FIS - SARASOTA COUNTY, FL

FEMA

DISCHARGE CALCULATIONS

See Meth Sum

SUBMITTED TO

FEDERAL EMERGENCY MANAGEMENT

AGENCY

PRESENTED BY

GEE & JENSON

ENGINEERS
ARCHITECTS
PLANNERS, INC.

FIS - SARASOTA COUNTY, FL

FEMA

DISCHARGE CALCULATIONS

SUMMARY TABLE -

PHILLIPPI CREEK -

MATHENY CREEK -

CURRY CREEK -

HATCHETT CREEK- -

ALLIGATOR CREEK -

WOODMERE CREEK- -

TABLE 1 - SUMMARY OF DISCHARGES

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
PHILLIPPI CREEK					
U.S. 41	55.97	4300	6300	7500	8400
PROCTOR RD. (W)	54.57	4100	6100	7300	8100
BEE RIDGE RD. (W)	50.58	3650	5400	6500	7300
WEBBER ST.	49.59	3500	5200	6300	7000
BAHIA VISTA ST. (W)	46.23	3150	4700	5700	6400
BENEVA RD.	36.22	2200	3200	3900	4500
APP. 2200' U/S OF SCLRR	34.42	2000	3000	3700	4200
BAHIA VISTA ST. (E)	32.53	1800	2750	3300	3800
APP. 4700' U/S OF BAHIA VISTA ST.	30.90	1700	2550	3100	3600
APP. 4500' D/S OF CATTLEMEN RD.	28.90	1500	2300	2800	3200
APP. 3000' D/S OF CATTLEMEN RD.	6.27	400	610	730	920
CATTLEMEN RD.	4.74	380	600	700	880
BEE RIDGE RD. (E)	4.06	370	580	650	860
PROCTOR RD. (E)	3.11	350	560	600	800

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MATHENY CREEK					
U.S. 41	2.61	380	540	650	770
GULF GATE DR.	1.41	230	340	410	460
BENEVA RD.	0.72	150	220	250	270
CURRY CREEK [1]					
U.S. 41	-	1100	1600	1920	2420
ALBEE FARM RD.	-	1000	1400	1770	2220
APP. 3200' D/S OF PINEBROOK RD.	-	940	1350	1660	2070
PINEBROOK RD.	-	840	1220	1490	1870
CAPRI ISLES BLVD.	-	730	1060	1320	1650
APP. 2500' D/S OF AUBURN RD.	-	450	650	850	1050
I-75	-	370	550	690	880

1 The peak discharges were considered receiving flood flows from the Myakka River through the Blackburn Canal. Contributing drainage areas may vary under various conditions of the Myakka River.

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
HATCHETT CREEK					
SCLRR	5.44	730	1050	1250	1500
U.S. 41	4.54	620	900	1060	1300
APP. 4200' U/S OF VENICE AVE. EAST	2.93	420	600	730	850
APP. 2500' D/S OF AUBURN RD.	2.47	360	510	630	750
APP. 1200' U/S OF AUBURN RD.	1.73	280	400	480	550
JACARANDA BLVD.	0.77	160	240	280	300
ALLIGATOR CREEK					
AT MOUTH	9.61	1260	1800	2120	2650
U.S. 41	7.29	970	1400	1640	2000
APP. 3200' U/S OF U.S. 41	6.93	920	1330	1550	1900
JACARANDA BLVD.	3.82	530	750	920	1060

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
WOODMERE CREEK					
AT MOUTH	1.95	300	440	520	600
HERON ST.	0.82	170	250	290	310
POMPANO RD.	0.67	140	210	250	260
FLORIDA AVE.	0.43	120	170	200	210

TECHNICAL NOTE FOR CURRY CREEK FLOOD FREQUENCY ANALYSIS

The Flood Frequency Analysis for Curry Creek was complicated by the influence of a diversion canal called the Blackburn Canal between the Myakka River and Curry Creek. It was dug for the purpose of releasing flood flows from the Myakka River to Curry Creek. Curry Creek flows westerly to Roberts Bay under normal and high flow condition. However, at low flow conditions in the Myakka River basin, Blackburn Canal reverses and flows easterly to the Myakka River. (Ref. USGS "Magnitude and Frequency of Flooding on the Myakka River, Southwest Florida WRI 78-65)

The flood frequency analysis for Curry Creek was conducted conservatively assuming that peak flow periods occur simultaneously in the Myakka River and the Blackburn Canal.

The computational steps used for estimating the peak discharges for Curry Creek are outlined as follows:

1. Compute the peak discharges using the Unit Hydrograph Method without considering the diverted flows from the Myakka River.

2. Compute backwater profiles for Curry Creek and Blackburn Canal based on the peak discharges computed in Step 1.

3. Compare the peak stages on Blackburn Canal with the peak stages on the Myakka River.

4. Add additional discharges to the peak discharges in Step 1 until the Blackburn Canal profiles reach the flood stages on the Myakka River.

The following table shows flood elevations at Blackburn Canal and the Myakka River and the corresponding peak discharges for Curry Creek.

	Flood Elevation Comparisons			
	10-Yr.	50-Yr.	100-Yr.	500-Yr.
1. Myakka River at Confluence with Blackburn Canal	8.8	10.4	11.5	12.5
2. Blackburn Canal without Considering Flood Flows from the Myakka River	7.3	8.6	9.3	10.0
(Curry Creek at US 41	920 cfs	1330 cfs	1550 cfs	1900 cfs)
3. Blackburn Canal with Adding Constant Discharges from the Myakka River 180, 270, 370, and 520 cfs for 10-yr, 50-yr, 100-yr, and 500-yr frequency, respectively	8.7	10.3	11.5	12.5
(Curry Creek at US 41	1100 cfs	1600 cfs	1920 cfs	2420 cfs)

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GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FIS – SARASOTA CO
Curry Cr

SHEET NO. ____ OF ____
JOB NO. 81498
BY SHS DATE 9/10/8

The Myakka River's 10-, 50-, 100- and 500-year profiles at confluence point with the Blackburn Canal are:

10 – Yr	50 – Yr	100 – Yr	500 – Yr
8.8'	10.4'	11.5'	12.5'

("Magnitude and Frequency of flooding on the Myakka River, Southwest Florida", USGS WRI 78-65)

Comparisons of Flood Elevation at Confluence Point

	10-YR	50-YR	100-YR	500 YR
1. Myakka River	8.8'	10.4'	11.5'	12.5'
2. Curry Cr w/ Blackburn Canal Extension	7.3'	8.6'	9.3'	10.0'
3. Curry Cr w/ Blackburn Canal Extension adding discharges from Myakka River 180, 270, 370, and 520 cfs for 10-YR, 50-YR, 100-YR, and 500-YR frequency respectively.	8.7'	10.3'	11.5'	12.5'

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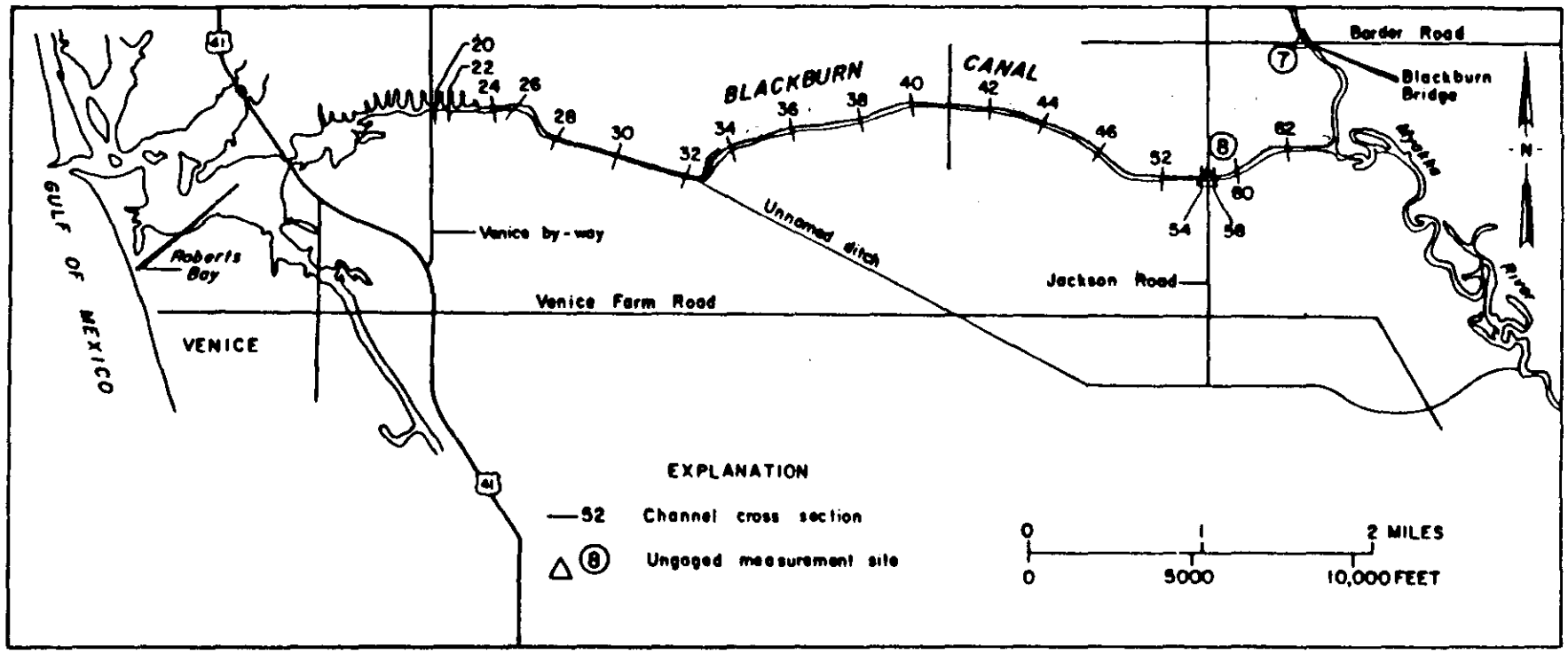

Figure 5. --Blackburn Canal - Showing approximate cross-section locations

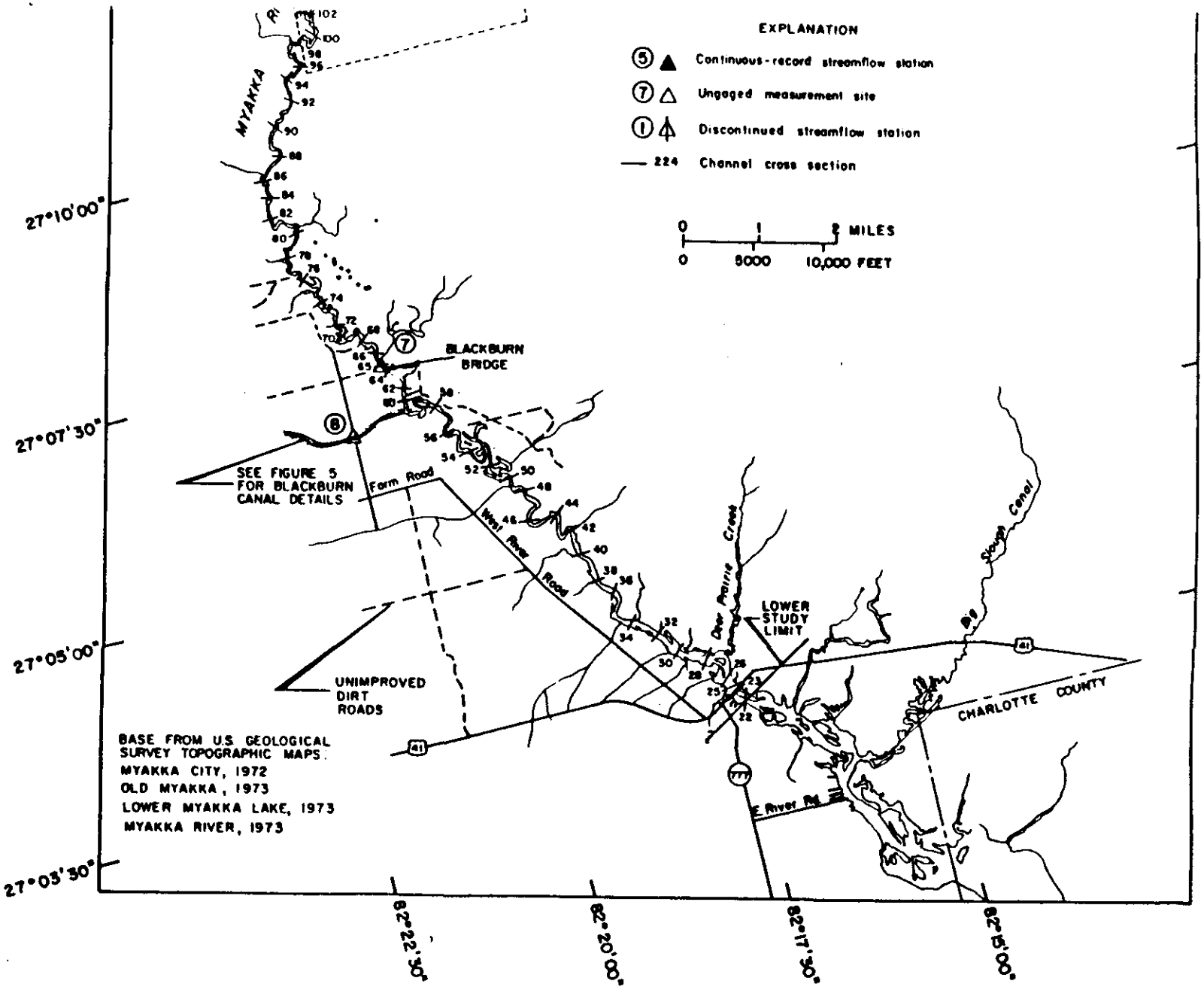

Figure 2. --Myakka River study reach showing approximate cross-section locations

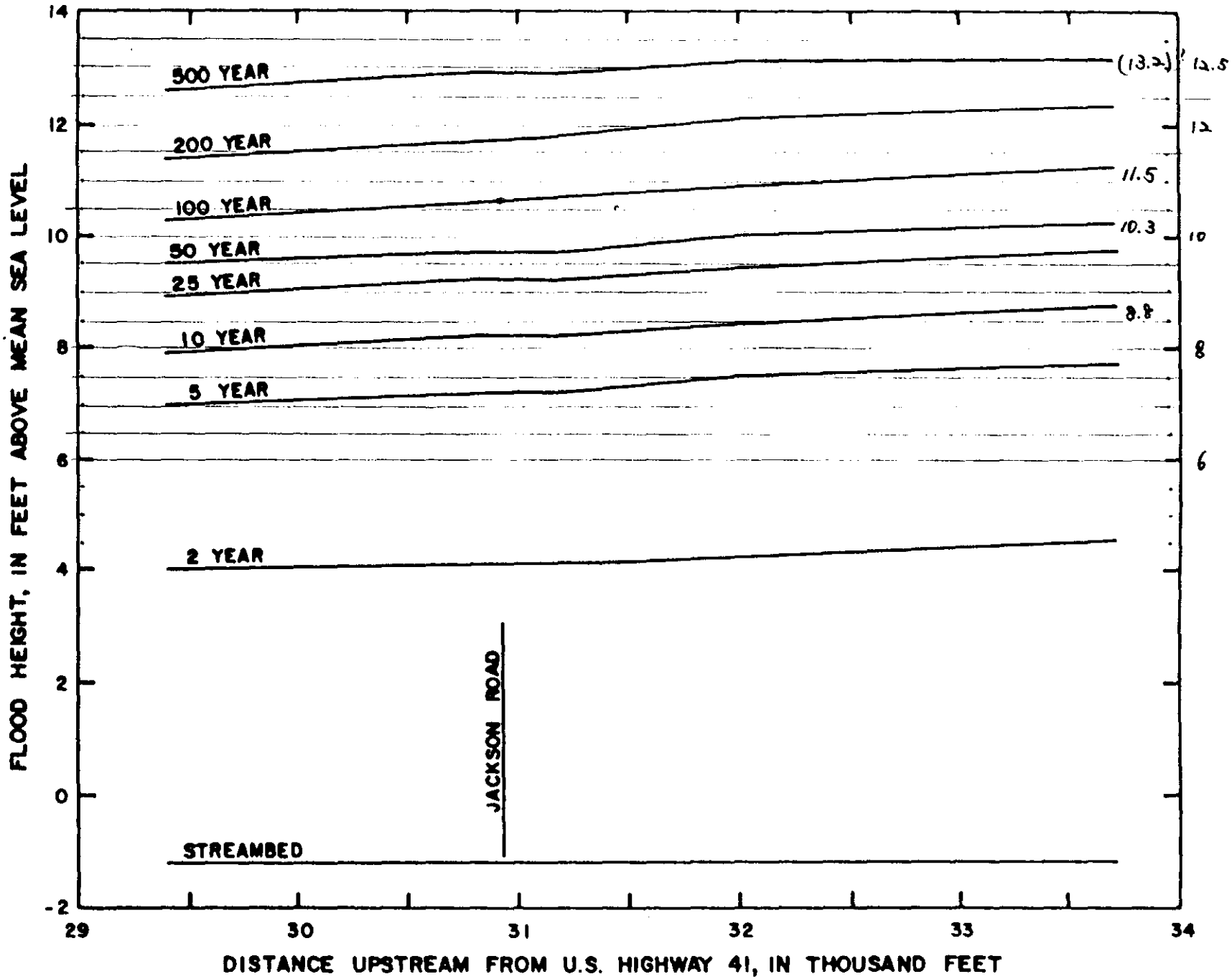

Figure 14. --Blackburn Canal - Profiles for 2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year floods, under diked conditions

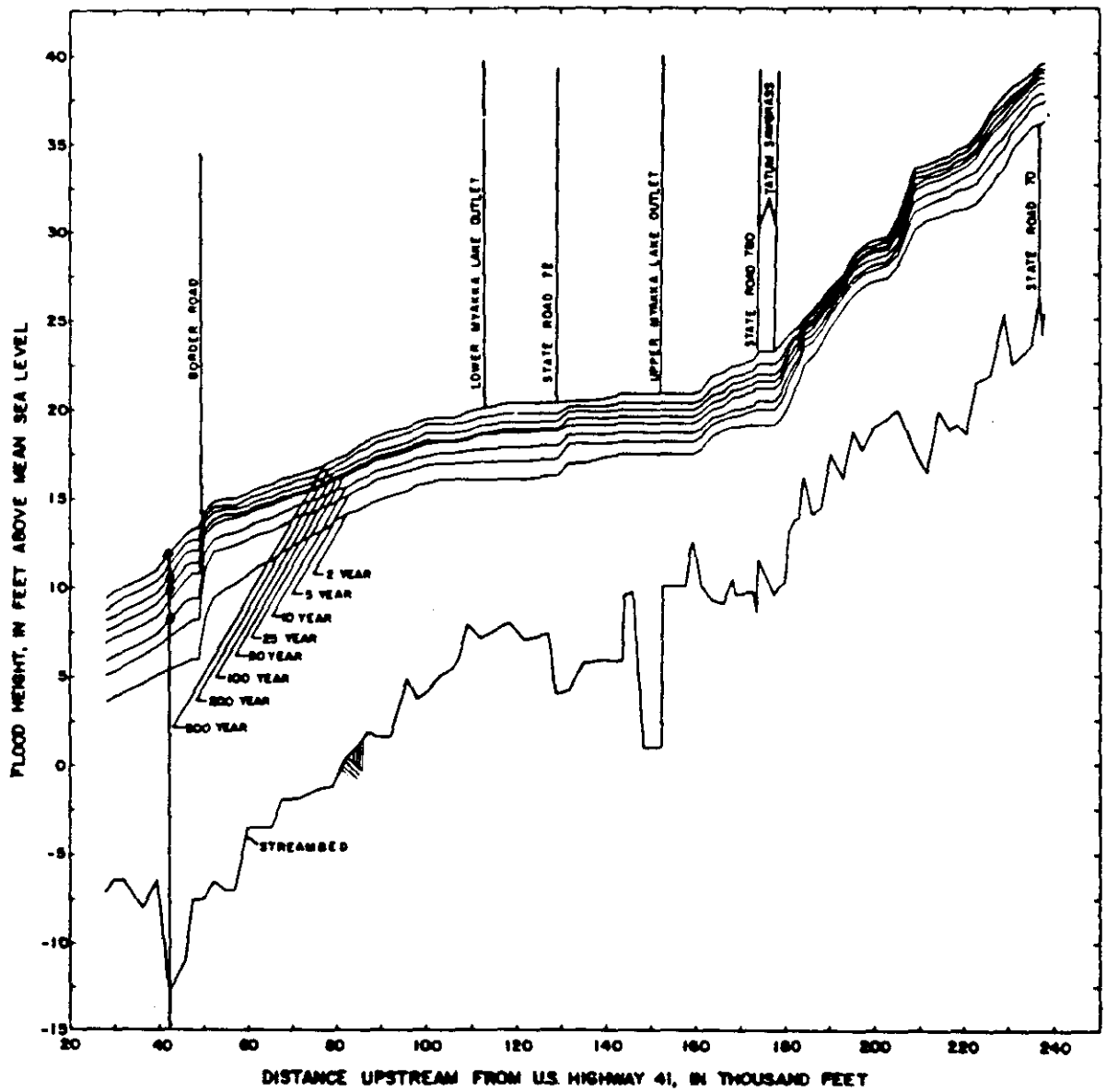

Figure 12. --Myakka River - Profiles for 2-, 5-, 10-, 25-, 50-, 100-, 200-, and 500-year floods, under diked conditions

Table 3.--Myakka River flood heights, diked conditions

Cross-section number[1]	Distance upstream from U.S. Highway 41 (feet)	Flood heights (feet above mean sea level)							
		Recurrence interval (years)							
		2	5	10	25	50	100	200	500
46	25,130	3.4	4.8	5.7	6.6	7.2	7.8	8.2	8.9
48	28,160	3.6	5.1	5.9	6.9	7.6	8.2	8.7	9.4
50	30,090	3.8	5.3	6.2	7.2	7.8	8.4	9.1	9.8
52	32,050	4.1	5.6	6.4	7.4	8.1	8.7	9.4	10.0
54	36,330	4.6	6.2	6.9	7.9	8.6	9.2	9.9	10.5
56	39,650	5.1	6.7	7.4	8.4	9.1	9.7	10.4	11.0
58	42,375	5.4	7.2	8.2	9.2	9.9	10.6	11.2	11.9
60	45,990	5.8	7.9	9.2	10.4	11.2	11.9	12.5	13.0
62	47,550	6.0	8.2	9.4	10.8	11.4	12.1	12.7	13.3
[2] 64	49,000	6.0	8.2	9.4	10.8	11.4	12.1	12.7	13.4
[3] 65	49,150	6.4	8.7	9.9	11.1	11.7	12.4	13.0	13.5
66	50,450	8.4	11.0	12.0	12.9	13.3	13.7	14.0	14.3
68	52,380	9.4	12.0	12.7	13.5	13.8	14.2	14.5	14.8
70	55,100	9.9	12.2	13.0	13.8	14.1	14.4	14.6	15.0
72	57,200	10.2	12.4	13.1	13.9	14.1	14.4	14.6	15.0
74	59,960	10.7	12.7	13.4	14.1	14.3	14.6	15.0	15.3
76	62,730	11.2	13.0	13.7	14.4	14.6	14.9	15.2	15.6
78	65,600	11.5	13.2	13.9	14.6	14.8	15.1	15.5	15.8
80	67,920	12.0	13.5	14.2	14.9	15.1	15.4	15.7	16.1
82	71,520	12.5	14.0	14.6	15.2	15.3	15.6	16.0	16.3
84	74,960	13.0	14.2	14.9	15.5	15.6	15.9	16.2	16.6
86	76,880	13.2	14.5	15.1	15.7	15.8	16.1	16.5	16.8
88	79,300	13.6	14.7	15.4	16.0	16.1	16.4	16.7	17.1
90	82,470	14.1	15.1	15.6	16.2	16.4	16.7	17.1	17.4

Footnotes are at end of table.

TABLE 1 - SUMMARY OF DISCHARGES

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
PHILLIPPI CREEK					
U.S. 41	55.97	4300	6300	7500	8400
PROCTOR RD. (W)	54.57	4100	6100	7300	8100
BEE RIDGE RD. (W)	50.58	3650	5400	6500	7300
WEBBER ST.	49.59	3500	5200	6300	7000
BAHIA VISTA ST. (W)	46.23	3150	4700	5700	6400
BENEVA RD.	36.22	2200	3200	3900	4500
APP. 2200' U/S OF SCLRR	34.42	2000	3000	3700	4200
BAHIA VISTA ST. (E)	32.53	1800	2750	3300	3800
APP. 4700' U/S OF BAHIA VISTA ST.	30.90	1700	2550	3100	3600
APP. 4500' D/S OF CATTLEMEN RD.	28.90	1500	2300	2800	3200
APP. 3000' D/S OF CATTLEMEN RD.	6.27	400	610	730	920
CATTLEMEN RD.	4.74	380	600	700	880
BEE RIDGE RD. (E)	4.06	370	580	650	850
PROCTOR RD. (E)	3.11	350	560	600	800

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
MATHENY CREEK					
U.S. 41	2.61	380	540	650	770
GULF GATE DR.	1.41	230	340	410	460
BENEVA RD.	0.72	150	220	250	270
CURRY CREEK [1]					
U.S. 41	6.94	920	1330	1550	1900
ALBEE FARM RD.	6.18	820	1200	1400	1700
APP. 3200' D/S OF PINEBROOK RD.	5.62	760	1080	1290	1550
PINEBROOK RD.	4.85	660	950	1120	1350
CAPRI ISLES BLVD.	4.01	550	790	950	1130
APP. 2500' D/S OF AUBURN RD.	1.62	270	380	450	500
I-75	1.01	190	280	320	360

1 The drainage areas and the peak discharges were considered without diversioning flows from the Myakka River through the Blackburn Canal. These contributing drainage areas and the discharges may vary under various conditions of the Myakka river.

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
HATCHETT CREEK					
SCLRR	5.44	730	1050	1250	1500
U.S. 41	4.54	620	900	1060	1300
APP. 4200' U/S OF VENICE AVE. EAST	2.93	420	600	730	850
APP. 2500' D/S OF AUBURN RD.	2.47	360	510	630	750
APP. 1200' U/S OF AUBURN RD.	1.73	280	400	480	550
JACARANDA BLVD.	0.77	160	240	280	300
ALLIGATOR CREEK					
AT MOUTH	9.61	1260	1800	2120	2650
U.S. 41	7.29	970	1400	1640	2000
APP. 3200' U/S OF U.S. 41	6.93	920	1330	1550	1900
JACARANDA BLVD.	3.82	530	750	920	1060

TABLE 1 - SUMMARY OF DISCHARGES (CONT.)

