APPENDIX C - CALCULATIONS AND DATA

FINAL
MASTER DRAINAGE STUDY
THE VILLAGES AT DESERT HILLS

Prepared For:
Del Webb Corporation

For Submittal to:
Maricopa County

Prepared By:
Erie and Associates, Inc.

6 FEB 96

EA# 1474.1
REV. 2 FEB. 1996

Erie & Associates, Inc.
CONSULTING ENGINEERS
3120 N. 24th St. / Phoenix, Arizona 85016 / (602) 954-6399

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 1474.01 SHEET 1

PROJECT THE VILLAGES AT DESERT HILLS CALC. SC/CE DATE JAN 4, 1995

SUBJECT INDEX / TABLE OF CONTENTS CHKD. ______ DATE ______

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 1474.1 SHEET 2
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT SUB BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB·BASIN I.D.	SUB·BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
1A1	0.0786 mi^2 50.3 acre	3000 ft 0.568 mi	2040-1920/0.568 211.3 ft/mi	$K_b = m\log A + b = (-0.025)\log(50.3) + 0.15$ $K_b = 0.107$	211
1A2	0.406 mi^2 259.76 acre	9000 ft 1.705 mi	1920-1820/1.705 58.65 ft/mi	$K_b = (-0.025)\log(259.76) + 0.15$ $K_b = 0.09$	—
1A3	0.119 mi^2 76.15 acre	6000 ft 1.136 mi	1850-1770/1.136 = 70.42 ft/mi	$K_b = (-0.025)\log(76.15) + 0.15$ $K_b = 0.103$	—
2A1	0.368 mi^2 235.3 acre	6800 ft 1.288 mi	3120-2040/1.288 = 838.5 ft/mi	0.0907	335
2A2	0.0371 mi^2 23.72 acre	3300 ft 0.625 mi	2170-1990/0.625 = 288 ft/mi	0.116	265
2B1	0.133 mi^2 85.4 acre	3200 ft 0.606 mi	2720-2040/0.606 = 1122.11 ft/mi	0.102	350
2B2	0.0122 mi^2 7.83 acre	1000 ft 0.189 mi	2040-1990/0.189 = 264.55 ft/mi	0.128	250
2C1	0.363 mi^2 232.3 acre	4000 ft 0.757 mi	1990-1880/0.757 = 145.3 ft/mi	0.091	—
2C2	0.513 mi^2 328.1 acre	8000 ft 1.515 mi	1880-1750/1.515 = 85.81 ft/mi	0.087	—
3A1	0.112 mi^2 71.52 acre	2600 ft 0.492 mi	2600-1980/0.492 = 1260.2 ft/mi	0.104	360
3A2	0.0271 mi^2 17.36 acre	1000 ft 0.189 mi	1980-1940/0.189 = 211.6 ft/mi	0.119	211
3B1	0.0159 mi^2 10.2 acre	700 ft 0.133 mi	2040-1980/0.133 = 451.13 ft/mi	0.125	300
3B2	0.242 mi^2 155.14 acre	4300 ft 0.814 mi	1980-1860/0.814 = 147.42 ft/mi	0.095	—
3C	0.112 mi^2 71.68 acre	3600 ft 0.682 mi	2060-1860/0.682 = 293.3 ft/mi	0.104	265
3D1	0.117 mi^2 74.88 acre	2800 ft 0.53 mi	1910-1840/0.53 = 132.07 ft/mi	0.103	—
3D2	0.031 mi^2 19.84 acre	1500 ft 0.284 mi	1900-1800/1.042 = 95.97 ft/mi	0.117	—
3D3	0.207 mi^2 132.48 acre	7500 ft 1.42 mi	95.97 ft/mi	0.097	—

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 1474.1 SHEET 3
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT (K_b)	ADJUSTED SLOPE
~~4AD~~ VOID	~~0.303 mi^2~~ 193.92 acre	~~9700 ft~~ 1.837 mi	~~1875-1785/1.837~~ = 49 ft/mi	~~0.093~~	—
4B	0.262 mi^2 167.68 acre	4200 ft 0.795 mi	2260-1785/0.795 = 597.48 ft/mi	0.094	320
4C VOID	0.693 mi^2 443.52 acre	8800 ft 1.667 mi	1850-1765/1.667 = 51 ft/mi	0.084	—
4D	0.199 mi^2 127.36 acre	4900 ft 0.928 mi	2172-1750/0.928 = 454.7 ft/mi	0.097	300
4E1	0.122 mi^2 78.08 acre	2400 ft 0.455 mi	2020-1745/0.455 604.4 ft/mi	0.103	320
4E2	0.05 mi^2 32 acre	2900 ft 0.549 mi	1800-1720/0.549 = 145.72 ft/mi	0.112	—
5A	0.482 mi^2 308.48 acre	7800 ft 1.477 mi	2840-1935/1.477 = 612.73 ft/mi	0.088	320
5B	0.063 mi^2 40.32 acre	3500 ft 0.667 mi	2060-1870/0.667 = 284.86 ft/mi	0.110	260
5C	0.046 mi^2 29.44 acre	2900 ft 0.549 mi	2200-1900/0.549 = 546.45 ft/mi	0.113	315
5D	0.096 mi^2 61.44 acre	3000 ft 0.568 mi	2200-1900/0.568 = 528.17 ft/mi	0.105	315
5E	0.061 mi^2 39.04 acre	1600 ft 0.303 mi	1900-1870/0.303 = 99 ft/mi	0.110	—
5F1	0.081 mi^2 51.84 acre	2700 ft 0.511 mi	106 ft/mi	0.107	—
5F2	0.298 mi^2 190.72 acre	7000 ft 1.326 mi	106 ft/mi	0.093	—
5G1	0.129 mi^2 82.56 acre	3800 ft 0.720 mi	1945-1850/0.720 131.94 ft/mi	0.102	—
5G2	0.273 mi^2 174.72 acre	7700 ft 1.458 mi	1880-1740/1.458 96.02 ft/mi	0.094	—

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA # 1474.1 SHEET 4

PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

SUBJECT SUB·BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB·BASIN I.D.	SUB·BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
6A	0.503 mi^2 321.92 acre	10600 ft 2.008 mi	2400-1880/2.008 = 258.96 ft/mi	K_b = 0.087	250
6B1	0.065 mi^2 41.6 acre	2800 ft 0.53 mi	1930-1850/0.53 = 150.94 ft/mi	K_b = 0.110	150.94
6B2	0.125 mi^2 80.0 acre	4000 ft 0.757 mi	1885-1795/0.757 = 118.89 ft/mi	K_b = 0.162	118.89
7A1	0.548 mi^2 350.85 acre	5200 ft 0.985 mi	3160-2160/0.985 = 1015.23 ft/mi	K_b = 0.086	345
7A2	0.583 mi^2 372.91 acre	6300 ft 1.193 mi	2680-1990/1.193 = 578.37 ft/mi	K_b = 0.086	318
7A3	0.273 mi^2 175.07 acre	5200 ft 0.985 mi	2515-1975/0.985 = 548.22 ft/mi	K_b = 0.094	315
7A4	0.234 mi^2 149.92 acre	3200 ft 0.606 mi	2200-1940/0.606 = 429.04 ft/mi	K_b = 0.096	300
7A5	0.455 mi^2 291.07 acre	7300 ft 1.383 mi	2020-1855/1.383 = 119.3 ft/mi	K_b = 0.088	———
7B	0.042 mi^2 26.88 acre	1800 ft 0.341 mi	1855-1835/0.341 = 58.65 ft/mi	(-0.025) log(26.88) + 0.15 = 0.114	———
7C	0.047 mi^2 30.08 acre	3500 ft 0.663 mi	1955-1875/0.663 = 120.66 ft/mi	(-0.025) log(30.08) + 0.15 = 0.113	———
7D	0.033 mi^2 21.12 acre	1900 ft 0.360 mi	1875-1835/0.36 = 111.11 ft/mi	(-0.025) log(21.12) + 0.15 = 0.117	———
7E	0.092 mi^2 58.88 acre	4500 ft 0.852 mi	2000-1890/0.852 = 129.11 ft/mi	(-0.025) log(58.88) + 0.15 = 0.106	
7F1	0.028 mi^2 17.93 acre	1400 ft 0.265 mi	1910-1870/0.265 = 150.94 ft/mi	(-0.025) log(17.93) + 0.15 = 0.119	
7F2	0.029 mi^2 18.5 acre	1400 ft 0.265 mi	1890-1835/0.265 = 207.55 ft/mi	(-0.025) log(18.5) + 0.15 = 0.118	207
7G	0.073 mi^2 46.72 acre	3500 ft 0.663	1835-1795/0.663 = 60.33 ft/mi	(-0.025) log(46.72) + 0.15 = 0.108	
7H	0.162 mi^2 103.68 acre	7000 ft 1.326	1860-1740/1.326 = 90.5 ft/mi	(-0.025) log(103.68) + 0.15 = 0.100	

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT VILLAGES AT DESERT HILLS
SUBJECT SUB·BASIN DRAINAGE PARAMETES
JOB NO. EA# 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 5
DATE
DATE

SUB·BASIN I.D.	SUB·BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
8A	0.443 mi^2 283.52 acre	8600 ft 1.629 mi	2100-1890/1.629 = 128.91 ft/mi	(-0.025) log(283.52) + 0.15 = 0.089	
8B VOID	0.280 mi^2 179.2 acre	6700 ft 1.269 mi	1965-1860/1.269 = 82.74 ft/mi	(-0.025) log(179.2) + 0.15 = 0.094	
10A1	0.142 mi^2 91.09 acre	2600 ft 0.492 mi	935 ft/mi	(-0.025) log(91.09) + 0.15 = 0.101	340 ft/mi
10A2	0.015 mi^2 9.96 acre	600 ft 0.114 mi	300 ft/mi	(-0.025) log(9.96) + 0.15 = 0.125	270 ft/mi
10B	0.371 mi^2 237.44 acre	5800 ft 1.10 mi	163.9 ft/mi	(-0.025) log(237.44) + 0.15 = 0.091	——
10C1	0.142 mi^2 90.9 acre	5000 ft 0.947 mi	230 ft/mi	(-0.025) log(90.9) + 0.15 = 0.101	230
10C2	0.205 mi^2 130.95 acre	4800 ft 0.910 mi	105.6 ft/mi	(-0.025) log(130.95) + 0.15 = 0.097	105.6
10C3	0.149 mi^2 95.36 acre	5000 ft 0.947 mi	82.73 ft/mi	(-0.025) log(95.36) + 0.15 = 0.100	
10D1	0.061 mi^2 39 acres	2300 ft 0.436 mi	1860-1805/0.436 = 126.15 ft/mi	(-0.025) log(39) + 0.15 = 0.110	
10D2	0.096 mi^2 61.2 acres	2800 ft 0.53 mi	1805-1770/0.53 = 66.04 ft/mi	(-0.025) log(61.2) + 0.15 = 0.105	
10E1	0.106 mi^2 67.75 acres	3500 ft 0.663 mi	181 ft/mi	(-0.025) log(67.75) + 0.15 = 0.104	
10E2	0.372 mi^2 238.17 acres	7000 ft 1.326 mi	90.5 ft/mi	(-0.025) log(238.17) + 0.15 = 0.09	
10E3	0.075 mi^2 47.68 acres	2300 ft 0.436	68.8 ft/mi	(-0.025) log(47.68) + 0.15 = 0.108	
10F	0.078 mi^2 49.92 acre	2600 ft 0.492 mi	1770-1750/0.492 = 40.65 ft/mi	(-0.025) log(49.92) + 0.15 = 0.107	
10G	0.138 mi^2 88.32 acre	4800 ft 0.909 mi	1800-1745/0.909 = 60.51 ft/mi	(-0.025) log(88.32) + 0.15 = 0.101	
~~10H~~	~~0.082 mi^2~~ 52.48 acre	~~2600 ft~~ 0.492 mi	~~1745-1720/0.492~~ = 50.81 ft/mi	~~(-0.025) log(52.48) + 0.15~~ = 0.107	

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA#1474.1 SHEET 6

PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
10I	0.182 mi² 116.48 acre	6600 ft 1.25 mi	1810-1715/1.250 = 76 ft/mi	(-0.025) log(116.48) +0.15 = 0.098	—
10J	0.0749 mi² 47.9 acre	2500 Ft 0.4735 mi	1880-1850/0.4735 =63.3ft/mi	(-0.025) log(47.9) +0.15 = 0.108	
~~10K~~	0.418 mi² 267.52 acre	VOID		~~(-0.025) log(267.52) + 0.15~~ = 0.089	
10L VOID	0.413 mi² 264.32 acre			(-0.025) log(264.32) + 0.15 = 0.089	
~~8C~~ VOID	~~0.783 mi²~~ 501.12 acres	~~8600 ft~~ 1.629	2100-1890/1.629 = 128.91 ft/mi	(-0.025) log(501.12) + 0.15 = 0.083	—
8D	0.037 mi² 23.68 acres	1400 ft 0.265 mi	1735-1720/0.265 = 56.6	(-0.025) log(23.68) + 0.15 = 0.116	—
4A1	0.0289 mi² 18.50 acres	2200 ft 0.417 mi	49 ft/mi	(-0.025) log(18.50) + 0.15 = 0.118	—
4A2	0.0356 mi² 22.78 acres	1800 ft 0.341 mi	49 ft/mi	(-0.025) log(22.78) + 0.15 = 0.116	—
4A3	0.2385 mi² 152.64 acres	7100 ft 1.345 mi	49 ft/mi	(-0.025) log(152.64) + 0.15 = 0.095	—
4C1	0.0423 mi² 27.04 acres	2500 ft 0.473 mi	51 ft/mi	(-0.025) log(27.04) + 0.15 = 0.114	
4C2	0.6507 mi² 416.45 acre	6300 ft 1.193 mi	51 ft/mi	(-0.025) log(416.45) + 0.15 = 0.085	
10H1	0.0304 mi² 19.45 acre	1500 ft 0.284 mi	1770-1735/0.284 123.24 ft/mi	(-0.025) log(19.45) + 0.15 = 0.118	
10H2	0.0516 mi² 33.02 acre	2300 ft 0.436 mi	1755-1720/0.436 = 80.3 ft/mi	(-0.025) log(33.02) + 0.15 = 0.112	

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 7
PROJECT THE VILLAGES AT DESERT HILLS CALC. ______ DATE ______
SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. ______ DATE ______

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
10K1	0.01 mi^2 6.4 acre	600 ft 0.1136 mi	1056.3 ft/mi	$(-0.025)\log(6.4)+0.15$ $=0.130$	345 ft/mi
10K2	0.0078 mi^2 5.0 acre	800 ft 0.1515 mi	792.1 ft/mi	$(-0.025)\log(5.0)+0.15$ $=0.133$	330 FT/mi
10K3	0.0133 mi^2 8.5 acre	1100 ft 0.2083 mi	336.1 ft/mi	$(-0.025)\log(8.5)+0.15$ $=0.127$	280 FT/mi
10K4	0.026 mi^2 16.6 acre	1400 ft 0.2651 mi	565.8 ft/mi	$(-0.025)\log(16.6)+0.15$ $=0.119$	315 FT/mi
10K5	0.0156 mi^2 10.0 acre	1600 ft 0.3030 mi	792.1 FT/mi	$(-0.025)\log(10.0)+0.15$ $=0.125$	330 FT/mi
10K6	0.0356 mi^2 22.8 acre	1900 ft 0.3598 mi	833.8 FT/mi	$(-0.025)\log(22.8)+0.15$ $=0.116$	335 FT/mi
10K7	0.026 mi^2 16.6 acre	1200 ft 0.2273 mi	352 FT/mi	$(-0.025)\log(16.6)+0.15$ $=0.119$	280 FT/mi
10L1	0.1101 mi^2 70.5 acre	2900 ft 0.5492 mi	861.3 FT/mi	$(-0.025)\log(70.5)+0.15$ $=0.104$	335 FT/mi
10L2	0.2313 mi^2 148 acre	5000 FT 0.9470 mi	355.9 ft/mi	$(-0.025)\log(148)+0.15$ $=0.096$	285 ft/mi

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 8
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
20A1	0.007 mi^2 4.27 acre	700 ft 0.1326 mi	2360-2120/0.1326 1810.3 ft/mi	$K_b = m \log A + b = (-0.025)\log(4.27) + 0.15$ $= 0.134$	390
20A2	0.018 mi^2 11.39 acre	1000 ft 0.1894 mi	2487-2140/0.1894 = 1832.2 ft/mi	$K_b = (-0.025)\log(11.39) + 0.15$ $= 0.1236$	390
20A3	0.069 mi^2 44.12 acre	2150 ft 0.4072 mi	2380-2015/0.4072 = 896.4 ft/mi	$K_b = (-0.025)\log(44.12) + 0.15$ $= 0.109$	340
20A4	0.052 mi^2 33.45 acre	3600 ft 0.6818 mi	2428-1940/0.6818 = 715.7 ft/mi	$K_b = (-0.025)\log(33.45) + 0.15$ $= 0.1119$	325
20A5	0.066 mi^2 42.23 acre	3200 ft 0.6061 mi	2428-1940/0.6061 = 805.1 ft/mi	$K_b = (-0.025)\log(42.23) + 0.15$ $= 0.1093$	330
20A6	0.035 mi^2 22.77 acre	1800 ft 0.3409 mi	2380-2000/0.3409 = 1114.7 ft/mi	$K_b = (-0.025)\log(22.77) + 0.15$ $= 0.1161$	350
20A7	0.0039 mi^2 2.49 acre	500 ft 0.0947 mi	2060-2000/0.0947 = 633.6 ft/mi	$K_b = (-0.025)\log(2.49) + 0.15$ $= 0.1400$	320
20A8	0.0106 mi^2 6.76 acre	1000 ft 0.1894 mi	2180-1980/0.1894 = 1056 ft/mi	$K_b = (-0.025)\log(6.76) + 0.15$ $= 0.1293$	350
20A9	0.025 mi^2 16.37 acre	1900 ft 0.3598 mi	2400-1975/0.3598 = 1181.2 ft/mi	$K_b = (-0.025)\log(16.37) + 0.15$ $= 0.1196$	355
20A10	0.035 mi^2 22.77 acre	2200 ft 0.4167 mi	2428-1960/0.4167 = 1123.2 ft/mi	$K_b = (-0.025)\log(22.77) + 0.15$ $= 0.1161$	350
20A11	0.038 mi^2 24.2 acre	2700 ft 0.5114 mi	2428-1945/0.5114 = 944.5 ft/mi	$K_b = (-0.025)\log(24.2) + 0.15$ $= 0.1154$	340
20A12	0.04 mi^2 25.62 acre	2000 ft 0.3788 mi	2000-1930/0.3788 = 184.8 ft/mi	$K_b = (-0.025)\log(25.62) + 0.15$ $= 0.1148$	—
20A13	0.019 mi^2 12.1 acre	1550 ft 0.2936 mi	1975-1940/0.2936 = 119.2 ft/mi	$K_b = (-0.025)\log(12.1) + 0.15$ $= 0.1229$	—
20A14	0.015 mi^2 9.49 acre	1800 ft 0.3409 mi	1975-1930/0.3409 = 132.0 ft/mi	$K_b = (-0.025)\log(9.49) + 0.15$ $= 0.1256$	—
20A15	0.036 mi^2 23.25 acre	1500 ft 0.2841 mi	2025-1920/0.2841 = 369.6 ft/mi	$K_b = (-0.025)\log(23.25) + 0.15$ $= 0.1158$	290
20A16	0.071 mi^2 45.55 acre	2400 ft 0.4545 mi	1940-1900/0.4545 = 88 ft/mi	$K_b = (-0.025)\log(45.55) + 0.15$ $= 0.1085$	—

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 9
PROJECT VILLAGES AT DESERT HILLS CALC. Shermek Campbell DATE
SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
20A17	0.022 mi² 14.23 acre	1500 ft 0.2841 mi	1930-1900/0.2841 = 105.6 ft/mi	$K_b = (-0.025)\log(14.23) + 0.15 = 0.1212$	—
20A18	0.087 mi² 55.5 acre	4700 ft 0.8901 mi	1980-1885/0.8901 = 106.7 ft/mi	$K_b = (-0.025)\log(55.5) + 0.15 = 0.1064$	—
20A19	0.057 mi² 36.29 acre	3200 ft 0.606 mi	1930-1880/0.606 82.5 ft/mi	$K_b = (-0.025)\log(36.29) + 0.15 = 0.1110$	—
20A20	0.054 mi² 34.63 acre	2600 ft 0.4924 mi	1910-1870/0.4924 81.2 ft/mi	$K_b = (-0.025)\log(34.63) + 0.15 = 0.1115$	—
20A21	0.024 mi² 15.66 acre	2200 ft 0.4167 ft	1895-1860/0.4167 = 84.0 ft/mi	$K_b = (-0.025)\log(15.66) + 0.15 = 0.1201$	—
20A22	0.013 mi² 8.18 acre	1200 ft 0.2273 mi	1880-1860/0.2273 = 88.0 ft/mi	$K_b = (-0.025)\log(8.18) + 0.15 = 0.1272$	—
20A23	0.01 mi² 6.4 acres	600 ft 0.1136 mi	~~88~~ ft/mi	$K_b = (-0.025)\log(6.4) + 0.15 = 0.1298$	—
20A24	0.111 mi² 71.17 acres	4000 ft 0.7576 mi	1900-1860/0.7576 = 52.8 ft/mi	$K_b = (-0.025)\log(71.17) + 0.15 = 0.1037$	—
20A25	0.029 mi² 18.5 acres	2500 ft 0.4735 mi	1880-1856/0.4735 = 50.7 ft/mi	$K_b = (-0.025)\log(18.5) + 0.15 = 0.1183$	—
20A26	0.121 mi² 77.57 acres	7100 ft 1.3447 mi	1940-1850/1.3447 = 66.9 ft/mi	$K_b = (-0.025)\log(77.57) + 0.15 = 0.1027$	—
20A27 VOID	0.03 mi² 19.21 acres	2600 ft 0.4924 mi	1925-1890/0.4924 = 71.1 ft/mi	$K_b = (-0.025)\log(19.21) + 0.15 = 0.1179$	—
20A28 VOID	0.08 mi² 51.24 acres	5000 ft 0.9470 mi	1925-1870/0.9470 = 58.1 ft/mi	$K_b = (-0.025)\log(51.24) + 0.15 = 0.1073$	—
20A29 VOID	0.057 mi² 36.29 acres	2700 ft 0.5114 mi	1900-1868/0.5114 = 62.6 ft/mi	$K_b = (-0.025)\log(36.29) + 0.15 = 0.1110$	—

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA# 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 10
DATE
DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
20A27	0.0133 mi^2 8.5 acre	1500 ft 0.2841 mi	71.1 ft/mi	K_b = 0.1268	
20A28	0.0167 mi^2 10.7 acre	1300 ft 0.2462 mi	71.1 ft/mi	K_b = 0.124	
20A29	0.0411 mi^2 26.3 acre	2500 FT 0.4735 mi	58.1 ft/mi	K_b = 0.115	
20A30	0.0389 mi^2 24.9 acre	2900 FT 0.5492 mi	58.1 ft/mi	K_b = 0.115	
20A31	0.0233 mi^2 14.9 acre	1600 FT 0.3030 mi	62.6 ft/mi	K_b = 0.121	
20A32	0.0337 mi^2 21.6 acre	1800 FT 0.3409 mi	62.6 ft/mi	K_b = 0.117	

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA # 1474.1 SHEET 11
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT SUB-BASIN DRAINAGE PARAMETERS CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
30A1	0.318 mi^2 203.52 acres	8500 ft 1.610 mi	2065-1920/1.610 = 90.1 ft/mi	(-0.025) log(203.52) + 0.15 = 0.092	
30A2	0.084 mi^2 53.76 acres	4000 FT 0.76 mi	91.74 ft/mi	(-0.025) log(53.76) + 0.15 = 0.107	—
30A3	0.097 mi^2 62.08 acres	3100 FT 0.5871 mi	1920-1880/0.5871 = 68.1 ft/mi	(-0.025) log(62.08) + 0.15 = 0.105	
30A4	0.029 mi^2 18.56 acres	1300 FT 0.2462 mi	1920-1900/0.2462 = 81.2 FT/mi	(-0.025) log(18.56) + 0.15 = 0.118	
40A1 VOID	0.204 mi^2 130.56 acres	6500 FT 1.23 mi	121.2 ft/mi	(-0.025) log(130.56) + 0.15 = 0.097	—
40A2 V010	0.091 mi^2 58.24 acres	3500 FT 0.663 mi	105.6 FT/mi	(-0.025) log(58.24) + 0.15 = 0.106	—
40A3 VOID	0.055 mi^2 35.2 acres	2800 FT 0.53 mi	117.3 FT/mi	(-0.025) log(35.2) + 0.15 = 0.111	—
40A4 V015	0.118 mi^2 75.52 acres	4300 FT 0.81 mi	81.2 FT/mi	(-0.025) log(75.52) + 0.15 = 0.103	—

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES @ DESERT HILLS
SUBJECT SUB BASIN DRAINAGE PARAMETERS
JOB NO. EA#1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 12
DATE
DATE

SUB BASIN I.D.	SUB BASIN AREA	FLOWPATH LENGTH	WATERCOURSE SLOPE	WATERSHED RESISTANCE COEFFICIENT	ADJUSTED SLOPE
40A1	0.046 mi² 29.4 acre	2000 FT 0.3788 mi	105.6 FT/mi	(-0.025) log(29.4) + 0.15 = 0.113	
40A2	0.011 mi² 7.1 acre	1200 FT 0.2273 mi	105.6 FT/mi	(-0.025) log(7.1) + 0.15 = 0.129	
40A3	0.038 mi² 24.2 acre	2300 FT 0.4356 mi	105.6 FT/mi	(-0.025) log(24.2) + 0.15 = 0.115	
40A4	0.049 mi² 31.3 acre	3000 FT 0.5682 mi	105.6 FT/mi	(-0.025) log(31.3) + 0.15 = 0.113	
40A5	0.076 mi² 48.9 acre	3000 FT 0.5682 mi	60.3 FT/mi	(-0.025) log(48.9) + 0.15 = 0.108	
40A6	0.147 mi² 93.9 acre	5000 FT 0.9470 mi	84.5 FT/mi	(-0.025) log(93.9) + 0.15 = 0.100	
40A7	0.049 mi² 31.3 acre	3300 FT 0.625 mi	105.6 FT/mi	(-0.025) log(31.3) + 0.15 = 0.113	
40A8	0.091 mi² 58.3 acre	3000 FT 0.5682 mi	70.4 FT/mi	(-0.025) log(58.3) + 0.15 = 0.106	
8B1	0.235 mi² 150.4 acre	5200 FT 0.9848 mi	82.7 FT/mi	(-0.025) log(150.4) + 0.15 = 0.095	
8B2	0.029 mi² 18.5 acre	1800 FT 0.3409 mi	88.0 FT/mi	(-0.025) log(18.5) + 0.15 = 0.118	
8B3	0.016 mi² 10.4 acre	1400 FT 0.2651 mi	105.6 FT/mi	(-0.025) log(10.4) + 0.15 = 0.125	
8C1	0.021 mi² 13.3 acre	1200 FT 0.2273 mi	88 FT/mi	(-0.025) log(13.3) + 0.15 = 0.122	
8C2	0.260 mi² 166.5 acre	3000 FT 0.5682 mi	105.6 FT/mi	(-0.025) log(166.5) + 0.15 = 0.094	
8C3	0.502 mi² 321.3 acre	8000 FT 1.515 mi	128.9 FT/mi	(-0.025) log(321.3) + 0.15 = 0.087	

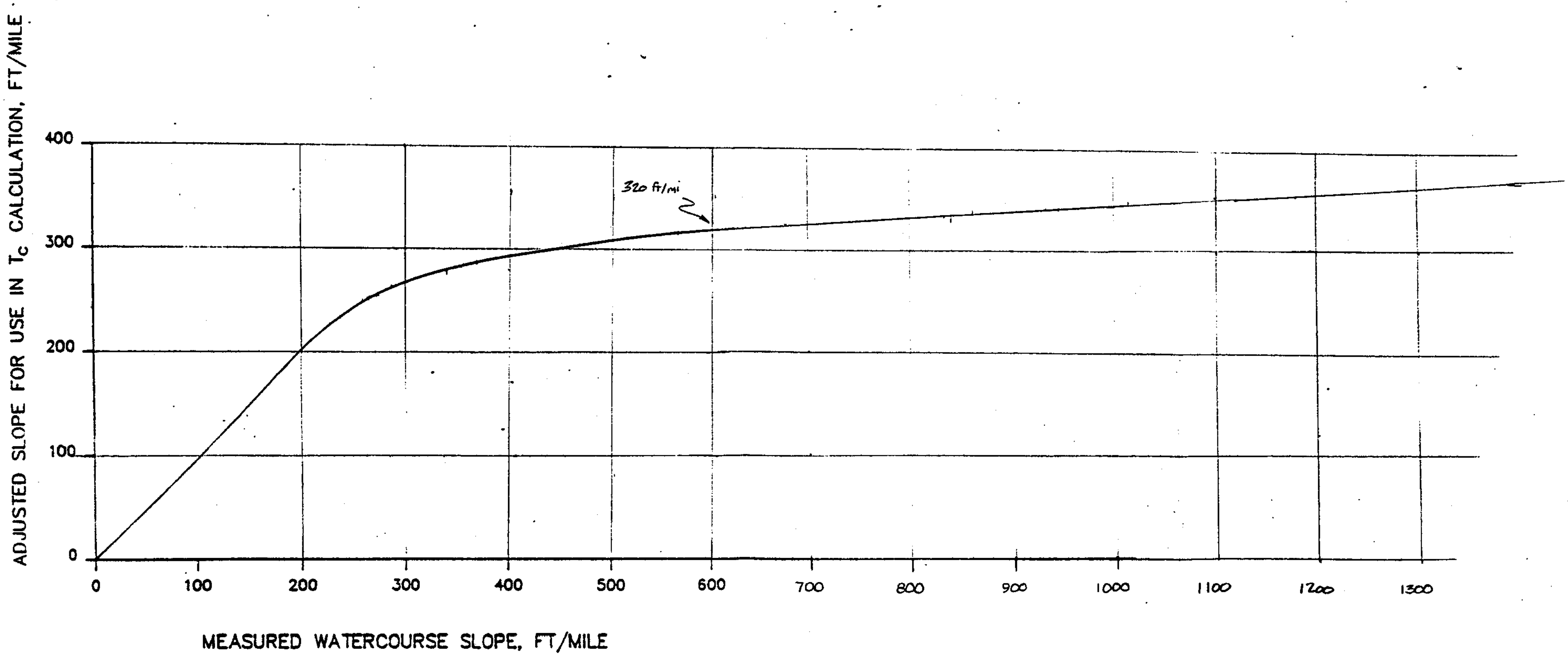

Figure 5.4
Slope Adjustment for Steep Watercourses in Natural Watersheds
(Source: *Drainage Criteria Manual*, Urban Drainage and Flood Control District, Colorado, May 1984.)

