OLD PARK FARM
WATERLOOVILLE

STATIC CONE PENETRATION TESTS
FACTUAL REPORT

CONE PENETRATION TESTS

Cone resistance

Local friction

REPORT NO: 6447R001AA	CONTRACT NO:

HAVANT BOROUGH COUNCIL
20 APR 2011
RECEIVED

PROJECT:	CPT - TESTING Old Park Farm, Waterlooville.

CLIENT:	WSP Environmental Limited

CONSULTANT:	

FIELDWORK

CPT Rig	20 Tonne Capacity Crawler Mounted CPT Unit (UK 5)
Operator(s)	Martyn Waters
Date started	28th September 2006
Date completed	28th September 2006
Lankelma's Project Manager	Rob Gardiner
Client's Site Manager	Abby Reader

REPORT

	Date	Name	Signature
Prepared	3rd October 2006	Adele Arnold	
Checked	4th October 2006	Darren Ward	
Approved	4th October 2006	Rob Gardiner	

Date: 4th October 2006
Our Ref: 6447R001AA

WSP Environmental Limited
WSP House
Unit 2 The Chase
John Tate Road
Foxholes Business Park
Hertford
SG13 7NN

Attention: Mr. Mark Wheeler

Dear Mark,

CONE PENETRATION TESTS AT
OLD PARK FARM, WATERLOOVILLE

We have pleasure in providing one copy of our report and a digital copy of the text and the data in AGS format for the above project.

We hope you are satisfied with the performance of our staff, equipment and reporting. We would be happy to discuss any further requirements you have and look forward to being of service in the future.

Yours faithfully,
Lankelma Ltd

Adele Arnold
Trainee Geotechnical Engineer

CONTENTS

1.0 INTRODUCTION 1

2.0 FIELDWORK 1

2.1 POSITIONING 1

2.2 CONE PENETRATION TESTING 1

3.0 RESULTS 1

3.1 CONE PENETRATION TEST LOGS 1

4.0 REFERENCES 1

APPENDIX A General Information

APPENDIX B Cone Penetration Test Results (0 - 20 MPa)

APPENDIX C Cone Penetration Test Results (0 - 80 MPa)

1.0 INTRODUCTION

At the request of WSP Environmental Limited (the Client), a soils investigation was carried out at Old Park Farm, Waterlooville.

The investigation consisted of performing Cone Penetration Testing at the site. All tests were performed at locations set out by the Client's representative on site.

The Scope of works was:

- 16 No. Cone Penetration Tests (CPT's) to depths up to 7.99m below ground level;
- Provision of a factual report with estimated soil type.

All tests were performed and measured the cone resistance and local side friction with depth.

2.0 FIELDWORK

2.1 POSITIONING

All positions were set out by the Client's representative on site.

2.2 CONE PENETRATION TESTING

The Cone Penetration Tests were performed with a Crawler Mounted CPT Unit, with 20 Tonne Capacity Hydraulic rams.

A $10cm^2$ electric cone was used (S10-CFI.031). These cones were calibrated and manufactured by Geopoint Systems of the Netherlands. The calibration certificates are presented in Appendix A. These cones measured the cone end resistance (q_c), the local side friction (f_s) and inclination.

The final depth of the tests was determined by either completion of the specified test depth or when the maximum safe capacity of the equipment was reached.

The cone resistance and local side friction are measured by the strain gauges attached to the cone. These records are transmitted by a single umbilical to the touch screen computer. This computer acts as a data logger and records the data at 1.0cm intervals throughout the test. The data is saved to the hard drive and a backup copy made to a floppy disc. A preliminary copy of the data was produced onsite.

3.0 RESULTS

3.1 CONE PENETRATION TEST LOGS

The CPT logs presented in Appendix B details the following:

- Measured cone end resistance (q_c) and sleeve friction (f_s);
- Friction ratio (R_f);
- Inclination;
- Estimated soil log (BS5930 : 1999 description);
- Legend indicating soil log (BS5930 : 1999 legend).

The test results are presented in Appendix B. The cone resistance (q_c), local side friction (f_s) and calculated friction ratio (Rf) are all presented against depth. Based on this information and experience in similar soils the estimated soil type is obtained and presented on the log along with the corresponding British Standard soil legend.

The estimation of soil type using measurements of cone and friction are based upon the variation of the friction ratio in respect to the cone end resistance. The friction ratio varies depending upon whether the soil is cohesive or granular.

The interpretation is based on Robertson *et. al.* (1986). For reference purposes, a chart showing this interpretation method is presented in Appendix A. The interpretation resolution is set to a minimum layer thickness of 0.1m.

4.0 REFERENCES

Baldi, G., Bellotti, R., Ghionna, V.N., Jamiolkowski, M. and Pusqualini, E., (1986). "Interpretation of CPT's and CPTU's, 2nd Part: Drained Penetration of Sands". Proc. 4th International Geotechnical Seminar, Singapore, pp143-156.

Erwig, H. (1988). Discussion on soil Type Interpretation. Proceedings of Conference on Penetration Testing in the U.K., I.C.E. Birmingham University, 1998, p.p 261-263

Lunne, T., Robertson, P. K. and Powell, J. J. M. (1997) "Cone Penetration testing in Geotechnical Practice" Blackie.

Meigh, A.C. (1987). "Cone Penetration testing. Methods and Interpretation." CIRIA Ground Engineering Report. In situ testing.

Robertson, P.K., Campanella, R.G., Gillespie, D. and Grieg, J. (1986) "Use of piezometer cone data". Proceedings of the ASCE Speciality Conference In Situ'86: Use of In Situ Tests in Geotechnical Engineering, Blacksburg, 1263-80, American Society of Engineers (ASCE).

APPENDIX A

GENERAL INFORMATION

APPENDIX A

GENERAL INFORMATION

LIST OF FIGURES

Description	Pages included
Cone Calibration Certificate	1
Data Sheet - 20 Tonne Capacity Crawler Mounted CPT Unit	1
CPT Estimating Soil Type Chart	1
CPT Soil Description Table	1
Glossary of Terms	1

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

Calibrationsheet Cone

Number	**S10-CFI.031**
Type	Subtraction 100 kN , 1000 mm2
Date	18-09-2006
Client	Lankelma CPT LTD
Engineer	W.A.C. Volgering
Certificate number	GP-31-18
Calibration equipment	FGI
NMI certificate number	**1346747A – FF642**

Load qc in [kN]	Output qc [mV]	Load fs [kN]	Output fs [mV]	Load pp [Mpa]	Output pp [mV]	Zeroshifts [mV]
10	1076	10	1083	0		qc : 246
20	2148	20	2162	0,5		fs : 253
30	3220	30	3241	1,0		pp :
40	4289	40	4317	1,5		I : 49
50	5356	50	5390	2,0		

Helling [°]	0	5	10	15	20	25
	49	309	828	1606	2467	3327

Nominal range :

Tip resistance	**100 kN (100 MPa)**
Local friction	**15 kN (1,0 MPa)**
Pore pressure	
Helling	**15 °**

Max.error : 0,25% non linearity.

Remarks : Calibration & revision.

Approved **Date:** 18-09-2006
Technician: R.Mosterd

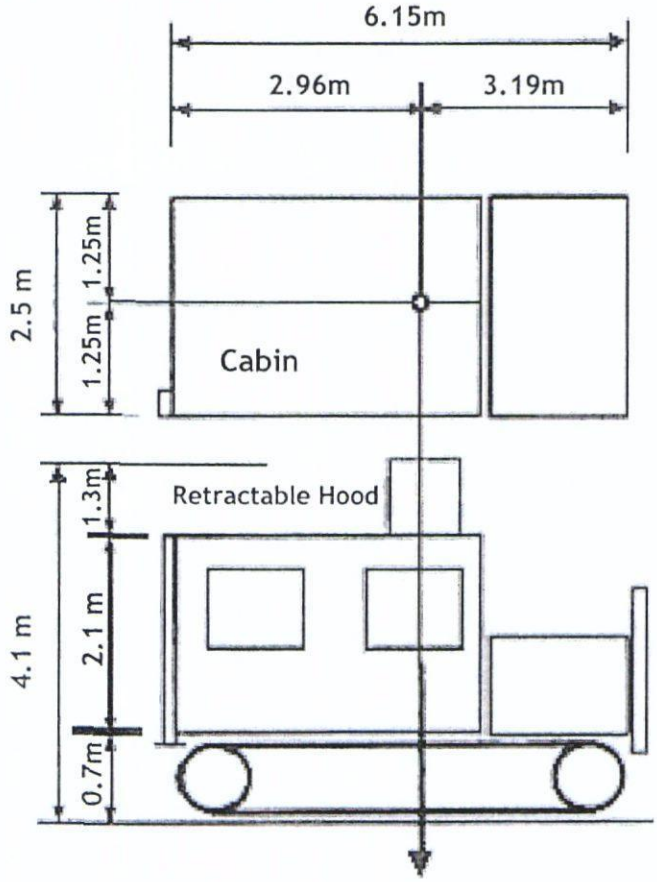
Ingeschreven in het handelsregister van de K.v.K voor Rijnland onder nummer 39065941.
Op al onze leveranties en/of overeenkomsten zijn de algemene verkoopvoorwaarden van Geopoint Systems B.V. van toepassing.

Sondeerapparatuur Waterspanningsmeters Hellingmeters Veldmeet-apparatuur

CRAWLER MOUNTED CPT UNIT
(15 TONNE CRAWLER, 20 TONNE CAPACITY)

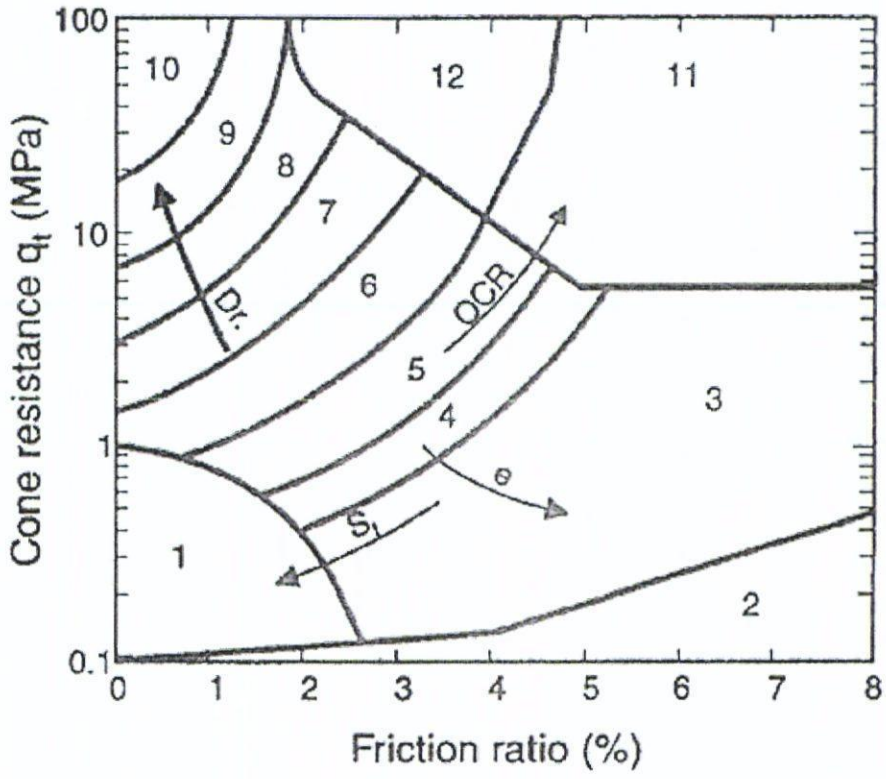
LANKELMA





LANKELMA LIMITED
THE OLD DAIRY, WITTERSHAM ROAD, IDEN EAST SUSSEX. TN31 7UY
TEL: + 44 (0) 1797 280050 FAX: + 44 (0) 1797 280195
www.lankelma.co.uk, www.conepenetration.co.uk

CPT Soil Classification by Robertson et al., 1986



Zone	Soil Behaviour Type				
1	Sensitive fine grained	5	Clayey silt to silty clay	9	Sand
2	Organic material	6	Sandy silt to clayey silt	10	Gravelly sand to sand
3	Clay	7	Silty sand to sandy silt	11	Very stiff fine grained *
4	Silty clay to clay	8	Sand to silty sand	12	Sand to clayey sand *

** Over consolidated or cemented*

SOIL DESCRIPTION TABLES

GRANULAR SOILS (Sands and Gravels)

Description	Cone Resistance (qc) (MPa)
Very Loose	0 - 2
Loose	2 - 4
Medium Dense	4 - 12
Dense	12 - 20
Very Dense	>20

COHESIVE SOILS (Clays)

Description	Cone Resistance (q_c) (MPa)	Equivalent S_u value from q_c (kPa)
Very Soft	0 - 0.4	0 -20
Soft	0.4 - 0.8	20 - 40
Firm	0.8 - 1.5	40 - 75
Stiff	1.5 - 3	75 - 150
Very stiff	>3	>150

CHALK

Grade	Typical Brief Description (after Wakeling, 1969)	Friction Ratio (%)	Cone Resistance (MPa) (After Power, 1982)
6	Highly/completely weathered CHALK	-	Below 5
5	Highly weathered CHALK	0.75 - 1.00	5 - 10
4	Partly weathered CHALK	1.00 - 1.25	10 - 15
3	Slightly/unweathered CHALK	1.25 - 1.50	15 - 20
2	Slightly/unweathered CHALK	1.50 - 2.00	More than 20
1	Unweathered CHALK	-	No penetration

GLOSSARY OF CPT TERMS

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 end of the friction sleeve.

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; [$R_f = (f_s / q_c) \cdot 100$].

Friction sleeve :- The section of the cone penetrometer upon which the sleeve friction is measured.

Net cone resistance q_n :- The corrected cone resistance minus the vertical total stress. $q_n = q_t - \sigma_{vo}$.

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.

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 B

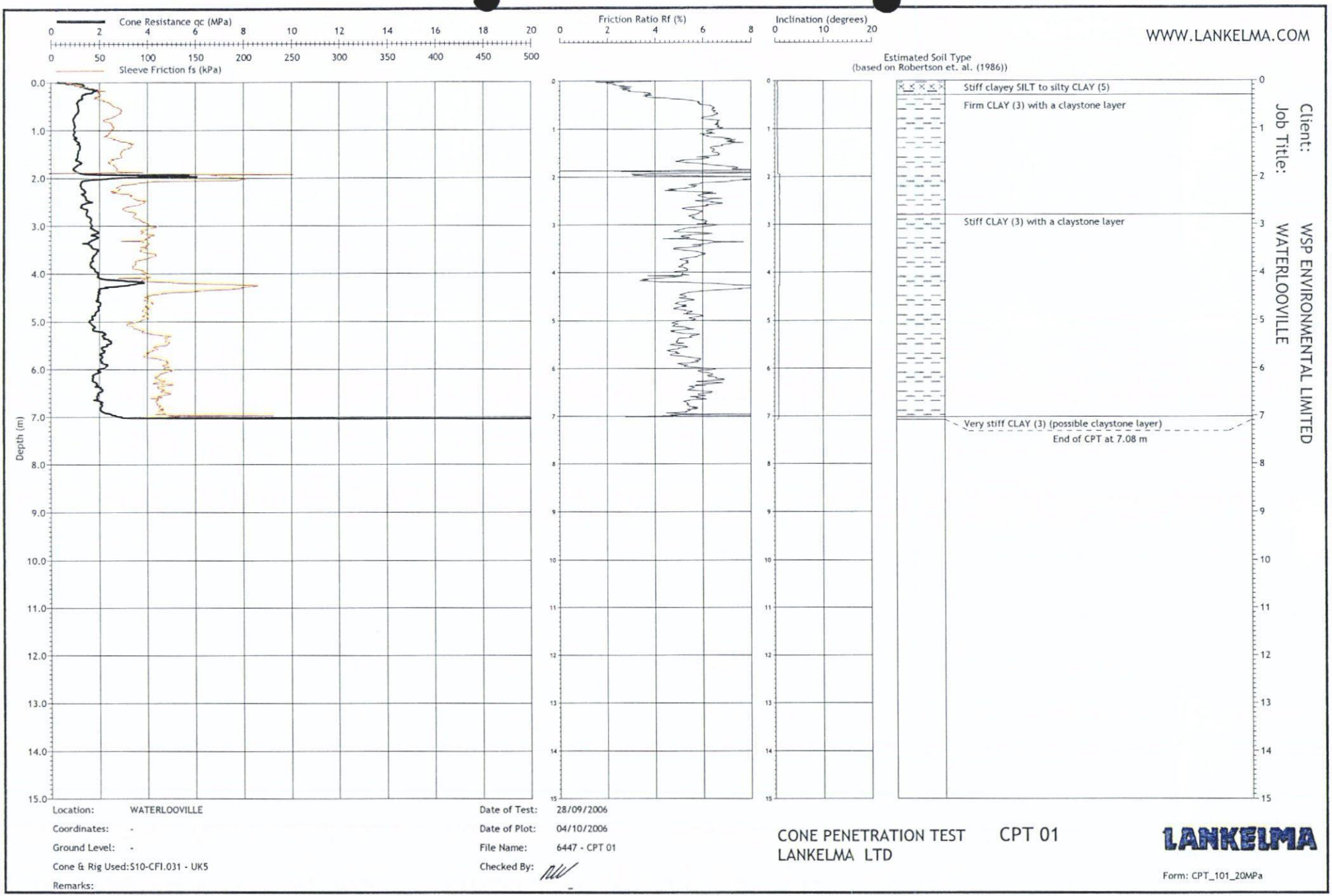
CONE PENETRATION TEST RESULTS (0 - 20 MPa)

APPENDIX B

CONE PENETRATION TEST RESULTS (0 - 20 MPa)

LIST OF FIGURES

Description	Pages included
Cone Penetration Tests CPT 01 - CPT 15	16



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 01

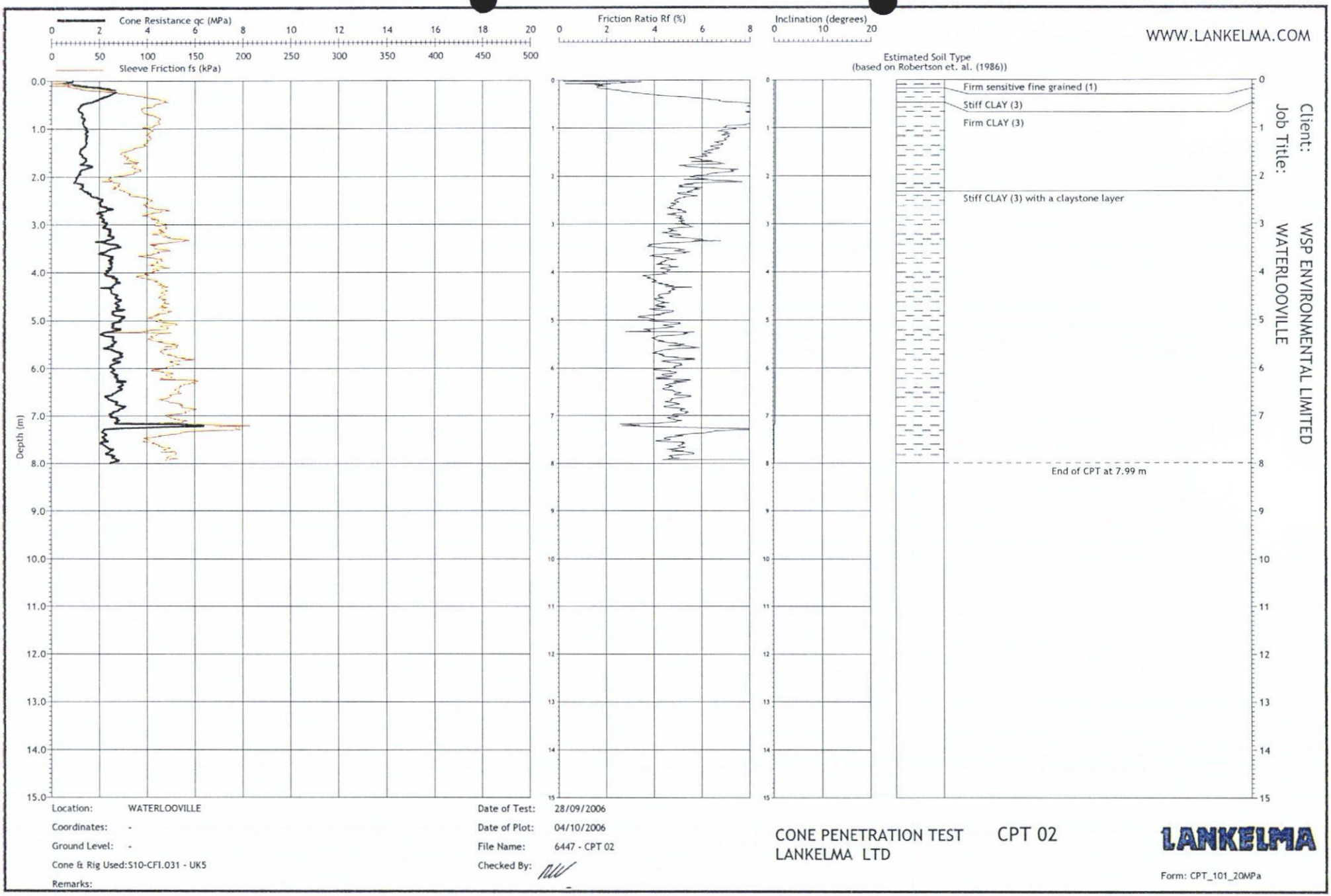
Checked By:

CONE PENETRATION TEST CPT 01

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 02

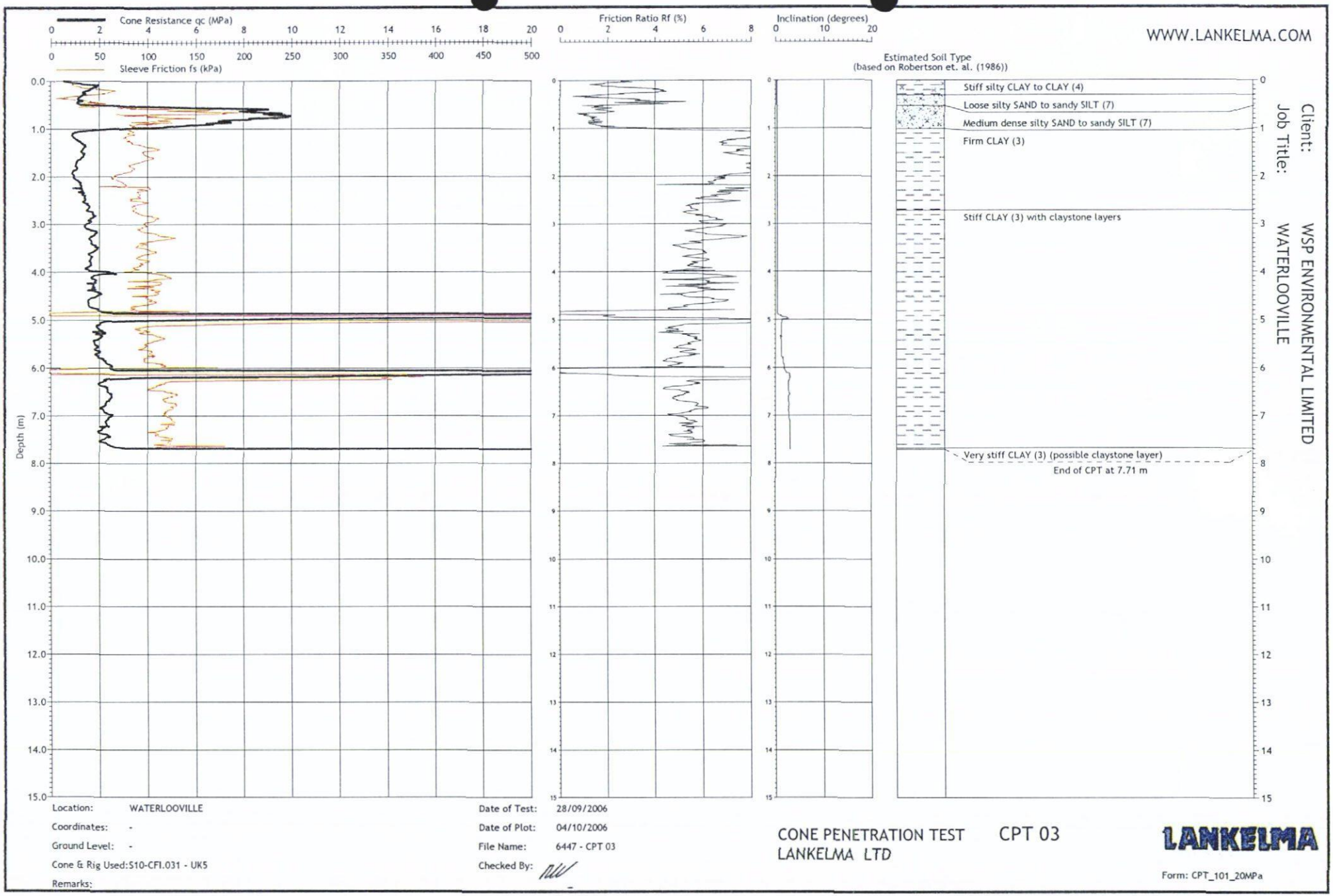
Checked By:

CONE PENETRATION TEST CPT 02

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 03

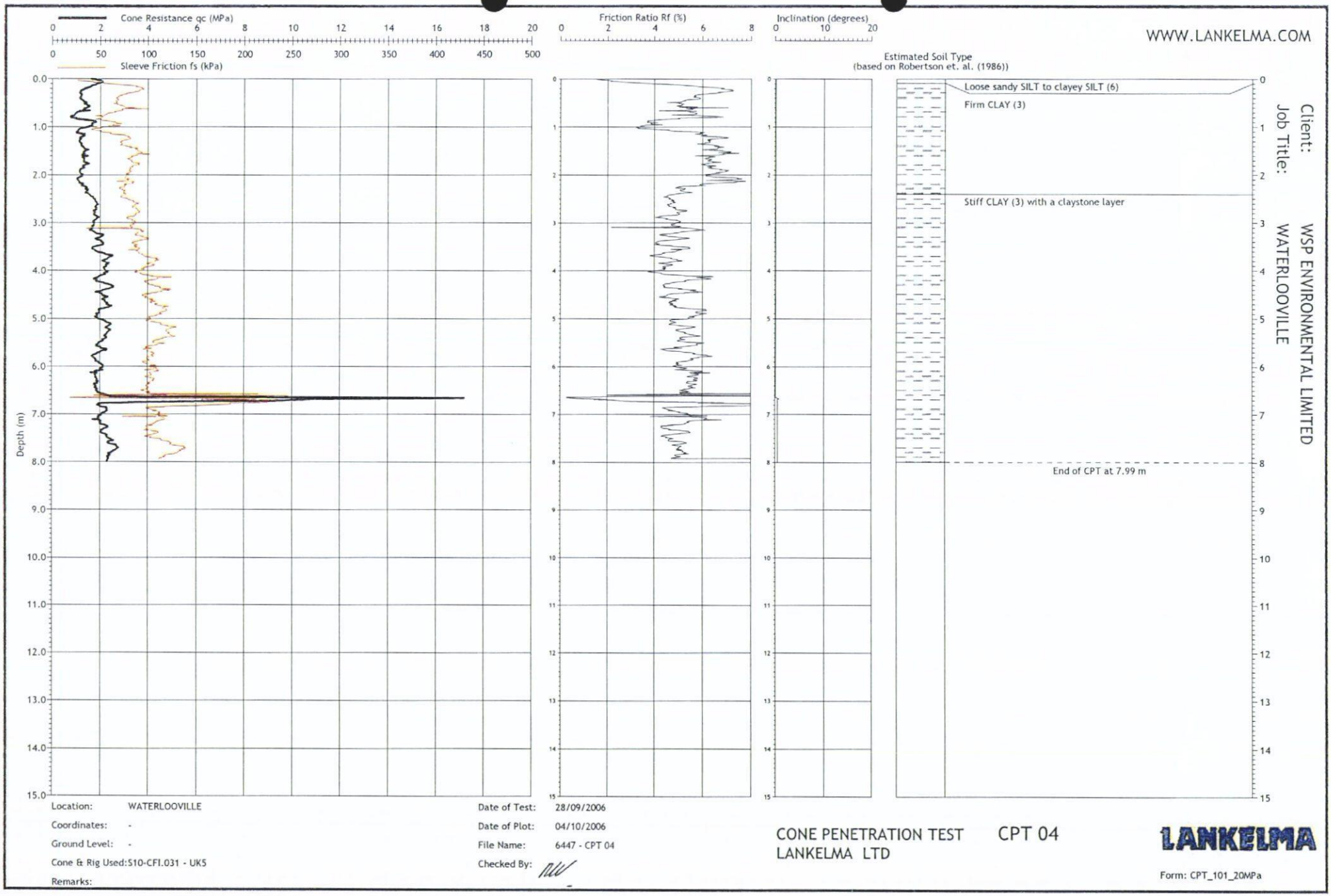
Checked By:

CONE PENETRATION TEST CPT 03

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 04

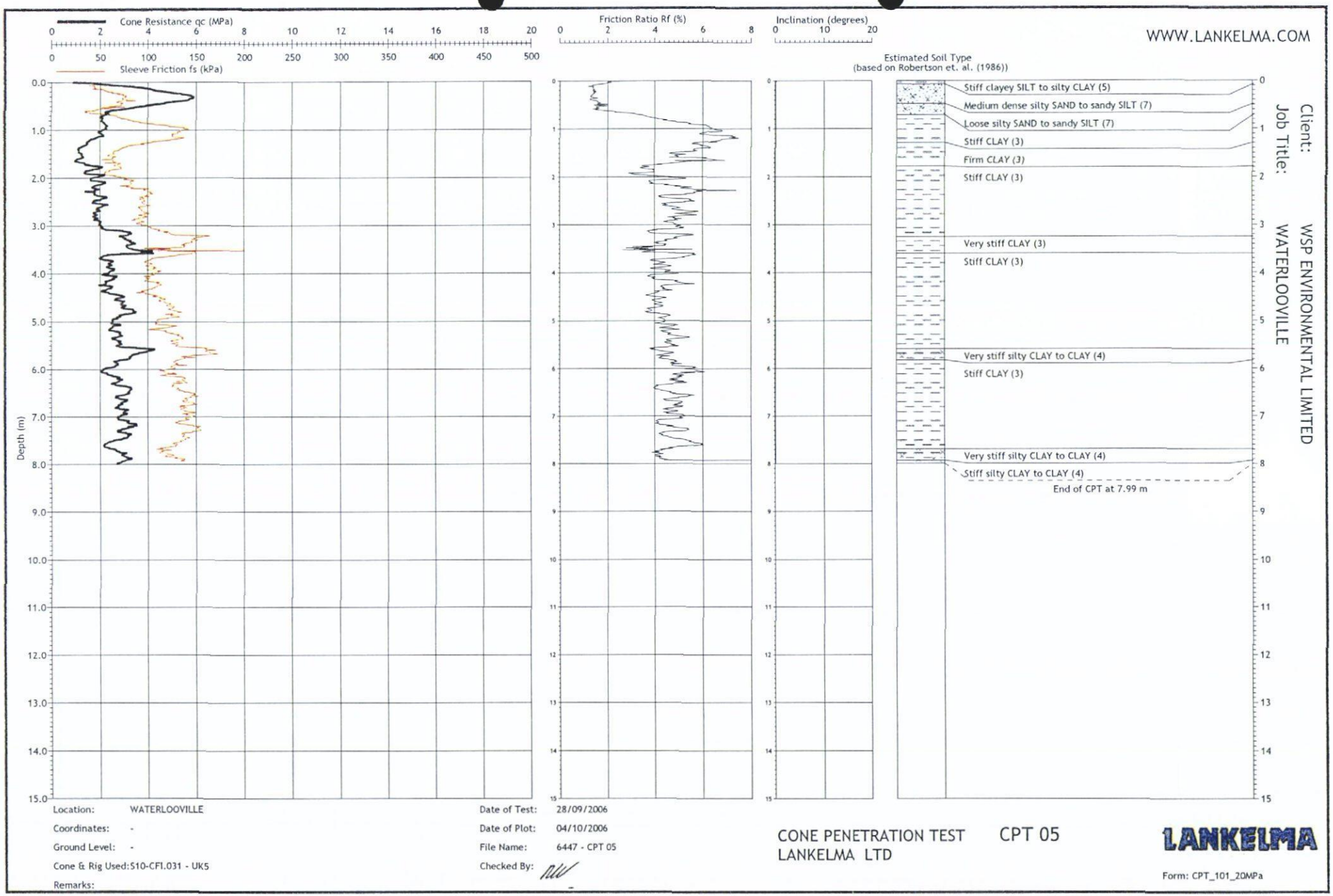
Checked By:

CONE PENETRATION TEST CPT 04

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CF1.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 05

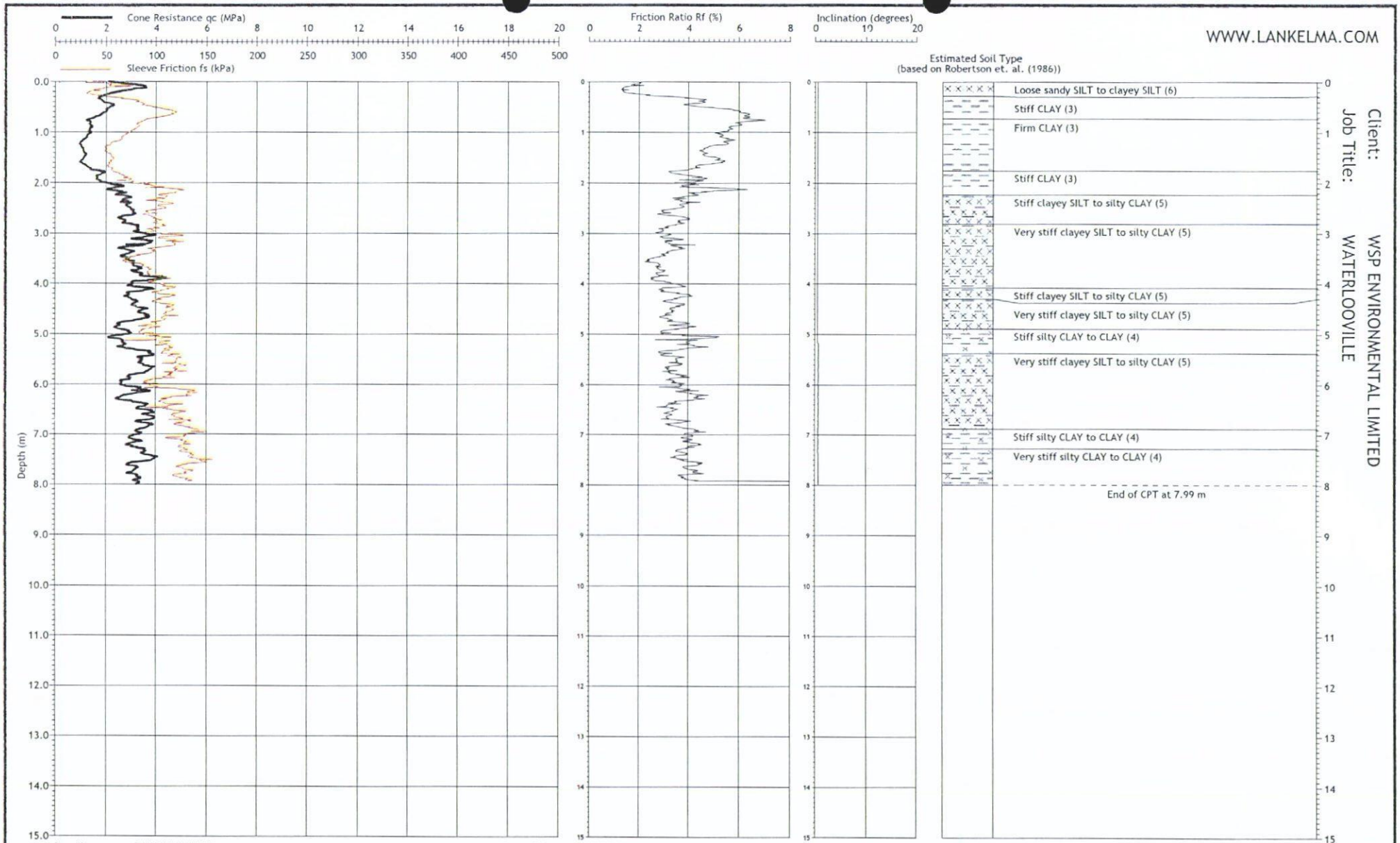
Checked By:

CONE PENETRATION TEST CPT 05

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 06

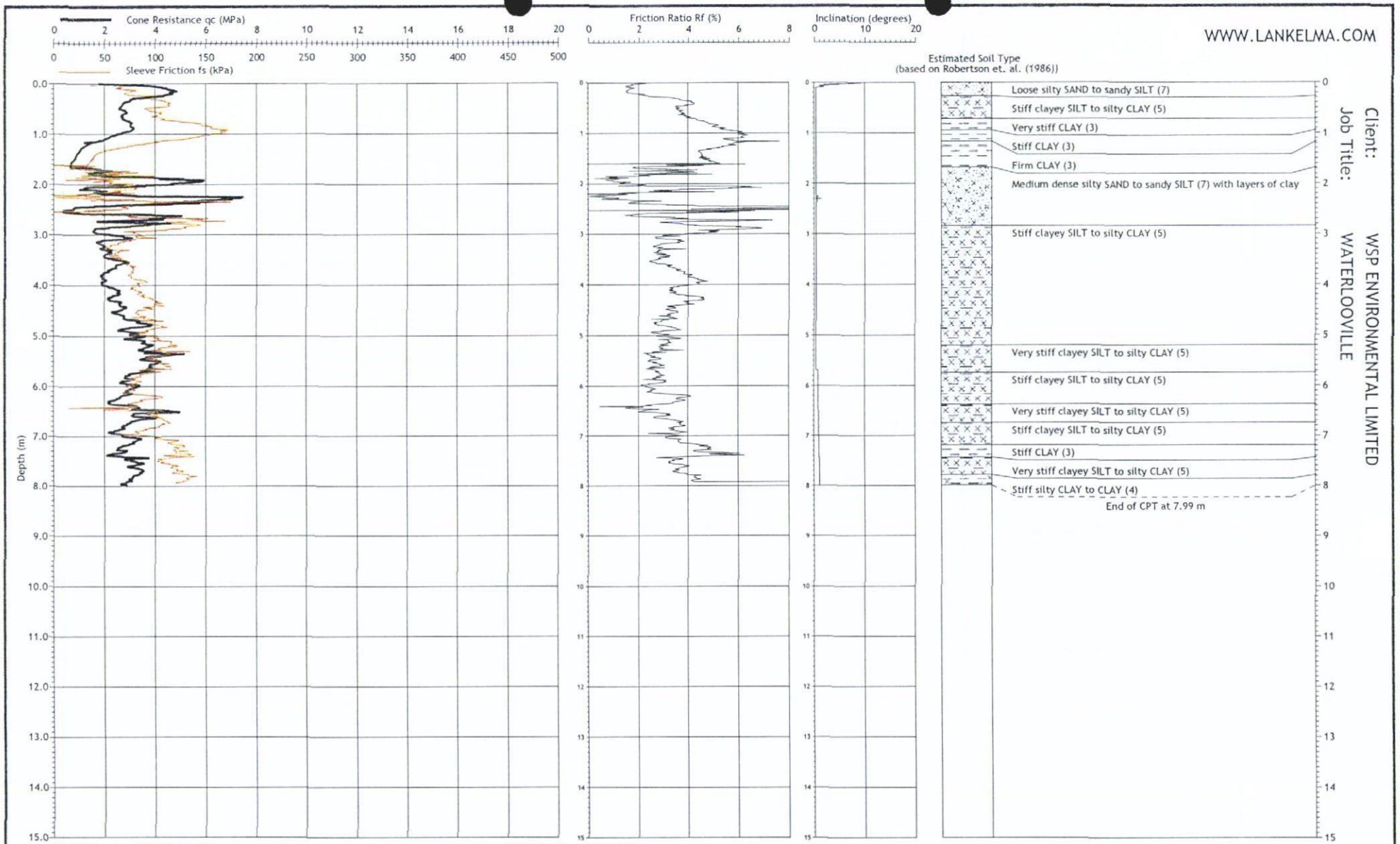
Checked By:

CONE PENETRATION TEST CPT 06

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 07

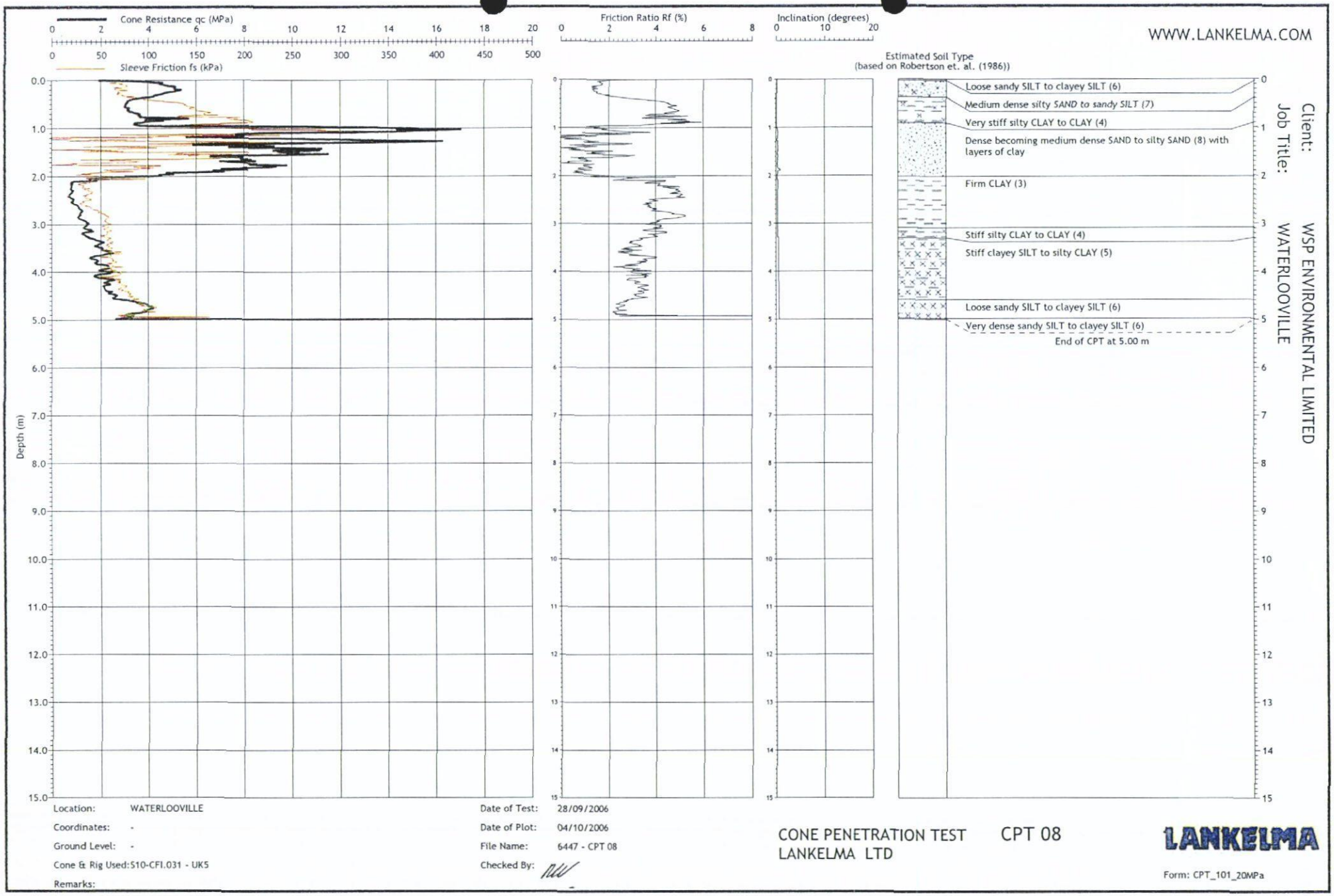
Checked By:

CONE PENETRATION TEST CPT 07

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 08

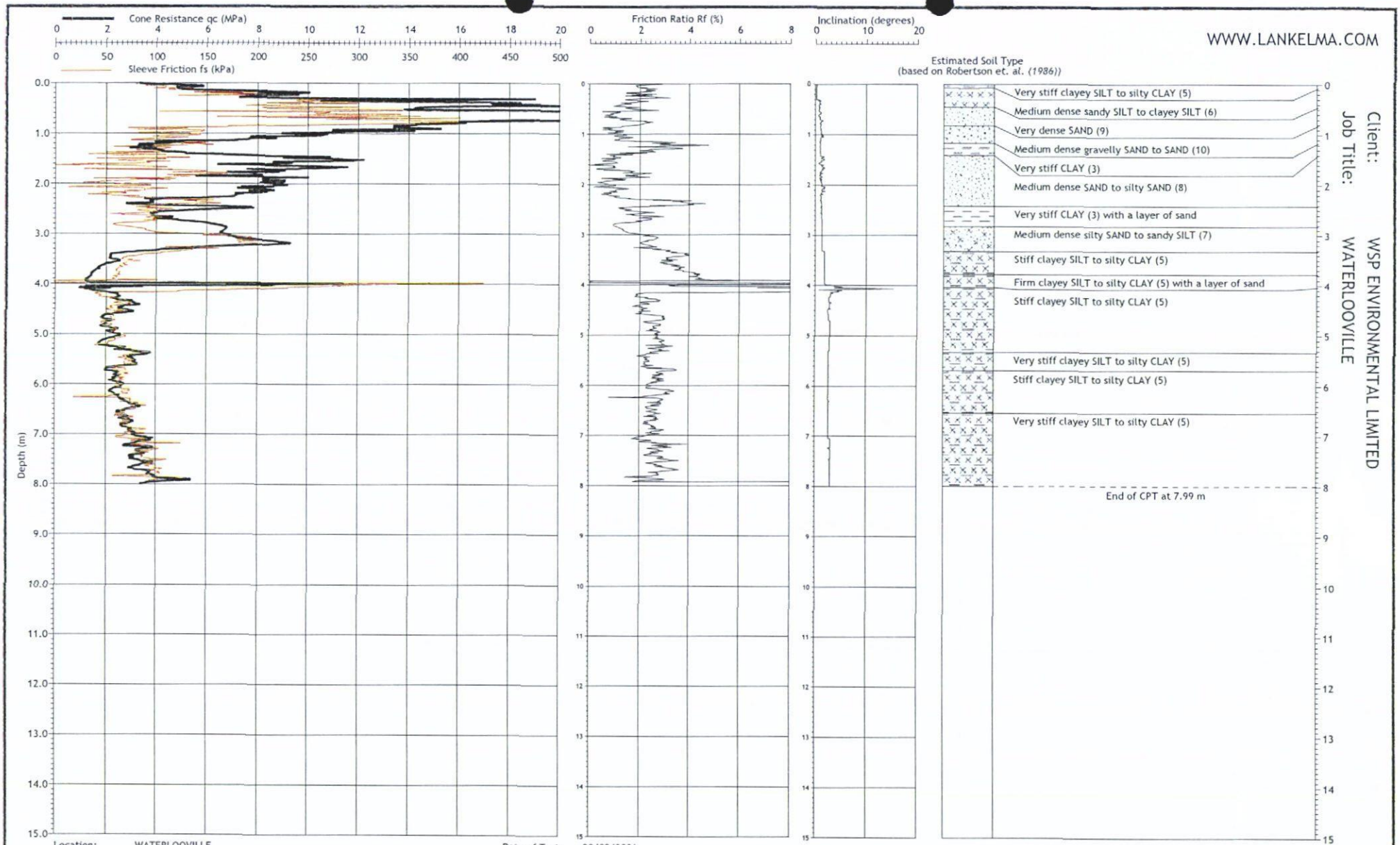
Checked By:

