RECEIVED
ENFIELD PLANNING DEPT.
2020 SEP 15 PM 2:05

SITE ENGINEERING
DRAINAGE REPORT
FLOOD HAZARD ANALYSIS

AAA FACILITY - 25 HAZARD AVENUE
ENFIELD COMMONS
ENFIELD, CT

Prepared for:

AAA Club Alliance, LLC
Wilmington, DE
Applicant

Prepared by:

F. A. Hesketh
& Associates, Inc.

3 Creamery Brook
East Granby, CT 06026

860-653-8000

Revised thru Sept. 9, 2020

FAHA Project #19001

STATE OF CONNECTICUT
DAVID S. ZIAKS
No. 13336
LICENSED
PROFESSIONAL ENGINEER

SITE ENGINEERING
DRAINAGE REPORT
FLOOD HAZARD ANALYSIS

Prepared For

AAA Facility
25 HAZARD AVENUE
ENFIELD COMMONS
ENFIELD, CT
Revised thru Sept. 9, 2020

A. INTRODUCTION

The project is part of Enfield Commons Shopping Center and falls in the BR Zone. Enfield Commons is a regional shopping center comprised of several lots totaling 33.02 acres approved under a unified site plan. This project is located on the parcel with the address 25 Hazard Avenue and totals 30.99 acres. The applicant, AAA, is proposing to construct a stand alone service facility of just under 11,000 s.f.. The revised site with be blended into the surrounding shopping center layout and access. Through an increase in landscaping, there will be a reduction of 30,800 s.f. of impervious coverage for the total shopping center.

B. WATER SUPPLY

The new building will be connected with minor modifications to the existing public water supply in Freshwater Boulevard.

C. SANITARY SEWAGE DISPOSAL

The new building addition will be connected with minor modifications to the existing sanitary sewer serving the shopping center. Two new 6" sanitary laterals will be installed with one new grease trap handling waste discharged from the auto center side. The new sewer laterals will drain to a small private pumping station with force main that will be installed and connected to the on-site sewer system as shown on Sheet UT-1.

D. GAS, ELECTRIC, TELEPHONE/COMMUNICATION SERVICES

The new building will be serviced through modifications and extensions from the existing public systems installed along Freshwater Boulevard.

E. LIGHTING

New building and site lighting will be provided by LED lights and will be dark sky compliant.

F. DRAINAGE SYSTEM

Runoff from the project site will be collected by new catch basins connected to the existing drainage system. A large basin will be constructed which serves as a flood volume compensation basin and water quality basin for site runoff. There are no new discharge points to Freshwater Brook. With the addition of the new excavated basin and site landscaping, there will be a 29% +/- reduction in peak flow from the project area. The storm sewer system has been analyzed for the 25-year storm and the results are attached. In general, the existing storm sewer system has sufficient capacity to handle the design storm.

Maintenance of the On-Site Storm Water System:

1. Maintenance of the on-site storm water system is the responsibility of the property owner. This includes all catch basins, system piping, manholes and roof leaders and underground flood compensation piping.

2. The following schedule of maintenance shall be followed:

   In general, good housekeeping practices shall be incorporated into the routine site and facility maintenance plan to minimize deposition of sediment, litter and contaminants into the storm drainage system.

   Paved parking and loading areas and walks shall be swept of debris, sand, and litter at least twice annually, in particular, late spring after winter sanding operations, and in late fall after leaf litter cleanup.

   Catch basins and storm drains shall be inspected annually, following spring site cleanup. Accumulated sediment and debris shall be removed and disposed of to approved off-site locations.

3. Maintenance records documenting system inspection and cleaning operations shall be maintained by the property owner and shall be made available for inspection by the Town as requested.

4. The owner is responsible for managing the on-site storm water system to prevent mosquito breeding between April 1 and September 30.

G. SOIL EROSION CONTROL PLAN

A soil and erosion control plan has been prepared in accordance with town and CT DEEP requirements. Prior to the start of site construction, the project limits will be

carefully staked out in the field and reviewed with town staff. Soil erosion and sedimentation control measures will be installed prior to construction and maintained throughout the work.

H. OSTA PERMIT

The project site is included with additional parcels under a prior OSTA approval.

I. FLOOD HAZARD ANALYSIS

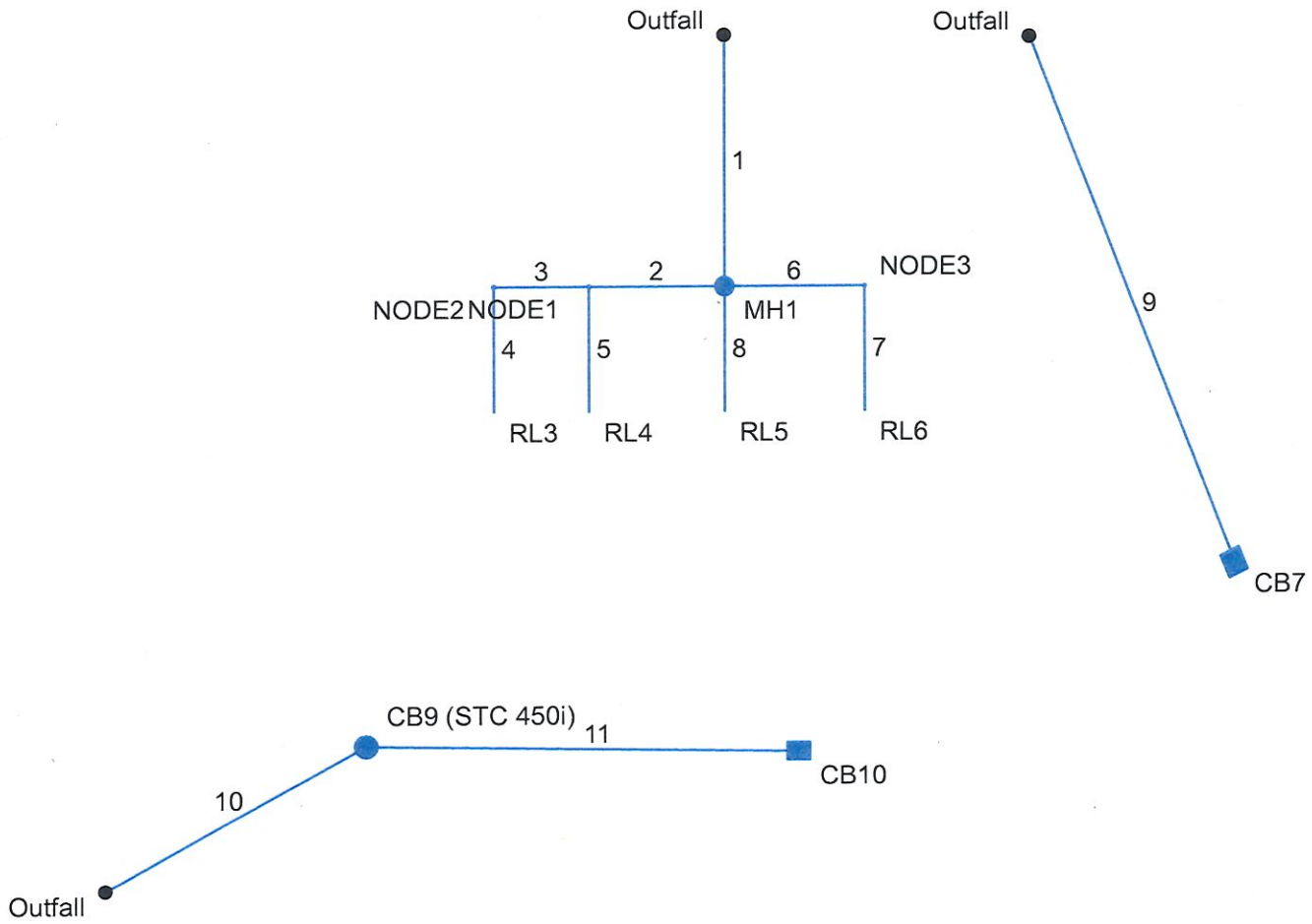
The 100-year BFE is 114.00 (NAVD 88) based on the current FEMA mapping. The lowest floor elevation for the new building will be 115.00. With the site grading changes required for AAA, there would be a loss of 100-year flood storage volume of 52,929 c.f. which is more than compensated for in the excavated basin and site regrading around the proposed building, so there will be no impact to the floodplain storage capacity associated with Freshwater Brook. The site design calls for approximately 57,815 c.f. of compensatory storage as shown on Sheet GR-1.

