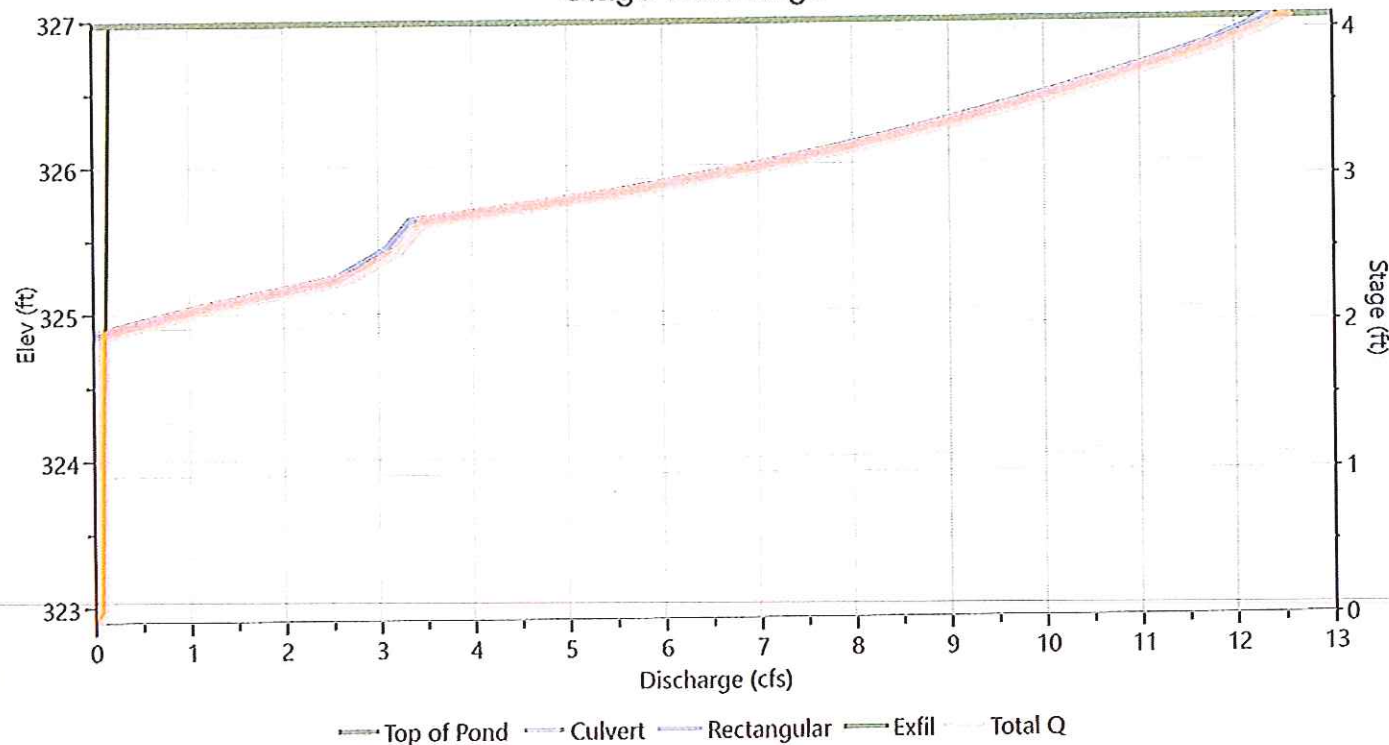
Basin 1

Stage-Discharge

Culvert / Orifices		Orifices			Perforated Riser	
	Culvert	1	2	3		
Rise, in	18				Hole Diameter, in	
Span, in	18				No. holes	
No. Barrels	1				Invert Elevation, ft	
Invert Elevation, ft	324.10				Height, ft	
Orifice Coefficient, Co	0.60				Orifice Coefficient, Co	
Length, ft	20					
Barrel Slope, %	.5					
N-Value, n	0.013					
Weirs		Weirs			Ancillary	
	Riser*	1*	2	3		
Shape / Type		Rectangular			Exfiltration, in/hr	0.50**
Crest Elevation, ft		324.9			Tailwater Elevation, ft	
Crest Length, ft		6				
Angle, deg						
Weir Coefficient, Cw		3.3				

*Routes through Culvert. **Exfiltration extracted from outflow hydrograph. Rate applied to contours

