
555 Long Wharf Drive New Haven, CT 06511 T: 203.562.5771 F: 203.789.6142

To: Town of South Windsor

From: Isiah Brown
David Gagnon, P.E.

Date: August 25, 2021

Re: Stormwater Management Memo
Restaurant Development at Evergreen Walk
501 Evergreen Way
South Windsor, CT
Langan Project No.: 140222810

This stormwater memorandum has been prepared in support of the Inland Wetlands, Watercourses, and Conservation Application for the proposed restaurant development located at 501 Evergreen Way. This development area is identified as Map 27, Block 15, Unit 2 by the Town of South Windsor Assessor's Office and is approximately 0.7 acres of the Evergreen Walk Master Development Plan Area.

This proposed project lies within the overall Evergreen Walk planned unit development and is part of the "Evergreen Walk Master Development Plan" (see Figure DRA-1 prepared 06/08/2007 for reference). When Unit 2 of Evergreen Walk was initially designed, the aforementioned development area was previously approved to house an 8,475 SF building with associated hardscape, sidewalks, and impervious surfaces. In this condition, the majority of stormwater flows to a catch basin in the north corner of the parking lot, with the rest sheet flowing off-site to catch basins within the adjacent streets. This system ultimately discharges to Detention Basin 4 of the overall Evergreen Walk Development, which is then conveyed to nearby wetlands. In this condition, the impervious coverage of the site was 72.5%, please refer to the attached figure DRA-1 for more information. Although the site was previously approved for the building and additional improvements, only the parking lot, associated sidewalks, and minor drainage and utility infrastructure were actually constructed.

The proposed site improvements includes the construction of a 3,200 square foot restaurant with associated site improvements including a mobile pick-up lane, expanded parking, dining patio, walkways, site lighting, new landscaping, utility improvements, and drainage improvements. These drainage improvements include low-impact design features such a rain garden and porous asphalt to promote water quality. The proposed project reduces impervious area from this initial design by approximately 150 SF, or 0.4% of the total site area. This reduction in impervious area leads to a reduction of runoff off-site compared to the original design assumptions for overall Evergreen Walk Development stormwater management system.

The proposed stormwater conveyance system of the development area was sized using the Rational Method for a 10-year design storm event. Individual watershed areas and locations of stormwater structures are provided in Figure DA-CB. The time of concentration coefficient was assumed to be five minutes, and the runoff coefficient for each watershed can be found in the

MEMO

attached runoff coefficient table. The average runoff coefficients for the contributing drainage areas were calculated based upon the following cover types:

<u>Cover</u>	<u>C</u>
Grass/Pervious	0.3
Pavement/Impervious	0.9

The proposed on-site drainage network was able to convey the 10-year storm within the closed pipe drainage network to allow a foot of free-board at all proposed structure locations. In addition, a rain garden has been added on-site to promote water quality and reduce flow off-site. Any potential infiltration or detention provided by the rain garden has been ignored to provide a more conservative stormwater analysis.

The proposed development has been designed to maintain previously approved drainage patterns to the greatest extent feasible. As a result of the decrease in overall impervious area and the addition of a rain garden and porous asphalt, the stormwater runoff from the site has been reduced and water quality had been improved from the previously approved application. The proposed stormwater management system has been designed in general accordance with the Town of South Windsor requirements, 2004 CT DEEP Stormwater Quality Manual, and the 2000 CT DOT Drainage Manual. It is the opinion of this office that the proposed stormwater system, as designed, will effectively manage quality and quantity of stormwater runoff from the proposed development.

MEMO

Stormwater Management Memo
501 Evergreen Way
South Windsor, CT
Langan Project No.: 140222810
August 25, 2021- Page 3 of 3

APPENDIX

LAND USE TABLE

LAND AREA WITHIN:	
- THE RUCKLAND ROAD GATEWAY DEVELOPMENT ZONE	229.9 AC.
- THE 'RURAL RESIDENTIAL ZONE'	13.1 AC.
OVERALL PROPERTY	243 AC.

	EXIST/PROPOSED	PROPOSED
- BUILDINGS, RETAIL		
The Shops at Evergreen Walk	284,750 SF	
The Shops - Phase II (88,095 SF w/c)	90,250 SF	
Wright Property	50,000 SF	
Six 'T' - Lifestyle Retail	95,000 SF	
Six 'W' - Town Square	205,000 SF	
TOTAL	375,000 SF	350,000 SF 725,000 SF

	EXISTING	PROPOSED
- BUILDINGS, OFFICE		
The Shops at Evergreen Walk	3,870 SF	
ECHN Medical Center	39,820 SF	
Office - South I & II	58,800 SF	
Office - West A, B, C, D, E, F, G	447,530 SF	
TOTAL	41,690 SF	506,330 SF 550,000 SF

	EXISTING	PROPOSED
- BUILDINGS, RECREATION		
L.A. Fitness at Evergreen Walk	45,000 SF	
L.A. Fitness Expansion & Site 3	30,000 SF	
TOTAL	45,000 SF	30,000 SF 75,000 SF

	EXISTING	PROPOSED
- BUILDINGS, HOTEL		
Hotel - North & South	250 Rooms	
TOTAL	250 Rooms	250 Rooms

	EXISTING	PROPOSED
- BUILDINGS, RESIDENTIAL		
Town Square at Evergreen Walk	200 Units	
TOTAL	200 Units	200 Units

