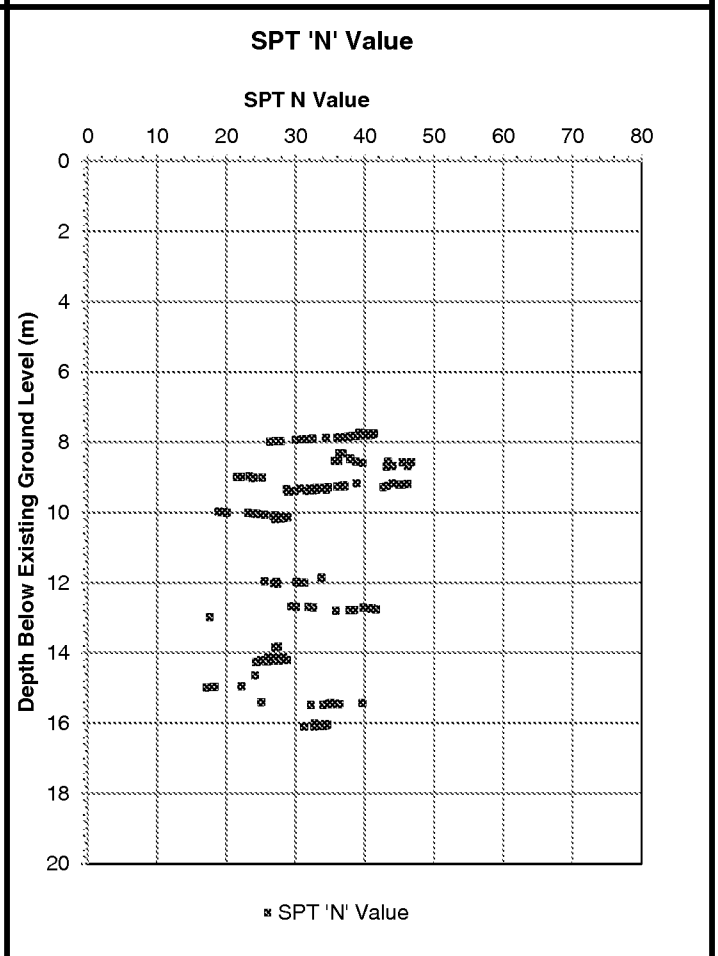
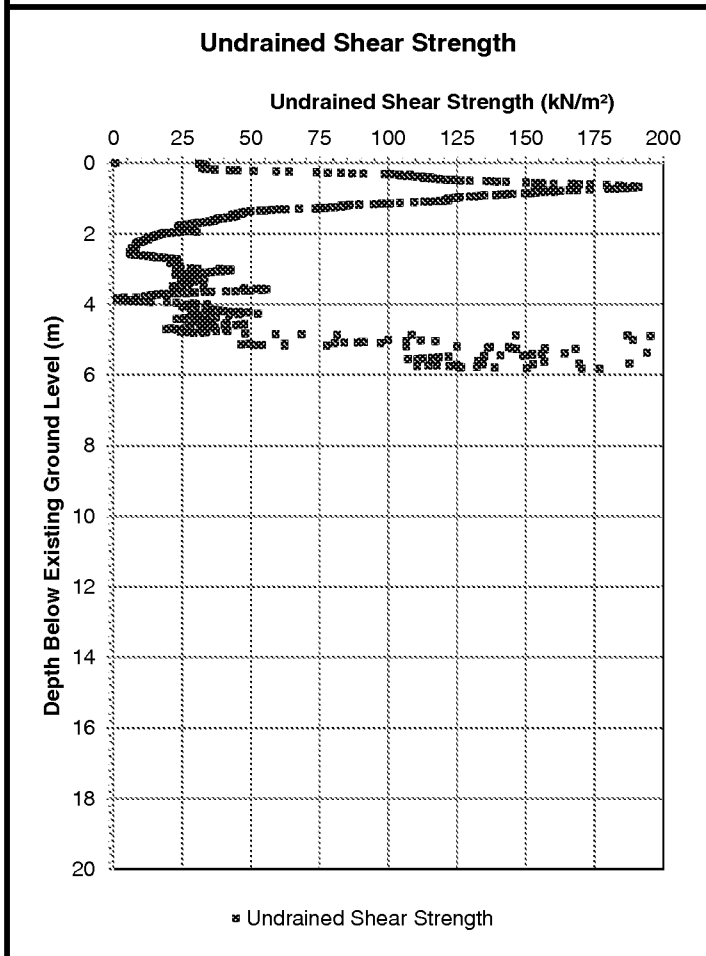
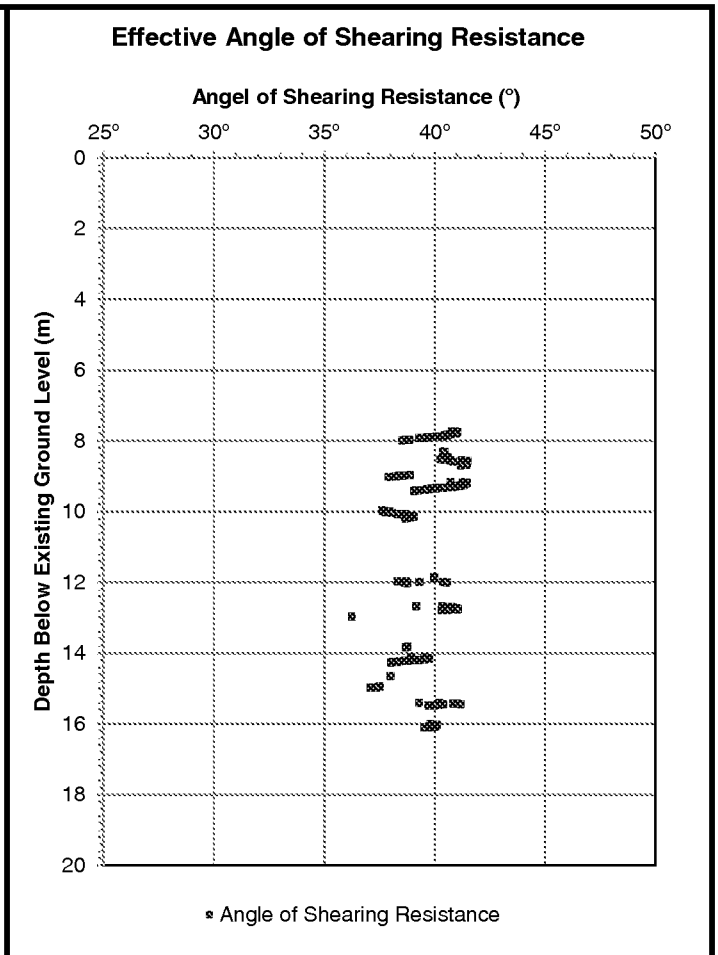
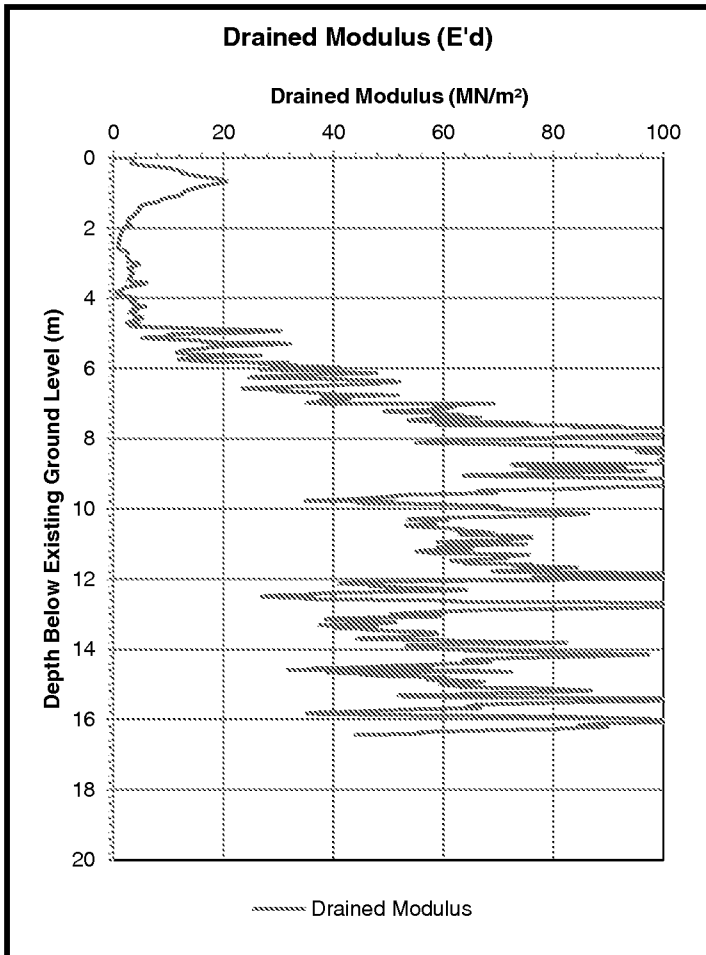
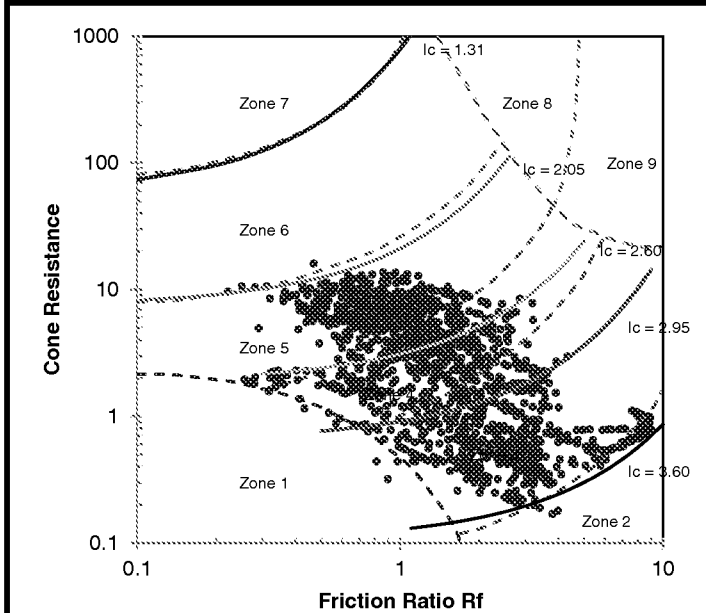
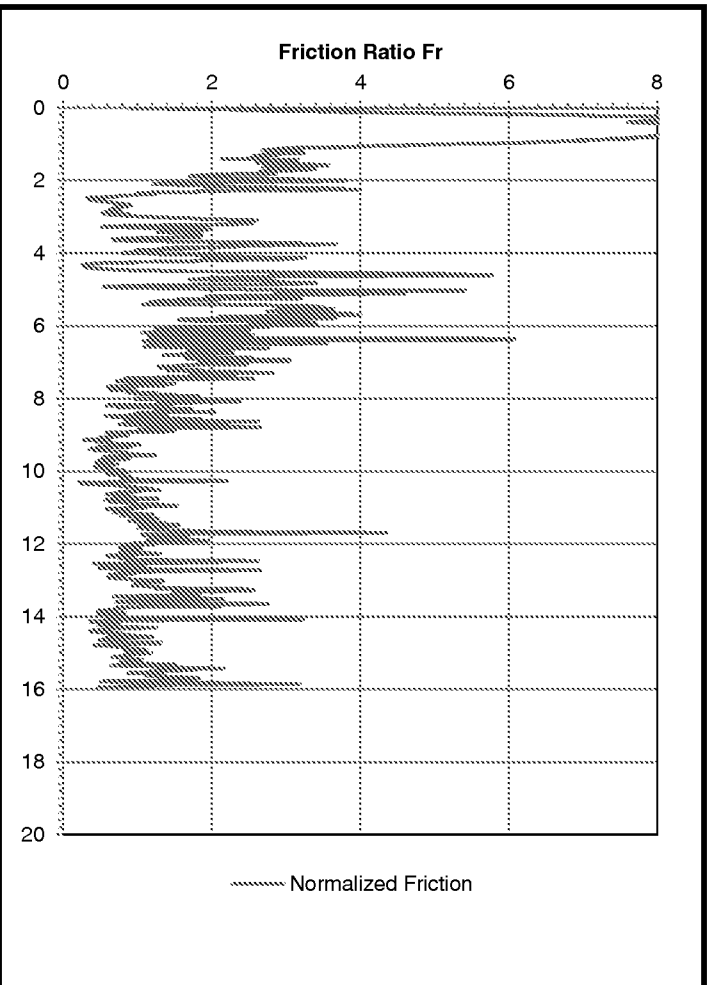
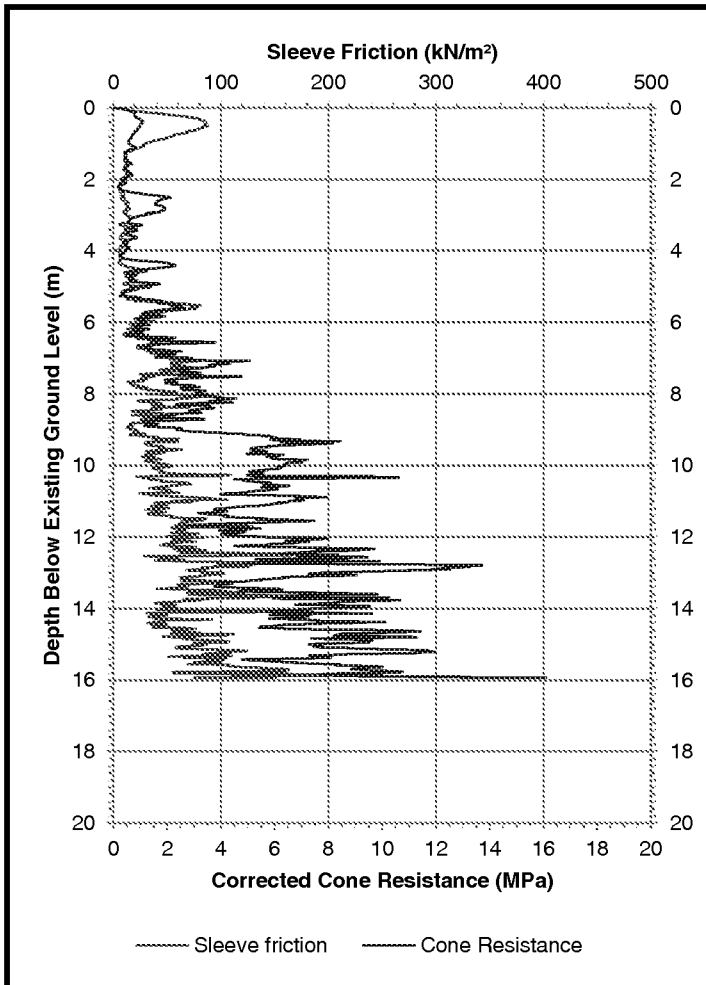




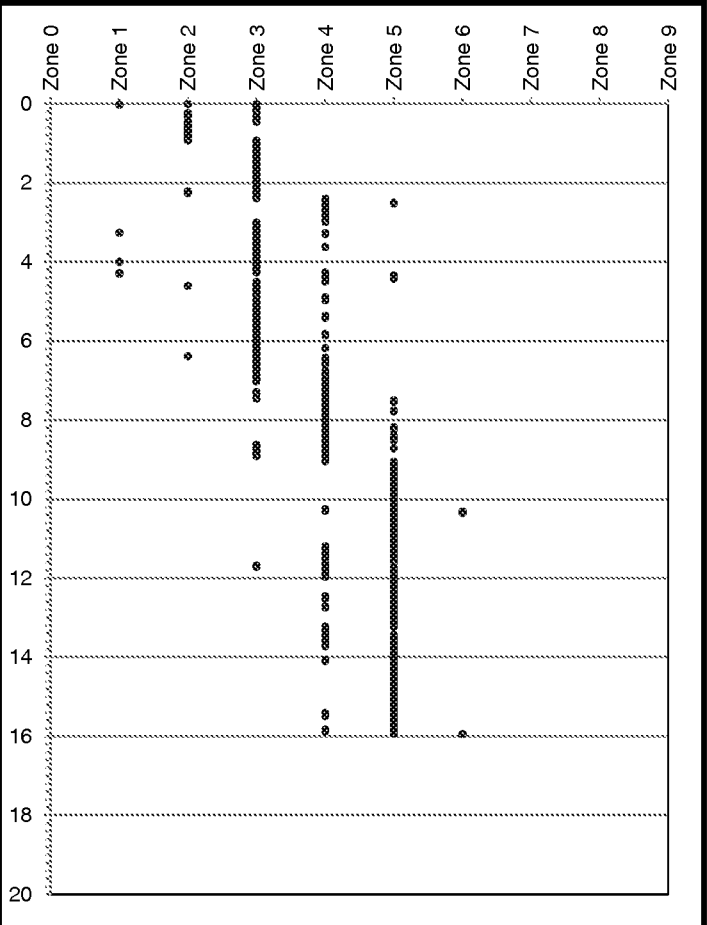


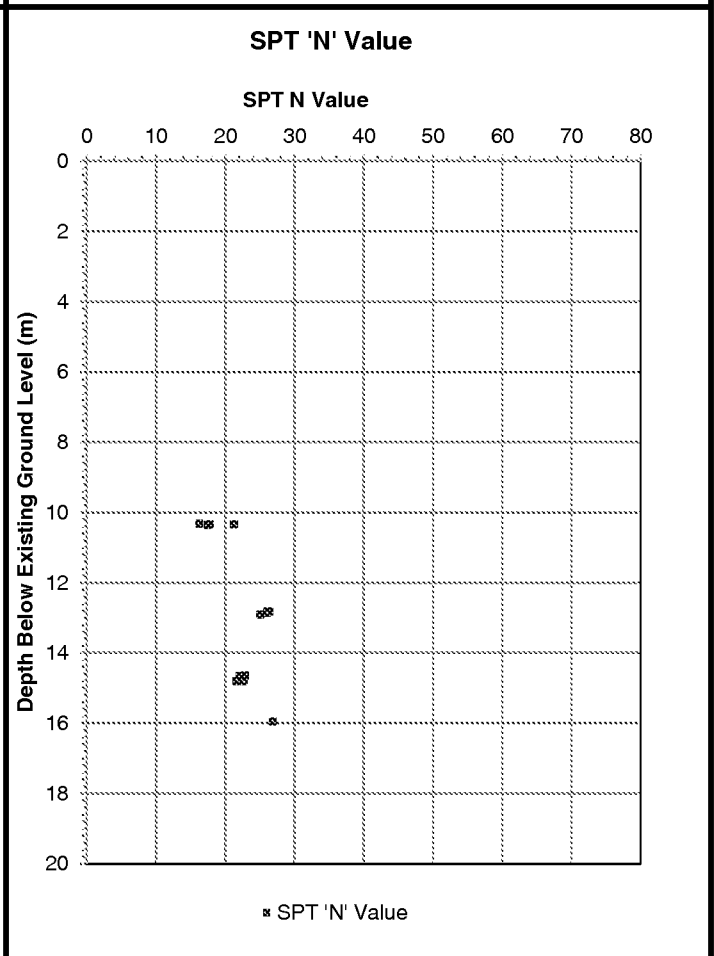
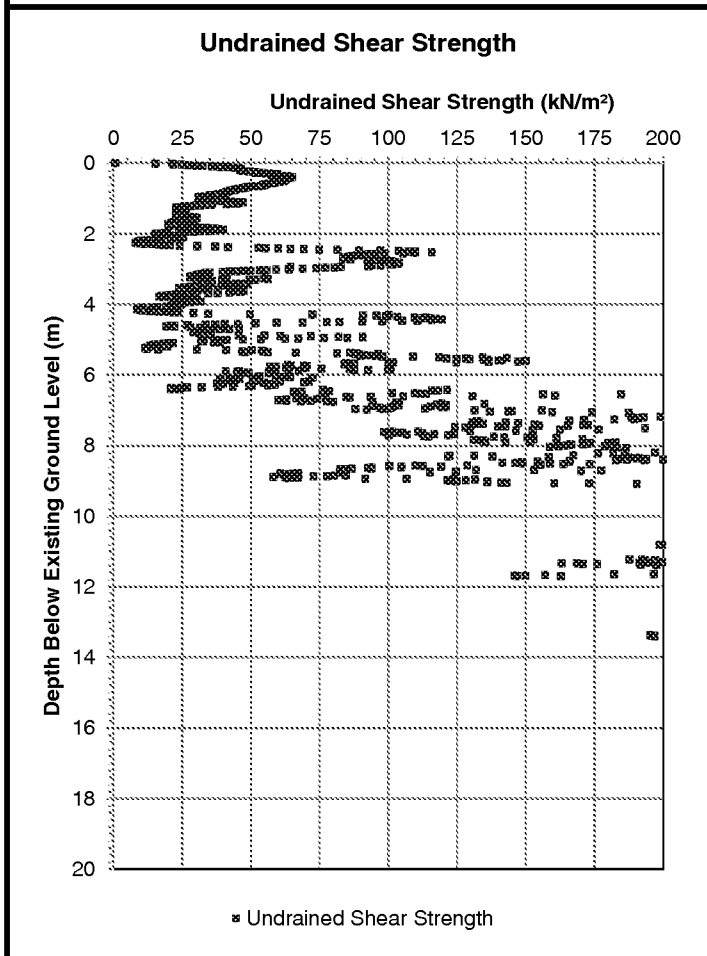
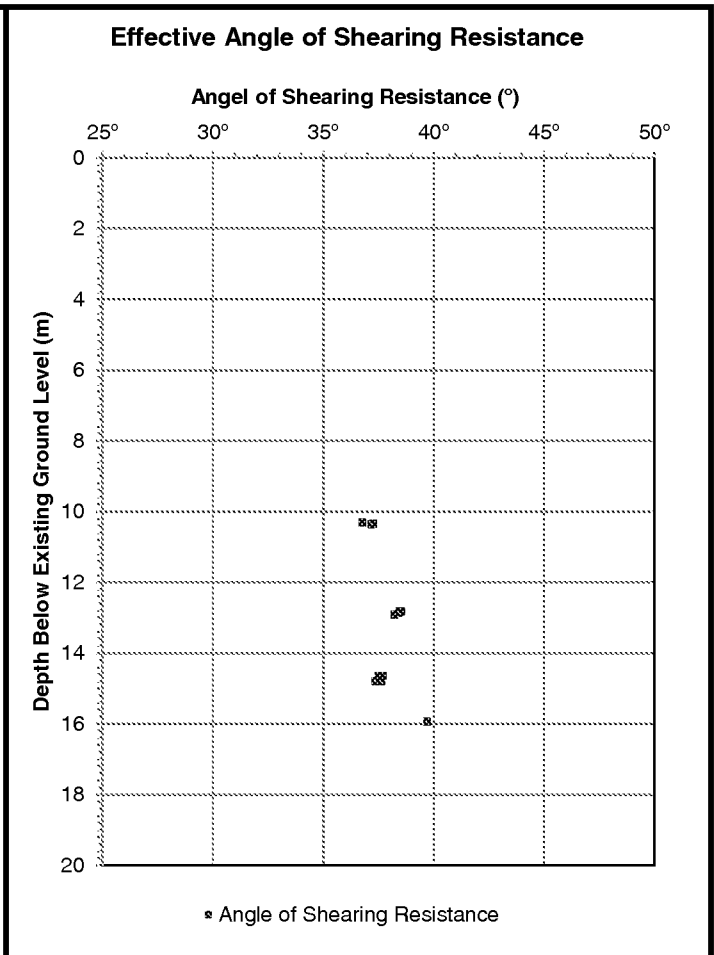
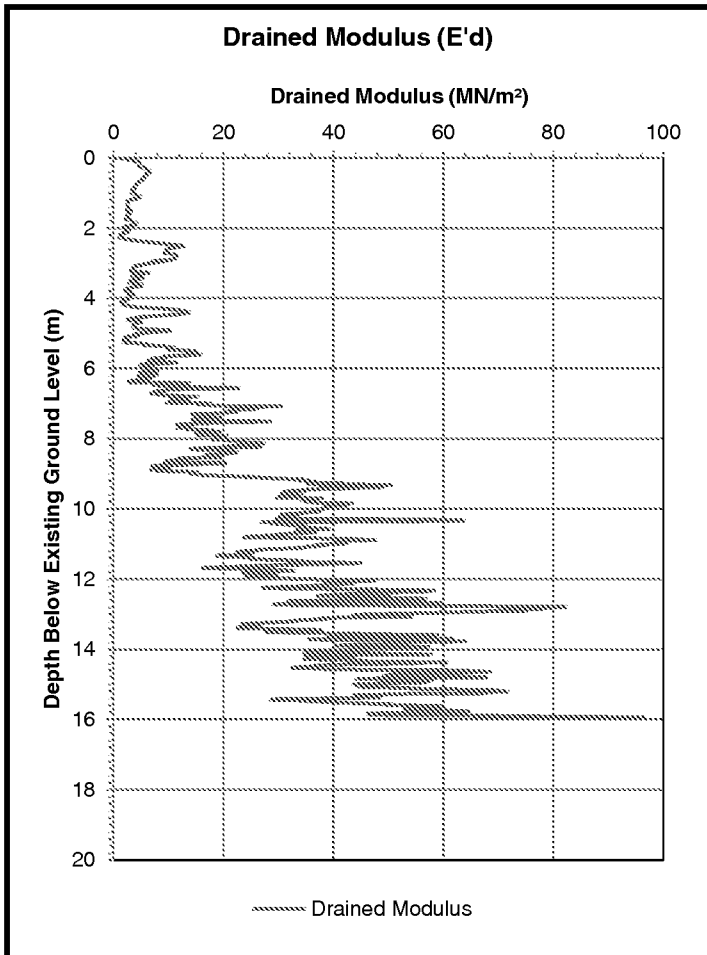
CPT Number			CPT 08		
Existing Ground Level			0.88m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	0.88m OD	10	1961 kN/m ²	3030 kN/m ²	0.25
2	0.63m OD	10	3030 kN/m ²	2574 kN/m ²	0.25
3	0.38m OD	10	2574 kN/m ²	1865 kN/m ²	0.25
4	0.13m OD	10	1865 kN/m ²	1946 kN/m ²	0.25
5	-0.12m OD	10	1946 kN/m ²	1285 kN/m ²	0.25
6	-0.37m OD	10	1285 kN/m ²	1344 kN/m ²	0.25
7	-0.62m OD	10	1344 kN/m ²	1619 kN/m ²	0.25
8	-0.87m OD	10	1619 kN/m ²	966 kN/m ²	0.25
9	-1.12m OD	10	966 kN/m ²	2694 kN/m ²	0.25
10	-1.37m OD	10	2694 kN/m ²	5165 kN/m ²	0.25
11	-1.62m OD	10	5165 kN/m ²	5125 kN/m ²	0.25
12	-1.87m OD	10	5125 kN/m ²	2063 kN/m ²	0.25
13	-2.12m OD	10	2063 kN/m ²	2336 kN/m ²	0.25
14	-2.37m OD	10	2336 kN/m ²	1901 kN/m ²	0.25
15	-2.62m OD	10	1901 kN/m ²	1425 kN/m ²	0.25
16	-2.87m OD	10	1425 kN/m ²	1041 kN/m ²	0.25
17	-3.12m OD	10	1041 kN/m ²	5540 kN/m ²	0.25
18	-3.37m OD	10	5540 kN/m ²	2101 kN/m ²	0.25
19	-3.62m OD	10	2101 kN/m ²	2975 kN/m ²	0.25
20	-3.87m OD	10	2975 kN/m ²	1415 kN/m ²	0.25
21	-4.12m OD	10	1415 kN/m ²	3951 kN/m ²	0.25
22	-4.37m OD	10	3951 kN/m ²	5950 kN/m ²	0.25
23	-4.62m OD	10	5950 kN/m ²	3674 kN/m ²	0.25
24	-4.87m OD	10	3674 kN/m ²	3025 kN/m ²	0.25
25	-5.12m OD	10	3025 kN/m ²	3316 kN/m ²	0.25
26	-5.37m OD	10	3316 kN/m ²	5789 kN/m ²	0.25
27	-5.62m OD	10	5789 kN/m ²	6053 kN/m ²	0.25
28	-5.87m OD	10	6053 kN/m ²	11115 kN/m ²	0.25
29	-6.12m OD	10	11115 kN/m ²	8258 kN/m ²	0.25
30	-6.37m OD	10	8258 kN/m ²	7719 kN/m ²	0.25
31	-6.62m OD	10	7719 kN/m ²	8899 kN/m ²	0.25
32	-6.87m OD	10	8899 kN/m ²	11386 kN/m ²	0.25
33	-7.12m OD	10	11386 kN/m ²	9456 kN/m ²	0.25
34	-7.37m OD	10	9456 kN/m ²	7206 kN/m ²	0.25
35	-7.62m OD	10	7206 kN/m ²	4885 kN/m ²	0.25
36	-7.87m OD	10	4885 kN/m ²	13583 kN/m ²	0.25
37	-8.12m OD	10	13583 kN/m ²	19993 kN/m ²	0.25
38	-8.37m OD	10	19993 kN/m ²	16369 kN/m ²	0.25
39	-8.62m OD	10	16369 kN/m ²	19330 kN/m ²	0.25
40	-8.87m OD	10	19330 kN/m ²	17204 kN/m ²	0.25
41	-9.12m OD	10	17204 kN/m ²	19383 kN/m ²	0.25
42	-9.37m OD	10	19383 kN/m ²	17339 kN/m ²	0.25
43	-9.62m OD	10	17339 kN/m ²	18469 kN/m ²	0.25
44	-9.87m OD	10	18469 kN/m ²	15639 kN/m ²	0.25
45	-10.12m OD	10	15639 kN/m ²	12475 kN/m ²	0.25
46	-10.37m OD	10	12475 kN/m ²	14698 kN/m ²	0.25
47	-10.62m OD	10	14698 kN/m ²	13706 kN/m ²	0.25
48	-10.87m OD	10	13706 kN/m ²	19819 kN/m ²	0.25
49	-11.12m OD	10	19819 kN/m ²	22384 kN/m ²	0.25
50	-11.37m OD	10	22384 kN/m ²	21510 kN/m ²	0.25
51	-11.62m OD	10	21510 kN/m ²	34764 kN/m ²	0.25
52	-11.87m OD	10	34764 kN/m ²	19896 kN/m ²	0.25
53	-12.12m OD	10	19896 kN/m ²	13703 kN/m ²	0.25
54	-12.37m OD	10	13703 kN/m ²	21975 kN/m ²	0.25
55	-12.62m OD	10	21975 kN/m ²	25826 kN/m ²	0.25
56	-12.87m OD	10	25826 kN/m ²	20950 kN/m ²	0.25
57	-13.12m OD	10	20950 kN/m ²	22104 kN/m ²	0.25
58	-13.37m OD	10	22104 kN/m ²	25384 kN/m ²	0.25
59	-13.62m OD	10	25384 kN/m ²	27849 kN/m ²	0.25
60	-13.87m OD	10	27849 kN/m ²	28570 kN/m ²	0.25
61	-14.12m OD	10	28570 kN/m ²	21334 kN/m ²	0.25
62	-14.37m OD	10	21334 kN/m ²	26238 kN/m ²	0.25
63	-14.62m OD	10	26238 kN/m ²	47500 kN/m ²	0.25
64	-14.87m OD	10	47500 kN/m ²		



Robertson et al 1986, updated by Robertson 2010.

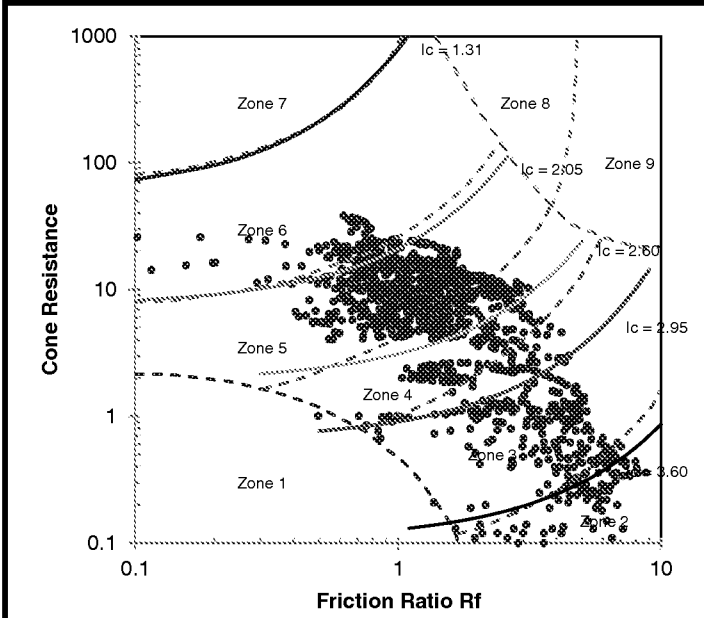
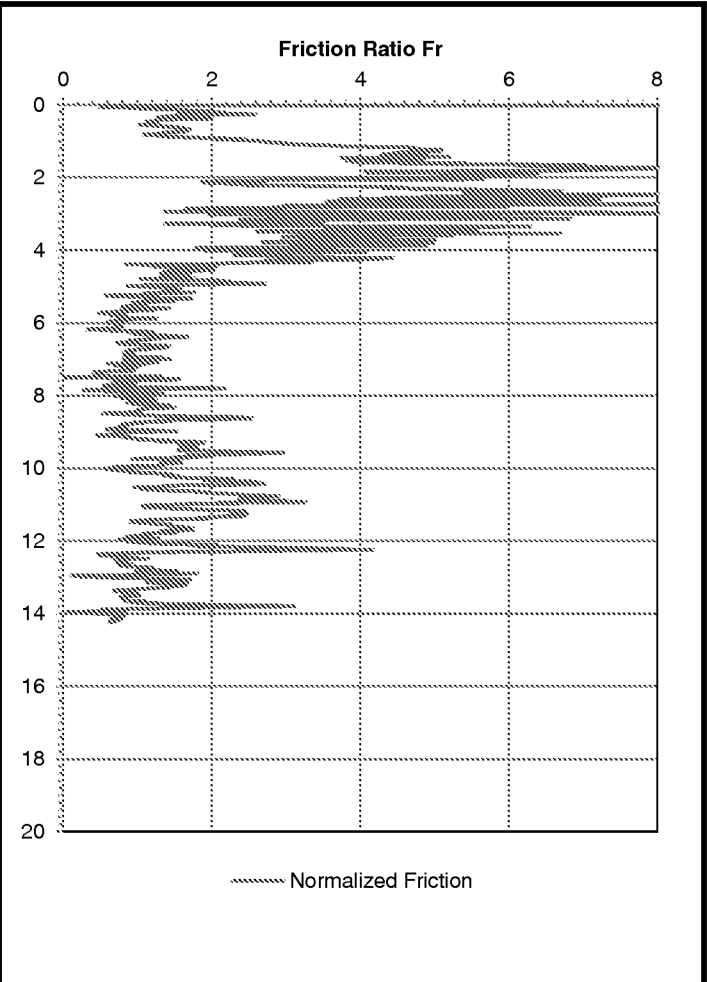
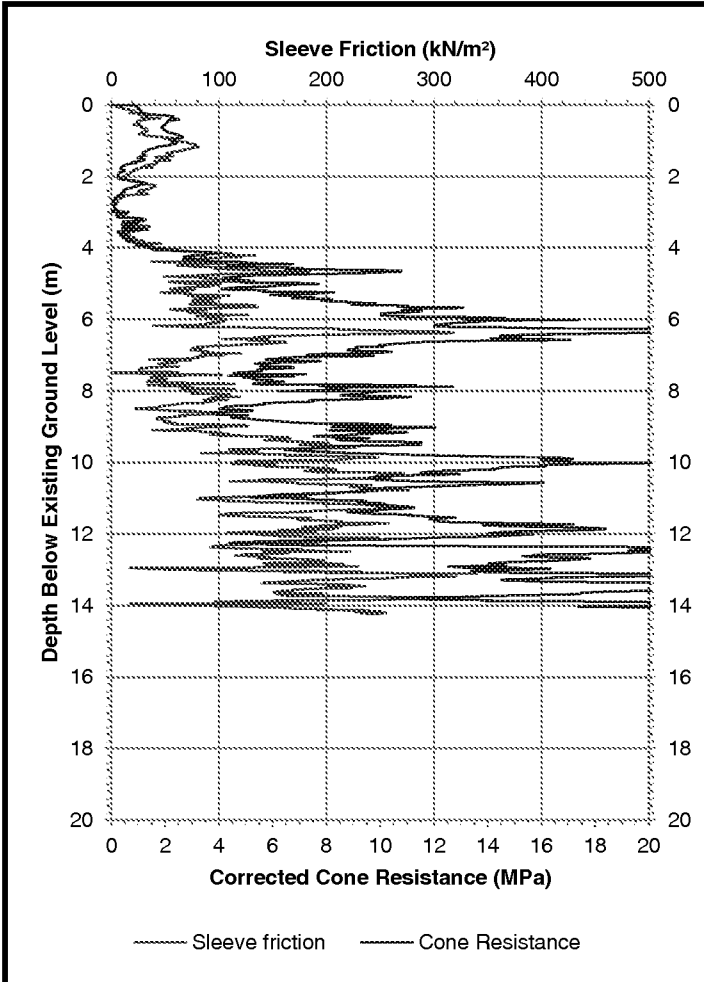
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





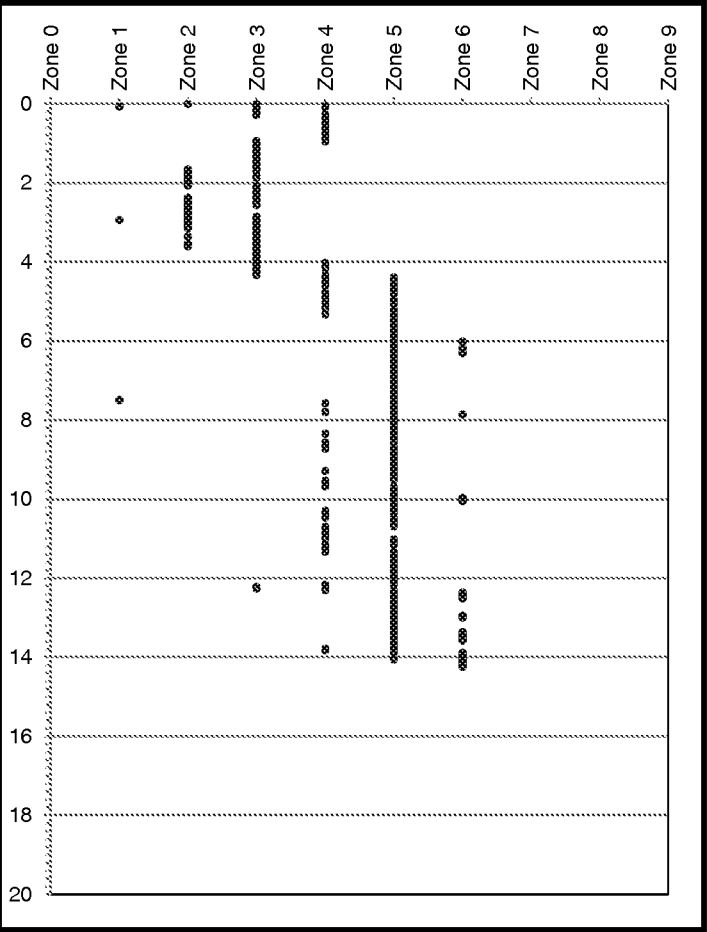


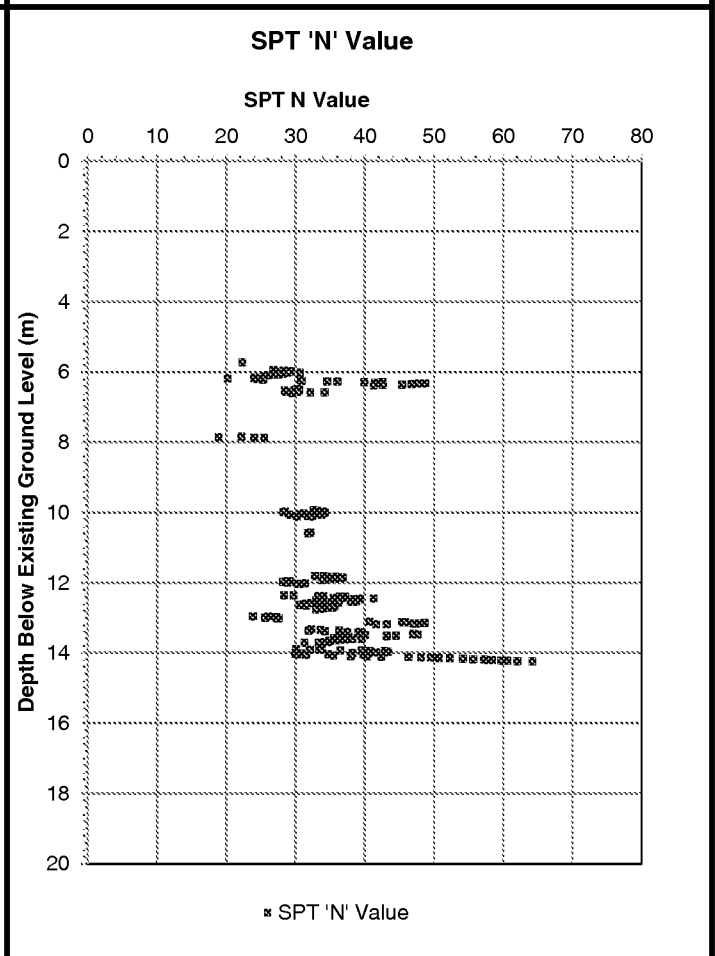
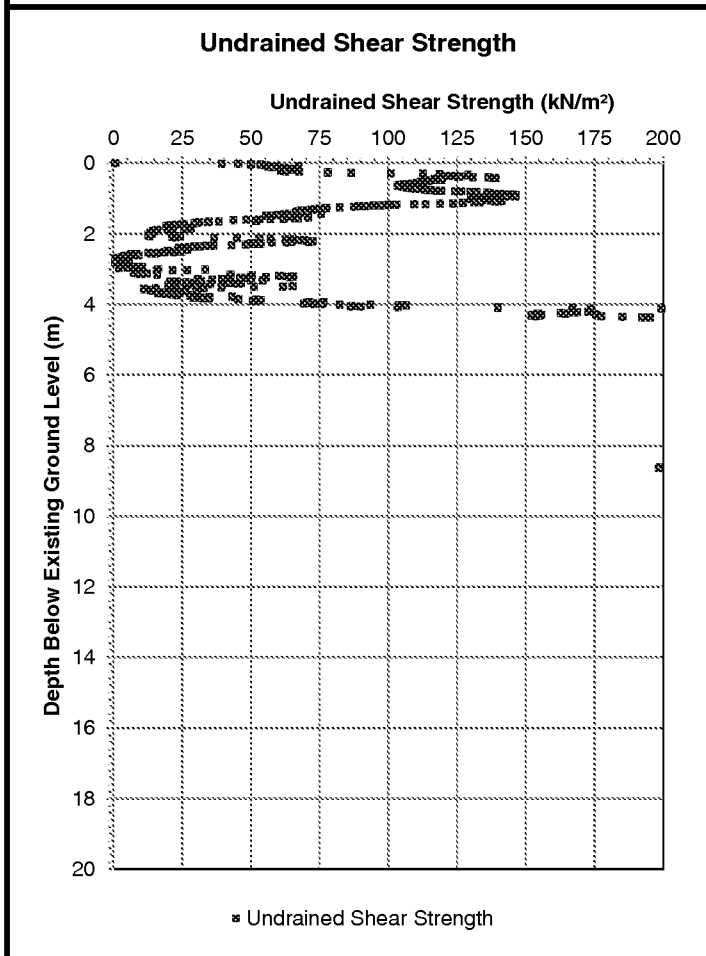
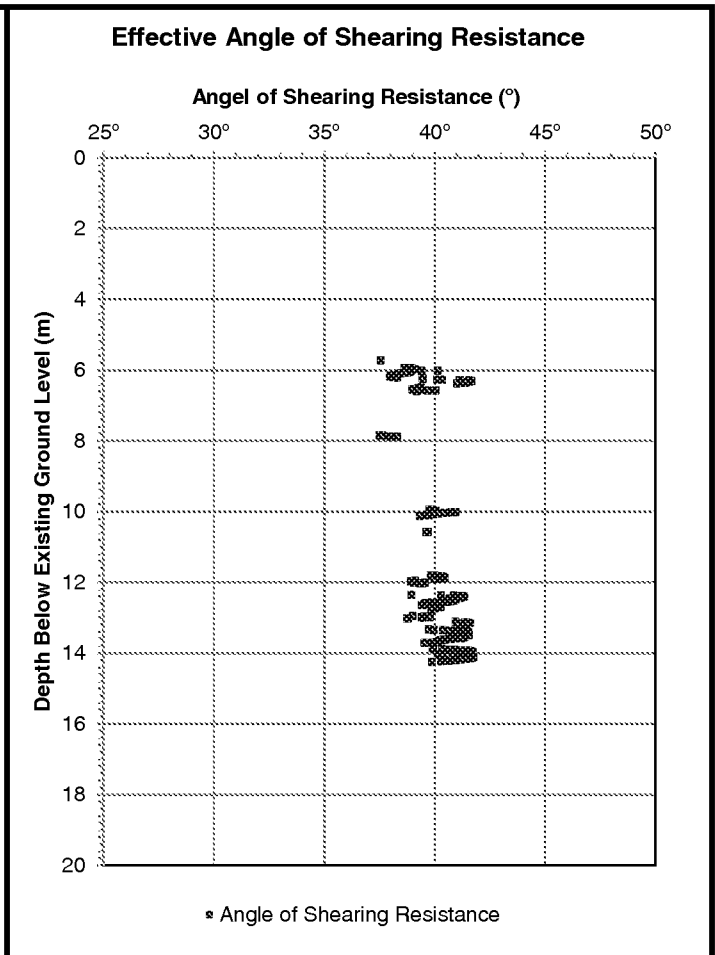
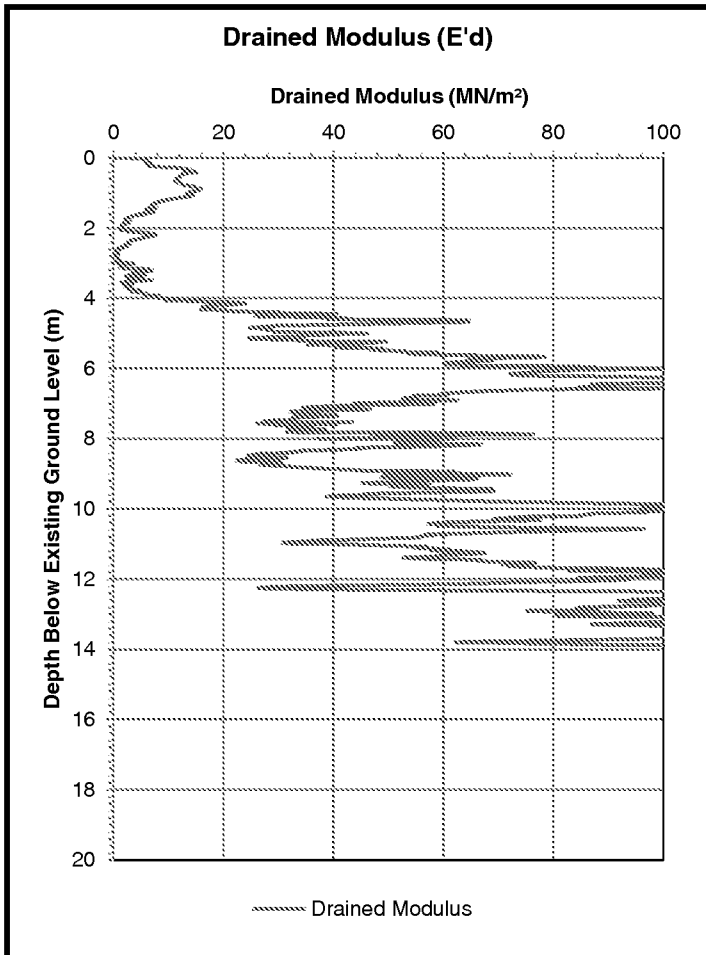
CPT Number			CPT 09		
Existing Ground Level			2.57m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	2.57m OD	10	3014 kN/m ²	6401 kN/m ²	0.25
2	2.32m OD	10	6401 kN/m ²	5878 kN/m ²	0.25
3	2.07m OD	10	5878 kN/m ²	7266 kN/m ²	0.25
4	1.82m OD	10	7266 kN/m ²	6080 kN/m ²	0.25
5	1.57m OD	10	6080 kN/m ²	3543 kN/m ²	0.25
6	1.32m OD	10	3543 kN/m ²	2411 kN/m ²	0.25
7	1.07m OD	10	2411 kN/m ²	1009 kN/m ²	0.25
8	0.82m OD	10	1009 kN/m ²	2308 kN/m ²	0.25
9	0.57m OD	10	2308 kN/m ²	1785 kN/m ²	0.25
10	0.32m OD	10	1785 kN/m ²	485 kN/m ²	0.25
11	0.07m OD	10	485 kN/m ²	346 kN/m ²	0.25
12	-0.18m OD	10	346 kN/m ²	1691 kN/m ²	0.25
13	-0.43m OD	10	1691 kN/m ²	2079 kN/m ²	0.25
14	-0.68m OD	10	2079 kN/m ²	1281 kN/m ²	0.25
15	-0.93m OD	10	1281 kN/m ²	2840 kN/m ²	0.25
16	-1.18m OD	10	2840 kN/m ²	8533 kN/m ²	0.25
17	-1.43m OD	10	8533 kN/m ²	12111 kN/m ²	0.25
18	-1.68m OD	10	12111 kN/m ²	24000 kN/m ²	0.25
19	-1.93m OD	10	24000 kN/m ²	14923 kN/m ²	0.25
20	-2.18m OD	10	14923 kN/m ²	16924 kN/m ²	0.25
21	-2.43m OD	10	16924 kN/m ²	21838 kN/m ²	0.25
22	-2.68m OD	10	21838 kN/m ²	31699 kN/m ²	0.25
23	-2.93m OD	10	31699 kN/m ²	34531 kN/m ²	0.25
24	-3.18m OD	10	34531 kN/m ²	40146 kN/m ²	0.25
25	-3.43m OD	10	40146 kN/m ²	57448 kN/m ²	0.25
26	-3.68m OD	10	57448 kN/m ²	37704 kN/m ²	0.25
27	-3.93m OD	10	37704 kN/m ²	27426 kN/m ²	0.25
28	-4.18m OD	10	27426 kN/m ²	20728 kN/m ²	0.25
29	-4.43m OD	10	20728 kN/m ²	17305 kN/m ²	0.25
30	-4.68m OD	10	17305 kN/m ²	16718 kN/m ²	0.25
31	-4.93m OD	10	16718 kN/m ²	24626 kN/m ²	0.25
32	-5.18m OD	10	24626 kN/m ²	29036 kN/m ²	0.25
33	-5.43m OD	10	29036 kN/m ²	16990 kN/m ²	0.25
34	-5.68m OD	10	16990 kN/m ²	13358 kN/m ²	0.25
35	-5.93m OD	10	13358 kN/m ²	21515 kN/m ²	0.25
36	-6.18m OD	10	21515 kN/m ²	29531 kN/m ²	0.25
37	-6.43m OD	10	29531 kN/m ²	28458 kN/m ²	0.25
38	-6.68m OD	10	28458 kN/m ²	23931 kN/m ²	0.25
39	-6.93m OD	10	23931 kN/m ²	44301 kN/m ²	0.25
40	-7.18m OD	10	44301 kN/m ²	46641 kN/m ²	0.25
41	-7.43m OD	10	46641 kN/m ²	32563 kN/m ²	0.25
42	-7.68m OD	10	32563 kN/m ²	37694 kN/m ²	0.25
43	-7.93m OD	10	37694 kN/m ²	22011 kN/m ²	0.25
44	-8.18m OD	10	22011 kN/m ²	28070 kN/m ²	0.25
45	-8.43m OD	10	28070 kN/m ²	30520 kN/m ²	0.25
46	-8.68m OD	10	30520 kN/m ²	39159 kN/m ²	0.25
47	-8.93m OD	10	39159 kN/m ²	48316 kN/m ²	0.25
48	-9.18m OD	10	48316 kN/m ²	32039 kN/m ²	0.25
49	-9.43m OD	10	32039 kN/m ²	45629 kN/m ²	0.25
50	-9.68m OD	10	45629 kN/m ²	51533 kN/m ²	0.25
51	-9.93m OD	10	51533 kN/m ²	43510 kN/m ²	0.25
52	-10.18m OD	10	43510 kN/m ²	53731 kN/m ²	0.25
53	-10.43m OD	10	53731 kN/m ²	59370 kN/m ²	0.25
54	-10.68m OD	10	59370 kN/m ²	56128 kN/m ²	0.25
55	-10.93m OD	10	56128 kN/m ²	52294 kN/m ²	0.25
56	-11.18m OD	10	52294 kN/m ²	114258 kN/m ²	0.25
57	-11.43m OD	10	114258 kN/m ²		
58	-11.68m OD	10			
59	-11.93m OD	10			
60	-12.18m OD	10			
61	-12.43m OD	10			
62	-12.68m OD	10			
63	-12.93m OD	10			
64	-13.18m OD	10			



Robertson et al 1986, updated by Robertson 2010.

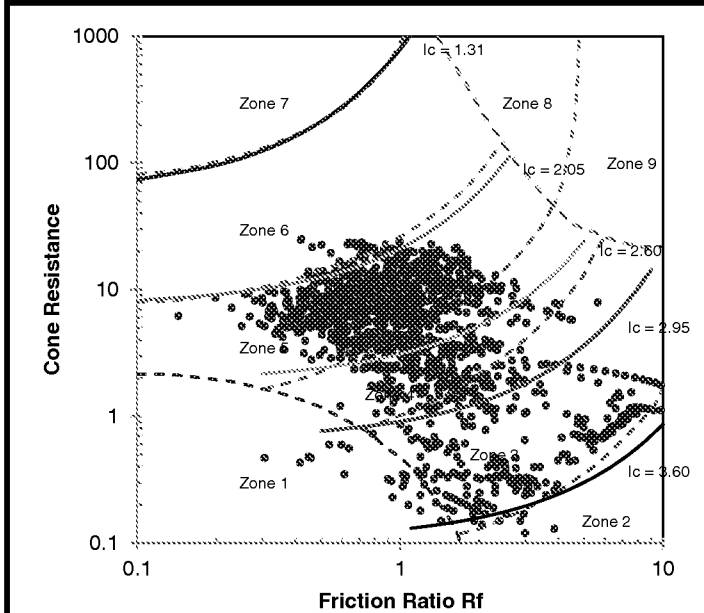
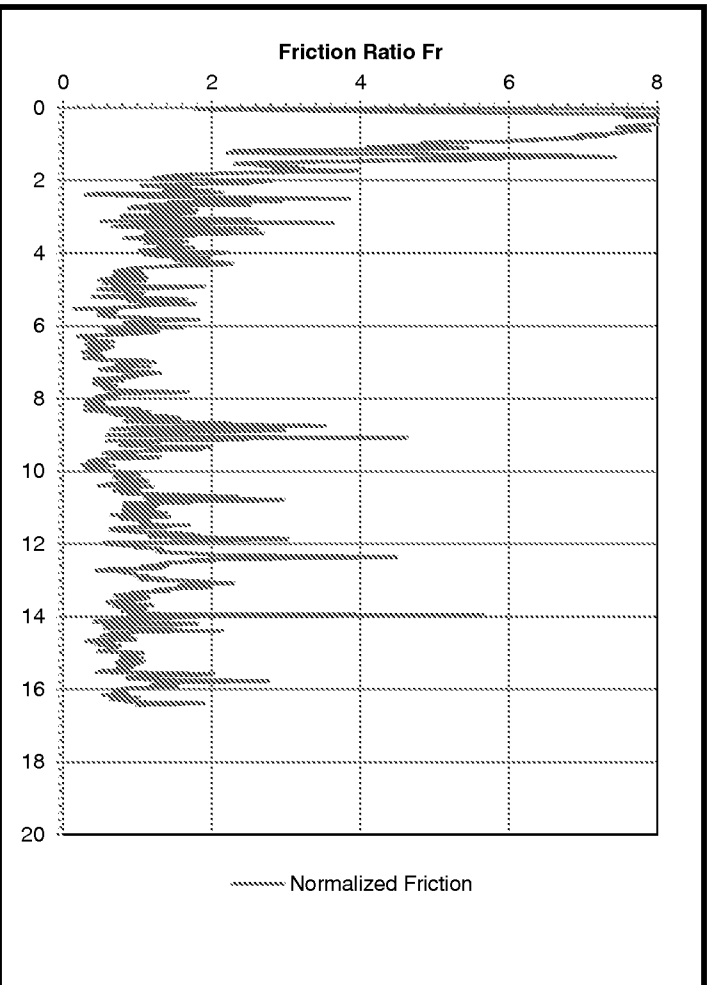
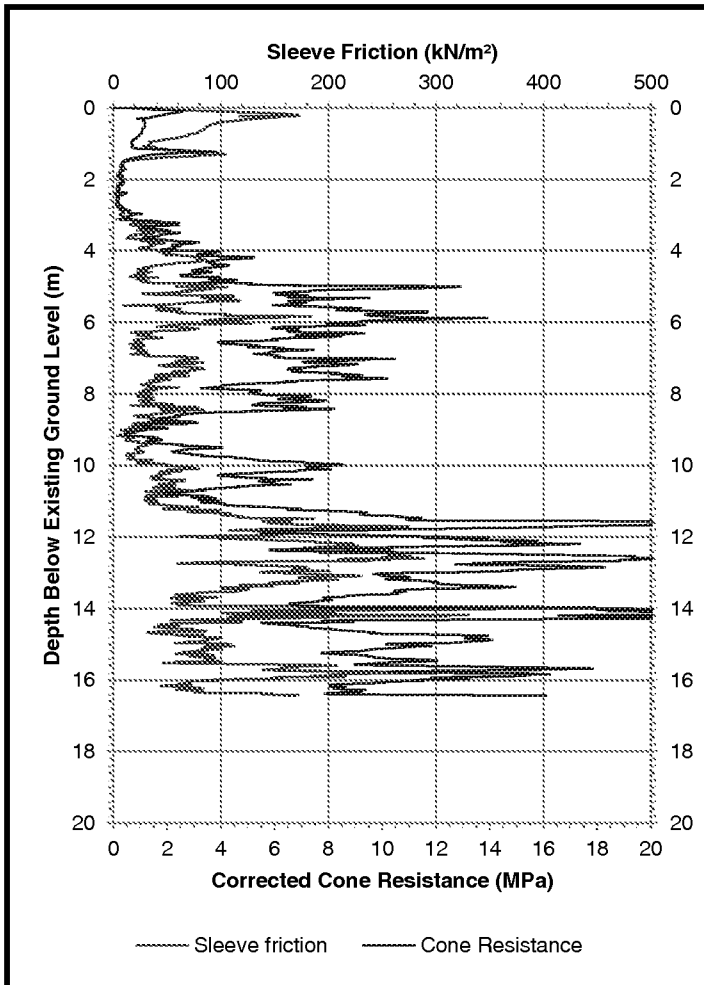
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





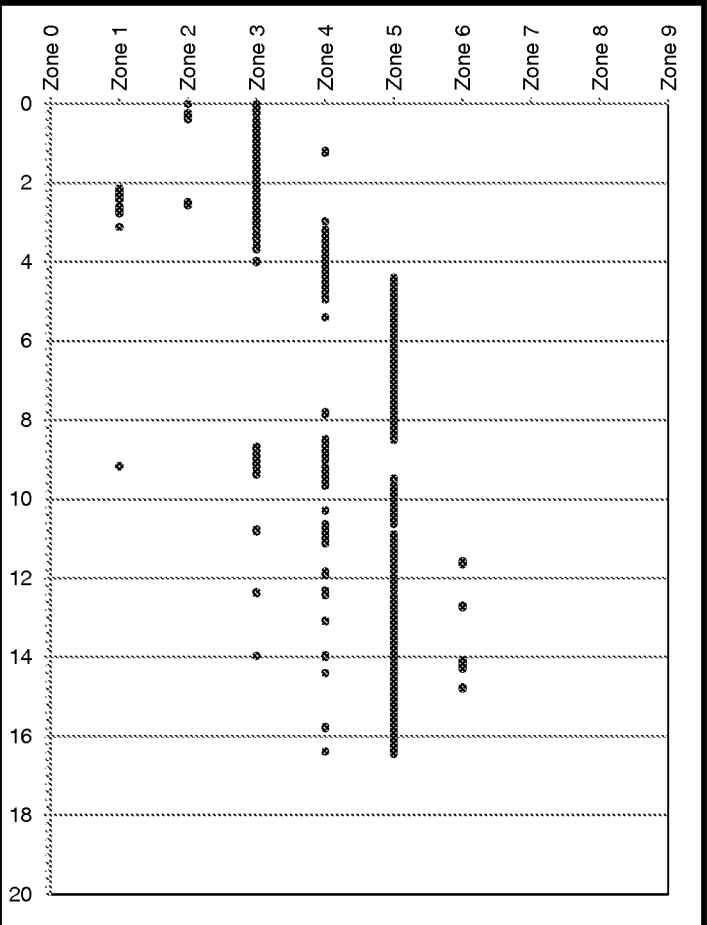


CPT Number			CPT 10		
Existing Ground Level			1.00m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	1.00m OD	10	5928 kN/m ²	3513 kN/m ²	0.25
2	0.75m OD	10	3513 kN/m ²	3244 kN/m ²	0.25
3	0.50m OD	10	3244 kN/m ²	2424 kN/m ²	0.25
4	0.25m OD	10	2424 kN/m ²	4469 kN/m ²	0.25
5	0.00m OD	10	4469 kN/m ²	3256 kN/m ²	0.25
6	-0.25m OD	10	3256 kN/m ²	918 kN/m ²	0.25
7	-0.50m OD	10	918 kN/m ²	853 kN/m ²	0.25
8	-0.75m OD	10	853 kN/m ²	895 kN/m ²	0.25
9	-1.00m OD	10	895 kN/m ²	810 kN/m ²	0.25
10	-1.25m OD	10	810 kN/m ²	546 kN/m ²	0.25
11	-1.50m OD	10	546 kN/m ²	1634 kN/m ²	0.25
12	-1.75m OD	10	1634 kN/m ²	3100 kN/m ²	0.25
13	-2.00m OD	10	3100 kN/m ²	5213 kN/m ²	0.25
14	-2.25m OD	10	5213 kN/m ²	5158 kN/m ²	0.25
15	-2.50m OD	10	5158 kN/m ²	7104 kN/m ²	0.25
16	-2.75m OD	10	7104 kN/m ²	12126 kN/m ²	0.25
17	-3.00m OD	10	12126 kN/m ²	11336 kN/m ²	0.25
18	-3.25m OD	10	11336 kN/m ²	9414 kN/m ²	0.25
19	-3.50m OD	10	9414 kN/m ²	15168 kN/m ²	0.25
20	-3.75m OD	10	15168 kN/m ²	24525 kN/m ²	0.25
21	-4.00m OD	10	24525 kN/m ²	21614 kN/m ²	0.25
22	-4.25m OD	10	21614 kN/m ²	26379 kN/m ²	0.25
23	-4.50m OD	10	26379 kN/m ²	31405 kN/m ²	0.25
24	-4.75m OD	10	31405 kN/m ²	22149 kN/m ²	0.25
25	-5.00m OD	10	22149 kN/m ²	22158 kN/m ²	0.25
26	-5.25m OD	10	22158 kN/m ²	14778 kN/m ²	0.25
27	-5.50m OD	10	14778 kN/m ²	18238 kN/m ²	0.25
28	-5.75m OD	10	18238 kN/m ²	25148 kN/m ²	0.25
29	-6.00m OD	10	25148 kN/m ²	22376 kN/m ²	0.25
30	-6.25m OD	10	22376 kN/m ²	22230 kN/m ²	0.25
31	-6.50m OD	10	22230 kN/m ²	13671 kN/m ²	0.25
32	-6.75m OD	10	13671 kN/m ²	20450 kN/m ²	0.25
33	-7.00m OD	10	20450 kN/m ²	18518 kN/m ²	0.25
34	-7.25m OD	10	18518 kN/m ²	7154 kN/m ²	0.25
35	-7.50m OD	10	7154 kN/m ²	5503 kN/m ²	0.25
36	-7.75m OD	10	5503 kN/m ²	2479 kN/m ²	0.25
37	-8.00m OD	10	2479 kN/m ²	6201 kN/m ²	0.25
38	-8.25m OD	10	6201 kN/m ²	8529 kN/m ²	0.25
39	-8.50m OD	10	8529 kN/m ²	18604 kN/m ²	0.25
40	-8.75m OD	10	18604 kN/m ²	20245 kN/m ²	0.25
41	-9.00m OD	10	20245 kN/m ²	16110 kN/m ²	0.25
42	-9.25m OD	10	16110 kN/m ²	13036 kN/m ²	0.25
43	-9.50m OD	10	13036 kN/m ²	8853 kN/m ²	0.25
44	-9.75m OD	10	8853 kN/m ²	14898 kN/m ²	0.25
45	-10.00m OD	10	14898 kN/m ²	29085 kN/m ²	0.25
46	-10.25m OD	10	29085 kN/m ²	54935 kN/m ²	0.25
47	-10.50m OD	10	54935 kN/m ²	25729 kN/m ²	0.25
48	-10.75m OD	10	25729 kN/m ²	44053 kN/m ²	0.25
49	-11.00m OD	10	44053 kN/m ²	28770 kN/m ²	0.25
50	-11.25m OD	10	28770 kN/m ²	54115 kN/m ²	0.25
51	-11.50m OD	10	54115 kN/m ²	46170 kN/m ²	0.25
52	-11.75m OD	10	46170 kN/m ²	31434 kN/m ²	0.25
53	-12.00m OD	10	31434 kN/m ²	38150 kN/m ²	0.25
54	-12.25m OD	10	38150 kN/m ²	27991 kN/m ²	0.25
55	-12.50m OD	10	27991 kN/m ²	22473 kN/m ²	0.25
56	-12.75m OD	10	22473 kN/m ²	61494 kN/m ²	0.25
57	-13.00m OD	10	61494 kN/m ²	30339 kN/m ²	0.25
58	-13.25m OD	10	30339 kN/m ²	26809 kN/m ²	0.25
59	-13.50m OD	10	26809 kN/m ²	39339 kN/m ²	0.25
60	-13.75m OD	10	39339 kN/m ²	29775 kN/m ²	0.25
61	-14.00m OD	10	29775 kN/m ²	30265 kN/m ²	0.25
62	-14.25m OD	10	30265 kN/m ²	38609 kN/m ²	0.25
63	-14.50m OD	10	38609 kN/m ²	40193 kN/m ²	0.25
64	-14.75m OD	10	40193 kN/m ²		



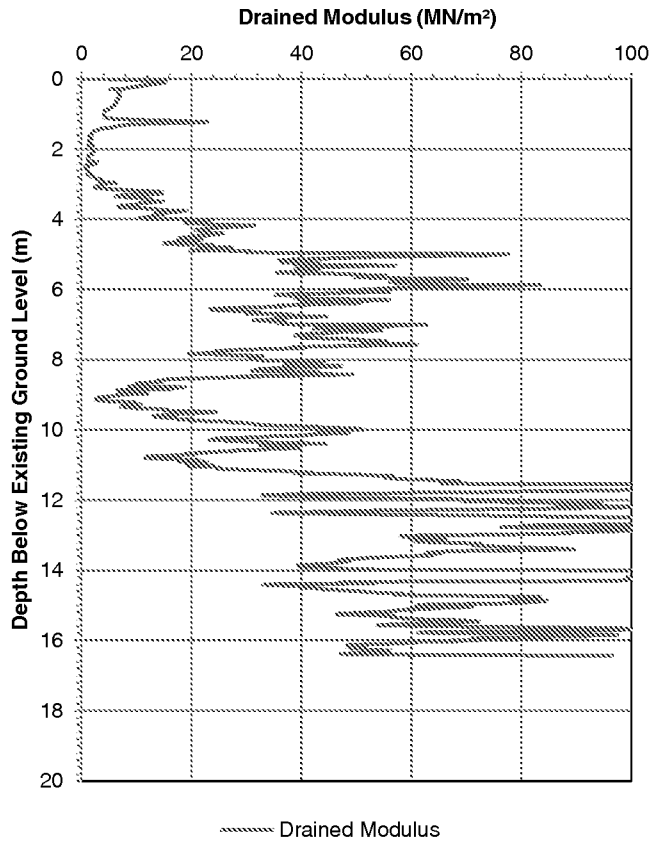
Robertson et al 1986, updated by Robertson 2010.

Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained

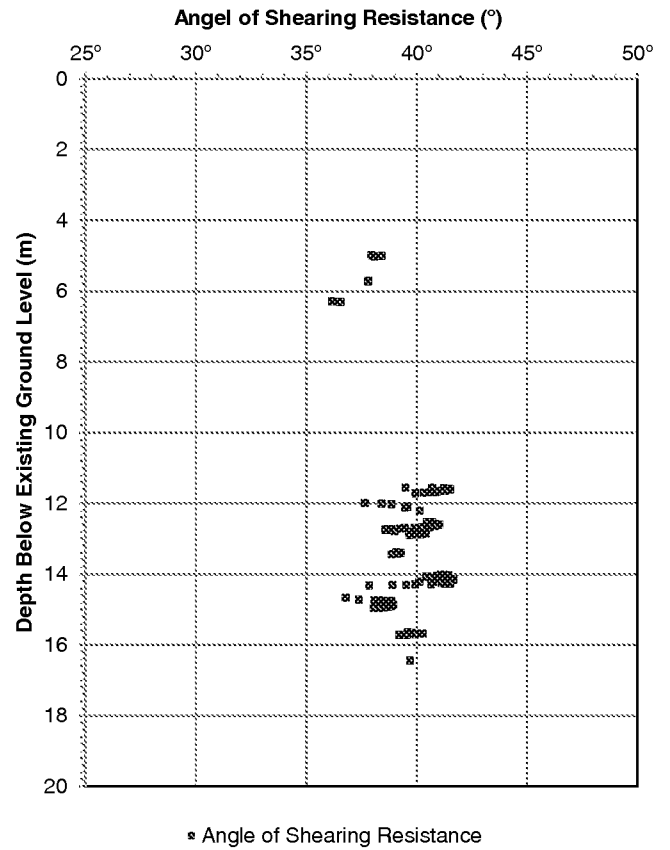




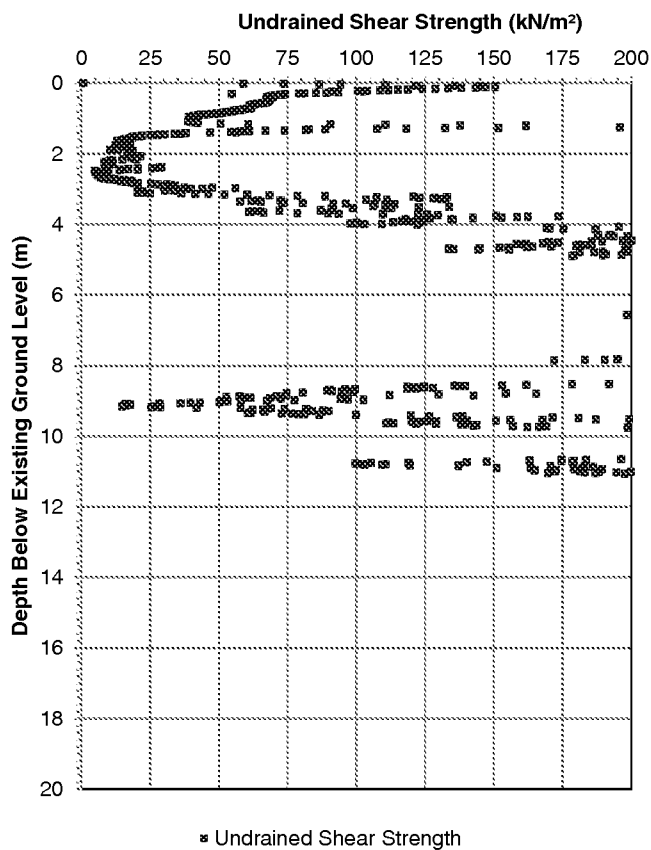
Drained Modulus (E'd)



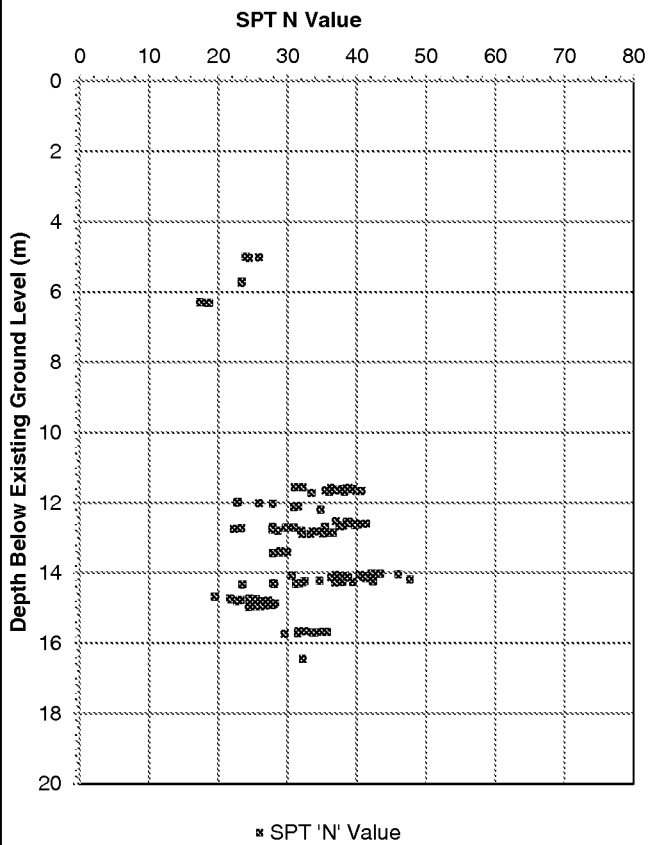
Effective Angle of Shearing Resistance



Undrained Shear Strength

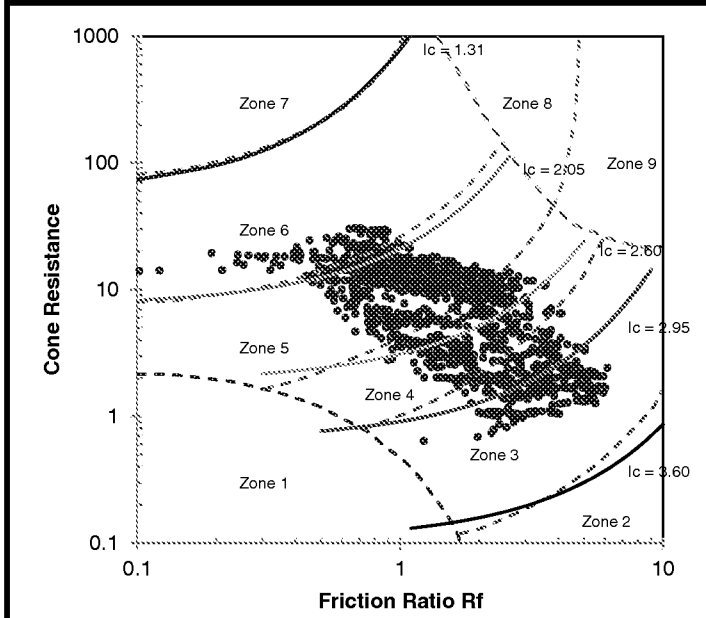
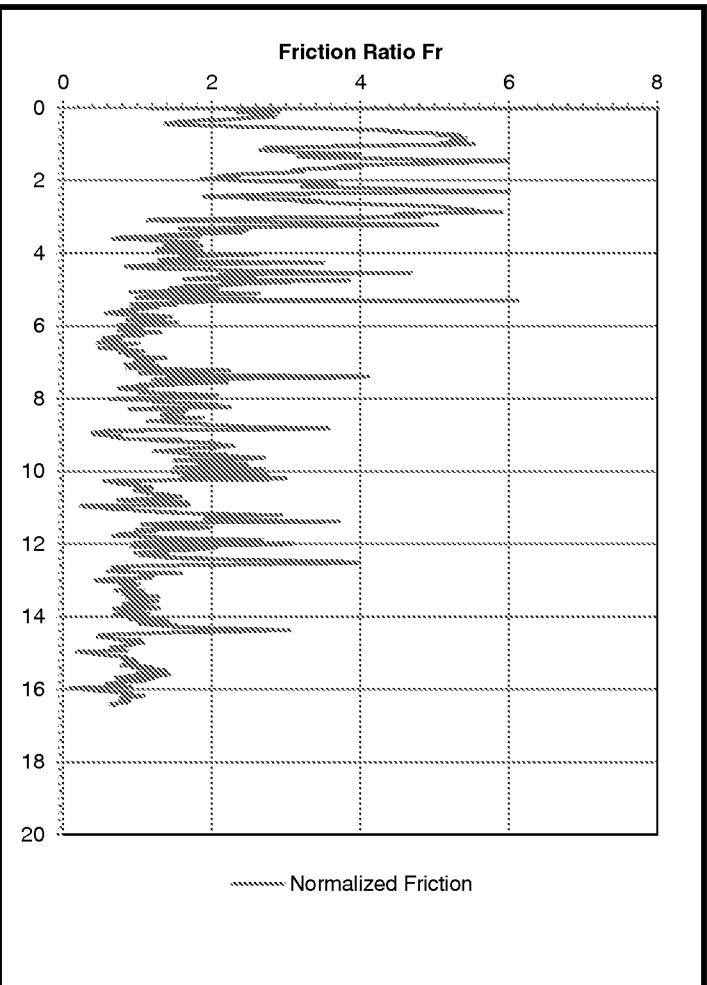
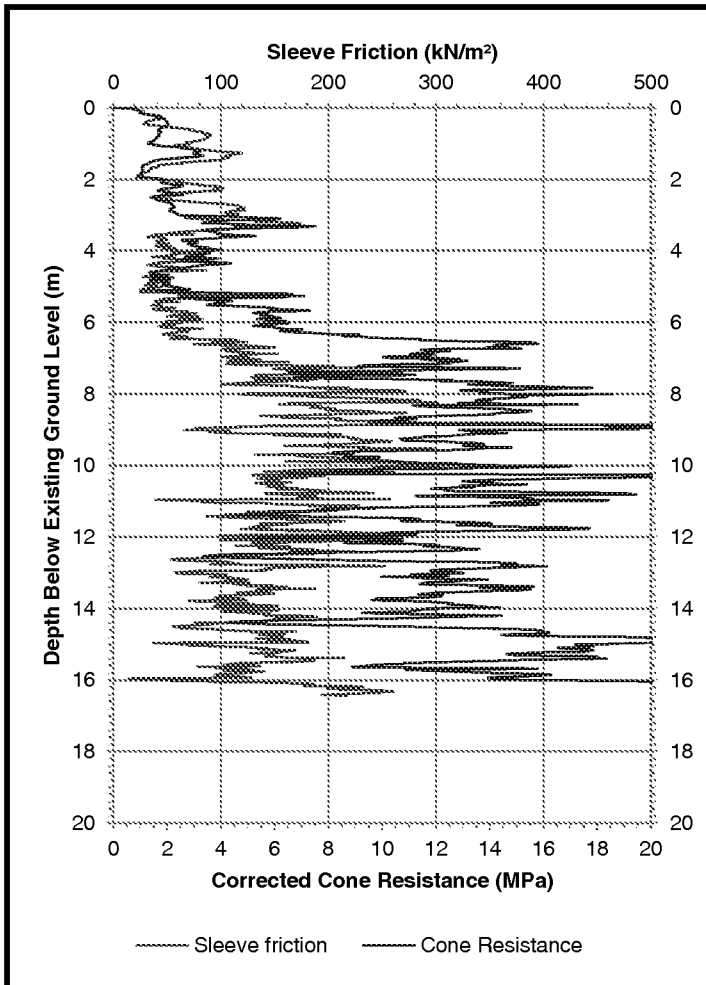


SPT 'N' Value



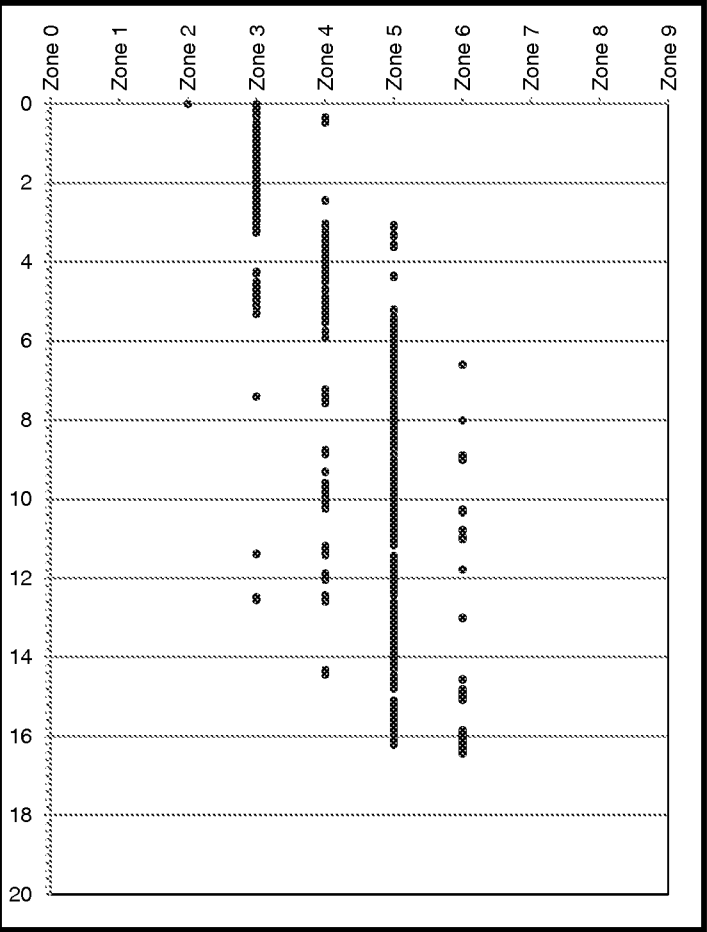


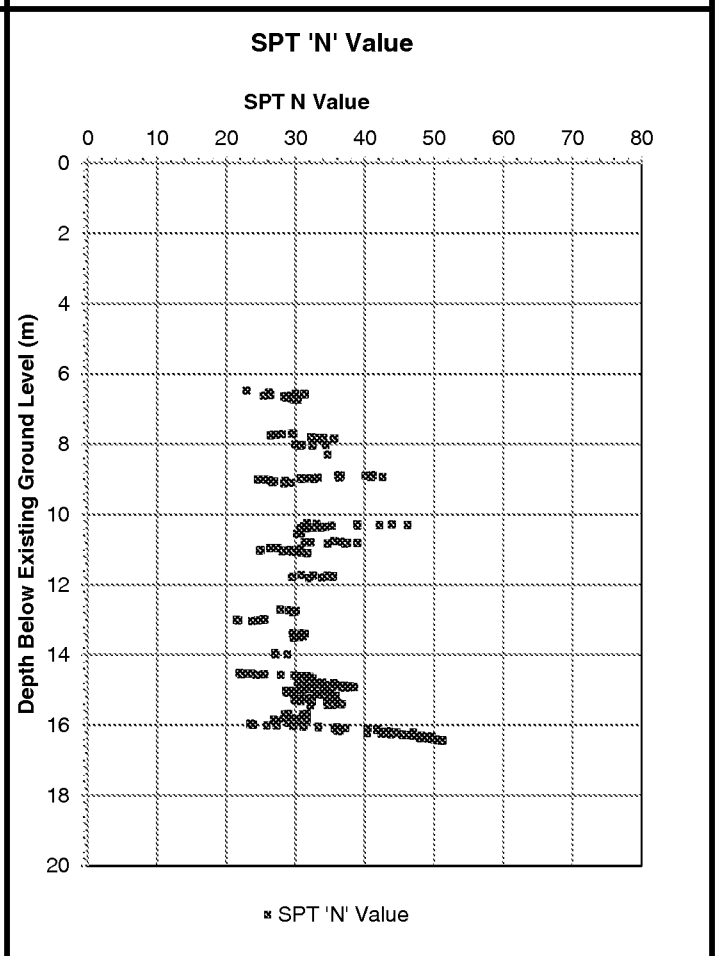
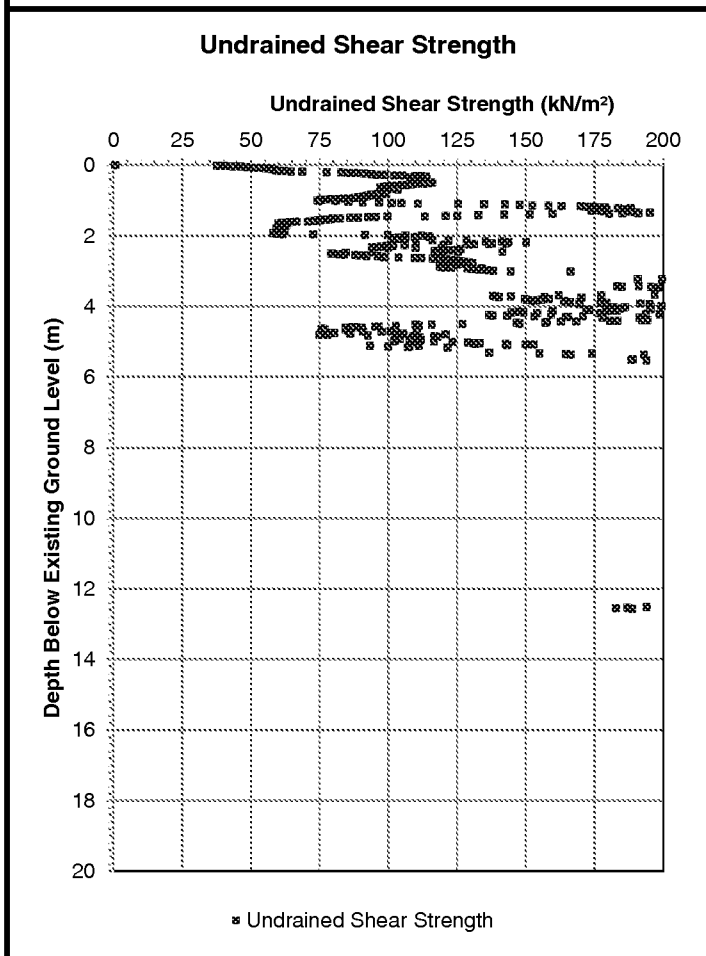
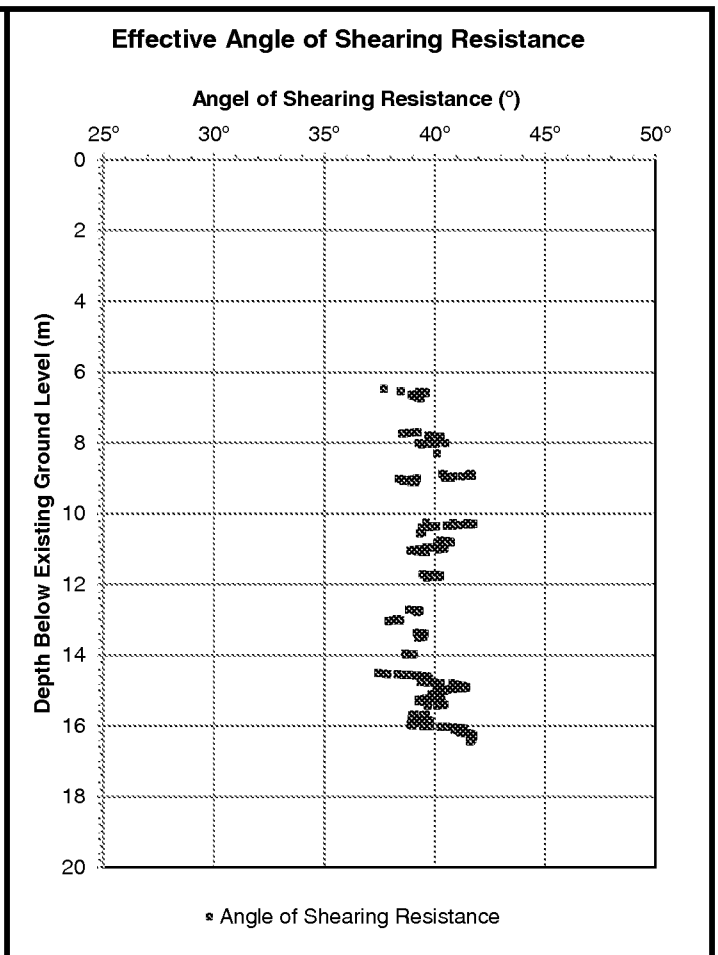
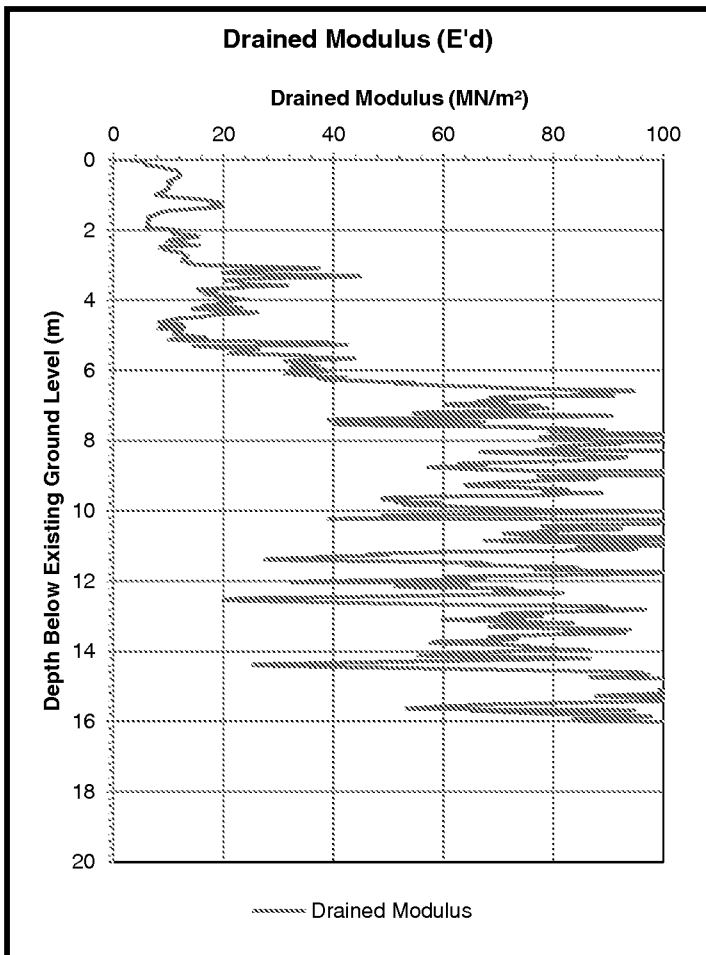
CPT Number			CPT 11		
Existing Ground Level			2.54m OD		
Layer Interval			0.25m		
Selected deformability value α m			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	2.54m OD	10	3180 kN/m ²	5800 kN/m ²	0.25
2	2.29m OD	10	5800 kN/m ²	5235 kN/m ²	0.25
3	2.04m OD	10	5235 kN/m ²	4635 kN/m ²	0.25
4	1.79m OD	10	4635 kN/m ²	7254 kN/m ²	0.25
5	1.54m OD	10	7254 kN/m ²	7734 kN/m ²	0.25
6	1.29m OD	10	7734 kN/m ²	3521 kN/m ²	0.25
7	1.04m OD	10	3521 kN/m ²	3459 kN/m ²	0.25
8	0.79m OD	10	3459 kN/m ²	6348 kN/m ²	0.25
9	0.54m OD	10	6348 kN/m ²	5801 kN/m ²	0.25
10	0.29m OD	10	5801 kN/m ²	5636 kN/m ²	0.25
11	0.04m OD	10	5636 kN/m ²	6645 kN/m ²	0.25
12	-0.21m OD	10	6645 kN/m ²	13284 kN/m ²	0.25
13	-0.46m OD	10	13284 kN/m ²	14923 kN/m ²	0.25
14	-0.71m OD	10	14923 kN/m ²	11318 kN/m ²	0.25
15	-0.96m OD	10	11318 kN/m ²	9660 kN/m ²	0.25
16	-1.21m OD	10	9660 kN/m ²	9708 kN/m ²	0.25
17	-1.46m OD	10	9708 kN/m ²	9814 kN/m ²	0.25
18	-1.71m OD	10	9814 kN/m ²	5143 kN/m ²	0.25
19	-1.96m OD	10	5143 kN/m ²	5675 kN/m ²	0.25
20	-2.21m OD	10	5675 kN/m ²	10093 kN/m ²	0.25
21	-2.46m OD	10	10093 kN/m ²	12236 kN/m ²	0.25
22	-2.71m OD	10	12236 kN/m ²	16854 kN/m ²	0.25
23	-2.96m OD	10	16854 kN/m ²	17585 kN/m ²	0.25
24	-3.21m OD	10	17585 kN/m ²	18108 kN/m ²	0.25
25	-3.46m OD	10	18108 kN/m ²	26804 kN/m ²	0.25
26	-3.71m OD	10	26804 kN/m ²	43159 kN/m ²	0.25
27	-3.96m OD	10	43159 kN/m ²	34065 kN/m ²	0.25
28	-4.21m OD	10	34065 kN/m ²	34270 kN/m ²	0.25
29	-4.46m OD	10	34270 kN/m ²	30989 kN/m ²	0.25
30	-4.71m OD	10	30989 kN/m ²	33911 kN/m ²	0.25
31	-4.96m OD	10	33911 kN/m ²	44336 kN/m ²	0.25
32	-5.21m OD	10	44336 kN/m ²	44136 kN/m ²	0.25
33	-5.46m OD	10	44136 kN/m ²	40871 kN/m ²	0.25
34	-5.71m OD	10	40871 kN/m ²	37136 kN/m ²	0.25
35	-5.96m OD	10	37136 kN/m ²	49585 kN/m ²	0.25
36	-6.21m OD	10	49585 kN/m ²	38731 kN/m ²	0.25
37	-6.46m OD	10	38731 kN/m ²	37851 kN/m ²	0.25
38	-6.71m OD	10	37851 kN/m ²	30533 kN/m ²	0.25
39	-6.96m OD	10	30533 kN/m ²	31875 kN/m ²	0.25
40	-7.21m OD	10	31875 kN/m ²	32869 kN/m ²	0.25
41	-7.46m OD	10	32869 kN/m ²	52995 kN/m ²	0.25
42	-7.71m OD	10	52995 kN/m ²	39874 kN/m ²	0.25
43	-7.96m OD	10	39874 kN/m ²	48438 kN/m ²	0.25
44	-8.21m OD	10	48438 kN/m ²	37783 kN/m ²	0.25
45	-8.46m OD	10	37783 kN/m ²	21380 kN/m ²	0.25
46	-8.71m OD	10	21380 kN/m ²	39579 kN/m ²	0.25
47	-8.96m OD	10	39579 kN/m ²	37510 kN/m ²	0.25
48	-9.21m OD	10	37510 kN/m ²	29036 kN/m ²	0.25
49	-9.46m OD	10	29036 kN/m ²	31608 kN/m ²	0.25
50	-9.71m OD	10	31608 kN/m ²	23809 kN/m ²	0.25
51	-9.96m OD	10	23809 kN/m ²	41013 kN/m ²	0.25
52	-10.21m OD	10	41013 kN/m ²	36065 kN/m ²	0.25
53	-10.46m OD	10	36065 kN/m ²	40769 kN/m ²	0.25
54	-10.71m OD	10	40769 kN/m ²	35604 kN/m ²	0.25
55	-10.96m OD	10	35604 kN/m ²	36983 kN/m ²	0.25
56	-11.21m OD	10	36983 kN/m ²	34853 kN/m ²	0.25
57	-11.46m OD	10	34853 kN/m ²	21071 kN/m ²	0.25
58	-11.71m OD	10	21071 kN/m ²	44341 kN/m ²	0.25
59	-11.96m OD	10	44341 kN/m ²	60253 kN/m ²	0.25
60	-12.21m OD	10	60253 kN/m ²	51715 kN/m ²	0.25
61	-12.46m OD	10	51715 kN/m ²	47955 kN/m ²	0.25
62	-12.71m OD	10	47955 kN/m ²	33575 kN/m ²	0.25
63	-12.96m OD	10	33575 kN/m ²	43864 kN/m ²	0.25
64	-13.21m OD	10	43864 kN/m ²		



Robertson et al 1986, updated by Robertson 2010.

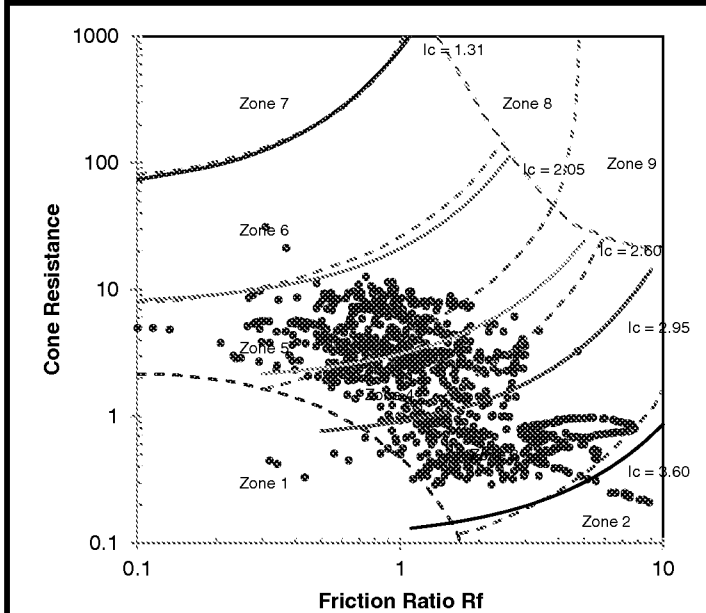
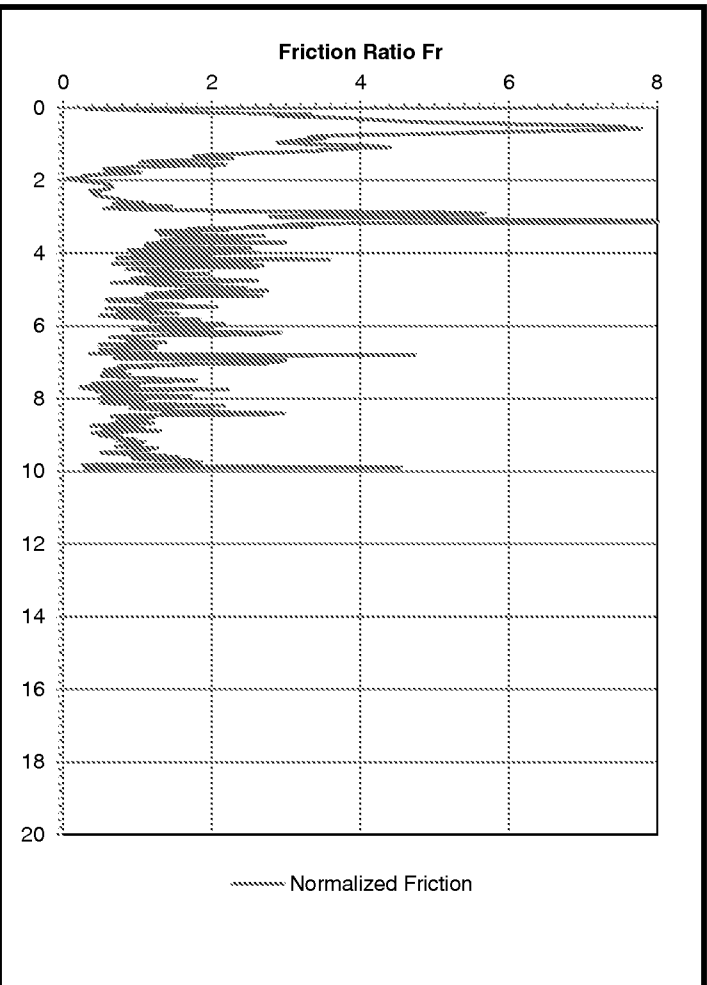
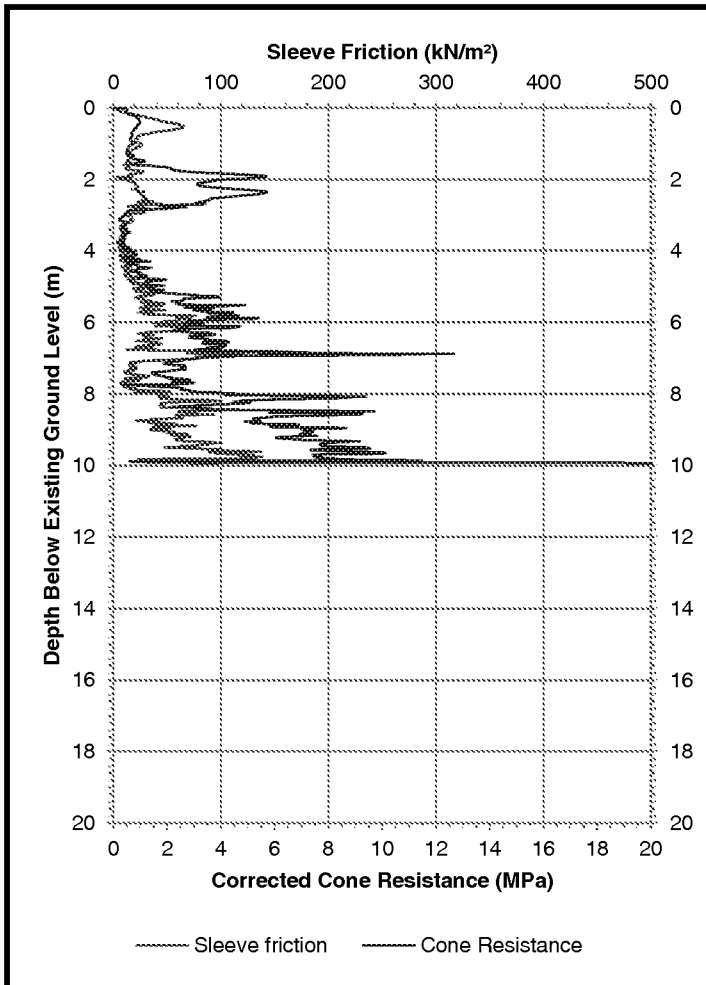
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





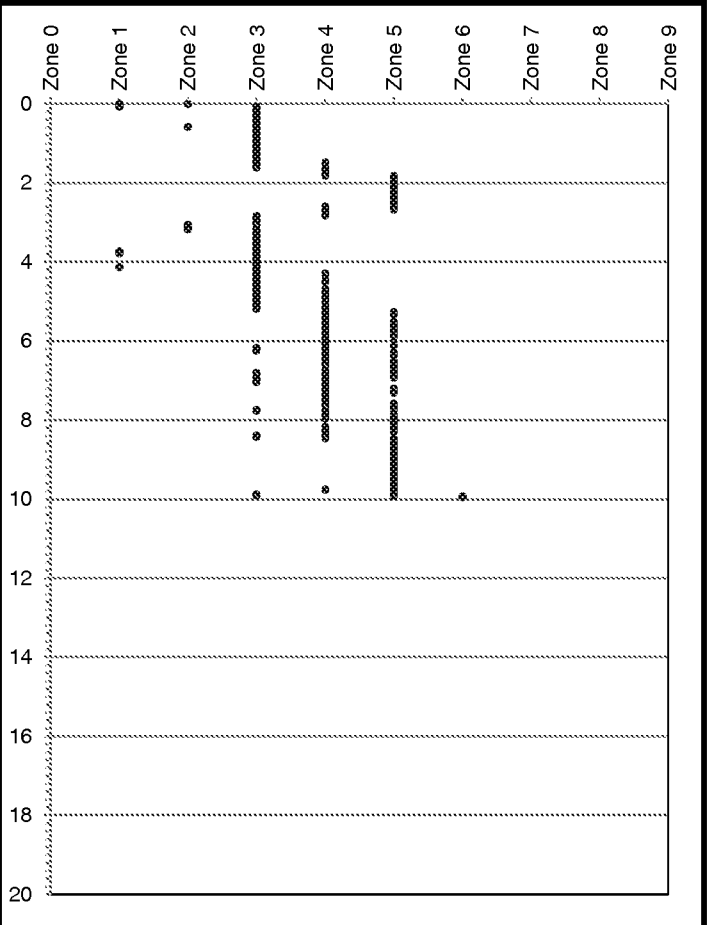


CPT Number			CPT 12		
Existing Ground Level			0.95m OD		
Layer Interval			0.25m		
Selected deformability value α m			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	0.95m OD	10	1671 kN/m ²	2811 kN/m ²	0.25
2	0.70m OD	10	2811 kN/m ²	2304 kN/m ²	0.25
3	0.45m OD	10	2304 kN/m ²	2028 kN/m ²	0.25
4	0.20m OD	10	2028 kN/m ²	1703 kN/m ²	0.25
5	-0.05m OD	10	1703 kN/m ²	2298 kN/m ²	0.25
6	-0.30m OD	10	2298 kN/m ²	4353 kN/m ²	0.25
7	-0.55m OD	10	4353 kN/m ²	13241 kN/m ²	0.25
8	-0.80m OD	10	13241 kN/m ²	10339 kN/m ²	0.25
9	-1.05m OD	10	10339 kN/m ²	15388 kN/m ²	0.25
10	-1.30m OD	10	15388 kN/m ²	9736 kN/m ²	0.25
11	-1.55m OD	10	9736 kN/m ²	3540 kN/m ²	0.25
12	-1.80m OD	10	3540 kN/m ²	998 kN/m ²	0.25
13	-2.05m OD	10	998 kN/m ²	1266 kN/m ²	0.25
14	-2.30m OD	10	1266 kN/m ²	1175 kN/m ²	0.25
15	-2.55m OD	10	1175 kN/m ²	1273 kN/m ²	0.25
16	-2.80m OD	10	1273 kN/m ²	2115 kN/m ²	0.25
17	-3.05m OD	10	2115 kN/m ²	2603 kN/m ²	0.25
18	-3.30m OD	10	2603 kN/m ²	2808 kN/m ²	0.25
19	-3.55m OD	10	2808 kN/m ²	4320 kN/m ²	0.25
20	-3.80m OD	10	4320 kN/m ²	5469 kN/m ²	0.25
21	-4.05m OD	10	5469 kN/m ²	8415 kN/m ²	0.25
22	-4.30m OD	10	8415 kN/m ²	10460 kN/m ²	0.25
23	-4.55m OD	10	10460 kN/m ²	11841 kN/m ²	0.25
24	-4.80m OD	10	11841 kN/m ²	9584 kN/m ²	0.25
25	-5.05m OD	10	9584 kN/m ²	9695 kN/m ²	0.25
26	-5.30m OD	10	9695 kN/m ²	11600 kN/m ²	0.25
27	-5.55m OD	10	11600 kN/m ²	17388 kN/m ²	0.25
28	-5.80m OD	10	17388 kN/m ²	7179 kN/m ²	0.25
29	-6.05m OD	10	7179 kN/m ²	5981 kN/m ²	0.25
30	-6.30m OD	10	5981 kN/m ²	6915 kN/m ²	0.25
31	-6.55m OD	10	6915 kN/m ²	7879 kN/m ²	0.25
32	-6.80m OD	10	7879 kN/m ²	18603 kN/m ²	0.25
33	-7.05m OD	10	18603 kN/m ²	12856 kN/m ²	0.25
34	-7.30m OD	10	12856 kN/m ²	20063 kN/m ²	0.25
35	-7.55m OD	10	20063 kN/m ²	18774 kN/m ²	0.25
36	-7.80m OD	10	18774 kN/m ²	20901 kN/m ²	0.25
37	-8.05m OD	10	20901 kN/m ²	23795 kN/m ²	0.25
38	-8.30m OD	10	23795 kN/m ²	25756 kN/m ²	0.25
39	-8.55m OD	10	25756 kN/m ²	92995 kN/m ²	0.25
40	-8.80m OD	10	92995 kN/m ²		
41	-9.05m OD	10			
42	-9.30m OD	10			
43	-9.55m OD	10			
44	-9.80m OD	10			
45	-10.05m OD	10			
46	-10.30m OD	10			
47	-10.55m OD	10			
48	-10.80m OD	10			
49	-11.05m OD	10			
50	-11.30m OD	10			
51	-11.55m OD	10			
52	-11.80m OD	10			
53	-12.05m OD	10			
54	-12.30m OD	10			
55	-12.55m OD	10			
56	-12.80m OD	10			
57	-13.05m OD	10			
58	-13.30m OD	10			
59	-13.55m OD	10			
60	-13.80m OD	10			
61	-14.05m OD	10			
62	-14.30m OD	10			
63	-14.55m OD	10			
64	-14.80m OD	10			



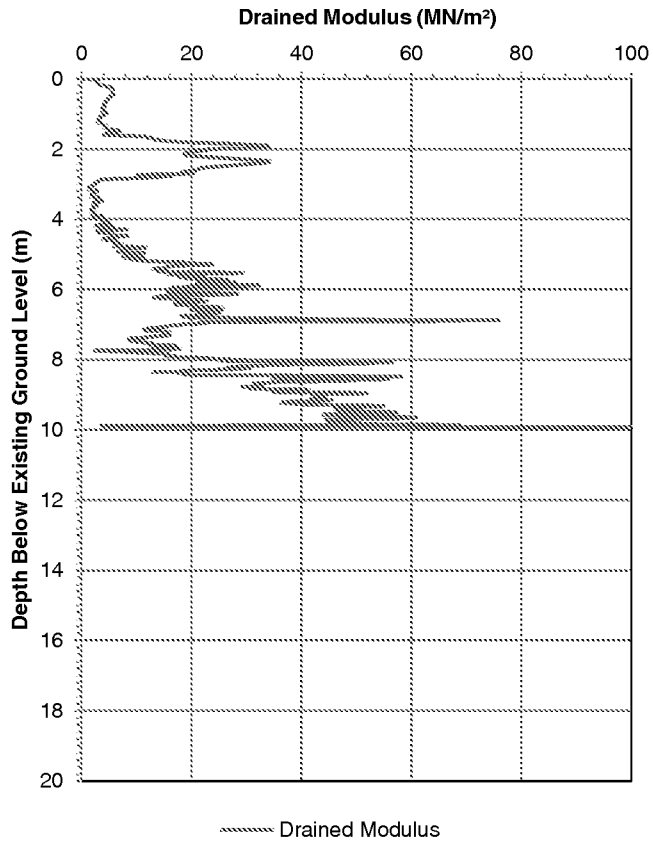
Robertson et al 1986, updated by Robertson 2010.

Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained

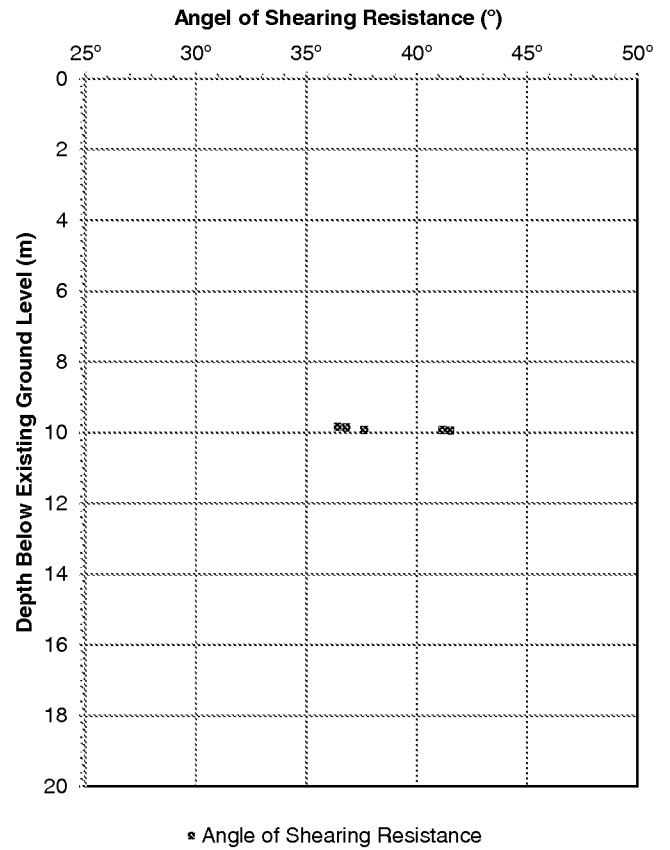




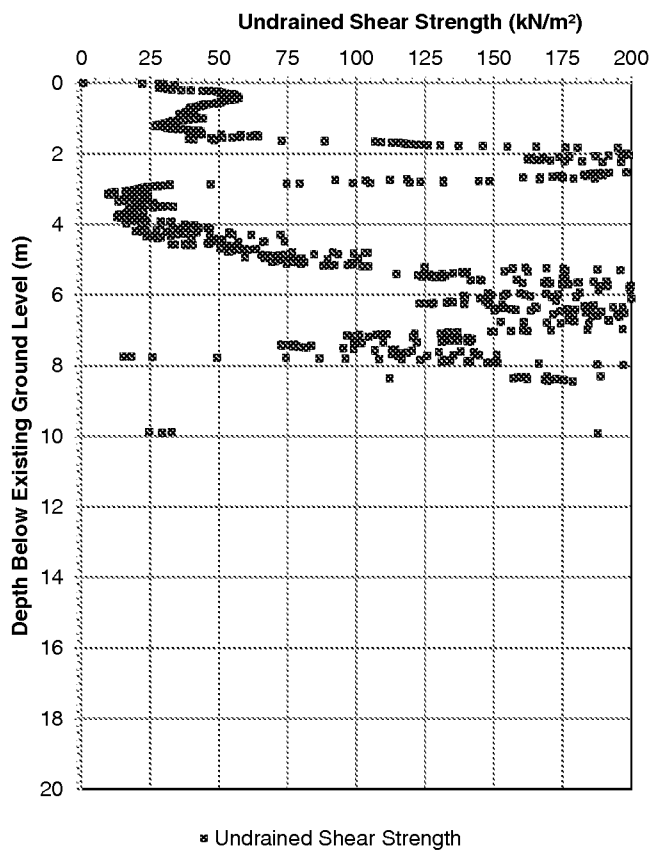
Drained Modulus (E'd)



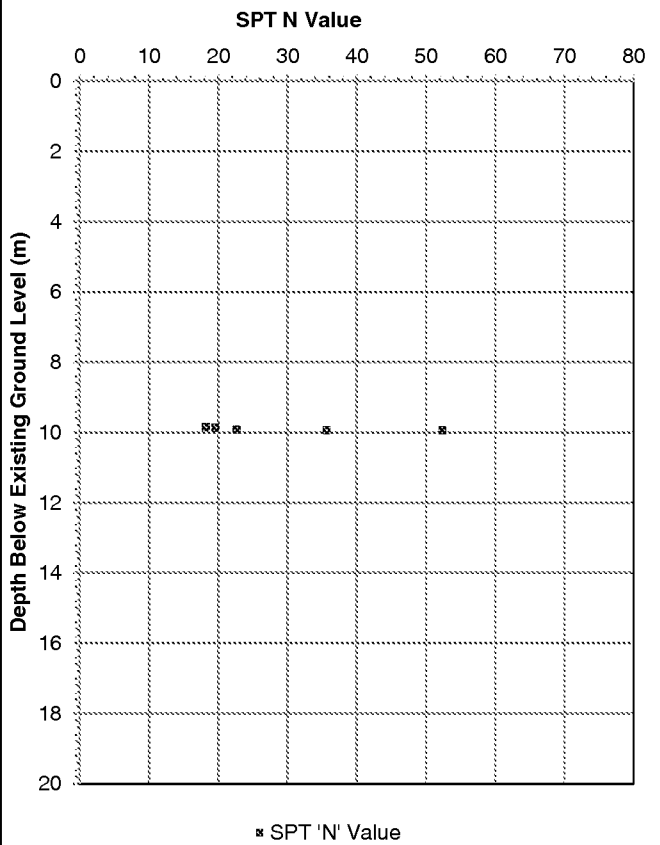
Effective Angle of Shearing Resistance



Undrained Shear Strength

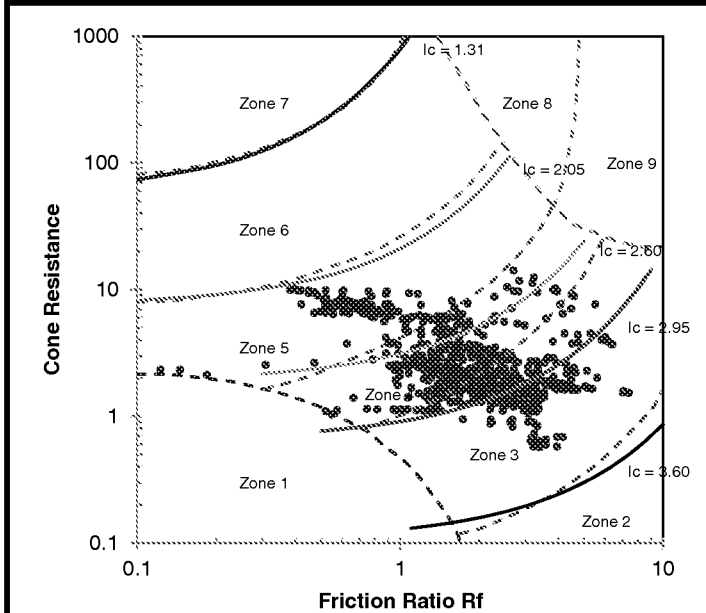
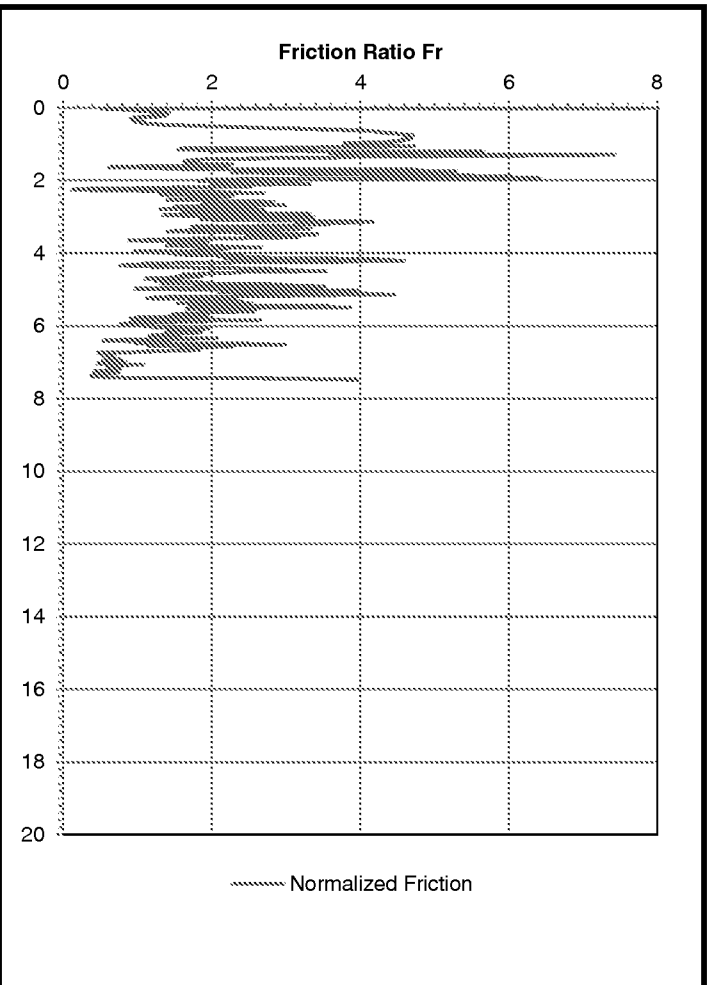
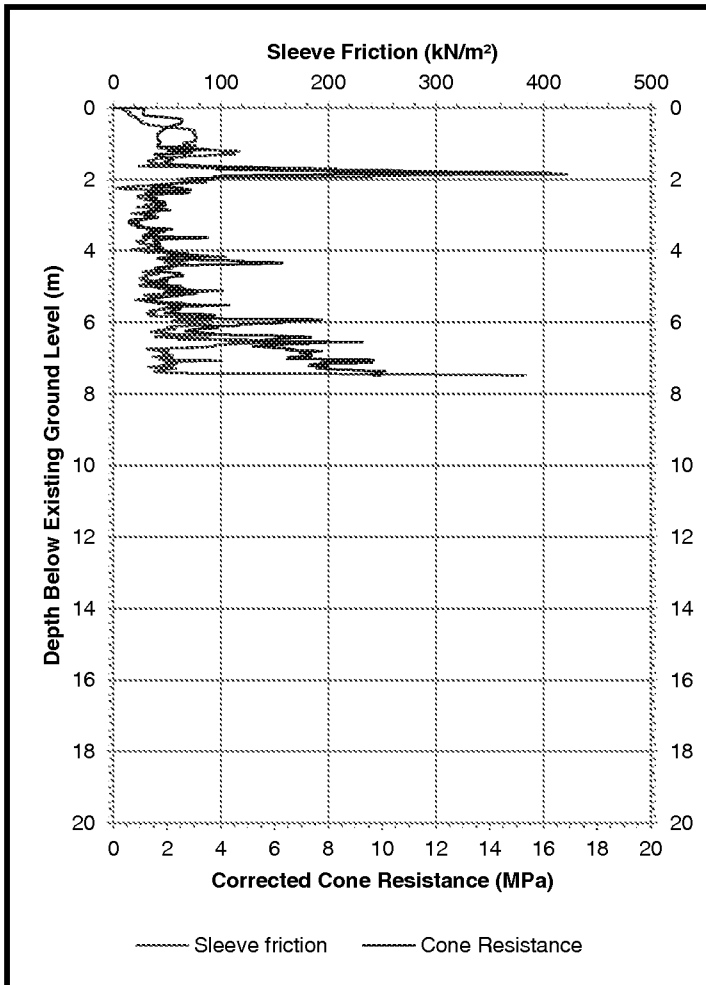


