



2788

Laboratory Report



GEO Site & Testing Services Ltd

Contract Number: 43308

Client Ref: **7061b**

Report Date: **25-03-2019**

Client PO: **7830**

Client **Earth Science Partnership**
33 Cardiff Road
Taff's Well
Cardiff
CF15 7RB

Contract Title: **Cosmeston Farm, Cosmeston**
For the attention of: **Mat Elcock**

Date Received: **11-03-2019**
Date Commenced: **11-03-2019**
Date Completed: **25-03-2019**

Test Description	Qty
Moisture Content BS 1377:1990 - Part 2 : 3.2 - * UKAS	20
4 Point Liquid & Plastic Limit BS 1377:1990 - Part 2 : 4.3 & 5.3 - * UKAS	20
PSD Wet Sieve method BS 1377:1990 - Part 2 : 9.2 - * UKAS	4
BRE Reduced Suite includes pH, water & acid soluble sulphate and total sulphur BRE - BR279 - @ Non Accredited Test	6
Disposal of samples for job	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:

Ben Sharp (Contracts Manager) - Emma Sharp (Office Manager) - Paul Evans (Quality/Technical Manager)
Richard John (Advanced Testing Manager) - Sean Penn (Administrative/Accounts Assistant) - Wayne Honey (Administrative/Quality Assistant)



**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)**

DESCRIPTIONS

Contract Number	43308
Site Name	Cosmeston Farm, Cosmeston

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Descriptions
ETP1		D	0.70	-		Brownish grey silty CLAY.
ETP2		D	0.90	-		Greenish brown silty CLAY.
ETP3		D	0.80	-		Greyish greenish brown silty CLAY.
ETP4		D	2.05	-		Greenish brown silty CLAY. With siltstone
ETP5		B	0.50	-		Brownish dark grey fine to coarse shaley silty CLAY.
ETP6		D	0.60	-		Grey silty CLAY. With siltstone
ETP7		B	0.50	-		Dark grey silty CLAY. With siltstone
ETP8		B	0.80	-		Greenish brown fine to medium gravelly silty CLAY. with siltstone
ETP9		B	0.80	-		Greenish brown silty CLAY. With siltstone
ETP13		D	0.35	-		Greenish brown silty CLAY.
ETP12		D	0.70	-		Greenish brown silty CLAY.
ETP22		D	0.60	-		Greenish brown slightly chalky silty CLAY.
ETP24		D	0.60	-		Greenish brown slightly chalky silty CLAY.
EBH8		B	6.20	-		Dark grey silty clayey sandy GRAVEL.
EBH1		D	1.50	-		Greenish brown silty CLAY.
ETP20		D	0.70	-		Greenish brown fine gravelly silty CLAY.
ETP26		D	0.55	-		Brown fine to coarse gravelly silty CLAY.
ETP25		D	0.80	-		Brownish grey silty CLAY.
ETP18		B	0.50	-		Brown fine to coarse gravelly silty CLAY.
ETP19		D	0.30	-		Brown fine to coarse gravelly silty CLAY.
				-		
				-		
				-		
				-		

Operators	Checked	25/03/2019	Paul Evans (Quality/Technical Manager)
Ieuan Williams	Approved	25/03/2019	Paul Evans (Quality/Technical Manager)