SARASOTA COUNTY

FLOOD SOURCE AND LOCATION	DRAINAGE AREA (SQ. MILES)	PEAK DISCHARGE (CFS) 10-YEAR	50-YEAR	100-YEAR	500-YEAR
WOODMERE CREEK					
AT MOUTH	1.95	300	440	520	600
HERON ST.	0.82	170	250	290	310
POMPANO RD.	0.67	140	210	250	260
FLORIDA AVE.	0.43	120	170	200	210

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT Phillippi Ck

JOB NO. 87488

BY _____ DATE _____

RESULTS OF UNIT HYDROGRAPH

( ) IS ACCUMULATED FOR DA. ( ) IS SUMMED

POINT OF INTEREST	D. A (SQ MI)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}
P-A PROCTOR RD(E)	3.11 (3.11)	228 350 (228)	308 (308)	364 560 (364)	451 600 (451)	800 (530)
P-B BEE RIDGE RD(E)	0.95 (4.06)	102 370 (321)	139 (434)	164 520 (513)	204 650 (635)	850 (740)
P-C CATTLEMEN RD	0.68 (4.74)	39 380 (360)	52 (485)	61 600 (573)	74 700 (709)	880 (830)
P-D APP. 3000' D/S OF CATTLEMEN RD	1.53 (6.27)	119 400 (479)	155 (641)	181 610 (754)	219 730 (928)	920 (1100)
P-E APP 4500' D/S OF CATTLEMEN RD	22.63 (28.90)	999 1500 (1473)	1307 (1943)	1520 2300 (2269)	1848 2800 (2771)	3200 (3210)
P-F APP. 4700 U/S OF BAHIA VISTA ST	2.00 (30.90)	190 1700 (1659)	242 (2179)	277 2550 (2539)	331 3100 (3094)	3600 (3600)
P-G BAHIA VISTA ST(E)	1.63 (32.53)	494 1800 (1847)	605 (2408)	680 2750 (2796)	793 3300 (3394)	3800 (3920)
P-H APP. 2200' U/S OF SCURR	1.89 (34.42)	201 2000 (2008)	258 (2618)	298 3000 (3037)	358 3700 (3683)	4200 (4250)
P-I GENEVA RD	1.80 (36.22)	200 2200 (2163)	260 (2815)	302 3200 (3265)	366 3900 (3957)	4500 (4550)
P-J BAHIA VISTA ST(W)	10.01 (46.23)	1037 3150 (3104)	1312 (4003)	1498 4700 (4621)	1782 5700 (5569)	6400 (6400)
P-K WEBBER ST.	3.36 (49.59)	551 3500 (3619)	678 (4619)	764 5200 (5313)	893 6300 (6375)	7000 (7200)
P-L BEE RIDGE RD(W)	0.99 (50.58)	522 3650 (3653)	641 (4672)	720 5400 (5372)	839 6500 (6443)	7300 (7300)
P-M PROCTOR RD(W)	3.99 (54.57)	584 4100 (4097)	723 (5260)	816 6100 (6023)	957 7300 (7191)	8100 (8100)
P-N U-S 41	1.40 (55.97)	442 4300 (4265)	548 (5400)	619 6300 (6177)	726 7500 (7370)	8400 (8400)

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT Mallory Creek

SHEET NO. ____ OF ____
JOB NO. 37433
BY ____ DATE ____

RESULTS OF UNIT HYDROGRAPH

( ) is accumulated D.A. ( ) is summed

Point of Interest	D.A. (sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} From Rob. Rep.
M-A BENCVA RD	0.72 (0.72)	124 **150** (124)	159 (159)	183 **220** (183)	220 **270** (220)	250 **290** (250)
M-B GOLF GATE DR	0.69 (1.41)	210 **280** (334)	260 (419)	294 **340** (477)	346 **410** (566)	**460** (640)
M-C U.S. 41	1.20 (2.61)	298 **380** (629)	373 (790)	424 **540** (899)	500 **650** (1064)	**770** (1210)

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT: Curry Creek

JOB NO. 514.55
BY RBT DATE 5/2/8

RESULTS OF UNIT HYDROGRAPH

( ) is accumulated D.A ( ) is summed

Point of Interest	D.A (sq.mi)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} max. probable
C-A I-75	1.01 (1.01)	124 190 (124)	161 (161)	185 280 (185)	223 320 (223)	360 (255)
C-B App 3500 D/S of AUBURN RD.	0.61 (1.62)	103 270 (221)	134 (287)	155 380 (331)	188 450 (399)	500 (455)
C-C CAPRI ISLES BLVD	2.39 (4.01)	217 550 (334)	265 (495)	298 790 (571)	348 950 (688)	1130 (790)
C-D PINEBROOK RD	0.84 (4.85)	87 660 (470)	112 (606)	129 950 (700)	155 1120 (842)	1350 (950)
C-E App 3800 D/S of PINEBROOK RD.	0.77 (5.62)	187 760 (611)	228 (784)	255 1080 (902)	297 1290 (1081)	1550 (1220)
C-F ALBEE FARM RD	0.56 (6.18)	114 820 (702)	146 (899)	167 1200 (1034)	199 1400 (1239)	1700 (1400)
C-G U.S 41	0.76 (6.94)	238 920 (860)	293 (1093)	329 1530 (1251)	383 1550 (1492)	1900 (1700)

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ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT: Hatchett Creek

SHEET NO. ___ OF ___
JOB NO. 37423
BY KET DATE 5/2/2

RESULTS OF UNIT HYDROGRAPH

Point of Interest	D.A. (sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} from probable max.
H-A JACARANDA BLVD	0.77 (0.77)	75 760 (75)	97 (97)	112 240 (112)	135 280 (135)	300 (155)
H-B APP. 300' U/S OF AUBURN RD.	0.96 (1.73)	144 280 (211)	187 (274)	216 400 (316)	260 480 (381)	550 (435)
H-C APP. 2500' D/S OF AUBURN RD.	0.74 (2.47)	92 360 (302)	118 (391)	137 510 (452)	165 630 (545)	750 (620)
H-D APP. 4200' U/S OF UCENTA AVE.	0.46 (2.93)	61 420 (361)	78 (467)	91 600 (539)	109 730 (650)	850 (750)
H-E U.S. 41	1.61 (4.54)	586 620 (794)	719 (997)	808 900 (1096)	942 1060 (1341)	1300 (1520)
H-F CSL. RR	0.90 (5.44)	283 730 (1054)	348 (1313)	391 950 (1488)	456 1250 (1752)	1500 (1990)

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible]

JOB NO. 91-435

BY [illegible] DATE 5/3/9

[illegible] OF UNIT HYDROGRAPH

Point of Interest	D.A. (sq. mi)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{100} from [illegible]
A - A JACARANDA BLVD	3.82 (3.82)	315 530 (315)	383 (383)	429 750 (429)	501 920 (501)	1060 (640)
A - B APP 3200' WTS OF US 41	3.11 (6.93)	772 920 (675)	927 (1001)	1032 1330 (1118)	1191 1550 (1397)	1900 (1650)
A - C US 41	0.30 (7.29)	141 970 (738)	180 (1143)	207 1400 (1283)	248 1640 (1495)	2000 (1950)
A - D SHAMROCK DR.	2.06 (9.35)	610 (1343)	754 (1657)	850 (1875)	996 (2200)	(2800)
A - E AT MOUTH	0.26 (9.61)	161 (1463)	200 (1796)	226 1806 (2023)	265 2120 (2368)	2650 (3100)

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT Woodmere Creek

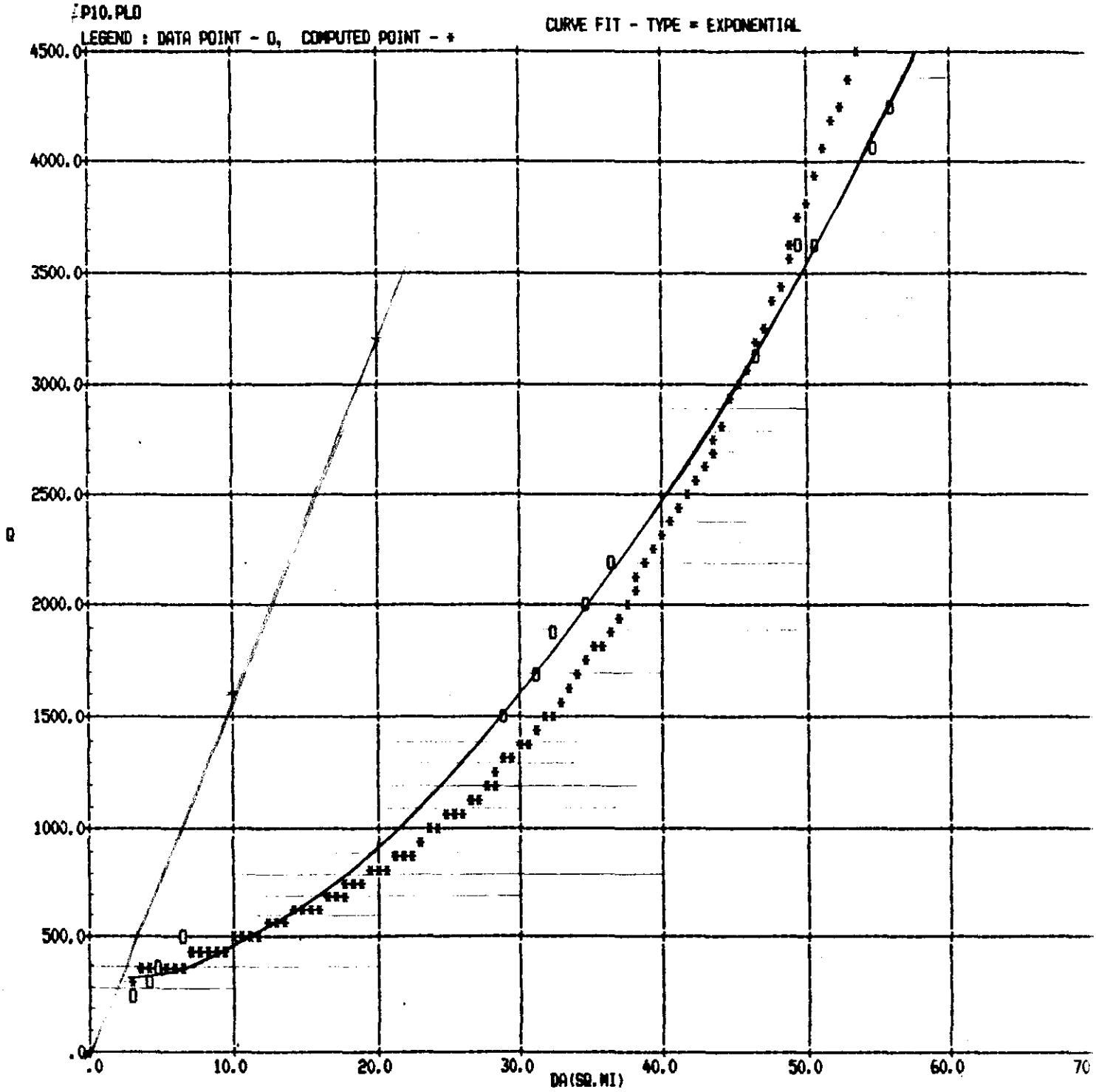
SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

RESULTS OF UNIT HYDROGRAPH

( ) is accumulated D.A. ( ) is summed

Point of Interest	D.A. (Sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} From Prob.
W-A ENGLEWOOD RD	0.43 (0.43)	112 120 (112)	142 (142)	162 170 (162)	192 200 (192)	200 (220)
W-B POMPANO RD	0.24 (0.67)	147 140 (237)	183 (298)	208 210 (339)	244 250 (401)	250 (450)
W-C HEBRON ST	0.15 (0.82)	75 170 (311)	93 (390)	106 250 (443)	125 290 (523)	310 (590)
W-D AT MOUTH	1.13 (1.95)	237 300 (506)	297 (636)	337 440 (723)	397 520 (855)	600 (970)

Moore®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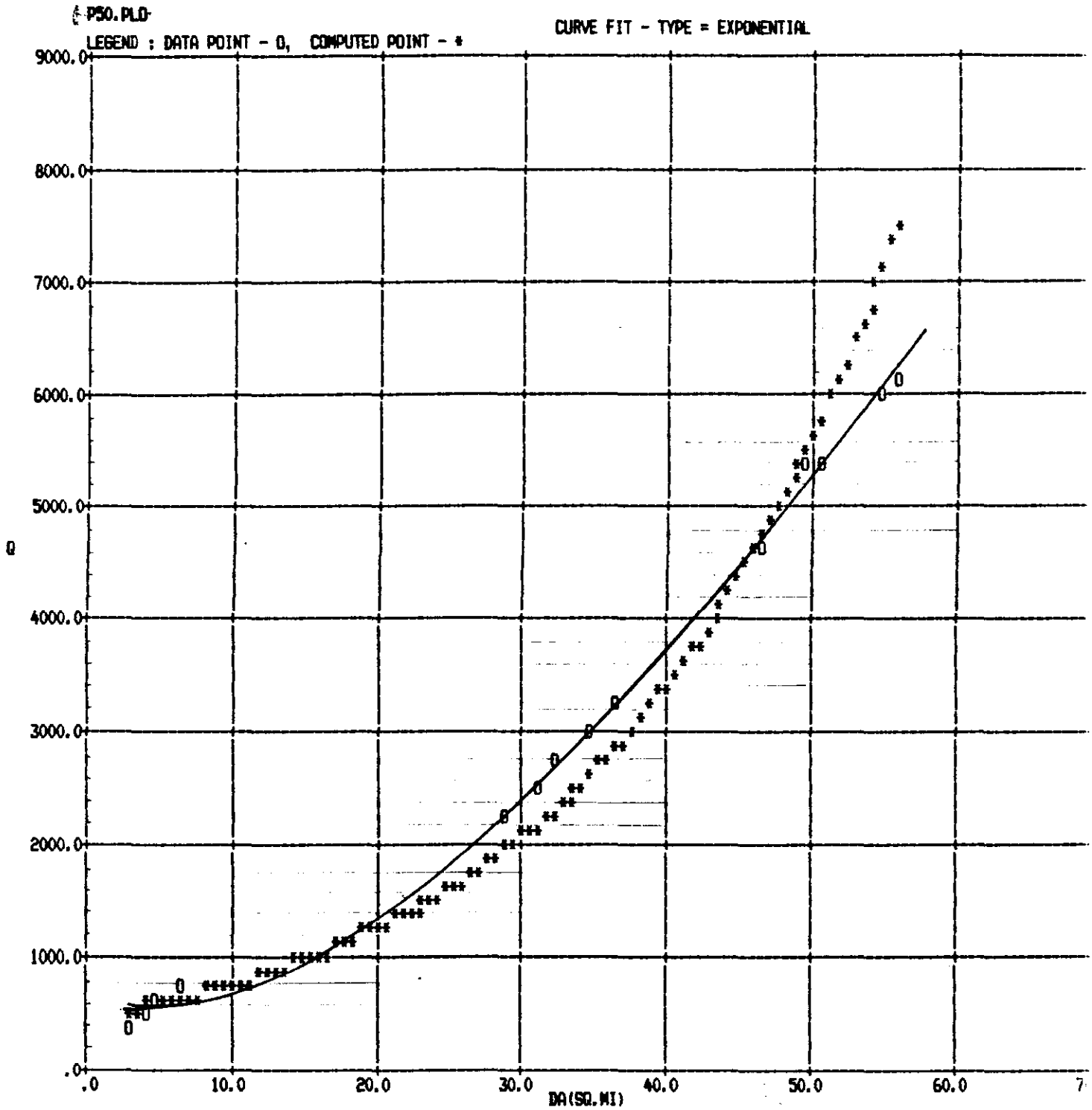
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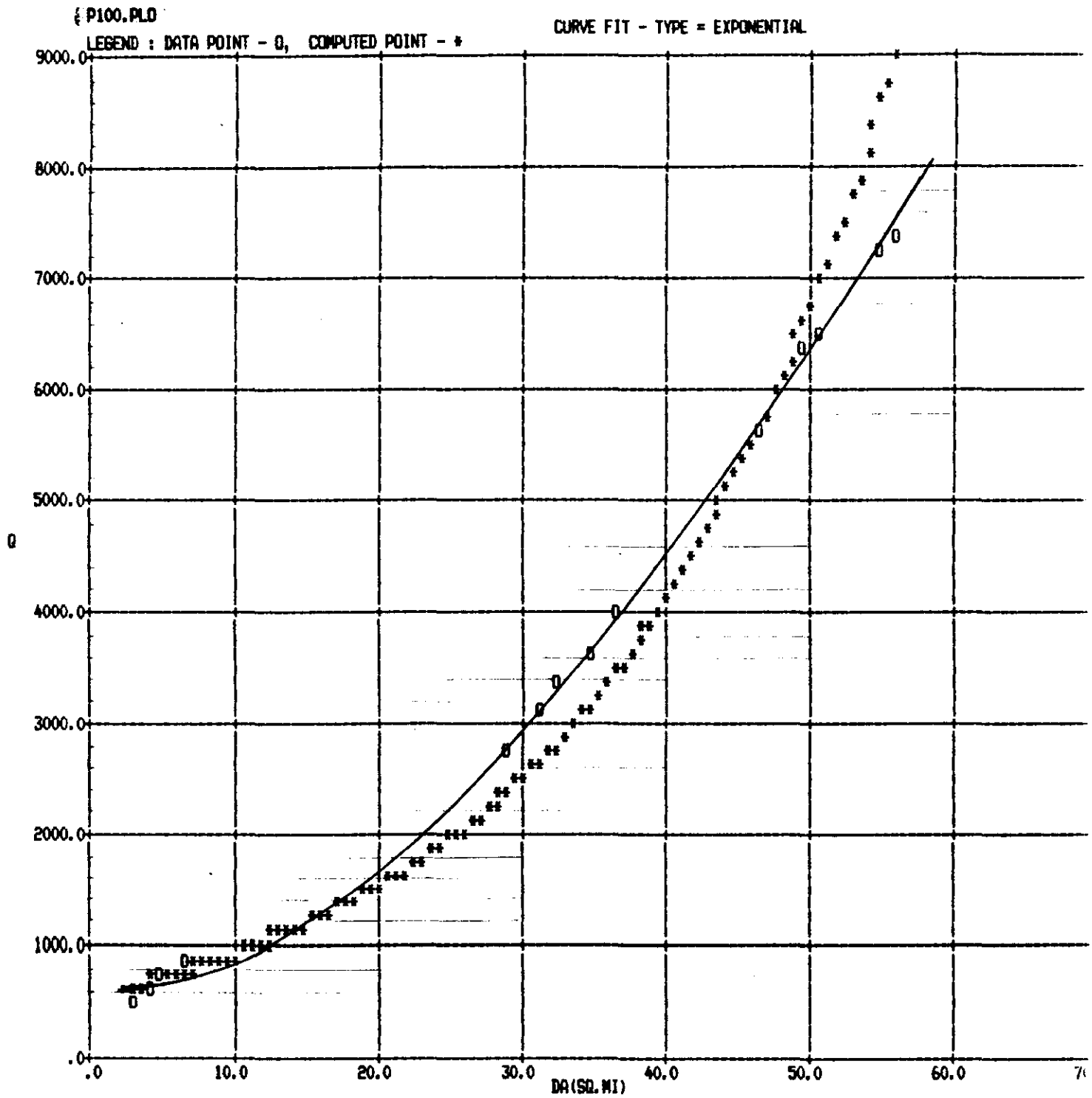
30.0
40.0
50.0
60.0
DA(SQ.MI)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3000.0
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1000.0
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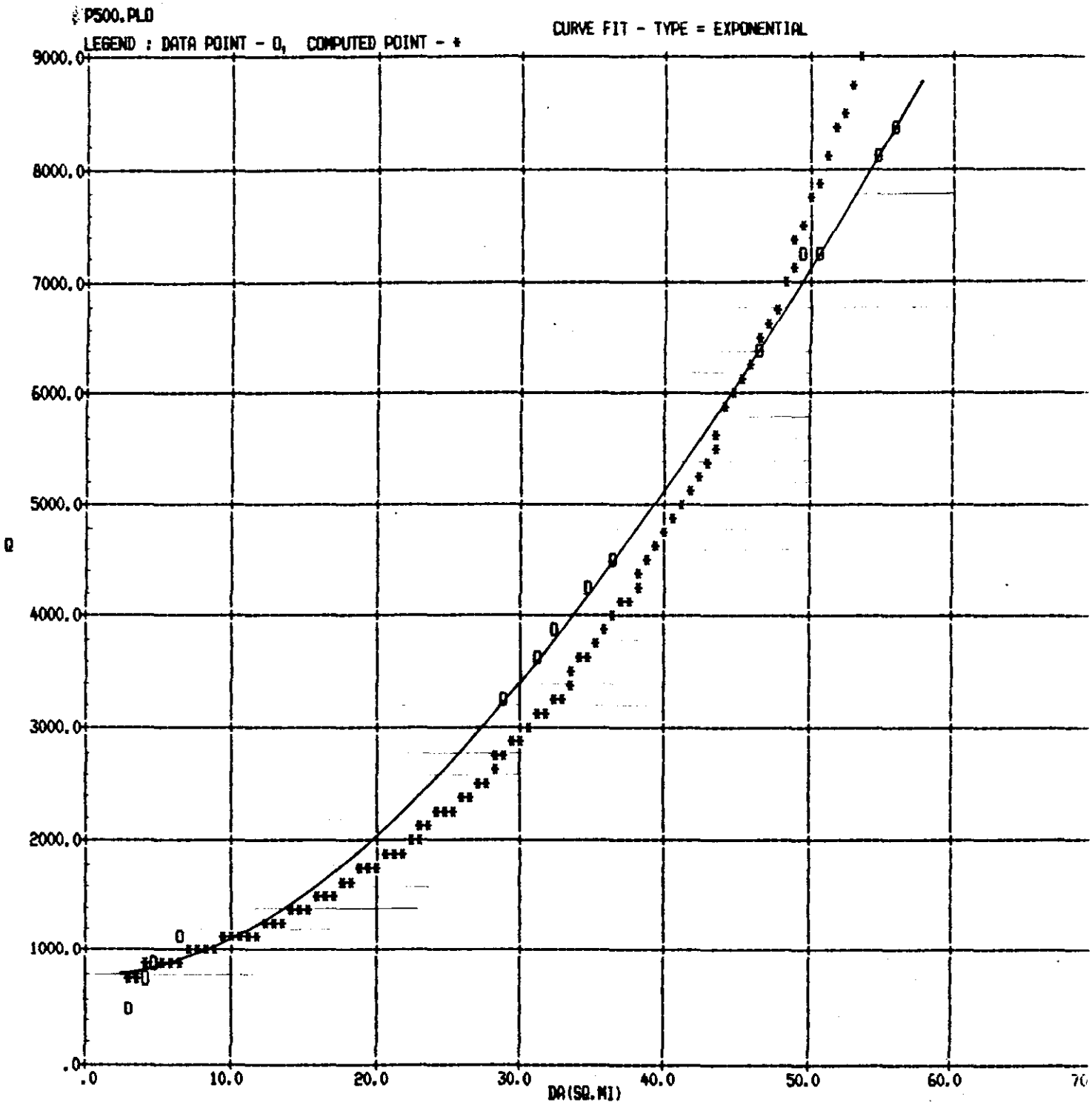
Q
.0
10.0
20.0
30.0
40.0
50.0
60.0
DA(SQ.MI)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7000.0
6000.0
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4000.0
3000.0
2000.0
1000.0
.0
Q
.0
10.0
20.0
30.0
40.0
50.0
60.0
DA(SQ.MI)

Comparison of Discharges for 25 year Frequency

	DA (sq. mi.)	Regression	U.H	CDM
Philippi Creek	56.0	2920	5400	5190
Weatherly Creek	2.6	405	790	607
Curry Creek	6.9	399	1093	1201
Hatchett Creek	5.4	192	1313	833
Alligator Creek	9.6	478	1796	1669
Westmere Creek	1.95	191	636	495

FIS - SAN DIEGO CO. — JOB 87488

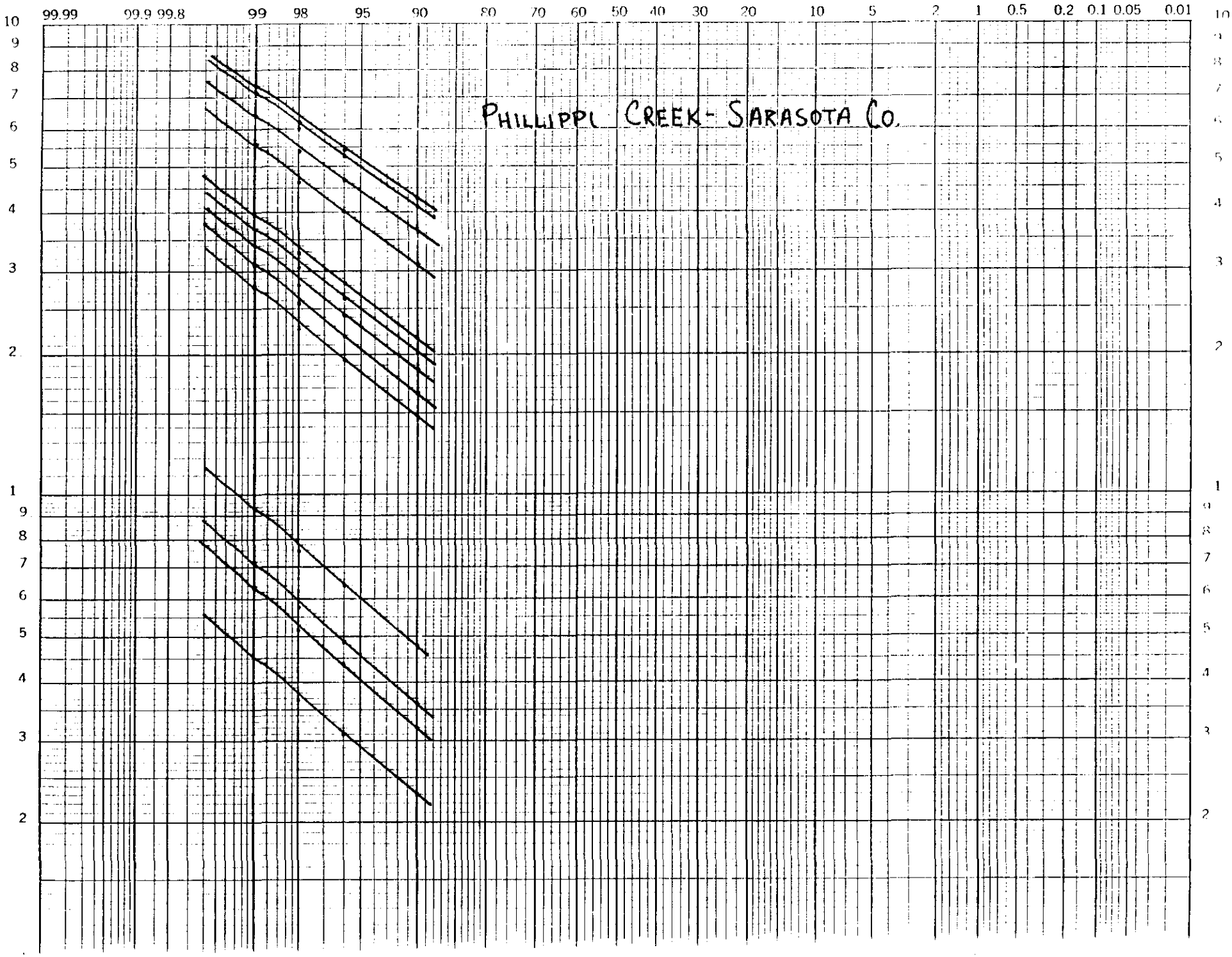
Fr. Cr.

RESULTS OF UNIT HYDROGRAPH

( ) IS ACCUMULATED FOR DA ( ) IS SUMMED

POINT OF INTEREST	D. A (SQ MI)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} FROM FI
P-A PROCTOR RD	3.11 (3.11)	228 (228)	368 (368)	364 (364)	451 (451)	(530)
P-B SEE REDOUBT RD	0.95 (4.06)	102 (321)	139 (434)	164 (513)	204 (635)	(740)
P-C CATTERSON RD	0.68 (4.74)	39 (360)	52 (485)	61 (573)	74 (709)	(830)
P-D APP. 3000' D/S OF CENTERMONT RD	1.53 (6.27)	119 (479)	155 (641)	181 (754)	219 (928)	(1100)
P-E APP. 4500' D/S OF CENTERMONT RD	22.63 (28.90)	999 (1473)	1307 (1943)	1520 (2269)	1848 (2771)	(3210)
P-F APP. 4000' U/S OF BANKER HILL ST	2.00 (30.90)	190 (1659)	242 (2179)	277 (2539)	331 (3094)	(3600)
P-G BAHIA VISTA ST (E)	1.63 (32.53)	494 (1847)	605 (2408)	650 (2796)	793 (3394)	(3920)
P-H APP. 2800' U/S OF [illegible]	1.89 (34.42)	201 (2008)	258 (2618)	293 (3037)	358 (3683)	(4250)
P-I BONITA RD	1.80 (36.22)	200 (2163)	260 (2815)	302 (3265)	366 (3957)	(4550)
P-J BAHIA VISTA ST (W)	10.01 (46.23)	1037 (3104)	1312 (4003)	1498 (4621)	1782 (5569)	(6400)
P-K WEBBER ST.	3.36 (49.59)	551 (3619)	678 (4619)	764 (5313)	893 (6375)	(7200)
P-L SEE REDOUBT RD (W)	0.99 (50.59)	522 (3653)	641 (4672)	720 (5372)	839 (6443)	(7300)
P-M PROCTOR RD (W)	3.99 (57.57)	584 (4097)	723 (5260)	816 (6023)	957 (7191)	(8100)
P-N U.S. 41	1.40 (55.97)	442 (4265)	548 (5400)	619 (6177)	726 (7370)	(8400)

46 8040



Rainfall Volume in Sarasota County

The total volume of rainfall for a 100-year frequency 24-hour duration storm for Sarasota County can be determined from the isopleth maps in Technical Paper No. 40 (U.S. Weather Bureau, 1961), with 12 inches.

Technical Paper No. 40 was published in 1961 and hence does not reflect the recent records. However, for Tampa area, new analyses of rainfall volume to establish annual duration-frequency relationships have been prepared by CDM (1979) and RS&H (1982). CDM has concluded to use 9.5 inches for 25-year, 24-hour duration rainfall for Sarasota County Stormwater Management Study in 1986.

The rainfall analysis for Southwest Florida area was prepared for Southwest Florida Water Management District by University of Central Florida in 1987. SWFWMD has adopted the results of new analyses of approximately 8.5 inches and 10.5 inches for 25-year, 24-hour and 100-year, 24-hour duration rainfall, respectively.

1987 Drainage Manual of FDOT shows the isopleth map which indicates 12 inches for 100-year, 24-hour duration rainfall.

Although new analysis developed for SWFWMD results 10.5 inches of total rainfall volume for 100-year, 24-hour duration storm, it seems little low comparing T.P. 40 and FDOT Drainage Manual's value of 12.0 inches. It is also new study.

Therefore, for this FIS for Sarasota County, which is more closer to the coastal area, 12.0 inches for 100-year, 24-hour duration storm was used.