STORM DRAINAGE ANALYSIS

AAA FACILITY

25 HAZARD AVENUE

Hydraflow Storm Sewers Plan



Project File: 2020-09-09.stm	Number of lines: 11	Date: 09-09-2020

Hydraflow Storm Sewers 2008 v12.01

Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (I)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line	(ft)	Incr (ac)	Total (ac)	(C)	Incr	Total	Inlet (min)	Syst (min)	(in/hr)	(cfs)	(cfs)	(ft/s)	Size (in)	Slope (%)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	Dn (ft)	Up (ft)	
1	End	56	0.00	0.24	0.00	0.00	0.22	0.0	5.4	8.6	1.87	3.86	3.62	12	1.00	108.00	108.56	108.68	109.14	109.00	114.16	OUT1 - MH2
2	1	30	0.00	0.12	0.00	0.00	0.11	0.0	5.3	8.8	0.95	1.85	4.16	8	2.00	108.89	109.49	109.27	109.95	114.16	113.20	MH2 - NODE1
3	2	21	0.00	0.06	0.00	0.00	0.05	0.0	5.2	8.8	0.48	1.85	2.10	8	2.00	109.49	109.91	110.13	110.24	113.20	112.40	NODE1 - NODE2
4	3	28	0.06	0.06	0.90	0.05	0.05	5.0	5.0	8.9	0.48	0.86	3.88	6	2.00	110.08	110.64	110.35	110.99	112.40	114.50	NODE2 - RL3
5	2	28	0.06	0.06	0.90	0.05	0.05	5.0	5.0	8.9	0.48	1.14	3.04	6	3.50	109.66	110.64	110.07	110.99	113.20	114.50	NODE1 - RL4
6	1	31	0.00	0.06	0.00	0.00	0.05	0.0	5.2	8.8	0.48	0.86	3.86	6	2.00	109.06	109.68	109.33	110.03	114.16	113.60	MH2 - NODE3
7	6	28	0.06	0.06	0.90	0.05	0.05	5.0	5.0	8.9	0.48	1.12	3.00	6	3.43	109.68	110.64	110.10	110.99	113.60	114.50	NODE3 - RL6
8	1	28	0.06	0.06	0.90	0.05	0.05	5.0	5.0	8.9	0.48	1.44	4.39	6	5.64	109.06	110.64	109.29	110.99	114.16	114.50	MH1 - RL5
9	End	126	0.29	0.29	0.45	0.13	0.13	10.0	10.0	6.5	0.84	2.73	2.98	12	0.50	108.00	108.63	108.39	109.02	109.00	112.20	OUT6 - CB7
10	End	66	0.16	0.38	0.84	0.13	0.31	10.0	10.5	6.3	1.93	4.95	3.58	15	0.50	107.00	107.33	107.57	107.89	111.00	111.80	OUT8 - CB9 (ST
11	10	96	0.22	0.22	0.78	0.17	0.17	10.0	10.0	6.5	1.11	2.73	2.66	12	0.50	107.58	108.06	108.23	108.51	111.80	112.60	CB9 (STC 450i) -

Project File: 2020-09-09.stm

Number of lines: 11

Run Date: 09-09-2020

NOTES: Intensity = 43.72 / (Inlet time + 3.90) ^ 0.73; Return period = 25 Yrs. ; c = cir e = ellip b = box

Storm Sewer Summary Report

Line No.	Line ID	Flow rate (cfs)	Line size (in)	Line shape	Line length (ft)	Invert EL Dn (ft)	Invert EL Up (ft)	Line slope (%)	HGL down (ft)	HGL up (ft)	Minor loss (ft)	HGL Junct (ft)	Dns line No.	Junction Type
1	OUT1 - MH2	1.87	12	Cir	56	108.00	108.56	1.000	108.68	109.14	n/a	109.14 j	End	Manhole
2	MH2 - NODE1	0.95	8	Cir	30	108.89	109.49	2.000	109.27	109.95	0.21	109.95	1	Manhole
3	NODE1 - NODE2	0.48	8	Cir	21	109.49	109.91	2.000	110.13	110.24	n/a	110.24 j	2	Manhole
4	NODE2 - RL3	0.48	6	Cir	28	110.08	110.64	2.000	110.35	110.99	n/a	110.99	3	None
5	NODE1 - RL4	0.48	6	Cir	28	109.66	110.64	3.500	110.07	110.99	n/a	110.99 j	2	None
6	MH2 - NODE3	0.48	6	Cir	31	109.06	109.68	2.000	109.33	110.03	n/a	110.03	1	Manhole
7	NODE3 - RL6	0.48	6	Cir	28	109.68	110.64	3.429	110.10	110.99	n/a	110.99 j	6	None
8	MH1 - RL5	0.48	6	Cir	28	109.06	110.64	5.643	109.29	110.99	n/a	110.99	1	None
9	OUT6 - CB7	0.84	12	Cir	126	108.00	108.63	0.500	108.39	109.02	n/a	109.02	End	Combination
10	OUT8 - CB9 (STC 450i)	1.93	15	Cir	66	107.00	107.33	0.500	107.57	107.89	0.17	108.06	End	Combination
11	CB9 (STC 450i) - CB10	1.11	12	Cir	96	107.58	108.06	0.500	108.23	108.51	0.17	108.51	10	Combination

Project File: 2020-09-09.stm | Number of lines: 11 | Run Date: 09-09-2020

NOTES: Return period = 25 Yrs. ; j - Line contains hyd. jump.

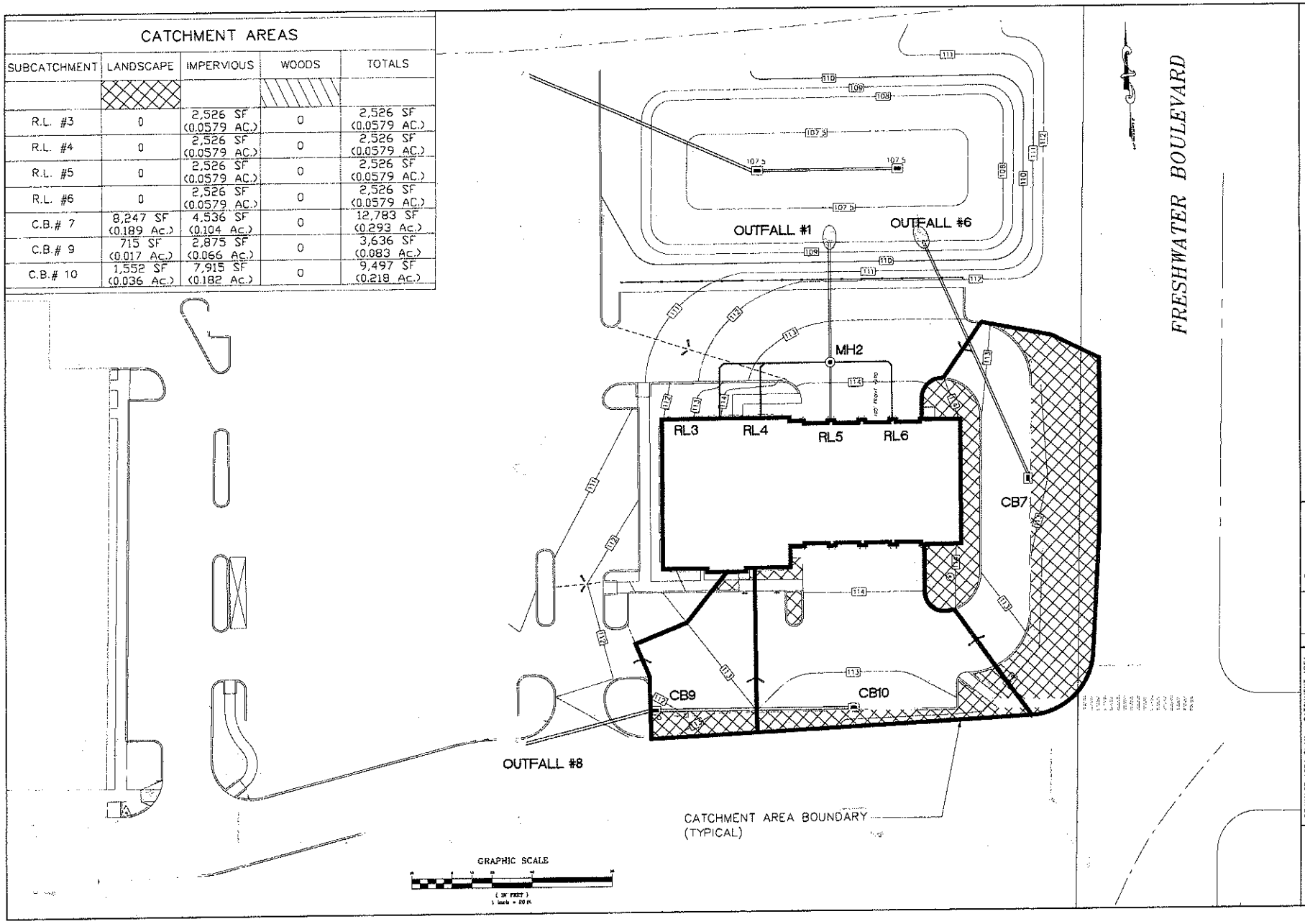
Storm Sewer Inventory Report

Line No.	Alignment				Flow Data				Physical Data								Line ID
	Dnstr line No.	Line length (ft)	Defl angle (deg)	Junc type	Known Q (cfs)	Drng area (ac)	Runoff coeff (C)	Inlet time (min)	Invert El Dn (ft)	Line slope (%)	Invert El Up (ft)	Line size (in)	Line shape	N value (n)	J-loss coeff (K)	Inlet/ Rim El (ft)	
1	End	56	90	MH	0.00	0.00	0.00	0.0	108.00	1.00	108.56	12	Cir	0.012	1.00	114.16	OUT1 - MH2
2	1	30	90	MH	0.00	0.00	0.00	0.0	108.89	2.00	109.49	8	Cir	0.012	1.00	113.20	MH2 - NODE1
3	2	21	0	MH	0.00	0.00	0.00	0.0	109.49	2.00	109.91	8	Cir	0.012	1.00	112.40	NODE1 - NODE2
4	3	28	-90	None	0.00	0.06	0.90	5.0	110.08	2.00	110.64	6	Cir	0.012	1.00	114.50	NODE2 - RL3
5	2	28	-90	None	0.00	0.06	0.90	5.0	109.66	3.50	110.64	6	Cir	0.012	1.00	114.50	NODE1 - RL4
6	1	31	-90	MH	0.00	0.00	0.00	0.0	109.06	2.00	109.68	6	Cir	0.012	1.00	113.60	MH2 - NODE3
7	6	28	90	None	0.00	0.06	0.90	5.0	109.68	3.43	110.64	6	Cir	0.012	1.00	114.50	NODE3 - RL6
8	1	28	0	None	0.00	0.06	0.90	5.0	109.06	5.64	110.64	6	Cir	0.012	1.00	114.50	MH1 - RL5
9	End	126	69	Comb	0.00	0.29	0.45	10.0	108.00	0.50	108.63	12	Cir	0.012	1.00	112.20	OUT6 - CB7
10	End	66	-29	Comb	0.00	0.16	0.84	10.0	107.00	0.50	107.33	15	Cir	0.012	0.83	111.80	OUT8 - CB9 (STC 45
11	10	96	30	Comb	0.00	0.22	0.78	10.0	107.58	0.50	108.06	12	Cir	0.012	1.00	112.60	CB9 (STC 450i) - C