CONE PENETRATION TEST CPT 08

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 09

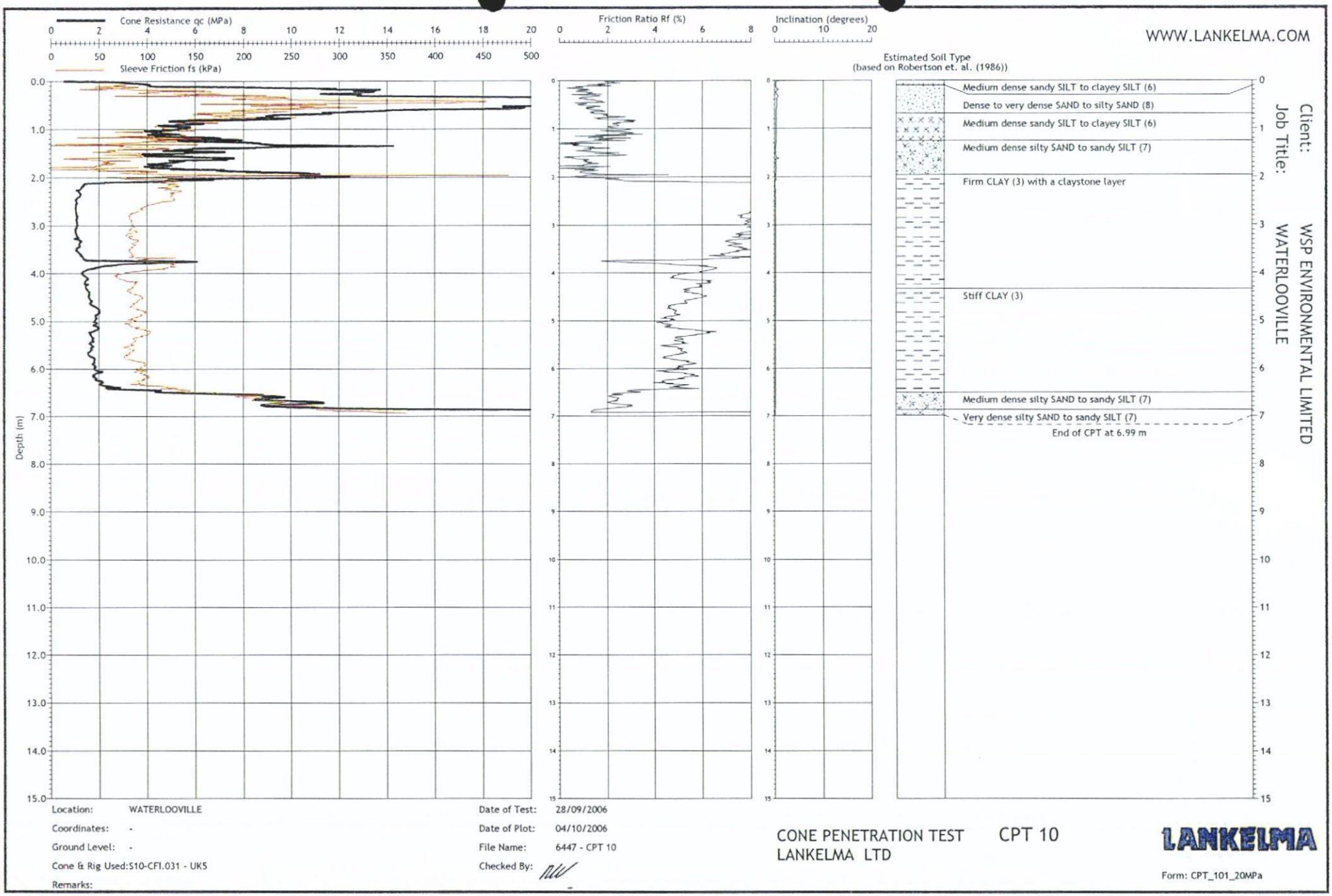
Checked By:

CONE PENETRATION TEST CPT 09

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 10

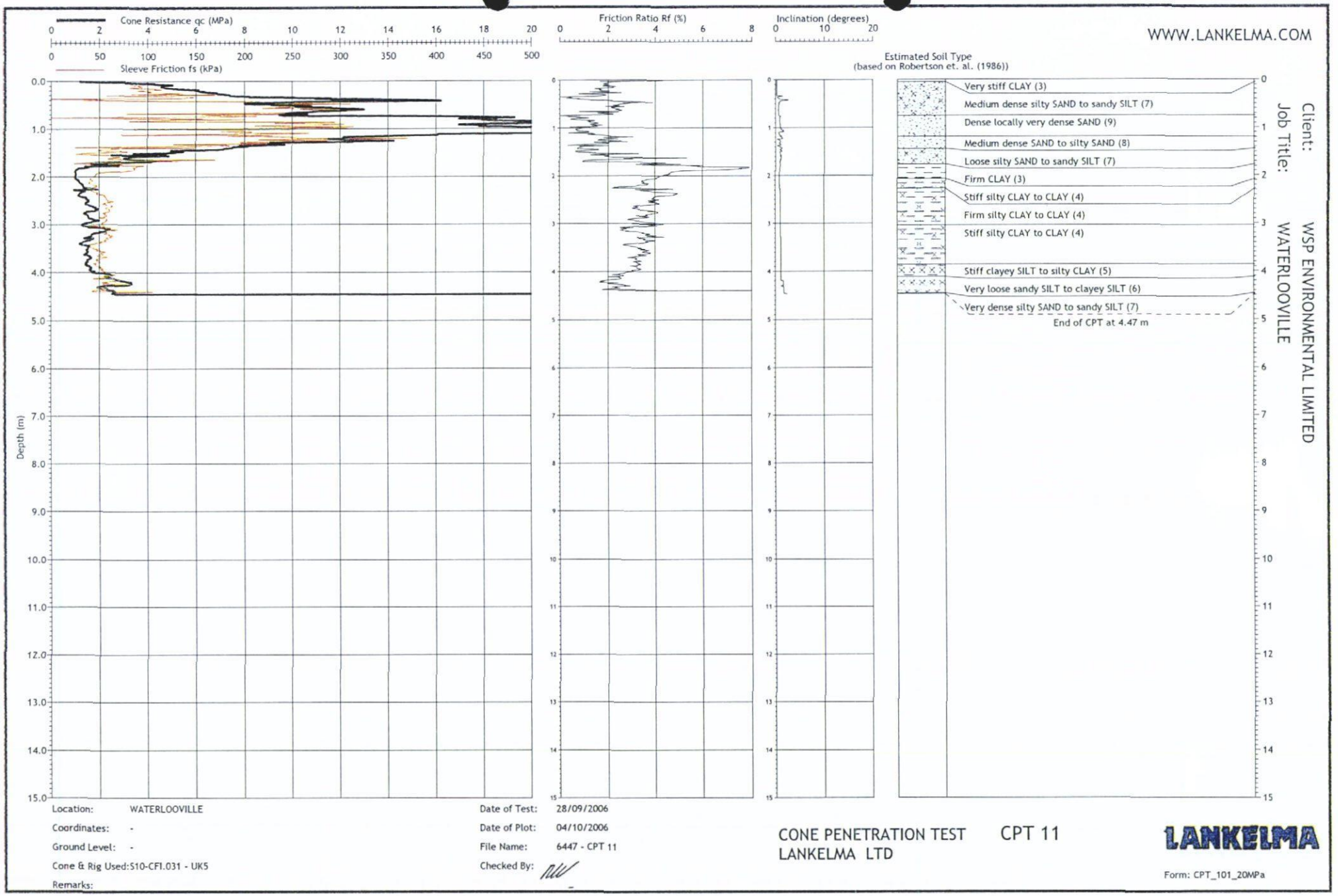
Checked By:

CONE PENETRATION TEST CPT 10

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 11

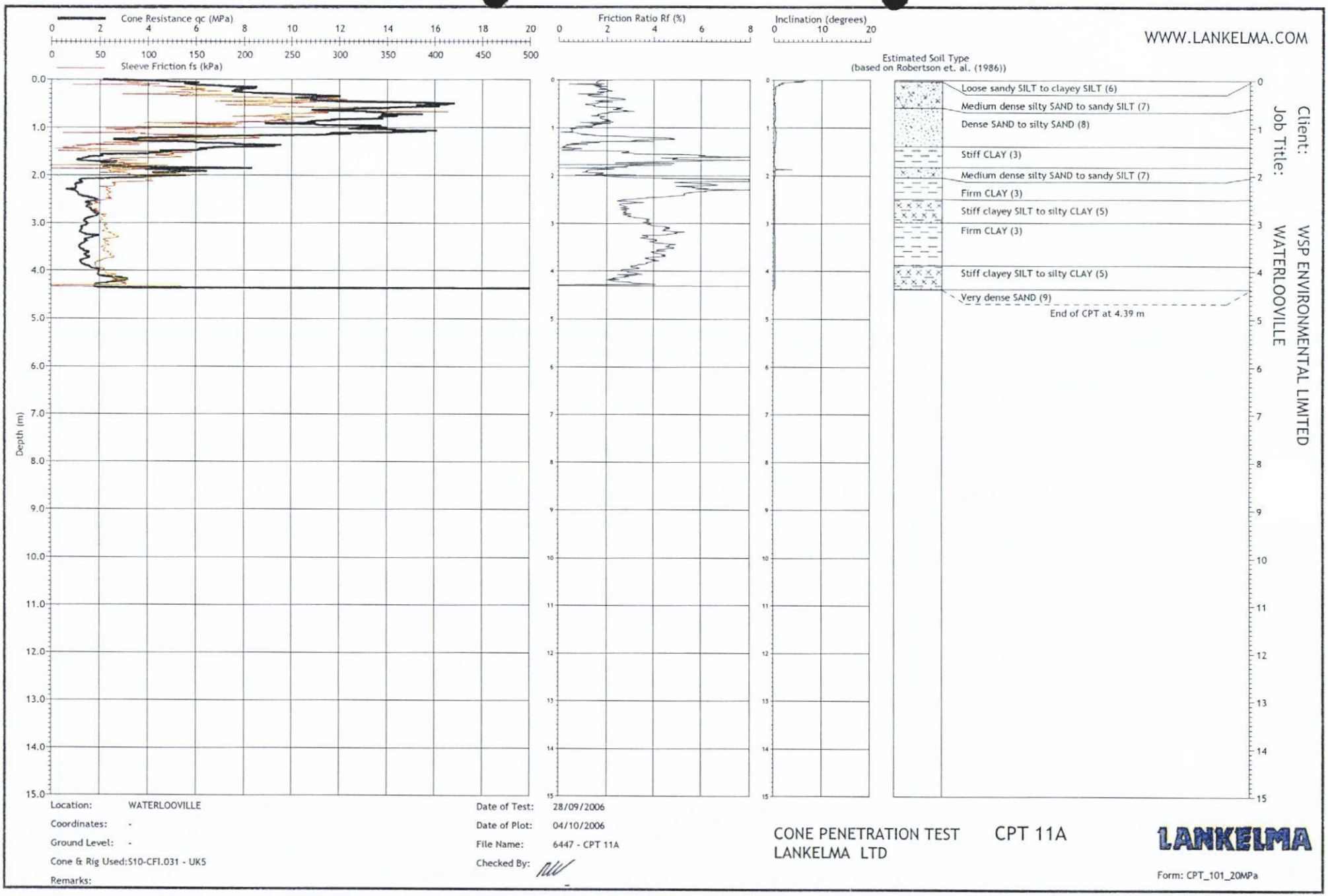
Checked By:

CONE PENETRATION TEST CPT 11

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 11A

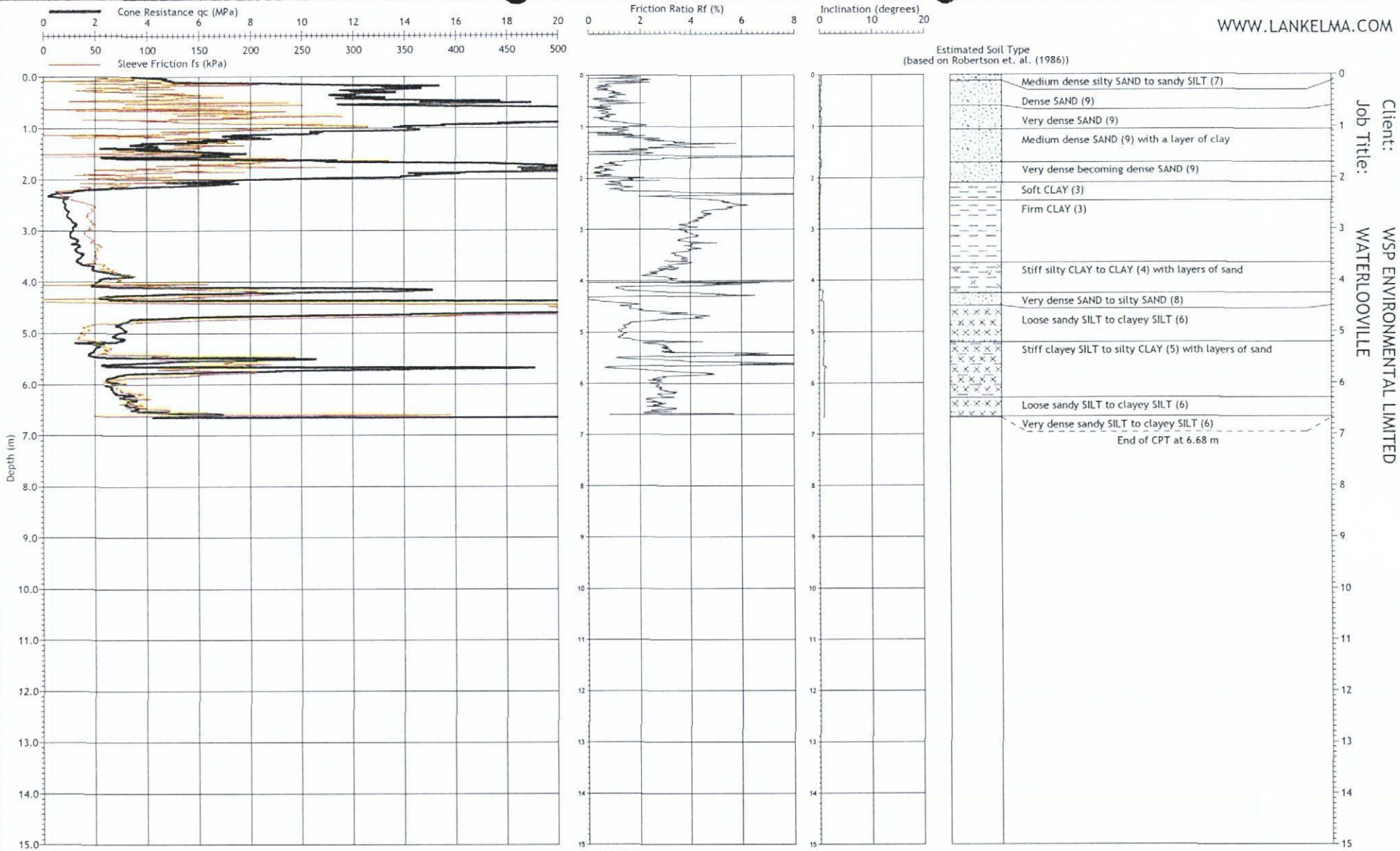
Checked By:

CONE PENETRATION TEST CPT 11A

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 12

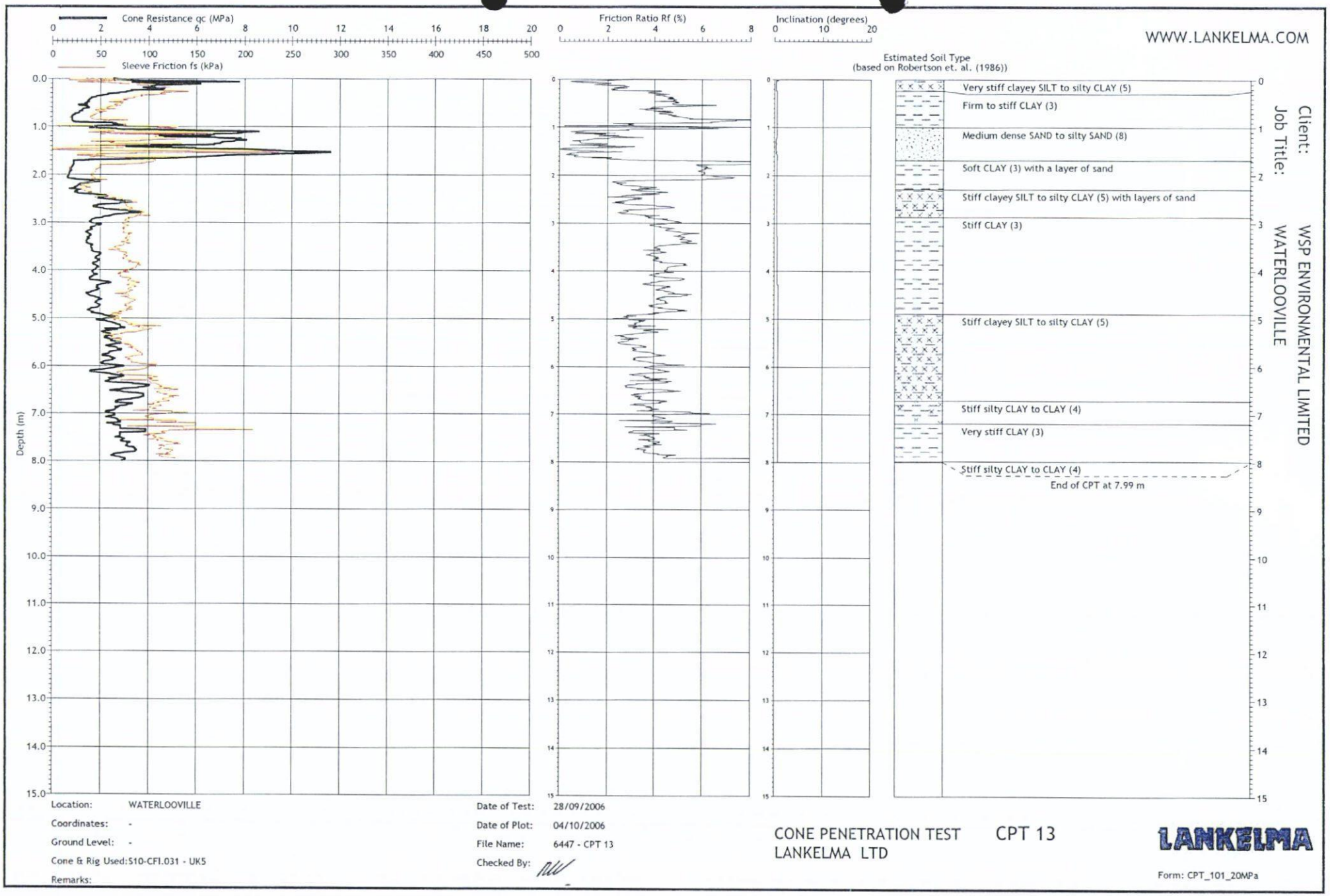
Checked By:

CONE PENETRATION TEST CPT 12

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 13

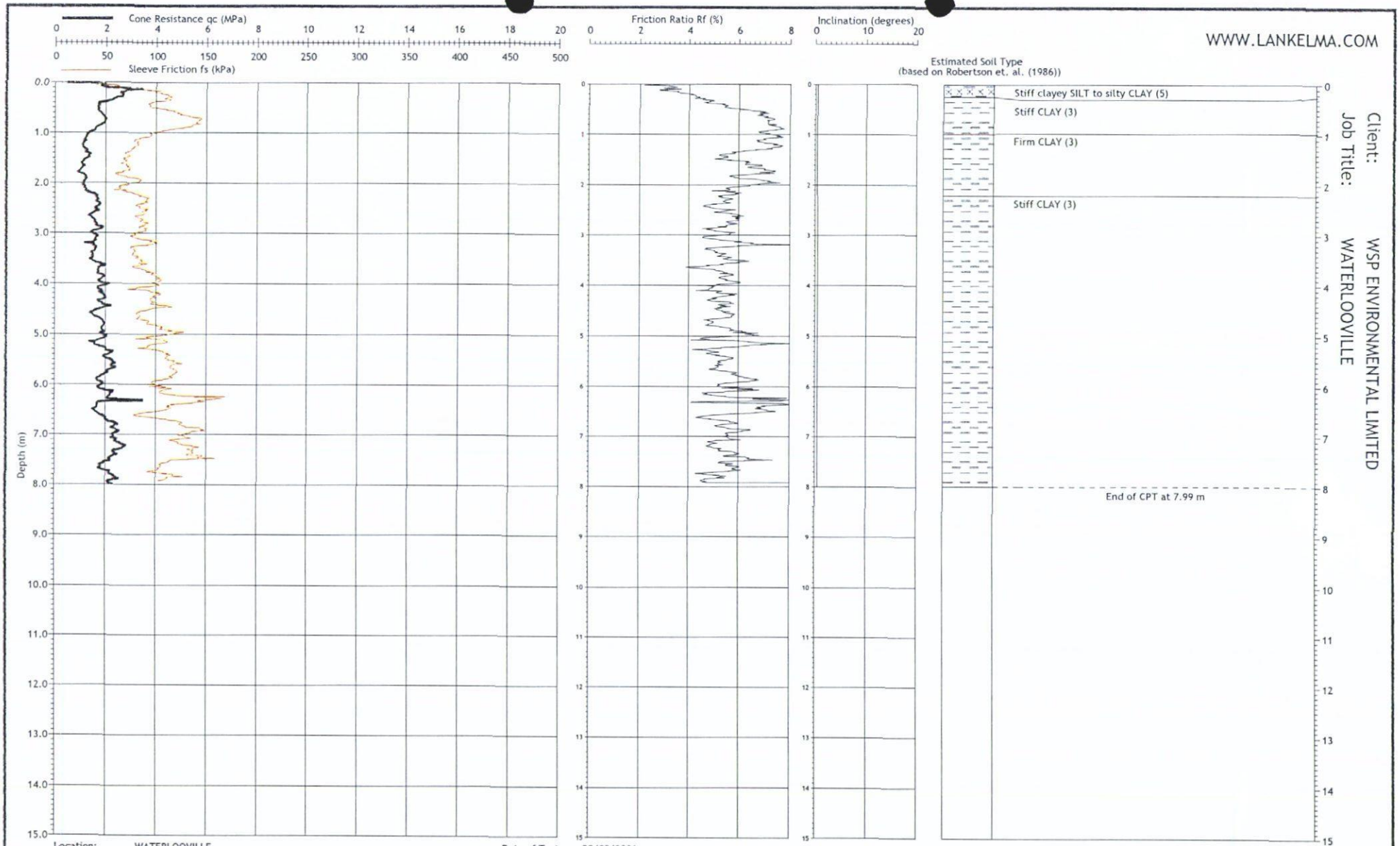
Checked By:

CONE PENETRATION TEST CPT 13

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 14

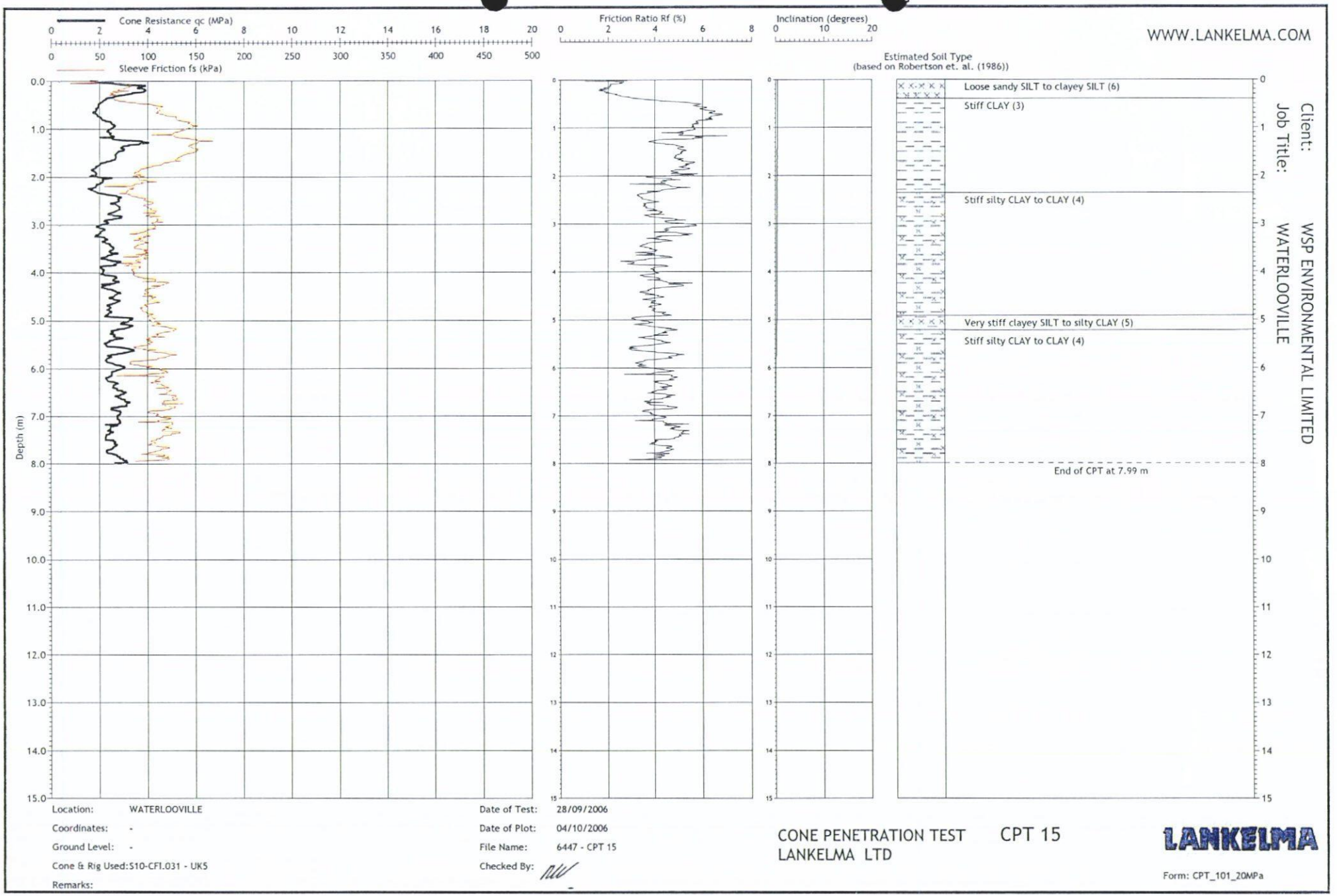
Checked By:

CONE PENETRATION TEST CPT 14

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 15

Checked By:

CONE PENETRATION TEST CPT 15

LANKELMA LTD

LANKELMA

Form: CPT_101_20MPa

APPENDIX C

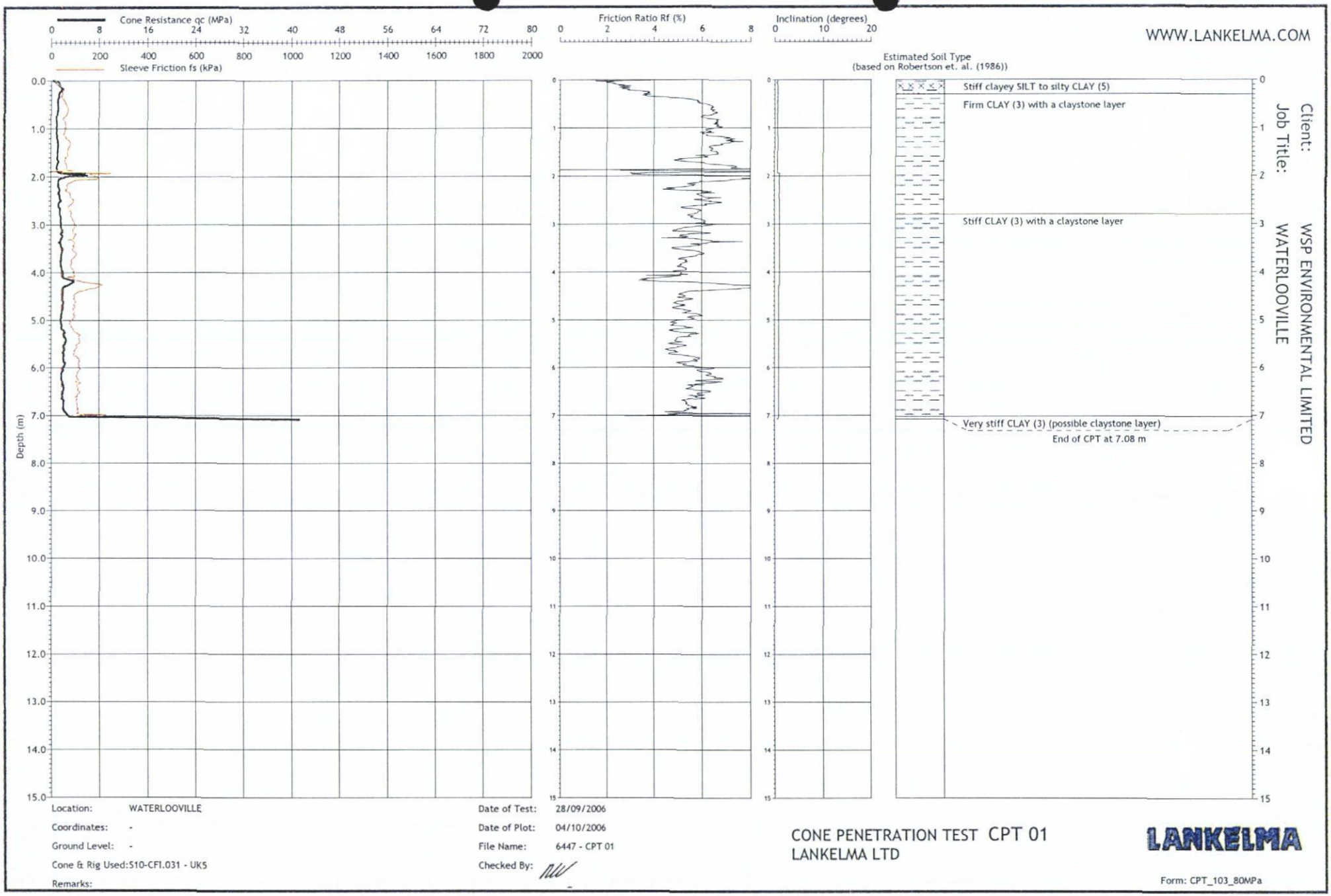
CONE PENETRATION TEST RESULTS (0 - 80 MPa)

APPENDIX C

CONE PENETRATION TEST RESULTS (0 - 80 MPa)

LIST OF FIGURES

Description	Pages included
Cone Penetration Tests CPT 01 - CPT 15	16



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

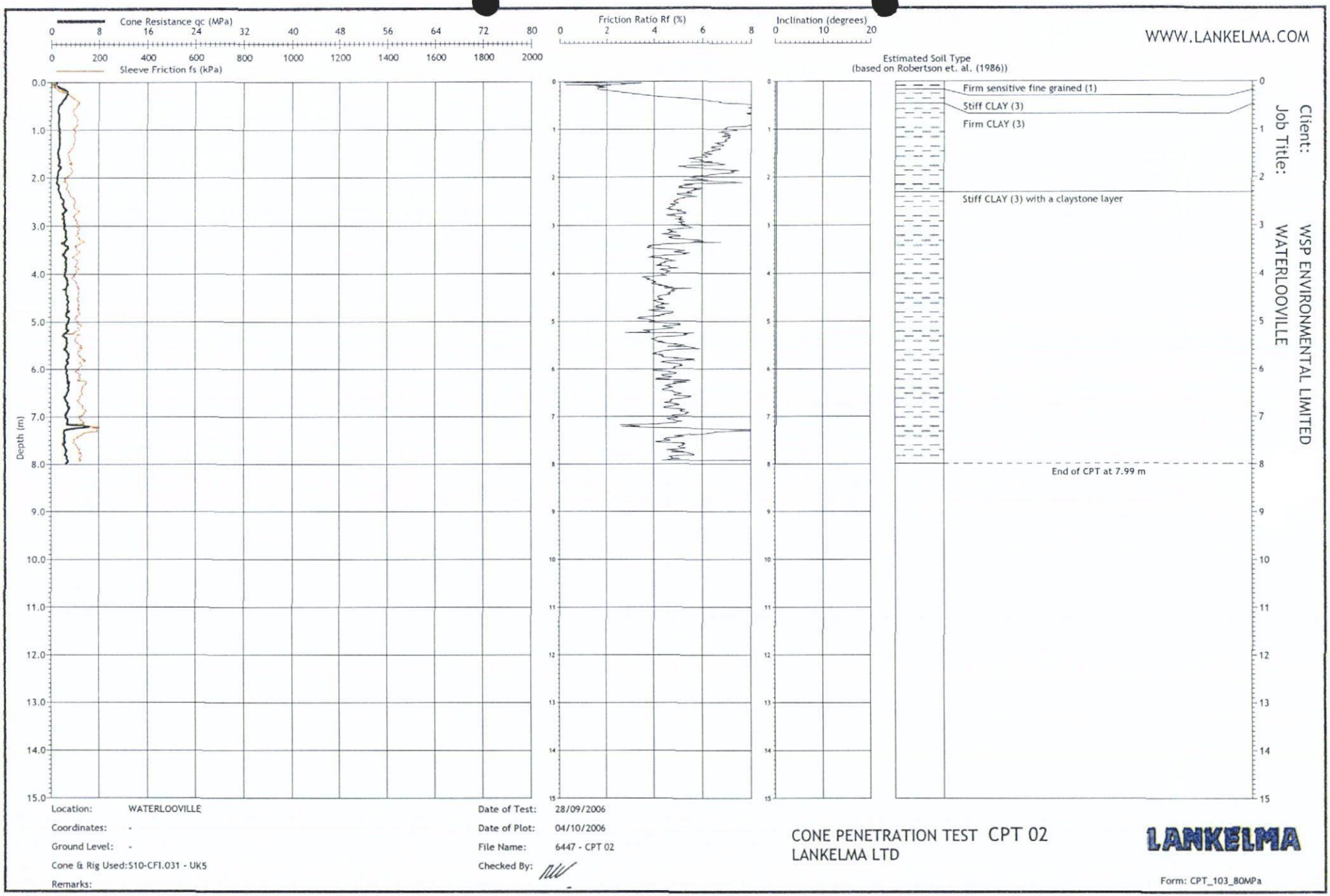
File Name: 6447 - CPT 01

Checked By:

CONE PENETRATION TEST CPT 01
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

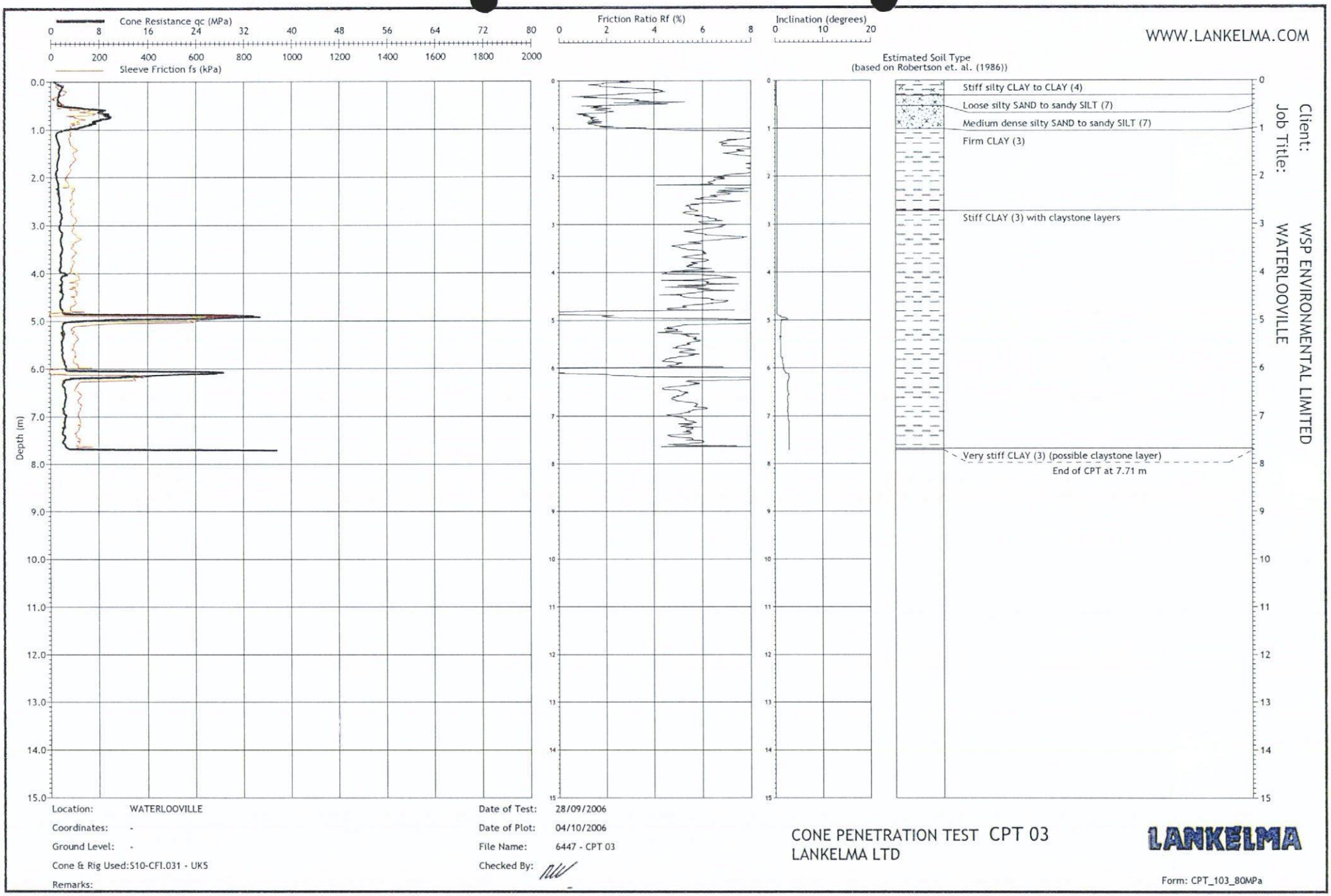
File Name: 6447 - CPT 02

Checked By:

CONE PENETRATION TEST CPT 02
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

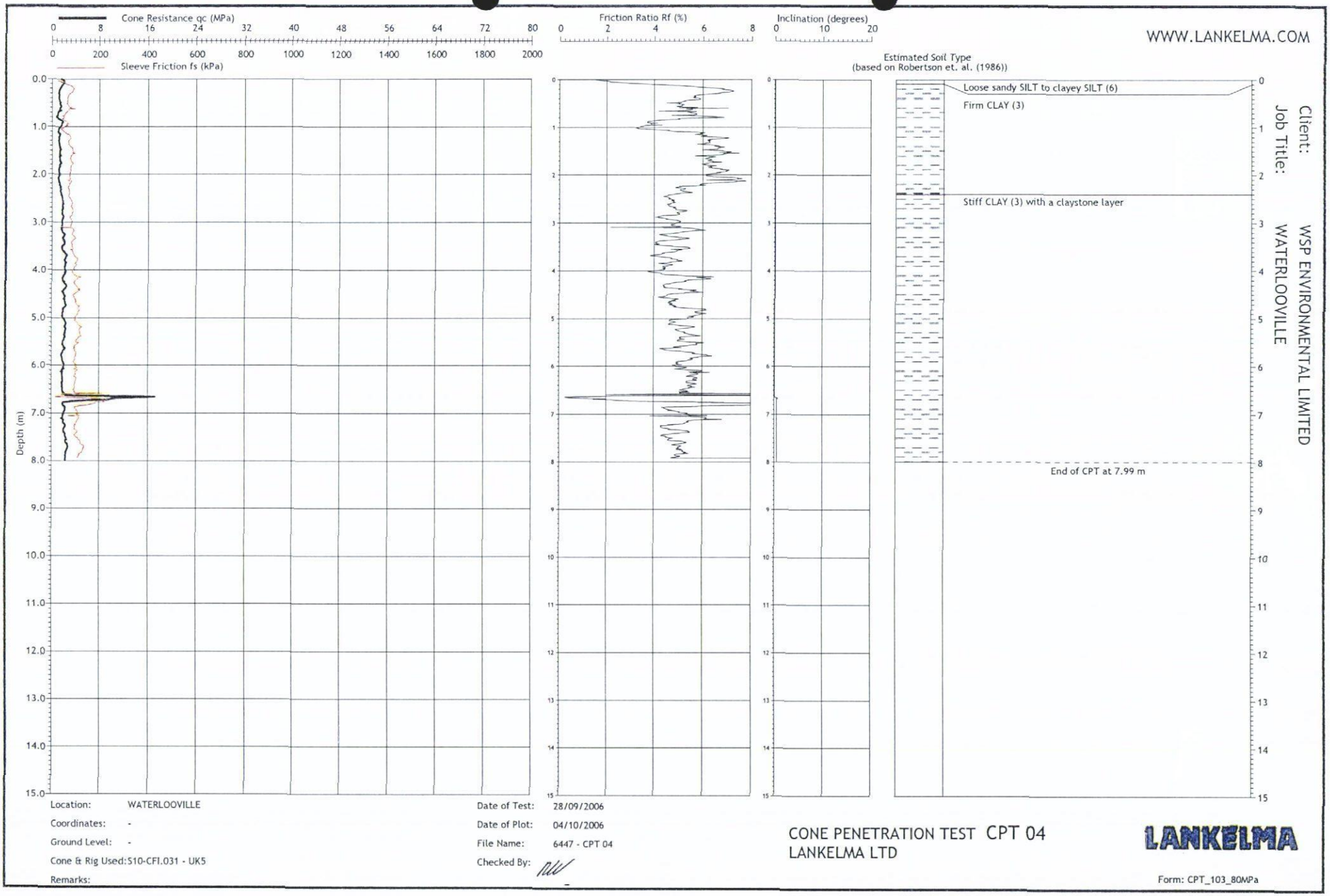
File Name: 6447 - CPT 03

Checked By: AW

CONE PENETRATION TEST CPT 03
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

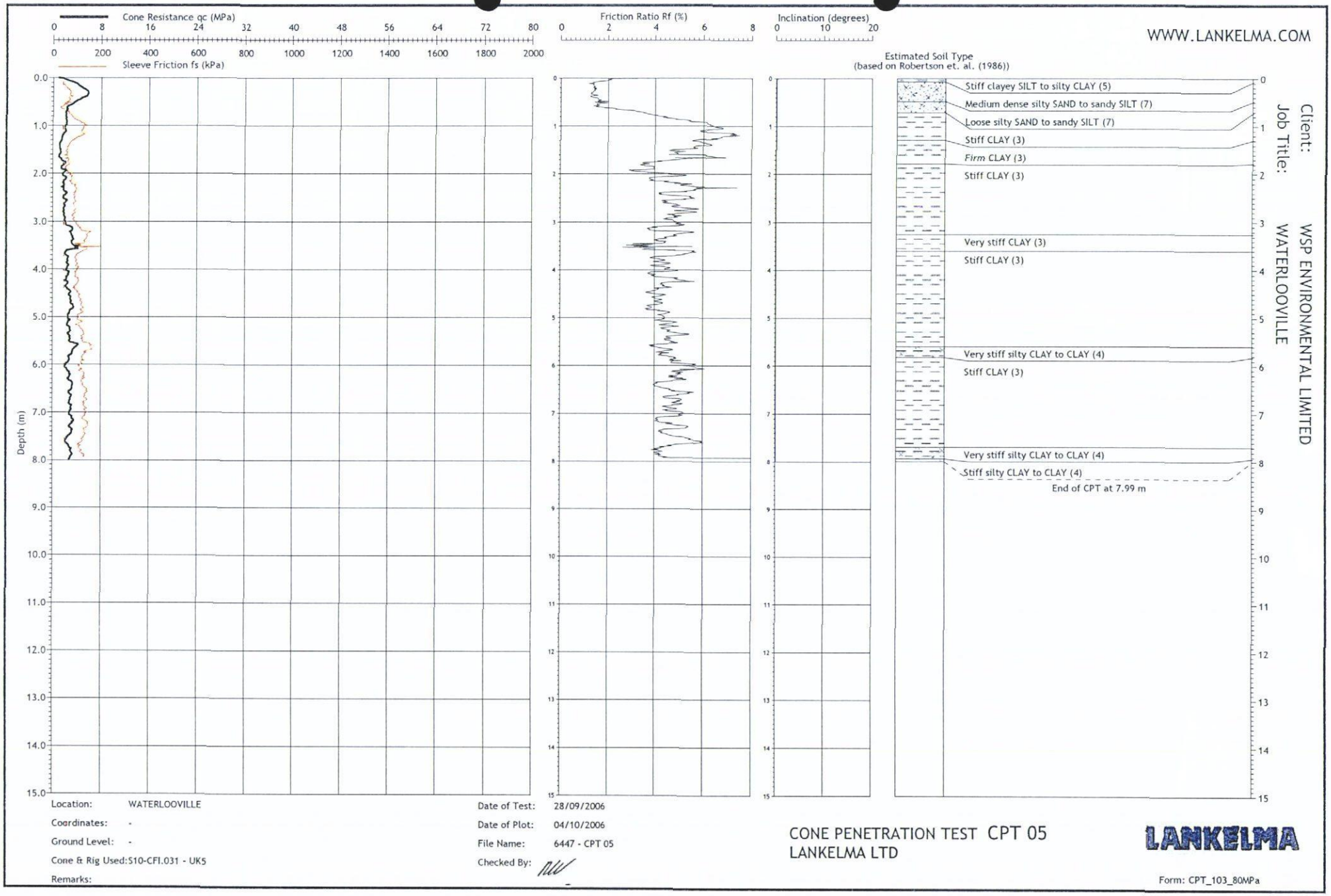
File Name: 6447 - CPT 04

Checked By:

