BakerHicks Reference:
30003364-SUB-XX-XX-RP-X-09655
National Grid Reference:
PDD-100116-REP-079

TKRE GRAIN-TILBURY AND KINGSNORTH-TILBURY 400kV UPRATING FEED

GROUND INVESTIGATION REPORT (FACTUAL ACCOUNT OF FIELDWORK, MONITORING AND LABORATORY TESTING)

Report No D2064-22/B

July 2023

Issue No 1

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Report No D2064-22/BD2064-22/B

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REPORT STRUCTURE

TITLE	VOLUME No
TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED – Tilbury	D2064-22/A
TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED - Gravesend	**D2064-22/B**

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1 INTRODUCTION

SOCOTEC UK Limited (SOCOTEC) was commissioned in December 2022 by BakerHicks Limited (BakerHicks), to carry out a ground investigation for the 400kV uprating FEED at sites in Gravesend and Tilbury.

This report covers the work undertaken at Gravesend (Report No D2064-22B), whereas records from the fieldwork associated with the Tilbury site drilled between 09 May and 31 May 2023 are presented in Report No D2064-22A.

The scope of the investigation was specified by BakerHicks and comprised boreholes, trial pits, field testing, monitoring, laboratory testing and reporting. The fieldwork was carried out between 23 January 2023 and 22 May 2023.

The investigation was performed in accordance with the contract specification, and the general requirements of BS 5930:2015+A1 (2020), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2021) and other relevant related standards identified.

This report presents a description of the ground investigation work carried out together with the factual records of the fieldwork, monitoring and laboratory testing. It comprises the Factual Account section of a Ground Investigation Report (GIR), as defined in the UK Specification for Ground Investigation draft Third Edition (2022), also identified as the Factual Report section in BS 5930:2015+A1 (2020). The information is also presented in digital data format as defined in AGS 4.0.4 (2017).

2 SITE SETTING

2.1 Location and Description

TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED is located at two sites on either side of the Thames Estuary in southeast England. The area associated with Report No. D2064-22A is located north of the River Thames in Tilbury, approximately 3km east of Tilbury Docks and centred at national grid reference TQ 662 758. The area associated with Report No. D2064-22B (this report) is located south of the river Thames in Gravesend, approximately 2.7 km east of Gravesend Train Station and centred at National Grid Reference TQ 673 741, see Site Location Plan in Appendix A.

The site in Gravesend is located approximately 0.10km east of the Metropolitan Police Training Centre off an unnamed road running east/ west parallel to the Thames and Medway Canal. The site covers an area of approximately 300 by 450 m and is situated on three separate grass fields with light vegetation, one of which is contained within the Milton Rifle Range and is bound on all sides by a barbed wire fence. Excluding the Milton Rifle range, the Eastcourt Marshes Electricity Substation defines the northern boundary of the site. To the east, the site is bound by a small stream orientated north to south which runs west across the site to form part of the western boundary; the western side of site is also bound by the National Maritime Training Centre. The entirety of the site is bound to the south by the unnamed road parallel to the Thames and Medway Canal. The elevation across the site slightly decreases to the south from approximately 10.00 mOD to 1.00 mOD.

2.2 Published Geology

The published geological map for the area, BGS Sheet 271 (1998), and the BGS GeoIndex Onshore online viewer (2023) show the site located on the undifferentiated Lewes Nodular Chalk, Seaford Chalk and Newhaven Chalk Formations belonging to the White Chalk Subgroup, overlain by River Terrace Deposits and Alluvium superficial deposits.

3 FIELDWORK

3.1 General

The exploratory hole and field test locations were selected by BakerHicks and set out to specified coordinates. The positions were surveyed by SOCOTEC to National Grid and Ordnance Datum, and the locations are shown on the Site Plan in Appendix A.

Unexploded Ordnance (UXO) clearance was carried out with a magnetometer probe by MACC International Limited at the location of all exploratory holes and trial pit locations generally to a depth of 10 m.

3.2 Exploratory Holes

The exploratory holes are listed in Table 1 with further details of the individual holes presented in the Exploratory Hole Summary in Appendix B.

TABLE 1 SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	DEPTH RANGE (m)	REMARKS
Cable percussion boring extended by rotary core drilling	3	50.20 to 72.00	BH04 target depth reduced to 50.20m by client because of time constraints associated with working in the rifle range. BH06 target depth increased to 70.00m by client.
Trial pits (machine dug)	10	3.00	TP11 to TP20
Inspection pits (hand dug)	5	1.20	CPT12 to CPT16

The exploratory hole logs are presented in Appendix B. These include descriptions of the strata encountered together with details of the equipment and methods used, sampling and field testing carried out, water depths and other field observations. Explanations of the terms and abbreviations used on the logs are given in the Key to Exploratory Hole Records in Appendix B, along with other explanatory information. The geological material descriptions are in accordance with BS 5930:2015+A1 (2020), following BS EN ISO 14688-1 (2018) and BS EN ISO 14689 (2018) for soils and rocks respectively.

Standard penetration tests (SPT) in the boreholes were carried out in accordance with BS EN ISO 22476-3+A1 (2011). SPT hammer energy ratio certificates are included in Appendix B. The results are presented on the logs without any corrections to the measured blow-counts or derived N values.

Geotechnical samples were transferred from site to the Wokingham office of SOCOTEC for temporary retention. Samples taken for geoenvironmental testing were transferred directly from site to the SOCOTEC environmental chemistry laboratory (see Section 4).

Photographs of trial pits, inspection pits and rotary drilled cores are presented in Appendix G.

3.3 Field Testing

The field (in situ) testing carried out is listed in Table 2 and the results presented in Appendix C.

TABLE 2 SUMMARY OF FIELD TESTS

TYPE	QUANTITY	REMARKS
Cone penetration test (CPT)	7	CPT12A, CPT13, CPT14, CPT15, CPT15A, CPT15B, CPT16
Dissipation tests	6	CPT12A, CPT13, CPT14, CPT15A, CPT15B, CPT16
Variable head permeability test (falling)	3	BH04 to BH06
Double Packer Permeability test	4	Two tests in BH05 and BH06
Thermal Resistivity	15	Three tests carried out in each inspection pit. CPT12 to 16
Electrical conductivity	3	IRES-1 to IRES-3

3.4 Groundwater and Ground Gas Monitoring

Ground gas and groundwater monitoring instrumentation was installed in selected boreholes specified by SOCOTEC details are shown on the logs and summarised in Appendix D.

Monitoring carried out by SOCOTEC after the main fieldwork period is listed in Table 3. The records are included in Appendix D.

TABLE 3 SUMMARY OF MONITORING

TYPE	REMARKS
Groundwater and gas monitoring visits	Undertaken April 28, May 12, May 19 and May 26 2023. BH05 and BH06 Obstructed access on May 19.
Submersible Data Loggers	Data loggers were installed in BH04, BH05 and BH06 to record measurements every 15 mins for 5 weeks.

3.5 Groundwater Sampling

Sampling of groundwater from installations in boreholes BH04, BH05 and BH06 was carried out by SOCOTEC following the main fieldwork period on 12 May 2023. The results of subsequent laboratory testing on the samples are included in Appendix F.

4 LABORATORY TESTING

4.1 Geotechnical Testing

Geotechnical laboratory testing of selected samples was scheduled by Morgan Sindall. The testing was carried out by Professional Soils Laboratory (PSL) and Derwentside Environmental Testing Services (DETS), in accordance with test methods as stated within the test reports. The scope of testing is listed in Table 4 and the results are presented in Appendix E.

TABLE 4 SUMMARY OF GEOTECHNICAL LABORATORY TESTS

TEST TYPE[1]	QUANTITY	REMARKS
Classification/index tests		
Water content	35	
Atterberg limits	28	
Particle size distribution	29	By sieving and sedimentation
Strength tests		
Unconsolidated undrained triaxial compression	4	
Consolidated undrained triaxial compression	2	
Consolidation tests		
One-dimensional (oedometer) consolidation	4	
Geochemical tests		
pH and sulphate contents	9	BRE SD1 Suite A
Organic matter content	1	
Rock tests		
Saturation moisture content of chalk	10	
Cerchar abrasivity index	6	
Point load index	22	
Uniaxial compressive strength	6	
Chalk Crushing Value	11	

Note 1 : Test type names based on Thomas Telford (2022) Table 15.4 and Bill K.

4.2 Geoenvironmental Testing

Geoenvironmental laboratory testing was scheduled by Morgan Sindall on selected soil and groundwater samples recovered during the fieldwork, and water samples taken by SOCOTEC from the installations. The testing was carried out by SOCOTEC at the environmental chemistry laboratory at Bretby, near Burton-on-Trent, in accordance with test methods as stated within the test reports. The results are presented in Appendix F.

5 REFERENCES

AGS : 2017 : Electronic Transfer of Geotechnical and Geoenvironmental Data (Edition 4.0.4 February 2017). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 271 : 1998 : Dartford. 1:50000 geological map (solid and drift). British Geological Survey.

BGS GeoIndex Onshore : 2023. www.bgs.ac.uk. British Geological Survey.

BRE Special Digest 1 : 2005 : Concrete in aggressive ground. Building Research Establishment.

BS 5930:2015+A1 : 2020 : Code of practice for ground investigations.

BS EN 1997-2 : 2007 (Incorporating corrigendum June 2010) : Eurocode 7 - Geotechnical design - Part 2 Ground investigation and testing.

BS EN ISO 14688-1:2018 : Geotechnical investigation and testing - Identification and classification of soil - Part 1 Identification and description.

BS EN ISO 14688-2:2018 : Geotechnical investigation and testing - Identification and classification of soil - Part 2 Principles for a classification.

BS EN ISO 14689:2018 : Geotechnical investigation and testing – Identification, description and classification of rock.

BS EN ISO 22282-1:2012 : Geotechnical investigation and testing – Geohydraulic testing – Part 1 General rules.

BS EN ISO 22282-2:2012 : Geotechnical investigation and testing – Geohydraulic testing – Part 2 Water permeability tests in a borehole using open systems.

BS EN ISO 22282-3:2012 : Geotechnical investigation and testing – Geohydraulic testing – Part 3 Water pressure tests.

BS EN ISO 22475-1 : 2021 : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for the sampling of soil, rock and groundwater.

BS EN ISO 22476-1 : 2012 (Incorporating corrigendum January 2013) : Geotechnical investigation and testing — Field testing - Part 1: Electrical cone and piezocone penetration test.

BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test.

ISRM : 2007 : The Complete ISRM Suggested Methods for Rock Characterisation, Testing and Monitoring (1974-2006). Commission on Testing Methods, International Society for Rock Mechanics (Editors Ulusay R & Hudson JA).

