Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED • ™

UIG HARBOUR REDEVELOPMENT
GROUND INVESTIGATION

Prepared By	Redacted	Assistant Contracts Manager	Date	7th December 2017
Approved By		Technical Manager	Date	7th December 2017
Report Number	**THC/UHRGI/1117/FACT**	Issue Number	1	

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Issue Record

Issue Version	Issue Number	Date	Issued By	Comments
Draft Report	0	3rd November 2017	Redacted	Draft for comment
Final Report	1	7th December 2017	Redacted	No change from draft.

Client:-

The Highland Council
Development and Infrastructure
Project Design Unit
94 Diriebught Road
Inverness
IV2 3QN

Engineer:-

AECOM
Aurora
120 Bothwell Street
Glasgow
G2 7JS

GROUND INVESTIGATION

UIG HARBOUR REDEVELOPMENT

ISLE OF SKYE

Ground Investigation Fieldwork & Laboratory Testing

Report No:- THC/UHRGI/1117/FACT.

Project:-

GROUND INVESTIGATION
UIG HARBOUR REDEVELOPMENT

Ground Investigation Fieldwork
& Laboratory Testing

CONTENTS

1:0 INTRODUCTION

2:0 THE SITE

3:0 SITE WORKS AND IN-SITU TESTING

4:0 LABORATORY TESTING

APPENDICES

APPENDIX I - Terminology Adopted In Description of Soils and Rocks

APPENDIX II - Borehole, Trial Pit & Cone Penetration Test Location Plans

APPENDIX III - Borehole & Trial Pit Test Records

- **i) Boreholes**
- **ii) Trial Pits**

APPENDIX IV - Laboratory Testing

- **i) Geotechnical Testing**
- **ii) Environmental Testing**

APPENDIX V - SPT Hammer Energy Ratio Reports

APPENDIX VI – Photographic Records

APPENDIX VII- Static Cone Penetration Test Report

1:0 INTRODUCTION

Messrs Holequest Limited were commissioned by AECOM, on behalf of their client The Highland Council, to undertake a ground investigation to determine ground conditions relative to the proposed redevelopment of the existing Uig Harbour, Isle of Skye.

1:1 The ground investigation works consisted of sinking 7No. Light Cable Percussion boreholes, 10No. Rotary open hole / rotary cored boreholes, 31No. Cone Penetration Tests and 4No. machine excavated Trial Pits all at predetermined locations to instructed depths. The various strata penetrated were recorded and sampled, in-situ and laboratory testing was undertaken as required.

The results of the investigation are presented in the form of a factual report, which covers the Fieldwork and Laboratory Testing.

The terminology adopted (Code of practice for site investigations B.S. 5930: 1999, BSEN14688 and BSEN14689) in the preparation of the descriptions for the soils and rocks encountered during this investigation is detailed in Appendix I of this report.

1:2 The site works were undertaken over the periods, 04th July to 06th August 2017 (Cable Percussion Boreholes); 04th July to 01st October 2017 (Rotary Boreholes); 04th to 06st July 2017 (Cone Penetration Testing); and 20th and 21th July (Trial Pits).

1:3 The weather during the site works was varied from warm with prolonged sunshine, through most of August, to overcast with periods of light, occasionally heavy rain and high winds. However, was in general considered consistent for that particular geographic location at that time of year.

2:0 THE SITE DESCRIPTION

From the engineers particular specification "Uig harbour is located in Uig bay, off Loch Snizort, at the north eastern end of the Isle of Skye on the west side of the Trotternish Peninsula. The pier at Uig harbour, named King Edward Pier predominantly comprises the linkspan berth which serves the Calmac ferry route to the Isles of Harris and North Uist."

Borehole, CPT an Trial Pit locations were centred around areas of proposed upgrading to the existing Uig Harbour infrastructure as instructed by the engineer. See attached drawings in Appendix II for details.

2:1 GEOLOGICAL SUMMARY

2:1:1 Anticipated Drift Deposits

From the engineers specification, the anticipated superficial deposits that underlie the site were expected to vary with location over the site and to comprise of materials from of the following outline specification;

"Uig bay is relatively shallow and does appear to be subjected by marine borne deposition and siltation. the most sheltered areas east of the jetty seems to be particularly prone to this and these deposits may be deep and are of concern for future loadings, particularly in the marshalling area. The deeper ground material overlying the rock is likely to be a product of the one-time glaciers extending westward from Glen Uig into Uig bay. Part of the village of Uig is built on a raised beach formation deposited as the ice melted. These overburden materials are likely to be a mixture of sands, soft to firm clay, gravels, tills and boulder clays; although peat pockets cannot be fully ruled out."

Given the extent of previous marine / harbour development, localised areas of Made Ground were to be anticipated.

2:1:2 Encountered Drift Deposits

The investigation works in general encountered naturally deposited strata that did vary across the site but in general, in the areas around the pier, linkspan and associated approachways, the boreholes encountered principally granular strata (varying from Sands through to Gravels) with varying cobble and boulder content that was frequently noted to contain much shell and shelly debris, immediately underlying the seabed.

Within the above units, and encountered within most of the boreholes along these sections, a unit containing organic material (generally slighlty sandy locally slightly gravelly organic Silt with varying cobble and boulder content) was encountered that was locally noted to contain lenses and pockets of peat.

The above broad sequence generally overlay glacial units to the final depths of the boreholes, that generally comprised from slightly sandy slightly gravelly Clay through to clayey / very clayey sandy fine to coarse Gravel with varying cobble and boulder content. Localised deposits of Cobbles / Boulders, Gravel, Clay, Silt and Sand in variable proportions were also encountered in lenses / beds and pockets within these glacial units.

In the area of intertidal foreshore, borehole 07, the trial pits and cone penetration tests encountered variable strata including Silts, Clays, Sands and Gravels with variable Cobble and Boulder content that generally was overlain by more recent organic strata.

Made Ground was encountered in Boreholes 10 & 10A to a maximum depth 1.3m which was the instructed terminating depth of Borehole 10A.

2:1:3 Anticipated Solid Geology

From the engineers particular specification, the anticipated solid geological deposits that underlie the site were expected to comprise of strata from of the following;

"The rock base formations are expected to be igneous of the Skye II lava group. This can contain a wide range of igneous rock types and structures. Initial volcanic activity deposited a hyaloclastite formation onto flat lying middle Jurassic strata, forming palagonitised breccias, locally developed pillow lavas and a variety of volcanoclastic sedimentary rock. Subsequent eruptions and pauses can be marked by the development of inter-lava sedimentation sequences, ranging from conglomerates and sandstones to plant bearing mudstones and siltstones. For example in Staffin, Flodigarry, Uig and Loch Bay areas of the Trotternish peninsula there are scattered and poorly exposed occurrences of tuffaceous sandstones and associated strata."

2:1:4 Encountered Solid Geology

The solid geology was not encountered during the investigation.

3:0 SITE DRILLING & IN-SITU TESTING

Light Cable Percussion Boring

3:1 The sinking of Boreholes 06, 06A, 08, 08A, 09, 10 and 10A were undertaken by a Dando 2000 Light Cable Percussion boring rig equipped with 200mm & 150mm diameter boring tools and casing as appropriate. Due to the nature of the ground conditions encountered only limited numbers of "Undisturbed" samples could be obtained. However, bulk disturbed samples and in-situ standard penetration tests undertaken where appropriate.

Rotary Drilling

3:2 Rotary open hole drilling was undertaken at the location of Boreholes 01, 02, 03, 04, 05, 06A, 07, 08B, 09A and DS01 all to instructed depths using either a track mounted Comacchio GEO205, track mounted Massenza MI3 or a track mounted Massenza MI5 top drive rotary drilling

rig as appropriate. Boreholes 01, 02, 03, 04, 05, 06A, 07, 08B and 09A were drilled from a temporary cantilevered access platform. BH7 was drilled from a temporary access platform on the intertidal foreshore.

Rotary casing was sunk where appropriate in all the boreholes using the 170mm diameter Symetrix simultaneous casing system and a down-the-hole hammer. As the name implies, the system is such that the casing follows immediately behind the drill bit, thus keeping the borehole stable in the overburden. Upon reaching the required depth the drill string is reversed, allowing the concentric part of the drill bit to be released and withdrawn from the lined hole leaving the casing in place allowing either standard penetration testing, U80 sampling or rotary core drilling to be undertaken.

Boreholes 1 & DS01 were rotary cored to a maximum depth of 0.42m through the existing concrete edge beam and deck respectively, to allow progression to naturally deposited strata from seabed with the simultaneous casing system or U80 sampler as appropriate.

It will be appreciated that accurate sampling of the overburden is not possible with air flushed, full hole rotary drilling methods, and therefore descriptions may not be in precise accordance with British Standard 5930: 1999, BSEN ISO 14688 and BSEN ISO 14689.

Trial Pits

3:3 Trial Pits 01, 02, 03 & 04 were excavated using a 20T Tracked Excavator to determine ground conditions relative to proposed construction of the marshalling area (intertidal foreshore). The Trial Pits were recorded, tested and photographed by an Engineer from Holequest Ltd.

It should be noted that the strengths / relative densities reported on the trial pit records and the descriptions contained therein are based on visual assessment, trial pit stability, ease of excavation and where appropriate in-situ test results.

Cone Penetration Tests

3:4 Cone penetration tests CPT 1 - 10 (including additional tests as required) were undertaken using a 20T CPT hydraulic penetrometer mounted in tracked crawler rig supplied, operated and interpreted by In-situ Ltd on behalf of Messrs Holequest Ltd, in the area of intertidal foreshore.

Cone tip and sleeve resistance was measured as required at instructed locations to instructed depths. (See appendix VII for further details).

In-situ Testing

3:5 In-situ tests were undertaken in the Boreholes as noted on the appropriate records and comprised of the following:-

- Standard Penetration Tests in accordance with BS 1377 Part 9: 1990 (SPT Hammer Energy Ratio Tested see Appendix VI).

3:6 The records of the site works, in-situ testing and associated photographic records are summarised in Appendix III and VI. The records of the standard penetration testing are summarised on the individual borehole records.

Ground Water

3:7 Ground water observations during boring/drilling of the boreholes and excavation of the trial pits are presented on the individual records.

4:0 LABORATORY TESTING

A programme of laboratory testing, agreed with AECOM, was undertaken at the UKAS Accredited laboratories of PSL Ltd on behalf of Messrs Holequest Limited. The tests where appropriate were undertaken in accordance with British Standard 1377 "Methods of Tests for Soils for Civil Engineering Purposes" or as indicated otherwise. The various tests undertaken are as follows:-

1) **NATURAL MOISTURE CONTENT**
2) **PARTICLE SIZE DISTRIBUTION BY WET SIEVE**
3) **PARTICLE SIZE DISTRIBUTION BY SEDIMENTATION (PIPETTE)**
4) **LIQUID & PLASTIC LIMITS**
5) **CONSOLIDATED DRAINED SHEARBOX**
6) **CONSOLIDATED UNDRAINED TRIAXIAL WITH MEASUREMENT OF POREWATER PRESSURE (MULTISATGE)**
7) **ONE DIMENSIONAL CONSOLIDATION**

A programme of laboratory testing for contaminants, agreed with AECOM, was undertaken at the UKAS / MCERTS accredited laboratory of Scientific Analysis Laboratories Ltd, on behalf of Messrs Holequest Limited. The soil and water samples were tested for one or more of the following:-

1) **BRE SD1 SUITE**
2) **MARINE SCOTLAND SUITE**
3) **WASTE ACCEPTANCE CRITERIA (UNKNOWN)**
4) **ARSENIC**
5) **BORON (WATER SOLUBLE)**
6) **CADMIUM**
7) **CHROMIUM (TOTAL)**
8) **COPPER**
9) **CYANIDE (TOTAL)**
10) **LEAD**
11) **MERCURY**
12) **NICKEL**
13) **pH**
14) **SELEMIUM**
15) **SULPHATE (ACID SOLUBLE AND 2:1 EXTRACT)**
16) **ZINC**
17) **ORGANIC MATTER CONTENT**
18) **PAH (EPA 16)**
19) **SVOC**
20) **VOC**
21) **TPH (ALIPHATIC / AROMATIC SPLIT)**
22) **ASBESTOS ID**

The Geotechnical and Environmental Laboratory Test Results are summarised in Appendix IV.

Redacted

Redacted **Assistant Contracts Manager)**
for HOLEQUEST LTD **Dated:- November 2017**

Approved By:-
Redacted

Redacted **Technical Manager)**
for HOLEQUEST LTD **Dated:- November 2017**
&©ajb

APPENDIX 1

Terminology Adopted In Description of Soil and Rocks

TERMINOLOGY ADOPTED IN DESCRIPTION OF SOILS

1. **T**he description and classification of soils has been carried out using as a general basis the British Standard Code of Practice for Site Investigations - B.S.5930 - 2015 and BSENISO 14688 / 14689

2. **S**oils containing 35% or more of material passing a 0.06mm sieve will be classified as **CLAY** or **SILT** as appropriate.

3. **T**he relative densities of granular materials given in this report are based upon visual inspection of the borehole / excavation and the results of in-situ standard penetration and cone penetration tests, where carried out

The classification is as follows :-

TABLE 1 Non-cohesive Granular Materials

N - Value	Relative Density
Below 4	**Very Loose**
4 to 10	**Loose**
10 to 30	**Medium Dense**
30 to 50	**Dense**
50 and Over	**Very Dense**

TABLE 2A Cohesive Materials (Field Description)

TERM USED FOR FIELD DESCRIPTION	CONSISTENCY DESCRIPTION DEFINITION
Very Soft	**Finger easily pushed in up to 25mm. Exudes between fingers**
Soft	**Finger pushed in up to 10mm. Moulds by light finger pressure**
Firm	**Thumb makes impression easily. Cannot be moulded by fingers, rolls in the hand to a 3mm thick thread without breaking or crumbling**
Stiff	**Can beindented slightly by thumb. Crumbles in rolling a 3mm thick thread, but can then be remoulded into a lump**
Very Stiff	**Can be indented slightly by thumb nail. Cannot be moulded but crumbles under pressure.**
Hard	**Can be scratched by thumbnail**

TABLE 2B Cohesive Materials (Measured Strength Classification)

TERM BASED ON MEASUREMENT	UNDRAINED STRENGTH CLASSIFICATION DEFINITION C_u, in kPa
Extremely low	**<10**
Very low	**10 – 20**
Low	**20 – 40**
Medium	**40 – 75**
High	**75 – 150**
Very high	**150 – 300**
Extremely high	**300 - 600**

4. The consistency of 'fine soils' given in this report is based on both visual inspection of the sample and the results of in-situ and / or laboratory tests, where carried out.

****** Note:- When very stiff cohesive materials (generally with a significant proportion of cobbles and boulders) are encountered, the term Hard may be included in the description to enhance the descriptive term of very stiff, especially where cohesive materials were difficult to progress through, or could not be penetrated by normal light cable percussion boring methods.

BOREHOLE & TRIAL PIT RECORDS
SYMBOLS & ABBREVIATIONS USED:-

U	80mm or 100mm diam. "Undisturbed" sample	80mm diam sample in windowless sampling / rotary boreholes, 100mm diam sample in light cable percussion boreholes
P	Piston Sample "Undisturbed"	
D	Disturbed sample	
B	Bulk Disturbed sample	
W	Water Sample	
ES	Soil Contamination Sample	
EW	Water Contamination Sample	
SPT	Standard Penetration Test	Split Spoon Sampler - Blow count for 300mm penetration = 'N' value
CPT	Standard Cone penetration Test	Solid Cone replaces split spoon sampler, as above blow count for 'N' value
V	In-situ Borehole Vane Test	
VHP	Variable Head Permeability Test	
CHP	Constant Head Permeability test	
PT	Borehole Packer Test	

ROTARY CORE DRILLING

TCR	Total Core Recovery	Ratio of core recovered (solid and non intact) to length of core run
SCR	Solid Core Recovery	Ratio of solid core recovered to length of core run
RQD	Rock Quality Designation	Ratio of solid core pieces longer than 100mm to length of core run
FI	Fracture Index	Count of the number of spacing of fractures over an arbitary length of core of similar intensity of fracturing. Commonly reported as Fracture Index (FI, number of fractures per metre) or as Fracture Spacing (If,mm).

GROUND WATER

depth (m)	Ground Water Level	Initial ingress level recorded in water strikes column
comments	Standing Ground Water Level	Time observation or a.m. ground water level recorded in the remarks section of the borehole / trial pit record.

ADDITIONAL INFORMATION

HVT	Hand Vane Tests	Recorded in Samples and In-situ Testing Column on borehole / trial pit records
HPT	Hand Penetrometer Tests	Recorded in Samples and In-situ Testing Column on borehole / trial pit records
CBR	California Bearing Ratio Test	Recorded in Samples and In-situ Testing Column on borehole / trial pit records
PBT	Plate Bearing Test	Recorded in Samples and In-situ Testing Column on borehole / trial pit records

Additional Notes:-

1) Ground water levels vary and therefore the observations recorded on the borehole and trial pit records are as observed at the time of the investigation.

2) The comments and opinions expressed in this report are based on the ground conditions observed at each location during the site works and on the results of any tests undertaken in-situ or in the laboratory on the samples obtained during the site works.

REFERENCE BIBLIOGRAPHY USED IN REPORTING & TESTING

British Standards:-	Code of Practice for Site Investigation BS5930, 2015 BS EN 14688 Part 1: 2002 BS EN 14688 Part 2: 2002 BS EN 14689 Part 1: 2003 Methods of Test for Soils for Civil Engineering Purposes BS 1377 Testing Of Aggregates BS 812 Code of Practice for Foundations BS8004 Code of Practice for Earthworks BS 6031 Code of Practice for Ground Anchorages BS 8081 Cathodic Protection BS 7361
Scottish Development Department	Specification for Roads & Bridgeworks - Soil Suitability for Earthworks Use of the Moisture Condition Apparatus
Head K.H.	The Manual of Soil Laboratory Testing Vol. 1 to 3.

Terzaghi K. & Peck B.P.	Soil Mechanics in Engineering Practice - Wiley
Tomlinson M.J.	Foundation Design & Construction - Pitman
Lambe & Whitman	Soil Mechanics - Wiley
Blyth F.G.H. & de Freitas M.H.	A Geology for Engineers - Arnold
Burland J.B. & Burbridge M.C. Scotland	Settlement of Foundations on Sand and Gravel (Glasgow & West of Association Centenary Celebrations Invited Lectures 1984)
Forde M.C.	Earthworks: Selection & Compaction (University of Edinburgh)
B.R.E. Publications	

APPENDIX II

Borehole & Trial Pit Location Plan

CONTRACT: Uig Harbour Redevelopment GI
CLIENT: The Highland Council
ENGINEER: Aecom

UHR GI - As Drilled Borehole / CPT / Trial Pit Coordinates

BH Reference	Easting (m)	Northing (m)	Elevation (mCD)	Remarks
BH01	138796.48	863388.51	-4.436	
BH02	138787.27	863398.63	-3.457	
BH03	138818.02	863477.29	-2.379	
BH04	138793.26	863460.84	-2.886	
BH05	138795.19	863484.71	-3.392	
BH06	138831.06	863472.82	-2.469	
BH06A	138830.93	863470.99	-2.469	
BH07	138571.66	863635.25	3.914	
BH08	138758.13	863523.04	-2.167	
BH08A/B	138756.50	863523.65	-1.875	
BH9 / 9A	138674.87	863553.90	-1.506	
BH10	138558.52	863600.51	6.551	
BH10A	138556.91	863601.49	6.567	
DS01	138820.87	863455.06	-2.250	
CPT01	138602.42	863699.21	3.739	
CPT02	138575.77	863645.95	4.046	
CPT03	138646.39	863692.86	2.496	
CPT04	138628.65	863655.45	3.149	
CPT05	138603.47	863595.97	2.672	
CPT06	138661.31	863635.88	2.323	
CPT07	138668.81	863592.00	1.710	
CPT08	138613.95	863742.37	3.714	
CPT09	138660.49	863724.98	2.564	
CPT10	138663.08	863591.23	2.275	
TP01	138603.03	863691.89	3.641	
TP02	138575.64	863642.04	4.035	

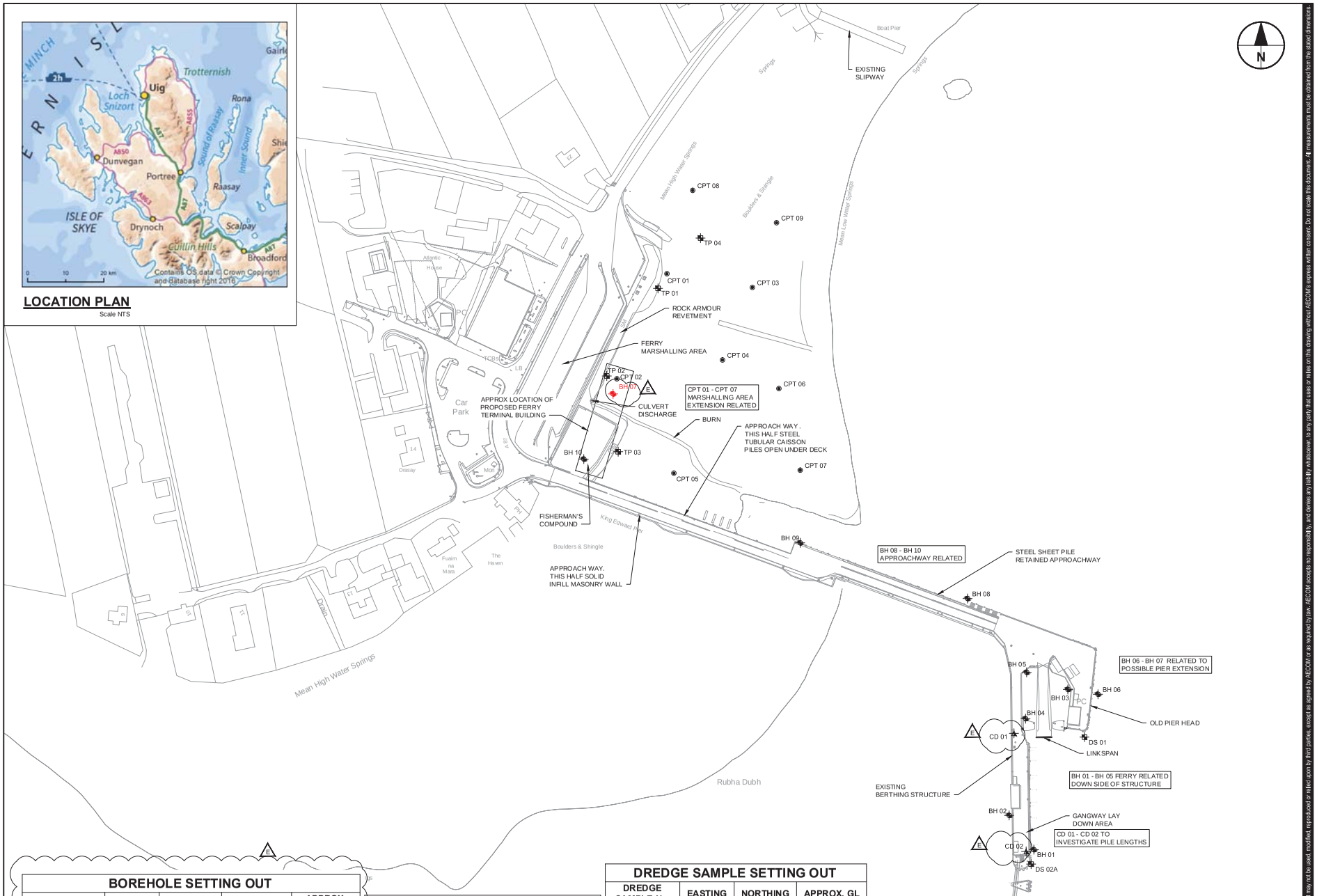
CONTRACT: Uig Harbour Redevelopment GI
CLIENT: The Highland Council
ENGINEER: Aecom

TP03	138578.04	863600.92	3.148	
TP04	138611.51	863717.33	3.549	

Surveyed using Topcon GTS-2110 Total Station

LOCATION PLAN

Scale NTS



BOREHOLE SETTING OUT

BOREHOLE No.	EASTING	NORTHING	APPROX. GL	APPROX. DECK LEVEL
BH 01	138799.373	863388.918	-4.000	6.830
BH 02	138786.107	863407.330	-3.000	6.790
BH 03	138817.691	863475.085	-2.400	6.880
BH 04	138794.888	863459.361	-2.400	6.690
BH 05	138795.513	863484.290	0.000	6.690
BH 06	138833.870	863472.509	-1.500	6.900
BH 07	138572.979	863634.039	4.000	6.880
BH 08	138763.693	863523.999	-2.100	6.930
BH 09	138673.671	863553.933	0.000	6.780
BH 10	138557.242	863598.965	6.580	6.730

CPT SETTING OUT

CPT No.	EASTING	NORTHING	APPROX. GL
CPT 01	138601.923	863698.659	4.030
CPT 02	138575.014	863642.153	4.090
CPT 03	138647.937	863691.315	2.320
CPT 04	138631.845	863652.297	2.860
CPT 05	138605.685	863591.389	2.600
CPT 06	138662.170	863636.902	2.180
CPT 07	138673.649	863593.020	1.500
CPT 08	138615.804	863743.507	3.600
CPT 09	138660.933	863726.126	2.400

DREDGE SAMPLE SETTING OUT

DREDGE SAMPLE No.	EASTING	NORTHING	APPROX. GL
DS 01	138826.616	863449.453	-2.500
DS 02A	138797.906	863381.175	-4.000
DS 02B	138792.824	863342.522	-4.500

TRIAL PIT SETTING OUT

TRIAL PIT No.	EASTING	NORTHING	APPROX. GL
TP 01	138597.162	863690.817	4.300
TP 02	138569.605	863643.689	4.380
TP 03	138575.723	863602.943	3.540
TP 04	138620.027	863717.868	3.160

CORE DRILL SETTING OUT

CORE DRILL No.	EASTING	NORTHING	APPROX. DECK LEVEL
CD 01	TO BE AGREED ON SITE WITH ENGINEER		6.840
CD 02			6.820

0 25 50 m
1:1000

AECOM

PROJECT

UIG HARBOUR REDEVELOPMENT

CLIENT

THE HIGHLAND COUNCIL

GLENURQUHART ROAD, INVERNESS, IV3 5NX
01349 886 606 tel

CONSULTANT

AECOM
7th FLOOR, AURORA,
120 BOTHWELL STREET
GLASGOW, G2 7JS
0141 248 0300 tel
www.aecom.com

NOTES

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE NOTED. DO NOT SCALE.
2. ALL LEVELS IN METRES AND REDUCED TO CHART DATUM UNLESS OTHERWISE NOTED.
3. CHART DATUM AT UIG IS 2.7M BELOW ORDNANCE DATUM (NEWLYN).
4. THIS DRAWING TO BE READ IN CONJUNCTION WITH DOCUMENT NUMBERS 60536743-DOC-00-0000-C-1002 AND 60536743-DOC-00-0000-C-1003 AND ALL REFERENCED DETAIL DRAWINGS.

LEGEND

- BH 00 — BOREHOLE
- CD 00 — CORE DRILL
- TP 00 — TRIAL PIT
- CPT 00 — CONE PENETRATION TEST
- DS 00 — DREDGE SAMPLE
- BH XX — AMENDED BOREHOLE POSITION

ISSUE/REVISION

I/R	DATE	DESCRIPTION
E	2017-08-04	BH07 & CD's MOVED
D	2017-07-03	BH05 & BH09 MOVED
C	2017-06-20	DS ADDED & BH 03 MOVED
B	2017-06-06	FOR INFORMATION
A	2017-03-06	FOR INFORMATION

KEY PLAN

PROJECT NUMBER

60536743

SHEET TITLE

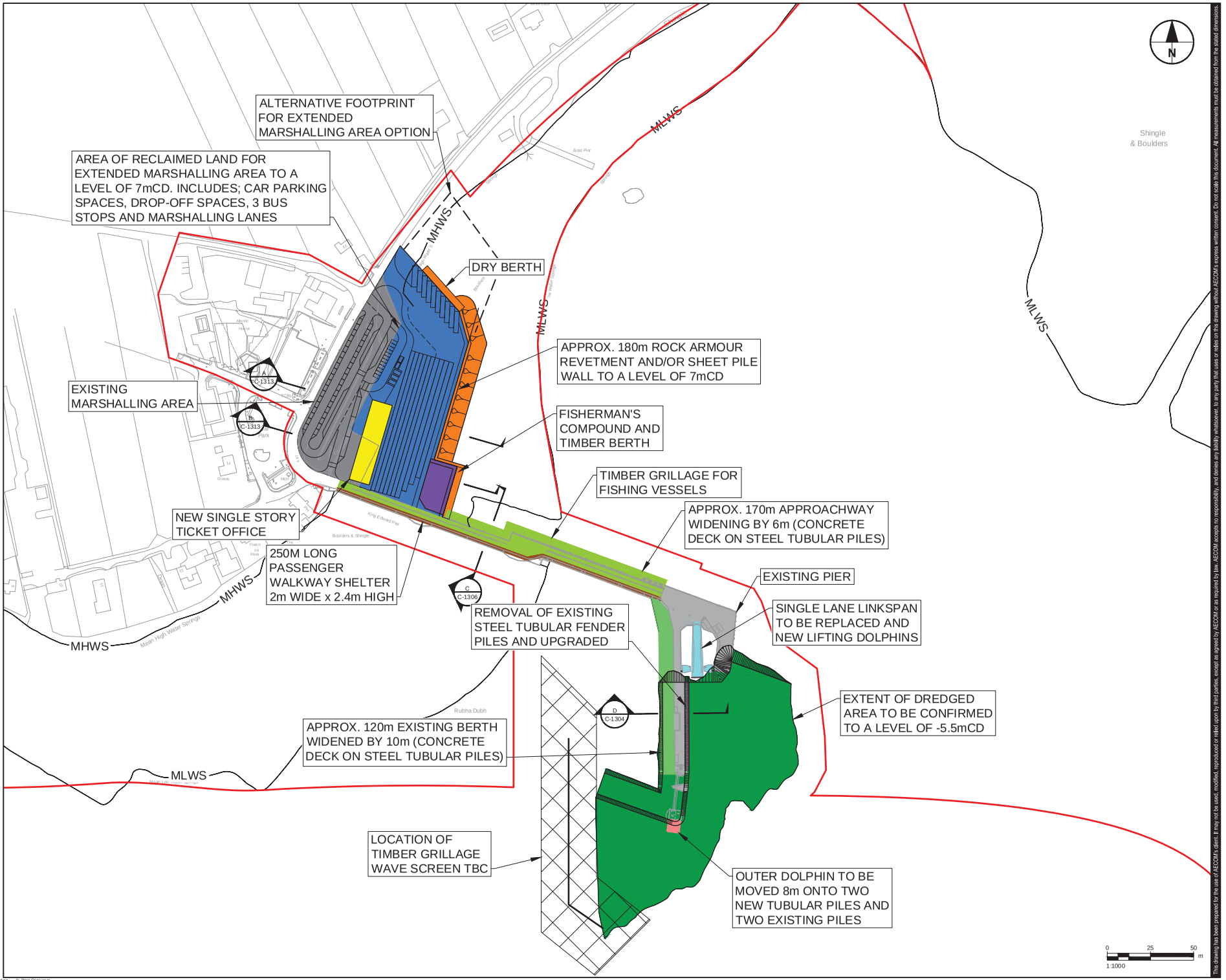
GROUND INVESTIGATION SETTING OUT SITE PLAN

SHEET NUMBER

60536743-SKE-00-0000-C-1104

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.

Last saved by: KIRKWOODD(2017-08-04) Last Plotted: 2017-08-04
Filename: \\EU.AECOMNET.COM\EUPROJECTVOL1\UKGLG1-V1\BTP\PORTS AND MARINE\PROJECTS\60536743-UIG HARBOUR REDEVELOPMENT\03 EXECUTION\04 CAD\25-SKETCHES\60536743-SKE-00-0000-C-1104.DWG
Project Management Initials: Designer: Checked: Approved: ISO A1 594mm x 841mm
Printed on ___% Post Consumer Recycled Content Paper



AECOM

PROJECT

UIG HARBOUR REDEVELOPMENT

CLIENT

THE HIGHLAND COUNCIL

GLENURQUHART ROAD, INVERNESS, IV3 5NX
01349 886 606 tel

CONSULTANT

AECOM
7th FLOOR, AURORA,
120 BOTHWELL STREET
GLASGOW, G2 7JS
0141 248 0300 tel
www.aecom.com

NOTES

1. ALL DIMENSIONS IN METRES UNLESS OTHERWISE NOTED. DO NOT SCALE.
2. ALL LEVELS IN METRES AND REDUCED TO CHART DATUM UNLESS OTHERWISE NOTED.

LEGEND

HRO BOUNDARY

ISSUE/REVISION

I/R	DATE	DESCRIPTION
A	2017-07-20	FOR INFORMATION

KEY PLAN

PROJECT NUMBER

60536743

SHEET TITLE

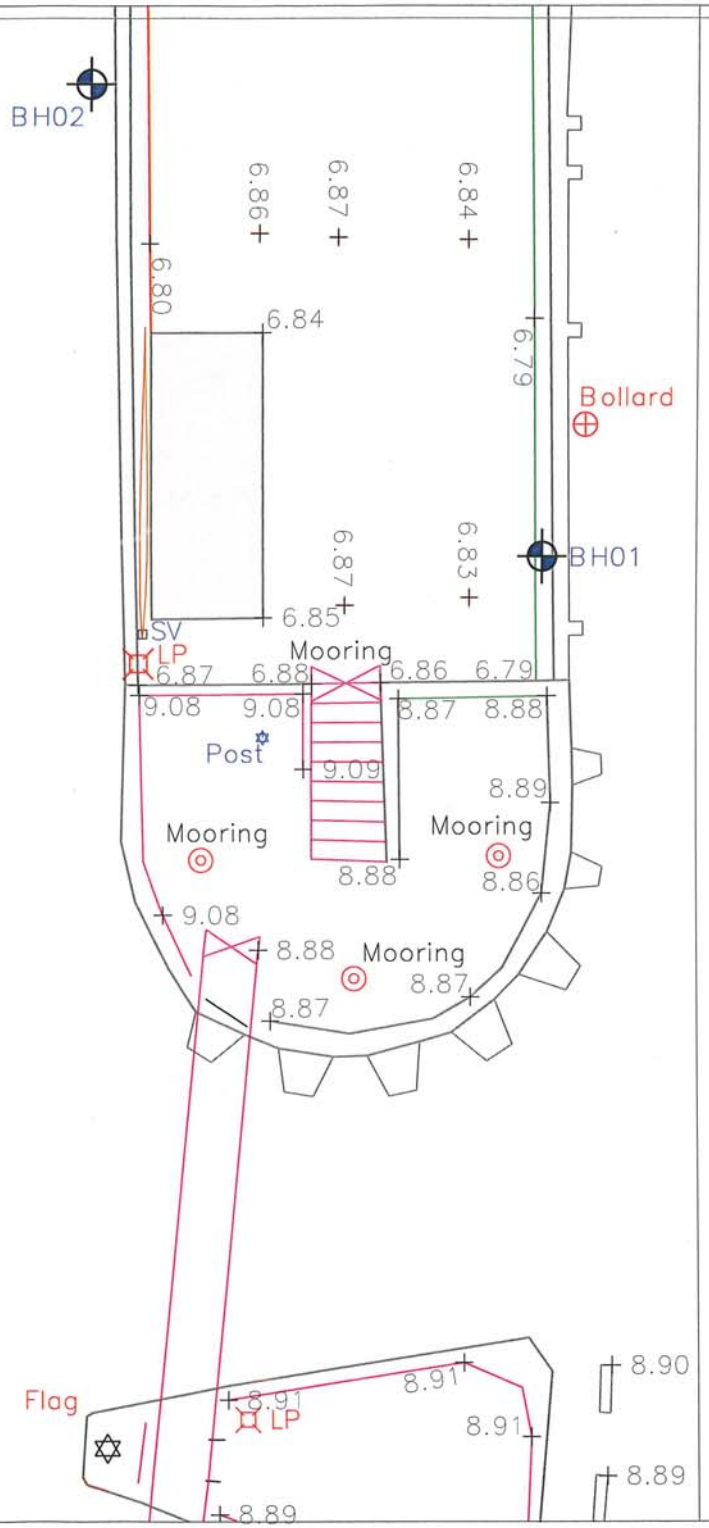
ENVIRONMENTAL SURVEY BOUNDARY PLAN

SHEET NUMBER

60536743-SKE-00-0000-C-1158

This drawing has been prepared for the use of AECOM's client. It may not be used, modified, reproduced or relied upon by third parties, except as agreed by AECOM or as required by law. AECOM accepts no responsibility, and denies any liability whatsoever to any party that uses or relies on this drawing without AECOM's express written consent. Do not scale this document. All measurements must be obtained from the stated dimensions.

ISO A1 594mm x 841mm
Approved: ____
Checked: ____
Designer: ____
Project Management Initials: ____
Last saved by: KIRKWOODD(2017-07-20) Last Plotted: 2017-07-20
Filename: \\EU.AECOMNET.COM\EUPROJECTVOL1\UKGLG1-V1\BT\PORTS AND MARINE\PROJECTS\60536743-UIG HARBOUR REDEVELOPMENT\03 EXECUTION\04 CAD\25-SKETCHES\60536743-SKE-00-0000-C-1158.DWG
Printed on ___% Post Consumer Recycled Content Paper



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan A

Drawing No:-	Scale:-
HQ/THC/UHR/001	Not To Scale

Redacted

Drawn By:- Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

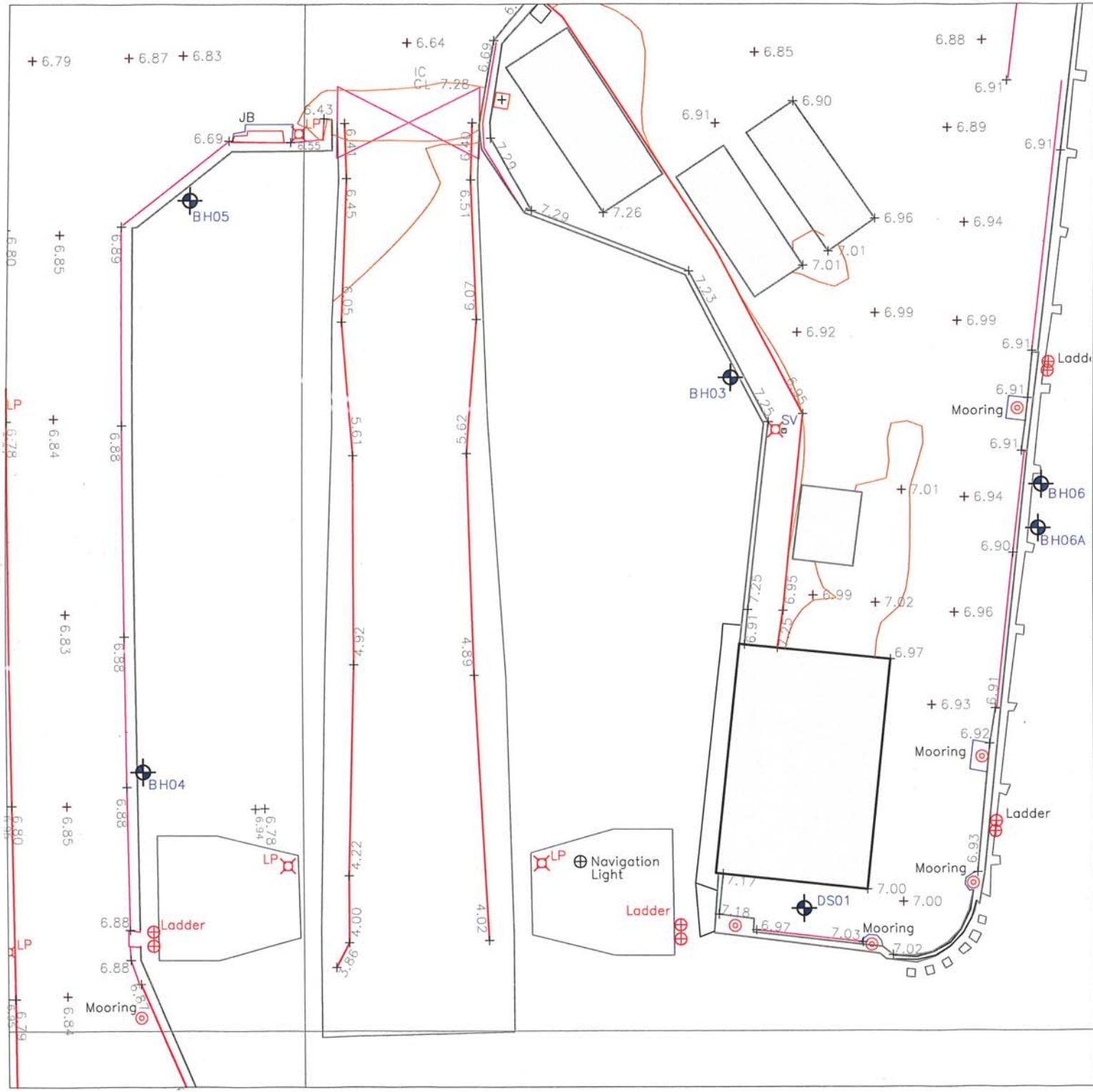
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan B

Drawing No:-	Scale:-
HQ/THC/UHR/002	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

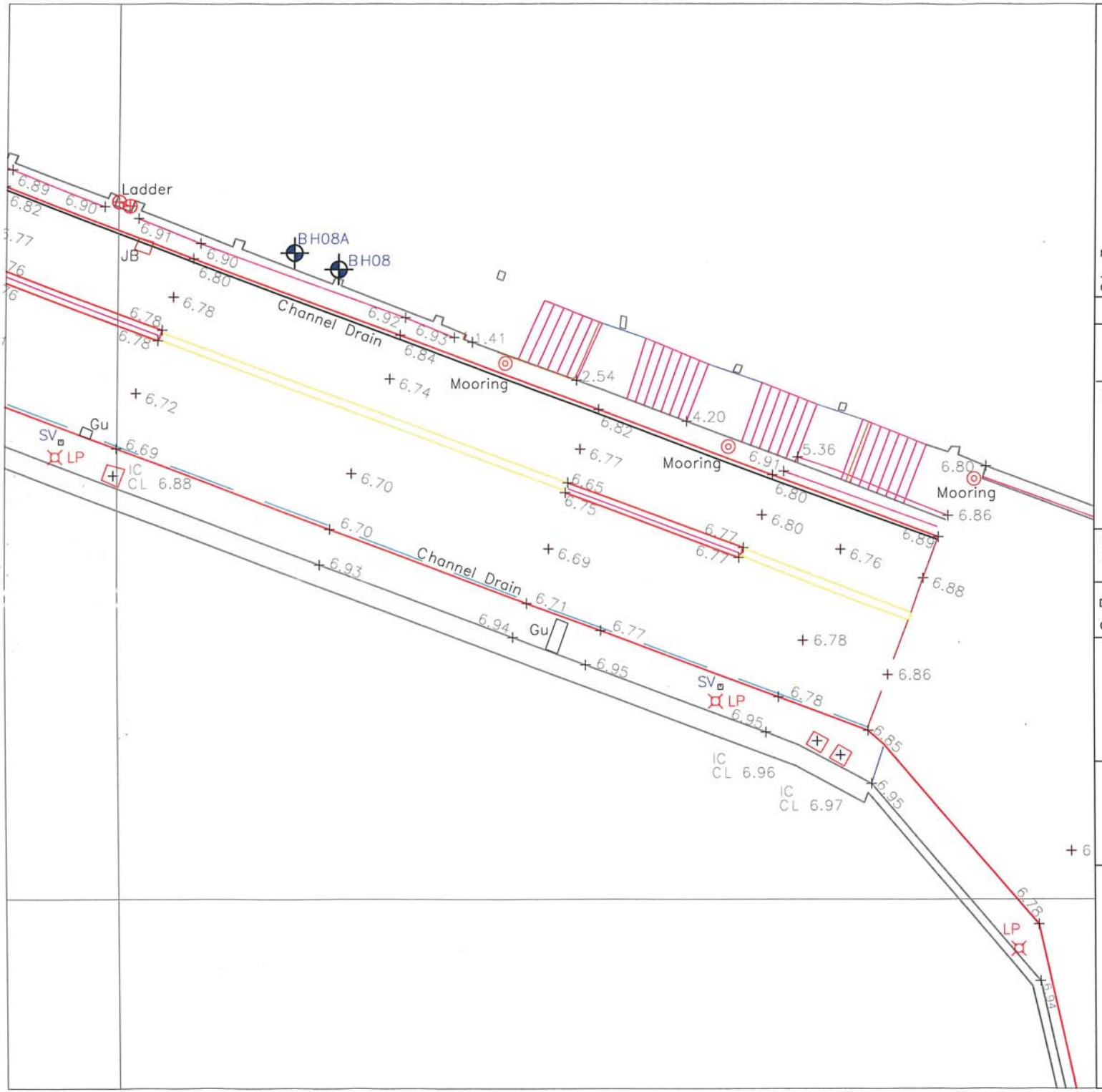
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST · LIMITED ·

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan C

Drawing No:-	Scale:-
HQ/THC/UHR/003	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

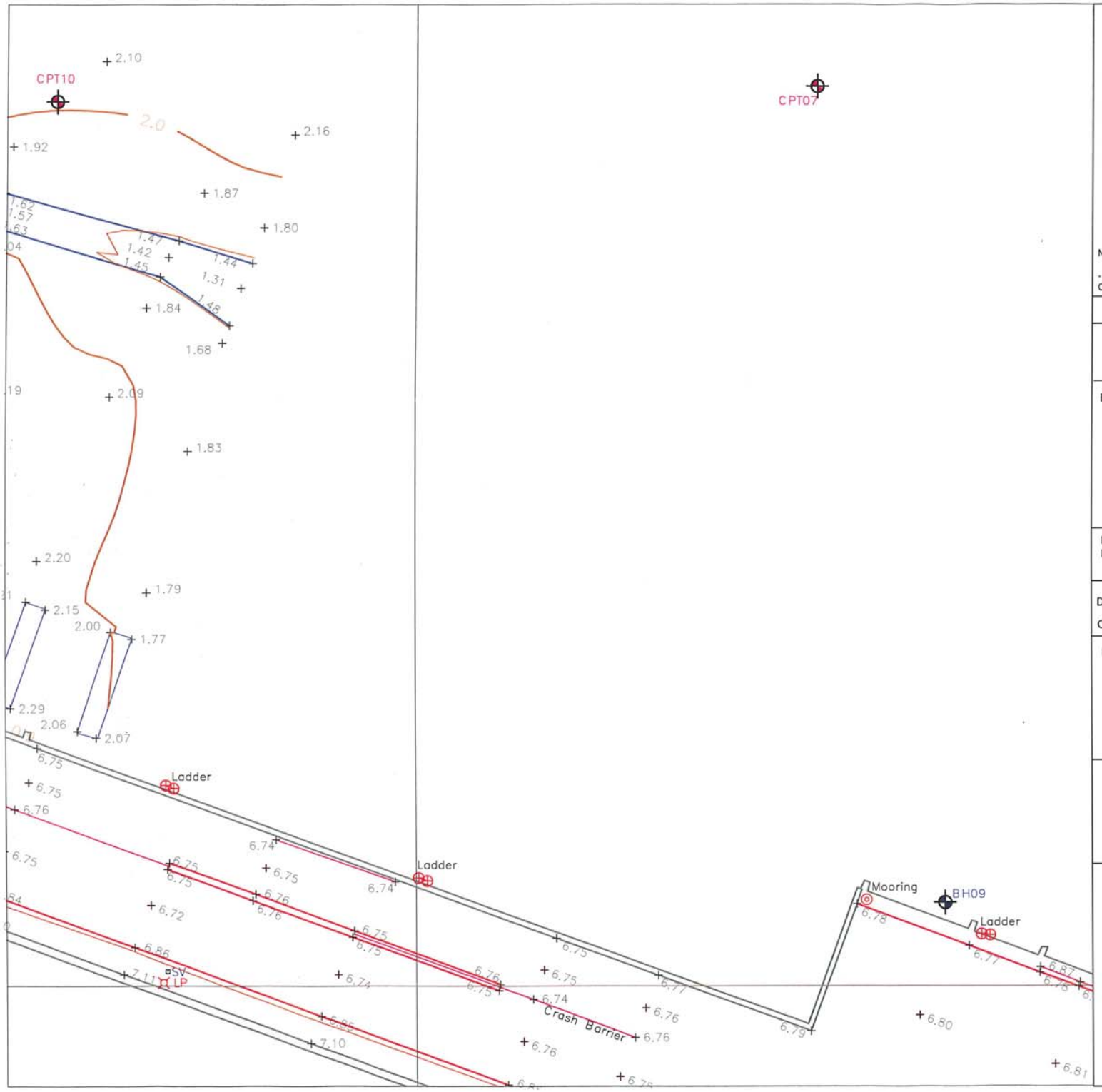
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST LIMITED

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan D

Drawing No:-	Scale:-
HQ/THC/UHR/004	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

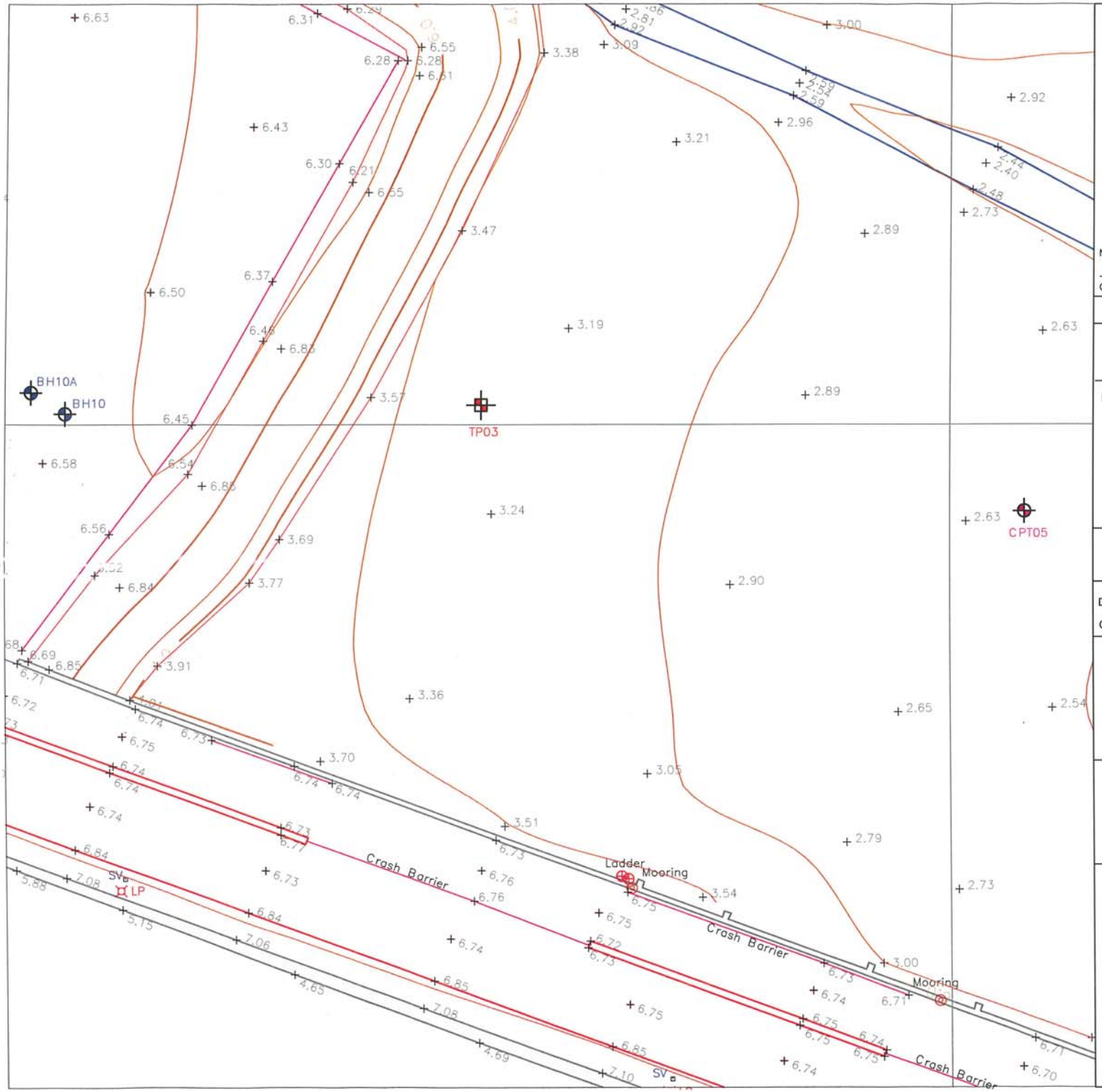
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST · LIMITED ·

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan E

Drawing No:-	Scale:-
HQ/THC/UHR/005	Not To Scale

Redacted

Drawn By:- Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

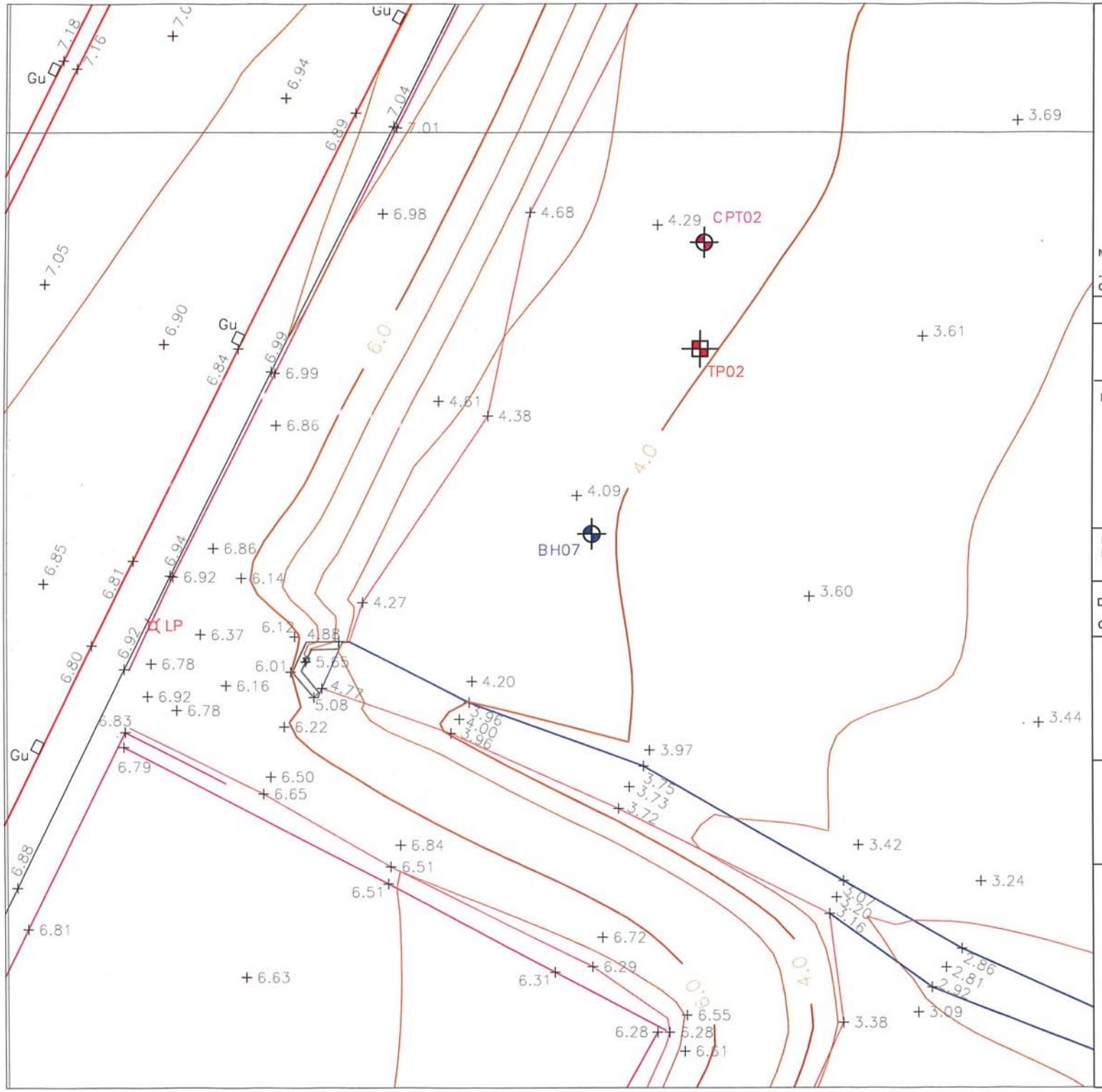
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan F

Drawing No:-	Scale:-
HQ/THC/UHR/006	Not To Scale

Redacted

Drawn By:- Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

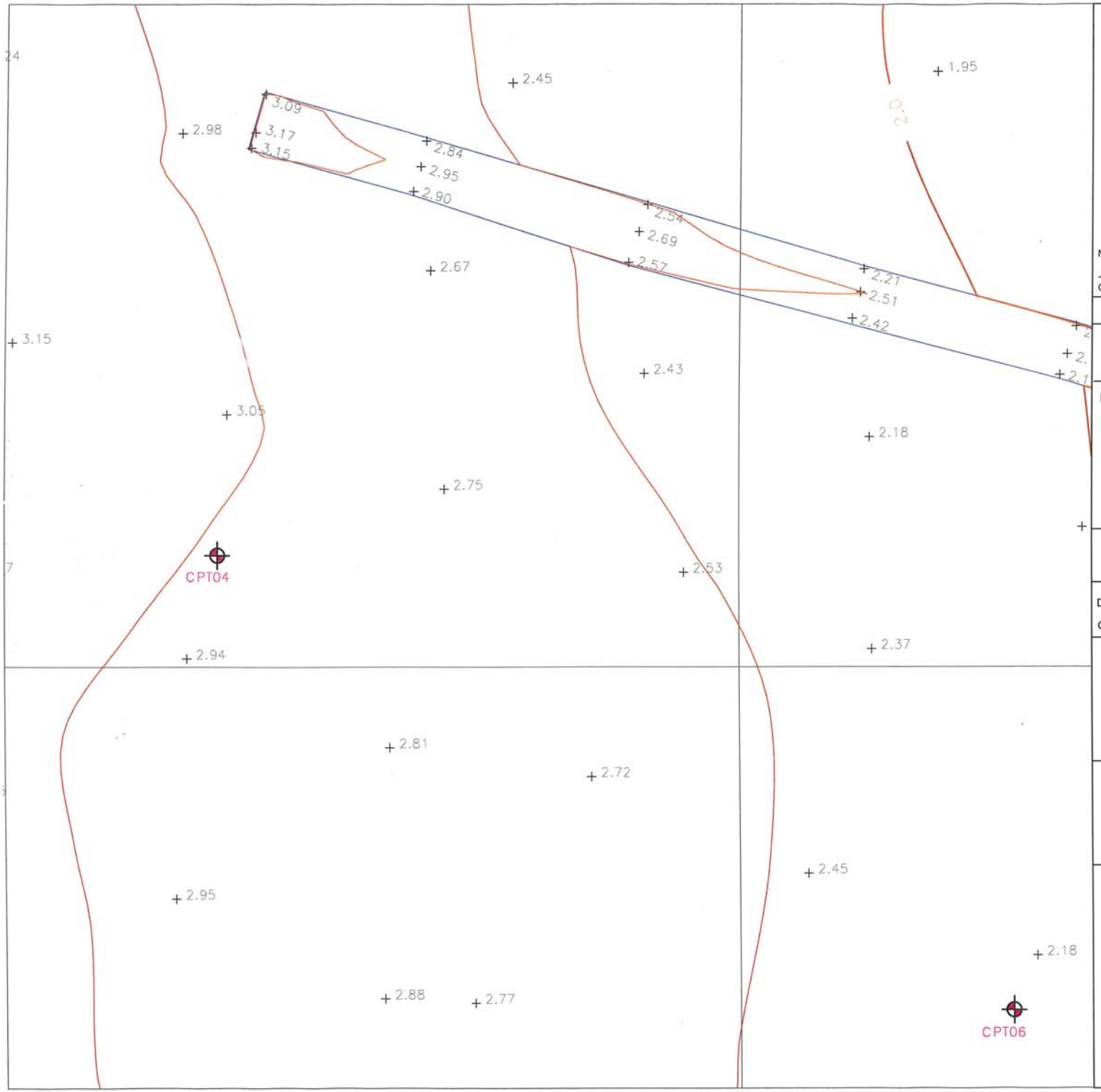
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan G

Drawing No:-	Scale:-
HQ/THC/UHR/007	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

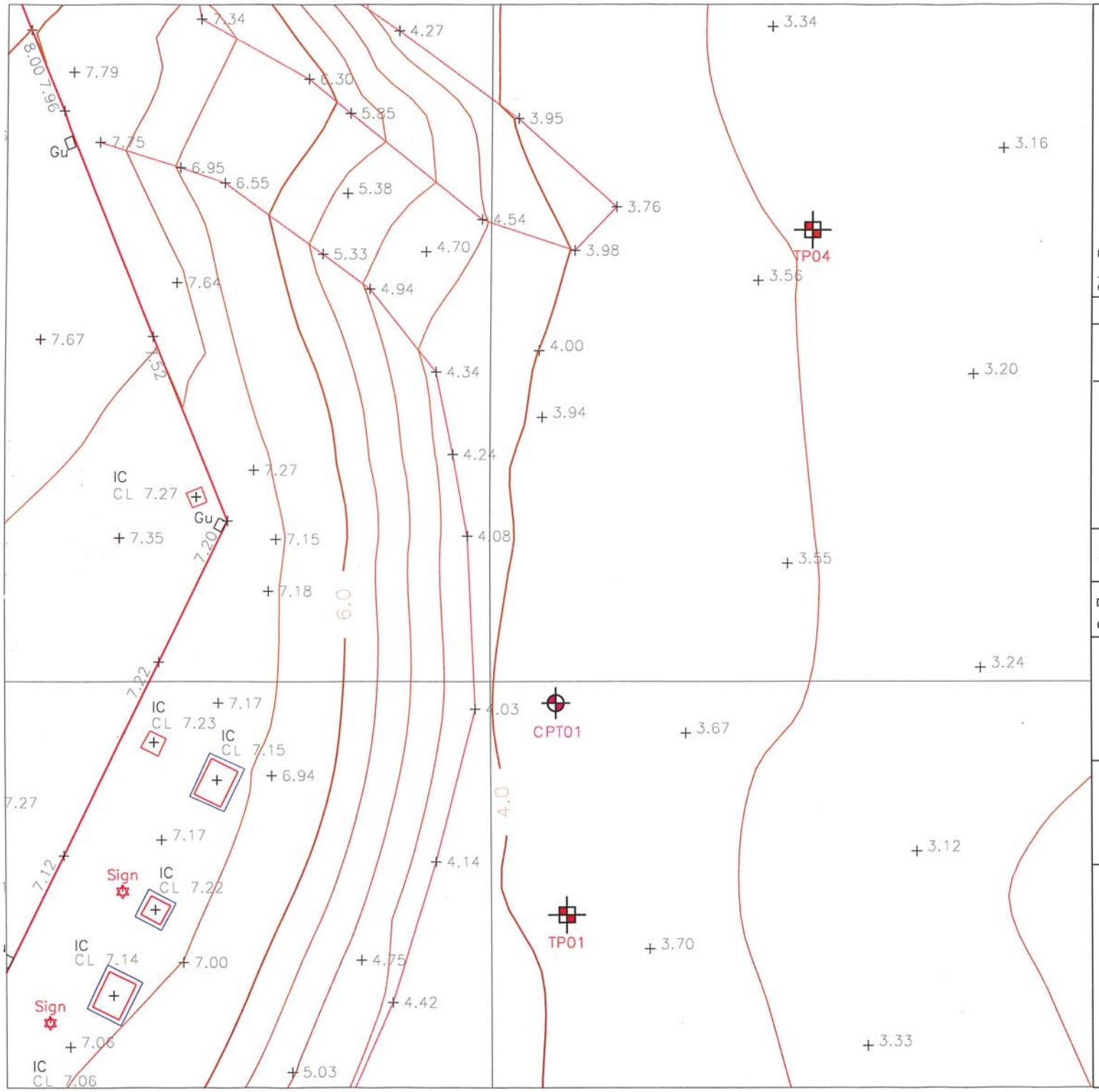
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan H

Drawing No:-	Scale:-
HQ/THC/UHR/008	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

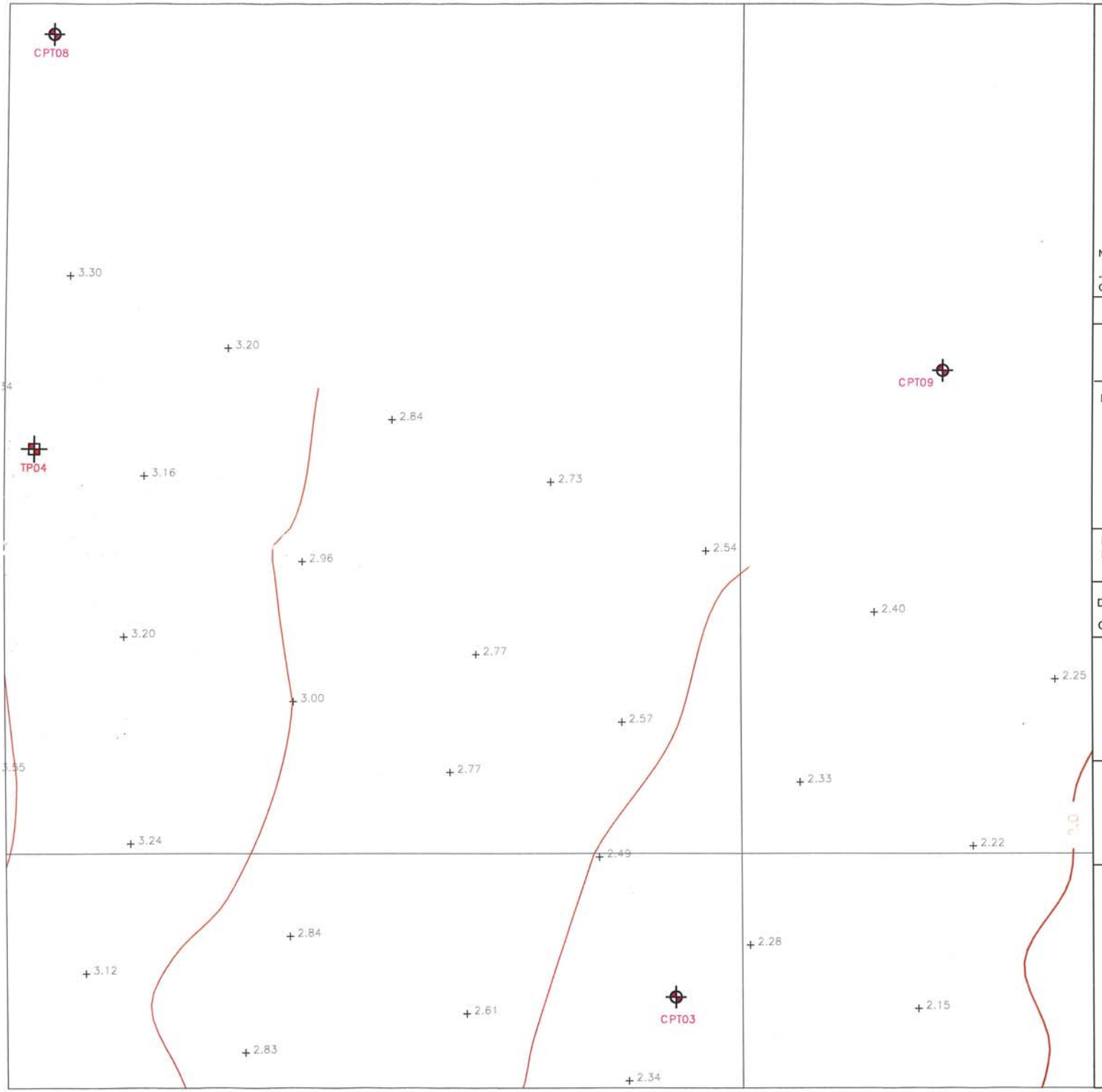
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan I

Drawing No:-	Scale:-
HQ/THC/UHR/009	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

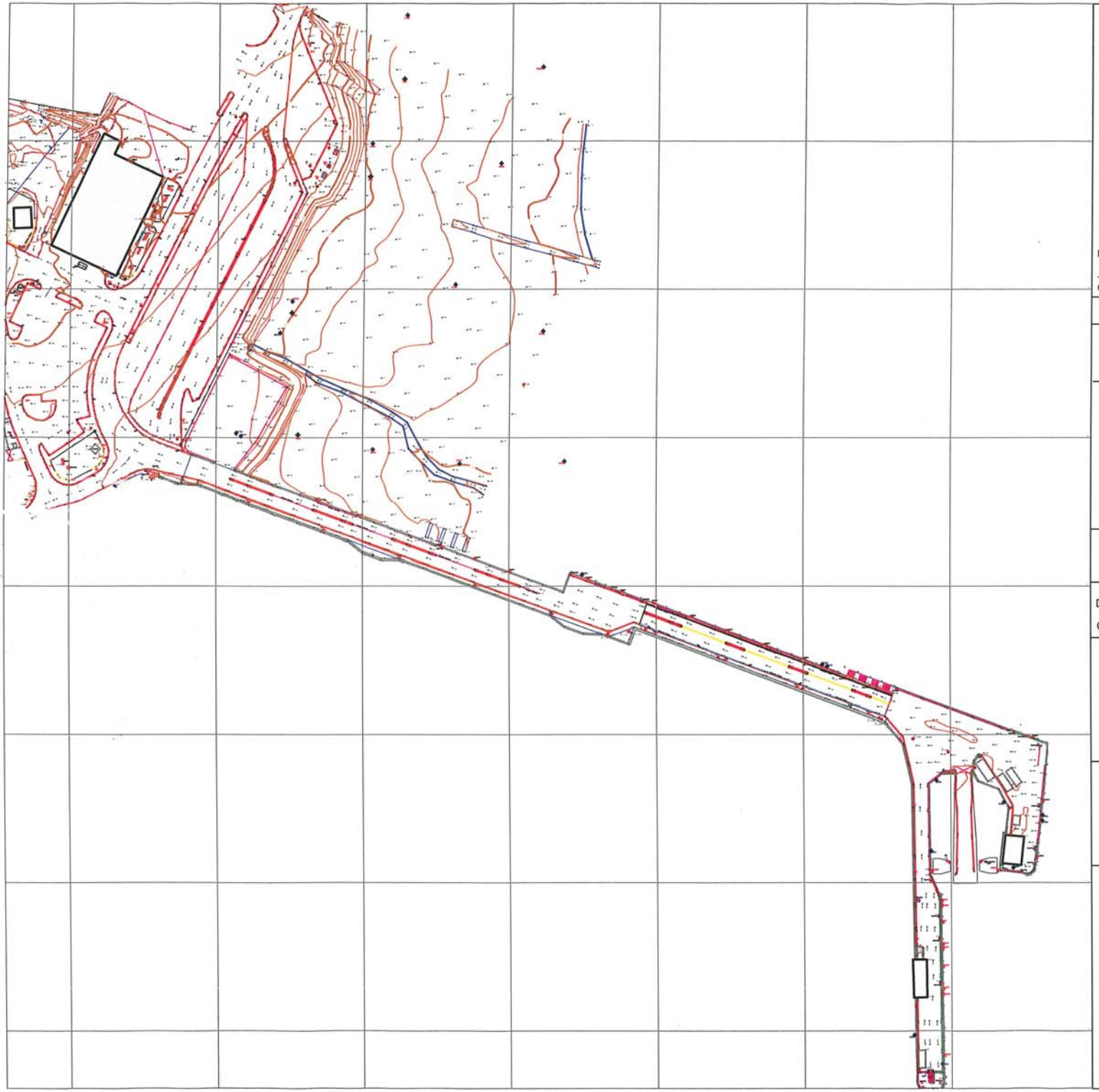
Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels



- Denotes as drilled borehole location
- Denotes as drilled CPT location
- Denotes as dug trial pit location

Notes:

- Backround topographical data as provided by Aecom (Drawing ref -941801 Chart Datum).

Revision:-	Amendment:-	By:-	Date:-

Drawing:-

UHR GI - As Drilled Borehole Location Plan Overview

Drawing No:-	Scale:-
HQ/THC/UHR/010	Not To Scale

Drawn By:- Redacted Date:- 02.10.17

Checked By:- Date:- 02.10.17

Project:-

Uig Harbour Redevelopment GI

Client:-

The Highland Council

HOLEQUEST
• LIMITED •

Tel: 01896 752295
Fax: 01896 751515
Web: www.holequest.co.uk
Address: Winston Rd, Galashiels

APPENDIX III

Borehole Records

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH1
Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138796E - 863389N	RO
Drilling Methods:- Rotary open hole, Symetrix 150mm diam, SB - 36.0m Rotary open hole, 115mm diam, 11.6 - 16.3m, 24.0 - 30.0m & 34.5 - 36.0m		Level: -4.44 m ACD	Orientation 90
Client:- The Highland Council	Rotary cored, T2101 water flush, 18.0 - 19.5m & 36.0 - 36.5m	Dates: 04/07/2017-01/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00	CPT	N=14 (2,2/3,3,4,4)				Medium dense to dense dark grey to black and white slightly silty very gravelly fine to coarse SAND that includes much Shells and Shell debris*
		0.00-1.30	B					
		1.30	CPT	N=25 (10,10/8,8,5,4)				
		1.30-2.80	B					
		2.80	CPT	N=38 (8,8/10,12,7,9)				
		2.80-4.30	B					
		4.30	CPT	N=39 (10,11/8,9,10,12)	4.30	-8.74		Dense dark grey to black and white silty fine to coarse SAND and fine to coarse rounded to angular GRAVEL with occasional cobbles and boulders that includes much Shells and Shell debris*
		4.30-5.80	B					
		5.80	CPT	N=41 (11,8/10,12,9,10)	6.00	-10.44		Dense grey silty very gravelly fine to coarse SAND with lenses of Clay and occasional Shell Debris*
		5.80-7.30	B					
					7.00	-11.44		Firm to stiff grey locally slightly gravelly silty CLAY with silty partings, occasional Shell fragments and boulders* 25% recovery of U80 between 7.3 - 8.3m
		7.30-8.30	U					
		7.30-8.80	B					
					8.20	-12.64		Firm grey slightly sandy gravelly CLAY with occasional cobbles and boulders*
		8.80	SPT	N=26 (7,6/7,6,7,6)				
					9.40	-13.84		Dark grey silty sandy fine to coarse rounded to angular GRAVEL with some cobbles and occasional boulders*
		8.80-10.30	B		9.60	-14.04		
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform through existing concrete edge beam (approx 420mm thick) (seabed approx 11.7m below cantilever deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH1**
Sheet 2 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138796E - 863389N	RO
Drilling Methods:- Rotary open hole, Symetrix 150mm diam, SB - 36.0m Rotary open hole, 115mm diam, 11.6 - 16.3m, 24.0 - 30.0m & 34.5 - 36.0m		Level: -4.44 m ACD	Orientation 90
Client:- The Highland Council Rotary cored, T2101 water flush, 18.0 - 19.5m & 36.0 - 36.5m		Dates: 04/07/2017-01/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		10.30	SPT	N=50 (8,9/18,32 for 75mm)				Very stiff grey slightly sandy slightly gravelly locally gravelly CLAY with occasional cobbles and boulders locally recovered as clayey sandy to very sandy fine to coarse angular to subrounded Gravel. Includes occasional thin lenses of silty sandy Gravel.*
		10.30-11.80	B					
		11.80	SPT	N=50 (1,8/11,14,25 for 75mm)				
		11.80-13.30	B					
		13.30	SPT	N=50 (25 for 75mm/50 for 75mm)				
		13.30-14.80	B					
		14.80	SPT	N=50 (25 for 75mm/50 for 75mm)				
		14.80-16.30	B		15.70	-20.14		Dark grey silty sandy fine to coarse rounded to angular GRAVEL with some cobbles and occasional boulders*
		16.30	SPT	N=50 (10,14/23,27 for 75mm)	16.30	-20.74		Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders sand / silt lenses locally recovered as clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded Gravel* Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		16.30-17.80	B					
		18.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		17.80-19.50 18.00-19.50	B 10	0	0			
		19.50	CPT B	N=50 (10,15/50 for 75mm)				

TCR	SCR	RQD	FI

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform through existing concrete edge beam (approx 420mm thick) (seabed approx 11.7m below cantilever deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer HQ04 | Scale 1:50 | Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH1**
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138796E - 863389N	RO
Drilling Methods:- Rotary open hole, Symetrix 150mm diam, SB - 36.0m Rotary open hole, 115mm diam, 11.6 - 16.3m, 24.0 - 30.0m & 34.5 - 36.0m		Level: -4.44 m ACD	Orientation 90
Client:- The Highland Council	Rotary cored, T2101 water flush, 18.0 - 19.5m & 36.0 - 36.5m	Dates: 04/07/2017-01/08/2017	Logged By Redact

Well	Water Strikes	Rotary Coring Depth (m)	TCR	SCR	RQD	FI	Depth (m)	Level (m CD)	Legend	Stratum Description
		19.50-21.00								Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders sand / silt lenses locally recovered as clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded Gravel* Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		21.00	CPT	N=50 (12,13/50 for 75mm)						
		21.00-22.50	B							
		22.50	CPT	N=50 (10,15/29,21 for 75mm)						
		22.50-24.00	B							
		24.00	SPT	N=50 (10,14/19,23,8 for 10mm)						
		24.00-25.50	B							
		25.50	SPT	N=50 (25 for 75mm/50 for 75mm)						
		25.50-27.00	B							
		27.00	SPT	N=50 (25 for 75mm/50 for 75mm)						
		27.00-28.50	B				27.80	-32.24		Very dense dark yellowish grey very clayey gravelly fine to medium SAND with lenses of Silt and Clay*
		28.50	SPT	N=50 (25 for 75mm/50 for 75mm)						
		28.50-30.00	B							
			TCR	SCR	RQD	FI				Continued next sheet

Remarks: Borehole drilled from cantilevered access platform through existing concrete edge beam (approx 420mm thick) (seabed approx 11.7m below cantilever deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH1**
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138796E - 863389N	RO
Drilling Methods:- Rotary open hole, Symetrix 150mm diam, SB - 36.0m Rotary open hole, 115mm diam, 11.6 - 16.3m, 24.0 - 30.0m & 34.5 - 36.0m		Level: -4.44 m ACD	Orientation 90
Client:- The Highland Council Rotary cored, T2101 water flush, 18.0 - 19.5m & 36.0 - 36.5m		Dates: 04/07/2017-01/08/2017	Logged By Redact

Well	Water Strikes	Rotary Coring Depth (m)	TCR	SCR	RQD	FI	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.00	SPT (25 for 75mm/50 for 75mm)		N=50		30.00	-34.44		Very dense grey clayey to very clayey sandy fine to coarse angular to subangular GRAVEL with many cobbles and boulders predominantly of amygdaloidal / olivine Basalt*
		30.00-31.50	B							
		31.50	SPT (25 for 75mm/50 for 75mm)		N=50					
		31.50-33.00	B							
		33.00	SPT (25 for 75mm/50 for 75mm)		N=50					
		33.00-34.50	B							
		34.50	SPT (25 for 75mm/50 for 75mm)		N=50					
		36.00-36.50	0	0	0		36.50	-40.94		End of Borehole at 36.50 m
			TCR	SCR	RQD	FI				

Remarks: Borehole drilled from cantilevered access platform through existing concrete edge beam (approx 420mm thick) (seabed approx 11.7m below cantilever deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer HQ04 | Scale 1:50 | Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH2**
Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138787E - 863399N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.45m Rotary cored, T2101 water flush, 30.5 - 31.5m		Level: -3.46 m ACD	Orientation 90
Client:- The Highland Council		Dates: 05/08/2017-14/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00	ES					Loose becoming very dense with depth light grey to black and white silty fine to coarse SAND and fine to coarse rounded to subangular GRAVEL that includes varying proportions of Shells and Shell Debris*
		0.50	CPT	N=8 (2,2/1,2,3,2)				
		0.50-2.00	B					
		2.00	CPT	N=24 (4,6/5,6,6,7)				
		2.00-3.50	B					
		3.50	CPT	N=37 (8,9/10,10,8,9)				
		3.50-5.00	B					
		5.00	CPT	N=50 (10,10/12,16,22 for 75mm)				
		5.00-6.50	B					
		6.50	CPT	N=50 (25 for 75mm/50 for 75mm)	6.50	-9.96		Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders and sand / silt lenses with beds of clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded GRAVEL with occasional to many cobbles and boulders*
		6.50-8.00	B					Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		8.00	SPT	N=50 (10,13/26,24 for 75mm)				Slightly gravelly with rare Shell Debris between approx 6.5 - 10.0m
		8.00-9.50	B					
		9.50	SPT	N=50 (11,12/50 for 75mm)				
			B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 11.75m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED	Holequest Ltd Winston Road Galashiels Tel: 01896 752295	Borehole No **BH2** Sheet 2 of 4

Project Name	Project No.	Co-ords: 138787E - 863399N	Hole Type
Uig Harbour Redevelopment GI	17/035		RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.45m Rotary cored, T2101 water flush, 30.5 - 31.5m		Level: -3.46 m ACD	Orientation 90
Client:- The Highland Council		Dates: 05/08/2017-14/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		9.50-11.00						Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders and sand / silt lenses with beds of clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded GRAVEL with occasional to many cobbles and boulders* Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		11.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		11.00-12.50	B					
		12.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		12.50-14.00	B					
		14.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		14.00-15.50	B					
		15.50	SPT	N=50 (12,13/32,18 for 75mm)				
		15.50-17.00	B					
		17.00	SPT	N=50 (15,10/42,8 for 20mm)				
		17.00-18.50	B					
		18.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		18.50-20.00	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 11.75m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH2**
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138787E - 863399N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.45m Rotary cored, T2101 water flush, 30.5 - 31.5m		Level: -3.46 m ACD	Orientation 90
Client:- The Highland Council		Dates: 05/08/2017-14/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		20.00	SPT	N=50 (25 for 75mm/50 for 75mm)				Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders and sand / silt lenses with beds of clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded GRAVEL with occasional to many cobbles and boulders*
		20.00-21.50	B					Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		21.50	SPT	N=53 (10,15/19,27,7 for 75mm)				
		21.50-23.00	B					
		23.00	SPT	N=50 (12,13/50 for 75mm)				
		23.00-24.50	B					
		24.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		24.50-26.00	B					
		26.00	SPT	N=50 (19,6/50 for 75mm)				Includes many lenses of Sand and Silt between approx 26.2 - 26.6m
		26.00-27.50	B					
		27.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		27.50-29.00	B					
		29.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		29.00-30.50	B					
		Type		Results				

Continued next sheet

Remarks:
Borehole drilled from cantilevered access platform (seabed approx 11.75m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH2
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138787E - 863399N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.45m Rotary cored, T2101 water flush, 30.5 - 31.5m		Level: -3.46 m ACD	Orientation 90
Client:- The Highland Council		Dates: 05/08/2017-14/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.50	SPT	N=50 (25 for 75mm/50 for 75mm)				Very stiff grey slightly sandy gravelly CLAY with occasional to many cobbles, boulders and sand / silt lenses with beds of clayey to very clayey sandy fine to coarse angular to subangular rarely subrounded GRAVEL with occasional to many cobbles and boulders* Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt
		30.50-31.50		0 0				
		30.50-32.00	B 40					
		32.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		32.00-33.50	B					
		33.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		33.50-35.00	B					
		35.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
					35.45	-38.91		End of Borehole at 35.45 m

31 32 33 34 35 36 37 38 39

TCR	SCR	RQD	FI

Remarks: Borehole drilled from cantilevered access platform (seabed approx 11.75m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH3
Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138818E - 863477N	RO
Drilling Methods:- Rotary open hole, 180mm diam Symetrix, SB - 34.7m		Level: -2.38 m ACD	Orientation 90
Client:- The Highland Council		Dates: 31/08/2017-06/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-1.50	B					Loose / medium dense dark grey, black occasionally white silty fine to medium SAND with shells and shell debris*
		1.50 1.50	SPT D	N=10 (1,2/2,2,3,3)				
		1.50-3.00	B		2.00	-4.38		Medium dense light grey, dark grey and occasionally black silty very sandy fine to coarse subrounded to angular GRAVEL with occasional cobbles*
		3.00 3.00	SPT D	N=11 (4,4/4,2,2,3)				
		3.00-4.50	B					
		4.50 4.50	SPT D	N=23 (3,4/4,5,7,7)	4.60	-6.98		Soft to firm very dark grey to black slightly sandy slightly gravelly organic SILT with traces of shell debris*
		4.50-6.00	B					
		6.00 6.00	SPT D	N=50 (15,10/50 for 75mm)	5.80	-8.18		Very dense dark grey, black and occasionally white silty very sandy fine to coarse subrounded to angular GRAVEL, with rare shell debris*
		6.00-7.50	B					
		7.50 7.50	SPT D	N=48 (7,13/12,16,10,10)	7.50	-9.88		Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional cobbles locally recovered as clayey sandy fine to coarse angular to subangular Gravel. Gravel and cobbles predominately of amygdaliodal and olivine basalt*
		7.50-9.00	B					
		9.00 9.00	SPT D	N=50 (7,12/14,15,12,9)				
		9.00-10.50	B					
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilever access platform (seabed approx 10.8m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED	Holequest Ltd Winston Road Galashiels Tel: 01896 752295	Borehole No **BH3** Sheet 2 of 4

Project Name	Project No.	Co-ords: 138818E - 863477N	Hole Type
Uig Harbour Redevelopment GI	17/035		RO
Drilling Methods:- Rotary open hole, 180mm diam Symetrix, SB - 34.7m		Level: -2.38 m ACD	Orientation 90
Client:- The Highland Council		Dates: 31/08/2017-06/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50 10.50	SPT D	N=50 (5,11/11,15,15,9 for 25mm)				Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional cobbles locally recovered as clayey sandy fine to coarse angular to subangular Gravel. Gravel and cobbles predominately of amygdaliodal and olivine basalt*
		10.50-12.00	B					
		12.00 12.00	SPT D	N=38 (7,12/10,9,9,10)				
		12.00-13.50	B					
		13.50 13.50	SPT D	N=39 (3,5/10,10,9,10)				
		13.50-15.00	B					
		15.00 15.00	SPT D	N=50 (9,10/16,15,14,5 for 5mm)				
		15.00-16.50	B					
		16.50 16.50	SPT D	N=50 (5,8/22,21,7 for 5mm)				
		16.50-18.00	B					
		18.00 18.00	SPT D	N=50 (5,6/15,16,13,6 for 10mm)				
		18.00-19.50	B					
					19.00	-21.38		Very stiff grey / dark grey sandy CLAY, with closely spaced light grey silty partings*
		19.50 19.50	SPT D B	N=42 (1,6/10,12,10,10)				
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilever access platform (seabed approx 10.8m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH3**
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138818E - 863477N	RO
Drilling Methods:- Rotary open hole, 180mm diam Symetrix, SB - 34.7m		Level: -2.38 m ACD	Orientation 90
Client:- The Highland Council		Dates: 31/08/2017-06/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		19.50-21.00						Very stiff grey / dark grey sandy CLAY, with closely spaced light grey silty partings*
		21.00 21.00	SPT D	N=41 (3,4/8,10,11,12)				
		21.00-22.50	B					
		22.50 22.50	SPT D	N=30 (3,4/6,6,8,10)				
		22.50-24.00	B					
		24.00 24.00	SPT D	N=48 (3,8/9,10,12,17 for 25mm)	24.00	-26.38		Dense to very dense dark grey to black occasionally white silty very sandy fine to coarse subrounded to angular GRAVEL with some cobbles*
		24.00-25.50	B					
		25.50 25.50	SPT D	N=50 (9,16/48,2 for 5mm)	25.50	-27.88		Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional cobbles. Gravel and cobbles predominantly of amygdaliodal and olivine basalt*
		25.50-27.00	B					
		27.00 27.00	SPT D	N=50 (25 for 75mm/50 for 75mm)				
		27.00-28.50	B					
		28.50 28.50	SPT D	N=50 (12,13/50 for 75mm)				
		28.50-30.00	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilever access platform (seabed approx 10.8m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer HQ04 | Scale 1:50 | Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH3**
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138818E - 863477N	RO
Drilling Methods:- Rotary open hole, 180mm diam Symetrix, SB - 34.7m		Level: -2.38 m ACD	Orientation 90
Client:- The Highland Council		Dates: 31/08/2017-06/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.00 30.00	SPT D	N=50 (15,9/50 for 75mm)				Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional cobbles. Gravel and cobbles predominantly of amygdaliodal and olivine basalt*
		30.00-31.50	B					
		31.50 31.50	SPT D	N=50 (5,18/50 for 75mm)				grey / dark grey locally orange brown
		31.50-33.00	B					
		33.00 33.00	SPT D	N=50 (25 for 75mm/50 for 75mm)				many cobbles
		33.00-34.50	B					
		34.50 34.50	SPT D	N=50 (25 for 75mm/50 for 75mm)	34.70	-37.08		End of Borehole at 34.70 m
			Type	Results				

Remarks: Borehole drilled from cantilever access platform (seabed approx 10.8m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH4
Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138793E - 863461N	RO
Drilling Methods:- Rotary open hole, 180mm diam, Symetrix, SB - 35.25m		Level: -2.89 m ACD	Orientation 90
Client:- The Highland Council		Dates: 30/08/2017-05/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-2.00	B					Medium dense grey and very dark grey / black occasionally white silty fine to coarse SAND and fine to coarse rounded to subangular GRAVEL with occasional cobbles, and varying proprotions of shell and shell debris*
		2.00 2.00	SPT D	N=19 (2,3/5,5,5,4)				
		2.00-3.50	B					
		3.50-5.00	B					
					4.80	-7.69		
		5.00 5.00	SPT D	N=15 (2,2/2,4,4,5)				Firm grey / dark grey slightly sandy slightly gravelly organic SILT with occasional shell debris*
		5.00-6.50	B					
					6.40	-9.29		
		6.50 6.50	SPT D	N=50 (25 for 75mm/50 for 50mm)				Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional to some cobbles; localised lenses of slightly sandy clay, silty fine to medium sand, and slightly sandy silt. Gravel and cobbles predominatley of amygdalidal and olivine basalt.*
		6.50-8.00	B					
		8.00 8.00	SPT D	N=38 (4,5/7,9,10,12)				
		8.00-9.50	B					
		9.50 9.50	SPT D B	N=50 (4,12/17,16,17 for 75mm)				
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.0m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuting with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH4**
Sheet 2 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138793E - 863461N	RO
Drilling Methods:- Rotary open hole, 180mm diam, Symetrix, SB - 35.25m		Level: -2.89 m ACD	Orientation 90
Client:- The Highland Council		Dates: 30/08/2017-05/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		9.50-11.00						Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional to some cobbles; localised lenses of slightly sandy clay, silty fine to medium sand, and slightly sandy silt. Gravel and cobbles predominatley of amygdalidal and olivine basalt.*
		11.00 11.00	SPT D	N=50 (25 for 50mm/25,25 for 25mm)				
		11.00-12.50	B					
		12.50 12.50	SPT D	N=50 (8,9/10,14,15,11 for 25mm)				
		12.50-14.00	B					
		14.00 14.00	SPT D	N=50 (10,14/41,9 for 12mm)				
		14.00-15.50	B					
		15.50 15.50	SPT D	N=43 (10,10/10,8,10,15)				
		15.50-17.00	B					
		17.00 17.00	SPT D	N=50 (25 for 75mm/23,12,15 for 50mm)				
		17.00-18.50	B					
		18.50 18.50	SPT D	N=50 (17,8 for 32mm/14,15,17,4 for 8mm)				
		18.50-20.00	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.0m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuting with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH4**
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138793E - 863461N	RO
Drilling Methods:- Rotary open hole, 180mm diam, Symetrix, SB - 35.25m		Level: -2.89 m ACD	Orientation 90
Client:- The Highland Council		Dates: 30/08/2017-05/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		20.00 20.00	SPT D	N=50 (25 for 25mm/50 for 75mm)				Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional to some cobbles; localised lenses of slightly sandy clay, silty fine to medium sand, and slightly sandy silt. Gravel and cobbles predominatley of amygdalidal and olivine basalt.*
		20.00-21.50	B					
					21.00	-23.89		
		21.50 21.50	SPT D	N=50 (8,15/20,21,9 for 25mm)				Very dense grey to dark grey very clayey very gravelly fine to coarse SAND*
		21.50-23.00	B					
		23.00 23.00	SPT D	N=50 (11,13/16,17,17 for 75mm)				
					23.50	-26.39		
		23.00-24.50	B					Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional to some cobbles; localised lenses of slightly sandy clay, silty fine to medium sand, and slightly sandy silt. Gravel and cobbles predominantly of amygdaloidal and olivine basalt.*
		24.50 24.50	SPT D	N=50 (25 for 75mm/33,17 for 32mm)				
		24.50-26.00	B					
		26.00 26.00	SPT D	N=50 (25 for 75mm/17,23,10 for 25mm)				
		26.00-27.50	B					
		27.50 27.50	SPT D	N=50 (13,12 for 50mm/15,35 for 75mm)				
		27.50-29.00	B					
		29.00 29.00	SPT D	N=50 (25 for 75mm/34,16 for 25mm)				
		29.00-30.50	B					
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.0m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuting with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH4
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138793E - 863461N	RO
Drilling Methods:- Rotary open hole, 180mm diam, Symetrix, SB - 35.25m		Level: -2.89 m ACD	Orientation 90
Client:- The Highland Council		Dates: 30/08/2017-05/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		30.50 30.50	SPT (10	N=50 0,14 for 50mm/25,25 for 50mm)				Very stiff grey / dark grey slightly sandy slightly gravelly CLAY with occasional to some cobbles; localised lenses of slightly sandy clay, silty fine to medium sand, and slightly sandy silt. Gravel and cobbles predominantly of amygdaloidal and olivine basalt.*
		30.50-32.00	B					
		32.00 32.00	SPT (17	N=50 ,8 for 32mm/18,22,10 for 25mm)				
		32.00-33.50	B					
		33.50 33.50	SPT (10	N=50 ,9,12 for 32mm/25,25 for 25mm)				
					34.00	-36.89		
		33.50-35.00	B					Very stiff dark grey slightly sandy CLAY with abundant shells and shell debris*
		35.00 35.00	SPT (2	N=50 25 for 75mm/25,25 for 25mm)				
					35.25	-38.14		End of Borehole at 35.25 m
			Type	Results				

31 32 33 34 35 36 37 38 39

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.0m below deck)
*Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuting with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH5
Sheet 1 of 4

Project Name	Project No.	Co-ords: 138795E - 863485N	Hole Type
Uig Harbour Redevelopment GI	17/035		RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.0m		Level: -3.39 m ACD	Orientation 90
Client:- The Highland Council		Dates: 18/08/2017-24/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00	ES					Very dense light grey to black and white silty fine to coarse SAND and fine to coarse rounded to subangular GRAVEL with occasional cobbles and boulders that includes varying proportions of Shells and Shell Debris*
		0.00-1.50	B					
		1.50	SPT	N=50 (6,8/10,13,16,11 for 50mm)				
		1.50-3.00	B					
		3.00	SPT	N=50 (5,6/8,13,19,10 for 25mm)				
					3.50	-6.89		Very soft dark grey slightly sandy locally gravelly clayey organic SILT with occasional Shells and Shell Debris*
		3.00-4.50	B					
		4.50	SPT	N=1 (1 for 225mm/1 for 225mm)				
		4.50-6.00	B					
		6.00	SPT	N=50 (25 for 75mm/50 for 50mm)	6.00	-9.39		Very dense light grey to black and white very clayey very sandy fine to coarse rounded to subangular GRAVEL with occasional cobbles and boulders that includes varying proportions of Shells and Shell Debris*
		6.00-7.50	B					
					7.00	-10.39		Very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		7.50	SPT	N=50 (11,13/32,18 for 25mm)				
		7.50-9.00	B					
		9.00	SPT	N=50 (5,8/11,13,16,10 for 25mm)				
		9.00-10.50	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.5m below deck)
* Denotes visual assessment of decription based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer HQ03 | Scale 1:50 | Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH5**
Sheet 2 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138795E - 863485N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.0m		Level: -3.39 m ACD	Orientation 90
Client:- The Highland Council		Dates: 18/08/2017-24/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		10.50	SPT	N=44 (4,4/8,10,12,14)				Very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		10.50-12.00	B					
		12.00	SPT	N=50 (5,12/13,37 for 50mm)				
		12.00-13.50	B					
		13.50	SPT	N=50 (6,15/18,32 for 50mm)				
		13.50-15.00	B					
		15.00	SPT	N=50 (6,8/13,14,19,4 for 10mm)				
		15.00-16.50	B					
		16.50	SPT	N=50 (10,12/28,22 for 50mm)				
		16.50-18.00	B					
		18.00	SPT	N=50 (9,16 for 15mm/50 for 25mm)				
		18.00-19.50	B					
		19.50	SPT	N=50				
			B	(7,9/14,23,13 for 25mm)				
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.5m below deck)
* Denotes visual assessment of decription based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH5
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138795E - 863485N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.0m		Level: -3.39 m ACD	Orientation 90
Client:- The Highland Council		Dates: 18/08/2017-24/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		19.50-21.00						Very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		21.00	SPT	N=49 (12,13/22,27 for 75mm)				
		21.00-22.50	B					
		22.50	SPT	N=50 (7,11/15,21,14 for 50mm)				
		22.50-24.00	B					
		24.00	SPT	N=50 (8,16/25,25 for 75mm)				
		24.00-25.50	B					
		25.50	SPT	N=50 (25 for 25mm/50 for 15mm)				
		25.50-27.00	B					
		27.00	SPT	N=50 (9,15/25,25 for 75mm)				
		27.00-28.50	B					
		28.50	SPT	N=50 (10,15/25,25 for 50mm)				
		28.50-30.00	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.5m below deck)
* Denotes visual assessment of decription based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH5
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138795E - 863485N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 35.0m		Level: -3.39 m ACD	Orientation 90
Client:- The Highland Council		Dates: 18/08/2017-24/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.00	SPT	N=49 (15,10 for 25mm/19,30 for 75mm)				Very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		30.00-31.50	B					
		31.50	SPT	N=50 (15,10 for 25mm/50 for 50mm)				
		31.50-33.00	B					
		33.00	SPT	N=50 (12,13/50 for 75mm)				
		33.00-34.50	B					
		34.50	SPT	N=50 (12,13 for 50mm/25,25 for 75mm)				
					35.00	-38.39		End of Borehole at 35.00 m
			Type	Results				

31 32 33 34 35 36 37 38 39

Remarks: Borehole drilled from cantilevered access platform (seabed approx 10.5m below deck)
* Denotes visual assessment of decription based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH6
Sheet 1 of 1

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138831E - 863473N	Cable
Drilling Methods:- Light cable percussion, 200mm diam, SB - 0.1m		Level: -2.47 m ACD	Orientation 90
Client:- The Highland Council		Dates: 25/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
					0.10	-2.57		Possible concrete obstruction - BH terminated at 0.1mbsb
								End of Borehole at 0.10 m
			Type	Results				

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.6m below deck)
Groundwater fluctuating with tide
Borehole terminated on engineers instruction at 0.1mbsb

SPT Hammer

Scale 1:50

Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH6A** Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138831E - 863471N	Cable/Rotary
Drilling Methods:- Light cable percussion, 200mm diam, SB - 6.6m Rotary open hole, Symetrix 168mm diam, SB - 35.45m		Level: -2.47 m ACD	Orientation 90
Client:- The Highland Council		Dates: 27/07/2017-15/08/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-0.50	ES					Dark grey to black and white slightly silty gravelly fine to coarse organic SAND, 50-75% sand constitutes Shells and Shelly debris with occasional rusty metallic fragmants
		0.00-0.50	B					
		0.50	SPT	N=2 (4,2/1,1,0,0)	0.50	-2.97		
		0.50-1.00	ES					Very Loose dark grey to black and white silty very sandy fine to coarse rounded to angular GRAVEL that includes many Shells and Shell Debris, occasional cobbles, rusty metalic fragments and rare Slate
		0.50-1.00	B					
		1.00-1.50	ES					
		1.00-1.50	B					
		1.50	SPT	N=34 (5,12/14,20 for 40mm)	1.50	-3.97		
		1.50-2.00	ES					Dense to very dense becoming medium dense towards base dark grey locally speckled white silty very sandy fine to coarse rounded to subangular GRAVEL predominantly of Basalt
		1.50-2.00	B					
		2.00	CPT	N=50 (11,21/19,15,16 for 75mm)				
		2.00-3.40	B					
		3.40	CPT	N=20 (2,2/2,5,5,8)				
					4.20	-6.67		
		4.40	SPT	N=8 (0,0/0,2,3,3)				Very soft slightly sandy gravelly clayey organic SILT with occasional Shells and Shell Debris, lenses of silty Clay and dark reddish brown Peat.
		4.20-5.40	B					
		5.40	SPT	N=40 (0,3/10,1,23,6 for 10mm)	5.40	-7.87		
		5.40-6.20	B					Dense to very dense dark grey to black silty to very silty very sandy fine to coarse rounded to subangular GRAVEL that includes some fine Shell Debris, occasional cobbles and boulders*
		6.20	CPT	N=50 (9,16/30,20 for 75mm)				
		6.20-7.50	B					Cable percussive Obstructed at 6.6m, Advanced by rotary open hole
		7.50	CPT	N=50 (25 for 50mm/50 for 50mm)				
					7.80	-10.27		
		7.50-9.00	B					Very stiff locally firm grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders Sand / Silt lenses and much Shell debris with depth. Locally recovered as clayey very sandy fine to coarse Gravel. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		9.00	SPT	N=50 (5,8/22,28 for 75mm)				
		9.00-10.50	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.6m below deck).
Hard strata / slow progress from 3.85 - 6.20m (6 hrs) and 6.20 - 6.60m (5 hrs).
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH6A** Sheet 2 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138831E - 863471N	Cable/Rotary
Drilling Methods:- Light cable percussion, 200mm diam, SB - 6.6m Rotary open hole, Symetrix 168mm diam, SB - 35.45m		Level: -2.47 m ACD	Orientation 90
Client:- The Highland Council		Dates: 27/07/2017-15/08/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		10.50	SPT	N=50 (4,4/8,14,28 for 75mm)				Very stiff locally firm grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders Sand / Silt lenses and much Shell debris with depth. Locally recovered as clayey very sandy fine to coarse Gravel. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		10.50-12.00	B					
		12.00	SPT	N=50 (4,7/11,11,15,13)				
		12.00-13.50	B					
		13.50-13.80	U					
		13.50-15.00	B					
		15.00	SPT	N=46 (5,6/8,10,12,16)				
		15.00-16.50	B					
		16.50	SPT	N=50 (12,13/50 for 75mm)				
		16.50-18.00	B					
		18.00	SPT	N=50 (25 for 75mm/28,22 for 50mm)				
		18.00-19.50	B					
		19.50	SPT	N=50 (25 for 75mm/25,25 for 25mm)				
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.6m below deck).
Hard strata / slow progress from 3.85 - 6.20m (6 hrs) and 6.20 - 6.60m (5 hrs).
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH6A**
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138831E - 863471N	Cable/Rotary
Drilling Methods:- Light cable percussion, 200mm diam, SB - 6.6m Rotary open hole, Symetrix 168mm diam, SB - 35.45m		Level: -2.47 m ACD	Orientation 90
Client:- The Highland Council		Dates: 27/07/2017-15/08/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		19.50-21.00						Very stiff locally firm grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders Sand / Silt lenses and much Shell debris with depth. Locally recovered as clayey very sandy fine to coarse Gravel. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		21.00	SPT	N=50 (5,9/13,17,20 for 25mm)				
		21.00-22.50	B					
		22.50	SPT	N=50 (15,10 for 50mm/15,18,17 for 25mm)				
		22.50-24.00	B					
		24.00	SPT	N=50 (8,9/12,18,20 for 75mm)				
		24.00-25.50	B					
		25.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		25.50-27.00	B					
		27.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		27.00-28.50	B					
		28.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		28.50-30.00	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.6m below deck).
Hard strata / slow progress from 3.85 - 6.20m (6 hrs) and 6.20 - 6.60m (5 hrs).
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH6A
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138831E - 863471N	Cable/Rotary
Drilling Methods:- Light cable percussion, 200mm diam, SB - 6.6m Rotary open hole, Symetrix 168mm diam, SB - 35.45m		Level: -2.47 m ACD	Orientation 90
Client:- The Highland Council		Dates: 27/07/2017-15/08/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.00	SPT	N=50 (25 for 75mm/50 for 75mm)				Very stiff locally firm grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders Sand / Silt lenses and much Shell debris with depth. Locally recovered as clayey very sandy fine to coarse Gravel. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		30.00-31.50	B					
		31.50	SPT	N=50 (25 for 75mm/50 for 75mm)	31.50	-33.97		End of Borehole at 31.95 m

31 32 33 34 35 36 37 38 39

Type	Results

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.6m below deck).
Hard strata / slow progress from 3.85 - 6.20m (6 hrs) and 6.20 - 6.60m (5 hrs).
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH7
Sheet 1 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138572E - 863635N	RO
Drilling Methods:- Rotary open hole, Symetrix 170mm diam, GL - 25.45m		Level: 3.91 m ACD	Orientation 90
Client:- The Highland Council		Dates: 12/09/2017-18/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
					0.15	3.76		Very soft dark grey sandy slightly gravelly organic SILT with some boulders*
		0.00-1.00	B					Dark grey sandy slightly gravelly CLAY with occasional boulders (possibly slightly organic)*
		1.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		1.00-2.50	B					
		2.50	SPT	N=61 (2,8/9,19,16,17)				
		2.50-4.00	B					
		4.00	SPT	N=50 (3,10/12,13,15,10)	4.00	-0.09		Dense to very dense grey silty fine to coarse SAND and fine to coarse rounded to angular GRAVEL with some boulders*
		4.00-5.50	B					
		5.50	SPT	N=50 (8,10/10,15,13,12)				
		5.50-7.00	B					
		7.00	SPT	N=41 (6,7/9,10,10,12)				
		7.00-8.50	B					
		8.50	SPT	N=32 (5,9/7,6,10,9)				
		8.50-10.00	B		8.80	-4.89		Grey silty to very silty very sandy fine to coarse angular to subrounded GRAVEL with occasional cobbles and boulders*
			Type	Results				Continued next sheet

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH7**
Sheet 2 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138572E - 863635N	RO
Drilling Methods:- Rotary open hole, Symetrix 170mm diam, GL - 25.45m		Level: 3.91 m ACD	Orientation 90
Client:- The Highland Council		Dates: 12/09/2017-18/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		10.00	SPT	N=36 (3,7/8,9,9,10)	10.00	-6.09		Stiff grey slightly sandy CLAY with lenses of dark grey silty fine Sand*
		10.00-11.50	B					Predominantly fine Sand lenses encountered between approx 10.0 - 11.3m*
		11.50	SPT	N=28 (3,4/5,7,7,9)				
		11.50-13.00	B					
		13.00-14.00	U					
		13.00-14.50	B					
					14.20	-10.29		Dense grey very silty very gravelly fine to coarse SAND*
		14.50	SPT	N=40 (5,5/7,10,10,13)				
		14.50-16.00	B					
		16.00	SPT	N=33 (3,4/4,7,10,12)				
					16.50	-12.59		Stiff to very stiff grey slightly sandy CLAY with lenses of silty fine Sand*
		16.00-17.50	B					
		17.50	SPT	N=34 (6,5/6,7,10,11)				
		17.50-19.00	B					
		19.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		19.00-20.50	B					

Continued next sheet

Remarks:
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH7
Sheet 3 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138572E - 863635N	RO
Drilling Methods:- Rotary open hole, Symetrix 170mm diam, GL - 25.45m		Level: 3.91 m ACD	Orientation 90
Client:- The Highland Council		Dates: 12/09/2017-18/09/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
								Stiff to very stiff grey slightly sandy CLAY with lenses of silty fine Sand*
								50% recovery of U80 between 20.5 - 21.5m
		20.50-21.50	U					
		20.50-22.00	B					
		22.00	SPT	N=48 (5,8/10,12,11,15)				
		22.00-23.50	B					
		23.50	SPT	N=50 (6,7/12,14,15,9 for 50mm)				
					23.90	-19.99		Stiff to very stiff grey slightly sandy gravelly silty CLAY with occasional cobbles and boulders*
		23.50-25.00	B					
		25.00	SPT	N=50 (9,12/13,13,14,10)				
					25.45	-21.54		End of Borehole at 25.45 m
			Type	Results				

21 22 23 24 25 26 27 28 29

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH8
Sheet 1 of 1

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138758E - 863523N	Cable
Drilling Methods:- Light cable percussion, 200mm diam, SB - 1.45m		Level: -2.17 m ACD	Orientation 90
Client:- The Highland Council		Dates: 15/07/2017-17/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-0.50	B					Light grey to black and white silty slightly organic fine to coarse SAND and and medium to coarse angular to subrounded GRAVEL.
		0.00-0.50	ES		0.50	-2.67		Sand consists of >75% Shell debris.
		0.50-1.00	B					Grey slightly silty sandy fine to coarse rounded to subangular GRAVEL with occasional cobbles and boulders that includes much Shell Debris
		0.50-1.00	ES					
		1.00	CPT	N=26 (3,3/3,4,7,12)				
					1.30	-3.47		Obstruction on cobble / boulder at 1.3m
								End of Borehole at 1.45 m
			Type	Results				

Remarks: Borehole drilled from temporary cantilevered access platform (approx 9.3m from deck to seabed)
Groundwater fluctuating with tide
Hard strata / slow progress from 1.25 - 1.3m (2 hrs)
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH8A**
Sheet 1 of 1

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138757E - 863524N	Cable
Drilling Methods:- Light cable percussion, 200mm diam, SB - 7.55m		Level: -1.88 m ACD	Orientation 90
Client:- The Highland Council		Dates: 18/07/2017-24/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
								SEE BH8
		1.00	CPT	N=34 (6,8/7,8,9,10)	1.00	-2.88		Medium dense to dense dark grey slightly silty very sandy fine to coarse rounded to subangular GRAVEL with some cobbles that includes some Shell Debris. Gravel / cobbles predominantly of Basalt.
		1.00-1.50	ES					
		1.20-2.00	B					
		1.50-2.00	ES					
		2.00	CPT	N=19 (3,7/5,5,4,5)				
		2.00-3.00	B					
		3.00	CPT	N=24 (9,17/10,7,4,3)	3.00	-4.88		Medium dense slightly silty very sandy fine to coarse rounded to subrounded GRAVEL with occasional cobbles
		3.00-4.00	B					
		4.00	CPT	N=16 (6,9/8,3,2,3)	4.20	-6.08		Soft to very soft dark grey slightly sandy locally slightly gravelly clayey organic SILT that includes some Shells / Shell Debris and pockets / lenses of reddish brown generally fibrous PEAT and organic fibres
		4.20-5.30	B					
		5.00	SPT	N=3 (0,0/0,1,1,1)				
		5.30-6.10	B					
		6.10-6.55	U					No recovery of U100 between 6.1 - 6.55m
		6.55	SPT	N=50 (25 for 75mm/50 for 75mm)	6.55	-8.43		Very dense dark grey to black very silty very sandy fine to coarse rounded to angular GRAVEL with occasional cobbles and boulders. Rare lenses of clayey organic Silt at top.
		6.50-7.30	B					
		7.30	CPT	N=51 (15,25/31,20 for 10mm)	7.30	-9.18		Obstructed on boulder at approx 7.3m
								End of Borehole at 7.55 m
			Type	Results				

Remarks: Borehole drilled from temporary cantilevered access platform (approx 9.3m from deck to seabed)
Groundwater fluctuating with tide
Hard strata / slow progress from 6.5 - 7.3m (6 hrs) and at 7.3m (2 hrs)
N.B Double sinker bars utilised whilst U100 sampling
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH8B**
Sheet 1 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138757E - 863524N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 30.0m		Level: -1.88 m ACD	Orientation 90
Client:- The Highland Council		Dates: 17/08/2017-25/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
								SEE BH8A
					7.50	-9.38		Stiff becoming very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt lenses. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		8.20	SPT	N=31 (4,7/6,8,9,8)				
		8.20-9.70	B					
		9.70	SPT	N=37 (3,3/8,9,10,10)				
		9.70	U					
			B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.2m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH8B** Sheet 2 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138757E - 863524N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 30.0m		Level: -1.88 m ACD	Orientation 90
Client:- The Highland Council		Dates: 17/08/2017-25/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
								Remaining Detail : 9.70m - 9.70m : No recovery of U80 at 9.7m
		9.70-11.20						
		11.20	SPT	N=42 (8,10/10,11,11,10)				
		11.20-12.70	B					
		12.70	SPT	N=50 (5,14/15,18,17 for 75mm)				
		12.70-14.20	B					
		13.70-14.20	U					No recovery of U80 at 13.7m
		14.20	SPT	N=36 (16,8/9,10,8,9)				
		14.20-15.70	B					
		15.70	SPT	N=40 (5,6/8,9,11,12)				
		15.70-17.20	B					With many lenses of Clay, Sand and Silt between approx 16.5 - 17.0m
		17.20	SPT	N=50 (25 for 75mm/50 for 75mm)				
		17.20-18.70	B					
		18.70	SPT	N=50 (8,10/30,20 for 75mm)				
		18.70-20.20	B					
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.2m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED	Holequest Ltd Winston Road Galashiels Tel: 01896 752295	Borehole No **BH8B** Sheet 3 of 3

Project Name	Project No.	Co-ords: 138757E - 863524N	Hole Type
Uig Harbour Redevelopment GI	17/035		RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 30.0m		Level: -1.88 m ACD	Orientation 90
Client:- The Highland Council		Dates: 17/08/2017-25/08/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		20.20	SPT	N=50 (5,14/22,28 for 75mm)				Stiff becoming very stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt lenses. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		20.20-21.70	B					
		21.70	SPT	N=50 (3,14/50 for 75mm)				
		21.70-23.20	B					
		23.20	SPT	N=50 (9,16/48,2 for 5mm)				
		23.20-24.70	B					
		24.70	SPT	N=50 (13,12/50 for 75mm)				
		24.70-26.20	B					
		26.20	SPT	N=50 (3,12/7,11,32 for 75mm)	26.40	-28.28		Stiff to very stiff grey CLAY with many lenses / interbedded with Sand and Silt.
		26.20-27.70	B					
		27.20-27.70	U					No recovery of U80 at 27.2m
		27.70	SPT	N=34 (4,5/6,9,8,11)				
		27.70-29.20	B					
		29.20	SPT	N=50 (3,8/14,36 for 75mm)				
			Type	Results				End of Borehole at 30.00 m

21 22 23 24 25 26 27 28 29

Remarks: Borehole drilled from cantilevered access platform (seabed approx 9.2m below deck)
* Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH9
Sheet 1 of 2

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138675E - 863554N	Cable
Drilling Methods:- Light cable percussion, 200mm diam, SB - 12.25m		Level: -1.51 m ACD	Orientation 90
Client:- The Highland Council		Dates: 07/07/2017-12/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-0.90	B					Black silty gravelly fine to medium organic Sand that includes Shells, Wood, Metal and Plastic
		0.00-0.90	ES					
					0.90	-2.41		Very loose dark grey to black silty gravelly fine to coarse organic SAND with occasional cobbles and much Shell debris
		0.90-1.70	B					
		0.90-1.70	ES					
		1.70	SPT	N=0 (0,0/0,0,0,0)				
		1.70-2.50	ES					
		1.70-2.80	B					
		2.80	SPT	N=18 (1,1/3,4,5,6)	2.80	-4.31		Soft dark grey to black slightly sandy organic clayey SILT with some Shells and Shell debris
		2.80-3.80	B					
		3.80	SPT	N=9 (0,1/1,2,3,3)				
		3.80-4.80	B					
		4.80-5.25	U	18				
		4.80-6.40	B					
		6.00	SPT	N=9 (2,4/1,2,3,3)				
					6.40	-7.91		Firm to stiff grey and dark grey slightly sandy slightly gravelly silty locally very silty CLAY with lenses (generally <20mm thick) of silty fine Sand and silty partings
		6.40-7.40	B					With occasional Shell fragments between 6.4 - 10.0m
		7.40	SPT	N=17 (1,3/2,3,5,7)				
		7.40-8.20	B					
		8.20-8.65	U	64				Approx 60% recovery of U100 at 8.2m
		8.20-9.10	B					
		9.10	SPT	N=29 (3,2/4,7,8,10)				
		9.10-10.30	B					
			Type	Results				

Continued next sheet

Remarks:
Borehole drilled from temporary cantilevered access platform (approx 7.0m from deck to seabed)
Groundwater fluctuating with tide
Hard strata / slow progress from 7.85 - 11.3m (10 hrs) and from 11.3 - 11.8m (7 hrs)
N.B Double sinker bars utilised whilst undertaking U100 sampling
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH9
Sheet 2 of 2

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138675E - 863554N	Cable
Drilling Methods:- Light cable percussion, 200mm diam, SB - 12.25m		Level: -1.51 m ACD	Orientation 90
Client:- The Highland Council		Dates: 07/07/2017-12/07/2017	Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		10.30	SPT	N=38 (3,3/6,8,9,15)				Firm to stiff grey and dark grey slightly sandy slightly gravelly silty locally very silty CLAY with lenses (generally <20mm thick) of silty fine Sand and silty partings
		10.30-11.30	B					
		11.50-11.80	U	120				No recovery of U100 at 11.5m
		11.80	SPT	N=40 (8,5/8,7,12,13)				
					12.25	-13.76		End of Borehole at 12.25 m
			Type	Results				

Remarks:
Borehole drilled from temporary cantilevered access platform (approx 7.0m from deck to seabed)
Groundwater fluctuating with tide
Hard strata / slow progress from 7.85 - 11.3m (10 hrs) and from 11.3 - 11.8m (7 hrs)
N.B Double sinker bars utilised whilst undertaking U100 sampling
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH9A
Sheet 1 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138675E - 863554N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 20.0m & 20.0 - 29.5m Rotary cored, T2101 water flush, 20.0 - 20.5m		Level: -1.51 m ACD	Orientation 90
Client:- The Highland Council		Dates: 07/09/2017-12/09/2017	Redacted

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								SEE BH9
								1
								2
								3
								4
								5
								6
								7
								8
								9
			Type	Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 8.5m below deck)
Groundwater fluctuating with tide
* Denotes visual assessment of description based on air flushed borehole returns
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH9A**
Sheet 2 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138675E - 863554N	RO

Drilling Methods:-	Level:	Orientation
Rotary open hole, Symetrix 168mm diam, SB - 20.0m & 20.0 - 29.5m Rotary cored, T2101 water flush, 20.0 - 20.5m	-1.51 m ACD	90

Client:-
The Highland Council

Dates: 07/09/2017-12/09/2017

Redacted

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
								SEE BH9
					12.25	-13.76		
		12.50	SPT	N=34 (6,7/7,7,10,10)				Stiff becoming very stiff grey slightly sandy gravelly silty CLAY with occasional cobbles and boulders. Includes lenses of dark grey silty to very silty fine to medium Sand, Silt and silty partings.*
		12.50-14.00	B					
		14.00	SPT	N=50 (10,15/15,14,14,7 for 40mm)				
		14.00-15.50	B					
		15.50	SPT	N=50 (10,10/18,20,12 for 25mm)				
		15.50-17.00	B					
		17.00	SPT	N=50 (10,14/16,16,18 for 50mm)				
					17.50	-19.01		
		17.00-18.50	B					Very dense grey silty to very silty sandy fine to coarse angular to subrounded GRAVEL with some cobbles and boulders predominantly of Basalt*
		18.50	SPT	N=50 (25 for 75mm/14,19,17 for 50mm)				
		18.50-20.00	B					
		Type		Results				

Continued next sheet

Remarks: Borehole drilled from cantilevered access platform (seabed approx 8.5m below deck)
Groundwater fluctuating with tide
* Denotes visual assessment of description based on air flushed borehole returns
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **BH9A** Sheet 3 of 3

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138675E - 863554N	RO
Drilling Methods:- Rotary open hole, Symetrix 168mm diam, SB - 20.0m & 20.0 - 29.5m Rotary cored, T2101 water flush, 20.0 - 20.5m		Level: -1.51 m ACD	Orientation 90
Client:- The Highland Council		Dates: 07/09/2017-12/09/2017	Redacted

Well	Water Strikes	Rotary Coring Depth (m)	TCR	SCR	RQD	FI	Depth (m)	Level (m CD)	Legend	Stratum Description
		20.00	SPT		N=50					
		20.00-20.50		0	(25 for 5mm/50 for 5mm) 0					Very dense grey silty to very silty sandy fine to coarse angular to subrounded GRAVEL with some cobbles and boulders predominantly of Basalt*
							20.50	-22.01		
		20.00-21.50	B 100							Very stiff grey slightly sandy gravelly silty CLAY with occasional cobbles and boulders. Includes lenses of dark grey silty to very silty fine to medium Sand, Silt and silty partings.*
		21.50	SPT		N=50					
					(5,11/12,14,16,8 for 40mm)					
		21.50-23.00	B							
		23.00	SPT		N=50					
					(6,12/16,16,18 for 75mm)					
		23.00-24.50	B							
		24.50	SPT		N=50					
					(10,15 for 50mm/20,30 for 75mm)					
		24.50-26.00	B							
		26.00	SPT		N=50					
					(15,10 for 40mm/17,17,16 for 50mm)					
		26.00-27.70	B							
		27.70	SPT		N=50					
					(9,15/16,34 for 75mm)					
		27.70-29.20	B							
		29.20	SPT		N=50					
					(9,14/25,25 for 75mm)					
							29.50	-31.01		End of Borehole at 29.50 m
			TCR	SCR	RQD	FI				

21 22 23 24 25 26 27 28 29

Remarks: Borehole drilled from cantilevered access platform (seabed approx 8.5m below deck)
Groundwater fluctuating with tide
* Denotes visual assessment of description based on air flushed borehole returns
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH10
Sheet 1 of 1

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138559E - 863601N	Cable
Drilling Methods:- Hand excavated, GL - 1.0m		Level: 6.55 m ACD	Orientation 90
Client:- The Highland Council		Dates: 04/07/2017-05/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
					0.05	6.50		Tarmac MADE GROUND
		0.19-0.50	ES		0.19	6.36		Grey silty sandy fine to coarse angular to subangular Gravel MADE GROUND
		0.50-1.00	ES					Reddish brown locally dark grey slightly silty sandy fine to coarse angular to subangular Gravel and Cobbles with occasional boulders MADE GROUND
					1.00	5.55		Obstructed on boulder at approx 1.0m
								End of Borehole at 1.00 m
			Type	Results				

1 2 3 4 5 6 7 8 9

Remarks: Hand excavated service clearance from GL - 1.0m (6hrs)
No groundwater encountered
Borehole terminated on engineers instruction due to obstruction on boulders

SPT Hammer	Scale	Log Status
	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
BH10A
Sheet 1 of 1

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138557E - 863601N	Cable
Drilling Methods:- Hand Excavated, GL - 1.2m Light cable percussion, 200mm diam, GL - 1.65m		Level: 6.57 m ACD	Orientation 90
Client:- The Highland Council		Dates: 05/07/2017-06/07/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
					0.05	6.52		Tarmac MADE GROUND
					0.19	6.38		Grey silty sandy fine to coarse angular to subangular Gravel MADE GROUND
		1.20	CPT	N=34 (5,12/12,9,5,8)				Dense reddish brown slightly silty sandy fine to coarse angular to subangular Gravel and Cobbles with occasional boulders MADE GROUND
					1.50	5.07		End of Borehole at 1.65 m
			Type	Results				

Remarks:
Hand excavated service clearance from GL - 1.2m (8hrs)
No groundwater encountered
Hard strata / slow progress from 1.3 - 1.5m (1 hr)
Borehole terminated on engineers instruction due to boulder obstruction

SPT Hammer	Scale	Log Status
HQ03	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No **DS01**
Sheet 1 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138821E - 863455N	RO
Drilling Methods:- Rotary cored, 220mm diam, EGL - 0.4m Rotary open hole, Symetrix 170mm diam, SB - 34.95m		Level: -2.25 m ACD	Orientation 90
Client:- The Highland Council		Dates: 20/09/2017-30/09/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.00-1.50	B					Loose to medium dense grey silty very gravelly fine to coarse SAND with some boulders that includes much shelly debris and possible Silt lenses*
		0.00-3.00	U					Approx 30% recovery of U80 between 0.0 - 3.0m
		1.50-3.00	B					
		3.00	SPT	N=14 (2,2/3,4,4,3)				
		3.00-4.50	B					
		4.50	SPT	N=8 (2,3/3,2,2,1)				
					4.90	-7.15		Dark grey very clayey very gravelly fine to coarse SAND with occasional boulders (Possibly slightly organic)*
		4.50-6.00	B					
		6.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
					6.20	-8.45		Very dense grey silty fine to coarse SAND and fine to coarse rounded to angular GRAVEL with some boulders that includes much shelly debris and possible Silt lenses*
		6.00-7.50	B					
		7.50	SPT	N=50 (10,12/15,35 for 75mm)				
					8.00	-10.25		Stiff locally firm grey slightly sandy locally slightly gravelly silty CLAY with occasional cobbles and boulders*
		7.50-9.00	B					
		9.00	SPT	N=17 (3,3/3,4,5,5)				
		9.00-10.50	B					
		Type		Results				

Continued next sheet

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer HQ04 | Scale 1:50 | Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
DS01
Sheet 2 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138821E - 863455N	RO
Drilling Methods:- Rotary cored, 220mm diam, EGL - 0.4m Rotary open hole, Symetrix 170mm diam, SB - 34.95m		Level: -2.25 m ACD	Orientation 90
Client:- The Highland Council		Dates: 20/09/2017-30/09/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
		Depth (m)	Type	Results				
		10.50	SPT	N=45 (4,4/5,7,15,18)				Stiff locally firm grey slightly sandy locally slightly gravelly silty CLAY with occasional cobbles and boulders*
		10.50-12.00	B					
		12.00	SPT	N=42 (2,6/8,14,10,10)				
		12.00-13.50	B					
		13.50	SPT	N=19 (1,2/2,3,4,10)				
		13.50-15.00	B		14.00	-16.25		Very stiff locally stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		15.00	SPT	N=50 (6,19/24,16,10 for 75mm)				
		15.00-16.50	B					
		16.50	SPT	N=49 (4,6/8,10,11,20)				
		16.50-18.00	B					
		18.00	SPT	N=50 (25 for 75mm/34,16 for 50mm)				
		18.00-19.50	B					
		19.50	SPT	N=50 (12,11/31,19 for 75mm)				
		19.50	B					
		Type		Results				

Continued next sheet

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
DS01
Sheet 3 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138821E - 863455N	RO
Drilling Methods:- Rotary cored, 220mm diam, EGL - 0.4m Rotary open hole, Symetrix 170mm diam, SB - 34.95m		Level: -2.25 m ACD	Orientation 90
Client:- The Highland Council		Dates: 20/09/2017-30/09/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		19.50-21.00						Very stiff locally stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		21.00	SPT	N=50 (10,13/10,15,19,6)				
		21.00-22.50	B					
		22.50	SPT	N=35 (5,8/8,9,10,8)				
		22.50-24.00	B					
		24.00	SPT	N=50 (10,8/15,18,17 for 75mm)				
		24.00-25.50	B					Predominantly Gravel, cobbles and boulders encountered between 24.3 - 25.7m
		25.50	SPT	N=50 (24,1 for 5mm/50 for 75mm)				
		25.50-27.00	B					
		27.00	SPT	N=50 (19,6/50 for 75mm)				
		27.00-28.50	B					
		28.50	SPT	N=50 (22,3 for 5mm/50 for 75mm)				
		28.50-30.00	B					
			Type	Results				

Continued next sheet

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
DS01
Sheet 4 of 4

Project Name	Project No.	Co-ords:	Hole Type
Uig Harbour Redevelopment GI	17/035	138821E - 863455N	RO
Drilling Methods:- Rotary cored, 220mm diam, EGL - 0.4m Rotary open hole, Symetrix 170mm diam, SB - 34.95m		Level: -2.25 m ACD	Orientation 90
Client:- The Highland Council		Dates: 20/09/2017-30/09/2017	Logged By Redacted

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		30.00	SPT	N=50 (18,7 for 45mm/50 for 75mm)				Very stiff locally stiff grey locally speckled white slightly sandy slightly gravelly to gravelly CLAY with occasional to many cobbles, boulders and Sand / Silt / Clay lenses locally. Gravel, cobbles and boulders predominantly of amygdaloidal and olivine Basalt*
		30.00-31.50	B					
								Sand lenses becoming more predominant after approx 31.0m
		31.50	SPT	N=50 (25 for 75mm/50 for 75mm)				
		31.50-33.00	B					
		33.00	SPT	N=50 (25 for 75mm/50 for 75mm)				
		33.00-34.50	B					
		34.50	SPT	N=50 (21,4 for 5mm/50 for 75mm)				
					34.95	-37.20		End of Borehole at 34.95 m
			Type	Results				

Remarks: * Denotes visual assessment of description based on air flushed borehole returns
Groundwater fluctuating with tide
Borehole terminated on engineers instruction

SPT Hammer	Scale	Log Status
HQ04	1:50	Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Borehole No
DS02B
Sheet 1 of 1

Project Name	Project No.	Co-ords: -	Hole Type
Uig Harbour Redevelopment GI	17/035		HA
Drilling Methods:- Sample as provided by others		Level: -	Orientation 90
Client:- The Highland Council		Dates: 07/07/2017	Logged By Redact

Well	Water Strikes	Samples & In Situ Testing Depth (m)	Type	Results	Depth (m)	Level (m CD)	Legend	Stratum Description
		0.10	ES					Dark grey silty slightly gravelly fine to coarse SAND, Sand consists of approx 35% Shell Debris. Gravel is fine to medium and angular.*
					0.22			Grey silty fine to medium SAND, Sand consists of approx 20% Shell Debris.*
		0.00-0.91	U					Shell rich lense (Possibly Razor Clams) between 0.42 - 0.45m
		0.50	ES					
					0.66			Dark grey silty slightly gravelly fine to coarse SAND, Sand consists of approx 35% Shell Debris. Gravel is mediuto coarse and angular.*
		0.80	ES					
					0.91			End of Borehole at 0.91 m
			Type	Results				

Remarks: * Denotes Sample as recovered by Shearwater Diving Services Ltd
Constituent percentages have been based from visual assessment

SPT Hammer

Scale 1:13

Log Status Final

HoleBASE 3.1 (Bld 426.72) Standard Borehole Log v2 dated 27th Nov 03

APPENDIX III

Trial Pit Records

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Trialpit No
TP1
Sheet 1 of 1

Project Name	Project No.	Co-ords: 138603E - 863692N	Date
Uig Harbour Redevelopment GI	17/035	Level: 3.64 m CD	21/07/2017

Excavation Method:-	Dimensions: 5.50m	Scale
20T Tracked Excavator, GL - 3.3m	Depth 3.30m; 1.50m	1:25
Client: The Highland Council		Logged By Redacted

Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.00	ES					Very soft dark grey and brown mottled black slightly sandy gravelly organic SILT with many cobbles
			0.35	3.29		
0.50	B					Dense grey very clayey sandy fine to coarse rounded to subangular GRAVEL with rare Shells and many cobbles and boulders (up to 750mm diam)
						BD at 0.5m sampled from northerly end of excavation (Sand and Gravel).
1.00	ES					
			1.50	2.14		
1.60	B					Stiff locally very stiff to hard slightly sandy slightly gravelly SILT with occasional cobbles
			2.00	1.64		
						Stiff grey slightly sandy very silty CLAY that includes boulder sized pockets of silty Sand and Gravel with occasional cobbles and boulders
2.50	ES					
3.00	B					
			3.30	0.34		
						Obstructed on boulders at approx 3.3m
						Trialpit Complete at 3.30 m

Remarks: Trial pit sides generally stable during excavation
Trial pit terminated on engineers instruction

Groundwater: Groundwater encountered at 0.5m (North end of excavation)

Log Status
Final

HoleBASE 3.1 (Bld 426.72) Standard Trialpit Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Trialpit No
TP2
Sheet 1 of 1

Project Name: Uig Harbour Redevelopment GI	Project No.: 17/035	Co-ords: 138576E - 863642N Level: 4.04 m CD	Date: 20/07/2017
Excavation Method:- 20T Tracked Excavator, GL - 3.3m		Dimensions: 5.50m, Depth 3.30m, 1.50m	Scale: 1:25
Client: The Highland Council			Logged By: Re

Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.00	ES					Very loose to loose dark grey to black with pockets of dark reddish brown silty sandy fine to coarse GRAVEL and COBBLES with many boulders. silty matrix possibly slightly organic and includes some Shell Debris.
0.50	B		0.45	3.59		Firm grey sandy slightly gravelly SILT with many boulders
1.00	ES					
			1.60	2.44		Dense grey very clayey sandy fine to coarse rounded to subangular GRAVEL with some cobbles and occasional boulders
1.80	B					
2.50	ES					
			2.70	1.34		Stiff to very stiff locally hard grey slightly sandy silty CLAY with many boulders
2.80	B					
			3.30	0.74		Obstruction on boulders at 3.3m
						Trialpit Complete at 3.30 m

Remarks: Trial pit sides stable during excavation
Trial pit terminated on engineers instruction

Groundwater: Groundwater encountered at 1.6m

Log Status: Final

HoleBASE 3.1 (Bld 426.72) Standard Trialpit Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Trialpit No
TP3
Sheet 1 of 1

Project Name Uig Harbour Redevelopment GI	Project No. 17/035	Co-ords: 138578E - 863601N Level: 3.15 m CD	Date 20/07/2017
Excavation Method:- 20T Tracked Excavator, GL - 3.8m		Dimensions: 5.50m Depth 3.80m 1.50m	Scale 1:25
Client: The Highland Council			Logged By Re

Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.00	ES					Very loose dark grey mottled black silty to very silty gravelly fine to coarse SAND that includes some Shells and Shel Debris
			0.30	2.85		
						Firm to stiff locally soft slightly sandy silty CLAY with occasional lenses (<100mm thick) and pockets (up to approx 500mm diam) of black silty fine to medium Sand, occasional cobbles and boulders and rare fine Shell Debris. Includes thin beds of very silty Clay (generally <250mm thick).
0.80	B					
1.00	ES					
1.80	B					
2.00	ES					Becoming slightly gravelly at approx 1.8m
3.00	B					Obstructed on cobbles and boulders between 3.5 - 3.8m
			3.80	-0.65		Trialpit Complete at 3.80 m

Remarks: Trial pit sides stable during excavation
Trial pit terminated on engineers instruction

Groundwater: Groundwater encountered along prominant sand lenses

Log Status
Final

HoleBASE 3.1 (Bld 426.72) Standard Trialpit Log v2 dated 27th Nov 03

HOLEQUEST LIMITED

Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Trialpit No
TP4
Sheet 1 of 1

Project Name Uig Harbour Redevelopment GI	Project No. 17/035	Co-ords: 138612E - 863717N Level: 3.55 m CD	Date 21/07/2017
Excavation Method:- 20T Tracked Excavator, GL - 3.25m		Dimensions: 5.50m Depth 3.25m 1.50m	Scale 1:25
Client: The Highland Council			Logged By Redacted

Samples & In Situ Testing			Depth (m)	Level (m CD)	Legend	Stratum Description
Depth (m)	Type	Results				
0.00	ES					Very soft dark grey mottled black and grey brown slightly sandy gravelly organic SILT that includes some Shells, Shell Debris and Cobbles / Boulders
			0.35	3.20		
						Soft to firm locally stiff to very stiff in boulder sized pockets grey slightly sandy slightly gravelly silty CLAY with occasional cobbles and boulders
0.80	B					
1.00	ES					
			1.30	2.25		
						Dense grey very clayey becoming clayey with depth sandy fine to coarse rounded to angular GRAVEL that includes rare Shells and occasional becoming many with depth cobbles and boulders
1.80	B					
2.50	ES					
2.80	B					
			3.25	0.30		Obstructed on cobbles and boulders at approx 3.25m
						Trialpit Complete at 3.25 m

1
2
3
4

Remarks: Trial pit sides stable during excavation
Trial pit terminated on engineers instruction

Groundwater: Groundwater encountered at 1.3m

Log Status
Final

HoleBASE 3.1 (Bld 426.72) Standard Trialpit Log v2 dated 27th Nov 03

HOLEQUEST LIMITED
Holequest Ltd
Winston Road
Galashiels
Tel: 01896 752295

Trialpit No
TP1
Sheet 1 of 1

Project Name	Project No.	Co-ords: 138603E - 863692N	Date
Uig Harbour Redevelopment GI	17/035	Level: 3.64 m AOD	21/07/2017

Excavation Methods:-
20T Tracked Excavator, GL - 3.3m

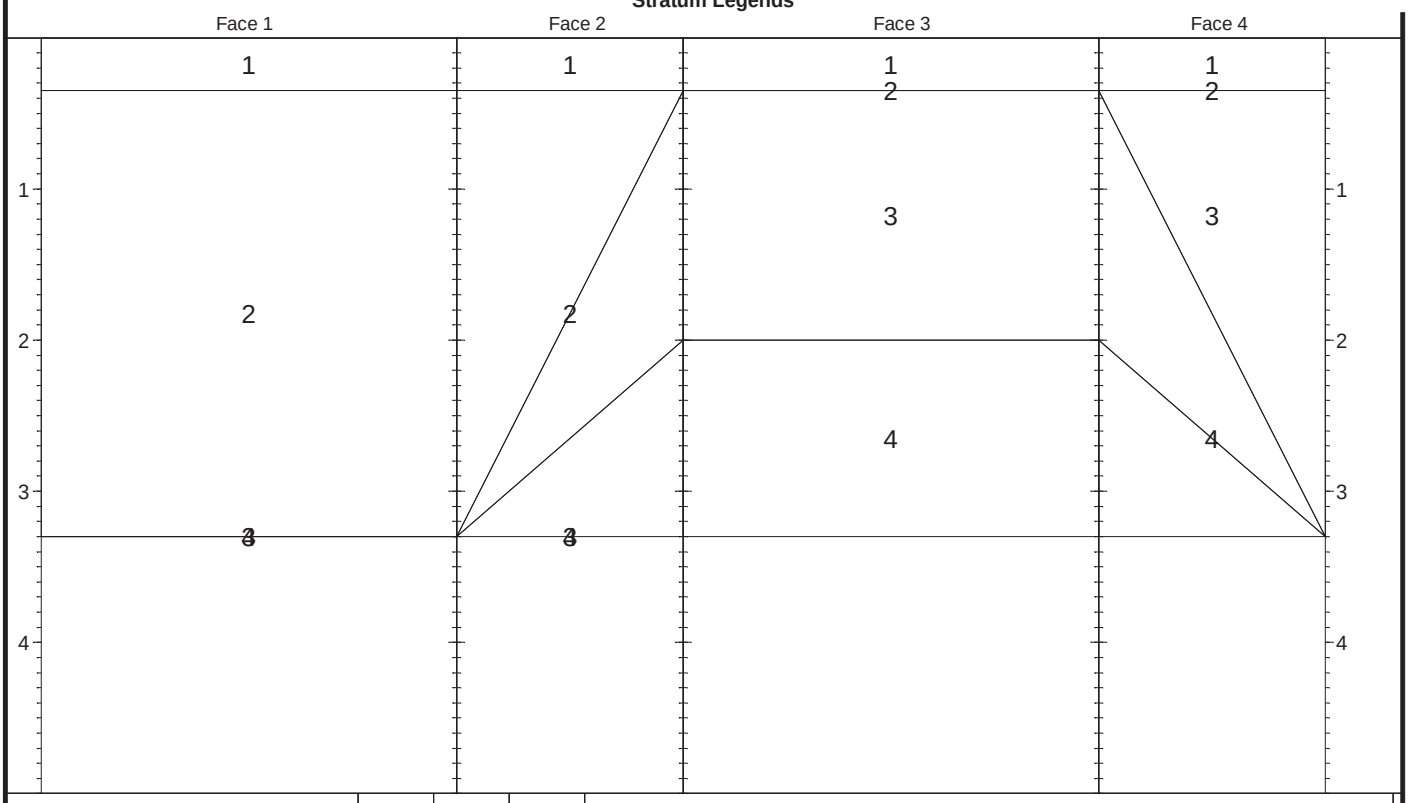
Dimensions:
Depth
3.30
5.50m
1.50m

Scale
1:50

Client:
The Highland Council

Redacted

Stratum Legends



Samples & In Situ Testing			Depth (m)	Level (m AOD)	Stratum Code	Stratum Description
Depth (m)	Type	Results				
			0.35	3.29	1	Very soft dark grey and brown mottled black slightly sandy gravelly organic SILT with many cobbles
			1.50	2.14	2	Dense grey very clayey sandy fine to coarse rounded to subangular GRAVEL with rare Shells and many cobbles and boulders (up to 750mm diam)
			2.00	1.64	3	Stiff locally very stiff to hard slightly sandy slightly gravelly SILT with occasional cobbles
			3.30	0.34	4	Stiff grey slightly sandy very silty CLAY that includes boulder sized pockets of silty Sand and Gravel with occasional cobbles and boulders

Remarks: Trial pit sides generally stable during excavation
Trial pit terminated on engineers instruction

Groundwater: Groundwater encountered at 0.5m (North end of excavation)

Status
Final

HoleBASE 3.1 (Bld 426.72) Standard Trialpit Faces Log v2 dated 27th Nov 03

APPENDIX IV

Laboratory Testing

i) Geotechnical Testing

LABORATORY REPORT

4043

Contract Number: PSL17/3977

Report Date: 08 September 2017

Client's Reference: 17/035

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: UIG Harbour Reservoir

Date Received: 16/8/2017
Date Commenced: 16/8/2017
Date Completed: 8/9/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted (Director) (Director) (Quality Manager)

Redacted (Senior Technician) Redacted (Senior Technician) Redacted (Senior Technician)

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH1		B	1.30		Dark grey very gravelly silty SAND.
BH1		B	4.30		Dark grey slightly silty SAND & GRAVEL.
BH1		B	5.80		Dark grey very gravelly silty SAND.
BH1		B	13.30		Dark grey very sandy silty GRAVEL.
BH1		B	16.30		Dark grey very gravelly sandy CLAY.
BH8A		B	1.20		Dark grey very sandy slightly silty GRAVEL with cobbles.
BH8A		B	3.00		Dark grey very sandy slightly silty GRAVEL.
BH8A		B	4.20		Dark grey slightly gravelly slightly sandy very silty CLAY.
BH8A		B	5.30		Dark grey slightly sandy SILT.
BH9		B	0.90		Dark Grey slightly gravelly very silty SAND.
BH9		B	2.80		Dark grey slightly gravelly very sandy clayey SILT with some organic material.
BH9		U	4.80		Dark grey slightly gravelly sandy very clayey SILT.
BH9		B	7.40		Dark Grey slightly gravelly slightly sandy CLAY.
BH6A		B	0.50		Dark brown very sandy silty GRAVEL.
BH6A		B	1.50		Brown very sandy slightly silty GRAVEL.
BH6A		B	4.20		Brown slightly gravelly sandy clayey SILT.
BH6A		B	5.40		Dark Grey very sandy silty GRAVEL.

UKAS TESTING 4043	PSL Professional Soils Laboratory	UIG Harbour Redevelopment	Contract No: PSL17/3977 Client Ref: 17/035

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH1		B	5.80		12				NP			
BH1		B	13.30		21				NP			
BH1		B	16.30		32			37	18	19	50	Intermediate plasticity CI.
BH8A		B	4.20		41			64	31	33	91	High plasticity CH.
BH9		B	2.80		49			59	36	23	89	High plasticity MH.
BH9		B	7.40		34			59	26	33	88	Intermediate plasticity CI.
BH6A		B	4.20		24			48	31	17	91	Intermediate plasticity MI.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Horbour Redevelopment

Contract No:

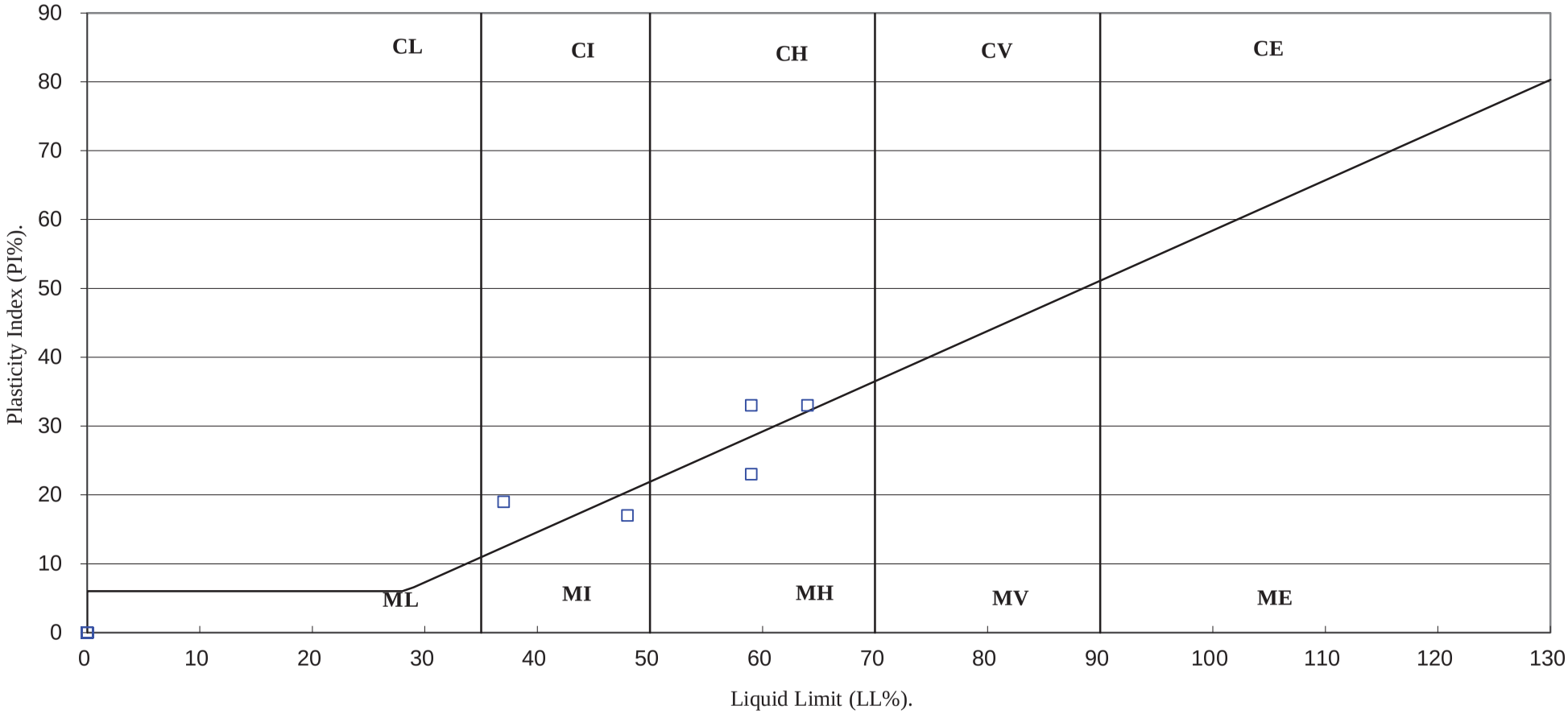
PSL17/3977

Client Ref:

17/035

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Horbour Redevelopment**	**Contract No:** PSL17/3977 **Client Ref:** 17/035

PARTICLE SIZE DISTRIBUTION TEST

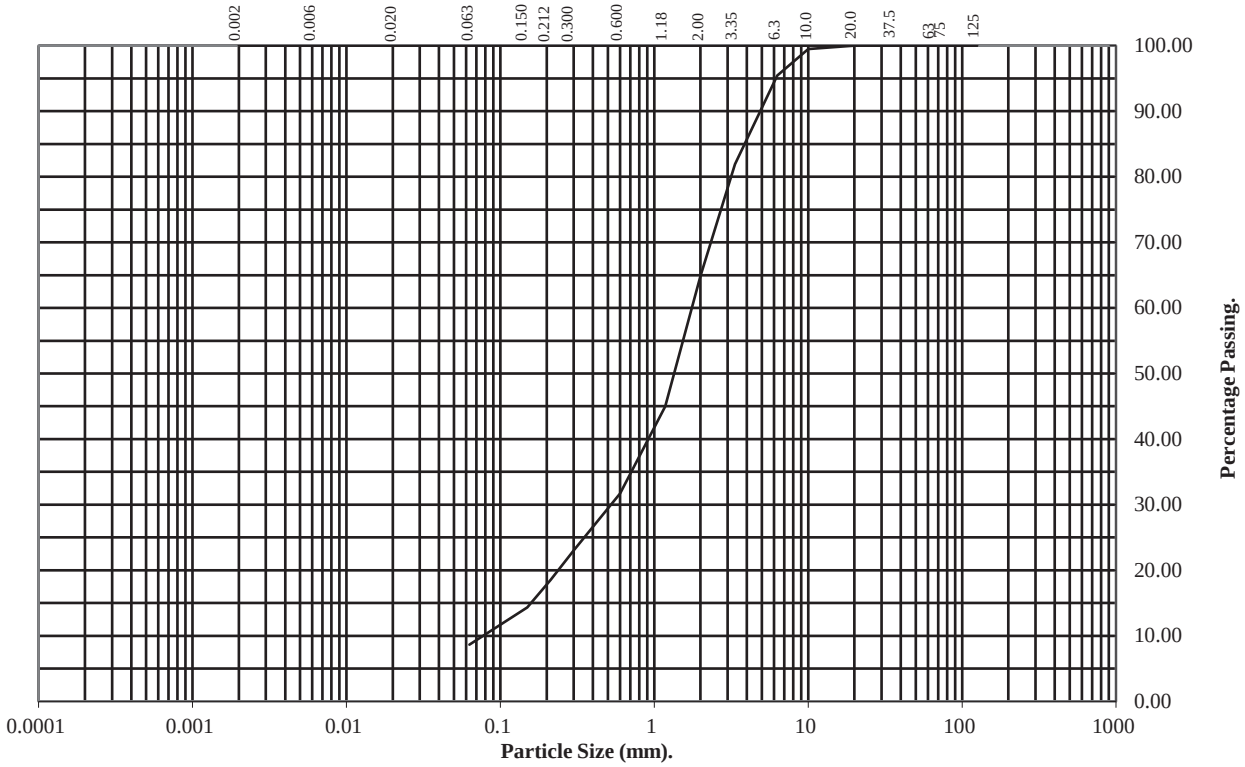
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **Top Depth (m):** **1.30**

Sample Number: **BH1** **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	95
3.35	82
2	65
1.18	45
0.6	32
0.3	23
0.212	19
0.15	14
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	35
Sand	56
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/3977**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

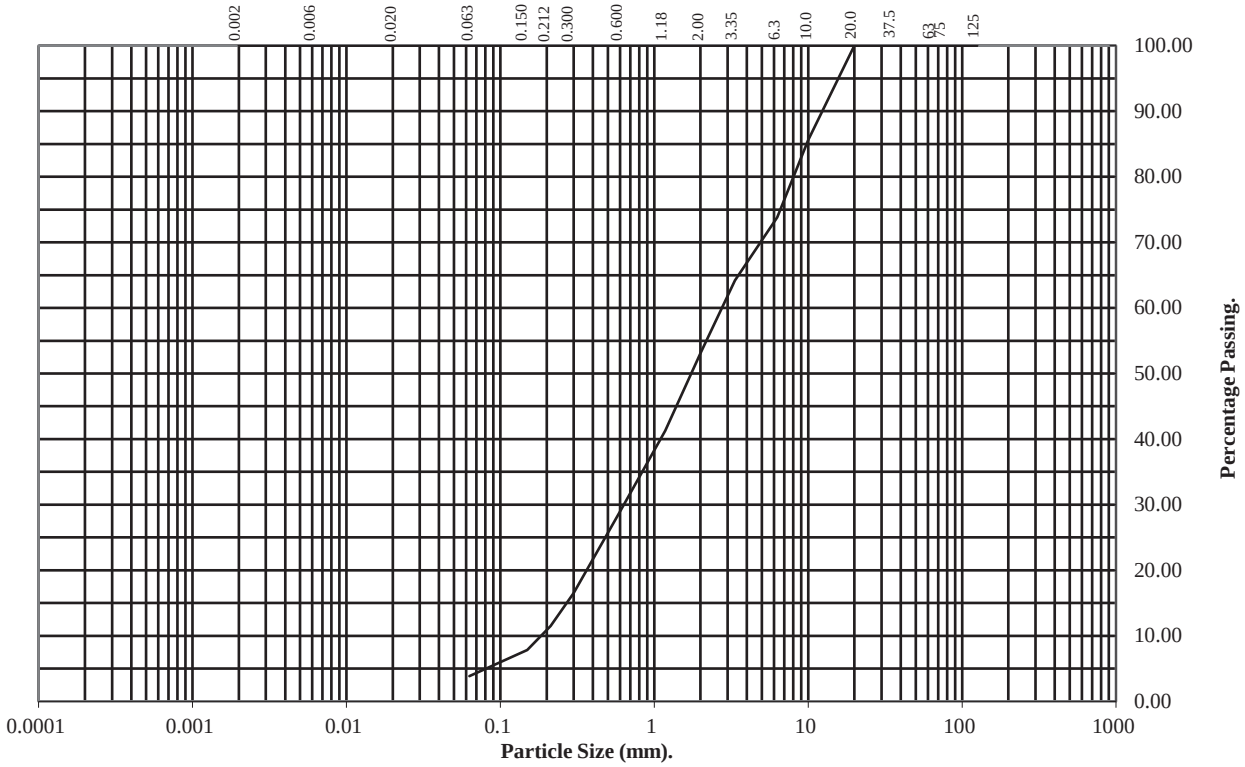
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **Top Depth (m):** **4.30**

Sample Number: **BH1** **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	86
6.3	74
3.35	64
2	53
1.18	41
0.6	29
0.3	17
0.212	12
0.15	8
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	47
Sand	49
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/3977 **Client Ref:** 17/035

PARTICLE SIZE DISTRIBUTION TEST

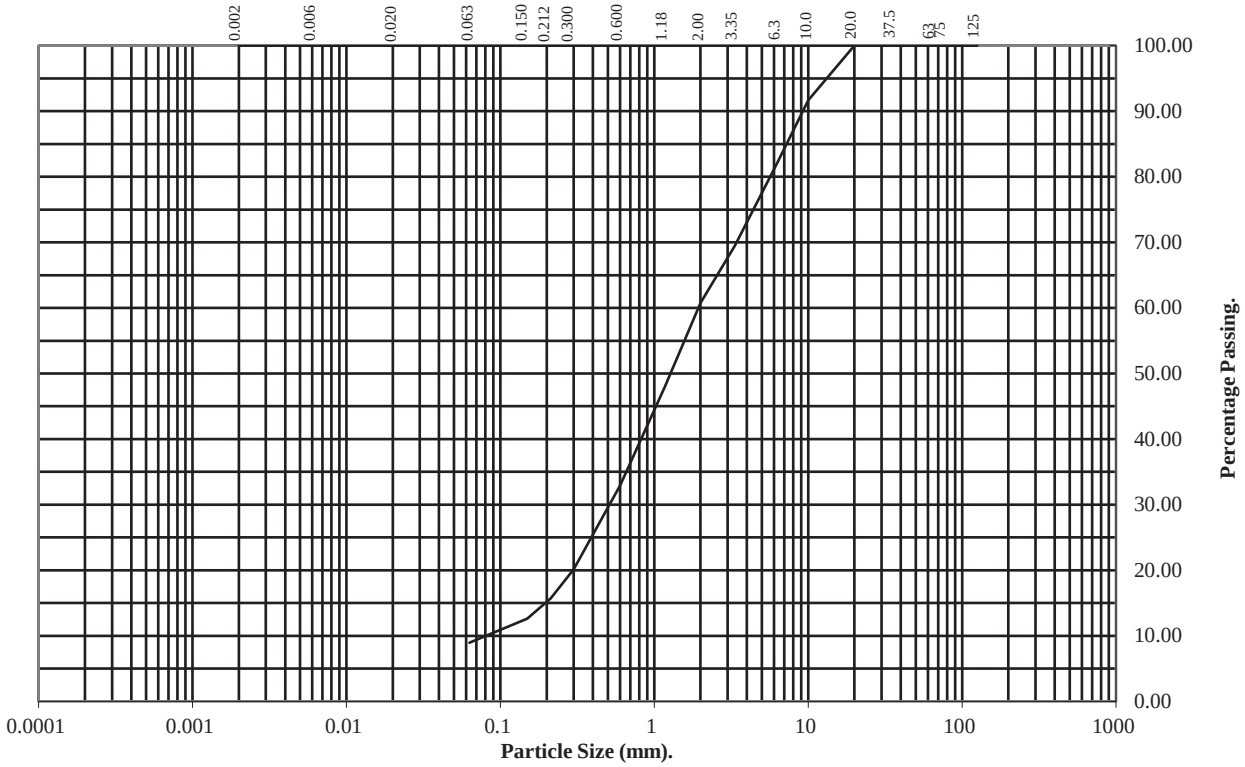
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **Top Depth (m):** **5.80**

Sample Number: **BH1** **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	92
6.3	82
3.35	70
2	61
1.18	48
0.6	33
0.3	20
0.212	16
0.15	13
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	39
Sand	52
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: PSL17/3977

Client Ref: 17/035

PARTICLE SIZE DISTRIBUTION TEST

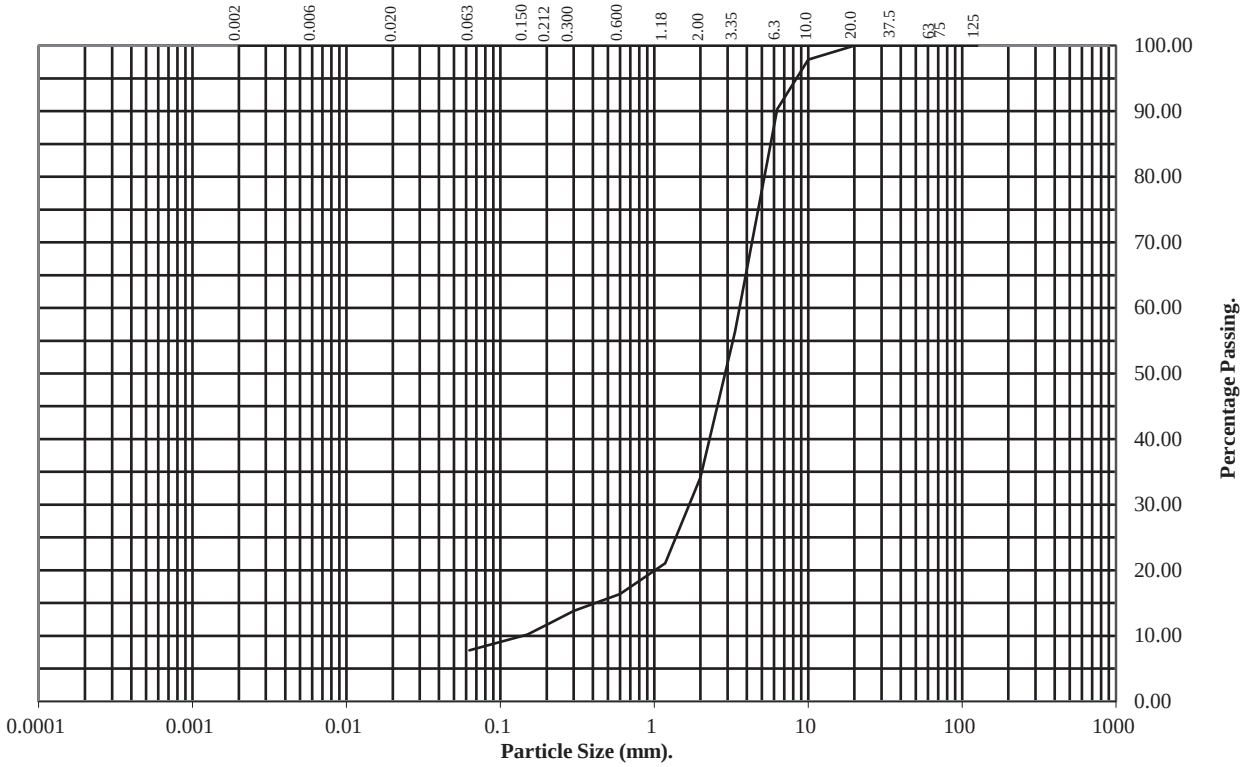
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **Top Depth (m):** **13.30**

Sample Number: **BH1** **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	90
3.35	56
2	34
1.18	21
0.6	16
0.3	14
0.212	12
0.15	10
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	66
Sand	26
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: PSL17/3977

Client Ref: 17/035

PARTICLE SIZE DISTRIBUTION TEST

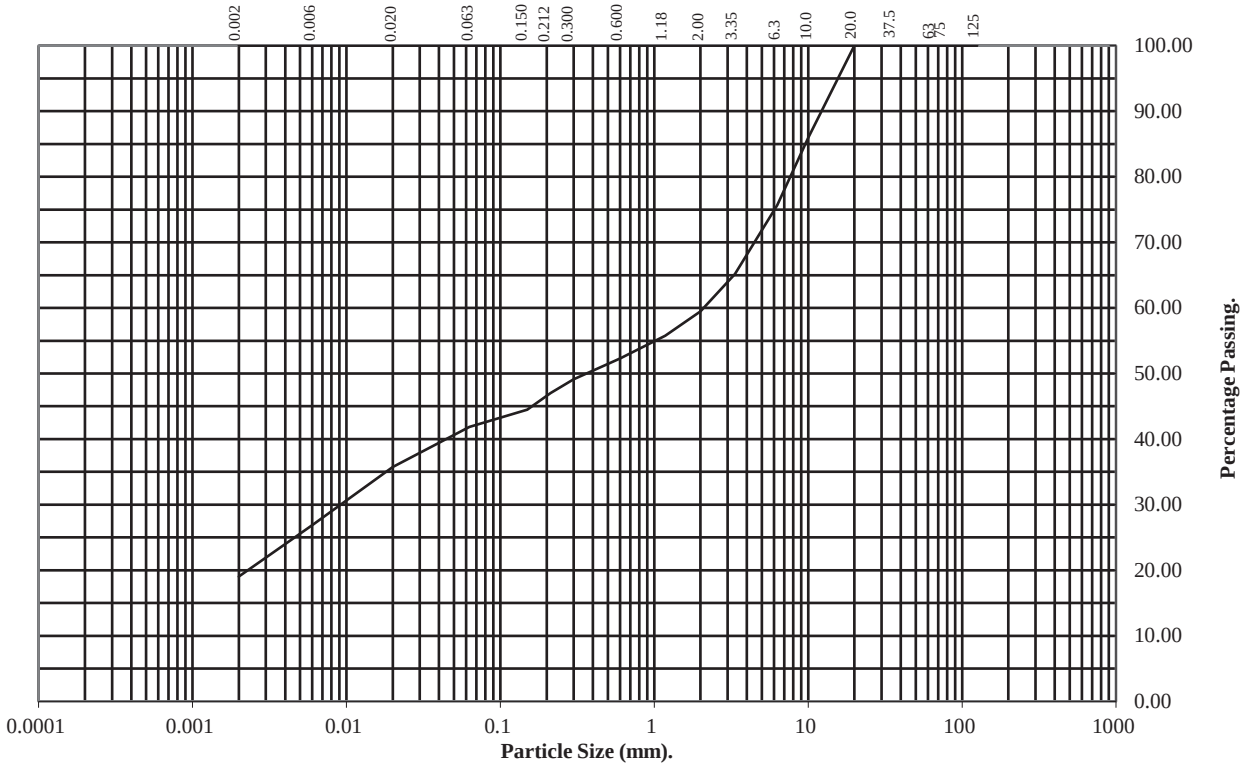
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH1** **Top Depth (m):** **16.30**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	86
6.3	76
3.35	65
2	59
1.18	56
0.6	52
0.3	49
0.212	47
0.15	44
0.063	42

Particle Diameter	Percentage Passing
0.02	36
0.006	27
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	17
Silt	23
Clay	19

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/3977**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

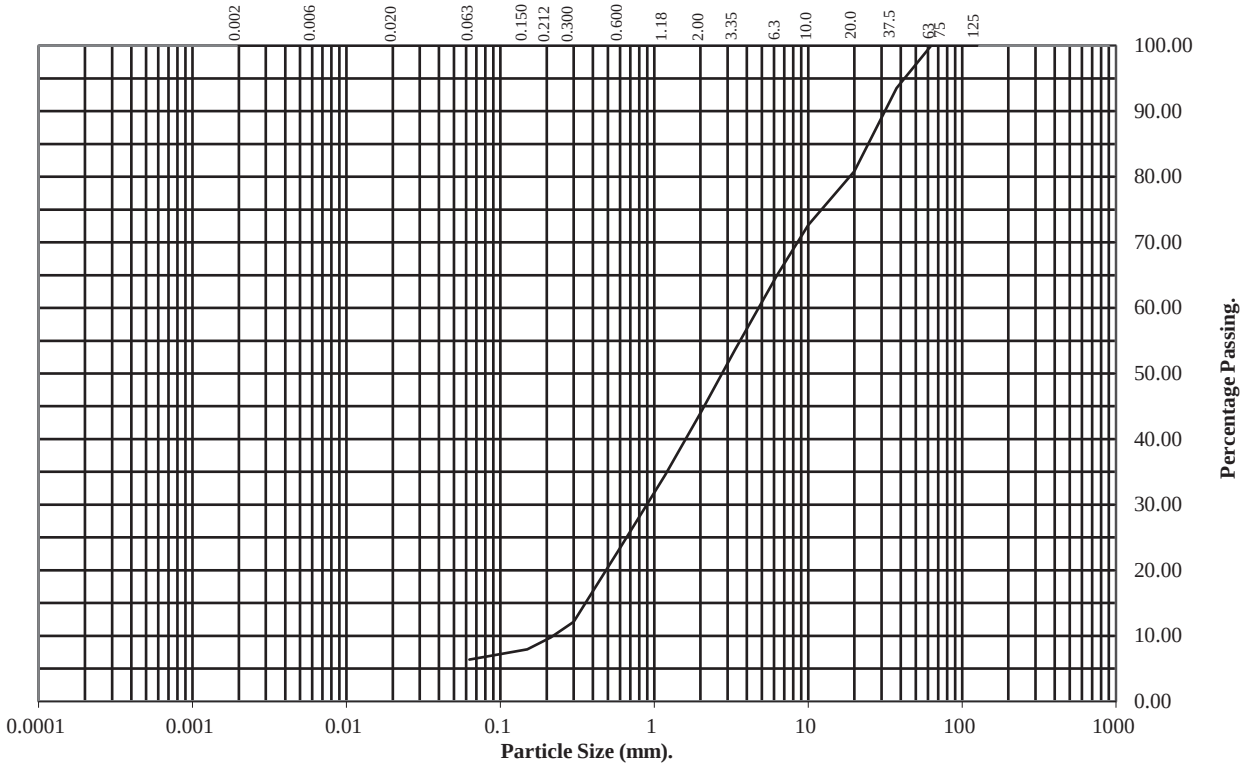
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **0.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	94
20	81
10	73
6.3	65
3.35	54
2	44
1.18	35
0.6	23
0.3	12
0.212	10
0.15	8
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	38
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/3977
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

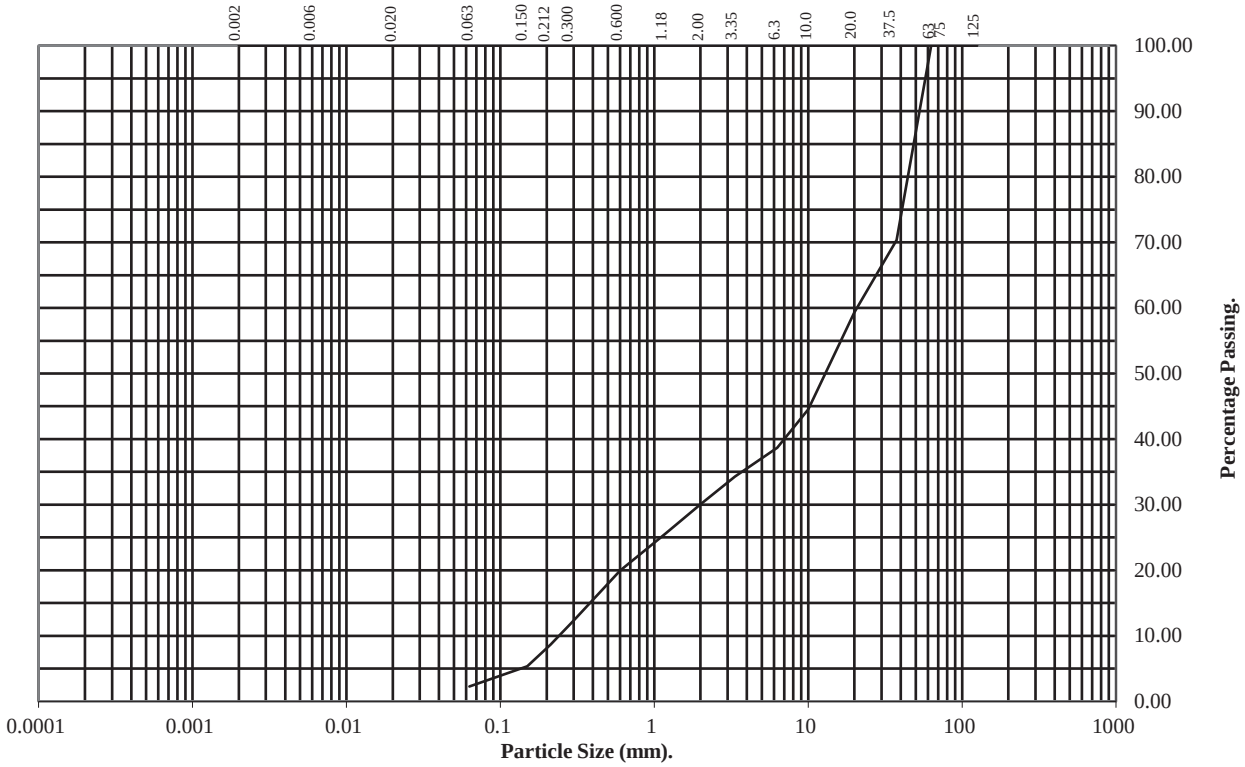
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	70
20	59
10	45
6.3	39
3.35	34
2	30
1.18	26
0.6	20
0.3	12
0.212	9
0.15	5
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	70
Sand	28
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/3977**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