Stage-Discharge



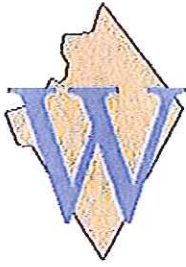
Hydrology Studio v 3.0.0.16

11-02-2020

Stage-Storage-Discharge Summary

[illegible]

Suffix key: ic = inlet control, oc = outlet control, s = submerged weir



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WATER QUALITY VOLUME CALCULATIONS

PREPARED FOR
SOAPSTONE ESTATES
SOMERS, CT
DATE: 10-21-20

AREA = 335,412 SF

IMPERVIOUS AREA = 73,300 SF : I = .22

$WQV = 1''((.05 + (.9)(.22))) \times 335,412 \text{ sf} / 12'' = 6,900 \text{ cf}$

BOTTOM AREA BASIN: 8,800 SF

DEPTH OF WQV (BASIN BOTTOM TO LOW FLOW OUTLET): 0.8FT

SEDIMENT FOREBAY (10% WQV): 690 CF (MIN.)

Treatment methods of first 1" rainfall from impervious areas (WQV) that falls on proposed roof and pavement areas will be collected by drainage system and discharged to the onsite Water Quality / Detention Basin and stored during small storms of 1" or less. This volume of water will percolate into embankment side and be collected by an under drain and slowly released through the outlet structure over a period of 24 to 48 hours.

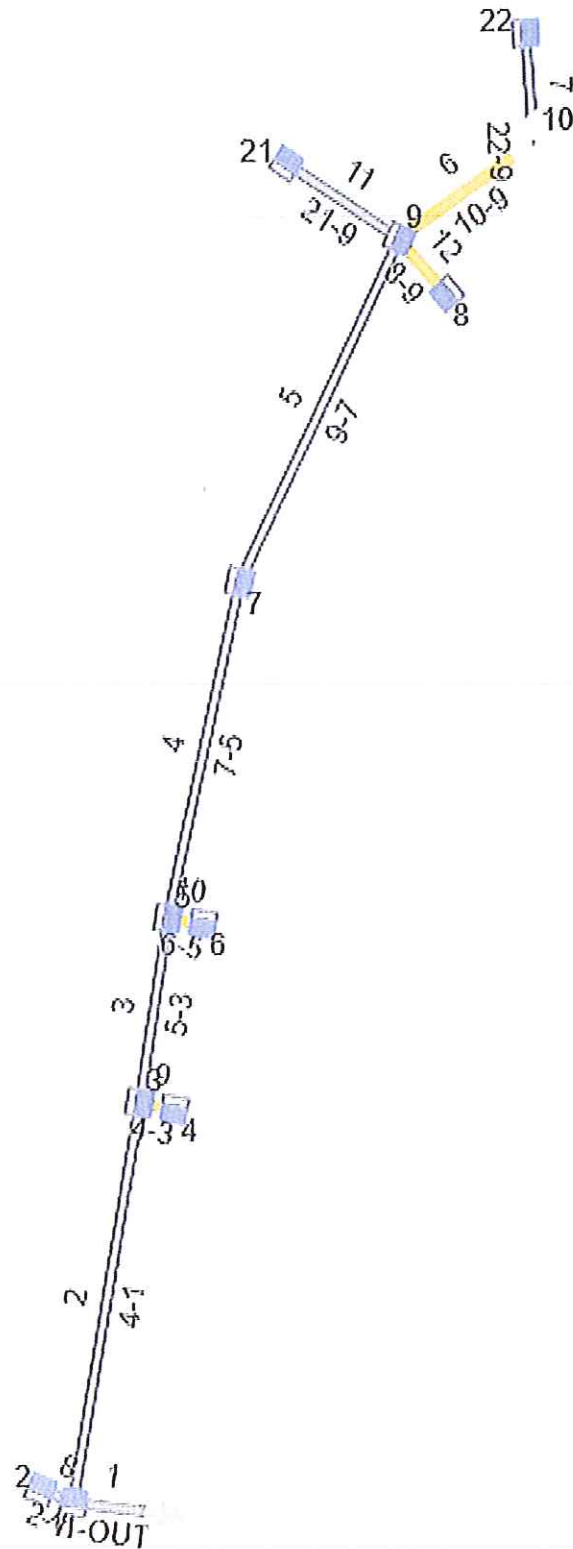
Plan View

Stormwater Studio 2020 v 3.0.0.21

34

Project Name: Enter Project Name...