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ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA # 1474.1 SHEET 14
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
1A1	110 → ($0.0037 mi^2$) 4.7% 44 → ($0.0749 mi^2$) 95.3%	0.037 in/hr	9.8 in	0.24	0.35
1A2	44 → ($0.0623 mi^2$) 15.3% 13 → ($0.0178 mi^2$) 4.4% 12 → ($0.15 mi^2$) 36.9% 110 → ($0.176 mi^2$) 43.4%	0.042 in/hr	9.4 in	0.25	0.35
1A3	110 → ($0.0211 mi^2$) 17.7% 12 → ($0.098 mi^2$) 82.3%	0.018 in/hr	11.5 in	0.185	0.35
2A1	44 → ($0.0367 mi^2$) 10.0% 109 → ($0.3313 mi^2$) 90.0%	0.396 in/hr	4 in	0.35	0.25
2A2	44 → ($0.0138 mi^2$) 37.2% 109 → ($0.0233 mi^2$) 62.8%	0.197 in/hr	5.4 in	0.37	0.217
2B1	109 → ($0.1202 mi^2$) 90.4% 44 → ($0.0128 mi^2$) 9.6%	0.400 in/hr	4 in	0.35	0.247
2B2	44 → 100%	0.04 in/hr	9.6 in	0.25	0.15
2C1	109 → 16 % 44 → 27 % 98 → 13 % 110 → 11 % 12 → 33 %	0.013	12 in	0.165	0.339
2C2	44 → ($0.0222 mi^2$) 4.3% 110 → ($0.0067 mi^2$) 1.3% 12 → ($0.265 mi^2$) 51.7% 98 → ($0.2191 mi^2$) 42.7%	0.06 in/hr	8.4 in	0.29	0.35
3A1	109 → ($0.1042 mi^2$) 93.0% 44 → ($0.0078 mi^2$) 7.0%	0.409 in/hr	4 in	0.35	0.1967

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 15
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
3A2	109 → (0.0182 mi^2) 67.2% 44 → (0.0089 mi^2) 32.8%	0.208 in/hr	5.2 in	0.37	0.15
3B1	109 → 100%	0.465 in/hr	3.7 in	0.35	0.15
3B2	110 → (0.0211 mi^2) 8.7% 44 → (0.1086 mi^2) 44.9% 12 → (0.0867 mi^2) 35.8% 109 → (0.0256 mi^2) 10.6%	0.035 in/hr	10 in	0.24	0.324
3C	12 → (0.0322 mi^2) 29.5% 109 → (0.0157 mi^2) 14.4% 110 → (0.0611 mi^2) 56.1%	0.123	7.5	0.35	0.27
3D1	12 → (0.0981 mi^2) 83.9% 13 → (0.0189 mi^2) 16.1%	0.012 in/hr	12.5 in	0.16	0.35
3D2	12 → (0.028 mi^2) 90.3% 13 → (0.003 mi^2) 9.7%	0.012 in/hr	12.5 in	0.16	0.35
3D3	12 → (0.1503 mi^2) 72.6% 98 → (0.0567 mi^2) 27.4%	0.031 in/hr	10 in	0.23	0.35
~~4A~~	~~12 → 100%~~	~~0.012~~	~~12.4~~	~~0.15~~	~~0.35~~
4B	13 → 12 18	0.091	8.28	0.280	0.275
4C	12 13 110 18	0.012	12.40	0.15	0.325
4D	12 110 13 18	0.116	7.78	0.330	0.270

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 16
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
4E1	12 → (0.0226 mi^2) 18.5% 110 → (0.0282 mi^2) 23.1% 18 → (0.0712 mi^2) 41.6%	0.205 in/hr	5.4 in	0.37	0.303
4E2	18 → (0.0263 mi^2) 52.6% 110 → (0.0171 mi^2) 34.2% 98 → (0.0066 mi^2) 13.2%	0.293 in/hr	4.6 in	0.35	0.314
5A	109 44	0.400	3.77	0.350	0.24
5B	110 109 12	0.121	7.50	0.350	0.300
5C	44 109 110 12	0.106	7.78	0.330	0.330
5D	109 110	0.177	6.6	0.400	0.33
5E	110 98 12	0.210	5.67	0.390	0.35
5F1	98 → (0.0567 mi^2) 70% 13 → (0.0233 mi^2) 28.8% 12 → (0.001 mi^2) 1.2%	0.146 in/hr	6 in	0.4	0.35
5F2	13 → (0.023 mi^2) 7.7% 12 → (0.113 mi^2) 37.9% 110 → (0.0322 mi^2) 10.8% 98 → (0.1165 mi^2) 39.1% 18 → (0.0133 mi^2) 4.5%	0.073 in/hr	7.8 in	0.32	0.35

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA#1474.1 SHEET 17
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
5G1	98 → 100%	0.43	3.9 in	0.35	0.35
5G2	12 → (0.2085 mi^2) 76.4% 98 → (0.03 mi^2) 11.0% 110 → (0.0345 mi^2) 12.6%	0.024	11 in	0.21	0.35
6A	98 109 110 12	0.314	3.55	0.350	0.300
6B1	98 → (0.0207 mi^2) 31.8% 12 → (0.0347 mi^2) 53.4% 110 → (0.0096 mi^2) 14.8%	0.054	8.8 in	0.28	0.35
6B2	110 → (0.0185 mi^2) 14.8% 98 → (0.0333 mi^2) 26.6% 12 → (0.0732 mi^2) 58.6%	0.045	9.2 in	0.26	0.35
7A1	109 → 100%	0.492 in/hr	3.7 in	0.35	0.215
7A2	109 → (0.5436 mi^2) 99.2% 98 → (0.0044 mi^2) 0.8%	0.443 in/hr	3.8 in	0.35	0.267
7A3	109 → (0.2059 mi^2) 75.4% 110 → (0.0245 mi^2) 9.0% 98 → (0.0148 mi^2) 5.4% 44 → (0.0278 mi^2) 10.2%	0.325 in/hr	4.3 in	0.35	0.211
7A4	98 → (0.0415 mi^2) 17.7% 109 → (0.1146 mi^2) 49.0% 44 → (0.0145 mi^2) 6.2% 110 → (0.0634 mi^2) 27.1%	0.272 in/hr	4.7 in	0.35	0.34
7A5	44 → (0.0504 mi^2) 11.1% 110 → (0.1394 mi^2) 30.6% 98 → (0.0645 mi^2) 14.2% 109 → (0.1547 mi^2) 34.0% 12 → (0.046 mi^2) 10.1%	0.162 in/hr	5.9 in	0.39	0.35

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT VILLAGES AT DESERT HILLS
SUBJECT PRECIPITATION LOSSES
JOB NO. EA#1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 18
DATE
DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
7B	110 98 12	0.035	10.10	0.250	0.35
7C	110 12	0.105	7.78	0.330	0.350
7D	98 12	0.012	12.40	0.150	0.35
7E	110 109	0.163	6.78	0.390	0.35
7F1	110 → ($0.0245 mi^2$) 87.5% 12 → ($0.0035 mi^2$) 12.5%	0.110	6.8	0.36	0.35
7F2	98 → ($0.0067 mi^2$) 23.1% 12 → ($0.0223 mi^2$) 76.9%	0.027	10.5	0.215	0.35
7G	12 → 98 → 110 →	0.047	8.20	0.25	0.35
7H	12 98	0.058	8.4	0.25	0.35
8A	13 44 110	0.070	8.6	0.250	0.35
8B	12 13	0.012	12.40	0.15	0.35
8C	12 110	0.023	9.40	0.200	0.34

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT VILLAGES AT DESERT HILLS
SUBJECT PRECIPITATION LOSSES
JOB NO. EA# 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 19
DATE
DATE

SUB·BASIN I.D.	SUB·BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
10A1	109 → (0.1316 mi²) 92.7% 44 → (0.0104 mi²) 7.3%	0.423	3.9 in	0.35	0.25
10A2	109 → (0.0096 mi²) 64% 44 → (0.0054 mi²) 36%	0.200	5.4 in	0.37	0.195
10B	44 12	0.023	9.40	0.200	0.34
10C1	44 → (0.1156 mi²) 36.4% 12 → (0.2024 mi²) 63.6%	0.0176	11.5	0.185	0.342
10C2	98 → (0.0556 mi²) 27.1% 12 → (0.1494 mi²) 72.9%	0.031	10 in	0.225	0.35
10C3	98 → (0.0122 mi²) 8.2% 12 → (0.1368 mi²) 91.8%	0.016	11.5 in	0.18	0.35
10D1	98 → 100%	0.43	3.8 in	0.35	0.35
* 10D2	98 → (0.0734 mi²) 76.5% 110 → (0.0156 mi²) 16.3% 12 → (0.0115 mi²) 7.2%	0.281	4.6 in	0.35	0.35
10E1	44 → (0.0426 mi²) 40.2% 12 → (0.0634 mi²) 59.8%	0.018	11.5 in	0.185	0.35
10E2	12 → (0.2196 mi²) 59% 44 → (0.1179 mi²) 31.7% 110 → (0.0345 mi²) 9.3%	0.021	11 in	0.195	0.35
10E3	110 → (0.0185 mi²) 24.7% 98 → (0.0163 mi²) 21.7% 12 → (0.0402 mi²) 53.6%	0.048	9 in	0.265	0.35
10F		0.047	8.20	0.250	0.35

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA #1474.1 SHEET 20
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[XKSAT]	[PSIF]	[DTHETA]	[IA]
4A1	12 ⟶ 100%	0.0117 in/hr	12 in	0.16	0.35
4A2	12 ⟶ 100%	0.0117 in/hr	12 in	0.16	0.35
4A3	12 ⟶ 100%	0.0117 in/hr	12 in	0.16	0.35
4C1	12 ⟶ 100%	0.0117 in/hr	12 in	0.16	0.35
4C2	12, 13 ⟶ 100%	0.012 in/hr	12 in	0.16	0.323
10H1	110 ⟶ 51% 98 ⟶ 49%	0.253 in/hr	4.9 in	0.35	0.35
10H2	110 ⟶ 13% 98 ⟶ 59% 18 ⟶ 28%	0.364 in/hr	4.2 in	0.35	0.35
10J1	12 ⟶ 100%	0.0117 in/hr	12 in	0.16	0.35

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA # 1474.1 SHEET 21
PROJECT THE VILLAGES @ DESERT HILLS
CALC. SHERRCK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES
CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
10K1	18 → 56% 98 → 44%	0.194	0.35	3.8 in	0.450 in/hr	7.22
10K2	98 → 100%	0.244	0.35	3.75 in	0.462 in/hr	7.22
10K3	18 → 4% 98 → 96%	0.23	0.35	3.7 in	0.466 in/hr	7.22
10K4	18 → 40% 98 → 60%	0.242	0.35	3.7 in	0.444 in/hr	7.22
10K5	18 → 62% 98 → 38%	0.254	0.35	3.85 in	0.430 in/hr	7.22
10K6	98 → 9% 18 → 83% 110 → 8%	0.23	0.35	4.0 in	0.391 in/hr	7.22
10K7	18 → 13% 110 → 77% 12 → 10%	0.308	0.39	6.2 in	0.136 in/hr	7.22
10L1	18 → 67% 12 → 33%	0.212	0.39	6.2 in	0.138 in/hr	11.24
10L2	12 → 14% 98 → 12% 13 → 6% 110 → 14% 18 → 15% 109 → 39%	0.19	0.37	5.4 in	0.198 in/hr	11.24

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA#1474.1 SHEET 22
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

SUB·BASIN I.D.	SUB·BASIN SOILTYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
20A1	109 → 100%	0.25	0.35	3.6	0.504	0
20A2	109 → 100%	0.25	0.35	3.6	0.504	0
20A3	109 → (0.0505) 73.2% 68 → (0.0185 mi^2) 26.8%	0.263	0.35	3.4	0.578	0
20A4	109 → 14.3% 68 → 62.2% 44 → 23.5%	0.337	0.35	4.3	0.34	0
20A5	109 → 39.4% 68 → 60.6%	0.297	0.35	3.3	0.625	0
20A6	109 → 100%	0.277	0.35	3.7	0.4791	0
20A7	109 → 100%	0.33	0.35	3.8	0.428	0
20A8	109 → 100%	0.319	0.35	3.8	0.438	0
20A9	109 → 100%	0.291	0.35	3.7	0.466	0
20A10	109 → 81% 44 → 19%	0.315	0.35	3.6	0.486	0
20A11	109 → 92% 44 → 3% 68 → 5%	0.327	0.35	3.9	0.412	0
20A12	44 → 42% 12 → 43% 109 → 10% 98 → 5%	0.35	0.23	10	0.0315	0
20A13	98 → 83% 44 → 17%	0.35	0.22	10.5	0.281	0

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA#1474.1 SHEET 23
PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
20A14	9% → 91% →	0.35	0.35	4.2 in	0.344 in/hr	0
20A15	22% → 78% →	0.322	0.36	5 in	0.243 in/hr	0
20A16	44 → 38% 3 → 10% 109 → 11% 98 → 22% 12 → 19%	0.35	0.33	7.4 in	0.087 in/hr	0
20A17	98 → 34% 44 → 66%	0.35	0.32	7.6 in	0.082	0
20A18	110 → 9% 44 → 38% 12 → 50% 98 → 3%	0.35	0.21	10.7 in	0.025 in/hr	0
20A19	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A20	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A21	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A22	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A23	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A24	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A25	12 → 100%	0.35	0.16	12 in	0.0117 in/hr	0
20A26		0.35	0.17	12 in	0.015 in/hr	0

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 24

PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRY K CAMPBELL DATE

SUBJECT CHKD. DATE

SUB·BASIN I.D.	SUB·BASIN SOIL TYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
20A27	3 → 67% 110 → 23% 98 → 10%	0.35	0.35	3.7	0.460	0
20A28	3 → 30% 12 → 3% 98 → 67%	0.35	0.35	3.7	0.445	0
20A29	110 → 52% 13 → 35% 98 → 13%	0.35	0.30	8	0.071	0
20A30	98 → 15% 110 → 23% 12 → 62%	0.35	0.24	9.8	0.036	0
20A31	12 → 100%	0.35	0.16	12	0.0117	0
20A32	12 → 27% 110 → 73%	0.35	0.29	8.2	0.065	0

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA#1474.1
CALC. SHERRICKCAMPBELL
CHKD.
SHEET 25
DATE
DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
30A1	13 → 20% 12 → 80%	0.35	0.15	12.5	0.01 in/hr	0
30A2	13 → 30% 12 → 70%	0.35	0.15	12.5	0.01 in/hr	0
30A3	12 → 36% 110 → 64%	0.35	0.285	8.4	0.061 in/hr	0
30A4	12 → 100%	0.35	0.15	12.5	0.01 in/hr	0

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 26
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT SUB-BASIN PRECIPITATION LOSSES CHKD. DATE

SUB-BASIN I.D.	SUB-BASIN SOIL TYPE COMPONENTS	[IA]	[DTHETA]	[PSIF]	[XKSAT]	[RTIMP]
40A1	13 → 100%	0.35	0.16	12	0.0117	0
40A2	13 → 100%	0.35	0.16	12	0.0117	0
40A3	13 → 88% 110 → 12%	0.35	0.18	11.75	0.016	0
40A4	13 → 87% 110 → 13%	0.35	0.18	11.75	0.016	0
40A5	13 → 57% 110 → 43%	0.35	0.24	10	0.035	0
40A6	12 → 27% 13 → 52% 110 → 21%	0.35	0.19	11.6	0.0200	0
40A7	12 → 100%	0.35	0.16	12	0.0117	0
40A8	12 → 100%	0.35	0.16	12	0.0117	0
8B1	12 → 13 →	0.35	0.16	12	0.0117	0
8B2	12 → 100%	0.35	0.16	12	0.0117	0
8B3	12 → 100%	0.35	0.16	12	0.0117	0
8C1	12 → 100%	0.35	0.16	12	0.0117	0.29
8C2	12 → 100%	0.35	0.16	12	0.0117	0.29
8C3	12 → 65% 110 → 13% 98 → 14% 13 → 8%	0.35	0.215	10.5	0.027	0.29

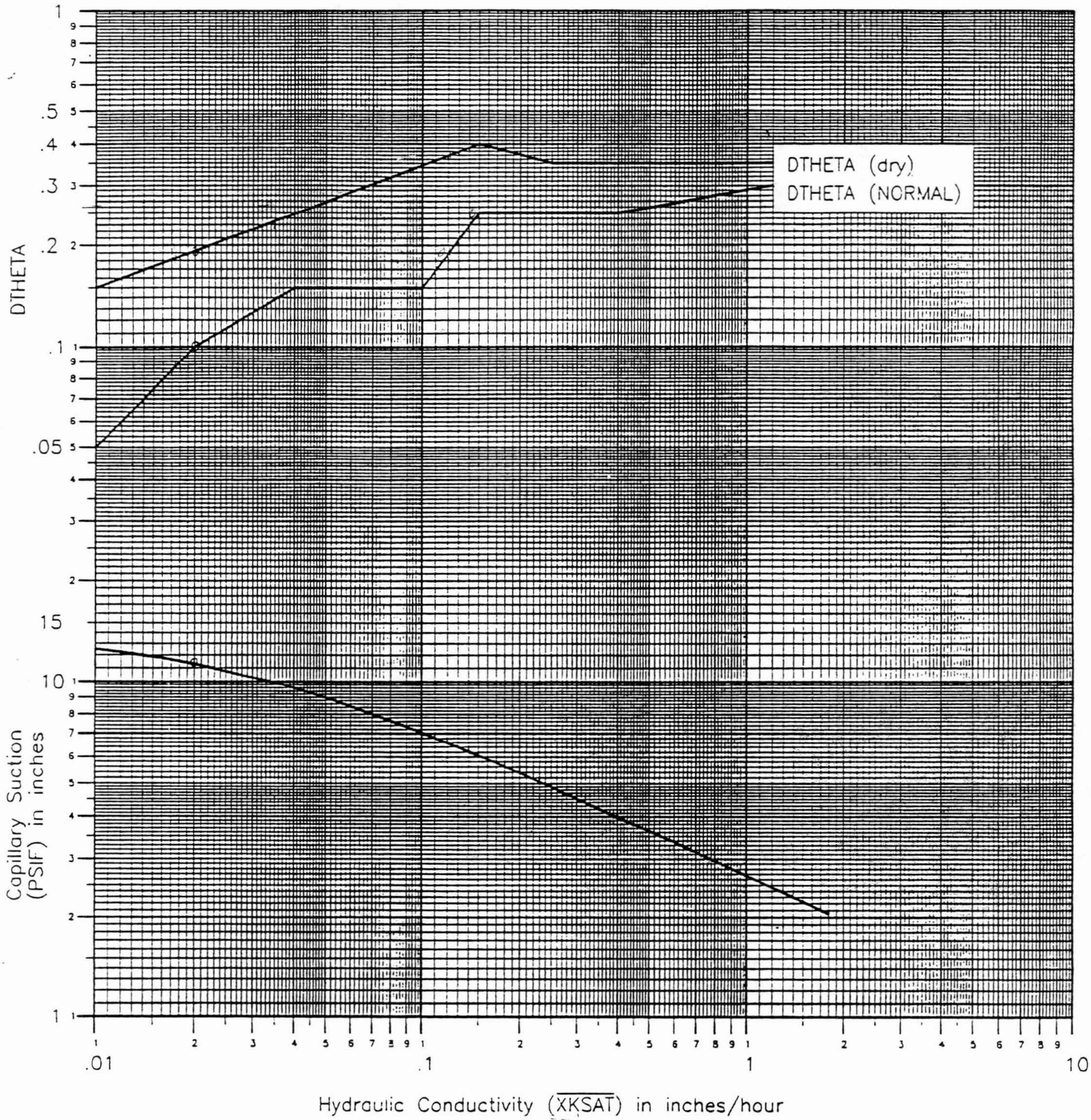

Figure 4.3
Composite Values of PSIF and DTHETA as a function of XKSAT
(To be used for area-weighted averaging of Green and Ampt parameters.)

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PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
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MAP UNIT NO.	[XKSAT]
3	0.58 in/hr
10	0.94 in/hr
12	0.01 in/hr
13	0.01 in/hr
18	0.33 in/hr
44	0.03 in/hr
52	0.16 in/hr
68	0.63 in/hr
75	0.23 in/hr
98	0.37 in/hr
100	0.40 in/hr
109	0.35 in/hr
110	0.13 in/hr
112	0.39 in/hr
113	0.39 in/hr
118	0.42 in/hr
123	0.37 in/hr

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HYDRAULIC CONDUCTIVITY CALCULATIONS (EXISTING AND PROPOSED LAND USE CONDITIONS)

SUB-BASIN 1A1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.047 \log(0.13) + 0.953 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.032 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: (25% FOR DESERT AND RANGELAND)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$C_K = \frac{XKSAT_{ADJ.}}{XKSAT}$$

$$\overline{XKSAT_{ADJ}} = 1.17\left[0.032 \text{ in/hr}\right]$$

$$= 0.037 \text{ in/hr}$$

SUB-BASIN 1A2

$$\overline{XKSAT} = ALOG\left[0.153 \log(0.03) + 0.044 \log(0.01) + 0.369 \log(0.01) + 0.434 \log(0.13)\right]$$

$$\overline{XKSAT} = 0.036 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: ($V_c = 25\%$)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAJ_{ADJ}} = 1.17 * \overline{XKSAT} = 1.17(0.036)$$

$$= 0.042 \text{ in/hr}$$

SUB-BASIN 1A3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{\quad}\right]$$

$$\overline{XKSAT} = ALOG\left[0.177\log(0.13) + 0.823\log(0.01)\right]$$

$$\overline{XKSAT} = 0.016 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: ($V_c = 25\%$)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT_{ADJ}} = C_K\,\overline{XKSAT}$$

$$= (1.17)(0.016)$$

$$\overline{XKSAT_{ADJ}} = 0.018 \text{ in/hr}$$

SUB-BASIN 2A1

$$\overline{XKSAT} = ALOG\left[0.100\log(0.03) + 0.90\log(0.35)\right]$$

$$XKSAT = 0.274 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: ($V_c = 50\%$ FOR MOUNTAIN LAND USE)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{50-10}{90} + 1.0 = 1.44$$

$$\overline{XKSAT_{ADJ}} = C_K\,\overline{XKSAT} = (1.44)(0.274)$$

$$\overline{XKSAT_{ADJ}} = 0.396 \text{ in/hr}$$

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		DATE	

SUB BASIN 2A2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.372 \log(0.03) + 0.628 \log(0.35)\right]$$

$$\overline{XKSAT} = 0.14 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

33 % AREA @ $V_c = 40\%$
67 % AREA @ $V_c = 50\%$

$$V_c = 0.33(40) + 0.67(50)$$

$$V_c = 46.7\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{46.7 - 10}{90} + 1.0 = 1.41$$

$$\overline{XKSAT}_{ADJ} = C_K \, \overline{XKSAT} = (1.41)(0.14) = 0.197 \text{ in/hr}$$

SUB BASIN 2B1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.904 \log(0.35) + 0.096 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.276 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

3% AREA @ $V_c = 40\%$
97% AREA @ $V_c = 50\%$

$$V_c = 0.03(40) + 0.97(50)$$
$$V_c = 49.7\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{49.7 - 10}{90} + 1.0 = 1.44$$

$$XKSAT_{ADJ} = 1.44(0.276) = 0.400 \text{ in/hr}$$

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SUB-BASIN 2B2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[1 \cdot \log(0.03)\right]$$

$$XKSAT = 0.03 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 40\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{40-10}{90} + 1.0 = 1.33$$

$$\overline{XKSAT}_{ADJ} = 1.33(0.03) = 0.04 \text{ in/hr}$$

SUBBASIN 2C1

$$\overline{XKSAT} = ALOG\left[0.16 \log(0.35) + 0.27 \log(0.03) + 0.13 \log(0.37) + 0.11 \log(0.13) + 0.33 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.011 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

3% AREA @ $V_c = 50\%$
4% AREA @ $V_c = 40\%$
93% AREA @ $V_c = 25\%$

$$V_c = 0.03(50) + 0.04(40) + 0.93(25)$$

$$V_c = 26.35\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{26.35 - 10}{90} + 1.0 = 1.18$$

$$\overline{XKSAT}_{ADJ} = 1.18(0.011) = 0.013 \text{ in/hr}$$

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SUBBASIN 2C2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.043 \log 0.03 + 0.013 \log 0.13 + 0.517 \log 0.01 + 0.427 \log 0.37\right]$$

$$\overline{XKSAT} = 0.051 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17(0.051)$$

$$\overline{XKSAT}_{ADJ} = 0.06 \text{ in/hr}$$

SUB-BASIN 3A1

$$\overline{XKSAT} = ALOG\left[0.93 \log(0.35) + 0.07 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.295 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

46.7% AREA @ $V_c = 50\%$
53.3% AREA @ $V_c = 40\%$

$$V_c = 0.467(50) + 0.533(40)$$

$$V_c = 44.7\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{44.7-10}{90} + 1.0 = 1.39$$

$$\overline{XKSAT}_{ADJ} = 1.39(0.295) = 0.409 \text{ in/hr}$$

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SUB-BASIN 3A2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.672 \log(0.35) + 0.328 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.156 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 40\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{40-10}{90} + 1.0 = 1.33$$

$$\overline{XKSAT_{ADJ}} = 1.33(0.156) = 0.208 \text{ in/hr}$$

SUB-BASIN 3B1

$$\overline{XKSAT} = 0.35 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 40\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{40-10}{90} + 1.0 = 1.33$$

$$\overline{XKSAT_{ADJ}} = 1.33(0.35) = 0.465 \text{ in/hr}$$

SUB-BASIN 3B2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.087 \log(0.13) + 0.449 \log(0.03) + 0.358 \log(0.01) + 0.106 \log(0.35)\right]$$

$$\overline{XKSAT} = 0.03 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

13% AREA @ $V_c = 40\%$

87% AREA @ $V_c = 25\%$

$$V_c = 0.13(40) + 0.87(25) = 27\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{27-10}{90} + 1.0 = 1.19$$

$$\overline{XKSAT_{ADJ}} = 1.19(0.03) = 0.035 \text{ in/hr}$$

SUB-BASIN 3D1

$$XKSAT = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$XKSAT = ALOG\left[0.839 \log(0.01) + 0.161 \log(0.01)\right]$$

$$XKSAT = 0.01 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K \cdot \overline{XKSAT} = (1.17)(0.01) = 0.012 \text{ in/hr}$$

