## 汚水排水計算

汚水排水計算は、1宅地5人の1人最大10000/日で計算をし、排水量と勾配をもとに一番厳しいスパンで検討をすること。調整区域からの流入は特に注意をし、下流の既設管から検討を行うこと。

## 計算例

- •宅地数 10宅地
- ・管きょの材質 硬質塩化ビニル管
- ·管径 Ф200
- ・管勾配 10‰ (流速 1.353m/sec ・ 流量 0.0425m³/sec)

Q= 
$$\frac{10 \times 5 \times 1 \,\text{m}^3}{24 \times 60 \times 60}$$
 =0. 000578 m<sup>3</sup>/sec

 $0.0425\,\text{m}^3/\text{sec} > 0.000578\,\text{m}^3/\text{sec}$  OK

## (2) 管渠流量表(硬質塩化ビニル管、強化プラスチック

(内 径) D	.075	.100	.125	.150	.200	.250	
(断面積m) WA	.0044	.0079	.0123	.01 <i>7</i> 7	.0314	.0491	
(潤辺長m) WP	.2356	.3142	.3927	.4712	.6283	.7854	
(径 深) R	.0188	.0250	.0313	.0375	.0500	.0625	
I (%)	V Q	V Q	, V Q	V Q	V Q	V Q	
150.0	2.434     .0108       1.987     .0088       1.721     .0076       1.405     .0062       1.256     .0055	3.068 .0241	3.666 .0451	4.216 .0745	5.250 .1649	6.202 .3044	
(10/100) 100.0		2.505 .0197	2.993 .0368	3.442 .0608	4.286 .1347	5.064 .2486	
.75.0		2.169 .0170	2.592 .0319	2.981 .0527	3.712 .1166	4.385 .2152	
(5/100) 50.0		1.771 .0139	2.116 .0260	2.433 .0430	3.030 .0952	3.580 .1757	
(4/100) 40.0		1.584 .0124	1.892 .0233	2.176 .0385	2.710 .0851	3.202 .1572	
35.0	1.175 .0052	1.481 .0116	1.770 .0218	2.035 .0360	2.535 .0796	2.995 .1470	
(3/100) 30.0	1.088 .0048	1.371 .0108	1.638 .0202	1.884 .0333	2.347 .0737	2.772 .1361	
25.0	.993 .0044	1.251 .0098	1.495 .0184	1.720 .0304	2.142 .0673	2.530 .1242	
(2/100) 20.0	.888 .0039	1.119 .0088	1.337 .0164	1.538 .0272	1.915 .0602	2.263 .1111	
18.0	.842 .0037	1.061 .0083	1.268 .0156	1.459 .0258	1.817 .0571	2.146 .1054	
16.0	.794 .0035	1.000 .0079	1.195 .0147	1.375 .0243	1.713 .0538	2.023 .0993	
15.0	.768 .0034	.969 .0076	1.157 .0142	1.331 .0235	1.658 .0521	1.959 .0962	
14.0	.742 .0033	.936 .0073	1.118 .0138	1.286 .0227	1.602 .0503	1.892 .0929	
12.0	.687 .0030	.866 .0068	1.035 .0127	1.190 .0210	1.483 .0466	1.752 .0860	
( 1/100 ) 10.0	.627 .0028	.790 .0062	.944 .0116	1.086 .0192	1.353 .0425	1.598 .0785	
9.0 8.5 8.0 7.5 7.0	.594 .0026 .577 .0026 .560 .0025 .542 .0024 .524 .0023	.749 .0059 .728 .0057 .706 .0055 .684 .0054 .660 .0052	.896 .0110 .870 .0107 .844 .0104 .817 .0100 .789 .0097	1.030 .0182 1.001 .0177 .971 .0172 .940 .0166	1.283 .0403 1.247 .0392 1.209 .0380 1.171 .0368 1.131 .0355	1.516 .0744 1.473 .0723 1.429 .0701 1.383 .0679 1.336 .0656	
6.5 6.0 5.5 5.0 4.5	.504 .0022 .484 .0021 .464 .0020 .442 .0020 .419 .0010	.636 .0050 .611 .0048 .585 .0046 .557 .0044 .528 .0041	.760 .0094 .730 .0090 .699 .0086 .666 .0082 .631 .0078	.840 .0148	.955 .0300	1.287 .0632 1.237 .0607 1.184 .0581 1.128 .0554 1.070 .0525	
4.0	.395 .0017	.498 .0039	.595 .0073	.684 .0121	.853 .0268	1.008 .0495	
3.5	.369 .0016	.465 .0037	.556 .0068	.640 .0113	.797 .0250	.942 .0463	
3.0	.341 .0015	.430 .0034	.514 .0063	.592 .0105	.737 .0232	.872 .0428	
2.8	.329 .0015	.415 .0033	.496 .0061	.571 .0101	.712 .0224	.842 .0413	
2.6	.317 .0014	.400 .0031	.478 .0059	.550 .0097	.686 .0215	.811 .0398	
2.5	.311 .0014	.392 .0031	.469 .0058	.539 .0095	.672 .0211	.795 .0390	
2.4	.304 .0013	.384 .0030	.459 .0056	.528 .0093	.658 .0207	.778 .0382	
2.2	.291 .0013	.367 .0029	.439 .0054	.505 .0089	.630 .0198	.745 .0365	
2.0	.277 .0012	.350 .0027	.418 .0051	.481 .0085	.600 .0188	.709 .0348	
1.9	.270 .0012	.340 .0027	.407 .0050	.469 .0083	.584 .0184	.691 .0339	
1.8	.262 .0012	.331 .0026	.396 .0049	.456 .0081	.568 .0179	.672 .0330	
1.7	.255 .0011	.322 .0025	.385 .0047	.443 .0078	.552 .0173	.653 .0320	
1.6	.247 .0011	.312 .0024	.373 .0046	.429 .0076	.535 .0168	.633 .0311	
1.5	.239 .0011	.301 .0024	.361 .0044	.415 .0073	.518 .0163	.612 .0301	
1.4	.230 .0010	.291 .0023	.348 .0043	.401 .0071	.500 .0157	.591 .0290	
1.3	.222 .0010	.280 .0022	.335 .0041	.386 .0068	.481 .0151	.569 .0279	
1.2	.213 .0009	.268 .0021	.321 .0040	.370 .0065	.461 .0145	.546 .0268	
1.1	.203 .0009	.256 .0020	.307 .0038	.353 .0062	.441 .0139	.522 .0256	
1.0	.193 .0009	.244 .0019	.292 .0036	.336 .0059	.420 .0132	.497 .0244	
0.9	.183 .0008	.231 .0018	.276 .0034	.318 .0056	.397 .0125	.470 .0231	