12-03-2020



Composite C Worksheet

Stormwater Studio 2020 v 3.0.0.21

35
Project Name: Enter Project Name...

12-03-2020

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
1	Paved	0.160	0.90	0.144	0.62	1
	Grass	0.140	0.30	0.042		
	Totals	0.300		0.186		
2	Paved	0.120	0.90	0.108	0.70	3
	Grass	0.060	0.30	0.018		
	Totals	0.180		0.126		
3	Paved	0.140	0.90	0.126	0.62	5
	Grass	0.120	0.30	0.036		
	Totals	0.260		0.162		
4	Paved	0.050	0.90	0.045	0.60	7
	Grass	0.050	0.30	0.015		
	Totals	0.100		0.060		
5	Paved	0.330	0.90	0.297	0.59	9
	Grass	0.360	0.30	0.108		
	Totals	0.690		0.405		
7	Paved	0.020	0.90	0.018	0.28	22
	Grass	1.190	0.30	0.357		
	Woods	1.630	0.25	0.408		
	Totals	2.840		0.783		
8	Paved	0.160	0.90	0.144	0.59	2
	Grass	0.170	0.30	0.051		
	Totals	0.330		0.195		
9	Paved	0.120	0.90	0.108	0.70	4
	Grass	0.060	0.30	0.018		
	Totals	0.180		0.126		

Line No	Description	Drainage Area (ac)	Runoff Coeff (C)	C x A	Composite (C)	Structure ID
10	Paved	0.100	0.90	0.090		6
	Grass	0.090	0.30	0.027		
	Totals	0.190		0.117	0.62	
11	Paved	0.050	0.90	0.045		21
	Grass	0.890	0.30	0.267		
	Totals	0.940		0.312	0.33	
12	Paved	0.230	0.90	0.207		8
	Grass	0.180	0.30	0.054		
	Totals	0.410		0.261	0.64	

Inlet Report

Project Name: Enter Project Name...

12-03-2020

Line No	Inlet		Q				Curb			Grate			Gutter								Inlet			Byp Line No
	Id		Catch (cfs)	Carry (cfs)	Capt (cfs)	Byp (cfs)	Ht (in)	L (ft)	L (ft)	W (ft)	Area (sqft)	So (ft/ft)	W (ft)	Sw (ft/ft)	Sx (ft/ft)	n	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depth (ft)	Spread (ft)	Depr (in)	
1	1	Combination	0.89	0.00	0.89	0.00	4.0	3.20	3.20	1.60	-	0.010	-	0.030	0.030	0.013	0.15	5.00	0.15	5.00	0.15	5.00	0.0	0
2	3	Combination	0.61	0.00	0.61	0.00	4.0	3.20	3.20	1.60	-	0.020	-	0.030	0.030	0.013	-	3.80	-	3.80	-	3.80	0.0	8
3	5	Combination	0.77	0.00	0.77	0.00	4.0	3.20	3.20	1.60	-	0.020	-	0.030	0.030	0.013	0.13	4.17	0.13	4.17	0.13	4.17	0.0	2
4	7	Combination	0.29	0.00	0.29	0.00	4.0	3.20	3.20	1.60	-	0.010	-	0.030	0.030	0.013	0.10	3.27	0.10	3.27	0.10	3.27	0.0	5
5	9	Combination	1.96	0.00	1.96	0.00	4.0	6.40	6.40	1.60	-	0.010	-	0.030	0.030	0.013	0.20	6.70	0.20	6.70	0.20	6.70	0.0	6
6	10	Manhole	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
7	22	Grate	2.79	0.00	2.79	0.00	-	-	3.20	1.60	2.56	Sag	1.60	0.030	0.030	0.013	0.30	10.01	0.30	10.01	0.30	10.01	0.0	6
8	2	Combination	0.94	0.00	0.94	0.00	4.0	3.20	3.20	1.60	-	0.010	-	0.030	0.030	0.013	0.15	5.07	0.15	5.07	0.15	5.07	0.0	0
9	4	Combination	0.61	0.00	0.61	0.00	4.0	3.20	3.20	1.60	-	0.020	-	0.030	0.030	0.013	-	3.80	-	3.80	-	3.80	0.0	1
10	6	Combination	0.57	0.00	0.57	0.00	4.0	3.20	3.20	1.60	-	0.020	-	0.030	0.030	0.013	-	3.70	-	3.70	-	3.70	0.0	9
	21	Grate	1.38	0.00	1.38	0.00	-	3.20	3.20	1.60	2.56	Sag	1.60	0.030	0.030	0.013	0.20	6.57	0.20	6.57	0.20	6.57	0.0	5
12	8	Combination	1.26	0.00	1.26	0.00	4.0	3.20	3.20	1.60	-	0.010	-	0.030	0.030	0.013	0.17	5.67	0.17	5.67	0.17	5.67	0.0	5

