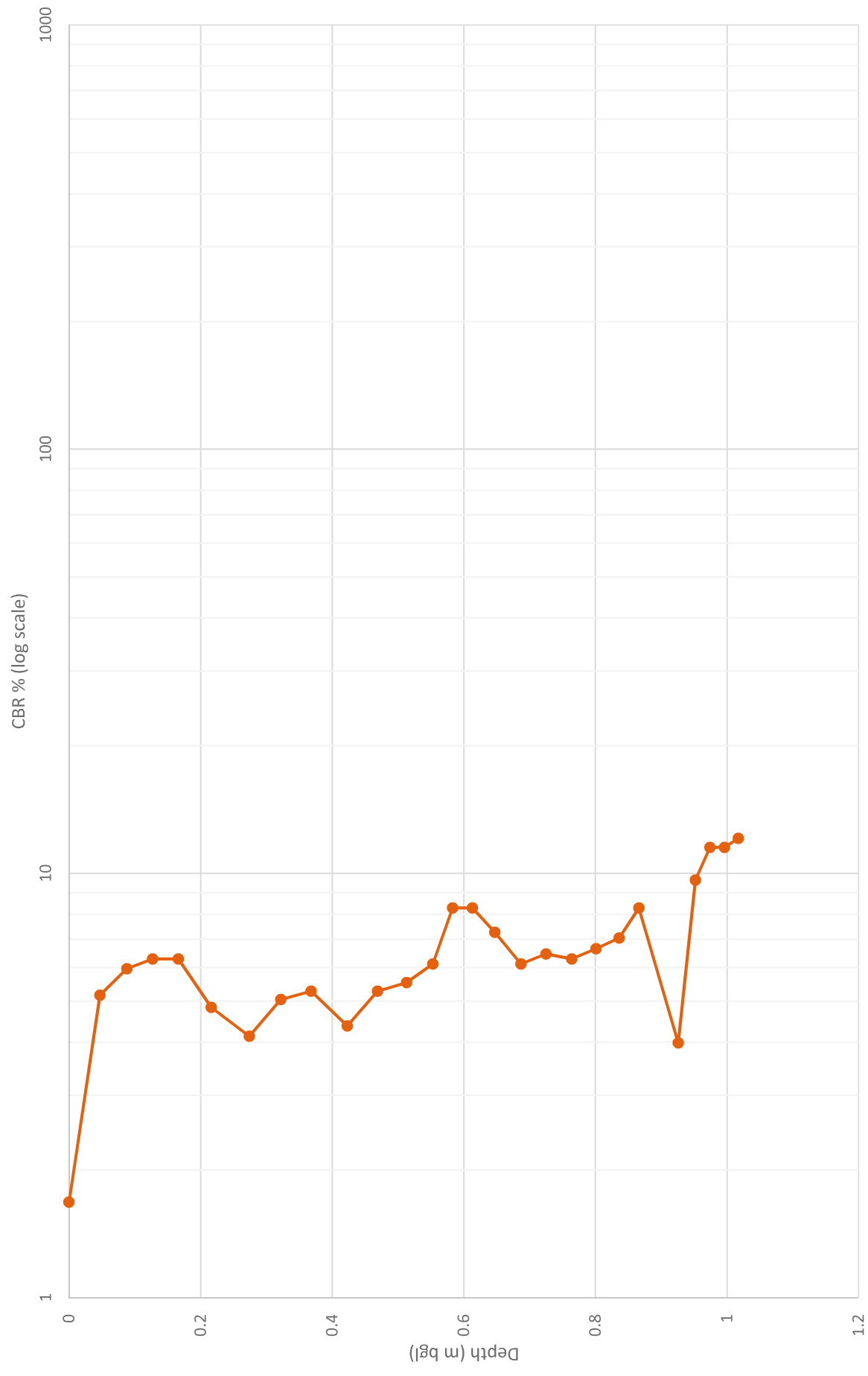
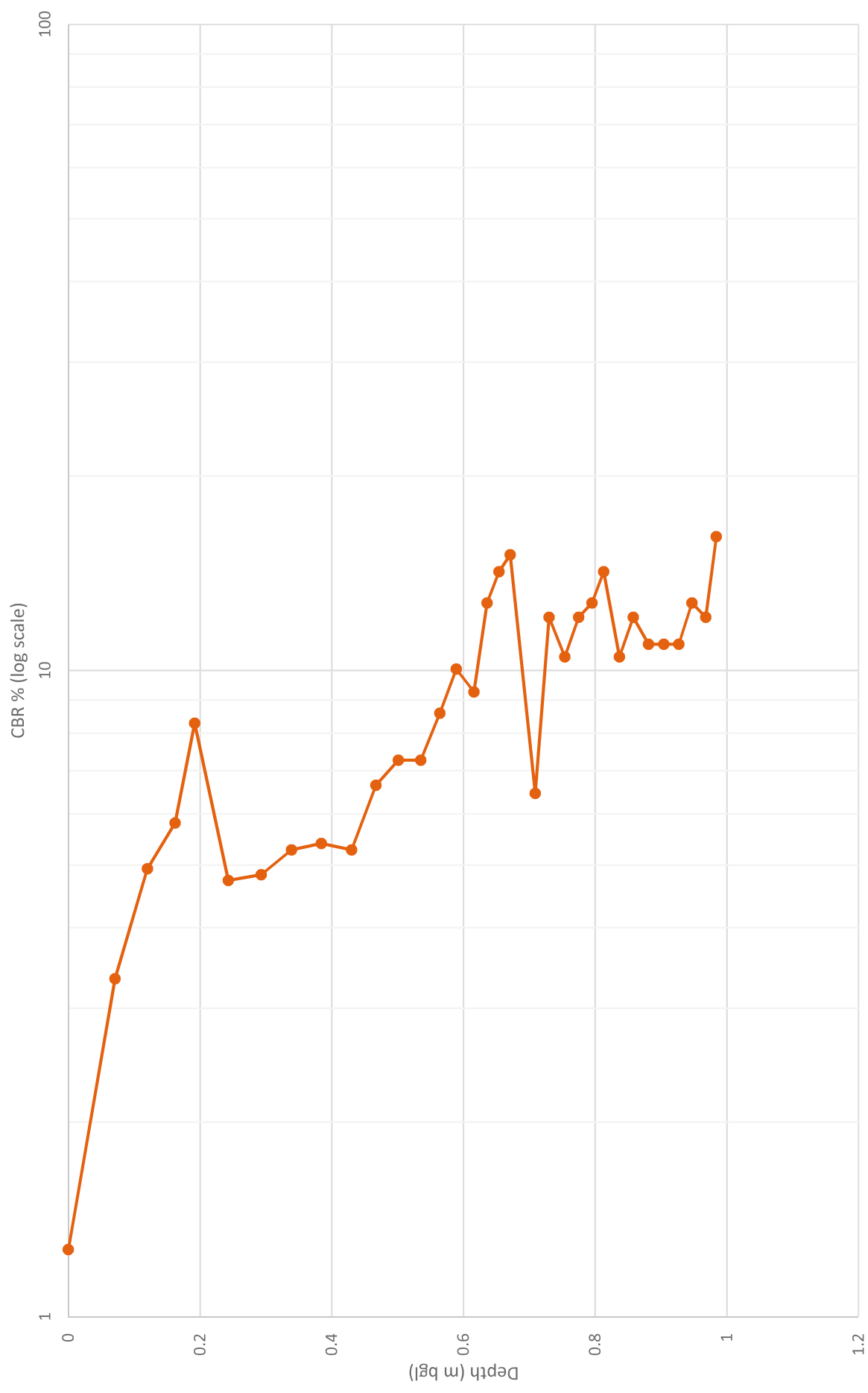