SUB-BASIN 3D2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.903 \log(0.01) + 0.097 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.01$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = (1.17)(0.01) = 0.012 \text{ in/hr}$$

SUB-BASIN 3D3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.726 \log(0.01) + 0.274 \log(0.37)\right]$$

$$XKSAT = 0.027 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17(0.027) = 0.031 \text{ in/hr}$$

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SUB-BASIN 4E1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.185 \log(0.01) + 0.231 \log(0.13) + 0.416 \log(0.33)\right]$$

$$\overline{XKSAT} = 0.168 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

7% AREA @ $V_c = 50\%$
20% AREA @ $V_c = 40\%$
73% AREA @ $V_c = 25\%$

$$V_c = 0.07(50) + 0.20(40) + 0.73(25)$$
$$V_c = 29.7\%$$
$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{29.7 - 10}{90} + 1.0 = 1.22$$

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = 1.22 \cdot 0.168 = 0.205 \text{ in/hr}$$

SUB-BASIN 4E2

$$\overline{XKSAT} = ALOG\left[0.526 \log(0.33) + 0.342 \log(0.13) + 0.132 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.244 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

18% AREA @ $V_c = 40\%$
82% AREA @ $V_c = 25\%$ → $V_c = 0.18(40) + 0.82(25) = 27.7\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{27.7 - 10}{90} + 1.0 = 1.20$$

$$\overline{XKSAT}_{ADJ} = 1.20(0.244) = 0.293 \text{ in/hr}$$

SUB-BASIN 5F1

$$\overline{XKSAT} = ALOG\left[0.70 \log(0.37) + 0.288 \log(0.01) + 0.012 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.125 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17(0.125) = 0.146 \text{ in/hr}$$

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SUB-BASIN 5F2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.077\log(0.01) + 0.379\log(0.01) + 0.108\log(0.13) + 0.391\log(0.37) + 0.045\log(0.33)\right]$$

$\overline{XKSAT} = 0.063$ in/hr

ADJUST FOR VEGETATION COVER:
100% AREA @ $V_c = 25\%$

$$C_k = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$\overline{XKSAT}_{ADJ} = 1.17(0.063) = 0.073$ in/hr

SUB-BASIN 7A1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$\overline{XKSAT} = 0.35$ in/hr

ADJUST FOR VEGETATION COVER:

35% AREA @ $V_c = 40\%$
65% AREA @ $V_c = 50\%$

$V_c = 0.35(40) + 0.65(50)$
$V_c = 46.5\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{46.5-10}{90} + 1.0 = 1.41$$

$\overline{XKSAT}_{ADJ} = 1.41(0.35) = 0.492$ in/hr

SUB·BASIN 5G1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$\overline{XKSAT} = 0.37$ in/hr

ADJUST FOR VEGETATION COVER ($V_c = 25\%$ FOR DESERT & RANGELAND)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$XKSAT_{ADJ} = 1.17\left[0.37 \text{ in/hr}\right] = 0.43 \text{ in/hr}$$

SUB·BASIN 5G2

$$\overline{XKSAT} = ALOG\left[0.764 \log 0.01 + 0.11 \log 0.37 + 0.126 \log 0.13\right]$$

$\overline{XKSAT} = 0.0205$ in/hr

ADJUST FOR VEGETATION COVER ($V_c = 25\%$)

$$C_K = \frac{V_c - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17\,(0.0205)$$

$$\overline{XKSAT}_{ADJ} = 0.024 \text{ in/hr}$$

SUB·BASIN 6B·1

$$\overline{XKSAT} = ALOG\left[0.318 \log 0.37 + 0.534 \log 0.01 + 0.148 \log 0.13\right]$$
$$= 0.046$$

ADJUST:

$$\overline{XKSAT}_{ADJ} = C_K \cdot \overline{XKSAT}$$
$$= (1.17)(0.046)$$
$$= 0.054 \text{ in/hr}$$

SUB. BASIN 6B2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.148 \log(0.13) + 0.266 \log(0.37) + 0.586 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.038 \text{ in/hr}$$

ADJUST ($V_c = 25\%$)

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = (1.17)(0.038)$$

$$\overline{XKSAT}_{ADJ} = 0.045 \text{ in/hr}$$

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SUB-BASIN 7A2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.992 \log 0.35 + 0.008 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.35 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

$$\left.\begin{array}{l} 15\%\ \text{AREA} @ V_c = 50\% \\ 51\%\ \text{AREA} @ V_c = 25\% \\ 34\%\ \text{AREA} @ V_c = 40\% \end{array}\right\} V_c = 0.15(50) + 0.51(25) + 0.34(40) = 33.9\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{33.9 - 10}{90} + 1.0 = 1.27$$

$$\overline{XKSAT}_{ADJ} = 1.27(0.35) = 0.443 \text{ in/hr}$$

SUB-BASIN 7A3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.754 \log(0.35) + 0.09 \log(0.13) + 0.054 \log(0.37) + 0.102 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.250 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

$$\left.\begin{array}{l} 26 \text{ \% AREA @ } V_c = 25\% \\ 9 \text{ \% AREA @ } V_c = 50\% \\ 65 \text{ \% AREA @ } V_c = 40\% \end{array}\right\} \begin{array}{l} V_c = 0.26(25) + 0.09(50) + 0.65(40) \\ V_c = 37\% \end{array}$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{37-10}{90} + 1.0 = 1.3$$

$$\overline{XKSAT}_{ADJ} = 1.3(0.250) = 0.325 \text{ in/hr}$$

SUB-BASIN 7A4

$$\overline{XKSAT} = ALOG\left[0.177 \log(0.37) + 0.49 \log(0.35) + 0.062 \log(0.03) + 0.271 \log(0.13)\right)$$

$$\overline{XKSAT} = 0.232 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

5% AREA @ $V_c = 40\%$

95% AREA @ $V_c = 25\%$

$$V_c = 0.05(40) + 0.95(25) = 25.7\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25.7 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17(0.232) = 0.272 \text{ in/hr}$$

SUB-BASIN 7A5

$$\overline{XKSAT} = ALOG\left[0.111 \log(0.03) + 0.306 \log(0.13) + 0.142 \log(0.37) + 0.34 \log(0.35) + 0.101 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.139 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = 1.17(0.139) = 0.162 \text{ in/hr}$$

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SUB-BASIN 10A1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.927 \log(0.35) + 0.073 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.293 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: (V_c = 50% FOR MOUNTAIN AREA)

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{50-10}{90} + 1.0 = 1.44$$

$$\overline{XKSAT}_{ADJ} = C_K\ \overline{XKSAT}$$
$$= (1.44)(0.293)$$
$$= 0.423 \text{ in/hr}$$

SUB-BASIN 10A2

$$\overline{XKSAT} = ALOG\left[0.64 \log(0.35) + 0.36 \log(0.03)\right]$$

$$\overline{XKSAT} = 0.145 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

44.5% AT V_c = 50%

55.5% AT V_c = 40%

$$V_c = 0.445(50) + 0.555(40)$$

$$V_c = 44.5\ \%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{44.5-10}{90} + 1.0 = 1.38$$

$$\overline{XKSAT}_{ADJ} = 1.38(0.145) = 0.200 \text{ in/hr}$$

SUB-BASIN 10C1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.364 \log 0.03 + 0.636 \log 0.01\right]$$

$\overline{XKSAT} = 0.015$ in/hr

ADJUST FOR VEGETATION COVER:

4% @ $V_c = 40\%$
96% @ $V_c = 25\%$

$V_c = 0.04(40) + 0.96(25)$

$V_c = 25.6\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25.6 - 10}{90} + 1.0 = 1.17$$

$XKSAT_{ADJ} = 1.17(0.015) = 0.0176$ in/hr

SUBBASIN 10C2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.271 \log(0.37) + 0.729 \log(0.01)\right]$$

$\overline{XKSAT} = 0.027$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$XKSAT_{ADJ} = 1.17(0.027) = 0.031$ in/hr

ERIE & ASSOCIATES, INC.
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JOB NO. EA#1474.1 SHEET 44

PROJECT VILLAGES AT DESERT HILLS CALC. ______ DATE ______

SUBJECT ______ CHKD. ______ DATE ______

SUB-BASIN 10C3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_j \log XKSAT_j}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.082 \log(0.37) + 0.918 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.0134 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$XKSAT_{ADJ} = 1.17(0.0134) = 0.016 \text{ in/hr}$$

SUB-BASIN 10D1

$$XKSAT = ALOG\left[1 \log(0.37)\right]$$

$$XKSAT = 0.37 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$XKSAT_{ADJ} = 1.17(0.37) = 0.43 \text{ in/hr}$$

SUB-BASIN 10D2

$$XKSAT = ALOG\left[0.765 \log(0.37) + 0.163 \log(0.13) + 0.072 \log(0.01)\right]$$

$$XKSAT = 0.24 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$XKSAT_{ADJ} = 1.17(0.24) = 0.281 \text{ in/hr}$$

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PROJECT: VILLAGES AT DESERT HILLS
SUBJECT:
JOB NO.:
CALC.:
CHKD.:
SHEET: 45
DATE:
DATE:

SUB-BASIN 10E1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log(XKSAT_i)}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.402 \log(0.03) + 0.598 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.015 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100 % AREA @ $V_c = 25\%$

$$\overline{XKSAT_{ADJ}} = \overline{XKSAT} \cdot \left[\frac{V_c - 10}{90} + 1.0\right]$$

$$\overline{XKSAT_{ADJ}} = 0.015\left[\frac{25-10}{90} + 1.0\right]$$

$$\overline{XKSAT_{ADJ}} = 0.018 \text{ in/hr}$$

SUB-BASIN 10E2

$$\overline{XKSAT} = ALOG\left[0.59 \log(0.01) + 0.317 \log(0.03) + 0.093 \log(0.13)\right]$$

$$\overline{XKSAT} = 0.018 \text{ in/hr}$$

ADJUST FOR VEG. COVER

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT_{ADJ}} = 1.17(0.018)$$

$$\overline{XKSAT_{ADJ}} = 0.021 \text{ in/hr}$$

SUB-BASIN 10E3

$$\overline{XKSAT} = ALOG\left[0.247 \log(0.13) + 0.217 \log(0.37) + 0.536 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.041 \text{ in/hr}$$

$$\overline{XKSAT_{ADJ}} = 1.17(0.041) = 0.048$$

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PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT PRECIPITATION LOSSES
JOB NO. EA# 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 46
DATE
DATE

SUB-BASIN 4A1

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT}$ = 0.01 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 25%

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = 0.01\,(1.17) = 0.0117 \text{ in/hr}$$

SUB-BASIN 4A2

SEE 4A1

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 4A3

SEE 4A1

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 4C1

100 % AREA @ XKSAT = 0.01 in/hr

XKSAT = 0.01 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 25%

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = (0.01)(1.17) = 0.0117 \text{ in/hr}$$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA # 1474.1 SHEET 47
PROJECT VILLAGES AT DESERT HILLS CALC. Sherrick Campbell DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUBBASIN 4C2

100% AREA @ XKSAT = 0.01 in/hr SO,

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER:

5% AREA @ $V_c = 50\%$
11% AREA @ $V_c = 40\%$
84% AREA @ $V_c = 25\%$

$$V_c = 0.05(50) + 0.11(40) + 0.84(25) = 27.9\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{27.9 - 10}{90} + 1.0 = 1.199$$

$$\overline{XKSAT}_{ADJ} = (1.199)(0.01) = 0.01199 \text{ in/hr}$$

SUB-BASIN 10H1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.51 \log(0.13) + 0.49 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.217 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25 - 10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = (1.17)(0.217)$$

$$= 0.253 \text{ in/hr}$$

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PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA# 1474.1
CALC.
CHKD.
SHEET 48
DATE
DATE

SUB-BASIN 10H2

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.13 \log(0.13) + 0.59 \log(0.37) + 0.28 \log(0.33)\right]$$

$$\overline{XKSAT} = 0.312 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = (1.17)(0.312) = 0.364 \text{ in/hr}$$

ERIE & ASSOCIATES, INC.
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JOB NO.	EA# 1474.1	SHEET	49
PROJECT: THE VILLAGES AT DESERT HILLS	CALC. SHERRICK CAMPBELL	DATE	
SUBJECT	CHKD.	DATE	

SUB-BASIN 10J

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25-10}{90} + 1.0\right]\left[0.01\right]$$

$$\overline{XKSAT}_{ADJ} = 0.0117 \text{ in/hr}$$

SUB-BASIN 10K1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log \overline{XKSAT}}{A_T}\right]$$

56% AREA @ XKSAT = 0.33 in/hr
44% AREA @ XKSAT = 0.37 in/hr

$$\overline{XKSAT} = ALOG\left[0.56 \log(0.33) + 0.44 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.347 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

22% AREA @ V_c = 25%
78% AREA @ V_c = 40%

$$\overline{V_c} = 0.22(25) + 0.78(40) = 36.7\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{36.7 - 10}{90} + 1.0 = 1.30$$

$$\overline{XKSAT}_{ADJ} = C_K \overline{XKSAT} = (1.3)(0.347) = 0.450 \text{ in/hr}$$

SUB-BASIN 10K2

100% AREA @ XKSAT = 0.37 in/hr

$$\overline{XKSAT} = 0.37 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER

47% AREA @ V_c = 25%
53% AREA @ V_c = 40%

$$\overline{V_c} = 0.47(25) + 0.53(40) = 32.95\%$$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{32.95 - 10}{90} + 1.0 = 1.25$$

$$\overline{XKSAT}_{ADJ} = 1.25(0.37) = 0.462 \text{ in/hr}$$

ERIE & ASSOCIATES, INC.
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JOB NO. EA# 1474.1 SHEET 51
PROJECT THE VILLAGES @ DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

SUB-BASIN 10K3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

4% AREA @ XKSAT = 0.33
96% AREA @ XKSAT = 0.37

$$\overline{XKSAT} = ALOG\left[0.04 \log(0.33) + 0.96 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.368 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

40% AREA @ $V_c = 25\%$
60% AREA @ $V_c = 40\%$

$$\overline{V_c} = 0.40(25) + 0.60(40) = 34\%$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{34-10}{90} + 1.0\right]\left[0.368\right] = 0.466 \text{ in/hr}$$

SUB-BASIN 10K4

40% AREA @ XKSAT = 0.33
60% AREA @ XKSAT = 0.37

$$\overline{XKSAT} = ALOG\left[0.40 \log(0.33) + 0.60 \log(0.37)\right]$$

$$\overline{XKSAT} = 0.353 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

46% AREA @ $V_c = 25\%$
54% AREA @ $V_c = 40\%$

$$\overline{V_c} = 0.46(25) + 0.54(40) = 33.1\%$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{33.1-10}{90} + 1.0\right]\left[0.353\right] = 0.444 \text{ in/hr}$$

SUB-BASIN 10K5

62% AREA @ XKSAT = 0.33 in/hr
38% AREA @ XKSAT = 0.37 in/hr

$\overline{XKSAT} = ALOG[0.62 \log(0.33) + 0.38 \log(0.37)]$

$\overline{XKSAT} = 0.345$ in/hr

ADJUST FOR VEGETATION COVER:

52% AREA @ V_c = 25%
48% AREA @ V_c 40%

$\overline{V_c} = 0.52(25) + 0.48(40) = 32.2\%$

$\overline{XKSAT}_{ADJ} = \left[\frac{32.2 - 10}{90} + 1.0\right]\left[0.345\right] = 0.43$ in/hr

SUB-BASIN 10K6

9% AREA @ XKSAT = 0.37
83% AREA @ XKSAT = 0.33
8% AREA @ XKSAT = 0.13

$\overline{XKSAT} = ALOG[0.09 \log(0.37) + 0.83 \log(0.33) + 0.08 \log(0.13)]$

$\overline{XKSAT} = 0.309$ in/hr

ADJUST FOR VEGETATION COVER:

40% AREA @ V_c = 25%
60% AREA @ V_c = 40%

$\overline{V_c} = 0.40(25) + 0.60(40) = 34\%$

$\overline{XKSAT}_{ADJ} = \left[\frac{34 - 10}{90} + 1.0\right]\left[0.309\right] = 0.391$ in/hr

SUB BASIN 10K7

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

13% AREA @ XKSAT = 0.33
77% AREA @ XKSAT = 0.13
10% AREA @ XKSAT = 0.01

$$\overline{XKSAT} = ALOG\left[0.13\log(0.33) + 0.77\log(0.13) + 0.10\log(0.01)\right]$$

$$\overline{XKSAT} = 0.113 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER

21% AREA @ V_c = 40%
79% AREA @ V_c = 25%

$$\overline{V_c} = 0.21(40) + 0.79(25) = 28.15\ \%$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{28.15-10}{90} + 1.0\right]\left[0.113\right] = 0.136 \text{ in/hr}$$

SUB BASIN 10L1

67% AREA @ XKSAT = 0.33
33% AREA @ XKSAT = 0.01

$$\overline{XKSAT} = ALOG\left[0.67\log(0.33) + 0.33\log(0.01)\right] = 0.104 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER =

20% AREA @ V_c = 25%
22% AREA @ V_c = 50%
58% AREA @ V_c = 40%

$$\overline{V_c} = 0.2(25) + 0.22(50) + 0.58(40) = 39.2\%$$

$$XKSAT_{ADJ} = \left[\frac{39.2-10}{90} + 1.0\right]\left[0.104\right] = 0.138 \text{ in/hr}$$

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JOB NO. EA#1474.1 SHEET 5A
PROJECT THE VILLAGES AT DESERT HILLS CALC. DATE
SUBJECT CHKD. DATE

SUB BASIN 10L2

14% AREA @ XKSAT = 0.01 in/hr
12% AREA @ XKSAT = 0.37 in/hr
6% AREA @ XKSAT = 0.01 in/hr
14% AREA @ XKSAT = 0.13 in/hr
15% AREA @ XKSAT = 0.33 in/hr
39% AREA @ XKSAT = 0.35 in/hr

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.14\log(0.01) + 0.12\log(0.37) + 0.06\log(0.01) + 0.14\log(0.13) + 0.15\log(0.33) + 0.39\log(0.35)\right]$$

$$\overline{XKSAT} = 0.149 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

12% AREA @ $V_c = 25\%$
72% AREA @ $V_c = 40\%$
16% AREA @ $V_c = 50\%$

$$\overline{V_c} = 0.12(25) + 0.72(40) + 0.16(50) = 39.8\%$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{\overline{V_c} - 10}{90} + 1.0\right]\left[\overline{XKSAT}\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{39.8 - 10}{90} + 1.0\right]\left[0.149\right] = 0.198 \text{ in/hr}$$

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JOB NO. EA# 1474.1 SHEET 55

PROJECT VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

SUBJECT CHKD. DATE

HYDRAULIC CONDUCTIVITY CALCULATIONS

SUB-BASIN 20A1

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT}{A_T}\right]$$

100% AREA @ XKSAT = 0.35 in/hr

$\overline{XKSAT}$ = 0.35 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 50%

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{50-10}{90} + 1.0 = 1.44$$

$$C_K = \frac{\overline{XKSAT_{ADJ}}}{\overline{XKSAT}}$$

$\overline{XKSAT_{ADJ}} = 1.44(0.35) = 0.504$ in/hr

SUB-BASIN 20A2

100% AREA @ XKSAT = 0.35 in/hr

$\overline{XKSAT}$ = 0.35 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 50%

C_K = 1.44

$\overline{XKSAT_{ADJ}} = 1.44(0.35) = 0.504$ in/hr

SUB-BASIN 20A3

$\overline{XKSAT} = ALOG[0.732 \log(0.35) + 0.268 \log(0.63)]$

$\overline{XKSAT} = 0.4097$ in/hr

ADJUST FOR VEGETATION COVER:

$$C_K = \frac{V_c - 10}{90} + 1.0$$

13% AREA @ $V_c = 25\%$
87% AREA @ $V_c = 50\%$

$V_c = 0.13(25) + 0.87(50) = 46.75\%$

$$C_K = \frac{46.75 - 10}{90} + 1.0 = 1.41$$

$\overline{XKSAT}_{ADJ} = (1.41)(0.4097) = 0.5777$ in/hr

SUB-BASIN 20A4

$\overline{XKSAT} = ALOG[0.143 \log(0.35) + 0.622 \log(0.63) + 0.235 \log(0.03)]$

$\overline{XKSAT} = 0.283$ in/hr

ADJUST FOR VEGETATION COVER:

$$C_K = \frac{V_c - 10}{90} + 1.0$$

13% AREA @ $V_c = 50\%$
87% AREA @ $V_c = 25\%$

$V_c = 0.13(50) + 0.87(25) = 28.25\%$

$$C_K = \frac{28.25 - 10}{90} + 1.0 = 1.2$$

$\overline{XKSAT}_{ADJ} = 0.283(1.2) = 0.34$ in/hr

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JOB NO. EA # 1474.1 SHEET 57

PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

SUBJECT CHKD. DATE

SUB-BASIN 20A5

NOTE:
39.4 % AREA @ XKSAT = 0.35 in/hr
60.6 % AREA @ XKSAT = 0.63 in/hr

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.394 \log(0.35) + 0.606 \log(0.63)\right]$$

$$\overline{XKSAT} = 0.50 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

19.0% AREA @ $V_c = 50\%$
17.0% AREA @ $V_c = 40\%$
64.0% AREA @ $V_c = 25\%$

$V_c = 0.19(50) + 0.17(40) + 0.64(25)$

$V_c = 32.3\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{32.3 - 10}{90} + 1.0 = 1.25$$

$$\overline{XKSAT}_{ADJ} = C_K\,\overline{XKSAT} = (1.25)(0.50)$$

$$\overline{XKSAT}_{ADJ} = 0.625 \text{ in/hr}$$

SUB-BASIN 20A6

100% AREA @ $\overline{XKSAT} = 0.35$ in/hr

ADJUST FOR VEGETATION COVER:

27% AREA @ $V_c = 25\%$
73% AREA @ $V_c = 50\%$

$V_c = 0.27(25) + 0.73(50) = 43.25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{43.25 - 10}{90} + 1.0 = 1.369$$

$$\overline{XKSAT}_{ADJ} = C_K\,\overline{XKSAT} = (1.369)(0.35) = 0.4791 \text{ in/hr}$$

SUB-BASIN 20A7

100% AREA @ XKSAT = 0.35 in/hr

ADJUST FOR VEGETATION COVER:

20% AREA @ $V_c = 50\%$
80% AREA @ $V_c = 25\%$

$V_c = 0.2(50) + 0.8(25) = 30\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{30 - 10}{90} + 1.0 = 1.22$$

$$\overline{XKSAT}_{ADJ} = C_K \, \overline{XKSAT} = (1.22)(0.35)$$
$$= 0.428 \text{ in/hr}$$

SUB-BASIN 20A8

100% AREA @ XKSAT = 0.35 in/hr

ADJUST FOR VEGETATION COVER:

31% AREA @ $V_c = 50\%$
69% AREA @ $V_c = 25\%$

$V_c = 0.31(50) + 0.69(25) = 32.75\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{32.75 - 10}{90} + 1.0 = 1.253$$

$$\overline{XKSAT}_{ADJ} = (1.253)(0.35) = 0.438 \text{ in/hr}$$

SUB-BASIN 20A9

100% AREA @ XKSAT = 0.35 in/hr

ADJUST FOR VEGETATION COVER:

59% AREA @ $V_c = 50\%$
41% AREA @ $V_c = 25\%$

$V_c = 0.59(50) + 0.41(25) = 39.75\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{39.75 - 10}{90} + 1.0 = 1.33$$

$$\overline{XKSAT}_{ADJ} = (1.33)(0.35) = 0.466 \text{ in/hr}$$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA # 1474.1
CALC. SHERRICK
CHKD.
SHEET 59
DATE
DATE

SUB-BASIN 20A10

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

*NOTE: 81% AREA @ XKSAT = 0.35
19% AREA @ XKSAT = 0.03

$$\overline{XKSAT} = ALOG\left[0.81 \log(0.35) + 0.03 \log(0.03)\right]$$

$\overline{XKSAT} = 0.3846$ in / hr

ADJUST FOR VEGETATION COVER:

35% AREA @ $V_c = 50\%$
65% AREA @ $V_c = 25\%$

$V_c = 0.35(50) + 0.65(25) = 33.75\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{33.75 - 10}{90} + 1.0 = 1.26$$

$$\overline{XKSAT_{ADJ}} = C_K\,\overline{XKSAT} = (1.26)(0.3846) = 0.486$$

SUB-BASIN 20A11

92% AREA @ XKSAT = 0.35
3% AREA @ XKSAT = 0.03
5% AREA @ XKSAT = 0.63

$$\overline{XKSAT} = ALOG\left[0.92 \log(0.35) + 0.03 \log(0.03) + 0.05 \log(0.63)\right]$$

$\overline{XKSAT} = 0.335$ in/hr

ADJUST FOR VEGETATION COVER:

23% AREA @ $V_c = 50\%$
77% AREA @ $V_c = 25\%$

$V_c = 0.23(50) + 0.77(25) = 30.75\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{30.75 - 10}{90} + 1.0 = 1.23$$

$$\overline{XKSAT_{ADJ}} = C_K\,\overline{XKSAT} = (1.23)(0.335) = 0.412 \text{ in/hr}$$

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PROJECT	THE VILLAGES AT DESERT HILLS	JOB NO.	EA # 1474.1	SHEET	60
SUBJECT		CALC.	SHERRICK CAMPBELL	DATE	
		CHKD.		DATE	

SUB·BASIN 20A12

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.42 \log(0.03) + 0.43 \log(0.01) + 0.10 \log(0.35) + 0.05 \log(0.37)\right]$$

$\overline{XKSAT}$ = 0.027 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 25%

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.167$$

$$\overline{XKSAT}_{ADJ} = (1.167)(0.027) = 0.0315 \text{ in/hr}$$

SUB·BASIN 20A13

$$\overline{XKSAT} = ALOG\left[0.83 \log(0.37) + 0.17 \log(0.03)\right]$$
$$= 0.241 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 25%

C_K = 1.167

$$XKSAT_{ADJ} = (1.167)(0.241)$$
$$= 0.281 \text{ in/hr}$$

SUB-BASIN 20A14

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

9% AREA @ XKSAT = 0.03 in/hr

91% AREA @ XKSAT = 0.37 in/hr

$\overline{XKSAT} = ALOG[0.09 \log(0.03) + 0.91 \log(0.37)]$

$\overline{XKSAT} = 0.295$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$\overline{XKSAT}_{ADJ} = C_K\,\overline{XKSAT} = (1.17)(0.295) = 0.344$ in/hr

SUB-BASIN 20A15

22% AREA @ XKSAT = 0.03 in/hr
78% AREA @ XKSAT = 0.35 in/hr

$\overline{XKSAT} = ALOG[0.22 \log(0.03) + 0.78 \log(0.35)]$

$\overline{XKSAT} = 0.204$ in/hr

ADJUST FOR VEGETATION COVER:

14% AREA @ $V_c = 40\%$
86% AREA @ $V_c = 25\%$

$V_c = 0.14(40) + 0.86(25) = 27.1\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{27.1-10}{90} + 1.0 = 1.19$$

$\overline{XKSAT}_{ADJ} = C_K\,\overline{XKSAT} = (1.19)(0.204) = 0.243$ in/hr

SUB-BASIN 20A16

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.38\log(0.03) + 0.10\log(0.58) + 0.11\log(0.35) + 0.22\log(0.37) + 0.19\log(0.01)\right]$$

$$\overline{XKSAT} = 0.075 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K\overline{XKSAT} = (1.17)(0.075) = 0.087 \text{ in/hr}$$

SUB-BASIN 20A17

34% AREA @ XKSAT = 0.37
66% AREA @ XKSAT = 0.03

$$\overline{XKSAT} = ALOG\left[0.34\log(0.37) + 0.66\log(0.03)\right]$$

$$\overline{XKSAT} = 0.07 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$C_K = \frac{V_c - 10}{90} + 1.0 = \frac{25-10}{90} + 1.0 = 1.17$$

$$\overline{XKSAT}_{ADJ} = C_K\overline{XKSAT} = (1.17)(0.07) = 0.082 \text{ in/hr}$$