Line ID	Length (ft)	Incr		Rational (C)	Incr	Inlet (min)	Syst (min)	Intensity (in/hr)	Capacity (cfs)	Capacity (cfs)	Line		Invert Elev		Surface Elev		Line No
		(ac)	(ac)								Size (in)	Slope (%)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	
1-OUT	44.00	0.300	6.420	0.62	0.19	2.75	23.24	3.24	8.89	10.01	18	0.91	324.50	324.10	333.48	326.00	1
4-1	248.00	0.180	5.790	0.70	0.13	2.37	22.47	3.30	7.80	8.38	18	0.64	326.08	324.50	335.93	333.48	2
5-3		0.260	5.430	0.62	0.16		22.07	3.33	7.04	7.46	18	0.50	326.66	326.08	338.23	335.93	3
7-5	212.00	0.100	4.980	0.60	0.06	1.83	21.48	3.38	6.20	10.23	18	0.95	328.67	326.66	340.62	338.23	4
9-7	232.00	0.690	4.880	0.59	0.41	1.77	20.66	3.45	6.12	7.43	18	0.50	329.83	328.67	337.55	340.62	5
10-9	102.00	0.000	2.840	0.00	0.00	0.80	20.22	3.49	2.77	7.43	18	0.50	330.34	329.83	340.40	337.55	6
22-9	67.00	2.840	2.840	0.28	0.80	0.80	20.00	3.51	2.79	3.56	12	1.00	334.00	333.33	337.00	340.40	7
2-1	21.89	0.330	0.330	0.59	0.19	0.19	5.00	4.81	0.94	3.57	12	1.01	330.22	330.00	333.48	333.48	8
4-3	22.04	0.180	0.180	0.70	0.13	0.13	10.00	4.81	0.61	3.56	12	1.00	328.80	328.58	335.93	335.93	9
6-5	22.00	0.190	0.190	0.62	0.12	0.12	5.00	4.81	0.57	6.46	15	1.00	330.80	330.58	338.23	338.23	10
21-9	83.73	0.940	0.940	0.33	0.31	0.31	12.00	4.46	1.38	2.75	12	0.60	334.50	334.00	337.50	337.55	
8-9	44.74	0.410	0.410	0.64	0.26	0.26	10.00	4.81	1.26	4.53	15	0.49	330.30	330.08	338.00	337.55	12

STORMWATER OPERATIONS AND MAINTENANCE PLAN

SOAPSTONE ESTATES

ELEANOR ROAD

SOMERS, CT

DATE: 12-02-20

NOTE: PRIOR TO ANY CLEANING W/IN BASIN, ETC. THE TOWN OF SOMERS INLAND WETLANDS AGENT IS TO BE NOTIFIED OF ACTIVITY.

-WATER QUALITY AND DETENTION BASIN

INSPECT AFTER MAJOR RAINSTORMS (1" OR GREATER) & REMOVE TRASH & DEBRIS

INSPECT BASIN INLETS AND OUTLETS AND SIDE SLOPES FOR STRUCTURAL INTEGRITY & SEDIMENT ACCUMULATION. REMOVE SEDIMENTATION AFTER ACCUMULATION IN EXCESS OF 6". RESEED WITH WET MEADOW GRASS SEED MIX AND MULCH. JUTE MAT CAN BE USED TO STABILIZE AREAS THAT ARE RESEED UNTIL VEGETATION HAS BEEN ESTABLISHED

INSPECT BASIN BOTTOM. REMOVE SEDIMENTATION ACCUMULATION IN WHEN IN EXCESS OF 12" DEEP. PUMP DOWN ANY STANDING WATER PRIOR TO SEDIMENT REMOVAL. RESEED W/ WET MEADOW GRASS SEED MIX AND MULCH W/ WEED FREE HAY OR STRAW.