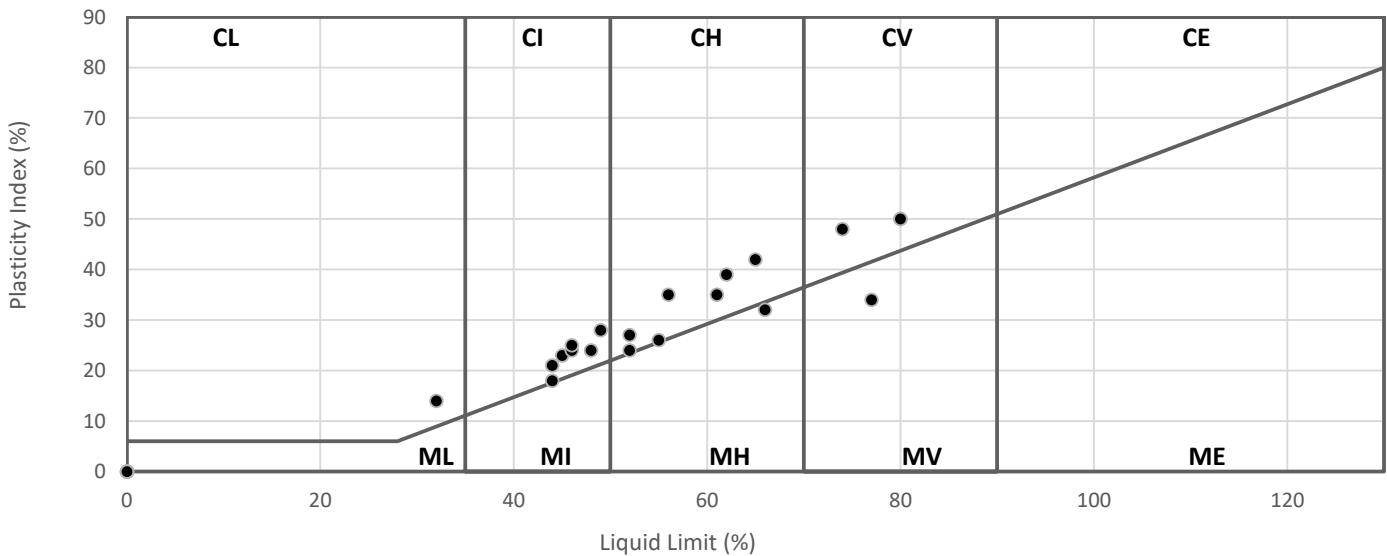
**LIQUID LIMIT, PLASTIC LIMIT AND PLASTICITY INDEX
(BS 1377 : Part 2 : 1990 Method 5)**

Contract Number	43308
Site Name	Cosmeston Farm, Cosmeston

Sample/Hole Reference	Sample Number	Sample Type	Depth (m)			Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Passing 0.425mm %	Remarks
ETP1		D	0.70	-		22	48	24	24	100	CI Intermediate Plasticity
ETP2		D	0.90	-		21	49	21	28	100	CI Intermediate Plasticity
ETP3		D	0.80	-		15	44	23	21	100	CI Intermediate Plasticity
ETP4		D	2.05	-		20	45	22	23	100	CI Intermediate Plasticity
ETP5		B	0.50	-		23	44	26	18	57	CI Intermediate Plasticity
ETP6		D	0.60	-		50	77	43	34	100	MV Very High Plasticity
ETP7		B	0.50	-		18	46	22	24	100	CI Intermediate Plasticity
ETP8		B	0.80	-		20	46	21	25	70	CI Intermediate Plasticity
ETP9		B	0.80	-		20	55	29	26	100	CH High Plasticity
ETP13		D	0.35	-		32	80	30	50	100	CV Very High Plasticity
ETP12		D	0.70	-		34	80	30	50	100	CV Very High Plasticity
ETP22		D	0.60	-		24	65	23	42	100	CH High Plasticity
ETP24		D	0.60	-		25	62	23	39	100	CH High Plasticity
EBH8		B	6.20	-		17	32	18	14	41	CL Low Plasticity
EBH1		D	1.50	-		27	61	26	35	100	CH High Plasticity
ETP20		D	0.70	-		28	74	26	48	90	CV Very High Plasticity
ETP26		D	0.55	-		31	66	34	32	66	MH High Plasticity
ETP25		D	0.80	-		21	52	25	27	100	CH High Plasticity
ETP18		B	0.50	-		24	52	28	24	60	CH High Plasticity
ETP19		D	0.30	-		17	56	21	35	67	CH High Plasticity

Symbols: NP : Non Plastic # : Liquid Limit and Plastic Limit Wet Sieved

**PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION
BS 5930:1999+A2:2010**



Operators	Checked	25/03/2019	Paul Evans (Quality/Technical Manager)
Ieuan Williams	Approved	25/03/2019	Paul Evans (Quality/Technical Manager)