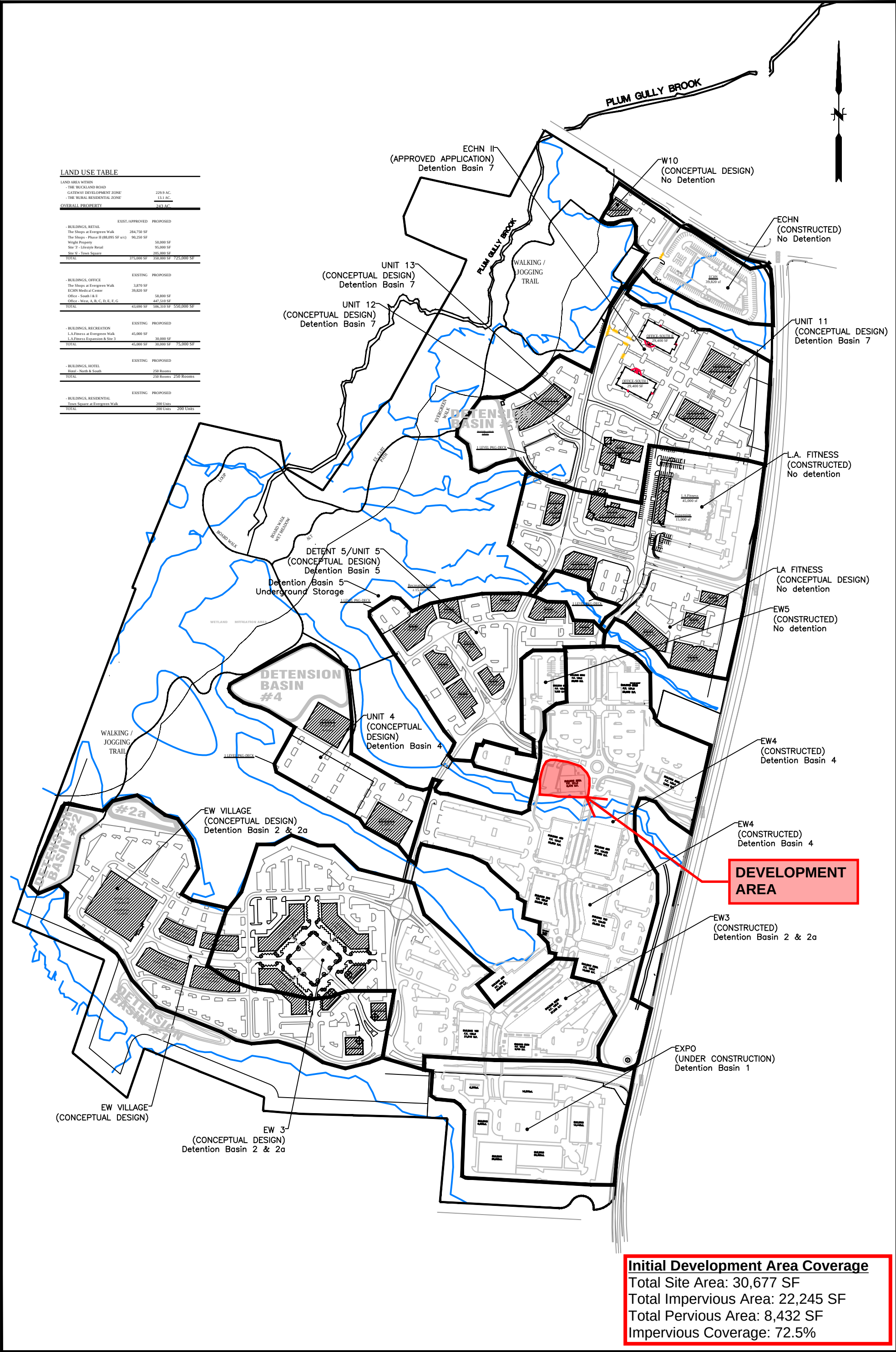
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CTB:

LMAN:

MS VIEW:

UCS: WORLD



Initial Development Area Coverage
Total Site Area: 30,677 SF
Total Impervious Area: 22,245 SF
Total Pervious Area: 8,432 SF
Impervious Coverage: 72.5%

SCALE:	
HORZ.: 1" = 400'	
VERT.:	
DATUM:	
HORZ.:	
VERT.:	
0 200 400	
GRAPHIC SCALE	



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146 HARTFORD RD

MANCHESTER, CT 06040

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EVERGREEN WALK, LLC
PROPOSED WATERSHED AREAS
EVERGREEN WALK MASTER DEVELOPMENT PLAN

