APPENDIX C

Drainage Calculations

TABLE C-1: DRAINAGE BASIN DESCRIPTIONS

BASIN ID	BASIN LIMITS		TOTAL DRAINAGE AREA (ACRES)	IMPERVIOUS DRAINAGE AREA (ACRES)	PERVIOUS DRAINAGE AREA (ACRES)
	FROM	TO			
SOUTHBOUND SIDE					
S1	BEGIN	SW 76th STREET	1.45	0.38	1.07
S2	SW 76th STREET	SW 74th STREET	0.60	0.17	0.43
S3	SW 74th STREET	SW 72nd STREET	0.73	0.14	0.59
S4	SW 72nd STREET	SW 66th STREET	1.94	0.27	1.67
S5	SW 66th STREET	SW 64th STREET	0.65	0.09	0.56
S6	SW 64th STREET	SW 62nd STREET	0.54	0.08	0.46
S7	SW 62nd STREET	SW 60th STREET	0.62	0.11	0.51
S8	SW 60th STREET	SW 56th STREET	1.26	0.18	1.08
S9	SW 56th STREET	SW 53rd STREET	1.16	0.22	0.94
S10	SW 53rd STREET	SW 48th LANE	1.80	0.29	1.51
S11	SW 48th LANE	SW 40th STREET	2.95	0.55	2.40
S12	SW 40th STREET	A.D. BARNES PARK	1.82	0.34	1.48
S13	A.D. BARNES PARK	C-3 CANAL	0.15	0.04	0.11
S14	C-3 CANAL	NORTH WATERWAY DRIVE	0.09	0.01	0.08
S15	NORTH WATERWAY DRIVE	SW 24th STREET	2.42	0.58	1.84
S16	SW 24th STREET	SW 22nd STREET	0.81	0.21	0.60
S17	SW 22nd STREET	SW 21st STREET	0.33	0.04	0.29
S18	SW 21st STREET	SW 16th STREET	1.65	0.23	1.42
S19	SW 16th STREET	SW 12th STREET	1.26	0.15	1.11
S20	SW 12th STREET	SW 8th STREET	1.46	0.19	1.27
S21	SW 8th STREET	SW 4th STREET	1.40	0.36	1.04
S22	SW 4th STREET	W FLAGLER STREET	1.34	0.20	1.14
S23	W FLAGLER STREET	ROBERT KING HIGH PARK (S)	0.21	0.08	0.13
S24	ROBERT KING HIGH PARK (S)	C-4 CANAL	0.44	0.16	0.28
S25	C-4 CANAL	ROBERT KING HIGH PARK (N)	0.24	0.06	0.18
S26	ROBERT KING HIGH PARK (N)	PARKING LOT ENTRANCE	1.25	0.16	1.09
S27	PARKING LOT ENTRANCE	END	0.88	0.10	0.78
NORTHBOUND SIDE					
N1	BEGIN	SW 69th COURT	1.54	0.36	1.18
N2	SW 69th COURT	SW 72nd STREET	1.67	0.37	1.30
N3	SW 72nd STREET	SW 64th STREET	3.30	0.95	2.35
N4	SW 64th STREET	SW 60th STREET	1.82	0.51	1.31
N5	SW 60th STREET	SW 56th STREET	1.63	0.47	1.16
N6	SW 56th STREET	SW 53rd STREET	1.08	0.39	0.69
N7	SW 53rd STREET	SW 48th STREET	2.11	0.64	1.47
N8	SW 48th STREET	SW 40th STREET	3.30	0.77	2.53
N9	SW 40th STREET	SOUTH WATERWAY DRIVE	2.66	0.89	1.77
N10	SOUTH WATERWAY DRIVE	C-3 CANAL	0.17	0.08	0.09
N11	C-3 CANAL	NORTH WATERWAY DRIVE	0.09	0.03	0.06
N12	NORTH WATERWAY DRIVE	SW 24th STREET	3.73	0.97	2.76
N13	SW 24th STREET	SW 22nd STREET	0.88	0.38	0.50
N14	SW 22nd STREET	SW 21st STREET	0.34	0.12	0.22
N15	SW 21st STREET	SW 19th STREET	0.63	0.21	0.42
N16	SW 19th STREET	SW 16th STREET	1.24	0.36	0.88
N17	SW 16th STREET	SW 12th STREET	1.52	0.53	0.99
N18	SW 12th STREET	SW 8th STREET	1.45	0.51	0.94
N19	SW 8th STREET	SW 6th STREET	0.79	0.18	0.61
N20	SW 6th STREET	SW 4th STREET	0.77	0.27	0.50
N21	SW 4th STREET	W FLAGLER STREET	1.61	0.64	0.97
N22	W FLAGLER STREET	C-4 CANAL	0.74	0.27	0.47
N23	C-4 CANAL	END	2.53	0.71	1.82

TABLE C-2A: WATER QUALITY SUMMARY (SFWMD C-2 CANAL BASIN)

BASIN ID	TOTAL AREA (AC)	TOTAL IMPER. AREA (AC)	TOTAL PERVIOUS AREA (AC)	WATER MANAGEMENT AREA (AC)	% IMPER.	SFWMD CRITERIA			DRER CRITERIA	TREATMENT VOL. REQD. (AC-FT)	WEIR ELEV. (FT.NAVD)	TYPE TYPE OF TREATMENT PROVIDED
						TREATMENT VOL. REQD. WET DET. (AC-FT)	TREATMENT VOL. REQD. DRY DET. (AC-FT)	TREATMENT VOL. REQD. RETENTION (AC-FT)	TREATMENT VOL. REQD. (AC-FT)			
S1	1.45	0.38	1.07	1.27	26.21	0.1208	0.0906	0.0604	0.1403	0.1403	N/A	DRY RETENTION SWALE
S2	0.60	0.17	0.43	0.50	28.33	0.0500	0.0375	0.0250	0.0587	0.0587	N/A	DRY RETENTION SWALE
S3	0.73	0.14	0.59	0.64	19.18	0.0608	0.0456	0.0304	0.0680	0.0680	N/A	DRY RETENTION SWALE
S4	1.94	0.27	1.67	1.67	13.92	0.1617	0.1213	0.0808	0.1760	0.1760	N/A	DRY RETENTION SWALE
S5	0.65	0.09	0.56	0.56	13.85	0.0542	0.0406	0.0271	0.0589	0.0589	N/A	DRY RETENTION SWALE
S6	0.54	0.08	0.46	0.45	14.81	0.0450	0.0338	0.0225	0.0492	0.0492	N/A	DRY RETENTION SWALE
S7	0.62	0.11	0.51	0.53	17.74	0.0517	0.0388	0.0258	0.0574	0.0574	N/A	DRY RETENTION SWALE
S8	1.26	0.18	1.08	1.09	14.29	0.1050	0.0788	0.0525	0.1145	0.1145	N/A	DRY RETENTION SWALE
S9	1.16	0.22	0.94	0.97	18.97	0.0967	0.0725	0.0483	0.1080	0.1080	N/A	DRY RETENTION SWALE
S10	1.80	0.29	1.51	1.47	16.11	0.1500	0.1125	0.0750	0.1651	0.1651	N/A	DRY RETENTION SWALE
S11	2.95	0.55	2.40	2.65	18.64	0.2458	0.1844	0.1229	0.2742	0.2742	N/A	DRY RETENTION SWALE
N1	1.54	0.36	1.18	1.03	23.38	0.1283	0.0963	0.0642	0.1468	0.1468	N/A	DRY RETENTION SWALE
N2	1.67	0.37	1.30	1.31	22.16	0.1392	0.1044	0.0696	0.1581	0.1581	N/A	DRY RETENTION SWALE
N3	3.30	0.95	2.35	2.22	28.79	0.2750	0.2063	0.1375	0.3236	0.3236	N/A	DRY RETENTION SWALE
N4	1.82	0.51	1.31	1.45	28.02	0.1517	0.1138	0.0758	0.1778	0.1778	N/A	DRY RETENTION SWALE
N5	1.63	0.47	1.16	1.12	28.83	0.1358	0.1019	0.0679	0.1599	0.1599	N/A	DRY RETENTION SWALE
N6	1.08	0.39	0.69	0.78	36.11	0.0900	0.0675	0.0450	0.1101	0.1101	N/A	DRY RETENTION SWALE
N7	2.11	0.64	1.47	1.44	30.33	0.1758	0.1319	0.0879	0.2086	0.2086	N/A	DRY RETENTION SWALE
N8	3.30	0.77	2.53	2.33	23.33	0.2750	0.2063	0.1375	0.3144	0.3144	N/A	DRY RETENTION SWALE
TOTALS:	**30.15**	**6.94**	**23.21**	**23.48**	**23.02**	**2.5125**	**1.8844**	**1.2563**	**2.8698**	**2.8698**		

