CAPACITY (Q) and VELOCITY (V) FOR DITCH
with 8' bottom 8 :1 side slopes and n=0.04

Depth	Slope In %																											
	S = 0.02		S = 0.04		S = 0.05		S = 0.06		S = 0.08		S = 0.10		S = 0.15		S = 0.20		S = 0.25		S = 0.30		S = 0.35		S = 0.40		S = 0.45		S = 0.50	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
0.2	0.3	0.16	0.4	0.23	0.5	0.25	0.5	0.28	0.6	0.32	0.7	0.35	0.7	0.39	1.0	0.50	1.1	0.58	1.2	0.62	1.2	0.65	1.3	0.70	1.4	0.75	1.5	0.80
0.4	1.0	0.23	1.5	0.33	1.6	0.35	1.8	0.40	2.1	0.47	2.4	0.53	2.9	0.64	3.3	0.74	3.7	0.83	4.1	0.90	4.4	0.98	4.7	1.04	5.0	1.11	5.3	1.17
0.6	2.4	0.31	3.3	0.43	3.7	0.48	4.2	0.55	4.7	0.61	5.2	0.68	6.4	0.83	7.4	0.96	8.2	1.07	9.0	1.17	9.7	1.26	10.5	1.36	11.0	1.43	11.7	1.52
0.8	4.0	0.35	6.0	0.50	6.3	0.55	7.0	0.61	8.3	0.72	9.1	0.79	11.0	0.96	12.8	1.11	14.0	1.23	16.0	1.38	17.0	1.46	18.0	1.58	19.0	1.66	20.0	1.70
1.0	6.4	0.40	9.0	0.57	10.0	0.64	11.0	0.70	13.0	0.80	14.0	0.90	17.0	1.09	20.0	1.27	23.0.	1.42	25.0	1.55	27.0	1.67	29.0	1.79	30.0	1.91	32.0	2.01
1.2	9.0	0.43	13.0	0.62	14.0	0.70	15.0	0.75	18.0	0.88	19.0	0.94	25.0	1.20	29.0	1.38	32.0	1.54	35.0	1.69	37.0	1.82	40.0	1.95	43.0	2.09	45.0	2.18
1.4	13.0	0.48	18.0	0.68	20.0	0.76	22.0	0.83	26.0	0.97	29.0	1.07	35.0	1.32	43.0	1.60	46.0	1.70	50.0	1.86	54.0	2.01	56.0	2.09	62.0	2.29	64.0	2.37
1.6	18.0	0.53	25.0	0.74	28.0	0.83	30.0	0.91	35.0	1.05	39.0	1.17	48.0	1.44	55.0	1.66	62.0	1.86	68.0	2.03	73.0	2.20	78.0	2.35	83.0	2.49	88.0	2.63
1.8	24.0	0.55	32.0	0.79	35.0	0.87	39.0	0.96	45.0	1.11	50.0	1.23	62.0	1.53	72.0	1.77	80.0	1.98	88.0	2.17	95.0	2.34	101.0	2.50	107.0	2.65	113.0	2.80
2.0	28.0	0.59	40.0	0.84	45.0	0.94	49.0	1.03	57.0	1.19	64.0	1.33	78.0	1.62	90.0	1.88	101.0	2.10	101.0	2.30	110.0	2.48	119.0	2.65	127.0	2.81	135.0	2.97
2.2	35.0	0.63	50.0	0.89	56.0	0.99	61.0	1.08	70.0	1.25	79.0	1.40	96.0	1.71	111.0	1.98	125.0	2.21	137.0	2.43	148.0	2.62	158.0	2.80	168.0	2.97		
2.4	43.0	0.66	61.0	0.93	68.0	1.04	74.0	1.14	86.0	1.31	96.0	1.47	118.0	1.80	136.0	2.08	152.0	2.32	167.0	2.55	180.0	2.75	192.0	2.94				
2.6	52.0	0.69	73.0	0.98	82.0	1.09	89.0	1.19	103.0	1.38	115.0	1.54	141.0	1.89	163.0	2.18	182.0	2.43	200.0	2.67	215.0	2.88						
2.8	61.0	0.72	87.0	1.02	97.0	1.14	106.0	1.24	123.0	1.44	137.0	1.61	168.0	1.97	193.0	2.27	216.0	2.54	237.0	2.78								