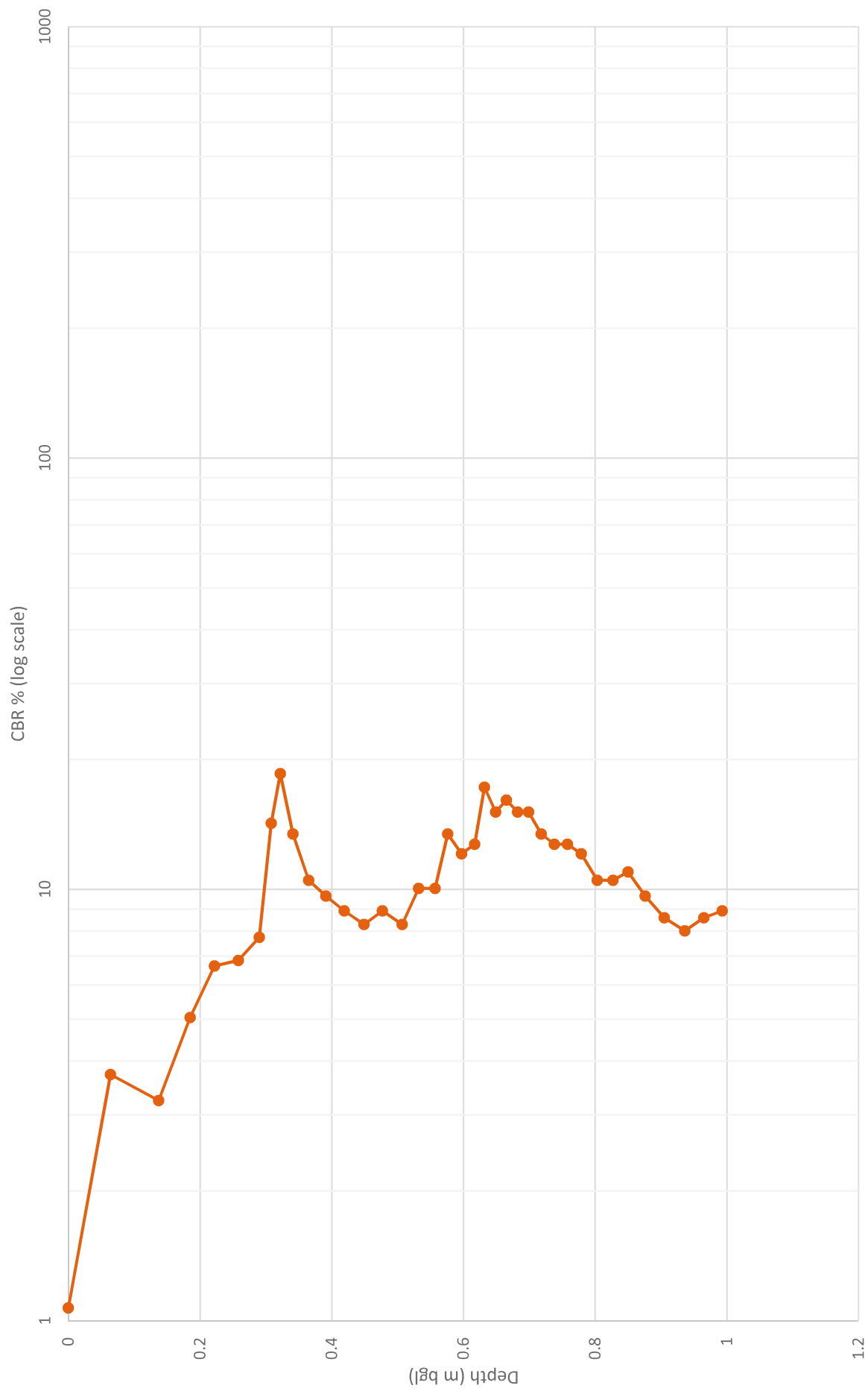
BH03



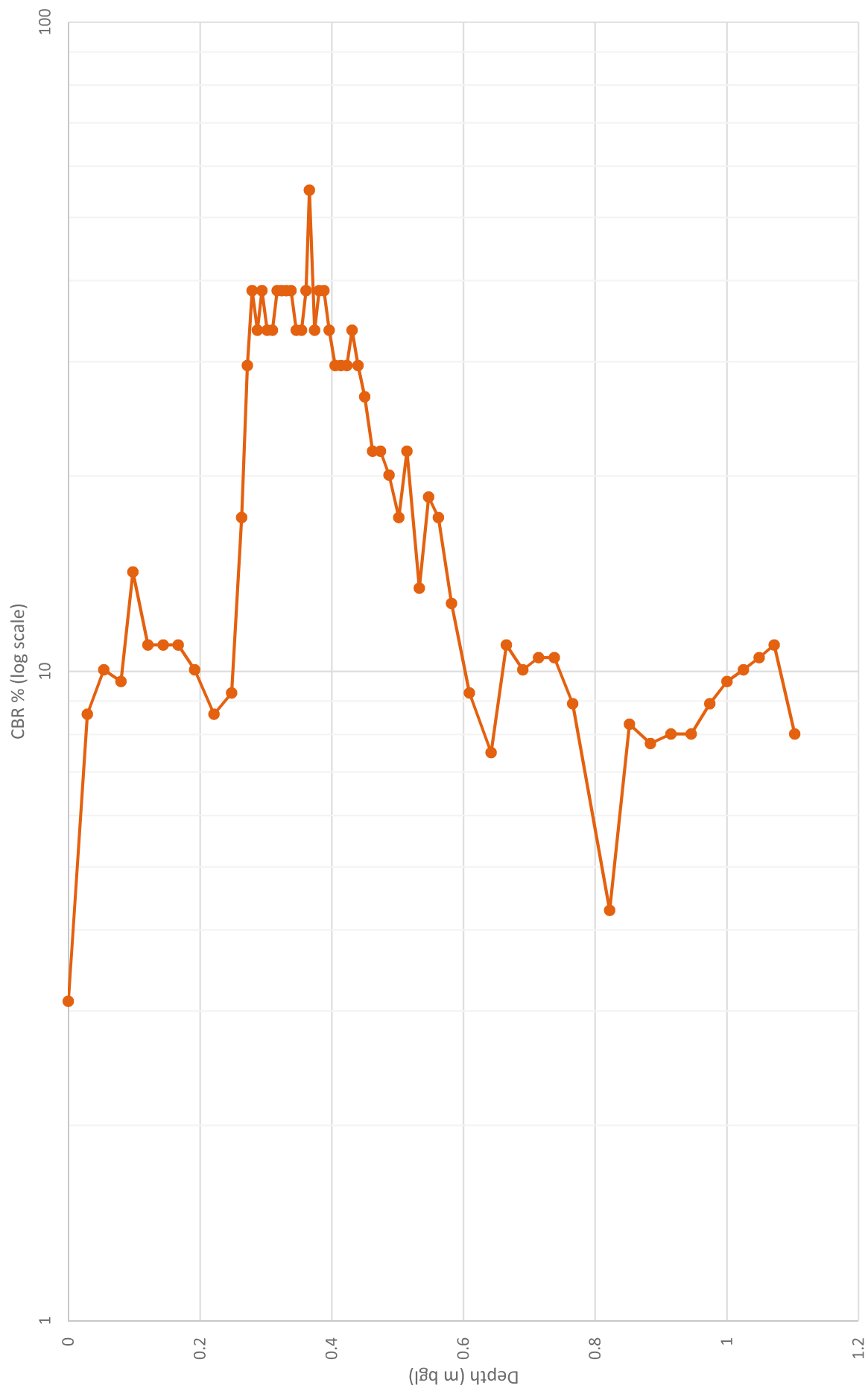
WS01



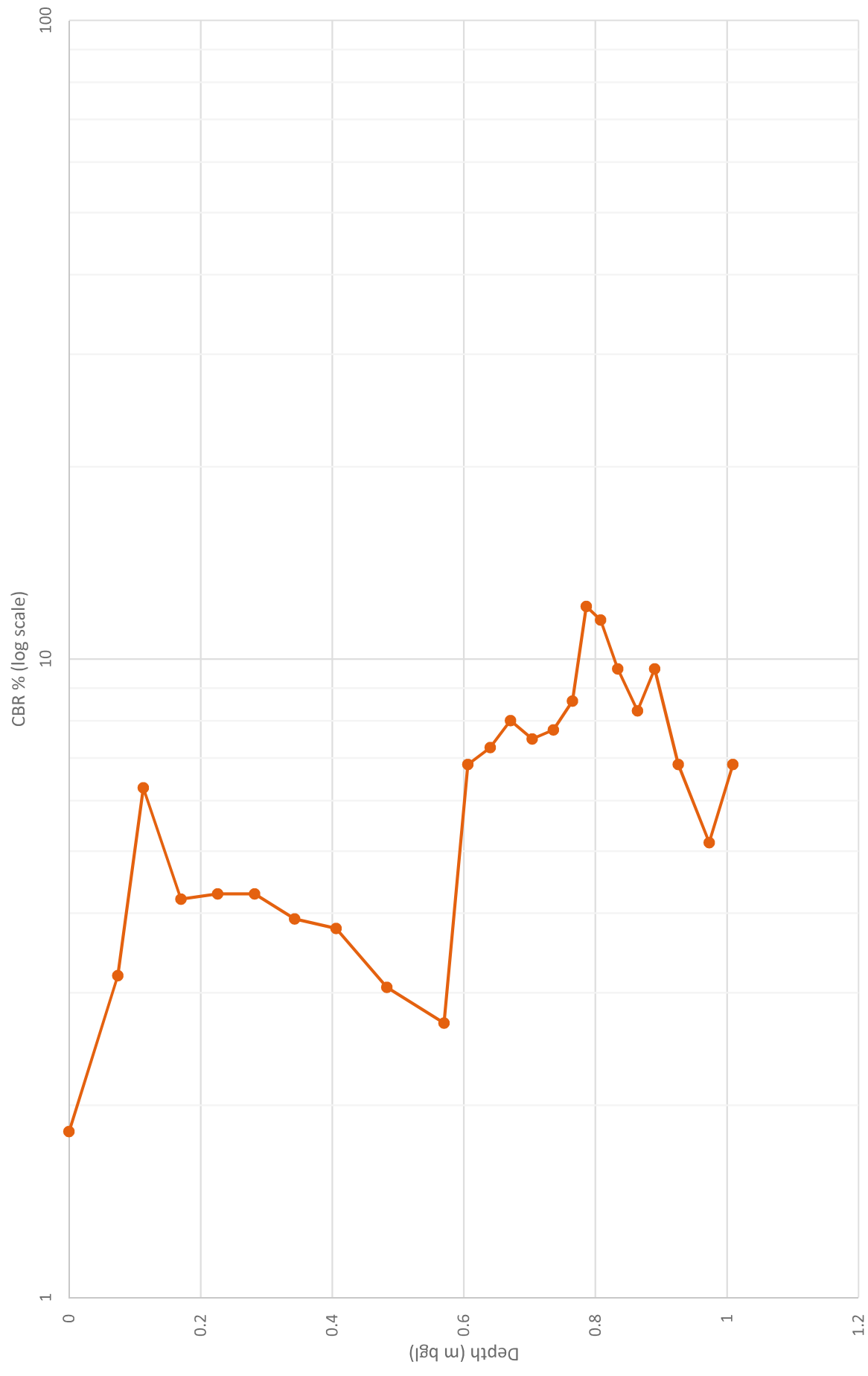
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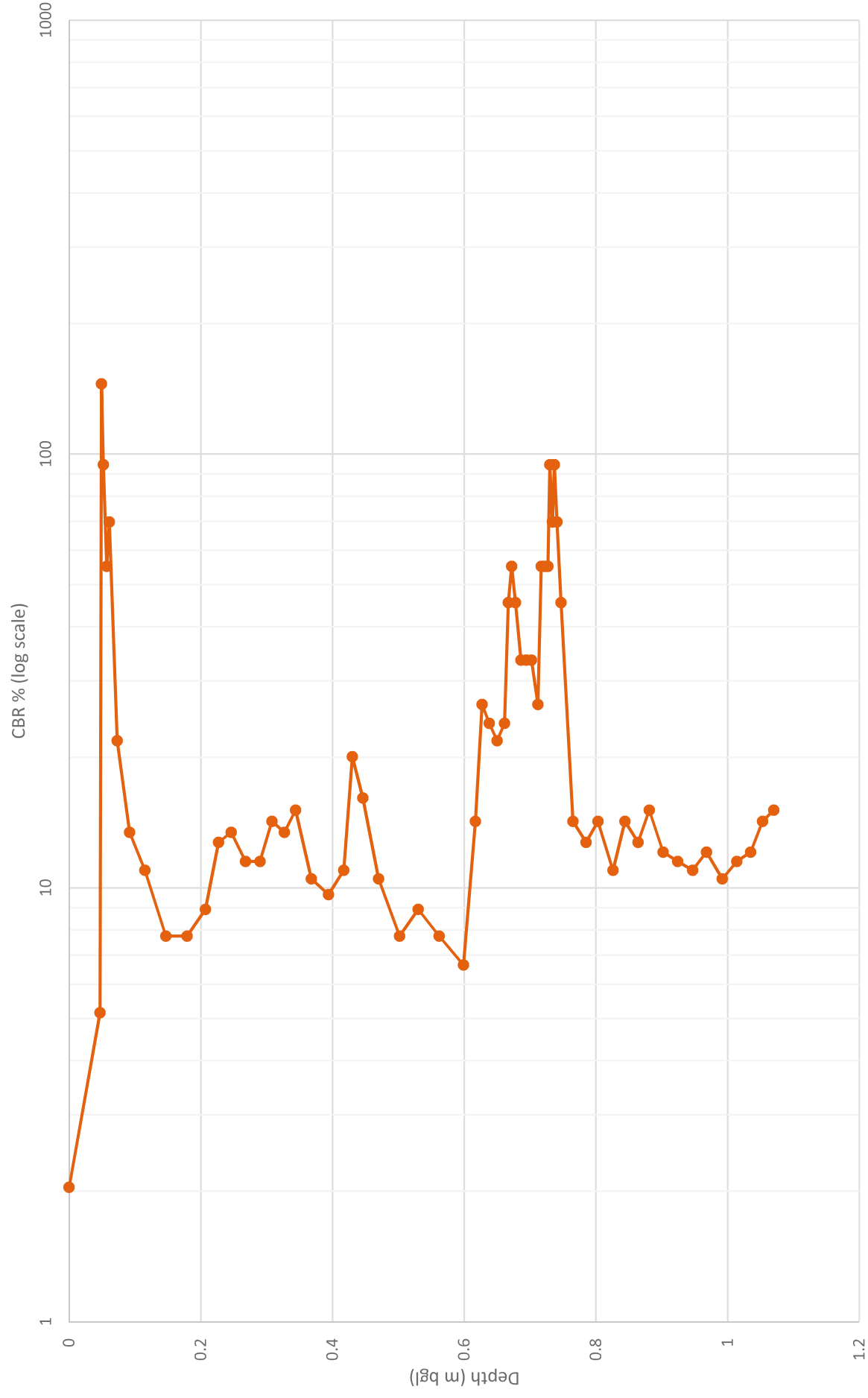
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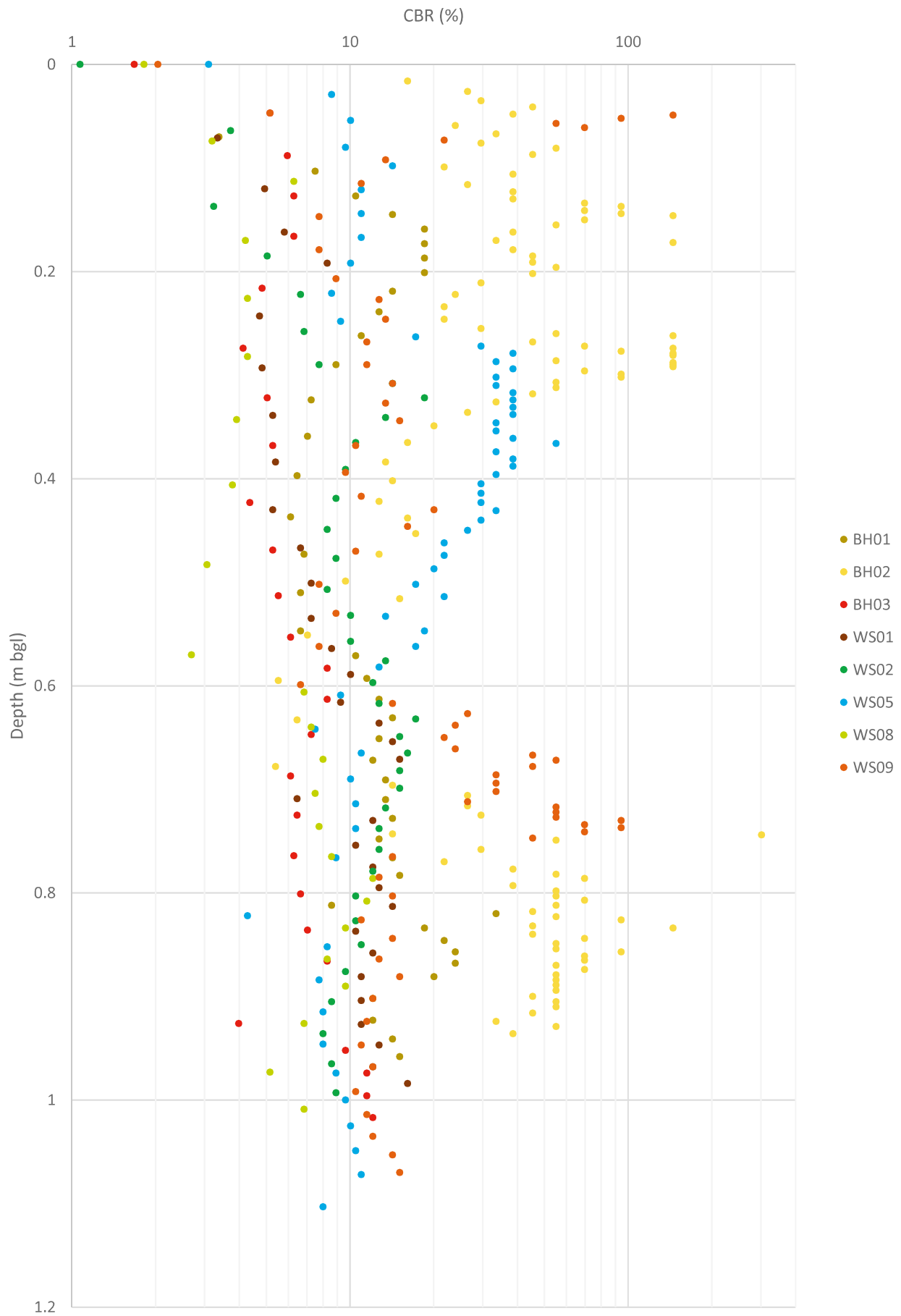
WS08



WS09



DCP Calculated CBR Values vs. Depth



Factual Report on Geo-environmental Phase 2 Site Investigation
Castlebrook High School

Hand Vane Results

Location ID	Test depth (m)	Strength from Test 1 (kPa)	Strength from Test 2 (kPa)	Strength from Test 3 (kPa)	Average Strength (kPa)
BH01	1.65	65	60	60	61.7
BH01	7.45	80	90	80	83.3
BH01	8.95	90	90	80	87.6
BH02	2.45	40	30	60	43.3
BH02	5.45	40	40	30	36.7
BH02	8.45	120	160	150	143.3
BH03	2.45	60	40	40	46.7
BH04	2.45	100	80	100	93.3
BH04	10.45	90	100	100	96.7
BH05	2.45	60	40	40	46.7
BH05	6.45	100	90	80	90.0
BH05	8.45	90	120	130	113.3
BH05	10.45	130	110	80	106.7

APPENDIX E

CERTIFICATION OF FIELD APPARATUS

Testconsult Ltd
Ruby House
40a, Hardwick Grange
Woolston
Warrington
WA1 4RF

SPT Hammer Ref: PBWS03
Test Date: 12/12/2015
Report Date: 21/12/2015
File Name: PBWS03.spt
Test Operator: BW



Instrumented Rod Data

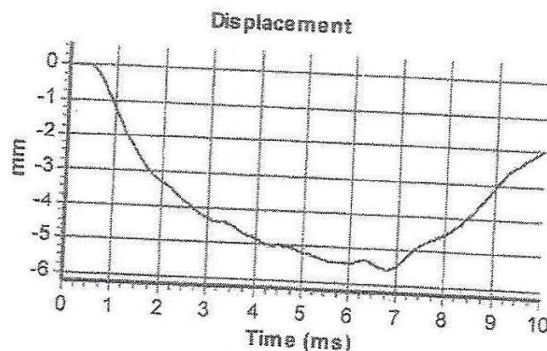
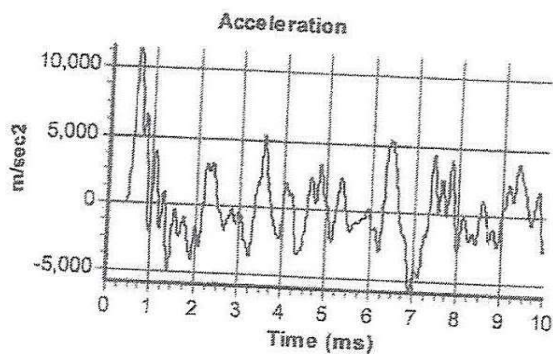
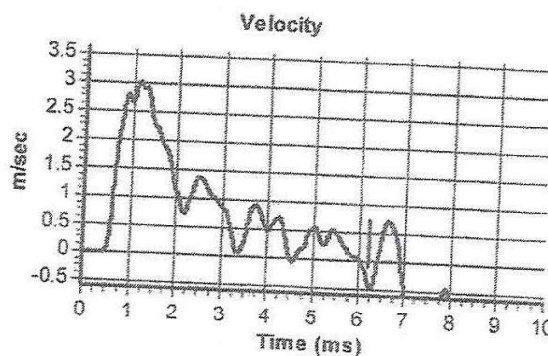
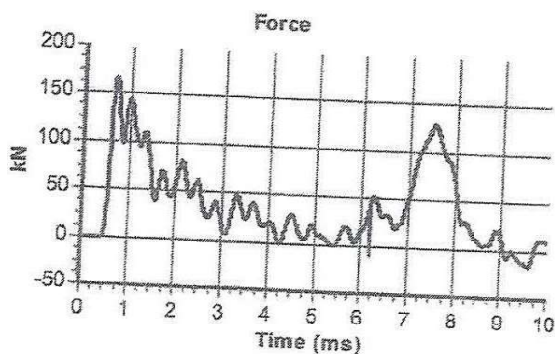
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 7.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 8965
Accelerometer No.2: 8966

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

Client: Paul Blackledge Drilling
Location: Warrington Laboratory
Type: Window Sampler



Calculations

Area of Rod A (mm^2): 1034
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 423

Energy Ratio E_r (%): **89**

The recommended calibration interval is 12 months



Testconsult Ltd
Ruby House
40a, Hardwick Grange
Woolston
Warrington
WA1 4RF

SPT Hammer Ref: PBWS01
Test Date: 12/12/2015
Report Date: 21/12/2015
File Name: PBWS1.spt
Test Operator: BW



Instrumented Rod Data

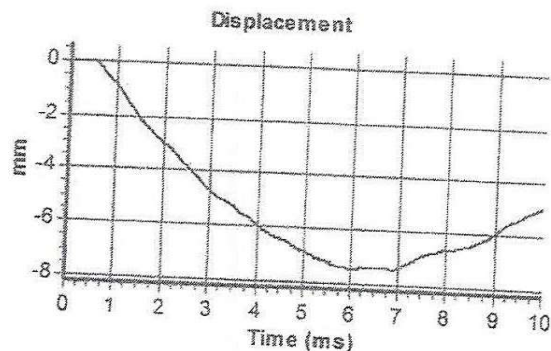
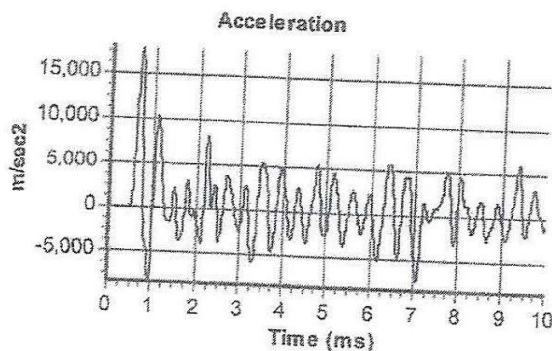
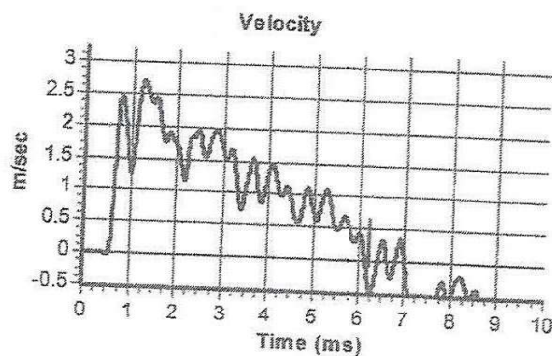
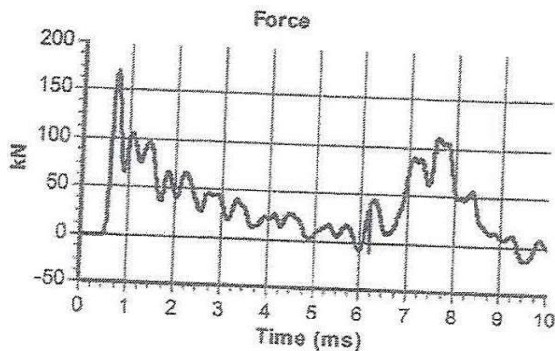
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 7.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 8965
Accelerometer No.2: 8966

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

Client: Paul Blackledge Drilling
Location: Warrington Laboratory
Type: Window Sampler



Calculations

Area of Rod A (mm^2): 1034
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 391

Energy Ratio E_r (%): **83**

The recommended calibration interval is 12 months

Signed: Oliver Turpin
Title: Senior Technician



Testconsult Ltd
Ruby House
40a, Hardwick Grange
Woolston
Warrington
WA1 4RF

SPT Hammer Ref: PB11 (Scott S)
Test Date: 12/12/2015
Report Date: 21/12/2015
File Name: PB11.spt
Test Operator: BW



