

Detention Calculation
Rational Method - Bulletin 75

Creekview Plaza
21-055
April 25, 2024

Storm Duration (min)	Runoff Coefficient	Rainfall Intensity (in/hr)	Drainage Area (acres)	Inflow rate (cfs)	Release Rate (cfs)	Storage Rate (CF)	Storage Rate (CF)
				Qi-C100A	Qo (cfs)	Qi-Qo (cfs)	(Qi-Qo)*60
5	0.876106	12.36	1.13	11.70	0.113	11.59	3475.72
6	0.876106	12.05	1.13	11.40	0.113	11.29	4064.56
7	0.876106	11.74	1.13	11.11	0.113	11.00	4617.95
8	0.876106	11.42	1.13	10.81	0.113	10.70	5135.91
9	0.876106	11.11	1.13	10.52	0.113	10.40	5618.43
10	0.876106	10.80	1.13	10.22	0.113	10.11	6065.52
11	0.876106	10.50	1.13	9.93	0.113	9.82	6482.17
12	0.876106	10.19	1.13	9.65	0.113	9.53	6864.28
13	0.876106	9.89	1.13	9.36	0.113	9.25	7211.87
14	0.876106	9.58	1.13	9.07	0.113	8.96	7524.94
15	0.876106	9.28	1.13	8.78	0.113	8.67	7803.47
16	0.876106	9.08	1.13	8.60	0.113	8.49	8145.61
17	0.876106	8.89	1.13	8.41	0.113	8.30	8465.48
18	0.876106	8.69	1.13	8.23	0.113	8.11	8763.10
19	0.876106	8.50	1.13	8.04	0.113	7.93	9038.45
20	0.876106	8.30	1.13	7.86	0.113	7.74	9291.54
21	0.876106	8.10	1.13	7.67	0.113	7.56	9522.37
22	0.876106	7.91	1.13	7.48	0.113	7.37	9730.94
23	0.876106	7.71	1.13	7.30	0.113	7.19	9917.24
24	0.876106	7.52	1.13	7.11	0.113	7.00	10081.29
25	0.876106	7.32	1.13	6.93	0.113	6.82	10223.07
26	0.876106	7.12	1.13	6.74	0.113	6.63	10342.59
27	0.876106	6.93	1.13	6.56	0.113	6.44	10439.85
28	0.876106	6.73	1.13	6.37	0.113	6.26	10514.85
29	0.876106	6.54	1.13	6.19	0.113	6.07	10567.58
30	0.876106	6.34	1.13	6.00	0.113	5.89	10598.06
31	0.876106	6.26	1.13	5.93	0.113	5.81	10615.77
32	0.876106	6.19	1.13	5.86	0.113	5.74	10624.73
33	0.876106	6.11	1.13	5.78	0.113	5.67	10624.95
34	0.876106	6.03	1.13	5.71	0.113	5.60	10616.43
35	0.876106	5.96	1.13	5.64	0.113	5.52	10599.16
36	0.876106	5.88	1.13	5.56	0.113	5.45	10573.14
37	0.876106	5.80	1.13	5.49	0.113	5.38	10538.38
38	0.876106	5.72	1.13	5.42	0.113	5.30	10494.87
39	0.876106	5.65	1.13	5.34	0.113	5.23	10442.61
40	0.876106	5.57	1.13	5.27	0.113	5.16	10381.61
41	0.876106	5.49	1.13	5.20	0.113	5.09	10311.87
42	0.876106	5.42	1.13	5.13	0.113	5.01	10233.37
43	0.876106	5.34	1.13	5.05	0.113	4.94	10146.14
44	0.876106	5.26	1.13	4.98	0.113	4.87	10050.16
45	0.876106	5.19	1.13	4.91	0.113	4.79	9945.43
46	0.876106	5.11	1.13	4.83	0.113	4.72	9831.95
47	0.876106	5.03	1.13	4.76	0.113	4.65	9710.73
48	0.876106	4.95	1.13	4.69	0.113	4.58	9581.77
49	0.876106	4.88	1.13	4.62	0.113	4.50	9445.06
50	0.876106	4.80	1.13	4.54	0.113	4.43	9300.60
51	0.876106	4.72	1.13	4.47	0.113	4.36	9148.34
52	0.876106	4.65	1.13	4.40	0.113	4.28	8988.45
53	0.876106	4.57	1.13	4.32	0.113	4.21	8820.92
54	0.876106	4.49	1.13	4.25	0.113	4.14	8645.73
55	0.876106	4.42	1.13	4.18	0.113	4.07	8462.97
56	0.876106	4.34	1.13	4.11	0.113	3.99	8272.64
57	0.876106	4.26	1.13	4.03	0.113	3.92	8074.82
58	0.876106	4.18	1.13	3.96	0.113	3.85	7869.50
59	0.876106	4.11	1.13	3.89	0.113	3.77	7656.69
60	0.876106	4.03	1.13	3.81	0.113	3.70	7436.38
120	0.876106	2.49	1.13	2.36	0.113	2.24	16155.25
180	0.876106	1.83	1.13	1.73	0.113	1.62	11748.23
360	0.876106	1.07	1.13	1.01	0.113	0.90	19434.71
720	0.876106	0.62	1.13	0.59	0.113	0.47	20469.46
1440	0.876106	0.36	1.13	0.34	0.113	0.23	19676.74