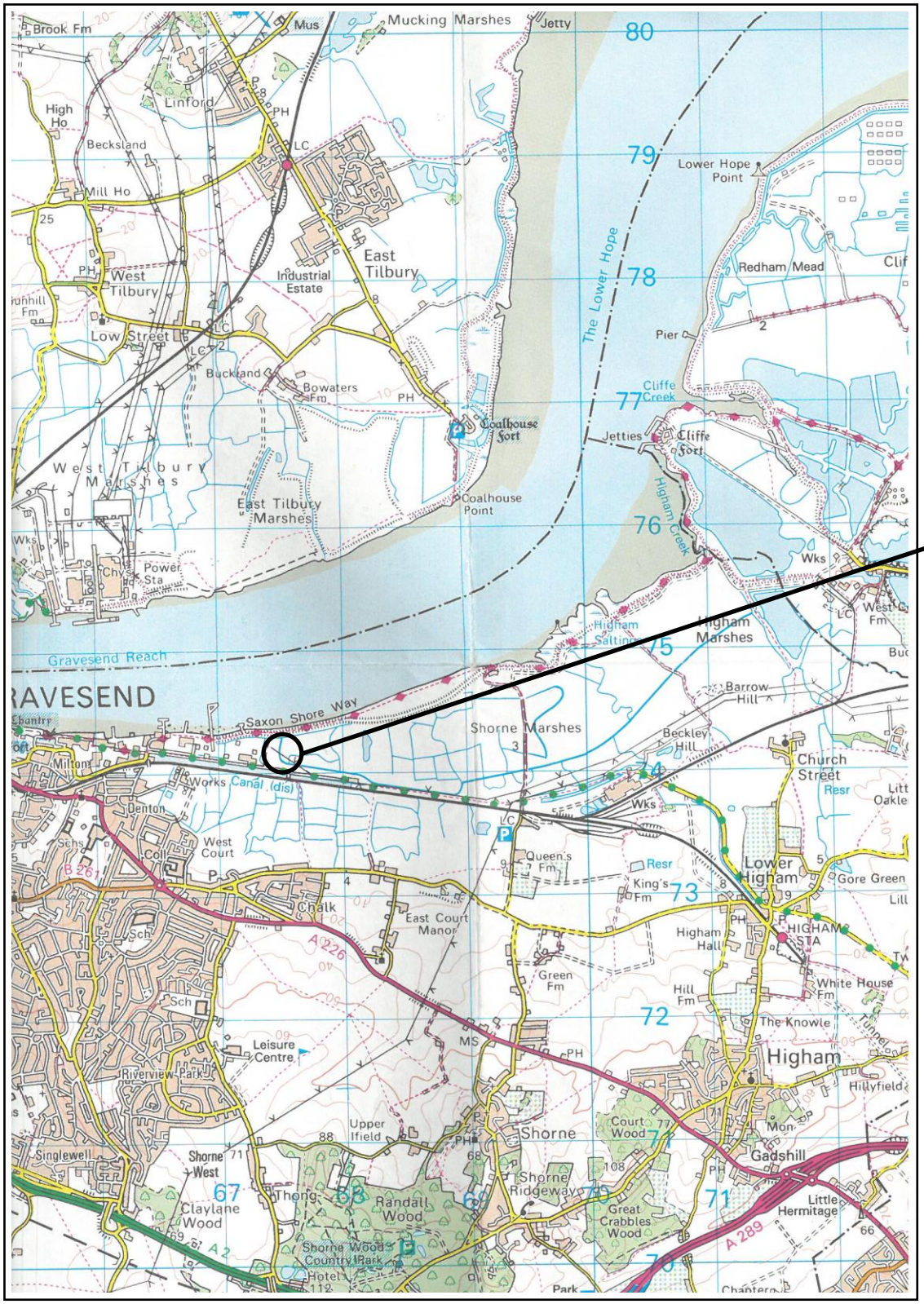
UK Specification for Ground Investigation. Third edition : 2022 : ICE Publishing. Thomas Telford Ltd.

APPENDIX A
FIGURES AND DRAWINGS

Site Location Plan	A1
Site Plan	A2

Site Location Plan

SOCOTEC



Reproduced from the 2002 Ordnance Survey 1:50 000 scale Landranger map No 178 by permission of Ordnance Survey on behalf of The Controller of His Majesty's Stationery Office, © Crown copyright, SOCOTEC UK Limited. All rights reserved. Licence Number 100006060

Notes: Scale 1:50 000	**Project** TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED **Project No.** D2064-22/B **Carried out for** BakerHicks Limited	**Figure** **A1**

N
W
E
S

Notes:
Site Plan created using Professional incorporating Bing Maps included under licence with Bentley Ltd.

Scale:
1:1500

Surveyed By:
SOCOTEC UK

Surveyed Date:
MAY 2023

Key:

- Borehole
- Cone Penetration Test Location
- Trial Pit

SITE PLAN

SOCOTEC

Project ID:
D2064-22/B

Project Title:
TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating FEED

Client:
Baker Hicks Limited

Figure:
A2

APPENDIX B
EXPLORATORY HOLE RECORDS

Key to Exploratory Hole Records	Key
Hammer Energy Ratio Reports	TH64 & TH65
Borehole Logs	BH04, BH05 and BH06
CPT Inspection Pit Logs	CPT12 to CPT16
Trial Pit Logs	TP11 to TP20

Key to Exploratory Hole Records

SOCOTEC

SAMPLES

Undisturbed

U	Driven tube sample	nominally 100 mm diameter and 100% recovery unless otherwise stated
UT	Driven thin wall tube sample	
TW	Pushed thin wall tube sample	
P	Pushed piston sample	
CBR	CBR mould sample	
BLK	Block sample	
C	Core sample (from rotary core) taken for laboratory testing.	

Disturbed

D	Small sample (including samples recovered from SPT)
B	Bulk sample
LB	Large Bulk sample (comprising more than one container as required)

Other

W	Water sample	
G	Gas sample	
ES	Soil sample	Environmental chemistry samples (in more than one container where appropriate)
EW	Water sample	

Comments to samples

Sequential sample reference numbers are assigned to every sample taken during hole construction.

NR - No Recovery. Used where tube sampling has been attempted but no sample obtained (for whatever reason).

Samples not shown on exploratory hole logs:

- subsamples / specimens taken for on-site testing, eg point load testing
- samples taken from borehole installations (ie water or gas) after hole construction

DYNAMIC SAMPLING

Dynamic sampling includes 'window' and 'windowless' sampling methods, with and without a sample liner respectively

DYS	Dynamic sampling range showing tube / liner recovery (rec.) and diameter. Material retained as separate samples.
L	Retained complete liner sample (with sample reference number)

IN SITU/FIELD TESTS

SPT S or SPT C	Standard Penetration Test, open shoe (S) or solid cone (C). The Standard Penetration Test is defined in BS EN ISO 22476-3:2005+A1:2011. The open shoe configuration is used without a sample liner unless shown otherwise. Samples recovered by SPT open shoe are shown as type D. The incremental blow counts are given in the Field Records column; each increment is 75 mm unless stated otherwise and any penetration under self-weight in mm (SW) is noted. Where the full 300 mm test drive is achieved the total number of blows for the test drive is presented as N = ** in the Test column. Where the test drive blows reach the limiting value (usually 50) the total blow count beyond the seating drive is given (without the N = prefix). See Note 7 also.
IV	*in situ*/field vane shear strength, peak (p) and remoulded (r), kPa
HV	Hand vane shear strength, peak (p) and remoulded (r), kPa
PP	Pocket penetrometer test, converted to shear strength, kPa
KFH, KRH, KPI	Permeability tests : KFH = falling head, KRH = rising head, KPI = packer inflow (water pressure test). Results presented on separate report sheets.
PID	VOC concentration using hand-held photo-ionisation detector, ppmv

DRILLING RECORDS

Classification of discontinuity state - as defined in BS 5930:2015+A1:2020

TCR	Total Core Recovery, %
SCR	Solid Core Recovery, %
RQD	Rock Quality Designation, %
If	Fracture spacing, mm - presented as minimum, mode (or 'typical' value) and maximum spacing.
FI	Fracture Index - presented as number of fractures per metre.
NI	Non-intact - used to indicate where the core is fragmented (ie non-Solid Core).
NA	Not-applicable - used where a measurement is inappropriate (eg for non-rock materials, zones of no recovery)
NIDD	Non-intact Drilling Induced – used to indicate where rock believed to be non-fractured in the ground has been recovered as Non-intact due to the drilling process. (Used only where specified)
NDP	No Discontinuities Present – used to indicate where core is non-fractured. (Used only where specified as alternative representation to showing a single If value for the depth range of non-fractured core.)
CRF	Core Recovered in the Following run (length in m) – used to indicate length adjustment to TCR (and SCR, RQD and If accordingly) where slipped/dropped core from a core run has been recovered in the subsequent run.
AZCL	Assessed Zone of Core Loss – used to indicate estimated depth range corresponding to core loss (for TCR<100 %). Assumed to be at the start of the core run where no judgement is possible. Not shown for core loss less than 5 %.

Flush returns – presented as estimated percentage in the Records column, with colour where relevant.

Notes:
See report text for full references of standards.
Updated Oct 2022 v1.4 col

Key

Key to Exploratory Hole Records

GROUNDWATER

▼ Groundwater entry

▽ Depth to groundwater after observation period

INSTALLATIONS Any installations are shown on the Exploratory Hole Record in the rightmost Backfill column with appropriate graphic.

Standpipe/ piezometer

SP	Standpipe
SPIE	Standpipe piezometer
PPIE	Pneumatic piezometer
EPIE	Electronic piezometer

Plain Pipe

Slotted Pipe

Piezometer Tip

Inclinometer or Slip Indicator

ICE	Biaxial inclinometer
ICM	Inclinometer tubing for use with probe
SLIP	Slip indicator

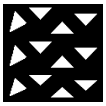
Settlement Points

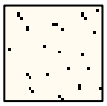
ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point

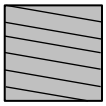
Pressure Cells

EPCE	Electronic embedment pressure cell
PPCE	Electronic push-in pressure cell

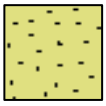
INSTALLATION / BACKFILL LEGENDS A legend describing the installation is shown in the rightmost column. Legend symbols used to describe the backfill materials are indicated below.

Macadam 

Concrete 

Grout 

Bentonite

Sand 

Gravel

Arisings

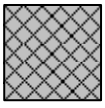
STRATUM LEGENDS The legend symbols used for graphical representation of soils, rocks and other materials on the borehole logs are shown below. For soils with significant proportions of secondary soil types, a combination of two or more symbols is used.

Note that the Made Ground / Fill stratum legend does not differentiate between engineered and non-engineered anthropogenic materials.