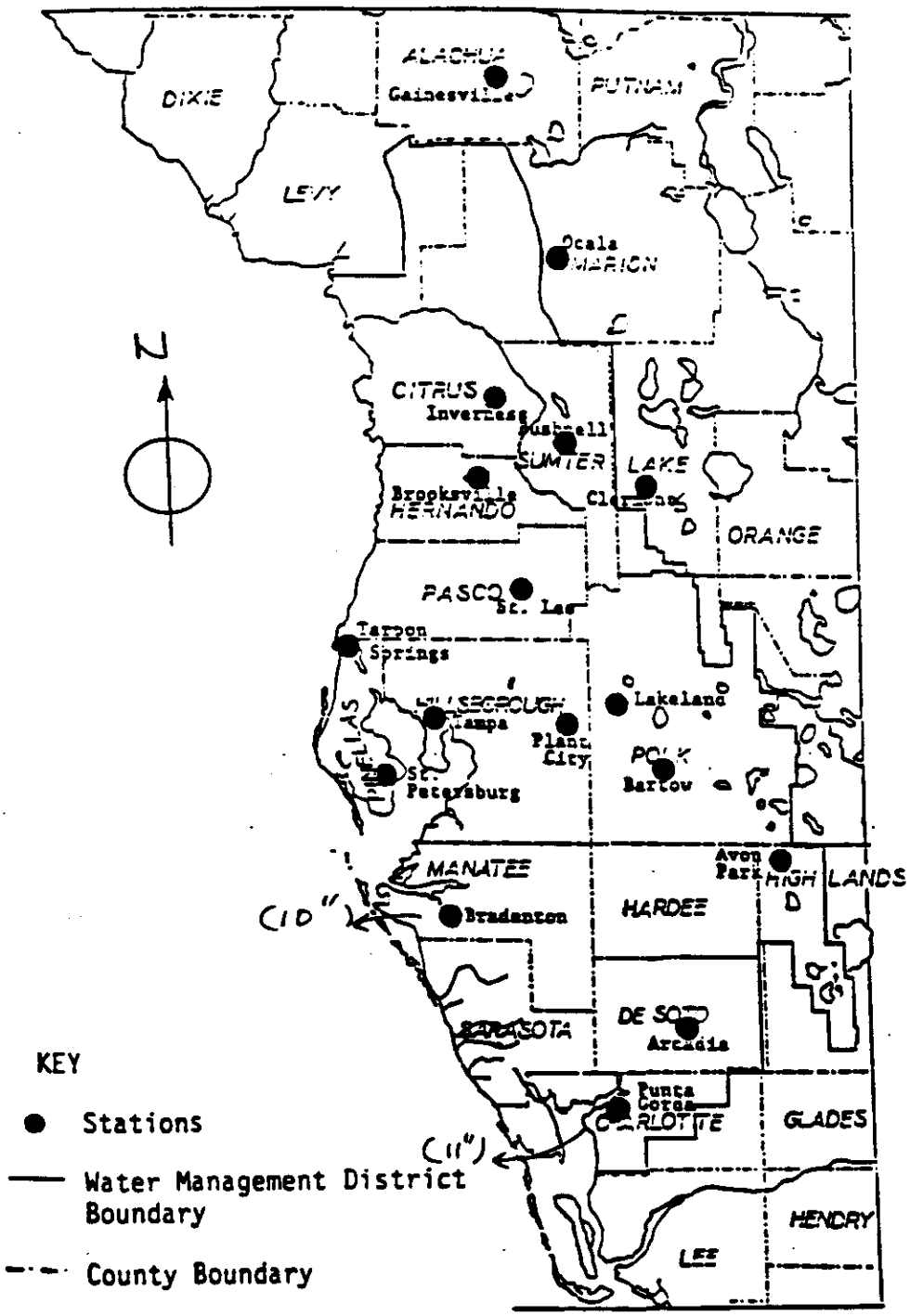


FIGURE 1 STATION GEOGRAPHIC DISTRIBUTION

SWFWMD (1987)

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ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FIS - Sarasota Co.
Flood-251
Peak Rate Factors

SHEET NO. ____ OF ____
JOB NO. 251-33
BY FEC DATE 6/15

The following peak rate factor estimation is based on the following factors. We set the lower range based on the reference "Estimation of Runoff Peak Rates and Volumes from Flatwoods Watersheds". They concluded that for the South-Florida flatwoods peak rate factors of less than 100 were in order. Since our conditions are improved over those we used a peak rate factor of 150 for the lower range. We calibrated the upper range peak factor for the fully developed areas using USGS gage station data for Phillippi Creek.

	Sub-Basin	% Developed	Weighted Peak Rate Factor (based on range from 150-350)
	P-A	10	170
	P-B	30	210
	P-C	0	150
	P-D	20	190
	P-E	0	150
	P-F	40	230
	P-G	75	300
	P-H	10	170
	P-I	8	166
<Gage>	P-J	34	218
	P-K	80	310
	P-L	80	310
	P-M	60	270
	P-N	75	300

$$K_w = 350(\%\ \text{Developed}) + 150(1 - \%\ \text{Developed})$$

JA

P-A 42[illegible] / [illegible] + 10,[illegible] (2×3600) = 7.30 HR
P-B 7.3 + 5853/(2×3600) = 8.12 HR
P-C 8.12 + 3605/(2×3600) = 8.63 HR
P-D 8.63 + 2867/(3×3600) = 8.90 HR
P-E 8000/(0.2×3600) + 35,091/(2×3600) = 16.0 HR
P-F 16.0 + 3015/(3×3600) = 16.28 HR
P-G 16.28 + 4609/(3×3600) = 16.71 HR
P-H 16.71 + 1953/(3×3600) = 16.90 HR
P-I 16.90 + 3339/(3×3600) = 17.20 HR
P-J 17.20 + 3190/(3×3600) = 17.50 HR
P-K 17.50 + 5925/(3×3600) = 18.04 HR
P-L 18.04 + 4536/(3×3600) = 18.4[illegible] HR
P-M 18.4[illegible] + 5861/(3×3600) = 19.00 HR
P-N 19.00 + 5330/(3×3600) = 19.50 HR
P-O 19.50 + 2769/(3×3600) = 19.75 HR

Industrial Tc's:

P-A = 4200/(0.2×3600) + 10597/(1×3600) = 8.77 HR
P-B = 3000/(.2×3600) + 3500/(.5×3600) + 3000/(1×3600) = 6.94 HR
P-C = 8500/(0.2×3600) + 800/(1×3600) = 12.03 HR
P-D = 5800/(0.2×3600) + 5000/(0.5×3600) + 1700(1×3600) = 11.36 HR
P-E = 8000/(0.2×3600) + 35,091/(1.5×3600) = 17.61 HR
P-F = 7000/(0.2×3600) + 6500/(0.5×3600) + 2300/(1.5×3600) = 13.7[illegible] HR
P-G = 4000/(0.5×3600) + 4500/(0.5×3600) + 2200/(2×3600) = 5.58 HR

P-H = 2800/(0.2×3600) + 5900/(0.5×3600) + 3900(2×3600) = 7.71 HR
P-I = 2000/(0.2×3600) + 13,500/(1×3600) + 1700/(2×3600) = 6.76 HR
✓ P-J = 4000/(0.2×3600) + 25,200/(1×3600) + 2800/(2×3600) = 12.94 HR
P-K = [illegible]/(0.2×3600) + 14,600/(0.75×3600) + [illegible]/(2×3600) = 14.30 HR
P-L = 6500/(0.75×[illegible]) + 3900/(2×3600) = 3.94 HR
P-M = 6500/(0.2×[illegible]) + 11400/(1×3600) + 4700/(2×3600) = 12.85 HR
✓ P-N = 2100/(0.2×3600) + 3800/(0.5×3600) + 3000/(2×3600) = 5.44 HR
P-O = 900(0.2×3600) + 2600(2×3600) = 1.61 HR

Tc's
9.0
7.0
12.0
12.0
18.0
14.0
6.0
8.0
7.0
13.0
15.0
3.0
13.0
6.0
5.0

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WEST PALM BEACH, FLA.

SUBJECT [illegible] FEMA
[illegible]
[illegible]

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY [illegible] DATE [illegible]

✓ P-H (Incremental)

	A	B	C	D
High		49	2	
Medium	86	196	54	85
Undeveloped	5	102	1	

% Impervious = [51(70) + 1021(50) + 108(5)] / 1180 = 2.0

Lake Area = 20 Ac Total Area = 1210 Ac

Impervious = 237.9 Ac Pervious = 951.7 Ac

CN_w = [49(86) + 2(90) + 86(61) + 196(75) + 54(83) + 85(87) + 5(40) + 102(60) + 1(75) + 20(100)] / 1200 = 68

S = 1000/68 − 10 = 4.7 in = 475 Ac-ft

(Cumulative) Tc = 8.0 UHp = 3.00

Total Area = 20,029 Ac Lake Area = 233 Ac

Impervious = 2534 Ac Pervious = 19,207 Ac

S = 9754 Ac-ft

P-I (Incremental)

	A	B	C	D
High		79		
Medium		250		
Low	6	255	3	53
Undeveloped		441	49	29

% Impervious = [79(70) + 256(50) + 317(30) + 518(5)] / 1170 = 15

Lake Area = 4 Ac Total Area = 1152 Ac

Impervious = 172.2 Ac Pervious = 975.8 Ac

CN_w = [79(86) + 250(75) + 6(51) + 6(51) + 255(68) + 3(79) + 53(84) + 441(60) + 49(75) + 29(90) + 400] / 1174 = 66

S = 1000/66 − 10 = 5.15 in = 495 Ac-ft

(Cumulative) Tc = 6.76 UHp = 3.00

Total Area = 23,181 Ac Lake Area = 292 Ac

Impervious = 2,706 Ac Pervious = 20,183 Ac

S = 10,249 Ac-ft

Tc UHp =

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SUBJECT [illegible] SHEET NO. ____ OF ____
JOB NO. [illegible]
BY RE DATE [illegible]

P-I (Incremental)

	A	B	C	D
High	10	2434	10	100
Medium	31	1387	43	12
Undeveloped	48	1938	58	175

% Impervious = [2554(70) + 1523(50) + 2219(5)] / 6296 = 15

Lake Area = 149 Ac Total Area = 6,407 Ac

Impervious = 939 Ac Pervious = 5319 Ac

CN_w = [10(80) + 2434(86) + 10(90) + 100(92) + 31(61) + 1387(75) + 43(83) + 12(87) + 48(40) + 1938(60) + 58(75) + 175(90) + 149(100)] / 6445 = 75.3

S = 1000/75.3 − 10 = 3.28 in = 1751.0 Ac-ft

Tc = 12.94 UHp = 6.00

(Cummulative)

Total Area = 29,588 Ac Lake Area = 441 Ac

Impervious = 3645 Ac Pervious = 25,502 Ac

S = 12,000 Ac-ft Tc = UHp =

P-K (Incremental)

	A	B	C	D
High		1573	4	4
Medium		471		
Low		69		

% Impervious = [1586(70) + 471(50) + 69(30)] / 2126 = 40

Lake Area = 26 Ac Total Area = 2157 Ac

Impervious = 852 Ac Pervious = 1279 Ac

CN_w = [1573(86) + 4(90) + 4(92) + 471(75) + 69(65) + 26(100)] / 2152 = 83.2

S = 1000/83.2 − 10 = 2.02 in = 362.0 Ac-ft

Tc = 14.30 UHp = 6.00

(Cummulative)

Total Area = 31,745 Ac Lake Area = 467 Ac

Impervious = 4497 Ac Pervious = 26,781 Ac

S = 12,362 Ac-ft Tc = UHp =

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WEST PALM BEACH, FLA.

SUBJECT [illegible] SHEET NO. ____ OF ____
JOB NO. ____
BY [illegible] DATE ____

P-L [illegible]

	A	B	C	D
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]		[illegible]	[illegible]	[illegible]

% Impervious = [illegible] / [illegible] = 20

Lake Area = 3 Ac Total Area = 633 Ac

Impervious = 126 Ac Pervious = 504 Ac

CN = [illegible] / 631

CN = 80

S = 1000/80 − 10 = 1.63 in = 86 Ac-ft

Tc = 29.4 UHD = 130

(Cumulative)

Total Area = 30,378 Ac Lake Area = 470 Ac

Impervious = 4623 Ac Pervious = 29,285 Ac

S = 12,448 Ac-ft Tc = UHD =

P-M (Incremental)

	A	B	C	D
High	201	[illegible]	[illegible]	215
Medium	6	[illegible]	40	6
Undeveloped	15	109		

% Impervious = [1963(90) + 0x1(0.7) + 124(5)] / 2503 = 20

Lake Area = 77 Ac Total Area 2553 Ac

Impervious = 495 Ac Pervious = 1881 Ac

CN = [201(88) + 1400(85) + 47(90) + 215(92) + 6(61) + 426(79) + 40(82) + 0(80) + 15(40) + 109(60) + 77(100)] / 2535 = 83.1

S = 1000/83.1 − 10 = 2.04 in = 433 Ac-ft

Tc = 12.85 UHD = 6.00

(Cumulative)

Total Area = 34,931 Ac Lake Area = 547 Ac

Impervious = 5118 Ac Pervious = 29,266 Ac

S = 12,881 Ac-ft Tc = UHD =

P-N (Incremental)

	A	B	C	D
High		662		5
Low		160		70

[illegible]

% Impervious = [[illegible](70) + 230(30)] / [illegible] = 15

Lake Area = 5 Ac Total Area = 896 Ac

Impervious = 134 Pervious = 757 Ac

CN_w = [[illegible](8[illegible]+5[illegible]) + 160(68) + 70([illegible]) + 500] / 902 = 82.8

S = $\frac{1000}{82.8}$ − 10 = 2.08 in = 155 Ac-ft

(Cumulative) Tc = 5.40 UH_D = 2.00

Total Area = 35,827 Ac Lake Area = 552 Ac

Impervious = 5552 Ac Pervious = 30033 Ac

C = 13,036 Ac-ft T_c = UH_c =

P-D (Incremental)

	A	B	C	D
High		25		6
Low	48	23	45	27

% Impervious = [31(70) + 143(30)] / 174 = 37.1

Lake Area = 8 Ac Total Area = 182 Ac

Impervious = 65.9 Ac Pervious = 111.7 Ac

CN_w = [25(86) + 6(92) + 48([illegible]) + 23(68) + 45(79) + 27(84) + 800] / 182

CN_w = 73.3

S = $\frac{1000}{73.3}$ − 10 = 3.65 in = 55.3 Ac-ft

Tc = 1.61 UHD = .60

(Cummulative)

Total Area = 34,803 Ac Lake Area = 560 Ac

Impervious = 12,444.6 Ac Pervious = 21,798.4 Ac

~~S = 11,236.1 Ac-ft~~

FIS - PHILLIPPI CREEK AT SARASOTA, # 02299800 (1960 - 1981)

ORDER	FLOOD MAGNITUDE	EMPERICAL RECURRENCE INTERVAL	EMPERICAL EXCEEDANCE PROBABILITY (PERCENT)	LOG10 FLOOD MAGNITUDE
1	6740.00	23.00	4.35	3.828660
2	4400.00	11.50	8.70	3.643453
3	4240.00	7.67	13.04	3.627366
4	2820.00	5.75	17.39	3.450249
5	1190.00	4.60	21.74	3.075547
6	1120.00	3.83	26.09	3.049218
7	1080.00	3.29	30.43	3.033424
8	1040.00	2.88	34.78	3.017033
9	928.00	2.56	39.13	2.967548
10	920.00	2.30	43.48	2.963788
11	912.00	2.09	47.83	2.959995
12	860.00	1.92	52.17	2.934498
13	832.00	1.77	56.52	2.920123
14	820.00	1.64	60.87	2.913814
15	800.00	1.53	65.22	2.903090
16	690.00	1.44	69.57	2.838849
17	543.00	1.35	73.91	2.734800
18	416.00	1.28	78.26	2.619093
19	416.00	1.21	82.61	2.619093
20	412.00	1.15	86.96	2.614897
21	412.00	1.10	91.30	2.614897
22	412.00	1.05	95.65	2.614897

MEAN OF FLOODS = 1454.68
STD DEV OF FLOODS = 1632.87

MEAN OF LOG10(FLOOD) = 2.99747
STD DEV OF LOG10(FLOOD) = .34978
COEFF OF SKEWNESS OF LOG10(FLOOD) = 1.08514

Unit Hydrograph at gaging station

K = 215

U.H 25 = 4003 cfs
LP3 = 4073 cfs

WEIGHTED SKEW

$$G_W = \frac{MSE_{\bar{G}}(G) + MSE_G(\bar{G})}{MSE_{\bar{G}} + MSE_G}$$

$$MSE_G = 10^{[A - B\{\log_{10}(N/10)\}]}$$

$$A = -0.52 + 0.3\,(1.08514) = -0.1945$$

$$B = 0.94 - 0.26\,(1.08514) = 0.6579$$

$$MSE_G = 10^{[-0.1945 - 0.6579\,(\log_{10}(22/10))]} = 0.3804$$

$$G_W = \frac{0.302\,(1.08514) + 0.3804\,(2.0)}{0.302 + 0.3804} = 0.48$$

OUTLIERS

1 HIGH OUTLIERS

$$X_H = \bar{X} + K_N \cdot S$$

$$\bar{X} = 2.99747$$

$$K_N = 2.429$$

$$S = 0.34978$$

$$X_H = 2.99747 + (2.429)(0.34978) = 3.8471$$

Anti log 3.8471 = 7032 CFS

There is no high outliers.

FIS - PHILLIPPI CREEK AT SARASOTA, # 02299800 (1960 - 1981)

EXCEEDANCE PROBABILITY (PERCENT)	RECURRENCE INTERVAL	FLOOD MAGNITUDE ZERO SKEWNESS CS= .000	FLOOD MAGNITUDE COMPUTED SKEWNESS CS= 1.085	FLOOD MAGNITUDE ASSIGNED SKEWNESS CS= .480
99.0	1.0101	152.71	290.31	203.46
95.0	1.0526	264.29	353.04	297.60
90.0	1.1111	354.04	406.60	372.47
80.0	1.2500	504.61	501.94	499.03
50.0	2.0000	994.19	861.67	932.45
20.0	5.0000	1958.77	1814.39	1908.32
10.0	10.0000	2791.82	2927.33	2882.76
4.0	25.0000	4073.18	5235.03	4607.34
2.0	50.0000	5198.97	7932.59	6343.26
1.0	100.0000	6472.28	11853.89	8550.89
.5	200.0000	7915.94	17517.09	11342.64
.2	500.0000	10095.69	29007.45	16169.15

PHILLIPPI CR. — DISCHARGE

POINT OF INTEREST — P-A

DRAINAGE AREA AT — = 3.11 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 5.48 FT/MI

LAKE AREA = 1.61 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (3.11)^{.84} \cdot (5.48)^{.53} \cdot (1.61)^{-.11} \cdot (2.05)^{-.64} = 263$$

$$Q_{50} = (140)(1.28) \cdot (3.11)^{.79} \cdot (5.48)^{.46} \cdot (1.61)^{-.10} \cdot (2.05)^{-.70} = 554$$

$$Q_{100} = (198)(1.28) \cdot (3.11)^{.77} \cdot (5.48)^{.44} \cdot (1.61)^{-.10} \cdot (2.05)^{-.73} = 725$$

$$Q_{500} = (403)(1.29) \cdot (3.11)^{.75} \cdot (5.48)^{.39} (1.61)^{-.10} (2.05)^{-.78} = 1287$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

FIS
SARASOTA CO. 87488

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-B

DRAINAGE AREA AT — = 4.06 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 5.1 FT/MI

LAKE AREA = 1.55 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (4.06)^{.84} \cdot (5.1)^{.53} \cdot (1.55)^{-.11} \cdot (2.05)^{-.64} = 318$$

$$Q_{50} = (140)(1.28) \cdot (4.06)^{.79} \cdot (5.1)^{.46} \cdot (1.55)^{-.10} \cdot (2.05)^{-.70} = 664$$

$$Q_{100} = (198)(1.28) \cdot (4.06)^{.77} \cdot (5.1)^{.44} (1.55)^{-.10} \cdot (2.05)^{-.73} = 865$$

$$Q_{500} = (403)(1.29) \cdot (4.06)^{.75} \cdot (5.1)^{.39} (1.55)^{-.10} (2.05)^{-.78} = 1535$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-C

DRAINAGE AREA AT — = 4.74 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 3.18 FT/MI

LAKE AREA = 1.41 %

SOIL INDEX (INFILTRATION) = IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (4.74)^{.84} \cdot (3.18)^{.53} \cdot (1.41)^{-.11} \cdot (2.05)^{-.64} = 235$$

$$Q_{50} = (140)(1.28) \cdot (4.74)^{.79} \cdot (3.18)^{.46} \cdot (1.41)^{-.10} \cdot (2.05)^{-.70} = 610$$

$$Q_{100} = (198)(1.28) \cdot (4.74)^{.77} \cdot (3.18)^{.44} (1.41)^{-.10} \cdot (2.05)^{-.73} = 799$$

$$Q_{500} = (403)(1.29) \cdot (4.74)^{.75} \cdot (3.18)^{.39} (1.41)^{-.10} (2.05)^{-.78} = 1447$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P — D

DRAINAGE AREA AT — = 6.27 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 4.66 FT/MI

LAKE AREA = 1.15 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (6.27)^{.84} \cdot (4.66)^{.53} \cdot (1.15)^{-.11} \cdot (2.05)^{-.64} = 452$$

$$Q_{50} = (140)(1.28) \cdot (6.27)^{.79} \cdot (4.66)^{.46} \cdot (1.15)^{-.10} \cdot (2.05)^{-.70} = 925$$

$$Q_{100} = (198)(1.28) \cdot (6.27)^{.77} \cdot (4.66)^{.44} \cdot (1.15)^{-.10} \cdot (2.05)^{-.73} = 1197$$

$$Q_{500} = (403)(1.29) \cdot (6.27)^{.75} \cdot (4.66)^{.39} (1.15)^{-.10} (2.05)^{-.78} = 2115$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-E

DRAINAGE AREA AT — = 28.90 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 5.56 FT/MI

LAKE AREA = 1.2 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (28.9)^{.84} \cdot (5.56)^{.53} \cdot (1.2)^{-.11} \cdot (2.05)^{-.64} = 1782$$

$$Q_{50} = (140)(1.28) \cdot (28.9)^{.79} \cdot (5.56)^{.46} \cdot (1.2)^{-.10} \cdot (2.05)^{-.70} = 3342$$

$$Q_{100} = (198)(1.28) \cdot (28.9)^{.77} \cdot (5.56)^{.44} (1.2)^{-.10} \cdot (2.05)^{-.73} = 4179$$

$$Q_{500} = (403)(1.29) \cdot (28.9)^{.75} \cdot (5.56)^{.39} (1.2)^{-.10} (2.05)^{-.78} = 7097$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR – DISCHARGE

POINT OF INTEREST – P-F

DRAINAGE AREA AT – = 30.90 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 5.11 FT/MI

LAKE AREA = 1.23 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (30.9)^{.84} \cdot (5.11)^{.53} \cdot (1.23)^{-.11} \cdot (2.05)^{-.64} = 1797$$

$$Q_{50} = (140)(1.28) \cdot (30.9)^{.79} \cdot (5.11)^{.46} \cdot (1.23)^{-.10} \cdot (2.05)^{-.70} = 3381$$

$$Q_{100} = (198)(1.28) \cdot (30.9)^{.77} \cdot (5.11)^{.44} (1.23)^{-.10} \cdot (2.05)^{-.73} = 4229$$

$$Q_{500} = (403)(1.29) \cdot (30.9)^{.75} \cdot (5.11)^{.39} (1.23)^{-.10} (2.05)^{-.78} = 7203$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR. – DISCHARGE

POINT OF INTEREST –

DRAINAGE AREA AT – = 32.53 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 4.86 FT/MI

LAKE AREA = 1.29 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (32.53)^{.84} \cdot (4.86)^{.53} \cdot (1.29)^{-.11} \cdot (2.05)^{-.64} = 1813$$

$$Q_{50} = (140)(1.28) \cdot (32.53)^{.79} \cdot (4.86)^{.46} \cdot (1.29)^{-.10} \cdot (2.05)^{-.70} = 3425$$

$$Q_{100} = (198)(1.28) \cdot (32.53)^{.77} \cdot (4.86)^{.44} (1.29)^{-.10} \cdot (2.05)^{-.73} = 4284$$

$$Q_{500} = (403)(1.29) \cdot (32.53)^{.75} \cdot (4.86)^{.39} (1.29)^{-.10} (2.05)^{-.78} = 7306$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR. – DISCHARGE

POINT OF INTEREST – P-H

DRAINAGE AREA AT – = 34.42 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 4.81 FT/MI

LAKE AREA = 1.31 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (34.42)^{.84} \cdot (4.81)^{.53} \cdot (1.31)^{-.11} \cdot (2.05)^{-.64} = 1893$$

$$Q_{50} = (140)(1.28) \cdot (34.42)^{.79} \cdot (4.81)^{.46} \cdot (1.31)^{-.10} \cdot (2.05)^{-.70} = 3554$$

$$Q_{100} = (198)(1.28) \cdot (34.42)^{.77} \cdot (4.81)^{.44} \cdot (1.31)^{-.10} \cdot (2.05)^{-.73} = 4447$$

$$Q_{500} = (403)(1.29) \cdot (34.42)^{.75} \cdot (4.81)^{.39} (1.31)^{-.10} (2.05)^{-.78} = 755$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR. — DISCHARGE

POINT OF INTEREST — P-I

DRAINAGE AREA AT — = 36.22 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 4.59 FT/MI

LAKE AREA = 1.26 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (36.22)^{.84} \cdot (4.59)^{.53} \cdot (1.26)^{-.11} \cdot (2.05)^{-.64} = 1935$$

$$Q_{50} = (140)(1.28) \cdot (36.22)^{.79} \cdot (4.59)^{.46} \cdot (1.26)^{-.10} \cdot (2.05)^{-.70} = 3640$$

$$Q_{100} = (198)(1.28) \cdot (36.22)^{.77} \cdot (4.59)^{.44} (1.26)^{-.10} \cdot (2.05)^{-.73} = 4545$$

$$Q_{500} = (403)(1.29) \cdot (36.22)^{.75} \cdot (4.59)^{.39} (1.26)^{-.10} (2.05)^{-.78} = 7763$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-J

DRAINAGE AREA AT — = 46.23 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 3.81 FT/MI

LAKE AREA = 1.47 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (46.23)^{.84} \cdot (3.81)^{.53} \cdot (1.47)^{-.11} \cdot (2.05)^{-.64} = 2116$$

$$Q_{50} = (140)(1.28) \cdot (46.23)^{.79} \cdot (3.81)^{.46} \cdot (1.47)^{-.10} \cdot (2.05)^{-.70} = [illegible]$$

$$Q_{100} = (198)(1.28) \cdot (46.23)^{.77} \cdot (3.81)^{.44} \cdot (1.47)^{-.10} \cdot (2.05)^{-.73} = 49[illegible]$$

$$Q_{500} = (403)(1.29) \cdot (46.23)^{.75} \cdot (3.81)^{.39} (1.47)^{-.10} (2.05)^{-.78} = 8536$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

FLS
SARASOTA CO. 87488

PHILLIPPI CR. – DISCHARGE

POINT OF INTEREST – P-K

DRAINAGE AREA AT – = 49.60 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 3.19 FT/MI

LAKE AREA = 1.46 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (49.60)^{.84} \cdot (3.19)^{.53} \cdot (1.46)^{-.11} \cdot (2.05)^{-.64} = 2045$$

$$Q_{50} = (140)(1.28) \cdot (49.60)^{.79} \cdot (3.19)^{.46} \cdot (1.46)^{-.10} \cdot (2.05)^{-.70} = 3889$$

$$Q_{100} = (198)(1.28) \cdot (49.60)^{.77} \cdot (3.19)^{.44} (1.46)^{-.10} \cdot (2.05)^{-.73} = 4865$$

$$Q_{500} = (403)(1.29) \cdot (49.60)^{.75} \cdot (3.19)^{.39} (1.46)^{-.10} (2.05)^{-.78} = 8402$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

FIS
SARASOTA CO. 87488

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-L

DRAINAGE AREA AT — = 50.59 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 3.0 FT/MI

LAKE AREA = 1.43 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27)\cdot(50.59)^{.84}\cdot(3.0)^{.53}\cdot(1.43)^{-.11}\cdot(2.05)^{-.64} = 2017$$

$$Q_{50} = (140)(1.28)\cdot(50.59)^{.79}\cdot(3.0)^{.46}\cdot(1.43)^{-.10}\cdot(2.05)^{-.70} = 3842$$

$$Q_{100} = (198)(1.28)\cdot(50.59)^{.77}\cdot(3.0)^{.44}\cdot(1.43)^{-.10}\cdot(2.05)^{-.73} = 4818$$

$$Q_{500} = (403)(1.29)\cdot(50.59)^{.75}\cdot(3.0)^{.39}(1.43)^{-.10}(2.05)^{-.78} = 8343$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR – DISCHARGE

POINT OF INTEREST – P–M

DRAINAGE AREA AT – = 54.58 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.79 FT/MI

LAKE AREA = 1.55 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (54.58)^{.84} \cdot (2.79)^{.53} \cdot (1.55)^{-.11} \cdot (2.05)^{-.64} = 2050$$

$$Q_{50} = (140)(1.28) \cdot (54.58)^{.79} \cdot (2.79)^{.46} \cdot (1.55)^{-.10} \cdot (2.05)^{-.70} = 3900$$

$$Q_{100} = (198)(1.28) \cdot (54.58)^{.77} \cdot (2.79)^{.44} (1.55)^{-.10} \cdot (2.05)^{-.73} = 4907$$

$$Q_{500} = (403)(1.29) \cdot (54.58)^{.75} \cdot (2.79)^{.39} (1.55)^{-.10} (2.05)^{-.78} = 8516$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

PHILLIPPI CR — DISCHARGE

POINT OF INTEREST — P-0

DRAINAGE AREA AT — = 56.27 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.41 FT/MI

LAKE AREA = 1.53 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (56.27)^{.84} \cdot (2.41)^{.53} \cdot (1.53)^{-.11} \cdot (2.05)^{-.64} = 1979$$

$$Q_{50} = (140)(1.28) \cdot (56.27)^{.79} \cdot (2.41)^{.46} \cdot (1.53)^{-.10} \cdot (2.05)^{-.70} = 375$$ 25-(2920)

$$Q_{100} = (198)(1.28) \cdot (56.27)^{.77} \cdot (2.41)^{.44} (1.53)^{-.10} \cdot (2.05)^{-.73} = 47[illegible]$$

$$Q_{500} = (403)(1.29) \cdot (56.27)^{.75} \cdot (2.41)^{.39} (1.53)^{-.10} (2.05)^{-.78} = 8240$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.
REGRESSION

SHEET NO. ____ OF ____
JOB NO. 87488
BY RET DATE ____

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST	(SQ MI)	DISCHARGE (CFS) 10-YR	50-YR	100-YR	500-YR
P-A	3.11	302	550	674	1027
P-B	4.06	362	656	803	1221
P-C	4.74	367	668	820	1261
P-D	6.27	515	925	1130	1708
P-E	28.90	1574	2744	3321	4866
P-F	30.90	1607	2804	3394	4921
P-G	32.53	1629	2843	3442	5055
P-H	34.42	1686	2939	3558	5222
P-I	36.22	1742	3036	3675	5397
P-J	46.23	1908	3325	4027	5925
P-K	49.60	1923	3353	4065*	6007
P-L	50.59	1930	3367	4083	6042
P-M	54.58	1961	3423	4153	6153
P-N	55.98	1966	3433	4166	6156
P-O	56.27	1939	3399	4114	6120

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82 - 4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible] SHEET NO. ____ OF ____
JOB NO. [illegible]
BY RET DATE [illegible]