TABLE C-2B: WATER QUALITY SUMMARY (SFWMD CORAL GABLES BASIN)

BASIN ID	TOTAL AREA (AC)	TOTAL IMPER. AREA (AC)	TOTAL PERVIOUS AREA (AC)	WATER MANAGEMENT AREA (AC)	% IMPER.	SFWMD CRITERIA			DRER CRITERIA	TREATMENT VOL. REQD. (AC-FT)	WEIR ELEV. (FT.NAVD)	TYPE TYPE OF TREATMENT PROVIDED
						TREATMENT VOL. REQD. WET DET. (AC-FT)	TREATMENT VOL. REQD. DRY DET. (AC-FT)	TREATMENT VOL. REQD. RETENTION (AC-FT)	TREATMENT VOL. REQD. (AC-FT)			
S12	1.82	0.34	1.48	1.32	18.68	0.1517	0.1138	0.0758	0.1692	0.1692	N/A	DRY RETENTION SWALE
S13	0.15	0.04	0.11	0.09	26.67	0.0125	0.0094	0.0063	0.0145	0.0145	N/A	DRY RETENTION SWALE
S14	0.09	0.01	0.08	0.08	11.11	0.0075	0.0056	0.0038	0.0081	0.0081	N/A	DRY RETENTION SWALE
S15	2.42	0.58	1.84	2.02	23.97	0.2017	0.1513	0.1008	0.2314	0.2314	N/A	DRY RETENTION SWALE
S16	0.81	0.21	0.60	0.51	25.93	0.0675	0.0506	0.0338	0.0782	0.0782	N/A	DRY RETENTION SWALE
S17	0.33	0.04	0.29	0.29	12.12	0.0275	0.0206	0.0138	0.0297	0.0297	N/A	DRY RETENTION SWALE
S18	1.65	0.23	1.42	1.44	13.94	0.1375	0.1031	0.0688	0.1497	0.1497	N/A	DRY RETENTION SWALE
S19	1.26	0.15	1.11	1.07	11.90	0.1050	0.0788	0.0525	0.1131	0.1131	N/A	DRY RETENTION SWALE
S20	1.46	0.19	1.27	1.27	13.01	0.1217	0.0913	0.0608	0.1318	0.1318	N/A	DRY RETENTION SWALE
N9	2.66	0.89	1.77	2.07	33.46	0.2217	0.1663	0.1108	0.2674	0.2674	N/A	DRY RETENTION SWALE
N10	0.17	0.08	0.09	0.10	47.06	0.0167	0.0125	0.0083	0.0183	0.0183	N/A	DRY RETENTION SWALE
N11	0.09	0.03	0.06	0.07	33.33	0.0075	0.0056	0.0038	0.0090	0.0090	N/A	DRY RETENTION SWALE
N12	3.73	0.97	2.76	2.35	26.01	0.3108	0.2331	0.1554	0.3605	0.3605	N/A	DRY RETENTION SWALE
N13	0.88	0.38	0.50	0.41	43.18	0.0792	0.0594	0.0396	0.0931	0.0931	N/A	DRY RETENTION SWALE
N14	0.34	0.12	0.22	0.26	35.29	0.0283	0.0213	0.0142	0.0345	0.0345	N/A	DRY RETENTION SWALE
N15	0.63	0.21	0.42	0.45	33.33	0.0525	0.0394	0.0263	0.0633	0.0633	N/A	DRY RETENTION SWALE
N16	1.24	0.36	0.88	0.84	29.03	0.1033	0.0775	0.0517	0.1218	0.1218	N/A	DRY RETENTION SWALE
N17	1.52	0.53	0.99	0.99	34.87	0.1267	0.0950	0.0633	0.1539	0.1539	N/A	DRY RETENTION SWALE
N18	1.45	0.51	0.94	0.80	35.17	0.1208	0.0906	0.0604	0.1471	0.1471	N/A	DRY RETENTION SWALE
TOTALS:	**22.70**	**5.87**	**16.83**	**16.43**	**25.86**	**1.9000**	**1.4250**	**0.9500**	**2.1947**	**2.1947**		

TABLE C-2C: WATER QUALITY SUMMARY (SFWMD TAMIAMI EAST BASIN)

