

VERIFY PIPE CAPACITY-100 YEAR STORM

Pipe Sizing Calculation Spreadsheet:

THE MORIN-CAMERON GROUP, INC.

66 Elm Street
Danvers, MA 0193
P: (978) 7778586

W: www.morincameron.com

Name: Clarks Road
Location: 27.5 & 29 Clarks Road
Amesbury, MA
County: Essex
Applicant Eagles Crossing, LLC

Proj. No.: 3962
Date: 12/12/2025
Revised: N/A
Computed by: Billy Simmons
Checked by: Daniel Sievers, P.E.

Design Parameters:
IDF Curve
100 Year Storm

Boston, MA

k_e= 0.2

DESCRIPTION	LOCATION		AREA (AC.)	C	C x A	SUM C x A	FLOW TIME (MIN)		i*	DESIGN					CAPACITY		PIPE PROFILE				
	FROM	TO					PIPE	CONC. TIME		Q cfs	V fps	n	PIPE SIZE	SLOPE	Q full ft^3/s	V full ft/s	LENGTH ft	FALL ft	RIM	INV UPPER	INV LOWER
1	CB1	DMH1	0.05	0.90	0.05	0.05	0.14	6.0	7.0	0.32	1.8	0.012	12	0.005	2.7	3.5	16	0.08	55.80	52.66	52.58
2	CB2	DMH1	0.29	0.65	0.18	0.18	0.09	6.0	7.0	1.29	2.9	0.012	12	0.005	2.7	3.5	16	0.08	55.80	52.66	52.58
3	ROOF B	DMH1	0.04	0.90	0.04	0.04	0.41	6.0	7.0	0.28	2.6	0.012	12	0.022	5.7	7.3	65	1.42	57.50	54.00	52.58
4	DMH1	DMH2				0.27	0.21	6.4	6.9	1.86	3.2	0.012	12	0.005	2.7	3.4	41	0.20	56.20	52.48	52.28
5	ROOF A	DMH2	0.04	0.90	0.04	0.04	0.15	6.0	7.0	0.28	3.5	0.012	12	0.059	9.4	11.9	31	1.82	57.50	54.00	52.18
6	CB3	WQU1	0.12	0.65	0.08	0.08	0.16	6.0	7.0	0.53	2.3	0.012	12	0.005	2.9	3.6	22	0.12	55.16	52.16	52.04
7	DMH2	WQU1				0.38	0.13	6.0	7.0	2.69	3.6	0.012	12	0.005	2.7	3.5	28	0.14	56.00	52.18	52.04
8	WQU1	SIS 1				0.46	0.02	6.2	7.0	3.20	4.5	0.012	12	0.008	3.5	4.4	5	0.04	55.60	51.94	51.90
9	WQU2	SIS 1	0.06	0.90	0.05	0.05	0.06	6.0	7.0	0.36	2.0	0.012	12	0.006	2.9	3.7	7	0.04	54.94	51.94	51.90
10	WQU3	SIS 1	0.13	0.86	0.12	0.12	0.06	6.0	7.0	0.81	3.1	0.012	12	0.009	3.7	4.7	11	0.10	54.90	52.00	51.90
11	ROOF C-1	SIS 1	0.46	0.90	0.41	0.41	0.18	6.0	7.0	2.88	6.1	0.012	12	0.021	5.6	7.2	66	1.40	56.50	53.30	51.90
12	CB5	DMH4	0.10	0.90	0.09	0.09	0.31	6.0	7.0	0.61	2.3	0.012	12	0.005	2.6	3.4	43	0.20	52.90	49.90	49.70
13	CB6	DMH4	0.29	0.69	0.20	0.20	0.26	6.0	7.0	1.42	2.8	0.012	12	0.005	2.6	3.3	44	0.20	52.90	49.90	49.70
14	CB7	DMH4	0.12	0.81	0.10	0.10	0.06	6.0	7.0	0.68	2.4	0.012	12	0.005	2.7	3.5	8	0.04	52.90	49.74	49.70
15	CB8	DMH4	0.11	0.79	0.09	0.09	0.11	6.0	7.0	0.60	2.2	0.012	12	0.005	2.6	3.4	15	0.07	52.90	49.77	49.70
16	TD-1	DMH4	0.00	0.90	0.00	0.00	0.39	6.0	7.0	0.03	1.9	0.012	6	0.043	1.3	6.4	44	1.90	53.30	50.90	49.00
17	DMH4	WQU4				0.48	0.15	6.0	7.0	3.34	3.7	0.012	18	0.005	8.2	4.6	33	0.17	53.25	49.60	49.43

