Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00
Design Engineer :
Project Address / Location : 6610 N. Kendall Drive City: Pinecrest County: Miami-Dade State: Florida Zipcode: 33156
Section/Township/Range: Section 01, Township 55, Range 40
Surfacewater License: N/A
FEMA FIRM Information: Zone: X 12086C0458L , Map Effective Date: 09-11-2009
Project Description: Redevelopment of existing city owned lot with parking area, playground area and landscaping

Total Drainage Basin: 2.890 Acres

Hydrogeologic Information :

Table 1.	1 Day Storm Event			3 Day Storm Event		
RAINFALL DATA	Rainfall Inches	Runoff Inches	Runoff Ac-Ft	Rainfall Inches	Runoff Inches	Runoff Ac-Ft
100 Year Return Period	14.7	9.07	2.185	17.5	11.61	2.797
25 Year Return Period	10.6	5.51	1.328	12.9	7.48	1.801
10 Year Return Period	8.4	3.17	0.763	10.4	5.35	1.288
5 Year Return Period	7.0	2.65	0.639	9.4	4.57	1.099
3 Year Return Period	6.0	1.96	0.473	8.1	3.50	0.842
5 Yr Return Period - 1 Hr	2.9	0.02	0.004			

Runoff estimation - USDA SCS formula

$$\text{Runoff (in) } Q = \frac{(P-0.2S)^2}{P+0.8S}$$

Where: P = accumulated rainfall (in.)
S = Soil Storage Value

Table 2. SUMMARY OF FLOOD ROUTING	Agency maps	SBUH Calculated **with Q**-1 Day Storm		SBUH Calculated **with Q**-3 Day Storm		SBUH Calculated ***Zero Q**-3 Day Storm		Calc. 5Yr 1 hour Peak Stage (ft)
		Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	
100 Year Return Period		9.88	0.00	10.16	0.00	10.16	0.00	Zero Q (Water Budget)
25 Year Return Period		9.41	0.00	9.69	0.00	9.69	0.00	
10 Year Return Period		9.07	0.00	9.38	0.00	9.38	0.00	
5 Year Return Period		8.80	0.00	9.23	0.00	9.23	0.00	7.30
3 Year Return Period		8.59	0.00	9.03	0.00	9.03	0.00	

For 5 yr - 1 hr rainfall, Calculate 5 yr Vol by subtracting Exfil vol in inches from 5 yr 1 h rainfall, then calc Runoff using SCS formula. From stage storage table find Zero Discharge Stage. Uses Max. Elev of Lookup Stage or highest top of EXFIL trench. If exfil vol exceeds 5 year 1 hour vol. Uses Max. Elev of highest top of EXFIL trench.

* Zero Q indicates there is no offsite discharge included in the calculations (only Exfil Trench and Wells). Hypothetical stage calc. for PRE-POST Analysis.

Table 3. WATER QUALITY STORAGE REQUIREMENTS:			
Based on Total Drainage Basin Acreage		Ac-Ft	
1" x Basin Area		0.241	
2.5" x WQPI x (Basin Area I	0.52 Inches	0.126	
Required Wet Detention (Total basin incl Offsite)			
0.5" Pretreatment-Com. Prjs,x(Basin Area - water area)		0.120	
Credit for Inlets in Grass Areas, GAC=0.2" x (TDA		0.048	N

Table 4. WATER QUALITY STORAGE SOURCE	**Basin Storage Elev.**	(Ac-Ft)	WQ Eq WDV (Ac-Ft)	WQ Eq WDV Inches
Retention (RV) @				
Dry Det. (DDV) @				
Wet Det. (WDV) @				
Equiv WDV=WDV+RV/.5+DDV/.75)			0.000	
Exfil Trench Storage		0.186	0.373	1.55
Total WQ EQ WDV - **Provided**			**0.373**	1.55
Total WQ EQ WDV - ***Required***			0.241	1.00

	(Ac-FT)	(Inches)
Exfil Vol. in Stage Storage =	0.307	1.27

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Table 5. PRE - POST COMPARISON	PRE-DEVELOP. with Q - 3 Day Storm		POST-DEVELOP. with Q - 3 Day Storm		PRE-DEVELOP. *Zero Q - 3 Day Storm		POST-DEVELOP. *Zero Q - 3 Day Storm	
	Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)	Peak Stage(ft)	Peak Q (CFS)
100 Year Return Period					10.53		10.16	
25 Year Return Period					10.18		9.69	
10 Year Return Period					10.00		9.38	
5 Year Return Period					9.90		9.23	
3 Year Return Period					9.76		9.03	