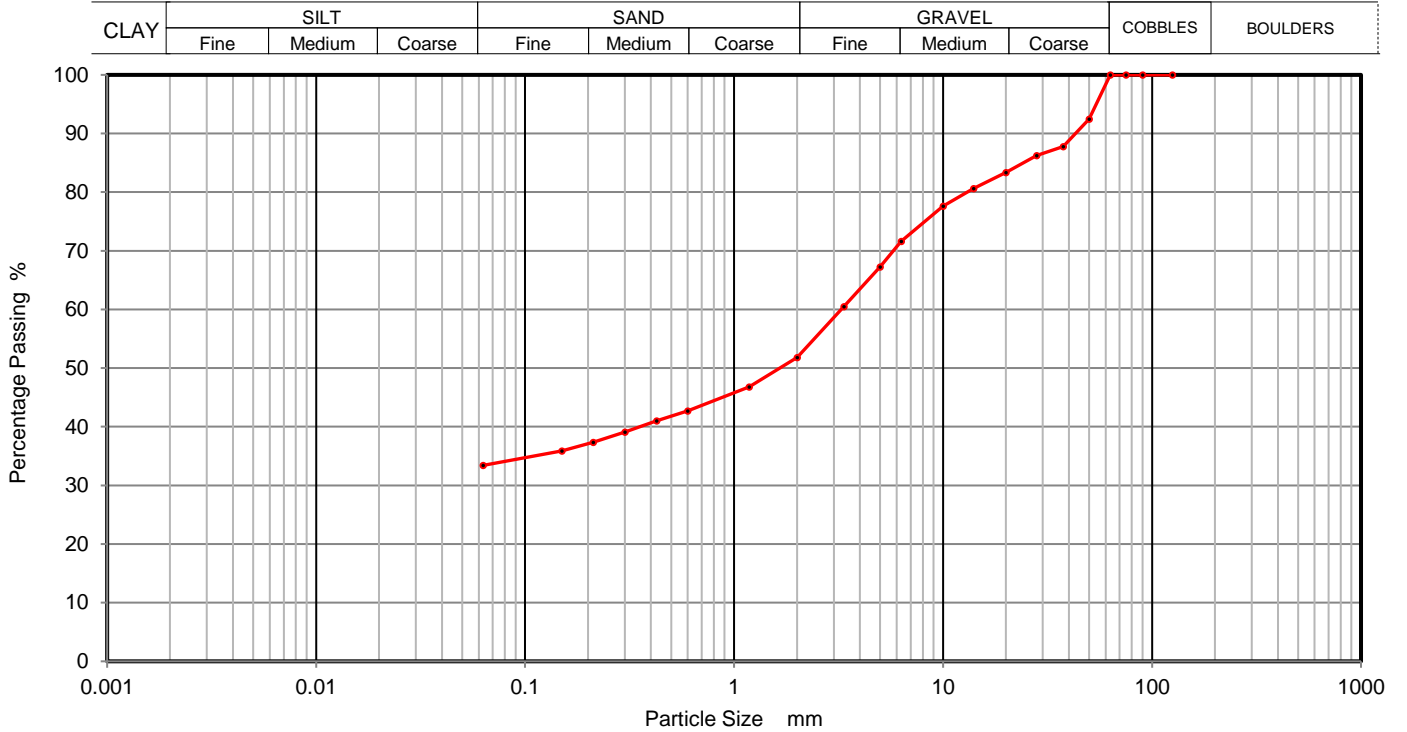




**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number	43308
Borehole/Pit No.	EBH8
Sample No.	
Depth Top	6.20
Depth Base	
Sample Type	B

Site Name	Cosmeston Farm, Cosmeston
Soil Description	Brown silty clayey sandy GRAVEL.



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	92		
37.5	88		
28	86		
20	83		
14	81		
10	78		
6.3	72		
5	67		
3.35	61		
2	52		
1.18	47		
0.6	43		
0.425	41		
0.3	39		
0.212	37		
0.15	36		
0.063	33		

Sample Proportions	% dry mass
Cobbles	0
Gravel	48
Sand	19
Silt and Clay	33

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	24/03/2019	Ben Sharp	
RO/MH	Approved	25/03/2019	Paul Evans	