Instrumented Rod Data

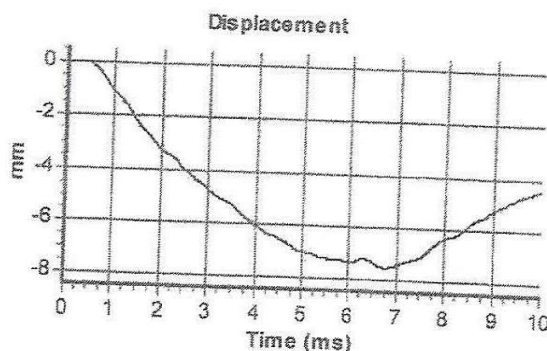
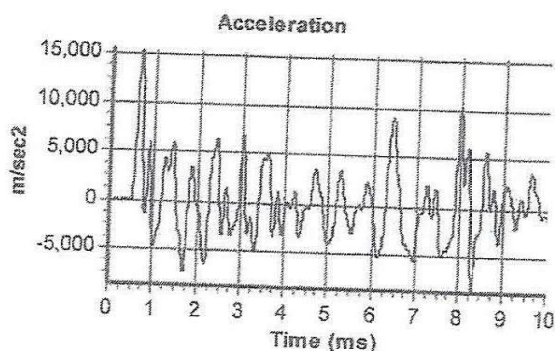
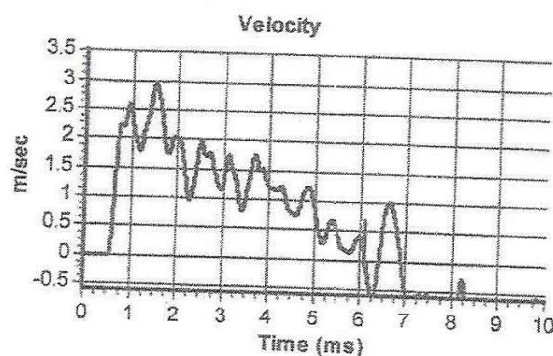
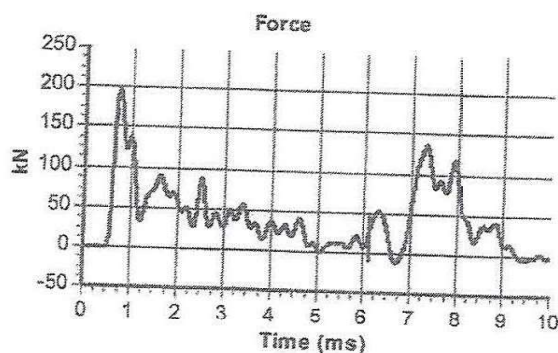
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 7.0
Assumed Modulus E_a (GPa): 208
Accelerometer No.1: 8965
Accelerometer No.2: 8966

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 14.5

Comments / Location

Client: Paul Blackledge Drilling
Location: Warrington Laboratory
Type: Trip Hammer



Calculations

Area of Rod A (mm^2): 1034
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 422

Energy Ratio E_r (%): 89

The recommended calibration interval is 12 months

Signed: 
Title: Senior Technician

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

ARCHWAY ENGINEERING (UK) LTD
AINLEYS INDUSTRIAL ESTATE
ELLAND
WEST YORKSHIRE
HX5 9JP

SPT Hammer Ref: AR490
Test Date: 05/01/2016
Report Date: 05/01/2016
File Name: AR490.spt
Test Operator: SH

Instrumented Rod Data

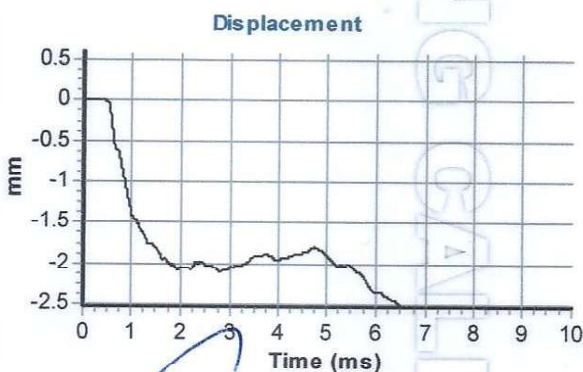
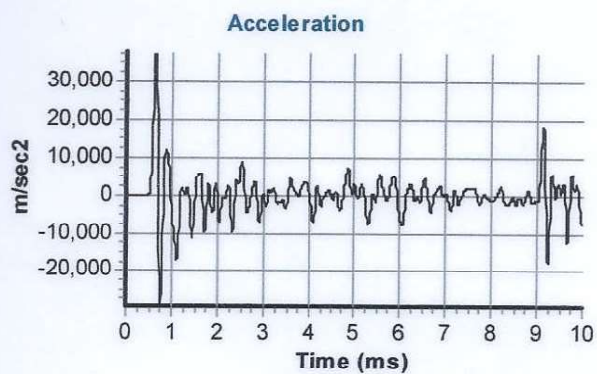
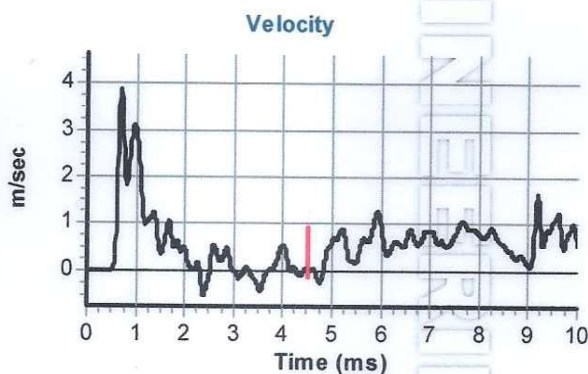
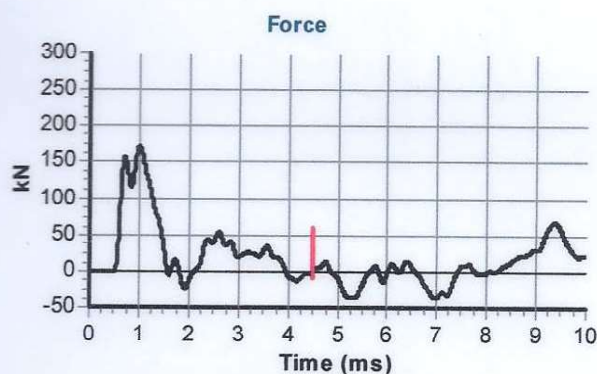
Diameter d_r (mm): 54
Wall Thickness t_r (mm): 6.1
Assumed Modulus E_a (GPa): 200
Accelerometer No.1: 7079
Accelerometer No.2: 7080

SPT Hammer Information

Hammer Mass m (kg): 63.5
Falling Height h (mm): 760
SPT String Length L (m): 10.0

Comments / Location

CALIBRATION



Calculations

Area of Rod A (mm²): 918
Theoretical Energy E_{theor} (J): 473
Measured Energy E_{meas} (J): 293

Energy Ratio E_r (%): **62**

Signed: S. HOWARTH
Title: FITTER

The recommended calibration interval is 12 months

APPENDIX F

GEOTECHNICAL LABORATORY TEST RESULTS



Laboratory Report



GEO Site & Testing Services Ltd

Contract Number: 31699

Client's Reference: **34529110**

Report Date: **05-09-2016**

Client **Arcadis**
Fortran Rd
St Mellons
Cardiff
CF3 0EY

Contract Title: **Castlebrook**
For the attention of: **Jonathan Harris**

Date Received: **11-07-2016**
Date Commenced: **11-07-2016**
Date Completed: **05-09-2016**

Test Description	Qty
Moisture Content 1377 : 1990 Part 2 : 3.2 - * UKAS	66
4 Point Liquid & Plastic Limit (LL/PL) 1377 : 1990 Part 2 : 4.3 & 5.3 - * UKAS	66
PSD Wet Sieve method 1377 : 1990 Part 2 : 9.2 - * UKAS	19
PSD: Sedimentation by pipette carried out with Wet Sieve 1377 : 1990 Part 2 : 9.4 - * UKAS	19
PSD: Sedimentation by pipette carried out separately 1377 : 1990 Part 2 : 9.4 - * UKAS	1
Dry Den/MC (2.5kg Rammer Method 1 Litre Mould) 1377 : 1990 Part 4 : 3.3 - * UKAS	5
CBR Remoulded BS1377 Part 4 - * UKAS	4

Notes: Observations and Interpretations are outside the UKAS Accreditation
* - denotes test included in laboratory scope of accreditation
- denotes test carried out by approved contractor
@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:

Alex Wynn (Associate Director) - Benjamin Sharp (Contracts Manager) - Emma Sharp (Office Manager)
Paul Evans (Quality/Technical Manager) - Vaughan Edwards (Managing Director)



Laboratory Report



GEO Site & Testing Services Ltd

Contract Number: 31699

Test Description	Qty
One-dimensional Consolidation 75mm or 50mm diameter specimens (5 days) 1377 : 1990 Part 5 : 3 - * UKAS	4
Quick Undrained Triaxial Compression test - single specimen at one confining pressure (100mm or 38mm diameter) 1377 : 1990 Part 7 : 8 - * UKAS	10
Quick Undrained Triaxial Compression Test - Multi-stage Loading of a single specimen (100mm diameter) 1377 : 1990 Part 7 : 9 - * UKAS	3
Quick undrained Shear Box 60mm Suitable sands only - @ Non Accredited Test	1
Disposal of Samples on Project	1

Notes: Observations and Interpretations are outside the UKAS Accreditation

* - denotes test included in laboratory scope of accreditation

- denotes test carried out by approved contractor

@ - denotes non accredited tests

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved Signatories:

Alex Wynn (Associate Director) - Benjamin Sharp (Contracts Manager) - Emma Sharp (Office Manager)

Paul Evans (Quality/Technical Manager) - Vaughan Edwards (Managing Director)

GEO Site & Testing Services Ltd

Unit 3-4, Heol Aur, Dafen Ind Estate, Dafen, Llanelli, Carmarthenshire SA14 8QN

Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 5.9.16

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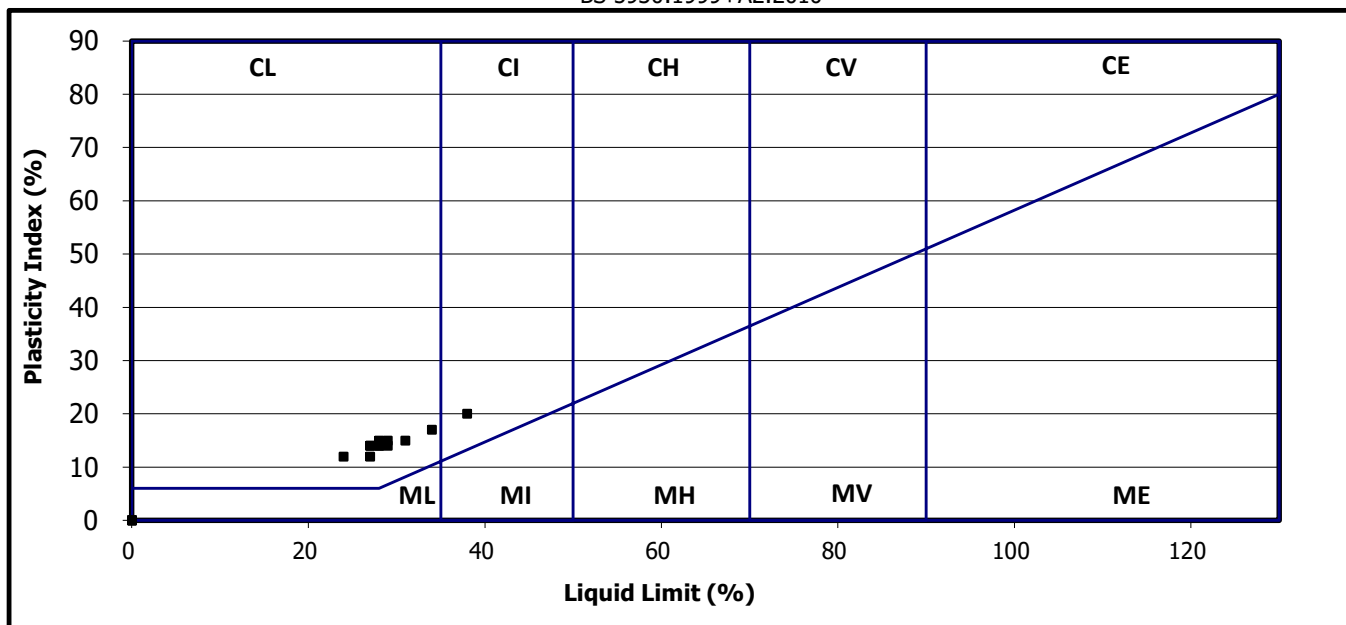
**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH05/1	D	1.20 - 1.65	18	34	17	17	100	CL Low Plasticity
BH05/4	U	2.00 - 2.45	15	28	14	14	100	CL Low Plasticity
BH05/5	D	3.00 - 3.45	15	27	13	14	100	CL Low Plasticity
BH05/6	B	3.50 - 3.75	17	29	14	15	88	CL Low Plasticity
BH05/7	D	4.00 - 4.45	15	27	15	12	90	CL Low Plasticity
BH05/8	B	4.50 - 5.00	20	29	15	14	100	CL Low Plasticity
BH05/9	D	5.00 - 5.45	19	38	18	20	100	CI Intermediate Plasticity
BH05/10	B	5.50 - 6.00	23	27	13	14	98	CL Low Plasticity
BH05/12	U	6.00 - 6.45	22	28	14	14	100	CL Low Plasticity
BH05/16	U	8.00 - 8.45	18	31	16	15	100	CL Low Plasticity
BH05/18	B	8.50 - 9.00	16	24	12	12	100	CL Low Plasticity
BH05/21	U	10.00 - 10.45	16	28	13	15	100	CL Low Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

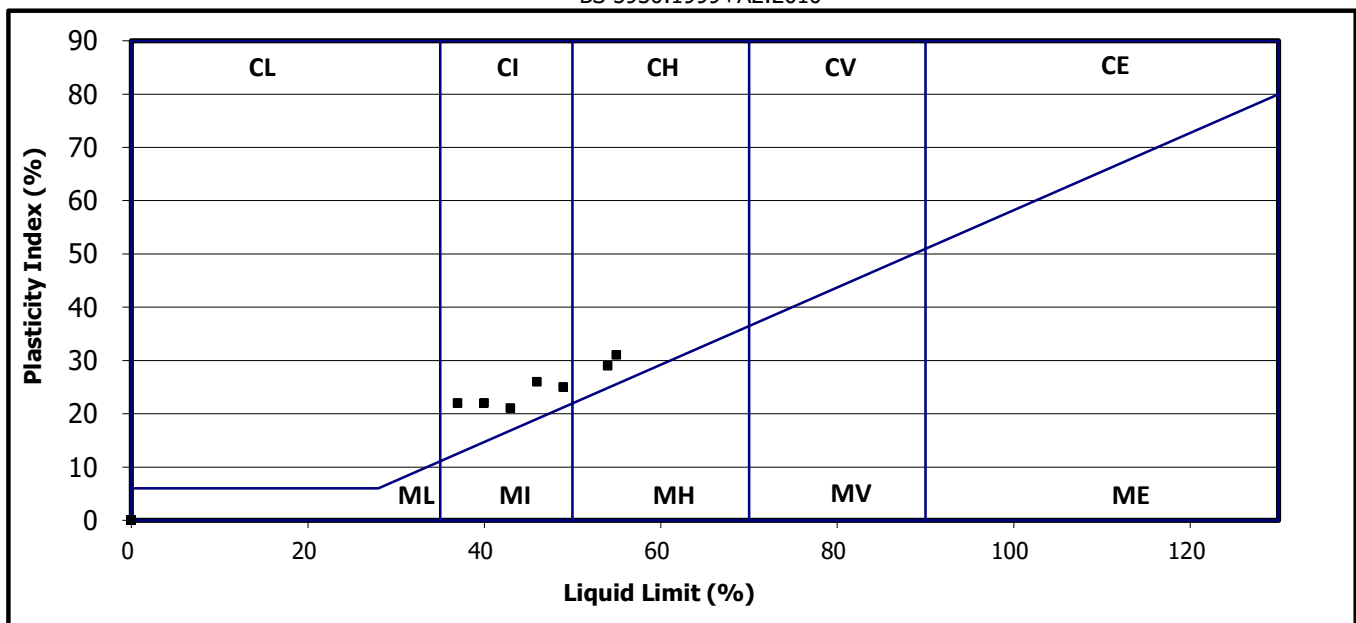


**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH01/1	D	0.80	23	54	25	29	90	CH High Plasticity
BH01/2	U	1.20 - 1.65	20					
BH01/5	B	1.90 - 2.50	17	37	15	22	100	CI Intermediate Plasticity
BH01/8	B	3.50 - 5.00	19	43	22	21	98	CI Intermediate Plasticity
BH01/11	B	5.00 - 5.90	18	46	20	26	100	CI Intermediate Plasticity
BH01/13	U	7.00 - 7.45	14	40	18	22	100	CI Intermediate Plasticity
BH01/16	U	8.50 - 8.95	28	55	24	31	100	CH High Plasticity
BH01/19	D	10.00 - 10.45	22	49	24	25	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.
BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

