Test Report: **Particle Size Distribution Test**

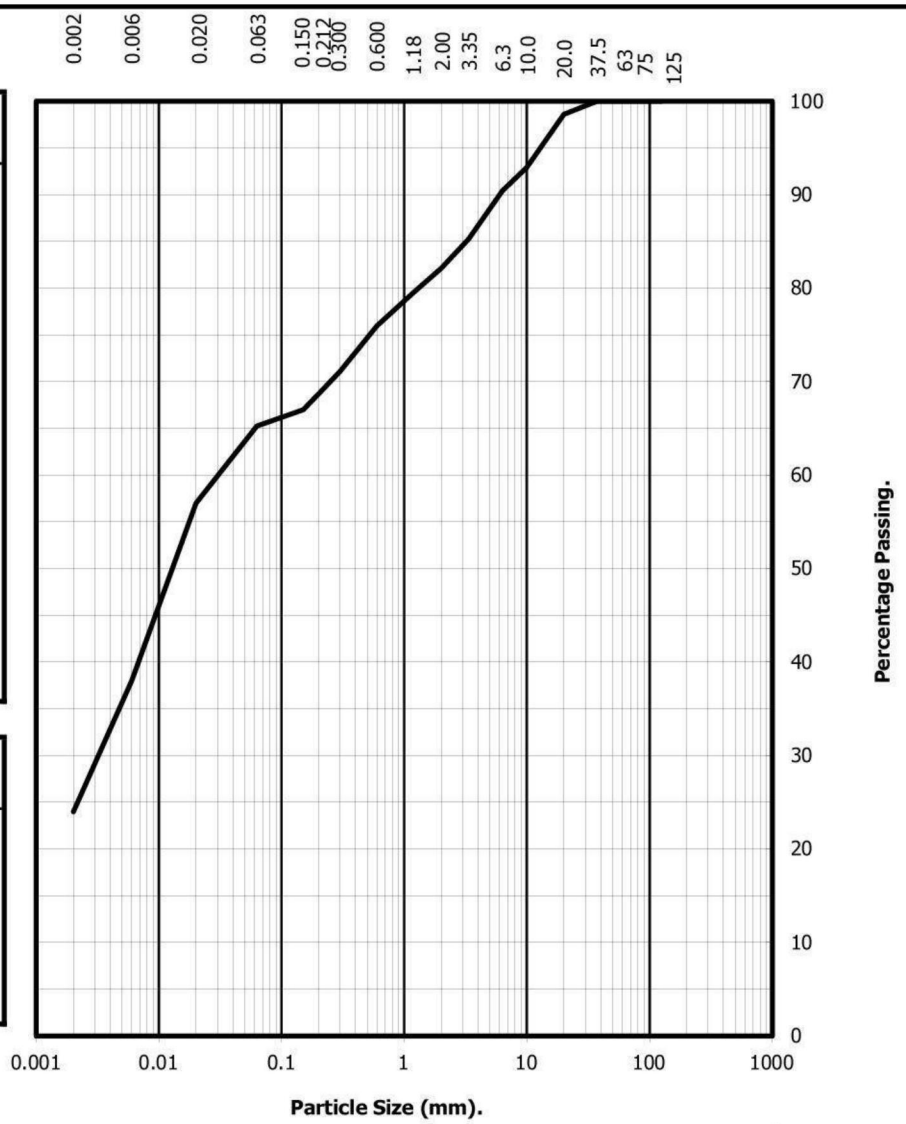
BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP702**
Sample Number:	
Depth (m) :	**0.60**
Sample Type	

BS Test Sieve	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	93
6.3	90
3.35	85
2.00	82
1.18	79
0.60	76
0.300	71
0.212	69
0.150	67
0.063	65

Particle Diameter	Percentage Passing
0.02	57
0.006	38
0.002	24



Soil Fraction	Cobbles	Gravel	Sand	Silt	Clay
Total Percentage	0	18	17	41	24

Remarks:

Cl 9.4.8 - Sample has not been pretreated

[redacted] Checked By

[redacted] Approved By:

Date Approved: 5.11.12

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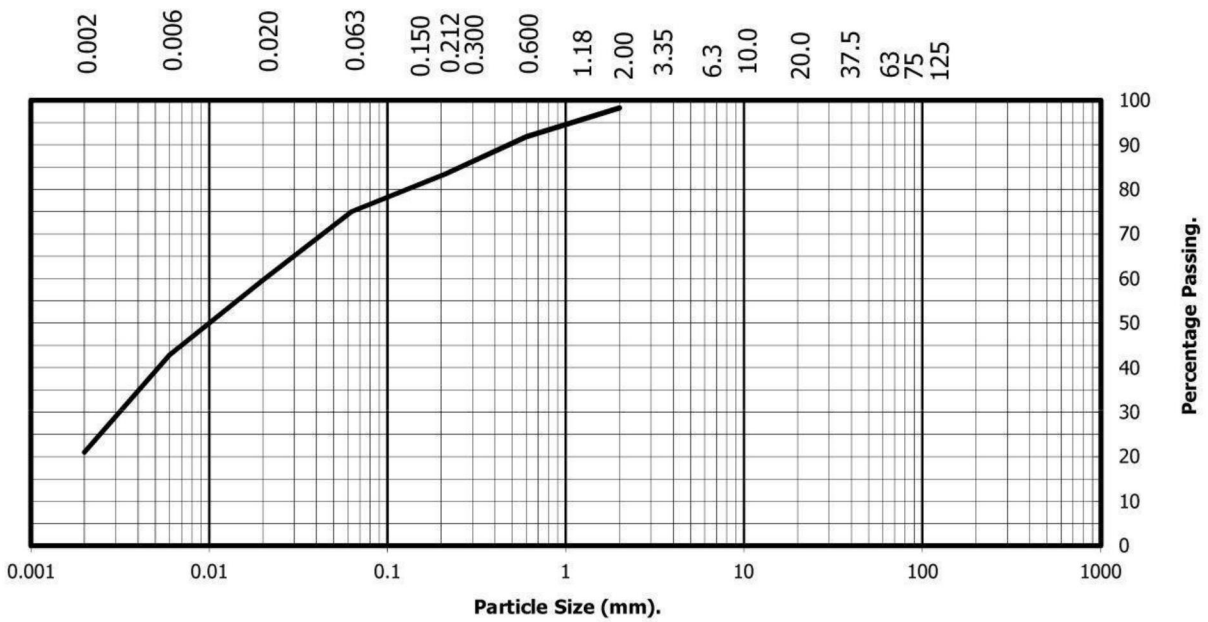
Particle Size Distribution Test

BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP706**
Sample Number:	
Depth (m) :	**0.80**
Sample Type	**B**



BS Test Sieve	Percentage Passing
2.00	98
0.60	92
0.212	84
0.063	75

Particle Diameter	Percentage Passing
0.02	60
0.006	43
0.002	21

Soil Fraction	Total Percentage
Gravel	2
Sand	23
Silt	54
Clay	21

Remarks:

Cl 9.4.8 - Sample has not been pretreated

[redacted] Checked By

[redacted] Approved By:

Date Approved: 5.11.12

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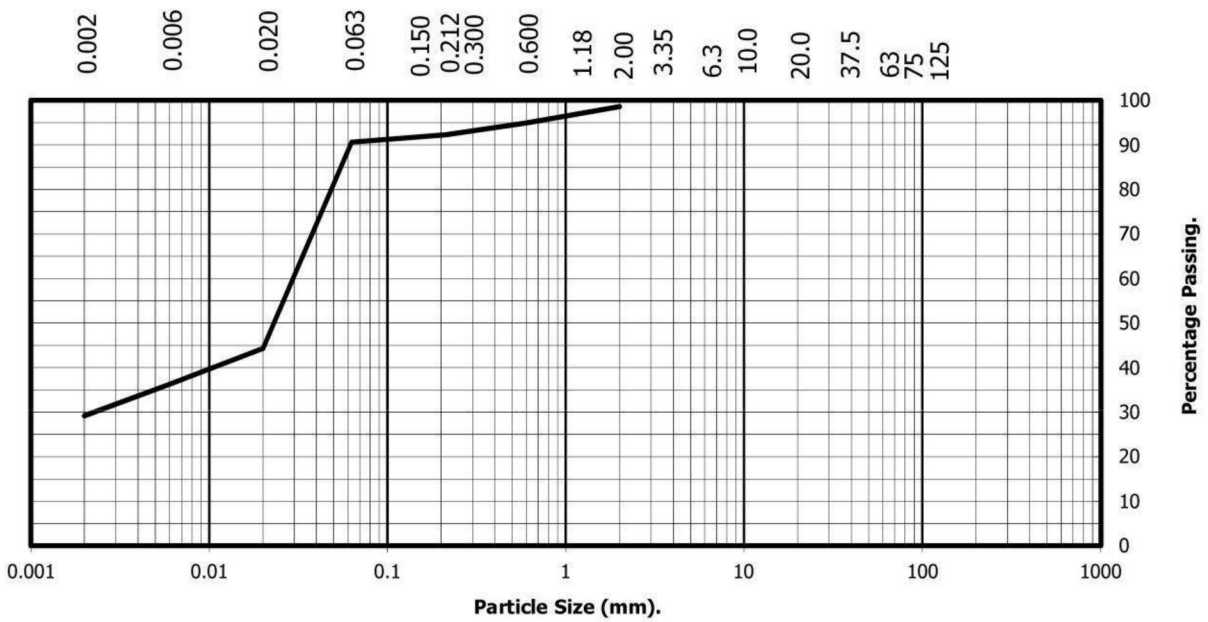
Particle Size Distribution Test

BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP708**
Sample Number:	
Depth (m) :	**1.10**
Sample Type	**B**



BS Test Sieve	Percentage Passing
2.00	99
0.60	95
0.212	92
0.063	91

Particle Diameter	Percentage Passing
0.02	44
0.006	36
0.002	29

Soil Fraction	Total Percentage
Gravel	1
Sand	8
Silt	61
Clay	29

Remarks:

Cl 9.4.8 - Sample has not been pretreated

[redacted] Checked By

[redacted] Approved By:

Date Approved: 5.11.12

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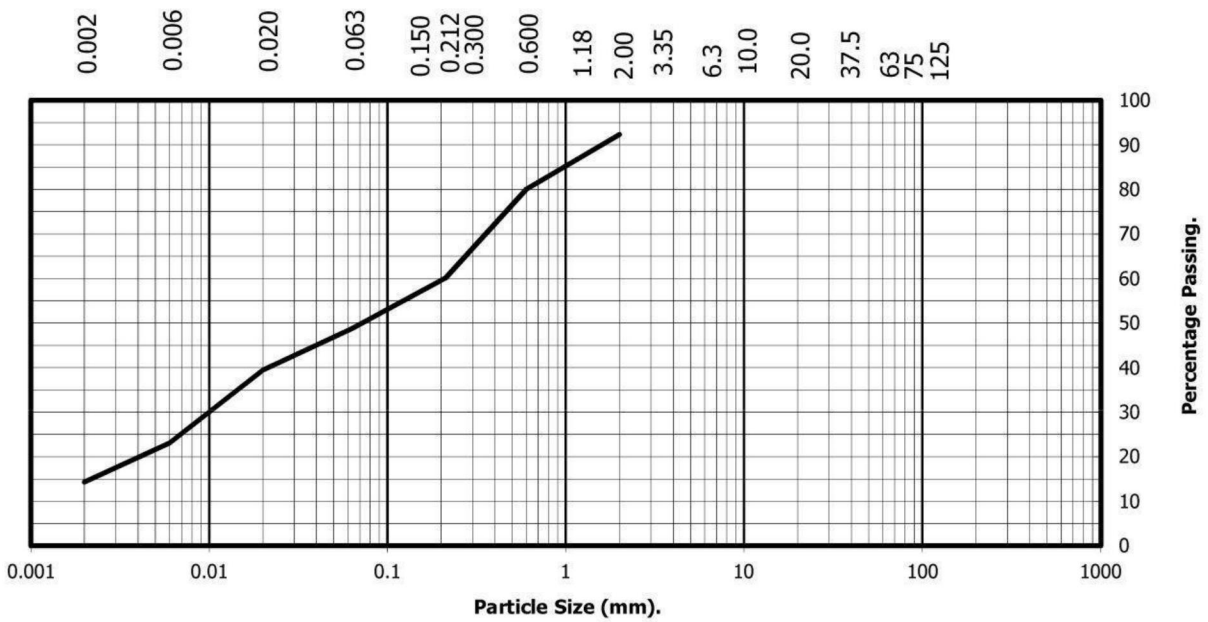
Particle Size Distribution Test

BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP709**
Sample Number:	
Depth (m) :	**0.60**
Sample Type	**B**



BS Test Sieve	Percentage Passing
2.00	92
0.60	80
0.212	60
0.063	49

Particle Diameter	Percentage Passing
0.02	39
0.006	23
0.002	14

Soil Fraction	Total Percentage
Gravel	8
Sand	44
Silt	34
Clay	14

Remarks:

Cl 9.4.8 - Sample has not been pretreated

[redacted]

Checked By

[redacted]

Approved By:

Date Approved: 5.11.12

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Test Report: **Particle Size Distribution Test**

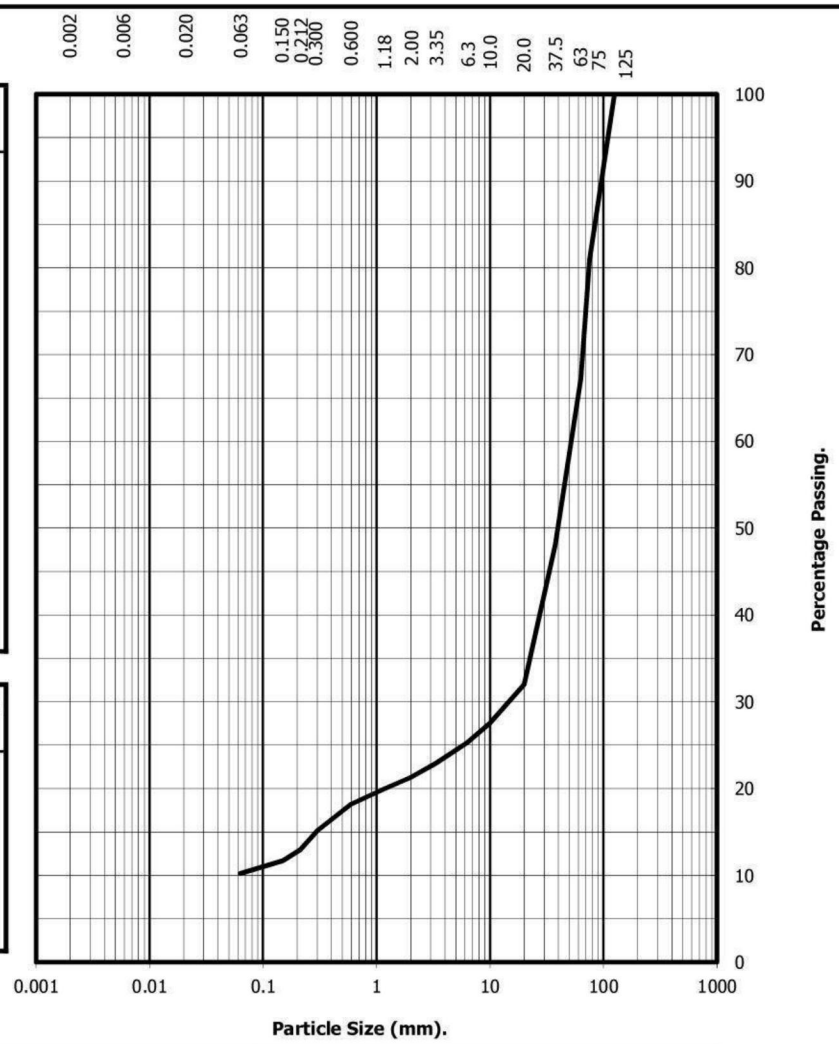
BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP712**
Sample Number:	
Depth (m) :	**1.40**
Sample Type	

BS Test Sieve	Percentage Passing
125	100
75	81
63	67
37.5	48
20	32
10	28
6.3	25
3.35	23
2.00	21
1.18	20
0.60	18
0.300	15
0.212	13
0.150	12
0.063	10

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#



Soil Fraction	Cobbles	Gravel	Sand	Silt and Clay	
Total Percentage	33	46	11	10	

Remarks:

#- not determined

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Checked By

[redacted]
Approved By:

UKAS TESTING 2788

Date Approved: 5.11.12

Test Report: **Particle Size Distribution Test**

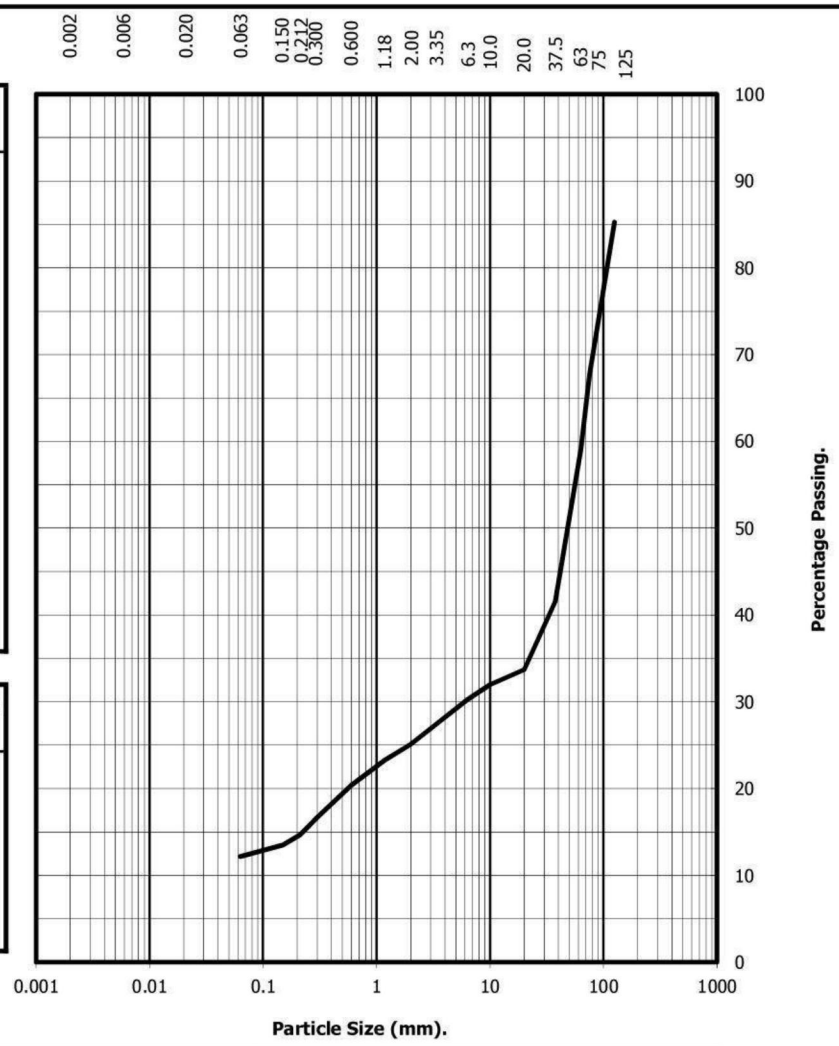
BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP715**
Sample Number:	
Depth (m) :	**0.70**
Sample Type	

BS Test Sieve	Percentage Passing
125	85
75	68
63	59
37.5	42
20	34
10	32
6.3	30
3.35	27
2.00	25
1.18	23
0.60	20
0.300	17
0.212	15
0.150	13
0.063	12

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#



Soil Fraction	Cobbles	Gravel	Sand	Silt and Clay	
Total Percentage	41	34	13	12	

Remarks:

#- not determined

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[redacted]
Checked By

[redacted]
Approved By:

Date Approved: 5.11.12

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Test Report: **Particle Size Distribution Test**

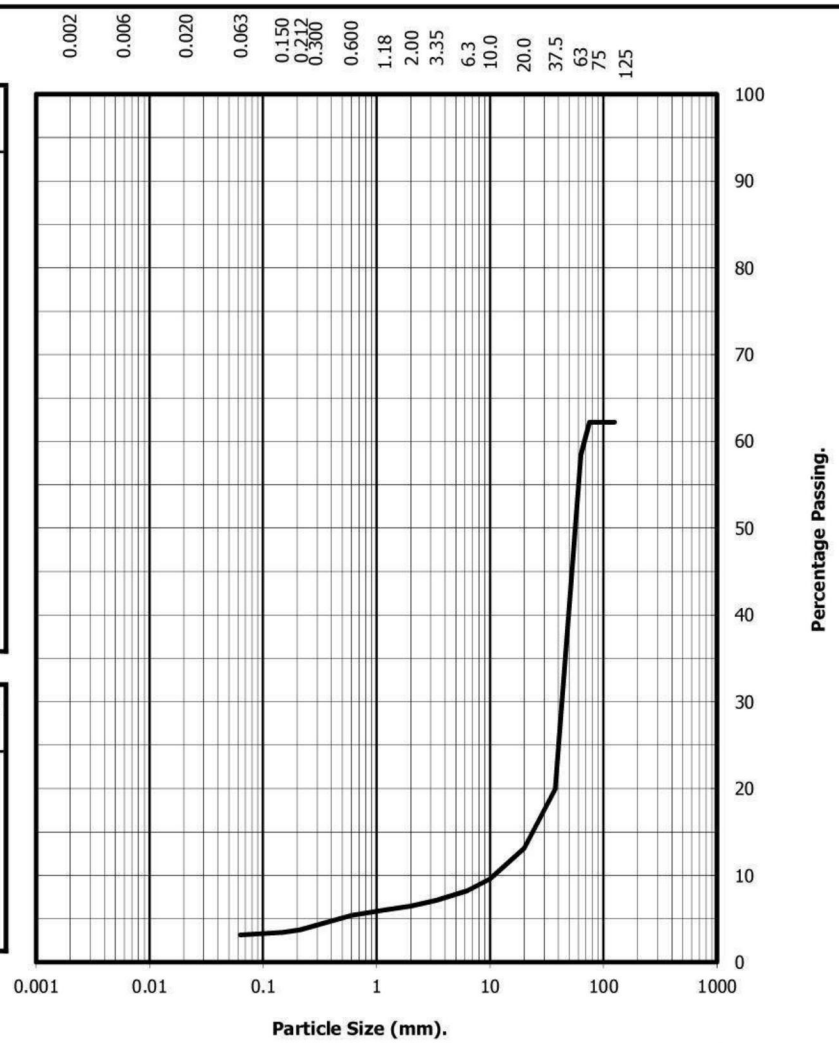
BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP716**
Sample Number:	
Depth (m) :	**0.80**
Sample Type	

BS Test Sieve	Percentage Passing
125	62
75	62
63	58
37.5	20
20	13
10	10
6.3	8
3.35	7
2.00	6
1.18	6
0.60	5
0.300	4
0.212	4
0.150	3
0.063	3

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#



Soil Fraction	Cobbles	Gravel	Sand	Silt and Clay	
Total Percentage	42	52	3	3	

Remarks:

#- not determined

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[redacted] Approved By:

Date Approved: 5.11.12

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Test Report: **Particle Size Distribution Test**