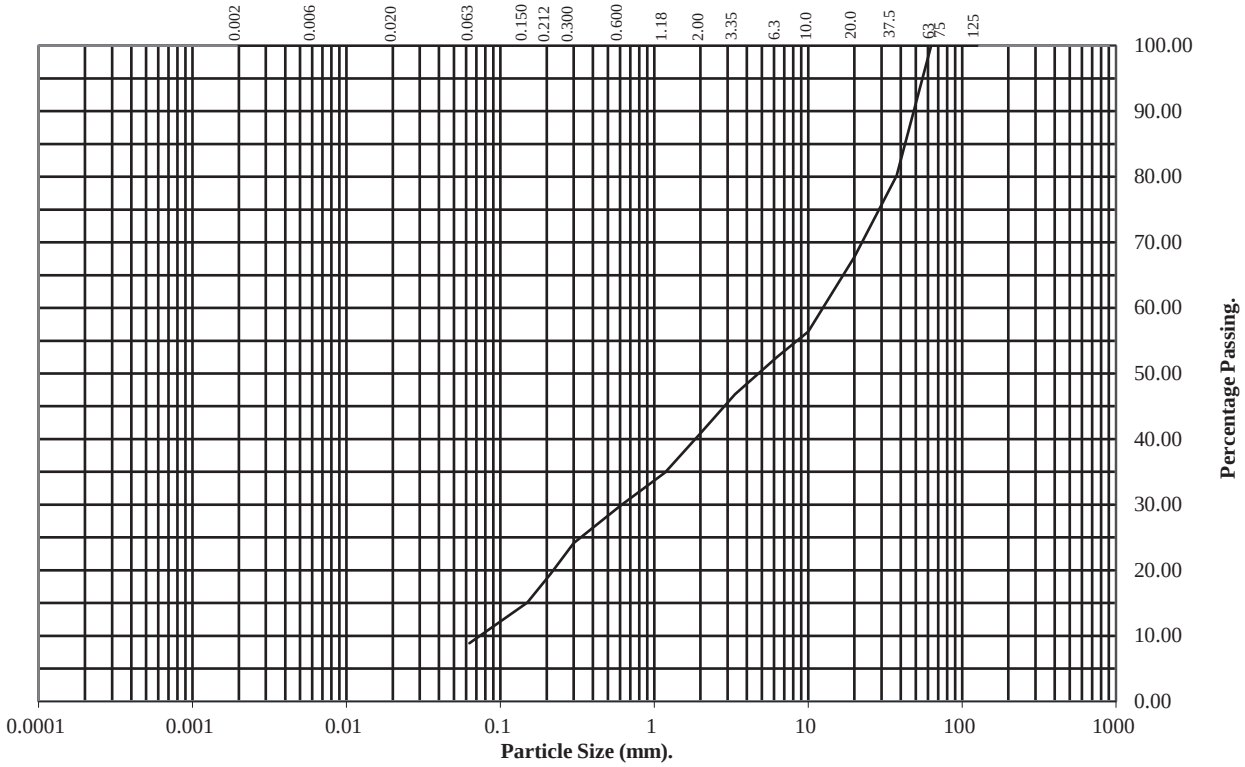
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **5.40**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	80
20	68
10	56
6.3	53
3.35	47
2	41
1.18	35
0.6	30
0.3	24
0.212	19
0.15	15
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	59
Sand	32
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/3977**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

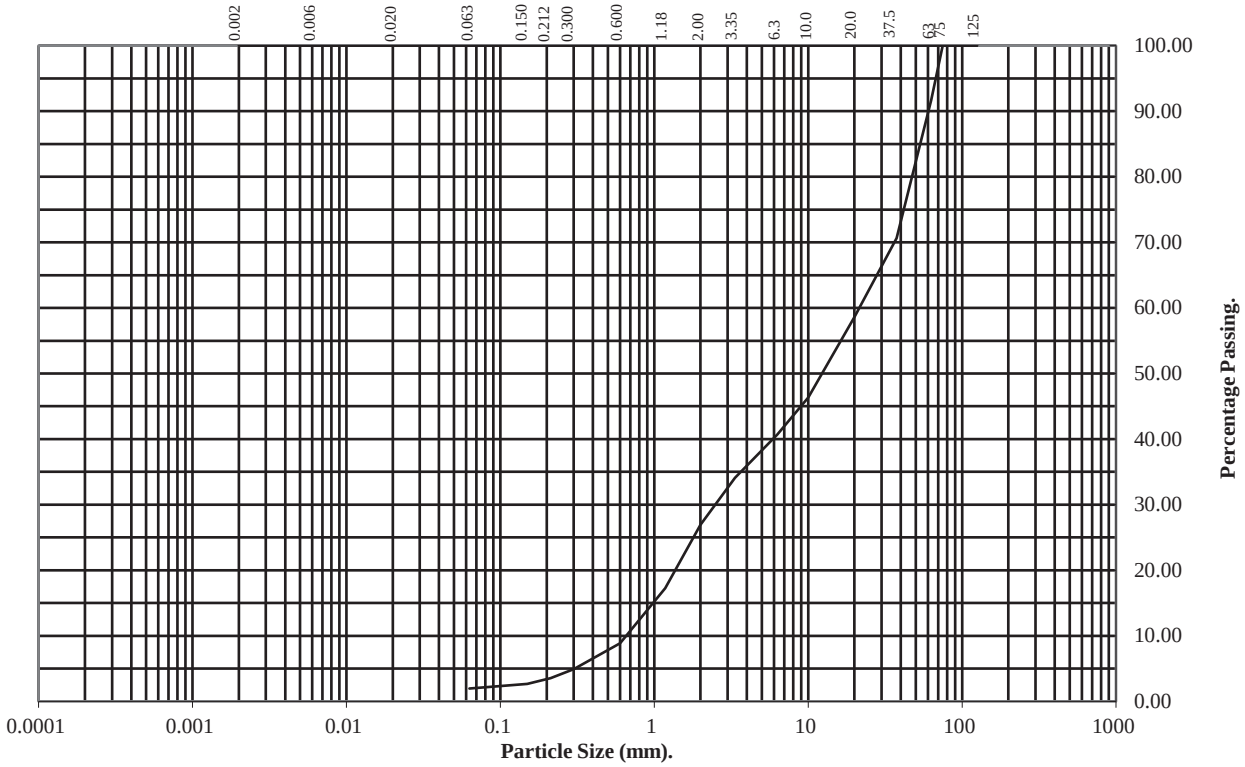
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH8A** **Top Depth (m):** **1.20**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	92
37.5	71
20	59
10	46
6.3	41
3.35	34
2	27
1.18	17
0.6	9
0.3	5
0.212	4
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	8
Gravel	65
Sand	25
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/3977**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

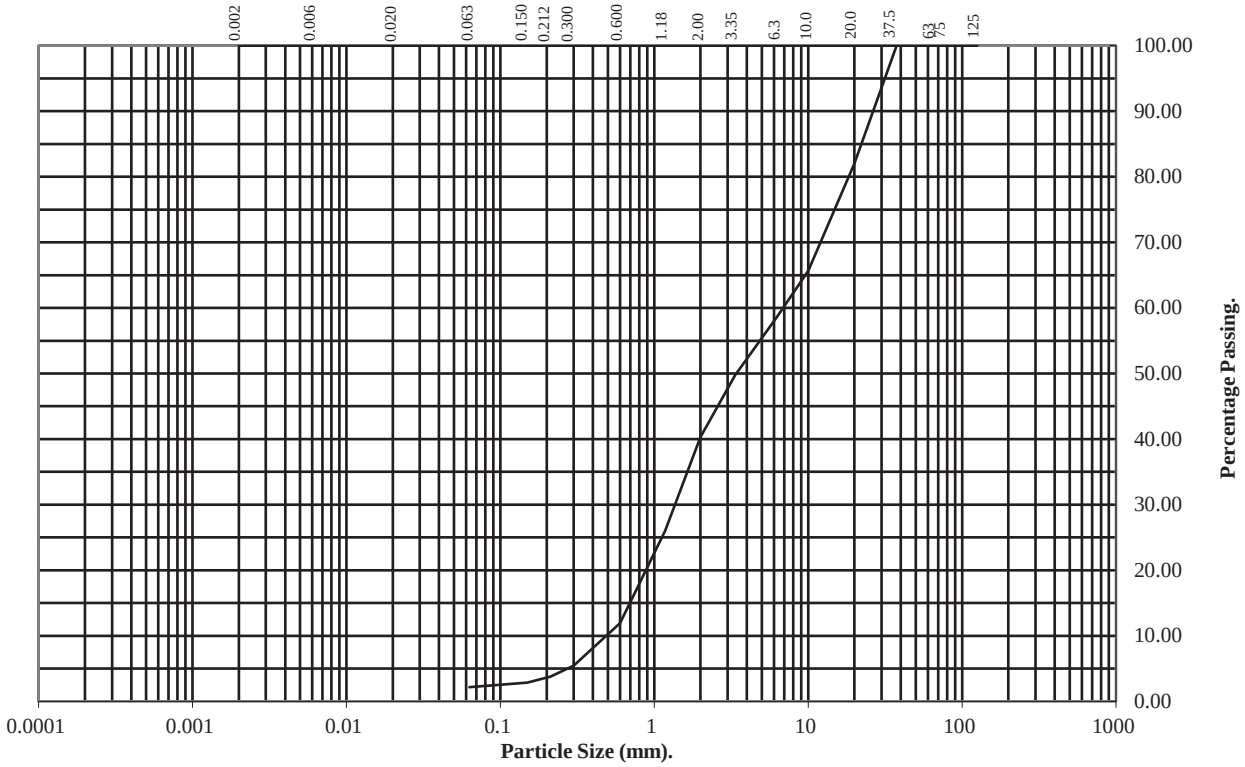
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH8A** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	82
10	66
6.3	59
3.35	50
2	40
1.18	26
0.6	12
0.3	5
0.212	4
0.15	3
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	38
Silt/Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/3977
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

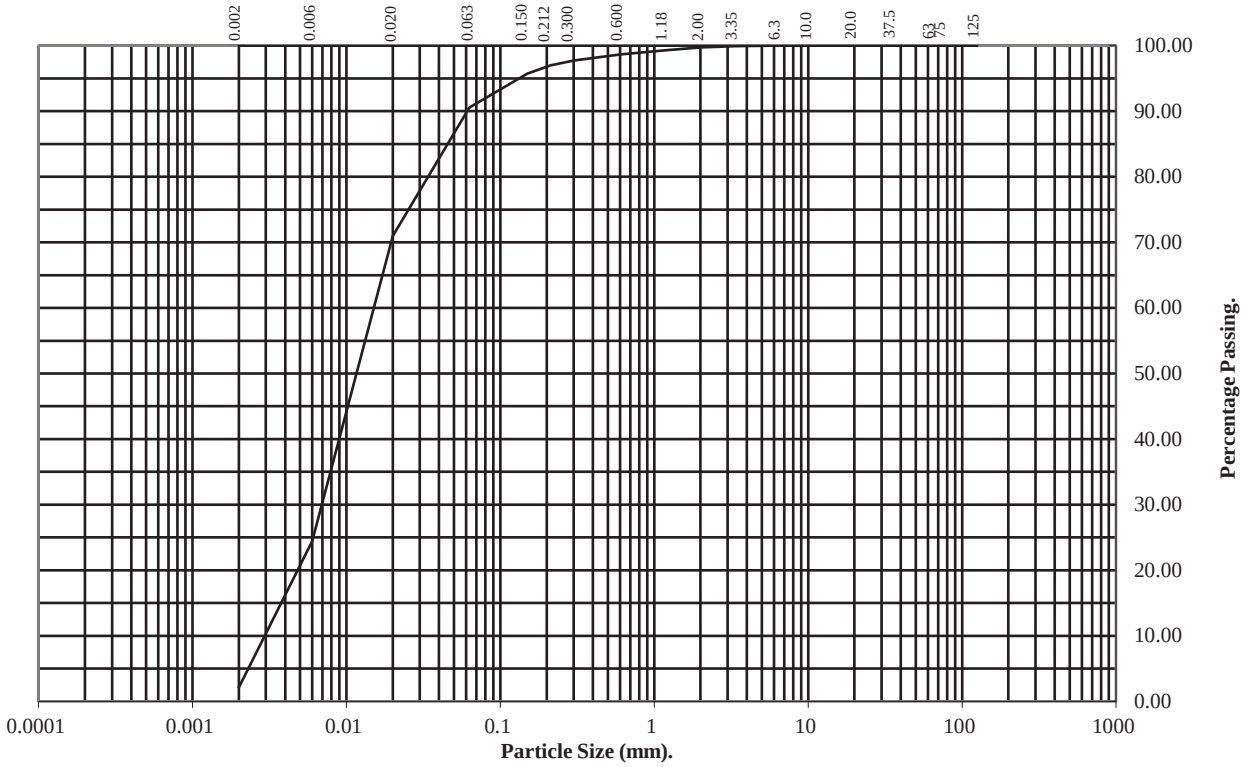
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8A** **Top Depth (m):** **5.30**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	99
0.3	98
0.212	97
0.15	96
0.063	91

Particle Diameter	Percentage Passing
0.02	71
0.006	24
0.002	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	9
Silt	89
Clay	2

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/3977
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

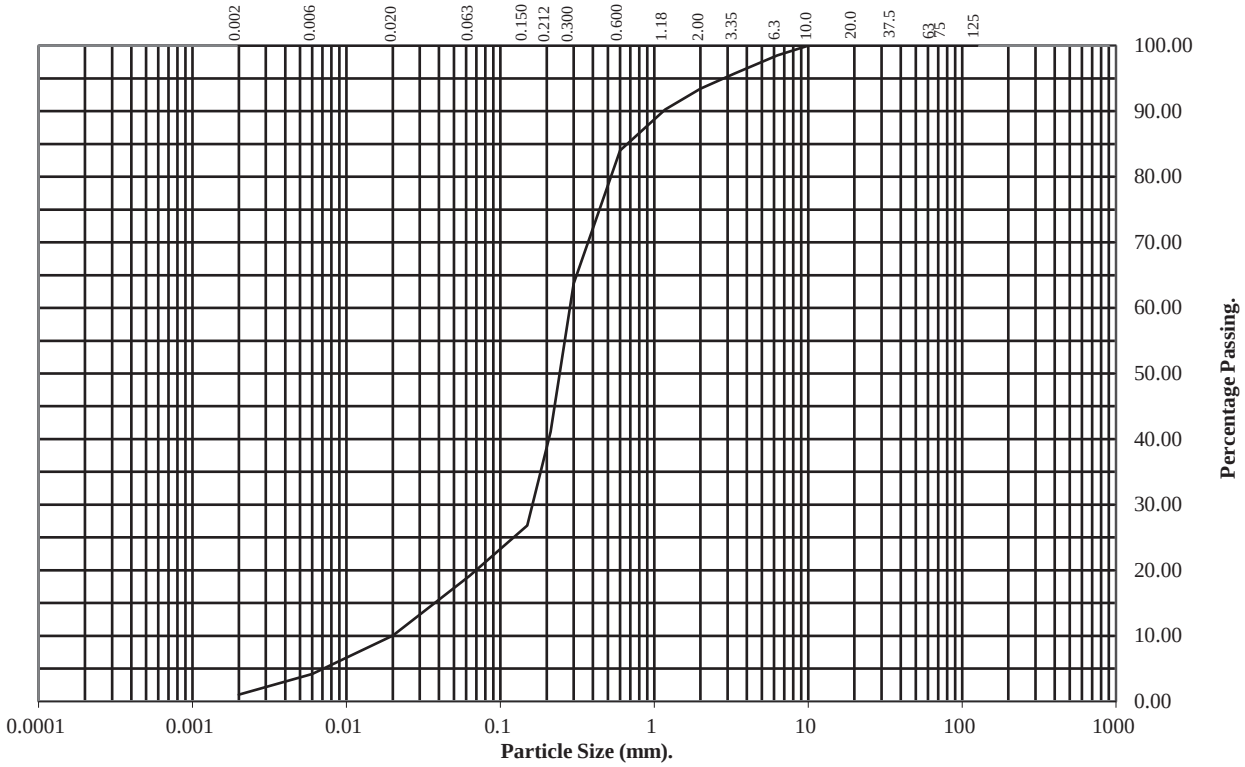
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH9** **Top Depth (m):** **0.90**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	98
3.35	96
2	93
1.18	90
0.6	84
0.3	64
0.212	41
0.15	27
0.063	19

Particle Diameter	Percentage Passing
0.02	10
0.006	4
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	74
Silt	18
Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/3977
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

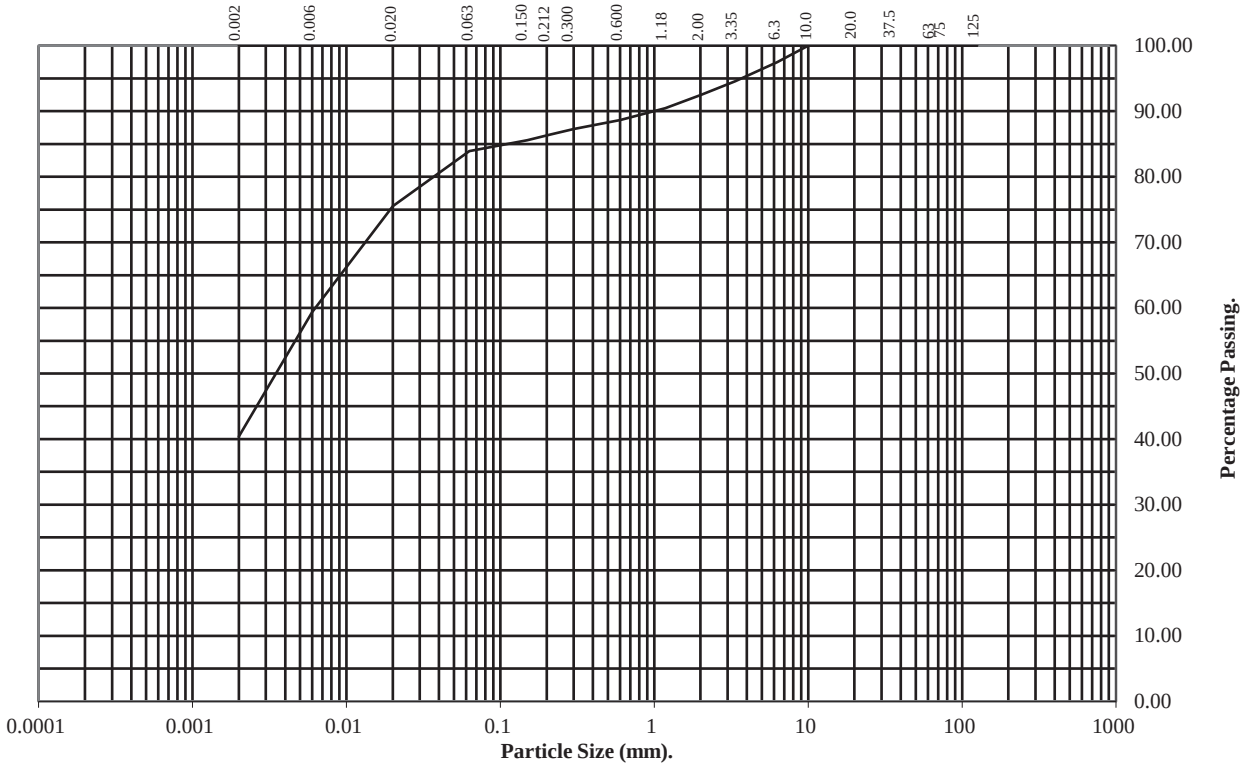
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH9** **Top Depth (m):** **7.40**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	98
3.35	95
2	92
1.18	90
0.6	89
0.3	87
0.212	86
0.15	86
0.063	84

Particle Diameter	Percentage Passing
0.02	76
0.006	59
0.002	40

Soil Fraction	Total Percentage
Cobbles	0
Gravel	8
Sand	8
Silt	44
Clay	40

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

UIG Harbour Redevelopment

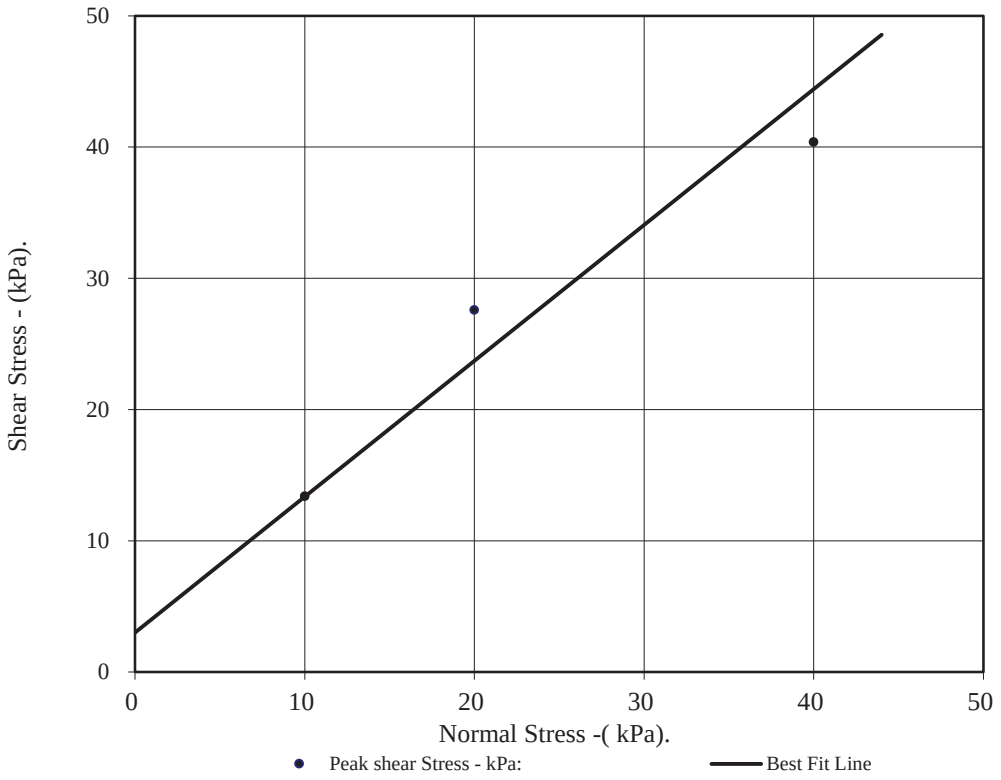
Contract No:
PSL17/3977
Client Ref:
17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**		Top Depth:	**1.30**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	12	12	12
Bulk Density - Mg/m3:	1.85	1.85	1.85
Dry Density - Mg/m3:	1.65	1.65	1.66
Voids Ratio:	0.604	0.603	0.601
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.30	19.29	19.23
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	1.50	1.50	2.00
Peak shear Stress - kPa:	13	28	40
Final Consolidated Conditons			
Moisture Content - %:	21	20	19
Bulk Density - Mg/m3:	1.85	1.86	1.87
Dry Density - Mg/m3:	1.54	1.55	1.57
Peak			
Angle of Shearing Resistance:(~~θ~~)	**46**		
Effective Cohesion - kPa:	**3**		

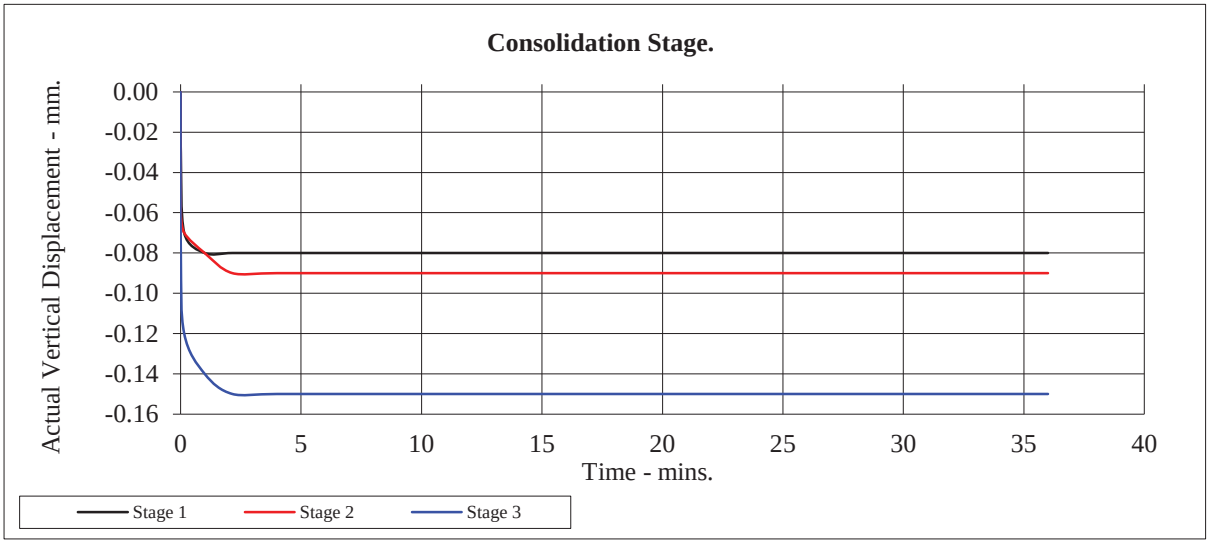


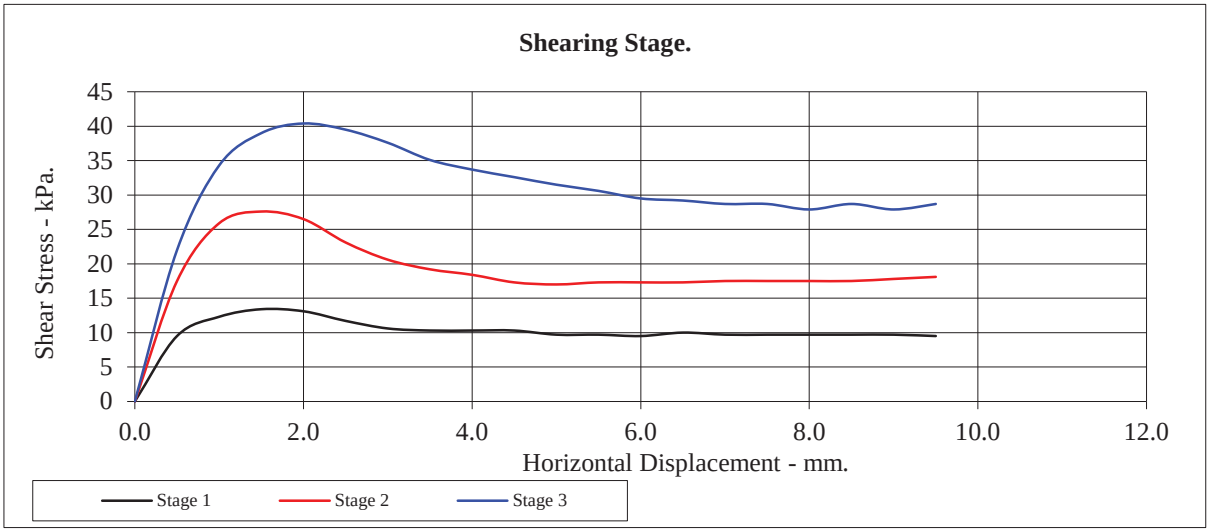
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/3977 **Client Ref:** 17/035

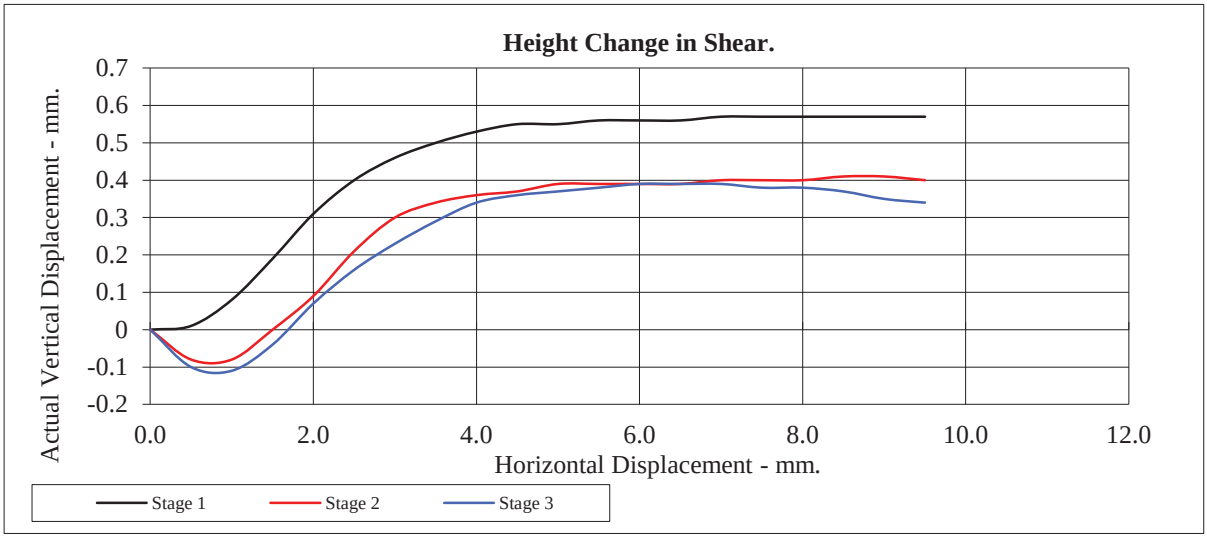
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**	Top Depth:	**1.30**
Sample Number:		Base Depth:	







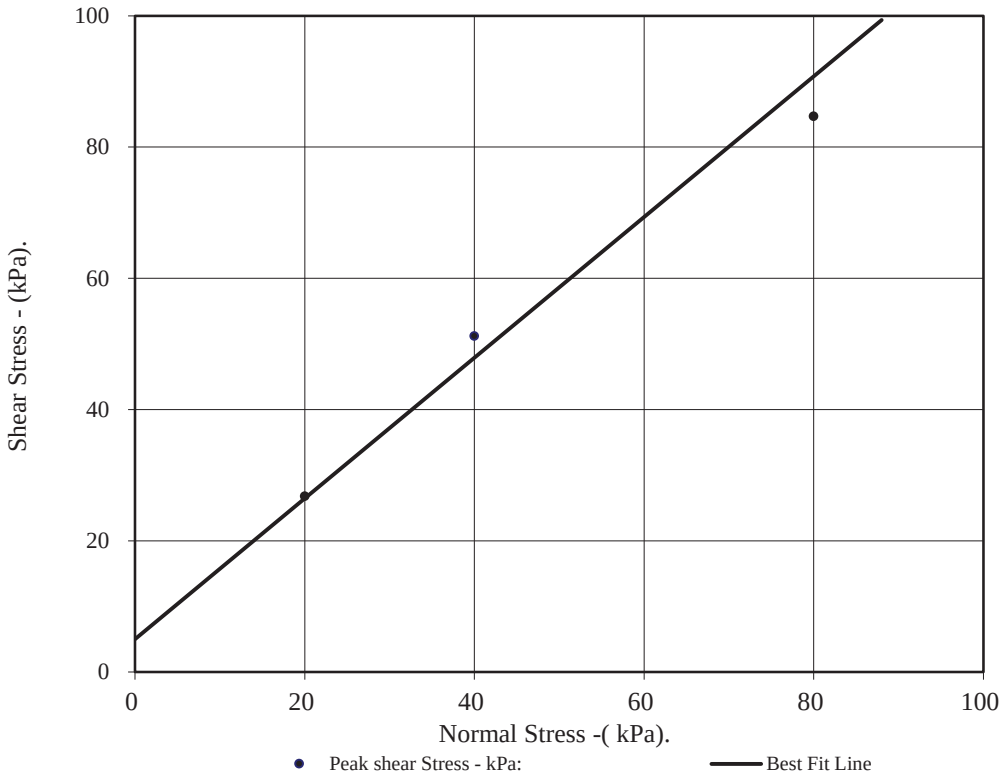
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**		Top Depth:	**2.80**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey gravelly SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	8.3	8.3	8.3
Bulk Density - Mg/m3:	1.92	1.92	1.93
Dry Density - Mg/m3:	1.77	1.78	1.78
Voids Ratio:	0.494	0.493	0.490
Normal Pressure- kPa	20	40	80
Consolidation Stage			
Consolidated Height - mm:	19.30	19.27	19.20
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	2.50	3.00	3.00
Peak shear Stress - kPa:	27	51	85
Final Consolidated Conditons			
Moisture Content - %:	20	19	19
Bulk Density - Mg/m3:	1.93	1.93	1.94
Dry Density - Mg/m3:	1.61	1.62	1.64
Peak			
Angle of Shearing Resistance:(~~θ~~)	**47**		
Effective Cohesion - kPa:	**5**		

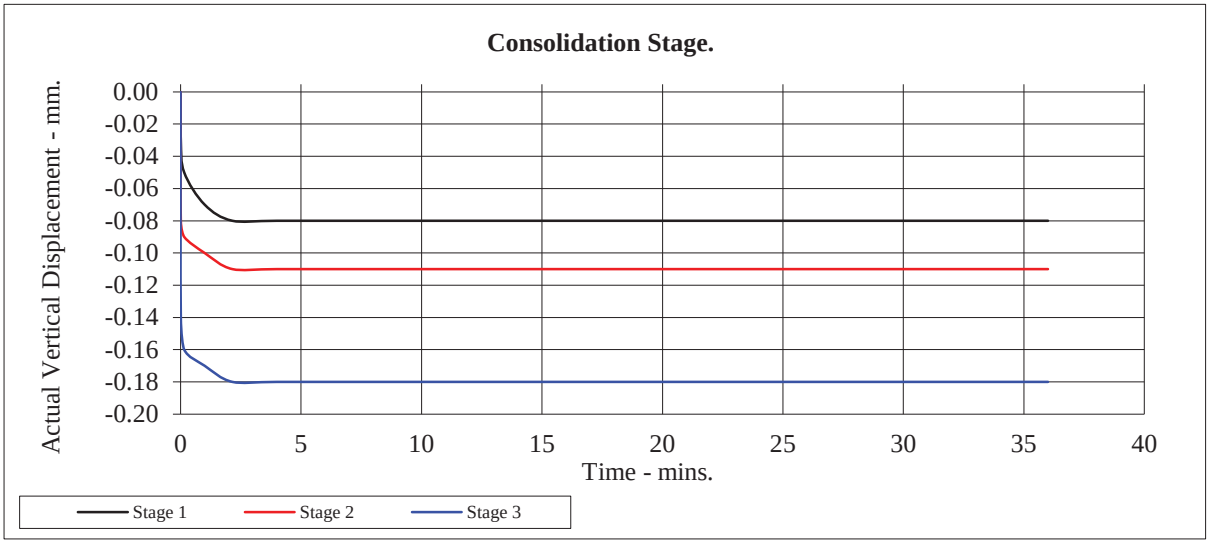


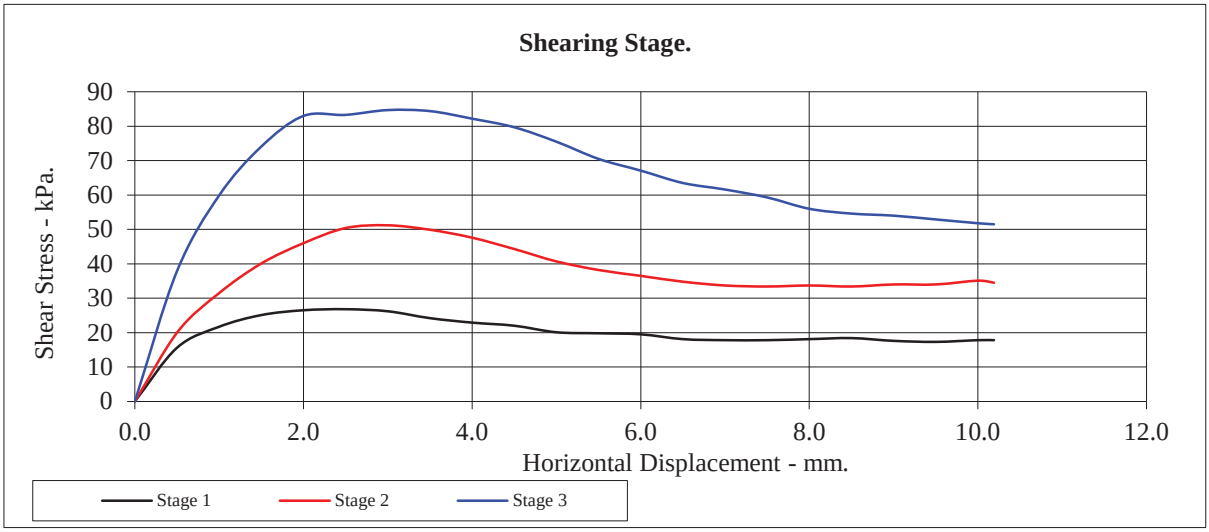
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

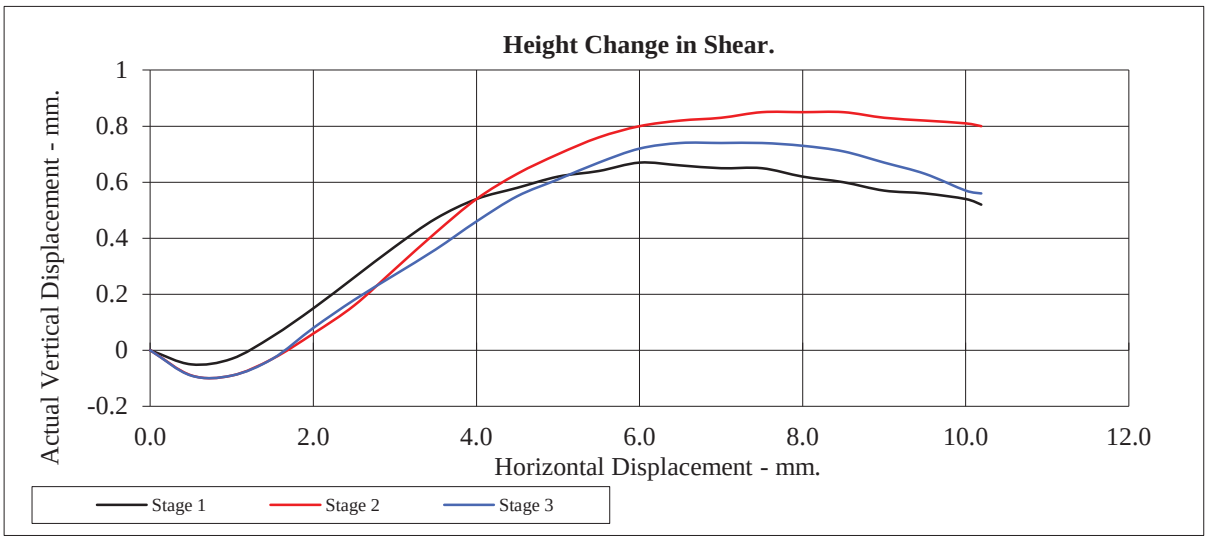
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**	Top Depth:	**2.80**
Sample Number:		Base Depth:	







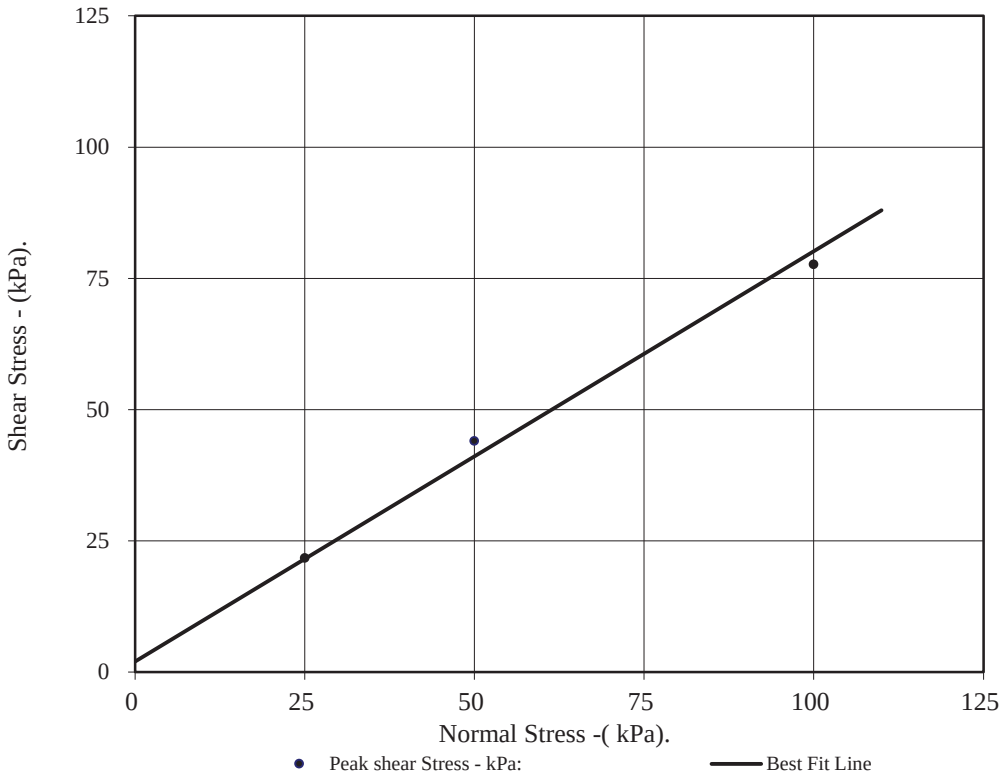
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**		Top Depth:	**4.30**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	8.8	8.8	8.8
Bulk Density - Mg/m3:	1.70	1.71	1.72
Dry Density - Mg/m3:	1.56	1.58	1.58
Voids Ratio:	0.694	0.682	0.673
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.24	18.90	18.76
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	6.00	4.50	5.50
Peak shear Stress - kPa:	22	44	78
Final Consolidated Conditons			
Moisture Content - %:	22	19	18
Bulk Density - Mg/m3:	1.71	1.76	1.78
Dry Density - Mg/m3:	1.41	1.47	1.50
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38**		
Effective Cohesion - kPa:	**2**		

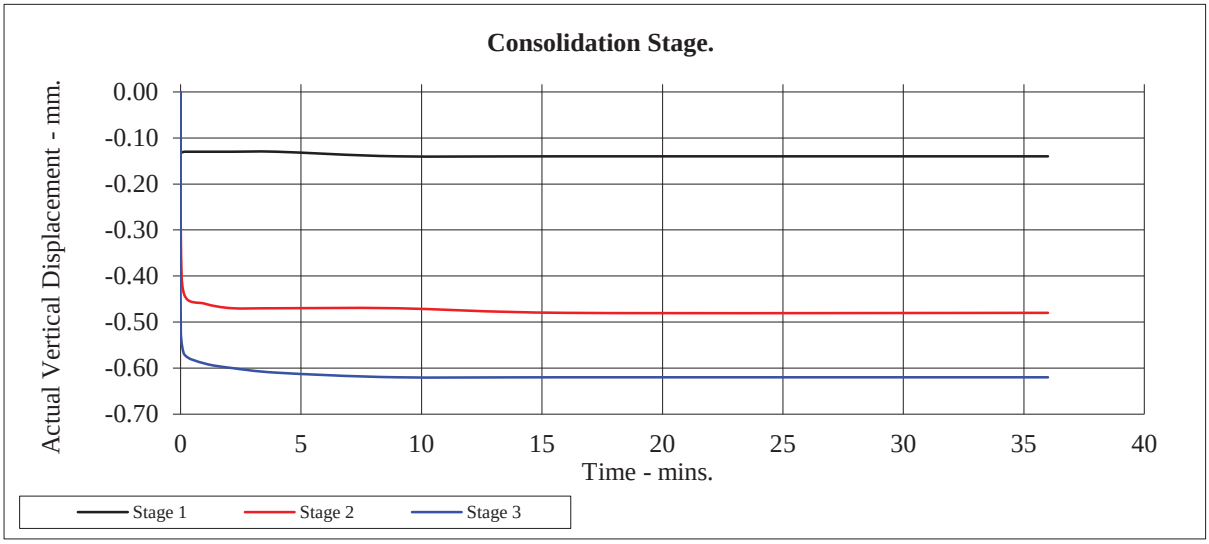


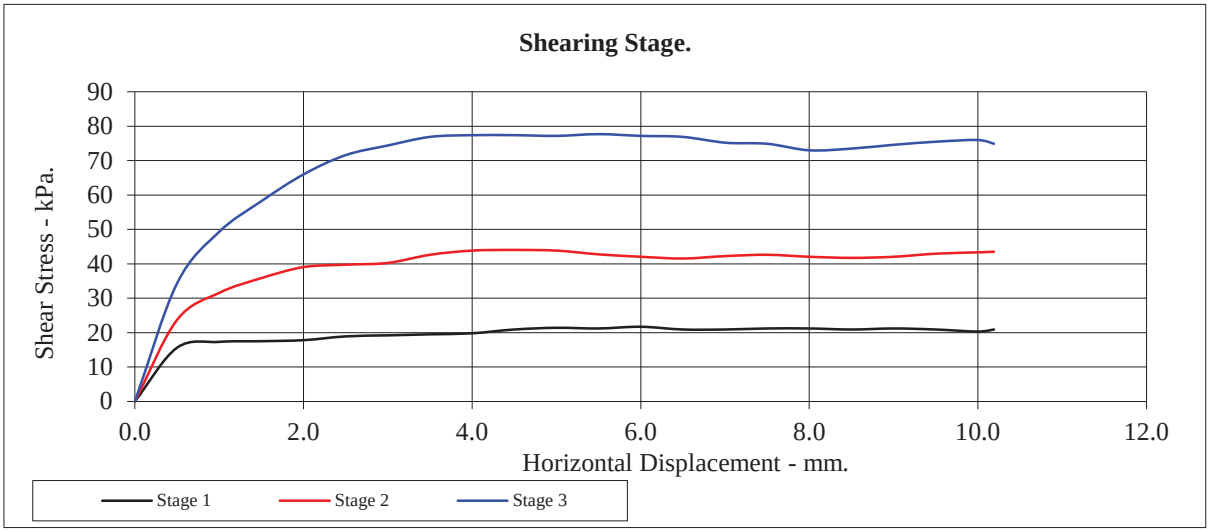
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

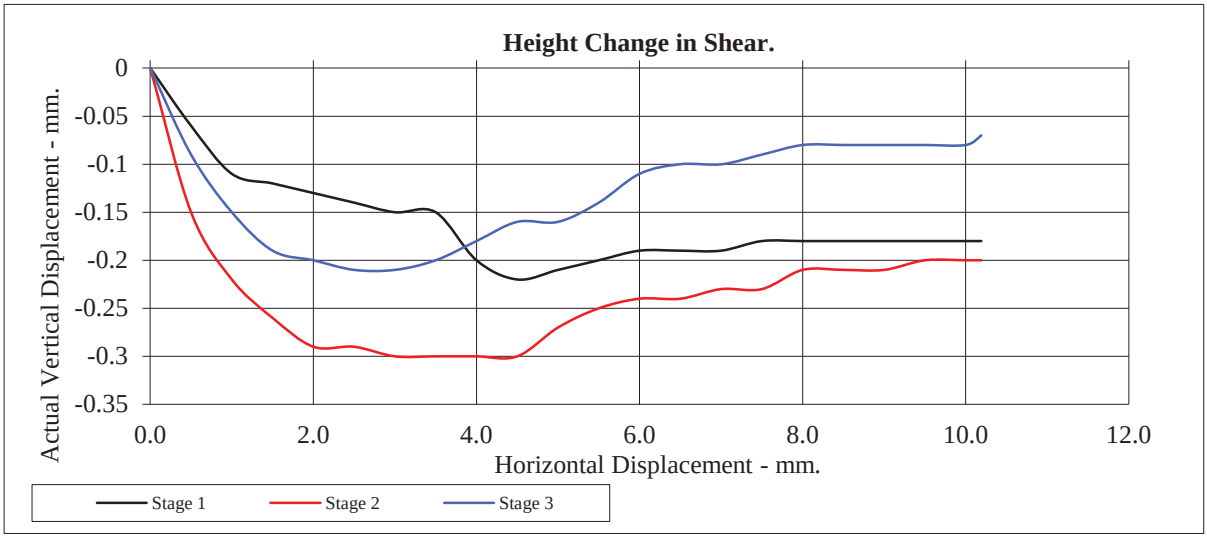
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH1**	Top Depth:	**4.30**
Sample Number:		Base Depth:	







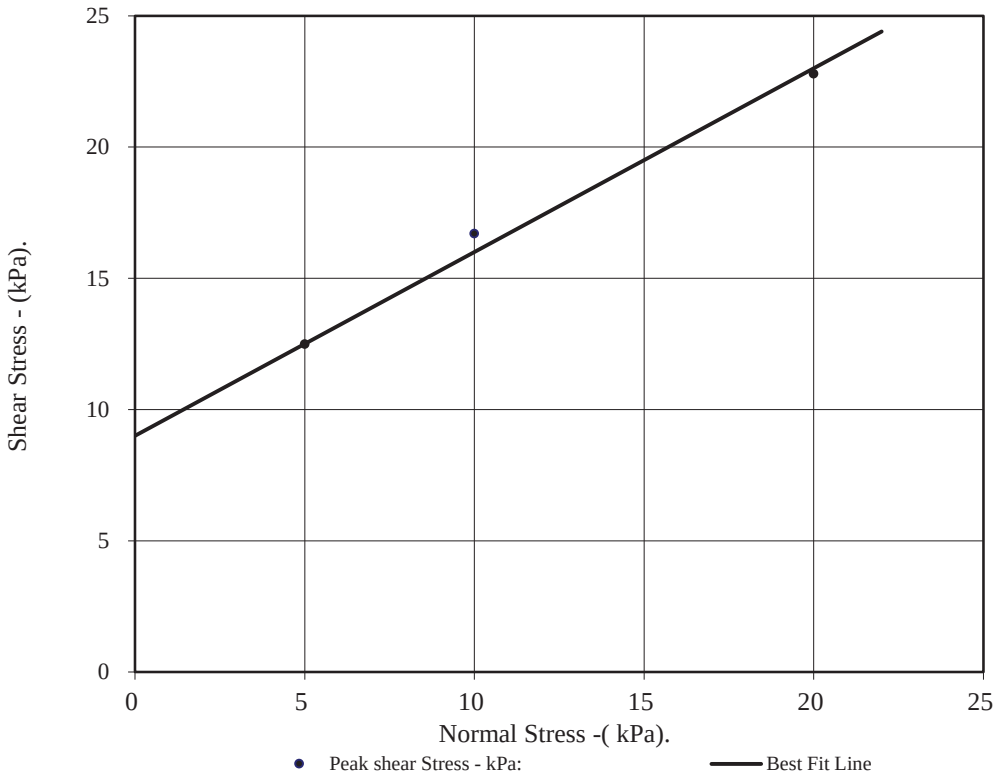
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977**
			Client Ref: 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**		Top Depth:	**0.50**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	22	22	22
Bulk Density - Mg/m3:	1.41	1.41	1.42
Dry Density - Mg/m3:	1.16	1.16	1.17
Voids Ratio:	1.280	1.280	1.264
Normal Pressure- kPa	5	10	20
Consolidation Stage			
Consolidated Height - mm:	19.37	19.33	19.24
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	6.00	6.00	6.50
Peak shear Stress - kPa:	13	17	23
Final Consolidated Conditons			
Moisture Content - %:	44	44	43
Bulk Density - Mg/m3:	1.42	1.42	1.44
Dry Density - Mg/m3:	0.98	0.99	1.00
Peak			
Angle of Shearing Resistance:(~~θ~~)	**35**		
Effective Cohesion - kPa:	**9**		

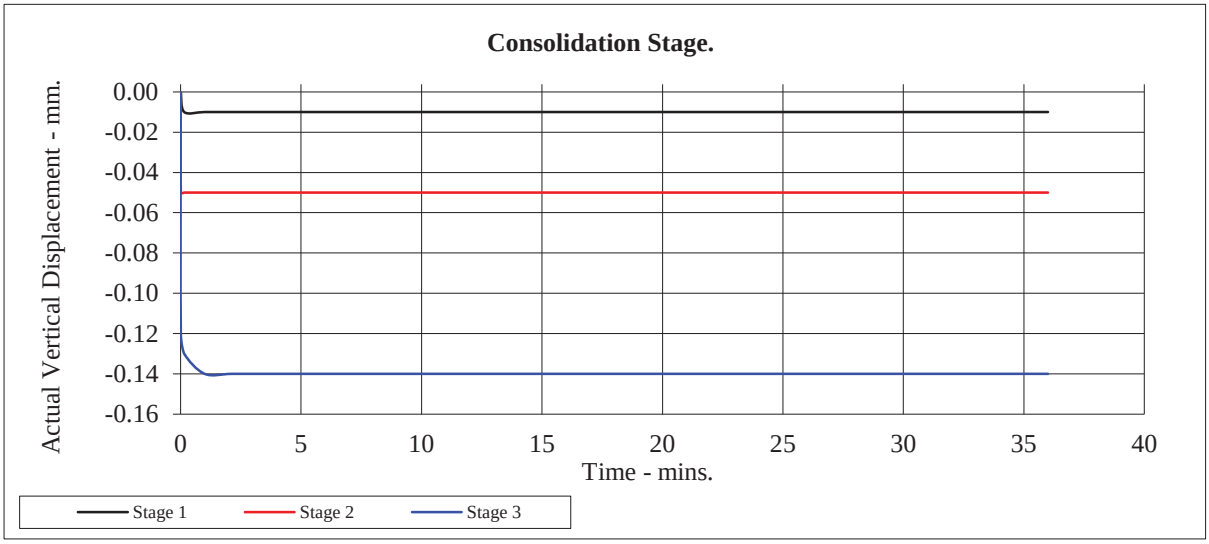


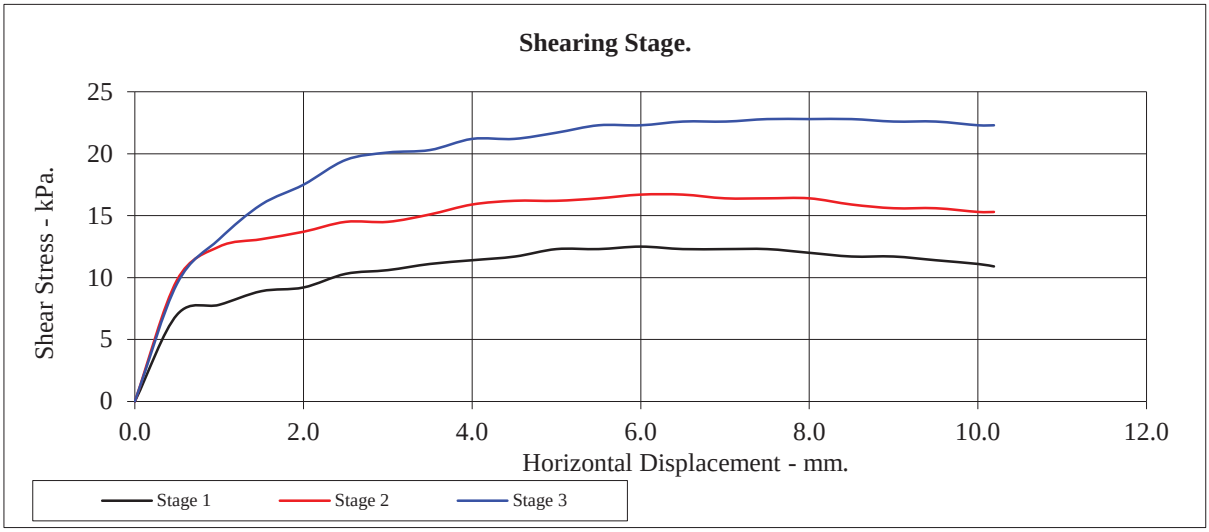
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

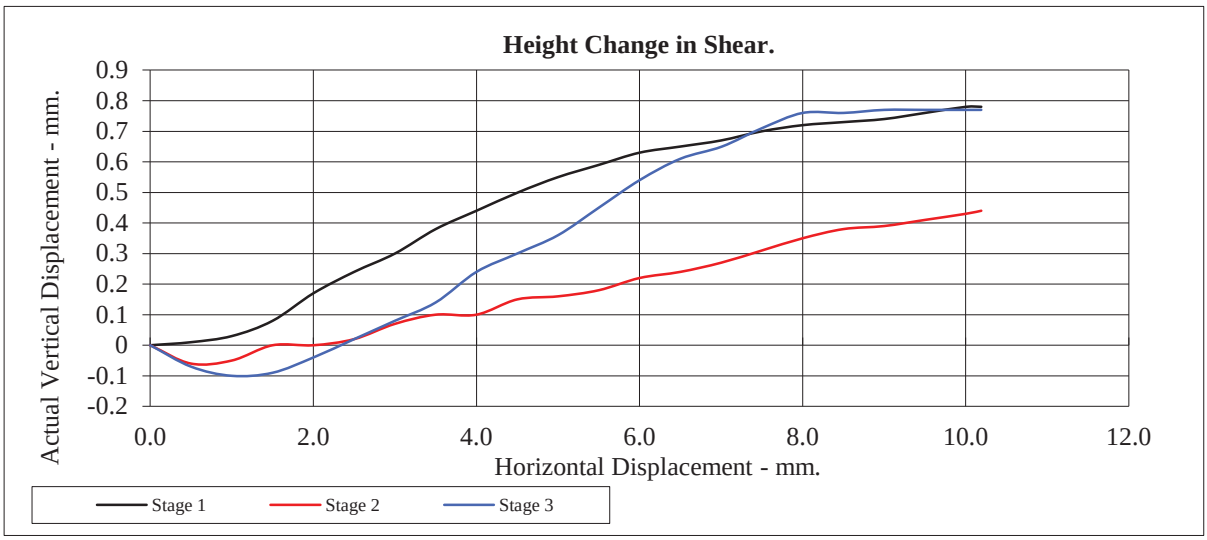
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**	Top Depth:	**0.50**
Sample Number:		Base Depth:	







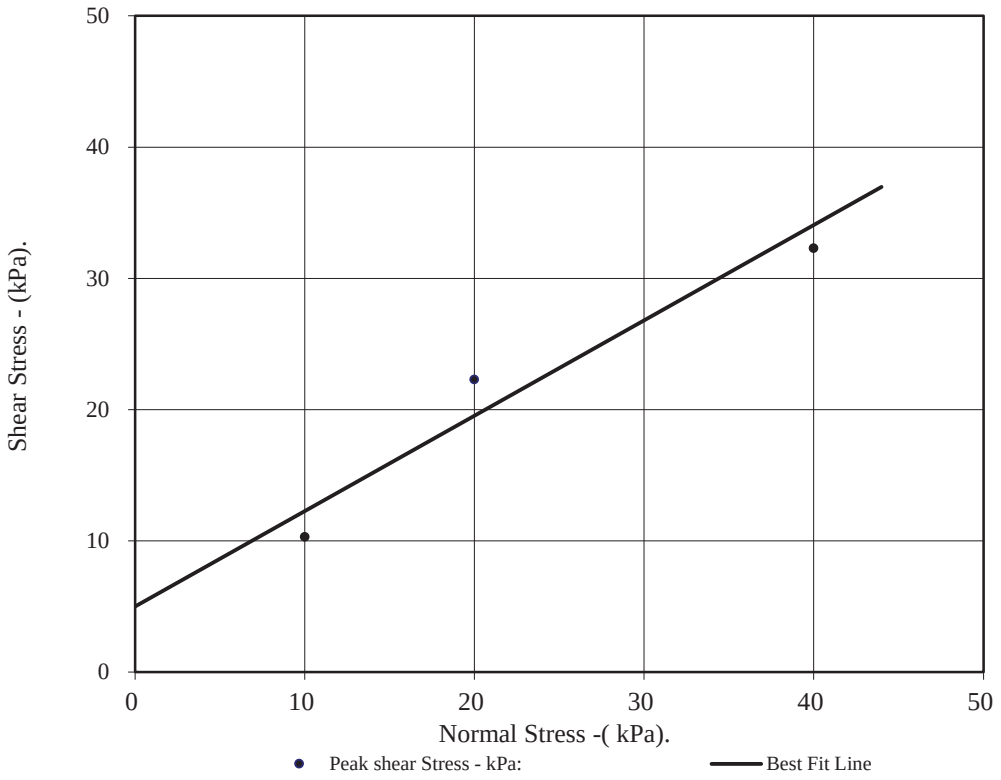
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977**
			Client Ref: 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**		Top Depth:	**1.50**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	17	17	17
Bulk Density - Mg/m3:	1.72	1.73	1.74
Dry Density - Mg/m3:	1.48	1.49	1.49
Voids Ratio:	0.794	0.784	0.780
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.34	19.29	18.81
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	2.50	10.00	6.50
Peak shear Stress - kPa:	10	22	32
Final Consolidated Conditons			
Moisture Content - %:	29	28	28
Bulk Density - Mg/m3:	1.73	1.74	1.79
Dry Density - Mg/m3:	1.34	1.35	1.40
Peak			
Angle of Shearing Resistance:(~~θ~~)	**36**		
Effective Cohesion - kPa:	**5**		

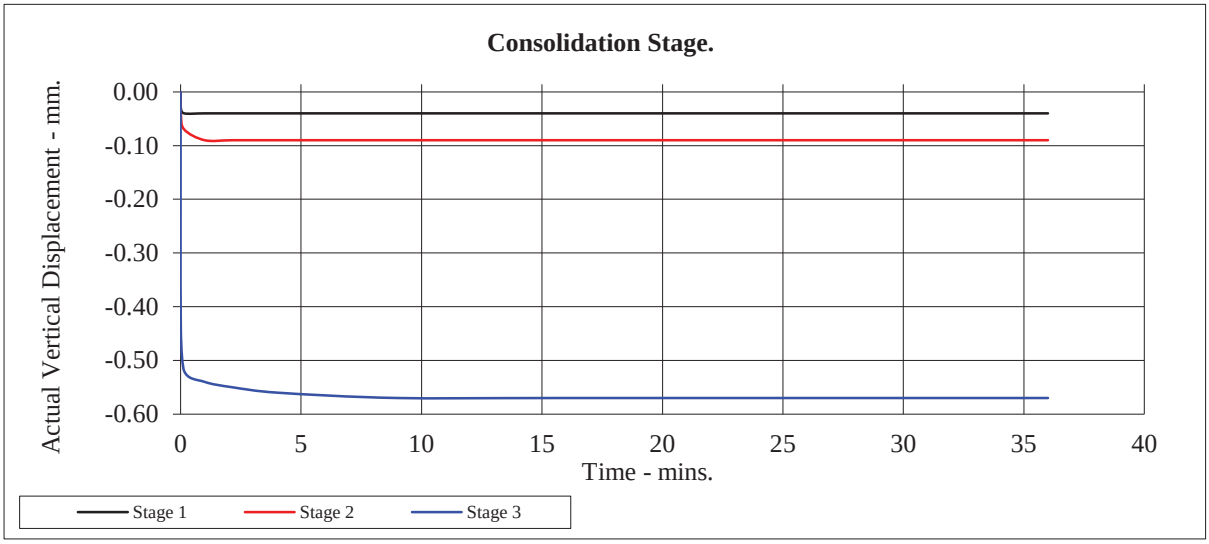


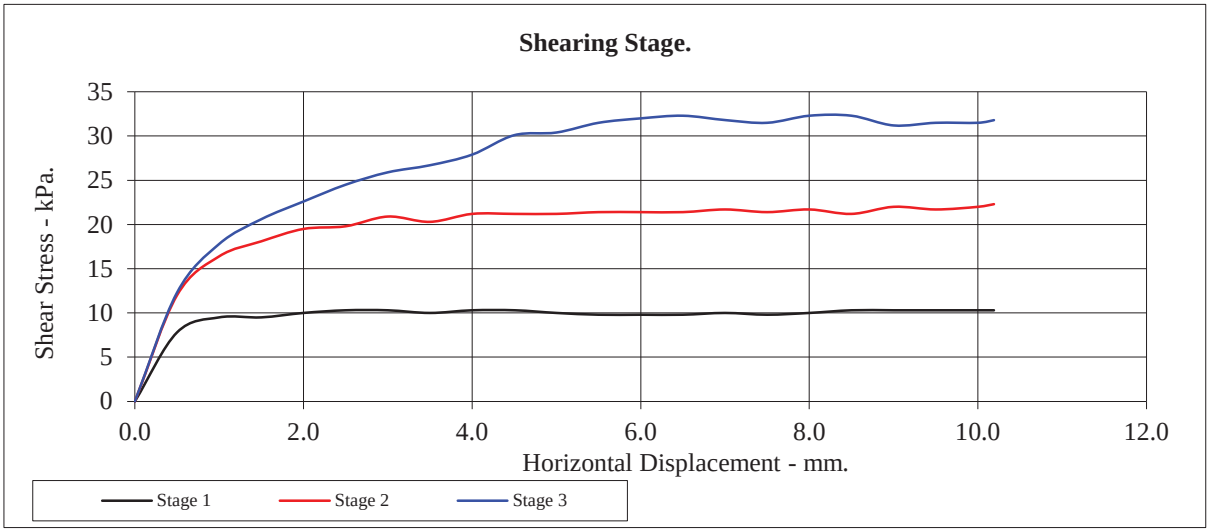
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

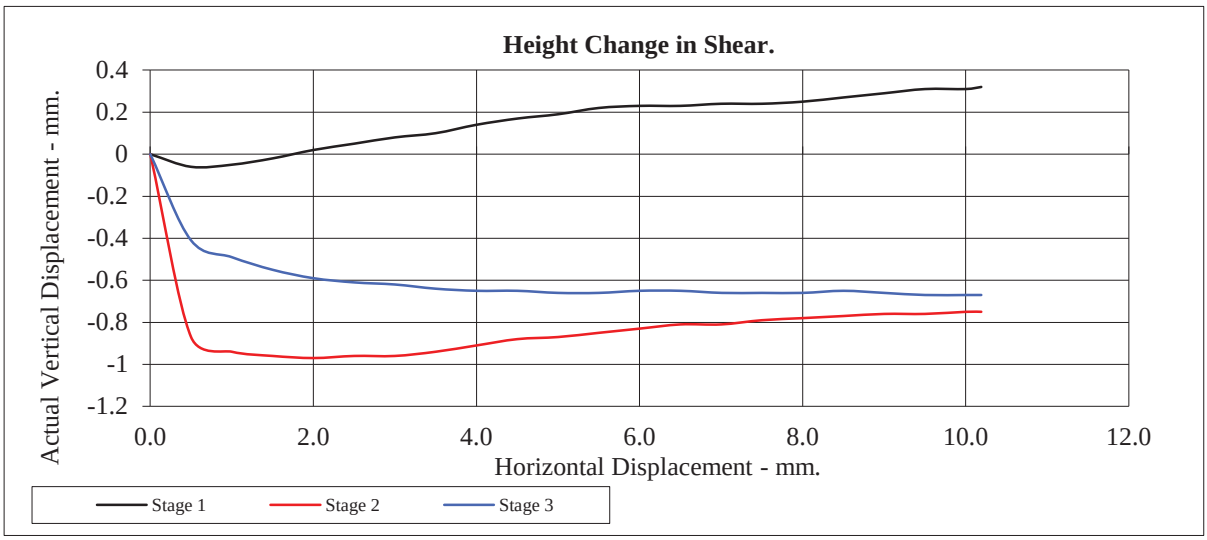
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**	Top Depth:	**1.50**
Sample Number:		Base Depth:	







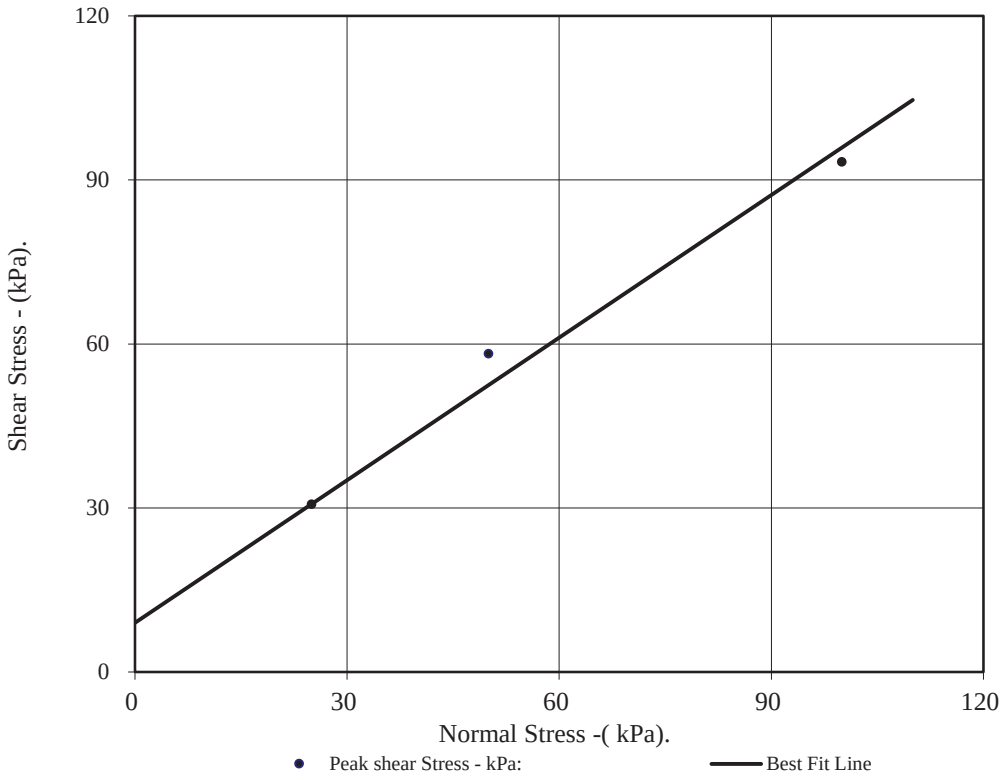
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**		Top Depth:	**5.40**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	19	19	19
Bulk Density - Mg/m3:	1.72	1.73	1.74
Dry Density - Mg/m3:	1.44	1.45	1.45
Voids Ratio:	0.837	0.827	0.823
Normal Pressure- kPa	25	50	100
Consolidation Stage			
Consolidated Height - mm:	19.01	18.51	18.36
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	4.50	4.50	4.50
Peak shear Stress - kPa:	31	58	93
Final Consolidated Conditons			
Moisture Content - %:	19	19	18
Bulk Density - Mg/m3:	1.76	1.81	1.83
Dry Density - Mg/m3:	1.48	1.53	1.56
Peak			
Angle of Shearing Resistance:(~~θ~~)	**41**		
Effective Cohesion - kPa:	**9**		

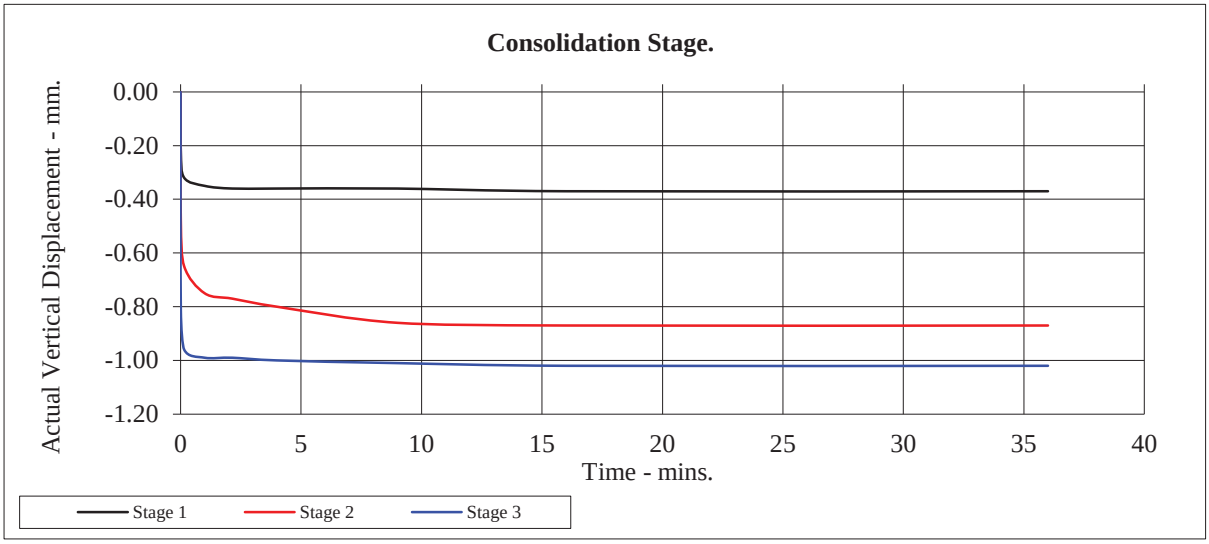


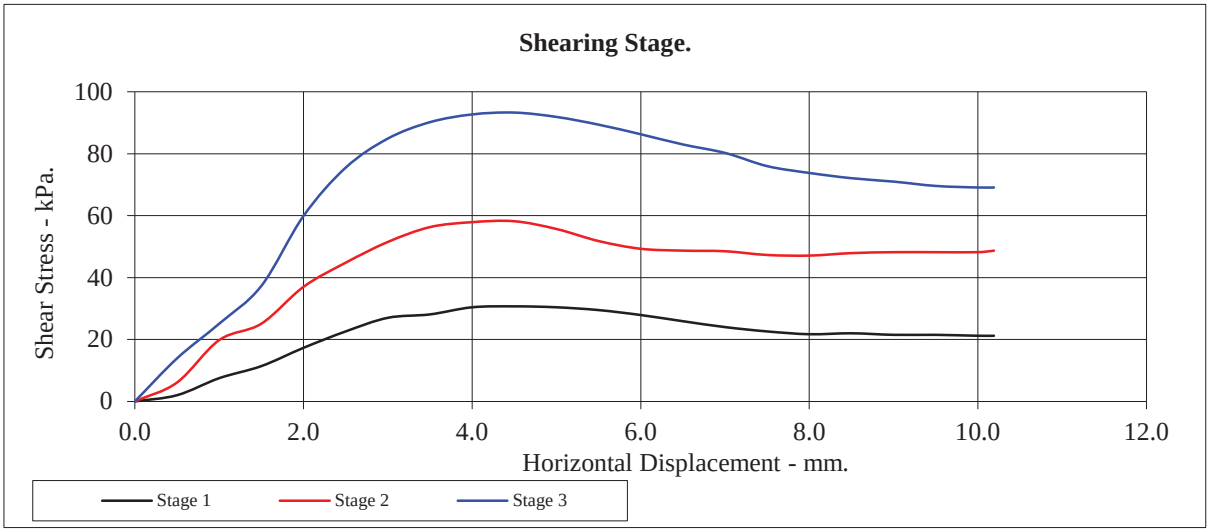
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

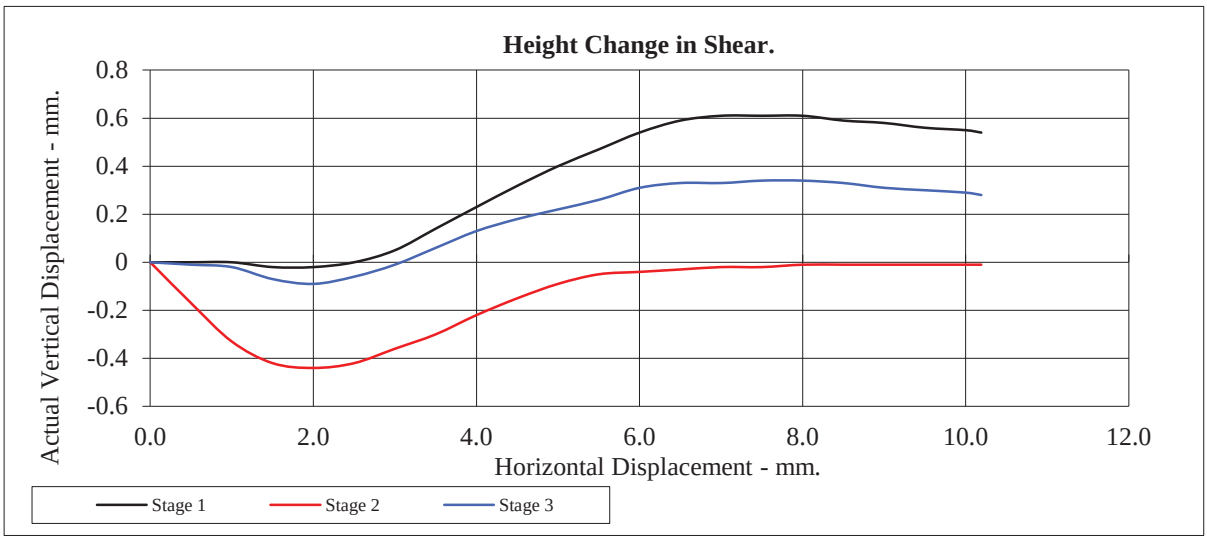
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH6A**	Top Depth:	**5.40**
Sample Number:		Base Depth:	







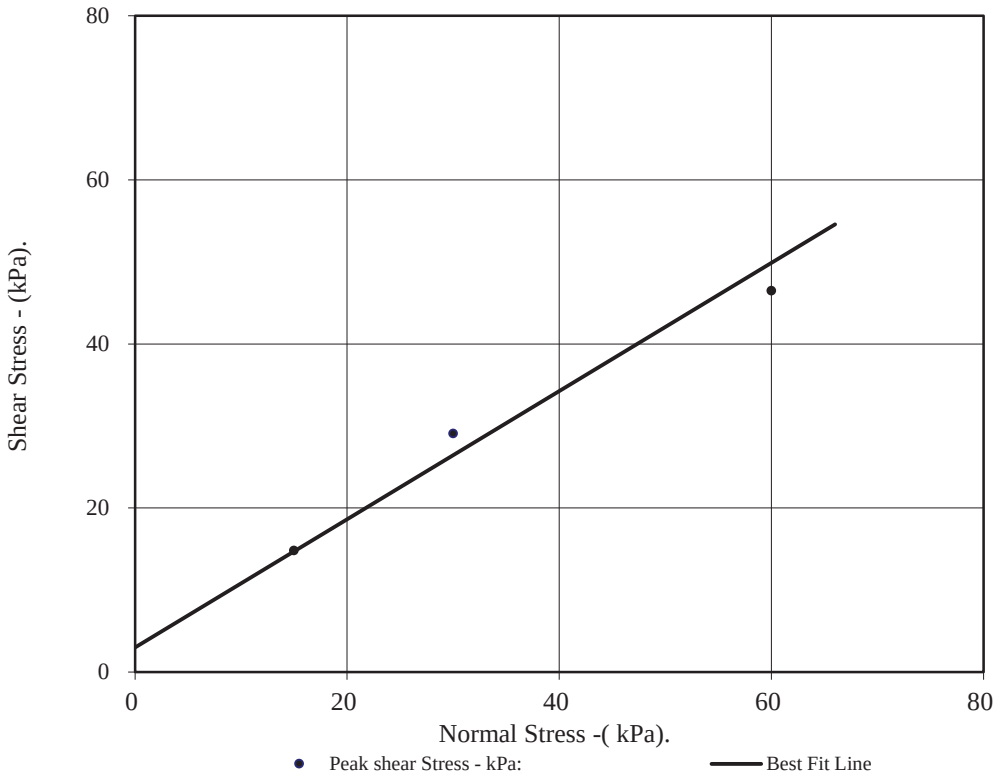
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH8A**		Top Depth:	**2.00**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**Grey gravelly silty SAND.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	7.9	7.9	7.9
Bulk Density - Mg/m3:	1.80	1.80	1.81
Dry Density - Mg/m3:	1.67	1.67	1.68
Voids Ratio:	0.591	0.586	0.577
Normal Pressure- kPa	15	30	60
Consolidation Stage			
Consolidated Height - mm:	19.30	19.20	18.70
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	10.00	10.00	6.50
Peak shear Stress - kPa:	15	29	47
Final Consolidated Conditons			
Moisture Content - %:	20	20	20
Bulk Density - Mg/m3:	1.80	1.82	1.88
Dry Density - Mg/m3:	1.50	1.52	1.57
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38**		
Effective Cohesion - kPa:	**3**		

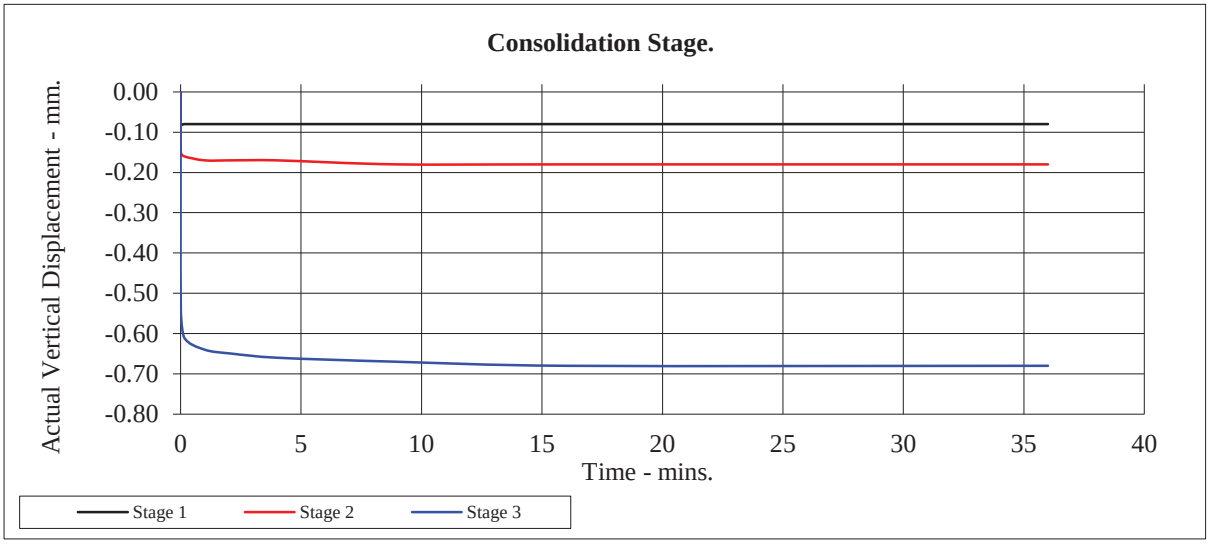


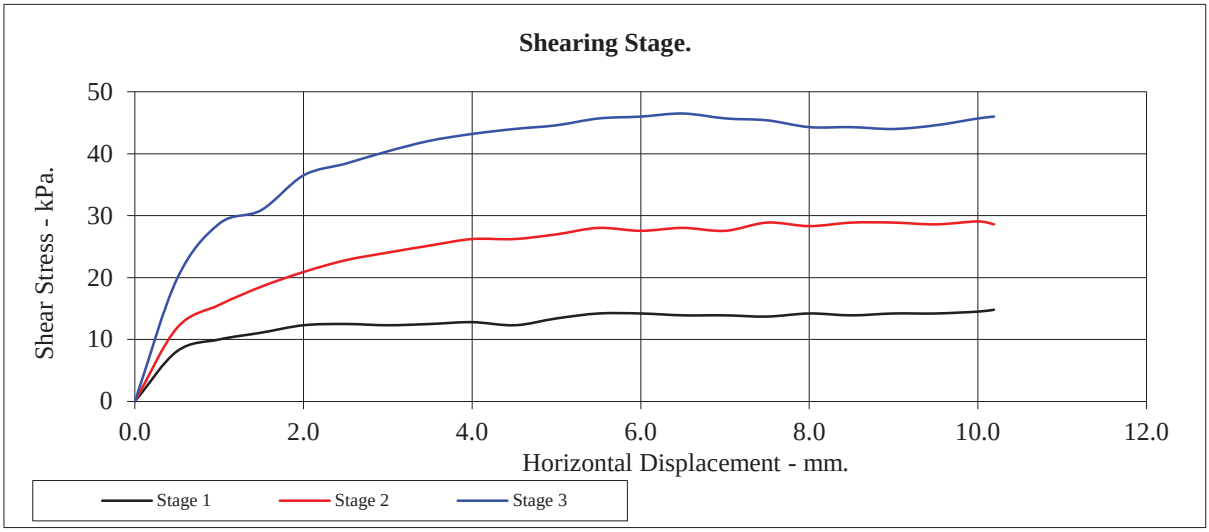
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

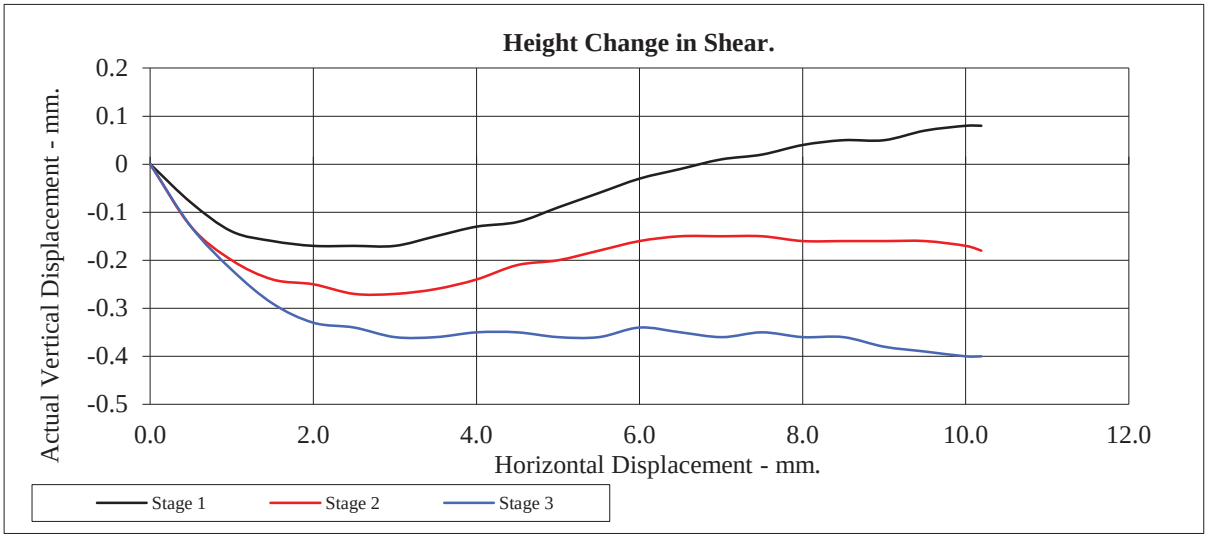
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH8A**	Top Depth:	**2.00**
Sample Number:		Base Depth:	







UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

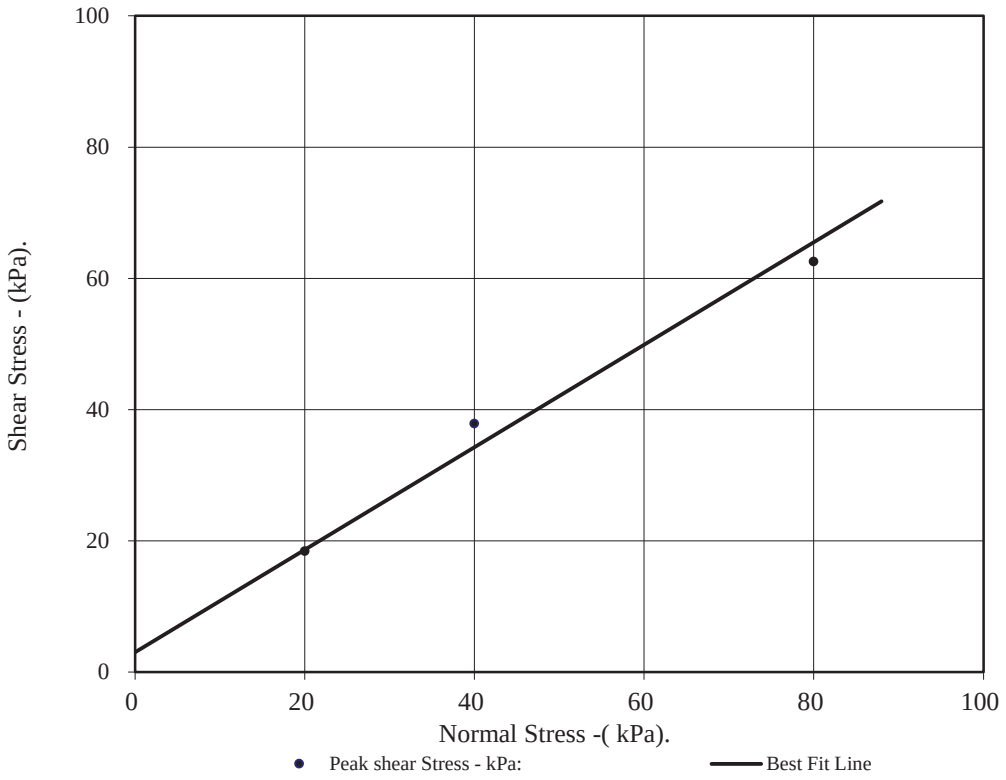
Contract No:
PSL17/3977
Client Ref:
17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH8A**		Top Depth:	**3.00**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	13	13	13
Bulk Density - Mg/m3:	1.57	1.58	1.58
Dry Density - Mg/m3:	1.39	1.40	1.40
Voids Ratio:	0.904	0.898	0.892
Normal Pressure- kPa	20	40	80
Consolidation Stage			
Consolidated Height - mm:	19.29	19.20	18.72
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	8.00	4.50	5.50
Peak shear Stress - kPa:	18	38	63
Final Consolidated Conditons			
Moisture Content - %:	20	19	19
Bulk Density - Mg/m3:	1.58	1.59	1.64
Dry Density - Mg/m3:	1.32	1.34	1.38
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38**		
Effective Cohesion - kPa:	**3**		

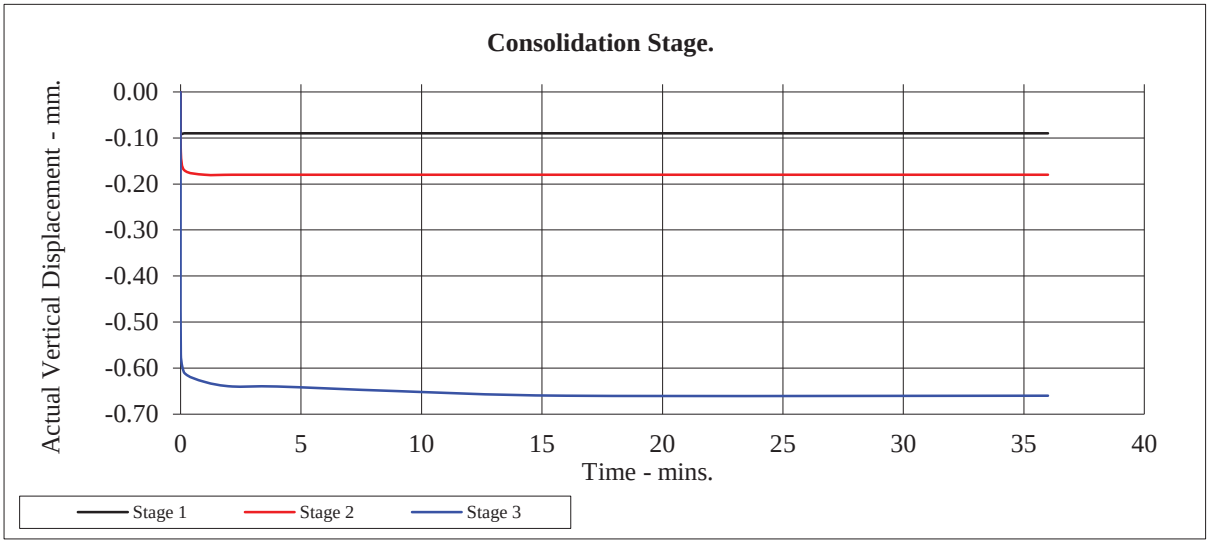


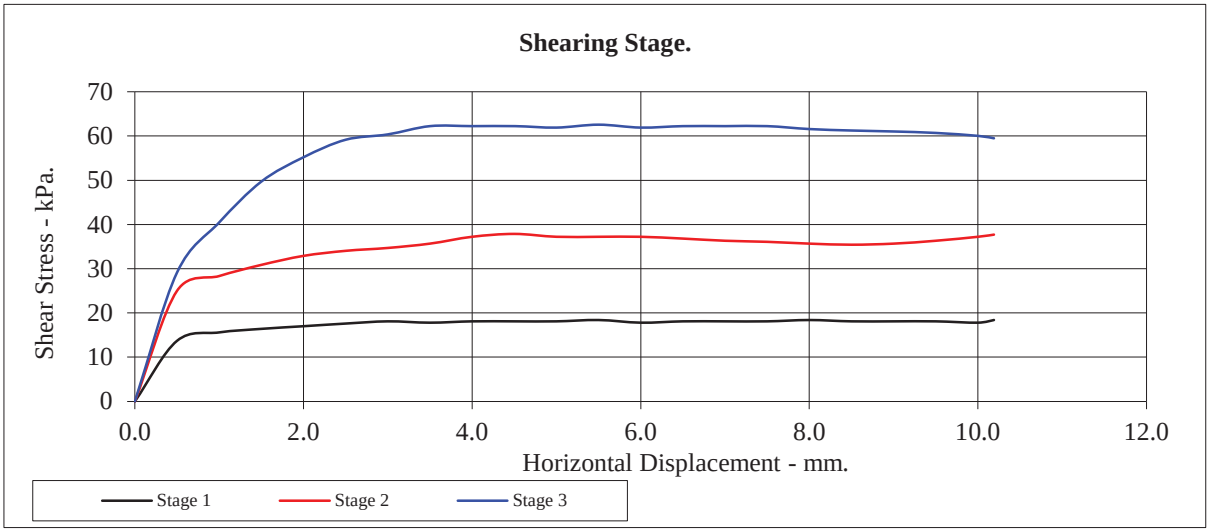
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

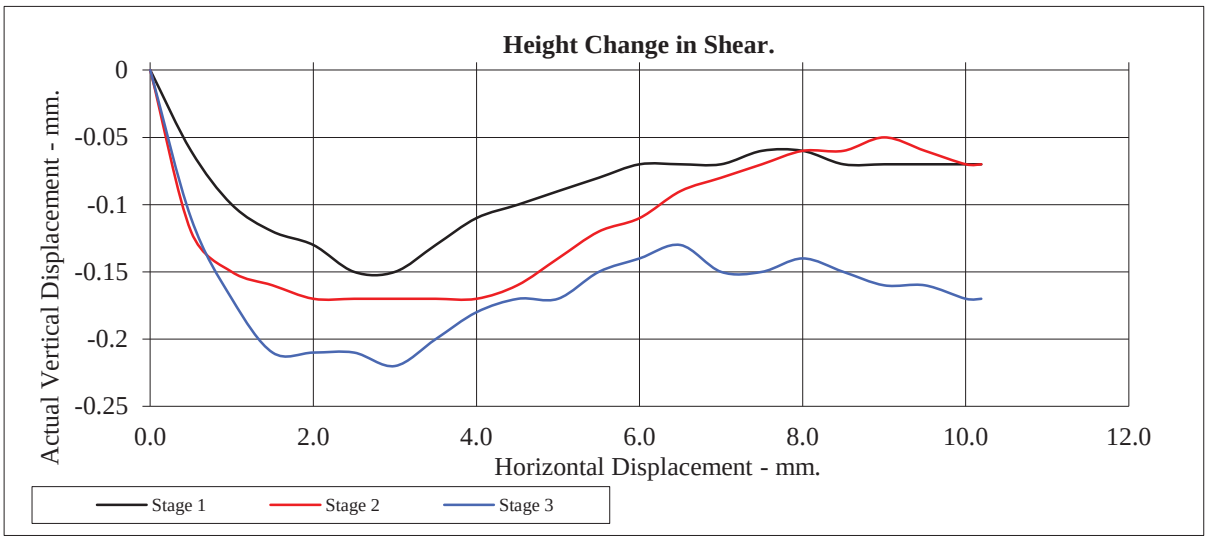
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH8A**	Top Depth:	**3.00**
Sample Number:		Base Depth:	







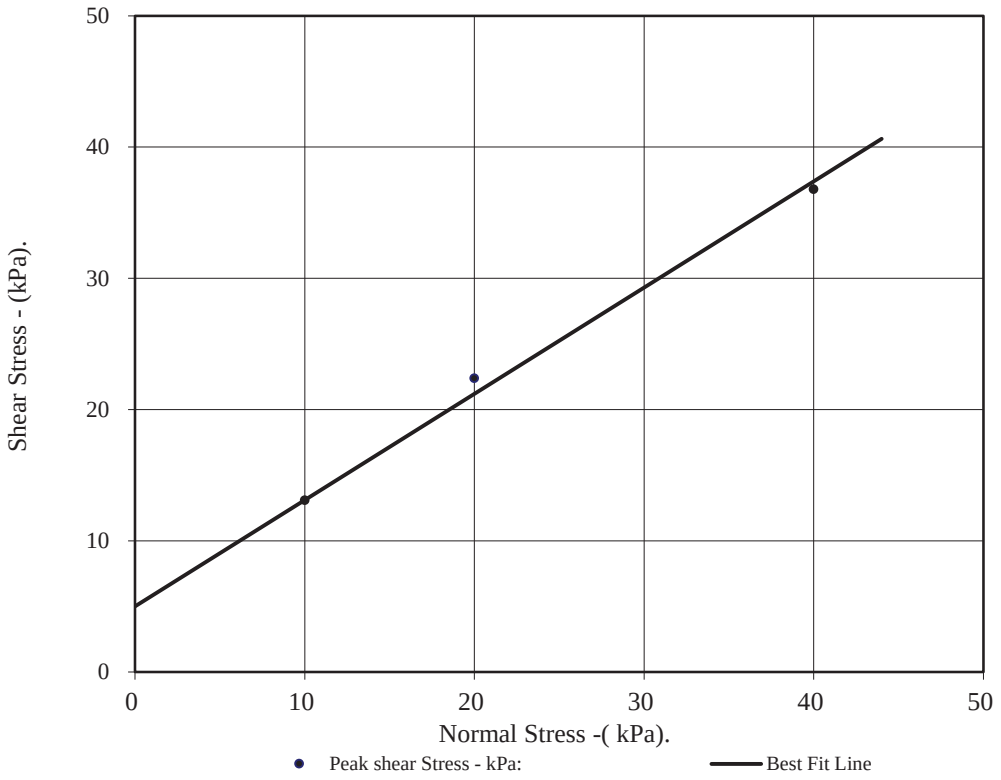
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH9**		Top Depth:	**1.70**	
Sample Number:			Base Depth:		
Sample Conditions:	Submerged		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**Grey gravelly silty SAND.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.38	19.38	19.38
Length - mm:	60.00	60.00	60.00
Moisture Content - %:	20	20	20
Bulk Density - Mg/m3:	1.92	1.92	1.93
Dry Density - Mg/m3:	1.60	1.60	1.61
Voids Ratio:	0.657	0.654	0.647
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.31	19.16	18.98
Shearing Stage			
Rate of Strain - mm/min	0.80	0.80	0.80
Displacement at peak shear stress - mm	2.00	2.50	2.50
Peak shear Stress - kPa:	13	22	37
Final Consolidated Conditons			
Moisture Content - %:	26	25	25
Bulk Density - Mg/m3:	1.93	1.95	1.97
Dry Density - Mg/m3:	1.53	1.55	1.58
Peak			
Angle of Shearing Resistance:(~~θ~~)	**39**		
Effective Cohesion - kPa:	**5**		

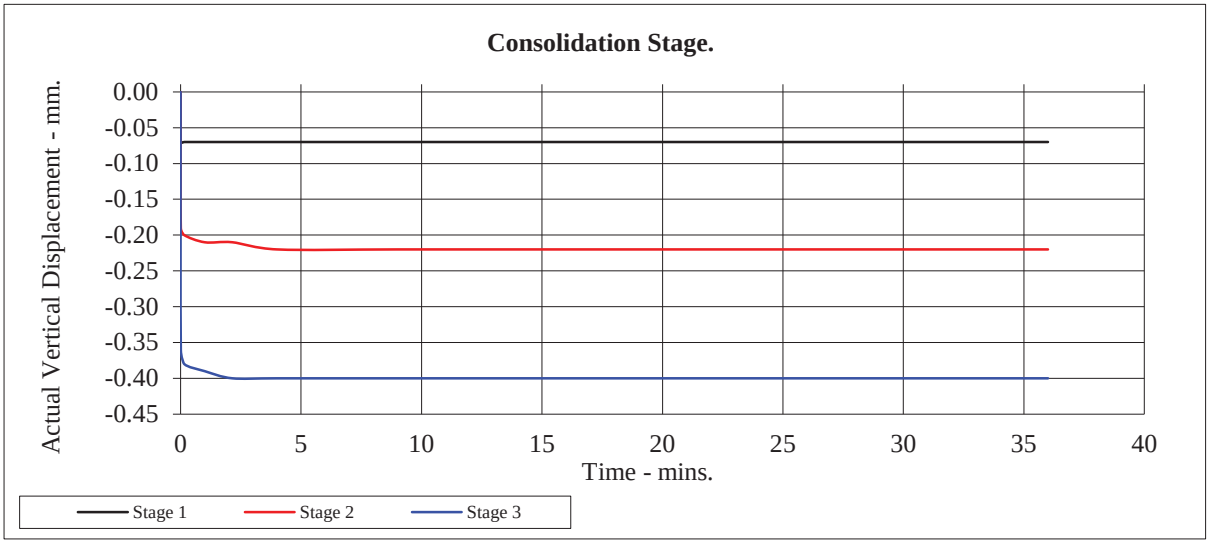


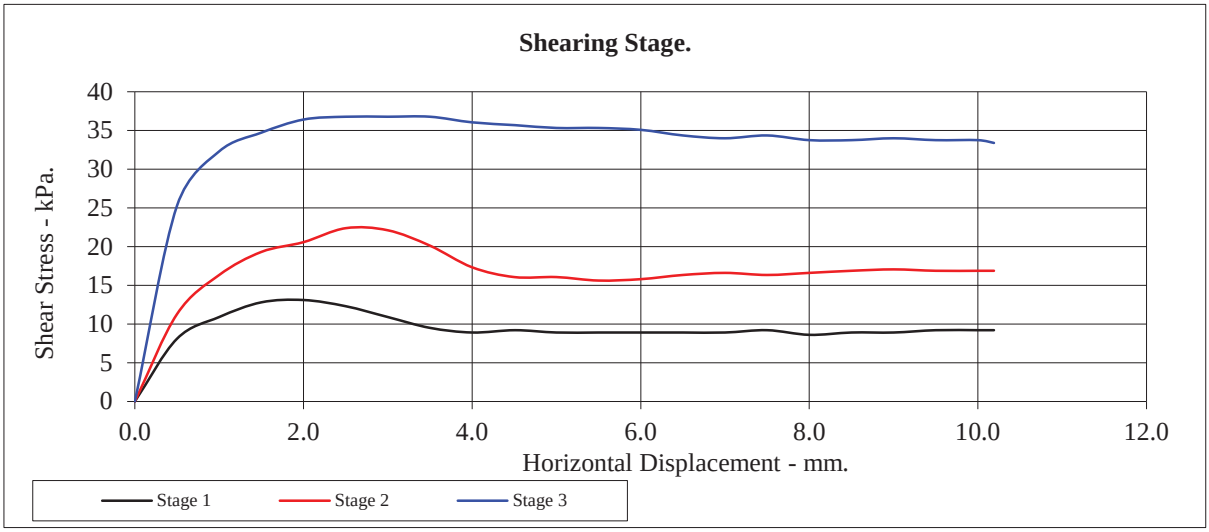
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/3977** **Client Ref:** **17/035**

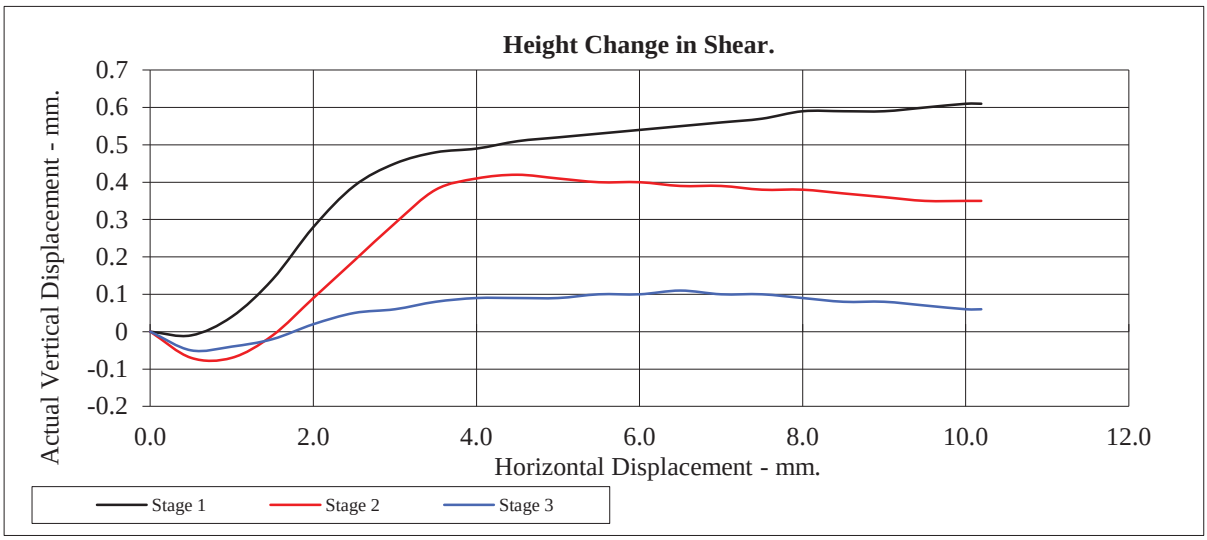
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH9**	Top Depth:	**1.70**
Sample Number:		Base Depth:	







UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977**
			Client Ref: 17/035

ONE DIMENSIONAL CONSOLIDATION TEST

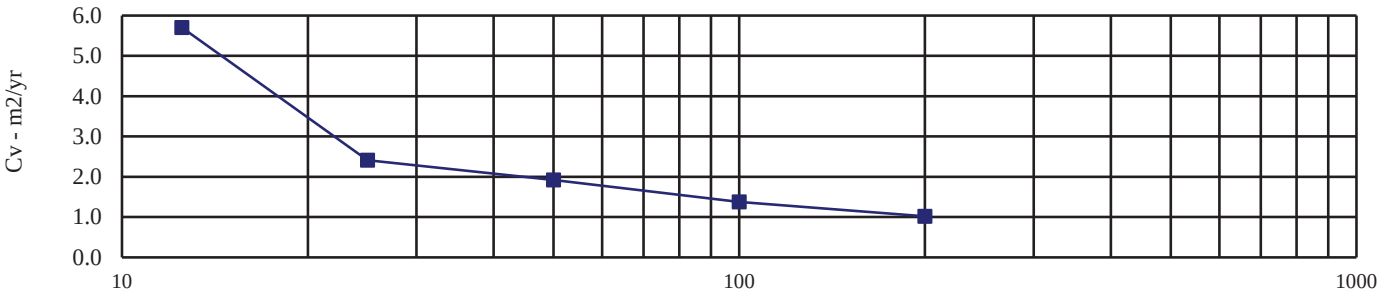
BS 1377: Part 5: 1990: Clause 3

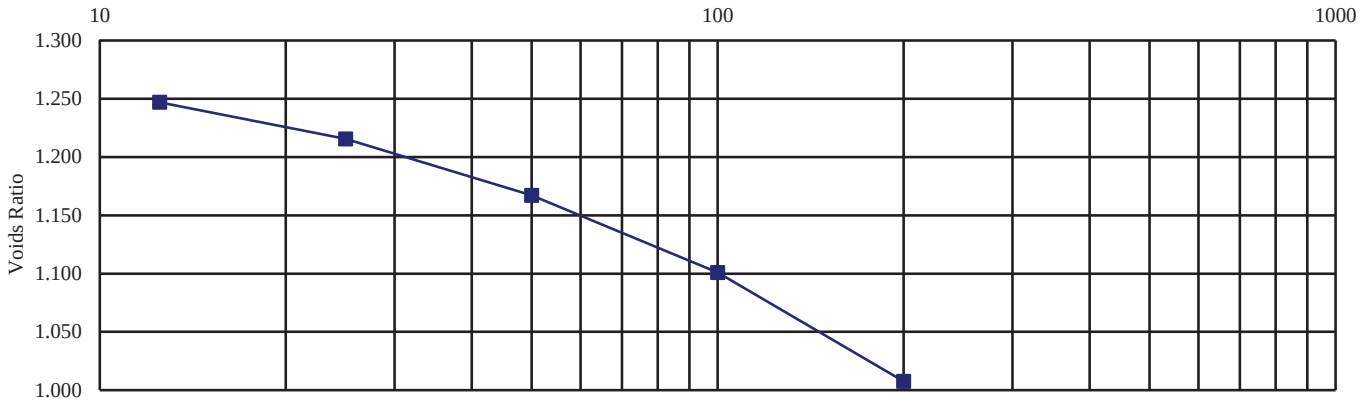
Hole Number: **BH9** **Top Depth (m):** **4.80**

Sample Number: **Base Depth (m) :**

Sample Type: **U**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	51						
Bulk Density (Mg/m3):	1.73	0	12.5	2.531	5.705	Method used to	
Dry Density (Mg/m3):	1.14	12.5	25	1.117	2.412	determine CV:	T90
Voids Ratio:	1.320	25	50	0.875	1.922	Nominal temperature	
Degree of saturation:	102.7	50	100	0.611	1.373	during test ' C:	20
Height (mm):	19.822	100	200	0.444	1.019	Remarks:	
Diameter (mm)	74.988					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No: PSL17/3977** **Client Ref: 17/035**

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details				
sketch showing specimen location in original sample	Depth			4.80m
	Description			See summary of soil descriptions.
	Type			Undisturbed, vertical orientation.
	Initial Length	L_0	(mm)	210.0
	Initial Diameter	D_0	(mm)	103.5
	Initial Weight	W_0	(gr)	3081.0
	Initial Bulk Density	ρ_0	(Mg/m3)	1.74
	Particle Density	ρ_s	(Mg/m3)	2.65

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	324	349	400	
Initial Back Pressure	U_{bi}	(kPa)	300	300	299	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 4			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cm3)	CH 2			
Initial Moisture	$\omega_i\%$	(%)	52			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.14			
Initial Voids Ratio	e_i	.	1.317			
Initial Degree of Saturation	S_i	(%)	100			
B Value	B	.	0.98			

Final Conditions						
Final Moisture	$\omega_f\%$	(%)	45			
Final Dry Density	ρ_{df}	(Mg/m3)	1.24			
Final Voids Ratio	e_f	.	1.137			
Final Degree of Saturation	S_f	(%)	100.0			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	$\varepsilon\%$	(%)	1.92	6.77	18.66	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	42.8	58.6	87.4	
Minor Stress At Failure	σ_3'	(kPa)	14.0	26.0	38.0	
Major Stress At Failure	σ_1'	(kPa)	56.8	84.6	125.4	
Principal Stress At Failure	σ_1'/σ_3'		4.058	3.253	3.301	

Notes

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH9 4.80m U
		Test Date	27/08/2017
Site Reference		Borehole	BH9
Jobfile	UIG Harbour Reservoir	Sample	4.80m U
Client	Holequest	Depth	4.80m
Operator	Checked	Approved	

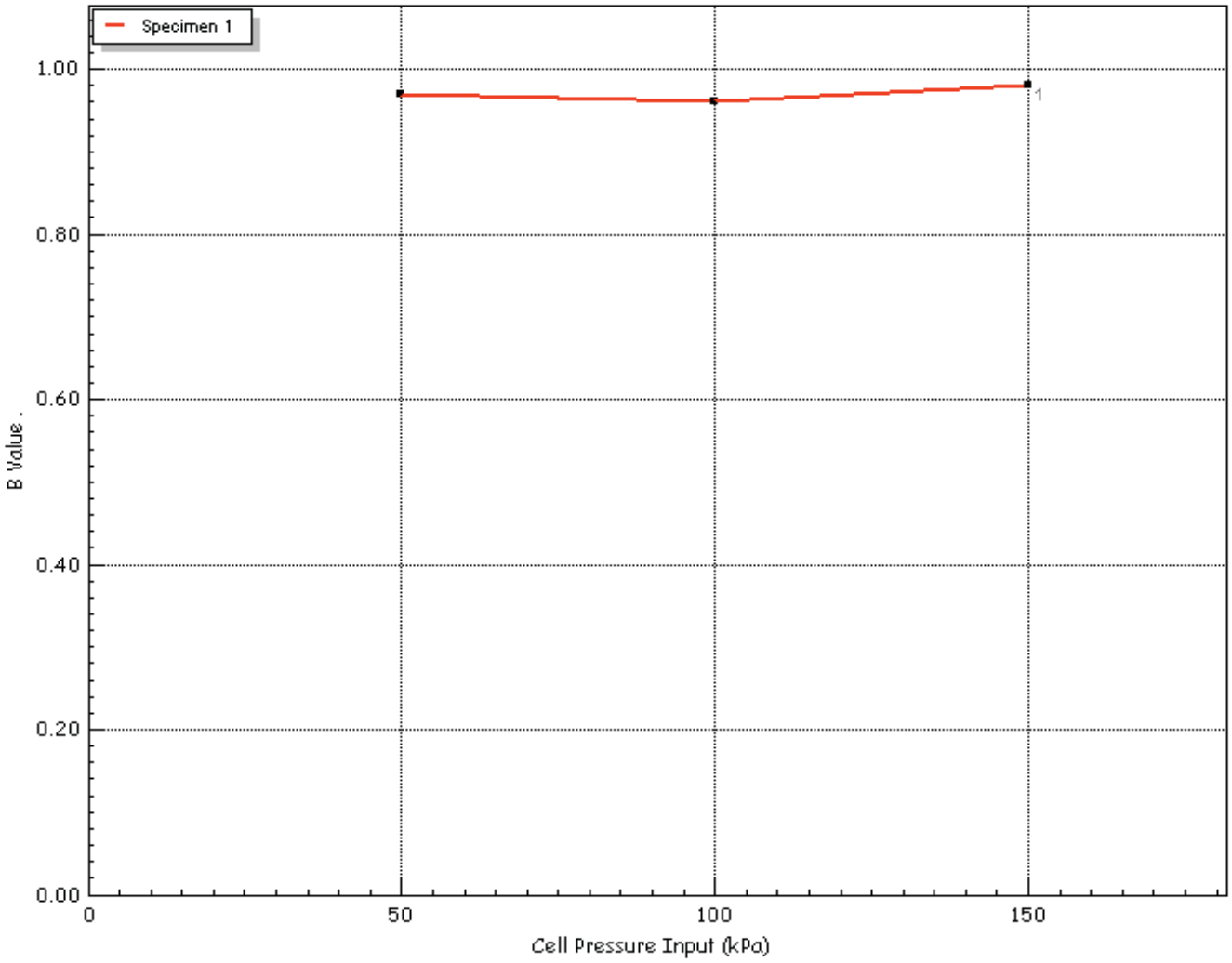
Database: .\SQLEXPRESS \ sys1 03FEB2014 final

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

			1
Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	150
Pore Water Pressure Input	u pwp	(kPa)	148
B Value	B	.	0.98



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH9 4.80m U
Database: .\SQLEXPRESS \ sys1 03FEB2014 final		Test Date	27/08/2017
Site Reference		Borehole	BH9
Jobfile	UIG Harbour Reservoir	Sample	4.80m U
Client	Holequest	Depth	4.80m

Operator	Checked	Approved

Effective Stress Triaxial Compression

Consolidated Undrained

Consolidation Plots

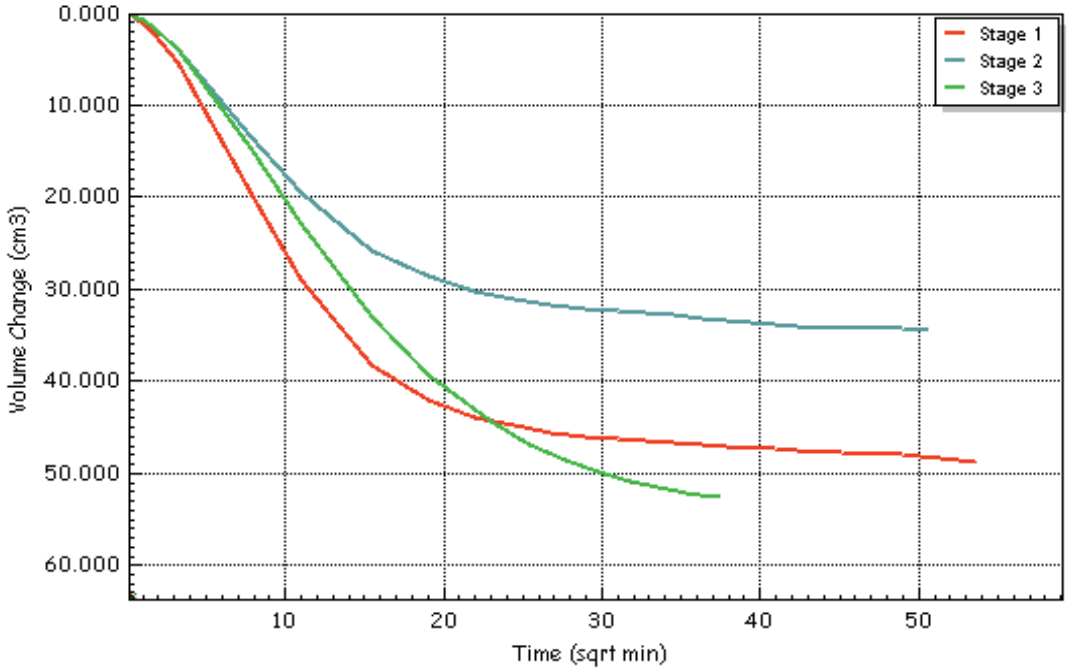
Initial Conditions

			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	325	350	400
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	323	340	380
Drainage Method			Radial+One End		

Final Conditions

			Stage 1	2	3
PWP Dissipation %	U%	(%)	95.65	95.00	95.00
Volumetric Strain	ε_v%	(%)	2.76	4.70	7.68
Corrected Length	L_C	(mm)	208.1	200.5	182.1
Corrected Area	A_C	82.59	82.59	81.62	85.23
Corrected Volume	V_C	(cm3)	1718.082	1683.721	1631.080
T100 Time to Failure	t_{100}	(min)	312.34	362.27	531.47
Consolidation	c_v	(m2/year)	0.708	0.611	0.416
Compressibility	m_v	(m2/MN)	1.254	1.238	1.011
Test Time	t_F	(h:m:s)	09:22:12	10:52:05	15:56:38
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.01850	0.01537	0.00952

Notes



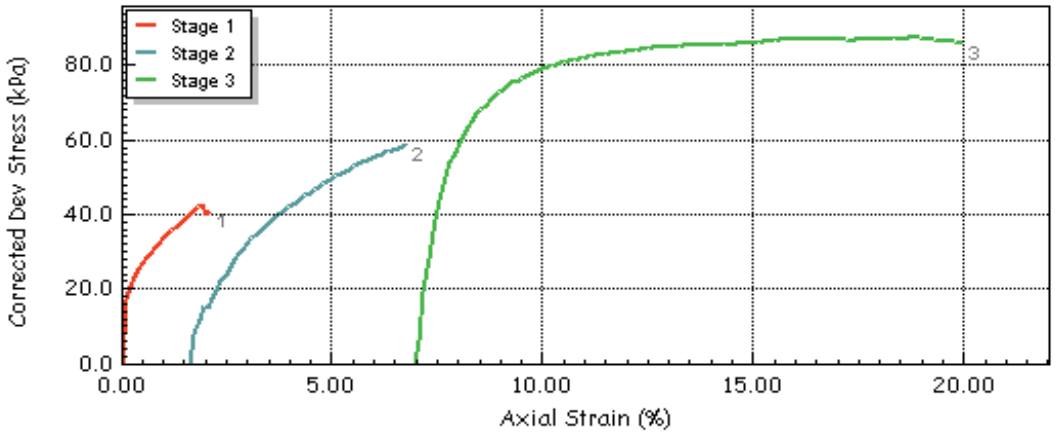
Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH9 4.80m U
Database: .\SQLEXPRESS \ sys1 03FEB2014 final		Test Date	27/08/2017
Site Reference		Borehole	BH9
Jobfile	UIG Harbour Reservoir	Sample	4.80m U
Client	Holequest	Depth	4.80m
Operator	Checked	Approved	

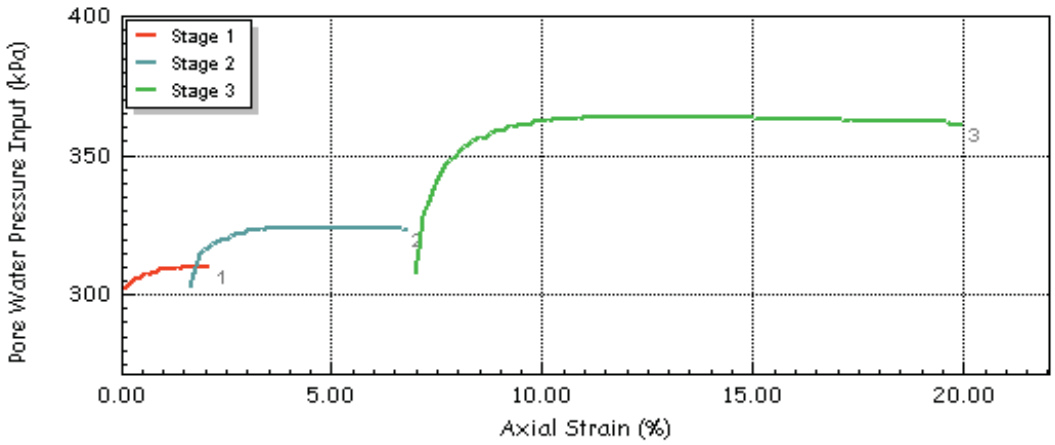
Professional Soils Laboratory

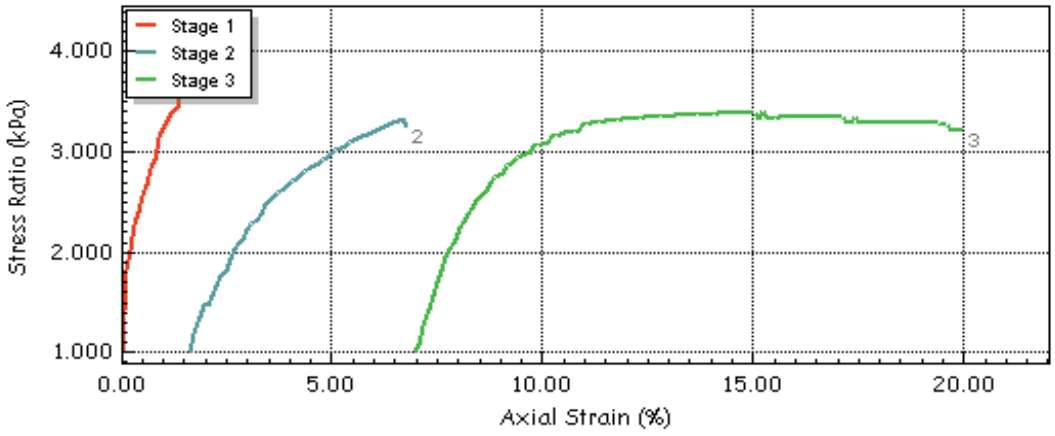
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







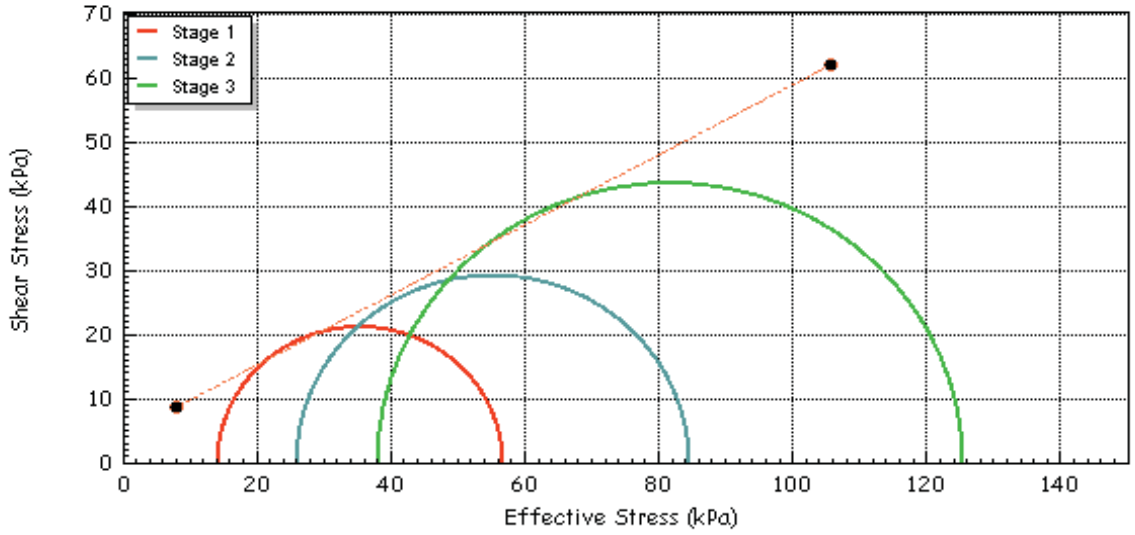
PSL Professional Soils Laboratory	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH9 4.80m U
	Database: .\SQLEXPRESS \ sys1 03FEB2014 final		Test Date	27/08/2017
	Site Reference		Borehole	BH9
	Jobfile	UIG Harbour Reservoir	Sample	4.80m U
	Client	Holequest	Depth	4.80m
	Operator	Checked	Approved	

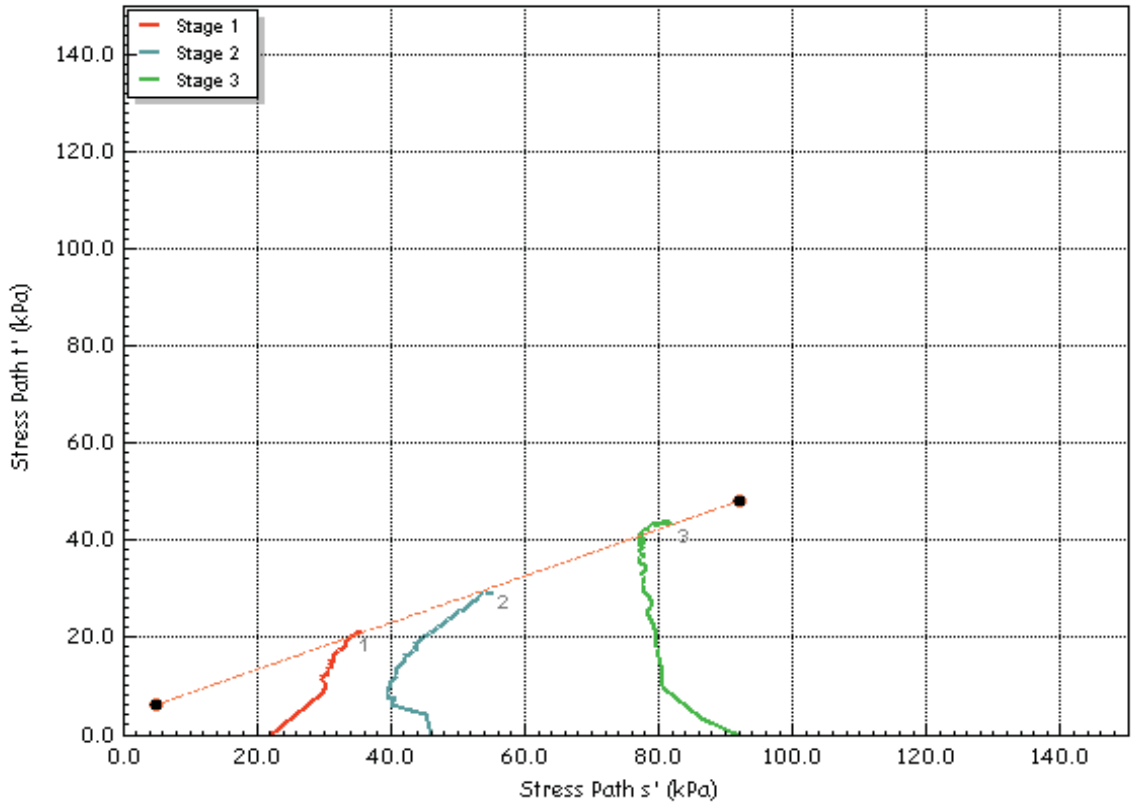
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	4.28	Effective Cohesion	c'	(kPa)	4.28
Effective Friction	ϕ'	(deg)	28.7	Effective Friction	ϕ'	(deg)	28.7





Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH9 4.80m U
Database: .\SQLEXPRESS \ sys1 03FEB2014 final		Test Date	27/08/2017
Site Reference		Borehole	BH9
Jobfile	UIG Harbour Reservoir	Sample	4.80m U
Client	Holequest	Depth	4.80m
Operator	Checked	Approved	

PSL Professional Soils Laboratory

LABORATORY REPORT

4043

Contract Number: PSL17/4084

Report Date: 08 September 2017

Client's Reference: 17/035

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: UIG Harbour Reservoir

Date Received: 22/8/2017
Date Commenced: 22/8/2017
Date Completed: 8/9/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP1		B	0.50		Dark grey sandy slightly clayey very silty GRAVEL with cobbles.
TP1		D	1.60		Dark grey highly weathered MUDSTONE.
TP1		B	3.00		Dark grey slightly gravelly slightly sandy silty CLAY.
TP2		B	0.50		Dark grey gravelly slightly sandy silty CLAY.
TP2		B	1.80		Dark grey sandy slightly clayey very silty GRAVEL with cobbles.
TP2		B	2.80		Dark grey slightly gravelly sandy very silty CLAY.
TP3		B	1.80		Dark grey slightly gravelly sandy very silty CLAY.
TP3		D	3.00		Dark grey slightly gravelly sandy very silty CLAY.
TP4		B	0.80		Dark grey slightly gravelly sandy very silty CLAY.
TP4		B	1.80		Dark grey sandy slightly clayey silty GRAVEL.

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment	**Contract No:**
	PSL17/4084
	Client Ref:
	17/035

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP1		D	1.60		24							
TP1		B	3.00		25			51	24	27	97	High plasticity CH.
TP2		B	0.50		25							
TP2		B	2.80		23			40	22	18	97	Intermediate plasticity CI.
TP3		B	1.80		27			36	22	14	92	Intermediate plasticity CI.
TP3		D	3.00		29							
TP4		B	0.80		26			42	21	21	91	Intermediate plasticity CI.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

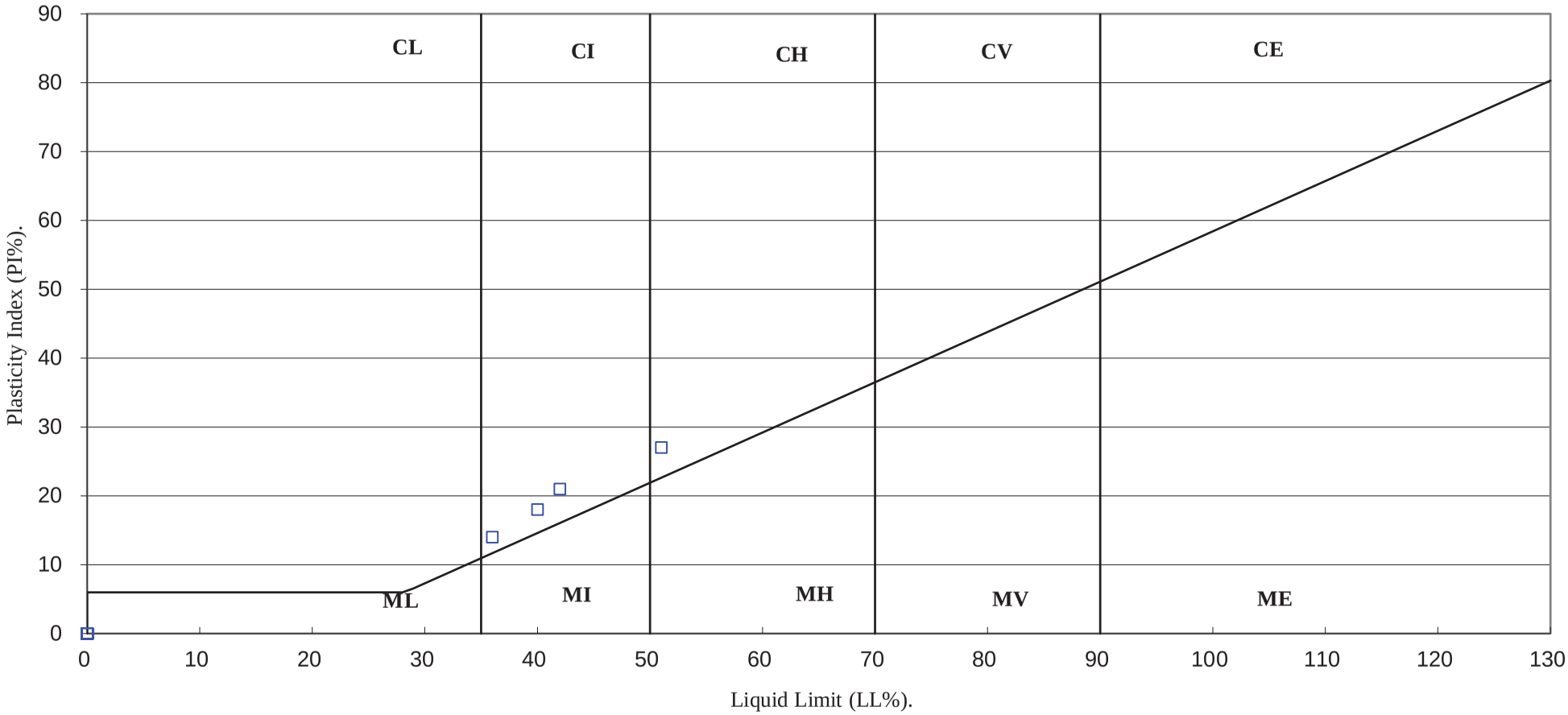
Contract No:

PSL17/4084

Client Ref:

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:**
			PSL17/4084
			Client Ref:

PARTICLE SIZE DISTRIBUTION TEST

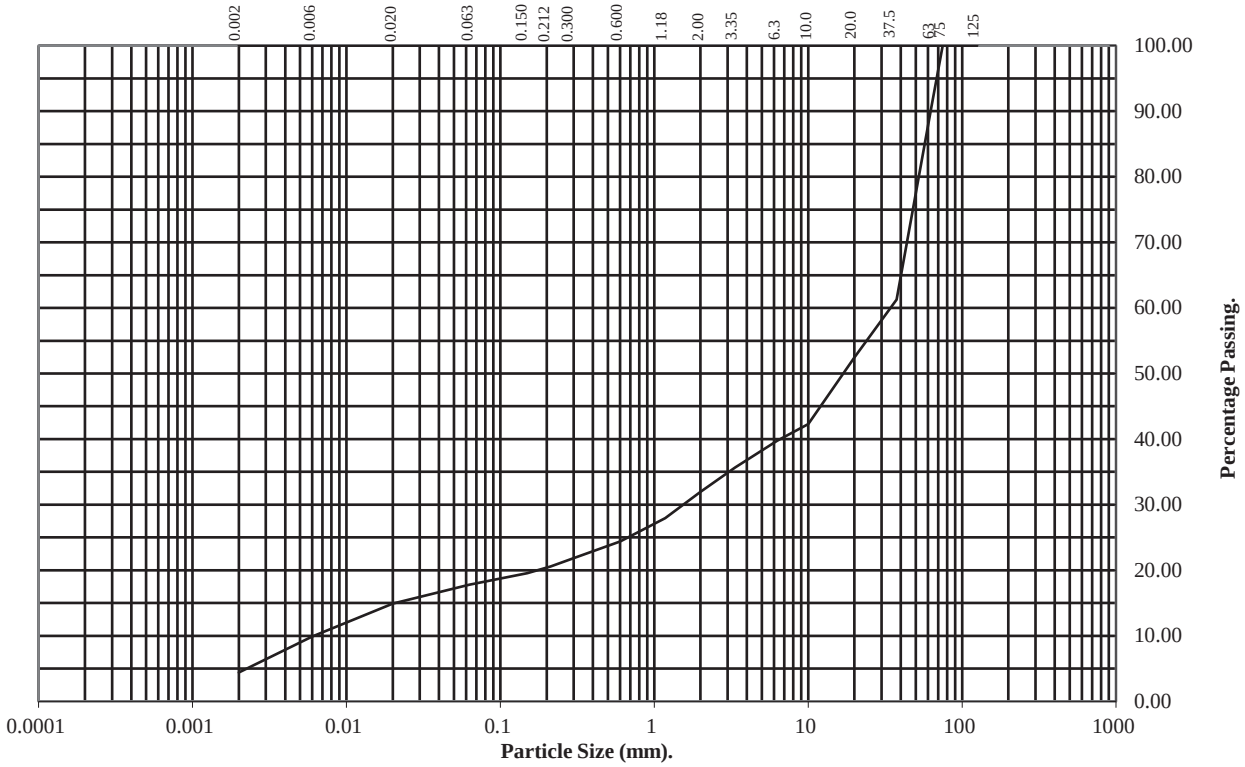
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP1 **Top Depth (m):** 0.50

Sample Number: **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	90
37.5	61
20	52
10	42
6.3	40
3.35	36
2	32
1.18	28
0.6	24
0.3	22
0.212	21
0.15	20
0.063	18

Particle Diameter	Percentage Passing
0.02	15
0.006	10
0.002	4

Soil Fraction	Total Percentage
Cobbles	10
Gravel	58
Sand	14
Silt	14
Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

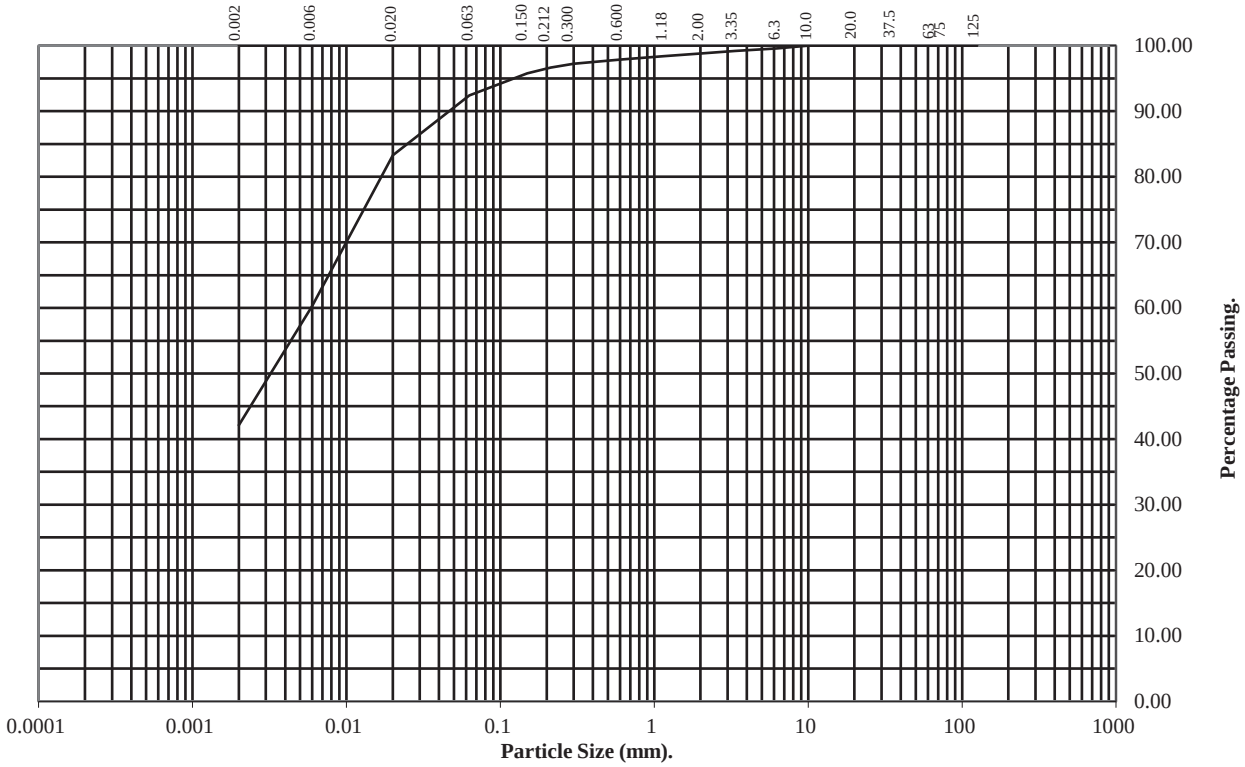
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP1** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	98
0.6	98
0.3	97
0.212	97
0.15	96
0.063	92

Particle Diameter	Percentage Passing
0.02	83
0.006	60
0.002	42

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	7
Silt	50
Clay	42

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

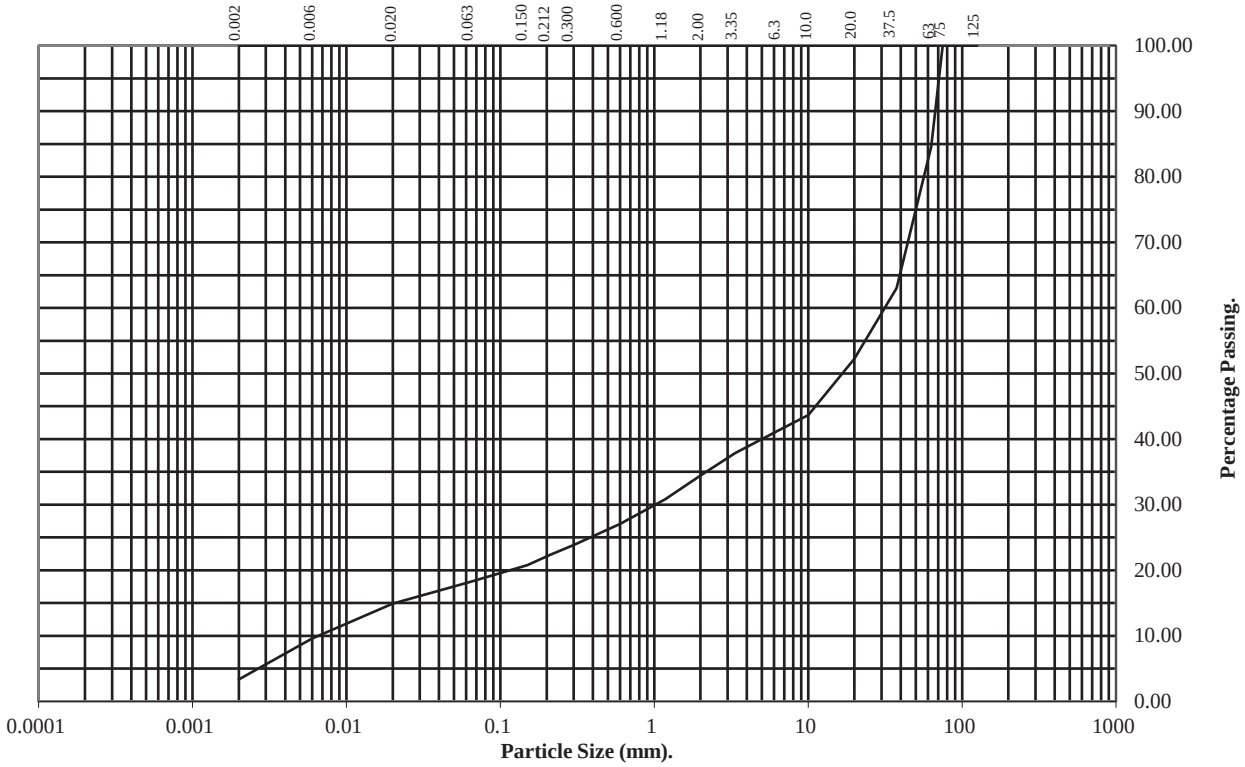
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP2** **Top Depth (m):** **1.80**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	85
37.5	63
20	52
10	44
6.3	41
3.35	38
2	34
1.18	31
0.6	27
0.3	24
0.212	22
0.15	21
0.063	18

Particle Diameter	Percentage Passing
0.02	15
0.006	10
0.002	3

Soil Fraction	Total Percentage
Cobbles	15
Gravel	51
Sand	16
Silt	15
Clay	3

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

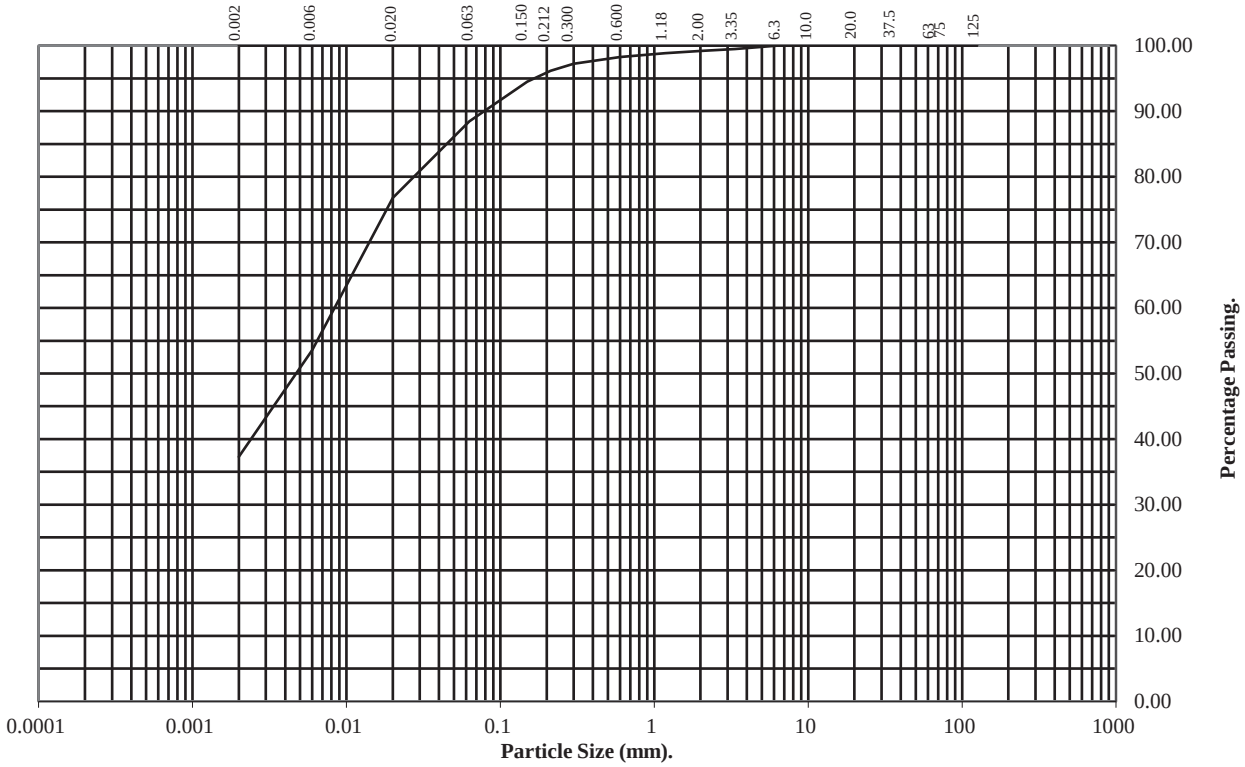
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP2 **Top Depth (m):** 2.80

Sample Number: **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	99
2	99
1.18	99
0.6	98
0.3	97
0.212	96
0.15	95
0.063	88

Particle Diameter	Percentage Passing
0.02	77
0.006	54
0.002	37

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	11
Silt	51
Clay	37

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

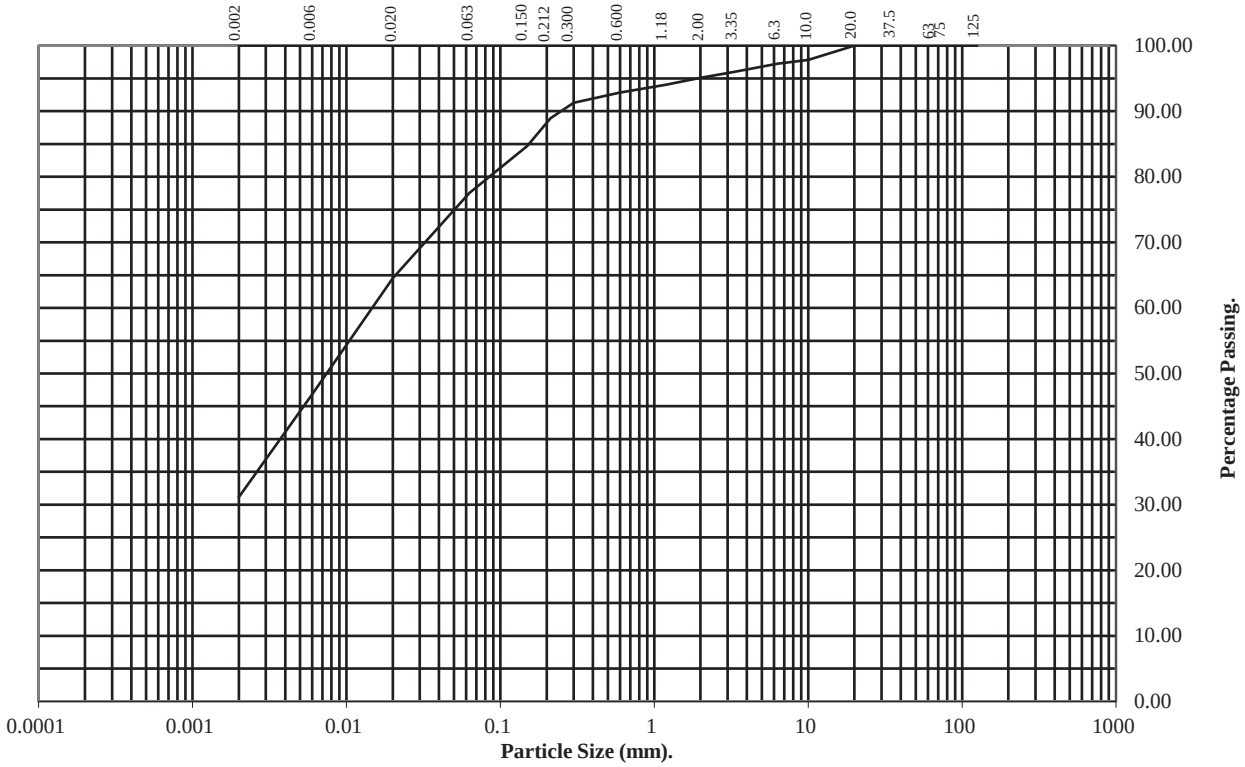
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP3** **Top Depth (m):** **1.80**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	97
3.35	96
2	95
1.18	94
0.6	93
0.3	91
0.212	89
0.15	85
0.063	78

Particle Diameter	Percentage Passing
0.02	65
0.006	47
0.002	31

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	17
Silt	47
Clay	31

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

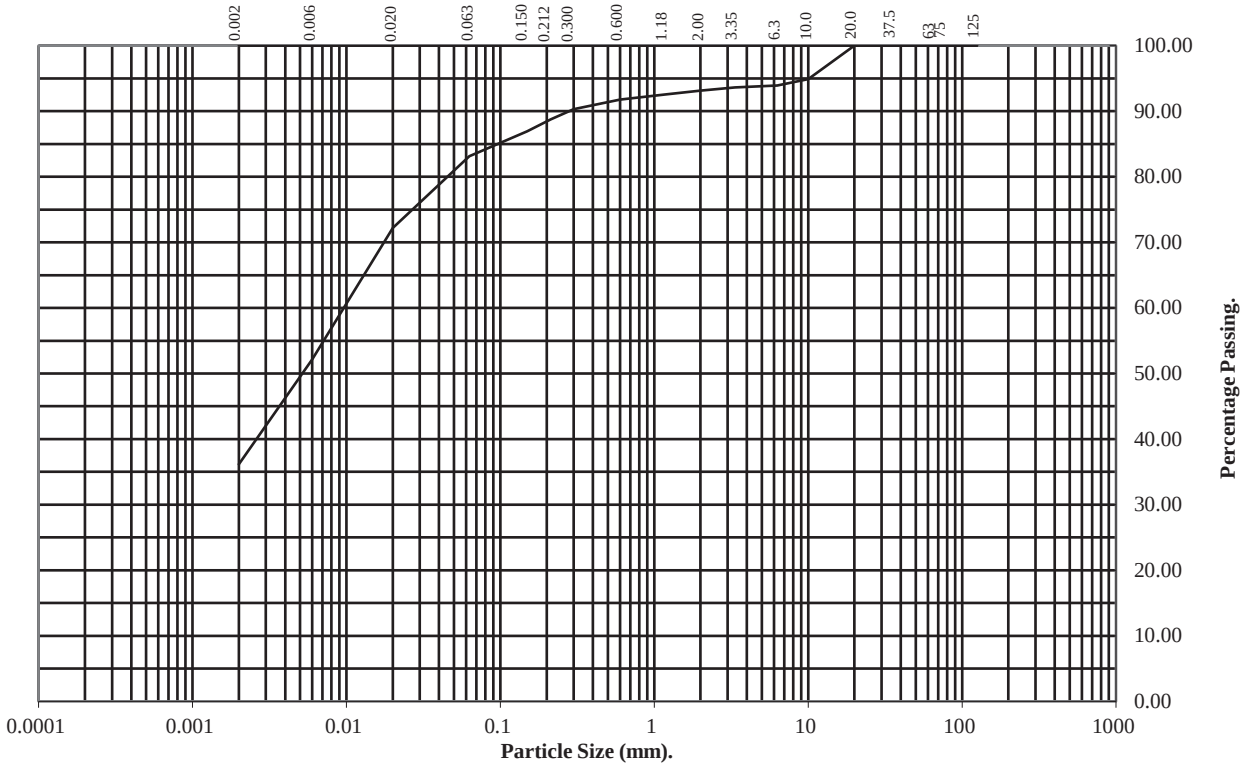
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP4** **Top Depth (m):** **0.80**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	95
6.3	94
3.35	94
2	93
1.18	93
0.6	92
0.3	90
0.212	89
0.15	87
0.063	83

Particle Diameter	Percentage Passing
0.02	72
0.006	52
0.002	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	7
Sand	10
Silt	47
Clay	36

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

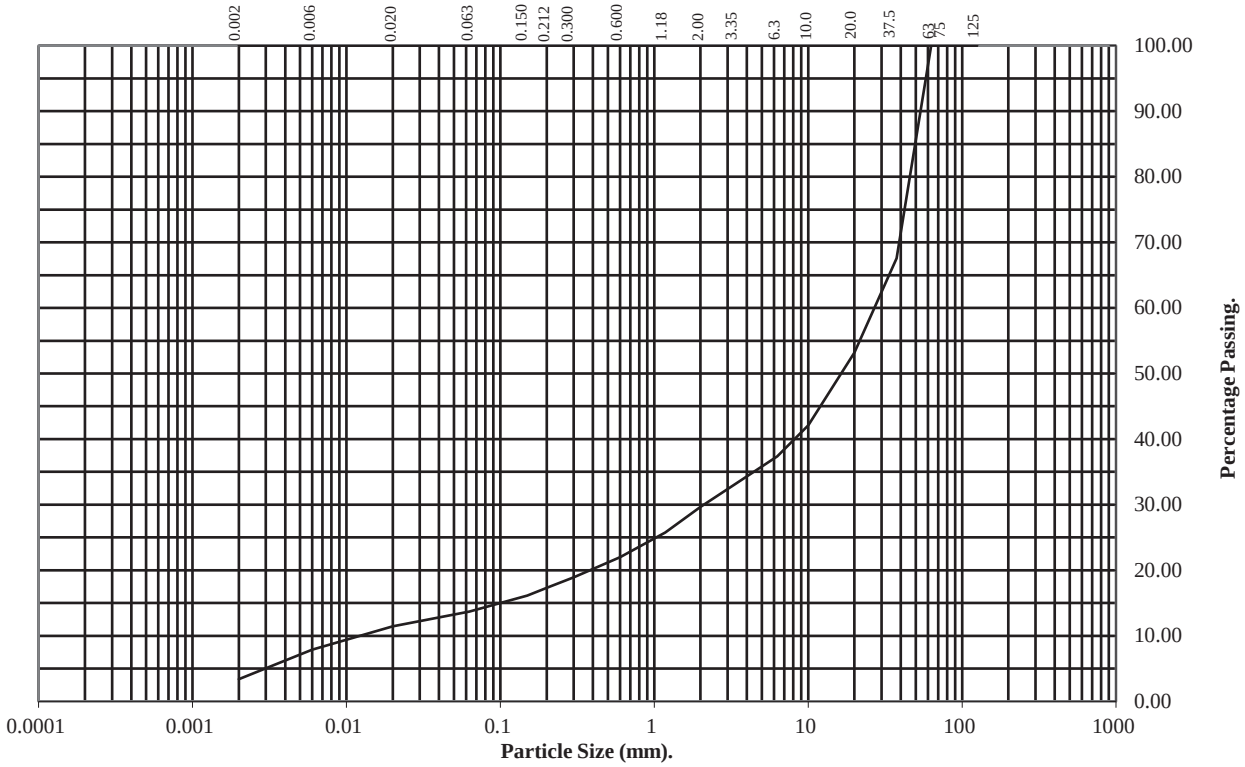
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP4** **Top Depth (m):** **1.80**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	68
20	53
10	42
6.3	37
3.35	33
2	30
1.18	26
0.6	22
0.3	19
0.212	18
0.15	16
0.063	14

Particle Diameter	Percentage Passing
0.02	11
0.006	8
0.002	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	70
Sand	16
Silt	11
Clay	3

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/4084
Client Ref:
17/035

LABORATORY REPORT

4043

Contract Number: PSL17/4346

Report Date: 26 September 2017

Client's Reference: 17/035

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: Ulg Harbour Redevelopment

Date Received: 8/9/2017
Date Commenced: 8/9/2017
Date Completed: 1/8/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH6A		B	9.00		Dark grey very sandy silty GRAVEL.
BH6A		B	10.50		Dark grey silty SAND & GRAVEL.
BH2		B	0.50		Dark grey very gravelly silty SAND.
BH2		B	3.50		Dark brown very sandy silty GRAVEL.
BH2		B	8.00		Dark grey very gravelly very sandy CLAY.
BH2		B	14.00		Dark grey very sandy clayey silty GRAVEL.
BH2		B	20.00		Dark grey very sandy slightly clayey very silty GRAVEL.
BH2		B	26.00		Dark grey slightly gravelly very sandy very silty CLAY.
BH2		B	32.00		Dark grey very sandy slightly clayey silty GRAVEL.