3.0	72.0	0.75	102.0	1.06	114.0	1.19	125.0	1.30	144.0	1.50	160.0	1.67	197.0	2.05	226.0	2.36	254.0	2.65	279.0	2.90								
3.2	84.0	0.78	119.0	1.10	133.0	1.23	146.0	1.35	167.0	1.55	188.0	1.74	230.0	2.13	256.0	2.46	297.0	2.75										
3.4	96.0	0.80	137.0	1.14	152.0	1.27	168.0	1.40	193.0	1.61	216.0	1.80	264.0	2.20	306.0	2.55	342.0	2.85										
3.6	100.0	0.83	157.0	1.18	175.0	1.32	191.0	1.44	222.0	1.67	247.0	1.86	303.0	2.28	351.0	2.64	392.0	2.95										
3.8	125.0	0.86	178.0	1.22	200.0	1.37	218.0	1.49	251.0	1.72	282.0	1.93	344.0	2.36	398.0	2.73												
4.0	142.0	0.89	202.0	1.26	225.0	1.41	246.0	1.54	284.0	1.78	319.0	1.99	388.0	2.43	450.0	2.81												

CAPACITY (Q) and VELOCITY (V) FOR DITCH
with 8' bottom 10 :1 side slopes and n=0.04

Depth	Slope In %																											
	S = 0.02		S = 0.04		S = 0.05		S = 0.06		S = 0.08		S = 0.10		S = 0.15		S = 0.20		S = 0.25		S = 0.30		S = 0.35		S = 0.40		S = 0.45		S = 0.50	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
0.2	0.0	0.16	1.0	0.23	1.0	0.25	1.0	0.28	1.0	0.32	1.0	0.35	1.0	0.39	1.0	0.50	1.0	0.58	1.0	0.62	1.0	0.65	1.0	0.70	2.0	0.75	2.0	0.80
0.4	1.0	0.23	2.0	0.33	2.0	0.35	2.0	0.40	2.0	0.47	3.0	0.52	3.0	0.64	4.0	0.74	4.0	0.83	4.0	0.90	5.0	0.99	5.0	1.04	5.0	1.10	6.0	1.17
0.6	2.0	0.29	3.0	0.41	4.0	0.46	4.0	0.51	5.0	0.59	6.0	0.66	8.0	0.80	8.0	0.92	9.0	1.03	10.0	1.13	10.0	1.22	11.0	1.32	12.0	1.39	12.0	1.47
0.8	4.0	0.34	6.0	0.48	7.0	0.54	8.0	0.59	9.0	0.68	10.0	0.77	12.0	0.92	14.0	1.08	16.0	1.21	17.0	1.31	18.0	1.42	20.0	1.54	21.0	1.63	22.0	1.73
1.0	7.0	0.39	10.0	0.55	11.0	0.62	12.0	0.67	14.0	0.78	16.0	0.87	19.0	1.06	22.0	1.22	25.0	1.38	27.0	1.51	29.0	1.62	31.0	1.74	33.0	1.83	35.0	1.93
1.2	10.0	0.43	15.0	0.61	17.0	0.69	18.0	0.75	21.0	0.87	23.0	0.97	29.0	1.19	33.0	1.37	37.0	1.53	40.0	1.68	43.0	1.81	47.0	1.96	49.0	2.06	52.0	2.16
1.4	15.0	0.47	21.0	0.67	23.0	0.75	25.0	0.81	29.0	0.94	32.0	1.05	40.0	1.29	46.0	1.48	51.0	1.65	56.0	1.82	61.0	1.97	65.0	2.10	69.0	2.23	73.0	2.36
1.6	20.0	0.52	28.0	0.73	31.0	0.81	34.0	0.88	39.0	1.02	43.0	1.13	53.0	1.38	62.0	1.61	70.0	1.81	76.0	1.97	82.0	2.13	87.0	2.27	93.0	2.42	99.0	2.58
1.8	26.0	0.55	36.0	0.77	40.0	0.86	44.0	0.94	51.0	1.08	57.0	1.21	69.0	1.48	80.0	1.71	89.0	1.91	98.0	2.10	106.0	2.27	113.0	2.42	120.0	2.57	127.0	2.71