Project File: 2020-09-09.stm | Number of lines: 11 | Date: 09-09-2020

CATCHMENT AREAS

SUBCATCHMENT	LANDSCAPE	IMPERVIOUS	WOODS	TOTALS
R.L. #3	0	2,526 SF (0.0579 AC.)	0	2,526 SF (0.0579 AC.)
R.L. #4	0	2,526 SF (0.0579 AC.)	0	2,526 SF (0.0579 AC.)
R.L. #5	0	2,526 SF (0.0579 AC.)	0	2,526 SF (0.0579 AC.)
R.L. #6	0	2,526 SF (0.0579 AC.)	0	2,526 SF (0.0579 AC.)
C.B.# 7	8,247 SF (0.189 Ac.)	4,536 SF (0.104 Ac.)	0	12,783 SF (0.293 Ac.)
C.B.# 9	715 SF (0.017 Ac.)	2,875 SF (0.066 Ac.)	0	3,636 SF (0.083 Ac.)
C.B.# 10	1,552 SF (0.036 Ac.)	7,915 SF (0.182 Ac.)	0	9,497 SF (0.218 Ac.)



DRAINAGE AREA PLAN – CATCHMENT AREA

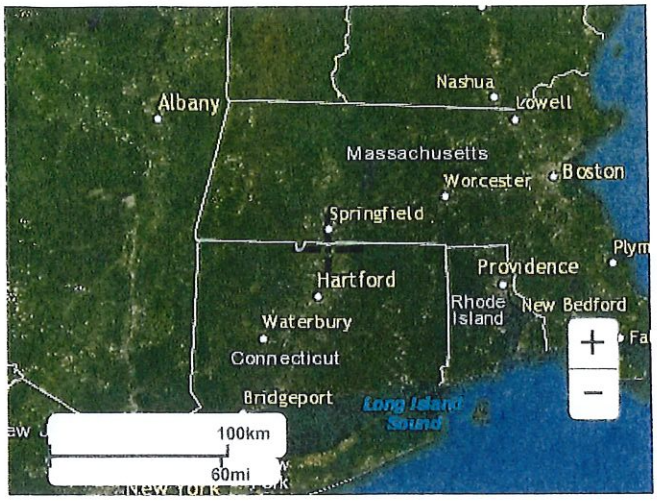
AAA CLUB ALLIANCE, INC.

ENFIELD COMMONS
75 HAZARD AVENUE
ENFIELD, CONNECTICUT

date 7-14-2020 | drawn by DRT | job no 19001
scale 1" = 20' | checked by DAH | sheet no 1 OF 1

DA-3

F. A. Hesketh & Associates, Inc.
0 Creamery Brook, East Granby, CT 06026
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects

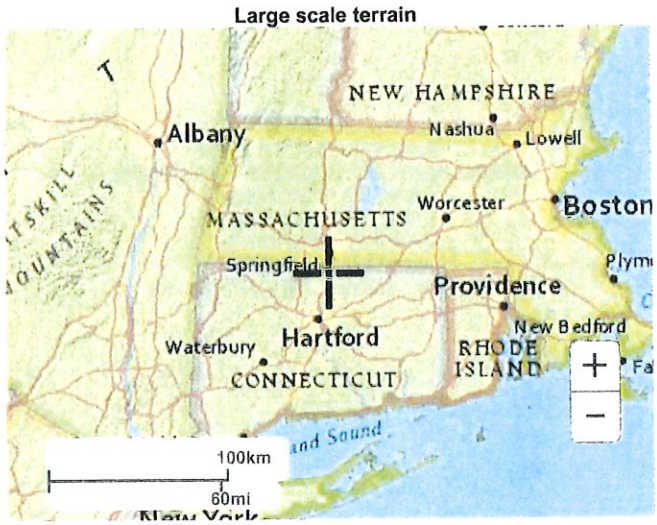


Back to Top

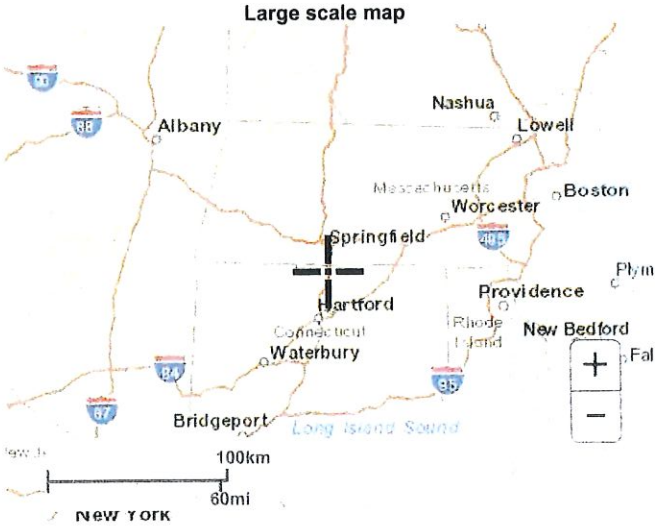
US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Large scale terrain



Large scale map



Large scale aerial

NOAA Atlas 14, Volume 10, Version 3
Location name: Enfield, Connecticut, USA*
Latitude: 41.9959°, Longitude: -72.5909°
Elevation: m/ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sandra Pavlovic, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Orlan Wilhite