CONE PENETRATION TEST CPT 04
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

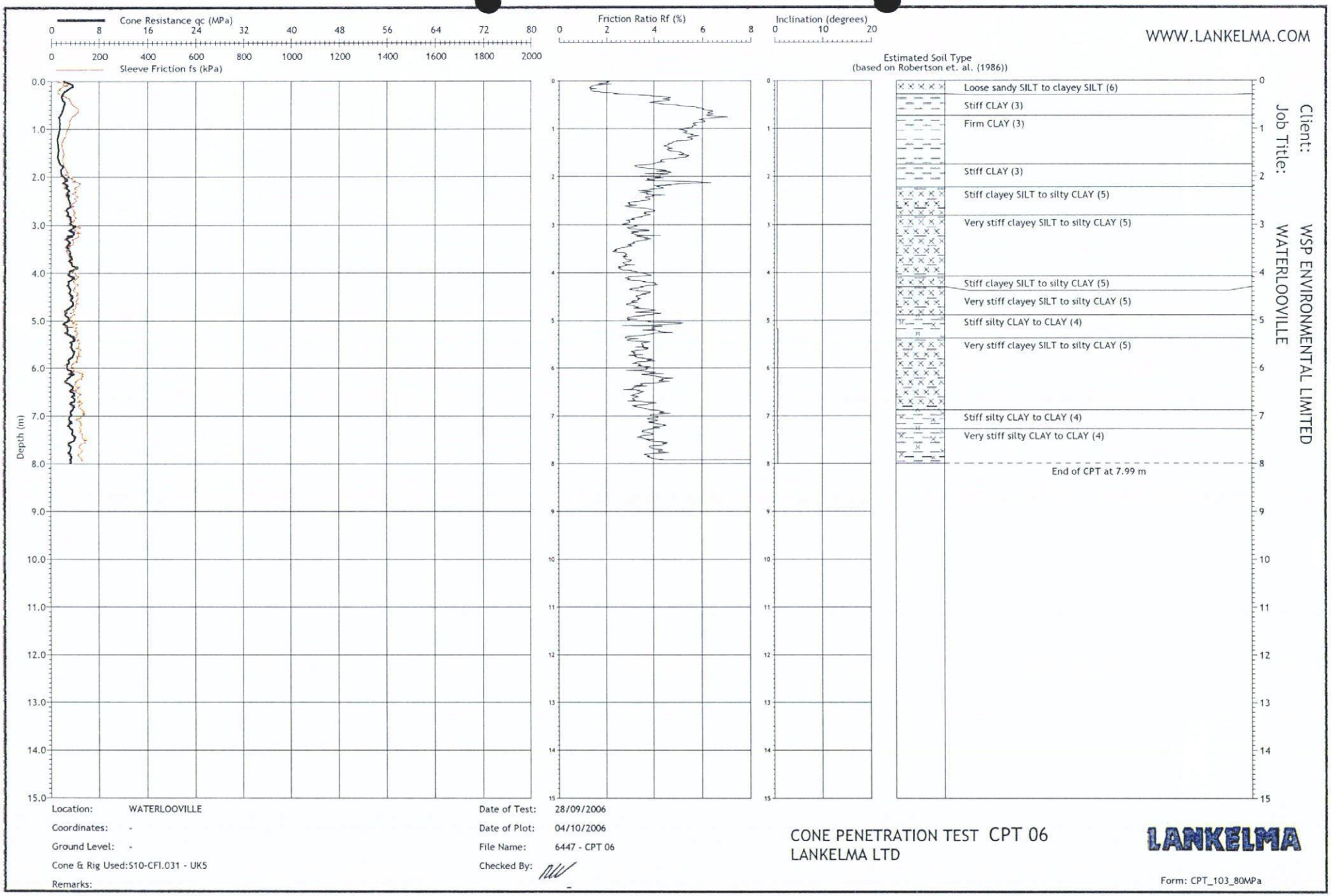
File Name: 6447 - CPT 05

Checked By:

CONE PENETRATION TEST CPT 05
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

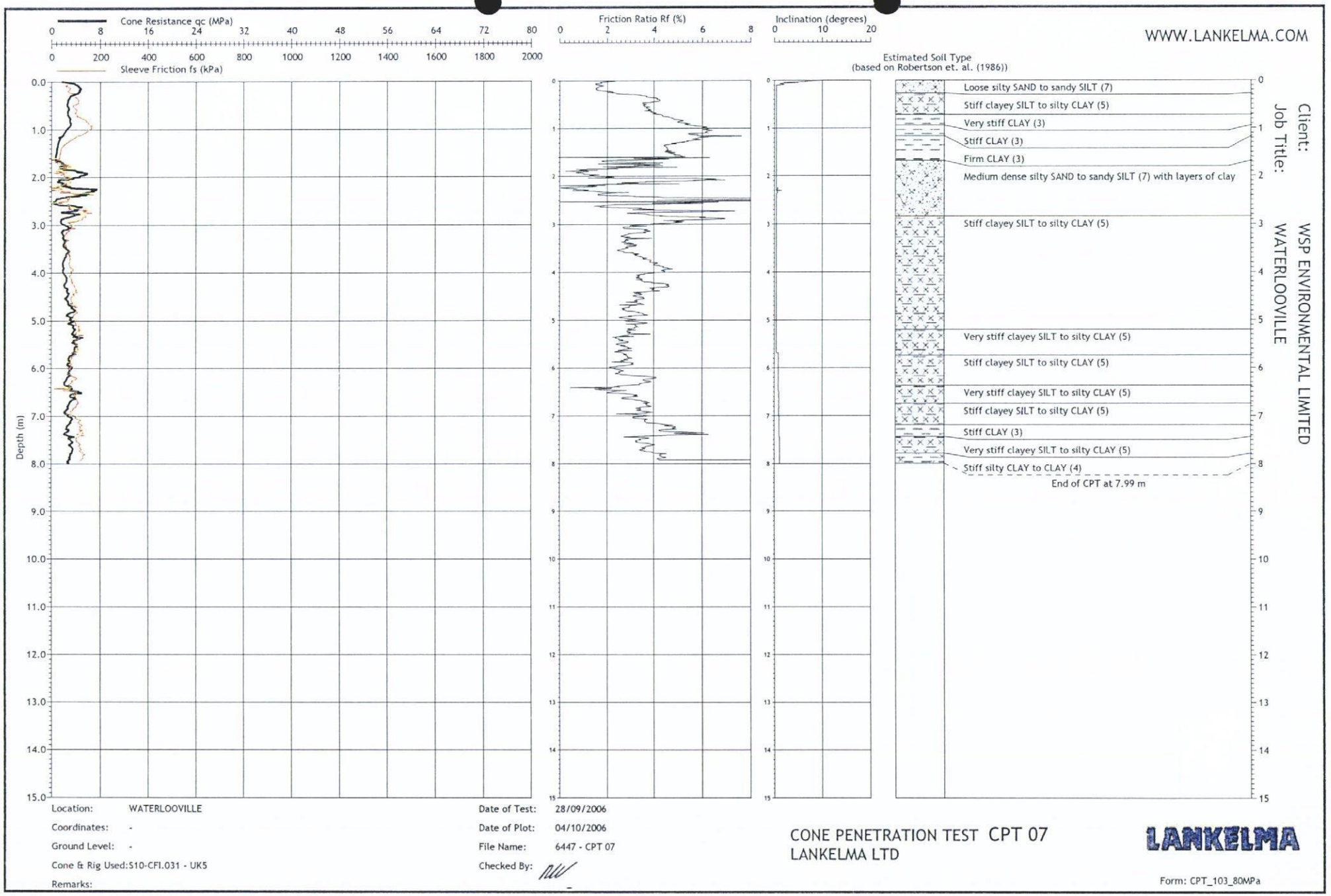
File Name: 6447 - CPT 06

Checked By:

CONE PENETRATION TEST CPT 06
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

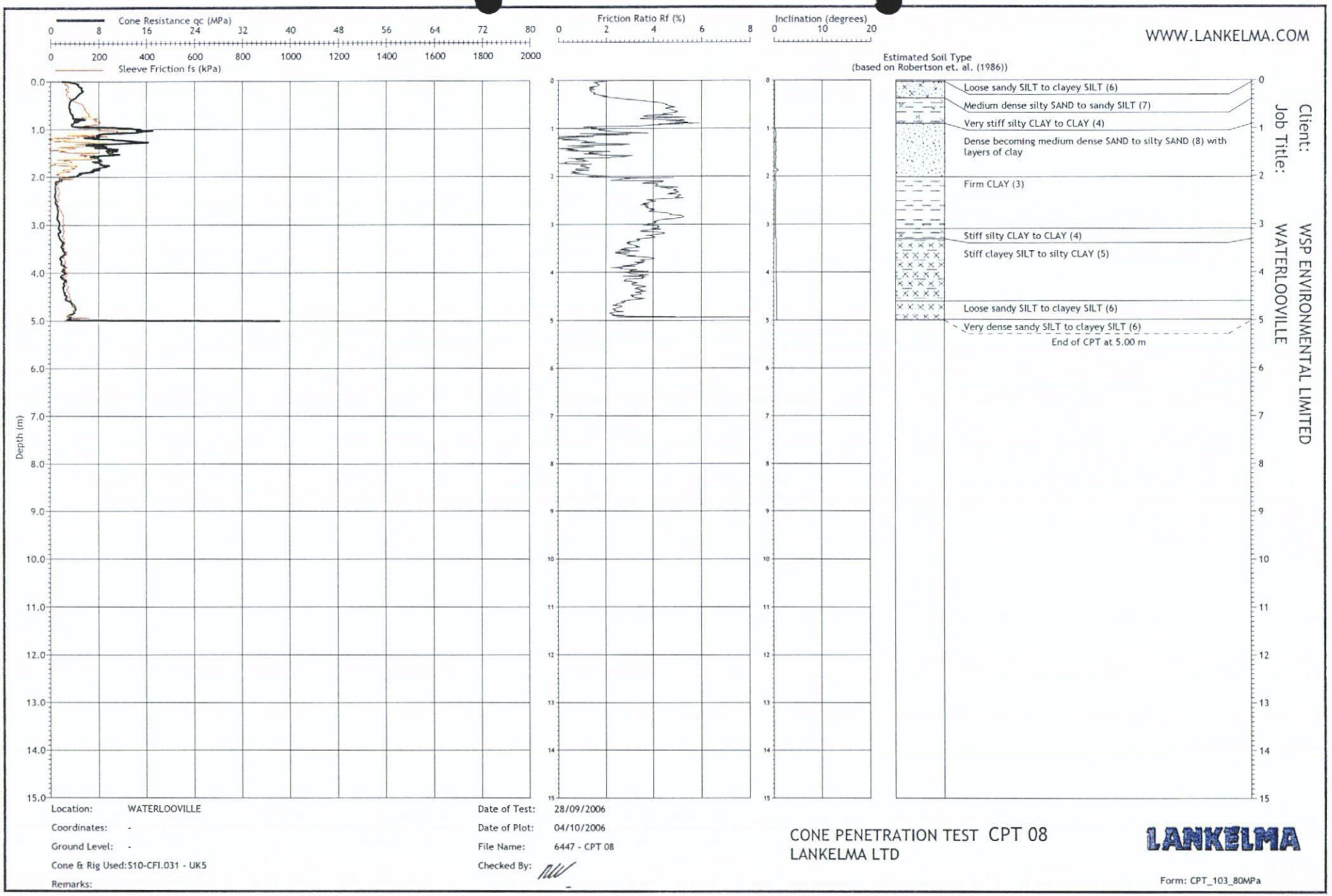
File Name: 6447 - CPT 07

Checked By:

CONE PENETRATION TEST CPT 07
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

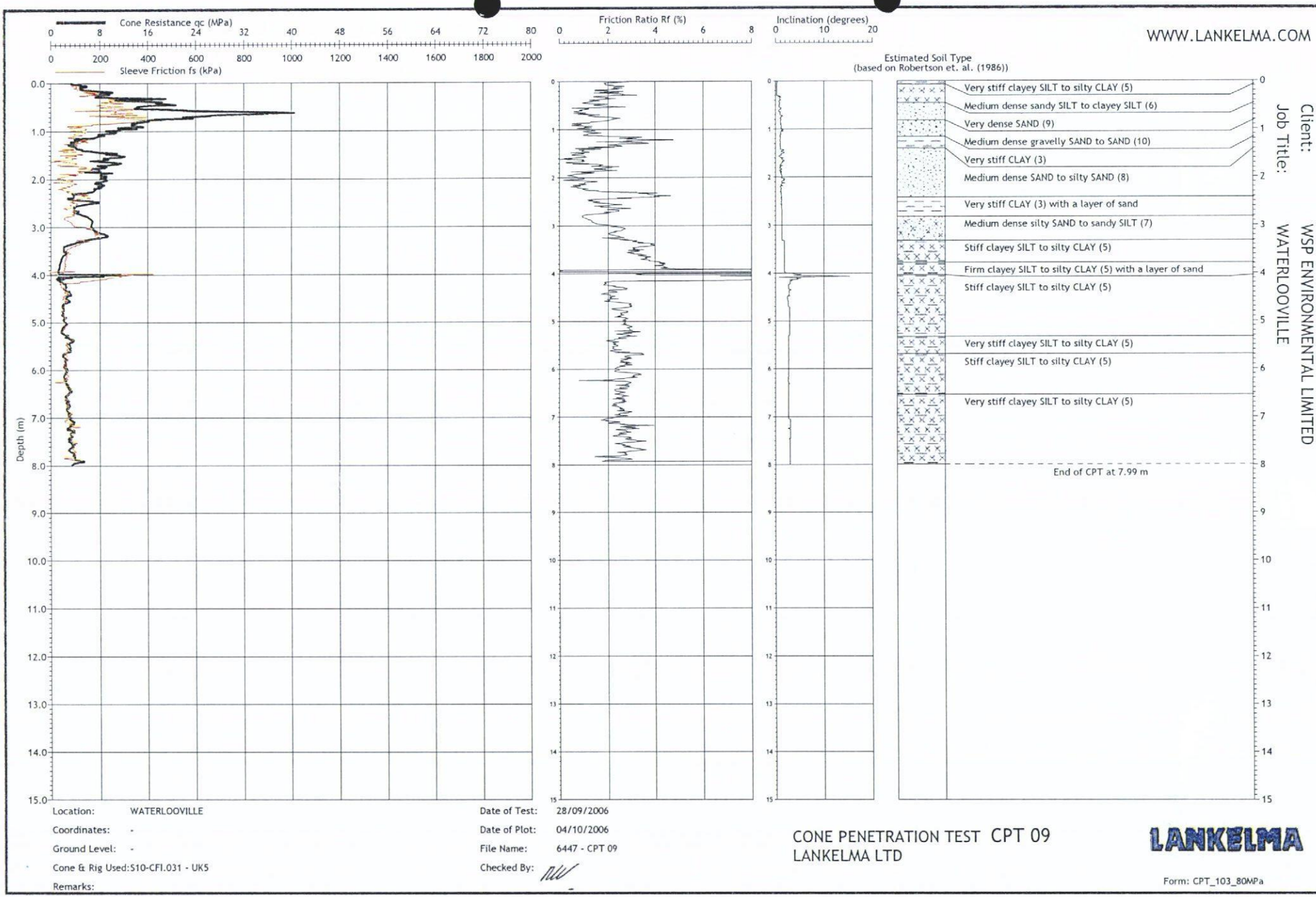
File Name: 6447 - CPT 08

Checked By:

CONE PENETRATION TEST CPT 08
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

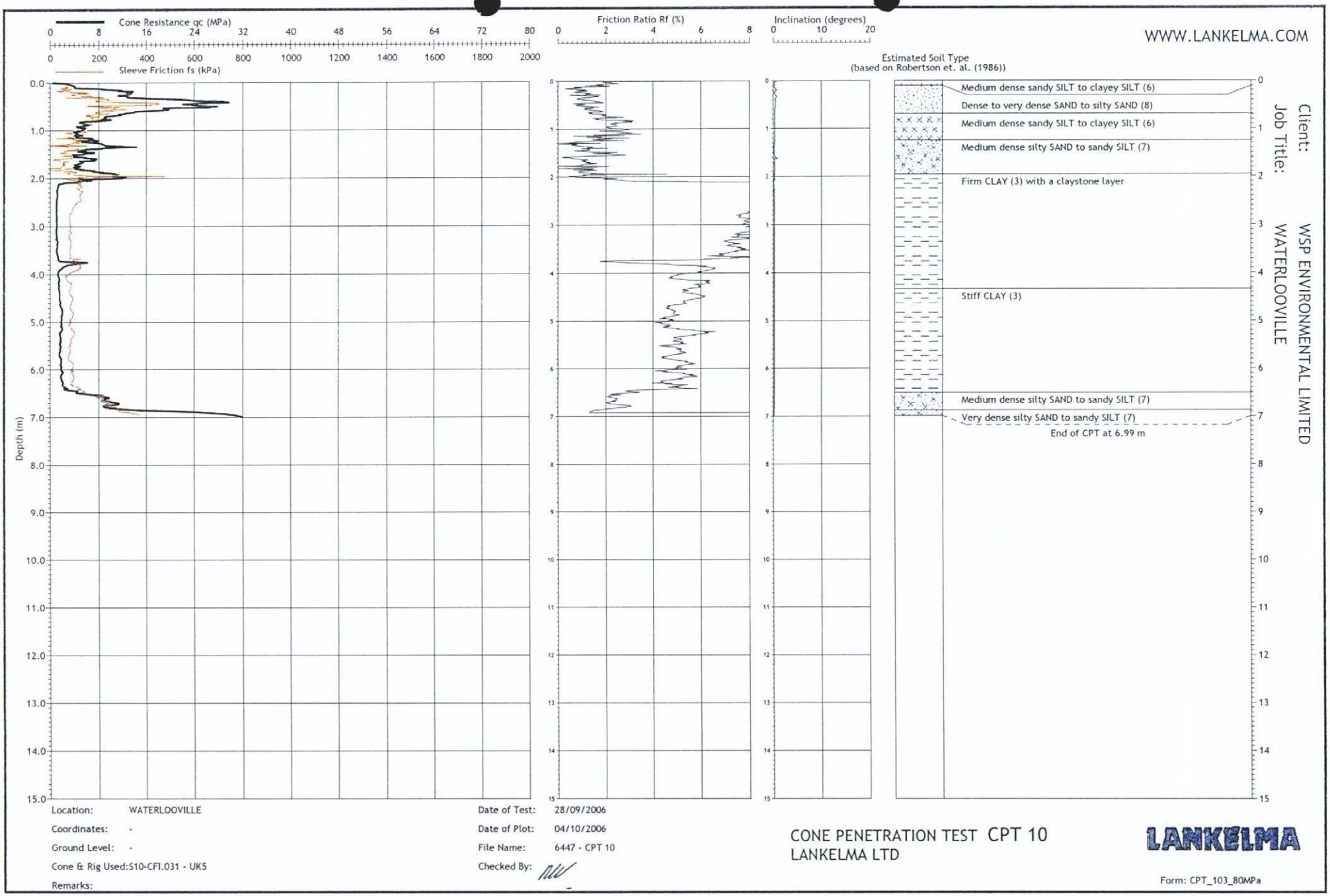
File Name: 6447 - CPT 09

Checked By:

CONE PENETRATION TEST CPT 09
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

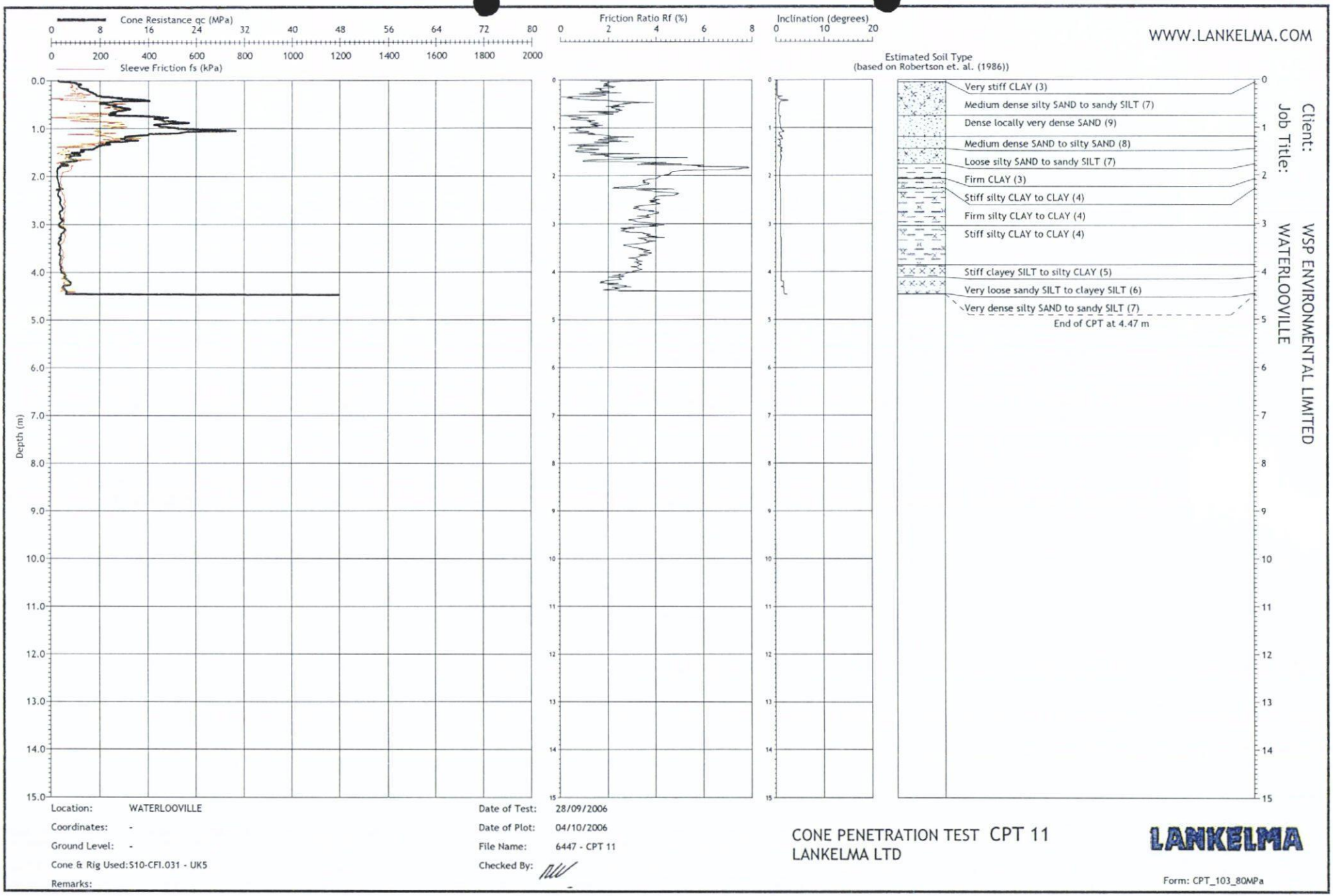
File Name: 6447 - CPT 10

Checked By:

CONE PENETRATION TEST CPT 10
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

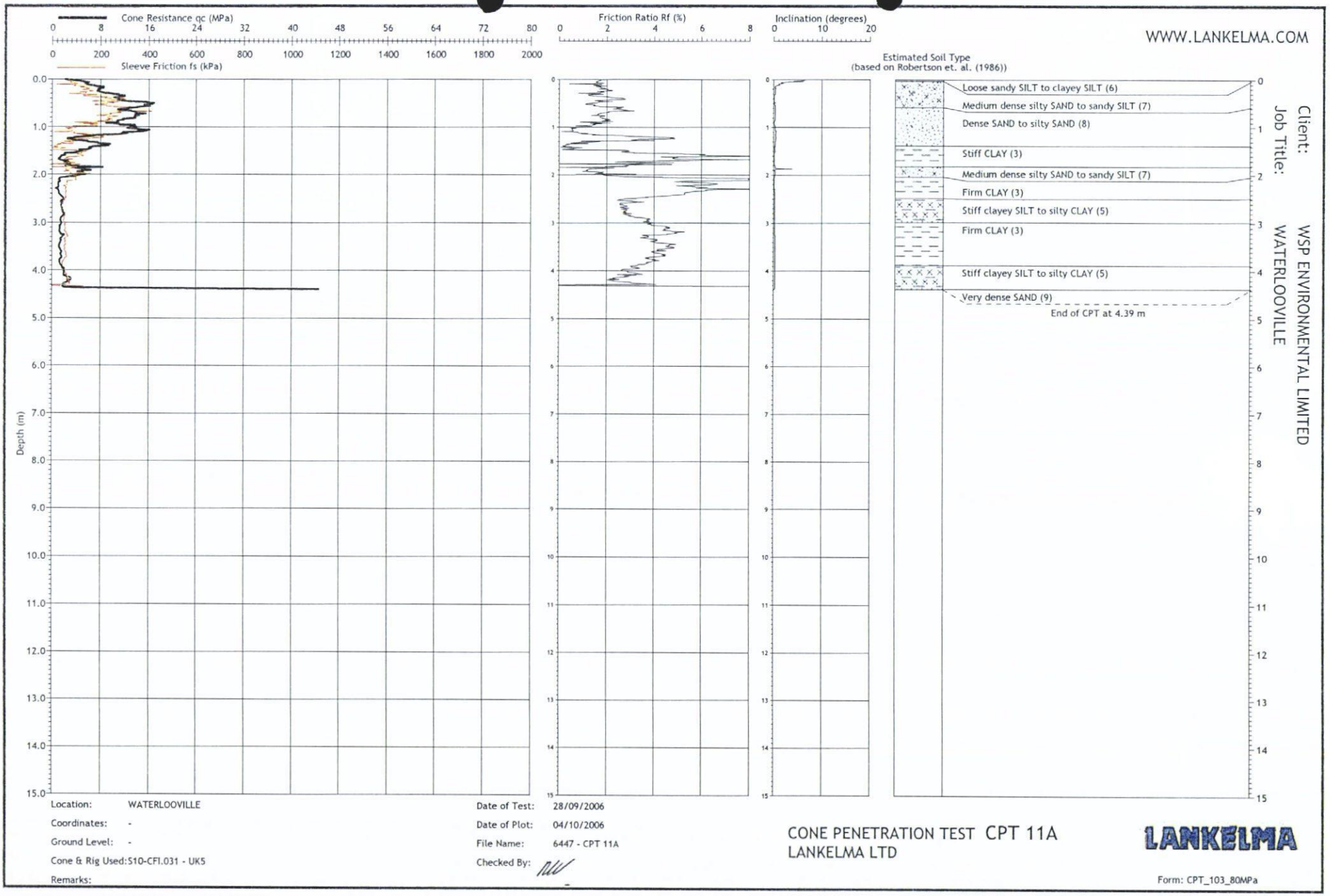
File Name: 6447 - CPT 11

Checked By:

CONE PENETRATION TEST CPT 11
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

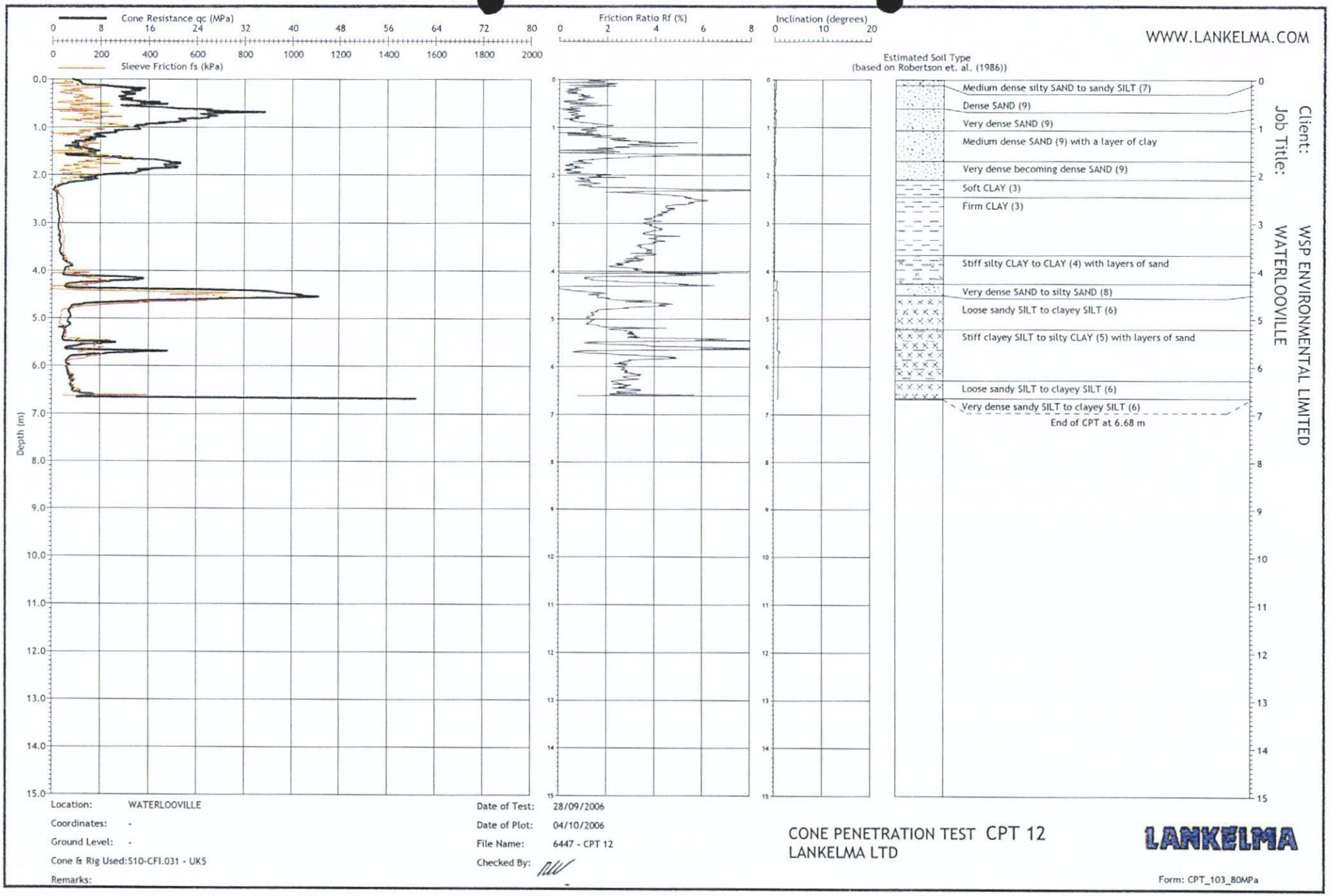
File Name: 6447 - CPT 11A

Checked By:

CONE PENETRATION TEST CPT 11A
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

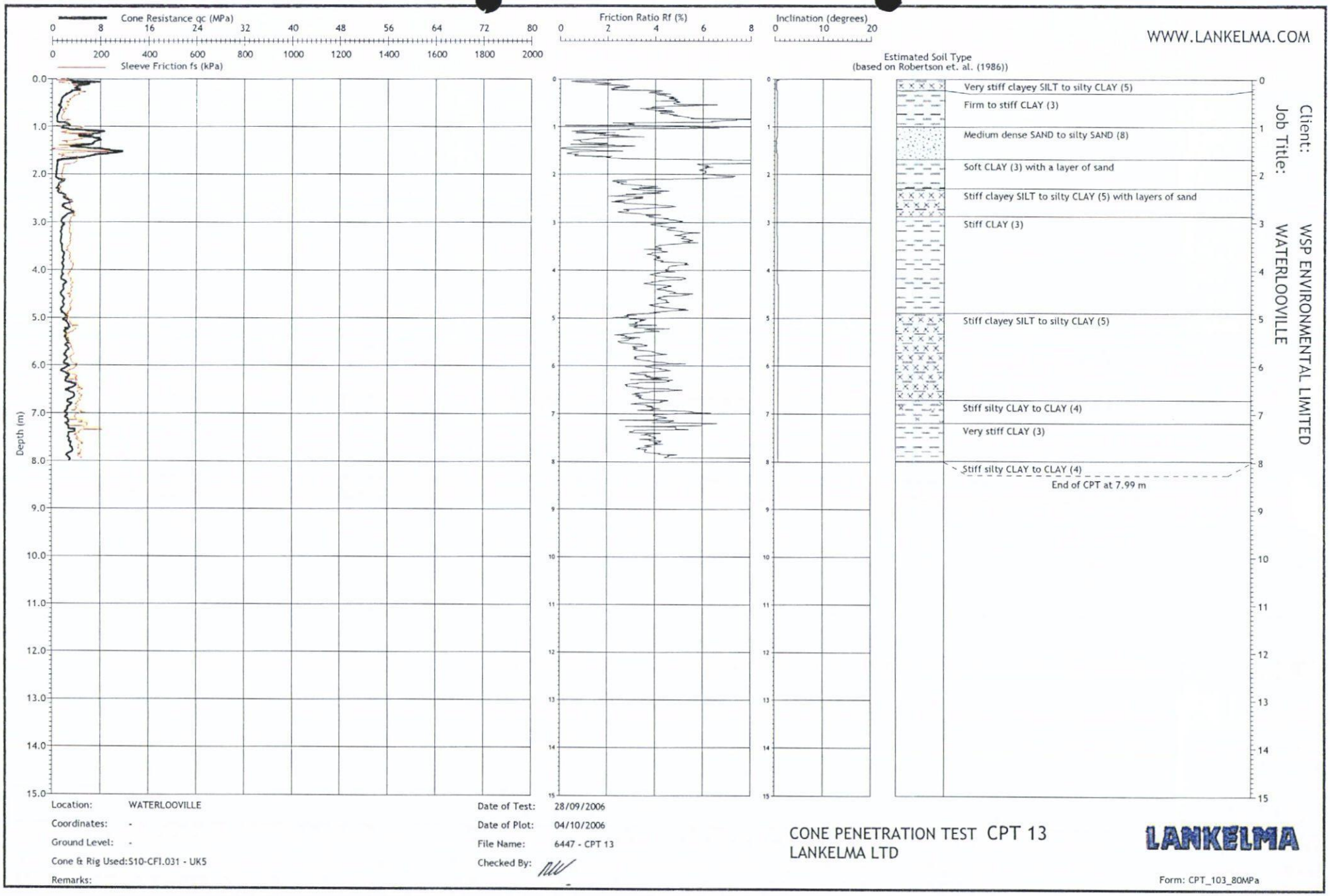
File Name: 6447 - CPT 12

Checked By:

CONE PENETRATION TEST CPT 12
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

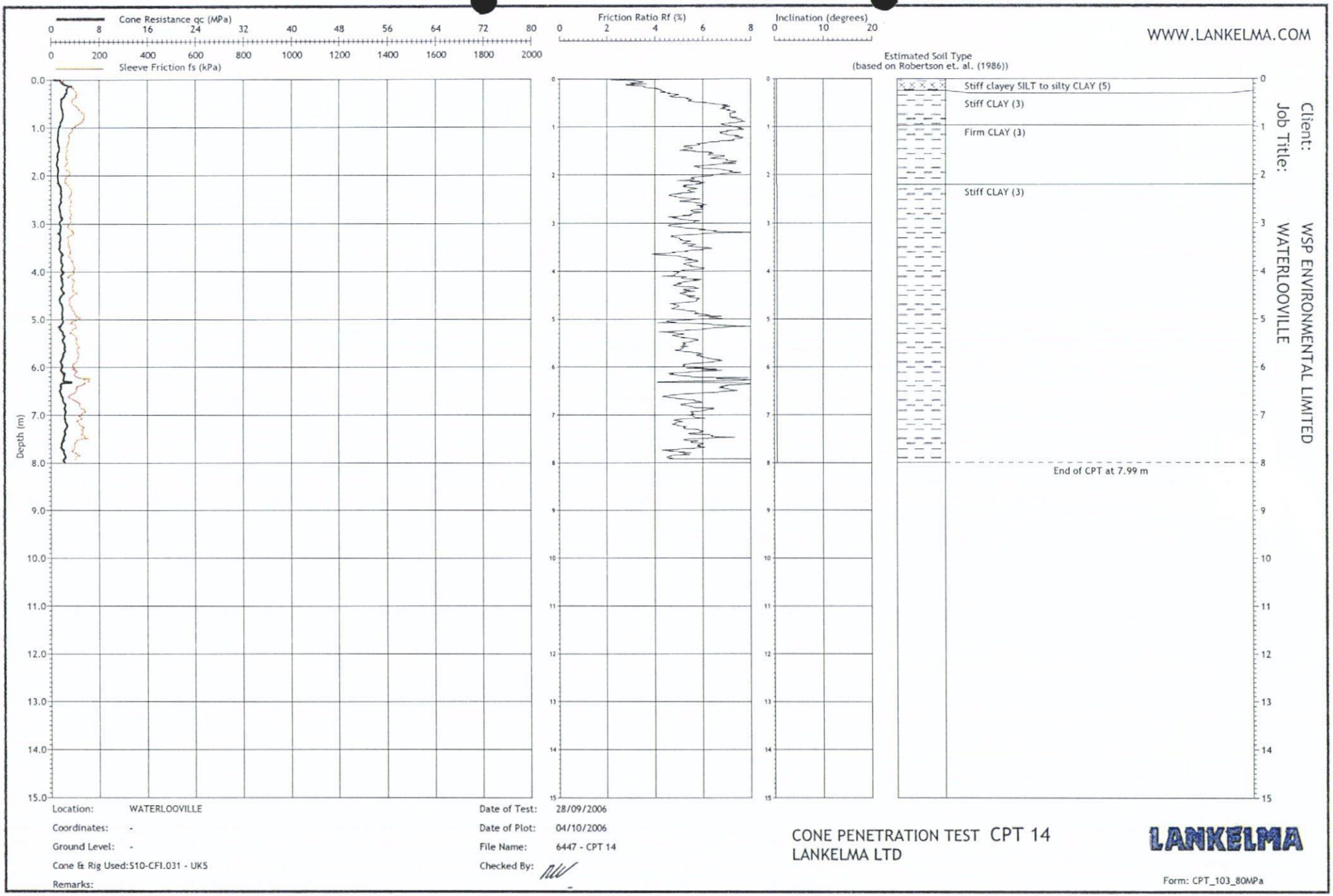
File Name: 6447 - CPT 13

Checked By:

CONE PENETRATION TEST CPT 13
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

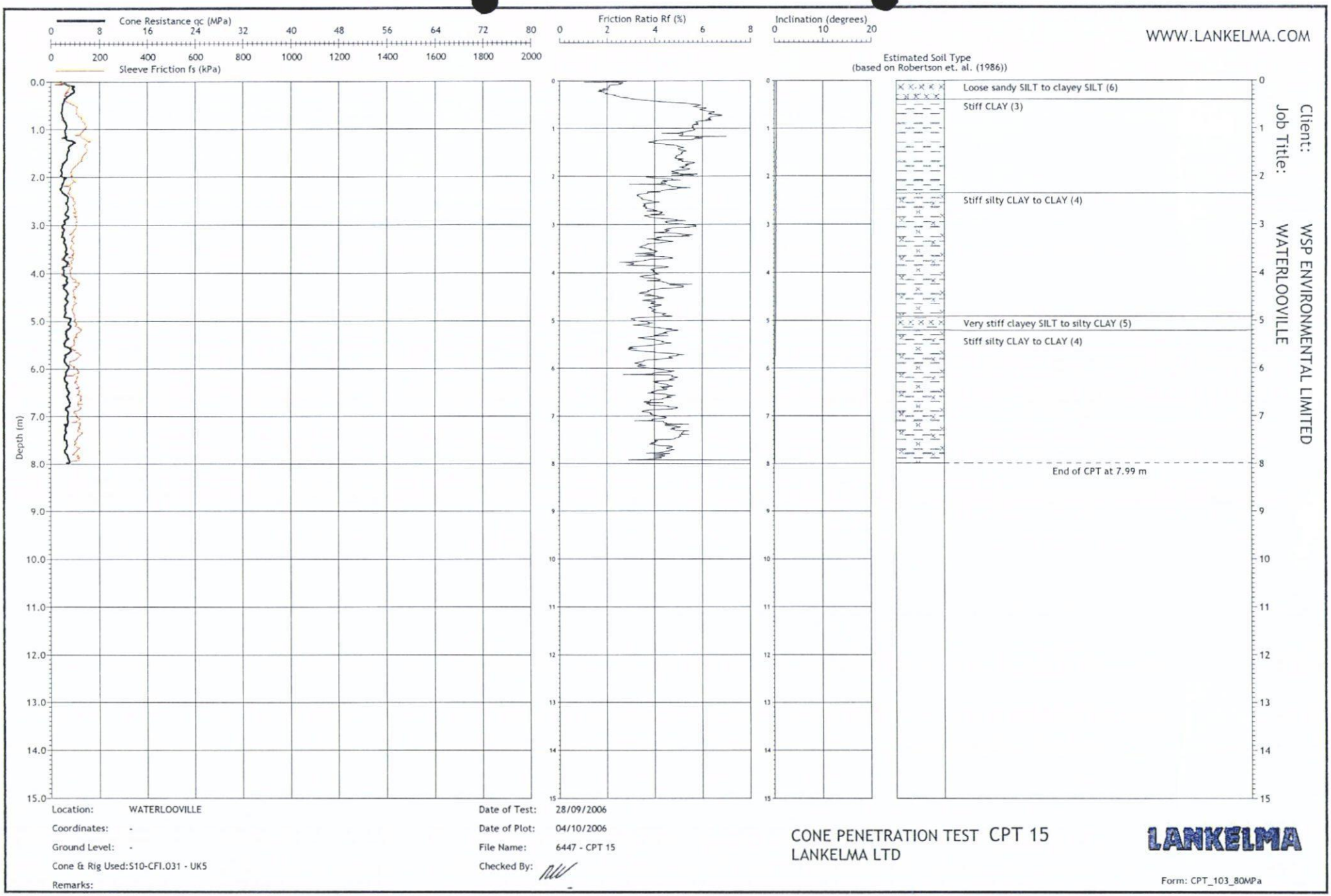
File Name: 6447 - CPT 14

Checked By:

CONE PENETRATION TEST CPT 14
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa



WWW.LANKELMA.COM

Client: WSP ENVIRONMENTAL LIMITED

Job Title: WATERLOOVILLE

Location: WATERLOOVILLE

Coordinates: -

Ground Level: -

Cone & Rig Used: S10-CFI.031 - UK5

Remarks:

Date of Test: 28/09/2006

Date of Plot: 04/10/2006

File Name: 6447 - CPT 15

Checked By:

CONE PENETRATION TEST CPT 15
LANKELMA LTD

LANKELMA

Form: CPT_103_80MPa

WSP Environmental
Project: Old Park Farm, Waterlooville
Code: 12220124
Client: George Wimpey

TRIAL PIT SOAKAGE TEST

TEST DATA

Pit reference	SK1
Pit depth (m)	1.5
Pit width (m)	0.7
Pit length (m)	1.9
Depth to standing water (m)	1.10

Test 1

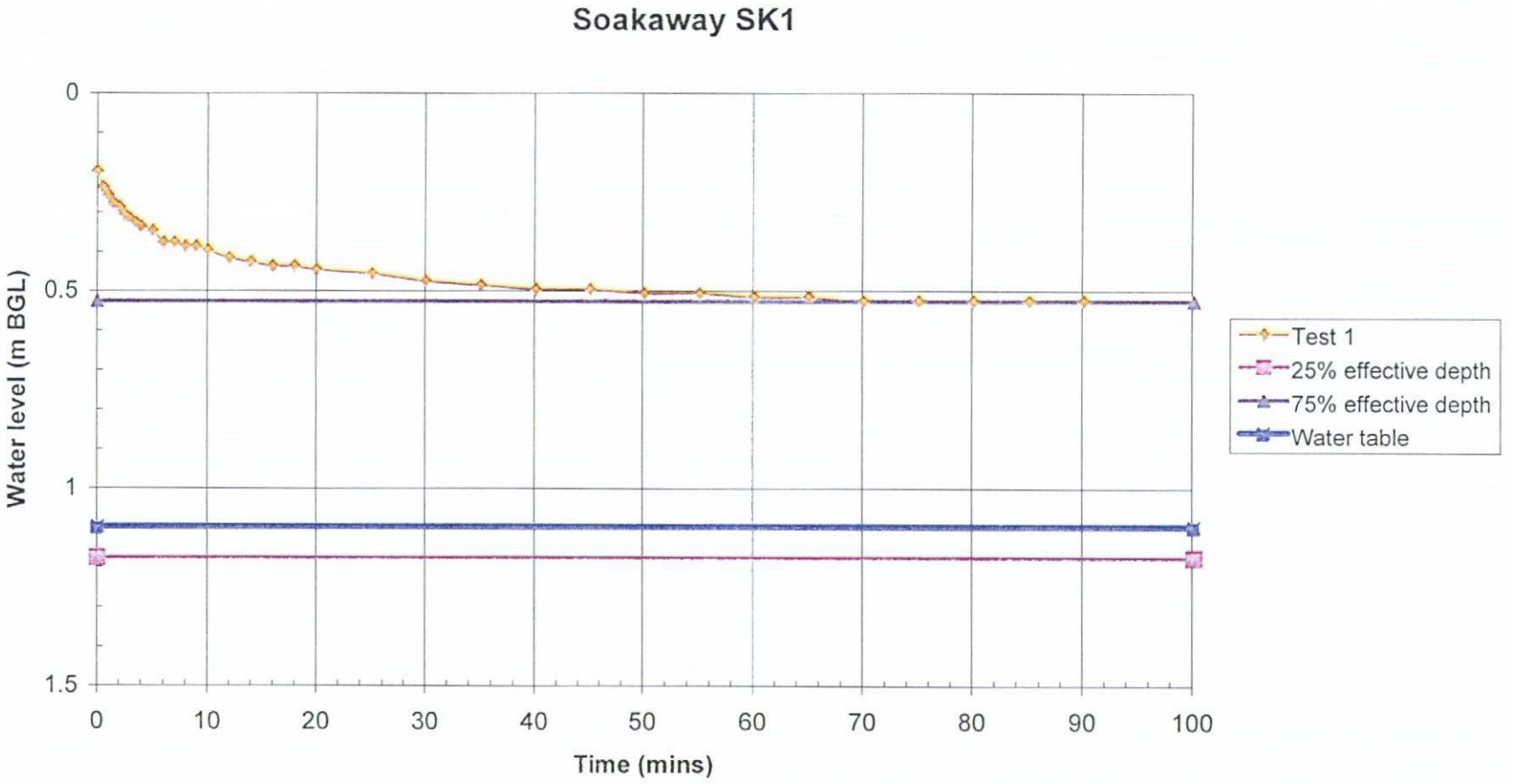
Time (min)	Depth (m)
0	0.2
0.5	0.24
1	0.26
1.5	0.28
2	0.29
2.5	0.31
3	0.32
3.5	0.33
4	0.34
5	0.35
6	0.38
7	0.38
8	0.39
9	0.39
10	0.4
12	0.42
14	0.43
16	0.44
18	0.44
20	0.45
25	0.46
30	0.48
35	0.49
40	0.5
45	0.5
50	0.51
55	0.51
60	0.52
65	0.52
70	0.53
75	0.53
80	0.53
85	0.53
90	0.53

