



## 8 THEORETICAL CALCULATIONS OF PERFORMANCE OF VARIOUS EARTHING SYSTEMS IN DIFFERENT SOIL RESISTIVITY

Resistivity $\Omega$	Expected Earth Resistance $\Omega$			
	Marconite Embedded	Driven Rod	Pipe	Plate
	D.1, L <sub>3</sub> m	D.016,L3 m	D.04,L3 m	.6 X .6 m
1	0.24	0.33	0.29	0.52
2	0.48	0.67	0.57	1.04
3	0.71	1.00	0.86	1.57
4	0.95	1.34	1.14	2.09
5	1.19	1.67	1.43	2.61
6	1.43	2.01	1.72	3.13
8	1.90	2.68	2.29	4.18
10	2.38	3.35	2.86	5.22
12	2.85	4.02	3.43	6.27
14	3.33	4.69	4.01	7.31
16	3.80	5.36	4.58	8.36
18	4.28	6.03	5.15	9.40
20	4.75	6.70	5.72	10.45
22	5.23	7.37	6.30	11.49
24	5.70	8.04	6.87	12.54
26	6.18	8.70	7.44	13.58
28	6.65	9.37	8.01	14.62
30	7.13	10.04	8.59	15.67
32	7.60	10.71	9.16	16.71
34	8.08	11.38	9.73	17.76
36	8.55	12.05	10.30	18.80
38	9.03	12.72	10.88	19.85
40	9.50	13.39	11.45	20.89
42	9.98	14.06	12.02	21.94
44	10.45	14.73	12.59	22.98
46	10.93	15.40	13.17	24.03
48	11.41	16.07	13.74	25.07
50	11.88	16.74	14.31	26.12
52	12.36	17.41	14.88	27.16
54	12.83	18.08	15.45	28.21
56	13.31	18.75	16.03	29.25
58	13.78	19.42	16.60	30.29
60	14.26	20.09	17.17	31.34
62	14.73	20.76	17.74	32.38
64	15.21	21.43	18.32	33.43
66	15.68	22.10	18.89	34.47
68	16.16	22.77	19.46	35.52
70	16.63	23.44	20.03	36.56
72	17.11	24.11	20.61	37.61
74	17.58	24.77	21.18	38.65
76	18.06	25.44	21.75	39.70
78	18.53	26.11	22.32	40.74
80	19.01	26.78	22.90	41.79
82	19.48	27.45	23.47	42.83
84	19.96	28.12	24.04	43.87
86	20.43	28.79	24.61	44.92
88	20.91	29.46	25.19	45.96
90	21.38	30.13	25.76	47.01
92	21.86	30.80	26.33	48.05
94	22.34	31.47	26.90	49.10
96	22.81	32.14	27.48	50.14
98	23.29	32.81	28.05	51.19
100	23.76	33.48	28.62	52.23
105	24.95	35.15	30.05	54.84

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	Marconite Embedded	Driven Rod	Pipe	Plate
	D.1, L <sub>3</sub> m	D.016,L3 m	D.04,L3 m	.6 X .6 m
110	26.14	36.83	31.48	57.46
115	27.33	38.50	32.91	60.07
120	28.51	40.18	34.34	62.68
125	29.70	41.85	35.78	65.29
130	30.89	43.52	37.21	67.90
135	32.08	45.20	38.64	70.51
140	33.27	46.87	40.07	73.12
145	34.45	48.54	41.50	75.74
150	35.64	50.22	42.93	78.35
155	36.83	51.89	44.36	80.96
160	38.02	53.57	45.79	83.57
165	39.21	55.24	47.22	86.18
170	40.39	56.91	48.65	88.79
180	42.77	60.26	51.52	94.02
185	43.96	61.94	52.95	96.63
190	45.15	63.61	54.38	99.24
195	46.33	65.28	55.81	101.9
200	47.52	66.96	57.24	104.5
210	49.90	70.31	60.10	109.7
220	52.27	73.65	62.96	114.9
230	54.65	77.00	65.83	120.1
240	57.03	80.35	68.69	125.4
250	59.40	83.70	71.55	130.6
260	61.78	87.05	74.41	135.8
270	64.15	90.39	77.27	141.0
280	66.53	93.74	80.14	146.2
290	68.91	97.09	83.00	151.5
300	71.28	100.4	85.86	156.7
325	77.22	108.8	93.02	169.8
350	83.16	117.2	100.2	182.8
375	89.10	125.5	107.3	195.9
400	95.04	133.9	114.5	208.9
175	41.58	58.59	50.09	91.41
425	100.98	142.3	121.6	222.0
450	106.92	150.7	128.8	235.0
475	112.86	159.0	135.9	248.1
500	118.80	167.4	143.1	261.2
550	130.69	184.1	157.4	287.3
600	142.57	200.9	171.7	313.4
650	154.45	217.6	186.0	339.5
700	166.33	234.4	200.3	365.6
750	178.21	251.1	214.7	391.7
800	190.09	267.8	229.0	417.9
850	201.97	284.6	243.3	444.0
900	213.85	301.3	257.6	470.1
950	225.73	318.1	271.9	496.2
1000	237.61	334.8	286.2	522.3
1050	249.49	351.5	300.5	548.4
1100	261.37	368.3	314.8	574.6
1150	273.25	385.0	329.1	600.7
1200	285.13	401.8	343.4	626.8
1250	297.01	418.5	357.8	652.9
1500				
2000				