A = 1.13 acres impervious area = 0.88 area c
Cd = 0.84 pervious area = 0.11 0.9
Release Rate = 0.1 cfs/ac permeable pavers = 0.14 0.75

Required Storage = 20469.46 cubic feet
0.47 acre feet

GENERAL NOTES:
1. THESE PLANS ARE BASED ON THE (ALTA/NSPS LAND TITLE AND TOPOGRAPHIC SURVEY) (SURVEY PROJECT #22-22465 REV-2 DATED 07/21/22) PREPARED BY: GENTILE AND ASSOCIATES, INC. 550 E. ST. CHARLES PLACE, LOMBARD, ILLINOIS 60148 (630) 916-6262
2. PRIOR TO CONSTRUCTION, CONTRACTOR TO CONTACT THE DESIGN ENGINEER AND ARCHITECT TO VERIFY THAT THEY ARE WORKING FROM THE MOST CURRENT SET OF PLANS AND SPECIFICATIONS.

SOURCE BENCHMARK # 1:
DUPAGE COUNTY BM. # YK09002 DUPAGE COUNTY BM. # YK09002 YK09002 STATION IS LOCATED ALONG ADDISON AVENUE, BETWEEN THE ILLINOIS PRAIRIE PATH AND CENTRAL BOULEVARD. STATION IS 21.5 FT SOUTH OF THE CENTERLINE OF CENTRAL BOULEVARD, 54.0 FT EAST OF THE CENTERLINE OF ADDISON AVENUE, 67.0 FT NORTH OF THE CENTERLINE OF THE ILLINOIS PRAIRIE PATH, AND 146.0 FT NORTH OF PARK AVENUE. MONUMENT IS 0.85 FT ABOVE THE ROAD SURFACE AND IS FERROMAGNETIC.
ELEVATION = 709.33 (NAVD 88 DATUM)

SOURCE BENCHMARK # 2:
DUPAGE COUNTY BM. # YK09003 DUPAGE COUNTY BM. # YK09003 YK09003 STATION IS LOCATED ALONG HARVARD AVENUE, BETWEEN ITS INTERSECTION WITH CENTRAL BOULEVARD AND ITS INTERSECTION WITH PARK AVENUE. STATION IS 15.4 FT EAST OF THE CENTERLINE OF HARVARD AVENUE, 89.5 FT NORTH OF THE CENTERLINE OF PARK AVENUE, AND 79.5 FT SOUTH OF THE CENTERLINE OF CENTRAL BOULEVARD. MONUMENT IS 1 FT BELOW GRADE OF GROUND AND IS FERROMAGNETIC.
ELEVATION = 707.14 (NAVD 88 DATUM)

SITE BENCHMARK # 1:
TAG BOLT ON FIRE HYDRANT LOCATED ON THE SOUTH SIDE OF E. ROOSEVELT ROAD (ILLINOIS ROUTE 38), THE MOST WESTERLY FIRE HYDRANT IN FRONT OF SUBJECT PROPERTY.
ELEVATION = 708.750 (NAVD 88 DATUM)

SITE BENCHMARK # 2:
CROSS CUT IN EAST-WEST CONCRETE WALK SOUTH SIDE OF ROOSEVELT ROAD, NEAR NORTHWEST CORNER OF SUBJECT PROPERTY OF SUBJECT PROPERTY.
ELEVATION = 715.988 (NAVD 88 DATUM)

SITE BENCHMARK # 3:
CROSS CUT IN EAST-WEST CONCRETE WALK SOUTH SIDE OF ROOSEVELT ROAD, NEAR NORTHWEST CORNER OF SUBJECT PROPERTY OF SUBJECT PROPERTY.
ELEVATION = 706.040 (NAVD 88 DATUM)