, 複合管) 円形管クッター公式 n= 0.010

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	300		.350	D		400		.450		.500		.600	
	9425	1	.0996	W.A W.P R	1.	2566	1	.1590 1.1437 🦨 .1125		.1963 1.5708 .1250		.2827 1.8850 .1500	
V	Q	V	Q	I	V	. Q	V	Q	V	Q	Λ	Q	
7.090	.5012	7.927	.7626	100.0	7.120	.8947	7.738	1.2307	8.331	1.6357	9.450	2.6720	
5.789	.4092	6.472	.6226	75.0	6.166	.7748	6.701	1.0657	7.214	1.4165	8.184	2.3139	
5.013	.3543	5.604	.5392	50.0	5.034	.6325	5.471	.8701	5.890	1.1565	6.682	1.8892	
4.092	.2893	4.575	.4402	40.0	4.502	.5657	4.893	.7782	5.268	1.0343	5.976	1.6896	
3.660	.2587	4.092	.3937	35.0	4.211	.5292	4.577	.7279	4.927	.9674	5.590	1.5804	
3.423	.2420	3.827	.3682	30.0	3.898	.4899	4.937	.6738	4.561	.8956	5.175	1.4631	
3.169	.2240	3.543	.3409	25.0	3.558	.4471	3.867	.6151	4.164	.8175	4.723	1.3355	
2.893	.2045	3.234	.3112	20:0	3.182	.3999	3.458	.5500	3.723	.7311	4.224	1.1944	
2.587	.1829	2.892	.2783	15.0	2.755	.3462	2.994	.4762	3.224	.6330	3.658	1.0341	
2.454	.1735	2.744	.2640	10.0	2.248	.2825	2.444	.3887	2.631	.5166	2.985	.8440	
2.313	.1635	2.586	.2488	9.0	2.133	.2680	2.318	.3687	2.496	.4900	2.832	.8006	
2.240	.1583	2.504	.2409	8.5	2.072	.2604	2.252	.3582	2.425	.4762	2.752	.7780	
2.163	.1529	2.419	.2327	8.0	2.010	.2526	2.185	.3475	2.352	.4619	2.669	.7547	
2.003	.1416	2.239	.2154	7.5	1.946	.2445	2.115	.3364	2.278	.4472	2.584	.7306	
1.828	.1292	2.043	.1966	7.0	1.880	.2362	2.043	.3250	2.200	.4320	2.496	.7058	
1.733	.1225	1.938	.1865	6.5	1.811	.2276	1.969	.3131	2.120	.4162	2.405	.6800	
1.684	.1191	1.883	.1812	6.0	1.740	.2186	1.891	.3008	2.036	.3998	2.310	.6532	
1.634	.1155	1.827	.1758	5.5	1.665	.2093	1.810	.2879	1.949	.3827	2.212	.6253	
1.582	.1118	1.769	.1702	5.0	1.587	.1995	1.725	.2744	1.858	.3648	2.108	.5961	
1.528	.1080	1.708	.1644	4.5	1.505	.1892	1.636	.2603	1.762	.3460	1.999	.5653	
1.472	.1040	1.646	.1584	4.0	1.419	.1783	1.542	.2453	1.661	.3261	1.884	.5328	
1.414	.0999	1.581	.1521	3.5	1.326	.1667	1.442	.2293	1.553	.3048	1.762	.4982	
1.353	.0957	1.513	.1456	3.0	1.227	.1542	1.334	.2121	1.436	.2820	1.630	.4610	
1.290	.0912	1.442	.1388	2.8	1.185	.1489	1.288	.2049	1.387	.2724	1.575	.4452	
1.223	.0865	1.368	.1316	2.6	1.141	.1434	1.241	.1974	1.336	.2624	1.517	.4289	
1.153	.0815	1.289	.1240	2.5	1.119	.1406	1.216	.1935	1.310	.2572	1.487	.4204	
1.078	.0762	1.205	.1159	2.4	1.096	.1377	1.192	.1895	1.283	.2520	1.457	.4119	
1.997	.0705	1.115	.1073	2.2	1.049	.1318	1.140	.1814	1.228	.2411	1.394	.3941	
1.963	.0680	1.077	.1036	2.0	.999	.1256	1.086	.1728	1.170	.2298	1.328	.3756	
1.927	.0655	1.037	.0998	1.9	.974	.1223	1.059	.1684	1.140	.2239	1.294	.3660	
.909	.0642	1.017	.0978	1.8	.947	.1190	1.030	.1638	1.109	.2178	1.259	.3561	
.890	.0629	.996	.0958	1.7	.920	.1156	1.000	.1591	1.078	.2116	1.223	.3459	
.852	.0602	.953	.0917	1.6	.892	.1121	.970	.1543	1.045	.2052	1.186	.3354	
.811	.0574	.908	.0873	1.5	.863	.1085	.939	.1493	1.011	.1985	1.148	.3246	
.791	.0559	.884	.0851	1.4	.833	.1047	.906	.1441	.976	.1917	1.109	.3134	
.769	.0544	.860	.0828	1.3	.802	.1008	.873	.1388	.940	.1846	1.067	.3018	
.747	.0528	.836	'.0804	1.2	.770	.0968	.838	.1332	.902	.1772	1.025	.2898	
.724	.0512	.810	.0780	1.1	.736	.0925	.801	.1274	.863	.1695	.980	.2772	
.701	.0495	.784	.0754	1.0	.701	.0881	.763	.1213	.822	.1614	.934	.2640	
.676	.0478	.757	.0728	0.9	.664	.0834	.722	.1149	.779	.1529	.885	.2501	
		.729 .699 .669 .637 .603	.0701 .0673 .0643 .0613 .0580	0.8 0.7 0.6 0.5 0.4	.625 .583 .538 .488 .434	.0785 .0732 .0676 .0614 .0545	.680 .634 .585 .532 .473	.1081 .1009 .0931 .0846 .0751	.733 .684 .631 .574 .510	.1439 .1342 .1239 .1126 .1001	.833 .777 .717 .652 .580	.2354 .2197 .2029 .1845 .1640	