Max. depth (m)	1.50
Effective depth (m)	0.20
Effective drop (m)	1.30
25% effective depth (m)	1.18
50% effective depth (m)	0.85
75% effective depth (m)	0.53
t75 (min)	70.00
t25 (min)	not achieved

Soil infiltration rate (m/s)	NK
Soil infiltration rate (mm/hr)	NK

Notes:

1	Blue cells require input data
2	Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3	First line of table must be depth at time = 0 sec


Soakaway SK1
Water level (m BGL)
0
0.5
1
1.5
0
10
20
30
40
50
60
70
80
90
100
Time (mins)
Test 1
25% effective depth
75% effective depth
Water table

WSP

WSP Environmental
Project: Old Park Farm, Waterlooville
Code: 12220124
Client: George Wimpey

TRIAL PIT SOAKAGE TEST

TEST DATA

Pit reference	SK4
Pit depth (m)	2.3
Pit width (m)	0.7
Pit length (m)	2.5
Depth to standing water (m)	2.30

Test 1

Time (min)	Depth (m)
0	0.95
0.5	1
1	1.03
1.5	1.06
2	1.09
2.5	1.11
3	1.13
3.5	1.15
4	1.18
4.5	1.21
5	1.21
6	1.25
7	1.29
8	1.33
9	1.35
10	1.38
11	1.41
12	1.44
13	1.47
14	1.49
15	1.53
16	1.54
17	1.57
18	1.58
19	1.61
20	1.63
25	1.71
30	1.77
35	1.83
40	1.87
45	1.91
50	1.95
55	1.97
61	2.01
65	2.02
70	2.03
75	2.04
80	2.05

Test 2

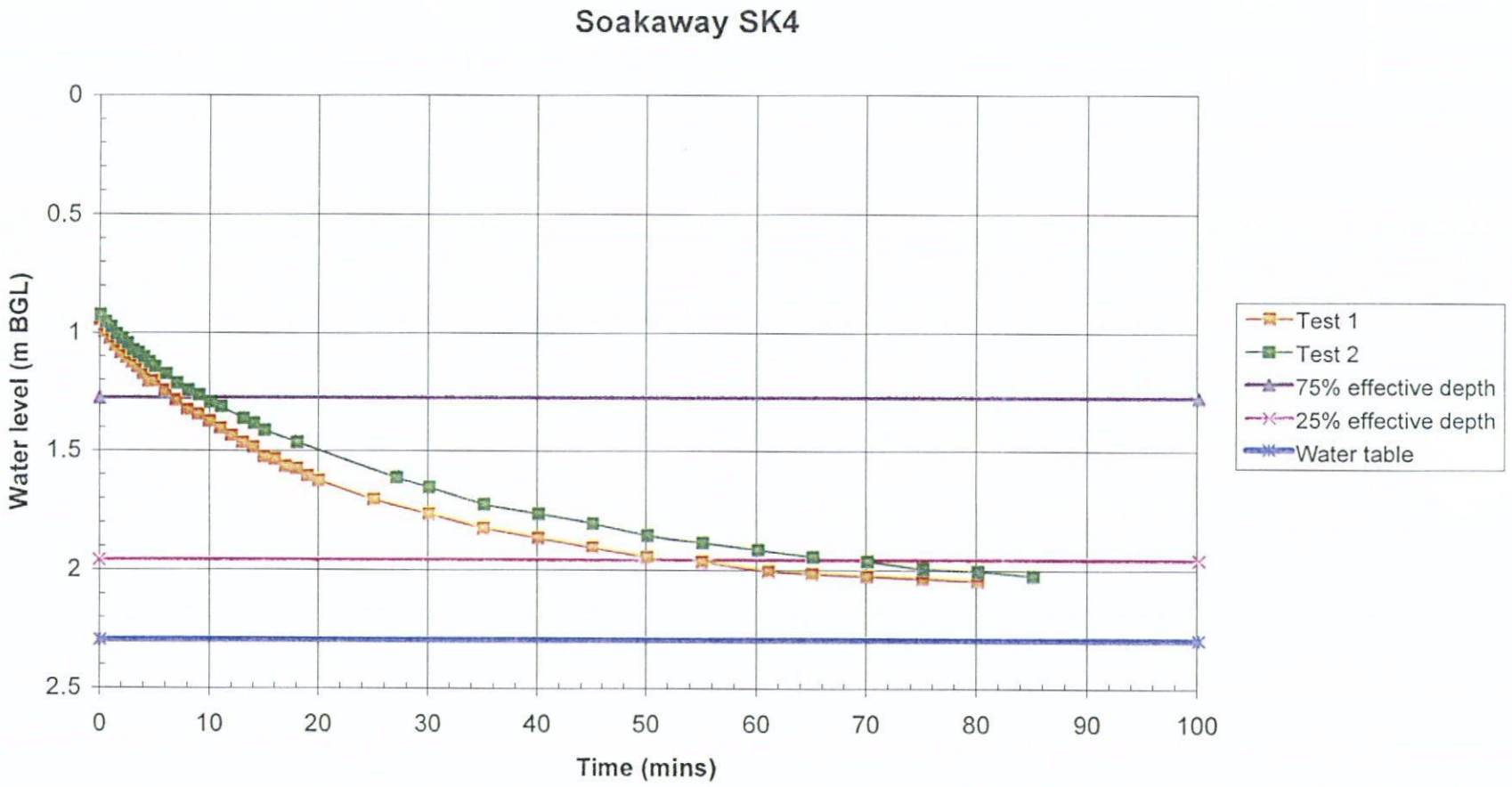
Time (min)	Depth (m)
0	0.93
0.5	0.96
1	0.98
1.5	1.01
2	1.03
2.5	1.05
3	1.08
3.5	1.09
4	1.11
4.5	1.13
5	1.15
6	1.18
7	1.22
8	1.25
9	1.27
10	1.30
11	1.32
13	1.37
14	1.39
15	1.42
18	1.47
27	1.62
30	1.66
35	1.73
40	1.77
45	1.81
50	1.86
55	1.89
60	1.92
65	1.95
70	1.97
75	2.00
80	2.01
85	2.03

Max. depth (m)	2.30	2.30
Effective depth (m)	0.95	0.93
Effective drop (m)	1.35	1.37
25% effective depth (m)	1.96	1.96
50% effective depth (m)	1.63	1.62
75% effective depth (m)	1.29	1.27
t75 (min)	7.00	9.00
t25 (min)	52.35	67.06
Vp 75-25	0.35	0.36
ap 50	6.07	6.134
tp 75-25	45.35	58.06

Soil infiltration rate (m/s)	**2.1E-05**	**1.7E-05**
Soil infiltration rate (mm/hr)	**7.63E+01**	**6.07E+01**

Notes:

1 Blue cells require input data
2 Infiltration calculated to method in 'BRE Digest 365 (1991) - Soakaway Design'
3 First line of table must be depth at time = 0 sec


Soakaway SK4
Water level (m BGL)
0
0.5
1
1.5
2
2.5
0
10
20
30
40
50
60
70
80
90
100
Time (mins)
Test 1
Test 2
75% effective depth
25% effective depth
Water table

Groundwater and Ground Gas Monitoring Results

Date: 11th October 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH6	0.12	6.7
BH8	0.34	7
BH10	2.23	7.11
BH11	2.15	7.12
BH13	0.55	5.83
WS4	2.54	4.15
WS6	1.73	3.87
WS7	1.52	3.84
WS8	0.67	4
WS9	2.29	4.02
WS11	1.79	4.17

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH6	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
BH8	CH4	No bung on standpipe, not representative of ground conditions No concentrations taken.			
	CO2				
	O2				

Flow - 0.0-0.3L/hr
Pressure - 1006 mbar

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20	20	19.8	19.7

Flow - 0.0L/hr
Pressure - 1003 mbar

		30s	60s	90s	120s
BH11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.2	1.5	1.5	1.5
	O2	18.6	17.9	17.8	17.6

Flow - 0.0L/hr
Pressure - 1004 mbar

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.9	20.9	20.8	20.7

Flow - 0.0L/hr
Pressure - 1003 mbar

		30s	60s	90s	120s
WS4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	1.2	1.3	1.3
	O2	19.3	18.7	18.4	18.4

Flow - 0.0L/hr
Pressure - 1003 mbar

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	5.8	5.9	5.9	5.9
	O2	13.5	13.1	13.1	13.1

Flow - 0.0L/hr
Pressure - 1001 mbar

		30s	60s	90s	120s
WS7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.5	0.4	0.3
	O2	20.4	20.2	20.3	20.5

Flow - 0.0L/hr
Pressure - 1001 mbar

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.9	20.8	20.7	20.7

Flow - 0.0L/hr
Pressure - 1001 mbar

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.4	0.5	0.5
	O2	20.7	20.6	20.5	20.6

Flow - 0.0L/hr
Pressure - 1000 mbar

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.7	0.7	0.7	0.7
	O2	20.2	20.2	20.2	20.2

Flow -1.3L/hr
Pressure - 1002 mbar

Groundwater and Ground Gas Monitoring Results

Date: 19th October 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH1	0.42	7.12
BH2	1.65	7.04
BH3	0.81	6.93
BH4	1.74	7
BH5	0.72	7.01
BH6	0.09	6.6
BH7	-	-
BH8	1.47	7.03
BH9	1.91	7.06
BH10	2.26	7.08
BH11	2.09	7.09
BH12	1.38	6.67
BH13	0.68	5.58
WS1	1.69	4.13
WS2	0.24	4.14
WS3	0.14	4.08
WS4	2.52	4.15
WS5	2.18	4.02
WS6	2.74	3.87
WS7	1.52	3.82
WS8	0.66	3.97
WS9	0.66	4
WS10	2.1	4.14
WS11	1.8	4.16
WS12	0.18	3.8
WS13	1.63	4.07
WS14	1.92	4.07

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	0.1	<0.1
	O2	20.7	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.5	0.5	0.5
	O2	20.4	20.3	20.3	20.3

Flow - 0.0L/hr
Pressure - 984 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.9	20.9	20.9	20.9

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.5	0.6	0.6	0.7
	O2	19.7	19.4	19.2	19

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
H5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 984 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH6	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
BH7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.8	20.8

ow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	0.1	<0.1
	O2	20.7	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.5	0.5	0.5	0.5
	O2	20.5	20.5	20.5	20.4

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.5	20.1	20.1	20.1

Flow - 0.0L/hr
Pressure - 982 mbar
H2S - 0.1ppm

		30s	60s	90s	120s	150s	180s	210s	240s
BH11	CH4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	1.5	1.6	1.7	1.8	1.9	2	2.1	2.2
	O2	17.8	17.5	17.4	17.3	17.1	16.9	16.9	16.6

Flow - 0.0L/hr
Pressure - 984 mbar
H2S - 0.2 ppm

		30s	60s	90s	120s
BH12	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.6	0.7	0.7	0.8
	O2	19.8	19.7	19.5	19.4

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.6	20.6	20.7

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.6	0.5	0.4	0.3
	O2	19.6	19.9	20.1	20.3

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.6	20.7	20.8	20.8

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.6	20.8

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.2	1.3	1.4	1.4
	O2	18.1	17.8	17.6	17.4

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.1ppm

		30s	60s	90s	120s	150s	180s	210s	240s
S5	CH4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	0.9	0.5	0.6	1.6	1.5	1.5	0.9	0.7
	O2	18.5	19.1	19.1	15.9	16.4	16.4	17.8	18.4

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	6.5	6.7	6.7	6.7
	O2	14.5	13.9	13.8	13.8

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

		30s	60s	90s	120s	150s	180s	210s	240s	270s
WS7	CH4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	4.2	3.2	4.7	1.5	0.9	3.5	1.9	2.5	1.2
	O2	16.5	17.3	16.3	18.7	19.6	17.4	18.7	18.2	19.2

ow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 986 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.3	0.2	0.2	0.2
	O2	20.5.	20.6	20.7	20.7

Flow - 0.0L/hr
Pressure - 983 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	2.2	2.2	2.2	2.2
	O2	11.6	11.3	11.2	11.2

Flow - 0.0L/hr
Pressure - 983 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	0.1	0.2	0.2
	O2	20.7	20.7	20.6	20.6

Flow - 0.0L/hr
Pressure - 984 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS12	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
WS13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.6	1.6	1.6	1.6
	O2	18.3	18.1	18.1	18

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS14	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.3	0.3	0.4	0.4
	O2	20.5	20.4	20.4	20.4

Flow - 0.0L/hr
Pressure - 985 mbar
H2S - 0.2ppm

Groundwater and Ground Gas Monitoring Results

Date: 24th October 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH1	0.24	7.07
BH2	1.53	7.02
BH3	-	-
BH4	1.47	7.05
BH5	0.54	6.9
BH6	0.03	6.62
BH7	-	-
BH8	1.1	6.97
BH9	1.16	7.06
BH10	0.74	7.06
BH11	2.09	7.08
BH12	0.43	6.6
BH13	0.12	5.65
WS1	1.73	4.1
WS2	0.09	4.11
WS3	0.09	4.1
WS4	2.39	4.11
WS5	2.18	4.2
WS6	0.8	3.89
WS7	1.28	3.85
WS8	0.53	3.99
WS9	0.4	4.01
WS10	1.68	4.15
WS11	1.33	4.1
WS12	0	3.91
WS13	1.3	4.02
WS14	0.5	4.12

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.5	20.5	20.7	20.7

Flow - 0.0L/hr
Pressure - 993 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.7	0.7	0.7	0.8
	O2	20	19.9	19.9	19.8

Flow - 0.0L/hr
Pressure - 992 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 999 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.3	1.3	1.3	1.3
	O2	17.8	17.6	17.5	17.4

Flow - 0.0L/hr
Pressure - 997 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	0.1	<0.1
	O2	20.5	20.7	20.8	20.7

Flow - 0.0L/hr
Pressure - 998 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH6	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
BH7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.5	20.6	20.8	20.8

Flow - 0.0L/hr
Pressure - 990 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
BH8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.9	0.7	0.5	0.4
	O2	19.9	19.9	20.3	20.4

Flow - 0.0L/hr
Pressure - 992 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.4	0.4	0.4
	O2	20.4	20.4	20.4	20.4

Flow - 0.0L/hr
Pressure - 993 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.2	0.2	0.2
	O2	18.5	18.2	18	18

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.5	0.5	0.5
	O2	20.3	20.3	20.2	20.1

Flow - 0.0L/hr
Pressure - 997 mbar
H2S - 0.1 ppm

		30s	60s	90s	120s
BH12	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.7	20.8	20.6	20.7

Flow - 0.0L/hr
Pressure - 995 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.8	20.7	20.8

Flow - 0.0L/hr
Pressure - 995 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.2	0.1	0.1
	O2	20.5	20.5	20.6	20.5

Flow - 0.0L/hr
Pressure - 991 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS2	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
WS3	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s	150s
WS4	CH4	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	1.1	1.2	1.3	1.4
	O2	19.3	18.6	18.2	18	17.6

Flow - 0.0L/hr
Pressure - 992 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.4	0.3	0.3
	O2	19.5	19.6	19.9	20.1

Flow - 0.0L/hr
Pressure - 991 mbar
H2S - 0.3ppm

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	5.1	5.4	5	4.5
	O2	16.1	15.8	15.8	16.3

Flow - 0.0L/hr
Pressure - 988 mbar
H2S - 0.2ppm

		30s	60s	90s	120s	150s
WS7	CH4	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	4.8	4.7	5	5	5
	O2	16.3	15.7	15.3	15.3	15.4

Flow - 0.0L/hr
Pressure - 989 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.6	20.6	20.7

Flow - 0.0L/hr
Pressure - 990 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.9	21	20.9	20.9

Flow - 0.0L/hr
Pressure - 988 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.4	1.1	0.8	0.5
	O2	16.6	17.3	18.4	19.2

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	0.1	0.2	0.2
	O2	20.7	20.7	20.8	20.8

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS12	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
WS13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.3	1.4	1.4	1.4
	O2	17.8	17.4	17.4	17.4

Flow - 0.0L/hr
Pressure - 994 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS14	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.6

Flow - 0.0L/hr
Pressure - 993 mbar
H2S - 0.2ppm

Groundwater and Ground Gas Monitoring Results

Date: 31st October 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH1	0.17	7.06
BH2	1.42	6.94
BH3	-	-
BH4	1.36	6.91
BH5	0.74	6.76
BH6	0.14	6.62
BH7	-	-
BH8	0.67	7
BH9	0.93	7.09
BH10	1.37	7.09
BH11	1.83	7.03
BH12	0.72	6.57
BH13	0.37	5.67
WS1	1.77	4.12
WS2	0.22	4.1
WS3	0	4.09
WS4	2.26	4.07
WS5	2.16	4.18
WS6	0.83	3.85
WS7	1.41	3.8
WS8	0.59	3.93
WS9	0.55	4.01
WS10	1.53	4.09
WS11	1.35	4.16
WS12	0.08	3.85
WS13	1.24	4.11
WS14	0.36	4.11

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH1	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
BH2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.3	0.4	0.4	0.5
	O2	20.6	20.4	20.3	20.3

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.7	20.8	20.8

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.5	0.5	0.6	0.6
	O2	20.5	20.5	20.4	20.4

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.6	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	0.1	0.1
	O2	20.8	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.8	20.8

Flow - 0.0L/hr
Pressure - 1006mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.9	20.9	20.9	20.9

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	0.1	0.1
	O2	20.7	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.2
	O2	20.1	20.1	20.1	20.1

Flow - 0.0L/hr
Pressure - 1005 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	0.9	1	1.1
	O2	19.5	19.2	19.1	19

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.1 ppm

		30s	60s	90s	120s
BH12	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.6	20.7	20.6	20.7

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.8	20.9	20.9

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS1	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
WS2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.6	20.7	20.8	20.5

Flow - 0.0L/hr
Pressure - 1006mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS3	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
WS4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.3	1.3	1.3	1.4
	O2	17.2	16.9	16.7	16.5

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.3	0.3	0.1	0.1
	O2	20.7	20.7	20.8	20.6

Flow - 0.0L/hr
Pressure - 1008 mbar
H2S - 0.3ppm

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	2.5	1.5	1	0.7
	O2	18.4	19.1	19.6	20

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.1ppm

		30s	60s	90s	120s	150s	180s
WS7	CH4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	2.5	1.6	3.9	4.1	3.9
	O2	20.6	19.4	19.2	18.2	17.9	18.3

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.8	20.9	20.7

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.8	20.9	20.8	20.8

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
WS10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.6	0.6	0.5	0.4
	O2	20.1	20.3	20.2	20.3

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.9	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
WS12	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
WS13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	0.9	1	1.1
	O2	18.8	18.3	18	17.8

Flow - 0.0L/hr
Pressure - 1007 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS14	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.9	20.9

Flow - 0.0L/hr
Pressure - 1006 mbar
H2S - 0.2ppm

Groundwater and Ground Gas Monitoring Results

Date: 21st November 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH1	0.04	7.14
BH2	0.97	7.02
BH3	-	-
BH4	0.23	7
BH5	0.5	6.7
BH6	0.08	6.62
BH7	-	-
BH8	0.56	7.06
BH9	0.53	7.02
BH10	0.41	7.02
BH11	0.06	6.84
BH12	0.09	6.67
BH13	0	5.63
WS1	1.62	4.15
WS2	0.06	4.07
WS3	0.04	4.1
WS4	1.79	4.16
WS5	2.03	4.15
WS6	0.6	3.86
WS7	1.21	3.82
WS8	0.49	4
WS9	0.29	4.01
WS10	0.72	4.04
WS11	0.36	4.11
WS12	0.04	3.87
WS13	0.1	3.96
WS14	0.2	4.1

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH1	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
BH2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.5	0.3	0.2	0.1
	O2	20.3	20.5	20.5	20.5

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	21.1	20.9	20.9	20.9

Flow - 0.0L/hr
Pressure - 992 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.9	0.8	0.7	0.6
	O2	20.3	20.4	20.4	20.5

Flow - 0.0L/hr
Pressure - 994 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.2	0.1	0.1
	O2	20.8	20.7	20.8	20.9

Flow - 0.0L/hr
Pressure - 994 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 993 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 994mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.3	0.3	0.3
	O2	20.3	20.3	20.3	20.3

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.3	0.3	0.3
	O2	20.5	20.3	20.5	20.4

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.3ppm

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.2	0.2	0.2
	O2	20.4	20.5	20.4	20.4

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.3	0.3	0.3
	O2	20.5	20.4	20.6	20.7

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1 ppm

		30s	60s	90s	120s
BH12	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.9	20.6	20.6	20.6

Flow - 0.0L/hr
Pressure - 997 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 998 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.8	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 994mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS2	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - -mbar
H2S - -ppm

		30s	60s	90s	120s
WS3	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
WS4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	2.2	2.2	2.2	2.2
	O2	14.3	14	14	14

Flow - 0.0L/hr
Pressure - 995 mbar
H2S - 0.3ppm

		30s	60s	90s	120s
WS5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.4	0.3	0.2
	O2	20.1	20.3	20.4	20.4

Flow - 0.0L/hr
Pressure - 994 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	1.2	0.8	0.5	0.4
	O2	20.3	20.5	20.7	20.7

Flow - 0.0L/hr
Pressure - 988 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	21	21	20.9	21

Flow - 0.0L/hr
Pressure - 991 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.9	20.9	21	21

Flow - 0.0L/hr
Pressure - 991 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.9	20.8	20.9	20.8

Flow - 0.0L/hr
Pressure - 988mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	0.1	0.1
	O2	20.5	20.6	20.5	20.5

Flow - 0.0L/hr
Pressure - 996 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	0.5	0.5	0.4
	O2	20.4	20.4	20.5	20.4

Flow - 0.0L/hr
Pressure - 996mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS12	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
WS13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.2	0.1	0.1
	O2	20.6	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 998 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS14	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.3	0.2	0.1	0.1
	O2	20.5	20.5	20.6	20.6

Flow - 0.0L/hr
Pressure - 997 mbar
H2S - 0.1ppm

Groundwater and Ground Gas Monitoring Results

Date: 29th November 2006

GROUNDWATER LEVELS

Borehole	Depth to groundwater (m bgl)	Depth to base (m bgl)
BH1	0.02	7.14
BH2	0.57	7
BH3	-	-
BH4	0.17	6.93
BH5	0.42	6.76
BH6	0.05	6.59
BH7	-	-
BH8	0.52	7.08
BH9	-	-
BH10	0.2	7.08
BH11	0.16	7.14
BH12	0.03	6.62
BH13	-0.04	5.66
WS1	1.42	4.15
WS2	0.09	4.14
WS3	0	4.15
WS4	1.08	4.1
WS5	1.85	4.18
WS6	0.41	3.84
WS7	1.19	3.85
WS8	0.47	3.95
WS9	0.26	3.99
WS10	0.45	4.1
WS11	0.2	4.09
WS12	-0.04	3.82
WS13	0.09	4.04
WS14	0.23	4.07

GAS CONCENTRATIONS

		30s	60s	90s	120s
BH1	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
BH2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
BH3	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	<0.1	<0.1
	O2	20.7	20.8	20.7	20.8

Flow - 0.0L/hr
Pressure - 1022 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.8	20.7

Flow - 0.0L/hr
Pressure - 1022 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.8	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
BH7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1023mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.8	20.7	20.8	20.8

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.0ppm

		30s	60s	90s	120s
BH9	CH4	Lock on standpipe damaged, unable to open. No gas data obtained.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
BH10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1024 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	<0.1	<0.1
	O2	20.7	20.8	20.8	20.9

Flow - 0.0L/hr
Pressure - 1024 mbar
H2S - 0.1 ppm

		30s	60s	90s	120s
BH12	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
BH13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	<0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.7

Flow - 0.0L/hr
Pressure - 1024 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS1	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.2	0.1	0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1023mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS2	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.7	20.8

Flow - 0.0L/hr
Pressure - 1022mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS3	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - -ppm

		30s	60s	90s	120s
WS4	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.7	20.8	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS5	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.4	0.4	0.3	0.2
	O2	20.5	20.5	20.7	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS6	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.8	0.2	<0.1	<0.1
	O2	20.4	20.7	20.9	21

Flow - 0.0L/hr
Pressure - 1022 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS7	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.7	0.5	0.4	0.4
	O2	19.8	20.1	20.1	20.2

Flow - 0.0L/hr
Pressure - 1022 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS8	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.2	0.1	<0.1	<0.1
	O2	20.7	20.8	20.8	20.8

Flow - 0.0L/hr
Pressure - 1022 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS9	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	0.1	<0.1	<0.1
	O2	20.8	20.8	20.9	20.9

Flow - 0.0L/hr
Pressure - 1022mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS10	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.7	0.5	0.3	0.2
	O2	20.7	20.6	20.8	20.8

Flow - 0.0L/hr
Pressure - 1024 mbar
H2S - 0.1ppm

		30s	60s	90s	120s
WS11	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.5	0.3	0.2	0.2
	O2	20.8	20.8	20.7	20.8

Flow - 0.0L/hr
Pressure - 1023mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS12	CH4	Borehole flooded, no representative unsaturated zone present. No concentrations taken.			
	CO2				
	O2				

Flow - -L/hr
Pressure - - mbar
H2S - - ppm

		30s	60s	90s	120s
WS13	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.7	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.2ppm

		30s	60s	90s	120s
WS14	CH4	<0.1	<0.1	<0.1	<0.1
	CO2	0.1	<0.1	<0.1	<0.1
	O2	20.7	20.8	20.7	20.7

Flow - 0.0L/hr
Pressure - 1023 mbar
H2S - 0.2ppm

Appendix C Geotechnical Laboratory Test Records

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

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data						Classification									Compaction			Chemical					Strength & Compression testing									Remarks
						BS 1377:Part 2									BS1377:Part 4			BS 1377:Part 3					BS 1377:Part's 5 & 7									
BH/TP/WS No	Sample No	Specimen Ref	Sample Type	Deppth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Bulk Density Mg/m3	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Loss on Ignition % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	
TP9				1.00		28	66	23	43	CH	100																						
TP12				1.20		29	59	26	33	CH	100																						
TP15				0.50		25	45	19	26	CI	100																						
TP16				1.20		27	66	25	41	CH	100																						
TP16				2.90		30	70	29	41	CH	100																						
TP17				0.65		29	62	28	34	CH	100																						
TP19				0.60		41	43	26	17	MI	100																						
TP20				2.90		30	58	28	30	CH	100																						
TP49				1.50		23	42	20	22	CI	100																						
TP50				1.20		21	51	21	30	CH	100																						
TP51				1.20		23	74	32	42	CV	100																						
TP52				1.40		25	50	20	30	CH	100																						
TP53				0.60		22	44	28	16	MI	100																						
TP55				1.50		23	52	21	31	CH	100																						
TP56				0.80		23	61	21	40	CH	100																						
TP58				0.50		18	51	21	30	CH	100																						
TP59				0.75		23	46	19	27	CI	100																						
TP60				1.20		24	54	22	32	CH	100																						
TP63				1.20		25	48	29	19	MI	100																						
TP67				2.30		23	36	20	16	CI	100																						
TP68				0.60		25	58	24	34	CH	100																						
TP69				2.30		24	42	19	23	CI	100																						
TP5				0.20	0.50	9.2								x																		
TP7				1.10	1.50	15								x																		
TP21				0.80	1.10	6.6								x																		
TP30				0.60		7.0								x																		

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

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data						Classification									Compaction			Chemical					Strength & Compression testing									Remarks
						BS 1377:Part 2									BS1377:Part 4			BS 1377:Part 3					BS 1377:Part's 5 & 7									
BH/TP/WS No	Sample No	Specimen Ref	Sample Type	Deppth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Bulk Density Mg/m3	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Loss on Ignition % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	
TP30				1.80	1.90	14								x																			
TP32				0.60		13								x																			
TP53				2.30		15								x																			
TP65				1.20		19								x																			
TP67				0.70		17								x																			
TP68				1.00	1.20	13								x																			
SK1				1.10		16								x																			
SK4				1.70		14								x																			
TP25				0.60		42															2.5												
TP36				1.30		14															0.5												
TP39				0.40		19															0.8												
TP40				3.00		26															0.4												
TP41				3.00		20															0.6												
TP45				1.50		27															0.2												
WS7				1.40	1.60	32															3.7												
TP6				0.90		31	82	31	51	CV	100																						
TP8				0.80		36	79	34	45	CV	100																						
BH13				4.70		28		NP	NP	NP									0.38	7.6													
BH13				7.00		34		NP	NP	NP									0.51	7.4													
TP35				0.70		6.5												US															
TP35				1.60		12								x	2.58			US															
TP36				1.70		20								x				x															
TP37				0.80		9.7								x				x															
TP37				2.40	2.50	20									2.57			x															
TP38				1.60		11								x	2.54			x															
TP38				2.30		10								x				US															

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

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

Sample Data						Classification									Compaction			Chemical					Strength & Compression testing									Remarks
						BS 1377:Part 2									BS1377:Part 4			BS 1377:Part 3					BS 1377:Part's 5 & 7									
BH/TP/WS No	Sample No	Specimen Ref	Sample Type	Depth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Bulk Density Mg/m3	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Loss on Ignition % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa **	One dimensional Consolidation *	
TP39				1.90		11								x				US															
TP39				3.0		27												x															
TP40				0.7	0.8	18												x															
TP40				2.3		12								x	2.52			US															
TP41				1.3		20									2.62			x															
TP41				1.7		21								x				x															
TP41				3.0		25									2.59			x															
TP42				1.9		23												x															
TP43				0.5		23									2.64			x															
TP43				1.2		24												x															
TP43				3.3		26												x															
TP44				0.5		28									2.57			x															
TP45				1.0		26												x															
TP46				1.0		27									2.61			x															
BH1				1.0	1.5	23	44	23	21	CI	90	2.04	1.71						0.30	8.3				UUS	104	40	78	39	4.6	B			
BH1				3.0	3.5	27						2.04	1.66						0.49	8.0				UUS	104	120	131	66	5.6	B			
BH1				7.0	7.5	27						2.05	1.62						0.56	8.0				UUS	103	280	147	73	3.4	B			
BH2				2.0	2.5	28	51	23	28	CH	100	2.06	1.66						0.27	7.9				UUS	104	80	136	68	6.3	B			
BH2				6.0	6.5	26						2.01	1.60						0.53	7.9				UUS	103	240	60	30	3.3	B			
BH3				3.0	3.5	22	58	25	33	CH	100	2.05	1.68						0.54	7.9				UUS	104	120	118	59	9.3	P			
BH3				5.0	5.5	29													0.49	7.9				UUS	IS	IS	IS	IS	IS	IS	65		
BH4				1.0	1.5	19	50	16	34	CI	100	2.08	1.80						0.03	7.9				UUS	104	40	368	184	5.4	P			
BH4				3.0	3.5	26						2.05	1.71						0.08	7.4				UUS	104	120	71	35	3.7	P			
BH5				3.0	3.5	22	44	21	23	CI	95	2.13	1.74						0.49	7.8				UUS	104	120	76	38	5.1	P			
BH5				5.0	5.5	18						2.12	1.79						0.70	7.6				UUS	103	200	269	135	20	B			
BH6				2.0	2.5	24	47	24	23	CI	100	2.06	1.67						0.04	8.4				UUS	102	80	93	47	13	B			

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

WSP ENVIRONMENTAL

Summary of Geotechnical Laboratory results

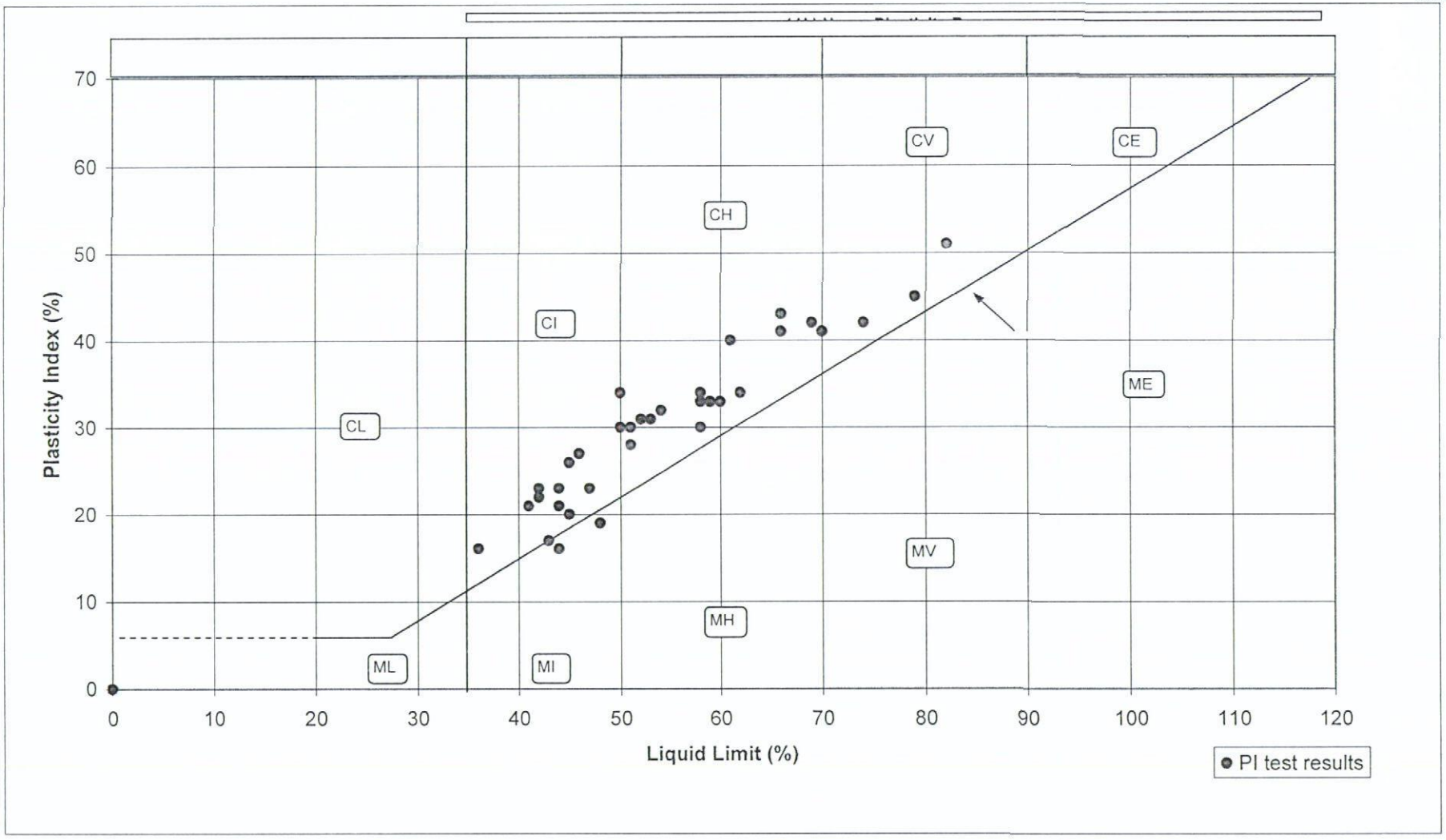
Sample Data						Classification									Compaction			Chemical					Strength & Compression testing									Remarks
						BS 1377:Part 2									BS1377:Part 4			BS 1377:Part 3					BS 1377:Part's 5 & 7									
BH/TP/WS No	Sample No	Specimen Ref	Sample Type	Deppth From (m)	Depth to (m)	Moisture Content %	Liquid Limit %	Plastic Limit %	Plasticity index %	Plasticity category	Material passing 425um %	Bulk Density Mg/m3	Dry Density Mg/m3	Particle Size Distribution	Particle Density Mg/m3	CBR	MCV	Compaction	Water Soluble Suphate g/l *	pH *	Organic Matter % **	Loss on Ignition % **	Water Soluble Chloride g/l *	Triaxial Type	Diameter mm	Cell Pressure kPa	Corrected Deviator Stress kPa	Undrained Shear Strength CU kPa	Strain @ Failure %	Mode of Failure	Hand Shear Vane Kpa *	One dimensional Consolidation *	
BH6				6.00	6.45	26													0.65	7.6				UUS	IS	IS	IS	IS	IS	IS	90		
BH7				2.00	2.45	26	60	27	33	CH	100	1.98	1.57						0.02	8.2				UUS	103	80	48	24	3.0	P			
BH7				4.00	4.45	26						2.03	1.64						0.43	7.9				UUS	103	160	64	32	3.2	P			
BH8				1.00	1.45	33	69	27	42	CH	100	2.01	1.63						0.12	6.5				UUS	103	40	117	59	8.3	P			
BH8				3.00	3.45	28						2.00	1.61						1.98	8				UUS	102	120	181	90	8	B			
BH9				3.00	3.45	24	45	25	20	CI	100	1.97	1.69						0.04	8.5				UUS	104	120	80	40	4	P			
BH9				5.00	5.45	22						2.06	1.70						0.65	7.9				UUS	103	200	288	144	16	B			
BH10				1.00	1.45	20	53	22	31	CH	100	2.02	1.66						0.04	7.9				UUS	104	40	111	56	4.7	P			
BH10				5.00	5.45	23						2.10	1.80						0.34	8				UUS	103	200	414	207	14	B			
BH11				3.00	3.45	28	44	21	23	CI	60	2.14	1.73						0.17	7.3				UUS	102	120	69	34	9.9	P			
BH11				5.00	5.45	24						2.03	1.67						0.63	7.3				UUS	103	200	160	80	6.8	B			
BH12				3.00	3.45	22	41	20	21	CI	100	2.11	1.70						0.52	7.4				UUS	103	120	56	28	3.4	P			
BH12				5.00	5.45	22						1.98	1.62						0.67	7.3				UUS	104	200	115	57	10	P			

PLASTICITY CHART TAKEN FROM BS5930 : 2000

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

WSP ENVIRONMENTAL

UKAS TESTING
0206



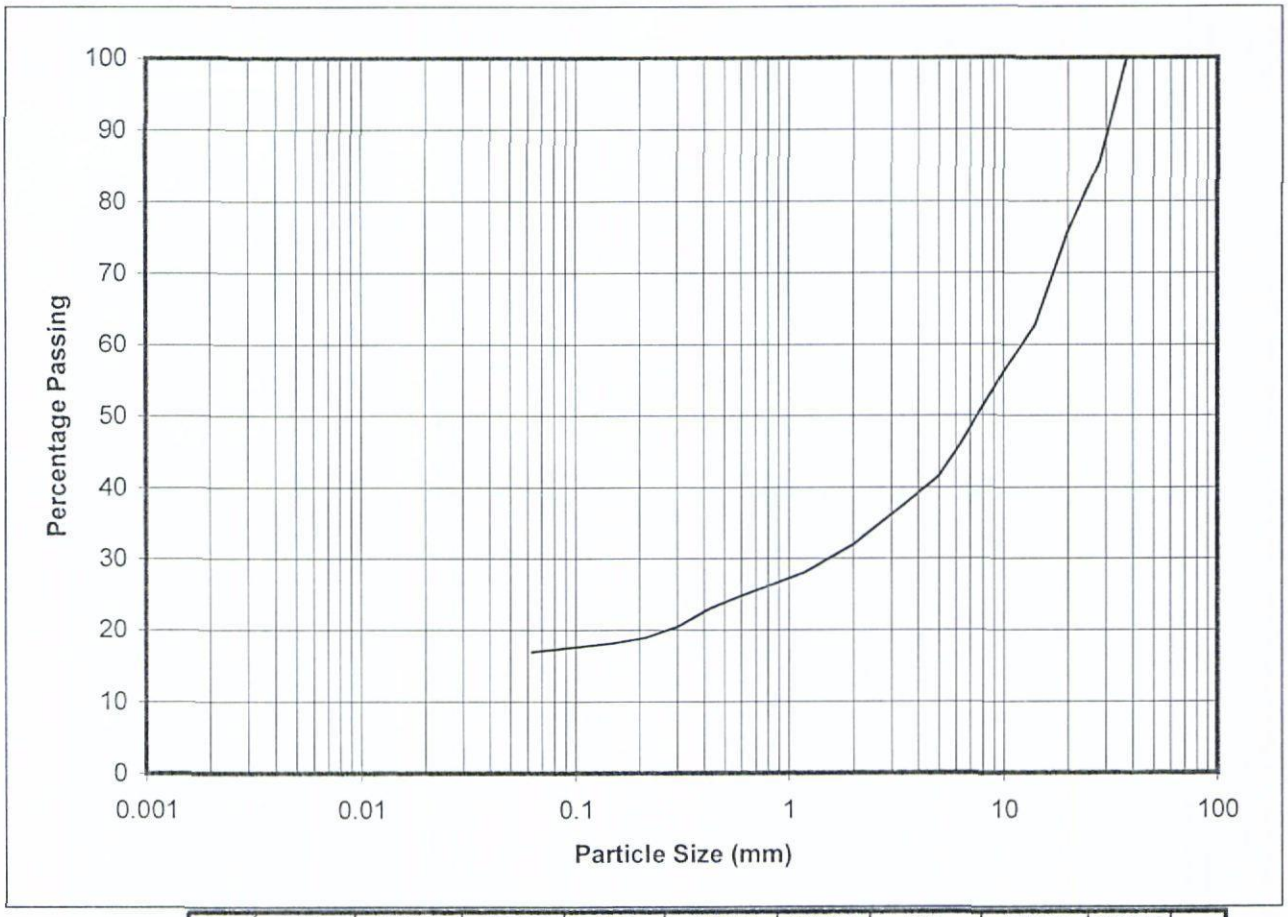
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	SK1	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.10	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	85.45
20.00	75.73
14.00	62.67
10.00	56.16
6.300	46.06
5.000	41.65
3.350	37.36
2.000	31.94
1.180	28.00
0.600	24.72
0.425	22.96
0.300	20.45
0.212	18.92
0.150	18.15
0.063	16.94

PARTICLE DIAMETER (mm)	% PASSING
2.00	31.94
0.063	16.94

SOIL FRACTION	TOTAL %
GRAVEL	68.06
SAND	15.00
SILT OR CLAY	16.94

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

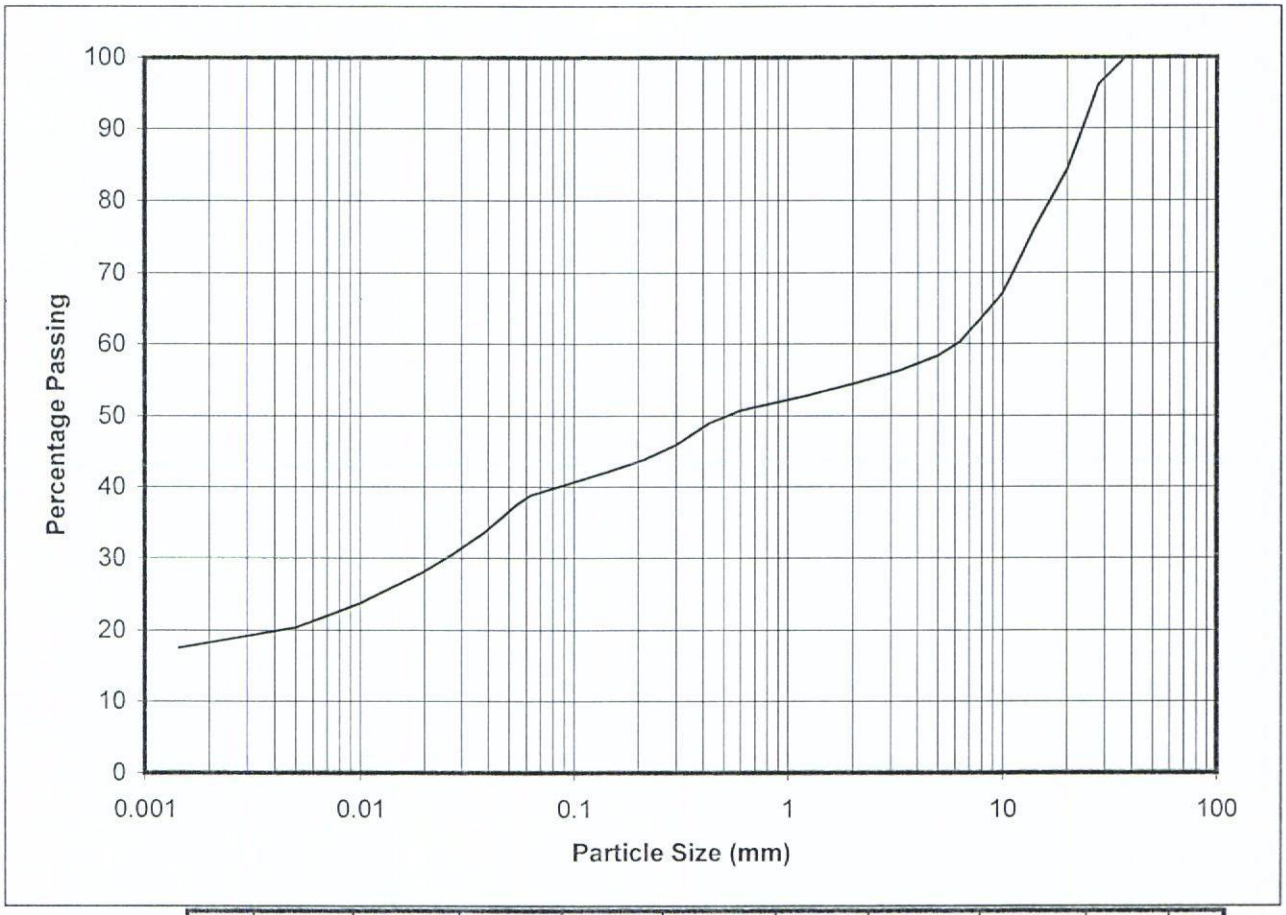
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 and 9.5 1990

