

Exhibit H

Stormwater Management Report

(Including Drainage Analysis –

Review of Pre-And Post-Development Runoff At The Project Site)

- APPENDIX D –

NOAA Atlas 14 Precipitation Frequency Table



NOAA Atlas 14, Volume 10, Version 3
Location name: Town of Bethlehem, Connecticut,
USA*

Latitude: 41.6328°, Longitude: -73.2175°
Elevation: 828.28 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

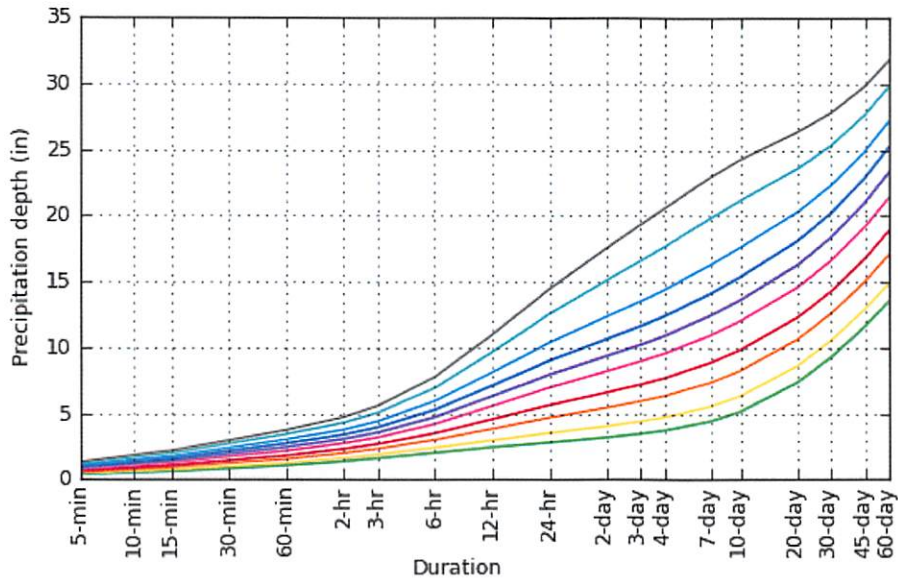
PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)¹										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.361 (0.274-0.475)	0.428 (0.324-0.563)	0.537 (0.405-0.709)	0.627 (0.471-0.832)	0.751 (0.549-1.03)	0.846 (0.606-1.19)	0.943 (0.658-1.37)	1.05 (0.700-1.56)	1.19 (0.769-1.83)	1.30 (0.824-2.04)
10-min	0.512 (0.388-0.673)	0.606 (0.459-0.798)	0.760 (0.574-1.00)	0.888 (0.668-1.18)	1.06 (0.777-1.47)	1.20 (0.859-1.68)	1.34 (0.932-1.94)	1.48 (0.992-2.21)	1.69 (1.09-2.59)	1.85 (1.17-2.89)
15-min	0.602 (0.457-0.792)	0.713 (0.540-0.939)	0.894 (0.676-1.18)	1.05 (0.786-1.39)	1.25 (0.914-1.73)	1.41 (1.01-1.98)	1.57 (1.10-2.28)	1.75 (1.17-2.59)	1.98 (1.28-3.04)	2.17 (1.37-3.40)
30-min	0.820 (0.622-1.08)	0.972 (0.736-1.28)	1.22 (0.921-1.61)	1.43 (1.07-1.89)	1.71 (1.25-2.35)	1.92 (1.38-2.70)	2.14 (1.50-3.10)	2.38 (1.59-3.54)	2.71 (1.75-4.15)	2.96 (1.87-4.64)
60-min	1.04 (0.788-1.37)	1.23 (0.932-1.62)	1.54 (1.17-2.04)	1.80 (1.36-2.39)	2.16 (1.58-2.98)	2.44 (1.75-3.42)	2.72 (1.89-3.93)	3.01 (2.02-4.48)	3.43 (2.22-5.26)	3.75 (2.38-5.87)
2-hr	1.38 (1.05-1.80)	1.61 (1.23-2.11)	1.99 (1.51-2.61)	2.31 (1.75-3.04)	2.74 (2.02-3.76)	3.07 (2.22-4.29)	3.41 (2.40-4.93)	3.79 (2.54-5.60)	4.31 (2.80-6.59)	4.74 (3.01-7.39)
3-hr	1.60 (1.23-2.09)	1.87 (1.43-2.44)	2.31 (1.77-3.03)	2.68 (2.03-3.52)	3.19 (2.35-4.36)	3.56 (2.58-4.97)	3.96 (2.80-5.73)	4.41 (2.97-6.51)	5.06 (3.29-7.71)	5.59 (3.55-8.68)
6-hr	2.01 (1.55-2.60)	2.38 (1.83-3.08)	2.99 (2.30-3.89)	3.50 (2.67-4.57)	4.20 (3.12-5.73)	4.72 (3.45-6.58)	5.28 (3.77-7.65)	5.94 (4.01-8.72)	6.93 (4.51-10.5)	7.76 (4.95-12.0)