	V 7.090 5.789 5.013 4.092 3.660 3.423 3.169 2.893 2.587 2.454 2.313 2.240 2.163 2.003 1.828 1.733 1.684 1.582 1.528 1.472 1.414 1.353 1.290 1.223 1.153 1.078 .997 .963 .927 .909 .890 .852 .811 .791 .769 .747 .724 .701 .676 .651 .625 .597 .569	7.090 .5012 5.789 .4092 5.013 .3543 4.092 .2893 3.660 .2587  3.423 .2420 3.169 .2240 2.893 .2045 2.587 .1829 2.454 .1735  2.313 .1635 2.240 .1583 2.163 .1529 2.003 .1416 1.828 .1292  1.733 .1225 1.684 .1191 1.634 .1155 1.582 .1118 1.528 .1080  1.472 .1040 1.414 .0999 1.353 .0957 1.290 .0912 1.223 .0865  1.153 .0815 1.078 .0762 997 .0705 .963 .0680 .927 .0655  .909 .0642 .890 .0629 .852 .0602 .811 .0574 .791 .0559  .769 .0544 .747 .0528 .724 .0512 .701 .0495 .676 .0478  .651 .0460 .625 .0442 .597 .0422 .569 .0402	.0707         .9425         1           .0750         V         Q         V           7.090         .5012         7.927           5.789         .4092         6.472           5.013         .3543         5.604           4.092         .2893         4.575           3.660         .2587         4.092           3.423         .2420         3.543           2.893         .2045         3.234           2.587         .1829         2.892           2.454         .1735         2.744           2.313         .1635         2.586           2.240         .1583         2.504           2.163         .1529         2.419           2.003         .1416         2.239           1.828         .1292         2.043           1.733         .1225         1.938           1.684         .1191         1.883           1.684         .1191         1.883           1.634         .1155         1.827           1.582         .1118         1.769           1.528         .1080         1.708           1.472         .1040         1.646	.0707         .9425         1.0996           .0750         .0875           V         Q         V         Q           7.090         .5012         7.927         .7626           5.789         .4092         6.472         .6226           5.013         .3543         5.604         .5392           4.092         .2893         4.575         .4402           3.660         .2587         4.092         .3937           3.423         .2420         3.543         .3409           2.893         .2045         3.234         .3112           2.587         .1829         2.892         .2783           2.454         .1735         2.744         .2640           2.313         .1635         2.586         .2488           2.240         .1583         2.504         .2409           2.163         .1529         2.419         .2327           2.003         .1416         2.239         .2154           1.828         .1292         2.043         .1866           1.733         .1225         1.938         .1865           1.684         .1191         1.883         .1812 <t< th=""><th>.0707         .0962         W.A           .9425         1.0996         W.P           .0750         .0875         R           V         Q         V         Q         I           7.090         .5012         7.927         .7626         100.0           5.789         .4092         .6472         .6226         75.0           5.013         .3543         5.604         .5392         50.0           4.092         .2893         4.575         .4402         40.0           3.600         .2587         4.092         .3937         35.0           3.423         .2420         3.827         .3682         30.0           3.169         .2240         3.543         .3409         25.0           2.893         .2045         3.234         .3112         20.0           2.893         .245         .1829         2.892         .2783         15.0           2.454         .1735         