RP06 30/08/05

ISSUE 1 REV1

PROJECT :	Waterlooville	SAMPLE	SK4	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.70	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	96.19
20.00	84.24
14.00	75.98
10.00	67.11
6.300	60.25
5.000	58.42
3.350	56.36
2.000	54.46
1.180	52.76
0.600	50.75
0.425	48.92
0.300	45.90
0.212	43.78
0.150	42.28
0.063	38.79

PARTICLE DIAMETER (mm)	% PASSING
2.00	54.46
0.063	38.79
0.002	17.49

SOIL FRACTION	TOTAL %
GRAVEL	45.54
SAND	15.68
SILT	21.29
CLAY	17.49

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

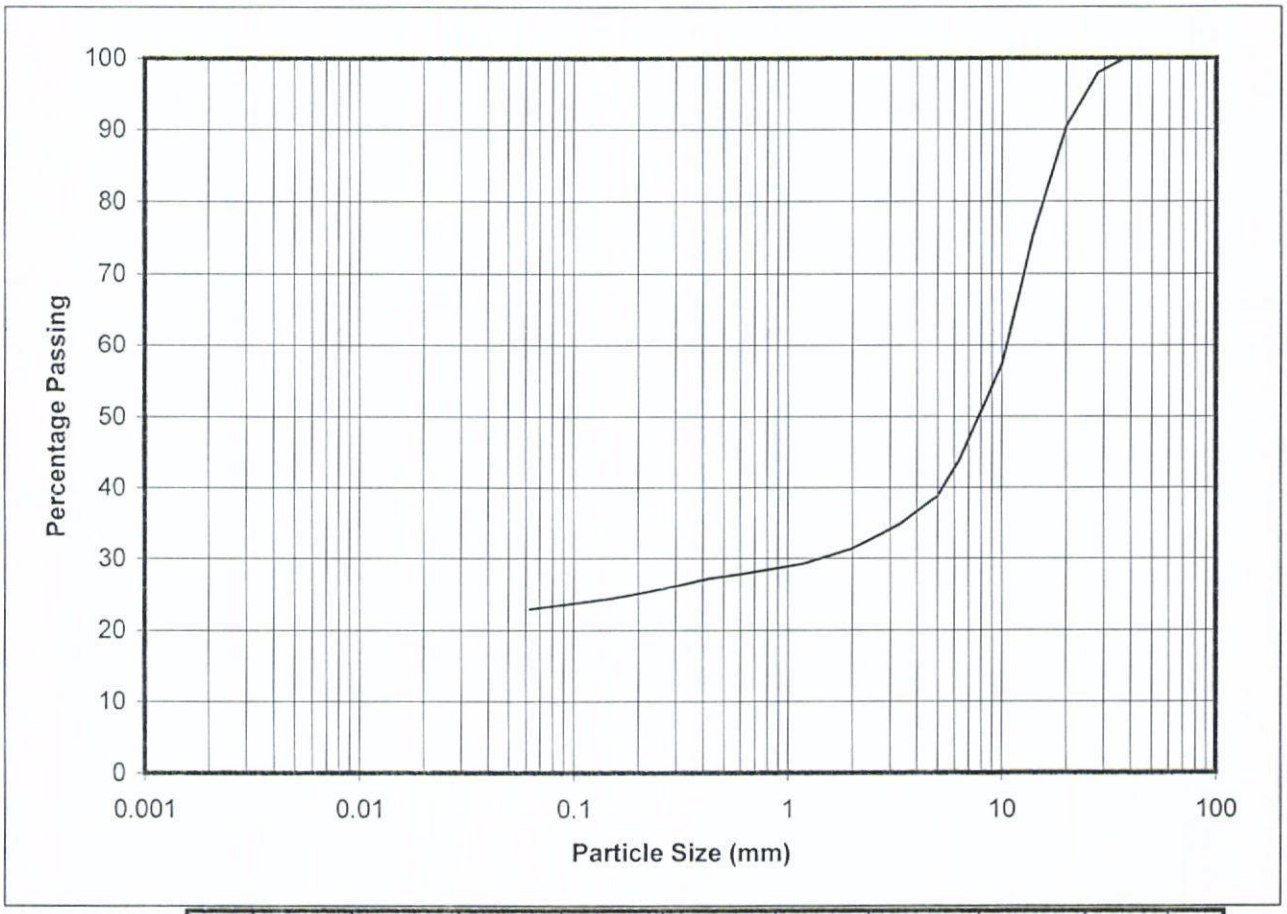
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP5	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.20	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	97.99
20.00	90.50
14.00	75.37
10.00	57.20
6.300	43.74
5.000	38.79
3.350	34.89
2.000	31.38
1.180	29.21
0.600	27.82
0.425	27.18
0.300	26.18
0.212	25.27
0.150	24.42
0.063	22.92

PARTICLE DIAMETER (mm)	% PASSING
2.00	31.38
0.063	22.92

SOIL FRACTION	TOTAL %
GRAVEL	68.62
SAND	8.46
SILT OR CLAY	22.92

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

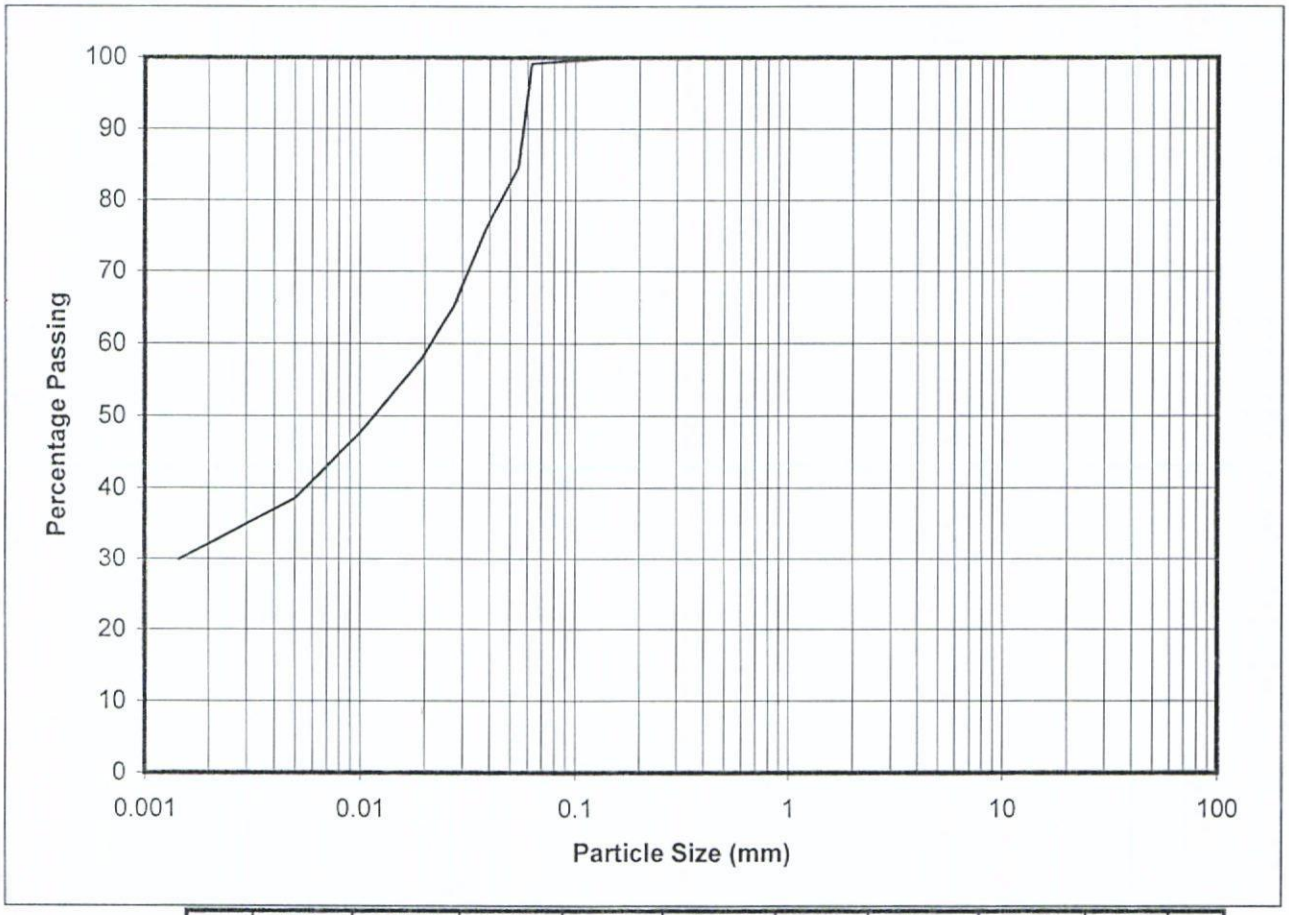
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 and 9.5 1990

RP06 30/08/05

ISSUE 1 REV1

PROJECT :	Waterlooville	SAMPLE	TP7	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.1-1.5	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			*

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	100.00
20.00	100.00
14.00	100.00
10.00	100.00
6.300	100.00
5.000	100.00
3.350	100.00
2.000	100.00
1.180	99.99
0.600	99.98
0.425	99.97
0.300	99.96
0.212	99.95
0.150	99.94
0.063	99.12

PARTICLE DIAMETER (mm)	% PASSING
2.00	100.00
0.063	99.12
0.002	29.89

SOIL FRACTION	TOTAL %
GRAVEL	0.00
SAND	0.88
SILT	69.22
CLAY	29.89

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

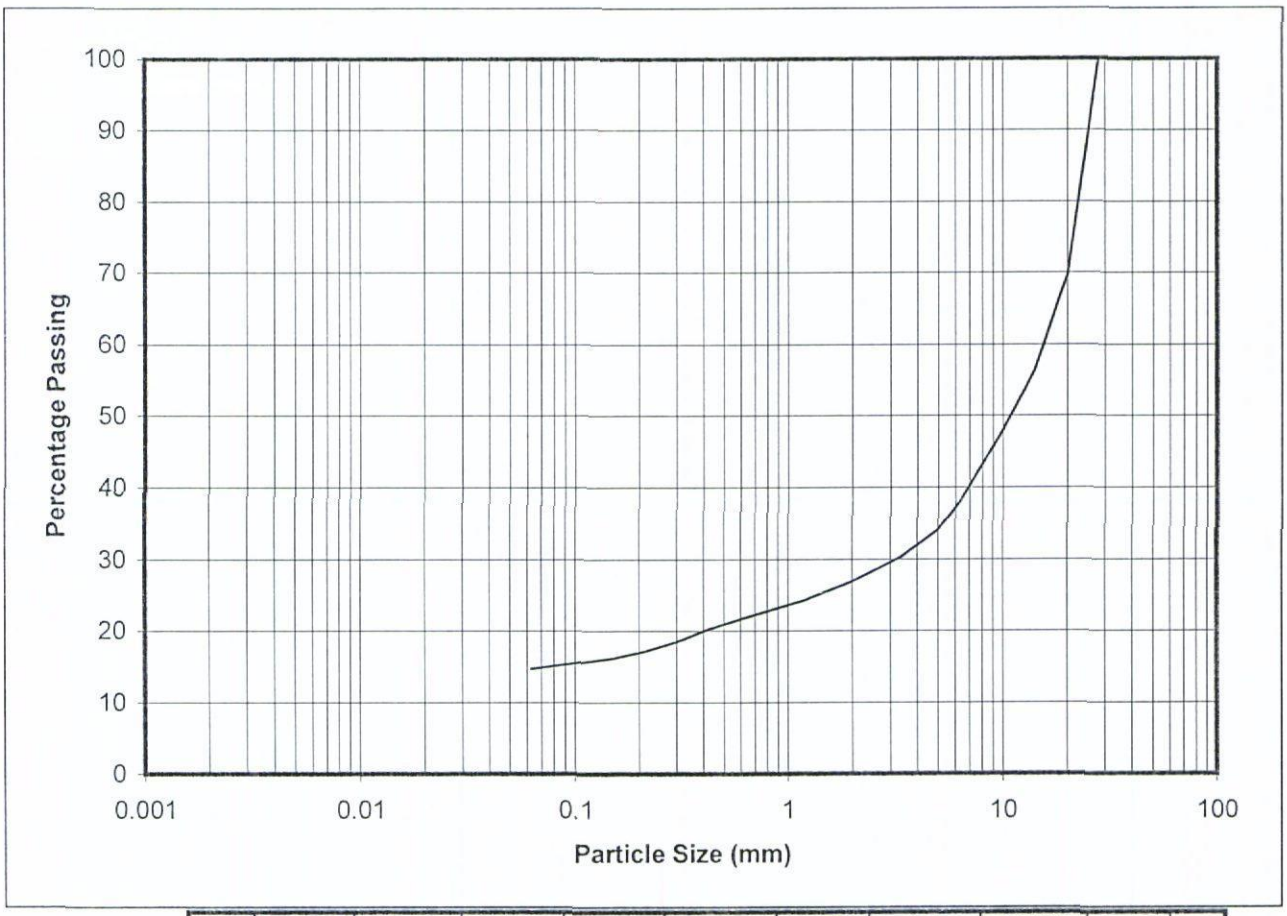
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP21	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.8-1.1	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE
	SILT			SAND			GRAVEL		

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	100.00
20.00	69.60
14.00	56.26
10.00	47.96
6.300	38.00
5.000	34.10
3.350	30.31
2.000	26.92
1.180	24.17
0.600	21.62
0.425	20.28
0.300	18.45
0.212	17.12
0.150	16.11
0.063	14.64

PARTICLE DIAMETER (mm)	% PASSING
2.00	26.92
0.063	14.64

SOIL FRACTION	TOTAL %
GRAVEL	73.08
SAND	12.28
SILT OR CLAY	14.64

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

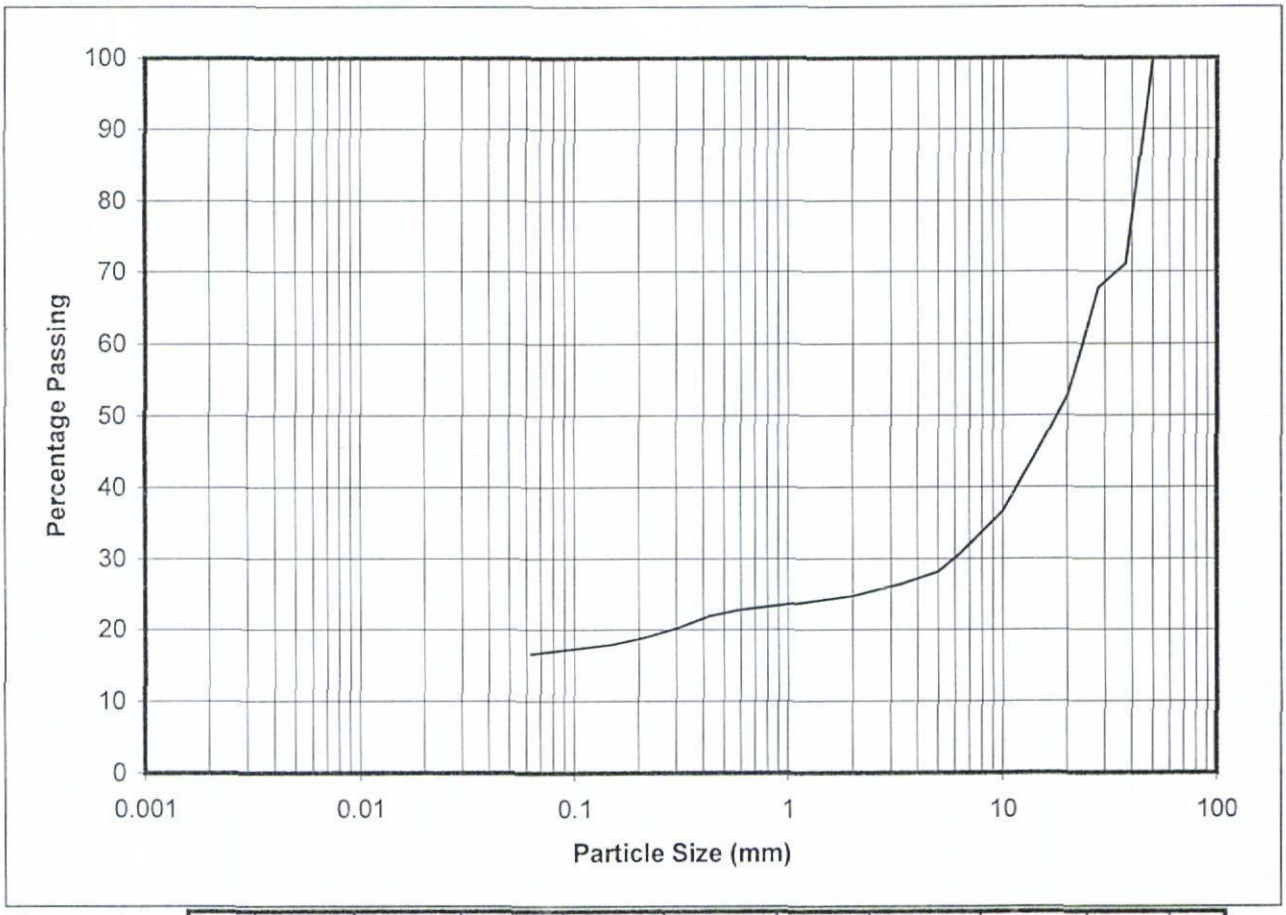
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP30	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.6-0.7	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	71.06
28.00	67.69
20.00	52.75
14.00	44.11
10.00	36.63
6.300	30.60
5.000	28.16
3.350	26.36
2.000	24.71
1.180	23.76
0.600	22.79
0.425	21.88
0.300	20.19
0.212	18.85
0.150	17.88
0.063	16.50

PARTICLE DIAMETER (mm)	% PASSING
2.00	24.71
0.063	16.50

SOIL FRACTION	TOTAL %
GRAVEL	75.29
SAND	8.21
SILT OR CLAY	16.50

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

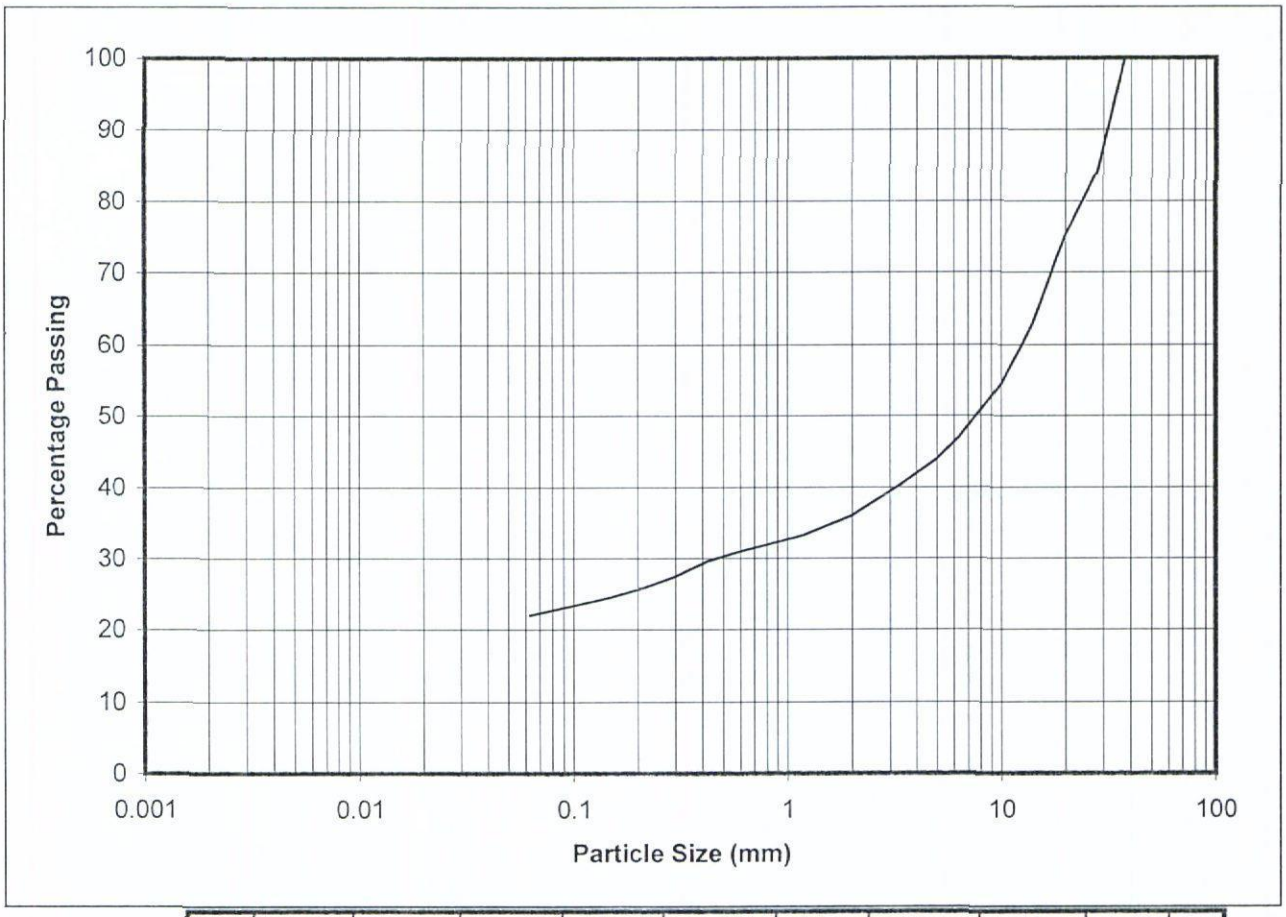
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP30	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.8-1.9	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	84.07
20.00	75.34
14.00	62.87
10.00	54.45
6.300	46.88
5.000	43.99
3.350	40.33
2.000	35.99
1.180	33.29
0.600	31.02
0.425	29.62
0.300	27.49
0.212	25.93
0.150	24.64
0.063	22.02

PARTICLE DIAMETER (mm)	% PASSING
2.00	35.99
0.063	22.02

SOIL FRACTION	TOTAL %
GRAVEL	64.01
SAND	13.97
SILT OR CLAY	22.02

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

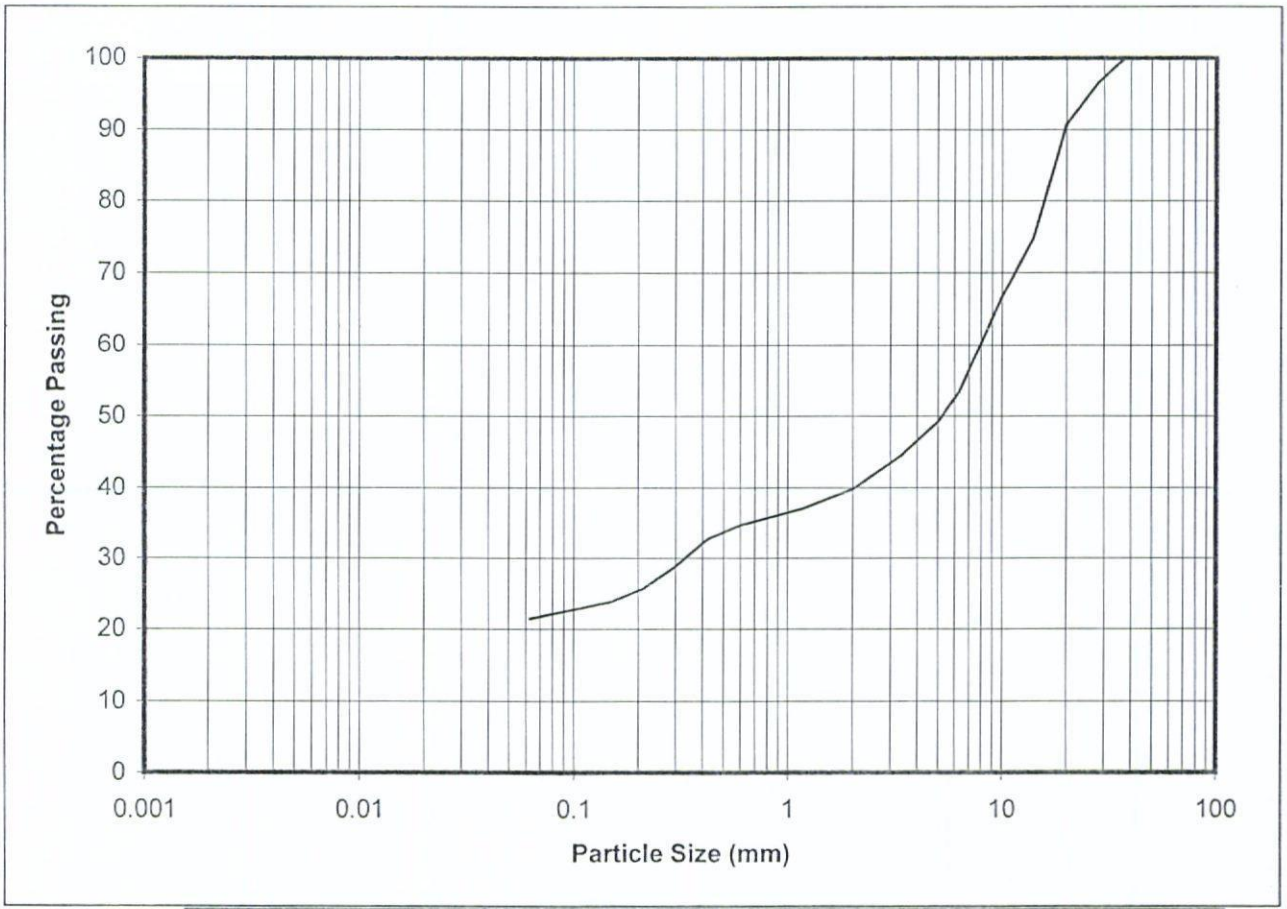
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP32	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.60	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	96.52
20.00	90.80
14.00	74.62
10.00	66.67
6.300	53.38
5.000	49.18
3.350	44.50
2.000	39.78
1.180	37.08
0.600	34.71
0.425	32.75
0.300	28.88
0.212	25.76
0.150	23.81
0.063	21.40

PARTICLE DIAMETER (mm)	% PASSING
2.00	39.78
0.063	21.40

SOIL FRACTION	TOTAL %
GRAVEL	60.22
SAND	18.38
SILT OR CLAY	21.40

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

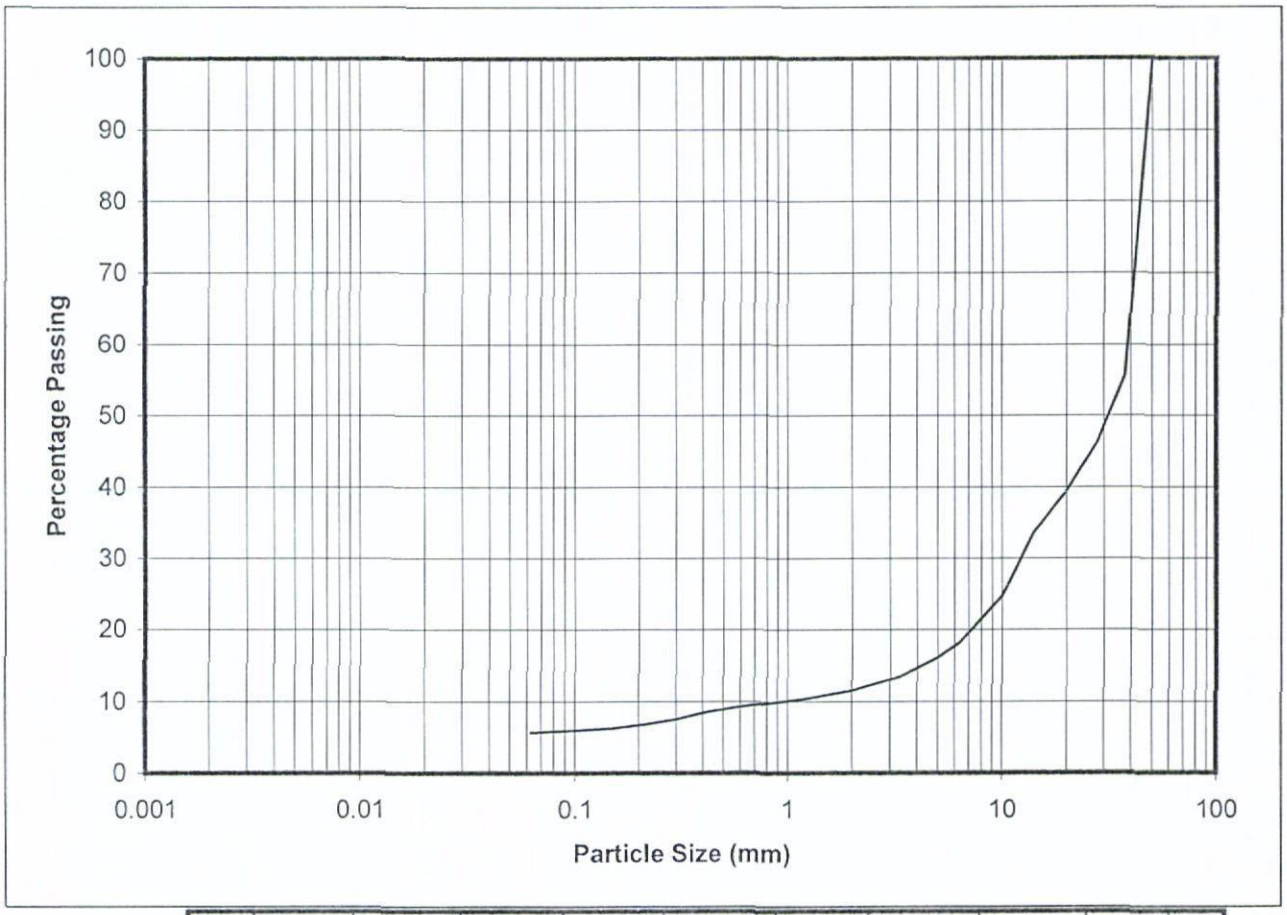
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP35	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.60	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	55.71
28.00	46.40
20.00	39.42
14.00	33.50
10.00	24.61
6.300	18.13
5.000	16.10
3.350	13.48
2.000	11.58
1.180	10.36
0.600	9.30
0.425	8.59
0.300	7.53
0.212	6.77
0.150	6.27
0.063	5.65

PARTICLE DIAMETER (mm)	% PASSING
2.00	11.58
0.063	5.65

SOIL FRACTION	TOTAL %
GRAVEL	88.42
SAND	5.93
SILT OR CLAY	5.65

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

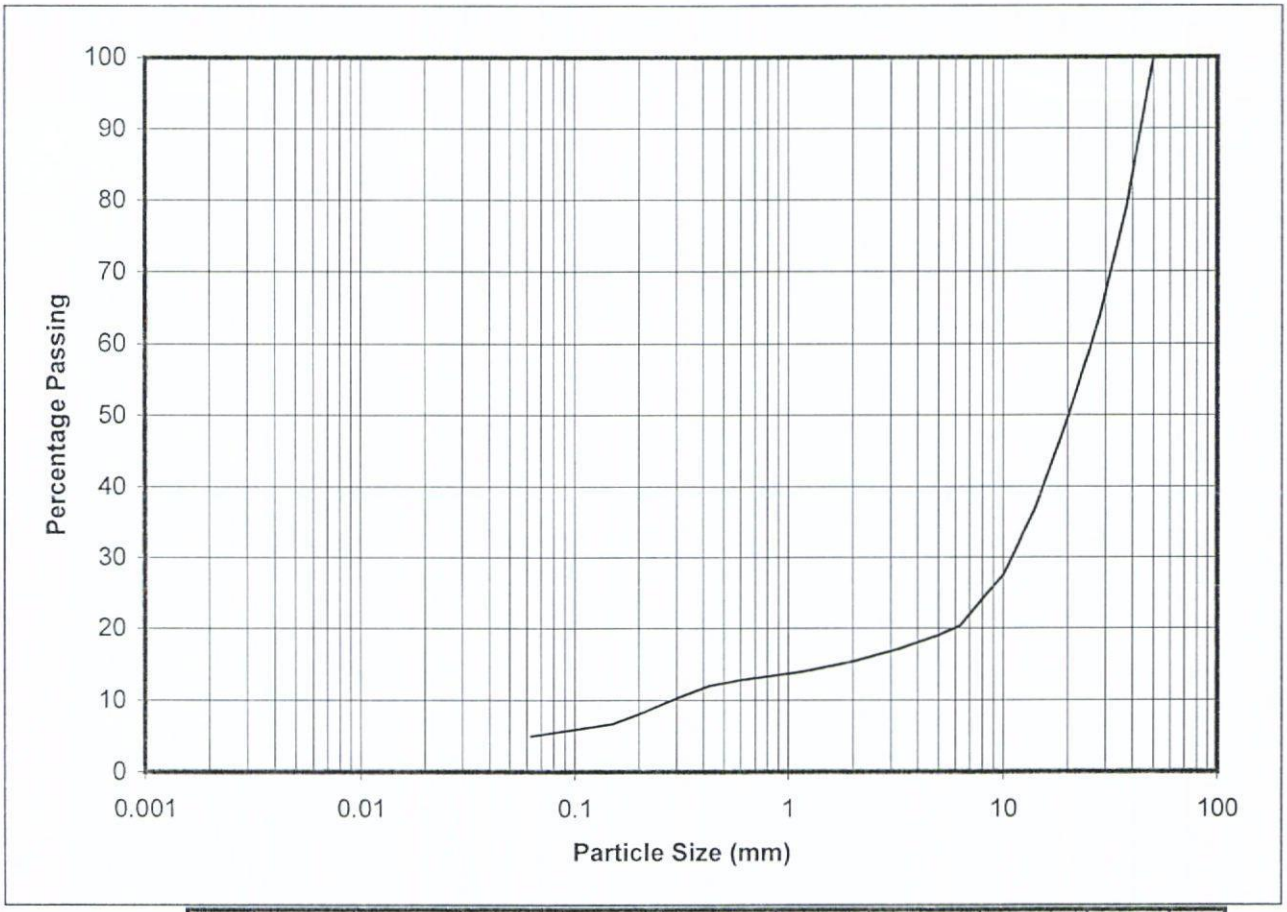
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP36	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.70	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	78.79
28.00	63.42
20.00	49.61
14.00	36.68
10.00	27.35
6.300	20.32
5.000	19.00
3.350	17.21
2.000	15.38
1.180	14.06
0.600	12.90
0.425	12.04
0.300	10.30
0.212	8.37
0.150	6.71
0.063	5.02

PARTICLE DIAMETER (mm)	% PASSING
2.00	15.38
0.063	5.02

SOIL FRACTION	TOTAL %
GRAVEL	84.62
SAND	10.36
SILT OR CLAY	5.02

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

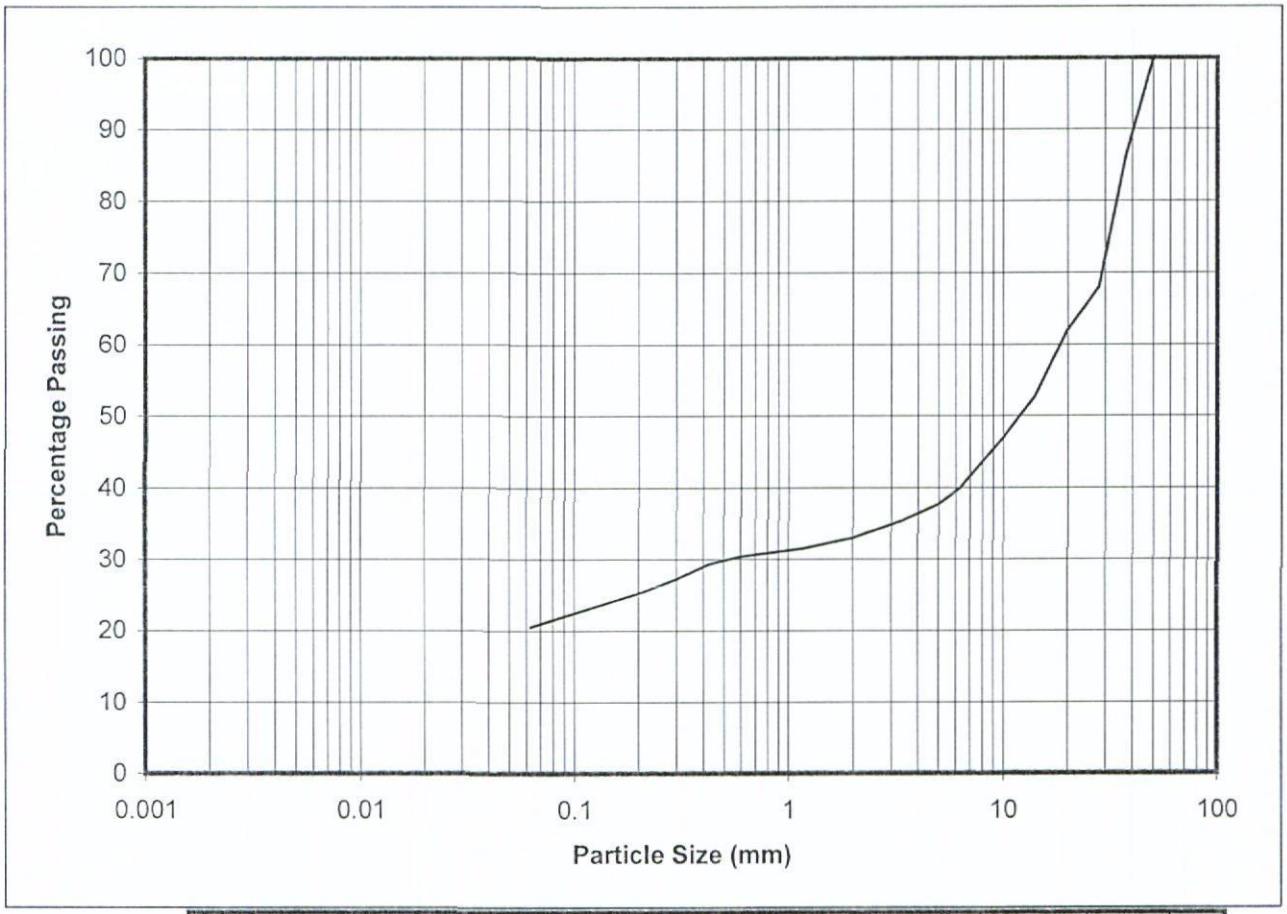
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP37	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.80	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE
	SILT			SAND			GRAVEL		

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	86.51
28.00	67.96
20.00	62.10
14.00	52.66
10.00	47.03
6.300	39.98
5.000	37.75
3.350	35.36
2.000	32.96
1.180	31.52
0.600	30.38
0.425	29.33
0.300	27.19
0.212	25.38
0.150	23.93
0.063	20.55

PARTICLE DIAMETER (mm)	% PASSING
2.00	32.96
0.063	20.55

SOIL FRACTION	TOTAL %
GRAVEL	67.04
SAND	12.41
SILT OR CLAY	20.55

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

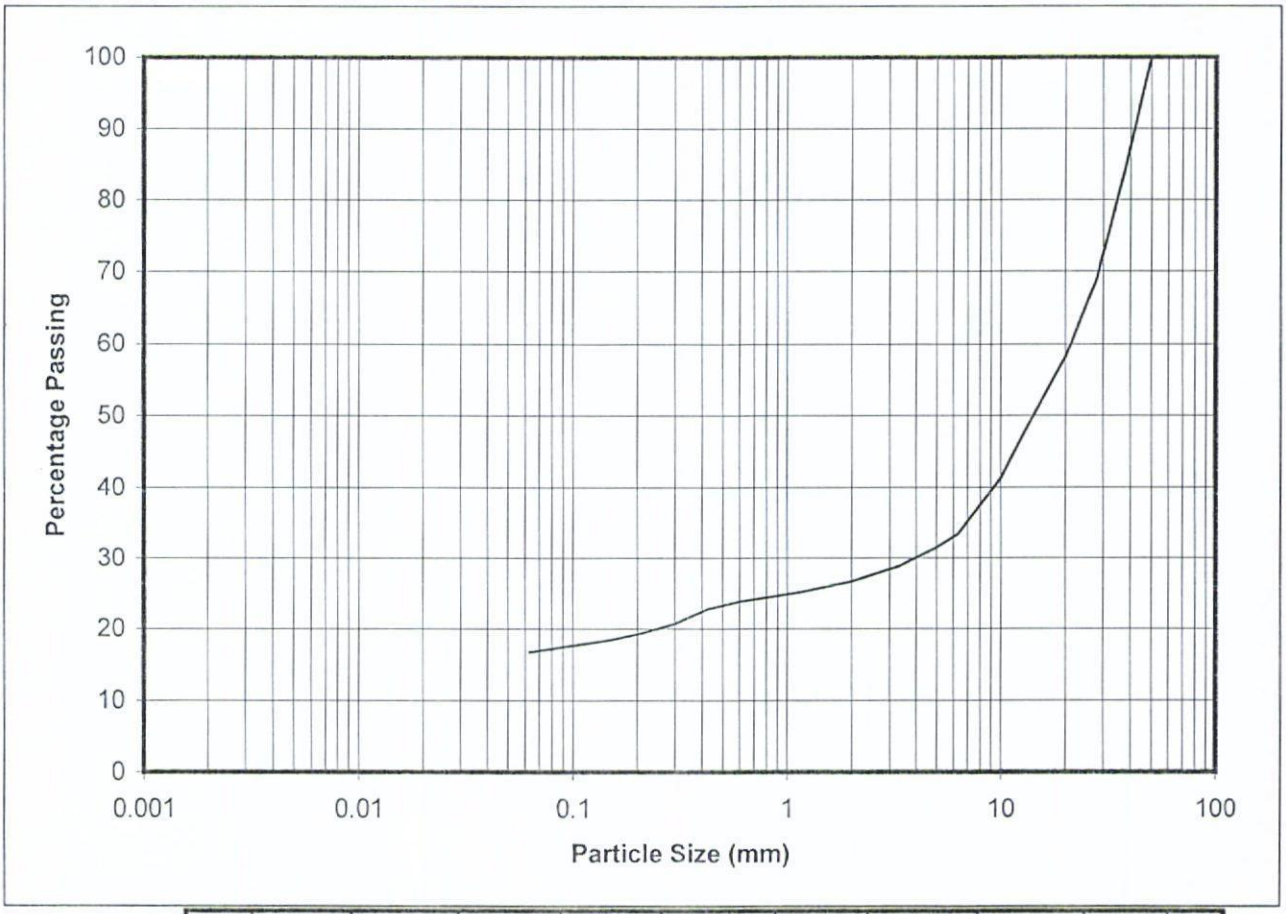
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP38	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.60	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	83.88
28.00	68.95
20.00	58.15
14.00	49.65
10.00	41.27
6.300	33.43
5.000	31.53
3.350	28.89
2.000	26.72
1.180	25.24
0.600	23.86
0.425	22.77
0.300	20.72
0.212	19.41
0.150	18.47
0.063	16.71

PARTICLE DIAMETER (mm)	% PASSING
2.00	26.72
0.063	16.71

SOIL FRACTION	TOTAL %
GRAVEL	73.28
SAND	10.01
SILT OR CLAY	16.71

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

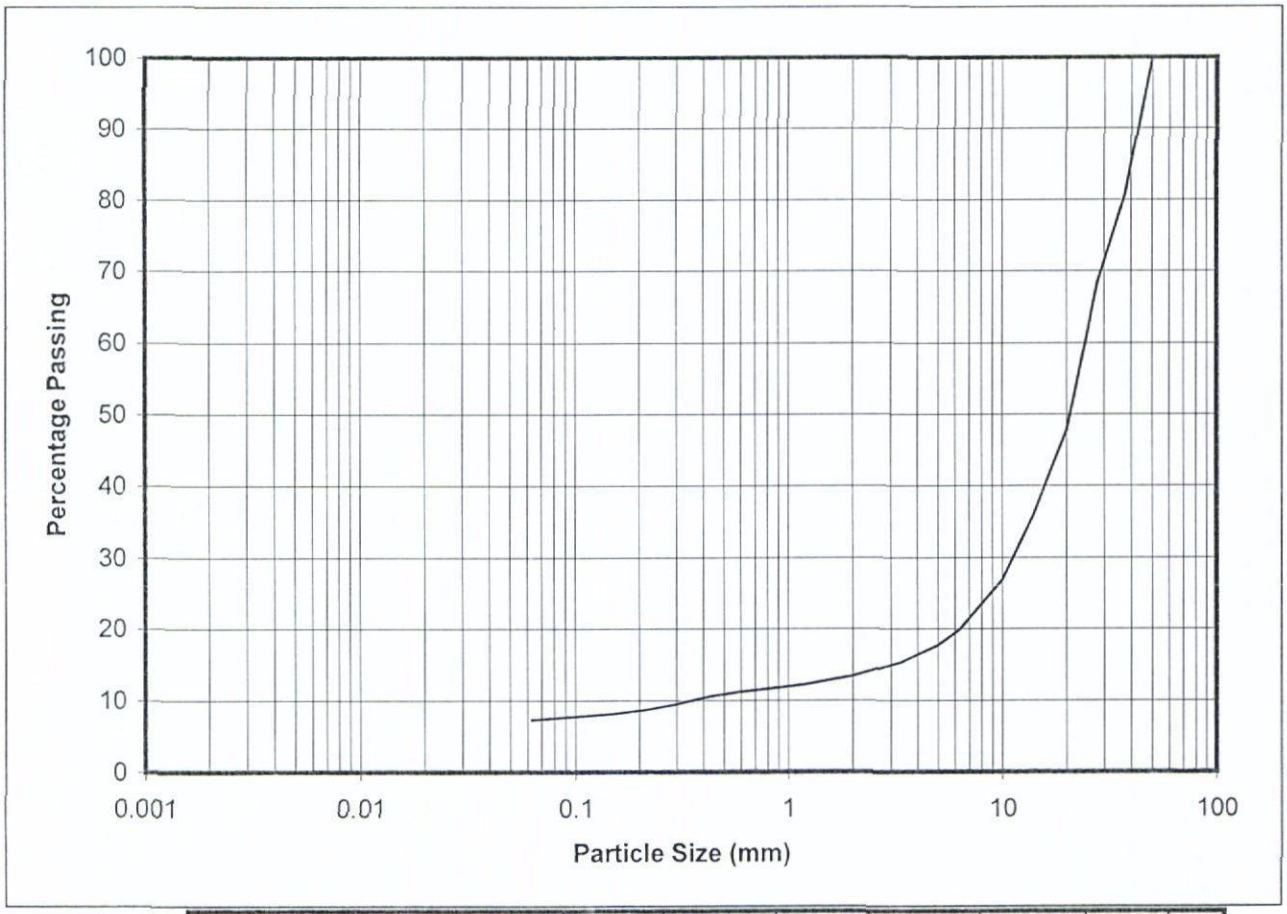
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP38	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	2.30	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	80.73
28.00	68.47
20.00	47.74
14.00	35.96
10.00	26.87
6.300	19.86
5.000	17.68
3.350	15.21
2.000	13.30
1.180	12.13
0.600	11.20
0.425	10.58
0.300	9.51
0.212	8.68
0.150	8.16
0.063	7.29