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No: PSL17/4346

Client Ref: 17/035

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH6A		B	9.00		14				NP			
BH6A		B	10.50		15				NP			
BH2		B	8.00		29			35	17	18	63	Intermediate plasticity CI.
BH2		B	14.00		17				NP			
BH2		B	20.00		16				NP			
BH2		B	26.00		25			27	15	12	88	Low plasticity CL.
BH2		B	32.00		13				NP			

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

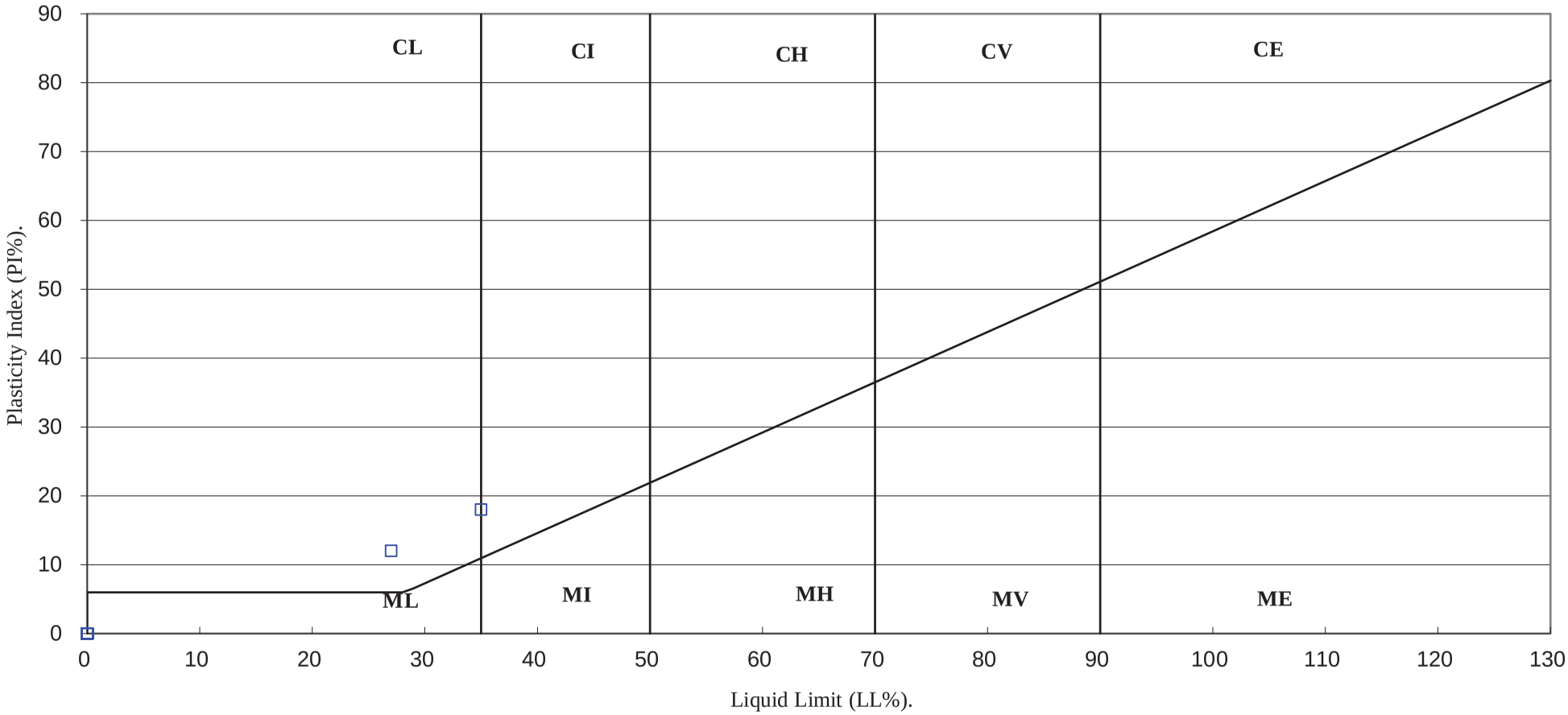
PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Ulg Harbour Redevelopment**	**Contract No:**
			PSL17/4346
			Client Ref:
			17/035

PARTICLE SIZE DISTRIBUTION TEST

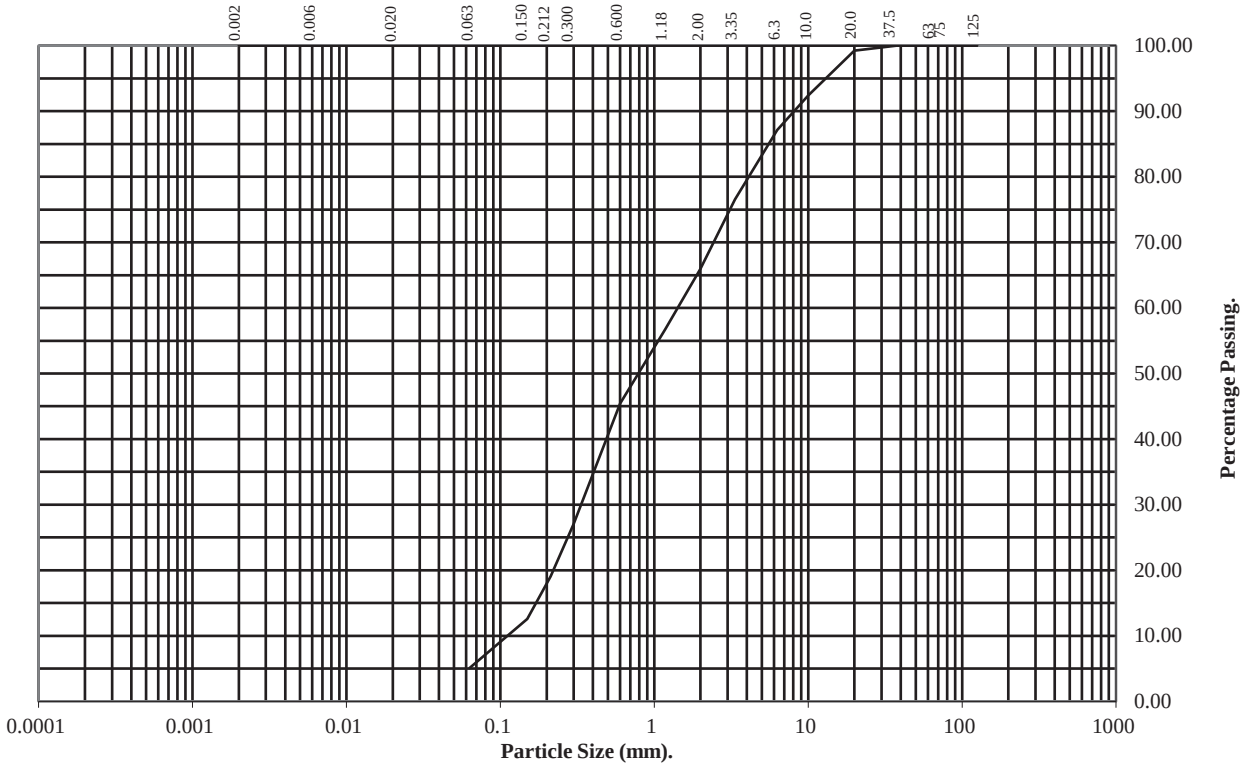
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **0.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	92
6.3	87
3.35	77
2	66
1.18	57
0.6	45
0.3	27
0.212	19
0.15	13
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	34
Sand	61
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

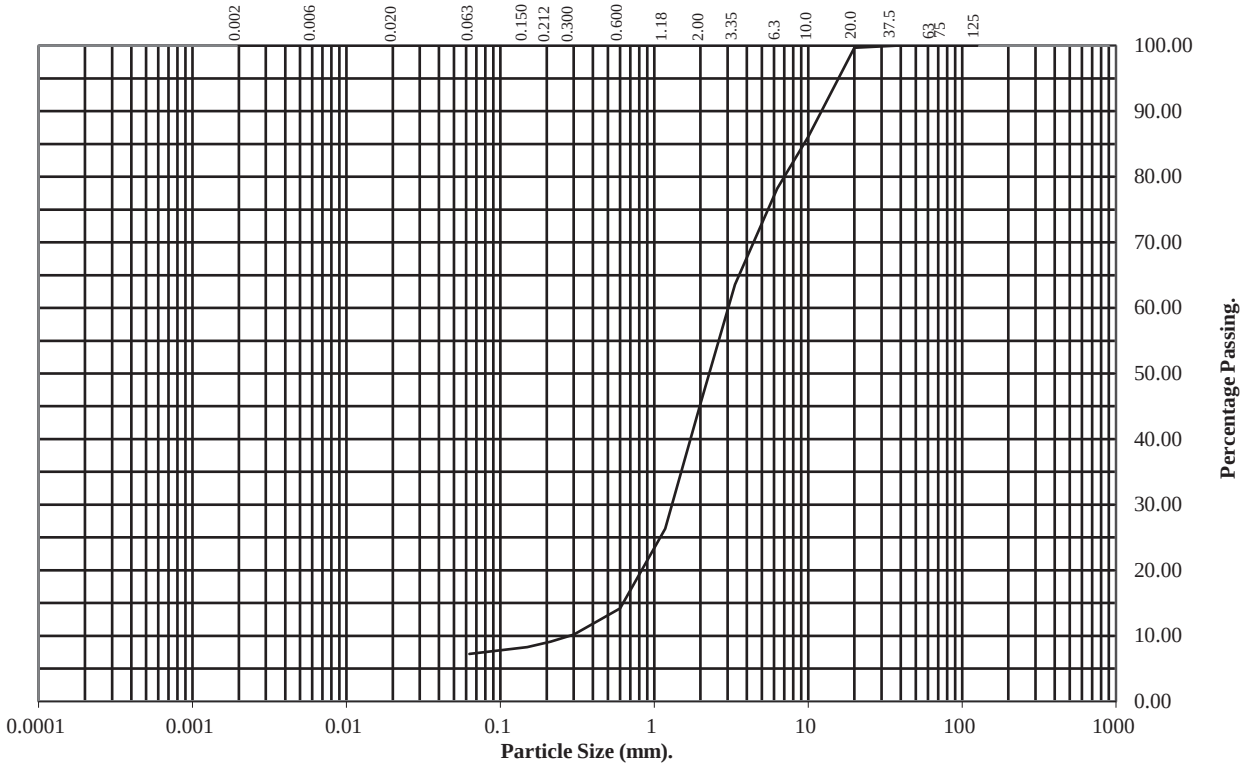
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **3.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	86
6.3	78
3.35	64
2	45
1.18	26
0.6	14
0.3	10
0.212	9
0.15	8
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	38
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

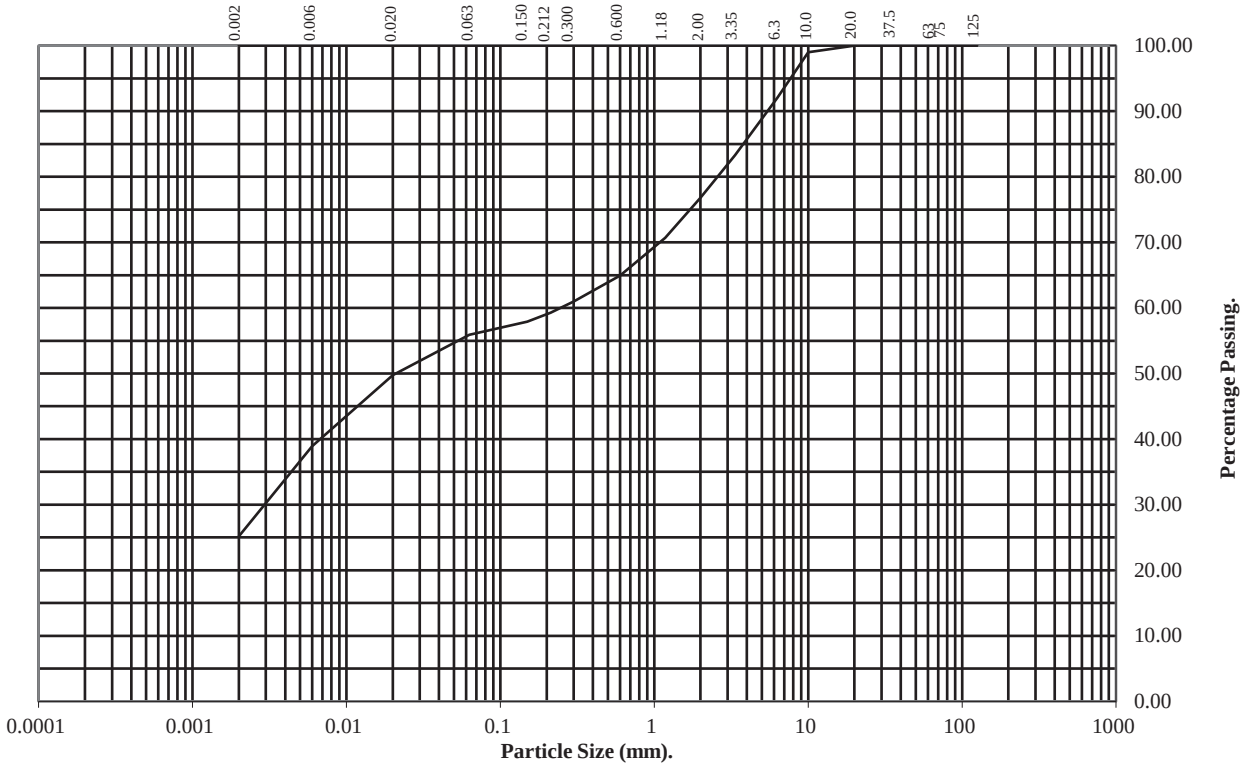
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **8.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	92
3.35	83
2	77
1.18	71
0.6	65
0.3	61
0.212	59
0.15	58
0.063	56

Particle Diameter	Percentage Passing
0.02	50
0.006	39
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	23
Sand	21
Silt	31
Clay	25

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

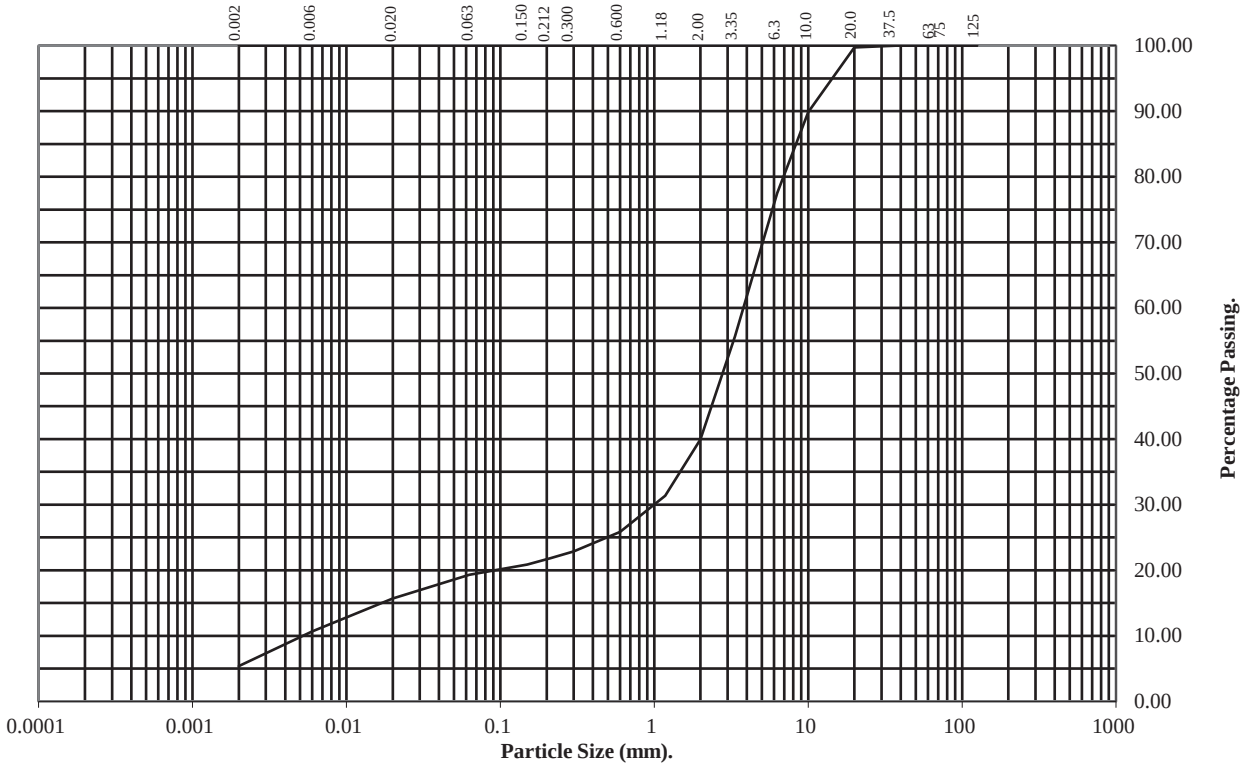
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **14.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	78
3.35	56
2	40
1.18	31
0.6	26
0.3	23
0.212	22
0.15	21
0.063	19

Particle Diameter	Percentage Passing
0.02	16
0.006	11
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	21
Silt	14
Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

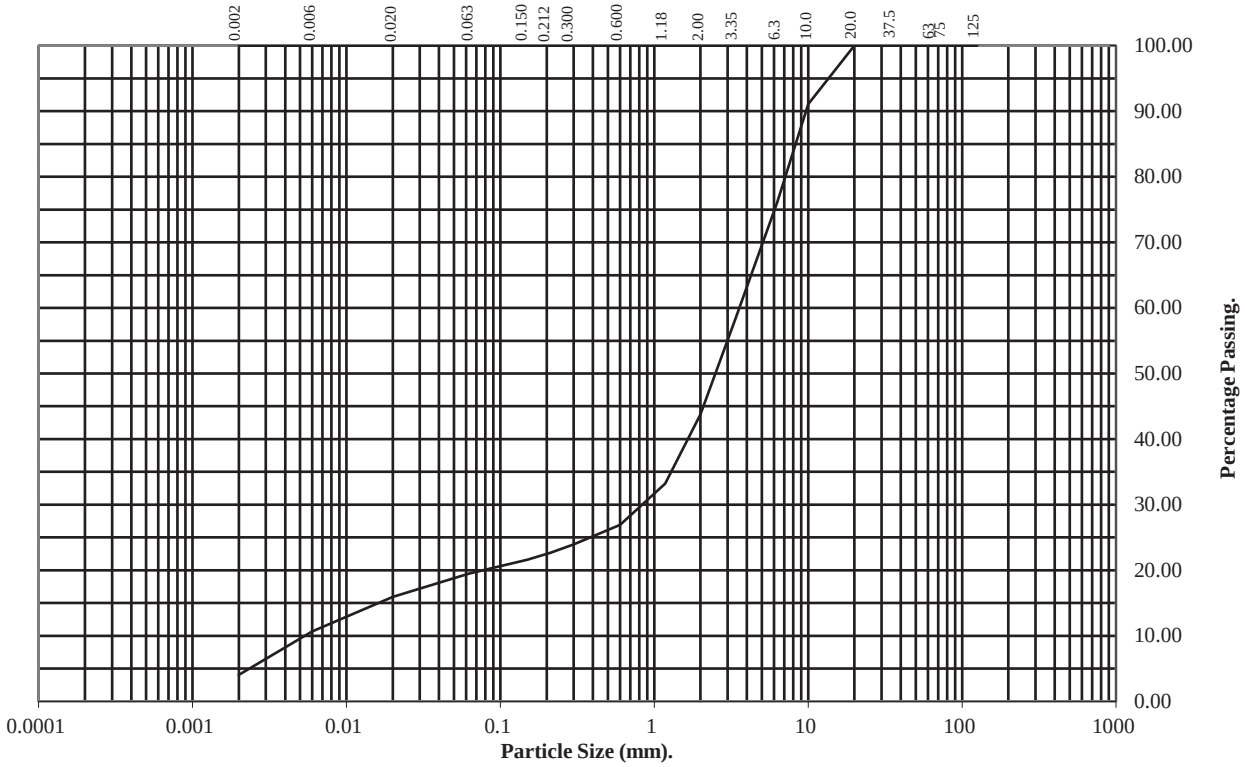
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **20.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	91
6.3	76
3.35	58
2	44
1.18	33
0.6	27
0.3	24
0.212	23
0.15	22
0.063	19

Particle Diameter	Percentage Passing
0.02	16
0.006	11
0.002	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	25
Silt	15
Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

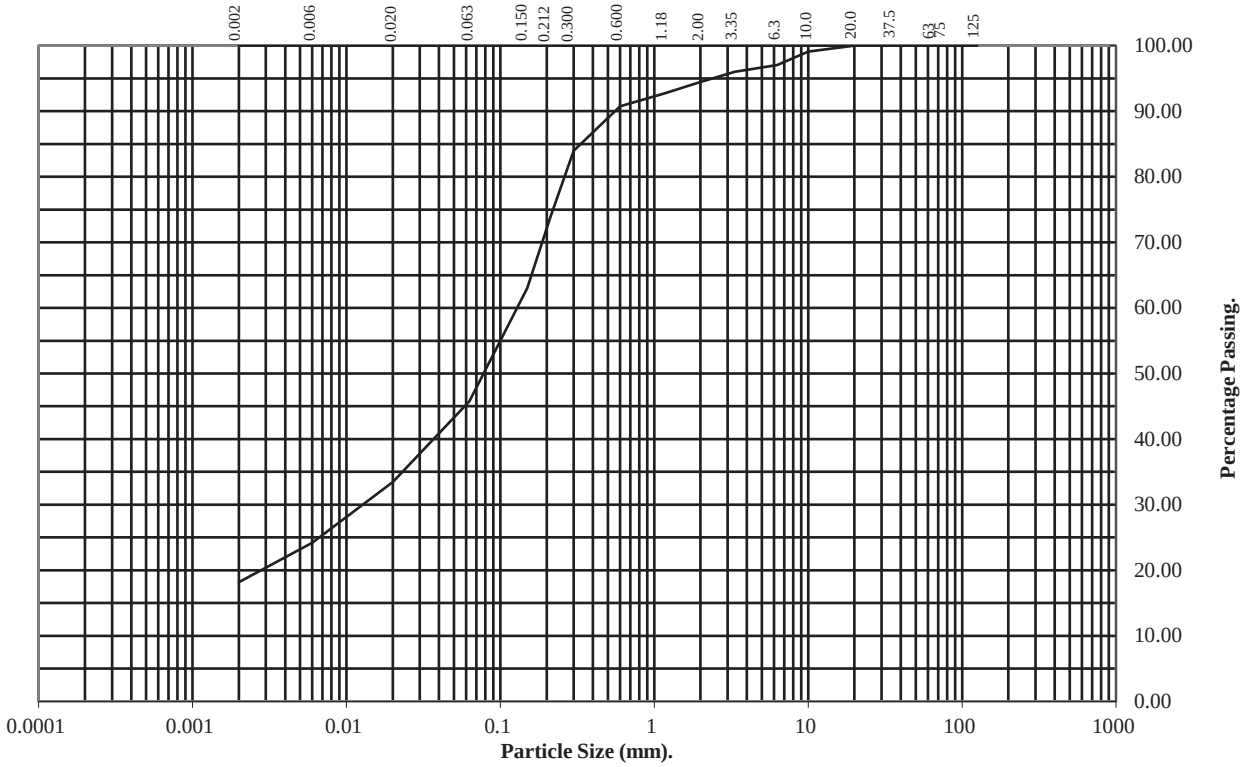
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **26.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	97
3.35	96
2	94
1.18	93
0.6	91
0.3	84
0.212	74
0.15	63
0.063	46

Particle Diameter	Percentage Passing
0.02	33
0.006	24
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	48
Silt	28
Clay	18

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

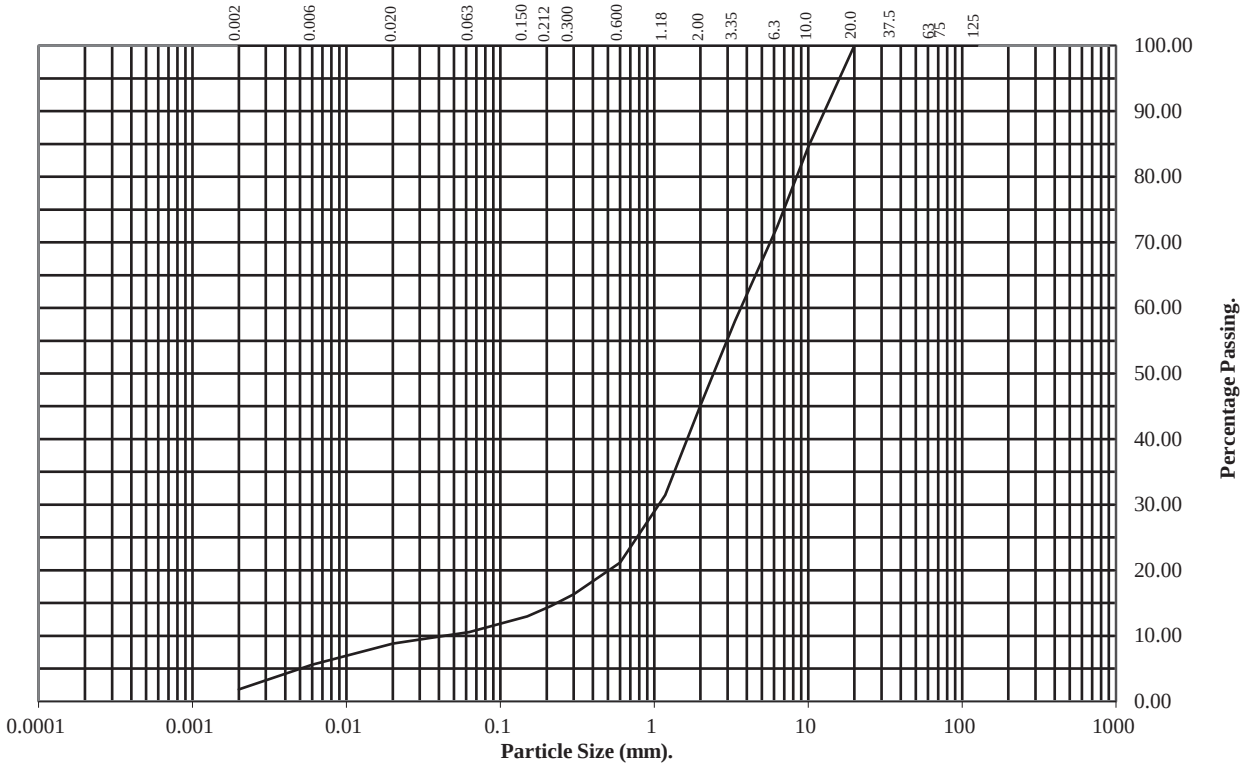
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **32.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	85
6.3	72
3.35	58
2	45
1.18	31
0.6	21
0.3	16
0.212	15
0.15	13
0.063	11

Particle Diameter	Percentage Passing
0.02	9
0.006	6
0.002	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	34
Silt	9
Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

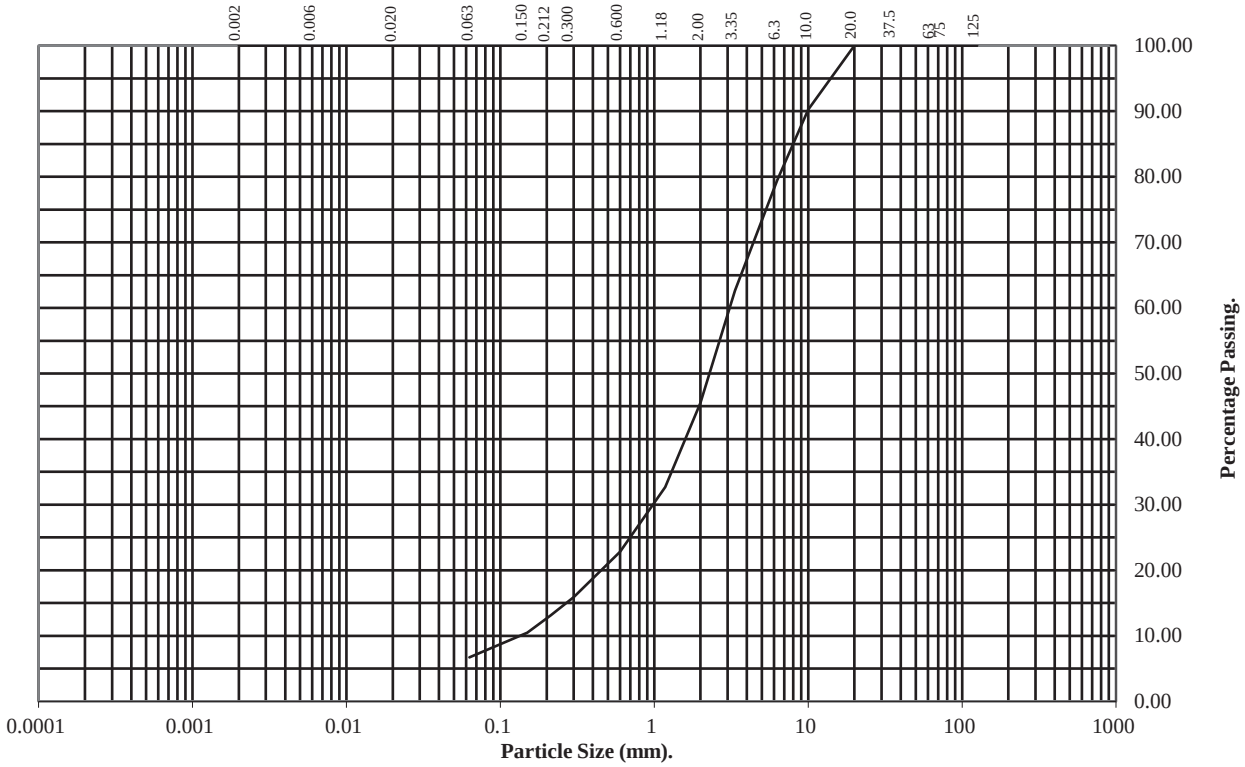
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **9.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	79
3.35	63
2	45
1.18	33
0.6	23
0.3	16
0.212	13
0.15	10
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	38
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

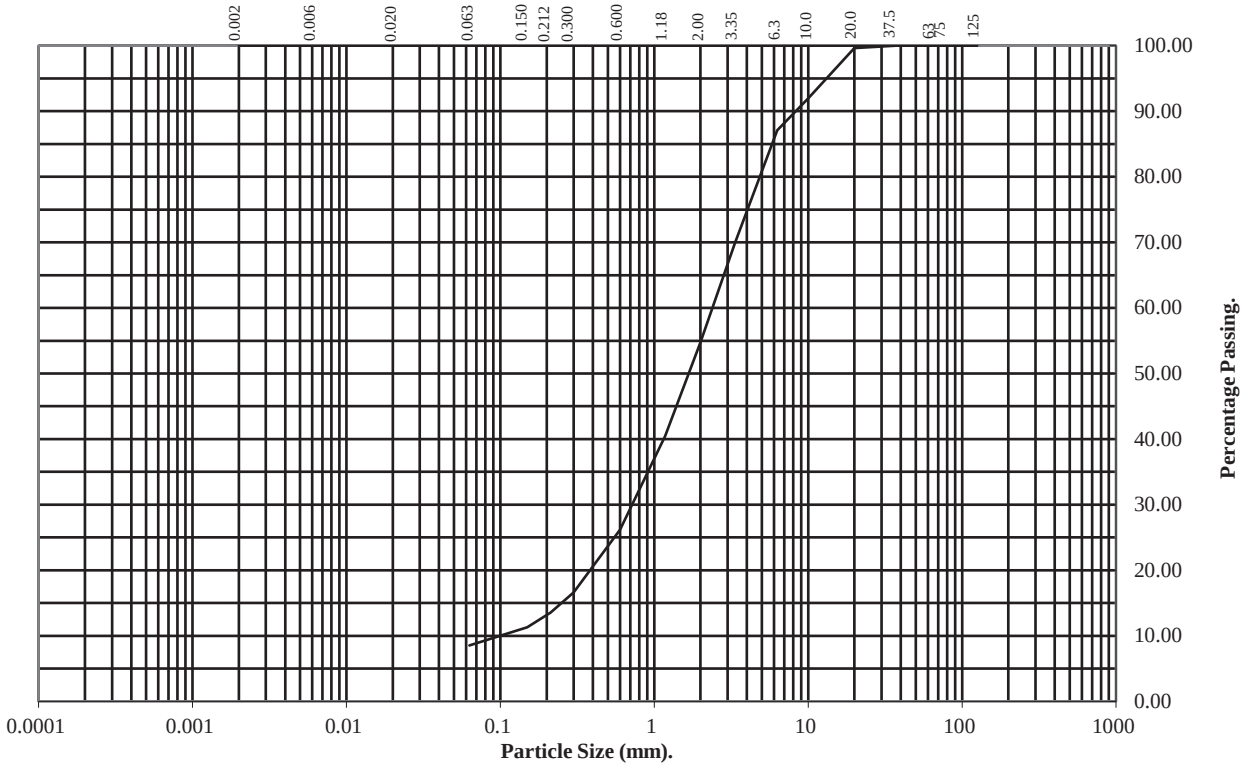
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **10.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	92
6.3	87
3.35	70
2	55
1.18	40
0.6	26
0.3	17
0.212	14
0.15	11
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	45
Sand	46
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

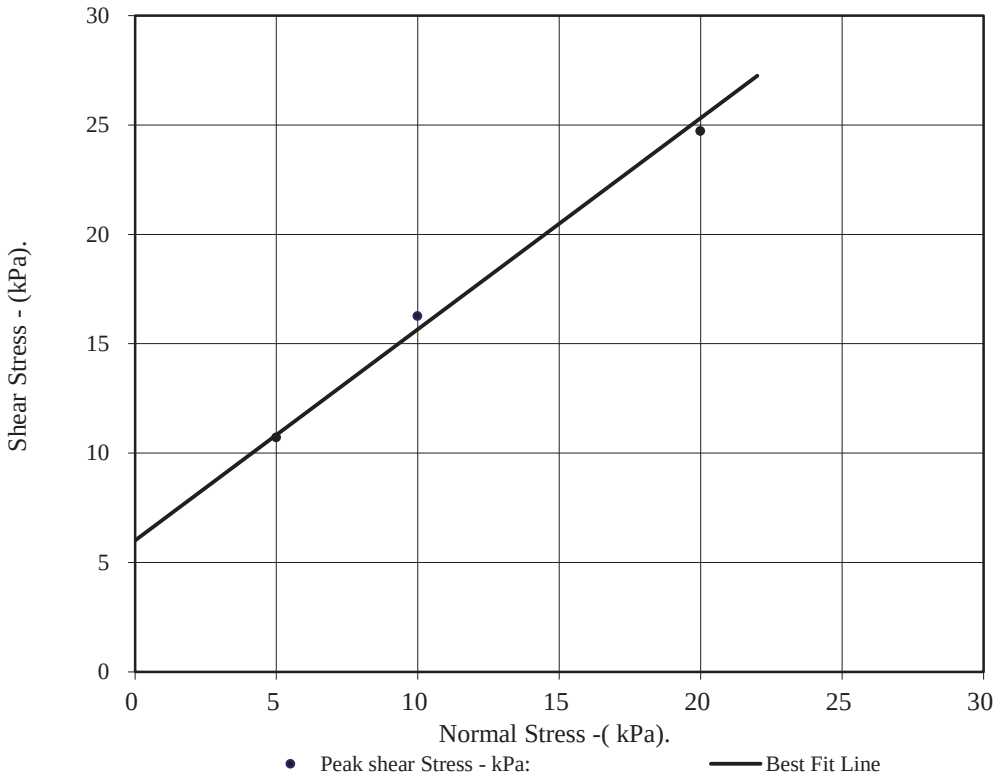
Contract No:
PSL17/4346
Client Ref:
17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH2**		Top Depth:	**0.50**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil desriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	22	22	22
Bulk Density - Mg/m3:	1.71	1.71	1.72
Dry Density - Mg/m3:	1.40	1.40	1.41
Voids Ratio:	0.889	0.890	0.885
Normal Pressure- kPa	5	10	20
Consolidation Stage			
Consolidated Height - mm:	19.95	19.92	19.88
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	2.00	2.50	2.50
Peak shear Stress - kPa:	11	16	25
Final Consolidated Conditons			
Moisture Content - %:	27	28	28
Bulk Density - Mg/m3:	1.71	1.72	1.72
Dry Density - Mg/m3:	1.34	1.35	1.35
Peak			
Angle of Shearing Resistance:(~~θ~~)	**44**		
Effective Cohesion - kPa:	**6**		

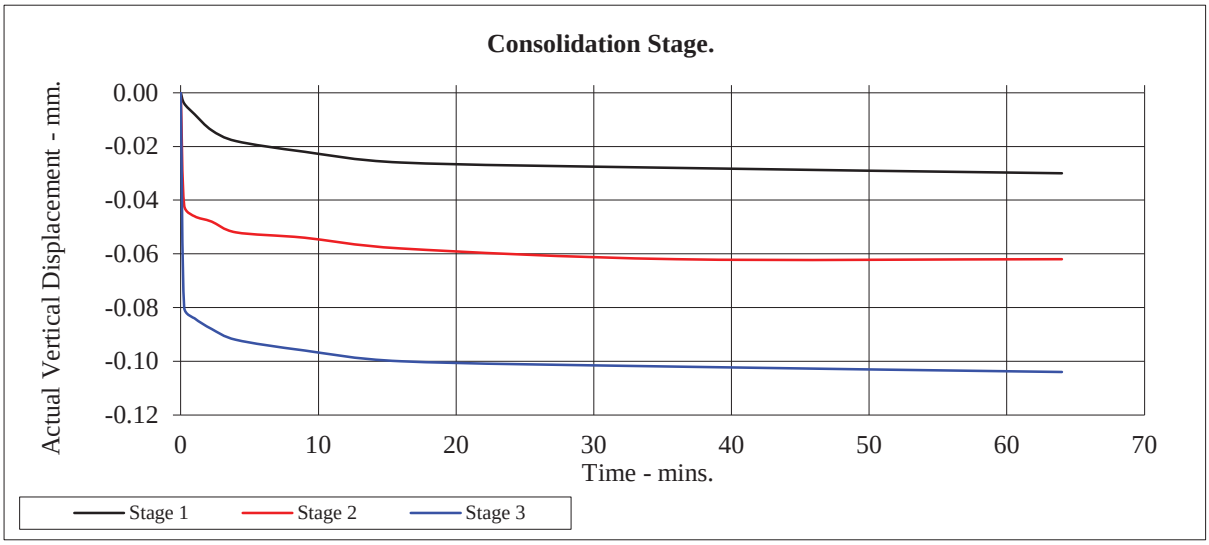


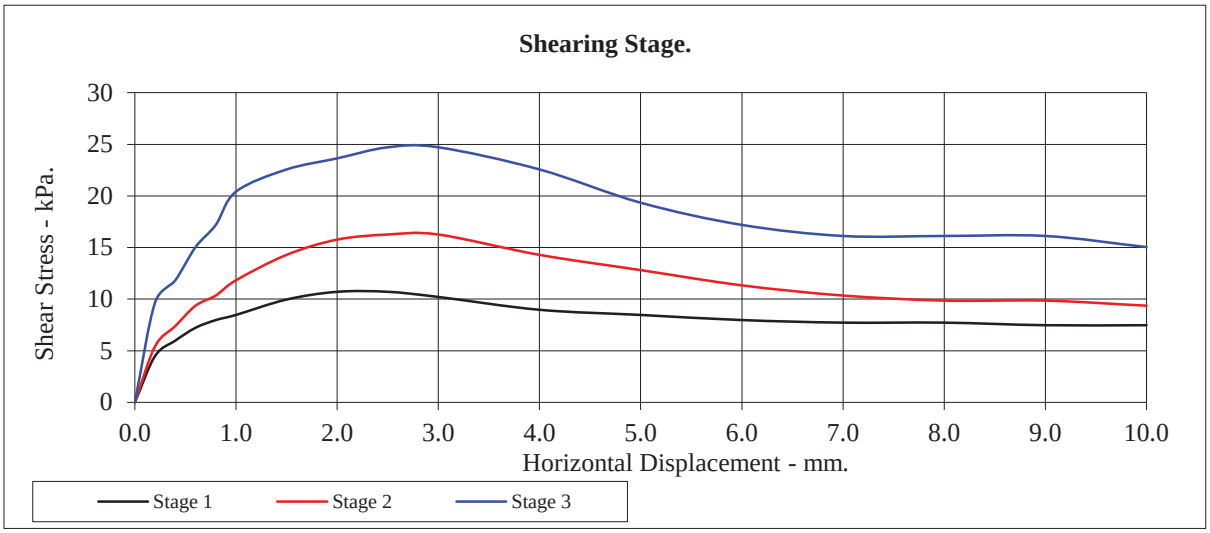
UKAS TESTING 4043 — PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4346** **Client Ref:** **17/035**

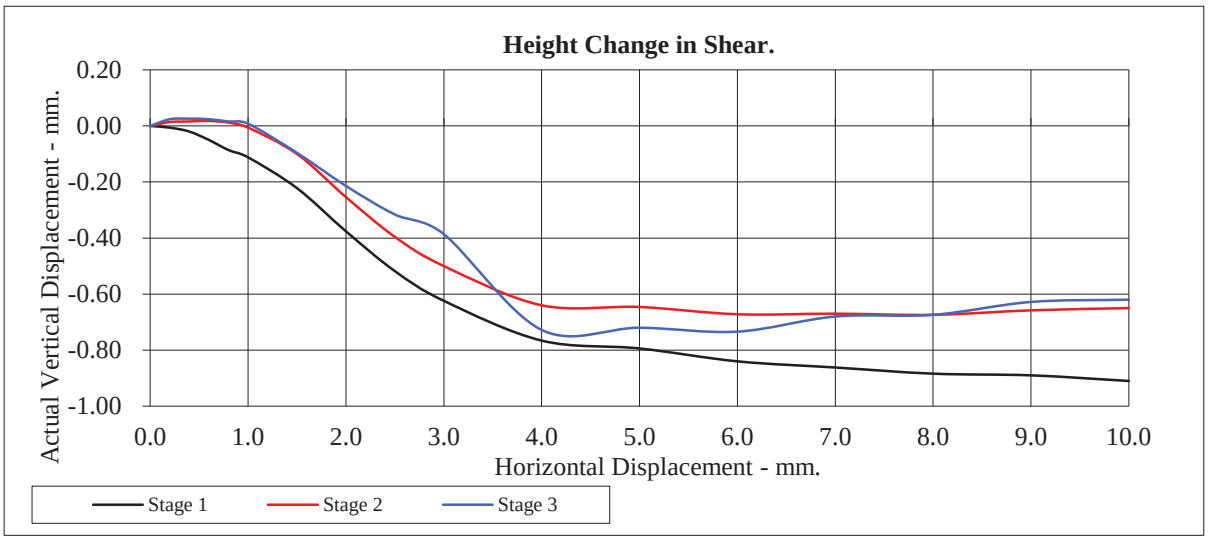
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH2**	Top Depth:	**0.50**
Sample Number:		Base Depth:	







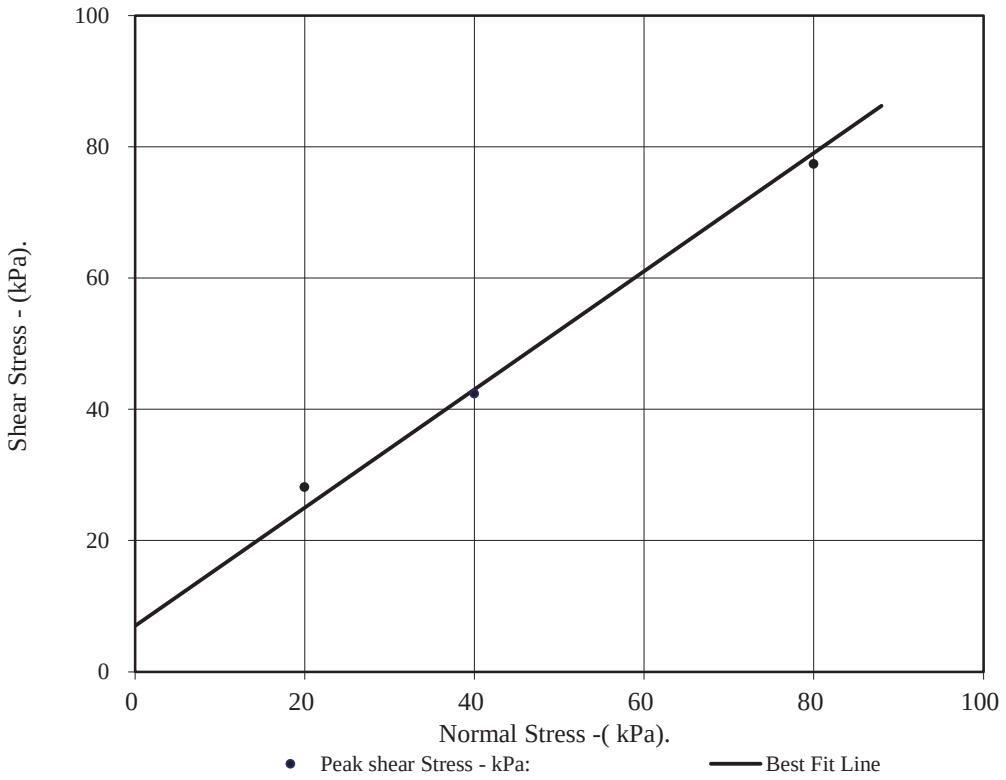
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4346 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH2**		Top Depth:	**3.50**
Sample Number:			Base Depth:	
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil desriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	12	12	12
Bulk Density - Mg/m3:	1.82	1.82	1.82
Dry Density - Mg/m3:	1.62	1.62	1.62
Voids Ratio:	0.640	0.638	0.637
Normal Pressure- kPa	20	40	80
Consolidation Stage			
Consolidated Height - mm:	19.74	19.60	19.38
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	3.00	4.00	5.00
Peak shear Stress - kPa:	28	42	77
Final Consolidated Conditons			
Moisture Content - %:	22	23	23
Bulk Density - Mg/m3:	1.84	1.85	1.88
Dry Density - Mg/m3:	1.50	1.51	1.53
Peak			
Angle of Shearing Resistance:(~~θ~~)	**42**		
Effective Cohesion - kPa:	**7**		

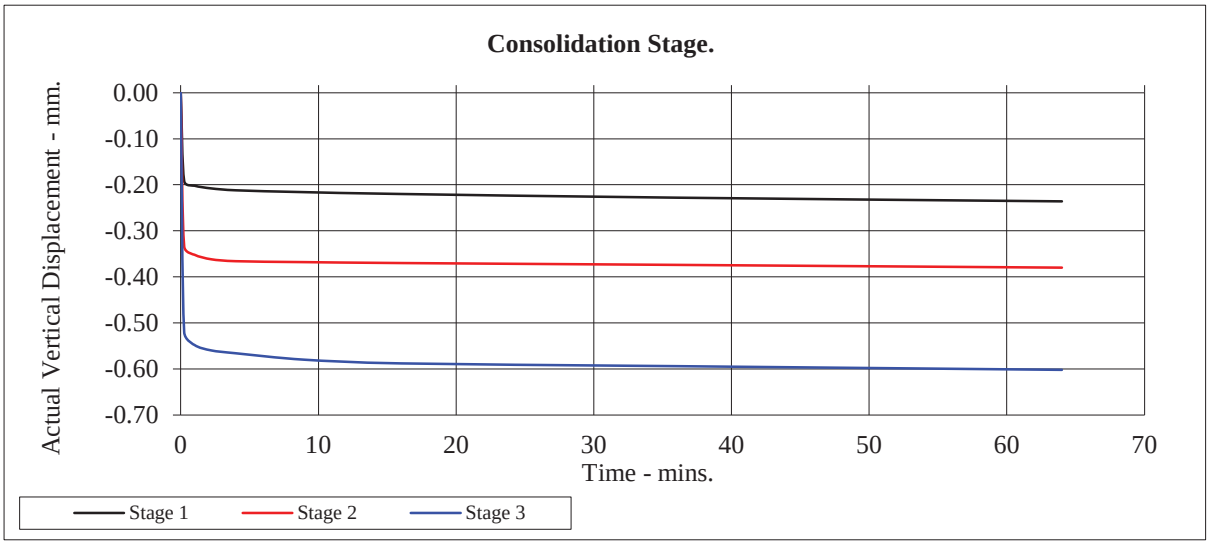


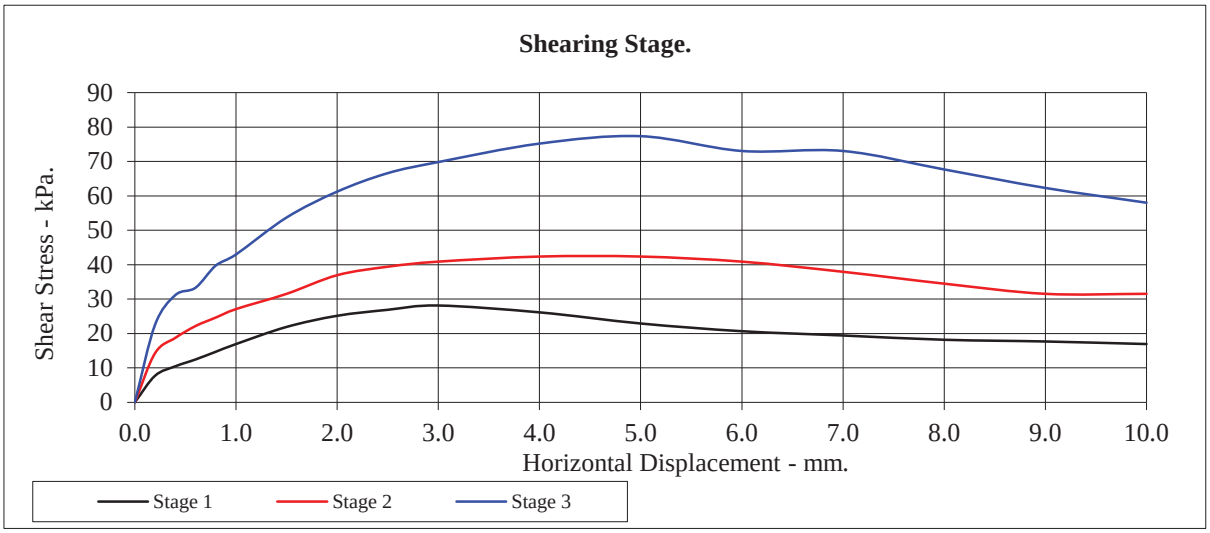
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4346** **Client Ref:** **17/035**

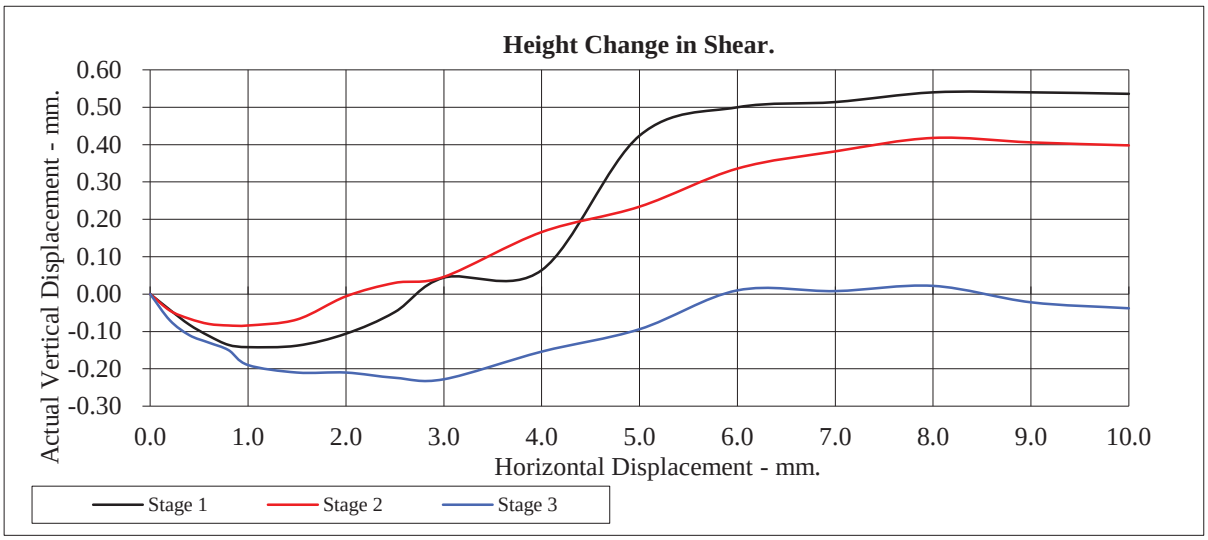
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH2**	Top Depth:	**3.50**
Sample Number:		Base Depth:	







UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4346** **Client Ref:** **17/035**

LABORATORY REPORT

4043

Contract Number: PSL17/4346

Report Date: 26 September 2017

Client's Reference: 17/035

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: Ulg Harbour Redevelopment

Date Received: 8/9/2017
Date Commenced: 8/9/2017
Date Completed: 1/8/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH6A		B	9.00		Dark grey very sandy silty GRAVEL.
BH6A		B	10.50		Dark grey silty SAND & GRAVEL.
BH2		B	0.50		Dark grey very gravelly silty SAND.
BH2		B	3.50		Dark brown very sandy silty GRAVEL.
BH2		B	8.00		Dark grey very gravelly very sandy CLAY.
BH2		B	14.00		Dark grey very sandy clayey silty GRAVEL.
BH2		B	20.00		Dark grey very sandy slightly clayey very silty GRAVEL.
BH2		B	26.00		Dark grey slightly gravelly very sandy very silty CLAY.
BH2		B	32.00		Dark grey very sandy slightly clayey silty GRAVEL.

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No: PSL17/4346

Client Ref: 17/035

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH6A		B	9.00		14				NP			
BH6A		B	10.50		15				NP			
BH2		B	8.00		29			35	17	18	63	Intermediate plasticity CI.
BH2		B	14.00		17				NP			
BH2		B	20.00		16				NP			
BH2		B	26.00		25			27	15	12	88	Low plasticity CL.
BH2		B	32.00		13				NP			

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

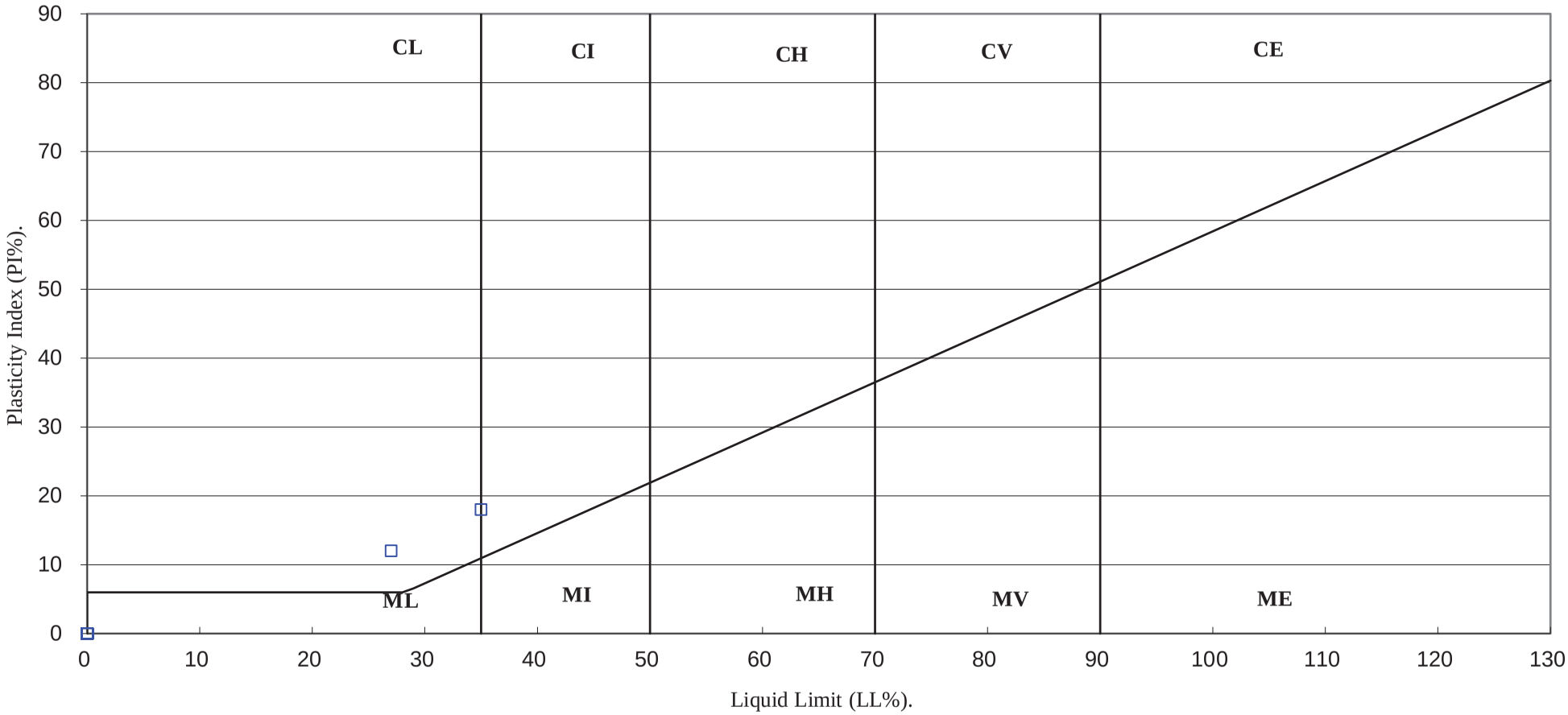
PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Ulg Harbour Redevelopment**	**Contract No:**
			PSL17/4346
			Client Ref:
			17/035

PARTICLE SIZE DISTRIBUTION TEST

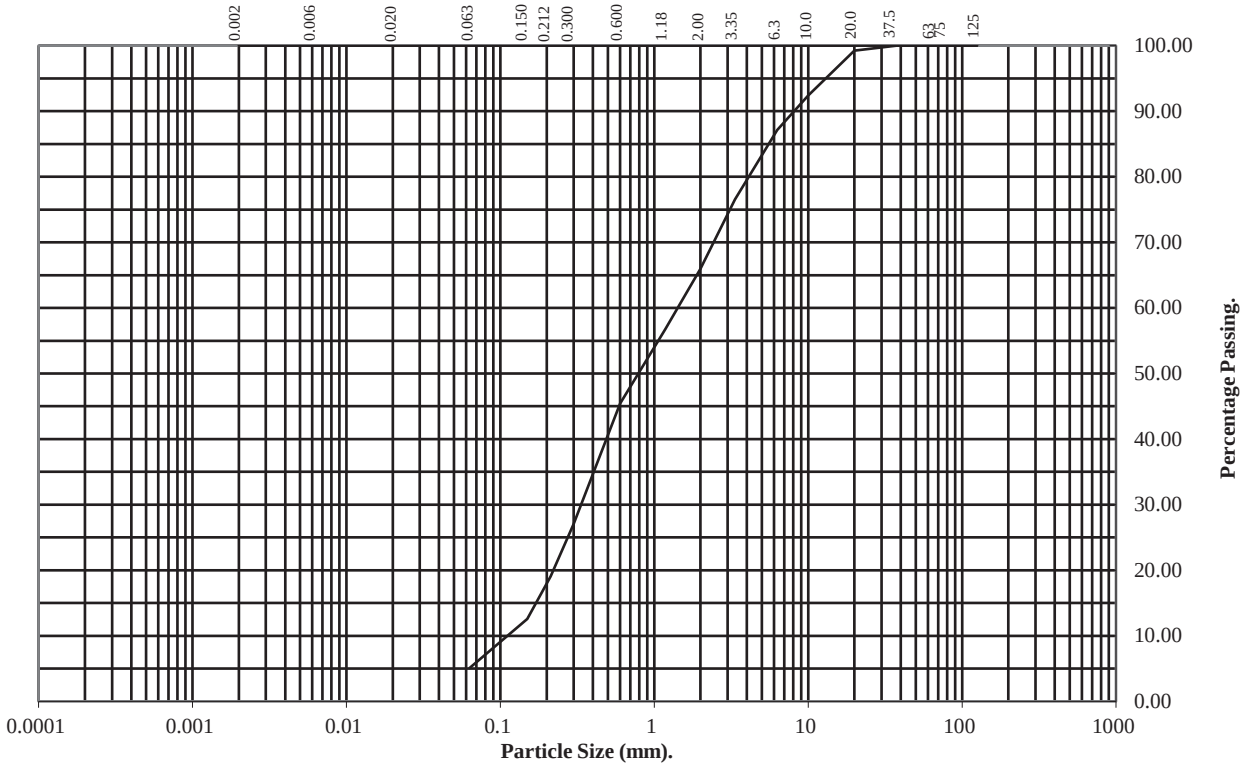
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **0.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	92
6.3	87
3.35	77
2	66
1.18	57
0.6	45
0.3	27
0.212	19
0.15	13
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	34
Sand	61
Silt/Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

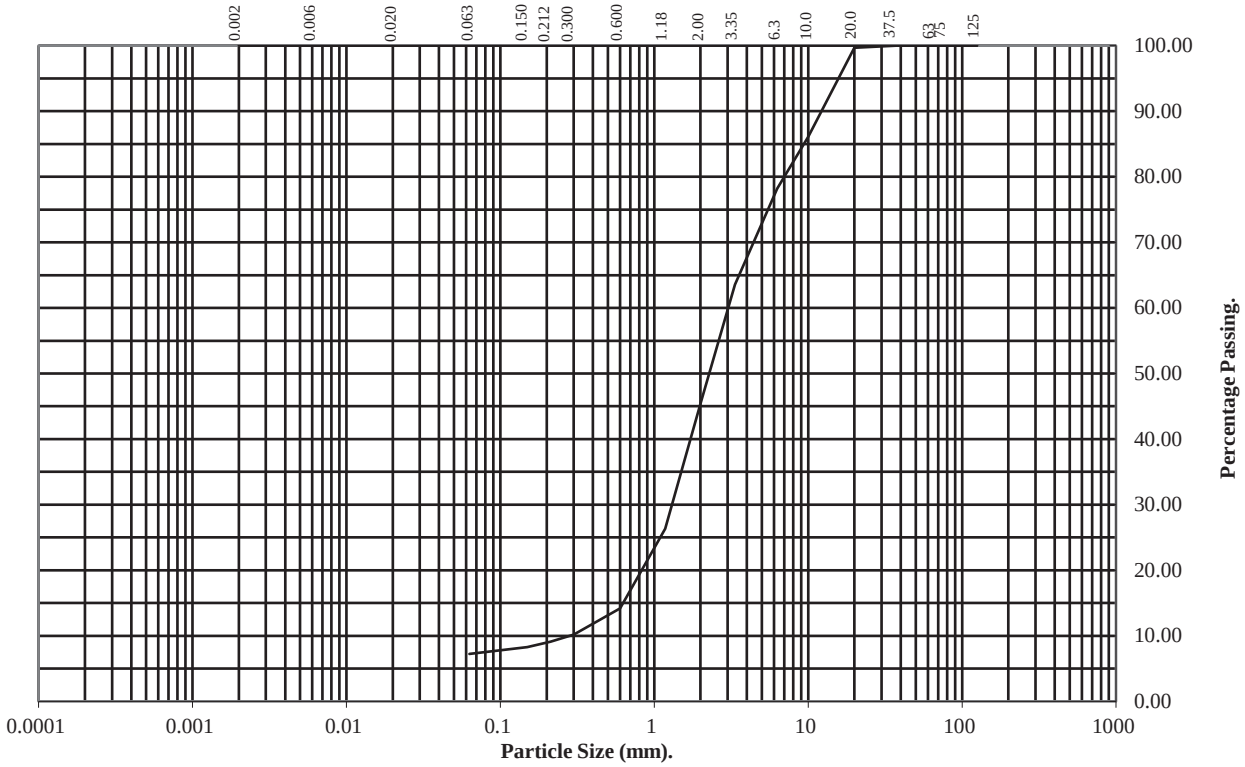
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH2** **Top Depth (m):** **3.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	86
6.3	78
3.35	64
2	45
1.18	26
0.6	14
0.3	10
0.212	9
0.15	8
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	38
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

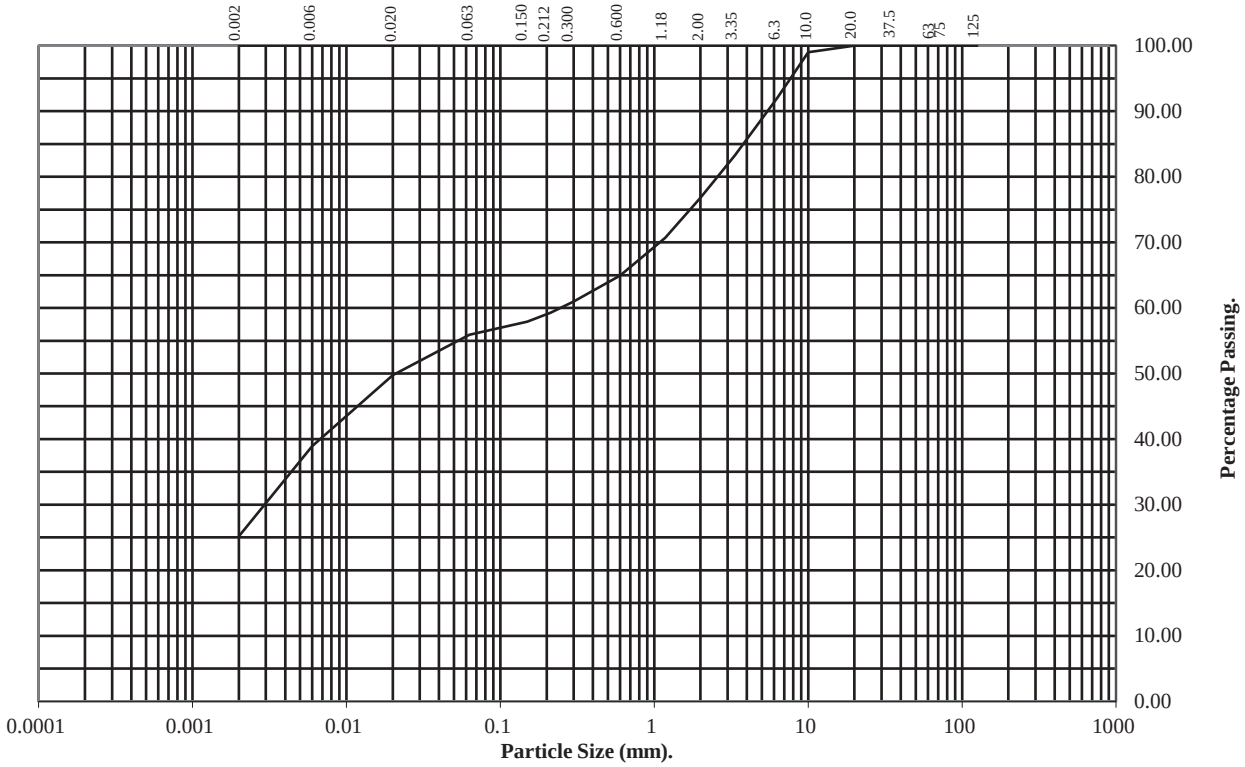
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **8.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	92
3.35	83
2	77
1.18	71
0.6	65
0.3	61
0.212	59
0.15	58
0.063	56

Particle Diameter	Percentage Passing
0.02	50
0.006	39
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	23
Sand	21
Silt	31
Clay	25

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

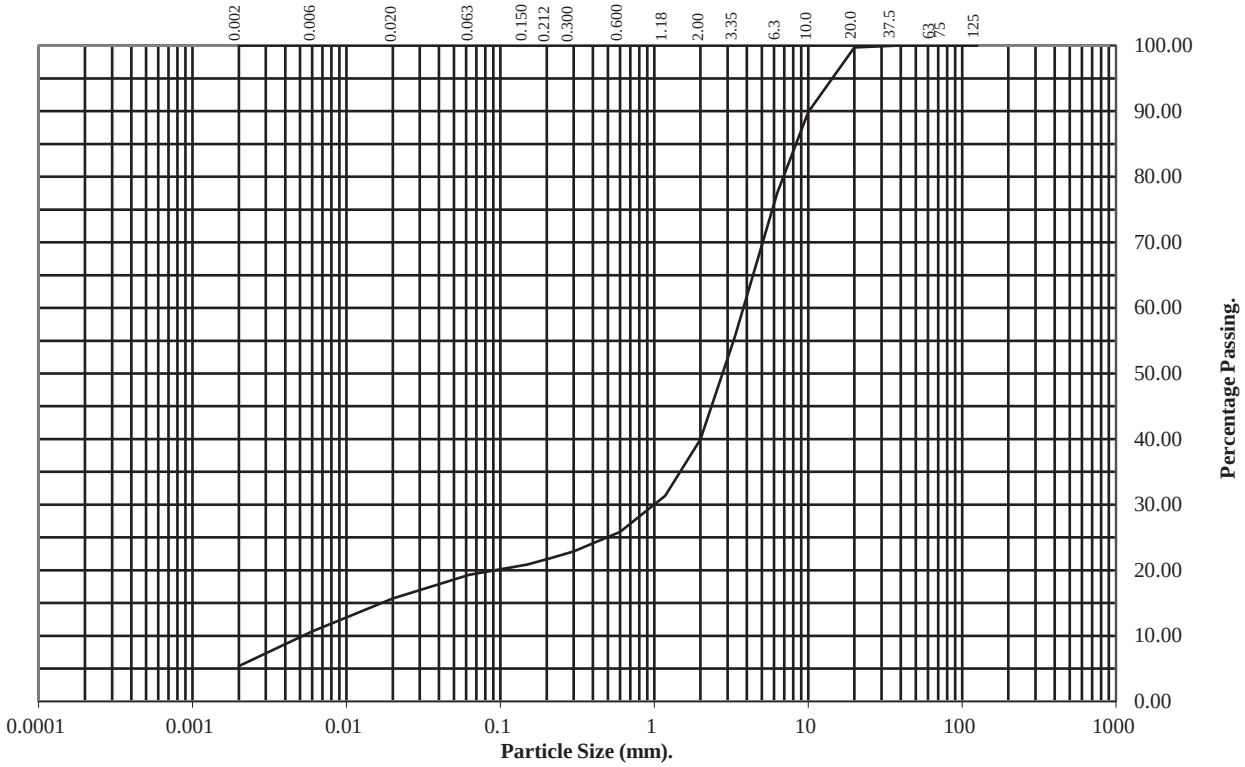
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **14.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	78
3.35	56
2	40
1.18	31
0.6	26
0.3	23
0.212	22
0.15	21
0.063	19

Particle Diameter	Percentage Passing
0.02	16
0.006	11
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	21
Silt	14
Clay	5

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

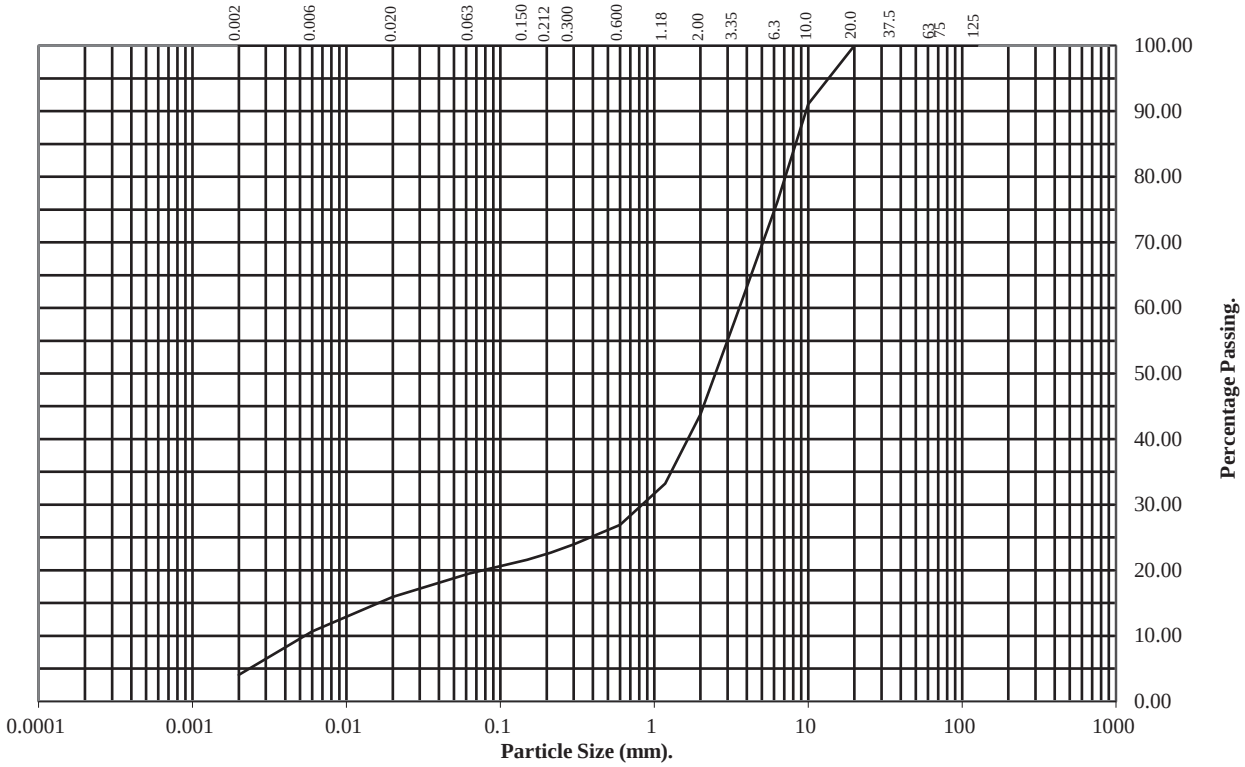
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **20.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	91
6.3	76
3.35	58
2	44
1.18	33
0.6	27
0.3	24
0.212	23
0.15	22
0.063	19

Particle Diameter	Percentage Passing
0.02	16
0.006	11
0.002	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	56
Sand	25
Silt	15
Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

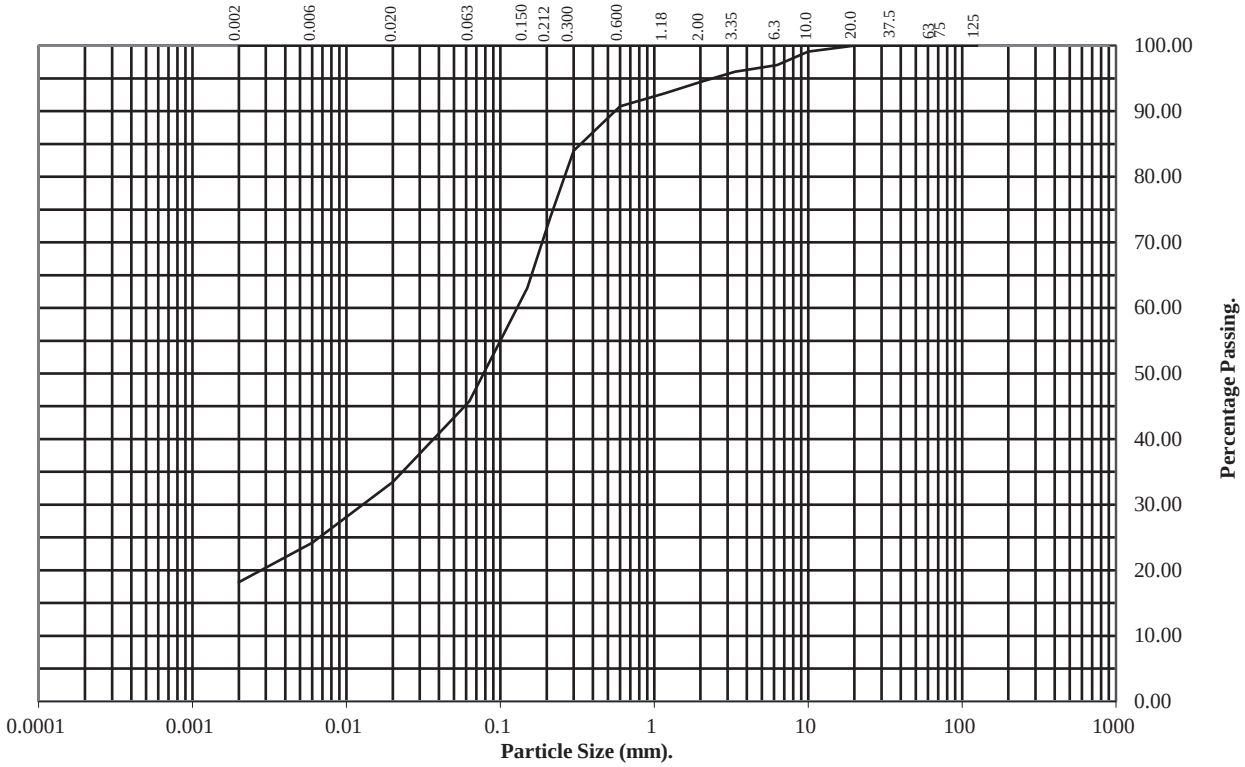
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **26.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	99
6.3	97
3.35	96
2	94
1.18	93
0.6	91
0.3	84
0.212	74
0.15	63
0.063	46

Particle Diameter	Percentage Passing
0.02	33
0.006	24
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	48
Silt	28
Clay	18

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

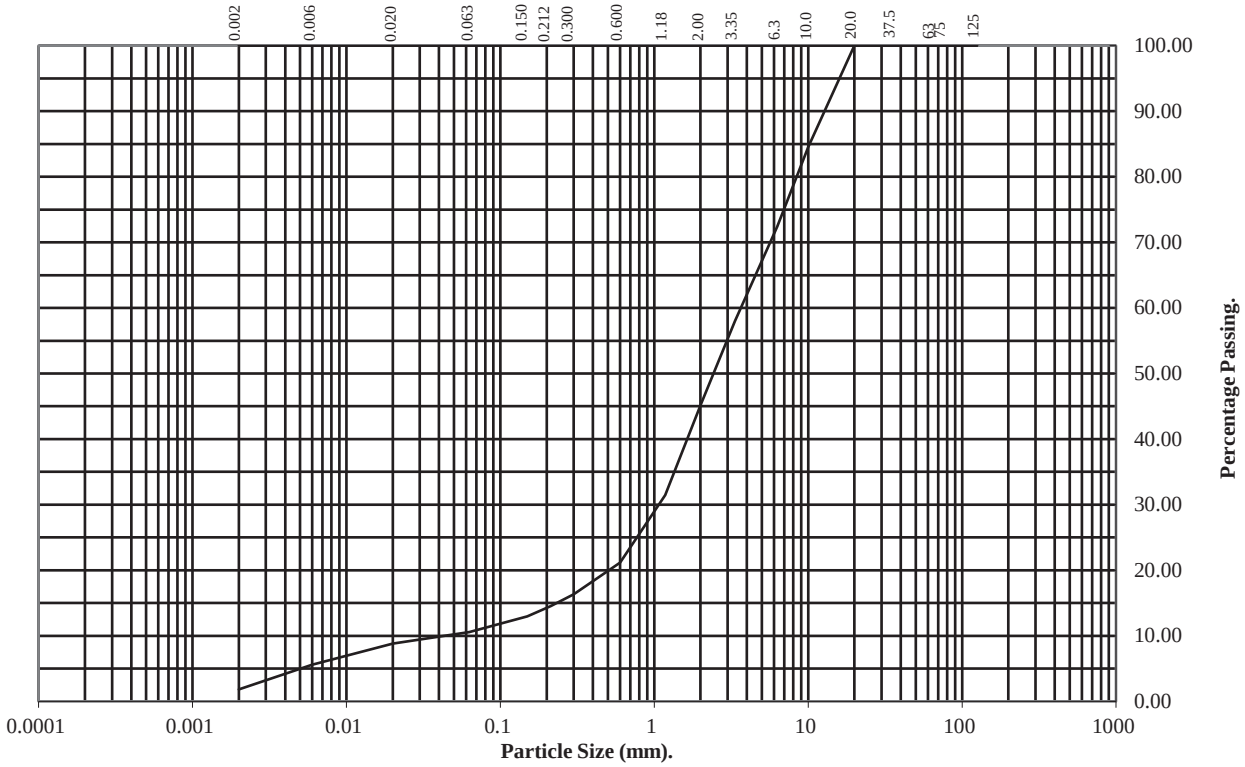
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH2** **Top Depth (m):** **32.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	85
6.3	72
3.35	58
2	45
1.18	31
0.6	21
0.3	16
0.212	15
0.15	13
0.063	11

Particle Diameter	Percentage Passing
0.02	9
0.006	6
0.002	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	34
Silt	9
Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

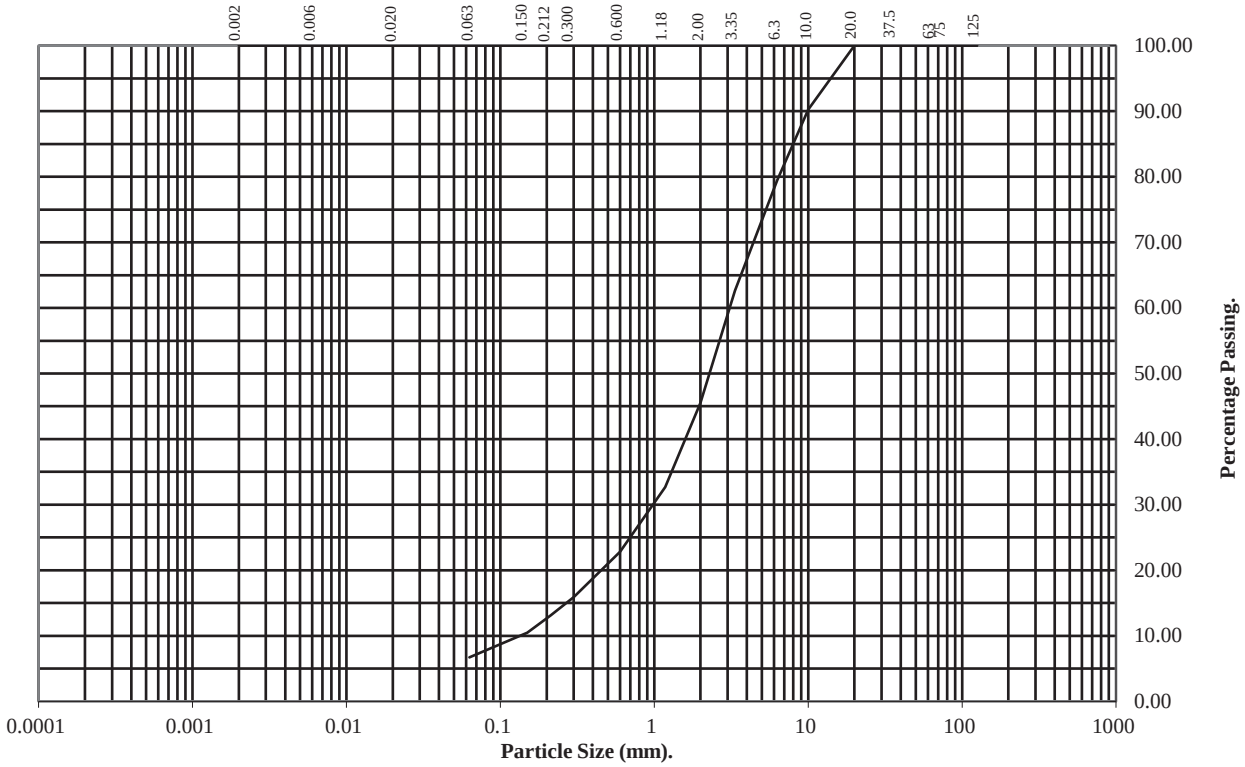
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **9.00**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	90
6.3	79
3.35	63
2	45
1.18	33
0.6	23
0.3	16
0.212	13
0.15	10
0.063	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	55
Sand	38
Silt/Clay	7

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

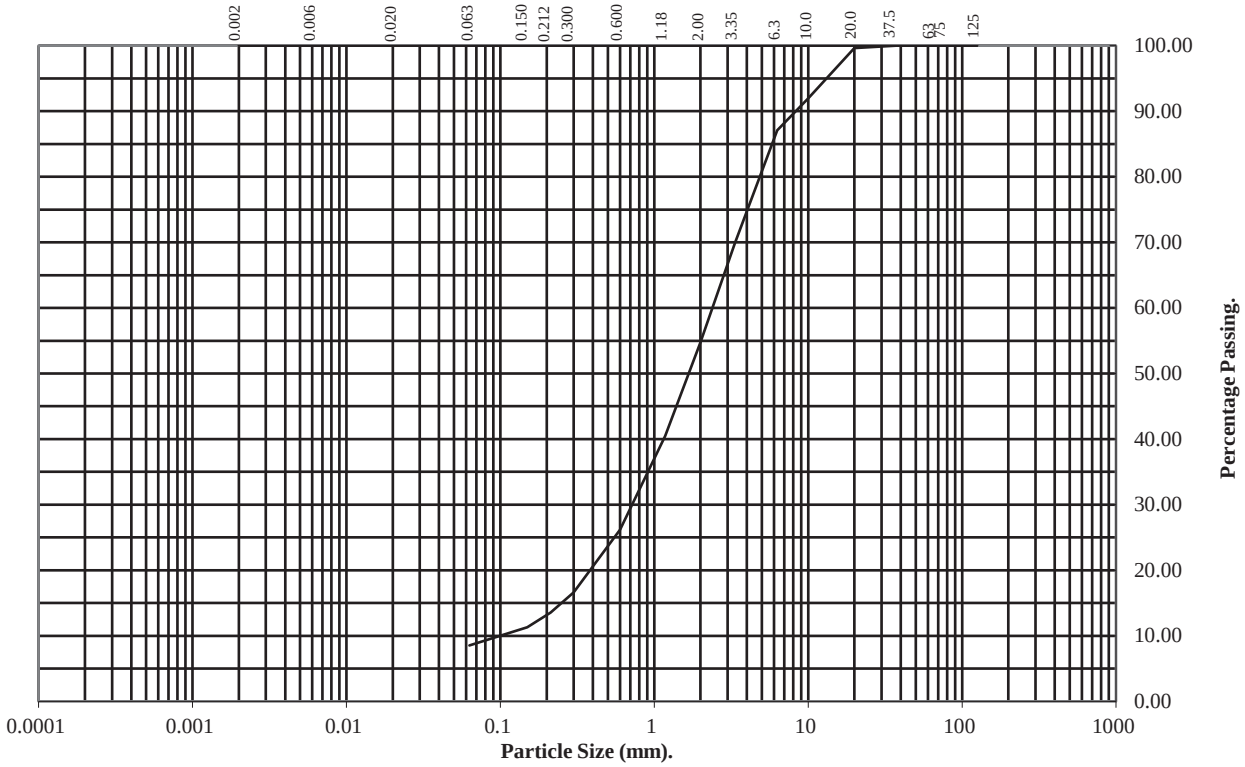
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH6A** **Top Depth (m):** **10.50**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	92
6.3	87
3.35	70
2	55
1.18	40
0.6	26
0.3	17
0.212	14
0.15	11
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	45
Sand	46
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Ulg Harbour Redevelopment

Contract No:
PSL17/4346
Client Ref:
17/035

LABORATORY REPORT

4043

Contract Number: PSL17/4559

Report Date: 05 October 2017

Client's Reference: 17286

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: UIG Harbour Reservoir

Date Received: 20/9/2017
Date Commenced: 20/9/2017
Date Completed: 4/10/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH3		B	1.50	3.00	Grey very gravelly silty SAND.
BH3		B+D	4.50	6.00	Grey slightly gravelly very sandy clayey SILT.
BH3		B	6.00	7.50	Grey very sandy slightly silty GRAVEL.
BH3		B+D	9.00	10.50	Grey sandy silty GRAVEL.
BH3		B+D	16.50	18.00	Grey very gravelly very sandy CLAY.
BH3		B+D	28.50	30.00	Grey very sandy very clayey GRAVEL.
BH4		B	2.00	3.50	Grey silty SAND and GRAVEL.
BH4		B+D	5.00	6.50	Grey slightly gravelly sandy clayey SILT.
BH4		B+D	6.50	8.00	Grey very gravelly very sandy CLAY.
BH4		B+D	14.00	15.00	Grey very gravelly clayey silty SAND.
BH4		B	21.50	23.00	Grey very gravelly clayey very silty SAND.
BH4		B+D	24.50	26.00	Grey very sandy clayey very silty GRAVEL.
BH4		B+D	33.50	35.00	Grey slightly gravelly very sandy CLAY.
BH5		B	1.50	3.00	Grey very sandy slightly silty GRAVEL.
BH5		B+D	4.50	6.00	Grey slightly gravelly very sandy clayey SILT.
BH5		B	6.00	7.50	Grey very sandy clayey silty GRAVEL.
BH5		B+D	7.50	9.00	Grey very gravelly sandy CLAY.
BH5		B+D	9.00	10.50	Grey very gravelly slightly sandy CLAY.
BH5		B+D	13.50	15.00	Grey very gravelly very sandy CLAY.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH5		B+D	24.00	25.50	Grey very gravelly sandy CLAY.
BH5		B+D	33.00	34.50	Grey very gravelly sandy CLAY.
BH8B		B+D	8.20	9.70	Grey very gravelly sandy CLAY.
BH8B		B+D	12.70	14.20	Grey very gravelly very sandy CLAY.
BH8B		B+D	21.70	23.20	Grey very gravelly very sandy CLAY.
BH8B		B+D	27.70	29.20	Grey slightly sandy CLAY.
BH2		D	32.00		Grey very gravelly very sandy CLAY.
BH6A		D	9.00		Grey very gravelly slightly sandy CLAY.
BH6A		D	10.50		Grey very gravelly slightly sandy CLAY.
BH8A		D	4.20		Grey slightly sandy very silty CLAY.
BH9		D	2.80		Grey gravelly sandy very silty CLAY.
BH9		D	7.40		Grey slightly sandy CLAY.

UKAS TESTING 4043	PSL Professional Soils Laboratory	UIG Harbour Redevelopment	Contract No: PSL17/4559 Client Ref: 17286

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH3		B+D	4.50	6.00	50			55	35	20	85	High plasticity MH.
BH3		B+D	9.00	10.50	8.5				NP			
BH3		B+D	16.50	18.00	12			38	18	20	58	Intermediate plasticity CI.
BH3		B+D	28.50	30.00	10			29	16	13	49	Low plasticity CL.
BH4		B+D	5.00	6.50	42			59	35	24	91	High plasticity MH.
BH4		B+D	6.50	8.00	16			42	20	22	48	Intermediate plasticity CI.
BH4		B+D	14.00	15.00	11			22	15	7	47	Low plasticity CL.
BH4		B+D	24.50	26.00	10			25	16	9	43	Low plasticity CL.
BH4		B+D	33.50	35.00	17			44	24	20	88	Intermediate plasticity CI.
BH5		B+D	4.50	6.00	46			55	36	19	92	High plasticity MH.
BH5		B+D	7.50	9.00	10							
BH5		B+D	9.00	10.50	17			47	23	24	55	Intermediate plasticity CI.
BH5		B+D	13.50	15.00	13			33	15	18	50	Low plasticity CL.
BH5		B+D	24.00	25.50	24			46	24	22	49	Intermediate plasticity CI.
BH5		B+D	33.00	34.50	17			39	20	19	51	Intermediate plasticity CI.
BH8B		B+D	8.20	9.70	23			39	19	20	45	Intermediate plasticity CI.
BH8B		B+D	12.70	14.20	11			30	16	14	47	Low plasticity CL.
BH8B		B+D	21.70	23.20	16			33	17	16	51	Low plasticity CL.
BH8B		B+D	27.70	29.20	31			63	28	35	100	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:

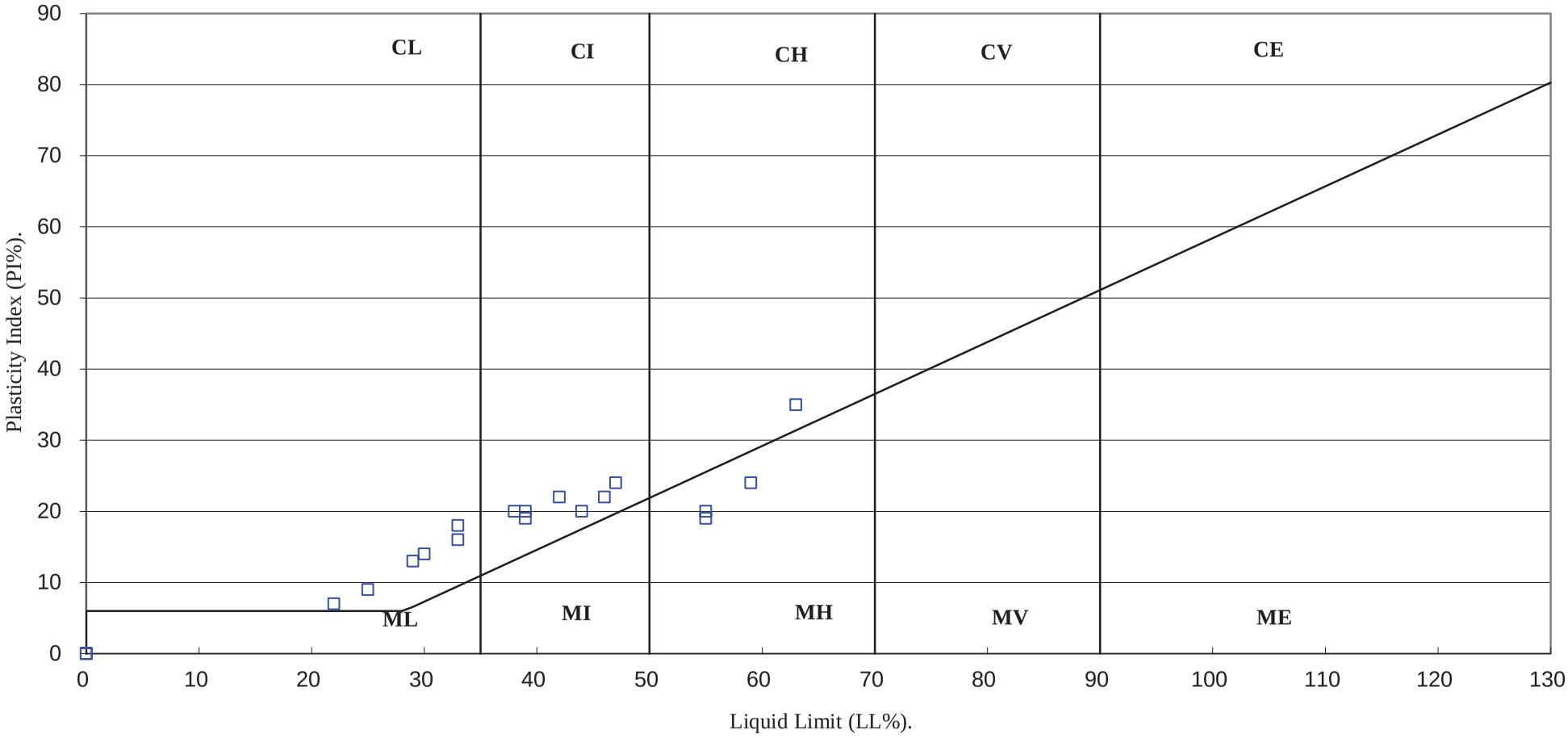
PSL17/4559

Client Ref:

17286

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4559 **Client Ref:** 17286

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH2		D	32.00		11							
BH6A		D	9.00		31							
BH6A		D	10.50		14							
BH8A		D	4.20		34							
BH9		D	2.80		31							
BH9		D	7.40		26							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:

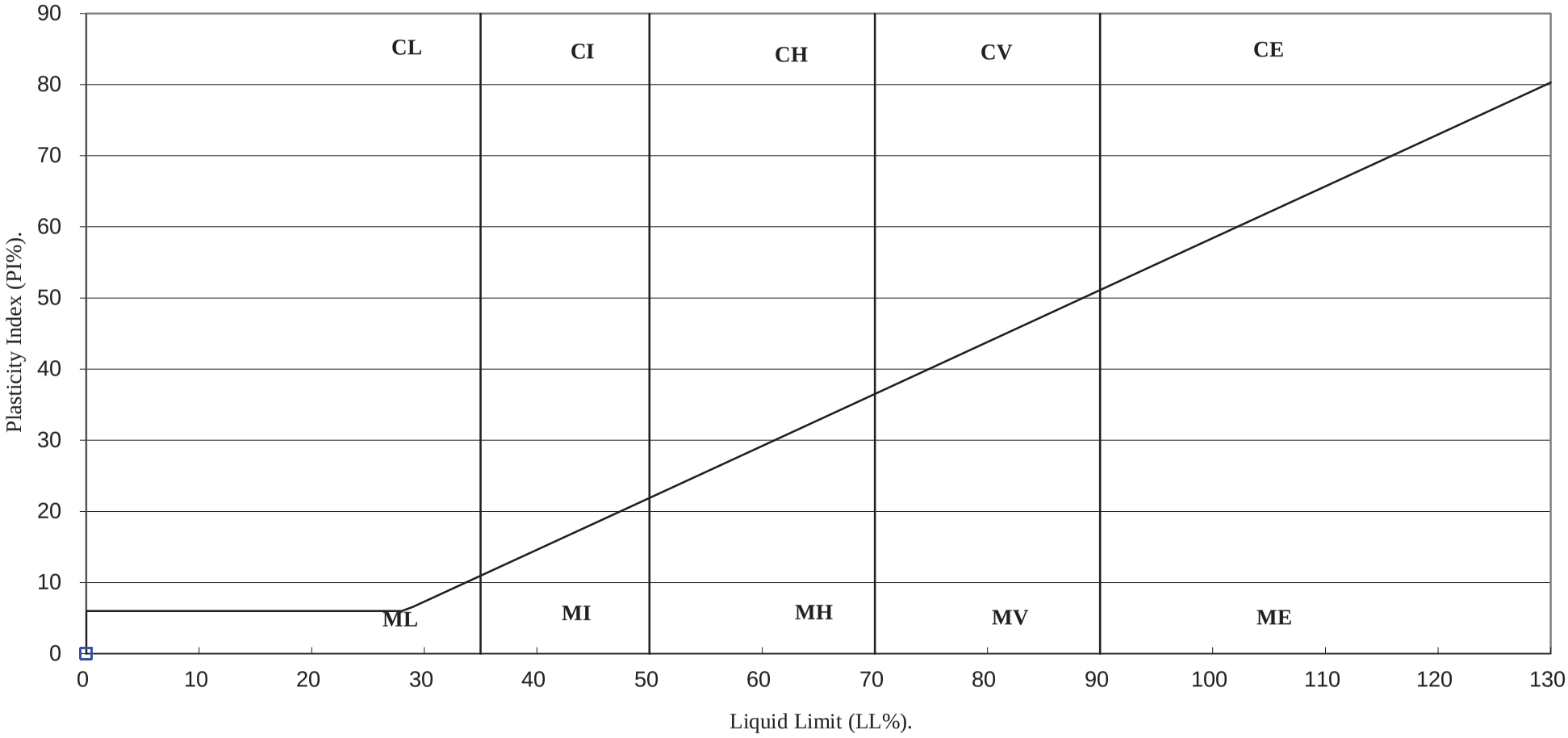
PSL17/4559

Client Ref:

17286

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

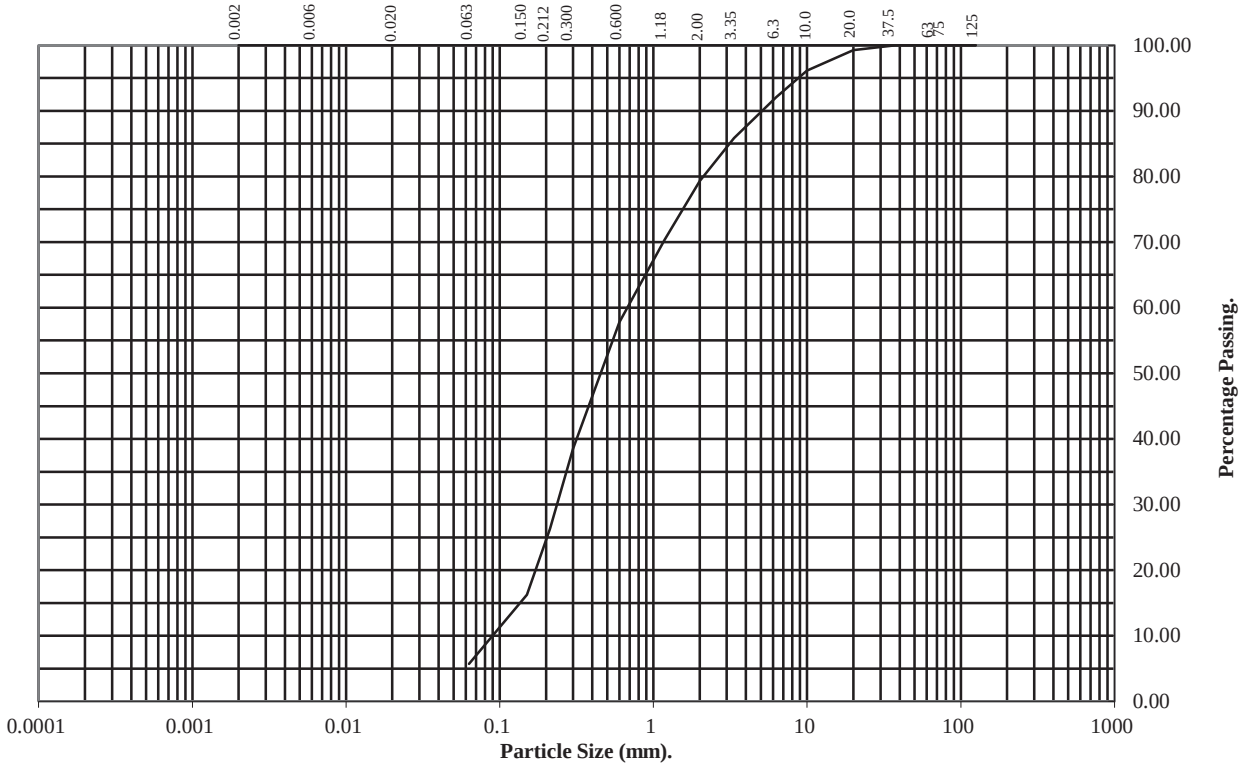
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH3** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	96
6.3	92
3.35	86
2	79
1.18	70
0.6	58
0.3	38
0.212	26
0.15	16
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	73
Silt/Clay	6

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/4559**

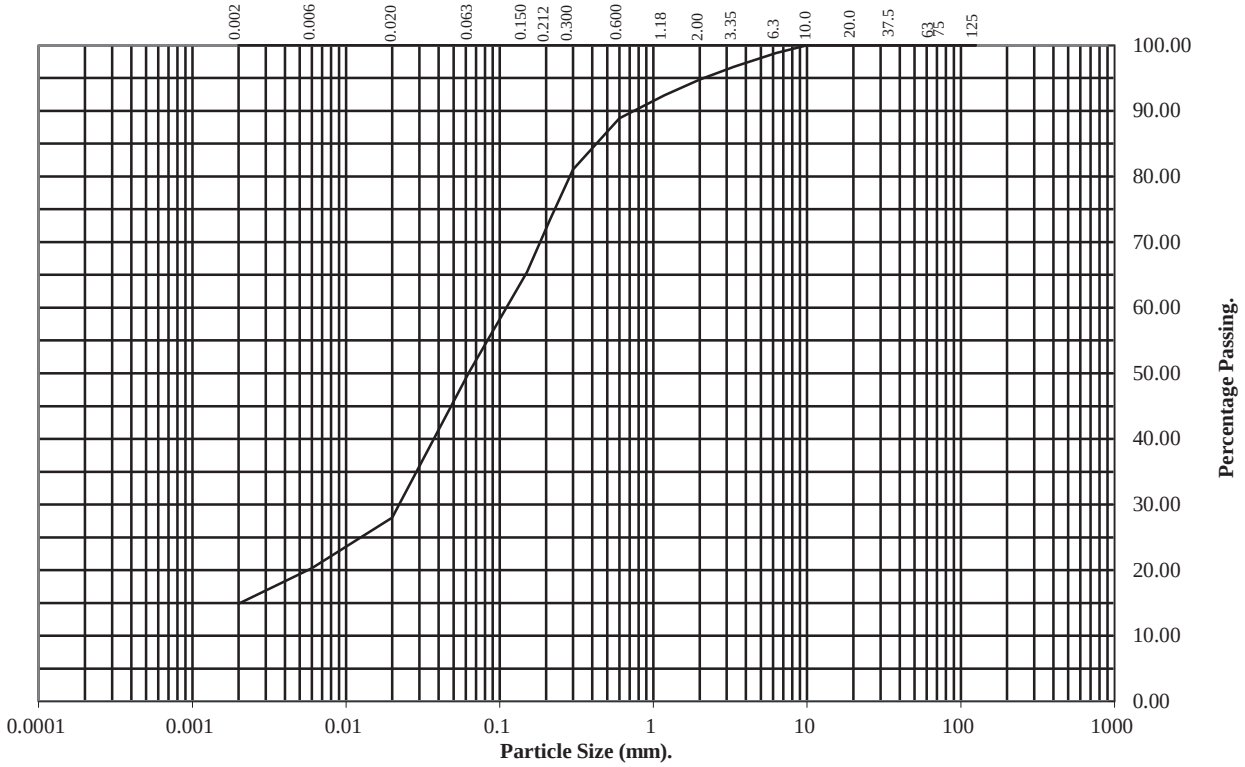
Client Ref: **17286**

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**4.50**
Sample Number:		**Base Depth(m):**	**6.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	95
1.18	92
0.6	89
0.3	81
0.212	73
0.15	65
0.063	50

Particle Diameter	Percentage Passing
0.02	28
0.006	20
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	45
Silt	35
Clay	15

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

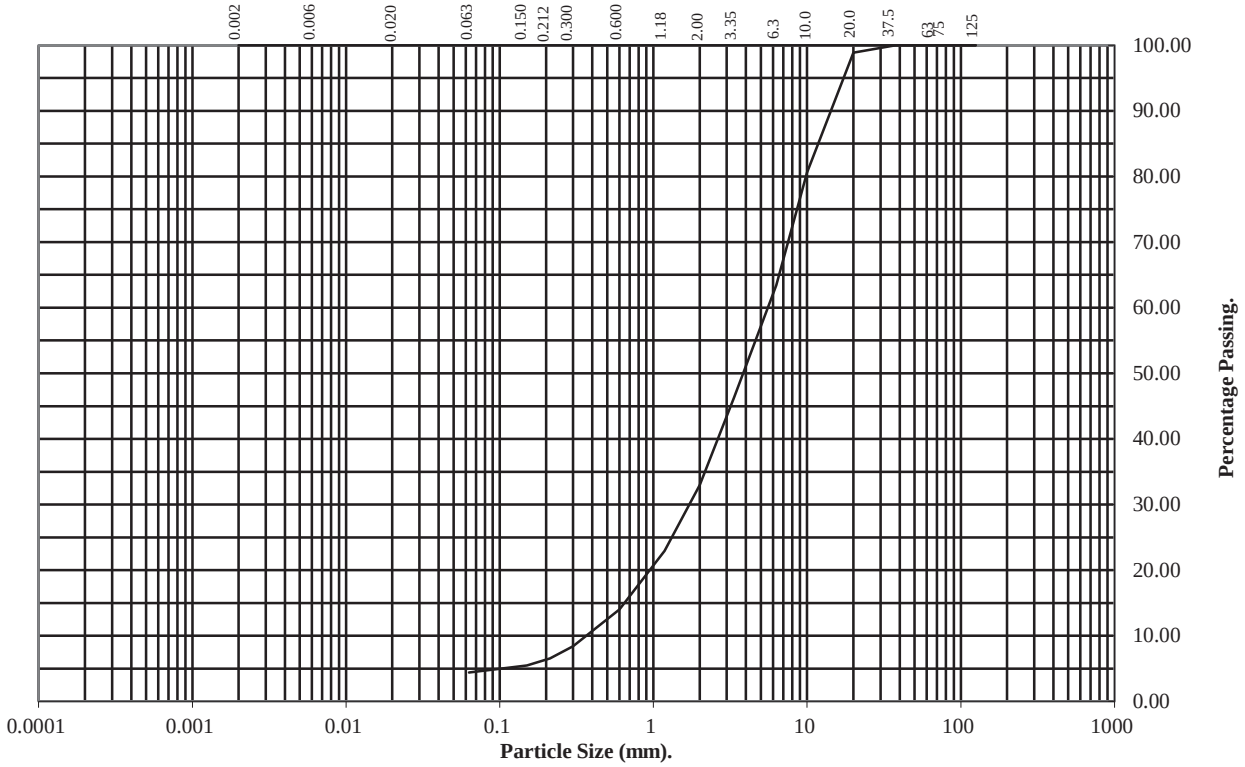
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH3**	**Top Depth (m):**	**6.00**
Sample Number:		**Base Depth(m):**	**7.50**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	81
6.3	63
3.35	46
2	33
1.18	23
0.6	14
0.3	8
0.212	7
0.15	6
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	29
Silt/Clay	4

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

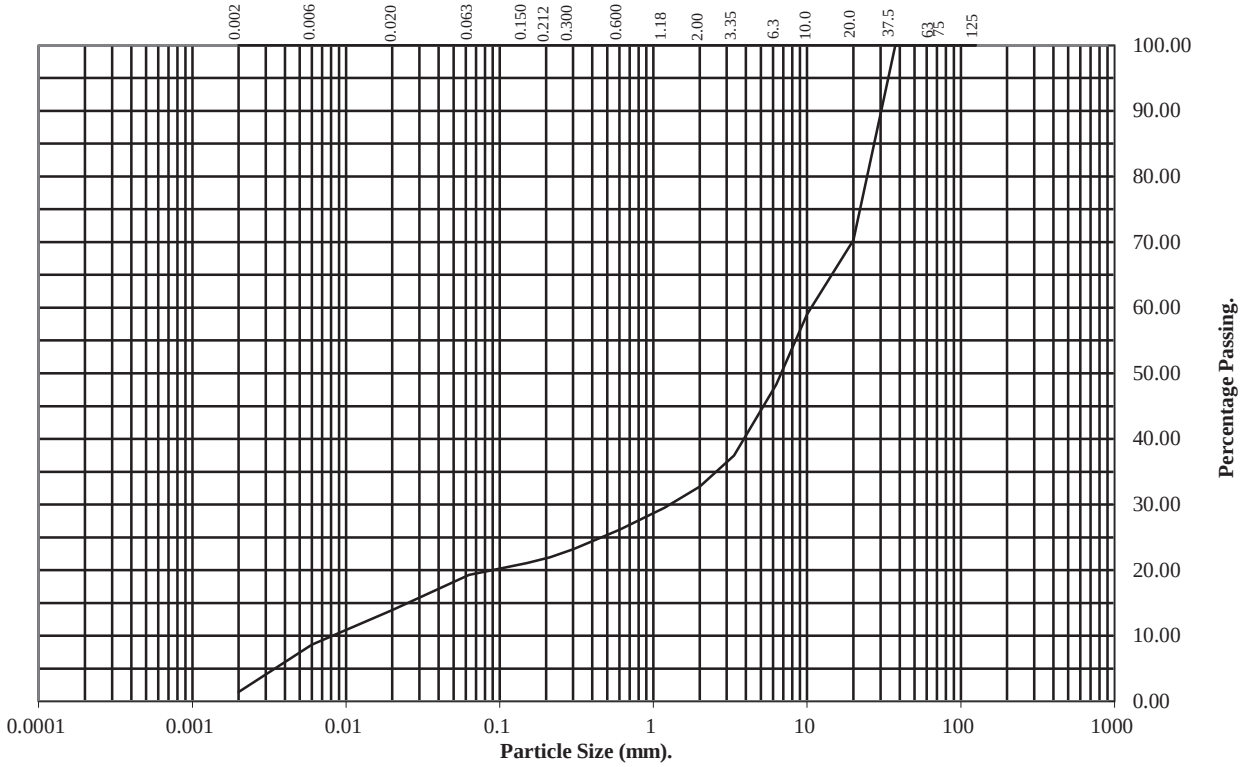
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**9.00**
Sample Number:		**Base Depth(m):**	**10.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	70
10	59
6.3	48
3.35	37
2	33
1.18	30
0.6	26
0.3	23
0.212	22
0.15	21
0.063	19

Particle Diameter	Percentage Passing
0.02	14
0.006	9
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	14
Silt	18
Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

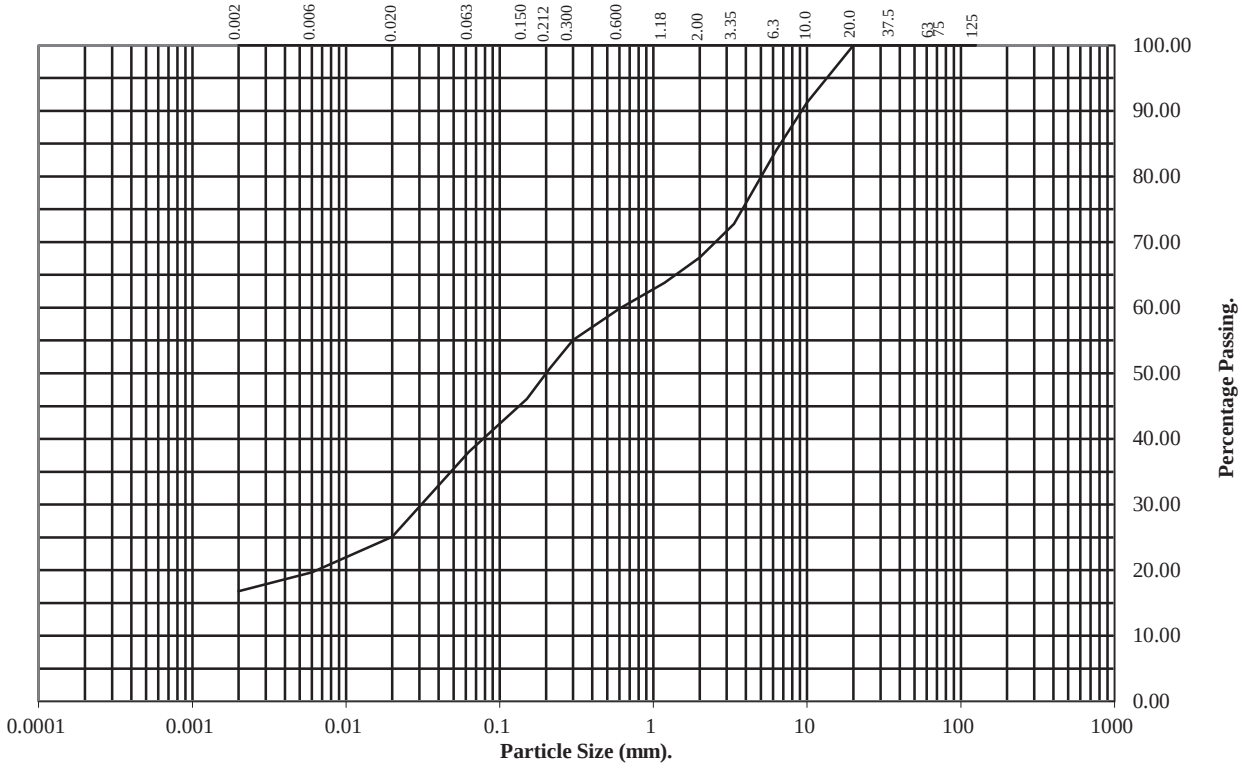
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**16.50**
Sample Number:		**Base Depth(m):**	**18.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	91
6.3	84
3.35	73
2	68
1.18	64
0.6	60
0.3	55
0.212	51
0.15	46
0.063	38

Particle Diameter	Percentage Passing
0.02	25
0.006	20
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	32
Sand	30
Silt	21
Clay	17

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

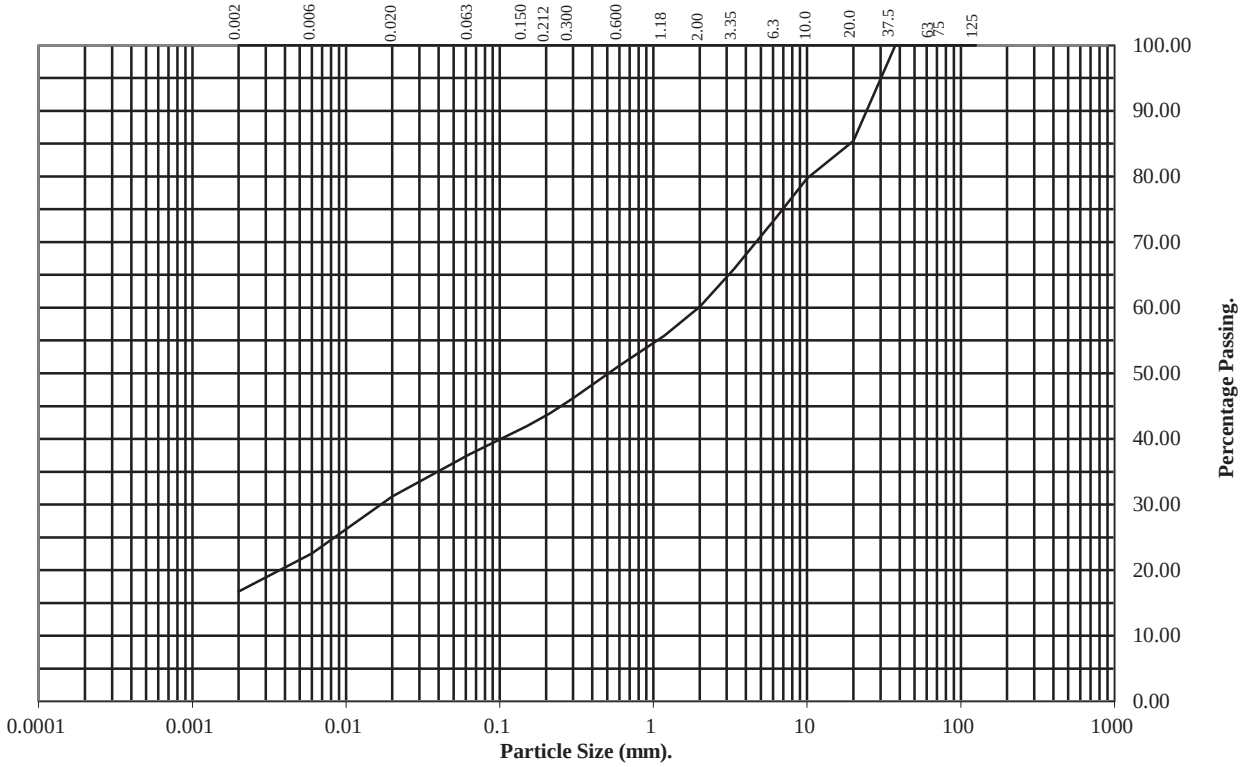
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**28.50**
Sample Number:		**Base Depth(m):**	**30.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	85
10	80
6.3	74
3.35	66
2	60
1.18	56
0.6	51
0.3	46
0.212	44
0.15	42
0.063	38

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	22
Silt	21
Clay	17

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

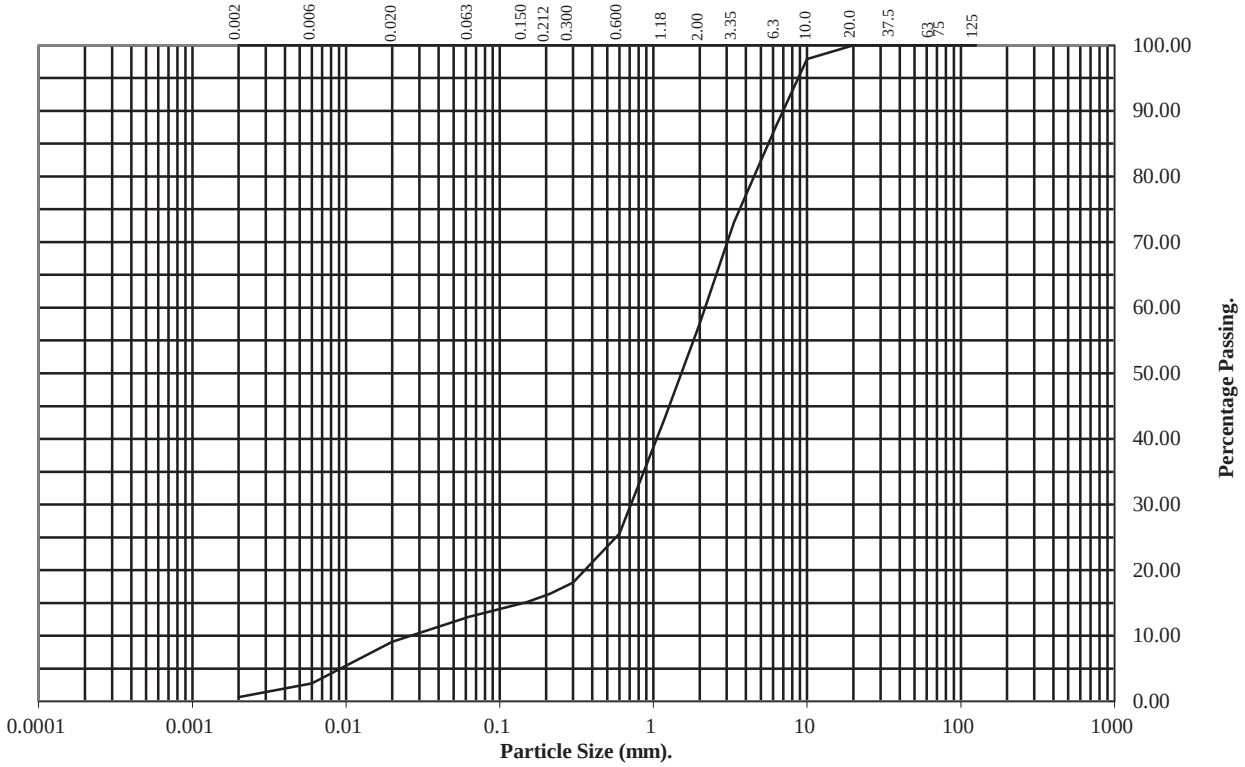
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH4 **Top Depth (m):** 2.00

Sample Number: **Base Depth(m):** 3.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	88
3.35	73
2	58
1.18	43
0.6	26
0.3	18
0.212	16
0.15	15
0.063	13

Particle Diameter	Percentage Passing
0.02	9
0.006	3
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	45
Silt	12
Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

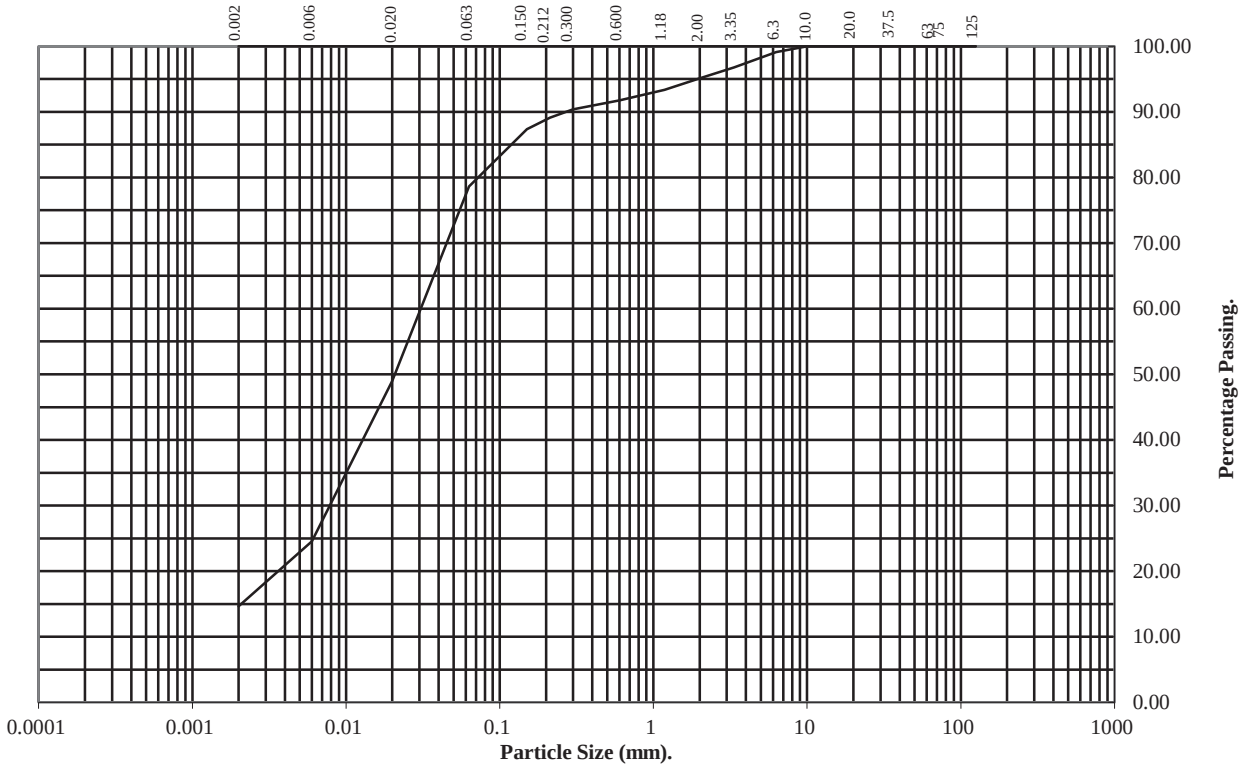
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**5.00**
Sample Number:		**Base Depth(m):**	**6.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	95
1.18	93
0.6	92
0.3	90
0.212	89
0.15	87
0.063	79

Particle Diameter	Percentage Passing
0.02	49
0.006	25
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	16
Silt	64
Clay	15

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

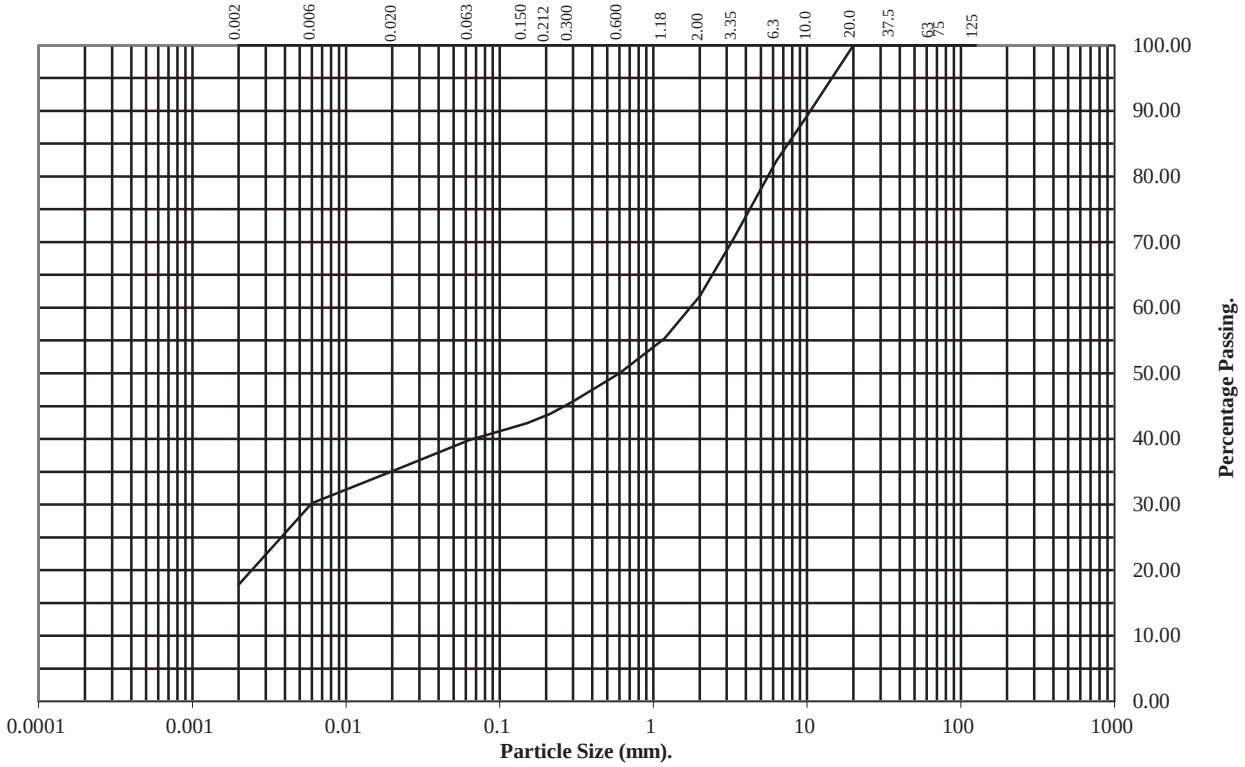
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**6.50**
Sample Number:		**Base Depth(m):**	**8.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	89
6.3	82
3.35	71
2	62
1.18	55
0.6	50
0.3	46
0.212	44
0.15	42
0.063	40

Particle Diameter	Percentage Passing
0.02	35
0.006	30
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	22
Silt	22
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

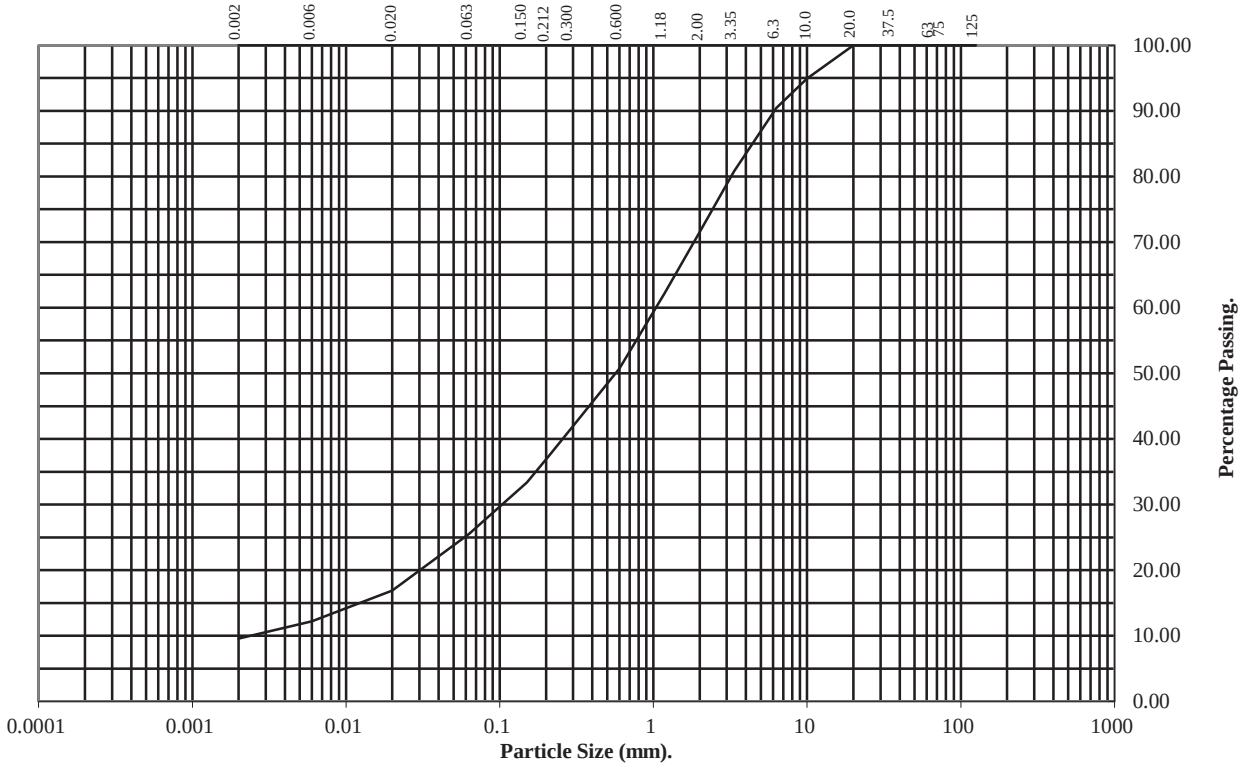
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**14.00**
Sample Number:		**Base Depth(m):**	**15.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	95
6.3	90
3.35	81
2	72
1.18	62
0.6	51
0.3	42
0.212	38
0.15	33
0.063	26

Particle Diameter	Percentage Passing
0.02	17
0.006	12
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	46
Silt	16
Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

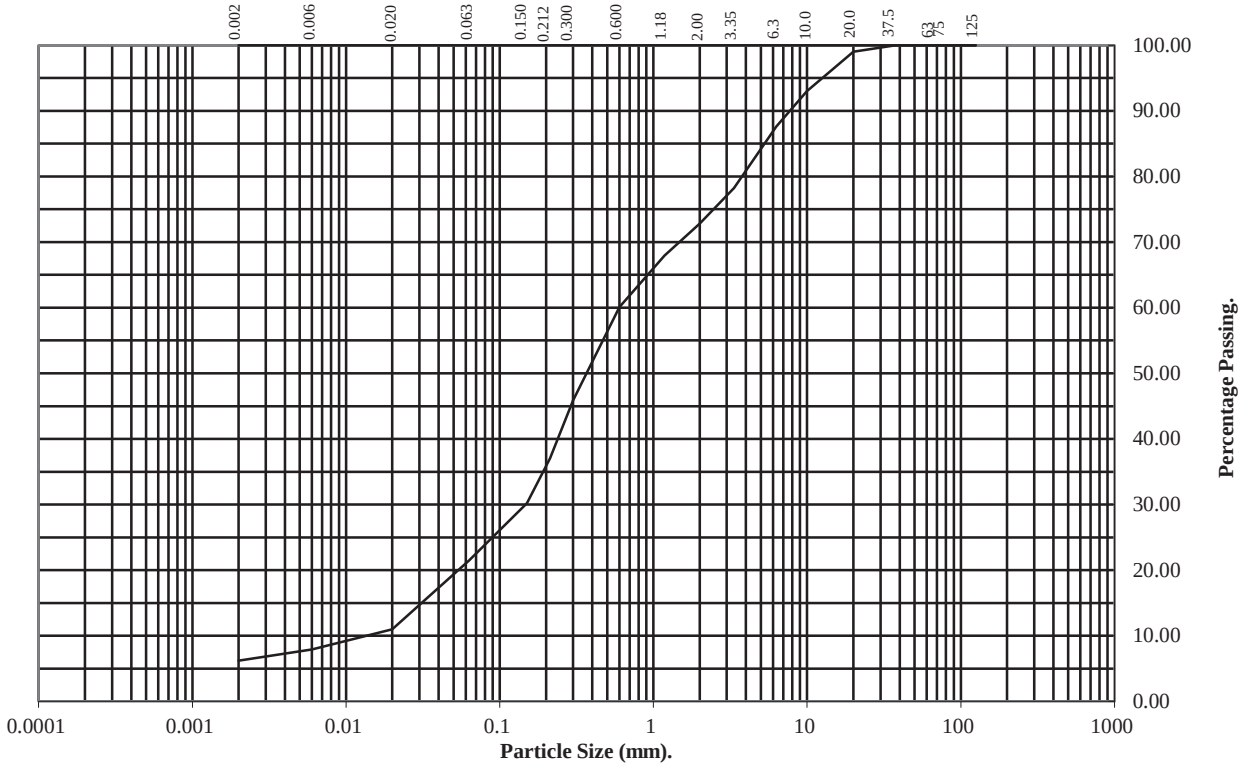
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH4** **Top Depth (m):** **21.50**

Sample Number: **Base Depth(m):** **23.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	93
6.3	88
3.35	78
2	73
1.18	68
0.6	60
0.3	46
0.212	37
0.15	30
0.063	21

Particle Diameter	Percentage Passing
0.02	11
0.006	8
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	27
Sand	52
Silt	15
Clay	6

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

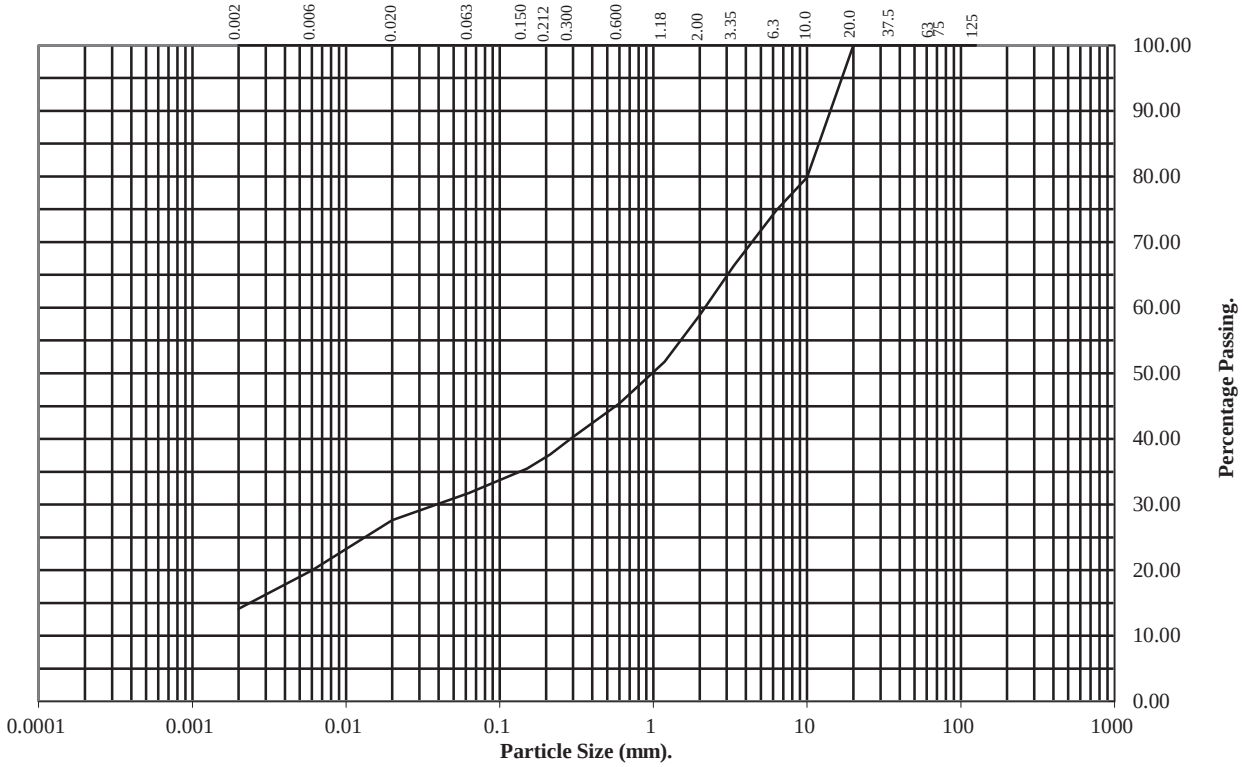
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**24.50**
Sample Number:		**Base Depth(m):**	**26.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	80
6.3	75
3.35	66
2	59
1.18	52
0.6	45
0.3	40
0.212	38
0.15	35
0.063	32

Particle Diameter	Percentage Passing
0.02	28
0.006	20
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	27
Silt	18
Clay	14

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

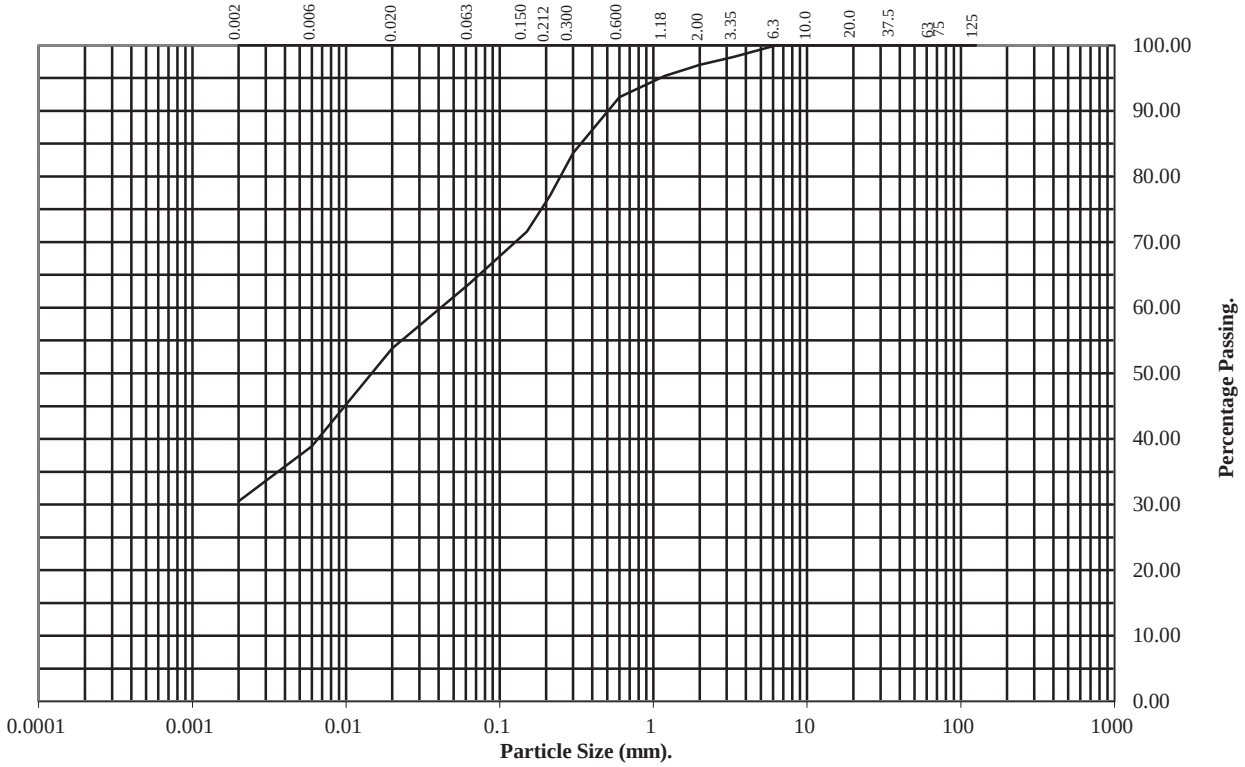
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**33.50**
Sample Number:		**Base Depth(m):**	**35.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	98
2	97
1.18	95
0.6	92
0.3	84
0.212	77
0.15	72
0.063	64

Particle Diameter	Percentage Passing
0.02	54
0.006	39
0.002	30

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	33
Silt	34
Clay	30

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

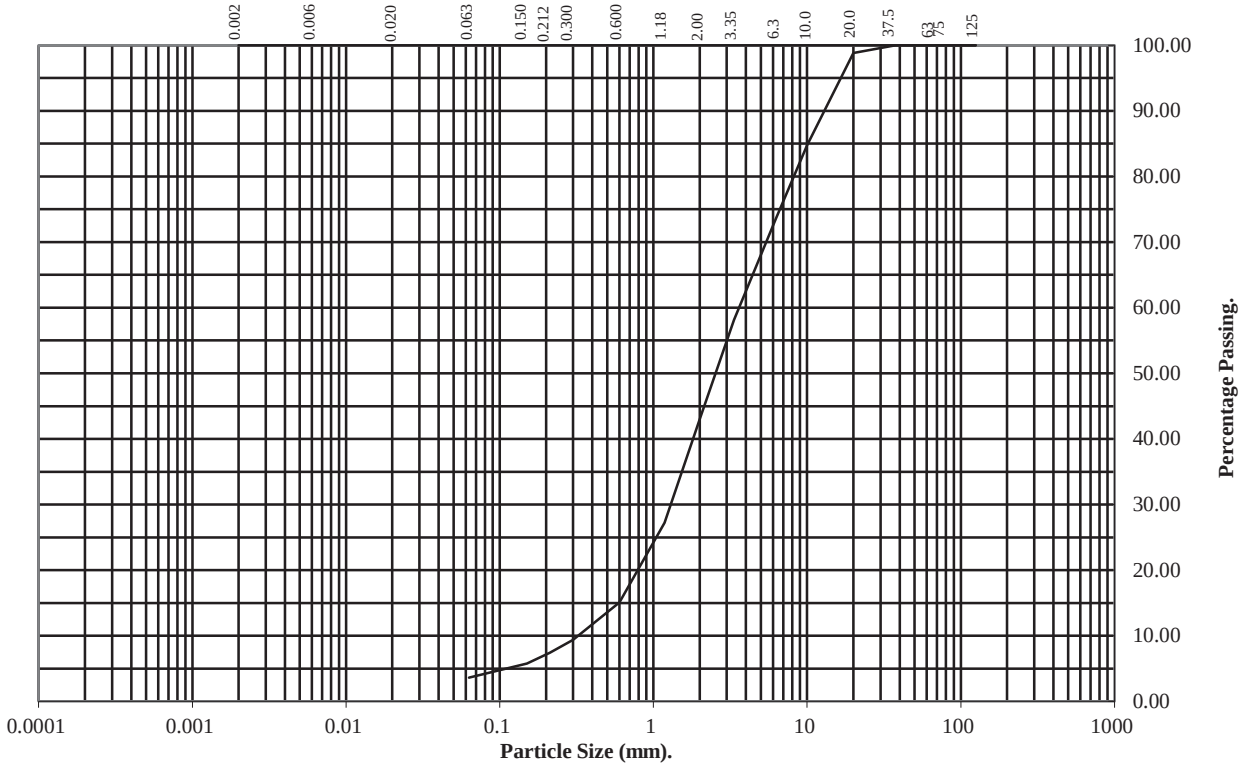
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH5** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	85
6.3	74
3.35	58
2	43
1.18	27
0.6	15
0.3	9
0.212	7
0.15	6
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	57
Sand	39
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

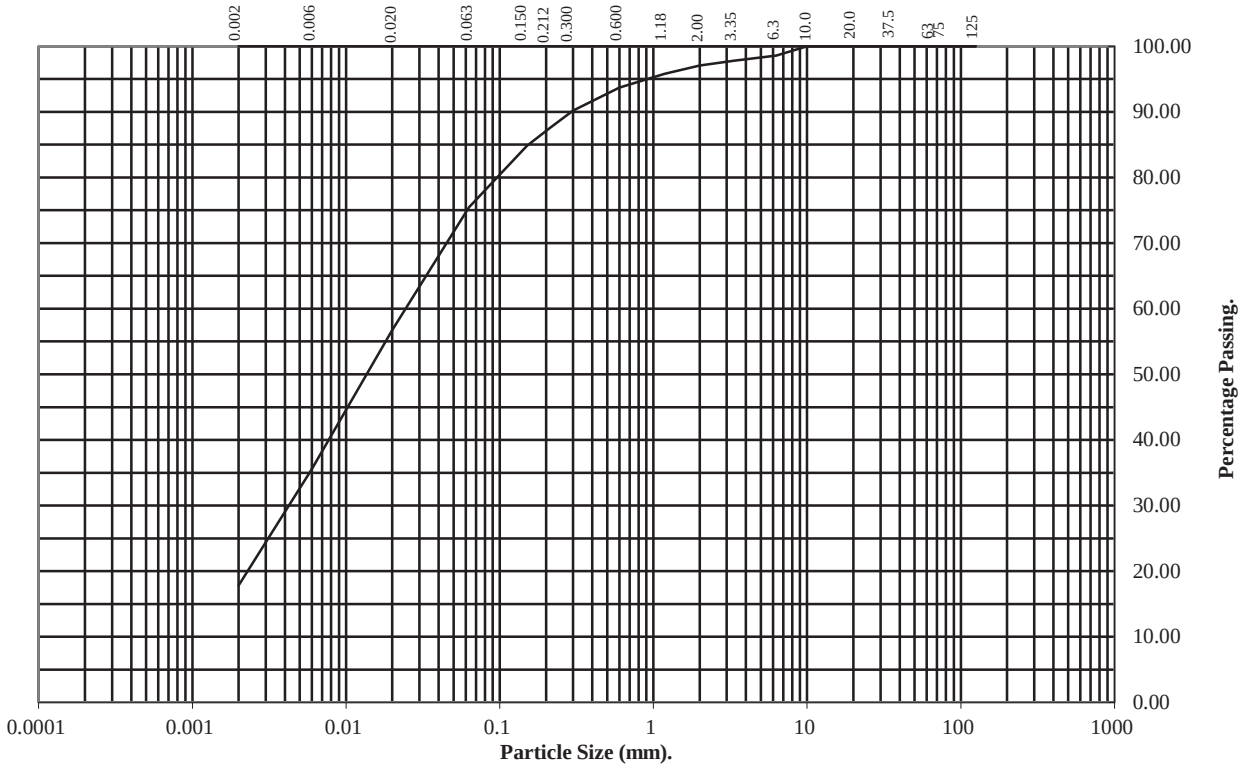
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**4.50**
Sample Number:		**Base Depth(m):**	**6.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	96
0.6	94
0.3	90
0.212	88
0.15	85
0.063	75

Particle Diameter	Percentage Passing
0.02	57
0.006	36
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	22
Silt	57
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

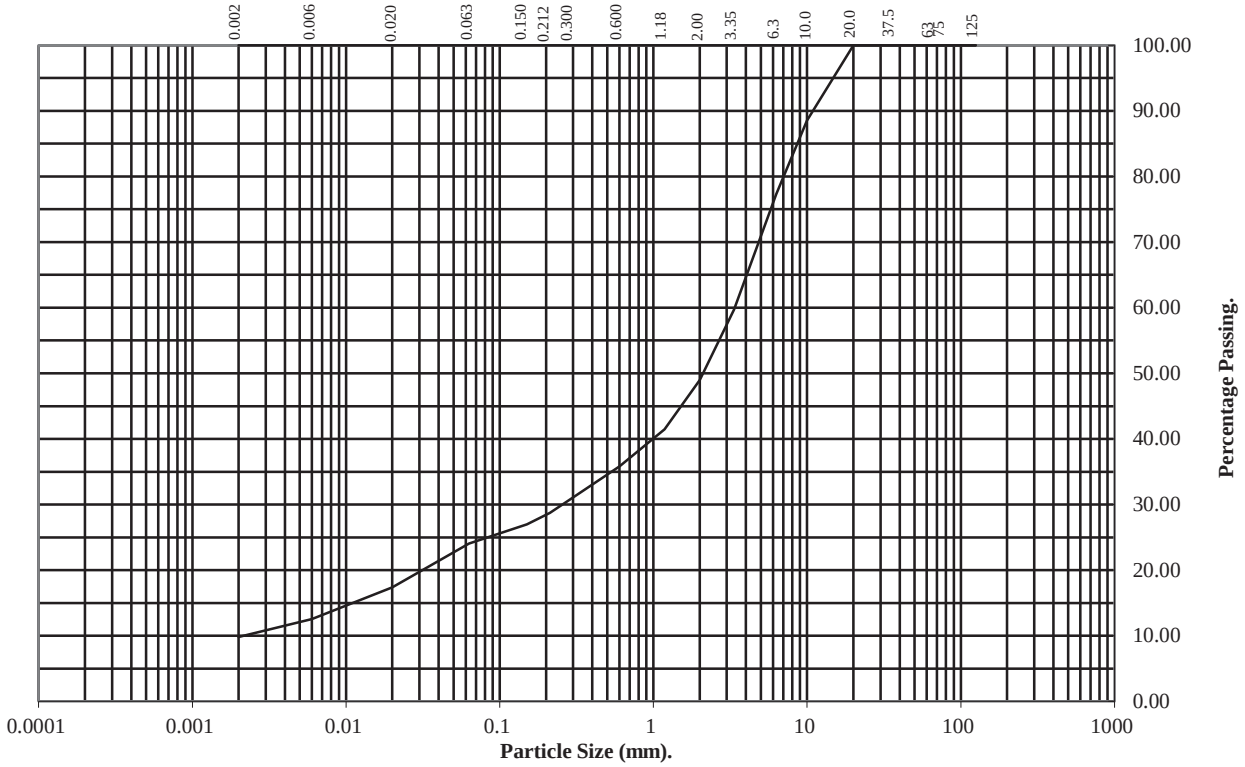
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH5 **Top Depth (m):** 6.00

Sample Number: **Base Depth(m):** 7.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	89
6.3	77
3.35	60
2	49
1.18	41
0.6	36
0.3	31
0.212	29
0.15	27
0.063	24

Particle Diameter	Percentage Passing
0.02	17
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	25
Silt	14
Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

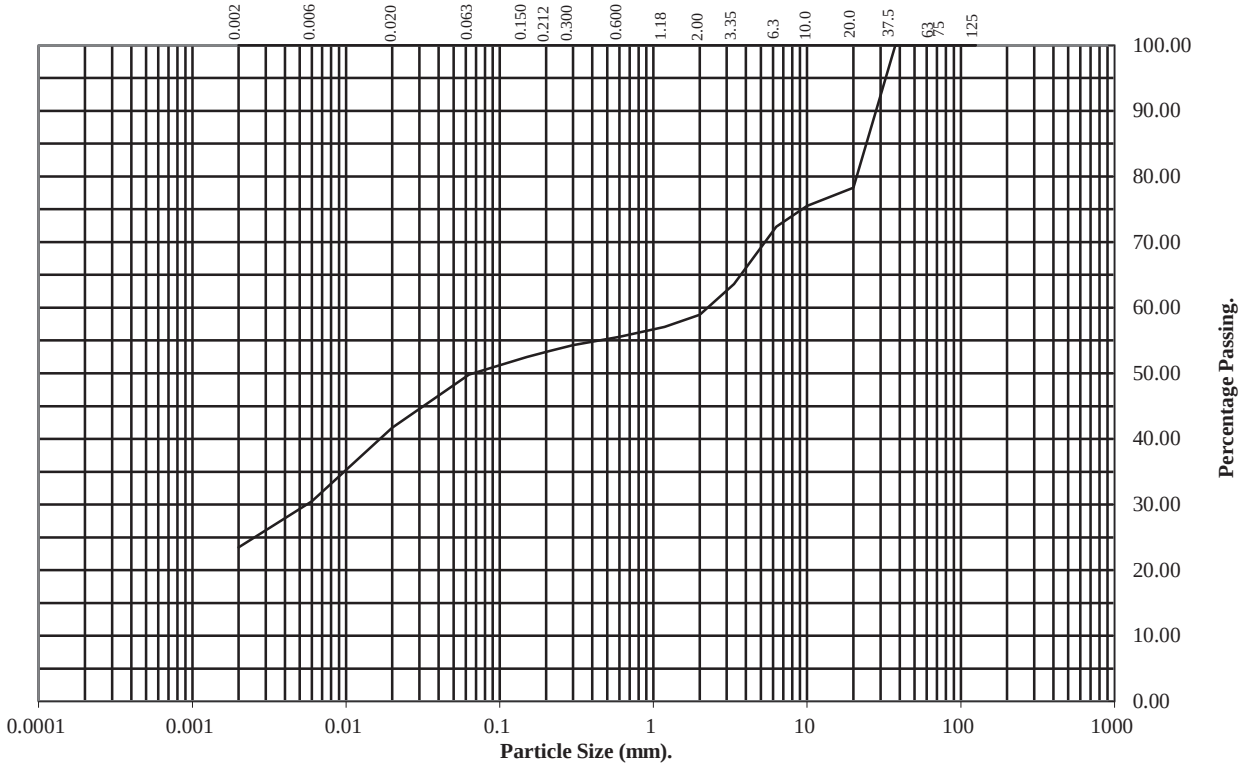
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**9.00**
Sample Number:		**Base Depth(m):**	**10.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	78
10	75
6.3	72
3.35	64
2	59
1.18	57
0.6	56
0.3	54
0.212	53
0.15	52
0.063	50

Particle Diameter	Percentage Passing
0.02	42
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	9
Silt	27
Clay	23

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

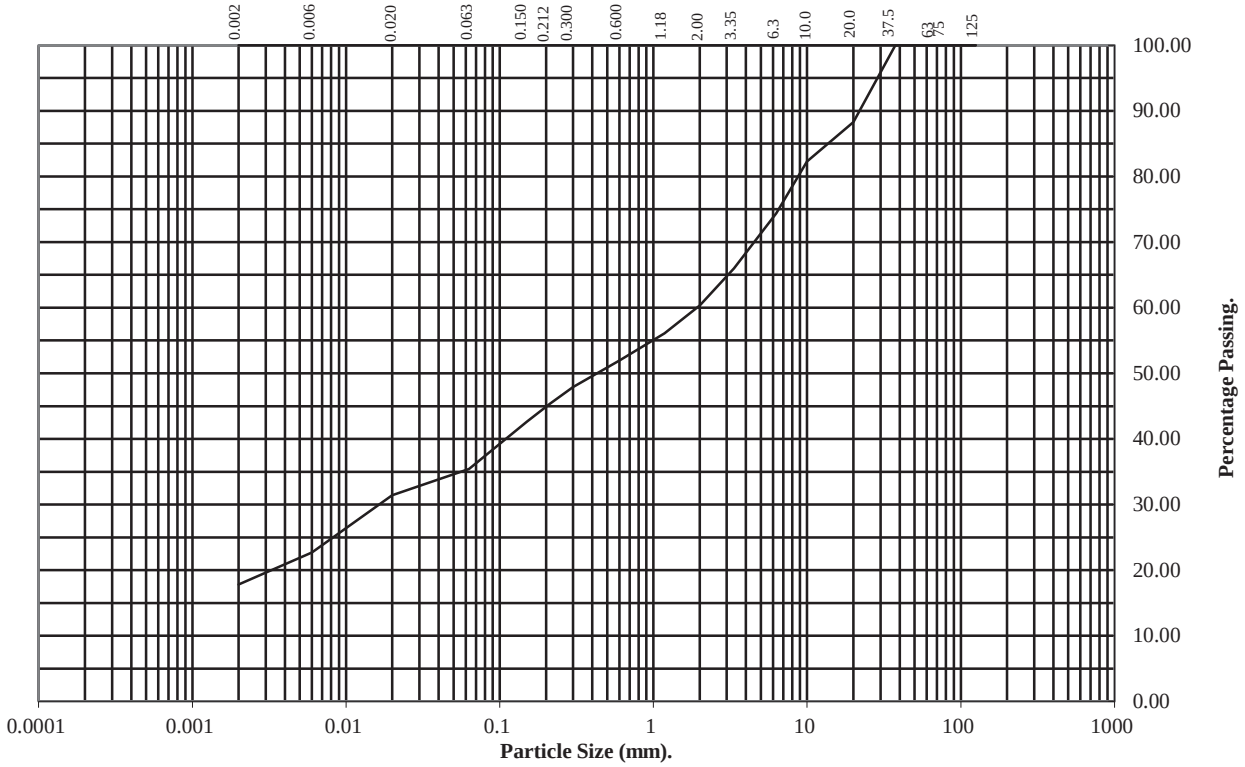
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**13.50**
Sample Number:		**Base Depth(m):**	**15.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	88
10	82
6.3	74
3.35	66
2	60
1.18	56
0.6	52
0.3	48
0.212	45
0.15	43
0.063	35

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	25
Silt	17
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

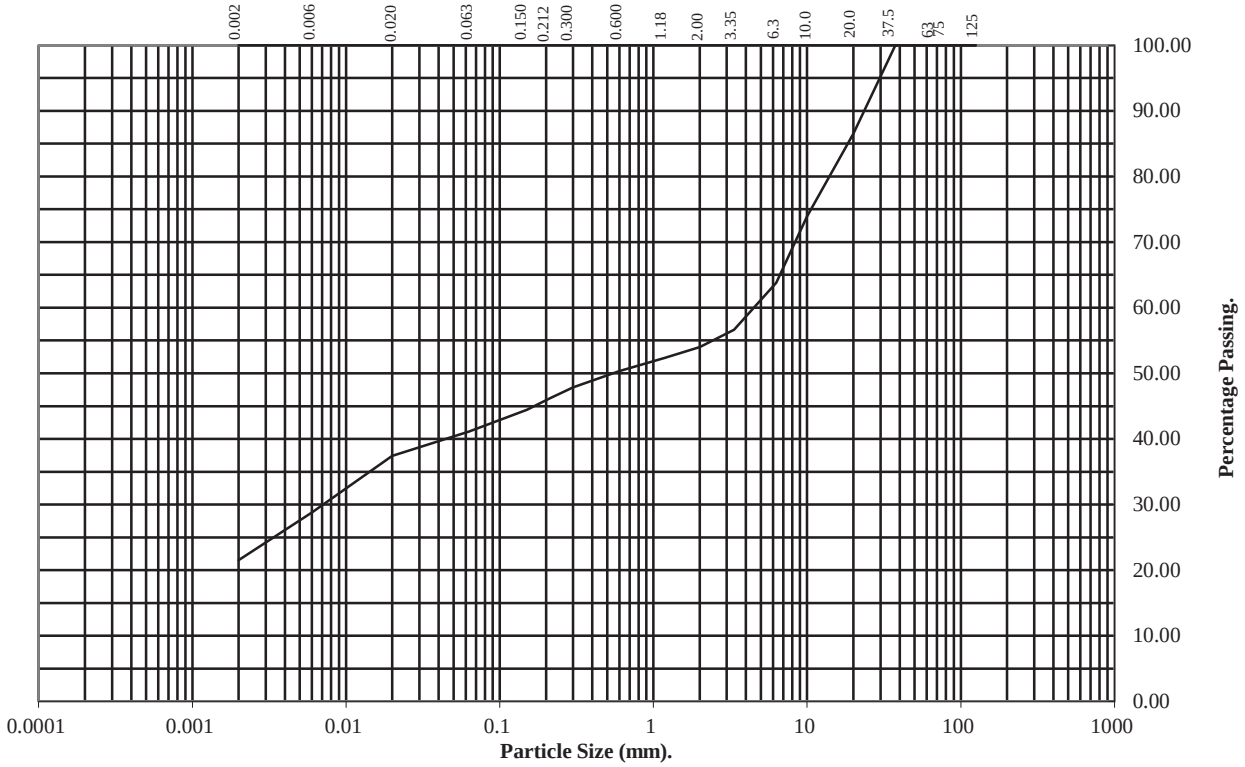
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**24.00**
Sample Number:		**Base Depth(m):**	**25.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	74
6.3	64
3.35	57
2	54
1.18	52
0.6	50
0.3	48
0.212	46
0.15	44
0.063	41

Particle Diameter	Percentage Passing
0.02	37
0.006	29
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	13
Silt	19
Clay	22

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

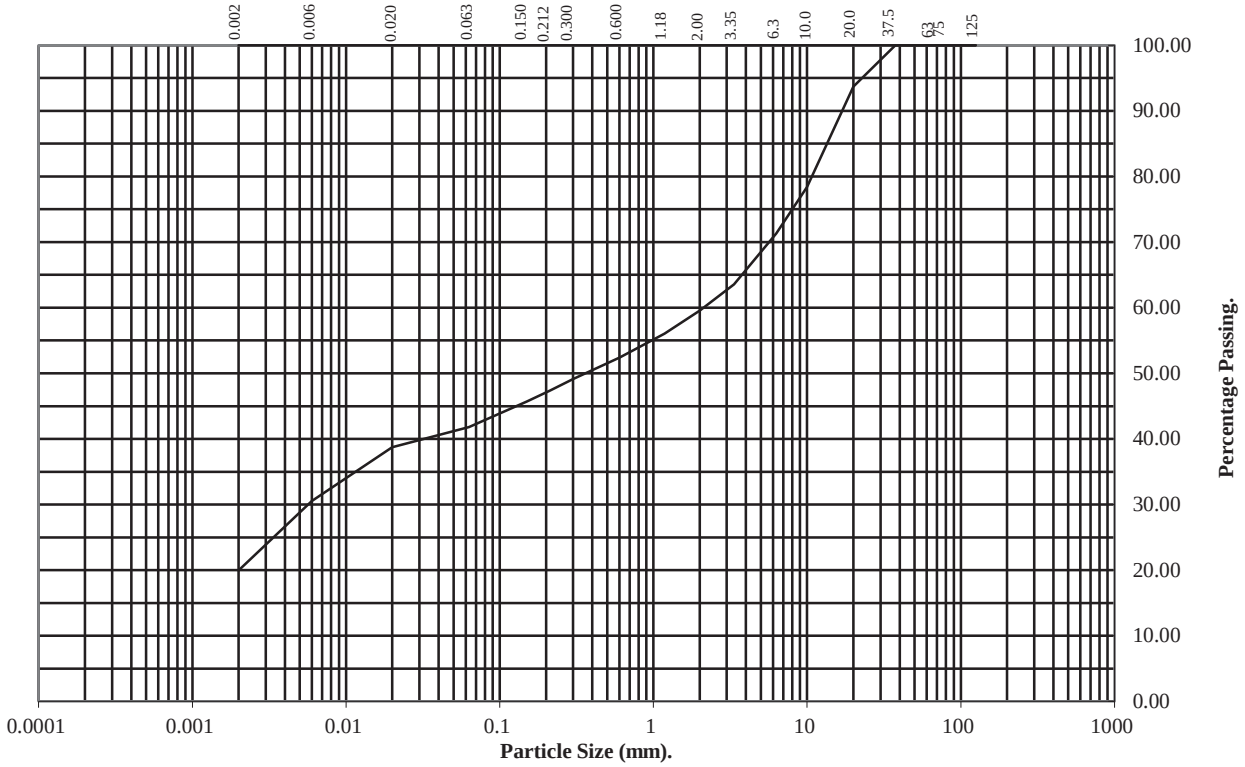
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**33.00**
Sample Number:		**Base Depth(m):**	**34.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	78
6.3	71
3.35	64
2	60
1.18	56
0.6	52
0.3	49
0.212	47
0.15	46
0.063	42

Particle Diameter	Percentage Passing
0.02	39
0.006	31
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	18
Silt	22
Clay	20

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

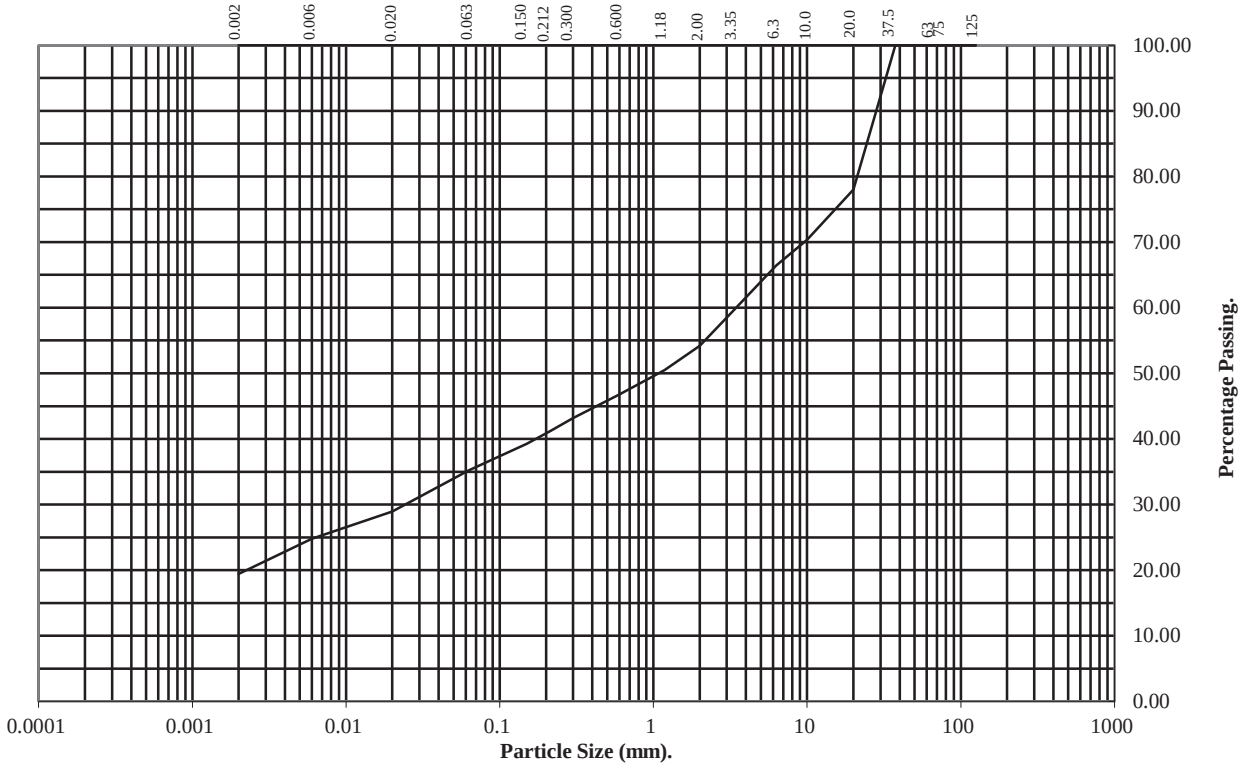
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **8.20**

Sample Number: **Base Depth(m):** **9.70**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	78
10	70
6.3	66
3.35	60
2	54
1.18	50
0.6	47
0.3	43
0.212	41
0.15	39
0.063	35

Particle Diameter	Percentage Passing
0.02	29
0.006	25
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	19
Silt	16
Clay	19

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

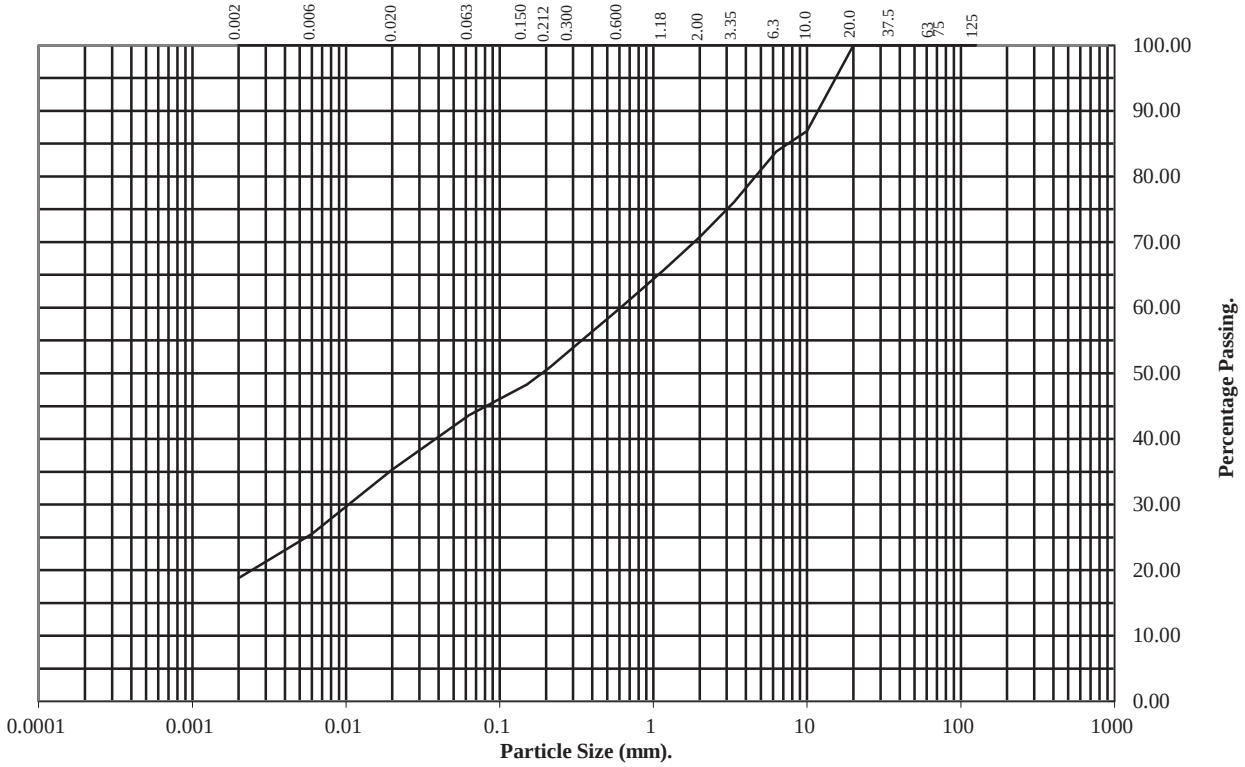
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **12.70**

Sample Number: **Base Depth(m):** **14.20**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	87
6.3	84
3.35	76
2	71
1.18	66
0.6	60
0.3	54
0.212	51
0.15	48
0.063	44

Particle Diameter	Percentage Passing
0.02	35
0.006	26
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	27
Silt	25
Clay	19

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

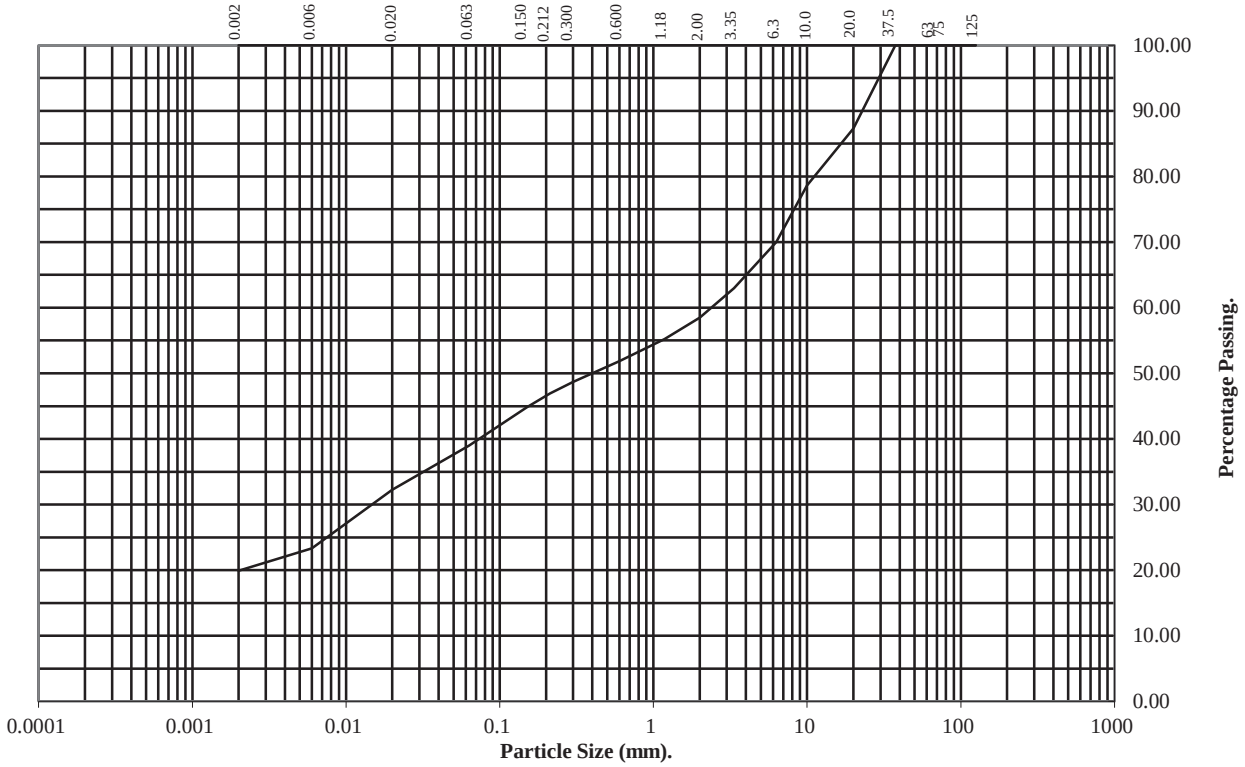
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH8B**	**Top Depth (m):**	**21.70**
Sample Number:		**Base Depth(m):**	**23.20**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	79
6.3	70
3.35	63
2	58
1.18	55
0.6	52
0.3	49
0.212	47
0.15	45
0.063	39

Particle Diameter	Percentage Passing
0.02	32
0.006	23
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	19
Silt	19
Clay	20

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

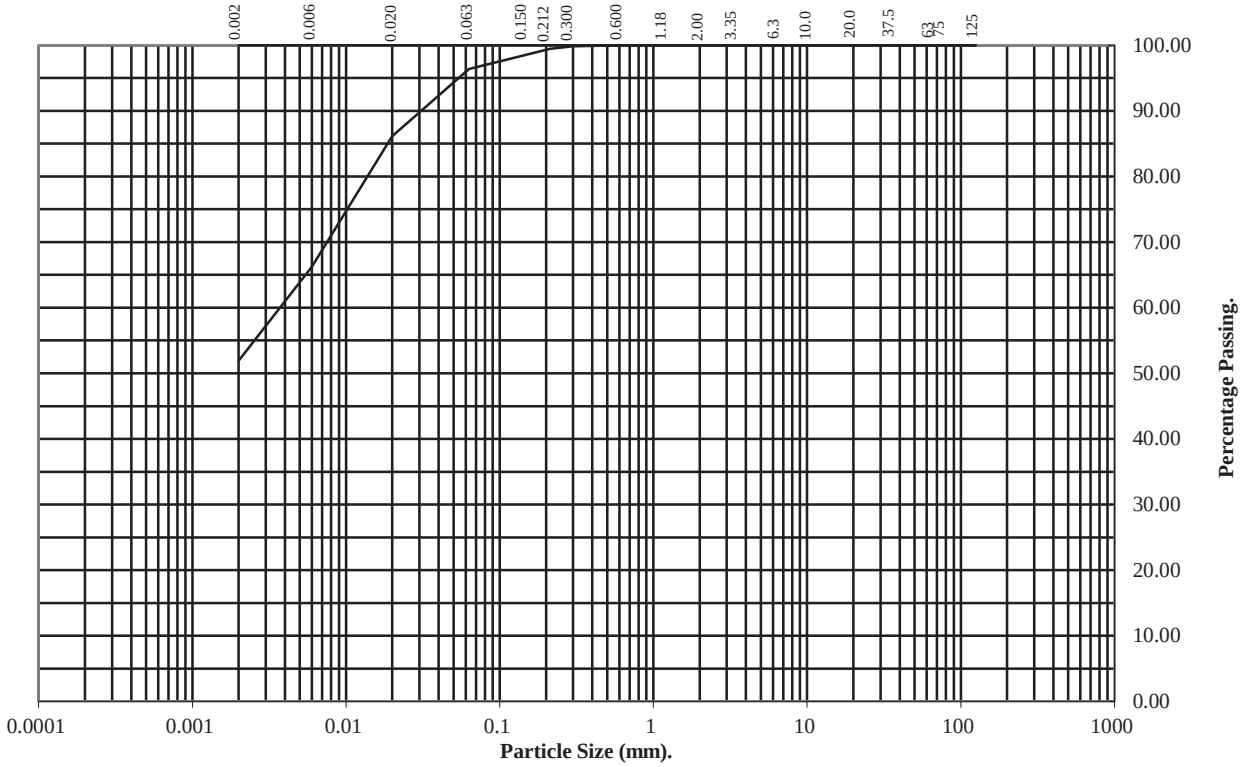
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **27.70**

Sample Number: **Base Depth(m):** **29.20**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	100
0.212	99
0.15	99
0.063	96

Particle Diameter	Percentage Passing
0.02	86
0.006	66
0.002	52

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	44
Clay	52

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

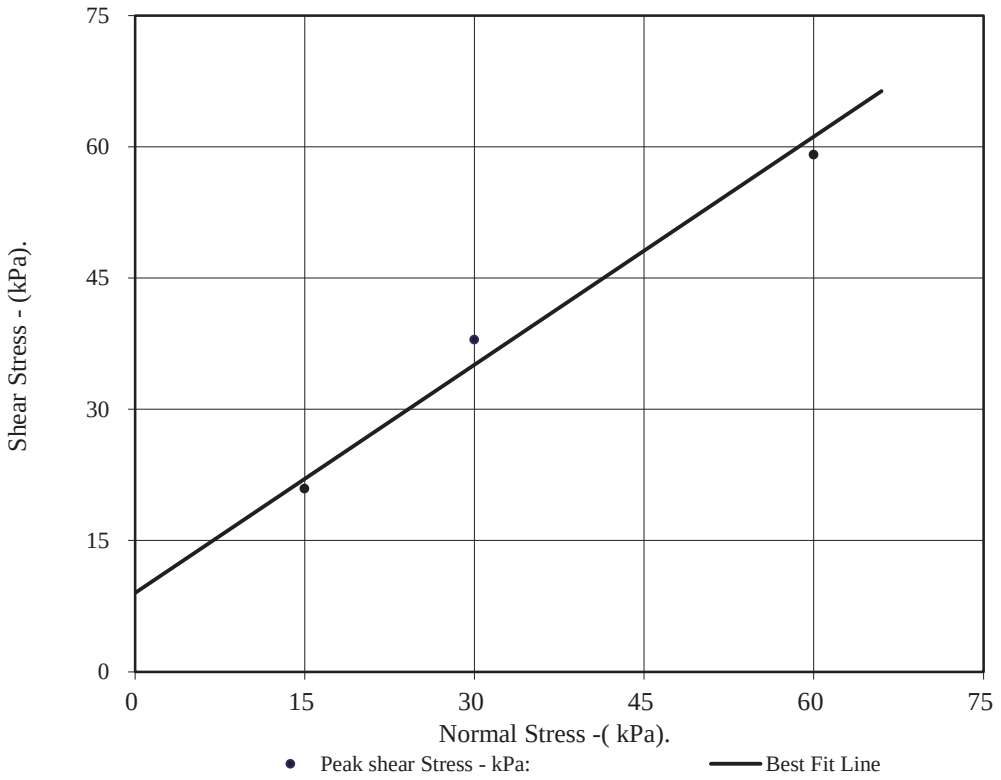
Contract No:
PSL17/4559
Client Ref:
17286

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**		Top Depth:	**1.50**	
Sample Number:			Base Depth:	**3.00**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	18	18	18
Bulk Density - Mg/m3:	2.11	2.12	2.12
Dry Density - Mg/m3:	1.79	1.80	1.80
Voids Ratio:	0.484	0.476	0.474
Normal Pressure- kPa	15	30	60
Consolidation Stage			
Consolidated Height - mm:	19.87	19.76	19.67
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	2.00	2.00	2.50
Peak shear Stress - kPa:	21	38	59
Final Consolidated Conditons			
Moisture Content - %:	22	22	22
Bulk Density - Mg/m3:	2.12	2.14	2.16
Dry Density - Mg/m3:	1.74	1.76	1.77
Peak			
Angle of Shearing Resistance:(~~θ~~)	**41**		
Effective Cohesion - kPa:	**9**		

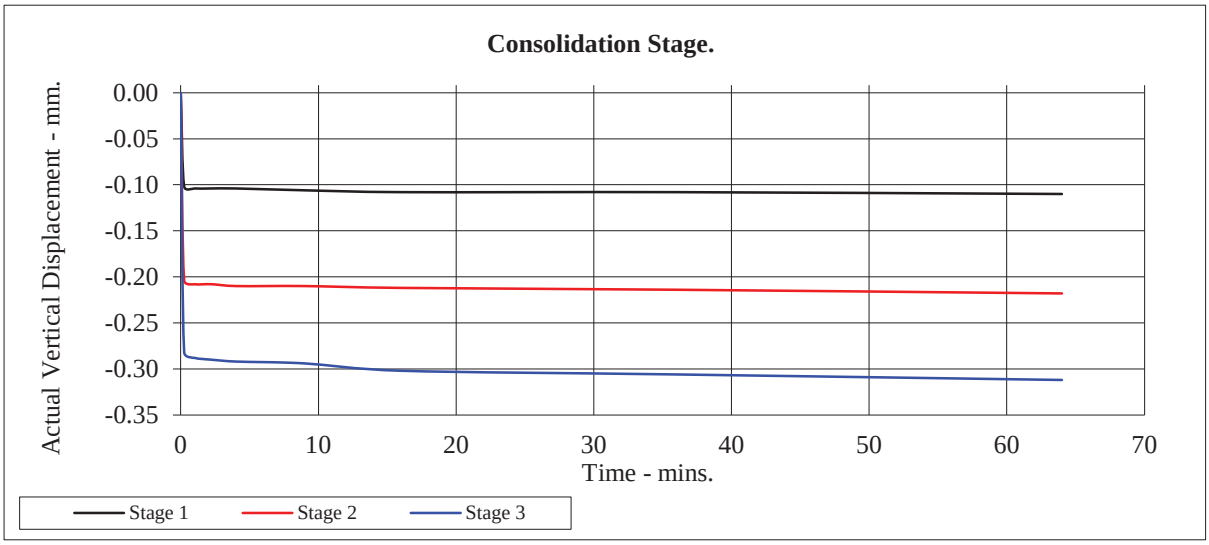


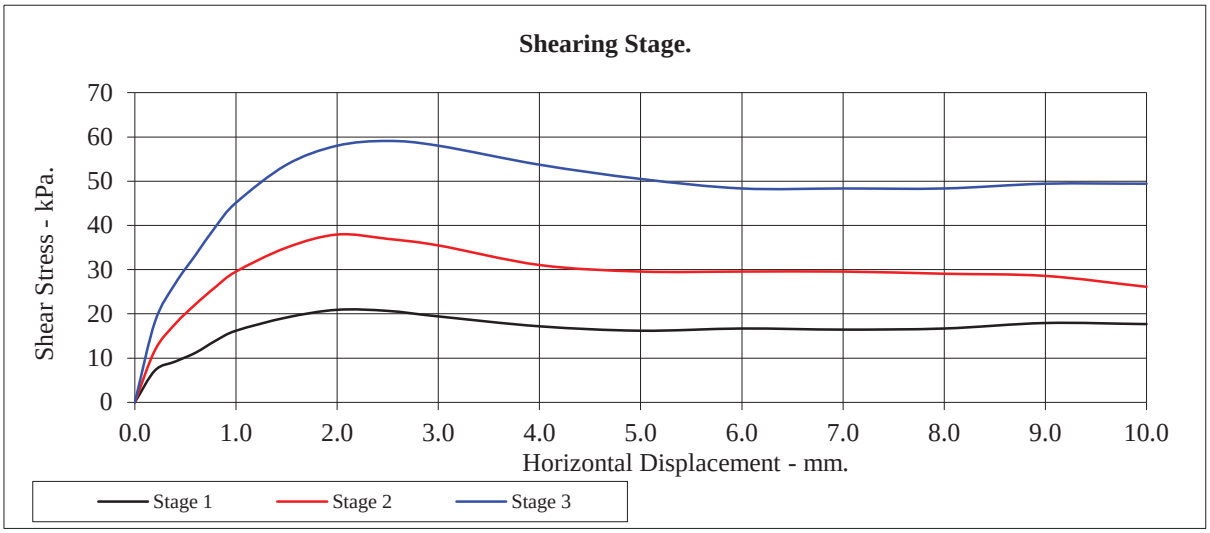
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

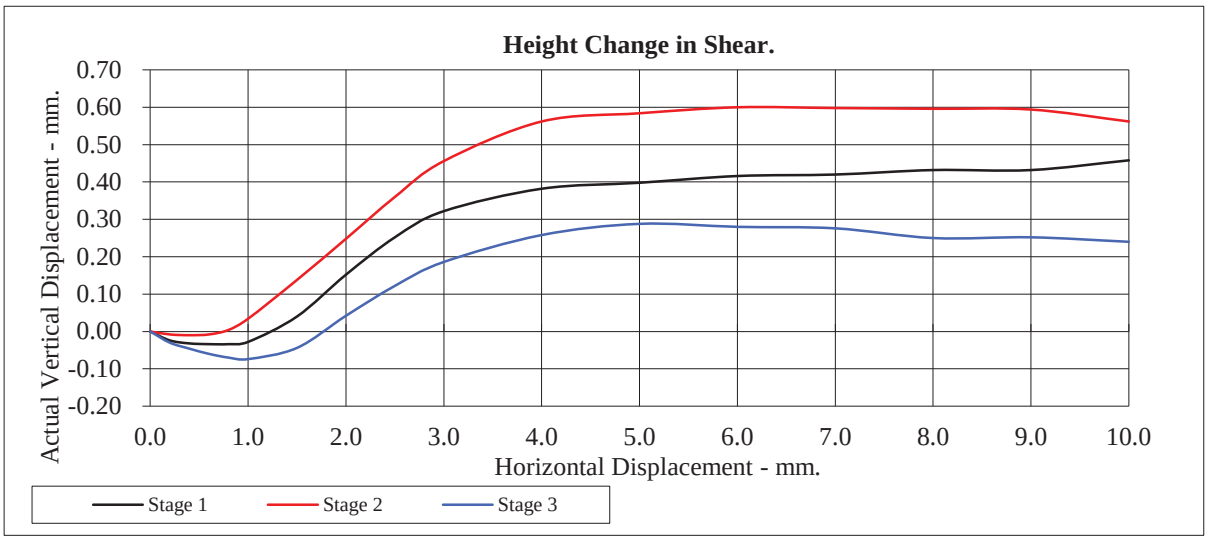
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**	Top Depth:	**1.50**
Sample Number:		Base Depth:	**3.00**







