

**TABLE 7 DESIGN LOAD CALCULATION FOR DN 300mmES**

DATA: Crushing strength = 72 kN/m; Unit weight of backfill = 19.6 kN/m<sup>3</sup>; Ext. dia. = 374mm  
 Ku' = 0.13; Ku = 0.19; r<sub>sd</sub>p = 0.7; Traffic load = 112.5 kN; 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	51.63	0.90	51.63	0.90	51.63	0.90	51.63	0.90
0.7	46.43	0.81	46.43	0.81	46.43	0.81	46.43	0.81
0.8	43.11	0.75	43.11	0.75	43.11	0.75	43.11	0.75
0.9	33.24	0.58	33.24	0.58	33.24	0.58	33.24	0.58
1.0	39.08	0.68	39.08	0.68	39.08	0.68	39.08	0.68
1.1	37.97	0.66	37.97	0.66	37.97	0.66	37.97	0.66
1.2	37.23	0.65	37.23	0.65	37.23	0.65	37.23	0.65
1.3	36.82	0.64	36.82	0.64	36.82	0.64	36.82	0.64
1.4	36.64	0.64	36.64	0.64	36.64	0.64	36.64	0.64
1.5	36.61	0.64	36.61	0.64	36.61	0.64	36.61	0.64
1.6	36.73	0.64	36.73	0.64	36.73	0.64	36.73	0.64
1.7	36.96	0.64	36.96	0.64	36.96	0.64	36.96	0.64
1.8	37.30	0.65	37.30	0.65	37.30	0.65	37.30	0.65
1.9	37.68	0.65	37.68	0.65	37.68	0.65	37.68	0.65
2.0	38.14	0.66	38.14	0.66	38.14	0.66	38.14	0.66
2.1	38.67	0.67	38.67	0.67	38.67	0.67	38.67	0.67
2.2	39.20	0.68	39.20	0.68	39.20	0.68	39.20	0.68
2.3	39.80	0.69	39.80	0.69	39.80	0.69	39.80	0.69
2.4	40.40	0.70	40.40	0.70	40.40	0.70	40.40	0.70
2.5	41.07	0.71	41.07	0.71	41.07	0.71	41.07	0.71
2.6	41.73	0.72	41.73	0.72	41.73	0.72	41.73	0.72
2.7	42.44	0.74	42.44	0.74	42.44	0.74	42.44	0.74
2.8	43.16	0.75	43.16	0.75	43.16	0.75	43.16	0.75
2.9	43.93	0.76	43.93	0.76	43.93	0.76	43.93	0.76
3.0	44.71	0.78	44.71	0.78	44.71	0.78	44.71	0.78
3.1	45.50	0.79	45.50	0.79	45.50	0.79	45.50	0.79
3.2	46.07	0.80	46.29	0.80	46.29	0.80	46.29	0.80
3.3	46.43	0.81	47.12	0.82	47.12	0.82	47.12	0.82
3.4	46.76	0.81	47.95	0.83	47.95	0.83	47.95	0.83
3.5	47.11	0.82	48.81	0.85	48.81	0.85	48.81	0.85
3.6	47.45	0.82	49.68	0.86	49.68	0.86	49.68	0.86
3.7	47.78	0.83	50.56	0.88	50.56	0.88	50.56	0.88
3.8	48.10	0.83	51.45	0.89	51.45	0.89	51.45	0.89
3.9	48.43	0.84	52.37	0.91	52.37	0.91	52.37	0.91
4.0	48.75	0.85	53.29	0.93	53.29	0.93	53.29	0.93
4.1	49.13	0.85	54.29	0.94	54.29	0.94	54.29	0.94
4.2	49.50	0.86	55.30	0.96	55.30	0.96	55.30	0.96
4.3	49.87	0.87	56.31	0.98	56.31	0.98	56.31	0.98
4.4	50.22	0.87	57.33	1.00	57.33	1.00	57.33	1.00
4.5	50.25	0.87	57.82	1.00	58.04	1.01	58.04	1.01
4.6	50.60	0.88	58.30	1.01	59.08	1.03	59.08	1.03
4.7	50.94	0.88	58.76	1.02	60.12	1.04	60.12	1.04
4.8	51.27	0.89	59.21	1.03	61.17	1.06	61.17	1.06
4.9	51.60	0.90	59.66	1.04	62.22	1.08	62.22	1.08
5.0	51.63	0.90	59.81	1.04	63.00	1.09	63.00	1.09
5.1	51.95	0.90	60.24	1.05	64.07	1.11	64.07	1.11
Trench width,m	0.9		1.0		1.1		1.2	

