

Maximum Allowable Flow Discharge (CFS) For ShearForce12 on Cohesive Soils*

Channel Bed Slope	Max Flow Depth (Ft)	Channel Bottom Width (Ft)														
		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
1%	22.4	11,909	12,674	13,449	14,234	15,029	15,833	16,644	17,464	18,292	19,126	19,968	24,269	28,702	33,243	37,872
2%	11.2	2,652	2,995	3,347	3,706	4,073	4,446	4,825	5,210	5,599	5,993	6,391	8,433	10,542	12,698	14,890
3%	7.5	1,101	1,316	1,539	1,769	2,004	2,245	2,489	2,738	2,990	3,245	3,503	4,824	6,184	7,570	8,974
4%	5.6	590	745	907	1,074	1,247	1,423	1,603	1,786	1,971	2,158	2,347	3,316	4,308	5,317	6,335
5%	4.5	364	484	610	742	877	1,016	1,158	1,302	1,447	1,595	1,743	2,502	3,278	4,064	4,856
6%	3.7	245	343	446	554	666	780	896	1,015	1,134	1,255	1,377	1,998	2,631	3,271	3,915
7%	3.2	176	258	345	437	531	628	726	826	928	1,030	1,133	1,657	2,189	2,726	3,266
8%	2.8	131	202	278	357	439	523	608	695	782	870	959	1,411	1,868	2,330	2,793
9%	2.5	102	164	230	300	372	446	521	597	674	752	830	1,225	1,626	2,029	2,434
10%	2.2	81	136	195	258	322	388	455	523	592	661	730	1,081	1,436	1,794	2,152
11%	2.0	66	115	169	225	283	343	403	464	526	588	650	966	1,284	1,605	1,926
12%	1.9	55	99	148	200	253	307	362	417	473	529	586	872	1,160	1,450	1,740
13%	1.7	46	87	132	179	227	277	327	378	429	481	532	793	1,056	1,320	1,585
14%	1.6	39	77	118	162	207	252	299	345	392	440	487	727	969	1,211	1,454
15%	1.5	34	69	107	147	189	231	274	318	361	405	449	671	894	1,118	1,342
16%	1.4	29	62	98	135	174	214	254	294	334	375	416	622	829	1,037	1,245
17%	1.3	26	56	90	125	161	198	236	273	311	349	387	579	772	966	1,160
18%	1.2	23	51	83	116	150	185	220	255	291	326	362	542	723	904	1,085
19%	1.2	20	47	77	108	140	173	206	239	273	306	340	509	679	849	1,019
20%	1.1	18	44	72	101	132	163	194	225	257	288	320	479	639	800	960
21%	1.1	16	40	67	95	124	153	183	212	242	272	302	453	604	756	907
22%	1.0	15	38	63	90	117	145	173	201	229	258	286	429	572	716	859
23%	1.0	11	29	50	71	92	114	137	159	181	204	226	339	453	566	680
24%	0.9	10	28	47	67	88	109	130	151	172	194	215	323	431	539	647
25%	0.9	9	26	44	64	84	104	124	144	164	185	205	308	411	514	617
26%	0.9	9	24	42	61	80	99	118	137	157	176	196	294	393	491	590
27%	0.8	8	23	40	58	76	94	113	132	150	169	188	282	376	470	564
28%	0.8	7	22	38	55	73	90	108	126	144	162	180	270	360	451	541
29%	0.8	7	21	37	53	70	87	104	121	138	155	173	259	346	433	519
30%	0.7	6	20	35	51	67	83	100	116	133	149	166	249	332	416	499

*Assumes Worst Case Triangular and Trapezoidal Channels with 1:1 Sideslopes. Design values are derived from ASTM D6460 large-scale channel testing on Loam soils under 4 consecutive 30 min flow events in 2ft wide, 20% gradient test flumes. A safety factor (SF) of 1.25 - 2.0 may be applied in channel lining designs to account for longer flow durations and more erodible soils.

Maximum Allowable Flow Discharge (CFS) For *ShearForce12* on Non-Cohesive Soils*

Channel Bed Slope	Max Flow Depth (Ft)	Channel Bottom Width (Ft)														
		0	1	2	3	4	5	6	7	8	9	10	15	20	25	30
1%	19.2	7,894	8,487	9,088	9,699	10,317	10,944	11,577	12,218	12,864	13,517	14,176	17,548	21,026	24,591	28,224
2%	9.6	1,758	2,024	2,297	2,578	2,865	3,157	3,454	3,755	4,061	4,370	4,682	6,285	7,938	9,627	11,342
3%	6.4	730	897	1,071	1,250	1,434	1,623	1,815	2,010	2,208	2,408	2,610	3,646	4,711	5,793	6,888
4%	4.8	391	512	638	769	904	1,043	1,184	1,327	1,472	1,619	1,768	2,525	3,301	4,087	4,879
5%	3.8	241	335	433	536	643	752	863	976	1,090	1,205	1,322	1,915	2,520	3,131	3,747
6%	3.2	163	238	319	404	492	581	673	765	859	954	1,049	1,534	2,027	2,524	3,024
7%	2.7	116	180	249	320	395	471	548	626	705	785	866	1,274	1,688	2,105	2,524
8%	2.4	87	142	201	264	328	394	460	528	597	666	735	1,086	1,442	1,800	2,159
9%	2.1	68	116	168	223	279	337	396	456	516	576	637	945	1,256	1,569	1,882
10%	1.9	54	97	143	192	243	294	347	400	453	507	561	834	1,110	1,387	1,665
11%	1.7	44	82	124	169	214	261	308	356	404	452	501	746	993	1,241	1,490
12%	1.6	36	71	109	150	191	234	276	320	363	407	451	673	897	1,121	1,346
13%	1.5	30	62	98	135	173	211	251	290	330	370	410	613	817	1,022	1,227
14%	1.4	26	55	88	122	157	193	229	265	302	339	376	562	749	937	1,125
15%	1.3	22	50	80	111	144	177	211	244	278	312	347	519	691	865	1,038
16%	1.2	19	45	73	103	133	164	195	226	258	289	321	481	641	802	963
17%	1.1	17	41	67	95	123	152	181	210	240	269	299	448	598	748	898
18%	1.1	15	37	62	88	115	142	169	197	224	252	280	419	559	699	840
19%	1.0	13	34	58	82	107	133	159	184	210	236	262	394	525	657	789
20%	1.0	10	27	45	64	84	104	124	145	165	185	206	309	412	516	619
21%	0.9	9	25	42	61	79	98	117	137	156	175	195	292	389	487	585
22%	0.9	8	23	40	57	75	93	111	129	148	166	184	276	369	462	554
23%	0.8	7	22	37	54	71	88	105	123	140	157	175	263	350	438	526
24%	0.8	7	20	35	51	67	84	100	117	133	150	166	250	333	417	501
25%	0.8	6	19	34	49	64	80	95	111	127	143	159	238	318	398	478
26%	0.7	6	18	32	47	61	76	91	106	121	136	152	228	304	380	456
27%	0.7	5	17	31	44	59	73	87	102	116	131	145	218	291	364	437
28%	0.7	5	16	29	42	56	70	84	97	111	125	139	209	279	349	419
29%	0.7	4	16	28	41	54	67	80	93	107	120	133	200	268	335	402
30%	0.6	4	15	27	39	52	64	77	90	103	115	128	193	257	322	386

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