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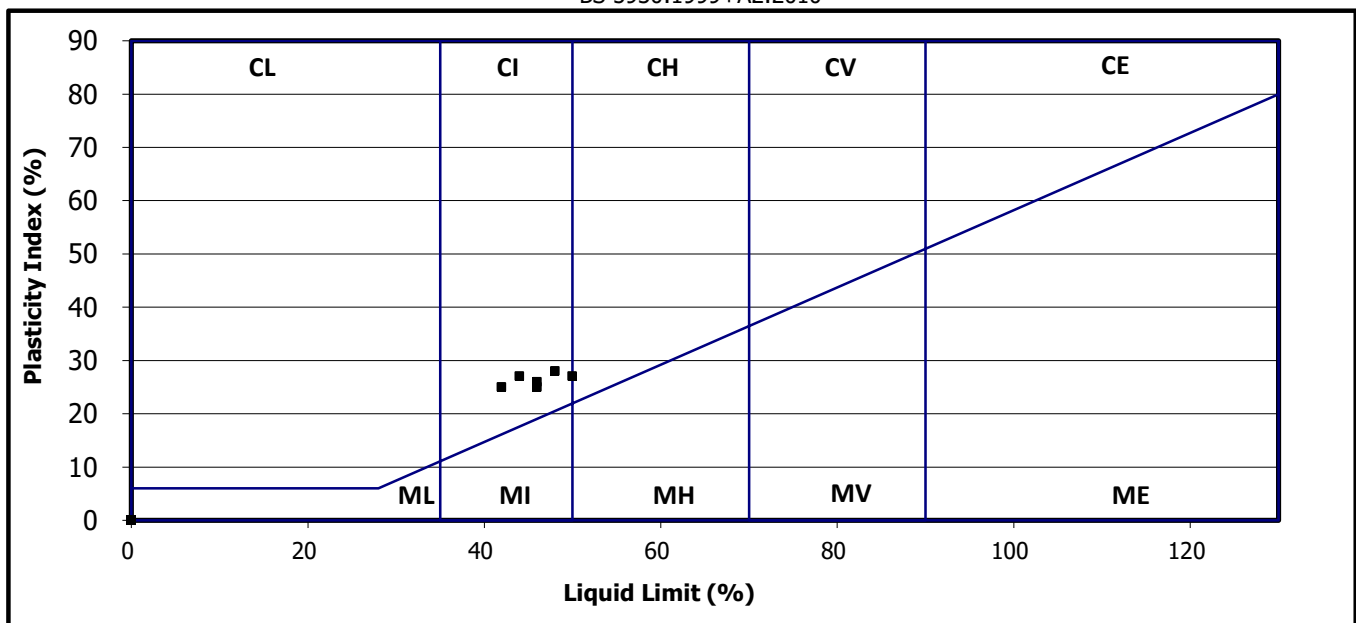
**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH02/3	U	2.00 - 2.45	20	50	23	27	97	CI/H Inter/High Plasticity
BH02/6	B	2.90 - 3.45	23	46	21	25	100	CI Intermediate Plasticity
BH02/9	D	4.80 - 5.00	18	44	17	27	100	CI Intermediate Plasticity
BH02/10	U	5.00 - 5.45	19	42	17	25	98	CI Intermediate Plasticity
BH02/15	U	8.00 - 8.45	16	46	20	26	88	CI Intermediate Plasticity
BH02/18	D	9.50 - 9.95	17	48	20	28	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

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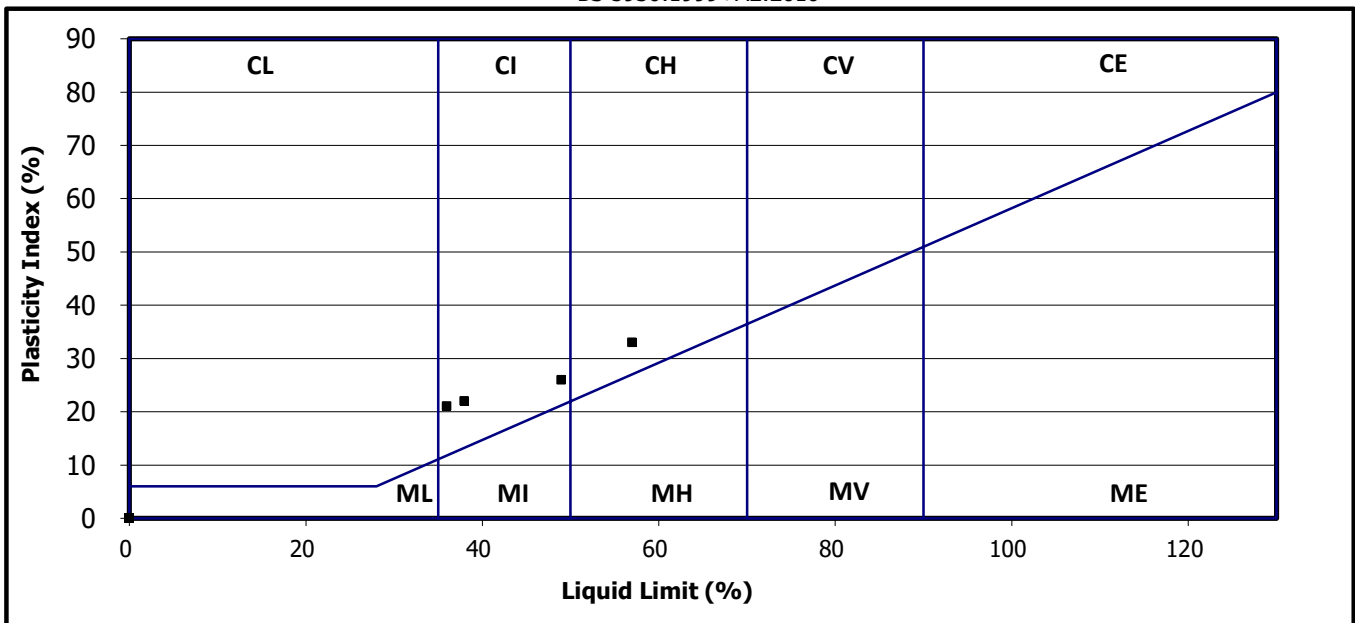


**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH03/1	D	1.20 - 1.65	28	57	24	33	100	CH High Plasticity
BH03/3	U	2.00 - 2.45	26	49	23	26	100	CI Intermediate Plasticity
BH03/13	B	7.30 - 8.00	18	38	16	22	90	CI Intermediate Plasticity
BH03/18	U	10.00 - 10.45	8.3	36	15	21	80	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.
BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

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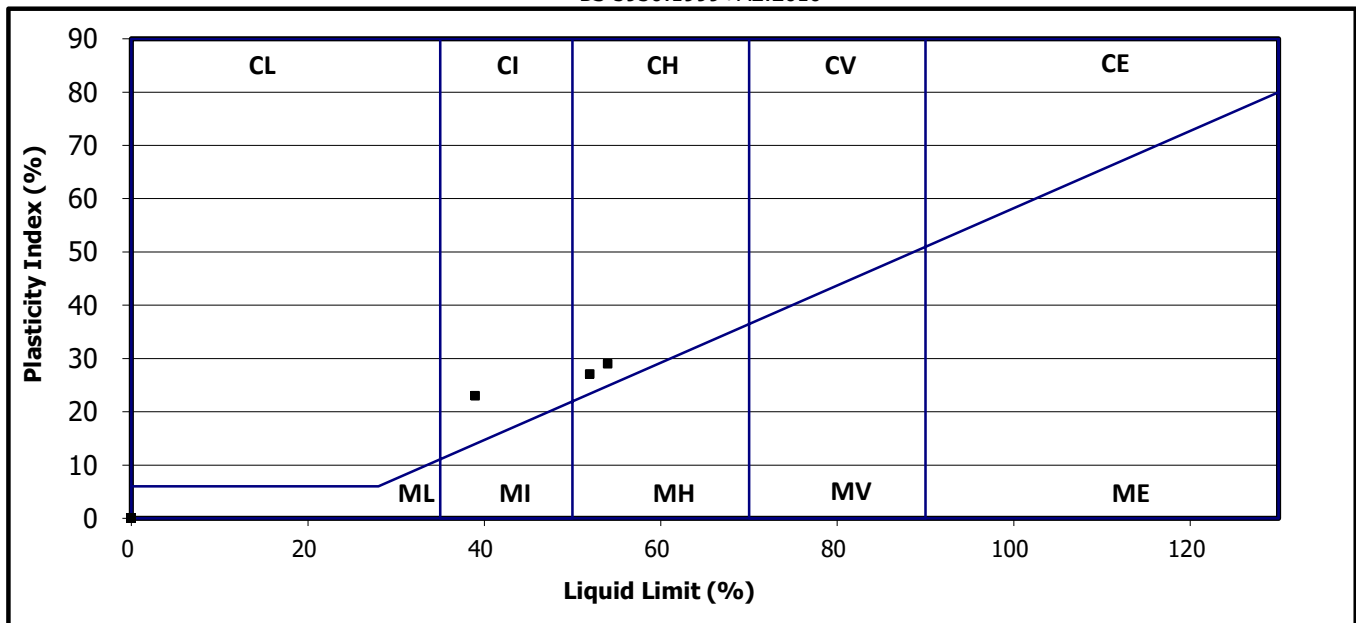


**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
BH04/1	D	1.20 - 1.65	22	52	25	27	100	CH High Plasticity
BH04/15	D	8.50 - 9.20	18	39	16	23	76	CI Intermediate Plasticity
BH04/19	U	10.00 - 10.45	29	54	25	29	100	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.
BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

[Signature]



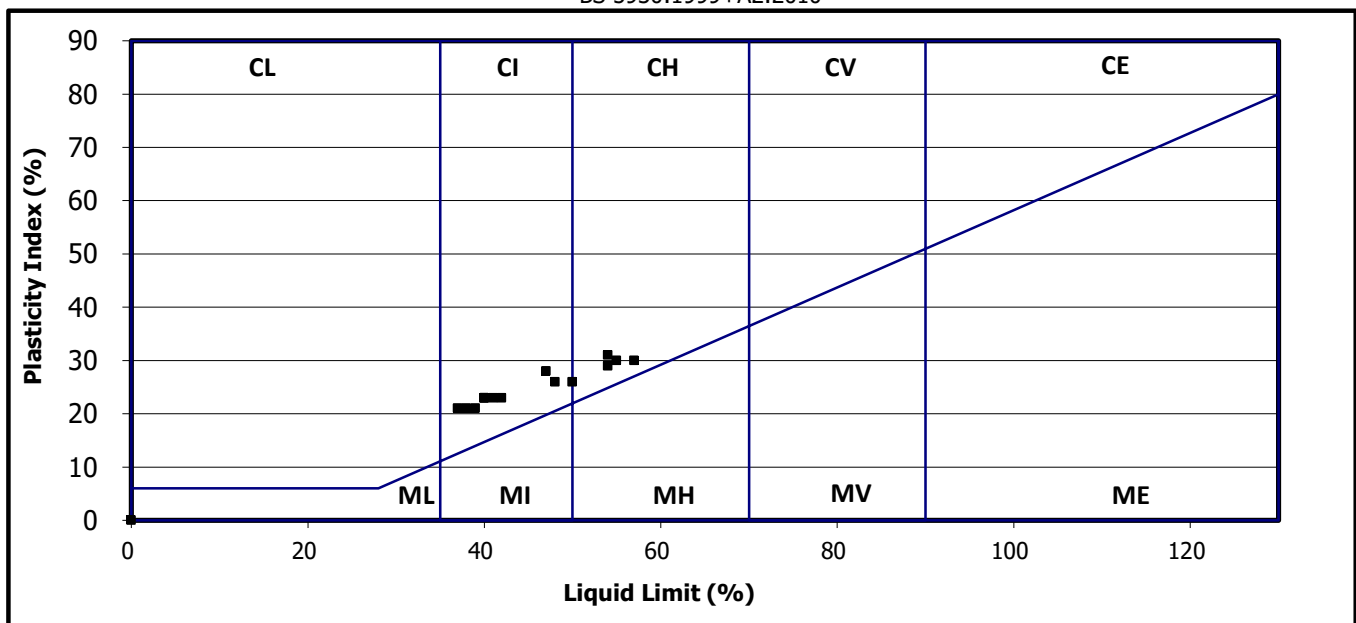
**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
WS01/4	D	1.90 - 2.70	24	47	19	28	100	CI Intermediate Plasticity
WS02/1	D	0.50 - 0.80	12	37	16	21	90	CI Intermediate Plasticity
WS02/3	U	1.20 - 2.00	16	41	18	23	90	CI Intermediate Plasticity
WS02/5	D	2.50 - 2.70	21	50	24	26	95	CI/H Inter/High Plasticity
WS03/1	D	0.50 - 1.00	13	38	17	21	100	CI Intermediate Plasticity
WS03/3	B	1.20 - 2.00	20	40	17	23	92	CI Intermediate Plasticity
WS04/1	B	0.80 - 1.00	22	54	25	29	100	CH High Plasticity
WS04/3	D	1.20 - 2.00	19	40	17	23	76	CI Intermediate Plasticity
WS04/6	B	3.00 - 3.45	15	39	18	21	100	CI Intermediate Plasticity
WS04/9	B	4.00 - 5.00	20	40	17	23	100	CI Intermediate Plasticity
WS05/1	D	1.20 - 1.65	23	55	25	30	100	CH High Plasticity
WS05/3	D	1.70 - 2.00	20		NP		82	
WS05/5	D	2.00 - 2.50	21	42	19	23	100	CI Intermediate Plasticity
WS06/1	D	0.70	30	57	27	30	100	CH High Plasticity
WS06/2	D	1.20 - 1.65	26	54	23	31	96	CH High Plasticity
WS06/4	D	2.00 - 2.45	24	48	22	26	100	CI Intermediate Plasticity
WS06/7	B	3.00 - 4.00	16	42	19	23	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 13.10.16

[Handwritten signature]



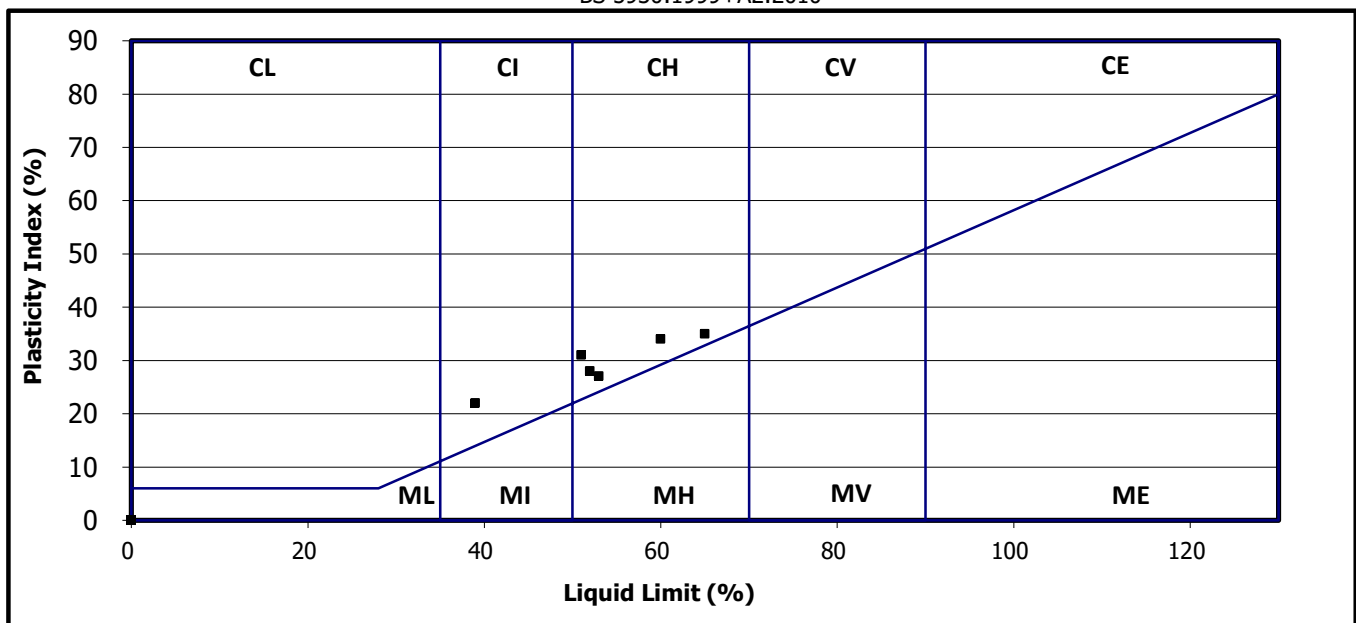
**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
WS07/1	D	1.20 - 1.65	26	52	24	28	100	CH High Plasticity
WS07/4	D	1.90 - 2.60	27	65	30	35	100	CH High Plasticity
WS08/1	D	0.50 - 0.70	32	60	26	34	100	CH High Plasticity
WS08/3	B	1.20 - 2.00	24	51	20	31	100	CH High Plasticity
WS08/6	D	2.00 - 3.00	32	53	26	27	100	CH High Plasticity
WS08/8	D	3.00 - 4.00	14	39	17	22	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

