

Table E-1. Inlet Control Hydraulic Capacity Screening WorkSheet

Assume Fully Unobstructed Conditions - Entrance loss of 0.5 Critical Velocity Head

12-Inch Diameter Culvert						
Flow (cfs)	Critical Depth (ft)	Critical Velocity (fps)	Critical Velocity Head (ft)	Computed HW Depth (ft)	HW/D	Critical Slope (n=0.013)
1	0.420	3.19	0.159	0.66	0.66	0.0058
2	0.603	4.40	0.253	0.98	0.98	0.0069
3	0.743	4.80	0.358	1.28	1.28	0.0087
4	0.847	5.64	0.494	1.59	1.59	0.0119
5	0.917	6.63	0.683	1.94	1.94	0.0171

18-Inch Diameter Culvert						
Flow (cfs)	Critical Depth (ft)	Critical Velocity (fps)	Critical Velocity Head (ft)	Computed HW Depth (ft)	HW/D	Critical Slope (n=0.013)
1	0.373	2.92	0.132	0.57	0.38	0.0049
2	0.533	3.55	0.196	0.83	0.55	0.0049
3	0.659	4.02	0.251	1.04	0.69	0.0051
4	0.766	4.41	0.302	1.22	0.81	0.0054
5	0.860	4.77	0.353	1.39	0.93	0.0058
6	0.946	5.11	0.406	1.56	1.04	0.0062
7	1.024	5.44	0.461	1.72	1.14	0.0068
8	1.096	5.78	0.520	1.88	1.25	0.0074
9	1.161	6.13	0.585	2.04	1.36	0.0082
10	1.219	6.50	0.657	2.20	1.47	0.0092
11	1.270	6.89	0.739	2.38	1.59	0.0104
12	1.314	7.31	0.831	2.56	1.71	0.0118

24-Inch Diameter Culvert						
Flow (cfs)	Critical Depth (ft)	Critical Velocity (fps)	Critical Velocity Head (ft)	Computed HW Depth (ft)	HW/D	Critical Slope (n=0.013)
2	0.491	3.34	0.174	0.75	0.38	0.0045
4	0.701	4.07	0.258	1.09	0.54	0.0045
6	0.866	4.60	0.329	1.36	0.68	0.0047
8	1.007	5.05	0.396	1.60	0.80	0.0049
10	1.132	5.45	0.462	1.83	0.91	0.0052
12	1.245	5.84	0.530	2.04	1.02	0.0056
14	1.348	6.22	0.601	2.25	1.12	0.0061
16	1.442	6.60	0.676	2.46	1.23	0.0066
18	1.528	6.99	0.759	2.67	1.33	0.0073
20	1.606	7.40	0.850	2.88	1.44	0.0081
22	1.675	7.83	0.952	3.10	1.55	0.0091
24	1.734	8.29	1.070	3.34	1.67	0.0103
26	1.786	8.78	1.200	3.59	1.79	0.0117

36-Inch Diameter Culvert						
Flow (cfs)	Critical Depth (ft)	Critical Velocity (fps)	Critical Velocity Head (ft)	Computed HW Depth (ft)	HW/D	Critical Slope (n=0.013)
5	0.700	3.99	0.247	1.07	0.36	0.0039
10	1.000	4.85	0.365	1.55	0.52	0.0039
15	1.235	5.47	0.464	1.93	0.64	0.0040
20	1.435	5.99	0.557	2.27	0.76	0.0042
25	1.613	6.46	0.648	2.59	0.86	0.0044
30	1.775	6.89	0.738	2.88	0.96	0.0047
35	1.923	7.31	0.831	3.17	1.06	0.0050
40	2.059	7.73	0.929	3.45	1.15	0.0054
45	2.186	8.16	1.030	3.73	1.24	0.0059
50	2.302	8.59	1.150	4.03	1.34	0.0064

48-Inch Diameter Culvert						
Flow (cfs)	Critical Depth (ft)	Critical Velocity (fps)	Critical Velocity Head (ft)	Computed HW Depth (ft)	HW/D	Critical Slope (n=0.013)
10	0.921	4.57	0.325	1.41	0.35	0.0036
20	1.316	5.55	0.479	2.03	0.51	0.0035
30	1.624	6.26	0.610	2.54	0.63	0.0036
40	1.888	6.85	0.730	2.98	0.75	0.0038
50	2.122	7.39	0.848	3.39	0.85	0.0040
60	2.334	7.88	0.965	3.78	0.95	0.0042
70	2.529	8.36	1.090	4.16	1.04	0.0045
80	2.710	8.83	1.210	4.53	1.13	0.0048
90	2.876	9.31	1.350	4.90	1.23	0.0052
100	3.030	9.79	1.490	5.27	1.32	0.0057
110	3.171	10.30	1.650	5.65	1.41	0.0063
120	3.297	10.80	1.820	6.03	1.51	0.0069
130	3.412	11.40	2.010	6.43	1.61	0.0077
140	3.511	12.00	2.230	6.86	1.71	0.0086