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Routing Results from Analysis ZERO Offsite Discharge

Table 6. STAGE - DISCHARGE INFORMATION 100 - YEAR STORM - ZERO Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
4.00	0.02	0.31	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
8.00	0.05	0.63	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
12.00	0.07	0.94	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	1.25	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
20.00	0.12	1.57	0.01	0.02	0.02	0.00	0.00	0.00	4.04	0.00	0.00	0.00
24.00	0.15	1.88	0.05	0.05	0.03	0.01	0.00	0.01	4.19	0.00	0.00	0.00
28.00	0.18	2.34	0.15	0.12	0.09	0.03	0.00	0.03	4.56	0.00	0.00	0.00
32.00	0.22	2.79	0.29	0.10	0.11	0.07	0.00	0.07	5.11	0.00	0.00	0.00
36.00	0.25	3.25	0.46	0.12	0.12	0.11	0.00	0.11	5.79	0.00	0.00	0.00
40.00	0.29	3.71	0.66	0.14	0.15	0.16	0.00	0.16	6.61	0.00	0.00	0.00
44.00	0.32	4.17	0.90	0.24	0.18	0.21	0.00	0.21	7.51	0.00	0.00	0.00
48.00	0.36	4.62	1.14	0.17	0.18	0.27	0.00	0.27	8.10	0.00	0.00	0.00
52.00	0.40	5.20	1.48	0.37	0.30	0.35	0.00	0.35	8.36	0.00	0.00	0.00
56.00	0.50	6.39	2.26	0.82	0.75	0.53	0.00	0.53	8.66	0.00	0.00	0.00
58.00	0.57	7.37	2.96	1.21	1.17	0.69	0.00	0.69	8.86	0.00	0.00	0.00
59.00	0.63	8.09	3.50	1.83	1.71	0.81	0.00	0.81	9.00	0.00	0.00	0.00
59.50	0.68	8.73	4.00	2.93	2.65	0.90	0.00	0.90	9.08	0.00	0.00	0.00
59.75	0.85	10.91	5.77	20.66	8.75	1.09	0.00	1.09	9.22	0.00	0.00	0.00
60.00	1.02	13.07	7.63	21.65	17.02	1.44	0.00	1.44	9.50	0.00	0.00	0.00
60.50	1.09	14.01	8.46	4.78	8.06	1.90	0.00	1.90	9.74	0.00	0.00	0.00
61.00	1.13	14.50	8.89	2.54	3.40	2.08	0.00	2.08	9.84	0.00	0.00	0.00
62.00	1.18	15.16	9.48	1.48	1.66	2.25	0.00	2.25	9.92	0.00	0.00	0.00
64.00	1.24	15.95	10.20	0.95	1.02	2.44	0.00	2.44	10.02	0.00	0.00	0.00
68.00	1.31	16.88	11.05	0.55	0.62	2.65	0.00	2.65	10.10	0.00	0.00	0.00
72.00	1.36	17.50	11.61	0.41	0.41	2.79	0.00	2.79	10.16	0.00	0.00	0.00
				Peak stage		10.16	At hour	72.00				
				Peak discharge		0.00	At hour	72.00				

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Routing Results from Analysis WITHOUT Offsite Discharge

