

TABLE 1 - DESIGN LOAD CALCULATION FOR DN 150mm SS

DATA: Crushing strength = 34 kN/m; Unit weight of backfill = 19.6 kN/m³; Ext. dia. = 186mm

$K_u' = 0.13$; $K_u = 0.19$; $r_{sd}p = 0.7$, Traffic load = 112.5kN; Factor of safety = 1.25

Trench cover m	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor
0.6	25.74	0.95	25.74	0.95	25.74	0.95	25.74	0.95
0.7	23.15	0.85	23.15	0.85	23.15	0.85	23.15	0.85
0.8	21.50	0.79	21.50	0.79	21.50	0.79	21.50	0.79
0.9	16.59	0.61	16.59	0.61	16.59	0.61	16.59	0.61
1.0	19.50	0.72	19.50	0.72	19.50	0.72	19.50	0.72
1.1	18.94	0.70	18.94	0.70	18.94	0.70	18.94	0.70
1.2	18.58	0.68	18.58	0.68	18.58	0.68	18.58	0.68
1.3	18.37	0.68	18.37	0.68	18.37	0.68	18.37	0.68
1.4	18.28	0.67	18.28	0.67	18.28	0.67	18.28	0.67
1.5	18.27	0.67	18.27	0.67	18.27	0.67	18.27	0.67
1.6	18.33	0.67	18.33	0.67	18.33	0.67	18.33	0.67
1.7	18.44	0.68	18.44	0.68	18.44	0.68	18.44	0.68
1.8	18.61	0.68	18.61	0.68	18.61	0.68	18.61	0.68
1.9	18.80	0.69	18.80	0.69	18.80	0.69	18.80	0.69
2.0	19.03	0.70	19.03	0.70	19.03	0.70	19.03	0.70
2.1	19.29	0.71	19.29	0.71	19.29	0.71	19.29	0.71
2.2	19.55	0.72	19.55	0.72	19.55	0.72	19.55	0.72
2.3	19.86	0.73	19.86	0.73	19.86	0.73	19.86	0.73
2.4	20.16	0.74	20.16	0.74	20.16	0.74	20.16	0.74
2.5	20.48	0.75	20.48	0.75	20.48	0.75	20.48	0.75
2.6	20.81	0.77	20.81	0.77	20.81	0.77	20.81	0.77
2.7	21.17	0.78	21.17	0.78	21.17	0.78	21.17	0.78
2.8	21.53	0.79	21.53	0.79	21.53	0.79	21.53	0.79
2.9	21.91	0.81	21.91	0.81	21.91	0.81	21.91	0.81
3.0	22.29	0.82	22.29	0.82	22.29	0.82	22.29	0.82
3.1	22.69	0.83	22.69	0.83	22.69	0.83	22.69	0.83
3.2	23.08	0.85	23.08	0.85	23.08	0.85	23.08	0.85
3.3	23.49	0.86	23.49	0.86	23.49	0.86	23.49	0.86
3.4	23.91	0.88	23.91	0.88	23.91	0.88	23.91	0.88
3.5	24.34	0.89	24.34	0.89	24.34	0.89	24.34	0.89
3.6	24.77	0.91	24.77	0.91	24.77	0.91	24.77	0.91
3.7	25.21	0.93	25.21	0.93	25.21	0.93	25.21	0.93
3.8	25.65	0.94	25.65	0.94	25.65	0.94	25.65	0.94
3.9	26.11	0.96	26.11	0.96	26.11	0.96	26.11	0.96
4.0	26.57	0.98	26.57	0.98	26.57	0.98	26.57	0.98
4.1	27.06	0.99	27.06	0.99	27.06	0.99	27.06	0.99
4.2	27.56	1.01	27.56	1.01	27.56	1.01	27.56	1.01
4.3	28.06	1.03	28.06	1.03	28.06	1.03	28.06	1.03
4.4	28.57	1.05	28.57	1.05	28.57	1.05	28.57	1.05
4.5	28.92	1.06	28.92	1.06	28.92	1.06	28.92	1.06
4.6	29.44	1.08	29.44	1.08	29.44	1.08	29.44	1.08
4.7	29.96	1.10	29.96	1.10	29.96	1.10	29.96	1.10
4.8	30.48	1.12	30.48	1.12	30.48	1.12	30.48	1.12
4.9	31.01	1.14	31.01	1.14	31.01	1.14	31.01	1.14
5.0	31.40	1.15	31.40	1.15	31.40	1.15	31.40	1.15
5.1	31.93	1.17	31.93	1.17	31.93	1.17	31.93	1.17
Trench width,m	0.7		0.8		0.9		1.0	