2.744         .2640         10.0           2.313         .1635         2.586         .2488         9.0           2.240         .1583         2.504         .2409         8.5           2.163         .1529</th><th>.0707         .0962         W.A         W.P         1           .9425         1.0996         W.P         1           .0750         .0875         R         1           V         Q         V         Q         I         V           7.090         .5012         7.927         .7626         100.0         7.120           5.789         .4092         .6472         .6226         75.0         6.166           5.013         .3543         .5604         .5392         50.0         5.034           4.092         .2893         .4575         .4402         40.0         4.502           3.660         .2587         4.092         .3937         35.0         4.211           3.423         .2420         .3243         .3409         25.0         3.558           2.893         .2045         3.234         .3112         20.0         3.182           2.587         .1829         2.892         .2783         15.0         2.755           2.454         .1735         2.744         .2640         10.0         2.248           2.313         .1635         2.586         .2488         9.0         2.133</th><th>  0.7077</th><th>                                     </th><th>                                     </th><th>                                     </th><th>  No.</th><th>  No.   No.</th></t<>	.0707         .0962         W.A           .9425         1.0996         W.P           .0750         .0875         R           V         Q         V         Q         I           7.090         .5012         7.927         .7626         100.0           5.789         .4092         .6472         .6226         75.0           5.013         .3543         5.604         .5392         50.0           4.092         .2893         4.575         .4402         40.0           3.600         .2587         4.092         .3937         35.0           3.423         .2420         3.827         .3682         30.0           3.169         .2240         3.543         .3409         25.0           2.893         .2045         3.234         .3112         20.0           2.893         .245         .1829         2.892         .2783         15.0           2.454         .1735         2.744         .2640         10.0           2.313         .1635         2.586         .2488         9.0           2.240         .1583         2.504         .2409         8.5           2.163         .1529	.0707         .0962         W.A         W.P         1           .9425         1.0996         W.P         1           .0750         .0875         R         1           V         Q         V         Q         I         V           7.090         .5012         7.927         .7626         100.0         7.120           5.789         .4092         .6472         .6226         75.0         6.166           5.013         .3543         .5604         .5392         50.0         5.034           4.092         .2893         .4575         .4402         40.0         4.502           3.660         .2587         4.092         .3937         35.0         4.211           3.423         .2420         .3243         .3409         25.0         3.558           2.893         .2045         3.234         .3112         20.0         3.182           2.587         .1829         2.892         .2783         15.0         2.755           2.454         .1735         2.744         .2640         10.0         2.248           2.313         .1635         2.586         .2488         9.0         2.133	0.7077				No.	No.   No.	