PARTICLE DIAMETER (mm)	% PASSING
2.00	13.30
0.063	7.29

SOIL FRACTION	TOTAL %
GRAVEL	86.70
SAND	6.02
SILT OR CLAY	7.29

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

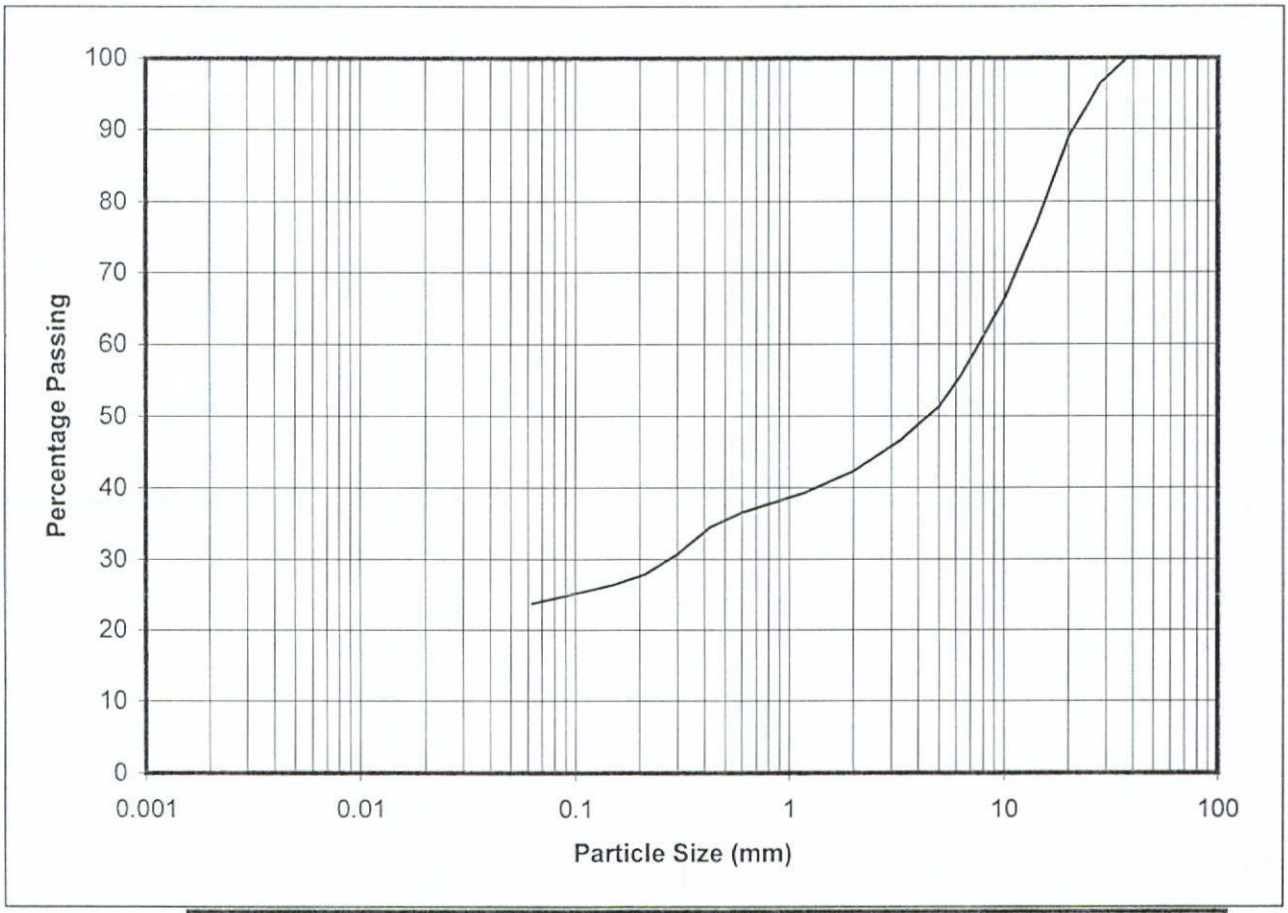
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP39	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.90	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	96.31
20.00	88.96
14.00	76.50
10.00	66.15
6.300	55.50
5.000	51.38
3.350	46.74
2.000	42.30
1.180	39.24
0.600	36.56
0.425	34.54
0.300	30.71
0.212	27.92
0.150	26.36
0.063	23.75

PARTICLE DIAMETER (mm)	% PASSING
2.00	42.30
0.063	23.75

SOIL FRACTION	TOTAL %
GRAVEL	57.70
SAND	18.55
SILT OR CLAY	23.75

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

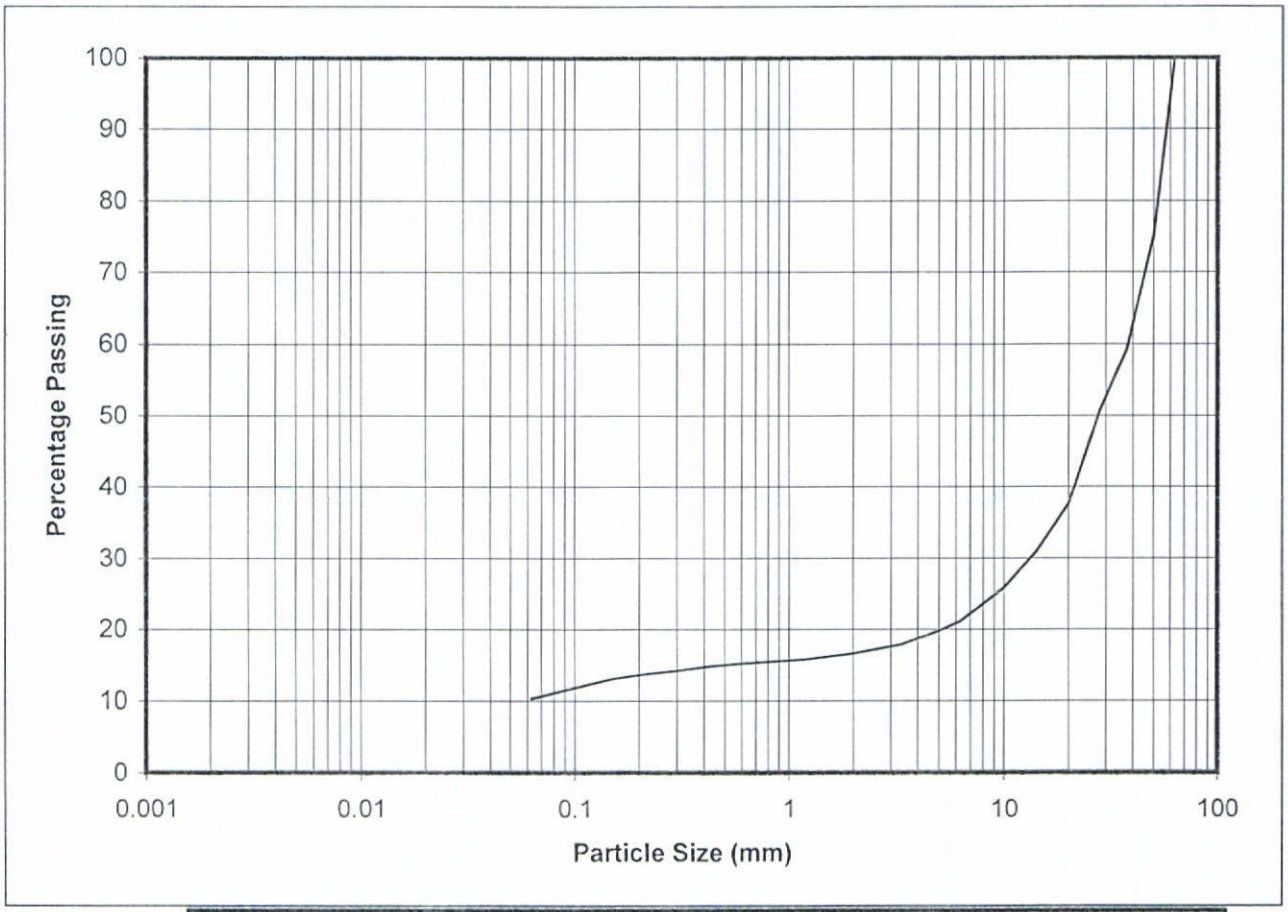
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP40	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	2.30	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	74.86
37.50	59.26
28.00	50.65
20.00	37.60
14.00	30.76
10.00	25.89
6.300	21.15
5.000	19.74
3.350	17.92
2.000	16.64
1.180	15.84
0.600	15.21
0.425	14.82
0.300	14.19
0.212	13.72
0.150	13.03
0.063	10.35

PARTICLE DIAMETER (mm)	% PASSING
2.00	16.64
0.063	10.35

SOIL FRACTION	TOTAL %
GRAVEL	83.36
SAND	6.29
SILT OR CLAY	10.35

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

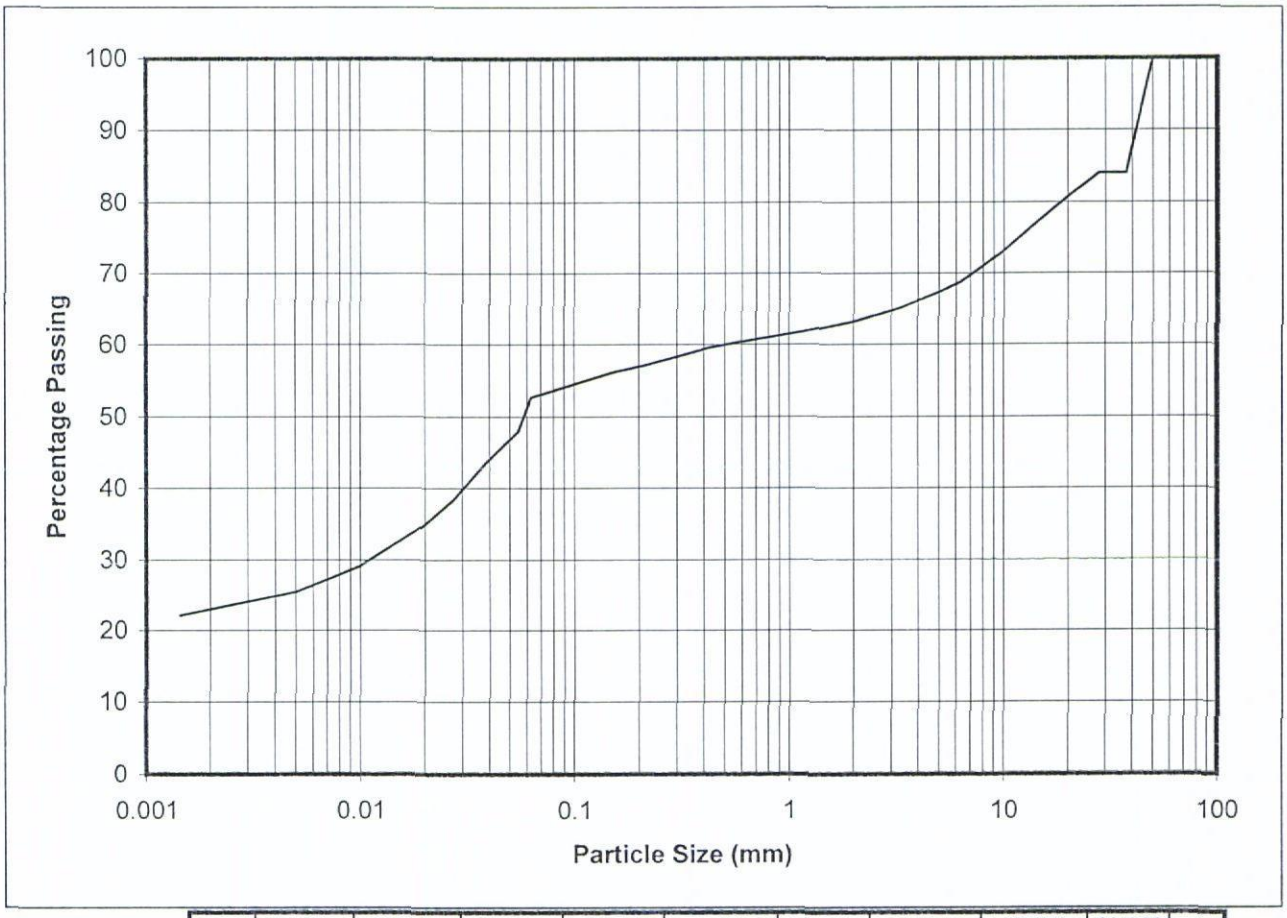
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 and 9.5 1990

RP06 30/08/05

ISSUE 1 REV1

WSP Environmental

PROJECT :	Waterlooville	SAMPLE	TP41	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.70	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	84.08
28.00	84.08
20.00	80.77
14.00	76.85
10.00	73.03
6.300	68.71
5.000	67.26
3.350	65.13
2.000	63.15
1.180	61.83
0.600	60.41
0.425	59.59
0.300	58.32
0.212	57.15
0.150	56.14
0.063	52.73

PARTICLE DIAMETER (mm)	% PASSING
2.00	63.15
0.063	52.73
0.002	22.10

SOIL FRACTION	TOTAL %
GRAVEL	36.85
SAND	10.42
SILT	30.64
CLAY	22.10

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

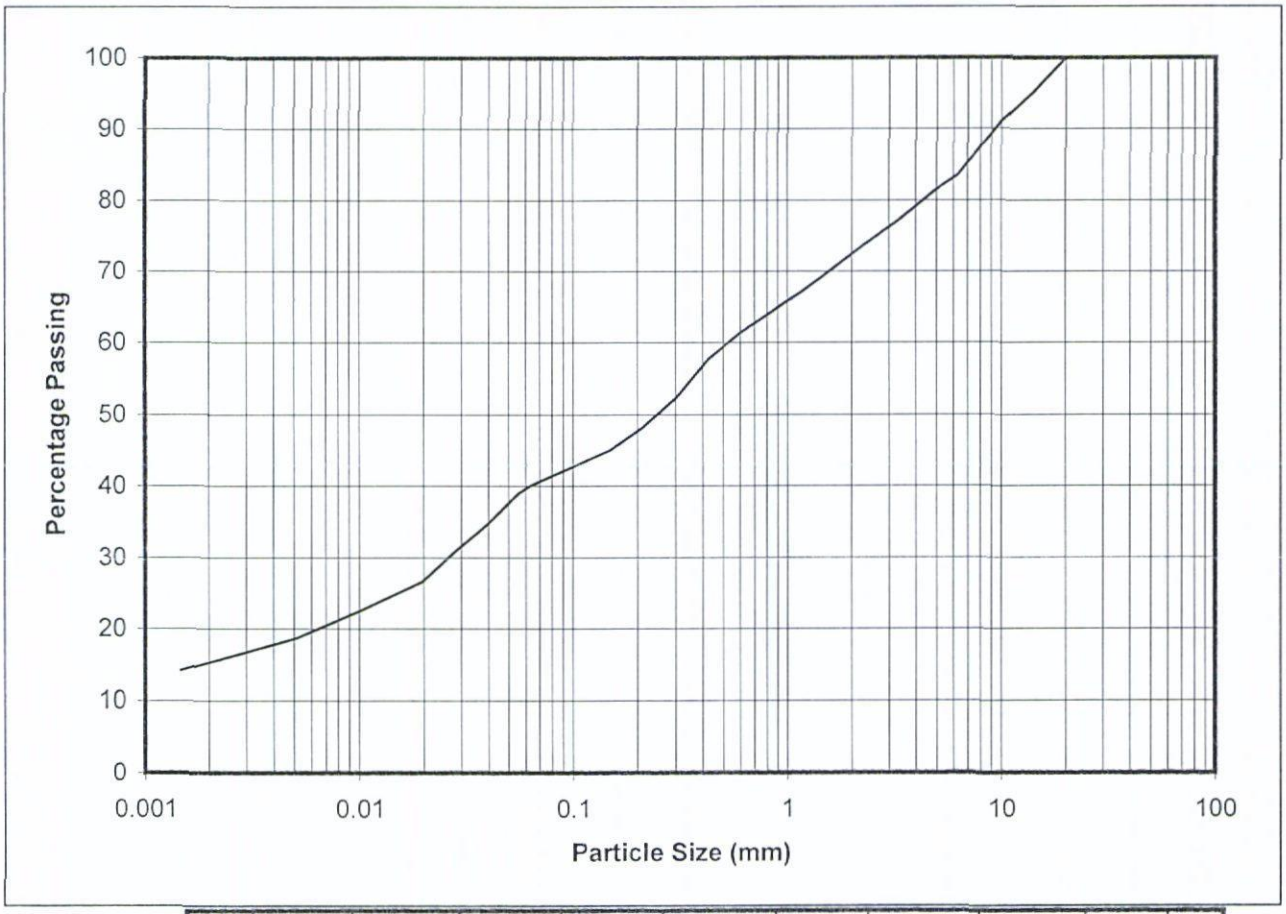
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 and 9.5 1990

RP06 30/08/05

ISSUE 1 REV1

WSP Environmental

PROJECT :	Waterlooville	SAMPLE	TP53	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	2.30	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	100.00
20.00	100.00
14.00	95.04
10.00	91.03
6.300	83.54
5.000	81.50
3.350	77.22
2.000	72.36
1.180	67.19
0.600	61.38
0.425	57.73
0.300	52.32
0.212	48.20
0.150	45.11
0.063	39.98

PARTICLE DIAMETER (mm)	% PASSING
2.00	72.36
0.063	39.98
0.002	14.13

SOIL FRACTION	TOTAL %
GRAVEL	27.64
SAND	32.38
SILT	25.85
CLAY	14.13

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

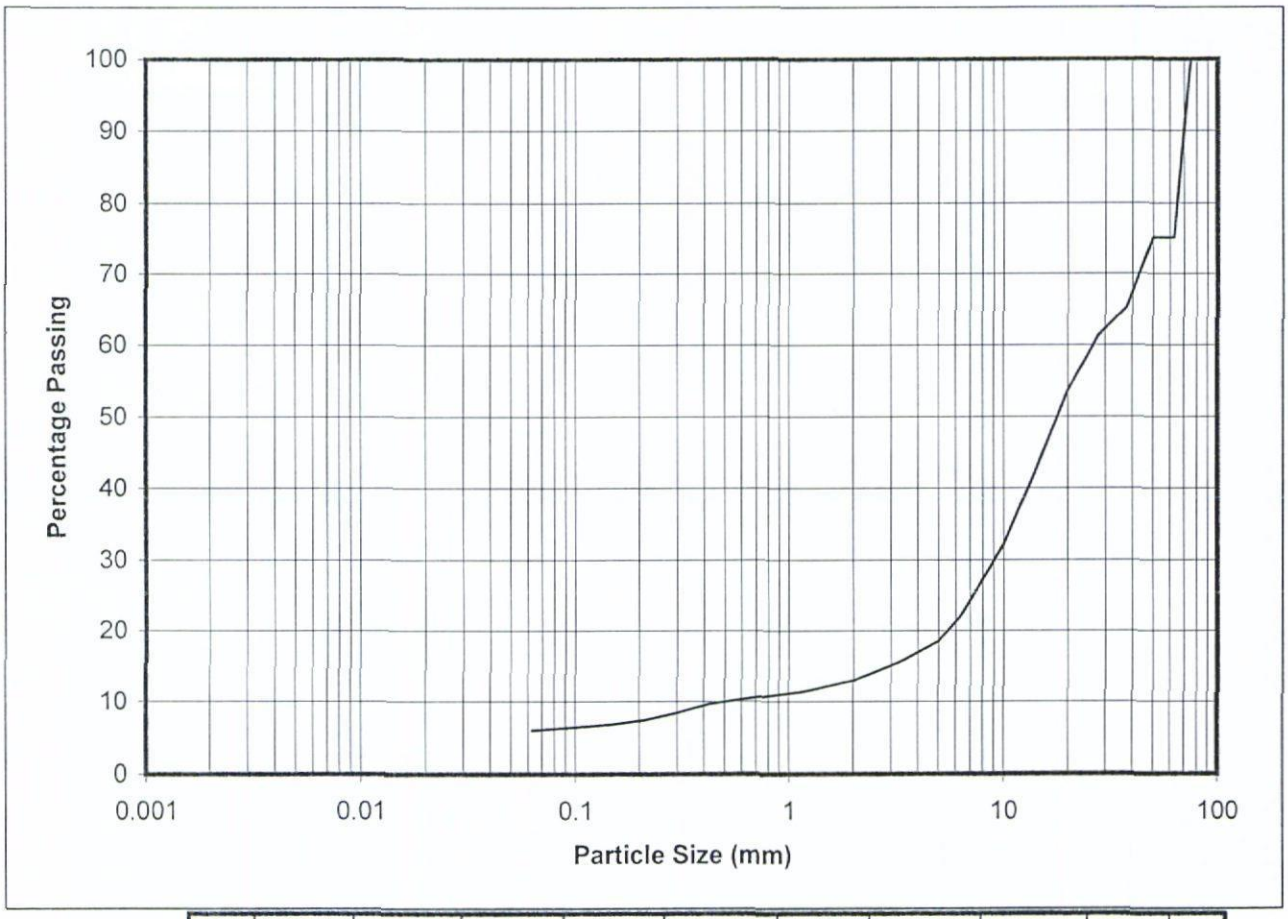
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP65	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.20	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	75.14
50.00	75.14
37.50	65.20
28.00	61.29
20.00	53.67
14.00	42.12
10.00	32.18
6.300	22.01
5.000	18.54
3.350	15.73
2.000	13.00
1.180	11.45
0.600	10.33
0.425	9.63
0.300	8.43
0.212	7.42
0.150	6.84
0.063	6.06

PARTICLE DIAMETER (mm)	% PASSING
2.00	13.00
0.063	6.06

SOIL FRACTION	TOTAL %
GRAVEL	87.00
SAND	6.94
SILT OR CLAY	6.06

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

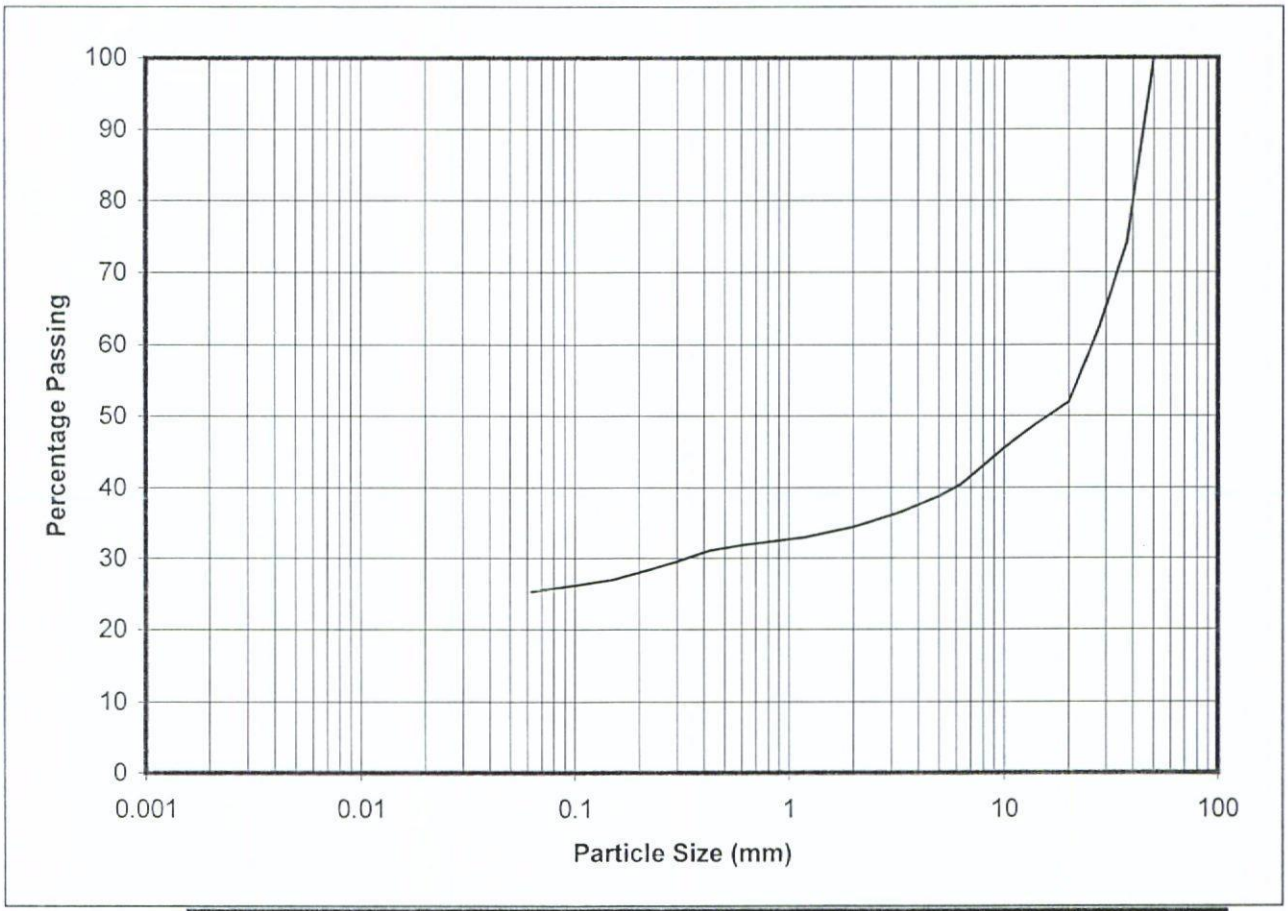
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

WSP Environmental

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP67	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.70	STORE NO:	



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	*
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	74.04
28.00	62.57
20.00	51.91
14.00	48.79
10.00	45.51
6.300	40.44
5.000	38.78
3.350	36.59
2.000	34.44
1.180	32.98
0.600	31.83
0.425	31.09
0.300	29.54
0.212	28.22
0.150	27.02
0.063	25.27

PARTICLE DIAMETER (mm)	% PASSING
2.00	34.44
0.063	25.27

SOIL FRACTION	TOTAL %
GRAVEL	65.56
SAND	9.17
SILT OR CLAY	25.27

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

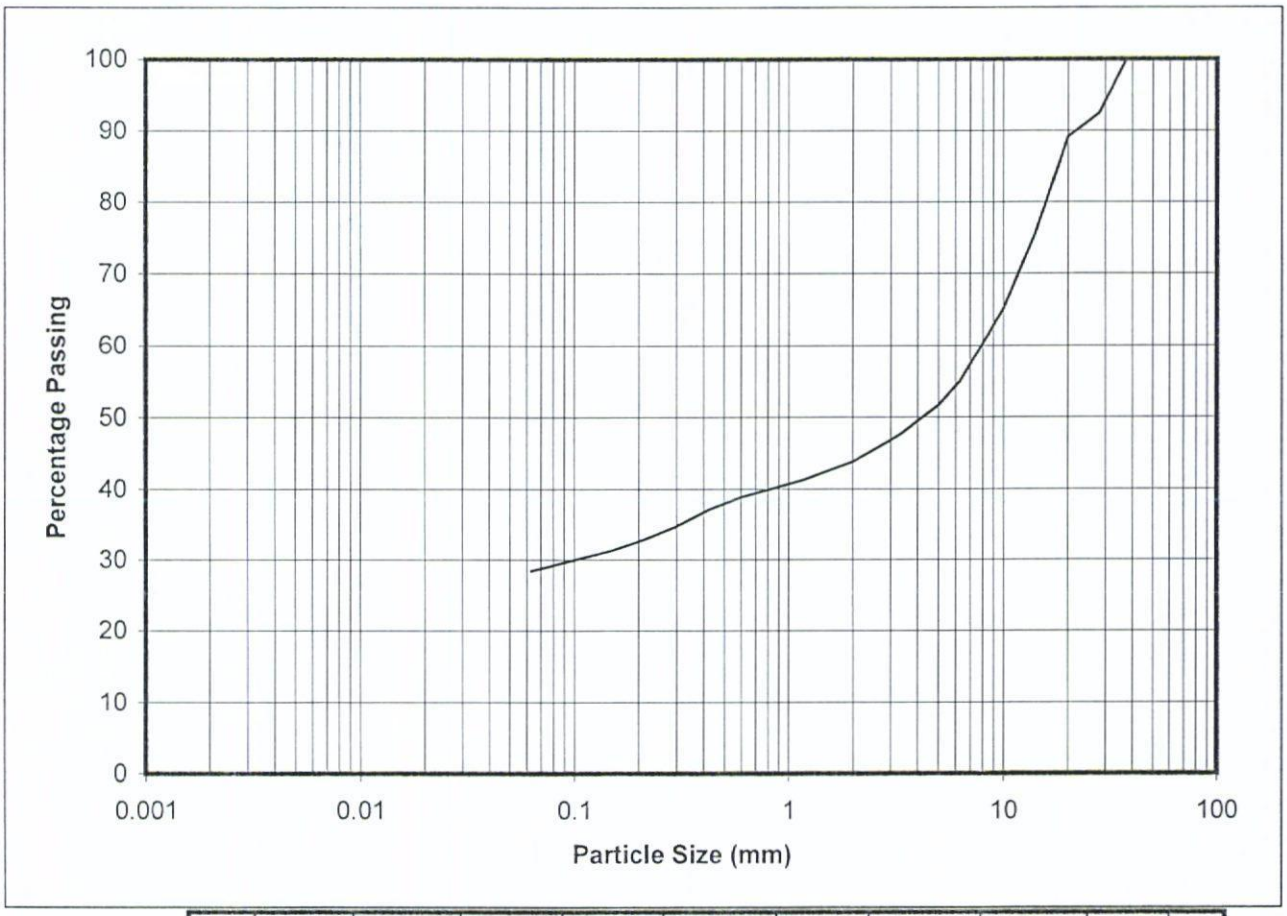
PARTICLE SIZE DISTRIBUTION TEST : BS1377 : PART 2: CL9.2 1990

RP05 30/08/05

ISSUE 1 REV 1

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP68	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.0-1.2	STORE NO:	

WSP Environmental



CLAY	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	FINE	MEDIUM	COARSE	
	SILT			SAND			GRAVEL			

SIEVE SIZE	% PASSING
125.00	100.00
90.00	100.00
75.00	100.00
63.00	100.00
50.00	100.00
37.50	100.00
28.00	92.49
20.00	89.14
14.00	75.40
10.00	65.17
6.300	55.04
5.000	51.64
3.350	47.70
2.000	43.82
1.180	41.29
0.600	38.86
0.425	37.13
0.300	34.75
0.212	32.88
0.150	31.28
0.063	28.39

PARTICLE DIAMETER (mm)	% PASSING
2.00	43.82
0.063	28.39

SOIL FRACTION	TOTAL %
GRAVEL	56.18
SAND	15.43
SILT OR CLAY	28.39

NOTES:

* SIZE PARTICLES ABOVE 60mm CLASSIFY AS COBBLES

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

UKAS TESTING
0206

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

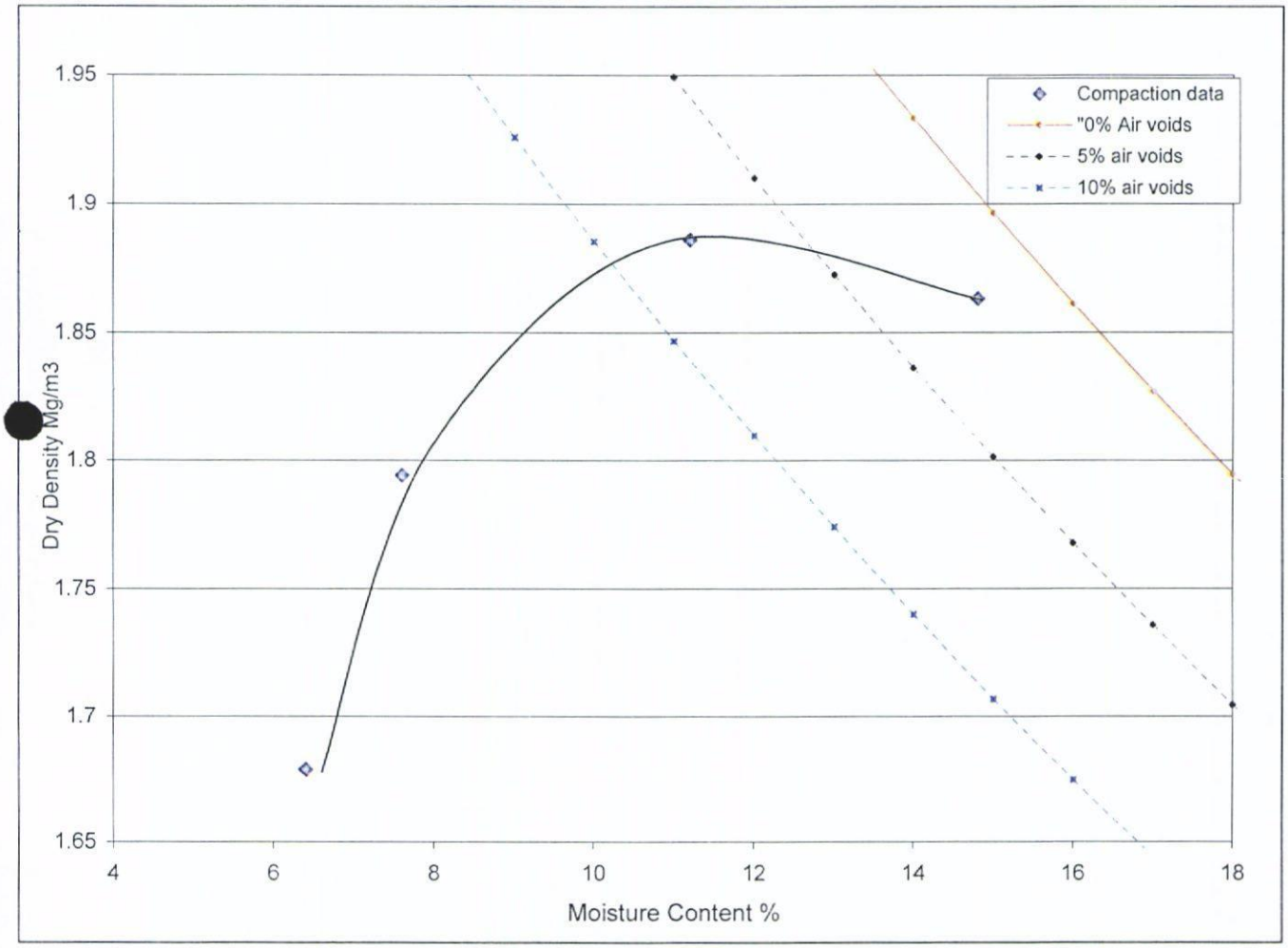
Test Methods - 3.4

Preparation Methods - 3.2.5.2

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP36	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.70	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.89	
Optimum Moisture Content %	11	
As Received Moisture Content %	20	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	2.2
% Retained on a 20.00mm sieve	12.1

Notes :

1) Single sample used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

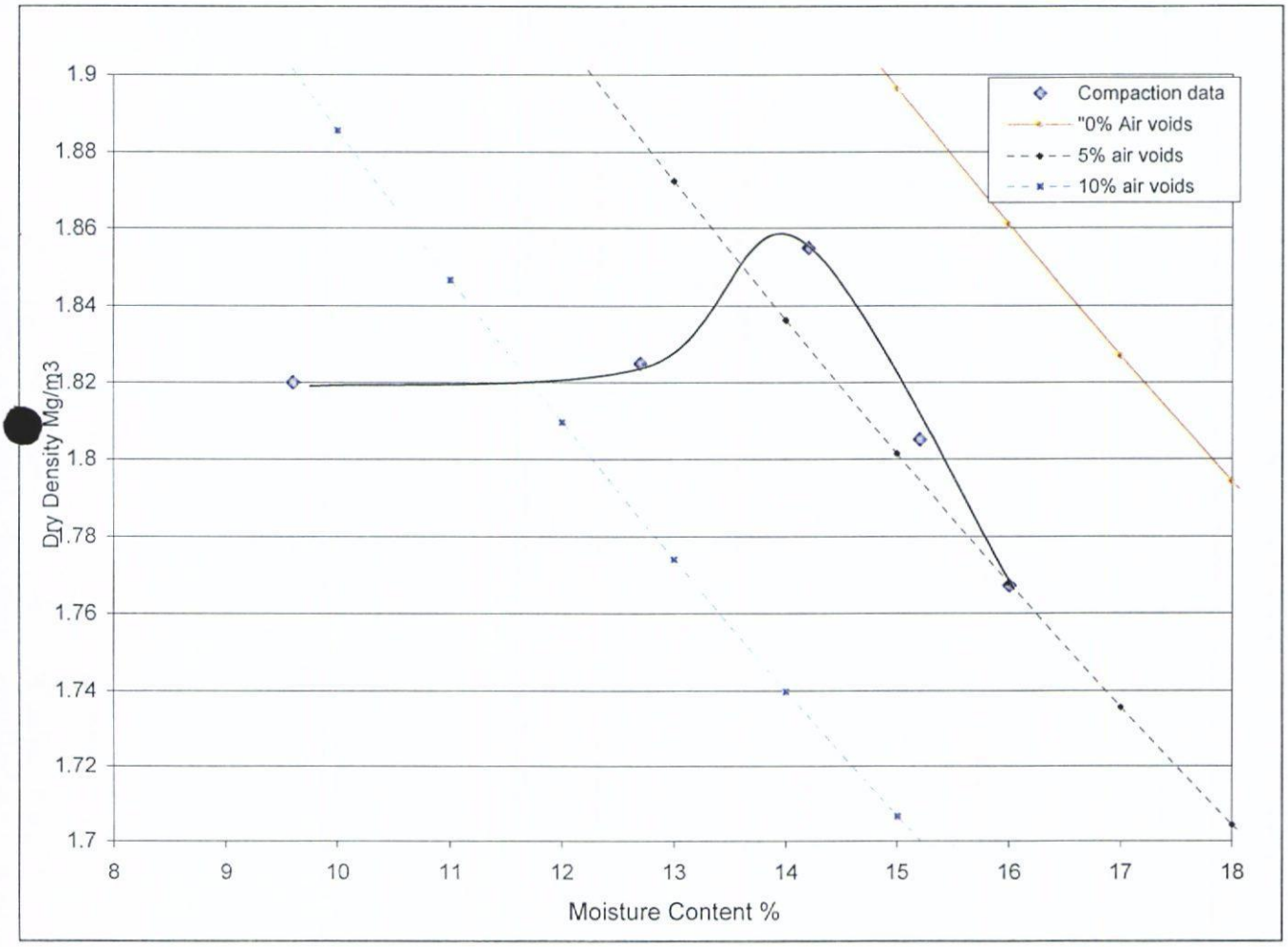
Test Methods - 3.34

Preparation Methods - 3.2.5.2

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP37	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.80	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density	Mg/m^3	1.86
Optimum Moisture Content %		14
As Received Moisture Content %		13
Particle Density		2.65 (Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	4.1
% Retained on a 20.00mm sieve	17.3

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

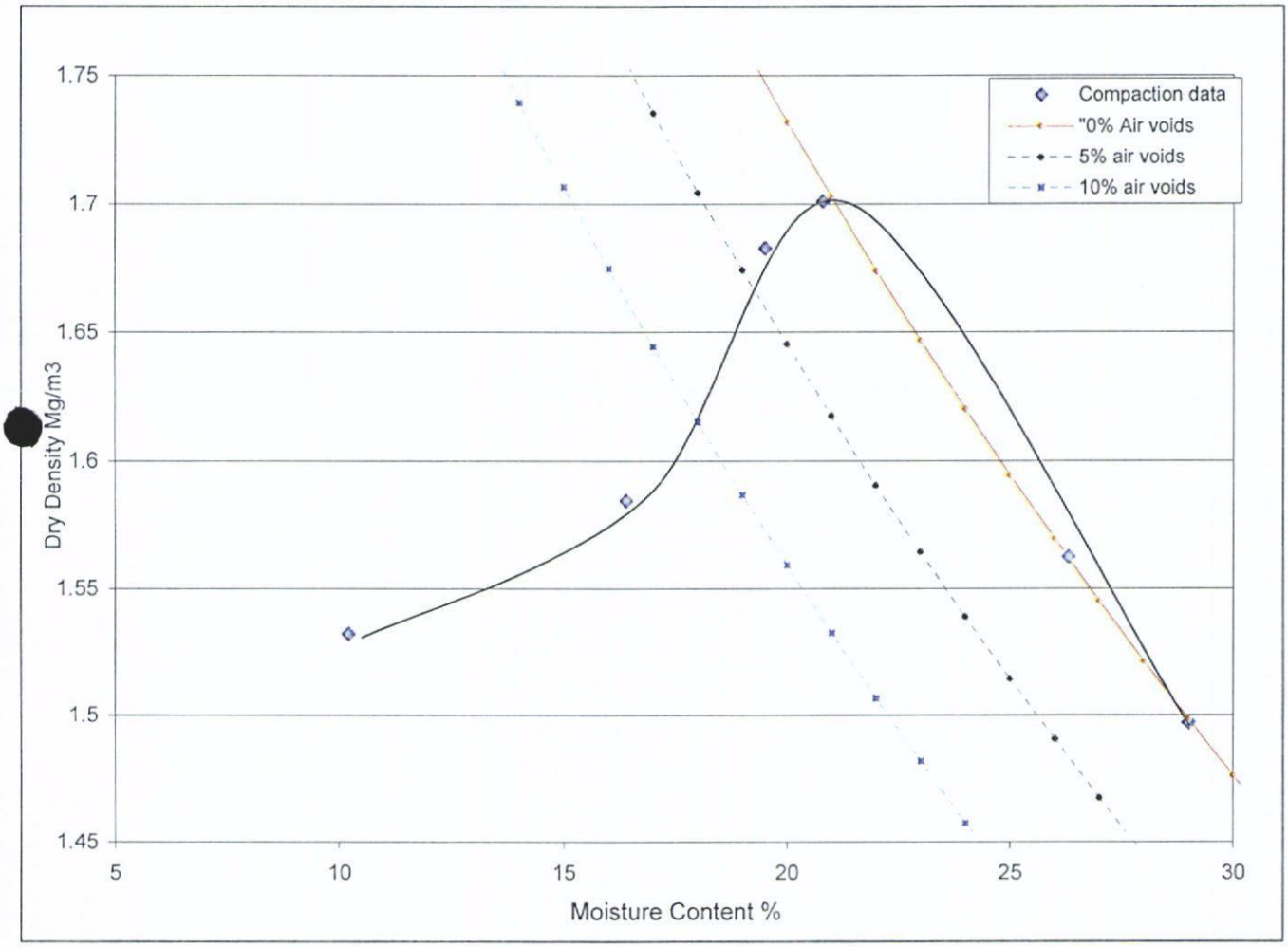
Test Methods - 3.4

Preparation Methods - 3.2.5.2

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP37	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	2.40	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.70	
Optimum Moisture Content %	21	
As Received Moisture Content %	26	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	2.2
% Retained on a 20.00mm sieve	12.1

Notes :

1) Single sample used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

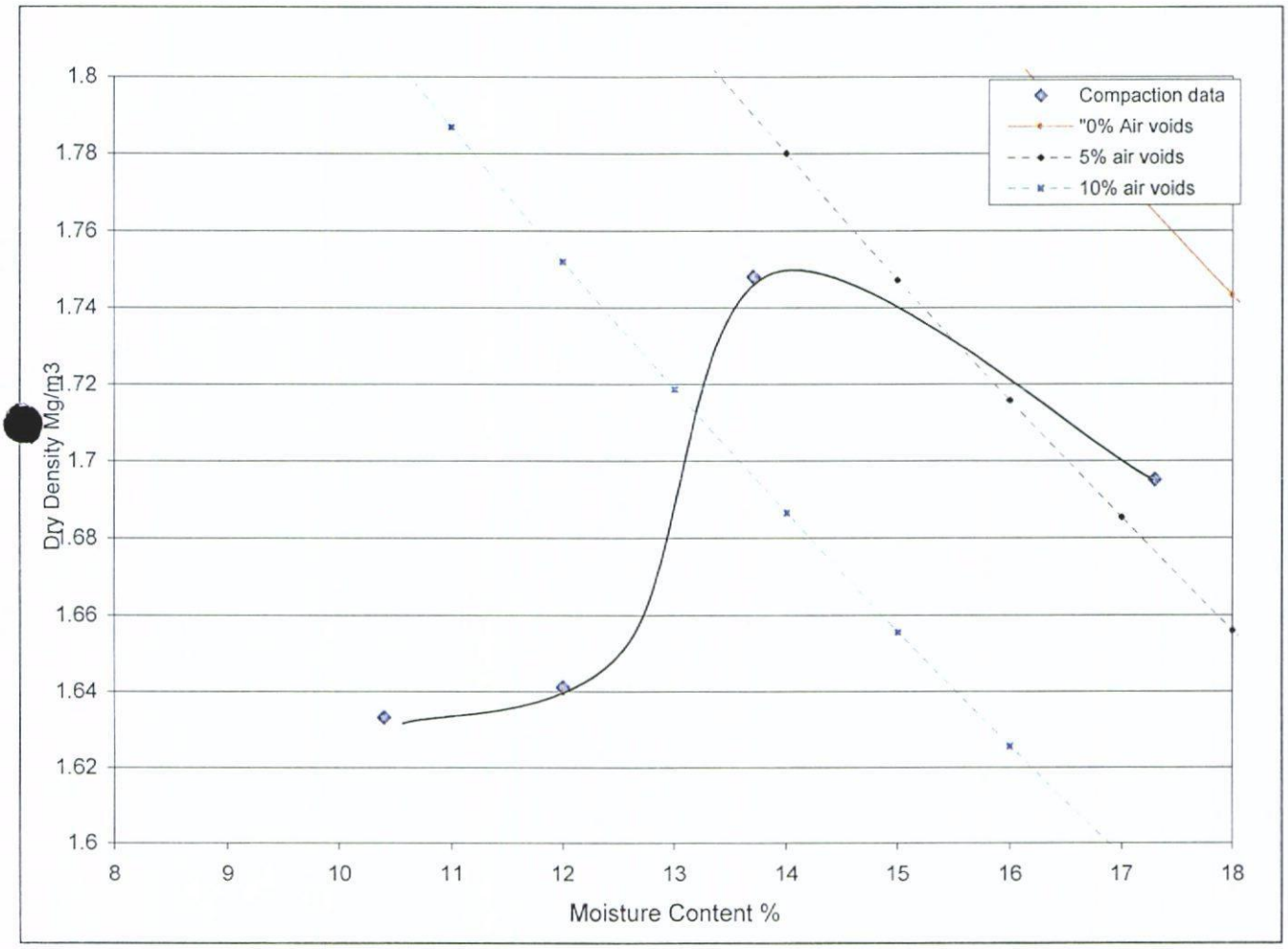
Test Methods - 3.4

Preparation Methods - 3.2.5.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP38	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.60	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.75	
Optimum Moisture Content %	14	
As Received Moisture Content %	17	
Particle Density	2.54	(Measured)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	21.8

