

Überprüfung Steilstrecken nach DWA-A 110

Teilwassermengen

Q_T = 0,257 ha * 191,7 l/s*ha = 49,2669 (nur Baugebiet, ohne EW06 und ohne Felsenstraße)

Q_T = 0,338 ha * 191,7 l/s*ha = 64,7946 (alle Flächen)

$Bou = \frac{v_t}{\sqrt{g \cdot r_{hy}}}$																		
			Tabellenbuch (Vollfüllwerte; kB=1,5mm)				Tabelle Teilfüllungshöhen						Füllhöhe im Rohr	benetzte Bogenlänge	benetzter Querschnitt	r_{hyd}	V_t	Bou
	Q_T [l/s]	Haltungen mit Gefälle > 10 %	DN [mm]	I [‰]	Q_v [l/s]	v_v [m/s]	Q_T/Q_v [-]	v_T/v_v [-]	h/d [-]	At/Av [-]	l_t / l_v [-]	$r_{hy,t} / r_{hy,v}$ [-]	hb [m]	bl [m]	Ab [m²]	r_{hyd} [m²/m]	V_t [m/s]	Bou [-]
RW-Kanal	49,27	RW09	300	115	333	4,75	0,148	0,730	0,259	0,205	0,340	0,604	0,0777	0,3204	0,0145	0,045	3,468	5,2
	49,27	RW08	300	149,23	381	5,39	0,129	0,702	0,241	0,185	0,326	0,567	0,0723	0,3072	0,0131	0,043	3,784	5,9
	64,79	RW06	300	97,5	311	4,4	0,208	0,800	0,309	0,262	0,375	0,700	0,0927	0,3534	0,0185	0,053	3,520	4,9
SW-Kanal	0,25	SW04	200	117	114	3,64	0,002a)	0,338	0,065	0,030	0,168	0,176	0,0130	0,1056	0,0009	0,009	1,230	4,2
	0,25	SW03	200	149	130	4,13	0,002a)	0,338	0,065	0,030	0,168	0,176	0,0130	0,1056	0,0009	0,009	1,396	4,8
	0,25	SW01	200	298b)	150	5	0,002a)	0,338	0,065	0,030	0,168	0,176	0,0130	0,1056	0,0009	0,009	1,690	5,8

Anmerkung SW-Kanal: a) Auslastung erst ab Tabellenwert 1‰ = 0,01 --> rechnerischer Wert 0,002
b) max. Leitungsgefälle bei Vollfüllung in Tabellenbuch max. 200‰ --> vorhanden max. 298‰