2.0	32.0	0.58	46.0	0.82	50.0	0.90	56.0	1.00	65.0	1.16	72.0	1.29	88.0	1.58	102.0	1.83	115.0	2.05	126.0	2.25	135.0	2.41	144.0	2.58	153.0	2.73	162.0	2.89
2.2	40.0	0.61	57.0	0.86	63.0	0.96	70.0	1.06	81.0	1.22	90.0	1.36	110.0	1.66	127.0	1.93	142.0	2.15	156.0	2.36	168.0	2.55	180.0	2.72	190.0	2.89	201.0	3.05
2.4	49.0	0.64	71.0	0.92	79.0	1.03	86.0	1.12	98.0	1.28	111.0	1.44	136.0	1.77	158.0	2.06	176.0	2.29	193.0	2.51	209.0	2.72	223.0	2.90	237.0	3.08		
2.6	60.0	0.68	85.0	0.96	96.0	1.08	103.0	1.17	119.0	1.35	134.0	1.51	163.0	1.84	189.0	2.14	210.0	2.38	233.0	2.63	250.0	2.83	268.0	3.03				
2.8	71.0	0.70	102.0	1.01	114.0	1.13	124.0	1.23	142.0	1.41	160.0	1.59	197.0	1.95	226.0	2.24	253.0	2.51	277.0	2.75	300.0	2.98						
3.0	83.0	0.73	120.0	1.05	135.0	1.18	146.0	1.28	169.0	1.48	188.0	1.65	231.0	2.03	267.0	2.34	298.0	2.61	326.0	2.86								
3.2	99.0	0.77	138.0	1.08	156.0	1.22	169.0	1.32	196.0	1.53	220.0	1.72	270.0	2.11	311.0	2.43	348.0	2.72	381.0	2.98								
3.4	113.0	0.79	160.0	1.12	181.0	1.27	197.0	1.38	226.0	1.58	253.0	1.77	311.0	2.18	358.0	2.51	403.0	2.82	440.0	3.08								
3.6	130.0	0.82	185.0	1.17	206.0	1.30	223.0	1.41	257.0	1.62	285.0	1.80	348.0	2.20	407.0	2.57	456.0	2.88										
3.8	147.0	0.84	211.0	1.21	236.0	1.35	255.0	1.46	294.0	1.68	330.0	1.89	399.0	2.28	463.0	2.65	521.0	2.98										
4.0	165.0	0.86	238.0	1.24	267.0	1.39	290.0	1.51	332.0	1.73	372.0	1.94	451.0	2.35	522.0	2.72												

Note: This design data may be used on ditches with
10' bottom and 8:1 side slopes up to <u>2 feet in depth.</u>

CAPACITY (Q) and VELOCITY (V) FOR DITCH
with 10' bottom 10 :1 side slopes and n=0.04

Depth	Slope In %																											
	S = 0.02		S = 0.04		S = 0.05		S = 0.06		S = 0.08		S = 0.10		S = 0.15		S = 0.20		S = 0.25		S = 0.30		S = 0.35		S = 0.40		S = 0.45		S = 0.50	
	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V	Q	V
0.2	0.0	0.16	1.0	0.23	1.0	0.24	1.0	0.26	1.0	0.29	1.0	0.32	1.0	0.40	1.0	0.46	1.0	0.52	1.0	0.56	2.0	0.61	2.0	0.65	2.0	0.69	2.0	0.72
0.4	1.0	0.24	2.0	0.34	2.0	0.37	2.0	0.40	3.0	0.47	3.0	0.53	4.0	0.65	4.0	0.75	5.0	0.84	5.0	0.92	6.0	0.99	6.0	1.06	6.0	1.12	7.0	1.18
0.6	3.0	0.29	4.0	0.42	4.0	0.47	5.0	0.55	6.0	0.61	6.0	0.68	8.0	0.83	9.0	0.96	10.0	1.06	11.0	1.17	11.0	1.26	12.0	1.36	13.0	1.43	14.0	1.52