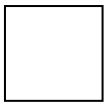
Macadam

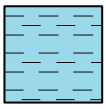
Concrete

Topsoil

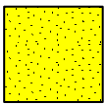
Made Ground / Fill 

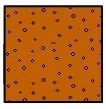
Peat

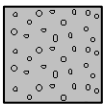
Void or No Information 

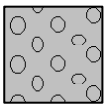
Clay 

Silt

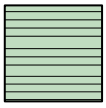
Sand 

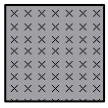
Gravel 

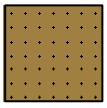
Cobbles 

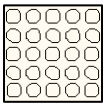
Boulders 

Coal

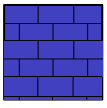
Mudstone 

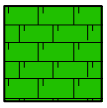
Siltstone 

Sandstone 

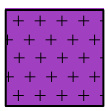
Conglomerate 

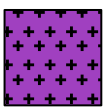
Breccia

Limestone 

Chalk 

Igneous (Fine)

Igneous (Med) 

Igneous (Coarse) 

Metamorphic (Fine)

Metamorphic (Med)

Metamorphic (Coarse)

Tuff

Notes:
See report text for full references of standards.
Updated Oct 2022 v1.4 col

Key

Key to Exploratory Hole Records

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NOTES

1 **Geological materials** are described in accordance with BS 5930:2015+A1:2020, which is compliant with BS EN ISO 14688-1:2018 and 14689-1:2018 for soils and rocks respectively.

2 The **consistency** determined during description for fine soils (clay and silt) is reported for strata where undisturbed samples are available. Where the logger considers that the samples may not be representative of the in situ condition, for whatever reason, the reported consistency may be omitted, or qualified using the terms *Probably,* where the logger is reasonably confident of the assessment, or *Possibly,* where there is less certainty.

3 The presence of **very coarse particles** (cobbles and boulders) is included in the stratum descriptions on logs using the proportional terminology of BS 5930 where possible. However, due to their relatively large size in relation to the diameter of boreholes, and volumes of samples recovered, these records may not be fully representative of their size and frequency in the ground. Where sample mass precludes a reliable estimate of the proportion of very coarse particles, their presence may be described using undefined qualitative terms, eg occasional, frequent, etc, or by noting the number of cobbles/boulders observed.

4 The **declination of bedding and joints** is given with respect to the normal to the core axis, ie perpendicular to the direction of drilling. In a vertical borehole this will therefore correspond to the dip.

5 The assessment of **SCR, RQD and Fracture Spacing** excludes all non-natural fractures (ie drilling induced) where these can be positively identified.

6 Observations of discernible **groundwater entries** during the advancement of the exploratory hole are given at the foot of the log and in the Legend column. The absence of a recorded groundwater entry should not, however, be interpreted as a groundwater level below the base of the borehole. Under certain conditions groundwater entry may not be observed, for instance, drilling with water flush or overwater, or boring at a rate faster than water can accumulate in the borehole. Similarly, where water entry observations do exist, groundwater may also be present at higher elevations in the ground than where recorded in the borehole. In addition, where appropriate, water levels in the hole at the time of recovering individual samples or carrying out in situ tests and at shift changes are given in the Records column.

7 The borehole logs present the results of **Standard Penetration Tests** recorded in the field without correction or interpretation. However, in certain ground conditions (eg high hydraulic head or where very coarse particles are present) some judgement may be necessary in considering whether the results are representative of in situ mass conditions.

8 | Date | Time |
| --- | --- |
| Casing | Water |

Overnight pauses in hole progress are shown by a horizontal line together with records of casing depth and water level at the start and end of shift, together with the corresponding date and time. Casing depths and water levels are also shown at the time of tube sampling and Standard Penetration Tests.

REFERENCES

1 BS EN ISO 14688-1:2018 : Geotechnical investigation and testing - Identification and classification of soil. Part 1 Identification and description. British Standards Institution

2 BS EN ISO 14689 : 2018 : Geotechnical investigation and testing - Identification and classification of rock. British Standards Institution

3 BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing. Part 3 Standard penetration test. British Standards Institution

4 BS 5930:2015+A1:2020 : Code of practice for ground investigations. British Standards Institution

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SOCOTEC

Socotec uk
Progress close
Binley
Coventry
CV3 2TF

SPT Hammer Ref:	TH64
Test Date:	07/03/2023
Report Date:	08/03/2023
File Name:	TH64.spt
Test Operator:	DP

Instrumented Rod Data

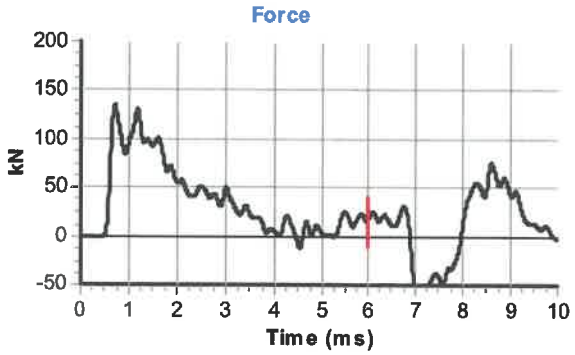
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.6
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	72570
Accelerometer No.2:	72571

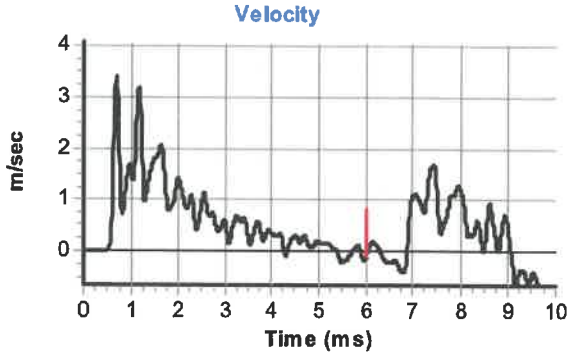
SPT Hammer Information

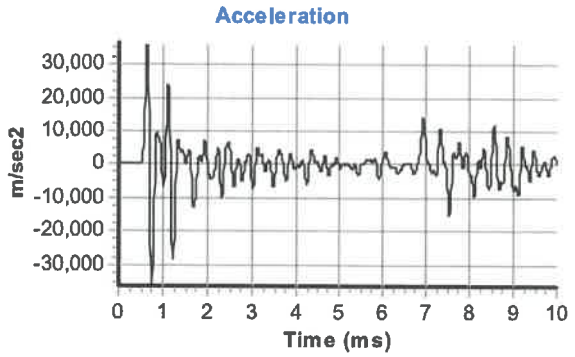
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	15.0

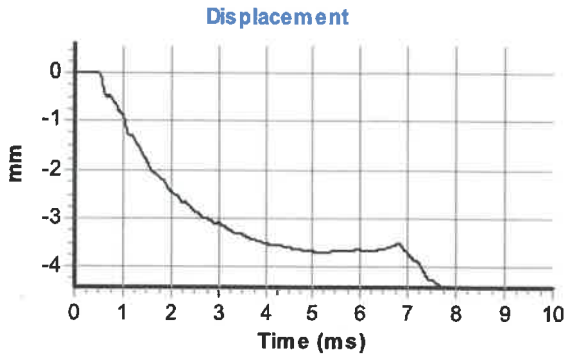
Comments / Location

TEST









Calculations

Area of Rod A (mm2):	983
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	298

Energy Ratio E_r (%): **63**

Signed: D.PERRETT

Title: Drilling Supervisor

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SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

SPT Hammer Ref:	TH65
Test Date:	23/06/2022
Report Date:	23/06/2022
File Name:	TH65.spt
Test Operator:	CR

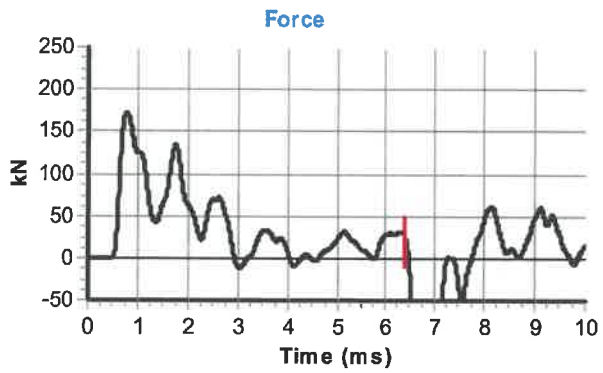
Instrumented Rod Data

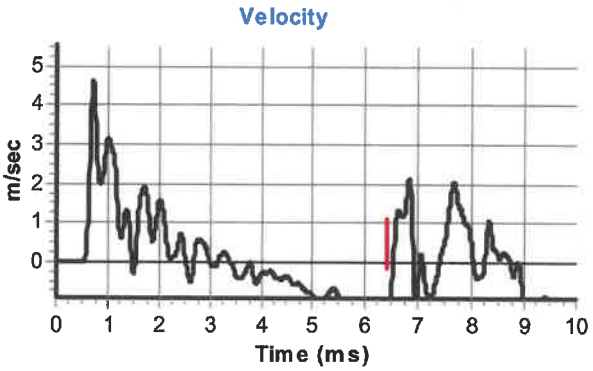
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.7
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	72570
Accelerometer No.2:	72571

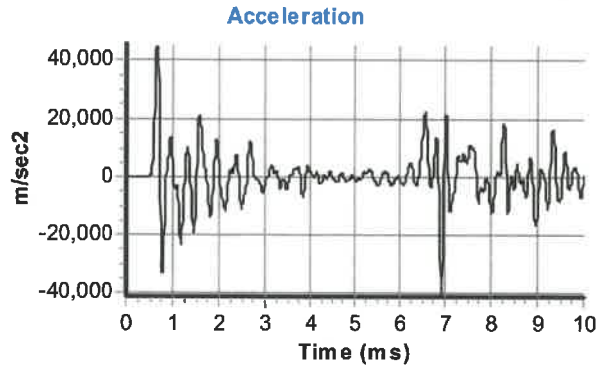
SPT Hammer Information

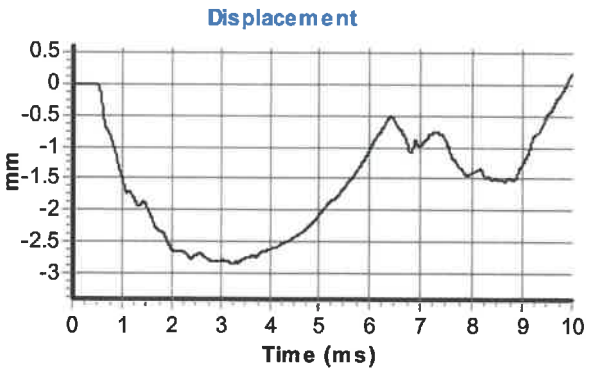
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	15.0

Comments / Location









Calculations

Area of Rod A (mm2):	996
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	322

Energy Ratio E_r (%): **68**

Signed:

Title:

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Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	LM/CB	PS	07 Mar 23
	1.20 - 22.30	07 Mar 23 - 10 Mar 23	Cable percussion boring	Dando 3000	LM/CB	PS/NH	08 Mar 23
Approved	22.30 - 50.20	14 Mar 23 - 21 Mar 23	Rotary coring	Comacchio 405	DP/JR	CKW	28 Mar 23
CP							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
8.20	250	8.20	250
21.00	200	22.30	101
50.20	101	22.30	200

Depth Related Remarks	
Depth	Remarks

Ground Level	2.20 mOD
Coordinates	E 567499.74
National Grid	N 174204.87
System	OSGB