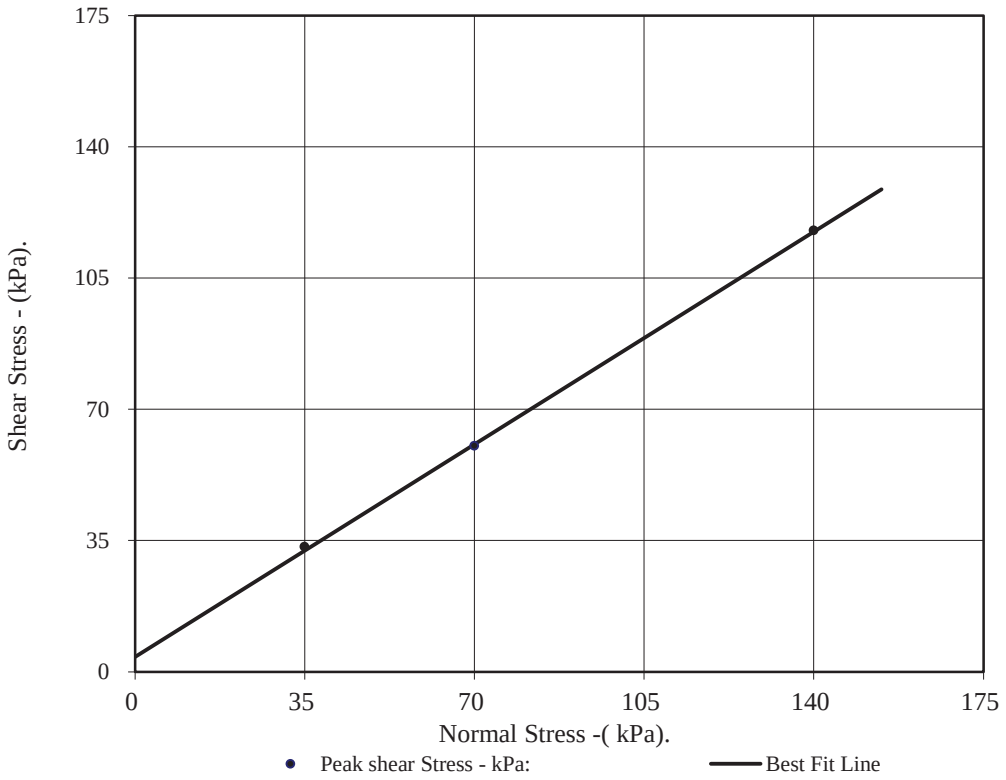
UKAS TESTING 4043 — PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4559 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**		Top Depth:	**6.00**
Sample Number:			Base Depth:	**7.50**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	8.0	8.0	8.0
Bulk Density - Mg/m3:	1.73	1.74	1.75
Dry Density - Mg/m3:	1.61	1.61	1.62
Voids Ratio:	0.651	0.646	0.636
Normal Pressure- kPa	35	70	140
Consolidation Stage			
Consolidated Height - mm:	19.71	19.06	18.65
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	8.00	6.00	10.00
Peak shear Stress - kPa:	33	60	118
Final Consolidated Conditons			
Moisture Content - %:	22	22	21
Bulk Density - Mg/m3:	1.76	1.82	1.87
Dry Density - Mg/m3:	1.44	1.50	1.55
Peak			
Angle of Shearing Resistance:(~~θ~~)	**39**		
Effective Cohesion - kPa:	**4**		

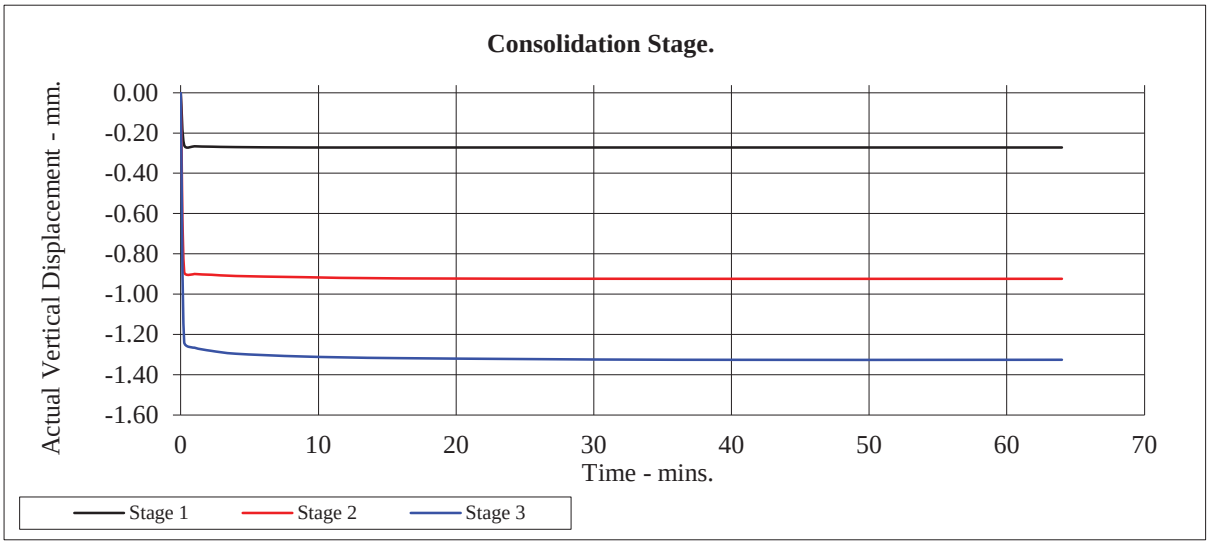


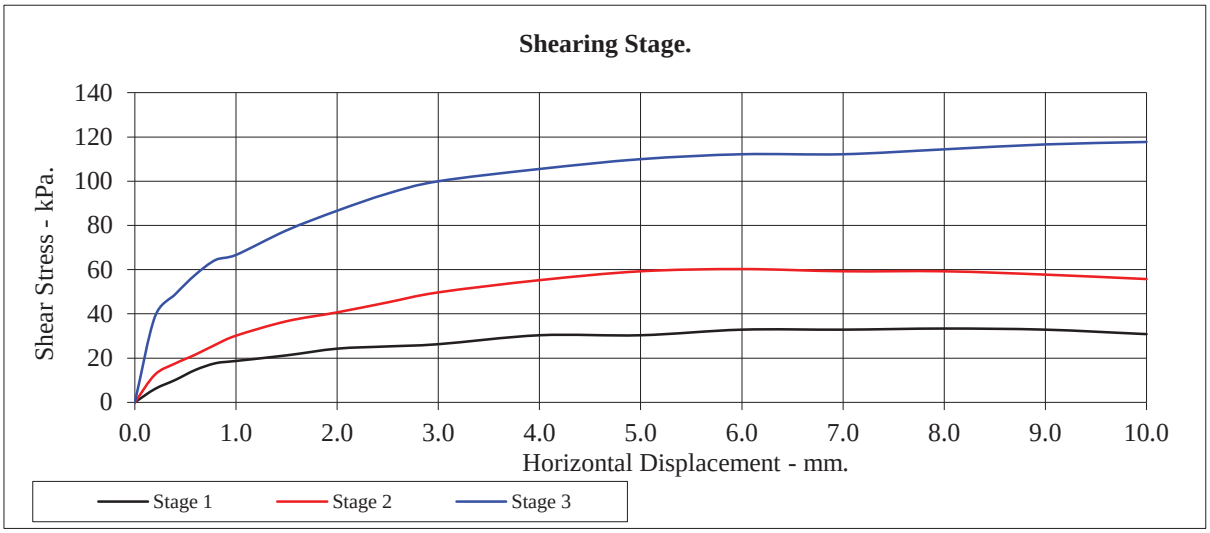
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

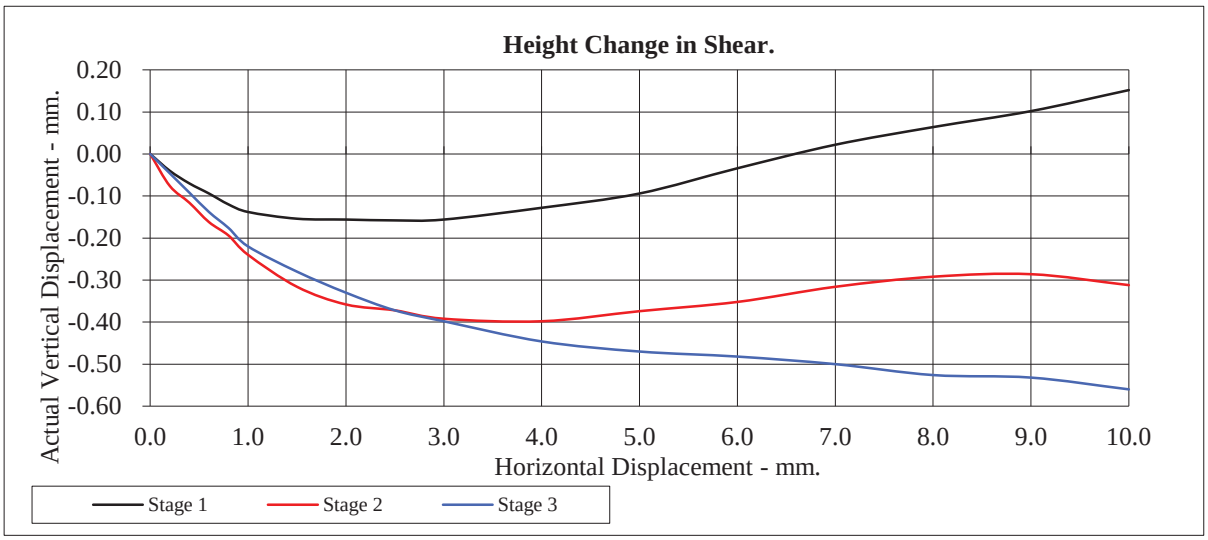
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**	Top Depth:	**6.00**
Sample Number:		Base Depth:	**7.50**







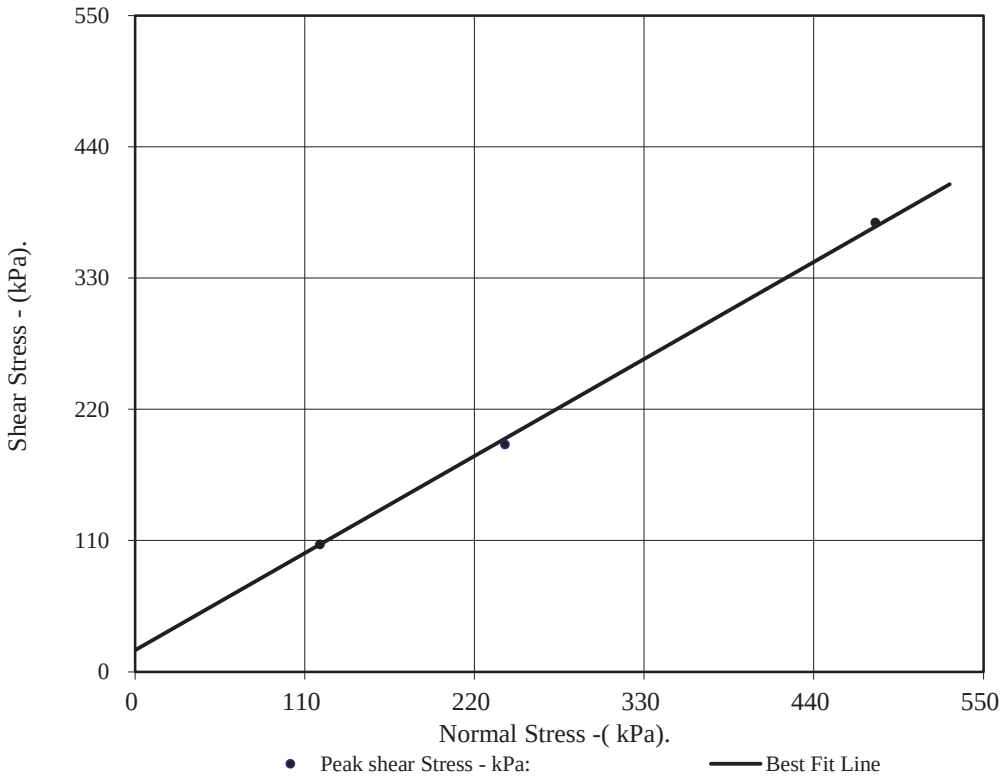
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**		Top Depth:	**24.00**	
Sample Number:			Base Depth:	**24.50**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	19	19	19
Bulk Density - Mg/m3:	2.11	2.13	2.13
Dry Density - Mg/m3:	1.76	1.78	1.78
Voids Ratio:	0.502	0.487	0.486
Normal Pressure- kPa	120	240	480
Consolidation Stage			
Consolidated Height - mm:	19.29	18.67	18.46
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	4.00	4.00	6.00
Peak shear Stress - kPa:	107	190	377
Final Consolidated Conditons			
Moisture Content - %:	20	20	19
Bulk Density - Mg/m3:	2.18	2.28	2.31
Dry Density - Mg/m3:	1.82	1.90	1.94
Peak			
Angle of Shearing Resistance:(~~θ~~)	**37**		
Effective Cohesion - kPa:	**18**		



UKAS TESTING 4043

PSL Professional Soils Laboratory

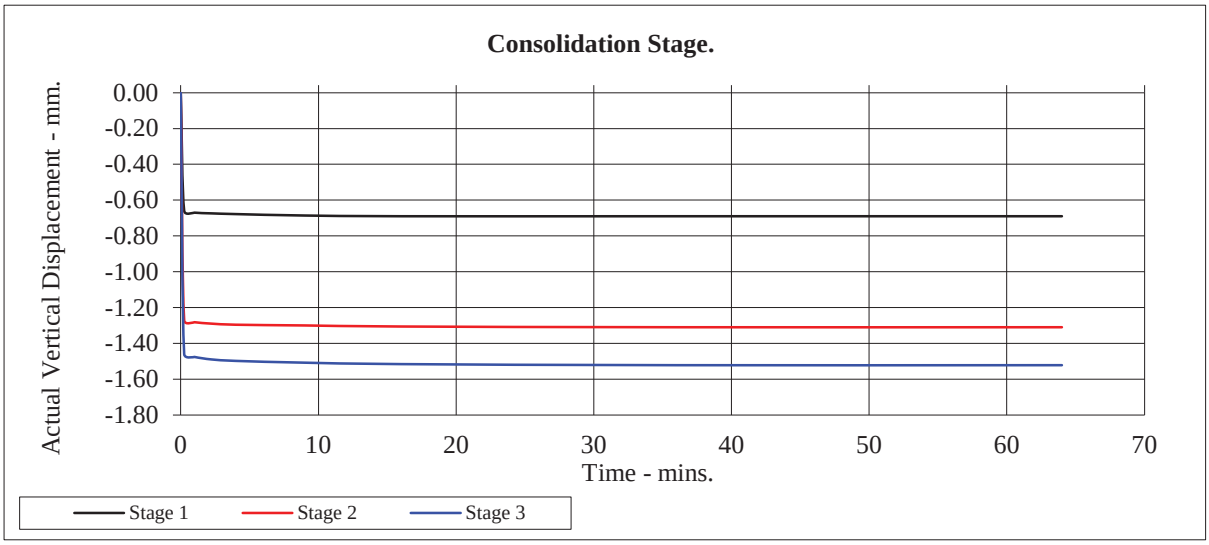
UIG Harbour Redevelopment

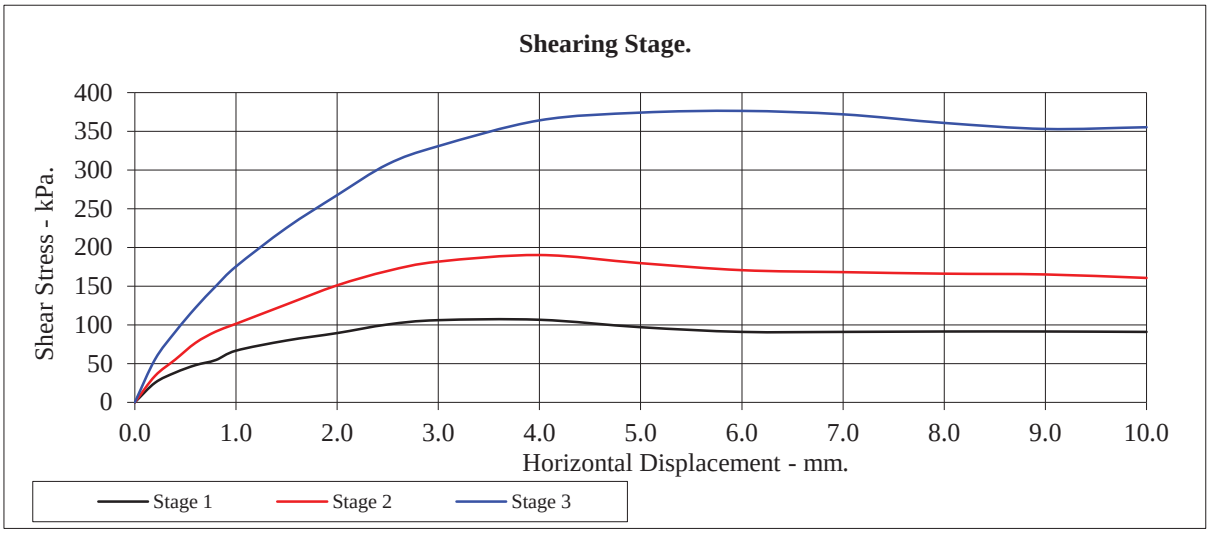
Contract No:
PSL17/4559
Client Ref:
17/035

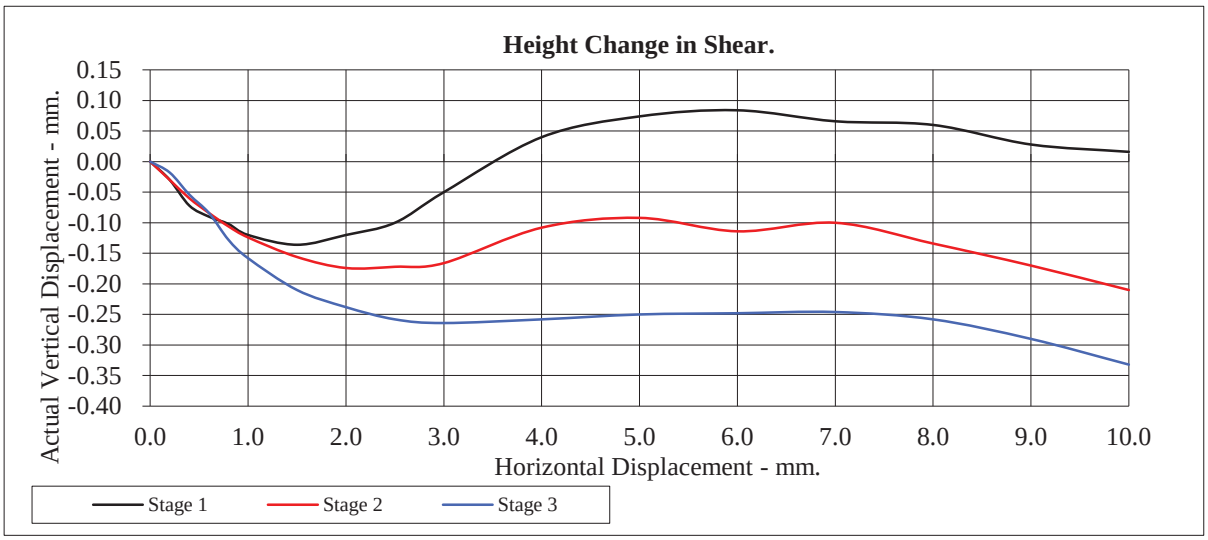
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH3**	Top Depth:	**24.00**
Sample Number:		Base Depth:	**24.50**







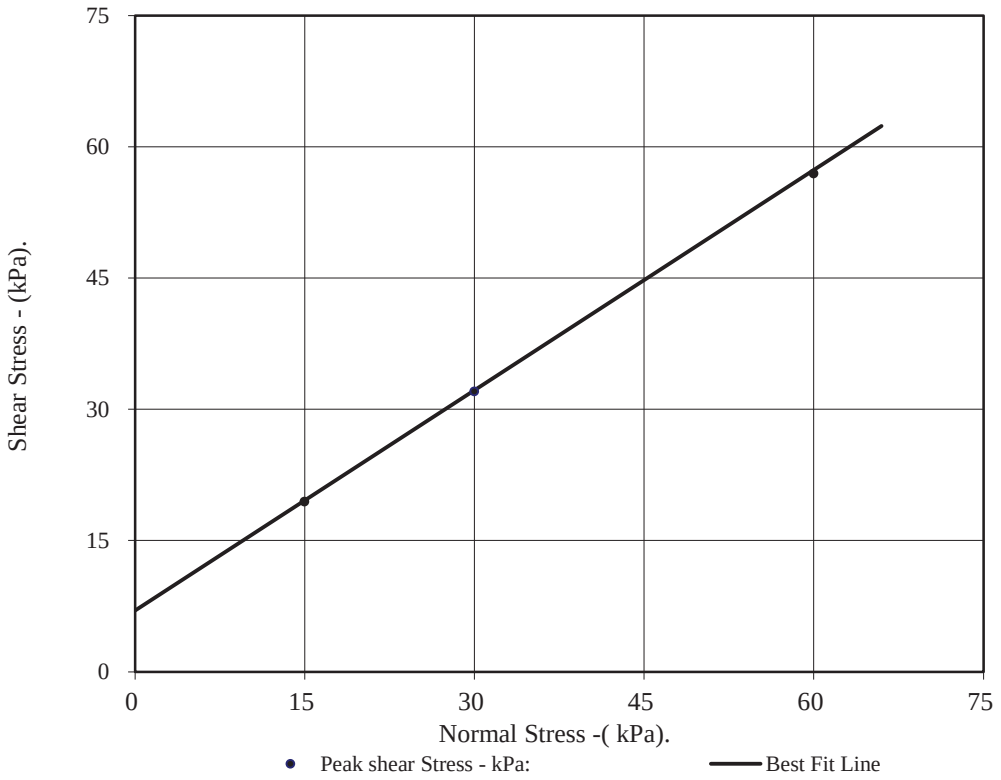
UKAS TESTING 4043 — PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4559 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH4**		Top Depth:	**2.00**
Sample Number:			Base Depth:	**3.50**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	13	13	13
Bulk Density - Mg/m3:	1.87	1.87	1.88
Dry Density - Mg/m3:	1.66	1.66	1.67
Voids Ratio:	0.600	0.599	0.590
Normal Pressure- kPa	15	30	60
Consolidation Stage			
Consolidated Height - mm:	19.87	19.73	19.72
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	4.00	3.00	2.50
Peak shear Stress - kPa:	19	32	57
Final Consolidated Conditons			
Moisture Content - %:	22	20	21
Bulk Density - Mg/m3:	1.88	1.90	1.91
Dry Density - Mg/m3:	1.55	1.57	1.58
Peak			
Angle of Shearing Resistance:(~~θ~~)	**40**		
Effective Cohesion - kPa:	**7**		

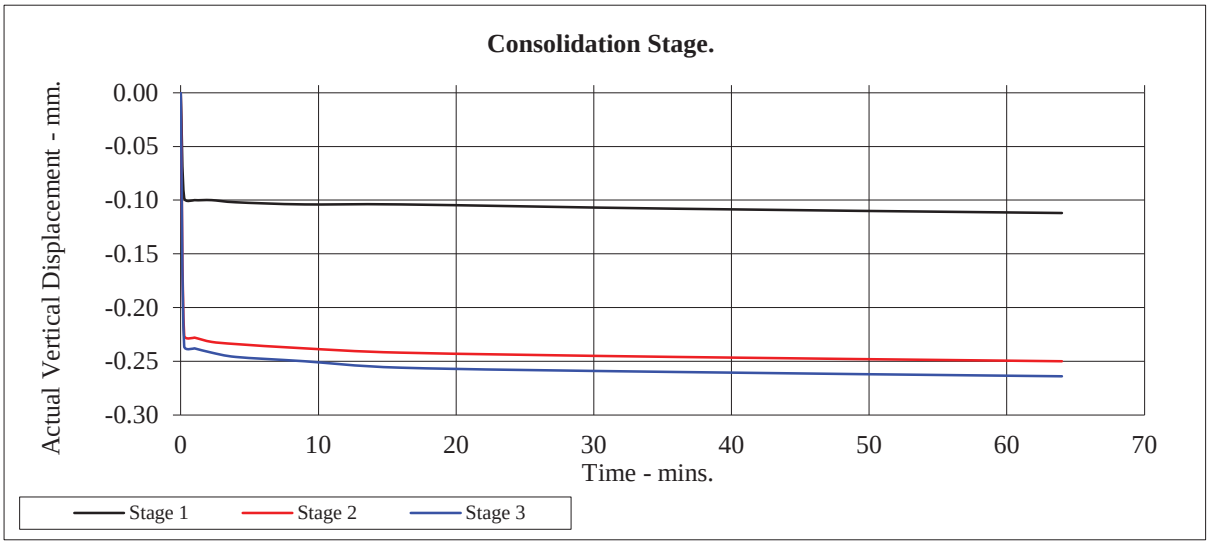


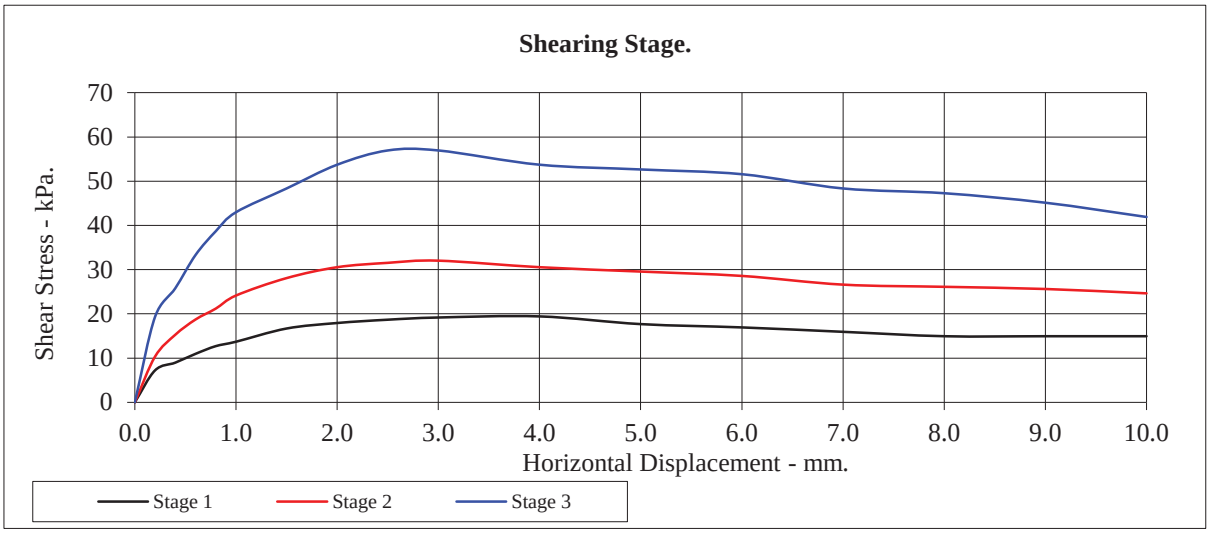
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

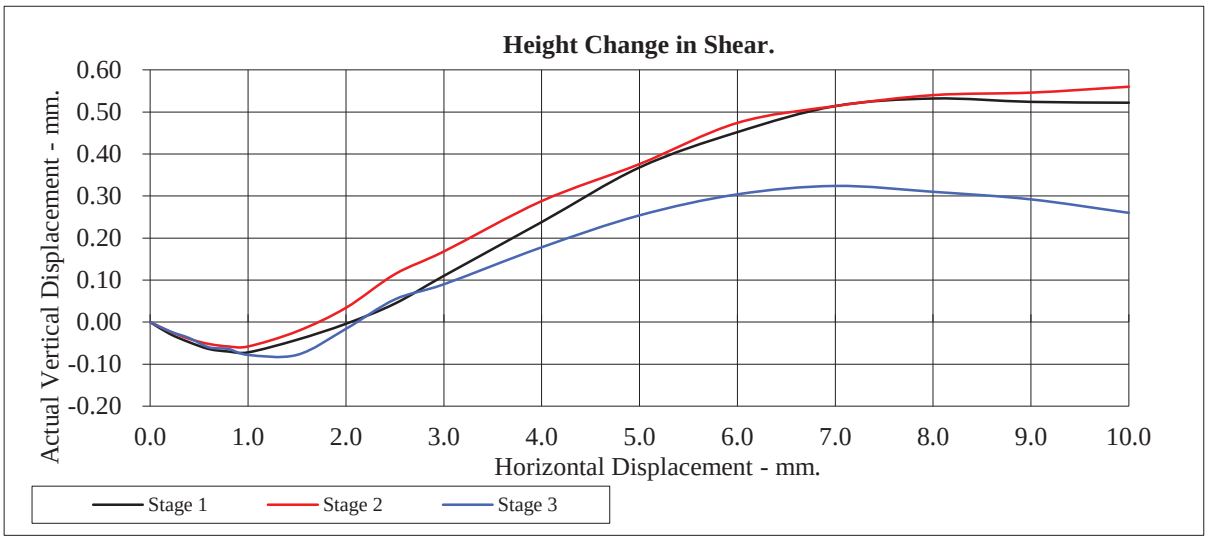
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH4**	Top Depth:	**2.00**
Sample Number:		Base Depth:	**3.50**







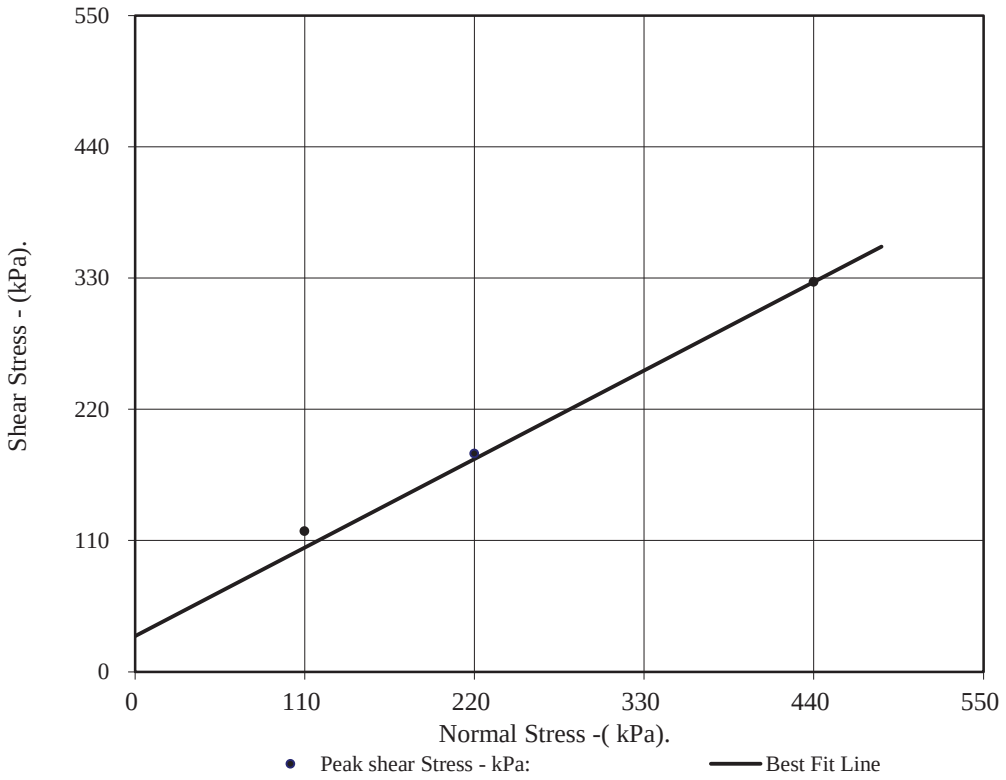
UKAS TESTING 4043 — PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH4**		Top Depth:	**21.50**
Sample Number:			Base Depth:	**23.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve		Air dried to a workable moisture content.	
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	11	11	11
Bulk Density - Mg/m3:	2.26	2.26	2.27
Dry Density - Mg/m3:	2.04	2.04	2.05
Voids Ratio:	0.299	0.301	0.294
Normal Pressure- kPa	110	220	440
Consolidation Stage			
Consolidated Height - mm:	19.00	18.87	18.27
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	6.00	5.00	5.00
Peak shear Stress - kPa:	118	183	327
Final Consolidated Conditons			
Moisture Content - %:	14	14	13
Bulk Density - Mg/m3:	2.38	2.39	2.49
Dry Density - Mg/m3:	2.08	2.10	2.20
Peak			
Angle of Shearing Resistance:(~~θ~~)	**34**		
Effective Cohesion - kPa:	**30**		

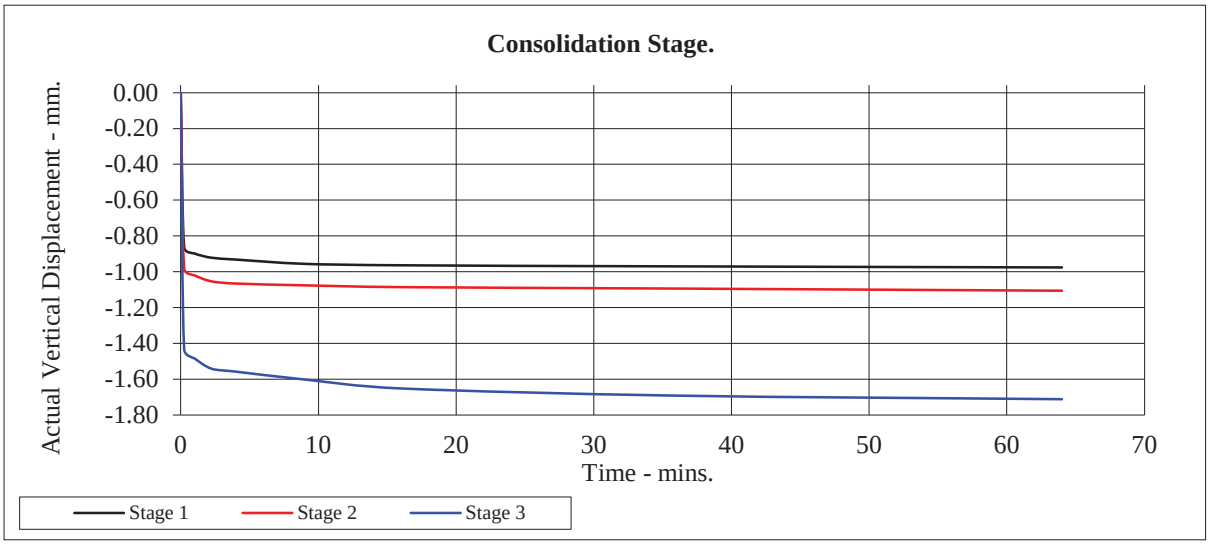


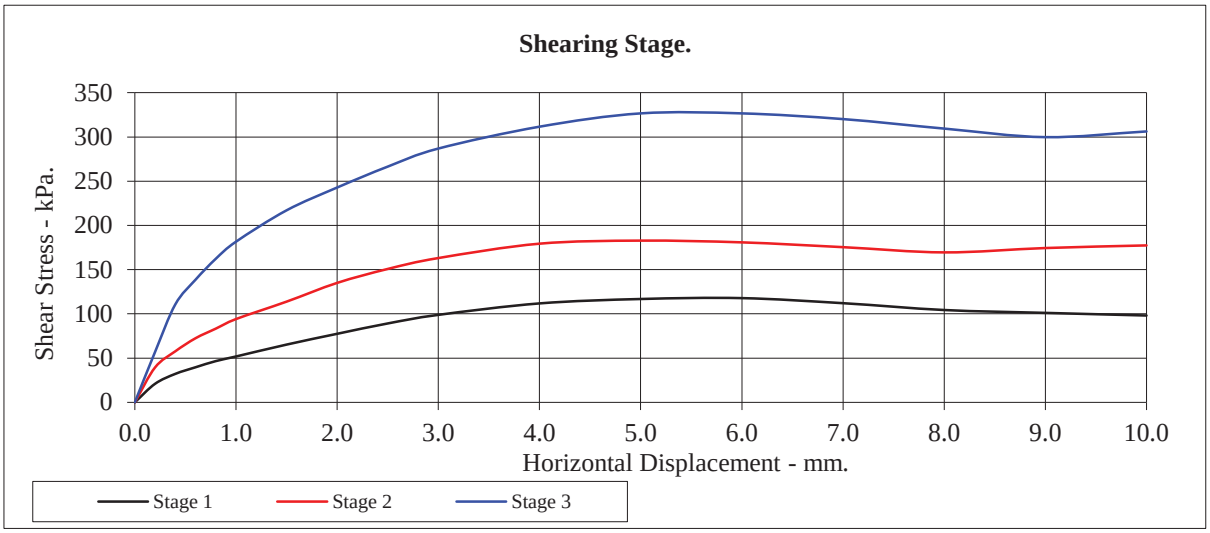
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

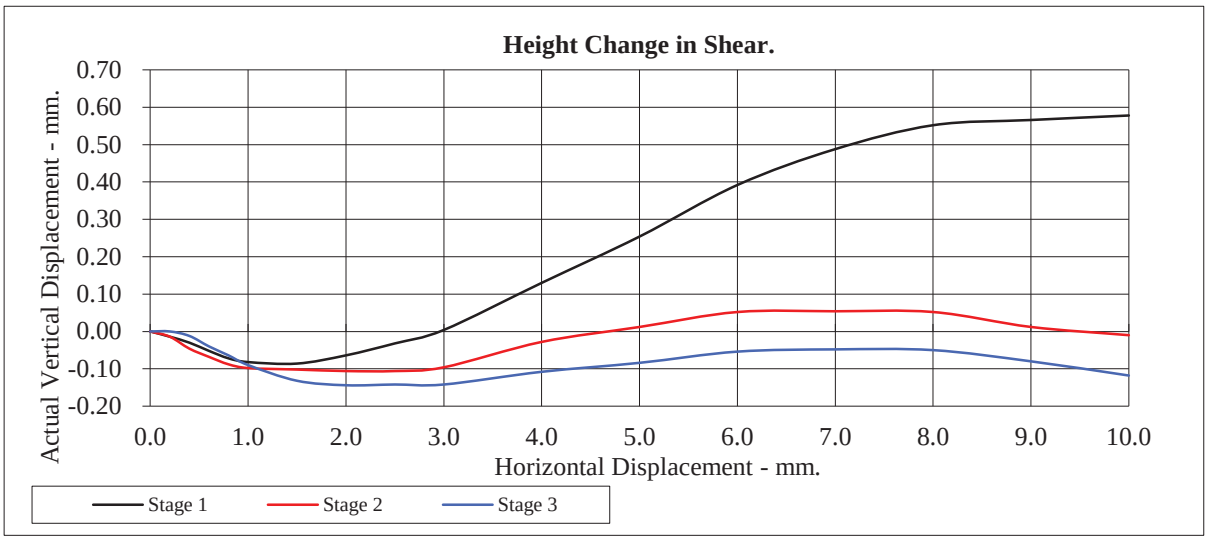
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH4**	Top Depth:	**21.50**
Sample Number:		Base Depth:	**23.00**







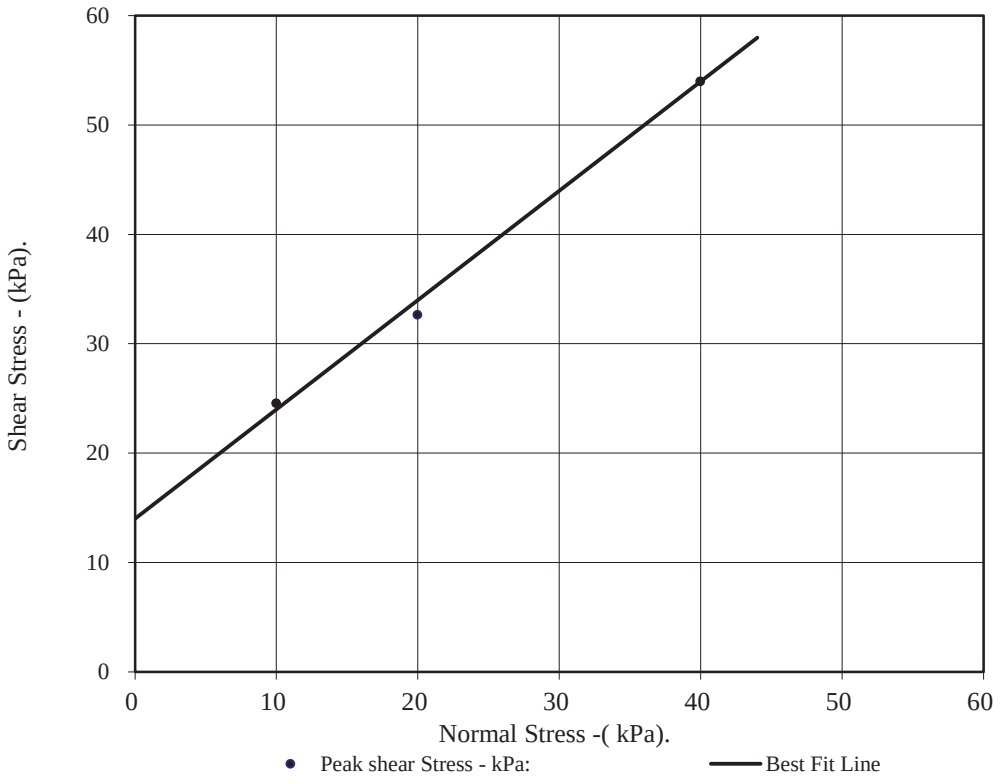
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH5**		Top Depth:	**1.50**
Sample Number:			Base Depth:	**3.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	19	19	19
Bulk Density - Mg/m3:	1.95	1.96	1.97
Dry Density - Mg/m3:	1.64	1.65	1.66
Voids Ratio:	0.613	0.606	0.601
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.93	19.59	19.30
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	3.00	3.00	4.00
Peak shear Stress - kPa:	25	33	54
Final Consolidated Conditons			
Moisture Content - %:	20	20	20
Bulk Density - Mg/m3:	1.96	2.00	2.04
Dry Density - Mg/m3:	1.63	1.67	1.69
Peak			
Angle of Shearing Resistance:(~~θ~~)	**45**		
Effective Cohesion - kPa:	**14**		

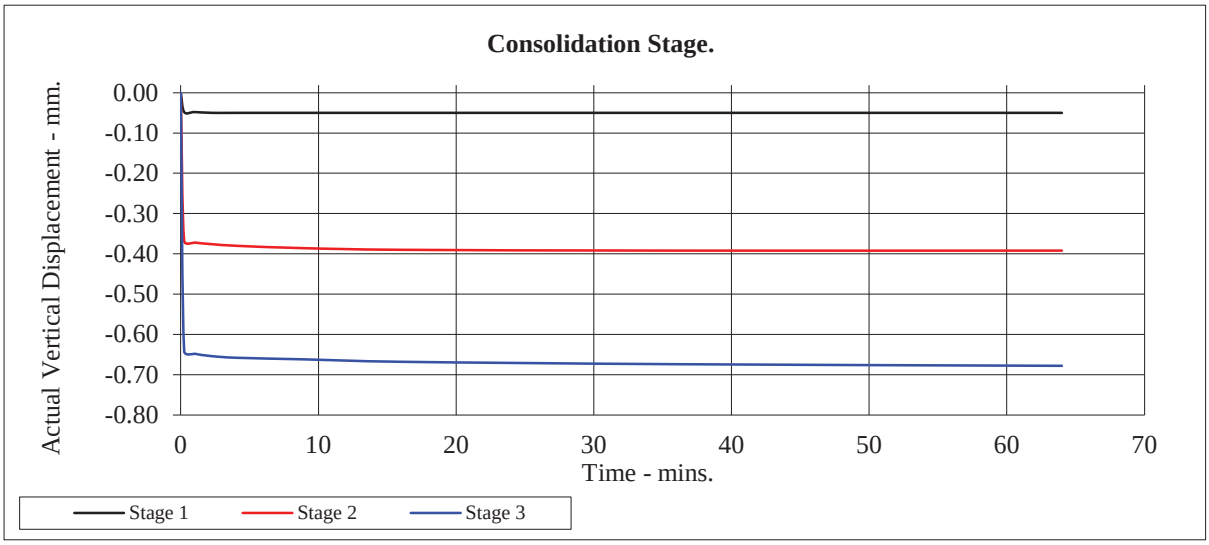


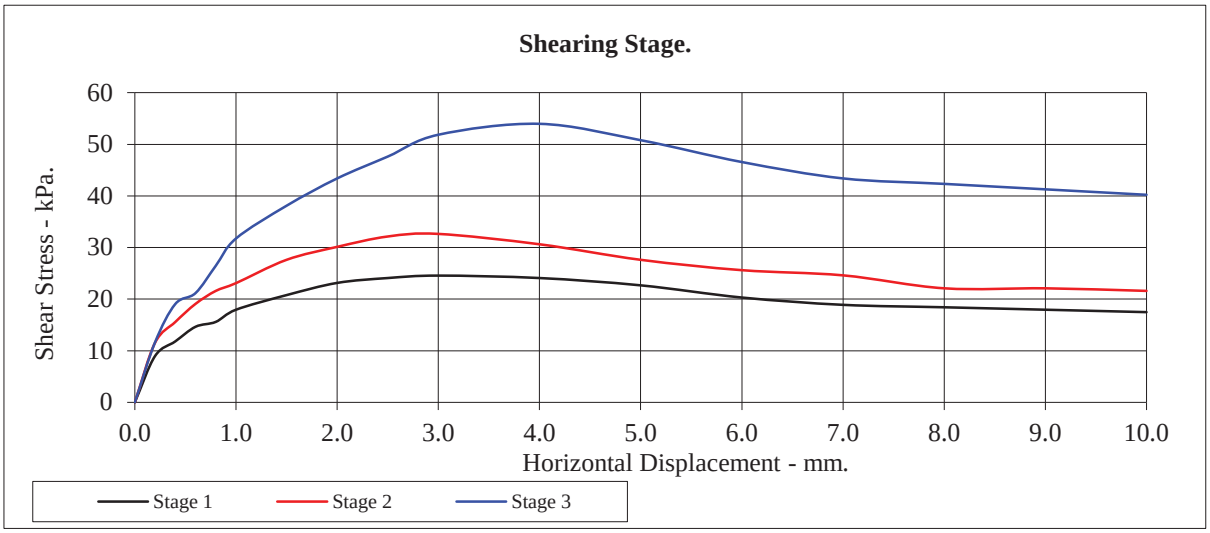
UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

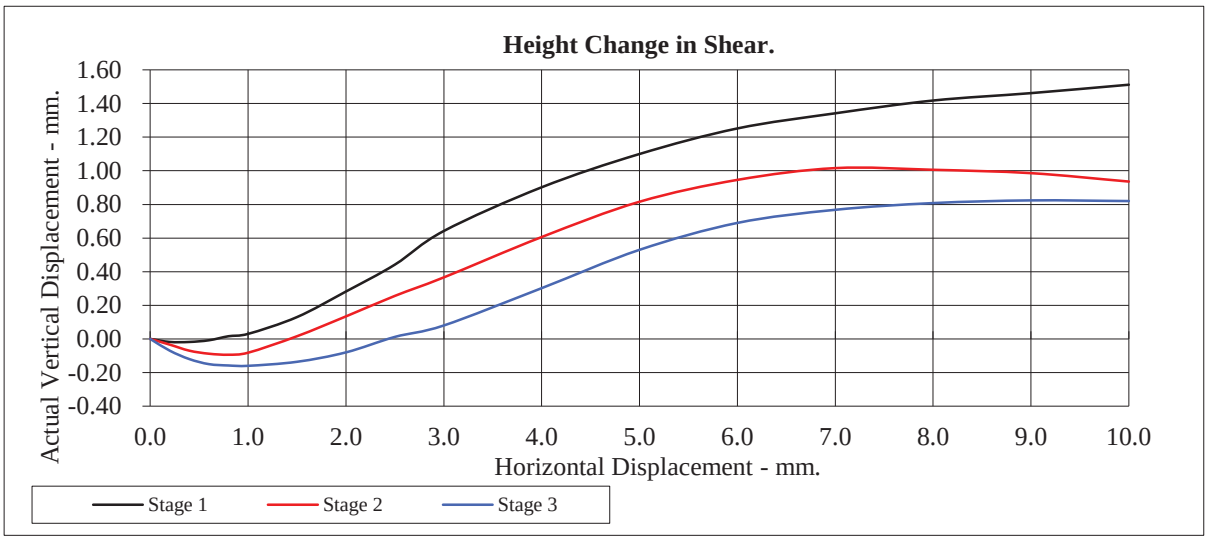
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH5**	Top Depth:	**1.50**
Sample Number:		Base Depth:	**3.00**







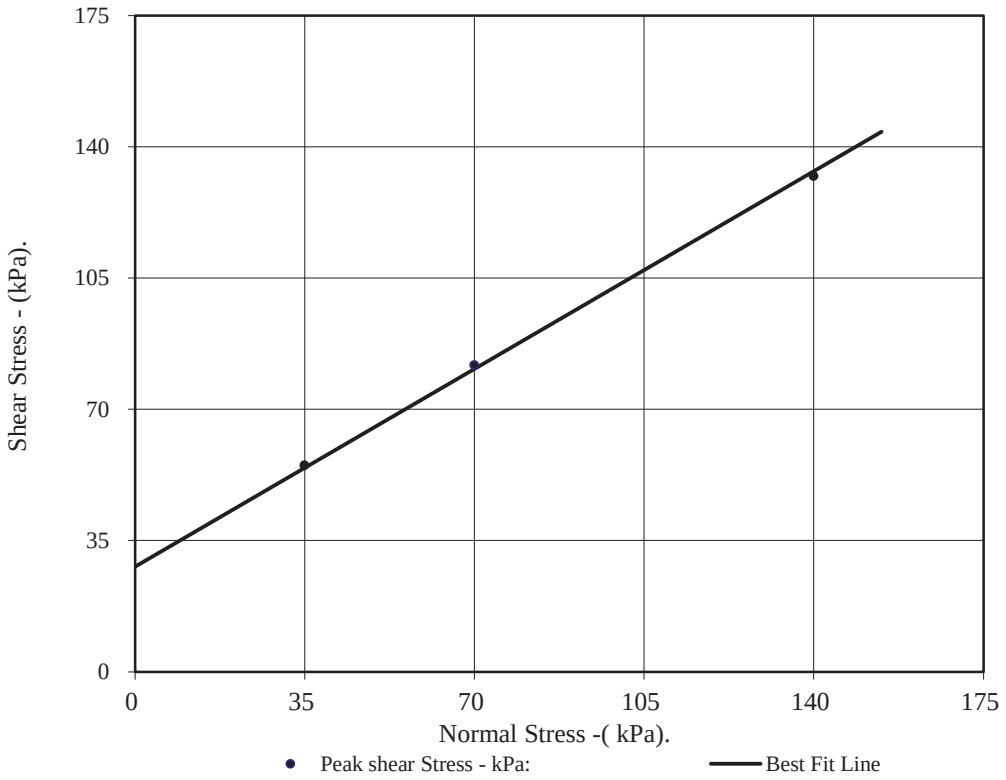
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4559 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH5**		Top Depth:	**6.00**
Sample Number:			Base Depth:	**7.50**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve		Air dried to a workable moisture content.	
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	60.00	59.92	59.92
Moisture Content - %:	11	11	11
Bulk Density - Mg/m3:	2.29	2.29	2.29
Dry Density - Mg/m3:	2.07	2.07	2.07
Voids Ratio:	0.280	0.280	0.277
Normal Pressure- kPa	35	70	140
Consolidation Stage			
Consolidated Height - mm:	19.59	19.23	18.43
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	5.00	5.00	6.00
Peak shear Stress - kPa:	55	82	132
Final Consolidated Conditons			
Moisture Content - %:	16	15	14
Bulk Density - Mg/m3:	2.33	2.38	2.49
Dry Density - Mg/m3:	2.01	2.07	2.18
Peak			
Angle of Shearing Resistance:(~~θ~~)	**37**		
Effective Cohesion - kPa:	**28**		

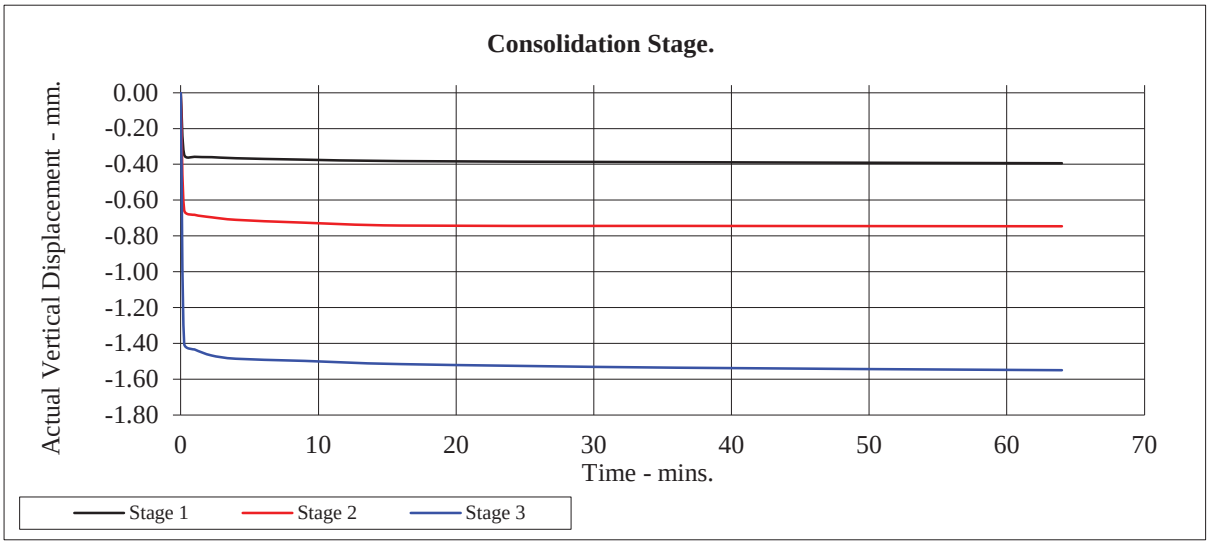


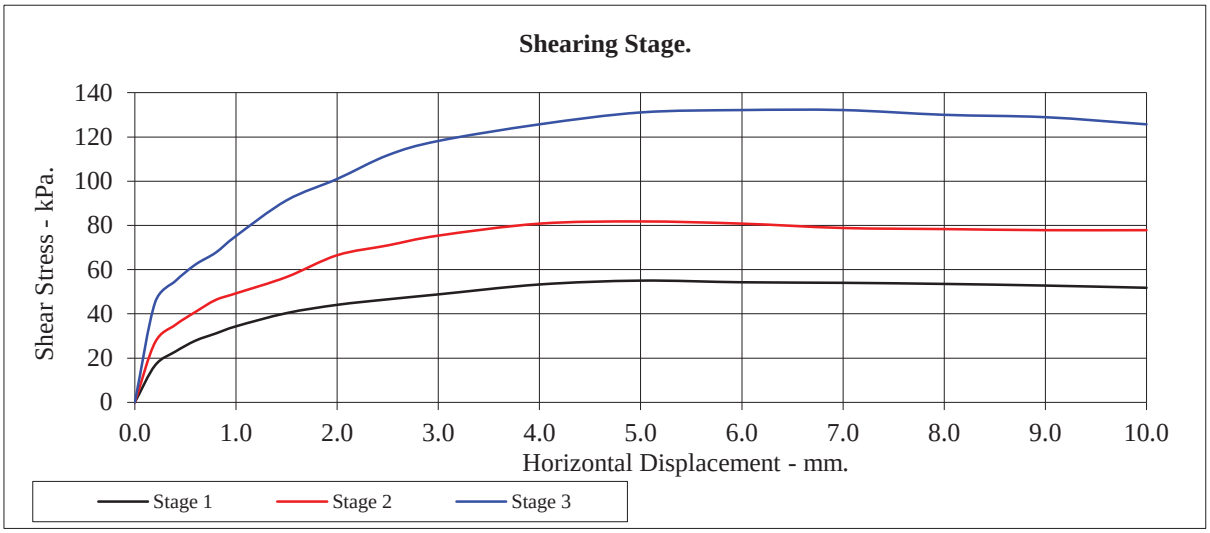
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

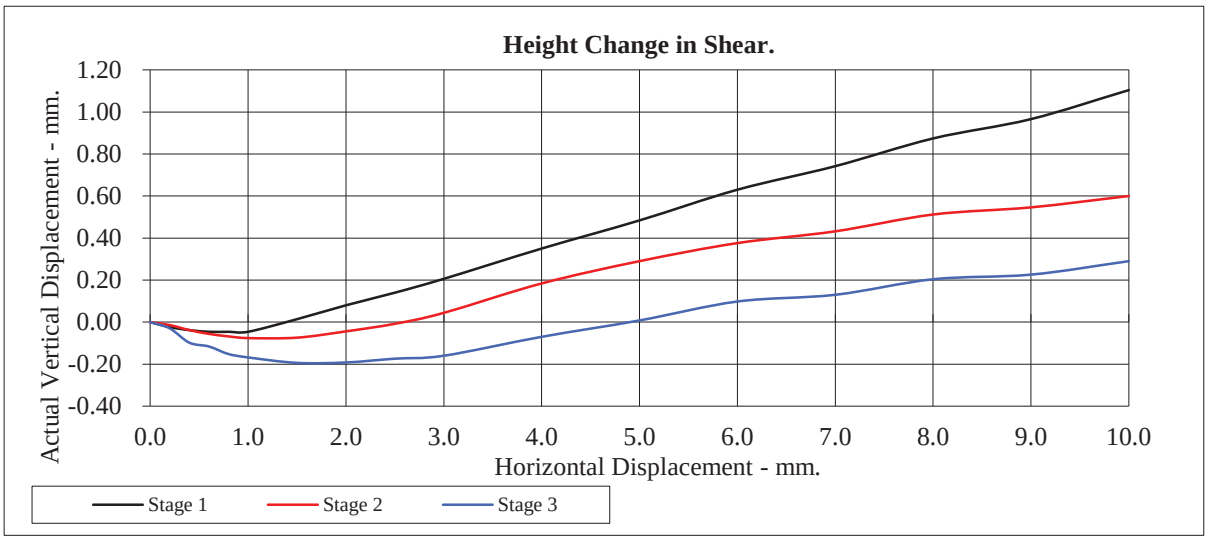
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH5**	Top Depth:	**6.00**
Sample Number:		Base Depth:	**7.50**







UKAS TESTING 4043 / PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** **PSL17/4559** **Client Ref:** **17/035**

LABORATORY REPORT

4043

Contract Number: PSL17/4559

Report Date: 05 October 2017

Client's Reference: 17286

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of: Redacted

Contract Title: UIG Harbour Reservoir

Date Received: 20/9/2017
Date Commenced: 20/9/2017
Date Completed: 4/10/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH3		B	1.50	3.00	Grey very gravelly silty SAND.
BH3		B+D	4.50	6.00	Grey slightly gravelly very sandy clayey SILT.
BH3		B	6.00	7.50	Grey very sandy slightly silty GRAVEL.
BH3		B+D	9.00	10.50	Grey sandy silty GRAVEL.
BH3		B+D	16.50	18.00	Grey very gravelly very sandy CLAY.
BH3		B+D	28.50	30.00	Grey very sandy very clayey GRAVEL.
BH4		B	2.00	3.50	Grey silty SAND and GRAVEL.
BH4		B+D	5.00	6.50	Grey slightly gravelly sandy clayey SILT.
BH4		B+D	6.50	8.00	Grey very gravelly very sandy CLAY.
BH4		B+D	14.00	15.00	Grey very gravelly clayey silty SAND.
BH4		B	21.50	23.00	Grey very gravelly clayey very silty SAND.
BH4		B+D	24.50	26.00	Grey very sandy clayey very silty GRAVEL.
BH4		B+D	33.50	35.00	Grey slightly gravelly very sandy CLAY.
BH5		B	1.50	3.00	Grey very sandy slightly silty GRAVEL.
BH5		B+D	4.50	6.00	Grey slightly gravelly very sandy clayey SILT.
BH5		B	6.00	7.50	Grey very sandy clayey silty GRAVEL.
BH5		B+D	7.50	9.00	Grey very gravelly sandy CLAY.
BH5		B+D	9.00	10.50	Grey very gravelly slightly sandy CLAY.
BH5		B+D	13.50	15.00	Grey very gravelly very sandy CLAY.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH5		B+D	24.00	25.50	Grey very gravelly sandy CLAY.
BH5		B+D	33.00	34.50	Grey very gravelly sandy CLAY.
BH8B		B+D	8.20	9.70	Grey very gravelly sandy CLAY.
BH8B		B+D	12.70	14.20	Grey very gravelly very sandy CLAY.
BH8B		B+D	21.70	23.20	Grey very gravelly very sandy CLAY.
BH8B		B+D	27.70	29.20	Grey slightly sandy CLAY.
BH2		D	32.00		Grey very gravelly very sandy CLAY.
BH6A		D	9.00		Grey very gravelly slightly sandy CLAY.
BH6A		D	10.50		Grey very gravelly slightly sandy CLAY.
BH8A		D	4.20		Grey slightly sandy very silty CLAY.
BH9		D	2.80		Grey gravelly sandy very silty CLAY.
BH9		D	7.40		Grey slightly sandy CLAY.

UKAS TESTING 4043	PSL Professional Soils Laboratory	UIG Harbour Redevelopment	Contract No: PSL17/4559 Client Ref: 17286

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH3		B+D	4.50	6.00	50			55	35	20	85	High plasticity MH.
BH3		B+D	9.00	10.50	8.5				NP			
BH3		B+D	16.50	18.00	12			38	18	20	58	Intermediate plasticity CI.
BH3		B+D	28.50	30.00	10			29	16	13	49	Low plasticity CL.
BH4		B+D	5.00	6.50	42			59	35	24	91	High plasticity MH.
BH4		B+D	6.50	8.00	16			42	20	22	48	Intermediate plasticity CI.
BH4		B+D	14.00	15.00	11			22	15	7	47	Low plasticity CL.
BH4		B+D	24.50	26.00	10			25	16	9	43	Low plasticity CL.
BH4		B+D	33.50	35.00	17			44	24	20	88	Intermediate plasticity CI.
BH5		B+D	4.50	6.00	46			55	36	19	92	High plasticity MH.
BH5		B+D	7.50	9.00	10							
BH5		B+D	9.00	10.50	17			47	23	24	55	Intermediate plasticity CI.
BH5		B+D	13.50	15.00	13			33	15	18	50	Low plasticity CL.
BH5		B+D	24.00	25.50	24			46	24	22	49	Intermediate plasticity CI.
BH5		B+D	33.00	34.50	17			39	20	19	51	Intermediate plasticity CI.
BH8B		B+D	8.20	9.70	23			39	19	20	45	Intermediate plasticity CI.
BH8B		B+D	12.70	14.20	11			30	16	14	47	Low plasticity CL.
BH8B		B+D	21.70	23.20	16			33	17	16	51	Low plasticity CL.
BH8B		B+D	27.70	29.20	31			63	28	35	100	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:

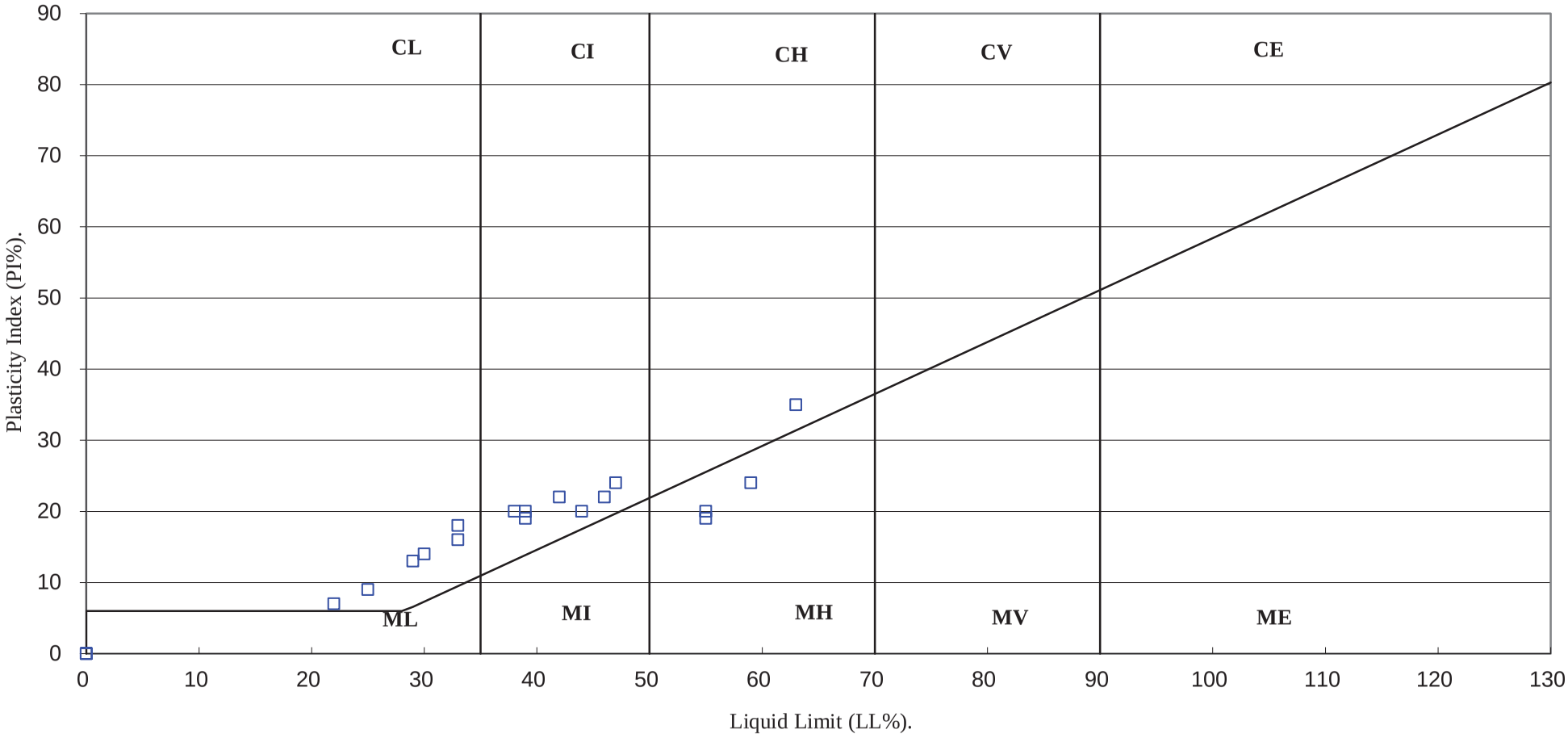
PSL17/4559

Client Ref:

17286

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**	**Contract No:** PSL17/4559 **Client Ref:** 17286

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH2		D	32.00		11							
BH6A		D	9.00		31							
BH6A		D	10.50		14							
BH8A		D	4.20		34							
BH9		D	2.80		31							
BH9		D	7.40		26							

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:

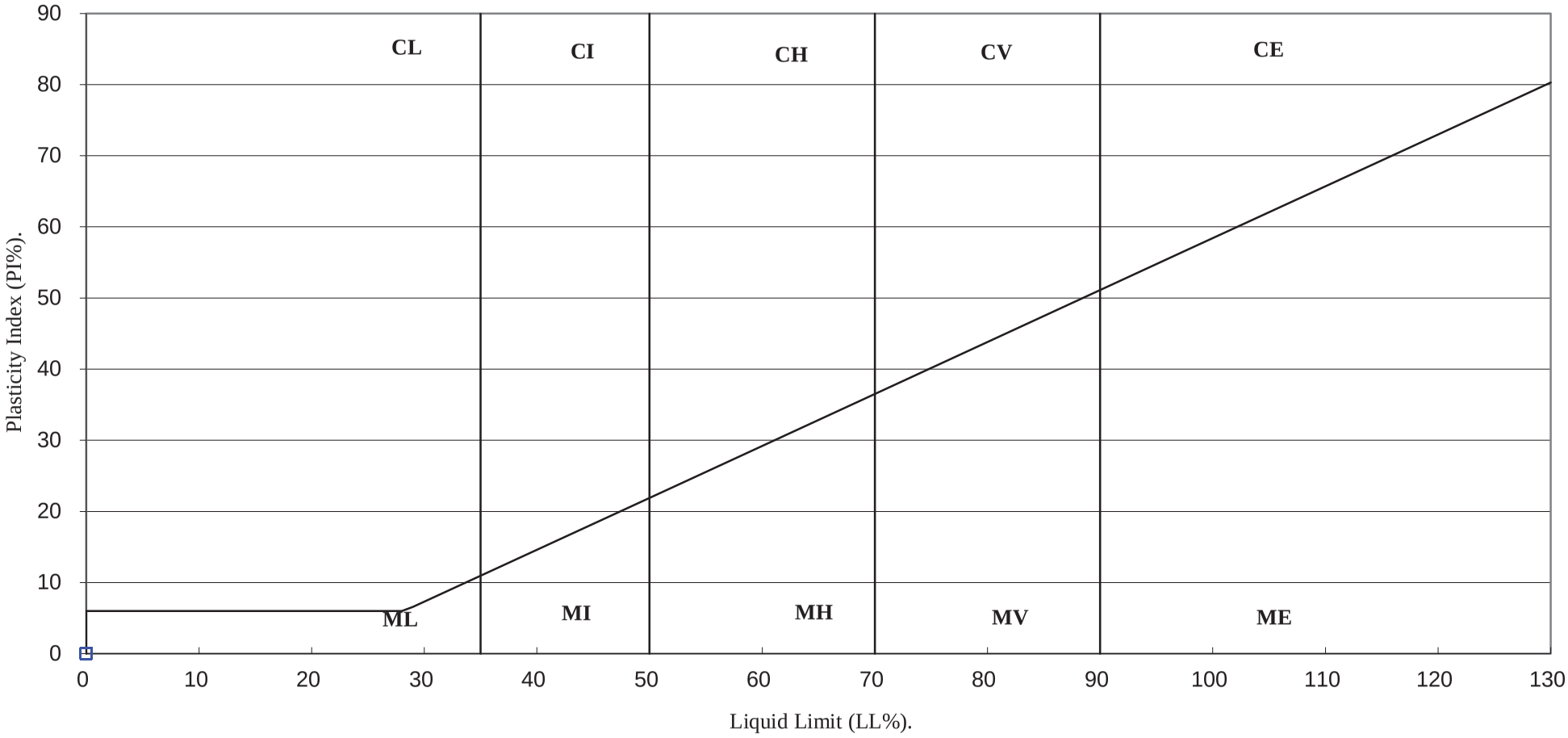
PSL17/4559

Client Ref:

17286

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**UIG Harbour Redevelopment**

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

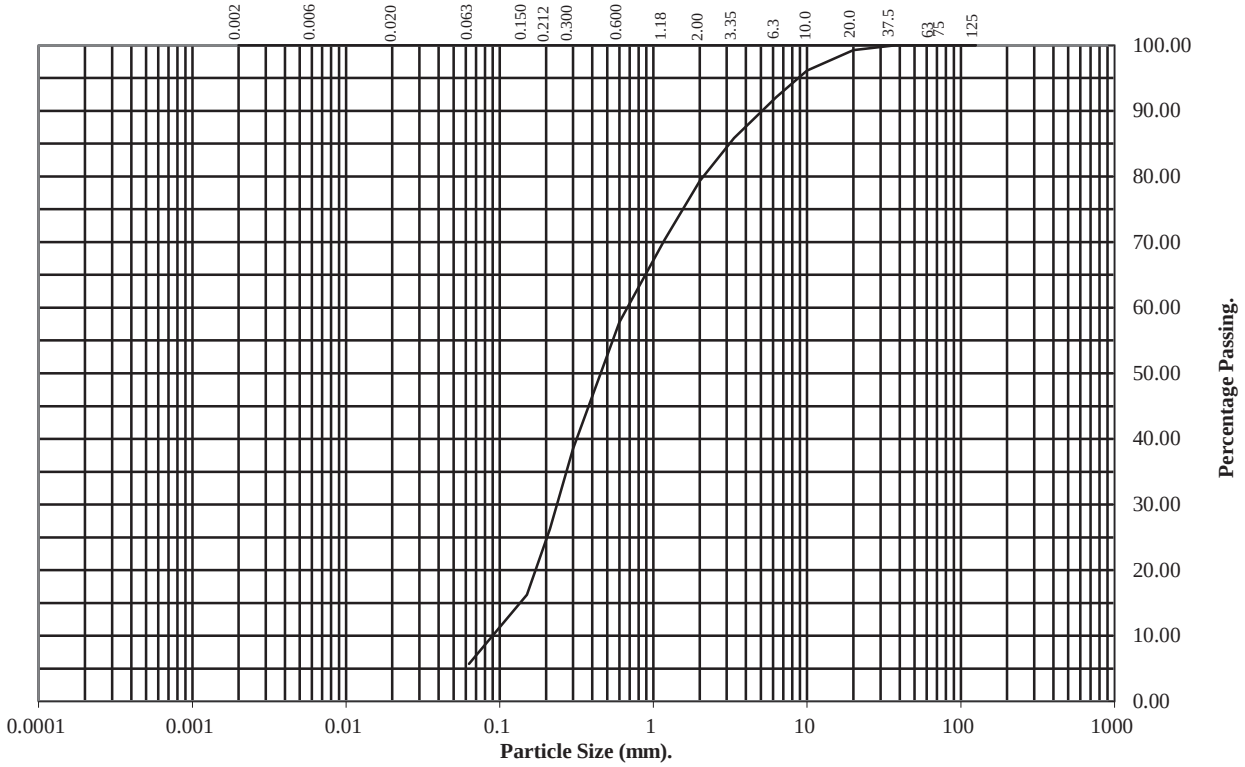
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH3** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	96
6.3	92
3.35	86
2	79
1.18	70
0.6	58
0.3	38
0.212	26
0.15	16
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	21
Sand	73
Silt/Clay	6

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No: **PSL17/4559**

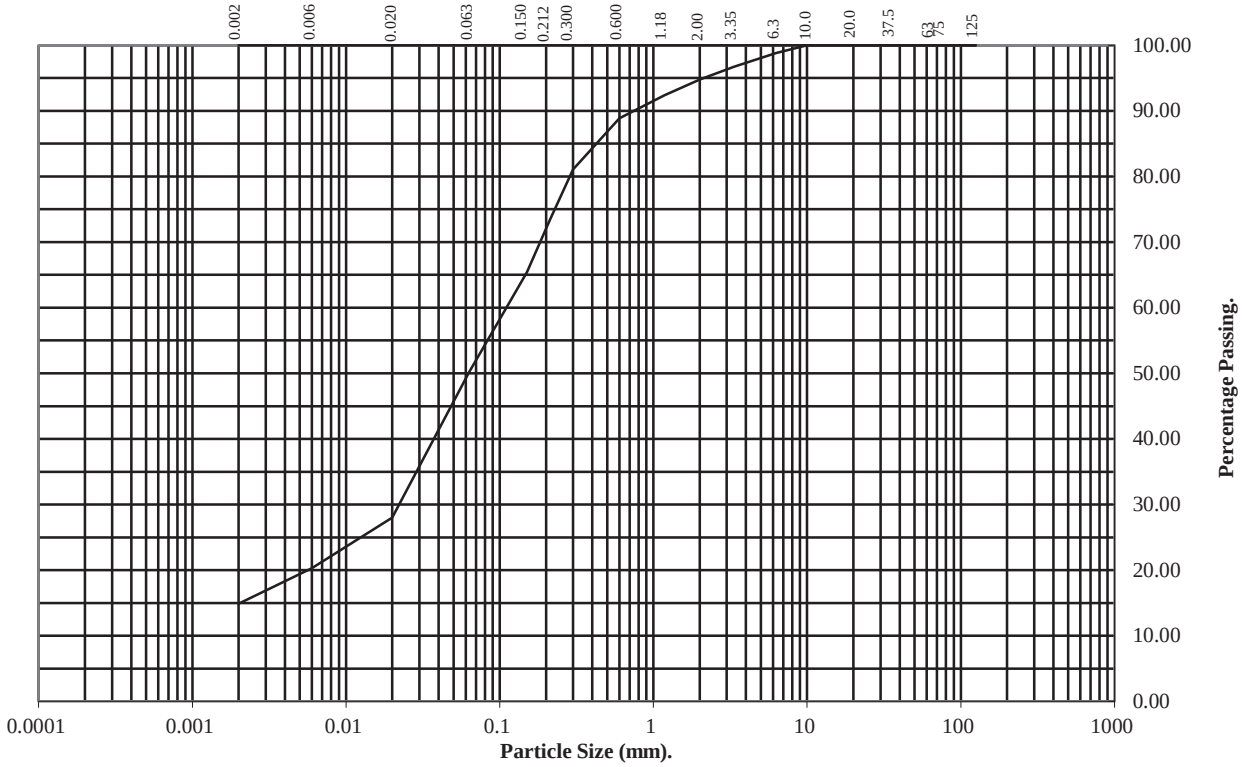
Client Ref: **17286**

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**4.50**
Sample Number:		**Base Depth(m):**	**6.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	95
1.18	92
0.6	89
0.3	81
0.212	73
0.15	65
0.063	50

Particle Diameter	Percentage Passing
0.02	28
0.006	20
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	45
Silt	35
Clay	15

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

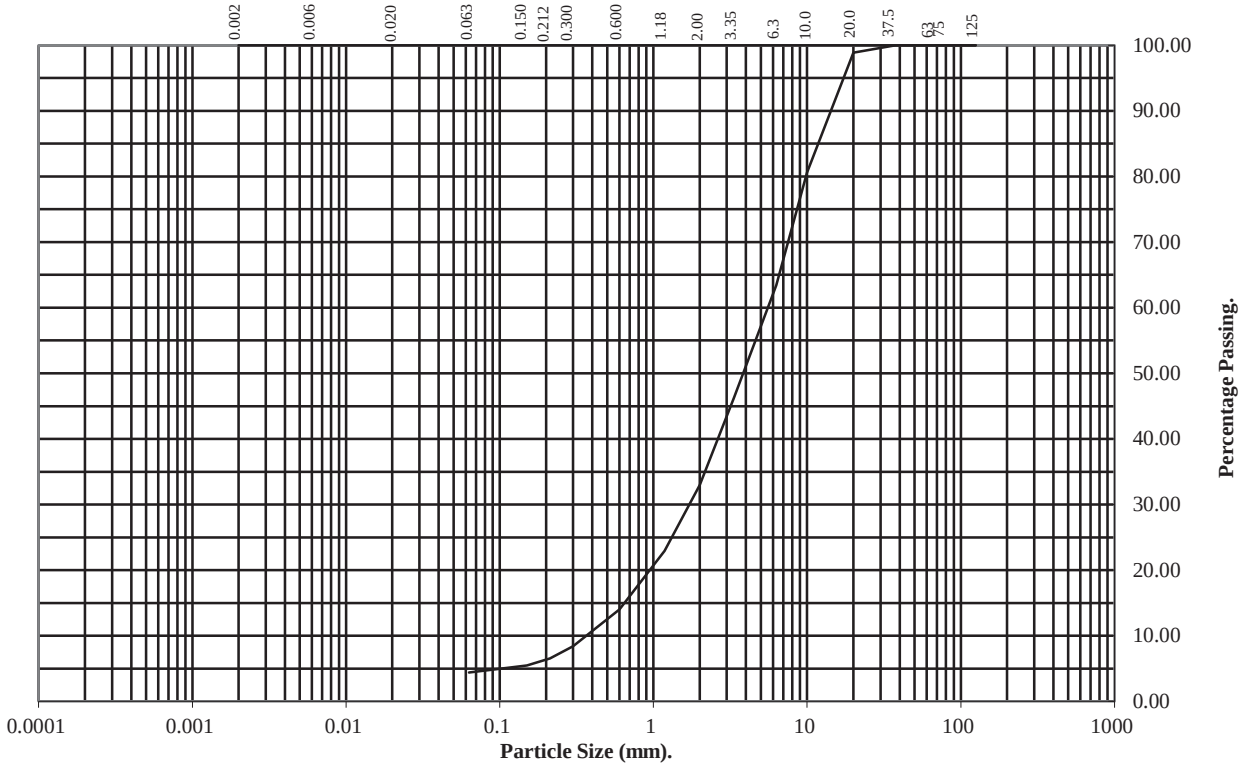
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH3**	**Top Depth (m):**	**6.00**
Sample Number:		**Base Depth(m):**	**7.50**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	81
6.3	63
3.35	46
2	33
1.18	23
0.6	14
0.3	8
0.212	7
0.15	6
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	29
Silt/Clay	4

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

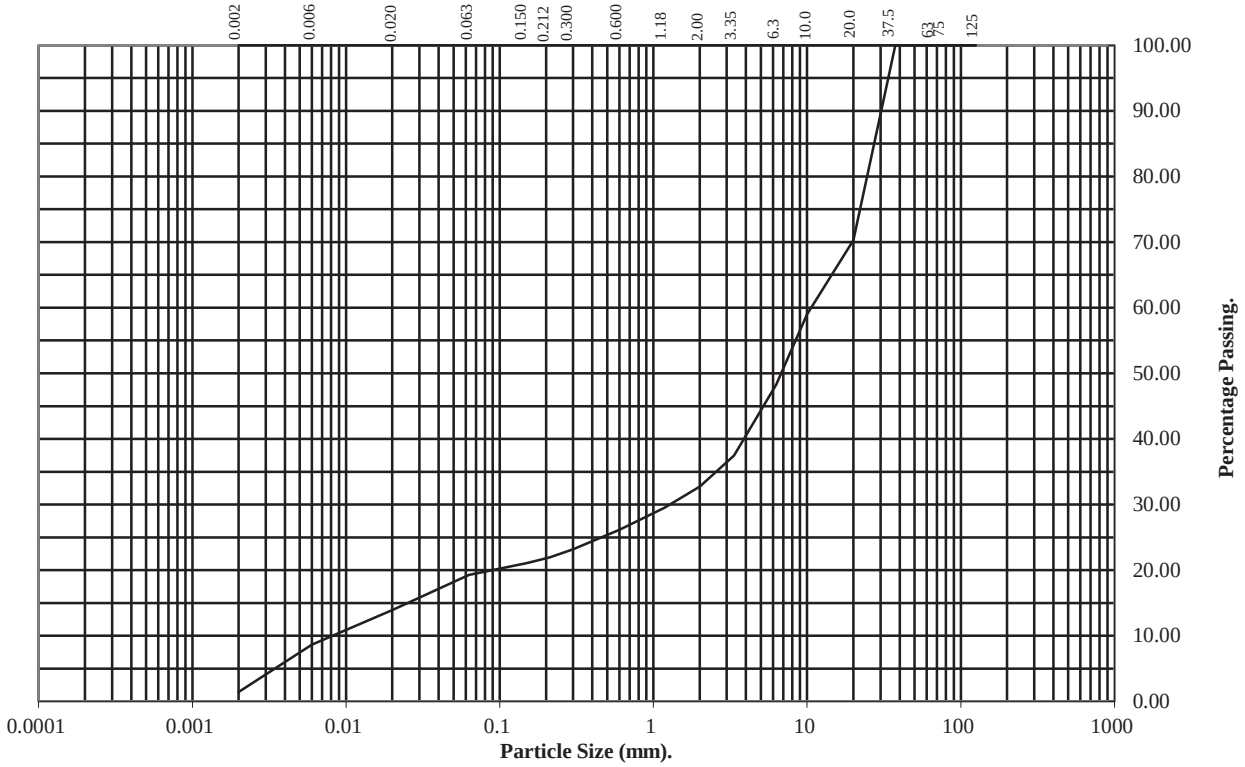
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**9.00**
Sample Number:		**Base Depth(m):**	**10.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	70
10	59
6.3	48
3.35	37
2	33
1.18	30
0.6	26
0.3	23
0.212	22
0.15	21
0.063	19

Particle Diameter	Percentage Passing
0.02	14
0.006	9
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	67
Sand	14
Silt	18
Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

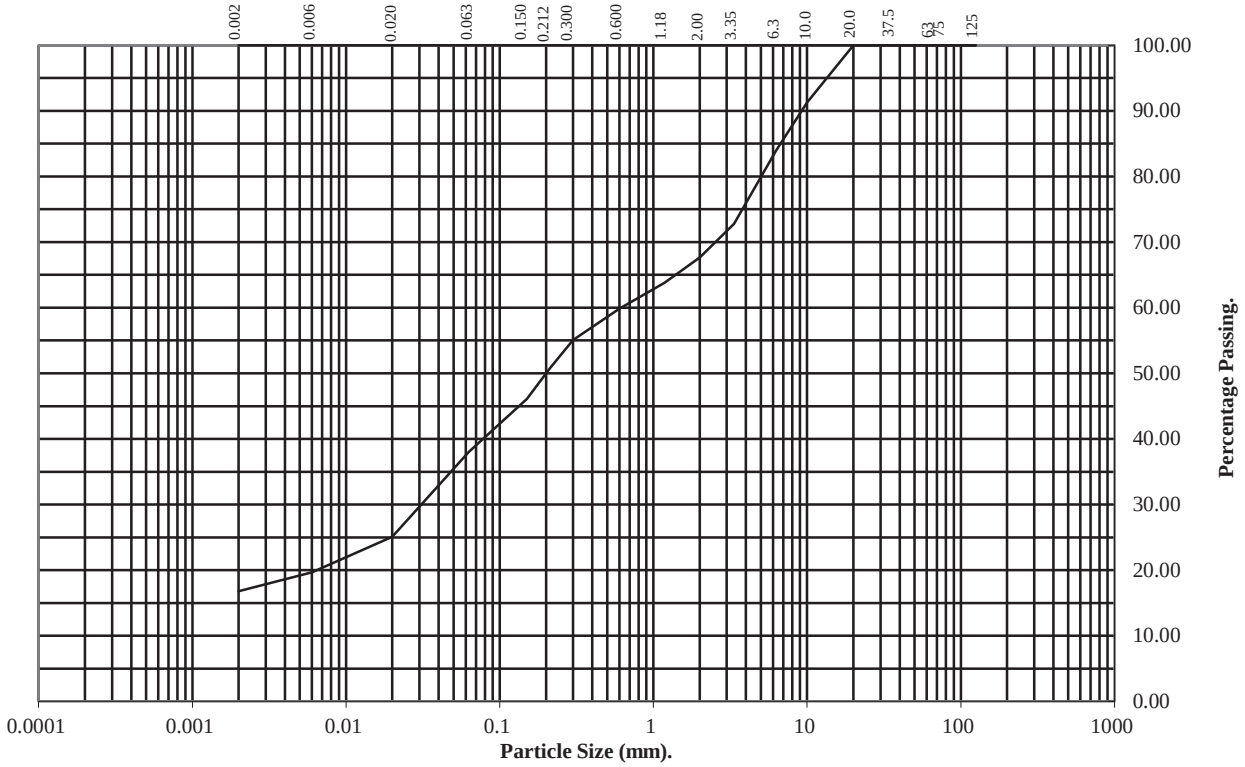
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**16.50**
Sample Number:		**Base Depth(m):**	**18.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	91
6.3	84
3.35	73
2	68
1.18	64
0.6	60
0.3	55
0.212	51
0.15	46
0.063	38

Particle Diameter	Percentage Passing
0.02	25
0.006	20
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	32
Sand	30
Silt	21
Clay	17

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

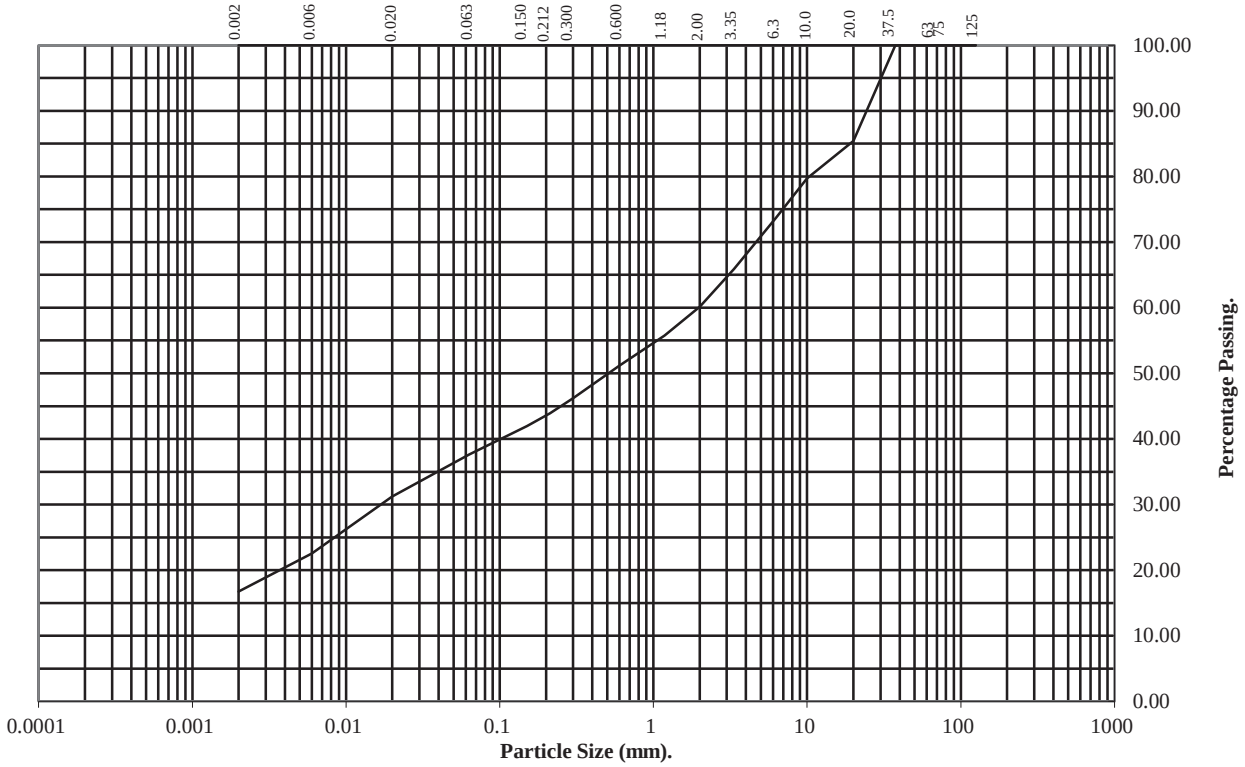
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH3**	**Top Depth (m):**	**28.50**
Sample Number:		**Base Depth(m):**	**30.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	85
10	80
6.3	74
3.35	66
2	60
1.18	56
0.6	51
0.3	46
0.212	44
0.15	42
0.063	38

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	17

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	22
Silt	21
Clay	17

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

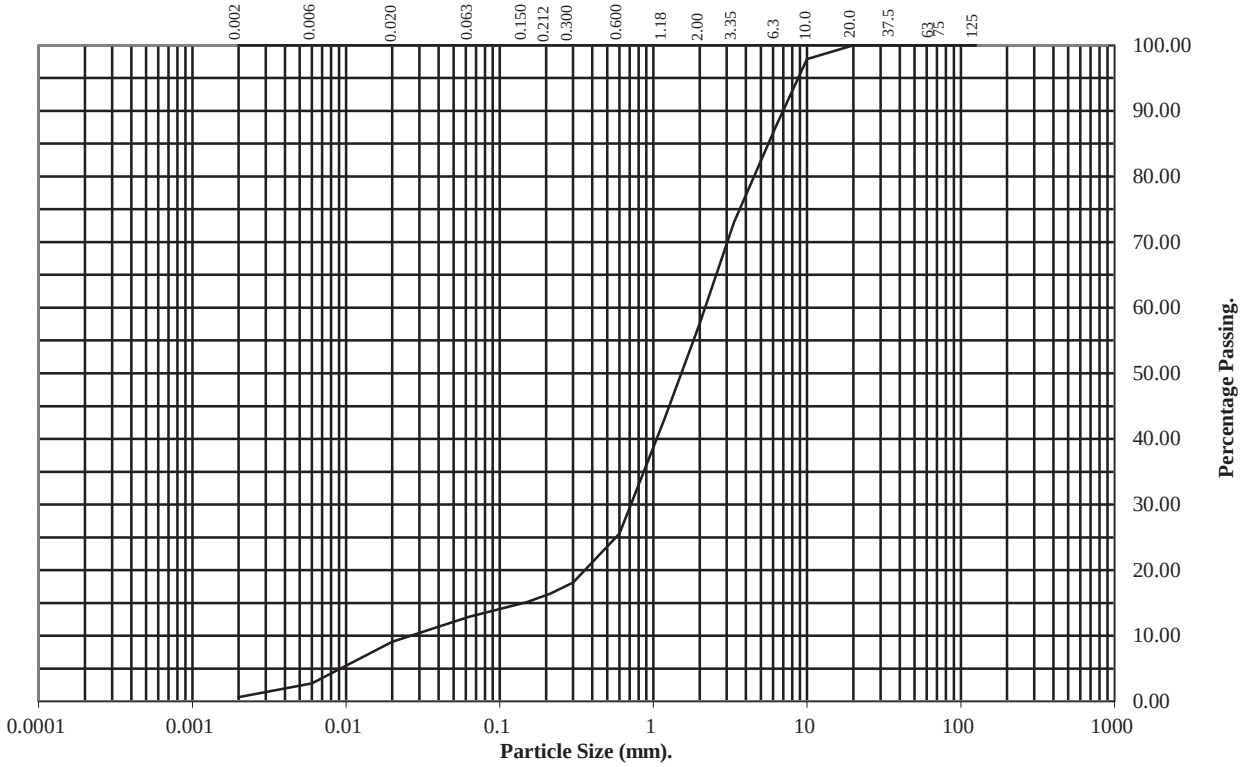
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH4 **Top Depth (m):** 2.00

Sample Number: **Base Depth(m):** 3.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	88
3.35	73
2	58
1.18	43
0.6	26
0.3	18
0.212	16
0.15	15
0.063	13

Particle Diameter	Percentage Passing
0.02	9
0.006	3
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	45
Silt	12
Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

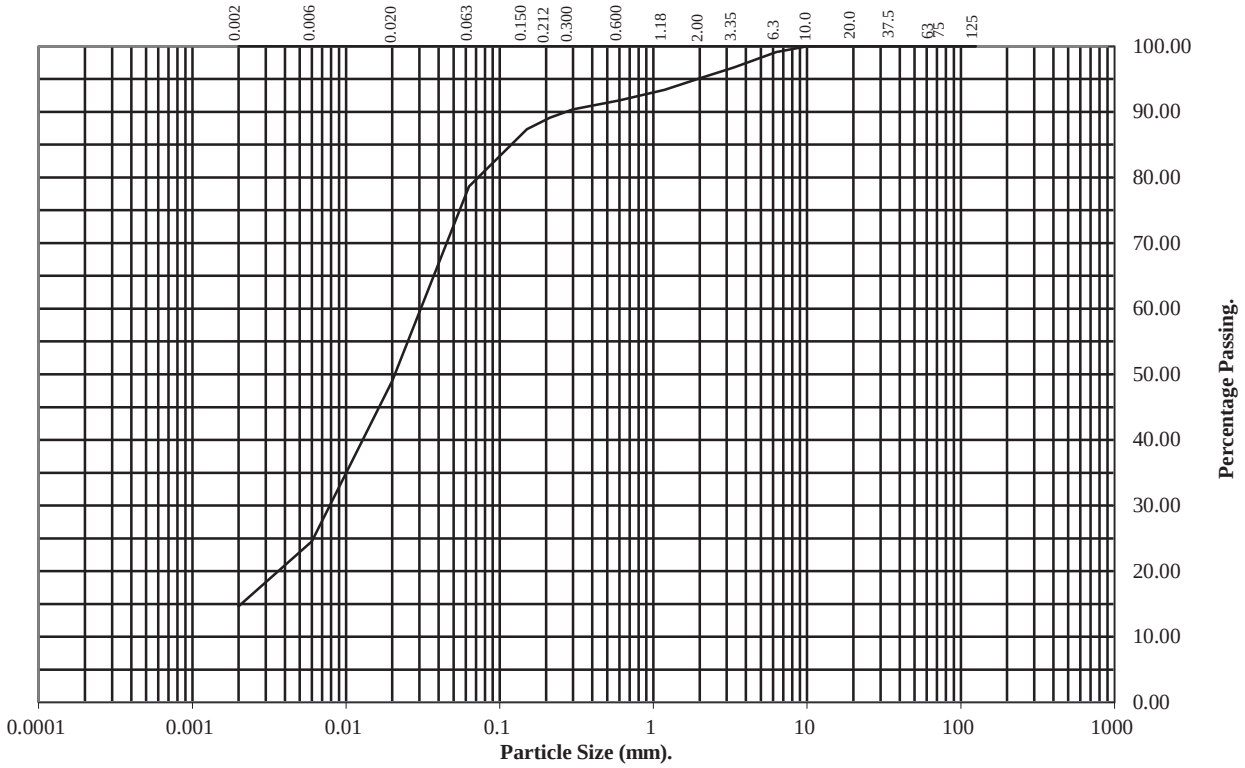
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**5.00**
Sample Number:		**Base Depth(m):**	**6.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	97
2	95
1.18	93
0.6	92
0.3	90
0.212	89
0.15	87
0.063	79

Particle Diameter	Percentage Passing
0.02	49
0.006	25
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	5
Sand	16
Silt	64
Clay	15

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

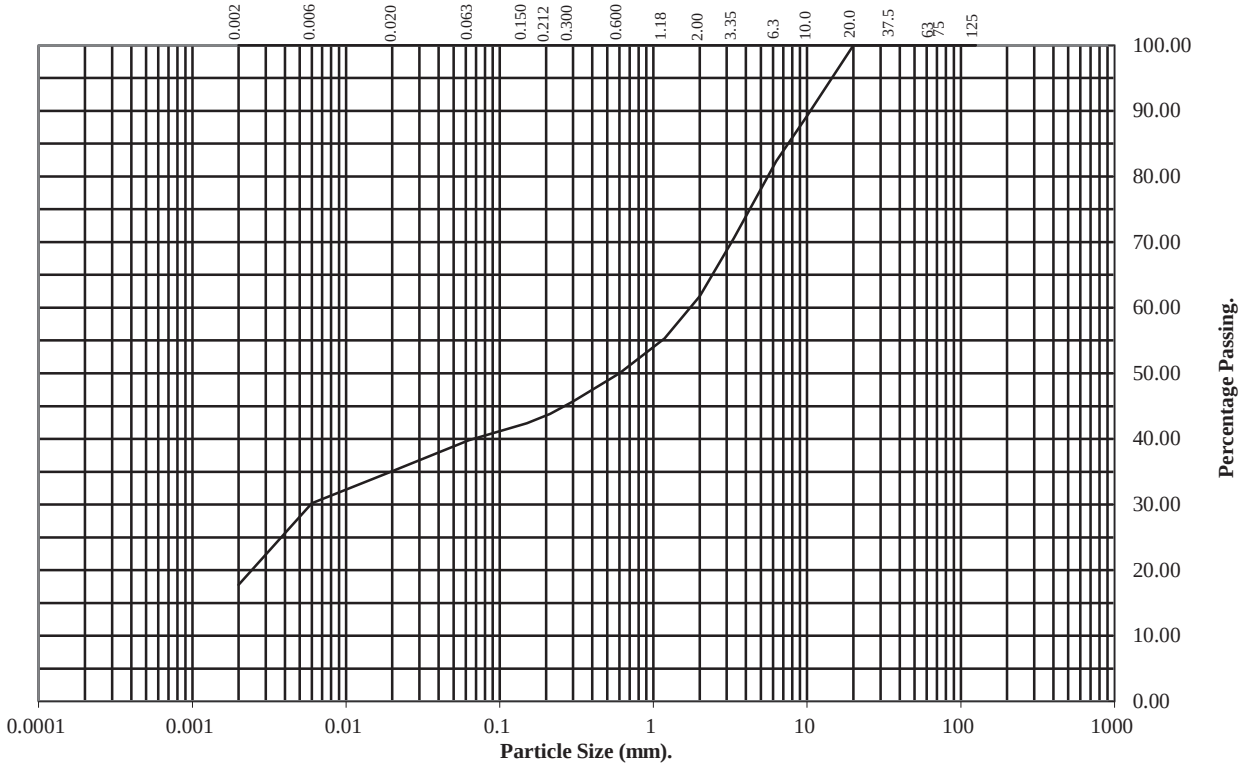
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**6.50**
Sample Number:		**Base Depth(m):**	**8.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	89
6.3	82
3.35	71
2	62
1.18	55
0.6	50
0.3	46
0.212	44
0.15	42
0.063	40

Particle Diameter	Percentage Passing
0.02	35
0.006	30
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	38
Sand	22
Silt	22
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

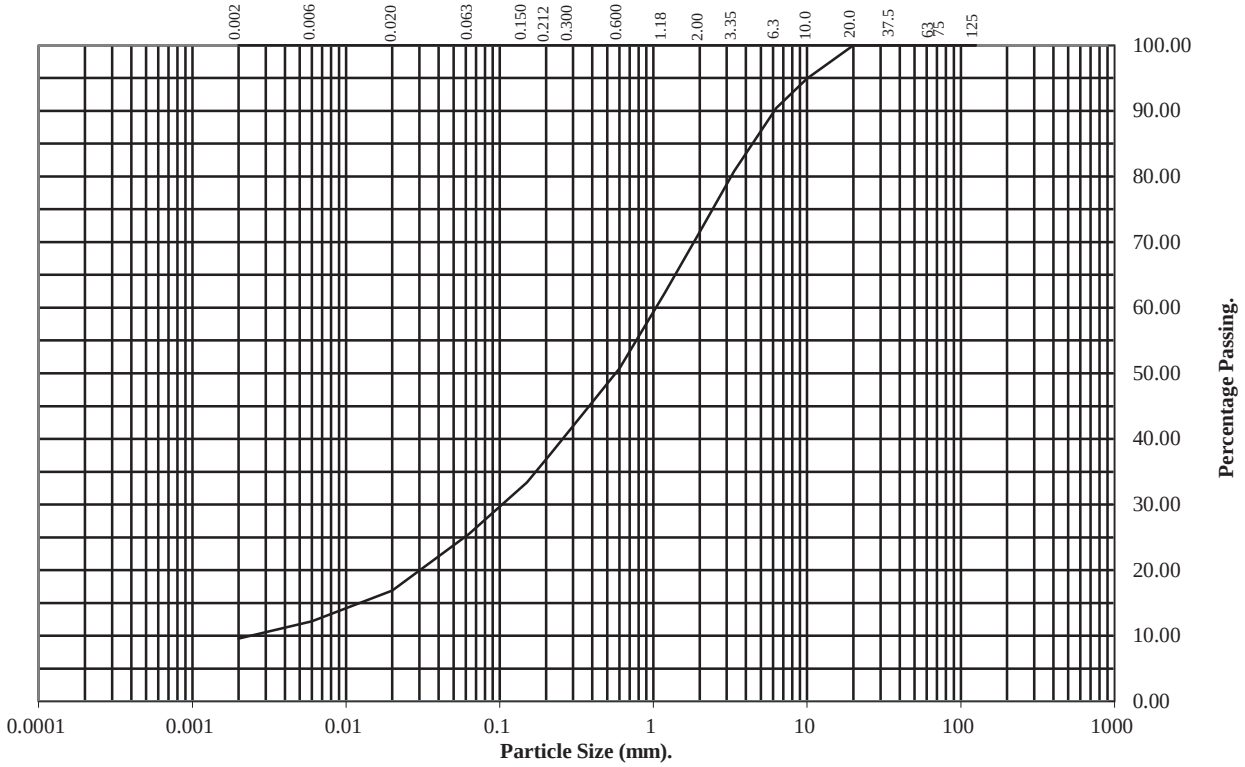
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**14.00**
Sample Number:		**Base Depth(m):**	**15.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	95
6.3	90
3.35	81
2	72
1.18	62
0.6	51
0.3	42
0.212	38
0.15	33
0.063	26

Particle Diameter	Percentage Passing
0.02	17
0.006	12
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	46
Silt	16
Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

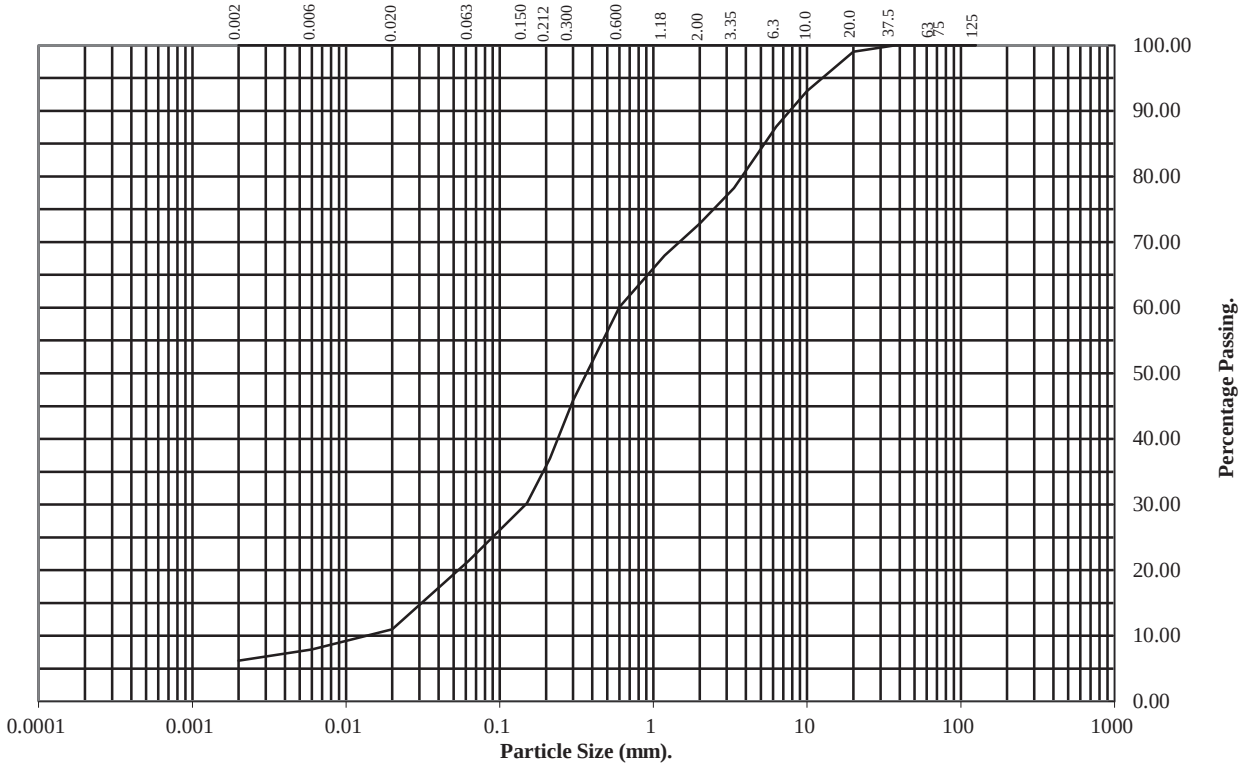
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH4** **Top Depth (m):** **21.50**

Sample Number: **Base Depth(m):** **23.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	93
6.3	88
3.35	78
2	73
1.18	68
0.6	60
0.3	46
0.212	37
0.15	30
0.063	21

Particle Diameter	Percentage Passing
0.02	11
0.006	8
0.002	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	27
Sand	52
Silt	15
Clay	6

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

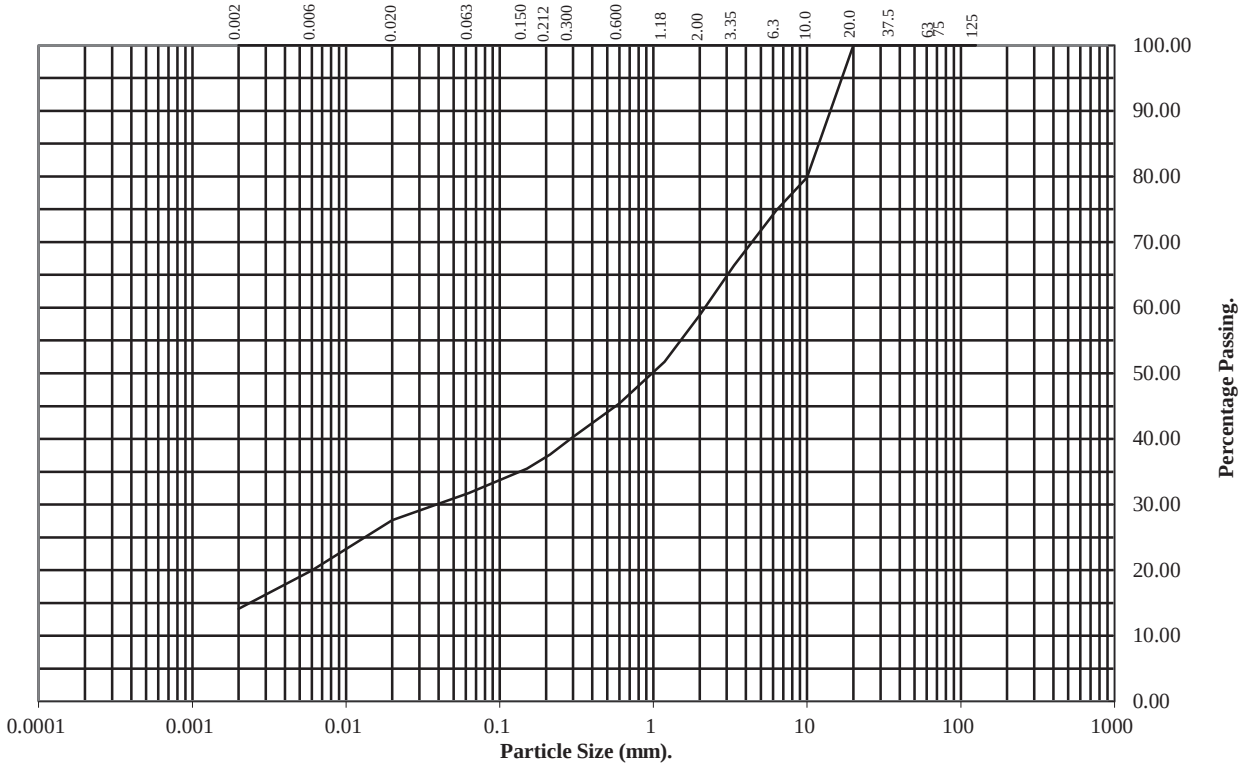
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**24.50**
Sample Number:		**Base Depth(m):**	**26.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	80
6.3	75
3.35	66
2	59
1.18	52
0.6	45
0.3	40
0.212	38
0.15	35
0.063	32

Particle Diameter	Percentage Passing
0.02	28
0.006	20
0.002	14

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	27
Silt	18
Clay	14

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

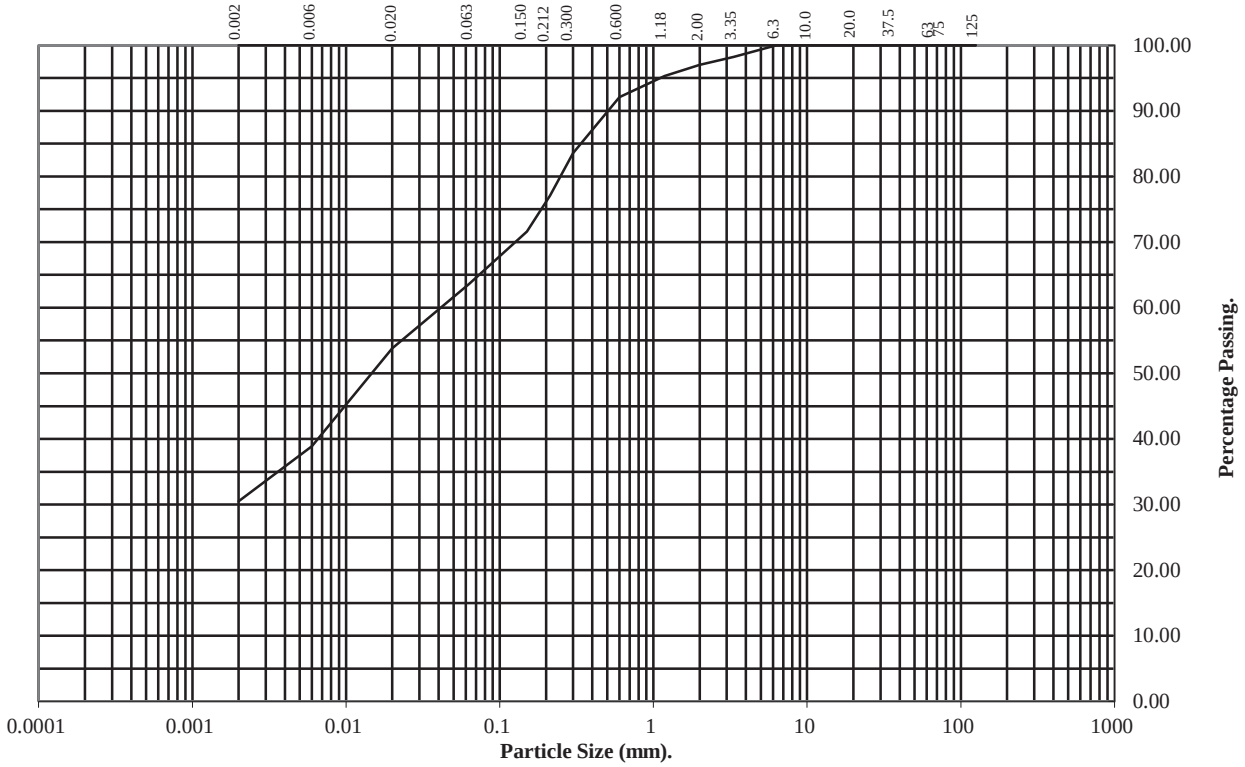
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH4**	**Top Depth (m):**	**33.50**
Sample Number:		**Base Depth(m):**	**35.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	98
2	97
1.18	95
0.6	92
0.3	84
0.212	77
0.15	72
0.063	64

Particle Diameter	Percentage Passing
0.02	54
0.006	39
0.002	30

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	33
Silt	34
Clay	30

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

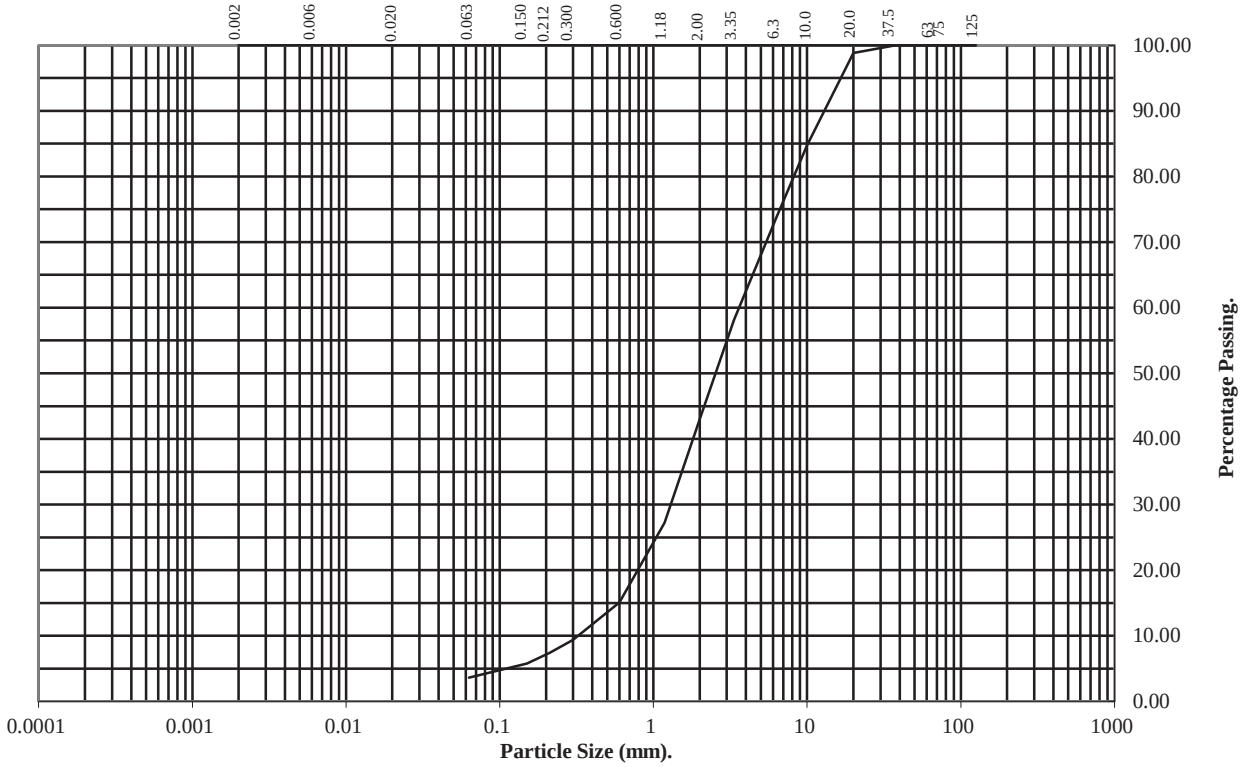
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH5** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	85
6.3	74
3.35	58
2	43
1.18	27
0.6	15
0.3	9
0.212	7
0.15	6
0.063	4

Soil Fraction	Total Percentage
Cobbles	0
Gravel	57
Sand	39
Silt/Clay	4

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

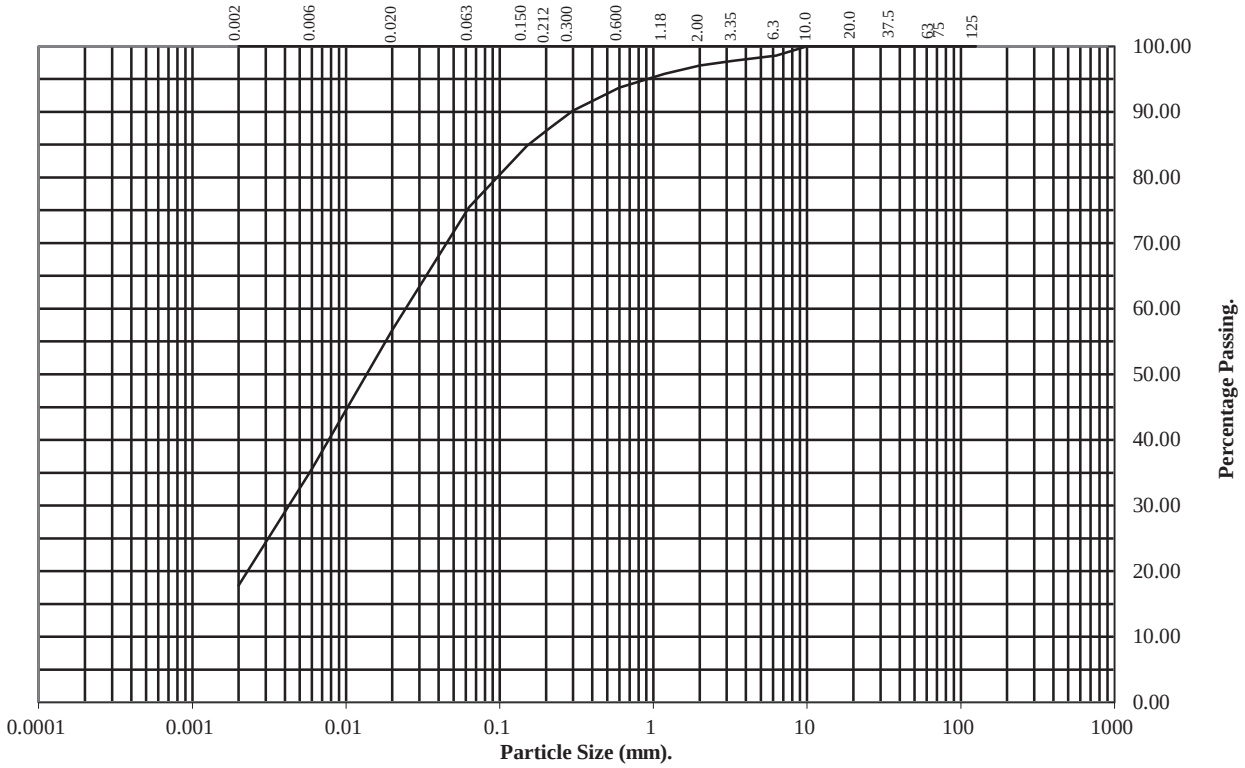
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**4.50**
Sample Number:		**Base Depth(m):**	**6.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	97
1.18	96
0.6	94
0.3	90
0.212	88
0.15	85
0.063	75

Particle Diameter	Percentage Passing
0.02	57
0.006	36
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	3
Sand	22
Silt	57
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

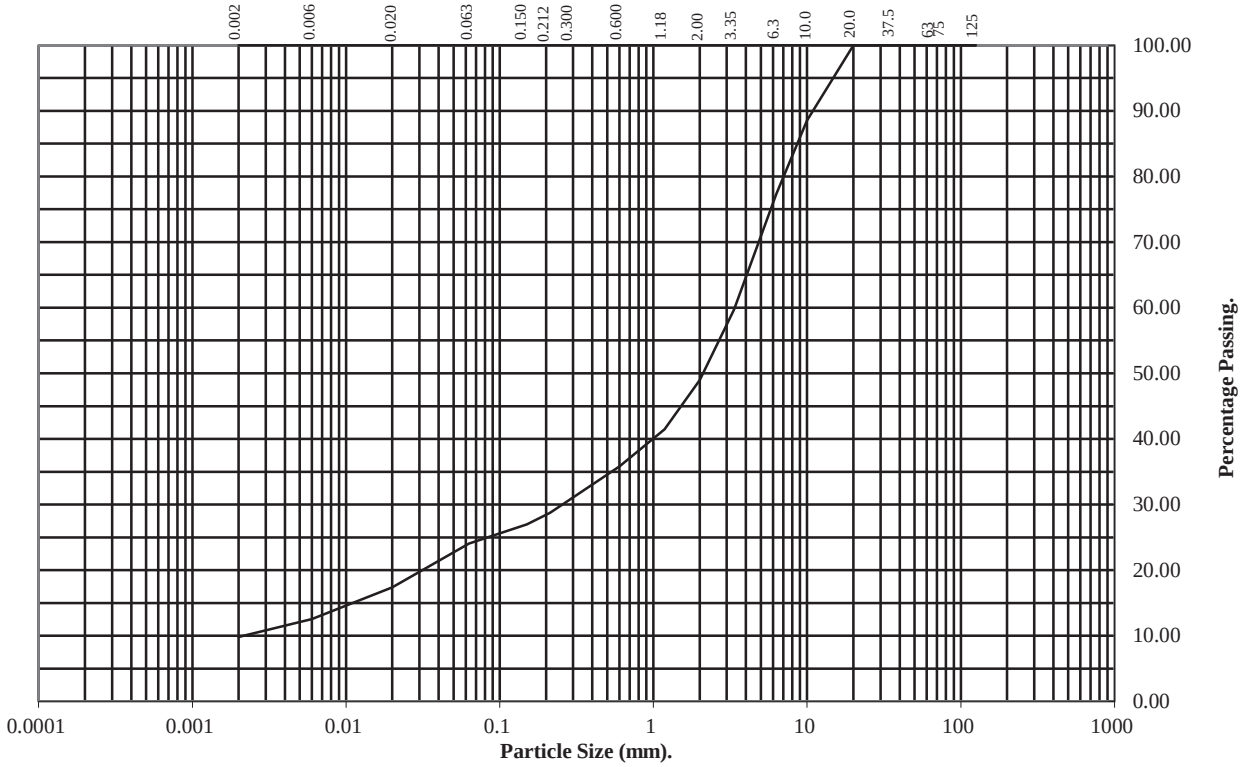
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: BH5 **Top Depth (m):** 6.00

Sample Number: **Base Depth(m):** 7.50

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	89
6.3	77
3.35	60
2	49
1.18	41
0.6	36
0.3	31
0.212	29
0.15	27
0.063	24

Particle Diameter	Percentage Passing
0.02	17
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	51
Sand	25
Silt	14
Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

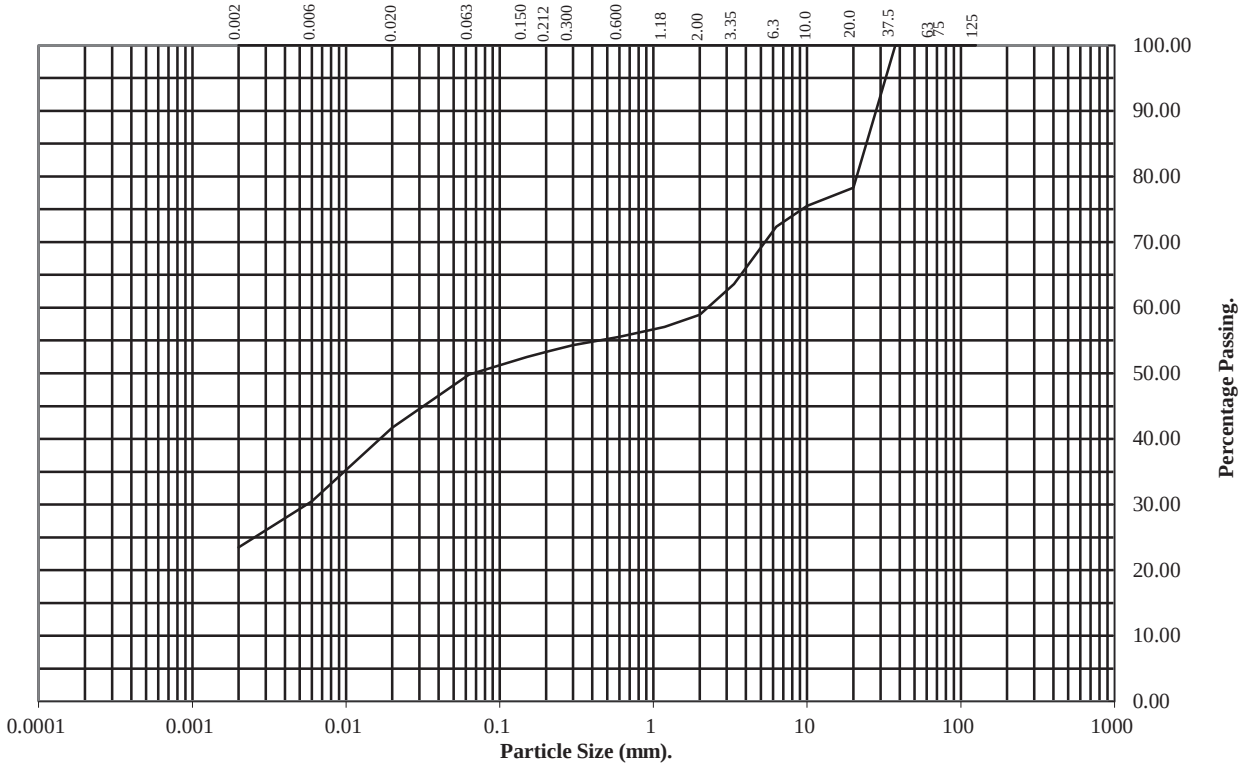
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**9.00**
Sample Number:		**Base Depth(m):**	**10.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	78
10	75
6.3	72
3.35	64
2	59
1.18	57
0.6	56
0.3	54
0.212	53
0.15	52
0.063	50

Particle Diameter	Percentage Passing
0.02	42
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	41
Sand	9
Silt	27
Clay	23

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

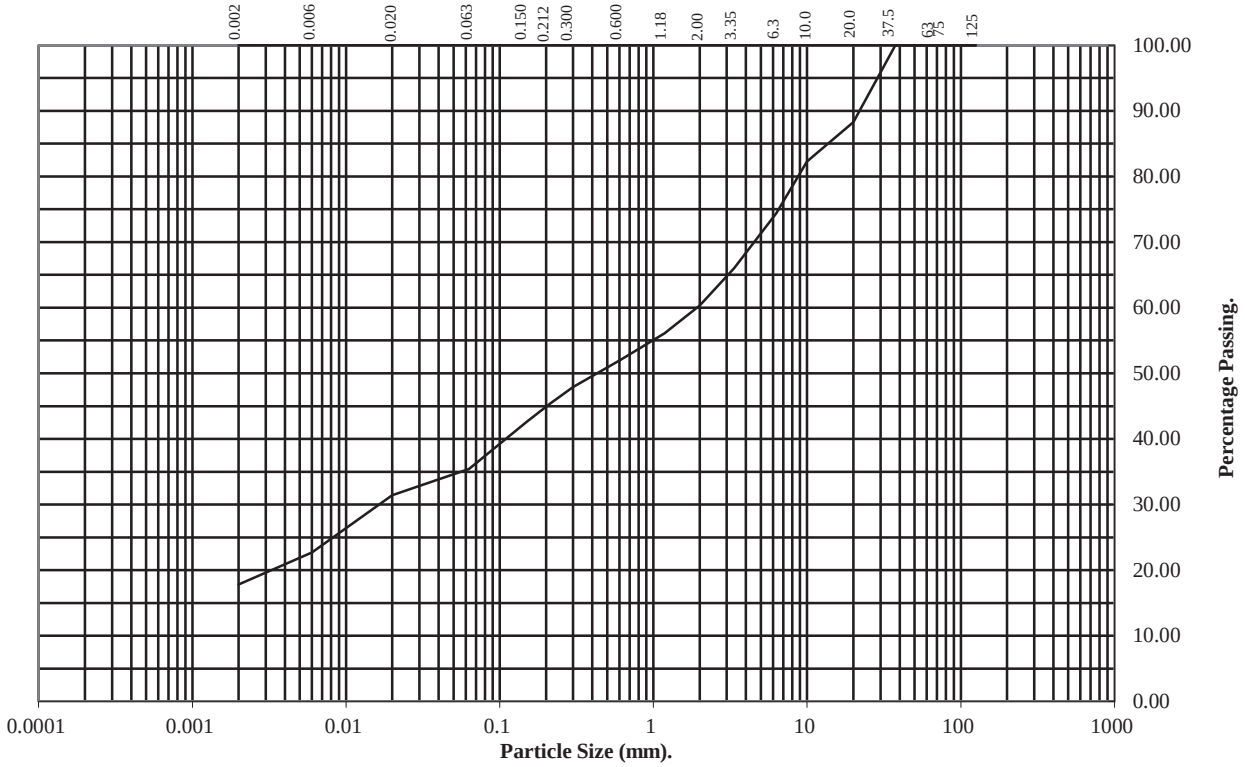
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**13.50**
Sample Number:		**Base Depth(m):**	**15.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	88
10	82
6.3	74
3.35	66
2	60
1.18	56
0.6	52
0.3	48
0.212	45
0.15	43
0.063	35

Particle Diameter	Percentage Passing
0.02	31
0.006	23
0.002	18

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	25
Silt	17
Clay	18

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

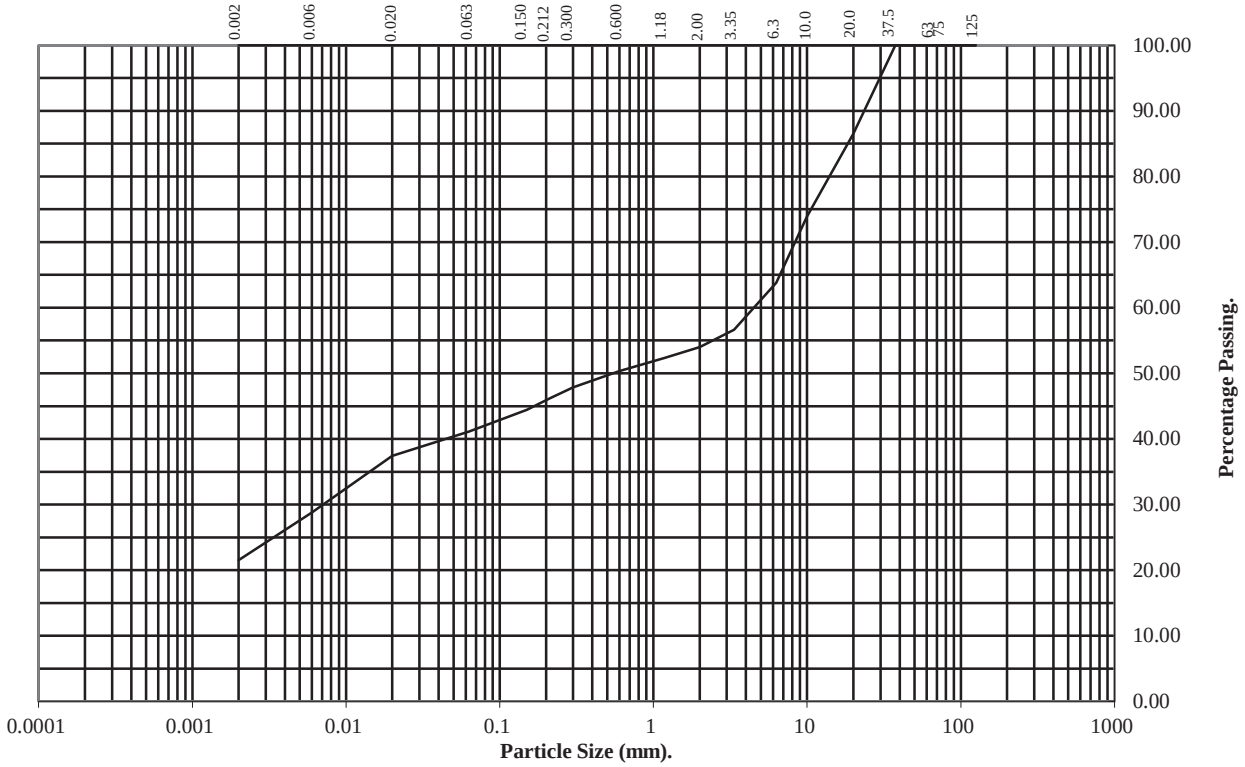
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**24.00**
Sample Number:		**Base Depth(m):**	**25.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	74
6.3	64
3.35	57
2	54
1.18	52
0.6	50
0.3	48
0.212	46
0.15	44
0.063	41

Particle Diameter	Percentage Passing
0.02	37
0.006	29
0.002	22

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	13
Silt	19
Clay	22

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

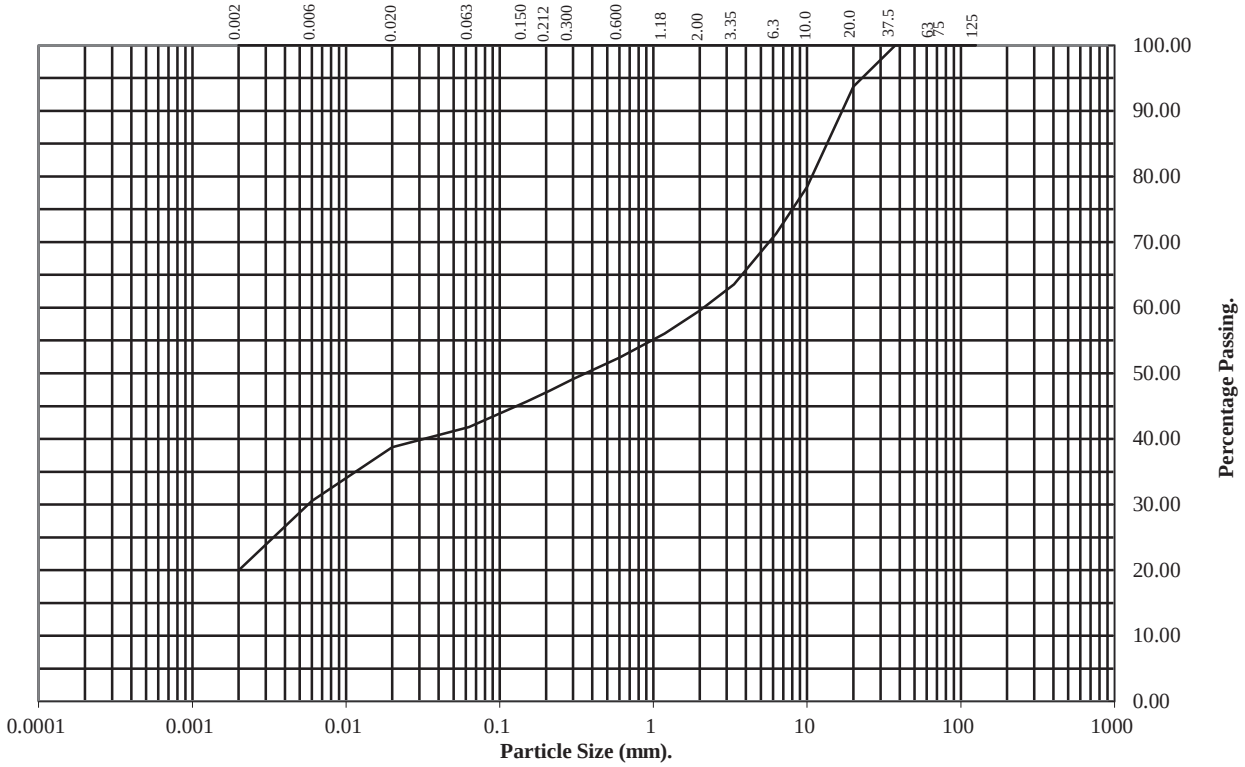
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH5**	**Top Depth (m):**	**33.00**
Sample Number:		**Base Depth(m):**	**34.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	94
10	78
6.3	71
3.35	64
2	60
1.18	56
0.6	52
0.3	49
0.212	47
0.15	46
0.063	42

Particle Diameter	Percentage Passing
0.02	39
0.006	31
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	40
Sand	18
Silt	22
Clay	20

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

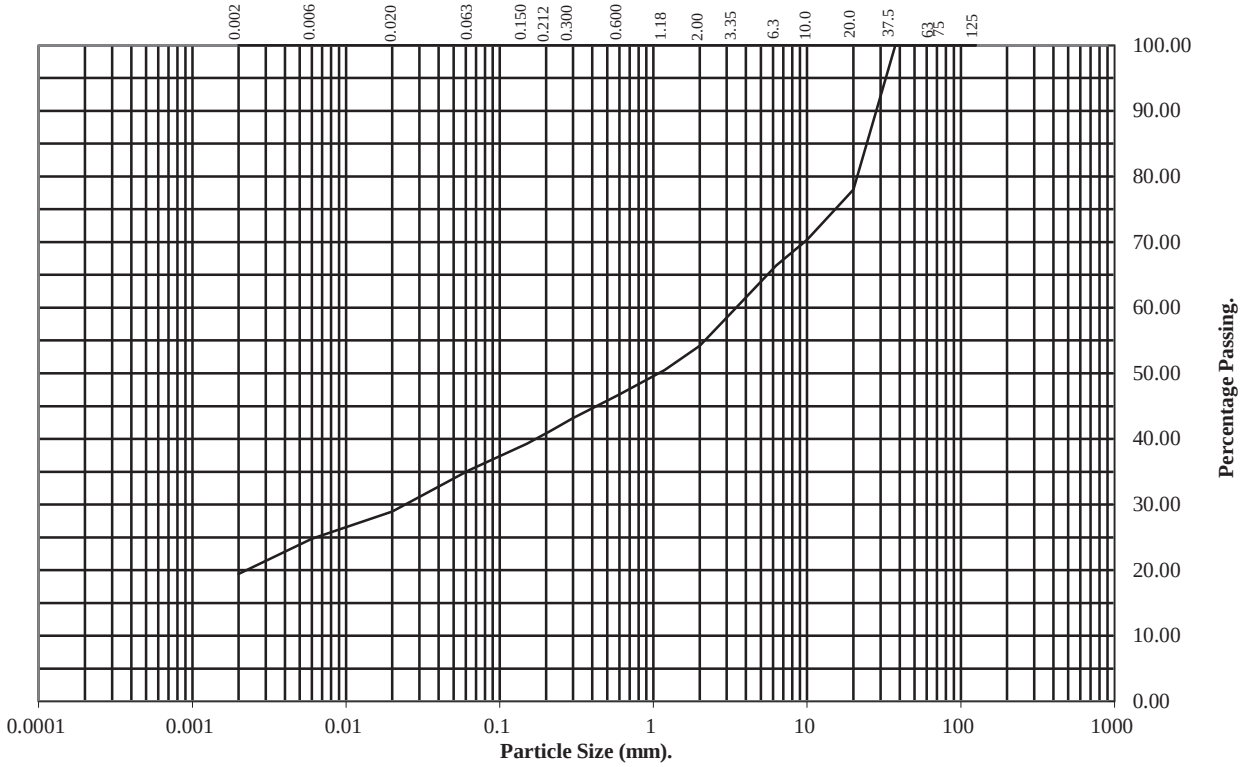
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **8.20**

Sample Number: **Base Depth(m):** **9.70**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	78
10	70
6.3	66
3.35	60
2	54
1.18	50
0.6	47
0.3	43
0.212	41
0.15	39
0.063	35

Particle Diameter	Percentage Passing
0.02	29
0.006	25
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	46
Sand	19
Silt	16
Clay	19

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

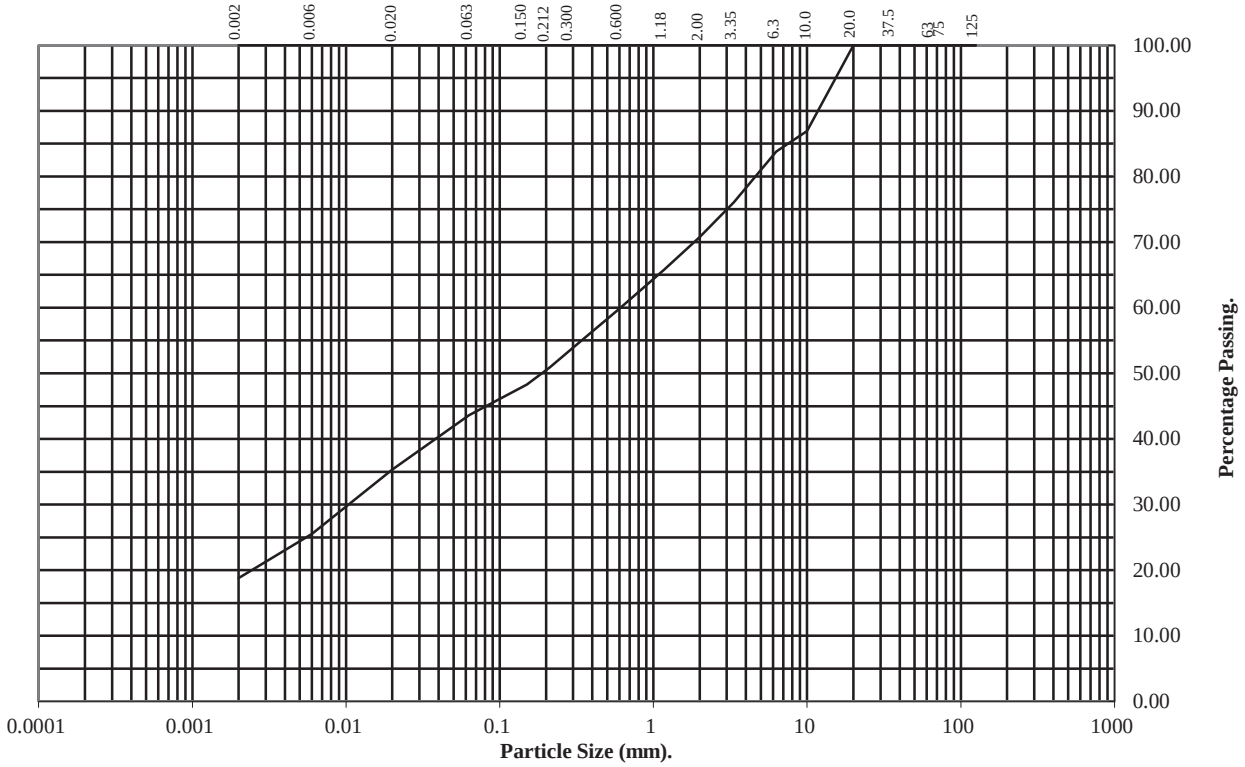
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **12.70**

Sample Number: **Base Depth(m):** **14.20**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	87
6.3	84
3.35	76
2	71
1.18	66
0.6	60
0.3	54
0.212	51
0.15	48
0.063	44

Particle Diameter	Percentage Passing
0.02	35
0.006	26
0.002	19

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	27
Silt	25
Clay	19

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

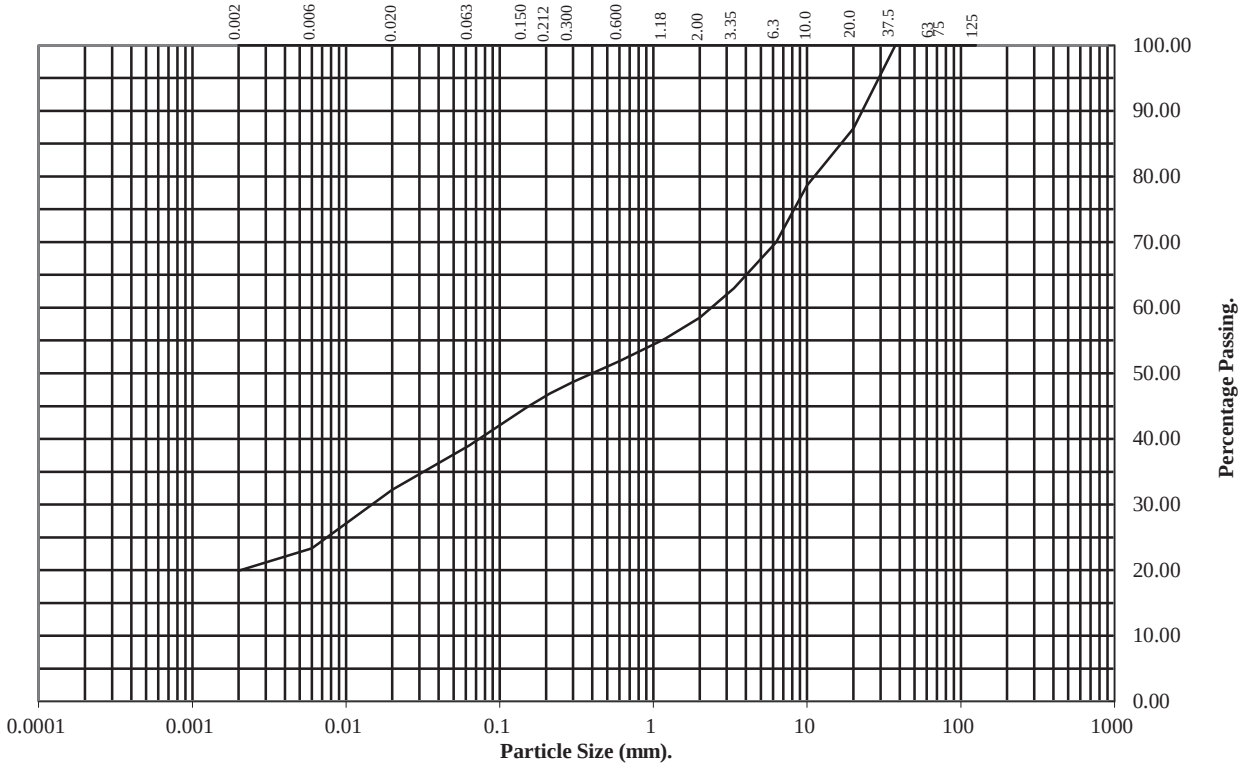
Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH8B**	**Top Depth (m):**	**21.70**
Sample Number:		**Base Depth(m):**	**23.20**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	79
6.3	70
3.35	63
2	58
1.18	55
0.6	52
0.3	49
0.212	47
0.15	45
0.063	39

Particle Diameter	Percentage Passing
0.02	32
0.006	23
0.002	20

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	19
Silt	19
Clay	20

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

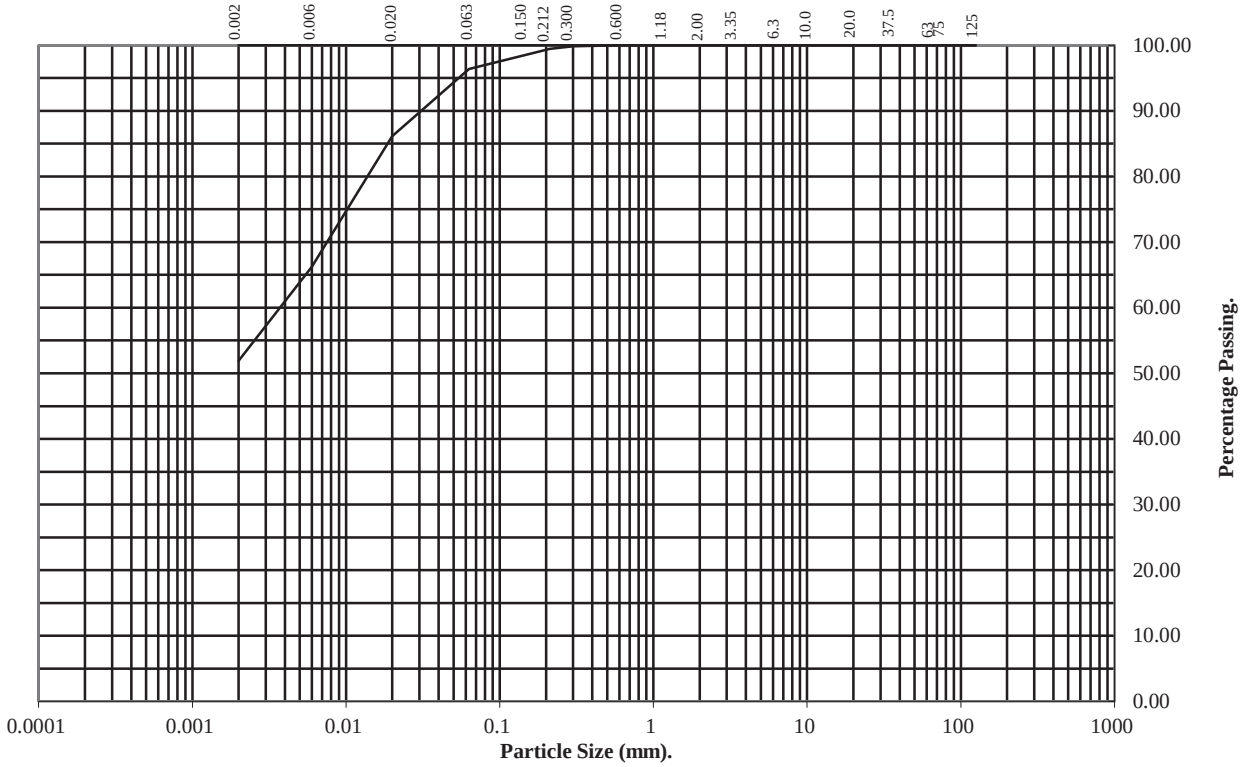
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH8B** **Top Depth (m):** **27.70**

Sample Number: **Base Depth(m):** **29.20**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	100
0.212	99
0.15	99
0.063	96

Particle Diameter	Percentage Passing
0.02	86
0.006	66
0.002	52

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	44
Clay	52

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

UIG Harbour Redevelopment

Contract No:
PSL17/4559
Client Ref:
17286

PARTICLE SIZE DISTRIBUTION TEST

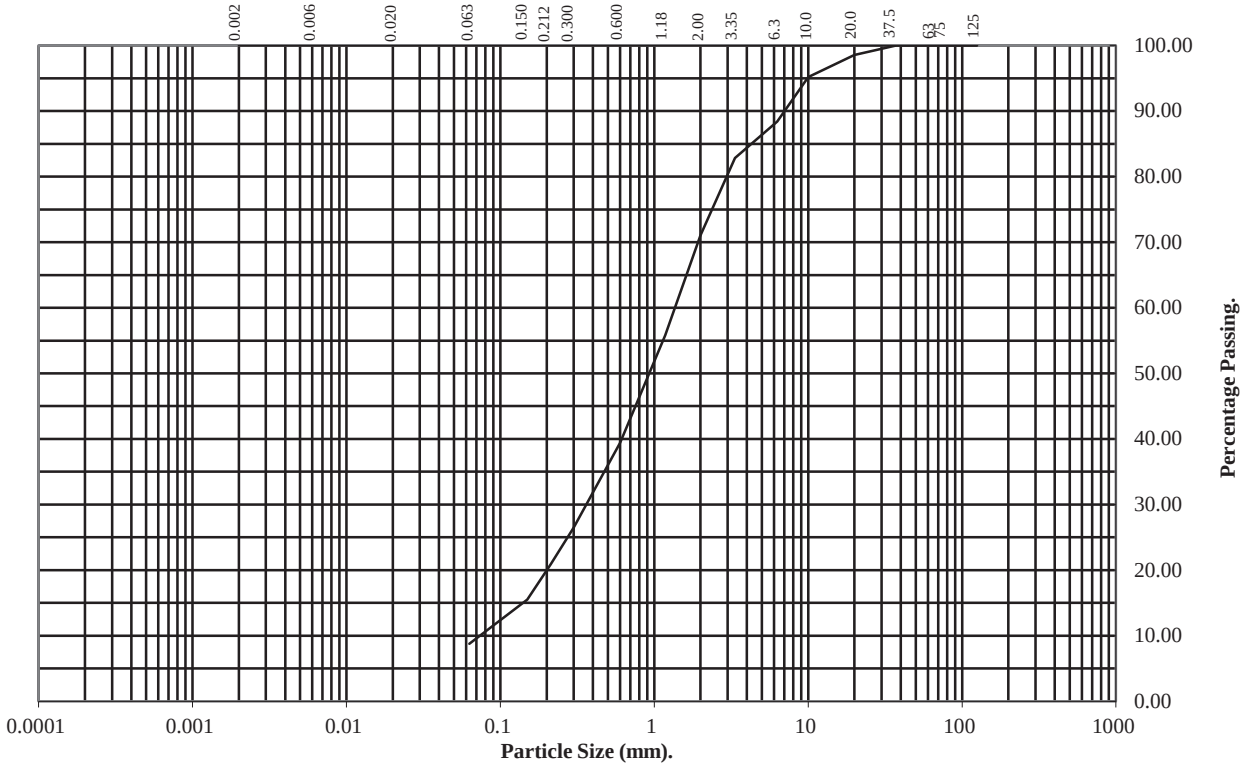
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **DS01** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):** **4.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	95
6.3	88
3.35	83
2	71
1.18	56
0.6	39
0.3	26
0.212	21
0.15	15
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	62
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

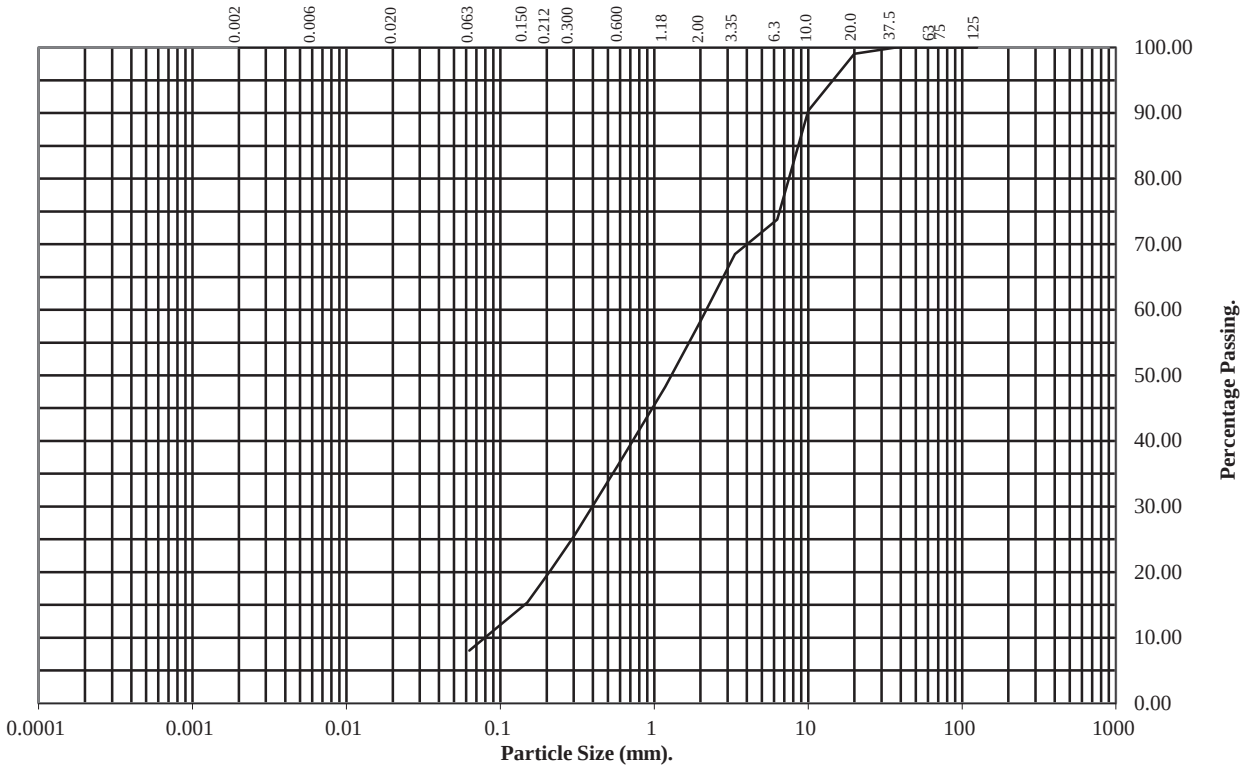
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **DS01** **Top Depth (m):** **6.00**

Sample Number: **Base Depth(m):** **7.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	90
6.3	74
3.35	69
2	58
1.18	48
0.6	37
0.3	25
0.212	20
0.15	15
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	50
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

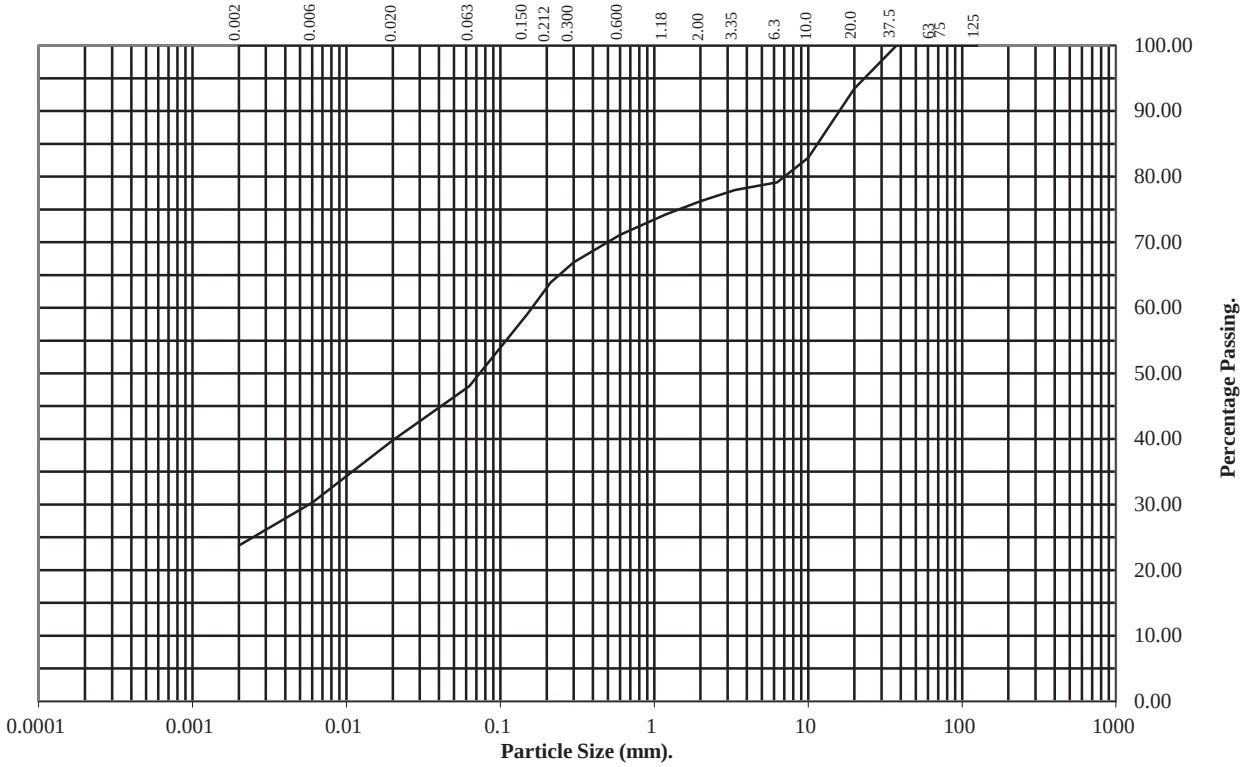
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS01**	**Top Depth (m):**	**16.50**
Sample Number:		**Base Depth(m):**	**18.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	83
6.3	79
3.35	78
2	76
1.18	74
0.6	71
0.3	67
0.212	64
0.15	59
0.063	48

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	24
Sand	28
Silt	24
Clay	24

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

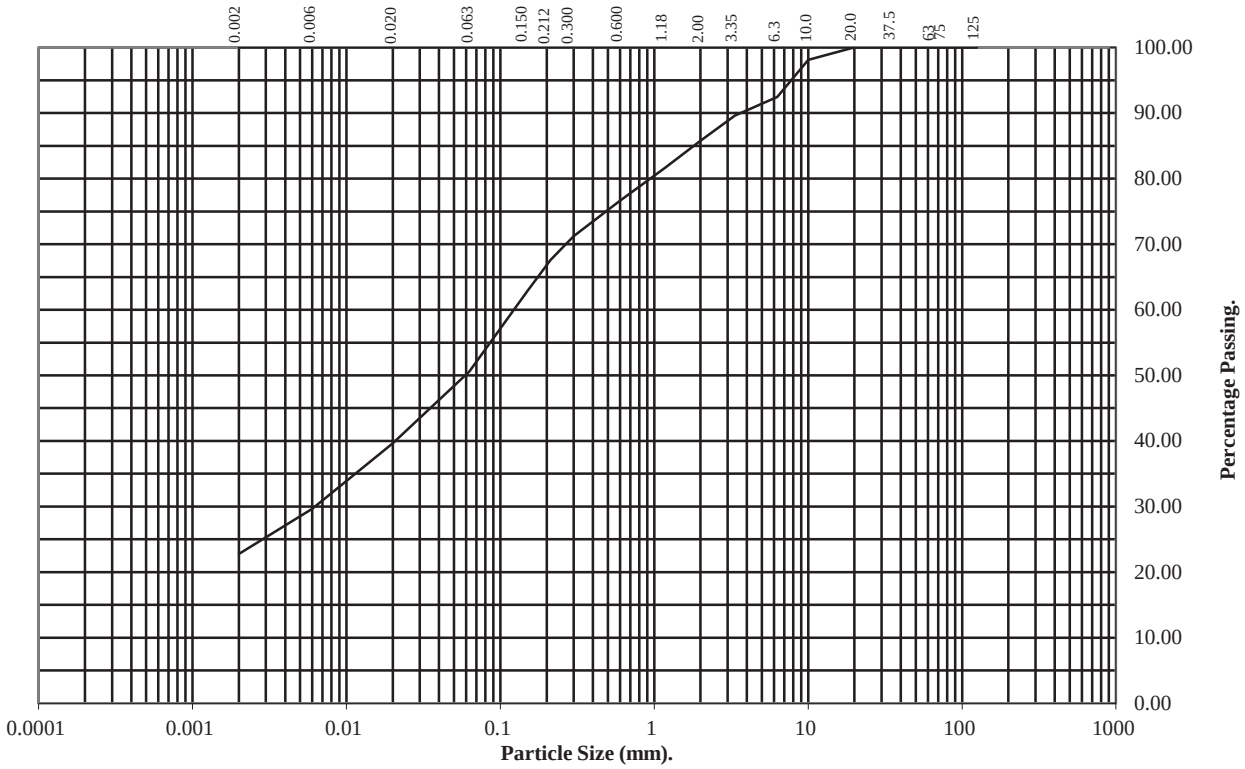
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **1.00**

Sample Number: **Base Depth(m):** **2.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	92
3.35	90
2	86
1.18	82
0.6	77
0.3	71
0.212	68
0.15	63
0.063	51

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	14
Sand	35
Silt	28
Clay	23

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

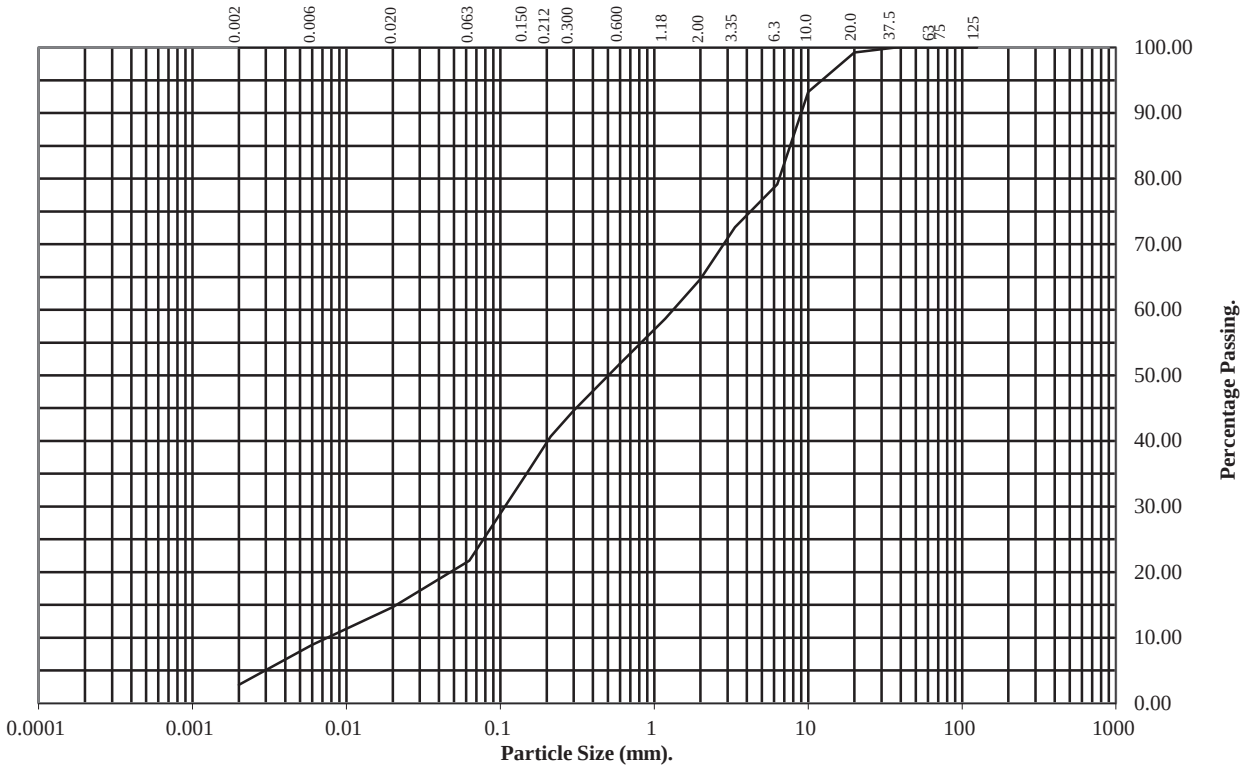
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **14.50**

Sample Number: **Base Depth(m):** **16.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	93
6.3	79
3.35	73
2	65
1.18	59
0.6	52
0.3	45
0.212	41
0.15	35
0.063	22

Particle Diameter	Percentage Passing
0.02	15
0.006	9
0.002	3

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

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

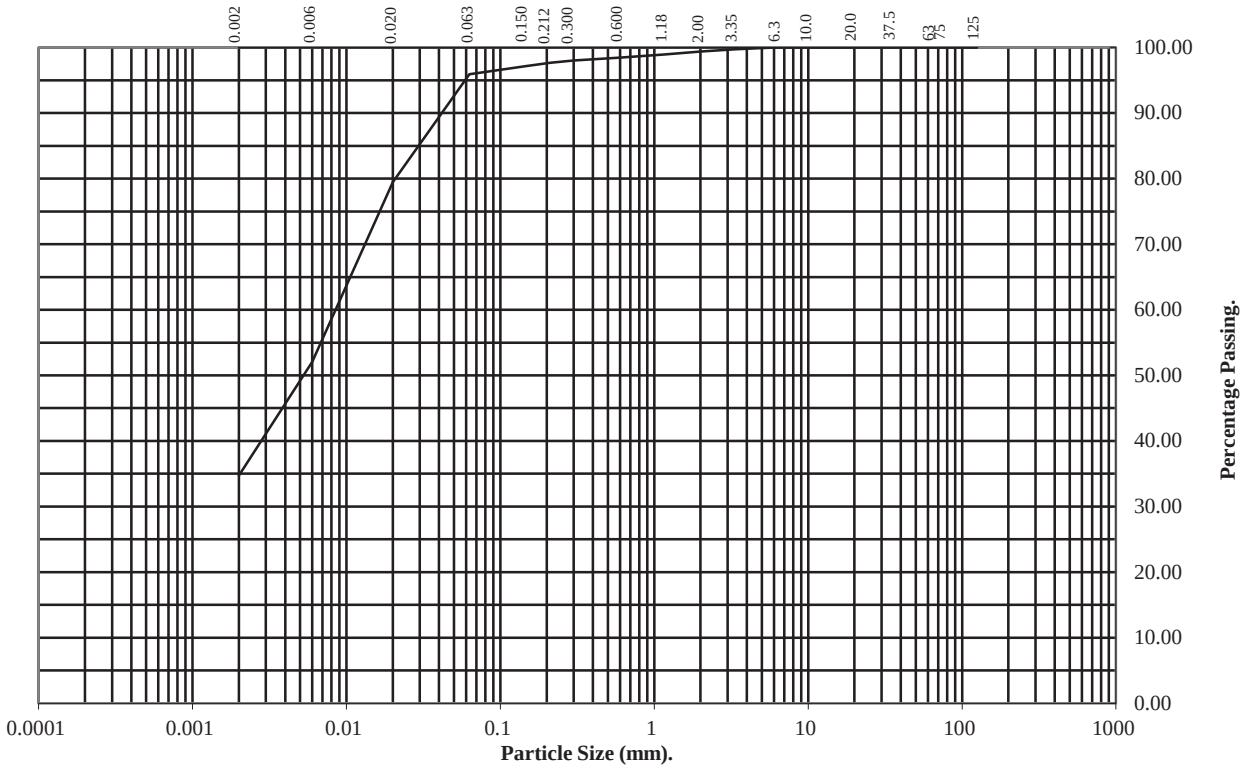
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP3 **Top Depth (m):** 3.00

Sample Number: **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	98
0.212	98
0.15	97
0.063	96

Particle Diameter	Percentage Passing
0.02	79
0.006	52
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	3
Silt	61
Clay	35

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

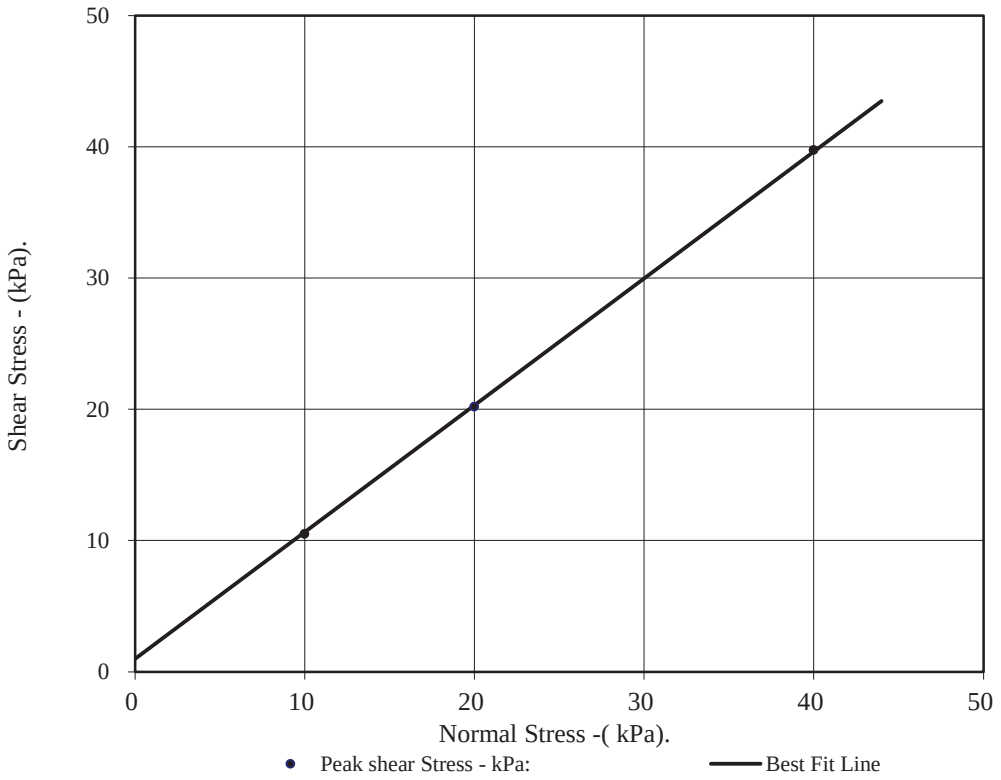
Contract No:
PSL17/5006
Client Ref:
17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**		Top Depth:	**1.50**	
Sample Number:			Base Depth:	**3.00**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	15	15	15
Bulk Density - Mg/m3:	1.91	1.91	1.91
Dry Density - Mg/m3:	1.66	1.66	1.66
Voids Ratio:	0.598	0.595	0.594
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.70	19.73	19.28
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	3.00	2.50	2.50
Peak shear Stress - kPa:	10	20	40
Final Consolidated Conditons			
Moisture Content - %:	22	23	22
Bulk Density - Mg/m3:	1.93	1.93	1.98
Dry Density - Mg/m3:	1.58	1.57	1.62
Peak			
Angle of Shearing Resistance:(~~θ~~)	**44**		
Effective Cohesion - kPa:	**1**		



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

LABORATORY REPORT

4043

Contract Number: PSL17/5006

Report Date: 27 October 2017

Client's Reference: 17355

Client Name: Holequest
Winston Road
Galashiels
TD1 2DA

For the attention of Redacted

Contract Title: Uig Harbour redevelopment

Date Received: 13/10/2017
Date Commenced: 13/10/2017
Date Completed: 27/10/2017

Notes: **Opinions and Interpretations are outside the UKAS Accreditation**

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. 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 other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

Redacted

5 – 7 Hexthorpe Road, Hexthorpe,
Doncaster DN4 0AR
tel: +44 (0)844 815 6641
fax: +44 (0)844 815 6642
e-mail: rgunson@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
DS01		B	1.50	3.00	Dark grey very gravelly silty SAND.
DS01		B	3.00	4.50	Dark grey very gravelly silty SAND.
DS01		B+D	4.50	6.00	Dark grey very gravelly clayey very silty SAND.
DS01		B	6.00	7.50	Dark grey very gravelly silty SAND.
DS01		B+D	9.00	10.50	Grey slightly gravelly slightly sandy very silty CLAY.
DS01		B+D	16.50	18.00	Dark grey very gravelly very sandy very silty CLAY.
DS01		B+D	24.00	25.50	Grey very gravelly very sandy very silty CLAY.
DS01		B	31.50	33.00	Dark grey very gravelly slightly clayey silty SAND.
BH7		B	1.00	2.50	Dark grey gravelly very sandy very silty CLAY.
BH7		B	2.50	4.00	Dark grey very sandy clayey very silty GRAVEL.
BH7		B	5.50	7.00	Grey very sandy slightly clayey very silty GRAVEL.
BH7		B	7.00	8.50	Grey very gravelly silty SAND.
BH7		B+D	8.50	10.00	Grey very sandy slightly clayey silty GRAVEL.
BH7		U80	13.00	14.00	Dark grey sandy CLAY.
BH7		B	14.50	16.00	Dark grey very gravelly clayey very silty SAND.
BH7		B+D	17.50	19.00	Dark grey very sandy very silty CLAY.
TP3		B	0.80		Dark grey slightly gravelly sandy very silty CLAY.
TP3		B	3.00		Grey slightly gravelly slightly sandy very silty CLAY.