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PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT PRECIPITATION LOSSES CHKD. DATE

SUB BASIN 20A18

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

9% AREA @ XKSAT = 0.13
38% AREA @ XKSAT = 0.03
50% AREA @ XKSAT = 0.01
3% AREA @ XKSAT = 0.37

$$\overline{XKSAT} = ALOG\left[0.09 \log(0.13) + 0.38 \log(0.03) + 0.50 \log(0.01) + 0.03 \log(0.37)\right]$$

$\overline{XKSAT} = 0.0213$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[\overline{XKSAT}\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25-10}{90} + 1.0\right]\left[0.0213\right]$$

$= 0.0249$ in/hr

SUB-BASIN 20A19

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEG. COVER:

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25-10}{90} + 1.0\right]\left[0.01\right]$$

$= 0.0117$ in/hr

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PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
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SUB-BASIN 20A20

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT_{ADJ}} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$\overline{XKSAT_{ADJ}} = \left[\frac{25 - 10}{90} + 1.0\right]\left[0.01\right]$$

$= 0.0117$ in/hr

SUB-BASIN 20A21

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$\overline{XKSAT_{ADJ}} = 0.0117$ in/hr

SUB-BASIN 20A22

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$\overline{XKSAT_{ADJ}} = 0.0117$ in/hr

SUB-BASIN 20A23

100% AREA @ $\overline{XKSAT} = 0.01$ in/hr

$\overline{XKSAT} = 0.01$ in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$\overline{XKSAT_{ADJ}} = 0.0117$ in/hr

SUB-BASIN 20A24

100% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT}$ = 0.01 in/hr

ADJUST FOR VEGETATION COVER:

100% AREA @ V_c = 25%

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 20A25

100% AREA @ XKSAT = 0.01 in/hr

100% AREA @ V_c = 25%

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 20A26

10% AREA @ XKSAT = 0.13 in/hr

90% AREA @ XKSAT = 0.01 in/hr

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.10\log(0.13) + 0.90\log(0.01)\right]$$

$$\overline{XKSAT} = 0.013 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: 100% AREA @ V_c = 25%

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[\overline{XKSAT}\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25 - 10}{90} + 1.0\right]\left[0.013\right]$$

$$\overline{XKSAT}_{ADJ} = 0.015 \text{ in/hr}$$

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PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

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SUB-BASIN 20A27

15% AREA @ XKSAT = 0.13 in/hr
39% AREA @ XKSAT = 0.37 in/hr
3% AREA @ XKSAT = 0.01 in/hr
43% AREA @ XKSAT = 0.58 in/hr

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

$$\overline{XKSAT} = ALOG\left[0.15\log(0.13) + 0.39\log(0.37) + 0.03\log(0.01) + 0.43\log(0.58)\right]$$

$$\overline{XKSAT} = 0.344 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER: 100% AREA @ $V_c = 25\%$

$$XKSAT_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25-10}{90} + 1.0\right]\left[0.344\right]$$

$$\overline{XKSAT}_{ADJ} = 0.401 \text{ in/hr}$$

SUB-BASIN 20A28

40% AREA @ XKSAT = 0.13
10% AREA @ XKSAT = 0.01
30% AREA @ XKSAT = 0.01
20% AREA @ XKSAT = 0.37

$$\overline{XKSAT} = ALOG\left[0.40\log(0.13) + 0.10\log(0.01) + 0.30\log(0.01) + 0.20\log(0.37)\right]$$

$$\overline{XKSAT} = 0.057 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:
100% AREA @ $V_c = 25\%$

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right] = \left[\frac{25-10}{90} + 1.0\right]\left[0.057\right]$$

$$\overline{XKSAT}_{ADJ} = 0.0665 \text{ in/hr}$$

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PROJECT THE VILLAGES@ DESERT HILLS CALC. SHERRICK CAMPBELL DATE

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SUB·BASIN 20A29

$$\overline{XKSAT} = ALOG\left[0.47 \log(0.13) + 0.63 \log(0.01)\right]$$

$$\overline{XKSAT} = 0.033 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:

100% AREA @ $V_c = 25\%$

$$\overline{XKSAT_{ADJ}} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$= \left[\frac{25 - 10}{90} + 1.0\right]\left[0.033\right]$$

$$= 0.0385 \text{ in/hr}$$

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SUB-BASIN 30A3

$$\overline{XKSAT} = ALOG\left[\frac{\sum A_i \log XKSAT_i}{A_T}\right]$$

36% AREA @ XKSAT = 0.01 in/hr
64% AREA @ XKSAT = 0.13 in/hr

$$\overline{XKSAT} = ALOG\left[0.36 \log(0.01) + 0.64 \log(0.13)\right]$$

$$\overline{XKSAT} = 0.052 \text{ in/hr}$$

ADJUST FOR VEGETATION COVER:
100% AREA @ V_c = 25%

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25 - 10}{90} + 1.0\right]\left[0.052\right]$$

$$\overline{XKSAT}_{ADJ} = 0.061 \text{ in/hr}$$

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PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
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SUB-BASIN 40A1

100% @ XKSAT = 0.01 in/hr

$\overline{XKSAT}$ = 0.01 in/hr

ADJUST FOR VEGETATION COVER:
100% AREA @ V_c = 25%

$$\overline{XKSAT}_{ADJ} = \left[\frac{V_c - 10}{90} + 1.0\right]\left[XKSAT\right]$$

$$\overline{XKSAT}_{ADJ} = \left[\frac{25 - 10}{90} + 1.0\right]\left[0.01\right]$$

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 40A2

100% AREA @ XKSAT = 0.01 in/hr

100% AREA @ V_c = 25%

$\overline{XKSAT}_{ADJ}$ = 0.0117 in/hr

SUB-BASIN 40A3

12% AREA @ XKSAT = 0.13 in/hr 100% AREA @ V_c = 25%
88% AREA @ XKSAT = 0.01 in/hr

$\overline{XKSAT}$ = ALOG [0.12 log(0.13) + 0.88 log(0.01)]

$\overline{XKSAT}$ = 0.014 in/hr $\overline{XKSAT}_{ADJ}$ = (1.17)(0.014) = 0.016 in/hr

SUB-BASIN 40A4

87% AREA @ XKSAT = 0.01
13% AREA @ XKSAT = 0.13

$\overline{XKSAT}$ = ALOG [0.87 log(0.01) + 0.13 log(0.13)]

$\overline{XKSAT}$ = 0.014 in/hr

ADJUST FOR VEGETATION COVER: 100% AREA @ V_c = 25%

$$\overline{XKSAT}_{ADJ} = \left[\frac{25 - 10}{90} + 1.0\right](0.014)$$

= 0.016 in/hr

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PROJECT THE VILLAGES AT DESERT HILLS
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SUB-BASIN 40A5

57% AREA @ XKSAT = 0.01
43% AREA @ XKSAT = 0.13

$\overline{XKSAT} = ALOG[0.57\log(0.01) + 0.43\log(0.13)]$

$\overline{XKSAT}$ = 0.03 in/hr

ADJUST FOR $V_c = 25\%$

$\overline{XKSAT}_{ADJ} = 1.17 * 0.03 = 0.035$ in/hr

SUB-BASIN 40A6

27% AREA @ XKSAT = 0.01
52% AREA @ XKSAT = 0.01
21% AREA @ XKSAT = 0.13

$\overline{XKSAT} = ALOG[0.27\log(0.01) + 0.52\log(0.01) + 0.21\log(0.13)]$

$\overline{XKSAT}$ = 0.017 in/hr

ADJUST FOR VEGETATION COVER:
100% AREA @ $V_c = 25\%$

$\overline{XKSAT} = (1.17)(0.017) = 0.020$ in/hr

SUB-BASIN 40A7

100% AREA @ XKSAT = 0.01 & $V_c = 25\%$

$\overline{XKSAT}_{ADJ} = 0.0117$ in/hr

SUB-BASIN 40A8

SEE 40A7

SUB-BASIN 8B1, B2, B3, C1, C2

SEE 40A7

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PROJECT THE VILLAGES @ DESERT HILLS CALC. SHERREK CAMPBELL DATE
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SUB-BASIN BC3

65% AREA @ XKSAT = 0.01 in/hr
13% AREA @ XKSAT = 0.13 in/hr
14% AREA @ XKSAT = 0.37 in/hr
8% AREA @ XKSAT = 0.01 in/hr

$$\overline{XKSAT} = ALOG\left[0.65\log(0.01) + 0.13\log(0.13) + 0.14\log(0.37) + 0.08\log(0.01)\right]$$

$\overline{XKSAT}$ = 0.023 in/hr

100% AREA @ Vc = 25%

$\overline{XKSAT}_{ADJ} = (1.17)(0.023) = 0.0269$ in/hr

INITIAL ABSTRACTION CALCULATIONS (EXISTING LAND USE CONDITIONS)

SUB-BASIN 2A2

33% AREA @ IA = 0.15
67% AREA @ IA = 0.25

IA = 0.33(0.15) + 0.67(0.25) = 0.217

SUB-BASIN 2B1

3% AREA @ IA = 0.15
97% AREA @ IA = 0.25

IA = 0.03(0.15) + 0.97(0.25) = 0.247

SUB-BASIN 2B2

100% AREA @ IA = 0.15

SUB BASIN 2C1

3% AREA @ IA = 0.25
4% AREA @ IA = 0.15
93% AREA @ IA = 0.35

IA = 0.03(0.25) + 0.04(0.15) + 0.93(0.35) = 0.339

SUB-BASIN 2C2

100% AREA @ IA = 0.35

SUB-BASIN 3A1

46.7% AREA @ IA = 0.25
53.3% AREA @ IA = 0.15

IA = 0.467 (0.25) + 0.533(0.15) = 0.1967

SUB-BASIN 3A2

100% AREA @ IA = 0.15

SUB·BASIN 3B1

100% AREA @ IA = 0.15

SUB·BASIN 3B2

13% AREA @ IA = 0.15
87% AREA @ IA = 0.35

$IA = 0.13(0.15) + 0.87(0.35) = 0.324$

SUB·BASIN 3D1

100% AREA @ IA = 0.35

SUB·BASIN 3D2

100% AREA @ IA = 0.35

SUB·BASIN 3D3

100% AREA @ IA = 0.35

SUB·BASIN 4E1

7% AREA @ IA = 0.25
20% AREA @ IA = 0.15
73% AREA @ IA = 0.35

$IA = 0.07(0.25) + 0.20(0.15) + 0.73(0.35) = 0.303$

SUB·BASIN 4E2

18% AREA @ IA = 0.15
82% AREA @ IA = 0.35

$IA = 0.18(0.15) + 0.82(0.35) = 0.314$

SUB·BASIN 5F1

100% AREA @ IA = 0.35

SUB·BASIN 5F2

100% AREA @ IA = 0.35

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PROJECT VILLAGES AT DESERT HILLS CALC. DATE
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SUB-BASIN 5G1

100% AREA @ IA= 0.35

SUB-BASIN 5G2

100% AREA @ IA = 0.35

SUB-BASIN 6B1

100% AREA @ IA = 0.35

SUB-BASIN 6B2

100% AREA @ IA = 0.35

SUB-BASIN 7A1

35% AREA @ IA= 0.15
65% AREA @ IA = 0.25

IA= 0.35(0.15) + 0.65(0.25) = 0.215

SUB-BASIN 7A2

15% AREA @ IA= 0.25
51% AREA @ IA = 0.35
34% AREA @ IA = 0.15

IA= 0.15(0.25) + 0.51(0.35) + 0.34(0.15) = 0.267

SUB-BASIN 7A3

26% AREA @ IA = 0.35
9% AREA @ IA = 0.25
65% AREA @ IA = 0.15

IA = 0.26(0.35) + 0.09(0.25) + 0.65(0.15) = 0.211

SUB-BASIN 7A4

5% AREA @ IA = 0.15
95% AREA @ IA = 0.35

IA = 0.05(0.15) + 0.95(0.35) = 0.34

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SUB·BASIN 7A5

100% AREA @ IA = 0.35

SUB·BASIN 10A1

100% AREA @ IA = 0.25

SUB·BASIN 10A2

44.5% AREA @ IA = 0.25
55.5% AREA @ IA = 0.15

$IA = 0.445(0.25) + 0.555(0.15) = 0.195$

SUB·BASIN 10C1

4% AREA @ IA = 0.15
96% AREA @ IA = 0.35

$IA = 0.04(0.15) + 0.96(0.35) = 0.342$

SUB·BASIN 10C2

100% AREA @ IA = 0.35

SUB·BASIN 10C3

100% AREA @ IA = 0.35

SUB·BASIN 10D1

100% AREA @ IA = 0.35

SUB·BASIN 10D2

100% AREA @ IA = 0.35

SUB·BASIN 10E1

100% AREA @ IA = 0.35

SUB·BASIN 10E2

100% AREA @ IA = 0.35

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SUB-BASIN 10E3

100% AREA @ IA = 0.35

SUB-BASIN 4C2

5% AREA @ IA = 0.25
11% AREA @ IA = 0.15
84% AREA @ IA = 0.35

$IA = 0.05(0.25) + 0.11(0.15) + 0.84(0.35)$
$IA = 0.323$ in

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DATE

INITIAL ABSTRACTION CALCULATIONS

SUB-BASIN 10K1

22% AREA @ IA = 0.35
78% AREA @ IA = 0.15

$\overline{IA} = 0.22(0.35) + 0.78(0.15)$

$\overline{IA} = 0.194$

SUB-BASIN 10K2

47% AREA @ IA = 0.35
53% AREA @ IA = 0.15

$\overline{IA} = 0.47(0.35) + 0.53(0.15)$

$\overline{IA} = 0.244$

SUB-BASIN 10K3

40% AREA @ IA = 0.35
60% AREA @ IA = 0.15

$\overline{IA} = 0.40(0.35) + 0.60(0.15)$

$\overline{IA} = 0.23$

SUB-BASIN 10K4

46% AREA @ IA = 0.35
54% AREA @ IA = 0.15

$\overline{IA} = 0.46(0.35) + 0.54(0.15)$

$\overline{IA} = 0.242$

SUB-BASIN 10K5

52% AREA @ IA = 0.35
48% AREA @ IA = 0.15

$\overline{IA} = 0.52(0.35) + 0.48(0.15)$

$\overline{IA} = 0.254$

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SUB-BASIN 10K6

40% AREA @ IA = 0.35
60% AREA @ IA = 0.15

$\overline{IA}$ = 0.40(0.35) + 0.60(0.15)

$\overline{IA}$ = 0.23

$$** \ \overline{IA} = \frac{\sum A_i \, IA_i}{\sum A_i}$$

SUB-BASIN 10K7

21% AREA @ IA = 0.15
79% AREA @ IA = 0.35

$\overline{IA}$ = 0.21(0.15) + 0.79(0.35)
$\overline{IA}$ = 0.308

SUB-BASIN 10L1

20% AREA @ IA = 0.35
22% AREA @ IA = 0.25
58% AREA @ IA = 0.15

$\overline{IA}$ = 0.20(0.35) + 0.22(0.25) + 0.58(0.15)
$\overline{IA}$ = 0.212

SUB-BASIN 10L2

12% AREA @ IA = 0.35
72% AREA @ IA = 0.15
16% AREA @ IA = 0.25

$\overline{IA}$ = 0.12(0.35) + 0.72(0.15) + 0.16(0.25)

$\overline{IA}$ = 0.19

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PROJECT THE VILLAGES AT DESERT HILLS CALC. DATE
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SUB-BASIN 20A3

13 % AREA @ IA = 0.35
87% AREA @ IA = 0.25

$\overline{IA} = 0.13(0.35) + 0.87(0.25)$

$\overline{IA} = 0.263$

SUB-BASIN 20A4

13% AREA @ IA = 0.25
87% AREA @ IA = 0.35

$\overline{IA} = 0.13(0.25) + 0.87(0.35)$

$\overline{IA} = 0.337$

SUB-BASIN 20A5

19% AREA @ IA = 0.25
17% AREA @ IA = 0.15
64% AREA @ IA = 0.35

$\overline{IA} = 0.19(0.25) + 0.17(0.15) + 0.64(0.35)$

$\overline{IA} = 0.297$

SUB-BASIN 20A6

27% AREA @ IA = 0.35
73% AREA @ IA = 0.25

$\overline{IA} = 0.27(0.35) + 0.73(0.25)$

$\overline{IA} = 0.277$

SUB-BASIN 20A7

20% AREA @ IA = 0.25
80% AREA @ IA = 0.35

$\overline{IA} = 0.20(0.25) + 0.80(0.35)$

$\overline{IA} = 0.33$

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PROJECT THE VILLAGES AT DESERT HILLS
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DATE

SUB-BASIN 20A8

31% AREA @ IA = 0.25
69% AREA @ IA = 0.35

$\overline{IA} = 0.31(0.25) + 0.69(0.35)$

$\overline{IA} = 0.319$

SUB-BASIN 20A9

59% AREA @ IA = 0.25
41% AREA @ IA = 0.35

$\overline{IA} = 0.59(0.25) + 0.41(0.35)$

$\overline{IA} = 0.291$

SUB-BASIN 20A10

35% AREA @ IA = 0.25
65% AREA @ IA = 0.35

$\overline{IA} = 0.35(0.25) + 0.65(0.35)$

$\overline{IA} = 0.315$

SUB-BASIN 20A11

23% AREA @ IA = 0.25
77% AREA @ IA = 0.35

$\overline{IA} = 0.23(0.25) + 0.77(0.35)$

$\overline{IA} = 0.327$

SUB-BASIN 20A15

14% AREA @ IA = 0.15
86% AREA @ IA = 0.35

$\overline{IA} = 0.14(0.15) + 0.86(0.35)$

$\overline{IA} = 0.322$

ERIE & ASSOCIATES, INC.
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JOB NO. ______ SHEET 81

PROJECT THE VILLAGES AT DESERT HILLS CALC. ______ DATE ______

SUBJECT proposed landuse CHKD. ______ DATE ______

summary of RTIMP & IA values used in calculations:

ZONING	RTIMP	IA
R1-43	5%	0.30
R1-35	15%	0.30
R1-10	30%	0.25
R1-6/R1-8	30%	0.25
R1-18	15%	0.30
C-5	80%	0.10
R-2	45%	0.25
I-1	55%	0.15

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JOB NO. EA# 1474.1 SHEET 82
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

PERCENT IMPERVIOUS AREA CALCULATIONS BASED ON PROPOSED ZONING (AND IA)

SUB·BASIN 1A1

16% AREA @ R1-35 RTIMP = 15% IA = 0.3
84% AREA @ R1-18 RTIMP = 15% IA = 0.3

$\overline{RTIMP}$ = 15%
$\overline{IA}$ = 0.3

SUB·BASIN 1A2

21% AREA @ R1-10 RTIMP = 30% IA = 0.25
60% AREA @ R1-6 RTIMP = 30% IA = 0.25

$\overline{RTIMP}$ = 30%
$\overline{IA}$ = 0.25

SUB·BASIN 1A3

100% AREA @ R1-43

$\overline{RTIMP}$ = 5%
$\overline{IA}$ = 0.3

SUB·BASIN 2A2

100% AREA @ R1-35

$\overline{RTIMP}$ = 15%
$\overline{IA}$ = 0.3

SUB·BASIN 2B2

100% AREA @ R1-35

$\overline{RTIMP}$ = 15%
$\overline{IA}$ = 0.3

SUB·BASIN 2C1

35% AREA @ R1-35 RTIMP = 15% IA = 0.3
30% AREA @ R1-10 RTIMP = 30% IA = 0.25
35% AREA @ R1-43 RTIMP = 5% IA = 0.3

$\overline{RTIMP}$ = 16%
$\overline{IA}$ = 0.285

SUB·BASIN 2C2

70% AREA @ R1-6 RTIMP = 30% IA = 0.25
10% AREA @ R1-10 RTIMP = 30% IA = 0.25
20% AREA @ R1-43 RTIMP = 5% IA = 0.3

$\overline{RTIMP}$ = 25%
$\overline{IA}$ = 0.26

ERIE & ASSOCIATES, INC.
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JOB NO. EA# 1474.1 SHEET 83
PROJECT THE VILLAGES AT DESERT HILLS CALC. DATE
SUBJECT proposed landuse CHKD. DATE

SUB·BASIN 3A2

100% AREA @ R1-35

$\overline{RTIMP}$ = 15%
$\overline{IA}$ = 0.3

SUB·BASIN 3B2

30% AREA @ R1-43 RTIMP= 5% IA= 0.3
60% AREA @ R1-35 RTIMP= 15% IA= 0.3
10% AREA @ R1-10 RTIMP= 30% IA= 0.25

$\overline{RTIMP}$ = 13.5%
$\overline{IA}$ = 0.295

SUBBASIN 3C

20% R1-43 RTIMP=5% IA=0.3
50% R1-35 RTIMP= 15% IA=0.3
30% R1-10 RTIMP= 30% IA=0.25

$\overline{RTIMP}$ = 17.5%
$\overline{IA}$ = 0.285

SUBBASIN 3D1

10% R1-43 RTIMP= 5% IA=0.3
90% R1-10 RTIMP=30% IA= 0.25
$\overline{RTIMP}$ = 27.5
$\overline{IA}$ = 0.255

SUBBASIN 3D2

55% R1-6 RTIMP=30% IA =0.25
45% R1-43 RTIMP= 5%, IA=0.3
$\overline{RTIMP}$ = 18.75%
$\overline{IA}$ = 0.273

SUBBASIN 3D3

20% C5 RTIMP=80% IA= 0.1
40% R1-43 RTIMP= 5% IA=0.3
40% R1-6 RTIMP=30% IA= 0.25
$\overline{RTIMP}$ = 30%
$\overline{IA}$ = 0.24

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 14741 SHEET 84

PROJECT THE VILLAGES AT DESERT HILLS CALC. ______ DATE ______

SUBJECT Proposed land use CHKD. ______ DATE ______

SUBBASIN 4A2

100% R1-43

$\overline{RTIMP} = 5\%$

$\overline{IA} = 0.30$

SUBBASIN 4E2 & 4E1

100% R1-43

$\overline{RTIMP} = 5\%$

$\overline{IA} = 0.30$

SUBBASIN 4A1

100% R1-6

$\overline{RTIMP} = 30\%$

$\overline{IA} = 0.25$

SUBBASIN 4C1

100% R1-43

$\overline{RTIMP} = 5\%$

$\overline{IA} = 0.30$

SUBBASIN 5G1

100% R1-7

$\overline{RTIMP} = 30\%$

$\overline{IA} = 0.25$

SUBBASIN 5G2

50% R2

50% R1-43

$\overline{RTIMP} = 25\%$

$\overline{IA} = 0.275$

SUBBASIN 5G22

75% R2

25% R1-43

$\overline{RTIMP} = 35\%$

$\overline{IA} = 0.2625$

SUBBASIN 5F22

30% R2

70% R1-43

$\overline{RTIMP} = 17\%$

$\overline{IA} = 0.285$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 1474 SHEET 85

PROJECT THE VILLAGES AT DESERT HILLS CALC. ______ DATE ______

SUBJECT PROPOSED LAND USE CHKD. ______ DATE ______

SUBBASIN 5F21

30% R-2
35% R1-6
35% R1-43

$\overline{RTIMP}$ = 25.75%
$\overline{IA}$ = 0.2675

SUBBASIN 5E

40% R1-7
60% R1-35

$\overline{RTIMP}$ = 21%
$\overline{IA}$ = 0.28

SUBBASIN 5B

10% R1-10
65% R1-35

$\overline{RTIMP}$ = 14%
$\overline{IA}$ = 0.295

SUBBASIN 5F1

80% R1-10
20% R1-43

$\overline{RTIMP}$ = 25%
$\overline{IA}$ = 0.26

SUBBASIN 6B1

70% R1-7
30% R1-43

$\overline{RTIMP}$ = 22.5%
$\overline{IA}$ = 0.265

SUBBASIN 6B2

60% R-2
40% R1-43

$\overline{RTIMP}$ = 29%
$\overline{IA}$ = 0.27

SUBBASIN 7B

100% C-2

$\overline{RTIMP}$ = 80%
$\overline{IA}$ = 0.10

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. 1479. SHEET 86

PROJECT THE VILLAGES AT DESERT CALC. DATE

SUBJECT proposed land use CHKD. DATE

SUBBasin 7D

100% C-2 $\overline{RTIMP}$ = 80%
$\overline{IA}$ = 0.10

SUBBasin 7F1 & 7F2 & 7G

100% R1-43 $\overline{RTIMP}$ = 5%
$\overline{IA}$ = 0.30

SUBBasin 7H

40% R-2 $\overline{RTIMP}$ = 21%
60% R1-43 $\overline{IA}$ = 0.28

SUBBasin 8D

100% R1-43 $\overline{RTIMP}$ = 5%
$\overline{IA}$ = 0.30

SUBBasin 10A2

100% R1-35 $\overline{RTIMP}$ = 15%
$\overline{IA}$ = 0.30

SUBBasin 10B

40% R1-35
35% R1-18 $\overline{RTIMP}$ = 15%
15% R1-43 $\overline{IA}$ = 0.295
10% R1-10

SUBBasin 10C1

25% R1-18 $\overline{RTIMP}$ = 22%
58% R1-10 $\overline{IA}$ = 0.271
17% R1-43

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JOB NO. 1474 SHEET 87
PROJECT THE VILLAGES AT DESERT HILLS CALC. DATE
SUBJECT PROPOSED LAND USE CHKD. DATE

~~SUBBASIN 10C2~~

100% R1-10 — RTIMP = 30%, IA = 0.25

SUBBASIN 10C3

15% R1-43
85% R1-6
RTIMP = 26.25%
IA = 0.2575

SUBBASIN 10D1

100% R1-10 — RTIMP = 30%, IA = 0.25

SUBBASIN 10D2

5% R1-43
95% R1-8
RTIMP = 28.75%
IA = 0.253

SUBBASIN 10H1 & 10H2

100% R1-43 — RTIMP = 5%, IA = 0.30

SUBBASINS 10K1, 10K2, 10K3, 10K4, 10K5, 10K6, 10K7

100% R1-43 — RTIMP = 5%, IA = 0.30

SUBBASIN 10E1

18% R1-35
82% R1-18
RTIMP = 15%
IA = 0.30

SUBBASIN 10E2

5% R1-10
50% R1-6
45% R1-43
RTIMP = 18.75%
IA = 0.273

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JOB NO. 1474 SHEET 88

PROJECT THE VILLAGES AT DESERT HILLS CALC. ______ DATE ______

SUBJECT Proposed Land Use CHKD. ______ DATE ______

SUBBASIN 10B3

70% R1-18 — $\overline{RTIMP}$ = 22.5%

30% R1-43 — $\overline{IA}$ = 0.265

SUBBASIN 10F

7% R1-6 — $\overline{RTIMP}$ = 4.6%

50% R1-43 — $\overline{IA}$ = 0.38

43% 0

SUBBASINS 20A3, 20A7, 20A6, 20A8, 20A9, 20A10, 20A11, 20A12, 20A13, 20A14, 20A5, 20A15, 20A16, 20A4

100% R1-35 — $\overline{RTIMP}$ = 15%, $\overline{IA}$ = 0.30

SUBBASINS 20A17, 20A19, 20A20, 20A21, 20A22

100% R1-10 — $\overline{RTIMP}$ = 30%, $\overline{IA}$ = 0.25

SUBBASINS 20A23, 20A25, 20A26, 20A35, 20A28

100% R1-43 — $\overline{RTIMP}$ = 5%, $\overline{IA}$ = 0.30

Table 4.2a IA, RTIMP, and Percent Vegetation Cover for Representative Land Uses in Maricopa County