Table 7. STAGE - DISCHARGE INFORMATION 25 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
4.00	0.02	0.23	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
8.00	0.05	0.47	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
12.00	0.07	0.69	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	0.92	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
20.00	0.12	1.16	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
24.00	0.15	1.39	0.00	0.01	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
28.00	0.18	1.73	0.03	0.04	0.03	0.01	0.00	0.01	4.10	0.00	0.00	0.00
32.00	0.22	2.06	0.08	0.04	0.05	0.02	0.00	0.02	4.32	0.00	0.00	0.00
36.00	0.25	2.39	0.16	0.06	0.06	0.04	0.00	0.04	4.63	0.00	0.00	0.00
40.00	0.29	2.73	0.27	0.07	0.08	0.06	0.00	0.06	5.04	0.00	0.00	0.00
44.00	0.32	3.08	0.39	0.13	0.10	0.09	0.00	0.09	5.52	0.00	0.00	0.00
48.00	0.36	3.41	0.53	0.10	0.10	0.12	0.00	0.12	6.08	0.00	0.00	0.00
52.00	0.40	3.83	0.72	0.21	0.18	0.17	0.00	0.17	6.83	0.00	0.00	0.00
56.00	0.50	4.71	1.19	0.51	0.46	0.28	0.00	0.28	8.12	0.00	0.00	0.00
58.00	0.57	5.43	1.63	0.76	0.74	0.38	0.00	0.38	8.44	0.00	0.00	0.00
59.00	0.63	5.96	1.97	1.17	1.09	0.45	0.00	0.45	8.57	0.00	0.00	0.00
59.50	0.68	6.44	2.29	1.90	1.71	0.51	0.00	0.51	8.65	0.00	0.00	0.00
59.75	0.85	8.04	3.46	13.64	5.75	0.63	0.00	0.63	8.79	0.00	0.00	0.00
60.00	1.02	9.63	4.72	14.65	11.35	0.87	0.00	0.87	9.05	0.00	0.00	0.00
60.50	1.09	10.33	5.29	3.28	5.46	1.18	0.00	1.18	9.30	0.00	0.00	0.00
61.00	1.13	10.69	5.59	1.75	2.33	1.30	0.00	1.30	9.40	0.00	0.00	0.00
62.00	1.18	11.17	5.99	1.03	1.15	1.42	0.00	1.42	9.49	0.00	0.00	0.00
64.00	1.24	11.76	6.49	0.66	0.71	1.55	0.00	1.55	9.56	0.00	0.00	0.00
68.00	1.31	12.44	7.08	0.38	0.43	1.70	0.00	1.70	9.64	0.00	0.00	0.00
72.00	1.36	12.90	7.48	0.29	0.29	1.79	0.00	1.79	9.69	0.00	0.00	0.00
				Peak stage		9.69	At hour	72.00				
				Peak discharge		0.00	At hour	72.00				

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Routing Results from Analysis WITHOUT Offsite Discharge

Table 8. STAGE - DISCHARGE INFORMATION 10 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
4.00	0.02	0.18	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
8.00	0.05	0.37	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
12.00	0.07	0.56	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	0.74	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
20.00	0.12	0.93	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
24.00	0.15	1.12	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
28.00	0.18	1.39	0.00	0.01	0.01	0.00	0.00	0.00	4.00	0.00	0.00	0.00
32.00	0.22	1.66	0.02	0.02	0.02	0.00	0.00	0.00	4.08	0.00	0.00	0.00
36.00	0.25	1.93	0.06	0.03	0.03	0.01	0.00	0.01	4.22	0.00	0.00	0.00
40.00	0.29	2.20	0.11	0.04	0.04	0.03	0.00	0.03	4.45	0.00	0.00	0.00
44.00	0.32	2.48	0.19	0.08	0.06	0.04	0.00	0.04	4.73	0.00	0.00	0.00
48.00	0.36	2.75	0.27	0.06	0.06	0.06	0.00	0.06	5.06	0.00	0.00	0.00
52.00	0.40	3.09	0.40	0.14	0.11	0.09	0.00	0.09	5.54	0.00	0.00	0.00
56.00	0.50	3.80	0.71	0.34	0.31	0.16	0.00	0.16	6.71	0.00	0.00	0.00
58.00	0.57	4.38	1.00	0.53	0.51	0.23	0.00	0.23	7.84	0.00	0.00	0.00
59.00	0.63	4.81	1.25	0.82	0.76	0.28	0.00	0.28	8.14	0.00	0.00	0.00
59.50	0.68	5.19	1.48	1.35	1.21	0.33	0.00	0.33	8.29	0.00	0.00	0.00
59.75	0.85	6.48	2.32	9.89	4.15	0.41	0.00	0.41	8.53	0.00	0.00	0.00
60.00	1.02	7.77	3.26	10.86	8.30	0.59	0.00	0.59	8.74	0.00	0.00	0.00
60.50	1.09	8.33	3.68	2.46	4.06	0.82	0.00	0.82	9.01	0.00	0.00	0.00
61.00	1.13	8.62	3.91	1.32	1.75	0.91	0.00	0.91	9.09	0.00	0.00	0.00
62.00	1.18	9.01	4.22	0.78	0.87	1.00	0.00	1.00	9.16	0.00	0.00	0.00
64.00	1.24	9.48	4.59	0.50	0.54	1.10	0.00	1.10	9.23	0.00	0.00	0.00
68.00	1.31	10.03	5.04	0.29	0.33	1.21	0.00	1.21	9.32	0.00	0.00	0.00
72.00	1.36	10.40	5.35	0.22	0.22	1.28	0.00	1.28	9.38	0.00	0.00	0.00
				Peak stage		9.38	At hour	72.00				
				Peak discharge		0.00	At hour	72.00				