0.8	5.0	0.35	7.0	0.49	8.0	0.56	9.0	0.61	10.0	0.71	11.0	0.79	14.0	0.97	16.0	1.11	18.0	1.28	20.0	1.37	21.0	1.48	23.0	1.57	24.0	1.67	25.0	1.76
1.0	8.0	0.40	11.0	0.56	13.0	0.63	14.0	0.69	16.0	0.80	18.0	0.88	22.0	1.08	25.0	1.25	28.0	1.40	31.0	1.53	33.0	1.65	35.0	1.76	38.0	1.89	39.0	1.93
1.2	12.0	0.44	16.0	0.62	18.0	0.70	20.0	0.75	23.0	0.88	26.0	0.98	32.0	1.21	37.0	1.40	41.0	1.57	45.0	1.72	49.0	1.86	52.0	1.98	56.0	2.11	58.0	2.20
1.4	16.0	0.48	23.0	0.68	26.0	0.76	29.0	0.86	33.0	0.97	36.0	1.08	44.0	1.32	51.0	1.51	57.0	1.70	63.0	1.86	67.0	2.00	72.0	2.14	76.0	2.27	81.0	2.42
1.6	22.0	0.52	31.0	0.74	34.0	0.82	38.0	0.91	43.0	1.04	49.0	1.17	59.0	1.43	69.0	1.65	77.0	1.84	84.0	2.02	91.0	2.18	97.0	2.33	103.0	2.48	109.0	2.61
1.8	28.0	0.55	39.0	0.78	44.0	0.88	48.0	0.96	56.0	1.11	62.0	1.23	77.0	1.52	89.0	1.76	99.0	1.97	108.0	2.15	117.0	2.33	126.0	2.49	133.0	2.63	140.0	2.78
2.0	35.0	0.59	50.0	0.84	56.4	0.94	62.0	1.03	71.0	1.19	79.0	1.32	97.0	1.61	114.0	1.87	125.0	2.09	137.0	2.28	148.0	2.46	158.0	2.63	168.0	2.80	177.0	2.96
2.2	44.0	0.62	62.0	0.88	69.0	0.98	76.0	1.08	87.0	1.24	98.0	1.39	120.0	1.70	139.0	1.97	155.0	2.20	170.0	2.41	184.0	2.61	196.0	2.78	208.0	2.96		
2.4	53.0	0.65	76.0	0.93	85.0	1.04	93.0	1.14	107.0	1.31	120.0	1.47	147.0	1.80	170.0	2.08	189.0	2.32	208.0	2.55	224.0	2.75	240.0	2.94				
2.6	64.0	0.68	91.0	0.97	101.0	1.08	111.0	1.19	128.0	1.37	144.0	1.54	176.0	1.88	203.0	2.17	227.0	2.43	249.0	2.66	270.0	2.88						
2.8	77.0	0.72	107.0	1.01	121.0	1.14	132.0	1.24	153.0	1.44	171.0	1.61	210.0	1.97	242.0	2.27	270.0	2.54	296.0	2.78								
3.0	89.0	0.74	126.0	1.05	142.0	1.18	155.0	1.29	179.0	1.49	200.0	1.67	246.0	2.05	284.0	2.37	317.0	2.64	348.0	2.90								
3.2	105.0	0.78	148.0	1.10	165.0	1.23	181.0	1.35	210.0	1.56	234.0	1.74	286.0	2.13	330.0	2.46	369.0	2.75	404.0	3.01								
3.4	120.0	0.80	170.0	1.14	191.0	1.28	209.0	1.40	241.0	1.61	269.0	1.80	331.0	2.21	381.0	2.55	426.0	2.85										
3.6	137.0	0.83	195.0	1.18	215.0	1.30	238.0	1.44	276.0	1.67	306.0	1.85	374.0	2.26	431.0	2.61	485.0	2.93										
3.8	157.0	0.86	223.0	1.22	246.0	1.35	272.0	1.49	314.0	1.72	349.0	1.91	429.0	2.35	493.0	2.70												
4.0	178.0	0.89	252.0	1.26	280.0	1.40	308.0	1.54	356.0	1.78	400.0	2.00	484.0	2.42	560.0	2.80												