Date	Time	Casing	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
07 Mar 23	0800			0.10	D 1											(0.10)	+2.10		Grass over soft dark brown slightly sandy clayey SILT with frequent rootlets and roots (up to 5mm diameter. Sand is fine to medium. (TOPSOIL)				Raised Cover
0.00	Dry			0.20	ES 2		0.20	PID	0.1 ppmv (Test 1)							0.10							
				0.30 - 0.40	B 3											(0.30)	+1.80		Soft to firm dark brown slightly sandy slightly gravelly sandy clayey SILT with frequent rootlets and roots (up to 5mm diameter). Sand is fine to medium. Gravel is subangular fine to coarse of flint, limestone and rare brick. (MADE GROUND)				Raised cover
				0.40	D 4											0.40							
				0.50	ES 5		0.50	PID	0.0 ppmv (Test 2)							(0.30)							0.10
				0.60 - 0.70	B 6											0.70	+1.50						
				0.70	D 7		0.80	PID	0.0 ppmv (Test 3)										Firm dark greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to medium. Gravel is subangular fine of limestone. (MADE GROUND)				
				0.80	ES 8																		
				1.00 - 1.20	B 9											(0.90)							
				1.20 - 1.65	D 10		1.20 - 2.10	SPT S	N=0 (0,0/0,0,0,0) SW=450 ID TH65 Er 68%	0.00	Dry								Firm dark bluish grey mottled orangish brown slightly sandy CLAY with occasional rootlets. Sand is fine to medium. (MADE GROUND)				
				1.20 - 1.70	B 11																		
				1.70	D 12											1.60	+0.60		Soft dark bluish grey mottled dark grey slightly sandy clayey SILT. Sand is fine to medium. (ALLUVIUM)				
				1.80	ES 13		1.80	PID	0.0 ppmv (Test 4)														
				2.20 - 2.65	UT 14	3 blows 100% rec				2.00	Dry												
				2.70	D 15																		
				2.80	ES 16		2.80	PID	0.1 ppmv (Test 5)														
				3.20 - 3.65	D 17		3.20 - 4.10	SPT S	N=0 (0,0/0,0,0,0) SW=450 ID TH65 Er 68%	3.00	Dry												
				3.20 - 3.70	B 18																		
				3.70	D 19																		
				3.80	ES 20																		
				4.20 - 4.65	UT NR	2 blows No Recovery				4.00	Dry					(5.10)							
				4.20 - 4.65	B 21	no UT																	
				4.70	D 22																		
				5.20 - 5.65	D 23		5.20 - 6.10	SPT S	N=0 (0,0/0,0,0,0) SW=450 ID TH65 Er 68%	5.00	Dry												
				5.20 - 5.70	B 24																		
07 Mar 23	1700						5.80	PID	0.0 ppmv (Test 6)														
6.00	Dry			6.00	D 25																		
08 Mar 23	0800																						
6.00	Dry			6.20 - 6.65	UT 26	3 blows 100% rec Used catcher as very soft				6.00	Dry												
				6.70	D 27											6.70	-4.50		Soft dark bluish grey mottled dark grey slightly sandy clayey SILT with rare shells (10x9x5mm). Sand is fine to medium. (ALLUVIUM)				
				6.80	ES 28		6.80	PID	0.1 ppmv (Test 7)														
				7.20	D 29																		
				7.40 - 7.60	B 30											(1.40)							
				7.70 - 8.15	D 31		7.70 - 8.17	SPT S	N=3 (0,0/0,1,1,1) SW=23 ID TH65 Er 68%	7.00	Dry												
				7.70 - 8.20	B 32																		
				8.20 - 8.64	UT 33	10 blows 100% rec				8.00	Dry					8.10	-5.90		Firm thinly laminated dark brownish grey CLAY with frequent pockets (up to 50x50x50mm) of firm fibrous peat (ALLUVIUM)				
				8.70	D 34																		
				8.80	ES 35		8.80	PID	0.0 ppmv (Test 8)														
				9.70 - 10.15	D 36		9.70 - 10.38	SPT S	N=2 (0,0/0,1,0,1) SW=225 ID TH65 Er 68%	8.00	Dry					(3.10)							
				9.70 - 10.20	B 37																		

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status
FINAL

Scale 1:50
Printed 13 Jul 2023 11:17:37

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AGS

Borehole
BH04

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	LM/CB	PS	07 Mar 23
	1.20 - 22.30	07 Mar 23 - 10 Mar 23	Cable percussion boring	Dando 3000	LM/CB	PS/NH	08 Mar 23
Approved	22.30 - 50.20	14 Mar 23 - 21 Mar 23	Rotary coring	Comacchio 405	DP/JR	CKW	28 Mar 23
CP							

Hole		Casing	
Depth	Dia. (mm)	Depth	Dia. (mm)
8.20	250	8.20	250
21.00	200	22.30	101
50.20	101	22.30	200

Depth Related Remarks	
Depth	Remarks

Ground Level	2.20 mOD
Coordinates	E 567499.74
National Grid	N 174204.87
System	OSGB

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		10.00	EW 120523														Firm thinly laminated dark brownish grey CLAY with frequent pockets (up to 50x50x50mm) of firm fibrous peat (ALLUVIUM)				
		10.30	D 38																		
		11.20 - 11.64	UT 39	11 blows 100% rec				11.00	Dry					11.20 (0.60)	-9.00		Soft dark bluish grey slightly sandy clayey SILT with occasional roots (up to 5mm diameter). (ALLUVIUM)				
		11.70	D 40																		
		11.80	ES 41		11.80	PID	0.1 ppmv (Test 9)							11.80 (0.90)	-9.60		Plastic dark brown amorphous PEAT. (ALLUVIUM)				
		12.00 - 12.50	B 42																		
		12.70 - 13.15	D 43		12.70 - 13.15	SPT S	N=11 (2,2/2,3,3,3) ID TH65 Er 68%	12.00	Dry					12.70 (0.80)	-10.50		Soft locally firm dark bluish grey slightly sandy clayey SILT with occasional roots (up to 5mm diameter) (ALLUVIUM)				
		12.70 - 13.20	B 44																		
08 Mar 23 13.20	1700 Dry																				
09 Mar 23 13.20	0800 Dry																				
		13.50	D 46											13.50 (3.10)	-11.30		Brownish grey silty fine to medium SAND with rare pockets (33x30x20mm) of brownish grey sandy clay and rare shell fragments (2x2x1mm) (ALLUVIUM)	13.50-14.20 frequent shell fragments			
		13.50	D 45																		
		13.50 - 14.00	B 47	Drillers notes gravel at13.5m but not shown in sample																	
		14.00	W 48																		
		14.20	D 49		14.20 - 14.65	SPT S	N=9 (2,2/3,2,2,2) ID TH65 Er 68%	14.20	6.10												
		14.20 - 14.70	B 50																		
		15.20	D 51																		15.00
					15.50 - 16.00	KFH															
		15.70 - 16.20	B 52		15.70 - 16.15	SPT S	N=11 (3,3/3,2,3,3) no sample ID TH65 Er 68%	15.70	6.60												16.00 SP
		16.70 - 17.20	B 54		16.70	PID	0.0 ppmv (Test 10)							16.60 (2.70)	-14.40		Brown speckled black sandy subangular to subrounded medium to coarse GRAVEL of flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	16.60-17.20 rare pockets (30x40x35mm) of soft brown sandy clay.			
		16.70	ES 53																		
		17.20	D 55		17.20 - 17.65	SPT S	N=19 (1,2/3,5,5,6) ID TH65 Er 68%	17.20	0.60												
		17.20 - 17.70	B 56																		
		18.20	D 57																		
		18.70 - 19.20	B 58		18.70 - 19.15	SPT S	N=3 (1,1/0,1,0,2) no sample ID TH65 Er 68%	18.70	0.30												
		19.20	ES 59		19.20	PID	0.0 ppmv (Test 11)											19.00-19.30 rare angular fine gravel of white chalk			
		19.30	D 60											19.30	-17.10		White CHALK recovered as silty angular medium to coarse gravel of very weak white chalk with rare black speckling, and rare black flint. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - UNABLE TO DETERMINE CHALK CIRIA GRADE)				

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status

FINAL

Scale 1:50

Printed 13 Jul 2023 11:17:37

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AGS

Borehole

BH04

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.20 mOD
CP	0.00 - 1.20 1.20 - 22.30 22.30 - 50.20	07 Mar 23 - 07 Mar 23 07 Mar 23 - 10 Mar 23 14 Mar 23 - 21 Mar 23	Hand dug inspection pit Cable percussion boring Rotary coring	Hand tools Dando 3000 Comacchio 405	LM/CB LM/CB DP/JR	PS PS/NH CKW	07 Mar 23 08 Mar 23 28 Mar 23	Depth 8.20 21.00 50.20	Dia. (mm) 250 200 101	Depth 8.20 22.30 22.30	Dia. (mm) 250 101 200	Depth	Remarks	Coordinates	E 567499.74
Approved CP														National Grid	N 174204.87
														System	OSGB

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		20.20	D 61		20.20 - 20.65	SPT S	N=9 (2,2/2,2,2,3) ID TH65 Er 68%	20.20	1.90									White CHALK recovered as silty angular medium to coarse gravel of very weak white chalk with rare black speckling, and rare black flint. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - UNABLE TO DETERMINE CHALK CIRIA GRADE)				
		20.50 - 21.00	B 62																			
09 Mar 23 21.00	1730 2.10														(3.00)							
10 Mar 23 21.00	0800 2.10	21.20	D 63																			
		21.70	D 64		21.70 - 22.15	SPT S	N=20 (2,3/4,5,5,6) ID TH65 Er 68%	21.70	1.30													
		21.70 - 22.20	B 65																			
10 Mar 23 22.30	1200 1.30														22.30	-20.10		No Recovery. Driller cleared 0.50m for rotary drilling.				
															(0.50)							
14 Mar 23 22.80	0715 0.35														22.80	-20.60		Very weak medium density white CHALK with occasional nodular black flints (up to 50x40x10mm) and rare shell fossil fragments (up to 20x20x1mm). Fracture Set 1: inclined 10-35 deg. very closely to closely spaced (30/70/120) planar to undulating rough with moderate greyish brown staining, frequent black speckling and occasional grey silt infill (<0.5mm). Fracture Set 2: Inclined 75 to 90 deg. planar rough with moderate greyish brown staining, frequent black speckling and occasional grey silt infill (<0.5mm). (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- HAVEN BROW BEDS- CIRIA GRADE B4)				
		23.42 - 23.53	CS 66							22.80 - 24.30	73 15 15		Water flush: 22.80 - 24.30	90% rec								
14 Mar 23 24.30	1730 0.40				24.30 - 24.75	SPT S	N=23 (3,5/6,6,5,6) ID TH64 Er 61%					NI 70 120			(3.00)				24.30-24.35 AZCL 24.35-24.50 Full core diameter black flint recovered as angular coarse gravel sized fragments			
16 Mar 23 24.30	0730 0.40									24.30 - 25.80	97 0 0		Water flush: 24.30 - 25.80	90% rec								
		26.24 - 26.37	CS 67												25.80	-23.60		Very weak medium density white CHALK with frequently with frequent black nodular flints (up to 90x65x35mm) occasional inoceramid fossil fragments and occasional sponge fossils (up to 10x3x1mm). Fracture set 1: 5-15 deg. closely spaced (80/90/120) planar to undulating rough with occasional greyish brown staining, frequent black speckling and occasional silt infill (<0.5mm) Fracture set 2: Inclined 80-90 deg. undulating rough with moderate greyish brown staining, frequent black speckling and occasional grey silt infill (<0.5mm). (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- HAVEN BROW BEDS- CIRIA GRADE B3)	25.80-26.24 AZCL			
					27.30 - 27.75	SPT S	N=30 (6,6/7,8,7,8) ID TH64 Er 61%			25.80 - 27.30	97 31 31		Water flush: 25.80 - 27.30	90% rec								
		27.63 - 27.76	CS 68																			
										27.30 - 28.80	67 35 31	80 90 120	Water flush: 27.30 - 28.80	90% rec				28.30-28.80 AZCL				
										28.80 - 30.30	100 73 21		Water flush: 28.80 - 30.30	90% rec								
																		Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status FINAL