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Routing Results from Analysis WITHOUT Offsite Discharge

Table 9. STAGE - DISCHARGE INFORMATION 5 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
4.00	0.02	0.17	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
8.00	0.05	0.34	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
12.00	0.07	0.51	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	0.67	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
20.00	0.12	0.85	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
24.00	0.15	1.01	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
28.00	0.18	1.26	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
32.00	0.22	1.51	0.01	0.01	0.01	0.00	0.00	0.00	4.03	0.00	0.00	0.00
36.00	0.25	1.75	0.03	0.02	0.02	0.01	0.00	0.01	4.12	0.00	0.00	0.00
40.00	0.29	2.00	0.07	0.03	0.03	0.02	0.00	0.02	4.28	0.00	0.00	0.00
44.00	0.32	2.25	0.13	0.06	0.05	0.03	0.00	0.03	4.49	0.00	0.00	0.00
48.00	0.36	2.50	0.19	0.05	0.05	0.05	0.00	0.05	4.75	0.00	0.00	0.00
52.00	0.40	2.81	0.29	0.11	0.09	0.07	0.00	0.07	5.13	0.00	0.00	0.00
56.00	0.50	3.45	0.54	0.28	0.25	0.13	0.00	0.13	6.09	0.00	0.00	0.00
58.00	0.57	3.98	0.79	0.44	0.43	0.18	0.00	0.18	7.03	0.00	0.00	0.00
59.00	0.63	4.36	1.00	0.70	0.65	0.23	0.00	0.23	7.76	0.00	0.00	0.00
59.50	0.68	4.71	1.19	1.15	1.03	0.26	0.00	0.26	8.08	0.00	0.00	0.00
59.75	0.85	5.89	1.92	8.49	3.55	0.34	0.00	0.34	8.32	0.00	0.00	0.00
60.00	1.02	7.05	2.73	9.43	7.16	0.49	0.00	0.49	8.61	0.00	0.00	0.00
60.50	1.09	7.56	3.10	2.16	3.53	0.69	0.00	0.69	8.86	0.00	0.00	0.00
61.00	1.13	7.83	3.30	1.16	1.53	0.77	0.00	0.77	8.96	0.00	0.00	0.00
62.00	1.18	8.18	3.57	0.68	0.76	0.84	0.00	0.84	9.03	0.00	0.00	0.00
64.00	1.24	8.61	3.90	0.44	0.47	0.93	0.00	0.93	9.10	0.00	0.00	0.00
68.00	1.31	9.11	4.30	0.26	0.29	1.03	0.00	1.03	9.18	0.00	0.00	0.00
72.00	1.36	9.45	4.57	0.20	0.20	1.10	0.00	1.10	9.23	0.00	0.00	0.00
				Peak stage		9.23	At hour	72.00				
				Peak discharge		0.00	At hour	72.00				

Project: Gary Matzner Park Date: 10/16/2024
Flood Routing Description: POST-Development Calculations