Land Use Category	IA (inches)	RTIMP ** (percent)	Percent ** Veg. Cover	Gilbert Zoning Unit	Gilbert Description	Chandler Zoning Unit	Chandler Description	Mesa Zoning Unit	Mesa Description	Tempe Zoning Unit	Tempe Description	County Zoning Unit	County Description	Phoenix Zoning Unit	Phoenix Description
Agriculture	0.5*	0*	85*	AG	Agriculture	AG-1	Agriculture	AG	Agriculture	AG	Agriculture				
Very Low Density Residential	0.3*	5*	30*					R1-90	Single Residence			RURAL-190	190,000 sq. ft./dwelling unit	S-1	Ranch or Farm Residential, > 1 ac
								SR	Suburban Ranch			RURAL-70	70,000 sq. ft./dwelling unit	S-2	Ranch or Farm Commercial
				R1-43	Rural							RURAL-43	one acre/dwelling unit	RE-43	Single Family, 1 acre minimum
Low Density Residential	0.3*	15*	50*	R1-35	Rural Residential	SF-33	Single Family	R1-35	Single Residence			R1-35	Single Family Residential,	RE-35	SF, 35,000 sq.ft min.
													35,000 sq. ft./dwelling unit	RE-24	SF, 24,000 sq.ft min.
				R1-20	SF, Residential	SF-18	Single Family					R1-18	SFR, 18,000 sq. ft./unit	R1-18	SF, 18,000 sq.ft min.
				R1-15	" "			R1-15	Single Residence	R1-15	One Family Residential			R1-14	SF, 14,000 sq.ft min.
Medium Density Residential	0.25*	30*	50*	R1-10	" "	SF-10	Single Family	R1-9	Single Residence	R1-10	One Family Residential	R1-10	SFR, 10,000 sq. ft./unit	R1-10	SF, 10,000 sq.ft min.
				R1-8	" "					R1-8	One Family Residential	R1-8	SFR, 8,000 sq. ft./unit	R1-8	SF, 8,000 sq.ft min.
				R1-7	" "	SF-7	Single Family	R1-7	Single Residence	R1-7	One Family Residential				
								R1-6	Single Residence	R1-6	One Family Residential	R1-6	SFR, 6,000 sq. ft./unit	R1-6	SF, 6,000 sq.ft min.
								TCR-1	Town Center, Single Family	RO	Residence/Office			R-O	Res. Office
Multiple Family Residential	0.25*	45*	50*	R-2	Duplex	MF-1	Medium Density	R-2	Restricted Multiple Resid.	R-2	Multi-Family Residential	R-2	2 Family Residence	R-2	MF, 4,000 sq.ft./unit
				R-3	Multi-Family, Apartments	MF-2	Multi-Family	R-3	Limited Multiple Resid.	R-3R	Multi-Family Restricted	R-3	Multiple Family, Residential	R-3	MF, 3,000 sq.ft./unit
				R-4	Multi-Family, General	MF-3	High Density	R-4	General Multiple Resid.	R-3	Multi-Family Limited	R-4	Multiple Family, Residential	R-4	MF, 1,500 sq.ft./unit
				R-5	Townhouse Residential					R-4	Multi-Family General	R-5	Multiple Family, Residential	R-4A	MF, 1,000 sq.ft./unit
										R-Th	Townhouse			R-5	MF, 1,000 sq.ft./unit
				MH	Mobile Home	MH-1	Mobile Homes	TCR-2	TC, Restricted Multi-Res.	RMH	Mobile Home Residence	MHR	Manufactured Housing, Resid.	CP/BP	Business Park
				CTP	Commercial Trailer Park			TCR-3	TC, General Res.	MHS	Manufactured Housing Subd.			R-H	Resort District
										TP	Trailer Park				
Industrial	0.15*	55*	60*	I-1	Garden Type Industrial			M-1	Limited Industrial	I-1	Light Industrial			IND PARK	Industrial Park
				I-2	Light Industrial	I-1	Light Industrial			I-2	General Industrial	I-2	Light Industrial	A-1	Light Industrial
				I-3	General Industrial	I-2	General Industrial	M-2	General Industrial	I-3	Heavy Industrial	I-3	Heavy Industrial	A-2	Heavy Industrial
Commercial	0.1*	80*	75*	C-1	Light Commercial	C-1	Neighborhood Commercial	C-1	Neighborhood Comm.	CCR	Convenience Commercial	C-1	Neighborhood Commercial	C-1	Neighborhood Commercial
				C-2	General Commercial	C-2	Community Commercial	C-2	Limited Comm.	C-1	Neighborhood Commercial	C-2	Intermediate Commercial	C-2	Intermediate Commercial
				C-3	Central Commercial	C-3	Regional Commercial	C-3	General Comm.	C-2	General Commercial	C-3	General Commercial	C-3	General Commercial
				RS	Residential Services			OS	Office-Sercives	CCD	Central Comm. District	C-O	Commercial Office	C-O	Commercial Office
				RCC	Residential Conveniences			TCC	TC,High Intensity Mixed Use					HR	High Rise District
								TCB-1	TC, Limited Comm./General Manufacturing						
								TCB-2	TC, General Comm./ Light Manufacturing						
				MISCELLANEOUS CATEGORIES: These zoning units should be evaluated on a case by case basis.											
				PAD	Planned Area Development	PAD	Planned Area Development			S	Private School	PD	Planned Development Overlay	PAD	Planned Area Development
				PSC-1	Planned Neighborhood Shopping										
				PSC-2	Planned Shopping Center							CS	Planned Shopping Center	PSC	Planned Shopping Center
				IB	Industrial Buffer										
						PCO	Planned C Offices	PEP	Planned Employment Park						
								PF	Public Facilities			SU	Special Uses		
												SC	Senior Citizen Overlay	PCD	Planned Community Developme
												NUP	Neighborhood Plan of Development		
												RUP	Residential Plan of Development		
												IUP	Industrial Plan of Development		
														R.O.W.	Right of Way
														P-1	Parking, Open
														P-2	Parking, Structures
														D.G	Dwelling Group

NOTES

* These values have been selected to fit many typical settings in Maricopa County. However, the engineer/hydrologist should ALWAYS evaluate the specific circumstances in any particular watershed for hydrological variations from these typical values.

** RTIMP = Percent Effective Impervious Area, Including R.O.W.

** Percent Veg. Cover = Percent vegetation cover for pervious area only

ERIE & ASSOCIATES, INC.
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PROJECT	THE VILLAGES AT DESERT HILLS	JOB NO.	EA#1474.1
SUBJECT	DTHETA CALCULATIONS	CALC.	SHERRICK CAMPBELL
		CHKD.	
		SHEET	90
		DATE	
		DATE	

VOLUMETRIC MOISTURE DEFICIT CALCULATIONS IN SUB-BASINS CONSISTING OF GOLF COURSE AREA (NOTE: REFER TO HYDRAULIC CONDUCTIVITY CALCULATIONS FOR $DTHETA_{DRY}$ VALUE)

SUB-BASIN 1A2

TOTAL AREA = 0.406 mi^2
GOLF COURSE AREA = 0.085 mi^2

$$\%GC = \frac{0.085}{0.406}(100) = 20.9\%$$

* ASSUME NORMAL CONDITIONS IN GOLF COURSE AREA *

$DTHETA_{DRY} = 0.25$

$DTHETA_{NORMAL} = 0.15$

$\overline{DTHETA} = 0.209(0.15) + 0.791(0.25) = 0.229$

SUB-BASIN 2C1

TOTAL AREA = 0.363 mi^2
GOLF COURSE AREA = 0.119 mi^2

$$\%GC = \frac{0.119}{0.363}(100) = 32.8\%$$

$DTHETA_{DRY} = 0.165$

$DTHETA_{NORMAL} = 0.064$

$\overline{DTHETA} = 0.328(0.064) + 0.672(0.165) = 0.132$

SUB-BASIN 2C2

TOTAL AREA = 0.513 mi^2
GOLF COURSE AREA = 0.059 mi^2

$$\%GC = \frac{0.059}{0.513}(100) = 11.5\%$$

$DTHETA_{DRY} = 0.29$

$DTHETA_{NORMAL} = 0.15$

$\overline{DTHETA} = 0.115(0.15) + 0.885(0.29) = 0.274$

ERIE & ASSOCIATES, INC.
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JOB NO. EA # 1474.1 SHEET 91
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

SUB-BASIN 3B2

TOTAL AREA = 0.242 mi^2
GOLF COURSE AREA = 0.069 mi^2

$\%GC = \frac{0.069}{0.242}(100) = 28.5\%$

$\left.\begin{array}{l} DTHETA_{DRY} = 0.24 \\ DTHETA_{NORMAL} = 0.14 \end{array}\right\}$ BASED ON $\overline{XKSAT}_{ADJ}$ =

$\overline{DTHETA} = 0.285(0.14) + 0.715(0.24) = 0.211$

SUB-BASIN 3C

TOTAL AREA = 0.112 mi^2
GOLF COURSE AREA = 0.017 mi^2

$\% GC = \frac{0.017}{0.112} = 0.152$

$DTHETA_{DRY} = 0.35$

$DTHETA_{NORMAL} = 0.19$

$\overline{DTHETA} = 0.152(0.19) + 0.848(0.35) = 0.326$

SUB-BASIN 3D1

TOTAL AREA = 0.117 mi^2
GOLF COURSE AREA = 0.016 mi^2

$\%GC = \frac{0.016}{0.117} = 0.137$

$DTHETA_{DRY} = 0.16$

$DTHETA_{NORMAL} = 0.06$

$\overline{DTHETA} = 0.137(0.06) + 0.863(0.16) = 0.464$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA# 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 92
DATE
DATE

SUB-BASIN 3D3

TOTAL AREA = 0.207 mi^2
GOLF COURSE AREA = 0.103 mi^2

$\% GC = \frac{0.103}{0.162}(100) =$

$DTHETA_{DRY} = 0.23$

$DTHETA_{NORMAL} = 0.13$

$\overline{DTHETA} = 0.166$

SUB-BASIN 5B

TOTAL AREA = 0.063 mi^2
GOLF COURSE AREA = 0.0089 mi^2

$\% GC = \frac{0.0089}{0.063} = 0.141$

$DTHETA_{DRY} = 0.35$

$DTHETA_{NORMAL} = 0.19$

$\overline{DTHETA} = 0.141(0.19) + 0.859(0.35) = 0.327$

SUB-BASIN 5F1

TOTAL AREA = 0.081 mi^2
GOLF COURSE AREA = 0.013 mi^2

$\% GC = \frac{0.013}{0.081} = 0.16$

$DTHETA_{DRY} = 0.4$

$DTHETA_{NORMAL} = 0.25$

$\overline{DTHETA} = 0.16(0.25) + 0.84(0.4) = 0.376$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT THE VILLAGES AT DESERT HILLS
SUBJECT
JOB NO. EA # 1474.1
CALC. SHERRICK CAMPBELL
CHKD.
SHEET 93
DATE
DATE

SUB·BASIN 6B2

TOTAL AREA = 0.125 mi^2

GOLF COURSE AREA = 0.0304 mi^2

$\% GC = \frac{0.0304}{0.125} = 0.243$

$DTHETA_{DRY} = 0.26$

$DTHETA_{NORMAL} = 0.15$

$\overline{DTHETA} = 0.243(0.15) + 0.757(0.26) = 0.233$

SUB·BASIN 10C1

TOTAL AREA = 0.142 mi^2

GOLF COURSE AREA = 0.0235 mi^2

$\% GC = \frac{0.0235}{0.142} = 0.165$

$DTHETA_{DRY} = 0.185$

$DTHETA_{NORMAL} = 0.088$

$DTHETA = 0.165(0.088) + 0.835(0.185) = 0.169$

SUB·BASIN 10B

TOTAL AREA = 0.371 mi^2

GOLF COURSE AREA = 0.054 mi^2

$\% GC = \frac{0.054}{0.371} = 0.145$

$DTHETA_{DRY} = 0.200$

$DTHETA_{NORMAL} = 0.11$

$\overline{DTHETA} = 0.145(0.11) + 0.855(0.20) = 0.187$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

		JOB NO.	EA# 1474.1	SHEET	94
PROJECT	THE VILLAGES AT DESERT HILLS	CALC.	SHERRICK CAMPBELL	DATE	
SUBJECT		CHKD.		DATE	

SUB·BASIN 10E2

TOTAL AREA = 0.372 mi^2

GOLF COURSE AREA = 0.187 mi^2

$$\%GC = \frac{0.187}{0.372} = 0.503$$

$DTHETA_{DRY} = 0.195$

$DTHETA_{NORMAL} = 0.105$

$$\overline{DTHETA} = 0.503(0.105) + 0.497(0.195) = 0.15$$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

PROJECT	THE VILLAGES AT DESERT HILLS	JOB NO.	EA# 1474.1	SHEET	95
SUBJECT		CALC.	SHERRICK CAMPBELL	DATE	
		CHKD.		DATE	

DETERMINE AREALLY REDUCED RAINFALL DEPTHS

AREA (mi^2)	DEPTH·AREA REDUCTION FACTORS	RAINFALL DEPTHS
0.01	1	3.43 *
0.50	0.9935	3.41
2.80	0.9776	3.35
16.0	0.922	3.16
90.0	0.812	2.79
500	0.57	1.95

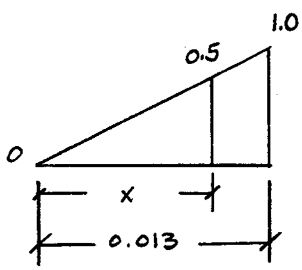
Table 2.2
Depth-Area Reduction Factors for 6-Hour Duration Rainfall

Area, Square Miles	Ratio to Point of Rainfall
0	1.0
1	0.987
5	0.96
10	0.94
20	0.91
30	0.89
40	0.87
50	0.86
100	0.80
200	0.72
300	0.66
400	0.61
500	0.57

PER MARICOPA COUNTY DRAINAGE DESIGN MANUAL

* NOTE THAT 3.43 in BASED ON 100YR·6HR ISOPLUVIAL MAP IN DRAINAGE DESIGN MANUAL

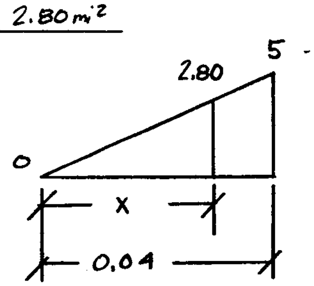
AREA = 0.5 mi^2



$$\frac{x}{0.5} = \frac{0.013}{1.0} \longrightarrow x = 0.0065$$

DEPTH AREA REDUCTION FACTOR = $1 - 0.0065 = 0.9935$

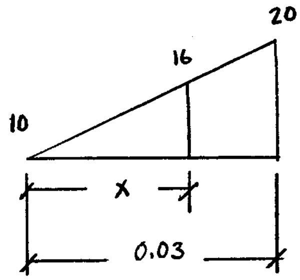
AREA = 2.80 mi^2



$$\frac{x}{2.80} = \frac{0.04}{5} \longrightarrow x = 0.0224$$

DEPTH AREA REDUCTION FACTOR = $1 - 0.0224 = 0.9776$

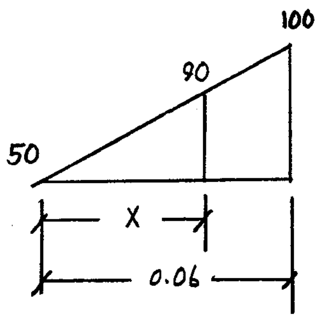
AREA: 16.0 mi^2



$$\frac{X}{6} = \frac{0.03}{10} \longrightarrow X = 0.018$$

DEPTH AREA REDUCTION FACTOR = 0.94 - 0.018 = 0.922

AREA = 90.0 mi^2

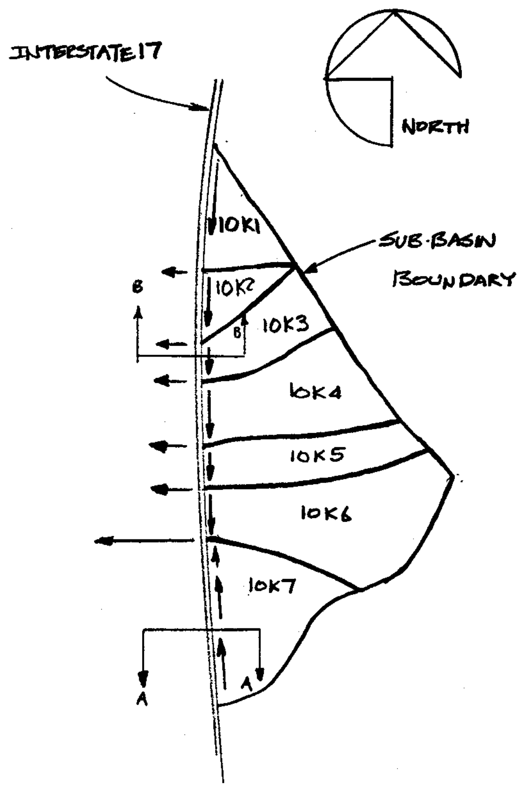


$$\frac{X}{40} = \frac{0.06}{50} \longrightarrow X = 0.048$$

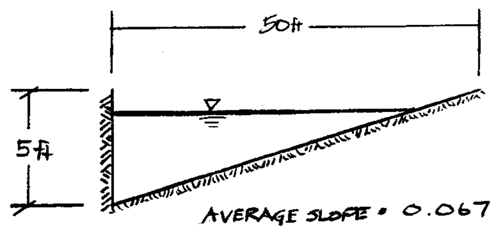
DEPTH AREA REDUCTION FACTOR = 0.86 - 0.048 = 0.812

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

		JOB NO. EA # 1474.1	SHEET 97 OF
PROJECT	THE VILLAGES AT DESERT HILLS	CALC. SHERRICK CAMPBELL	DATE
SUBJECT	EXISTING CONDITION FLOW SPLITS (IN SUB-BASIN 10K 1 THRU 7)	CHKD.	DATE

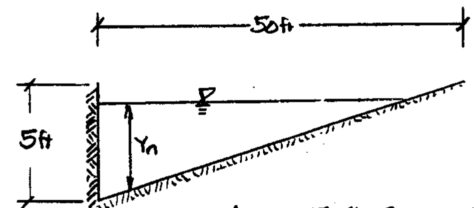


SEC A-A



AVERAGE SLOPE = 0.067
$n = 0.05$

SEC B-B



AVERAGE SLOPE = 0.01
$n = 0.05$

ANALYZE CAPACITY OF SEC A-A; DERIVE STAGE DISCHARGE RELATIONSHIP (S = 0.01 FT/FT)

$$Q = \frac{1.486}{n} A R^{2/3} S^{1/2}$$

WHERE
- Q = DISCHARGE
- n = MANNING ROUGHNESS COEFFICIENT
- A = CROSS-SECTIONAL AREA OF FLOW
- R = HYDRAULIC RADIUS
- S = SLOPE OF ENERGY GRADIENT (EQUIVALENT TO CHANNEL BED SLOPE IN STEADY UNIFORM FLOW)

NORMAL DEPTH Y_n	AREA A	WETTED PERIMETER P	HYDRAULIC RADIUS R	SLOPE S	DISCHARGE Q
0	0	0	0	0.01	0
1	5	11	0.45	0.01	9
2	20	22	0.91	0.01	56
3	45	33.1	1.36	0.01	164
4	80	44.2	1.81	0.01	353
5	125	55.2	2.26	0.01	641

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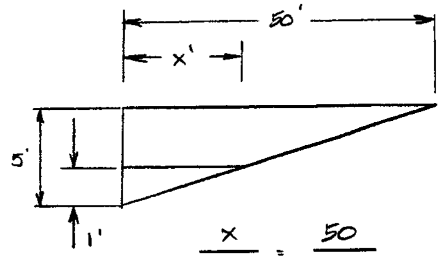
JOB NO. EA# 1474.1 SHEET 98 OF

PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE

SUBJECT CHKD. DATE



$$\frac{x}{1} = \frac{50}{5}$$

$$x = 10 \text{ ft}$$

STAGE d = 1.0 ft

$$A = \frac{1}{2}[1][10] = 5 \text{ ft}^2$$

$$P = 1 + \sqrt{1^2 + 10^2} = 11 \text{ ft}$$

$$Q = \frac{1.486}{0.05}[5][0.45]^{2/3}[0.01]^{1/2} = 8.7 \text{ cfs}$$

STAGE d = 2.0 ft

$$A = \frac{1}{2}[20][2] = 20 \text{ ft}^2$$

$$P = 2 + \sqrt{2^2 + 20^2} = 22 \text{ ft}$$

$$Q = \frac{1.486}{0.05}[20][0.91]^{2/3}[0.01]^{1/2} = 55.8 \text{ cfs}$$

STAGE d = 3.0 ft

$$A = \frac{1}{2}[3][30] = 45 \text{ ft}^2$$

$$P = 3 + \sqrt{3^2 + 30^2} = 33.1 \text{ ft}$$

$$Q = \frac{1.486}{0.05}[45][1.36]^{2/3}[0.01]^{1/2} = 164 \text{ cfs}$$

STAGE d = 4.0 ft

$$A = \frac{1}{2}[4][40] = 80 \text{ ft}^2$$

$$P = 4 + \sqrt{4^2 + 40^2} = 44.2 \text{ ft}$$

$$Q = \frac{1.486}{0.05}[80][1.81]^{2/3}[0.01]^{1/2} = 353 \text{ cfs}$$

STAGE d = 5.0 ft

$$A = \frac{1}{2}[5][50] = 125 \text{ ft}^2$$

$$P = 5 + \sqrt{5^2 + 50^2} = 55.2$$

$$Q = \frac{1.486}{0.05}[125][2.26]^{2/3}[0.01]^{1/2} = 641 \text{ cfs}$$

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. EA# 1474.1 SHEET 99 OF
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

STAGE-DISCHARGE RELATIONSHIP FOR S=0.067 ft/ft

NORMAL DEPTH Y_n	AREA A	WETTED PERIMETER P	HYDRAULIC RADIUS R	SLOPE S	DISCHARGE Q
0	0	0	0	0.067	0
1	5	11	0.45	0.067	23
2	20	22	0.91	0.067	144
3	45	33.1	1.36	0.067	425
4	80	44.2	1.81	0.067	914
5	125	55.2	2.26	0.067	1658

ESTABLISH RATING CURVES FOR I-17 CULVERTS:

2-36" CMP WITH 45° WINGWALL FLARE

ASSUME INLET CONTROL:

NORMAL DEPTH Y_n	HW/D	DISCHARGE Q
0	0	0
1	0.33	
2	0.67	38
3	1.0	70
4	1.33	100
5	1.67	125

1-24" CMP WITH 45° WINGWALL

NORMAL DEPTH Y_n	HW/D	DISCHARGE Q
0	0	0
1	0.5	4
2	1.0	13
3	1.5	21
4	2.0	26
5	2.5	30

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

JOB NO. ______ SHEET 100
PROJECT ______ CALC. ______ DATE ______
SUBJECT ______ CHKD. ______ DATE ______

1 - 36" CMP

NORMAL DEPTH Y_n	HW/D	DISCHARGE Q
0	0	0
1	0.3	—
2	0.7	21
3	1.0	35
4	1.3	50
5	1.7	65

1-30" CMP

NORMAL DEPTH Y_n	HW/D	DISCHARGE Q
0	0	0
1	0.4	—
2	0.8	16
3	1.2	28
4	1.6	37
5	2.0	45

(3) - for manual input

2

MCUHPI's for predevelopment conditions

101

DATA INPUT FOR SUB-BASIN: 1A1

Drainage Area= .079 Channel Length= .568 Kn= .107 SLOPE= 211.0

IA= .35 DTHETA= .24 PSIF= 9.80 XKSAT= .04 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .267 hours, which is = 16.0 minutes R = .231 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.06	.05	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 1A2

Drainage Area= .406 Channel Length= 1.705 Kn= .090 SLOPE= 58.7

IA= .35 DTHETA= .25 PSIF= 9.40 XKSAT= .04 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .833 hours, which is = 50.0 minutes R = .774 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.14	.14	.07	.07	.06	.05	.04	.03	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 1A3

Drainage Area= .119 Channel Length= 1.136 Kn= .103 SLOPE= 70.4

IA= .35 DTHETA= .19 PSIF= 11.50 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .617 hours, which is = 37.0 minutes R = .806 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.15	.08	.08	.07	.07	.07	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2A1

Drainage Area= .368 Channel Length= 1.288 Kn= .091 SLOPE= 335.0

IA= .25 DTHETA= .35 PSIF= 4.00 XKSAT= .40 RTIMP= 31.14

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .367 hours, which is = 22.0 minutes R = .263 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2A2

Drainage Area= .037 Channel Length= .625 Kn= .116 SLOPE= 265.0

IA= .22 DTHETA= .37 PSIF= 5.40 XKSAT= .20 RTIMP= 31.14

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .283 hours, which is = 17.0 minutes R = .410 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.14	.11	.10	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

1-06

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2B1

Drainage Area= .133 Channel Length= .606 Kn= .102 SLOPE= 350.0

IA= .25 DTHETA= .35 PSIF= 4.00 XKSAT= .40 RTIMP= 28.99

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .233 hours, which is = 14.0 minutes R = .156 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2B2

Drainage Area= .012 Channel Length= .189 Kn= .128 SLOPE= 250.0

IA= .15 DTHETA= .25 PSIF= 9.60 XKSAT= .04 RTIMP= 28.99

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .150 hours, which is = 9.0 minutes R = .146 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.18	.15	.15	.07	.07	.07	.07	.06	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2C1

Drainage Area= .363 Channel Length= .757 Kn= .091 SLOPE= 145.3

IA= .34 DTHETA= .17 PSIF= 12.00 XKSAT= .01 RTIMP= .96

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB22

TC = .333 hours, which is = 20.0 minutes R = .156 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 2C2

Drainage Area= .513 Channel Length= 1.515 Kn= .087 SLOPE= 85.8

IA= .35 DTHETA= .29 PSIF= 8.40 XKSAT= .06 RTIMP= .96

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .650 hours, which is = 39.0 minutes R = .468 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.17	.14	.13	.06	.06	.06	.04	.03	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

110

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3A1

Drainage Area= .112 Channel Length= .492 Kn= .104 SLOPE= 360.0

IA= .20 DTHETA= .35 PSIF= 4.00 XKSAT= .41 RTIMP= 29.33

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .200 hours, which is = 12.0 minutes R = .122 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.06	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

111

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3A2

Drainage Area= .027 Channel Length= .189 Kn= .119 SLOPE= 211.0

IA= .15 DTHETA= .37 PSIF= 5.20 XKSAT= .21 RTIMP= 29.33

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .150 hours, which is = 9.0 minutes R = .093 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.14	.11	.10	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3B1

Drainage Area= .016 Channel Length= .133 Kn= .125 SLOPE= 300.0

IA= .15 DTHETA= .35 PSIF= 3.70 XKSAT= .47 RTIMP= 6.00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .133 hours, which is = 8.0 minutes R = .083 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.06	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3B2

Drainage Area= .242 Channel Length= .814 Kn= .095 SLOPE= 147.4

IA= .32 DTHETA= .24 PSIF= 10.00 XKSAT= .04 RTIMP= 6.00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .350 hours, which is = 21.0 minutes R = .220 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3C

Drainage Area= .112 Channel Length= .682 Kn= .104 SLOPE= 265.0

IA= .27 DTHETA= .35 PSIF= 7.50 XKSAT= .12 RTIMP= 7.34

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB8

TC = .267 hours, which is = 16.0 minutes R = .219 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

```
    (3) - for manual input
2
------------------------------------------------------------------------------
                        DATA INPUT FOR SUB-BASIN: 3D1
------------------------------------------------------------------------------
 Drainage Area=   .117  Channel Length=   .530  Kn=  .103  SLOPE= 132.1
 IA=  .35  DTHETA=  .16  PSIF= 12.50  XKSAT=  .01  RTIMP=    .00
 Rainfall Depth =  3.43
 Rainfall Distribution is 100-year, 6-Hour
------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: DELWEB6
------------------------------------------------------------------------------
 TC =  .300 hours, which is =   18.0 minutes       R =   .199 hours.
------------------------------------------------------------------------------
                 EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
------------------------------------------------------------------------------
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .51 .51 .51 .19 .16 .16 .08 .08 .08 .08 .07 .07 .02 .02 .02 .02 .02 .02
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin.
------------------------------------------------------------------------------

Enter 1 for a new sub-basin, 2 to STOP
```

116

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3D2

Drainage Area= .031 Channel Length= .284 Kn= .117 SLOPE= 96.0

IA= .35 DTHETA= .16 PSIF= 12.50 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .250 hours, which is = 15.0 minutes R = .210 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 3D3

Drainage Area= .207 Channel Length= 1.420 Kn= .097 SLOPE= 96.0

IA= .35 DTHETA= .23 PSIF= 10.00 XKSAT= .03 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .617 hours, which is = 37.0 minutes R = .703 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.05	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4A1

Drainage Area= .029 Channel Length= .417 Kn= .118 SLOPE= 49.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .400 hours, which is = 24.0 minutes R = .501 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4A2

Drainage Area= .036 Channel Length= .341 Kn= .116 SLOPE= 49.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .350 hours, which is = 21.0 minutes R = .327 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4A3

Drainage Area= .238 Channel Length= 1.345 Kn= .095 SLOPE= 49.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .767 hours, which is = 46.0 minutes R = .791 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