BASIN ID	TOTAL AREA (AC)	TOTAL IMPER. AREA (AC)	TOTAL PERVIOUS AREA (AC)	WATER MANAGEMENT AREA (AC)	% IMPER.	SFWMD CRITERIA			DRER CRITERIA	TREATMENT VOL. REQD. (AC-FT)	WEIR ELEV. (FT.NAVD)	TYPE TYPE OF TREATMENT PROVIDED
						TREATMENT VOL. REQD. WET DET. (AC-FT)	TREATMENT VOL. REQD. DRY DET. (AC-FT)	TREATMENT VOL. REQD. RETENTION (AC-FT)	TREATMENT VOL. REQD. (AC-FT)			
S21	1.40	0.36	1.04	0.83	25.71	0.1167	0.0875	0.0583	0.1351	0.1351	N/A	DRY RETENTION SWALE
S22	1.34	0.20	1.14	1.12	14.93	0.1117	0.0838	0.0558	0.1222	0.1222	N/A	DRY RETENTION SWALE
S23	0.21	0.08	0.13	0.12	38.10	0.0175	0.0131	0.0088	0.0216	0.0216	N/A	DRY RETENTION SWALE
S24	0.44	0.16	0.28	0.25	36.36	0.0367	0.0275	0.0183	0.0449	0.0449	N/A	DRY RETENTION SWALE
S25	0.24	0.06	0.18	0.21	25.00	0.0200	0.0150	0.0100	0.0231	0.0231	N/A	DRY RETENTION SWALE
S26	1.25	0.16	1.09	1.08	12.80	0.1042	0.0781	0.0521	0.1128	0.1128	N/A	DRY RETENTION SWALE
S27	0.88	0.10	0.78	0.75	11.36	0.0733	0.0550	0.0367	0.0788	0.0788	N/A	DRY RETENTION SWALE
N19	0.79	0.18	0.61	0.56	22.78	0.0658	0.0494	0.0329	0.0751	0.0751	N/A	DRY RETENTION SWALE
N20	0.77	0.27	0.50	0.59	35.06	0.0642	0.0481	0.0321	0.0781	0.0781	N/A	DRY RETENTION SWALE
N21	1.61	0.64	0.97	0.93	39.75	0.1342	0.1006	0.0671	0.1673	0.1673	N/A	DRY RETENTION SWALE
N22	0.74	0.27	0.47	0.52	36.49	0.0617	0.0463	0.0308	0.0756	0.0756	N/A	DRY RETENTION SWALE
N23	2.53	0.71	1.82	C-2 Canal Basin	28.06	0.2108	0.1581	0.1054	0.2472	0.2472	N/A	DRY RETENTION SWALE
TOTALS:	**12.20**	**3.19**	**9.01**	**6.96**	**26.15**	**1.0167**	**0.7625**	**0.5083**	**1.1816**	**1.1816**		

TABLE C-3: REQUIRED PRE VERSUS POST DEVELOPMENT SWALE STORAGE VOLUME
(SFWMD 25 YEAR - 72 HOUR DESIGN STORM RAINFALL = 14")

	PRE-DEVELOPMENT CONDITIONS							POST-DEVELOPMENT CONDITIONS								
BASIN ID	TOTAL DRAINAGE AREA (ACRES)	(CN=96) IMPERVIOUS DRAINAGE AREA (ACRES)	(CN=61) PERVIOUS DRAINAGE AREA (ACRES)	WATERSHED CURVE NUMBER	MAXIMUM SOIL STORAGE (INCHES)	RAINFALL EXCESS (INCHES)	TOTAL RUNOFF VOLUME (CU.FT.)	TOTAL DRAINAGE AREA (ACRES)	(CN=96) IMPERVIOUS DRAINAGE AREA (ACRES)	(CN=61) PERVIOUS DRAINAGE AREA (ACRES)	WATERSHED CURVE NUMBER	MAXIMUM SOIL STORAGE (INCHES)	RAINFALL EXCESS (INCHES)	TOTAL RUNOFF VOLUME (CU.FT.)	REQUIRED PRE-POST STORAGE VOLUME (CU.FT.)	REQUIRED PRE-POST STORAGE VOLUME (AC-FT)
S1	1.45	0.00	1.45	61.00	6.39	8.47	44562.51	1.45	0.38	1.07	70.17	4.25	9.94	52306.60	7744.09	0.1778
S2	0.60	0.00	0.60	61.00	6.39	8.47	18439.66	0.60	0.17	0.43	70.92	4.10	10.05	21893.23	3453.56	0.0793
S3	0.73	0.00	0.73	61.00	6.39	8.47	22434.92	0.73	0.14	0.59	67.71	4.77	9.55	25317.91	2882.99	0.0662
S4	1.94	0.00	1.94	61.00	6.39	8.47	59621.57	1.94	0.27	1.67	65.87	5.18	9.26	65225.24	5603.67	0.1286
S5	0.65	0.00	0.65	61.00	6.39	8.47	19976.30	0.65	0.09	0.56	65.85	5.19	9.26	21844.39	1868.09	0.0429
S6	0.54	0.00	0.54	61.00	6.39	8.47	16595.69	0.54	0.08	0.46	66.19	5.11	9.31	18253.83	1658.14	0.0381
S7	0.62	0.00	0.62	61.00	6.39	8.47	19054.32	0.62	0.11	0.51	67.21	4.88	9.47	21324.36	2270.04	0.0521
S8	1.26	0.00	1.26	61.00	6.39	8.47	38723.29	1.26	0.18	1.08	66.00	5.15	9.28	42457.03	3733.74	0.0857
S9	1.16	0.00	1.16	61.00	6.39	8.47	35650.01	1.16	0.22	0.94	67.64	4.78	9.54	40181.85	4531.84	0.1040
S10	1.80	0.00	1.80	61.00	6.39	8.47	55318.98	1.80	0.29	1.51	66.64	5.01	9.38	61318.16	5999.18	0.1377
S11	2.95	0.00	2.95	61.00	6.39	8.47	90661.67	2.95	0.55	2.40	67.53	4.81	9.52	101996.69	11335.02	0.2602
S12	1.82	0.00	1.82	61.00	6.39	8.47	55933.64	1.82	0.34	1.48	67.54	4.81	9.53	62940.35	7006.71	0.1609
S13	0.15	0.00	0.15	61.00	6.39	8.47	4609.92	0.15	0.04	0.11	70.33	4.22	9.96	5424.53	814.61	0.0187
S14	0.09	0.00	0.09	61.00	6.39	8.47	2765.95	0.09	0.01	0.08	64.89	5.41	9.10	2974.36	208.41	0.0048
S15	2.42	0.00	2.42	61.00	6.39	8.47	74373.30	2.42	0.58	1.84	69.39	4.41	9.82	86232.54	11859.24	0.2723
S16	0.81	0.00	0.81	61.00	6.39	8.47	24893.54	0.81	0.21	0.60	70.07	4.27	9.92	29174.95	4281.41	0.0983
S17	0.33	0.00	0.33	61.00	6.39	8.47	10141.81	0.33	0.04	0.29	65.24	5.33	9.16	10974.21	832.39	0.0191
S18	1.65	0.00	1.65	61.00	6.39	8.47	50709.07	1.65	0.23	1.42	65.88	5.18	9.26	55482.41	4773.35	0.1096
S19	1.26	0.00	1.26	61.00	6.39	8.47	38723.29	1.26	0.15	1.11	65.17	5.35	9.15	41845.77	3122.48	0.0717
S20	1.46	0.00	1.46	61.00	6.39	8.47	44869.84	1.46	0.19	1.27	65.55	5.25	9.21	48818.47	3948.63	0.0906
S21	1.40	0.00	1.40	61.00	6.39	8.47	43025.88	1.40	0.36	1.04	70.00	4.29	9.91	50367.74	7341.86	0.1685
S22	1.34	0.00	1.34	61.00	6.39	8.47	41181.91	1.34	0.20	1.14	66.22	5.10	9.32	45326.57	4144.66	0.0951
S23	0.21	0.00	0.21	61.00	6.39	8.47	6453.88	0.21	0.08	0.13	74.33	3.45	10.57	8055.82	1601.93	0.0368
S24	0.44	0.00	0.44	61.00	6.39	8.47	13522.42	0.44	0.16	0.28	73.73	3.56	10.48	16734.48	3212.06	0.0737
S25	0.24	0.00	0.24	61.00	6.39	8.47	7375.86	0.24	0.06	0.18	69.75	4.34	9.87	8600.80	1224.94	0.0281
S26	1.25	0.00	1.25	61.00	6.39	8.47	38415.96	1.25	0.16	1.09	65.48	5.27	9.20	41742.18	3326.22	0.0764
S27	0.88	0.00	0.88	61.00	6.39	8.47	27044.84	0.88	0.10	0.78	64.98	5.39	9.12	29128.16	2083.33	0.0478
N1	1.54	0.00	1.54	61.00	6.39	8.47	47328.46	1.54	0.36	1.18	69.18	4.45	9.78	54695.82	7367.35	0.1691
N2	1.67	0.00	1.67	61.00	6.39	8.47	51323.72	1.67	0.37	1.30	68.75	4.54	9.72	58909.45	7585.73	0.1741
N3	3.30	0.00	3.30	61.00	6.39	8.47	101418.14	3.30	0.95	2.35	71.08	4.07	10.08	120704.48	19286.35	0.4428
N4	1.82	0.00	1.82	61.00	6.39	8.47	55933.64	1.82	0.51	1.31	70.81	4.12	10.04	66299.11	10365.47	0.2380
N5	1.63	0.00	1.63	61.00	6.39	8.47	50094.41	1.63	0.47	1.16	71.09	4.07	10.08	59635.42	9541.01	0.2190
N6	1.08	0.00	1.08	61.00	6.39	8.47	33191.39	1.08	0.39	0.69	73.64	3.58	10.46	41023.71	7832.32	0.1798
N7	2.11	0.00	2.11	61.00	6.39	8.47	64846.14	2.11	0.64	1.47	71.62	3.96	10.16	77809.40	12963.26	0.2976
N8	3.30	0.00	3.30	61.00	6.39	8.47	101418.14	3.30	0.77	2.53	69.17	4.46	9.78	117177.10	15758.96	0.3618
N9	2.66	0.00	2.66	61.00	6.39	8.47	81749.16	2.66	0.74	1.92	70.74	4.14	10.02	96793.77	15044.61	0.3454
N10	0.17	0.00	0.17	61.00	6.39	8.47	5224.57	0.17	0.08	0.09	77.47	2.91	11.03	6805.54	1580.97	0.0363
N11	0.09	0.00	0.09	61.00	6.39	8.47	2765.95	0.09	0.03	0.06	72.67	3.76	10.32	3370.91	604.96	0.0139
N12	3.73	0.00	3.73	61.00	6.39	8.47	114633.23	3.73	0.97	2.76	70.10	4.26	9.93	134406.93	19773.71	0.4539
N13	0.88	0.00	0.88	61.00	6.39	8.47	27044.84	0.88	0.38	0.50	76.11	3.14	10.83	34597.28	7552.44	0.1734
N14	0.34	0.00	0.34	61.00	6.39	8.47	10449.14	0.34	0.12	0.22	73.35	3.63	10.42	12861.99	2412.85	0.0554
N15	0.63	0.00	0.63	61.00	6.39	8.47	19361.64	0.63	0.21	0.42	72.67	3.76	10.32	23596.38	4234.73	0.0972
N16	1.24	0.00	1.24	61.00	6.39	8.47	38108.63	1.24	0.36	0.88	71.16	4.05	10.09	45414.50	7305.87	0.1677