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	4.09 (3.14-5.30)	4.92 (3.78-6.38)	6.28 (4.80-8.17)	7.40 (5.64-9.70)	8.96 (6.62-12.3)	10.1 (7.34-14.2)	11.4 (8.02-16.5)	12.7 (8.54-19.0)	14.7 (9.49-22.7)	16.3 (10.3-25.7)
10-min	2.90 (2.23-3.76)	3.49 (2.68-4.52)	4.45 (3.40-5.80)	5.25 (4.00-6.88)	6.35 (4.69-8.71)	7.18 (5.21-10.1)	8.05 (5.68-11.7)	9.01 (6.05-13.4)	10.4 (6.73-16.1)	11.5 (7.29-18.2)
15-min	2.27 (1.74-2.94)	2.74 (2.10-3.55)	3.49 (2.67-4.55)	4.12 (3.13-5.40)	4.98 (3.68-6.83)	5.63 (4.08-7.89)	6.31 (4.45-9.19)	7.07 (4.74-10.5)	8.15 (5.28-12.6)	9.03 (5.72-14.3)
30-min	1.53 (1.18-1.98)	1.85 (1.42-2.40)	2.37 (1.81-3.08)	2.80 (2.13-3.66)	3.39 (2.50-4.65)	3.83 (2.78-5.37)	4.30 (3.03-6.26)	4.82 (3.23-7.19)	5.56 (3.60-8.60)	6.16 (3.90-9.73)
60-min	0.962 (0.739-1.25)	1.16 (0.893-1.51)	1.49 (1.14-1.95)	1.77 (1.35-2.32)	2.14 (1.58-2.94)	2.43 (1.76-3.40)	2.72 (1.92-3.96)	3.05 (2.05-4.56)	3.52 (2.28-5.45)	3.90 (2.47-6.16)
2-hr	0.618 (0.478-0.796)	0.742 (0.574-0.958)	0.947 (0.729-1.23)	1.12 (0.855-1.45)	1.35 (1.00-1.85)	1.52 (1.11-2.13)	1.71 (1.22-2.49)	1.93 (1.30-2.86)	2.25 (1.46-3.47)	2.53 (1.60-3.97)
3-hr	0.473 (0.367-0.607)	0.569 (0.441-0.731)	0.726 (0.560-0.936)	0.855 (0.657-1.11)	1.03 (0.774-1.41)	1.17 (0.857-1.63)	1.31 (0.941-1.91)	1.48 (1.00-2.20)	1.75 (1.14-2.68)	1.97 (1.25-3.09)
6-hr	0.297 (0.232-0.379)	0.360 (0.281-0.460)	0.464 (0.360-0.594)	0.549 (0.425-0.709)	0.667 (0.502-0.907)	0.754 (0.558-1.05)	0.849 (0.615-1.24)	0.968 (0.655-1.43)	1.15 (0.752-1.76)	1.32 (0.839-2.05)
12-hr	0.181 (0.142-0.230)	0.223 (0.175-0.283)	0.291 (0.228-0.371)	0.348 (0.271-0.446)	0.426 (0.323-0.577)	0.483 (0.360-0.672)	0.546 (0.399-0.797)	0.627 (0.426-0.918)	0.754 (0.493-1.15)	0.866 (0.554-1.34)
24-hr	0.106 (0.084-0.134)	0.133 (0.105-0.167)	0.176 (0.139-0.223)	0.212 (0.166-0.270)	0.262 (0.200-0.353)	0.298 (0.223-0.413)	0.338 (0.249-0.492)	0.390 (0.266-0.569)	0.474 (0.311-0.716)	0.549 (0.352-0.845)
2-day	0.060 (0.047-0.075)	0.075 (0.060-0.094)	0.101 (0.080-0.127)	0.122 (0.096-0.155)	0.152 (0.116-0.204)	0.173 (0.131-0.239)	0.197 (0.146-0.286)	0.229 (0.156-0.331)	0.281 (0.185-0.422)	0.327 (0.211-0.501)
3-day	0.043 (0.035-0.054)	0.055 (0.044-0.068)	0.074 (0.058-0.092)	0.089 (0.070-0.112)	0.110 (0.085-0.148)	0.126 (0.096-0.174)	0.143 (0.107-0.208)	0.167 (0.114-0.241)	0.205 (0.135-0.307)	0.240 (0.155-0.366)
4-day	0.035 (0.028-0.044)	0.044 (0.035-0.055)	0.059 (0.047-0.074)	0.072 (0.057-0.090)	0.089 (0.069-0.119)	0.101 (0.077-0.139)	0.115 (0.086-0.167)	0.134 (0.092-0.193)	0.165 (0.109-0.246)	0.192 (0.124-0.293)
7-day	0.024 (0.019-0.030)	0.030 (0.024-0.037)	0.040 (0.032-0.049)	0.048 (0.038-0.060)	0.059 (0.046-0.078)	0.067 (0.051-0.091)	0.076 (0.057-0.109)	0.088 (0.060-0.126)	0.107 (0.071-0.159)	0.125 (0.081-0.189)
10-day	0.020 (0.016-0.024)	0.024 (0.019-0.030)	0.031 (0.025-0.039)	0.037 (0.030-0.046)	0.046 (0.035-0.060)	0.052 (0.039-0.070)	0.058 (0.043-0.083)	0.067 (0.046-0.096)	0.081 (0.054-0.120)	0.093 (0.060-0.141)
20-day	0.014 (0.011-0.017)	0.016 (0.013-0.020)	0.020 (0.016-0.025)	0.024 (0.019-0.029)	0.028 (0.022-0.036)	0.031 (0.024-0.042)	0.035 (0.026-0.048)	0.039 (0.027-0.055)	0.045 (0.030-0.067)	0.051 (0.033-0.076)
30-day	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.016 (0.013-0.020)	0.018 (0.015-0.023)	0.021 (0.017-0.027)	0.023 (0.018-0.031)	0.026 (0.019-0.035)	0.029 (0.020-0.040)	0.032 (0.022-0.047)	0.036 (0.023-0.053)
45-day	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.013 (0.010-0.016)	0.014 (0.012-0.018)	0.016 (0.013-0.021)	0.018 (0.014-0.023)	0.020 (0.014-0.026)	0.021 (0.015-0.030)	0.023 (0.016-0.034)	0.025 (0.016-0.038)
60-day	0.009 (0.007-0.011)	0.010 (0.008-0.012)	0.011 (0.009-0.013)	0.012 (0.010-0.015)	0.014 (0.011-0.017)	0.015 (0.011-0.019)	0.016 (0.012-0.022)	0.017 (0.012-0.024)	0.019 (0.013-0.027)	0.020 (0.013-0.030)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

Back to Top

PF graphical

Hydraflow Rainfall Report

Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Jul 14, 2020

Return Period (Yrs)	Intensity-Duration-Frequency Equation Coefficients (FHA)			
	B	D	E	(N/A)
1	20.0166	3.8000	0.7304	--------
2	25.1607	4.1000	0.7396	--------
3	0.0000	0.0000	0.0000	--------
5	31.7584	4.1000	0.7353	--------
10	35.5580	3.8000	0.7219	--------
25	43.7184	3.9000	0.7257	--------
50	47.2973	3.7000	0.7146	--------
100	53.9918	3.7000	0.7193	--------

File name: ENFIELD COMMONS.IDF

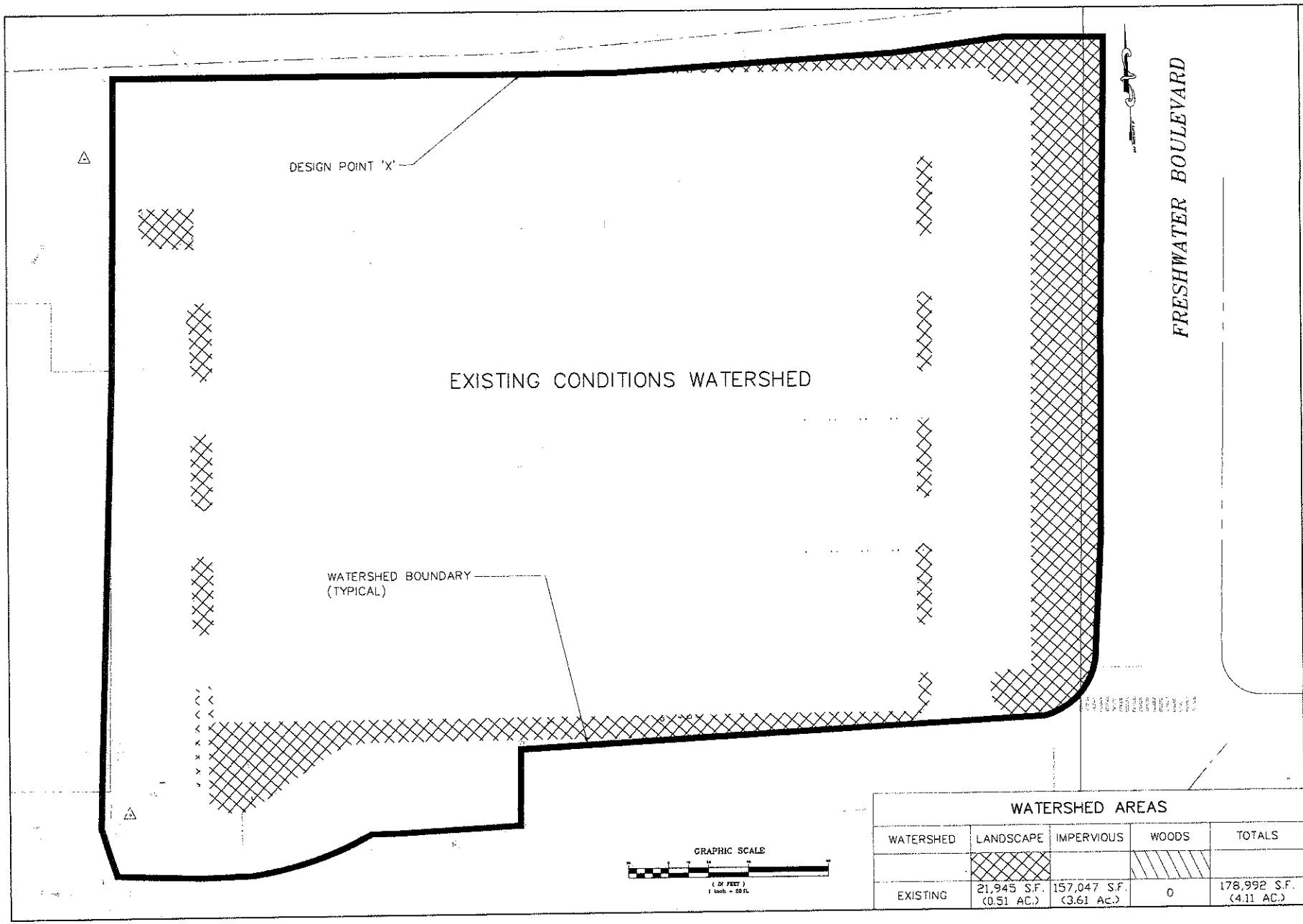
Intensity = B / (Tc + D)^E

Return Period (Yrs)	Intensity Values (in/hr)											
	5 min	10	15	20	25	30	35	40	45	50	55	60
1	4.09	2.94	2.35	1.98	1.72	1.53	1.38	1.27	1.17	1.09	1.02	0.96
2	4.91	3.55	2.84	2.39	2.08	1.85	1.67	1.53	1.41	1.32	1.23	1.16
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	6.26	4.54	3.63	3.06	2.66	2.37	2.14	1.96	1.81	1.69	1.58	1.49
10	7.40	5.35	4.28	3.61	3.14	2.80	2.53	2.32	2.15	2.00	1.88	1.77
25	8.95	6.47	5.18	4.37	3.81	3.39	3.07	2.81	2.60	2.42	2.27	2.14
50	10.08	7.29	5.83	4.93	4.30	3.83	3.47	3.18	2.94	2.75	2.58	2.43
100	11.39	8.22	6.57	5.54	4.83	4.30	3.89	3.57	3.30	3.08	2.88	2.72

Tc = time in minutes. Values may exceed 60.

Precip. file name: ENFIELD COMMONS.pcp

Storm Distribution	Rainfall Precipitation Table (in)							
	1-yr	2-yr	3-yr	5-yr	10-yr	25-yr	50-yr	100-yr
SCS 24-hour	2.55	3.19	0.00	4.23	5.09	6.28	7.15	8.11
SCS 6-Hr	1.78	2.16	0.00	2.78	3.29	4.00	4.51	5.08
Huff-1st	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-2nd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-3rd	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-4th	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Huff-Indy	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Custom	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



WATERSHED AREAS

WATERSHED	LANDSCAPE	IMPERVIOUS	WOODS	TOTALS
EXISTING	21,945 S.F. (0.51 AC.)	157,047 S.F. (3.61 Ac.)	0	178,992 S.F. (4.11 AC.)