121

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4B

Drainage Area= .262 Channel Length= .795 Kn= .094 SLOPE= 320.0

IA= .28 DTHETA= .28 PSIF= 8.28 XKSAT= .09 RTIMP= 8.44

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .267 hours, which is = 16.0 minutes R = .152 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.16	.13	.12	.06	.06	.05	.03	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4C1

Drainage Area= .042 Channel Length= .473 Kn= .114 SLOPE= 51.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .417 hours, which is = 25.0 minutes R = .467 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4C2

Drainage Area= .651 Channel Length= 1.193 Kn= .085 SLOPE= 51.0

IA= .32 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .650 hours, which is = 39.0 minutes R = .337 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.20	.17	.17	.09	.09	.09	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

2

DATA INPUT FOR SUB-BASIN: 4D

Drainage Area= .199 Channel Length= .928 Kn= .097 SLOPE= 300.0
IA= .27 DTHETA= .33 PSIF= 7.78 XKSAT= .12 RTIMP= 6.47
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .300 hours, which is = 18.0 minutes R = .230 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4E1

Drainage Area= .122 Channel Length= .455 Kn= .103 SLOPE= 320.0

IA= .30 DTHETA= .37 PSIF= 5.40 XKSAT= .20 RTIMP= 5.77

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .200 hours, which is = 12.0 minutes R = .110 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.13	.10	.08	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 4E2

Drainage Area= .050 Channel Length= .549 Kn= .112 SLOPE= 145.7

IA= .31 DTHETA= .35 PSIF= 4.60 XKSAT= .29 RTIMP= 5.77

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .333 hours, which is = 20.0 minutes R = .373 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.12	.08	.06	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5A

Drainage Area= .482 Channel Length= 1.477 Kn= .088 SLOPE= 320.0

IA= .24 DTHETA= .35 PSIF= 3.77 XKSAT= .40 RTIMP= 29.57

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .400 hours, which is = 24.0 minutes R = .277 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.06	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

128

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5B

Drainage Area= .063 Channel Length= .667 Kn= .110 SLOPE= 260.0

IA= .30 DTHETA= .35 PSIF= 7.50 XKSAT= .12 RTIMP= 8.97

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .283 hours, which is = 17.0 minutes R = .319 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.11	.10	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5C

Drainage Area= .046 Channel Length= .549 Kn= .113 SLOPE= 315.0

IA= .33 DTHETA= .33 PSIF= 7.78 XKSAT= .11 RTIMP= 8.36

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .233 hours, which is = 14.0 minutes R = .263 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5D

Drainage Area= .096 Channel Length= .568 Kn= .105 SLOPE= 315.0

IA= .33 DTHETA= .40 PSIF= 6.60 XKSAT= .18 RTIMP= 7.83

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .233 hours, which is = 14.0 minutes R = .178 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.04	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

131

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5B

Drainage Area= .061 Channel Length= .303 Kn= .110 SLOPE= 99.0

IA= .35 DTHETA= .39 PSIF= 5.67 XKSAT= .21 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .250 hours, which is = 15.0 minutes R = .150 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5F1

Drainage Area= .081 Channel Length= .511 Kn= .107 SLOPE= 106.0

IA= .35 DTHETA= .40 PSIF= 6.00 XKSAT= .15 RTIMP= .20

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .333 hours, which is = 20.0 minutes R = .268 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.14	.10	.09	.04	.04	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

DATA INPUT FOR SUB-BASIN: 5F2

Drainage Area= .298 Channel Length= 1.326 Kn= .093 SLOPE= 106.0
IA= .35 DTHETA= .32 PSIF= 7.80 XKSAT= .07 RTIMP= .20
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .567 hours, which is = 34.0 minutes R = .492 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.16	.13	.12	.06	.06	.05	.03	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP
1
ENTER THE SUB-BASIN NAME:

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5G1

Drainage Area= .129 Channel Length= .720 Kn= .102 SLOPE= 131.9

IA= .35 DTHETA= .35 PSIF= 3.90 XKSAT= .43 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .400 hours, which is = 24.0 minutes R = .331 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 5G2

Drainage Area= .273 Channel Length= 1.458 Kn= .094 SLOPE= 96.0

IA= .35 DTHETA= .21 PSIF= 11.00 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .617 hours, which is = 37.0 minutes R = .613 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.15	.15	.07	.07	.07	.06	.06	.05	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 6A

Drainage Area= .503 Channel Length= 2.008 Kn= .087 SLOPE= 250.0

IA= .30 DTHETA= .35 PSIF= 3.55 XKSAT= .31 RTIMP= 26.05

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .533 hours, which is = 32.0 minutes R = .476 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.08	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 6B1

Drainage Area= .065 Channel Length= .530 Kn= .110 SLOPE= 150.9

IA= .35 DTHETA= .28 PSIF= 8.80 XKSAT= .05 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .300 hours, which is = 18.0 minutes R = .278 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.17	.14	.13	.06	.06	.06	.04	.04	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 6B2

Drainage Area= .125 Channel Length= .757 Kn= .102 SLOPE= 118.9

IA= .35 DTHETA= .26 PSIF= 9.20 XKSAT= .05 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .383 hours, which is = 23.0 minutes R = .334 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.14	.14	.07	.07	.06	.05	.04	.03	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7A1

Drainage Area= .548 Channel Length= .985 Kn= .086 SLOPE= 345.0

IA= .22 DTHETA= .35 PSIF= 3.70 XKSAT= .49 RTIMP= 27.66

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .300 hours, which is = 18.0 minutes R = .135 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.42	.42	.42	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7A2

Drainage Area= .583 Channel Length= 1.193 Kn= .086 SLOPE= 318.0

IA= .27 DTHETA= .35 PSIF= 3.80 XKSAT= .44 RTIMP= 27.66

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .350 hours, which is = 21.0 minutes R = .181 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.42	.42	.42	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7A3

Drainage Area= .273 Channel Length= .985 Kn= .094 SLOPE= 315.0

IA= .21 DTHETA= .35 PSIF= 4.30 XKSAT= .32 RTIMP= 27.66

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DEL

TC = .317 hours, which is = 19.0 minutes R = .214 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.12	.09	.07	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7A4

Drainage Area= .234 Channel Length= .606 Kn= .096 SLOPE= 300.0

IA= .34 DTHETA= .35 PSIF= 4.70 XKSAT= .27 RTIMP= 27.66

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .233 hours, which is = 14.0 minutes R = .113 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.12	.08	.07	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7A5

Drainage Area= .455 Channel Length= 1.383 Kn= .088 SLOPE= 119.3

IA= .35 DTHETA= .39 PSIF= 5.90 XKSAT= .16 RTIMP= 27.66

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .550 hours, which is = 33.0 minutes R = .387 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.14	.10	.08	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7B

Drainage Area= .042 Channel Length= .341 Kn= .114 SLOPE= 58.7
IA= .35 DTHETA= .25 PSIF= 10.10 XKSAT= .04 RTIMP= .00
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb6

TC = .333 hours, which is = 20.0 minutes R = .282 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.06	.05	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7C

Drainage Area= .047 Channel Length= .663 Kn= .113 SLOPE= 120.7

IA= .35 DTHETA= .33 PSIF= 7.78 XKSAT= .10 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB8

TC = .383 hours, which is = 23.0 minutes R = .525 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

146

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7D

Drainage Area= .033 Channel Length= .360 Kn= .117 SLOPE= 111.1

IA= .35 DTHETA= .15 PSIF= 12.40 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .267 hours, which is = 16.0 minutes R = .263 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7E

Drainage Area= .092 Channel Length= .852 Kn= .106 SLOPE= 129.1

IA= .35 DTHETA= .39 PSIF= 6.78 XKSAT= .16 RTIMP= 2.93

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .450 hours, which is = 27.0 minutes R = .523 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.13	.09	.08	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7F1

Drainage Area= .028 Channel Length= .265 Kn= .119 SLOPE= 150.9

IA= .35 DTHETA= .36 PSIF= 6.80 XKSAT= .11 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .200 hours, which is = 12.0 minutes R = .164 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7F2

Drainage Area= .029 Channel Length= .265 Kn= .118 SLOPE= 207.6

IA= .35 DTHETA= .22 PSIF= 10.50 XKSAT= .03 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .183 hours, which is = 11.0 minutes R = .146 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.15	.15	.07	.07	.07	.06	.06	.05	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7G

Drainage Area= .073 Channel Length= .663 Kn= .108 SLOPE= 60.3

IA= .35 DTHETA= .25 PSIF= 8.20 XKSAT= .05 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .483 hours, which is = 29.0 minutes R = .528 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.14	.14	.07	.07	.06	.05	.05	.03	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 7B

Drainage Area= .162 Channel Length= 1.326 Kn= .100 SLOPE= 90.5

IA= .35 DTHETA= .25 PSIF= 8.40 XKSAT= .06 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .633 hours, which is = 38.0 minutes R = .788 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.17	.14	.13	.07	.06	.06	.05	.04	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8A

Drainage Area= .443 Channel Length= 1.629 Kn= .089 SLOPE= 128.9

IA= .35 DTHETA= .25 PSIF= 8.60 XKSAT= .07 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .583 hours, which is = 35.0 minutes R = .478 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.17	.13	.13	.06	.06	.06	.04	.03	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

```
   (3) - for manual input
2
------------------------------------------------------------------------------
                    DATA INPUT FOR SUB-BASIN: 8B1
------------------------------------------------------------------------------
 Drainage Area=   .235   Channel Length=   .985  Kn=  .095  SLOPE=  82.7
  IA=  .35  DTHETA=  .16  PSIF= 12.00  XKSAT=  .01  RTIMP=    .00
 Rainfall Depth =  3.43
 Rainfall Distribution is 100-year, 6-Hour
------------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: delweb20
------------------------------------------------------------------------------
 TC =  .500 hours, which is =   30.0 minutes        R =   .387 hours
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
------------------------------------------------------------------------------
      5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90
    .51  .51  .51  .19  .16  .16  .08  .08  .08  .08  .07  .07  .02  .02  .02  .02  .02  .02
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin.
------------------------------------------------------------------------------

Enter 1 for a new sub-basin, 2 to STOP
```

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8B2

Drainage Area= .029 Channel Length= .341 Kn= .118 SLOPE= 88.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .283 hours, which is = 17.0 minutes R = .290 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8B3

Drainage Area= .016 Channel Length= .265 Kn= .125 SLOPE= 105.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .233 hours, which is = 14.0 minutes R = .269 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8C1

Drainage Area= .021 Channel Length= .227 Kn= .122 SLOPE= 88.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .29

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .217 hours, which is = 13.0 minutes R = .187 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8C2

Drainage Area= .260 Channel Length= .568 Kn= .094 SLOPE= 105.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .29

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .317 hours, which is = 19.0 minutes R = .142 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 8C3

Drainage Area= .502 Channel Length= 1.515 Kn= .087 SLOPE= 128.9

IA= .35 DTHETA= .22 PSIF= 10.50 XKSAT= .03 RTIMP= .29

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .533 hours, which is = 32.0 minutes R = .380 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.15	.07	.07	.07	.06	.06	.05	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

DATA INPUT FOR SUB-BASIN: 8D

Drainage Area= .037 Channel Length= .265 Kn= .116 SLOPE= 56.6
IA= .33 DTHETA= .35 PSIF= 4.03 XKSAT= .41 RTIMP= 7.91
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB7

TC = .317 hours, which is = 19.0 minutes R = .234 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP
2

C:\HEC-1>

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 9A

Drainage Area= .975 Channel Length= 2.405 Kn= .080 SLOPE= 60.3

IA= .31 DTHETA= .20 PSIF= 9.40 XKSAT= .02 RTIMP= 3.58

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .967 hours, which is = 58.0 minutes R = .729 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.41	.41	.41	.20	.18	.17	.10	.10	.10	.07	.07	.07	.03	.03	.03	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 9B

Drainage Area= .696 Channel Length= 1.761 Kn= .084 SLOPE= 51.1

IA= .35 DTHETA= .20 PSIF= 9.40 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .850 hours, which is = 51.0 minutes R = .597 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.19	.17	.16	.09	.09	.09	.07	.07	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

162

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10CI

Drainage Area= .142 Channel Length= .947 Kn= .101 SLOPE= 230.0

IA= .34 DTHETA= .19 PSIF= 11.50 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB22

TC = .333 hours, which is = 20.0 minutes R = .318 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.15	.08	.08	.07	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10F

Drainage Area= .078 Channel Length= .492 Kn= .107 SLOPE= 40.7

IA= .35 DTHETA= .25 PSIF= 8.20 XKSAT= .05 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .467 hours, which is = 28.0 minutes R = .385 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.14	.14	.07	.07	.06	.05	.05	.03	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10G

Drainage Area= .138 Channel Length= .909 Kn= .101 SLOPE= 60.5

IA= .35 DTHETA= .20 PSIF= 9.40 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB5

TC = .567 hours, which is = 34.0 minutes R = .564 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.15	.08	.08	.07	.07	.06	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10H1

Drainage Area= .030 Channel Length= .284 Kn= .118 SLOPE= 123.2
IA= .35 DTHETA= .35 PSIF= 4.90 XKSAT= .25 RTIMP= 1.54
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

VOID

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .233 hours, which is = 14.0 minutes R = .197 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10H2

Drainage Area= .052 Channel Length= .436 Kn= .112 SLOPE= 80.3
IA= .35 DTHETA= .35 PSIF= 4.20 XKSAT= .36 RTIMP= 1.54
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .367 hours, which is = 22.0 minutes R = .339 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.11	.07	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

VOID

ENTER 3 IF MANUAL INPUT:

2

DATA INPUT FOR BASIN: 10H

Drainage Area= .082 Channel Length= .492 Kb= .107 SLOPE(adj)= 50.8

IA= .34 DTHETA= .35 PSIF= 3.50 XKSAT= .29 RTIMP= 1.54

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vil140

TC = .454 hours, which is = 27.3 minutes R = .363 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.45	.13	.09	.08	.03	.03	.03	.00	.00	.00	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10I

Drainage Area= .182 Channel Length= 1.250 Kn= .098 SLOPE= 76.0

IA= .32 DTHETA= .35 PSIF= 7.50 XKSAT= .12 RTIMP= 5.53

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL1

TC = .667 hours, which is = 40.0 minutes R = .745 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.11	.10	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

DATA INPUT FOR SUB-BASIN: 10J

Drainage Area= .075 Channel Length= .474 Kn= .108 SLOPE= 63.3
IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 2.47
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB12

TC = .383 hours, which is = 23.0 minutes R = .307 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP
2

C:\HEC-1>

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10J2

Drainage Area= .849 Channel Length= 1.894 Kn= .082 SLOPE= 71.3

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 2.47

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .767 hours, which is = 46.0 minutes R = .504 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.43	.43	.43	.20	.18	.17	.10	.10	.10	.08	.08	.08	.03	.03	.03	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10k1

Drainage Area= .010 Channel Length= .114 Kn= .130 SLOPE= 345.0

IA= .19 DTHETA= .35 PSIF= 3.80 XKSAT= .45 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .117 hours, which is = 7.0 minutes R = .083 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K2

Drainage Area= .008 Channel Length= .152 Kn= .133 SLOPE= 330.0
IA= .24 DTHETA= .35 PSIF= 3.75 XKSAT= .46 RTIMP= 7.22
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .133 hours, which is = 8.0 minutes R = .139 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K3

Drainage Area= .013 Channel Length= .208 Kn= .127 SLOPE= 280.0

IA= .23 DTHETA= .35 PSIF= 3.70 XKSAT= .47 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .167 hours, which is = 10.0 minutes R = .169 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K4

Drainage Area= .026 Channel Length= .265 Kn= .119 SLOPE= 315.0

IA= .24 DTHETA= .35 PSIF= 3.70 XKSAT= .44 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .167 hours, which is = 10.0 minutes R = .140 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K5

Drainage Area= .016 Channel Length= .303 Kn= .125 SLOPE= 330.0
IA= .25 DTHETA= .35 PSIF= 3.85 XKSAT= .43 RTIMP= 7.22
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .183 hours, which is = 11.0 minutes R = .232 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K6B

Drainage Area= .036 Channel Length= .360 Kn= .116 SLOPE= 335.0

IA= .23 DTHETA= .35 PSIF= 4.00 XKSAT= .39 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .183 hours, which is = 11.0 minutes R = .166 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.11	.07	.06	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

176

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K7

Drainage Area= .026 Channel Length= .227 Kn= .119 SLOPE= 280.0

IA= .31 DTHETA= .39 PSIF= 6.20 XKSAT= .14 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .150 hours, which is = 9.0 minutes R = .110 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.11	.10	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10K8

Drainage Area= .164 Channel Length= .928 Kn= .100 SLOPE= 26.9

IA= .32 DTHETA= .35 PSIF= 5.00 XKSAT= .24 RTIMP= 7.22

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .917 hours, which is = 55.0 minutes R = .887 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.08	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

1778

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10L1

Drainage Area= .110 Channel Length= .549 Kn= .104 SLOPE= 335.0

IA= .21 DTHETA= .39 PSIF= 6.20 XKSAT= .14 RTIMP= 11.24

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .217 hours, which is = 13.0 minutes R = .148 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.48	.15	.12	.11	.05	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10L2

Drainage Area= .231 Channel Length= .947 Kn= .096 SLOPE= 285.0

IA= .19 DTHETA= .37 PSIF= 5.40 XKSAT= .20 RTIMP= 11.24

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb8

TC = .317 hours, which is = 19.0 minutes R = .228 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.47	.47	.14	.11	.10	.04	.04	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10L3

Drainage Area= .072 Channel Length= .492 Kn= .108 SLOPE= 101.5

IA= .35 DTHETA= .35 PSIF= 5.00 XKSAT= .24 RTIMP= 11.24

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .350 hours, which is = 21.0 minutes R = .294 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10M

Drainage Area= .336 Channel Length= .966 Kn= .092 SLOPE= 295.0

IA= .30 DTHETA= .36 PSIF= 3.81 XKSAT= .29 RTIMP= 9.69

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .300 hours, which is = 18.0 minutes R = .176 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.08	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10N

Drainage Area= .073 Channel Length= .814 Kn= .108 SLOPE= 61.4

IA= .35 DTHETA= .40 PSIF= 6.29 XKSAT= .19 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .617 hours, which is = 37.0 minutes R = .816 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 100

Drainage Area= .119 Channel Length= .890 Kn= .103 SLOPE= 84.3

IA= .35 DTHETA= .40 PSIF= 6.29 XKSAT= .19 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .550 hours, which is = 33.0 minutes R = .584 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 10P

Drainage Area= .775 Channel Length= 1.837 Kn= .083 SLOPE= 209.6

IA= .28 DTHETA= .35 PSIF= 7.50 XKSAT= .13 RTIMP= 7.50

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL2

TC = .533 hours, which is = 32.0 minutes R = .346 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.41	.41	.41	.15	.13	.12	.07	.06	.06	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

```
    (3) - for manual input
2
------------------------------------------------------------------------------
                   DATA INPUT FOR SUB-BASIN: 10Q
------------------------------------------------------------------------------
 Drainage Area=   .329   Channel Length=  1.288  Kn=  .092  SLOPE= 300.0
 IA=  .26  DTHETA=  .36  PSIF=  4.12  XKSAT=  .29  RTIMP=   9.61
 Rainfall Depth =  3.43
 Rainfall Distribution is 100-year, 6-Hour
------------------------------------------------------------------------------
                  HEC-1 INPUT IS STORED IN FILE: VILL2
------------------------------------------------------------------------------
 TC =  .367 hours, which is =   22.0 minutes       R =   .280 hours.
------------------------------------------------------------------------------
              EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
------------------------------------------------------------------------------
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .46 .46 .46 .13 .09 .08 .03 .03 .02 .02 .02 .02 .02 .02 .02 .02 .02 .02
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin.
------------------------------------------------------------------------------

Enter 1 for a new sub-basin, 2 to STOP
```

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A1

Drainage Area= .007 Channel Length= .133 Kn= .134 SLOPE= 390.0

IA= .25 DTHETA= .35 PSIF= 3.60 XKSAT= .50 RTIMP= 32.13

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .117 hours, which is = 7.0 minutes R = .115 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.43	.43	.43	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A2

Drainage Area= .018 Channel Length= .189 Kn= .124 SLOPE= 390.0

IA= .25 DTHETA= .35 PSIF= 3.60 XKSAT= .50 RTIMP= 32.13

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .133 hours, which is = 8.0 minutes R = .103 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.43	.43	.43	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A3

Drainage Area= .069 Channel Length= .407 Kn= .109 SLOPE= 340.0

IA= .26 DTHETA= .35 PSIF= 3.40 XKSAT= .58 RTIMP= 14.42

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .200 hours, which is = 12.0 minutes R = .139 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.43	.43	.43	.09	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A4

Drainage Area= .052 Channel Length= .682 Kn= .112 SLOPE= 325.0

IA= .34 DTHETA= .35 PSIF= 4.30 XKSAT= .34 RTIMP= 3.35

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .267 hours, which is = 16.0 minutes R = .339 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A5

Drainage Area= .066 Channel Length= .606 Kn= .109 SLOPE= 330.0

IA= .30 DTHETA= .35 PSIF= 3.30 XKSAT= .63 RTIMP= 2.70

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .267 hours, which is = 16.0 minutes R = .269 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.42	.42	.42	.08	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A6

Drainage Area= .035 Channel Length= .341 Kn= .116 SLOPE= 350.0

IA= .28 DTHETA= .35 PSIF= 3.70 XKSAT= .48 RTIMP= 19.48

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .183 hours, which is = 11.0 minutes R = .161 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

```
    (3) - for manual input
2
--------------------------------------------------------------------------------
                    DATA INPUT FOR SUB-BASIN: 20A7
--------------------------------------------------------------------------------
 Drainage Area=   .004   Channel Length=   .095  Kn=  .140  SLOPE= 320.0
 IA=  .33  DTHETA=  .35  PSIF=  3.80  XKSAT=  .43  RTIMP=    .50
 Rainfall Depth =  3.43
 Rainfall Distribution is 100-year, 6-Hour
--------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL3
--------------------------------------------------------------------------------
 TC =  .117 hours, which is =    7.0 minutes       R =   .122 hours.
--------------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
--------------------------------------------------------------------------------
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .44 .44 .44 .10 .06 .04 .02 .02 .02 .02 .02 .02 .02 .02 .02 .02 .02 .02
--------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin.
--------------------------------------------------------------------------------

Enter 1 for a new sub-basin, 2 to STOP
```

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A8

Drainage Area= .011 Channel Length= .189 Kn= .129 SLOPE= 350.0
IA= .32 DTHETA= .35 PSIF= 3.80 XKSAT= .44 RTIMP= .50
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: VILL3

TC = .150 hours, which is = 9.0 minutes R = .159 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A9

Drainage Area= .025 Channel Length= .360 Kn= .120 SLOPE= 355.0

IA= .29 DTHETA= .35 PSIF= 3.70 XKSAT= .47 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB8

TC = .183 hours, which is = 11.0 minutes R = .203 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A10

Drainage Area= .035 Channel Length= .417 Kn= .116 SLOPE= 350.0

IA= .31 DTHETA= .35 PSIF= 3.60 XKSAT= .49 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB8

TC = .200 hours, which is = 12.0 minutes R = .208 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.43	.43	.43	.10	.05	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A11

Drainage Area= .038 Channel Length= .511 Kn= .115 SLOPE= 340.0

IA= .33 DTHETA= .35 PSIF= 3.90 XKSAT= .41 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB8

TC = .233 hours, which is = 14.0 minutes R = .277 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.11	.06	.04	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A12

Drainage Area= .040 Channel Length= .379 Kn= .115 SLOPE= 184.8

IA= .35 DTHETA= .23 PSIF= 10.00 XKSAT= .03 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB9

TC = .217 hours, which is = 13.0 minutes TR = .195 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.18	.15	.14	.07	.07	.07	.06	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A13

Drainage Area= .019 Channel Length= .294 Kn= .123 SLOPE= 119.2

IA= .35 DTHETA= .22 PSIF= 10.50 XKSAT= .28 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB9

TC = .250 hours, which is = 15.0 minutes R = .285 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A14a

Drainage Area= .015 Channel Length= .341 Kn= .126 SLOPE= 132.0

IA= .35 DTHETA= .35 PSIF= 4.20 XKSAT= .34 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB9

TC = .267 hours, which is = 16.0 minutes R = .395 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.45	.45	.11	.07	.05	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A15

Drainage Area= .036 Channel Length= .284 Kn= .116 SLOPE= 290.0

IA= .32 DTHETA= .36 PSIF= 5.00 XKSAT= .24 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB9

TC = .167 hours, which is = 10.0 minutes R = .123 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.46	.13	.09	.07	.03	.03	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A16

Drainage Area= .071 Channel Length= .454 Kn= .109 SLOPE= 88.0

IA= .35 DTHETA= .33 PSIF= 7.40 XKSAT= .09 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB9

TC = .333 hours, which is = 20.0 minutes R = .263 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.16	.13	.12	.06	.06	.05	.03	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

```
   (3) - for manual input
2
------------------------------------------------------------------------------
                    DATA INPUT FOR SUB-BASIN: 20A17
------------------------------------------------------------------------------
 Drainage Area=   .022   Channel Length=   .284  Kn=  .121  SLOPE= 105.6
 IA=  .35  DTHETA=  .32  PSIF=  7.60  XKSAT=  .08  RTIMP=    .00
 Rainfall Depth =  3.43
 Rainfall Distribution is 100-year, 6-Hour
------------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: DELWEB10
------------------------------------------------------------------------------
 TC =  .250 hours, which is =   15.0 minutes       R =   .256 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
------------------------------------------------------------------------------
      5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90
    .49  .49  .49  .16  .13  .12  .06  .06  .05  .03  .02  .02  .02  .02  .02  .02  .02  .02
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin.
------------------------------------------------------------------------------

Enter 1 for a new sub-basin, 2 to STOP
```

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A18

Drainage Area= .087 Channel Length= .890 Kn= .106 SLOPE= 106.7

IA= .35 DTHETA= .21 PSIF= 10.70 XKSAT= .03 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .450 hours, which is = 27.0 minutes R = .559 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.15	.15	.07	.07	.07	.06	.06	.05	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

204

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A19

Drainage Area= .057 Channel Length= .606 Kn= .111 SLOPE= 82.5

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .400 hours, which is = 24.0 minutes R = .459 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A20

Drainage Area= .054 Channel Length= .492 Kn= .111 SLOPE= 81.2

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .350 hours, which is = 21.0 minutes R = .346 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A21

Drainage Area= .024 Channel Length= .417 Kn= .120 SLOPE= 84.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .333 hours, which is = 20.0 minutes R = .455 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A22

Drainage Area= .013 Channel Length= .227 Kn= .127 SLOPE= 88.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .233 hours, which is = 14.0 minutes R = .267 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A23

Drainage Area= .010 Channel Length= .114 Kn= .130 SLOPE= 88.0

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .167 hours, which is = 10.0 minutes R = .123 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A24

Drainage Area= .111 Channel Length= .758 Kn= .104 SLOPE= 52.8

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .533 hours, which is = 32.0 minutes R = .516 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A25

Drainage Area= .029 Channel Length= .474 Kn= .118 SLOPE= 50.7

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .433 hours, which is = 26.0 minutes R = .605 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A26

Drainage Area= .121 Channel Length= 1.345 Kn= .103 SLOPE= 66.9

IA= .35 DTHETA= .17 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .717 hours, which is = 43.0 minutes R = 1.080 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A27

Drainage Area= .013 Channel Length= .284 Kn= .127 SLOPE= 71.1

IA= .35 DTHETA= .35 PSIF= 3.70 XKSAT= .46 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .317 hours, which is = 19.0 minutes R = .443 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.05	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A28

Drainage Area= .017 Channel Length= .246 Kn= .124 SLOPE= 71.1

IA= .35 DTHETA= .35 PSIF= 3.70 XKSAT= .44 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .283 hours, which is = 17.0 minutes R = .306 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.44	.44	.10	.06	.03	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A29

Drainage Area= .041 Channel Length= .474 Kn= .115 SLOPE= 58.1

IA= .35 DTHETA= .30 PSIF= 8.00 XKSAT= .07 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .417 hours, which is = 25.0 minutes R = .475 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.17	.13	.12	.06	.06	.05	.04	.02	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A30

Drainage Area= .039 Channel Length= .549 Kn= .115 SLOPE= 58.1
IA= .35 DTHETA= .24 PSIF= 9.80 XKSAT= .04 RTIMP= .00
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .450 hours, which is = 27.0 minutes R = .601 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A31

Drainage Area= .023 Channel Length= .303 Kn= .121 SLOPE= 62.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB21

TC = .300 hours, which is = 18.0 minutes R = .319 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 20A32

Drainage Area= .034 Channel Length= .341 Kn= .117 SLOPE= 62.6

IA= .35 DTHETA= .29 PSIF= 8.20 XKSAT= .06 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: DELWEB22

TC = .333 hours, which is = 20.0 minutes R = .319 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.17	.14	.13	.06	.06	.06	.04	.03	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 30A1

Drainage Area= .318 Channel Length= 1.610 Kn= .092 SLOPE= 90.1

IA= .35 DTHETA= .15 PSIF= 12.50 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .650 hours, which is = 39.0 minutes R = .645 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 30A2

Drainage Area= .084 Channel Length= .760 Kn= .107 SLOPE= 91.7

IA= .35 DTHETA= .15 PSIF= 12.50 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .433 hours, which is = 26.0 minutes R = .482 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 30A3

Drainage Area= .097 Channel Length= .587 Kn= .105 SLOPE= 68.1

IA= .35 DTHETA= .28 PSIF= 8.40 XKSAT= .06 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .417 hours, which is = 25.0 minutes R = .346 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.49	.49	.17	.14	.13	.06	.06	.06	.04	.03	.02	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 30A4

Drainage Area= .029 Channel Length= .246 Kn= .118 SLOPE= 81.2
IA= .35 DTHETA= .15 PSIF= 12.50 XKSAT= .01 RTIMP= .00
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb11

TC = .233 hours, which is = 14.0 minutes R = .180 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.16	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40a1

Drainage Area= .046 Channel Length= .379 Kn= .113 SLOPE= 105.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .283 hours, which is = 17.0 minutes R = .243 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A2

Drainage Area= .011 Channel Length= .227 Kn= .129 SLOPE= 105.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .217 hours, which is = 13.0 minutes R = .271 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A3

Drainage Area= .038 Channel Length= .436 Kn= .115 SLOPE= 105.6

IA= .35 DTHETA= .18 PSIF= 11.75 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .300 hours, which is = 18.0 minutes R = .323 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A4

Drainage Area= .049 Channel Length= .568 Kn= .113 SLOPE= 105.6
IA= .35 DTHETA= .18 PSIF= 11.75 XKSAT= .02 RTIMP= .00
Rainfall Depth = 3.43
Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .350 hours, which is = 21.0 minutes R = .410 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A5

Drainage Area= .076 Channel Length= .568 Kn= .108 SLOPE= 60.3

IA= .35 DTHETA= .24 PSIF= 10.00 XKSAT= .04 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .433 hours, which is = 26.0 minutes R = .404 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.04	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A6

Drainage Area= .147 Channel Length= .947 Kn= .100 SLOPE= 84.5

IA= .35 DTHETA= .19 PSIF= 11.50 XKSAT= .02 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .500 hours, which is = 30.0 minutes R = .490 hours

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.15	.08	.08	.07	.07	.06	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: ~~40A7~~

Drainage Area= .049 Channel Length= .625 Kn= .113 SLOPE= 105.6

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .383 hours, which is = 23.0 minutes ~~R = .489 hours.~~

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

(3) - for manual input

2

DATA INPUT FOR SUB-BASIN: 40A8

Drainage Area= .091 Channel Length= .568 Kn= .106 SLOPE= 70.4

IA= .35 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= .00

Rainfall Depth = 3.43

Rainfall Distribution is 100-year, 6-Hour

HEC-1 INPUT IS STORED IN FILE: delweb20

TC = .400 hours, which is = 24.0 minutes R = .334 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin.