Narrow trench load

Wide trench load

DESIGN LOAD CALCULATION FOR DN 200mm SS

Trench cover m	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor	Design load kN/m	Bedding factor
5.2	32.46	1.19	32.46	1.19	32.46	1.19	32.46	1.19
5.3	32.99	1.21	32.99	1.21	32.99	1.21	32.99	1.21
5.4	33.53	1.23	33.53	1.23	33.53	1.23	33.53	1.23
5.5	33.94	1.25	33.94	1.25	33.94	1.25	33.94	1.25
5.6	34.41	1.26	34.48	1.27	34.48	1.27	34.48	1.27
5.7	34.54	1.27	35.03	1.29	35.03	1.29	35.03	1.29
5.8	34.66	1.27	35.57	1.31	35.57	1.31	35.57	1.31
5.9	34.79	1.28	36.12	1.33	36.12	1.33	36.12	1.33
6.0	34.81	1.28	36.56	1.34	36.56	1.34	36.56	1.34
6.1	34.90	1.28	37.10	1.36	37.10	1.36	37.10	1.36
6.2	35.00	1.29	37.63	1.38	37.63	1.38	37.63	1.38
6.3	35.09	1.29	38.16	1.40	38.16	1.40	38.16	1.40
6.4	35.17	1.29	38.70	1.42	38.70	1.42	38.70	1.42
6.5	35.25	1.30	39.23	1.44	39.23	1.44	39.23	1.44
6.6	35.33	1.30	39.77	1.46	39.77	1.46	39.77	1.46
6.7	35.41	1.30	40.31	1.48	40.31	1.48	40.31	1.48
6.8	35.48	1.30	40.85	1.50	40.85	1.50	40.85	1.50
6.9	35.55	1.31	41.39	1.52	41.39	1.52	41.39	1.52
7.0	35.61	1.31	41.93	1.54	41.93	1.54	41.93	1.54
7.1	35.68	1.31	42.48	1.56	42.48	1.56	42.48	1.56
7.2	35.75	1.31	43.03	1.58	43.03	1.58	43.03	1.58
7.3	35.81	1.32	43.58	1.60	43.58	1.60	43.58	1.60
7.4	35.87	1.32	44.13	1.62	44.13	1.62	44.13	1.62
7.5	35.93	1.32	44.68	1.64	44.68	1.64	44.68	1.64
7.6	35.98	1.32	45.23	1.66	45.23	1.66	45.23	1.66
7.7	36.03	1.32	45.50	1.67	45.78	1.68	45.78	1.68
7.8	36.08	1.33	45.60	1.68	46.33	1.70	46.33	1.70
7.9	36.12	1.33	45.69	1.68	46.88	1.72	46.88	1.72
8.0	36.17	1.33	45.78	1.68	47.43	1.74	47.43	1.74
8.1	36.21	1.33	45.87	1.69	47.99	1.76	47.99	1.76
8.2	36.26	1.33	45.97	1.69	48.55	1.78	48.55	1.78
8.3	36.30	1.33	46.05	1.69	49.10	1.81	49.10	1.81
8.4	36.34	1.34	46.13	1.70	49.66	1.83	49.66	1.83
8.5	36.38	1.34	46.21	1.70	50.22	1.85	50.22	1.85
8.6	36.41	1.34	46.29	1.70	50.78	1.87	50.78	1.87
8.7	36.45	1.34	46.36	1.70	51.34	1.89	51.34	1.89
8.8	36.48	1.34	46.43	1.71	51.89	1.91	51.89	1.91
8.9	36.51	1.34	46.50	1.71	52.45	1.93	52.45	1.93
9.0	36.54	1.34	46.56	1.71	53.01	1.95	53.01	1.95
9.1	36.57	1.34	46.63	1.71	53.57	1.97	53.57	1.97
9.2	36.60	1.35	46.69	1.72	54.14	1.99	54.14	1.99
9.3	36.63	1.35	46.75	1.72	54.70	2.01	54.70	2.01
9.4	36.65	1.35	46.81	1.72	55.27	2.03	55.27	2.03
9.5	36.68	1.35	46.87	1.72	55.83	2.05	55.83	2.05
9.6	36.70	1.35	46.92	1.73	56.39	2.07	56.39	2.07
9.7	36.72	1.35	46.98	1.73	56.96	2.09	56.96	2.09
9.8	36.74	1.35	47.03	1.73	57.52	2.11	57.52	2.11
9.9	36.76	1.35	47.07	1.73	58.09	2.14	58.09	2.14
10.0	36.78	1.35	47.12	1.73	58.41	2.15	58.65	2.16
Trench width,m	0.7		0.8		0.9		1.0	

Narrow trench load

Wide trench load