Client : Village of Pincecrest Job Number: 13861.00

Routing Results from Analysis WITHOUT Offsite Discharge

Table 10. STAGE - DISCHARGE INFORMATION 3 - YEAR STORM - Zero Offsite Discharge

TIME STEP (HOUR)	Rain Fall RATIO	Rain C*P (IN)	Q Scs (IN)	Inst Q In (CFS)	Sbuh Q (CFS)	Tot Q In (AC-FT)	Sumq Out (AC-FT)	Stored Vol (AC-FT)	Stage Lk-Up (FEET)	Inst Q Lkup (CFS)	Avg. Q Out (CFS)	Step Qout (AC-FT)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
4.00	0.02	0.14	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
8.00	0.05	0.29	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
12.00	0.07	0.43	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
16.00	0.10	0.58	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
20.00	0.12	0.73	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
24.00	0.15	0.87	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
28.00	0.18	1.08	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
32.00	0.22	1.29	0.00	0.00	0.00	0.00	0.00	0.00	4.00	0.00	0.00	0.00
36.00	0.25	1.50	0.01	0.01	0.01	0.00	0.00	0.00	4.02	0.00	0.00	0.00
40.00	0.29	1.71	0.03	0.02	0.02	0.01	0.00	0.01	4.10	0.00	0.00	0.00
44.00	0.32	1.93	0.06	0.04	0.03	0.01	0.00	0.01	4.22	0.00	0.00	0.00
48.00	0.36	2.14	0.10	0.03	0.03	0.02	0.00	0.02	4.39	0.00	0.00	0.00
52.00	0.40	2.40	0.17	0.08	0.06	0.04	0.00	0.04	4.64	0.00	0.00	0.00
56.00	0.50	2.95	0.34	0.20	0.18	0.08	0.00	0.08	5.31	0.00	0.00	0.00
58.00	0.57	3.40	0.53	0.33	0.31	0.12	0.00	0.12	5.99	0.00	0.00	0.00
59.00	0.63	3.74	0.68	0.52	0.48	0.15	0.00	0.15	6.54	0.00	0.00	0.00
59.50	0.68	4.03	0.82	0.87	0.77	0.18	0.00	0.18	7.01	0.00	0.00	0.00
59.75	0.85	5.04	1.38	6.54	2.73	0.24	0.00	0.24	7.95	0.00	0.00	0.00
60.00	1.02	6.04	2.02	7.42	5.56	0.35	0.00	0.35	8.37	0.00	0.00	0.00
60.50	1.09	6.47	2.32	1.72	2.79	0.51	0.00	0.51	8.64	0.00	0.00	0.00
61.00	1.13	6.70	2.48	0.93	1.22	0.57	0.00	0.57	8.72	0.00	0.00	0.00
62.00	1.18	7.00	2.69	0.55	0.61	0.64	0.00	0.64	8.80	0.00	0.00	0.00
64.00	1.24	7.37	2.96	0.36	0.38	0.71	0.00	0.71	8.88	0.00	0.00	0.00
68.00	1.31	7.80	3.28	0.21	0.23	0.79	0.00	0.79	8.98	0.00	0.00	0.00
72.00	1.36	8.09	3.50	0.16	0.16	0.84	0.00	0.84	9.03	0.00	0.00	0.00
				Peak stage		9.03	At hour	72.00				
				Peak discharge		0.00	At hour	72.00				

Project:	Gary Matzner Park	Date: 10/16/2024	
	POST-Development Calculations		
Flood Routing Description:			
Client :	Village of Pincecrest	Job Number: 13861.00	

Total Drainage Basin:	2.890	Acres	N	Y/N -Do you want to limit the Exfiltration Trench Vol. to a maximum of 3.28" over the site?
Water Table Elevation =	4.00	Feet	N	Y/N -Deduct EXFIL Vol. from Rainfall amount rather than include Vol. in Stage Storage table
Time of Conc. (hr.) =	0.25		Y	Y/N -Use EXFIL Vol. in Stage Storage, up to Water Quality Vol., without safety Factor of 2.
Calculated weighted soil (s)	6.43	Soil Storage Value (S) = Storage under pervious area / Total Area		
Calculated CN value	60.9	Soil Storage under pavement and buildings is not considered in computations		

Table 16. STAGE STORAGE TABLE

Stage Elevation (feet)	Storage (Ac-ft)	Storage (CF)
4.00	0.000	0
4.50	0.030	1,310
5.00	0.060	2,621
5.50	0.090	3,931
6.00	0.120	5,242
6.50	0.150	6,552
7.00	0.181	7,863
7.50	0.211	9,173
8.00	0.241	10,483
8.50	0.394	17,168
9.00	0.800	34,862
9.50	1.436	62,574
10.00	2.396	104,350
10.50	3.661	159,468
11.00	5.029	219,054
11.50	6.447	280,811
12.00	7.881	343,276
12.50	9.315	405,741
13.00	10.749	468,206

Compacted Ground storage table

Depth to water table (Ft)	1.00	2.00	3.00	4.00
Ground storage(In)	0.45	1.88	4.95	8.18

Mean depth to ground water table (ft)= 5.15 (Pervious Area)

Soil Storage Type	**Ground Storage Values (In Inches)**			
Depth to Ground Water (Ft)	**1**	**2**	**3**	**4**
* Depressional	0.45	1.58	3.3	5.1
Flatwoods	0.45	1.88	4.05	6.75
Coastal Type	0.45	1.88	4.95	8.18

* (Low Flatwoods & Costal Lowlands)

Ground Storage Values reflect 25% reduction of Available Storage, to take into account compaction of native soils.