SPT 'N' Value



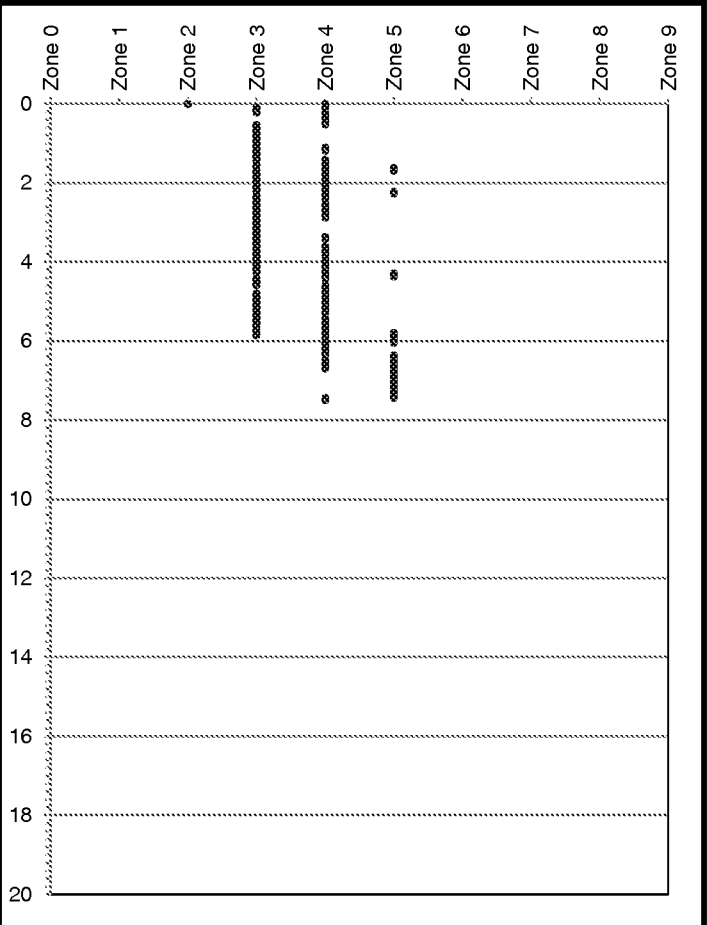


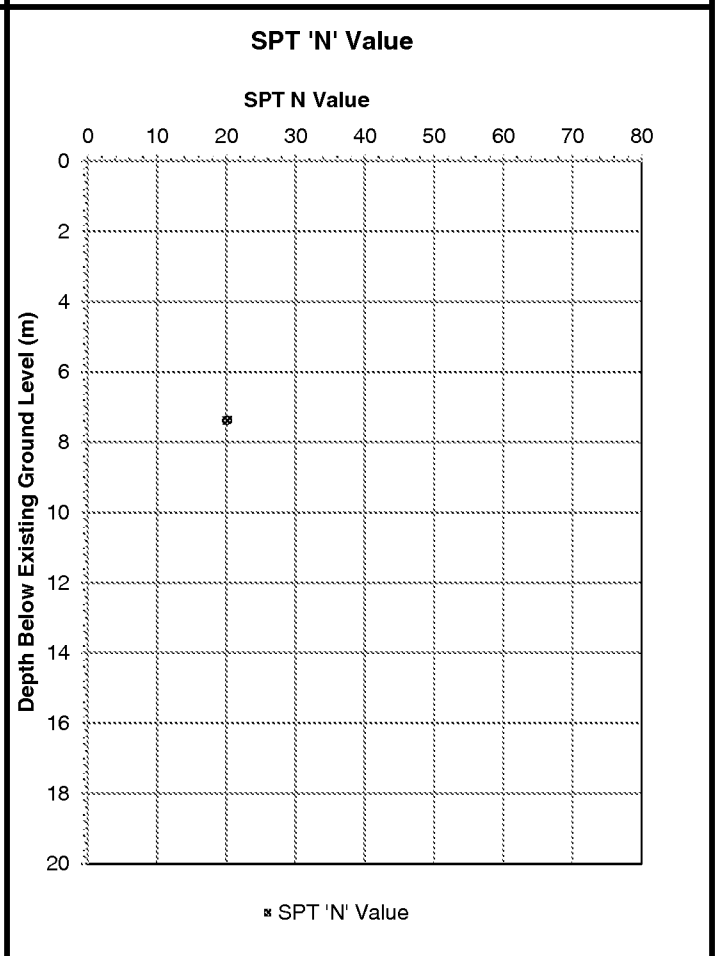
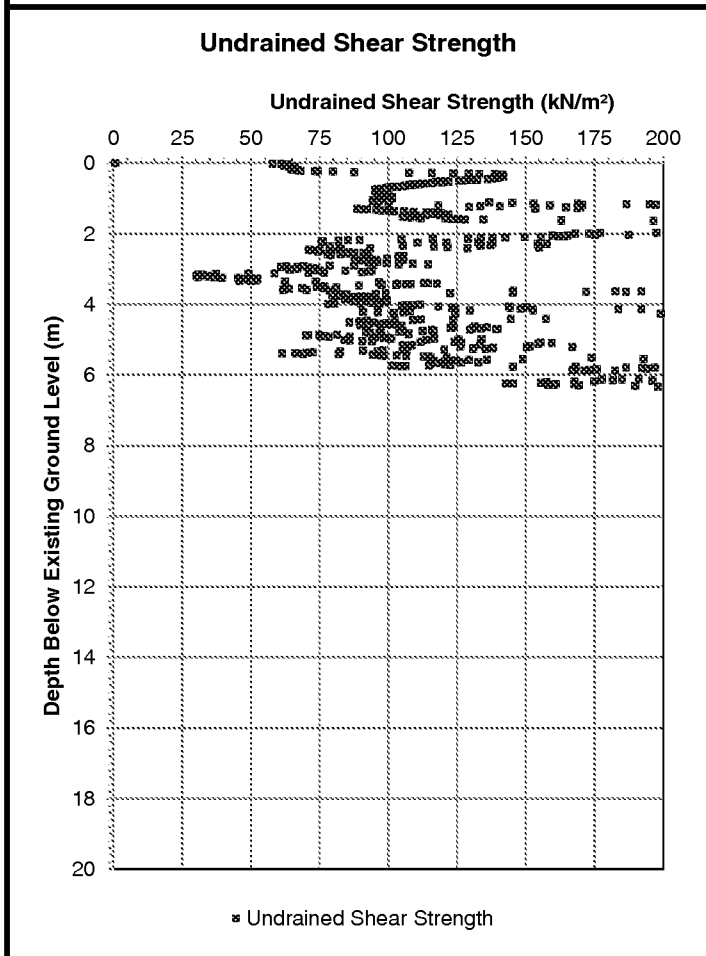
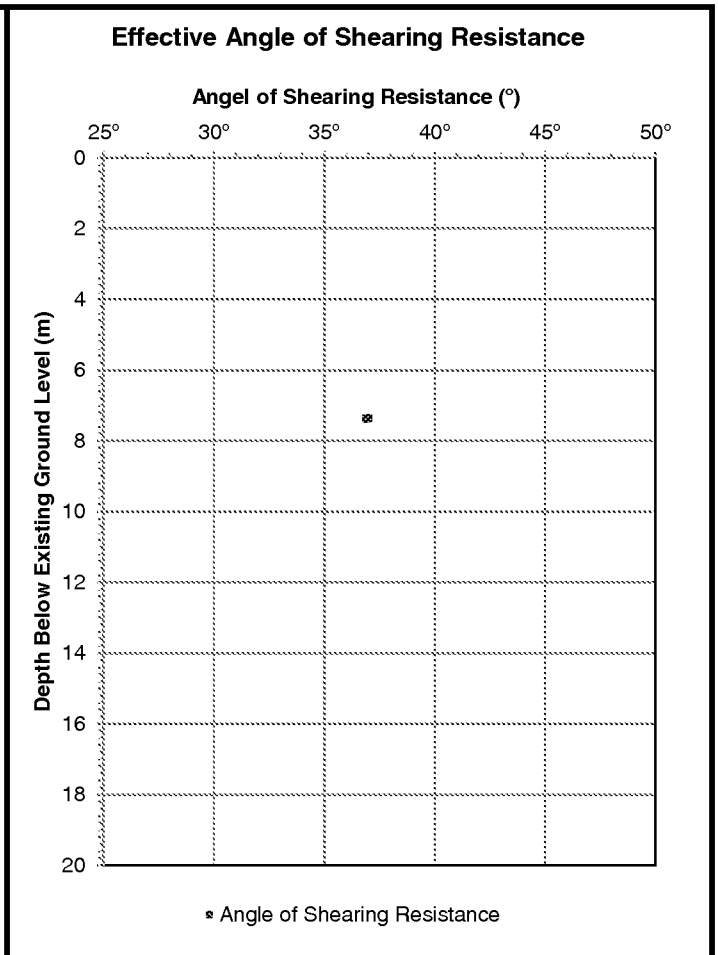
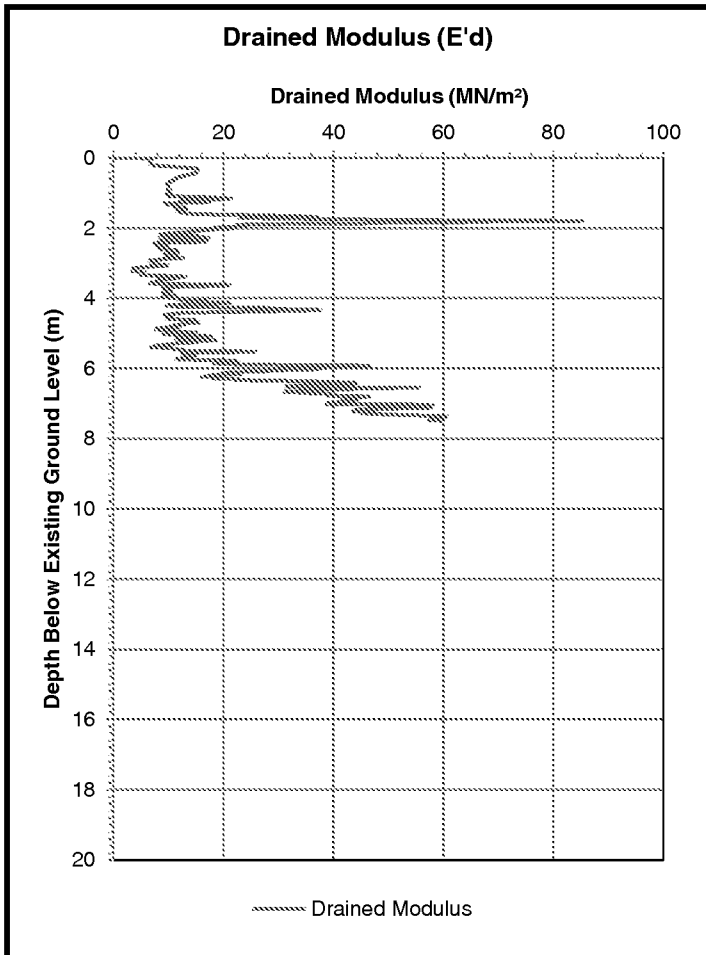
CPT Number			CPT 13		
Existing Ground Level			3.02m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	3.02m OD	10	3448 kN/m ²	7273 kN/m ²	0.25
2	2.77m OD	10	7273 kN/m ²	5545 kN/m ²	0.25
3	2.52m OD	10	5545 kN/m ²	5033 kN/m ²	0.25
4	2.27m OD	10	5033 kN/m ²	6941 kN/m ²	0.25
5	2.02m OD	10	6941 kN/m ²	6005 kN/m ²	0.25
6	1.77m OD	10	6005 kN/m ²	10763 kN/m ²	0.25
7	1.52m OD	10	10763 kN/m ²	21026 kN/m ²	0.25
8	1.27m OD	10	21026 kN/m ²	6955 kN/m ²	0.25
9	1.02m OD	10	6955 kN/m ²	6093 kN/m ²	0.25
10	0.77m OD	10	6093 kN/m ²	4934 kN/m ²	0.25
11	0.52m OD	10	4934 kN/m ²	4588 kN/m ²	0.25
12	0.27m OD	10	4588 kN/m ²	2961 kN/m ²	0.25
13	0.02m OD	10	2961 kN/m ²	4206 kN/m ²	0.25
14	-0.23m OD	10	4206 kN/m ²	5616 kN/m ²	0.25
15	-0.48m OD	10	5616 kN/m ²	4960 kN/m ²	0.25
16	-0.73m OD	10	4960 kN/m ²	6934 kN/m ²	0.25
17	-0.98m OD	10	6934 kN/m ²	11241 kN/m ²	0.25
18	-1.23m OD	10	11241 kN/m ²	6311 kN/m ²	0.25
19	-1.48m OD	10	6311 kN/m ²	5280 kN/m ²	0.25
20	-1.73m OD	10	5280 kN/m ²	6930 kN/m ²	0.25
21	-1.98m OD	10	6930 kN/m ²	5138 kN/m ²	0.25
22	-2.23m OD	10	5138 kN/m ²	7509 kN/m ²	0.25
23	-2.48m OD	10	7509 kN/m ²	14294 kN/m ²	0.25
24	-2.73m OD	10	14294 kN/m ²	12193 kN/m ²	0.25
25	-2.98m OD	10	12193 kN/m ²	15651 kN/m ²	0.25
26	-3.23m OD	10	15651 kN/m ²	18653 kN/m ²	0.25
27	-3.48m OD	10	18653 kN/m ²	21288 kN/m ²	0.25
28	-3.73m OD	10	21288 kN/m ²	24526 kN/m ²	0.25
29	-3.98m OD	10	24526 kN/m ²	29805 kN/m ²	0.25
30	-4.23m OD	10	29805 kN/m ²		
31	-4.48m OD	10			
32	-4.73m OD	10			
33	-4.98m OD	10			
34	-5.23m OD	10			
35	-5.48m OD	10			
36	-5.73m OD	10			
37	-5.98m OD	10			
38	-6.23m OD	10			
39	-6.48m OD	10			
40	-6.73m OD	10			
41	-6.98m OD	10			
42	-7.23m OD	10			
43	-7.48m OD	10			
44	-7.73m OD	10			
45	-7.98m OD	10			
46	-8.23m OD	10			
47	-8.48m OD	10			
48	-8.73m OD	10			
49	-8.98m OD	10			
50	-9.23m OD	10			
51	-9.48m OD	10			
52	-9.73m OD	10			
53	-9.98m OD	10			
54	-10.23m OD	10			
55	-10.48m OD	10			
56	-10.73m OD	10			
57	-10.98m OD	10			
58	-11.23m OD	10			
59	-11.48m OD	10			
60	-11.73m OD	10			
61	-11.98m OD	10			
62	-12.23m OD	10			
63	-12.48m OD	10			
64	-12.73m OD	10			



Robertson et al 1986, updated by Robertson 2010.

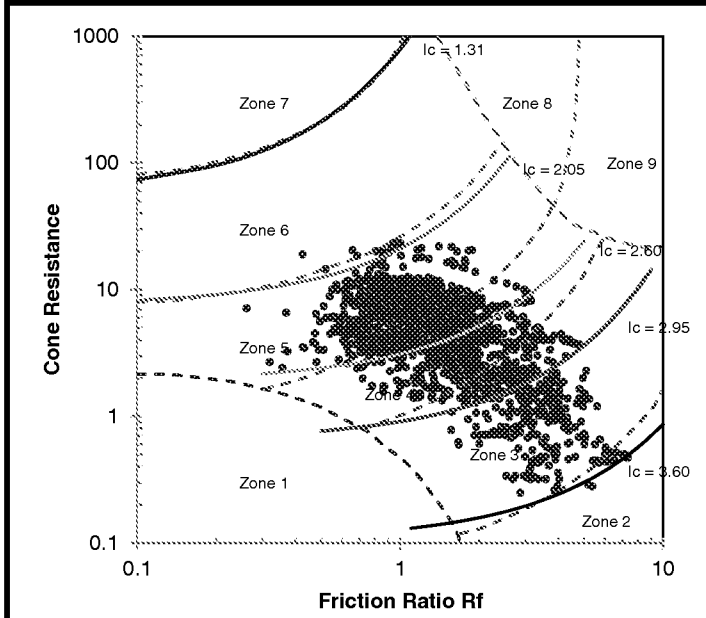
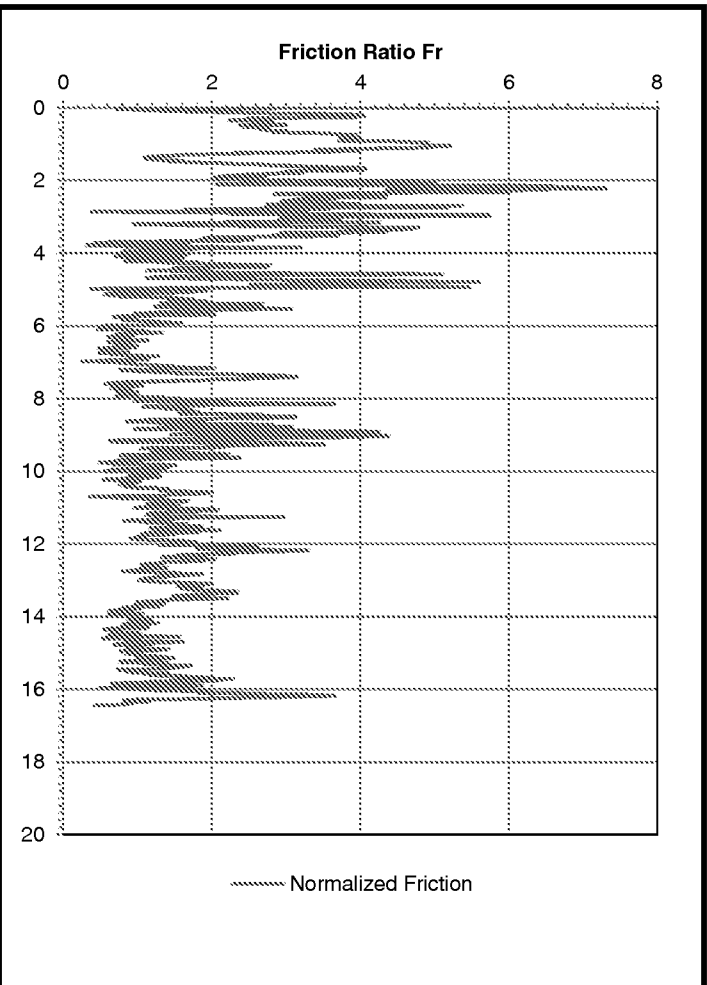
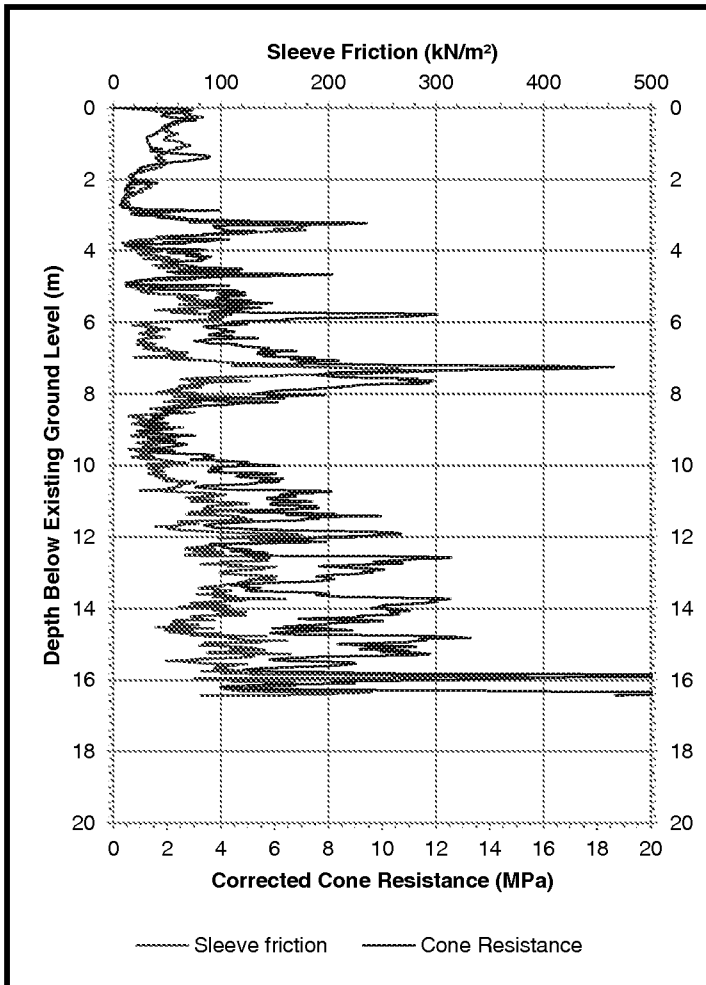
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





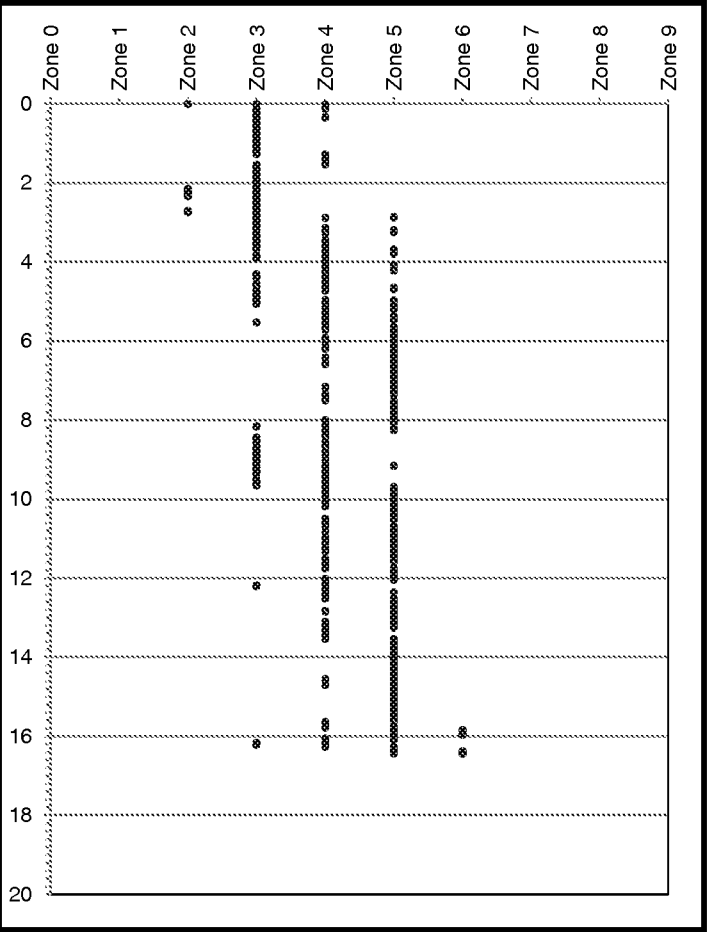


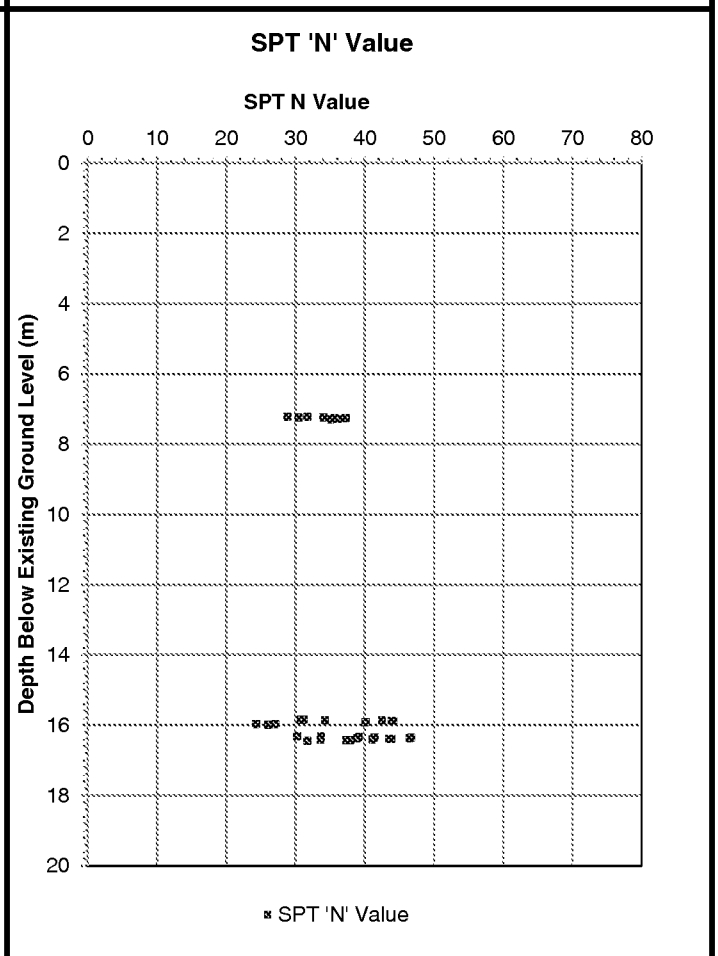
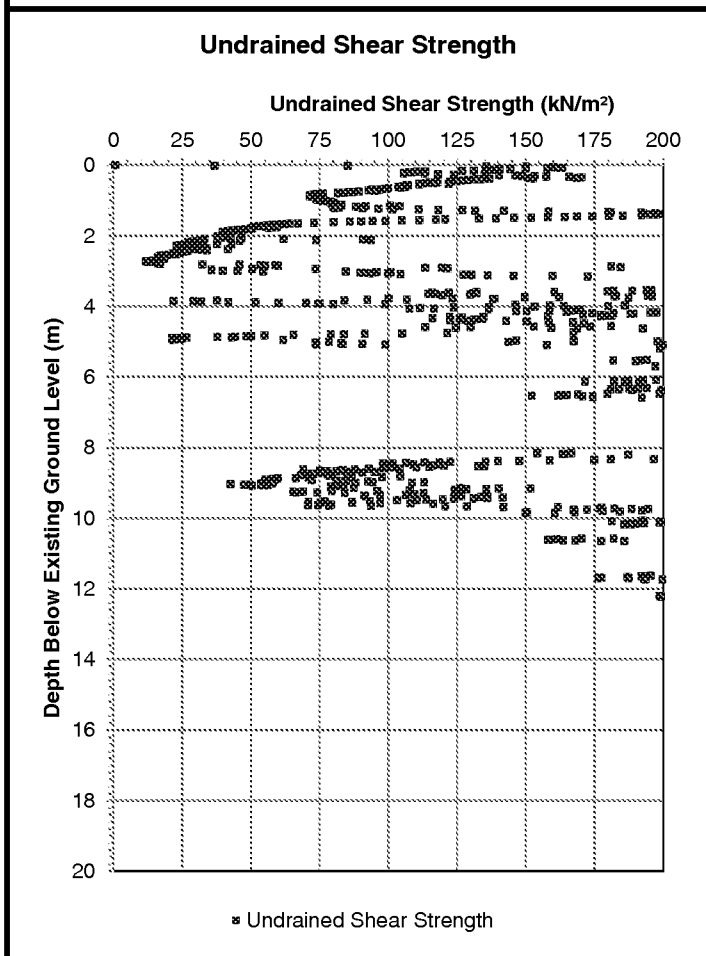
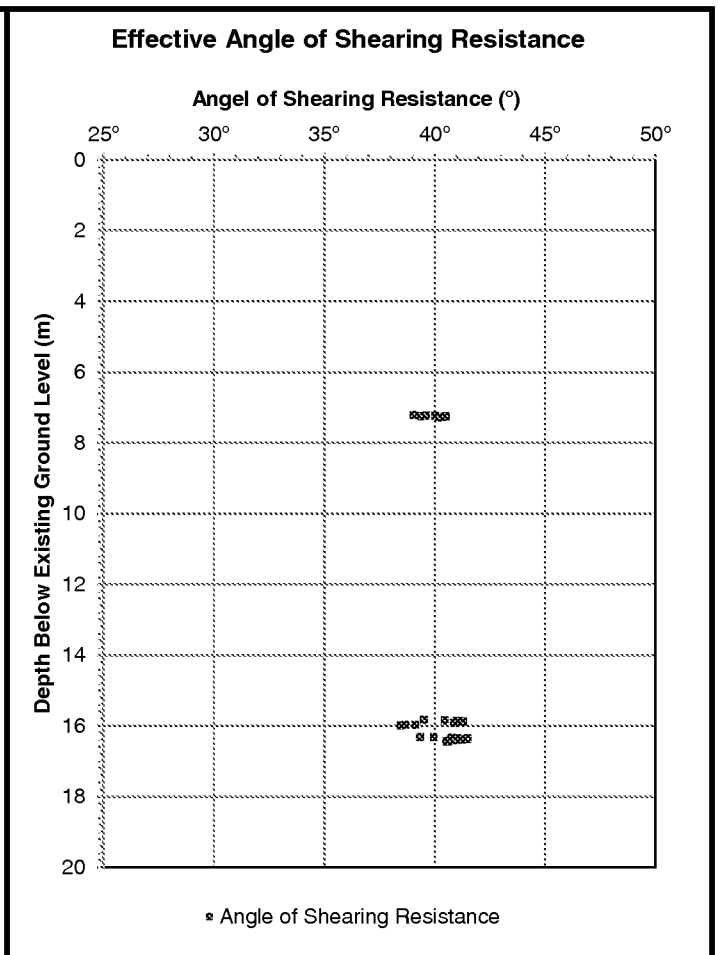
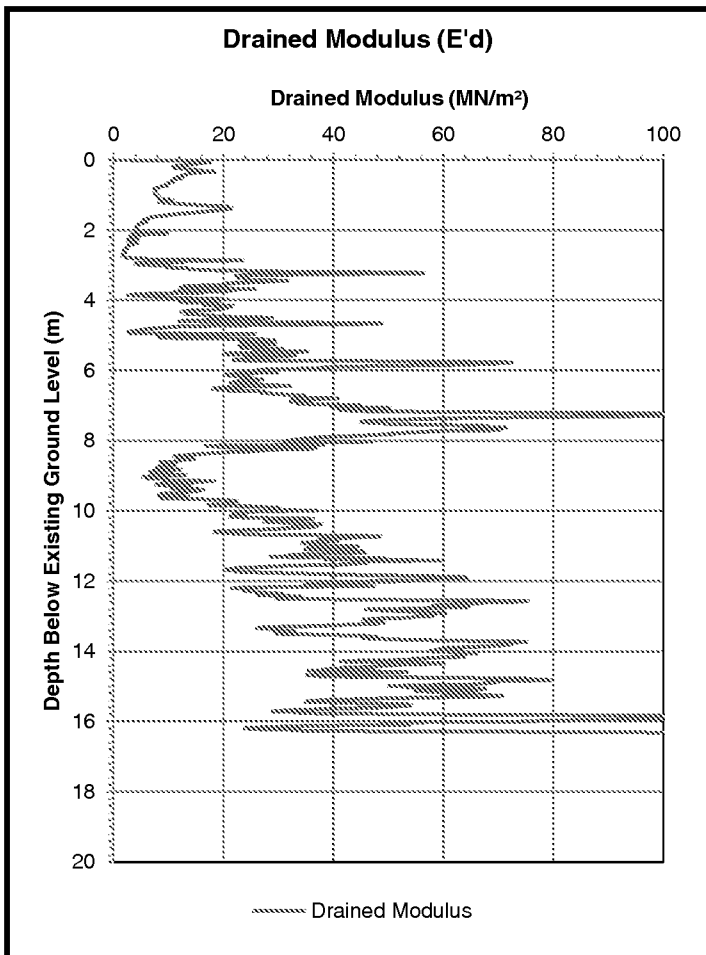
CPT Number			CPT 14		
Existing Ground Level			2.01m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	2.01m OD	10	6630 kN/m ²	7141 kN/m ²	0.25
2	1.76m OD	10	7141 kN/m ²	5271 kN/m ²	0.25
3	1.51m OD	10	5271 kN/m ²	3884 kN/m ²	0.25
4	1.26m OD	10	3884 kN/m ²	4386 kN/m ²	0.25
5	1.01m OD	10	4386 kN/m ²	9236 kN/m ²	0.25
6	0.76m OD	10	9236 kN/m ²	4265 kN/m ²	0.25
7	0.51m OD	10	4265 kN/m ²	2341 kN/m ²	0.25
8	0.26m OD	10	2341 kN/m ²	2259 kN/m ²	0.25
9	0.01m OD	10	2259 kN/m ²	1506 kN/m ²	0.25
10	-0.24m OD	10	1506 kN/m ²	1001 kN/m ²	0.25
11	-0.49m OD	10	1001 kN/m ²	3953 kN/m ²	0.25
12	-0.74m OD	10	3953 kN/m ²	11579 kN/m ²	0.25
13	-0.99m OD	10	11579 kN/m ²	13219 kN/m ²	0.25
14	-1.24m OD	10	13219 kN/m ²	9034 kN/m ²	0.25
15	-1.49m OD	10	9034 kN/m ²	5368 kN/m ²	0.25
16	-1.74m OD	10	5368 kN/m ²	8869 kN/m ²	0.25
17	-1.99m OD	10	8869 kN/m ²	8128 kN/m ²	0.25
18	-2.24m OD	10	8128 kN/m ²	13049 kN/m ²	0.25
19	-2.49m OD	10	13049 kN/m ²	4099 kN/m ²	0.25
20	-2.74m OD	10	4099 kN/m ²	10251 kN/m ²	0.25
21	-2.99m OD	10	10251 kN/m ²	13371 kN/m ²	0.25
22	-3.24m OD	10	13371 kN/m ²	13608 kN/m ²	0.25
23	-3.49m OD	10	13608 kN/m ²	25559 kN/m ²	0.25
24	-3.74m OD	10	25559 kN/m ²	11993 kN/m ²	0.25
25	-3.99m OD	10	11993 kN/m ²	12350 kN/m ²	0.25
26	-4.24m OD	10	12350 kN/m ²	13220 kN/m ²	0.25
27	-4.49m OD	10	13220 kN/m ²	17884 kN/m ²	0.25
28	-4.74m OD	10	17884 kN/m ²	27433 kN/m ²	0.25
29	-4.99m OD	10	27433 kN/m ²	33980 kN/m ²	0.25
30	-5.24m OD	10	33980 kN/m ²	31366 kN/m ²	0.25
31	-5.49m OD	10	31366 kN/m ²	21356 kN/m ²	0.25
32	-5.74m OD	10	21356 kN/m ²	15556 kN/m ²	0.25
33	-5.99m OD	10	15556 kN/m ²	9029 kN/m ²	0.25
34	-6.24m OD	10	9029 kN/m ²	5391 kN/m ²	0.25
35	-6.49m OD	10	5391 kN/m ²	4620 kN/m ²	0.25
36	-6.74m OD	10	4620 kN/m ²	5143 kN/m ²	0.25
37	-6.99m OD	10	5143 kN/m ²	6451 kN/m ²	0.25
38	-7.24m OD	10	6451 kN/m ²	6851 kN/m ²	0.25
39	-7.49m OD	10	6851 kN/m ²	12419 kN/m ²	0.25
40	-7.74m OD	10	12419 kN/m ²	12621 kN/m ²	0.25
41	-7.99m OD	10	12621 kN/m ²	16456 kN/m ²	0.25
42	-8.24m OD	10	16456 kN/m ²	14084 kN/m ²	0.25
43	-8.49m OD	10	14084 kN/m ²	19143 kN/m ²	0.25
44	-8.74m OD	10	19143 kN/m ²	20021 kN/m ²	0.25
45	-8.99m OD	10	20021 kN/m ²	21215 kN/m ²	0.25
46	-9.24m OD	10	21215 kN/m ²	13861 kN/m ²	0.25
47	-9.49m OD	10	13861 kN/m ²	25278 kN/m ²	0.25
48	-9.74m OD	10	25278 kN/m ²	18183 kN/m ²	0.25
49	-9.99m OD	10	18183 kN/m ²	14246 kN/m ²	0.25
50	-10.24m OD	10	14246 kN/m ²	30748 kN/m ²	0.25
51	-10.49m OD	10	30748 kN/m ²	27549 kN/m ²	0.25
52	-10.74m OD	10	27549 kN/m ²	24461 kN/m ²	0.25
53	-10.99m OD	10	24461 kN/m ²	15510 kN/m ²	0.25
54	-11.24m OD	10	15510 kN/m ²	25269 kN/m ²	0.25
55	-11.49m OD	10	25269 kN/m ²	32738 kN/m ²	0.25
56	-11.74m OD	10	32738 kN/m ²	30456 kN/m ²	0.25
57	-11.99m OD	10	30456 kN/m ²	24560 kN/m ²	0.25
58	-12.24m OD	10	24560 kN/m ²	20913 kN/m ²	0.25
59	-12.49m OD	10	20913 kN/m ²	34006 kN/m ²	0.25
60	-12.74m OD	10	34006 kN/m ²	30384 kN/m ²	0.25
61	-12.99m OD	10	30384 kN/m ²	24554 kN/m ²	0.25
62	-13.24m OD	10	24554 kN/m ²	21289 kN/m ²	0.25
63	-13.49m OD	10	21289 kN/m ²	44608 kN/m ²	0.25
64	-13.74m OD	10	44608 kN/m ²		



Robertson et al 1986, updated by Robertson 2010.

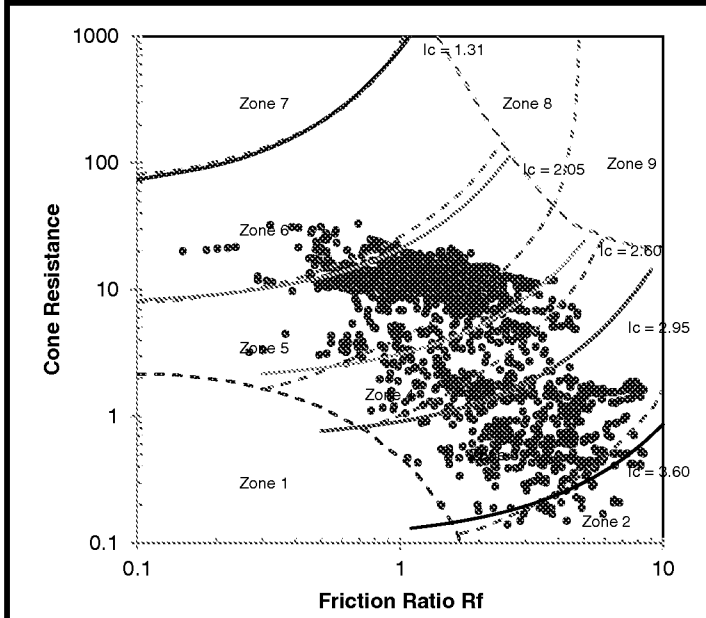
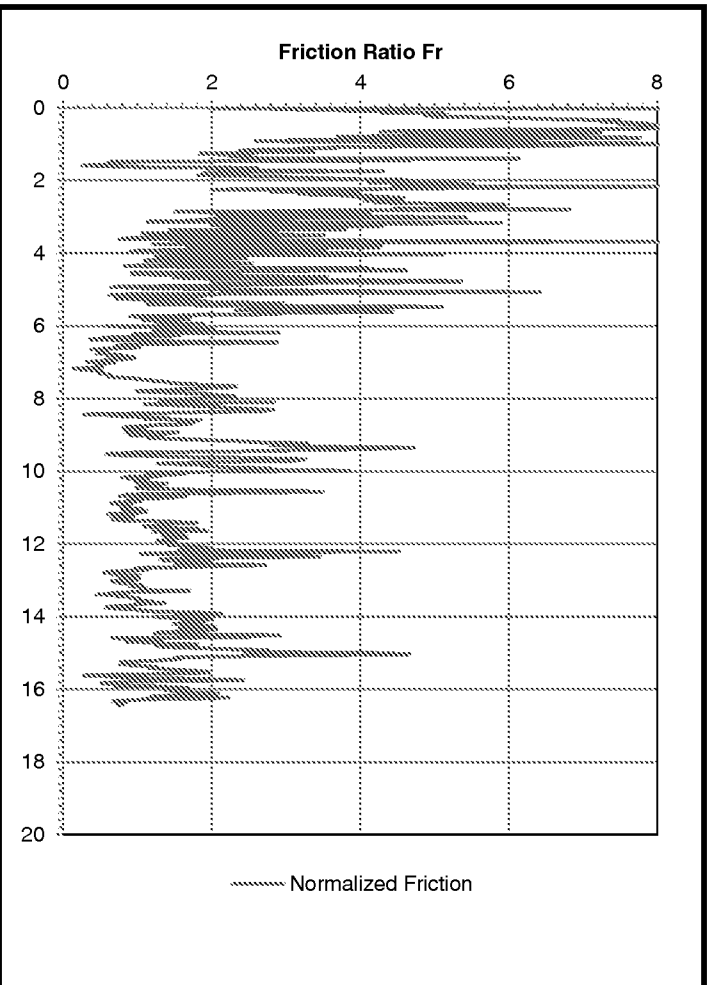
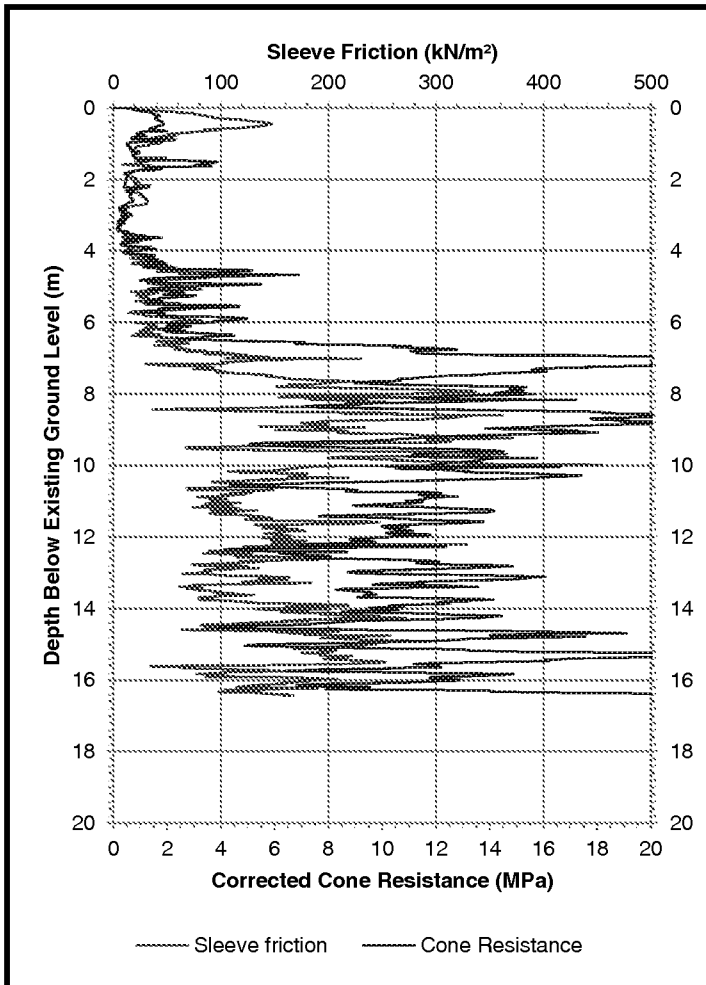
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





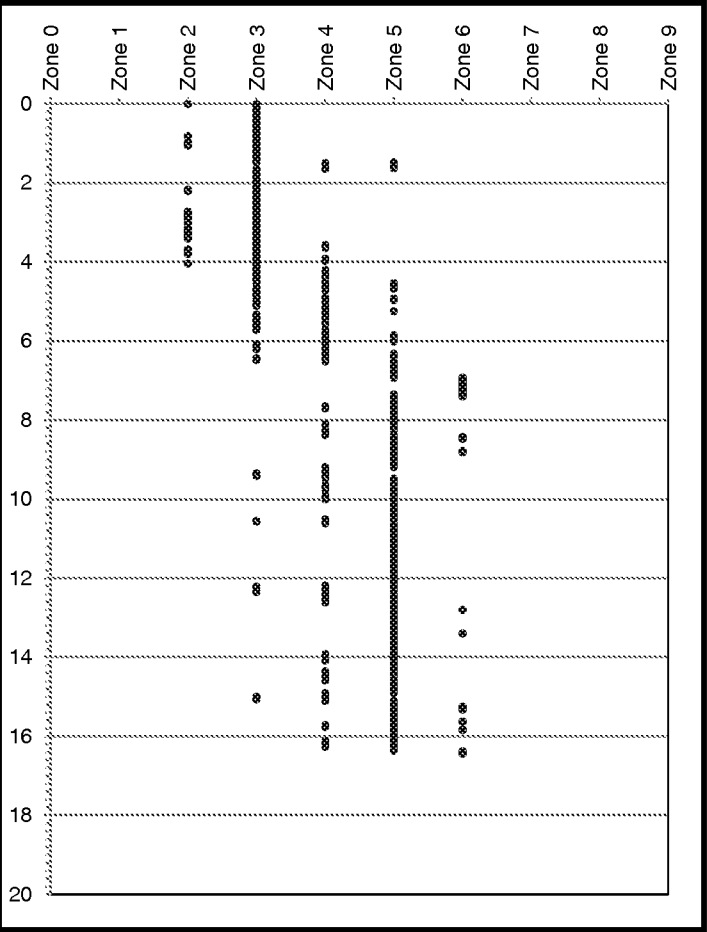


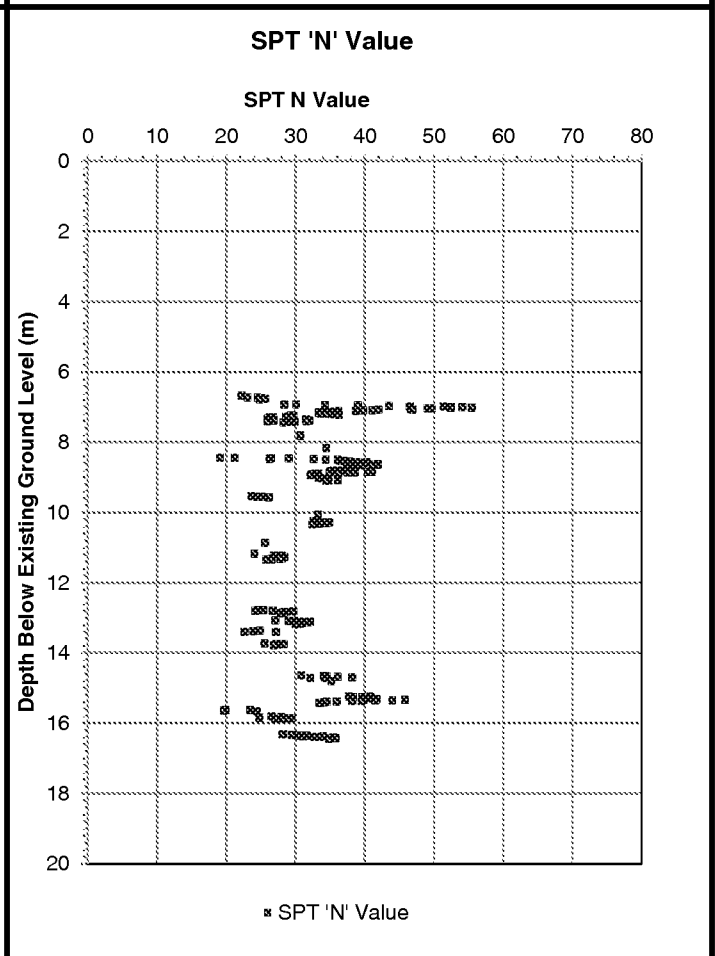
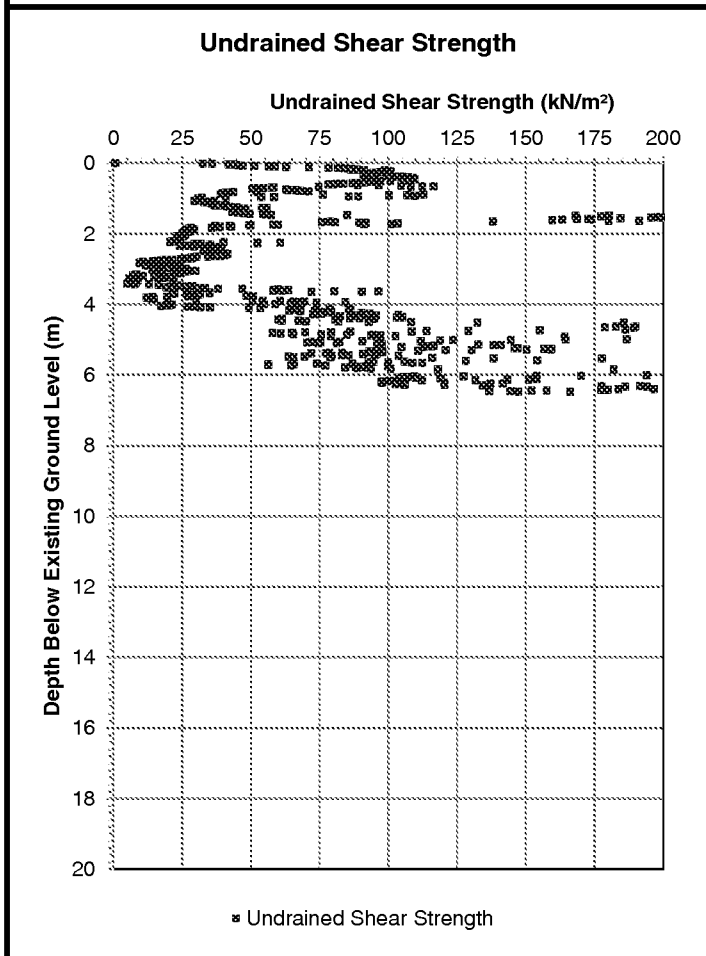
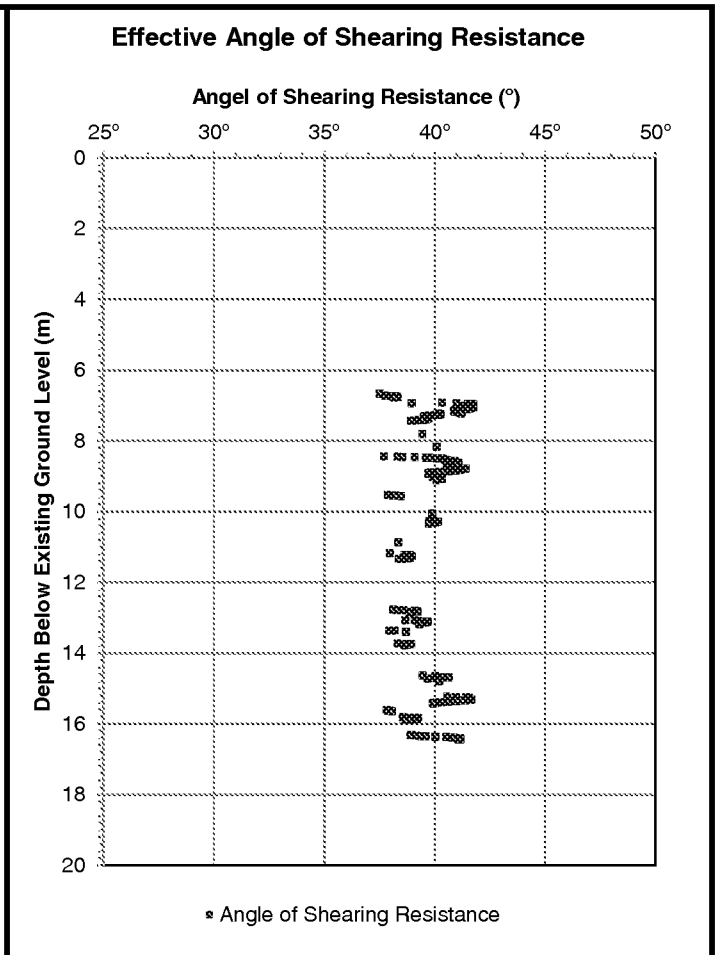
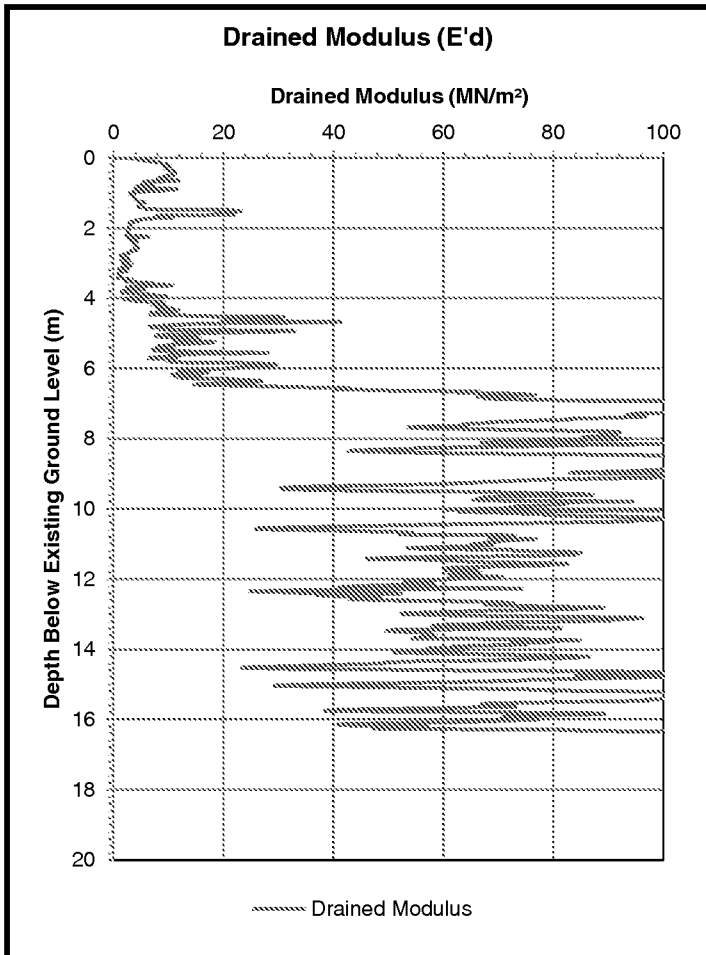
CPT Number			CPT 15		
Existing Ground Level			1.11m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	1.11m OD	10	3676 kN/m ²	5188 kN/m ²	0.25
2	0.86m OD	10	5188 kN/m ²	4203 kN/m ²	0.25
3	0.61m OD	10	4203 kN/m ²	3255 kN/m ²	0.25
4	0.36m OD	10	3255 kN/m ²	1855 kN/m ²	0.25
5	0.11m OD	10	1855 kN/m ²	3264 kN/m ²	0.25
6	-0.14m OD	10	3264 kN/m ²	7776 kN/m ²	0.25
7	-0.39m OD	10	7776 kN/m ²	1686 kN/m ²	0.25
8	-0.64m OD	10	1686 kN/m ²	1414 kN/m ²	0.25
9	-0.89m OD	10	1414 kN/m ²	1883 kN/m ²	0.25
10	-1.14m OD	10	1883 kN/m ²	1825 kN/m ²	0.25
11	-1.39m OD	10	1825 kN/m ²	990 kN/m ²	0.25
12	-1.64m OD	10	990 kN/m ²	1120 kN/m ²	0.25
13	-1.89m OD	10	1120 kN/m ²	771 kN/m ²	0.25
14	-2.14m OD	10	771 kN/m ²	2559 kN/m ²	0.25
15	-2.39m OD	10	2559 kN/m ²	2429 kN/m ²	0.25
16	-2.64m OD	10	2429 kN/m ²	3144 kN/m ²	0.25
17	-2.89m OD	10	3144 kN/m ²	4576 kN/m ²	0.25
18	-3.14m OD	10	4576 kN/m ²	12735 kN/m ²	0.25
19	-3.39m OD	10	12735 kN/m ²	7491 kN/m ²	0.25
20	-3.64m OD	10	7491 kN/m ²	5948 kN/m ²	0.25
21	-3.89m OD	10	5948 kN/m ²	5436 kN/m ²	0.25
22	-4.14m OD	10	5436 kN/m ²	6873 kN/m ²	0.25
23	-4.39m OD	10	6873 kN/m ²	10395 kN/m ²	0.25
24	-4.64m OD	10	10395 kN/m ²	6918 kN/m ²	0.25
25	-4.89m OD	10	6918 kN/m ²	9888 kN/m ²	0.25
26	-5.14m OD	10	9888 kN/m ²	25804 kN/m ²	0.25
27	-5.39m OD	10	25804 kN/m ²	47716 kN/m ²	0.25
28	-5.64m OD	10	47716 kN/m ²	70353 kN/m ²	0.25
29	-5.89m OD	10	70353 kN/m ²	45603 kN/m ²	0.25
30	-6.14m OD	10	45603 kN/m ²	31291 kN/m ²	0.25
31	-6.39m OD	10	31291 kN/m ²	43813 kN/m ²	0.25
32	-6.64m OD	10	43813 kN/m ²	39019 kN/m ²	0.25
33	-6.89m OD	10	39019 kN/m ²	30608 kN/m ²	0.25
34	-7.14m OD	10	30608 kN/m ²	57199 kN/m ²	0.25
35	-7.39m OD	10	57199 kN/m ²	53739 kN/m ²	0.25
36	-7.64m OD	10	53739 kN/m ²	44753 kN/m ²	0.25
37	-7.89m OD	10	44753 kN/m ²	21770 kN/m ²	0.25
38	-8.14m OD	10	21770 kN/m ²	36818 kN/m ²	0.25
39	-8.39m OD	10	36818 kN/m ²	39019 kN/m ²	0.25
40	-8.64m OD	10	39019 kN/m ²	38371 kN/m ²	0.25
41	-8.89m OD	10	38371 kN/m ²	40773 kN/m ²	0.25
42	-9.14m OD	10	40773 kN/m ²	20651 kN/m ²	0.25
43	-9.39m OD	10	20651 kN/m ²	35275 kN/m ²	0.25
44	-9.64m OD	10	35275 kN/m ²	33530 kN/m ²	0.25
45	-9.89m OD	10	33530 kN/m ²	33238 kN/m ²	0.25
46	-10.14m OD	10	33238 kN/m ²	35206 kN/m ²	0.25
47	-10.39m OD	10	35206 kN/m ²	32384 kN/m ²	0.25
48	-10.64m OD	10	32384 kN/m ²	26250 kN/m ²	0.25
49	-10.89m OD	10	26250 kN/m ²	21089 kN/m ²	0.25
50	-11.14m OD	10	21089 kN/m ²	28813 kN/m ²	0.25
51	-11.39m OD	10	28813 kN/m ²	35849 kN/m ²	0.25
52	-11.64m OD	10	35849 kN/m ²	40570 kN/m ²	0.25
53	-11.89m OD	10	40570 kN/m ²	31953 kN/m ²	0.25
54	-12.14m OD	10	31953 kN/m ²	29881 kN/m ²	0.25
55	-12.39m OD	10	29881 kN/m ²	34855 kN/m ²	0.25
56	-12.64m OD	10	34855 kN/m ²	34225 kN/m ²	0.25
57	-12.89m OD	10	34225 kN/m ²	27194 kN/m ²	0.25
58	-13.14m OD	10	27194 kN/m ²	35011 kN/m ²	0.25
59	-13.39m OD	10	35011 kN/m ²	37461 kN/m ²	0.25
60	-13.64m OD	10	37461 kN/m ²	32168 kN/m ²	0.25
61	-13.89m OD	10	32168 kN/m ²	58848 kN/m ²	0.25
62	-14.14m OD	10	58848 kN/m ²	32096 kN/m ²	0.25
63	-14.39m OD	10	32096 kN/m ²	36913 kN/m ²	0.25
64	-14.64m OD	10	36913 kN/m ²		



Robertson et al 1986, updated by Robertson 2010.