INSPECT STONE FILTER BERMS FOR STRUCTURAL INTEGRITY. REPAIR AS REQUIRED. IF LONG TERM STANDING WATER BEHIND STONE BERMS IS IN EXCESS OF 12" DEEP, REPLACE ENTIRE BERM, AS GRAVEL CORE IS MORE THAN LIKELY PLUGGED W/ FINE MATERIALS.

INSPECT EMBANKMENT. VERIFY THAT NO AREAS OF SETTLEMENT HAVE OCCURRED. FILL/REGRADE TOP OF BERM AS NECESSARY TO MAINTAIN MINIMUM TOP OF BERM ELEVATION. RESEED AND MULCH AS NECESSARY. MOW EMBANKMENT AT LEAST ONCE PER YEAR.

INSPECT OUTLET STRUCTURE. REMOVE ANY ACCUMULATED DEBRIS OR SEDIMENT FROM INLET. INSPECT OUTLET FOR STRUCTURAL INTEGRITY AND REMOVE DEBRIS AND SEDIMENT. REPAIR RIP RAP AREAS AS REQUIRED.

-CULVERT INLETS AND OUTLETS

INSPECT AFTER MAJOR RAINSTORMS (1" OR GREATER) & REMOVE TRASH & DEBRIS

REMOVE SEDIMENTATION AFTER ACCUMULATION IN EXCESS OF 12". RESEED WITH WET MEADOW GRASS SEED MIX AND MULCH OR RESTABILIZE WITH RIP RAP. JUTE MAT CAN BE USED TO STABILIZE AREAS THAT ARE RESEED UNTIL VEGETATION HAS BEEN ESTABLISHED