Narrow trench load

Wide trench load

**DESIGN LOAD CALCULATION FOR DN 300mmES**

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	52.25	0.91	60.66	1.05	65.14	1.13	65.14	1.13
5.3	52.55	0.91	61.08	1.06	66.22	1.15	66.22	1.15
5.4	52.83	0.92	61.47	1.07	67.30	1.17	67.30	1.17
5.5	52.86	0.92	61.61	1.07	68.12	1.18	68.12	1.18
5.6	53.14	0.92	62.00	1.08	69.21	1.20	69.21	1.20
5.7	53.41	0.93	62.37	1.08	70.30	1.22	70.30	1.22
5.8	53.67	0.93	62.74	1.09	71.40	1.24	71.40	1.24
5.9	53.93	0.94	63.10	1.10	72.50	1.26	72.50	1.26
6.0	53.98	0.94	63.25	1.10	72.84	1.26	73.40	1.27
6.1	54.20	0.94	63.57	1.10	73.26	1.27	74.47	1.29
6.2	54.40	0.94	63.87	1.11	73.67	1.28	75.54	1.31
6.3	54.60	0.95	64.16	1.11	74.07	1.29	76.61	1.33
6.4	54.79	0.95	64.44	1.12	74.46	1.29	77.68	1.35
6.5	54.97	0.95	64.72	1.12	74.83	1.30	78.76	1.37
6.6	55.15	0.96	65.00	1.13	75.21	1.31	79.84	1.39
6.7	55.33	0.96	65.27	1.13	75.58	1.31	80.93	1.41
6.8	55.51	0.96	65.53	1.14	75.94	1.32	82.02	1.42
6.9	55.67	0.97	65.78	1.14	76.29	1.32	83.11	1.44
7.0	55.83	0.97	66.02	1.15	76.63	1.33	84.19	1.46
7.1	56.00	0.97	66.27	1.15	76.97	1.34	85.29	1.48
7.2	56.17	0.98	66.52	1.15	77.32	1.34	86.41	1.50
7.3	56.32	0.98	66.76	1.16	77.64	1.35	87.51	1.52
7.4	56.48	0.98	66.99	1.16	77.96	1.35	88.62	1.54
7.5	56.62	0.98	67.21	1.17	78.28	1.36	89.72	1.56
7.6	56.76	0.99	67.43	1.17	78.57	1.36	90.13	1.56
7.7	56.89	0.99	67.63	1.17	78.87	1.37	90.52	1.57
7.8	57.02	0.99	67.84	1.18	79.15	1.37	90.89	1.58
7.9	57.14	0.99	68.03	1.18	79.43	1.38	91.26	1.58
8.0	57.26	0.99	68.22	1.18	79.70	1.38	91.62	1.59
8.1	57.39	1.00	68.42	1.19	79.98	1.39	91.99	1.60
8.2	57.51	1.00	68.61	1.19	80.25	1.39	92.35	1.60
8.3	57.63	1.00	68.79	1.19	80.51	1.40	92.70	1.61
8.4	57.75	1.00	68.98	1.20	80.77	1.40	93.04	1.62
8.5	57.86	1.00	69.15	1.20	81.02	1.41	93.38	1.62
8.6	57.96	1.01	69.32	1.20	81.26	1.41	93.70	1.63
8.7	58.06	1.01	69.48	1.21	81.50	1.41	94.02	1.63
8.8	58.16	1.01	69.64	1.21	81.72	1.42	94.33	1.64
8.9	58.26	1.01	69.79	1.21	81.95	1.42	94.63	1.64
9.0	58.34	1.01	69.94	1.21	82.16	1.43	94.93	1.65
9.1	58.44	1.01	70.09	1.22	82.38	1.43	95.22	1.65
9.2	58.53	1.02	70.25	1.22	82.60	1.43	95.52	1.66
9.3	58.62	1.02	70.39	1.22	82.81	1.44	95.80	1.66
9.4	58.71	1.02	70.53	1.22	83.02	1.44	96.08	1.67
9.5	58.79	1.02	70.67	1.23	83.21	1.44	96.35	1.67
9.6	58.87	1.02	70.80	1.23	83.41	1.45	96.62	1.68
9.7	58.95	1.02	70.92	1.23	83.60	1.45	96.88	1.68
9.8	59.02	1.02	71.05	1.23	83.78	1.45	97.13	1.69
9.9	59.09	1.03	71.17	1.24	83.96	1.46	97.38	1.69
10.0	59.16	1.03	71.28	1.24	84.13	1.46	97.61	1.69
<b>Trench width,m</b>	<b>0.9</b>		<b>1.0</b>		<b>1.1</b>		<b>1.2</b>	

Narrow trench load

Wide trench load