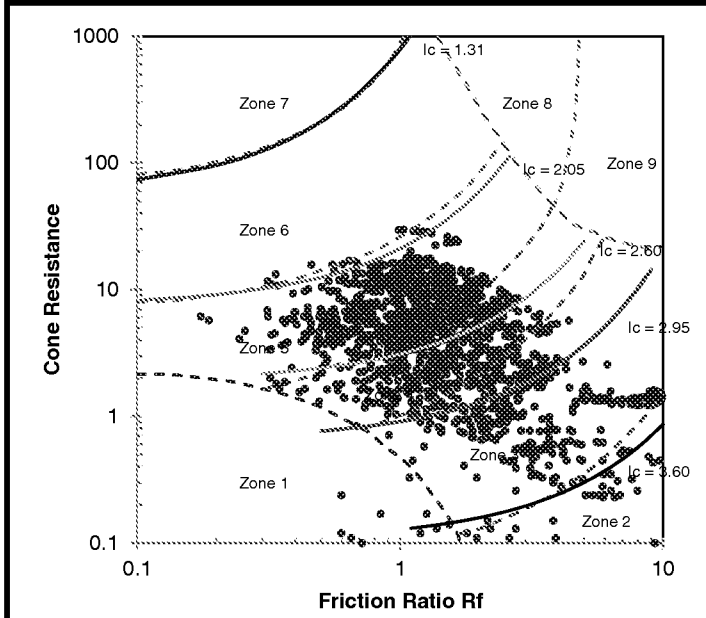
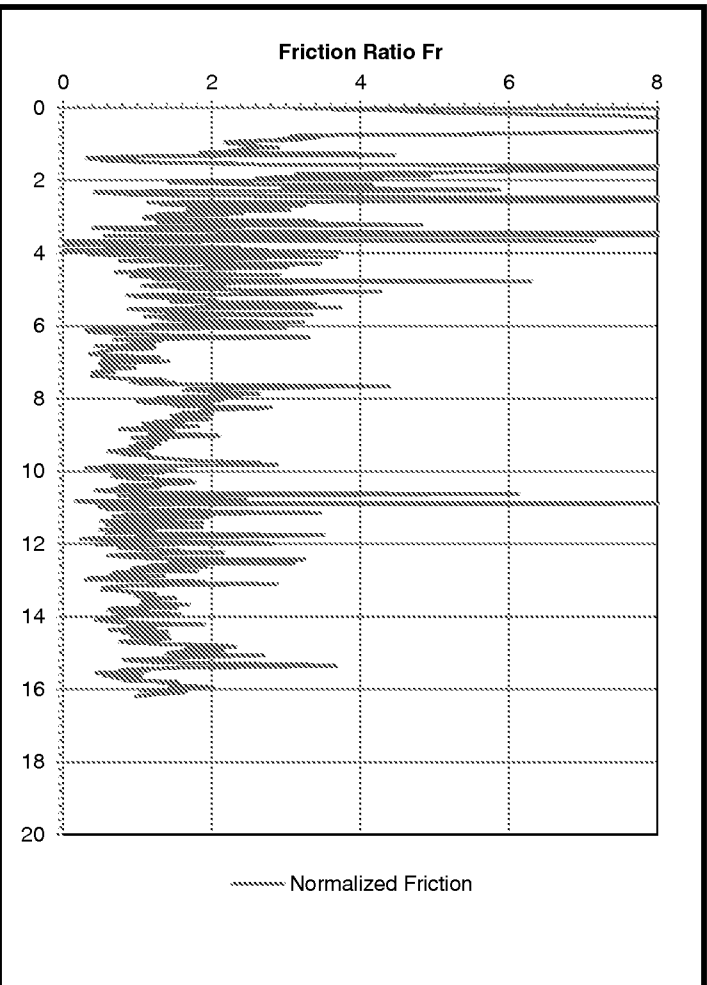
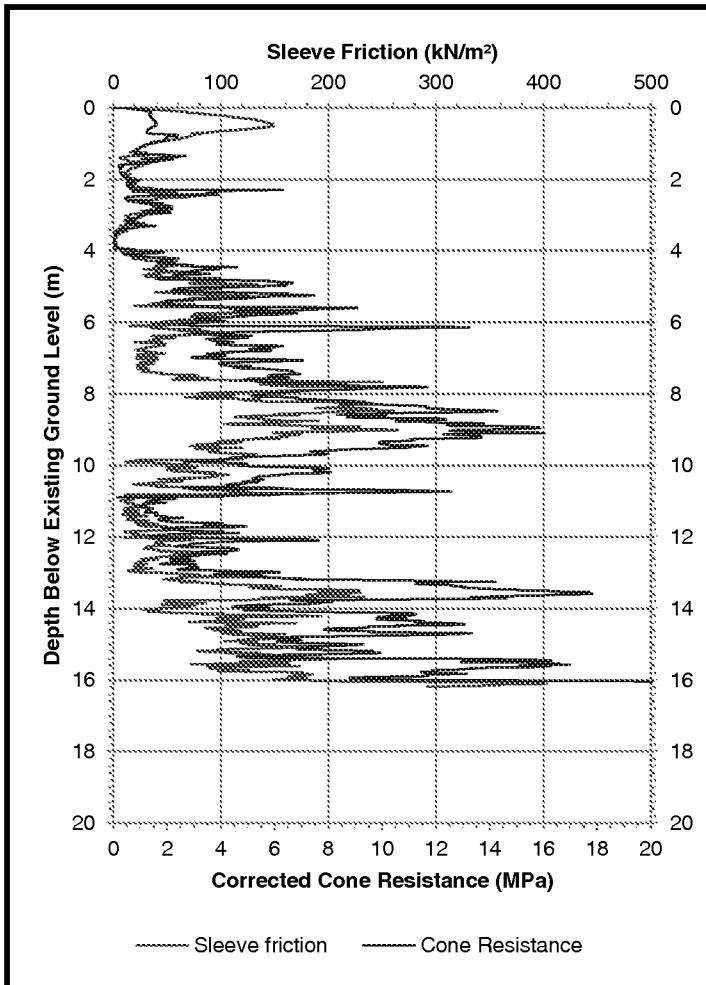
Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained





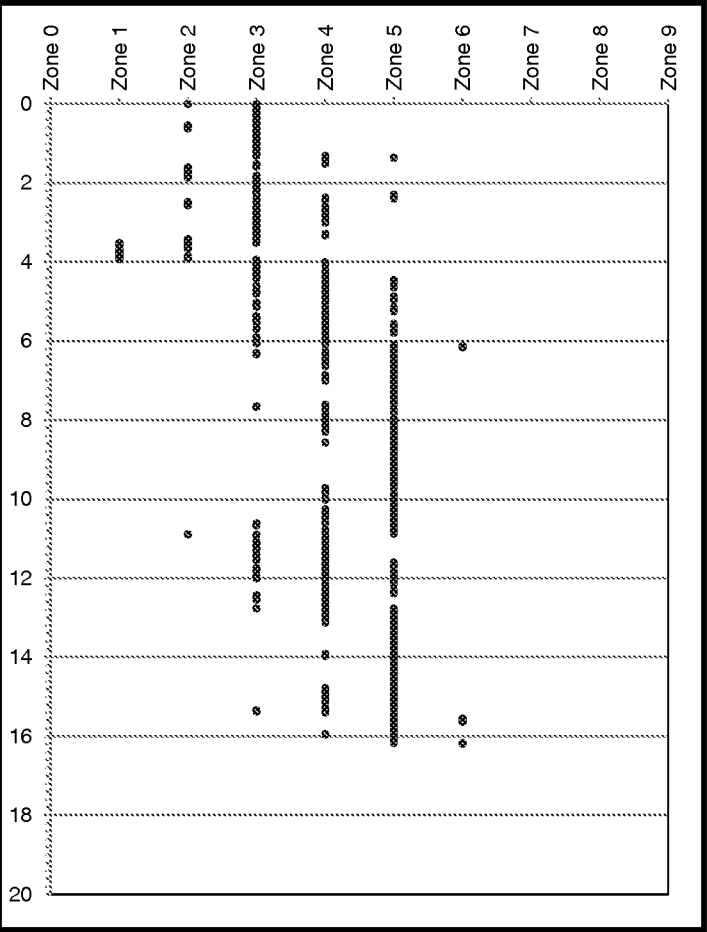


CPT Number			CPT 16		
Existing Ground Level			1.09m OD		
Layer Interval			0.25m		
Selected deformability value α m			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	1.09m OD	10	3536 kN/m ²	4561 kN/m ²	0.25
2	0.84m OD	10	4561 kN/m ²	4049 kN/m ²	0.25
3	0.59m OD	10	4049 kN/m ²	5791 kN/m ²	0.25
4	0.34m OD	10	5791 kN/m ²	2994 kN/m ²	0.25
5	0.09m OD	10	2994 kN/m ²	4674 kN/m ²	0.25
6	-0.16m OD	10	4674 kN/m ²	1669 kN/m ²	0.25
7	-0.41m OD	10	1669 kN/m ²	1061 kN/m ²	0.25
8	-0.66m OD	10	1061 kN/m ²	1999 kN/m ²	0.25
9	-0.91m OD	10	1999 kN/m ²	8446 kN/m ²	0.25
10	-1.16m OD	10	8446 kN/m ²	3444 kN/m ²	0.25
11	-1.41m OD	10	3444 kN/m ²	5248 kN/m ²	0.25
12	-1.66m OD	10	5248 kN/m ²	2275 kN/m ²	0.25
13	-1.91m OD	10	2275 kN/m ²	1905 kN/m ²	0.25
14	-2.16m OD	10	1905 kN/m ²	251 kN/m ²	0.25
15	-2.41m OD	10	251 kN/m ²	721 kN/m ²	0.25
16	-2.66m OD	10	721 kN/m ²	4284 kN/m ²	0.25
17	-2.91m OD	10	4284 kN/m ²	7504 kN/m ²	0.25
18	-3.16m OD	10	7504 kN/m ²	8489 kN/m ²	0.25
19	-3.41m OD	10	8489 kN/m ²	15118 kN/m ²	0.25
20	-3.66m OD	10	15118 kN/m ²	11858 kN/m ²	0.25
21	-3.91m OD	10	11858 kN/m ²	10006 kN/m ²	0.25
22	-4.16m OD	10	10006 kN/m ²	17571 kN/m ²	0.25
23	-4.41m OD	10	17571 kN/m ²	12670 kN/m ²	0.25
24	-4.66m OD	10	12670 kN/m ²	20386 kN/m ²	0.25
25	-4.91m OD	10	20386 kN/m ²	12165 kN/m ²	0.25
26	-5.16m OD	10	12165 kN/m ²	14314 kN/m ²	0.25
27	-5.41m OD	10	14314 kN/m ²	12629 kN/m ²	0.25
28	-5.66m OD	10	12629 kN/m ²	14929 kN/m ²	0.25
29	-5.91m OD	10	14929 kN/m ²	18361 kN/m ²	0.25
30	-6.16m OD	10	18361 kN/m ²	18159 kN/m ²	0.25
31	-6.41m OD	10	18159 kN/m ²	25268 kN/m ²	0.25
32	-6.66m OD	10	25268 kN/m ²	21105 kN/m ²	0.25
33	-6.91m OD	10	21105 kN/m ²	34684 kN/m ²	0.25
34	-7.16m OD	10	34684 kN/m ²	31039 kN/m ²	0.25
35	-7.41m OD	10	31039 kN/m ²	40540 kN/m ²	0.25
36	-7.66m OD	10	40540 kN/m ²	40413 kN/m ²	0.25
37	-7.91m OD	10	40413 kN/m ²	31985 kN/m ²	0.25
38	-8.16m OD	10	31985 kN/m ²	24119 kN/m ²	0.25
39	-8.41m OD	10	24119 kN/m ²	12445 kN/m ²	0.25
40	-8.66m OD	10	12445 kN/m ²	21451 kN/m ²	0.25
41	-8.91m OD	10	21451 kN/m ²	16220 kN/m ²	0.25
42	-9.16m OD	10	16220 kN/m ²	18380 kN/m ²	0.25
43	-9.41m OD	10	18380 kN/m ²	11117 kN/m ²	0.25
44	-9.66m OD	10	11117 kN/m ²	3864 kN/m ²	0.25
45	-9.91m OD	10	3864 kN/m ²	5043 kN/m ²	0.25
46	-10.16m OD	10	5043 kN/m ²	9221 kN/m ²	0.25
47	-10.41m OD	10	9221 kN/m ²	7835 kN/m ²	0.25
48	-10.66m OD	10	7835 kN/m ²	12688 kN/m ²	0.25
49	-10.91m OD	10	12688 kN/m ²	11301 kN/m ²	0.25
50	-11.16m OD	10	11301 kN/m ²	7490 kN/m ²	0.25
51	-11.41m OD	10	7490 kN/m ²	10220 kN/m ²	0.25
52	-11.66m OD	10	10220 kN/m ²	19230 kN/m ²	0.25
53	-11.91m OD	10	19230 kN/m ²	38380 kN/m ²	0.25
54	-12.16m OD	10	38380 kN/m ²	46823 kN/m ²	0.25
55	-12.41m OD	10	46823 kN/m ²	19129 kN/m ²	0.25
56	-12.66m OD	10	19129 kN/m ²	26054 kN/m ²	0.25
57	-12.91m OD	10	26054 kN/m ²	34051 kN/m ²	0.25
58	-13.16m OD	10	34051 kN/m ²	29814 kN/m ²	0.25
59	-13.41m OD	10	29814 kN/m ²	20799 kN/m ²	0.25
60	-13.66m OD	10	20799 kN/m ²	24756 kN/m ²	0.25
61	-13.91m OD	10	24756 kN/m ²	28921 kN/m ²	0.25
62	-14.16m OD	10	28921 kN/m ²	44028 kN/m ²	0.25
63	-14.41m OD	10	44028 kN/m ²	32956 kN/m ²	0.25
64	-14.66m OD	10	32956 kN/m ²		



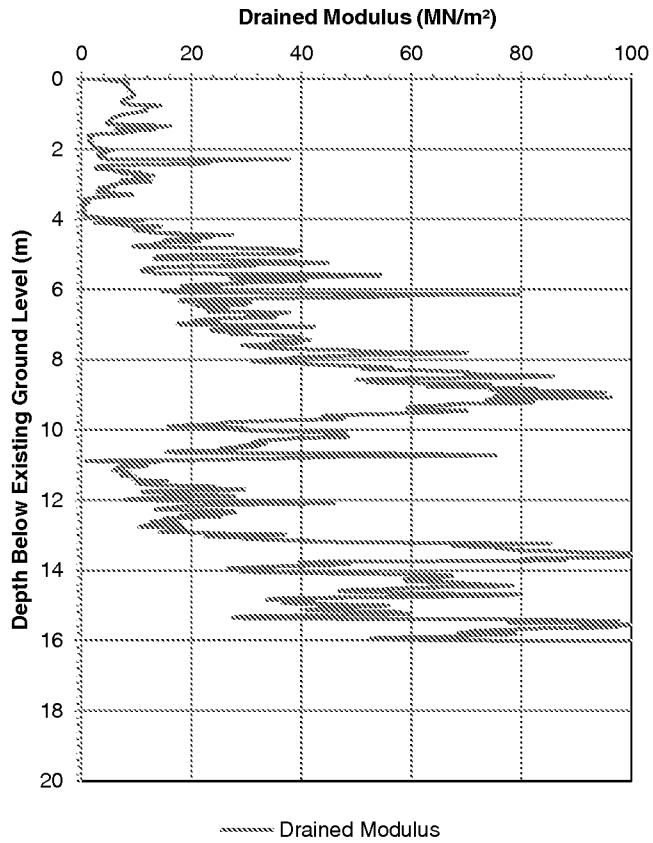
Robertson et al 1986, updated by Robertson 2010.

Zone	Soil Behavior Type
Zone 1	Sensitive Fine Grained
Zone 2	Organic Soils - Clays
Zone 3	Clays - silty clay to clay
Zone 4	Silt mixtures - clayey silt to silty clay
Zone 5	Sand mixtures - silty sand to sandy silt
Zone 6	Sands - clean sand to silty sand
Zone 7	gravelly sand to dense sand
Zone 8	very stiff sand to clayey sand
Zone 9	very stiff, fine grained

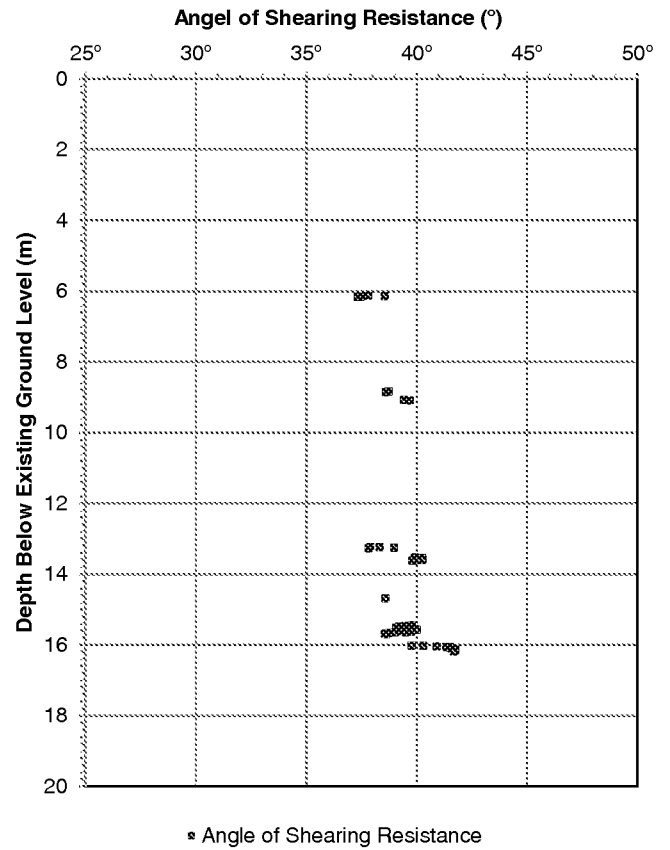




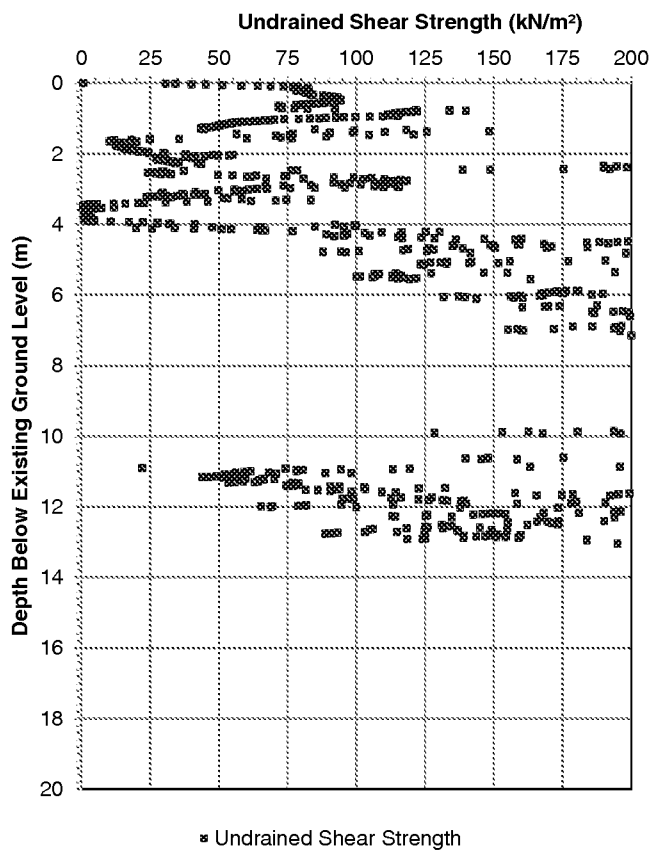
Drained Modulus (E'd)



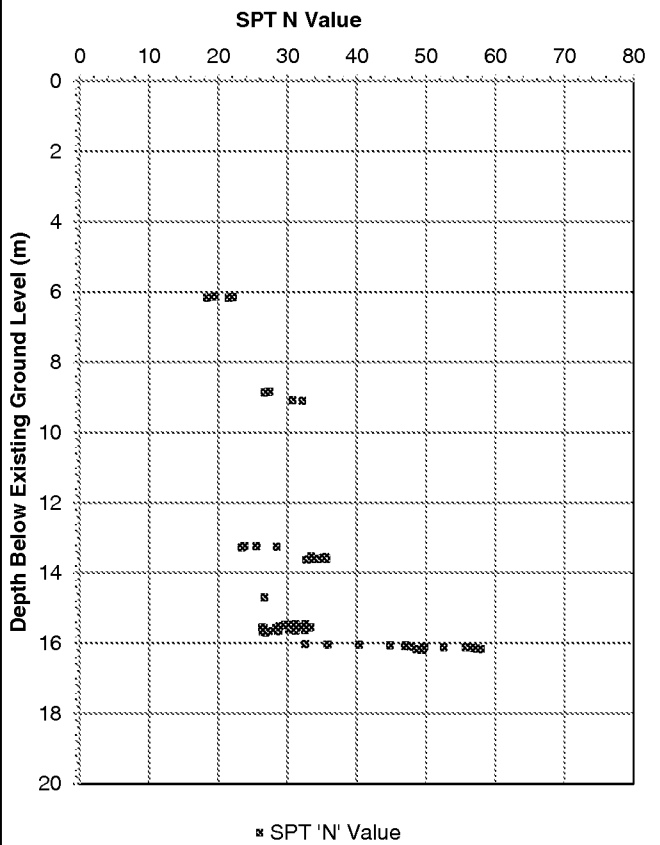
Effective Angle of Shearing Resistance



Undrained Shear Strength

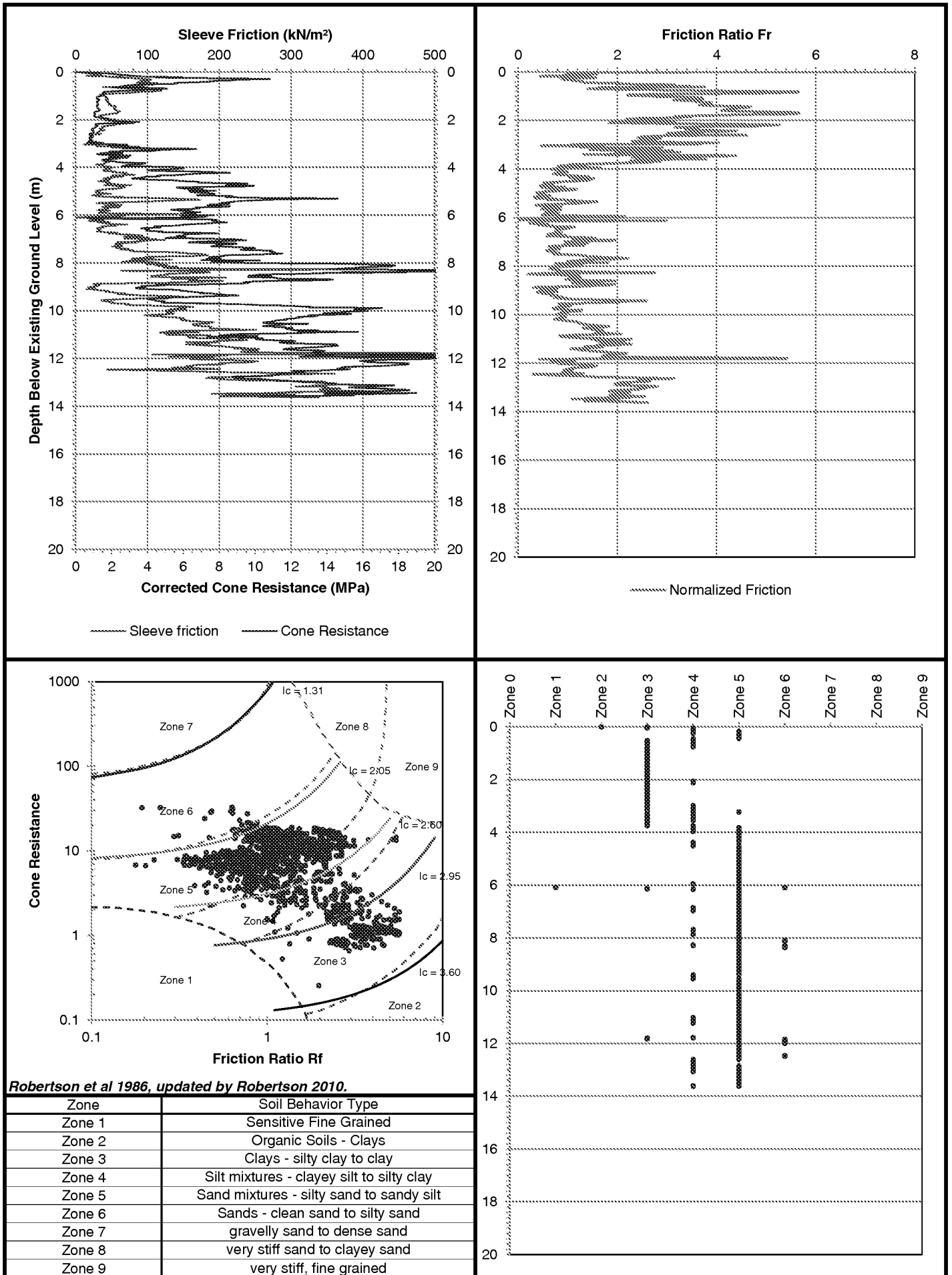


SPT 'N' Value



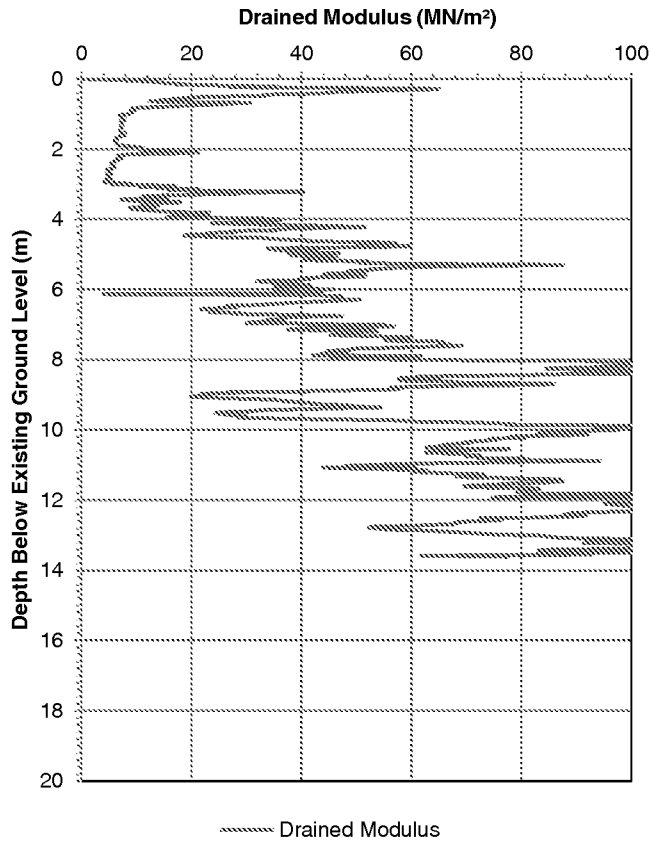


CPT Number			CPT 17		
Existing Ground Level			2.48m OD		
Layer Interval			0.25m		
Selected deformability value αm			3		
Layer	Level at Top	No of Intermediate displacement levels	Young's modulus [kPa]		Poisson's Ratio
			Top	Bottom	
1	2.48m OD	10	8252 kN/m ²	23573 kN/m ²	0.25
2	2.23m OD	10	23573 kN/m ²	10150 kN/m ²	0.25
3	1.98m OD	10	10150 kN/m ²	5658 kN/m ²	0.25
4	1.73m OD	10	5658 kN/m ²	3724 kN/m ²	0.25
5	1.48m OD	10	3724 kN/m ²	3614 kN/m ²	0.25
6	1.23m OD	10	3614 kN/m ²	3591 kN/m ²	0.25
7	0.98m OD	10	3591 kN/m ²	3905 kN/m ²	0.25
8	0.73m OD	10	3905 kN/m ²	6010 kN/m ²	0.25
9	0.48m OD	10	6010 kN/m ²	3041 kN/m ²	0.25
10	0.23m OD	10	3041 kN/m ²	2618 kN/m ²	0.25
11	-0.02m OD	10	2618 kN/m ²	2563 kN/m ²	0.25
12	-0.27m OD	10	2563 kN/m ²	9725 kN/m ²	0.25
13	-0.52m OD	10	9725 kN/m ²	7455 kN/m ²	0.25
14	-0.77m OD	10	7455 kN/m ²	6180 kN/m ²	0.25
15	-1.02m OD	10	6180 kN/m ²	9919 kN/m ²	0.25
16	-1.27m OD	10	9919 kN/m ²	18068 kN/m ²	0.25
17	-1.52m OD	10	18068 kN/m ²	13803 kN/m ²	0.25
18	-1.77m OD	10	13803 kN/m ²	21669 kN/m ²	0.25
19	-2.02m OD	10	21669 kN/m ²	21591 kN/m ²	0.25
20	-2.27m OD	10	21591 kN/m ²	22383 kN/m ²	0.25
21	-2.52m OD	10	22383 kN/m ²	30589 kN/m ²	0.25
22	-2.77m OD	10	30589 kN/m ²	22569 kN/m ²	0.25
23	-3.02m OD	10	22569 kN/m ²	18581 kN/m ²	0.25
24	-3.27m OD	10	18581 kN/m ²	18189 kN/m ²	0.25
25	-3.52m OD	10	18189 kN/m ²	19545 kN/m ²	0.25
26	-3.77m OD	10	19545 kN/m ²	13416 kN/m ²	0.25
27	-4.02m OD	10	13416 kN/m ²	18331 kN/m ²	0.25
28	-4.27m OD	10	18331 kN/m ²	24300 kN/m ²	0.25
29	-4.52m OD	10	24300 kN/m ²	27348 kN/m ²	0.25
30	-4.77m OD	10	27348 kN/m ²	29918 kN/m ²	0.25
31	-5.02m OD	10	29918 kN/m ²	23961 kN/m ²	0.25
32	-5.27m OD	10	23961 kN/m ²	47729 kN/m ²	0.25
33	-5.52m OD	10	47729 kN/m ²	55384 kN/m ²	0.25
34	-5.77m OD	10	55384 kN/m ²	34374 kN/m ²	0.25
35	-6.02m OD	10	34374 kN/m ²	22308 kN/m ²	0.25
36	-6.27m OD	10	22308 kN/m ²	15163 kN/m ²	0.25
37	-6.52m OD	10	15163 kN/m ²	21310 kN/m ²	0.25
38	-6.77m OD	10	21310 kN/m ²	16645 kN/m ²	0.25
39	-7.02m OD	10	16645 kN/m ²	42234 kN/m ²	0.25
40	-7.27m OD	10	42234 kN/m ²	43118 kN/m ²	0.25
41	-7.52m OD	10	43118 kN/m ²	34825 kN/m ²	0.25
42	-7.77m OD	10	34825 kN/m ²	34155 kN/m ²	0.25
43	-8.02m OD	10	34155 kN/m ²	37140 kN/m ²	0.25
44	-8.27m OD	10	37140 kN/m ²	28205 kN/m ²	0.25
45	-8.52m OD	10	28205 kN/m ²	38884 kN/m ²	0.25
46	-8.77m OD	10	38884 kN/m ²	38583 kN/m ²	0.25
47	-9.02m OD	10	38583 kN/m ²	56374 kN/m ²	0.25
48	-9.27m OD	10	56374 kN/m ²	52346 kN/m ²	0.25
49	-9.52m OD	10	52346 kN/m ²	47376 kN/m ²	0.25
50	-9.77m OD	10	47376 kN/m ²	35086 kN/m ²	0.25
51	-10.02m OD	10	35086 kN/m ²	31213 kN/m ²	0.25
52	-10.27m OD	10	31213 kN/m ²	46841 kN/m ²	0.25
53	-10.52m OD	10	46841 kN/m ²	50763 kN/m ²	0.25
54	-10.77m OD	10	50763 kN/m ²	38846 kN/m ²	0.25
55	-11.02m OD	10	38846 kN/m ²		
56	-11.27m OD	10			
57	-11.52m OD	10			
58	-11.77m OD	10			
59	-12.02m OD	10			
60	-12.27m OD	10			
61	-12.52m OD	10			
62	-12.77m OD	10			
63	-13.02m OD	10			
64	-13.27m OD	10			

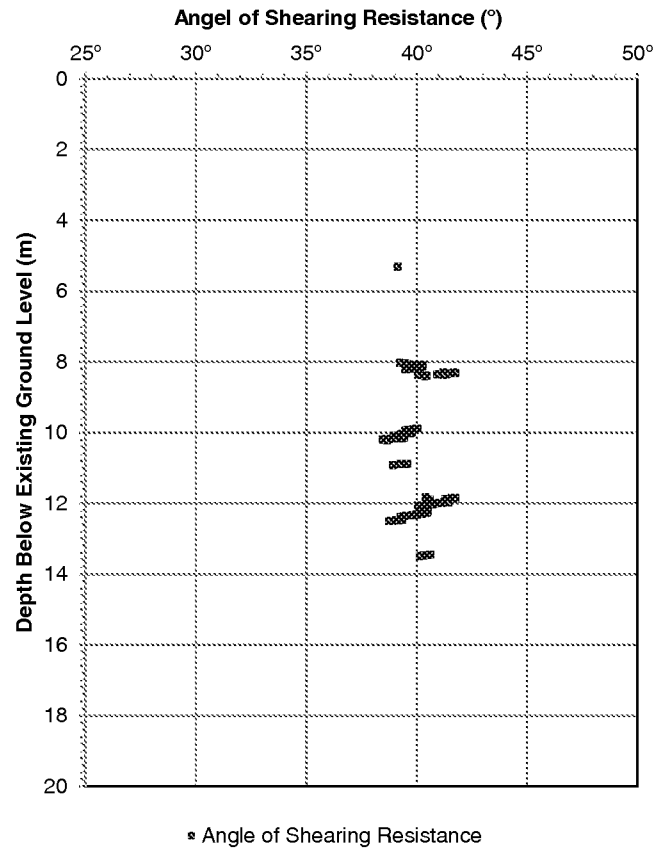




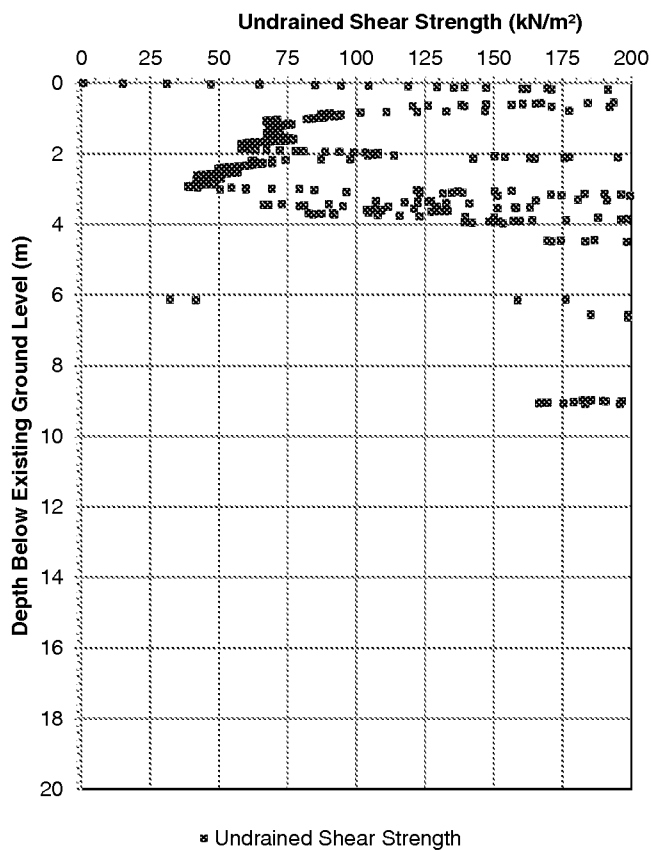
Drained Modulus (E'd)



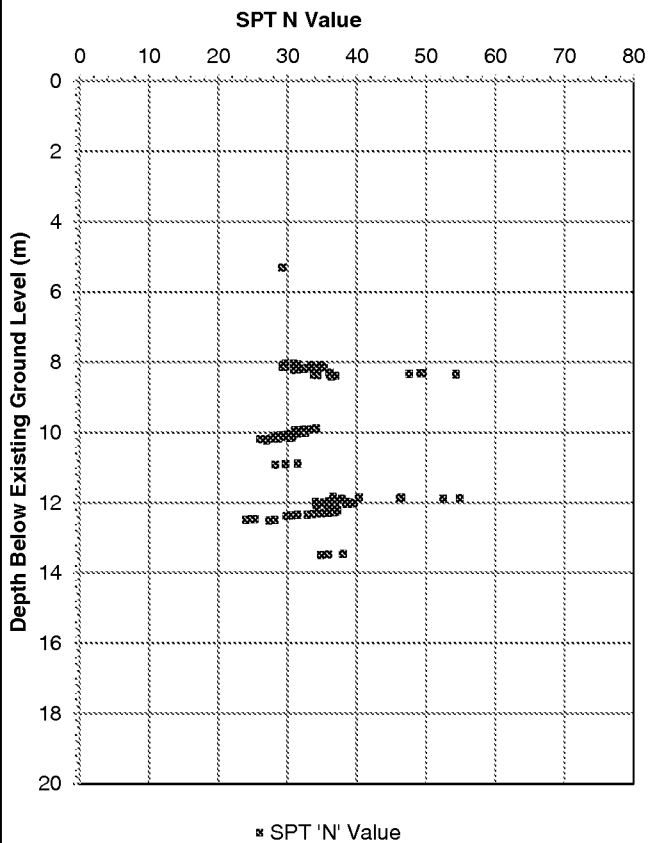
Effective Angle of Shearing Resistance



Undrained Shear Strength



SPT 'N' Value





Appendix D

Geotechnical Test Results & Shear Strength vs. Depth Plot

Site:

Oldlands Farm

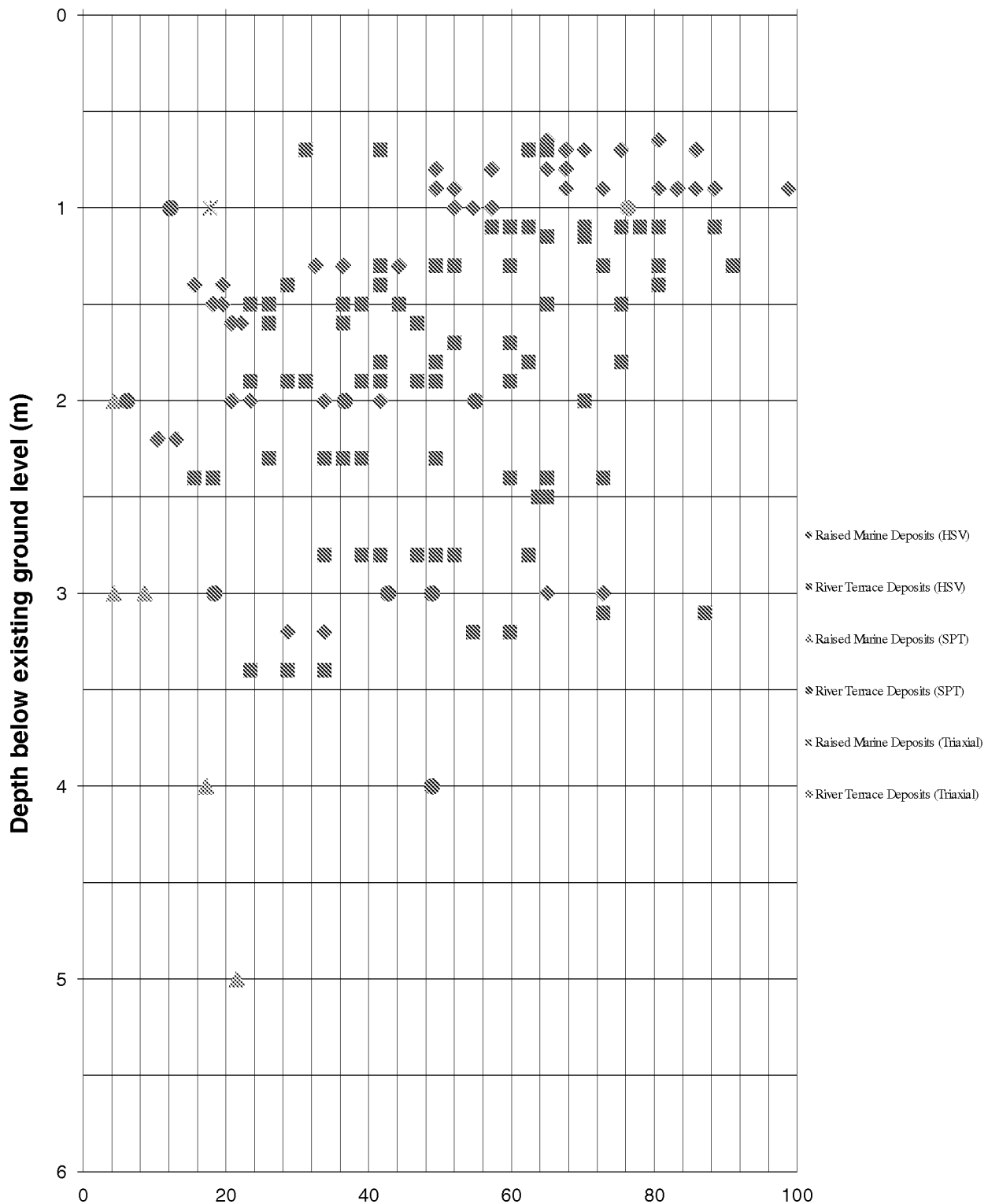
Client:

Bericote Properties

Contract No.

C14459

Undrained shear strength (kN/m²)



Determination of Moisture Content and Atterberg Limits

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/08
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 26.06.14 to 01.07.14
Sample Type: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm (Estimated)
45214454	TP15	1.00-1.30	Brown CLAY	47	71	24	47	**100
45214455	TP17	1.30-1.50	Brown CLAY	19	27	Non Plastic	N/A	**99
45214456	TP18	1.20-1.50	Brown CLAY	36	55	21	34	**100
45214457	TP18	1.80-3.60	Brown CLAY	40	62	24	38	**99
45214458	TP19	2.10-2.50	Grey CLAY	62	80	27	53	100
45214459	TP19	1.10-1.40	Brown sandy CLAY	30	44	22	22	100
45214460	TP21	0.60-0.90	Brown CLAY	31	57	25	32	100
45214462	TP22	2.20-2.80	White CLAY with Chalk and Gravel	24	26	Non Plastic	N/A	**50
45214463	TP22	0.75-1.50	Brown chalky CLAY	23	31	15	16	**82
45214464	TP23	0.50-1.00	Brown CLAY	31	70	26	44	**100

Sample Preparation: As Received

* Washed over 425µm BS Test Sieve

** Actual % passing 425µm BS Test Sieve from separate grading analysis

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2, 4.4 and 5

Page: 1 of 1

Date Reported: 11.07.14

Signed

[REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content and Atterberg Limits

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/09
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 26.06.14 to 01.07.14
Sample Type: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm (Estimated)
45214465	TP23	2.00-2.50	Brown slightly sandy CLAY	28	33	18	15	**97
45214467	TP29	0.50-1.20	Brown CLAY	30	68	25	43	100
45214471	TP36	2.00-2.30	Brown clayey Silt/Sand with rare gravel	22	30	Non Plastic	N/A	**97
45214472	TP37	2.60-2.90	Brown slightly sandy chalky CLAY	14	23	Non Plastic	N/A	**86
45214474	TP38	1.50-2.20	Brown slightly sandy CLAY	35	53	24	29	100
45214476	TP39	1.50-2.30	Brown sandy CLAY	19	59	24	35	100
45214478	TP42	1.10-1.40	Brown grey chalky CLAY	17	25	14	11	**80*
45214479	TP43	1.10-1.80	Brown slightly sandy CLAY	21	35	21	14	**100
45214480	TP37	1.60-2.60	Brown CLAY	24	42	21	21	**100
45214482	TP01	0.60-1.20	Brown slightly sandy CLAY	18	32	17	15	100

Sample Preparation: As Received

* Washed over 425µm BS Test Sieve

** Actual % passing 425µm BS Test Sieve from separate grading analysis

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2, 4.4 and 5

Page: 1 of 1

Date Reported: 11.07.14

Signed

[REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content and Atterberg Limits

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/10

Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 26.06.14 to 01.07.14
Sample Type: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)	Liquid Limit	Plastic Limit	Plasticity Index	% Passing 425µm (Estimated)
45214483	TP02	0.50-1.00	Brown CLAY	21	33	19	14	**98
45214486	TP03	0.30-1.40	Brown sandy CLAY	19	36	18	18	**94
45214490	TP05	1.00-1.30	Brown CLAY	19	35	18	17	**99
45214493	TP06	1.70-2.20	Brown Chalky CLAY	16	22	14	8	**88
45214496	TP07	1.80-2.30	Brown chalky gravelly CLAY	24	27	16	11	**86
45214498	TP08	1.00-1.30	Brown sandy CLAY with occasional gravel	22	54	19	35	87
45214500	TP09	2.20-2.60	Brown slightly gravelly CLAY	19	28	17	11	**88
45214501	TP10	1.70-2.40	Brown CLAY	27	40	21	19	**100
45214502	TP11	1.30-1.90	Brown sandy CLAY	24	42	18	24	100
45214504	TP13	1.20-1.50	Brown CLAY with occasional gravel	22	41	18	23	89
45214505	TP13	2.60-2.70	Grey clayey chalky SAND with silt	16	22	Non Plastic	N/A	54*

Sample Preparation: As Received

* Washed over 425µm BS Test Sieve

** Actual % passing 425µm BS Test Sieve from separate grading analysis

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2, 4.4 and 5

Page: 1 of 1

Date Reported: 11.07.14

Signed

[REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/43
Batch Number: DAM0047684
Client Reference: 11
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 30.06.14

Test Results:

Description: Brown CLAY
Laboratory Ref: 45214445
Location: TP20 @ 0.80-1.40
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 21 %

Moisture Content (Base): 22 %

Moisture Content (Mean): 22 %

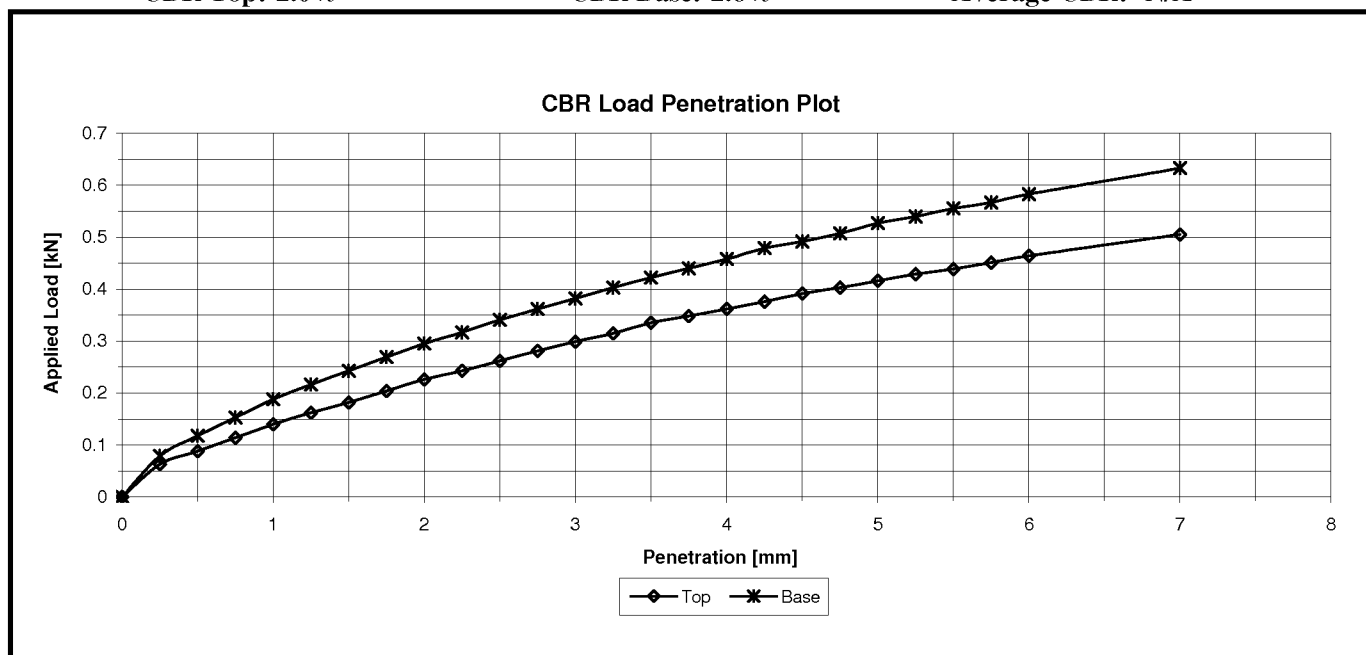
Initial Bulk Density (Mg/m³): 2.01

Initial Dry Density (Mg/m³): 1.65

CBR Top: 2.0%

CBR Base: 2.6%

Average CBR: N/A



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/44
Batch Number: DAM0047684
Client Reference: 12
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 30.06.14

Test Results:

Description: Brown chalky CLAY
Laboratory Ref: 45214446
Location: TP27 @ 1.40-1.70
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

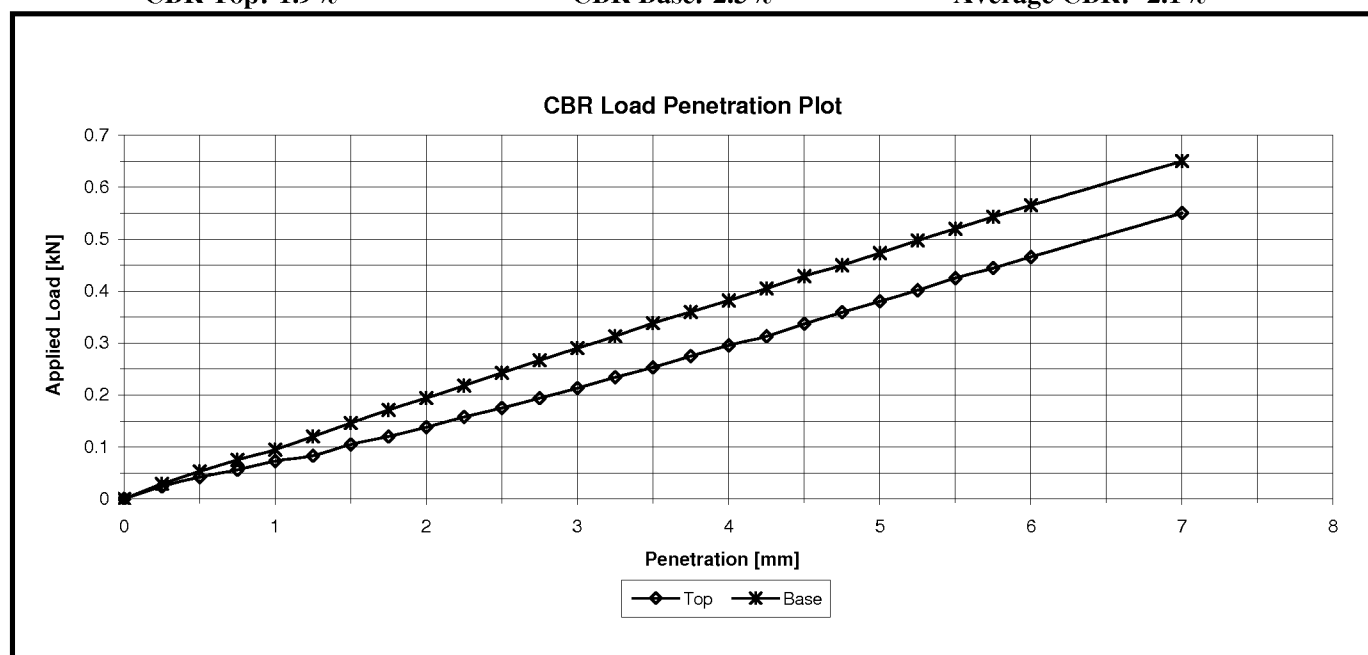
Applied Seating Load (top): 10 N
Applied Seating Load (base): 10 N
Applied Surcharge: 6.0kg

Moisture Content (Top): 17 %
Moisture Content (Base): 17 %
Moisture Content (Mean): 17 %
Initial Bulk Density (Mg/m³): 2.08
Initial Dry Density (Mg/m³): 1.78

CBR Top: 1.9%

CBR Base: 2.3%

Average CBR: 2.1%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/45
Batch Number: DAM0047684
Client Reference: 13
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 30.06.14

Test Results:

Description: Brown CLAY
Laboratory Ref: 45214447
Location: TP37 @ 0.60-1.10
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 20 %

Moisture Content (Base): 20 %

Moisture Content (Mean): 20 %

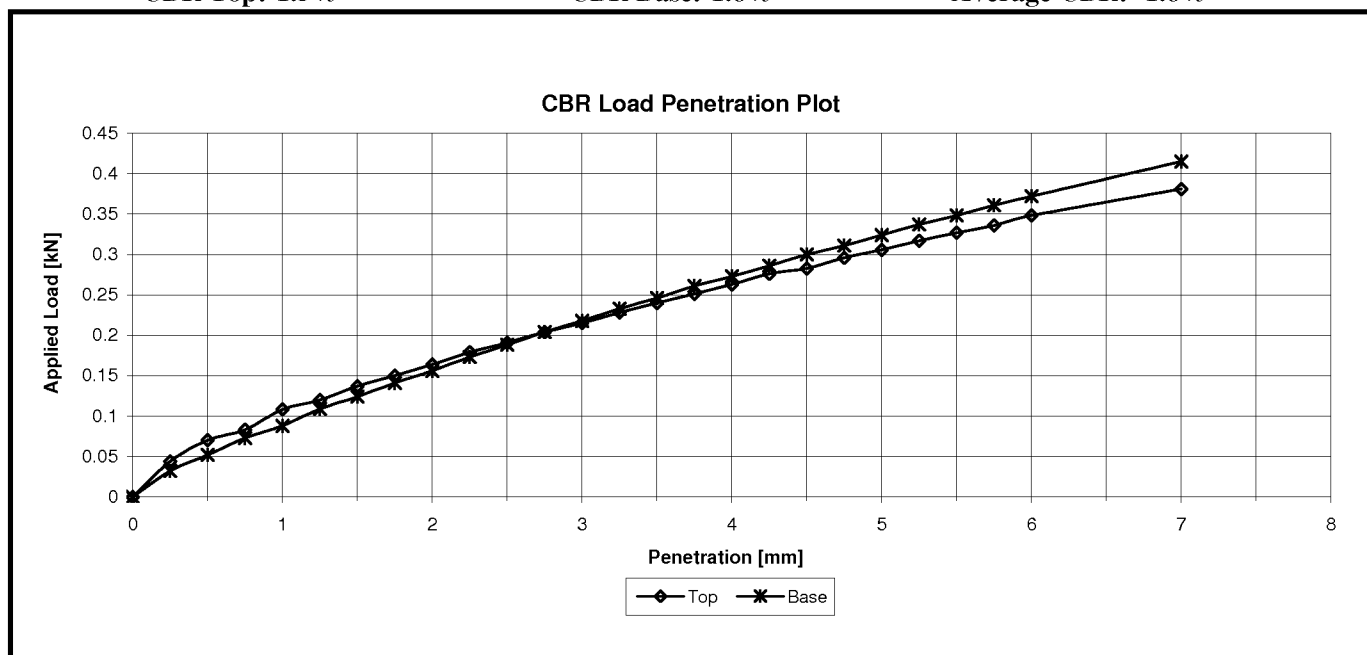
Initial Bulk Density (Mg/m³): 2.04

Initial Dry Density (Mg/m³): 1.70

CBR Top: 1.5%

CBR Base: 1.6%

Average CBR: 1.6%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/46
Batch Number: DAM0047684
Client Reference: 14
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 30.06.14

Test Results:

Description: Brown CLAY
Laboratory Ref: 45214448
Location: TP41 @ 0.70-1.10
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 21 %

Moisture Content (Base): 20 %

Moisture Content (Mean): 21 %

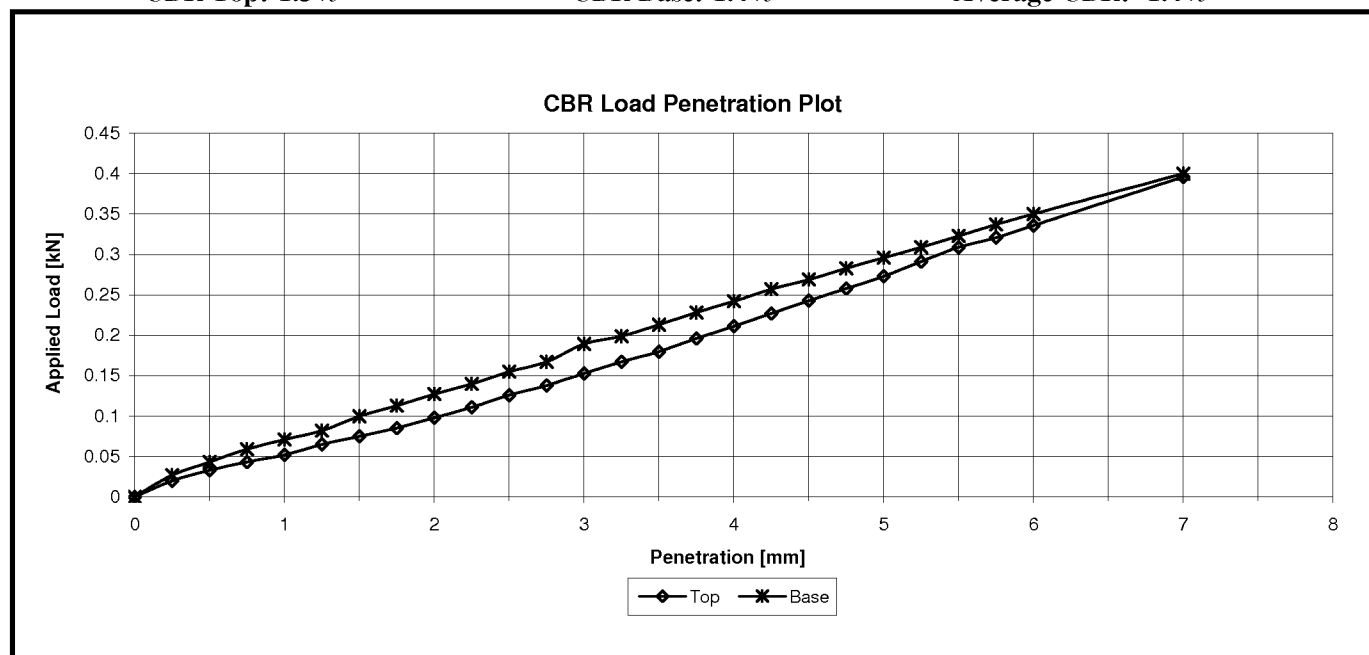
Initial Bulk Density (Mg/m³): 1.99

Initial Dry Density (Mg/m³): 1.65

CBR Top: 1.3%

CBR Base: 1.4%

Average CBR: 1.4%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/47
Batch Number: DAM0047684
Client Reference: 15
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 01.07.14

Test Results:

Description: Brown CLAY
Laboratory Ref: 45214449
Location: TP39 @ 0.30-0.80
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 24 %

Moisture Content (Base): 24 %

Moisture Content (Mean): 24 %

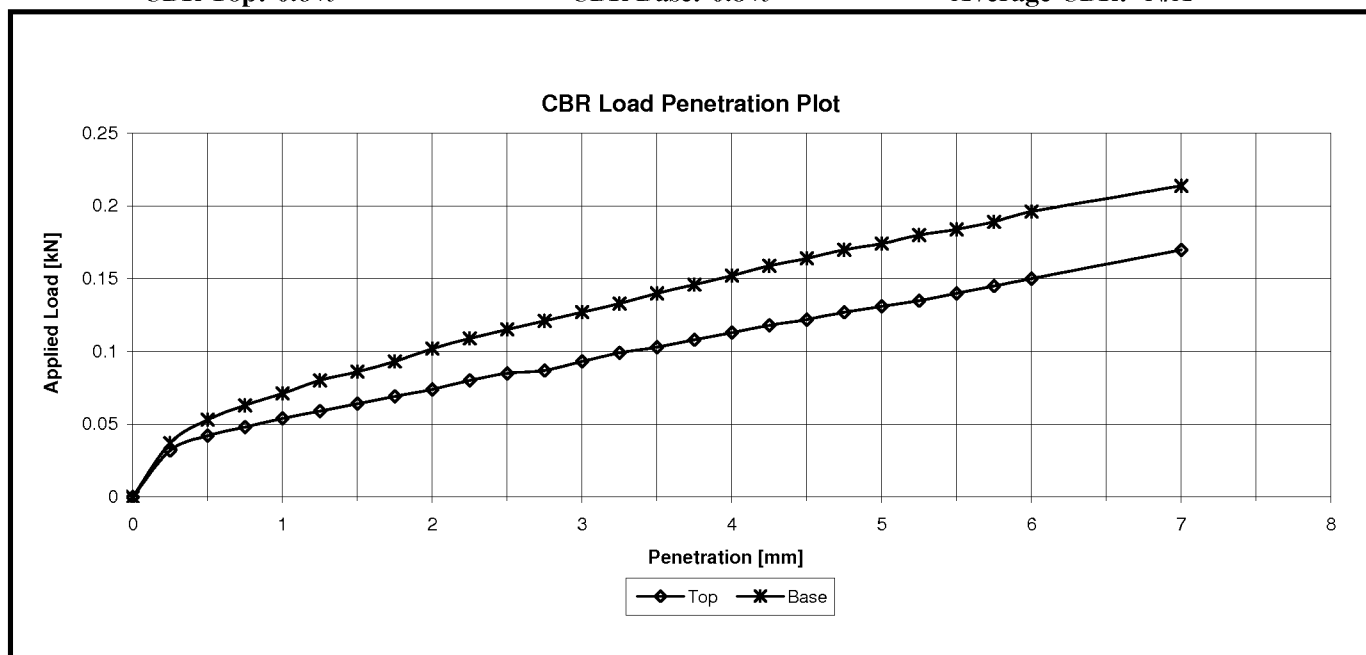
Initial Bulk Density (Mg/m³): 2.01

Initial Dry Density (Mg/m³): 1.62

CBR Top: 0.6%

CBR Base: 0.8%

Average CBR: N/A



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/48
Batch Number: DAM0047684
Client Reference: 51
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 01.07.14

Test Results:

Description: Brown sandy chalky CLAY with occasional gravel
Laboratory Ref: 45214485
Location: TP02 @ 2.40-3.00
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 17 %