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
DS01		B+D	4.50	6.00	24				NP			
DS01		B+D	9.00	10.50	30			54	28	26	90	High plasticity CH.
DS01		B+D	16.50	18.00	22			46	23	23	69	Intermediate plasticity CI.
DS01		B+D	24.00	25.50	16			40	20	20	68	Intermediate plasticity CI.
DS01		B	31.50	33.00	12				NP			
BH7		B+D	8.50	10.00	14				NP			
BH7		U80	13.00	14.00	25			44	23	21	100	Intermediate plasticity CI.
BH7		B+D	17.50	19.00	22			34	20	14	99	Low plasticity CL.
TP3		B	0.80		27			40	24	16	99	Intermediate plasticity CI.
TP3		B	3.00		30			54	27	27	98	High plasticity CH.

SYMBOLS : **NP : Non Plastic** *** : Liquid Limit and Plastic Limit Wet Sieved.**

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:

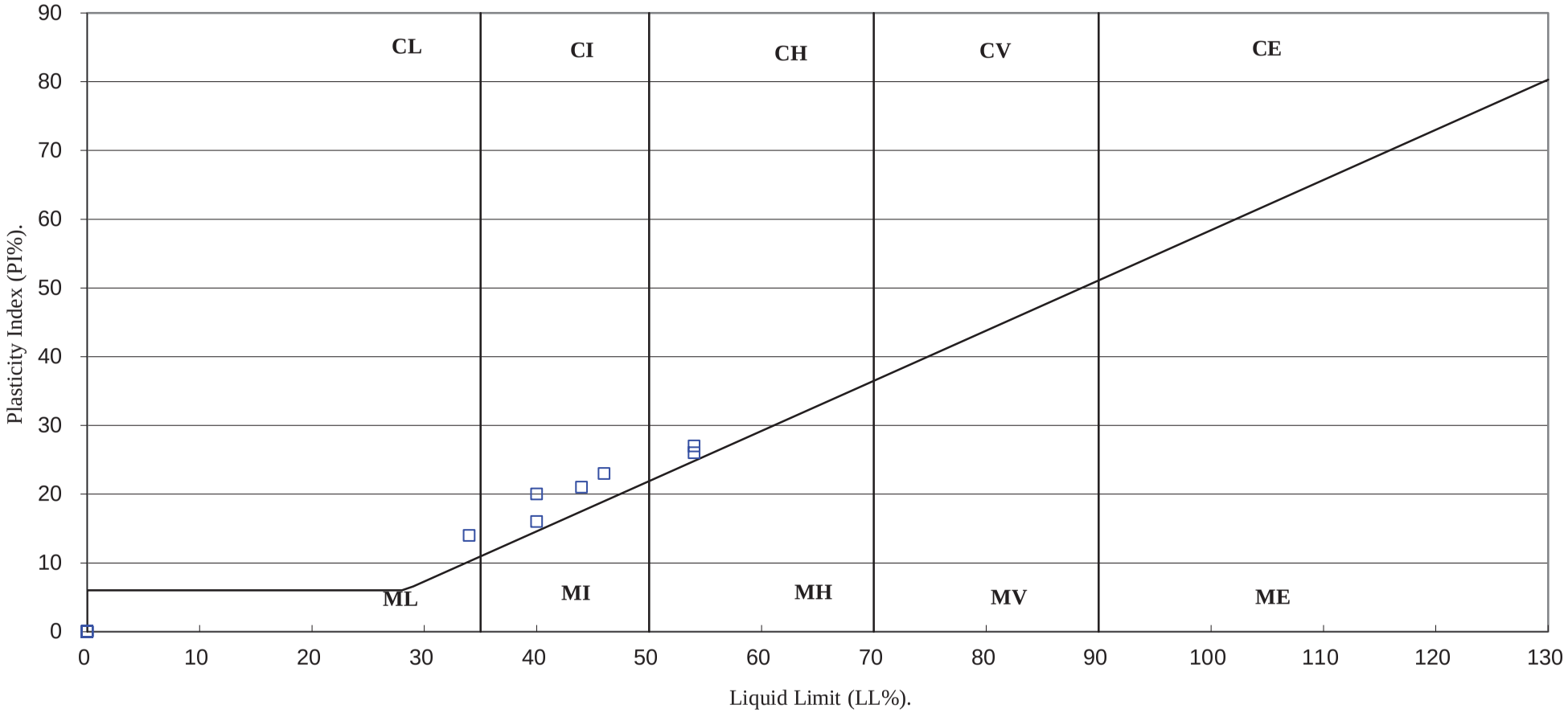
PSL17/5006

Client Ref:

17/035

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.

(BS5930 :2015)



UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** PSL17/5006 **Client Ref:** 17/035

PARTICLE SIZE DISTRIBUTION TEST

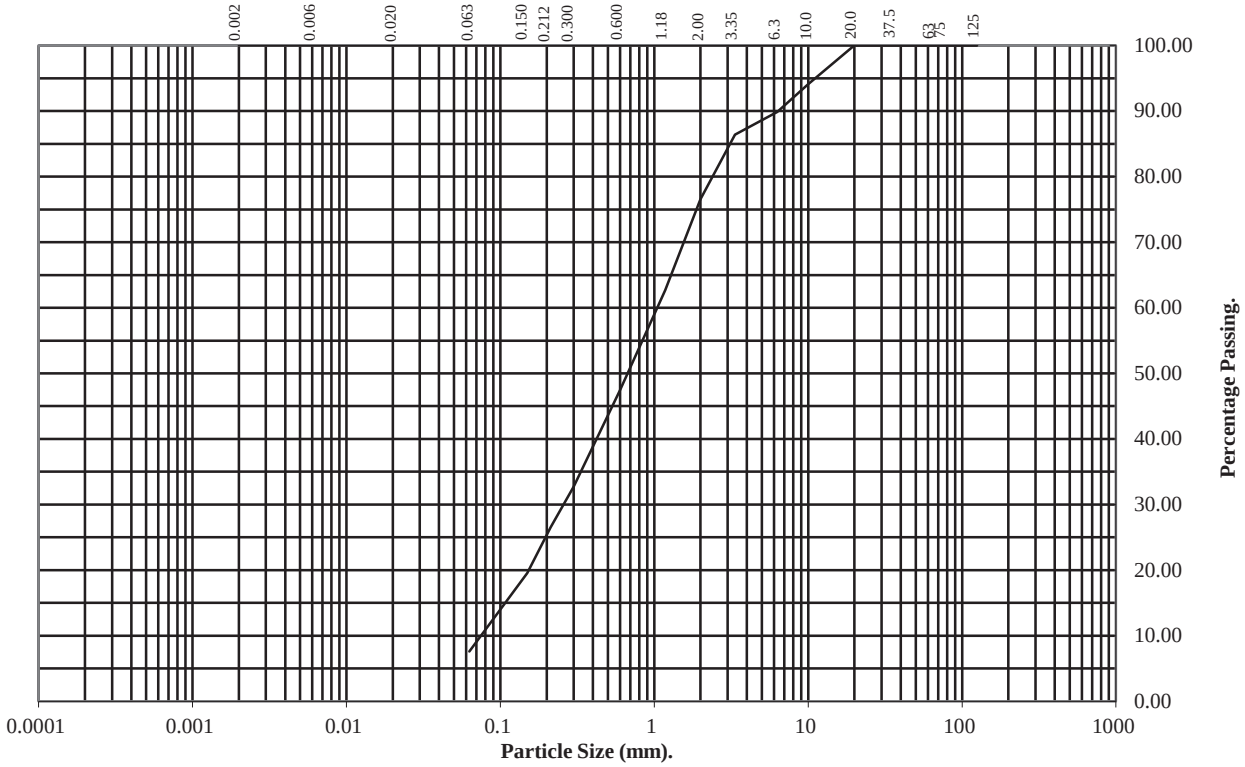
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **DS01** **Top Depth (m):** **1.50**

Sample Number: **Base Depth(m):** **3.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	94
6.3	90
3.35	86
2	77
1.18	63
0.6	47
0.3	33
0.212	27
0.15	20
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	23
Sand	69
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No: **PSL17/5006**

Client Ref: **17/035**

PARTICLE SIZE DISTRIBUTION TEST

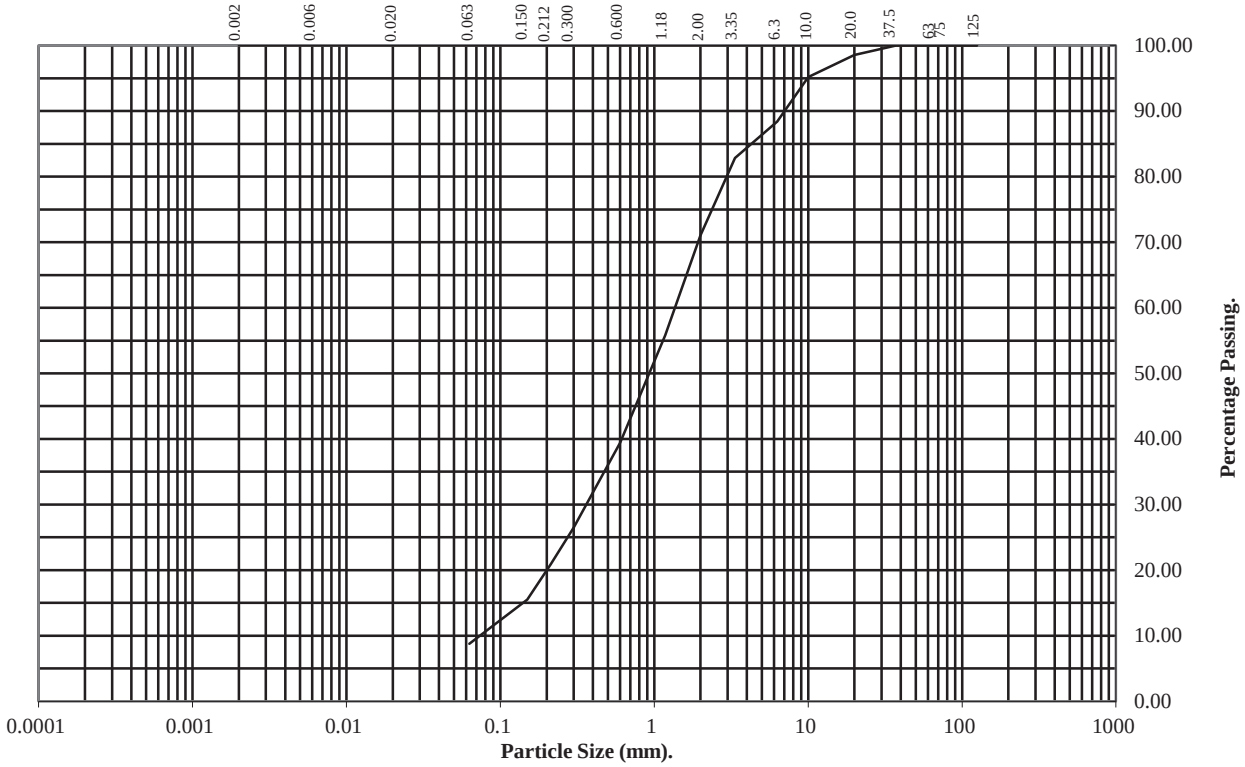
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **DS01** **Top Depth (m):** **3.00**

Sample Number: **Base Depth(m):** **4.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	95
6.3	88
3.35	83
2	71
1.18	56
0.6	39
0.3	26
0.212	21
0.15	15
0.063	9

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	62
Silt/Clay	9

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

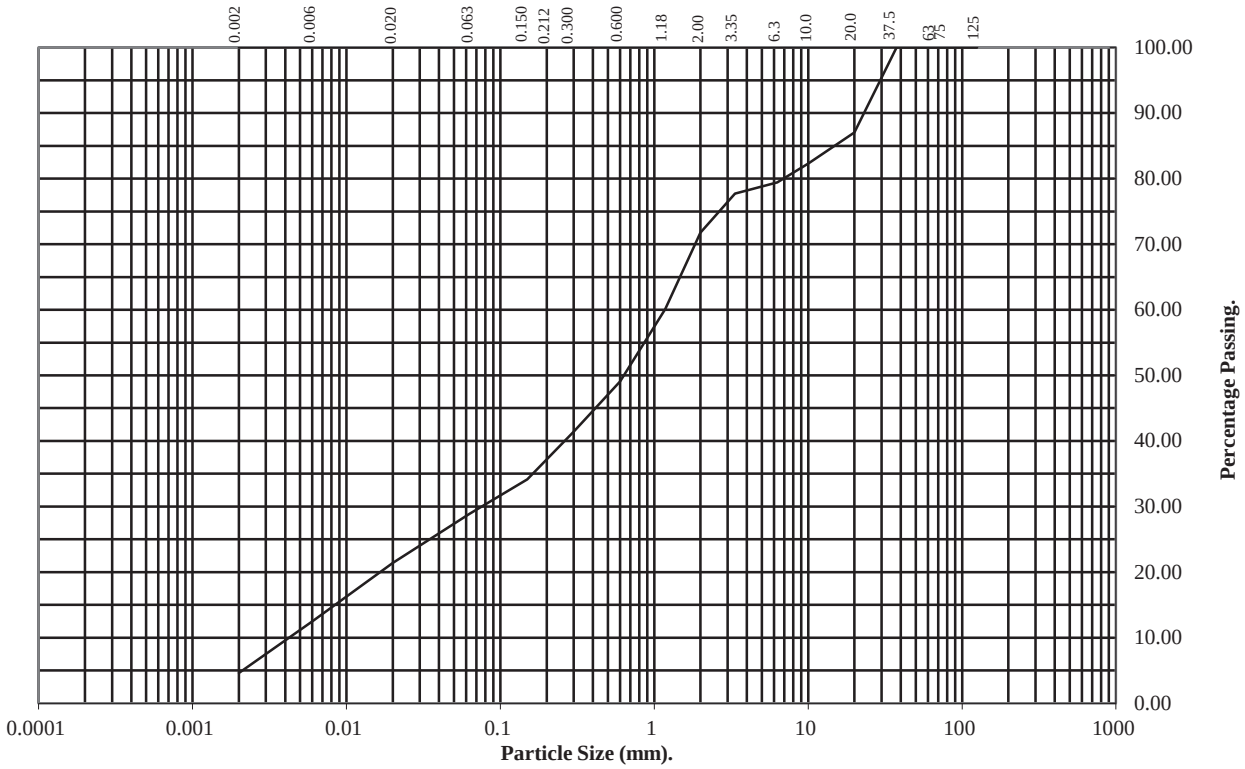
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS01**	**Top Depth (m):**	**4.50**
Sample Number:		**Base Depth(m):**	**6.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	87
10	82
6.3	79
3.35	78
2	72
1.18	60
0.6	49
0.3	41
0.212	38
0.15	34
0.063	29

Particle Diameter	Percentage Passing
0.02	21
0.006	12
0.002	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	28
Sand	43
Silt	24
Clay	5

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

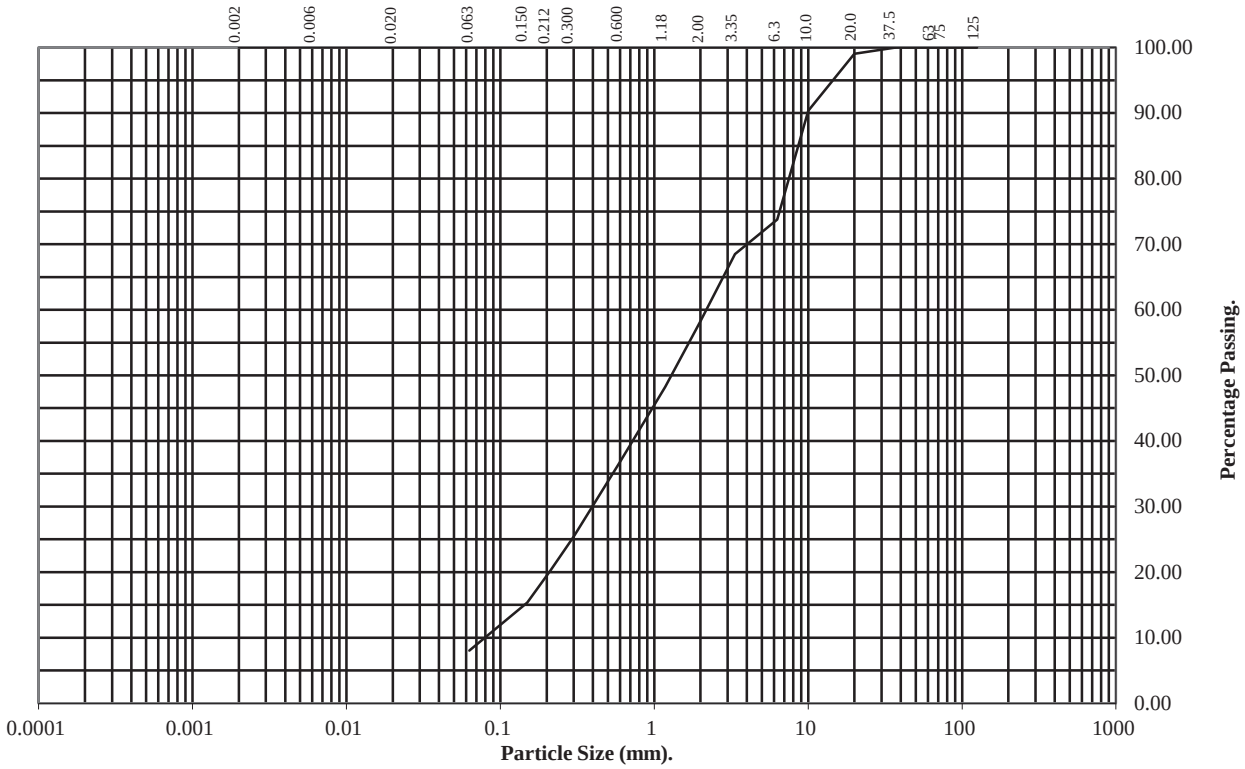
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **DS01** **Top Depth (m):** **6.00**

Sample Number: **Base Depth(m):** **7.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	90
6.3	74
3.35	69
2	58
1.18	48
0.6	37
0.3	25
0.212	20
0.15	15
0.063	8

Soil Fraction	Total Percentage
Cobbles	0
Gravel	42
Sand	50
Silt/Clay	8

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

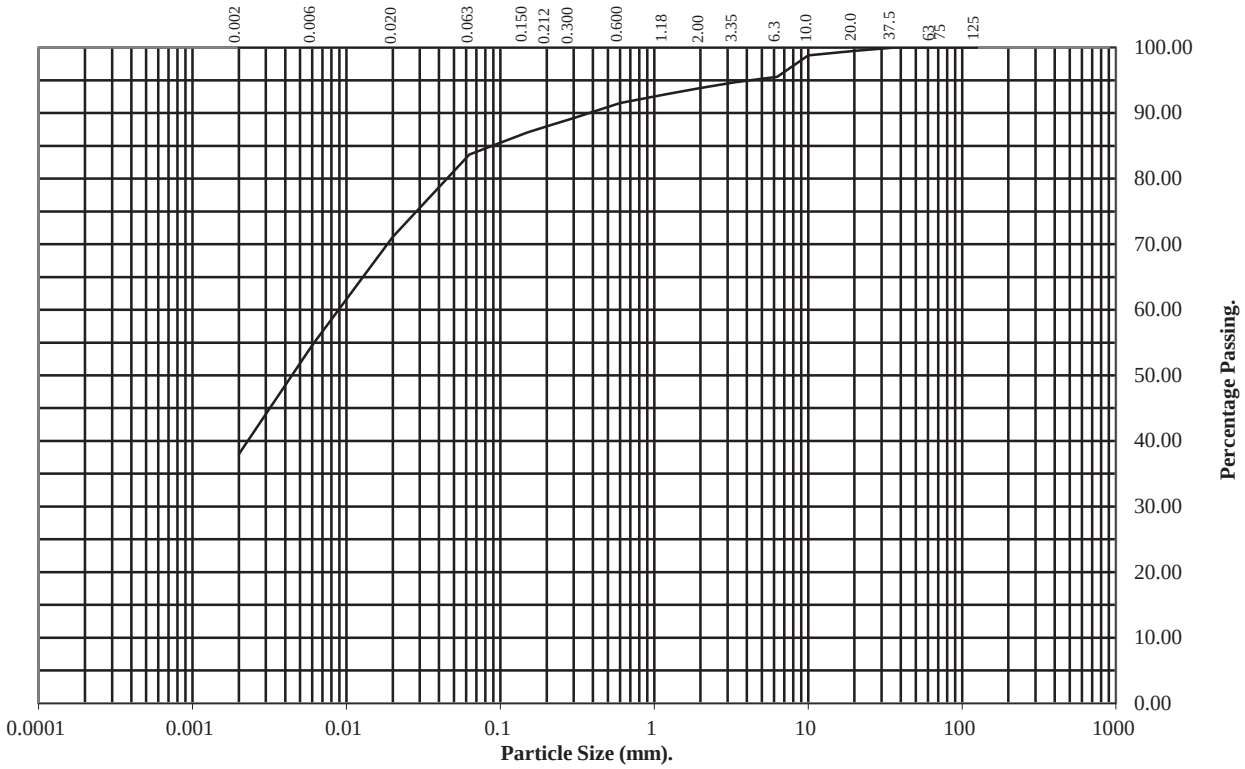
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **DS01** **Top Depth (m):** **9.00**

Sample Number: **Base Depth(m):** **10.50**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	99
6.3	96
3.35	95
2	94
1.18	93
0.6	92
0.3	89
0.212	88
0.15	87
0.063	84

Particle Diameter	Percentage Passing
0.02	71
0.006	55
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	6
Sand	10
Silt	46
Clay	38

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

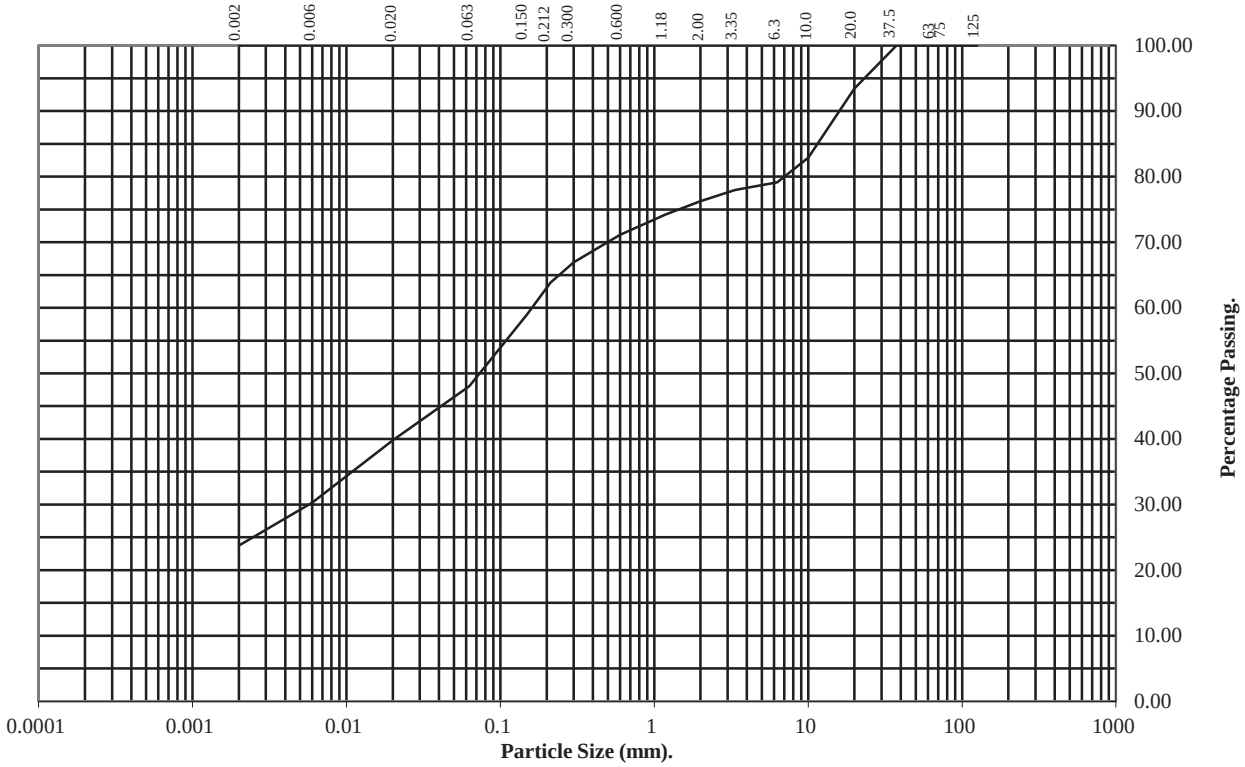
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS01**	**Top Depth (m):**	**16.50**
Sample Number:		**Base Depth(m):**	**18.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	93
10	83
6.3	79
3.35	78
2	76
1.18	74
0.6	71
0.3	67
0.212	64
0.15	59
0.063	48

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	24
Sand	28
Silt	24
Clay	24

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

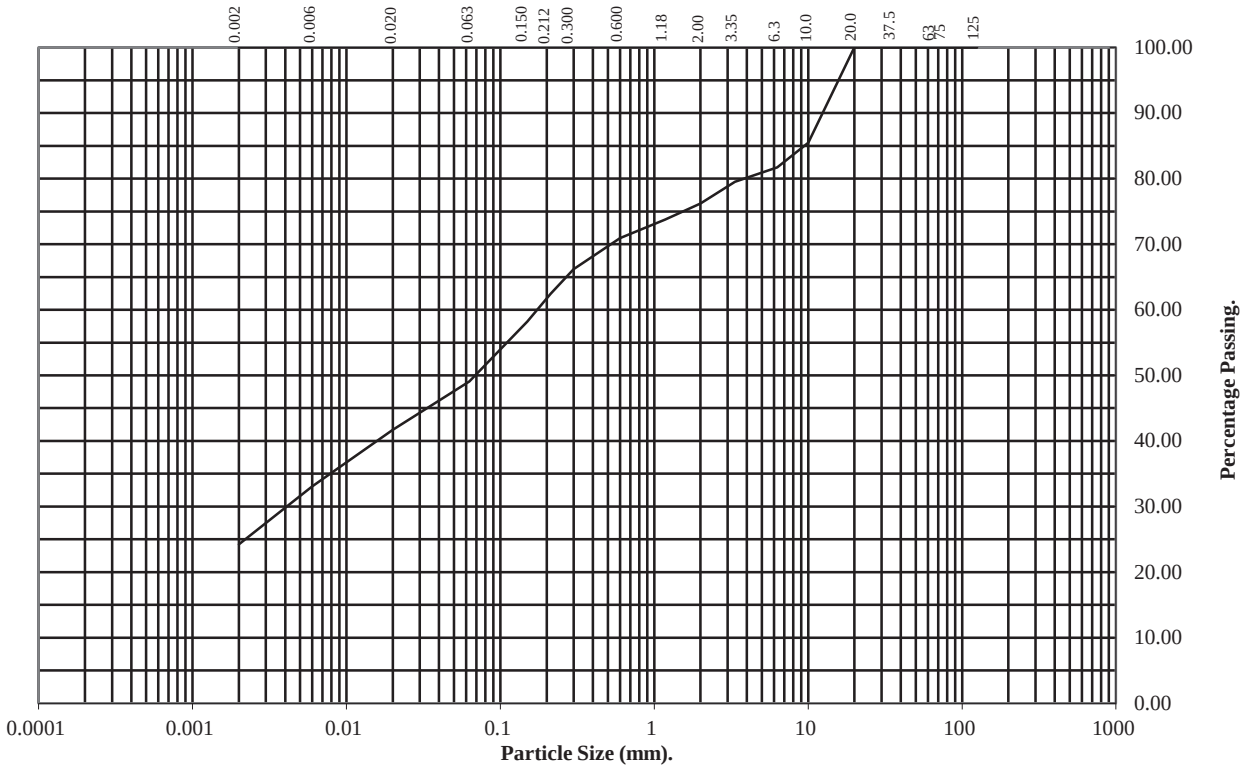
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS01**	**Top Depth (m):**	**24.00**
Sample Number:		**Base Depth(m):**	**25.50**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	85
6.3	82
3.35	80
2	76
1.18	74
0.6	71
0.3	66
0.212	62
0.15	58
0.063	49

Particle Diameter	Percentage Passing
0.02	42
0.006	33
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	24
Sand	27
Silt	25
Clay	24

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

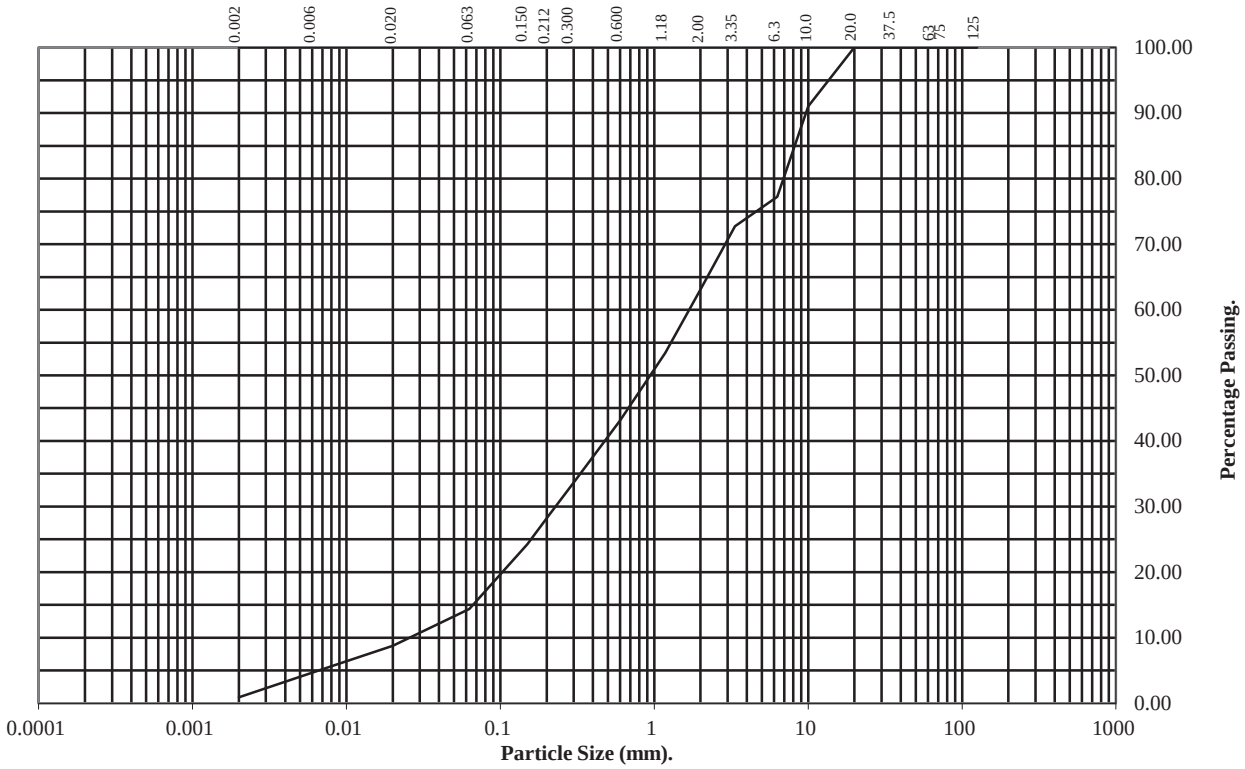
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**DS01**	**Top Depth (m):**	**31.50**
Sample Number:		**Base Depth(m):**	**33.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	91
6.3	77
3.35	73
2	63
1.18	53
0.6	43
0.3	34
0.212	29
0.15	24
0.063	14

Particle Diameter	Percentage Passing
0.02	9
0.006	5
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	37
Sand	49
Silt	13
Clay	1

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

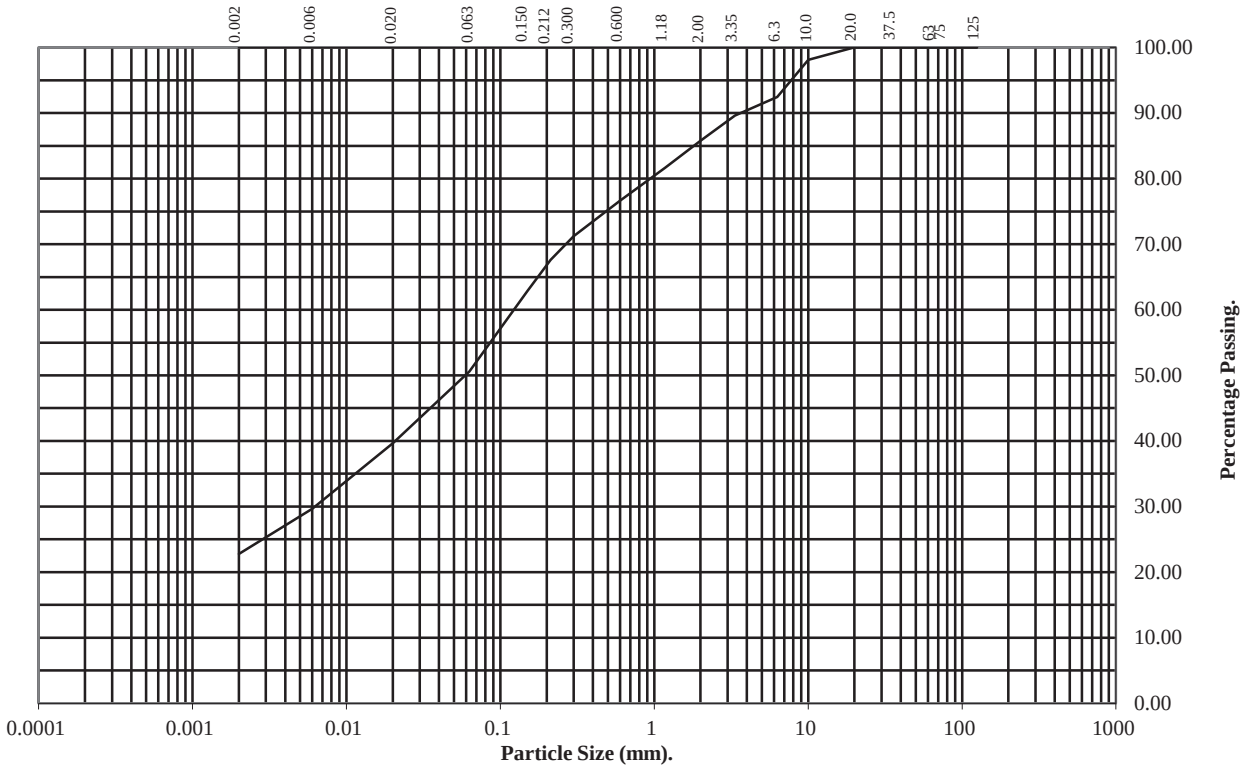
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **1.00**

Sample Number: **Base Depth(m):** **2.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	98
6.3	92
3.35	90
2	86
1.18	82
0.6	77
0.3	71
0.212	68
0.15	63
0.063	51

Particle Diameter	Percentage Passing
0.02	40
0.006	30
0.002	23

Soil Fraction	Total Percentage
Cobbles	0
Gravel	14
Sand	35
Silt	28
Clay	23

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

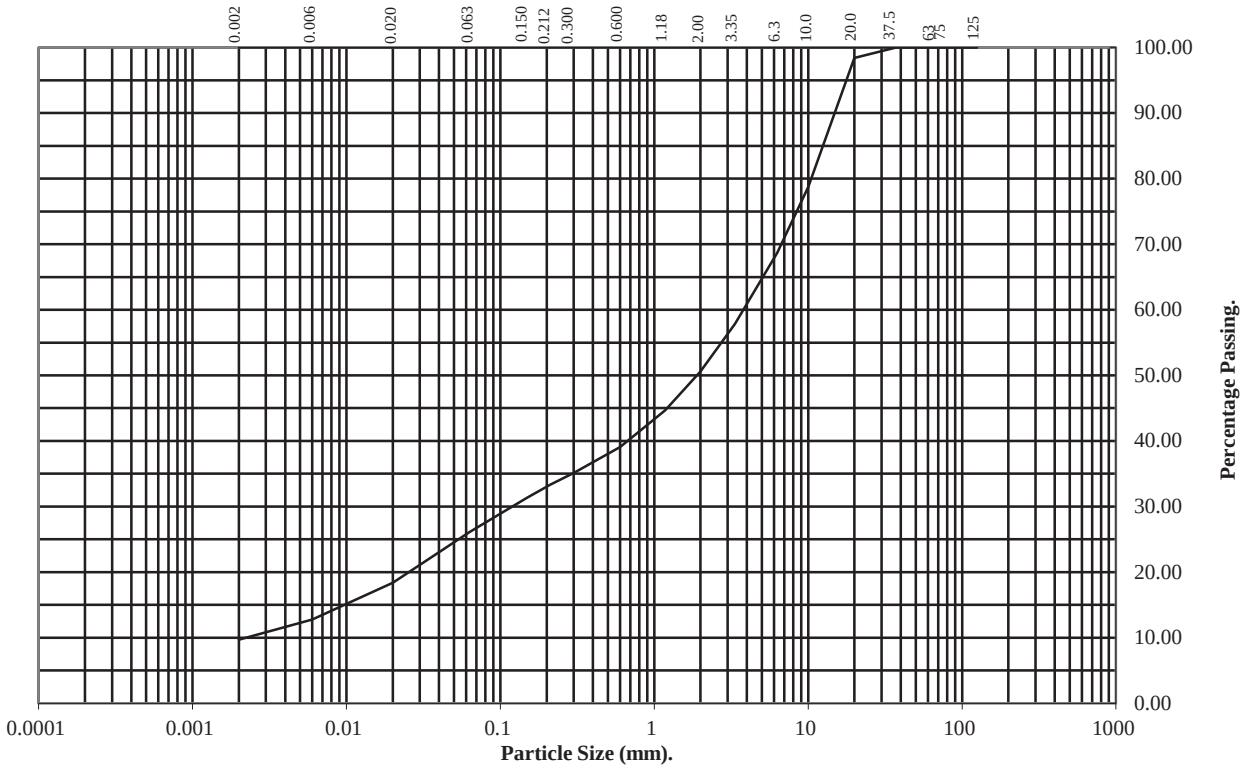
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH7**	**Top Depth (m):**	**2.50**
Sample Number:		**Base Depth(m):**	**4.00**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	79
6.3	69
3.35	58
2	51
1.18	45
0.6	39
0.3	35
0.212	33
0.15	31
0.063	26

Particle Diameter	Percentage Passing
0.02	18
0.006	13
0.002	10

Soil Fraction	Total Percentage
Cobbles	0
Gravel	49
Sand	25
Silt	16
Clay	10

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
171035

PARTICLE SIZE DISTRIBUTION TEST

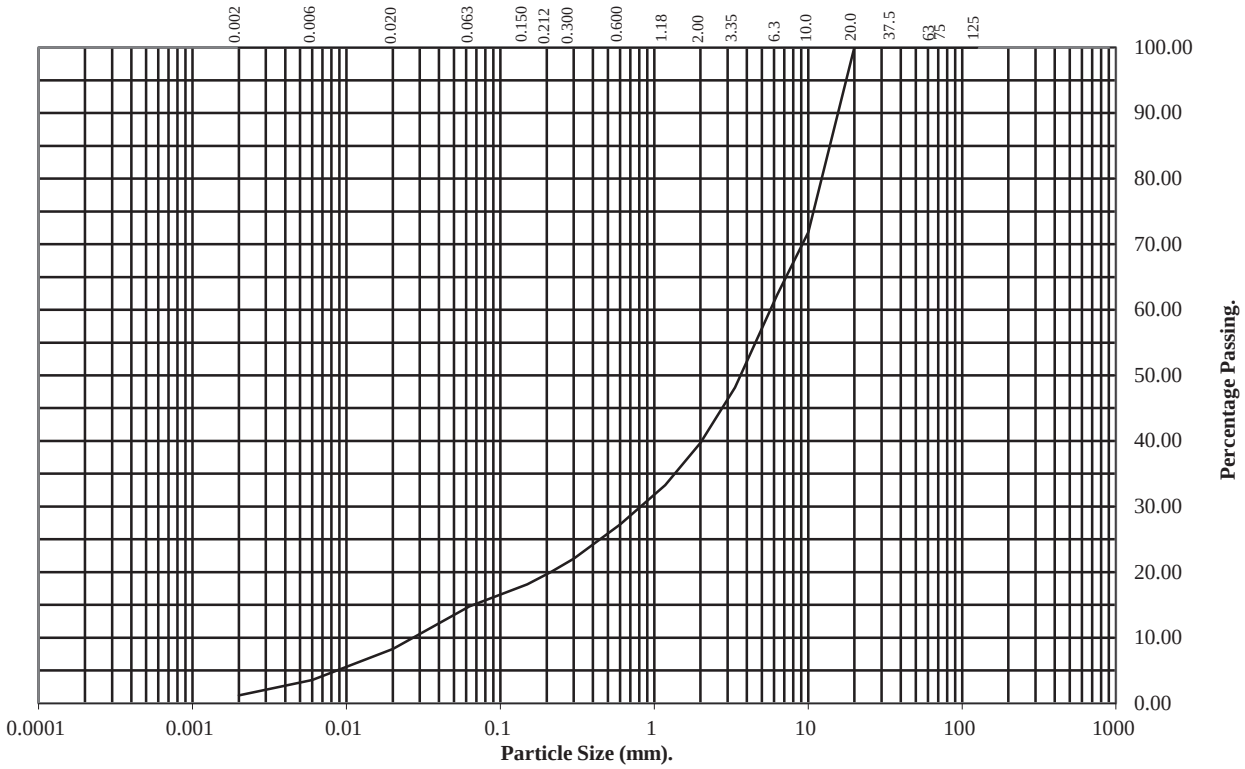
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **5.50**

Sample Number: **Base Depth(m):** **7.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	72
6.3	62
3.35	48
2	40
1.18	33
0.6	27
0.3	22
0.212	20
0.15	18
0.063	15

Particle Diameter	Percentage Passing
0.02	8
0.006	4
0.002	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	60
Sand	25
Silt	14
Clay	1

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

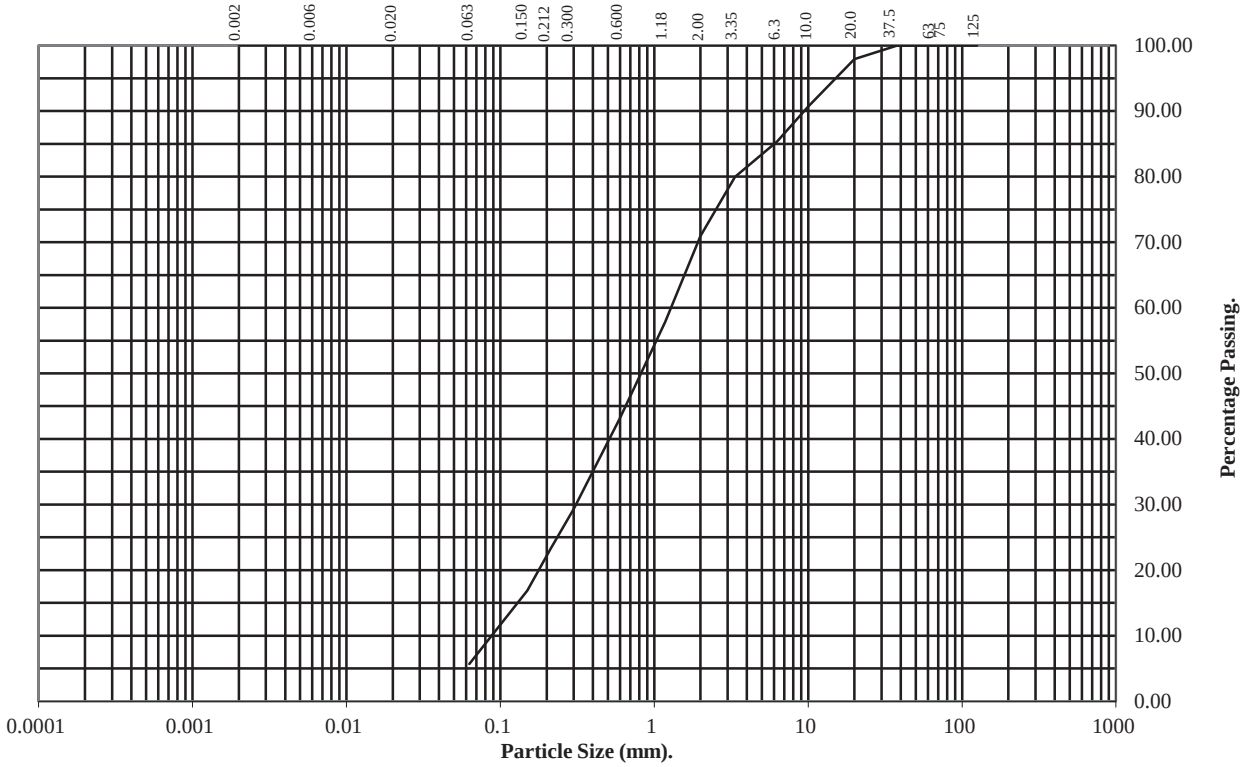
BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number: **BH7** **Top Depth (m):** **7.00**

Sample Number: **Base Depth(m):** **8.50**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	98
10	91
6.3	85
3.35	80
2	71
1.18	58
0.6	43
0.3	29
0.212	23
0.15	17
0.063	6

Soil Fraction	Total Percentage
Cobbles	0
Gravel	29
Sand	65
Silt/Clay	6

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

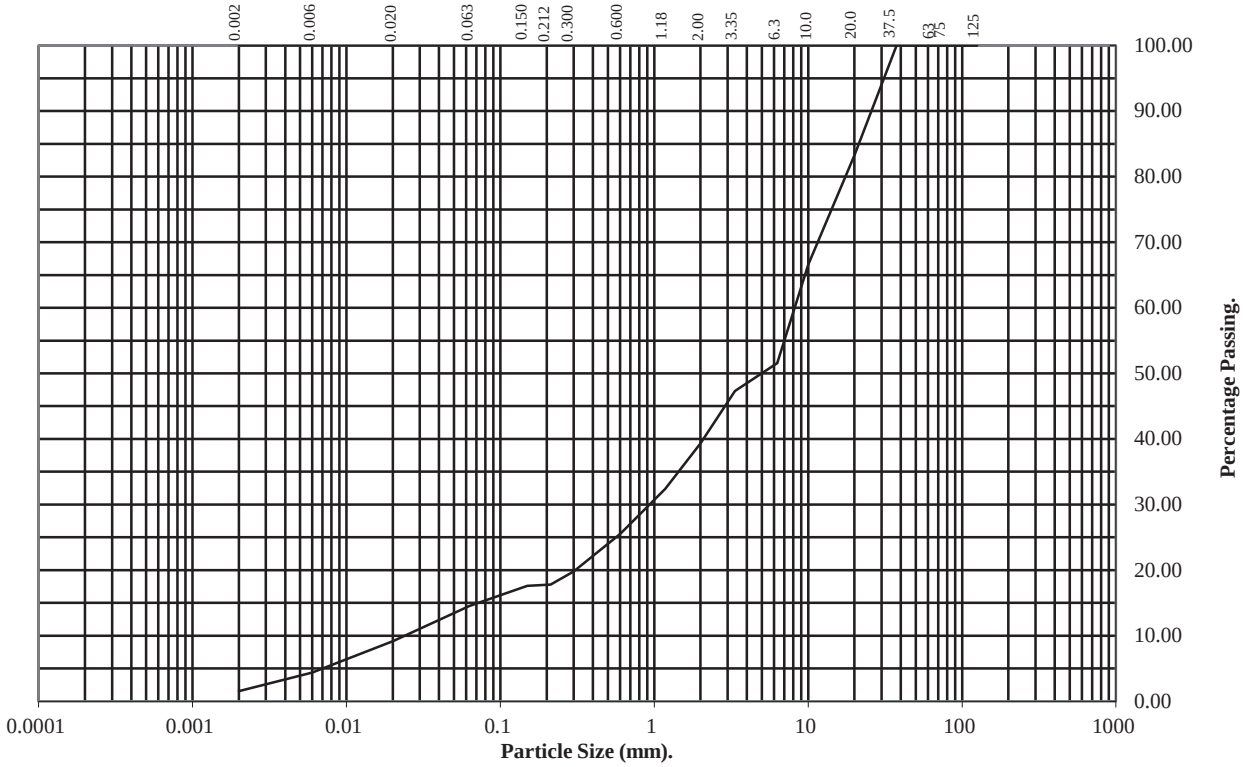
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **8.50**

Sample Number: **Base Depth(m):** **10.00**

Sample Type: **B+D**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	83
10	67
6.3	52
3.35	47
2	39
1.18	32
0.6	25
0.3	20
0.212	18
0.15	18
0.063	15

Particle Diameter	Percentage Passing
0.02	9
0.006	4
0.002	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	61
Sand	24
Silt	13
Clay	2

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

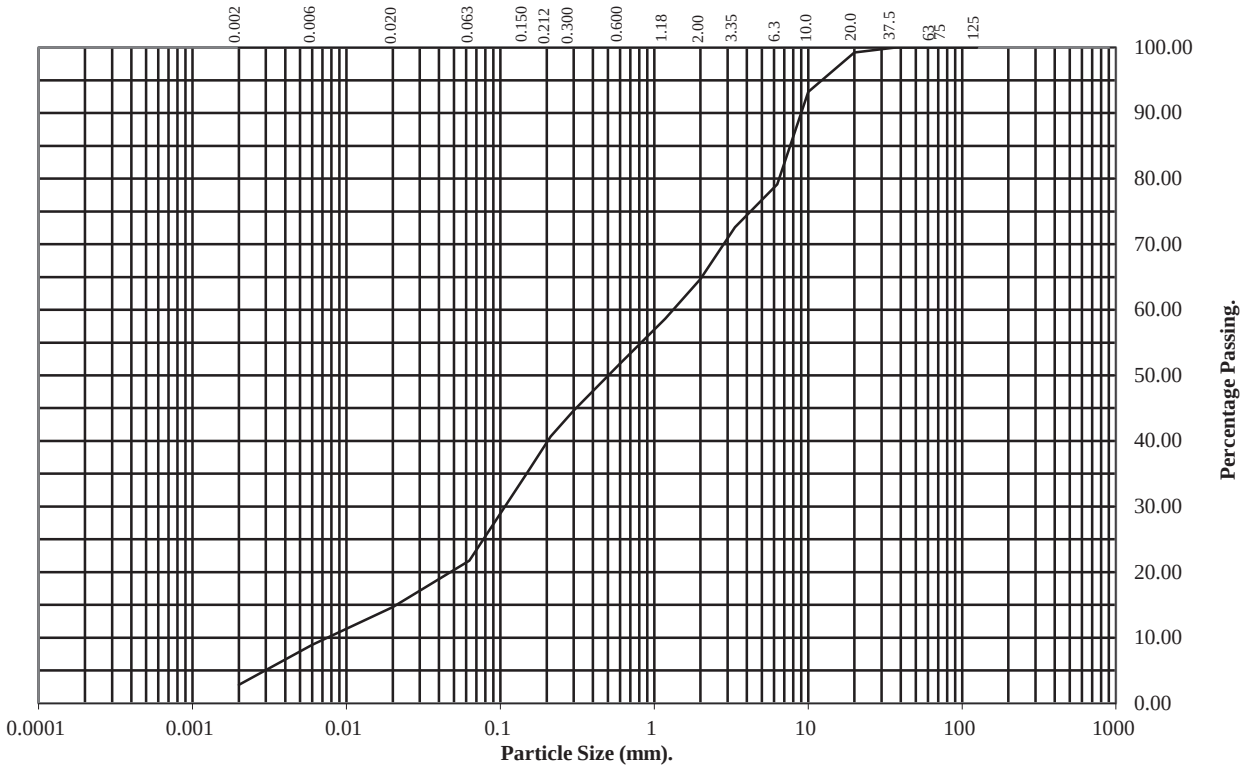
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **BH7** **Top Depth (m):** **14.50**

Sample Number: **Base Depth(m):** **16.00**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	99
10	93
6.3	79
3.35	73
2	65
1.18	59
0.6	52
0.3	45
0.212	41
0.15	35
0.063	22

Particle Diameter	Percentage Passing
0.02	15
0.006	9
0.002	3

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

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

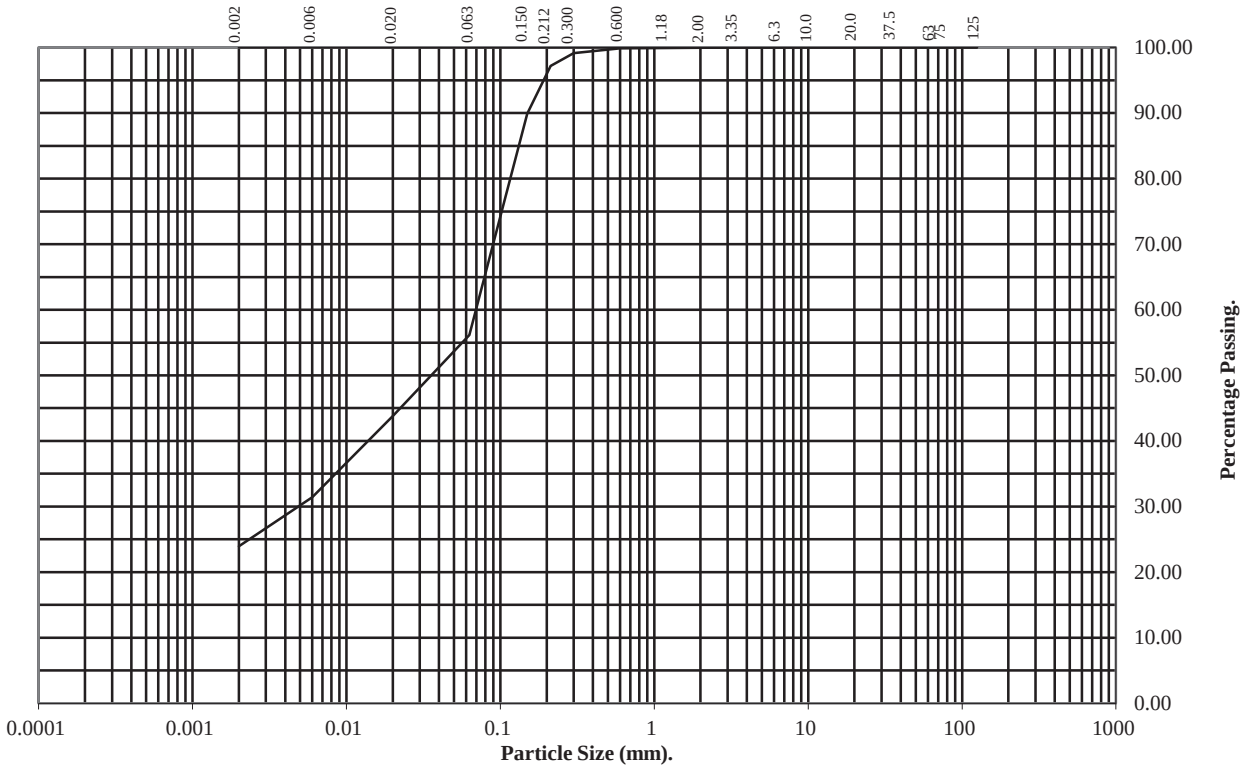
Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH7**	**Top Depth (m):**	**17.50**
Sample Number:		**Base Depth(m):**	**19.00**
Sample Type:	**B+D**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	100
0.6	100
0.3	99
0.212	97
0.15	90
0.063	56

Particle Diameter	Percentage Passing
0.02	44
0.006	31
0.002	24

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	44
Silt	32
Clay	24

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

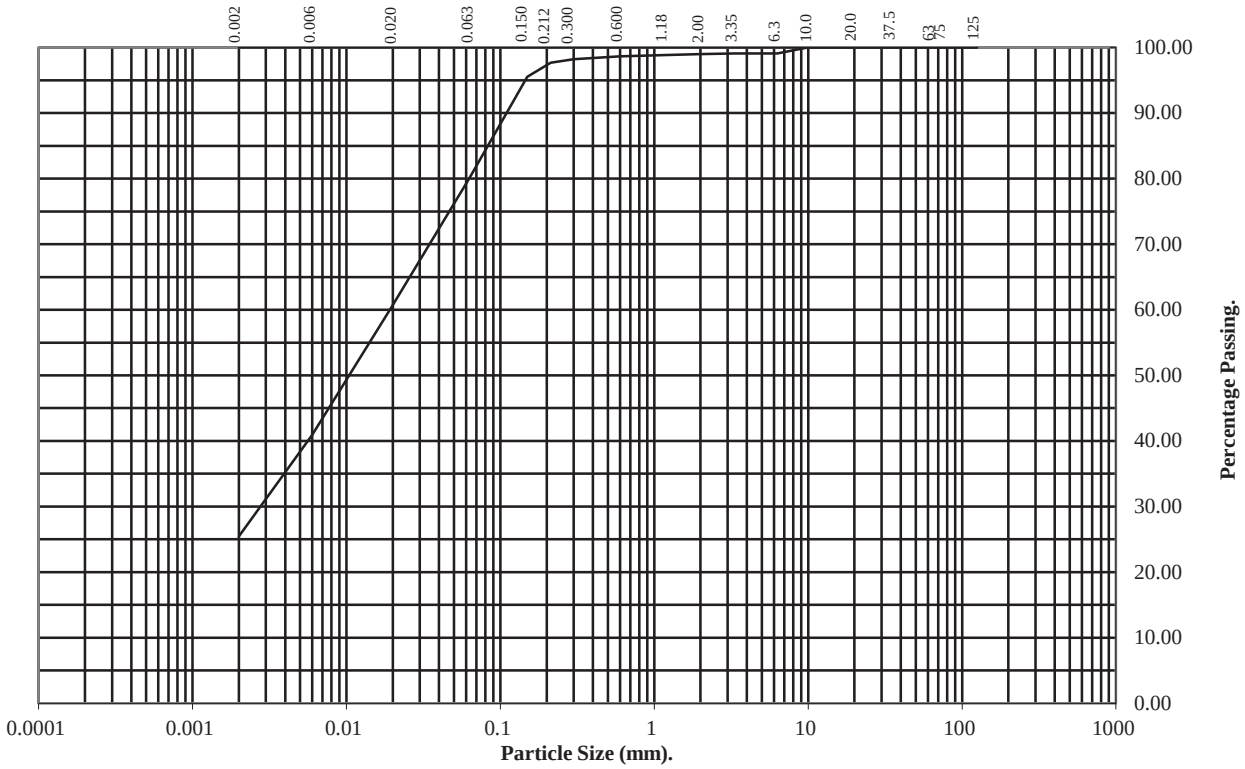
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: **TP3** **Top Depth (m):** **0.80**

Sample Number: **Base Depth(m):**

Sample Type: **B**



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	99
2	99
1.18	99
0.6	99
0.3	98
0.212	98
0.15	96
0.063	80

Particle Diameter	Percentage Passing
0.02	61
0.006	41
0.002	25

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	19
Silt	55
Clay	25

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

PARTICLE SIZE DISTRIBUTION TEST

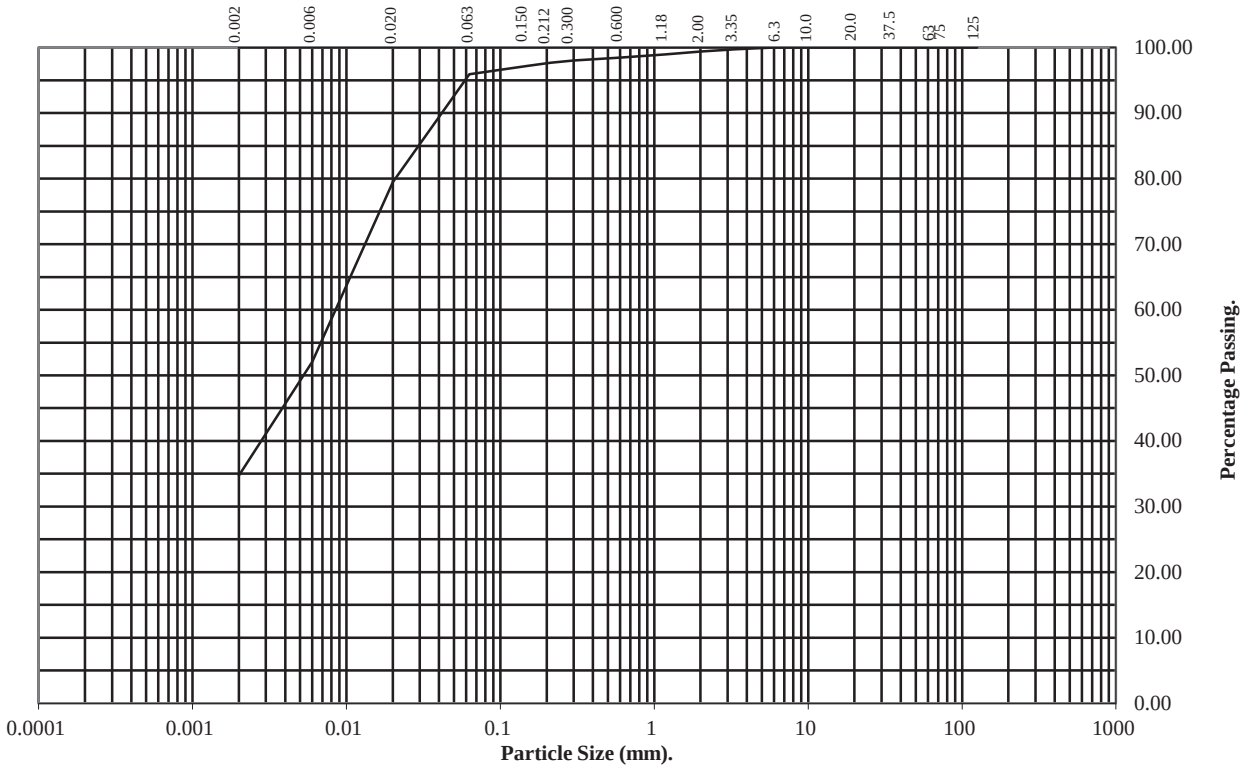
BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number: TP3 **Top Depth (m):** 3.00

Sample Number: **Base Depth(m):**

Sample Type: B



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	99
1.18	99
0.6	98
0.3	98
0.212	98
0.15	97
0.063	96

Particle Diameter	Percentage Passing
0.02	79
0.006	52
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	3
Silt	61
Clay	35

Remarks:

See Summary of Soil Descriptions

UKAS TESTING 4043

PSL Professional Soils Laboratory

Uig Harbour Redevelopment

Contract No:
PSL17/5006
Client Ref:
17/035

ONE DIMENSIONAL CONSOLIDATION TEST

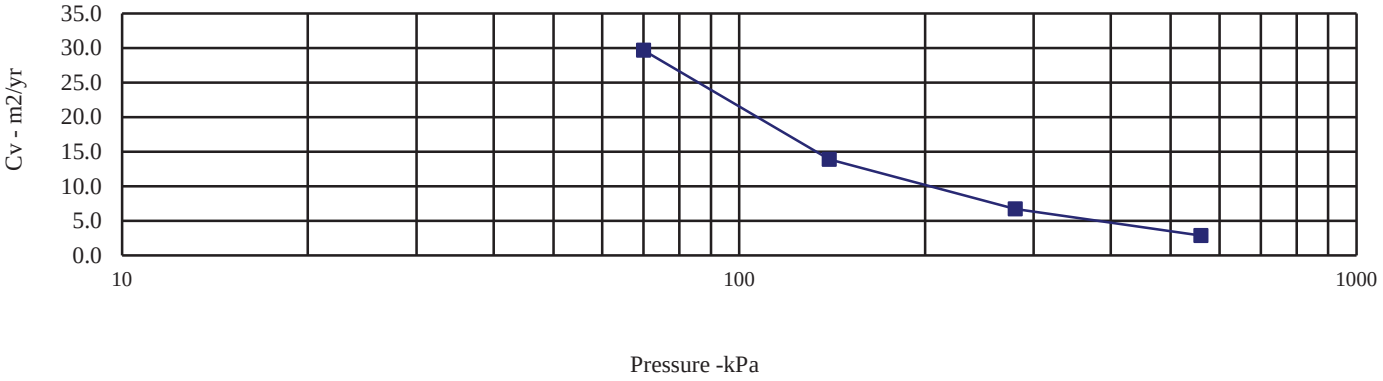
BS 1377: Part 5: 1990: Clause 3

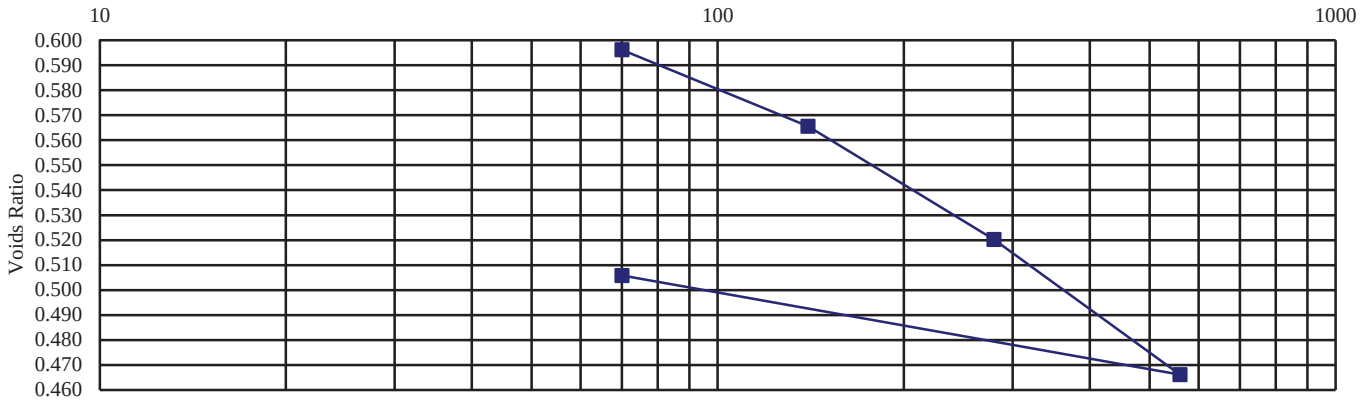
Hole Number: **BH7** **Top Depth (m):** **13.00**

Sample Number: **Base Depth (m) :** **14.00**

Sample Type: **U80**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	24						
Bulk Density (Mg/m3):	2.01	0	70	0.382	29.661	Method used to	
Dry Density (Mg/m3):	1.62	70	140	0.275	13.861	determine CV:	T90
Voids Ratio:	0.640	140	280	0.207	6.699	Nominal temperature	
Degree of saturation:	101.3	280	560	0.127	2.837	during test ' C:	20
Height (mm):	20.04	560	70	0.055	7.704	Remarks:	
Diameter (mm)	75.05					See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.65						





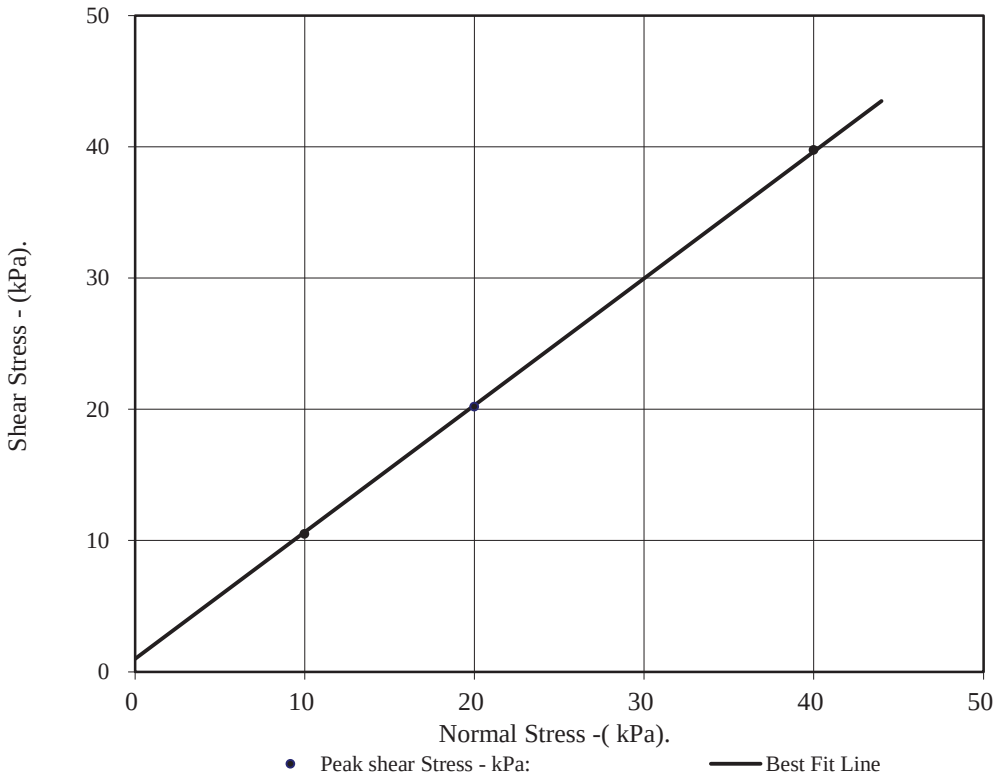
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**		Top Depth:	**1.50**	
Sample Number:			Base Depth:	**3.00**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	15	15	15
Bulk Density - Mg/m3:	1.91	1.91	1.91
Dry Density - Mg/m3:	1.66	1.66	1.66
Voids Ratio:	0.598	0.595	0.594
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	19.70	19.73	19.28
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	3.00	2.50	2.50
Peak shear Stress - kPa:	10	20	40
Final Consolidated Conditons			
Moisture Content - %:	22	23	22
Bulk Density - Mg/m3:	1.93	1.93	1.98
Dry Density - Mg/m3:	1.58	1.57	1.62
Peak			
Angle of Shearing Resistance:(~~θ~~)	**44**		
Effective Cohesion - kPa:	**1**		

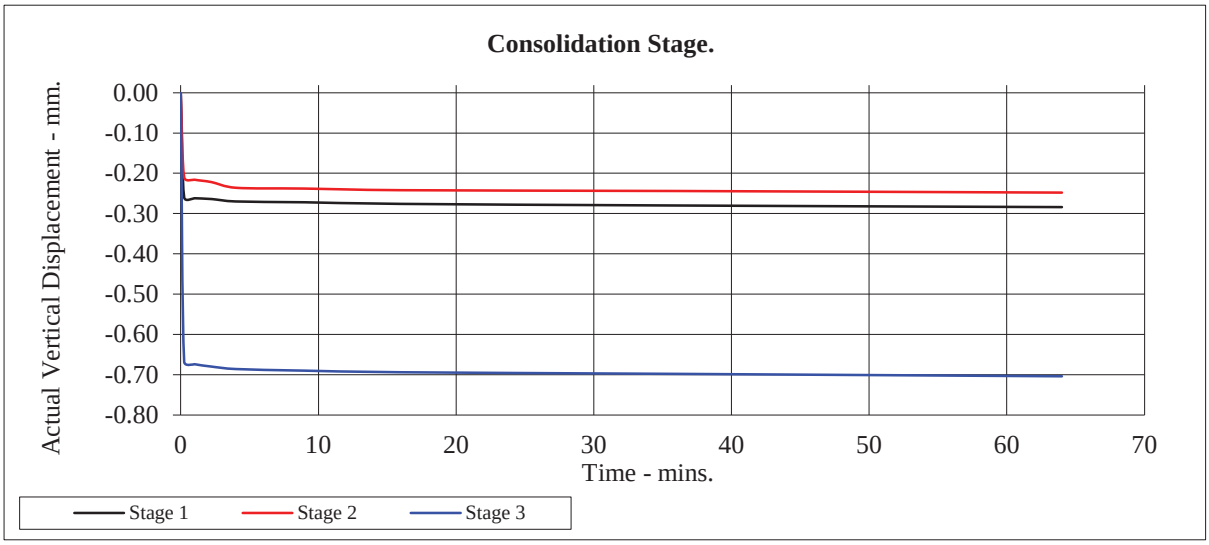


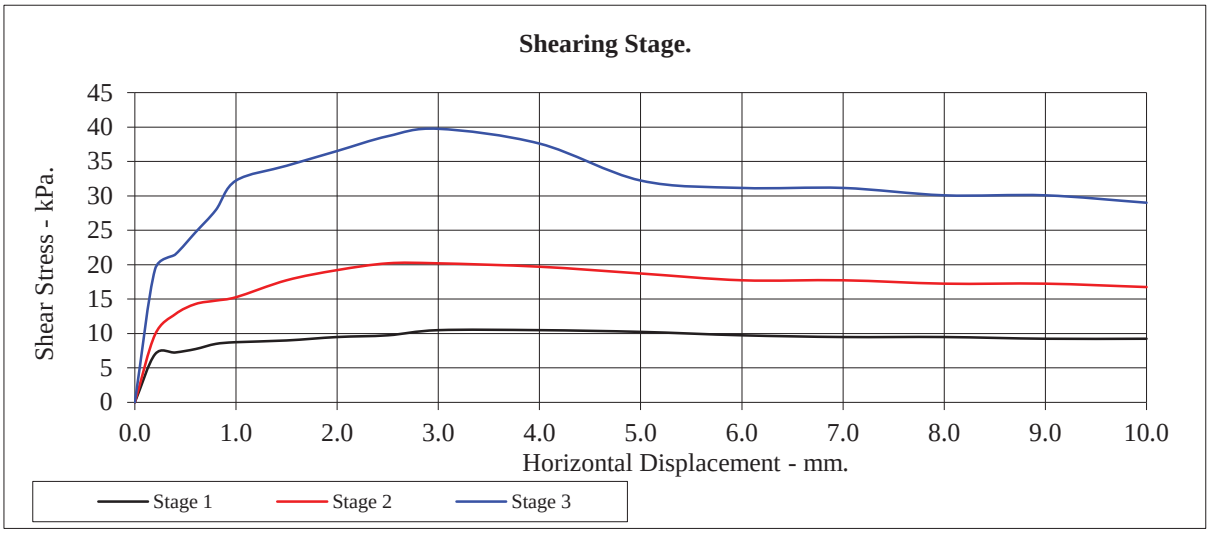
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

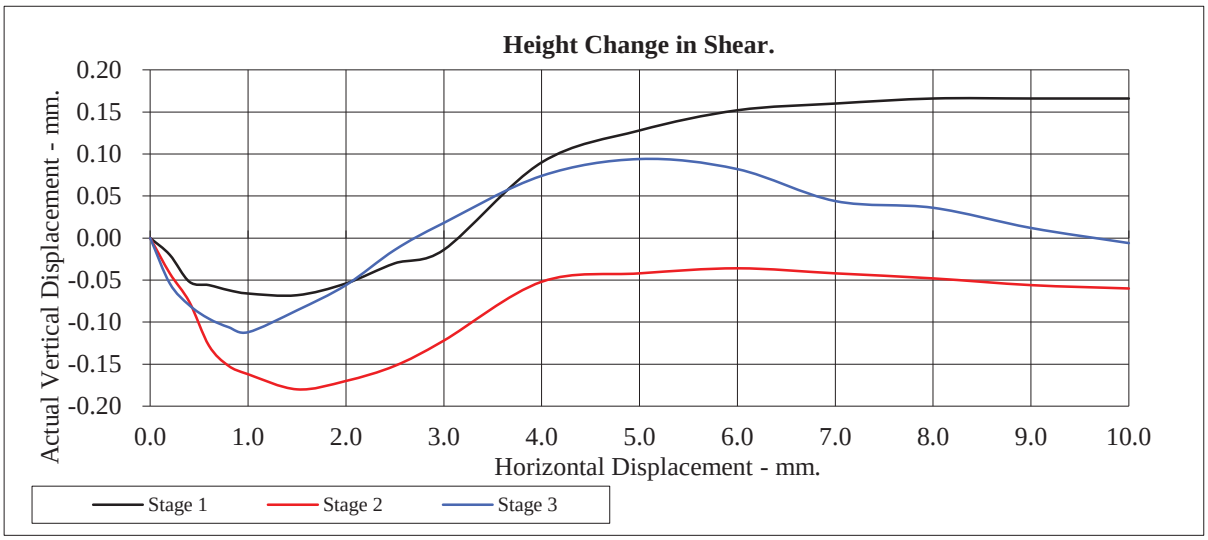
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**	Top Depth:	**1.50**
Sample Number:		Base Depth:	**3.00**







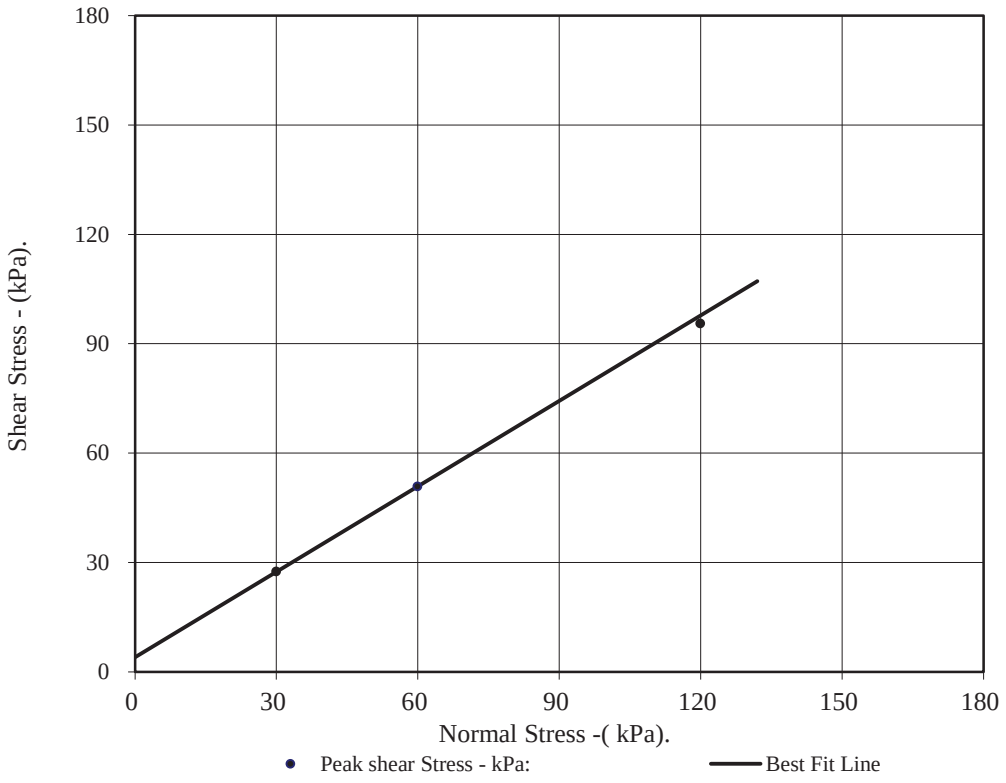
UKAS TESTING 4043 / Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** PSL17/5006 / **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**		Top Depth:	**4.50**
Sample Number:			Base Depth:	**6.00**
Sample Conditions:	Submerged.		Sample Type	**B+D**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	27	27	27
Bulk Density - Mg/m3:	2.08	2.10	2.09
Dry Density - Mg/m3:	1.64	1.65	1.65
Voids Ratio:	0.618	0.607	0.607
Normal Pressure- kPa	30	60	120
Consolidation Stage			
Consolidated Height - mm:	18.39	18.16	17.76
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	5.00	6.00	7.00
Peak shear Stress - kPa:	27	51	96
Final Consolidated Conditons			
Moisture Content - %:	25	25	26
Bulk Density - Mg/m3:	2.26	2.30	2.36
Dry Density - Mg/m3:	1.80	1.85	1.87
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38**		
Effective Cohesion - kPa:	**4**		

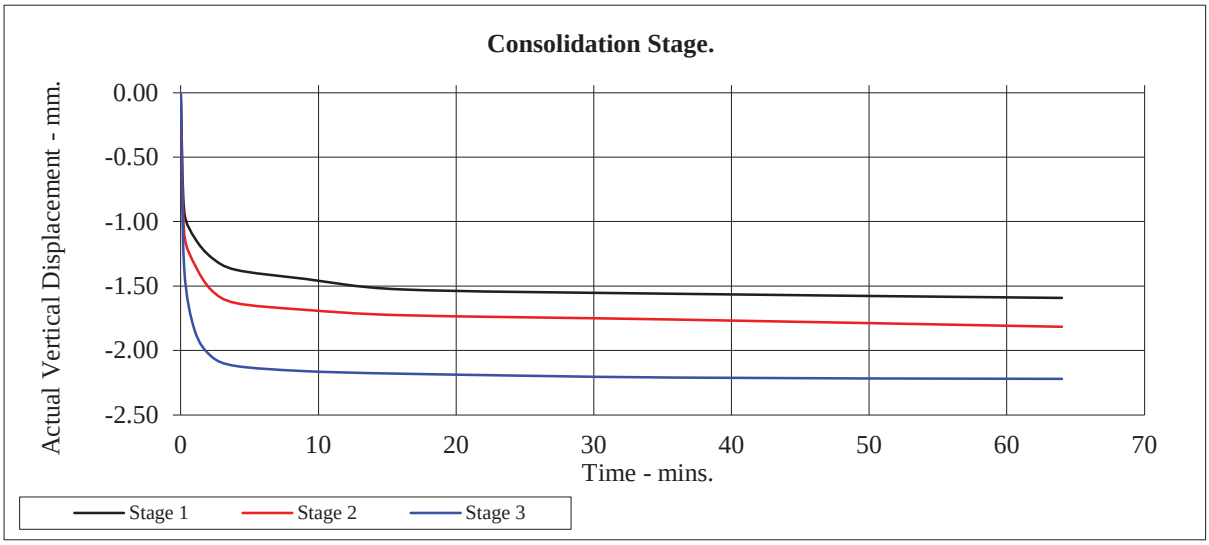


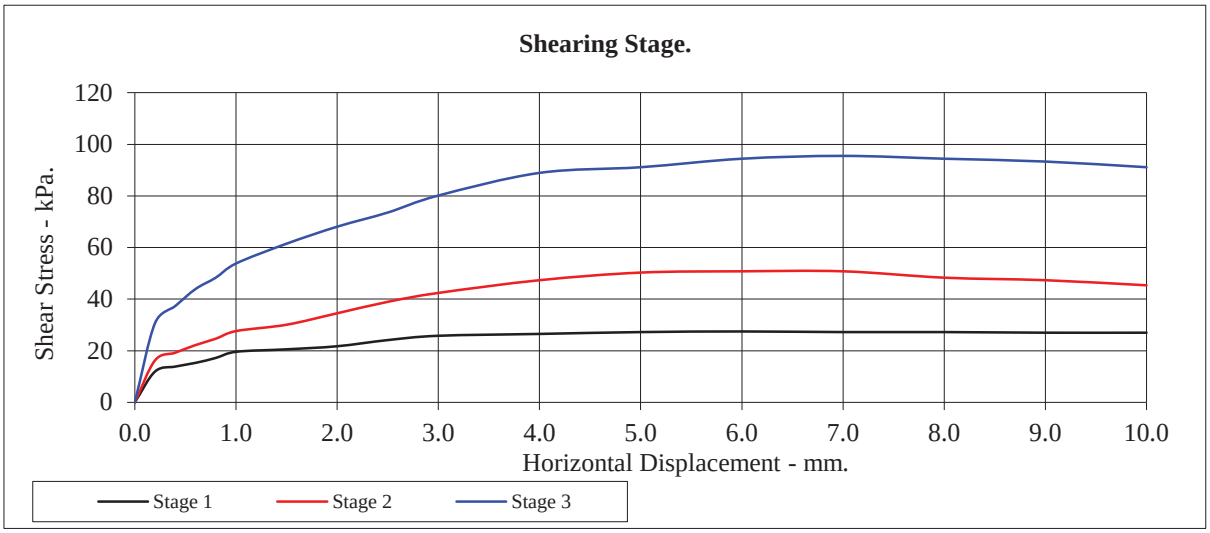
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

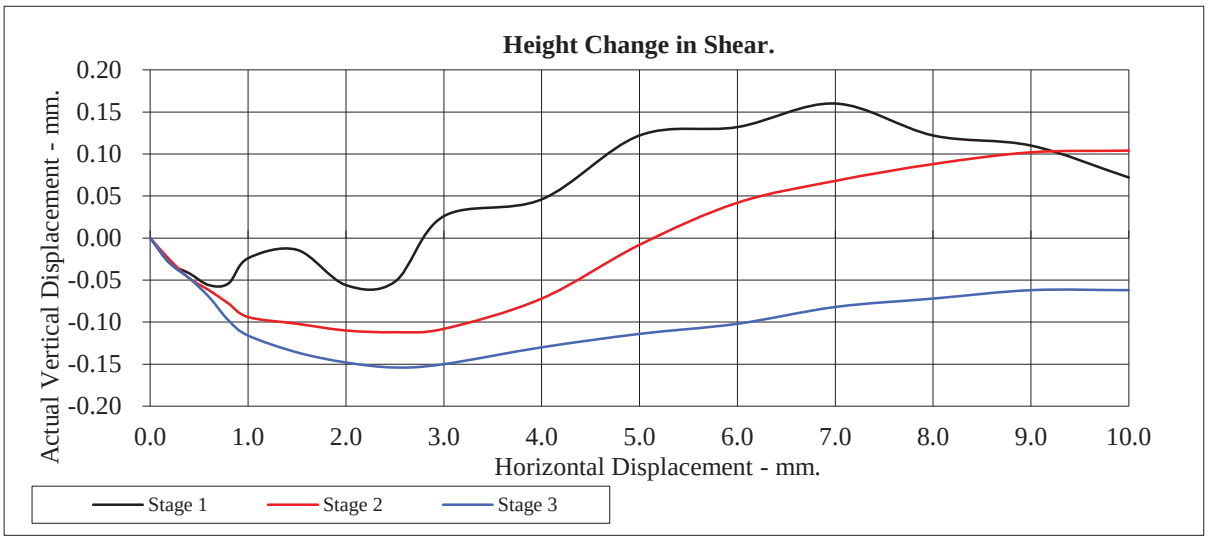
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**	Top Depth:	**4.50**
Sample Number:		Base Depth:	**6.00**







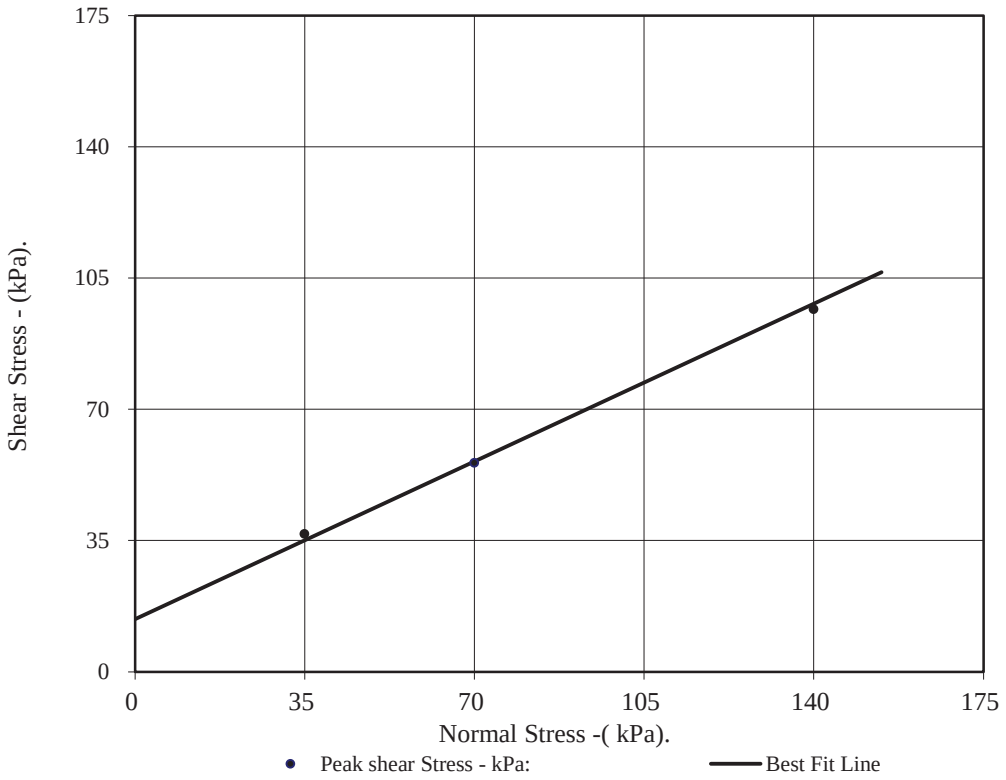
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** PSL17/5006 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**		Top Depth:	**6.00**	
Sample Number:			Base Depth:	**7.50**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	9.4	9.4	9.4
Bulk Density - Mg/m3:	1.86	1.85	1.85
Dry Density - Mg/m3:	1.70	1.69	1.69
Voids Ratio:	0.562	0.565	0.568
Normal Pressure- kPa	35	70	140
Consolidation Stage			
Consolidated Height - mm:	19.08	19.22	17.71
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	7.00	7.00	6.00
Peak shear Stress - kPa:	37	56	97
Final Consolidated Conditons			
Moisture Content - %:	21	20	19
Bulk Density - Mg/m3:	1.94	1.93	2.09
Dry Density - Mg/m3:	1.61	1.60	1.75
Peak			
Angle of Shearing Resistance:(~~θ~~)	**31**		
Effective Cohesion - kPa:	**14**		

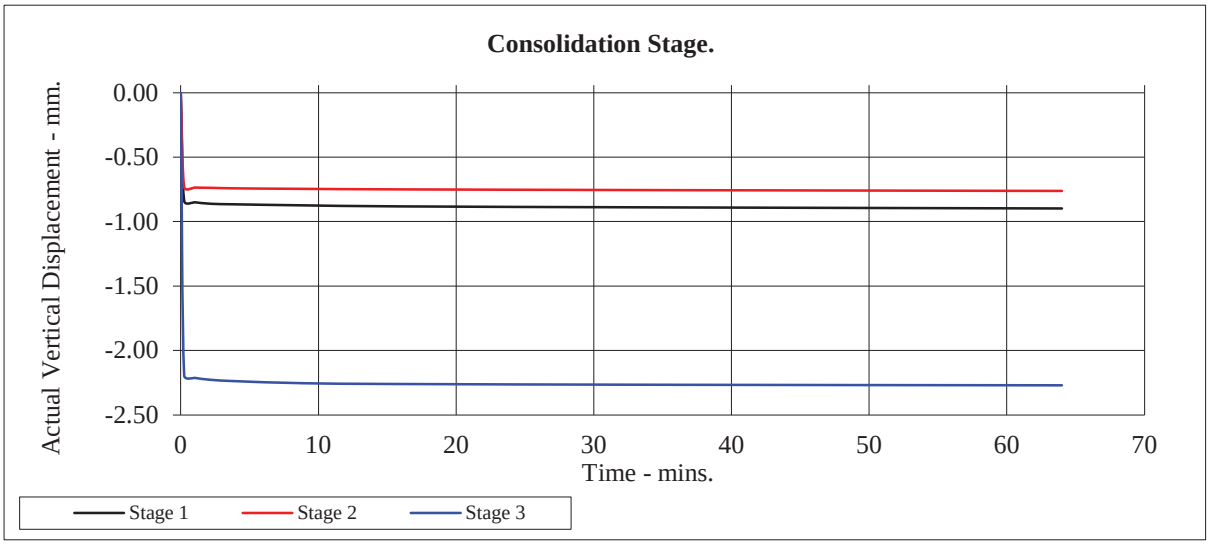


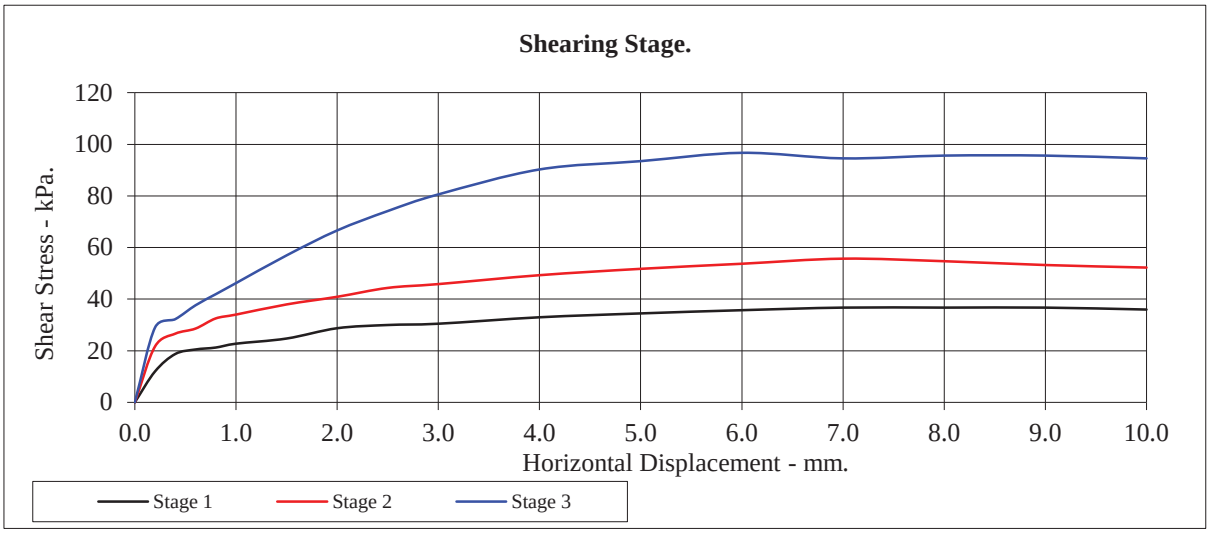
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

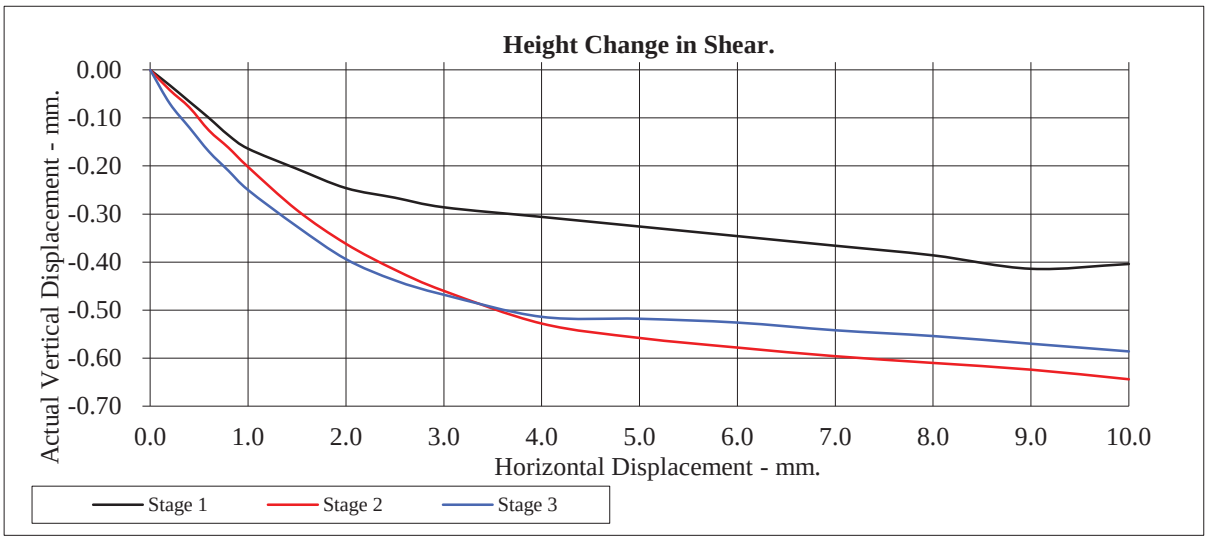
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**DS01**	Top Depth:	**6.00**
Sample Number:		Base Depth:	**7.50**







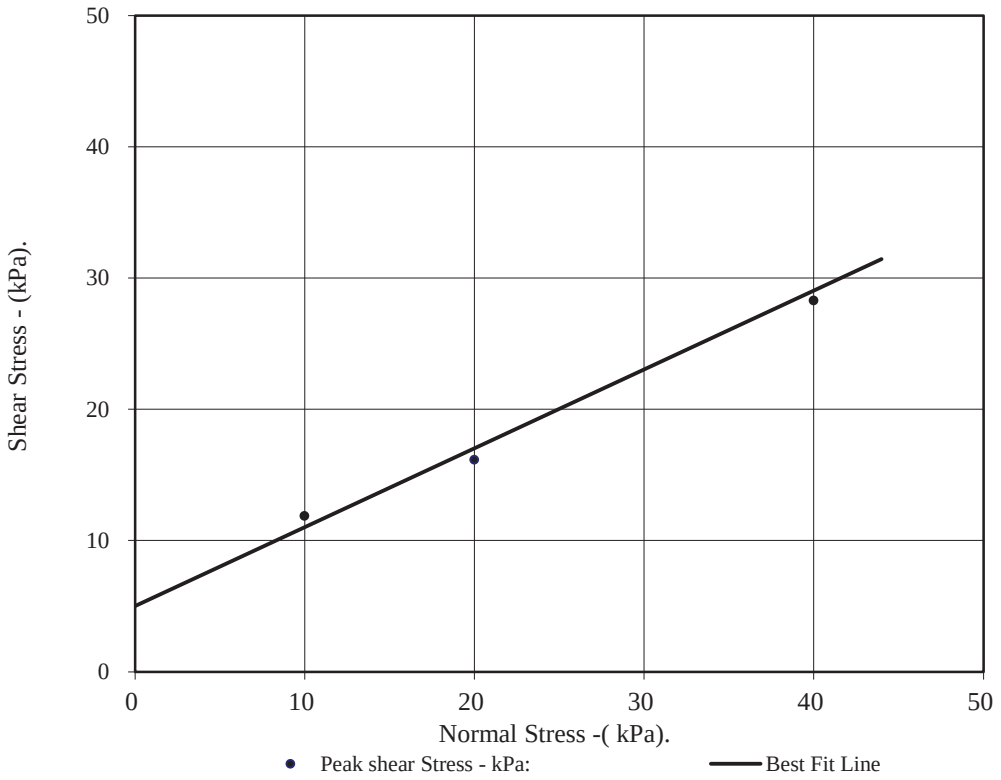
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No: PSL17/5006** **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**		Top Depth:	**1.00**	
Sample Number:			Base Depth:	**2.50**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	19	19	19
Bulk Density - Mg/m3:	2.23	2.23	2.22
Dry Density - Mg/m3:	1.87	1.87	1.87
Voids Ratio:	0.417	0.416	0.420
Normal Pressure- kPa	10	20	40
Consolidation Stage			
Consolidated Height - mm:	18.85	18.74	18.28
Shearing Stage			
Rate of Strain - mm/min	0.020	0.020	0.020
Displacement at peak shear stress - mm	4.00	6.00	10.00
Peak shear Stress - kPa:	12	16	28
Final Consolidated Conditons			
Moisture Content - %:	20	20	19
Bulk Density - Mg/m3:	2.36	2.38	2.43
Dry Density - Mg/m3:	1.97	1.98	2.04
Peak			
Angle of Shearing Resistance:(~~θ~~)	**31**		
Effective Cohesion - kPa:	**5**		

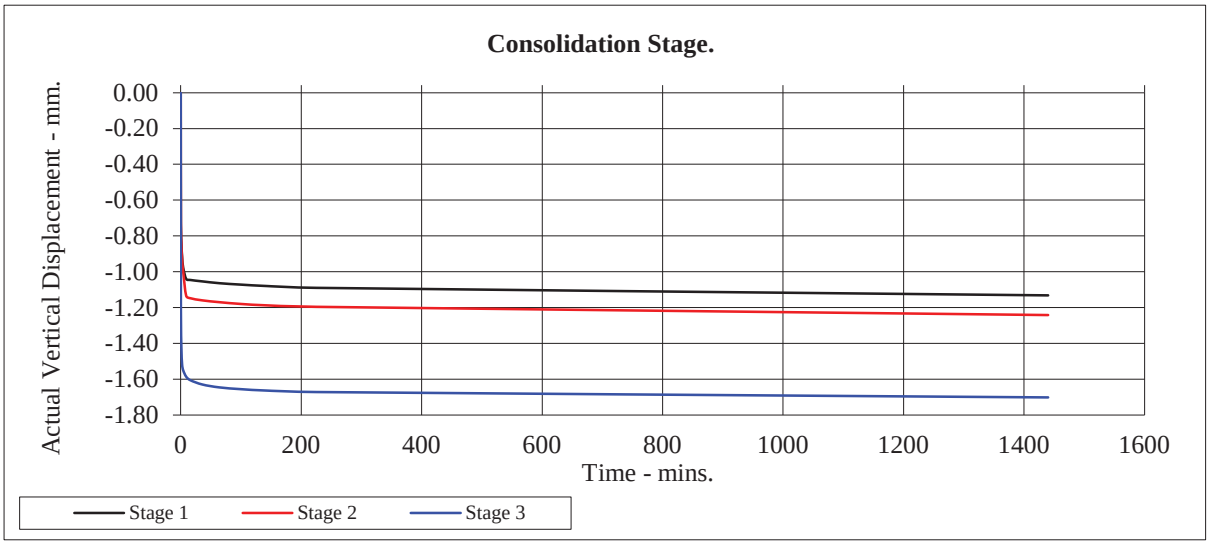


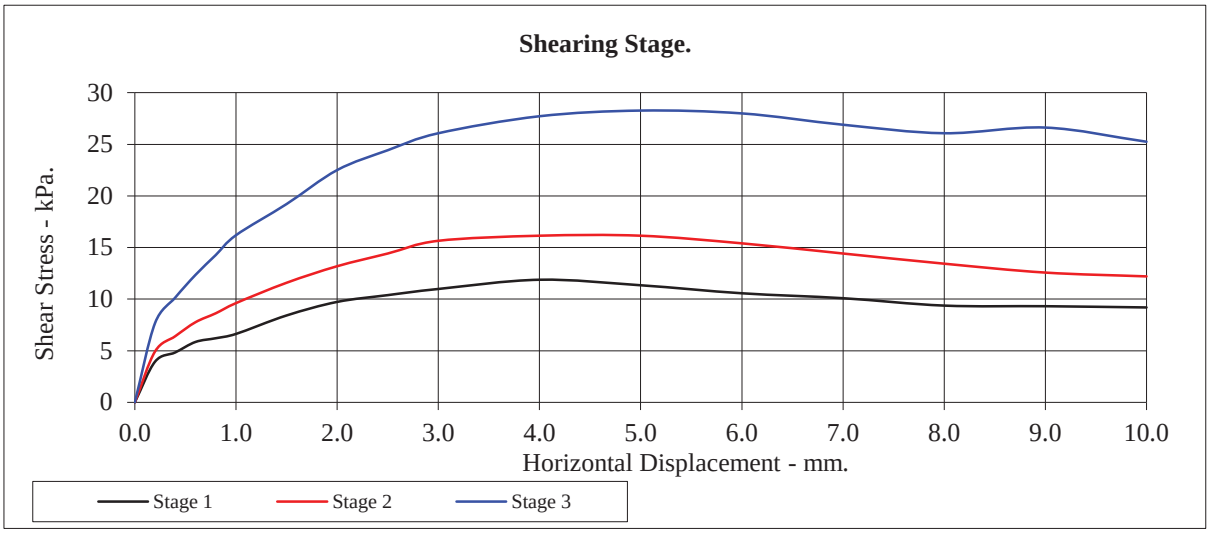
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

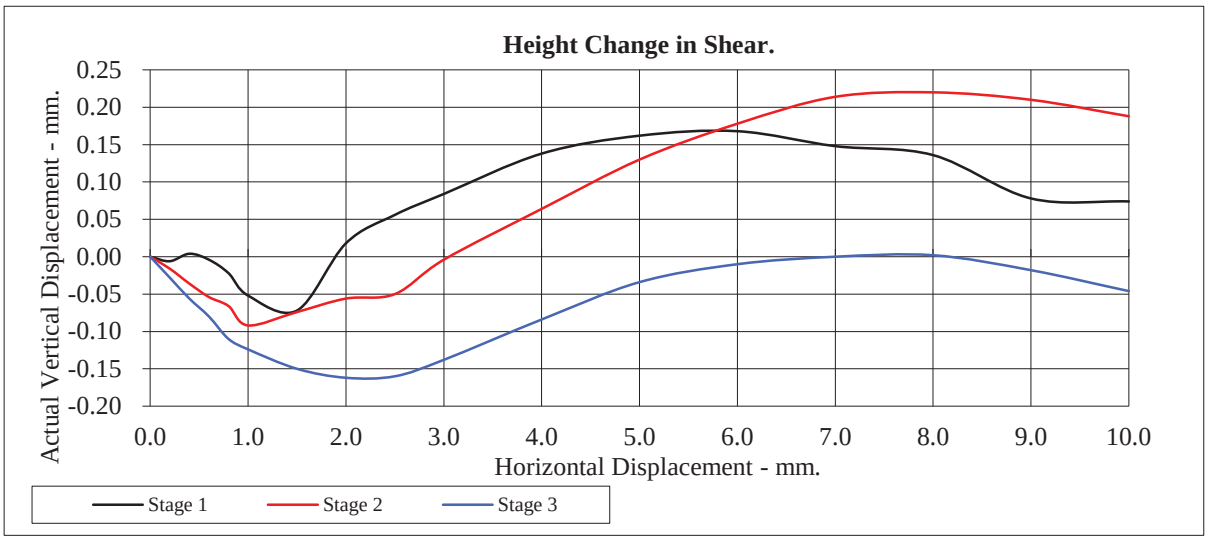
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**	Top Depth:	**1.00**
Sample Number:		Base Depth:	**2.50**







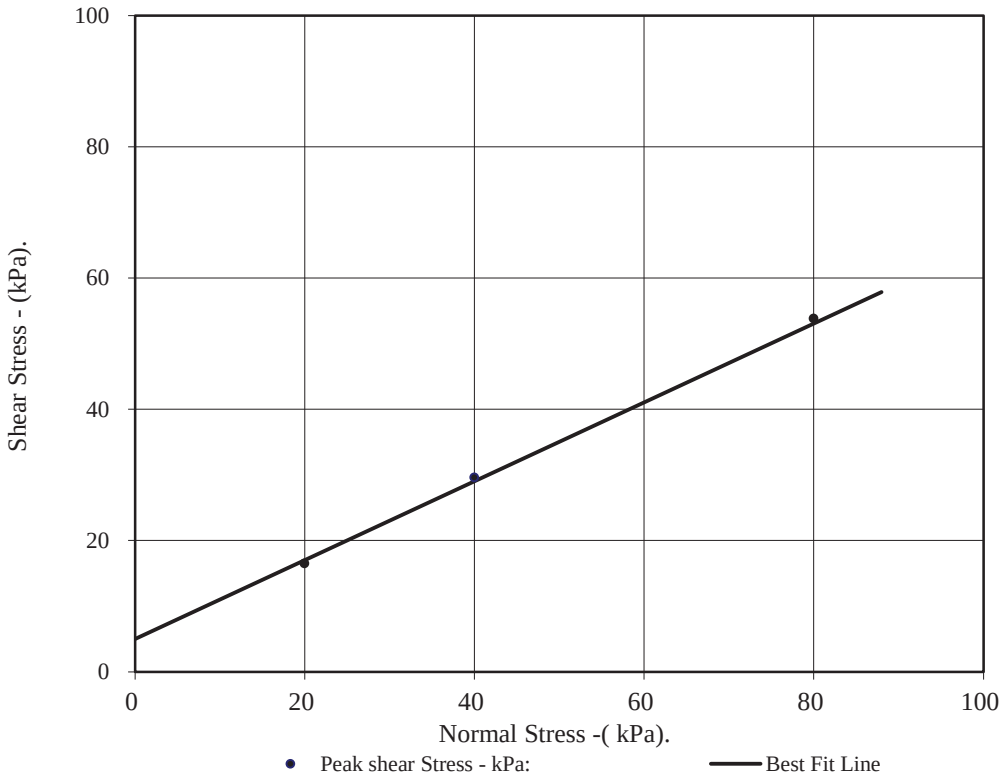
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** PSL17/5006 **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**		Top Depth:	**2.50**
Sample Number:			Base Depth:	**4.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	23	23	23
Bulk Density - Mg/m3:	2.16	2.15	2.16
Dry Density - Mg/m3:	1.75	1.75	1.76
Voids Ratio:	0.512	0.513	0.510
Normal Pressure- kPa	20	40	80
Consolidation Stage			
Consolidated Height - mm:	19.46	19.02	17.88
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	4.00	6.00	10.00
Peak shear Stress - kPa:	16	30	54
Final Consolidated Conditons			
Moisture Content - %:	22	21	21
Bulk Density - Mg/m3:	2.21	2.26	2.41
Dry Density - Mg/m3:	1.81	1.87	2.00
Peak			
Angle of Shearing Resistance:(~~θ~~)	**31**		
Effective Cohesion - kPa:	**5**		

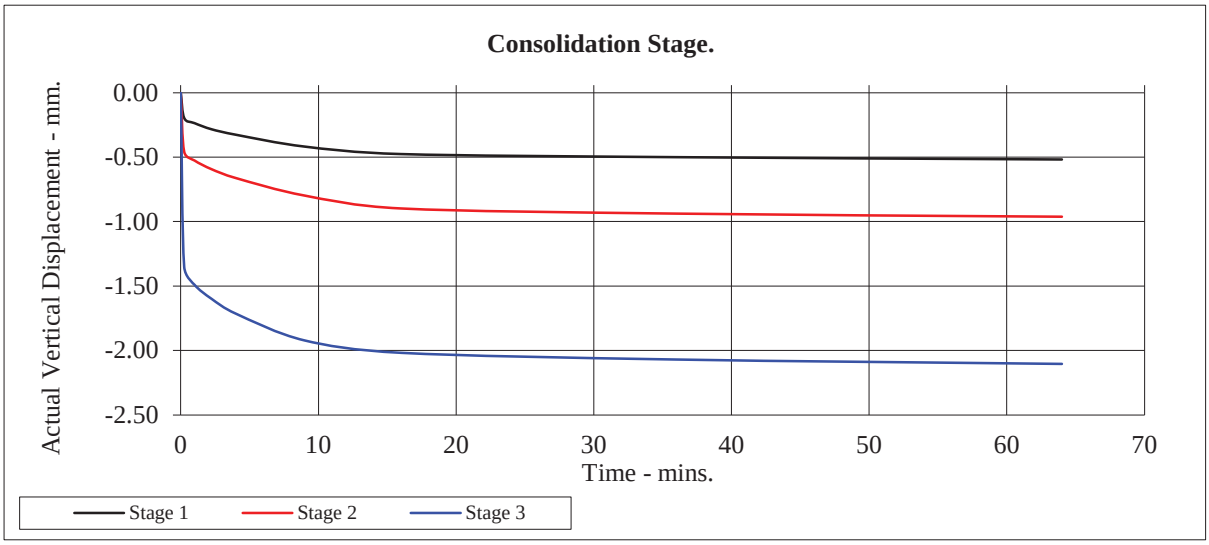


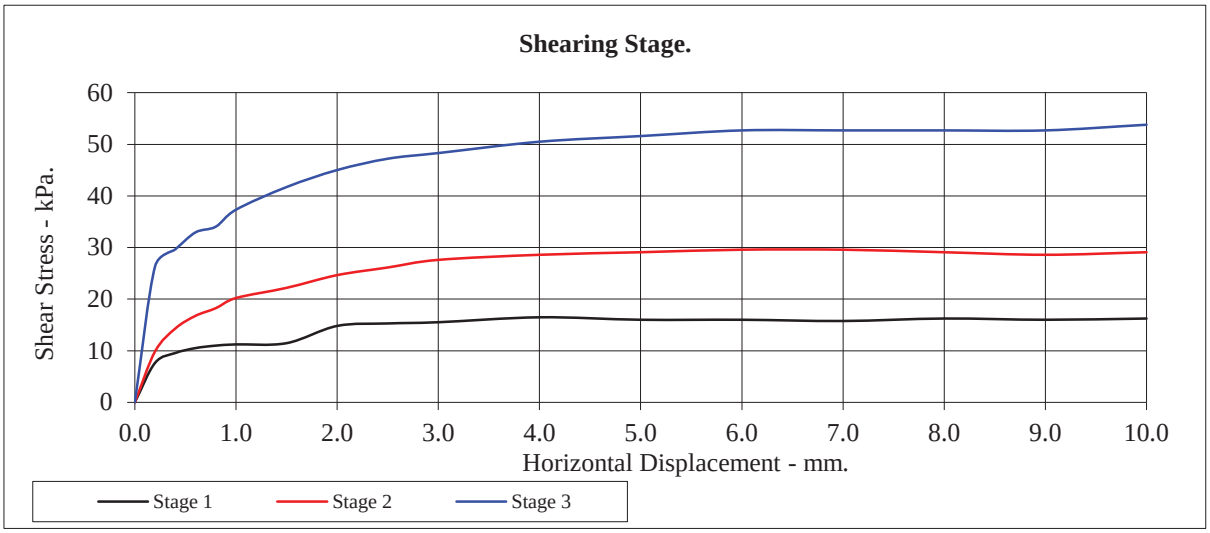
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

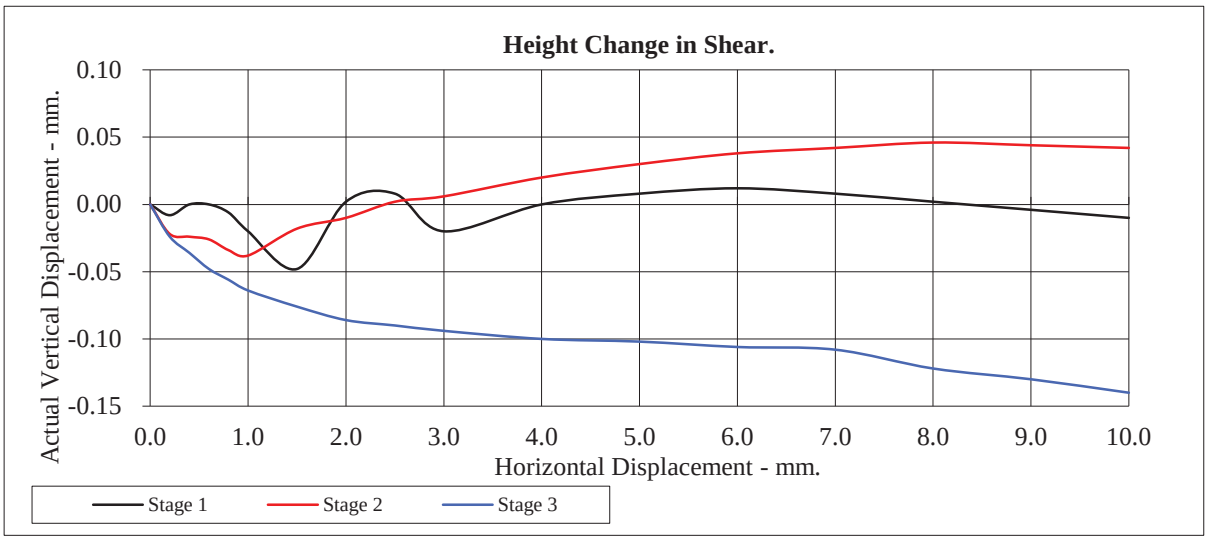
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**	Top Depth:	**2.50**
Sample Number:		Base Depth:	**4.00**







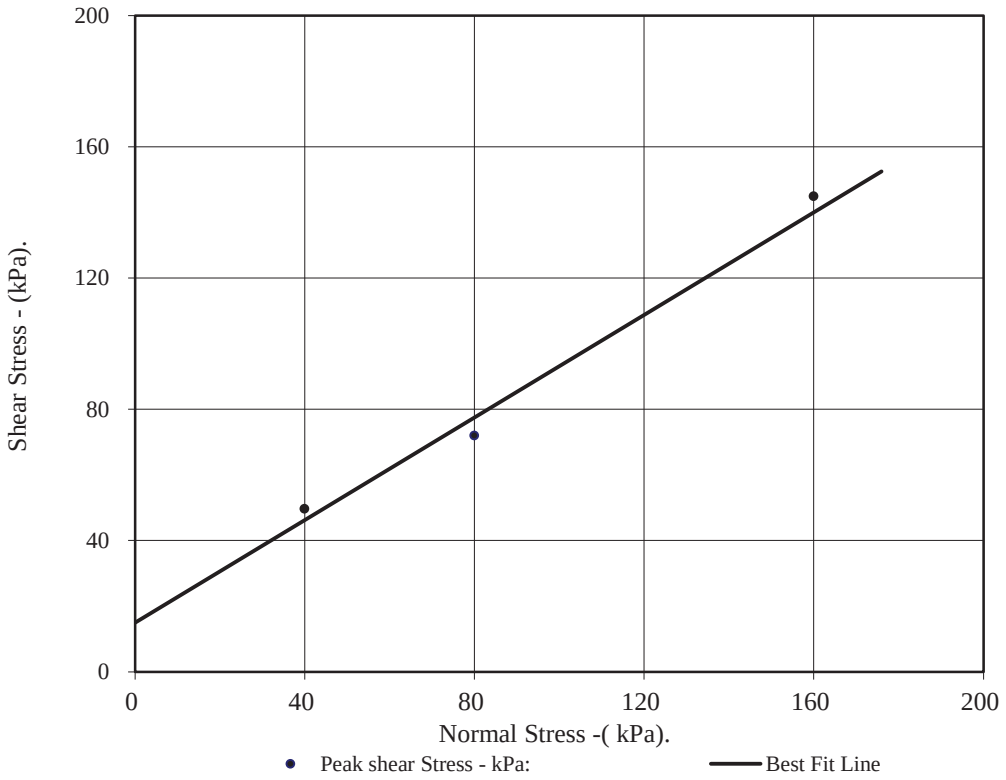
UKAS TESTING 4043 / Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** PSL17/5006 / **Client Ref:** 17/035

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**		Top Depth:	**7.00**	
Sample Number:			Base Depth:	**8.50**	
Sample Conditions:	Submerged.		Sample Type	**B**	
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**		
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve				
Sample Description:	**See summary of soil descriptions.**				

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	15	15	15
Bulk Density - Mg/m3:	2.28	2.29	2.28
Dry Density - Mg/m3:	1.99	1.99	1.99
Voids Ratio:	0.332	0.331	0.332
Normal Pressure- kPa	40	80	160
Consolidation Stage			
Consolidated Height - mm:	19.14	19.36	18.65
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	5.00	5.00	6.00
Peak shear Stress - kPa:	50	72	145
Final Consolidated Conditons			
Moisture Content - %:	19	19	18
Bulk Density - Mg/m3:	2.38	2.36	2.45
Dry Density - Mg/m3:	2.01	1.98	2.08
Peak			
Angle of Shearing Resistance:(~~θ~~)	**38**		
Effective Cohesion - kPa:	**15**		

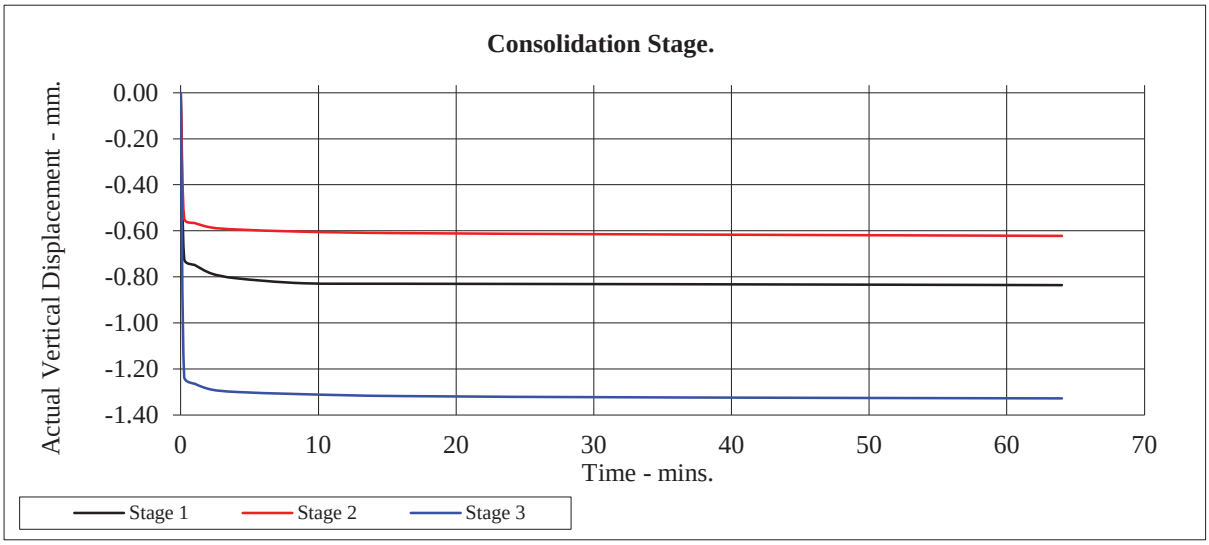


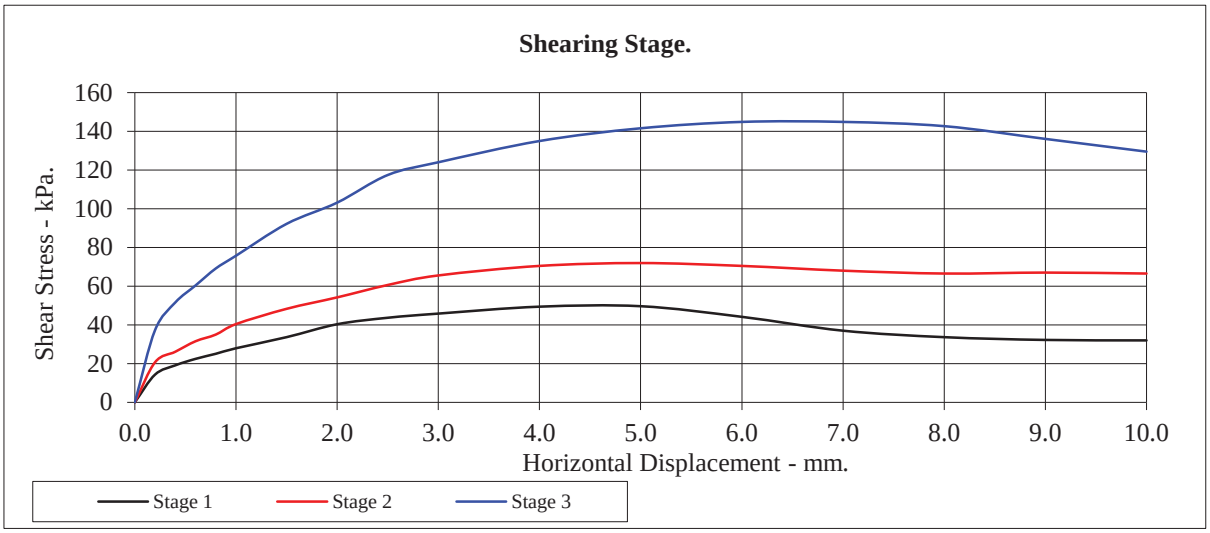
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No:** **PSL17/5006** **Client Ref:** **17/035**

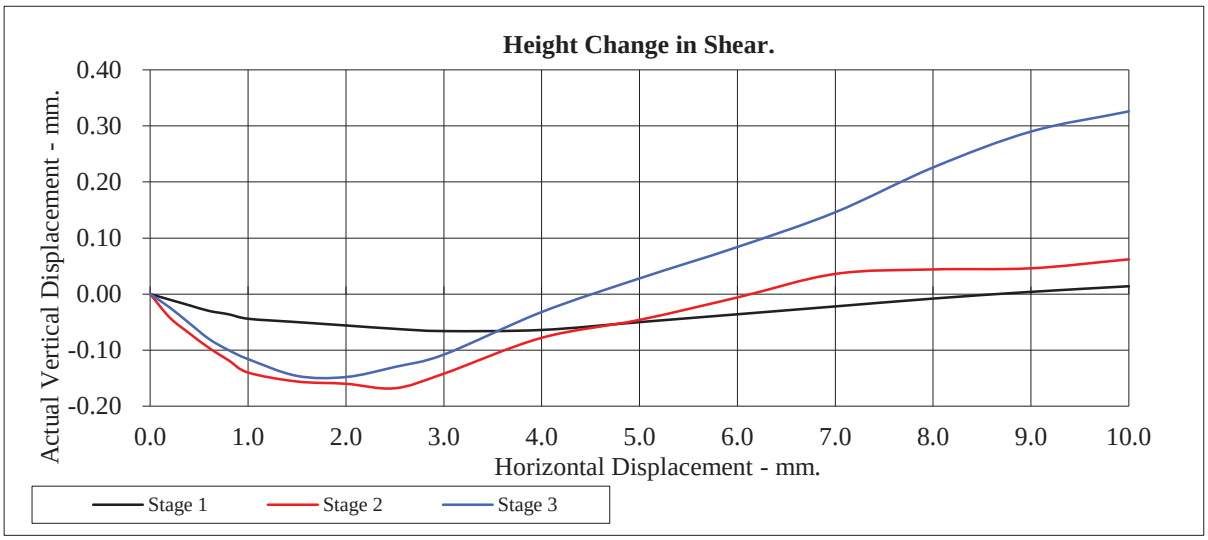
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**	Top Depth:	**7.00**
Sample Number:		Base Depth:	**8.50**







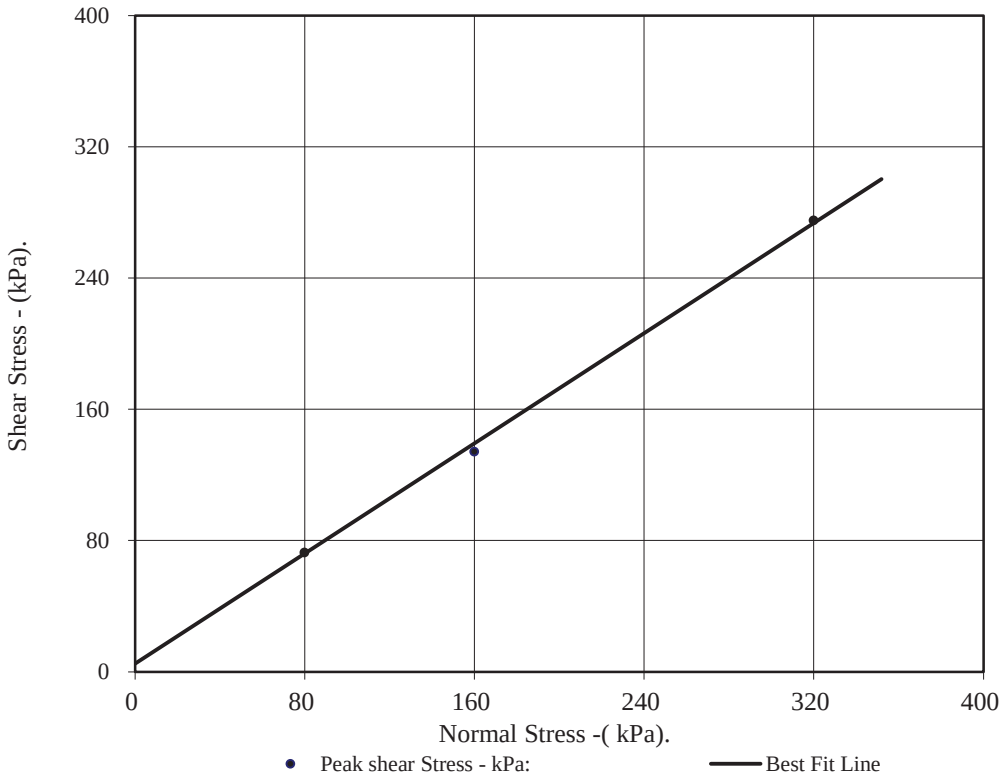
UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No: PSL17/5006** / **Client Ref: 17/035**

CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**		Top Depth:	**14.50**
Sample Number:			Base Depth:	**16.00**
Sample Conditions:	Submerged.		Sample Type	**B**
Particle Density - Mg/m3:	2.65	Assumed	**Remarks:**	
Sample Preparation:	Remoulded using hand tamped effort. Material tested passing 2mm sieve			
Sample Description:	**See summary of soil descriptions.**			

STAGE	**1**	**2**	**3**
Initial Conditions			
Height - mm:	19.98	19.98	19.98
Length - mm:	59.92	59.92	59.92
Moisture Content - %:	18	18	18
Bulk Density - Mg/m3:	2.30	2.31	2.32
Dry Density - Mg/m3:	1.95	1.95	1.96
Voids Ratio:	0.358	0.356	0.351
Normal Pressure- kPa	80	160	320
Consolidation Stage			
Consolidated Height - mm:	19.46	19.02	18.91
Shearing Stage			
Rate of Strain - mm/min	0.600	0.600	0.600
Displacement at peak shear stress - mm	4.00	4.00	4.00
Peak shear Stress - kPa:	73	134	275
Final Consolidated Conditons			
Moisture Content - %:	21	20	19
Bulk Density - Mg/m3:	2.37	2.42	2.45
Dry Density - Mg/m3:	1.96	2.02	2.06
Peak			
Angle of Shearing Resistance:(~~θ~~)	**40**		
Effective Cohesion - kPa:	**5**		

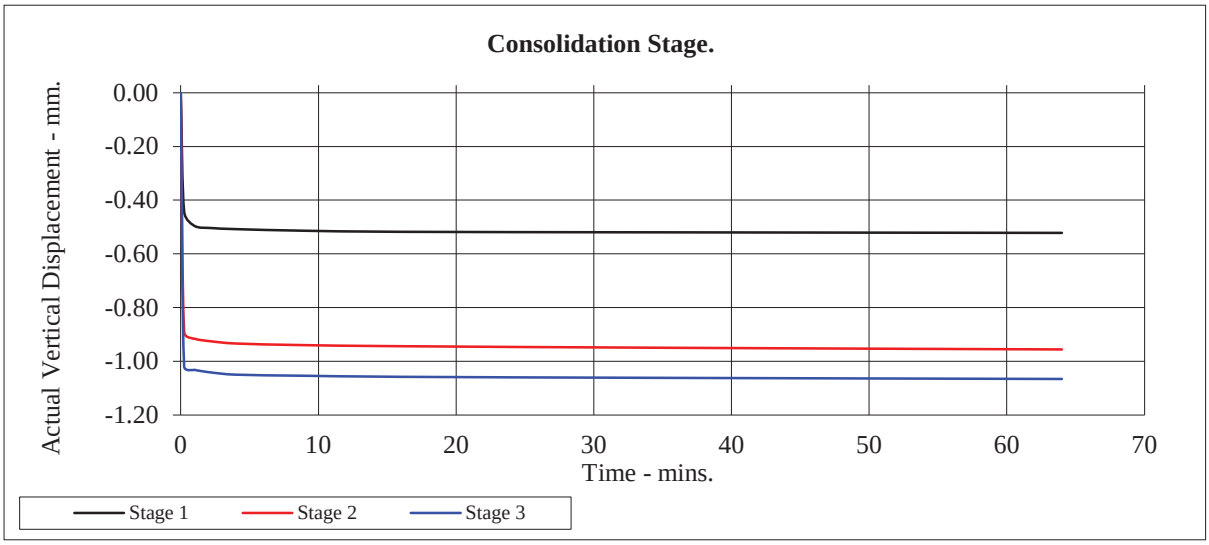


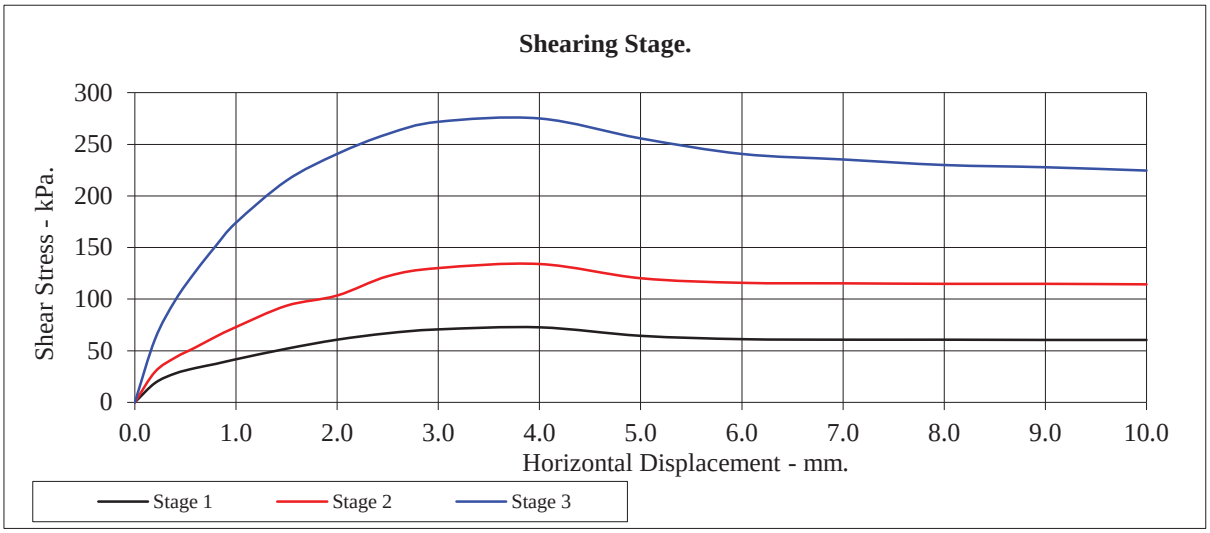
UKAS TESTING 4043	PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No: PSL17/5006**
			Client Ref: 17/035

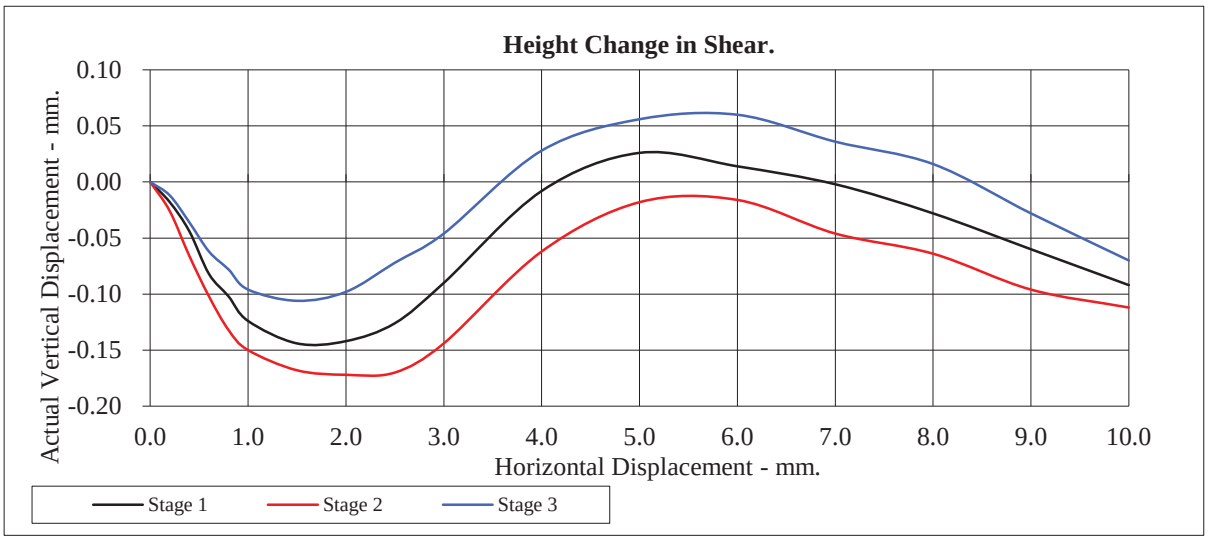
CONSOLIDATED DRAINED SHEARBOX TEST

BS1377:Part 7:1990 Clause 4.5.4

Hole Number:	**BH7**	Top Depth:	**14.50**
Sample Number:		Base Depth:	**16.00**







UKAS TESTING 4043 / PSL Professional Soils Laboratory	**Uig Harbour Redevelopment**	**Contract No: PSL17/5006** / **Client Ref: 17/035**

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details				
sketch showing specimen location in original sample	Depth	13.00-14.00m		
	Description	Grey sandy CLAY.		
	Type	Undisturbed, vertical orientation.		
	Initial Length	L_0	(mm)	140.0
	Initial Diameter	D_0	(mm)	70.0
	Initial Weight	W_0	(gr)	1106.0
	Initial Bulk Density	ρ_0	(Mg/m3)	2.05
	Particle Density	ρ_s	(Mg/m3)	2.65

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	370	440	579	
Initial Back Pressure	U_{bi}	(kPa)	300	300	300	
Membrane Thickness	m_b	(mm)	0.400			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 1			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cm3)	CH 2			
Initial Moisture	$\omega_i\%$	(%)	24			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.66			
Initial Voids Ratio	e_i	.	0.601			
Initial Degree of Saturation	S_i	(%)	100			
B Value	B	.	0.96			

Final Conditions						
Final Moisture	$\omega_f\%$	(%)	22			
Final Dry Density	ρ_{df}	(Mg/m3)	1.74			
Final Voids Ratio	e_f	.	0.520			
Final Degree of Saturation	S_f	(%)	100.0			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev. Stress	Max. Dev. Stress	Max. Dev. Stress	
Strain At Failure	$\varepsilon\%$	(%)	1.92	3.96	20.00	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	86.6	176.8	466.3	
Minor Stress At Failure	σ_3'	(kPa)	28.0	65.0	215.0	
Major Stress At Failure	σ_1'	(kPa)	114.6	241.8	681.3	
Principal Stress At Failure	σ_1'/σ_3'		4.092	3.720	3.169	

Notes

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH7 13.00-14.00m
		Test Date	18/10/2017
Site Reference		Borehole	BH7
Jobfile	Uig Harbour Redevelopment	Sample	13.00-14.00m
Client	Holequest	Depth	13.00-14.00m
Operator	Checked	Approved	

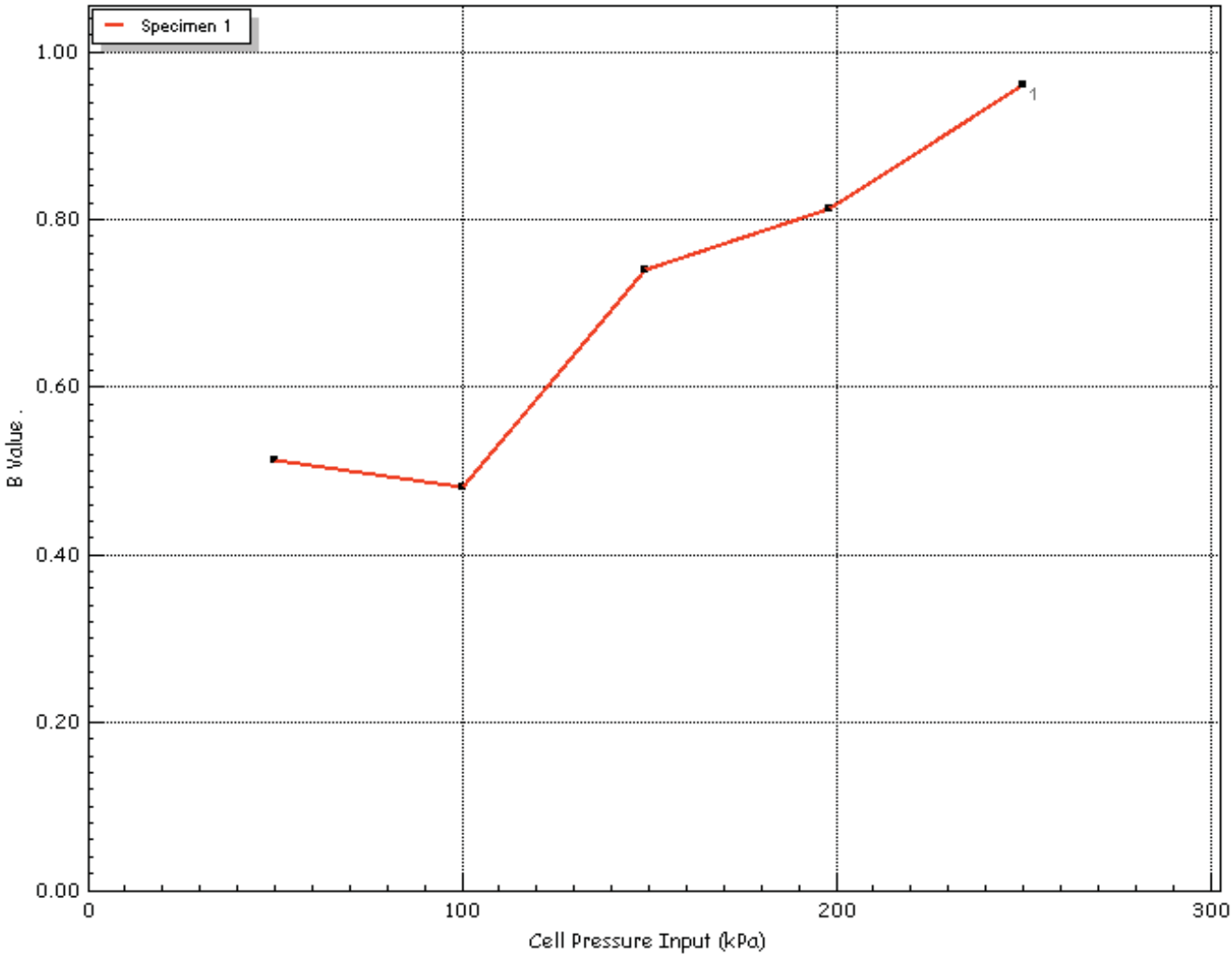
Database: .\SQLEXPRESS \ System 3

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

			1
Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	250
Pore Water Pressure Input	u pwp	(kPa)	227
B Value	B	.	0.96



Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH7 13.00-14.00m
Database: .\SQLEXPRESS \ System 3		Test Date	18/10/2017
Site Reference		Borehole	BH7
Jobfile	Uig Harbour Redevelopment	Sample	13.00-14.00m
Client	Holequest	Depth	13.00-14.00m
Operator	Checked	Approved	

Effective Stress Triaxial Compression

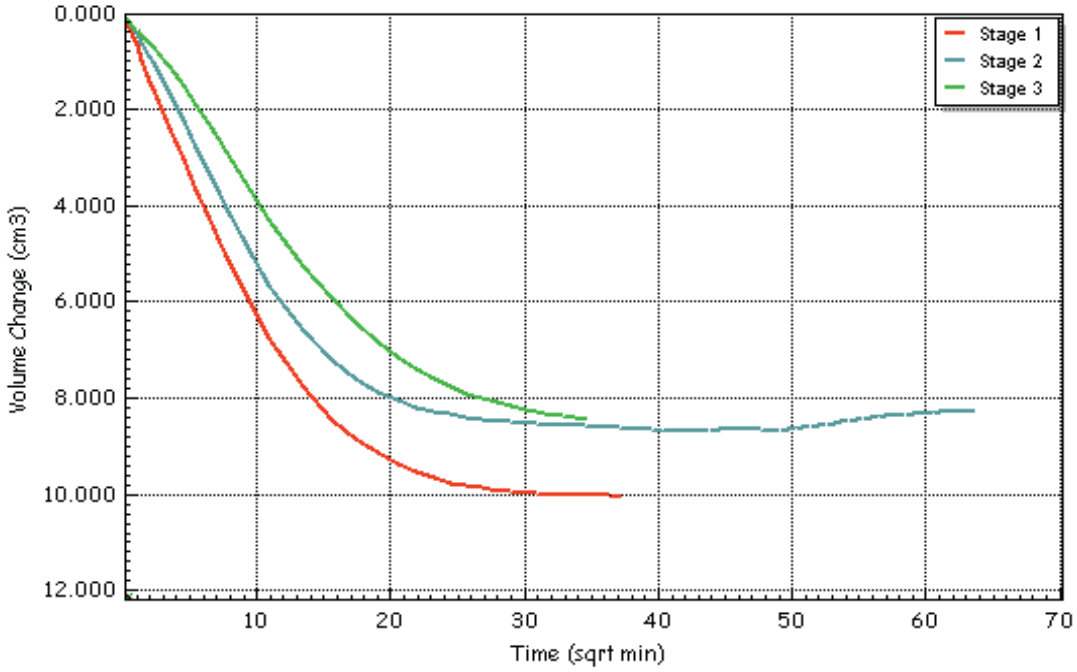
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	370	440	580
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	335	381	462
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	97.14	97.53	95.06
Volumetric Strain	ε_v%	(%)	1.87	3.40	4.97
Corrected Length	L_C	(mm)	139.1	134.7	127.2
Corrected Area	A_C	38.01	38.01	37.92	38.86
Corrected Volume	V_C	(cm3)	528.726	520.448	511.989
T100 Time to Failure	t_{100}	(min)	226.81	305.32	379.73
Consolidation	c_v	(m2/year)	0.446	0.331	0.266
Compressibility	m_v	(m2/MN)	0.549	0.431	0.323
Test Time	t_F	(h:m:s)	06:48:15	09:09:34	11:23:30
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.01704	0.01225	0.00930

Notes



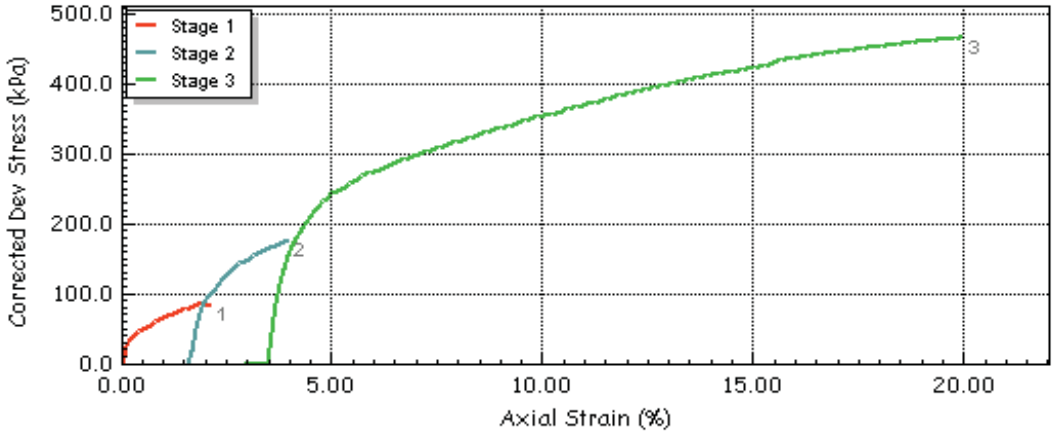
Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH7 13.00-14.00m
Database: .\SQLEXPRESS \ System 3		Test Date	18/10/2017
Site Reference		Borehole	BH7
Jobfile	Uig Harbour Redevelopment	Sample	13.00-14.00m
Client	Holequest	Depth	13.00-14.00m
Operator	Checked	Approved	

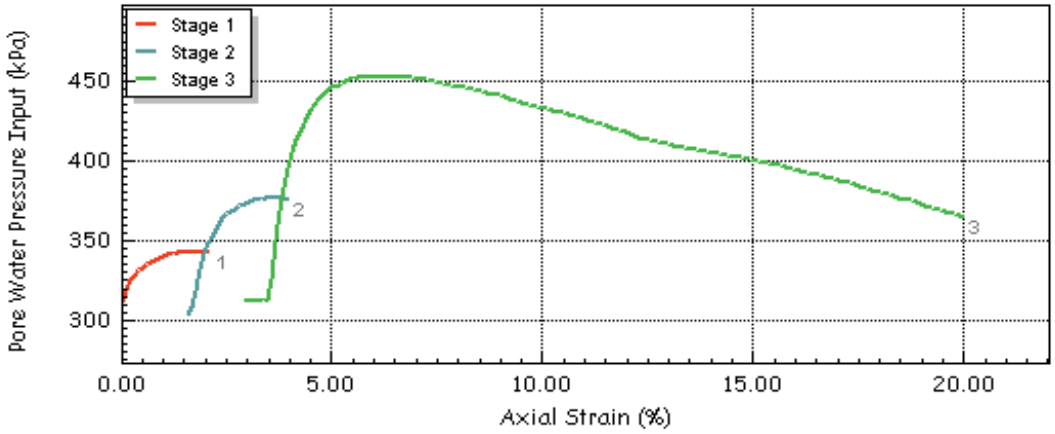
Professional Soils Laboratory

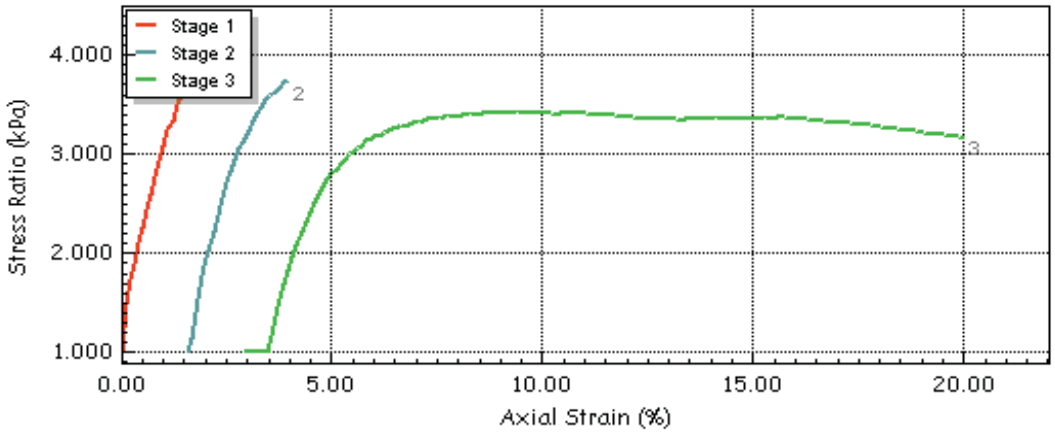
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







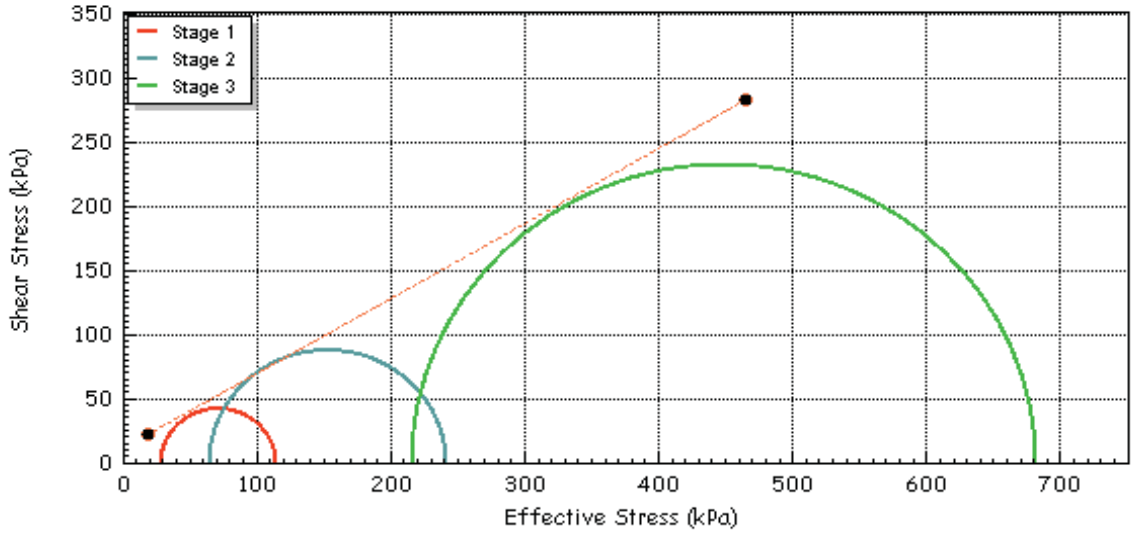
PSL Professional Soils Laboratory	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH7 13.00-14.00m
	Database: .\SQLEXPRESS \ System 3		Test Date	18/10/2017
	Site Reference		Borehole	BH7
	Jobfile	Uig Harbour Redevelopment	Sample	13.00-14.00m
	Client	Holequest	Depth	13.00-14.00m
	Operator	Checked	Approved	

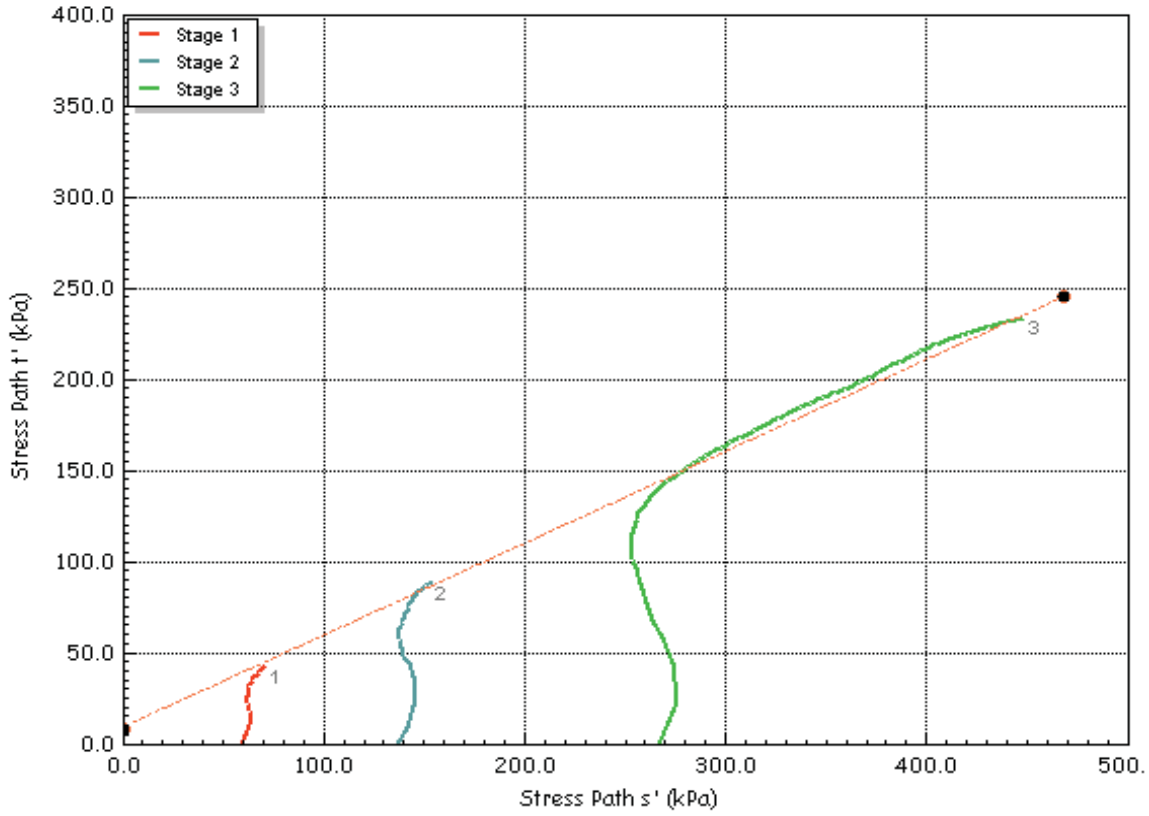
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	10.93	Effective Cohesion	c'	(kPa)	10.93
Effective Friction	ϕ'	(deg)	30.3	Effective Friction	ϕ'	(deg)	30.3





Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH7 13.00-14.00m
Database: .\SQLEXPRESS \ System 3		Test Date	18/10/2017
Site Reference		Borehole	BH7
Jobfile	Uig Harbour Redevelopment	Sample	13.00-14.00m
Client	Holequest	Depth	13.00-14.00m
Operator	Checked	Approved	

PSL Professional Soils Laboratory

APPENDIX IV

Laboratory Testing

ii) Environmental Testing

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 669675-2

Date of Report: 08-Aug-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact R

Customer Job Reference: 17/035
Customer Purchase Order: 17155
Customer Site Reference: UIG, Skye
Date Job Received at Concept: 19-Jul-2017
Date Analysis Started: 21-Jul-2017
Date Analysis Completed: 08-Aug-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

Report checked and authorised by :
Ashleigh Cunningham
Customer Service Advisor

Issued by :
Redacted
Project Manager

Redacted

This document has been printed from a digitally signed master copy

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Metals Matrix Spike

				Concept Reference	**669675 005**
				Customer Sample Reference	**Matrix Spike**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**	
As Recovery	T750	AR	1	%	**100**
Cd Recovery	T750	AR	1	%	**100**
Cr Recovery	T750	AR	1	%	**100**
Cu Recovery	T750	AR	1	%	**90**
Ni Recovery	T750	AR	1	%	**100**
Pb Recovery	T750	AR	1	%	**100**
Zn Recovery	T750	AR	1	%	**100**

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Soil Analysed as Soil
PAH Matrix Spike

Concept Reference	**669675 004**
Customer Sample Reference	**Matrix Spike**
Date Sampled	**20-JUL-2017**

Determinand	Method	Test Sample	LOD	Units	
Naphthalene Recovery	T429	AR	1	%	**92**
Acenaphthene Recovery	T429	AR	1	%	**97**
Phenanthrene Recovery	T429	AR	1	%	**93**
Chrysene Recovery	T429	AR	1	%	**95**
Benzo(a)Pyrene Recovery	T429	AR	1	%	**99**

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Soil Analysed as Soil
PCB Matrix Spike

Concept Reference	**669675 004**
Customer Sample Reference	**Matrix Spike**
Date Sampled	**20-JUL-2017**

Determinand	Method	Test Sample	LOD	Units	
PCB BZ#28 Recovery	T434	AR	1	%	**84**
PCB BZ#52 Recovery	T434	AR	1	%	**94**
PCB BZ#101 Recovery	T434	AR	1	%	**86**
PCB BZ#118 Recovery	T434	AR	1	%	**90**
PCB BZ#153 Recovery	T434	AR	1	%	**86**
PCB BZ#138 Recovery	T434	AR	1	%	**92**
PCB BZ#180 Recovery	T434	AR	1	%	**92**

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Marine Scotland Suite

		Concept Reference	669675 001	669675 002	669675 003
		Customer Sample Reference	Seabed 0.1m	Seabed 0.5m	Seabed 0.8m
Determinand	**Method**	**Test Sample** / **LOD** / **Units**			
Arsenic	T740	AR 0.5 mg/kg	**7.3**	**9.0**	**6.5**
Cadmium	T740	AR 0.1 mg/kg	**0.3**	**0.3**	**0.3**
Chromium	T740	AR 0.5 mg/kg	**380**	**410**	**490**
Copper	T740	AR 0.5 mg/kg	**41**	**25**	**37**
Lead	T740	AR 0.5 mg/kg	**6.4**	**3.5**	**4.8**
Nickel	T740	AR 0.5 mg/kg	**220**	**190**	**230**
Zinc	T740	AR 1.0 mg/kg	**100**	**77**	**100**
Mercury	T355	AR 0.05 mg/kg	(13) **0.35**	(13) <0.05	(13) <0.05
Moisture	T2	AR 0.1 %	**20**	**21**	**15**
PCB (Total Tri-Hepta)	T16	AR 0.05 µg/kg	(2) <0.50	<0.05	<0.05
Tributyl tin	T16	AR 0.01 mg/kg	<0.01	<0.01	<0.01
PCB EC7 (Sum)	T85	AR 0.35 µg/kg	<0.35	<0.35	<0.35

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment

Poly-Chlorinated Biphenyls (ICES 7)

	Concept Reference	669675 001	669675 002	669675 003
	Customer Sample Reference	Seabed 0.1m	Seabed 0.5m	Seabed 0.8m

Determinand	Method	Test Sample	LOD	Units			
PCB BZ#28	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#52	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#101	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#118	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#153	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#138	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#180	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05

Concept Reference: 669675
Project Site: UIG, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Total and Speciated USEPA16 PAH

		Concept Reference	669675 001	669675 002	669675 003
		Customer Sample Reference	Seabed 0.1m	Seabed 0.5m	Seabed 0.8m
Determinand	**Method**	**Test Sample**	**LOD**	**Units**	
Naphthalene	T1	AR	2	µg/kg	**24**	**6**	**11**
Acenaphthylene	T1	AR	2	µg/kg	<2	<2	<2
Acenaphthene	T1	AR	2	µg/kg	**3**	<2	**3**
Fluorene	T1	AR	2	µg/kg	**2**	<2	**2**
Phenanthrene	T1	AR	2	µg/kg	**15**	<2	<2
Anthracene	T1	AR	2	µg/kg	**6**	<2	<2
Fluoranthene	T1	AR	2	µg/kg	**56**	<2	<2
Pyrene	T1	AR	2	µg/kg	**48**	<2	<2
Benzo(a)Anthracene	T1	AR	2	µg/kg	**33**	<2	<2
Chrysene	T1	AR	2	µg/kg	**33**	<2	<2
Benzo(b/k)Fluoranthene	T1	AR	2	µg/kg	**47**	**2**	<2
Benzo(a)Pyrene	T1	AR	2	µg/kg	**22**	<2	<2
Indeno(123-cd)Pyrene	T1	AR	2	µg/kg	**11**	<2	<2
Dibenzo(ah)Anthracene	T1	AR	2	µg/kg	**5**	<2	<2
Benzo(ghi)Perylene	T1	AR	2	µg/kg	**9**	<2	<2
PAH(total)	T1	AR	2	µg/kg	**310**	**8**	**16**

Index to symbols used in 669675-2

Value	Description
AR	As Received
2	LOD Raised Due to Matrix Interference
13	Results have been blank corrected.
N	Analysis is not UKAS accredited

Notes

The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T85	Calc
T740	ICP/MS (HF)
T16	GC/MS
T429	GC/MS (Recovery)
T1	GC/MS (HR)
T355	CVAFS
T750	ICP/MS (Recovery)
T2	Grav
T434	GC/MS (HR) (Recovery)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
PCB BZ#28 Recovery	T434	AR	1	%	N	004
PCB BZ#52 Recovery	T434	AR	1	%	N	004
PCB BZ#101 Recovery	T434	AR	1	%	N	004
PCB BZ#118 Recovery	T434	AR	1	%	N	004
PCB BZ#153 Recovery	T434	AR	1	%	N	004
PCB BZ#138 Recovery	T434	AR	1	%	N	004
PCB BZ#180 Recovery	T434	AR	1	%	N	004
Naphthalene Recovery	T429	AR	1	%	N	004
Acenaphthene Recovery	T429	AR	1	%	N	004
Phenanthrene Recovery	T429	AR	1	%	N	004
Chrysene Recovery	T429	AR	1	%	N	004
Benzo(a)Pyrene Recovery	T429	AR	1	%	N	004
Arsenic	T740	AR	0.5	mg/kg	N	001-003
Cadmium	T740	AR	0.1	mg/kg	N	001-003
Chromium	T740	AR	0.5	mg/kg	N	001-003
Copper	T740	AR	0.5	mg/kg	N	001-003
Lead	T740	AR	0.5	mg/kg	N	001-003
Nickel	T740	AR	0.5	mg/kg	N	001-003
Zinc	T740	AR	1.0	mg/kg	N	001-003
Mercury	T355	AR	0.05	mg/kg	N	001-003
Moisture	T2	AR	0.1	%	N	001-003
PCB (Total Tri-Hepta)	T16	AR	0.05	µg/kg	N	001-003
Tributyl tin	T16	AR	0.01	mg/kg	N	001-003
PCB EC7 (Sum)	T85	AR	0.35	µg/kg	N	001-003
PCB BZ#28	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#52	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#101	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#118	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#153	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#138	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#180	T1	AR	0.05	µg/kg	N	001-003
Naphthalene	T1	AR	2	µg/kg	N	001-003
Acenaphthylene	T1	AR	2	µg/kg	N	001-003
Acenaphthene	T1	AR	2	µg/kg	N	001-003
Fluorene	T1	AR	2	µg/kg	N	001-003
Phenanthrene	T1	AR	2	µg/kg	N	001-003
Anthracene	T1	AR	2	µg/kg	N	001-003
Fluoranthene	T1	AR	2	µg/kg	N	001-003
Pyrene	T1	AR	2	µg/kg	N	001-003

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Benzo(a)Anthracene	T1	AR	2	µg/kg	N	001-003
Chrysene	T1	AR	2	µg/kg	N	001-003
Benzo(b/k)Fluoranthene	T1	AR	2	µg/kg	N	001-003
Benzo(a)Pyrene	T1	AR	2	µg/kg	N	001-003
Indeno(123-cd)Pyrene	T1	AR	2	µg/kg	N	001-003
Dibenzo(ah)Anthracene	T1	AR	2	µg/kg	N	001-003
Benzo(ghi)Perylene	T1	AR	2	µg/kg	N	001-003
PAH(total)	T1	AR	2	µg/kg	N	001-003
As Recovery	T750	AR	1	%	N	005
Cd Recovery	T750	AR	1	%	N	005
Cr Recovery	T750	AR	1	%	N	005
Cu Recovery	T750	AR	1	%	N	005
Ni Recovery	T750	AR	1	%	N	005
Pb Recovery	T750	AR	1	%	N	005
Zn Recovery	T750	AR	1	%	N	005

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 675775-1

Date of Report: 23-Aug-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference:
Date Job Received at Concept: 25-Jul-2017
Date Analysis Started: 16-Aug-2017
Date Analysis Completed: 22-Aug-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted
Project Manager

Issued by :
Alison Forrester
Project Manager

Redacted

Concept Reference: 675775
Customer Reference:

Soil Analysed as Soil
CWG

Concept Reference	**675775 003**	**675775 008**
Customer Sample Reference	**TP02 0.0M**	**TP04 0.0M**
Date Sampled	**20-JUL-2017**	**21-JUL-2017**

Determinand	Method	Test Sample	LOD	Units		
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	<10	<10
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	<10	<10
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	<10	<10
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	<1	<1
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	<1	<1
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	(13) <1	<1
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	<10	<10
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	<10	<10
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	<10	<10
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	<1	<1
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	<1	<1
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	<1	<1
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	<1	<1

Concept Reference: 675775
Customer Reference:

Soil Analysed as Soil
Suite Requested

Concept Reference	**675775 003**	**675775 008**
Customer Sample Reference	**TP02 0.0M**	**TP04 0.0M**
Date Sampled	**20-JUL-2017**	**21-JUL-2017**

Determinand	Method	Test Sample	LOD	Units		
Arsenic	T82	A40	2	mg/kg	**7**	**8**
Cadmium	T82	A40	1	mg/kg	<1	<1
Chromium	T82	A40	1	mg/kg	**52**	**71**
Copper	T82	A40	1	mg/kg	**55**	**43**
Lead	T82	A40	3	mg/kg	**10**	**19**
Mercury	T82	A40	1	mg/kg	<1	<1
Nickel	T82	A40	1	mg/kg	**140**	**170**
Selenium	T82	A40	3	mg/kg	<3	<3
Zinc	T82	A40	1	mg/kg	**95**	**130**
pH	T7	A40			**8.2**	**7.7**
Asbestos ID	T27	AR			N.D.	N.D.
Organic Matter	T2	A40	0.1	%	**1.9**	**3.8**

Concept Reference: 675775
Customer Reference:

Soil Analysed as Soil
Total and Speciated USEPA16 PAH (EK)