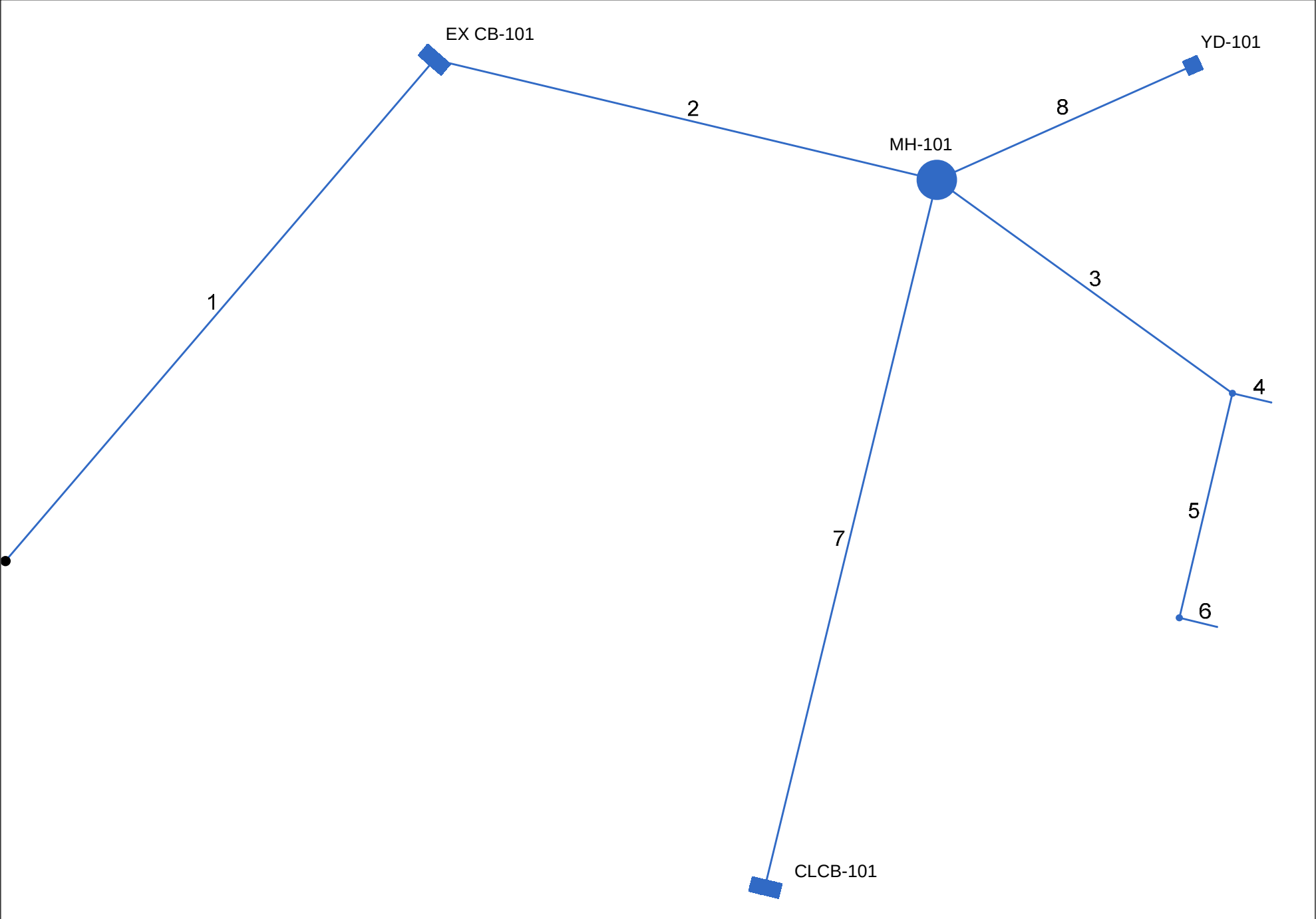
SOUTH WINDSOR

CONNECTICUT

PROJ. No.: 2000 481 A30
DATE: 6/8/2007

DRA-1

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: Hyd.Stormsewers.stm	Number of lines: 8	Date: 8/24/2021
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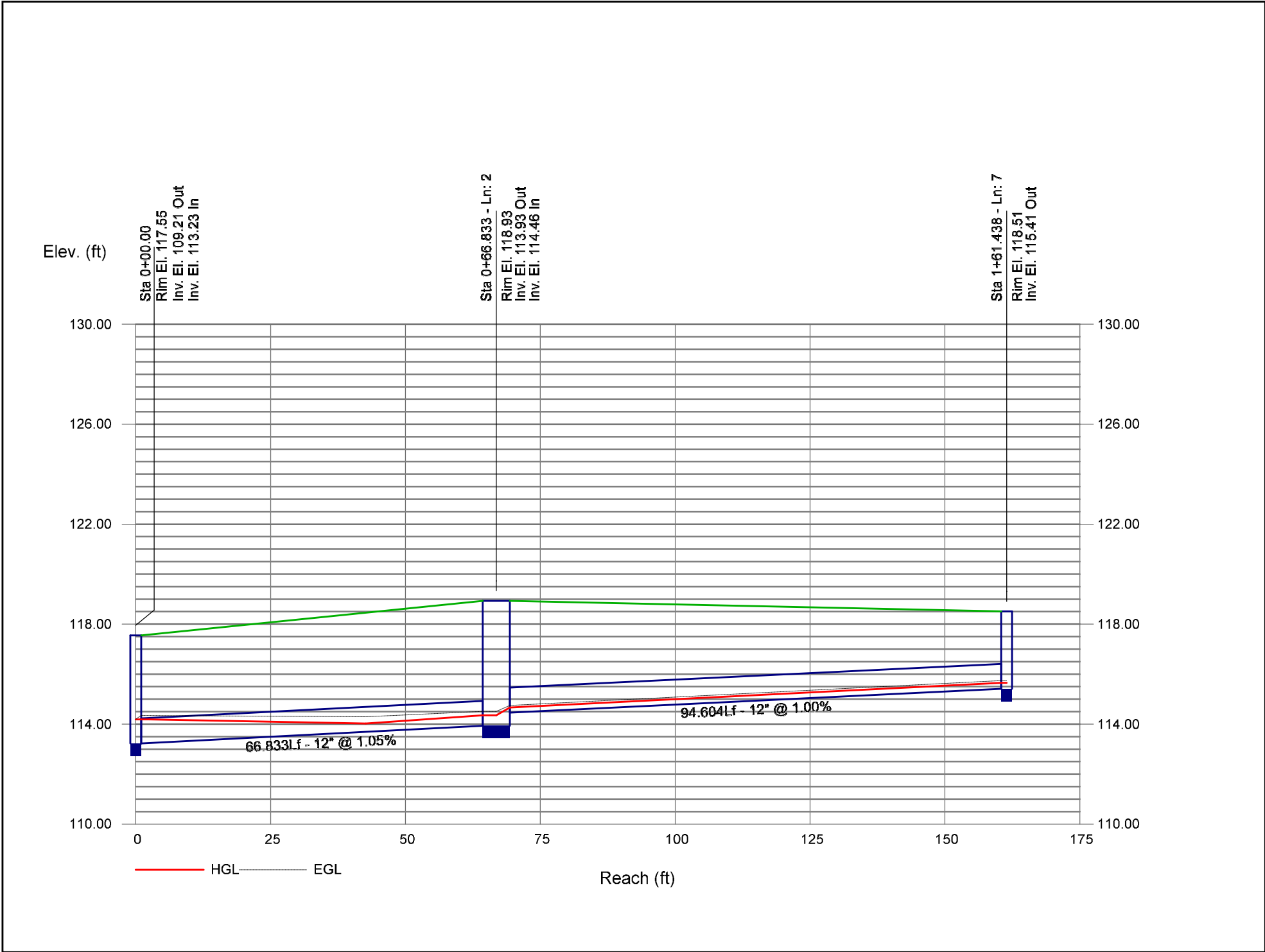
Storm Sewer Summary Report