Project: Gary Matzner Park — Date: 10/16/2024
POST-Development Calculations
Flood Routing Description:
Client : Village of Pincecrest — Job Number: 13861.00

Table 17. SITE ACREAGE INFORMATION

		Input Information												
	LAND USES	Acres	High Elev.	Low Elev.	% Imperv. Paved	% Bldgs.	% Water	Imperv. Paved Acres	Perv. Acres	Bldgs. Acres	Non Bldgs. Acres	Water Lake Acres	Perv. Area Avg. El.	perv. acres * avg el
	BASIN TOTALS / AVERAGI	2.890	11.40	4.00	20.69	0.76	0.00	0.60	2.27	0.02	2.87	0.00	9.15	
1	Prop. Concrete/Hardscape	0.019	11.40	9.00	100	0	0	0.02	0.00	0.00	0.02	0.00	0.00	0.
2	Proposed Sidewalk	0.430	11.40	9.20	100	0	0	0.43	0.00	0.00	0.43	0.00	0.00	0.
3	Proposed Asphalt	0.149	10.35	9.10	100	0	0	0.15	0.00	0.00	0.15	0.00	0.00	0.
4														
5														
6														
7	Proposed Building	0.022	11.40	11.40	0	100	0	0.00	0.00	0.02	0.00	0.00	0.00	0.
8														
9														
10	Landscape Area	2.270	10.30	8.00	0	0	0	0.00	2.27	0.00	2.27	0.00	9.15	21.
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	BASIN SUBTOTALS / AVG	2.890	11.40	8.00	20.69	0.76	0.00	0.60	2.27	0.02	2.87	0.00	9.15	21.

Table 18. UNDERGROUND STORAGE INFORMATION

	Underground Storage	Area (SF)	Top Elev	Bottom Elev	% Voids
1	Underground Storage 1				
2	Underground Storage 2				
3	Underground Storage 3				
4	Underground Storage 4				
5	Underground Storage 5				

BASIN TOTALS / AVERAGE	2.890	11.40	4.00	20.69	0.76	0.00	0.60	2.27	0.02	2.87	0.00	9.15	21.

Basin % Imper. for Water Quality Purposes = 20.85
Basin % Impervious (incl. Bldg., No lakes)= 21.45

Project: Gary Matzner Park — Date: 10/16/2024
POST-Development Calculations
Flood Routing Description:
Client : Village of Pincecrest — Job Number: 13861.00
Detail - Stage - Storage Information

Table 19. STAGE - STORAGE INFORMATION — Surface storage (Ac-Ft)

	LAND USES	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.	Elev.
		4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00
	Total Surface Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123	0.493	1.130	2.089
	Underground Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Exfil Trench Storage	0.000	0.030	0.060	0.090	0.120	0.150	0.181	0.211	0.241	0.271	0.307	0.307	0.307
	TOTAL Storage	0.000	0.030	0.060	0.090	0.120	0.150	0.181	0.211	0.241	0.394	0.800	1.436	2.396
1	Prop. Concrete/Hardscape	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.004
2	Proposed Sidewalk	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.009	0.063
3	Proposed Asphalt	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.048
4														
5														
6														
7	Proposed Building	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
8														
9														
10	Landscape Area	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.123	0.493	1.110	1.974
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	Total Surface Storage	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.49	1.13	2.09

Underground Storage

		4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00
1	Underground Storage 1													
2	Underground Storage 2													
3	Underground Storage 3													
4	Underground Storage 4													
5	Underground Storage 5													
	Total Underground Storage	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	Exfil Trench Storage	0.000	0.030	0.060	0.090	0.120	0.150	0.181	0.211	0.241	0.271	0.307	0.307	0.307
	TOTAL Storage	0.000	0.030	0.060	0.090	0.120	0.150	0.181	0.211	0.241	0.394	0.800	1.436	2.396
	Stage Elevation	4.00	4.50	5.00	5.50	6.00	6.50	7.00	7.50	8.00	8.50	9.00	9.50	10.00