Weighted Runoff Coefficients "C" for Rational Method

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C' - Coefficients

Pervious Soil 0.35
Impervious 0.9

Description of Area CB-1	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.051	0.90	0.05
Totals =	0.051		0.05

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area ROOF A	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.044	0.90	0.04
Totals =	0.044		0.04

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area CB-3	Area (acres)	Runoff Coefficient	A x C
Pervious	0.054	0.35	0.02
Impervious	0.063	0.90	0.06
Totals =	0.117		0.08

Weighted Runoff Coefficient = $S(AxC) / SA = 0.65$

Description of Area WQU2	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.057	0.90	0.05
Totals =	0.057		0.05

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area CB5	Area (acres)	Runoff Coefficient	A x C
Pervious	0.001	0.35	0.00
Impervious	0.097	0.90	0.09
Totals =	0.098		0.09

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area CB-2	Area (acres)	Runoff Coefficient	A x C
Pervious	0.132	0.35	0.05
Impervious	0.154	0.90	0.14
Totals =	0.286		0.18

Weighted Runoff Coefficient = $S(AxC) / SA = 0.65$

Description of Area ROOF B	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.044	0.90	0.04
Totals =	0.044		0.04

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

RESERVED - NOT USED			
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Description of Area WQU3	Area (acres)	Runoff Coefficient	A x C
Pervious	0.009	0.35	0.00
Impervious	0.125	0.90	0.11
Totals =	0.133		0.12

Weighted Runoff Coefficient = $S(AxC) / SA = 0.86$

Description of Area CB6	Area (acres)	Runoff Coefficient	A x C
Pervious	0.109	0.35	0.04
Impervious	0.182	0.90	0.16
Totals =	0.292		0.20

Weighted Runoff Coefficient = $S(AxC) / SA = 0.69$

Description of Area CB7	Area (acres)	Runoff Coefficient	A x C
Pervious	0.020	0.35	0.01
Impervious	0.100	0.90	0.09
Totals =	0.120		0.10

Weighted Runoff Coefficient = $S(AxC) / SA = 0.81$

Description of Area WQU5	Area (acres)	Runoff Coefficient	A x C
Pervious	0.037	0.35	0.01
Impervious	0.163	0.90	0.15
Totals =	0.199		0.16

Weighted Runoff Coefficient = $S(AxC) / SA = 0.80$

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Description of Area CB8	Area (acres)	Runoff Coefficient	A x C
Pervious	0.022	0.35	0.01
Impervious	0.087	0.90	0.08
Totals =	0.109		0.09

Weighted Runoff Coefficient = $S(AxC) / SA = 0.79$

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Description of Area TD-1	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.004	0.90	0.00
Totals =	0.004		0.00

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area TD-2	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.044	0.90	0.04
Totals =	0.044		0.04

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area ROOF C-1	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.457	0.90	0.41
Totals =	0.457		0.41

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$

Description of Area ROOF C-2	Area (acres)	Runoff Coefficient	A x C
Pervious	0.000	0.35	0.00
Impervious	0.496	0.90	0.45
Totals =	0.496		0.45

Weighted Runoff Coefficient = $S(AxC) / SA = 0.90$