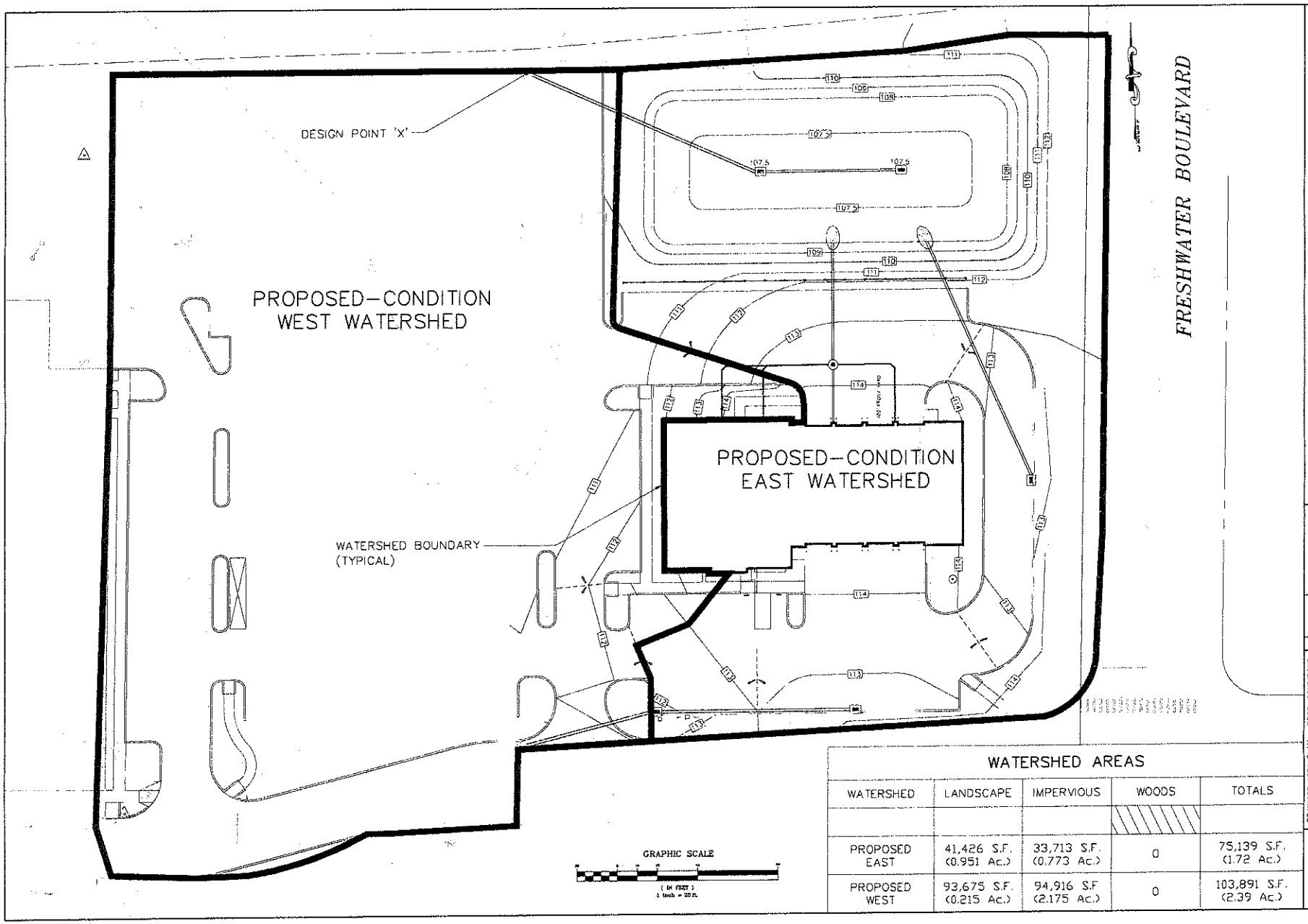
DRAINAGE AREA PLAN – EXIST. CONDITIONS
PREPARED FOR
AAA CLUB ALLIANCE, INC.
ENFIELD COMMONS
25 HAZARD AVENUE
ENFIELD, CONNECTICUT

date 7-14-2020 | drawn by DRT | job no. 19007
scale 1" = 20' | checked by GAH | sheet no. 1 OF 1

No.	Date	Description
		Revisions

DA-1

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects
Phone (860) 653-8300
Fax (860) 844-5600
e-mail hesketh@hapatrial



WATERSHED AREAS

WATERSHED	LANDSCAPE	IMPERVIOUS	WOODS	TOTALS
PROPOSED EAST	41,426 S.F. (0.951 Ac.)	33,713 S.F. (0.773 Ac.)	0	75,139 S.F. (1.72 Ac.)
PROPOSED WEST	93,675 S.F. (0.215 Ac.)	94,916 S.F (2.175 Ac.)	0	103,891 S.F. (2.39 Ac.)

DRAINAGE AREA PLAN – PROP. CONDITIONS
PREPARED FOR
AAA CLUB ALLIANCE, INC.
ENFIELD COMMONS
25 HAZARD AVENUE
ENFIELD, CONNECTICUT

date 7-14-2020 | drawn by DRT | job no 19001
scale 1" = 20' | checked by GAH | sheet no 1 OF 1

DA-2

No | Date | Description | Revisions

F. A. Hesketh & Associates, Inc.
3 Creamery Brook, East Granby, CT 06026
Phone (860) 653-6000
Fax (860) 844-6020
e-mail hesketh@netaxis.net

Hydraflow Table of Contents

2020-07-13.gpw

Hydraflow Hydrographs by Intelisolve v9.1

Tuesday, Jul 14, 2020

Watershed Model Schematic 1

Hydrograph Return Period Recap 2

2 - Year

Summary Report 3
Hydrograph Reports 4
Hydrograph No. 1, Rational, Existing Watershed 4
Hydrograph No. 2, Rational, Proposed-West Watershed 5
Hydrograph No. 3, Rational, Proposed-East Watershed 6
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 7
Pond Report - WQB #1 8
Hydrograph No. 5, Combine, Total Proposed Watershed 9

5 - Year

Summary Report 10
Hydrograph Reports 11
Hydrograph No. 1, Rational, Existing Watershed 11
Hydrograph No. 2, Rational, Proposed-West Watershed 12
Hydrograph No. 3, Rational, Proposed-East Watershed 13
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 14
Hydrograph No. 5, Combine, Total Proposed Watershed 15

10 - Year

Summary Report 16
Hydrograph Reports 17
Hydrograph No. 1, Rational, Existing Watershed 17
Hydrograph No. 2, Rational, Proposed-West Watershed 18
Hydrograph No. 3, Rational, Proposed-East Watershed 19
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 20
Hydrograph No. 5, Combine, Total Proposed Watershed 21

25 - Year

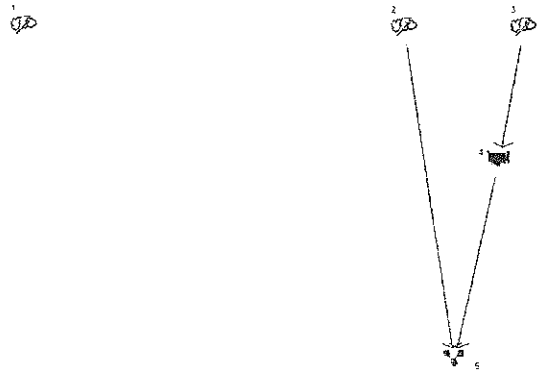
Summary Report 22
Hydrograph Reports 23
Hydrograph No. 1, Rational, Existing Watershed 23
Hydrograph No. 2, Rational, Proposed-West Watershed 24
Hydrograph No. 3, Rational, Proposed-East Watershed 25
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 26
Hydrograph No. 5, Combine, Total Proposed Watershed 27

50 - Year

Summary Report 28
Hydrograph Reports 29
Hydrograph No. 1, Rational, Existing Watershed 29
Hydrograph No. 2, Rational, Proposed-West Watershed 30
Hydrograph No. 3, Rational, Proposed-East Watershed 31
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 32
Hydrograph No. 5, Combine, Total Proposed Watershed 33

Watershed Model Schematic

Hydraflow Hydrographs by Intelisolve v9.1



CHECK OF PEAK FLOW
RUNOFF FROM PROJECT SITE

Legend

Hyd.	Origin	Description
1	Rational	Existing Watershed
2	Rational	Proposed-West Watershed
3	Rational	Proposed-East Watershed
4	Reservoir	W. Q. Basin Outflow
5	Combine	Total Proposed Watershed

Hydrograph Return Period Recap

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Inflow Hyd(s)	Peak Outflow (cfs)								Hydrograph description
			1-Yr	2-Yr	3-Yr	5-Yr	10-Yr	25-Yr	50-Yr	100-Yr	
1	Rational	-------	9.799	11.83	-------	15.10	17.80	21.55	24.26	27.35	Existing Watershed
2	Rational	-------	5.934	7.166	-------	9.147	10.78	13.05	14.69	16.56	Proposed-West Watershed
3	Rational	-------	2.582	3.118	-------	3.980	4.689	5.679	6.392	7.207	Proposed-East Watershed
4	Reservoir	3	1.382	1.736	-------	2.323	2.818	3.426	3.857	4.255	W. Q. Basin Outflow
5	Combine	2, 4	6.649	8.097	-------	10.45	12.40	15.15	17.16	19.46	Total Proposed Watershed