Scale 1:50

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Borehole BH04

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.20 mOD
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	LM/CB	PS	07 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567499.74
	1.20 - 22.30	07 Mar 23 - 10 Mar 23	Cable percussion boring	Dando 3000	LM/CB	PS/NH	08 Mar 23	8.20	250	8.20	250			National Grid	N 174204.87
Approved	22.30 - 50.20	14 Mar 23 - 21 Mar 23	Rotary coring	Comacchio 405	DP/JR	CKW	28 Mar 23	21.00	200	22.30	101			System	OSGB
CP								50.20	101	22.30	200				

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring: Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		30.00 - 30.10	CS 69															Very weak medium density white CHALK with frequently with frequent black nodular flints (up to 90x65x35mm) occasional inoceramid fossil fragments and occasional sponge fossils (up to 10x3x1mm). Fracture set 1: 5-15 deg. closely spaced (80/90/120) planar to undulating rough with occasional greyish brown staining, frequent black speckling and occasional silt infill (<0.5mm) Fracture set 2: Inclined 80-90 deg. undulating rough with moderate greyish brown staining, frequent black speckling and occasional grey silt infill (<0.5mm). (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- HAVEN BROW BEDS- CIRIA GRADE B3)				
		30.63 - 30.85	CS 70							30.30 - 31.80	100 54 35		Water flush: 30.30 - 31.80	90% rec	(10.40)							
		31.97 - 32.06	CS 71																			
	16 Mar 23 1715 33.20 0.95									31.80 - 33.20	100 71 22		Water flush: 31.80 - 33.20	90% rec								
	17 Mar 23 0715 33.20 0.95									33.20 - 34.70	7 7 7	NA NA NA	Water flush: 33.20 - 34.70	90% rec								
										34.70 - 36.20	100 75 55	160 170 230	Water flush: 34.70 - 35.45 Water flush: 35.45 - 36.20	90% rec 90% rec								
		35.64 - 35.86	CS 72												36.20	-34.00		Very weak medium density white CHALK with occasional nodular black flints (up to 40x35x25mm) and rare echinoid fragments (up to 10x4x1mm). Fractures are inclined 75-90 deg. extremely closely to very closely spaced (10/15/30) planar rough with occasional light grey staining. (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- HAVEN BROW BEDS- CIRIA GRADE A5)	36.20-36.80 AZCL			
		37.01 - 37.10	CS 73							36.20 - 37.70	60 7 7	3100 3100 3100	Water flush: 36.20 - 37.70	90% rec					37.10-37.30 Full core diameter black flint recovered as angular gravel sized fragments (Possible Bedwell's Columnar Flint).			
	17 Mar 23 1100 37.70 0.10																					
	21 Mar 23 0645 37.70 0.10	37.92 - 38.02	CS 74												(3.70)							
										37.70 - 39.30	84 38 22		Water flush: 37.70 - 39.30	90% rec					39.05-39.30 AZCL			
															39.90	-37.70		Minimal recovery. Recovered core assumed to be of stronger material and comprises white CHALK recovered as subangular coarse gravel and cobble sized fragments of very weak medium density CHALK. (Possible WHITE CHALK SUBGROUP- SEAFORD FORMATION- HAVEN BROW BEDS- unable to determine CIRIA grade). Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status

FINAL

Scale 1:50

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Borehole

BH04

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks	
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	LM/CB	PS	07 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
	1.20 - 22.30	07 Mar 23 - 10 Mar 23	Cable percussion boring	Dando 3000	LM/CB	PS/NH	08 Mar 23	8.20	250	8.20	250		
Approved	22.30 - 50.20	14 Mar 23 - 21 Mar 23	Rotary coring	Comacchio 405	DP/JR	CKW	28 Mar 23	21.00	200	22.30	101		
CP								50.20	101	22.30	200		

Ground Level	2.20 mOD
Coordinates	E 567499.74
National Grid	N 174204.87
System	OSGB

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
										39.30 - 41.20	16 0 0	NA NA NA	Water flush: 39.30 - 41.20	90% rec				Minimal recovery. Recovered core assumed to be of stronger material and comprises white CHALK recovered as subangular coarse gravel and cobble sized fragments of very weak medium density CHALK. (Possible WHITE CHALK SUBGROUP- SEAFORD FORMATION- HAVEN BROW BEDS- unable to determine CIRIA grade).				
															(2.80)							
										41.20 - 42.70	13 0 0	NA NA NA	Water flush: 41.20 - 41.95	90% rec								42.00
													Water flush: 41.95 - 42.70	90% rec								
															42.70	-40.50		AZCL				
												NA NA NA			(0.50)							
		43.23 - 43.38	CS 75							42.70 - 44.20	67 23 8		Water flush: 42.70 - 44.20	90% rec	43.20	-41.00		Very weak medium density white CHALK with frequent nodular black flints (up to 110x160x50mm) and sponge fossils, rare inoceramid shell fragments and rare echinoid fossil fragments (up to 3x2x1mm). Fracture set 1: Inclined 10-25 deg. closely to medium spaced (80/160/280) planar rough with light yellow staining, rare black speckling and occasional yellow silt infill (<0.5mm). Fracture set 2: Inclined 80-90° planar rough with occasional black speckling. (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- CUCKMERE BEDS- CIRIA GRADE A2/ A3)	44.20-44.40 AZCL 44.40-44.50 Partial core diameter black flint.			44.00
		45.08 - 45.29	CS 76							44.20 - 45.70	87 53 41		Water flush: 44.20 - 45.70	90% rec								
										45.70 - 47.20	100 93 77	80 160 280	Water flush: 45.70 - 47.20	90% rec	(7.00)							
		46.64 - 46.84	CS 77																			
		47.78 - 47.93	CS 78							47.20 - 48.70	100 76 63		Water flush: 47.20 - 48.70	90% rec					48.00-48.10 Partial core diameter black flint recovered as angular coarse gravel sized fragments.			
		49.70 - 49.95	CS 79							48.70 - 50.20	100 89 77		Water flush: 48.70 - 50.20	90% rec								
21 Mar 23 50.20	1830 0.10																	Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status

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Scale 1:50

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Borehole

BH04

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	LM/CB	PS	07 Mar 23
	1.20 - 22.30	07 Mar 23 - 10 Mar 23	Cable percussion boring	Dando 3000	LM/CB	PS/NH	08 Mar 23
Approved	22.30 - 50.20	14 Mar 23 - 21 Mar 23	Rotary coring	Comacchio 405	DP/JR	CKW	28 Mar 23
CP							

Hole		Casing	
Depth	Dia. (mm)	Depth	Dia. (mm)
8.20	250	8.20	250
21.00	200	22.30	101
50.20	101	22.30	200

Depth Related Remarks	
Depth	Remarks

Ground Level	2.20 mOD
Coordinates	E 567499.74
National Grid	N 174204.87
System	OSGB

Date / Time	Samples			Field Tests			Samp / Test		Coring	TCR % SCR % RQD %	If (mm)	Water added	Depth (Thickness)	Level	Legend	Strata Description		Chisel.	Water Entry	Backfill
Casing / Water	Depth	Type & No.	Records	Depth	Type	Records	Casing	Water	Depth (Diameter)			Flush details				Main	Detail			
													50.20	-48.00		Very weak medium density white CHALK with frequent nodular black flints (up to 110x160x50mm) and sponge fossils, rare inoceramid shell fragments and rare echinoid fossil fragments (up to 3x2x1mm). Fracture set 1: Inclined 10-25 deg. closely to medium spaced (80/160/280) planar rough with light yellow staining, rare black speckling and occasional yellow silt infill (<0.5mm). Fracture set 2: Inclined 80-90° planar rough with occasional black speckling. (WHITE CHALK SUBGROUP- SEAFORD CHALK FORMATION- CUCKMERE BEDS- CIRIA GRADE A2/ A3) END OF EXPLORATORY HOLE				50.20 SP

General Remarks

Hard Boring / Chiselling		
Depths	Duration (mins)	Tool

Groundwater Entries			
No.	Depth	Remarks	Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Borehole
BH04

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks	
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200		
Approved	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101		
CP													

Ground Level	2.48 mOD
Coordinates	E 567387.68
National Grid	N 174138.97
System	OSGB