**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number **43308**

Borehole/Pit No. **ETP1**

Site Name **Cosmeston Farm, Cosmeston**

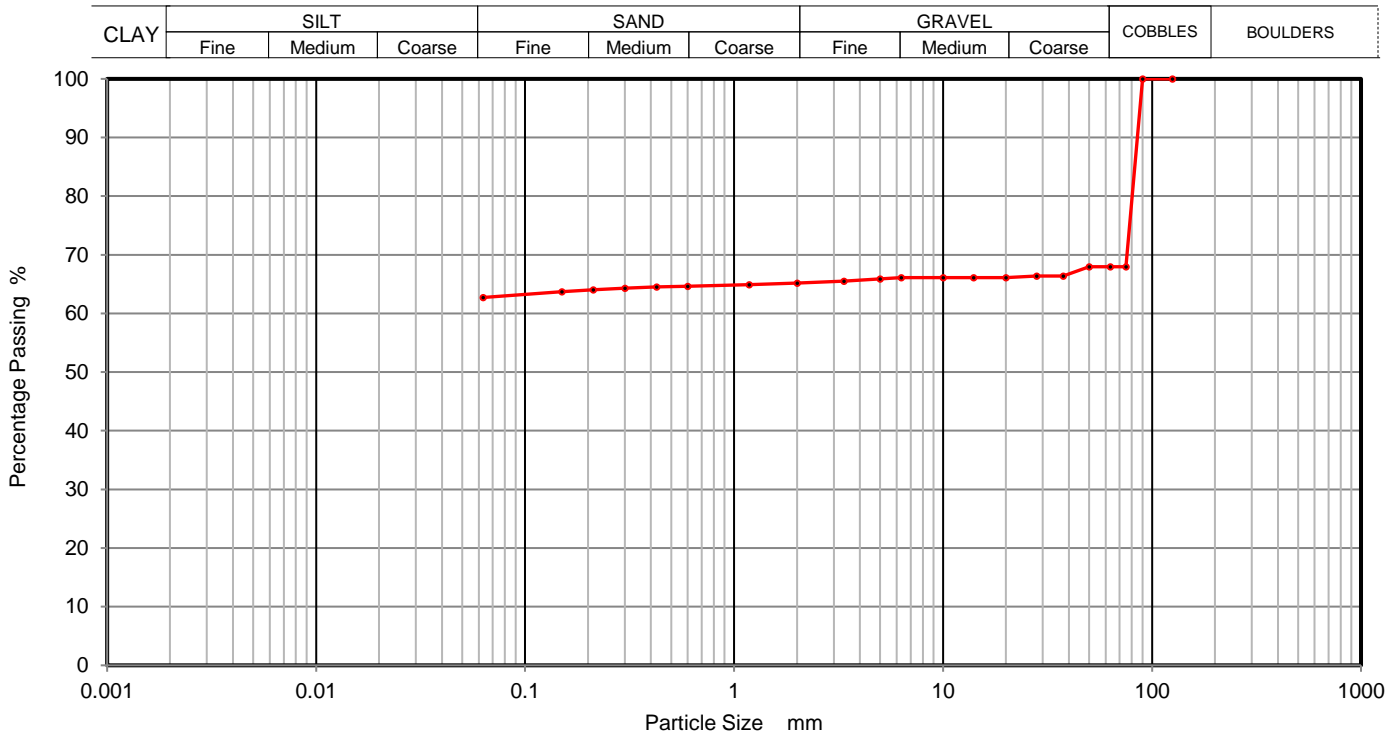
Sample No.

Soil Description **Brown slightly gravelly slightly sandy silty CLAY. With a cobble**

Depth Top **0.40**

Depth Base

Sample Type **B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	68		
63	68		
50	68		
37.5	66		
28	66		
20	66		
14	66		
10	66		
6.3	66		
5	66		
3.35	66		
2	65		
1.18	65		
0.6	65		
0.425	65		
0.3	64		
0.212	64		
0.15	64		
0.063	63		

Sample Proportions	% dry mass
Cobbles	32
Gravel	3
Sand	2
Silt and Clay	63

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	24/03/2019	Ben Sharp	
RO/MH	Approved	25/03/2019	Paul Evans	