P-A

	A	B	C	D
High Density	13	139		9
Low Density		444	100	27
Undeveloped	32	1012	38	63

% Impervious = [13(75) + 577(30) + 1012(5)] / 1877 = 2.0

Lake Area = 32 Ac Total Area 1990 Ac

Impervious = 39.2 Ac Pervious = 1919.2 Ac

CN_w = [13(85) + 139(65) + 9(92) + 444(68) + 100(79) + 27(84) + 32(40) + 1012(60) + 38(75) + 63(80)] / 1990 = 60

S = 1000/60 − 10 = 6.67 in = 1106 Ac-ft

T_c = 9.00 UH_D = 4.0

P-B (Industrial)

	A	B	C	D
Industrial		353	11	6
[illegible]		65		
Undeveloped		164	15	7

% Impervious = [370(90) + 65(30) + 186(5)] / 621 = 2.0

Lake Area = 8 Ac Total Area = 608 Ac

Impervious = 12 Ac Pervious = 588 Ac

CN_w = [353(86) + 11(90) + 6(82) + 65(75) + 164(60) + 15(75) + 7(80) + [illegible]]

CN_w = 60

S = 1000/60 − 10 = 6.67 in = 338 Ac-ft

T_c = 7.00 UH_D = 3.00

(Cumulative)

Total Area = 2598 Ac Lake Area = 40 Ac

Impervious = 51 Ac Pervious = 2507 Ac

S = 1444 Ac-ft T_c = UH_D =

P-C (Industrial)

	A	B	C	D
Industrial		31		
Undeveloped		351	21	

% Impervious = [31(50) + 402(5)] / 432 = [illegible]

Lake Area = 2 Ac Total Area = [illegible] Ac

Impervious = 35.6 Ac Pervious = 397.4 Ac

oore²

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible] FEAT
PALM BEACH COUNTY
[illegible]

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY [illegible] DATE [illegible]

$CN_w = [31(75) + 33(60) + 21([illegible]) + 300] / 435 = 62.0$

$S = \frac{1000}{62.0} - 10 = 6.13$ in = [illegible] Ac-ft

$T_c = 12.00$ $UH_D = 5.00$

(Lake Area)

Total Area = 3033 Ac Lake Area = 42 Ac

Impervious = 87 Ac Pervious = 2904

S = 1666 Ac-ft T_c = UH_D =

P-D (Incremental)

	A	B	C	D
High		303		[illegible]
Low		314	2	16
Undeveloped		195	68	24

% Impervious = [348(80) + 332(30) + 287(5)] / 970 = 8

Lake Area = 3 Ac Total Area = 970 Ac

Impervious = 78.1 Ac Pervious = 898.1 Ac

$CN_w = [303(80) + 40(92) + 314(68) + 2([illegible]) + 16(34) + 195(40) + 68(75) + 24(80) + 300] / 970 = 65.2$

$S = \frac{1000}{65.2} - 10 = 5.34$ in = 435 Ac-ft

(Lake Area) T_c = 12.00 UH_D = 5.00

Total Area = 4012 Ac Lake Area = [illegible] Ac

Impervious = 165 Ac Pervious = 3802 Ac

S = 2101 Ac-ft T_c = UH_D =

P-E (Incremental)

	A	B	C	D
High			56	161
Medium	243	3466	135	353
Undeveloped	131	8077	75	411

% Impervious = [317(70) + 4032(50) + 8[illegible](5)] / 13148 = 8

Lake Area = 1[illegible] Ac Total Area = 14484 Ac

Impervious = 1144.5 Ac Pervious = [illegible] Ac

$CN_w = [56(70) + 161(92) + 243(61) + 3466(75) + 135(83) + 353(87) + 131(40) + 8077(60) + 75(75) + 411(50) + 177(100)] / 13320 = 65$

$S = \frac{1000}{65} - 10 = 5.38$ in = 6499 Ac-ft

T_c = 12.00 UH_D = 5.00

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT: SAKNESTI FEMA
PRELIMINARY CALCS
OUT HYDROGRAPHS

SHEET NO. ____ OF ____
JOB NO. 27593
BY RC DATE 1/[illegible]

P-E (Cumulative)

Total Area = 18,496 Ac Lake Area = [illegible] Ac

Impervious = 1310 Ac Pervious = 16,964 Ac

S = 8600 Ac-ft Tc = UHD =

P-E (Incremental)

	A	B	C	D
High		[illegible]	13	25
[illegible]		36		
[illegible]		91		4
Undeveloped	1	8	200	33	33

% Impervious = [813(70) + 3[illegible](30) + 95(30) + 274(5)] / 1218 = 30

Lake Area = 20 A Total Area = 1280 Ac

Impervious = 370 Ac Pervious = 892 Ac

$CN_W = [770(86) + 18(90) + 25(92) + 36(75) + 91(68) + 4(84) + 8(40) + 200(60) + 33(75) + 33(80) + 20(100)] / 1338 = 68$

$S = \frac{1000}{68} - 10 = 4.70$ in = 502 Ac-ft

(Cumulative) Tc = 14.00 UHD 6.00

Total Area = 19,776 Ac Lake Area = 242 Ac

Impervious = 1688 Ac Pervious = 17,846 Ac

S = 9102 Ac-ft Tc = UH_D =

P-[illegible] (Incremental)

	A	B	C	D
High		742		6
Low		179		78

% Impervious = [748(70) + 257(30)] / 1005 = 59.8

Lake Area = 26 Ac Total Area = 1043 Ac

Impervious = 608.3 Ac Pervious = 408.9 Ac

$CN_W = [742(86) + 6(92) + 179(68) + 78(84) + 26(100)] / 1031 = 83.1$

$S = \frac{1000}{83.1} - 10 = 2.03$ in = 177 Ac-ft

(Cummulative) Tc = 6.00 UH_D = 2.00

Total Area = 20,819 Ac Lake Area = 268 Ac

Impervious = 2096 Ac Pervious = 18,255

S = 9279 Ac-ft Tc = UH_D

oore*

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ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.
[illegible]

SHEET NO. ____ OF ____
JOB NO. 87488
BY RET DATE 11/

PHILLIPPI CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQ MI)		LAKE AREA (SQ MI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
P-A	3.11	3.11	0.050	0.050	1.61	1.61
P-B	0.95	4.06	0.013	0.063	1.37	1.55
P-C	0.68	4.74	0.004	0.067	0.59	1.41
P-D	1.53	6.27	0.005	0.072	0.33	1.15
P-E	22.63	28.90	0.276	0.348	1.22	1.20
P-F	2.00	30.90	0.031	0.379	1.55	1.23
P-G	1.63	32.53	0.040	0.419	2.45	1.29
P-H	1.89	34.42	0.032	0.451	1.69	1.31
P-J	1.80	36.22	0.007	0.458	0.39	1.2[illegible]
P-I	10.01	46.23	0.223	0.681	2.23	1.47
P-K	3.37	49.60	0.041	0.722	1.22	1.46
P-L	0.99	50.59	0.003	0.725	0.30	1.43
P-M	3.99	54.58	0.120	0.845	3.01	1.55
P-N	1.40	55.98	0.008	0.853	0.57	1.52
P-O	0.29	56.27	0.007	0.860	2.41	1.53

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

GEE & JENSON
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WEST PALM BEACH, FLA.

SUBJECT FEMA SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY PGT DATE 11/

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST - P-I

DRAINAGE AREA AT = 36.22 SQ.MI

LAKE AREA = 1.26 %

CHANNEL SLOPE = 4.59 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(36.22\ \text{SQMI})^{0.908} \cdot (4.59\ \text{FT/MI})^{0.248} \cdot (1.26 + 3)^{-0.738} = 1742$ CF

50 - YEAR

$Q_{50} = 496\,(36.22\ \text{SQMI})^{0.69} \cdot (4.59\ \text{FT/MI})^{0.224} \cdot (1.26 + 3)^{-0.705} = 3036$ CF

100 - YEAR

$Q_{100} = 609\,(36.22\ \text{SQMI})^{0.685} \cdot (4.59\ \text{FT/MI})^{0.227} \cdot (1.26 + 3)^{-0.695} = 3675$ CF

500 - YEAR

$Q_{500} = 985\,(36.22\ \text{SQMI})^{0.668} \cdot (4.59\ \text{FT/MI})^{0.196} \cdot (1.26 + 3)^{-0.687} = 5397$ CF

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST - P-J

DRAINAGE AREA AT = 46.23 SQ.MI

LAKE AREA = 1.47 %

CHANNEL SLOPE = 3.81 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(46.23\ \text{SQMI})^{0.708} \cdot (3.81\ \text{FT/MI})^{0.248} \cdot (1.47 + 3)^{-0.738} = 1905$ CF

50 - YEAR

$Q_{50} = 496\,(46.23\ \text{SQMI})^{0.69} \cdot (3.81\ \text{FT/MI})^{0.224} \cdot (1.47 + 3)^{-0.705} = 3325$ CFS

100 - YEAR

$Q_{100} = 609\,(46.23\ \text{SQMI})^{0.685} \cdot (3.81\ \text{FT/MI})^{0.227} \cdot (1.47 + 3)^{-0.695} = 4027$ CF

500 - YEAR

$Q_{500} = 985\,(46.23\ \text{SQMI})^{0.668} \cdot (3.81\ \text{FT/MI})^{0.196} \cdot (1.47 + 3)^{-0.687} = 5925$ CF

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST – P-K

DRAINAGE AREA AT = 49.60 SQ.MI

LAKE AREA = 1.46 %

CHANNEL SLOPE = 3.19 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$$Q_{10} = 274\,(49.60\ \text{SQMI})^{0.908} \cdot (3.19\ \text{FT/MI})^{0.248} \cdot (1.46 + 3)^{-0.738} = 1923 \quad \text{CF}$$

50 – YEAR

$$Q_{50} = 496\,(49.60\ \text{SQMI})^{0.69} \cdot (3.19\ \text{FT/MI})^{0.224} \cdot (1.46 + 3)^{-0.705} = 3353 \quad \text{CF}$$

100 – YEAR

$$Q_{100} = 609\,(49.60\ \text{SQMI})^{0.685} \cdot (3.19\ \text{FT/MI})^{0.227} \cdot (1.46 + 3)^{-0.695} = 4065 \quad \text{CF}$$

500 – YEAR

$$Q_{500} = 985\,(49.60\ \text{SQMI})^{0.668} \cdot (3.19\ \text{FT/MI})^{0.196} \cdot (1.46 + 3)^{-0.687} = 6007 \quad \text{CF}$$

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SHEET NO. ____ OF ____
JOB NO. 87488
BY PZT DATE __/__/__

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST - P-L

DRAINAGE AREA AT = 50.59 SQ.MI

LAKE AREA = 1.43 %

CHANNEL SLOPE = 3.00 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(50.59\ \text{SQMI})^{0.708} \cdot (3.00\ \text{FT/MI})^{0.248} \cdot (1.43 + 3)^{-0.738} = 1930$ CF

50 - YEAR

$Q_{50} = 496\,(50.59\ \text{SQMI})^{0.69} \cdot (3.00\ \text{FT/MI})^{0.224} \cdot (1.43 + 3)^{-0.705} = 3367$ CFS

100 - YEAR

$Q_{100} = 609\,(50.59\ \text{SQMI})^{0.685} \cdot (3.00\ \text{FT/MI})^{0.227} \cdot (1.43 + 3)^{-0.695} = 4083$ CFS

500 - YEAR

$Q_{500} = 985\,(50.59\ \text{SQMI})^{0.668} \cdot (3.00\ \text{FT/MI})^{0.196} \cdot (1.43 + 3)^{-0.687} = 6042$ CFS

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST – P-M

DRAINAGE AREA AT = 54.58 SQ.MI

LAKE AREA = 1.55 %

CHANNEL SLOPE = 2.79 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$$Q_{10} = 274\,(54.58\ \text{SQMI})^{0.908} \cdot (2.79\ \text{FT/MI})^{0.248} \cdot (1.55 + 3)^{-0.738} = 1961\ \text{CF}$$

50 – YEAR

$$Q_{50} = 496\,(54.58\ \text{SQMI})^{0.69} \cdot (2.79\ \text{FT/MI})^{0.224} \cdot (1.55 + 3)^{-0.705} = 3423\ \text{CF}$$

100 – YEAR

$$Q_{100} = 609\,(54.58\ \text{SQMI})^{0.685} \cdot (2.79\ \text{FT/MI})^{0.227} \cdot (1.55 + 3)^{-0.695} = 4153\ \text{CF}$$

500 – YEAR

$$Q_{500} = 985\,(54.58\ \text{SQMI})^{0.668} \cdot (2.79\ \text{FT/MI})^{0.196} \cdot (1.55 + 3)^{-0.687} = 6153\ \text{CF}$$

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WEST PALM BEACH, FLA.

SUBJECT FEMA SARASOTA CO.
SHEET NO. ____ OF ____
JOB NO. B7488
BY KET DATE 1/1

PHILLIPPI CREEK — DISCHARGE

POINT OF INTEREST - P-N

DRAINAGE AREA AT = 55.98 SQ.MI

LAKE AREA = 1.52 %

CHANNEL SLOPE = 2.57 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(55.98\ \text{SQMI})^{0.908} \cdot (2.57\ \text{FT/MI})^{0.248} \cdot (1.52 + 3)^{-0.738} = 1966$ CF

50 - YEAR

$Q_{50} = 496\,(55.98\ \text{SQMI})^{0.69} \cdot (2.57\ \text{FT/MI})^{0.224} \cdot (1.52 + 3)^{-0.705} = 3433$ CF

100 - YEAR

$Q_{100} = 609\,(55.98\ \text{SQMI})^{0.685} \cdot (2.57\ \text{FT/MI})^{0.227} \cdot (1.52 + 3)^{-0.695} = 4166$ CF

500 - YEAR

$Q_{500} = 985\,(55.98\ \text{SQMI})^{0.668} \cdot (2.57\ \text{FT/MI})^{0.196} \cdot (1.52 + 3)^{-0.687} = 6186$ CF

PHILLIPPI CREEK — CHANNEL SLOPE

POINT OF INTEREST - P-A

CHANNEL LENGTH = 14,787 ft × 1 MI/5280' × 75 % = 2.10 MI

10 % OF CHANNEL LENGTH = 14,787 ft × 10 % = 1479 FT

15 % OF CHANNEL LENGTH = 14,787 ft × 15 % = 2218 FT

CHANNEL SLOPE

$$SL = \frac{(34.5 - 23)\,ft}{2.10\ MI} = \frac{11.5\ ft}{2.10\ MI} = 5.48 \quad FT/MI$$

POINT OF INTEREST - P-B

CHANNEL LENGTH = 20,670 ft × 1 MI/5280' × 75 % = 2.94 MI

10 % OF CHANNEL LENGTH = 20,670 ft × 10 % = 2067 FT

15 % OF CHANNEL LENGTH = 20,670 ft × 15 % = 3101 FT

CHANNEL SLOPE

$$SL = \frac{(34 - 19)\,ft}{2.94\ MI} = \frac{15\ ft}{2.94\ MI} = 5.10 \quad FT/MI$$

POINT OF INTEREST - P-C

CHANNEL LENGTH = 24,335 ft × 1 MI/5280 × 75 % = 3.46 MI

10 % OF CHANNEL LENGTH = 24,335 ft × 10 % = 2434 FT

15 % OF CHANNEL LENGTH = 24,335 ft × 15 % = 3650 FT

CHANNEL SLOPE

$$SL = \frac{(34 - 23)\,ft}{3.46\ MI} = \frac{11\ ft}{3.46\ MI} = 3.18 \quad FT/MI$$

PHILLIPPI CREEK – CHANNEL SLOPE

POINT OF INTEREST – P-D

CHANNEL LENGTH = 27,202 ft × 1 MI/5280' × 75 % = 3.86 MI

10 % OF CHANNEL LENGTH = 27,202 ft × 10 % = 2720 FT

15 % OF CHANNEL LENGTH = 27,202 ft × 15 % = 4080 FT

CHANNEL SLOPE

$$SL = \frac{(32.5 - 14.5)\,ft}{3.86\ MI} = \frac{18\ ft}{3.86\ MI} = 4.66\ FT/MI$$

POINT OF INTEREST – P-E

CHANNEL LENGTH = 43,091 ft × 1 MI/5280' × 75% = 6.12 MI

10 % OF CHANNEL LENGTH = 43,091 ft × 10 % = 4309 FT

15 % OF CHANNEL LENGTH = 43,091 ft × 15 % = 6464 FT

CHANNEL SLOPE

$$SL = \frac{(41.5 - 7.5)\,ft}{6.12\ MI} = \frac{34\ ft}{6.12\ MI} = 5.56\ FT/MI$$

POINT OF INTEREST – P-F

CHANNEL LENGTH = 46,106 ft × 1MI/5280 × 75% = 6.55 MI

10 % OF CHANNEL LENGTH = 46,106 ft × 10 % = 4611 FT

15 % OF CHANNEL LENGTH = 46,106 ft × 15 % = 6916 FT

CHANNEL SLOPE

$$SL = \frac{(41 - 7.5)\,ft}{6.55\ MI} = \frac{33.5\ ft}{6.55\ MI} = 5.11\ FT/MI$$

PHILLIPI CREEK – CHANNEL SLOPE

POINT OF INTEREST – P-G

CHANNEL LENGTH = 50,715 ft × 1 MI/5280' × 75 % = 7.20 MI

10 % OF CHANNEL LENGTH = 50,715 ft × 10 % = 5072 FT

15 % OF CHANNEL LENGTH = 50,715 ft × 15 % = 7607 FT

CHANNEL SLOPE

$$SL = \frac{(40-5)\,ft}{7.20\ MI} = \frac{35\,ft}{7.20\ MI} = 4.86 \quad FT/MI$$

POINT OF INTEREST – P-H

CHANNEL LENGTH = 52,698 ft × 1 MI/5280' × 75 % = 7.49 MI

10 % OF CHANNEL LENGTH = 52,698 ft × 10 % = 5270 FT

15 % OF CHANNEL LENGTH = 52,698 ft × 15 % = 7905 FT

CHANNEL SLOPE

$$SL = \frac{(39.5-3.5)\,ft}{7.49\ MI} = \frac{36\,ft}{7.49\ MI} = 4.81 \quad FT/MI$$

POINT OF INTEREST – P-I

CHANNEL LENGTH = 56,037 ft × 1 MI/5280' × 75 % = 7.96 MI

10 % OF CHANNEL LENGTH = 56,037 ft × 10 % = 5604 FT

15 % OF CHANNEL LENGTH = 56,037 ft × 15 % = 8406 FT

CHANNEL SLOPE

$$SL = \frac{(40-3.5)\,ft}{7.96\ MI} = \frac{36.5\,ft}{7.96\ MI} = 4.59 \quad FT/MI$$

PHILLIPPI CREEK – CHANNEL SLOPE

POINT OF INTEREST – P-J

CHANNEL LENGTH = 59,227 ft × 1 MI/5280' × 75 % = 8.41 MI

10 % OF CHANNEL LENGTH = 59,227 ft × 10 % = 5923 FT

15 % OF CHANNEL LENGTH = 59,227 ft × 15 % = 8884 FT

CHANNEL SLOPE

$$SL = \frac{(35-3)\,ft}{8.41\ MI} = \frac{32\ ft}{8.41\ MI} = 3.81 \quad FT/MI$$

POINT OF INTEREST – P-K

CHANNEL LENGTH = 65,152 ft × 1 MI/5280' × 75% = 9.25 MI

10 % OF CHANNEL LENGTH = 65,152 ft × 10 % = 6515 FT

15 % OF CHANNEL LENGTH = 65,152 ft × 15 % = 9773 FT

CHANNEL SLOPE

$$SL = \frac{(32.5-3)\,ft}{9.25\ MI} = \frac{29.5\ ft}{9.25\ MI} = 3.19 \quad FT/MI$$

POINT OF INTEREST – P-L

CHANNEL LENGTH = 69,688 ft × 1 MI/5280 × 75% = 9.90 MI

10 % OF CHANNEL LENGTH = 69,688 ft × 10 % = 6969 FT

15 % OF CHANNEL LENGTH = 69,688 ft × 15 % = 10,453 FT

CHANNEL SLOPE

$$SL = \frac{(32.5-2.8)\,ft}{9.90\ MI} = \frac{29.7\ ft}{9.90\ MI} = 3.00 \quad FT/MI$$

PHILLIPPI CREEK – CHANNEL SLOPE

POINT OF INTEREST – P-M

CHANNEL LENGTH = 75,549 ft × 1 MI/5280' × 75 % = 10.73 MI

10 % OF CHANNEL LENGTH = 75,549 ft × 10 % = 7555 FT

15 % OF CHANNEL LENGTH = 75,549 ft × 15 % = 11,332 FT

CHANNEL SLOPE

$$SL = \frac{(32.5 - 2.6)\,ft}{10.73\ MI} = \frac{29.9\ ft}{10.73\ MI} = 2.79 \quad FT/MI$$

POINT OF INTEREST – P-N

CHANNEL LENGTH = 80,879 ft × 1 MI/5280' × 75% = 11.50 MI

10 % OF CHANNEL LENGTH = 80,879 ft × 10 % = 8098 FT

15 % OF CHANNEL LENGTH = 80,879 ft × 15 % = 12,147 FT

CHANNEL SLOPE

$$SL = \frac{(32 - 2.5)\,ft}{11.50\ MI} = \frac{29.5\ ft}{11.50\ MI} = 2.57 \quad FT/MI$$

POINT OF INTEREST – P-O

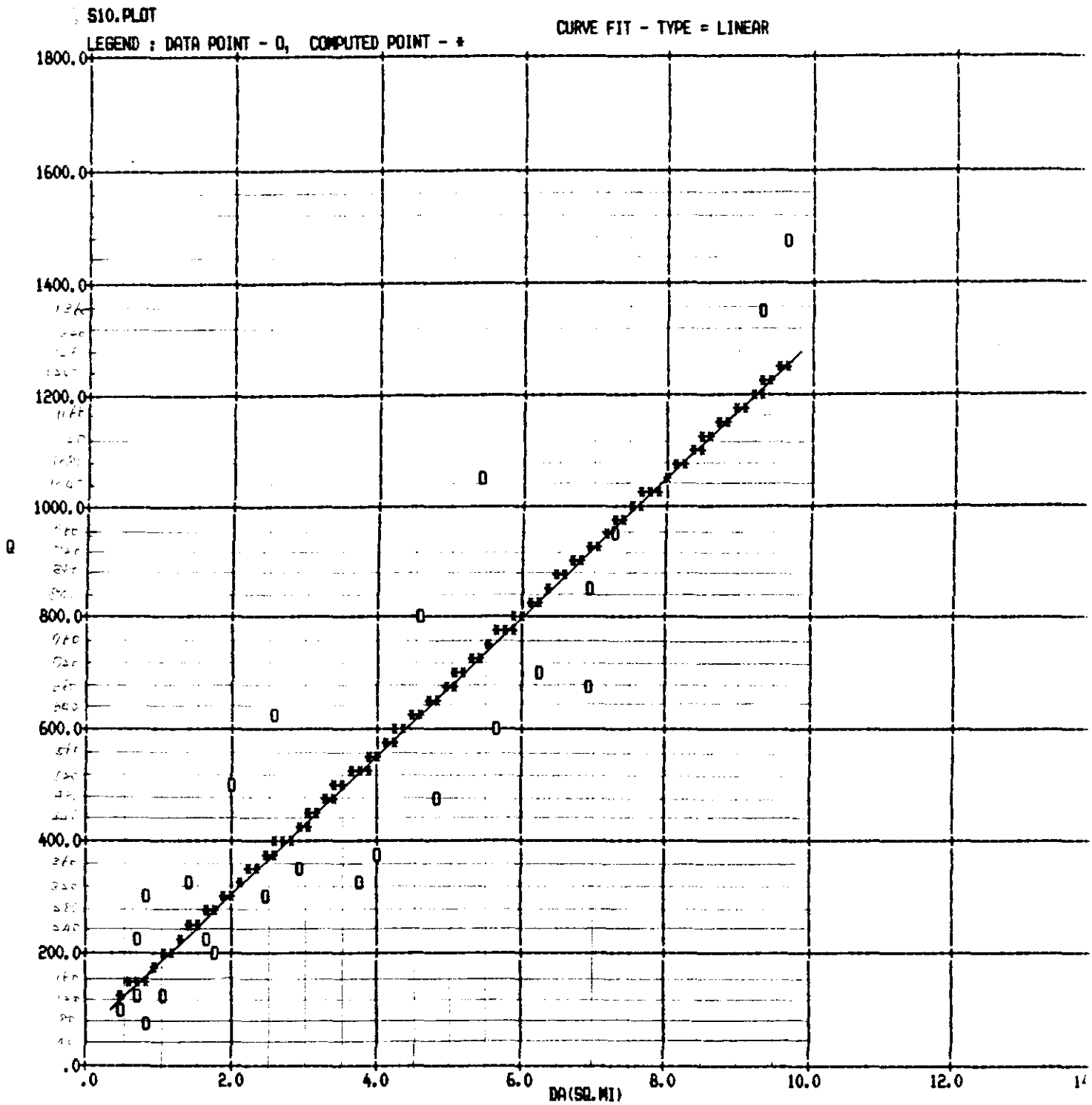
CHANNEL LENGTH = 83,648 ft × 1 MI/5280 × 75% = 11.88 MI

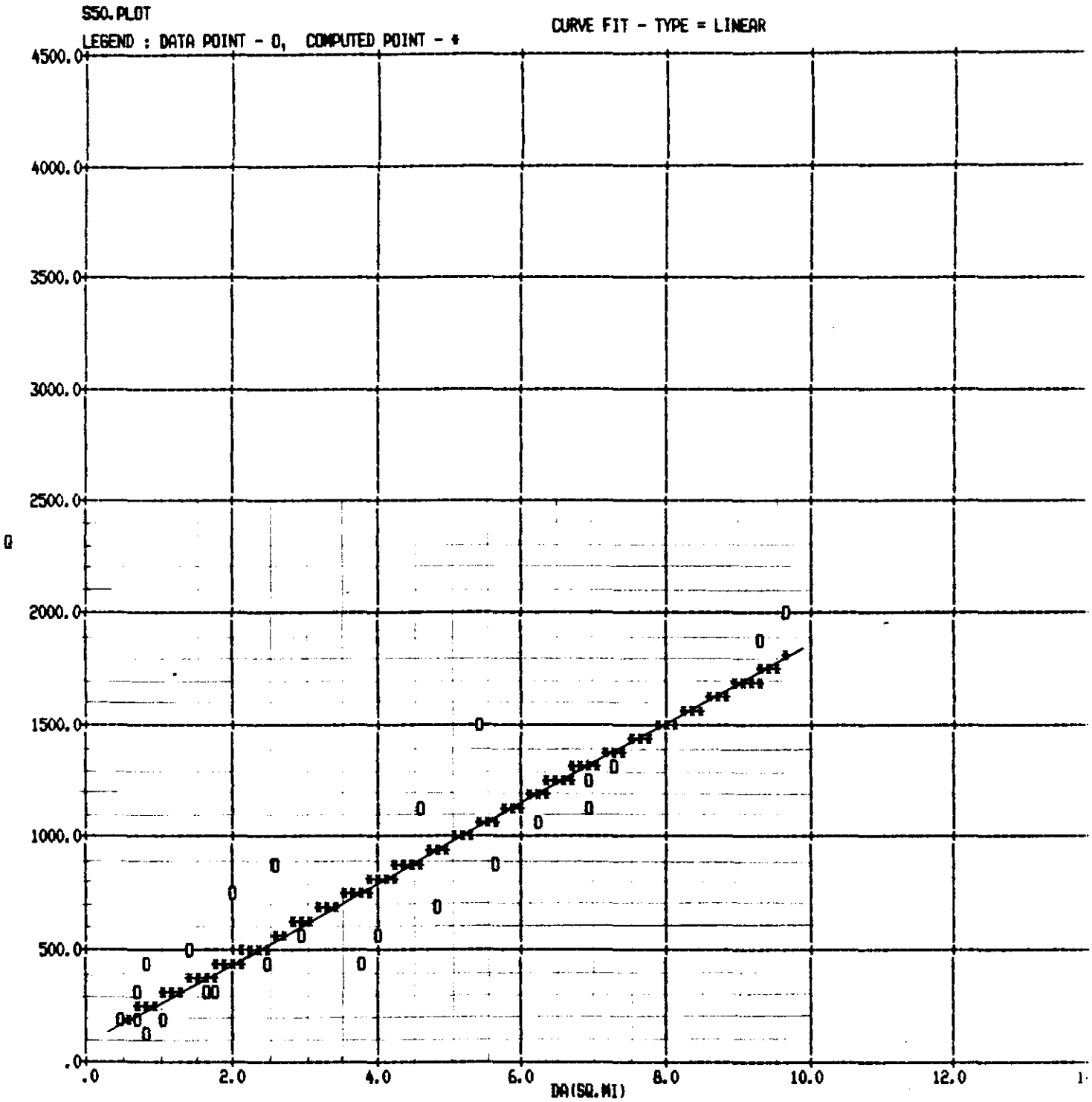
10 % OF CHANNEL LENGTH = 83,648 ft × 10 % = 8365 FT

15 % OF CHANNEL LENGTH = 83,648 ft × 15 % = 12,547 FT

CHANNEL SLOPE

$$SL = \frac{(31 - 2.4)\,ft}{11.88\ MI} = \frac{28.6\ ft}{11.88\ MI} = 2.41 \quad FT/MI$$