Date	Time	Samples			Field Tests			Samp / Test		Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
Casing	Water	Depth	Type & No.	Records	Depth	Type	Records	Casing	Water				Flush details								
21 Mar 23	0800	0.10	D 1											(0.40)			Grass over soft dark brown slightly sandy slightly gravelly clayey SILT with medium cobble content and frequent roots (up to 5mm diameter). Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of flints and chalk. Cobbles are subangular to subrounded (up to 80x80x70mm) of flint. (MADE GROUND)				Raised Cover
0.00	Dry	0.20	ES 2		0.20	PID	0.0 ppmv (Test 1)							0.40	+2.08						
		0.40 - 0.60	B 3		0.40	PID	0.0 ppmv (Test 2)							(0.20)			Soft dark brown slightly sandy slightly gravelly clayey SILT with rare pockets (30x20x10mm) of bluish grey clay, rare pockets (5x5x3mm) of orangish brown fine to medium sand and frequent roots (up to 5mm diameter). Sand is fine to medium. Gravel is subangular to subrounded fine to coarse of flint and chalk. (MADE GROUND)				
		0.40	ES 4											0.60	+1.88						
		0.60	D 5		0.60	PID	0.0 ppmv (Test 3)							(1.10)							
		0.60	ES 6											1.70	+0.78		Soft to firm dark brown slightly sandy silty CLAY with occasional shell fragments (up to 3x3x1mm) and rare roots (up to 3mm diameter). (MADE GROUND)				
		0.70 - 1.20	B 7														Firm dark brown mottled dark grey brownish orange silty CLAY with rare subangular fine gravel of chalk. (MADE GROUND)				
		1.20 - 1.65	D 9		1.20 - 1.65	SPT S	N=2 (1,0/1,0,0,1)	1.20	Dry												
		1.20	D 8				ID TH65 Er 63%														
		1.20 - 1.70	B 10																		
		1.70	ES 14		1.70	PID	0.0 ppmv (Test 4)														
		2.00	D 11																		
		2.20 - 2.65	UT 12	11 blows 100% rec				2.20	Dry					(1.00)							
		2.20 - 2.70	B 18																		
		2.70	D 13											2.70	-0.22						
		2.70 - 3.00	B 15														Soft dark bluish grey mottled dark grey clayey SILT locally with rare black plant material (30x15x1mm). (ALLUVIUM)				
		3.00	ES 16		3.00	PID	0.0 ppmv (Test 5)														
		3.20 - 3.65	D 17		3.20 - 3.65	SPT S	N=2 (1,0/0,1,0,1)	3.20	Dry												
		3.20 - 3.70	B 19				ID TH65 Er 63%														
		4.00	D 20																		
		4.20 - 4.65	UT 21	11 blows 78% rec				4.20	Dry												
		4.20 - 4.70	B 23																		
		4.70	D 22																		
21 Mar 23	1800																				
5.00	Dry	5.00	D 24		5.00	PID	0.0 ppmv (Test 6)														
22 Mar 23	0800	5.00	ES 26																		
5.00	Dry	5.20 - 5.65	D 25		5.20 - 5.65	SPT S	N=2 (1,0/0,1,0,1)	5.20	Dry								5.20-8.00 Rare pocket (40x30x30mm) of very soft greyish brown silty clay.				
		5.20 - 5.70	B 27				ID TH65 Er 63%														
		6.00	D 28																		
		6.70 - 7.15	UT 29	11 blows 100% rec				6.70	Dry												
		6.70 - 7.20	B 30																		
		7.00	ES 31		7.00	PID	0.0 ppmv (Test 7)														
		8.00	D 32											(10.00)							
		8.20 - 8.65	D 33		8.20 - 8.65	SPT S	N=2 (1,1/1,0,0,1)	8.20	Dry								8.20-9.70 Rare pockets (20x20x10mm) of grey fine sand.				
		8.20 - 8.70	B 34				ID TH65 Er 63%														
		9.00	ES 35		9.00	PID	0.0 ppmv (Test 8)														
		9.70 - 9.80	UT NR	15 blows No				9.70	Dry								9.70-12.70 Frequent plant material.				
		9.70 - 10.20	B 36	Recovery																	

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status

FINAL

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Borehole

BH05

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.48 mOD
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567387.68
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200			National Grid	N 174138.97
Approved	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101			System	OSGB
CP															

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	10.00	EW 120523														Soft dark bluish grey mottled dark grey clayey SILT locally with rare black plant material (30x15x1mm). (ALLUVIUM)				
	11.00	D 37		11.00	PID	0.0 ppmv (Test 9)														
	11.00	ES 38																		
	11.20 - 11.65	D 39		11.20 - 11.65	SPT S	N=3 (1,2/1,0,1,1)	11.20	Dry												
	11.20 - 11.70	B 40				ID TH65 Er 63%														
	12.70 - 13.15	D 42		12.70 - 13.15	SPT S	N=4 (1,2/1,1,1,1)	12.70	Dry					12.70	-10.22						
	12.70	D 41				ID TH65 Er 63%										Soft dark bluish grey mottled dark grey clayey SILT with occasional pockets (up to 10x10x10mm) fine to medium sand and rare shell fragments (up to 2x2x2mm). (ALLUVIUM)	12.70 1No. subangular coarse gravel of flint.			
	12.70 - 13.20	B 43		13.00	PID	0.0 ppmv (Test 10)														
	13.00	D 44																		
	13.00	ES 48																		
	13.50	D 45											(1.50)							
	14.20 - 14.65	UT 46	32 blows 100% rec				14.20	Dry					14.20	-11.72						
22 Mar 23 1800 / 14.70 Dry																Soft locally firm brownish grey slightly gravelly silty CLAY with occasional pockets (10x10x10mm) of fine to medium sand and rare shell fragments (2x2x2mm). Gravel is subangular fine of flint. (Possibly RIVER TERRACE DEPOSIT)	14.70-15.50 Becomes gravelly.			
	14.70	D 47																		
23 Mar 23 0800 / 14.70 Dry	14.70 - 15.20	B 48											(1.30)							
	15.00	ES 49		15.00	PID	0.0 ppmv (Test 11)														
	15.50	D 50											15.50	-13.02						
	15.70 - 16.15	D 51		15.70 - 16.07	SPT S	50 (7,7/15,19,16 for	15.70	12.40								Brownish grey sandy GRAVEL with low cobble content and occasional shell fragments (3x2x1mm). Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of flint. Cobbles are subangular (up to 80x80x70mm) of flint. (RIVER TERRACE DEPOSIT)	15.70-17.00 Occasional pockets (50x40x30mm) of dark brownish grey silty clay.			
	15.70 - 16.20	B 52				70mm) ID TH65 Er 63%														
	16.50	D 53																		16.00
	17.00	ES 54		17.00	PID	0.0 ppmv (Test 12)														
	17.20 - 17.65	D 55		17.00	KFH	N=49	17.20	14.90												
	17.20 - 17.70	B 56		17.20 - 17.65	SPT S	(2,4/10,10,14,15) ID TH65 Er 63%														
	18.00	D 57											(4.70)							SP
	18.70 - 19.15	D 58		18.70 - 19.02	SPT S	50 (10,10/18,22,10 for	18.70	14.60												
	18.70 - 19.20	B 59				20mm) ID TH65 Er 63%														
	19.00	ES 60		19.00	PID	0.0 ppmv (Test 13)														19.00
	19.50	D 61																		
23 Mar 23 1800 / 20.20 14.40																				

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

Status FINAL

Scale 1:50
Printed 13 Jul 2023 11:17:39

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Borehole BH05

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.48 mOD
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567387.68
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200			National Grid	N 174138.97
Approved	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101			System	OSGB
CP															

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
															20.20	-17.72		Brownish grey sandy GRAVEL with low cobble content and occasional shell fragments (3x2x1mm). Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of flint. Cobbles are subangular (up to 80x80x70mm) of flint. (RIVER TERRACE DEPOSIT)				
24 Mar 23 20.20	0800 14.40	20.20 - 20.65	D 62		20.20 - 20.65	SPT S	N=18 (4,4/5,4,4,5) ID TH65 Er 63%	20.20	14.70						(1.30)			White CHALK recovered as gravelly SILT. Gravel is subangular fine of extremely to very weak chalk and rare black flint. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - Possible HAVEN BROW BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
		21.00	ES 64		21.00	PID	0.0 ppmv (Test 14)															
24 Mar 23 21.00	1800 14.40														21.50	-19.02						
03 Apr 23 21.00	0700 3.15	21.70 21.80 - 22.10	D ES 66		21.70 - 22.15	SPT S	N=30 (10,6/6,7,8,9) ID TH65 Er 63%	21.70	17.40									Extremely weak to very weak low to medium density white CHALK with frequent nodular black flints (up to 100x80x80mm) and rare shell fragments (up to 15x15x21mm). Fracture set 1: Inclined (0 - 5 degrees) closely spaced (140/150/230) planar to undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 2: Inclined (30 - 45 degrees) closely to medium spaced (180/120/330) undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 3: Inclined (70 - 90 degrees) extremely to very closely spaced (10/20/25) planar rough with occasional moderate yellow staining, frequent black speckling and occasional yellow silt infill (<0.5mm). (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION HAVEN BROW BEDS - CIRIA GRADE B4)	22.60-23.00 AZCL			
										21.50 - 23.00	73 17 15		Water flush: 21.50 - 23.00	90% rec								
										23.00 - 24.50	60 15 10		Water flush: 23.00 - 24.50	90% rec					23.90-24.50 AZCL			
		24.50	D		24.50 - 24.95	SPT S	N=31 (3,4/7,7,8,9) no recovery ID TH64 Er 68%	24.50	0.15										24.50-24.65 AZCL			
		24.86 - 25.11	ES 67							24.50 - 26.00	83 17 10	NI 140 330	Water flush: 24.50 - 26.00	90% rec					25.13-25.21 Pocket (40x40x30mm) of dark orangish brown silt.			
															(9.00)				26.00-26.25 AZCL			
										26.00 - 27.50	83 0 0		Water flush: 26.00 - 27.50	90% rec								
		27.72 - 27.92	CS 68																			
										27.50 - 29.00	77 13 13		Water flush: 27.50 - 29.00	90% rec					28.65-29.00 AZCL			
		29.00 - 29.45	D 75		29.00 - 29.45	SPT S	N=33 (4,6/8,8,9,8) ID TH64 Er 68%	29.00	0.15													
		29.50 - 29.77	ES 69							29.00 - 30.50	63 0 0		Water flush: 29.00 - 30.50	90% rec					29.85-29.95 Possible full core diameter black flint recovered as angular cobble sized fragments. 29.95-30.50 AZCL			
																		Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

Status FINAL

Scale 1:50
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Borehole BH05

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.48 mOD
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567387.68
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200			National Grid	N 174138.97
	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101			System	OSGB
Approved															
CP															

Date / Time Casing / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
														30.50	-28.02		Extremely weak to very weak low to medium density white CHALK with frequent nodular black flints (up to 100x80x80mm) and rare shell fragments (up to 15x15x21mm). Fracture set 1: Inclined (0 - 5 degrees) closely spaced (140/150/230) planar to undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 2: Inclined (30 - 45 degrees) closely to medium spaced (180/120/330) undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 3: Inclined (70 - 90 degrees) extremely to very closely spaced (10/20/25) planar rough with occasional moderate yellow staining, frequent black speckling and occasional yellow silt infill (<0.5mm). (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION HAVEN BROW BEDS - CIRIA GRADE B4) Minimal recovery core loss presumed to be of weaker material. Recovered core comprises cobble and gravel size of subangular flint and gravel sized fragments of flint and chalk.				
									30.50 - 32.00	23 0 0	NA NA NA	Water flush: 30.50 - 32.00	90% rec	(1.50)						
														32.00	-29.52		Very weak medium density white CHALK with frequent nodular black flint (up to 170x160x10mm) with occasional echinoid (up to 10x2x1mm) rare crinoid (up to 10x3x3mm) and sponge fossils. Fracture set 1: Inclined 0 - 10 degrees very closely to closely spaced (20/90/320) planar to undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 2: Inclined 30 - 60 degrees closely to medium spaced (60/150/330) planar rough with occasional yellow staining and frequent black speckling. Fracture set 3: Inclined 70 - 90 degrees closely spaced planar rough with frequent black speckling. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE A3)	32.65-32.75 AZCL			
									32.00 - 32.75	87 0 0		Water flush: 32.00 - 32.75	90% rec							
	33.00 - 33.30	CS 70							32.75 - 33.50	100 20 20		Water flush: 32.75 - 33.50	90% rec							
	33.50	D		33.50 - 33.95	SPT S	N=37 (6,8/9,9,8,11) no recovery ID TH64 Er 68%	33.50	0.10													
									33.50 - 35.00	100 0 0		Water flush: 33.50 - 35.00	90% rec							
	35.48 - 35.74	ES 71																			
	35.74 - 35.82	CS 72							35.00 - 36.50	100 38 38	10 150 330	Water flush: 35.00 - 36.50	90% rec							
	37.22 - 37.36	CS 73							36.50 - 38.00	100 15 15		Water flush: 36.50 - 38.00	90% rec	(10.50)						
03 Apr 23 1815 38.00 0.10																					
04 Apr 23 0715 38.00 0.10																					
	38.36 - 38.50	CS 74																			
									38.00 - 39.50	77 23 18		Water flush: 38.00 - 39.50	90% rec							
																	Hole continues on next sheet	39.97-40.15 Possibly Bedwells columnar flints			