		Concept Reference	675775 003	675775 008
		Customer Sample Reference	TP02 0.0M	TP04 0.0M
		Date Sampled	20-JUL-2017	21-JUL-2017
Determinand	**Method**	**Test Sample** / **LOD** / **Units**		
Naphthalene	T149	AR 0.01 mg/kg	**0.01**	**0.01**
Acenaphthylene	T149	AR 0.01 mg/kg	**0.01**	<0.01
Acenaphthene	T149	AR 0.01 mg/kg	<0.01	<0.01
Fluorene	T149	AR 0.01 mg/kg	<0.01	<0.01
Phenanthrene	T149	AR 0.01 mg/kg	**0.01**	<0.01
Anthracene	T149	AR 0.01 mg/kg	**0.01**	<0.01
Fluoranthene	T149	AR 0.01 mg/kg	**0.04**	**0.01**
Pyrene	T149	AR 0.01 mg/kg	**0.04**	**0.01**
Benzo(a)Anthracene	T149	AR 0.01 mg/kg	(13) **0.02**	(13) <0.01
Chrysene	T149	AR 0.01 mg/kg	**0.02**	**0.01**
Benzo(b)fluoranthene	T149	AR 0.01 mg/kg	**0.04**	**0.01**
Benzo(k)fluoranthene	T149	AR 0.01 mg/kg	**0.02**	<0.01
Benzo(a)Pyrene	T149	AR 0.01 mg/kg	**0.03**	**0.01**
Indeno(123-cd)Pyrene	T149	AR 0.01 mg/kg	**0.02**	**0.01**
Dibenzo(ah)Anthracene	T149	AR 0.01 mg/kg	**0.01**	<0.01
Benzo(ghi)Perylene	T149	AR 0.01 mg/kg	**0.03**	**0.01**
PAH(total)	T149	AR 0.01 mg/kg	**0.31**	**0.08**

Concept Reference: 675775

Customer Reference:

Soil Analysed as Soil

Semi-Volatile Organic Compounds (USEPA 625)(EK)

					Concept Reference	675775 003	675775 008	675775 011
					Customer Sample Reference	TP02 0.0M	TP04 0.0M	SVOC BLANK
					Date Sampled	20-JUL-2017	21-JUL-2017	15-AUG-2017
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
Phenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Bis (2-chloroethyl) ether	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-Chlorophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
1,3-Dichlorobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
1,4-Dichlorobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
1,2-Dichlorobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Bis (2-chloroisopropyl) ether	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-methyl phenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
3/4-Methylphenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Hexachloroethane	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Nitrobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Isophorone	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,4-Dimethylphenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Bis (2-chloroethoxy) methane	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,4-Dichlorophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
1,2,4-Trichlorobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Naphthalene	T16	AR	0.1	mg/kg		**0.2**	<0.1	<0.1
4-Chloroaniline	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Hexachlorobutadiene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
4-Chloro-3-methylphenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-Methylnaphthalene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Hexachlorocyclopentadiene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,4,6-Trichlorophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,4,5-Trichlorophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-Chloronaphthalene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-Nitroaniline	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Dimethyl phthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,6-Dinitrotoluene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Acenaphthylene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Acenaphthene	T16	AR	0.1	mg/kg		**0.2**	<0.1	<0.1
3-Nitroaniline	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Dibenzofuran	T16	AR	0.1	mg/kg		**0.1**	<0.1	<0.1
2,4-Dinitrotoluene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2,4-Dinitrophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
2-Nitrophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Diethyl phthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Fluorene	T16	AR	0.1	mg/kg		**0.2**	<0.1	<0.1
4-Chlorophenyl phenylether	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
4-Nitroaniline	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Azobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
4-Bromophenyl phenylether	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Hexachlorobenzene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Pentachlorophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Phenanthrene	T16	AR	0.1	mg/kg		**0.9**	**0.1**	<0.1
Anthracene	T16	AR	0.1	mg/kg		**0.3**	<0.1	<0.1
Carbazole	T16	AR	0.1	mg/kg		**0.3**	<0.1	<0.1
Di-n-butylphthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Fluoranthene	T16	AR	0.1	mg/kg		**1.1**	**0.2**	<0.1
Pyrene	T16	AR	0.1	mg/kg		**0.9**	**0.2**	<0.1
Butyl benzylphthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Benzo(a)Anthracene	T16	AR	0.1	mg/kg		**0.5**	<0.1	<0.1
4-Nitrophenol	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Chrysene	T16	AR	0.1	mg/kg		**0.5**	<0.1	<0.1
Bis (2-ethylhexyl)phthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Di-n-octylphthalate	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg		**0.8**	**0.1**	<0.1
Benzo(a)Pyrene	T16	AR	0.1	mg/kg		**0.5**	<0.1	<0.1
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg		**0.2**	<0.1	<0.1
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg		<0.1	<0.1	<0.1
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg		**0.3**	<0.1	<0.1

Concept Reference: 675775
Customer Reference:

Soil Analysed as Soil
Volatile Organic Compounds (USEPA 624)

				Concept Reference	**675775 003**	**675775 008**
				Customer Sample Reference	**TP02 0.0M**	**TP04 0.0M**
				Date Sampled	**20-JUL-2017**	**21-JUL-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Dichlorodifluoromethane	T54	AR	5	µg/kg	<5	<5
Chloromethane	T54	AR	5	µg/kg	<5	<5
Vinyl chloride	T54	AR	5	µg/kg	<5	<5
Bromomethane	T54	AR	5	µg/kg	<5	<5
Chloroethane	T54	AR	5	µg/kg	<5	<5
Trichlorofluoromethane	T54	AR	5	µg/kg	<5	<5
1,1-Dichloroethylene	T54	AR	5	µg/kg	<5	<5
Dichloromethane	T54	AR	50	µg/kg	<50	<50
Trans-1,2-Dichloroethene	T54	AR	5	µg/kg	<5	<5
1,1-Dichloroethane	T54	AR	5	µg/kg	<5	<5
Cis-1,2-Dichloroethylene	T54	AR	5	µg/kg	<5	<5
2,2-Dichloropropane	T54	AR	5	µg/kg	<5	<5
Chloroform	T54	AR	5	µg/kg	<5	<5
Bromochloromethane	T54	AR	5	µg/kg	<5	<5
1,1,1-Trichloroethane	T54	AR	5	µg/kg	<5	<5
1,1-Dichloropropene	T54	AR	5	µg/kg	<5	<5
Carbon tetrachloride	T54	AR	5	µg/kg	<5	<5
1,2-Dichloroethane	T54	AR	5	µg/kg	<5	<5
Benzene	T54	AR	1	µg/kg	(13) <1	(13) <1
1,2-Dichloropropane	T54	AR	5	µg/kg	<5	<5
1,1,2-Trichloroethylene	T54	AR	5	µg/kg	<5	<5
Bromodichloromethane	T54	AR	5	µg/kg	<5	<5
Dibromomethane	T54	AR	5	µg/kg	<5	<5
Cis-1,3-Dichloropropene	T54	AR	5	µg/kg	<5	<5
Toluene	T54	AR	1	µg/kg	<1	<1
Trans-1,3-Dichloropropene	T54	AR	5	µg/kg	<5	<5
1,1,2-Trichloroethane	T54	AR	5	µg/kg	<5	<5
1,3-Dichloropropane	T54	AR	5	µg/kg	<5	<5
Tetrachloroethene	T54	AR	5	µg/kg	<5	<5
Chlorodibromomethane	T54	AR	5	µg/kg	<5	<5
1,2-dibromoethane	T54	AR	5	µg/kg	<5	<5
Chlorobenzene	T54	AR	5	µg/kg	<5	<5
1,1,1,2-Tetrachloroethane	T54	AR	5	µg/kg	<5	<5
EthylBenzene	T54	AR	1	µg/kg	<1	<1
M/P Xylene	T54	AR	1	µg/kg	<1	<1
O Xylene	T54	AR	1	µg/kg	<1	<1
Styrene	T54	AR	5	µg/kg	<5	<5
Bromoform	T54	AR	5	µg/kg	<5	<5
Isopropyl benzene	T54	AR	5	µg/kg	<5	<5
1,1,2,2-Tetrachloroethane	T54	AR	5	µg/kg	<5	<5
1,2,3-Trichloropropane	T54	AR	5	µg/kg	<5	<5
n-Propylbenzene	T54	AR	5	µg/kg	<5	<5
Bromobenzene	T54	AR	5	µg/kg	<5	<5
1,3,5-Trimethylbenzene	T54	AR	5	µg/kg	<5	<5
T-Butylbenzene	T54	AR	5	µg/kg	<5	<5
1,2,4-Trimethylbenzene	T54	AR	5	µg/kg	<5	<5
S-Butylbenzene	T54	AR	5	µg/kg	<5	<5
p-Isopropyltoluene	T54	AR	5	µg/kg	<5	<5
2-Chlorotoluene	T54	AR	5	µg/kg	<5	<5
4-Chlorotoluene	T54	AR	5	µg/kg	<5	<5
1,3-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5
1,4-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5
1,2-Dichlorobenzene	T54	AR	5	µg/kg	<5	<5

Index to symbols used in 675775-1

Value	Description
AR	As Received
A40	Assisted dried < 40C
N.D.	Not Detected
13	Results have been blank corrected.
S	Analysis was subcontracted
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

SVOC, PAH and VOC - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T7	Probe
T8	GC/FID
T149	GC/MS (SIR)
T27	PLM
T54	GC/MS (Headspace)
T2	Grav
T82	ICP/OES (Sim)
T16	GC/MS

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Phenol	T16	AR	0.1	mg/kg	U	003,008,011
Bis (2-chloroethyl) ether	T16	AR	0.1	mg/kg	U	003,008,011
2-Chlorophenol	T16	AR	0.1	mg/kg	U	003,008,011
1,3-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003,008,011
1,4-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003,008,011
1,2-Dichlorobenzene	T16	AR	0.1	mg/kg	U	003,008,011
Bis (2-chloroisopropyl) ether	T16	AR	0.1	mg/kg	U	003,008,011
2-methyl phenol	T16	AR	0.1	mg/kg	U	003,008,011
3/4-Methylphenol	T16	AR	0.1	mg/kg	U	003,008,011
Hexachloroethane	T16	AR	0.1	mg/kg	U	003,008,011
Nitrobenzene	T16	AR	0.1	mg/kg	U	003,008,011
Isophorone	T16	AR	0.1	mg/kg	U	003,008,011
2,4-Dimethylphenol	T16	AR	0.1	mg/kg	U	003,008,011
Bis (2-chloroethoxy) methane	T16	AR	0.1	mg/kg	U	003,008,011
2,4-Dichlorophenol	T16	AR	0.1	mg/kg	U	003,008,011
1,2,4-Trichlorobenzene	T16	AR	0.1	mg/kg	U	003,008,011
Naphthalene	T16	AR	0.1	mg/kg	U	003,008,011
4-Chloroaniline	T16	AR	0.1	mg/kg	U	003,008,011
Hexachlorobutadiene	T16	AR	0.1	mg/kg	U	003,008,011
4-Chloro-3-methylphenol	T16	AR	0.1	mg/kg	U	003,008,011
2-Methylnaphthalene	T16	AR	0.1	mg/kg	U	003,008,011
Hexachlorocyclopentadiene	T16	AR	0.1	mg/kg	U	003,008,011
2,4,6-Trichlorophenol	T16	AR	0.1	mg/kg	U	003,008,011
2,4,5-Trichlorophenol	T16	AR	0.1	mg/kg	U	003,008,011
2-Chloronaphthalene	T16	AR	0.1	mg/kg	U	003,008,011
2-Nitroaniline	T16	AR	0.1	mg/kg	U	003,008,011
Dimethyl phthalate	T16	AR	0.1	mg/kg	U	003,008,011
2,6-Dinitrotoluene	T16	AR	0.1	mg/kg	U	003,008,011
Acenaphthylene	T16	AR	0.1	mg/kg	U	003,008,011
Acenaphthene	T16	AR	0.1	mg/kg	U	003,008,011
3-Nitroaniline	T16	AR	0.1	mg/kg	U	003,008,011
Dibenzofuran	T16	AR	0.1	mg/kg	U	003,008,011
2,4-Dinitrophenol	T16	AR	0.1	mg/kg	N	003,008,011
2,4-Dinitrotoluene	T16	AR	0.1	mg/kg	U	003,008,011
2-Nitrophenol	T16	AR	0.1	mg/kg	U	003,008,011
Diethyl phthalate	T16	AR	0.1	mg/kg	U	003,008,011
Fluorene	T16	AR	0.1	mg/kg	U	003,008,011

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
4-Chlorophenyl phenylether	T16	AR	0.1	mg/kg	U	003,008,011
4-Nitroaniline	T16	AR	0.1	mg/kg	U	003,008,011
Azobenzene	T16	AR	0.1	mg/kg	U	003,008,011
4-Bromophenyl phenylether	T16	AR	0.1	mg/kg	U	003,008,011
Hexachlorobenzene	T16	AR	0.1	mg/kg	U	003,008,011
Pentachlorophenol	T16	AR	0.1	mg/kg	U	003,008,011
Phenanthrene	T16	AR	0.1	mg/kg	U	003,008,011
Anthracene	T16	AR	0.1	mg/kg	U	003,008,011
Carbazole	T16	AR	0.1	mg/kg	U	003,008,011
Di-n-butylphthalate	T16	AR	0.1	mg/kg	U	003,008,011
Fluoranthene	T16	AR	0.1	mg/kg	U	003,008,011
Pyrene	T16	AR	0.1	mg/kg	U	003,008,011
Butyl benzylphthalate	T16	AR	0.1	mg/kg	U	003,008,011
Benzo(a)Anthracene	T16	AR	0.1	mg/kg	U	003,008,011
4-Nitrophenol	T16	AR	0.1	mg/kg	N	003,008,011
Chrysene	T16	AR	0.1	mg/kg	U	003,008,011
Bis (2-ethylhexyl)phthalate	T16	AR	0.1	mg/kg	U	003,008,011
Di-n-octylphthalate	T16	AR	0.1	mg/kg	U	003,008,011
Benzo(b/k)Fluoranthene	T16	AR	0.1	mg/kg	U	003,008,011
Benzo(a)Pyrene	T16	AR	0.1	mg/kg	U	003,008,011
Indeno(123-cd)Pyrene	T16	AR	0.1	mg/kg	U	003,008,011
Dibenzo(ah)Anthracene	T16	AR	0.1	mg/kg	U	003,008,011
Benzo(ghi)Perylene	T16	AR	0.1	mg/kg	U	003,008,011
TPH (C5-C6 aliphatic)	T54	AR	10	µg/kg	N	003,008
TPH (C6-C8 aliphatic)	T54	AR	10	µg/kg	N	003,008
TPH (C8-C10 aliphatic)	T54	AR	10	µg/kg	N	003,008
TPH (C10-C12 aliphatic)	T8	AR	1	mg/kg	N	003,008
TPH (C12-C16 aliphatic)	T8	AR	1	mg/kg	N	003,008
TPH (C16-C21 aliphatic)	T8	AR	1	mg/kg	N	003,008
TPH (C21-C35 aliphatic)	T8	AR	1	mg/kg	N	003,008
TPH (C6-C7 aromatic)	T54	AR	10	µg/kg	N	003,008
TPH (C7-C8 aromatic)	T54	AR	10	µg/kg	N	003,008
TPH (C8-C10 aromatic)	T54	AR	10	µg/kg	N	003,008
TPH (C10-C12 aromatic)	T8	AR	1	mg/kg	N	003,008
TPH (C12-C16 aromatic)	T8	AR	1	mg/kg	N	003,008
TPH (C16-C21 aromatic)	T8	AR	1	mg/kg	N	003,008
TPH (C21-C35 aromatic)	T8	AR	1	mg/kg	N	003,008
Naphthalene	T149	AR	0.01	mg/kg	U	003,008
Acenaphthylene	T149	AR	0.01	mg/kg	U	003,008
Acenaphthene	T149	AR	0.01	mg/kg	U	003,008
Fluorene	T149	AR	0.01	mg/kg	U	003,008
Phenanthrene	T149	AR	0.01	mg/kg	U	003,008
Anthracene	T149	AR	0.01	mg/kg	U	003,008
Fluoranthene	T149	AR	0.01	mg/kg	U	003,008
Pyrene	T149	AR	0.01	mg/kg	U	003,008
Benzo(a)Anthracene	T149	AR	0.01	mg/kg	U	003,008
Chrysene	T149	AR	0.01	mg/kg	U	003,008
Benzo(b)fluoranthene	T149	AR	0.01	mg/kg	U	003,008
Benzo(k)fluoranthene	T149	AR	0.01	mg/kg	U	003,008
Benzo(a)Pyrene	T149	AR	0.01	mg/kg	U	003,008
Indeno(123-cd)Pyrene	T149	AR	0.01	mg/kg	U	003,008
Dibenzo(ah)Anthracene	T149	AR	0.01	mg/kg	U	003,008
Benzo(ghi)Perylene	T149	AR	0.01	mg/kg	U	003,008
PAH(total)	T149	AR	0.01	mg/kg	U	003,008
Arsenic	T82	A40	2	mg/kg	U	003,008
Cadmium	T82	A40	1	mg/kg	U	003,008
Chromium	T82	A40	1	mg/kg	U	003,008
Copper	T82	A40	1	mg/kg	U	003,008
Lead	T82	A40	3	mg/kg	U	003,008
Mercury	T82	A40	1	mg/kg	U	003,008
Nickel	T82	A40	1	mg/kg	U	003,008
Selenium	T82	A40	3	mg/kg	U	003,008
Zinc	T82	A40	1	mg/kg	U	003,008
pH	T7	A40			U	003,008
Asbestos ID	T27	AR			SU	003,008
Organic Matter	T2	A40	0.1	%	N	003,008
Dichlorodifluoromethane	T54	AR	5	µg/kg	U	003,008
Chloromethane	T54	AR	5	µg/kg	U	003,008
Vinyl chloride	T54	AR	5	µg/kg	U	003,008
Bromomethane	T54	AR	5	µg/kg	U	003,008

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chloroethane	T54	AR	5	µg/kg	U	003,008
Trichlorofluoromethane	T54	AR	5	µg/kg	U	003,008
1,1-Dichloroethylene	T54	AR	5	µg/kg	U	003,008
Dichloromethane	T54	AR	50	µg/kg	N	003,008
Trans-1,2-Dichloroethene	T54	AR	5	µg/kg	U	003,008
1,1-Dichloroethane	T54	AR	5	µg/kg	U	003,008
Cis-1,2-Dichloroethylene	T54	AR	5	µg/kg	U	003,008
2,2-Dichloropropane	T54	AR	5	µg/kg	U	003,008
Chloroform	T54	AR	5	µg/kg	U	003,008
Bromochloromethane	T54	AR	5	µg/kg	U	003,008
1,1,1-Trichloroethane	T54	AR	5	µg/kg	U	003,008
1,1-Dichloropropene	T54	AR	5	µg/kg	U	003,008
Carbon tetrachloride	T54	AR	5	µg/kg	U	003,008
1,2-Dichloroethane	T54	AR	5	µg/kg	U	003,008
Benzene	T54	AR	1	µg/kg	U	003,008
1,2-Dichloropropane	T54	AR	5	µg/kg	U	003,008
1,1,2-Trichloroethylene	T54	AR	5	µg/kg	U	003,008
Bromodichloromethane	T54	AR	5	µg/kg	U	003,008
Dibromomethane	T54	AR	5	µg/kg	U	003,008
Cis-1,3-Dichloropropene	T54	AR	5	µg/kg	U	003,008
Toluene	T54	AR	1	µg/kg	U	003,008
Trans-1,3-Dichloropropene	T54	AR	5	µg/kg	U	003,008
1,1,2-Trichloroethane	T54	AR	5	µg/kg	U	003,008
1,3-Dichloropropane	T54	AR	5	µg/kg	U	003,008
Tetrachloroethene	T54	AR	5	µg/kg	U	003,008
Chlorodibromomethane	T54	AR	5	µg/kg	U	003,008
1,2-dibromoethane	T54	AR	5	µg/kg	U	003,008
Chlorobenzene	T54	AR	5	µg/kg	U	003,008
1,1,1,2-Tetrachloroethane	T54	AR	5	µg/kg	U	003,008
EthylBenzene	T54	AR	1	µg/kg	U	003,008
M/P Xylene	T54	AR	1	µg/kg	U	003,008
O Xylene	T54	AR	1	µg/kg	U	003,008
Styrene	T54	AR	5	µg/kg	U	003,008
Bromoform	T54	AR	5	µg/kg	U	003,008
Isopropyl benzene	T54	AR	5	µg/kg	U	003,008
1,1,2,2-Tetrachloroethane	T54	AR	5	µg/kg	U	003,008
1,2,3-Trichloropropane	T54	AR	5	µg/kg	U	003,008
n-Propylbenzene	T54	AR	5	µg/kg	U	003,008
Bromobenzene	T54	AR	5	µg/kg	U	003,008
1,3,5-Trimethylbenzene	T54	AR	5	µg/kg	U	003,008
T-Butylbenzene	T54	AR	5	µg/kg	U	003,008
1,2,4-Trimethylbenzene	T54	AR	5	µg/kg	U	003,008
S-Butylbenzene	T54	AR	5	µg/kg	U	003,008
p-Isopropyltoluene	T54	AR	5	µg/kg	U	003,008
2-Chlorotoluene	T54	AR	5	µg/kg	U	003,008
4-Chlorotoluene	T54	AR	5	µg/kg	U	003,008
1,3-Dichlorobenzene	T54	AR	5	µg/kg	U	003,008
1,4-Dichlorobenzene	T54	AR	5	µg/kg	U	003,008
1,2-Dichlorobenzene	T54	AR	5	µg/kg	U	003,008

CONCEPT LIFE SCIENCES
DELIVERING SCIENCE

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 675785-1

Date of Report: 23-Aug-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference:
Date Job Received at Concept: 25-Jul-2017
Date Analysis Started: 16-Aug-2017
Date Analysis Completed: 22-Aug-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Alison Forrester
Project Manager

Issued by :
Redacted
Project Manager

Redacted

Waste Acceptance Criteria

Customer Sample Reference : TP01 0.0M
SAL Sample Reference : 675785 001
Test Portion Mass (g) : 175
Date Sampled : Deviating

Soil Summary					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
PAH (Sum)	Calc	1.6	mg/kg	N	<1.6	100.0		
TPH C10-C40 (sum)	Calc	1	mg/kg	N	(100) <10	500.0		
BTEX (Sum)	Calc	0.0040	mg/kg	U	(13) <0.0040	6.0		
PCB EC7 (Sum)	Calc	0.00035	mg/kg	U	<0.030	1.0		
Total Organic Carbon	OX/IR	0.1	%	N	1.7	3.0	5.0	6.0
pH	Probe			U	8.2		>6.0	
Loss on Ignition	Grav	0.1	%	N	6.2			10.0

10:1 Leachate					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
Antimony (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	0.024	0.06	0.7	5.0
Arsenic (Dissolved)	Calc / ICP/MS (Filtered)	0.0021	mg/kg	N	0.21	0.5	2.0	25.0
Barium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	0.54	20.0	100.0	300.0
Cadmium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.04	1.0	5.0
Chromium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.5	10.0	70.0
Copper (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	2.0	50.0	100.0
Lead (Dissolved)	Calc / ICP/MS (Filtered)	0.0031	mg/kg	N	<0.0031	0.5	10.0	50.0
Mercury (Dissolved)	Calc / ICP/MS (Filtered)	0.0021	mg/kg	N	<0.0021	0.01	0.2	2.0
Molybdenum (Dissolved)	Calc / ICP/MS (Filtered)	0.052	mg/kg	N	0.48	0.5	10.0	30.0
Nickel (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	0.045	0.4	10.0	40.0
Selenium (Dissolved)	Calc / ICP/MS (Filtered)	0.0052	mg/kg	N	0.0056	0.1	0.5	7.0
Zinc (Dissolved)	Calc / ICP/MS (Filtered)	0.021	mg/kg	N	0.14	4.0	50.0	200.0
Chloride	Calc / Discrete Analyser	10	mg/kg	N	23000	800.0	**15000.0**	25000.0
Fluoride	Calc / Discrete Analyser	0.52	mg/kg	N	9.1	10.0	150.0	500.0
Sulphate	Calc / Discrete Analyser	5.2	mg/kg	N	1400	**1000.0**	20000.0	50000.0
Dissolved Organic Carbon	Calc / OX/IR	10	mg/kg	N	290	500.0	800.0	1000.0
Phenols(Mono)	Calc / Colorimetry	1.0	mg/kg	N	<1.0	1.0		
Total Dissolved Solids	Calc	100	mg/kg	N	46000	**4000.0**	60000.0	100000.0

From: Criteria set by European Council Decision 2003/33/EC(2) pursuant to Directive 1999/31/EC(3) and implemented in Scotland by The Landfill (Scotland) Regulations 2003
The 2:1 moisture extract was not produced because the moisture content of the sample was greater than 200%. Therefore, the exact application of the two-step leaching test is precluded on technical grounds (ref: Section 5.2.4 BS EN 12457-3:2002). Results are derived from a single step leaching at L/S 10/1 as prescribed by the EA guidance. (Ref Section C4.1.1 Guidance on Sampling and Testing of Wastes to meet Landfill Waste Acceptance Procedures Version 1 April 2005, Environment Agency)
Notes:- Cumulative release at L/S=10 (mg/kg of dry matter) in accordance with BS EN 12457. Soil leaching procedure is not covered by our UKAS accreditation

As detailed in- Waste Classification. Guidance on the classification and assessment of waste. Technical Guidance WM3:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427077/LIT_10121.pdf

Landfill WAC analysis (specifically leaching test results) should not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Waste Acceptance Criteria

Customer Sample Reference : TP03 1.0M
SAL Sample Reference : 675785 002
Test Portion Mass (g) : 175
Date Sampled : Deviating

Soil Summary					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
PAH (Sum)	Calc	1.6	mg/kg	N	<1.6	100.0		
TPH C10-C40 (sum)	Calc	1	mg/kg	N	<1	500.0		
BTEX (Sum)	Calc	0.0040	mg/kg	U	(13) 0.020	6.0		
PCB EC7 (Sum)	Calc	0.00035	mg/kg	U	<0.030	1.0		
Total Organic Carbon	OX/IR	0.1	%	N	1.5	3.0	5.0	6.0
pH	Probe			U	8.8		>6.0	
Loss on Ignition	Grav	0.1	%	N	3.0			10.0

10:1 Leachate					Result	Inert Waste Landfill	Stable non reactive	Hazardous Waste Landfill
Determinand	**Technique**	**LOD**	**Units**	**Symbol**				
Antimony (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.06	0.7	5.0
Arsenic (Dissolved)	Calc / ICP/MS (Filtered)	0.0020	mg/kg	N	0.043	0.5	2.0	25.0
Barium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	0.11	20.0	100.0	300.0
Cadmium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.04	1.0	5.0
Chromium (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.5	10.0	70.0
Copper (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	2.0	50.0	100.0
Lead (Dissolved)	Calc / ICP/MS (Filtered)	0.0030	mg/kg	N	<0.0030	0.5	10.0	50.0
Mercury (Dissolved)	Calc / ICP/MS (Filtered)	0.0020	mg/kg	N	<0.0020	0.01	0.2	2.0
Molybdenum (Dissolved)	Calc / ICP/MS (Filtered)	0.050	mg/kg	N	<0.050	0.5	10.0	30.0
Nickel (Dissolved)	Calc / ICP/MS (Filtered)	0.010	mg/kg	N	<0.010	0.4	10.0	40.0
Selenium (Dissolved)	Calc / ICP/MS (Filtered)	0.0050	mg/kg	N	0.020	0.1	0.5	7.0
Zinc (Dissolved)	Calc / ICP/MS (Filtered)	0.020	mg/kg	N	<0.020	4.0	50.0	200.0
Chloride	Calc / Discrete Analyser	10	mg/kg	N	25	800.0	15000.0	25000.0
Fluoride	Calc / Discrete Analyser	0.50	mg/kg	N	0.50	10.0	150.0	500.0
Sulphate	Calc / Discrete Analyser	5.0	mg/kg	N	180	1000.0	20000.0	50000.0
Dissolved Organic Carbon	Calc / OX/IR	10	mg/kg	N	16	500.0	800.0	1000.0
Phenols(Mono)	Calc / Colorimetry	1.0	mg/kg	N	<1.0	1.0		
Total Dissolved Solids	Calc	100	mg/kg	N	880	4000.0	60000.0	100000.0

From: Criteria set by European Council Decision 2003/33/EC(2) pursuant to Directive 1999/31/EC(3) and implemented in Scotland by The Landfill (Scotland) Regulations 2003
Note:- Sample failed to produce sufficient eluate within the specified time after vacuum filtration for 1 hour and centrifugation for 30 minutes. Therefore, the exact application of the two-step leaching test is precluded on technical grounds. (ref: Section 5.2.4 BS EN 12457-3:2002) Results are derived from a single step leaching at L/S 10/1 as prescribed by the EA guidance. (Ref Section C4.1.1 Guidance on Sampling and Testing of Wastes to meet Landfill Waste Acceptance Procedures Version 1 April 2005, Environment Agency)
Notes:- Cumulative release at L/S=10 (mg/kg of dry matter) in accordance with BS EN 12457. Soil leaching procedure is not covered by our UKAS accreditation

As detailed in- Waste Classification. Guidance on the classification and assessment of waste. Technical Guidance WM3:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/427077/LIT_10121.pdf

Landfill WAC analysis (specifically leaching test results) should not be used for hazardous waste classification purposes. This analysis is only applicable for hazardous waste landfill acceptance and does not give any indication as to whether a waste may be hazardous or non-hazardous.

Index to symbols used in 675785-1

Value	Description
AR	As Received
2:1	Leachate to BS EN 12457-3 (2:1)
8:1	Leachate to BS EN 12457-3 (8:1)
A40	Assisted dried < 40C
100	LOD determined by sample aliquot used for analysis
13	Results have been blank corrected.
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

GC/MS Headspace - LOD raised as samples diluted due to poor internal standard recovery.
PAH soil - These samples have been analysed exceeding recommended holding times. It is possible therefore that the results provided may be compromised.
The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 676021-1

Date of Report: 24-Aug-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Site Reference: UIG Harbour Redevelopment
Date Job Received at Concept: 15-Aug-2017
Date Analysis Started: 16-Aug-2017
Date Analysis Completed: 22-Aug-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted
Customer Service Advisor

Issued by :
Alison Forrester
Project Manager

Redacted

Concept Reference: 676021
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Miscellaneous

Concept Reference	**676021 009**	**676021 010**
Customer Sample Reference	**BH6A 0.00M**	**BH6A 0.50M**
Date Sampled	**Deviating**	**Deviating**

Determinand	Method	Test Sample	LOD	Units		
Organic Matter	T2	A40	0.1	%	**3.0**	**3.2**

Concept Reference: 676021
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

				Concept Reference	**676021 001**	**676021 002**	**676021 003**	**676021 004**	**676021 005**
				Customer Sample Reference	**BH1 0.00M**	**BH1 5.80M**	**BH1 10.30M**	**BH8A 1.00M**	**BH8A 5.30M**
				Date Sampled	**Deviating**	**Deviating**	**Deviating**	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted	Extracted
pH	T7	A40			**8.9**	**9.0**	**8.6**	**9.1**	**8.1**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.16**	**0.14**	**0.26**	**0.16**	**0.53**
Sulphur (total)	T6	A40	0.01	%	**0.09**	**0.19**	**0.34**	**0.14**	**1.7**

Concept Reference: 676021
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

				Concept Reference	**676021 006**	**676021 007**	**676021 008**	**676021 009**
				Customer Sample Reference	**BH9 0.90M**	**BH9 3.80M**	**BH9 9.10M**	**BH6A 0.00M**
				Date Sampled	**Deviating**	**Deviating**	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**				
Leach Prep (2:1)	T2	AR			Extracted	Extracted	Extracted	Extracted
pH	T7	A40			**8.9**	**7.9**	**8.1**	**9.3**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.17**	**0.76**	**0.37**	**0.35**
Sulphur (total)	T6	A40	0.01	%	**0.18**	**1.7**	**0.48**	**0.77**

Concept Reference: 676021
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

		Concept Reference	676021 001	676021 002	676021 003	676021 004	676021 005
		Customer Sample Reference	BH1 0.00M	BH1 5.80M	BH1 10.30M	BH8A 1.00M	BH8A 5.30M
		Date Sampled	Deviating	Deviating	Deviating	Deviating	Deviating
Determinand	**Method**	**Test Sample** / **LOD** / **Units**					
Ammonia expressed as NH4	T686	2:1 / 0.05 / mg/l	<0.05	<0.05	**0.43**	<0.05	**1.5**
Chloride	T686	2:1 / 1 / mg/l	**920**	**1100**	**2400**	**1300**	**2200**
Magnesium	T82	2:1 / 1 / mg/l	**24**	**35**	**210**	**28**	**170**
Nitrate	T686	2:1 / 0.5 / mg/l	<0.5	<0.5	<0.5	<0.5	**1.7**
Dissolved SO4(Total)	T285	2:1 / 10 / mg/l	**491**	**379**	**844**	**374**	**1397**

Concept Reference: 676021
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

		Concept Reference	676021 006	676021 007	676021 008	676021 009
		Customer Sample Reference	BH9 0.90M	BH9 3.80M	BH9 9.10M	BH6A 0.00M
		Date Sampled	Deviating	Deviating	Deviating	Deviating
Determinand	**Method**	**Test Sample** / **LOD** / **Units**				
Ammonia expressed as NH4	T686	2:1 / 0.05 / mg/l	<0.05	**3.2**	**2.2**	**2.1**
Chloride	T686	2:1 / 1 / mg/l	**2100**	**1900**	**570**	**2300**
Magnesium	T82	2:1 / 1 / mg/l	**44**	**160**	**220**	**5**
Nitrate	T686	2:1 / 0.5 / mg/l	<0.5	<0.5	<0.5	<0.5
Dissolved SO4(Total)	T285	2:1 / 10 / mg/l	**646**	**1900**	**1199**	**381**

Index to symbols used in 676021-1

Value	Description
AR	As Received
2:1	Leachate 2:1
A40	Assisted dried < 40C
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T7	Probe
T2	Grav
T686	Discrete Analyser
T6	ICP/OES
T82	ICP/OES (Sim)
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T285	ICP/OES (SIM) (Filtered)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Organic Matter	T2	A40	0.1	%	N	009-010
Leach Prep (2:1)	T2	AR			N	001-009
pH	T7	A40			U	001-009
(Acid Soluble) SO4	T192	AR	0.01	%	N	001-009
Sulphur (total)	T6	A40	0.01	%	N	001-009
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001-009
Chloride	T686	2:1	1	mg/l	U	001-009
Magnesium	T82	2:1	1	mg/l	N	001-009
Nitrate	T686	2:1	0.5	mg/l	U	001-009
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001-009

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: Supplement to previous report number 677646-2

Date of Report: 18-Apr-2018

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17244
Customer Site Reference: UIG Harbour Redevelopment, Skye
Date Job Received at Concept: 22-Aug-2017
Date Analysis Started: 24-Aug-2017
Date Analysis Completed: 05-Sep-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

Redacted

Report checked and authorised by :
Redacted
Site Manager

Issued by :
Redacted
Customer Service

This document has been printed from a digitally signed master copy

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Metals Matrix Spike

				Concept Reference	**677646 001**	**677646 002**	**677646 003**
				Customer Sample Reference	**BH1 0.00M**	**BH1 0.50-2.00M**	**BH1 2.00-3.50M**
				Date Sampled	**18-AUG-2017**	**18-AUG-2017**	**18-AUG-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
As Recovery	T750	AR	1	%	**100**	**100**	**100**
Cd Recovery	T750	AR	1	%	**100**	**100**	**100**
Cr Recovery	T750	AR	1	%	**100**	**100**	**100**
Cu Recovery	T750	AR	1	%	**100**	**100**	**100**
Ni Recovery	T750	AR	1	%	**100**	**100**	**100**
Pb Recovery	T750	AR	1	%	**100**	**100**	**100**
Zn Recovery	T750	AR	1	%	**100**	**100**	**100**

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Soil Analysed as Soil
PAH Matrix Spike

Concept Reference	**677646 005**
Customer Sample Reference	**Matrix Spikes**
Date Sampled	**18-AUG-2017**

Determinand	Method	Test Sample	LOD	Units	
Naphthalene Recovery	T429	AR	1	%	**100**
Acenaphthene Recovery	T429	AR	1	%	**100**
Phenanthrene Recovery	T429	AR	1	%	**100**
Chrysene Recovery	T429	AR	1	%	**99**
Benzo(a)Pyrene Recovery	T429	AR	1	%	**90**

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Soil Analysed as Soil
PCB Matrix Spike

Concept Reference	**677646 005**
Customer Sample Reference	**Matrix Spikes**
Date Sampled	**18-AUG-2017**

Determinand	Method	Test Sample	LOD	Units	
PCB BZ#28 Recovery	T434	AR	1	%	**98**
PCB BZ#52 Recovery	T434	AR	1	%	**98**
PCB BZ#101 Recovery	T434	AR	1	%	**92**
PCB BZ#118 Recovery	T434	AR	1	%	**94**
PCB BZ#153 Recovery	T434	AR	1	%	**100**
PCB BZ#138 Recovery	T434	AR	1	%	**96**
PCB BZ#180 Recovery	T434	AR	1	%	**100**

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Marine Scotland Suite

				Concept Reference	**677646 001**	**677646 002**	**677646 003**
				Customer Sample Reference	**BH1 0.00M**	**BH1 0.50-2.00M**	**BH1 2.00-3.50M**
				Date Sampled	**18-AUG-2017**	**18-AUG-2017**	**18-AUG-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Arsenic	T740	AR	0.5	mg/kg	**7.3**	**7.2**	**8.8**
Cadmium	T740	AR	0.1	mg/kg	<0.1	<0.1	<0.1
Chromium	T740	AR	0.5	mg/kg	**100**	**220**	**120**
Copper	T740	AR	0.5	mg/kg	**38**	**42**	**58**
Lead	T740	AR	0.5	mg/kg	**3.8**	**4.6**	**2.5**
Mercury	T355	AR	0.05	mg/kg	(13) <0.05	(13) <0.05	(13) <0.05
Moisture	T2	AR	0.1	%	**26**	**17**	**6.9**
Nickel	T740	AR	0.5	mg/kg	**140**	**240**	**210**
PCB EC7 (Sum)	T85	AR	0.35	µg/kg	<0.35	<0.35	<0.35
PCB (Total Tri-Hepta)	T16	AR	0.05	µg/kg	<0.05	<0.05	<0.05
Tributyl tin	T16	AR	0.01	mg/kg	<0.01	**0.02**	<0.01
Zinc	T740	AR	1.0	mg/kg	**77**	**96**	**78**

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment

Poly-Chlorinated Biphenyls (ICES 7)

				Concept Reference	**677646 001**	**677646 002**	**677646 003**
				Customer Sample Reference	**BH1 0.00M**	**BH1 0.50-2.00M**	**BH1 2.00-3.50M**
				Date Sampled	**18-AUG-2017**	**18-AUG-2017**	**18-AUG-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
PCB BZ#28	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#52	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#101	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#118	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#153	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#138	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05
PCB BZ#180	T1	AR	0.05	µg/kg	<0.05	<0.05	<0.05

Concept Reference: 677646
Project Site: UIG Harbour Redevelopment, Skye
Customer Reference: 17/035

Sediment Analysed as Sediment
Total and Speciated USEPA16 PAH

				Concept Reference	**677646 001**	**677646 002**	**677646 003**
				Customer Sample Reference	**BH1 0.00M**	**BH1 0.50-2.00M**	**BH1 2.00-3.50M**
				Date Sampled	**18-AUG-2017**	**18-AUG-2017**	**18-AUG-2017**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Naphthalene	T1	AR	2	µg/kg	(13) <2	(13) <2	(13) <2
Acenaphthylene	T1	AR	2	µg/kg	<2	<2	<2
Acenaphthene	T1	AR	2	µg/kg	<2	<2	<2
Fluorene	T1	AR	2	µg/kg	<2	<2	<2
Phenanthrene	T1	AR	2	µg/kg	**(13) 3**	**(13) 2**	(13) <2
Anthracene	T1	AR	2	µg/kg	<2	<2	<2
Fluoranthene	T1	AR	2	µg/kg	**(13) 9**	**(13) 6**	(13) <2
Pyrene	T1	AR	2	µg/kg	**(13) 11**	**(13) 6**	(13) <2
Benzo(a)Anthracene	T1	AR	2	µg/kg	**(13) 6**	**(13) 5**	(13) <2
Chrysene	T1	AR	2	µg/kg	**(13) 5**	**(13) 3**	(13) <2
Benzo(b/k)Fluoranthene	T1	AR	2	µg/kg	**10**	**9**	<2
Benzo(a)Pyrene	T1	AR	2	µg/kg	**6**	**4**	**6**
Indeno(123-cd)Pyrene	T1	AR	2	µg/kg	**4**	**3**	<2
Dibenzo(ah)Anthracene	T1	AR	2	µg/kg	<2	<2	<2
Benzo(ghi)Perylene	T1	AR	2	µg/kg	**5**	**3**	<2
PAH(total)	T1	AR	2	µg/kg	**59**	**41**	**6**

Index to symbols used in Supplement to previous report number 677646-2

Value	Description
AR	As Received
13	Results have been blank corrected.
N	Analysis is not UKAS accredited

Notes

Supplemental report issued in order to amend sample 002 Tributyl tin result due to laboratory transcription error.

Method Index

Value	Description
T434	GC/MS (HR) (Recovery)
T1	GC/MS (HR)
T429	GC/MS (Recovery)
T16	GC/MS
T355	CVAFS
T2	Grav
T740	ICP/MS (HF)
T750	ICP/MS (Recovery)
T85	Calc

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
As Recovery	T750	AR	1	%	N	001-003
Cd Recovery	T750	AR	1	%	N	001-003
Cr Recovery	T750	AR	1	%	N	001-003
Cu Recovery	T750	AR	1	%	N	001-003
Ni Recovery	T750	AR	1	%	N	001-003
Pb Recovery	T750	AR	1	%	N	001-003
Zn Recovery	T750	AR	1	%	N	001-003
Naphthalene Recovery	T429	AR	1	%	N	005
Acenaphthene Recovery	T429	AR	1	%	N	005
Phenanthrene Recovery	T429	AR	1	%	N	005
Chrysene Recovery	T429	AR	1	%	N	005
Benzo(a)Pyrene Recovery	T429	AR	1	%	N	005
PCB BZ#28 Recovery	T434	AR	1	%	N	005
PCB BZ#52 Recovery	T434	AR	1	%	N	005
PCB BZ#101 Recovery	T434	AR	1	%	N	005
PCB BZ#118 Recovery	T434	AR	1	%	N	005
PCB BZ#153 Recovery	T434	AR	1	%	N	005
PCB BZ#138 Recovery	T434	AR	1	%	N	005
PCB BZ#180 Recovery	T434	AR	1	%	N	005
Arsenic	T740	AR	0.5	mg/kg	N	001-003
Cadmium	T740	AR	0.1	mg/kg	N	001-003
Chromium	T740	AR	0.5	mg/kg	N	001-003
Copper	T740	AR	0.5	mg/kg	N	001-003
Lead	T740	AR	0.5	mg/kg	N	001-003
Mercury	T355	AR	0.05	mg/kg	N	001-003
Moisture	T2	AR	0.1	%	N	001-003
Nickel	T740	AR	0.5	mg/kg	N	001-003
PCB EC7 (Sum)	T85	AR	0.35	µg/kg	N	001-003
PCB (Total Tri-Hepta)	T16	AR	0.05	µg/kg	N	001-003
Tributyl tin	T16	AR	0.01	mg/kg	N	001-003
Zinc	T740	AR	1.0	mg/kg	N	001-003
PCB BZ#28	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#52	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#101	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#118	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#153	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#138	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#180	T1	AR	0.05	µg/kg	N	001-003
Naphthalene	T1	AR	2	µg/kg	N	001-003
Acenaphthylene	T1	AR	2	µg/kg	N	001-003

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Acenaphthene	T1	AR	2	µg/kg	N	001-003
Fluorene	T1	AR	2	µg/kg	N	001-003
Phenanthrene	T1	AR	2	µg/kg	N	001-003
Anthracene	T1	AR	2	µg/kg	N	001-003
Fluoranthene	T1	AR	2	µg/kg	N	001-003
Pyrene	T1	AR	2	µg/kg	N	001-003
Benzo(a)Anthracene	T1	AR	2	µg/kg	N	001-003
Chrysene	T1	AR	2	µg/kg	N	001-003
Benzo(b/k)Fluoranthene	T1	AR	2	µg/kg	N	001-003
Benzo(a)Pyrene	T1	AR	2	µg/kg	N	001-003
Indeno(123-cd)Pyrene	T1	AR	2	µg/kg	N	001-003
Dibenzo(ah)Anthracene	T1	AR	2	µg/kg	N	001-003
Benzo(ghi)Perylene	T1	AR	2	µg/kg	N	001-003
PAH(total)	T1	AR	2	µg/kg	N	001-003

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 681125-2

Date of Report: 20-Sep-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17257
Customer Site Reference: UIG Harbour Redevelopment
Date Job Received at Concept: 07-Sep-2017
Date Analysis Started: 08-Sep-2017
Date Analysis Completed: 20-Sep-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted Reda
Customer Service Advisor

Issued by :
Redacted
Customer Service Advi

Concept Reference: 681125
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

Concept Reference	**681125 001**
Customer Sample Reference	**BH2 @0.0**
Date Sampled	**18-AUG-2017**

Determinand	Method	Test Sample	LOD	Units	
Leach Prep (2:1)	T2	AR			Extracted
pH	T7	A40			**8.1**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.17**
Sulphur (total)	T6	A40	0.01	%	**0.18**

Concept Reference: 681125
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

Concept Reference	**681125 001**
Customer Sample Reference	**BH2 @0.0**
Date Sampled	**18-AUG-2017**

Determinand	Method	Test Sample	LOD	Units	
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	**1.2**
Chloride	T686	2:1	1	mg/l	**2300**
Magnesium	T82	2:1	1	mg/l	**68**
Nitrate	T686	2:1	0.5	mg/l	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	**494**

Index to symbols used in 681125-2

Value	Description
A40	Assisted dried < 40C
2:1	Leachate 2:1
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Method Index

Value	Description
T7	Probe
T2	Grav
T82	ICP/OES (Sim)
T686	Discrete Analyser
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T6	ICP/OES
T285	ICP/OES (SIM) (Filtered)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Leach Prep (2:1)	T2	AR			N	001
pH	T7	A40			U	001
(Acid Soluble) SO4	T192	AR	0.01	%	N	001
Sulphur (total)	T6	A40	0.01	%	N	001
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001
Chloride	T686	2:1	1	mg/l	U	001
Magnesium	T82	2:1	1	mg/l	N	001
Nitrate	T686	2:1	0.5	mg/l	U	001
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 681797-1

Date of Report: 20-Sep-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17266
Customer Site Reference: Uig Harbour, Redevelopment
Date Job Received at Concept: 11-Sep-2017
Date Analysis Started: 12-Sep-2017
Date Analysis Completed: 20-Sep-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted

Issued by : Redacted
Redacted
Project Manage

Concept Reference: 681797
Project Site: Uig Harbour, Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

		Concept Reference	681797 001	681797 002
		Customer Sample Reference	BH6A 7.50m	BH2 6.50m
		Date Sampled	Deviating	Deviating
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Leach Prep (2:1)	T2	AR			Extracted	Extracted
pH	T7	A40			**8.5**	**9.0**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.25**	**0.17**
Sulphur (total)	T6	A40	0.01	%	**0.55**	**0.54**

Concept Reference: 681797
Project Site: Uig Harbour, Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

		Concept Reference	681797 001	681797 002
		Customer Sample Reference	BH6A 7.50m	BH2 6.50m
		Date Sampled	Deviating	Deviating
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	**0.16**	**0.46**
Chloride	T686	2:1	1	mg/l	**1900**	**1700**
Magnesium	T82	2:1	1	mg/l	**49**	**32**
Nitrate	T686	2:1	0.5	mg/l	<0.5	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	**549**	**436**

Index to symbols used in 681797-1

Value	Description
A40	Assisted dried < 40C
2:1	Leachate 2:1
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T2	Grav
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T7	Probe
T6	ICP/OES
T285	ICP/OES (SIM) (Filtered)
T82	ICP/OES (Sim)
T686	Discrete Analyser

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Leach Prep (2:1)	T2	AR			N	001-002
pH	T7	A40			U	001-002
(Acid Soluble) SO4	T192	AR	0.01	%	N	001-002
Sulphur (total)	T6	A40	0.01	%	N	001-002
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001-002

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Chloride	T686	2:1	1	mg/l	U	001-002
Magnesium	T82	2:1	1	mg/l	N	001-002
Nitrate	T686	2:1	0.5	mg/l	U	001-002
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001-002

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 683576-1

Date of Report: 28-Sep-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17285
Customer Site Reference: UIG Harbour Redevelopment
Date Job Received at Concept: 19-Sep-2017
Date Analysis Started: 20-Sep-2017
Date Analysis Completed: 28-Sep-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted
Customer Service Advisor

Issued by :
Redacted
Customer Service Ad

Concept Reference: 683576
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**683576 001**	**683576 004**	**683576 005**
				Customer Sample Reference	**BH3 4.50m**	**BH4 5.0m**	**BH5 4.5m**
				Date Sampled	**Deviating**	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Organic Matter	T2	A40	0.1	%	**2.6**	**5.0**	**7.6**

Concept Reference: 683576
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

				Concept Reference	**683576 002**	**683576 003**
				Customer Sample Reference	**BH3 7.50m**	**BH4 0.0m**
				Date Sampled	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Leach Prep (2:1)	T2	AR			Extracted	Extracted
pH	T7	A40			**9.9**	**9.2**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.06**	**0.12**
Sulphur (total)	T6	A40	0.01	%	**1.0**	**0.27**

Concept Reference: 683576
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

				Concept Reference	**683576 002**	**683576 003**
				Customer Sample Reference	**BH3 7.50m**	**BH4 0.0m**
				Date Sampled	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	**0.23**	<0.05
Chloride	T686	2:1	1	mg/l	**180**	**580**
Magnesium	T82	2:1	1	mg/l	<1	**4**
Nitrate	T686	2:1	0.5	mg/l	<0.5	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	**159**	**245**

Index to symbols used in 683576-1

Value	Description
A40	Assisted dried < 40C
AR	As Received
2:1	Leachate 2:1
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T7	Probe
T285	ICP/OES (SIM) (Filtered)
T686	Discrete Analyser

T192	HCl Extraction/ICP/OES (TRL 447 T2)
T82	ICP/OES (Sim)
T2	Grav
T6	ICP/OES

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Organic Matter	T2	A40	0.1	%	N	001,004-005
Leach Prep (2:1)	T2	AR			N	002-003
pH	T7	A40			U	002-003
(Acid Soluble) SO4	T192	AR	0.01	%	N	002-003
Sulphur (total)	T6	A40	0.01	%	N	002-003
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	002-003
Chloride	T686	2:1	1	mg/l	U	002-003
Magnesium	T82	2:1	1	mg/l	N	002-003
Nitrate	T686	2:1	0.5	mg/l	U	002-003
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	002-003

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 687648-2

Date of Report: 20-Oct-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17336
Customer Site Reference: UIG Harbour Redevelopment
Date Job Received at Concept: 06-Oct-2017
Date Analysis Started: 06-Oct-2017
Date Analysis Completed: 20-Oct-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

Redacted

Report checked and authorised by :
Redacted
Project Manager

Issued by :
Redacted
Project Manager

Concept Reference: 687648
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Sediment Analysed as Sediment
Marine Scotland Suite

		Concept Reference	687648 001	687648 002	687648 003
		Customer Sample Reference	BH DS1 0.3m	BH DS1 1.50m	BH DS1 3.0m
Determinand	**Method**	**Test Sample** / **LOD** / **Units**			
Arsenic	T740	AR 0.5 mg/kg	**8.1**	**6.4**	**7.0**
Cadmium	T740	AR 0.1 mg/kg	**0.2**	**0.2**	**0.2**
Chromium	T740	AR 0.5 mg/kg	**310**	**460**	**330**
Copper	T740	AR 0.5 mg/kg	**97**	**43**	**62**
Lead	T740	AR 0.5 mg/kg	**7.6**	**4.0**	**3.8**
Nickel	T740	AR 0.5 mg/kg	**210**	**260**	**250**
Zinc	T740	AR 1.0 mg/kg	**120**	**100**	**110**
Mercury	T355	AR 0.05 mg/kg	(13) <0.05	(13) <0.05	(13) <0.05
Moisture	T2	AR 0.1 %	**14**	**12**	**11**
PCB EC7 (Sum)	T85	AR 0.35 µg/kg	**3.53**	<0.35	<0.35
PCB (Total Tri-Hepta)	T16	AR 0.05 µg/kg	**9.2**	<0.05	<0.05
Tributyl tin	T16	AR 0.01 mg/kg	<0.01	<0.01	<0.01

Concept Reference: 687648
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Sediment Analysed as Sediment
Poly-Chlorinated Biphenyls (ICES 7)

		Concept Reference	687648 001	687648 002	687648 003
		Customer Sample Reference	BH DS1 0.3m	BH DS1 1.50m	BH DS1 3.0m
Determinand	**Method**	**Test Sample** / **LOD** / **Units**			
PCB BZ#28	T1	AR 0.05 µg/kg	<0.05	<0.05	<0.05
PCB BZ#52	T1	AR 0.05 µg/kg	**0.39**	<0.05	<0.05
PCB BZ#101	T1	AR 0.05 µg/kg	**0.91**	<0.05	<0.05
PCB BZ#118	T1	AR 0.05 µg/kg	**0.74**	<0.05	<0.05
PCB BZ#153	T1	AR 0.05 µg/kg	**0.54**	<0.05	<0.05
PCB BZ#138	T1	AR 0.05 µg/kg	**0.73**	<0.05	<0.05
PCB BZ#180	T1	AR 0.05 µg/kg	**0.22**	<0.05	<0.05

Concept Reference: 687648
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Sediment Analysed as Sediment
Total and Speciated USEPA16 PAH

		Concept Reference	687648 001	687648 002	687648 003
		Customer Sample Reference	BH DS1 0.3m	BH DS1 1.50m	BH DS1 3.0m
Determinand	**Method**	**Test Sample** / **LOD** / **Units**			
Naphthalene	T1	AR 2 µg/kg	(13) <2	**(13) 3**	(13) <2
Acenaphthylene	T1	AR 2 µg/kg	**5**	**34**	**4**
Acenaphthene	T1	AR 2 µg/kg	**2**	**7**	<2
Fluorene	T1	AR 2 µg/kg	<2	**7**	**8**
Phenanthrene	T1	AR 2 µg/kg	**(13) 21**	**(13) 98**	**(13) 28**
Anthracene	T1	AR 2 µg/kg	**11**	**37**	**8**
Fluoranthene	T1	AR 2 µg/kg	**67**	**340**	**25**
Pyrene	T1	AR 2 µg/kg	**62**	**310**	**19**
Benzo(a)Anthracene	T1	AR 2 µg/kg	**(13) 32**	**(13) 150**	**(13) 8**
Chrysene	T1	AR 2 µg/kg	**29**	**130**	**8**
Benzo(b/k)Fluoranthene	T1	AR 2 µg/kg	**65**	**280**	**12**
Benzo(a)Pyrene	T1	AR 2 µg/kg	**36**	**160**	**7**
Indeno(123-cd)Pyrene	T1	AR 2 µg/kg	**22**	**88**	**4**
Dibenzo(ah)Anthracene	T1	AR 2 µg/kg	**6**	**20**	<2
Benzo(ghi)Perylene	T1	AR 2 µg/kg	**26**	**110**	**4**
PAH(total)	T1	AR 2 µg/kg	**380**	**1800**	**140**

Index to symbols used in 687648-2

Value	Description
AR	As Received
13	Results have been blank corrected.
N	Analysis is not UKAS accredited

Notes

PCB and ICP/MS analysis was carried out at Concept Life Sciences Manchester.
The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T16	GC/MS
T85	Calc
T355	CVAFS
T2	Grav
T1	GC/MS (HR)
T740	ICP/MS (HF)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Arsenic	T740	AR	0.5	mg/kg	N	001-003
Cadmium	T740	AR	0.1	mg/kg	N	001-003
Chromium	T740	AR	0.5	mg/kg	N	001-003
Copper	T740	AR	0.5	mg/kg	N	001-003
Lead	T740	AR	0.5	mg/kg	N	001-003
Nickel	T740	AR	0.5	mg/kg	N	001-003
Zinc	T740	AR	1.0	mg/kg	N	001-003
Mercury	T355	AR	0.05	mg/kg	N	001-003
Moisture	T2	AR	0.1	%	N	001-003
PCB EC7 (Sum)	T85	AR	0.35	µg/kg	N	001-003
PCB (Total Tri-Hepta)	T16	AR	0.05	µg/kg	N	001-003
Tributyl tin	T16	AR	0.01	mg/kg	N	001-003
PCB BZ#28	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#52	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#101	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#118	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#153	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#138	T1	AR	0.05	µg/kg	N	001-003
PCB BZ#180	T1	AR	0.05	µg/kg	N	001-003
Naphthalene	T1	AR	2	µg/kg	N	001-003
Acenaphthylene	T1	AR	2	µg/kg	N	001-003
Acenaphthene	T1	AR	2	µg/kg	N	001-003
Fluorene	T1	AR	2	µg/kg	N	001-003
Phenanthrene	T1	AR	2	µg/kg	N	001-003
Anthracene	T1	AR	2	µg/kg	N	001-003
Fluoranthene	T1	AR	2	µg/kg	N	001-003
Pyrene	T1	AR	2	µg/kg	N	001-003
Benzo(a)Anthracene	T1	AR	2	µg/kg	N	001-003
Chrysene	T1	AR	2	µg/kg	N	001-003
Benzo(b/k)Fluoranthene	T1	AR	2	µg/kg	N	001-003
Benzo(a)Pyrene	T1	AR	2	µg/kg	N	001-003
Indeno(123-cd)Pyrene	T1	AR	2	µg/kg	N	001-003
Dibenzo(ah)Anthracene	T1	AR	2	µg/kg	N	001-003
Benzo(ghi)Perylene	T1	AR	2	µg/kg	N	001-003
PAH(total)	T1	AR	2	µg/kg	N	001-003

CONCEPT LIFE SCIENCES

Concept Life Sciences is a trading name of Concept Life Sciences Analytical & Development Services Limited registered in England and Wales (No 2514788)

Concept Life Sciences

Certificate of Analysis

16 Langlands Place
Kelvin South Business Park
East Kilbride
G75 0YF
Tel : 01355 573340
Fax : 01355 573341

Report Number: 689661-1

Date of Report: 23-Oct-2017

Customer: Holequest
Winston Road
Galashiels
TD1 2DA

Customer Contact: Redacted

Customer Job Reference: 17/035
Customer Purchase Order: 17354
Customer Site Reference: UIG Harbour Redevelopment
Date Job Received at Concept: 14-Oct-2017
Date Analysis Started: 17-Oct-2017
Date Analysis Completed: 23-Oct-2017

The results reported relate to samples received in the laboratory and may not be representative of a whole batch.

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

This report should not be reproduced except in full without the written approval of the laboratory

Tests covered by this certificate were conducted in accordance with Concept Life Sciences SOPs

All results have been reviewed in accordance with Section 25 of the Concept Life Sciences, Analytical Services Quality Manual

UKAS TESTING
1549

Report checked and authorised by :
Redacted
Customer Service Advisor

Redacted

Issued by :
Redacted
Customer Service Advis

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**689661 001**	**689661 002**	**689661 005**	**689661 006**	**689661 008**
				Customer Sample Reference	**BH DS1 0.00-1.50M**	**BH DS1 4.50-6.00M**	**BH7 0.00-1.00M**	**BH7 1.00-2.50M**	**TP3 0.80M**
				Date Sampled	**Deviating**	**Deviating**	**Deviating**	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
Organic Matter	T2	A40	0.1	%	**1.4**	**3.7**	**3.1**	**2.6**	**3.1**

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Miscellaneous

				Concept Reference	**689661 009**	
				Customer Sample Reference	**TP3 3.00M**	
				Date Sampled	**Deviating**	
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
Organic Matter	T2	A40	0.1	%	**3.0**	

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

				Concept Reference	**689661 001**	**689661 002**	**689661 003**	**689661 004**	**689661 005**
				Customer Sample Reference	**BH DS1 0.00-1.50M**	**BH DS1 4.50-6.00M**	**BH DS1 6.00-7.50M**	**BH DS1 7.50-9.00M**	**BH7 0.00-1.00M**
				Date Sampled	**Deviating**	**Deviating**	**Deviating**	**Deviating**	**Deviating**
Determinand	**Method**	**Test Sample**	**LOD**	**Units**					
pH	T7	A40			**9.2**	**8.4**	**9.5**	**8.9**	**8.3**
(Acid Soluble) SO4	T192	AR	0.01	%	**0.11**	**0.33**	**0.07**	**0.17**	**0.43**
Sulphur (total)	T6	A40	0.01	%	**0.08**	**1.2**	**0.11**	**0.31**	**0.81**

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Soil Analysed as Soil
Soil Suite

				Concept Reference	**689661 007**	
				Customer Sample Reference	**BH7 8.50-10.00M**	
				Date Sampled	**Deviating**	
Determinand	**Method**	**Test Sample**	**LOD**	**Units**		
pH	T7	A40			**9.6**	
(Acid Soluble) SO4	T192	AR	0.01	%	**0.13**	
Sulphur (total)	T6	A40	0.01	%	**0.91**	

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

		Concept Reference	689661 001	689661 002	689661 003	689661 004	689661 005
		Customer Sample Reference	BH DS1 0.00-1.50M	BH DS1 4.50-6.00M	BH DS1 6.00-7.50M	BH DS1 7.50-9.00M	BH7 0.00-1.00M
		Date Sampled	Deviating	Deviating	Deviating	Deviating	Deviating
Determinand	**Method**	**Test Sample**	**LOD**	**Units**			
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05	**0.10**	**0.54**	**1.0**	<0.05
Chloride	T686	2:1	1	mg/l	**580**	**1700**	**340**	**1100**	**120**
Magnesium	T82	2:1	1	mg/l	**10**	**81**	**2**	**29**	**86**
Nitrate	T686	2:1	0.5	mg/l	<0.5	<0.5	<0.5	<0.5	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	**305**	**1964**	**280**	**505**	**1922**

Concept Reference: 689661
Project Site: UIG Harbour Redevelopment
Customer Reference: 17/035

Leachate 2:1 Analysed as Water
Suite A

		Concept Reference	689661 007
		Customer Sample Reference	BH7 8.50-10.00M
		Date Sampled	Deviating
Determinand	**Method**	**Test Sample**	**LOD**	**Units**	
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	<0.05
Chloride	T686	2:1	1	mg/l	**29**
Magnesium	T82	2:1	1	mg/l	<1
Nitrate	T686	2:1	0.5	mg/l	<0.5
Dissolved SO4(Total)	T285	2:1	10	mg/l	**547**

Index to symbols used in 689661-1

Value	Description
A40	Assisted dried < 40C
2:1	Leachate 2:1
AR	As Received
U	Analysis is UKAS accredited
N	Analysis is not UKAS accredited

Notes

The date of sampling has not been provided and therefore the time from sampling to analysis is unknown. It is possible therefore that the results provided may be compromised.

Method Index

Value	Description
T2	Grav
T192	HCl Extraction/ICP/OES (TRL 447 T2)
T7	Probe
T686	Discrete Analyser
T6	ICP/OES
T285	ICP/OES (SIM) (Filtered)
T82	ICP/OES (Sim)

Accreditation Summary

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Organic Matter	T2	A40	0.1	%	N	001-002,005-006,008-009
pH	T7	A40			U	001-005,007
(Acid Soluble) SO4	T192	AR	0.01	%	N	001-005,007
Sulphur (total)	T6	A40	0.01	%	N	001-005,007

Determinand	Method	Test Sample	LOD	Units	Symbol	Concept References
Ammonia expressed as NH4	T686	2:1	0.05	mg/l	U	001-005,007
Chloride	T686	2:1	1	mg/l	U	001-005,007
Magnesium	T82	2:1	1	mg/l	N	001-005,007
Nitrate	T686	2:1	0.5	mg/l	U	001-005,007
Dissolved SO4(Total)	T285	2:1	10	mg/l	N	001-005,007

APPENDIX V

SPT Hammer Energy Ratio Report

HOLEQUEST
• LIMITED •

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Holequest Ltd
Winston Road
Galashiels
TD1 2DA

SPT Hammer Ref:	HQ03
Test Date:	05/06/2017
Report Date:	02/11/2017
File Name:	HQ03.spt
Test Operator:	FM

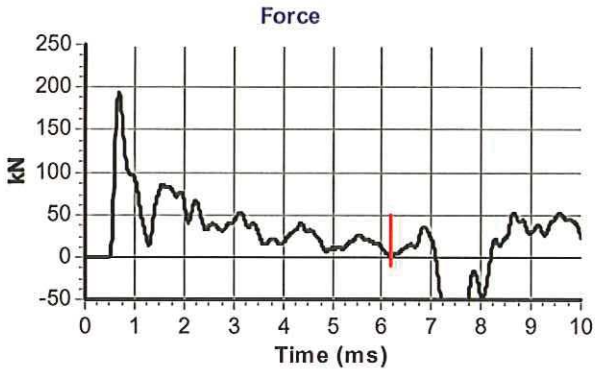
Instrumented Rod Data

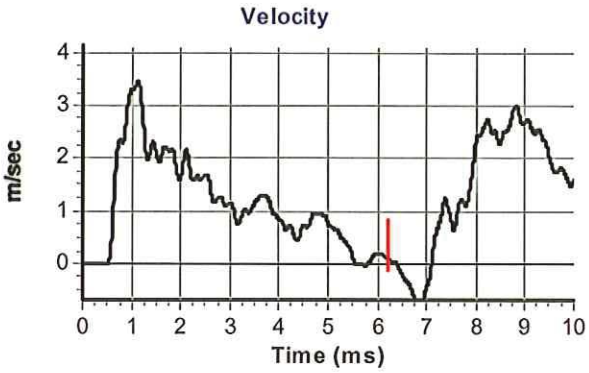
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.7
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

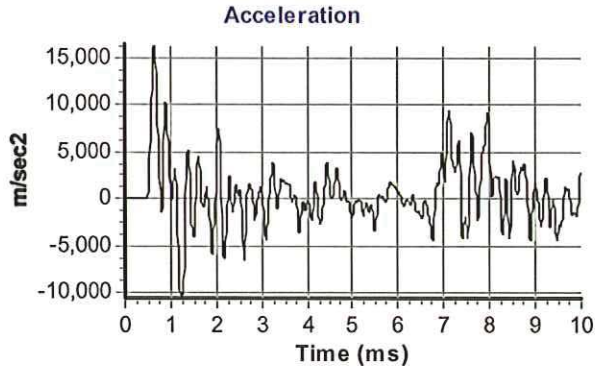
SPT Hammer Information

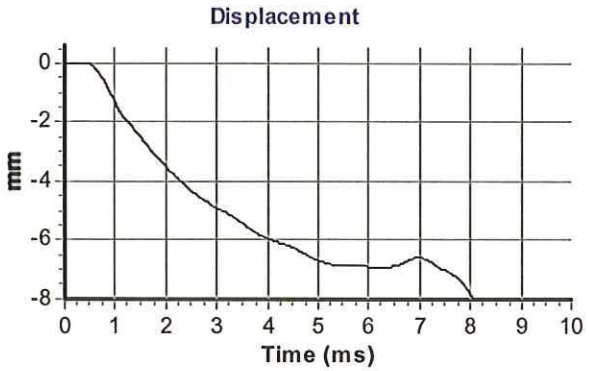
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	16.3

Comments / Location









Calculations

Area of Rod A (mm2):	996
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	391

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

Redacted

The recommended calibration interval is 6 months

SPTMAN ver.1.92 All rights reserved, Testconsult ©2010

HOLEQUEST
• LIMITED •

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Holequest Ltd
Winston Road
Galashiels
TD1 2DA

SPT Hammer Ref:	HQ04
Test Date:	05/06/2017
Report Date:	02/11/2017
File Name:	HQ04.spt
Test Operator:	FM

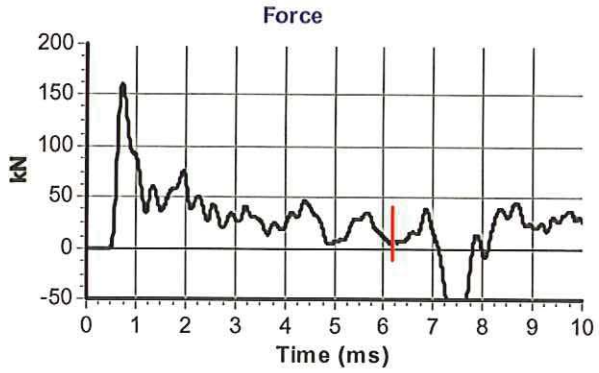
Instrumented Rod Data

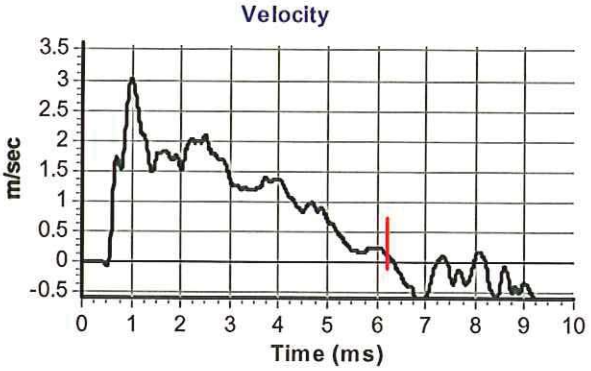
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.7
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	10334
Accelerometer No.2:	11794

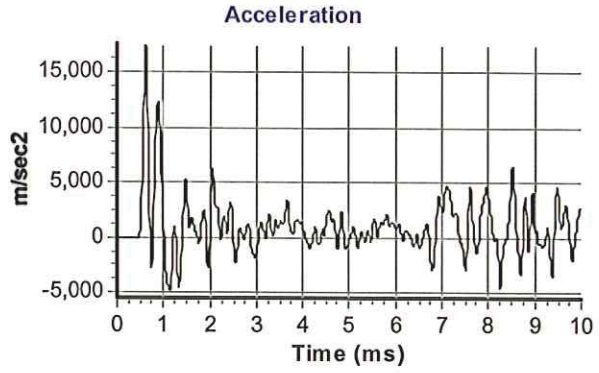
SPT Hammer Information

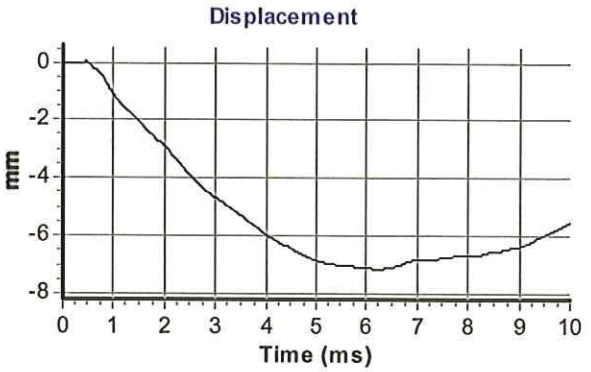
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	16.3

Comments / Location









Calculations

Area of Rod A (mm2):	996
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	337

Energy Ratio E_r (%): **71**

Redacted

The recommended calibration interval is 6 months

SPTMAN ver.1.92 All rights reserved, Testconsult ©2010

APPENDIX VI

Photographic Records

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH1

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED • ™

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH1

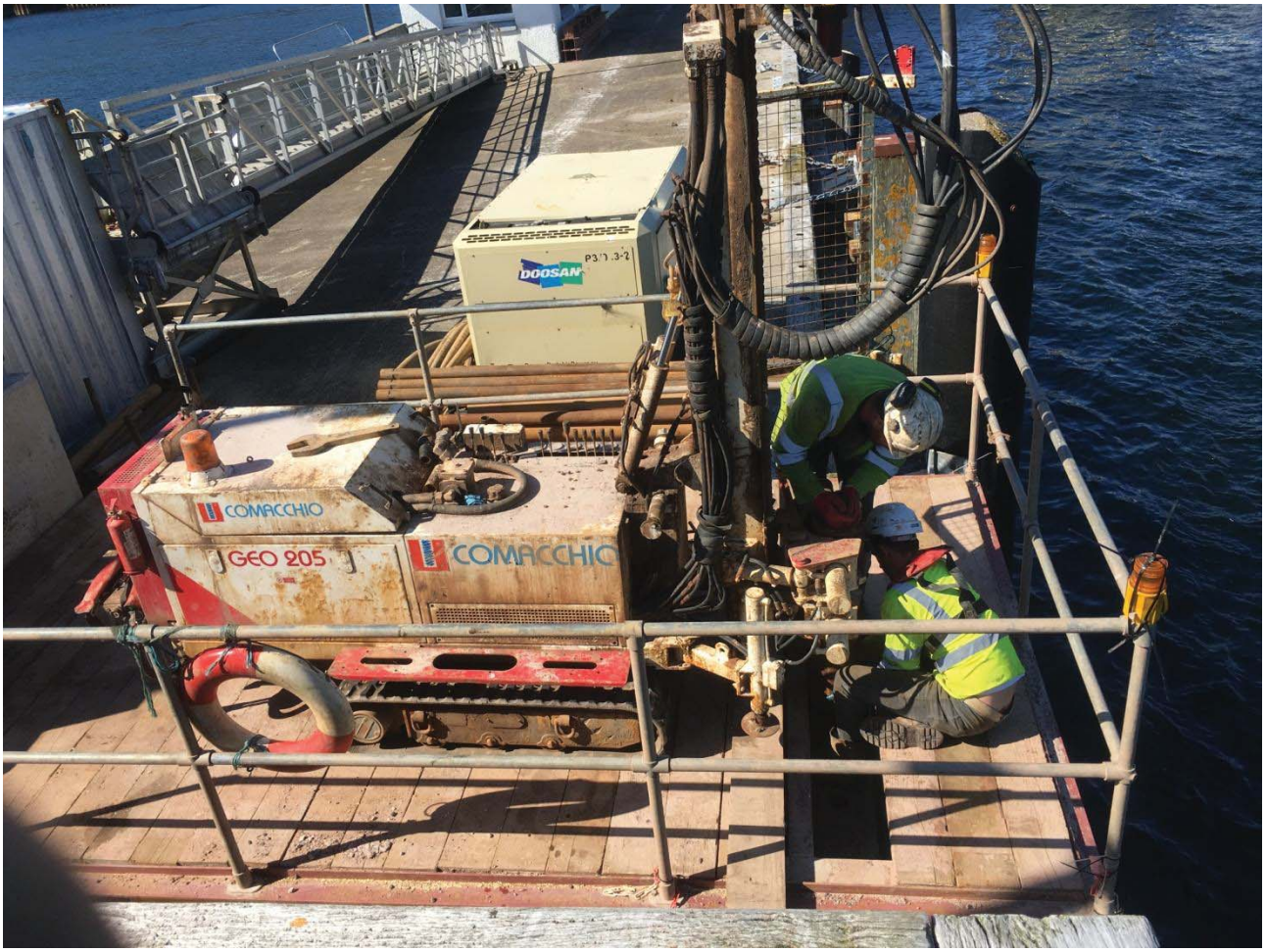
Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH1



Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH2

Certificate No. 642

Certificate No. 007883

HOLEQUEST
• LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH3

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH4

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH5

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH5

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH6

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED • ™

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH6A

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH6A

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH7

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Certificate No. 642

Certificate No. 007883

HOLEQUEST
• LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH8

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST
• LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH8B

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH9

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST
• LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH9A

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH9

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

BH10

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

CPT

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

CPT

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

CPT

Registered Office: Winston Road, Galashiels, TD1 2DA, Tel: (01896) 752295 Fax: (01896) 751515 Email Address admin@holequest.co.uk

Directors: K.M. Rodger, (Secretary), A.J. Batchelor, (Managing) Registration No. 56002 Scotland, Est.1974, VAT 271 4670 58 www.holequest.co.uk

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

DS01

Certificate No. 642

Certificate No. 007883

HOLEQUEST • LIMITED •

CONTRACT:	Uig Harbour Redevelopment GI
CLIENT:	The Highland Council
ENGINEER:	Aecom

DS01

APPENDIX VII

Static Cone Penetration Test Report

IN SITU
SITE INVESTIGATION

STATIC CONE PENETRATION TEST

FACTUAL REPORT

CLIENT HOLEQUEST GEOTECHNICAL LTD

PROJECT UIG FERRY BERTH, ISLE OF SKYE

Project	**Uig Ferry Berth, Isle of Skye**
Project No.	**1170272**
Client	**Holequest Geotechnical Limited**
Client's Address	**Winston Road, Galashiels TD1 2DA**

Redacted
Attention:

Redacted

We have pleasure in providing a digital copy of our report and data in AGS format for the above project.

We hope that you are satisfied with the performance of our staff, equipment and reporting on this project. If you should have any queries about any aspect of the works carried out, please do not hesitate to contact us. We look forward to being of service to you in the future.

Yours faithfully,

In Situ Site Investigation Limited

Redacted

Redacted

Director

Report Issue

Redacted

Issue	Date	Description
02	03/11/2017	Final

Table of Contents

1.0 INTRODUCTION 4
2.0 FIELDWORK 5
2.1 CONE PENETRATION TESTS 5
2.1.1 Rig Information 5
2.1.2 CPTU Cone 5
2.1.3 CPTU Cone Calibration 6
2.1.4 CPTU Cone Saturation 6
2.1.5 Test Procedure 6
2.1.6 In Situ Pore Pressure (u_0) 7
2.2 POSITIONING 7
3.0 CONE PENETRATION MEASURED PARAMETERS 8
3.1 DATA PROCESSING 8
3.1.1 Zero Measurements 8
3.2 MEASURED PARAMETERS 8
3.2.1 Cone Resistance (q_c) 8
3.2.2 Sleeve Friction (f_s) 8
3.2.3 Porewater pressure (u_2) 9
3.2.4 Inclination (I_x, I_y) 9
3.3 ESTIMATED SOIL BEHAVIOUR TYPE 9
3.3.1 Friction Ratio (R_f) 9
3.3.2 Estimated Soil Behaviour Type (SBT) 9
3.3.3 Pore Pressure Ratio (B_q) 10
3.4 APPLIED CORRECTIONS 11
3.4.1 Corrected Cone Resistance (q_t) 11
3.4.2 Depth Correction 11
4.0 GEOTECHNICAL DERIVED PARAMETERS 12
4.1 SOIL BEHAVIOUR TYPE INDEX (I_c) 12
4.2 N VALUE OF STANDARD PENETRATION TEST (SPT) (N_{60}) 14
4.3 RELATIVE DENSITY (D_r) 14

4.4 FRICTION ANGLE (φ') 16
4.5 FINES CONTENT (*FC*) 17
4.6 UNDRAINED SHEAR STRENGTH (s_u) 17
4.7 SENSITIVITY (S_t) 18
4.8 SOIL UNIT WEIGHT (γ) 18
5.0 REFERENCES 20
APPENDIX A 24
APPENDIX A1 – Site Map 25
APPENDIX A2 – Cone Datasheet 26
APPENDIX A3 – Cone Calibration Certificate 27
APPENDIX A4 – Project Summary Sheet 28
CPT Tests Summary Sheet 28
APPENDIX A5 – CPT Rig Datasheet 30
APPENDIX A6 – Symbol List 31
English 31
Greek 32
APPENDIX A7 – Abbreviations 33
APPENDIX A8 – Glossary 34
APPENDIX A9 – Soils Description Tables 36
APPENDIX B – 37
Cone Penetration Measured Parameters 37
APPENDIX C 38
Geotechnical Derived Parameters 38
APPENDIX D 39
Cross Sections 39

1.0 INTRODUCTION

In Situ Site Investigation Limited (In Situ) was engaged in a geotechnical site investigation at Uig Ferry Terminal, Isle of Skye at the request of Holequest Geotechnical Limited (the client). The site investigation consisted of completing 31 Static Piezocone Penetration Tests (CPTU) to provide information on the soil conditions and derived geotechnical parameters at:

Holequest Site Offices

Uig Pier

Uig

Isle of Skye

IV51 9XX

All test locations were provided by the client (*Appendix A.1)*. The tests were stopped when they reached the target depth as per the client's technical specifications or for other technical reasons, as detailed in *Appendix A.2* and on each CPTU log.

The fieldwork was carried out from 04/07/2017 to 06/07/2017 as per the client's request.

The work on site and the final factual reporting have been undertaken in accordance with the international technical standard *BS EN ISO 22475-1:2012*.

2.0 FIELDWORK

2.1 CONE PENETRATION TESTS

The fieldwork activity is summarised in Table 2.1.

Table 2.1 Fieldwork Summary	Redacted
CPT Operator/s	
Date Started	29/06/2017
Date Finished	30/06/2017
In Situ S.I. Project Manager	Redacted
Main Contractor's Site Manager	

2.1.1 Rig Information

Details of CPTU rig used in this project are shown in Table 2.2. Full data sheet for the rig is presented in *Appendix A.3*.

Table 2.2 Rig Summary	
Rig Name	**Rig Description**
CPT 007	20 Tonne Track Mounted Rig

2.1.2 CPTU Cone

Details of electric CPTU cone (Type TE2) used in this project conforming to the requirements of Application Class 2 of *ISO 22476-1:2012*, are shown in Table 2.3.

Table 2.3 Cone Summary		
Number	**Cross-section area**	**Filter position**
S15CFIIP.1433	15cm^2	u_2

A full datasheet of the cone used is shown in *Appendix A.4*.

The cone's measured parameters are shown in Table 2.4.

Table 2.4 Completed Fieldwork Summary
31 CPTU to a maximum depth of 15.05m. Each test measured Cone Resistance, q_c, Sleeve Friction, f_s, Porewater Pressure in the shoulder position, u_2, Inclination in X and Y axes.
Provision of factual report with estimated soil type, derived geotechnical parameters and AGS data.

2.1.3 CPTU Cone Calibration

The cone resistance and sleeve friction are recorded by calibrated load cells in the cone. The CPTU load cells and pressure transducers are regularly calibrated in line with *ISO 22476-1:2012* standard by the cone manufacturer. The cone calibration certificate for the cone used at this site are presented in *Appendix A.5*.

2.1.4 CPTU Cone Saturation

The pore water pressure is recorded using a calibrated pressure transducer located in the piezocone. To ensure pore water pressure measurements are not affected by the presence of air in the measuring transducer, a de-airing procedure is carried out prior to each test. The cone and filter are saturated using a glycerine fluid with a viscosity of 10,000 CST.

2.1.5 Test Procedure

The tests are carried out in accordance with the *International Standard for Electrical Cone and Piezocone Penetration Test (ISO 22476-1:2012)*.

The final depths of the tests were determined by either completion to the specified test depth or when the maximal safe capacity of the equipment was reached. A schedule of the tests performed is shown in *Appendix A.2*, which has been compiled from the operators' daily progress reports.

The data is transmitted from the digital CPTU through an umbilical cable that runs through the push rods to the data acquisition system. Results are displayed instantaneously on the computer logging screen. The results are recorded on the computer hard disc.

The rate of penetration is kept constant at 2cm/s ±10% except when penetrating very dense or hard strata. Before each test is carried out zero values are taken of the cone to check if it is within calibration. At the end of each test, zero values are taken again to see if there has been any drift during the test. These values are inspected during the post processing stage. This is a quality check on the data and the testing procedure. Individual test zero values are shown on their corresponding test results in *Appendix B* and *C*.

2.1.6 *In Situ Pore Pressure (u_0)*

The in situ or hydrostatic pore pressure is required for the calculation of several derived parameters included in this report. These values are presented on the pore pressure plot, *Form 01*, which is included in *Appendix B*. For this report, the values were estimated by our client. The underground water level is approximately at -2.0 m from ground surface.

2.2 POSITIONING

Positioning and surveying of all investigated locations was the responsibility of the client. The site map and position of the tests are presented in *Appendix A.1*. All tests coordinates are included in the summary sheet in *Appendix A.2*.

3.0 CONE PENETRATION MEASURED PARAMETERS

All measured parameters of tests carried with the CPTU cone are shown in *Appendix B* and all the information about data processing and results are given in sections *3.1*, *3.2* and *3.3*.

3.1 DATA PROCESSING

The measured parameters, cone end resistance, q_c, sleeve friction, f_s, porewater pressure measurements with filter in shoulder position, u_2 and inclination for *x* and *y* axis, I_x, I_y, were recorded for every *10 mm* of penetration keeping a constant speed of *20 mm/s ± 5 mm/s*, which may slightly change when the cone is penetrating hard strata.

The measured data from the site works is processed and presented using specialised CPT software. The interpretations on the CPTU results were carried out following the recommendations of *Lunne et al. (1997)*, *Robertson (2015)* and *BS EN ISO 22475-1:2012.* Measured parameters, mentioned in *Sections 3.2* and *3.3*, were used to derive all the geotechnical parameters, which are presented in *Chapter 4.0*. The soil behaviour type method used on this report is *Robertson et al (1986)*, shown in *Figure 3.2*.

3.1.1 Zero Measurements

Before and after each CPTU test, zero measurements are recorded for each channel of the cone. The zero measurements are presented on the logs in *Appendix B* and *C*. This is a routine quality check carried out on site.

3.2 MEASURED PARAMETERS

3.2.1 Cone Resistance (q_c)

Cone resistance, q_c, is measured as the total force acting on the cone, divided by the projected area of the cone. The results are presented in *MPa*, on *Log 01*, in *Appendix B*, scale *0-20 MPa* with a minor scale printing on the same graph at *0-4 MPa*.

3.2.2 Sleeve Friction (f_s)

Sleeve friction, f_s, is measured as the total frictional force acting on the friction sleeve divided by its surface area. The results are presented in *kPa*, on *Log 01*, in *Appendix B*, using a scale of *0-500 kPa*.

3.2.3 Porewater pressure (u_2)

The pore pressure, u_2, is measured during the test. If the material is free draining and saturation is maintained it will normally measure hydrostatic pore pressure. In materials that are not free draining, it will record the total pore pressure (hydrostatic plus any excess pore pressures generated) created by the cone penetration through this material.

The filter element can be mounted in one of three positions. For all tests carried out in this project the filter was mounted in the u_2 position (see *Figure 3.1*).

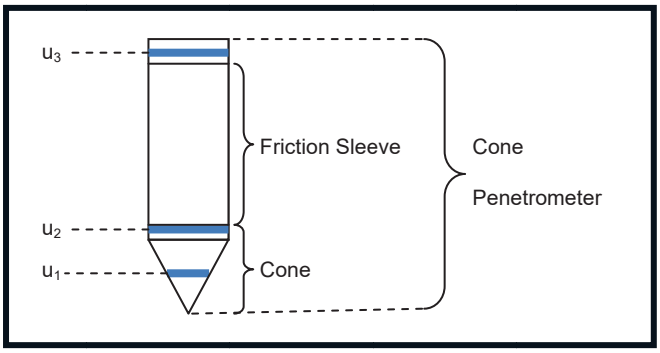


Figure 3.1: *Diagram showing pore pressure filter locations (after Lunne et al., 1997)*

3.2.4 Inclination (I_x, I_y)

The CPT rig was set up to obtain a thrust direction as near as possible to vertical. The CPTU cones have inclinometers incorporated to measure the non-verticality of the test. For test depths less than *15 m*, significant non-verticality is unusual, provided the initial thrust direction is vertical.

3.3 ESTIMATED SOIL BEHAVIOUR TYPE

3.3.1 Friction Ratio (R_f)

The friction ratio, R_f is the ratio between the sleeve friction and the cone resistance (Lunne *et al.,* 1997).

$$Fricton\ Ratio\ (R_f) = \left(\frac{Sleeve\ Friction\ (f_s)}{Cone\ Resistance\ (q_c)}\right) \times 100$$

3.3.2 Estimated Soil Behaviour Type (SBT)

The estimation of soil behaviour type, *SBT*, using measurements of cone resistance and sleeve friction is based upon the variations of the friction ratio and cone resistance. The

friction ratio varies depending upon whether the soil is cohesive or granular. The cone resistance varies depending on the strength and densities of the soil.

The interpretation used in this report is *Robertson et. al. (1986)*, which is shown in Figure 3.2. The results are presented on *Log 01*, in *Appendix B*.

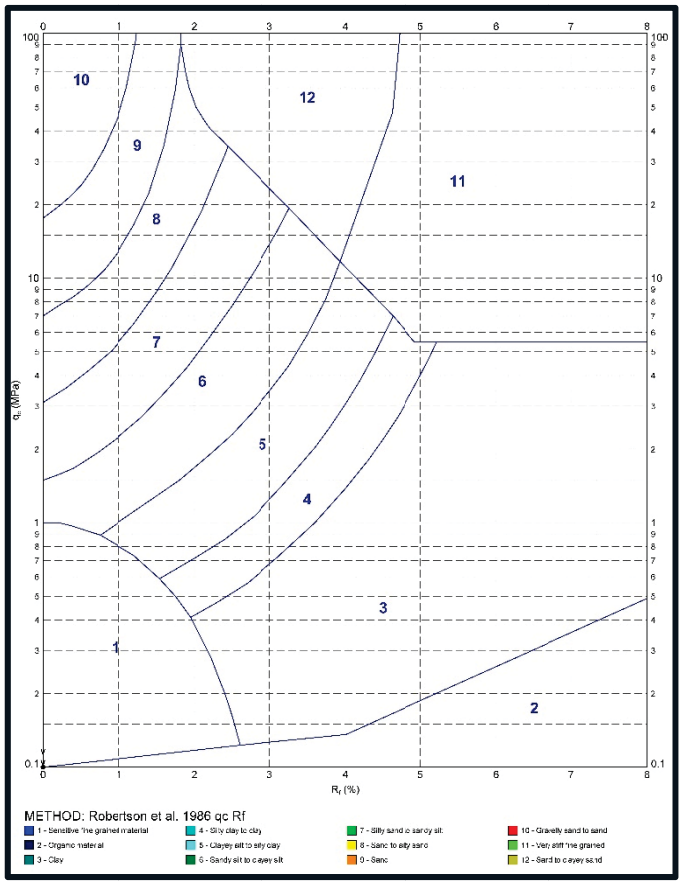


Figure 3.2: *Robertson et al., 1986 soil behaviour type chart.*

3.3.3 Pore Pressure Ratio (B_q)

Pore pressure ratio, B_q is the ratio between the measured pore pressure generated during penetration and the corrected cone resistance minus the total overburden stress.

Pore pressure ratio as defined by *Senneset and Janbu (1985)* is defined as:

$$B_q = \frac{u_2 - u_0}{q_t - \sigma_{vo}}$$

where

u_2	is pore pressure measured between the cone and the friction sleeve
u_0	is equilibrium pore pressure
σ_{vo}	is total overburden stress
q_t	is cone resistance corrected for unequal end area effects

3.4 APPLIED CORRECTIONS

3.4.1 Corrected Cone Resistance (q_t)

For each penetration test, the measured cone resistance, q_c, can be corrected for the ''unequal area effect'' due to the influence of the ambient pore water pressure acting on the cone.

The correction has been applied using the following equation by Lunne et *al.,* 1997:

$$q_t = q_c + [u_2.(1 - \alpha)]$$

where

α is the cone area ratio

The cone used on this project has a cone area ratio of *0.79*. This value is geometrically measured.

3.4.2 Depth Correction

All tests in the report have been corrected for depth difference caused by inclination. This has been calculated using the method described in *ISO 22476-1:2012*.

To calculate the corrected depth the following formula is used:

$$z = \int_0^l C_{inc} \cdot dl$$

where

z is penetration depth, in *m*
l is penetration length, in *m*
C_{inc} is correction factor for the effect of the inclination of the CPTU relative to the vertical axis.

The equation for calculating the correction factor for the influence of the inclination for a bi-axial inclinometer is:

$$C_{inc} = \frac{1}{\sqrt{(1 + tan^2\beta_1 + tan^2\beta_2}}$$

where

β_1 is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane, in degrees
β_2 is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane that is perpendicular to the plane of angle β_1, in degrees

4.0 GEOTECHNICAL DERIVED PARAMETERS

A number of empirical correlations can be used to derive geotechnical parameters from CPTU data. This report includes only the parameters which are described in this chapter. The results of all correlations used to obtain the geotechnical derived parameters are presented on *Log 02* and *Log 03* in *Appendix C*.

Please note that each empirical correlation is derived for a certain type of soil, and may not be appropriate for all the soil types encountered on this project.

4.1 SOIL BEHAVIOUR TYPE INDEX (I_c)

The soil behaviour type index, I_c, was derived by *Jefferies and Davies (1991)*, and was created to simplify the application of CPTU SBT chart shown in *Chapter 3*, *Figure 3.2*. This approach has been modified for use with the *Robertson (1990)* normalised CPT soil classification chart, *Figure 4.1*. The normalised cone parameters Q_t and F_r (for definitions see *Appendix A6* Symbol List) can be combined into one Soil Behaviour Type Index, I_c, `*(Lunne et al., 1997)*.

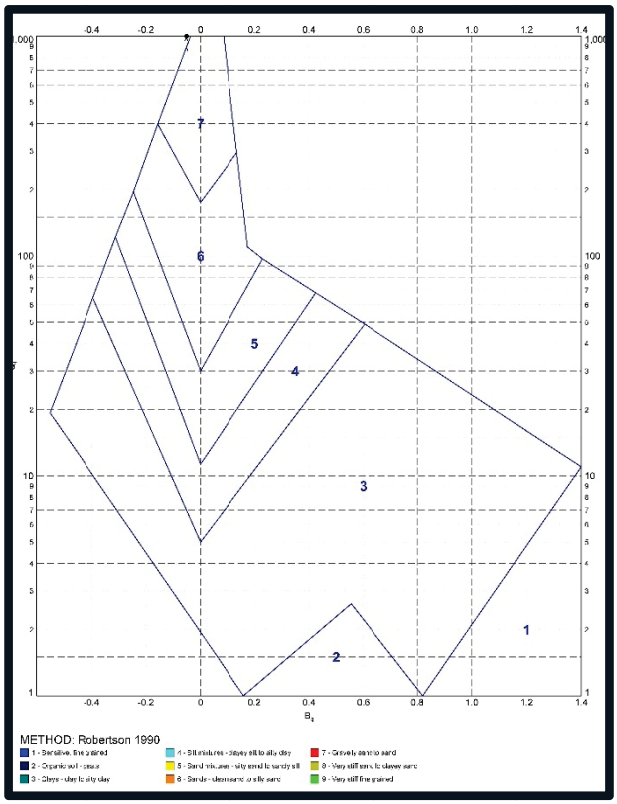


Figure 4.1: *Robertson 1990 soil behaviour type chart.*

The soil behaviour type index, I_c, can then be defined using *Robertson (2010)* formula, given below:

$$I_c = ((3.47 - logQ_t)^2 + (logF_r + 1.22)^2)^{0.5}$$

where

Q_t is the normalized cone resistance which represents the simple normalization with a stress exponent (n) of *1.0*, which applies well to clay-like soils

F_R is the normalized friction ratio, in *%*

The boundaries of soil behaviour type are then given in terms of the index, I_c, presented in *Table 4.1* below.

The soils behaviour type index does not apply to zones *1*, *8* and *9*. The profiles of I_c provide a simple guide to the continuous variation of soil behaviour type in a given soil profile based on CPTU results, with a reliability greater than *80%* compared with soil samples *(Robertson, 2015).*

Zone	Soil Behaviour Type	I_c
1	Sensitive fine grained	N/A
2	Organic Soils – clay	>3.6
3	Clays – silty clay to clay	2.95 – 3.6
4	Silt mixtures – clayey silt to silty clay	2.60 – 2.95
5	Sand mixtures – silty sand to sandy silt	2.05 – 2.6
6	Sands – clean sand to silty sand	1.31 – 2.05
7	Gravelly sand to dense sand	<1.31
8	Very stiff sand to clayey sand*	N/A
9	Very stiff fine grained *	N/A

** Heavily overconsolidated or cemented*

Table 4.1: *Normalized CPTU Soil Behaviour Type (SBT_n) Index values, I_c.(Robertson, 2010)*

4.2 N VALUE OF STANDARD PENETRATION TEST (SPT) (N_{60})

The derived *N* value of *SPT,* N_{60}, is strongly and directly related to the cone resistance, q_c.

In this report the N_{60} value is derived using the following correlations, developed by *Robertson and Wride (1998)* and *Jefferson and Davies (1998)*

1) *Robertson & Wride (1998)*

$$N_{60} = \frac{q_c}{8.5 \cdot p_a \left(1 - \frac{I_C}{4.6}\right)}$$

2) *Jefferson and Davies (1993)*

$$N_{60} = \frac{q_c}{0.85 \cdot \left(1 - \frac{I_C}{4.75}\right)}$$

where

q_c	is the cone resistance
p_a	is the atmospheric pressure equal to *100 kPa*
I_c	is the soil behaviour type index calculated as given in *section 4.1*

It is suggested that this method provides a better estimation of the *N* value than the actual *SPT* test, due to its poor repeatability. But in fine grained soil with high sensitivity these methods of estimating N_{60} may overestimate it *(Jefferies and Davies, 1991).*

4.3 RELATIVE DENSITY (D_r)

Relative density, D_r, is an intermediate parameter for coarse grained soils, widely used to describe sand deposits. All the research on deriving the relative density from CPTU tests results are carried out for ***clean predominantly quartz sands***. The studies have shown that CPTU resistance in granular soils is controlled by sand relative density, in situ effective stresses and compressibility. The more compressible sands tend to give lower penetration resistance for a given relative density then less compressible sands.

In this report relative density is calculated using the methods suggested by *Baldi et al., (1986)*, *Jamiolkowski et al., (2001)* and *Kulhawy and Mayne (1990)* as shown in the equations below:

1) Baldi et al., (1986)

$$D_r = \frac{1}{C_2} \cdot ln\left(\frac{q_c \cdot Wehr}{C_1 \cdot (\sigma'_{v0})^{0.55}}\right) \cdot 100$$

where

C_1 is a consolidation coefficient which is *157* for normally consolidated soils and *181* for over consolidated soils

C_2 is a consolidation coefficient which is *2.41* for normally consolidated soils and *2.46* for over consolidated soils

Wehr is a correction coefficient for calcareous soils

2) Jamilkowski et al., (2001)

$$D_r = 100 \cdot \left[0.268 \cdot ln\left(\frac{q_t/\sigma_{atm}}{\sqrt{\sigma'_{v0}/\sigma_{atm}}}\right) + C_1\right]$$

where

C_1 is a compressibility coefficient which is *-0.675* for average compressible soils, *≤1.0* for high compressible soils and carbonate or calcareous sands and *≥-2.0* for low compressible soils

q_t is corrected cone resistance

σ_{atm} is the atmospheric pressure

3) Kulhawy and Mayne, (1990)

$$D_r = \left[\frac{q_{c1}}{305 \cdot C_1 \cdot OCR^{0.18} \cdot \left(1.2 + 0.05 \cdot log(t/100)\right)}\right]^{0.5} \cdot 100$$

where

q_{c1} is the cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula

$$q_{c1} = \frac{q_c}{\sqrt{\sigma'_{v0} \cdot \sigma_{atm}}}$$

where

q_c is the cone resistance in *kPa*

σ'_{v0} is the initial vertical effective stress in *kPa*

C_1 is a compressibility coefficient which is *-0.91* for low compressible sands, *1.0* for medium compressible sands and *1.09* for high compressible sands

t is time in years

4.4 FRICTION ANGLE (φ')

Friction angle, *φ'*, is used to express the shear strength of uncemented, coarse grained soils. In this report friction angle is derived by the correlations of *Mayne and Campanella (2005)*, *Robertson and Campanella (1983)* and *Kulhawy and Mayne (1990)*.

1) Mayne and Campanella, (2005)

$$\varphi' = 29.5^0 \cdot B_q^{0.121} \cdot \left[0.256 + 0.336 \cdot B_q + logQ_t\right]$$

where

B_q is the pore pressure ratio, calculated as in Session 3.3

Q_t is the normalized cone resistance

2) Roberston and Campanella, (1983)

$$\varphi' = \tan^{-1}\left(0.1 + 0.38 \cdot log\left(\frac{q_t}{\sigma'_{v0}}\right)\right)$$

where

q_c is the cone resistance in *kPa*

σ'_{v0} is the initial vertical effective stress in *kPa*

3) Kulhawy and Mayne, (1990)

$$\varphi' = 17.6^0 + 11.0^0 \cdot log(q_{t1})$$

where

q_{t1} is the corrected cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula

$$q_{t1} = \frac{q_t}{\sqrt{\sigma'_{v0} \cdot \sigma_{atm}}}$$

The method suggested by *Mayne and Campanella (2005)* will not provide reliable results for heavily overconsolidated soils, fissured geomaterials and highly cemented or structures clays. This approach gives reliable results when pore pressure is positive and varies *0.1* < B_q < *1.0*. The correlation suggested by *Robertson and Campanella (1983)* estimates the peak friction angle for uncemented, unaged, moderately compressible, predominately quartz sands. For sands of higher compressibility the method will tend to predict low friction angles. The method suggested by *Kulhawy and Mayne (1990)* is an alternate relationship for clean, rounded, uncemented, quartz sands.

4.5 FINES CONTENT (*FC*)

The fines content, *FC*, in this report is estimated using two different methods, one from *Robertson and Wride (1998)* and the other, *Suzuki et al (1998)* as presented below:

1) Robertson and Wride (1998)

$$I_C < 1.26: FC = 0$$
$$1.26 \leq I_C \leq 3.5: FC(\%) = 1.75I_C^{3.25} - 3.7$$
$$3.5 < I_C: \ FC = 100\%$$

2) Suzuki et al (1998)

$$FC(\%) = 2.8I_C^{2.6}$$

where

I_c is the soil behaviour type index, calculated as in section 4.1

4.6 UNDRAINED SHEAR STRENGTH (s_u)

Estimation of undrained shear strength, s_u, from CPTU tests using corrected cone resistance is carried out using the following correlation from *Lunne et al. (1981)*:

$$S_u = \frac{(q_t - \sigma_{v0})}{N_{kt}}$$

where

N_{kt} is the empirical cone factor, which varies from *10* (*6* for very soft sensitive fine grained soils) to *20*. In this report 3 values are considered: *15*, *17.5* and *20*. N_{kt} tends to increase with increasing plasticity and decrease with increasing soil sensitivity. It decreases as B_q increases. (*Lunne et al., 1997*)
σ_{vo} = total overburden stress.

This report only presents the undrained shear strength data on soils with soil behaviour type index, I_c values greater than *2.60*.

The value of undrained shear strength, s_u to be used in analysis depends on the design problem. In general, the simple shear direction of lading often represents the average undrained strength. For larger, moderate to high risk projects, where high quality field and laboratory data may be available, site specific correlations should be developed based on appropriate and reliable values of s_u.

4.7 SENSITIVITY (S_t)

The sensitivity, S_t of clays is defined as the ratio of undisturbed peak undrained shear strength to totally remoulded undrained shear strength.

In this report S_t is calculated using two correlations developed by *Schmertmann (1978)* and *Mayne (2007)*.

1) Schmertmann (1978)

$$S_t = \frac{s_u}{s_{u(rem)}} = \frac{q_t - \sigma_v}{N_{kt}} \left(\frac{1}{f_s}\right)$$

where

$s_{u(rem)}$ is the remoulded undrained shear strength. It can be assumed equal to the sleeve resistance, f_s.

2) Mayne (2007)

$$S_t = \frac{0.073 \cdot (q_t - \sigma_{v0})}{f_s}$$

For relatively sensitive clays , $S_t > 10$, the value of f_s can be very low and not very accurate, hence the estimate of sensitivity should be used as a guide only.

4.8 SOIL UNIT WEIGHT (γ)

Soil unit weight, γ in this report is calculated by using one method for sands, considered under dry conditions and two methods for clays, considered under saturated conditions. These relationships are developed by *Mayne (2007)* and the equations are presented below:

1) Mayne (2007)

Dry unit weight for sands:

$$\gamma_{dry} = 1.89 \cdot log(q_{t1}) + 11.82$$

Saturated unit weight for clays method 1

$$\gamma_{sat} = 8.32 \cdot log(V_S) - 1.61 \cdot log(z)$$

Saturated unit for clays method 2

$$\gamma_{sat} = 2.60 \cdot log(f_s) + 15 \cdot G_s - 26.5$$

where

q_{t1} is the corrected cone resistance corrected for initial vertical effective stress and atmospheric pressure, calculated by the following formula:

$$q_{t1} = \frac{q_t}{\sqrt{\sigma'_{v0} \cdot \sigma_{atm}}}$$

z is the depth

V_s is the shear wave velocity, calculated as $V_S = 118.8 \cdot log(f_s) + 18.5$

G_s is the specific gravity of solids, typically between *2.40* and *2.90*

5.0 REFERENCES

ASTM D7400-14 (2015), "Standard and ISSMGE TC10 guideline", by *Butcher, A. P. et al.*

Baldi et al. (1986) / Al-Hamoud and Wehr (2006), "Interpretation of CPTs and CPTUs; 2nd part: drained penetration of sands / Experience of vibrocompaction in calcareous sand of UAE"

Been at al (1987), "Cone Penetration Test Calibration For Erksak (Beaufort Sea) Sand", Canadian Geotechnical Journal, 24, 4, pp. 601-610

Been and Jefferies (1992), "Towards Systematic CPT Interpretation", Proceedings Wroth Memorial Symposium, Thomas Telford, London, pp. 121–134

Boulanger and Idriss (2014), "CPT and SPT Based Liquefaction Triggering Procedures", Report No. UCD/CGM-14/01, Center of Geotechnical Modelling, Department of Civil and Environmental Engineering, College of Engineering, University of California at Davis

British Standard BS5930:1999, "Code of practice for site investigations". BSI, 1999

British Standard BS EN ISO 22475-1:2012

Burns and Mayne (2002), "Analytical Cavity Expansion Critical State Model for Piezocone Dissipation in Fine Grained Soils, Soils and Foundations", Vol. 42, No. 2, 2002

Houlsby, G.T. and Teh, C. I. (1998), "Analysis of the piezocone in clay". Proceedings of the International Symposium on Penetration Testing, ISOPT-1, Orlando, 2, 777-83, Balkema Pub., Rotterdam

Idriss and Boulanger (2008), "Soil liquefaction during earthquakes", Earthquake Engineering Research Institute, MNO-12

International Standard for Electrical Cone and Piezocone Penetration Test, ISO 22476-1:2012

International Standard, "Geotechnical Investigation and testing- field testing – part 1: electrical cone and piezocone penetration test", ISO/ FDIS 22476-1.

Jamiolkowski et al. (2001), Evaluation of relative density in shear strength of sands from cone peonetration tests (CPT) and flat dilatometer (DMT), Soil Behaviour and Soft Ground Construction (GSP 119), American Society of Civil Engineers, Reston, Va., 2001, pp. 201-238

Jefferies, M.G. and Davies, M.P. (1991), "Soil classification by the cone penetration test": Discussion. Canadian Geotechnical Journal, 28(1), 173-6

Jefferis and Been (2006), "Soil liquefaction: a critical state approach", Taylor and Frencis.

Jones, G.A. and Rust, E. (1995), "Piezocone settlement prediction parameters for embankments on alluvium". Proceedings of the International Symposium on Cone Penetration Testing, CPT '95, Linköping, Sweden, 2, 501-8, Swedish Geotechnical Society

Kulhawy, F.H. and Mayne, P.H. (1990) "Manual on estimating soil properties for foundation design". Electric Power Research Institute, EPRI, August, 1990.

Keaveny and Mitchel (1986), "Strength of Fine-Grained Soils Using the Piezocone," Use of In-Situ Tests in Geotechnical Engineering (GSP 6), American Society of Civil Engineers, Reston, Va., 1986, pp. 668–699

Lord, J.A., Clayton, C.R.I., and Mortimore, R.N. (2002), "Engineering in chalk". Ciria Guide C574.

Lunne, T. And Kleven, A. (1981), "Role of CPT in North Sea foundation engineering". Session at the ASCE National Convention: Cone Penetration Testing and Materials, St. Louis, 76-107, American Society of Engineers (ASCE).

Lunne, T. And Christophersen, H.P. (1983), "Interpretation of cone penetrometer data for offshore sands". Proceedings of the Offshore Technology conference, Richardson, Texas, Paper No. 4464.

Lunne, T., Robertson, P. K. And Powell, J. J. M. (1997), "Cone Penetration testing in Geotechnical Practice". Blackie.

Mayne and Rix (1995) / Lune et al. (1997), "Gmax-qc relationships for clays", Geotechnical Testing Journal, ASTM, 16 (1), pp. 54-60/ CPT in Geotechnical Practice (1997)

Mayne (2001), "Stress-Strain-Strength-Flow Parameters from Enhanced In-Situ Tests", International Conference on In-Situ Measurement of Soil Properties and Case Histories, Indonesia, 2001, pp. 27–48

Mayne and Campanella (2005), "National Cooperative Highway Research Program", Synthesis 368 (2007)

Mayne (2007), "National Cooperative Highway Research Program", Synthesis 368 (2007)

Mitchell, J.K. and Gardner, W.S. (1975), "In situ measurement of volume change characteristics". Proceedings of the ASCE Specialty Conference on In Situ

Measurements os Soil Properties, Raleigh, North Carolina, 2, 279-345, American Society of Engineers (ASCE)

Rix, G.J. and Stokoe, K.H. (1992), "Correlation of Initial Tangent Modulus and Cone Resistance", Proceedings of the International Symposium on Calibration Chamber Testing, Potsdam, New York, 1991, pp. 351-362, Elsevier

Robertson, P.K. and Campanella, R.G. (1983) "Interpretation of cone penetrometer test: Part 1: Sand". Canadian Geotechnical Journal, 20(4), 718-33

Robertson, P.K., Campanella, R.G., Gillespie, D. And Greig, J (1986), "Use of piezometer cone data". Proceedings of the ASCE Specialty Conference In Situ '86: Use of In Situ Tests in Geotechnical Engineering, Blacksburg, 1263-80, American Society of Engineers (ACE)

Robertson, P.K. (1990), "Soil classification using the cone penetration test". Canadian Geotechnical Journal, 27(1), 151

Robertson, P.K. and Fear, C.E. (1995), "Liquefaction of sands and its evaluation. IS TOKYO '95". First International Conference on Earthquake Geotechnical Engineering, Keynote Lecture, November, 1995

Robertson, P.K. and Wride (Fear), C.E. (1998), "Evaluating cyclic liquefaction potential using the cone penetration test". Can. Geotech. J. Vol. 35

Robertson (2010), "Soil behaviour type from the CPT: an update", Gregg Drilling and Testing Inc. Signal Hill, California, USA, CPT 10, paper 2-56

Robertson (2015), "Guide to Cone Penetration Testing", 6th Edition (2015)

Senneset K. And Janbu, N. (1985), "Shear strength parameters obtained from static cone penetration tests. Strength Testing of Marine Sediments; Laboratory and In Situ Measurements". Symposium, San Diego, 1984, ASTM Special technical publication, STP 883, 41-54

Senneset, K., Sandven, R. And Janbu, N. (1989), "The evaluation of soil parameters from piezocone tests". Transportation Research Record, No. 1235, 24-37

Schmertmann, J.H (1978), "Guidelines for cone penetration test, performance and design", US Federal Highway Administration, Washington, DC, Report, FHWA-TS-78-209, 145

Shuttle and Jefferies (1998), "Dimensionless and unbiased CPT interpretation in sand", International Journal for Numerical and Analythical Methods in Geomechanics, 22, pp. 351-391.

Suzuki, Y., Tokimatsu, K., Taya, Y. And Kubota, Y. (1995), "Correlation between CPT data and dynamc properties of in situ frozen samples". Proceedings of the Third

International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, St. Louis, 1, 249-52, University of Missouri Rolla.

Topp, G.C., Davis, J.L. and Anna, A.P. (1980),. "Electromagnetic determination of soil water content: Measurements in coaxial transmission lines". Water Resiur. Res., 16, 574-582.

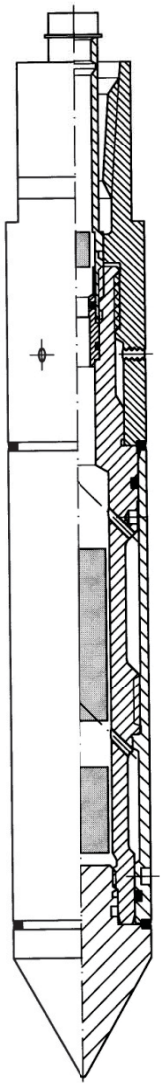
APPENDIX A

APPENDIX A1 – Site Map

Not provided

APPENDIX A2 – Cone Datasheet

GeoPoint Systems bv
Rijksstraatweg 22F
2171 AL Sassenheim
Tel. : +31 71 301 92 51
Fax : +31 71 301 92 52
E-mail : info@geopoint.nl
ING bank : 68.23.01.396
Postbank : 5226758
BTW nr. : NL806331677B01



SPECIFICATIONS S15 SERIES ELECTRICAL CONES

The electronic subtraction cones have been developed to address the durability problems inherent in other cone designs. The unit consists of a single element temperature compensated strain gauge transducer for measuring both cone resistance and local sleeve friction. This design is therefore more robust than a compression type cone. The cone support electronics package is located directly behind the transducer. The precision strain gauge amplifiers and power supply eliminate the effects of cable resistance on the measurements. A standard subtraction cone is capable of measuring simultaneously the following channels: Tip, Local friction, Pore pressure, Temperature and Inclination.

GENERAL SPECIFICATIONS

Cone Tip Section Area	1,500 mm2
Friction Sleeve Surface	22,500 mm2
Total Length	325 mm
Weight	4200 g
Power Supply	± 15 VDC, 100 mA.
Output	0 – 10 VDC*
Working Temperature	0 - 60˚C
Storage Temperature	- 40 to + 85˚C
Connector	Lemo 10 pins (others on request)

TIP RESISTANCE

Range	100/150* kN
Accuracy	0.25 % FS
Maximum Load	150 % of range
Cone Area Ratio	0.75

LOCAL SLEEVE FRICTION

Range	100/150* kN
Accuracy	0.50 % FS
Maximum Load	150 %
Sleeve Area Ratio	1.0 (EA)

PORE PRESSURE

Range	1/2/5/10* MPa
Accuracy	0.5 % FS
Maximum Load	150 % of range

INCLINATION

Range	25 ˚ (biaxial)
Accuracy	< 2 ˚

All our equipment complies with the ISSMGE, ASTM, DIN and NEN Standards.

**Other output and voltage ranges available on request. Loadcells may be calibrated for lower ranges.*

APPENDIX A3 – Cone Calibration Certificate

Sondeerapparatuur Waterspanningsmeters Hellingmeters Veldmeet-apparatuur

GeoPoint Systems bv

Rijksstraatweg 22F
2171 AL Sassenheim
Tel. : +31 71 301 92 51
Fax : +31 71 301 92 52
E-mail : info@geopoint.nl
BTW : NL814690178.B01
IBAN : NL28 INGB0682301396
BIC : INGBNL2A

Cone Calibration Certificate

Certificate:	GS-1433-003
Instrument Type:	Electric Subtraction Cone
Model:	S15-CFIIP
Serial number:	1433
Calibration date:	06-03-2017
Client:	Insitu
Calibrated by:	M.van Es
Calibration instruments	
Manufacturer:	Hottinger Baldwin Messtechnik GmbH
HBM certificate no. :	49046
Calibration conditions	
Ambient temperature:	19.4 °C
Atmospheric pressure:	1001 mBar
Cone specifications	
Cone base area:	1500 mm2
Load tip resistance (nom.):	100 kN
Friction sleeve area:	22500 mm2
Load tip + local friction (nom.):	100 kN
Load friction sleeve (nom.):	22.5 kN
Load pore pressure (nom.):	2 MPa
Inclination (nom.):	+/- 20 °
Temperature compensation (all channels):	0...+40 °C
Maximum overload capacity (all channels):	100 %
Cone area ratio (a):	0.79
Max. Inaccuracy, relative to measurement value:	1.0 %

	Tip:		Sleeve:		Pore Pressure:		Inclinometer:		
	qc in kN	mV	fs in kN	mV	MPa	mV	Degrees	X (mV)	Y (mV)
Zero points:		0288		0250		0185			
	0	0	0	0	0	0	0	2487	2511
	5	0302	5	0310	0.4	1597	-20	0458	0415
	10	0606	10	0621	0.8	3191	20	4574	4640
	15	0912	15	0935	1.2	4770			
	20	1216	20	1246	1.6	6353			
	25	1520	25	1557	2.0	7925			
	30	1824	30	1868					
	35	2129	35	2180					
	40	2434	40	2493					
	45	2738	45	2804					
	50	3041	50	3114					
	75	4554	75	4664					
	100	6065	100	6210					

Max. eror, abs. qc: 35 kPa
Max. error, abs. fs: 2 kPa
Max. error, abs. u2: 10 kPa
Max. error, abs. I: 1 °

This calibration i[Redacted] procedures and meets the requirements of NEN2649, NEN-EN-ISO 22 ible to (Inter-) National Standards.

Approved
Date:

Ingeschreven i
Op al onze lev

www.geopoint.nl
www.geopoint.eu

06251.
n van Geopoint Systems B.V. van toepassing.

APPENDIX A4 – Project Summary Sheet

CPT Tests Summary Sheet

HOLE ID	Final Depth (m)	Date of Test	Cone Used	Test Remarks
CPT 01	0.50	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 01A	0.55	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 01B	2.90	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 02	3.40	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 02A	0.21	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 02B	1.36	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 03	3.98	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 03A	0.44	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 03B	0.87	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 04	2.13	04/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 04A	0.76	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 04B	2.18	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 04C	1.57	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 05	4.33	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 05A	5.19	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 06	0.18	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 06A	0.28	05/07/2017	S15-CFIIP.1433	Test refused on inclination.
CPT 06B	0.29	05/07/2017	S15-CFIIP.1433	Test refused on inclination.
CPT 06C	2.88	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 06D	0.57	05/07/2017	S15-CFIIP.1433	Test refused on inclination.
CPT 07	6.00	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 07A	15.05	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 08	0.29	05/07/2017	S15-CFIIP.1433	Test refused on inclination.
CPT 08B	0.76	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 08C	0.39	05/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 09	0.95	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 09A	2.14	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.

CPT 09B	0.89	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 10	3.76	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 10A	3.26	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.
CPT 10B	3.63	06/07/2017	S15-CFIIP.1433	Test refused on tip resistance.

APPENDIX A5 – CPT Rig Datasheet

RIGS

20 TONNE CPT TRACK MOUNTED RIG (CPT007)

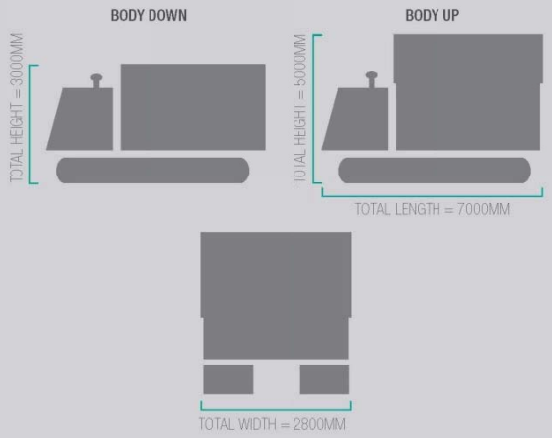
We have a variety of rigs giving us the capacity to meet our clients' needs and specifications for each individual project.

This rubber tracked rig weighs 20 tonnes and is able to push up to a depth of 40 metres, depending on the ground conditions. It has low ground bearing pressure and is ideal for soft, boggy sites which are inaccessible for our wheeled rigs.

CPT RIG DETAILS

DRIVE SYSTEM	RUBBER TRACKED
TOTAL WEIGHT	20 TONNES
GROUND BEARING PRESSURE	35KPA
CPT RAM THRUST CAPACITY	20 TONNES
MAXIMUM PENETRATION	30-40M DEPENDING ON THE GROUND CONDITIONS.
PERFORMANCE RATES	100-150M OF TESTING A DAY, DEPENDING ON ASSESS TO POSITIONS.
TYPICAL SITES FOR THIS RIG	SOFT BOGGY SITES, THE RIG HAS LOW GROUND BEARING PRESSURE.

CPT RIG DIMENSIONS



IN SITU SITE INVESTIGATION INSITUSI.COM

APPENDIX A6 – Symbol List

English

a	is area ratio of the cone ($= {}^{A_n}/_{A_c}$)
A	is area
A_c	is projected area of the cone
A_n	is cross sectional area of load cell or shaft
A_s	is area of friction sleeve
A_{sb}	is bottom end area of friction sleeve
A_{st}	is top end area of friction sleeve
B_q	is pore pressure parameter ($= {}^{(u_2 - u_0)}/_{(q_t - \sigma_{v0})}$)
c_h	is horizontal coefficient of consolidation
c_v	is vertical coefficient of consolidation
D	is diameter
D_r	is relative density ($= \frac{e_{max} - e}{e_{max} - e_{min}} x100\%$)
e	is void ratio
e_{max}	is maximum void ratio
e_{min}	is minimum void ratio
E	is Young's modulus
f_s	is unit sleeve friction resistance
f_t	is sleeve friction corrected for pore pressure effects
F_s	is total force acting on friction sleeve
F_R	is normalized friction ratio ($= {}^{f_s}/_{(q_t - \sigma_{v0})}$)
FoS	is factor of safety
FC	is fines content
g	is acceleration due to gravity
G_0	is initial or maximum shear modulus, shear stiffness
I_c	is soil behavior type index
I_r	is rigidity index ($= {}^{G}/_{s_u}$)
I_p	is plasticity index
k	is coefficient of permeability
k_h	is coefficient of permeability in horizontal direction
k_v	is is coefficient of permeability in vertical direction
K_0	is coefficient of earth pressure at rest ($= {}^{\sigma'_{h0}}/_{\sigma'_{v0}}$)
L	is length
m_v	is coefficient of volume change
M	is constrained deformation modulus
M7.5	is earthquake magnitude of 7.5 Richter scale
N	is number of blows of SPT
N_{60}	is SPT energy ratio
N_k	is cone factor
N_{ke}	is cone factor
N_{kt}	is cone factor
$N_{\Delta u}$	is cone factor
p_a	is reference stress ($= 100\ kPa$)
q_c	measured cone resistance
q_e	effective cone resistance ($= q_t - u_2$)
q_n	is net cone resistance ($= q_t - \sigma_{v0}$)

q_t	is corrected cone resistance ($= q_c - (1-a)u_2$)
Q_c	is total force acting on the cone
Q_t	is normalized cone resistance ($= {q_t - \sigma_{v0}}/{\sigma'_{v0}}$)
R_f	is friction ratio ($= \left({f_t}/{q_t}\right) x100\%$ or alternatively $= \left({f_t}/{q_t}\right) x100\%$)
s_u	is undrained shear strength
s_{ur}	is remoulded undrained shear strength
S_t	is sensitivity
t	is time
t_{50}	is time for 50% dissipation of excess pore water pressure
T_{50}	is time factor at $U = 50\ \%$
u	is pore water pressure
u_0	is in situ pore pressure
u_1	is pore pressure measured on the cone
u_2	is pore pressure measured behind the cone
u_3	is pore pressure measured behind sleeve friction
Δu	is excess pore water pressure
U	is normalized excess pore pressure
V_s	is shear wave velocity
z	is depth

Greek

α	is constant
α	is cone roughness
β	is constant
β_1	is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane, in degrees
β_2	is the angle between the vertical axis and the projection of the axis of the CPTU on a vertical plane that is perpendicular to the plane of angle β_1, in degrees
γ	is unit weight of soil
γ_w	unit weight of water
Δ	is change
Δu	is excess pore pressure ($= u - u_0$)
μ	is Poisson's ratio
ρ	is density
ψ	is state parameter
σ, σ'	is normal stress (total, effective)
σ_h, σ_h'	is horizontal stress (total, effective)
σ_v, σ_v'	is horizontal stress (total, effective)
σ_{v0},σ_{v0}'	is overburden stress (total, effective)
τ_{av}	average cyclic shear stress
τ_{cy}	cyclic shear stress
φ'	effective friction angle

APPENDIX A7 – Abbreviations

ASTM	is American Society for Testing and Materials
CPTU	Cone Pentration Test with Pore Pressure Measurement (Piezocone Test)
CRR	Cyclic Resistance Ratio
CSR	Cyclic Stress Ratio
GWT	Ground Water Table
NC	Normally Consolidated
OC	Overconsolidated
OCR	Overconsolidation Ratio
PL	Limit Pressure
SDMT	Seismic Dilatometer Marchetti
SPT	Standard Penetration Test
TC	Technical Committee

APPENDIX A8 – Glossary

CPT
Cone Penetration Test.

Cone
The part of the cone penetrometer on which the end bearing is developed.

Cone Penetrometer
The assembly containing the *cone*, *friction sleeve*, any other sensors and measuring systems, as well as the connections to the *push-rods.*

Cone resistance, q_c
The total force acting on the cone, Q_c, divided by the projected area of the cone, A_c. $q_c = {Q_c}/{A_c}$

Corrected cone resistance, q_t
The *cone resistance*, q_c corrected for pore water pressure effects.

Corrected sleeve friction, f_t
The *sleeve friction* corrected for pore water pressure effects on the ends of the *friction sleeve*.

Data acquisition system
The system used to measure and record the measurements made by the *cone penetrometer*.

Dissipation Test
A test when the decay of the pore water pressure is monitored during a pause in penetration.

Filter element
The porous element inserted into the cone penetrometer to allow transmission of the pore water pressure to the pore pressure sensor, while maintaining the correct profile of the *cone penetrometer*.

Friction ratio, R_f
The ratio, expressed as a percentage of the *sleeve friction*, f_s, to the *cone resistance*, q_c, both measured at the same depth.

Friction reducer
A local enlargement on the push-rod surface, placed at a distance above the cone penetrometer, and provided to reduce the friction on the *push-rods*.

Friction sleeve
The section of the *cone penetrometer* upon which the *sleeve friction* is measured.

Normalized cone resistance, Q_c or Q_t
The *cone resistance* expressed in a non dimensional form and taking account of stress changes *in situ*, $Q_c = {(q_c - \sigma_{v0})}/{\sigma'_{v0}}$, or when the *corrected cone resistance* is used $Q_t = {(q_t - \sigma_{v0})}/{\sigma'_{v0}}$. where σ_{v0} and σ'_{v0} are the total and effective vertical stress respectively.

Net cone resistance, q_n
The *corrected cone resistance* minus the vertical total stress. $q_n = q_t - \sigma_{v0}$

Normalized friction ratio, F_r
The *sleeve friction* normalized by the *net cone resistance*.

Piezocone
A *cone penetrometer* containing a pore pressure sensor.

Pore pressure, u
The pore pressure generated during penetration and measured by a pore pressure sensor, u_1 when measured on the cone, u_2 when measured just behind the cone and u_3 when measured just behind the friction sleeve.

Pore pressure ratio, B_q
The *net pore pressure* normalized with respect to the *net cone resistance*.

Push-rods
The thick-walled tubes or rods used for advancing the cone penetrometer.

Rig machine
The equipment which pushes the cone penetrometer and rods into the ground.

Sleeve friction, f_s
The total frictional force acting on the *friction sleeve*, F_s, divided by its *surface area*, A_s. $f_s = {}^{F_s}/_{A_s}$

APPENDIX A9 – Soils Description Tables

GRANULAR SOILS (Sands and Gravels)

Description	Relative Density D_r (%)	SPT N value, N_{SPT}
Very Loose	0 – 15	0 - 4
Loose	15 – 35	4 - 10
Medium Dense	35 – 65	10 - 30
Dense	65 – 85	30 - 50
Very Dense	>85	>50

COHESIVE SOILS (Clays and Silts)

Term based on measurement	Undrained Shear Strength Classification, s_u (kPa)
Extremely low	<10
Very low	10 - 20
Low	20 - 40
Medium	40 - 75
High	75 - 150
Very high	150 - 300
Extremely high	>300

APPENDIX B –

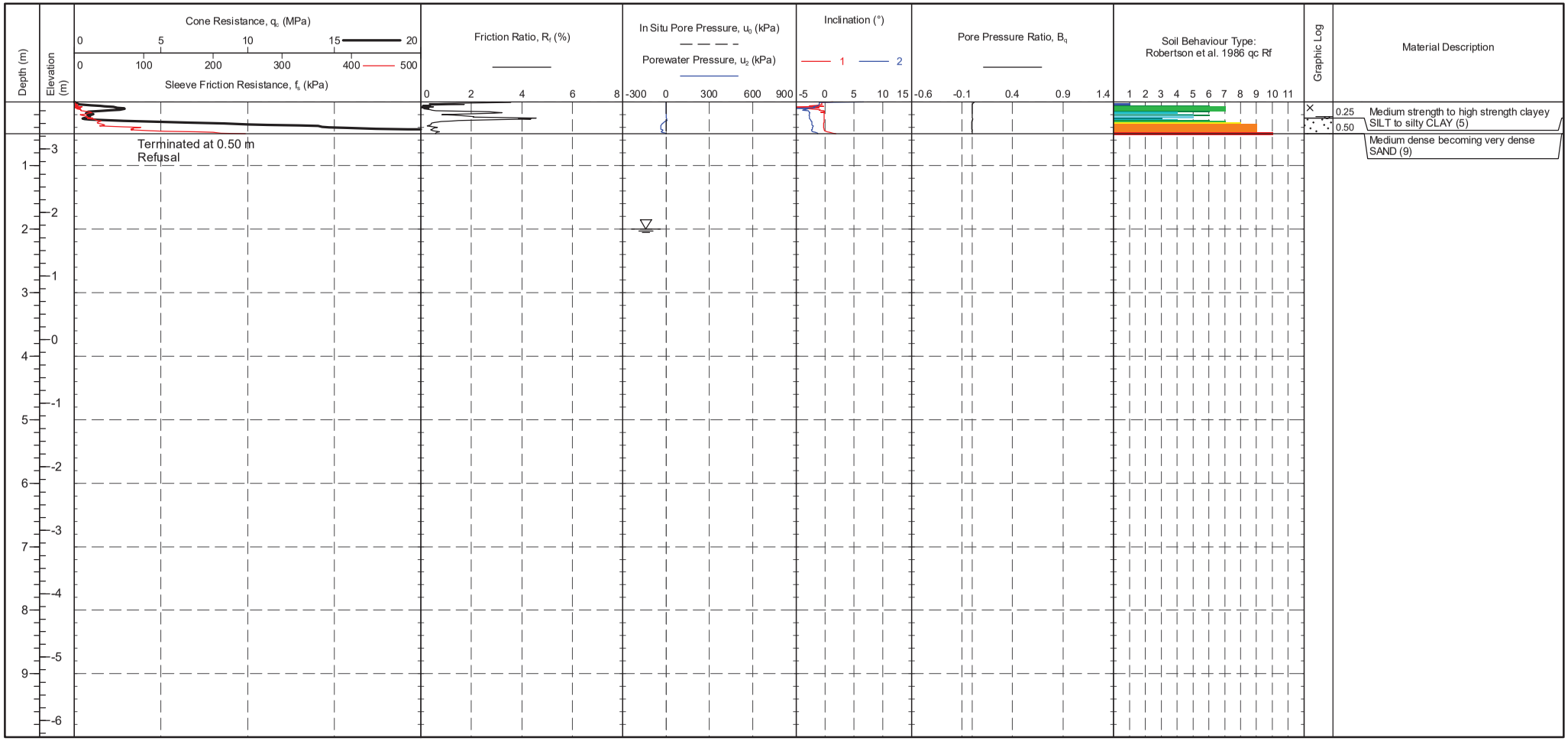
Cone Penetration Measured Parameters

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 01**

CLIENT : Holequest Geotechnical Limited	EASTING : 138602.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863699.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.74 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : Re		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	280 mV	0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	258 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01	Pore Pressure 2	241 mV	235 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2616 mV	2425 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

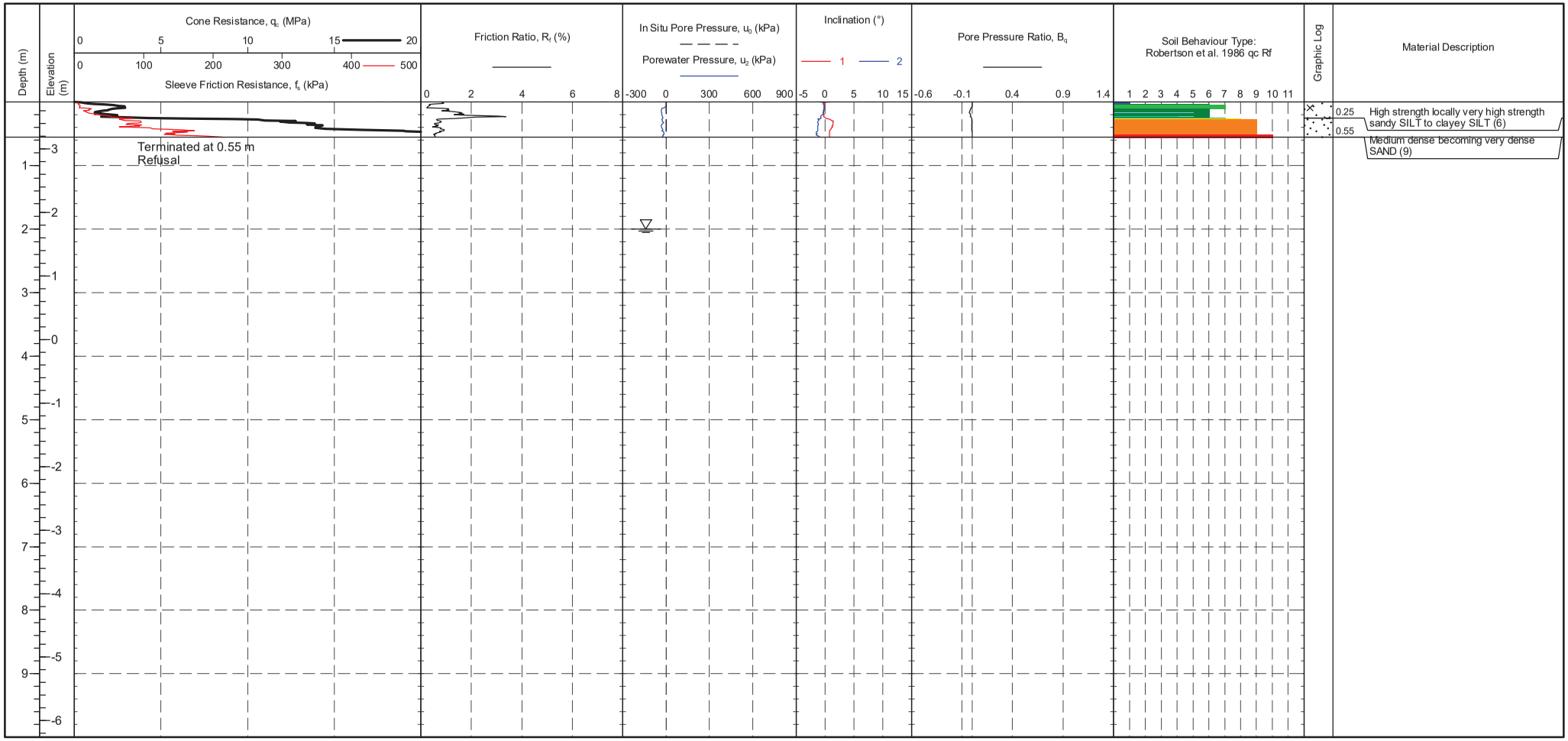
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 01A**

CLIENT : Holequest Geotechnical Limited	EASTING : 138603.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863700.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.74 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY Re da		PLOT DATE : 03/11/2017
			METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	280 mV	281 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	257 mV	260 mV	0.002 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01A	Pore Pressure 2	238 mV	231 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2545 mV	2470 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

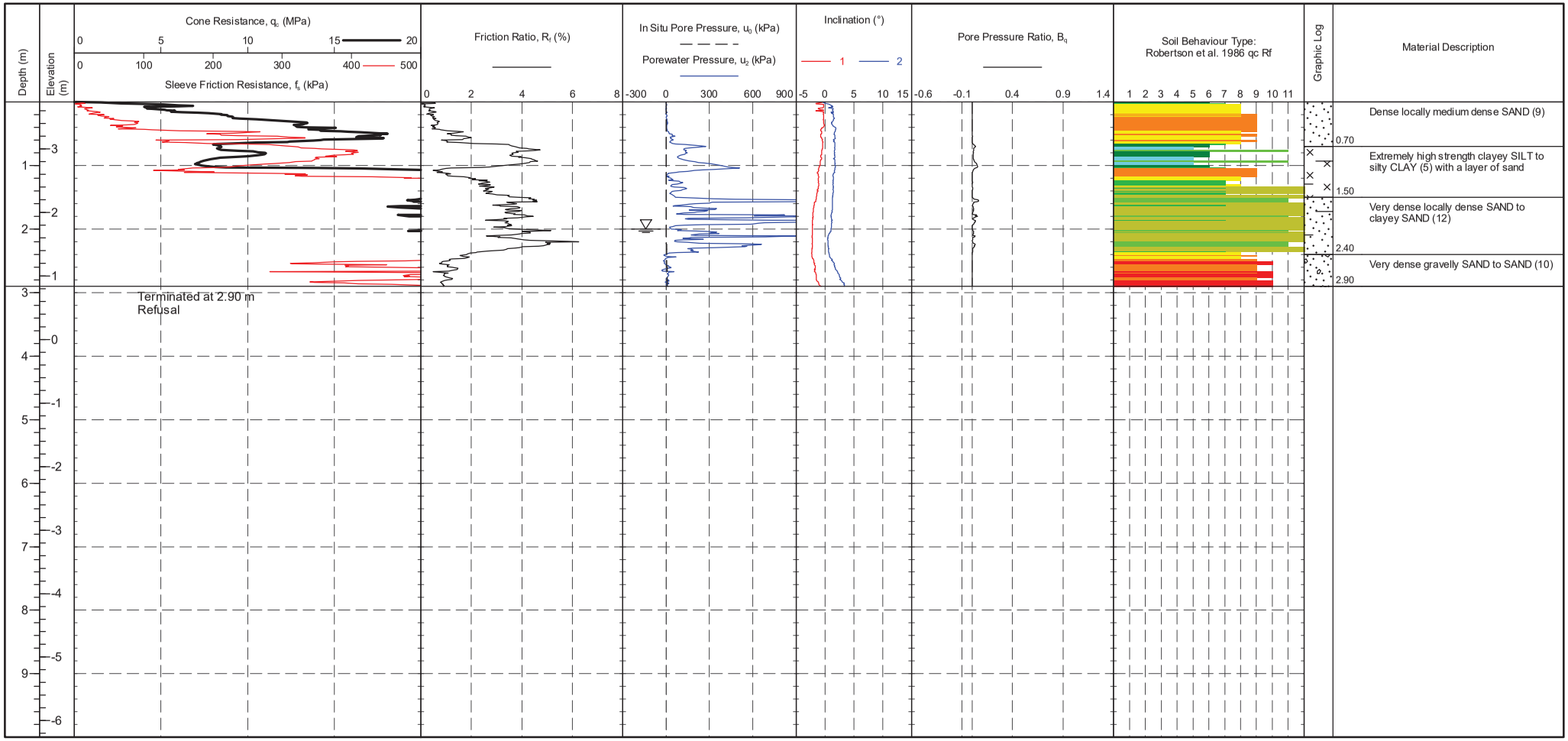
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 01B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138604.4 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863701.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.74 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	279 mV	269 mV	-0.11 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	251 mV	-0.005 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01B	Pore Pressure 2	236 mV	158 mV	-0.02 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2449 mV	2444 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

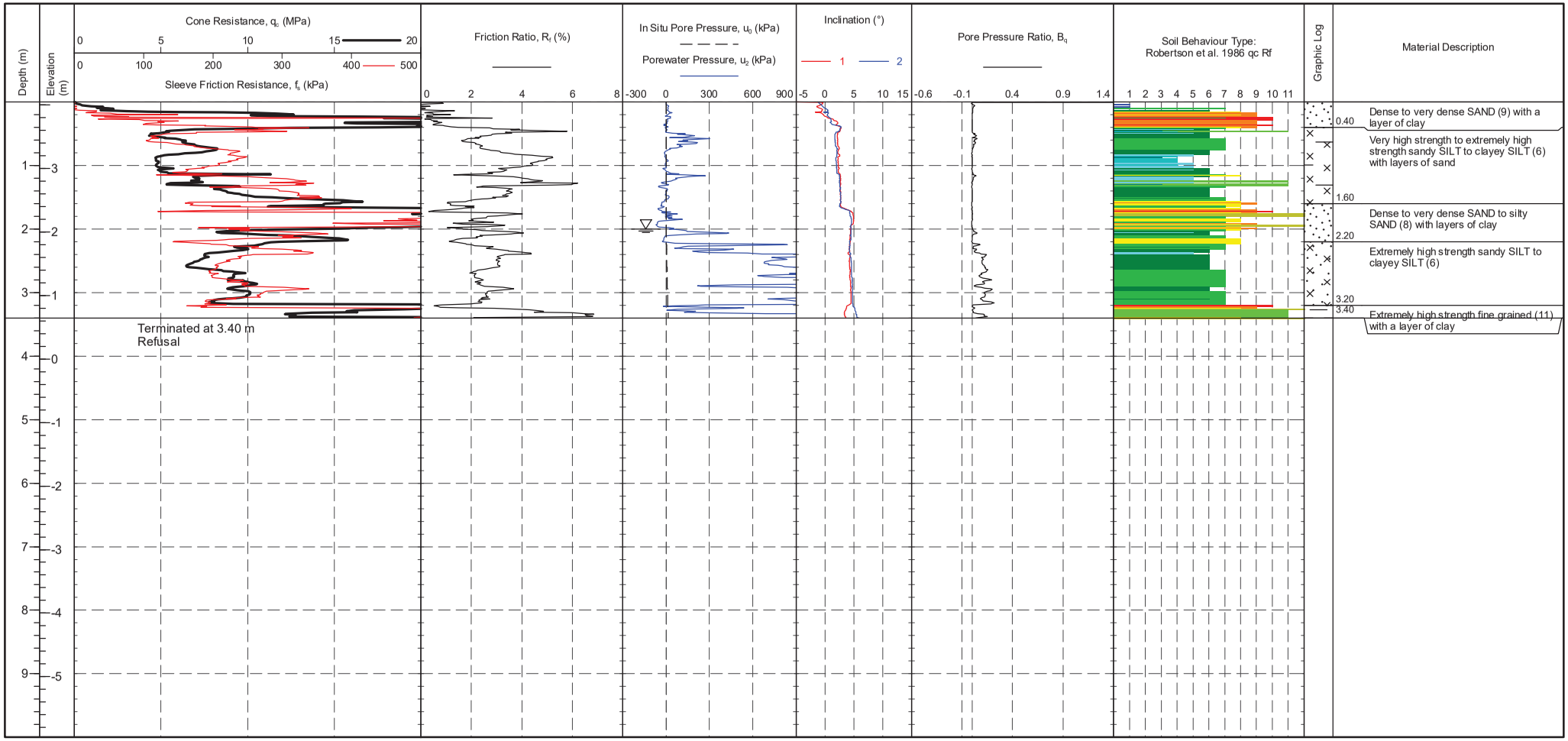
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 02**

CLIENT : Holequest Geotechnical Limited	EASTING : 138575.8 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863646.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 4.05 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	281 mV	270 mV	-0.121 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	263 mV	254 mV	-0.006 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02	Pore Pressure 2	249 mV	197 mV	-0.013 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	1968 mV	2462 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

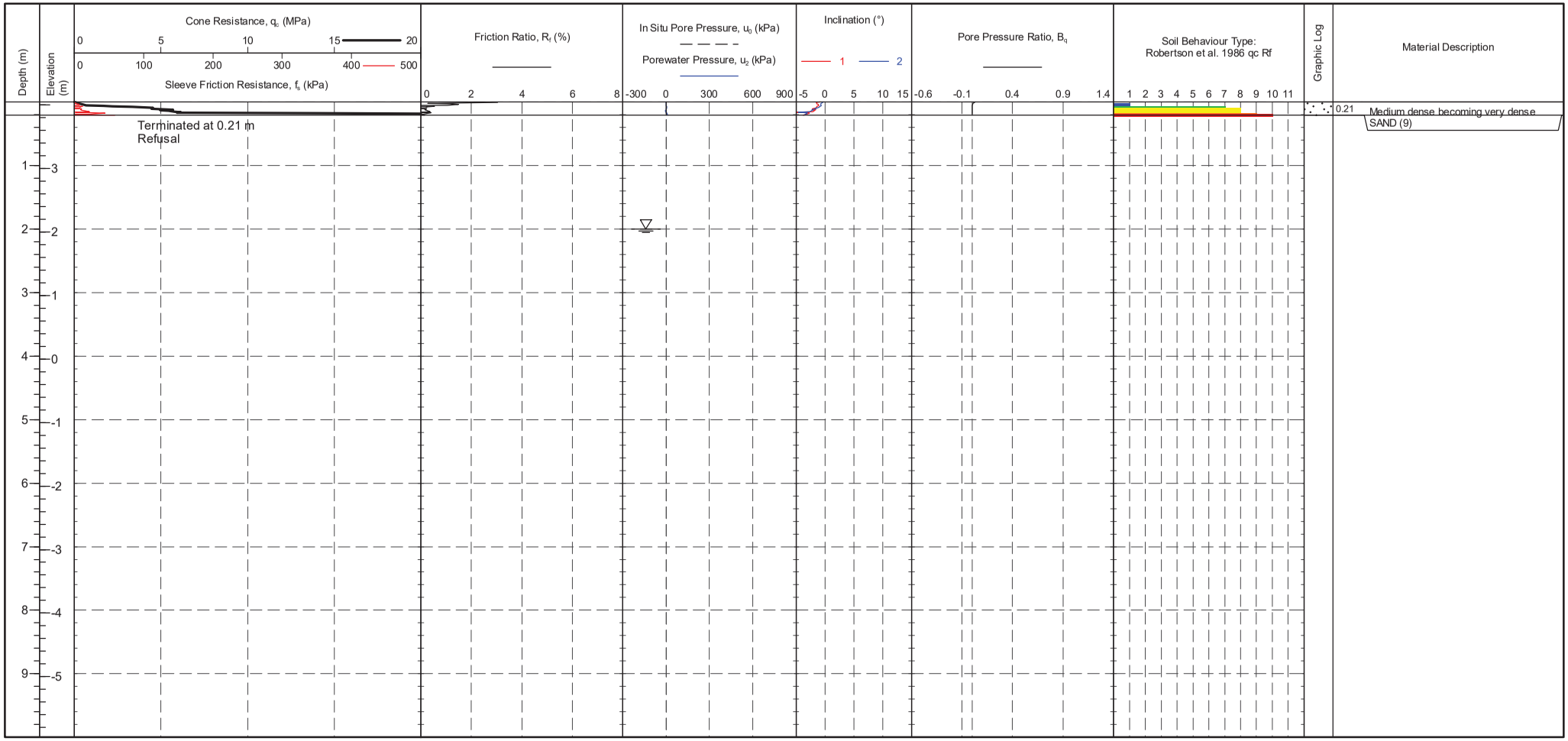
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 02A**

CLIENT : Holequest Geotechnical Limited	EASTING : 138576.8 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863647.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 4.05 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	271 mV	279 mV	0.088 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	255 mV	259 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02A	Pore Pressure 2	231 mV	243 mV	0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2413 mV	2327 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

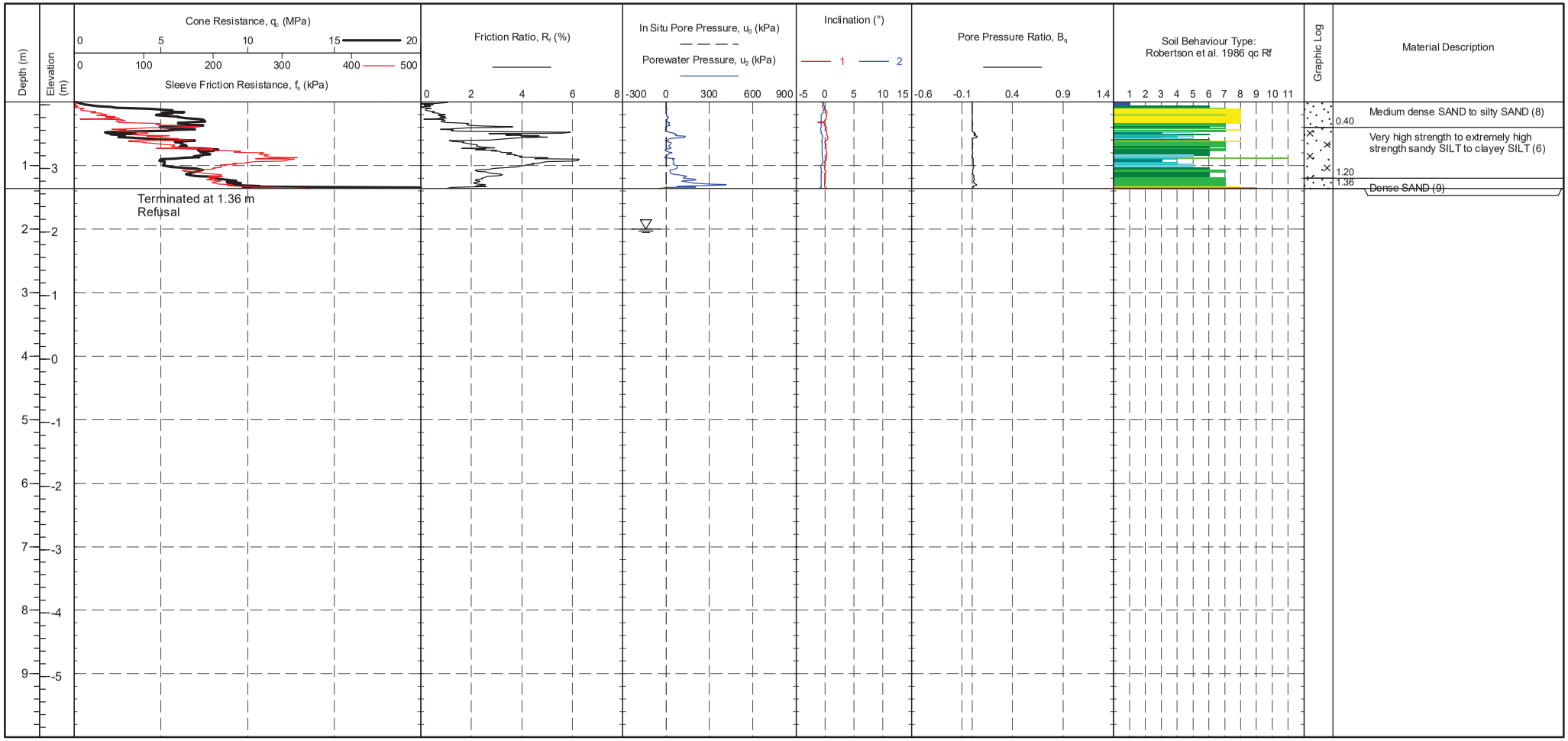
CPT 02B

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138577.8 m
NORTHING : 863648.0 m
ELEVATION : 4.05 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 04/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	257 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02B	Pore Pressure 2	242 mV	239 mV	-0.001 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2455 mV	2450 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level
Dissipation Test

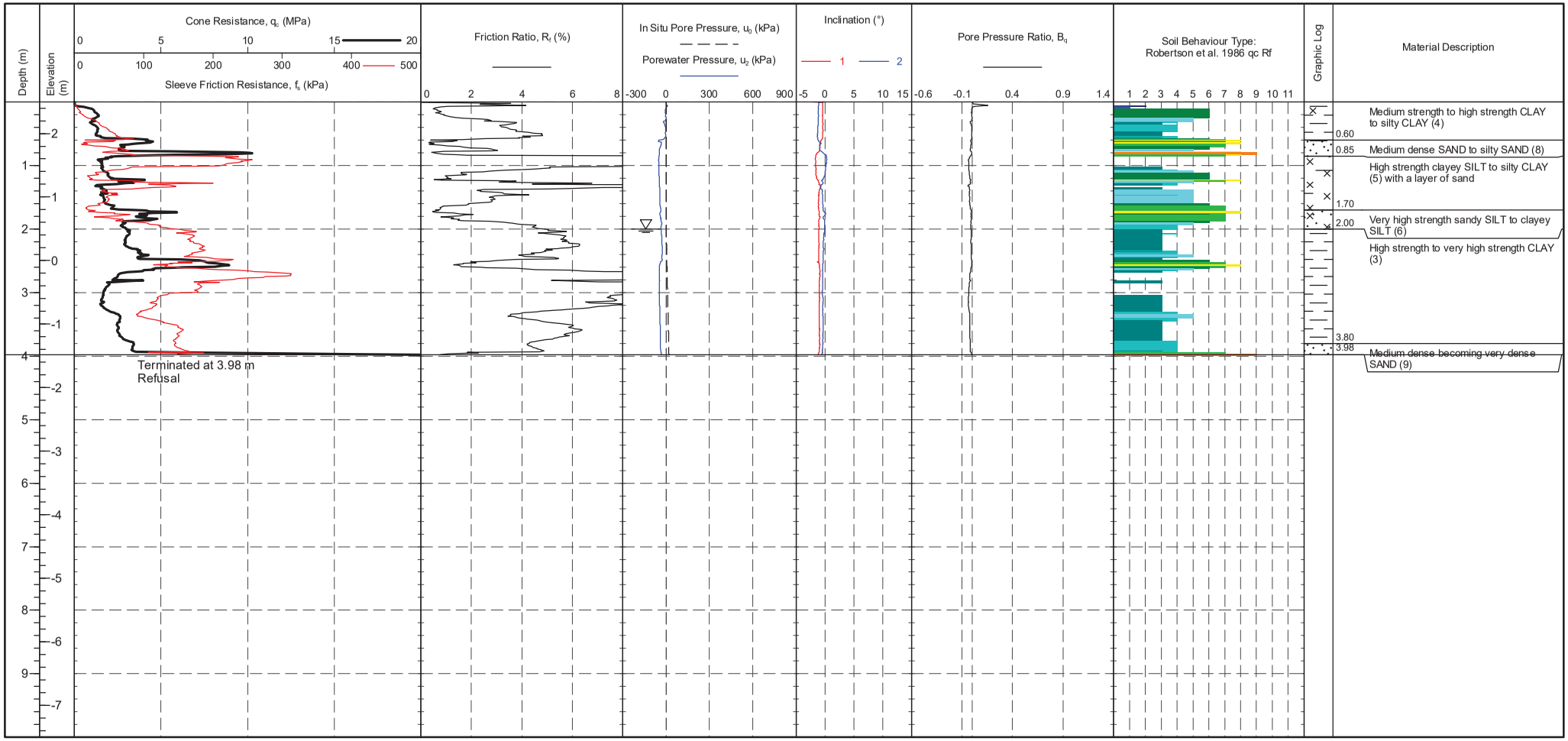
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 03

CLIENT : Holequest Geotechnical Limited	EASTING : 138646.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863692.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.50 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	276 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	259 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03	Pore Pressure 2	247 mV	116 mV	-0.033 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2451 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

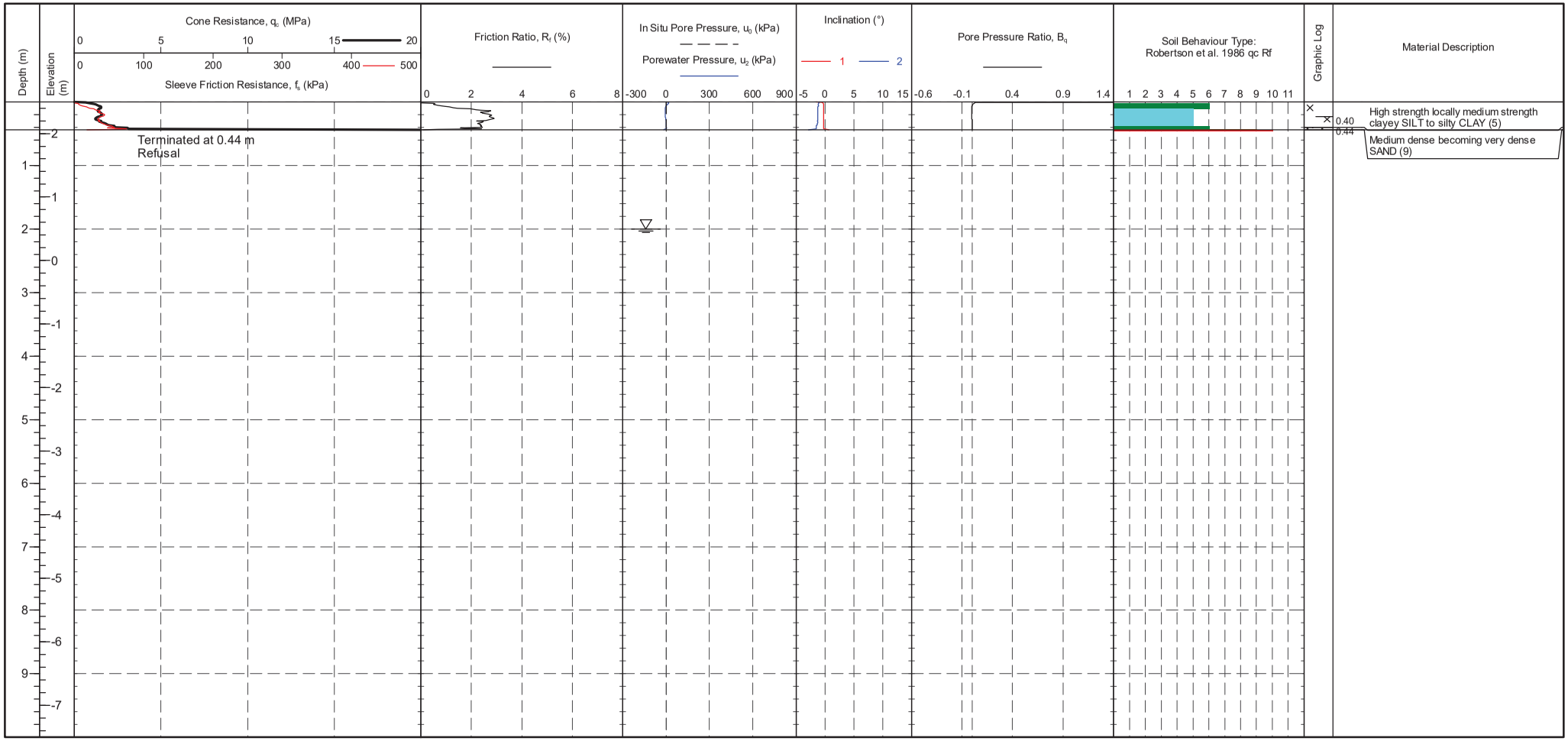
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 03A

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138647.4 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863693.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.50 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	275 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	258 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03A	Pore Pressure 2	160 mV	250 mV	0.023 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2328 mV	2437 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

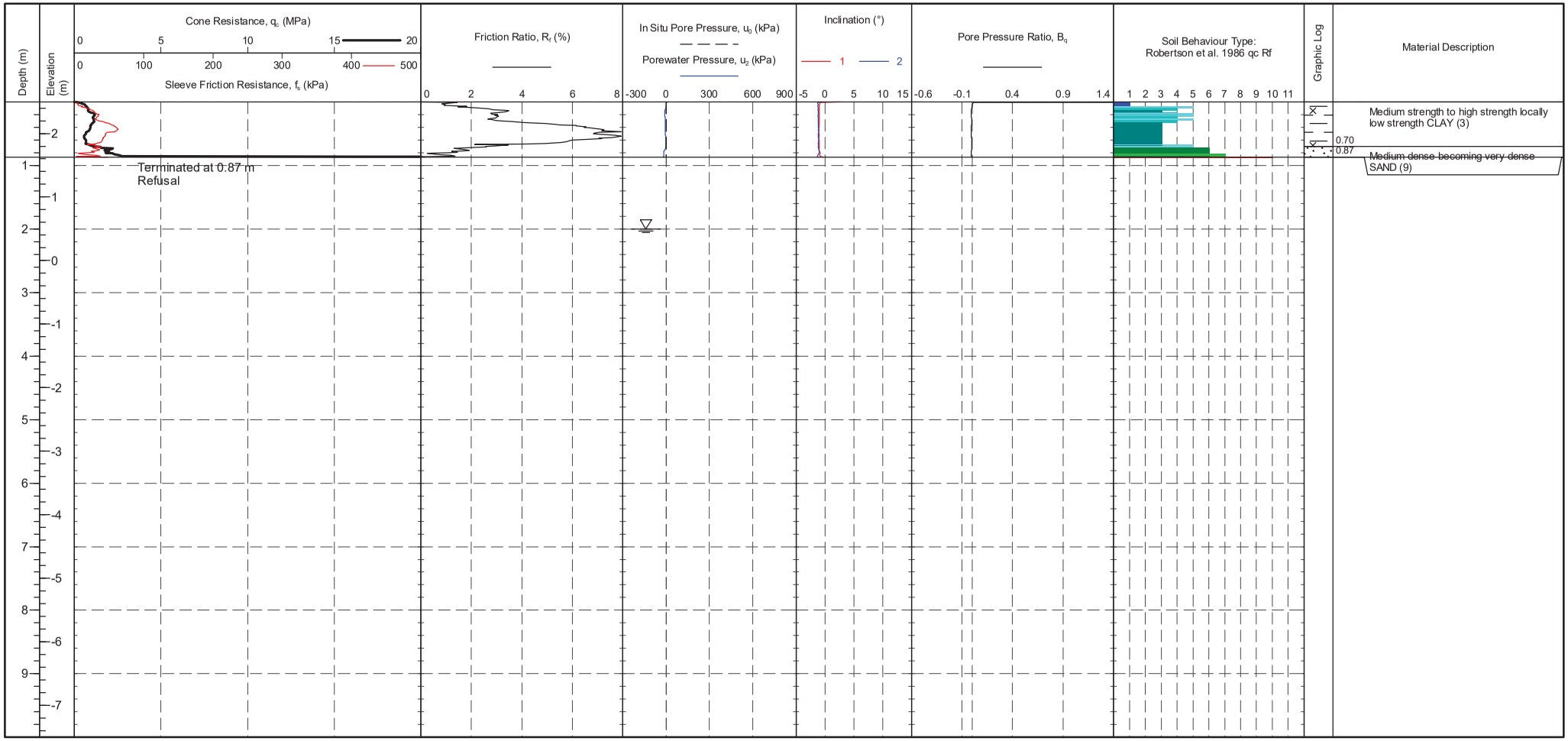
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 03B

CLIENT : Holequest Geotechnical Limited	EASTING : 138648.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863694.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.50 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	276 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	260 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03B	Pore Pressure 2	254 mV	254 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2731 mV	2425 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

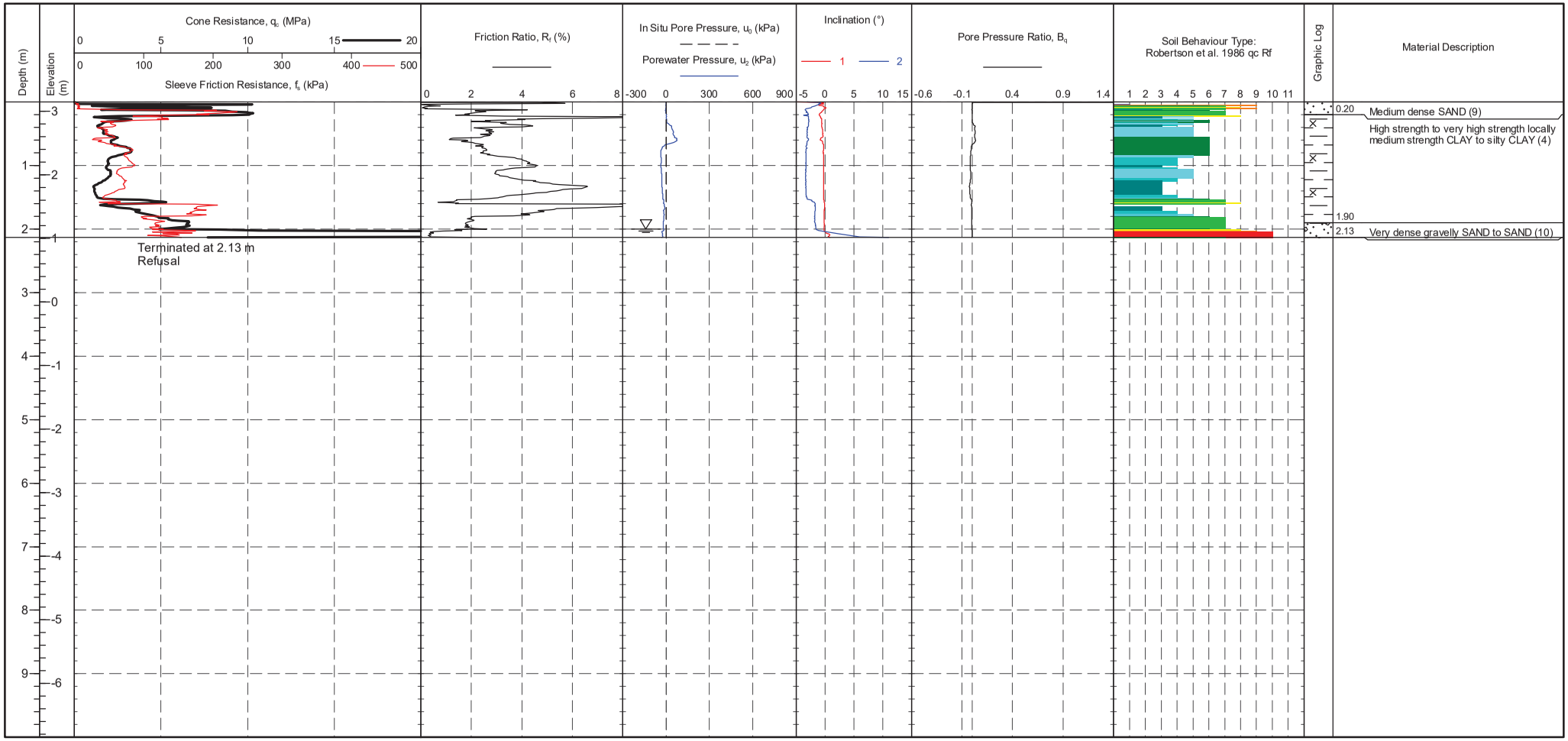
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 04**

CLIENT : Holequest Geotechnical Limited	EASTING : 138628.7 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863655.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.15 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	272 mV	340 mV	0.747 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	255 mV	268 mV	0.009 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04	Pore Pressure 2	245 mV	295 mV	0.013 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2009 mV	2560 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material; 2 - Organic material; 3 - Clay; 4 - Silty clay to clay; 5 - Clayey silt to silty clay; 6 - Sandy silt to clayey silt; 7 - Silty sand to sandy silt; 8 - Sand to silty sand; 9 - Sand; 10 - Gravelly sand to sand; 11 - Very stiff fine grained; 12 - Sand to clayey sand

Groundwater Level

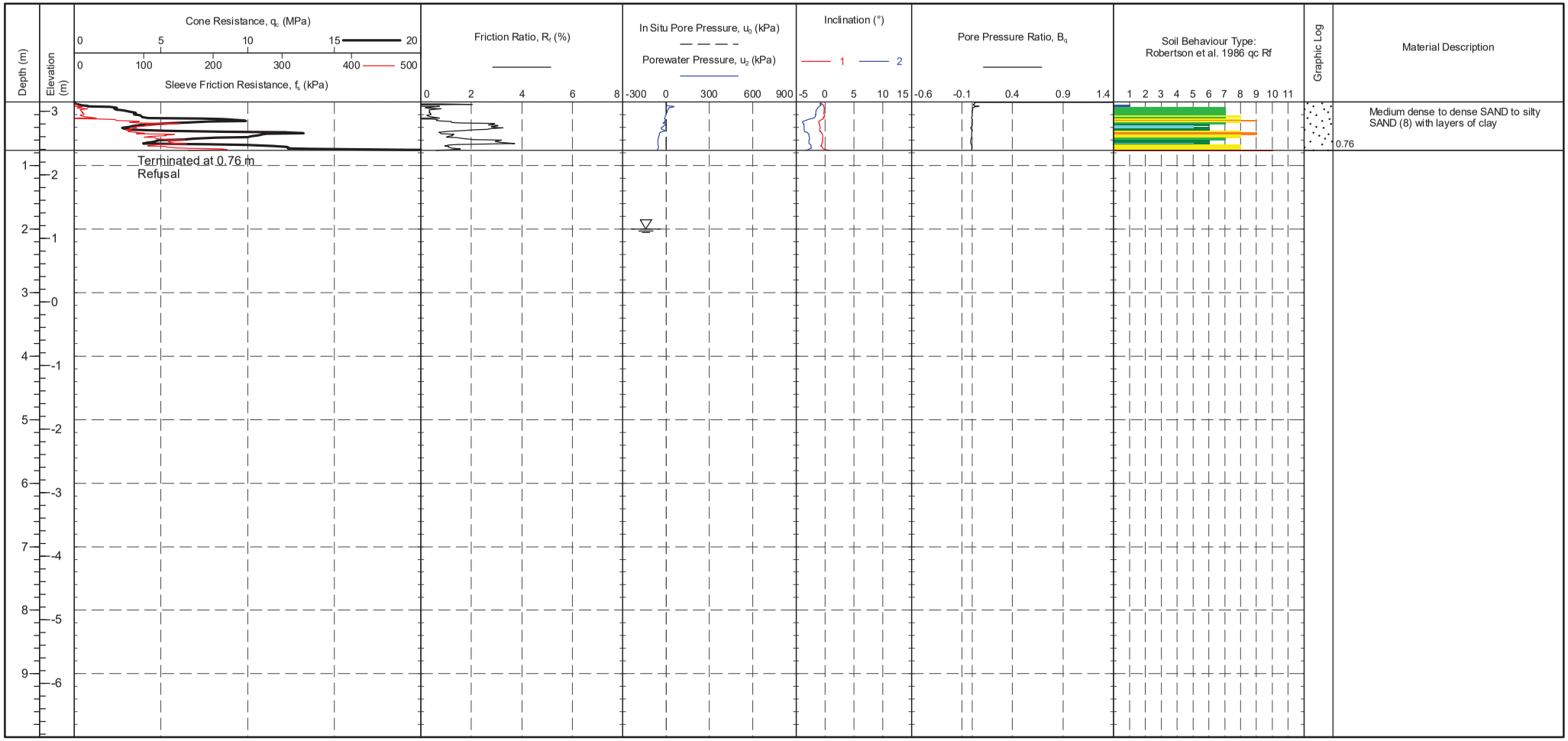
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 04A**

CLIENT : Holequest Geotechnical Limited	EASTING : 138629.7 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863656.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.15 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	279 mV	277 mV	-0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	265 mV	265 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04A	Pore Pressure 2	244 mV	234 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2427 mV	2416 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