	2-YR	100-YR
EXIST.	11.83	27.35
PROP.	8.10	19.46

APPROX. 29% REDUCTION IN FLOW

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Rational	11.83	1	10	9,468	----	------	------	Existing Watershed
2	Rational	7.166	1	10	5,734	----	------	------	Proposed-West Watershed
3	Rational	3.118	1	10	2,495	----	------	------	Proposed-East Watershed
4	Reservoir	1.736	1	17	2,430	3	107.67	1,185	W. Q. Basin Outflow
5	Combine	8.097	1	10	8,020	2, 4	------	------	Total Proposed Watershed

100 - Year
Summary Report **34**
Hydrograph Reports **35**
Hydrograph No. 1, Rational, Existing Watershed 35
Hydrograph No. 2, Rational, Proposed-West Watershed 36
Hydrograph No. 3, Rational, Proposed-East Watershed 37
Hydrograph No. 4, Reservoir, W. Q. Basin Outflow 38
Hydrograph No. 5, Combine, Total Proposed Watershed 39

IDF Report **40**

Hydrograph Summary Report

Hydraflow Hydrographs by Intelisolve v9.1

Hyd. No.	Hydrograph type (origin)	Peak flow (cfs)	Time interval (min)	Time to peak (min)	Hyd. volume (cuft)	Inflow hyd(s)	Maximum elevation (ft)	Total strge used (cuft)	Hydrograph description
1	Rational	27.35	1	10	21,882	----	------	------	Existing Watershed
2	Rational	16.56	1	10	13,252	----	------	------	Proposed-West Watershed
3	Rational	7.207	1	10	5,766	----	------	------	Proposed-East Watershed
4	Reservoir	4.255	1	17	5,620	3	107.82	2,390	W. Q. Basin Outflow
5	Combine	19.46	1	10	18,539	2, 4	------	------	Total Proposed Watershed

Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

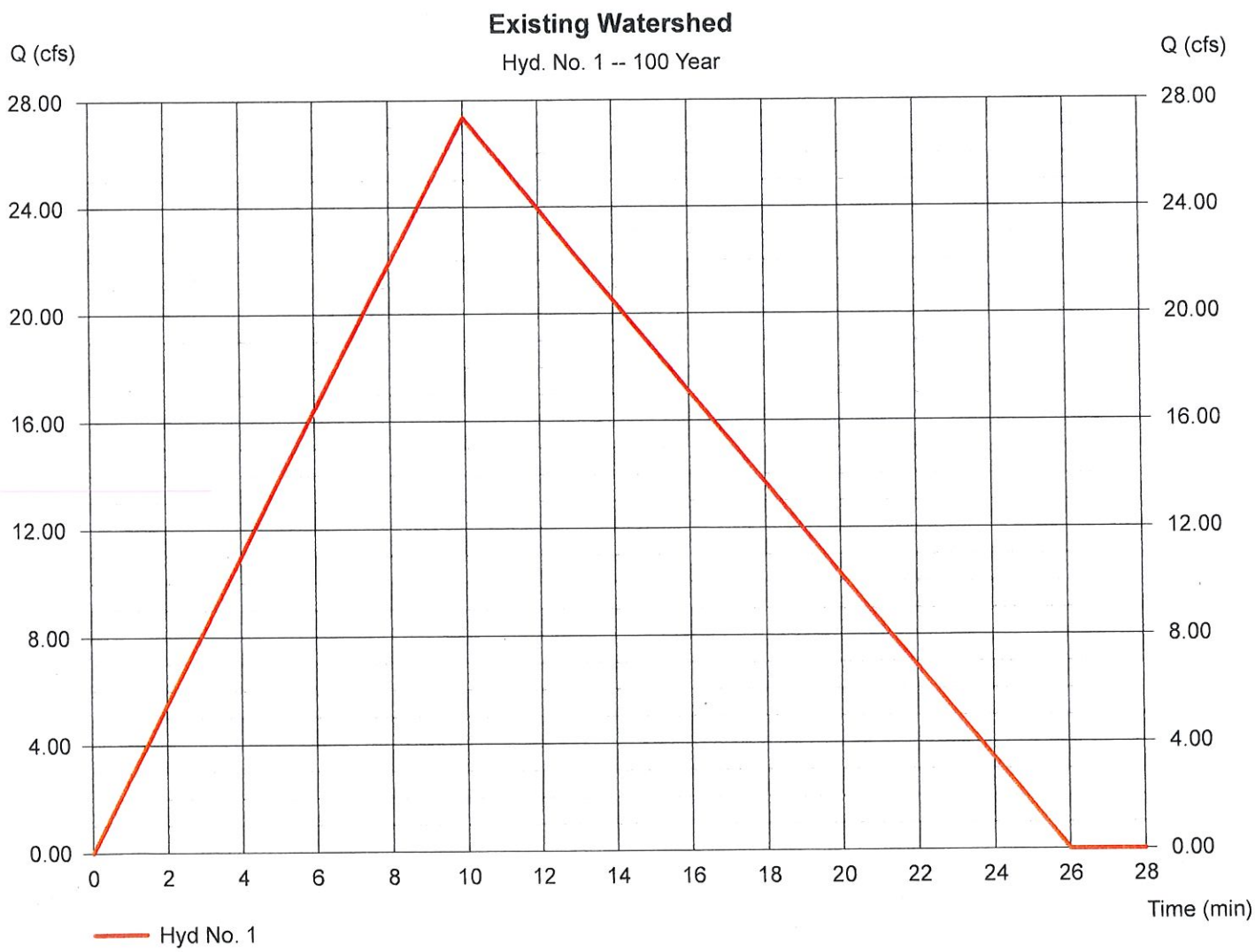
Tuesday, Jul 14, 2020

Hyd. No. 1

Existing Watershed

Hydrograph type	= Rational	Peak discharge	= 27.35 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 21,882 cuft
Drainage area	= 4.110 ac	Runoff coeff.	= 0.81*
Intensity	= 8.216 in/hr	Tc by User	= 10.00 min
IDF Curve	= ENFIELD COMMONS.IDF	Asc/Rec limb fact	= 1/1.6667

* Composite (Area/C) = [(0.500 x 0.20) + (3.610 x 0.90)] / 4.110



Hydrograph Report

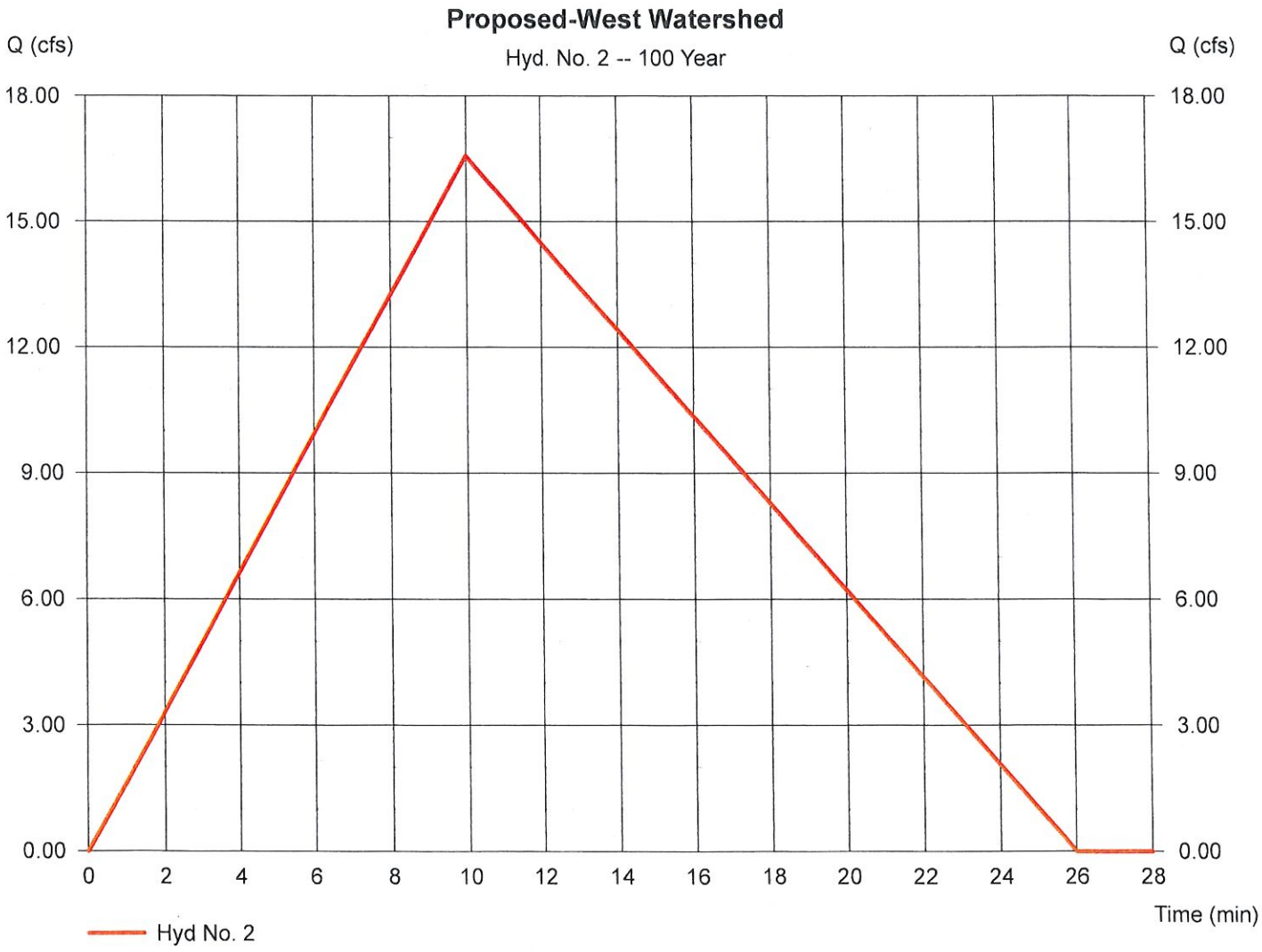
Hydraflow Hydrographs by Intelisolve v9.1 — Tuesday, Jul 14, 2020