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status FINAL

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Borehole **BH05**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.48 mOD
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567387.68
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200			National Grid	N 174138.97
Approved	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101			System	OSGB
CP															

Date / Time Casing / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
40																Very weak medium density white CHALK with frequent nodular black flint (up to 170x160x10mm) with occasional echinoid (up to 10x2x1mm) rare crinoid (up to 10x3x3mm) and sponge fossils. Fracture set 1: Inclined 0 - 10 degrees very closely to closely spaced (20/90/320) planar to undulating rough with occasional light yellow staining and frequent black speckling. Fracture set 2: Inclined 30 - 60 degrees closely to medium spaced (60/150/330) planar rough with occasional yellow staining and frequent black speckling. Fracture set 3: Inclined 70 - 90 degrees closely spaced planar rough with frequent black speckling. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE A3)	41.35-42.50 AZCL			
	40.47 - 40.83	ES 76						39.50 - 41.00	100 21 0		Water flush: 39.50 - 41.00	90% rec								
41	41.00 - 41.35	CS 78																		
	40.84 - 41.60	CS 77																		
								41.00 - 42.50	23 23 23		Water flush: 41.00 - 42.50	90% rec								
42													42.50	-40.02						
																Minimal recovery core loss presumed to be of weaker material. Recovered core comprises cobble and gravel sized fragments of flint and chalk. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - POSSIBLY CUCKMERE BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
43								42.50 - 44.00	25 0 0	NA NA NA	Water flush: 42.50 - 44.00	90% rec	(1.50)							
													44.00	-41.52						
44																Very weak medium density white CHALK with frequent nodular black flints (up to 85x50x50mm) occasional shell fragments (up to 10x2x1mm) and sponge fossils. Fracture set 1: Inclined 0 - 20 degrees very closely to closely spaced (25/100/240) planar to undulating rough with occasional light grey staining or moderate yellow staining with frequent black speckling. Fracture set 2: inclined 30 - 60 degrees very closely to closely spaced (45/120/300) planar to undulating rough with occasional light yellow staining and yellowish brown silt infill (<0.5mm) and frequent black speckling. Fracture set 3: inclined 70 - 90 degrees planar rough with frequent black speckling. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - CIRIA GRADE A3)				
	44.00 - 44.60	CS 79																		
45								44.00 - 45.50	100 84 67		Water flush: 44.00 - 45.50	90% rec								
	45.70 - 45.90	CS 80																		
46								45.50 - 47.00	100 85 62		Water flush: 45.50 - 47.00	90% rec								
	46.50 - 46.80	ES 81								25 100 300										
47																				
								47.00 - 48.50	100 62 62		Water flush: 47.00 - 48.50	90% rec								
48	48.00 - 48.25	CS 82											(8.50)							
49	49.06 - 49.18	CS 83						48.50 - 50.00	100 93 69		Water flush: 48.50 - 50.00	90% rec								
50																Hole continues on next sheet				50.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status FINAL

Scale 1:50

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Borehole **BH05**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.48 mOD
CP	0.00 - 1.20 1.20 - 21.70 21.70 - 70.50	21 Mar 23 - 21 Apr 23 21 Mar 23 - 05 Apr 23 03 Apr 23 - 05 Apr 23	Hand dug inspection pit Cable percussion boring Rotary coring	Hand tools Dando 3000 Comacchio 405	KP/TN KP/TN DP/PS	KWA KWA KWA/PS	21 Mar 23 21 Mar 23 13 Apr 23	Depth 21.70 70.50	Dia. (mm) 200 101	Depth 21.00 70.50	Dia. (mm) 200 101	Depth	Remarks	Coordinates	E 567387.68
Approved														National Grid	N 174138.97
CP														System	OSGB

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	50.36 - 50.66	ES 84						50.00 - 51.50	100 70 70		Water flush: 50.00 - 51.50	90% rec				Very weak medium density white CHALK with frequent nodular black flints (up to 85x50x50mm) occasional shell fragments (up to 10x2x1mm) and sponge fossils. Fracture set 1: Inclined 0 - 20 degrees very closely to closely spaced (25/100/240) planar to undulating rough with occasional light grey staining or moderate yellow staining with frequent black speckling. Fracture set 2: inclined 30 - 60 degrees very closely to closely spaced (45/120/300) planar to undulating rough with occasional light yellow staining and yellowish brown silt infill (<0.5mm) and frequent black speckling. Fracture set 3: inclined 70 - 90 degrees planar rough with frequent black speckling. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - CIRIA GRADE A3)	51.50-51.98 4No. fractures closely spaced (80/130/220) inclined 20-30 degrees planar rough with occasional black speckling.			
	51.27 - 51.30	CS 85						51.50 - 53.00	100 94 73		Water flush: 51.50 - 53.00	90% rec	52.50	-50.02						
	52.60 - 52.93	CS 86														Very weak medium density white CHALK with frequent nodular black flint (up to 100x100x35mm). Rare inoceramid fragments (up to 50x40x3mm) and frequent light grey wispy marls. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - BELLE TOUT BEDS - CIRIA GRADE A1)				SP
	53.77 - 54.01	CS 87						53.00 - 54.50	100 100 100		Water flush: 53.00 - 54.50	90% rec					54.01 2mm thick sheet flint inclined 0 degrees.			54.00
	54.50 - 54.80	ES 88		54.50	PID	0.0 ppmv (Test 22)				30 2000 2330			(3.91)							
	55.70 - 56.00	CS 89						54.50 - 56.00	100 100 100		Water flush: 54.50 - 56.00	90% rec					54.83-55.10 2No. fractures inclined 35 degrees planar rough with light grey surface staining.			
	56.70 - 57.00	CS 90						56.00 - 57.50	100 100 100		Water flush: 56.00 - 57.50	90% rec	56.41	-53.93			56.41 Possible shoreham Marl 2.			
	57.65 - 58.00	CS 91														Very weak to weak medium density white CHALK with frequent nodular black flint (up to 120x80x50mm). Rare carious black flint (up to 50x35x30mm) and frequent wispy marls. (WHITE CHALK SUBGROUP - LEWES CHALK FORMATION - CIRIA GRADE A1)				
								57.50 - 59.00	100 100 100		Water flush: 57.50 - 59.00	90% rec								
								59.00 - 60.50	100 100 100		Water flush: 59.00 - 60.50	90% rec					59.45 Carious flint.			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

Status FINAL

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Borehole BH05

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks			
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Ground Level	2.48 mOD
	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200			Coordinates	E 567387.68
Approved	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23	70.50	101	70.50	101			National Grid	N 174138.97
CP														System	OSGB

Date / Time Casing	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		60.00 - 60.23	CS 92															Very weak to weak medium density white CHALK with frequent nodular black flint (up to 120x80x50mm). Rare carious black flint (up to 50x35x30mm) and frequent wispy marls. (WHITE CHALK SUBGROUP - LEWES CHALK FORMATION - CIRIA GRADE A1)				
		60.72 - 61.02	CS 93							60.50 - 62.00	100 100 100		Water flush: 60.50 - 62.00	90% rec	(11.59)				62.14 1No. fracture inclined 40 degrees planar rough with occasional black speckling.			
		62.14 - 62.39	CS 94							62.00 - 63.50	100 100 100		Water flush: 62.00 - 63.50	90% rec								
		63.71 - 63.98	CS 95							63.50 - 65.00	100 100 100	1060 3733 5740	Water flush: 63.50 - 65.00	90% rec								
		65.86 - 66.17	CS 96							65.00 - 66.50	101 100 100		Water flush: 65.00 - 66.50	90% rec					66.54 1No. fracture inclined 40 degrees planar rough with occasional black speckling.			
04 Apr 23	1800 66.50 0.05																					
05 Apr 23	0700 66.50 0.05																					
		67.20 - 67.50	CS 97							66.50 - 68.00	100 100 97		Water flush: 66.50 - 68.00	90% rec					67.12 10mm thick sheet flint inclined 0 degrees.			
		67.67 - 68.00	CS 98												68.00	-65.52		very weak to weak medium density white CHALK with medium spaced thin beds of moderately weak very high density nodular chalk (nodular hardgrounds), (150/320/590) with frequent wispy marls and frequent nodular black flint (up to 70x60x40mm). (WHITE CHALK SUBGROUP - LEWES CHALK FORMATION - CIRIA GRADE A1)				
										68.00 - 69.50	100 100 100	NDP NDP NDP	Water flush: 68.00 - 69.50	90% rec	(2.50)				68.59-68.61 Stylolite (up to 0.5mm). 68.73 Inoceramid fragments (15x13x6mm) 69.43-69.46 Stylolite (up to 0.5mm)			
										69.50 - 70.50			Water flush: 69.50 - 70.50	90% rec				Hole continues on next sheet			

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Borehole **BH05**

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	21 Mar 23 - 21 Apr 23	Hand dug inspection pit	Hand tools	KP/TN	KWA	21 Mar 23	21.70	200	21.00	200		
Approved	1.20 - 21.70	21 Mar 23 - 05 Apr 23	Cable percussion boring	Dando 3000	KP/TN	KWA	21 Mar 23	70.50	101	70.50	101		
CP	21.70 - 70.50	03 Apr 23 - 05 Apr 23	Rotary coring	Comacchio 405	DP/PS	KWA/PS	13 Apr 23						

Ground Level 2.48 mOD
Coordinates E 567387.68
National Grid N 174138.97
System OSGB

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
05 Apr 23	1715	70.03 - 70.35	CS 99								100						very weak to weak medium density white CHALK with medium spaced thin beds of moderately weak very high density nodular chalk (nodular hardgrounds), (150/320/590) with frequent wispy marls and frequent nodular black flint (up to 70x60x40mm). (WHITE CHALK SUBGROUP - LEWES CHALK FORMATION - CIRIA GRADE A1)				
70.50	0.25										100										
											100			70.50	-68.02		END OF EXPLORATORY HOLE				70.50

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Borehole **BH05**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks	
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		20.00	200	20.00	200		
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA		72.00	146	72.00	146		
CP													

Ground Level	2.49 mOD
Coordinates	E 567424.46
National Grid	N 174069.14
System	OSGB