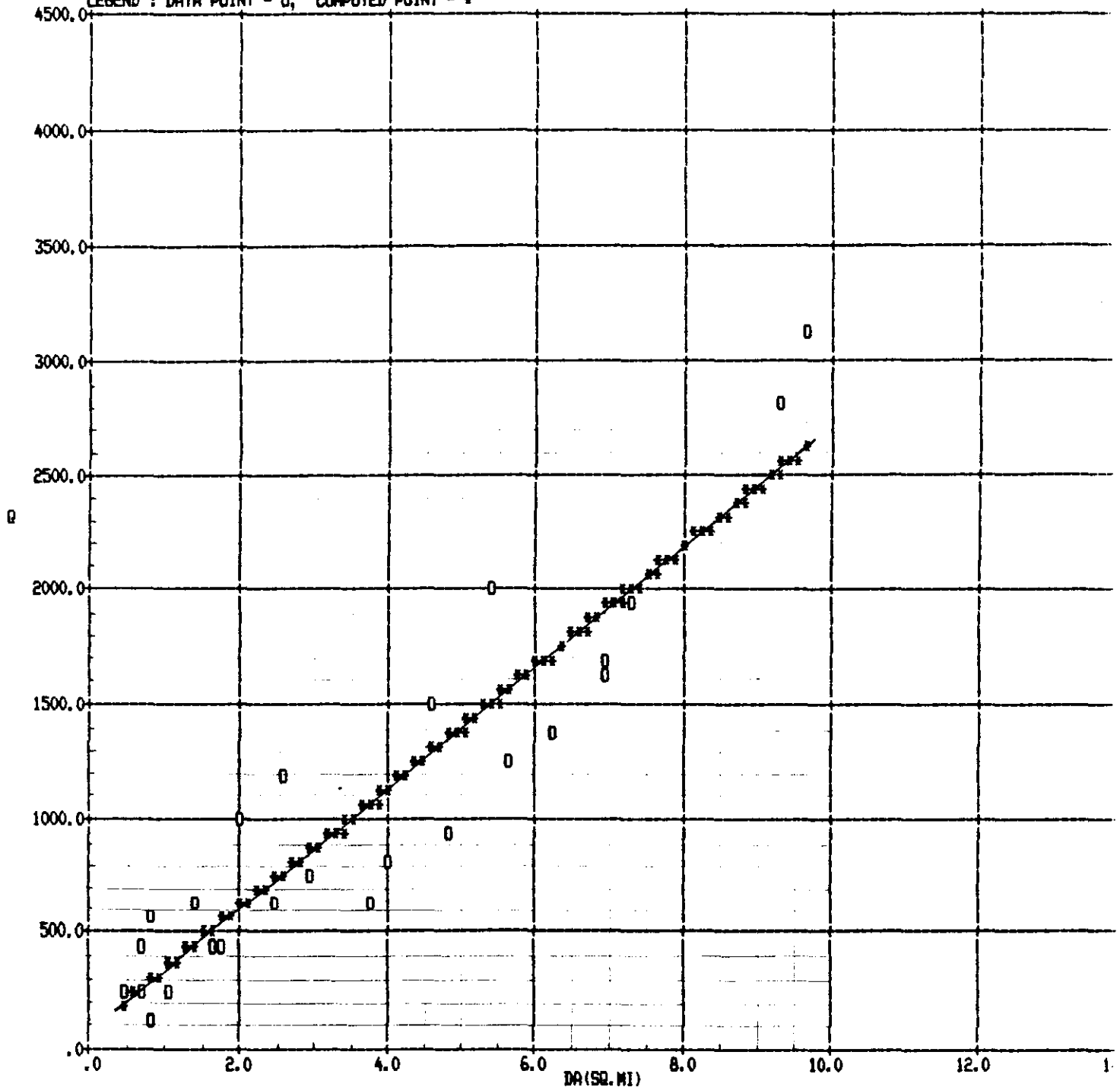

S10.PLOT
LEGEND : DATA POINT - O, COMPUTED POINT - *
CURVE FIT - TYPE = LINEAR
Q
DA(SQ.MI)
1800.0
1600.0
1400.0
1200.0
1000.0
800.0
600.0
400.0
200.0
.0
.0
2.0
4.0
6.0
8.0
10.0
12.0


S50.PLOT
LEGEND : DATA POINT - O, COMPUTED POINT - *
CURVE FIT - TYPE = LINEAR
4500.0
4000.0
3500.0
3000.0
2500.0
2000.0
1500.0
1000.0
500.0
.0
Q
.0
2.0
4.0
6.0
8.0
10.0
12.0
DA(SQ.MI)

S500.PLOT

LEGEND : DATA POINT - O, COMPUTED POINT - *

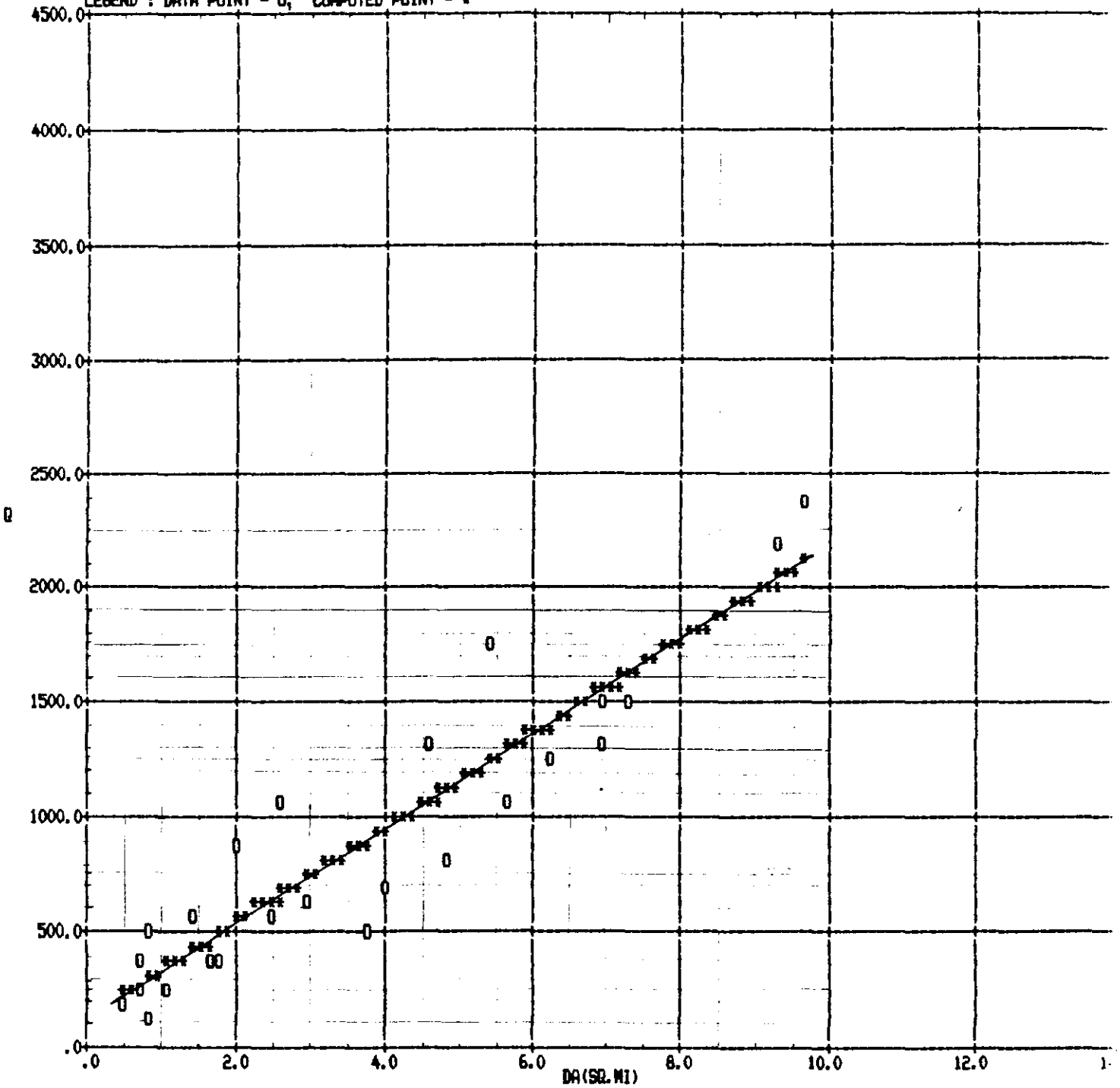
CURVE FIT - TYPE = LINEAR



S100.PLOT

LEGEND : DATA POINT - O, COMPUTED POINT - *

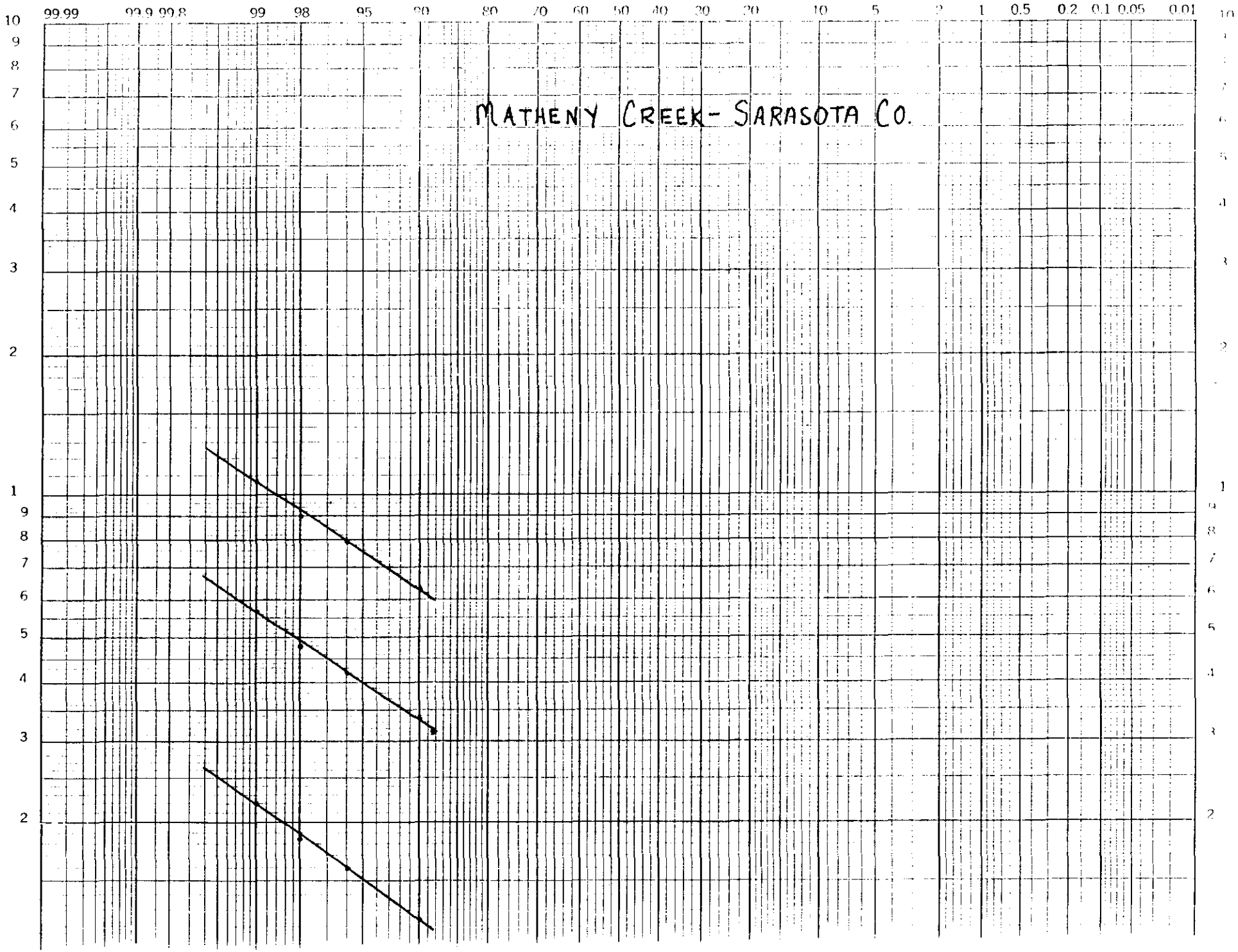
CURVE FIT - TYPE = LINEAR



RESULTS OF UNIT HYDROGRAPH

( ) = accumulated D.A. ( ) =

Watershed Designation	D.A. ( )	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} From Recd.
M-A	0.72 (0.72)	124 (124)	159 (159)	183 (183)	220 (220)	250 (250)
M-B	0.69 (1.41)	210 (334)	260 (419)	294 (477)	346 (566)	(640)
M-C	1.20 (2.61)	298 (629)	373 (790)	424 (899)	500 (1064)	(1210)


MATHENY CREEK- SARASOTA CO.
99.99
99.9
99.8
99
98
95
90
80
70
60
50
40
30
20
10
5
2
1
0.5
0.2
0.1
0.05
0.01

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible] SHEET NO. ____ OF ____
[illegible] JOB NO. [illegible]
[illegible] BY [illegible] DATE ____

MATHENY CREEK

SUB-BASIN	% DEVELOPED	WEIGHTED PEAK RATE FACTOR (based on range from 150-350)
M-A	30	210
M-B	75	300
M-C	80	310

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WEST PALM BEACH, FLA.

SUBJECT [illegible]
[illegible]
[illegible]

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY [illegible] DATE [illegible]

Time of Concentration

[illegible]

A-A $\{3500/1.5 + 1200/0.5 + [illegible]/0.[illegible]\}/3000 = 6$ [illegible]

A-B $\{[illegible]/0.3 + 3300/1.5\}/3000 = \cancel{7.20}$ 7.5 [illegible]

A-C $\{3[illegible]0.3 + 7200/0.5 + 2400/1.0\}/[illegible] = \cancel{7.4}$ 7.5 [illegible]

MATHENY

FIS - Sarasota Co.

Matheny Cr - Unit Hydrograph

Point of Interest	Channel length (FT)	Velocity (FPS)	Lag Time (hrs)
MA	—	—	—
MA → MB	3000	1.5	~~0.5~~ 1.0
MB → MC	3500	2.0	0.5

SUMB.(10).IN

POINT B @ GULF GATE DR.
0.5
2
MA(10).SV
0.5
1.0
MB(10).SV
0.0
1.0

SUMC(10).IN

POINT C @ U.S. 41
0.5
2
SUMB(10).SV
0.5
1.0
MC(10).SV
0.0
1.0

From CDM 1" = 1,000' Scale Aerials

M-A ≈ 10% impervious
M-B ≈ 30% impervious
M-C ≈ 30% impervious

Hydrologic Soil groups from SCS Soil Characteristics (Sarasota County)
Group C ≈ 100%

M-A
Impervious = 45 Ac, Pervious = 408 Ac, Lake = 3 Ac
CN (Residential 1/4 Ac. lots) = 72
S = [illegible]/m² − 10 = 3.88 in = 149 Ac-ft
Tc = [300/0.2 [illegible]/0.5 + 3[illegible]/1.5 [illegible]] = 6 HR

M-B (Incremental)
Impervious = 100, Pervious = 329 Ac, Lake = 14 Ac
CN (Residential [illegible]) = 78
S = 2.82 in = 108.3 Ac-ft
(Cumulative)
Impervious = 145 Ac Pervious = 737 Ac
Lake = 22 Ac S = [illegible] Ac-ft

M-C (Incremental)
Impervious = 184 Ac., Pervious = 584 Ac., Lake = 24 Ac
CN (1/4 Ac. lots) = 78
S = 2.82 in = 180.5 Ac-ft
(Cumulative)
Impervious = 329 Ac Pervious = 913 Ac
Lake = 46 Ac S = 256 Ac-ft

MATHENY CR – DISCHARGE

POINT OF INTEREST – M–B

DRAINAGE AREA AT –		= 1.41	SQ. MI
REGRESSION CONSTANT (C_R)			
GEOGRAPHIC ZONE COEFF. (C_G)			
CHANNEL SLOPE	= 8.93	FT/MI	
LAKE AREA	= 2.48	%	
SOIL INDEX (INFILTRATION)	= 2.05	IN	

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27)\cdot(1.41)^{.84}\cdot(8.93)^{.53}\cdot(2.48)^{-.11}\cdot(2.05)^{-.64} = 167$$

$$Q_{50} = (140)(1.28)\cdot(1.41)^{.79}\cdot(8.93)^{.46}\cdot(2.48)^{-.10}\cdot(2.05)^{-.70} = 356$$

$$Q_{100} = (198)(1.28)\cdot(1.41)^{.77}\cdot(8.93)^{.44}(2.48)^{-.10}\cdot(2.05)^{-.73} = 468$$

$$Q_{500} = (403)(1.29)\cdot(1.41)^{.75}\cdot(8.93)^{.39}(2.48)^{-.10}(2.05)^{-.78} = 824$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

MATHEWS CR — DISCHARGE

POINT OF INTEREST — M-C

DRAINAGE AREA AT — = 2.61 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 7.76 FT/MI

LAKE AREA = 2.8 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (2.61)^{.84} \cdot (7.76)^{.53} \cdot (2.8)^{-.11} \cdot (2.05)^{-.64} = 257$$

$$Q_{50} = (140)(1.28) \cdot (2.61)^{.79} \cdot (7.76)^{.46} \cdot (2.8)^{-.10} \cdot (2.05)^{-.70} = 536$$

$$Q_{100} = (198)(1.28) \cdot (2.61)^{.77} \cdot (7.76)^{.44} (2.8)^{-.10} \cdot (2.05)^{-.73} = 698$$

$$Q_{500} = (403)(1.29) \cdot (2.61)^{.75} \cdot (7.76)^{.39} (2.8)^{-.10} (2.05)^{-.78} = 1223$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY TET DATE ____

MANATEE CREEK — DISCHARGE

POINT OF INTEREST	(SQMI)	DISCHARGE (CFS)			
		10-YR	50-YR	100-YR	500-YR
M-A	0.72	115	214	263	406
M-B	1.41	171	316	388	591
M-C	2.61	245	450	551	835

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82-4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY RAT DATE 11-

MATHENY CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQMI)		LAKE AREA (SQMI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
M-A	0.72	0.72	0.013	0.013	1.81	1.81
M-B	0.69	1.41	0.022	0.035	3.19	2.48
M-C	1.20	2.61	0.038	0.073	3.17	2.80

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

MATHENY CREEK — DISCHARGE

POINT OF INTEREST - M-A

DRAINAGE AREA AT = 0.72 SQ.MI

LAKE AREA = 1.81 %

CHANNEL SLOPE = 8.16 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$$Q_{10} = 274\,(0.72\ \text{SQMI})^{0.708} \cdot (8.16\ \text{FT/MI})^{0.248} \cdot (1.81 + 3)^{-0.738} = 115 \quad \text{CF}$$

50 - YEAR

$$Q_{50} = 496\,(0.72\ \text{SQMI})^{0.69} \cdot (8.16\ \text{FT/MI})^{0.234} \cdot (1.81 + 3)^{-0.705} = 214 \quad \text{CF}$$

100 - YEAR

$$Q_{100} = 609\,(0.72\ \text{SQMI})^{0.685} \cdot (8.16\ \text{FT/MI})^{0.227} \cdot (1.81 + 3)^{-0.695} = 263 \quad \text{CF}$$

500 - YEAR

$$Q_{500} = 985\,(0.72\ \text{SQMI})^{0.668} \cdot (8.16\ \text{FT/MI})^{0.196} \cdot (1.81 + 3)^{-0.687} = 406 \quad \text{CF}$$

GEE & JENSON
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WEST PALM BEACH, FLA.

SUBJECT FEMA SARASOTA CO.
SHEET NO. ____ OF ____
JOB NO. 87488
BY RET DATE 1/1/6

MATHENY CREEK — DISCHARGE

POINT OF INTEREST - M-B

DRAINAGE AREA AT = 1.41 SQ.MI

LAKE AREA = 2.48 %

CHANNEL SLOPE = 8.93 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274 (1.41 \text{ SQMI})^{0.708} \cdot (8.93 \text{ FT/MI})^{0.248} \cdot (2.48 + 3)^{-0.738} = 171$ CF

50 - YEAR

$Q_{50} = 496 (1.41 \text{ SQMI})^{0.69} \cdot (8.93 \text{ FT/MI})^{0.224} \cdot (2.48 + 3)^{-0.705} = 316$ CF

100 - YEAR

$Q_{100} = 609 (1.41 \text{ SQMI})^{0.685} \cdot (8.93 \text{ FT/MI})^{0.227} \cdot (2.48 + 3)^{-0.695} = 388$ CF

500 - YEAR

$Q_{500} = 985 (1.41 \text{ SQMI})^{0.668} \cdot (8.93 \text{ FT/MI})^{0.196} \cdot (2.48 + 3)^{-0.687} = 591$ CF

MATHENY CREEK — DISCHARGE

POINT OF INTEREST — M-C

DRAINAGE AREA AT = 2.61 SQMI

LAKE AREA = 2.80 %

CHANNEL SLOPE = 7.76 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

2.98 MI
18 FT
32 FT
FT/MI

'0 - YEAR

$Q_{10} = 274\,(2.61\ \text{SQMI})^{0.708} \cdot (7.76\ \text{FT/MI})^{0.248} \cdot (2.80 + 3)^{-0.738} = 245$ CF

1.68 MI
30 FT
70 FT
FT/MI

) YEAR

$Q_{50} = 496\,(2.61\ \text{SQMI})^{0.69} \cdot (7.76\ \text{FT/MI})^{0.234} \cdot (2.80 + 3)^{-0.705} = 450$ CFS

) - YEAR

$Q_{100} = 609\,(2.61\ \text{SQMI})^{0.685} \cdot (7.76\ \text{FT/MI})^{0.227} \cdot (2.80 + 3)^{-0.695} = 551$ CF

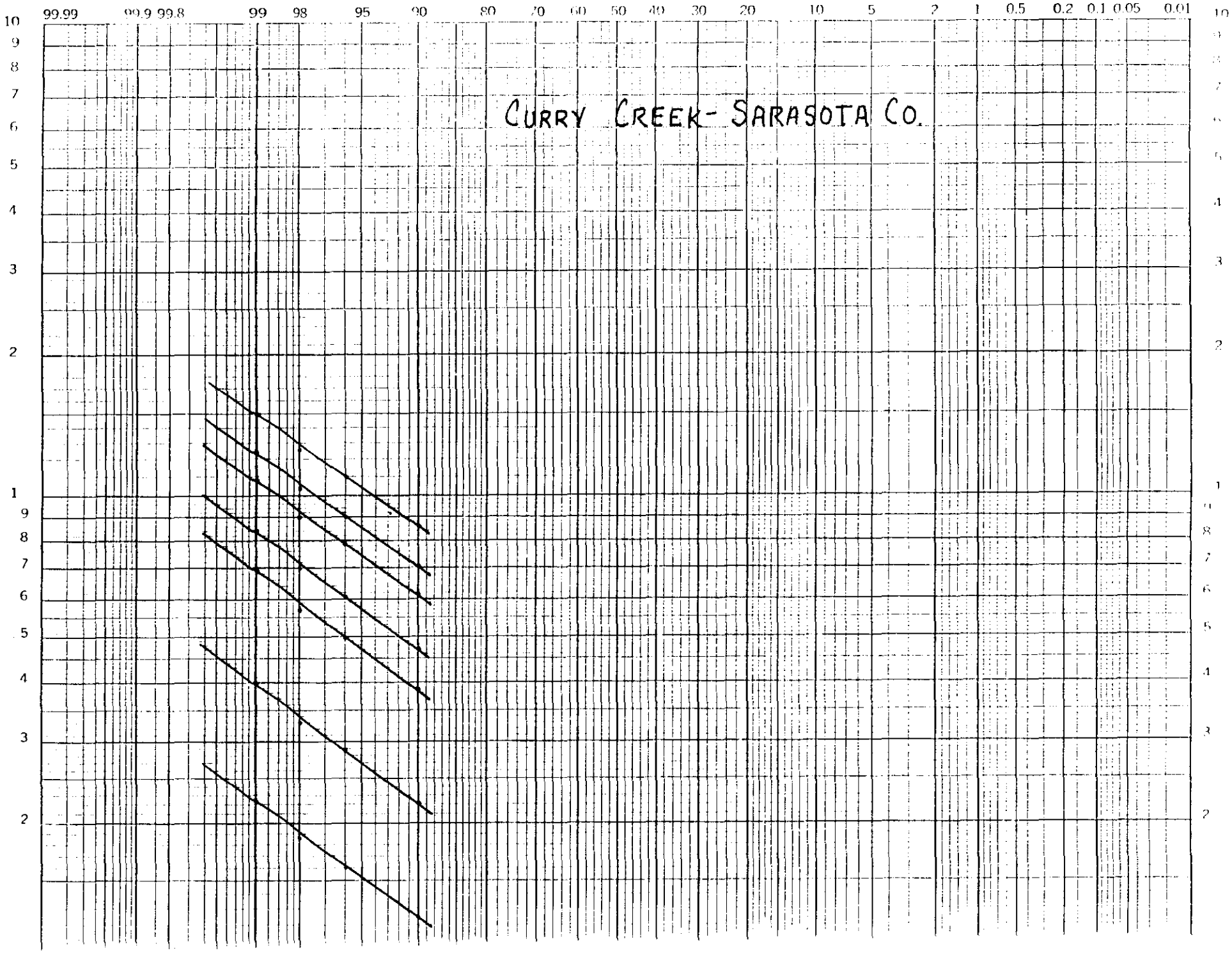
YEAR

$Q_{500} = 985\,(2.61\ \text{SQMI})^{0.668} \cdot (7.76\ \text{FT/MI})^{0.196} \cdot (2.80 + 3)^{-0.687} = 835$ CF = 2.19 MI
72 FT
13 FT
FT/MI

RESULTS OF UNIT HYDROGRAPH

( ) is accumulated D.A. ( ) is summed

Point of Interest	D.A. (sq. mi.)	Q10	Q25	Q50	Q100	Q500
A-F I-95	1.01 (1.01)	124 (124)	161 (161)	185 (185)	223 (223)	(255)
A-[illegible] Aff. Sec. of D/S of Anchorage Rd.	0.[illegible] ([illegible])	103 (221)	134 (287)	155 (331)	188 (399)	(455)
A-[illegible] Single Family Res.	[illegible] ([illegible])	217 (384)	265 (495)	298 (571)	348 (688)	(790)
A-D Ft. Lauderdale Rd.	0.84 (4.85)	87 (470)	112 (606)	129 (700)	155 (842)	(950)
A-E Aff. Sec. of D/S of Ft. Lauderdale Rd.	0.[illegible] (5.[illegible])	137 (611)	228 (784)	255 (902)	297 (1081)	(1220)
C-F Aff. Sec. Farm Rd.	0.5[illegible] ([illegible]13)	114 (702)	146 (899)	167 (1034)	199 (1239)	(1400)
C-G [illegible]	0.76 ([illegible])	238 (860)	293 (1093)	329 (1251)	383 (1492)	(1700)



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WEST PALM BEACH, FLA.

SUBJECT [illegible] SHEET NO. ____ OF ____
[illegible] JOB NO. [illegible]
[illegible] BY [illegible] DATE ____

CURRY CREEK

SUB-BASIN	% DEVELOPED	WEIGHTED PEAK RATE FACTOR (based on range from 150 - 250)
C-A	0	150
C-B	0	150
C-C	2	154
C-D	2	154
C-E	50	250
C-F	20	190
C-G	45	240

CURRY

FIS - Sarasota Co.

Curry Cr. - Unit Hydrograph

Point of Interest	Channel length (FT)	Velocity (FPS)	Lag Time (hrs)
CA	—	—	—
CA → CB	3000	1.5	1.0
CB → CC	3500	1.5	1.0
CC → CD	2500	2.0	1.0
CD → CE	3000	2.0	1.0
CE → CF	3000	2.0	1.0
CF → CG	5000	2.0	1.0

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WEST PALM BEACH, FLA.

SUBJECT SPRES - A FENT
Time of Concentration
Ind. Dist. Hydrographs

SHEET NO. ____ OF ____
JOB NO. 87483
BY FRT DATE 4/88

Time of Concentration

Carry

C-A {3500/0.2 + 2000/1 + [illegible]/3} / 3600 = 6 HRS

C-B {[illegible]/0.2 + 3000/1 + 6000/2} / 3600 = 4.0 HRS

C-C {[illegible]/0.2 + 2[illegible]/1 + 600/2} / 3600 = 12.0 [illegible]

C-D {[illegible]/2 + 5000/0.2} / 3600 = 8 HRS

C-E {300/2 + 4200/0.2} / 3600 = 6.0 [illegible]

C-F {[illegible]/2 + [illegible]/1 + 2400/0.2} / 3600 = 5.0 [illegible]

C-G {[illegible] + 2900/0.2} / 3600 = 5.0 [illegible]

From CDM Arrials

C-A ≈ 0 % impervious
C-B ≈ 0 % impervious
C-C ≈ 0.5 % impervious
C-D ≈ 0.5 % impervious
C-E ≈ 18 % impervious
C-F ≈ 5 % impervious
C-G ≈ 14 % impervious

Hydrologic Soil Group : C

C-A

Impervious = 0 Ac , Pervious = 625 Ac , Lake = 20.4 Ac

CN(meadow) = 71

$S = \frac{1000}{71} - 10 = 4.08$ in = 212.6 Ac-ft

$T_c = [2000/0.2 + 5300/2 + 2300/3]/3600 = 3.73$ HR

C-B (Incremental)

Impervious = 0 Ac , Pervious = 389 Ac , Lake = 0.6 Ac

CN(meadow) = 71

$S = \frac{1000}{71} - 10 = 4.08$ in = 132.4 Ac-ft

Tc = 4.6 HRs

(Cummulative)

Impervious = 0 Ac Pervious = 1014 Ac

Lake = 21 Ac S = 345.0 Ac-ft

$T_c = 3.73$ HR + $[5530/3]/3600 = 4.24$ HR

C-C (Incremental)

Impervious = 7 Ac , Pervious = 1474 Ac , Lake = 48 Ac

CN(meadow) = 71

$S = \frac{1000}{71} - 10 = 4.08$ in = 503.9 Ac-ft

(Cummulative)

Impervious = 7 Ac Pervious = 2488 Ac

Lake = 69 Ac S = 848.9 Ac-ft

$T_c = [2000/0.2 + 12000/2 + 500/3]/3600 = 4.50$ HR

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WEST PALM BEACH, FLA.