Moisture Content (Base): 18 %

Moisture Content (Mean): 18 %

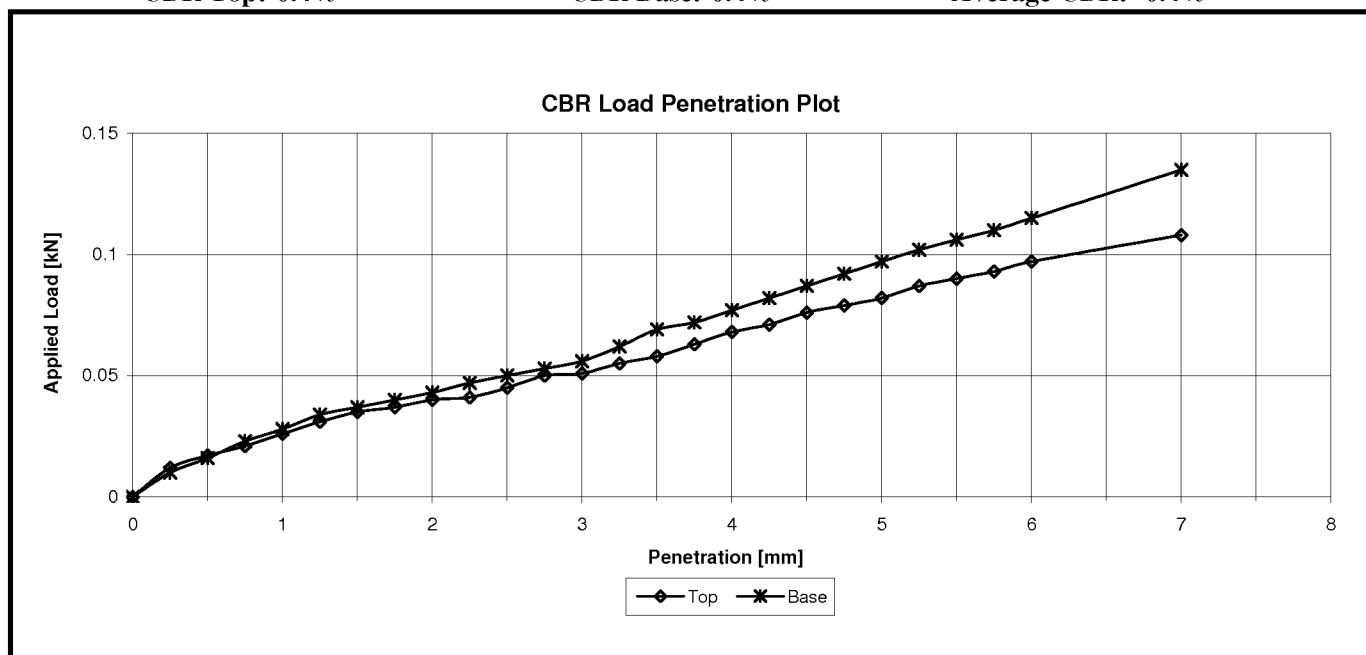
Initial Bulk Density (Mg/m³): 2.09

Initial Dry Density (Mg/m³): 1.78

CBR Top: 0.4%

CBR Base: 0.4%

Average CBR: 0.4%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed: [REDACTED]

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/49
Batch Number: DAM0047684
Client Reference: 55
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 01.07.14

Test Results:

Description: White CLAY with Chalk and Gravel
Laboratory Ref: 45214489
Location: TP04 @ 2.50-3.20
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 24 %

Moisture Content (Base): 22 %

Moisture Content (Mean): 23 %

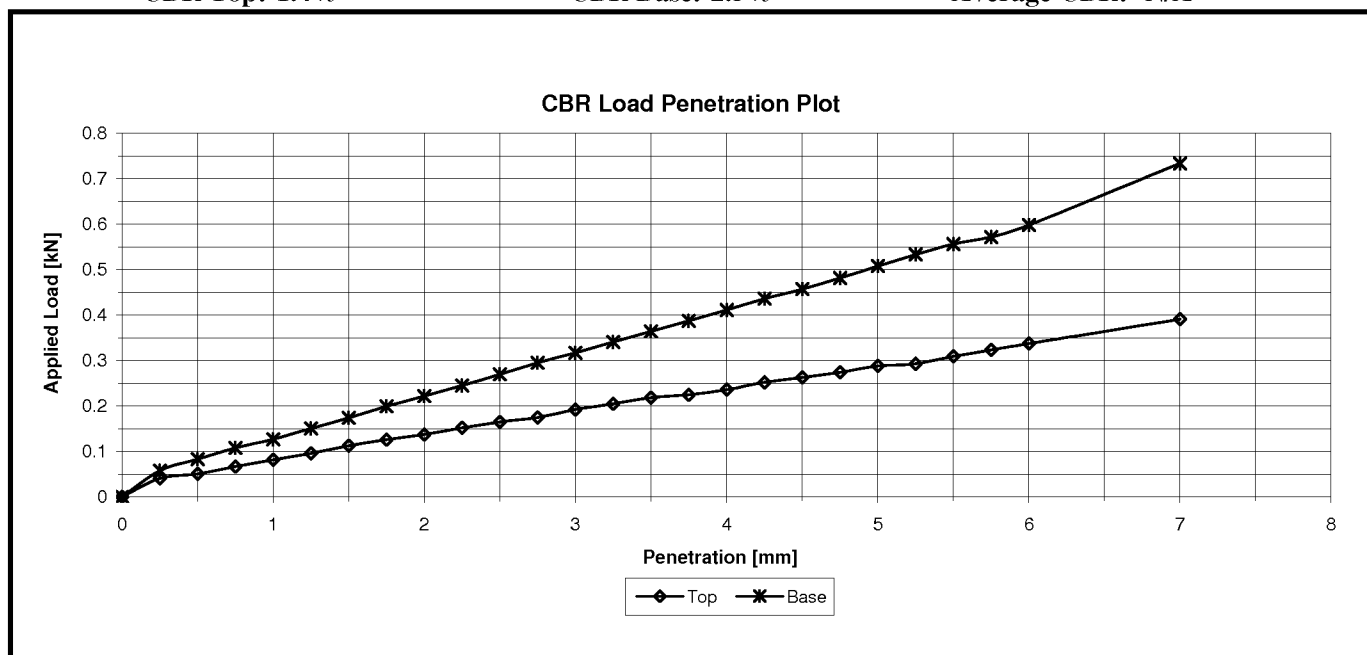
Initial Bulk Density (Mg/m³): 2.03

Initial Dry Density (Mg/m³): 1.65

CBR Top: 1.4%

CBR Base: 2.5%

Average CBR: N/A



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/50
Batch Number: DAM0047684
Client Reference: 58
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 30.06.14

Test Results:

Description: Brown slightly sandy CLAY
Laboratory Ref: 45214492
Location: TP06 @ 1.00-1.30
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

Applied Seating Load (top): 10 N

Applied Seating Load (base): 10 N

Applied Surcharge: 6.0kg

Moisture Content (Top): 20 %

Moisture Content (Base): 20 %

Moisture Content (Mean): 20 %

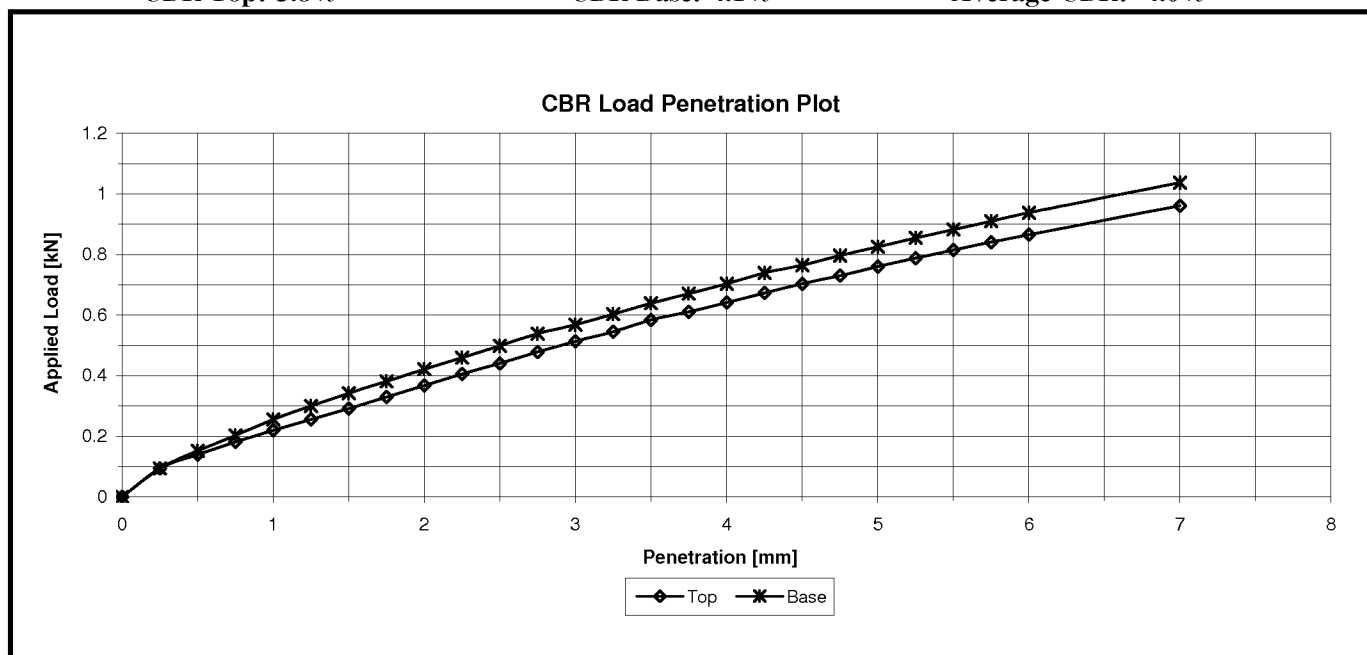
Initial Bulk Density (Mg/m³): 2.03

Initial Dry Density (Mg/m³): 1.69

CBR Top: 3.8%

CBR Base: 4.1%

Average CBR: 4.0%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of California Bearing Ratio

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report Number: 50182276/14/51
Batch Number: DAM0047684
Client Reference: 69
Sampled By: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 01.07.14

Test Results:

Description: Brown slightly sandy CLAY
Laboratory Ref: 45214503
Location: TP12 @ 1.20-1.60
Sample Type: Recompacted Using a 2.5kg Rammer

Retained on 20mm test sieve: 0%

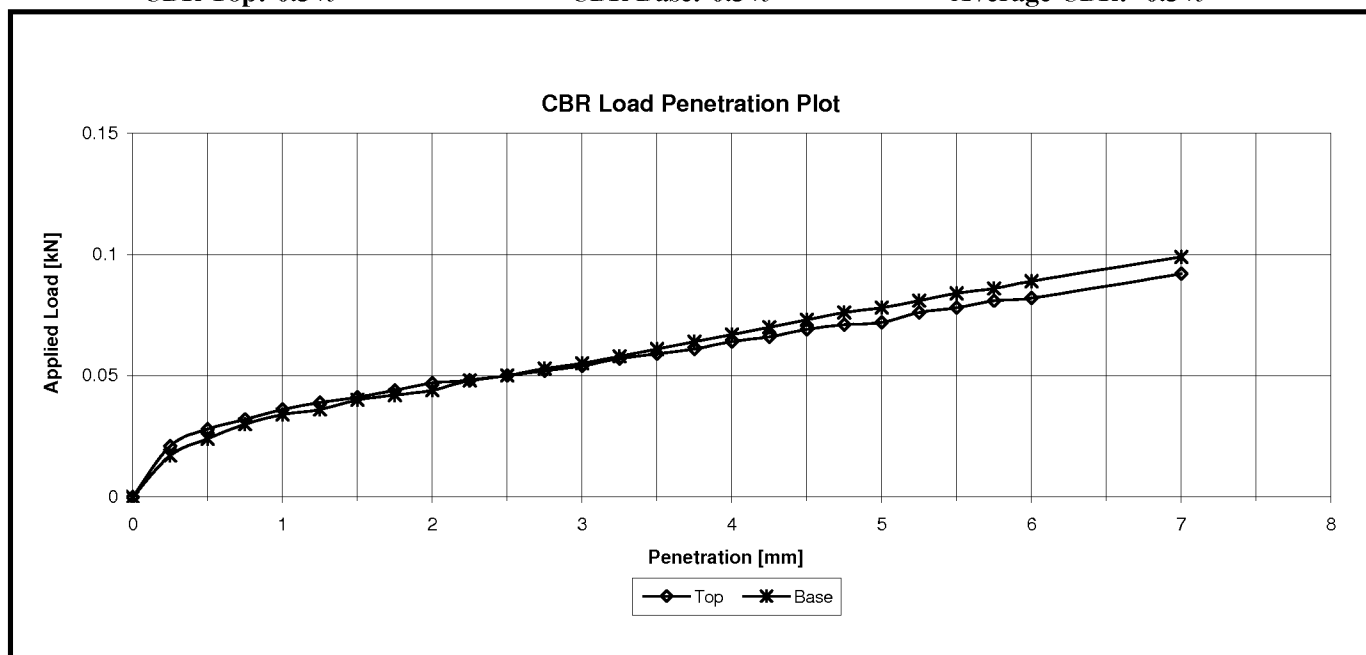
Applied Seating Load (top): 10 N
Applied Seating Load (base): 10 N
Applied Surcharge: 6.0kg

Moisture Content (Top): 26 %
Moisture Content (Base): 25 %
Moisture Content (Mean): 26 %
Initial Bulk Density (Mg/m³): 1.98
Initial Dry Density (Mg/m³): 1.57

CBR Top: 0.3%

CBR Base: 0.3%

Average CBR: 0.3%



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 7.4

Comments: The specimen was tested in an unsoaked condition

Certified that the moisture content was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group, Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/52
Batch Number: DAM0047684

Location: TP24
Depth (m): 0.90-1.80

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

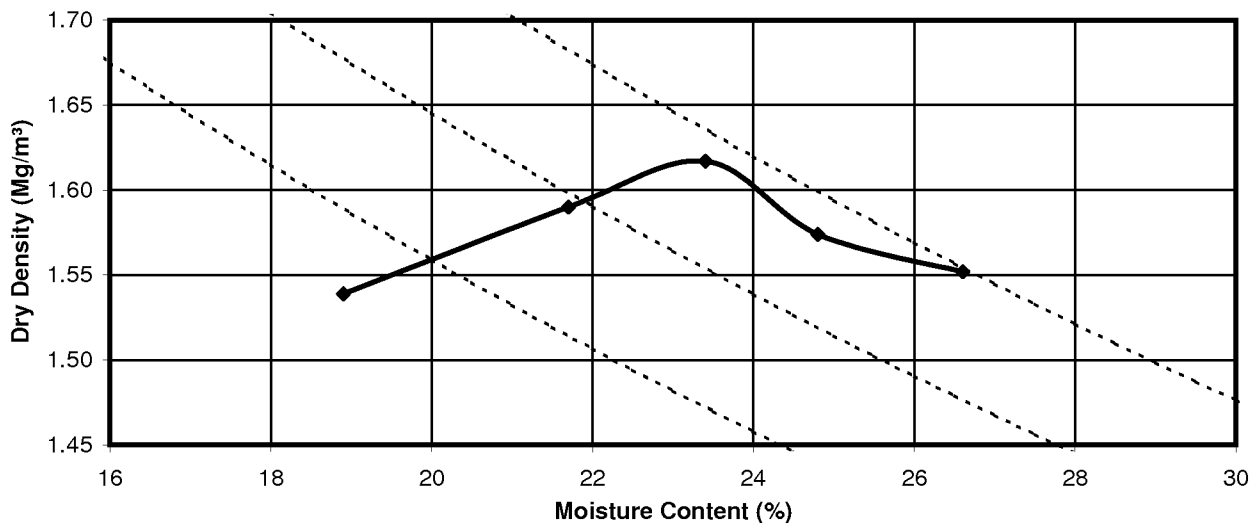
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 5.0 %

Particle Density: 2.65 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214440	White CLAY with Chalk	25	23	1.62

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	19	22	23	25	27
Dry Density (Mg/m ³)	1.54	1.59	1.62	1.57	1.55
*Hand Vane (kPa)	>223	107	43	25	9

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/53
Batch Number: DAM0047684

Location: TP27
Depth (m): 1.30-1.40

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

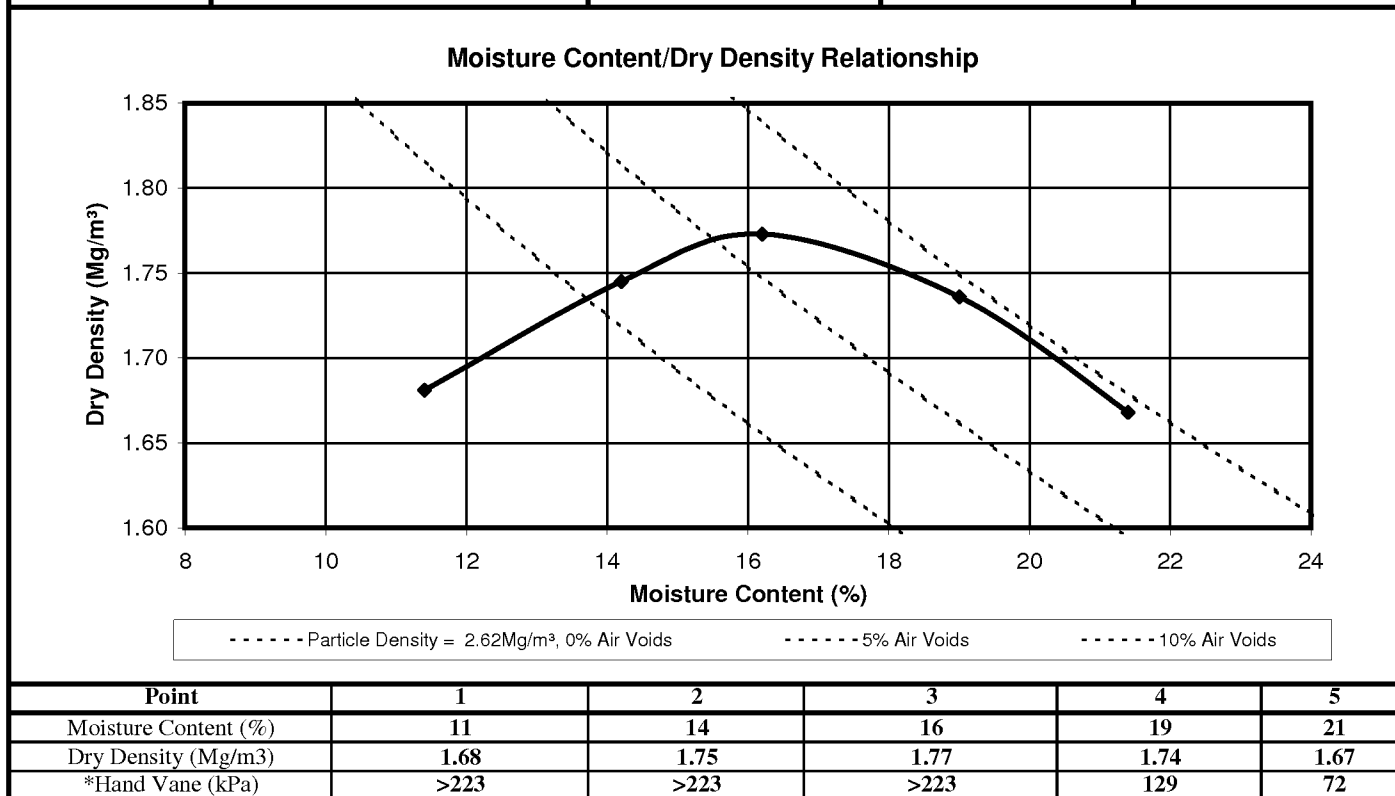
Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.62 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214441	Brown CLAY	21	16	1.77



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/54
Batch Number: DAM0047684

Location: TP28
Depth (m): 0.80-1.40

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

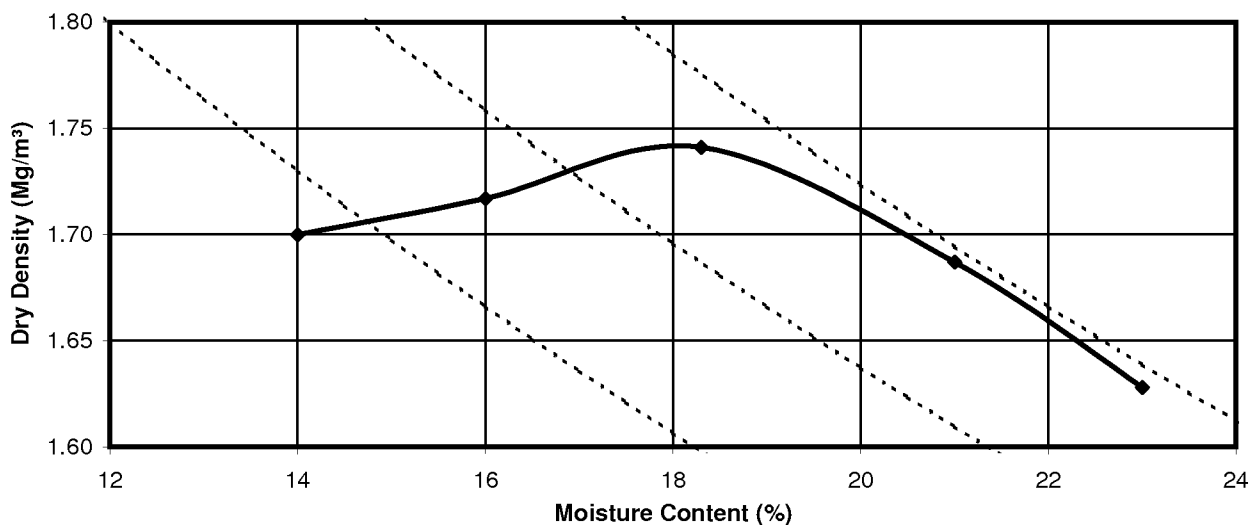
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.63 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214442	Brown CLAY	21	18	1.74

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	14	16	18	21	23
Dry Density (Mg/m ³)	1.70	1.72	1.74	1.69	1.63
*Hand Vane (kPa)	>223	>223	142	64	32

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/55
Batch Number: DAM0047684

Location: BH03
Depth (m): 3.00-4.00

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

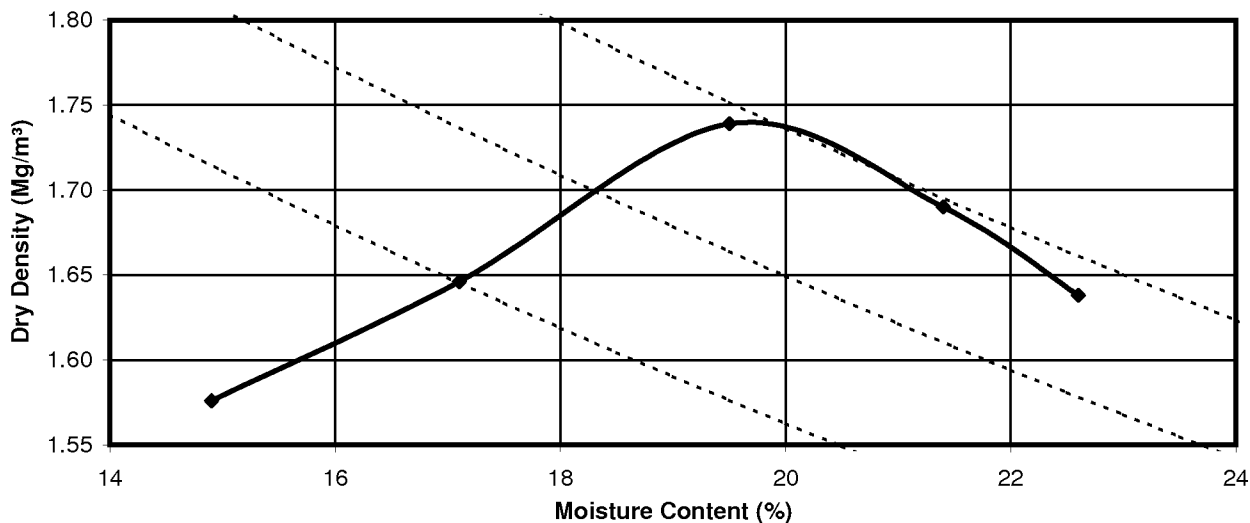
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.66 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214443	White CLAY with Chalk	21	20	1.74

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	15	17	20	21	23
Dry Density (Mg/m ³)	1.58	1.65	1.74	1.69	1.64
*Hand Vane (kPa)	>223	>223	80	20	7

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/56
Batch Number: DAM0047684

Location: BH04
Depth (m): 1.00-2.00

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

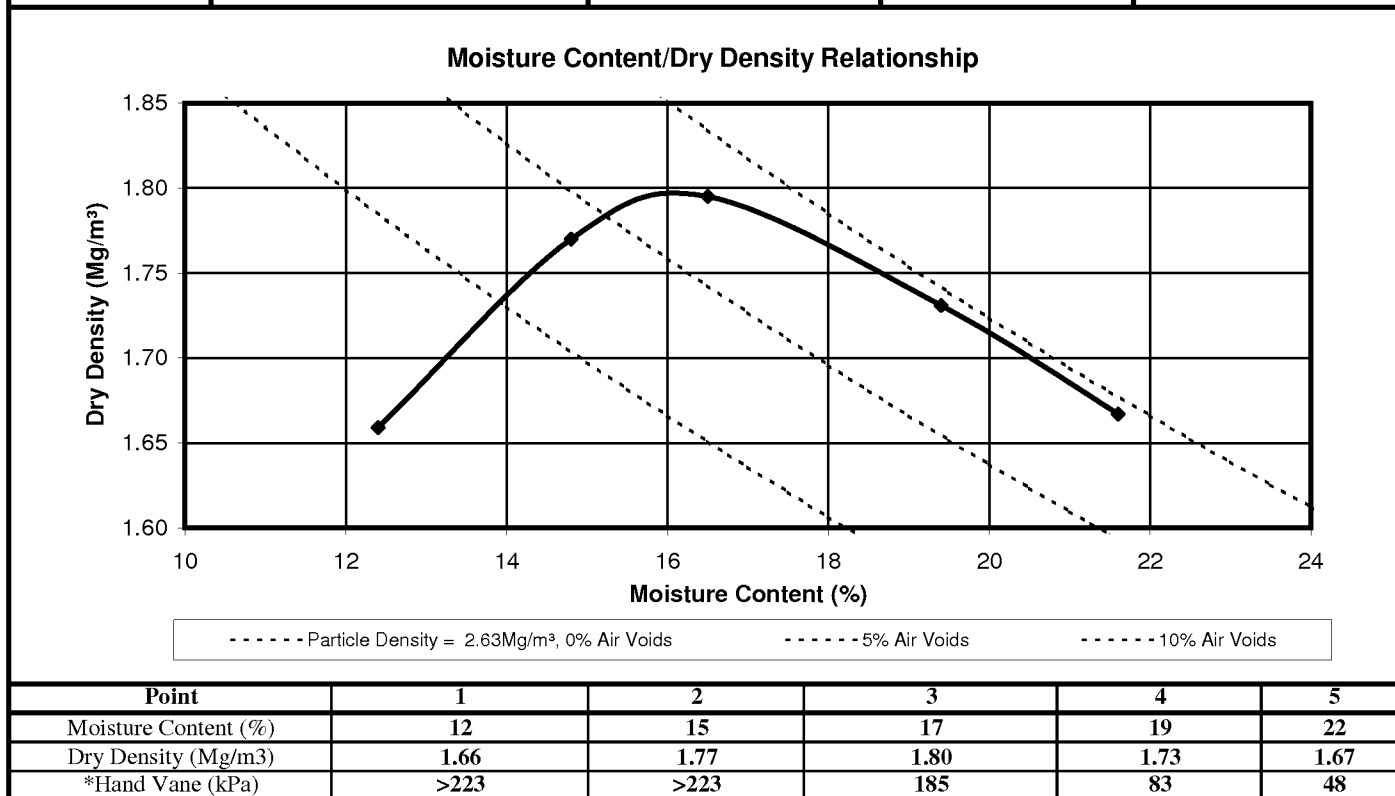
Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.63 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214444	Brown chalky CLAY	17	17	1.80



Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/57
Batch Number: DAM0047684

Location: TP02
Depth (m): 1.00-1.20

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

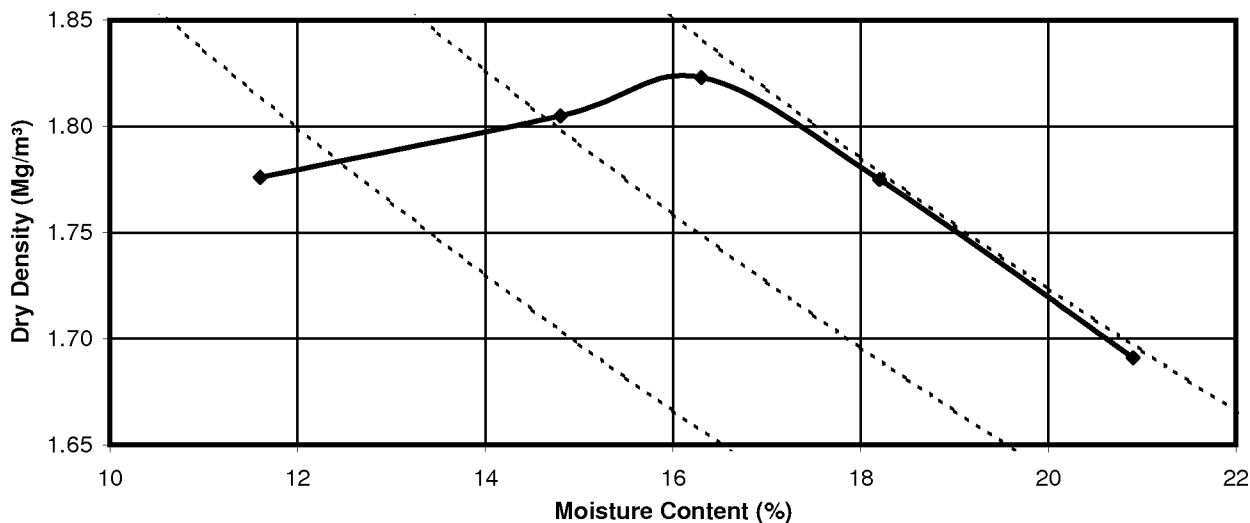
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.63 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214484	Orange brown slightly sandy CLAY	19	16	1.82

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	12	15	16	18	21
Dry Density (Mg/m ³)	1.78	1.81	1.82	1.78	1.69
*Hand Vane (kPa)	>223	>223	156	49	25

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/62
Batch Number: DAM0047684

Location: TP14
Depth (m): 1.90-2.80

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

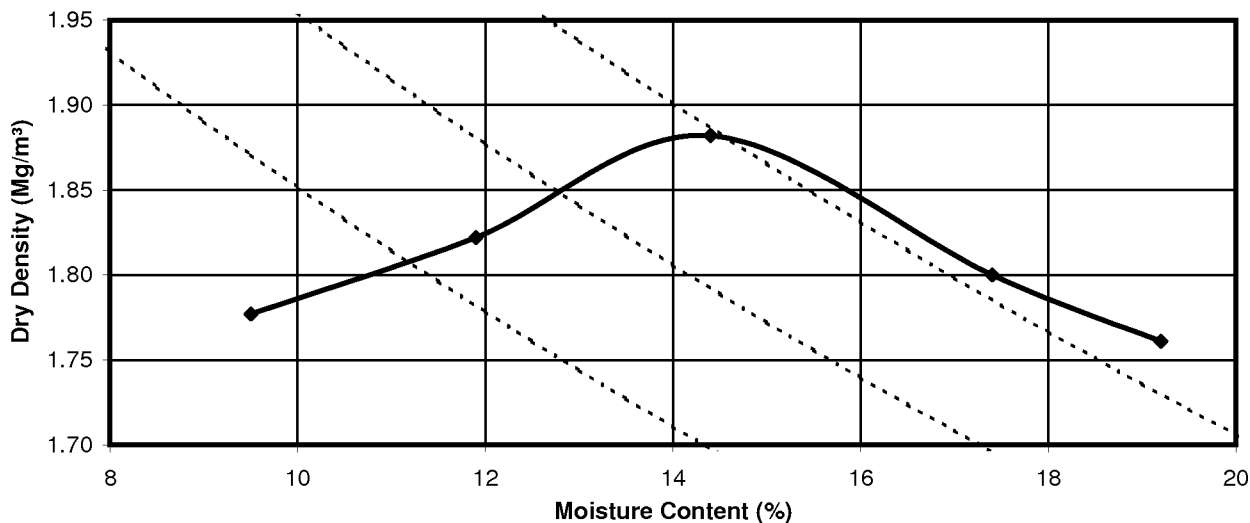
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.59 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214507	Orange brown sandy chalky CLAY with occasional gravel	17	14	1.88

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	10	12	14	17	19
Dry Density (Mg/m ³)	1.78	1.82	1.88	1.80	1.76
*Hand Vane (kPa)	>223	>223	183	53	21

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/61
Batch Number: DAM0047684

Location: TP08
Depth (m): 0.40-1.00

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

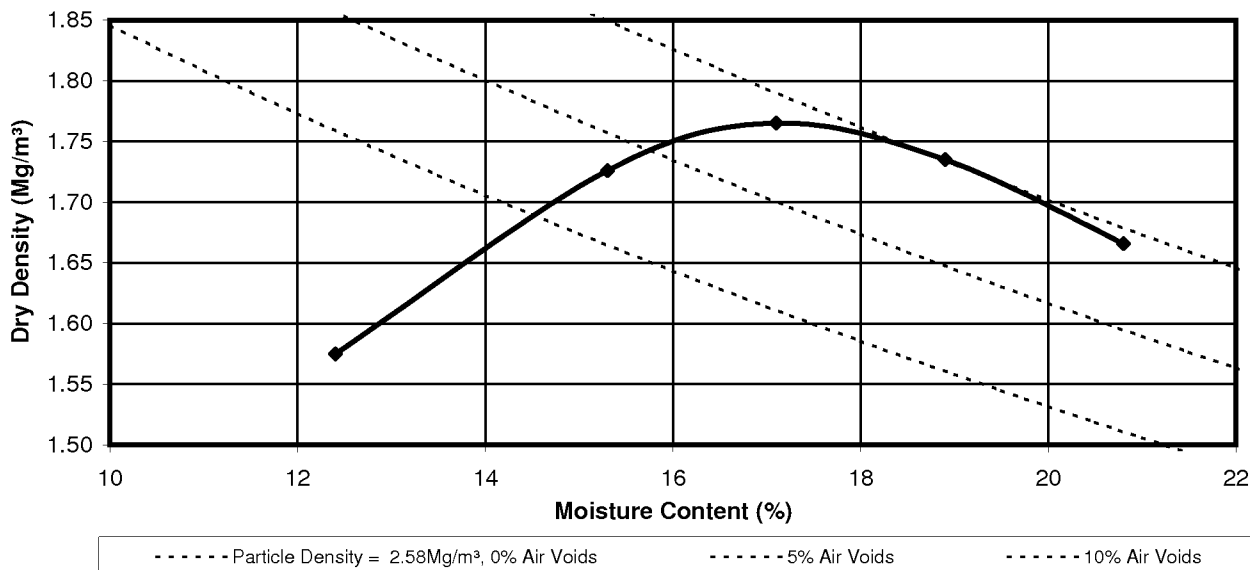
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 6.6 %

Particle Density: 2.58 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214497	Orange brown slightly sandy CLAY with occasional gravel	19	17	1.77

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	12	15	17	19	21
Dry Density (Mg/m ³)	1.58	1.73	1.77	1.74	1.67
*Hand Vane (kPa)	>223	>223	193	99	48

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/60
Batch Number: DAM0047684
Location: TP06
Depth (m): 2.50-2.70

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

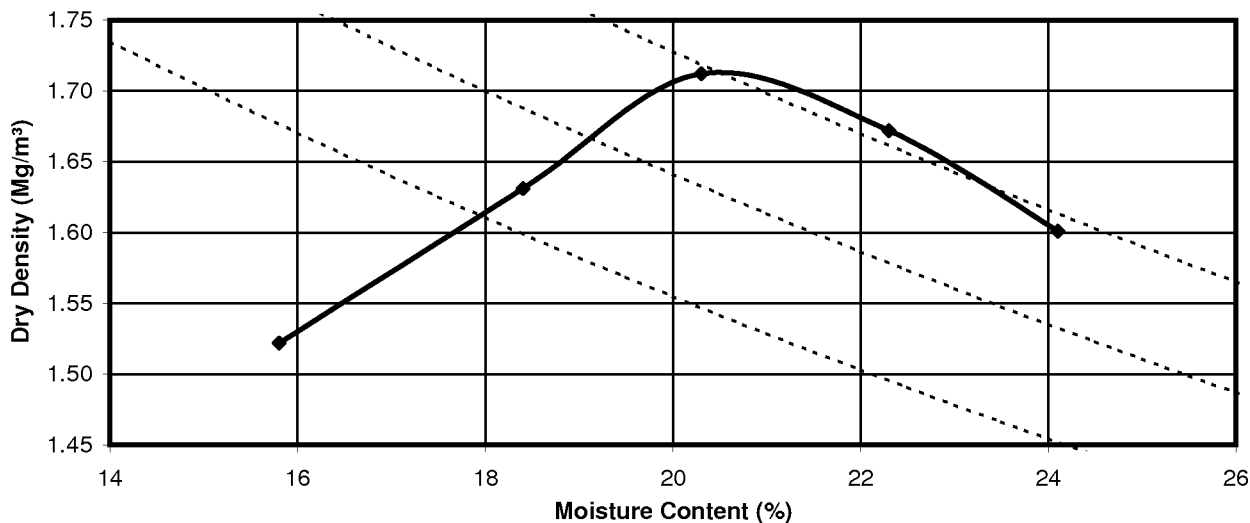
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.64 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214494	Brown Chalky CLAY	23	20	1.71

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	16	18	20	22	24
Dry Density (Mg/m ³)	1.52	1.63	1.71	1.67	1.60
*Hand Vane (kPa)	>223	>223	91	22	9

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

[Redacted Signature]

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/59
Batch Number: DAM0047684

Location: TP05
Depth (m): 2.10-2.40

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

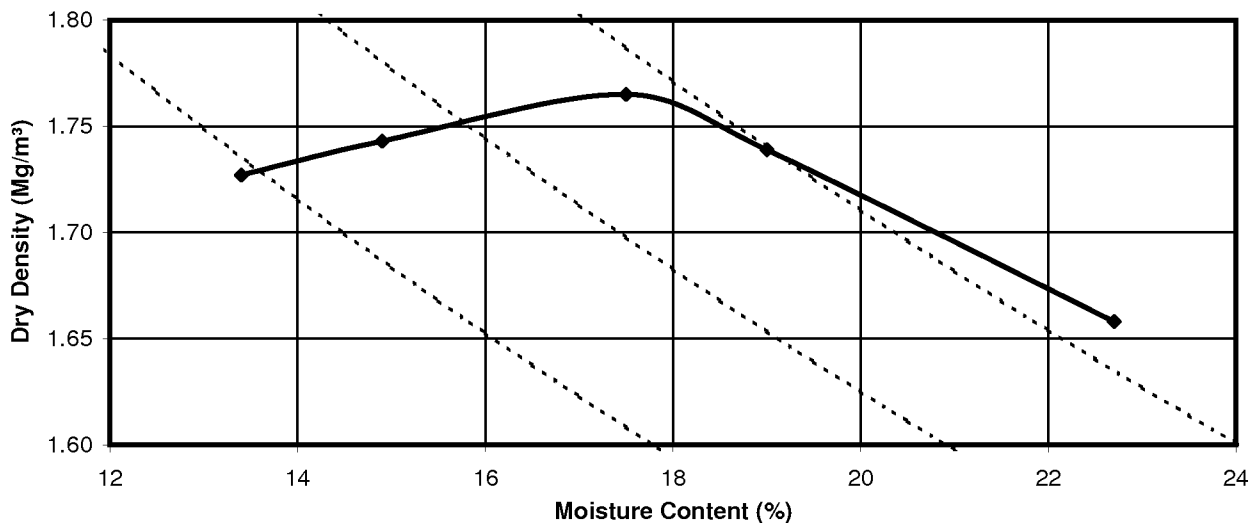
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.60 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214491	Brown slightly sandy CLAY with chalk	25	18	1.77

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	13	15	18	19	23
Dry Density (Mg/m ³)	1.73	1.74	1.77	1.74	1.66
*Hand Vane (kPa)	>223	>223	204	64	16

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Moisture Content/Dry Density Relationship

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/58
Batch Number: DAM0047684

Location: TP04
Depth (m): 0.70-1.10

Site: C14459 - Oldlands Farm

Sample Type: Bulk
Specimen Type: Multiple

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14

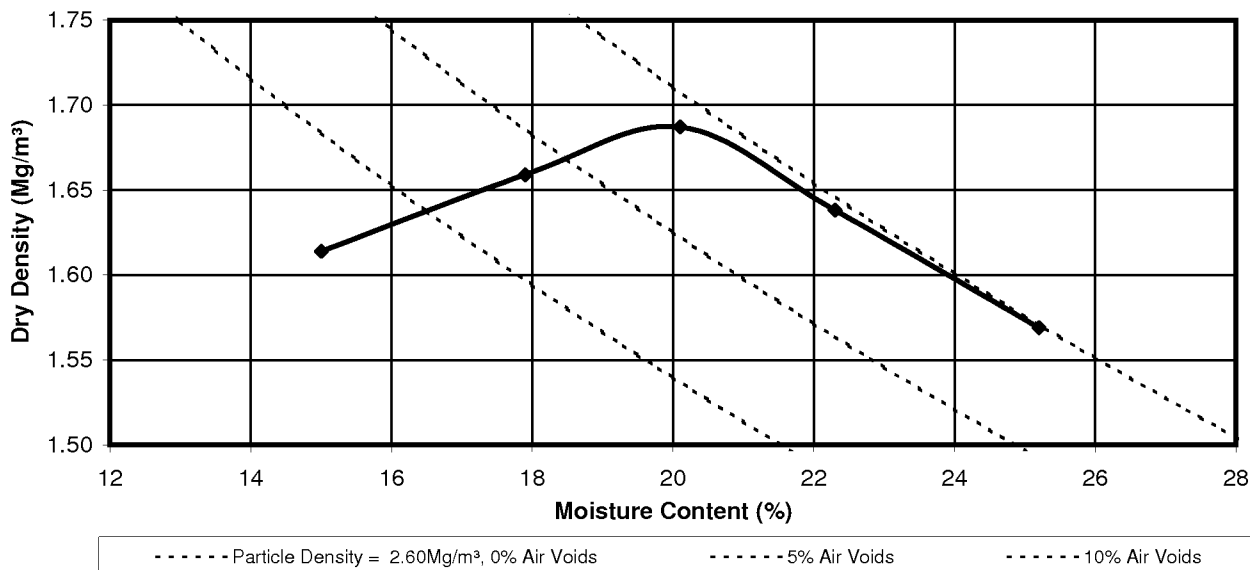
Test Results:

Retained on 37.5mm Sieve: 0.0 %
Retained on 20mm Sieve: 0.0 %

Particle Density: 2.60 Mg/m³
Measured or Assumed: Measured

Laboratory Reference	Description	As Received Moisture Content (%)	Optimum Moisture Content (%)	Maximum Dry Density (Mg/m ³)
45214488	Brown grey CLAY with occasional gravel	14	20	1.69

Moisture Content/Dry Density Relationship



Point	1	2	3	4	5
Moisture Content (%)	15	18	20	22	25
Dry Density (Mg/m ³)	1.61	1.66	1.69	1.64	1.57
*Hand Vane (kPa)	>223	>223	159	80	57

Certified that the test was carried out in accordance with BS 1377-4: 1990: Method 3.3 (2.5kg Rammer)

Sample Preparation: In accordance with BS 1377-1 & 4:1990

Air Void Lines plotted at 0%, 5% and 10% Values

* Not UKAS Accredited for this Test

Page: 1 of 1
Date: 11.07.14

Signed:

[Redacted Signature]

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Intact Dry Density

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/63
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Test Results:

Date Received: 23.06.14
Date Tested: 01.07.14
Type of Sample: Bulk
Description: Chalk

Date Sampled: Not Advised
Sampled By: Client
Sampling Certificate: Not Received

Laboratory Reference	Location	Depth (m)	Bulk Density [Mg/m ³]	Dry Density [Mg/m ³]	Moisture Content [%]
45214443	BH03	3.00-4.00	2.03	1.68	21
45214450	BH04	8.00-9.50	2.08	1.72	21
45214451	BH06	8.00-9.50	1.98	1.58	25
45214452	BH01	6.50-8.00	2.00	1.64	22
45214453	BH01	9.50-10.00	2.00	1.60	25
45214481	TP44	2.20-3.00	2.00	1.61	24
45214487	TP03	1.90-2.60	1.99	1.60	24
45214489	TP04	2.50-3.20	1.99	1.59	25

Comments:

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 7.3

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/07
Batch Number: DAM0047684

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Site: C14459 - Oldlands Farm

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214501	TP10	1.70-2.40	Brown CLAY	27
45214502	TP11	1.30-1.90	Brown sandy CLAY	24
45214503	TP12	1.20-1.60	Brown slightly sandy CLAY	19
45214504	TP13	1.20-1.50	Brown CLAY with occasional gravel	22
45214505	TP13	2.60-2.70	Grey clayey chalky SAND with silt	16
45214506	TP14	1.00-1.50	Brown CLAY	23
45214507	TP14	1.90-2.80	Orange brown sandy chalky CLAY with occasional gravel	17

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Page: 1 of 1

Date Reported: 11.07.14

Signed

☒ M. Carr - Section Manager

☐ D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Brethby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/06
Batch Number: DAM0047684

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Site: C14459 - Oldlands Farm

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214491	TP05	2.10-2.40	Brown slightly sandy CLAY with chalk	25
45214492	TP06	1.00-1.30	Brown slightly sandy CLAY	19
45214493	TP06	1.70-2.20	Brown Chalky CLAY	16
45214494	TP06	2.50-2.70	Brown Chalky CLAY	23
45214495	TP07	0.50-1.10	Brown CLAY	26
45214496	TP07	1.80-2.30	Brown chalky gravelly CLAY	24
45214497	TP08	0.40-1.00	Orange brown slightly sandy CLAY with occasional gravel	19
45214498	TP08	1.00-1.30	Brown sandy CLAY with occasional gravel	22
45214499	TP09	1.20-1.50	Brown slightly sandy CLAY	27
45214500	TP09	2.20-2.60	Brown slightly gravelly CLAY	19

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/05
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214481	TP44	2.20-3.00	Brown gravelly CLAY with chalk	18
45214482	TP01	0.60-1.20	Brown slightly sandy CLAY	18
45214483	TP02	0.50-1.00	Brown CLAY	21
45214484	TP38	1.50-2.20	Orange brown slightly sandy CLAY	19
45214485	TP02	2.40-3.00	Brown sandy chalky CLAY with occasional gravel	20
45214486	TP03	0.30-1.40	Brown sandy CLAY	19
45214487	TP03	1.90-2.60	White CLAY with Chalk and Gravel	24
45214488	TP04	0.70-1.10	Brown grey CLAY with occasional gravel	14
45214489	TP04	2.50-3.20	White CLAY with Chalk and Gravel	25
45214490	TP05	1.00-1.30	Brown CLAY	19

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/04
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214471	TP36	2.00-2.30	Brown clayey Silt/Sand with rare gravel	22
45214472	TP37	2.60-2.90	Brown slightly sandy chalky CLAY	14
45214473	TP37	3.50-3.60	Brown sandy CLAY	16
45214474	TP38	1.50-2.20	Brown slightly sandy CLAY	35
45214475	TP38	2.40-2.80	Brown very gravelly CLAY	9.2
45214476	TP39	1.50-2.30	Brown sandy CLAY	19
45214477	TP40	0.90-1.40	Brown grey sandy CLAY	32
45214478	TP42	1.10-1.40	Brown grey chalky CLAY	17
45214479	TP43	1.10-1.80	Brown slightly sandy CLAY	21
45214480	TP37	1.60-2.60	Brown CLAY	24

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/03
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214459	TP19	1.10-1.40	Brown sandy CLAY	30
45214460	TP21	0.60-0.90	Brown CLAY	31
45214461	TP21	1.10-1.50	Brown CLAY	32
45214462	TP22	2.20-2.80	White CLAY with Chalk and Gravel	24
45214463	TP22	0.75-1.50	Brown chalky CLAY	23
45214464	TP23	0.50-1.00	Brown CLAY	31
45214465	TP23	2.00-2.50	Brown slightly sandy CLAY	28
45214467	TP29	0.50-1.20	Brown CLAY	30
45214468	TP29	1.70	Brown CLAY	16
45214469	TP30	2.00-2.50	Grey green sandy CLAY	38

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/02
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214449	TP39	0.30-0.80	Brown CLAY	19
45214450	BH04	8.00-9.50	White CLAY with Chalk	26
45214451	BH06	8.00-9.50	White CLAY with Chalk	25
45214452	BH01	6.50-8.00	White CLAY with Chalk	28
45214453	BH01	9.50-10.00	White CLAY with Chalk	25
45214454	TP15	1.00-1.30	Brown CLAY	47
45214455	TP17	1.30-1.50	Brown CLAY	19
45214456	TP18	1.20-1.50	Brown CLAY	36
45214457	TP18	1.80-3.60	Brown CLAY	40
45214458	TP19	2.10-2.50	Grey CLAY	62

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2

Determination of Moisture Content

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/01
Batch Number: DAM0047684

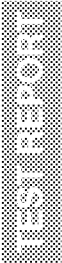
Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 25.06.14 to 30.06.14
Type of Sample: Disturbed

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Moisture Content (%)
45214435	BH01	1.00-1.45	Grey brown orange sandy CLAY	33
45214440	TP24	0.90-1.80	White CLAY with Chalk	25
45214441	TP27	1.30-1.40	Brown CLAY	21
45214442	TP28	0.80-1.40	Brown CLAY	21
45214443	BH03	3.00-4.00	White CLAY with Chalk	21
45214444	BH04	1.00-2.00	Brown chalky CLAY	17
45214445	TP20	0.80-1.40	Brown CLAY	18
45214446	TP27	1.40-1.70	Brown chalky CLAY	20
45214447	TP37	0.60-1.10	Brown CLAY	19
45214448	TP41	0.70-1.10	Brown CLAY	22

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 3.2



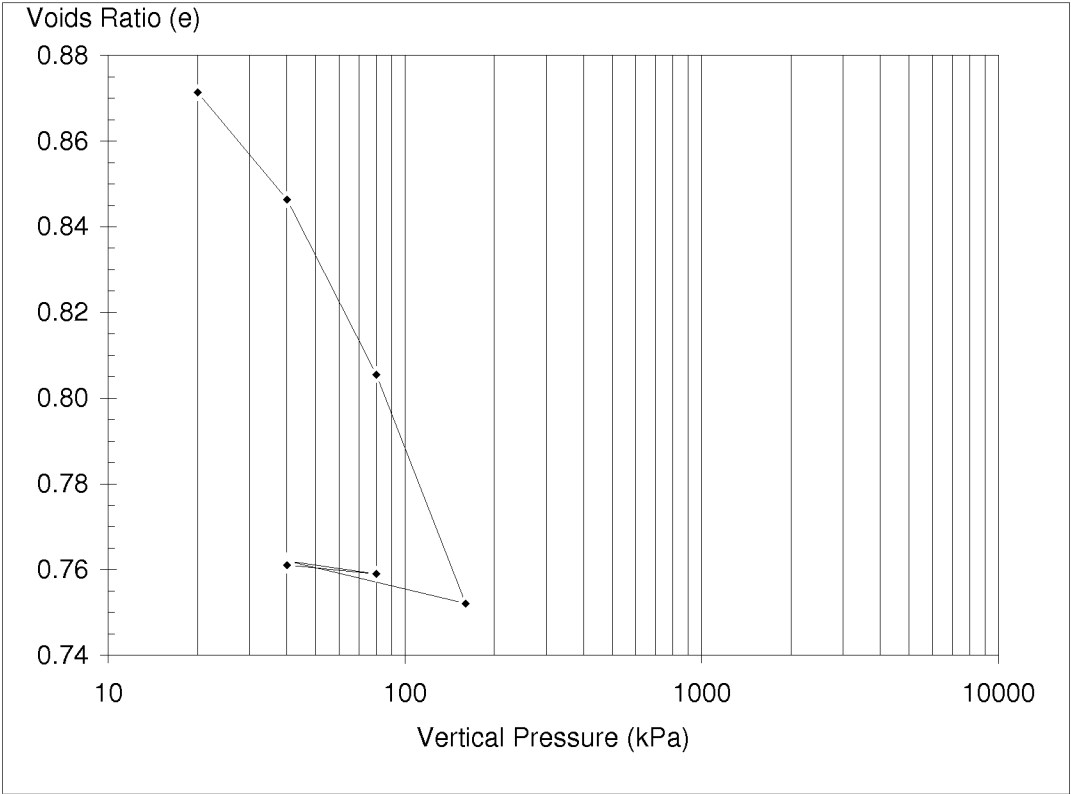
0001

CONSOLIDATION TEST REPORT

B.S. 1377-5:1990

Client: Hydrock Consultants Ltd
Address: Over Courts Barn, Almondsbury, Bristol, BS32 4DF
Site: C14459 - Oldlands Farm
Location: BH05 @ 1.00-1.45
Visual Description: Orange brown CLAY
Initial Moisture Content 33.6 %
Initial Bulk Density 1.91 Mg/m³
Initial Dry Density 1.43 Mg/m³
Assumed Particle Density 2.75 Mg/m³
Specimen Height 18.84 mm
Orientation of specimen: Test specimen taken in same direction as sampling.

Report No. 50182276/14/67
Lab. Ref. 45214439
Reported: 14.07.14
Received: 23.06.14
Test Date: 30.06.14 to 10.07.14
Lab. temperature 20.0 - 23.5 °C
Initial Voids Ratio 0.927
Degree of Saturation 100 %
Final Moisture Content 28.4 %



Increment No.	1	2	3	4	5	6	7
Pressure (kPa)	20	40	80	160	40	80	40
Settlement (mm)	0.547	0.791	1.191	1.713	1.616	1.646	1.625
Voids Ratio	0.871	0.846	0.805	0.752	0.762	0.759	0.761
Mv (m²/MN)	1.45	0.67	0.55	0.37		0.04	
Cv (m²/year)	5.66	4.07	3.45	2.90		12.84	
t90	6.76	9.00	10.24	11.56		2.56	

The test was carried out in accordance with BS 1377- 5:1990, Clause 3
t90 value determined by root time curve-fitting method.

Signed

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

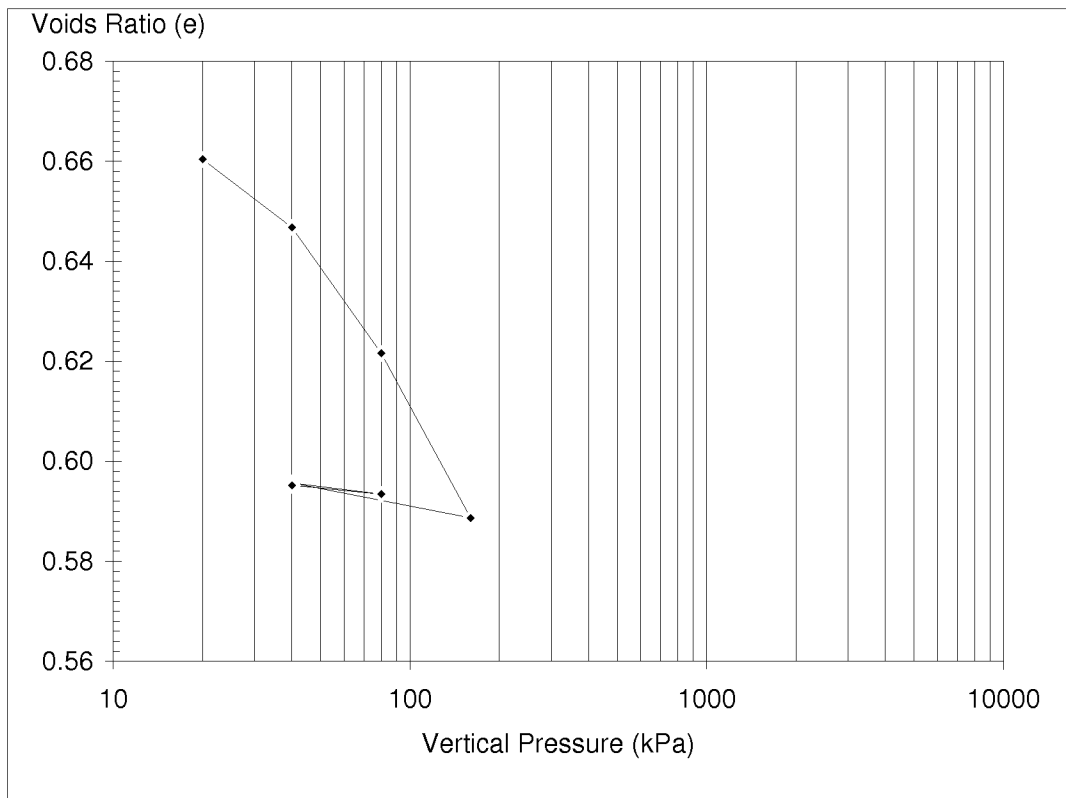


0001

CONSOLIDATION TEST REPORT

B.S. 1377-5:1990

Client:	Hydrock Consultants Ltd	Report No.	50182276/14/66
Address:	Over Courts Barn, Almondsbury, Bristol, BS32 4DF	Lab. Ref.	45214437
Site:	C14459 - Oldlands Farm	Reported:	14.07.14
Location:	BH03 @ 1.00-1.45	Received:	23.06.14
Visual Description:	Orange brown sandy CLAY	Test Date:	30.06.14 to 10.07.14
Initial Moisture Content	25.2 %	Lab. temperature	20.0 - 23.5 °C
Initial Bulk Density	2.04 Mg/m³	Initial Voids Ratio	0.690
Initial Dry Density	1.63 Mg/m³	Degree of Saturation	100 %
Assumed Particle Density	2.75 Mg/m³	Final Moisture Content	22.9 %
Specimen Height	18.92 mm		
Orientation of specimen:	Test specimen taken in same direction as sampling.		



Increment No.	1	2	3	4	5	6	7
Pressure (kPa)	20	40	80	160	40	80	40
Settlement (mm)	0.331	0.484	0.766	1.134	1.056	1.081	1.061
Voids Ratio	0.660	0.647	0.622	0.589	0.596	0.593	0.595
Mv (m²/MN)	0.87	0.41	0.38	0.25		0.03	
Cv (m²/year)	32.27	4.52	2.57	1.85		15.72	
t90	1.21	8.41	14.44	19.36		2.25	

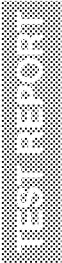
The test was carried out in accordance with BS 1377- 5:1990, Clause 3
t90 value determined by root time curve-fitting method.

Signed _____ [✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory



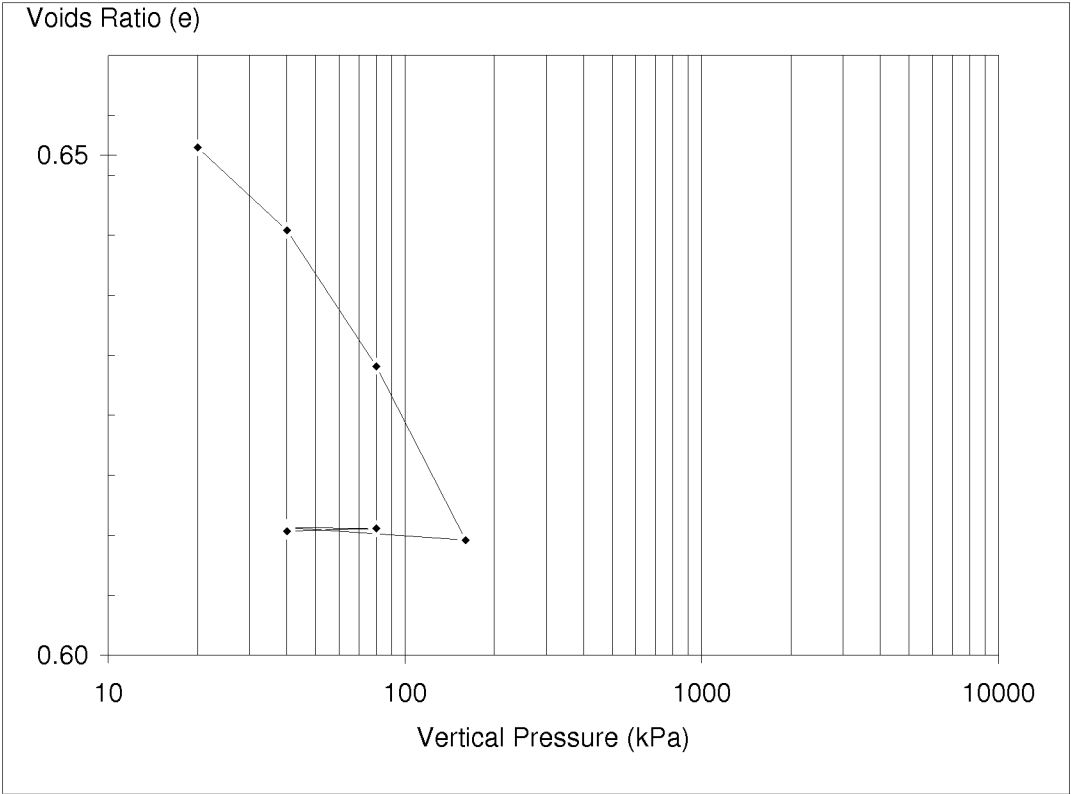
0001

CONSOLIDATION TEST REPORT

B.S. 1377-5:1990

Client: Hydrock Consultants Ltd
Address: Over Courts Barn, Almondsbury, Bristol, BS32 4DF
Site: C14459 - Oldlands Farm
Location: BH02 @ 1.00-1.45
Visual Description: Orange brown sandy CLAY
Initial Moisture Content 24.0 %
Initial Bulk Density 1.92 Mg/m³
Initial Dry Density 1.55 Mg/m³
Assumed Particle Density 2.60 Mg/m³
Specimen Height 18.84 mm
Orientation of specimen: Test specimen taken in same direction as sampling.