Enter 1 for a new sub-basin, 2 to STOP

MCUHPI's FOR
DEVELOPED
CONDITIONS

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 1A1

Drainage Area= .079 Channel Length= .568 Kb= .029 SLOPE(adj)= 211.0

IA= .30 DTHETA= .24 PSIF= 9.80 XKSAT= .04 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .133 hours, which is = 8.0 minutes R = .107 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.18	.15	.15	.07	.07	.07	.06	.06	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 1A2

Drainage Area= .406 Channel Length= 1.705 Kb= .025 SLOPE(adj)= 58.7

IA= .25 DTHETA= .23 PSIF= 9.40 XKSAT= .04 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= .995

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .333 hours, which is = 20.0 minutes R = .280 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.16	.15	.08	.08	.07	.07	.07	.06	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                           DATA INPUT FOR BASIN: 1A3
-----------------------------------------------------------------------------
 Drainage Area=   .119   Channel Length=  1.136  Kb=  .028  SLOPE(adj)=  70.4
 IA=  .30  DTHETA=  .19  PSIF=  11.50  XKSAT=  .02  RTIMP=   5.00
 Rainfall Depth =  3.43    Areal Reduction= .998
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                      HEC-1 INPUT IS STORED IN FILE: VILL15
-----------------------------------------------------------------------------
 TC =  .258 hours, which is =   15.5 minutes       R =   .307 hours.
-----------------------------------------------------------------------------
                  EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .51 .51 .51 .19 .16 .16 .08 .08 .07 .07 .07 .07 .01 .01 .01 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                           DATA INPUT FOR BASIN: 2A2
-----------------------------------------------------------------------------
 Drainage Area=   .037   Channel Length=   .625  Kb=  .116  SLOPE(adj)= 265.0
 IA=  .22  DTHETA=  .37  PSIF=   5.40  XKSAT=  .02  RTIMP=  31.14
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                       HEC-1 INPUT IS STORED IN FILE: vill14
-----------------------------------------------------------------------------
 TC =  .262 hours, which is =   15.7 minutes       R =   .376 hours.
-----------------------------------------------------------------------------
                   EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .52 .51 .51 .20 .17 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 2B2

Drainage Area= .012 Channel Length= .189 Kb= .128 SLOPE(adj)= 250.0
IA= .15 DTHETA= .25 PSIF= 9.60 XKSAT= .04 RTIMP= 28.99
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .154 hours, which is = 9.3 minutes R = .151 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 2C1

Drainage Area= .363 Channel Length= .757 Kb= .025 SLOPE(adj)= 145.3

IA= .28 DTHETA= .13 PSIF= 12.00 XKSAT= .01 RTIMP= 16.00

Rainfall Depth = 3.43 Areal Reduction= .995

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .158 hours, which is = 9.5 minutes R = .068 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 2C2

Drainage Area= .513 Channel Length= 1.515 Kb= .024 SLOPE(adj)= 85.8

IA= .26 DTHETA= .27 PSIF= 8.40 XKSAT= .06 RTIMP= 25.00

Rainfall Depth = 3.43 Areal Reduction= .993

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.01

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .262 hours, which is = 15.7 minutes R = .171 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.49	.49	.18	.15	.14	.07	.07	.07	.06	.05	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 3A2

Drainage Area= .027 Channel Length= .189 Kb= .119 SLOPE(adj)= 211.0

IA= .15 DTHETA= .37 PSIF= 5.20 XKSAT= .21 RTIMP= 29.33

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .158 hours, which is = 9.5 minutes R = .099 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.48	.48	.16	.13	.12	.05	.05	.05	.03	.03	.03	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 3B2

Drainage Area= .242 Channel Length= .814 Kb= .026 SLOPE(adj)= 147.4
IA= .29 DTHETA= .21 PSIF= 10.00 XKSAT= .04 RTIMP= 13.50
Rainfall Depth = 3.43 Areal Reduction= .997
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .167 hours, which is = 10.0 minutes R = .096 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.15	.15	.07	.07	.07	.07	.06	.06	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 3C

Drainage Area= .112 Channel Length= .682 Kb= .028 SLOPE(adj)= 265.0

IA= .27 DTHETA= .33 PSIF= 7.50 XKSAT= .12 RTIMP= 17.50

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .133 hours, which is = 8.0 minutes R = .101 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.48	.48	.16	.13	.12	.06	.06	.05	.03	.02	.02	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 3D1

Drainage Area= .117 Channel Length= .530 Kb= .028 SLOPE(adj)= 132.1

IA= .25 DTHETA= .46 PSIF= 12.50 XKSAT= .01 RTIMP= 27.50

Rainfall Depth = 3.43 Areal Reduction= .998

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .142 hours, which is = 8.5 minutes R = .086 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.02	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 3D2

Drainage Area= .031 Channel Length= .284 Kb= .032 SLOPE(adj)= 96.0

IA= .27 DTHETA= .14 PSIF= 12.50 XKSAT= .01 RTIMP= 18.75

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill14

TC = .125 hours, which is = 7.5 minutes R = .097 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 3D3

Drainage Area= .207 Channel Length= 1.420 Kb= .027 SLOPE(adj)= 96.0
IA= .24 DTHETA= .17 PSIF= 10.00 XKSAT= .03 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= .997
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vil114

TC = .254 hours, which is = 15.3 minutes R = .263 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 4A1
-----------------------------------------------------------------------------
 Drainage Area=   .029   Channel Length=   .417  Kb=  .032  SLOPE(adj)=  49.0
 IA=  .25  DTHETA=  .16  PSIF=  12.00  XKSAT=  .01  RTIMP=  30.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL15
-----------------------------------------------------------------------------
 TC =  .183 hours, which is =   11.0 minutes       R =   .211 hours.
-----------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .52 .52 .52 .20 .17 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .02 .02 .02
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 4A2

Drainage Area= .036 Channel Length= .341 Kb= .032 SLOPE(adj)= 49.0
IA= .30 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 5.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .167 hours, which is = 10.0 minutes R = .143 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 4C1

Drainage Area= .042 Channel Length= .473 Kb= .031 SLOPE(adj)= 51.0

IA= .30 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 5.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .192 hours, which is = 11.5 minutes R = .197 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 5B

Drainage Area= .063 Channel Length= .667 Kb= .030 SLOPE(adj)= 260.0

IA= .29 DTHETA= .33 PSIF= 7.50 XKSAT= .12 RTIMP= 14.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL13

TC = .138 hours, which is = 8.3 minutes R = .143 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.48	.48	.16	.12	.12	.06	.05	.05	.03	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 5E

Drainage Area= .061 Channel Length= .303 Kb= .030 SLOPE(adj)= 99.0

IA= .28 DTHETA= .39 PSIF= 5.67 XKSAT= .21 RTIMP= 21.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL13

TC = .125 hours, which is = 7.5 minutes R = .070 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.11	.10	.05	.04	.04	.02	.02	.02	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                           DATA INPUT FOR BASIN: 5F1
-----------------------------------------------------------------------------
 Drainage Area=   .081   Channel Length=   .511  Kb=  .029  SLOPE(adj)= 106.0
 IA=  .26  DTHETA=  .38  PSIF=   6.00  XKSAT=  .15  RTIMP=  25.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                       HEC-1 INPUT IS STORED IN FILE: VILL13
-----------------------------------------------------------------------------
 TC =  .158 hours, which is =    9.5 minutes       R =   .117 hours.
-----------------------------------------------------------------------------
                 EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .49 .48 .48 .16 .13 .12 .06 .06 .05 .03 .02 .02 .01 .01 .01 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 5F21

Drainage Area= .146 Channel Length= .663 Kb= .028 SLOPE(adj)= 106.0
IA= .27 DTHETA= .22 PSIF= 9.60 XKSAT= .04 RTIMP= 25.75
Rainfall Depth = 3.43 Areal Reduction= .998
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .171 hours, which is = 10.3 minutes R = .112 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.16	.15	.08	.07	.07	.07	.06	.06	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 5F22

Drainage Area= .068 Channel Length= .379 Kb= .030 SLOPE(adj)= 106.0

IA= .25 DTHETA= .30 PSIF= 8.00 XKSAT= .07 RTIMP= 45.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .133 hours, which is = 8.0 minutes R = .084 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.15	.15	.07	.07	.07	.06	.06	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 5F23

Drainage Area= .032 Channel Length= .474 Kb= .032 SLOPE(adj)= 106.0

IA= .25 DTHETA= .35 PSIF= 3.80 XKSAT= .43 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .158 hours, which is = 9.5 minutes R = .188 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.46	.46	.14	.10	.08	.04	.04	.03	.03	.03	.03	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 5F24

Drainage Area= .053 Channel Length= .284 Kb= .030 SLOPE(adj)= 106.0
IA= .10 DTHETA= .38 PSIF= 6.40 XKSAT= .13 RTIMP= 80.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .117 hours, which is = 7.0 minutes R = .067 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 5G1

Drainage Area= .129 Channel Length= .720 Kb= .028 SLOPE(adj)= 131.9
IA= .25 DTHETA= .35 PSIF= 3.90 XKSAT= .43 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= .998
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL13

TC = .175 hours, which is = 10.5 minutes R = .132 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.46	.46	.14	.10	.08	.04	.04	.03	.03	.03	.03	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                       DATA INPUT FOR BASIN: 5G21
-----------------------------------------------------------------------------
 Drainage Area=   .211   Channel Length=   .852  Kb=  .027  SLOPE(adj)=  96.0
 IA=  .28  DTHETA=  .13  PSIF=  11.50  XKSAT=  .02  RTIMP=  25.00
 Rainfall Depth =  3.43    Areal Reduction= .997
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                  HEC-1 INPUT IS STORED IN FILE: VILL20
-----------------------------------------------------------------------------
 TC =  .196 hours, which is =   11.8 minutes       R =   .129 hours.
-----------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .52 .51 .51 .20 .17 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 5G22

Drainage Area= .062 Channel Length= .663 Kb= .030 SLOPE(adj)= 96.0
IA= .26 DTHETA= .18 PSIF= 11.50 XKSAT= .07 RTIMP= 35.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .183 hours, which is = 11.0 minutes R = .198 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.18	.15	.15	.07	.07	.07	.06	.06	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 6B1

Drainage Area= .065 Channel Length= .530 Kb= .030 SLOPE(adj)= 150.9
IA= .26 DTHETA= .28 PSIF= 8.80 XKSAT= .05 RTIMP= 22.50
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL12

TC = .142 hours, which is = 8.5 minutes R = .121 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 6B2

Drainage Area= .125 Channel Length= .757 Kb= .028 SLOPE(adj)= 118.9
IA= .27 DTHETA= .23 PSIF= 9.20 XKSAT= .05 RTIMP= 29.00
Rainfall Depth = 3.43 Areal Reduction= .998
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL12

TC = .179 hours, which is = 10.8 minutes R = .144 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.16	.15	.08	.07	.07	.07	.06	.06	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 7b

Drainage Area= .042 Channel Length= .341 Kb= .031 SLOPE(adj)= 58.7
IA= .10 DTHETA= .25 PSIF= 10.10 XKSAT= .04 RTIMP= 80.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vill10

TC = .154 hours, which is = 9.3 minutes R = .120 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.09	.09	.09	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 7D
-----------------------------------------------------------------------------
 Drainage Area=   .033  Channel Length=   .360  Kb=  .032  SLOPE(adj)= 111.1
 IA=  .10  DTHETA=  .15  PSIF=  12.40  XKSAT=  .01  RTIMP=  80.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                     HEC-1 INPUT IS STORED IN FILE: vil111
-----------------------------------------------------------------------------
 TC =  .133 hours, which is =    8.0 minutes       R =   .122 hours.
-----------------------------------------------------------------------------
                 EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .52 .52 .52 .20 .17 .17 .09 .09 .09 .09 .09 .08 .02 .02 .02 .02 .02 .02
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 7F1

Drainage Area= .028 Channel Length= .265 Kb= .032 SLOPE(adj)= 150.9
IA= .70 DTHETA= .36 PSIF= 6.80 XKSAT= .11 RTIMP= 80.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: vil111

TC = .104 hours, which is = 6.3 minutes R = .080 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.15	.14	.08	.08	.08	.07	.07	.07	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 7F2

Drainage Area= .029 Channel Length= .265 Kb= .032 SLOPE(adj)= 207.0
IA= .10 DTHETA= .22 PSIF= 10.50 XKSAT= .03 RTIMP= 80.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL12

TC = .092 hours, which is = 5.5 minutes R = .068 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.09	.09	.09	.09	.09	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 7G

Drainage Area= .073 Channel Length= .663 Kb= .030 SLOPE(adj)= 60.3

IA= .10 DTHETA= .25 PSIF= 8.20 XKSAT= .05 RTIMP= 5.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL12

TC = .213 hours, which is = 12.8 minutes R = .212 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.15	.15	.07	.07	.07	.07	.07	.07	.01	.01	.01	.01	.01	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 7H

Drainage Area= .162 Channel Length= 1.326 Kb= .027 SLOPE(adj)= 90.5

IA= .28 DTHETA= .25 PSIF= 8.40 XKSAT= .06 RTIMP= 21.00

Rainfall Depth = 3.43 Areal Reduction= .998

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL13

TC = .254 hours, which is = 15.3 minutes R = .286 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 8B2

Drainage Area= .029 Channel Length= .341 Kb= .032 SLOPE(adj)= 88.0

IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .138 hours, which is = 8.3 minutes R = .130 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 8B3

Drainage Area= .016 Channel Length= .265 Kb= .034 SLOPE(adj)= 105.6

IA= .15 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 55.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .117 hours, which is = 7.0 minutes R = .124 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.09	.09	.09	.09	.09	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 8C1

Drainage Area= .021 Channel Length= .227 Kb= .033 SLOPE(adj)= 88.0

IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .117 hours, which is = 7.0 minutes R = .094 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 8C2

Drainage Area= .260 Channel Length= .568 Kb= .026 SLOPE(adj)= 105.6

IA= .16 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 51.00

Rainfall Depth = 3.43 Areal Reduction= .997

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .154 hours, which is = 9.3 minutes R = .064 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.09	.09	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                        DATA INPUT FOR BASIN: 8D1
------------------------------------------------------------------------------
 Drainage Area=   .021  Channel Length=   .152  Kb=  .033  SLOPE(adj)=  56.6
 IA=  .25  DTHETA=  .35  PSIF=   3.90  XKSAT=  .42  RTIMP=  45.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: VILL20
------------------------------------------------------------------------------
 TC =  .112 hours, which is =    6.8 minutes       R =   .065 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .48 .47 .47 .15 .12 .10 .05 .05 .04 .04 .04 .04 .01 .01 .01 .01 .01 .01
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 8D2

Drainage Area= .016 Channel Length= .189 Kb= .034 SLOPE(adj)= 56.6

IA= .25 DTHETA= .35 PSIF= 3.80 XKSAT= .43 RTIMP= 45.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .125 hours, which is = 7.5 minutes R = .104 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.12	.10	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 10A2
------------------------------------------------------------------------------
 Drainage Area=   .015  Channel Length=   .114  Kb=  .125  SLOPE(adj)= 270.0
 IA=  .19  DTHETA=  .37  PSIF=   5.40  XKSAT=  .20  RTIMP=  32.13
 Rainfall Depth =  3.43   Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL15
------------------------------------------------------------------------------
 TC =  .117 hours, which is =    7.0 minutes       R =   .066 hours.
------------------------------------------------------------------------------
                 EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .49 .48 .48 .16 .13 .12 .06 .05 .05 .03 .03 .03 .01 .01 .01 .01 .01 .01
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10B

Drainage Area= .371 Channel Length= 1.100 Kb= .025 SLOPE(adj)= 163.9

IA= .29 DTHETA= .19 PSIF= 9.40 XKSAT= .02 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= .995

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .183 hours, which is = 11.0 minutes R = .107 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.02	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10C1

Drainage Area= .142 Channel Length= .947 Kb= .028 SLOPE(adj)= 230.0
IA= .27 DTHETA= .17 PSIF= 11.50 XKSAT= .02 RTIMP= 22.00
Rainfall Depth = 3.43 Areal Reduction= .998
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .158 hours, which is = 9.5 minutes R = .139 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10C2

Drainage Area= .205 Channel Length= .910 Kb= .027 SLOPE(adj)= 105.6
IA= .25 DTHETA= .22 PSIF= 10.00 XKSAT= .03 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= .997
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .196 hours, which is = 11.8 minutes R = .139 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.07	.07	.07	.07	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10C3

Drainage Area= .149 Channel Length= .947 Kb= .028 SLOPE(adj)= 82.7

IA= .26 DTHETA= .16 PSIF= 11.50 XKSAT= .02 RTIMP= 26.25

Rainfall Depth = 3.43 Areal Reduction= .998

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .217 hours, which is = 13.0 minutes R = .192 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10D1

Drainage Area= .061 Channel Length= .436 Kb= .030 SLOPE(adj)= 126.2

IA= .25 DTHETA= .35 PSIF= 3.80 XKSAT= .43 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .142 hours, which is = 8.5 minutes R = .107 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.46	.46	.14	.10	.08	.04	.04	.03	.03	.03	.03	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10D2

Drainage Area= .096 Channel Length= .530 Kb= .029 SLOPE(adj)= 66.0
IA= .25 DTHETA= .35 PSIF= 4.60 XKSAT= .28 RTIMP= 28.75
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .183 hours, which is = 11.0 minutes R = .129 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.11	.10	.05	.05	.04	.03	.03	.03	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10E1

Drainage Area= .106 Channel Length= .663 Kb= .029 SLOPE(adj)= 181.0

IA= .30 DTHETA= .19 PSIF= 11.50 XKSAT= .02 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .146 hours, which is = 8.8 minutes R = .113 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.07	.07	.07	.02	.02	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10E2

Drainage Area= .372 Channel Length= 1.326 Kb= .025 SLOPE(adj)= 90.5
IA= .27 DTHETA= .15 PSIF= 11.00 XKSAT= .02 RTIMP= 18.75
Rainfall Depth = 3.43 Areal Reduction= .995
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .242 hours, which is = 14.5 minutes R = .168 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10E3

Drainage Area= .075 Channel Length= .436 Kb= .029 SLOPE(adj)= 68.8

IA= .26 DTHETA= .26 PSIF= 9.00 XKSAT= .05 RTIMP= 22.50

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .162 hours, which is = 9.8 minutes R = .111 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.18	.15	.15	.07	.07	.07	.06	.06	.05	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10H1

Drainage Area= .022 Channel Length= .152 Kb= .033 SLOPE(adj)= 50.8
IA= .17 DTHETA= .35 PSIF= 4.10 XKSAT= .37 RTIMP= 64.25
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .112 hours, which is = 6.8 minutes R = .065 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.49	.49	.17	.14	.13	.07	.06	.06	.06	.06	.06	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10H2

Drainage Area= .060 Channel Length= .492 Kb= .030 SLOPE(adj)= 50.8
IA= .25 DTHETA= .35 PSIF= 4.40 XKSAT= .31 RTIMP= 45.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL20

TC = .196 hours, which is = 11.8 minutes R = .170 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.49	.48	.48	.16	.13	.12	.06	.05	.05	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10J1

Drainage Area= .075 Channel Length= .474 Kb= .029 SLOPE(adj)= 63.3
IA= .20 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 42.50
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .175 hours, which is = 10.5 minutes R = .129 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10K1

Drainage Area= .010 Channel Length= .114 Kb= .035 SLOPE(adj)= 345.0

IA= .19 DTHETA= .35 PSIF= 3.80 XKSAT= .45 RTIMP= 45.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .083 hours, which is = 5.0 minutes R = .057 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.12	.10	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10K2

Drainage Area= .008 Channel Length= .152 Kb= .036 SLOPE(adj)= 330.0

IA= .24 DTHETA= .35 PSIF= 3.75 XKSAT= .46 RTIMP= 45.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .083 hours, which is = 5.0 minutes R = .082 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.11	.10	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10K3

Drainage Area= .133 Channel Length= .208 Kb= .034 SLOPE(adj)= 280.0

IA= .23 DTHETA= .35 PSIF= 3.70 XKSAT= .47 RTIMP= 45.00

Rainfall Depth = 3.43 Areal Reduction= .998

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .083 hours, which is = 5.0 minutes, R = .021 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.11	.10	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10K4

Drainage Area= .026 Channel Length= .265 Kb= .046 SLOPE(adj)= 315.0
IA= .24 DTHETA= .35 PSIF= 3.70 XKSAT= .44 RTIMP= 45.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .104 hours, which is = 6.3 minutes R = .083 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.47	.47	.15	.12	.10	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
--------------------------------------------------------------------------------
                     DATA INPUT FOR BASIN: 10K5
--------------------------------------------------------------------------------
 Drainage Area=   .016  Channel Length=   .303  Kb=  .065  SLOPE(adj)= 330.0
 IA=  .25  DTHETA=  .35  PSIF=   3.85  XKSAT=  .43  RTIMP=  45.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
--------------------------------------------------------------------------------
                HEC-1 INPUT IS STORED IN FILE: VILL15
--------------------------------------------------------------------------------
 TC =  .129 hours, which is =    7.8 minutes       R =   .157 hours.
--------------------------------------------------------------------------------
             EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .48 .47 .47 .15 .11 .10 .05 .05 .04 .04 .04 .04 .01 .01 .01 .01 .01 .01
--------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
--------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10K6

Drainage Area= .036 Channel Length= .360 Kb= .059 SLOPE(adj)= 335.0
IA= .23 DTHETA= .35 PSIF= 4.00 XKSAT= .39 RTIMP= 45.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .133 hours, which is = 8.0 minutes R = .117 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.48	.48	.47	.15	.12	.11	.05	.05	.04	.04	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 10K7

Drainage Area= .036 Channel Length= .360 Kb= .032 SLOPE(adj)= 280.0
IA= .25 DTHETA= .39 PSIF= 6.20 XKSAT= .14 RTIMP= 45.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .100 hours, which is = 6.0 minutes R = .085 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.49	.49	.18	.14	.14	.07	.07	.06	.05	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 10L1

Drainage Area= .110 Channel Length= .549 Kb= .077 SLOPE(adj)= 335.0
IA= .21 DTHETA= .39 PSIF= 6.20 XKSAT= .14 RTIMP= 45.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL15

TC = .188 hours, which is = 11.3 minutes R = .126 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.49	.49	.18	.14	.14	.07	.07	.06	.05	.04	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A3

Drainage Area= .069 Channel Length= .407 Kb= .109 SLOPE(adj)= 340.0
IA= .26 DTHETA= .35 PSIF= 3.40 XKSAT= .58 RTIMP= 15.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .200 hours, which is = 12.0 minutes R = .139 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.44	.43	.43	.10	.06	.04	.01	.01	.01	.01	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
---------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A4
---------------------------------------------------------------------------
 Drainage Area=   .052   Channel Length=   .682  Kb=  .048  SLOPE(adj)= 325.0
 IA=  .30  DTHETA=  .35  PSIF=   4.30  XKSAT=  .34  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
---------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
---------------------------------------------------------------------------
 TC =  .171 hours, which is =   10.3 minutes       R =   .207 hours.
---------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .46 .45 .45 .13 .09 .07 .03 .03 .03 .01 .01 .01 .00 .00 .00 .00 .00 .00
---------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
---------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
-------------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A5
-------------------------------------------------------------------------------
 Drainage Area=   .066   Channel Length=   .606  Kb=  .052  SLOPE(adj)= 330.0
 IA=  .30  DTHETA=  .35  PSIF=   3.30  XKSAT=  .63  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
-------------------------------------------------------------------------------
 TC =  .171 hours, which is =   10.3 minutes       R =   .164 hours.
-------------------------------------------------------------------------------
                  EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90
    .44  .43  .42  .10  .05  .03  .01  .01  .01  .01  .01  .01  .00  .00  .00  .00  .00  .00
-------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A6
------------------------------------------------------------------------------
 Drainage Area=   .035   Channel Length=   .341  Kb=  .116  SLOPE(adj)= 350.0
 IA=  .28  DTHETA=  .35  PSIF=   3.70  XKSAT=  .48  RTIMP=  19.48
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
------------------------------------------------------------------------------
 TC =  .188 hours, which is =   11.3 minutes       R =   .165 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .45 .45 .44 .12 .08 .06 .03 .02 .02 .02 .02 .02 .00 .00 .00 .00 .00 .00
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A7
-----------------------------------------------------------------------------
 Drainage Area=   .004  Channel Length=   .095  Kb=  .140  SLOPE(adj)= 320.0
 IA=  .30  DTHETA=  .35  PSIF=   3.80  XKSAT=  .43  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
-----------------------------------------------------------------------------
 TC =  .112 hours, which is =    6.8 minutes       R =   .117 hours.
-----------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .45 .45 .44 .12 .08 .06 .03 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
-------------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A8
-------------------------------------------------------------------------------
 Drainage Area=   .011   Channel Length=   .189  Kb=  .129  SLOPE(adj)= 350.0
 IA=  .30  DTHETA=  .35  PSIF=   3.80  XKSAT=  .44  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
-------------------------------------------------------------------------------
 TC =  .146 hours, which is =    8.8 minutes       R =   .154 hours.
-------------------------------------------------------------------------------
                 EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .45 .45 .44 .12 .08 .06 .03 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
-------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                    DATA INPUT FOR BASIN: 20A9
------------------------------------------------------------------------------
 Drainage Area=   .025   Channel Length=   .360  Kb=  .120  SLOPE(adj)= 355.0
 IA=  .29  DTHETA=  .35  PSIF=   3.70  XKSAT=  .47  RTIMP=  15.68
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                 HEC-1 INPUT IS STORED IN FILE: VILL21
------------------------------------------------------------------------------
 TC =  .196 hours, which is =   11.8 minutes      R =   .219 hours.
------------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .45 .44 .44 .12 .08 .06 .02 .02 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A10