-PAVED AREAS

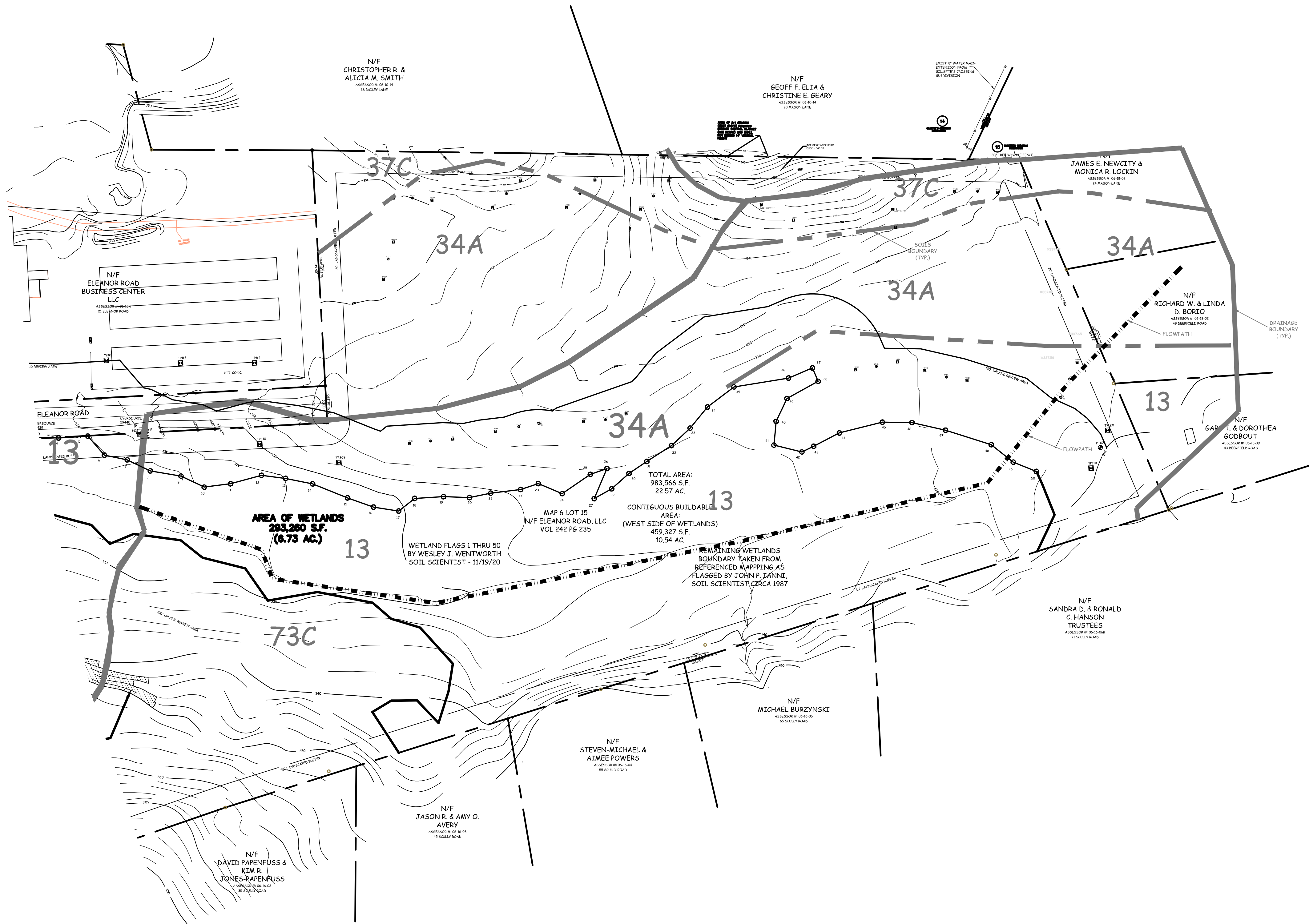
SWEEP ANNUALLY IN SPRING TO REMOVE SAND AND SILT MATERIALS

-CATCH BASINS

VACUUM SUMPS ANNUALLY IN SPRING TO REMOVE SAND AND SILT MATERIALS. REMOVE ANY DEBRIS THAT MAY BE CLOGGING INLET GRATE TWICE PER YEAR OR AS NECESSARY. INSPECT FOR STRUCTURAL INTEGRITY AND REPAIR AS REQUIRED

-OVERALL SITE

ONSITE USE OF HERBICIDES, PESTICIDES AND FERTILIZERS SHOULD BE KEPT TO A MINIMUM.



SOILS LEGEND	
13	WALPOLE SANDY LOAM 0 - 3% SLOPES
34A	MERRIMAC FINE SANDY LOAM 0 - 3% SLOPES
37C	MANCHESTER GRAVELLY SANDY LOAM 3 - 15% SLOPES
73C	CHARLTON-CHATFIELD COMPLEX 0 - 15% SLOPES VERY ROCKY

APPENDIX 'A'