**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number **43308**

Borehole/Pit No. **ETP18**

Site Name **Cosmeston Farm, Cosmeston**

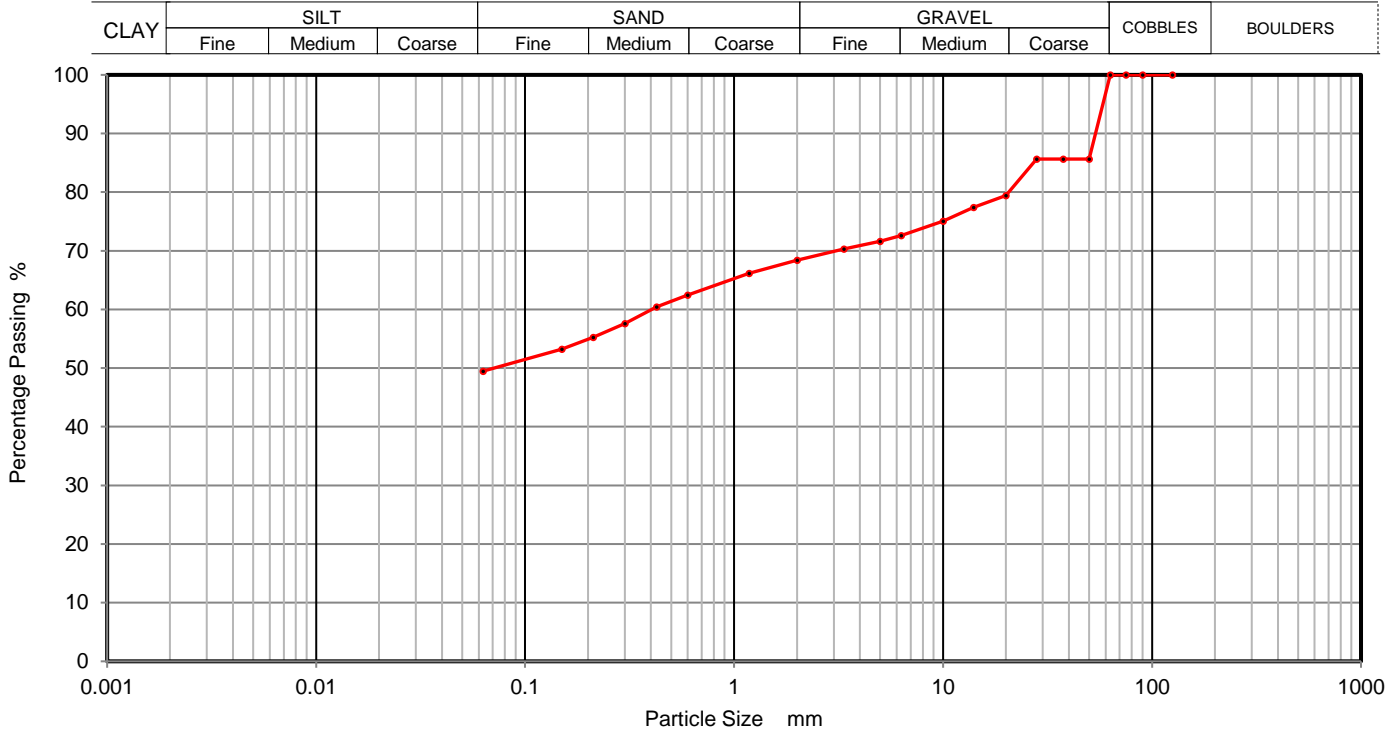
Sample No.

Soil Description
Brown gravelly sandy silty CLAY.

Depth Top **0.50**

Depth Base

Sample Type **B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	86		
37.5	86		
28	86		
20	79		
14	77		
10	75		
6.3	73		
5	72		
3.35	70		
2	68		
1.18	66		
0.6	62		
0.425	60		
0.3	58		
0.212	55		
0.15	53		
0.063	49		

Sample Proportions	% dry mass
Cobbles	0
Gravel	32
Sand	19
Silt and Clay	49

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	24/03/2019	Ben Sharp	
RO/MH	Approved	25/03/2019	Paul Evans	