Drainage Area= .035 Channel Length= .417 Kb= .116 SLOPE(adj)= 350.0

IA= .30 DTHETA= .35 PSIF= 3.60 XKSAT= .49 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .208 hours, which is = 12.5 minutes R = .218 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.45	.44	.44	.11	.07	.05	.02	.02	.01	.01	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                         DATA INPUT FOR BASIN: 20A11
------------------------------------------------------------------------------
 Drainage Area=   .038  Channel Length=   .511  Kb=  .115  SLOPE(adj)= 340.0
 IA=  .30  DTHETA=  .35  PSIF=   3.90  XKSAT=  .41  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL21
------------------------------------------------------------------------------
 TC =  .229 hours, which is =   13.8 minutes       R =   .272 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .46 .45 .44 .12 .08 .06 .03 .03 .02 .01 .01 .01 .00 .00 .00 .00 .00 .00
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

300

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A12

Drainage Area= .040 Channel Length= .379 Kb= .031 SLOPE(adj)= 184.8

IA= .30 DTHETA= .23 PSIF= 10.00 XKSAT= .03 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .117 hours, which is = 7.0 minutes R = .098 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.50	.50	.19	.16	.15	.07	.07	.07	.07	.06	.06	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A13

Drainage Area= .019 Channel Length= .294 Kb= .033 SLOPE(adj)= 119.2
IA= .30 DTHETA= .22 PSIF= 10.50 XKSAT= .28 RTIMP= 15.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .125 hours, which is = 7.5 minutes R = .132 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.45	.44	.12	.08	.06	.03	.03	.02	.01	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A14

Drainage Area= .015 Channel Length= .341 Kb= .034 SLOPE(adj)= 132.0

IA= .30 DTHETA= .35 PSIF= 4.20 XKSAT= .34 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .133 hours, which is = 8.0 minutes R = .183 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.46	.46	.45	.13	.09	.07	.03	.03	.03	.01	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A15

Drainage Area= .036 Channel Length= .284 Kb= .031 SLOPE(adj)= 290.0

IA= .30 DTHETA= .36 PSIF= 5.00 XKSAT= .24 RTIMP= 15.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .092 hours, which is = 5.5 minutes R = .063 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.47	.46	.46	.14	.10	.09	.04	.04	.03	.01	.01	.01	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
---------------------------------------------------------------------------
                        DATA INPUT FOR BASIN: 20A16
---------------------------------------------------------------------------
 Drainage Area=   .071  Channel Length=   .454  Kb=  .030  SLOPE(adj)=  88.0
 IA=  .30  DTHETA=  .33  PSIF=   7.40  XKSAT=  .09  RTIMP=  15.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
---------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: VILL21
---------------------------------------------------------------------------
 TC =  .158 hours, which is =    9.5 minutes       R =   .115 hours.
---------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .49 .49 .49 .17 .14 .13 .06 .06 .06 .04 .03 .02 .00 .00 .00 .00 .00 .00
---------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
---------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A17

Drainage Area= .022 Channel Length= .284 Kb= .033 SLOPE(adj)= 105.6
IA= .25 DTHETA= .32 PSIF= 7.60 XKSAT= .08 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .121 hours, which is = 7.3 minutes R = .114 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.06	.05	.05	.04	.01	.01	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A18

Drainage Area= .087 Channel Length= .890 Kb= .029 SLOPE(adj)= 106.7

IA= .21 DTHETA= .21 PSIF= 10.70 XKSAT= .03 RTIMP= 25.50

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .200 hours, which is = 12.0 minutes R = .227 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.51	.51	.51	.19	.16	.16	.08	.08	.08	.08	.08	.07	.02	.02	.01	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A19

Drainage Area= .039 Channel Length= .474 Kb= .031 SLOPE(adj)= 70.2
IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .175 hours, which is = 10.5 minutes R = .187 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A20

Drainage Area= .028 Channel Length= .284 Kb= .032 SLOPE(adj)= 75.5
IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .133 hours, which is = 8.0 minutes R = .111 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A21

Drainage Area= .024 Channel Length= .417 Kb= .033 SLOPE(adj)= 84.0

IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .158 hours, which is = 9.5 minutes R = .199 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A22

Drainage Area= .013 Channel Length= .227 Kb= .034 SLOPE(adj)= 88.0
IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .117 hours, which is = 7.0 minutes R = .124 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A23

Drainage Area= .010 Channel Length= .114 Kb= .035 SLOPE(adj)= 88.0
IA= .30 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 5.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .083 hours, which is = 5.0 minutes R = .057 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                    DATA INPUT FOR BASIN: 20A24
-----------------------------------------------------------------------------
 Drainage Area=   .049   Channel Length=   .474  Kb=  .031  SLOPE(adj)=  31.5
 IA=  .35  DTHETA=  .16  PSIF=  12.00  XKSAT=  .01  RTIMP=   5.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                HEC-1 INPUT IS STORED IN FILE: VILL30
-----------------------------------------------------------------------------
 TC =  .221 hours, which is =   13.3 minutes       R =   .212 hours.
-----------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
     5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
   .52 .51 .51 .20 .16 .16 .08 .08 .08 .08 .07 .07 .02 .02 .02 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 20A25

Drainage Area= .016 Channel Length= .227 Kb= .034 SLOPE(adj)= 81.3
IA= .30 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 5.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .121 hours, which is = 7.3 minutes R = .113 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.16	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                        DATA INPUT FOR BASIN: 20A26
------------------------------------------------------------------------------
 Drainage Area=   .026   Channel Length=   .341  Kb=  .032  SLOPE(adj)=  45.9
 IA=  .30  DTHETA=  .17  PSIF=  12.00  XKSAT=  .01  RTIMP=   5.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: VILL30
------------------------------------------------------------------------------
 TC =  .171 hours, which is =  10.3 minutes       R =   .177 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .51 .51 .51 .19 .16 .16 .08 .08 .08 .08 .07 .07 .02 .02 .02 .01 .01 .01
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                        DATA INPUT FOR BASIN: 20A28
-----------------------------------------------------------------------------
 Drainage Area=   .017  Channel Length=   .246  Kb=  .034  SLOPE(adj)=  71.1
 IA=  .30  DTHETA=  .35  PSIF=   3.70  XKSAT=  .44  RTIMP=   5.00
 Rainfall Depth =  3.43    Areal Reduction= ****
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: VILL21
-----------------------------------------------------------------------------
 TC =  .138 hours, which is =    8.3 minutes       R =   .137 hours.
-----------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .44 .44 .43 .11 .07 .04 .02 .01 .01 .00 .00 .00 .00 .00 .00 .00 .00 .00
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A30

Drainage Area= .039 Channel Length= .549 Kb= .031 SLOPE(adj)= 58.1

IA= .30 DTHETA= .24 PSIF= 9.80 XKSAT= .04 RTIMP= 5.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL25

TC = .200 hours, which is = 12.0 minutes R = .244 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.50	.50	.18	.15	.14	.07	.07	.07	.06	.05	.05	.01	.01	.01	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A32

Drainage Area= .034 Channel Length= .341 Kb= .032 SLOPE(adj)= 62.6

IA= .30 DTHETA= .29 PSIF= 8.20 XKSAT= .06 RTIMP= 5.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL25

TC = .154 hours, which is = 9.3 minutes R = .135 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.50	.49	.49	.17	.14	.13	.07	.06	.06	.05	.04	.03	.00	.00	.00	.00	.00	.00

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A33

Drainage Area= .058 Channel Length= .379 Kb= .030 SLOPE(adj)= 67.0

IA= .30 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL21

TC = .154 hours, which is = 9.3 minutes R = .108 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 20A36

Drainage Area= .158 Channel Length= .758 Kb= .027 SLOPE(adj)= 66.9

IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= .998

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL22

TC = .208 hours, which is = 12.5 minutes R = .149 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
---------------------------------------------------------------------------
                        DATA INPUT FOR BASIN: 30A3
---------------------------------------------------------------------------
 Drainage Area=   .097   Channel Length=    .587  Kb=  .029  SLOPE(adj)=  68.1
 IA=  .30  DTHETA=  .28  PSIF=   8.40  XKSAT=  .06  RTIMP=    5.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
---------------------------------------------------------------------------
                   HEC-1 INPUT IS STORED IN FILE: VILL30
---------------------------------------------------------------------------
 TC =  .192 hours, which is =   11.5 minutes       R =   .146 hours.
---------------------------------------------------------------------------
               EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .50 .49 .49 .17 .14 .13 .06 .06 .06 .05 .04 .03 .00 .00 .00 .00 .00 .00
---------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
---------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 30A4

Drainage Area= .029 Channel Length= .246 Kb= .032 SLOPE(adj)= 81.2

IA= .30 DTHETA= .15 PSIF= 12.50 XKSAT= .01 RTIMP= 5.00

Rainfall Depth = 3.43 Areal Reduction= ****

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .121 hours, which is = 7.3 minutes R = .087 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 40A2

Drainage Area= .011 Channel Length= .227 Kb= .035 SLOPE(adj)= 105.6
IA= .03 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 15.00
Rainfall Depth = 3.43 Areal Reduction= ****
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .112 hours, which is = 6.8 minutes R = .131 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.52	.52	.20	.17	.17	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ENTER 3 IF MANUAL INPUT:

1

DATA INPUT FOR BASIN: 40A4

Drainage Area= .049 Channel Length= .568 Kb= .031 SLOPE(adj)= 105.6

IA= .25 DTHETA= .18 PSIF= 11.75 XKSAT= .02 RTIMP= 30.00

Rainfall Depth = 3.43 Areal Reduction= .999

Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .167 hours, which is = 10.0 minutes R = .180 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.01	.01	.01

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

```
ENTER 3 IF MANUAL INPUT:
1
-----------------------------------------------------------------------------
                       DATA INPUT FOR BASIN: 40A6
-----------------------------------------------------------------------------
 Drainage Area=   .147  Channel Length=   .947  Kb=  .028  SLOPE(adj)=  84.5
 IA=  .25  DTHETA=  .19  PSIF=  11.50  XKSAT=  .02  RTIMP=  30.00
 Rainfall Depth =  3.43    Areal Reduction= .998
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
-----------------------------------------------------------------------------
                  HEC-1 INPUT IS STORED IN FILE: VILL30
-----------------------------------------------------------------------------
 TC =  .217 hours, which is =  13.0 minutes       R =   .193 hours.
-----------------------------------------------------------------------------
              EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5  10  15  20  25  30  35  40  45  50  55  60  65  70  75  80  85  90
    .52 .51 .51 .20 .16 .16 .08 .08 .08 .08 .08 .08 .02 .02 .02 .01 .01 .01
-----------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
-----------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

```
ENTER 3 IF MANUAL INPUT:
1
------------------------------------------------------------------------------
                          DATA INPUT FOR BASIN: 40A7
------------------------------------------------------------------------------
 Drainage Area=   .049  Channel Length=   .625  Kb=  .031  SLOPE(adj)= 105.6
 IA=  .25  DTHETA=  .16  PSIF=  12.00  XKSAT=  .01  RTIMP=  30.00
 Rainfall Depth =  3.43    Areal Reduction= .999
 Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00
------------------------------------------------------------------------------
                    HEC-1 INPUT IS STORED IN FILE: VILL30
------------------------------------------------------------------------------
 TC =  .175 hours, which is =   10.5 minutes       R =   .205 hours.
------------------------------------------------------------------------------
                EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS
      5   10   15   20   25   30   35   40   45   50   55   60   65   70   75   80   85   90
    .52  .52  .51  .20  .17  .16  .08  .08  .08  .08  .08  .08  .02  .02  .02  .02  .02  .02
------------------------------------------------------------------------------
If calculated TC is much longer than the duration of the most intense portion
of the excess rainfall values, consider the S-graph procedures for this basin,
or further divide into subbasins.
------------------------------------------------------------------------------

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:
```

ENTER 3 IF MANUAL INPUT:
1

DATA INPUT FOR BASIN: 40A8

Drainage Area= .091 Channel Length= .568 Kb= .029 SLOPE(adj)= 70.4
IA= .25 DTHETA= .16 PSIF= 12.00 XKSAT= .01 RTIMP= 30.00
Rainfall Depth = 3.43 Areal Reduction= .999
Rainfall Distribution: 6-hour for the assigned frequency, Pattern No. 1.00

HEC-1 INPUT IS STORED IN FILE: VILL30

TC = .183 hours, which is = 11.0 minutes R = .140 hours.

EXCESS RAINFALL VALUES IN 5-MINUTE INTERVALS

5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
.52	.51	.51	.20	.17	.16	.08	.08	.08	.08	.08	.08	.02	.02	.02	.02	.02	.02

If calculated TC is much longer than the duration of the most intense portion of the excess rainfall values, consider the S-graph procedures for this basin, or further divide into subbasins.

ENTER 1 FOR A NEW BASIN ANALYSIS, 2 TO STOP:

ERIE & ASSOCIATES, INC.
CONSULTING ENGINEERS

		JOB NO. EA#1474.1	SHEET 327
PROJECT	THE VILLAGES AT DESERT HILLS	CALC. SHERRICKCAMPBELL	DATE 1-17-96
SUBJECT		CHKD.	DATE

ESTIMATE THE WATERSHED RESISTANCE COEFFICIENT FOR THE ONSITE SUB-BASINS

ASSUME TYPE A FOR DEVELOPED AREAS AND TYPE C FOR OPEN AREAS

$$K_b = m \log A + b$$

WHERE FOR TYPE A, $m = -0.00625$ AND $b = 0.04$
TYPE C, $m = -0.025$ AND $b = 0.15$

SUB-BASINS REQUIRING AREA WEIGHTED VALUES FOR m AND b:

20A4, 20A5, 10K4, 10K5, 10K6, 10L1, 4E1

SUB-BASIN 20A4

TOTAL AREA = 33.45 acres
TYPE A : 78%
TYPE C : 22%

$$\overline{m} = 0.78\left[-0.00625\right] + 0.22\left[-0.025\right]$$

$$\overline{m} = -0.010375$$

$$\overline{b} = 0.78\left[0.04\right] + 0.22\left[0.15\right]$$

$$\overline{b} = 0.0642$$

$$K_b = m \log A + b$$
$$K_b = (-0.010375)\log(33.45) + 0.0642$$
$$K_b = 0.0484$$

SUB-BASIN 20A5

TOTAL AREA = 42.23 acres
TYPE A : 72%
TYPE C : 28%

$$\overline{m} = 0.72\left[-0.00625\right] + 0.28\left[-0.025\right]$$

$$\overline{m} = -0.0115$$

$$\overline{b} = 0.72\left[0.04\right] + 0.28\left[0.15\right]$$

$$\overline{b} = 0.0708$$

$$K_b = m \log A + b$$
$$K_b = (-0.0115)\log(42.23) + 0.0708$$
$$K_b = 0.0521$$

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JOB NO. EA#1474.1 SHEET 328
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

SUB·BASIN 10K4

TOTAL AREA = 16.6 acres
TYPE A: 84%
TYPE C: 16%

$\bar{m} = 0.84[-0.00625] + 0.16[-0.025]$

$\bar{m} = -0.00925$

$\bar{b} = 0.84[0.04] + 0.16[0.15]$

$\bar{b} = 0.0576$

SUB·BASIN 10K5

TOTAL AREA = 10.0 acres
TYPE A: 66%
TYPE C: 34%

$\bar{m} = 0.66[-0.00625] + 0.34[-0.025]$

$\bar{m} = -0.012625$

$\bar{b} = 0.66[0.04] + 0.34[0.15]$

$\bar{b} = 0.0774$

SUB·BASIN 10K6

TOTAL AREA = 22.8 acres
TYPE A: 68%
TYPE C: 32%

$\bar{m} = 0.68[-0.00625] + 0.32[-0.025]$

$\bar{m} = -0.01225$

$\bar{b} = 0.68[0.04] + 0.32[0.15]$

$\bar{b} = 0.0752$

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PROJECT	THE VILLAGES AT DESERT HILLS	JOB NO.	SHEET 329
SUBJECT		CALC.	DATE
		CHKD.	DATE

SUB-BASIN 10L1

TOTAL AREA = 70.5 acre
TYPE A : 36%
TYPE C : 64%

$$\overline{m} = 0.36[-0.00625] + 0.64[-0.025]$$

$$\overline{m} = -0.01825$$

$$\overline{b} = 0.36[0.04] + 0.64[0.15]$$

$$\overline{b} = 0.1104$$

SUB-BASIN 4E1

TOTAL AREA = 78.08 acres
TYPE A : 70%
TYPE C : 30%

$$\overline{m} = 0.70[-0.00625] + 0.30[-0.025]$$

$$\overline{m} = -0.011875$$

$$\overline{b} = 0.70[0.04] + 0.30[0.16]$$

$$\overline{b} = 0.073$$

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JOB NO. EA#1023.1 SHEET 330
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

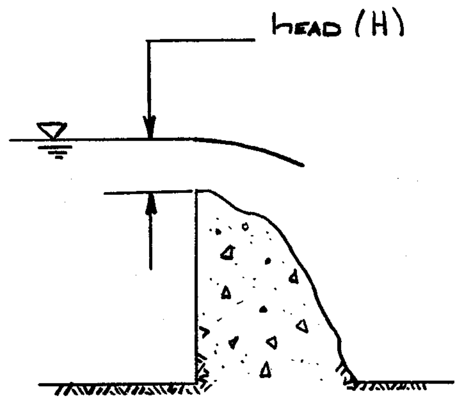
COMPUTE DISCHARGES FROM DEAD STORAGE RESERVOIRS WHICH ARE DRAINED BY WEIRS MODELED WITH THE EQUATION $Q = CLH^{3/2}$

→ DEAD STORAGE RESERVOIRS : B6A , B7A

→ $Q = CLH^{3/2}$

WHERE :

Q = DISCHARGE IN cfs (FROM WEIR)
L = LENGTH OF WEIR (ft)
C = WEIR COEFFICIENT = 3.0
H = HEAD ON WEIR (ft)



HEAD = 0.5 ft

$Q = [3.0][100][0.5]^{3/2}$

Q = 106 cfs

HEAD = 1.0 ft

$Q = [3.0][100][1.0]^{3/2}$

Q = 300 cfs

HEAD = 2.0 ft

$Q = [3.0][100][2]^{3/2}$

Q = 848 cfs

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		JOB NO. EA# 1474.1	SHEET 331
PROJECT	THE VILLAGES AT DESERT HILLS	CALC. SHERRICK CAMPBELL	DATE
SUBJECT		CHKD.	DATE

COMPUTE DISCHARGES FROM LIVE STORAGE RESERVOIRS B1 THRU B5 :

BASINS B1 THRU B5 ARE DRAINED BY 1-2HX5W BOX CULVERT TO A STAGE OF 12 FEET. EXCESS IS THEN SPILLED INTO A 10HX10W BOX CULVERT AT 1 FT ABOVE 2HX5W BOX INVERT

HEAD = 12 FT

$\frac{HW}{D} = \frac{12}{2} = 6$

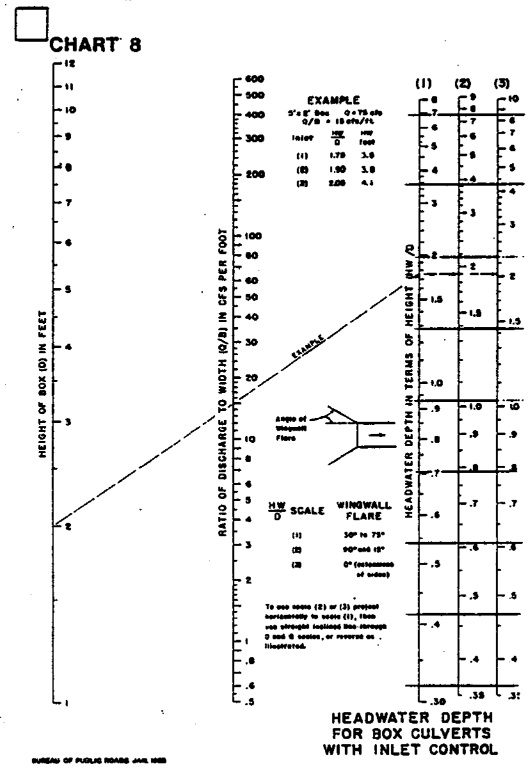
REFER TO CHART :

$\frac{Q}{b} = 34 \text{ cfs/ft}$

$Q = [34 \text{ cfs/ft}][5 \text{ ft}]$

$Q = 170 \text{ cfs}$

** NOTE THAT 2HX5W CULVERT IS ASSUMED RESULTING CULVERT AFTER DEBRIS LOADING AND PLACEMENT OF AESTHETIC BOULDERS NEAR ENTRANCE OF A 4HX6W BOX CULVERT.



NOMOGRAPH USED IN CALCULATIONS

HEAD = 13 ft

→ FOR 2HX5W :

$\frac{HW}{D} = \frac{13}{2} = 6.5$

REFER TO CHART :

$\frac{Q}{b} = 35 \text{ cfs/ft}$

$Q_{2Hx5W} = [35 \text{ cfs/ft}][5 \text{ ft}] = 175 \text{ cfs}$

→ FOR 10HX10W :

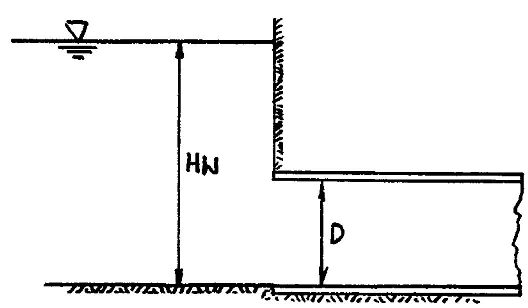
$\frac{HW}{D} = \frac{12}{10} = 1.2$

REFER TO CHART

$\frac{Q}{b} = 115 \text{ cfs/ft}$

$Q_{10Hx10W} = [10 \text{ ft}][115 \text{ cfs/ft}] = 1150 \text{ cfs}$

$Q_{TOTAL} = 1325 \text{ cfs}$



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JOB NO. EA#1474.1 SHEET 332
PROJECT THE VILLAGES AT DESERT HILLS CALC. SHERRICK CAMPBELL DATE
SUBJECT CHKD. DATE

HEAD = 15 ft

→ FOR 2HX5W:

$$\frac{HW}{D} = \frac{15}{2} = 7.5$$

REFER TO CHART:

$$\frac{Q}{b} = 38\ cfs/ft$$

$$Q = [38\ cfs/ft][5\ ft]$$

$$Q_{2HX5W} = 190\ cfs$$

→ FOR 10HX10W:

$$\frac{HW}{D} = \frac{14}{10} = 1.4$$

NOTE THAT 10HX10W BOX INVERT IS 1 FOOT ABOVE 2HX5W BOX INVERT

REFER TO CHART:

$$\frac{Q}{b} = 135\ cfs/ft$$

$$Q = [135\ cfs/ft][10\ ft]$$

$$Q_{10HX10W} = 1350\ cfs$$

$$Q_{TOTAL} = 1540\ cfs$$

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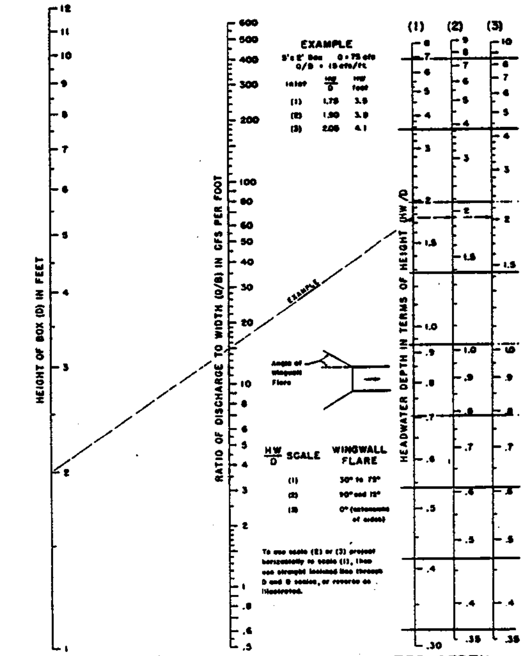
		JOB NO. EA# 1474.1	SHEET 333
PROJECT	THE VILLAGES AT DESERT HILLS	CALC. SHERRICK CAMPBELL	DATE
SUBJECT		CHKD.	DATE

COMPUTE DISCHARGES FROM LIVE STORAGE RESERVOIRS B6B THRU B13

BASINS B6B THRU B13 (EXCLUDING B7A) ARE DRAINED BY A 3H×5W BOX CULVERT.

CHART 8



HEADWATER DEPTH FOR BOX CULVERTS WITH INLET CONTROL

STAGE = 3 ft

$$\frac{HW}{D} = \frac{3}{3} = 1$$

REFER TO CHART:

$$\frac{Q}{b} = 15\ cfs/ft$$

$$Q = [15\ cfs/ft][5\ ft]$$

$$Q = 75\ cfs$$

STAGE = 4 ft

$$\frac{HW}{D} = \frac{4}{3} = 1.3$$

REFER TO CHART:

$$\frac{Q}{b} = 21\ cfs/ft$$

$$Q = [21\ cfs/ft][5\ ft]$$

$$Q = 105\ cfs$$

STAGE = 5 ft

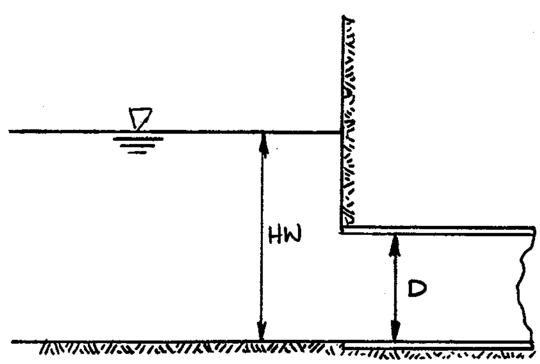
$$\frac{HW}{D} = \frac{5}{3} = 1.7$$

REFER TO CHART:

$$\frac{Q}{b} = 26\ cfs/ft$$

$$Q = [26\ cfs/ft][5\ ft]$$

$$Q = 130\ cfs$$



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JOB NO. EA#1474.1 SHEET 334
PROJECT THE VILLAGES AT DESERT HILLS CALC. DATE
SUBJECT CHKD. DATE

STAGE = 6 ft

$$\frac{HW}{D} = \frac{6}{3} = 2$$

REFER TO CHART:

$$\frac{Q}{b} = 30 \text{ cfs/ft}$$

$$Q = [30 \text{ cfs/ft}][5 \text{ ft}]$$

$$Q = 150 \text{ cfs}$$

STAGE = 7 ft

$$\frac{HW}{D} = \frac{7}{3} = 2.3$$

REFER TO CHART:

$$\frac{Q}{b} = 35 \text{ cfs/ft}$$

$$Q = [35 \text{ cfs/ft}][5 \text{ ft}]$$

$$Q = 175 \text{ cfs}$$

STAGE = 10 ft

$$\frac{HW}{D} = \frac{10}{3} = 3.3$$

REFER TO CHART:

$$\frac{Q}{b} = 42 \text{ cfs/ft}$$

$$Q = [42 \text{ cfs/ft}][5 \text{ ft}]$$

$$Q = 210 \text{ cfs}$$

** NOTE THAT ON RESERVOIRS B6B AND B7B, STAGES ABOVE 7 FEET ARE DRAINED BY BOTH A 3H×5W BOX CULVERT AND A 100 FOOT WEIR; THEREFORE AT STAGE = 9.0 FT

$$Q_{WEIR} = CLH^{3/2}$$

$$= [3.0][100][2]^{3/2}$$

$$= 848 \text{ cfs}$$

$$\text{TOTAL } Q = 190 \text{ cfs} + 848 \text{ cfs}$$

$$= 1038 \text{ cfs}$$

*** NOTE THAT RESERVOIR B12' IS DRAINED BY 2-3H×5W BOX CULVERTS, THEREFORE Q's DOUBLE AT SIMILAR STAGES