

ATTACHMENT 12 - STORMWATER RETENTION CALCULATIONS

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RETARDING BASIN - RATIONAL METHOD

Project	Pavilion Farm 3 Extension	Project No	4432
Client	Pavilion Farms	Revision	A
Location	Anakie		

Designed	LW	Date	16/06/2026	Checked	CT	Date	18/06/2026
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Pre Development Conditions Calculations

Type of Surface	Coefficient of Runoff	Area (Sq.m)	Area (Ha)	Area Eq
Landscape	0.35	57130	5.71	2.00
Pavement	0.90	0	0.00	0.00
Roof	1.00	0	0.00	0.00
Other	0.00	0	0.00	0.00
Other	0.00	0	0.00	0.00
Average/Total	0.35	57130	5.71	2.00

Post Development Conditions Calculations

Type of Surface	Coefficient of Runoff	Area (Sq.m)	Area (Ha)	Area Eq
Landscape	0.90	14694	1.47	1.32
Pavement	1.00	14950	1.50	1.50
Roof	1.00	27486	2.75	2.75
Other	0.00	0	0.00	0.00
Other	0.00	0	0.00	0.00
Average/Total	0.97	57130	5.71	5.57

	63.20%	50%	20%	10%	5%	2%	1%
C0	0.0977622	0.2472935	0.6279222	0.8363969	1.0147927	1.2228426	1.3657118
C1	0.5324466	0.5360484	0.4987293	0.4603658	0.4202334	0.3358236	0.2724171
C2	0.3316174	0.3168021	0.3401120	0.3768332	0.4177725	0.5121061	0.5840461
C3	-0.1893653	-0.1775002	-0.1766531	-0.1879277	-0.2021273	-0.2395914	-0.2687764
C4	0.0395169	0.0359950	0.0335335	0.0348308	0.0369435	0.0436954	0.0491026
C5	-0.0036102	-0.0031838	-0.0027641	-0.0028088	-0.0029486	-0.0035173	-0.0039873
C6	0.0001209	0.0001029	0.0000826	0.0000820	0.0000854	0.0001036	0.0001191

Area of Development	57130	Sq.m
Area of Development	5.71	Ha
Time of Concentration	6	Mins
Frequency	10	% AEP
Intensity	82	mm/hr
Coefficient Pre Development	0.35	
Coefficient Post Development	0.97	
Site Discharge Predevelopment	0.45	Cub.m/s
Permissible Site Discharge	0.00	Cub.m/s
Storm Duration Interval	36	Mins
Number of (Integer) Intervals	40	
Storage Required	3936.79	Cub.m



Interval	Duration	Duration	Intensity	Inflow Rate	Inflow Volume	Outflow Volume	Storage Volume
	min	hr	mm/hr	Cub.m/s	Cub.m	Cub.m	Cub.m
0	6.00	0.10	81.651	1.2624	454.48	0.00	454.48
1	42.00	0.70	28.159	0.4354	1097.16	0.00	1097.16
2	78.00	1.30	18.041	0.2789	1305.44	0.00	1305.44
3	114.00	1.90	13.742	0.2125	1453.26	0.00	1453.26
4	150.00	2.50	11.342	0.1754	1578.21	0.00	1578.21
5	186.00	3.10	9.798	0.1515	1690.71	0.00	1690.71
6	222.00	3.70	8.716	0.1348	1794.99	0.00	1794.99
7	258.00	4.30	7.910	0.1223	1893.20	0.00	1893.20
8	294.00	4.90	7.284	0.1126	1986.60	0.00	1986.60
9	330.00	5.50	6.781	0.1048	2076.00	0.00	2076.00
10	366.00	6.10	6.367	0.0984	2161.95	0.00	2161.95
11	402.00	6.70	6.020	0.0931	2244.86	0.00	2244.86
12	438.00	7.30	5.722	0.0885	2325.06	0.00	2325.06
13	474.00	7.90	5.464	0.0845	2402.79	0.00	2402.79
14	510.00	8.50	5.238	0.0810	2478.25	0.00	2478.25
15	546.00	9.10	5.038	0.0779	2551.61	0.00	2551.61
16	582.00	9.70	4.858	0.0751	2623.01	0.00	2623.01
17	618.00	10.30	4.697	0.0726	2692.57	0.00	2692.57
18	654.00	10.90	4.550	0.0703	2760.39	0.00	2760.39
19	690.00	11.50	4.416	0.0683	2826.58	0.00	2826.58
20	726.00	12.10	4.293	0.0664	2891.21	0.00	2891.21
21	762.00	12.70	4.179	0.0646	2954.36	0.00	2954.36
22	798.00	13.30	4.074	0.0630	3016.09	0.00	3016.09
23	834.00	13.90	3.976	0.0615	3076.47	0.00	3076.47
24	870.00	14.50	3.885	0.0601	3135.55	0.00	3135.55
25	906.00	15.10	3.799	0.0587	3193.38	0.00	3193.38
26	942.00	15.70	3.719	0.0575	3250.01	0.00	3250.01
27	978.00	16.30	3.643	0.0563	3305.48	0.00	3305.48
28	1014.00	16.90	3.572	0.0552	3359.84	0.00	3359.84
29	1050.00	17.50	3.504	0.0542	3413.12	0.00	3413.12
30	1086.00	18.10	3.440	0.0532	3465.35	0.00	3465.35
31	1122.00	18.70	3.379	0.0522	3516.57	0.00	3516.57
32	1158.00	19.30	3.320	0.0513	3566.82	0.00	3566.82
33	1194.00	19.90	3.265	0.0505	3616.12	0.00	3616.12
34	1230.00	20.50	3.212	0.0497	3664.49	0.00	3664.49
35	1266.00	21.10	3.161	0.0489	3711.97	0.00	3711.97
36	1302.00	21.70	3.112	0.0481	3758.58	0.00	3758.58
37	1338.00	22.30	3.065	0.0474	3804.35	0.00	3804.35
38	1374.00	22.90	3.020	0.0467	3849.29	0.00	3849.29
39	1410.00	23.50	2.977	0.0460	3893.43	0.00	3893.43
40	1446.00	24.10	2.935	0.0454	3936.79	0.00	3936.79

Storage Required	3936.79	Cub.m
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