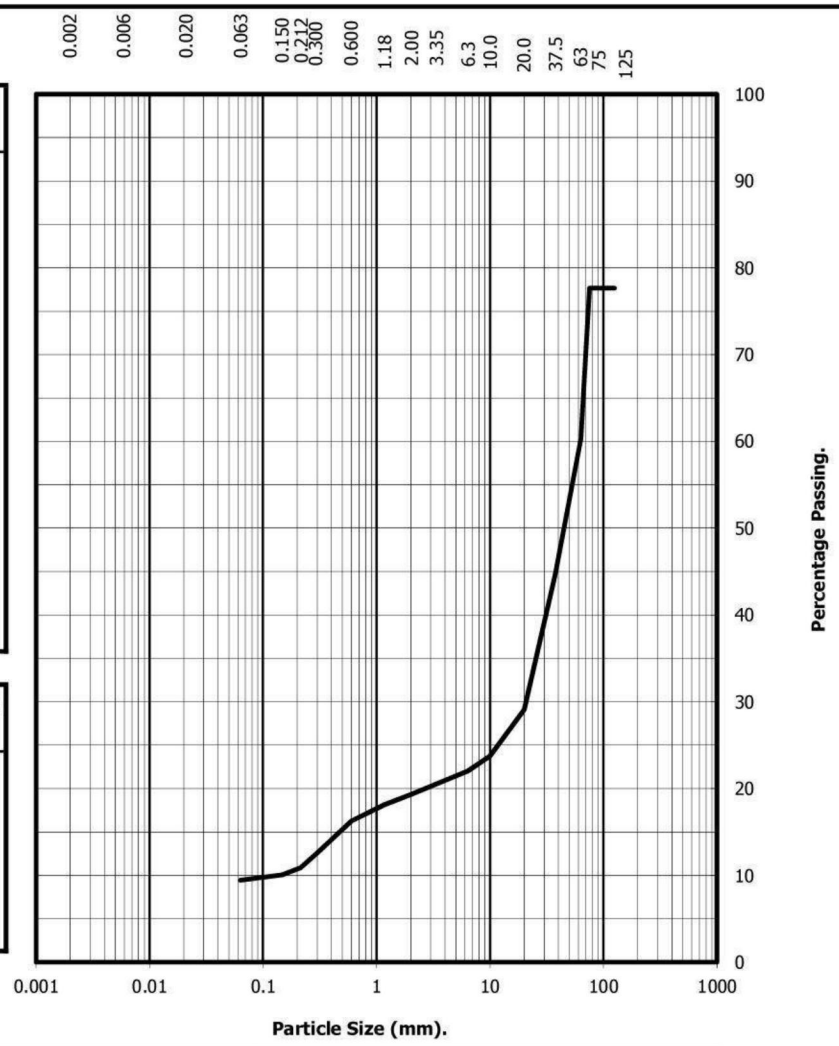
BS 1377 Part 2:1990.

Wet Sieve, Clause 9.2

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number	**TP717**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	

BS Test Sieve	Percentage Passing
125	78
75	78
63	60
37.5	45
20	29
10	24
6.3	22
3.35	20
2.00	19
1.18	18
0.60	16
0.300	13
0.212	11
0.150	10
0.063	9

Particle Diameter	Percentage Passing
0.02	#
0.006	#
0.002	#



Soil Fraction	Cobbles	Gravel	Sand	Silt and Clay	
Total Percentage	40	41	10	9	

Remarks:

#- not determined

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[redacted] Approved By:

Date Approved: 5.11.12

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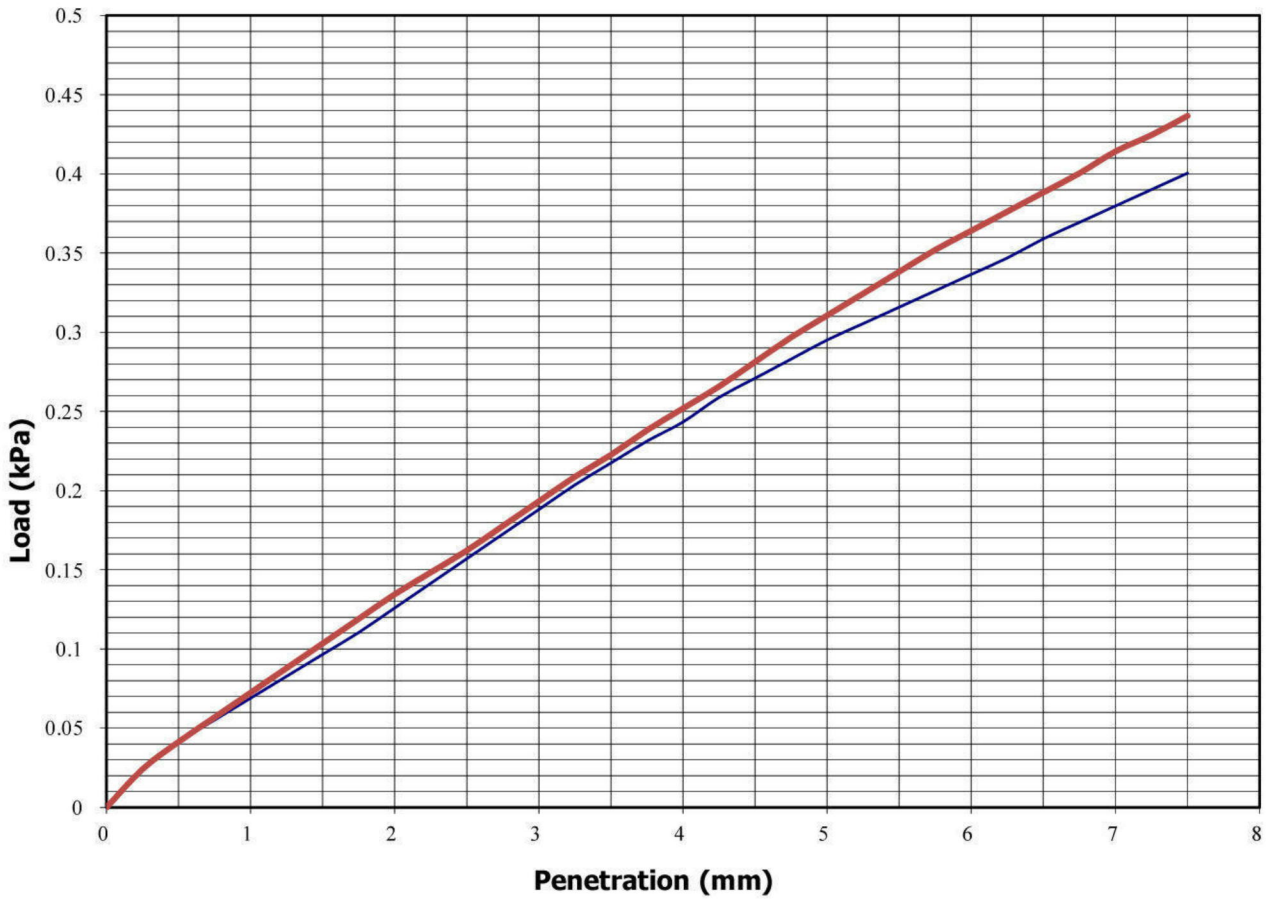
Determination of the California Bearing Ratio
BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP701**
Sample Number:	
Depth (m) :	**1.00**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	17	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.21	Soaking Time hrs	n/a	Sample Top	16.8
Dry Density Mg/m3:	1.89	Swelling mm:	n/a	Sample Bottom	16.8
C.B.R. Value %	Sample Top	**1.5**		Sample Bottom	**1.6**

Percentage retained on 20mm BS test sieve: Remarks:

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[redacted]
Approved By:

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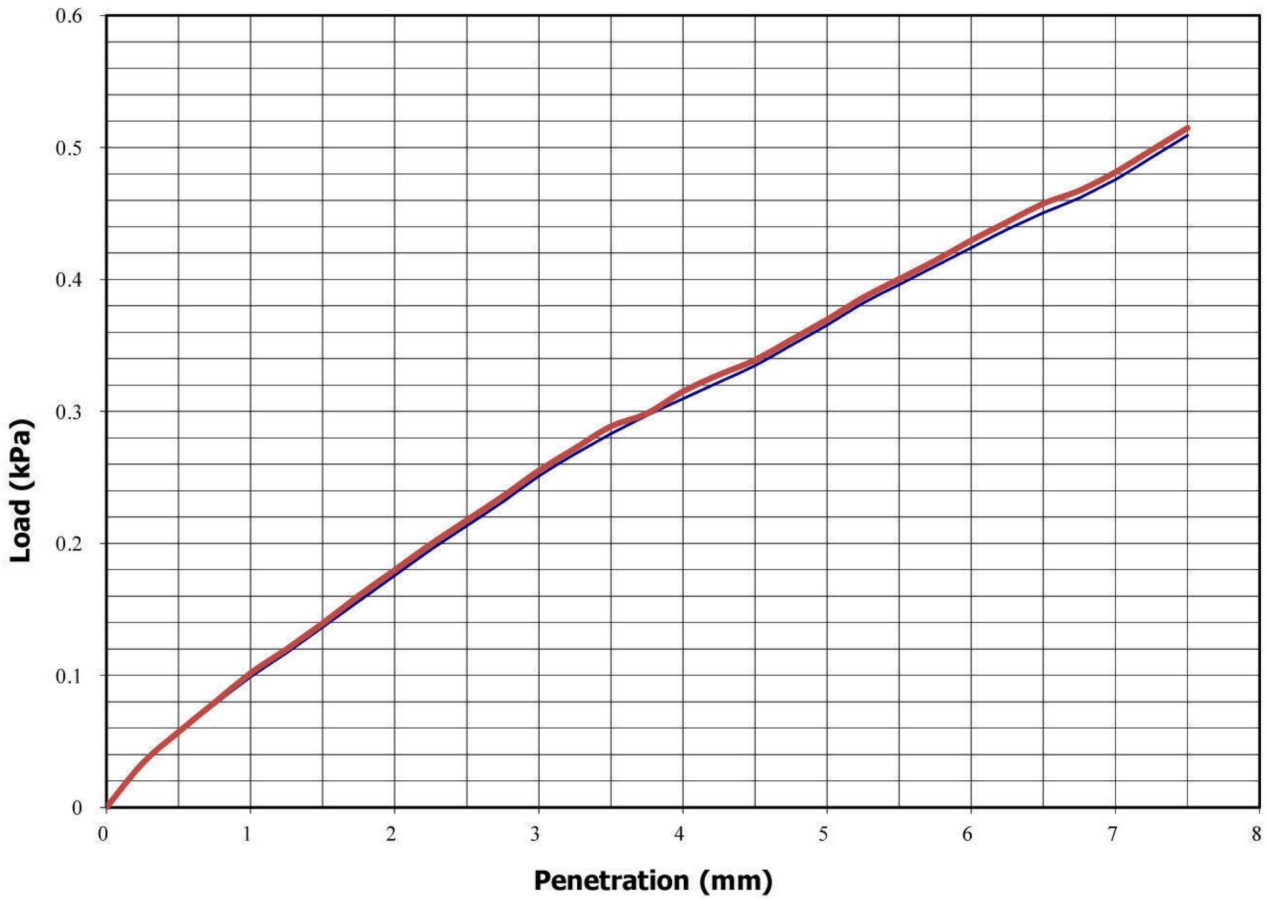
Date Approved: 5.11.12

GEO/010

Determination of the California Bearing Ratio
BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP702**
Sample Number:	
Depth (m) :	**0.60**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	16	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.22	Soaking Time hrs	n/a	Sample Top	15.7
Dry Density Mg/m3:	1.92	Swelling mm:	n/a	Sample Bottom	15.7
C.B.R. Value %	Sample Top	**1.8**		Sample Bottom	**1.8**

Percentage retained on 20mm BS test sieve: 1 Remarks:

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Checked By

Approved By:

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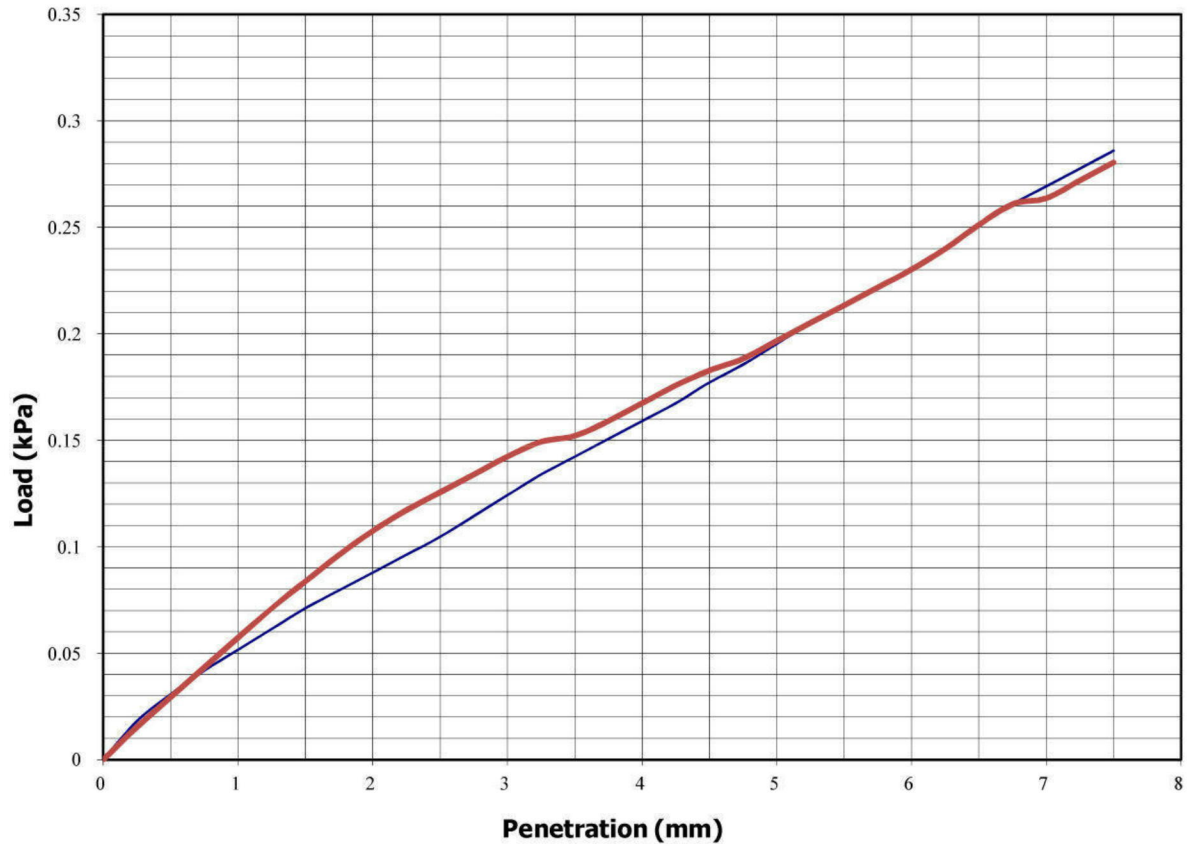
Date Approved: 5.11.12

GEO/010

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP703**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	17	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.19	Soaking Time hrs	n/a	Sample Top	17.2
Dry Density Mg/m3:	1.87	Swelling mm:	n/a	Sample Bottom	17.2
C.B.R. Value %	Sample Top	**1.0**		Sample Bottom	**1.0**

Percentage retained on 20mm BS test sieve:

Remarks:

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Approved By:

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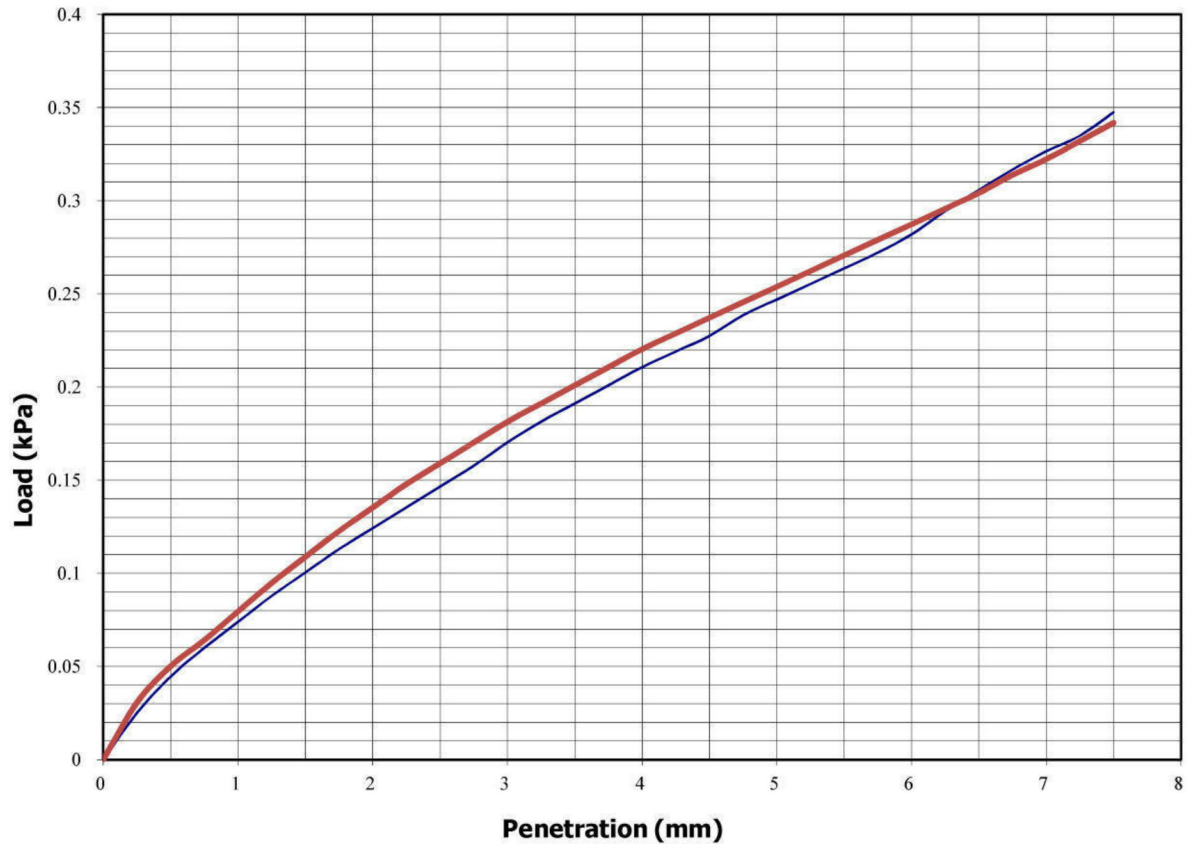
Date Approved: 5.11.12

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP705**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	18	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.21	Soaking Time hrs	n/a	Sample Top	17.9
Dry Density Mg/m3:	1.88	Swelling mm:	n/a	Sample Bottom	17.9
C.B.R. Value %	Sample Top	**1.2**		Sample Bottom	**1.3**

Percentage retained on 20mm BS test sieve: Remarks:

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[redacted]

Approved By:

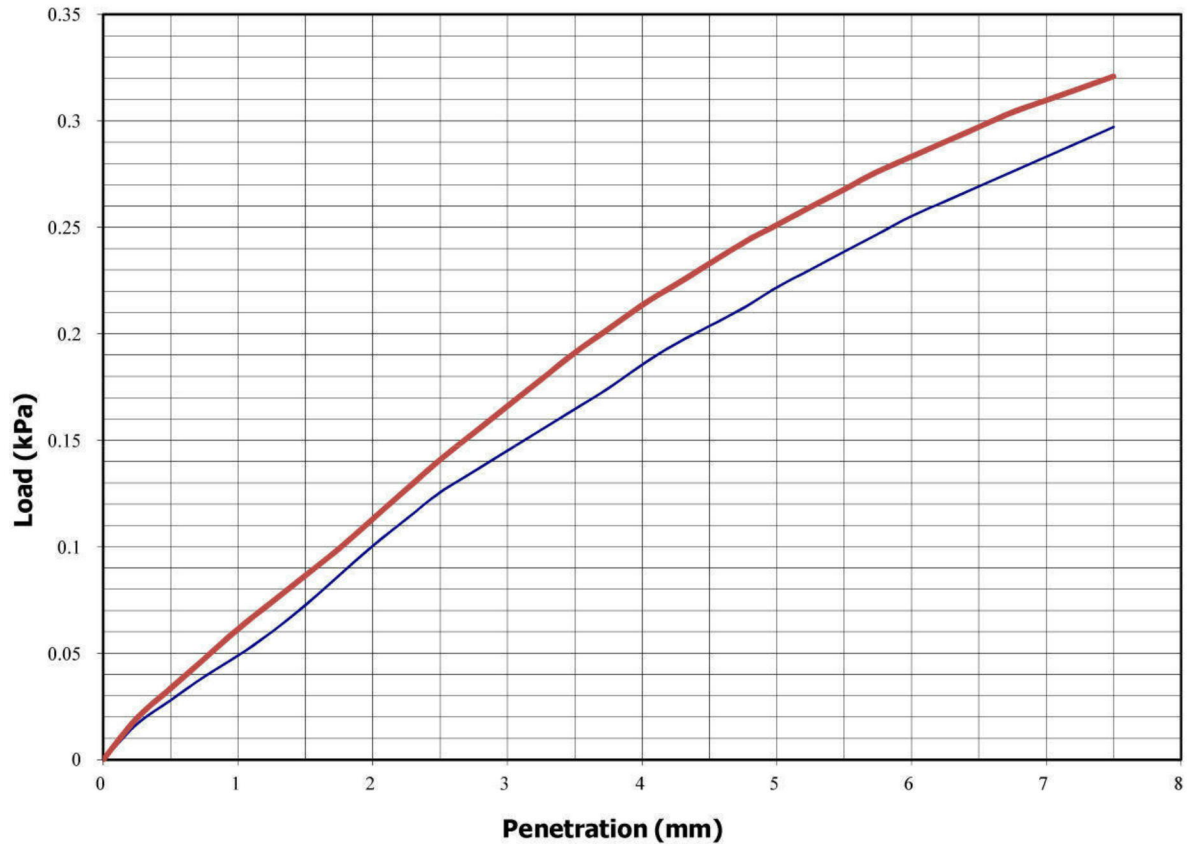
UKAS TESTING 2788

Date Approved: 5.11.12

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP707**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	17	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.20	Soaking Time hrs	n/a	Sample Top	16.9
Dry Density Mg/m3:	1.88	Swelling mm:	n/a	Sample Bottom	16.9
C.B.R. Value %	Sample Top	**1.1**		Sample Bottom	**1.3**
Percentage retained on 20mm BS test sieve:			Remarks:		

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Checked By

[redacted]

Approved By:

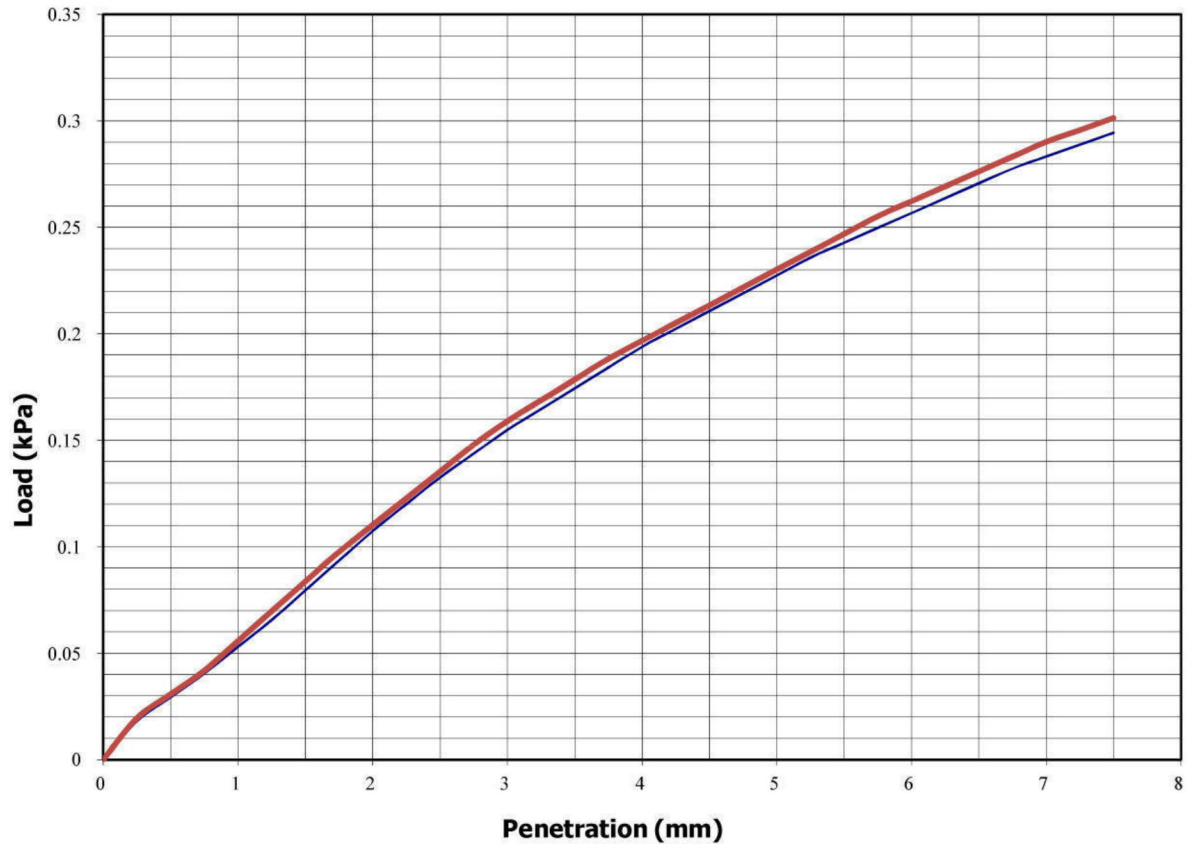
UKAS TESTING 2788

Date Approved: 5.11.12

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP710**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	18	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.19	Soaking Time hrs	n/a	Sample Top	18.4
Dry Density Mg/m3:	1.85	Swelling mm:	n/a	Sample Bottom	18.4
C.B.R. Value %	Sample Top	**1.1**		Sample Bottom	**1.2**
Percentage retained on 20mm BS test sieve:			Remarks:		