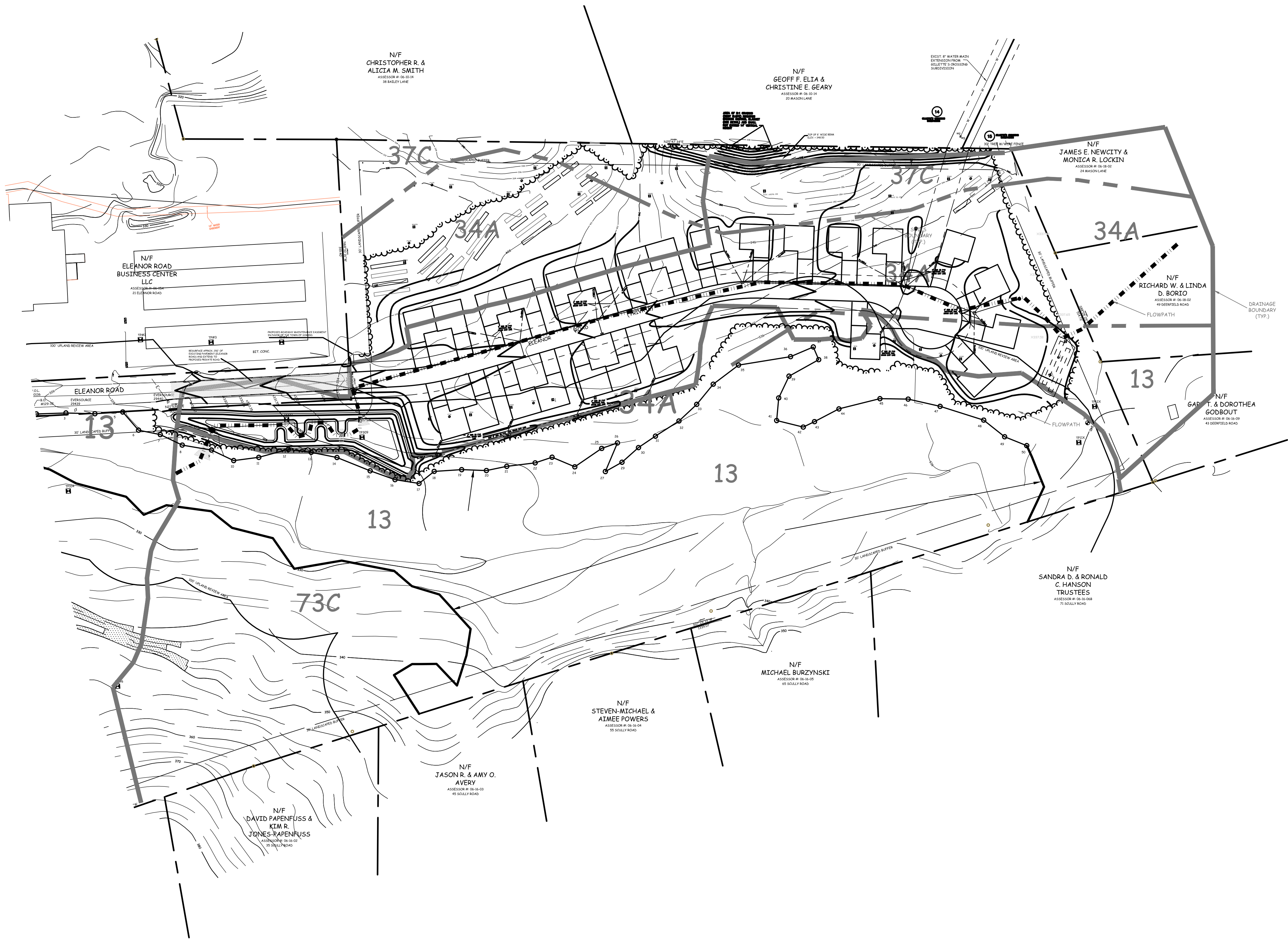
EXISTING CONDITIONS DRAINAGE MAP
SOAPSTONE ESTATES
ELEANOR ROAD
PREPARED FOR
GINGRAS DEVELOPMENT, LLC
SOMERS, CONNECTICUT

DATE: 10-22-20
SCALE: 1"=80'
SHEET 1 OF 1
MAP NO. 20-022-1DE

WENTWORTH CIVIL ENGINEERS LLC
177 WEST TOWN ST.
LEBANON, CT 06249
TEL: (860) 642-7255
FAX: (860) 642-7251
web: wentworthcivil.com

I HEREBY DECLARE TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS PLAN IS SUBSTANTIALLY CORRECT.

WESLEY J. WENTWORTH
P.E. # 20360



SOILS LEGEND

- 13 WALPOLE SANDY LOAM
0 - 3% SLOPES
- 34A MERRIMAC FINE SANDY LOAM
0 - 3% SLOPES
- 37C MANCHESTER GRAVELLY SANDY LOAM
3 - 15% SLOPES
- 73C CHARLTON-CHATFIELD COMPLEX
0 - 15% SLOPES VERY ROCKY

APPENDIX 'B'

DEVELOPED CONDITIONS DRAINAGE MAP

SOAPSTONE ESTATES

ELEANOR ROAD

PREPARED FOR

GINGRAS DEVELOPMENT, LLC

SOMERS, CONNECTICUT

DATE: 10-22-20

SCALE: 1"=80'