[illegible]

Note: Results on this table are in summary format and may not meet the requirements of the relevant standards, additional information is held by the laboratory



For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 5.9.16



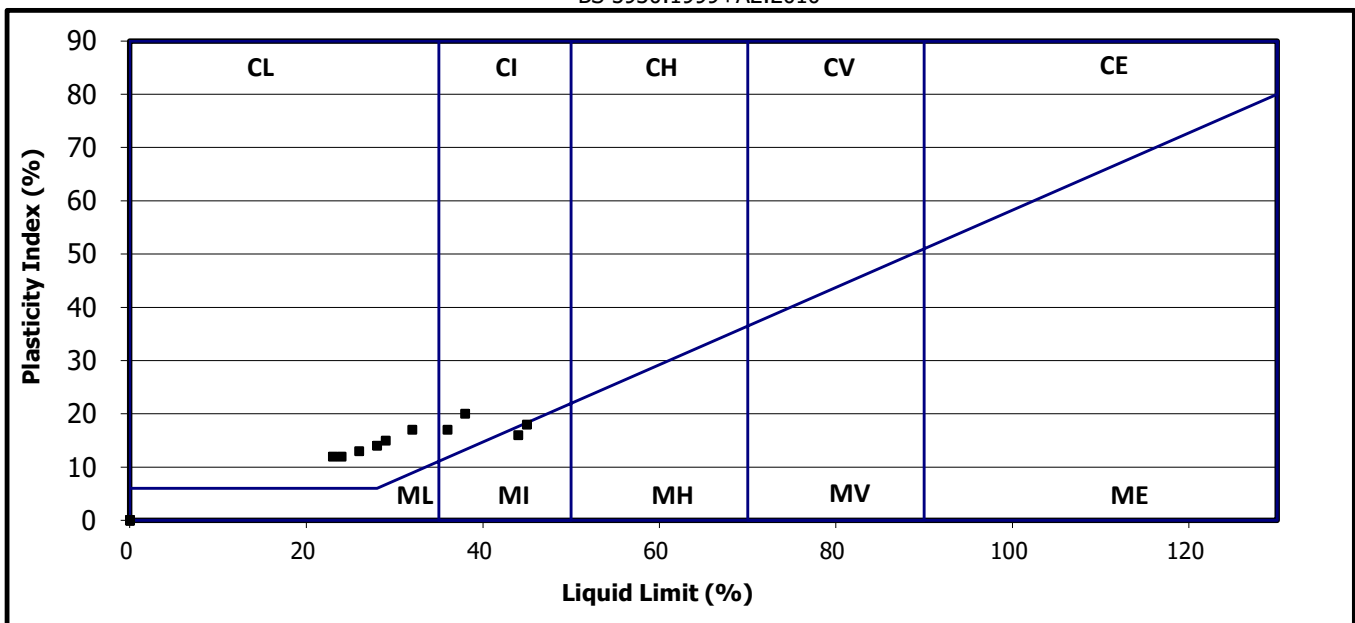
**Test Report: Method of the Determination of the plastic limit and plasticity index
BS 1377 : Part 2 : 1990 Method 5**

Client ref: 34529100
Location: Castlebrook
Contract Number: 31699

Hole/ Sample Number	Sample Type	Depth m	Moisture Content % Cl. 3.2	Liquid Limit % Cl. 4.3/4.4	Plastic Limit % Cl. 5.	Plasticity Index % Cl. 6.	% Passing .425mm	Remarks
WS09	D	0.00 - 1.20	15	32	15	17	80	CL Low Plasticity
WS09	B	1.20 - 3.40	16	23	11	12	100	CL Low Plasticity
WS10	B	0.30 - 1.30	14	28	14	14	95	CL Low Plasticity
WS10	D	1.30 - 3.00	14	29	14	15	98	CL Low Plasticity
WS10	D	2.40 - 2.50	16	26	13	13	90	CL Low Plasticity
WS10	D	3.50 - 4.00	21	38	18	20	100	CI Intermediate Plasticity
WS11	D	0.00 - 0.65	26	44	28	16	84	MI Intermediate Plasticity
WS11	D	1.25 - 1.30	13	24	12	12	80	CL Low Plasticity
WS11	D	1.60 - 3.40	32	45	27	18	100	MI Intermediate Plasticity
WS11	D	3.85 - 4.00	24	36	19	17	100	CI Intermediate Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved
PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

BS 5930:1999+A2:2010



Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

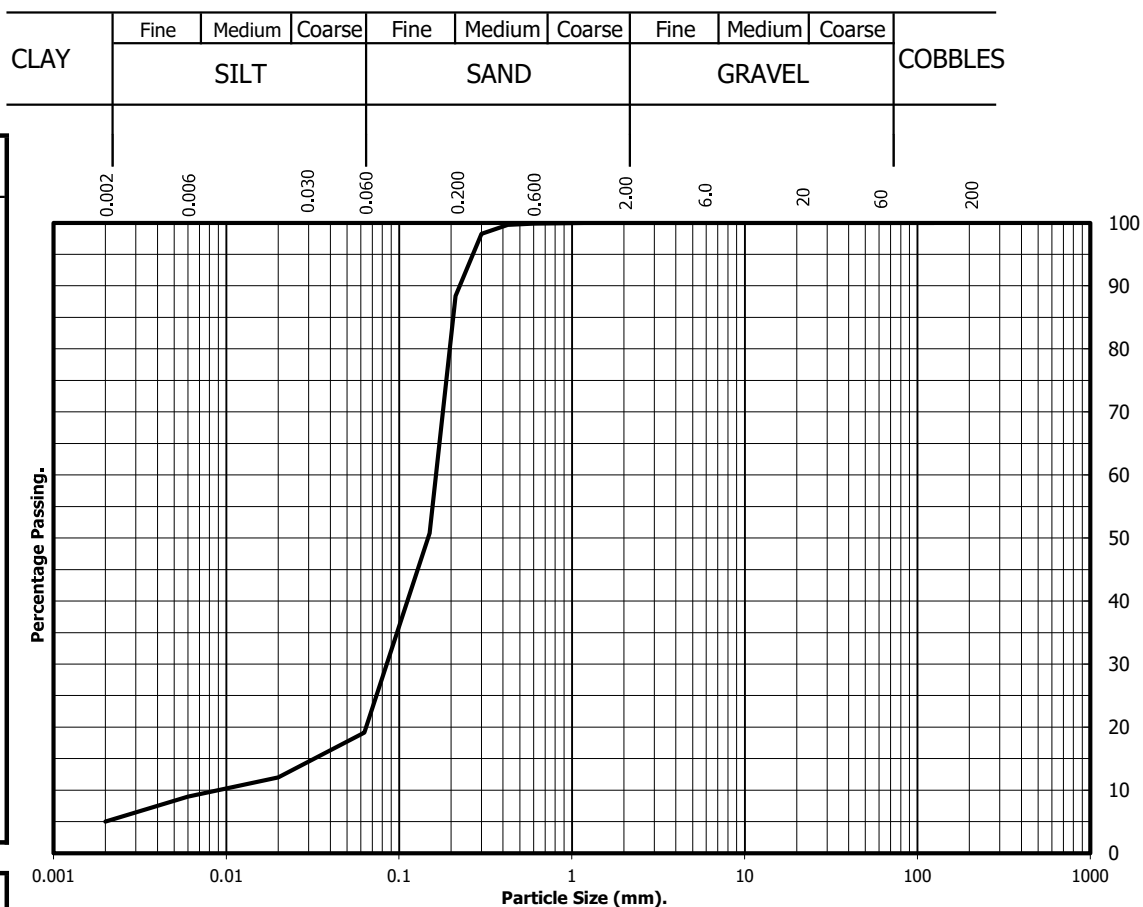
Client ref: 34529110
Contract Number: 31699
Hole Number: BH01

Sample Number: 7
Depth from (m): 2.50
Depth to (m): 3.00
Sample Type: B

Location: Castlebrook
Description: Brown slightly clayey silty fine to medium SAND.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	100
0.300	98
0.212	88
0.150	51
0.063	19

Particle Diameter	% Passing
0.02	12
0.006	9
0.002	5



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
5	14	81	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

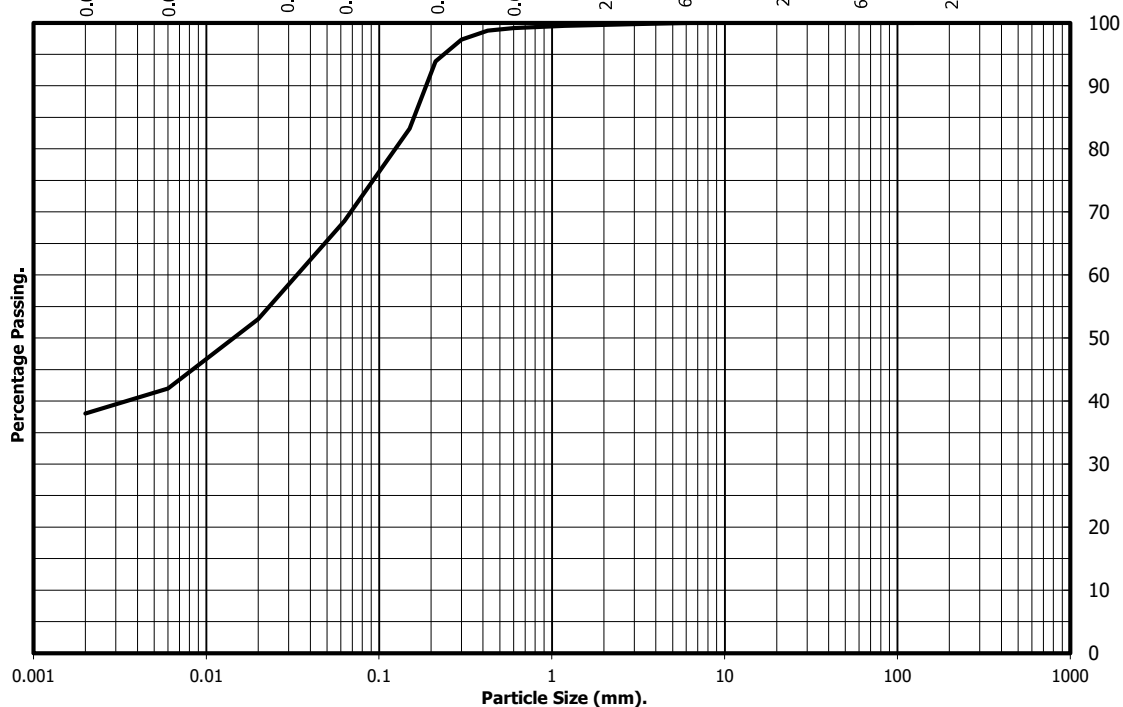
Client ref: **34529110**
 Contract Number: **31699**
 Hole Number: **BH02**

Sample Number: **12**
 Depth from (m): **5.50**
 Depth to (m): **6.50**
 Sample Type: **B**

Location: **Castlebrook**
 Description: **Brown fine to coarse sandy silty CLAY.**

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	99
0.425	99
0.300	97
0.212	94
0.150	83
0.063	69



Particle Diameter	% Passing
0.02	53
0.006	42
0.002	38

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
38	31	31	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: **12.10.16**



Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

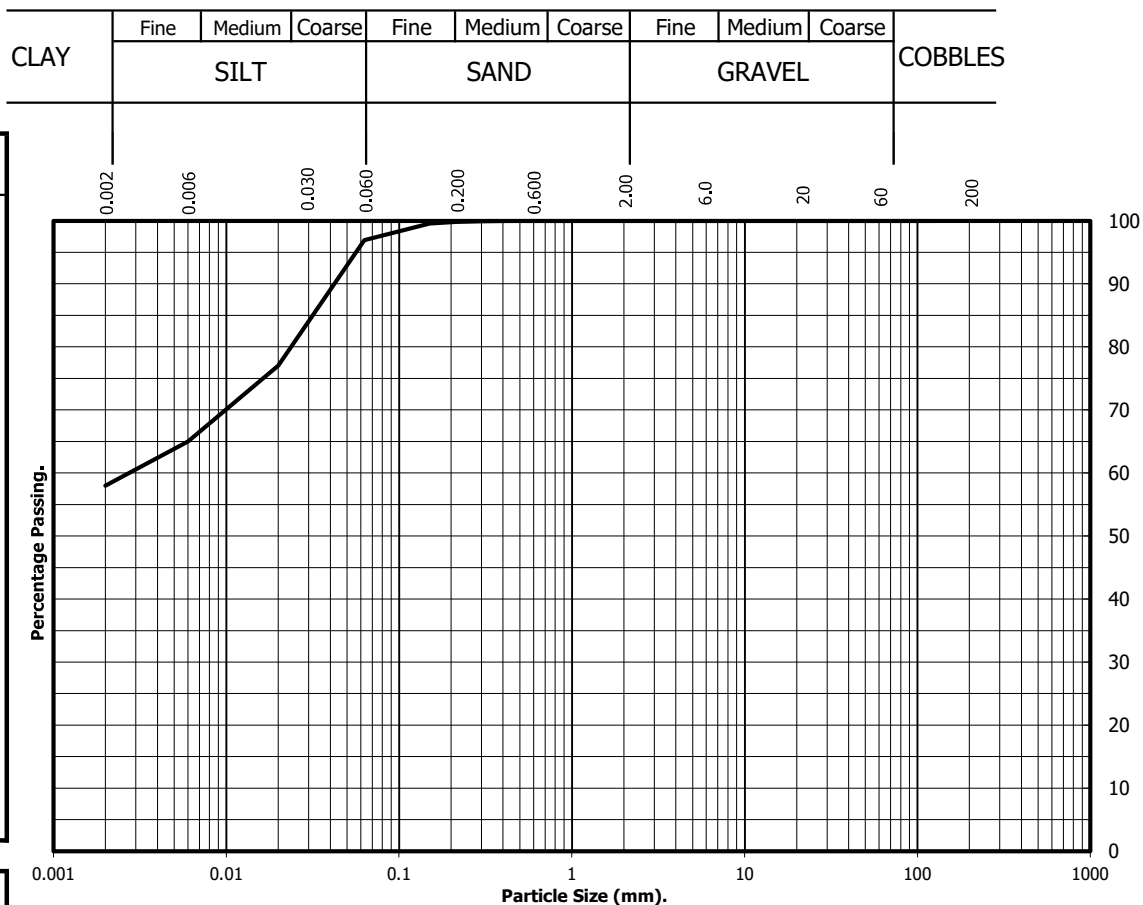
Client ref: 34529110
Contract Number: 31699
Hole Number: BH03

Sample Number: 6
Depth from (m): 3.00
Depth to (m): 4.00
Sample Type: B

Location: Castlebrook
Description: Brown slightly fine sandy silty CLAY.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	100
0.300	100
0.212	100
0.150	100
0.063	97

Particle Diameter	% Passing
0.02	77
0.006	65
0.002	58



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
58	39	3	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

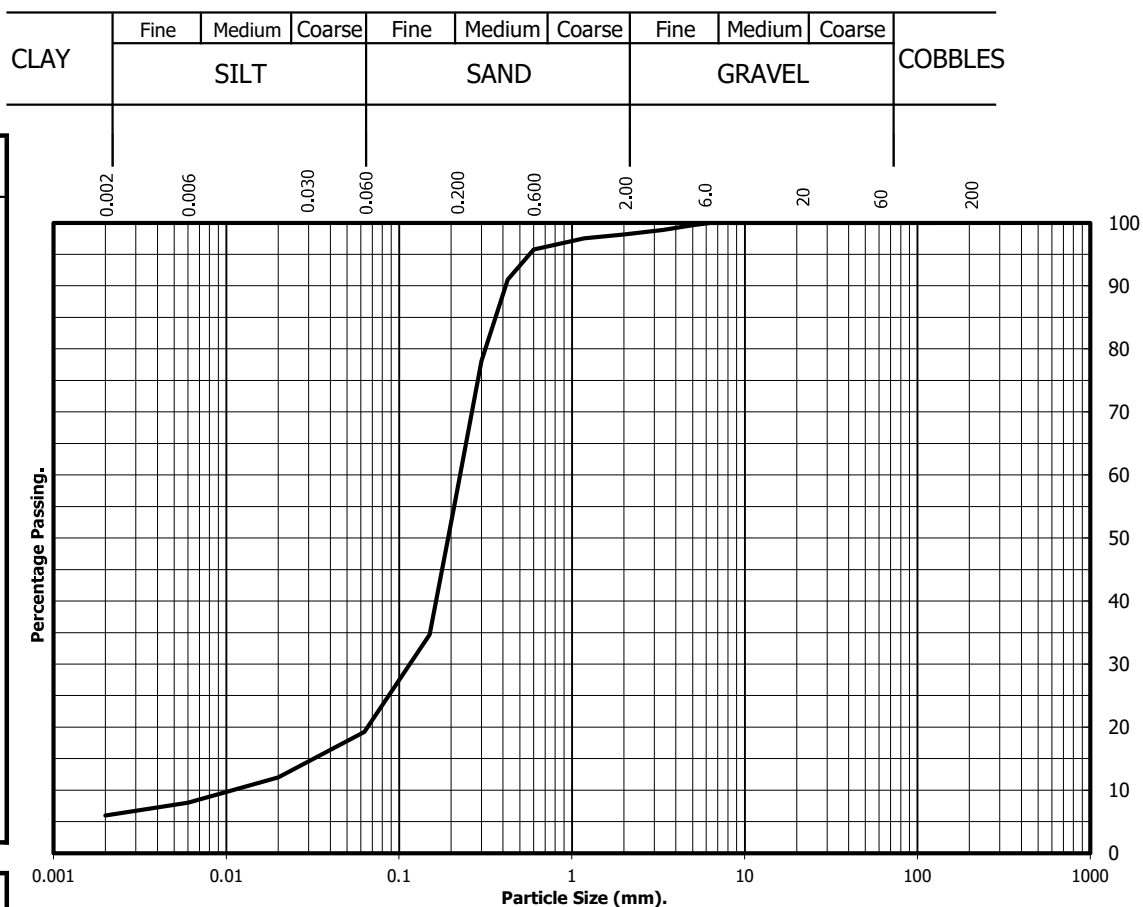
Client ref: 34529110
Contract Number: 31699
Hole Number: BH03