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	PIPE-10	2.18	24	Cir	85.620	108.50	109.21	0.829	114.17*	114.18*	0.01	114.19	End	Grate
2	PIPE-6	1.00	12	Cir	66.833	113.23	113.93	1.047	114.19	114.35	n/a	114.35 j	1	Manhole
3	PIPE-5	0.52	6	Cir	47.339	116.22	117.12	1.901	116.49	117.49	0.16	117.49	2	Manhole
4	PIPE-4	0.27	6	Cir	5.094	117.61	117.67	1.178	117.82	117.93	n/a	117.93	3	Grate
5	PIPE-3	0.27	6	Cir	29.999	117.12	117.42	1.000	117.49	117.68	n/a	117.68 j	3	Manhole
6	PIPE-2	0.27	6	Cir	5.000	117.58	117.65	1.400	117.78	117.91	n/a	117.91	5	Grate
7	PIPE-1	0.35	12	Cir	94.604	114.46	115.41	1.004	114.66	115.65	n/a	115.65	2	Grate
8	PIPE-7	0.40	12	Cir	36.244	113.93	114.30	1.021	114.35	114.56	n/a	114.56 j	2	Grate
</														

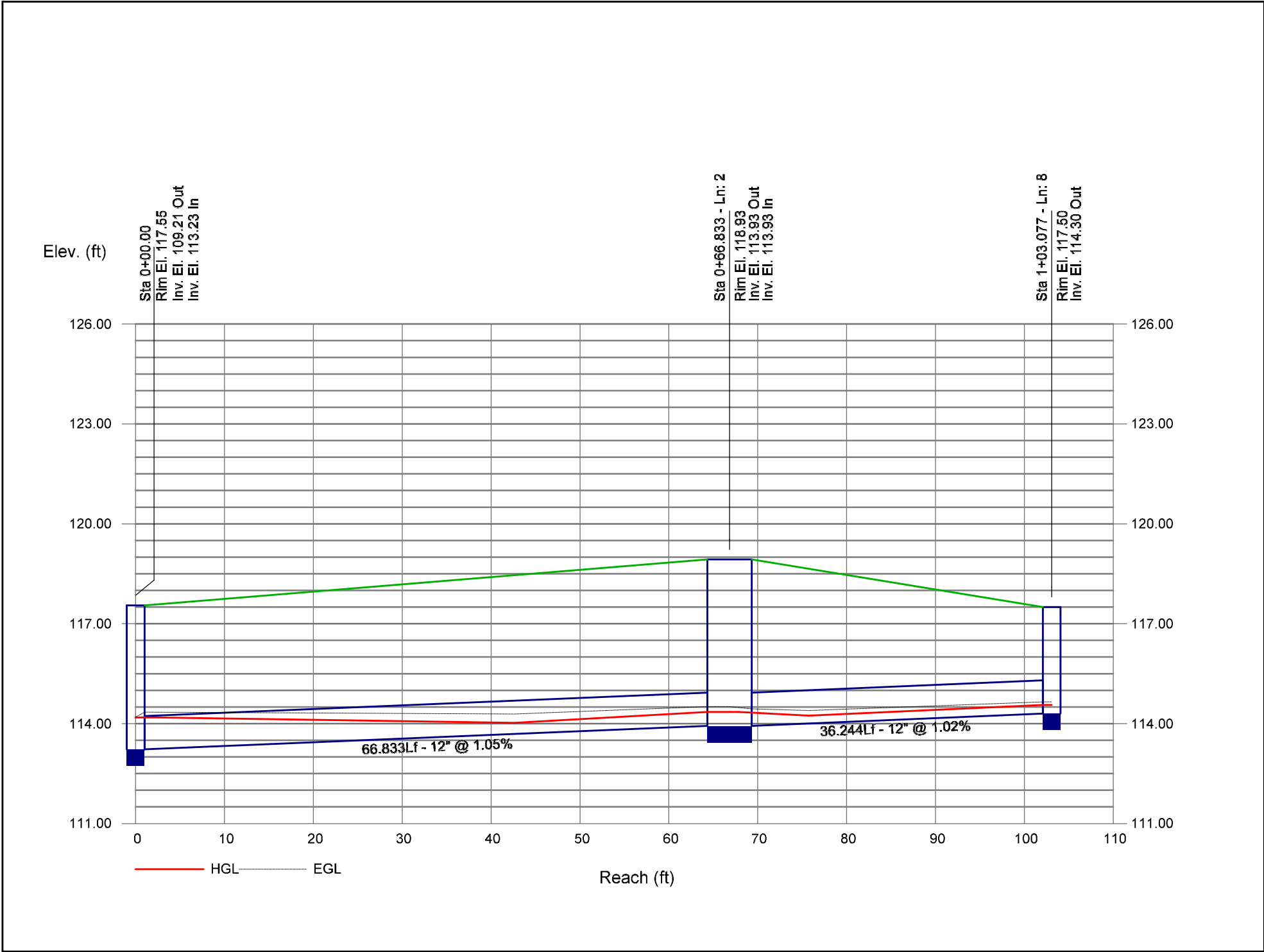
Storm Sewer Tabulation

Station		Len	Drng Area		Rnoff coeff	Area x C		Tc		Rain (l)	Total flow	Cap full	Vel	Pipe		Invert Elev		HGL Elev		Grnd / Rim Elev		Line ID
Line	To Line		Incr	Total		Incr	Total	Inlet	Syst					Size	Slope	Dn	Up	Dn	Up	Dn	Up	
		(ft)	(ac)	(ac)	(C)			(min)	(min)	(in/hr)	(cfs)	(cfs)	(ft/s)	(in)	(%)	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	
1	End	85.620	0.28	0.50	0.78	0.22	0.39	5.0	9.3	5.6	2.18	22.31	0.69	24	0.83	108.50	109.21	114.17	114.18	110.78	117.55	PIPE-10
2	1	66.833	0.00	0.22	0.00	0.00	0.17	0.0	8.6	5.8	1.00	3.95	2.24	12	1.05	113.23	113.93	114.19	114.35	117.55	118.93	PIPE-6
3	2	47.339	0.00	0.08	0.00	0.00	0.07	0.0	5.4	7.2	0.52	0.91	4.08	6	1.90	116.22	117.12	116.49	117.49	118.93	120.14	PIPE-5
4	3	5.094	0.04	0.04	0.90	0.04	0.04	5.0	5.0	7.4	0.27	0.73	2.99	6	1.18	117.61	117.67	117.82	117.93	120.14	120.19	PIPE-4
5	3	29.999	0.00	0.04	0.00	0.00	0.04	0.0	5.1	7.4	0.27	0.66	2.16	6	1.00	117.12	117.42	117.49	117.68	120.14	120.11	PIPE-3
6	5	5.000	0.04	0.04	0.90	0.04	0.04	5.0	5.0	7.4	0.27	0.79	3.10	6	1.40	117.58	117.65	117.78	117.91	120.11	120.18	PIPE-2
7	2	94.604	0.06	0.06	0.78	0.05	0.05	5.0	5.0	7.4	0.35	3.87	2.70	12	1.00	114.46	115.41	114.66	115.65	118.93	118.51	PIPE-1
8	2	36.244	0.08	0.08	0.67	0.05	0.05	5.0	5.0	7.4	0.40	3.90	1.86	12	1.02	113.93	114.30	114.35	114.56	118.93	117.50	PIPE-7
Project File: Hyd.Stormsewers.stm																Number of lines: 8				Run Date: 8/24/2021		
NOTES:Intensity = 35.85 / (Inlet time + 3.70) ^ 0.73; Return period =Yrs. 10 ; c = cir e = ellip b = box																						