TABLE C-3: REQUIRED PRE VERSUS POST DEVELOPMENT SWALE STORAGE VOLUME
(SFWMD 25 YEAR - 72 HOUR DESIGN STORM RAINFALL = 14")

	PRE-DEVELOPMENT CONDITIONS							POST-DEVELOPMENT CONDITIONS								
BASIN ID	TOTAL DRAINAGE AREA (ACRES)	(CN=96) IMPERVIOUS DRAINAGE AREA (ACRES)	(CN=61) PERVIOUS DRAINAGE AREA (ACRES)	WATERSHED CURVE NUMBER	MAXIMUM SOIL STORAGE (INCHES)	RAINFALL EXCESS (INCHES)	TOTAL RUNOFF VOLUME (CU.FT.)	TOTAL DRAINAGE AREA (ACRES)	(CN=96) IMPERVIOUS DRAINAGE AREA (ACRES)	(CN=61) PERVIOUS DRAINAGE AREA (ACRES)	WATERSHED CURVE NUMBER	MAXIMUM SOIL STORAGE (INCHES)	RAINFALL EXCESS (INCHES)	TOTAL RUNOFF VOLUME (CU.FT.)	REQUIRED PRE-POST STORAGE VOLUME (CU.FT.)	REQUIRED PRE-POST STORAGE VOLUME (AC-FT)
N17	1.52	0.00	1.52	61.00	6.39	8.47	46713.81	1.52	0.53	0.99	73.20	3.66	10.40	57377.26	10663.46	0.2448
N18	1.45	0.00	1.45	61.00	6.39	8.47	44562.51	1.45	0.51	0.94	73.31	3.64	10.41	54818.97	10256.46	0.2355
N19	0.79	0.00	0.79	61.00	6.39	8.47	24278.89	0.79	0.18	0.61	68.97	4.50	9.75	27965.80	3686.91	0.0846
N20	0.77	0.00	0.77	61.00	6.39	8.47	23664.23	0.77	0.27	0.50	73.27	3.65	10.41	29094.98	5430.75	0.1247
N21	1.61	0.00	1.61	61.00	6.39	8.47	49479.76	1.61	0.64	0.97	74.91	3.35	10.65	62264.00	12784.25	0.2935
N22	0.74	0.00	0.74	61.00	6.39	8.47	22742.25	0.74	0.27	0.47	73.77	3.56	10.48	28161.62	5419.37	0.1244
N23	2.53	0.00	2.53	61.00	6.39	8.47	77753.90	2.53	0.71	1.82	70.82	4.12	10.04	92183.39	14429.48	0.3313

APPENDIX D

Design Aids

Table T-6
Definitions of Four SCS Hydrologic Soil Groups

Hydrologic Soil Group	Definition
A	Low Runoff Potential Soils having high infiltration rates even when thoroughly wetted, consisting chiefly of deep, well-to-excessively-drained sands or gravels. These soils have a high rate of water transmission.
B	Moderately Low Runoff Potential Soils having moderate infiltration rates when thoroughly wetted and consisting chiefly of moderately deep, to deep, moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission.
C	Moderately High Runoff Potential Soils having slow infiltration rates when thoroughly wetted and consisting chiefly of soils with a layer that impedes downward movement of water, soils with moderate fine to fine texture, or soils with moderate water tables. These soils have a slow rate of water transmission.
D	High Runoff Potential Soils having very slow infiltration rates when thoroughly wetted and consisting chiefly of clay soils with high swelling potential, soils with a permanent high water table, soils with a clay pan or clay layer at or near the surface, and shallow soils over nearly impervious material. These soils have a very slow rate of water transmission.