Report No. 50182276/14/65
Lab. Ref. 45214436
Reported: 14.07.14
Received: 23.06.14
Test Date: 30.06.14 to 10.07.14
Lab. temperature 20.0 - 23.5 °C
Initial Voids Ratio 0.681
Degree of Saturation 91.5 %
Final Moisture Content 25.4 %



Increment No.	1	2	3	4	5	6	7
Pressure (kPa)	20	40	80	160	40	80	40
Settlement (mm)	0.343	0.436	0.588	0.783	0.769	0.770	0.773
Voids Ratio	0.651	0.642	0.629	0.612	0.613	0.613	0.612
Mv (m²/MN)	0.91	0.25	0.21	0.13		0.00	
Cv (m²/year)	47.76	19.28	11.51	9.15		14.16	
t90	0.81	1.96	3.24	4.00		2.56	

The test was carried out in accordance with BS 1377- 5:1990, Clause 3
t90 value determined by root time curve-fitting method.

Signed

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Determination of Particle Density

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Client Postcode: BS32 4DF

Report No: 50182276/14/64
Batch Number: DAM0047684

Site: C14459 - Oldlands Farm

Sampled by: Client
Date Sampled: Not Advised
Date Received: 23.06.14
Tested From: 27.06.14 to 01.07.14
Type of Sample: Bulk

Test Results:

Laboratory Reference	Location	Depth (m)	Description	Particle Density (Mg/m ³)
45214440	TP24	0.90-1.80	White CLAY with Chalk	2.65
45214441	TP27	1.30-1.40	Brown CLAY	2.62
45214442	TP28	0.80-1.40	Brown CLAY	2.63
45214443	BH03	3.00-4.00	White CLAY with Chalk	2.66
45214444	BH04	1.00-2.00	Brown chalky CLAY	2.63
45214484	TP38	1.50-2.20	Orange brown slightly sandy CLAY	2.62
45214488	TP04	0.70-1.10	Brown grey CLAY with occasional gravel	2.60
45214491	TP05	2.10-2.40	Brown slightly sandy CLAY with chalk	2.60
45214494	TP06	2.50-2.70	Brown Chalky CLAY	2.64
45214497	TP08	0.40-1.00	Orange brown slightly sandy CLAY with occasional gravel	2.58
45214507	TP14	1.90-2.80	Orange brown sandy chalky CLAY with occasional gravel	2.59

Certified that the laboratory testing was carried out in accordance with BS 1377-2: 1990: Method 8.2

Page: 1 of 1
Date: 11.07.14

Signed



☒ M. Carr - Section Manager
☐ D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ



0001

TEST REPORT

Determination of Particle Size Distribution

Client:

Client Address:

Postcode:

Site:

Sampled by:

Sampled from:

Supplier:

Source:

Hydrock Consultants Ltd

Over Courts Barn
Over Lane
Almondsbury, Bristol

BS32 4DF

C14459 - Oldlands Farm

Client

Site

Client

Site

Report No:

Batch Number:

Lab Ref:

Client Ref:

Location:

Depth (m):

Date Sampled:

Date Received:

Date Tested:

Sample Type:

Sample Mass (kg):

50182276/14/42

DAM0047684

45214506

72

TP14

1.00-1.50

Not Advised

23.06.14

04.07.14

Bulk

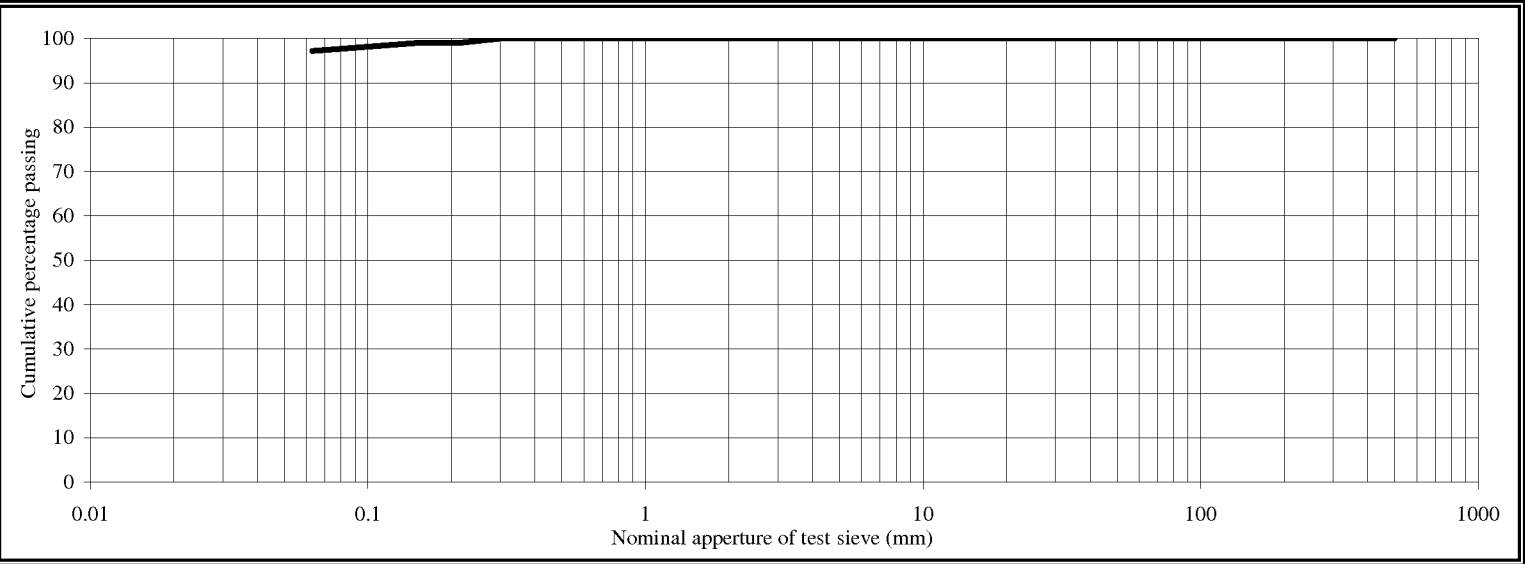
15

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	99	
0.150	99	
0.063	97.2	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group



0001

TEST REPORT

Determination of Particle Size Distribution

Client:Hydrock Consultants Ltd

Client Address:Over Courts Barn
Over Lane
Almondsbury, Bristol

Postcode:BS32 4DF

Site:C14459 - Oldlands Farm

Sampled by:Client

Sampled from:Site

Supplier:Client

Source:Site

Report No:50182276/14/41

Batch Number:DAM0047684

Lab Ref:45214501

Client Ref:67

Location:TP10

Depth (m):1.70-2.40

Date Sampled:Not Advised

Date Received:23.06.14

Date Tested:03.07.14

Sample Type:Bulk

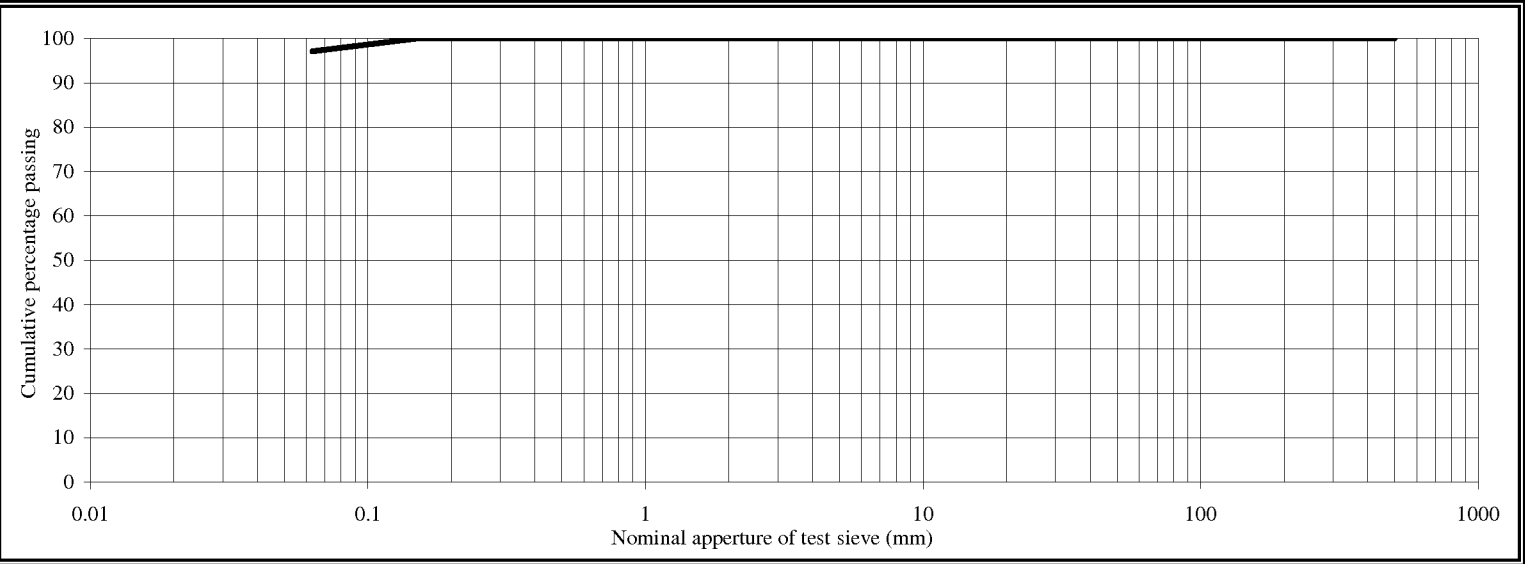
Sample Mass (kg):17

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	100	
0.063	97.1	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/40

Batch Number: DAM0047684

Lab Ref: 45214500

Client Ref: 66

Location: TP09

Depth (m): 2.20-2.60

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 04.07.14

Sample Type: Bulk

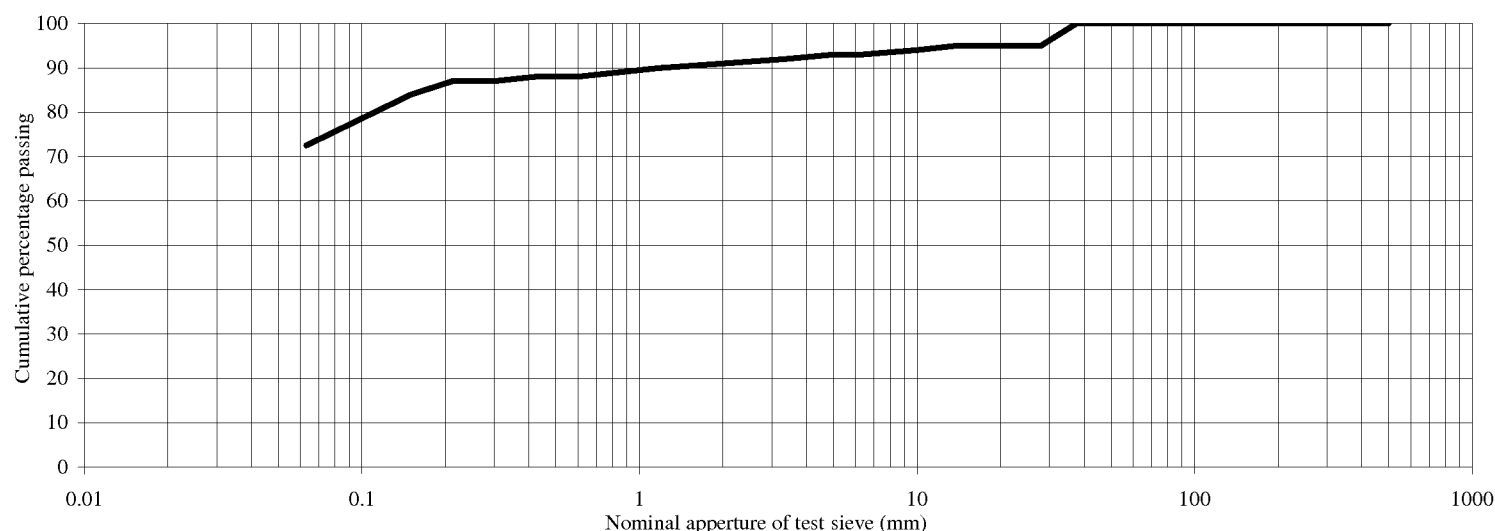
Sample Mass (kg): 17

Description: Brown slightly gravelly CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	95	
20	95	
14	95	
10	94	
6.3	93	
5	93	
3.35	92	
2	91	
1.18	90	
0.600	88	
0.425	88	
0.300	87	
0.212	87	
0.150	84	
0.063	72.5	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/39

Batch Number: DAM0047684

Lab Ref: 45214499

Client Ref: 65

Location: TP09

Depth (m): 1.20-1.50

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 05.07.14

Sample Type: Bulk

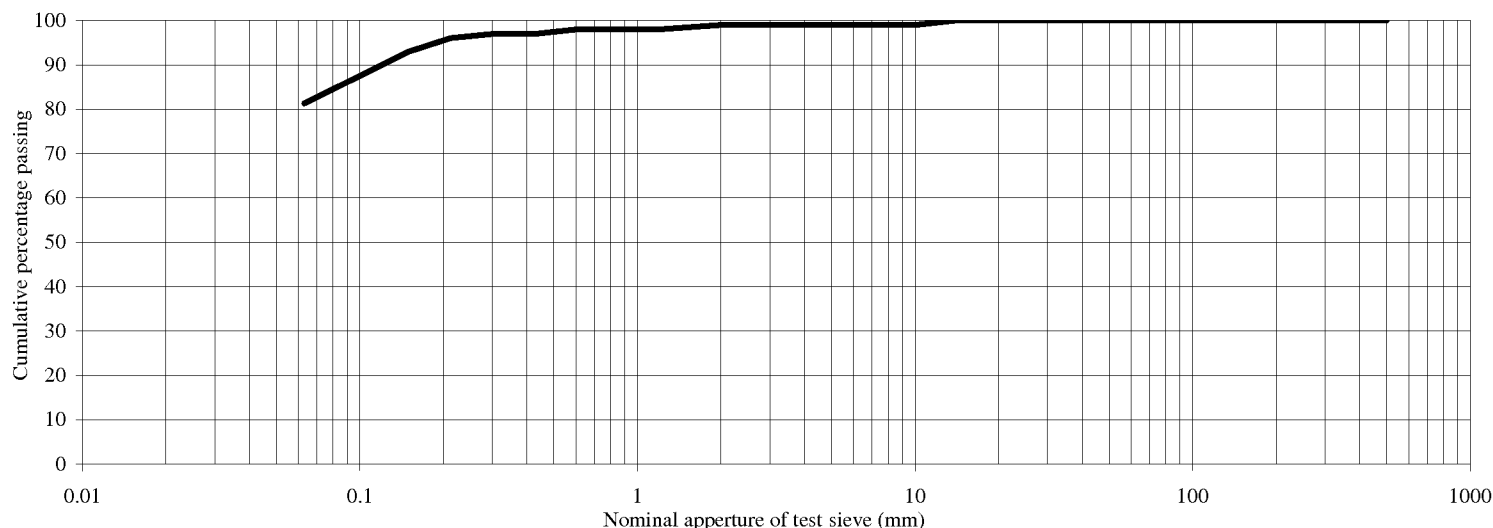
Sample Mass (kg): 16

Description: Brown slightly sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	99	
6.3	99	
5	99	
3.35	99	
2	99	
1.18	98	
0.600	98	
0.425	97	
0.300	97	
0.212	96	
0.150	93	
0.063	81.3	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/38
Batch Number: DAM0047684
Lab Ref: 45214496
Client Ref: 62
Location: TP07
Depth (m): 1.80-2.30
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 03.07.14
Sample Type: Bulk
Sample Mass (kg): 17

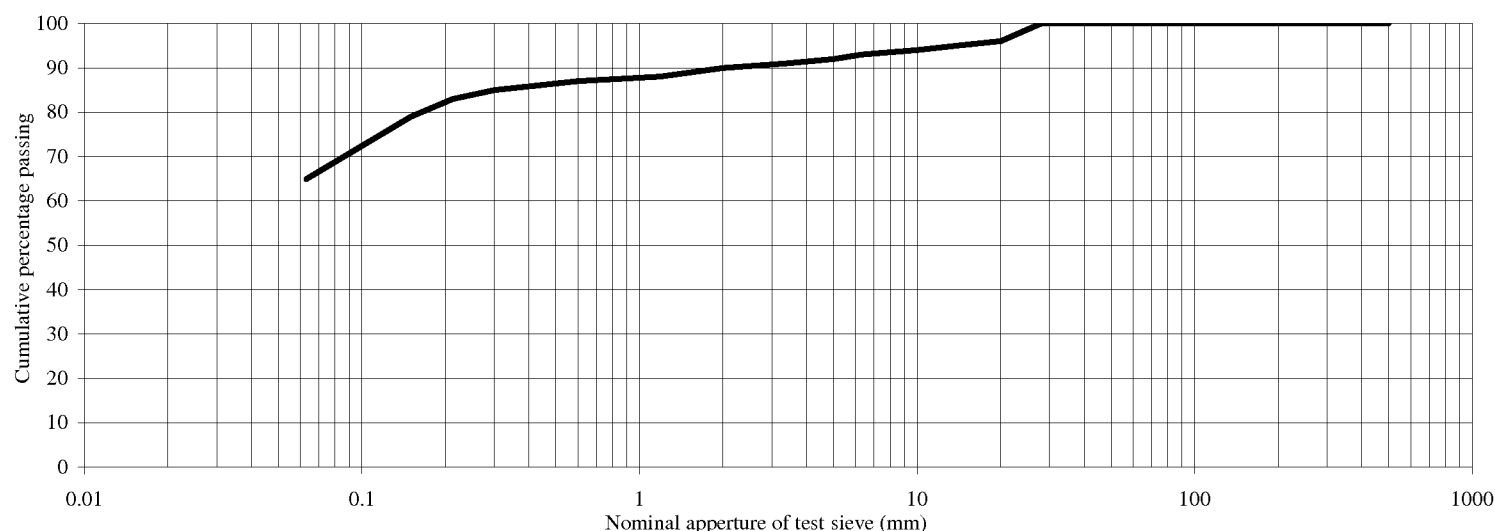
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

Description: Brown chalky gravelly CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	96	
14	95	
10	94	
6.3	93	
5	92	
3.35	91	
2	90	
1.18	88	
0.600	87	
0.425	86	
0.300	85	
0.212	83	
0.150	79	
0.063	64.9	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory



0001

TEST REPORT

Determination of Particle Size Distribution

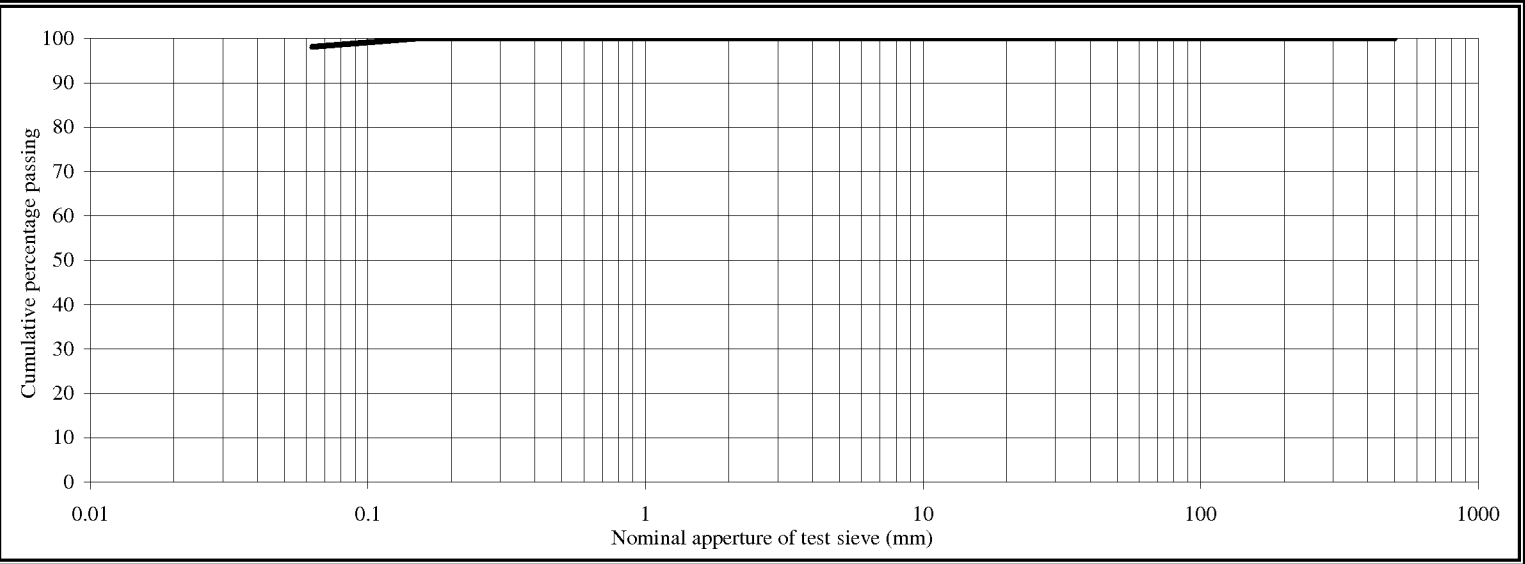
Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site
Report No: 50182276/14/37
Batch Number: DAM0047684
Lab Ref: 45214495
Client Ref: 61
Location: TP07
Depth (m): 0.50-1.10
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 03.07.14
Sample Type: Bulk
Sample Mass (kg): 15

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	100	
0.063	98.1	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14
Signed: [Signature]
For and on behalf of Environmental Scientifics Group

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/36
Batch Number: DAM0047684
Lab Ref: 45214493
Client Ref: 59
Location: TP06
Depth (m): 1.70-2.20
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 07.07.14
Sample Type: Bulk
Sample Mass (kg): 15

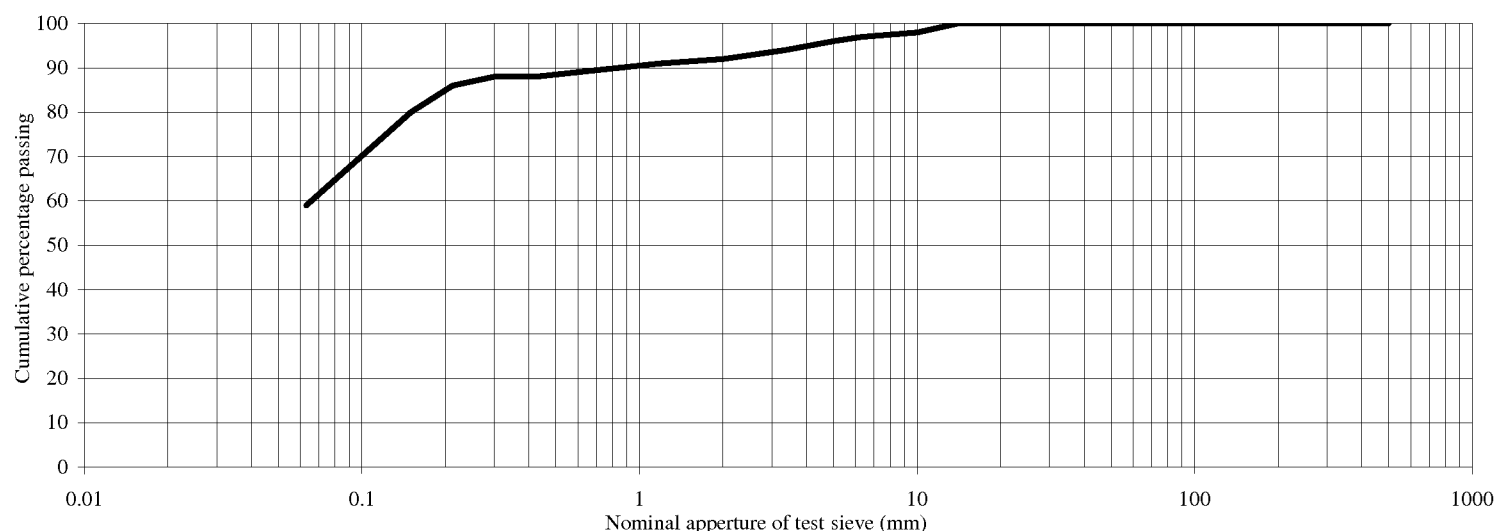
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

Description: Brown Chalky CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	98	
6.3	97	
5	96	
3.35	94	
2	92	
1.18	91	
0.600	89	
0.425	88	
0.300	88	
0.212	86	
0.150	80	
0.063	59.0	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/35
Batch Number: DAM0047684
Lab Ref: 45214490
Client Ref: 56
Location: TP05
Depth (m): 1.00-1.30

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

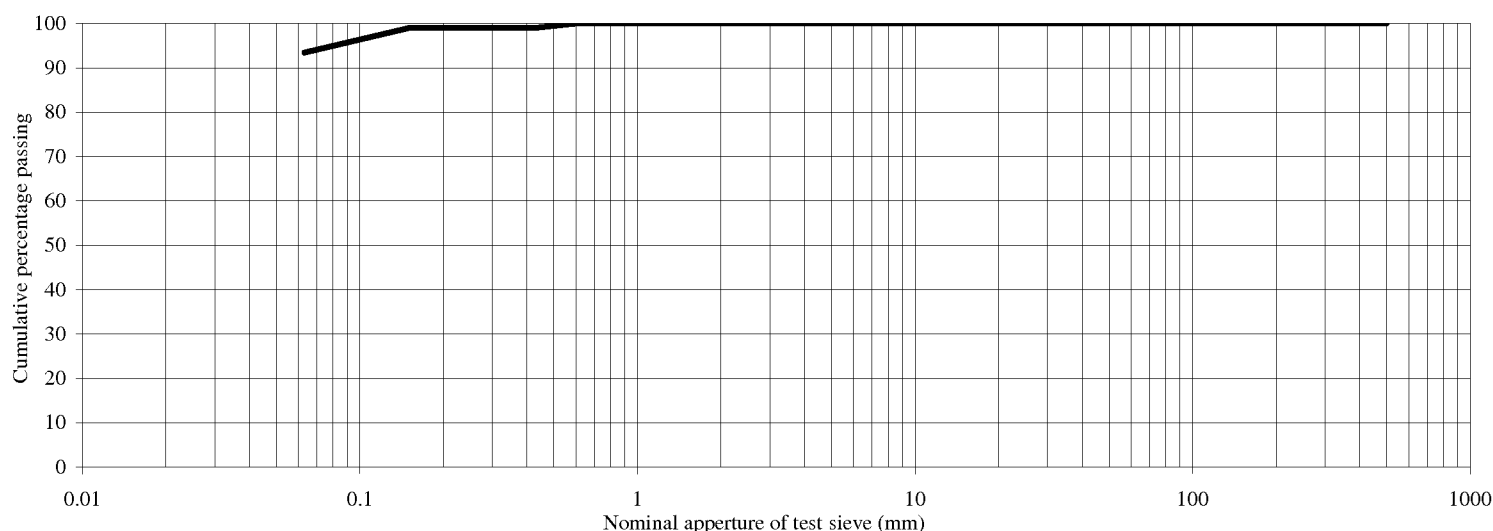
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 07.07.14
Sample Type: Bulk
Sample Mass (kg): 16

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	99	
0.300	99	
0.212	99	
0.150	99	
0.063	93.4	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/34
Batch Number: DAM0047684
Lab Ref: 45214487
Client Ref: 53
Location: TP03
Depth (m): 1.90-2.60
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 03.07.14
Sample Type: Bulk
Sample Mass (kg): 17

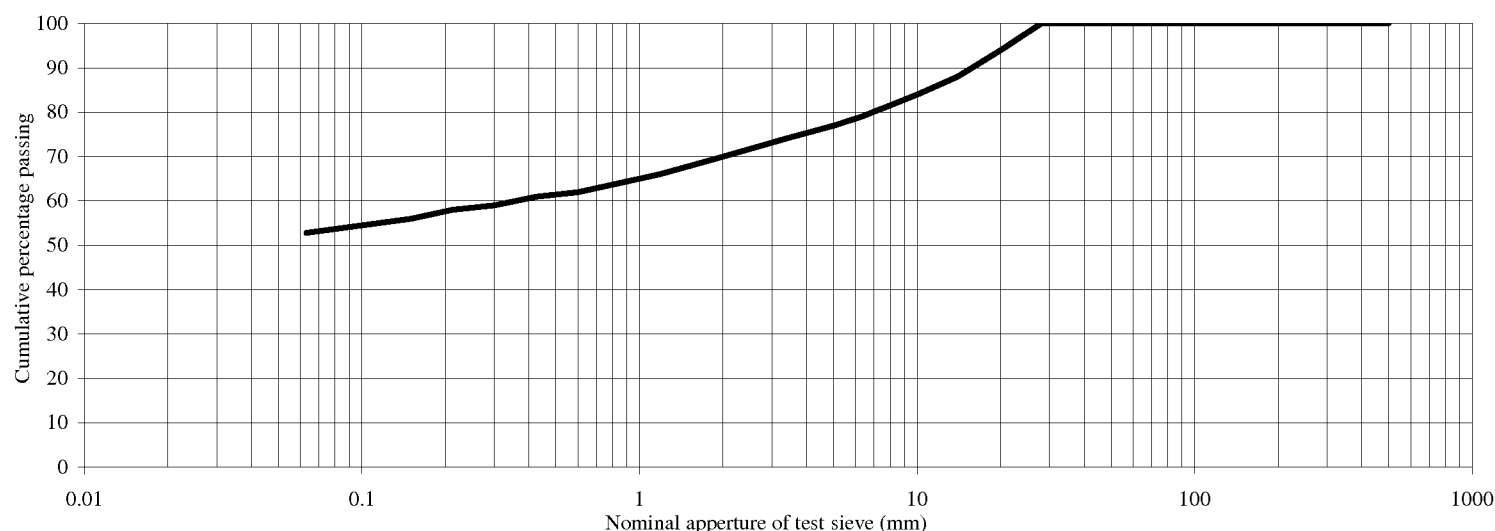
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

Description: White CLAY with Chalk

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	94	
14	88	
10	84	
6.3	79	
5	77	
3.35	74	
2	70	
1.18	66	
0.600	62	
0.425	61	
0.300	59	
0.212	58	
0.150	56	
0.063	52.8	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed:



[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/33
Batch Number: DAM0047684
Lab Ref: 45214486
Client Ref: 52
Location: TP03
Depth (m): 0.30-1.40

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

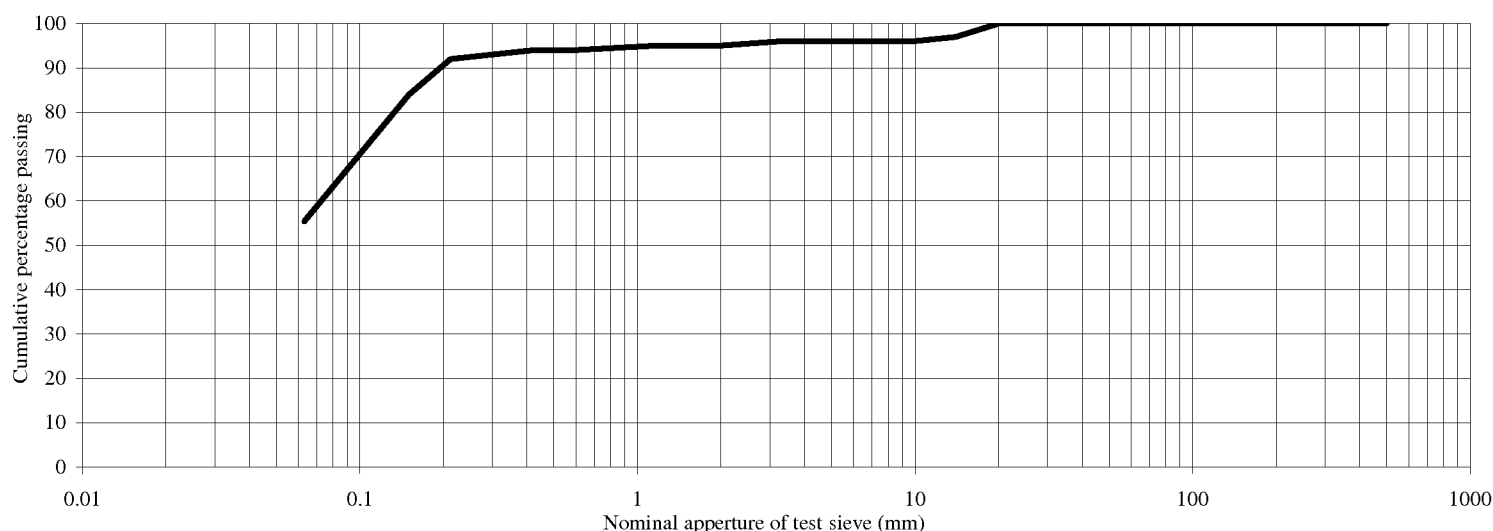
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 16

Description: Brown sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	97	
10	96	
6.3	96	
5	96	
3.35	96	
2	95	
1.18	95	
0.600	94	
0.425	94	
0.300	93	
0.212	92	
0.150	84	
0.063	55.4	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group
2 Newton Close
Drayton Fields Industrial Estate
Daventry
Northants NN11 8RR



0001

TEST REPORT

Determination of Particle Size Distribution

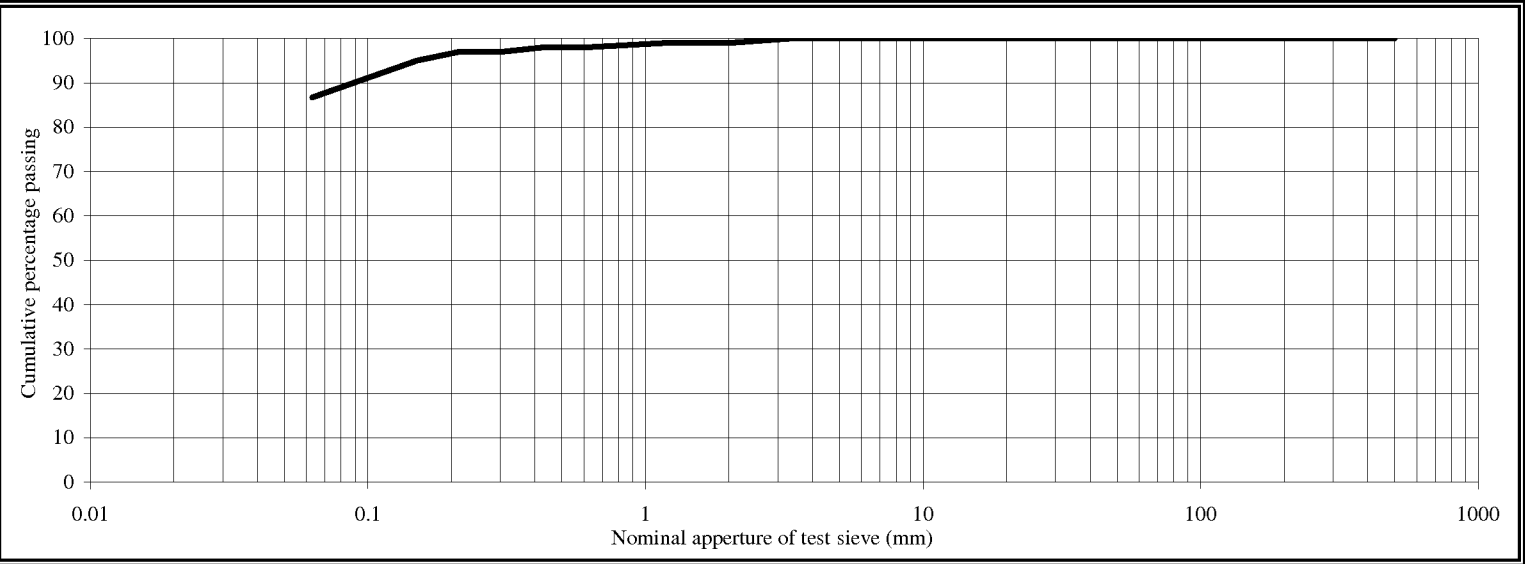
Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site
Report No: 50182276/14/32
Batch Number: DAM0047684
Lab Ref: 45214483
Client Ref: 49
Location: TP02
Depth (m): 0.50-1.00
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 14

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	99	
1.18	99	
0.600	98	
0.425	98	
0.300	97	
0.212	97	
0.150	95	
0.063	86.7	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14
Signed: [Signature] [X] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager
For and on behalf of Environmental Scientifics Group

Determination of Particle Size Distribution

Client:Hydrock Consultants Ltd

Client Address:Over Courts Barn
Over Lane
Almondsbury, Bristol

Postcode:BS32 4DF

Site:C14459 - Oldlands Farm

Sampled by:Client

Sampled from:Site

Supplier:Client

Source:Site

Report No:50182276/14/31

Batch Number:DAM0047684

Lab Ref:45214480

Client Ref:46

Location:TP37

Depth (m):1.60-2.60

Date Sampled:Not Advised

Date Received:23.06.14

Date Tested:03.07.14

Sample Type:Bulk

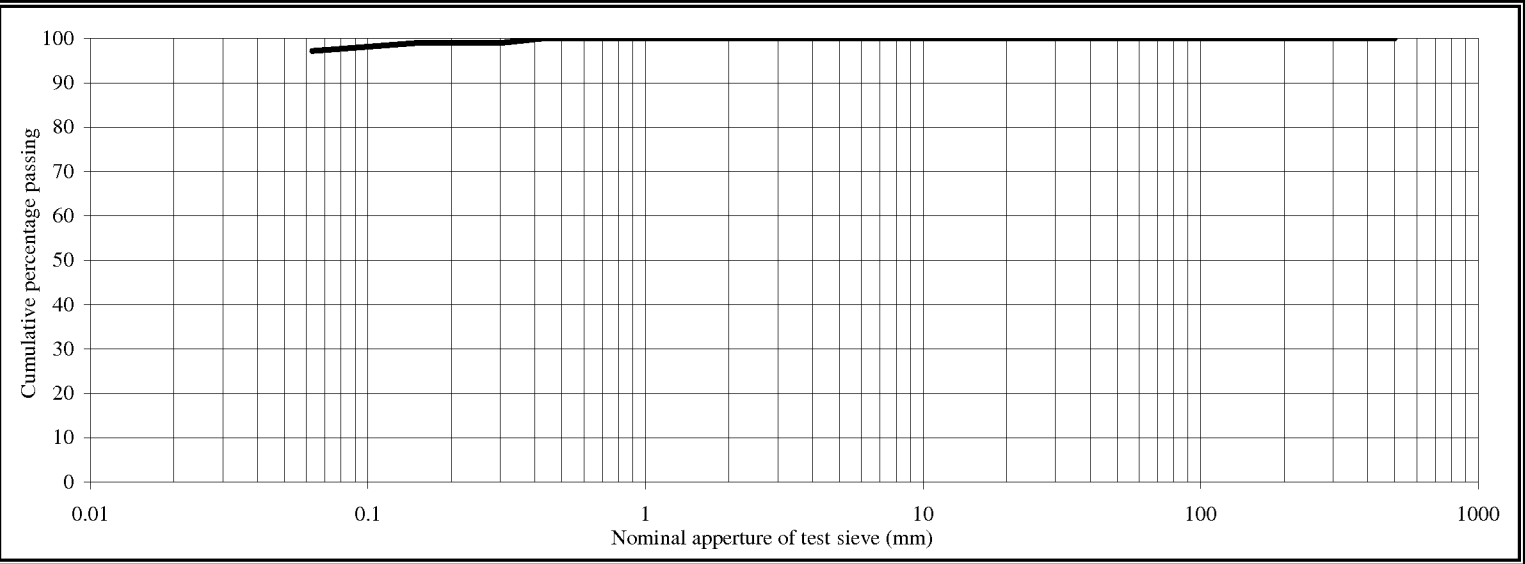
Sample Mass (kg):16

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	99	
0.063	97.2	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed: 

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/30

Batch Number: DAM0047684

Lab Ref: 45214479

Client Ref: 45

Location: TP43

Depth (m): 1.10-1.80

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 04.07.14

Sample Type: Bulk

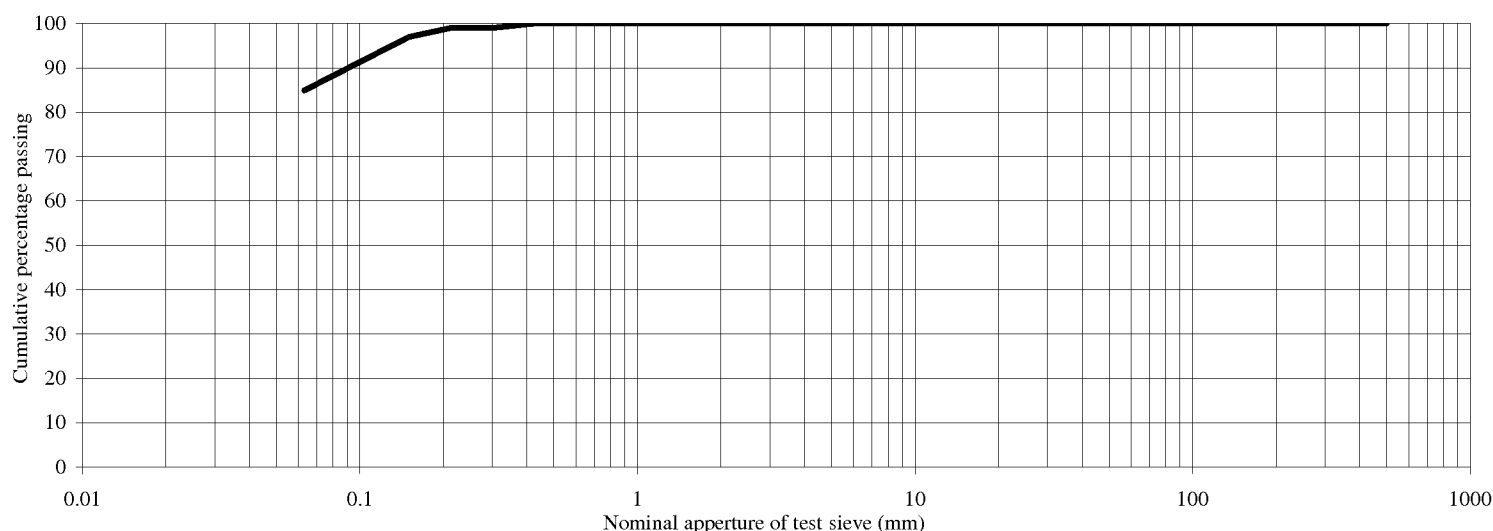
Sample Mass (kg): 15

Description: Brown slightly sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	97	
0.063	84.9	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/29
Batch Number: DAM0047684
Lab Ref: 45214478
Client Ref: 44
Location: TP42
Depth (m): 1.10-1.40

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

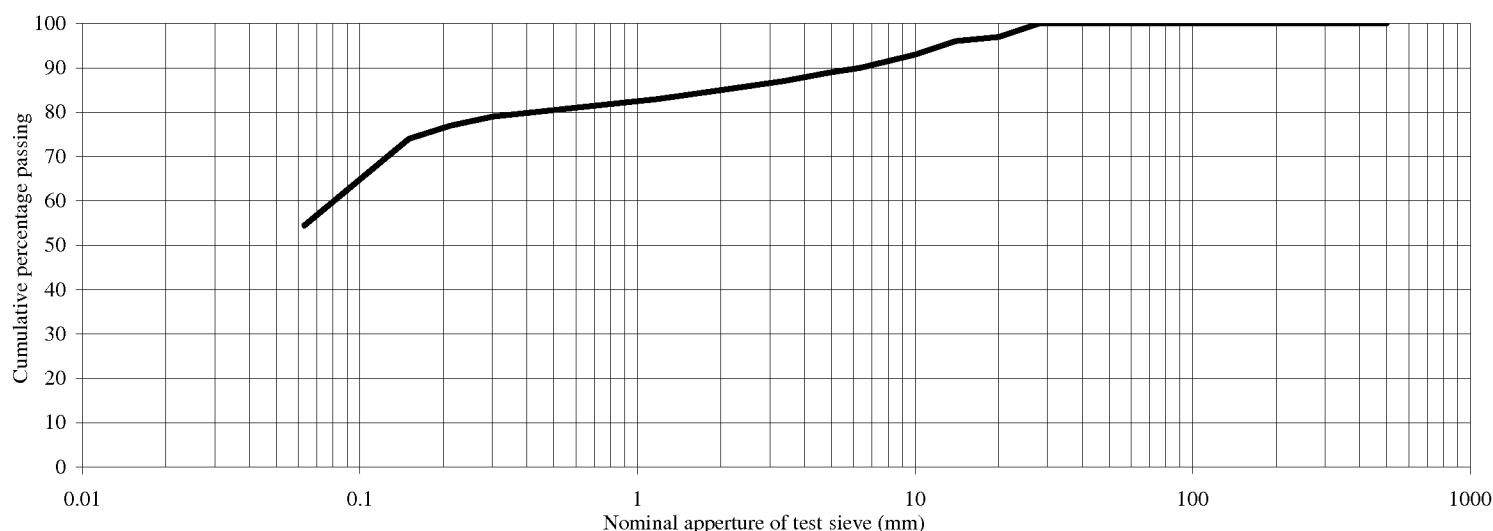
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 16

Description: Brown grey chalky CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	97	
14	96	
10	93	
6.3	90	
5	89	
3.35	87	
2	85	
1.18	83	
0.600	81	
0.425	80	
0.300	79	
0.212	77	
0.150	74	
0.063	54.5	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/28
Batch Number: DAM0047684
Lab Ref: 45214477
Client Ref: 43
Location: TP40
Depth (m): 0.90-1.40

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

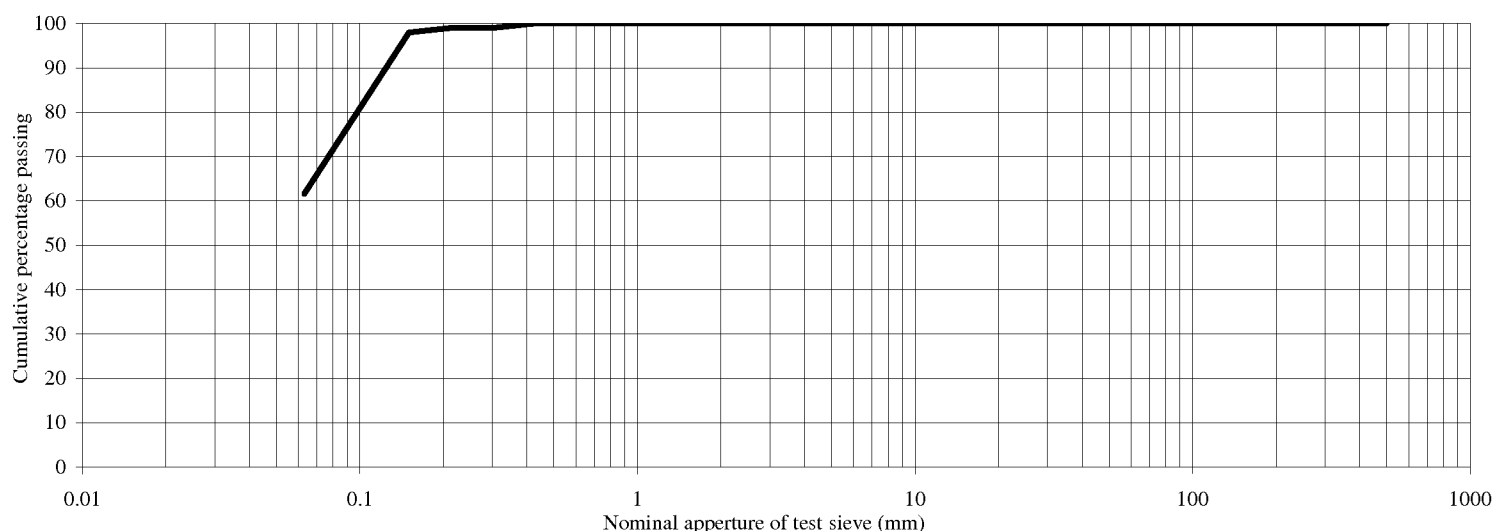
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 13

Description: Brown grey sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	98	
0.063	61.6	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/27
Batch Number: DAM0047684
Lab Ref: 45214475
Client Ref: 41
Location: TP38
Depth (m): 2.40-2.80

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

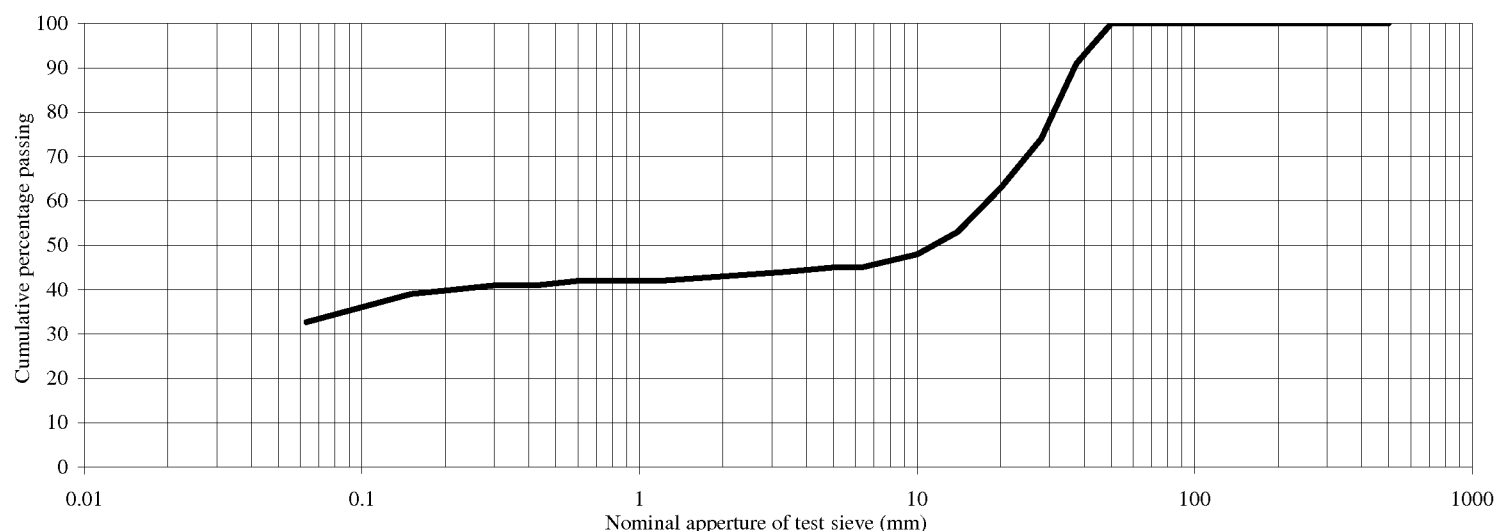
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 6.7

Description: Brown very Gravelly CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	91	
28	74	
20	63	
14	53	
10	48	
6.3	45	
5	45	
3.35	44	
2	43	
1.18	42	
0.600	42	
0.425	41	
0.300	41	
0.212	40	
0.150	39	
0.063	32.7	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/26
Batch Number: DAM0047684
Lab Ref: 45214473
Client Ref: 39
Location: TP37
Depth (m): 3.50-3.60
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 05.07.14
Sample Type: Bulk
Sample Mass (kg): 12

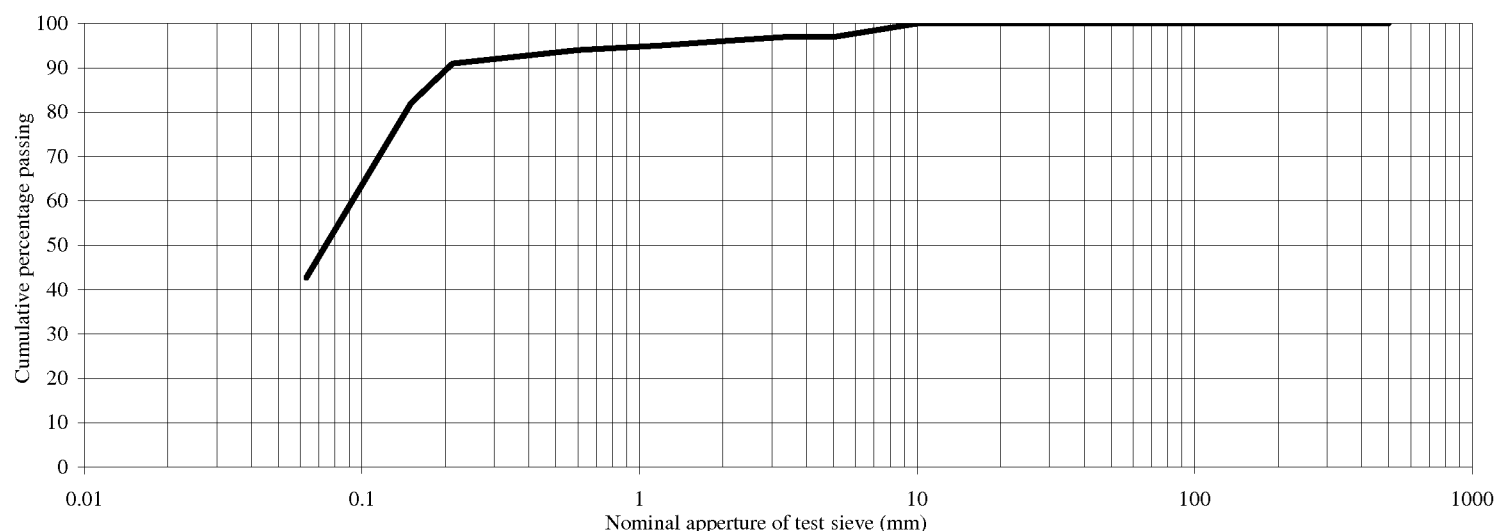
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

Description: Brown sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	98	
5	97	
3.35	97	
2	96	
1.18	95	
0.600	94	
0.425	93	
0.300	92	
0.212	91	
0.150	82	
0.063	42.7	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/25
Batch Number: DAM0047684
Lab Ref: 45214472
Client Ref: 38
Location: TP37
Depth (m): 2.60-2.90

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

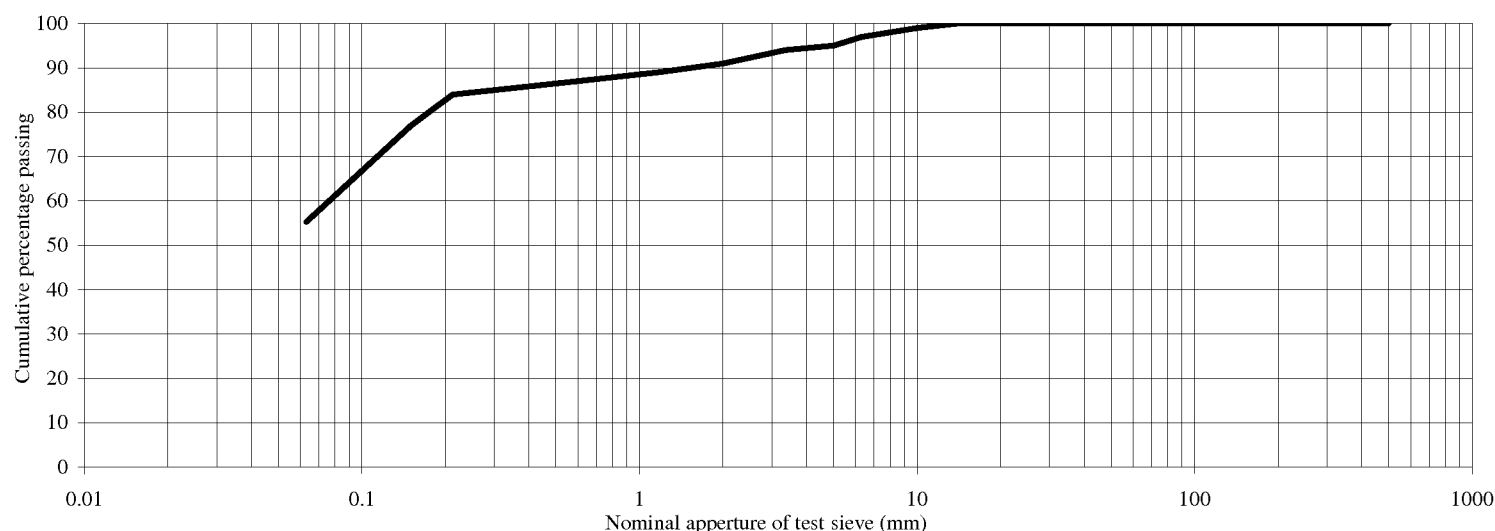
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 05.07.14
Sample Type: Bulk
Sample Mass (kg): 15

Description: Brown slightly sandy chalky CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	99	
6.3	97	
5	95	
3.35	94	
2	91	
1.18	89	
0.600	87	
0.425	86	
0.300	85	
0.212	84	
0.150	77	
0.063	55.3	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/23

Batch Number: DAM0047684

Lab Ref: 45214470

Client Ref: 36

Location: TP34

Depth (m): 1.40-1.70

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 05.07.14

Sample Type: Bulk

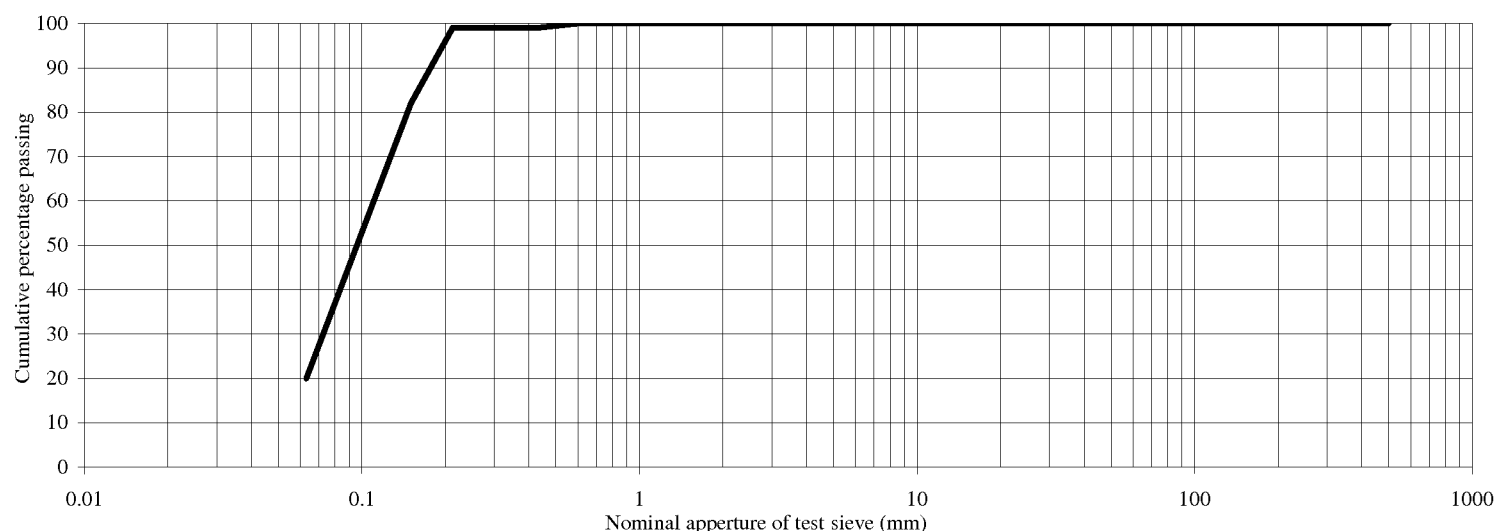
Sample Mass (kg): 16

Description: Brown slightly clayey SAND

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	99	
0.300	99	
0.212	99	
0.150	82	
0.063	20.0	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/21

Batch Number: DAM0047684

Lab Ref: 45214468

Client Ref: 34

Location: TP29

Depth (m): 1.70

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 03.07.14

Sample Type: Bulk

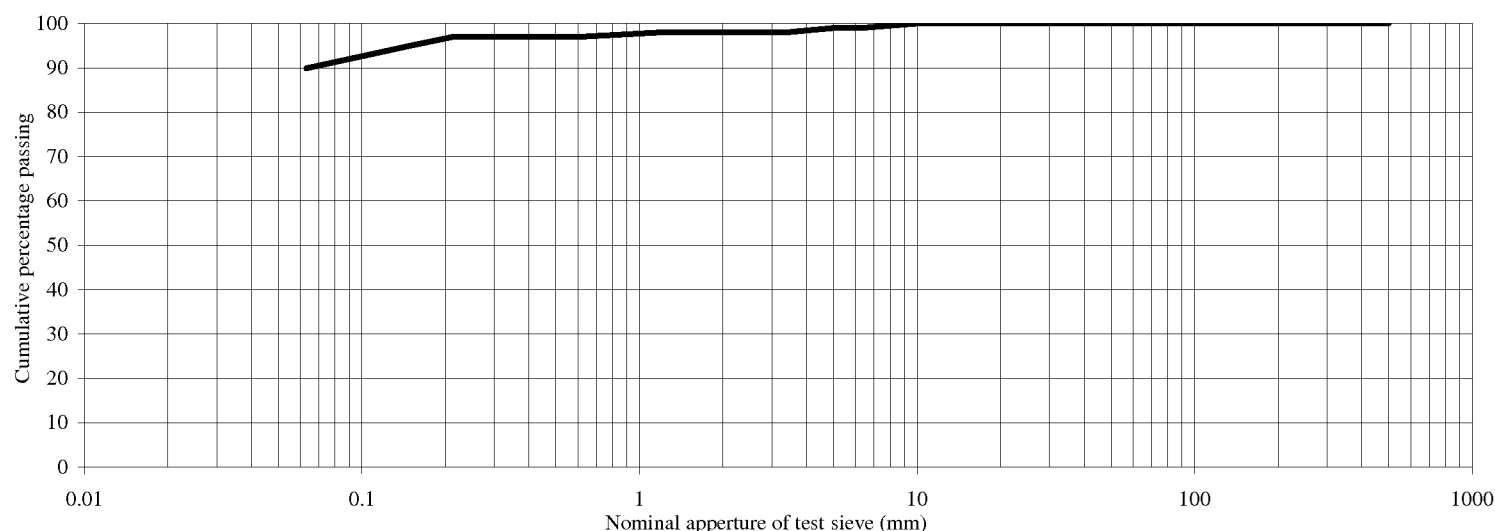
Sample Mass (kg): 14

Description: Brown slightly sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	99	
5	99	
3.35	98	
2	98	
1.18	98	
0.600	97	
0.425	97	
0.300	97	
0.212	97	
0.150	95	
0.063	89.9	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/20