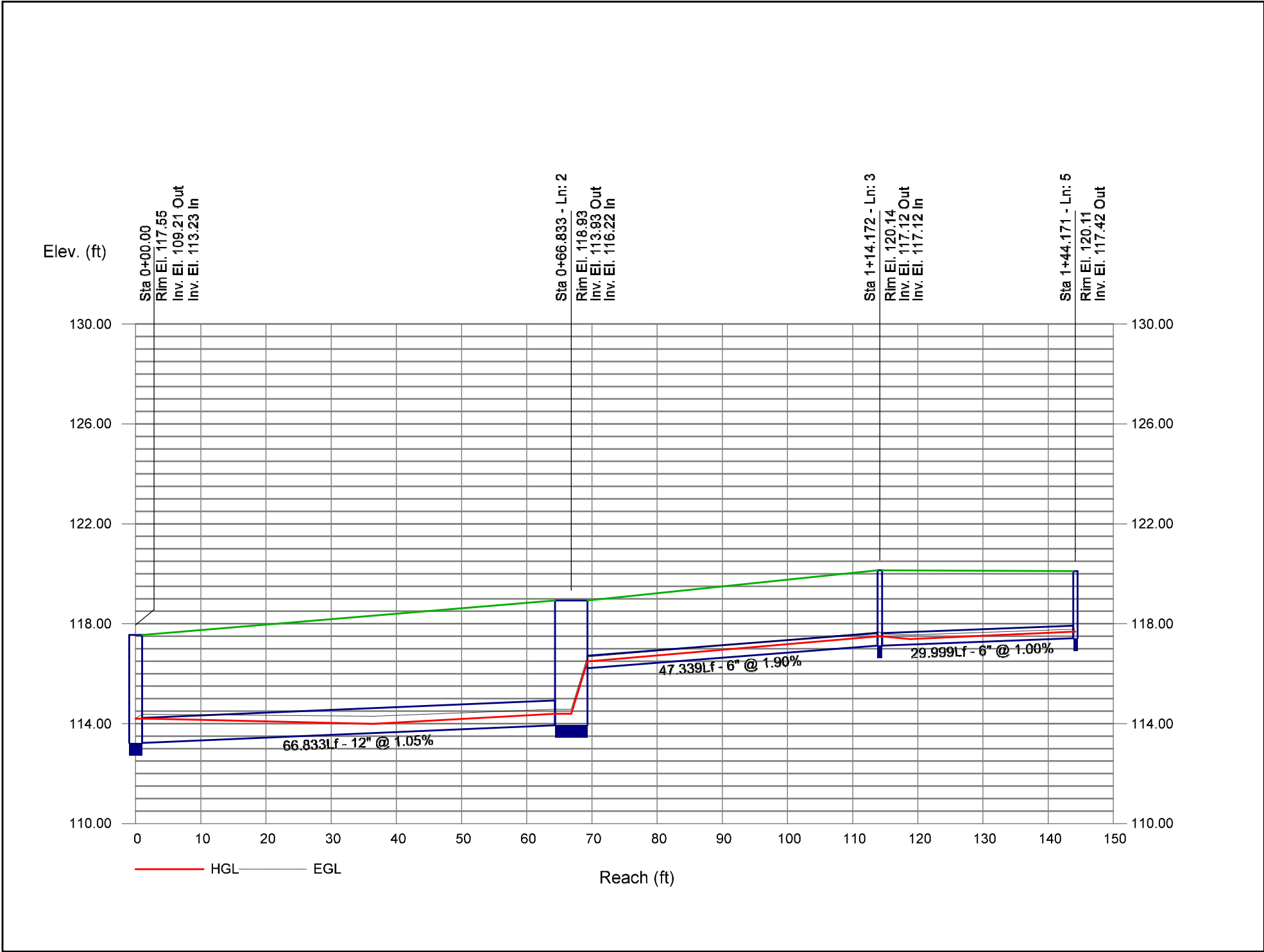
Storm Sewer Profile

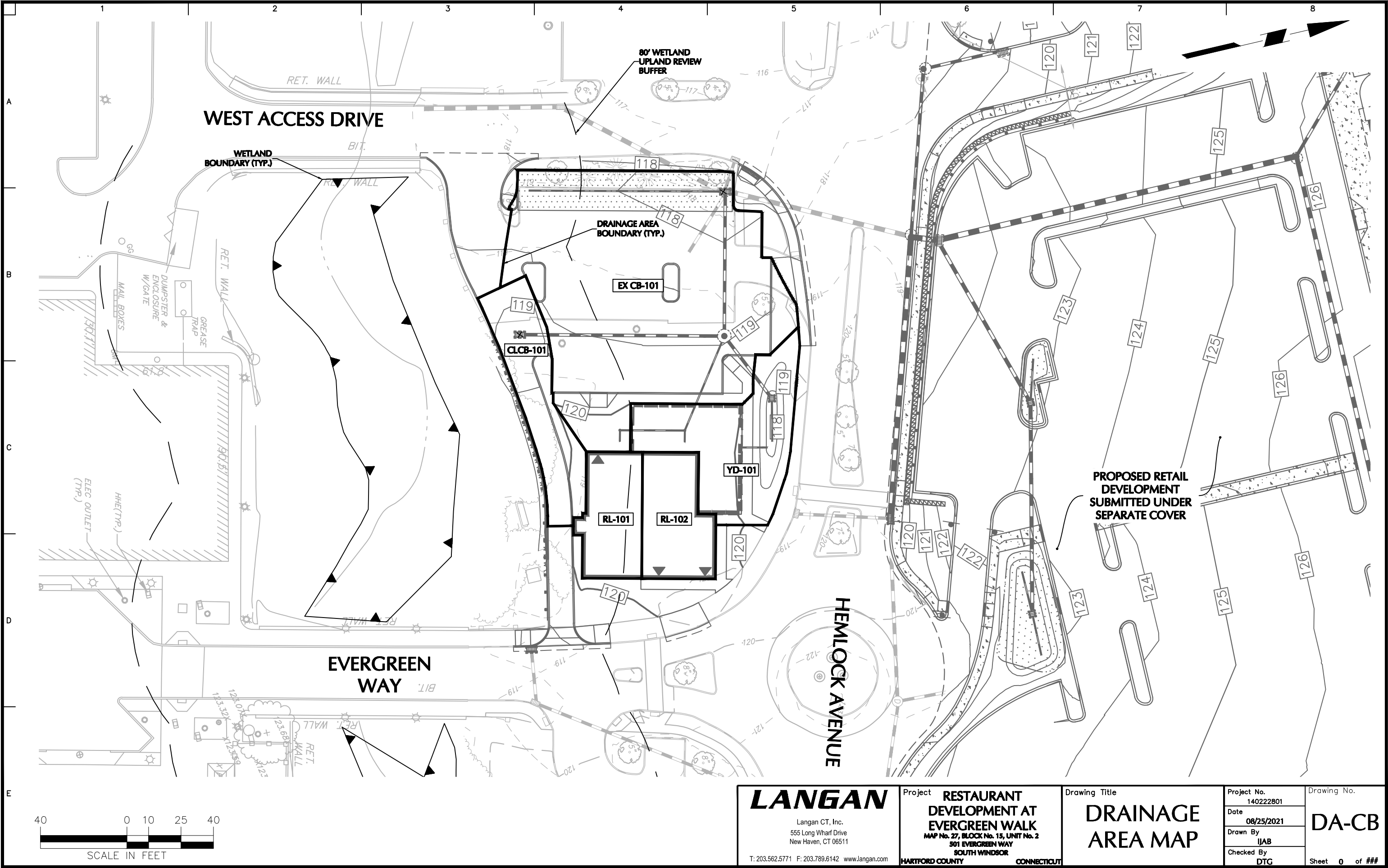


Storm Sewer Profile



Storm Sewer Profile





Project **RESTAURANT DEVELOPMENT AT**
EVERGREEN WALK
 By **IJAB** Date **8/23/2021**
 Location **501 Evergreen Way, South Windsor, CT** Checked **DTG** Date **8/23/2021**
 Circle one: Present Developed Job No. **140222810**

1. Rational 'C' Runoff Coefficient & Area Calculations

Catchment Area	Total Area		Impervious (C=.9)		Pervious (C=0.3)		Percent Impervious	C
	SF	AC	SF	AC	SF	AC		
EX-CB 101	12,352	0.284	9,909	0.227	2,443	0.056	80%	0.78
CLCB-101	2,661	0.061	2,141	0.049	520	0.012	80%	0.78
YD-101	3,473	0.080	2,122	0.049	1,351	0.031	61%	0.67
RL-101	1,600	0.037	1,600	0.037	0	0.000	100%	0.90
RL-102	1,760	0.040	1,760	0.040	0	0.000	100%	0.90

NOAA Atlas 14, Volume 10, Version 3 HARTFORD

BRAINARD FLD

Station ID: 06-3451

Location name: Hartford, Connecticut, USA*

Latitude: 41.7333°, Longitude: -72.65°

Elevation:

Elevation (station metadata): 20 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 & aerals](#)