Reference: USDA, SCS, NEH-4 (1972).

Table T-7
SCS Runoff Curve Numbers for Selected Agricultural, Suburban, and Urban Land Use

Land Use Description		Hydrologic Soil Group A	B	C	D
Cultivated Land[a]:					
Without conservation treatment		72	81	88	91
With conservation treatment		62	71	78	81
Pasture or range land:					
Poor condition		68	79	86	89
Good condition		39	61	74	80
Meadow: good condition		30	58	71	78
Wood or Forest Land:					
Thin stand, poor cover, no mulch		45	66	77	83
Good cover [b]		25	55	70	77
Open Spaces, Lawns, Parks, Golf Courses, Cemeteries:					
Good condition: grass cover on 75% or more of the area		39	61	74	80
Fair condition: grass cover on 50% to 75% of the area		49	69	79	84
Poor condition: grass cover on 50% or less of the area		68	79	86	89
Commercial and Business Areas (85% impervious)		89	92	94	95
Industrial Districts (72% impervious)		81	88	91	93
Residential [c]					
Average lot size	Average % Impervious [d]				
1/8 acre or less	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
Paved Parking Lots, Roofs, Driveways [e]:		98	98	98	98
Streets and Roads:					
Paved with curbs and storm sewers [e]		98	98	98	98
Gravel		76	85	89	91
Dirt		72	82	87	89
Paved with open ditches		83	89	92	93
Newly graded area (no vegetation established)[f]		77	86	91	94

[a] For a more detailed description of agricultural land use curve numbers, refer to Table T-8.
[b] Good cover is protected from grazing and litter and brush cover soil.
[c] Curve numbers are computed assuming the runoff from the house and driveway is directed toward the street with a minimum of roof water directed to lawns where additional infiltration could occur, which depends on the depth and degree of the permeability of the underlying strata.
[d] The remaining pervious areas (lawn) are considered to be in good pasture condition for these curve numbers.
[e] In some warmer climates of the country, a curve number of 96 may be used.
[f] Use for temporary conditions during grading and construction.
Note: These values are for Antecedent Moisture Condition II, and $I_a = 0.2S$.

Reference: USDA, SCS, TR-55 (1984).

RUNOFF COEFFICIENTS [a]

Slope	Land Use	Sandy Soils Min.	Sandy Soils Max.	Clay Soils Min.	Clay Soils Max.
Flat (0-2%)	Woodlands	0.10	0.15	0.15	0.20
	Pasture, grass, and farmland [b]	0.15	0.20	0.20	0.25
	Bare Earth	0.30	0.50	0.50	0.60
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements[c]	0.75	0.95	0.90	0.95
	SFR: 1/2-acre lots and larger	0.30	0.35	0.35	0.45
	Smaller lots	0.35	0.45	0.40	0.50
	Duplexes	0.35	0.45	0.40	0.50
	MFR: Apartments, townhouses, and condominiums	0.45	0.60	0.50	0.70
	Commercial and Industrial	0.50	0.95	0.50	0.95
Rolling (2-7%)	Woodlands	0.15	0.20	0.20	0.25
	Pasture, grass, and farmland [b]	0.20	0.25	0.25	0.30
	Bare Earth	0.40	0.60	0.60	0.70
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements [c]	0.80	0.95	0.90	0.95
	SFR: 1/2-acre lots and larger	0.35	0.50	0.40	0.55
	Smaller lots	0.40	0.55	0.45	0.60
	Duplexes	0.40	0.55	0.45	0.60
	MFR: Apartments, townhouses, and condominiums	0.50	0.70	0.60	0.80
	Commercial and Industrial	0.50	0.95	0.50	0.95
Steep (7%+)	Woodlands	0.20	0.25	0.25	0.30
	Pasture, grass, and farmland [b]	0.25	0.35	0.30	0.40
	Bare Earth	0.50	0.70	0.70	0.80
	Rooftops and pavement	0.95	0.95	0.95	0.95
	Pervious pavements [c]	0.85	0.95	0.90	0.95
	SFR: 1/2-acre lots and larger	0.40	0.55	0.50	0.65
	Smaller lots	0.45	0.60	0.55	0.70
	Duplexes	0.45	0.60	0.55	0.70
	MFR: Apartments, townhouses, and condominiums	0.60	0.75	0.65	0.85
	Commercial and Industrial	0.60	0.95	0.65	0.95

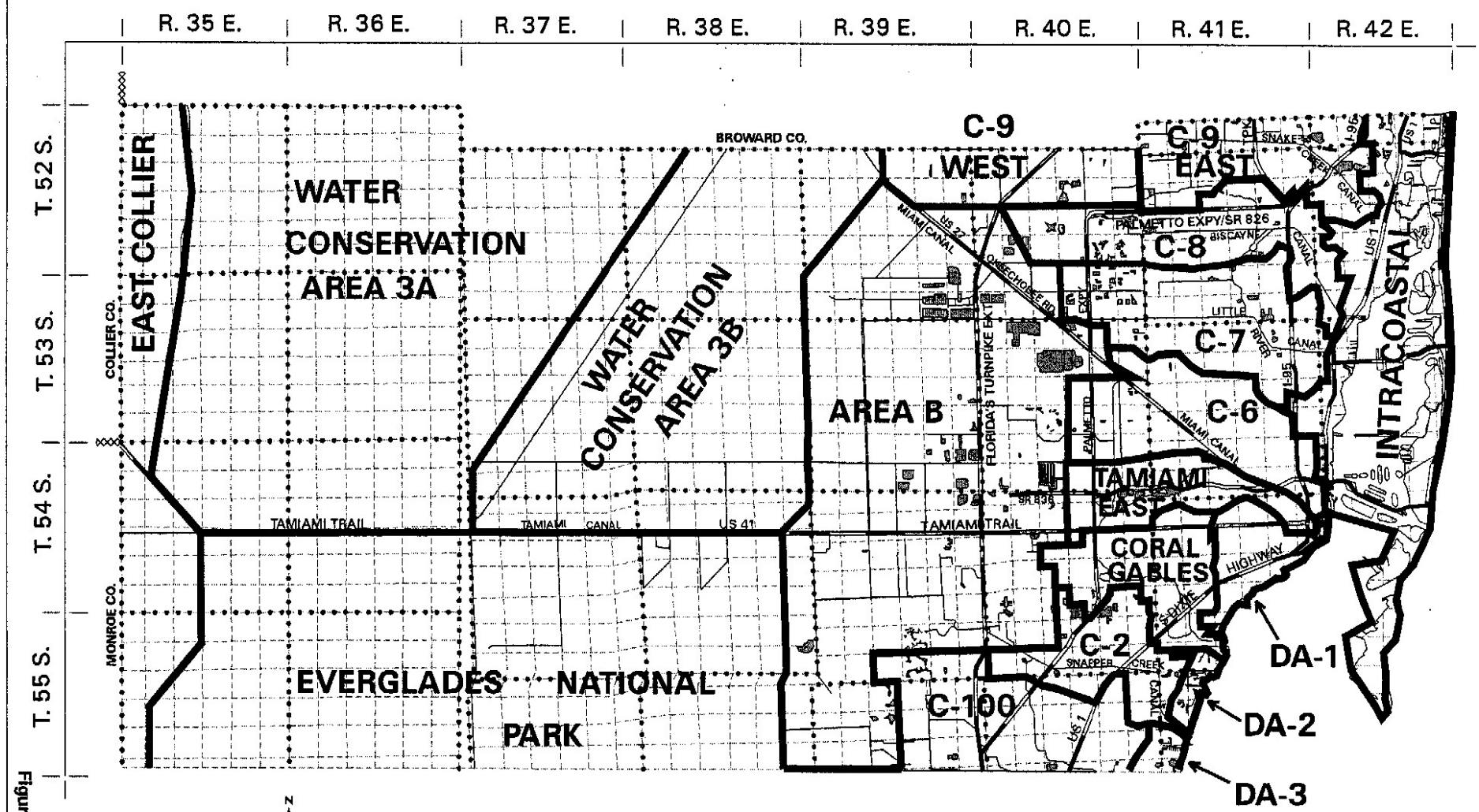
a. Weighted coefficient based on percentage of impervious surfaces and green areas must be selected for each site.