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Approved By:

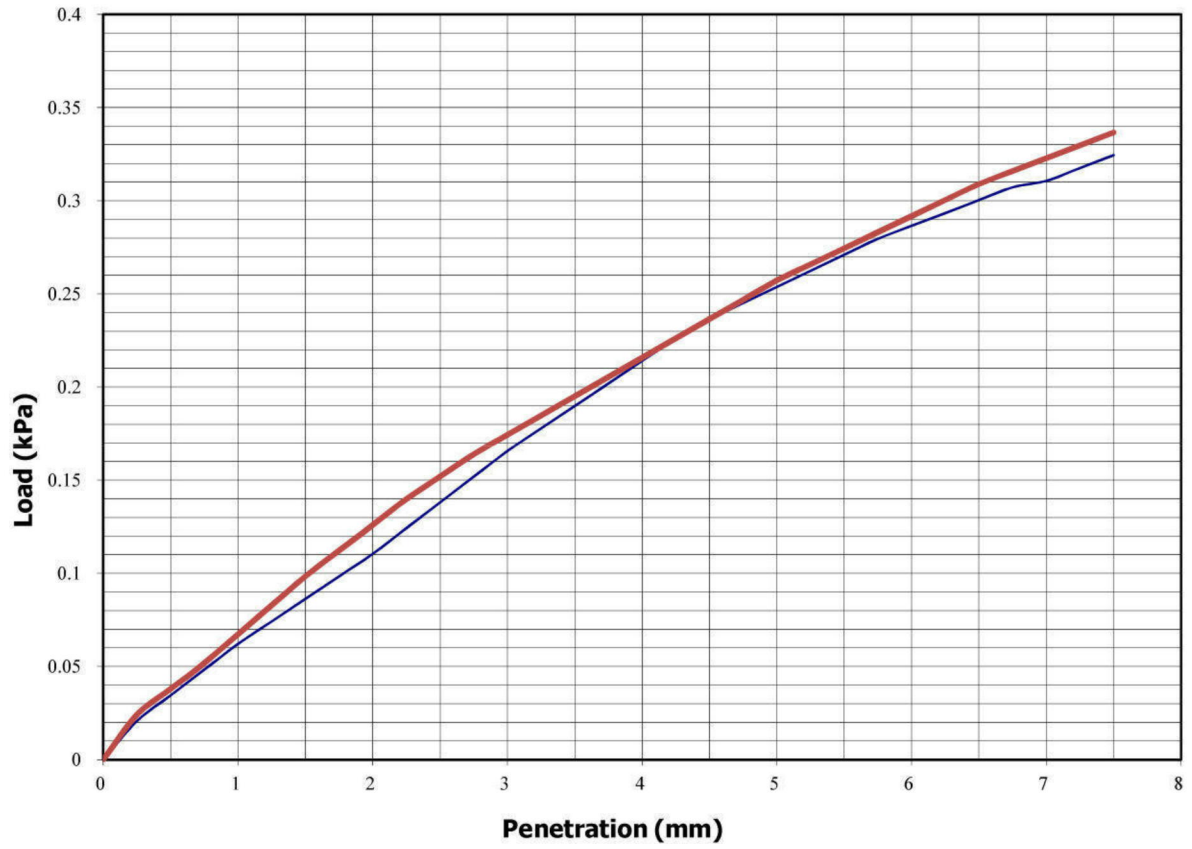
UKAS TESTING 2788

Date Approved: 5.11.12

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP711**
Sample Number:	
Depth (m) :	**0.80**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	17	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.22	Soaking Time hrs	n/a	Sample Top	17.1
Dry Density Mg/m3:	1.89	Swelling mm:	n/a	Sample Bottom	17.1
C.B.R. Value %	Sample Top	**1.3**		Sample Bottom	**1.3**
Percentage retained on 20mm BS test sieve:			Remarks:		

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Checked By

[redacted]

Approved By:

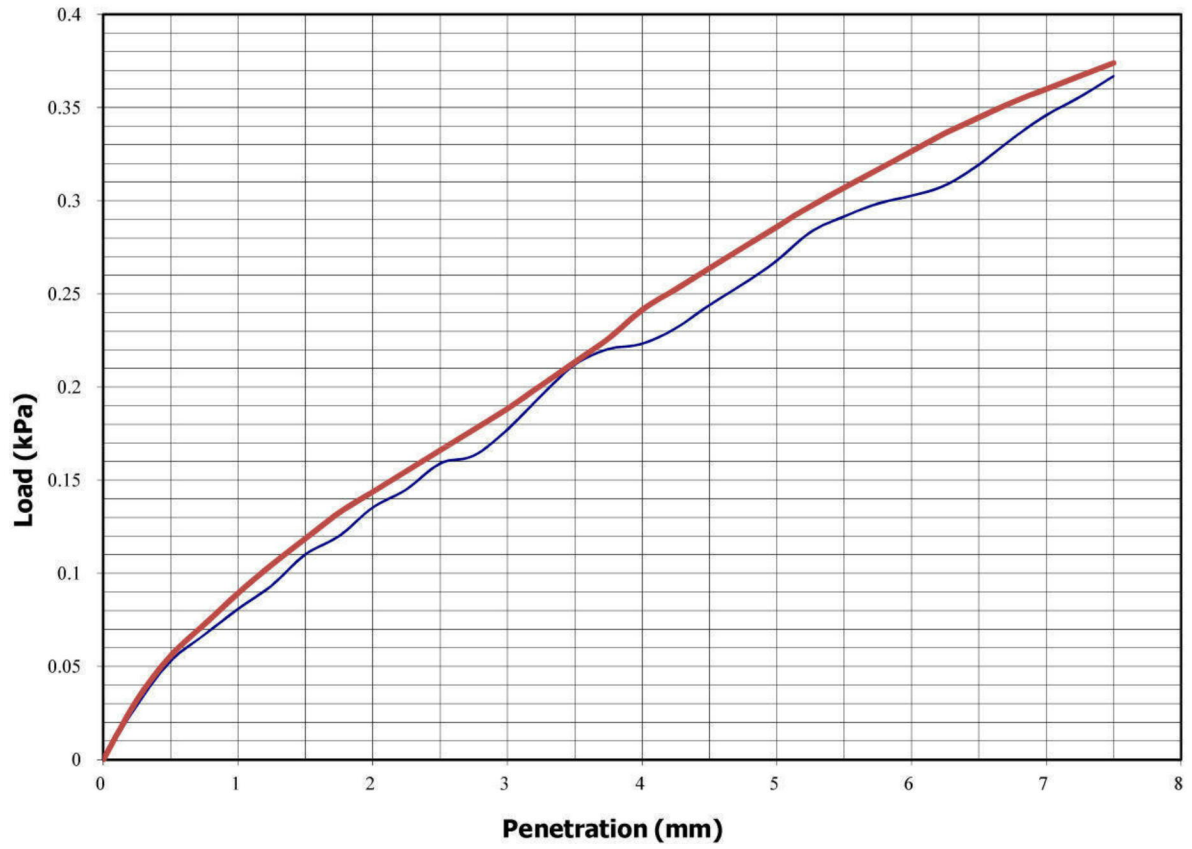
UKAS TESTING 2788

Date Approved: 5.11.12

Determination of the California Bearing Ratio

BS 1377: Part 4: 1990 Clause 7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP714**
Sample Number:	
Depth (m) :	**1.00**
Sample Type	**B**



Initial Sample Conditions		Test Conditions		Method of compaction : 2.5 Kg Rammer	
Moisture Content:	16	Surcharge Kg:	2.0	Final Moisture Content %	
Bulk Density Mg/m3:	2.20	Soaking Time hrs	n/a	Sample Top	16.3
Dry Density Mg/m3:	1.89	Swelling mm:	n/a	Sample Bottom	16.3
C.B.R. Value %	Sample Top	**1.3**		Sample Bottom	**1.4**
Percentage retained on 20mm BS test sieve:			Remarks:		

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Checked By

[redacted]

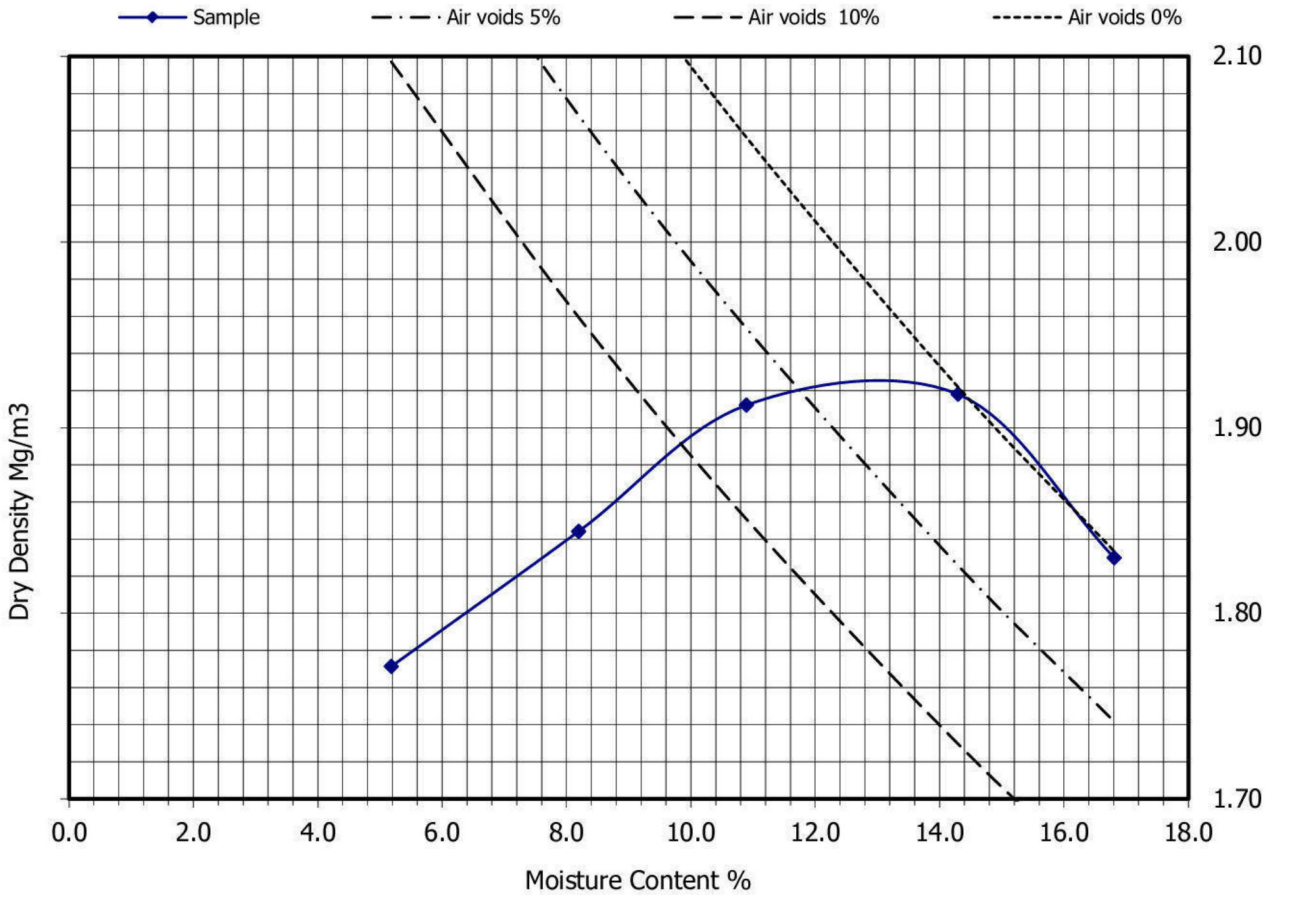
Approved By:

UKAS TESTING 2788

Date Approved: 5.11.12

Dry Density/Moisture Content Relationship
BS 1377:Part 4:1990

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP703**
Sample Number:	
Depth (m) :	**1.00**
Sample Type	



Initial Moisture Content:	**17**	Method of Compaction	**2.5Kg Rammer**
Particle Density (Mg/m3	**2.65 Actual**	Material Retained on 37.5 mm Test Sieve (%):	**0**
Maximum Dry Density (mg/m3):	**1.91**	Material Retained on 20.0 mm Test Sieve (%):	**0**
Optimum Moisture Content (%):	**11**	Sample Preparation Clause :	**3.2.4.1**

Remarks:

[redacted]

Checked By Approved By:

Date Approved: 5.11.12

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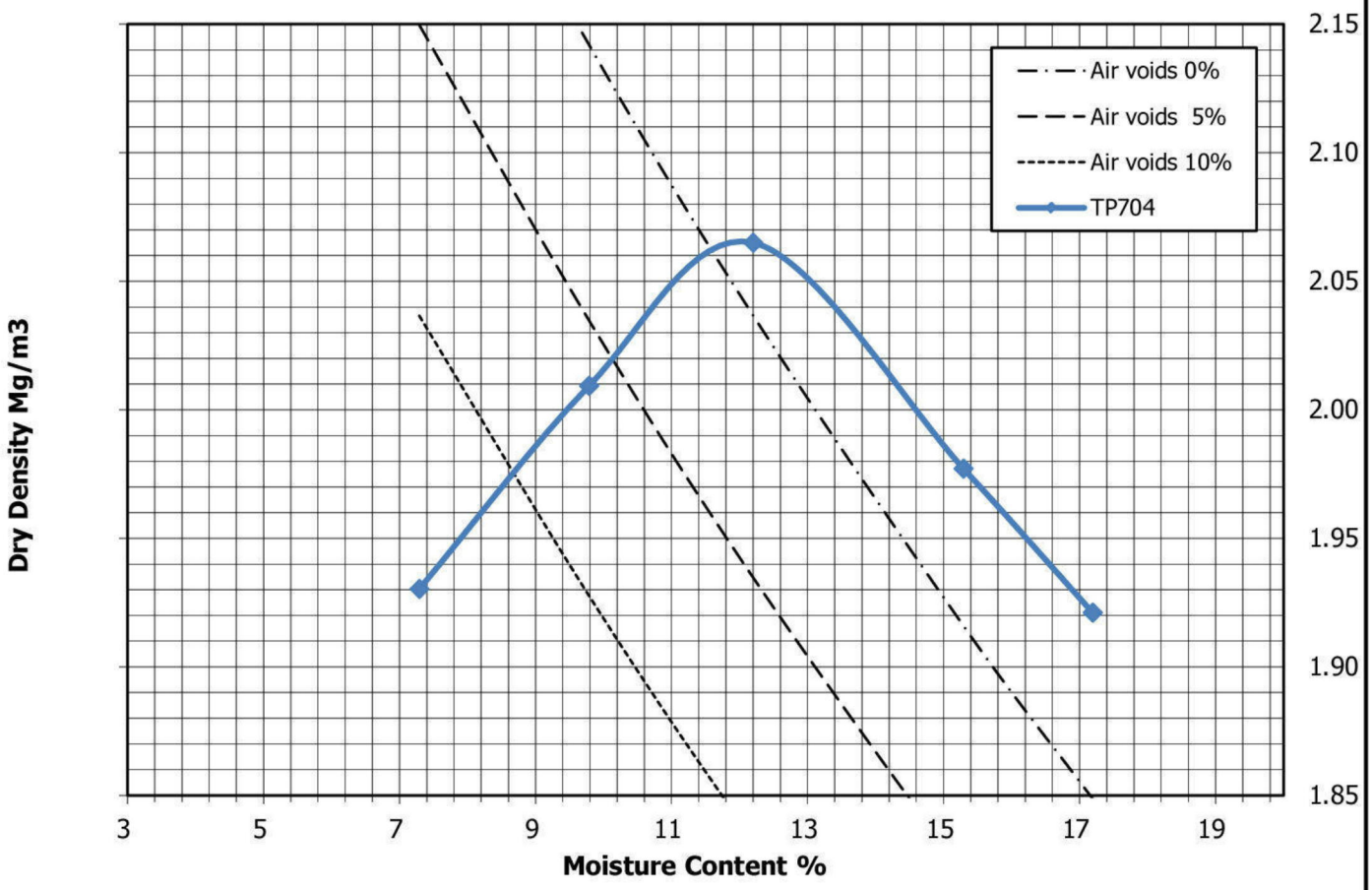
Dry Density/Moisture Content Relationship Vibro Compaction
BS 1377:Part 4:1990 . Cl 3.7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP704**
Sample Number:	
Depth (m) :	**1.00**
Sample Type	



Initial Moisture Content:	**17**	Method of Compaction	Vibro Hammer / Single Sample
Particle Density (Mg/m3):	**2.71* Actual**	Material Retained on 37.5 mm Test Sieve (%):	**0**
Maximum Dry Density (mg/m3):	**2.06**	Material Retained on 20.0 mm Test Sieve (%):	**0**
Optimum Moisture Content (%):	**12.2**	Sample Preparation Clause :	**3.2.4.2**

** - not included in laboratory scope of accreditation*

Remarks

[redacted]

Checked By Approved By:

Date Approved: 5.11.12

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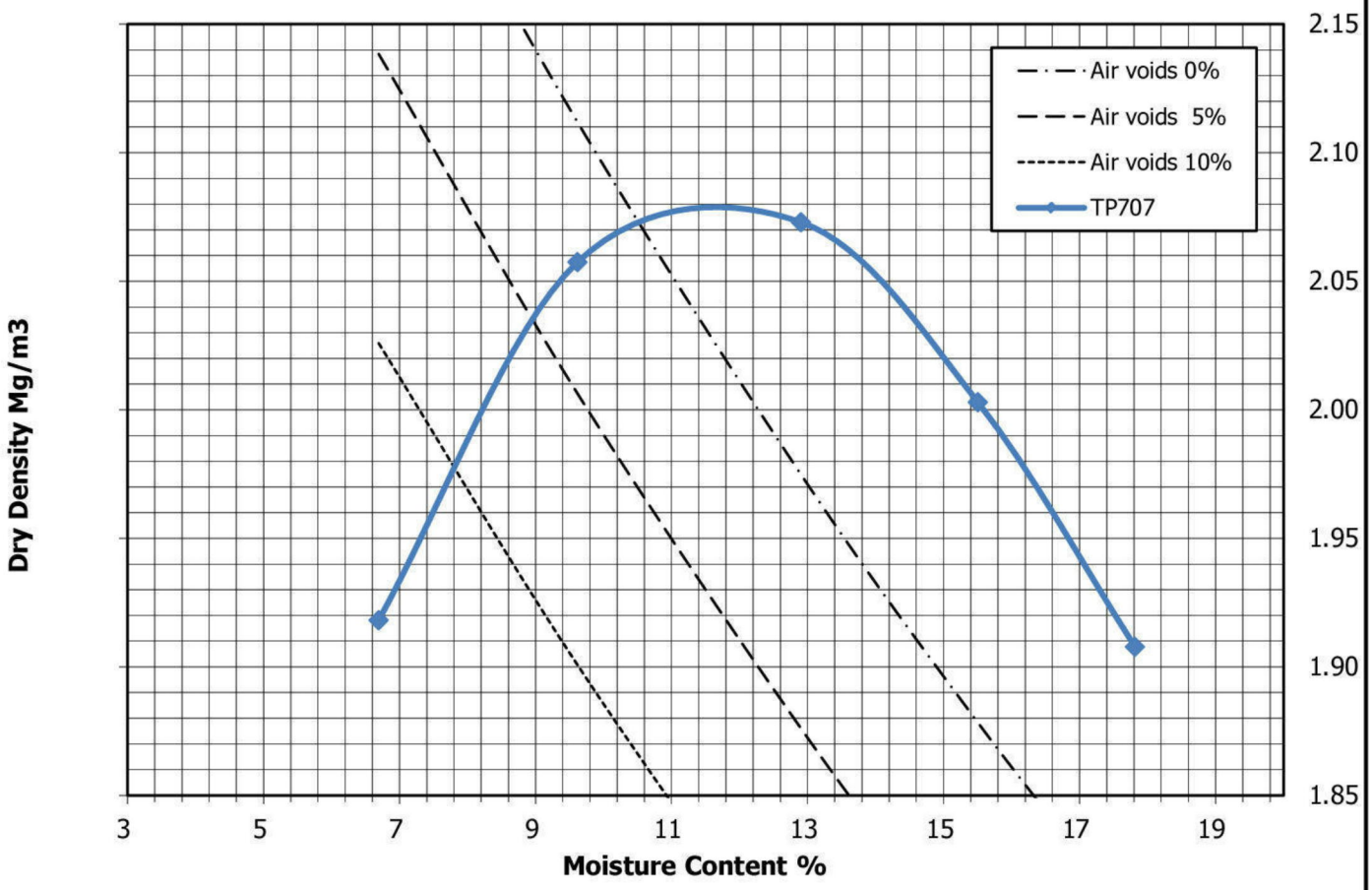
Dry Density/Moisture Content Relationship Vibro Compaction
BS 1377:Part 4:1990 . Cl 3.7

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP707**
Sample Number:	
Depth (m) :	**0.50**
Sample Type	



Initial Moisture Content:	**18**	Method of Compaction	Vibro Hammer / Single Sample
Particle Density (Mg/m3):	**2.65* Actual**	Material Retained on 37.5 mm Test Sieve (%):	**0**
Maximum Dry Density (mg/m3):	**2.07**	Material Retained on 20.0 mm Test Sieve (%):	**0**
Optimum Moisture Content (%):	**12.9**	Sample Preparation Clause :	**3.2.4.2**

** - not included in laboratory scope of accreditation*

Remarks

[redacted]