SUBJECT Sarasota Final
Sub-Basin Calcs
Unit Hydrograph

SHEET NO. ____ OF ____
JOB NO. 92750
BY PCT DATE 3/5/

A-D (Incremental)

Impervious = 3 Ac , Pervious = 523 Ac , Lake = 17 Ac

CN(meadow/60%, golf course/40%) = 72

$S = \frac{1000}{72} - 10 = 3.89 in = 170.3$ Ac-ft

(Cummulative)

Impervious = 10 Ac Pervious = 3011 Ac

Lake = 56 Ac S = 1019.2 Ac

$T_c = 4.50 + [2634/3]/3600 = 4.74$ HR

C-E (Incremental)

Impervious = 92 Ac , Pervious = 371 Ac Lake = 35 Ac

CN (meadow/50%, residential 1/4 Ac/50%) = 78

$S = \frac{1000}{78} - 10 = 2.82 in = 106.4$ Ac-ft

(Cummulative)

Impervious = 92 Ac Pervious = 3382 Ac

Lake = 124 Ac S = 1125.6 Ac-ft

$T_c = 4.74 + [3072/3]/3600 = 5.03$ HR

C-F (Incremental)

Impervious = 13 Ac , Pervious = 338 Ac , Lake = 1.5 Ac

CN(meadow/70%, residential 1/4 Ac/30%) = 75.5

$S = \frac{1000}{75.5} - 10 = 3.25 in = 96.3$ Ac-ft

(Cummulative)

Impervious = 110 Ac Pervious = 3720 Ac

Lake = 125.5 Ac S = 1221.9 Ac-ft

$T_c = 5.03 + [2837/3]/3600 = 5.29$ HR

C-G (Incremental)

Impervious = 67 Ac Pervious = 413 Ac Lake = 5 Ac

CN(golf/20%, bay/20%, residential 1/4 Ac/60%) = 86.4

$S = \frac{1000}{86.4} - 10 = 1.57 in = 63.0$ Ac-ft

HIS
SARASOTA CO. 87488

$$Q_{25} = 64.269 \; A^{.557} \; L^{.642} \; S^{.620} \; P^{-0.458}$$

=

CURRY CR – DISCHARGE

POINT OF INTEREST – C–A

DRAINAGE AREA AT – = 1.01 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 3.33 FT/MI

LAKE AREA = 3.17 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (1.01)^{.84} \cdot (3.33)^{.53} \cdot (3.17)^{-.11} \cdot (2.05)^{-.64} = 73$$

$$Q_{50} = (140)(1.28) \cdot (1.01)^{.79} \cdot (3.33)^{.46} \cdot (3.17)^{-.10} \cdot (2.05)^{-.70} = 169$$

$$Q_{100} = (198)(1.28) \cdot (1.01)^{.77} \cdot (3.33)^{.44} (3.17)^{-.10} \cdot (2.05)^{-.73} = 229$$

$$Q_{500} = (403)(1.29) \cdot (1.01)^{.75} \cdot (3.33)^{.39} (3.17)^{-.10} (2.05)^{-.78} = 426$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

CURRY CR — DISCHARGE

POINT OF INTEREST — C—B

DRAINAGE AREA AT — = 1.62 SQ.MI

REGRESSION CONSTANT (CR)

GEOGRAPHIC ZONE COEFF. (CG)

CHANNEL SLOPE = 2.02 FT/MI

LAKE AREA = 2.04 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (1.62)^{.84} \cdot (2.02)^{.53} \cdot (2.04)^{-.11} \cdot (2.05)^{-.64} = 87$$

$$Q_{50} = (140)(1.28) \cdot (1.62)^{.79} \cdot (2.02)^{.46} \cdot (2.04)^{-.10} \cdot (2.05)^{-.70} = 204$$

$$Q_{100} = (198)(1.28) \cdot (1.62)^{.77} \cdot (2.02)^{.44} (2.04)^{-.10} \cdot (2.05)^{-.73} = 276$$

$$Q_{500} = (403)(1.29) \cdot (1.62)^{.75} \cdot (2.02)^{.39} (2.04)^{-.10} (2.05)^{-.78} = 522$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

FIS
SARASOTA CO.

87488

CURRY CR — DISCHARGE

POINT OF INTEREST — C-C

DRAINAGE AREA AT — = 4.01 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.95 FT/MI

LAKE AREA = 2.7 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (4.01)^{.84} \cdot (0.95)^{.53} \cdot (2.7)^{-.11} \cdot (2.05)^{-.64} = 122$$

$$Q_{50} = (140)(1.28) \cdot (4.01)^{.79} \cdot (0.95)^{.46} \cdot (2.7)^{-.10} \cdot (2.05)^{-.70} = 287$$

$$Q_{100} = (198)(1.28) \cdot (4.01)^{.77} \cdot (0.95)^{.44} (2.7)^{-.10} \cdot (2.05)^{-.73} = 387$$

$$Q_{500} = (403)(1.29) \cdot (4.01)^{.75} \cdot (0.95)^{.39} (2.7)^{-.10} (2.05)^{-.78} = 747$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

CURRY CR. — DISCHARGE

POINT OF INTEREST — C-D

DRAINAGE AREA AT — = 4.85 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.62 FT/MI

LAKE AREA = 2.76 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (4.85)^{.84} \cdot (1.62)^{.53} \cdot (2.76)^{-.11} \cdot (2.05)^{-.64} = 189$$

$$Q_{50} = (140)(1.28) \cdot (4.85)^{.79} \cdot (1.62)^{.46} \cdot (2.76)^{-.10} \cdot (2.05)^{-.70} = 426$$

$$Q_{100} = (198)(1.28) \cdot (4.85)^{.77} \cdot (1.62)^{.44} \cdot (2.76)^{-.10} \cdot (2.05)^{-.73} = 565$$

$$Q_{500} = (403)(1.29) \cdot (4.85)^{.75} \cdot (1.62)^{.39} (2.76)^{-.10} (2.05)^{-.78} = 1058$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

CURRY CR — DISCHARGE

POINT OF INTEREST — C—E

DRAINAGE AREA AT — = 5.62 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.72 FT/MI

LAKE AREA = 3.43 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (5.62)^{.84} \cdot (1.72)^{.53} \cdot (3.43)^{-.11} \cdot (2.05)^{-.64} = 215$$

$$Q_{50} = (140)(1.28) \cdot (5.62)^{.79} \cdot (1.72)^{.46} \cdot (3.43)^{-.10} \cdot (2.05)^{-.70} = 481$$

$$Q_{100} = (198)(1.28) \cdot (5.62)^{.77} \cdot (1.72)^{.44} \cdot (3.43)^{-.10} \cdot (2.05)^{-.73} = 636$$

$$Q_{500} = (403)(1.29) \cdot (5.62)^{.75} \cdot (1.72)^{.39} (3.43)^{-.10} (2.05)^{-.78} = 1184$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

CURRY CR — DISCHARGE

POINT OF INTEREST — C – F

DRAINAGE AREA AT — = 6.18 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.51 FT/MI

LAKE AREA = 3.16 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (6.18)^{.84} \cdot (1.51)^{.53} \cdot (3.16)^{-.11} \cdot (2.05)^{-.64} = 220$$

$$Q_{50} = (140)(1.28) \cdot (6.18)^{.79} \cdot (1.51)^{.46} \cdot (3.16)^{-.10} \cdot (2.05)^{-.70} = 492$$

$$Q_{100} = (198)(1.28) \cdot (6.18)^{.77} \cdot (1.51)^{.44} \cdot (3.16)^{-.10} \cdot (2.05)^{-.73} = 652$$

$$Q_{500} = (403)(1.29) \cdot (6.18)^{.75} \cdot (1.51)^{.39} (3.16)^{-.10} (2.05)^{-.78} = 1215$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

CURRY CR — DISCHARGE

POINT OF INTEREST — C-G

DRAINAGE AREA AT — = 6.94 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.51 FT/MI

LAKE AREA = 2.93 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (6.94)^{.84} \cdot (1.51)^{.53} \cdot (2.93)^{-.11} \cdot (2.05)^{-.64} = 244$$

$$Q_{50} = (140)(1.28) \cdot (6.94)^{.79} \cdot (1.51)^{.46} \cdot (2.93)^{-.10} \cdot (2.05)^{-.70} = 544$$

$$Q_{100} = (198)(1.28) \cdot (6.94)^{.77} \cdot (1.51)^{.44} (2.93)^{-.10} \cdot (2.05)^{-.73} = 718$$

$$Q_{500} = (403)(1.29) \cdot (6.94)^{.75} \cdot (1.51)^{.39} (2.93)^{-.10} (2.05)^{-.78} = 1339$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

CURRY CREEK — DISCHARGE

POINT OF INTEREST	(SQ MI)	DISCHARGE (CFS)			
		10 - YR	50 - YR	100 - YR	500 - YR
C-A	1.01	97	183	227	359
C-B	1.62	139	260	323	513
C-C	4.01	200	374	465	745
C-D	4.85	260	481	594	934
C-E	5.62	269	499	616	966
C-F	6.18	289	533	655	1039
C-G	6.94	321	593	731	1146

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82 - 4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

CURRY CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQ MI)		LAKE AREA (SQ MI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
A-1	1.006	1.006	0.032	0.032	3.17	3.17
A-3	0.609	1.617	0.001	0.033	0.16	2.04
A-4	2.388	4.005	0.075	0.108	3.14	2.70
A-5	0.547	4.552	0.026	0.134	3.07	2.76
A-7	0.767	5.319	0.059	0.193	7.69	3.63
A-8	0.557	6.176	0.002	0.195	0.36	3.16
A-9	0.758	6.934	0.008	0.203	1.06	2.93

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

CURRY CREEK — DISCHARGE

POINT OF INTEREST — C-A

DRAINAGE AREA AT = 1.008 SQ.MI

LAKE AREA = 3.17 %

CHANNEL SLOPE = 3.33 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(1.008\ \text{SQMI})^{0.708} \cdot (3.33\ \text{FT/MI})^{0.248} \cdot (3.17 + 3)^{-0.738} = 97$ CF

50 - YEAR

$Q_{50} = 496\,(1.008\ \text{SQMI})^{0.69} \cdot (3.33\ \text{FT/MI})^{0.224} \cdot (3.17 + 3)^{-0.705} = 157$ CF

100 - YEAR

$Q_{100} = 609\,(1.008\ \text{SQMI})^{0.685} \cdot (3.33\ \text{FT/MI})^{0.227} \cdot (3.17 + 3)^{-0.695} = 227$ CF

500 - YEAR

$Q_{500} = 985\,(1.008\ \text{SQMI})^{0.668} \cdot (3.33\ \text{FT/MI})^{0.196} \cdot (3.17 + 3)^{-0.687} = 359$ CF

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

CURRY CREEK — DISCHARGE

POINT OF INTEREST — C-B

DRAINAGE AREA AT = 1.617 SQ.MI

LAKE AREA = 2.04 %

CHANNEL SLOPE = 2.02 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(1.617\ \text{SQMI})^{0.908} \cdot (2.02\ \text{FT/MI})^{0.248} \cdot (2.04 + 3)^{-0.738} = 139$ CF

50 - YEAR

$Q_{50} = 496\,(1.617\ \text{SQMI})^{0.69} \cdot (2.02\ \text{FT/MI})^{0.234} \cdot (2.04 + 3)^{-0.705} = 260$ CF

100 - YEAR

$Q_{100} = 609\,(1.617\ \text{SQMI})^{0.685} \cdot (2.02\ \text{FT/MI})^{0.227} \cdot (2.04 + 3)^{-0.695} = 323$ CF

500 - YEAR

$Q_{500} = 985\,(1.617\ \text{SQMI})^{0.668} \cdot (2.02\ \text{FT/MI})^{0.196} \cdot (2.04 + 3)^{-0.687} = 513$ CF

CURRY CREEK — DISCHARGE

POINT OF INTEREST - C-C

DRAINAGE AREA AT = 4.005 SQ.MI

LAKE AREA = 2.70 %

CHANNEL SLOPE = 0.95 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(4.005\ \text{SQMI})^{0.708} \cdot (0.95\ \text{FT/MI})^{0.248} \cdot (2.70 + 3)^{-0.738} = 200$ CF

50 - YEAR

$Q_{50} = 496\,(4.005\ \text{SQMI})^{0.69} \cdot (0.95\ \text{FT/MI})^{0.234} \cdot (2.70 + 3)^{-0.705} = 374$ CF

100 - YEAR

$Q_{100} = 609\,(4.005\ \text{SQMI})^{0.685} \cdot (0.95\ \text{FT/MI})^{0.227} \cdot (2.70 + 3)^{-0.695} = 465$ CF

500 - YEAR

$Q_{500} = 985\,(4.005\ \text{SQMI})^{0.668} \cdot (0.95\ \text{FT/MI})^{0.196} \cdot (2.70 + 3)^{-0.687} = 745$ CF

CURRY CREEK — DISCHARGE

POINT OF INTEREST - C-D

DRAINAGE AREA AT = 4.852 SQ.MI

LAKE AREA = 2.76 %

CHANNEL SLOPE = 1.62 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$$Q_{10} = 274\,(4.852\ \text{SQMI})^{0.708} \cdot (1.62\ \text{FT/MI})^{0.248} \cdot (2.76 + 3)^{-0.738} = 260 \quad \text{CF}$$

50 - YEAR

$$Q_{50} = 496\,(4.852\ \text{SQMI})^{0.69} \cdot (1.62\ \text{FT/MI})^{0.224} \cdot (2.76 + 3)^{-0.705} = 481 \quad \text{CF}$$

100 - YEAR

$$Q_{100} = 609\,(4.852\ \text{SQMI})^{0.685} \cdot (1.62\ \text{FT/MI})^{0.227} \cdot (2.76 + 3)^{-0.695} = 594 \quad \text{CF}$$

500 - YEAR

$$Q_{500} = 985\,(4.852\ \text{SQMI})^{0.668} \cdot (1.62\ \text{FT/MI})^{0.196} \cdot (2.76 + 3)^{-0.687} = 934 \quad \text{CF}$$

CURRY CREEK — DISCHARGE

POINT OF INTEREST – C·E

DRAINAGE AREA AT = 5.619 SQ.MI

LAKE AREA = 3.43 %

CHANNEL SLOPE = 1.72 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$Q_{10} = 274\,(5.619\ \text{SQMI})^{0.708} \cdot (1.72\ \text{FT/MI})^{0.248} \cdot (3.43 + 3)^{-0.738} = 269$ CF

50 – YEAR

$Q_{50} = 496\,(5.619\ \text{SQMI})^{0.69} \cdot (1.72\ \text{FT/MI})^{0.234} \cdot (3.43 + 3)^{-0.705} = 499$ CF

100 – YEAR

$Q_{100} = 609\,(5.619\ \text{SQMI})^{0.685} \cdot (1.72\ \text{FT/MI})^{0.227} \cdot (3.43 + 3)^{-0.695} = 616$ CF

500 – YEAR

$Q_{500} = 985\,(5.619\ \text{SQMI})^{0.668} \cdot (1.72\ \text{FT/MI})^{0.196} \cdot (3.43 + 3)^{-0.687} = 966$ CF

CURRY CREEK — DISCHARGE

POINT OF INTEREST – C-F

DRAINAGE AREA AT = 6.178 SQ.MI

LAKE AREA = 3.16 %

CHANNEL SLOPE = 1.51 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$$Q_{10} = 274\,(6.178\ \text{SQMI})^{0.708} \cdot (1.51\ \text{FT/MI})^{0.248} \cdot (3.16 + 3)^{-0.738} = 288 \quad \text{CF}$$

50 – YEAR

$$Q_{50} = 496\,(6.178\ \text{SQMI})^{0.69} \cdot (1.51\ \text{FT/MI})^{0.224} \cdot (3.16 + 3)^{-0.705} = 533 \quad \text{CFS}$$

100 – YEAR

$$Q_{100} = 609\,(6.178\ \text{SQMI})^{0.685} \cdot (1.51\ \text{FT/MI})^{0.227} \cdot (3.16 + 3)^{-0.695} = 658 \quad \text{CF}$$

500 – YEAR

$$Q_{500} = 985\,(6.178\ \text{SQMI})^{0.668} \cdot (1.51\ \text{FT/MI})^{0.196} \cdot (3.16 + 3)^{-0.687} = 1034 \quad \text{CF}$$

CURRY CREEK — DISCHARGE

POINT OF INTEREST – [illegible]

DRAINAGE AREA AT = 6.936 SQ.MI

LAKE AREA = 2.93 %

CHANNEL SLOPE = 1.51 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$$Q_{10} = 274\,(6.936\ \text{SQMI})^{0.708} \cdot (1.51\ \text{FT/MI})^{0.248} \cdot (2.93 + 3)^{-0.738} = 321 \text{ CF}$$

50 – YEAR

$$Q_{50} = 496\,(6.936\ \text{SQMI})^{0.69} \cdot (1.51\ \text{FT/MI})^{0.234} \cdot (2.93 + 3)^{-0.705} = 593 \text{ CFS}$$

100 – YEAR

$$Q_{100} = 609\,(6.936\ \text{SQMI})^{0.685} \cdot (1.51\ \text{FT/MI})^{0.227} \cdot (2.93 + 3)^{-0.695} = 731 \text{ CF}$$

500 – YEAR

$$Q_{500} = 985\,(6.936\ \text{SQMI})^{0.668} \cdot (1.51\ \text{FT/MI})^{0.196} \cdot (2.93 + 3)^{-0.687} = 1146 \text{ CF}$$

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY RC DATE [illegible]

CURRY CREEK — CHANNEL SLOPE

POINT OF INTEREST — C-A

CHANNEL LENGTH = 8414 ft × 1 MI/5280' × 75 % = 1.20 MI

10 % OF CHANNEL LENGTH = 8414 ft × 10 % = 841 FT

15 % OF CHANNEL LENGTH = 8414 ft × 15 % = 1262 FT

CHANNEL SLOPE

$$SL = \frac{(13 - 9)\ ft}{1.20\ MI} = \frac{4\ ft}{1.20\ MI} = 3.33\ FT/MI$$

POINT OF INTEREST — C-B

CHANNEL LENGTH = 13,951 ft × 1 MI/5280' × 75% = 1.98 MI

10 % OF CHANNEL LENGTH = 13,951 ft × 10 % = 1395 FT

15 % OF CHANNEL LENGTH = 13,951 ft × 15 % = 2093 FT

CHANNEL SLOPE

$$SL = \frac{(13 - 9)\ ft}{1.98\ MI} = \frac{4\ ft}{1.98\ MI} = 2.02\ FT/MI$$

POINT OF INTEREST — C-C

CHANNEL LENGTH = 14,762 ft × 1MI/5280 × 75% = 2.10 MI

10 % OF CHANNEL LENGTH = 14,762 ft × 10 % = 1476 FT

15 % OF CHANNEL LENGTH = 14,762 ft × 15 % = 2214 FT

CHANNEL SLOPE

$$SL = \frac{(9 - 7)\ ft}{2.10\ MI} = \frac{2\ ft}{2.10\ MI} = 0.95\ FT/MI$$

CURRY CREEK – CHANNEL SLOPE

POINT OF INTEREST – C-D

CHANNEL LENGTH = 17,392 ft × 1 MI/5280' × 75 % = 2.47 MI

10 % OF CHANNEL LENGTH = 17,392 ft × 10 % = 1740 FT

15 % OF CHANNEL LENGTH = 17,392 ft × 15 % = 2609 FT

CHANNEL SLOPE

$$SL = \frac{(9-5)\,ft}{2.47\ MI} = \frac{4\ ft}{2.47\ MI} = 1.62 \quad FT/MI$$

POINT OF INTEREST – C-E

CHANNEL LENGTH = 20,468 ft × 1 MI/5280' × 75 % = 2.91 MI

10 % OF CHANNEL LENGTH = 20,468 ft × 10 % = 2047 FT

15 % OF CHANNEL LENGTH = 20,468 ft × 15 % = 3070 FT

CHANNEL SLOPE

$$SL = \frac{(9-4)\,ft}{2.91\ MI} = \frac{5\ ft}{2.91\ MI} = 1.72 \quad FT/MI$$

POINT OF INTEREST – C-F

CHANNEL LENGTH = 23,305 × 1 MI/5280 × 75% = 3.31 MI

10 % OF CHANNEL LENGTH = 23,305 ft × 10 % = 2331 FT

15 % OF CHANNEL LENGTH = 23,305 ft × 15 % = 3496 FT

CHANNEL SLOPE

$$SL = \frac{(9-4)\,ft}{3.31\ MI} = \frac{5\ ft}{3.31\ MI} = 1.51 \quad FT/MI$$

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

CURRY CREEK — CHANNEL SLOPE

POINT OF INTEREST - C5

CHANNEL LENGTH = 28,000 ft x 1 MI/5280' x 75 % = 3.98 MI

10 % OF CHANNEL LENGTH = 28,000 x 10 % = 2800 FT

15 % OF CHANNEL LENGTH = 28,000 x 15 % = 4200 FT

CHANNEL SLOPE

$$SL = \frac{(9-3)\ ft}{3.98\ MI} = \frac{6\ ft}{3.98\ MI} = 1.51\ FT/MI$$

POINT OF INTEREST -

CHANNEL LENGTH = x 1 MI/5280' x 75 % = MI

10 % OF CHANNEL LENGTH = x 10 % = FT

15 % OF CHANNEL LENGTH = x 15 % = FT

CHANNEL SLOPE

$$SL = \frac{\quad}{MI} = \frac{\quad}{MI} = \quad FT/MI$$

POINT OF INTEREST -

CHANNEL LENGTH = x 1 MI/5280' x 75 % = MI

10 % OF CHANNEL LENGTH = x 10 % = FT

15 % OF CHANNEL LENGTH = x 15 % = FT

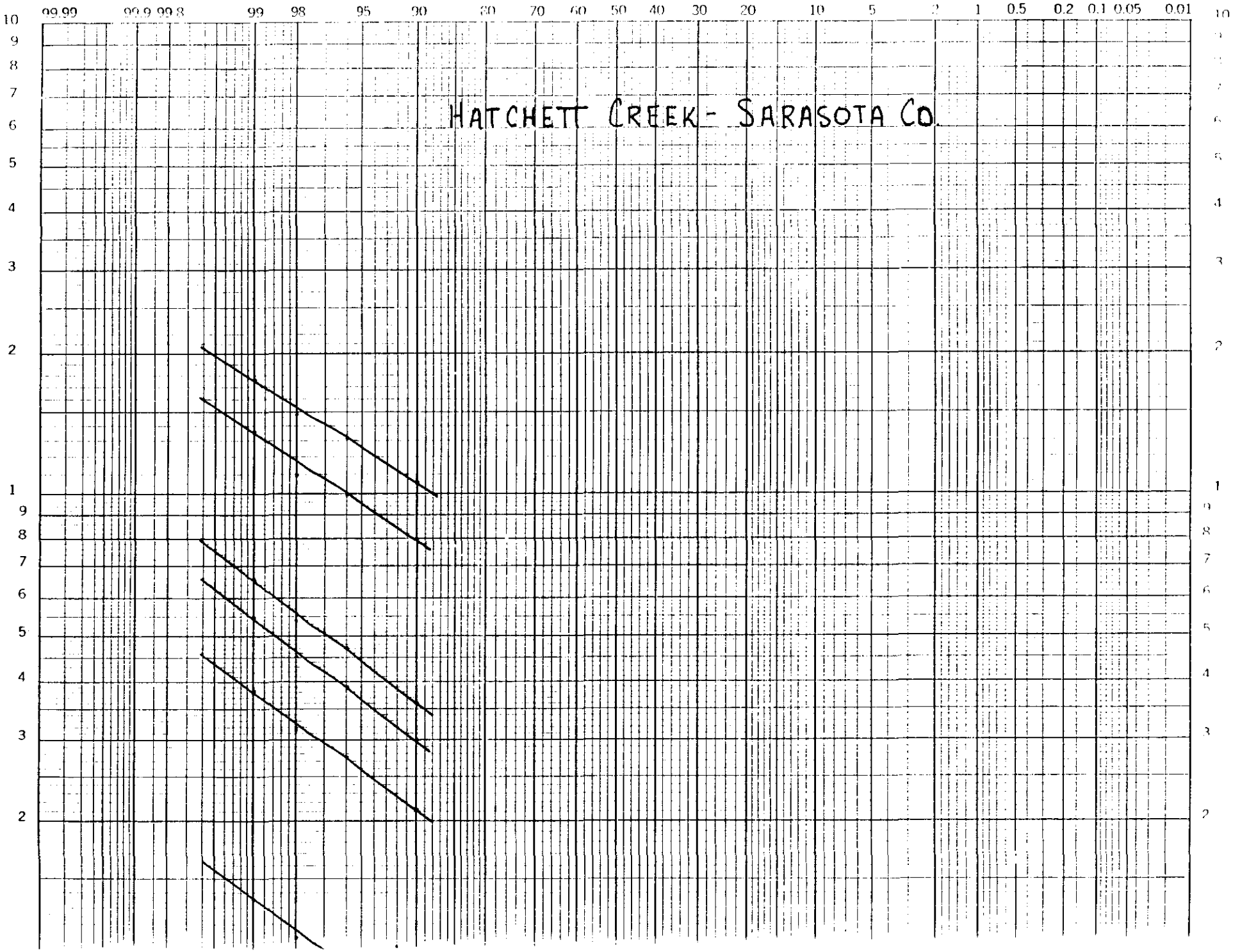
CHANNEL SLOPE

$$SL = \frac{\quad}{MI} = \frac{\quad}{MI} = \quad FT/MI$$

ore*

RESULTS OF WITH HYDRO-LIFE

[illegible]	D.A. (sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500}
[illegible] CACHAMOUA RD	0.77 (3.77)	75 (75)	97 (97)	112 (112)	135 (135)	(155)
[illegible] APP. [illegible] OF MORENCI RD.	[illegible] (1.73)	144 (211)	187 (274)	216 (316)	260 (381)	(435)
[illegible] APP. [illegible] OF MORENCI RD	0.94 (2.46)	92 (302)	118 (391)	137 (452)	165 (545)	(620)
[illegible] APP. VALUE FOR OF [illegible]	0.46 (2.13)	61 (361)	78 (467)	91 (539)	109 (650)	(750)
[illegible] C.S. 41	1.01 (4.54)	586 (794)	719 (997)	808 (1096)	942 (1341)	(1520)
[illegible] COL. RR	0.70 (5.44)	283 (1054)	348 (1313)	391 (1488)	456 (1752)	(1990)



GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEC - SPRINGTIME CO.
HYDROLOGY
PEAK RATE FACTORS

SHEET NO. ____ OF ____
JOB NO. 88-33
BY RCE DATE ____

HATCHETT CREEK

SUB-BASIN	% DEVELOPED	WEIGHTED PEAK RATE FACTOR (based on range from 150-350)
H-A	0	150
H-B	2	154
H-C	0	150
H-D	0	150
H-E	70	290
H-F	75	300

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT Silcott Farms
Time of Concentration
Ind. for Hydrographs

SHEET NO. ____ OF ____
JOB NO. 87488
BY KF DATE 4/18

Time of Concentration

HATCHETT

H-A {5800/0.2}/3600 = 8.0 HRS

H-B {2900/0.2 + 3200/1}/3600 = 5.10 HRS

H-C {1300/2 + 4100/0.2}/3600 = 6.0 HRS

H-D {3100/2 + 3700/0.2} / 3600 = 5.5 HRS

H-E {4500/1 + 2100/0.2 + 6900/2}/3600 = 5.0 HRS

H-F {9600/1 + 2400/0.2}/3600 = 6.00 HRS

From CDM Aerials

H-A ≈ 0 % impervious
H-B ≈ 0.7 % impervious
H-C ≈ 0 impervious
H-D ≈ 0 % impervious
H-E ≈ 20 % impervious
H-F ≈ 30 % impervious

Hydrologic Soil Group: C

H-A

Impervious = 0 Ac , Pervious = 485 Ac , Lake = 5 Ac

CN(meadow) = 71

$S = \frac{1000}{71} - 10 = 4.08 \text{ in} = 165.2 \text{ Ac-ft}$

$T_c = [3500/0.2 + 3500/2 + 500/3]/3600 = 5.4 \text{ HR}$

H-B (Incremental)

Impervious = 4 Ac , Pervious = 604 Ac , Lake = 6.5 Ac

CN(meadow) = 71

$S = \frac{1000}{71} - 10 = 4.08 \text{ in} = 207.2 \text{ Ac-ft}$

(Cummulative)

Impervious = 4 Ac Pervious = 1089 Ac

Lake = 11.5 Ac S = 372.4 Ac-ft

$T_c = 5.4 \text{ HR} + [3331/3]/3600 = 5.71 \text{ HR}$

H-C (Incremental)

Impervious = 0 Ac , Pervious = 468 Ac , Lake = 7 Ac

CN(meadow) = 71

$S = 4.08 \text{ in} = 159.3 \text{ Ac-ft}$

(Cummulative)

Impervious = 4 Ac Pervious = 1557 Ac

Lake = 18.5 Ac S = 531.7 Ac-ft

$T_c = 5.71 + [3723/3]/3600 = 6.05 \text{ HR}$

OUT [illegible]

H-D (Incremental)

Impervious = 0 Ac Pervious = 29[illegible] Ac, Lake = 1.5 Ac

CN (meadow) = 71

S = 4.05 in = 100.6 Ac-ft

(Cummulative)

Impervious = 4 Ac Pervious = 1853 Ac

Lake = 20 Ac S = 632.3 Ac-ft

$T_c = 6.05 + [3622/3]/3600 = 6.39$ HR

H-E (Incremental)

Impervious = 202 Ac, Pervious = 803 Ac, Lake = 17 Ac

CN (Residential ¼ Ac) = 86

$S = \frac{1000}{86} - 10 = 1.63$ in = 137.0 Ac-ft

(Cummulative)

Impervious = 206 Ac Pervious = 2661 Ac

Lake = 37 Ac S = 769.3 Ac-ft

$T_c = 6.39 + [7152/3]3600 = 7.05$ HR

H-F (Incremental)

Impervious = 171 Ac, Pervious = 400 Ac, Lake = 4.5 Ac

CN (Commercial/30%, Residential/60%, meadow/10%) = 85.7

$S = \frac{1000}{85.7} - 10 = 1.67$ in = 79.5 Ac-ft

(Cummulative)

Impervious = 377 Ac Pervious = 3061 Ac

Lake = 41.5 Ac S = 848.8 Ac-ft

$T_c = 7.05 + [2773/3]/3600 = 7.30$ HR

more

HATCHETT CR – DISCHARGE

POINT OF INTEREST – H–A

DRAINAGE AREA AT – = 0.77 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.44 FT/MI