b. Coefficients assume good ground cover and conservation treatment.

c. Depends on depth and degree of permeability of underlying strata.

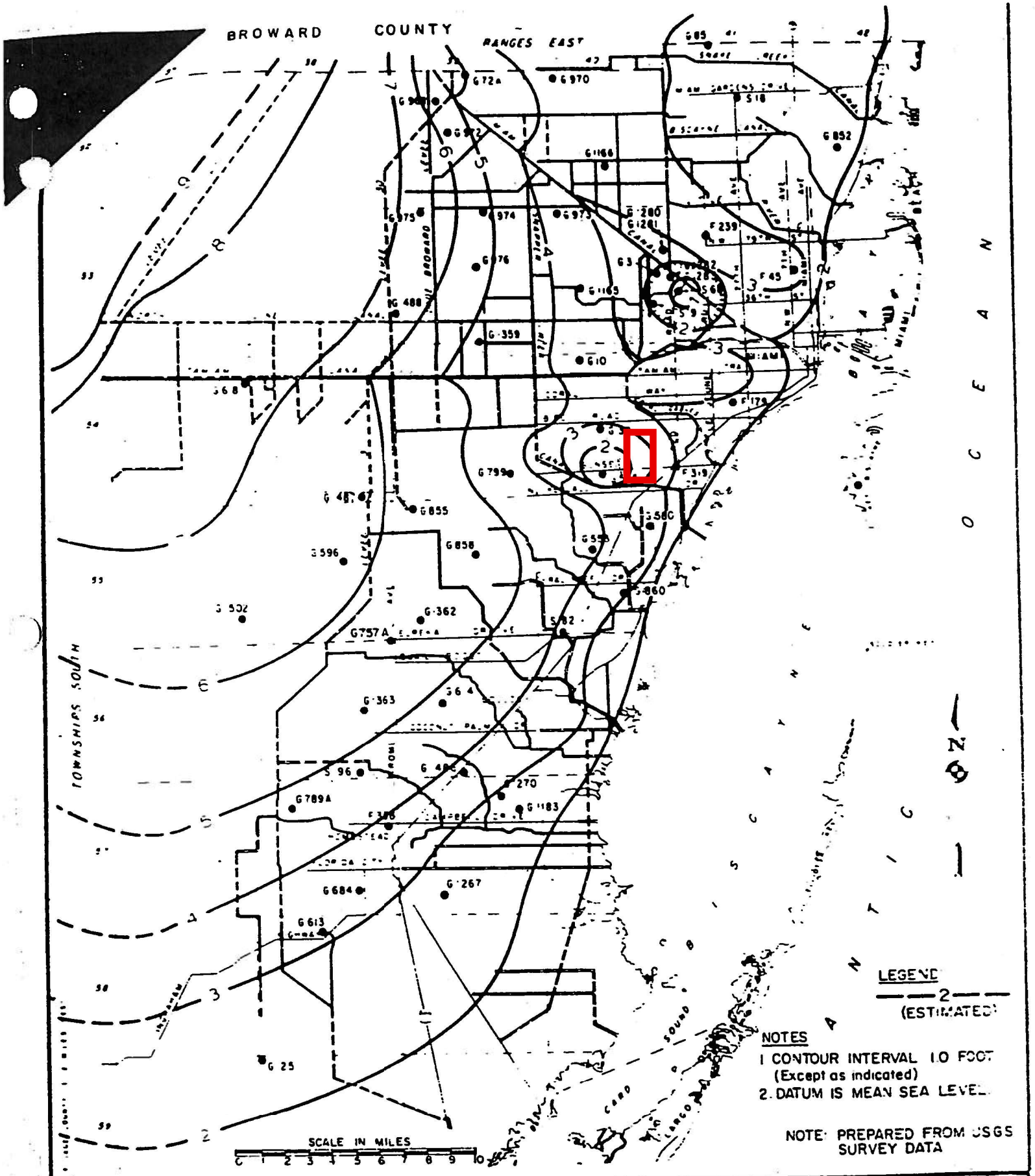
Note: SFR = Single Family Residential, MFR = Multi-Family Residential

Table 2-2



DRAINAGE BASINS for NORTHERN MIAMI-DADE COUNTY, FL.

Figure B-11



METROPOLITAN DADE COUNTY PUBLIC WORKS DEPARTMENT	APPROVED 4/[illegible]/72	REVISED 2/[illegible]/77 4/14/77	DESIGN STANDARDS AVERAGE OCTOBER 28 GROUND WATER LEVEL 1960–75	W.C. 2.2 SHEET 1 OF 1