Q _t /Q _v	v _t /v _v	h/d	A _t /A _v	I _t /I _v	r _{hy,t} /r _{hy,v}	b _{ht} /b _{vt}	Q _t /Q _v	v _t /v _v	h/d	A _t /A _v	I _t /I _v	r _{hy,t} /r _{hy,v}	b _{ht} /b _{vt}
0.01	0.338	0.065	0.030	0.168	0.176	0.504	0.51	1.005	0.506	0.508	0.504	1.008	1.000
0.02	0.413	0.095	0.048	0.200	0.243	0.587	0.52	1.009	0.512	0.515	0.508	1.015	1.000
0.03	0.464	0.116	0.065	0.221	0.292	0.640	0.53	1.014	0.518	0.523	0.511	1.022	0.999
0.04	0.503	0.134	0.079	0.238	0.334	0.680	0.54	1.018	0.524	0.530	0.515	1.029	0.999
0.05	0.537	0.149	0.093	0.252	0.369	0.712	0.55	1.023	0.530	0.538	0.519	1.036	0.998
0.06	0.565	0.163	0.106	0.265	0.401	0.739	0.56	1.027	0.536	0.545	0.523	1.043	0.997
0.07	0.590	0.176	0.119	0.276	0.430	0.762	0.57	1.031	0.542	0.553	0.526	1.050	0.997
0.08	0.613	0.188	0.131	0.286	0.457	0.782	0.58	1.035	0.547	0.560	0.530	1.057	0.995
0.09	0.633	0.200	0.142	0.295	0.482	0.800	0.59	1.039	0.553	0.568	0.534	1.063	0.994
0.10	0.652	0.211	0.153	0.304	0.505	0.815	0.60	1.043	0.559	0.575	0.538	1.070	0.995
0.11	0.670	0.221	0.164	0.312	0.527	0.830	0.61	1.047	0.565	0.583	0.542	1.076	0.991
0.12	0.686	0.231	0.175	0.319	0.548	0.843	0.62	1.051	0.571	0.590	0.545	1.082	0.990
0.13	0.702	0.241	0.185	0.326	0.567	0.855	0.63	1.054	0.577	0.598	0.549	1.088	0.988
0.14	0.716	0.250	0.195	0.333	0.580	0.866	0.64	1.058	0.583	0.605	0.553	1.094	0.986
0.15	0.730	0.259	0.205	0.340	0.604	0.876	0.65	1.061	0.589	0.612	0.557	1.100	0.984
0.16	0.743	0.268	0.215	0.346	0.622	0.886	0.66	1.065	0.595	0.620	0.561	1.106	0.982
0.17	0.756	0.276	0.225	0.352	0.639	0.894	0.67	1.068	0.601	0.627	0.565	1.111	0.980
0.18	0.767	0.285	0.235	0.358	0.655	0.903	0.68	1.071	0.607	0.635	0.568	1.117	0.977
0.19	0.779	0.293	0.244	0.364	0.670	0.910	0.69	1.075	0.613	0.642	0.572	1.122	0.974
0.20	0.790	0.301	0.253	0.370	0.685	0.917	0.70	1.078	0.619	0.650	0.576	1.127	0.971
0.21	0.800	0.309	0.262	0.375	0.700	0.924	0.71	1.081	0.625	0.657	0.580	1.132	0.968
0.22	0.810	0.316	0.272	0.380	0.714	0.930	0.72	1.084	0.631	0.664	0.584	1.137	0.965
0.23	0.820	0.324	0.281	0.385	0.728	0.936	0.73	1.087	0.637	0.672	0.588	1.142	0.962
0.24	0.829	0.331	0.289	0.390	0.741	0.941	0.74	1.090	0.643	0.679	0.592	1.147	0.958
0.25	0.838	0.339	0.298	0.395	0.754	0.947	0.75	1.092	0.649	0.687	0.596	1.152	0.955
0.26	0.847	0.346	0.307	0.400	0.767	0.951	0.76	1.095	0.655	0.694	0.600	1.156	0.951
0.27	0.856	0.353	0.316	0.405	0.779	0.956	0.77	1.098	0.661	0.702	0.604	1.161	0.947
0.28	0.864	0.360	0.324	0.410	0.791	0.960	0.78	1.100	0.667	0.709	0.609	1.165	0.942
0.29	0.872	0.367	0.333	0.414	0.803	0.964	0.79	1.103	0.674	0.717	0.613	1.169	0.938
0.30	0.880	0.374	0.341	0.419	0.814	0.968	0.80	1.105	0.680	0.724	0.617	1.173	0.933
0.31	0.887	0.381	0.349	0.423	0.826	0.971	0.81	1.107	0.686	0.732	0.622	1.177	0.928
0.32	0.894	0.387	0.358	0.428	0.837	0.974	0.82	1.109	0.693	0.739	0.626	1.181	0.923
0.33	0.902	0.394	0.366	0.432	0.847	0.977	0.83	1.112	0.699	0.747	0.630	1.184	0.917
0.34	0.909	0.401	0.374	0.436	0.858	0.980	0.84	1.114	0.706	0.754	0.635	1.188	0.911
0.35	0.915	0.407	0.382	0.440	0.868	0.983	0.85	1.116	0.712	0.762	0.640	1.191	0.905
0.36	0.922	0.414	0.390	0.445	0.878	0.985	0.86	1.117	0.719	0.770	0.644	1.194	0.899
0.37	0.928	0.420	0.399	0.449	0.888	0.987	0.87	1.119	0.726	0.777	0.649	1.198	0.892
0.38	0.935	0.426	0.407	0.453	0.898	0.989	0.88	1.121	0.733	0.785	0.654	1.200	0.885
0.39	0.941	0.433	0.415	0.457	0.907	0.991	0.89	1.123	0.740	0.793	0.659	1.203	0.878
0.40	0.947	0.439	0.422	0.461	0.916	0.993	0.90	1.124	0.747	0.801	0.664	1.206	0.870
0.41	0.953	0.445	0.430	0.465	0.925	0.994	0.91	1.125	0.754	0.809	0.669	1.208	0.862
0.42	0.958	0.451	0.438	0.469	0.934	0.995	0.92	1.127	0.761	0.817	0.675	1.210	0.853
0.43	0.964	0.458	0.446	0.473	0.943	0.996	0.93	1.128	0.769	0.825	0.681	1.212	0.843
0.44	0.970	0.464	0.454	0.477	0.952	0.997	0.94	1.129	0.776	0.833	0.686	1.214	0.834
0.45	0.975	0.470	0.462	0.481	0.960	0.998	0.95	1.129	0.784	0.841	0.692	1.215	0.823
0.46	0.980	0.476	0.469	0.485	0.968	0.999	0.96	1.130	0.792	0.850	0.699	1.216	0.812
0.47	0.985	0.482	0.477	0.489	0.977	0.999	0.97	1.130	0.800	0.858	0.705	1.217	0.799
0.48	0.990	0.488	0.485	0.492	0.984	1.000	0.98	1.131	0.809	0.867	0.712	1.217	0.786
0.49	0.995	0.494	0.492	0.496	0.992	1.000	0.99	1.131	0.818	0.876	0.719	1.217	0.772
0.50	1.000	0.500	0.500	0.500	1.000	1.000	1.00	1.130	0.827	0.885	0.727	1.217	0.756