GSTL
GEO Site & Testing Services Limited

Checked By

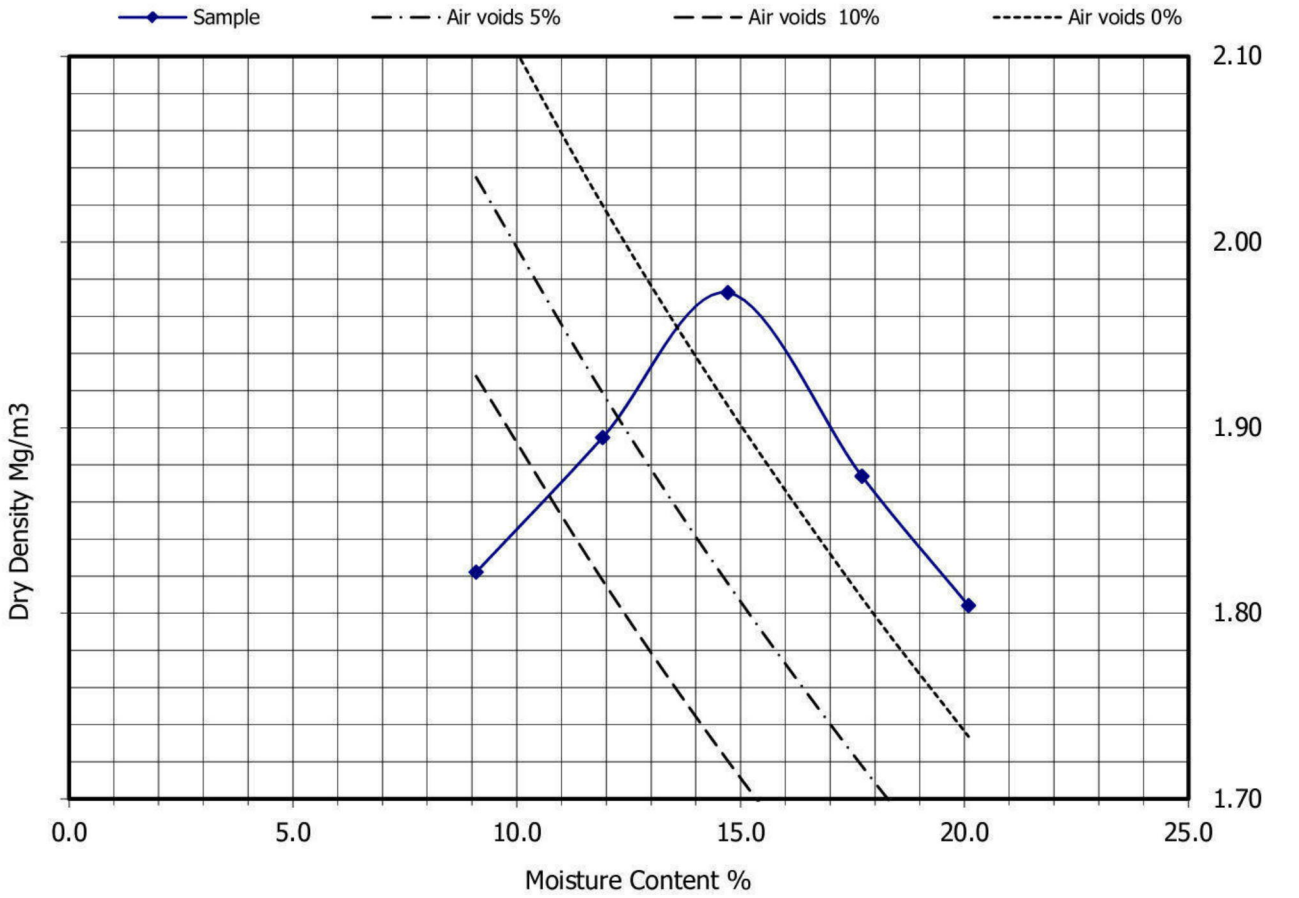
Approved By:

Date Approved: 5.11.12

UKAS TESTING 2788

Dry Density/Moisture Content Relationship
BS 1377:Part 4:1990

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP708**
Sample Number:	
Depth (m) :	**1.10**
Sample Type	



Initial Moisture Content:	**18**	Method of Compaction	**2.5Kg Rammer**
Particle Density (Mg/m3	**2.66 Actual**	Material Retained on 37.5 mm Test Sieve (%):	**0**
Maximum Dry Density (mg/m3):	**1.97**	Material Retained on 20.0 mm Test Sieve (%):	**0**
Optimum Moisture Content (%):	**15**	Sample Preparation Clause :	**3.2.4.1**

Remarks:

[redacted]

Checked By Approved By:

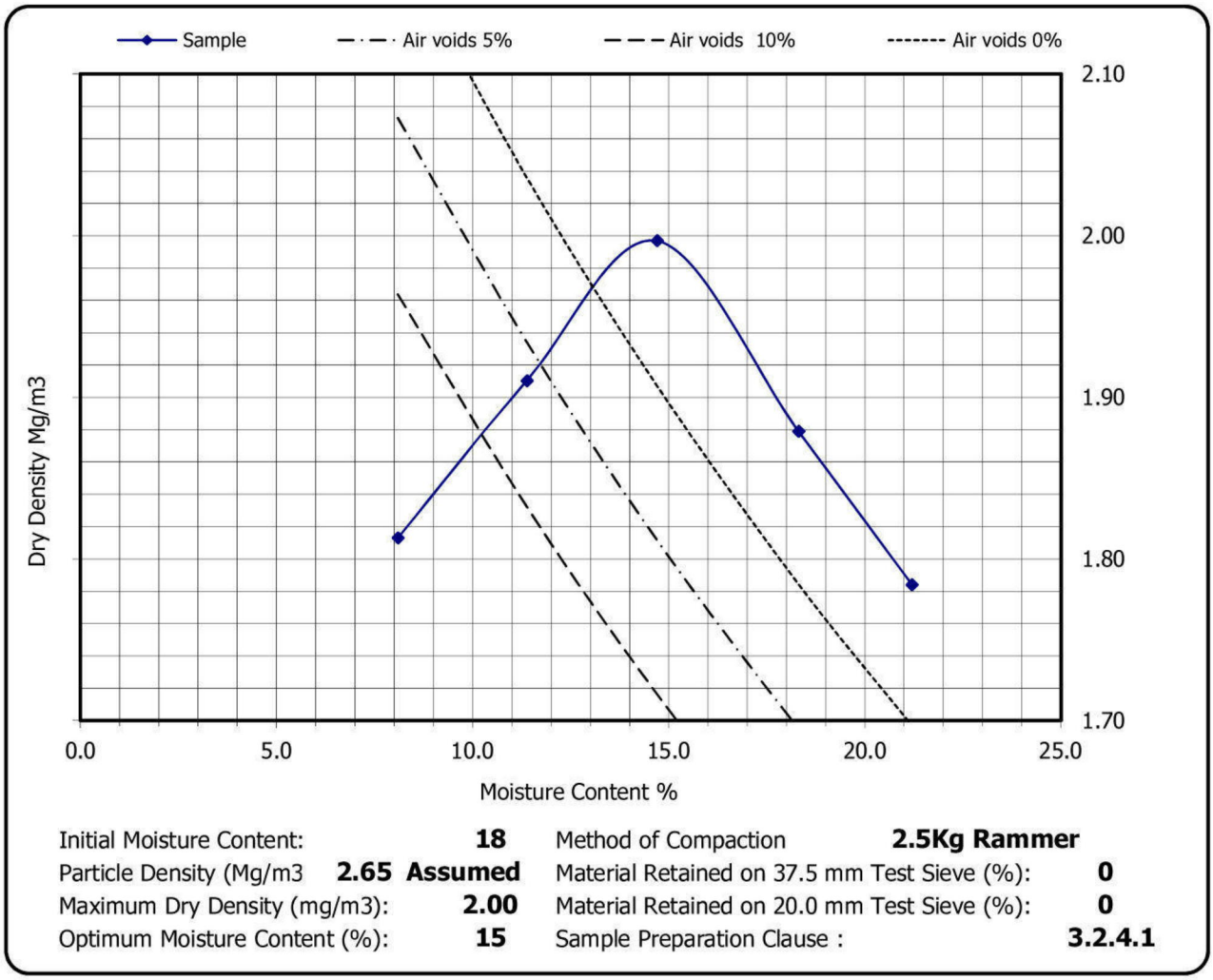
Date Approved: 5.11.12

GSTL
GEO Site & Testing Services Limited

UKAS TESTING 2788

Dry Density/Moisture Content Relationship
BS 1377:Part 4:1990

Client ref:	**SDG121024-16**
Location:	**Kingsmere Bicester Phase 2**
Contract Number:	**17490-081012**
Hole Number:	**TP719**
Sample Number:	
Depth (m) :	**1.40**
Sample Type	



Initial Moisture Content:	**18**	Method of Compaction	**2.5Kg Rammer**
Particle Density (Mg/m3	**2.65 Assumed**	Material Retained on 37.5 mm Test Sieve (%):	**0**
Maximum Dry Density (mg/m3):	**2.00**	Material Retained on 20.0 mm Test Sieve (%):	**0**
Optimum Moisture Content (%):	**15**	Sample Preparation Clause :	**3.2.4.1**

Remarks:

GSTL
GEO Site & Testing Services Limited

[redacted]

Checked By Approved By:

Date Approved: 5.11.12

UKAS TESTING 2788

SUMMARY OF POINT LOAD TESTS.

Int. J. Rock Mech. Sci. & Geomech. Abstr. Vol. 22, No. 2, pp. 51 - 60, 1985.

Borehole Number	Depth (m)	Type of Test d a b/i	Type of Test I //	Width (W) (mm)	Platen Separation (D) (mm)	Failure Load (P) (kN)	Equivalent Diameter (D_e) (mm)	Point Load (I_s) (MPa)	Size Factor (F)	Point Load Index ($I_{s(50)}$) (MPa)	Angle between plane of anisotropy & core axis.	Type of anisotropy (Bedding or Cleavage).	Remarks.
TP701	0.60	i		68	23	9.62	45	4.83	0.95	4.59			
TP703	0.50	i		63	23	8.27	43	4.48	0.93	4.18			
TP705	0.50	i		69	24	8.35	46	3.96	0.96	3.81			
TP707	0.50	i		97	24	7.07	54	2.38	1.04	2.48			
TP710	0.50	i		89	19	5.08	46	2.36	0.97	2.28			
TP715	0.70	i		74	25	8.63	49	3.66	0.99	3.62			
TP717	0.50	i		90	24	7.22	52	2.62	1.02	2.68			

Key : d = diametral; a = axial; b = block; i = irregular lump test; I = perpendicular; // = parallel to planes of weakness.

[redacted]
Checked By

06/11/12
Date

[redacted]
Approved By

06/11/12
Date

Contract No.

17490-081012

Client Ref No.

SDG121024-16

GSTL
GEO Site & Testing Services Limited

Kingsmere Bicester Phase 2

CERTIFICATE OF ANALYSIS

SDG:	121024-16	**Location:**	Kingsmere Bicester Phase 2	**Order Number:**	
Job:	H_WSP_BAS-71	**Customer:**	WSP Environmental	**Report Number:**	200581
Client Reference:	28453	**Attention:**	Helen Gardiner	**Superseded Report:**	

Appendix

1. Results are expressed on a dry weight basis (dried at 35ºC) for all soil analyses except for the following: NRA and CEN Leach tests, flash point, pH, ammonium as NH4 by the BRE method, VOC TICS and SVOC TICS.

2. Samples will be run in duplicate upon request, but an additional charge may be incurred.

3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 2 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALcontrol Laboratories reserve the right to charge for samples received and stored but not analysed.

4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.

5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.

6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as “Not detected”. If no asbestos fibre types are found all will be reported as “Not detected” and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible. The quantity of asbestos present is not determined unless specifically requested.

7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.

8. If appropriate preserved bottles are not received preservation will take place on receipt. However, the integrity of the data may be compromised.

9. NDP -No determination possible due to insufficient/unsuitable sample.

10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals -total metals must be requested separately.

11. Results relate only to the items tested.

12. LODs for wet tests reported on a dry weight basis are not corrected for moisture content.

13. **Surrogate recoveries** -Most of our organic methods include surrogates, the recovery of which is monitored and reported. For EPH, MO, PAH, GRO and VOCs on soils the result is not surrogate corrected, but a percentage recovery is quoted. Acceptable limits for most organic methods are 70 -130 %.

14. **Product analyses** -Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors
employed.

15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethyphenol, 3,5 Dimethylphenol).

16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).

17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.

18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.

19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.

20. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.

21. For all leachate preparations (NRA, DIN, TCLP, BSEN 12457-1, 2, 3) volatile loss may occur, as we do not employ zero headspace extraction.

22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.

23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5 -C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.