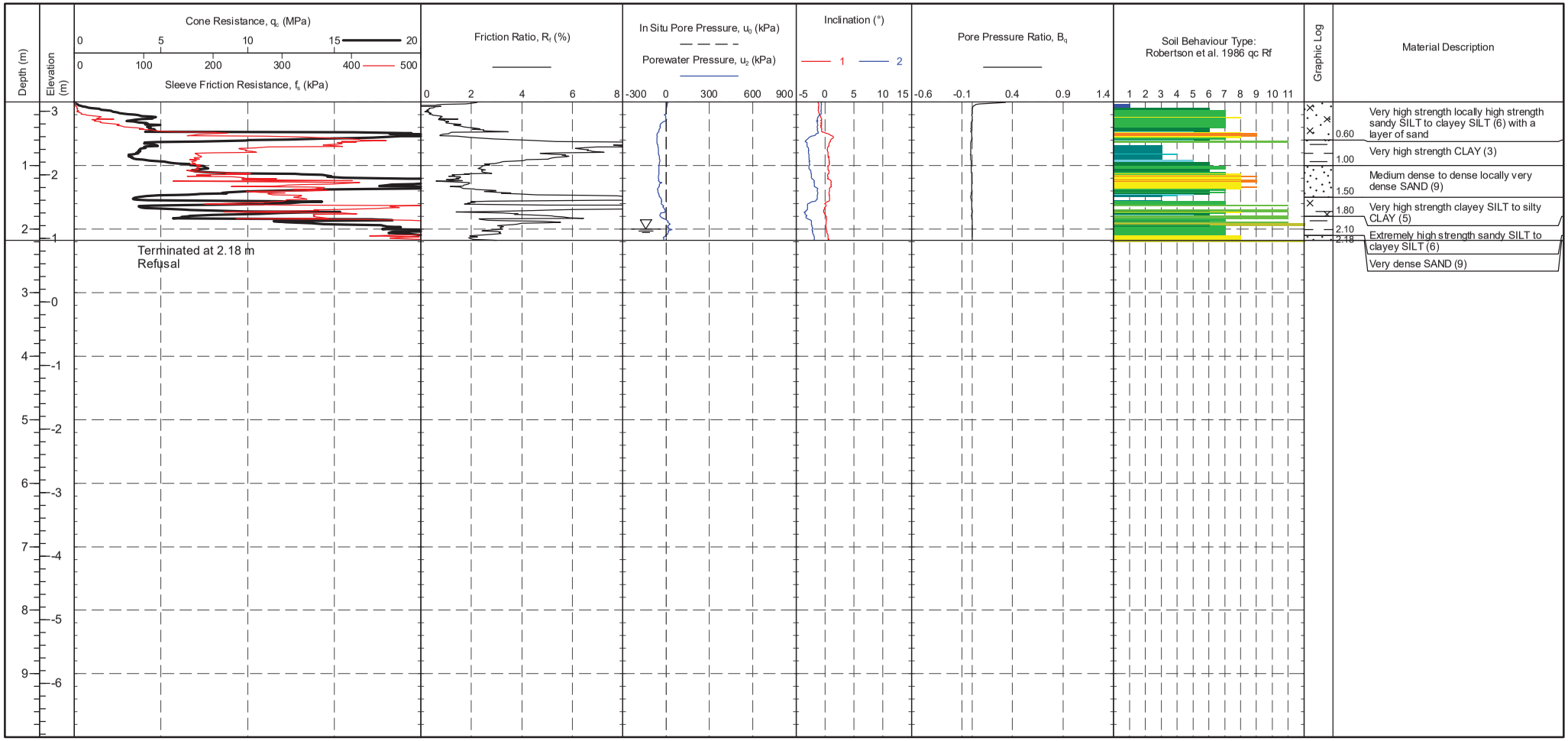
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 04B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138630.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863657.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04B		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

CPTU ZERO VALUES

Transducer	Pre	Post	Difference
Tip	277 mV	271 mV	-0.066 MPa
Sleeve	265 mV	263 mV	-0.001 kPa
Pore Pressure 2	240 mV	224 mV	-0.004 kPa
X-Y Inclinometer	2372 mV	2373 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

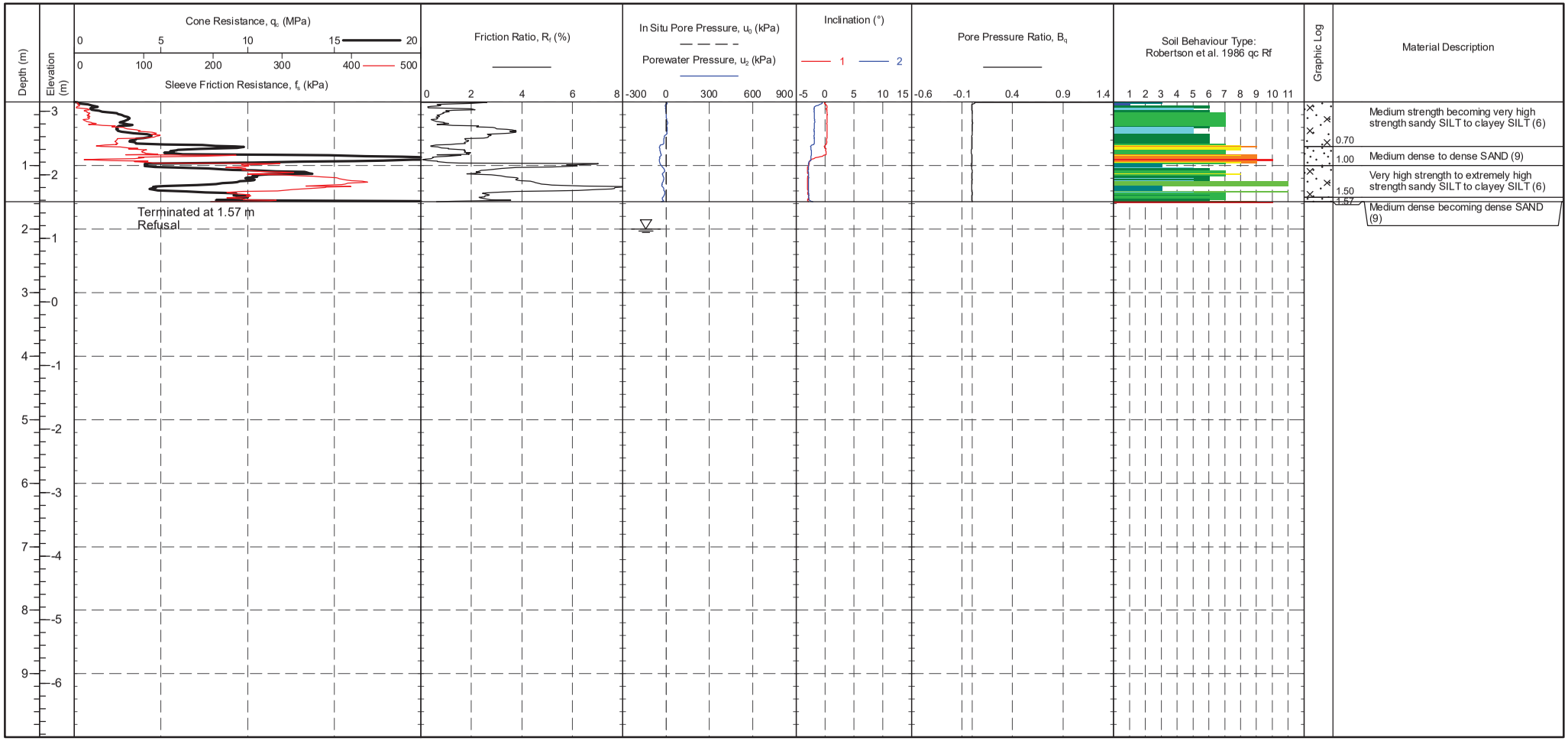
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 04C**

CLIENT : Holequest Geotechnical Limited	EASTING : 138631.7 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863658.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.15 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	274 mV	273 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	265 mV	260 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04C	Pore Pressure 2	238 mV	218 mV	-0.005 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2501 mV	2485 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

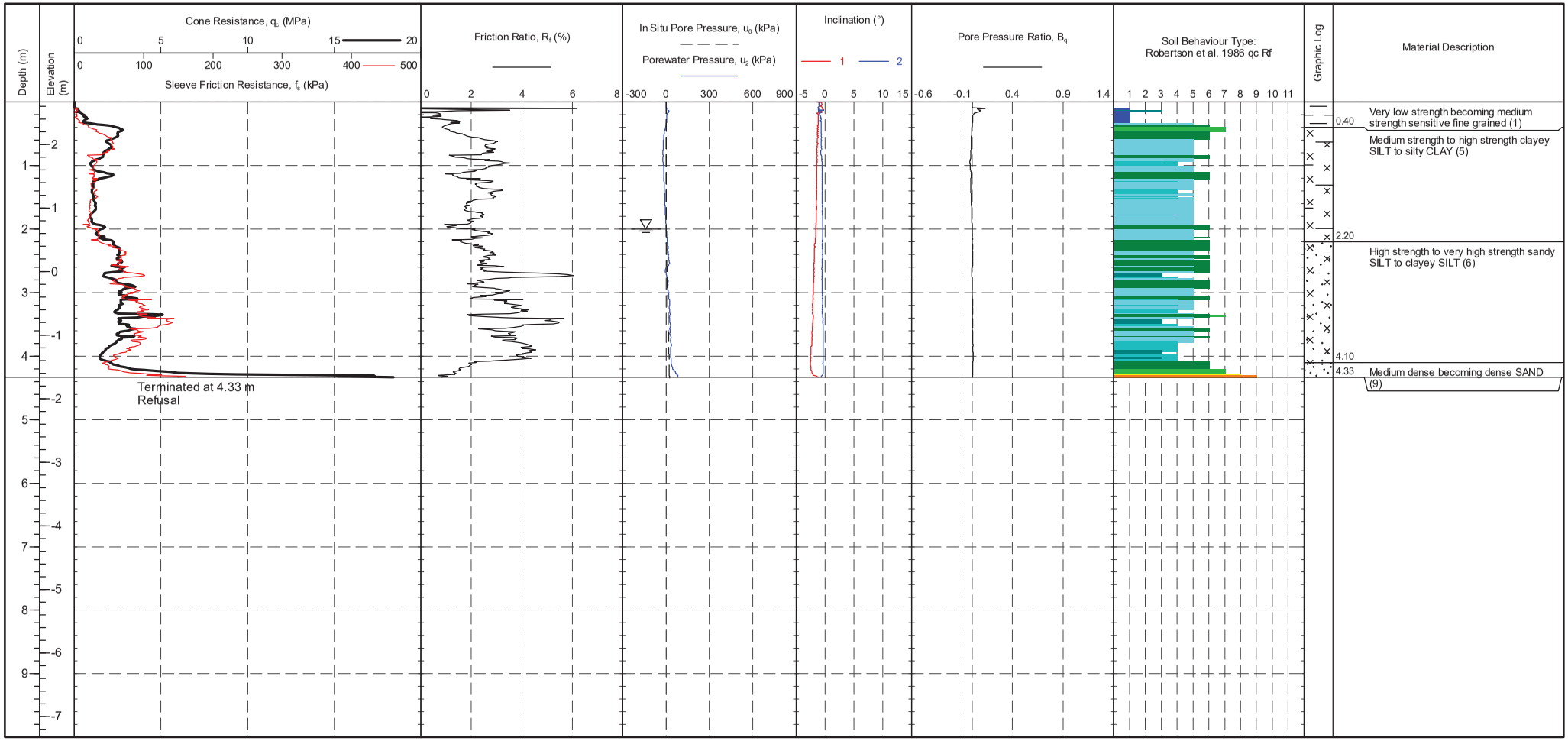
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 05

CLIENT : Holequest Geotechnical Limited	EASTING : 138603.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.67 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	280 mV	0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	268 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05	Pore Pressure 2	249 mV	253 mV	0.001 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2342 mV	2401 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

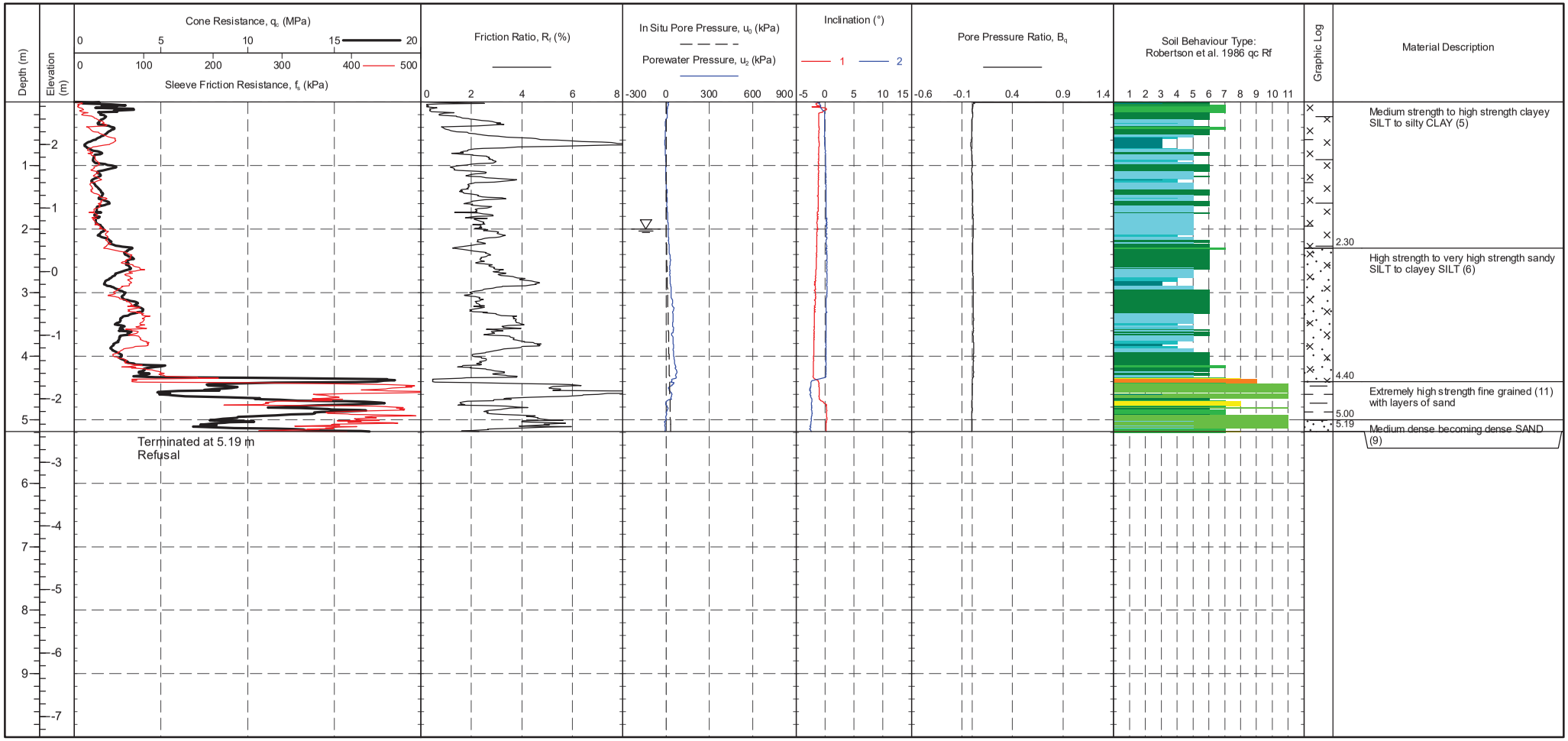
CPT 05A

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138604.5 m
NORTHING : 863597.0 m
ELEVATION : 2.67 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05A		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

CPTU ZERO VALUES

Transducer	Pre	Post	Difference
Tip	277 mV	276 mV	-0.011 MPa
Sleeve	265 mV	261 mV	-0.003 kPa
Pore Pressure 2	246 mV	188 mV	-0.015 kPa
X-Y Inclinometer	2360 mV	2418 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

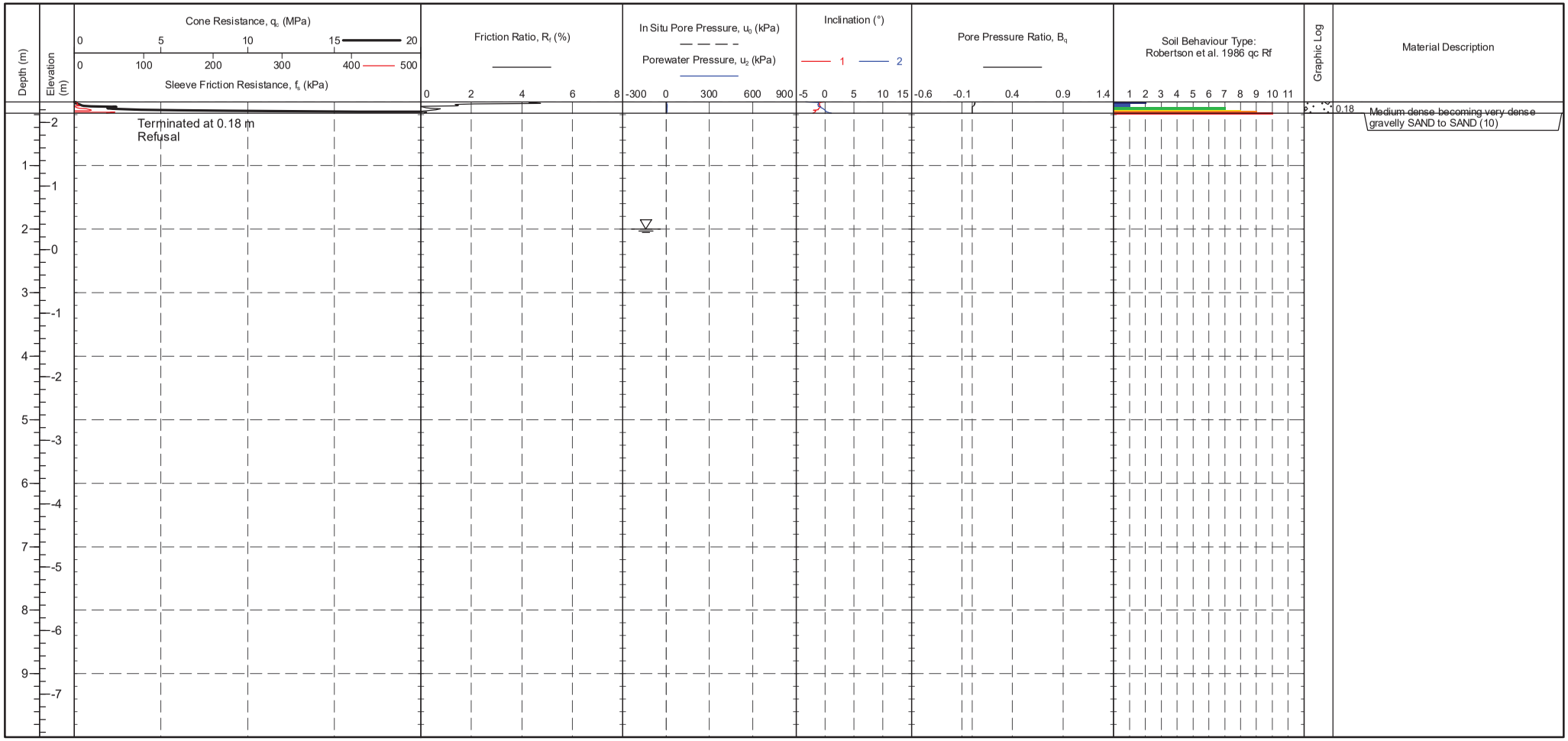
CPT 06

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138661.3 m
NORTHING : 863635.9 m
ELEVATION : 2.32 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID : S15-CFIP.1433
CONE AREA : 15cm^2
CONE AREA RATIO : 0.79
FILTER POSITION : u2
FILTER TYPE : HDPE
FRICTION REDUCER : None

TEST TYPE : TE2
APPLICATION CLASS : 2
RIG : CPT 007
OPERATOR : BC & PB
FILE NAME : 1170272-CPT 06
WEATHER : Sunny & Mild

CPTU ZERO VALUES

Transducer	Pre	Post	Difference
Tip	274 mV	276 mV	0.022 MPa
Sleeve	260 mV	262 mV	0.001 kPa
Pore Pressure 2	239 mV	244 mV	0.001 kPa
X-Y Inclinometer	2483 mV	2393 mV	

METHOD: Robertson et al. 1986 qc Rf
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level
Dissipation Test

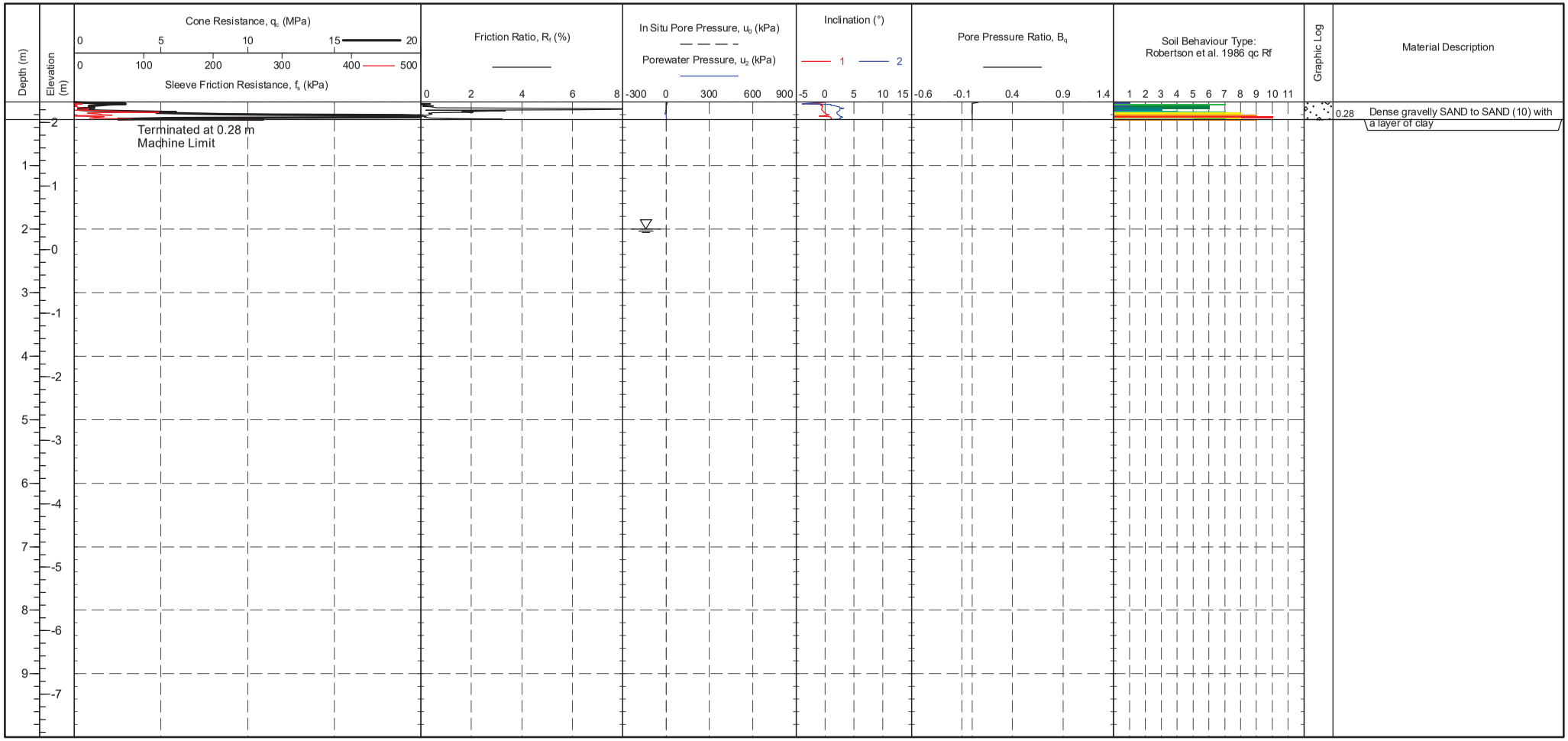
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06A

CLIENT : Holequest Geotechnical Limited	EASTING : 138662.3 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863636.9 m	Test refused on inclination.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.32 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Machine Limit		METHOD : ISO 22476-1:2012



CONE ID : S15-CFIP.1433	TEST TYPE : TE2	CPTU ZERO VALUES			
CONE AREA : 15cm^2	APPLICATION CLASS : 2	Transducer	Pre	Post	Difference
CONE AREA RATIO : 0.79	RIG : CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION : u2	OPERATOR : BC & PB	Sleeve	262 mV	263 mV	0.001 kPa
FILTER TYPE : HDPE	FILE NAME : 1170272-CPT 06A	Pore Pressure 2	245 mV	244 mV	0 kPa
FRICTION REDUCER : None	WEATHER : Sunny & Mild	X-Y Inclinometer	2558 mV	2429 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

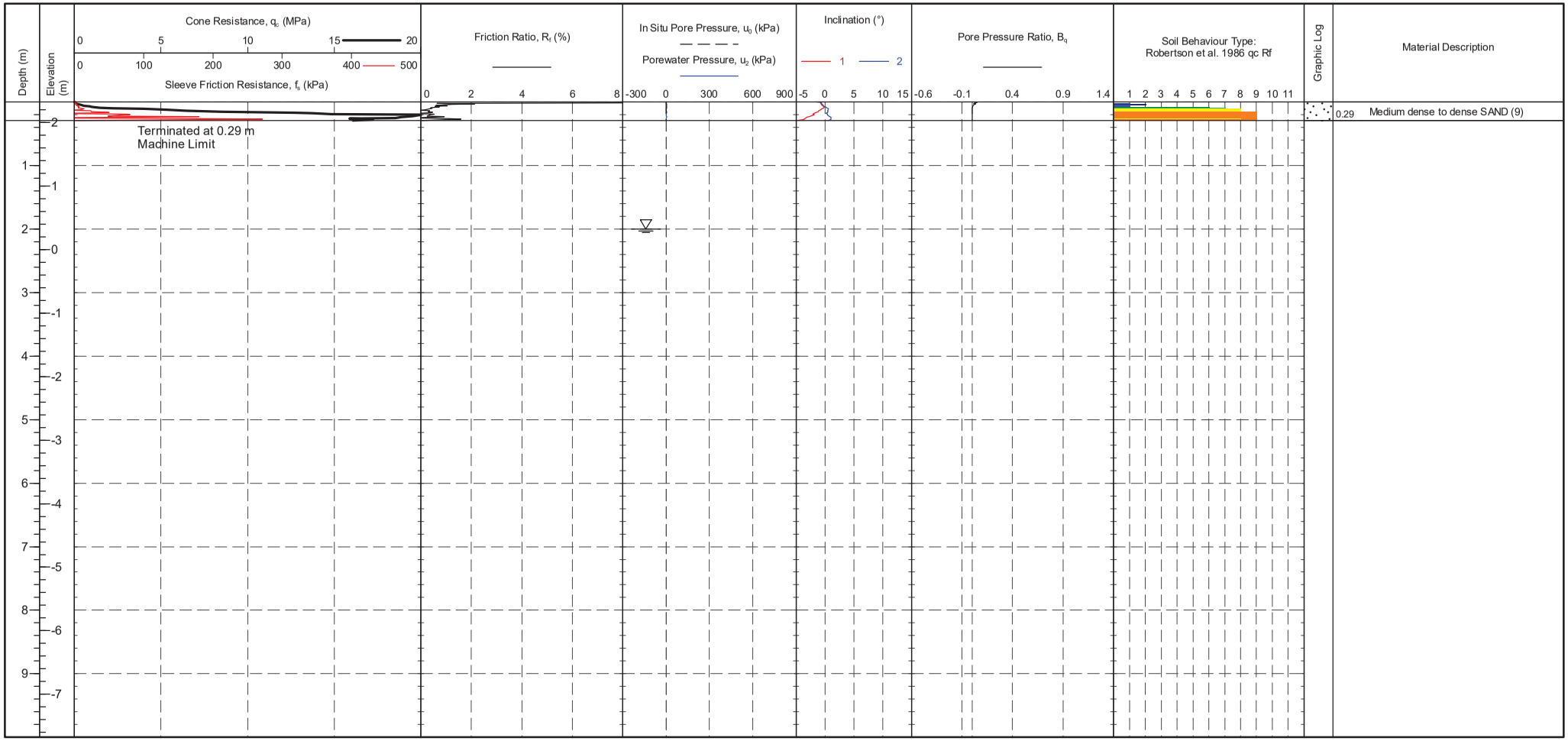
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06B

CLIENT : Holequest Geotechnical Limited	EASTING : 138663.3 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863637.9 m	Test refused on inclination.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.32 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	278 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	263 mV	264 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06B	Pore Pressure 2	245 mV	245 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2407 mV	2408 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

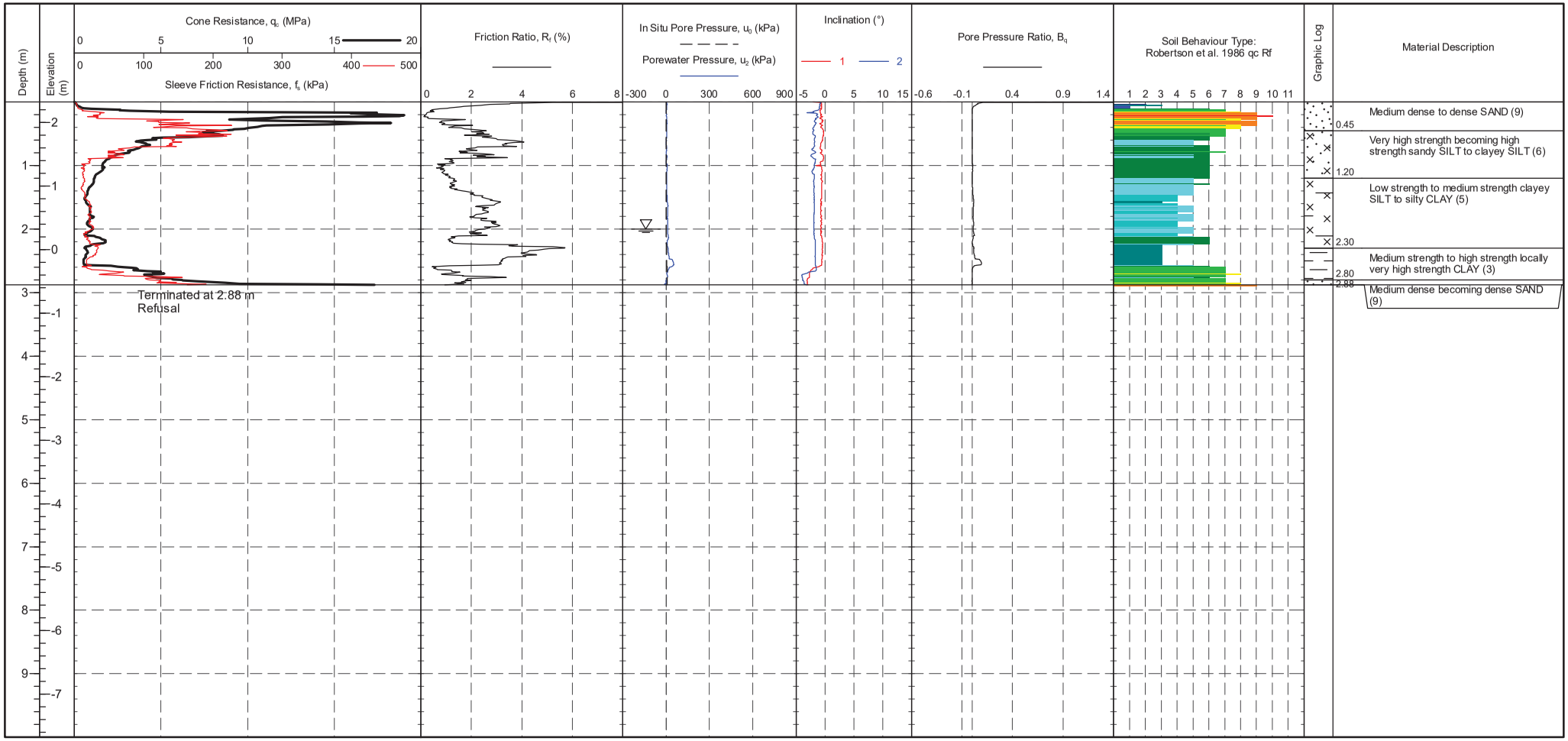
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06C

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138664.3 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863638.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.32 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	278 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	264 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06C	Pore Pressure 2	245 mV	254 mV	0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2427 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

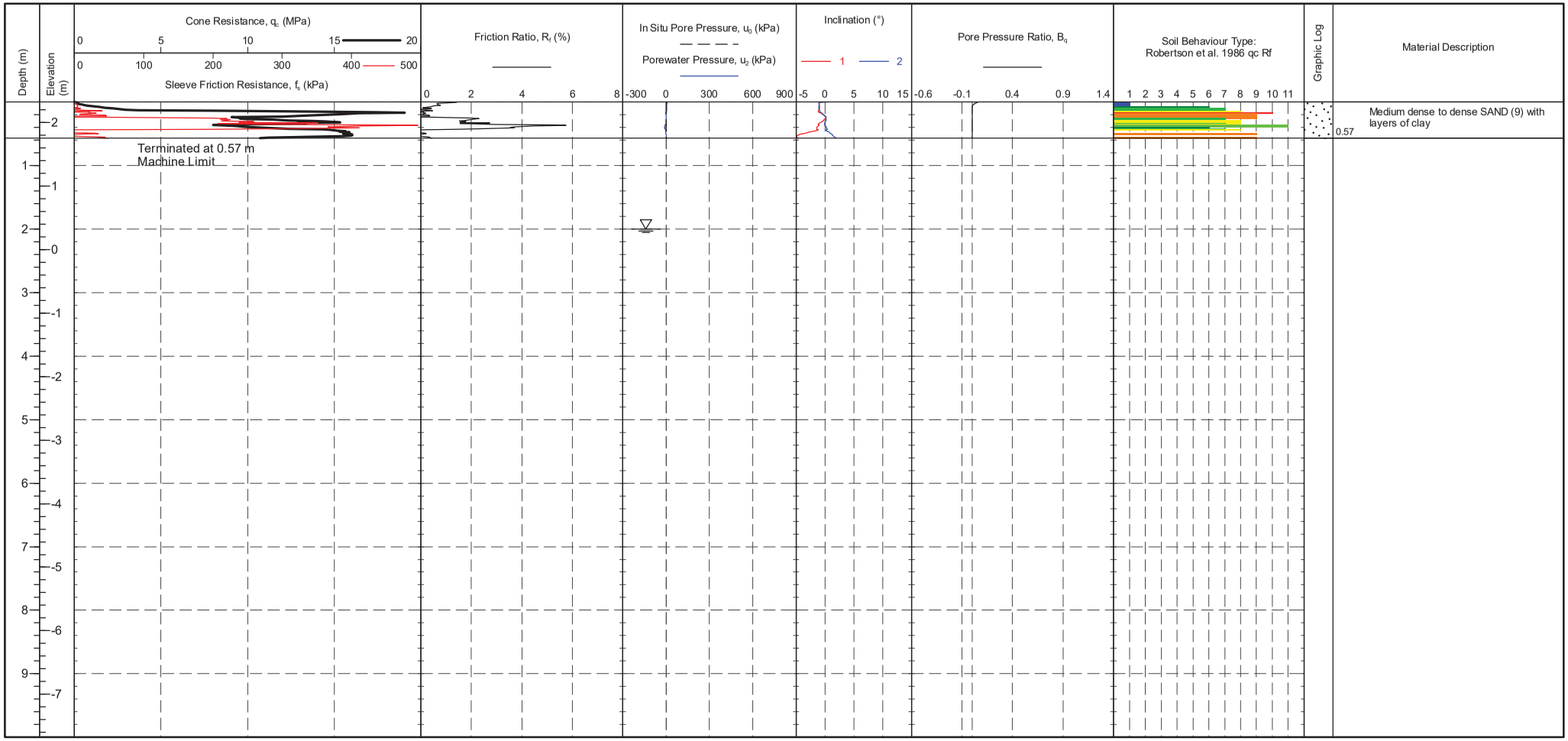
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06D

CLIENT : Holequest Geotechnical Limited	EASTING : 138665.3 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863639.9 m	Test refused on inclination.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.32 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	260 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06D	Pore Pressure 2	252 mV	245 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2439 mV	2420 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

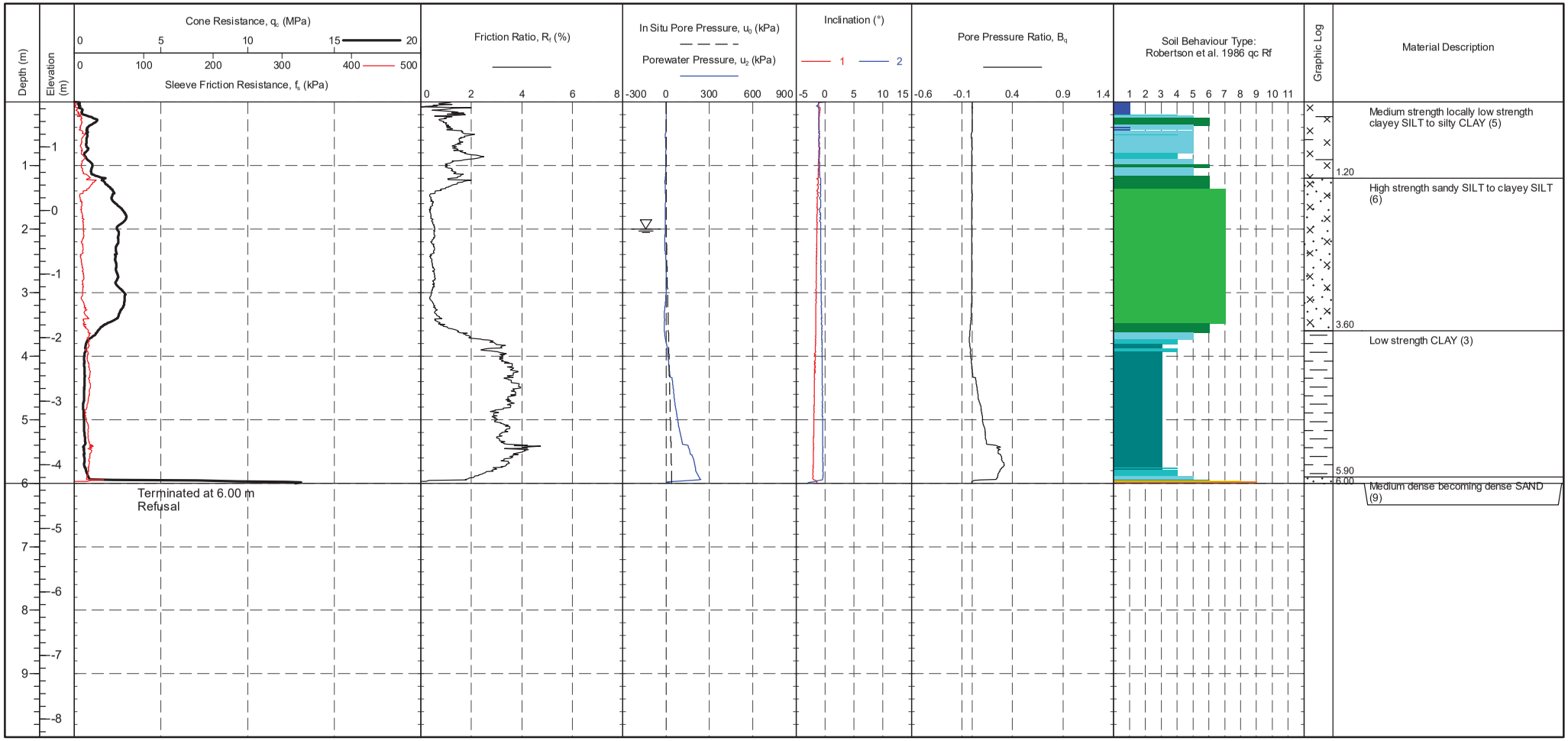
CPT 07

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138668.8 m
NORTHING : 863592.0 m
ELEVATION : 1.71 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID : S15-CFIP.1433
CONE AREA : 15cm²
CONE AREA RATIO : 0.79
FILTER POSITION : u2
FILTER TYPE : HDPE
FRICTION REDUCER : None

TEST TYPE : TE2
APPLICATION CLASS : 2
RIG : CPT 007
OPERATOR : BC & PB
FILE NAME : 1170272-CPT 07
WEATHER : Sunny & Mild

CPTU ZERO VALUES

	Pre	Post	Difference
Transducer			
Tip	277 mV	279 mV	0.022 MPa
Sleeve	261 mV	265 mV	0.003 kPa
Pore Pressure 2	250 mV	240 mV	-0.003 kPa
X-Y Inclinometer	2469 mV	2396 mV	

METHOD: Robertson et al. 1986 qc Rf
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level
Dissipation Test

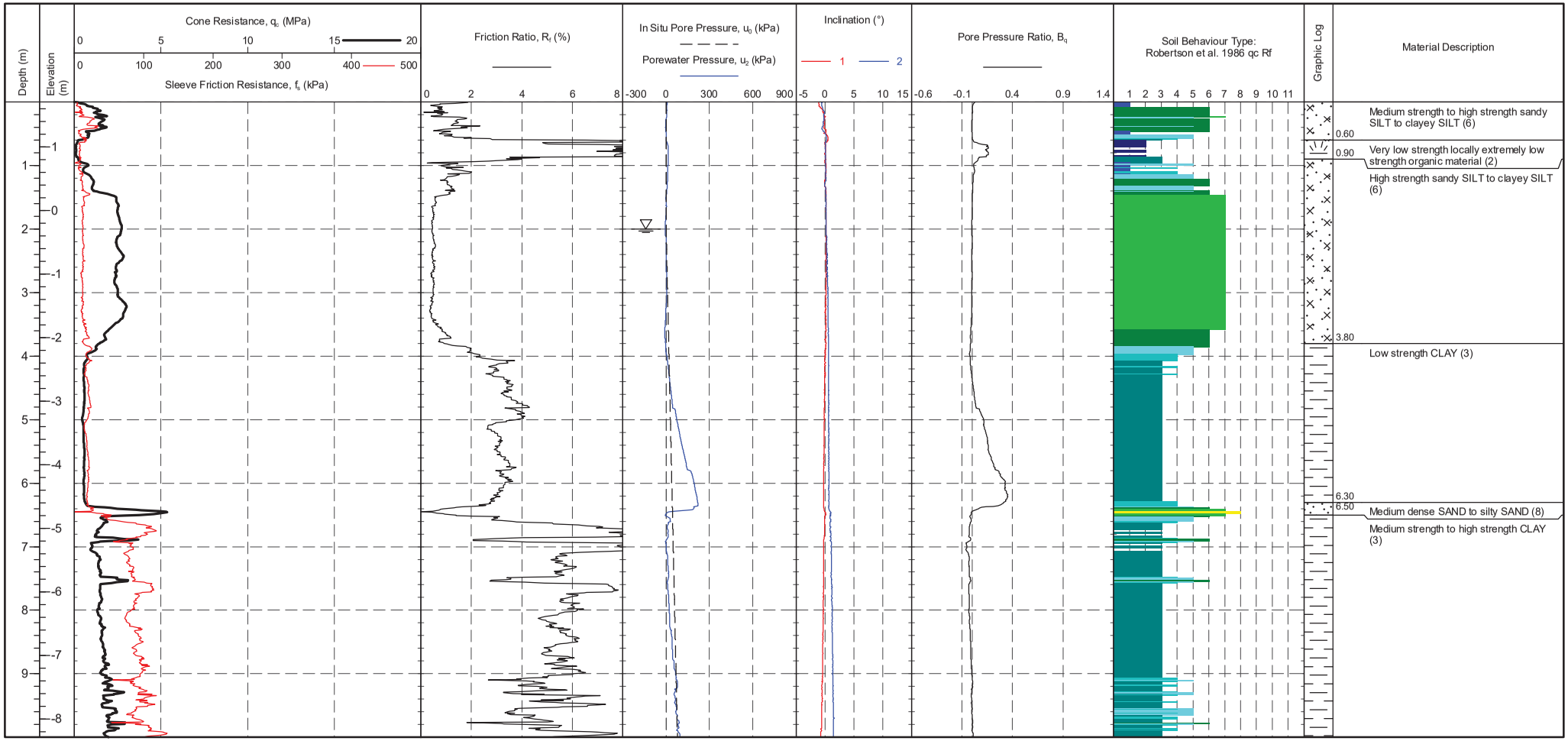
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07A

CLIENT : Holequest Geotechnical Limited	EASTING : 138669.8 m	REMARK	SHEET : 1 OF 2
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 1.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID : S15-CFIP.1433	TEST TYPE : TE2	CPTU ZERO VALUES			
CONE AREA : 15cm^2	APPLICATION CLASS : 2	Transducer	Pre	Post	Difference
CONE AREA RATIO : 0.79	RIG : CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION : u2	OPERATOR : BC & PB	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER TYPE : HDPE	FILE NAME : 1170272-CPT 07A	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FRICTION REDUCER : None	WEATHER : Sunny & Mild	X-Y Inclinometer	2387 mV	2441 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

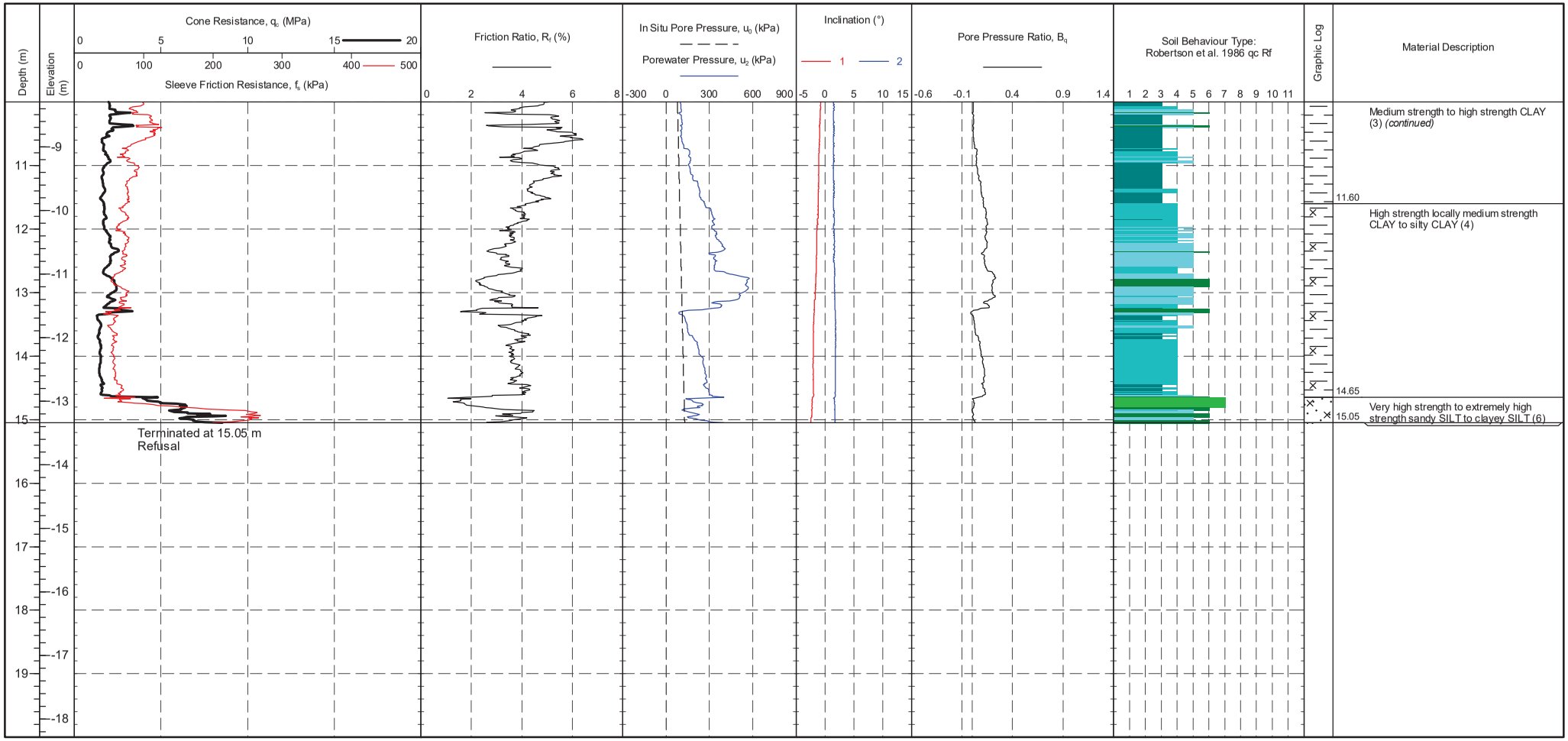
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07A

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138669.8 m	REMARK	SHEET : 2 OF 2
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 1.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07A	X-Y Inclinometer	2387 mV	2441 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

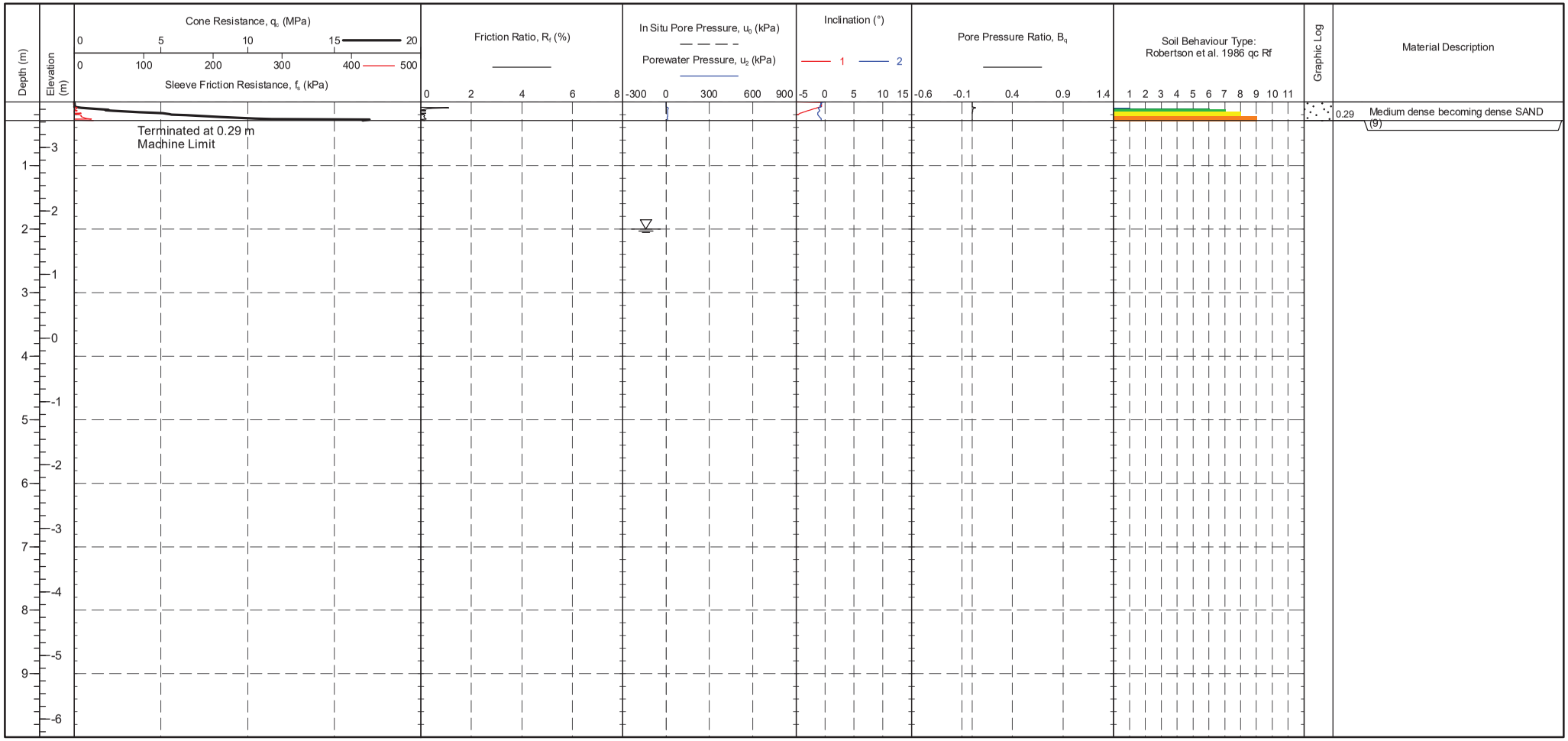
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08

CLIENT : Holequest Geotechnical Limited	EASTING : 138614.0 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863742.4 m	Test refused on inclination.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	278 mV	0.033 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	261 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08	Pore Pressure 2	248 mV	248 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	1922 mV	2262 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

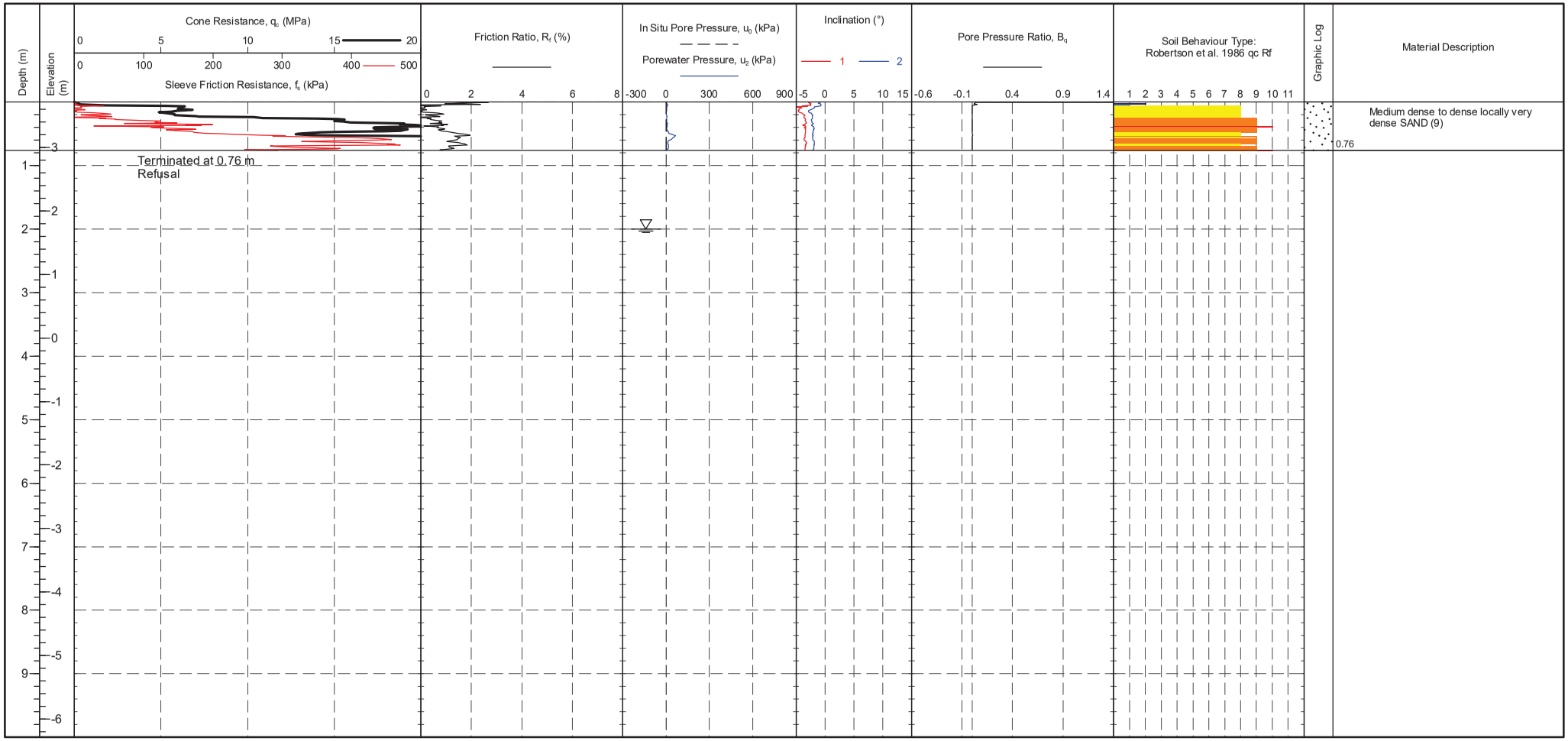
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 08B**

CLIENT : Holequest Geotechnical Limited	EASTING : 138615.0 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863743.4 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	278 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	262 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08B	Pore Pressure 2	250 mV	238 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2293 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

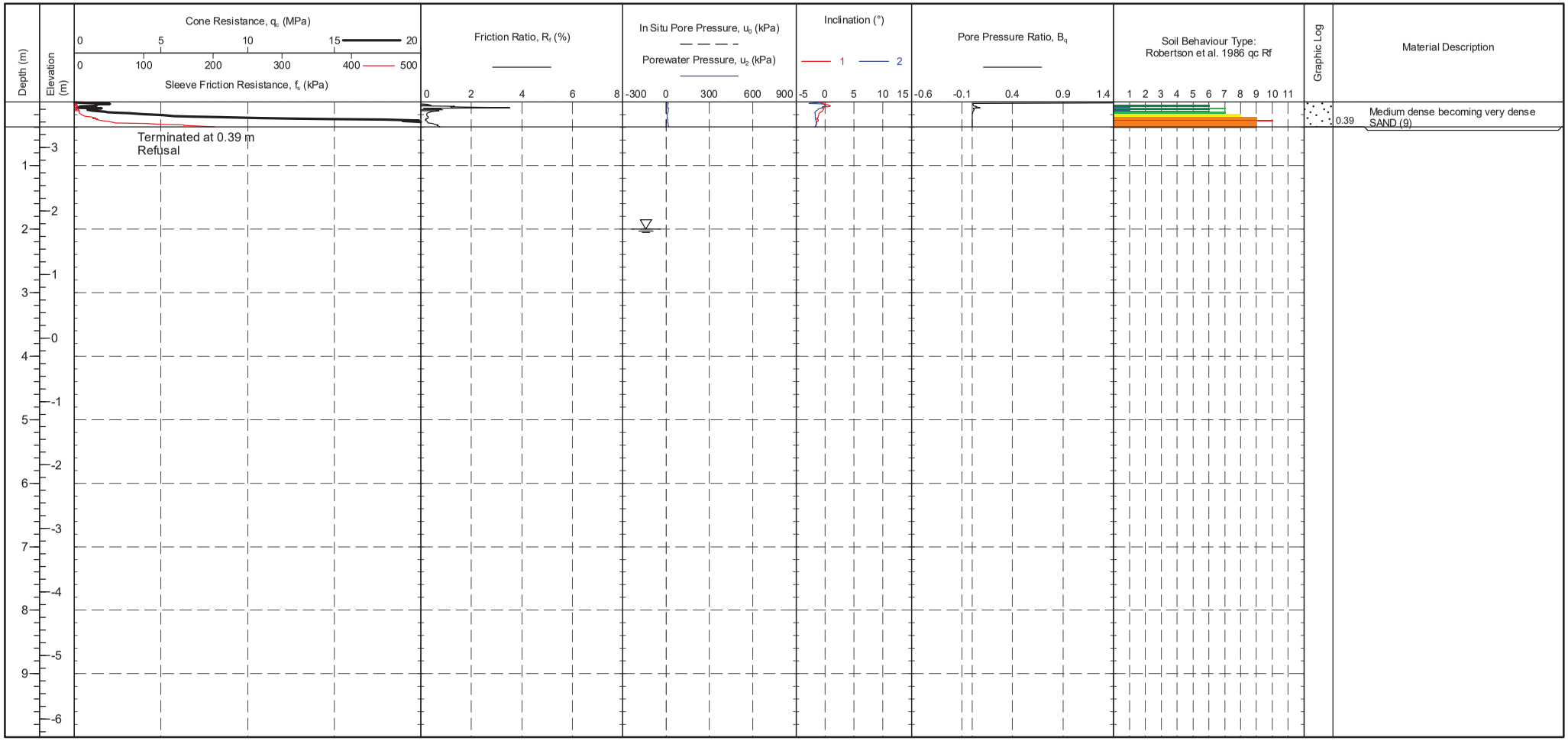
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08C

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138617.0 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863744.4 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08C	Pore Pressure 2	232 mV	254 mV	0.006 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2616 mV	2424 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

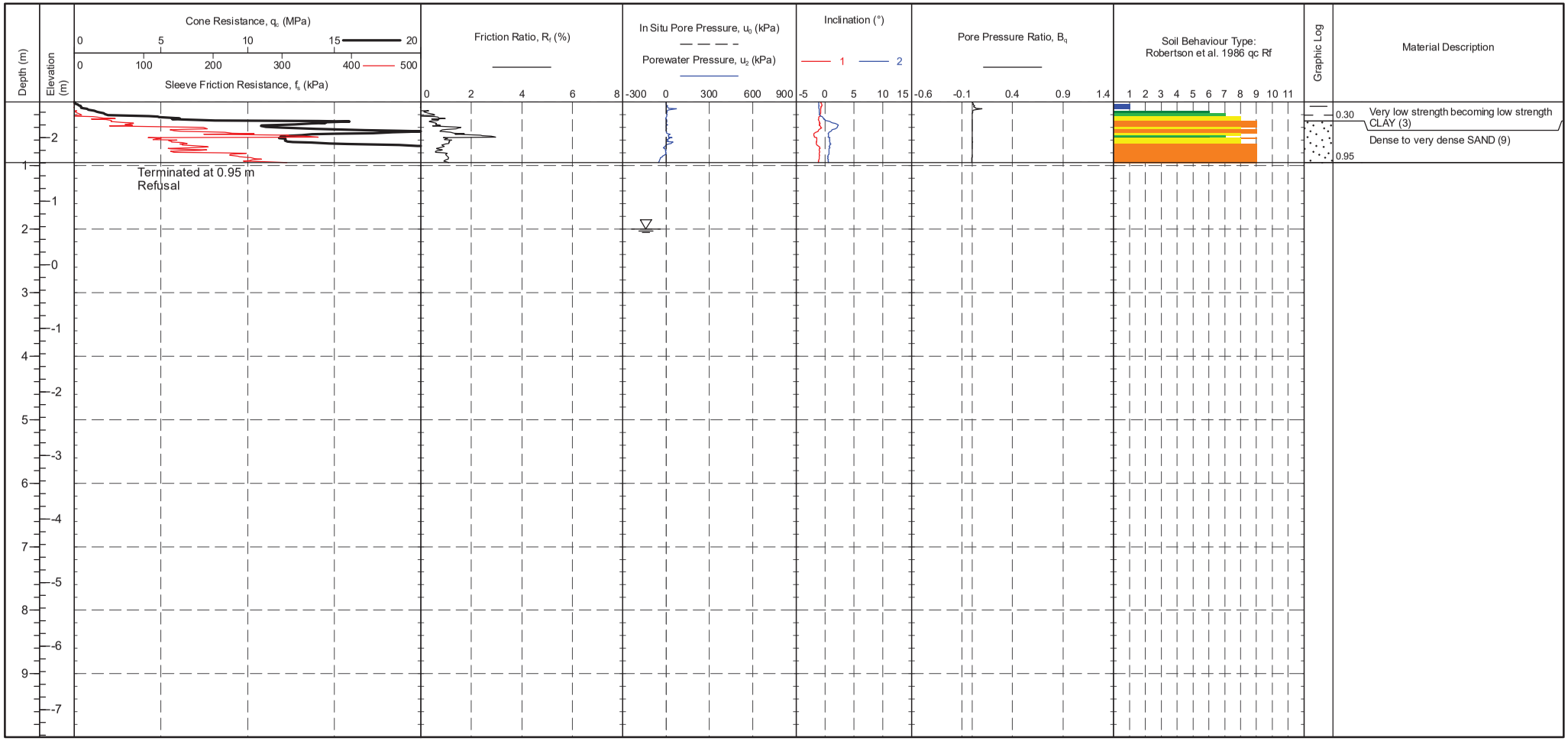
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09

CLIENT : Holequest Geotechnical Limited	EASTING : 138660.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863725.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.56 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	262 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09	Pore Pressure 2	245 mV	238 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2423 mV	2422 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

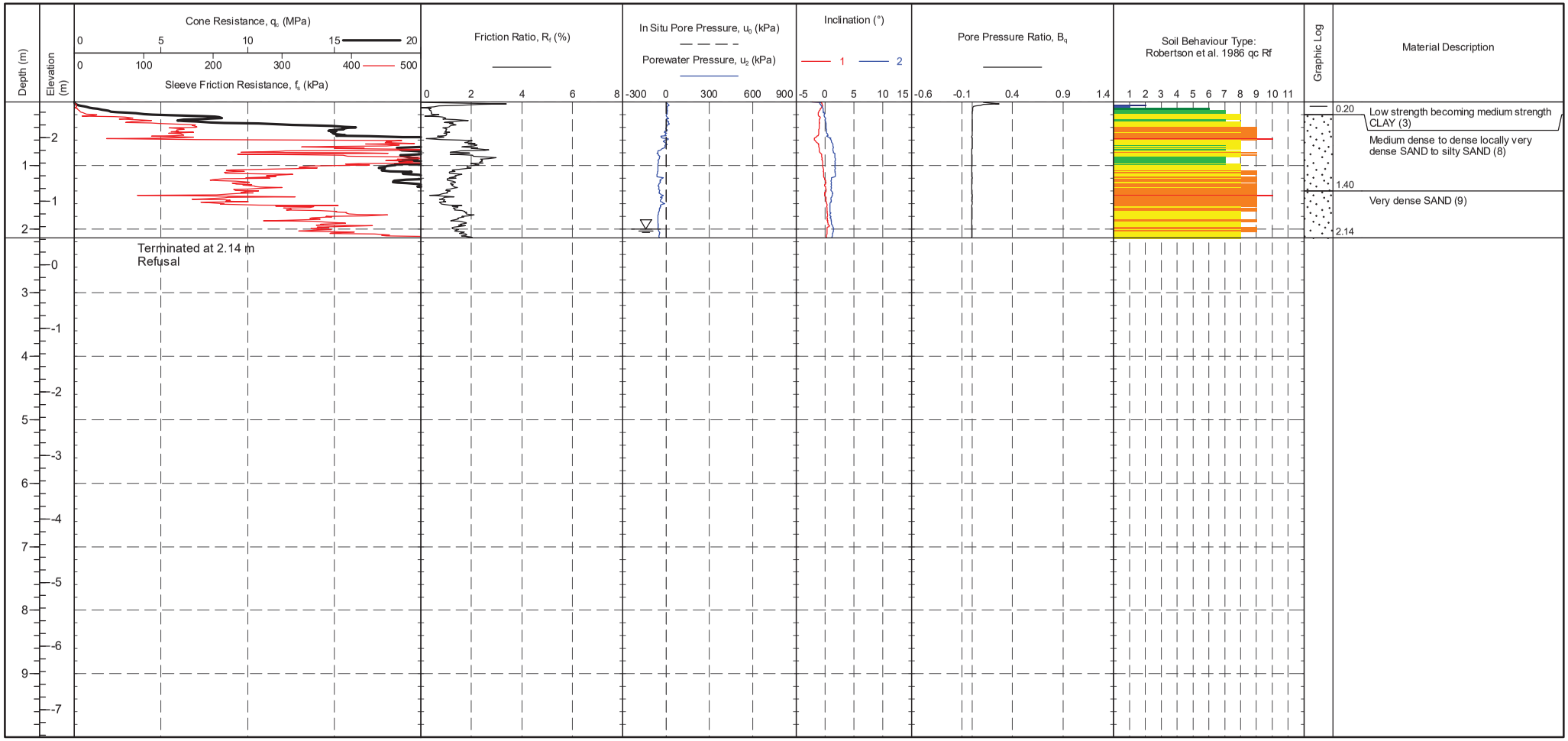
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09A

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138661.5 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863726.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.56 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	272 mV	-0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	258 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09A	Pore Pressure 2	241 mV	219 mV	-0.006 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2252 mV	2418 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

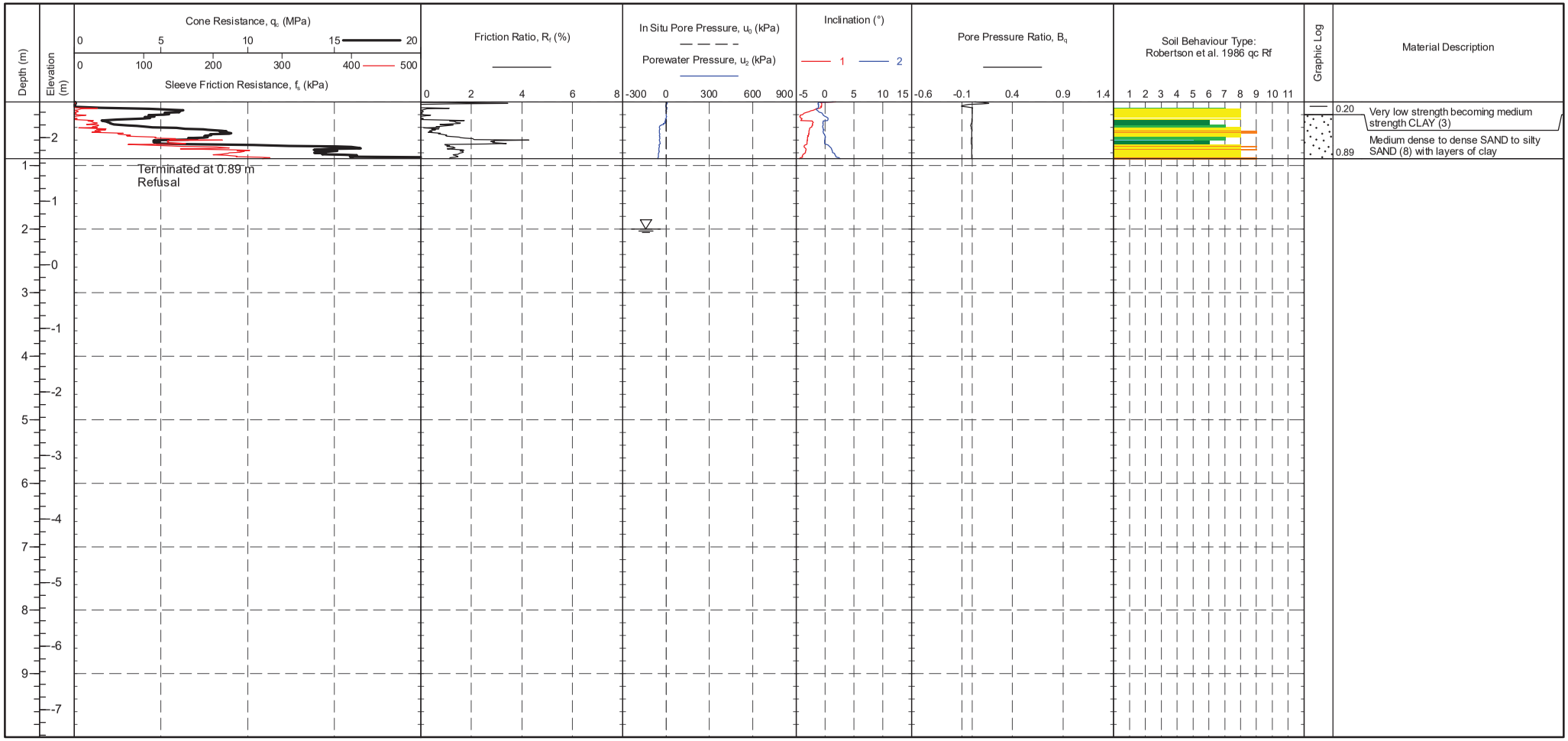
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 09B**

CLIENT : Holequest Geotechnical Limited	EASTING : 138662.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863727.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.56 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	273 mV	275 mV	0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	258 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09B	Pore Pressure 2	237 mV	228 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2672 mV	2421 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

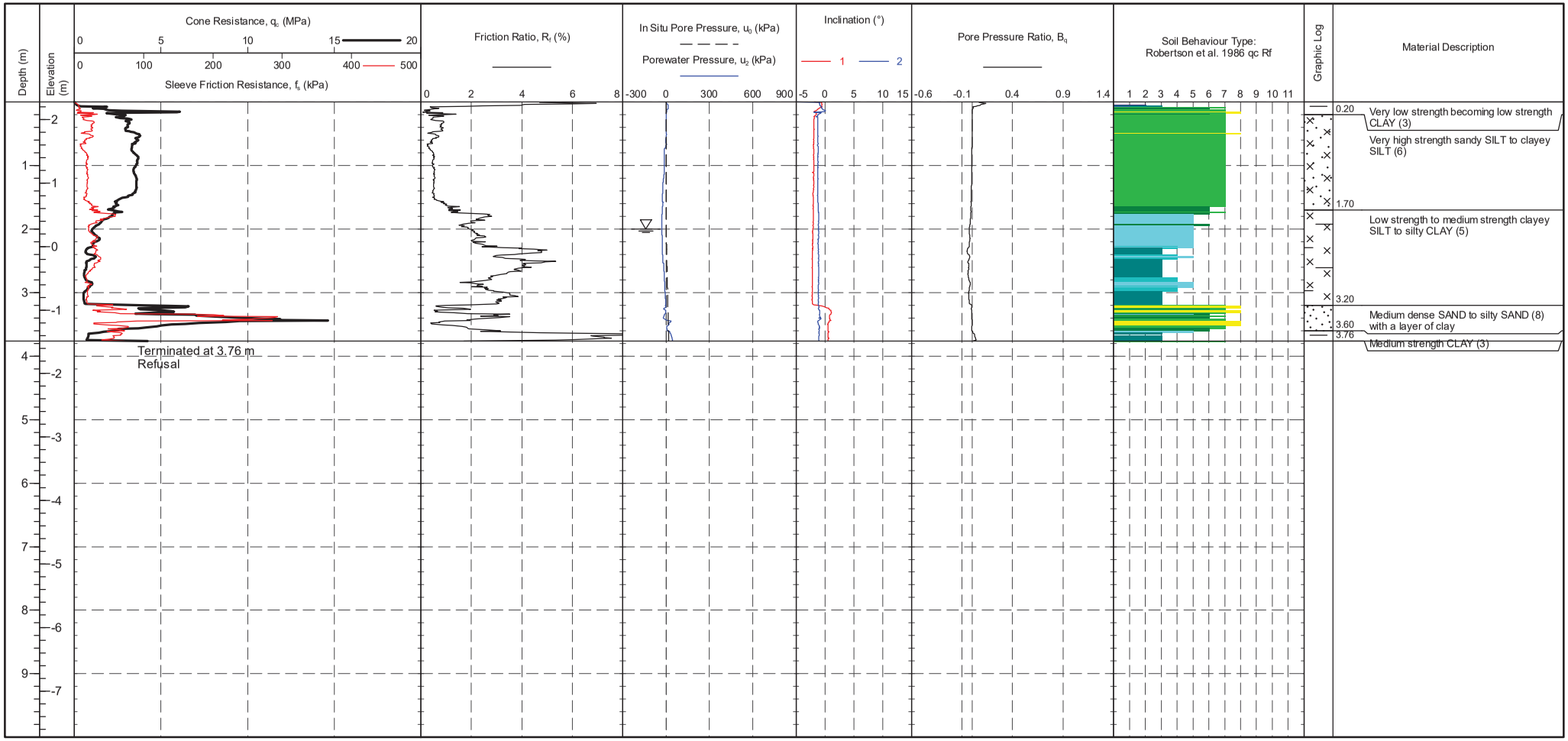
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 10

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138663.1 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863591.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.28 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10	Pore Pressure 2	247 mV	182 mV	-0.016 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2308 mV	2439 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

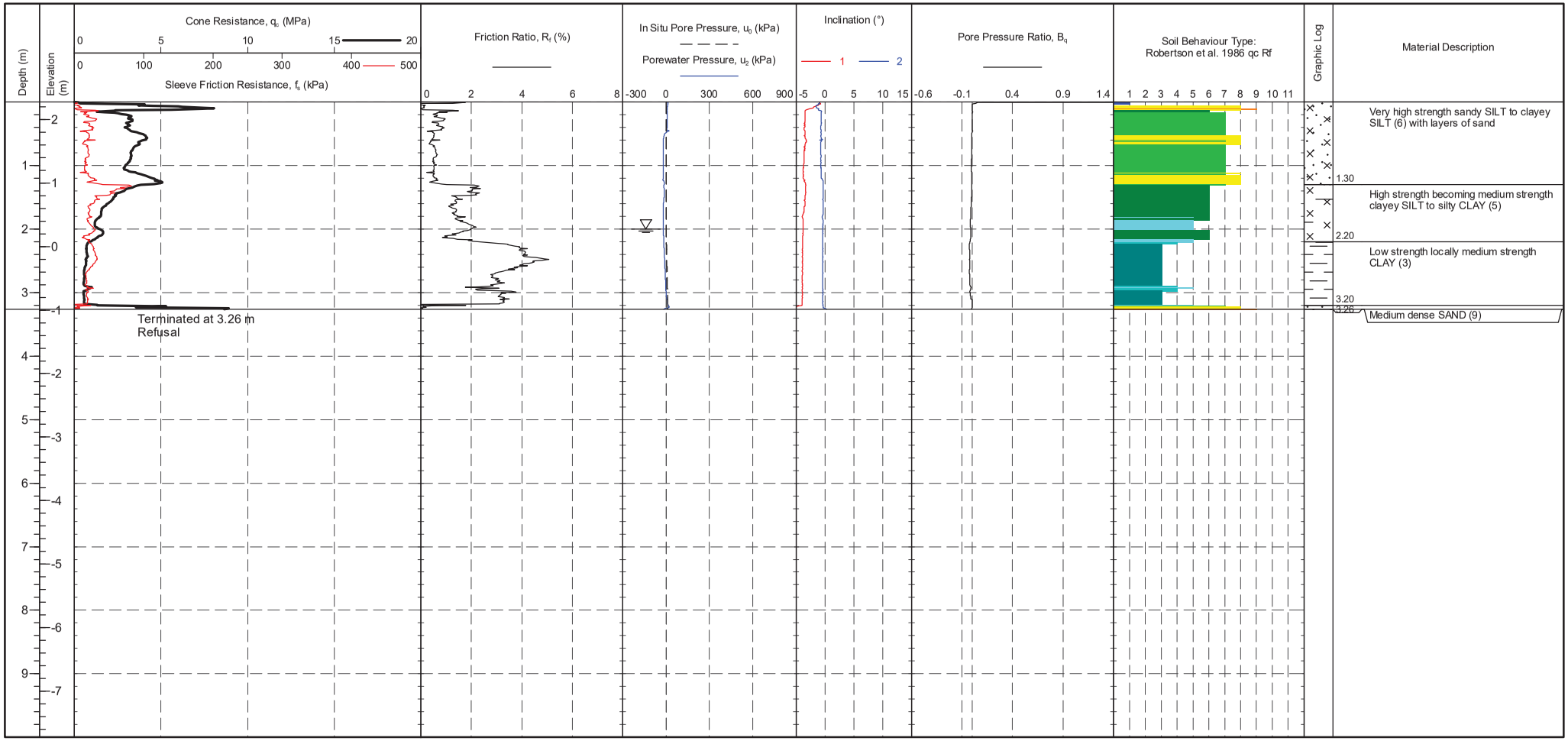
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 10A

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138664.1 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863592.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.28 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	260 mV	258 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10A	Pore Pressure 2	223 mV	216 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2411 mV	2417 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

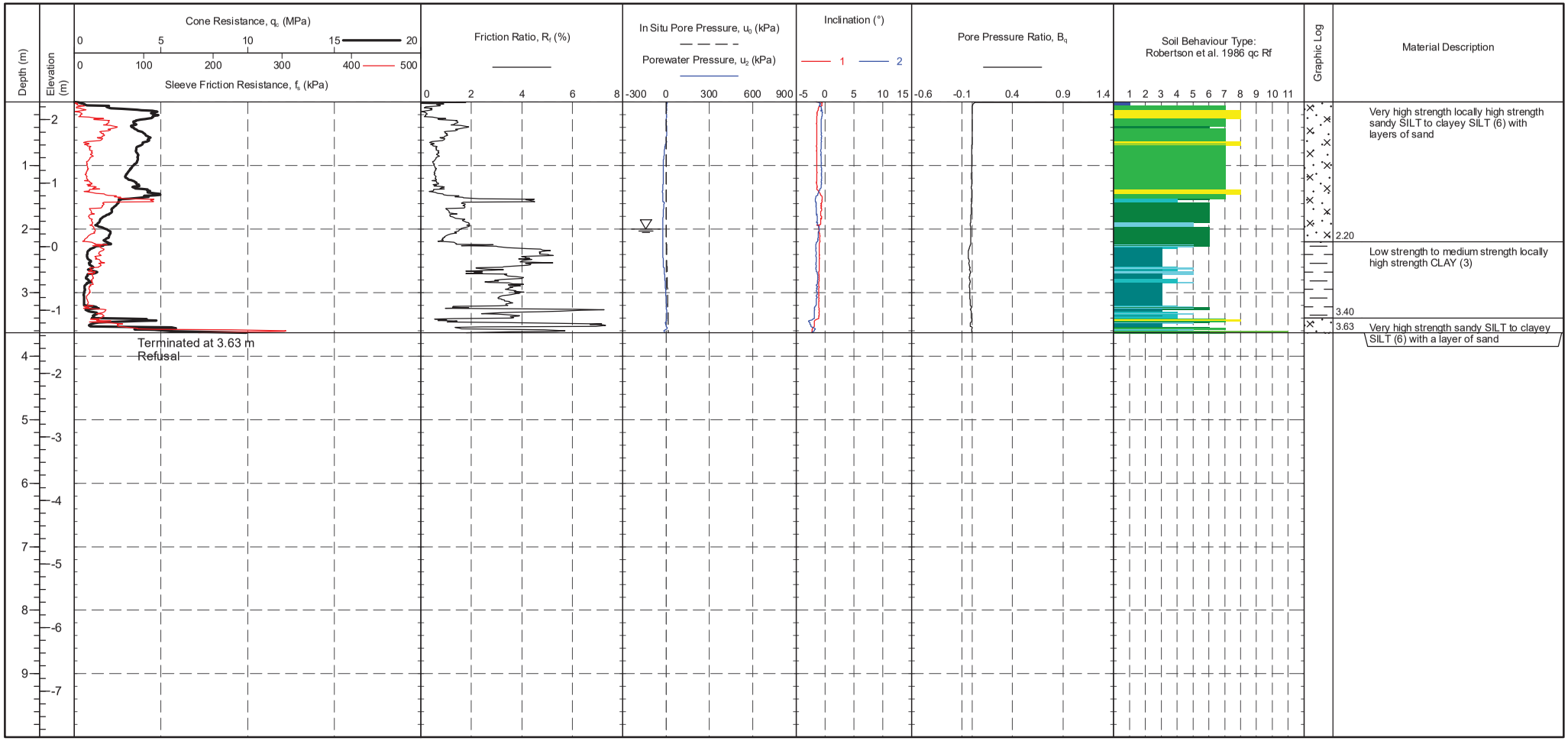
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 10B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138665.1 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863593.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.28 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	259 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10B	Pore Pressure 2	249 mV	218 mV	-0.008 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2328 mV	2427 mV	

METHOD: Robertson et al. 1986 qc Rf

1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand

Groundwater Level

Dissipation Test

APPENDIX C

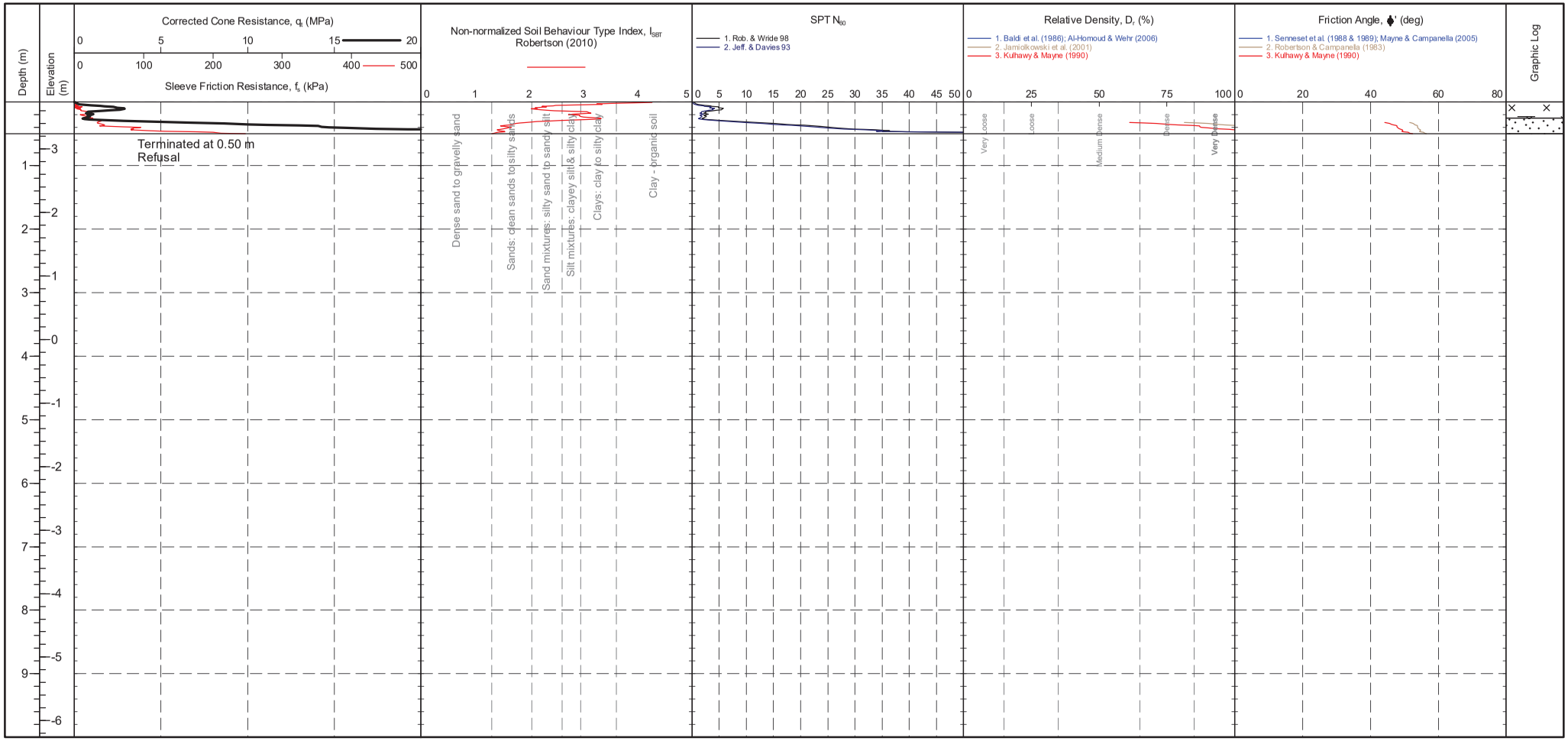
Geotechnical Derived Parameters

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 0A**

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138602.4 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863699.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.74 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	276 mV	280 mV	0.044 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	258 mV	258 mV	0 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	241 mV	235 mV	-0.002 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01	X-Y Inclinometer	2616 mV	2425 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

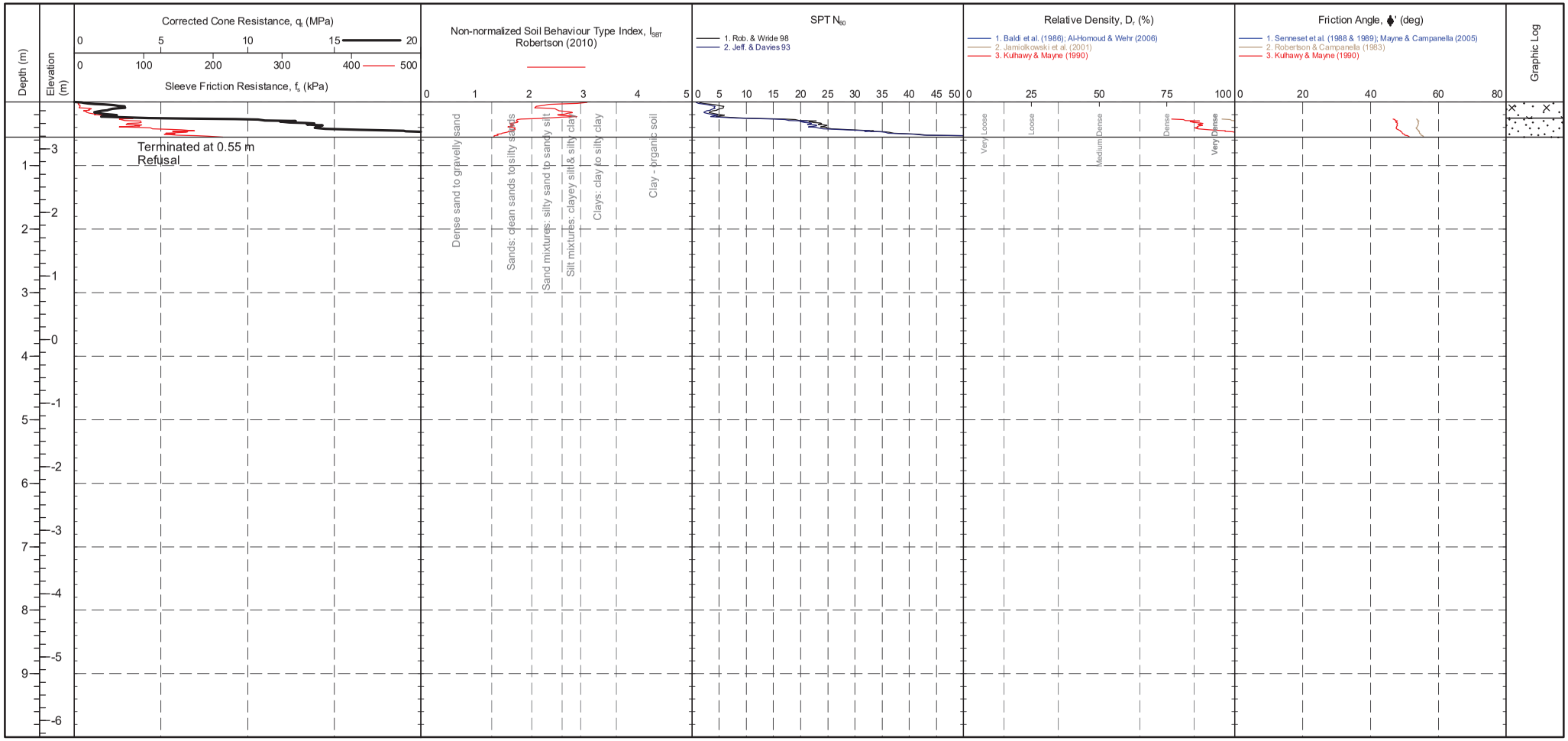
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 0AB**

CLIENT : Holequest Geotechnical Limited	EASTING : 138603.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863700.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.74 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	280 mV	281 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	257 mV	260 mV	0.002 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01A	Pore Pressure 2	238 mV	231 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2545 mV	2470 mV	

Groundwater Level

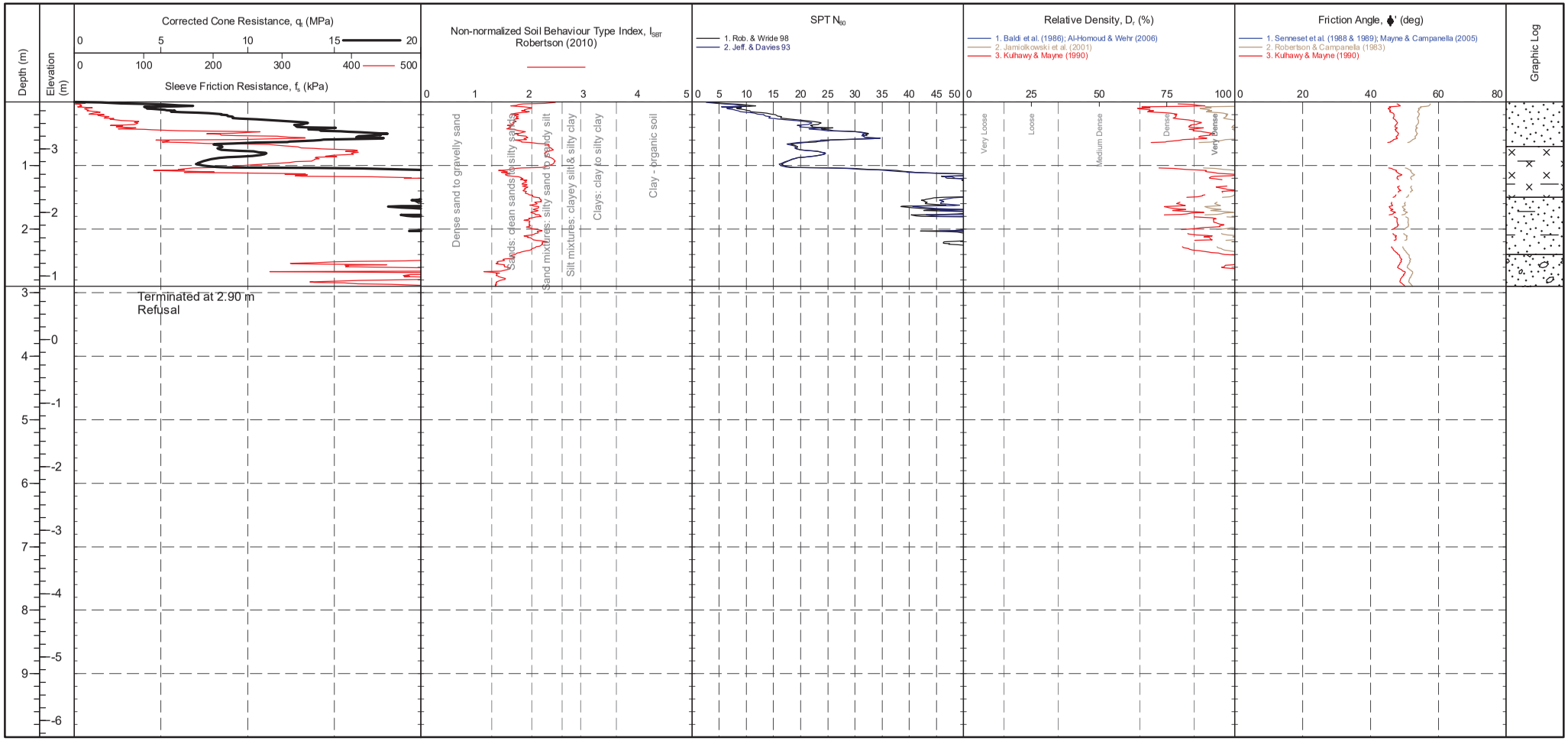
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 0A2**

CLIENT : Holequest Geotechnical Limited	EASTING : 138604.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863701.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.74 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	279 mV	269 mV	-0.11 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	258 mV	251 mV	-0.005 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	236 mV	158 mV	-0.02 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01B	X-Y Inclinometer	2449 mV	2444 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

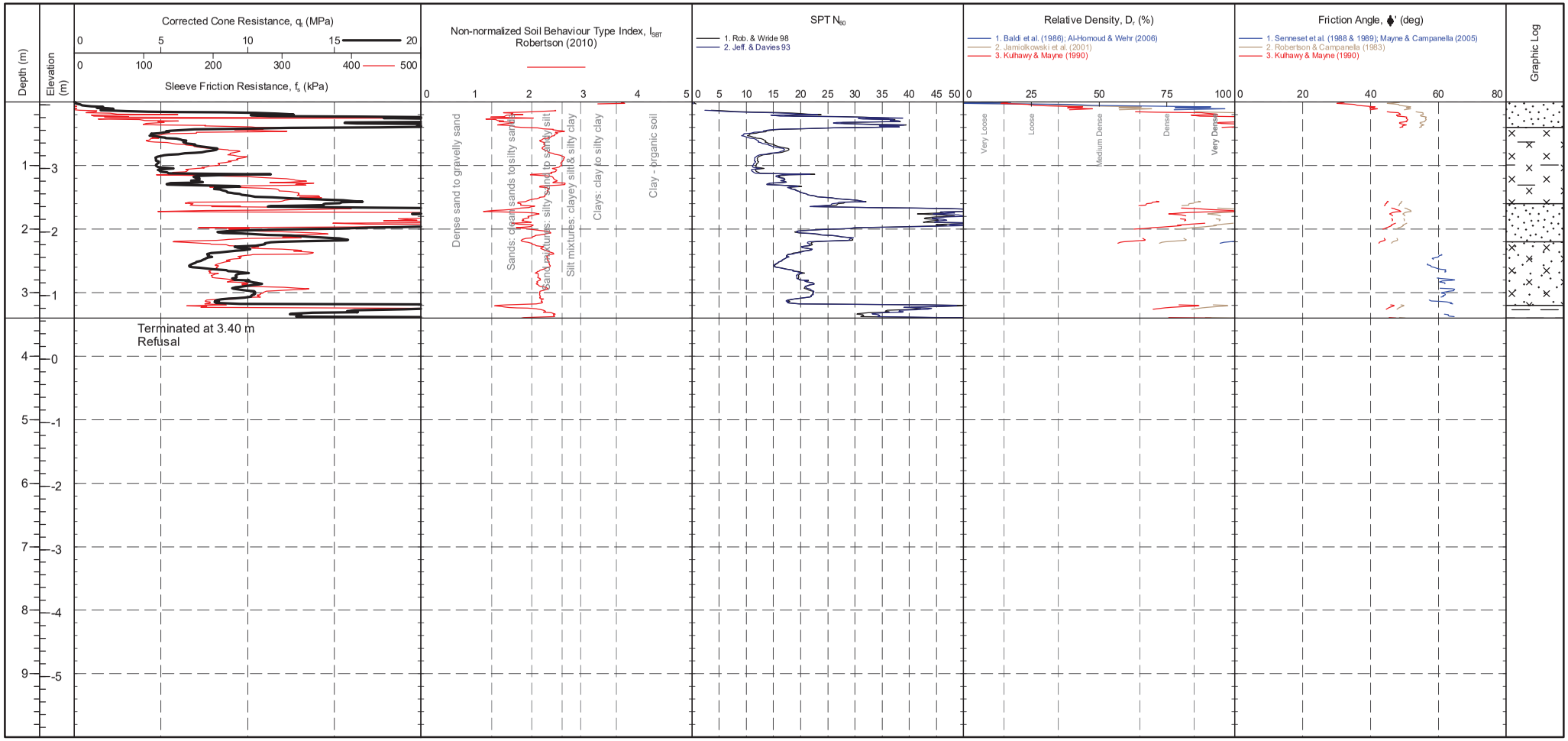
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 01**

CLIENT : Holequest Geotechnical Limited	EASTING : 138575.8 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863646.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 4.05 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	281 mV	270 mV	-0.121 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	263 mV	254 mV	-0.006 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	197 mV	-0.013 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02	X-Y Inclinometer	1968 mV	2462 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

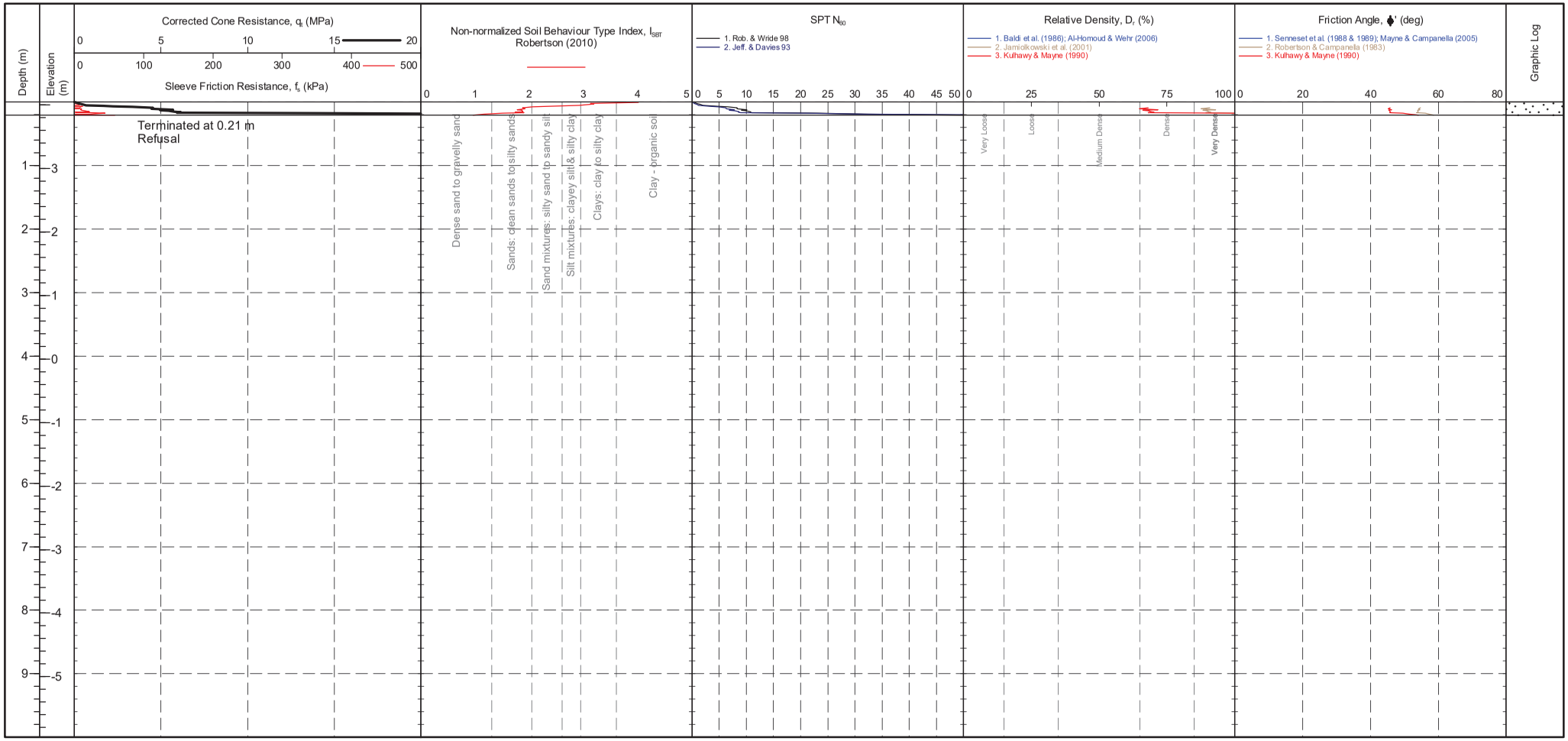
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 01B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138576.8 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863647.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 4.05 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	271 mV	279 mV	0.088 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	255 mV	259 mV	0.003 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	231 mV	243 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02A	X-Y Inclinometer	2413 mV	2327 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

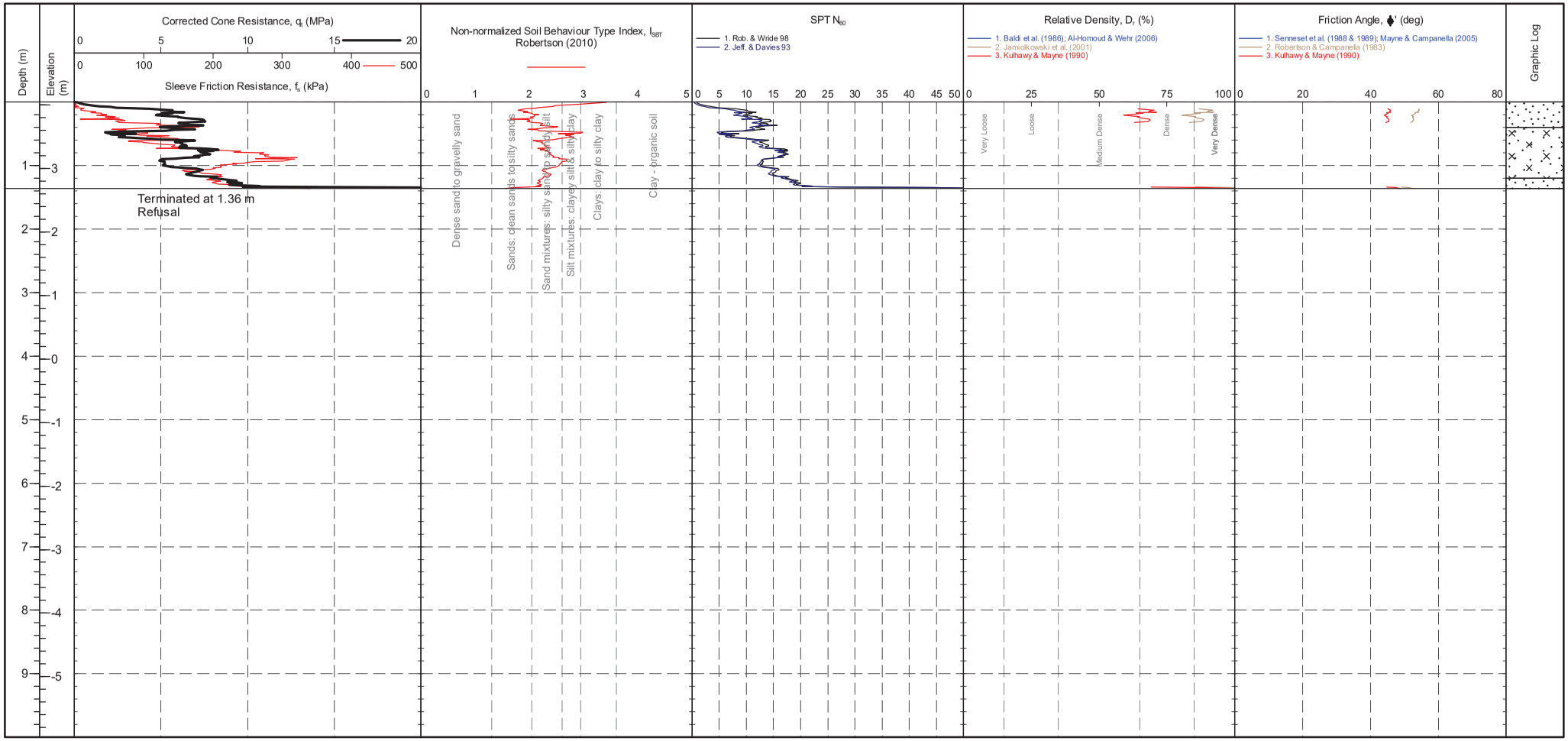
CPT 012

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138577.8 m
NORTHING : 863648.0 m
ELEVATION : 4.05 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 04/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02B		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

CPTU ZERO VALUES

Transducer	Pre	Post	Difference
Tip	278 mV	277 mV	-0.011 MPa
Sleeve	258 mV	257 mV	-0.001 kPa
Pore Pressure 2	242 mV	239 mV	-0.001 kPa
X-Y Inclinometer	2455 mV	2450 mV	

Groundwater Level
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

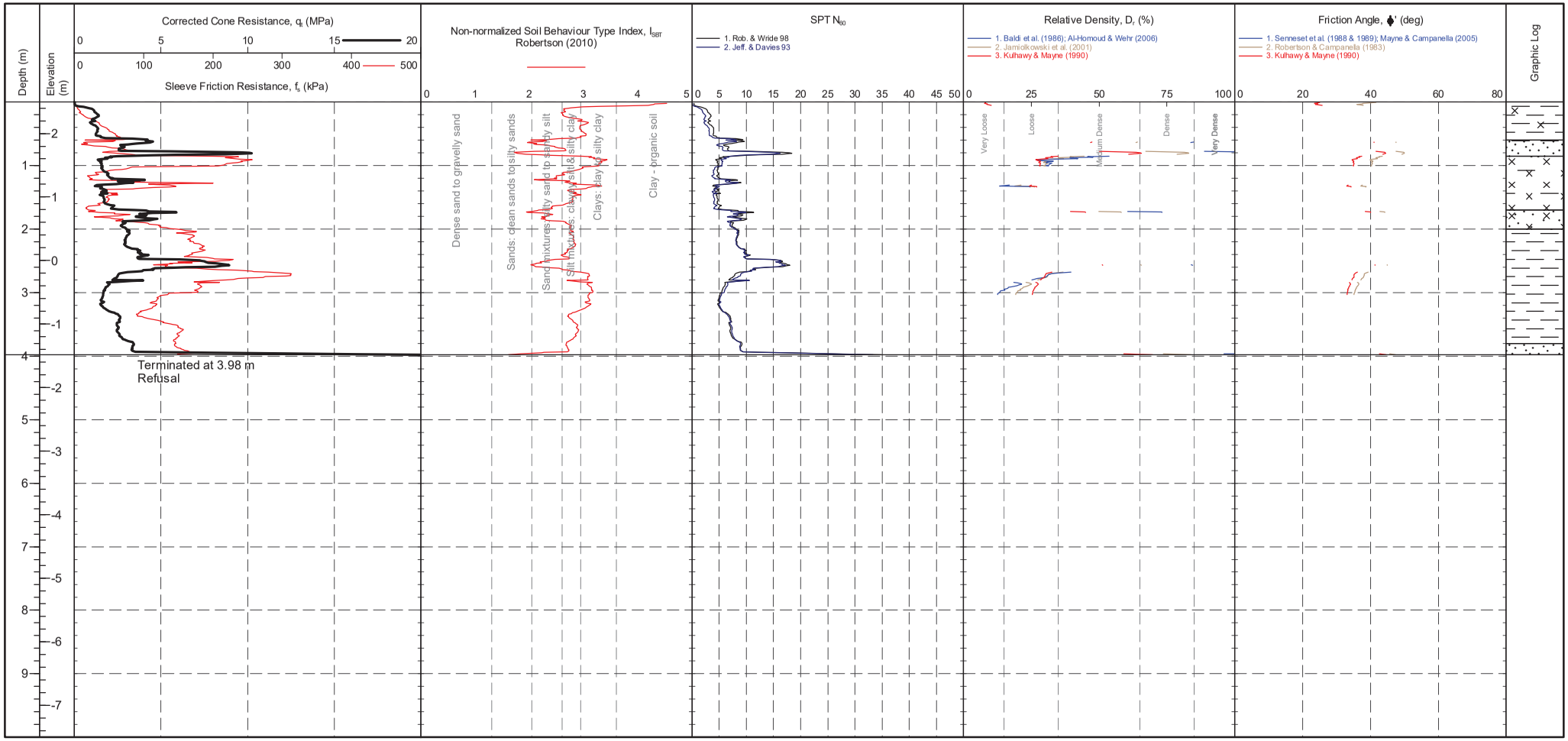
CPT 03

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138646.4 m
NORTHING : 863692.9 m
ELEVATION : 2.50 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 06/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	276 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	259 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03	Pore Pressure 2	247 mV	116 mV	-0.033 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2451 mV	

Groundwater Level
Dissipation Test

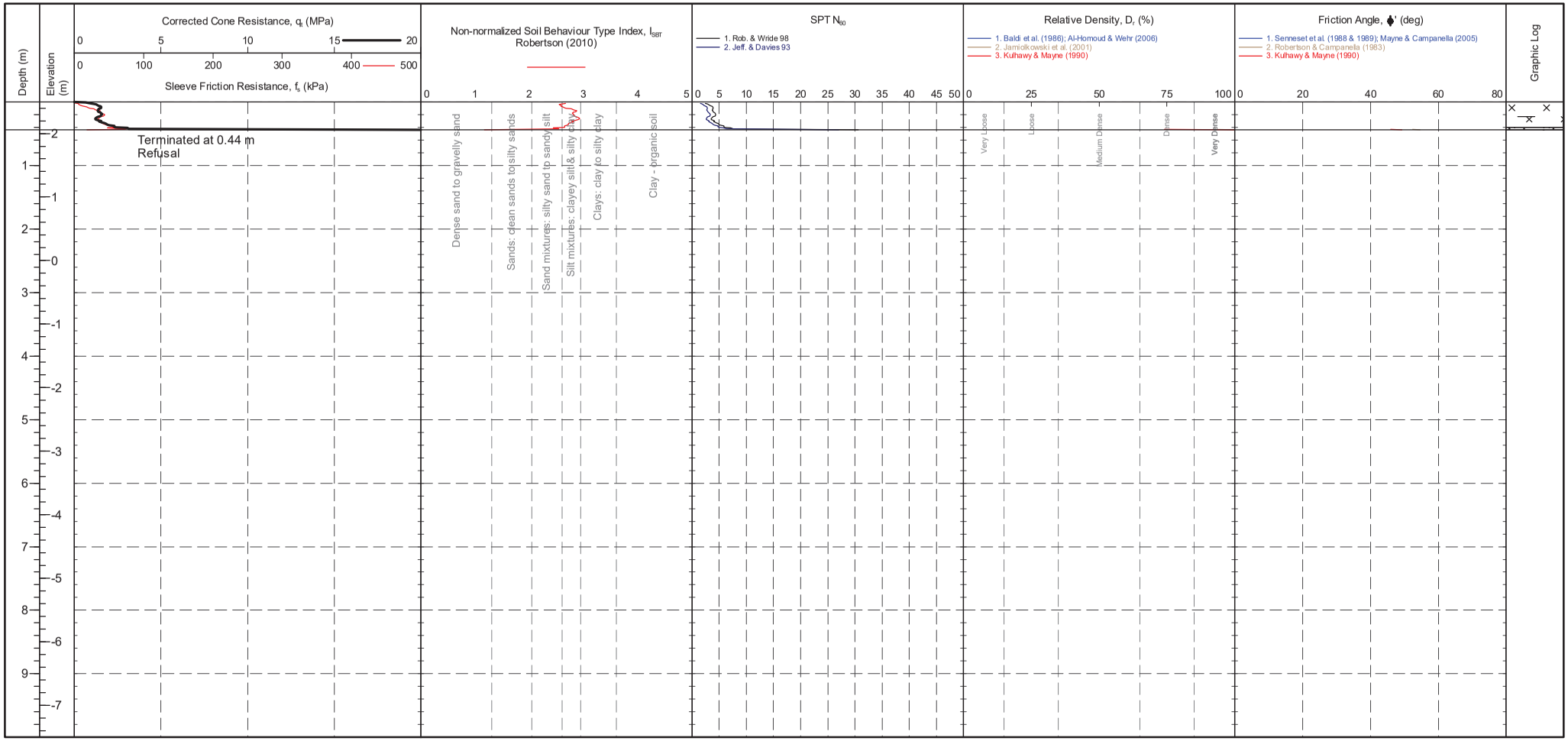
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 03B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138647.4 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863693.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.50 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	275 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	258 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03A	Pore Pressure 2	160 mV	250 mV	0.023 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2328 mV	2437 mV	

Groundwater Level

Dissipation Test

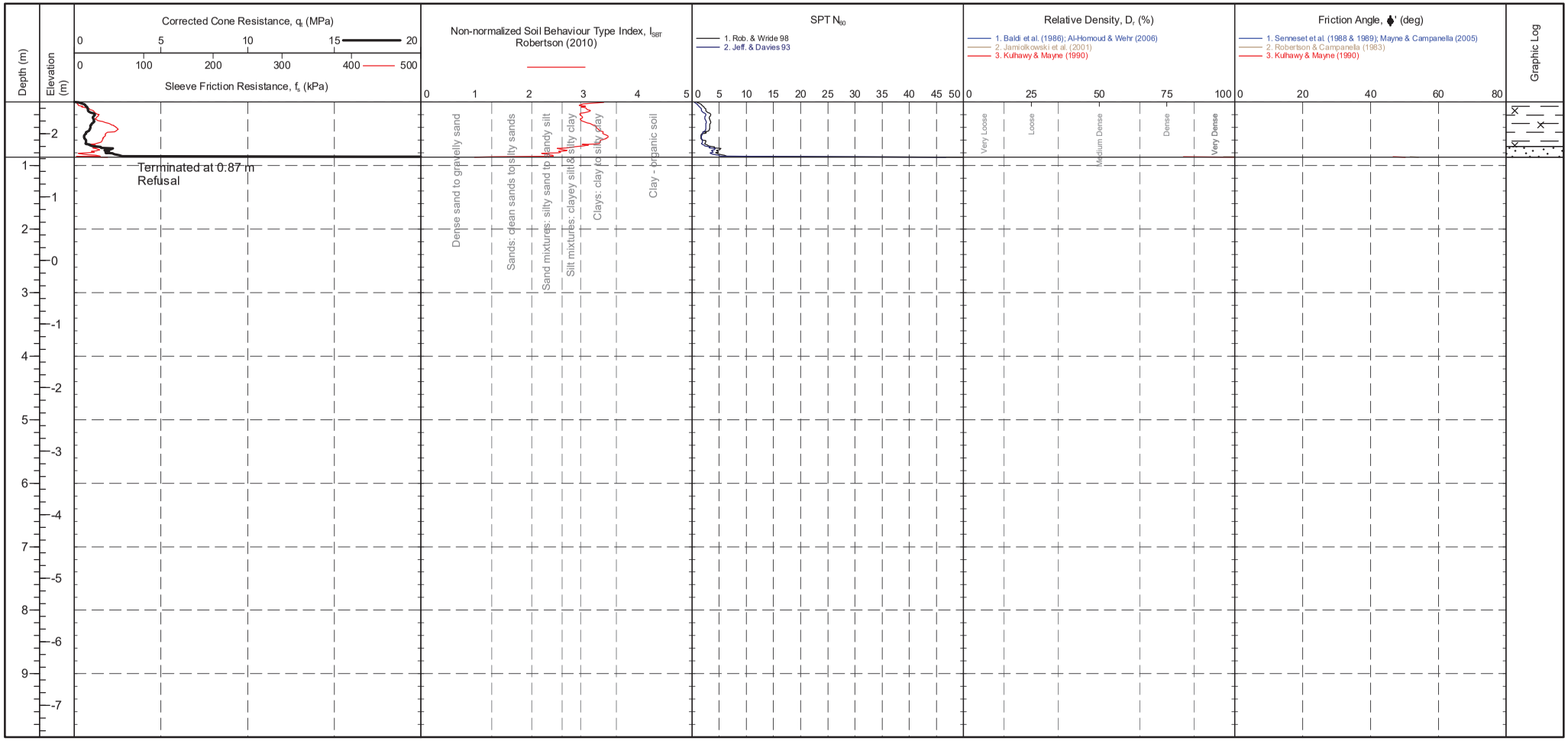
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 032

CLIENT : Holequest Geotechnical Limited	EASTING : 138648.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863694.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.50 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	276 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	260 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03B	Pore Pressure 2	254 mV	254 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2731 mV	2425 mV	

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

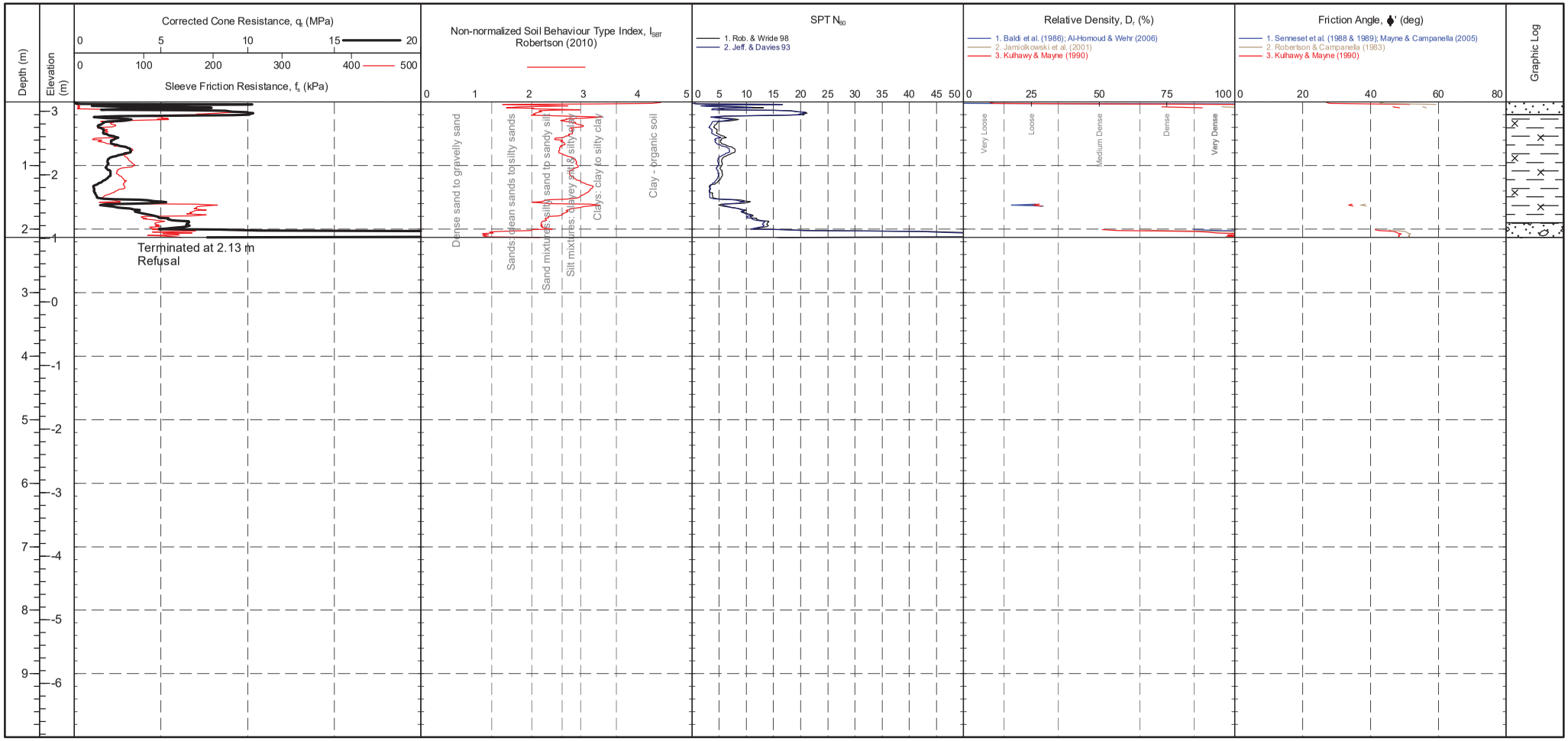
PointID
CPT 04

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138628.7 m
NORTHING : 863655.5 m
ELEVATION : 3.15 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 04/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	272 mV	340 mV	0.747 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	255 mV	268 mV	0.009 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04	Pore Pressure 2	245 mV	295 mV	0.013 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2009 mV	2560 mV	

Groundwater Level
Dissipation Test

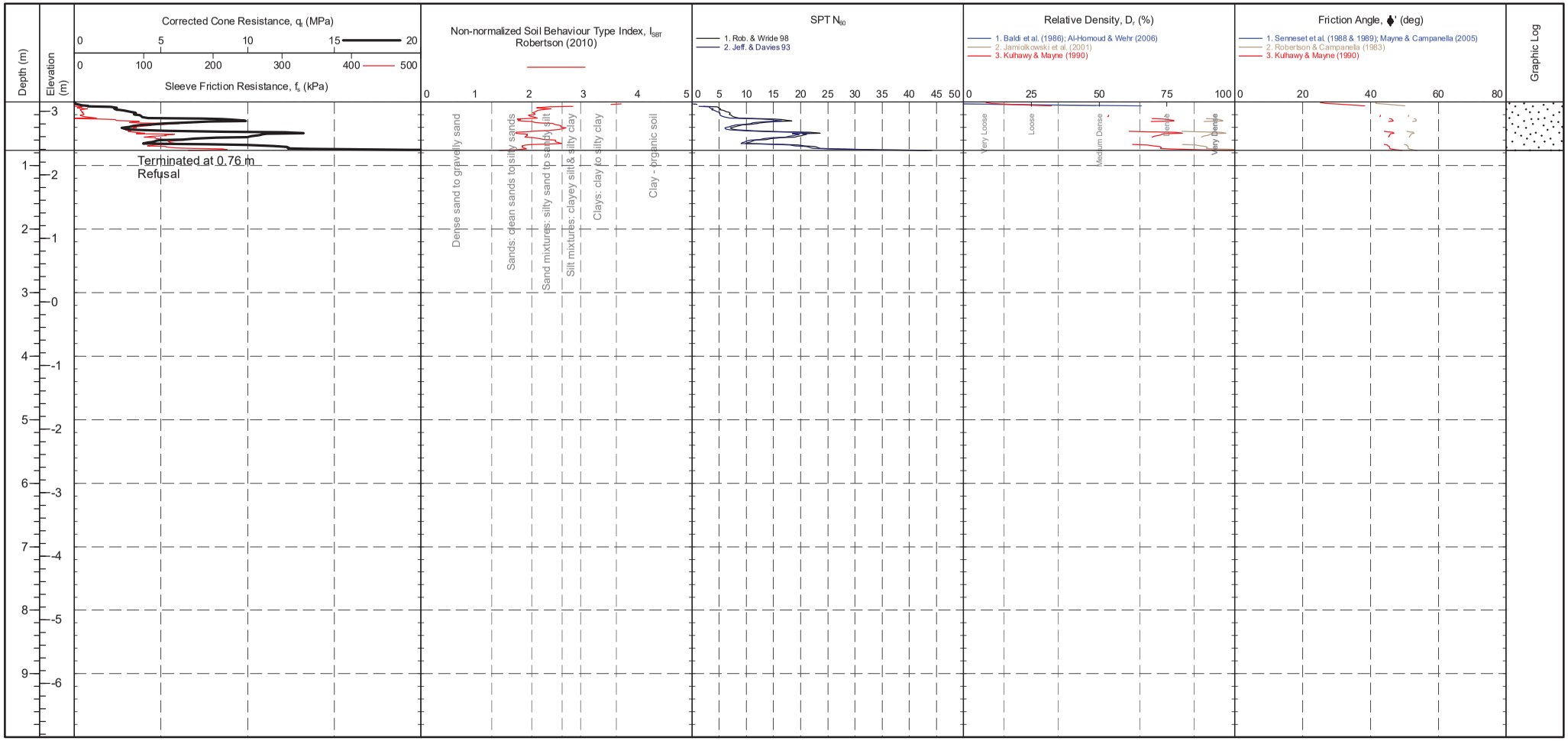
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 04B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138629.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863656.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	279 mV	277 mV	-0.022 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	265 mV	265 mV	0 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	244 mV	234 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04A	X-Y Inclinometer	2427 mV	2416 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

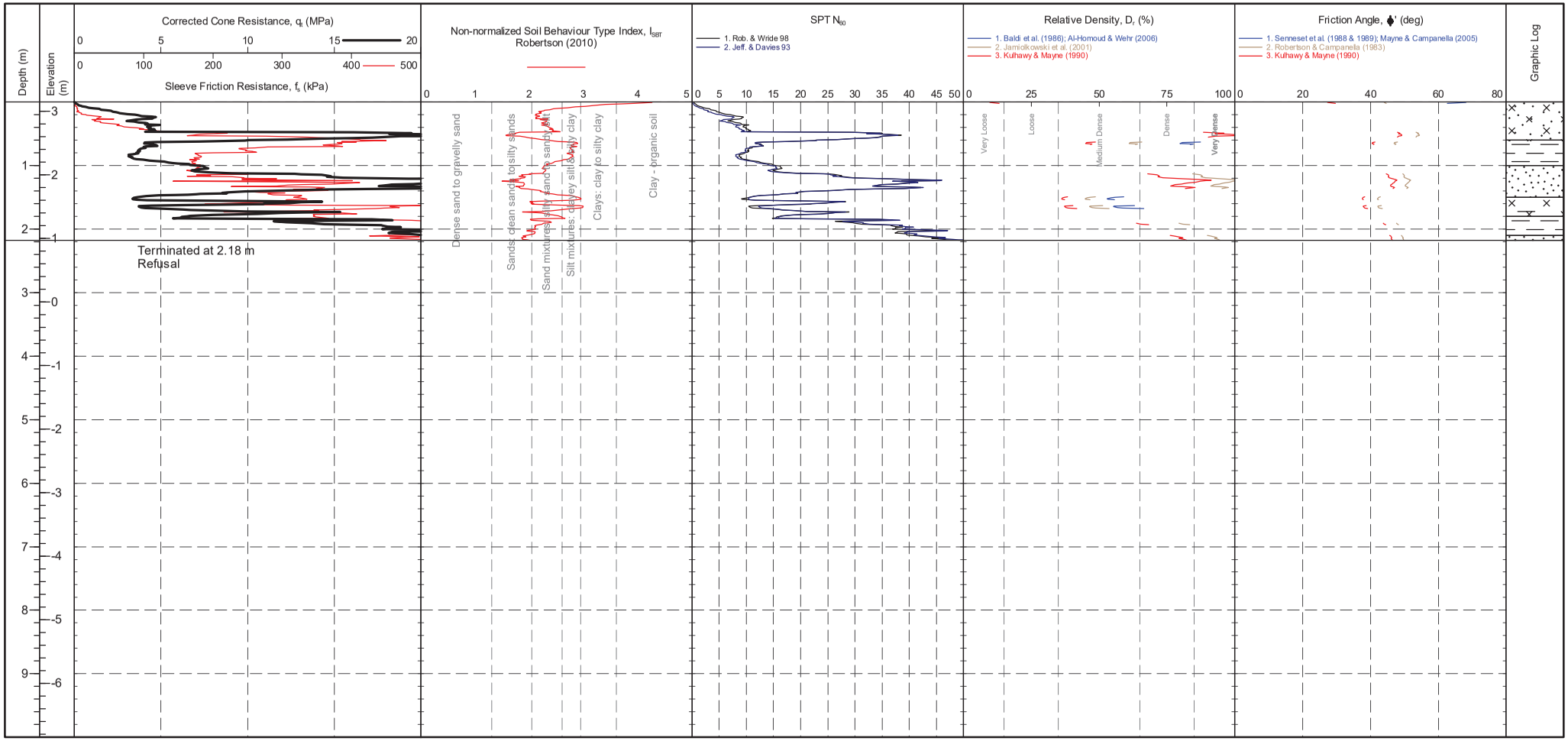
CPT 042

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138630.7 m
NORTHING : 863657.5 m
ELEVATION : 3.15 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES	
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04B		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

Transducer	Pre	Post	Difference
Tip	277 mV	271 mV	-0.066 MPa
Sleeve	265 mV	263 mV	-0.001 kPa
Pore Pressure 2	240 mV	224 mV	-0.004 kPa
X-Y Inclinometer	2372 mV	2373 mV	

Groundwater Level
Dissipation Test

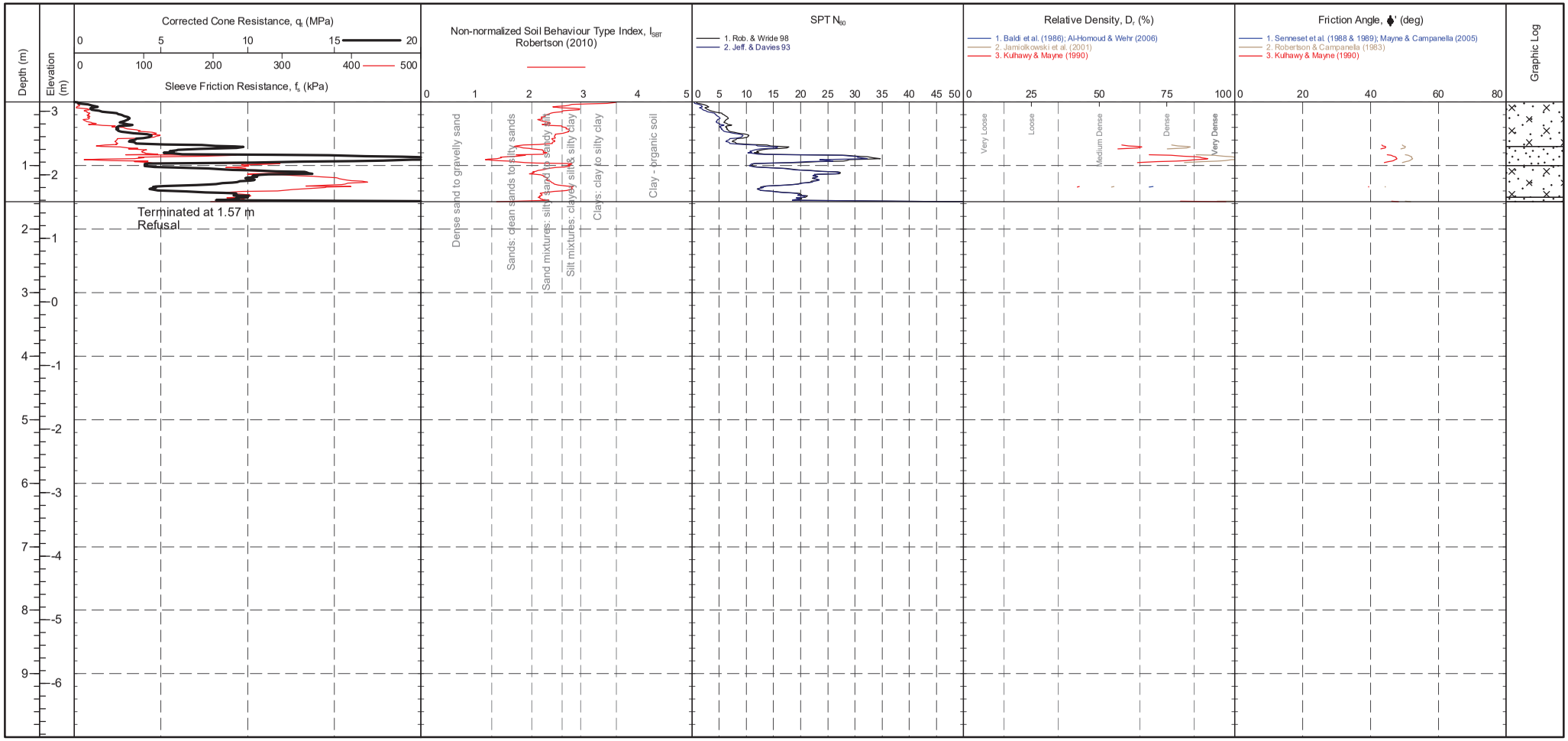
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 04C

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138631.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863658.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	274 mV	273 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	265 mV	260 mV	-0.004 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	238 mV	218 mV	-0.005 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04C	X-Y Inclinometer	2501 mV	2485 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

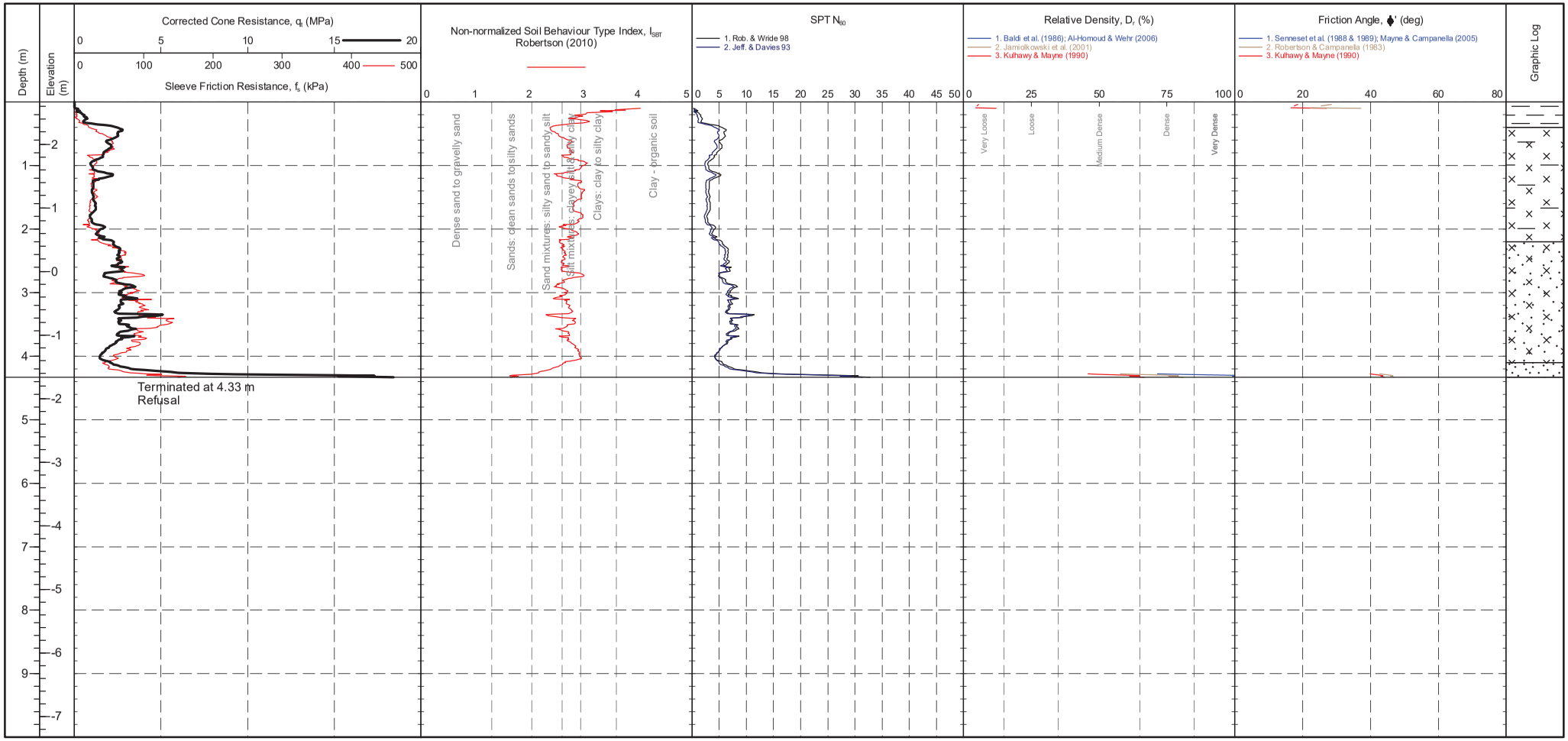
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 05

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138603.5 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.67 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	276 mV	280 mV	0.044 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	264 mV	268 mV	0.003 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	253 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05	X-Y Inclinometer	2342 mV	2401 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

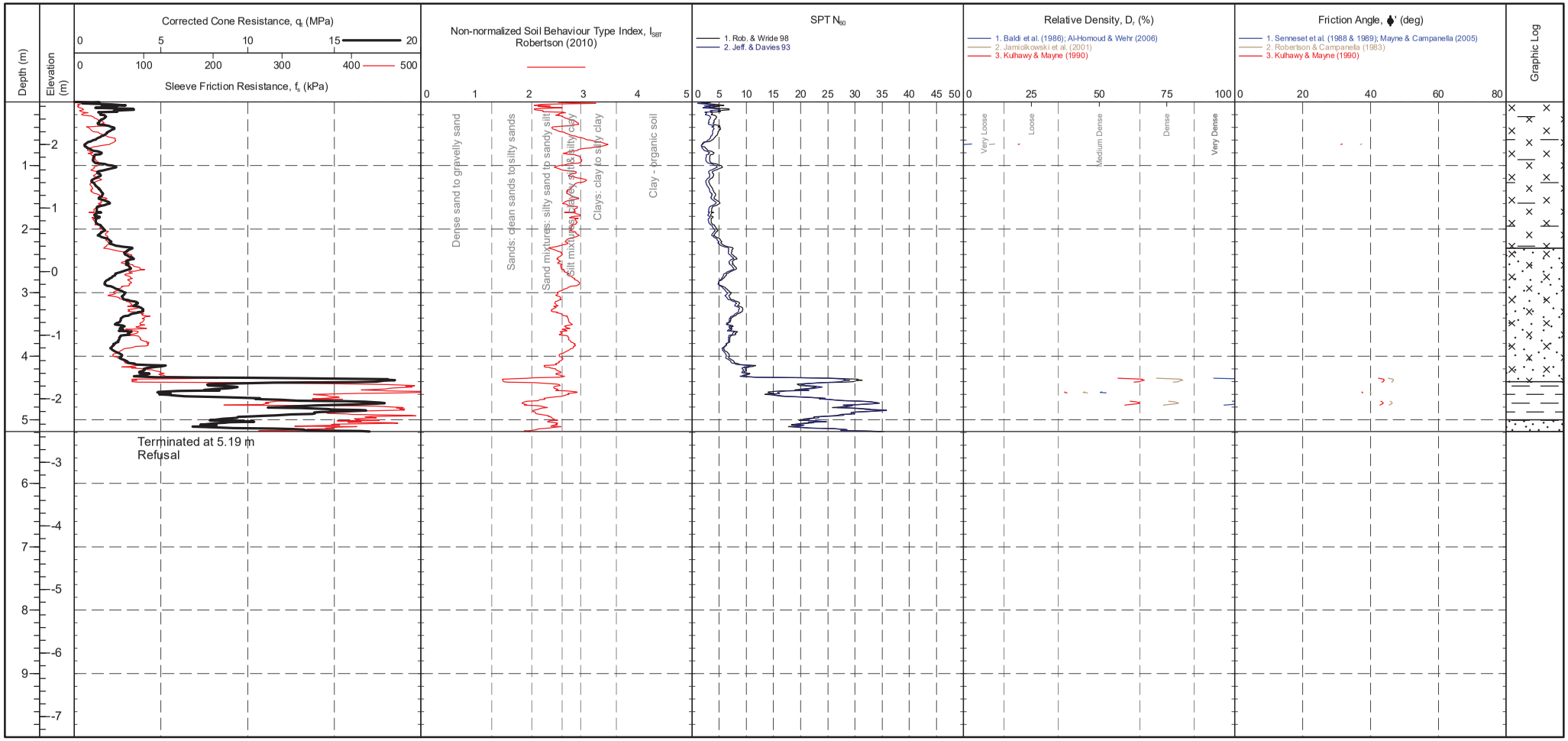
CPT 05B

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138604.5 m
NORTHING : 863597.0 m
ELEVATION : 2.67 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	276 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	265 mV	261 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05A	Pore Pressure 2	246 mV	188 mV	-0.015 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2360 mV	2418 mV	

Groundwater Level
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

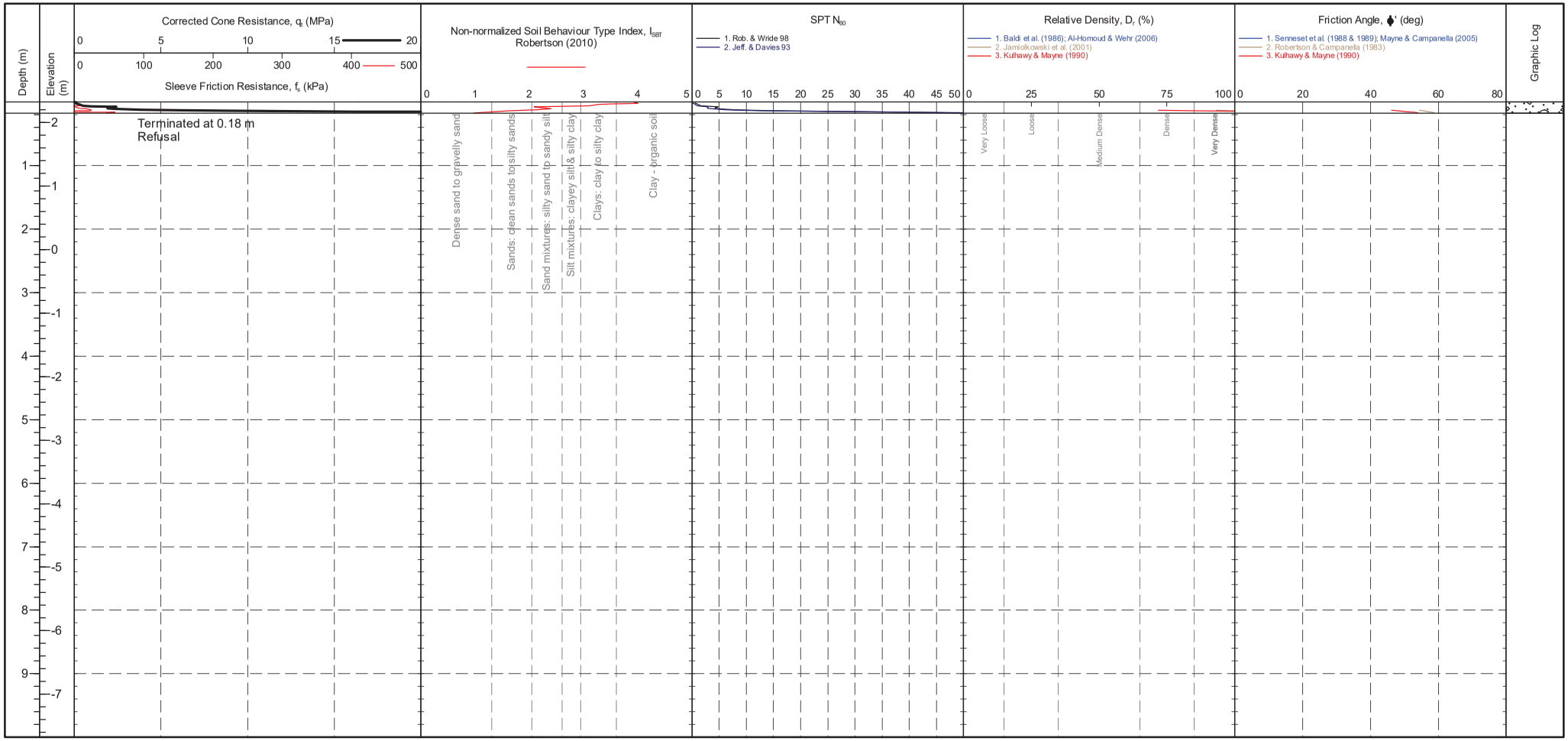
CPT 06

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138661.3 m
NORTHING : 863635.9 m
ELEVATION : 2.32 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

CPTU ZERO VALUES

Transducer	Pre	Post	Difference
Tip	274 mV	276 mV	0.022 MPa
Sleeve	260 mV	262 mV	0.001 kPa
Pore Pressure 2	239 mV	244 mV	0.001 kPa
X-Y Inclinometer	2483 mV	2393 mV	

Groundwater Level
Dissipation Test

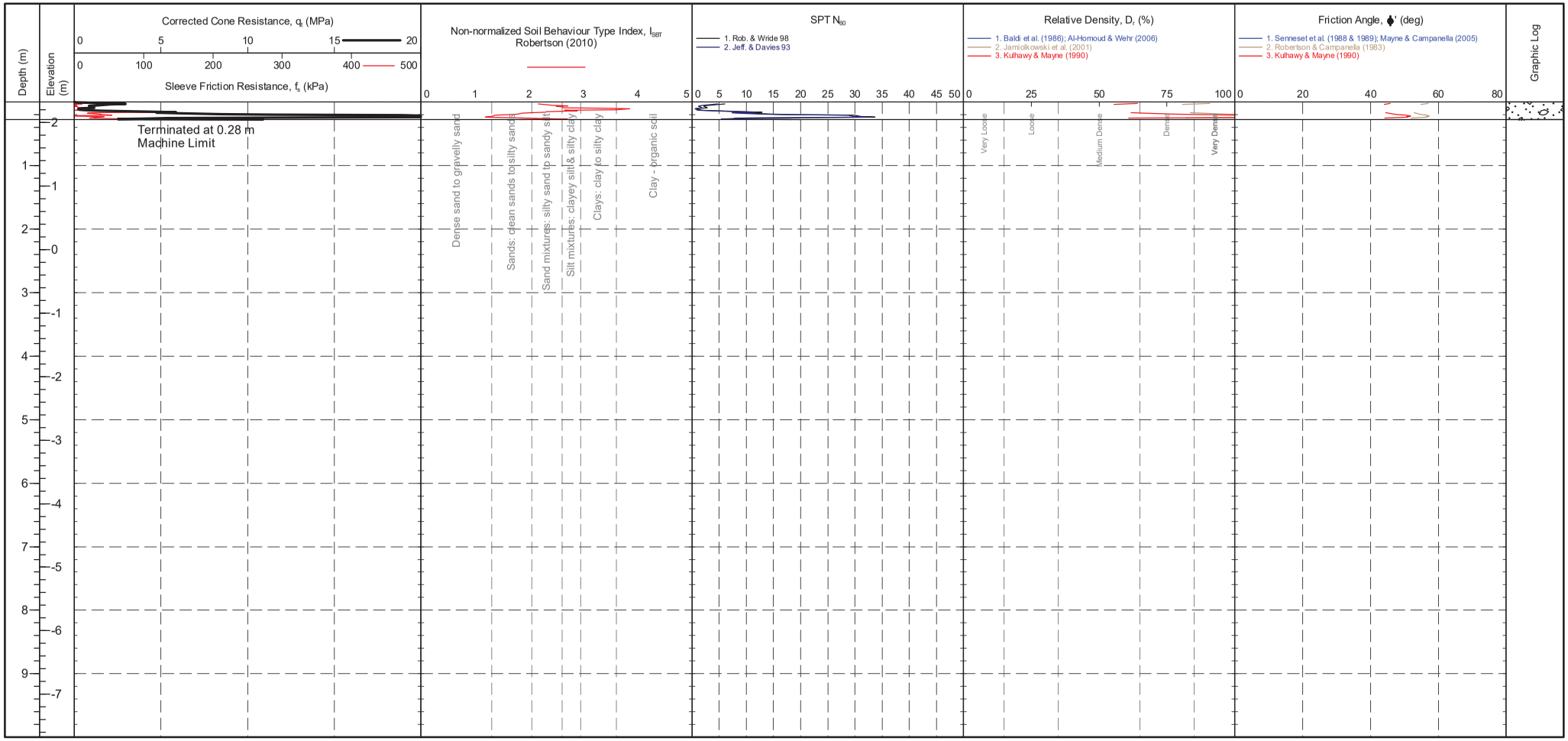
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138662.3 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863636.9 m	Test refused on inclination.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.32 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	263 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06A	Pore Pressure 2	245 mV	244 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2558 mV	2429 mV	

Groundwater Level

Dissipation Test

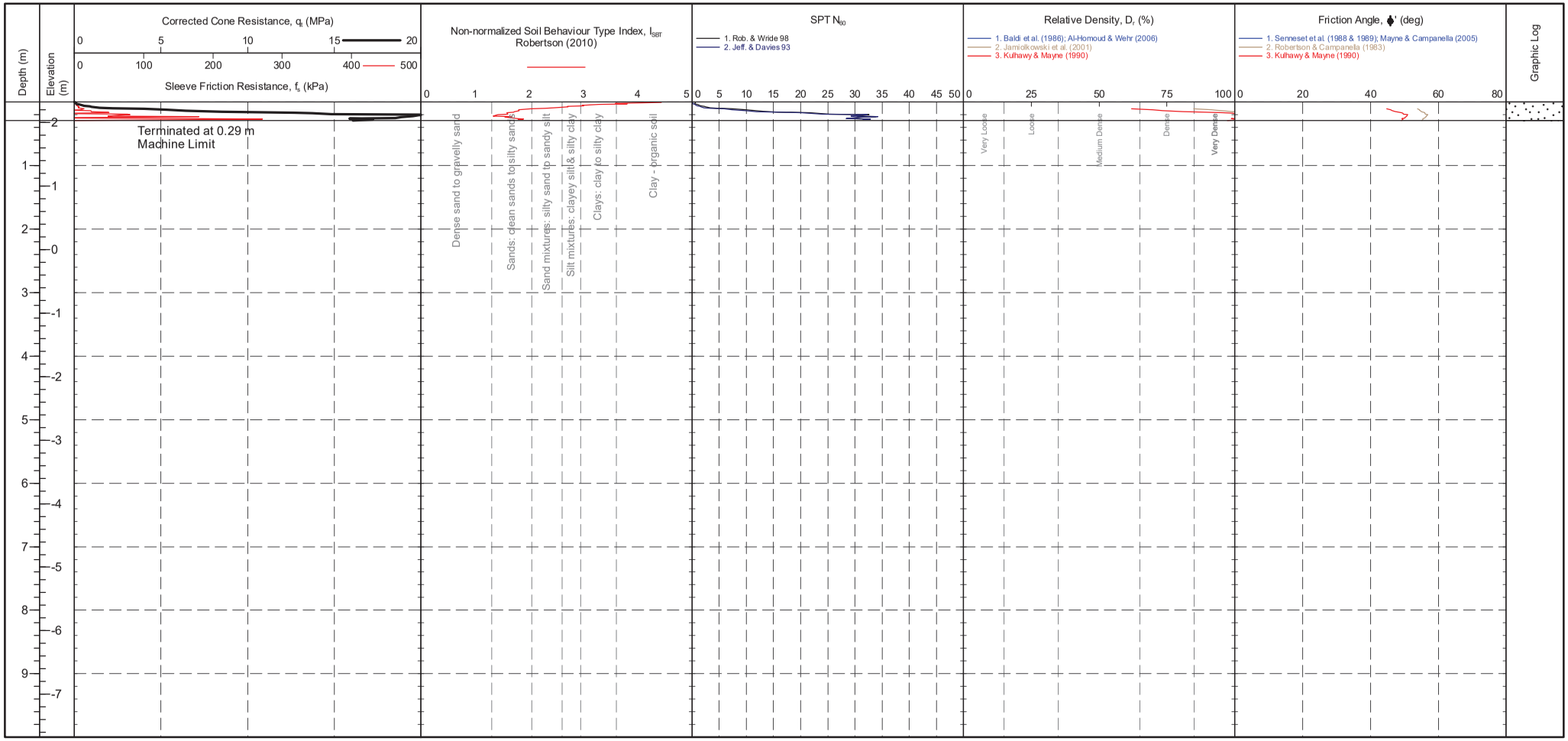
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 062

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138663.3 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863637.9 m	Test refused on inclination.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.32 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Machine Limit		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	277 mV	278 mV	0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	263 mV	264 mV	0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	245 mV	245 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06B	X-Y Inclinometer	2407 mV	2408 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

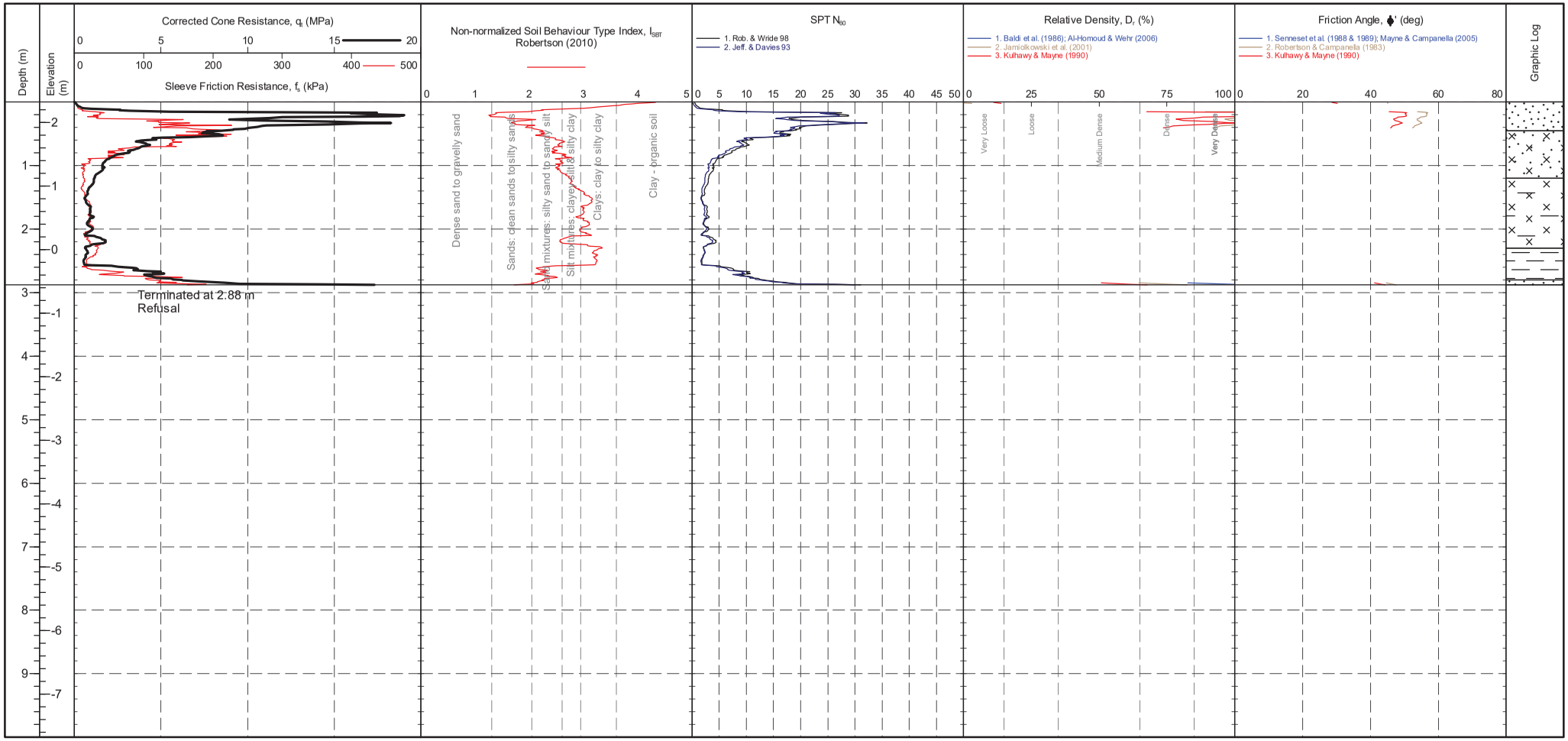
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 06C**

CLIENT : Holequest Geotechnical Limited	EASTING : 138664.3 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863638.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.32 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post / Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	278 mV / 0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	264 mV / 0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06C	Pore Pressure 2	245 mV	254 mV / 0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2427 mV

Groundwater Level

Dissipation Test

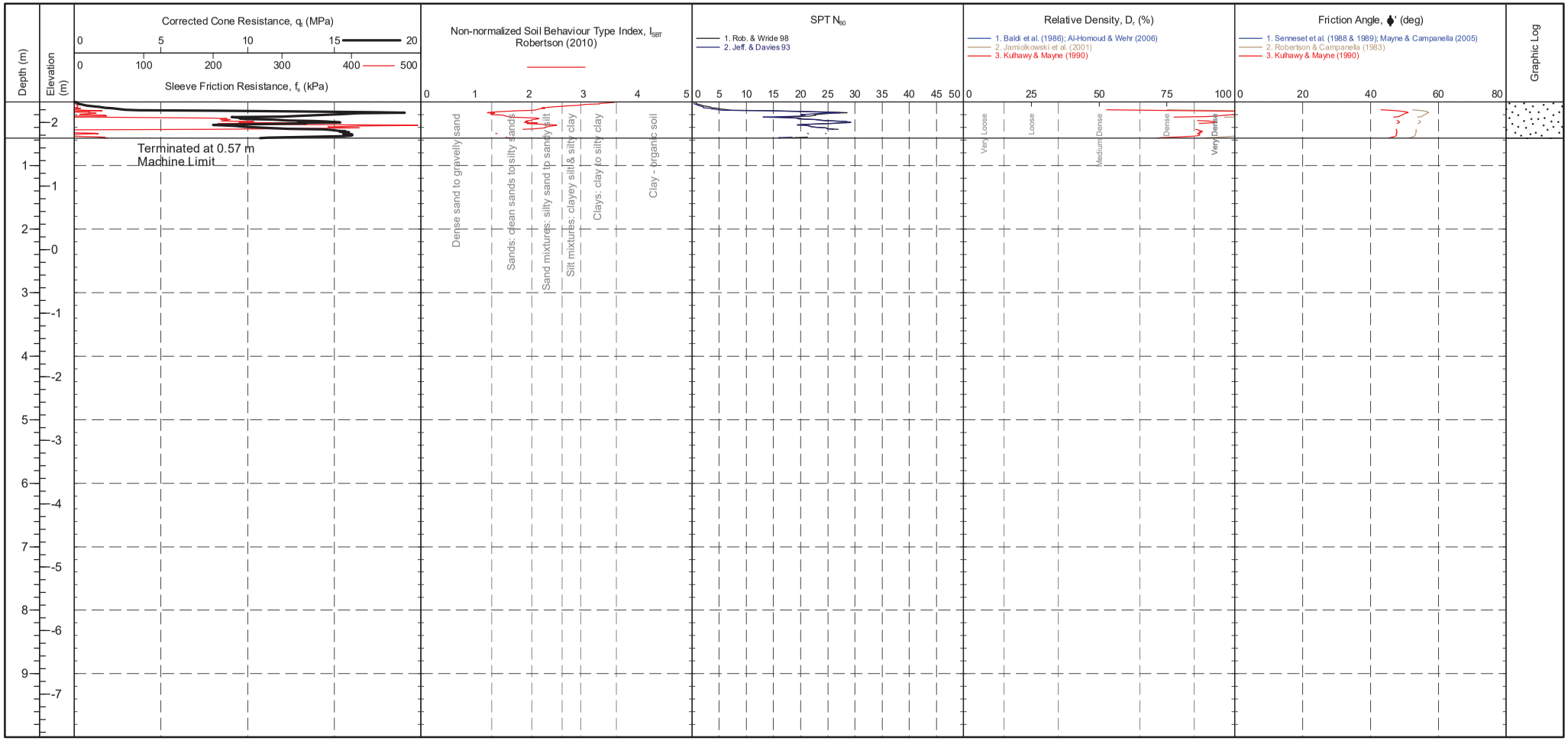
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06D

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138665.3 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863639.9 m	Test refused on inclination.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.32 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	260 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06D	Pore Pressure 2	252 mV	245 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2439 mV	2420 mV	

Groundwater Level

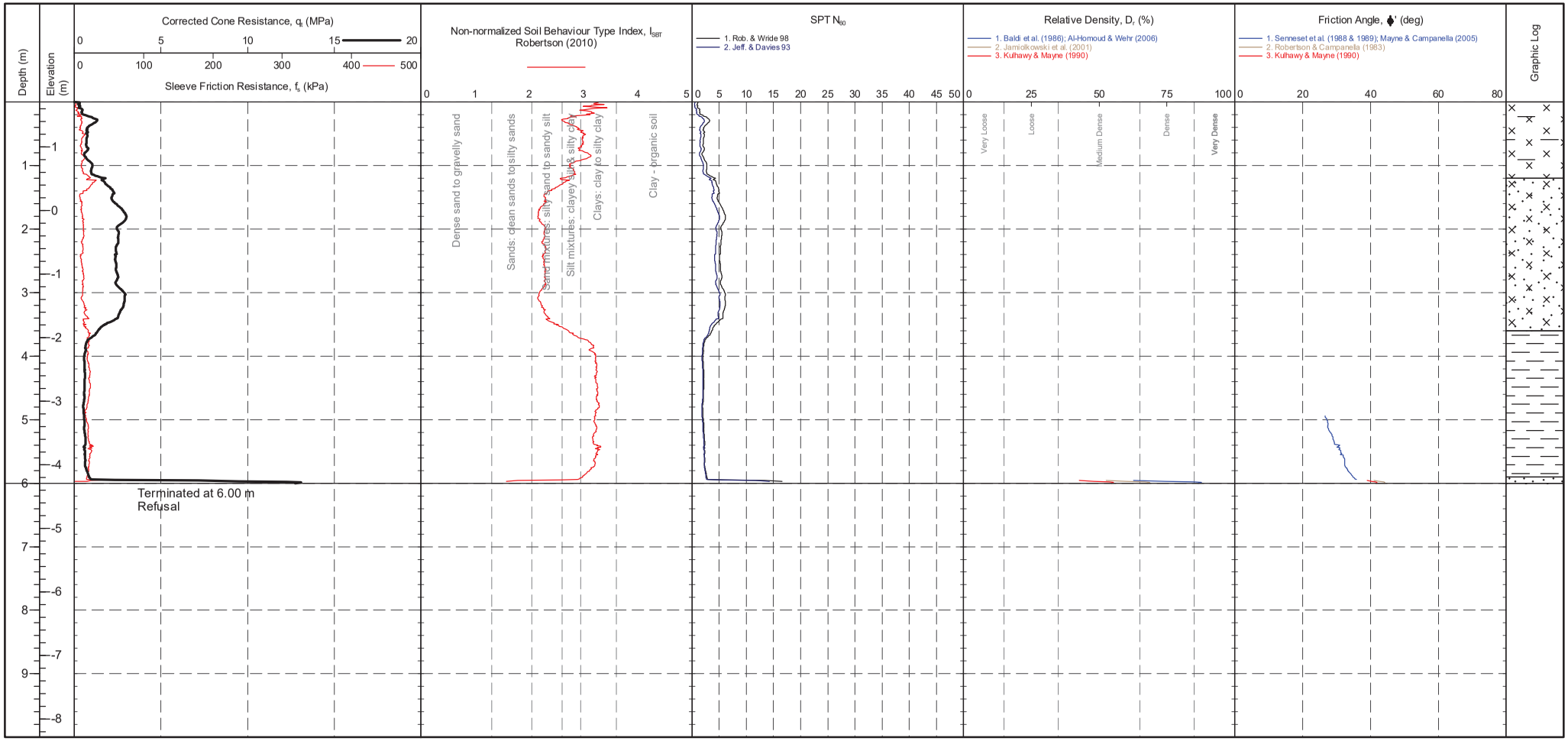
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 07**

CLIENT : Holequest Geotechnical Limited	EASTING : 138668.8 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863592.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 1.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	279 mV	0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	265 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07	Pore Pressure 2	250 mV	240 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2469 mV	2396 mV	

Groundwater Level

Dissipation Test

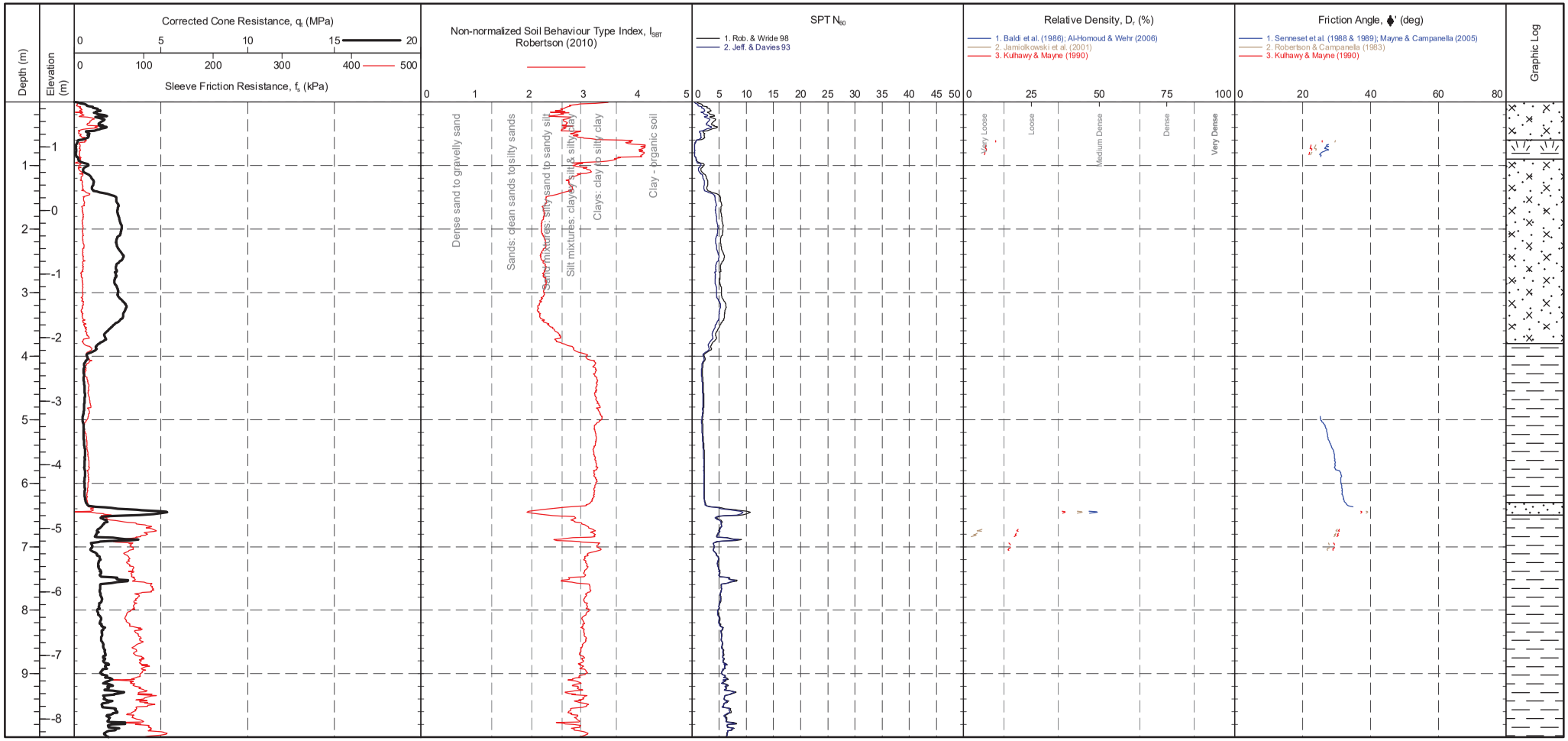
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138669.8 m	REMARK	SHEET : 1 OF 2
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 1.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07A	X-Y Inclinometer	2387 mV	2441 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

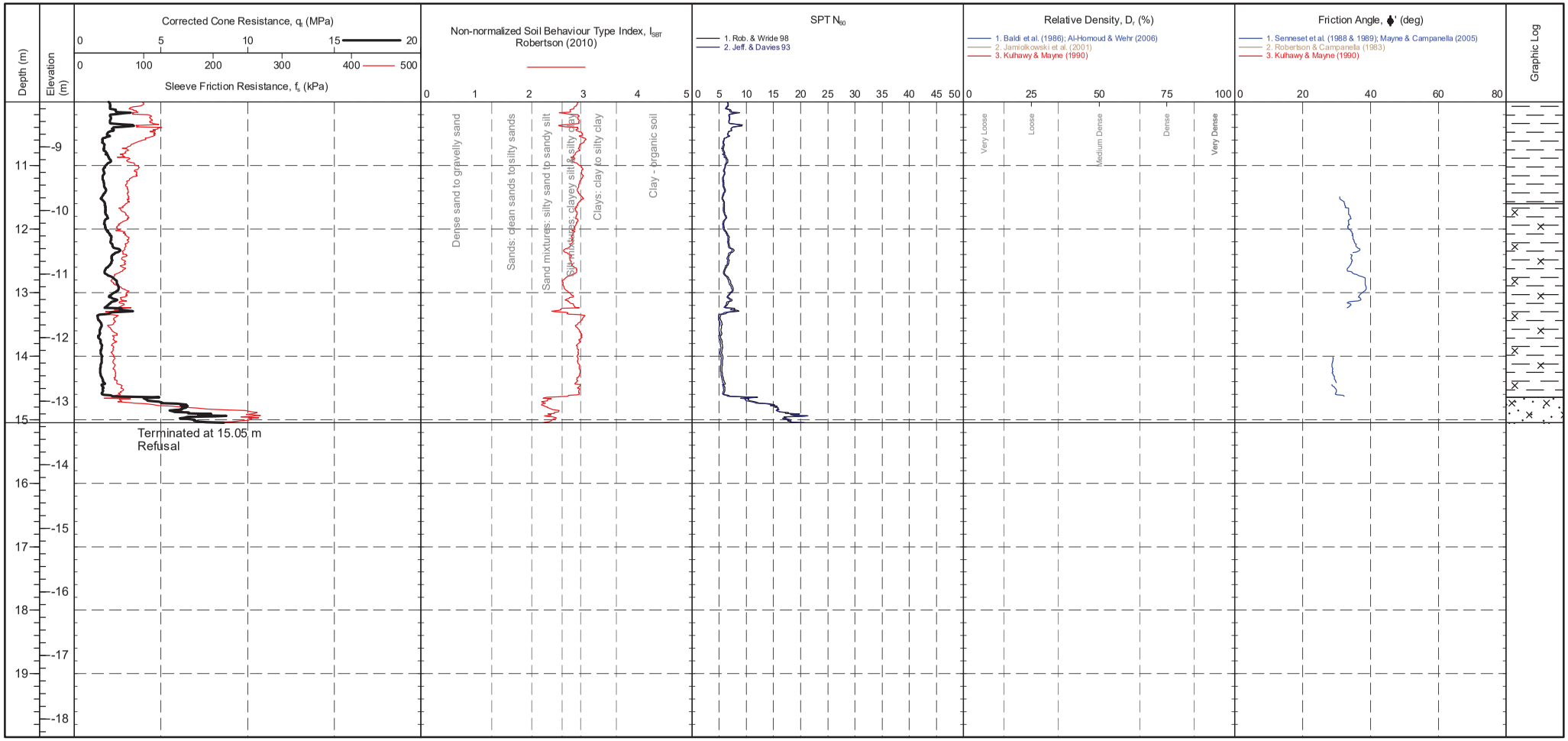
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138669.8 m	REMARK	SHEET : 2 OF 2
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 1.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07A	X-Y Inclinometer	2387 mV	2441 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