Hyd. No. 2

Proposed-West Watershed

Hydrograph type	= Rational	Peak discharge	= 16.56 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 13,252 cuft
Drainage area	= 2.400 ac	Runoff coeff.	= 0.84*
Intensity	= 8.216 in/hr	Tc by User	= 10.00 min
IDF Curve	= ENFIELD COMMONS.IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.220 x 0.20) + (2.180 x 0.90)] / 2.400



Hydrograph Report

Hydraflow Hydrographs by Intelisolve v9.1

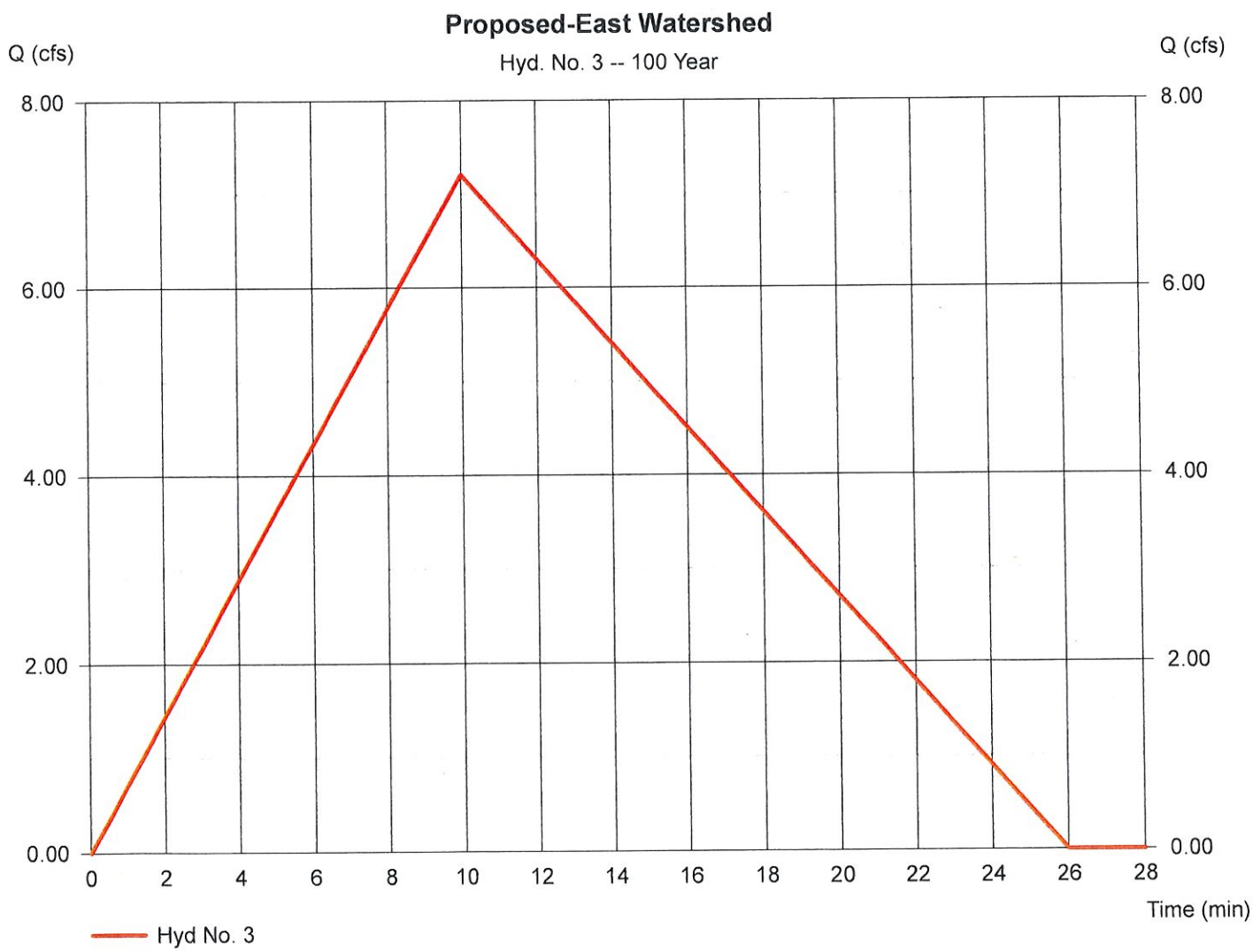
Tuesday, Jul 14, 2020

Hyd. No. 3

Proposed-East Watershed

Hydrograph type	= Rational	Peak discharge	= 7.207 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 5,766 cuft
Drainage area	= 1.720 ac	Runoff coeff.	= 0.51*
Intensity	= 8.216 in/hr	Tc by User	= 10.00 min
IDF Curve	= ENFIELD COMMONS.IDF	Asc/Rec limb fact	= 1/1.667

* Composite (Area/C) = [(0.950 x 0.20) + (0.770 x 0.90)] / 1.720



Hydrograph Report

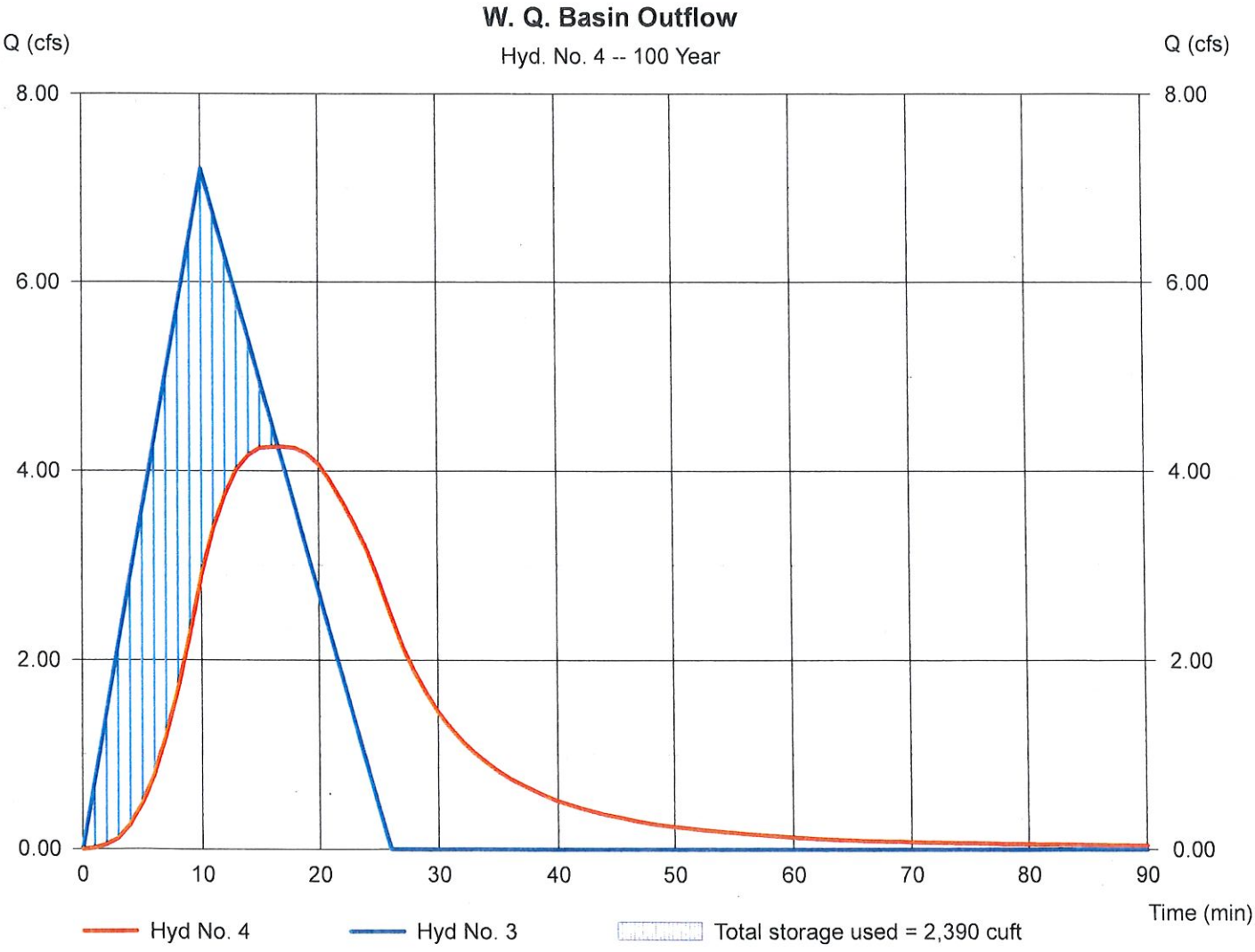
Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Jul 14, 2020

Hyd. No. 4

W. Q. Basin Outflow

Hydrograph type	= Reservoir	Peak discharge	= 4.255 cfs
Storm frequency	= 100 yrs	Time to peak	= 17 min
Time interval	= 1 min	Hyd. volume	= 5,620 cuft
Inflow hyd. No.	= 3 - Proposed-East Watershed	Max. Elevation	= 107.82 ft
Reservoir name	= WQB #1	Max. Storage	= 2,390 cuft

Storage Indication method used.