Batch Number: DAM0047684

Lab Ref: 45214466

Client Ref: 32

Location: TP26

Depth (m): 1.30-1.60

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 05.07.14

Sample Type: Bulk

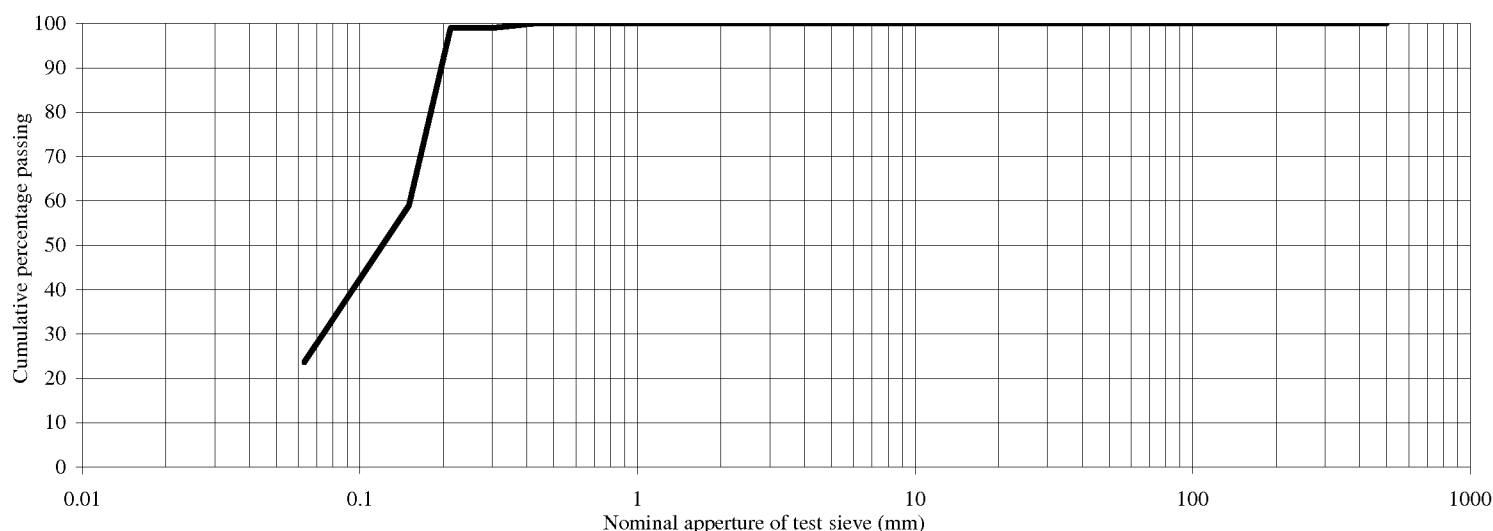
Sample Mass (kg): 17

Description: Brown slightly clayey SAND

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	99	
0.212	99	
0.150	59	
0.063	23.7	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd

Client Address: Over Courts Barn
Over Lane

Almondsbury, Bristol

Postcode: BS32 4DF

Site: C14459 - Oldlands Farm

Sampled by: Client

Sampled from: Site

Supplier: Client

Source: Site

Report No: 50182276/14/19

Batch Number: DAM0047684

Lab Ref: 45214465

Client Ref: 31

Location: TP23

Depth (m): 2.00-2.50

Date Sampled: Not Advised

Date Received: 23.06.14

Date Tested: 03.07.14

Sample Type: Bulk

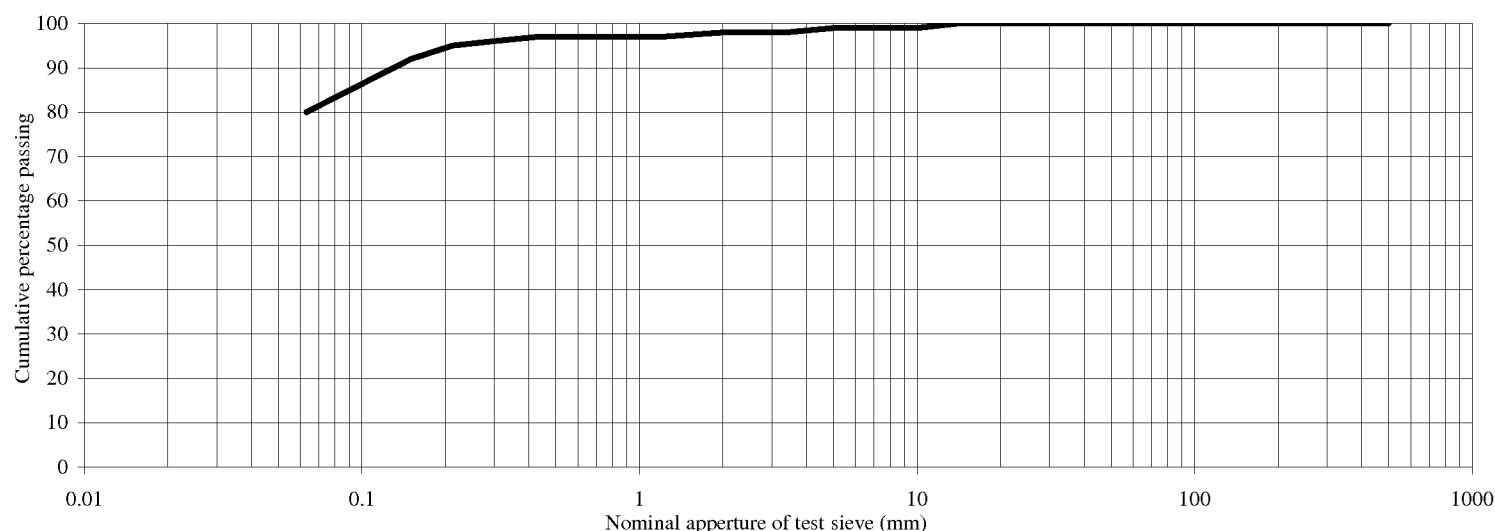
Sample Mass (kg): 16

Description: Brown slightly sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	99	
6.3	99	
5	99	
3.35	98	
2	98	
1.18	97	
0.600	97	
0.425	97	
0.300	96	
0.212	95	
0.150	92	
0.063	80.0	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving

Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/18
Batch Number: DAM0047684
Lab Ref: 45214464
Client Ref: 30
Location: TP23
Depth (m): 0.50-1.00

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

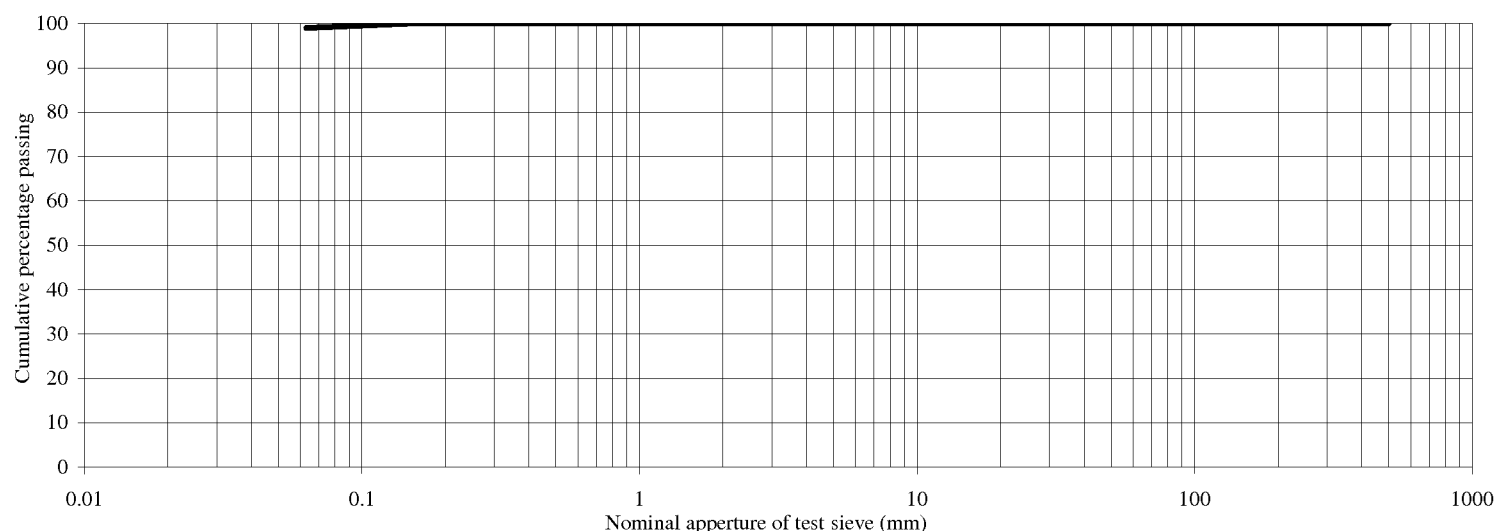
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 07.07.14
Sample Type: Bulk
Sample Mass (kg): 13

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	100	
0.063	99.0	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm

Report No: 50182276/14/17
Batch Number: DAM0047684
Lab Ref: 45214463
Client Ref: 29
Location: TP22
Depth (m): 0.75-1.50

Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site

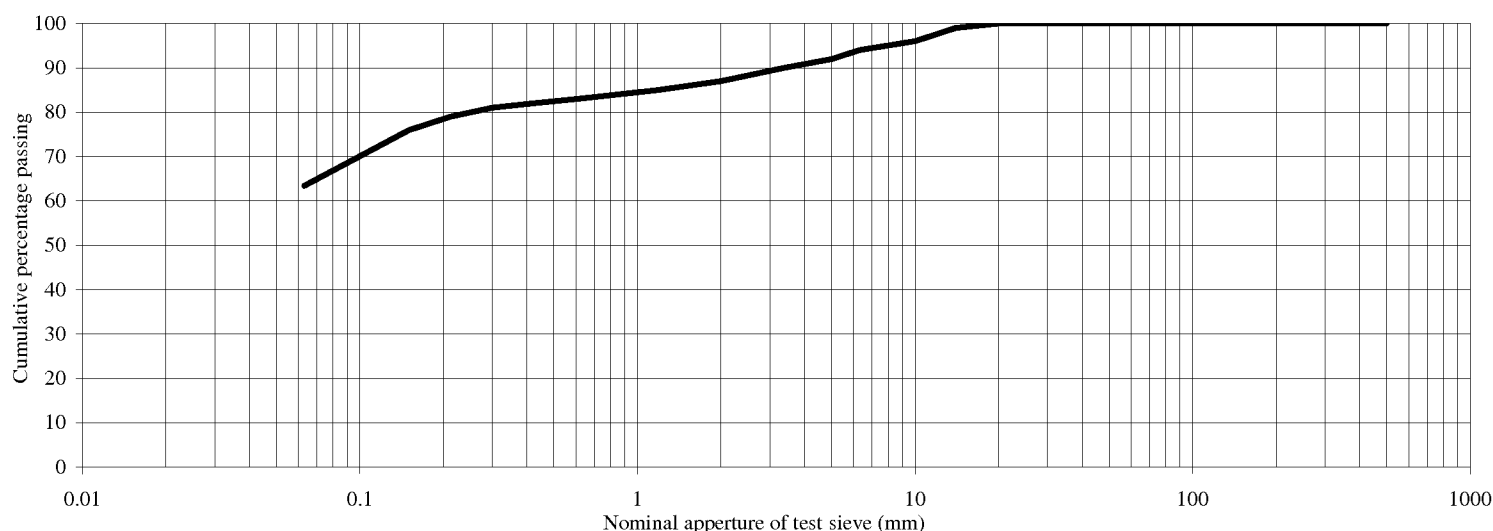
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 12

Description: Brown chalky CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	99	
10	96	
6.3	94	
5	92	
3.35	90	
2	87	
1.18	85	
0.600	83	
0.425	82	
0.300	81	
0.212	79	
0.150	76	
0.063	63.4	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed: _____

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory



0001

TEST REPORT

Determination of Particle Size Distribution

Client:Hydrock Consultants Ltd

Client Address:Over Courts Barn
Over Lane
Almondsbury, Bristol

Postcode:BS32 4DF

Site:C14459 - Oldlands Farm

Sampled by:Client

Sampled from:Site

Supplier:Client

Source:Site

Report No:50182276/14/16

Batch Number:DAM0047684

Lab Ref:45214462

Client Ref:28

Location:TP22

Depth (m):2.20-2.80

Date Sampled:Not Advised

Date Received:23.06.14

Date Tested:05.07.14

Sample Type:Bulk

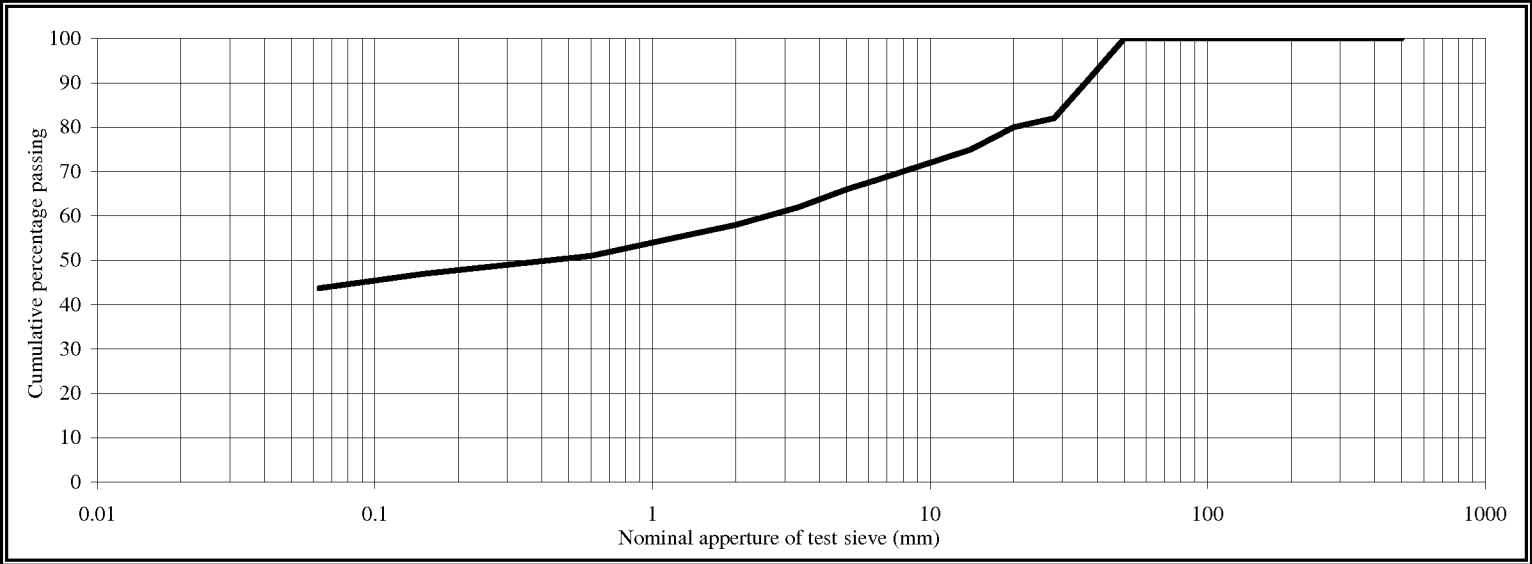
Sample Mass (kg):5.5

Description: White CLAY with Chalk and Gravel

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	91	
28	82	
20	80	
14	75	
10	72	
6.3	68	
5	66	
3.35	62	
2	58	
1.18	55	
0.600	51	
0.425	50	
0.300	49	
0.212	48	
0.150	47	
0.063	43.7	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory



0001

TEST REPORT

Determination of Particle Size Distribution

Client:

Client Address:

Postcode:

Site:

Sampled by:

Sampled from:

Supplier:

Source:

Hydrock Consultants Ltd

Over Courts Barn
Over Lane
Almondsbury, Bristol

BS32 4DF

C14459 - Oldlands Farm

Client

Site

Client

Site

Report No:

Batch Number:

Lab Ref:

Client Ref:

Location:

Depth (m):

Date Sampled:

Date Received:

Date Tested:

Sample Type:

Sample Mass (kg):

50182276/14/15

DAM0047684

45214461

27

TP21

1.10-1.50

Not Advised

23.06.14

04.07.14

Bulk

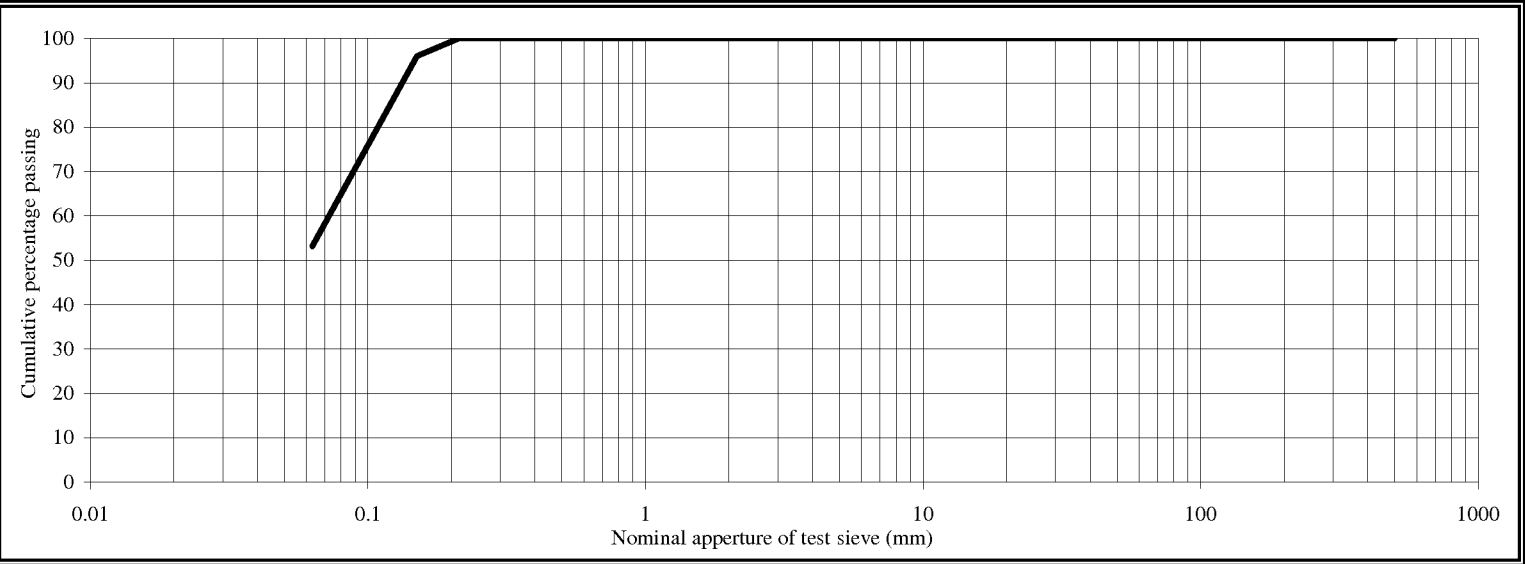
19

Description: Brown sandy CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	96	
0.063	53.2	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Environmental Scientifics Group
2 Newton Close
Drayton Fields Industrial Estate
Daventry
Northants NN11 8RR



0001

TEST REPORT

Determination of Particle Size Distribution

Client:

Client Address:

Postcode:

Site:

Sampled by:

Sampled from:

Supplier:

Source:

Hydrock Consultants Ltd

Over Courts Barn
Over Lane
Almondsbury, Bristol

BS32 4DF

C14459 - Oldlands Farm

Client

Site

Client

Site

Report No:

Batch Number:

Lab Ref:

Client Ref:

Location:

Depth (m):

Date Sampled:

Date Received:

Date Tested:

Sample Type:

Sample Mass (kg):

50182276/14/14

DAM0047684

45214457

23

TP18

1.80-3.60

Not Advised

23.06.14

04.07.14

Bulk

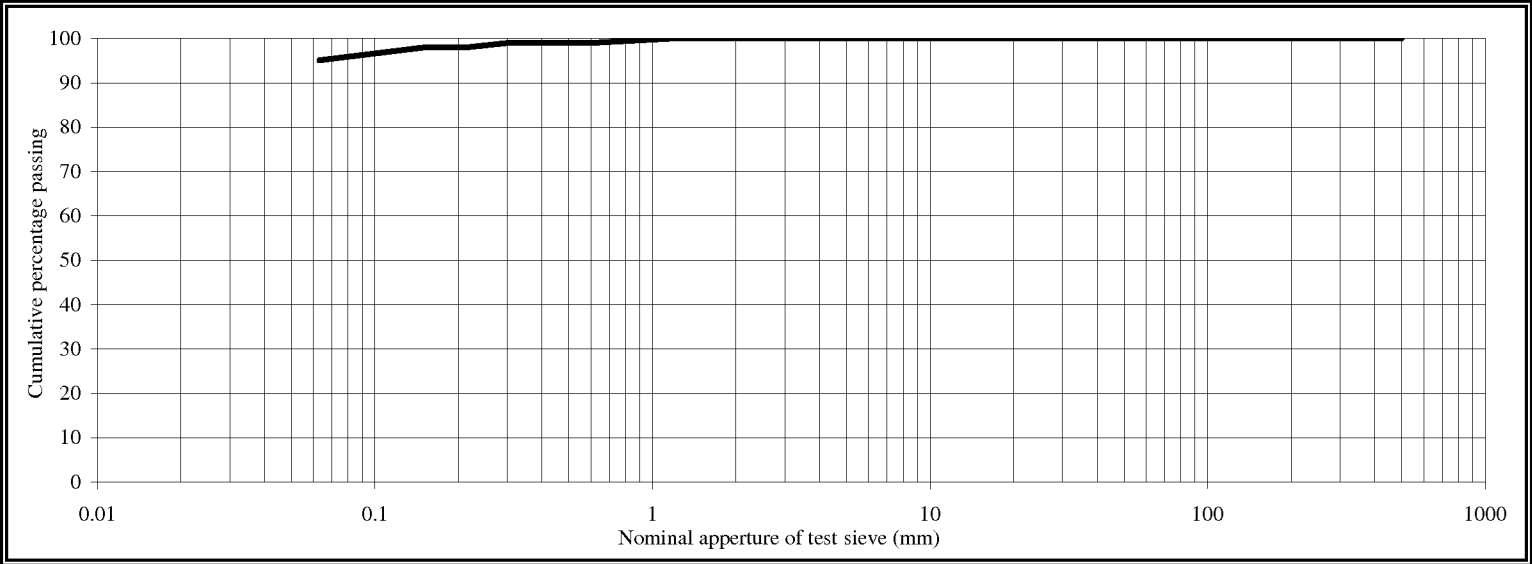
6.6

Description: Brown CLAY

Specification: Not Required

Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	99	
0.425	99	
0.300	99	
0.212	98	
0.150	98	
0.063	95.1	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group
2 Newton Close
Drayton Fields Industrial Estate
Daventry
Northants NN11 8RR



0001

TEST REPORT

Determination of Particle Size Distribution

Client:

Hydrock Consultants Ltd

Client Address:

Over Courts Barn
Over Lane
Almondsbury, Bristol

Postcode:

BS32 4DF

Site:

C14459 - Oldlands Farm

Sampled by:

Client

Sampled from:

Site

Supplier:

Client

Source:

Site

Report No:

50182276/14/13

Batch Number:

DAM0047684

Lab Ref:

45214456

Client Ref:

22

Location:

TP18

Depth (m):

1.20-1.50

Date Sampled:

Not Advised

Date Received:

23.06.14

Date Tested:

04.07.14

Sample Type:

Bulk

Sample Mass (kg):

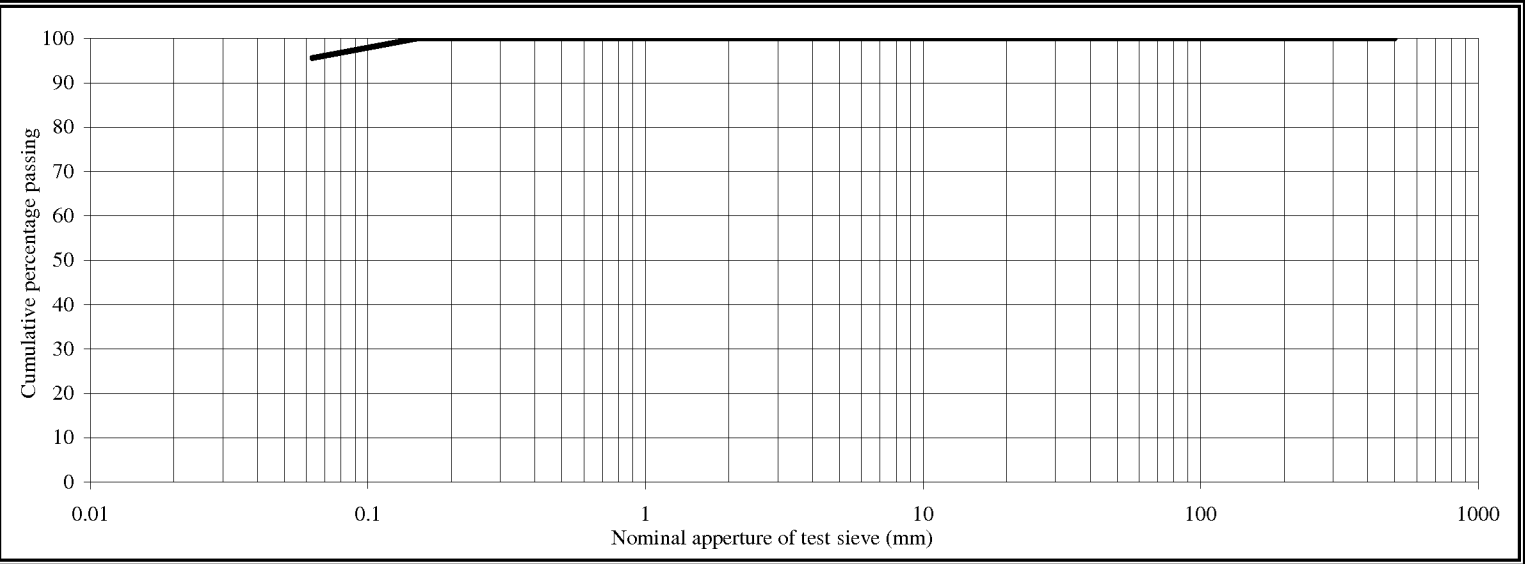
6.6

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	100	
0.063	95.6	

Description: Brown CLAY

Specification: Not Required

Comments:



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Environmental Scientifics Group
2 Newton Close
Drayton Fields Industrial Estate
Daventry
Northants NN11 8RR



0001

TEST REPORT

Determination of Particle Size Distribution

Client:

Hydrock Consultants Ltd

Client Address:

Over Courts Barn
Over Lane
Almondsbury, Bristol

Postcode:

BS32 4DF

Site:

C14459 - Oldlands Farm

Sampled by:

Client

Sampled from:

Site

Supplier:

Client

Source:

Site

Report No:

50182276/14/12

Batch Number:

DAM0047684

Lab Ref:

45214455

Client Ref:

21

Location:

TP17

Depth (m):

1.30-1.50

Date Sampled:

Not Advised

Date Received:

23.06.14

Date Tested:

04.07.14

Sample Type:

Bulk

Sample Mass (kg):

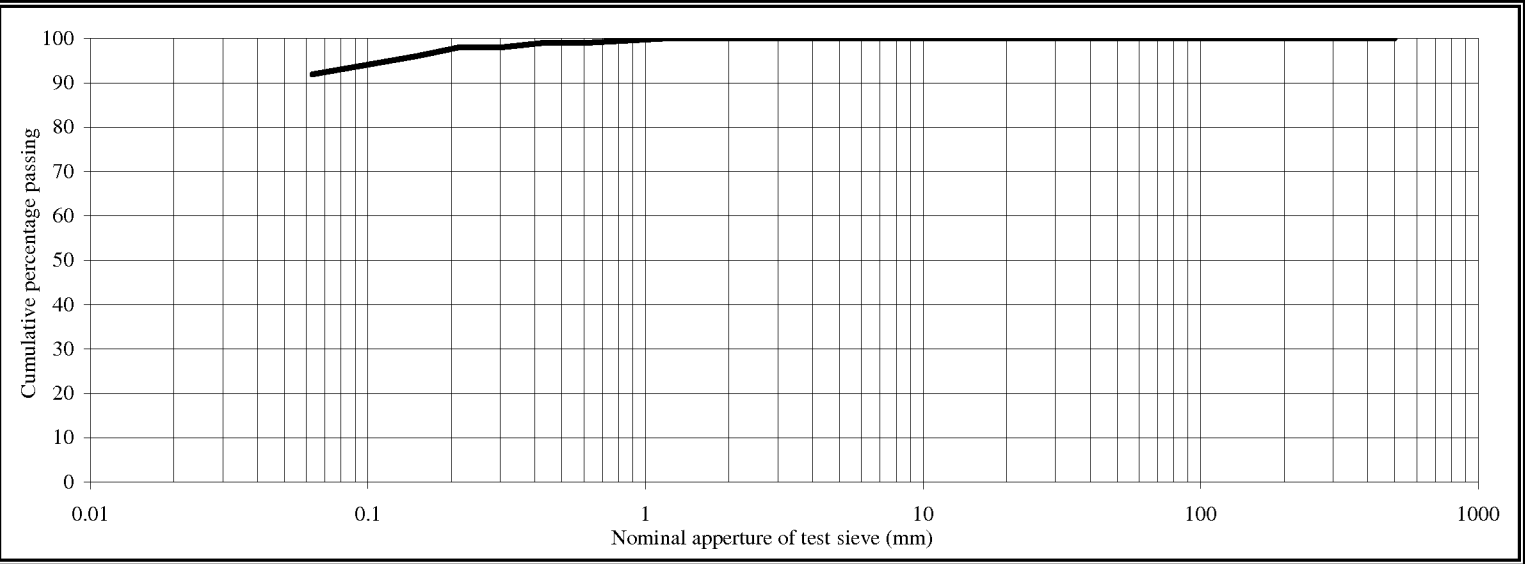
21

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	99	
0.425	99	
0.300	98	
0.212	98	
0.150	96	
0.063	91.9	

Description: Brown CLAY

Specification: Not Required

Comments:



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1

Date: 11.07.14

Signed:

[✓] M. Carr - Section Manager

[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group

Determination of Particle Size Distribution

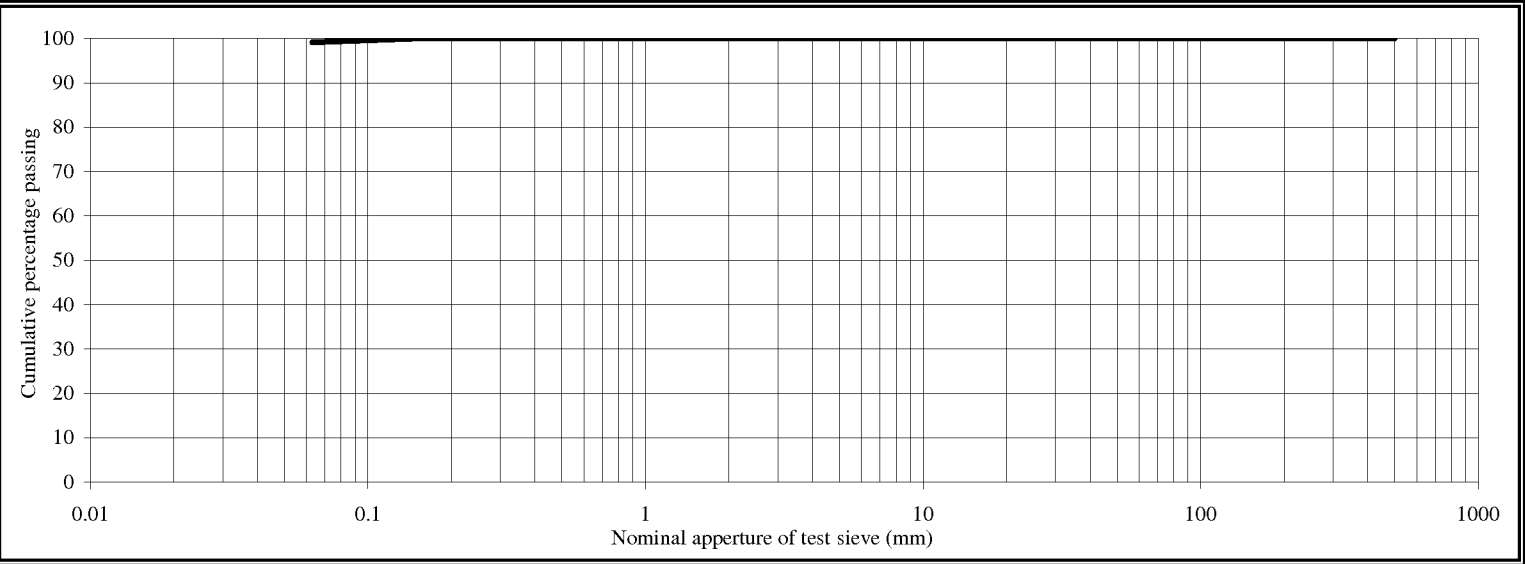
Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF
Site: C14459 - Oldlands Farm
Sampled by: Client
Sampled from: Site
Supplier: Client
Source: Site
Report No: 50182276/14/11
Batch Number: DAM0047684
Lab Ref: 45214454
Client Ref: 20
Location: TP15
Depth (m): 1.00-1.30
Date Sampled: Not Advised
Date Received: 23.06.14
Date Tested: 04.07.14
Sample Type: Bulk
Sample Mass (kg): 14

Description: Brown CLAY

Specification: Not Required

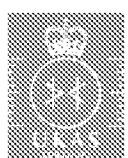
Comments:

SIEVE ANALYSIS		
BS Sieve (mm)	Passing (%)	Material Specification
500	100	
300	100	
125	100	
100	100	
90	100	
75	100	
63	100	
50	100	
37.5	100	
28	100	
20	100	
14	100	
10	100	
6.3	100	
5	100	
3.35	100	
2	100	
1.18	100	
0.600	100	
0.425	100	
0.300	100	
0.212	100	
0.150	100	
0.063	99.1	



Certified that the Particle Size Distribution was determined in accordance with BS 1377 - 2 : 1990, Method 9.2. Washing & Dry Sieving
Method of Preparation: BS 1377 - 1 & 2 : 1990

Page: 1 of 1
Date: 11.07.14
Signed: [Signature] [X] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager
For and on behalf of Environmental Scientifics Group

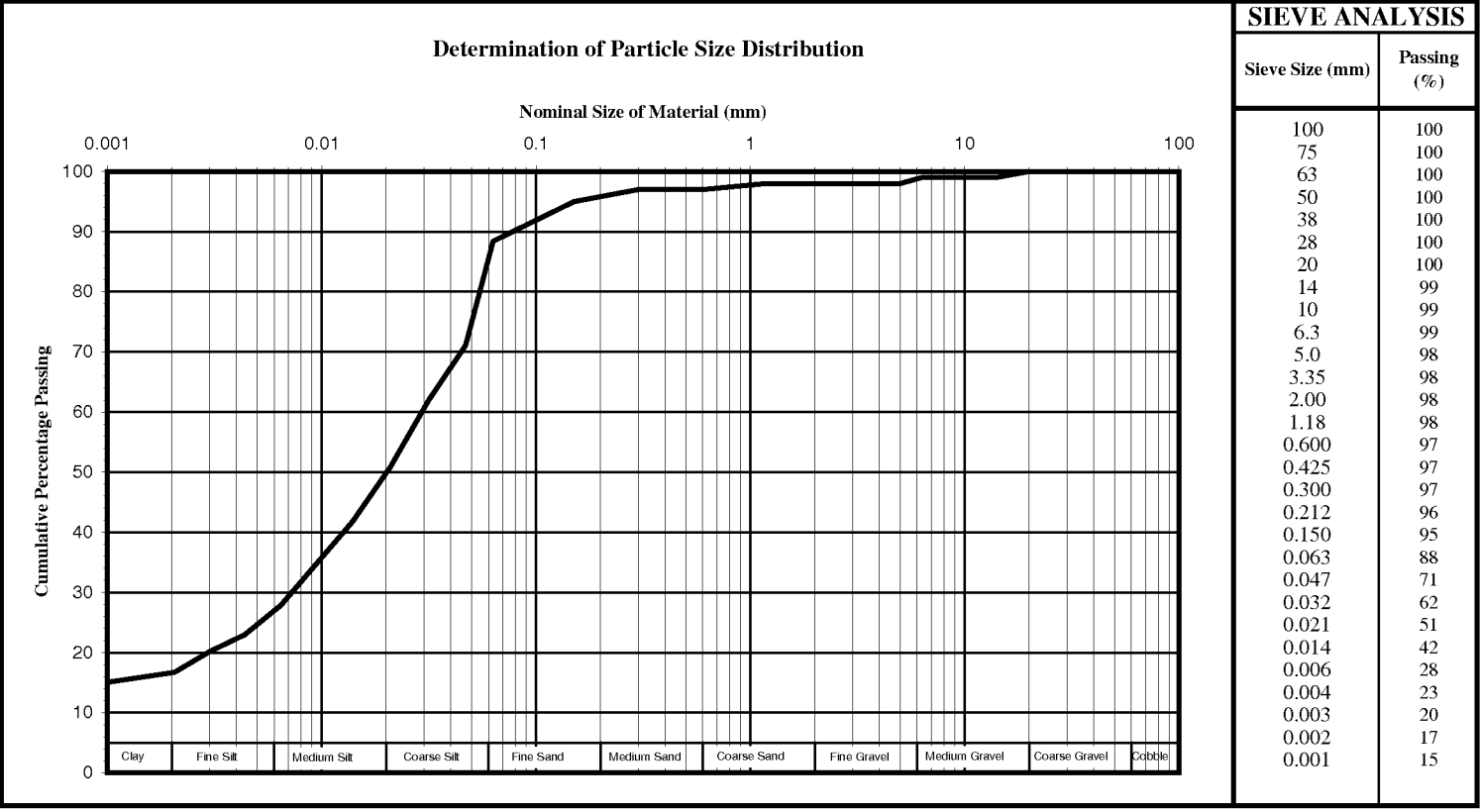


0001

TEST REPORT

Determination of Particle Size Distribution

Client:	Hydrock Consultants Ltd	Report No:	50182276/14/24
Client Address:	Over Courts Barn Over Lane Almondsbury, Bristol	Batch Number:	DAM0047684
Postcode:	BS32 4DF	Lab Ref:	45214471
Site:	C14459 - Oldlands Farm	Client Reference:	37
Supplier:	Client	Location:	TP36
Source:	Site	Depth (m):	2.00-2.30
		Sampled from:	Site
		Sampled by:	Client
		Date Sampled:	Not Advised
Description:	Brown clayey Silt/Sand with rare gravel	Date Received:	23.06.14
Moisture Content (%):	20	Date Tested:	30.06.14 to 02.07.14
Particle Density (Mg/m ³):	2.70 Mg/m ³ Assumed Value	Sample Type:	Bulk
		Mass of Sample (kg):	11



Certified that the test was carried out in accordance with BS 1377-2: 1990 : Clauses 9.2 & 9.5

Comments : No pretreatment necessary
Preparation Method : In accordance with BS 1377-1 : 1990

Page: 1 of 1
Date Reported: 11.07.14
Signed
[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

For and on behalf of Environmental Scientifics Group
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

Determination of Particle Size Distribution

Client: Hydrock Consultants Ltd
Client Address: Over Courts Barn
Over Lane
Almondsbury, Bristol
Postcode: BS32 4DF

Report No: 50182276/14/22
Batch Number: DAM0047684
Lab Ref: 45214469

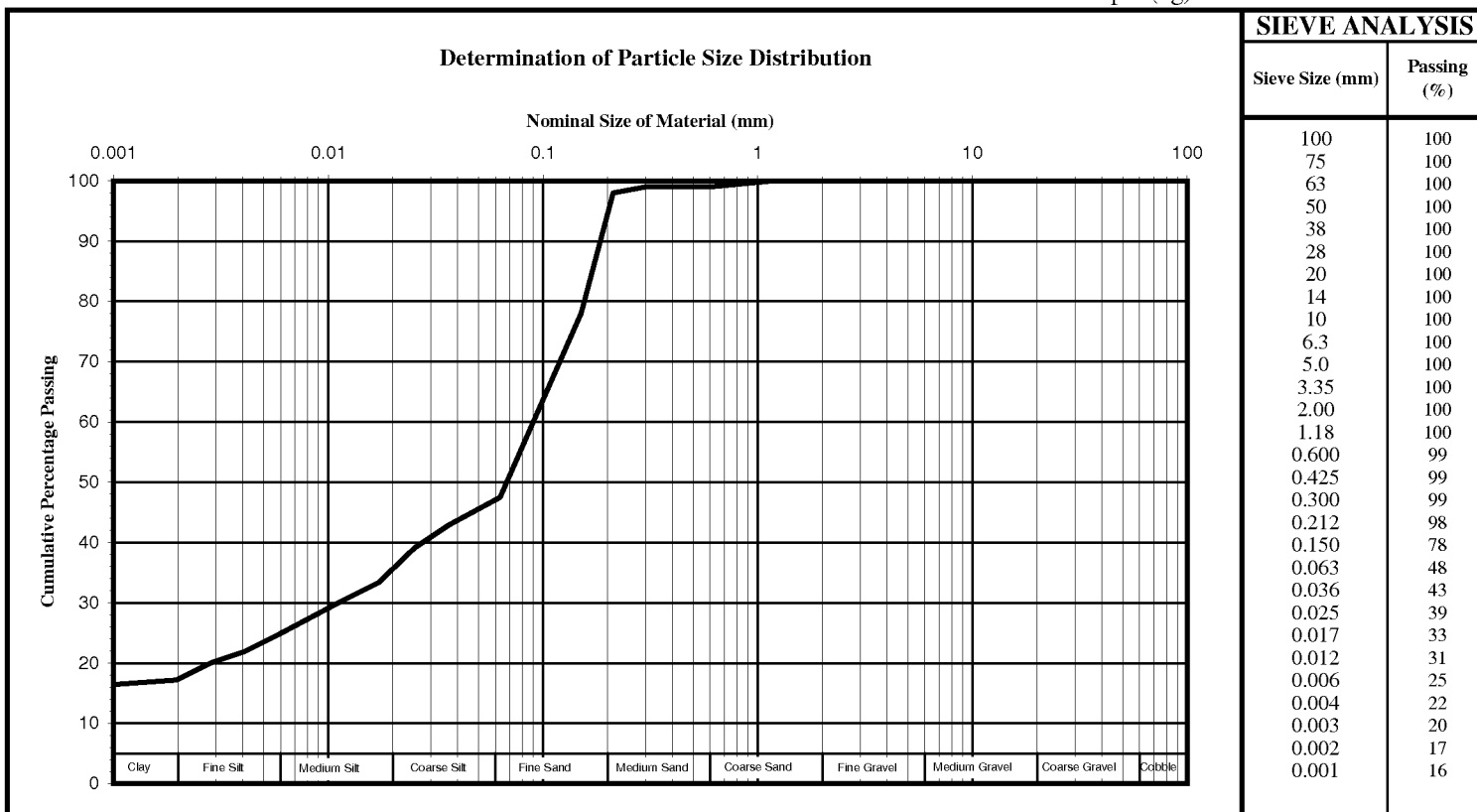
Site: C14459 - Oldlands Farm

Client Reference: 35
Location: TP30
Depth (m): 2.00-2.50
Sampled from: Site
Sampled by: Client
Date Sampled: Not Advised

Supplier: Client
Source: Site

Description: Grey clayey silty SAND
Moisture Content (%): 38
Particle Density (Mg/m³): 2.70 Mg/m³ Assumed Value

Date Received: 23.06.14
Date Tested: 30.06.14 to 02.07.14
Sample Type: Bulk
Mass of Sample (kg): 16



Certified that the test was carried out in accordance with BS 1377-2: 1990 : Clauses 9.2 & 9.5

Comments : No pretreatment necessary
Preparation Method : In accordance with BS 1377-1 : 1990

Page: 1 of 1
Date Reported: 11.07.14

Signed

For and on behalf of Environmental Scientifics Group

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

[✓] M. Carr - Section Manager
[] D. Berrill - Laboratory Manager

Determination of Undrained Shear Strength in Triaxial Compression

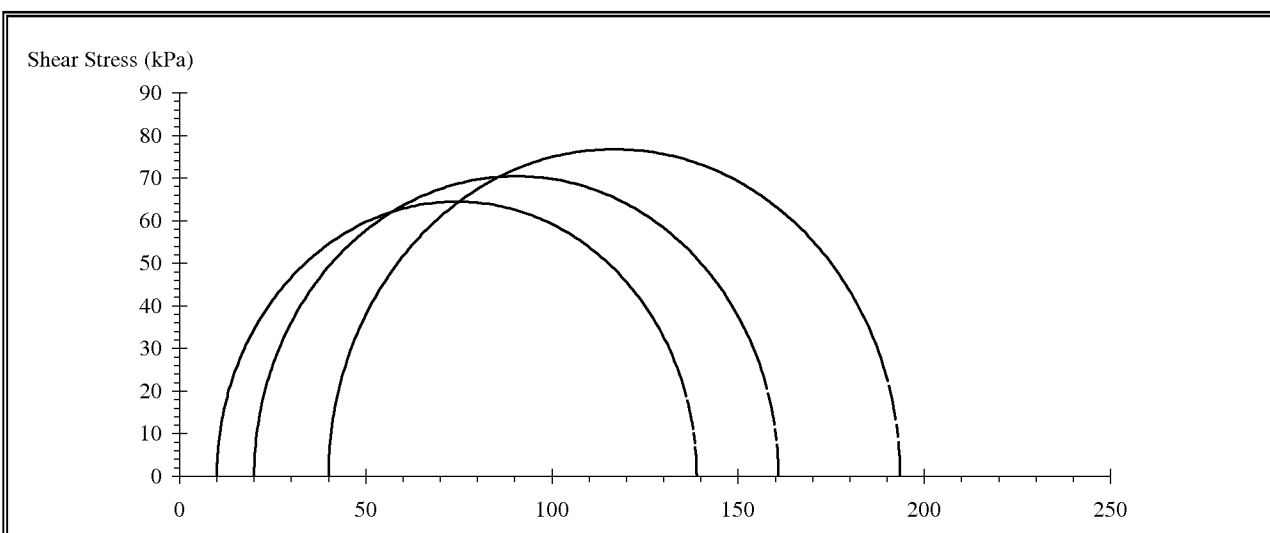
Client:	Hydrock Consultants Ltd Over Courts Barn Over Lane Almondsbury, Bristol BS32 4DF	Report No:	50182276/14/69
		Batch Number:	DAM0047684
		Date Sampled:	Not Advised
		Date Received:	23.06.14
		Sampled By:	Client
		Sampling Certificate:	Not Received
		Sample Type:	U100
Site:	C14459 - Oldlands Farm		
Location:	BH04	Lab Ref:	45214438
Depth (m):	1.00-1.45	Client Ref:	4
Description:	Red brown sandy CLAY with occasional Gravel	Date Tested:	03.07.14

Sample Details:	Sample Preparation:	Undisturbed
	Initial Height (mm)	210
	Initial Diameter (mm)	103
	Bulk Density (Mg/m ³)	2.05
	Moisture Content (%)	20
	Dry Density (Mg/m ³)	1.71
	Orientation:	Maintaining sample direction.
	Depth of test specimen within original sample:	33 mm from base

Test Conditions:	Cell Pressure (kPa)	10	20	40
	Rate of Strain (%/min.)	0.01	0.01	0.01
	Membrane: Latex Rubber Thickness	0.40		

Failure Conditions:	Max Deviator Stress (kPa)	128.2	140.1	152.6
	Membrane Correction (kPa)	0.61	0.75	0.90
	Strain (%)	6.6	8.3	10.4
	Shear Strength (kPa)	64.1	70.0	76.3

Failure Diagram: Mode of Failure: Barrel



Certified that the test was carried out in accordance with BS 1377-7 :1990, Clause 9. Multistage Loading

Page 1 of 1
Date: 11.07.14

Signed:

For and on behalf of Environmental Scientifics Group

☒ M. Carr - Section Manager
☐ D. Berrill - Laboratory Manager

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

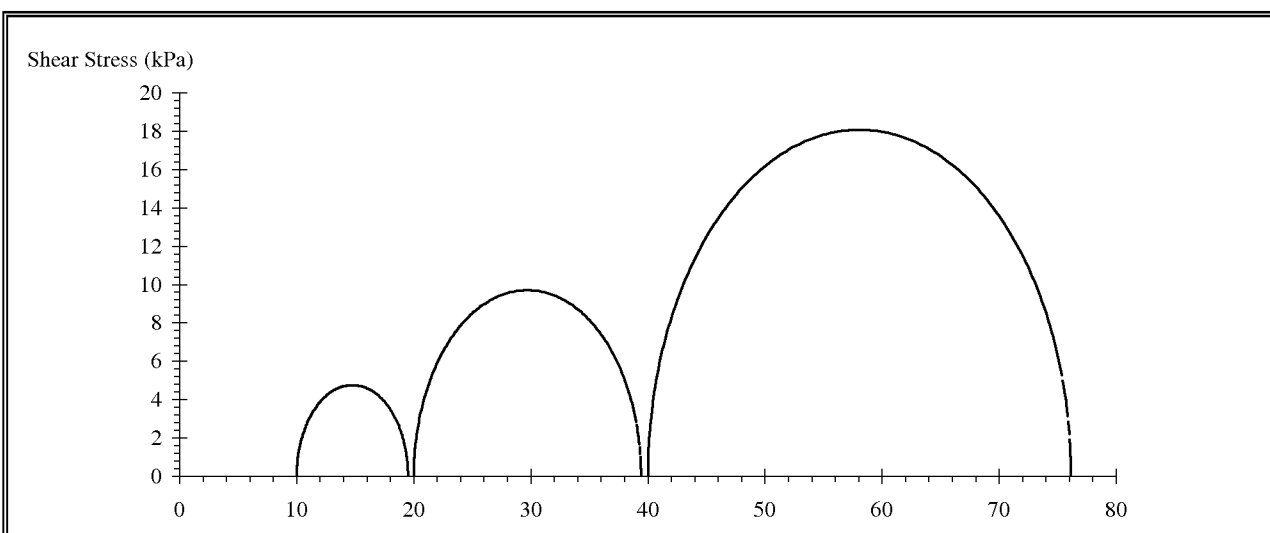
Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ

Determination of Undrained Shear Strength in Triaxial Compression

Client:	Hydrock Consultants Ltd Over Courts Barn Over Lane Almondsbury, Bristol BS32 4DF	Report No:	50182276/14/68
		Batch Number:	DAM0047684
		Date Sampled:	Not Advised
		Date Received:	23.06.14
		Sampled By:	Client
		Sampling Certificate:	Not Received
		Sample Type:	U100
Site:	C14459 - Oldlands Farm		
Location:	BH01	Lab Ref:	45214435
Depth (m):	1.00-1.45	Client Ref:	1
Description:	Grey brown orange sandy CLAY	Date Tested:	03.07.14

Sample Details:	Sample Preparation:	Undisturbed
	Initial Height (mm)	210
	Initial Diameter (mm)	103
	Bulk Density (Mg/m ³)	1.86
	Moisture Content (%)	33
	Dry Density (Mg/m ³)	1.40
	Orientation:	Maintaining sample direction.
	Depth of test specimen within original sample:	25 mm from base
Test Conditions:	Cell Pressure (kPa)	10 20 40
	Rate of Strain (%/min.)	0.01 0.01 0.01
	Membrane: Latex Rubber Thickness	0.40
Failure Conditions:	Max Deviator Stress (kPa)	9.3 19.1 35.6
	Membrane Correction (kPa)	0.15 0.29 0.53
	Strain (%)	1.2 2.8 5.5
	Shear Strength (kPa)	4.7 9.6 17.8

Failure Diagram: Mode of Failure: Barrel



Certified that the test was carried out in accordance with BS 1377-7 :1990, Clause 9. Multistage Loading

Page 1 of 1
Date: 11.07.14

Signed:

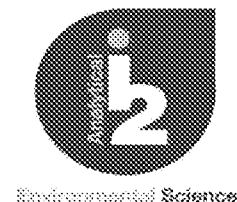
For and on behalf of Environmental Scientifics Group

☒ M. Carr - Section Manager
☐ D. Berrill - Laboratory Manager

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation

This Test Report may not be reproduced other than in full, except with the prior written approval of the issuing laboratory

Environmental Scientifics Group. Registered in England No. 2880501. Registered Office: ESG House, Bretby Business Park, Ashby Road, Burton on Trent DE15 0YZ



Richard Brown

Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Sratton
Northamptonshire
NN6 8LD

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

Analytical Report Number : 14-56213

Project / Site name:	Oldlands Farm	Samples received on:	23/06/2014
Your job number:	C14459	Samples instructed on:	23/06/2014
Your order number:	C14459/N5918	Analysis completed by:	30/06/2014
Report Issue Number:	1	Report issued on:	30/06/2014
Samples Analysed:	18 soil samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.



4041



Environmental Science

Analytical Report Number: 14-56213

Project / Site name: Oldlands Farm

Your Order No: C14459/N5918

Lab Sample Number				349599	349600	349601	349602	349603
Sample Reference				BH01	BH01	BH01	BH01	BH03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				5.00-6.50	2.00-3.00	4.00-5.00	3.00-4.00	0.40-1.00
Date Sampled				05/06/2014	05/06/2014	05/06/2014	05/06/2014	06/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Unit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	21	35	16	31	11
Total mass of sample received	kg	0.001	NONE	0.95	0.78	0.88	0.79	0.69

General Inorganics

pH	pH Units	N/A	MCERTS	8.1	8.3	8.3	-	7.7
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	410	950	360	-	430
Total Sulphate as SO ₄	%	0.01	ISO 17025	0.041	0.095	0.036	-	0.043
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.066	0.90	0.083	-	0.026
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	66	900	83	-	26
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.033	0.45	0.042	-	0.013
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	33.1	451	41.7	-	13.1
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	560	82	390	-	96
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	5	MCERTS	280	41	200	-	48
Total Sulphur	mg/kg	100	NONE	280	2100	310	-	250
Total Sulphur	%	0.01	NONE	0.028	0.205	0.031	-	0.025
Ammonium as NH ₄	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
Ammonium as NH ₄ (leachate equivalent)	mg/l	5	MCERTS	< 5.0	< 5.0	< 5.0	-	< 5.0
Organic Matter	%	0.1	MCERTS	-	0.9	-	1.2	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	10	NONE	< 10	< 10	< 10	-	< 10
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/kg	10	NONE	< 10	< 10	< 10	-	< 10

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	8.2	49	9.4	-	6.7
Magnesium (leachate equivalent)	mg/l	5	NONE	< 5.0	25	< 5.0	-	< 5.0

Iss No 14-56213-1.XLS

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/08/19/DOC

The results included within the report are representative of the samples submitted for analysis.

Page 2 of 7



4041



Environmental Science

Analytical Report Number: 14-56213

Project / Site name: Oldlands Farm

Your Order No: C14459/N5918

Lab Sample Number				349604	349605	349606	349607	349608
Sample Reference				BH04	BH04	BH05	BH05	BH06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				3.70-4.00	2.00-3.00	4.00-5.00	2.00-3.00	6.50-8.00
Date Sampled				09/06/2014	09/06/2014	04/06/2014	04/06/2014	03/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Unit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	16	12	21	20	23
Total mass of sample received	kg	0.001	NONE	0.78	0.91	0.82	1.1	0.93

General Inorganics

	pH Units	N/A	MCERTS	8.5	8.4	8.5	8.2	8.4
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	230	220	300	700	420
Total Sulphate as SO ₄	%	0.01	ISO 17025	0.023	0.022	0.030	0.070	0.042
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.025	0.025	0.033	0.37	0.051
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	25	25	33	370	51
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.013	0.012	0.016	0.19	0.025
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	12.5	12.3	16.3	185	25.3
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	44	47	96	230	120
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	5	MCERTS	22	24	48	110	61
Total Sulphur	mg/kg	100	NONE	130	140	180	1900	220
Total Sulphur	%	0.01	NONE	0.013	0.014	0.018	0.187	0.022
Ammonium as NH ₄	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ammonium as NH ₄ (leachate equivalent)	mg/l	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Organic Matter	%	0.1	MCERTS	-	-	-	0.5	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	< 5.0	< 5.0	6.7	33	6.3
Magnesium (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	17	< 5.0

Iss No 14-56213-1.XLS

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/08/19/DOC

The results included within the report are representative of the samples submitted for analysis.

Page 3 of 7



4041



Environmental Science

Analytical Report Number: 14-56213

Project / Site name: Oldlands Farm

Your Order No: C14459/N5918

Lab Sample Number				349609	349610	349611	349612	349613
Sample Reference				BH06	TP01	TP03	TP03	TP04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				1.00-2.00	1.90-2.40	0.30-1.40	1.90-2.60	1.70-1.90
Date Sampled				03/06/2014	11/06/2014	12/06/2014	12/06/2014	11/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Unit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	17	14	14	16
Total mass of sample received	kg	0.001	NONE	0.96	0.89	0.84	0.90	0.74

General Inorganics

pH	pH Units	N/A	MCERTS	8.4	8.5	8.4	8.4	8.4
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	250	260	130	350	270
Total Sulphate as SO ₄	%	0.01	ISO 17025	0.025	0.026	0.013	0.035	0.027
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.036	0.024	0.011	0.028	0.032
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	36	24	11	28	32
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.012	0.0055	0.014	0.016
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	18.1	11.8	5.5	13.9	16.0
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	110	120	40	18	120
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	5	MCERTS	54	59	20	8.9	58
Total Sulphur	mg/kg	100	NONE	170	140	< 100	220	180
Total Sulphur	%	0.01	NONE	0.017	0.014	< 0.010	0.022	0.018
Ammonium as NH ₄	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Ammonium as NH ₄ (leachate equivalent)	mg/l	5	MCERTS	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Organic Matter	%	0.1	MCERTS	-	-	-	-	-
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/kg	10	NONE	< 10	< 10	< 10	< 10	< 10

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	7.6	< 5.0	< 5.0	< 5.0	6.8
Magnesium (leachate equivalent)	mg/l	5	NONE	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Iss No 14-56213-1.XLS

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/08/19/DOC

The results included within the report are representative of the samples submitted for analysis.

Page 4 of 7



4041



Environmental Science

Analytical Report Number: 14-56213

Project / Site name: Oldlands Farm

Your Order No: C14459/N5918

Lab Sample Number				349614	349615	349616		
Sample Reference				TP12	TP15	TP16		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				2.00-2.50	1.80-2.20	1.40-2.00		
Date Sampled				12/06/2014	04/06/2014	04/06/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Unit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	14	33	8.5		
Total mass of sample received	kg	0.001	NONE	0.79	0.83	0.74		

General Inorganics

pH	pH Units	N/A	MCERTS	8.2	8.3	8.2		
Total Sulphate as SO ₄	mg/kg	100	ISO 17025	310	1300	400		
Total Sulphate as SO ₄	%	0.01	ISO 17025	0.031	0.129	0.040		
Water Soluble Sulphate (Soil Equivalent)	g/l	0.0025	MCERTS	0.079	0.66	0.23		
Water Soluble Sulphate as SO ₄ (2:1)	mg/kg	2.5	MCERTS	79	660	230		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.039	0.33	0.12		
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	39.4	328	115		
Water Soluble Chloride (2:1)	mg/kg	5	MCERTS	290	290	360		
Water Soluble Chloride (2:1) (leachate equivalent)	mg/l	5	MCERTS	150	140	180		
Total Sulphur	mg/kg	100	NONE	210	2500	190		
Total Sulphur	%	0.01	NONE	0.021	0.252	0.019		
Ammonium as NH ₄	mg/kg	5	MCERTS	< 5.0	< 5.0	< 5.0		
Ammonium as NH ₄ (leachate equivalent)	mg/l	5	MCERTS	< 5.0	< 5.0	< 5.0		
Organic Matter	%	0.1	MCERTS	-	0.8	0.2		
Water Soluble Nitrate (2:1) as NO ₃	mg/kg	10	NONE	< 10	< 10	< 10		
Water Soluble Nitrate (2:1) as NO ₃ (leachate equivalent)	mg/kg	10	NONE	< 10	< 10	< 10		

Heavy Metals / Metalloids

Magnesium (water soluble)	mg/kg	5	NONE	14	35	18		
Magnesium (leachate equivalent)	mg/l	5	NONE	7.1	18	8.9		



Environmental Science

Analytical Report Number : 14-56213

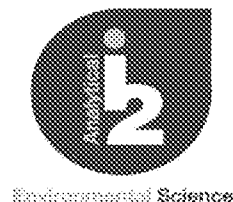
Project / Site name: Oldlands Farm

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
349599	BH01	None Supplied	5.00-6.50	Beige chalk. **
349600	BH01	None Supplied	2.00-3.00	Light grey sandy clay.
349601	BH01	None Supplied	4.00-5.00	Light brown sandy clay.
349602	BH01	None Supplied	3.00-4.00	Light grey sandy clay.
349603	BH03	None Supplied	0.40-1.00	Brown sandy topsoil with gravel and vegetation.
349604	BH04	None Supplied	3.70-4.00	Beige chalk. **
349605	BH04	None Supplied	2.00-3.00	Light brown sandy clay.
349606	BH05	None Supplied	4.00-5.00	Beige chalk. **
349607	BH05	None Supplied	2.00-3.00	Light grey sandy clay.
349608	BH06	None Supplied	6.50-8.00	Beige chalk. **
349609	BH06	None Supplied	1.00-2.00	Light brown sandy clay.
349610	TP01	None Supplied	1.90-2.40	Light brown sandy clay.
349611	TP03	None Supplied	0.30-1.40	Light brown sandy clay.
349612	TP03	None Supplied	1.90-2.60	Beige chalk. **
349613	TP04	None Supplied	1.70-1.90	Beige sandy clay.
349614	TP12	None Supplied	2.00-2.50	Beige sandy clay.
349615	TP15	None Supplied	1.80-2.20	Light grey sandy clay.
349616	TP16	None Supplied	1.40-2.00	Light brown clay and sand.