SHEET 1 OF 1

MAP NO. 20-022-1DD

WENTWORTH CIVIL
ENGINEERS LLC

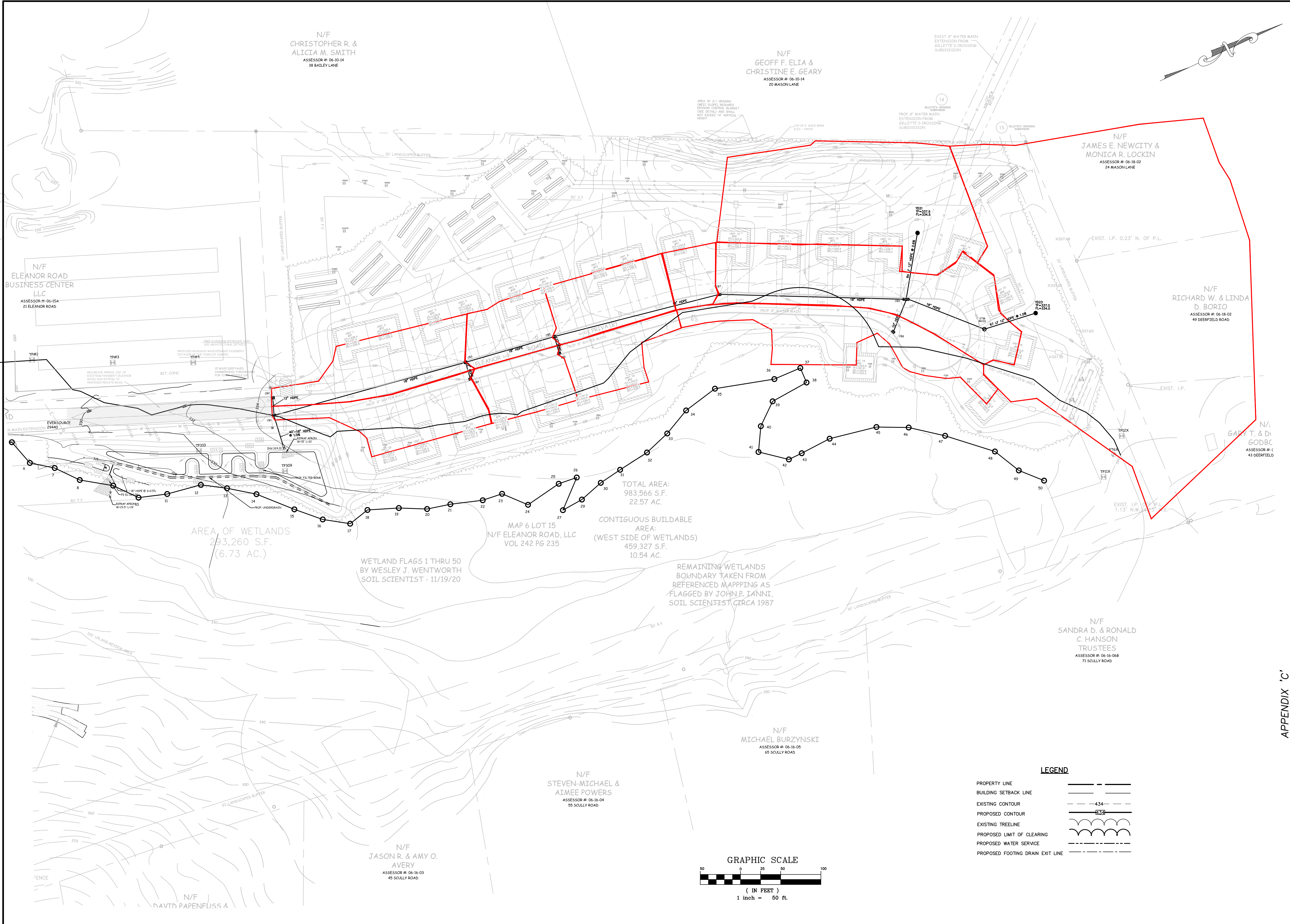
177 WEST TOWN ST.
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WEB: WENTWORTHCIVIL.COM

I HEREBY DECLARE TO THE BEST OF MY KNOWLEDGE AND BELIEF THAT THIS PLAN IS SUBSTANTIALLY CORRECT.

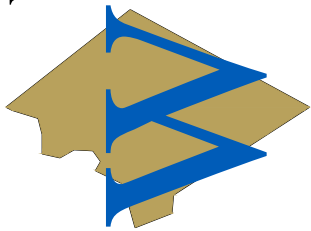
WESLEY J. WENTWORTH


P.E. # 20360



APPENDIX 'C'
CATCH BASIN DRAINAGE MAP
SOAPSTONE ESTATES
ELEANOR ROAD
PREPARED FOR
GINGRAS DEVELOPMENT, LLC
SOMERS, CONNECTICUT

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ENGINEERS LLC**
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WESLEY J. WENTWORTH
P.E. # 20360

DATE: 9-09-20
SCALE: 1"=50'
SHEET 1 OF 1
MAP NO. 20-022-1CB