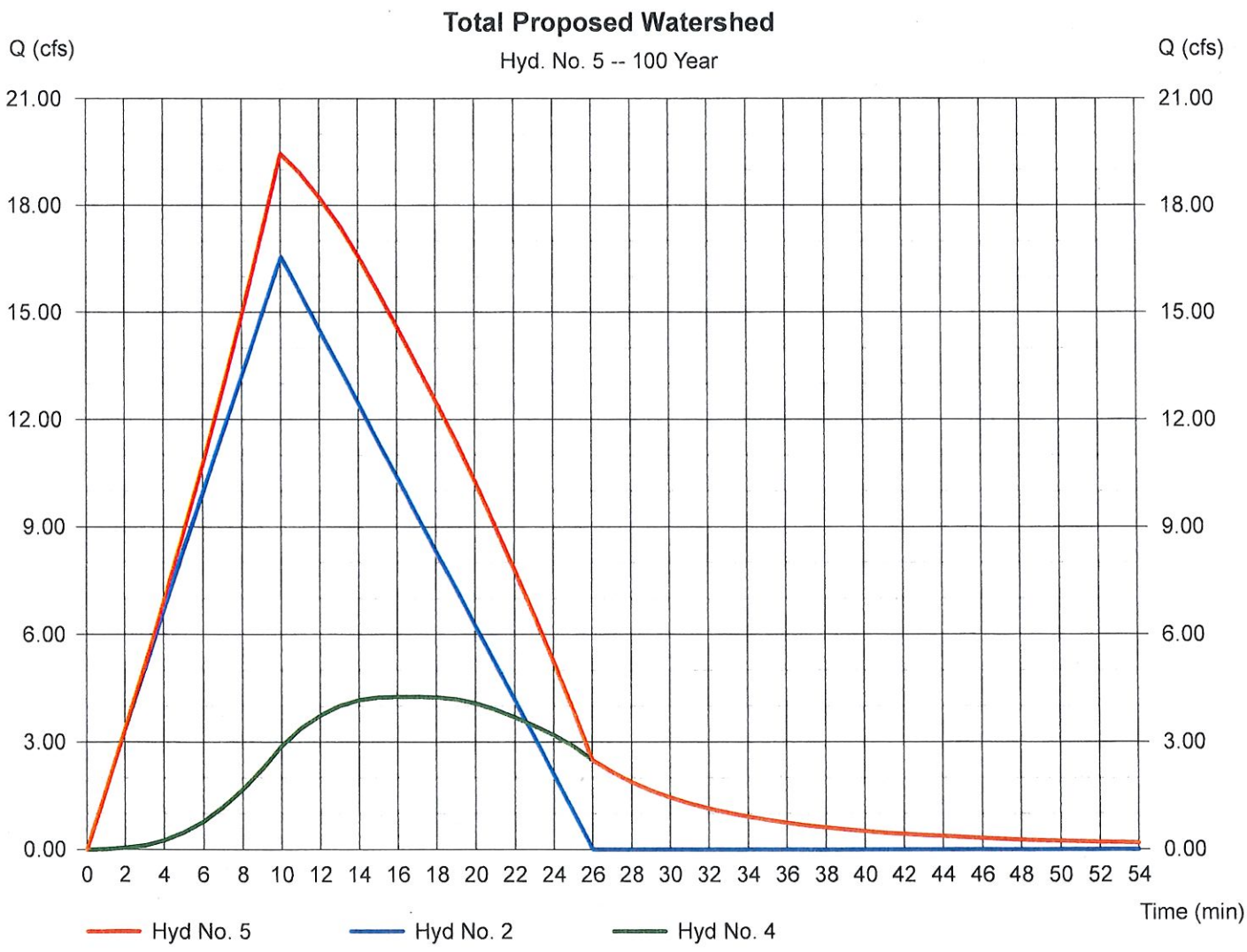
Hydrograph Report

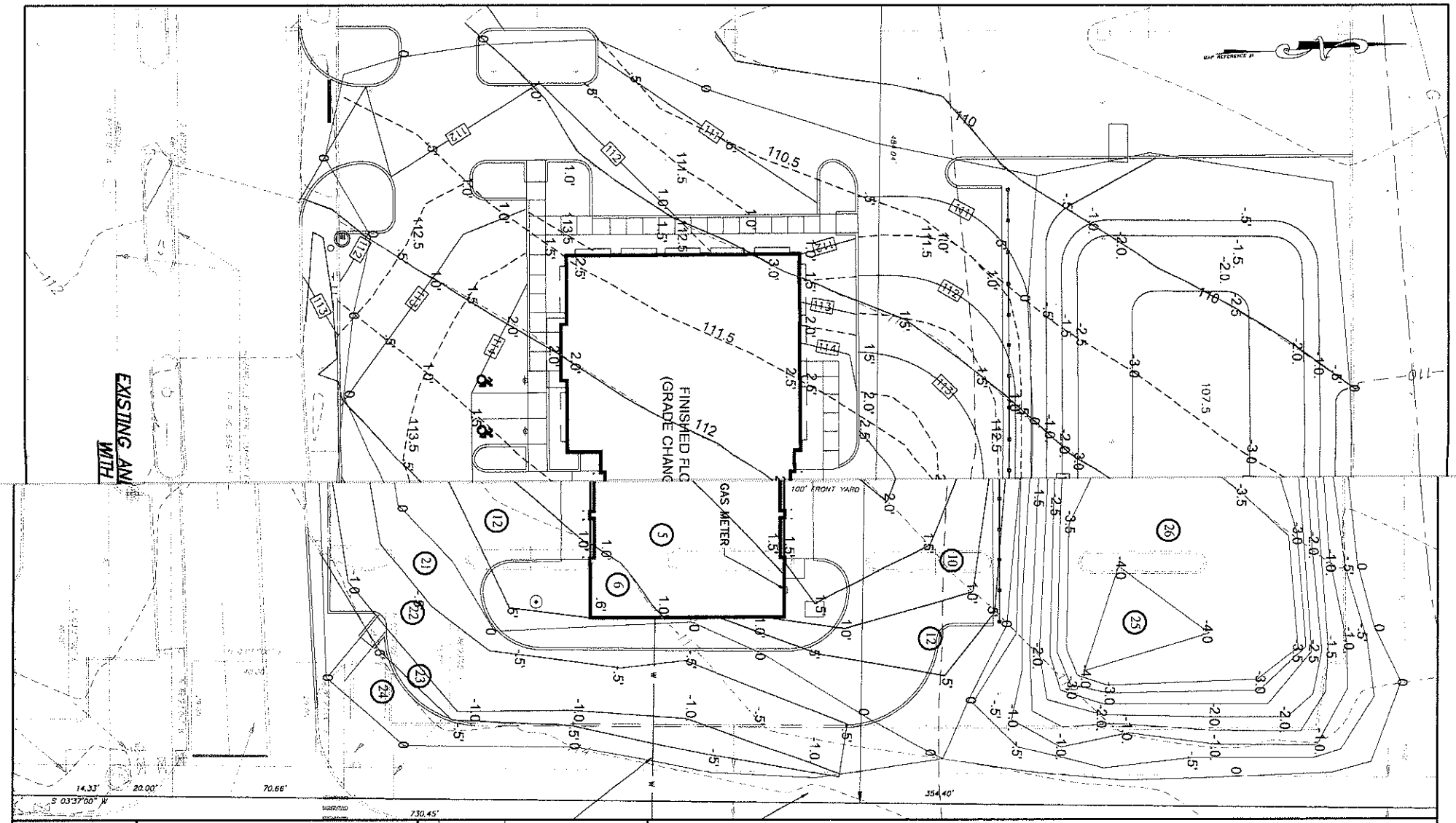
Hydraflow Hydrographs by Intelisolve v9.1 Tuesday, Jul 14, 2020

Hyd. No. 5

Total Proposed Watershed

Hydrograph type	= Combine	Peak discharge	= 19.46 cfs
Storm frequency	= 100 yrs	Time to peak	= 10 min
Time interval	= 1 min	Hyd. volume	= 18,539 cuft
Inflow hyds.	= 2, 4	Contrib. drain. area	= 2.400 ac





FEMA

FEMA CALCULATIONS

PREPARED FOR

AAA CLUB ALLIANCE, INC.

ENFIELD COMMONS

25 & 39 HAZARD AVENUE

ENFIELD, CONNECTICUT

date: 07-01-2020	drawn by: RJK	job no: 19001
scale: 1" = 20'	checked by: DSZ	sheet no: 1 OF 1

Revisions:

No.	Date	Description
1	09-09-2020	Volume recheck

F. A. Hesketh & Associates, Inc.
6 Creamery Brook, East Granby, CT 06026
Civil & Traffic Engineers · Surveyors · Planners · Landscape Architects

Phone (860) 653-8000
Fax (860) 844-8600
e-mail hesketh@snet.net