12-hr	2.42 (1.88-3.11)	2.96 (2.29-3.80)	3.83 (2.96-4.95)	4.56 (3.50-5.92)	5.56 (4.17-7.58)	6.30 (4.64-8.78)	7.11 (5.13-10.3)	8.10 (5.48-11.8)	9.63 (6.29-14.6)	11.0 (7.01-16.9)
24-hr	2.81 (2.19-3.58)	3.52 (2.71-4.50)	4.68 (3.64-6.00)	5.64 (4.36-7.27)	6.97 (5.26-9.46)	7.94 (5.90-11.0)	9.01 (6.57-13.1)	10.4 (7.05-15.1)	12.5 (8.22-18.9)	14.4 (9.27-22.1)
2-day	3.18 (2.50-4.04)	4.04 (3.16-5.12)	5.43 (4.24-6.91)	6.59 (5.12-8.43)	8.18 (6.22-11.1)	9.34 (6.99-13.0)	10.6 (7.83-15.5)	12.3 (8.40-17.9)	15.1 (9.91-22.6)	17.5 (11.3-26.7)
3-day	3.47 (2.73-4.38)	4.40 (3.46-5.56)	5.92 (4.65-7.52)	7.19 (5.61-9.17)	8.93 (6.81-12.0)	10.2 (7.66-14.1)	11.6 (8.59-16.9)	13.5 (9.20-19.5)	16.6 (10.9-24.7)	19.3 (12.4-29.4)
4-day	3.73 (2.94-4.69)	4.72 (3.72-5.95)	6.33 (4.98-8.01)	7.68 (6.00-9.76)	9.52 (7.28-12.8)	10.9 (8.19-15.0)	12.4 (9.17-18.0)	14.4 (9.82-20.7)	17.6 (11.6-26.3)	20.6 (13.3-31.2)
7-day	4.43 (3.52-5.55)	5.54 (4.39-6.95)	7.35 (5.81-9.25)	8.85 (6.96-11.2)	10.9 (8.38-14.6)	12.4 (9.39-17.1)	14.1 (10.5-20.3)	16.3 (11.2-23.4)	19.8 (13.1-29.4)	22.9 (14.8-34.7)
10-day	5.14 (4.09-6.42)	6.31 (5.02-7.88)	8.22 (6.52-10.3)	9.81 (7.73-12.4)	12.0 (9.21-15.9)	13.6 (10.3-18.5)	15.4 (11.4-21.9)	17.6 (12.1-25.2)	21.1 (14.0-31.3)	24.2 (15.7-36.6)
20-day	7.38 (5.92-9.15)	8.61 (6.90-10.7)	10.6 (8.48-13.2)	12.3 (9.75-15.4)	14.6 (11.2-19.1)	16.3 (12.3-21.9)	18.1 (13.3-25.3)	20.3 (14.0-28.8)	23.6 (15.7-34.7)	26.4 (17.1-39.6)
30-day	9.27 (7.46-11.4)	10.5 (8.46-13.0)	12.6 (10.1-15.6)	14.3 (11.4-17.8)	16.6 (12.8-21.6)	18.4 (13.9-24.4)	20.2 (14.8-27.9)	22.3 (15.5-31.5)	25.3 (16.9-37.1)	27.8 (18.1-41.6)
45-day	11.6 (9.36-14.2)	12.9 (10.4-15.9)	15.0 (12.1-18.5)	16.7 (13.4-20.8)	19.2 (14.8-24.7)	21.0 (15.9-27.7)	22.9 (16.7-31.2)	24.9 (17.3-35.0)	27.6 (18.5-40.4)	29.8 (19.5-44.5)
60-day	13.5 (10.9-16.6)	14.8 (12.0-18.2)	17.0 (13.7-21.0)	18.9 (15.1-23.4)	21.4 (16.5-27.5)	23.3 (17.6-30.5)	25.2 (18.4-34.2)	27.2 (19.0-38.2)	29.8 (20.0-43.4)	31.8 (20.8-47.4)