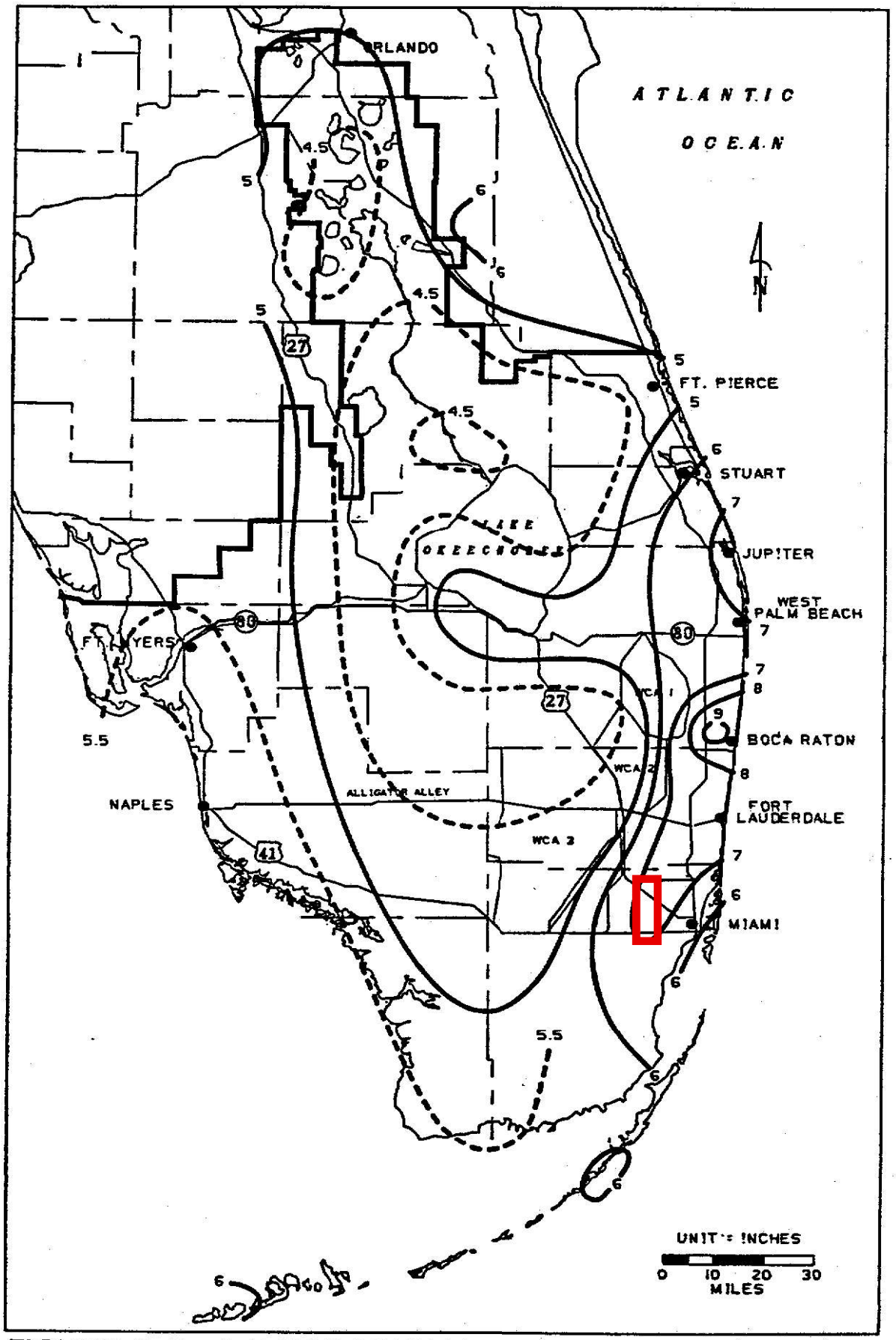


FIGURE C-3. 1-DAY RAINFALL: 5-YEAR RETURN PERIOD

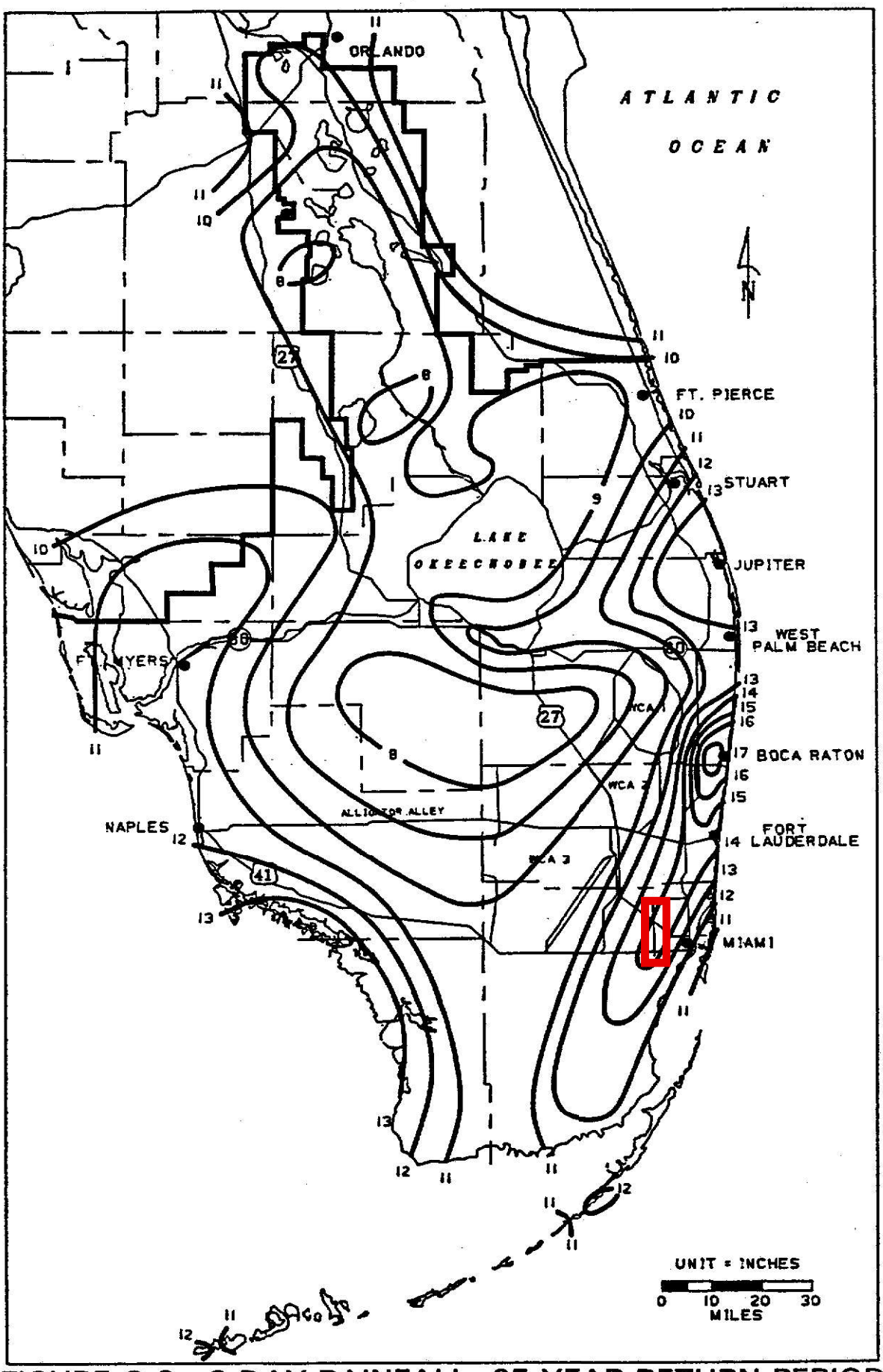


FIGURE C-8. 3-DAY RAINFALL: 25-YEAR RETURN PERIOD

APPENDIX E

FEMA Flood Insurance Rate Maps

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional floodhazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' National Geodetic Vertical Datum of 1929 (NGVD 29). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Florida State Plane east zone (FIPSZONE 0901). The **horizontal datum** was NAD 83, GRS80 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to the National Geodetic Vertical Datum of 1929. These flood elevations must be compared to structure and ground elevations referenced to the same **vertical datum**. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was provided in digital format by the Miami-Dade County Information Technology Department. These data were compiled at a scale of 1:3,600 from digital orthophotography dated 2001. Additional base map information was provided by the Cities of Aventura, Coral Gables, and Homestead, the Town of Cutler Bay, and Miami-Dade County.