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.331 (0.265-0.413)	0.404 (0.322-0.504)	0.522 (0.415-0.655)	0.620 (0.490-0.782)	0.755 (0.575-1.00)	0.857 (0.637-1.16)	0.963 (0.693-1.36)	1.08 (0.734-1.57)	1.25 (0.815-1.89)	1.39 (0.882-2.15)
10-min	0.469 (0.375-0.585)	0.572 (0.457-0.714)	0.740 (0.589-0.928)	0.879 (0.695-1.11)	1.07 (0.815-1.42)	1.21 (0.904-1.65)	1.37 (0.982-1.93)	1.53 (1.04-2.23)	1.78 (1.15-2.68)	1.97 (1.25-3.04)
15-min	0.552 (0.441-0.688)	0.673 (0.537-0.840)	0.870 (0.692-1.09)	1.03 (0.818-1.30)	1.26 (0.959-1.67)	1.43 (1.06-1.94)	1.61 (1.16-2.27)	1.81 (1.23-2.62)	2.09 (1.36-3.15)	2.32 (1.47-3.58)
30-min	0.742 (0.593-0.925)	0.904 (0.722-1.13)	1.17 (0.931-1.47)	1.39 (1.10-1.75)	1.69 (1.29-2.24)	1.92 (1.43-2.61)	2.16 (1.56-3.06)	2.43 (1.65-3.53)	2.82 (1.83-4.24)	3.13 (1.98-4.82)
60-min	0.931 (0.744-1.16)	1.14 (0.907-1.42)	1.47 (1.17-1.84)	1.75 (1.38-2.20)	2.13 (1.62-2.82)	2.42 (1.80-3.28)	2.72 (1.96-3.84)	3.06 (2.07-4.43)	3.54 (2.30-5.34)	3.93 (2.49-6.07)
2-hr	1.22 (0.979-1.51)	1.48 (1.19-1.83)	1.90 (1.52-2.36)	2.25 (1.79-2.82)	2.73 (2.10-3.61)	3.09 (2.32-4.19)	3.48 (2.53-4.92)	3.93 (2.67-5.67)	4.60 (3.00-6.90)	5.17 (3.28-7.92)
3-hr	1.41 (1.14-1.73)	1.70 (1.37-2.10)	2.19 (1.76-2.71)	2.59 (2.07-3.23)	3.14 (2.42-4.14)	3.56 (2.68-4.80)	4.00 (2.92-5.65)	4.53 (3.09-6.51)	5.34 (3.48-7.97)	6.02 (3.83-9.19)
6-hr	1.75 (1.43-2.15)	2.13 (1.73-2.61)	2.75 (2.22-3.38)	3.25 (2.61-4.04)	3.96 (3.07-5.18)	4.47 (3.40-6.02)	5.04 (3.71-7.09)	5.73 (3.92-8.18)	6.79 (4.44-10.1)	7.70 (4.91-11.7)
12-hr	2.12 (1.73-2.58)	2.60 (2.12-3.17)	3.38 (2.75-4.13)	4.02 (3.25-4.95)	4.91 (3.83-6.39)	5.57 (4.25-7.44)	6.28 (4.66-8.80)	7.16 (4.92-10.2)	8.53 (5.60-12.6)	9.70 (6.21-14.6)
24-hr	2.47 (2.03-2.99)	3.07 (2.53-3.72)	4.05 (3.32-4.93)	4.87 (3.96-5.96)	5.99 (4.71-7.78)	6.82 (5.25-9.09)	7.73 (5.78-10.8)	8.88 (6.12-12.5)	10.7 (7.06-15.7)	12.3 (7.91-18.4)
2-day	2.81 (2.33-3.37)	3.55 (2.94-4.27)	4.77 (3.93-5.76)	5.77 (4.73-7.02)	7.16 (5.68-9.27)	8.17 (6.35-10.9)	9.30 (7.05-13.1)	10.8 (7.48-15.2)	13.3 (8.80-19.4)	15.6 (10.0-23.1)
3-day	3.05 (2.54-3.65)	3.87 (3.22-4.64)	5.21 (4.31-6.27)	6.32 (5.20-7.65)	7.85 (6.25-10.1)	8.95 (6.99-11.9)	10.2 (7.78-14.4)	11.9 (8.24-16.6)	14.7 (9.74-21.4)	17.3 (11.1-25.6)
4-day	3.27 (2.73-3.90)	4.14 (3.45-4.94)	5.56 (4.61-6.66)	6.73 (5.55-8.13)	8.36 (6.67-10.8)	9.53 (7.46-12.6)	10.9 (8.29-15.2)	12.7 (8.78-17.6)	15.7 (10.4-22.7)	18.4 (11.9-27.1)
7-day	3.83 (3.22-4.55)	4.80 (4.02-5.70)	6.37 (5.31-7.60)	7.68 (6.36-9.21)	9.48 (7.59-12.1)	10.8 (8.46-14.2)	12.2 (9.36-17.0)	14.2 (9.89-19.7)	17.4 (11.6-25.1)	20.3 (13.1-29.8)
10-day	4.42 (3.72-5.23)	5.43 (4.57-6.43)	7.09 (5.93-8.42)	8.46 (7.03-10.1)	10.3 (8.30-13.1)	11.7 (9.20-15.3)	13.3 (10.1-18.2)	15.3 (10.7-21.1)	18.5 (12.3-26.5)	21.3 (13.8-31.2)
20-day	6.36 (5.39-7.47)	7.43 (6.29-8.73)	9.17 (7.73-10.8)	10.6 (8.88-12.6)	12.6 (10.1-15.8)	14.1 (11.1-18.1)	15.7 (11.9-21.1)	17.6 (12.4-24.1)	20.6 (13.8-29.2)	23.1 (15.0-33.6)
30-day	8.04 (6.84-9.40)	9.14 (7.76-10.7)	10.9 (9.24-12.8)	12.4 (10.4-14.7)	14.5 (11.6-17.9)	16.0 (12.5-20.3)	17.6 (13.3-23.3)	19.4 (13.7-26.4)	22.1 (14.8-31.2)	24.3 (15.8-35.1)
45-day	10.2 (8.67-11.8)	11.3 (9.63-13.2)	13.1 (11.2-15.4)	14.7 (12.4-17.3)	16.8 (13.6-20.6)	18.4 (14.5-23.2)	20.1 (15.1-26.2)	21.8 (15.4-29.5)	24.1 (16.3-33.9)	25.9 (16.9-37.3)
60-day	11.9 (10.2-13.9)	13.1 (11.2-15.2)	15.0 (12.8-17.6)	16.6 (14.1-19.5)	18.8 (15.2-23.0)	20.6 (16.1-25.6)	22.2 (16.6-28.7)	23.9 (17.0-32.1)	25.9 (17.5-36.3)	27.4 (17.9-39.4)

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

NOAA Atlas 14, Volume 10, Version 3 HARTFORD

BRAINARD FLD

Station ID: 06-3451

Location name: Hartford, Connecticut, USA*

Latitude: 41.7333°, Longitude: -72.65°

Elevation:

Elevation (station metadata): 20 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 & aerals](#)