LAKE AREA = 1.04 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (0.77)^{.84} \cdot (0.44)^{.53} \cdot (1.04)^{-.11} \cdot (2.05)^{-.64} = 22$$

$$Q_{50} = (140)(1.28) \cdot (0.77)^{.79} \cdot (0.44)^{.46} \cdot (1.04)^{-.10} \cdot (2.05)^{-.70} = 60$$

$$Q_{100} = (198)(1.28) \cdot (0.77)^{.77} \cdot (0.44)^{.44} \cdot (1.04)^{-.10} \cdot (2.05)^{-.73} = 85$$

$$Q_{500} = (403)(1.29) \cdot (0.77)^{.75} \cdot (0.44)^{.39} (1.04)^{-.10} (2.05)^{-.78} = 177$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CR — DISCHARGE

POINT OF INTEREST — H-B

DRAINAGE AREA AT — = 1.73 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.43 FT/MI

LAKE AREA = 1.04 %

SOIL INDEX (INFILTRATION) = IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (1.73)^{.84} \cdot (0.43)^{.53} \cdot (1.04)^{-.11} \cdot (2.05)^{-.64} = 44$$

$$Q_{50} = (140)(1.28) \cdot (1.73)^{.79} \cdot (0.43)^{.46} \cdot (1.04)^{-.10} \cdot (2.05)^{-.70} = 113$$

$$Q_{100} = (198)(1.28) \cdot (1.73)^{.77} \cdot (0.43)^{.44} \cdot (1.04)^{-.10} \cdot (2.05)^{-.73} = 157$$

$$Q_{500} = (403)(1.29) \cdot (1.73)^{.75} \cdot (0.43)^{.39} (1.04)^{-.10} (2.05)^{-.78} = 321$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CR – DISCHARGE

POINT OF INTEREST – H-C

DRAINAGE AREA AT – = 2.47 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.41 FT/MI

LAKE AREA = 1.17 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27)\cdot(2.47)^{.84}\cdot(0.41)^{.53}\cdot(1.17)^{-.11}\cdot(2.05)^{-.64} = 57$$

$$Q_{50} = (140)(1.28)\cdot(2.47)^{.79}\cdot(0.41)^{.46}\cdot(1.17)^{-.10}\cdot(2.05)^{-.70} = 145$$

$$Q_{100} = (198)(1.28)\cdot(2.47)^{.77}\cdot(0.41)^{.44}(1.17)^{-.10}\cdot(2.05)^{-.73} = 200$$

$$Q_{500} = (403)(1.29)\cdot(2.47)^{.75}\cdot(0.41)^{.39}(1.17)^{-.10}(2.05)^{-.78} = 407$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CR – DISCHARGE

POINT OF INTEREST – H-D

DRAINAGE AREA AT – = 2.93 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.41 FT/MI

LAKE AREA = 1.06 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (2.93)^{.84} \cdot (0.41)^{.53} \cdot (1.06)^{-.11} \cdot (2.05)^{-.64} = 66$$

$$Q_{50} = (140)(1.28) \cdot (2.93)^{.79} \cdot (0.41)^{.46} \cdot (1.06)^{-.10} \cdot (2.05)^{-.70} = 167$$

$$Q_{100} = (198)(1.28) \cdot (2.93)^{.77} \cdot (0.41)^{.44} \cdot (1.06)^{-.10} \cdot (2.05)^{-.73} = 231$$

$$Q_{500} = (403)(1.29) \cdot (2.93)^{.75} \cdot (0.41)^{.39} (1.06)^{-.10} (2.05)^{-.78} = 467$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CR – DISCHARGE

POINT OF INTEREST – H – E

DRAINAGE AREA AT – = 4.54 SQ.MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.4 FT/MI

LAKE AREA = 1.28 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (4.54)^{.84} \cdot (0.4)^{.53} \cdot (1.28)^{-.11} \cdot (2.05)^{-.64} = 93$$

$$Q_{50} = (140)(1.28) \cdot (4.54)^{.79} \cdot (0.4)^{.46} \cdot (1.28)^{-.10} \cdot (2.05)^{-.70} = 229$$

$$Q_{100} = (198)(1.28) \cdot (4.54)^{.77} \cdot (0.4)^{.44} \cdot (1.28)^{-.10} \cdot (2.05)^{-.73} = 314$$

$$Q_{500} = (403)(1.29) \cdot (4.54)^{.75} \cdot (0.4)^{.39} (1.28)^{-.10} (2.05)^{-.78} = 630$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CR – DISCHARGE

POINT OF INTEREST – H – F

DRAINAGE AREA AT – = 5.44 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 0.42 FT/MI

LAKE AREA = 1.2 %

SOIL INDEX (INFILTRATION) = IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (5.44)^{.84} \cdot (0.42)^{.53} \cdot (1.2)^{-.11} \cdot (2.05)^{-.64} = 111$$

$$Q_{50} = (140)(1.28) \cdot (5.44)^{.79} \cdot (0.42)^{.46} \cdot (1.2)^{-.10} \cdot (2.05)^{-.70} = 272$$

$$Q_{100} = (198)(1.28) \cdot (5.44)^{.77} \cdot (0.42)^{.44} \cdot (1.2)^{-.10} \cdot (2.05)^{-.73} = 371$$

$$Q_{500} = (403)(1.29) \cdot (5.44)^{.75} \cdot (0.42)^{.39} (1.2)^{-.10} (2.05)^{-.78} = 741$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST	(SQ MI)	DISCHARGE (CFS)			
		10 - YR	50 - YR	100 - YR	500 - YR
H-A	0.77	79	150	188	309
H-B	1.73	140	264	329	523
H-C	2.47	176	330	409	652
H-D	2.93	203	379	469	523
H-E	4.54	266	493	615	976
H-F	5.44	307	566	700	1116

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82 - 4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

HATCHETT CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQMI)		LAKE AREA (SQMI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
H-A	0.766	0.766	0.008	0.008	1.04	1.04
H-B	0.961	1.727	0.010	0.018	1.04	1.04
H-C	0.742	2.469	0.011	0.029	1.4[illegible]	1.17
H-D	0.464	2.933	0.002	0.031	0.43	1.06
H-E	1.605	4.538	0.027	0.058	1.65	1.28
H-F	0.900	5.438	0.0[illegible]	0.0[illegible]5	0.78	1.20

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST – H-A

DRAINAGE AREA AT = 0.766 SQ.MI

LAKE AREA = 1.04 %

CHANNEL SLOPE = 0.436 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$Q_{10} = 274\,(0.766\ \text{SQMI})^{0.708} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.04 + 3)^{-0.738} = 79$ CF

50 – YEAR

$Q_{50} = 496\,(0.766\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.224} \cdot (1.04 + 3)^{-0.705} = 150$ CFS

100 – YEAR

$Q_{100} = 609\,(0.766\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.217} \cdot (1.04 + 3)^{-0.695} = 188$ CF

500 – YEAR

$Q_{500} = 985\,(0.766\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.04 + 3)^{-0.687} = 309$ CF

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST - H-B

DRAINAGE AREA AT = 1.727 SQ MI

LAKE AREA = 1.04 %

CHANNEL SLOPE = 0.431 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(1.727\ \text{SQMI})^{0.708} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.04 + 3)^{-0.738} = 140$ CF

50 - YEAR

$Q_{50} = 496\,(1.727\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.234} \cdot (1.04 + 3)^{-0.705} = 264$ CF

100 - YEAR

$Q_{100} = 609\,(1.727\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.227} \cdot (1.04 + 3)^{-0.695} = 329$ CF

500 - YEAR

$Q_{500} = 985\,(1.727\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.04 + 3)^{-0.687} = 533$ CF

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST – H-C

DRAINAGE AREA AT = 2.469 SQ.MI

LAKE AREA = 1.17 %

CHANNEL SLOPE = 0.414 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$Q_{10} = 274\,(2.469\ \text{SQMI})^{0.908} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.17 + 3)^{-0.738} = 196$ CF

50 – YEAR

$Q_{50} = 496\,(2.469\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.234} \cdot (1.17 + 3)^{-0.705} = 330$ CF

100 – YEAR

$Q_{100} = 609\,(2.469\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.227} \cdot (1.17 + 3)^{-0.695} = 409$ CF

500 – YEAR

$Q_{500} = 985\,(2.469\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.17 + 3)^{-0.687} = 662$ CF

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST — H-D

DRAINAGE AREA AT = 2.933 SQ.MI

LAKE AREA = 1.06 %

CHANNEL SLOPE = 0.408 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(2.933\ \text{SQMI})^{0.908} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.06 + 3)^{-0.738} = [illegible]$ CF

50 - YEAR

$Q_{50} = 496\,(2.933\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.234} \cdot (1.06 + 3)^{-0.705} = [illegible]$ CF

100 - YEAR

$Q_{100} = 609\,(2.933\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.227} \cdot (1.06 + 3)^{-0.695} = [illegible]$ CF

500 - YEAR

$Q_{500} = 985\,(2.933\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.06 + 3)^{-0.687} = 523$ CF

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST - H-E

DRAINAGE AREA AT = 4.538 SQ.MI

LAKE AREA = 1.28 %

CHANNEL SLOPE = 0.404 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(4.538\ \text{SQMI})^{0.908} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.28 + 3)^{-0.738} = 2[illegible]$ CF

50 - YEAR

$Q_{50} = 496\,(4.538\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.224} \cdot (1.28 + 3)^{-0.705} = 493$ CFS

100 - YEAR

$Q_{100} = 609\,(4.538\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.227} \cdot (1.28 + 3)^{-0.695} = 6[illegible]$ CFS

500 - YEAR

$Q_{500} = 985\,(4.538\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.28 + 3)^{-0.687} = 976$ CFS

HATCHETT CREEK — DISCHARGE

POINT OF INTEREST — H-F

DRAINAGE AREA AT = 5.438 SQ.MI

LAKE AREA = 1.20 %

CHANNEL SLOPE = 0.415 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(5.438\ \text{SQMI})^{0.908} \cdot (0.9\ \text{FT/MI})^{0.248} \cdot (1.20 + 3)^{-0.738} = 307$ CF

50 - YEAR

$Q_{50} = 496\,(5.438\ \text{SQMI})^{0.69} \cdot (0.9\ \text{FT/MI})^{0.224} \cdot (1.20 + 3)^{-0.705} = 566$ CF

100 - YEAR

$Q_{100} = 609\,(5.438\ \text{SQMI})^{0.685} \cdot (0.9\ \text{FT/MI})^{0.227} \cdot (1.20 + 3)^{-0.695} = 700$ CF

500 - YEAR

$Q_{500} = 985\,(5.438\ \text{SQMI})^{0.668} \cdot (0.9\ \text{FT/MI})^{0.196} \cdot (1.20 + 3)^{-0.687} = 1116$ CF

HATCHETT CREEK — CHANNEL SLOPE

POINT OF INTEREST — H-A

CHANNEL LENGTH = 4843 ft × 1 MI/5280' × 75 % = 0.688 MI

10 % OF CHANNEL LENGTH = 4343 × 10 % = 484.3 FT

15 % OF CHANNEL LENGTH = 4843 × 15 % = 726.5 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 8.2)ft}{0.688 \text{ MI}} = \frac{0.3 ft}{0.688 \text{ MI}} = 0.436 \text{ FT/MI}$$

POINT OF INTEREST — H-B

CHANNEL LENGTH = 8174 ft × 1 MI/5280' × 75% = 1.161 MI

10 % OF CHANNEL LENGTH = 8174 × 10 % = 817.4 FT

15 % OF CHANNEL LENGTH = 8174 × 15 % = 1226.1 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 8.0)ft}{1.161 \text{ MI}} = \frac{0.5 ft}{1.161 \text{ MI}} = 0.431 \text{ FT/MI}$$

POINT OF INTEREST — H-C

CHANNEL LENGTH = 11,897 × 1MI/5280 × 75% = 1.690 MI

10 % OF CHANNEL LENGTH = 11,897 × 10 % = 1189.7 FT

15 % OF CHANNEL LENGTH = 11,897 × 15 % = 1784.6 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 7.8)ft}{1.690 \text{ MI}} = \frac{0.7 ft}{1.690 \text{ MI}} = 0.414 \text{ FT/MI}$$

HATCHET CREEK – CHANNEL SLOPE

POINT OF INTEREST – H-D

CHANNEL LENGTH = 15,519 ft × 1 MI/5280' × 75 % = 2.204 MI

10 % OF CHANNEL LENGTH = 15,519 ft × 10 % = 1551.9 FT

15 % OF CHANNEL LENGTH = 15,519 ft × 15 % = 2327.9 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 7.6)\,ft}{2.204\ MI} = \frac{0.9\,ft}{2.204\ MI} = 0.408\ FT/MI$$

POINT OF INTEREST – H-E

CHANNEL LENGTH = 22,671 ft × 1 MI/5280' × 75 % = 3.220 MI

10 % OF CHANNEL LENGTH = 22,671 ft × 10 % = 2267.1 FT

15 % OF CHANNEL LENGTH = 22,671 ft × 15 % = 3400.7 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 7.2)\,ft}{3.220\ MI} = \frac{1.3\,ft}{3.220\ MI} = 0.404\ FT/MI$$

POINT OF INTEREST – H-F

CHANNEL LENGTH = 25,444 ft × 1 MI/5280 × 75% = 3.614 MI

10 % OF CHANNEL LENGTH = 25,444 ft × 10 % = 2544.4 FT

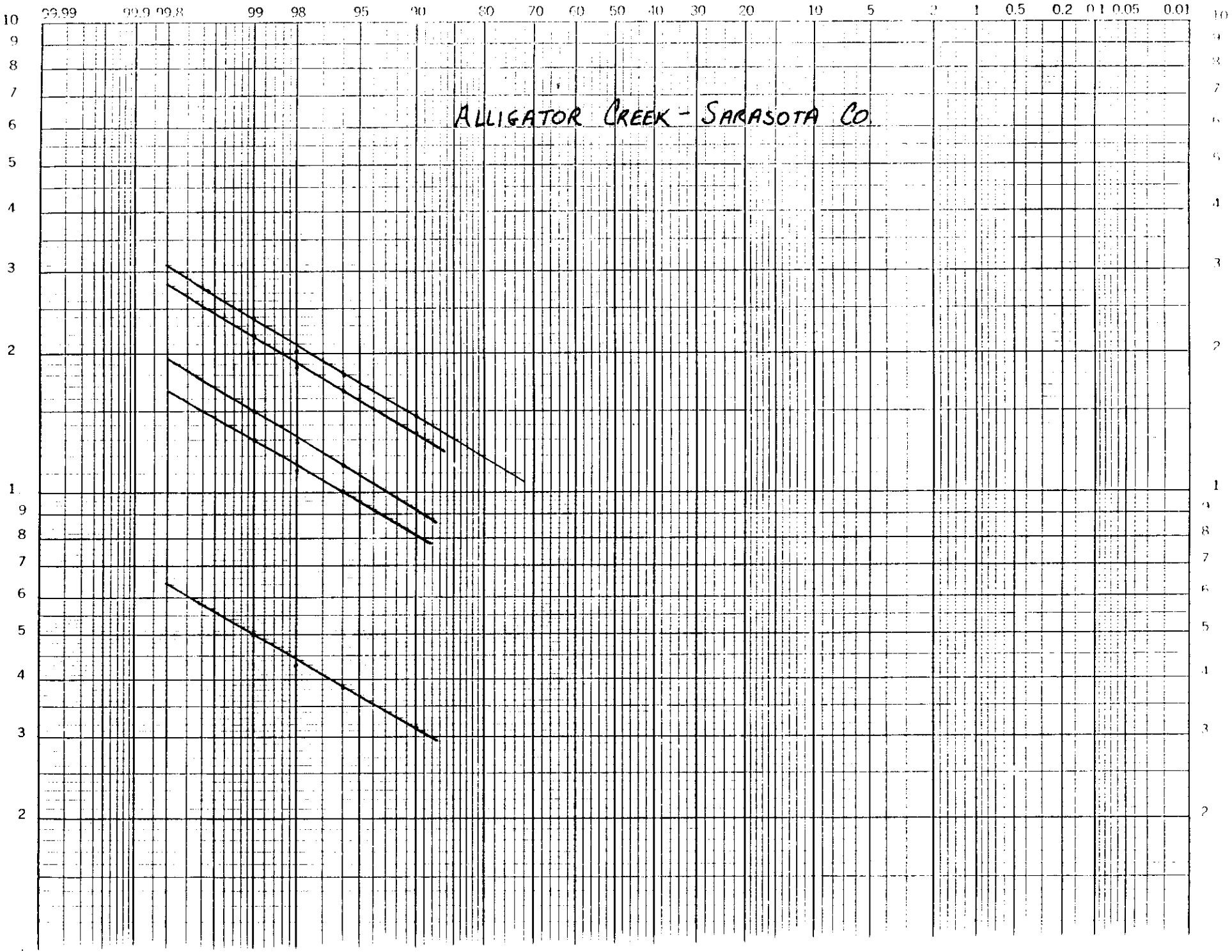
15 % OF CHANNEL LENGTH = 25,444 ft × 15 % = 3816.6 FT

CHANNEL SLOPE

$$SL = \frac{(8.5 - 7.0)\,ft}{3.614\ MI} = \frac{1.5\,ft}{3.614\ MI} = 0.415\ FT/MI$$

[illegible] OF UNIT HYDROGRAPH

Point of Interest	D.A. (sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{100} From Map
A - A CAMINO DEL [illegible]	3.82 (3.82)	315 (315)	385 (383)	429 (429)	501 (501)	(640)
A - B AT [illegible] 200 FT. OUTS OF [illegible]	[illegible] (7.73)	772 (675)	927 (1001)	1032 (1118)	1191 (1297)	(1650)
A - C [illegible]	[illegible]	141 (738)	180 (1143)	207 (1283)	248 (1495)	(1950)
A - D CRAMBERRY DR.	2.06 (9.35)	610 (1343)	754 (1657)	850 (1875)	996 (2200)	(2800)
A - E AT MOUTH	0.26 (9.61)	161 (1463)	200 (1796)	226 (2023)	265 (2368)	(3100)



GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible] Co.
[illegible]
[illegible] Factors

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY [illegible] DATE ____

ALLIGATOR CREEK

SUB-BASIN	% DEVELOPED	WEIGHTED PEAK RATE FACTOR (based on range from 150-[illegible])
A-A	15	130
A-B	75	300
A-C	75	300
A-D	90	330
A-E	90	330

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible]
[illegible]
[illegible]

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY [illegible] DATE [illegible]

Time of Concentration

Adjustments

A-H {[illegible]/1.5 + [illegible]/[illegible]} / [illegible] = 13 [illegible]

A-G {[illegible]/1.5 + 6300/1 + 3700/0.5} / 3600 = 7.5 HRS

A-C {1100/2 + 1500/[illegible]} / 3600 = 3 HRS

A-D {2300/2 + 7000/1 + 3000/0.5 + 1500/0.5} / 3600 = 7.0 HRS

A-E {2700/0.5 + 1300/2} / 3600 = 2.0 HRS

ALLIGATOR

Point of Interest	Channel Length (FT)	Velocity (FPS)	Lag time (HRS)
AA	—	—	—
AA → AB	3000	1.5	~~0.95~~ 1.0
AB → AC	3500	2.0	~~0.95~~ 1.0
AC → AD	5000	2.0	1.0
AD → AE	3000	1.5	~~0.95~~ 1.0

A-1

	A	B	C	D
High	[illegible]		[illegible]	
Undeveloped	1314	314	215	7

% Impervious = [487(85) + 1390(B)] / 2367 = 5

Lake Area = 77 Ac Total Area = 2444 Ac

Impervious = 118 Ac Pervious = 2249 Ac

CN_w = [470(61) + 19(82) + 1377(40) + 314([illegible]) + 215([illegible]) + [illegible](30) + 77(100)] / 2444 = 52.0

S = 1000/52 − 10 = 9.23 in = 1880.7 Ac-ft

T_c = UH_b =

A-B (Incremental)

	A	B	C	D
High	610	210	25	[illegible]
Medium	[illegible]	29	10	
Low	91	180	30	
Undeveloped	400	50	45	10

% Impervious = [861(70) + 149(50) + 301(30) + 505(5)] / 1816

% Impervious = 30

Lake Area = 174 Ac Total Area = 1990 Ac

Impervious = 545 Ac Pervious = 1271 Ac

CN_w = [610(80) + 210(86) + 25(90) + 6(92) + 100(61) + 39(70) + 10(83) + 91(51) + 180([illegible]) + 30(79) + 400(40) + 50(60) + 45(75) + 10(90) + 174(100)] / 1990 = 70.5

S = 1000/70.5 − 10 = 4.19 in = 694.8 Ac-ft

(Cumulative)

Total Area = 4434 Ac Lake Area = 251 Ac

Impervious = 663 Ac Pervious = 3520 Ac

S = 1575.5 Ac-ft T_c = UH_b =

A-C (Incremental)

	A	B	C	D
High	112	10	25	
Low	65	13		

% Impervious = [illegible] + 81(3)] / 225 = 22

Lake Area = [illegible] Total Area = [illegible]

Impervious = 50 Ac Pervious = 173 Ac

$CN_w = [112(80) + 10(8[illegible]) + 25(90) + 69(2[illegible]) + 12(98) + 500] / 225 = 72.7$

$S = \frac{1000}{72.7} - 10 = 3.75$ in = 73.1 Ac-ft

(Cumulative)

Total Area = 4[illegible] Ac Lake Area = 257 Ac

Impervious = 713 Ac Pervious = 3698 Ac

S = 2[illegible] Ac-ft T_c = UH_p =

A-D (Incremental)

	A	B	C	D
High	750	219	311	15

% Impervious = 20

Lake Area = 23 Ac Total Area = 1318 Ac

Impervious = 259 Ac Pervious = 1036 Ac

$CN_w = [750(80) + 219(84) + 311(90) + 15(92) + 23(100)] / 1318 = 83.8$

$S = \frac{1000}{83.8} - 10 = 1.93$ in = 211.7 Ac-ft

(Cumulative)

Total Area 5986 Ac Lake Area = 280 Ac

Impervious = 972 Ac Pervious = 4734 Ac

S = 2860.3 Ac-ft T_c = UH_p =

A-E (Incremental)

	A	B	C	D
High	130	15	19	

% Impervious = 20

Lake Area = 0 Total Area = 164 Ac

Impervious = 33 Ac Pervious = 131 Ac

$CN_w = [130(80) + 15(84) + 19(90)] / 164 = 81.7$

$S = \frac{1000}{81.7} - 10 = 2.24$ in = 30.6 Ac-ft

(Cumulative

Total Area = 6150 Ac Lake Area = 280 Ac

Impervious = 1005 Ac Pervious = 4865 Ac

S = 2890.9 Ac-ft T_c = UH_p =

ALLIGATOR CR — DISCHARGE

POINT OF INTEREST — A — A

DRAINAGE AREA AT — = 3.82 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.99 FT/MI

LAKE AREA = 3.17 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (3.82)^{.84} \cdot (1.99)^{.53} \cdot (3.17)^{-.11} \cdot (2.05)^{-.64} = 170$$

$$Q_{50} = (140)(1.28) \cdot (3.82)^{.79} \cdot (1.99)^{.46} \cdot (3.17)^{-.10} \cdot (2.05)^{-.70} = 382$$

$$Q_{100} = (198)(1.28) \cdot (3.82)^{.77} \cdot (1.99)^{.44} \cdot (3.17)^{-.10} \cdot (2.05)^{-.73} = 508$$

$$Q_{500} = (403)(1.29) \cdot (3.82)^{.75} \cdot (1.99)^{.39} (3.17)^{-.10} (2.05)^{-.78} = 946$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

ALLIGATOR CR — DISCHARGE

POINT OF INTEREST — A – B

DRAINAGE AREA AT — = 6.93 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.83 FT/MI

LAKE AREA = 5.67 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (6.93)^{.84} \cdot (1.83)^{.53} \cdot (5.67)^{-.11} \cdot (2.05)^{-.64} = 251$$

$$Q_{50} = (140)(1.28) \cdot (6.93)^{.79} \cdot (1.83)^{.46} \cdot (5.67)^{-.10} \cdot (2.05)^{-.70} = 555$$

$$Q_{100} = (198)(1.28) \cdot (6.93)^{.77} \cdot (1.83)^{.44} \cdot (5.67)^{-.10} \cdot (2.05)^{-.73} = 731$$

$$Q_{500} = (403)(1.29) \cdot (6.93)^{.75} \cdot (1.83)^{.39} (5.67)^{-.10} (2.05)^{-.78} = 1350$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

ALLIGATOR CR. — DISCHARGE

POINT OF INTEREST — A – C

DRAINAGE AREA AT — = 7.29 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.72 FT/MI

LAKE AREA = 5.51 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (7.29)^{.84} \cdot (1.72)^{.53} \cdot (5.51)^{-.11} \cdot (2.05)^{-.64} = 254$$

$$Q_{50} = (140)(1.28) \cdot (7.29)^{.79} \cdot (1.72)^{.46} \cdot (5.51)^{-.10} \cdot (2.05)^{-.70} = 563$$

$$Q_{100} = (198)(1.28) \cdot (7.29)^{.77} \cdot (1.72)^{.44} \cdot (5.51)^{-.10} \cdot (2.05)^{-.73} = 742$$

$$Q_{500} = (403)(1.29) \cdot (7.29)^{.75} \cdot (1.72)^{.39} (5.51)^{-.10} (2.05)^{-.78} = 1373$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

ALLIGATOR CR — DISCHARGE

POINT OF INTEREST — A – D

DRAINAGE AREA AT — = 9.35 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.50 FT/MI

LAKE AREA = 4.68 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (9.35)^{.84} \cdot (1.5)^{.53} \cdot (4.68)^{-.11} \cdot (2.05)^{-.64} = 297$$

$$Q_{50} = (140)(1.28) \cdot (9.35)^{.79} \cdot (1.5)^{.46} \cdot (4.68)^{-.10} \cdot (2.05)^{-.70} = 655$$

$$Q_{100} = (198)(1.28) \cdot (9.35)^{.77} \cdot (1.5)^{.44} \cdot (4.68)^{-.10} \cdot (2.05)^{-.73} = 860$$

$$Q_{500} = (403)(1.29) \cdot (9.35)^{.75} \cdot (1.5)^{.39} (4.68)^{-.10} (2.05)^{-.78} = 1594$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

ALLIGATOR CR. — DISCHARGE

POINT OF INTEREST — A - E

DRAINAGE AREA AT — = 9.61 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 1.39 FT/MI

LAKE AREA = 4.56 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (9.61)^{.84} \cdot (1.39)^{.53} \cdot (4.56)^{-.11} \cdot (2.05)^{-.64} = 293$$

$$Q_{50} = (140)(1.28) \cdot (9.61)^{.79} \cdot (1.39)^{.46} \cdot (4.56)^{-.10} \cdot (2.05)^{-.70} = 648$$

$$Q_{100} = (198)(1.28) \cdot (9.61)^{.77} \cdot (1.39)^{.44} \cdot (4.56)^{-.10} \cdot (2.05)^{-.73} = 85$$

$$Q_{500} = (403)(1.29) \cdot (9.61)^{.75} \cdot (1.39)^{.39} (4.56)^{-.10} (2.05)^{-.78} = 158$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY ____ DATE ____

ALLIGATOR CREEK — DISCHARGE

POINT OF INTEREST	(SQMI)	DISCHARGE (CFS)			
		10 - YR	50 - YR	100 - YR	500 - YR
A - A	3.82	219	407	503	791
A - B	6.93	255	474	586	916
A - C	7.29	263	490	606	949
A - D	9.35	328	606	749	1170
A - E	9.61	332	613	758	1187

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82 - 4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY PEC DATE /

ALLIGATOR CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQ MI)		LAKE AREA (SQ MI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
A-A	3.82	3.82	0.121	0.121	3.17	3.17
A-B	3.11	6.93	0.272	0.393	8.75	5.67
A-C	0.36	7.29	0.009	0.402	2.50	5.51
A-D	2.06	9.35	0.036	0.438	1.75	4.68
A-E	0.26	9.61	0	0.438	0	4.56

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

ore*

ALLIGATOR CREEK — DISCHARGE

POINT OF INTEREST - A-A

DRAINAGE AREA AT = 3.82 SQ.MI

LAKE AREA = 3.17 %

CHANNEL SLOPE = 1.99 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$$Q_{10} = 274\,(3.82\ \text{SQMI})^{0.908} \cdot (1.99\ \text{FT/MI})^{0.248} \cdot (3.17 + 3)^{-0.738} = 219\ \text{CF}$$

50 - YEAR

$$Q_{50} = 496\,(3.82\ \text{SQMI})^{0.69} \cdot (1.99\ \text{FT/MI})^{0.224} \cdot (3.17 + 3)^{-0.705} = 407\ \text{CF}$$

100 - YEAR

$$Q_{100} = 609\,(3.82\ \text{SQMI})^{0.685} \cdot (1.99\ \text{FT/MI})^{0.217} \cdot (3.17 + 3)^{-0.695} = 503\ \text{CF}$$

500 - YEAR

$$Q_{500} = 985\,(3.82\ \text{SQMI})^{0.668} \cdot (1.99\ \text{FT/MI})^{0.196} \cdot (3.17 + 3)^{-0.687} = 791\ \text{CF}$$

FID – SYLVAMOTA, CO.

