

Open Channel Flow Calculations

Swale #: **Cross
Section CC**

Side slope = **3** (Average)
 Bottom width = **5.81**
 Manning's coefficient = **0.035**
 Slope of channel = **0.0026**

Depth (ft)	Wetted Perimeter (ft)	Area (ft ²)	Hydraulic Radius (ft)	Hydraulic Depth (ft)	Flowrate (cfs)	Velocity (ft/s)	F value
0.0	5.81	0.00	0.00	0.00	0.00	#DIV/0!	1.0
0.1	6.44	0.61	0.09	0.10	0.28	0.45	1.1
0.2	7.07	1.28	0.18	0.18	0.89	0.70	1.2
0.3	7.71	2.01	0.26	0.26	1.79	0.89	1.3
0.4	8.34	2.80	0.34	0.34	2.94	1.05	1.4
0.5	8.97	3.66	0.41	0.41	4.36	1.19	1.5
0.6	9.60	4.57	0.48	0.49	6.04	1.32	1.6
0.7	10.24	5.54	0.54	0.55	7.98	1.44	1.7
0.8	10.87	6.57	0.60	0.62	10.19	1.55	1.8
0.9	11.50	7.66	0.67	0.68	12.68	1.66	1.9
1.0	12.13	8.81	0.73	0.75	15.45	1.75	2.0
1.1	12.77	10.02	0.78	0.81	18.51	1.85	2.1
1.2	13.40	11.29	0.84	0.87	21.87	1.94	2.2
1.3	14.03	12.62	0.90	0.93	25.53	2.02	2.3
1.4	14.66	14.01	0.96	0.99	29.51	2.11	2.4
1.5	15.30	15.47	1.01	1.04	33.82	2.19	2.5
1.6	15.93	16.98	1.07	1.10	38.45	2.26	2.6
1.7	16.56	18.55	1.12	1.16	43.42	2.34	2.7
1.8	17.19	20.18	1.17	1.21	48.73	2.42	2.8
1.9	17.83	21.87	1.23	1.27	54.40	2.49	2.9
2.0	18.46	23.62	1.28	1.33	60.43	2.56	3.0
2.1	19.09	25.43	1.33	1.38	66.83	2.63	3.1
2.2	19.72	27.30	1.38	1.44	73.61	2.70	3.2
2.3	20.36	29.23	1.44	1.49	80.77	2.76	3.3
2.4	20.99	31.22	1.49	1.54	88.33	2.83	3.4
2.5	21.62	33.28	1.54	1.60	96.28	2.89	3.5
2.6	22.25	35.39	1.59	1.65	104.65	2.96	3.6
2.7	22.89	37.56	1.64	1.71	113.42	3.02	3.7
2.8	23.52	39.79	1.69	1.76	122.63	3.08	3.8
2.9	24.15	42.08	1.74	1.81	132.26	3.14	3.9
3.0	24.78	44.43	1.79	1.87	142.33	3.20	4.0

Open Channel Flow Calculations

Swale #: **Cross**
Section **KK**

Side slope = **1.83** (Average)
Bottom width = **0**
Manning's coefficient = **0.035**
Slope of channel = **0.0135**

Depth (ft)	Wetted Perimeter (ft)	Area (ft ²)	Hydraulic Radius (ft)	Hydraulic Depth (ft)	Flowrate (cfs)	Velocity (ft/s)	F value
0.0	0.00	0.00	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	1.0
0.1	0.42	0.02	0.04	0.05	0.01	0.62	1.1
0.2	0.83	0.07	0.09	0.10	0.07	0.98	1.2
0.3	1.25	0.16	0.13	0.15	0.21	1.28	1.3
0.4	1.67	0.29	0.18	0.20	0.45	1.55	1.4
0.5	2.09	0.46	0.22	0.25	0.82	1.80	1.5
0.6	2.50	0.66	0.26	0.30	1.34	2.03	1.6
0.7	2.92	0.90	0.31	0.35	2.02	2.25	1.7
0.8	3.34	1.17	0.35	0.40	2.88	2.46	1.8
0.9	3.75	1.48	0.39	0.45	3.95	2.66	1.9
1.0	4.17	1.83	0.44	0.50	5.23	2.86	2.0
1.1	4.59	2.21	0.48	0.55	6.74	3.04	2.1
1.2	5.00	2.64	0.53	0.60	8.50	3.23	2.2
1.3	5.42	3.09	0.57	0.65	10.52	3.40	2.3
1.4	5.84	3.59	0.61	0.70	12.82	3.57	2.4
1.5	6.26	4.12	0.66	0.75	15.41	3.74	2.5
1.6	6.67	4.68	0.70	0.80	18.30	3.91	2.6
1.7	7.09	5.29	0.75	0.85	21.52	4.07	2.7
1.8	7.51	5.93	0.79	0.90	25.06	4.23	2.8
1.9	7.92	6.61	0.83	0.95	28.94	4.38	2.9
2.0	8.34	7.32	0.88	1.00	33.19	4.53	3.0
2.1	8.76	8.07	0.92	1.05	37.80	4.68	3.1
2.2	9.18	8.86	0.97	1.10	42.79	4.83	3.2
2.3	9.59	9.68	1.01	1.15	48.18	4.98	3.3
2.4	10.01	10.54	1.05	1.20	53.97	5.12	3.4
2.5	10.43	11.44	1.10	1.25	60.17	5.26	3.5
2.6	10.84	12.37	1.14	1.30	66.81	5.40	3.6
2.7	11.26	13.34	1.18	1.35	73.88	5.54	3.7
2.8	11.68	14.35	1.23	1.40	81.40	5.67	3.8
2.9	12.10	15.39	1.27	1.45	89.39	5.81	3.9
3.0	12.51	16.47	1.32	1.50	97.85	5.94	4.0
3.1	12.93	17.59	1.36	1.55	106.79	6.07	4.1
3.2	13.35	18.74	1.40	1.60	116.22	6.20	4.2
3.3	13.76	19.93	1.45	1.65	126.16	6.33	4.3
3.4	14.18	21.15	1.49	1.70	136.62	6.46	4.4
3.5	14.60	22.42	1.54	1.75	147.60	6.58	4.5