SOLID MATRICES EXTRACTION SUMMARY

ANALYSIS	D&C OR WET	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
SOLVENT EXTRACTABLE MATTER	D&C	DCM	SOXTHERM	GRAVIMETRIC
CYCLOHEXANE EXT. MATTER	D&C	CYCLOHEXANE	SOXTHERM	GRAVIMETRIC
ELEMENTAL SULPHUR	D&C	DCM	SOXTHERM	HPLC
PHENOLS BY GCMS	WET	DCM	SOXTHERM	GC-MS
HERBICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
PESTICIDES	D&C	HEXANE:ACETONE	SOXTHERM	GC-MS
EPH (DRO)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (MIN OIL)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH (CLEANED UP)	D&C	HEXANE:ACETONE	END OVER END	GC-FID
EPH CWG BY GC	D&C	HEXANE:ACETONE	END OVER END	GC-FID
PCB AROCLOR 1254 / PCB CON	D&C	HEXANE:ACETONE	END OVER END	GC-MS
POLYAROMATIC HYDROCARBONS (MS)	WET	HEXANE:ACETONE	MICROWAVE TM218.	GC-MS
>C6-C40	WET	HEXANE:ACETONE	SHAKER	GC-FID
POLYAROMATIC HYDROCARBONS RAPID GC	WET	HEXANE:ACETONE	SHAKER	GC-FID
SEMI VOLATILE ORGANIC COMPOUNDS	WET	DCM:ACETONE	SONICATE	GC-MS

LIQUID MATRICES EXTRACTION SUMMARY

ANALYSIS	EXTRACTION SOLVENT	EXTRACTION METHOD	ANALYSIS
PAH MS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
EPH	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
EPH CWG	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
MINERAL OIL	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC FID
PCB 7 CONGENERS	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
PCB AROCLOR 1254	HEXANE	STIRRED EXTRACTION (STIR-BAR)	GC MS
SVOC	DCM	LIQUID/LIQUID SHAKE	GC MS
FREE SULPHUR	DCM	SOLID PHASE EXTRACTION	HPLC
PESTOCP/OPP	DCM	LIQUID/LIQUID SHAKE	GC MS
TRIAZINE HERBS	DCM	LIQUID/LIQUID SHAKE	GC MS
PHENOLS MS	ACETONE	SOLID PHASE EXTRACTION	GC MS
TPH by INFRARED (IR)	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
MINERAL OIL by IR	TCE	STIRRED EXTRACTION (STIR-BAR)	IR
GLYCOLS	NONE	DIRECT INJECTION	GC FID

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials or those identified as potentially asbestos containing during sample description which have been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using Alcontrol Laboratories (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbestos Type	Common Name
Chrysotile	White Asbestos
Amosite	Brown Asbestos
Crocidolite	Blue Asbestos
Fibrous Actinolite	-
Fibrous Anthophyllite	-
Fibrous Tremolite	-

Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: -
Trace -Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

Table of Results

Water Samples

Job No: 07-00723

Site: Bicester, Whitlelands Farm (off B4030)

			Lab No.	7800	7801	7940
			Sample Ref	TP56-1.6	TP65-W1	TP27
			Depth	1.6	1.2	
Determination	LOD	Units	Method			
Arsenic	10	µg/l	303 *	---	< 10.0	---
Cadmium	5	µg/l	303 *	---	< 5.0	---
Chromium	5	µg/l	303 *	---	< 5.0	---
Copper	5	µg/l	303 *	---	< 5.0	---
Nickel	5	µg/l	303 *	---	< 5.0	---
Lead	10	µg/l	303 *	---	< 10.0	---
Zinc	7	µg/l	303 *	---	8.7	---
Free Cyanide	40	µg/l	315	---	< 40.0	---
pH		pH units	312	7.8	8.1	---
Sulphate	20	mg/l	303	43.8	67.3	---
Chloride	20	mg/l	320	---	< 50.0	---
Ammonium	0.5	mg/l	324	---	< 1.3	---
Chemical Oxygen Demand (CO	20	mg/l	337	---	< 20.0	< 20.0

WSP ENVIRONMENTAL

Test Report

Job Number: 07/0810/S

Report No: 07/0810/S

Report Date:	11/06/2007
Project Number:	12370178
Client:	WSP Environmental Ltd
Site Address:	Bicester, Whitelands Farm (off B4030)
Postal Address:	Mountbatten House, Basing View, Basingstoke, Hampshire, RG21 4HJ
Date of sampling:	14/05/2007
Date of Analysis:	June 07

Dear C Poole, G Hearn & K Hawkins,

Please find attached your results for the above project.

This report includes the results for the soil samples we received.

Results Authorised by:

M. Beastall - Geotechnical Laboratory Manager

[redacted]

Samples from this project are due for disposal on 09/07/2007

Unaccredited Tests are marked with an asterix (**), Testing marked with (*) In house method based on BS1377 method all other tests are UKAS accredited.

Testing marked "X" see attached figure for results

US = Unsuitable

NP = Non plastic

US = Unsuitable

IS = Insufficient sample to carry out scheduled test

UUS = Unconsolidated Undrained single stage

UUM = Unconsolidated Undrained Multi stage

$ = Subcontract

WSP Environmental, Unit 5, Centurion Business Centre, Dabell Av,
Blenheim Industrial Est, Bulwell, Notts, NG6 8WA

UKAS TESTING

0206

WSP Environmental Ltd, Unit 5 Centurian Business Centre Dabell Avenue, Bulwell, Nottingham NG6 8WA

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data					Classification										Compaction				Chemical				Strength & Compression testing										
					BS 1377:Part 2										BS1377:Part 4				BS 1377:Part 3				BS 1377:Part's 5 & 7										
BH/TP/WS No	Sample No	Sample Type	Depth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Linear shrinkage	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction 2.5kg	Compaction 4.5kg	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	Remarks
TP01	4		0.40	0.80									x						0.33	7.7													
TP01	5		1.00	1.50									US					US															
TP02	1		0.10	0.20	11	39	23	16	CI	90					x				0.03	7.4													
TP02	4		0.30	0.80									x		x																		
TP03	4		0.30	0.80									x					x															
TP03	8		2.40	2.60	23	37	19	18	CI	70									0.17	8.0													
TP04	4		0.30	0.80									x					IS															
TP04			0.65			26	18	8	CL	47																							
TP05	4		0.30	0.80									x		IS																		
TP06	5		0.80	1.50	18	40	21	19	CL	100							x		0.02	8.1													
TP09	4		0.25	0.70									x		IS																		
TP10	4		0.50	0.80									x					IS															
TP11	1		0.10	0.20	16	37	19	18	CI	90									0.01	7.1													
TP12	5		0.60	1.10	25	51	26	25	CH	37					IS				0.02	8.0													
TP13	1		0.10		22	66	42	24	MH	90									0.02	6.3													
TP13	9		1.50	2.00									x				x																
TP14	5		0.50	1.00	35	66	33	33	CH	100					x				0.16	7.7													
TP15	7		1.20	1.50									x					x															
TP15	8		1.20	1.50	32	75	26	49	CV	58							x		0.39	7.6													
TP16	1		0.10	0.20	17	77	23	54	CV	95							x		0.01	7.2													
TP16	3		0.80	1.20									x		x																		
TP16	4		0.80	1.20	24	55	24	31	CH	60					x				0.11	7.9													
TP17	4		1.00		35	55	32	23	MH	100							x		0.04	8.0													

WSP Environmental Ltd, Unit 5 Centurian Business Centre Dabell Avenue, Bulwell, Nottingham NG6 8WA

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data					Classification										Compaction				Chemical				Strength & Compression testing										
					BS 1377:Part 2										BS1377:Part 4				BS 1377:Part 3				BS 1377:Part's 5 & 7										
BH/TP/WS No	Sample No	Sample Type	Depth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Linear shrinkage	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction 2.5kg	Compaction 4.5kg	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	Remarks
TP18	4		1.10	1.40	56	72	43	29	MV	47					x				0.33	7.7													
TP19	5		0.50	1.00	21	59	34	25	MH	36							IS		0.06	7.7													
TP20	5		0.80	1.10									x		IS																		
TP21	5		0.70	0.70									x		IS																		
TP21	6		0.85	1.10																													
TP22	3		0.50	0.70									x					IS															
TP22	4		0.80	0.90																													
TP23	1		0.10		15	31	23	8	ML	100					x				0.01	7.6													
TP23	3		0.40	0.60																													
TP23	4		0.70	0.95																													
TP24			0.10		18	44	21	23	CI	96									0.02	7.2													
TP27	1		0.10		17	43	22	21	CI	70							x		<0.01	8.0													
TP26	5		0.80	1.20									x		IS																		
TP27	1		0.10	0.10	17	43	22	21	CI	70							x		0.01	7.6													
TP27	4		0.60	0.60									x					x															
TP28	5		1.00	1.50														IS															
TP29	3		0.50	1.00									x		x																		
TP30	1		0.10	0.10	18	49	24	25	CH	90							x		0.03	7.5													
TP30	5		0.50	0.85	17	29	20	9	CL	74					x				0.01	8.0													
TP30	7		0.85	1.20	22	77	27	50	CV	61					x				0.03	7.8													
TP31	7		1.00	1.50	34	71	29	42	CV	58							x		0.03	7.7													
TP32	4		0.50	0.80	22	64	24	40	CH	50					x				0.03	7.9													
TP33	4		1.00	1.20									x					IS															
TP34	5		0.50	1.00	37	71	36	35	CH	63					x				0.08	7.7													

WSP Environmental Ltd, Unit 5 Centurian Business Centre Dabell Avenue, Bulwell, Nottingham NG6 8WA

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data					Classification										Compaction				Chemical				Strength & Compression testing										
					BS 1377:Part 2										BS1377:Part 4				BS 1377:Part 3				BS 1377:Part's 5 & 7										
BH/TP/WS No	Sample No	Sample Type	Deppth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Linear shrinkage	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction 2.5kg	Compaction 4.5kg	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	Remarks
TP35	5		0.60	0.90	22	64	26	38	MH	100							x		0.33	7.7												
TP36	1		0.10		26	46	28	18	MI	80							x		0.01	7.4												
TP37	4		0.30	0.60	20	40	26	14	ML	80									0.01	7.8												
TP37			0.60	1.10									x		IS																	
TP38	1		0.10		24	56	25	31	CH	80							x		0.01	7.3												
TP38	5		0.60	1.10	26	79	30	49	CV	60							x		0.19	7.8												
TP39	3		0.50	0.80	25	48	25	23	CI	69					x				0.01	7.9												
TP40	3		0.50	1.00	29	80	29	51	CV	37							x		0.02	7.8												
TP41	5		0.65	1.10	12	29	19	10	CL	79					x				0.01	8.3												
TP43	3		0.40	0.50	17	67	27	40	CH	80					x				0.02	6.5												
TP44	1		0.10		14	46	28	18	MI	95							x		0.02	6.7												
TP45	3		0.30	0.60									x		IS																	
TP46	4		0.20	0.60									x					IS														
TP48	1		0.00	0.30	115		NP	NP	NP						IS				0.28	7.3												
TP49	3		0.20	0.60	54	41	34	7	ML	95								IS	0.11	8.3												
TP49			0.70	1.00									x																			
TP50	7		0.60	0.90	22	51	23	28	CH	77					x				0.03	8.1												
TP53			1.00														X															
TP54	6		1.20	1.75	15	30	20	10	CL	100							IS		0.06	8.3												
TP55	7		0.80	1.20									x		IS																	
TP56	1		0.10	0.20	51	58	49	9	MH	75							x		0.02	7.2												
TP56	5		0.60	1.10	13	20	15	5	ML	100							x		0.01	8.3												
TP60	3		0.30	0.70	18	27	18	9	CL	32					x				0.02	7.9												

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Summary of Geotechnical Laboratory results

Sample Data						Classification									Compaction				Chemical				Strength & Compression testing									Remarks
						BS 1377:Part 2									BS1377:Part 4				BS 1377:Part 3				BS 1377:Part's 5 & 7									
BH/TP/WS No	Sample No	Specimen Ref	Sample Type	Deppth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Linear shrinkage	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction 2.5kg	Compaction 4.5kg	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	
TP61	3			0.25	0.75									x						0.33	7.7												
TP61	5			1.00	1.50									x					x														
TP61	6			1.50	2.00									x																			
TP64	1			0.10		29	43	23	20	CI	100					x				0.02	6.1												
TP64	6			1.10	1.65									x					x														
TP65	4			0.30	0.60									x		IS																	
TP65	8			1.10	1.50									x					IS														

PLASTICITY CHART TAKEN FROM BS5930 : 2000

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UKAS TESTING 0206