57455

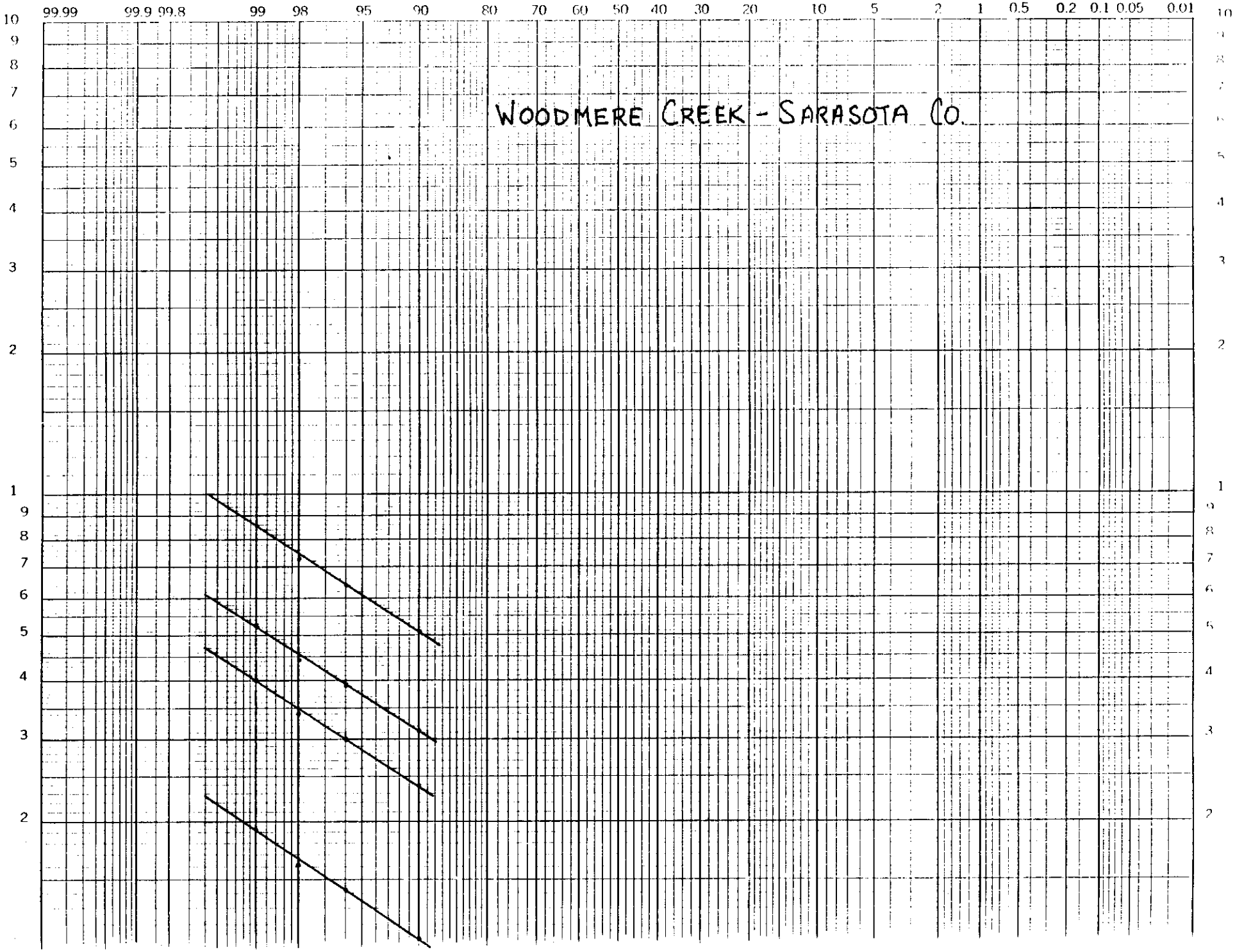
Woodmere Creek

RESULTS OF UNIT HYDROGRAPH

( ) is accumulated D.A. ( ) is summed

Point of Interest	D.A. (sq. mi.)	Q_{10}	Q_{25}	Q_{50}	Q_{100}	Q_{500} From Freq.
W-A EX. CONFLUENCE RD	[illegible] (0.45)	112 (112)	142 (142)	162 (162)	192 (192)	(220)
W-E PERMANENT RD	0.24 (0.69)	147 (237)	183 (298)	208 (339)	244 (401)	(450)
W-C [illegible]	0.15 (0.84)	75 (311)	93 (390)	106 (443)	125 (523)	(590)
W-D AT MOUTH	[illegible] (1.95)	237 (506)	297 (636)	337 (723)	397 (855)	(970)

46 8040



GEE & JENSON
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WEST PALM BEACH, FLA.

SUBJECT FIS - SAFECO CO.
[illegible]
PEAK RATE FACTORS

SHEET NO. ____ OF ____
JOB NO. 87433
BY RET DATE ____

WOODMERE CREEK

SUB-BASIN	% DEVELOPED	WEIGHTED PEAK RATE FACTOR (based on range from 150-355)
W-A	30	210
W-B	90	330
W-C	90	330
W-D	65	280

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT [illegible] FERNA
Time of Concentration
[illegible] Hydrologic

SHEET NO. ____ OF ____
JOB NO. 2748.2
BY RET DATE 4/8

Time of Concentration

Woodmere

W-D $\{0/2 + 7000/1.5 + 5000/0.3\}/3600 = 6.5$ HRS

W-E $\{500/1 + [illegible]/0.5\}/3600 = 2.00$ HRS

W-C $\{1200/1.5 + 2000/0.5\}/3600 = 1.5$ HRS

W-A $\{1200/1 + [illegible]/1 + 2000/0.2\}/3600 = 4.00$ HRS

WOODMERE

Point of Interest	Channel Length (FT)	Velocity (FPS)	Lag time (HRS)
WA	—	—	—
WA → WB	~~2800~~	1.5	0.5
WB → WC	2500	1.5	0.5
WC → WD	2500	1.5	0.5

[illegible]

10-A (12% Impervious)

Impervious = 32 Ac, Pervious = 231 Ac, Lake = 12 Ac

CN = 77 ⇒ S = 2.97 in = [illegible] Ac-ft

T_c = 2.14

10-B (18% Impervious)

Impervious = 25 Ac, Pervious = 126 Ac, Lake = 0 Ac

CN = 80 ⇒ S = 2.50 in = 32.00 Ac-ft

T_c = 2.21

10-C (18% Impervious)

Impervious = 17 Ac, Pervious = 79 Ac, Lake = 0 Ac

CN = 80 ⇒ S = 2.50 in = 20.00 Ac-ft

T_c = 2.65

10-D (18% Impervious)

Impervious = 92 Ac, Pervious = 615 Ac, Lake = 16 Ac

CN = 80 ⇒ S = 2.50 in = 150.7 Ac-ft

T_c = 2.89

From CZM Aerials

W-A = 20% impervious

W-B = 30% impervious

W-C = 35% impervious

W-D = 35% impervious

Hydrologic Soil Group: B / 30%, C / 70%

W-A

Impervious = 52.8 Ac, Pervious = 210.9 Ac, Lake = 12 Ac

CN (70% [illegible] B/C = [illegible] residential [illegible] B/C) = 77

$S = \frac{1000}{77} - 10 = 2.99$ in = 68.6 Ac-ft

$T_c = [1200/0.2 + 3400/2]/3600 = 2.14$ HR

W-B (Incremental)

Impervious = 53.8 Ac, Pervious = 99.8 Ac, Lake = 0 Ac

CN (residential 1/4 Ac) = 88

$S = \frac{1000}{88} - 10 = 1.36$ in = 17.5 Ac-ft

(Cummulative)

Impervious = 72.5 Ac Pervious = 344.8 Ac

Lake = 12 Ac S = 97.6 Ac-ft

$T_c = 2.14 + [2900/3]/3600 = 2.41$ HR

W-C (Incremental)

Impervious = 28.5 Ac, Pervious = 67.2 Ac, Lake = 0 Ac

CN (residential 1/4 Ac) = 88

S = 1.36 in = 10.9 Ac-ft

(Cummulative)

Impervious = 101.3 Ac Pervious = 412 Ac

Lake = 12 Ac S = 110.6 Ac-ft

$T_c = 2.41 + [2600/3]/3600 = 2.65$ HR

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT Seminole Ridge
Wodnoff Creek
Unit Hydrograph

SHEET NO. ____ OF ____
JOB NO. [illegible]
BY RBT DATE 2/[illegible]

W-D (Incremental)

Impervious = 247.5 Ac, Pervious = 459.7 Ac, Lake = 16 Ac

CN (20% wooded c/c 80% residential Yards) = 88

$S = \frac{1000}{88} - 10 = 1.36 in = 822$ Ac-ft

(Cumulative)

Impervious = 242.8 Ac Pervious = 977.7 Ac

Lake = 28 Ac S = 234.7 Ac-ft

$T_c = 2.65 + [2400/3]/3000 = 2.87$ HR

WOODMERE CR – DISCHARGE

POINT OF INTEREST – W – A

DRAINAGE AREA AT – = 0.43 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.24 FT/MI

LAKE AREA = 4.19 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (0.43)^{.84} \cdot (2.24)^{.53} \cdot (4.19)^{-.11} \cdot (2.05)^{-.64} = 28$$

$$Q_{50} = (140)(1.28) \cdot (0.43)^{.79} \cdot (2.24)^{.46} \cdot (4.19)^{-.10} \cdot (2.05)^{-.70} = 70$$

$$Q_{100} = (198)(1.28) \cdot (0.43)^{.77} \cdot (2.24)^{.44} (4.19)^{-.10} \cdot (2.05)^{-.73} = 97$$

$$Q_{500} = (403) \cdot (1.29) \cdot (0.43)^{.75} \cdot (2.24)^{.39} (4.19)^{-.10} (2.05)^{-.78} = 187$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

WOODMERE CR — DISCHARGE

POINT OF INTEREST — W — B

DRAINAGE AREA AT — = 0.67 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.41 FT/MI

LAKE AREA = 2.69 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (0.67)^{.84} \cdot (2.41)^{.53} \cdot (2.69)^{-.11} \cdot (2.05)^{-.64} = 44$$

$$Q_{50} = (140)(1.28) \cdot (0.67)^{.79} \cdot (2.41)^{.46} \cdot (2.69)^{-.10} \cdot (2.05)^{-.70} = 107$$

$$Q_{100} = (198)(1.28) \cdot (0.67)^{.77} \cdot (2.41)^{.44} \cdot (2.69)^{-.10} \cdot (2.05)^{-.73} = 147$$

$$Q_{500} = (403)(1.29) \cdot (0.67)^{.75} \cdot (2.41)^{.39} (2.69)^{-.10} (2.05)^{-.78} = 280$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

WOODMERE CR – DISCHARGE

POINT OF INTEREST – W-C

DRAINAGE AREA AT – = 0.82 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.47 FT/MI

LAKE AREA = 2.2 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (0.82)^{.84} \cdot (2.47)^{.53} \cdot (2.2)^{-.11} \cdot (2.05)^{-.64} = 54$$

$$Q_{50} = (140)(1.28) \cdot (0.82)^{.79} \cdot (2.47)^{.46} \cdot (2.2)^{-.10} \cdot (2.05)^{-.70} = 130$$

$$Q_{100} = (198)(1.28) \cdot (0.82)^{.77} \cdot (2.47)^{.44} \cdot (2.2)^{-.10} \cdot (2.05)^{-.73} = 177$$

$$Q_{500} = (403)(1.29) \cdot (0.82)^{.75} \cdot (2.47)^{.39} (2.2)^{-.10} (2.05)^{-.78} = 337$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

WOODMERE CR – DISCHARGE

POINT OF INTEREST – W-D

DRAINAGE AREA AT – = 1.95 SQ. MI

REGRESSION CONSTANT (C_R)

GEOGRAPHIC ZONE COEFF. (C_G)

CHANNEL SLOPE = 2.58 FT/MI

LAKE AREA = 2.21 %

SOIL INDEX (INFILTRATION) = 2.05 IN

REGRESSION EQUATION:

$$Q_x = C_R \cdot C_G \cdot DA^{B1} \cdot SL^{B2} \cdot LK^{B3} \cdot SO^{B4}$$

$$Q_{10} = (54.1)(1.27) \cdot (1.95)^{.84} \cdot (2.58)^{.53} \cdot (2.21)^{-.11} \cdot (2.05)^{-.64} = 115$$

$$Q_{50} = (140)(1.28) \cdot (1.95)^{.79} \cdot (2.58)^{.46} \cdot (2.21)^{-.10} \cdot (2.05)^{-.70} = 263$$

$$Q_{100} = (198)(1.28) \cdot (1.95)^{.77} \cdot (2.58)^{.44} \cdot (2.21)^{-.10} \cdot (2.05)^{-.73} = 352$$

$$Q_{500} = (403)(1.29) \cdot (1.95)^{.75} \cdot (2.58)^{.39} (2.21)^{-.10} (2.05)^{-.78} = 655$$

* DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FROM REGIONAL FLOOD-FREQUENCY RELATIONS FOR WEST-CENTRAL FLORIDA. USGS WRI OPEN-FILE REPORT 79-1293.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY RBT DATE 11/

WOODMERE CREEK — DISCHARGE

POINT OF INTEREST	(SQMI)	DISCHARGE (CFS) 10-YR	50-YR	100-YR	500-YR
W-A	0.43	43	83	104	169
W-B	0.67	71	136	169	271
W-C	0.82	88	167	208	332
W-D	1.95	164	307	379	596

★ DISCHARGE WAS DETERMINED USING THE REGRESSION EQUATION FOR REGION 'A' TAKEN FROM U.S.G.S. WATER RESOURCES INVESTIGATIONS 82 - 4012.

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87468
BY RBT DATE 11/[illegible]

WOODMERE CREEK — DRAINAGE AND LAKE AREA

POINT OF INTEREST	DRAINAGE AREA (SQMI)		LAKE AREA (SQMI)		PERCENT OF L.A	
	INCREM.	ACCUM.	INCREM.	ACCUM.	INCREM.	ACCUM.
W-A	0.43	0.43	0.018	0.018	4.19	4.19
W-B	0.24	0.67	0	0.018	0	2.69
W-C	0.15	0.82	0	0.018	0	2.20
W-D	1.13	1.95	0.025	0.043	2.21	2.21

* DRAINAGE AREA AND LAKE AREA WERE DETERMINED AND TAKEN FROM U.S.G.S. QUAD MAPS AND AERIAL PHOTOS MADE BY SARASOTA COUNTY AND SOUTH WEST FLORIDA WATER MANAGEMENT DISTRICT

WOODMERE CREEK — DISCHARGE

POINT OF INTEREST - W-A

DRAINAGE AREA AT = 0.43 SQ.MI

LAKE AREA = 4.19 %

CHANNEL SLOPE = 2.24 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(0.43\ \text{SQMI})^{0.908} \cdot (2.24\ \text{FT/MI})^{0.248} \cdot (4.19 + 3)^{-0.738} = 43$ CF

50 - YEAR

$Q_{50} = 496\,(0.43\ \text{SQMI})^{0.69} \cdot (2.24\ \text{FT/MI})^{0.234} \cdot (4.19 + 3)^{-0.705} = 83$ CFS

100 - YEAR

$Q_{100} = 609\,(0.43\ \text{SQMI})^{0.685} \cdot (2.24\ \text{FT/MI})^{0.217} \cdot (4.19 + 3)^{-0.695} = 104$ CF.

500 - YEAR

$Q_{500} = 985\,(0.43\ \text{SQMI})^{0.668} \cdot (2.24\ \text{FT/MI})^{0.196} \cdot (4.19 + 3)^{-0.687} = 169$ CF.

WOODMERE CREEK — DISCHARGE

POINT OF INTEREST - W-B

DRAINAGE AREA AT = 0.67 SQ.MI

LAKE AREA = 2.69 %

CHANNEL SLOPE = 2.41 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$Q_{10} = 274\,(0.67\ \text{SQMI})^{0.708} \cdot (2.41\ \text{FT/MI})^{0.248} \cdot (2.69 + 3)^{-0.738} = 71$ CF

50 - YEAR

$Q_{50} = 496\,(0.67\ \text{SQMI})^{0.69} \cdot (2.41\ \text{FT/MI})^{0.234} \cdot (2.69 + 3)^{-0.705} = 136$ CFS

100 - YEAR

$Q_{100} = 609\,(0.67\ \text{SQMI})^{0.685} \cdot (2.41\ \text{FT/MI})^{0.227} \cdot (2.69 + 3)^{-0.695} = 169$ CF.

500 - YEAR

$Q_{500} = 985\,(0.67\ \text{SQMI})^{0.668} \cdot (2.41\ \text{FT/MI})^{0.196} \cdot (2.69 + 3)^{-0.687} = 271$ CF.

WOODMERE CREEK — DISCHARGE

POINT OF INTEREST - W-C

DRAINAGE AREA AT = 0.82 SQ.MI

LAKE AREA = 2.20 %

CHANNEL SLOPE = 2.47 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 - YEAR

$$Q_{10} = 274\,(0.82\ \text{SQMI})^{0.708} \cdot (2.47\ \text{FT/MI})^{0.248} \cdot (2.20 + 3)^{-0.738} = 88 \quad \text{CF}$$

50 - YEAR

$$Q_{50} = 496\,(0.82\ \text{SQMI})^{0.69} \cdot (2.47\ \text{FT/MI})^{0.224} \cdot (2.20 + 3)^{-0.705} = 167 \quad \text{CF}$$

100 - YEAR

$$Q_{100} = 609\,(0.82\ \text{SQMI})^{0.685} \cdot (2.47\ \text{FT/MI})^{0.227} \cdot (2.20 + 3)^{-0.695} = 208 \quad \text{CF}$$

500 - YEAR

$$Q_{500} = 985\,(0.82\ \text{SQMI})^{0.668} \cdot (2.47\ \text{FT/MI})^{0.196} \cdot (2.20 + 3)^{-0.687} = 332 \quad \text{CF}$$

WOODMERE CREEK — DISCHARGE

POINT OF INTEREST – W-D

DRAINAGE AREA AT = 1.95 SQ.MI

LAKE AREA = 2.21 %

CHANNEL SLOPE = 2.58 FT/MI

REGRESSION EQUATION : $Q_T = C \cdot DA^{B_1} SL^{B_2} \cdot (LK + 3.0)^{B_3}$

10 – YEAR

$$Q_{10} = 274\,(1.95\ \text{SQMI})^{0.908} \cdot (2.58\ \text{FT/MI})^{0.248} \cdot (2.21 + 3)^{-0.738} = 164 \text{ CF}$$

50 – YEAR

$$Q_{50} = 496\,(1.95\ \text{SQMI})^{0.69} \cdot (2.58\ \text{FT/MI})^{0.334} \cdot (2.21 + 3)^{-0.705} = 307 \text{ CF}$$

100 – YEAR

$$Q_{100} = 609\,(1.95\ \text{SQMI})^{0.685} \cdot (2.58\ \text{FT/MI})^{0.337} \cdot (2.21 + 3)^{-0.695} = 379 \text{ CF}$$

500 – YEAR

$$Q_{500} = 985\,(1.95\ \text{SQMI})^{0.668} \cdot (2.58\ \text{FT/MI})^{0.196} \cdot (2.21 + 3)^{-0.687} = 596 \text{ CF}$$

WOODMERE CREEK — CHANNEL SLOPE

POINT OF INTEREST - W-A

CHANNEL LENGTH = 4736 ft × 1 MI/5280' × 75 % = 0.67 MI

10 % OF CHANNEL LENGTH = 4736 ft × 10 % = 474 FT

15 % OF CHANNEL LENGTH = 4736 ft × 15 % = 710 FT

CHANNEL SLOPE

$$SL = \frac{(7.5 - 6)\,ft}{0.67\ MI} = \frac{1.5\ ft}{0.67\ MI} = 2.24\ FT/MI$$

POINT OF INTEREST - W-B

CHANNEL LENGTH = 7592 ft × 1 MI/5280' × 75% = 1.08 MI

10 % OF CHANNEL LENGTH = 7592 ft × 10 % = 759 FT

15 % OF CHANNEL LENGTH = 7592 ft × 15 % = 1139 FT

CHANNEL SLOPE

$$SL = \frac{(7.5 - 4.9)\,ft}{1.08\ MI} = \frac{2.6\ ft}{1.08\ MI} = 2.41\ FT/MI$$

POINT OF INTEREST - W-C

CHANNEL LENGTH = 10,584 ft × 1MI/5280 × 75% = 1.50 MI

10 % OF CHANNEL LENGTH = 10,584 ft × 10 % = 1058 FT

15 % OF CHANNEL LENGTH = 10,584 ft × 15 % = 1588 FT

CHANNEL SLOPE

$$SL = \frac{(7.5 - 3.8)\,ft}{1.50\ MI} = \frac{3.7\ ft}{1.50\ MI} = 2.47\ FT/MI$$

GEE & JENSON
ENGINEERS-ARCHITECTS-PLANNERS, INC.
WEST PALM BEACH, FLA.

SUBJECT FEMA
SARASOTA CO.

SHEET NO. ____ OF ____
JOB NO. 87488
BY RET DATE 11/

WOODMERE CREEK – CHANNEL SLOPE

POINT OF INTEREST – W-D

CHANNEL LENGTH = 12,566 ft × 1 MI/5280' × 75 % = 1.78 MI

10 % OF CHANNEL LENGTH = 12,566 ft × 10 % = 1257 FT

15 % OF CHANNEL LENGTH = 12,566 ft × 15 % = 1885 FT

CHANNEL SLOPE

$$SL = \frac{(7.5-3)\text{ ft}}{1.78\text{ MI}} = \frac{4.5\text{ ft}}{1.78\text{ MI}} = 2.52 \text{ FT/MI}$$

POINT OF INTEREST –

CHANNEL LENGTH = × 1 MI/5280' × 75 % = MI

10 % OF CHANNEL LENGTH = × 10 % = FT

15 % OF CHANNEL LENGTH = × 15 % = FT

CHANNEL SLOPE

$$SL = \frac{\quad}{\text{MI}} = \frac{\quad}{\text{MI}} = \quad \text{FT/MI}$$

POINT OF INTEREST –

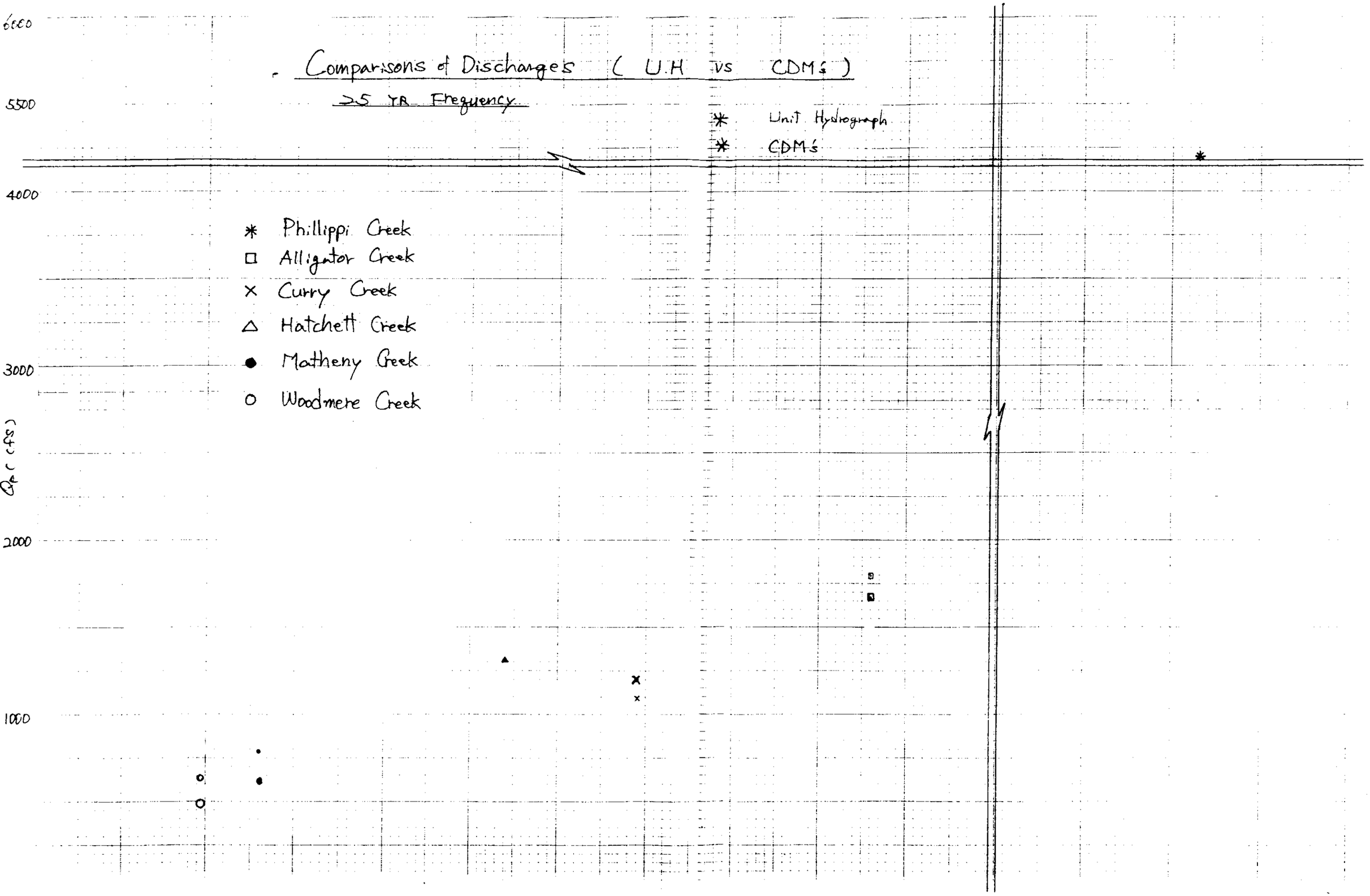
CHANNEL LENGTH = × 1 MI/5280 × 75 % = MI

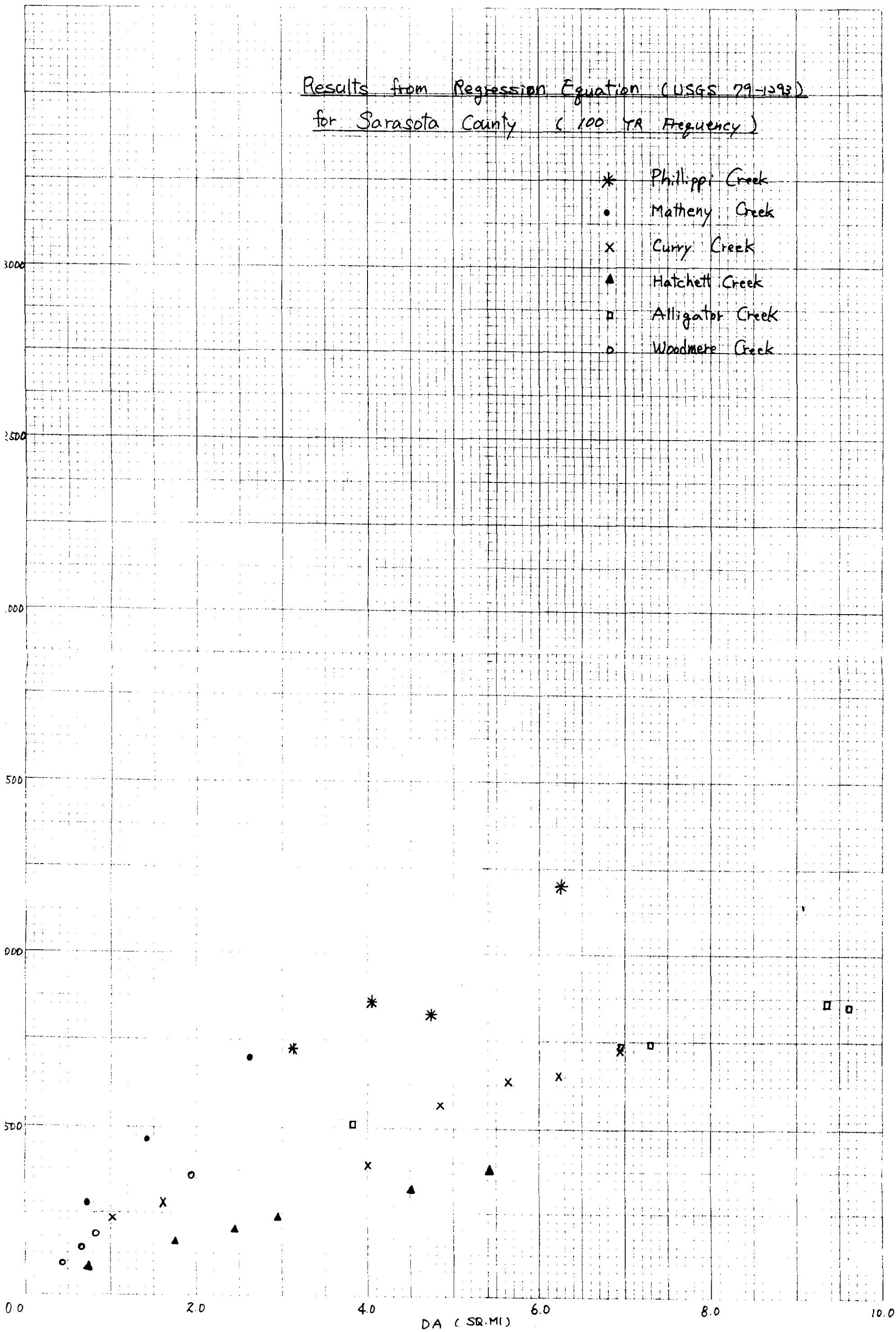
10 % OF CHANNEL LENGTH = × 10 % = FT

15 % OF CHANNEL LENGTH = × 15 % = FT

CHANNEL SLOPE

$$SL = \frac{\quad}{\text{MI}} = \frac{\quad}{\text{MI}} = \quad \text{FT/MI}$$


Comparisons of Discharges (U.H vs CDM's)
≥5 YR Frequency
Unit Hydrograph
CDM's
Phillippi Creek
Alligator Creek
Curry Creek
Hatchett Creek
Matheny Creek
Woodmere Creek
6000
5500
4000
3000
2000
1000
Q (cfs)


Results from Regression Equation (USGS 79-1093)
for Sarasota County (100 YR Frequency)
Philippi Creek
Matheny Creek
Curry Creek
Hatchett Creek
Alligator Creek
Woodmere Creek
3000
2500
.000
500
000
500
0.0
2.0
4.0
6.0
8.0
10.0
DA (SQ.MI)

25 YR Frequency Discharge of G & J vs CDM for Phillippi Creek