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.

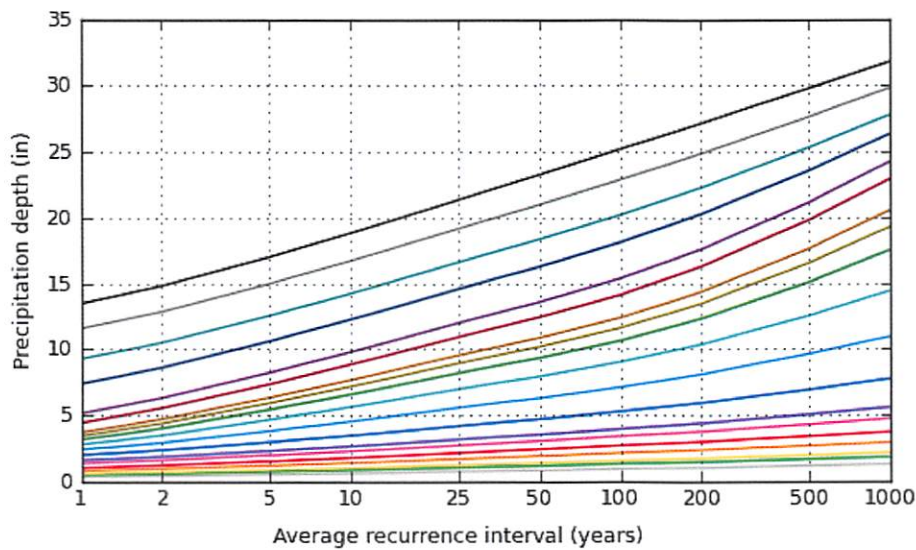
[Back to Top](#)

PF graphical

PDS-based depth-duration-frequency (DDF) curves
 Latitude: 41.6328°, Longitude: -73.2175°



Average recurrence interval (years)
1
2
5
10
25
50
100
200
500
1000

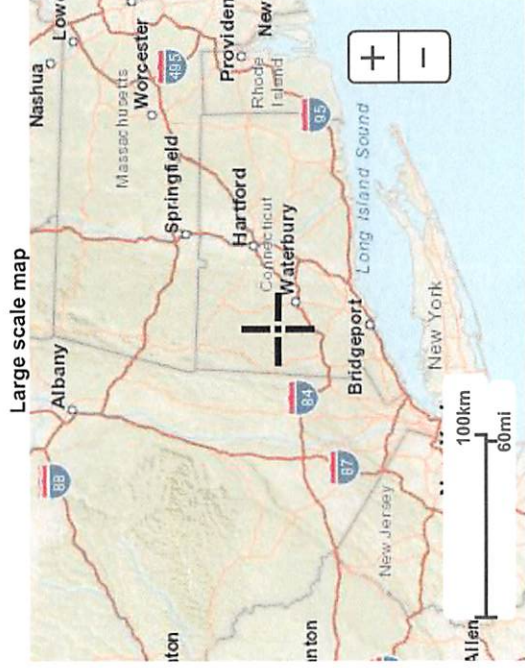
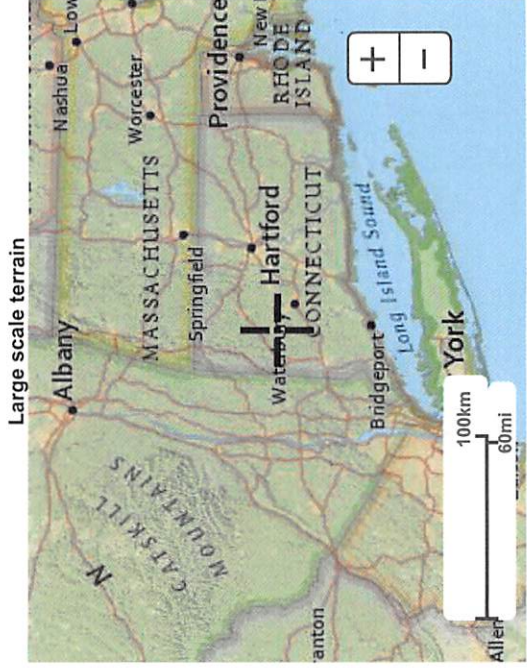
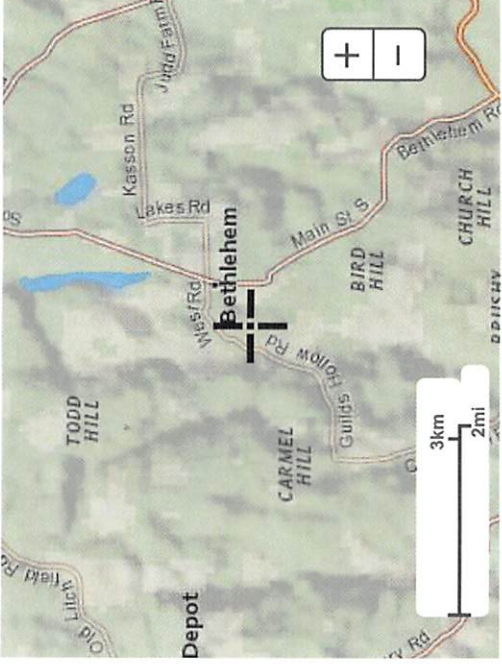


Duration
5-min
10-min
15-min
30-min
60-min
2-hr
3-hr
6-hr
12-hr
24-hr
2-day
3-day
4-day
7-day
10-day
20-day
30-day
45-day
60-day

[Back to Top](#)

Maps & aeriels

Small scale terrain



Large scale aerial



[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](#)