** Non MCerts Matrix



Analytical Report Number : 14-56213

Project / Site name: Oldlands Farm

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in soil	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	MCERTS
Chloride, water soluble, in soil	Determination of chloride by titration using silver nitrate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L075-PL	D	MCERTS
Chloride, water soluble, in soil	, Chemical and Electrochemical Tests"	In-house method based on BS1377 Part 3, 1990	L075-PL		MCERTS
Magnesium, water soluble, in soil	Determination of water soluble magnesium by extraction with water followed by ICP-OES.	In-house method based on TRL 447	L038-PL	D	NONE
Magnesium, water soluble, in soil		In-house method based on TRL 447	L038-PL		NONE
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Nitrate, water soluble, in soil	Determination of nitrate in soil by extraction in water followed by reaction with sodium salicylate in the presence of sulphuric acid. The reaction product is nitrosalicylic acid, which forms a yellow	In-house method based on Polish Standard Method PN-82/C-04579.08.	L078-PL	D	NONE
Nitrate, water soluble, in soil (leachate equivalent)	hod PN-82/C-04579.08.	In-house method based on Polish Standard Met	L077-PL		NONE
Organic matter in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.



Appendix E

Site Monitoring Data

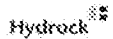
Gas Monitoring Record Sheet																	
Contract Number:				C14459				Site:				Oldlands Farm					
GAS ANALYSER:				G500671				Calibration Due Date: 10/12/2014									
Borehole Number	Date	Relative Pressure (mb)	Flow Rate (l/hr)	Atmos. Pressure (m.bar)	CH ₄ (% vol)		(%LEL)		CO ₂ (% vol)		O ₂ (% vol)		H ₂ S (ppm)	CO (ppm)	Water Level (m bgl)	Depth of Standpipe (m bgl)	Comments
					Initial	Steady	Initial	Steady	Initial	Steady	Initial	Steady					
BH01	18/06/14	0.48	0.0	1030	0.0	0.0	0	0	0.2	0.2	21.2	21.2	0	1	0.76	9.63	Sample description: Cloudy; No odour; No oil
BH02	18/06/14	0.15	0.0	1030	0.0	0.0	0	0	0.6	0.6	20.8	20.8	0	0	0.82	4.11	Sample description: Cloudy; No odour; No oil
BH03	18/06/14	0.38	0.1	1031	0.0	0.0	0	0	1.8	1.8	20.0	20.0	0	0	1.31	3.05	Sample description: Cloudy; No odour; No oil
BH04	18/06/14	0.29	-0.1	1031	0.0	0.0	0	0	2.1	2.1	19.3	19.3	0	0	2.41	9.86	Sample description: Cloudy; No odour; No oil
BH05	18/06/14	0.26	0.0	1030	0.0	0.0	0	0	0.1	0.1	21.0	21.0	0	0	0.71	2.97	Gas tap missing; Sample description: Cloudy; No odour; No oil
BH06	18/06/14	-4.52	0.0	1030	0.0	0.0	0	0	0.2	0.2	20.8	20.8	1	1	1.06	9.71	Sample description: Cloudy; No odour; No oil
BH01	27/06/14	0.24	0.1	1013	0.0	0.0	0	0	0.0	0.1	20.9	19.8	0	0	0.89	9.63	
BH02	27/06/14	0.12	0.2	1015	0.0	0.0	0.0	0.0	0.0	0.5	20.9	19.3	0	0	1.15	4.10	
BH03	30/06/14	0.20	0.2	1021	0.0	0.0	0.0	0.0	0.0	1.6	21.0	19.9	0	1	1.47	3.05	
BH04	30/06/14	0.17	0.2	1019	0.0	0.0	0.0	0.0	0.0	1.7	20.8	20.6	0	1	2.57	9.86	
BH05	27/06/14	-0.12	0.1	1013	0.0	0.0	0.0	0.0	0	0.1	20.9	19.9	0	0	0.83	2.95	
BH06	27/06/14	0.36	0.1	1015	0.0	0.0	0.0	0.0	0.0	0.0	20.9	20.3	0	0	1.19	9.69	
BH01	04/07/14	0.38	0.2	1012	0.0	0.0	0	0	0.1	0.1	19.7	19.7	0	0	0.96	9.50	
BH02	04/07/14	0.43	0.2	1012	0.0	0.0	0.0	0.0	0.1	0.4	19.5	19.4	0	0	1.11	4.06	
BH03	04/07/14	0.41	0.0	1012	0.0	0.0	0.0	0.0	0.0	4.9	19.7	16.3	0	0	1.51	3.06	
BH04	04/07/14	0.51	0.1	1012	0.0	0.0	0.0	0.0	0.0	0.9	20.8	20.0	0	0	2.62	9.70	
BH05	04/07/14	0.24	0.2	1012	0.0	0.0	0.0	0.0	0.1	0	19.9	19.8	0	0	0.91	2.98	Gas tap missing nozzle
BH06	04/07/14	0.21	0.2	1012	0.0	0.0	0.0	0.0	0.0	0.2	19.9	19.8	0	0	1.14	9.63	



Appendix F

Contamination Results & Statistical Analysis

Assessment of Chemicals of Potential Concern to Human Health



All values in mg/kg unless otherwise stated								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG				
								Location & Depth	TP15	TP19	TP22	TP25	TP26	TP31	TP37	TP40	TP43	TP43	TP47				
									0.20-0.70	0.00-0.25	0.30-0.60	0.00-0.35	0.35	0.30-0.80	0.3	0.2	0.00-0.30	0.30-0.75	0.6				
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test															
Arsenic	1	11	2.7	21	0	640	19.405476	POTENTIALLY SUITABLE FOR USE	21	15	20	13	14	5.7	6.9	14	6.3	6.7	2.7				
Beryllium	0.06	11	0.3	1.2	0	420	1.1872727	POTENTIALLY SUITABLE FOR USE	1.1	1.1	1.2	0.9	0.9	0.5	0.6	1	0.5	0.6	0.3				
Boron	0.2	11	0.3	3.7	0	190000	3.1992284	POTENTIALLY SUITABLE FOR USE	2.5	1	3.7	2.5	1.1	0.3	1.3	3.4	0.8	0.8	1.4				
Cadmium	0.2	11	0.2	0.4	0	230	0.3449303	POTENTIALLY SUITABLE FOR USE	0.2	0.3	0.2	0.2	0.2	0.2	0.3	0.2	0.4	0.3	0.3				
Chromium (III)	1	11	11.8	32.8	0	8800	31.001854	POTENTIALLY SUITABLE FOR USE	25.8	32.8	27.8	23.8	25.8	14.8	19.8	28.8	16.8	18.8	11.8				
Chromium (VI)	1.2	11	1.2	1.2	0	35	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2				
Copper	1	11	13	23	0	72000	22.391859	POTENTIALLY SUITABLE FOR USE	15	16	23	19	17	23	18	21	18	18	13				
Lead	2	11	10	25	0	2330	23.876528	POTENTIALLY SUITABLE FOR USE	14	19	12	22	16	10	17	25	15	25	11				
Mercury, inorganic	0.3	11	0.3	0.3	0	3600	0.3	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3				
Nickel	2	11	8.5	36	0	1800	26.434962	POTENTIALLY SUITABLE FOR USE	20	18	36	15	17	13	14	17	17	16	8.5				
Selenium	1	11	1	1.01	0	13000	1.0048727	POTENTIALLY SUITABLE FOR USE	1.01	1	1	1	1	1	1	1	1	1	1				
Vanadium	1	11	21	66	0	3200	61.734019	POTENTIALLY SUITABLE FOR USE	54	66	44	48	57	25	34	54	27	29	21				
Zinc	2	11	46	74	0	670000	67.96914	POTENTIALLY SUITABLE FOR USE	60	62	54	61	54	49	52	74	46	56	65				
Cyanide (free)	1	11	1	1.01	0	16000	1.0048727	POTENTIALLY SUITABLE FOR USE	1.01	1	1	1	1	1	1	1	1	1	1				
Phenol (total)	2	11	2	2.01	0	3200	2.0048727	POTENTIALLY SUITABLE FOR USE	2.01	2	2	2	2	2	2	2	2	2	2				
Acenaphthene	0.05	11	0.1	0.1	0	100000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Acenaphthylene	0.05	11	0.1	0.1	0	100000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Anthracene	0.05	11	0.1	0.1	0	540000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Benz(a)anthracene	0.05	11	0.1	0.1	0	97	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Benzo(a)pyrene	0.05	11	0.1	0.1	0	14	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Benzo(b)fluoranthene	0.05	11	0.1	0.1	0	100	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Benzo(ghi)perylene	0.05	11	0.05	0.05	0	660	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05				
Benzo(k)fluoranthene	0.05	11	0.1	0.1	0	140	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Chrysene	0.05	11	0.05	0.05	0	140	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05				
Dibenz(a,h)anthracene	0.05	11	0.1	0.1	0	13	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Fluoranthene	0.05	11	0.1	0.52	0	23000	0.3046545	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.52	0.1				
Fluorene	0.05	11	0.1	0.1	0	71000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Indeno(1,2,3-cd)pyrene	0.05	11	0.1	0.1	0	62	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1				
Naphthalene	0.05	11	0.05	0.05	0	1100	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05				
Phenanthrene	0.05	11	0.1	0.53	0	23000	0.3095273	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.53	0.1				
Pyrene	0.05	11	0.1	0.45	0	55000	0.2705455	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.45	0.1				
Mean																							
FOC (dimensionless)	0.018								0.0077	0.024	0.0027	0.033	0.024	0.0056	0.019	0.034	0.011	0.0097	0.024				
SOM (calculated)	3.05%								1.33%	4.14%	0.47%	5.69%	4.14%	0.97%	3.28%	5.86%	1.90%	1.67%	4.14%				
pH (su)	7.2								7.1	7	7.2	7.1	7	7.2	7.1	7.2	7.4	7.6	7.6				

Risk parameter: Human health - commercial (6%SOM)

Data set: Main Site

Client: Bericote

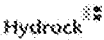
Site: Oldlands Farm

Job no.: C14459

Lab. report no(s): 14-5606-1

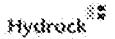
Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC). MG denotes Made Ground NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life



All values in mg/kg unless otherwise stated								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG	MG				
								Location & Depth	TP15	TP19	TP22	TP25	TP26	TP31	TP37	TP40	TP43	TP43	TP47				
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test	0.20-0.70	0.00-0.25	0.30-0.60	0.00-0.35	0.35	0.30-0.80	0.3	0.2	0.00-0.30	0.30-0.75	0.6				
Arsenic	1	11	2.7	21	0	250	19.40548	POTENTIALLY SUITABLE FOR USE	21	15	20	13	14	5.7	6.9	14	6.3	6.7	2.7				
Boron	0.2	11	0.3	3.7	2	3	2.328387	POTENTIALLY SUITABLE FOR USE	2.5	1	3.7	2.5	1.1	0.3	1.3	3.4	0.8	0.8	1.4				
Chromium (III)	1	11	11.8	32.8	0	400	31.00185	POTENTIALLY SUITABLE FOR USE	25.8	32.8	27.8	23.8	25.8	14.8	19.8	28.8	16.8	18.8	11.8				
Chromium (VI)	1.2	11	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2				
Copper	1	11	13	23	0	135	22.39186	POTENTIALLY SUITABLE FOR USE	15	16	23	19	17	23	18	21	18	18	13				
Nickel	2	11	8.5	36	0	75	26.43496	POTENTIALLY SUITABLE FOR USE	20	18	36	15	17	13	14	17	17	16	8.5				
Zinc	2	11	46	74	0	300	67.96914	POTENTIALLY SUITABLE FOR USE	60	62	54	61	54	49	52	74	46	56	65				
	Mean																						
pH (su)	7.2								7.1	7	7.2	7.1	7	7.2	7.1	7.2	7.4	7.6	7.6				
Risk parameter: Plant life pH 7 Data set: Main Site Client: Bericote Site: Oldlands Farm Job no.: C14459 Lab. report no(s).: 14-5606-1 Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC). MG denotes Made Ground NAT denotes natural ground																							

Assessment of Chemicals of Potential Concern to Human Health



All values in mg/kg unless otherwise stated								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG	MG								
								Location & Depth	TP03	TP04	TP06	TP07	TP08	TP09	TP11	TP13									
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test	0.3	0.3	0.3	0.5	0.4	0.3	0.3	0.3									
Arsenic	1	8	5.6	7.7	0	640	7.6397739	POTENTIALLY SUITABLE FOR USE	6.8	6.2	7.7	6	7.1	7	5.6	6.1									
Beryllium	0.06	8	0.5	0.8	0	420	0.7427145	POTENTIALLY SUITABLE FOR USE	0.5	0.8	0.6	0.6	0.5	0.6	0.6	0.6									
Boron	0.2	8	1	4	0	190000	3.1899831	POTENTIALLY SUITABLE FOR USE	1.4	1.7	1.2	1.2	1.3	1.8	1	4									
Cadmium	0.2	8	0.2	0.4	0	230	0.3665259	POTENTIALLY SUITABLE FOR USE	0.4	0.2	0.2	0.3	0.2	0.3	0.2	0.2									
Chromium (III)	1	8	15.8	23.8	0	8800	22.456316	POTENTIALLY SUITABLE FOR USE	18.8	23.8	18.8	19.8	16.8	17.8	15.8	15.8									
Chromium (VI)	1.2	8	1.2	1.2	0	35	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2									
Copper	1	8	12	18	0	72000	18.005787	POTENTIALLY SUITABLE FOR USE	18	14	17	16	13	15	14	12									
Lead	2	8	10	16	0	2330	17.255787	POTENTIALLY SUITABLE FOR USE	16	15	13	16	15	15	10	13									
Mercury, inorganic	0.3	8	0.3	0.3	0	3600	0.3	POTENTIALLY SUITABLE FOR USE	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3									
Nickel	2	8	12	17	0	1800	16.66159	POTENTIALLY SUITABLE FOR USE	14	16	17	13	12	13	14	12									
Selenium	1	8	1	1	0	13000	1	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1									
Vanadium	1	8	26	38	0	3200	37.065553	POTENTIALLY SUITABLE FOR USE	32	38	30	33	28	33	26	26									
Zinc	2	8	40	50	0	670000	50.957124	POTENTIALLY SUITABLE FOR USE	48	50	44	48	40	47	41	40									
Cyanide (free)	1	8	1	1	0	16000	1	POTENTIALLY SUITABLE FOR USE	1	1	1	1	1	1	1	1									
Phenol (total)	2	8	2	2	0	3200	2	POTENTIALLY SUITABLE FOR USE	2	2	2	2	2	2	2	2									
Acenaphthene	0.05	8	0.1	0.1	0	100000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Acenaphthylene	0.05	8	0.1	0.1	0	100000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Anthracene	0.05	8	0.1	0.1	0	540000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Benz(a)anthracene	0.05	8	0.1	0.1	0	97	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Benzo(a)pyrene	0.05	8	0.1	0.1	0	14	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Benzo(b)fluoranthene	0.05	8	0.1	0.1	0	100	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Benzo(ghi)perylene	0.05	8	0.05	0.05	0	660	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05									
Benzo(k)fluoranthene	0.05	8	0.1	0.1	0	140	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Chrysene	0.05	8	0.05	0.05	0	140	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05									
Dibenz(a,h)anthracene	0.05	8	0.1	0.1	0	13	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Fluoranthene	0.05	8	0.1	0.1	0	23000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Fluorene	0.05	8	0.1	0.1	0	71000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Indeno(1,2,3-cd)pyrene	0.05	8	0.1	0.1	0	62	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Naphthalene	0.05	8	0.05	0.05	0	1100	0.05	POTENTIALLY SUITABLE FOR USE	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05									
Phenanthrene	0.05	8	0.1	0.1	0	23000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Pyrene	0.05	8	0.1	0.1	0	55000	0.1	POTENTIALLY SUITABLE FOR USE	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1									
Mean																									
FOC (dimensionless)	0.012								0.015	0.012	0.0065	0.012	0.017	0.018	0.0049	0.0082									
SOM (calculated)	2.02%								2.59%	2.07%	1.12%	2.07%	2.93%	3.10%	0.84%	1.41%									
pH (su)	7.2								7.6	7.8	7.8	7.6	6.5	6.6	6.9	7									

Risk parameter: Human health - commercial (6%SOM)

Data set: Flood Compensation Area

Client: Bericote

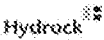
Site: Oldlands Farm

Job no.: C14459

Lab. report no(s): 14-5606-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC).
 MG denotes Made Ground
 NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life



All values in mg/kg unless otherwise stated								Soil Type	MG	MG	MG	MG	MG	MG	MG	MG							
								Location & Depth	TP03	TP04	TP06	TP07	TP08	TP09	TP11	TP13							
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test	0.3	0.3	0.3	0.5	0.4	0.3	0.3	0.3							
Arsenic	1	8	5.6	7.7	0	250	7.639774	POTENTIALLY SUITABLE FOR USE	6.8	6.2	7.7	6	7.1	7	5.6	6.1							
Boron	0.2	8	1	4	1	3	2.347596	POTENTIALLY SUITABLE FOR USE	1.4	1.7	1.2	1.2	1.3	1.8	1	4							
Chromium (III)	1	8	15.8	23.8	0	400	22.45632	POTENTIALLY SUITABLE FOR USE	18.8	23.8	18.8	19.8	16.8	17.8	15.8	15.8							
Chromium (VI)	1.2	8	1.2	1.2	0	25	1.2	POTENTIALLY SUITABLE FOR USE	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2							
Copper	1	8	12	18	0	135	18.00579	POTENTIALLY SUITABLE FOR USE	18	14	17	16	13	15	14	12							
Nickel	2	8	12	17	0	75	16.66159	POTENTIALLY SUITABLE FOR USE	14	16	17	13	12	13	14	12							
Zinc	2	8	40	50	0	300	50.95712	POTENTIALLY SUITABLE FOR USE	48	50	44	48	40	47	41	40							
	Mean																						
pH (su)	7.2								7.6	7.8	7.8	7.6	6.5	6.6	6.9	7							
Risk parameter: Plant life pH 7 Data set: Flood Compensation Area Client: Bericote Site: Oldlands Farm Job no.: C14459 Lab. report no(s): 14-5606-1 Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC). MG denotes Made Ground NAT denotes natural ground																							

All values in mg/kg unless otherwise stated								Soil Type											
								Location & Depth	TP38	TP46	TP46	TP48							
									0.25-0.70	0.2	0.55	0.60-1.00							
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test											
Arsenic	1	4	4.4	8.6	0	640	11.305031	POTENTIALLY SUITABLE FOR USE	8.1	8.6	7.6	4.4							
Beryllium	0.06	4	0.4	0.7	0	420	0.8314368	POTENTIALLY SUITABLE FOR USE	0.7	0.6	0.4	0.5							
Boron	0.2	4	0.6	1.7	0	190000	2.2060118	POTENTIALLY SUITABLE FOR USE	0.6	1.3	0.7	1.7							
Cadmium	0.2	4	0.2	0.5	0	230	0.7082986	POTENTIALLY SUITABLE FOR USE	0.2	0.5	0.5	0.4							
Chromium (III)	1	4	10.8	20.8	0	8800	27.130099	POTENTIALLY SUITABLE FOR USE	19.7999	20.8	10.8	17.8							
Chromium (VI)	1.2	4	1.2	1.2001	0	35	1.200134	POTENTIALLY SUITABLE FOR USE	1.2001	1.2	1.2	1.2							
Copper	1	4	17	61	0	72000	86.904775	POTENTIALLY SUITABLE FOR USE	17	56	61	29							
Lead	2	4	12	91	0	2330	147.39687	POTENTIALLY SUITABLE FOR USE	12	91	89	17							
Mercury, inorganic	0.3	4	0.3	0.3001	0	3600	0.300134	POTENTIALLY SUITABLE FOR USE	0.3001	0.3	0.3	0.3							
Nickel	2	4	13	20	0	1800	23.277895	POTENTIALLY SUITABLE FOR USE	18	20	13	15							
Selenium	1	4	1	1.1	0	13000	1.134	POTENTIALLY SUITABLE FOR USE	1.1	1	1	1							
Vanadium	1	4	20	31	0	3200	36.827089	POTENTIALLY SUITABLE FOR USE	31	29	20	24							
Zinc	2	4	46	290	0	670000	435.84305	POTENTIALLY SUITABLE FOR USE	46	290	260	92							
Cyanide (free)	1	4	1	1.001	0	16000	1.00134	POTENTIALLY SUITABLE FOR USE	1.001	1	1	1							
Phenol (total)	2	4	2	2.001	0	3200	2.00134	POTENTIALLY SUITABLE FOR USE	2.001	2	2	2							
Acenaphthene	0.05	4	0.1	17	0	100000	22.729647	POTENTIALLY SUITABLE FOR USE	0.1	0.25	17	0.1							
Acenaphthylene	0.05	4	0.1	15	0	100000	20.066	POTENTIALLY SUITABLE FOR USE	0.1	0.1	15	0.1							
Anthracene	0.05	4	0.1	66	0	540000	88.342747	POTENTIALLY SUITABLE FOR USE	0.1	0.68	66	0.1							
Benz(a)anthracene	0.05	4	0.1	140	1	97	187.34335	FURTHER ASSESSMENT REQUIRED	0.1	2.2	140	0.1							
Benzo(a)pyrene	0.05	4	0.1	120	1	14	160.56533	FURTHER ASSESSMENT REQUIRED	0.1	2	120	0.1							
Benzo(b)fluoranthene	0.05	4	0.1	140	1	100	187.37327	FURTHER ASSESSMENT REQUIRED	0.1	1.9	140	0.1							
Benzo(ghi)perylene	0.05	4	0.05	66	0	660	88.343171	POTENTIALLY SUITABLE FOR USE	0.05	0.79	66	0.05							
Benzo(k)fluoranthene	0.05	4	0.1	61	0	140	81.572205	POTENTIALLY SUITABLE FOR USE	0.1	1.4	61	0.1							
Chrysene	0.05	4	0.05	130	0	140	173.86329	FURTHER ASSESSMENT REQUIRED	0.05	3.2	130	0.05							
Dibenz(a,h)anthracene	0.05	4	0.1	19	1	13	25.426	FURTHER ASSESSMENT REQUIRED	0.1	0.1	19	0.1							
Fluoranthene	0.05	4	0.1	280	0	23000	374.46707	POTENTIALLY SUITABLE FOR USE	0.1	7	280	0.1							
Fluorene	0.05	4	0.1	27	0	71000	36.122996	POTENTIALLY SUITABLE FOR USE	0.1	0.31	27	0.1							
Indeno(1,2,3-cd)pyrene	0.05	4	0.1	57	0	62	76.295673	FURTHER ASSESSMENT REQUIRED	0.1	0.56	57	0.1							
Naphthalene	0.05	4	0.05	3	0	1100	4.003	POTENTIALLY SUITABLE FOR USE	0.05	0.05	3	0.05							
Phenanthrene	0.05	4	0.1	280	0	23000	374.64286	POTENTIALLY SUITABLE FOR USE	0.1	5.1	280	0.1							
Pyrene	0.05	4	0.1	240	0	55000	320.9682	POTENTIALLY SUITABLE FOR USE	0.1	6	240	0.1							
	Mean																		
FOC (dimensionless)	0.014								0.0066	0.018	0.0088	0.024							
SOM (calculated)	2.47%								1.14%	3.10%	1.52%	4.14%							
pH (su)	7.5								6.9	7.6	7.8	7.5							

Risk parameter: Human health - commercial (6%SOM)

Data set: Pond Areas

Client: Bericote

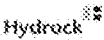
Site: Oldlands Farm

Job no.: C14459

Lab. report no(s).: 14-5606-1

Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC).
MG denotes Made Ground
NAT denotes natural ground

Assessment of Chemicals of Potential Concern to Plant Life



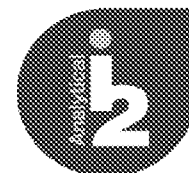
All values in mg/kg unless otherwise stated								Soil Type												
								Location & Depth	TP38	TP46	TP46	TP48								
Chemical of Potential Concern	Lab. RL	No. Samples	Min. Value	Max. Value	No. Samples > or = GAC	GAC	US ₉₅	Result of Significance Test	0.25-0.70	0.2	0.55	0.60-1.00								
Arsenic	1	4	4.4	8.6	0	250	11.30503	POTENTIALLY SUITABLE FOR USE	8.1	8.6	7.6	4.4								
Boron	0.2	4	0.6	1.7	0	3	2.206012	POTENTIALLY SUITABLE FOR USE	0.6	1.3	0.7	1.7								
Chromium (III)	1	4	10.8	20.8	0	400	27.1301	POTENTIALLY SUITABLE FOR USE	19.7999	20.8	10.8	17.8								
Chromium (VI)	1.2	4	1.2	1.2001	0	25	1.200134	POTENTIALLY SUITABLE FOR USE	1.2001	1.2	1.2	1.2								
Copper	1	4	17	61	0	135	86.90478	POTENTIALLY SUITABLE FOR USE	17	56	61	29								
Nickel	2	4	13	20	0	75	23.2779	POTENTIALLY SUITABLE FOR USE	18	20	13	15								
Zinc	2	4	46	290	0	300	314.3905	FURTHER ASSESSMENT REQUIRED	46	290	260	92								
	Mean																			
pH (su)	7.5								6.9	7.6	7.8	7.5								
Risk parameter: Plant life pH 7 Data set: Pond Areas Client: Bericote Site: Oldlands Farm Job no.: C14459 Lab. report no(s).: 14-5606-1 Legend: Values in blue are at or below the laboratory reporting limit (where a single value is indicated) and are considered as being at the detection limit for the purposes of statistical analysis, as a conservative estimate. Values in red are equal to, or greater than, the generic assessment criterion (GAC). MG denotes Made Ground NAT denotes natural ground																				



4841



///CERTS



Environmental Science

Richard Brown

Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

Analytical Report Number : 14-56017

Project / Site name:	Oldlands Farm	Samples received on:	18/06/2014
Your job number:	C14459	Samples instructed on:	18/06/2014
Your order number:	N5895	Analysis completed by:	25/06/2014
Report Issue Number:	1	Report issued on:	25/06/2014
Samples Analysed:	1 soil sample		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

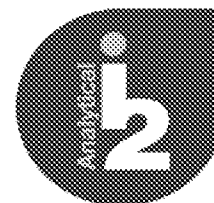
Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.



4841



Environmental Science

i2 Analytical

7 Woodshots Meadow
Croxley Green Business Park
Watford, WD18 8YS



Certificate of Analysis							
BS 3882:2007 Specification For Topsoil							
	Fail BS 3882			client			
Report No:	14-56017			Hydrock Consultants Ltd			
Location	Oldlands Farm			2-4 Hawthorne Park			
Lab Reference (Sample Number)	348388			Holdenby Road			
Sampling Date	2014-06-04			Spratton			
Sample ID	TP19			Northamptonshire			
Depth (m)	0.00			NN6 8LD			
		unit	Result	Multi-P	Low-F	Acid	Calc
Texture:	Clay	%w/w	50	N	N	N	N
	Silt	%w/w	42	Y	Y	Y	Y
	Sand	%w/w	8	N	N	N	N
	Texture Class		CLAY				
Organic Matter:		%w/w	4				
	Clay 5-20%		-	-	-	-	-
	Clay 20-30%		-	-	-	-	-
Coarse fragment content:	>2mm	%w/w	1.5	Y	Y	Y	Y
	>20mm	%w/w	0	Y	Y	Y	Y
	>50mm	%w/w	0	Y	Y	Y	Y
Soil pH:		pH	7.7	Y	Y	N	Y
Carbonate:		%w/w	35	-	-	-	Y
Available plant nutrients	Nitrogen	%w/w	0.369	Y	N	Y	Y
	Extractable Phosphorus	mg/l	46	Y	N	Y	Y
	Extractable Potassium	mg/l	270	Y	N	Y	Y
	Extractable Magnesium	mg/l	140	Y	Y	Y	Y
Carbon: Nitrogen Ratio:		:1	6.2818	Y	Y	Y	Y
Exchangable Sodium Percentage		%	0.7	Y	Y	Y	Y
Phytotoxic contaminants:	Total Zinc	mg/kg	62	Y	Y	Y	Y
	Total Copper	mg/kg	15	Y	Y	Y	Y
	Total Nickel	mg/kg	17	Y	Y	Y	Y
Visible contaminants:	>2mm	%w/w	0	Y	Y	Y	Y
	Plastics	%w/w	0	Y	Y	Y	Y
	Sharps	%w/w	0	Y	Y	Y	Y
Additional analysis:	Available Sodium	mg/l	48				
	Available Calcium	mg/l	5700				
	Conductivity	uS/cm	410				
Compliance:				Fail	Fail	Fail	Fail
Results are expressed on a dry weight basis, after correction for moisture content where applicable Stated limits are for guidance only and I2 cannot be held responsible for any discrepancies with current legislation							

Results are expressed on a dry weight basis, after correction for moisture content where applicable
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation

* = UKAS accredited

** = MCERTS accredited



4041



MCERTS



Environmental Science

Analytical Report Number : 14-56017**Project / Site name: Oldlands Farm**

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

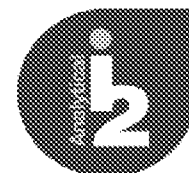
Stone content

of a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
348388	TP19	None Supplied	0.00	Light brown sandy topsoil with gravel and vegetation.



4041

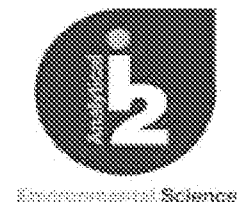


Environmental Science

Analytical Report Number : 14-56017**Project / Site name: Oldlands Farm****Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)**

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Carbonate in soil	Determination of Carbonate by extraction with 1M HCl followed by titration with 1M NaOH.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L034-PL	D	NONE
Kjeldahl nitrogen in soil	Determination of total nitrogen using the Kjeldahl-digestion method and colorimetric determination.	In house method based on BS 7755-3.7:1995 &	L087-PL	D	NONE
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Nitrogen (TKN)	Determination of total nitrogen by Kjeldahl method.	BS3882:2007	L087-PL	D	NONE
Sodium (exchangeable %)	Determination of exchangeable sodium (%) by calculation, in accordance with BS3882:2007 methodology.	BS3882:2007	L087-PL	D	NONE
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Topsoil Carbon to Nitrogen Ratio	Determination of soil carbon:nitrogen ratio by calculation	BS3882:2007	L01TS	D	NONE
Topsoil Coarse Fragment and Contaminant Analysis		BS3882:2007 & PAS 100:2005	L01TS	D	NONE
Topsoil Conductivity	Determination of the conductivity of soil in accordance with BS 3882:2007 methodology	BS3882:2007	L01TS	D	NONE
Topsoil Extractable/Available Metals	Determination of the extractable metals in soil, in accordance with BS3882:2007 methodology.	BS3882:2007	L01TS	D	NONE
Topsoil Organic Matter	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate. (Walkley Black Method)	In-house method based on BS1377 Part 3, 1990	L023-PL	D	MCERTS
Topsoil pH	Determination of the pH of soil in accordance with BS 3882:2007 methodology	BS3882:2007	L01TS	D	NONE
Topsoil Phosphorus	Determination of the extractable phosphorus in soil, in accordance with BS3882:2007 methodology.	BS3882:2007	L01TS	D	NONE
Topsoil Texture Classification	Determination of the textural classification of soil following BS3882:2007 methodology.	Subcontracted analysis	L01TS	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.**For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.****Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.**



Richard Brown

Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Sratton
Northamptonshire
NN6 8LD

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

Analytical Report Number : 14-56016

Project / Site name:	Oldlands Farm	Samples received on:	18/06/2014
Your job number:	C14459	Samples instructed on:	18/06/2014
Your order number:	N5895	Analysis completed by:	25/06/2014
Report Issue Number:	1	Report issued on:	25/06/2014
Samples Analysed:	1 bulk sample - 23 soil samples		

Signed:

Dr Claire Stone
Quality Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.



4841



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number	348365	348366	348367	348368	348369
Sample Reference	TP03	TP04	TP06	TP07	TP08
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.30	0.30	0.50	0.40
Date Sampled	12/06/2014	11/06/2014	12/06/2014	11/06/2014	11/06/2014
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	14	17
Total mass of sample received	kg	0.001	NONE	0.64	0.96
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected

General Inorganics

pH	pH Units	N/A	MCERTS	7.6	7.8	7.8	7.6	6.5
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.012	0.021	0.0061	0.012	0.023
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	11.6	20.9	6.1	11.5	22.7
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.015	0.012	0.0065	0.012	0.017

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
-----------------------------	-------	-----	--------	-------	-------	-------	-------	-------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	6.8	6.2	7.7	6.0	7.1
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.5	0.8	0.6	0.6	0.5
Boron (water soluble)	mg/kg	0.2	MCERTS	1.4	1.7	1.2	1.2	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.2	< 0.2	0.3	< 0.2
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	20	25	20	20	18
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	25	20	21	18
Copper (aqua regia extractable)	mg/kg	1	MCERTS	18	14	17	16	13
Lead (aqua regia extractable)	mg/kg	1	MCERTS	16	15	13	16	15
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	14	16	17	13	12
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	32	38	30	33	28
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	48	50	44	48	40

Iss No 14-56016-1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/09/19/DOC

The results included within the report are representative of the samples submitted for analysis.

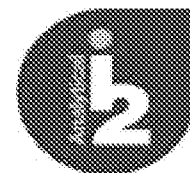
Page 2 of 15



4841



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348365	348366	348367	348368	348369
Sample Reference				TP03	TP04	TP06	TP07	TP08
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30	0.30	0.50	0.40
Date Sampled				12/06/2014	11/06/2014	12/06/2014	11/06/2014	11/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					

Monocyclic Aromatics

Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic > EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC35	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-

TPH-CWG - Aromatic > EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	Absent	-



4041



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number	348370	348371	348372	348373	348374
Sample Reference	TP09	TP11	TP13	TP15	TP19
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30	0.30	0.30	0.20-0.70	0.00-0.25
Date Sampled	12/06/2014	11/06/2014	11/06/2014	04/06/2014	04/06/2014
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	15	13
Total mass of sample received	kg	0.001	NONE	0.90	1.0
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected

General Inorganics

pH	pH Units	N/A	MCERTS	6.6	6.9	7.0	7.1	7.0
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0086	0.0048	0.0090	0.011	0.016
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	8.6	4.8	9.0	10.9	15.5
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.018	0.0049	0.0082	0.0077	0.024

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
-----------------------------	-------	-----	--------	-------	-------	-------	-------	-------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.0	5.6	6.1	21	15
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.6	0.6	0.6	1.1	1.1
Boron (water soluble)	mg/kg	0.2	MCERTS	1.8	1.0	4.0	2.5	1.0
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	19	17	17	27	34
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	17	17	27	34
Copper (aqua regia extractable)	mg/kg	1	MCERTS	15	14	12	15	16
Lead (aqua regia extractable)	mg/kg	1	MCERTS	15	10	13	14	19
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	14	12	20	18
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	26	26	54	66
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	47	41	40	60	62

Iss No 14-56016-1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/09/19/DOC

The results included within the report are representative of the samples submitted for analysis.

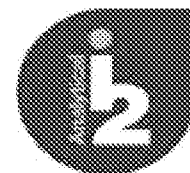
Page 4 of 15



4841



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348370	348371	348372	348373	348374
Sample Reference				TP09	TP11	TP13	TP15	TP19
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30	0.30	0.30	0.20-0.70	0.00-0.25
Date Sampled				12/06/2014	11/06/2014	11/06/2014	04/06/2014	04/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monocyclic Aromatics								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic > EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC35	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
TPH-CWG - Aromatic > EC5 - EC7								
TPH-CWG - Aromatic > EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	Absent	-	Absent	-



4841



M/CERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number	348375	348376	348377	348378	348379
Sample Reference	TP22	TP25	TP26	TP31	TP37
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.30-0.60	0.00-0.35	0.35	0.30-0.80	0.30
Date Sampled	05/06/2014	05/06/2014	04/06/2014	03/06/2014	03/06/2014
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	13	22
Total mass of sample received	kg	0.001	NONE	0.83	0.93
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected

General Inorganics

pH	pH Units	N/A	MCERTS	7.2	7.1	7.0	7.2	7.1
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.020	0.026	0.014	0.0038	0.0086
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	20.3	25.9	13.8	3.8	8.6
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0027	0.033	0.024	0.0056	0.019

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
-----------------------------	-------	-----	--------	-------	-------	-------	-------	-------

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	20	13	14	5.7	6.9
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	1.2	0.9	0.9	0.5	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	3.7	2.5	1.1	0.3	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.2	0.2	< 0.2	< 0.2	0.3
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	29	25	27	16	21
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	29	25	27	16	21
Copper (aqua regia extractable)	mg/kg	1	MCERTS	23	19	17	23	18
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	22	16	10	17
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	36	15	17	13	14
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	44	48	57	25	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	61	54	49	52

Iss No 14-56016-1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

ARUN DISTRICT COUNCIL BE/09/19/DOC

The results included within the report are representative of the samples submitted for analysis.

Page 6 of 15



4841



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348375	348376	348377	348378	348379
Sample Reference				TP22	TP25	TP26	TP31	TP37
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.30-0.60	0.00-0.35	0.35	0.30-0.80	0.30
Date Sampled				05/06/2014	05/06/2014	04/06/2014	03/06/2014	03/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monocyclic Aromatics								
Benzene	µg/kg	1	MCERTS	-	-	-	-	-
Toluene	µg/kg	1	MCERTS	-	-	-	-	-
Ethylbenzene	µg/kg	1	MCERTS	-	-	-	-	-
p & m-xylene	µg/kg	1	MCERTS	-	-	-	-	-
o-xylene	µg/kg	1	MCERTS	-	-	-	-	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	-	-	-

Petroleum Hydrocarbons

TPH-CWG - Aliphatic > EC5 - EC6	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC6 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC21	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC21 - EC35	mg/kg	8	MCERTS	-	-	-	-	-
TPH-CWG - Aliphatic > EC16 - EC35	mg/kg	10	NONE	-	-	-	-	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
Aromatic								
TPH-CWG - Aromatic > EC5 - EC7	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC7 - EC8	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC8 - EC10	mg/kg	0.1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC10 - EC12	mg/kg	1	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC12 - EC16	mg/kg	2	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC16 - EC21	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC21 - EC35	mg/kg	10	MCERTS	-	-	-	-	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	-	-	-	-	-
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	Absent	Absent	Absent



4841



M/CERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number	348380	348381	348382	348383	348384
Sample Reference	TP38	TP40	TP43	TP43	TP46
Sample Number	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)	0.25-0.70	0.20	0.00-0.30	0.30-0.75	0.20
Date Sampled	05/06/2014	04/06/2014	05/06/2014	05/06/2014	03/06/2014
Time Taken	None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		
Stone Content	%	0.1	NONE	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	12	10
Total mass of sample received	kg	0.001	NONE	1.1	1.1
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected

General Inorganics

pH	pH Units	N/A	MCERTS	6.9	7.2	7.4	7.6	7.6
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1	< 1	< 1
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.0048	0.028	0.0070	0.0056	0.0083
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	4.8	28.0	7.0	5.6	8.3
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0066	0.034	0.011	0.0097	0.018

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
----------------------------	-------	---	--------	-------	-------	-------	-------	-------

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.25
Fluorene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.31
Phenanthrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.53	5.1
Anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.68
Fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.52	7.0
Pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	0.45	6.0
Benzo(a)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	2.2
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	3.2
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.9
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	1.4
Benzo(a)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	2.0
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	0.56
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	0.79

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	< 1.6	< 1.6	< 1.6	< 1.6	31
-----------------------------	-------	-----	--------	-------	-------	-------	-------	----

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.1	14	6.3	6.7	8.6
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.7	1.0	0.5	0.6	0.6
Boron (water soluble)	mg/kg	0.2	MCERTS	0.6	3.4	0.8	0.8	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.2	0.4	0.3	0.5
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Chromium (III)	mg/kg	1	NONE	21	30	18	20	22
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	30	18	20	22
Copper (aqua regia extractable)	mg/kg	1	MCERTS	17	21	18	18	56
Lead (aqua regia extractable)	mg/kg	1	MCERTS	12	25	15	25	91
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	18	17	17	16	20
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	31	54	27	29	29
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	46	74	46	56	290

Iss No 14-56016-1

This certificate should not be reproduced, except in full, without the express permission of the laboratory.

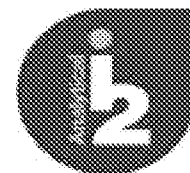
ARUN DISTRICT COUNCIL BE/09/19/DOC

The results included within the report are representative of the samples submitted for analysis.

Page 8 of 15



4841



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348380	348381	348382	348383	348384
Sample Reference				TP38	TP40	TP43	TP43	TP46
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.25-0.70	0.20	0.00-0.30	0.30-0.75	0.20
Date Sampled				05/06/2014	04/06/2014	05/06/2014	05/06/2014	03/06/2014
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Monocyclic Aromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-

Petroleum Hydrocarbons

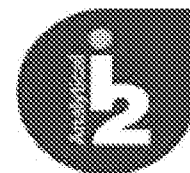
TPH-CWG - Aliphatic > EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aliphatic > EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aliphatic > EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aliphatic > EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aliphatic > EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic > EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	-	< 8.0	-
TPH-CWG - Aliphatic > EC16 - EC35	mg/kg	10	NONE	< 10	-	-	< 10	-
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	-	< 8.4	-
TPH-CWG - Aromatic > EC5 - EC7								
TPH-CWG - Aromatic > EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aromatic > EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aromatic > EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
TPH-CWG - Aromatic > EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	-	< 2.0	-
TPH-CWG - Aromatic > EC16 - EC21	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic > EC21 - EC35	mg/kg	10	MCERTS	< 10	-	-	< 10	-
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	-	< 8.4	-
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-	-	-



4841



MCERTS



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348385	348386	348387		
Sample Reference				TP46	TP47	TP48		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.55	0.60	0.60-1.00		
Date Sampled				03/06/2014	13/06/2014	13/06/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	5.9	5.9	22		
Total mass of sample received	kg	0.001	NONE	0.67	0.84	0.56		
Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		

General Inorganics

pH	pH Units	N/A	MCERTS	7.8	7.6	7.5		
Free Cyanide	mg/kg	1	NONE	< 1	< 1	< 1		
Water Soluble Sulphate (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.018	0.0089	0.020		
Water Soluble Sulphate (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	17.5	8.9	20.1		
Fraction Organic Carbon (FOC)	N/A	0.00001	NONE	0.0088	0.024	0.024		

Total Phenols

Total Phenols (monohydric)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
----------------------------	-------	---	--------	-------	-------	-------	--	--

Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	3.0	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.1	MCERTS	15	< 0.10	< 0.10		
Acenaphthene	mg/kg	0.1	MCERTS	17	< 0.10	< 0.10		
Fluorene	mg/kg	0.1	MCERTS	27	< 0.10	< 0.10		
Phenanthrene	mg/kg	0.1	MCERTS	280	< 0.10	< 0.10		
Anthracene	mg/kg	0.1	MCERTS	66	< 0.10	< 0.10		
Fluoranthene	mg/kg	0.1	MCERTS	280	< 0.10	< 0.10		
Pyrene	mg/kg	0.1	MCERTS	240	< 0.10	< 0.10		
Benzo(a)anthracene	mg/kg	0.1	MCERTS	140	< 0.10	< 0.10		
Chrysene	mg/kg	0.05	MCERTS	130	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.1	MCERTS	140	< 0.10	< 0.10		
Benzo(k)fluoranthene	mg/kg	0.1	MCERTS	61	< 0.10	< 0.10		
Benzo(a)pyrene	mg/kg	0.1	MCERTS	120	< 0.10	< 0.10		
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	MCERTS	57	< 0.10	< 0.10		
Dibenz(a,h)anthracene	mg/kg	0.1	MCERTS	19	< 0.10	< 0.10		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	66	< 0.05	< 0.05		

Total PAH

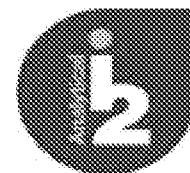
Speciated Total EPA-16 PAHs	mg/kg	1.6	MCERTS	1700	< 1.6	< 1.6		
-----------------------------	-------	-----	--------	------	-------	-------	--	--

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	7.6	2.7	4.4		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.4	0.3	0.5		
Boron (water soluble)	mg/kg	0.2	MCERTS	0.7	1.4	1.7		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.5	0.3	0.4		
Chromium (hexavalent)	mg/kg	1.2	MCERTS	< 1.2	< 1.2	< 1.2		
Chromium (III)	mg/kg	1	NONE	12	13	18		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	12	13	19		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	61	13	29		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	89	11	17		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	13	8.5	15		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	20	21	24		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	260	65	92		



4841



Environmental Science

Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Your Order No: N5895

Lab Sample Number				348385	348386	348387		
Sample Reference				TP46	TP47	TP48		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.55	0.60	0.60-1.00		
Date Sampled				03/06/2014	13/06/2014	13/06/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Nongaromatics								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0		
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0		
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0		

Petroleum Hydrocarbons

TPH-CWG - Aliphatic > EC5 - EC6	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aliphatic > EC6 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aliphatic > EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aliphatic > EC10 - EC12	mg/kg	1	MCERTS	< 1.0	-	< 1.0		
TPH-CWG - Aliphatic > EC12 - EC16	mg/kg	2	MCERTS	< 2.0	-	< 2.0		
TPH-CWG - Aliphatic > EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	< 8.0		
TPH-CWG - Aliphatic > EC21 - EC35	mg/kg	8	MCERTS	15	-	18		
TPH-CWG - Aliphatic > EC16 - EC35	mg/kg	10	NONE	15	-	18		
TPH-CWG - Aliphatic > EC35 - EC44	mg/kg	8.4	NONE	< 8.4	-	< 8.4		
Aromatic								
TPH-CWG - Aromatic > EC5 - EC7	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aromatic > EC7 - EC8	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aromatic > EC8 - EC10	mg/kg	0.1	MCERTS	< 0.1	-	< 0.1		
TPH-CWG - Aromatic > EC10 - EC12	mg/kg	1	MCERTS	10	-	< 1.0		
TPH-CWG - Aromatic > EC12 - EC16	mg/kg	2	MCERTS	200	-	< 2.0		
TPH-CWG - Aromatic > EC16 - EC21	mg/kg	10	MCERTS	2000	-	< 10		
TPH-CWG - Aromatic > EC21 - EC35	mg/kg	10	MCERTS	3100	-	< 10		
TPH-CWG - Aromatic > EC35 - EC44	mg/kg	8.4	NONE	280	-	< 8.4		
Pesticides/Herbicides Screen in Soil	P/A	N/A	NONE	-	-	-		



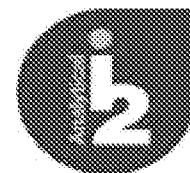
Analytical Report Number: 14-56016

Project / Site name: Oldlands Farm

Lab Sample Number				348458				
Sample Reference				TP46				
Sample Number				None Supplied				
Depth (m)				0.55				
Date Sampled				03/05/2014				
Time Taken				None Supplied				
Analytical Parameter (Bulk Analysis)	Units	Limit of detection	Accreditation status					
Asbestos Identification Name	Type	N/A	ISO 17025	Chrysotile - Hard/cement type material				



4841



Environmental Science

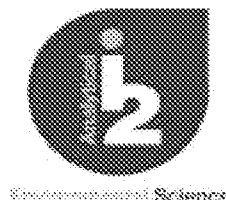
Analytical Report Number : 14-56016**Project / Site name: Oldlands Farm**

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and topsoil/loam soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of

a sample is calculated as the % weight of the stones not passing a 2 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
348365	TP03	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348366	TP04	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348367	TP06	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348368	TP07	None Supplied	0.50	Light brown sandy topsoil with gravel and vegetation.
348369	TP08	None Supplied	0.40	Light brown sandy topsoil with gravel and vegetation.
348370	TP09	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348371	TP11	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348372	TP13	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348373	TP15	None Supplied	0.20-0.70	Light brown sandy topsoil with gravel and vegetation.
348374	TP19	None Supplied	0.00-0.25	Light brown sandy topsoil with gravel and vegetation.
348375	TP22	None Supplied	0.30-0.60	Light brown sandy topsoil with gravel and vegetation.
348376	TP25	None Supplied	0.00-0.35	Light brown sandy topsoil with gravel and vegetation.
348377	TP26	None Supplied	0.35	Light brown sandy topsoil with gravel and vegetation.
348378	TP31	None Supplied	0.30-0.80	Light brown sandy topsoil with gravel and vegetation.
348379	TP37	None Supplied	0.30	Light brown sandy topsoil with gravel and vegetation.
348380	TP38	None Supplied	0.25-0.70	Light brown sandy topsoil with gravel and vegetation.
348381	TP40	None Supplied	0.20	Light brown sandy topsoil with gravel and vegetation.
348382	TP43	None Supplied	0.00-0.30	Light brown sandy topsoil with gravel and vegetation.
348383	TP43	None Supplied	0.30-0.75	Light brown sandy topsoil with gravel and vegetation.
348384	TP46	None Supplied	0.20	Light brown sandy topsoil with gravel and vegetation.
348385	TP46	None Supplied	0.55	Light brown sandy topsoil with gravel and vegetation.
348386	TP47	None Supplied	0.60	Light brown sandy topsoil with gravel and vegetation.
348387	TP48	None Supplied	0.60-1.00	Light brown sandy topsoil with gravel and vegetation.



Analytical Report Number : 14-56016

Project / Site name: Oldlands Farm

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in Bulks	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073S-PL	W	MCERTS
Cr (III) in soil	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L023-PL	D	NONE
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	NONE
Hexavalent chromium in soil (Lower Level)	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Stones not passing through a 10 mm sieve is determined gravimetrically and reported as a percentage of the dry weight. Sample	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil	Determination of water soluble sulphate by extraction with water followed by ICP-OES. Results reported corrected for extraction ratio (soil equivalent) as g/l and mg/kg; and upon the 2:1	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Sulphate, water soluble, in soil	, Chemical and Electrochemical Tests"	In-house method based on BS1377 Part 3, 1990	L038-PL		MCERTS
TPHCWG (Soil)	Determination of pentane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method	L076-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Iss No 14-56016-1

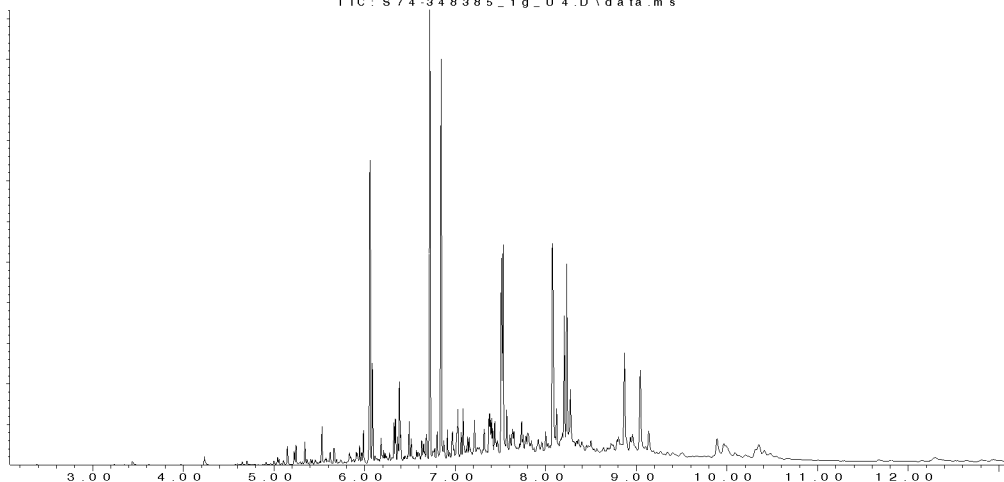
This certificate should not be reproduced, except in full, without the express permission of the laboratory.

The results included within the report are representative of the samples submitted for analysis.

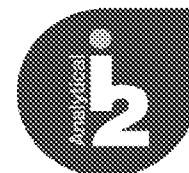
Abundance

TIC: S74-348385_1g_U4.D\data.ms

1.1e+07
1e+07
9000000
8000000
7000000
6000000
5000000
4000000
3000000
2000000
1000000



Time-->



Environmental Science

Richard Brown

Hydrock Consultants Ltd
2-4 Hawthorne Park
Holdenby Road
Spratton
Northamptonshire
NN6 8LD

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

Analytical Report Number : 14-56071

Project / Site name:	Oldlands Farm	Samples received on:	20/06/2014
Your job number:	C14459	Samples instructed on:	20/06/2014
Your order number:	C14459/N5909	Analysis completed by:	26/06/2014
Report Issue Number:	1	Report issued on:	26/06/2014
Samples Analysed:	3 water samples		

Signed:

Thurstan Plummer
Organics Technical Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Rexona Rahman
Customer Services Manager
For & on behalf of i2 Analytical Ltd.

Other office located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.



Analytical Report Number: 14-56071

Project / Site name: Oldlands Farm

Your Order No: C14459/N5909

Lab Sample Number				348663	348664	348665		
Sample Reference				BH01	BH04	BH05		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.76	2.41	0.71		
Date Sampled				18/06/2014	18/06/2014	18/06/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

General Inorganics

pH	pH Units	N/A	ISO 17025	7.7	7.4	7.2		
Electrical Conductivity	µS/cm	10	NONE	1800	950	1200		
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Free Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10		
Sulphate as SO ₄	µg/l	45	ISO 17025	153000	104000	124000		
Chloride	mg/l	0.15	ISO 17025	270	51	85		
Fluoride	µg/l	50	ISO 17025	1000	220	320		
Ammonium as NH ₄	µg/l	15	ISO 17025	50	< 15	220		
Nitrate as N	mg/l	0.25	ISO 17025	0.3	9.3	2.3		
Nitrate as NO ₃	mg/l	1.1	ISO 17025	1.2	41	10		
Nitrite as N	µg/l	25	ISO 17025	< 25	900	64		
Nitrite as NO ₂	µg/l	82	ISO 17025	< 82	3000	210		
Hardness - Total	mgCaCO ₃ /l	1	ISO 17025	303	534	580		
Bromate (Subcontracted)	µg/l	2	NONE	< 2.0	< 2.0	< 2.0		

Total Phenols

Total Phenols	µg/l	0.5	NONE	< 0.50	< 0.50	< 0.50		
---------------	------	-----	------	--------	--------	--------	--	--

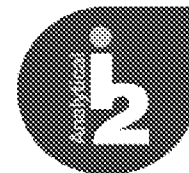
Speciated PAHs

Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01		
Indeno(1,2,3-cd)pyrene	µg/l	0.001	NONE	< 0.001	< 0.001	< 0.001		
Benzo(ghi)perylene	µg/l	0.001	NONE	< 0.001	< 0.001	< 0.001		

Heavy Metals / Metalloids

Aluminium (dissolved)	mg/l	0.001	ISO 17025	0.0069	< 0.0010	< 0.0010		
Antimony (dissolved)	µg/l	0.4	ISO 17025	1.7	1.3	0.5		
Arsenic (dissolved)	µg/l	0.15	ISO 17025	1.42	< 0.15	< 0.15		
Barium (dissolved)	µg/l	0.06	ISO 17025	20	54	75		
Boron (dissolved)	µg/l	10	ISO 17025	270	71	120		
Cadmium (dissolved)	µg/l	0.02	ISO 17025	0.08	< 0.02	< 0.02		
Chromium (hexavalent)	µg/l	5	ISO 17025	< 5.0	< 5.0	< 5.0		
Chromium (III)	µg/l	1	NONE	< 1.0	< 1.0	< 1.0		
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Cobalt (dissolved)	µg/l	0.2	ISO 17025	1.4	1.5	1.4		
Copper (dissolved)	µg/l	0.5	ISO 17025	4.8	3.2	1.6		
Iron (dissolved)	mg/l	0.005	ISO 17025	< 0.005	< 0.005	0.020		
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2		
Manganese (dissolved)	µg/l	0.05	ISO 17025	94	72	250		
Mercury (dissolved)	µg/L	0.01	NONE	< 0.01	< 0.01	< 0.01		
Molybdenum (dissolved)	µg/l	0.05	ISO 17025	16	1.2	2.1		
Nickel (dissolved)	µg/l	0.5	ISO 17025	3.6	7.2	5.4		
Silver (dissolved)	µg/l	0.05	NONE	0.20	0.18	0.50		
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	< 0.6	< 0.6		
Tin (dissolved)	µg/l	0.2	ISO 17025	< 0.20	< 0.20	< 0.20		
Vanadium (dissolved)	µg/l	0.2	ISO 17025	0.6	0.2	< 0.2		
Zinc (dissolved)	µg/l	0.5	ISO 17025	6.6	23	0.7		

Calcium (dissolved)	mg/l	0.005	ISO 17025	61.9	202	185		
Magnesium (dissolved)	mg/l	0.002	ISO 17025	36	7.5	28		
Sodium (dissolved)	mg/l	0.001	ISO 17025	390	45	86		
Zinc (total)	µg/l	0.5	ISO 17025	28	39	12		



Environmental Science

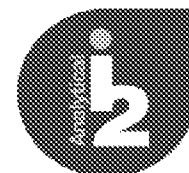
Analytical Report Number: 14-56071

Project / Site name: Oldlands Farm

Your Order No: C14459/N5909

Lab Sample Number				348663	348664	348665		
Sample Reference				BH01	BH04	BH05		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.76	2.41	0.71		
Date Sampled				18/06/2014	18/06/2014	18/06/2014		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Water Analysis)	Units	Limit of detection	Accreditation Status					

U/S = Unsuitable Sample I/S = Insufficient Sample



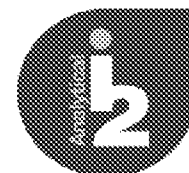
Environmental Science

Analytical Report Number : 14-56071

Project / Site name: Oldlands Farm

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammonium as NH ₄ in water	Determination of Ammonium/Ammonia/Ammoniacal Nitrogen by the colorimetric salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron by acidification followed by ICP-MS. Accredited matrices: SW, GW.	In-house method based on MEWAM	L012-PL	W	ISO 17025
Bromate in Water Subcon		Subcontracted Analysis			NONE
Chloride in water	Determination of Chloride in water by Gallery Discrete Analyser based on reaction with mercury (II) thiocyanate and acid solution with iron (III) nitrate to form a red/brown iron (III) thiocyanate	Methods for the Examination of Water and Associated Materials Chloride in Waters, Sewage and Effluents 1981.ISBN 0117516260 Accredited matrices: SW, PW,	L082 B	W	ISO 17025
Cr (III) in water	In-house method by calculation from total Cr and Cr VI.	In-house method by calculation	L080-PL	W	NONE
Electrical conductivity of water	Determination of electrical conductivity in water by electrometric measurement.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L031-PL	W	NONE
Fluoride in water	Determination of fluoride in water by 1:1 ratio with a buffer solution followed by Ion Selective Electrode. Accredited matrices: SW, PW, GW.	In-house method based on Use of Total Ionic Strength Adjustment Buffer for Electrode Determination"	L033-PL	W	ISO 17025
Free cyanide in water	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Mercury Low Level (Dissolved) in Water		In-house method based on USEPA method 1631	L085-UK		NONE
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L012-PL	W	NONE
Nitrate in water	Determination of nitrate in water by colorimetric assay. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L078-PL	W	ISO 17025
Nitrite in water	Determination of nitrite in water by addition of sulphanilamide and NED followed by colorimetry.Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L077-PL	W	ISO 17025
pH in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L005-PL	W	ISO 17025
Phenols, speciated, in water, by GCMS	Determination of speciated phenols in water by extraction in hexane followed by GC-MS.	In-house method based on USEPA 8270	L070-UK	W	NONE
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L070-UK	W	ISO 17025
Specific PAH sums in water		In-house method based on USEPA 8270	L064-UK		NONE



Environmental Science

Analytical Report Number : 14-56071

Project / Site name: Oldlands Farm

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Hardness of water	Determination of hardness in waters by calculation from calcium and magnesium. Accredited Matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L045-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