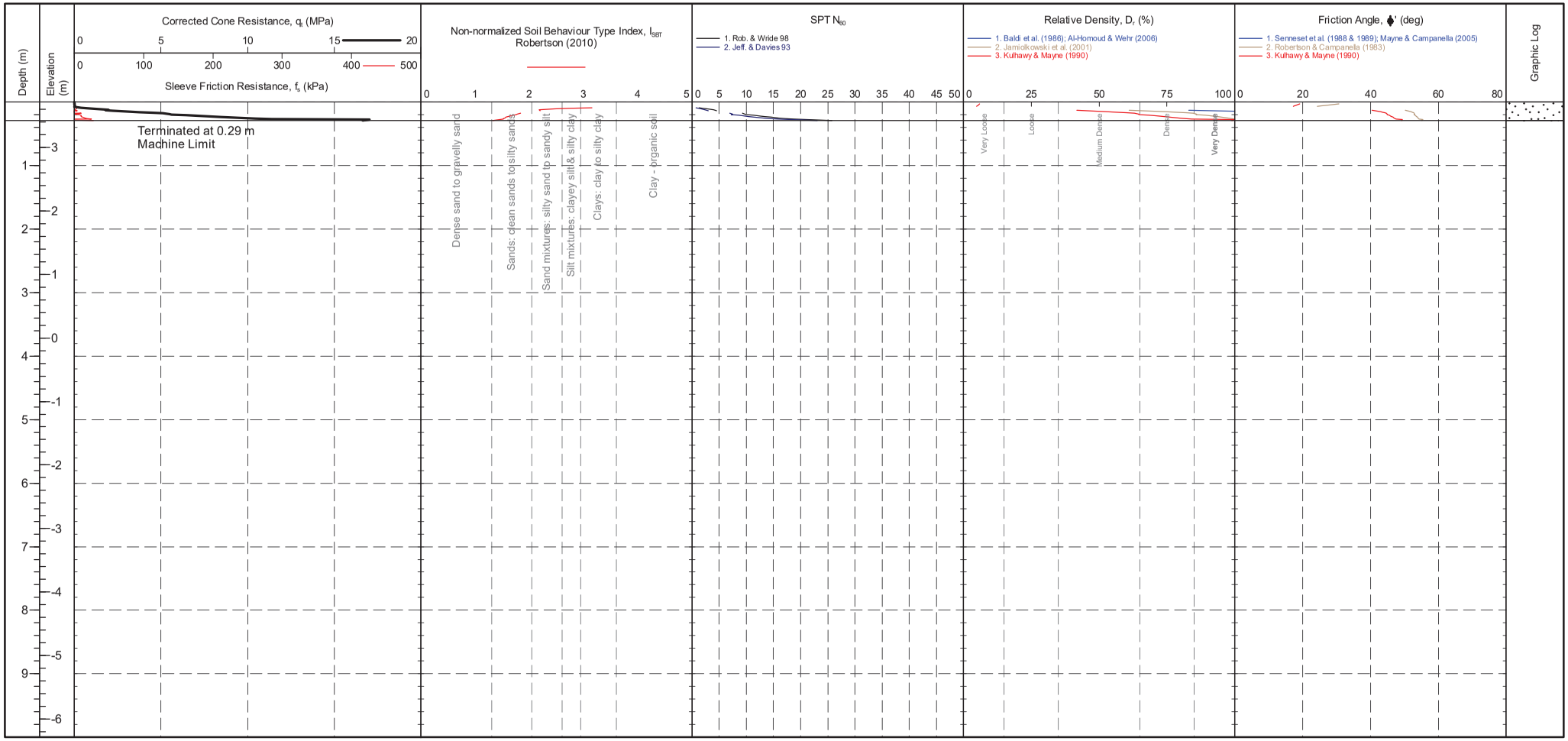
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138614.0 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863742.4 m	Test refused on inclination.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Machine Limit		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	275 mV	278 mV	0.033 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	261 mV	261 mV	0 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	248 mV	248 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08	X-Y Inclinometer	1922 mV	2262 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

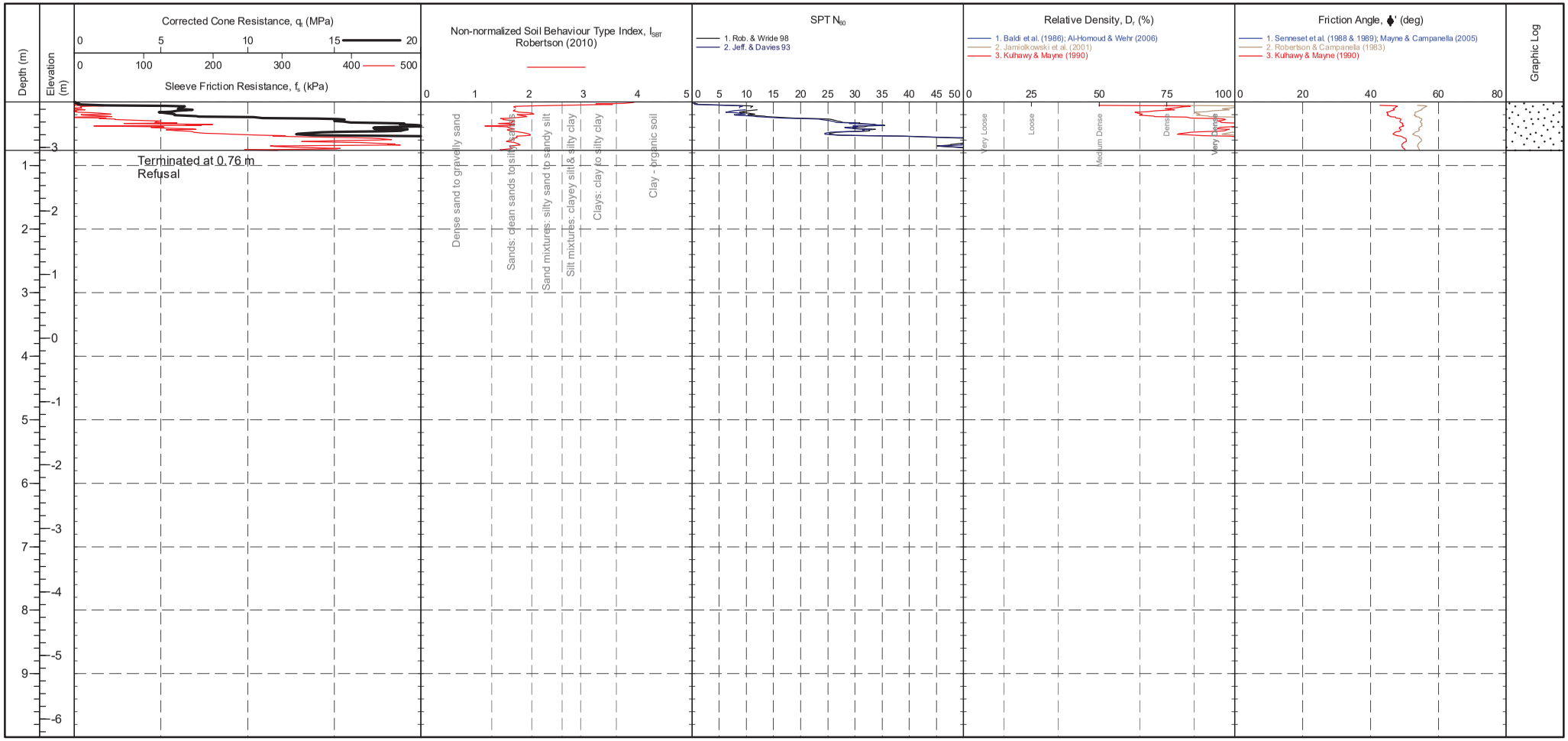
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 082

CLIENT : Holequest Geotechnical Limited	EASTING : 138615.0 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863743.4 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	278 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	262 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08B	Pore Pressure 2	250 mV	238 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2293 mV	

Groundwater Level

Dissipation Test

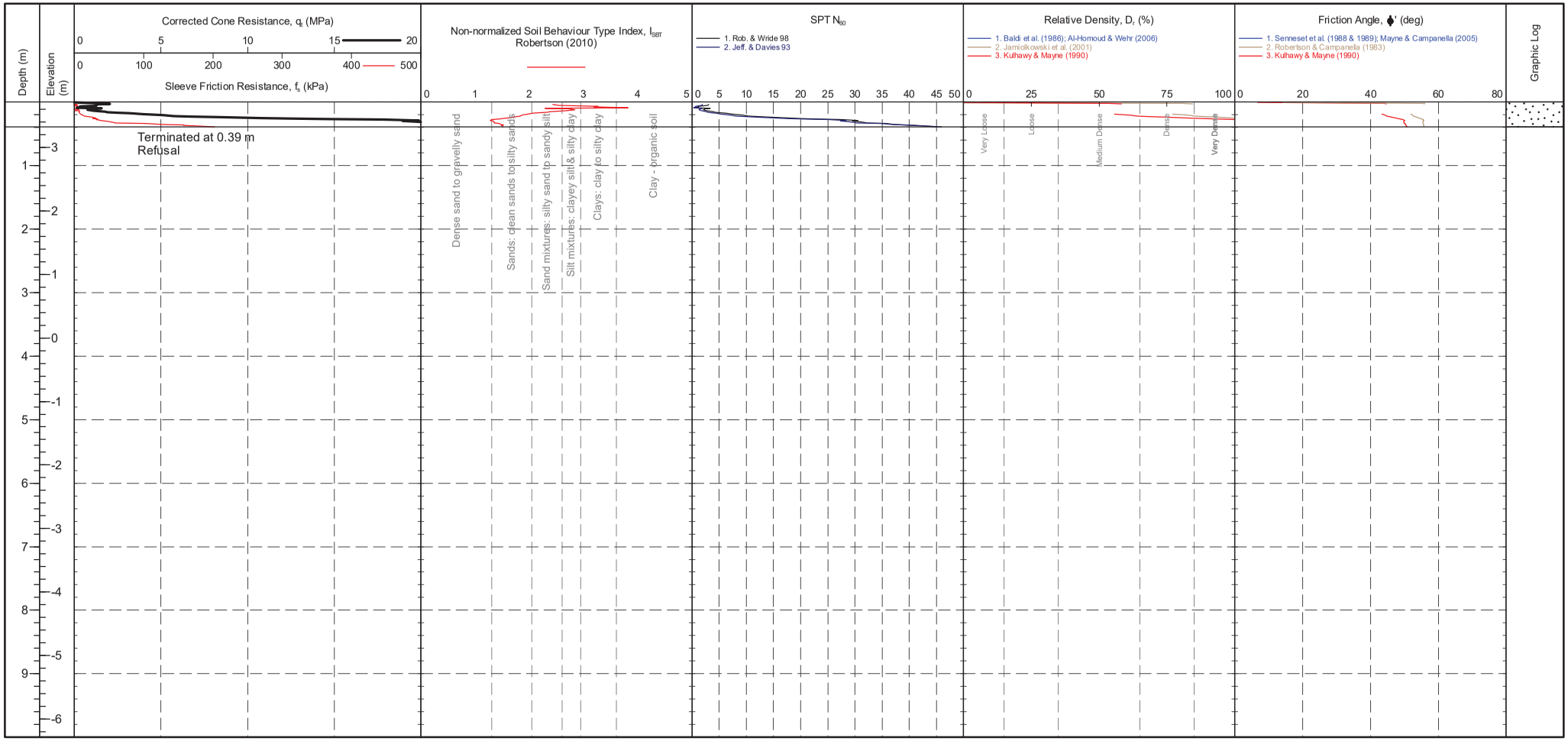
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08C

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138617.0 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863744.4 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	232 mV	254 mV	0.006 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08C	X-Y Inclinometer	2616 mV	2424 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

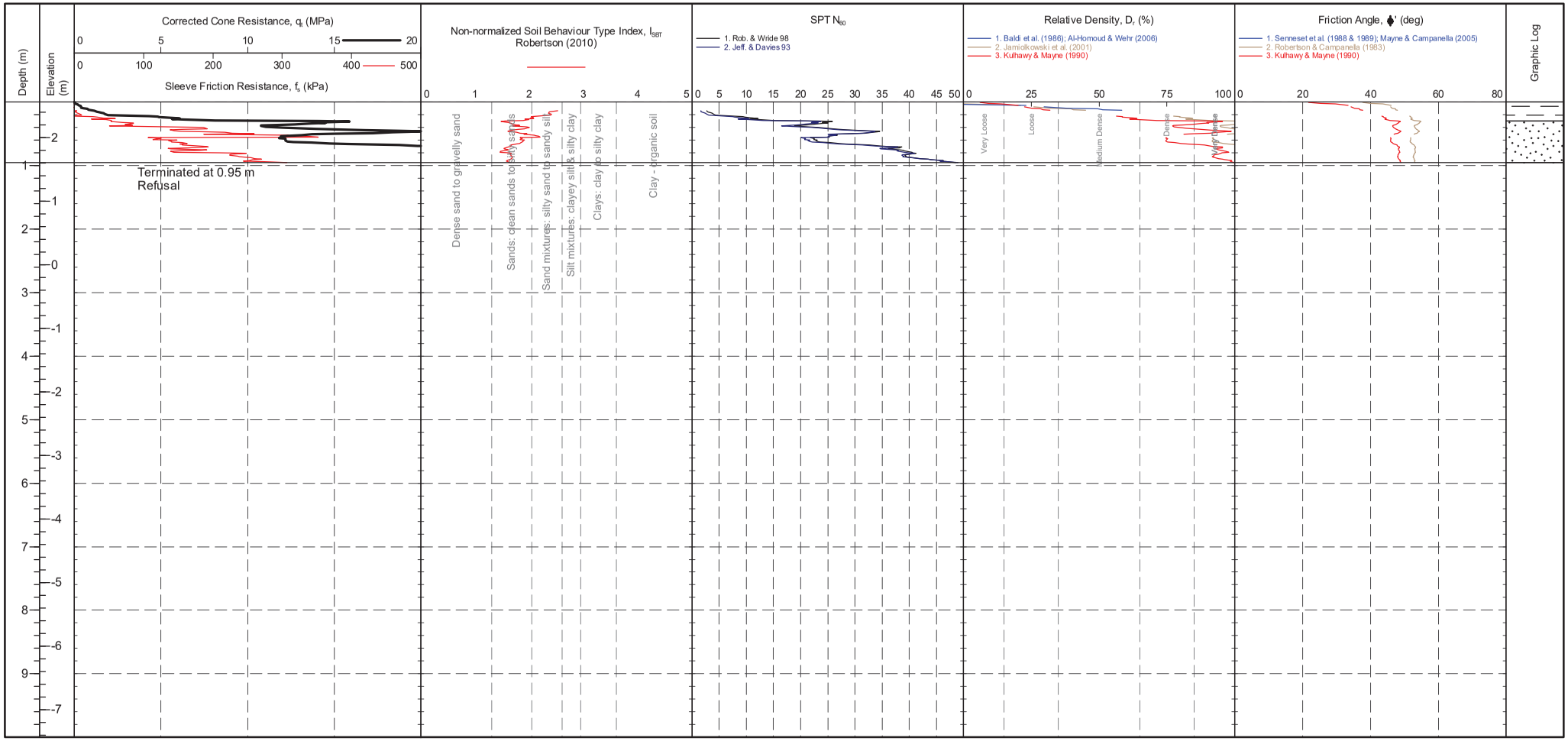
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09

CLIENT : Holequest Geotechnical Limited	EASTING	: 138660.5 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863725.0 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.56 m		TEST DATE	: 06/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	277 mV	277 mV	0 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	262 mV	262 mV	0 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	245 mV	238 mV	-0.002 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09	X-Y Inclinometer	2423 mV	2422 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

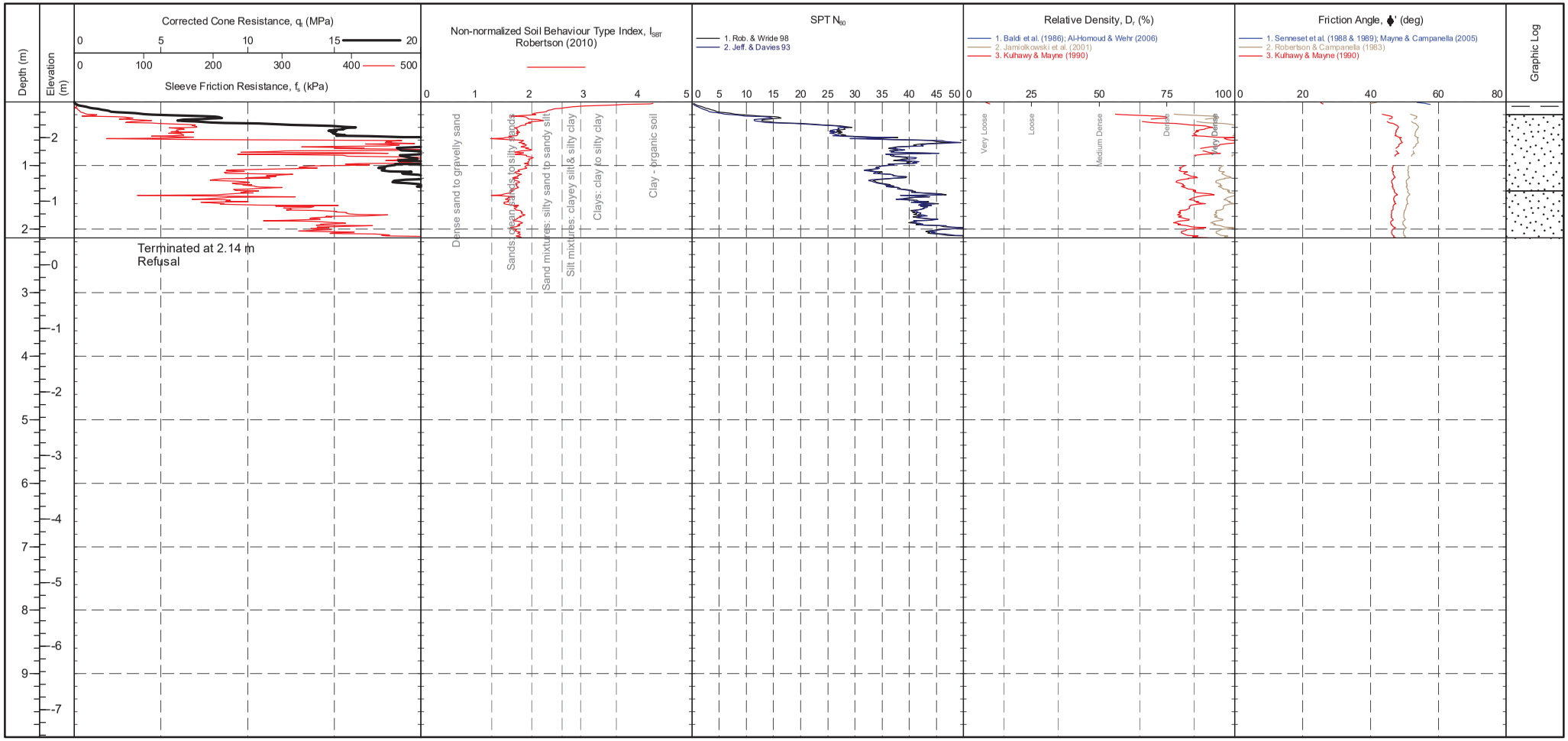
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09B

CLIENT : Holequest Geotechnical Limited	EASTING : 138661.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863726.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.56 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	272 mV	-0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	258 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09A	Pore Pressure 2	241 mV	219 mV	-0.006 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2252 mV	2418 mV	

Groundwater Level

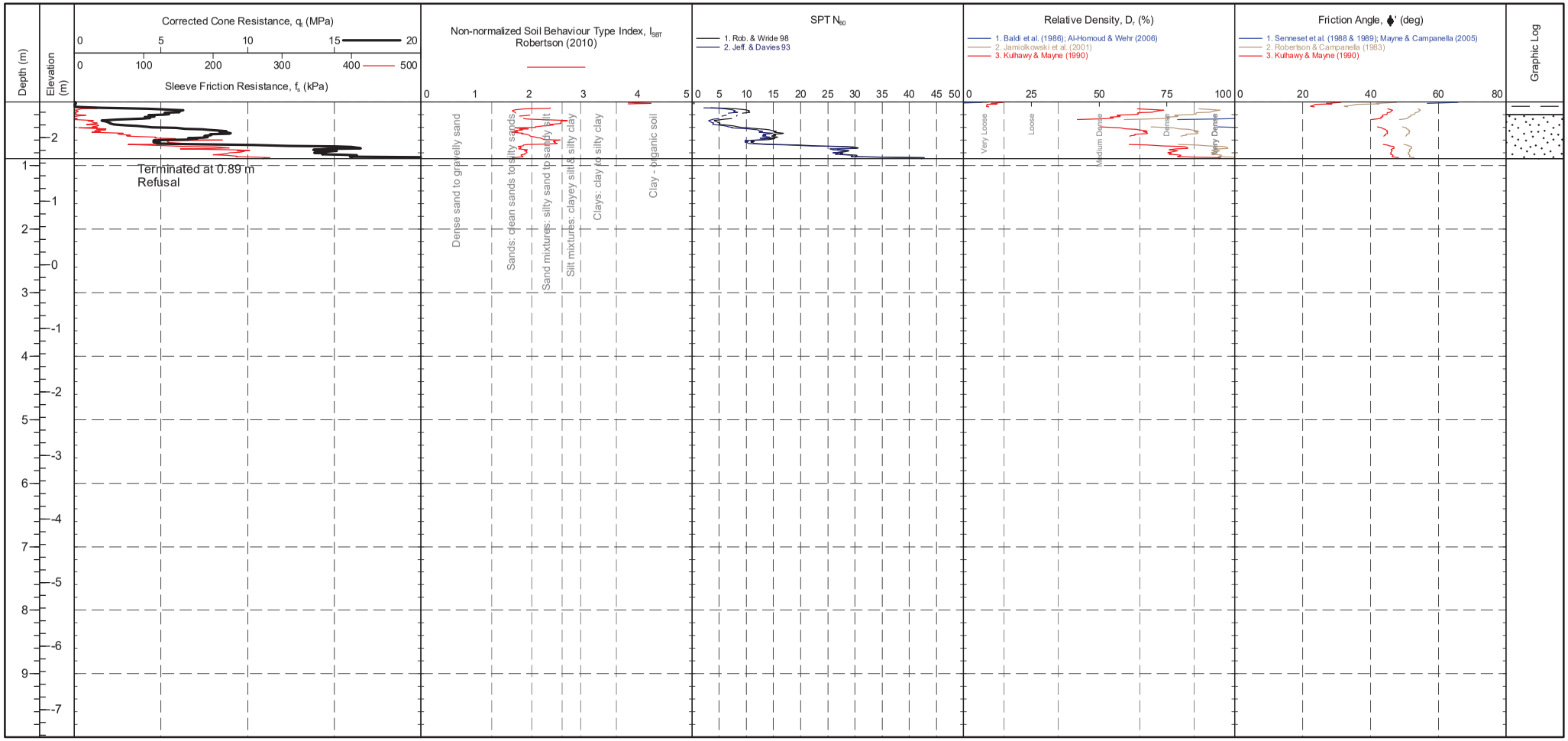
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 092**

CLIENT : Holequest Geotechnical Limited	EASTING : 138662.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863727.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.56 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post / Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	273 mV	275 mV / 0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	258 mV / -0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09B	Pore Pressure 2	237 mV	228 mV / -0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2672 mV	2421 mV

Groundwater Level

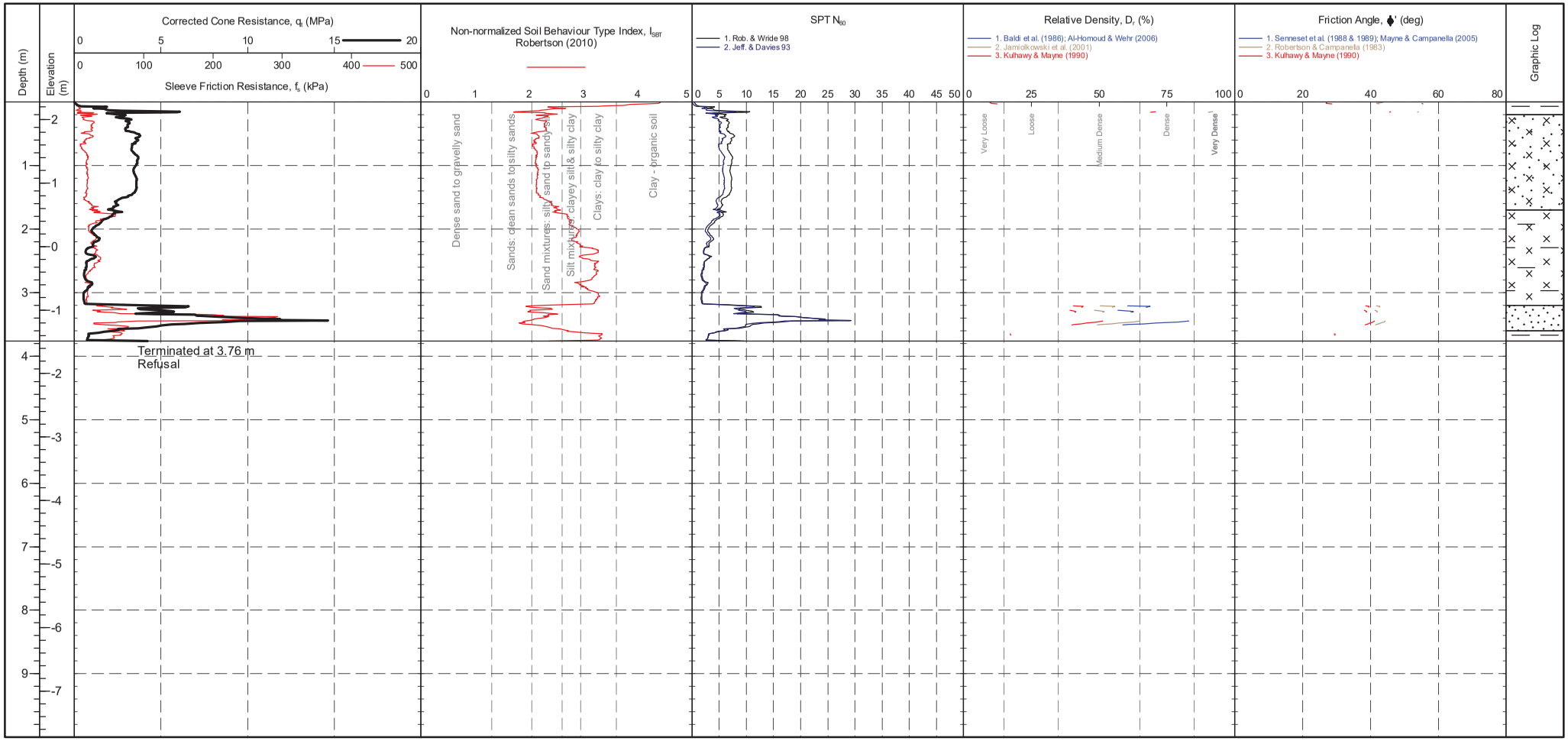
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT A0**

CLIENT : Holequest Geotechnical Limited	EASTING : 138663.1 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863591.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.28 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	247 mV	182 mV	-0.016 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10	X-Y Inclinometer	2308 mV	2439 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

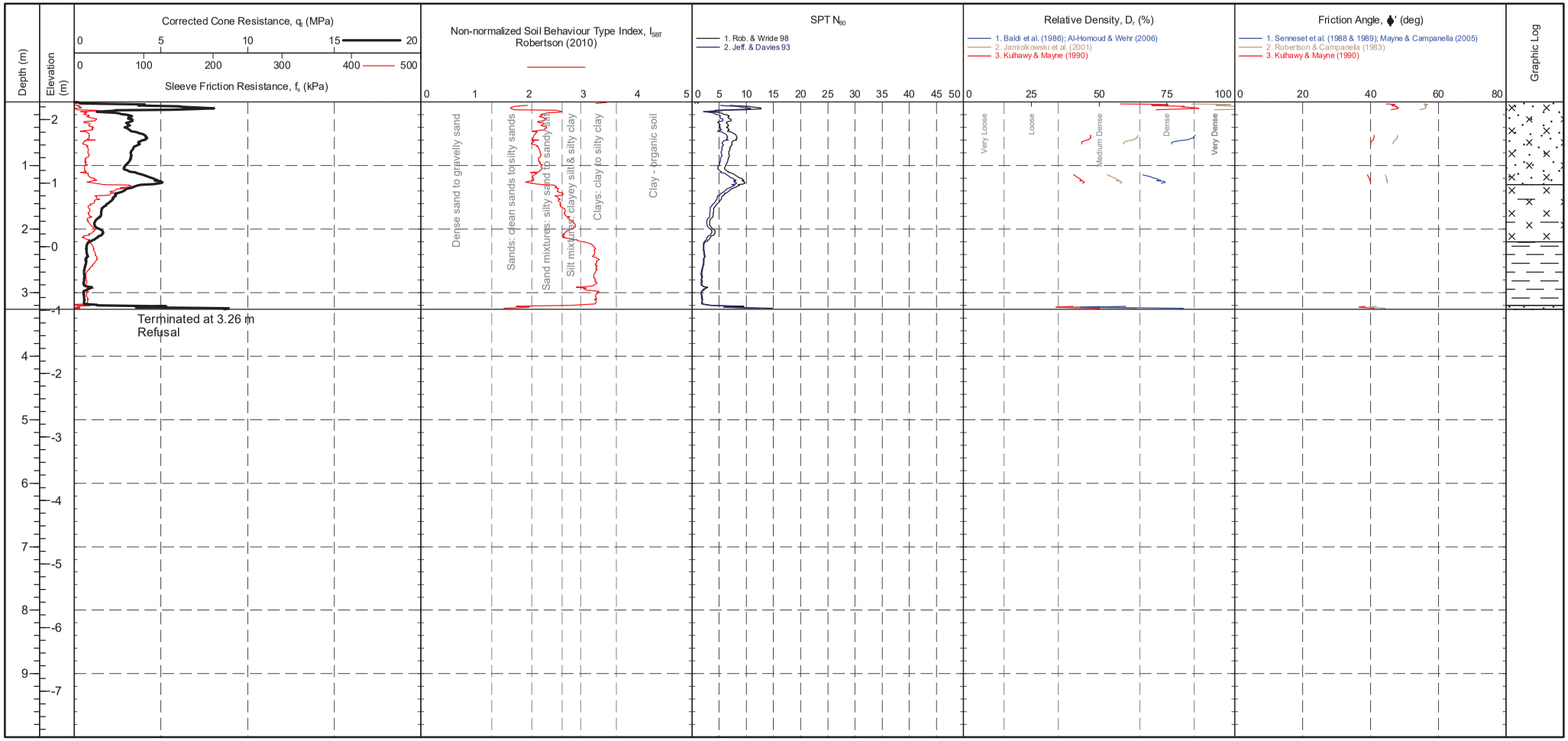
CPT A0B

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138664.1 m
NORTHING : 863592.2 m
ELEVATION : 2.28 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 06/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES	
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10A		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

Transducer	Pre	Post	Difference
Tip	277 mV	277 mV	0 MPa
Sleeve	260 mV	258 mV	-0.001 kPa
Pore Pressure 2	223 mV	216 mV	-0.002 kPa
X-Y Inclinometer	2411 mV	2417 mV	

Groundwater Level
Dissipation Test

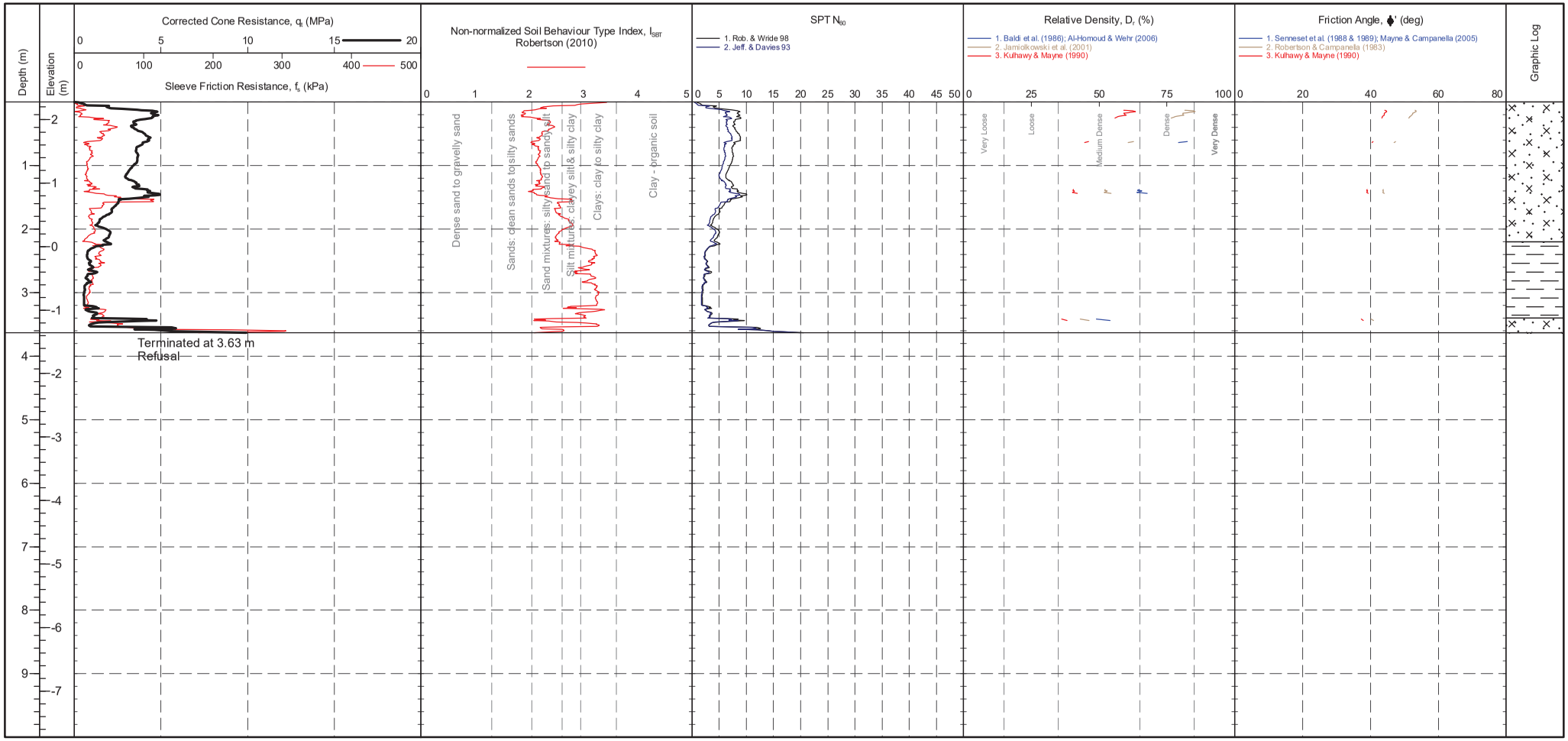
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT A02

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138665.1 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863593.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.28 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	277 mV	277 mV	0 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	259 mV	259 mV	0 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	218 mV	-0.008 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10B	X-Y Inclinometer	2328 mV	2427 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

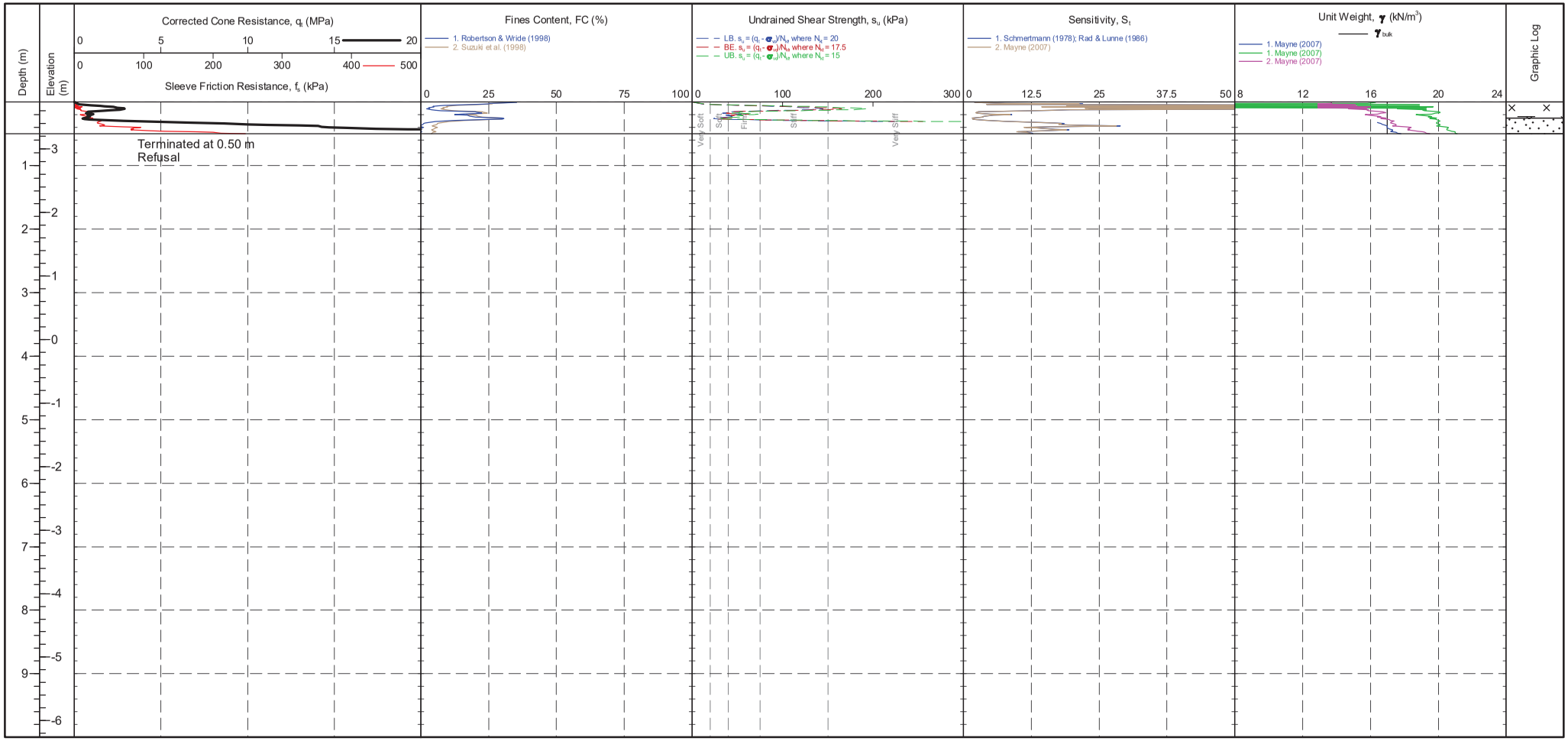
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 0A

CLIENT : Holequest Geotechnical Limited	EASTING	: 138602.4 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863699.2 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 3.74 m		TEST DATE	: 04/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	280 mV	0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	258 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01	Pore Pressure 2	241 mV	235 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2616 mV	2425 mV	

Groundwater Level

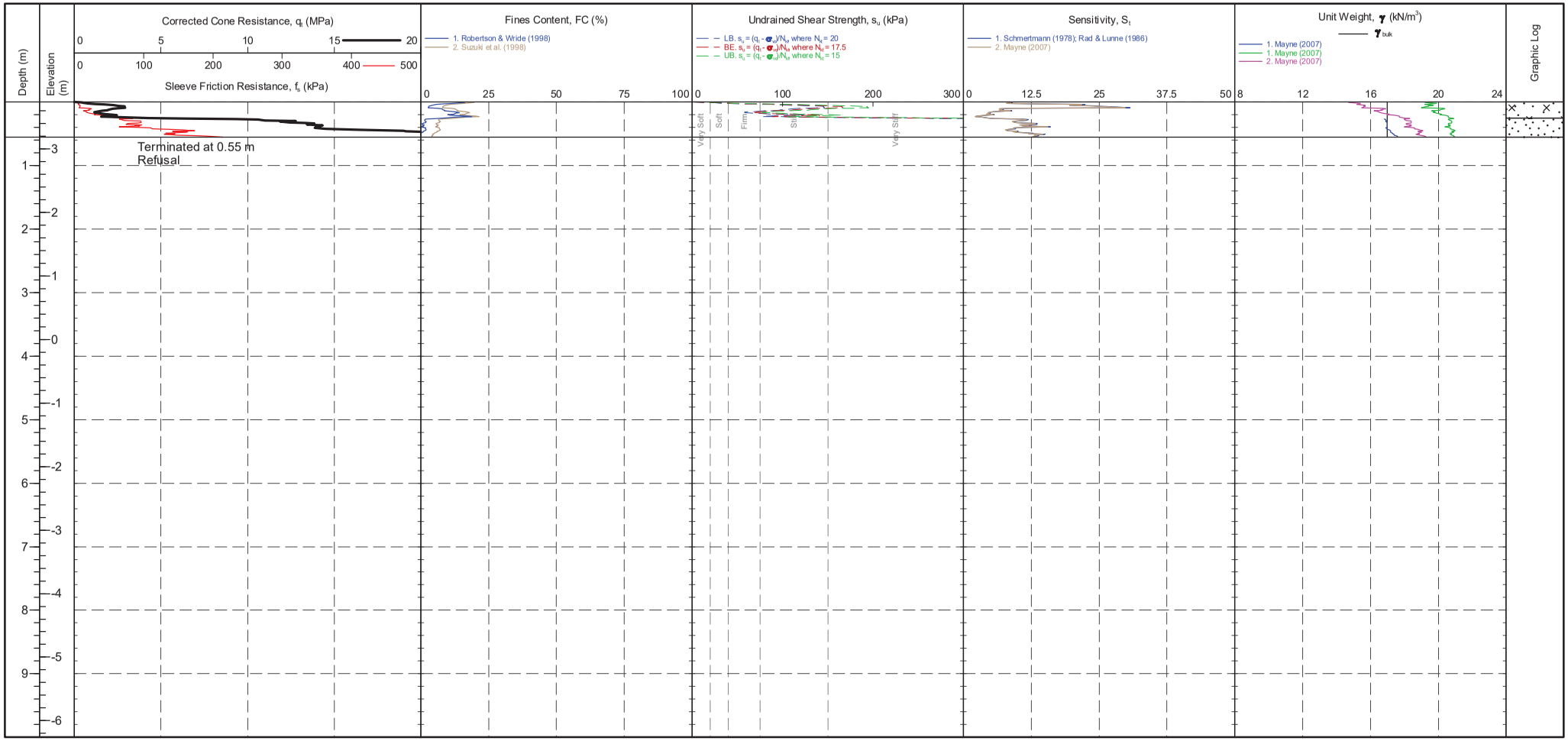
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT 0AB**

CLIENT : Holequest Geotechnical Limited	EASTING : 138603.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863700.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.74 m		TEST DATE : 04/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	280 mV	281 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	257 mV	260 mV	0.002 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01A	Pore Pressure 2	238 mV	231 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2545 mV	2470 mV	

Groundwater Level

Dissipation Test

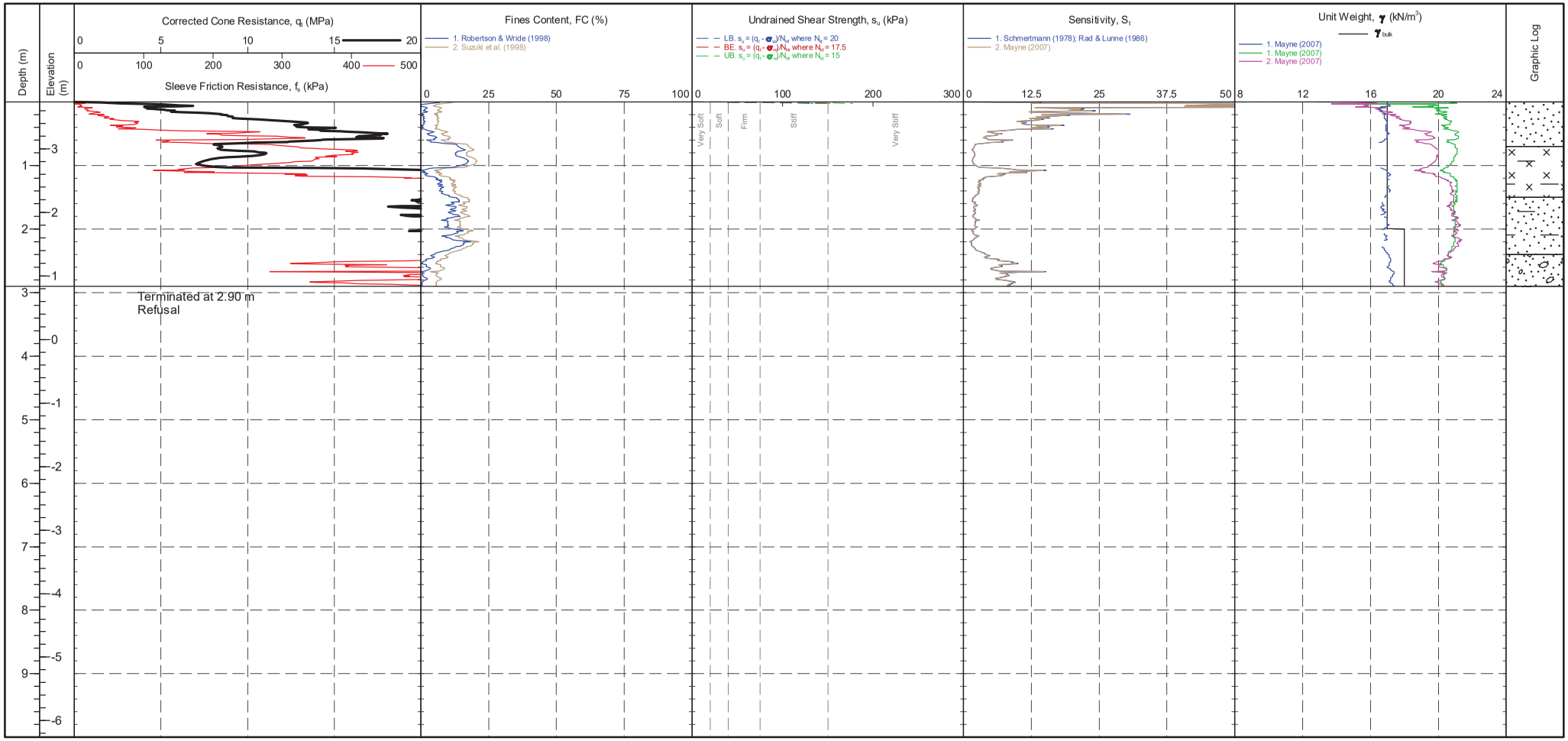
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 0A2

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138604.4 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863701.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.74 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	279 mV	269 mV	-0.11 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	251 mV	-0.005 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 01B	Pore Pressure 2	236 mV	158 mV	-0.02 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2449 mV	2444 mV	

Groundwater Level

Dissipation Test

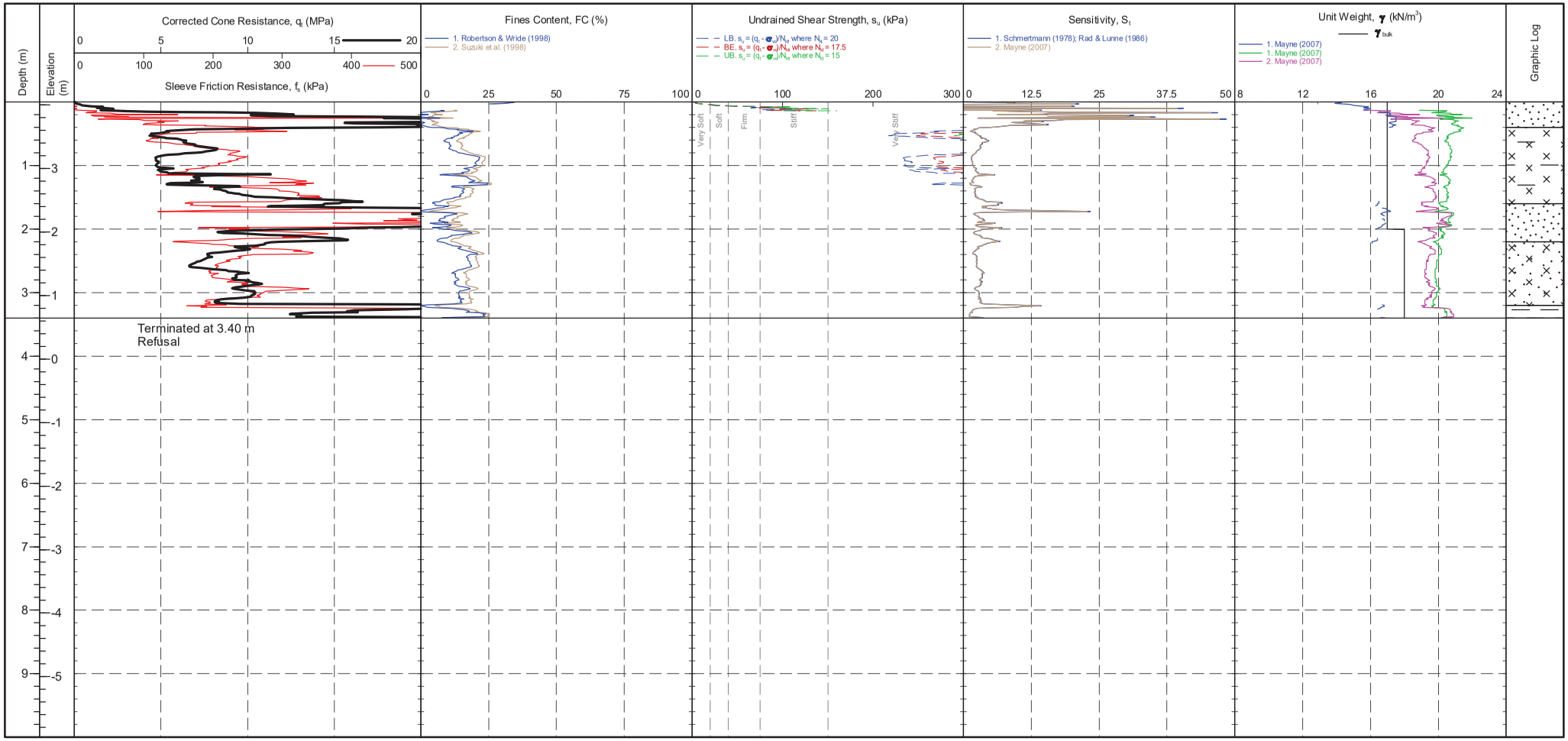
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 03

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138575.8 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863646.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 4.05 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	281 mV	270 mV	-0.121 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	263 mV	254 mV	-0.006 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	197 mV	-0.013 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02	X-Y Inclinometer	1968 mV	2462 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

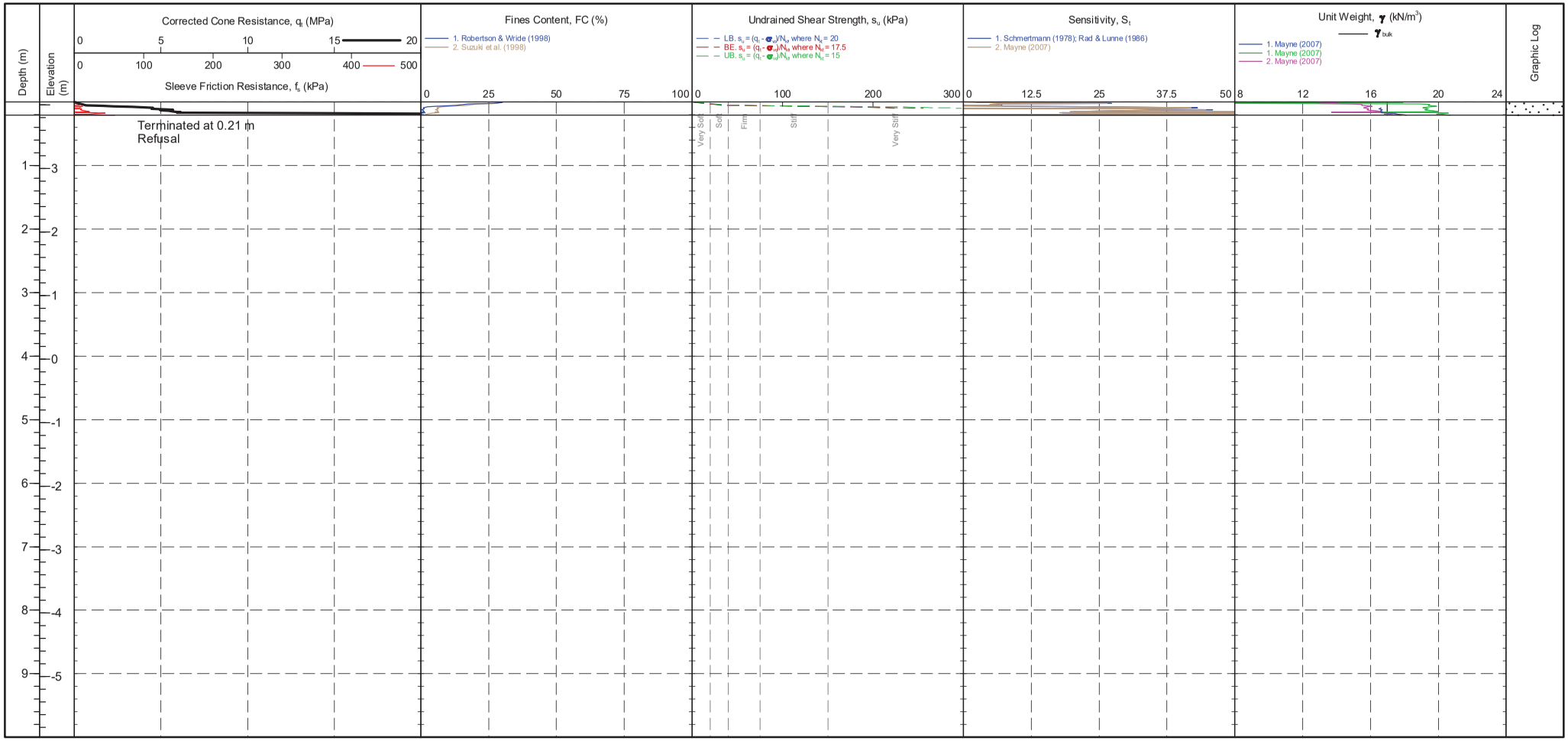
CPT 03B

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138576.8 m
NORTHING : 863647.0 m
ELEVATION : 4.05 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 04/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	271 mV	279 mV	0.088 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	255 mV	259 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02A	Pore Pressure 2	231 mV	243 mV	0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2413 mV	2327 mV	

Groundwater Level
Dissipation Test

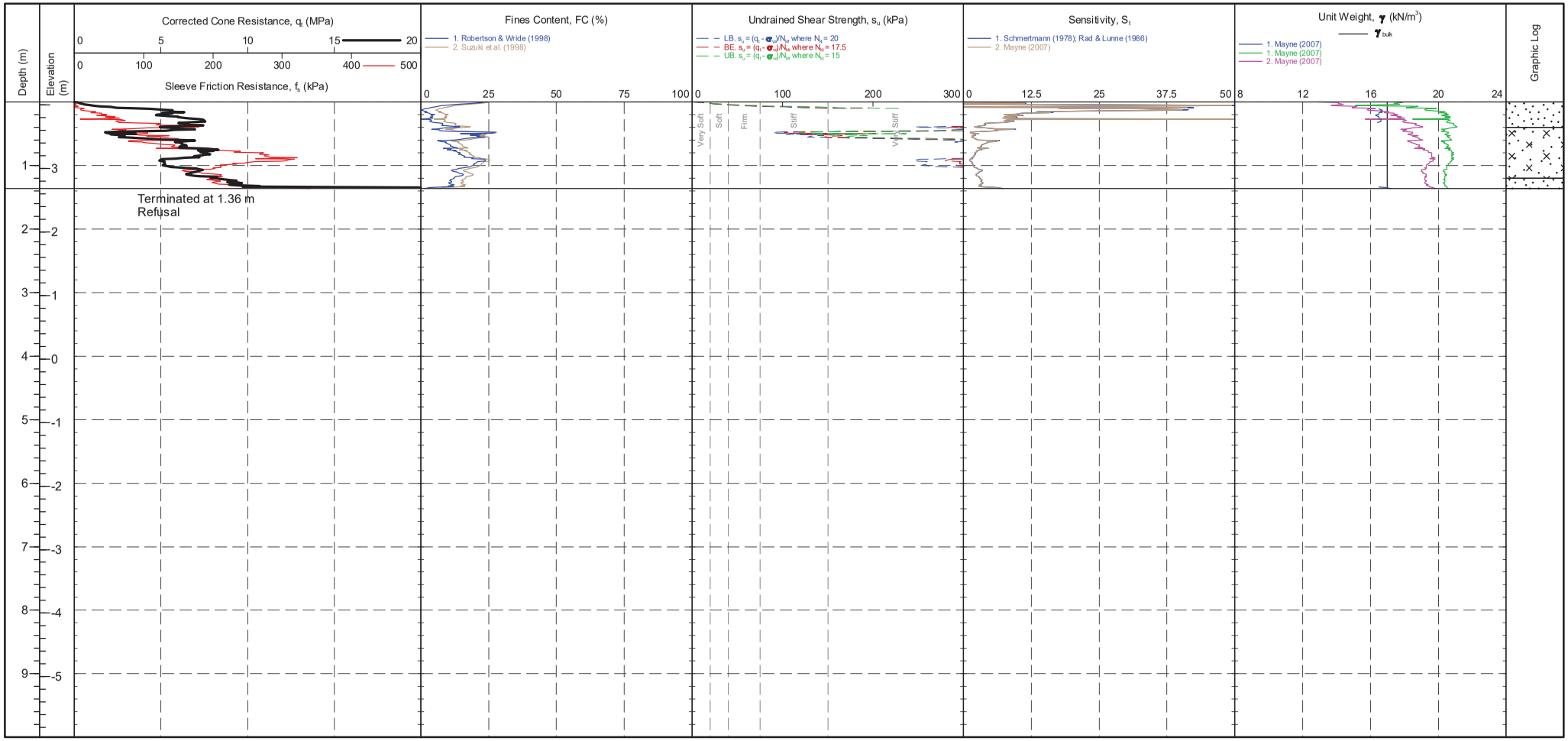
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 032

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138577.8 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863648.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 4.05 m		TEST DATE : 04/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post / Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV / -0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	257 mV / -0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 02B	Pore Pressure 2	242 mV	239 mV / -0.001 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2455 mV	2450 mV

Groundwater Level

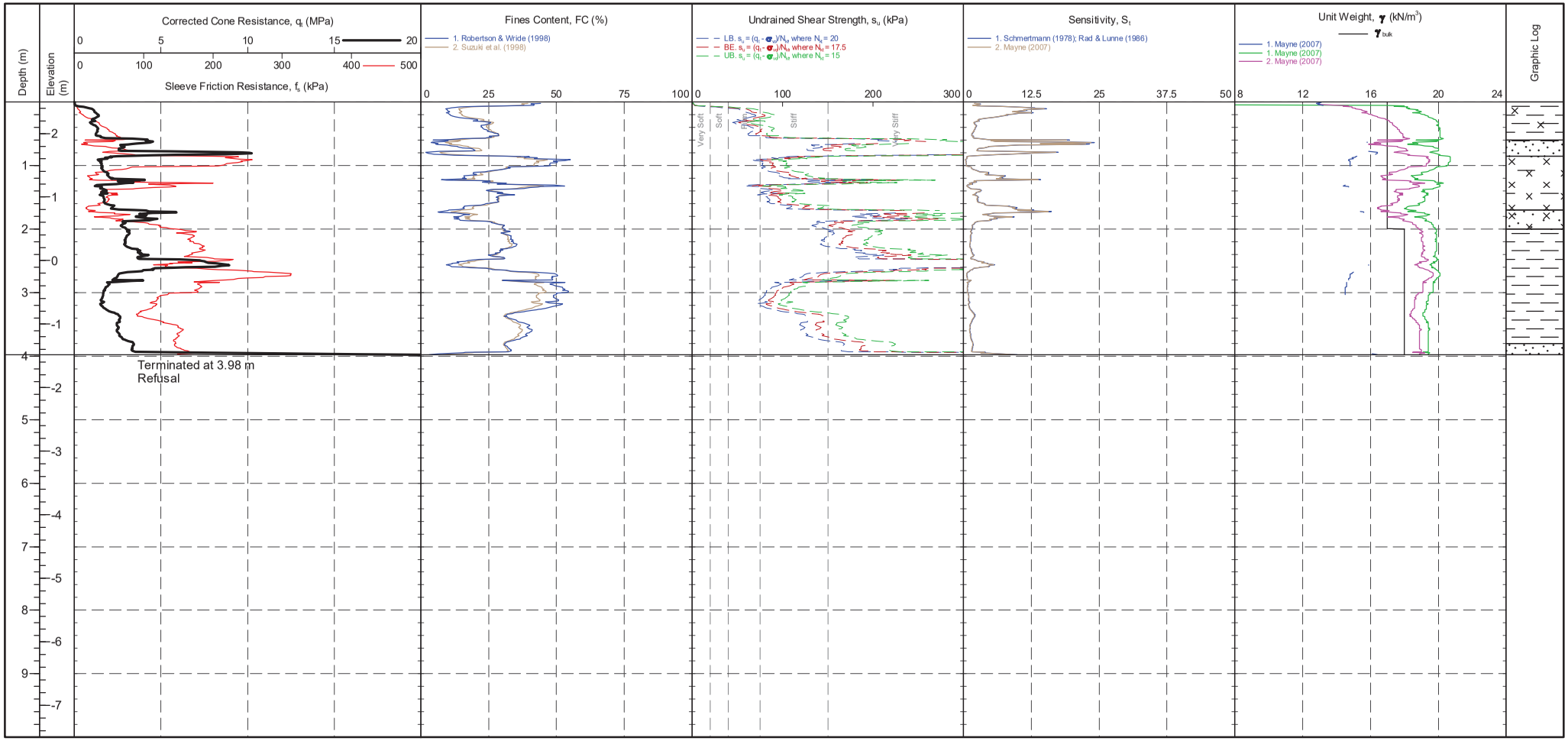
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 01**

CLIENT : Holequest Geotechnical Limited	EASTING : 138646.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863692.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.50 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	276 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	259 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03	Pore Pressure 2	247 mV	116 mV	-0.033 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2451 mV	

Groundwater Level

Dissipation Test

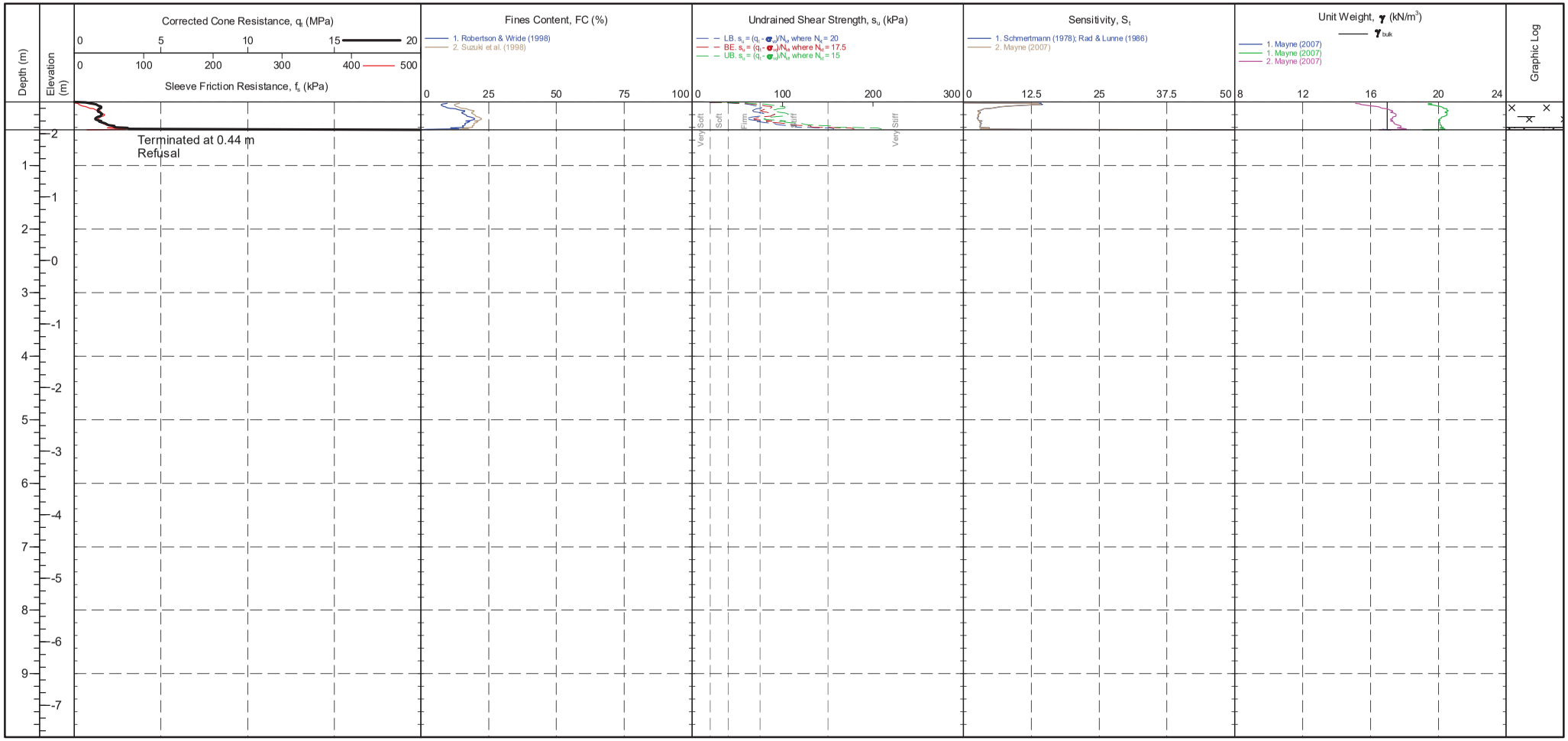
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 01B

CLIENT : Holequest Geotechnical Limited	EASTING	: 138647.4 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863693.9 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.50 m		TEST DATE	: 06/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	275 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	258 mV	258 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03A	Pore Pressure 2	160 mV	250 mV	0.023 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2328 mV	2437 mV	

Groundwater Level

Dissipation Test

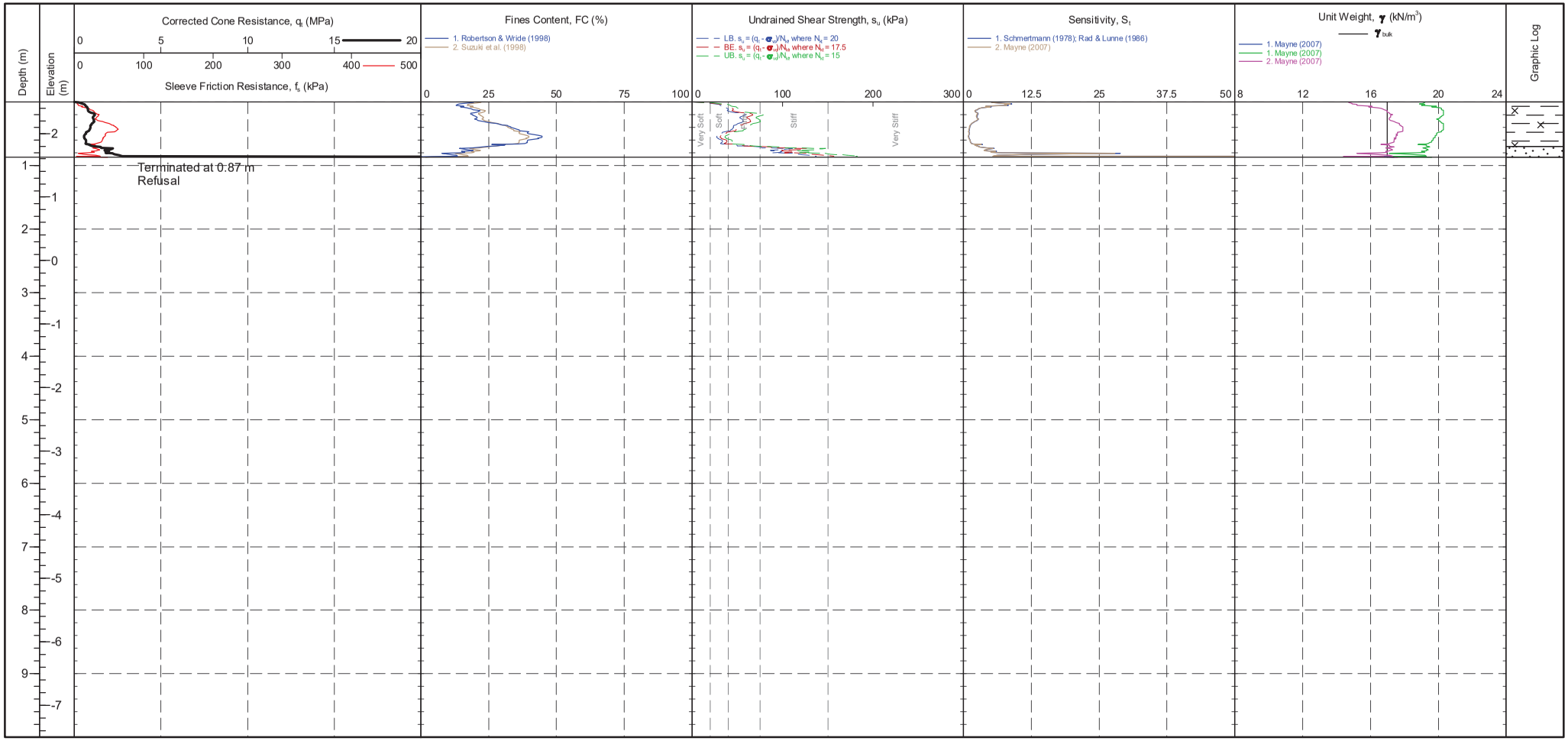
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 012

CLIENT : Holequest Geotechnical Limited	EASTING : 138648.4 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863694.9 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.50 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	276 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	260 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 03B	Pore Pressure 2	254 mV	254 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2731 mV	2425 mV	

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

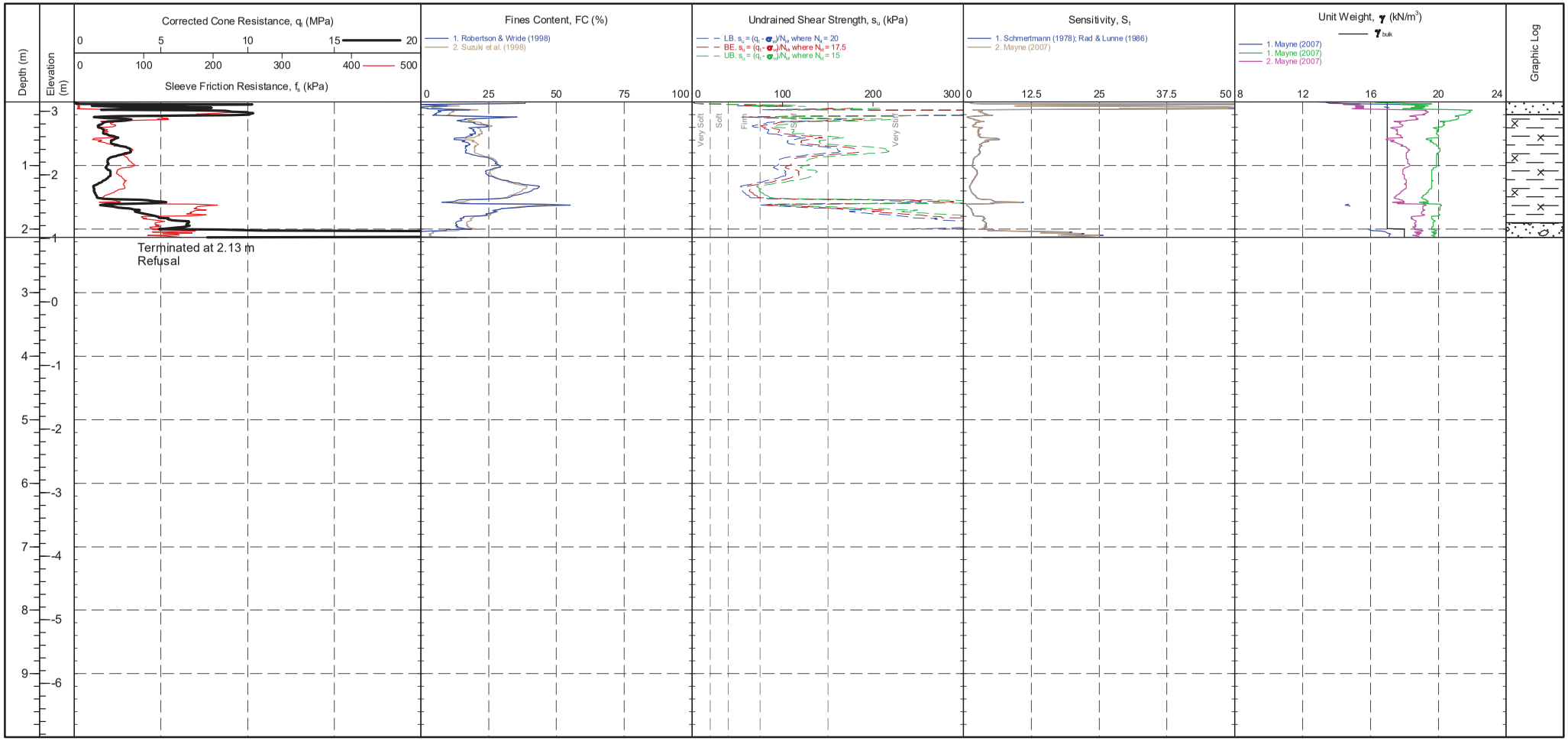
CPT 04

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138628.7 m
NORTHING : 863655.5 m
ELEVATION : 3.15 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 04/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	272 mV	340 mV	0.747 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	255 mV	268 mV	0.009 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04	Pore Pressure 2	245 mV	295 mV	0.013 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2009 mV	2560 mV	

Groundwater Level
Dissipation Test

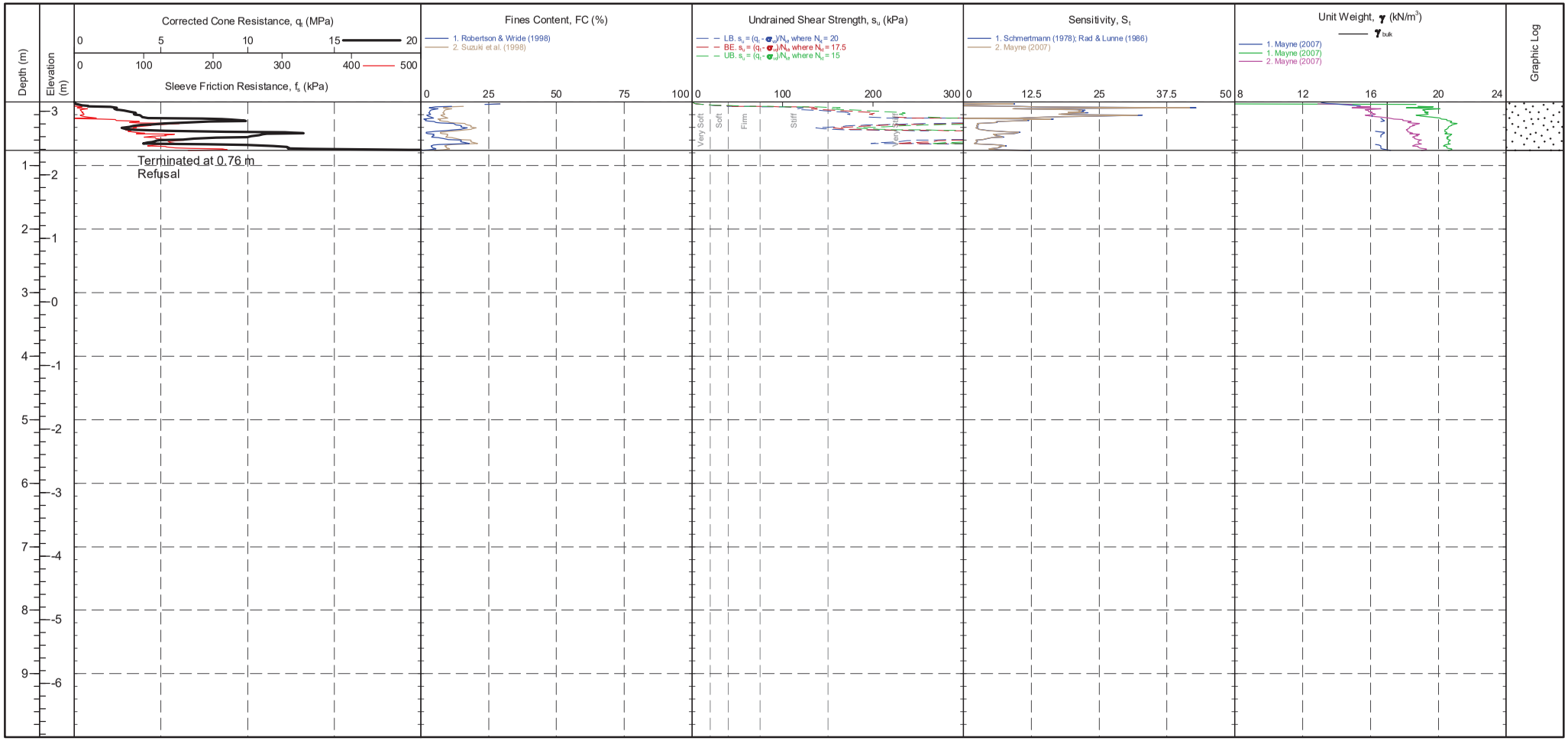
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 04B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138629.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863656.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	279 mV	277 mV	-0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	265 mV	265 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04A	Pore Pressure 2	244 mV	234 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2427 mV	2416 mV	

Groundwater Level

Dissipation Test

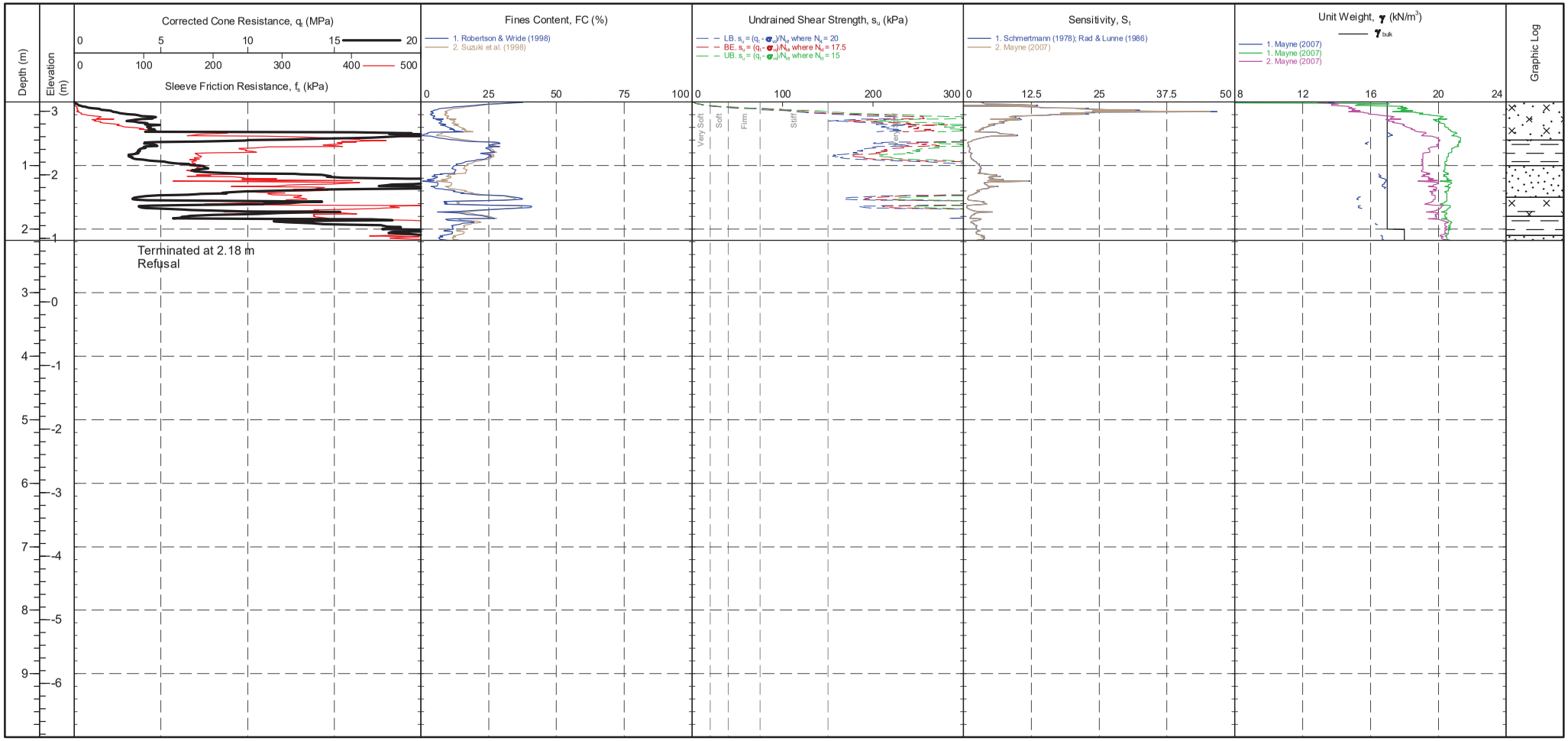
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 042

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138630.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863657.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	277 mV	271 mV	-0.066 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	265 mV	263 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	240 mV	224 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04B	X-Y Inclinometer	2372 mV	2373 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

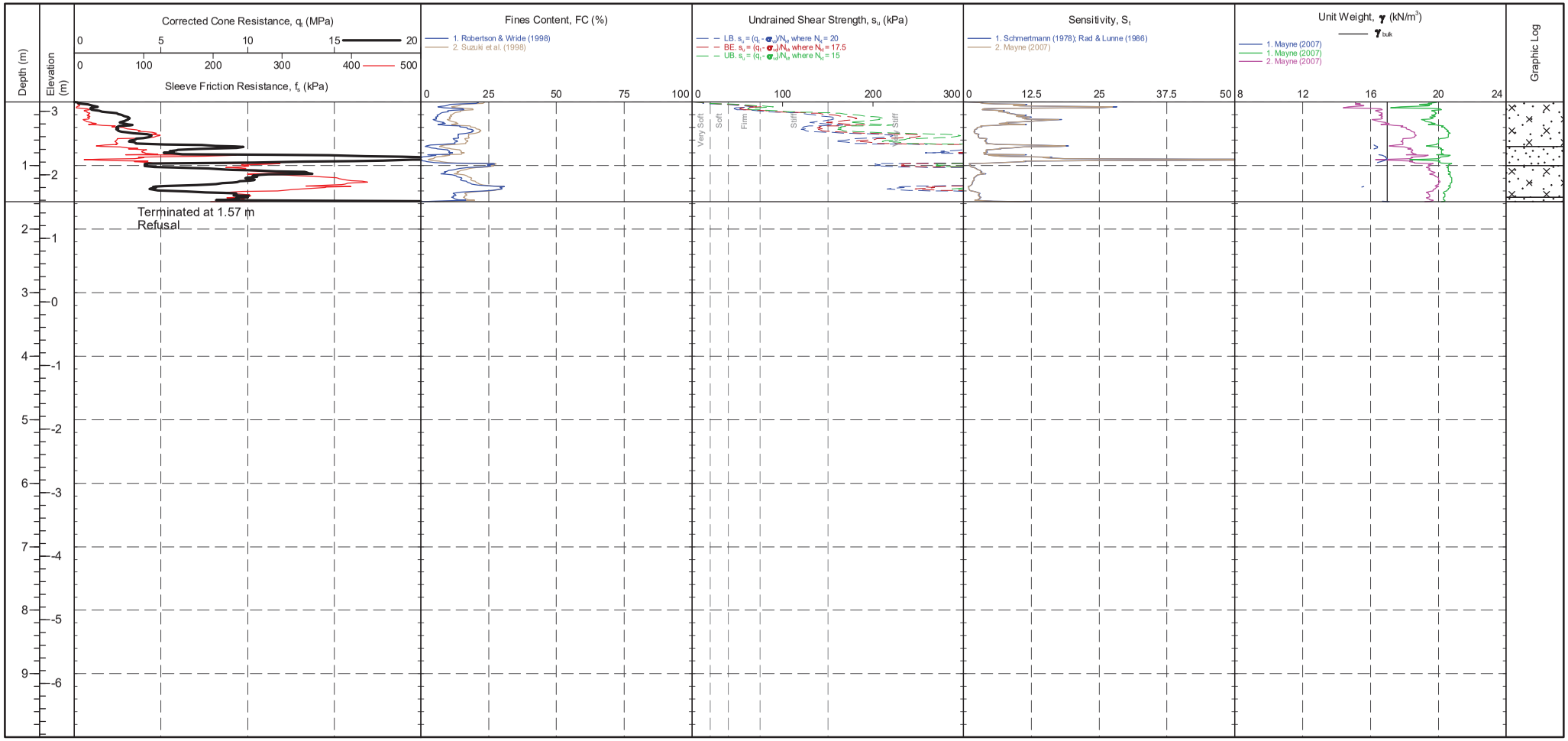
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 04C

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138631.7 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863658.5 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 3.15 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	274 mV	273 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	265 mV	260 mV	-0.004 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	238 mV	218 mV	-0.005 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 04C	X-Y Inclinometer	2501 mV	2485 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

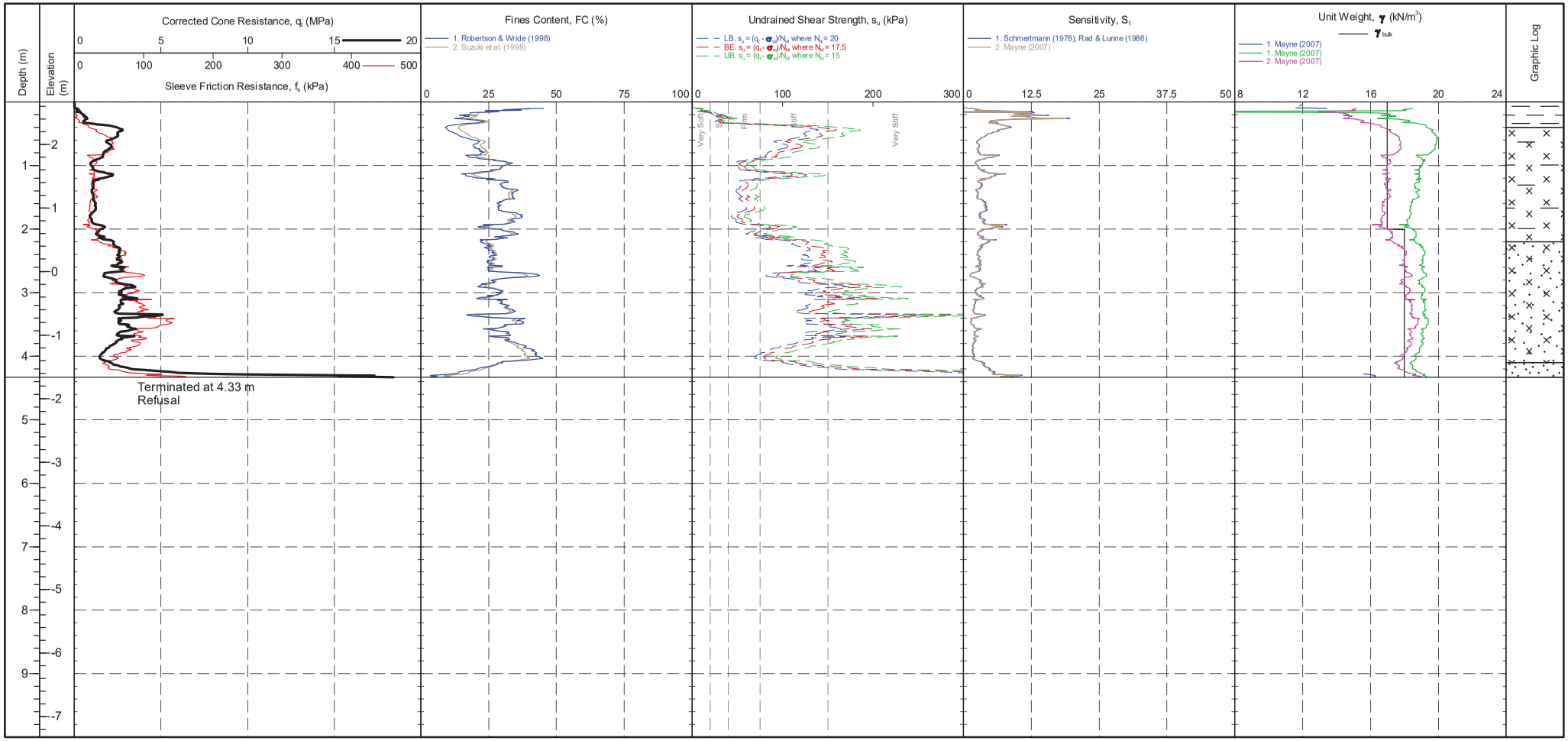
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID **CPT 05**

CLIENT : Holequest Geotechnical Limited	EASTING : 138603.5 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.67 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	276 mV	280 mV	0.044 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	268 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05	Pore Pressure 2	249 mV	253 mV	0.001 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2342 mV	2401 mV	

Groundwater Level

Dissipation Test

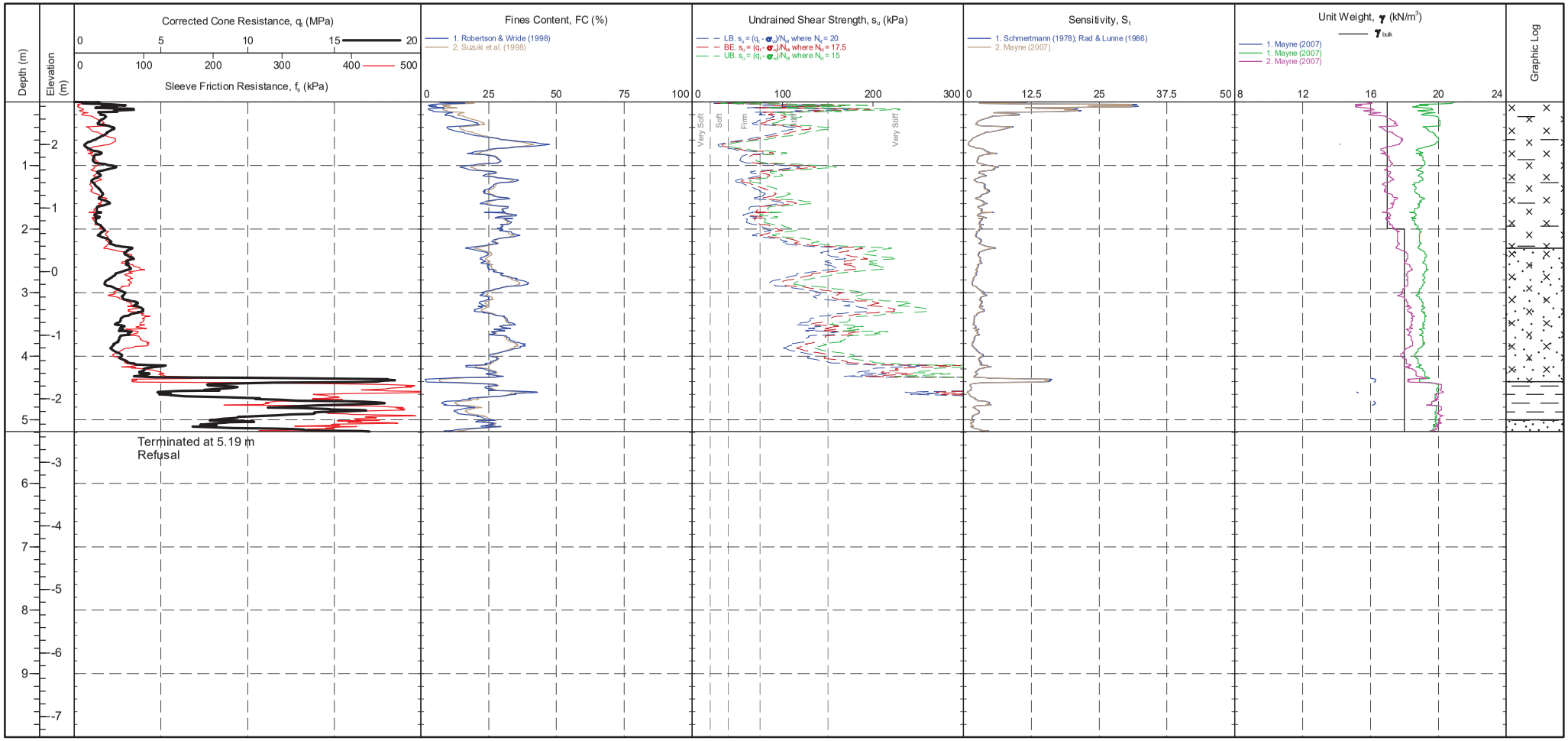
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 05B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138604.5 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863597.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.67 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	277 mV	276 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	265 mV	261 mV	-0.003 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	246 mV	188 mV	-0.015 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 05A	X-Y Inclinometer	2360 mV	2418 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

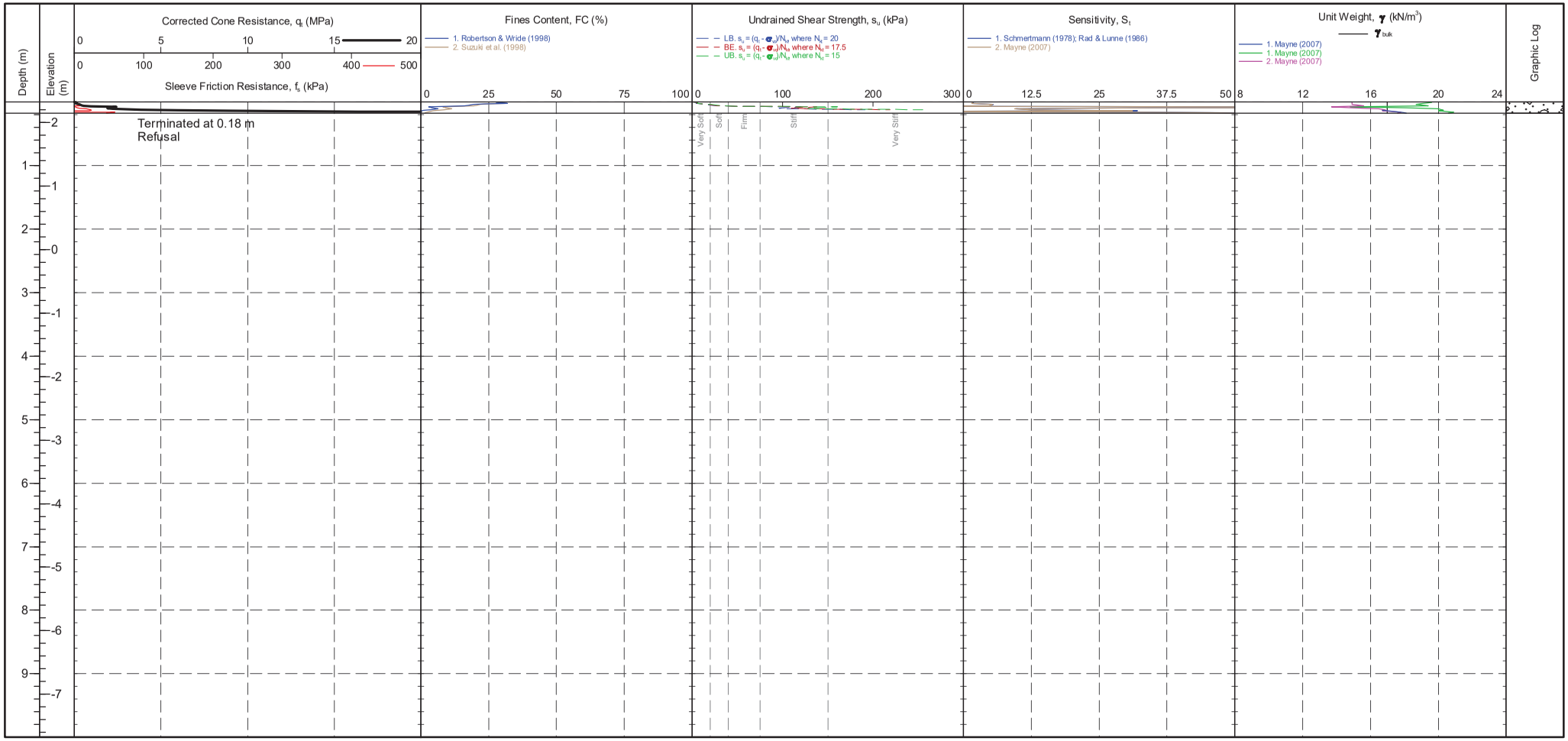
CPT 06

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138661.3 m
NORTHING : 863635.9 m
ELEVATION : 2.32 m
CHECKED BY : R
TERMINATION REASON : Refusal

REMARK
Test refused on tip resistance.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	274 mV	276 mV	0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	260 mV	262 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06	Pore Pressure 2	239 mV	244 mV	0.001 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2483 mV	2393 mV	

Groundwater Level
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

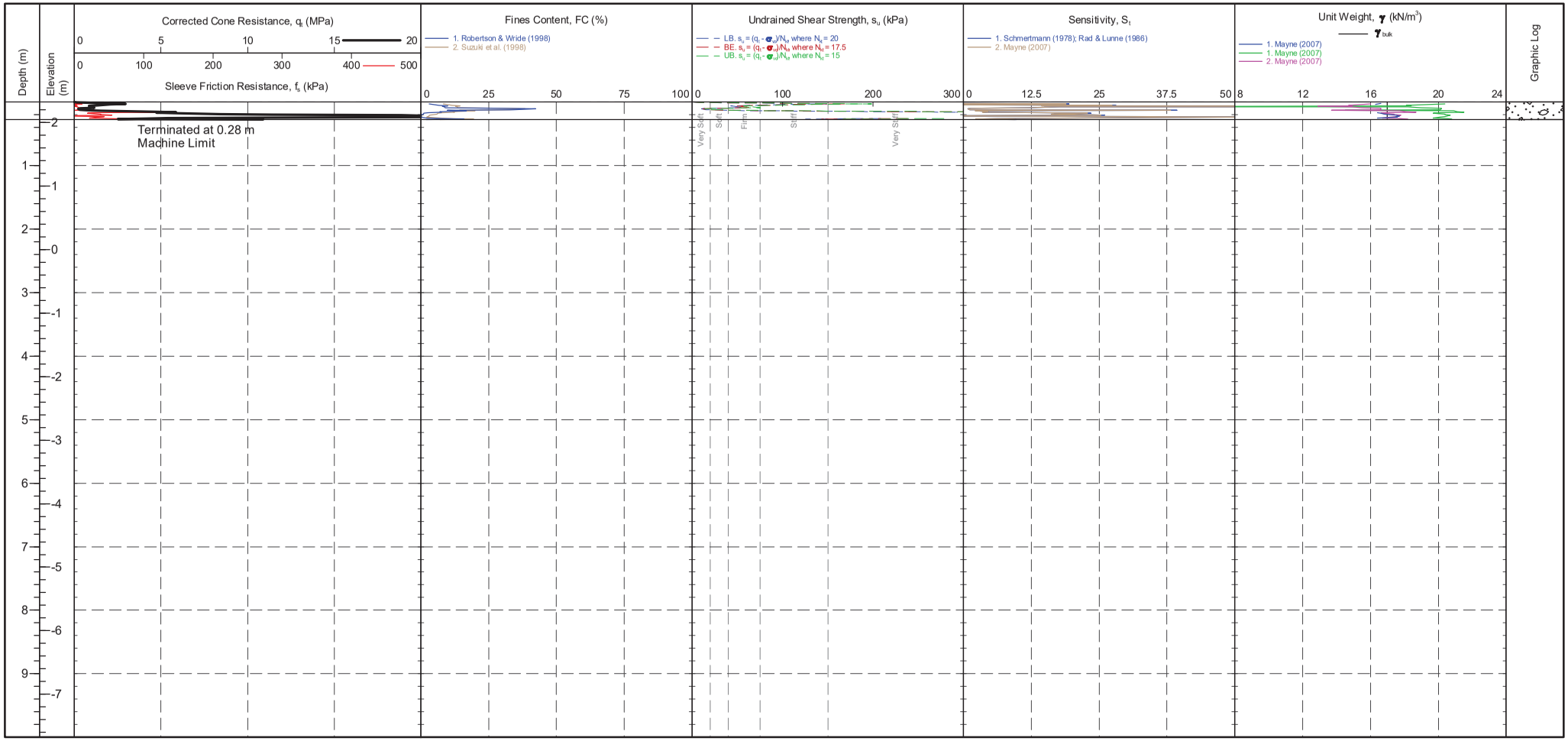
CPT 06B

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138662.3 m
NORTHING : 863636.9 m
ELEVATION : 2.32 m
CHECKED BY : R
TERMINATION REASON : Machine Limit

REMARK
Test refused on inclination.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES	
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2		
CONE AREA RATIO	: 0.79	RIG	: CPT 007		
FILTER POSITION	: u2	OPERATOR	: BC & PB		
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06A		
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild		

Transducer	Pre	Post	Difference
Tip	277 mV	277 mV	0 MPa
Sleeve	262 mV	263 mV	0.001 kPa
Pore Pressure 2	245 mV	244 mV	0 kPa
X-Y Inclinometer	2558 mV	2429 mV	

Groundwater Level
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

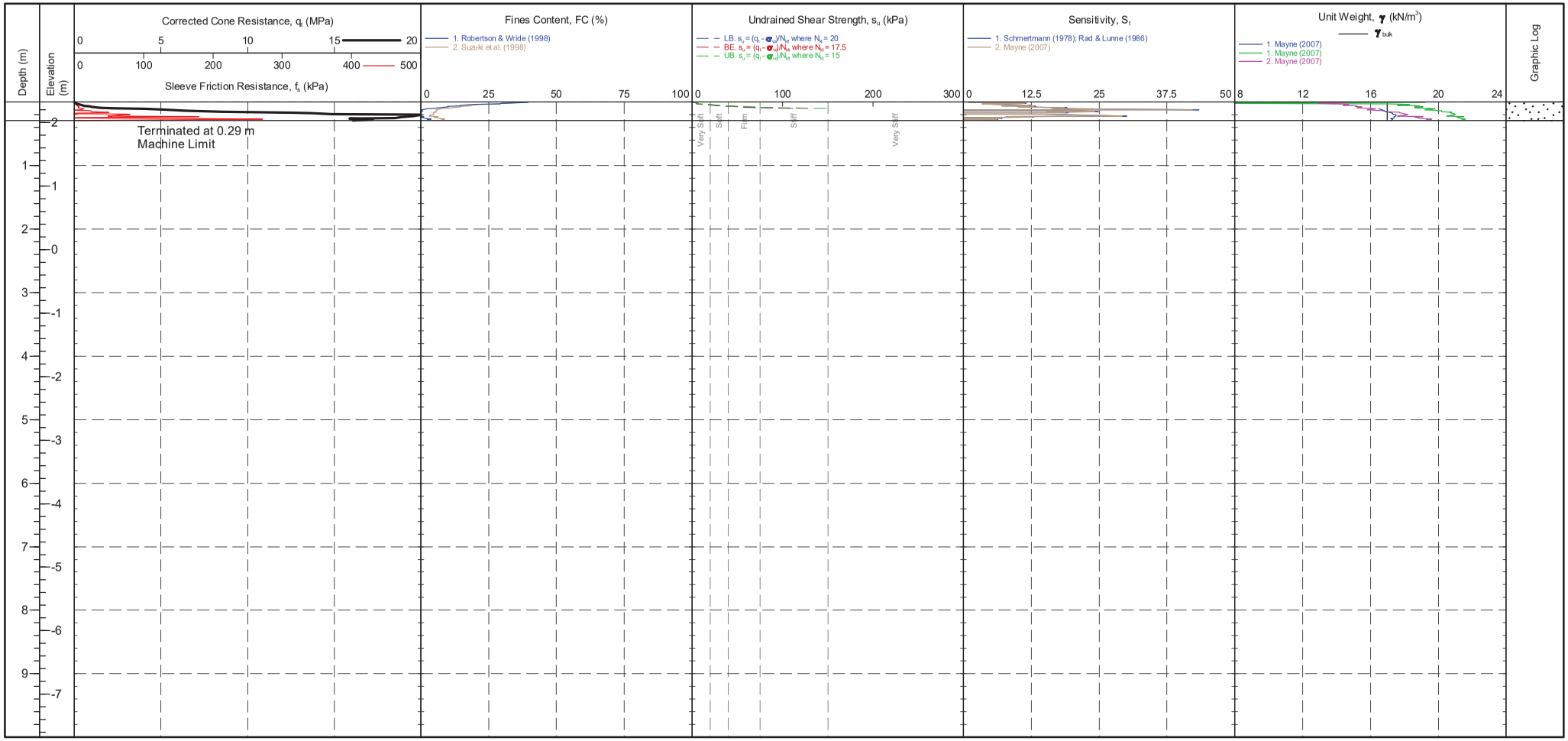
CPT 062

CLIENT : Holequest Geotechnical Limited
PROJECT : UIG Ferry Berth, Isle of Syke
LOCATION : Isle of Syke
PROJECT No. : 1170272

EASTING : 138663.3 m
NORTHING : 863637.9 m
ELEVATION : 2.32 m
CHECKED BY : R
TERMINATION REASON : Machine Limit

REMARK
Test refused on inclination.

SHEET : 1 OF 1
STATUS : Final
TEST DATE : 05/07/2017
PLOT DATE : 03/11/2017
METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	278 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	263 mV	264 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06B	Pore Pressure 2	245 mV	245 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2407 mV	2408 mV	

Groundwater Level
Dissipation Test

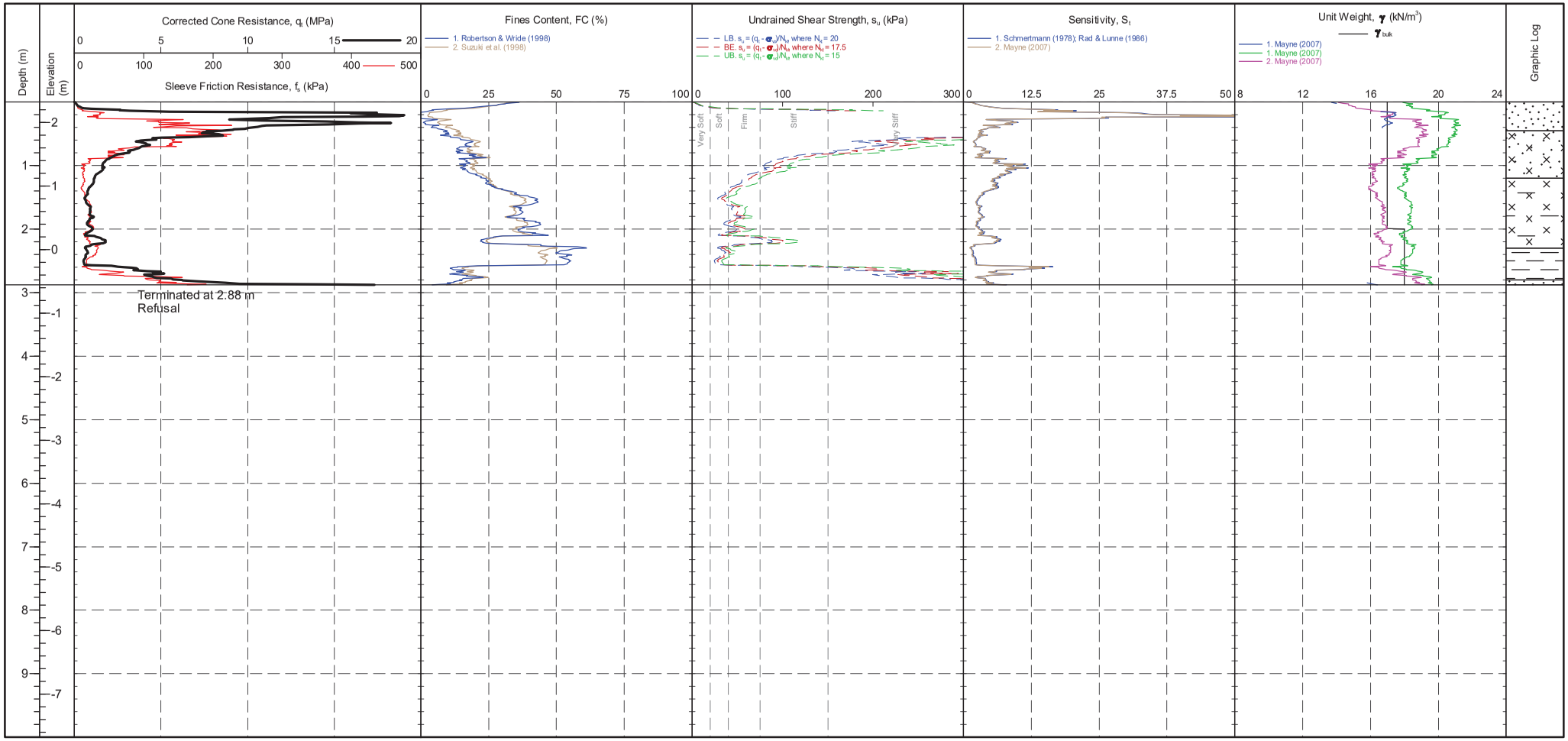
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06C

CLIENT : Holequest Geotechnical Limited	EASTING	: 138664.3 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863638.9 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.32 m		TEST DATE	: 05/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	278 mV	0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	264 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06C	Pore Pressure 2	245 mV	254 mV	0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2427 mV	

Groundwater Level

Dissipation Test

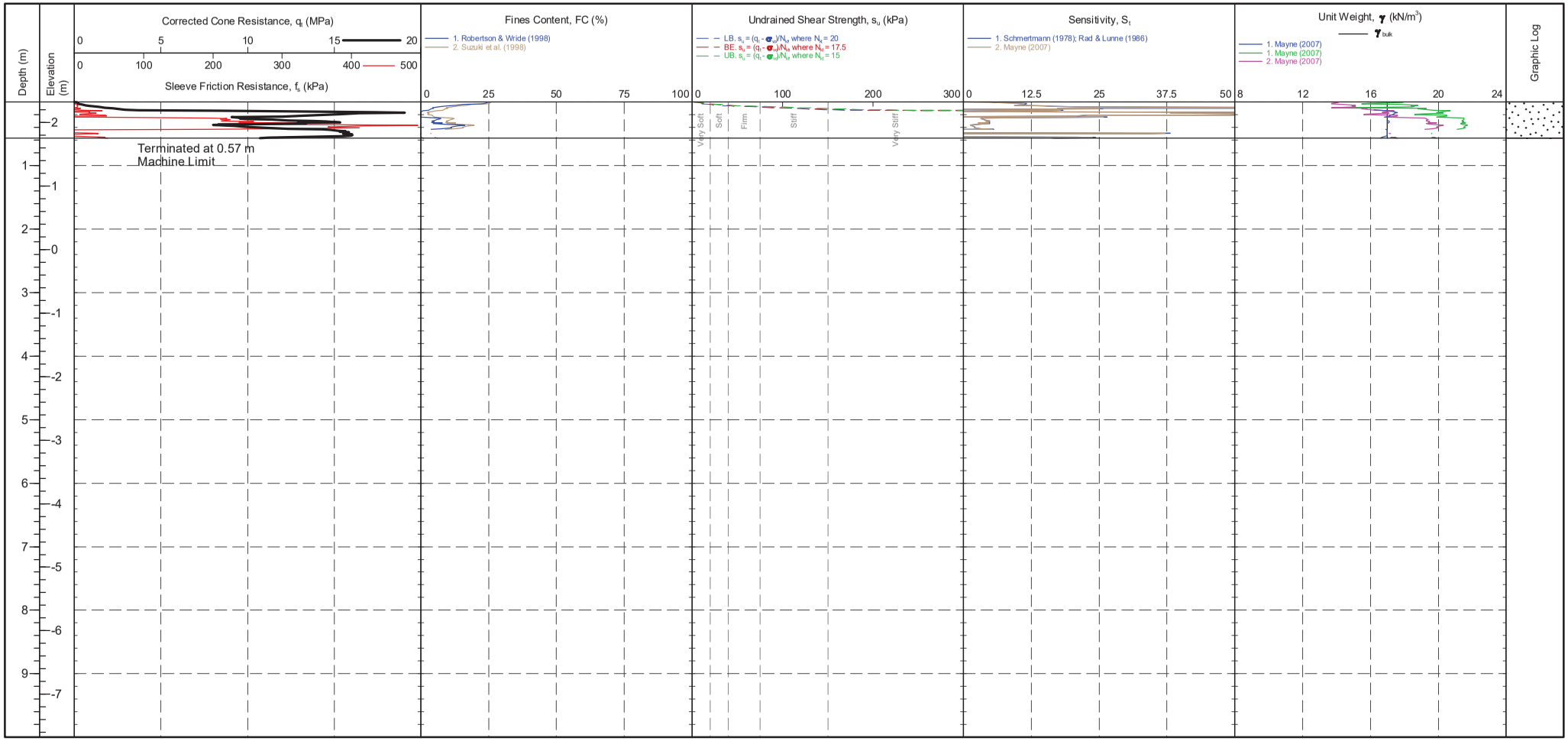
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 06D

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138665.3 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863639.9 m	Test refused on inclination.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.32 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Machine Limit		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	260 mV	-0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 06D	Pore Pressure 2	252 mV	245 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2439 mV	2420 mV	

Groundwater Level

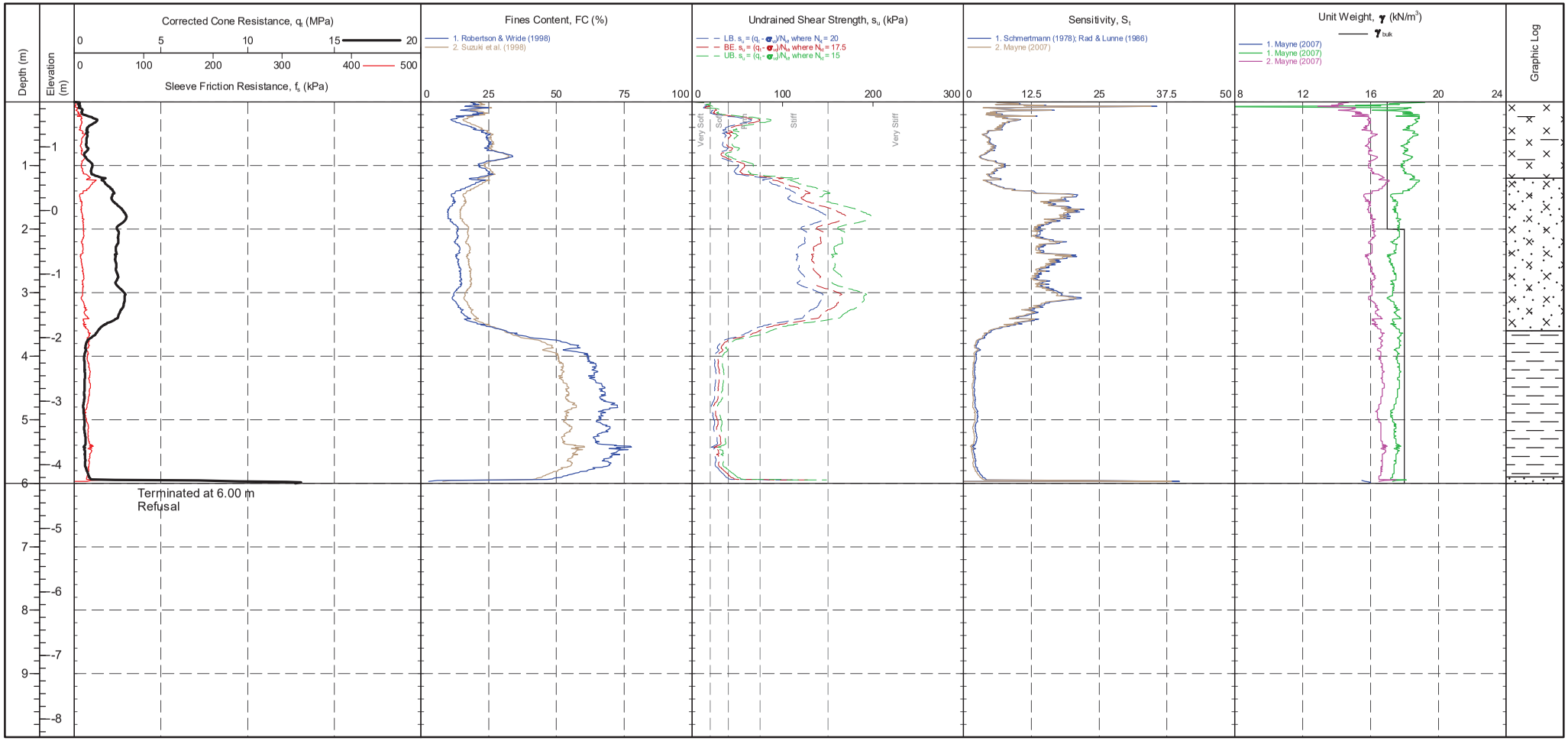
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID
CPT 07

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138668.8 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863592.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 1.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	279 mV	0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	265 mV	0.003 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07	Pore Pressure 2	250 mV	240 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2469 mV	2396 mV	

Groundwater Level

Dissipation Test

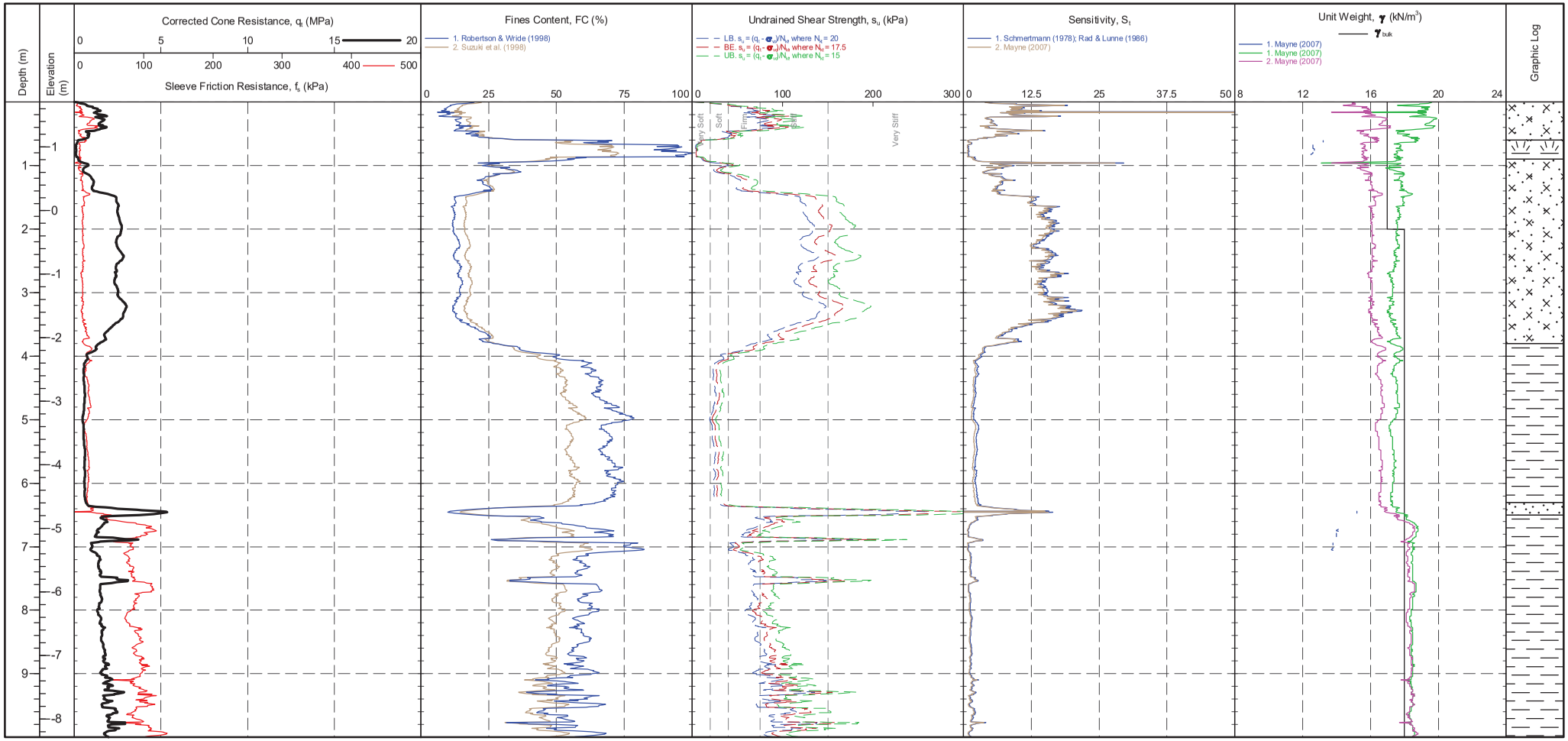
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138669.8 m	REMARK	SHEET : 1 OF 2
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 1.71 m		TEST DATE : 05/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07A	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2387 mV	2441 mV	

Groundwater Level

Dissipation Test

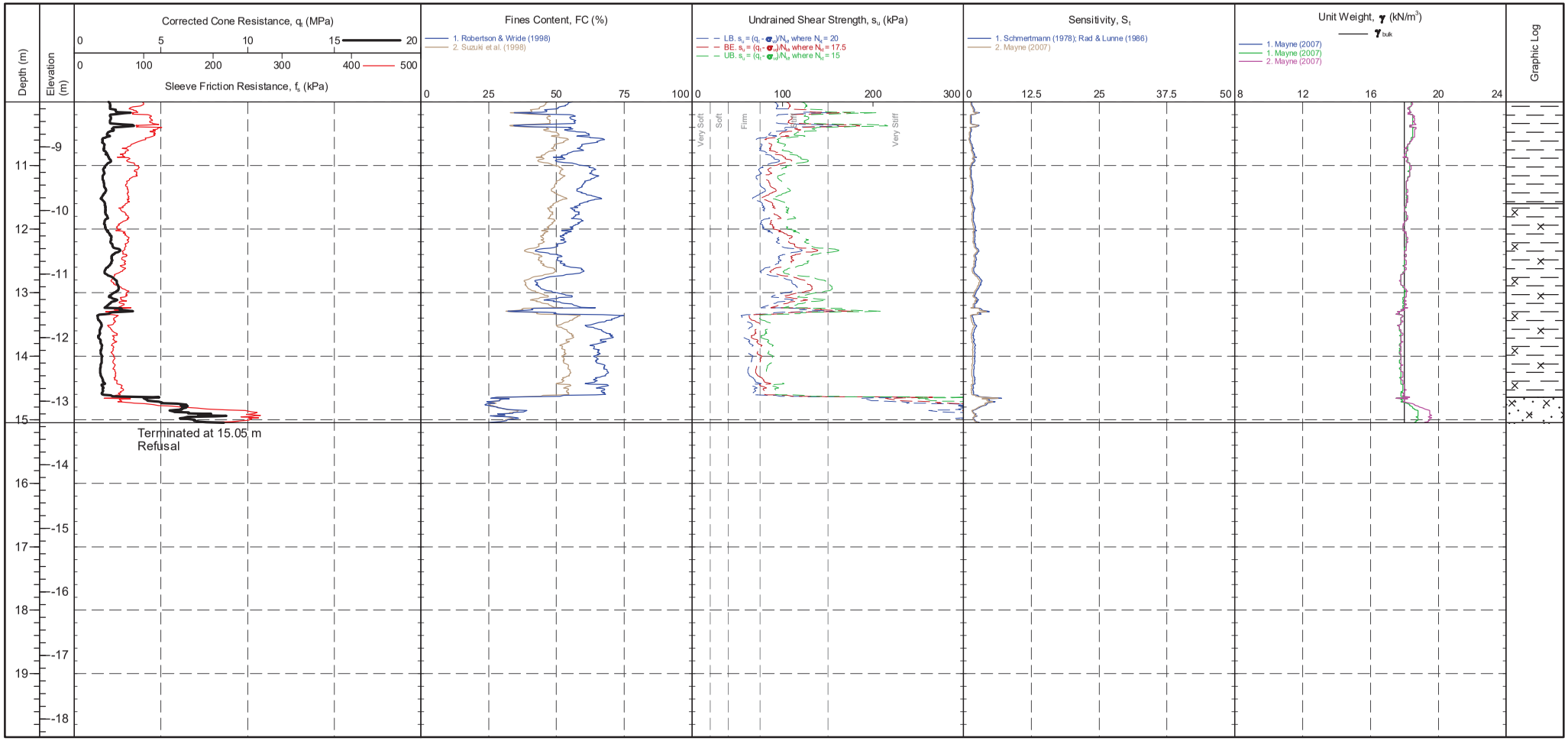
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 07B

CLIENT : Holequest Geotechnical Limited	EASTING	: 138669.8 m	REMARK	SHEET	: 2 OF 2
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863596.0 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 1.71 m		TEST DATE	: 05/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	278 mV	277 mV	-0.011 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	264 mV	263 mV	-0.001 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	249 mV	232 mV	-0.004 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 07A	X-Y Inclinometer	2387 mV	2441 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

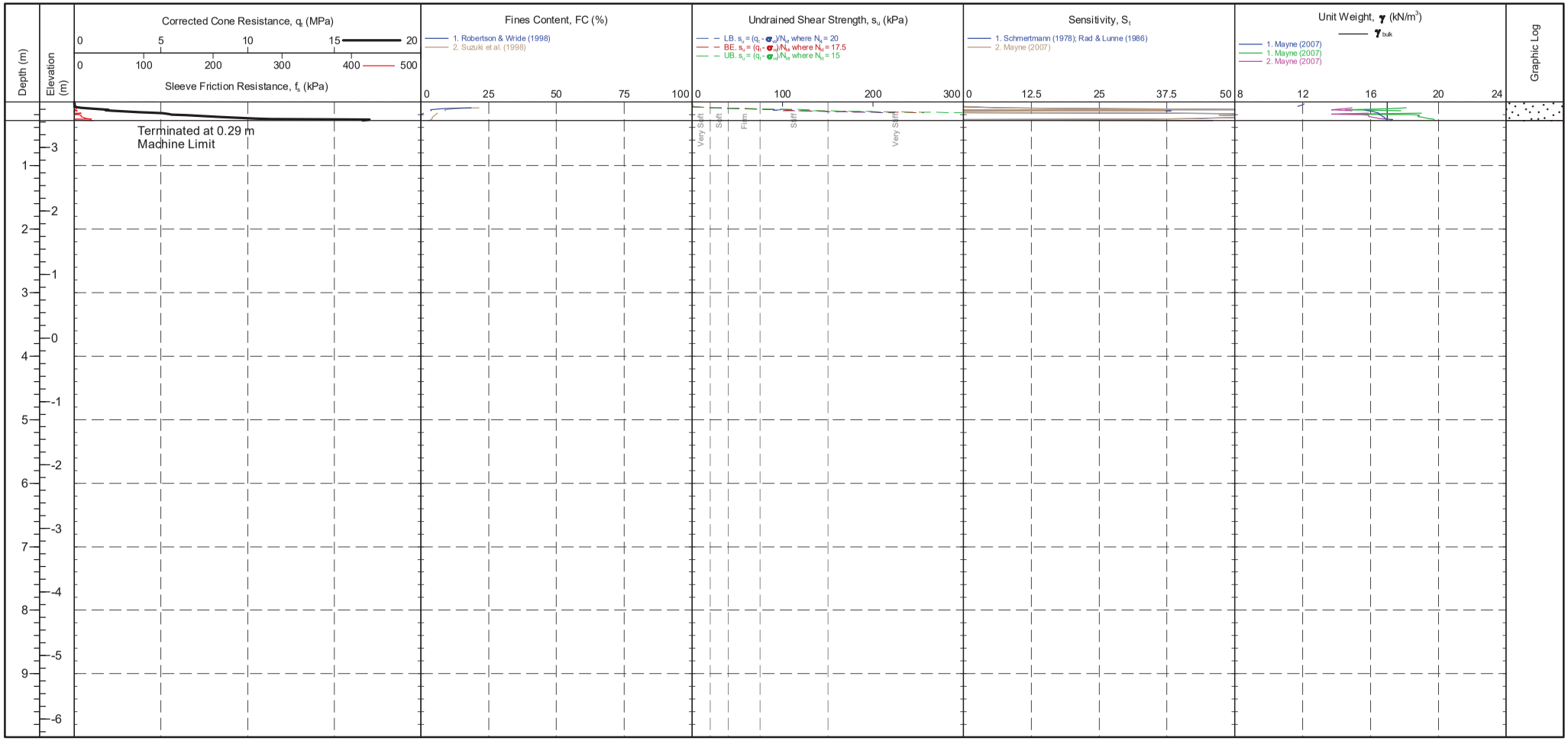
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08

CLIENT : Holequest Geotechnical Limited	EASTING	: 138614.0 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863742.4 m	Test refused on inclination.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 3.71 m		TEST DATE	: 05/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Machine Limit		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES		
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	275 mV	278 mV	0.033 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	261 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08	Pore Pressure 2	248 mV	248 mV	0 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	1922 mV	2262 mV	

Groundwater Level

Dissipation Test

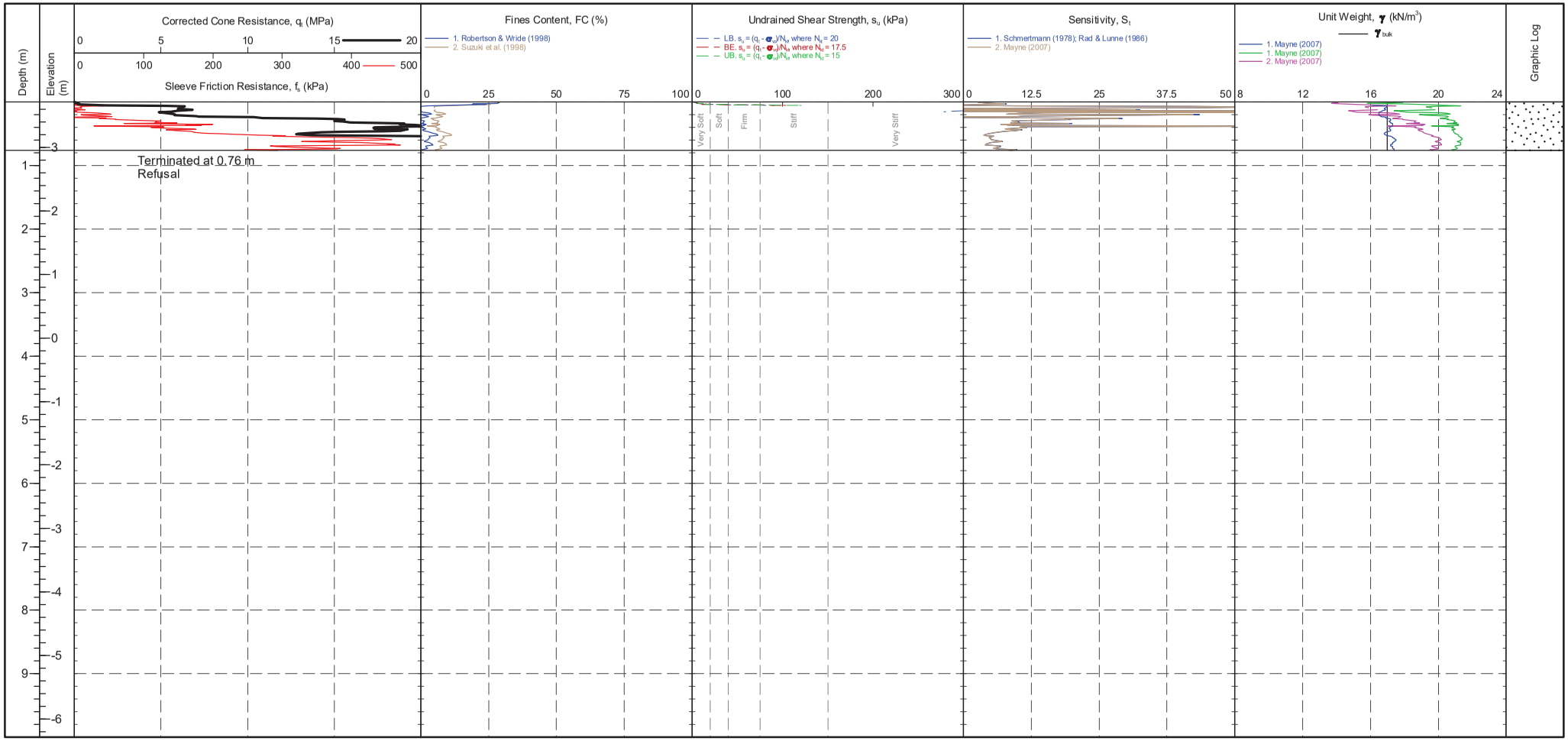
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 082

CLIENT : Holequest Geotechnical Limited	EASTING : 138615.0 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863743.4 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 3.71 m		TEST DATE : 05/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	278 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	261 mV	262 mV	0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08B	Pore Pressure 2	250 mV	238 mV	-0.003 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2269 mV	2293 mV	

Groundwater Level

Dissipation Test

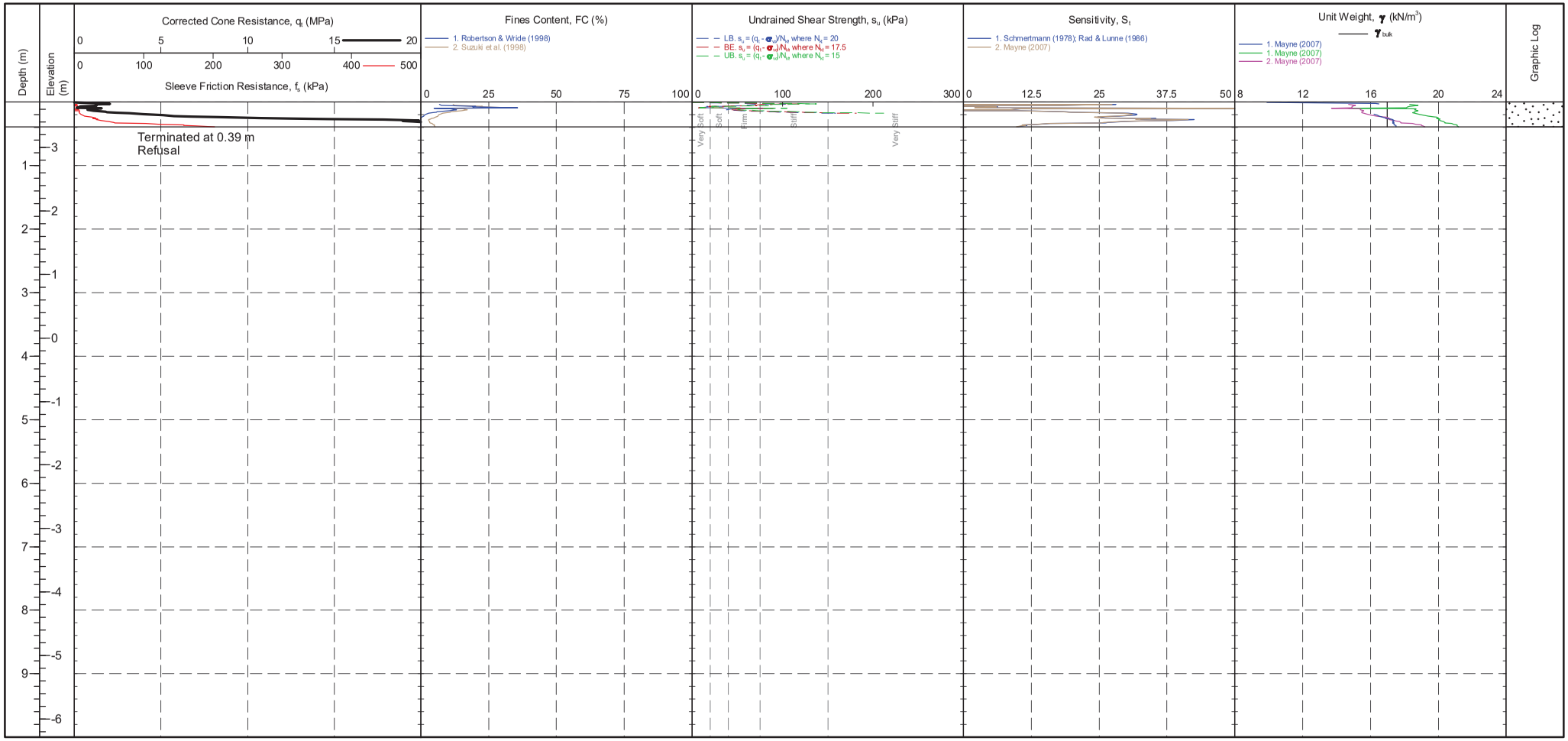
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 08C

CLIENT : Holequest Geotechnical Limited	EASTING	: 138617.0 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863744.4 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 3.71 m		TEST DATE	: 05/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 08C	Pore Pressure 2	232 mV	254 mV	0.006 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2616 mV	2424 mV	

Groundwater Level

Dissipation Test

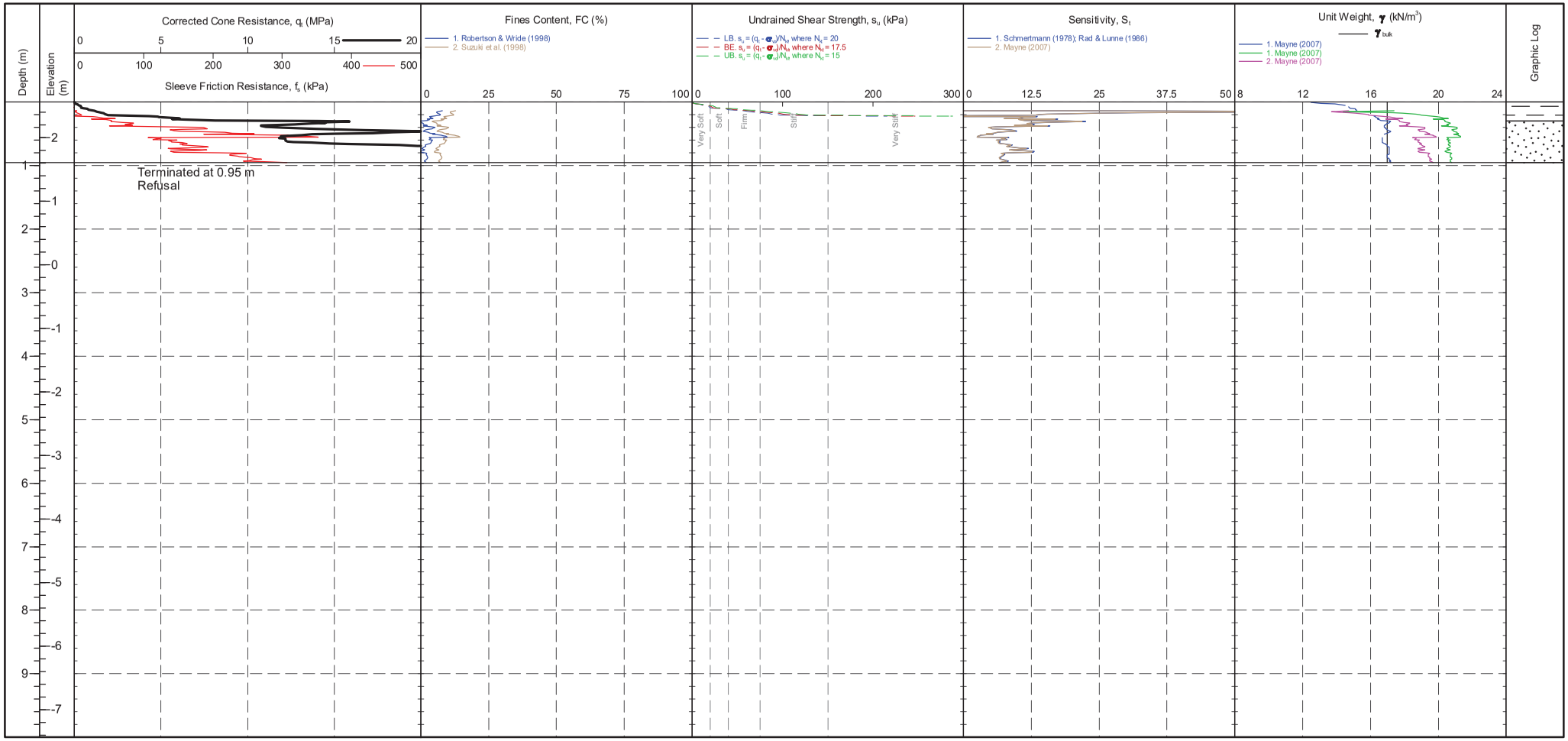
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09

CLIENT : Holequest Geotechnical Limited	EASTING	: 138660.5 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863725.0 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.56 m		TEST DATE	: 06/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	262 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09	Pore Pressure 2	245 mV	238 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2423 mV	2422 mV	

Groundwater Level

Dissipation Test

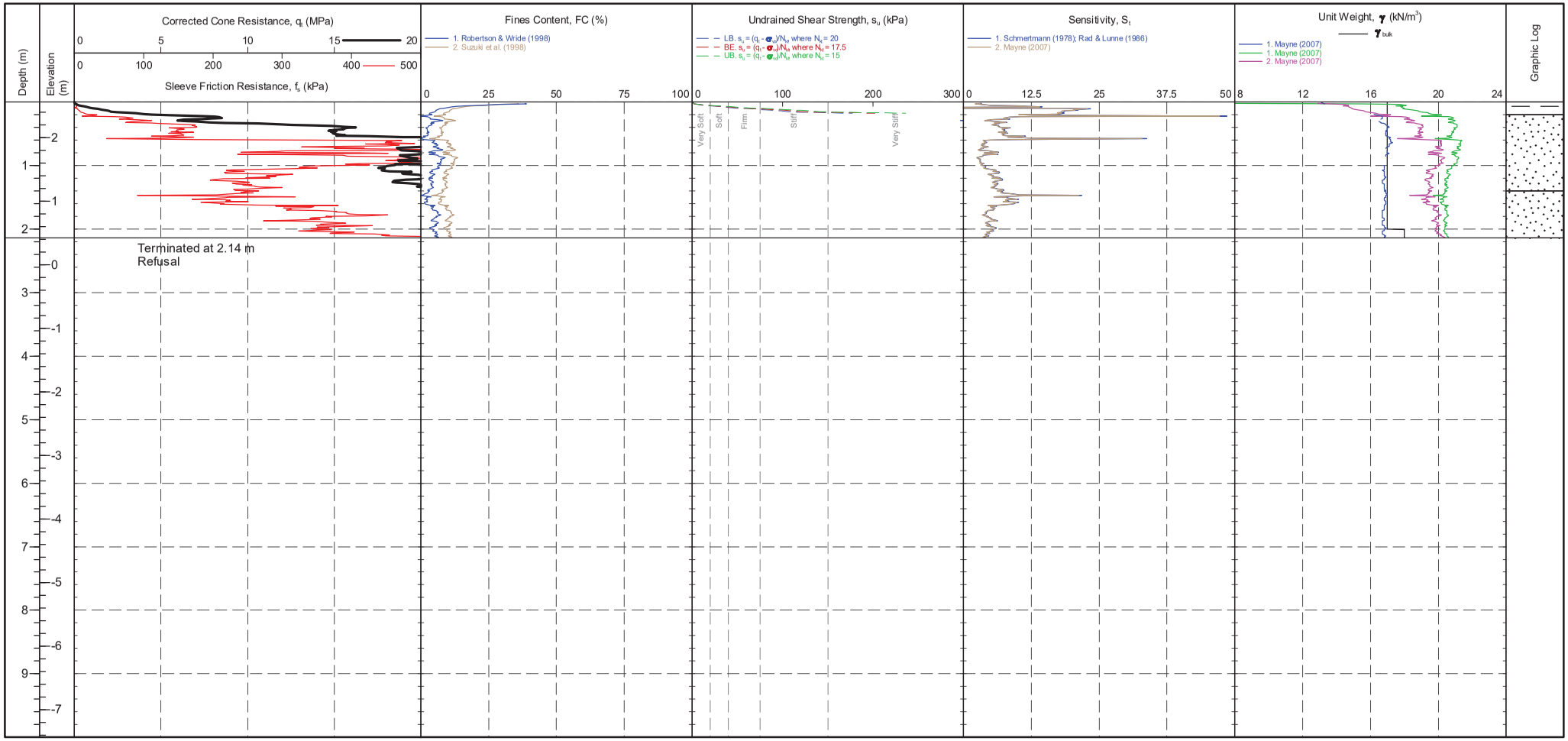
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 09B

CLIENT	: Holequest Geotechnical Limited	EASTING	: 138661.5 m	REMARK	SHEET : 1 OF 1
PROJECT	: UIG Ferry Berth, Isle of Syke	NORTHING	: 863726.0 m	Test refused on tip resistance.	STATUS : Final
LOCATION	: Isle of Syke	ELEVATION	: 2.56 m		TEST DATE : 06/07/2017
PROJECT No.	: 1170272	CHECKED BY	: R		PLOT DATE : 03/11/2017
		TERMINATION REASON	: Refusal		METHOD : ISO 22476-1:2012



				CPTU ZERO VALUES			
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	Transducer	Pre	Post	Difference
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Tip	276 mV	272 mV	-0.044 MPa
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Sleeve	262 mV	258 mV	-0.003 kPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Pore Pressure 2	241 mV	219 mV	-0.006 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09A	X-Y Inclinometer	2252 mV	2418 mV	
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild				

Groundwater Level

Dissipation Test

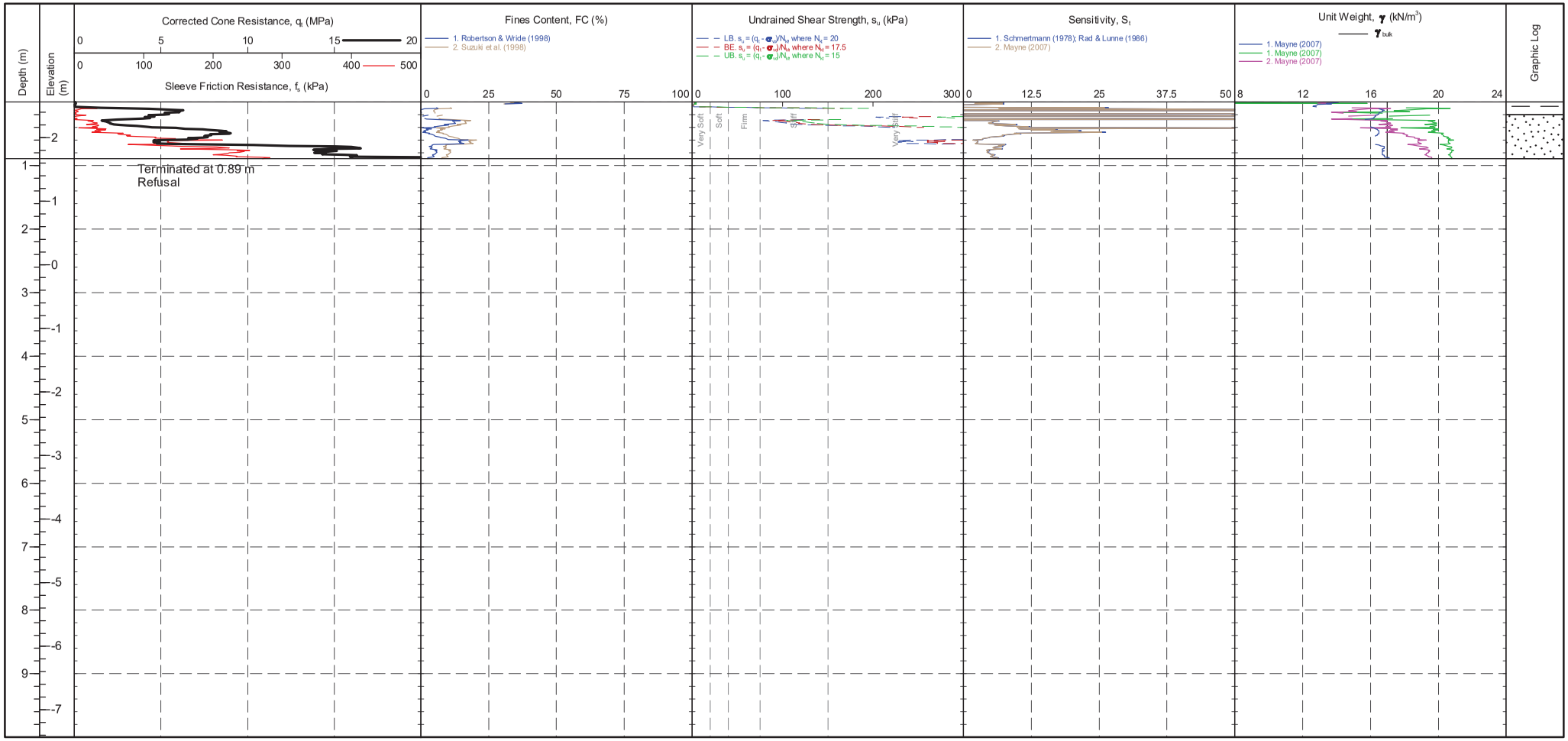
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT 092

CLIENT : Holequest Geotechnical Limited	EASTING	: 138662.5 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863727.0 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.56 m		TEST DATE	: 06/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	273 mV	275 mV	0.022 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	258 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 09B	Pore Pressure 2	237 mV	228 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2672 mV	2421 mV	

Groundwater Level

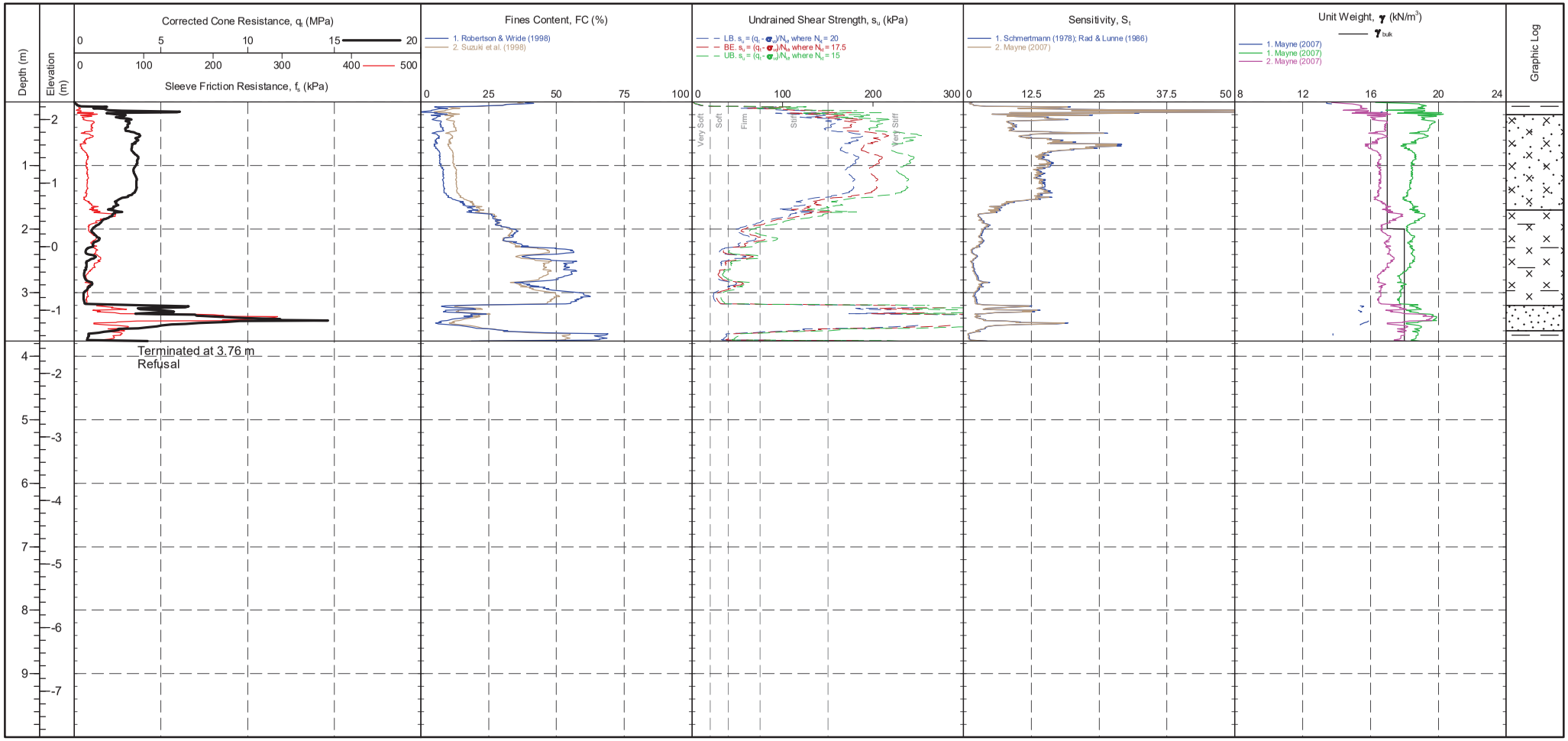
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT A0**

CLIENT : Holequest Geotechnical Limited	EASTING : 138663.1 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863591.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.28 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	278 mV	277 mV	-0.011 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	262 mV	260 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10	Pore Pressure 2	247 mV	182 mV	-0.016 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2308 mV	2439 mV	

Groundwater Level

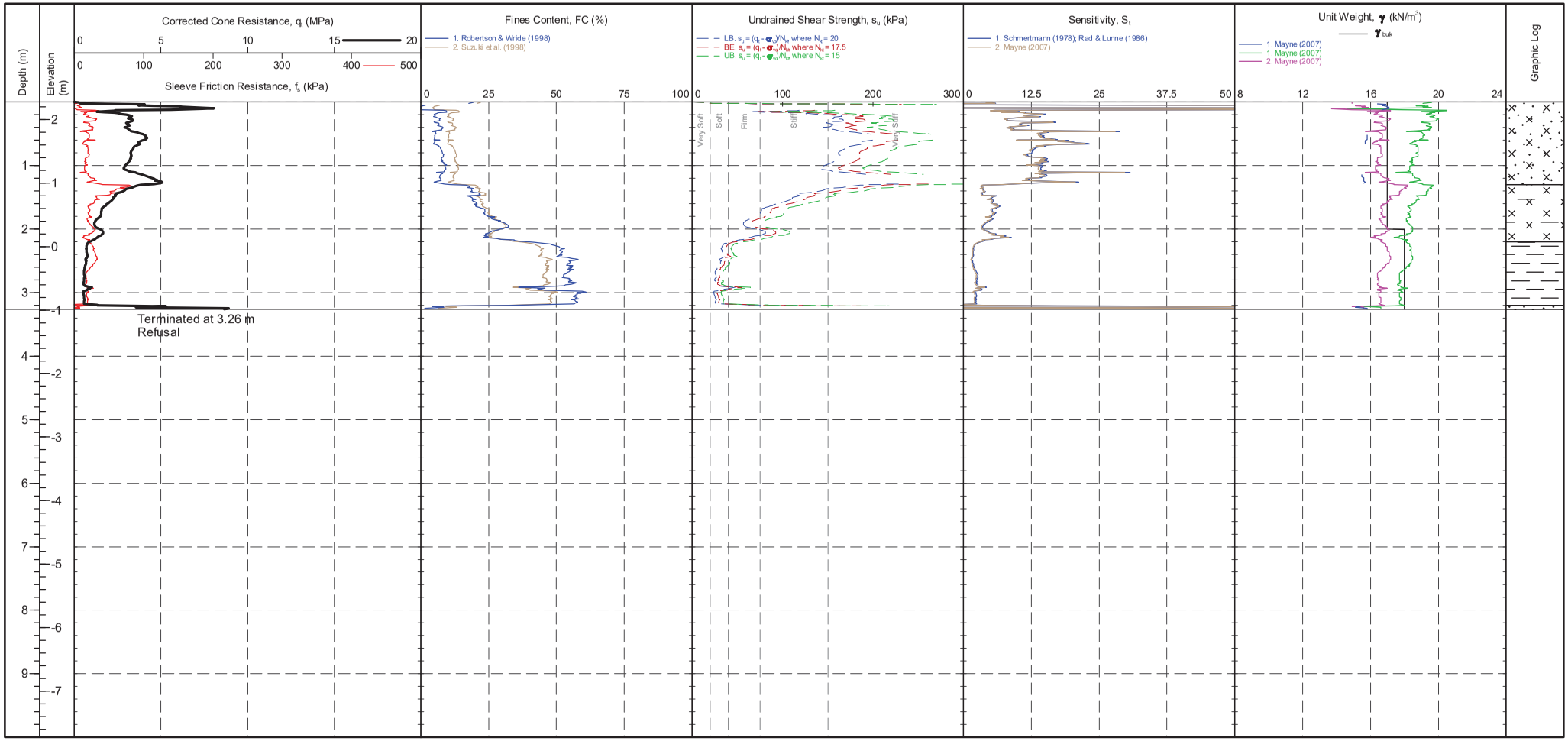
Dissipation Test

IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID: **CPT A0B**

CLIENT : Holequest Geotechnical Limited	EASTING : 138664.1 m	REMARK	SHEET : 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING : 863592.2 m	Test refused on tip resistance.	STATUS : Final
LOCATION : Isle of Syke	ELEVATION : 2.28 m		TEST DATE : 06/07/2017
PROJECT No. : 1170272	CHECKED BY : R		PLOT DATE : 03/11/2017
	TERMINATION REASON : Refusal		METHOD : ISO 22476-1:2012



CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	260 mV	258 mV	-0.001 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10A	Pore Pressure 2	223 mV	216 mV	-0.002 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2411 mV	2417 mV	

Groundwater Level

Dissipation Test

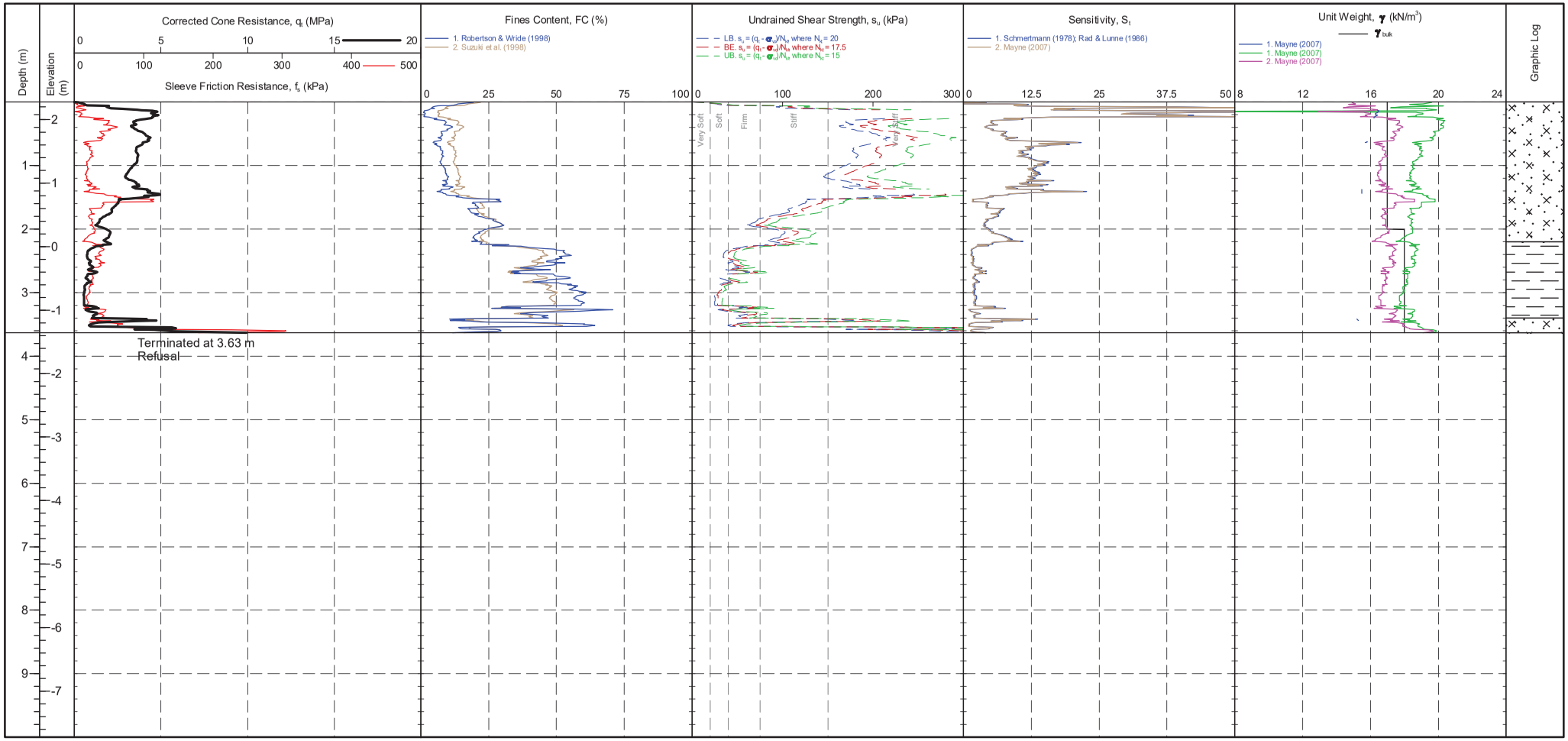
IN SITU SITE INVESTIGATION Working with: HOLEQUEST Geotechnical Services 'Your problem is our challenge'

CPT LOG 01

PointID

CPT A02

CLIENT : Holequest Geotechnical Limited	EASTING	: 138665.1 m	REMARK	SHEET	: 1 OF 1
PROJECT : UIG Ferry Berth, Isle of Syke	NORTHING	: 863593.2 m	Test refused on tip resistance.	STATUS	: Final
LOCATION : Isle of Syke	ELEVATION	: 2.28 m		TEST DATE	: 06/07/2017
PROJECT No. : 1170272	CHECKED BY	: R		PLOT DATE	: 03/11/2017
	TERMINATION REASON	: Refusal		METHOD	: ISO 22476-1:2012



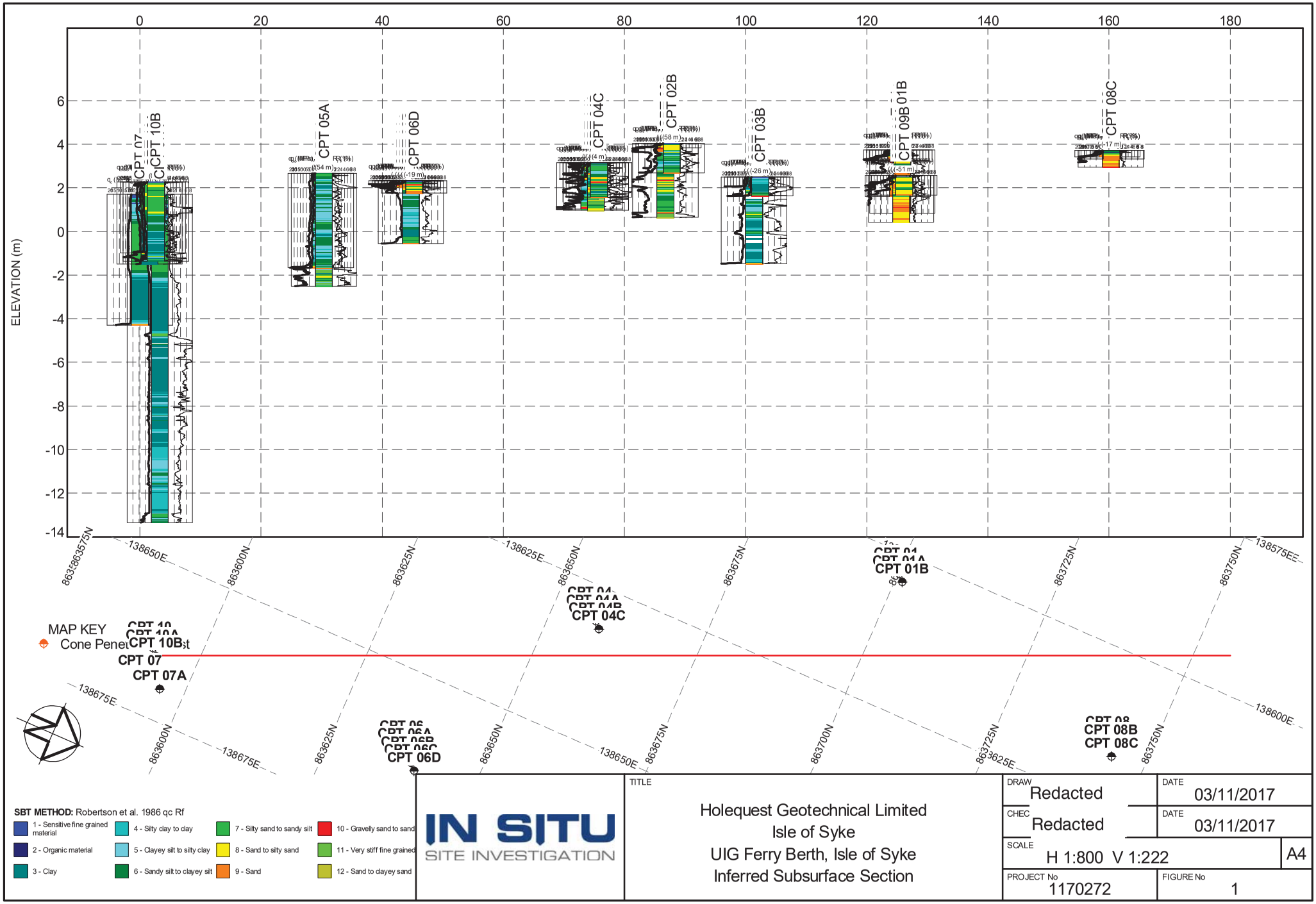
CONE ID	: S15-CFIP.1433	TEST TYPE	: TE2	CPTU ZERO VALUES			
CONE AREA	: 15cm^2	APPLICATION CLASS	: 2	Transducer	Pre	Post	Difference
CONE AREA RATIO	: 0.79	RIG	: CPT 007	Tip	277 mV	277 mV	0 MPa
FILTER POSITION	: u2	OPERATOR	: BC & PB	Sleeve	259 mV	259 mV	0 kPa
FILTER TYPE	: HDPE	FILE NAME	: 1170272-CPT 10B	Pore Pressure 2	249 mV	218 mV	-0.008 kPa
FRICTION REDUCER	: None	WEATHER	: Sunny & Mild	X-Y Inclinometer	2328 mV	2427 mV	

Groundwater Level

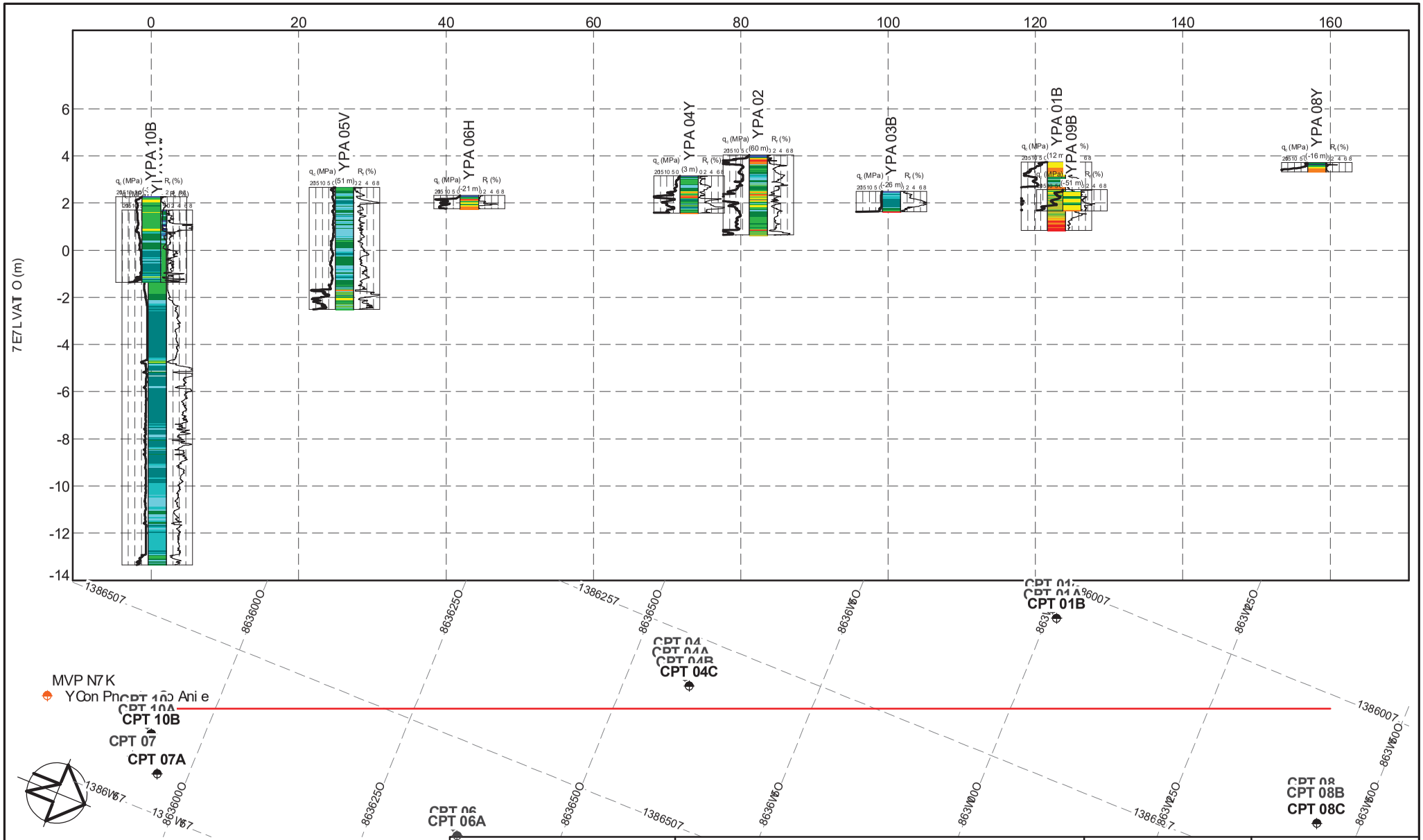
Dissipation Test

APPENDIX D

Cross Sections


ELEVATION (m)
0
20
40
60
80
100
120
140
160
180
6
4
2
0
-2
-4
-6
-8
-10
-12
-14
CPT 07
CPT 10B
CPT 05A
CPT 06D
CPT 04C
CPT 02B
CPT 03B
CPT 09B
CPT 01B
CPT 08C
MAP KEY
Cone Penet
CPT 10B
CPT 07
CPT 07A
CPT 06D
CPT 04C
CPT 01B
CPT 08B
CPT 08C
863600N
863625N
863650N
863675N
863700N
863725N
863750N
138675E
138650E
138625E
138600E
138575E
SBT METHOD: Robertson et al. 1986 qc Rf
1 - Sensitive fine grained material
2 - Organic material
3 - Clay
4 - Silty clay to clay
5 - Clayey silt to silty clay
6 - Sandy silt to clayey silt
7 - Silty sand to sandy silt
8 - Sand to silty sand
9 - Sand
10 - Gravelly sand to sand
11 - Very stiff fine grained
12 - Sand to clayey sand
IN SITU
SITE INVESTIGATION
TITLE
Holequest Geotechnical Limited
Isle of Syke
UIG Ferry Berth, Isle of Syke
Inferred Subsurface Section
DRAW
Redacted
DATE
03/11/2017
CHEC
Redacted
DATE
03/11/2017
SCALE
H 1:800 V 1:222
A4
PROJECT No
1170272
FIGURE No
1

TOJTAGJT1.01.0 ETB.F EB snocn YPA s7OY7 V4E 11W02W2-GTF s7RRK B7RAS.F PU<<Htawrogsrln>> 03/OCv/201W10:5W10.0.000 Haegnl YPA ACCI gTOA Vdd-To



SBT METHOD: RCbnteiCo neal. 1986 qc Rf

1 - Jnoi revn fron gtarond maentral	4 - Jrley clay eC clay	W- Jrley i aod eCi aody i rle	10 - Ftavnlly i aod eCi aod
2 - I tgaorc maentral	5 - Ylayny i rleeCi rley clay	8 - Jaod eCi rley i aod	11 - Lnty i eff fron gtarond
3 - Ylay	6 - Jaody i rleeCclayny i rle	9 - Jaod	12 - Jaod eCclayny i aod

IN SITU
SITE INVESTIGATION

ATAE7

SCInquni eFnCenchorcal Ermrend
TlnCfJykn
GTF sntty Bnteh, TlnCfJykn
Tofnttnd Jubi utfacn JnceCo

HRVD Redacted	HVA7 03/11/201W
YS7Y Redacted	HVA7 03/11/201W
JYVE7 S 1:W11 L 1:222	V4
PRI U7YA OC 11W02W2	sTFGR7 OC 1

IN SITU SITE INVESTIGATION

Unit 23 Hastings Innovation Centre,
Highfield Drive
St. Leonards on Sea, East Sussex,
TN38 9UH, U.K.

Company No.: 6339499
VAT No.: 922 3561 41