	Project:	Gary Matzner Park POST-Development Calculations	Date: 10/16/2024	
.	Flood Routing Description:			
	Client :	Village of Pincecrest	Job Number: 13861.00	

Table 20. SOIL - STORAGE INFORMATION

Detail - Soil Storage Information

	LAND USES	Depth to Water Table	Ground Storage Under Pervious	
			Inches	Ac-Ft
	TOTAL/AVERAGE		8.18	1.55
1	Prop. Concrete/Hardscape	0.00	0.00	0.000
2	Proposed Sidewalk	0.00	0.00	0.000
3	Proposed Asphalt	0.00	0.00	0.000
4				
5				
6				
7	Proposed Building	0.00	0.00	0.000
8				
9				
10	Landscape Area	5.15	8.18	1.547
11				
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40				
	TOTAL/AVERAGE		8.18	1.547

Soil Storage Value (S) = Storage under pervious area / Total Area

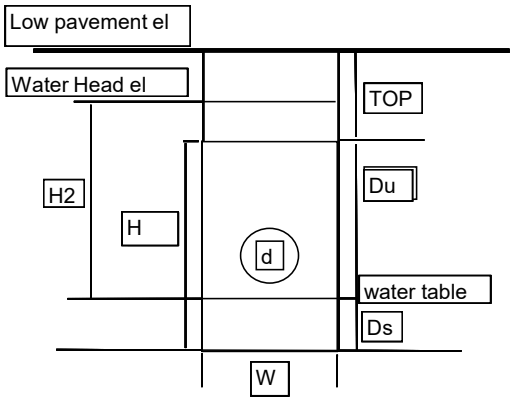
Soil Storage under pavement and buildings is not considered in computations

S=	6.42512111

Project:		Gary Matzner Park POST-Development Calculations	Date: 10/16/2024
Flood Routing Description:			
Client :		Village of Pincecrest	Job Number: 13861.00

Table 22-1 EXILTRATION TRENCH -1 INFORMATION

INPUT INFORMATION	
Trench Width (Ft) (W)	5.00
Trench Height (Ft) (H)	15.00
Diameter of Pipe (inches) (d)	18
Invert of Pipe (Ft) (IE)	4.6
Top of trench elevation	7.3
Low pavement elevation	9.1
Water Head elevation (Ft)	9.10
Avg. Hydraulic Conductivity (Cfs/Ft^2) (k)	7.71E-04



Length of Exfiltration trench Provided (Ft) (L)	40	
Water table elevation (Ft)	4.00	
Trench Data		
Depth To Top Of Trench (Ft) (TOP)	1.80	= Water head El - Top of Trench El.
Bottom of trench elevation	-7.70	= Top of Trench El. - Trench Height (H)
Saturated Trench Depth (Ds)	11.70	= Trench Height below water Table
Non-Saturated Trench Depth (Du)	3.30	= Trench depth above water Table
Depth To Water Table or Trench Bottom (Ft) (H2)	5.10	= Water head El to the water table or bottom of trench
Trench Storage Begins at Higher of Water Table or Trench Bot. Elev.	4.00	

Trench Volumes Stored & Exfiltrated in 1 hour (CF)

Note: 3630 in Eqn. is conversion factor from (Ac-In) to (CF)-> (43560 SF/Ac)(1FT/12In)