Sample Number: 8
Depth from (m): 4.00
Depth to (m): 5.00
Sample Type: B

Location: Castlebrook
Description: Brown slightly fine gravelly slightly clayey silty fine to coarse SAND.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	99
2.00	98
1.18	98
0.60	96
0.425	91
0.300	78
0.212	56
0.150	35
0.063	19

Particle Diameter	% Passing
0.02	12
0.006	8
0.002	6



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
6	13	79	2	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

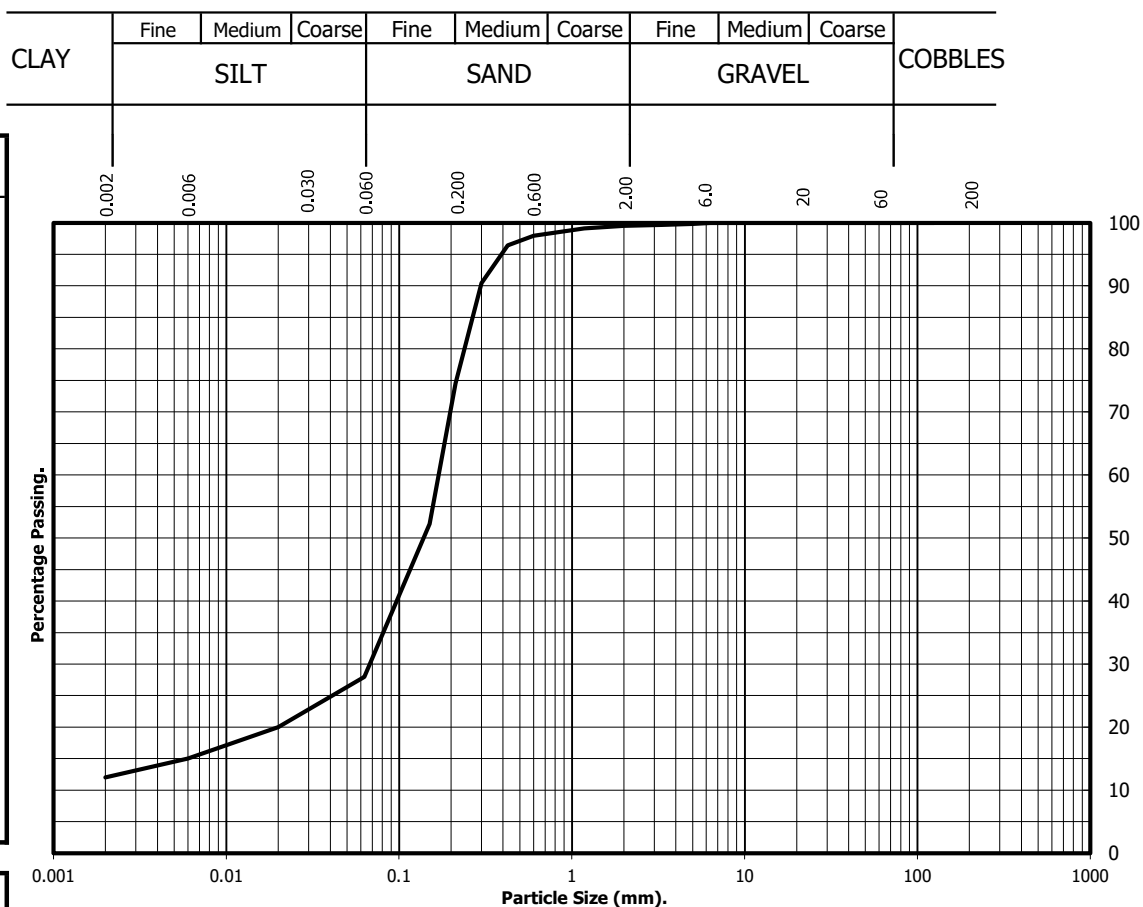
Client ref: 34529110
Contract Number: 31699
Hole Number: BH03

Sample Number: 11
Depth from (m): 5.50
Depth to (m): 7.00
Sample Type: D

Location: Castlebrook
Description: Brown clayey silty fine to coarse SAND.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	98
0.425	96
0.300	90
0.212	75
0.150	52
0.063	28

Particle Diameter	% Passing
0.02	20
0.006	15
0.002	12



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
12	16	72	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

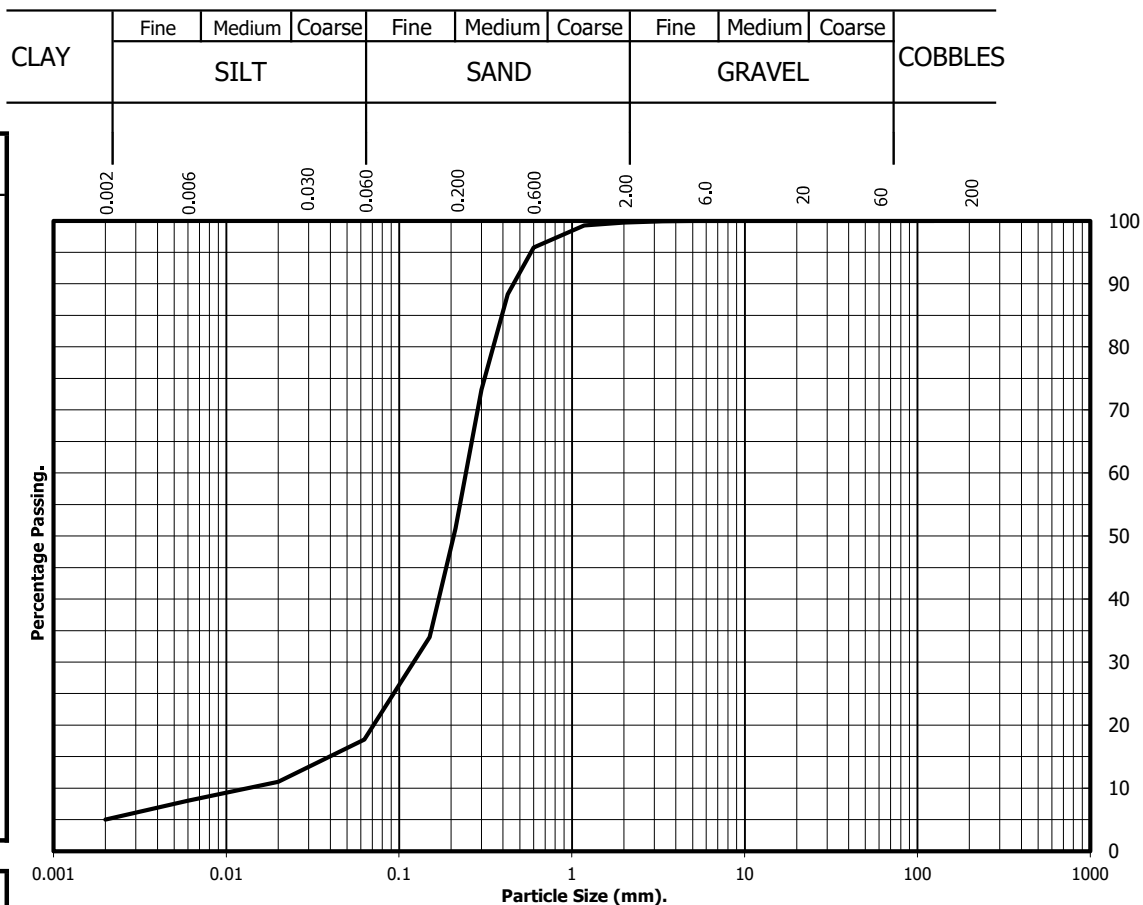
Client ref: 34529110
Contract Number: 31699
Hole Number: BH03

Sample Number: 15
Depth from (m): 8.50
Depth to (m): 9.00
Sample Type: D

Location: Castlebrook
Description: Brown slightly clayey silty fine to coarse SAND.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	96
0.425	88
0.300	73
0.212	51
0.150	34
0.063	18

Particle Diameter	% Passing
0.02	11
0.006	8
0.002	5



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
5	13	82	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 12.10.16

Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve, Clause 9.2

Client ref: 34529110
Contract Number: 31699
Hole Number: BH04

Sample Number: 7
Depth from (m): 3.00
Depth to (m): 4.00
Sample Type: B

Location: Castlebrook
Description: Brown clayey silty fine to coarse SAND.

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	97
0.425	92
0.300	77
0.212	54
0.150	28
0.063	10



Particle Diameter	% Passing
0.02	#
0.006	#
0.002	#

	Silt and Clay	Sand	Gravel	Cobbles	Soil Fraction
	10	90	0	0	Total Percentage

Remarks:

#- not determined

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

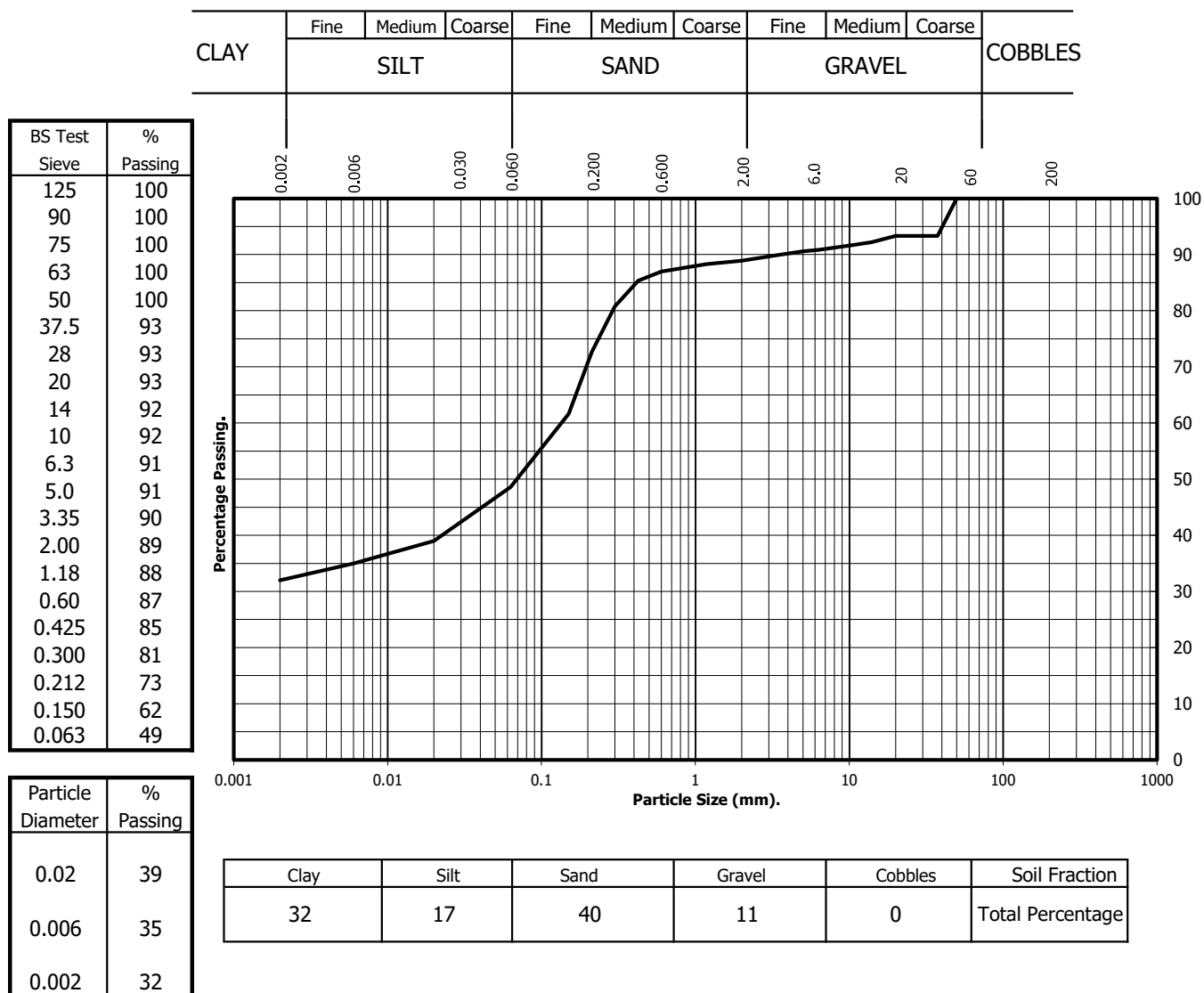
Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref: 34529110
Contract Number: 31699
Hole Number: BH04

Sample Number: 10
Depth from (m): 5.50
Depth to (m): 6.00
Sample Type: B

Location: Castlebrook
Description: Brown fine to coarse gravelly silty clayey fine to coarse SAND.


Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 12.10.16

Test Report:

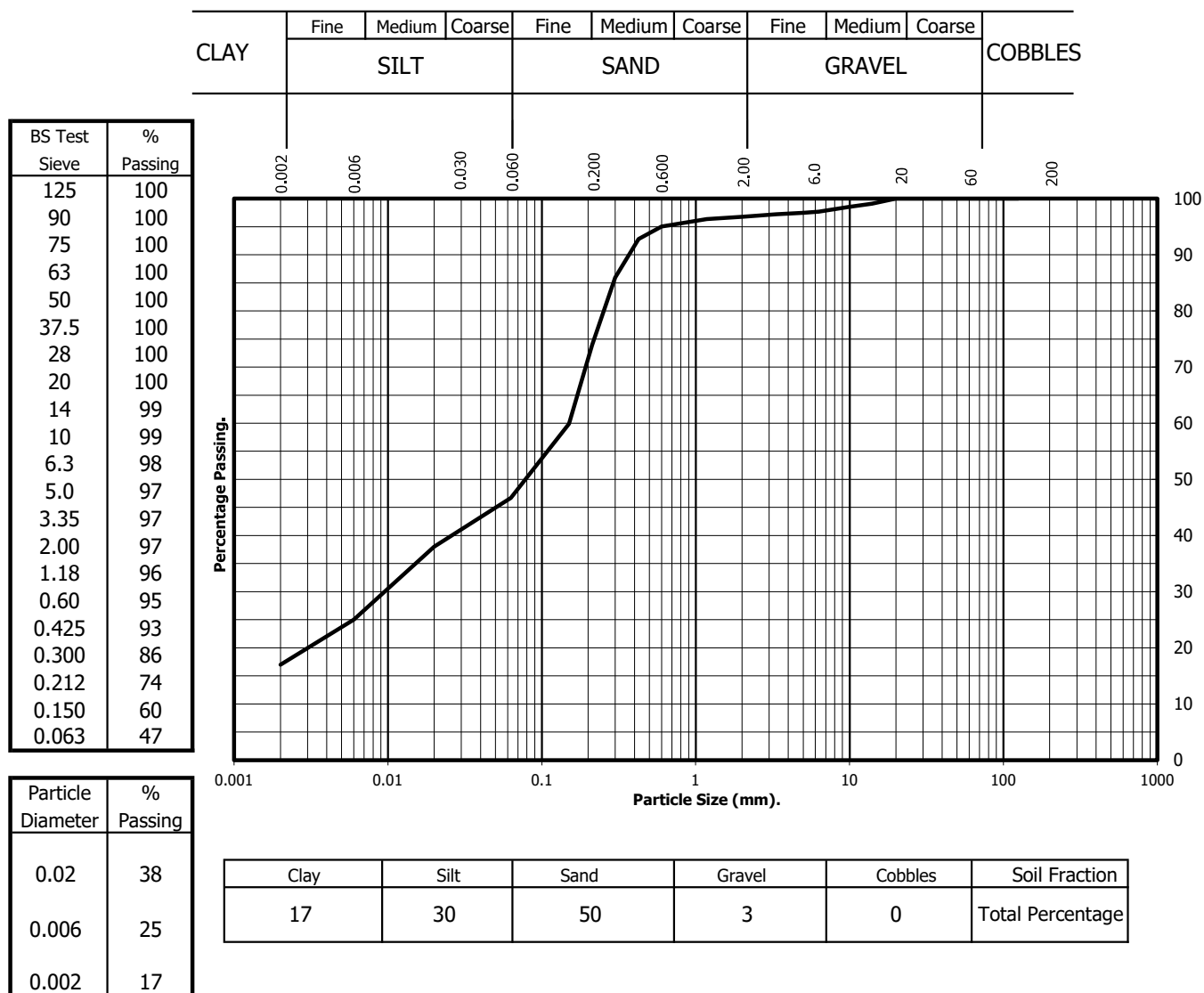
Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref: 34529100
Contract Number: 31699
Hole Number: BH05

Sample Number: 6
Depth from (m): 3.50
Depth to (m): 3.75
Sample Type: B

Location: Castlebrook
Description: Brown slightly fine to medium gravelly clayey silty fine to coarse SAND.


Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 5.9.16

GSTL
GEO SITE & TESTING SERVICES LTD



Test Report:

Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

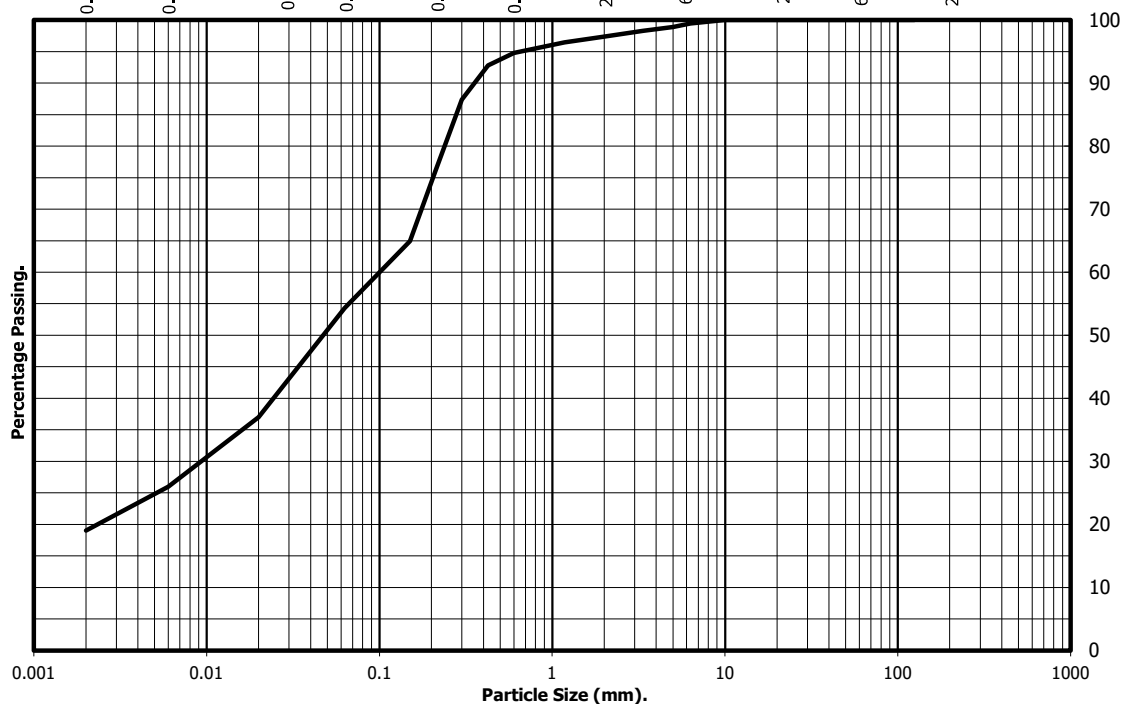
Client ref: 34529100
Contract Number: 31699
Hole Number: BH05

Sample Number: 7
Depth from (m): 4.00
Depth to (m): 4.45
Sample Type: D

Location: Castlebrook
Description: Brown slightly fine to medium gravelly clayey silty fine to coarse SAND.

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	99
5.0	99
3.35	98
2.00	97
1.18	96
0.60	95
0.425	93
0.300	87
0.212	76
0.150	65
0.063	54



Particle Diameter	% Passing
0.02	37
0.006	26
0.002	19

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
19	35	43	3	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 5.9.16



Test Report:

Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

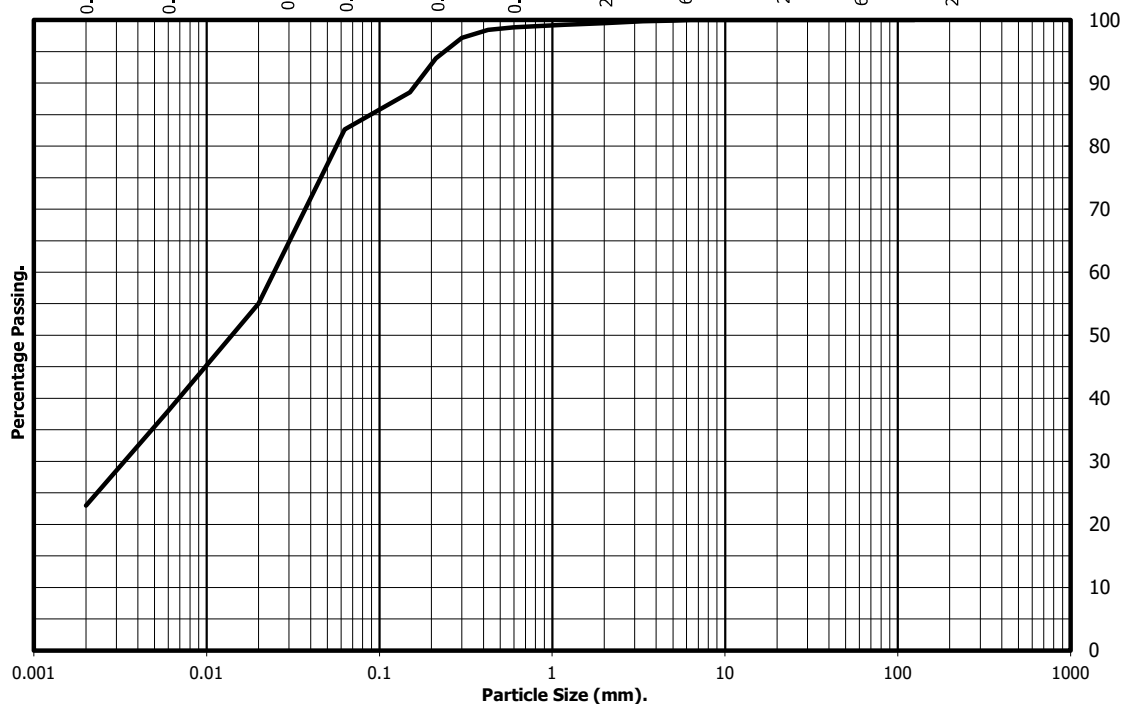
Client ref: 34529100
Contract Number: 31699
Hole Number: BH05

Sample Number: 10
Depth from (m): 5.50
Depth to (m): 6.00
Sample Type: B

Location: Castlebrook
Description: Brown fine to coarse sandy clayey SILT.

CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	COBBLES
	SILT			SAND			GRAVEL			

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	99
0.60	99
0.425	98
0.300	97
0.212	94
0.150	89
0.063	83



Particle Diameter	% Passing
0.02	55
0.006	38
0.002	23

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
23	60	17	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 5.9.16



Test Report:

Particle Size Distribution Test

BS 1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

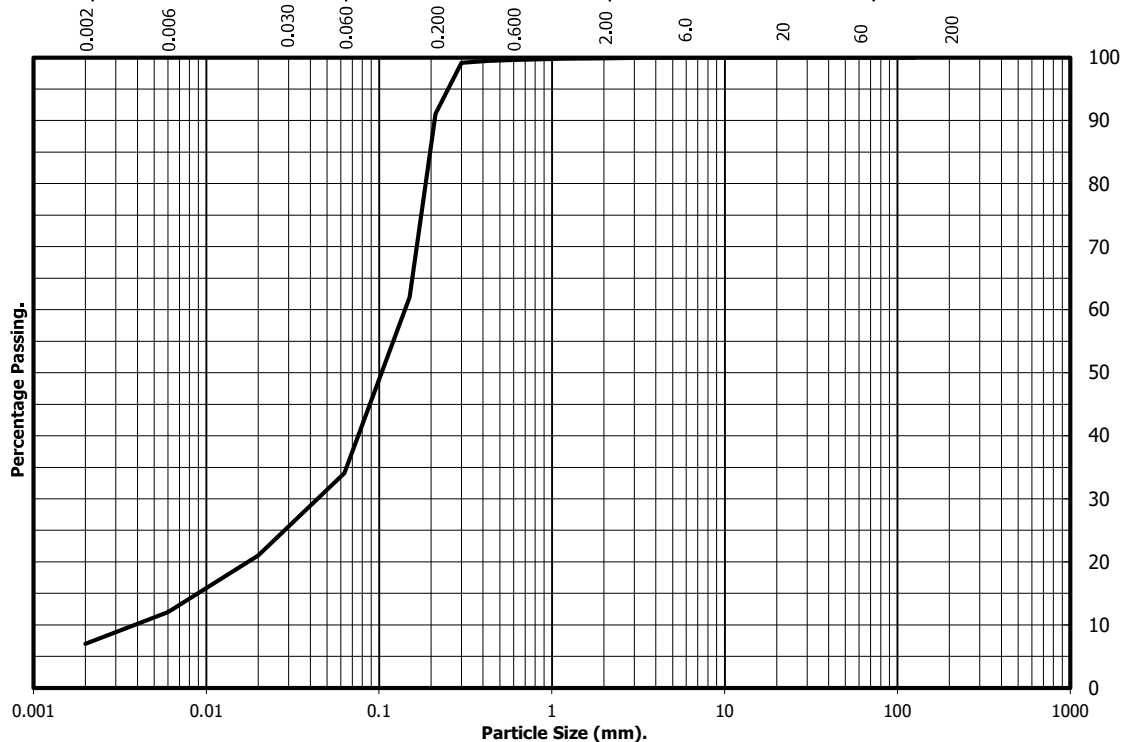
Client Ref.: 34529110
Contract Number: 31699
Contract Location: Castlebrook

Hole Number: WS1
Sample Number: 3
Depth from (m): 1.20
Depth to (m): 2.00
Sample Type: B

Sample Description: Brown slightly clayey silty fine to medium SAND.

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	99
0.300	99
0.212	91
0.150	62
0.063	34



Particle Diameter	% Passing
0.02	21
0.006	12
0.002	7

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
7	27	66	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Wayne Honey (Office/Quality Assistant)

W. Honey

Date: 12.10.16



Test Report:

Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

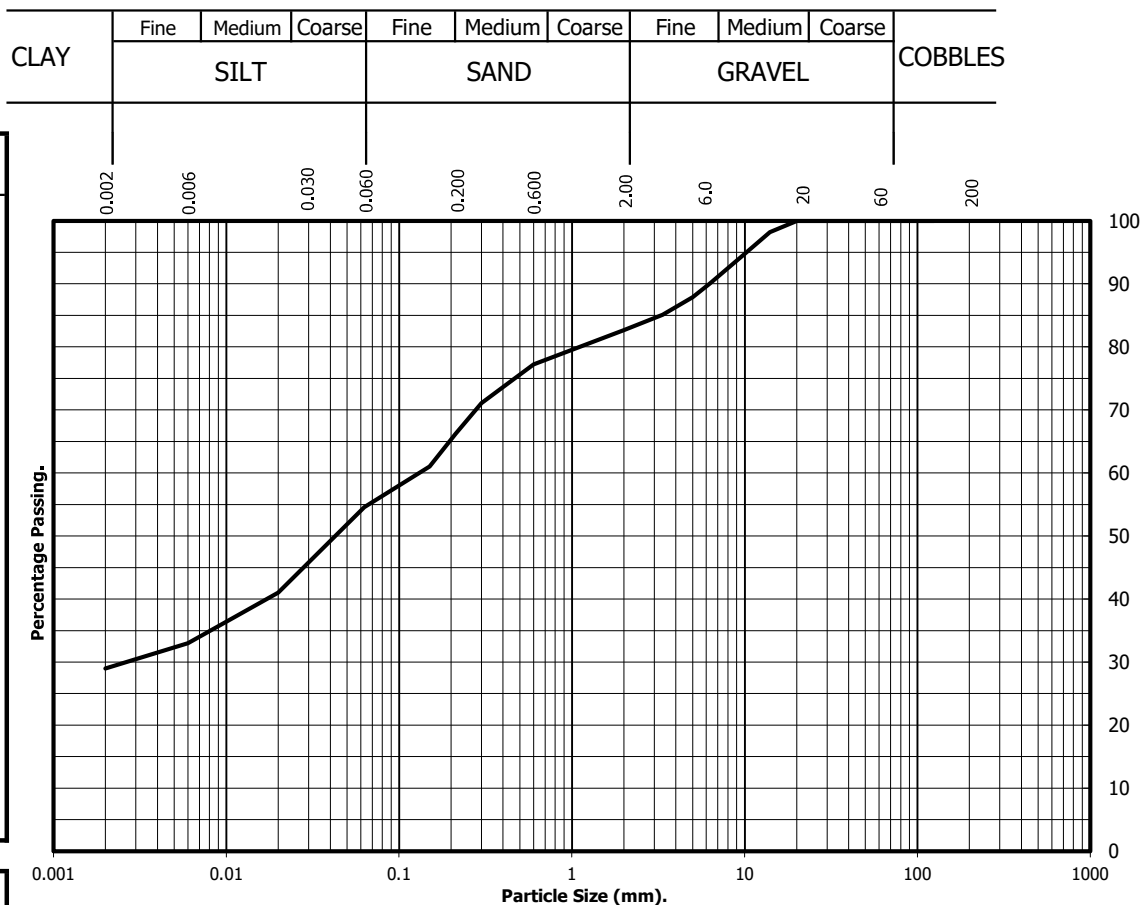
Client ref: 34529110
Contract Number: 31699
Hole Number: WS04

Sample Number: 3
Depth from (m): 1.20
Depth to (m): 2.00
Sample Type: B

Location: Castlebrook
Description: Brown fine to medium gravelly silty fine to coarse sandy CLAY.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	98
10	95
6.3	90
5.0	88
3.35	85
2.00	83
1.18	80
0.60	77
0.425	74
0.300	71
0.212	66
0.150	61
0.063	55

Particle Diameter	% Passing
0.02	41
0.006	33
0.002	29



Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
29	26	28	17	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

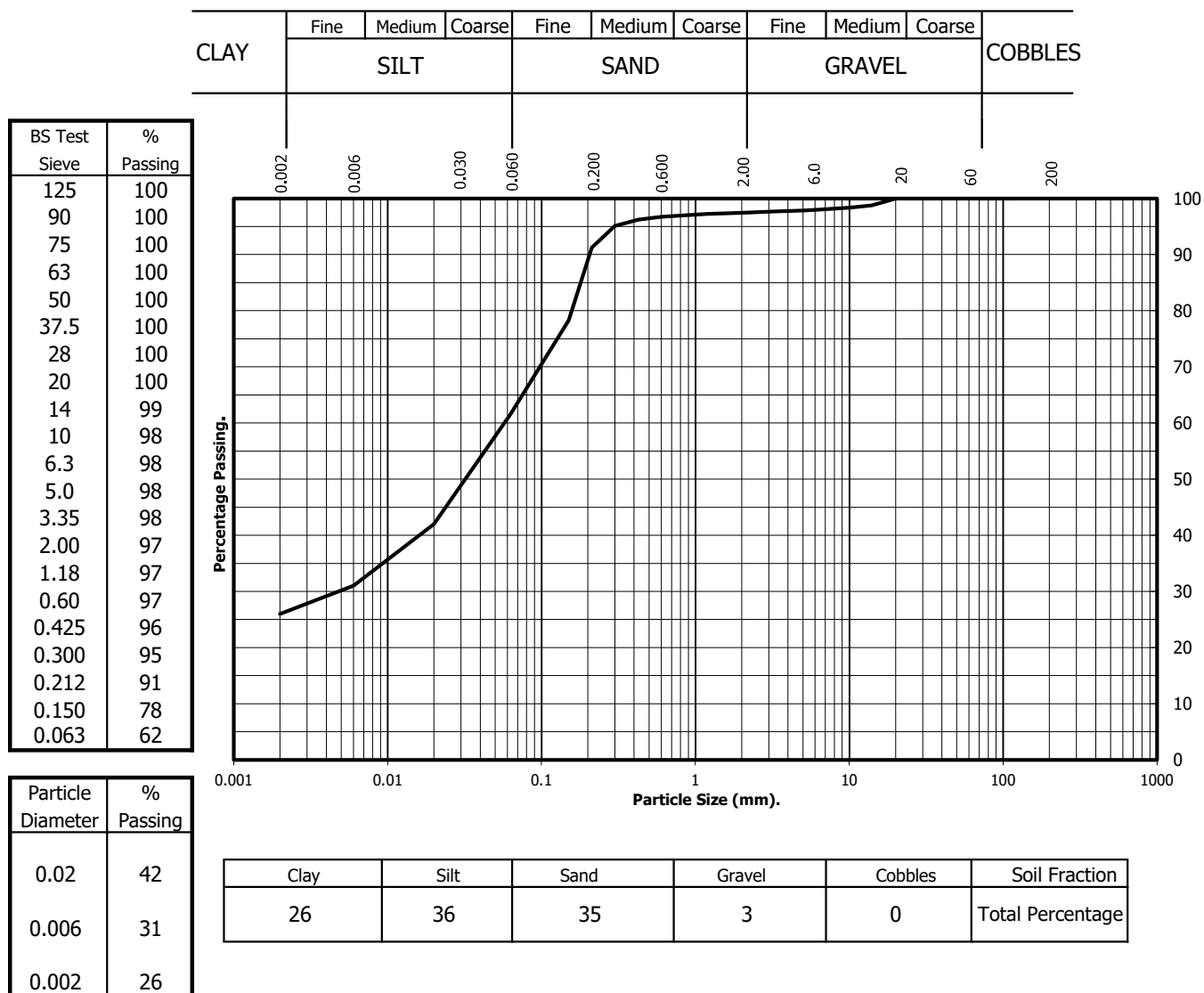
Particle Size Distribution Test **BS 1377 Part 2:1990.**

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref: 34529110
Contract Number: 31699
Hole Number: WS05

Sample Number: 6
Depth from (m): 2.50
Depth to (m): 3.00
Sample Type: D

Location: Castlebrook
Description: Brown slightly fine to medium gravelly clayey fine to coarse sandy SILT.


Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16



Test Report:

Particle Size Distribution Test

BS 1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

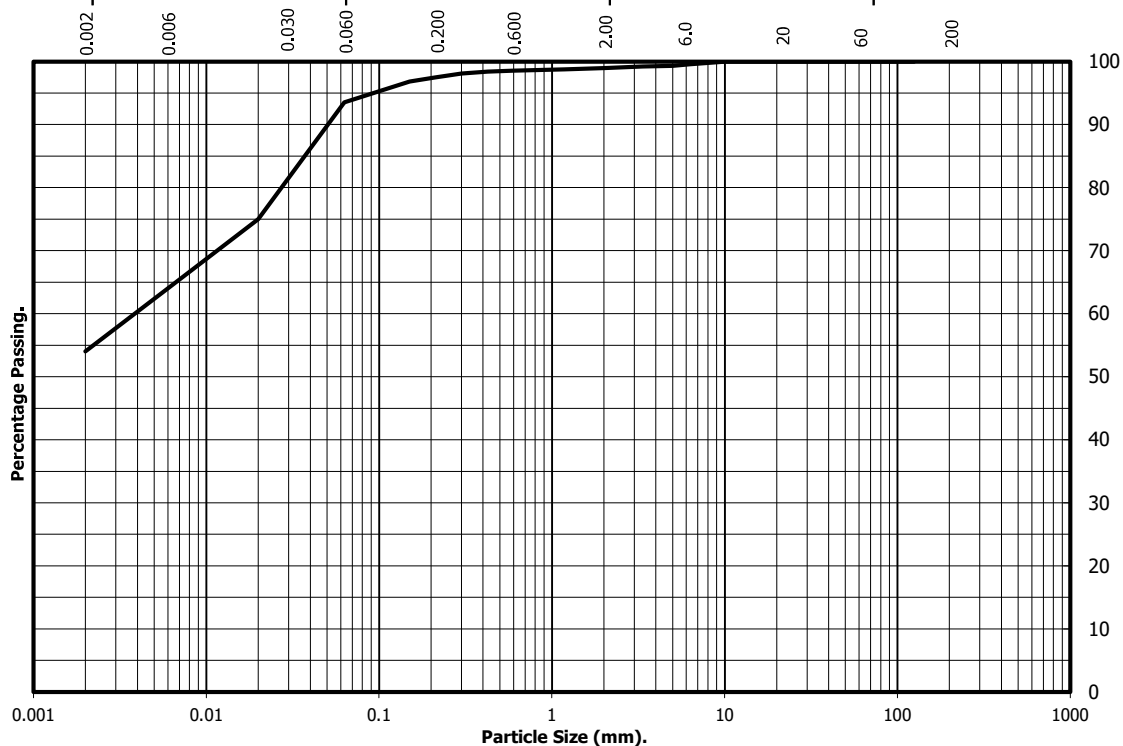
Client Ref.: 34529110
 Contract Number: 31699
 Contract Location: Castlebrook

Hole Number: WS6
 Sample Number: 3
 Depth from (m): 1.20
 Depth to (m): 2.00
 Sample Type: B

Sample Description: Brown slightly fine gravelly slightly fine to coarse sandy silty CLAY.

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	99
3.35	99
2.00	99
1.18	99
0.60	99
0.425	98
0.300	98
0.212	98
0.150	97
0.063	94



Particle Diameter	% Passing
0.02	75
0.006	64
0.002	54

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
54	40	5	1	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Wayne Honey (Office/Quality Assistant)

W. Honey

Date: 12.10.16



Test Report:

Particle Size Distribution Test

BS 1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

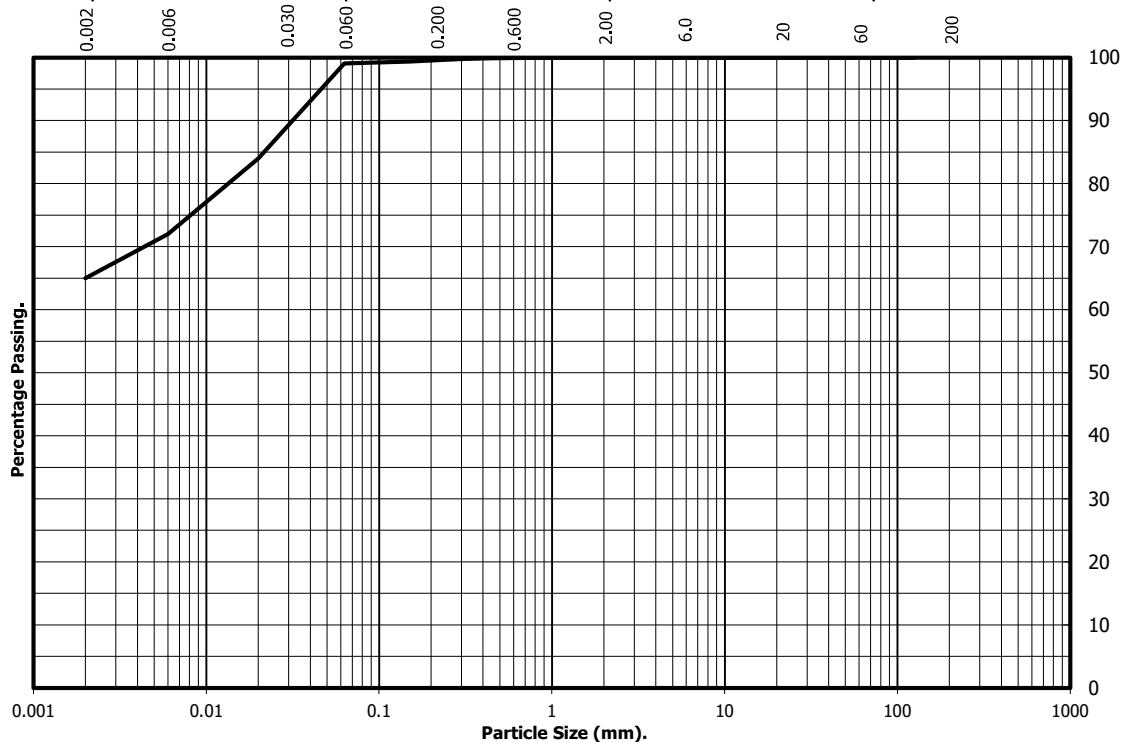
Client Ref.: 34529110
 Contract Number: 31699
 Contract Location: Castlebrook

Hole Number: WS7
 Sample Number: 2
 Depth from (m): 1.50
 Depth to (m): 1.90
 Sample Type: B

Sample Description: Brown slightly fine sandy silty CLAY.

	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	
CLAY	SILT			SAND			GRAVEL			COBBLES

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	100
0.300	100
0.212	100
0.150	99
0.063	99



Particle Diameter	% Passing
0.02	84
0.006	72
0.002	65

Clay	Silt	Sand	Gravel	Cobbles	Soil Fraction
65	34	1	0	0	Total Percentage

Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Wayne Honey (Office/Quality Assistant)

W. Honey

Date: 12.10.16



Test Report:

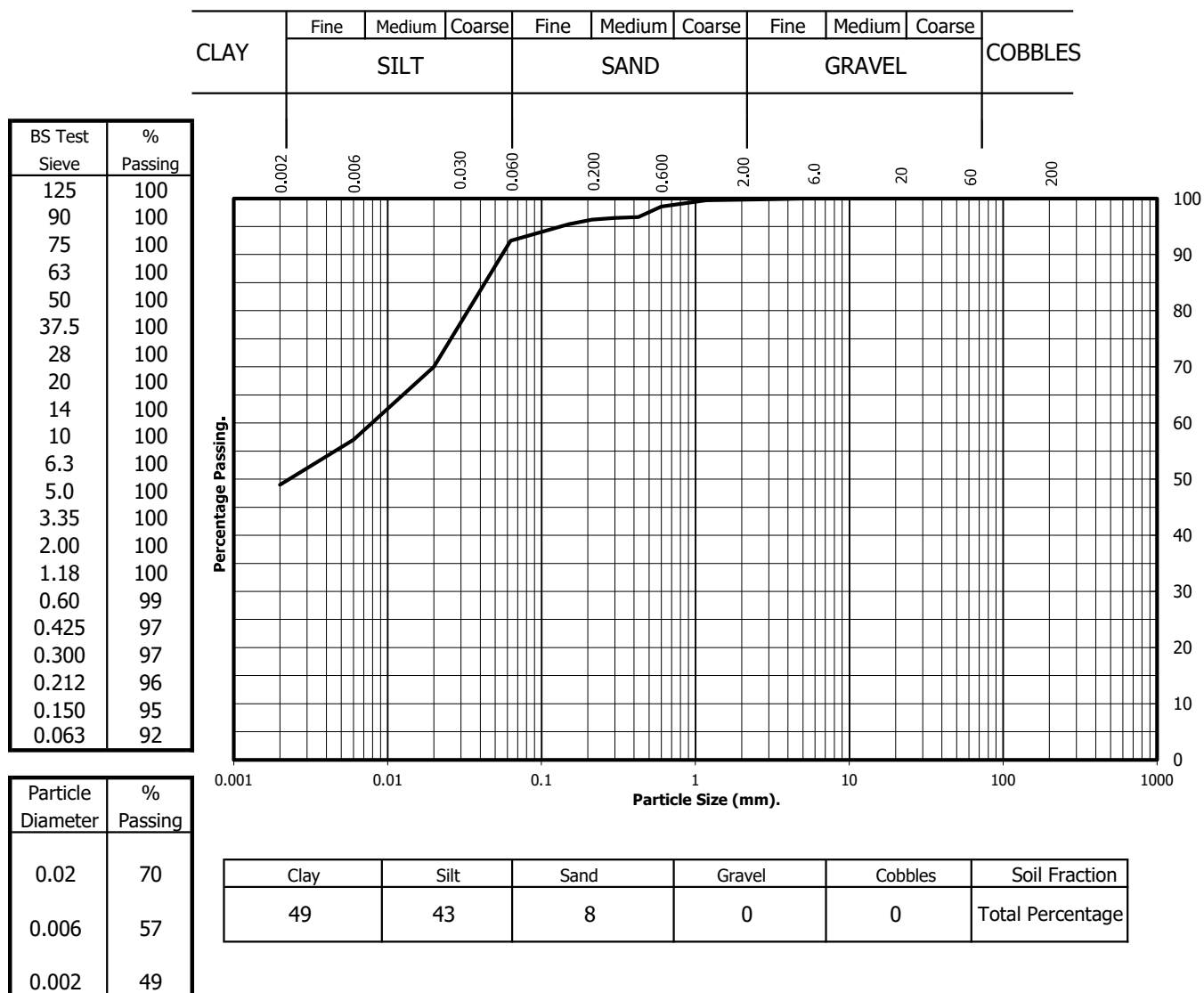
Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Client ref: 34529110
Contract Number: 31699
Hole Number: WS08

Sample Number: 3
Depth from (m): 1.20
Depth to (m): 2.00
Sample Type: D

Location: Castlebrook
Description: Brown slightly fine to coarse sandy silty CLAY.


Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
Ben Sharp (Contracts Manager)

Date: 12.10.16

Test Report:

Particle Size Distribution Test BS 1377 Part 2:1990.

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

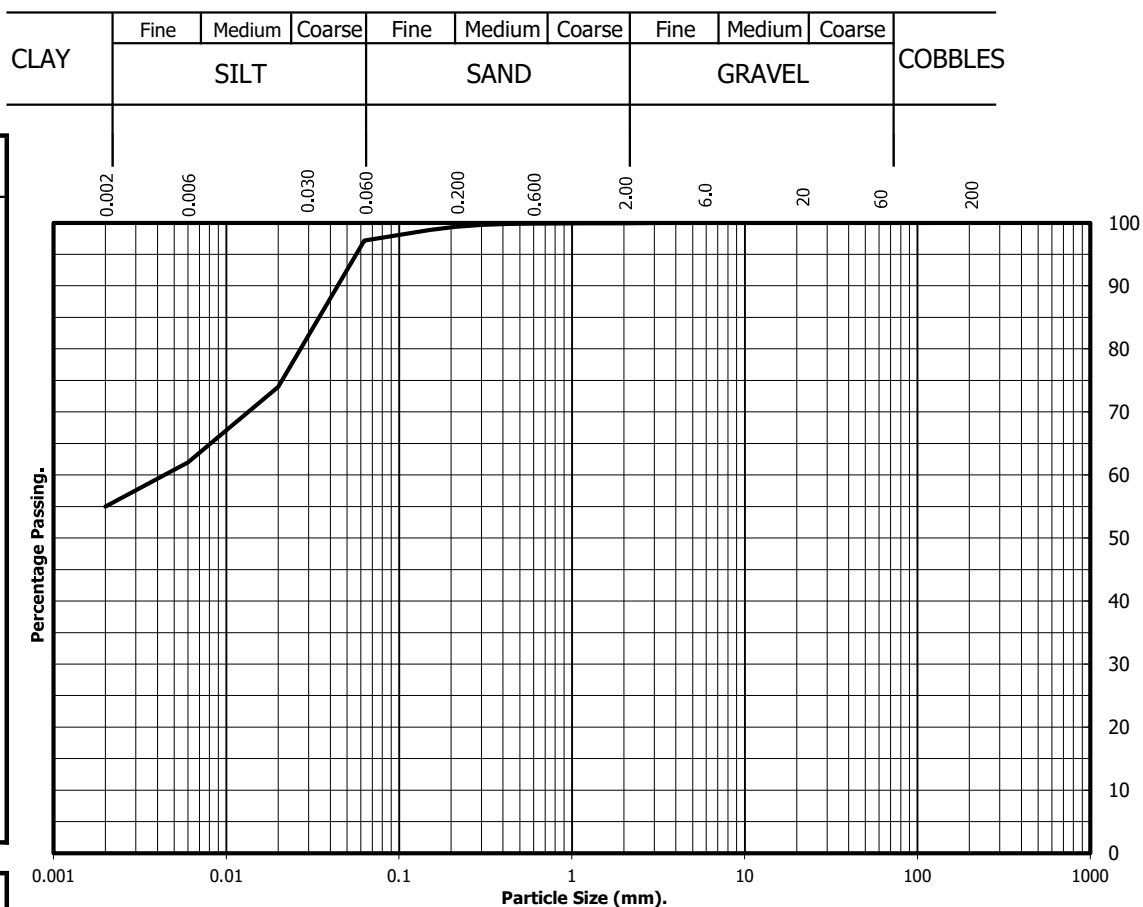
Client ref: 34529110
Contract Number: 31699
Hole Number: WS08

Sample Number: 6
Depth from (m): 2.00
Depth to (m): 3.00
Sample Type: D

Location: Castlebrook
Description: Brown slightly fine to medium sandy silty CLAY.

BS Test Sieve	% Passing
125	100
90	100
75	100
63	100
50	100
37.5	100
28	100
20	100
14	100
10	100
6.3	100
5.0	100
3.35	100
2.00	100
1.18	100
0.60	100
0.425	100
0.300	100
0.212	99
0.150	99
0.063	97

Particle Diameter	% Passing
0.02	74
0.006	62
0.002	55


Remarks:

CI 9.4.8 - Sample has not been pretreated

For and behalf of GEO Site & Testing Services Ltd

Authorised By:
 Ben Sharp (Contracts Manager)

Date: 12.10.16