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

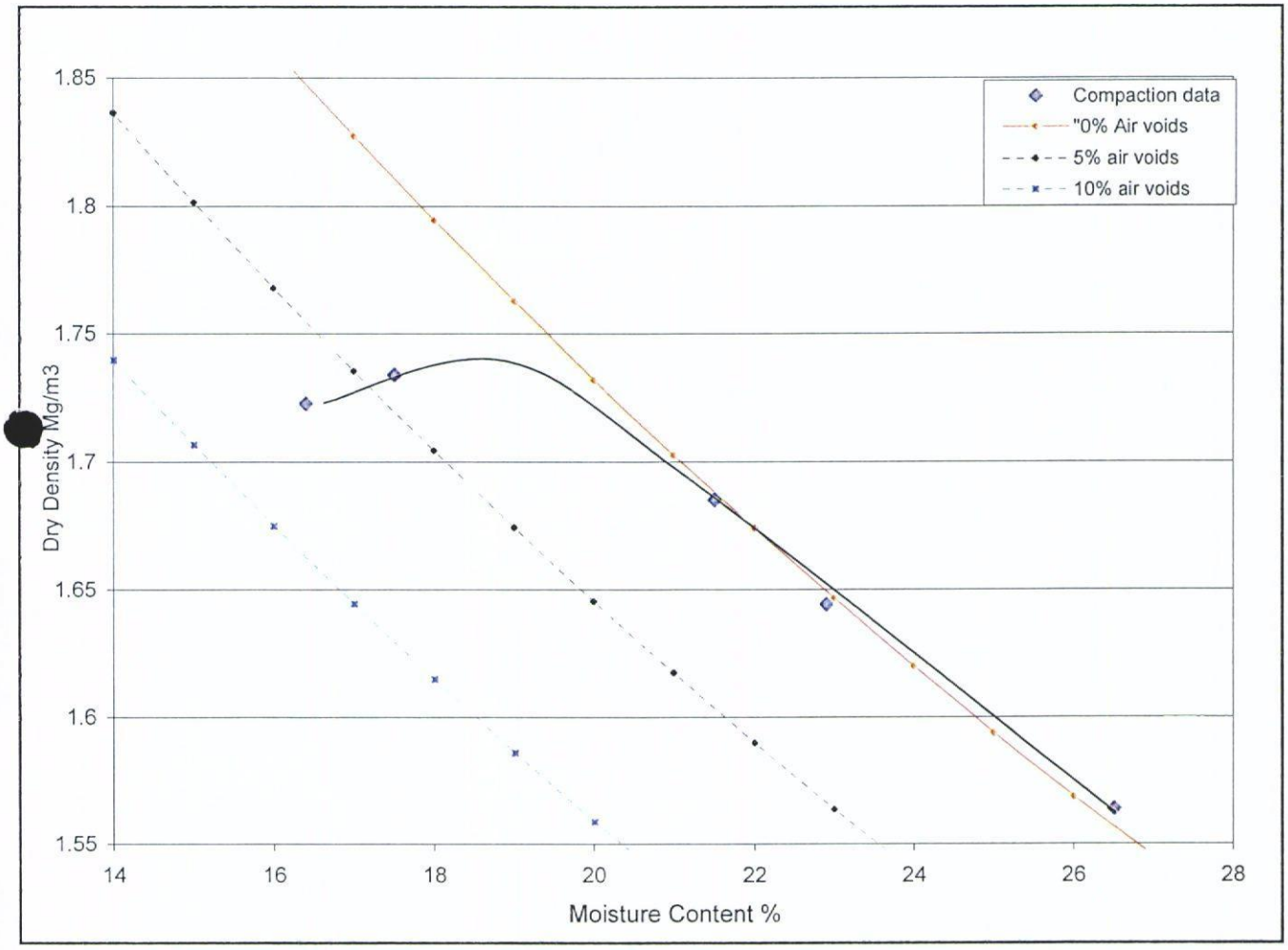
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP39	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	3.00	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.74	
Optimum Moisture Content %	18	
As Received Moisture Content %	27	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

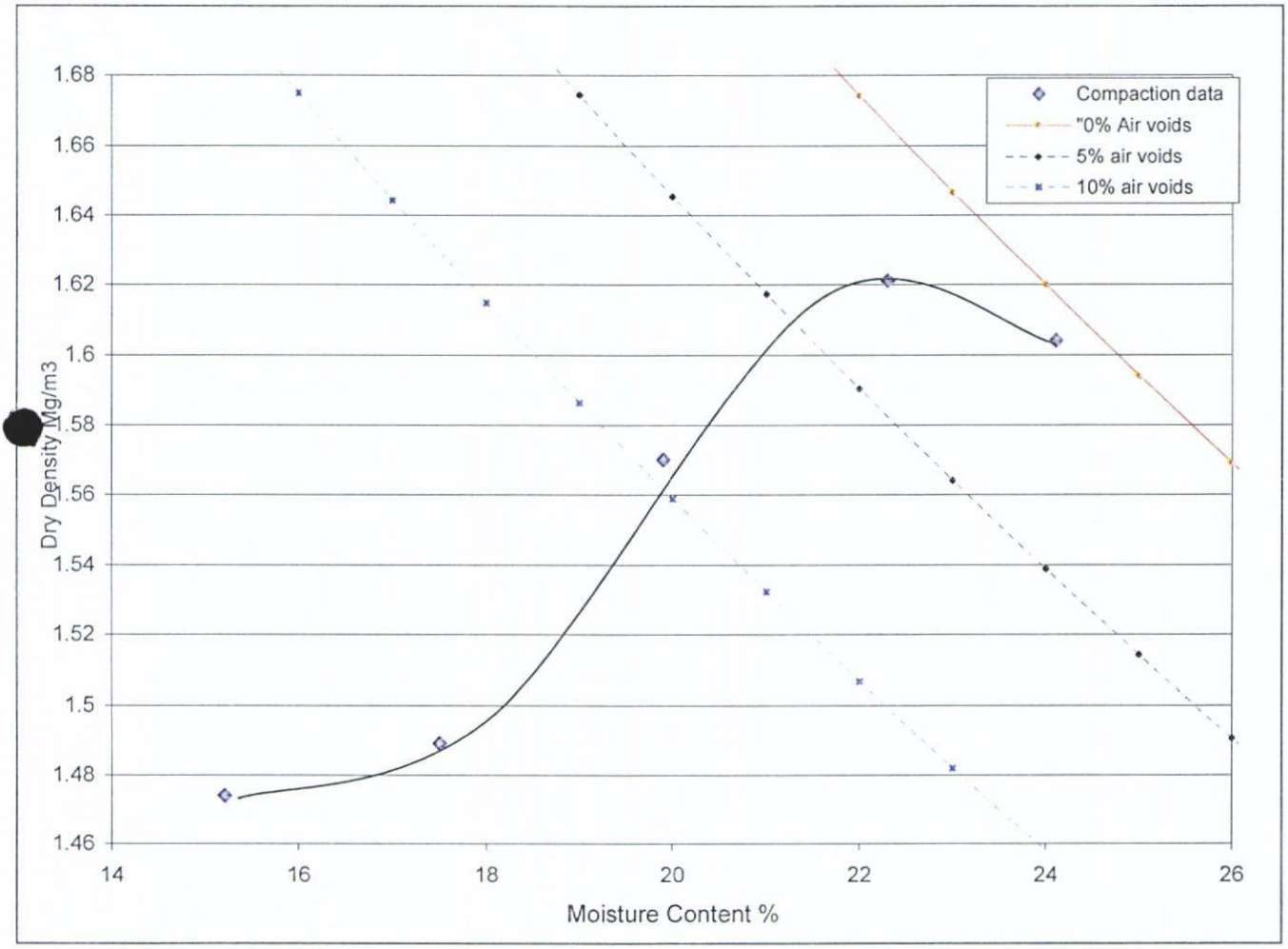
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP40	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.7-0.8	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.62	
Optimum Moisture Content %	22	
As Received Moisture Content %	18	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

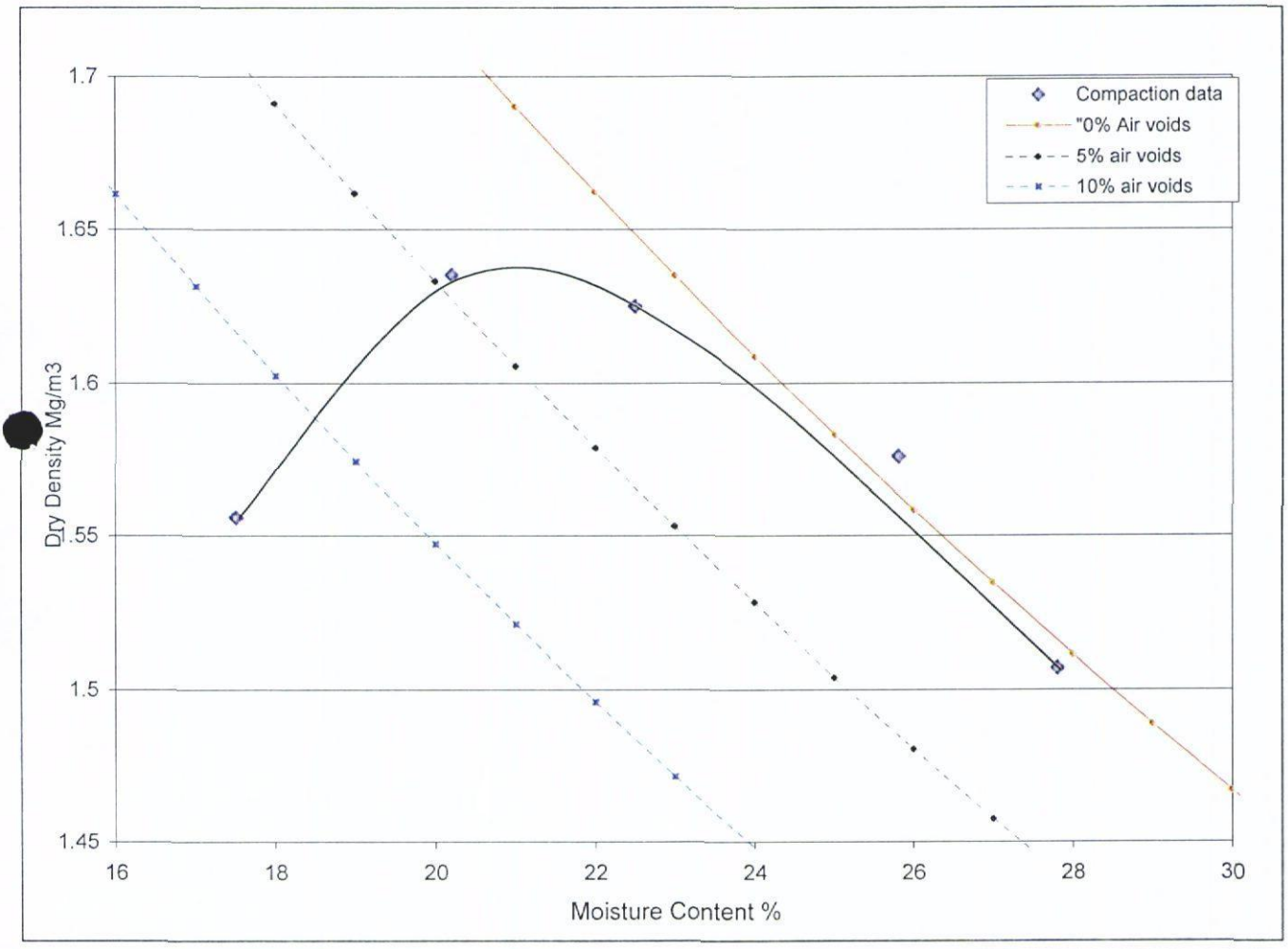
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP41	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.30	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.64	
Optimum Moisture Content %	21	
As Received Moisture Content %	20	
Particle Density	2.62	(Measured)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

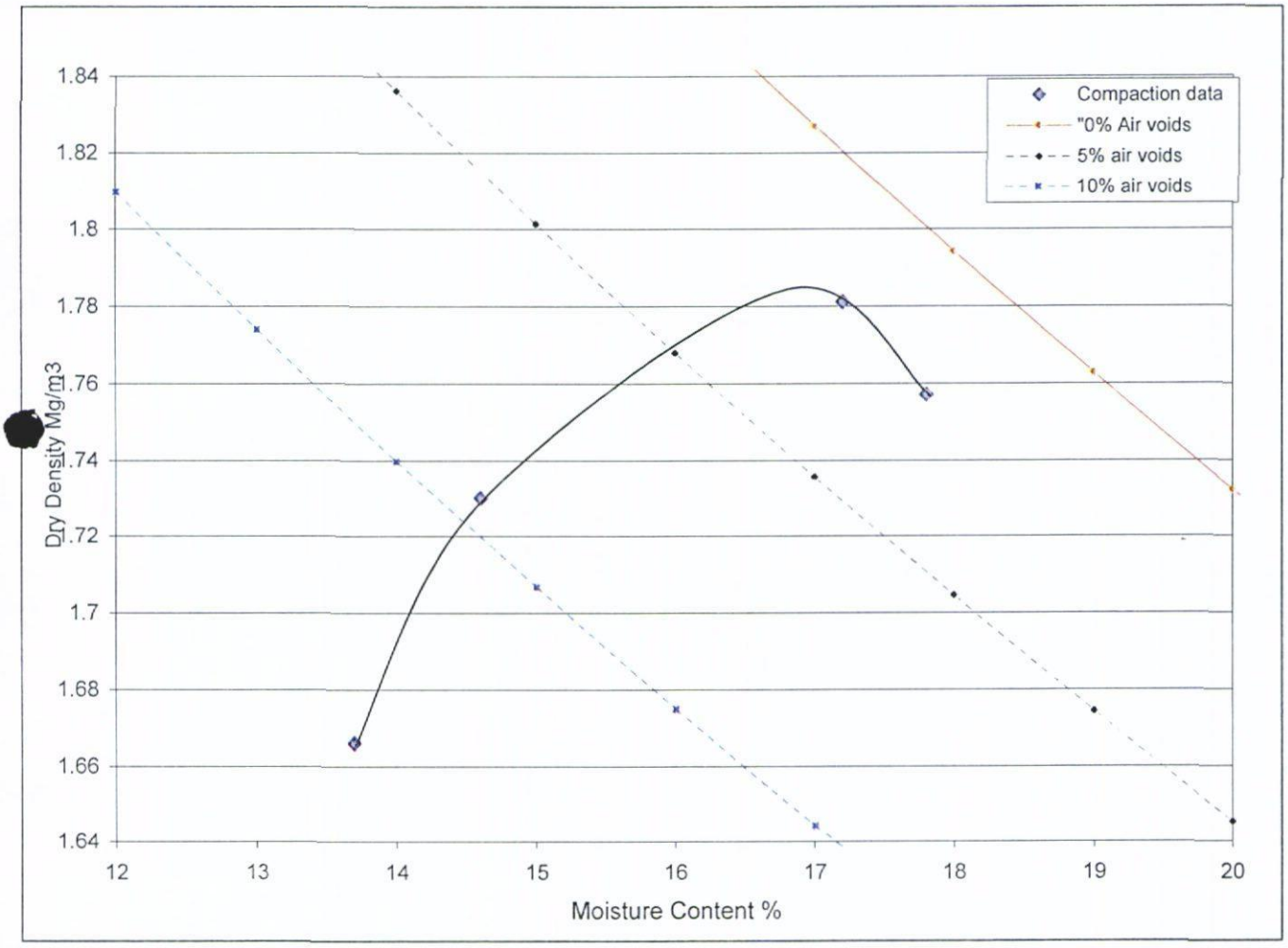
Test Methods - 3.4

Preparation Methods - 3.2.5.2

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	**SAMPLE**	TP41	**LAB NO :**	06/0423/S
PROJECT NUMBER :	12220124	**DEPTH(m)**	1.70	**STORE NO:**	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.79	
Optimum Moisture Content %	17	
As Received Moisture Content %	17	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	13
% Retained on a 20.00mm sieve	2.4

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

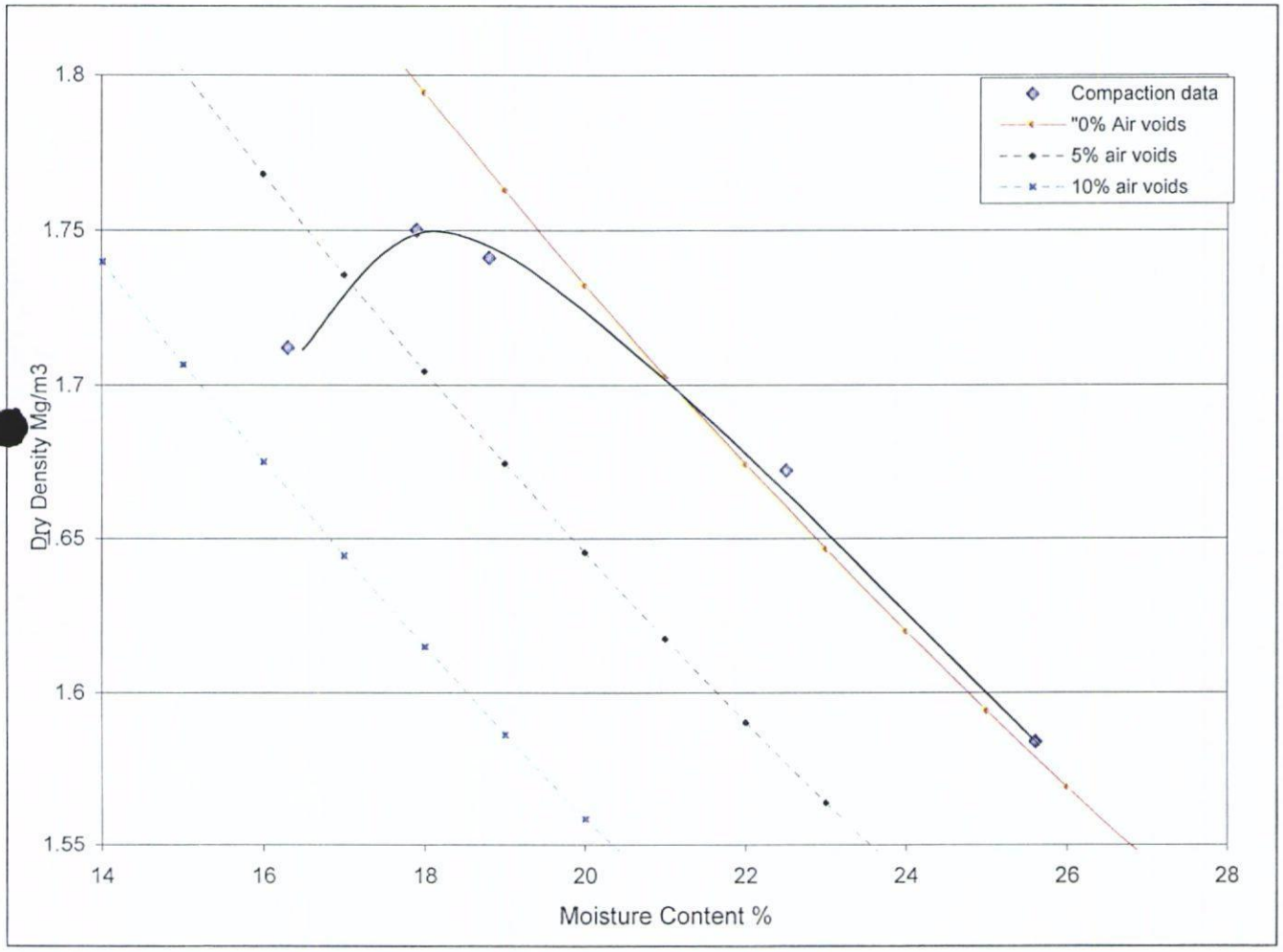
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP41	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	3.00	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.75	
Optimum Moisture Content %	18	
As Received Moisture Content %	26	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

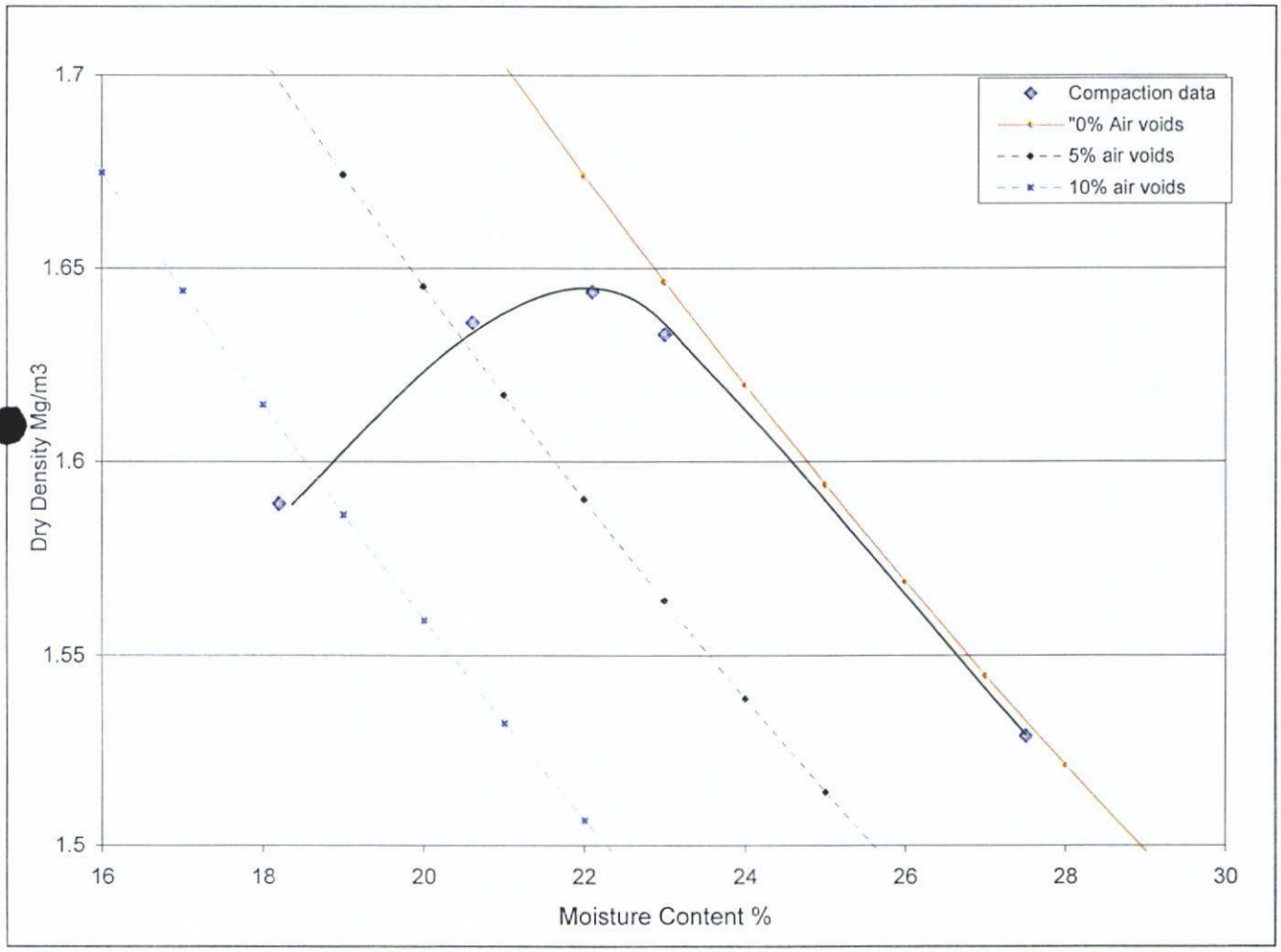
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP42	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.90	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.64	
Optimum Moisture Content %	22	
As Received Moisture Content %	25	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

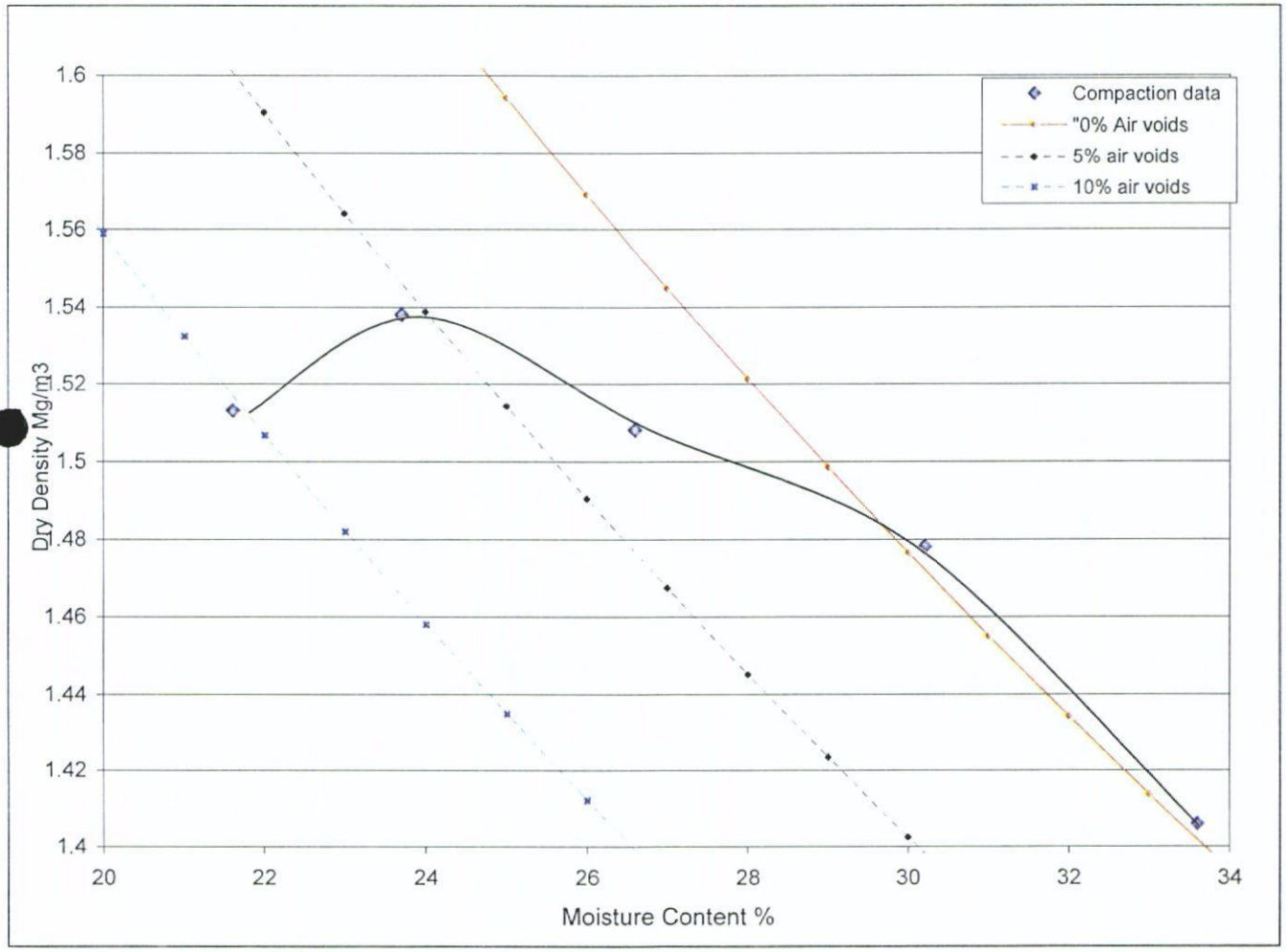
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP43	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.50	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.54	
Optimum Moisture Content %	24	
As Received Moisture Content %	24	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

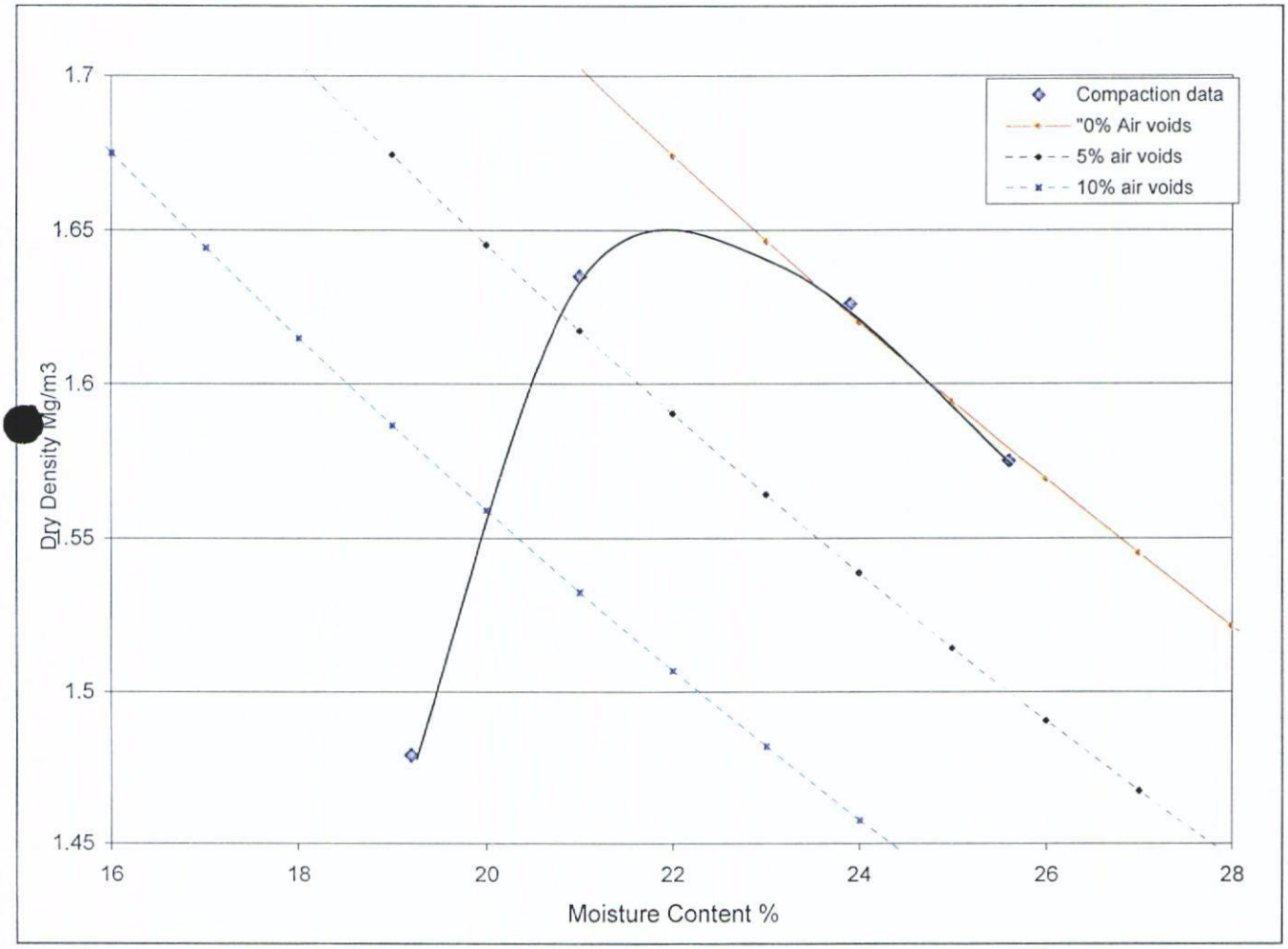
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP43	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.20	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.65	
Optimum Moisture Content %	22	
As Received Moisture Content %	24	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

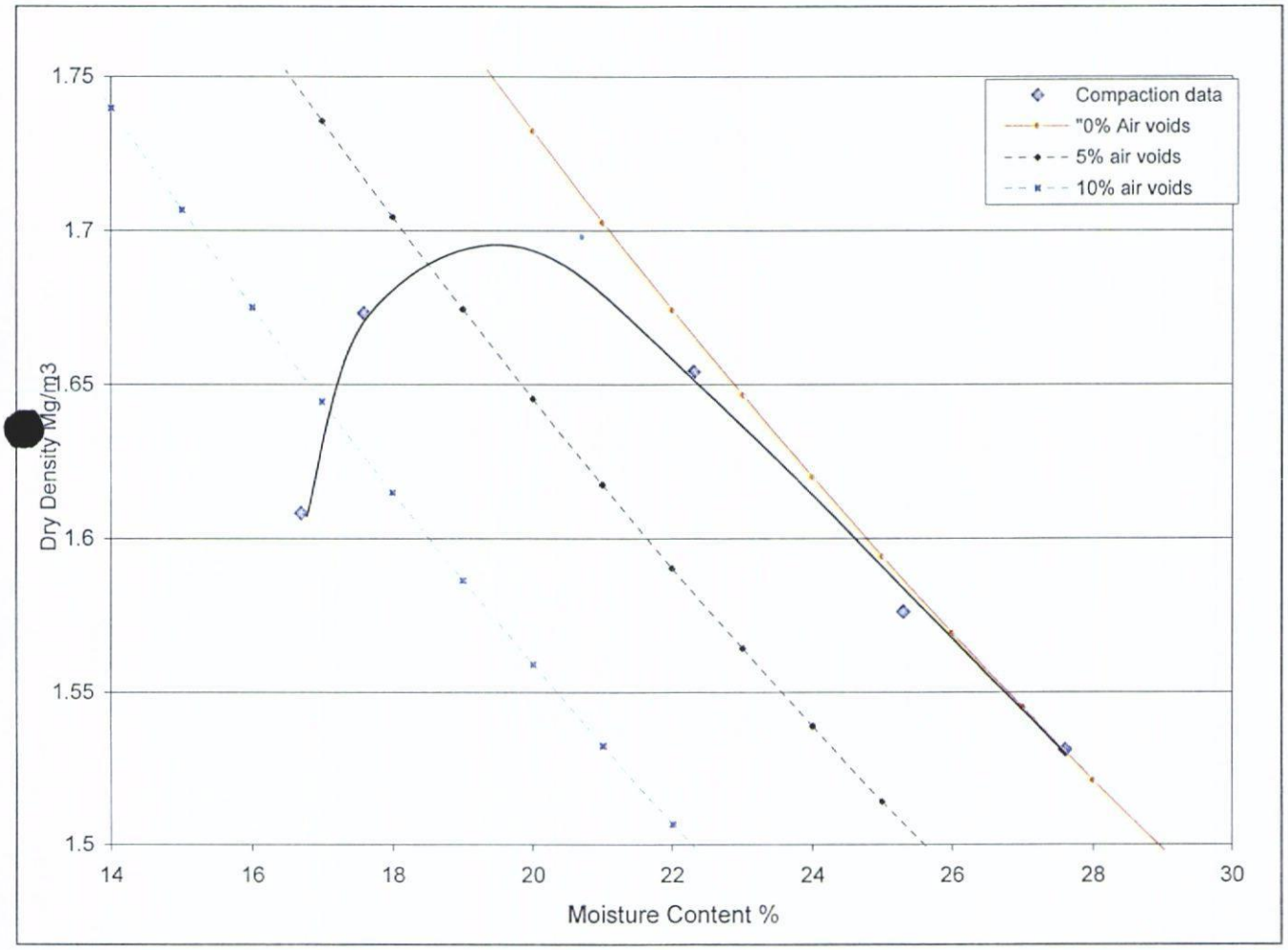
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP43	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	3.30	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.69	
Optimum Moisture Content %	20	
As Received Moisture Content %	28	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

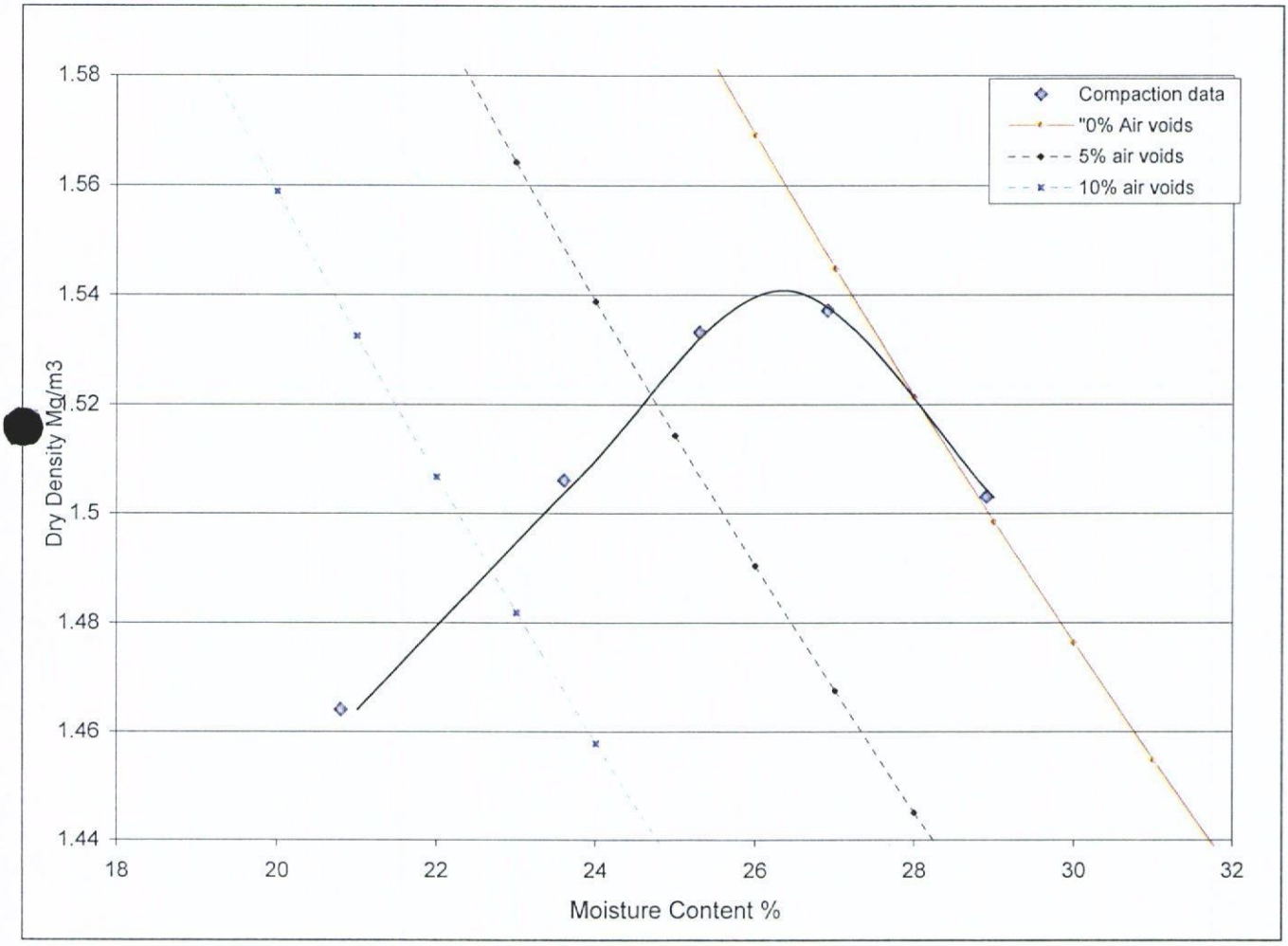
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP44	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	0.50	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.54	
Optimum Moisture Content %	26	
As Received Moisture Content %	27	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

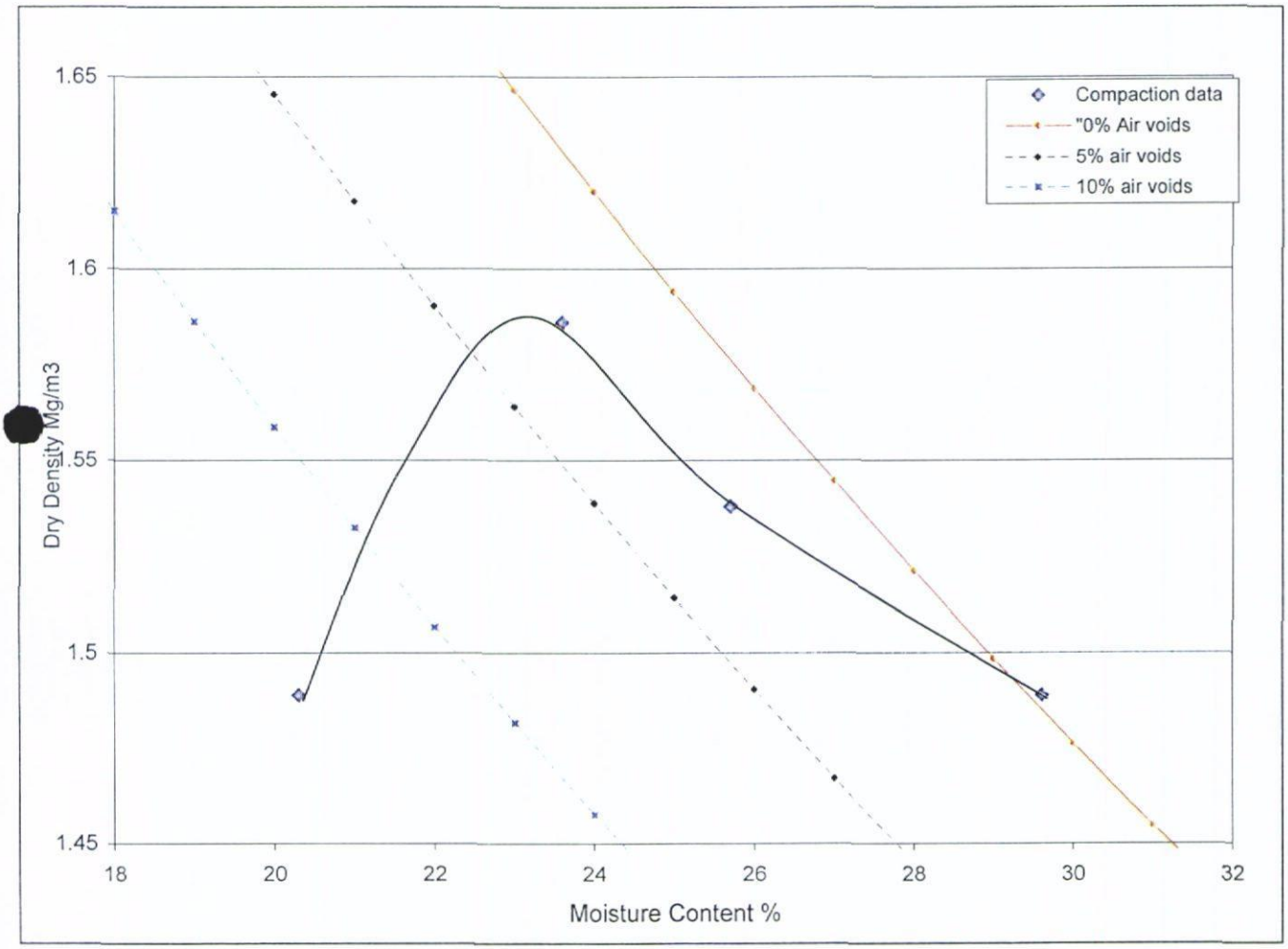
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP45	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.00	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.59	
Optimum Moisture Content %	23	
As Received Moisture Content %	26	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd
Unit 5, Centurion Business Park
Dabell Avenue, Bulwell
Nottingham, NG6 8WA

2.5kg COMPACTION SERIES TEST : BS1377 : PART 4 : 1990

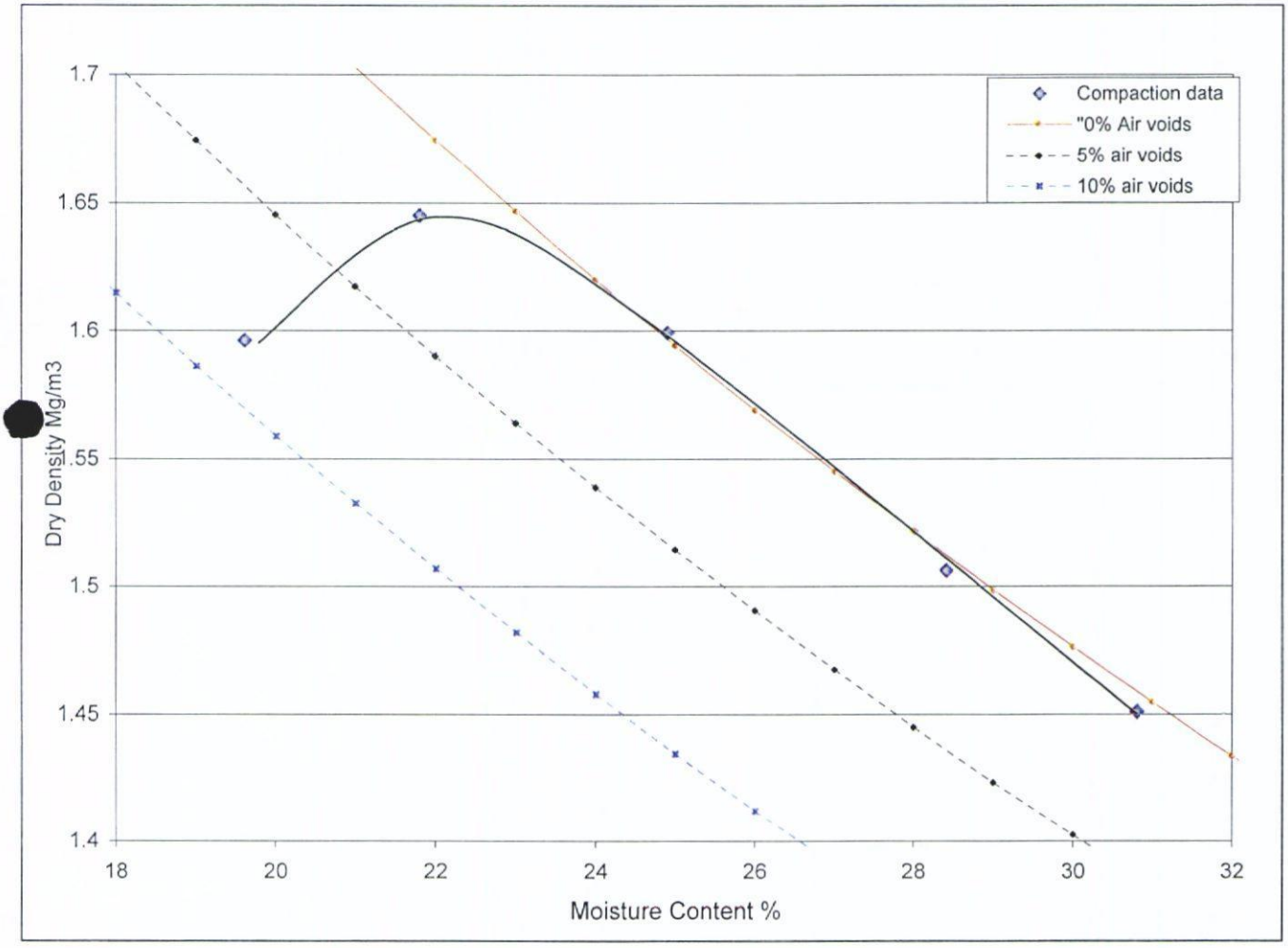
Test Methods - 3.3

Preparation Methods - 3.2.4.1

WSP Environmental

UKAS TESTING 0206

PROJECT :	Old Park Farm, Waterlooville	SAMPLE	TP46	LAB NO :	06/0423/S
PROJECT NUMBER :	12220124	DEPTH(m)	1.00	STORE NO:	N/A



SAMPLE RESULTS		
Maximum Dry Density Mg/m^3	1.65	
Optimum Moisture Content %	22	
As Received Moisture Content %	25	
Particle Density	2.65	(Assumed)

SAMPLE DETAILS	
% Retained on a 37.5mm sieve	0
% Retained on a 20.00mm sieve	0

Notes :

1) Separate samples used

WSP Environmental Ltd

Unit 5, Centurion Business Park

Dabell Avenue, Bulwell

Nottingham, NG6 8WA

RP03 30/08/05 ISSUE 1 REV2

Appendix D Chemical Laboratory Test Records

Test Report

Job Number: 064994

Report Date:	17.10.06
Project Number:	12220124
Client:	George Wimpey
Site Address:	Old Park Farm, Hambledon Road, Waterlooville
Postal Address:	Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling:	22.09.06-05.10.06
Date of Analysis:	09.10.06 to 17.10.06

Dear Abi Reeder,

Please find attached your results for the above project.