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	3.97 (3.18-4.96)	4.85 (3.86-6.05)	6.26 (4.98-7.86)	7.44 (5.88-9.38)	9.06 (6.90-12.0)	10.3 (7.64-14.0)	11.6 (8.32-16.3)	13.0 (8.81-18.8)	15.0 (9.78-22.7)	16.7 (10.6-25.8)
10-min	2.81 (2.25-3.51)	3.43 (2.74-4.28)	4.44 (3.53-5.57)	5.27 (4.17-6.65)	6.42 (4.89-8.50)	7.28 (5.42-9.88)	8.19 (5.89-11.6)	9.20 (6.25-13.4)	10.7 (6.92-16.1)	11.8 (7.50-18.3)
15-min	2.21 (1.76-2.75)	2.69 (2.15-3.36)	3.48 (2.77-4.36)	4.14 (3.27-5.22)	5.04 (3.84-6.67)	5.72 (4.25-7.75)	6.42 (4.62-9.07)	7.22 (4.90-10.5)	8.36 (5.43-12.6)	9.29 (5.88-14.3)
30-min	1.48 (1.19-1.85)	1.81 (1.44-2.26)	2.34 (1.86-2.93)	2.78 (2.20-3.51)	3.39 (2.58-4.49)	3.85 (2.86-5.22)	4.32 (3.11-6.11)	4.86 (3.30-7.05)	5.63 (3.66-8.49)	6.26 (3.96-9.65)
60-min	0.931 (0.744-1.16)	1.14 (0.907-1.42)	1.47 (1.17-1.84)	1.75 (1.38-2.20)	2.13 (1.62-2.82)	2.42 (1.80-3.28)	2.72 (1.96-3.84)	3.06 (2.07-4.43)	3.54 (2.30-5.34)	3.93 (2.49-6.07)
2-hr	0.608 (0.490-0.754)	0.738 (0.593-0.915)	0.949 (0.760-1.18)	1.12 (0.894-1.41)	1.37 (1.05-1.80)	1.55 (1.16-2.09)	1.74 (1.26-2.46)	1.97 (1.34-2.83)	2.30 (1.50-3.45)	2.58 (1.64-3.96)
3-hr	0.468 (0.378-0.577)	0.567 (0.457-0.700)	0.728 (0.585-0.903)	0.862 (0.688-1.08)	1.05 (0.807-1.38)	1.18 (0.893-1.60)	1.33 (0.974-1.88)	1.51 (1.03-2.17)	1.78 (1.16-2.65)	2.01 (1.27-3.06)
6-hr	0.293 (0.238-0.359)	0.356 (0.289-0.437)	0.458 (0.371-0.565)	0.543 (0.437-0.674)	0.661 (0.513-0.865)	0.747 (0.567-1.00)	0.841 (0.620-1.19)	0.956 (0.655-1.37)	1.13 (0.742-1.68)	1.29 (0.820-1.95)
12-hr	0.176 (0.144-0.214)	0.215 (0.176-0.263)	0.280 (0.228-0.343)	0.334 (0.270-0.411)	0.408 (0.318-0.531)	0.462 (0.353-0.618)	0.521 (0.386-0.731)	0.595 (0.408-0.844)	0.708 (0.465-1.04)	0.805 (0.515-1.21)
24-hr	0.103 (0.085-0.124)	0.128 (0.105-0.155)	0.169 (0.138-0.205)	0.203 (0.165-0.248)	0.250 (0.196-0.324)	0.284 (0.219-0.379)	0.322 (0.241-0.451)	0.370 (0.255-0.522)	0.447 (0.294-0.655)	0.514 (0.330-0.769)
2-day	0.058 (0.048-0.070)	0.074 (0.061-0.089)	0.099 (0.082-0.120)	0.120 (0.098-0.146)	0.149 (0.118-0.193)	0.170 (0.132-0.227)	0.194 (0.147-0.273)	0.225 (0.156-0.316)	0.277 (0.183-0.404)	0.324 (0.209-0.482)
3-day	0.042 (0.035-0.051)	0.054 (0.045-0.064)	0.072 (0.060-0.087)	0.088 (0.072-0.106)	0.109 (0.087-0.141)	0.124 (0.097-0.166)	0.142 (0.108-0.199)	0.165 (0.114-0.231)	0.205 (0.135-0.297)	0.240 (0.155-0.355)
4-day	0.034 (0.028-0.041)	0.043 (0.036-0.051)	0.058 (0.048-0.069)	0.070 (0.058-0.085)	0.087 (0.069-0.112)	0.099 (0.078-0.132)	0.113 (0.086-0.159)	0.132 (0.091-0.184)	0.163 (0.108-0.236)	0.191 (0.124-0.283)
7-day	0.023 (0.019-0.027)	0.029 (0.024-0.034)	0.038 (0.032-0.045)	0.046 (0.038-0.055)	0.056 (0.045-0.072)	0.064 (0.050-0.084)	0.073 (0.056-0.101)	0.085 (0.059-0.117)	0.104 (0.069-0.149)	0.121 (0.078-0.177)
10-day	0.018 (0.016-0.022)	0.023 (0.019-0.027)	0.030 (0.025-0.035)	0.035 (0.029-0.042)	0.043 (0.035-0.055)	0.049 (0.038-0.064)	0.055 (0.042-0.076)	0.064 (0.044-0.088)	0.077 (0.051-0.110)	0.089 (0.058-0.130)
20-day	0.013 (0.011-0.016)	0.015 (0.013-0.018)	0.019 (0.016-0.023)	0.022 (0.019-0.026)	0.026 (0.021-0.033)	0.029 (0.023-0.038)	0.033 (0.025-0.044)	0.037 (0.026-0.050)	0.043 (0.029-0.061)	0.048 (0.031-0.070)
30-day	0.011 (0.009-0.013)	0.013 (0.011-0.015)	0.015 (0.013-0.018)	0.017 (0.014-0.020)	0.020 (0.016-0.025)	0.022 (0.017-0.028)	0.024 (0.018-0.032)	0.027 (0.019-0.037)	0.031 (0.021-0.043)	0.034 (0.022-0.049)
45-day	0.009 (0.008-0.011)	0.010 (0.009-0.012)	0.012 (0.010-0.014)	0.014 (0.011-0.016)	0.016 (0.013-0.019)	0.017 (0.013-0.021)	0.019 (0.014-0.024)	0.020 (0.014-0.027)	0.022 (0.015-0.031)	0.024 (0.016-0.035)
60-day	0.008 (0.007-0.010)	0.009 (0.008-0.011)	0.010 (0.009-0.012)	0.012 (0.010-0.014)	0.013 (0.011-0.016)	0.014 (0.011-0.018)	0.015 (0.012-0.020)	0.017 (0.012-0.022)	0.018 (0.012-0.025)	0.019 (0.012-0.027)

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.

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