1 Hr. Vol by exfil SFWMD Eq.7 (Du > Ds and W < 2H) (CF)	0	Vtrn=3630*L*[k*((H2*W)+(2*H2*Du)-Du^2+(2*H2*Ds))+((1.39x10^-4)*(W*Du))]					
1 Hr. Vol by exfil SFWMD Eq.8 (Du < Ds or W > 2H) (CF)	16,242	Vtrn=3630*L*[k*((2*H2*Du)-Du^2+(2*H2*Ds))+((1.39x10^-4)*(W*Du))]					
This Trench Volume with **Safety Factor of 2** (V(trnSF))	8,121	V(TrnSF)=Vtrn/(Safety Factor of 2)			0.186	Ac-Ft	2.24 Ac-In
Max. Vol allowed in Exfil (3.28" = 0.273 Ac-Ft / Ac) (Val) (CF)	0	Vtot=Vdesign+Vsto			0.000	Ac-Ft	0.00 Ac-In
Total EXFIL Vol Provided **ALL EXFIL** Trenches (Vtot) (CF)	**0**	Vtot=Vdesign+Vsto			**0.000**	Ac-Ft	0.00 Ac-In
Equivalent Wet Detention Vol:50% credit **ALL EXFIL** (Vwteq) (CF)	0	Vwteq=Vtot *2			0.000	Ac-Ft	0.00 Ac-In
Total System **ALL EXFIL** WQ Equivalent Wet Det. Vol Provided	16,242	CF	0.373	Ac-Ft	**NOTE: This line is Sum of all Exfiltration Trenches**		
Total System **ALL EXFIL** Volume Used in **Stage-Storage**	13,366	CF	0.307	Ac-Ft	**NOTE: This line is Sum of all Exfiltration Trenches**		

NOTE: For Exfiltration Trench design, a factor of safety of 2 is used for WQ in all conditions (WQ vol & above WQ vol), per the "New" SFWMD formula.
Select on the Stage-Storage tab, whether to use the safety factor for the Exfil trench, up to the required WQ amount, in the flood routing Stage-Storage volumes.
Because of the built in safety factor of only using the trench discharge for one hour during the 72 hour storm event, some Agencies allow the use of the Exfiltration trench volume, up to the required Water Quality Volume, without a safety factor of 2, for use in storm routing calculations.

Gary Matzner Park
POST-Development Calculations

Date: 10/16/2024

Village of Pincecrest

Job Number: 13861.00

Table 23. WATER QUALITY CALCULATIONS TABLE

Proposed Project

Project Land Use	Total Basin	Unit
1. Water Area (WA)	0.00	Acres
2. Roof Area (RA)	0.02	Acres
3. Other Impervious Areas, paving, sidewalks, roads, etc. (IA)	0.60	Acres
4. Landscape and Pervoius areas (LPA)	2.27	Acres
5. Total Drainage Area (TDA)	2.89	Acres
6. Total % Impervious (TPI=(WA+RA+IA) / TDA)	21.5%	
7. Area for Water Quality % Impervious Calculations (WQA=TDA-WA-RA)	2.87	Acres
8. Impervious Area for Water Quality % Impervious Calculations (WQIA=WQA-LPA)	0.60	Acres
9. Water Quality % Impervious (WQPI=WQIA / WQA)	**20.9%**	

Required Water Quality Volumes per Florida SWERP

Wet Detention Volume, the greater of the following:	**Storage Volume**	**Unit**
10. First inch of runoff from the entire site (1" x TDA)	0.24	Ac-Ft
11. 2.5 in. times the percentage of impervious (2.5" x WQPI x (TDA-WA))	0.13	Ac-Ft
12. Required Wet Water Quality Amount (greater of the 1" or 2.5" x % impervious)	**0.24**	Ac-Ft

The SWERP provides for credits to the Water Quality Volume for Dry Detention and Retention

13. **Dry Detention Volume** (DDV) (75% of WDV)	0.18	Ac-Ft
14. **Retention Volume** (RV) (50% of WDV)	0.12	Ac-Ft
15. Required Dry Detention or Retention Volume for Commercial and Industrial Zoned land and Projects greater than 40% Imp., Discharging to certin water bodies (0.5" x TDA-WA)	**0.12**	Ac-Ft

The SWERP provides for credits to the Water Quality Volume for Inlets in Grass Areas

16. Ratio Impervious Area to Pervious Area, for inlets in Grass Area credit. (Full credit (0.2" wet detention) for Ratios 10:1 or less, porportionately less credit for greater ratios.) (IAPA=(RA+IA) / LPA))	0.27	
17. Credit for Inlets in Grass Area (GAC=0.2" x (TDA - WA)) (reduce for IAPA > 10)	0.05	Ac-Ft
18. **Required Wet Detention Volume** Water Quality with Inlet in Grass area credit	0.19	Ac-Ft
19. **Required Dry Detention Volume** Water Quality with Inlet in Grass area credit	0.14	Ac-Ft
20. **Required Retention Volume** Water Quality with Inlet in Grass area credit	0.10	Ac-Ft