STORMWATER MANAGEMENT DATA

WETLAND
-NO IMPACT

WETLAND BUFFER
-50' REQUIRED, 19' TO 85' PROPOSED
-25,321 SF @ 50', 25,365 SF @ PROPOSED

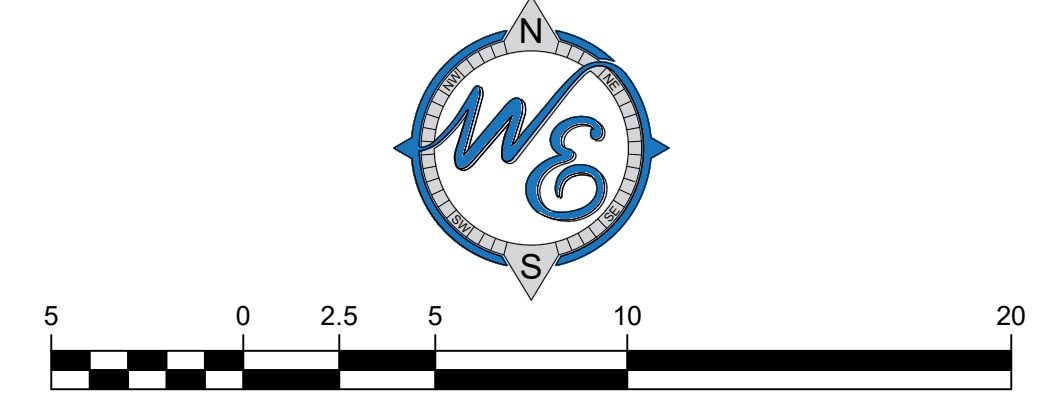
FLOODWAY
-NO IMPACT

FLOODPLAIN
100 YR. BFE = 706.6
10 YR. BFE = 704.8
0-10 YEAR FILL = 0 ac-ft
10-100 YEAR FILL = 0.14 ac-ft
100-1000 YEAR FILL = 0.203 ac-ft
REQUIRED STORAGE (150% OF FILL) = 0.12 ac-ft
0-10 YEAR CUT = 0.18 ac-ft
10-100 YEAR CUT (PROVIDED STORAGE) = 0.205 ac-ft
PROVIDED STORAGE > REQUIRED STORAGE = 0.202 ac-ft > 0.003 ac-ft

SURPLUS VOLUME
= 0.003 ac-ft

NEW RUNOFF STORAGE
REQUIRED STORAGE PER RATIONAL METHOD
-DRAINAGE AREA = 1.13 AC
-IMPERVIOUS AREA = 1.02 AC
-REQUIRED STORAGE = 0.47 AC-FT (20,470 CF)
-STORAGE PROPOSED = 0.48 AC-FT (20,796 CF)
-0.48 AC-FT > 0.47 AC-FT ∴ OK
THE PROPOSED STORAGE IS PROVIDED IN OVERSIZED PIPE (17,405 CF) AND THE VOIDS IN THE STONE AROUND THE PIPE (3,391 CF) USING A POROSITY OF 0.30.

WATER QUALITY-PCBMP'S
THE PERMEABLE PAVERS AND STONE BELOW THE PAVERS WILL PROVIDE THE REQUIRED MITIGATION OF THE NEW IMPERVIOUS AREAS (USING A POROSITY OF 0.30).
-IMPERVIOUS AREA = 1.02 AC
-FIRST FLUSH RUNOFF = 1.02*43,560*1.25"/12 = 4,629 CF
-AREA OF PAVERS = 6,310 SF
-DEPTH OF STONE UNDER PAVERS = 30"
-VOLUME PROPOSED = 4,733 CF ≥ 4,629 CF ∴ OK
-WATER TABLE ELEV = 695±
-LOWEST BMP ELEV = 701.5±



PRELIMINARY ENGINEERING PLAN

SAFA PROPERTY, LLC
8060 Lawndale
Skokie, IL

CREEKVIEW PLAZA
855 E. Roosevelt Road
Lombard, Illinois

Prepared For:

Prepared By:

Checked By: J. MILLER
Design By: J. MILLER
Drawn By: JOSH MILLER
Date: APRIL 26, 2024
Scale: 1" = 20'
Project No.: 21-055

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watermark engineering resources

GRADING AND UTILITY PLAN

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