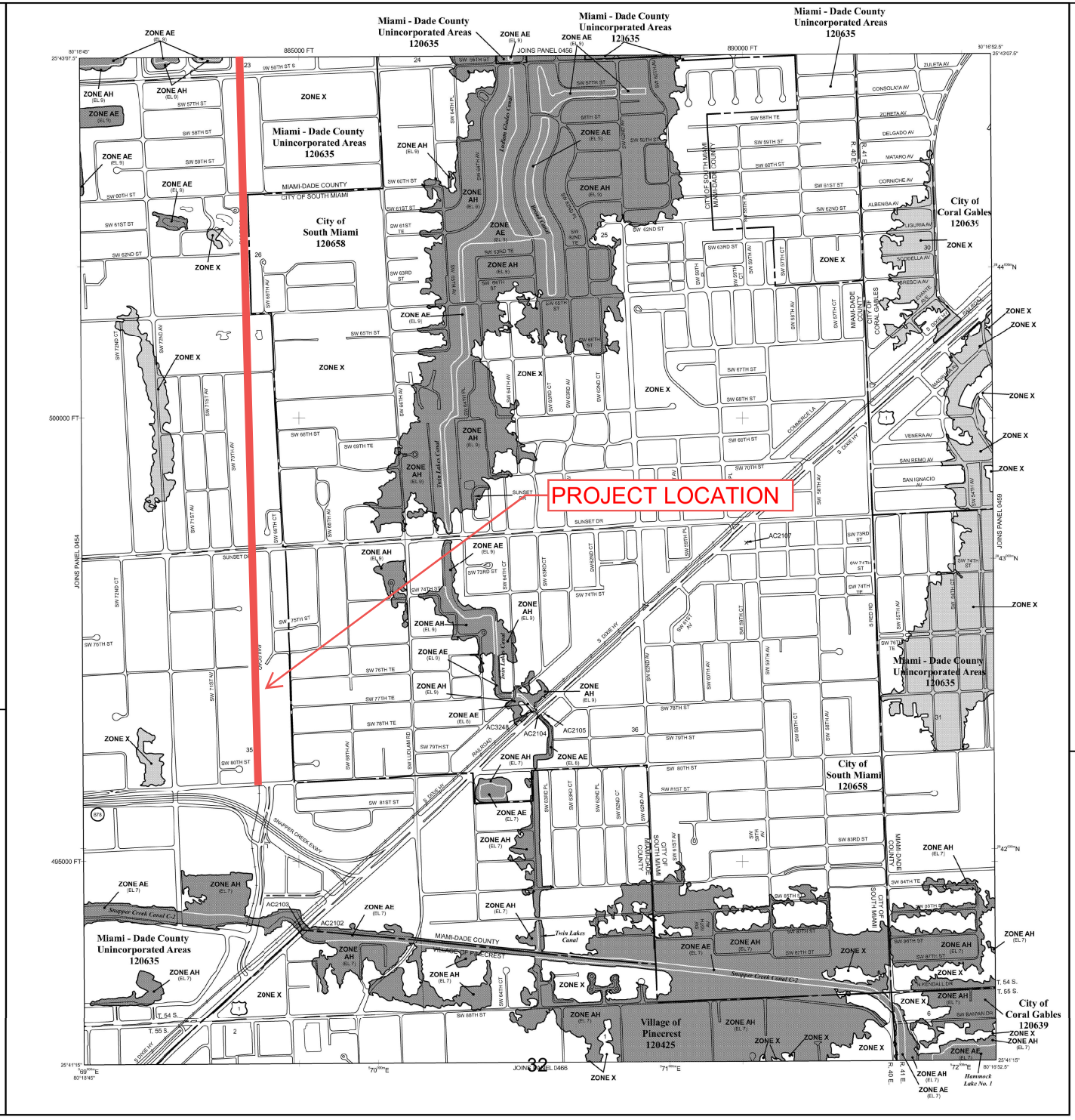
This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to confirm to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

Contact the **FEMA Map Service Center** at 1-800-358-9616 for information on available products associated with this FIRM. Available products may include previously issued Letters of Map Change, a Flood Insurance Study report, and/or digital versions of this map. The FEMA Map Service Center may also be reached by Fax at 1-800-358-9620 and its website at http://msc.fema.gov.

If you have **questions about this map** or questions concerning the National Flood Insurance Program in general, please call **1-877-FEMA MAP** (1-877-336-2627) or visit the FEMA website at http://www.fema.gov.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area subject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base Flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

CBRS areas and OPAs are normally located within or adjacent to Special Flood Hazard Areas.

	Floodplain boundary
	Floodway boundary
	Zone D boundary
	CBRS and OPA boundary
	Boundary dividing Special Flood Hazard Area zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
513	Base Flood Elevation line and value; elevation in feet*
(EL 987)	Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the National Geodetic Vertical Datum of 1929

A — A	Cross section Line
B — B	Transect line
87°07'45", 32°22'30"	Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
9876000 mN	1000-meter Universal Transverse Mercator grid values, zone 17
600000 FT	5000-foot grid ticks: Florida State Plane coordinate system, East zone (FIPSZONE 0901), Transverse Mercator projection
DX5510 ×	Bench mark (see explanation in Notes to Users section of this FIRM panel)
M1.5	River Mile

MAP REPOSITORY
Refer to listing of Map Repositories on Map Index

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP
January 20, 1983

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
March 2, 1994 - May 16, 1994 - July 17, 1995 - for description of revision, see Notice to Users page in the Flood Insurance Study report.
September 11, 2009 - to add and change Base Flood Elevations, to change zone designations, to add roads and road names, to add and change Special Flood Hazard Areas, to reflect revised shoreline, to reflect updated topographic information, to incorporate previously issued Letters of Map Revision, and to update corporate limits

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

NAP SCALE 1" = 500'

250 0 500 1000 FEET
150 0 150 300 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0458L

FIRM

FLOOD INSURANCE RATE MAP

MIAMI-DADE COUNTY, FLORIDA
AND INCORPORATED AREAS

PANEL 458 OF 1031

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
CORAL GABLES, CITY OF	120639	0458	L
MIAMI - DADE COUNTY	120635	0458	L
PINECREST, VILLAGE OF	120425	0458	L
SOUTH MIAMI, CITY OF	120658	0458	L

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
12086C0458L

MAP REVISED
SEPTEMBER 11, 2009

Federal Emergency Management Agency