

TABLE I – DISCHARGE POINT INFORMATION & DISCHARGE QUANTITY

Discharge Point	LOCATION	Latitude	Longitude	Class	C (weighted)	I (in/hr)	A (Acres)	Q (cfs)
1	Honolulu Harbor	21.31989	157.88250	2	0.95	3.29	1.76	5.50
2	Kapalama Canal	21.32219	157.87320	2	0.95	3.29	2.26	7.06
3	Kapalama Canal	21.32393	157.87049	2	0.95	3.29	2.03	6.34
4	Kapalama Canal	21.32642	157.86750	2	0.44	3.29	1.84	2.67
5	Kalihi Stream	21.33563	157.87744	2	0.95	3.29	2.17	6.78

RUNOFF CALCULATIONS

Given:

C = 0.95 (AC Pavement/Concrete Sidewalk/Concrete Driveways)

C=0.3 (Grassed/Pervious areas)

I = (2-yr, 1-hr event) = 1.46 in./hr.

tcAll = 10 min. (minimum)

CfAll = 2.25

$I = i \times C_f$
 $= 1.46 \times 2.25$
 $= 3.29$

Since project area is less than 100 acres, the Rational Formula will be used to calculate potential runoff.

Find: Runoff for a 2-yr 1-hr rainfall event (Q).

Solution: $Q = C \times I \times A$

See Table Below for Calculations

Area	C	I (Inches)	CF	Area (SF)	A (Acres)	Q (CFS)
1-1	0.95	1.46	2.25	7,800	0.18	0.56
1-2	0.95	1.46	2.25	7,500	0.17	0.54
1-3	0.95	1.46	2.25	6,900	0.16	0.49
1-4	0.95	1.46	2.25	7,500	0.17	0.54
1-5	0.95	1.46	2.25	7,800	0.18	0.56
1-6	0.95	1.46	2.25	6,000	0.14	0.43
1-7	0.95	1.46	2.25	8,100	0.19	0.58
1-8	0.95	1.46	2.25	7,800	0.18	0.56
1-9	0.95	1.46	2.25	8,400	0.19	0.60
1-10	0.95	1.46	2.25	9,000	0.21	0.64
Total					1.76	5.50
2-1	0.95	1.46	2.25	13,800	0.32	0.99
2-2	0.95	1.46	2.25	7,200	0.17	0.52
2-3	0.95	1.46	2.25	7,200	0.17	0.52
2-4	0.95	1.46	2.25	7,200	0.17	0.52
2-5	0.95	1.46	2.25	6,900	0.16	0.49
2-6	0.95	1.46	2.25	7,200	0.17	0.52
2-7	0.95	1.46	2.25	7,800	0.18	0.56
2-8	0.95	1.46	2.25	4,200	0.10	0.30
2-9	0.95	1.46	2.25	7,800	0.18	0.56
2-10	0.95	1.46	2.25	7,200	0.17	0.52
2-11	0.95	1.46	2.25	22,000	0.51	1.58
Total					2.26	7.06
3-1	0.95	1.46	2.25	8,400	0.19	0.60
3-2	0.95	1.46	2.25	41,800	0.96	2.99
3-3	0.95	1.46	2.25	8,000	0.18	0.57
3-4	0.95	1.46	2.25	30,250	0.69	2.17
Total					2.03	6.34
4-1	0.3	1.46	2.25	22,000	0.51	0.50
4-2	0.3	1.46	2.25	6,800	0.16	0.15
4-3	0.3	1.46	2.25	20,000	0.46	0.45
4-4	0.3	1.46	2.25	14,000	0.32	0.32
4-5	0.95	1.46	2.25	17,500	0.40	1.25
Total					1.84	2.67
5-1	0.95	1.46	2.25	13,750	0.32	0.99

5-2	0.95	1.46	2.25	6,250	0.14	0.45
5-3	0.95	1.46	2.25	6,750	0.15	0.48
5-4	0.95	1.46	2.25	7,000	0.16	0.50
5-5	0.95	1.46	2.25	6,000	0.14	0.43
5-6	0.95	1.46	2.25	18,900	0.43	1.35
5-7	0.95	1.46	2.25	20,800	0.48	1.49
5-8	0.95	1.46	2.25	10,400	0.24	0.75
5-9	0.95	1.46	2.25	4,800	0.11	0.34
Total					2.17	6.78