**PARTICLE SIZE DISTRIBUTION
BS 1377 Part 2:1990
Wet Sieve, Clause 9.2**

Contract Number **43308**

Borehole/Pit No. **ETP23**

Site Name **Cosmeston Farm, Cosmeston**

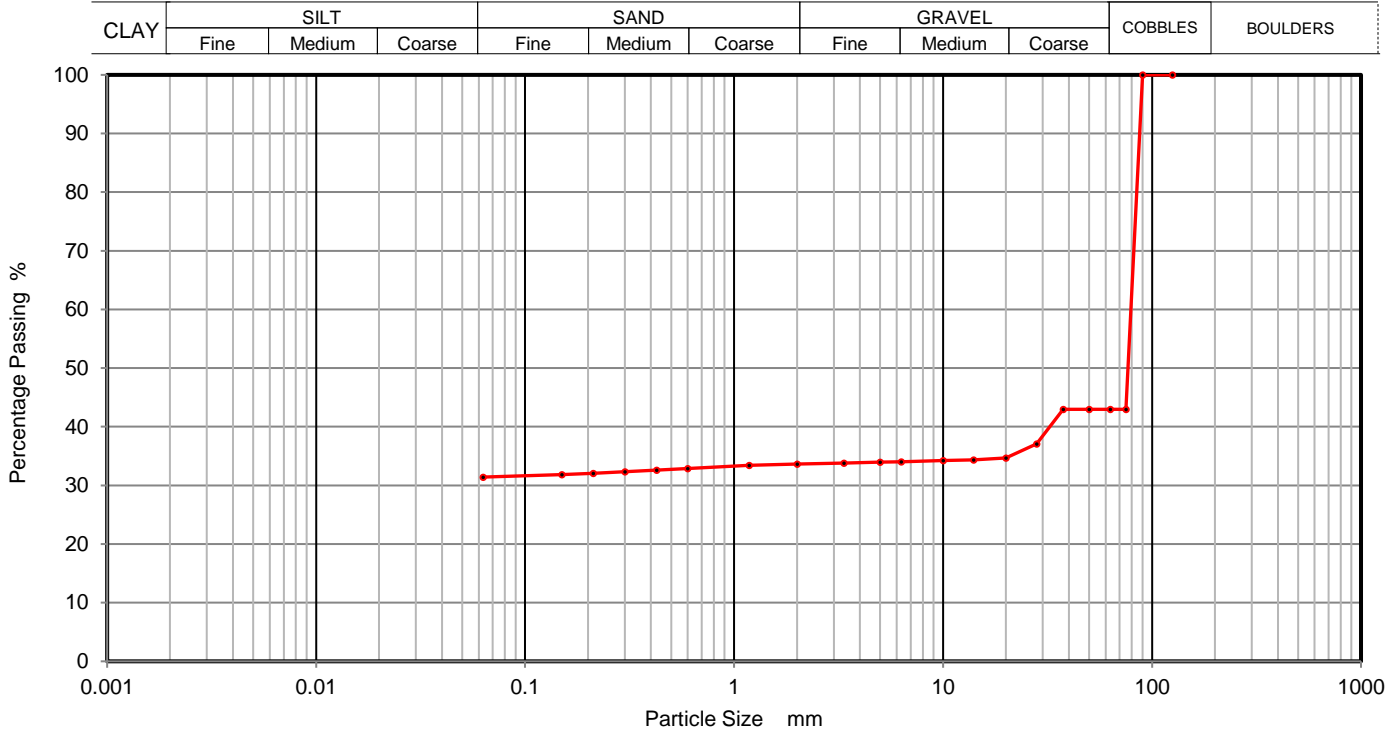
Sample No.

Soil Description **Brown gravelly sandy silty CLAY. With cobbles**

Depth Top **0.80**

Depth Base

Sample Type **B**



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	43		
63	43		
50	43		
37.5	43		
28	37		
20	35		
14	34		
10	34		
6.3	34		
5	34		
3.35	34		
2	34		
1.18	33		
0.6	33		
0.425	33		
0.3	32		
0.212	32		
0.15	32		
0.063	31		

Sample Proportions	% dry mass
Cobbles	57
Gravel	9
Sand	3
Silt and Clay	31

Remarks
Preparation and testing in accordance with BS1377 unless noted below

Operators	Checked	24/03/2019	Ben Sharp	
RO/MH	Approved	25/03/2019	Paul Evans	





**Certificate of Chemical Analysis
(BRE BR 279)**

Contract Number	43308		
Client Reference	7061b		
Client	ESP	Date Received	
Site Name	Cosmeston Farm, Cosmeston	Date Started	12/03/2019
		Date Completed	25/03/2019
		No. of Samples	6

Hole Number	Sample Number	Sample Type	Depth (m)			Acid Soluble Sulphate	Aqueous Extract Sulphate	Chloride Content	Ph Value	Total Sulphur	Magnesium	Nitrate
ETP1		D	0.70	-		0.10	0.03		7.46	0.06		
ETP6		D	0.60	-		0.21	0.02		7.82	0.09		
ETP7		B	0.50	-		0.16	0.03		7.15	0.08		
ETP9		B	0.80	-		0.23	0.03		7.49	0.10		
ETP12		D	0.70	-		0.16	0.04		7.57	0.08		
ETP23		B	0.80	-		0.25	0.04		7.38	0.11		
			-	-								
			-	-								
			-	-								
			-	-								
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Key	Reported As
Acid Soluble Sulphate	% SO ₄
Aqueous Extract Sulphate	g/l SO ₄
Chloride Content (Semi)	mg Cl/l
PH Value	@ 25°
Total Sulphur	% S
Magnesium	g/l SO ₄
Nitrate	NO ₃ mg/l

Remarks
NCP = No Chloride Present

Test Operator	Checked and Authorised by		Ben Sharp	
Darren Bourne	Date	25/03/2019		