This report includes the results for the 25 soil samples we received from 29.09.06-09.10.06.

Results Checked by:



Results Authorised by:
N. Whitelegg – Laboratory Quality Manager



Unaccredited Tests are marked with an asterix (*), MCERTS accredited tests are marked [M] all other tests are UKAS accredited. Underlined results have changed from default accreditation to UKAS only, results in *italics* have been changed from default accreditation to unaccredited. Information supplied by e-mail may be subject to error, for authoritative results refer to hard copy. Water soluble sulphate (2:1) results can be converted to g/l by dividing mg/kg result by 2000. IS = insufficient sample. A/C = analysts comment, see appendix. (wet) = analysed as received. Any opinions or interpretations indicated are outside the scope of our UKAS accreditation. Chemical Analysis is undertaken in accordance with in house technical procedures and is subject to quality control procedures.

UKAS TESTING 0206

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

Chemistry Soils Report

Project No.:	12220124
Client:	George Wimpey
Site Address:	Old Park Farm, Hambledon Road, Waterlooville
Postal Address:	Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling:	22.09.06-05.10.06
Date of receipt:	28.09.06-09.10.06
Job Number:	064994

Sample Number	Sample Point Description	Soil Type	Additional soil identification	Moisture %	% Ungrindable material	Description of ungrindable material
J7018	TP1 0.0-0.2	Sand		11.1		
J7019	TP3 0.4-0.5	Loam		10.5		
J7020	TP5 0.0-0.2	Loam		13.5		
J7021	TP6 0.0-0.3	Loam		15.9		
J7022	TP7 0.2-0.3	Loam		12.3		
J7023	TP12 0.1-0.2	Loam		18.0		
J7024	TP13 0.1-0.2	Loam	with organic matter	23.4		
J7025	TP16 0.1-0.2	Loam		18.1		
J7026	TP18 0.1-0.2	Loam		19.4		
J7027	TP20 0.1-0.2	Clay		21.5		
J7028	TP22 0.0-0.1	Loam	with organic matter	17.2		
J7029	TP28 0.45	Loam		8.9		
J7030	TP34 0.1-0.2	Loam	with stones	7.0		
J7031	TP38 0.1-0.2	Loam	with stones	9.8		
J7032	TP42 0.1-0.2	Loam		11.8		
J7033	TP48 0.1-0.2	Loam		10.7		
J7034	TP52 0.1-0.2	Loam		9.4		
J7035	TP56 0.0-0.1	Loam		13.8		
J7036	TP57 0.0-0.1	Loam		13.7		
J7037	TP60 0.1-0.2	Loam		13.7		
J7038	TP62 0.1-0.2	Loam		12.6		
J7039	TP66 0.1-0.2	Loam	with stones	14.3		
J7040	TP68 0.1-0.2	Loam		15.3		
J7041	WS2 0.1-0.2	Loam		14.6		
J7042	WS11 0.0-0.1	Clay		11.2		

MCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

The WSP Laboratory has some methods accredited to the MCERTS Performance Standard for the analysis of sand, clay and loam soil types. If the soil type as described on this page is not one of these soil types the analysis is not MCERTS accredited.

WSP Laboratory, Unit 5, Centurion Business Centre, Dabell Av,
Blenheim Ind Est, Bulwell, Notts. NG6 8WA.

Certificate of Analysis

Sample Matrix: soil

Job Number: 064994
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7018	J7019	J7020	J7021	J7022	J7023	J7024	J7025	J7026	J7027	J7028	J7029	J7030	J7031	J7032
				Sample	TP1	TP3	TP5	TP6	TP7	TP12	TP13	TP16	TP18	TP20	TP22	TP28	TP34	TP38	TP42
	Analyte	Method No.	Units	Depth (m)	0.0-0.2	0.4-0.5	0.0-0.2	0.0-0.3	0.2-0.3	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.0-0.1	0.45	0.1-0.2	0.1-0.2	0.1-0.2
	Arsenic	203	mg/kg		6.8	9.6	4.9	6.1	5.4	5.4	4.6	5.2	8.5	6.2	5.7	6.4	4.8	11	7.8
	Cadmium	203	mg/kg		<0.25	<0.25	0.29	<0.25	<0.25	0.26	0.32	0.33	<0.25	<0.25	0.36	<0.25	<0.25	0.43	0.25
M	Chromium	203	mg/kg		26	39	33	37	30	43	29	36	40	29	39	24	18	34	28
M	Copper	203	mg/kg		9.8	11	16	9.7	6.5	9.4	12	12	14	6.3	12	6.7	4.5	8.3	7.5
M	Nickel	203	mg/kg		5.4	20	12	15	8.7	10	8.6	10	13	8.8	18	10	7.4	16	11
M	Lead	203	mg/kg		13	17	45	19	14	26	26	25	78	15	31	14	18	22	23
M	Zinc	203	mg/kg		24	58	54	49	35	52	51	87	54	33	80	47	37	76	53
M	Barium	203	mg/kg		60	75	61	45	45	64	43	58	62	42	60	53	34	88	63
M	Beryllium	203	mg/kg		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M	Vanadium	203	mg/kg		37	59	52	56	48	70	45	60	67	48	55	39	35	62	42
*	pH	212	pH units		7.8	6.7	6.1	6.2	6.6	5.6	5.2	5.9	5.9	5.8	5.5	6.6	5.9	6.3	6.0
M	w/s Sulphate (2:1)	216	mg/kg		<50	<50	59	<50	<50	108	140	98	80	<50	115	<50	<50	<50	<50

Certificate of Analysis

Sample Matrix: soil

Job Number: 064994
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7033	J7034	J7035	J7036	J7037	J7038	J7039	J7040	J7041	J7042					
				Sample	TP48	TP52	TP56	TP57	TP60	TP62	TP66	TP68	WS2	WS11					
	Analyte	Method No.	Units	Depth (m)	0.1-0.2	0.1-0.2	0.0-0.1	0.0-0.1	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.1-0.2	0.0-0.1					
	Arsenic	203	mg/kg		10	8.3	7.2	5.9	5.9	7.0	7.3	9.1	5.3	8.0					
	Cadmium	203	mg/kg		0.32	<0.25	<0.25	<0.25	<0.25	<0.25	0.40	<0.25	0.26	<0.25					
M	Chromium	203	mg/kg		32	27	30	26	30	32	28	32	43	35					
M	Copper	203	mg/kg		9.5	10	7.6	7.0	8.5	8.2	19	10	14	15					
M	Nickel	203	mg/kg		14	8.8	8.7	7.7	8.7	8.4	14	14	13	11					
M	Lead	203	mg/kg		29	22	21	23	20	19	24	170	38	18					
M	Zinc	203	mg/kg		61	46	110	37	42	42	77	60	64	46					
M	Barium	203	mg/kg		85	48	48	47	49	44	80	65	71	57					
M	Beryllium	203	mg/kg		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5					
M	Vanadium	203	mg/kg		53	43	46	41	47	49	45	51	69	54					
*	pH	212	pH units		6.4	6.1	6.1	6.4	5.9	6.0	6.6	6.1	5.6	6.5					
M	w/s Sulphate (2:1)	216	mg/kg		<50	<50	<50	<50	<50	<50	<50	<50	55	<50					

Speciated PAH Certificate of Analysis

Sample Matrix: soil

Job Number: 064994
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7019	J7021	J7023	J7027	J7028	J7029	J7031	J7032	J7034	J7036	J7038	J7039	J7042
				Sample	TP3	TP6	TP12	TP20	TP22	TP28	TP38	TP42	TP52	TP57	TP62	TP66	WS11
	Analyte	Method No.	Units	Depth (m)	0.4-0.5	0.0-0.3	0.1-0.2	0.1-0.2	0.0-0.1	0.45	0.1-0.2	0.1-0.2	0.1-0.2	0.0-0.1	0.1-0.2	0.1-0.2	0.0-0.1
M	Naphthalene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	acenaphthylene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	acenaphthene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	fluorene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	phenanthrene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.32	<0.3	<0.3	<0.3	<0.3
M	anthracene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	fluoranthene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.50	<0.3	<0.3	<0.3	<0.3
M	pyrene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.40	<0.3	<0.3	<0.3	<0.3
M	benzo(a)anthracene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	chrysene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	0.31	<0.3	<0.3	<0.3	<0.3
M	benzo(k)fluoranthene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	benzo(b)fluoranthene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	benzo(a)pyrene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	indeno[1,2,3-cd]pyrene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	dibenzo(a,h)anthracene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	benzo[ghi]perylene	206	mg/Kg		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
M	PAH Total 16	206	mg/Kg		<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3	<3

Test Report

Job Number: 064995

Report Date:	18.10.06
Project Number:	12220124
Client:	George Wimpey
Site Address:	Old Park Farm, Hambledon Road, Waterlooville
Postal Address:	Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling:	22.09.06-05.10.06
Date of Analysis:	09.10.06 to 18.10.06

Dear Abi Reeder,

Please find attached your results for the above project.

This report includes the results for the 28 soil samples we received on 28.09-09.10 06

Results Checked by:

Results Authorised by:
M. Cohen - Operations Manager

Unaccredited Tests are marked with an asterix (*), MCERTS accredited tests are marked [M]
all other tests are UKAS accredited. Underlined results have changed from default accreditation
to UKAS only, results in *italics* have been changed from default accreditation to unaccredited.
Information supplied by e-mail may be subject to error, for authoritative results refer to hard copy.
Water soluble sulphate (2:1) results can be converted to g/l by dividing mg/kg result by 2000.
IS = insufficient sample. A/C = analysts comment, see appendix. (wet) = analysed as received.
Any opinions or interpretations indicated are outside the scope of our UKAS accreditation.
Chemical Analysis is undertaken in accordance with in house technical procedures and is
subject to quality control procedures.

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

Chemistry Soils Report

Project No.:	12220124
Client:	George Wimpey
Site Address:	Old Park Farm, Hambledon Road, Waterlooville
Postal Address:	Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling:	22.09.06-05.10.06
Date of receipt:	28.09.06-09.10.06
Job Number:	064995

Sample Number	Sample Point Description	Soil Type	Additional soil identification	Moisture %	% Ungrindable material	Description of ungrindable material
J7043	TP2 0.6-0.7	Granular	with stones	5.3		
J7044	TP4 0.4-0.6	Granular	with stones	13.5		
J7045	TP9 0.5-0.7	Clay	with stones	14.4		
J7046	TP11 0.5	Clay		20.6		
J7047	TP15 0.5	Clay		17.0		
J7048	TP21 0.4-0.6	Granular	with stones	5.4		
J7049	TP26 0.5	Clay		21.5		
J7050	TP27 0.3	Loam	with stones	10.0		
J7051	TP29 0.8	Granular	with stones	6.8		
J7052	TP33 0.6	Loam	with stones	8.2		
J7053	TP40 0.4	Loam		11.5		
J7054	TP51 0.5	Clay		14.2		
J7055	TP55 0.4	Loam		12.3		
J7056	TP58 0.5	Clay		15.0		
J7057	TP63 0.7	Clay		17.8		
J7058	TP64 0.2	Loam		15.6		
J7059	TP65 0.5	Granular	with stones	8.3		
J7060	TP69 0.6	Loam	with stones	13.6		
J7061	TP71 0.6	Granular	with stones	7.6		
J7062	TP71 1	Granular	with stones	12.9		
J7063	TP72 0.5	Clay	with stones	24.2		
J7064	TP72 1.3	Clay	with stones	12.1		
J7065	SK3 0.6	Granular	with stones	14.0		
J7066	WS6 0.0-0.5	Loam	with stones	7.4		
J7067	WS7 0.2-0.4	Loam	with stones	9.1		
J7068	WS7 1.0-1.2	Granular	with stones	13.0		
J7069	WS8 0.3-0.5	Loam	with chalk	22.3		
J7070	WS9 0.2-0.4	Loam	with stones	12.3		

mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

The WSP Laboratory has some methods accredited to the MCERTS Performance Standard for the analysis of sand, clay and loam soil types. If the soil type as described on this page is not one of these soil types the analysis is not MCERTS accredited.

WSP Laboratory, Unit 5, Centurion Business Centre, Dabell Av,
Blenheim Ind Est, Bulwell, Notts. NG6 8WA.

Certificate of Analysis

Sample Matrix: soil

Job Number: 064995
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7043[1]	J7044[1]	J7045	J7046	J7047	J7048[1]	J7049	J7050	J7051[1]	J7052	J7053	J7054	J7055	J7056	J7057
				Sample	TP2	TP4	TP9	TP11	TP15	TP21	TP26	TP27	TP29	TP33	TP40	TP51	TP55	TP58	TP63
	Analyte	Method No.	Units	Depth (m)	0.6-0.7	0.4-0.6	0.5-0.7	0.50	0.50	0.4-0.6	0.50	0.30	0.80	0.60	0.40	0.50	0.40	0.50	0.70
	Arsenic	203	mg/Kg		10	11	13	11	9.3	14	10	20	15	13	8.8	8.0	7.4	7.6	8.6
	Cadmium	203	mg/Kg		0.46	<0.25	<0.25	<0.25	<0.25	0.37	0.56	1.8	1.7	0.34	0.26	<0.25	<0.25	<0.25	<0.25
M	Chromium	203	mg/Kg		33	47	48	57	50	20	51	26	16	34	40	55	43	55	43
M	Copper	203	mg/Kg		7.0	9.0	17	16	9.9	3.9	13	4.4	4.2	12	8.2	11	10	9.7	8.2
M	Nickel	203	mg/Kg		23	16	37	19	14	13	57	53	38	25	20	21	17	15	15
M	Lead	203	mg/Kg		10	19	17	16	13	14	22	19	16	14	17	13	11	11	15
M	Zinc	203	mg/Kg		37	60	61	60	44	28	96	125	42	38	69	55	47	45	45
M	Barium	203	mg/Kg		81	69	113	61	49	114	355	697	237	56	94	81	57	59	53
M	Beryllium	203	mg/Kg		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5
M	Vanadium	203	mg/Kg		37	66	74	82	71	43	73	64	40	57	60	78	61	77	63
*	pH	212	pH units		7.9	6.7	7.5	6.5	6.4	7.5	6.7	7.1	7.5	7.3	7.4	7.4	7.3	7.7	7.6
M	w/s Sulphate (2:1)	216	mg/kg		172	145	385	176	151	<50	100	<50	<50	<50	<50	<50	<50	175	<50

1 - Samples with matrix outside scope of MCERTs accreditation

Certificate of Analysis

Sample Matrix: soil

Job Number: 064995
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7058	J7059[1]	J7060	J7061[1]	J7062[1]	J7063	J7064	J7065[1]	J7066	J7067	J7068	J7069	J7070		
				Sample	TP64	TP65	TP69	TP71	TP71	TP72	TP72	SK3	WS6	WS7	WS7	WS8	WS9		
	Analyte	Method No.	Units	Depth (m)	0.20	0.50	0.60	0.60	1.00	0.50	1.30	0.60	0.0-0.5	0.2-0.4	1.0-1.2	0.3-0.5	0.2-0.4		
	Arsenic	203	mg/Kg		8.6	17	12	9.0	10	8.5	7.8	15	7.8	8.4	27	4.8	5.4		
	Cadmium	203	mg/Kg		<0.25	1.5	0.40	0.38	0.63	<0.25	<0.25	1.3	0.25	3.3	1.6	0.71	<0.25		
M	Chromium	203	mg/Kg		44	22	48	18	20	74	25	20	22	28	45	15	23		
M	Copper	203	mg/Kg		16	6.8	19	4.2	4.7	24	8.7	4.2	13	296	124	26	18		
M	Nickel	203	mg/Kg		28	35	30	17	20	43	18	41	10	16	32	9.7	9.0		
M	Lead	203	mg/Kg		16	18	17	11	14	14	8.6	14	52	435	478	46	42		
M	Zinc	203	mg/Kg		57	48	58	37	44	136	42	72	60	758	1040	167	65		
M	Barium	203	mg/Kg		76	100	83	40	54	132	40	440	76	715	308	62	70		
M	Beryllium	203	mg/Kg		<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5		
M	Vanadium	203	mg/Kg		62	49	75	39	44	93	35	46	35	25	60	15	34		
*	pH	212	pH units		7.6	7.4	7.2	7.4	7.1	6.5	7.0	7.0	10.7	8.9	7.4	7.4	11.4		
M	w/s Sulphate (2:1)	216	mg/kg		<50	<50	<50	<50	<50	<50	<50	<50	244	383	436	252	229		

1 - Samples with matrix outside scope of MCERTs accreditation

Speciated TPH Certificate of Analysis

Sample Matrix: soil

Job Number: 064995
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7055	J7066	J7067	J7069	J7070
				Sample	TP55	WS6	WS7	WS8	WS9
	Analyte	Method No.	Units	Depth (m)	0.40	0.0-0.5	0.2-0.4	0.3-0.5	0.2-0.4
*	C8-C16	219	mg/Kg		<50	<50	<50	<50	<50
*	C16-C24	219	mg/Kg		<50	51	100	119	228
*	C24-C40	219	mg/Kg		78	153	338	850	490
M	Total TPH (C8-C40)	219	mg/Kg		145	231	476	996	759

PRO = petrol range organics (C_6-C_{10}), MTBE = methyl tertiary butyl ether, TPH = Total Petroleum Hydrocarbons

Speciated PAH Certificate of Analysis

Sample Matrix: soil

Job Number: 064995
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Eastleigh, Hampshire, SO53 3TJ
Date of sampling: 22.09.06-05.10.06
Date of receipt: 28.09.06-09.10.06

				Sample. Ref.	J7065[1]
				Sample	SK3
	Analyte	Method No.	Units	Depth (m)	0.60
M	Naphthalene	206	mg/Kg		<0.3
M	acenaphthylene	206	mg/Kg		<0.3
M	acenaphthene	206	mg/Kg		<0.3
M	fluorene	206	mg/Kg		<0.3
M	phenanthrene	206	mg/Kg		<0.3
M	anthracene	206	mg/Kg		<0.3
M	fluoranthene	206	mg/Kg		<0.3
M	pyrene	206	mg/Kg		<0.3
M	benzo(a)anthracene	206	mg/Kg		<0.3
M	chrysene	206	mg/Kg		<0.3
M	benzo(k)fluoranthene	206	mg/Kg		<0.3
M	benzo(b)fluoranthene	206	mg/Kg		<0.3
M	benzo(a)pyrene	206	mg/Kg		<0.3
M	indeno[1,2,3-cd]pyrene	206	mg/Kg		<0.3
M	dibenzo(a,h)anthracene	206	mg/Kg		<0.3
M	benzo[ghi]perylene	206	mg/Kg		<0.3
M	PAH Total 16	206	mg/Kg		<3

1 - Samples with matrix outside scope of MCERTs accreditation

ALcontrol Geochem Analytical Services
Sample Descriptions

Job Number: 06/17763/02/01
Client: WSP Geotechnical & Env.
Client Ref : 064994/12220124

Grain sizes

<0.063mm	Very Fine
0.1mm - 0.063mm	Fine
0.1mm - 2mm	Medium
2mm - 10mm	Coarse
>10mm	Very Coarse

Sample Identity	Depth (m)	Colour	Grain Size	Description	Batch
TP3	0.4-0.5	Light Brown	0.1mm - 2mm	Sand with some Tar	1
TP6	0.0-0.3	Brown	0.1mm - 2mm	Sand with some Stones	1
TP12	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP20	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP22	0.0-0.1	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP28	0.45	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP35	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP42	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP52	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP57	0.0-0.1	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP62	0.1-0.2	Light Brown	0.1mm - 2mm	Sand with some Stones	1
TP66	0.1-0.2	Brown	0.1mm - 2mm	Sand with some Stones	1
WS11	0.0-0.1	Light Brown	0.1mm - 2mm	Sand with some Stones	1

* These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

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

Validated ☑
Preliminary ☐

ALcontrol Geochem Analytical Services
Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/17763/02/01 **Matrix:** SOLID
Client: WSP Geotechnical & Env. **Location:** OLD PARK FARM
Client Ref. No.: 064994/12220124 **Client Contact:** Any issues

Sample Identity	TP3	TP6	TP12	TP20	TP22	TP28	TP35	TP42	TP52	Method Code	LoD/Units
Depth (m)	0.4-0.5	0.0-0.3	0.1-0.2	0.1-0.2	0.0-0.1	0.45	0.1-0.2	0.1-0.2	0.1-0.2		
Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		
Sampled Date	09.10.06	09.10.06	09.10.06	09.10.06	09.10.06	09.10.06	09.10.06	09.10.06	09.10.06		
Sample Received Date	10.10.06	10.10.06	10.10.06	10.10.06	10.10.06	10.10.06	10.10.06	10.10.06	10.10.06		
Batch	1	1	1	1	1	1	1	1	1		
Sample Number(s)	1	2	3	4	5	6	7	8	9		
OCP/OPP											
Dichlorvos	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Mevinphos	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Alpha-BHC (Lindane)	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Beta-BHC (Lindane)	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Gamma-BHC (Lindane)	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Diazinon	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Methyl Parathion	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Heptachlor	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Fenitrothion	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Malathion	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Aldrin	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Parathion	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Heptachlor Epoxide	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Endosulphan I	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
p,p'-DDE	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Dieldrin	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Endrin	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Endosulphan II	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
p,p'-TDE(DDD)	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Ethion	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
p,p'-DDT	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Endosulphan sulphate	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
p,p'-Methoxychlor	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg
Azinphos methyl	<1	<1	<1	<1	<5	<1	<1	<1	<1	TM144/145	<1 ug/kg

All results expressed on a dry weight basis.

Date 23.10.2006

Validated ✓
Preliminary

ALcontrol Geochem Analytical Services
Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/17763/02/01 **Matrix:** SOLID
Client: WSP Geotechnical & Env. **Location:** OLD PARK FARM
Client Ref. No.: 064994/12220124 **Client Contact:** Any issues

Sample Identity	TP57	TP62	TP66	WS11						Method Code	LoD/Units
Depth (m)	0.0-0.1	0.1-0.2	0.1-0.2	0.0-0.1							
Sample Type	SOLID	SOLID	SOLID	SOLID							
Sampled Date	09.10.06	09.10.06	09.10.06	09.10.06							
Sample Received Date	10.10.06	10.10.06	10.10.06	10.10.06							
Batch	1	1	1	1							
Sample Number(s)	10	11	12	13							
OCP/OPP											
Dichlorvos	<1	<1	<1	<1						TM144/145	<1 ug/kg
Mevinphos	<1	<1	<1	<1						TM144/145	<1 ug/kg
Alpha-BHC (Lindane)	<1	<1	<1	<1						TM144/145	<1 ug/kg
Beta-BHC (Lindane)	<1	<1	<1	<1						TM144/145	<1 ug/kg
Gamma-BHC (Lindane)	<1	<1	<1	<1						TM144/145	<1 ug/kg
Diazinon	<1	<1	<1	<1						TM144/145	<1 ug/kg
Methyl Parathion	<1	<1	<1	<1						TM144/145	<1 ug/kg
Heptachlor	<1	<1	<1	<1						TM144/145	<1 ug/kg
Fenitrothion	<1	<1	<1	<1						TM144/145	<1 ug/kg
Malathion	<1	<1	<1	<1						TM144/145	<1 ug/kg
Aldrin	<1	<1	<1	<1						TM144/145	<1 ug/kg
Parathion	<1	<1	<1	<1						TM144/145	<1 ug/kg
Heptachlor Epoxide	<1	<1	<1	<1						TM144/145	<1 ug/kg
Endosulphan I	<1	<1	<1	<1						TM144/145	<1 ug/kg
p,p'-DDE	<1	<1	<1	<1						TM144/145	<1 ug/kg
Dieldrin	<1	<1	<1	<1						TM144/145	<1 ug/kg
Endrin	<1	<1	<1	<1						TM144/145	<1 ug/kg
Endosulphan II	<1	<1	<1	<1						TM144/145	<1 ug/kg
p,p'-TDE(DDD)	<1	<1	<1	<1						TM144/145	<1 ug/kg
Ethion	<1	<1	<1	<1						TM144/145	<1 ug/kg
p,p'-DDT	<1	<1	<1	<1						TM144/145	<1 ug/kg
Endosulphan sulphate	<1	<1	<1	<1						TM144/145	<1 ug/kg
p,p'-Methoxychlor	<1	<1	<1	<1						TM144/145	<1 ug/kg
Azinphos methyl	<1	<1	<1	<1						TM144/145	<1 ug/kg

All results expressed on a dry weight basis.

Date 23.10.2006

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/17763/02/01
Client: WSP Geotechnical & Env.
Client Ref. No.: 064994/12220124

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample [1]	Surrogate Corrected
TM144/145		Organochlorine and Organophosphorus pesticides by GC-MS			DRY	

[1] Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/17763/02/01
Client: WSP Geotechnical & Env.
Client Ref. No.: 064994/12220124

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	7

Test Report

Job Number: 065017

Report Date:	01.11.06
Project Number:	12220124
Client:	George Wimpey
Site Address:	Old Park Farm, Hambledon Road, Waterlooville
Postal Address:	Templars House, Lulworth Close, Chandlers Ford, Hampshire, SO53 3TJ
Date of sampling:	11.10.06
Date of Analysis:	12.10.06 to 01.11.06

Dear Abi Reeder,

Please find attached your results for the above project.

This report includes the results for the 9 water samples we received on 12.10.06.

Results Checked by:

Results Authorised by:
N. Whitelegg – *Laboratory Quality Manager*

Unaccredited Tests are marked with an asterix (*), MCERTS accredited tests are marked [M]
all other tests are UKAS accredited. Underlined results *have changed from default* accreditation
to UKAS only, results in *italics* have been changed from default accreditation to unaccredited.
Information supplied by e-mail may be subject to error, for authoritative results refer to hard copy.
Water soluble sulphate (2:1) results can be converted to g/l by dividing mg/kg result by 2000.
IS = insufficient sample. A/C = analysts comment, see appendix. (wet) = analysed as received.
Any opinions or interpretations indicated are outside the scope of our UKAS accreditation.
Chemical Analysis is undertaken in accordance with in house technical procedures and is
subject to quality control procedures.

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

TPHCWG Certificate of Analysis

Sample Matrix: Water

Report No.: 065017
Project No.: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Hampshire, SO53 3TJ
Date of sampling: 11.10.06
Date of receipt: 12.10.06

				Sample. Ref.	WC3098	WC3099	WC3100	WC3101	WC3105	WC3106
				Sample	WS7	WS8	WS9	WS11	upstream	downstream
	Analyte	Method No.	Units	Depth (m)						
*	Aliphatic >C6-C8	310a	ug/l		<100	<100	<100	<100	<100	<100
*	Aliphatic >C8-C10	310a	ug/l		<100	<100	<100	<100	<100	<100
*	Aliphatic >C10-C12	311	ug/l		UA	<25	<25	<25	<25	<25
*	Aliphatic >C12-C16	311	ug/l		UA	<50	<50	<50	<50	<50
*	Aliphatic >C16-C21	311	ug/l		UA	<100	<100	<100	<100	<100
*	Aliphatic >C21-C35	311	ug/l		UA	<100	<100	<100	106	<100
*	Total Aliphatics (C6-C35)	311	ug/l		UA	<475	<475	<475	<475	<475
*	Aromatic >C6-C7	309	ug/l		<5	<5	<5	<5	<5	<5
*	Aromatic >C7-C8	309	ug/l		<5	<5	<5	<5	<5	<5
*	Aromatic >C8-C10	309	ug/l		<15	<15	<15	<15	<15	<15
*	Aromatic >C10-C12	311	ug/l		UA	<25	<25	<25	<25	<25
*	Aromatic >C12-C16	311	ug/l		UA	<50	<50	<50	<50	<50
*	Aromatic >C16-C21	311	ug/l		UA	<100	<100	<100	<100	<100
*	Aromatic >C21-C35	311	ug/l		UA	<100	<100	<100	<100	<100
*	Total Aromatics (C6-C35)	311	ug/l		UA	<300	<300	<300	<300	<300
*	Total Hydrocarbons (C10-C35)	319	ug/l		UA	241	161	125	272	203
*	Total Hydrocarbons (C6-C35)	310a & 319	ug/l		UA	241	<200	<200	272	203
*	Benzene	309	ug/l		<5	<5	<5	<5	<5	<5
*	MTBE	309	ug/l		<5	<5	<5	<5	<5	<5
*	Toluene	309	ug/l		<5	<5	<5	<5	<5	<5
*	Ethylbenzene	309	ug/l		<5	<5	<5	<5	<5	<5
*	m,p-Xylenes	309	ug/l		<5	<5	<5	<5	<5	<5
*	o-Xylene	309	ug/l		<5	<5	<5	<5	<5	<5

UA = Unable to analyse

Speciated TPH Certificate of Analysis

Sample Matrix: water

Job Number: 065017
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Hampshire, SO53 3TJ
Date of sampling: 11.10.06
Date of receipt: 12.10.06

				Sample. Ref.	WC3102	WC3103	WC3104
				Sample	BH7	BH8	BH13
	Analyte	Method No.	Units	Depth (m)			
*	C8-C16	319	ug/l		<100	<100	UA
*	C16-C24	319	ug/l		121	163	UA
*	C24-C40	319	ug/l		<100	<100	UA
*	Total TPH (C8-C40)	319	ug/l		121	163	UA

UA = Unable to unalyse

PRO = petrol range organics (C_6-C_{10}), MTBE = methyl tertiary butyl ether, TPH = Total Petroleum Hydrocarbons

Speciated PAH Certificate of Analysis

Sample Matrix: water

Job Number: 065017
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Hampshire, SO53 3TJ
Date of sampling: 11.10.06
Date of receipt: 12.10.06

				Sample. Ref.	WC3098	WC3099	WC3100	WC3101	WC3102	WC3103	WC3104	WC3105	WC3106
				Sample	WS7	WS8	WS9	WS11	BH7	BH8	BH13	upstream	downstream
	Analyte	Method No.	Units	Depth (m)									
*	Naphthalene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	acenaphthylene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	acenaphthene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	fluorene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	phenanthrene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	anthracene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	fluoranthene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	pyrene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	benzo(a)anthracene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	chrysene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	benzo(k)fluoranthene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	benzo(b)fluoranthene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	benzo(a)pyrene	306	ug/l		<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
*	indeno[1,2,3-cd]pyrene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	dibenzo(a,h)anthracene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	benzo[ghi]perylene	306	ug/l		<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3
*	PAH Total 16	306	ug/l		<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5	<1.5

Certificate of Analysis

Sample Matrix: water

Job Number: 065017
Project Number: 12220124
Client: George Wimpey
Site Address: Old Park Farm, Hambledon Road, Waterlooville
Postal Address: Templars House, Lulworth Close, Chandlers Ford, Hampshire, SO53 3TJ
Date of sampling: 11.10.06
Date of receipt: 12.10.06

				Sample. Ref.	WC3098	WC3099	WC3100	WC3101	WC3102	WC3103	WC3104	WC3105	WC3106
				Sample	WS7	WS8	WS9	WS11	BH7	BH8	BH13	upstream	downstream
	Analyte	Method No.	Units	Depth (m)									
	Arsenic	303	ug/l		<10	<10	<10	<10	<10	<10	<10	<10	<10
	Cadmium	303	ug/l		<5	<5	<5	<5	<5	<5	<5	<5	<5
	Chromium	303	ug/l		<5	<5	<5	<5	<5	<5	<5	<5	<5
	Copper	303	ug/l		12	14	15	10	5.7	23	5.3	<5	5.0
	Nickel	303	ug/l		<5	8.6	<5	<5	<5	9.9	<5	<5	<5
	Lead	303	ug/l		<10	<10	<10	<10	<10	<10	<10	<10	<10
	Zinc	303	ug/l		88	15	<7	<7	<7	<7	<7	<7	<7
*	Barium	303	ug/l		72	70	61	64	32	85	17	7.1	8.2
*	Beryllium	303	ug/l		<5	<5	<5	<5	<5	<5	<5	<5	<5
*	Vanadium	303	ug/l		<10	<10	<10	<10	<10	<10	<10	<10	<10
*	pH	312	pH units		7.1	7.0	7.1	7.3	6.9	7.2	7.1	7.5	7.6
*	sulphate	316	mg/l		100	245	329	184	53	1770	30	<20	<20
*	Ammonium	324	mg/l		-	-	-	-	-	-	-	<1.3	<1.3
*	COD	337	mg/l		-	-	-	-	-	-	-	<20	<20

Validated ☑
Preliminary ☐

ALcontrol Geochem Analytical Services
Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/18161/02/01 **Matrix:** LIQUID
Client: WSP Geotechnical & Env. **Location:** Not Specified
Client Ref. No.: 065017/12220124 **Client Contact:** Any issues

Sample Identity	WC3102	WC3103	WC3104	WC3105	WC3106					Method Code	LoD/Units
Depth (m)											
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID						
Sampled Date											
Sample Received Date	14.10.06	14.10.06	14.10.06	14.10.06	14.10.06						
Batch	1	1	1	1	1						
Sample Number(s)	1	2	3	4-5	6-7						
BOD	-	-	-	2	2					TM045#	<1 mg/l

Date 30.10.2006

Validated ☑
Preliminary ☐

ALcontrol Geochem Analytical Services
Table Of Results

ISO 17025 accredited
M MCERTS accredited
* Subcontracted test
» Shown on prev. report

Job Number: 06/18161/02/01 **Matrix:** LIQUID
Client: WSP Geotechnical & Env. **Location:** Not Specified
Client Ref. No.: 065017/12220124 **Client Contact:** Any issues

Sample Identity	WC3102	WC3103	WC3104	WC3105	WC3106					Method Code	LoD/Units
Depth (m)											
Sample Type	LIQUID	LIQUID	LIQUID	LIQUID	LIQUID						
Sampled Date											
Sample Received Date	14.10.06	14.10.06	14.10.06	14.10.06	14.10.06						
Batch	1	1	1	1	1						
Sample Number(s)	1	2	3	4-5	6-7						
OCP/OPP											
Dichlorvos	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Mevinphos	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Alpha-BHC (Lindane)	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Beta-BHC (Lindane)	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Gamma-BHC (Lindane)	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Diazinon	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Methyl Parathion	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Heptachlor	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Fenitrothion	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Malathion	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Aldrin	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Parathion	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Heptachlor Epoxide	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Endosulphan I	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
p,p'-DDE	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Dieldrin	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Endrin	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Endosulphan II	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
p,p'-TDE(DDD)	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Ethion	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
p,p'-DDT	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Endosulphan sulphate	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
p,p'-Methoxychlor	<10	<10	<10	<10	<10					TM144/145	<10 ng/l
Azinphos methyl	<10	<10	<10	<10	<10					TM144/145	<10 ng/l

Date 30.10.2006

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/18161/02/01
Client: WSP Geotechnical & Env.
Client Ref. No.: 065017/12220124

Report Key :

Results expressed as (e.g.) 1.03E-07 is equivalent to 1.03×10^{-7}

NDP	No Determination Possible	*	Subcontracted test
NFD	No Fibres Detected	»	Result previously reported (Incremental reports only)
#	ISO 17025 accredited	M	MCERTS Accredited
PFD	Possible Fibres Detected	EC	Equivalent Carbon (Aromatics C8-C35)

Note: Method detection limits are not always achievable due to various circumstances beyond our control.

Summary of Method Codes contained within report :

Method No.	Reference	Description	ISO 17025 Accredited	MCERTS Accredited	Wet/Dry Sample [1]	Surrogate Corrected
TM045	MEWAM BOD5 2nd Ed.HMSO 1988 / Method 5210B, AWWA/APHA, 20th Ed., 1999	Determination of BOD5 (ATU) by Oxygen Meter	✓		NA	
TM144/145		Organochlorine and Organophosphorus pesticides by GC-MS			NA	

[1] Applies to Solid samples only. **DRY** indicates samples have been dried at 35°C. **NA** = not applicable.

ALcontrol Geochem Analytical Services
Table Of Results - Appendix

Job Number: 06/18161/02/01
Client: WSP Geotechnical & Env.
Client Ref. No.: 065017/12220124

Summary of Coolbox temperatures

Batch No.	Coolbox Temperature (°C)
1	12

Appendix E Chemical Data Assessment Criteria

WSP

Tier 1 - Derivation of Soil screening values

Assessment of contamination levels in soils has traditionally been performed by an initial comparison of recorded concentrations against generally accepted conservative values. Current UK best practice dictates that a comparison of a representative site concentration (or averaging area) (see CLR7) against a published SGV would provide an assessment as to the significance of a recorded concentration. However, to date SGVs have only been published a limited number of contaminants, in order to provide a consistent methodology for the assessment of various contaminants within WSP a series of Tier 1 screening values have been calculated.

These values have been calculated using BP RISC 4.0, a computer modelling tool designed (in part) to assess human health related risks presented by contaminated soil. The default parameters inherent within the RISC model have been adjusted to reflect the findings of recent UK research. Input parameters consistent with the CLR series of documents have been adopted. For vapour inhalation and dermal contact related risks recent guidance from CLEA breifing notes 1 to 3 has been adopted to account for modifications intended for the CLEA model. However, the vapour intrusion pathway Tier 1 values are relevant to new development only. Where an assessment of previously constructed buildings is required a check on the applicability of inputs will be required.

Exposure factors required for the model are detailed below, illustrating compatability with CLR documentation. Where direct compatibility is not possible due to the construction of the respective computer models a conservative assumption has been made. This relates to the selection of single values for the deterministic back calculation of Screening Values (SSTLs within RISC).

Toxicological data for respective contaminants has been changed from that inherent within the RISC model in order to take into account background exposure (which US guidance does not do). Where UK guidance has been made available (i.e. Tox reports) the findings have been adopted, i.e. published TDSIs have replaced RfDs or RfCs. For carcinogenic risks a risk factor of 1 in 100,000 has been adopted, as is consistent with published SGVs for carcinogens i.e. arsenic. Where no Tox report is available RfDs and RfCs present within the Risc model have been reduced by a factor of five to take into account theoretical maximum background exposure, as recommended in CLR9. For many of the contaminants this will result in overly conservative screening levels.

In the application of the screening values to a site the user recognises the limitations of the RISC (and CLEA) model. Specifically these relate to the absence of certain pollutant considerations such as risks to services, of fire and explosion, aesthetics, institutional perception, groundwater, surface waters, ecotoxicological risk and risks to buildings (amongst others). In addition, the screening values are intended to represent minimal risk levels or tolerable exposure and their exceedance should not be interpreted as a 'significant possibility of significant harm' without additional assessment.

As further research is presented for the assessment of contaminated land the values calculated by RISC will be subject to review or modification in the future.

Receptor exposure factors for input into RISC model

	Residential	Commercial	Source
Lifetime	6	43	CLR10
Body weight	15	68.5	CLR10
Exposure frequency to soil (no. per year)	365	230	CLR10
Exposure duration for soil (years)	6	43	CLR10
Ingestion rate for soil (mg/day) inc soil attached to veg	100.035	40	CLR10
Total skin surface area (cm2)	637	293	CLR10
Fraction skin exposed to soil	1	1	To maintain inputted skin area
Soil-skin adherence factor	1	0.14	From CLEA briefing note 1
Exposure frequency for vegetable intake (events/years)	365	0	CLR10
Exposure duration for vegetable intake (years)	6	0	CLR10
Ingestion rate for root vegetables (g/day)	68.55	0	From CLR10 Table 6.3
Ingestion rate for leafy vegetables (g/day)	21.15	0	From CLR10 Table 6.3
Fraction of veg grown in contaminated soil	0.39	0	From CLR10 Table 6.4
Fraction organic carbon in soil	0.029	0.029	Defaut value for sandy soil
Exposure frequency for indoor air	365	230	CLR10
Exposure duration for indoor air	6	43	CLR10
Lung retention factor	1	1	CLR10
Inhalation rate indoors	0.609	1.234	CLR10 Table 5.9
Time indoors	24	8	CLR10
Bioavailability for all contaminants	100%	100%	

Risc Input Parameter	Value	Source
Residential setting (Assumed house with basement)		
Cross sectional area of basement	41m2	CLEA briefing note 3
Volume of house	287m3	CLEA briefing note 3
NO. of air exchanges per day	12 (no)	CLEA briefing note 3
Thickness of basement or foundation walls	0.15m	CLEA briefing note 3
Fraction of the foundation that are cracks	0.001	Representative of very leaky floor as per CLEA briefing note 3
Porosity of foundation cracks	1	Assumes crack fraction is entirely available for vapour ingress
Water content in foundation cracks	0	
Length of foundation perimeter	25.6m	CLEA briefing note 3
Foundation depth below ground surface	2.2m	Height of basement (CLEA Briefing note 3)
Pressure difference	40g/cm2-s	CLEA briefing note 3
Vapour permeability in vadose zone	1.00E-09	Estimate
Commercial setting (Assumed warehouse with basement)		
Cross sectional area of basement	2025m2	CLEA briefing note 3
Volume of house	14782.5m3	CLEA briefing note 3
NO. of air exchanges per day	24	CLEA briefing note 3
Thickness of basement or foundation walls	0.15m	CLEA briefing note 3
Fraction of the foundation that are cracks	0.001	Representative of very leaky floor as per CLEA briefing note 3
Porosity of foundation cracks	1	Assumes crack fraction is entirely available for vapour ingress
Water content in foundation cracks	0	
Length of foundation perimeter	180	CLEA briefing note 3
Foundation depth below ground surface	2.7	Height of basement (CLEA Briefing note 3)
Pressure difference	40	CLEA briefing note 3
Vapour permeability in vadose zone	1.00E-09	Estimate
Soil parameters for RISC model		
Total porosity in source zone	0.3	CLEA default for sandy soils (P56 CLR10)
Water content in source zone	0.1	CLEA default for sandy soils (P56 CLR10)
Fraction of organic carbon in source	0.029	Default value for sandy soil (5% SOM)
Soil bulk density	1.6	CLEA default for sandy soils (P56 CLR10)
Distance form soil source to foundation	0.1	Assumes foundation within contaminated zone
Total porosity	0.3	CLEA default for sandy soils (P56 CLR10)
Water content	0.1	Estimate non-sensitive

Appendix F Notes on Limitation

Standard Terms and Conditions of Engagement

Notes on Limitations
For
Geo-Environmental and Geotechnical Consultancy Services

General

WSP Environmental Limited has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from WSP Environmental Limited; a charge may be levied against such approval.

WSP Environmental Limited accepts no responsibility or liability for:

a) the consequences of this document being used for any purpose or project other than for which it was commissioned, and

b) this document to any third party with whom an agreement has not been executed.

Phase I Environmental Audits

The work undertaken to provide the basis of this report comprised a study of available documented information from a variety of sources (including the Client), together with (where appropriate) a brief walk over inspection of the site and meetings and discussions with relevant authorities and other interested parties. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only to the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, WSP Environmental Limited reserves the right to review such information and, if warranted, to modify the opinions accordingly.

It should be noted that any risks identified in this report are perceived risks based on the information reviewed; actual risks can only be assessed following a physical investigation of the site.

Phase II Environmental Audits

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, and ground and groundwater conditions to allow a reasonable risk assessment to be made. The objectives of the investigation have been limited to establishing the risks associated with potential human targets, building materials, the environment (including adjacent land), and to surface and groundwater.

The amount of exploratory work and chemical testing undertaken has necessarily been restricted by the short timescale available, and the locations of exploratory holes have been restricted to the areas unoccupied by the building(s) on the site and by buried services. A more comprehensive investigation may be required if the site is to be redeveloped as, in addition to risk assessment, a number of important engineering and environmental issues may need to be resolved.

For these reasons if costs have been included in relation to site remediation these must be considered as tentative only and must, in any event, be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The number of sampling points and the methods of sampling and testing do not preclude the existence of localised "hotspots" of contamination where concentrations may be significantly higher than those actually encountered.

The risk assessment and opinions provided, inter alia, take in to consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.

Geo-environmental Investigations

The investigation of the site has been carried out to provide sufficient information concerning the type and degree of contamination, geotechnical characteristics, and ground and groundwater conditions to provide a reasonable assessment of the environmental risks together with engineering and development implications.

If costs have been included in relation to site remediation these must be confirmed by a qualified quantity surveyor.

The exploratory holes undertaken, which investigate only a small volume of the ground in relation to the size of the site, can only provide a general indication of site conditions. The opinions provided and recommendations given in this report are based on the ground conditions apparent at the site of each of the exploratory holes. There may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.

The comments made on groundwater conditions are based on observations made at the time that site work was carried out. It should be noted that groundwater levels will vary owing to seasonal, tidal and weather related effects.

The scope of the investigation was selected on the basis of the specific development proposed by the Client and may be inappropriate to another form of development or scheme.

The risk assessment and opinions provided, inter alia, take in to consideration currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values.