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
13 Mar 23	0800	0.10	D 1											(0.40)			Grass over soft dark brown slightly sandy SILT with rare pockets (5x3x3mm) of brownish orange fine to medium sand and frequent rootlets and roots (up to 5mm diameter). Sand is fine to medium. Gravel is subangular fine to medium of flint and chalk.				Raised Cover
0.00	Dry	0.20	ES 2											0.40	+2.09		(TOPSOIL)				
		0.40 - 0.60	B 4											(0.40)			Soft dark brown slightly sandy SILT with occasional rootlets and roots (up to 5mm diameter)				
		0.40	ES 3											0.80	+1.69		(MADE GROUND)				
		0.70	D 5											(0.40)			Soft dark brown slightly gravelly clayey SILT with rare pockets (up to 3x3x3mm) of grey and brown fine to medium sand and rare rootlets. Gravel is subangular fine to medium of chalk.				
		0.80 - 1.20	B 6											1.20	+1.29		(MADE GROUND)				
		1.00	D 7														Firm dark brown mottled brownish orange slightly gravelly silty CLAY with rare rootlets. Gravel is subangular fine to medium of flint and chalk.				
		1.00	ES 8		1.20 - 1.65	SPT S	N=4 (1,1/1,1,1,1)	1.20	Dry								(MADE GROUND)				
		1.20 - 1.65	D 9				ID TH65 Er 68%							(1.40)							
		1.20 - 1.70	B 10																		
		1.70	ES 11																		
		2.00	D 12																		
		2.20 - 2.65	UT 13	8 blows 100% rec				2.20	Dry												
		2.20 - 2.70	B 16											2.60	-0.11						
		2.70	D 14														Soft dark bluish grey mottled dark grey clayey SILT, locally with occasional black organic material.				
13 Mar 23	1800	2.80	ES 15														(ALLUVIUM)				
3.00	Dry	3.00	D 17																		
14 Mar 23	0800	3.20	D 18		3.20 - 3.65	SPT S	N=4 (1,1/1,1,1,1)	3.20	2.00												
3.00	Dry	3.20 - 3.70	B 19				ID TH65 Er 68%														
		4.00	D 20																		
		4.20 - 4.65	UT 21	10 blows 100% rec				4.20	Dry												
		4.20 - 4.70	B 22																		
		5.00	D 23																		
		5.20	D 24		5.20 - 5.65	SPT S	N=3 (1,0/1,0,1,1)	5.20	Dry									5.20-6.00 Occasional pockets (up to 50x50x30mm) of dark greyish brown silty clay with occasional black organic material			
		5.20 - 5.70	B 25				ID TH65 Er 68%														
		6.00	D 26																		
		6.20 - 6.65	UT 27	10 blows 100% rec				6.20	Dry												
		6.20 - 6.70	B 29																		
		6.70	D 28																		
		7.00	D 30											(8.60)				7.00-7.20 Stiff thinly laminated dark greyish brown clay with frequent shell fragments (up to 2x2x1mm)			
		7.20	D 31		7.20 - 7.65	SPT S	N=8 (1,2/2,2,2,2)	7.20	Dry									7.20-8.00 Very soft locally soft with occasional pockets (up to 30x30x20mm) of greyish brown clay and frequent shell fragments (up to 3x2x2mm)			SP 7.70
		7.20 - 7.70	B 32				ID TH65 Er 68%														
		8.00	D 33																		
		8.20 - 8.65	UT 34	11 blows 100% rec				8.20	Dry												
		8.20 - 8.70	B 35																		
		9.00	D 36																		
		9.20	D 37		9.20 - 9.65	SPT S	N=2 (1,0/0,1,0,1)	9.20	Dry									9.20-11.20 Occasional shell fragments (up to 2x2x1mm).			
		9.20 - 9.70	B 38				ID TH65 Er 68%														

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status

FINAL

Scale 1:50

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Borehole

BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	20.00	200	20.00	200		
Approved	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		72.00	146	72.00	146		
CP	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA							

Ground Level 2.49 mOD
Coordinates E 567424.46
National Grid N 174069.14
System OSGB

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		10.00	D 39														Soft dark bluish grey mottled dark grey clayey SILT, locally with occasional black organic material. (ALLUVIUM)				
		10.00	EW 120523					10.20	Dry												
		10.20 - 10.65	UT 40	13 blows 100% rec																	
		10.70	D 41																		
14 Mar 23	1800	11.00	D 42																		
11.20	Dry																				
		11.20	D 43		11.20 - 11.65	SPT S	N=3 (1,0/1,0,0,2)	11.20	Dry					11.20	-8.71		Soft locally firm dark bluish grey mottled dark grey slightly sandy clayey SILT. Sand is fine. (ALLUVIUM)				
16 Mar 23	0800	11.20 - 11.70	B 44				ID TH65 Er 68%														
11.20	Dry																				
		11.70 - 12.15	UT 45	11 blows 100% rec				11.70	Dry												
		11.70 - 12.20	B 47																		
		12.20	D 46											(2.00)							
		13.00	D 48																		
		13.00	ES 50																		
		13.20	D 49		13.20 - 13.65	SPT S	N=2 (1,2/1,0,1,0)	13.20	Dry					13.20	-10.71		Dark orangish brown gravelly fine to medium SAND with frequent shell fragments (up to 2x2x1mm) and occasional pockets (up to 30x30x2mm) of dark brownish grey silty clay. Gravel is subangular fine of flint. (Possible ALLUVIUM)				
		13.20 - 13.70	B 51				ID TH65 Er 68%							(0.80)							
		14.00	D 52											14.00	-11.51		Brownish grey sandy subangular to rounded fine to coarse GRAVEL of flint with occasional pockets (up to 50x30x30mm) of dark brownish grey silty clay and occasional shell fragments (up to 2x2x1mm). Sand is fine to medium. (RIVER TERRACE DEPOSITS)				
		14.70	D 53		14.70 - 15.07	SPT S	50 (4,8/12,18,20 for 65mm)	14.70	11.40												
		14.70 - 15.20	B 54				ID TH65 Er 68%														
		14.70 - 15.20	B 56											(1.70)							
		15.00	ES 55																		
16 Mar 23	1800													15.70	-13.21		Brownish grey sandy subangular to rounded fine to coarse GRAVEL of flint. Sand is fine to coarse. (RIVER TERRACE DEPOSITS)	15.70-16.20 Low cobble content. Cobbles are subangular (up to 70x70x70mm) of flint.			
16.00	11.40				16.00	KFH															
17 Mar 23	0800																				
16.00	Dry	16.20	D 57		16.20 - 16.52	SPT S	50 (8,14/16,22,12 for 20mm)	16.20	12.40												
		16.20 - 16.70	B 58				ID TH65 Er 68%														
		17.00	D 59																		
17 Mar 23	1800													(3.50)							
17.70	12.40																				
		17.70	D 60		17.70 - 18.03	SPT S	50 (5,10/14,22,14 for 25mm)	17.70	12.40												
20 Mar 23	0800	17.70 - 18.20	B 61				ID TH65 Er 68%														
17.70	12.40																				
		19.00	D 63																		
		19.00	ES 62																		
		19.20	D 64		19.20 - 19.65	SPT S	N=14 (2,2/3,3,4,4)	19.20	14.40					19.20	-16.71		White CHALK recovered as silty subangular fine to medium gravel of very weak chalk with rare black speckling rare yellow staining and rare nodular black flints. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
		19.20	ES 65				ID TH65 Er 68%														
20 Mar 23	1800													(1.30)							
20.00	14.40																				

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

Status FINAL

Scale 1:50
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Borehole BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks		
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	20.00	200	20.00	200			Ground Level	2.49 mOD
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA								Coordinates	E 567424.46
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA		72.00	146	72.00	146			National Grid	N 174069.14
CP														System	OSGB

Date / Time Casing	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
23 Mar 23 0800																		White CHALK recovered as silty subangular fine to medium gravel of very weak chalk with rare black speckling rare yellow staining and rare nodular black flints. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
20.00	0.15														20.50	-18.01						
										20.50 - 21.00 (101mm)	20 NA NA		Water flush: 20.50 - 21.00	90% rec				Minimal recovery core loss presumed to be of weaker material. Recovered core comprises gravel sized fragments of weak medium density white CHALK and nodular black flints. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVENBROW BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
										21.00 - 21.75 (101mm)	27 NA NA	NA NA NA	Water flush: 21.00 - 21.75	90% rec	(1.70)						
										21.75 - 22.50 (101mm)	27 NA NA		Water flush: 21.75 - 22.50	90% rec								
		22.20 - 22.80	ES 66							22.20 - 22.80 (101mm)	100 NA NA		Water flush: 22.20 - 22.80	90% rec	22.20	-19.71		Very weak medium density white chalk with occasional nodular black flints (up to 80x80x60mm) with rare inoceramid shell fragments (up to 8x8x3mm) and localised yellow staining. Fracture set 1: Inclined 30 - 50 degrees, closely to medium spaced (30/200/450) undulating rough with light yellowish orange staining, frequent black specks and occasional yellow silt infill (<0.5mm) Fracture set 2: Inclined 70 - 80 degrees planar rough with light yellowish orange staining, frequent black specks and occasional yellow silt infill (<0.5mm) (WHITE CHALK SUBGROUP - SEAFORD CHALK FOMATION - HAVEN BROW BEDS - CIRIA GRADE B3/4)				
										22.80 - 24.30 (101mm)	80 31 13		Water flush: 22.80 - 24.30	90% rec					24.07-24.30 AZCL			
		24.30	D 1		24.30 - 24.75	SPT S	N=28 (7,7/6,7,7,8) ID TH64 Er 63%	24.30	0.15													24.80
										24.30 - 25.80 (101mm)	100 21 21	30 200 450	Water flush: 24.30 - 25.80	90% rec	(6.05)							
		22.96 - 30.07	CS 67							25.80 - 27.30 (101mm)	100 53 39		Water flush: 25.80 - 27.30	90% rec								
		27.20 - 27.30	CS 68																			27.50 SP
		27.40 - 27.65	ES 69							27.30 - 28.80 (101mm)	63 49 40		Water flush: 27.30 - 28.80	90% rec	28.25	-25.76		Assessed zone of core loss				
23 Mar 23	1800														(0.55)							
28.80	0.15														28.80	-26.31		Very weak medium density white CHALK with occasional nodular black flints (up to 75x100x70mm) rare inoceramid fossil fragments (10x5x5mm) and occasional sponge fossils (up to 25x2x2mm) Fracture set 1: 10 - 30 degrees very closely to closely spaced (20/70/300) planar undulating rough with moderate yellow staining and frequent black speckling with rare yellow silt infill (<0.55mm) Fracture set 2: Inclined 80 - 90 degrees planar to undulating rough with moderate yellow staining, frequent black speckling and occasional light grey infill (<0.5mm) (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE B4)	28.80-28.90 Partially full core diameter black flint			
24 Mar 23	0800																					
28.80	0.15									28.80 - 30.30 (101mm)	100 63 8		Water flush: 28.80 - 30.30	90% rec					29.70-29.80 2 No. fractures inclined 40 and 50 degrees			
		29.80 - 30.70	ES 70															Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status FINAL

Scale 1:50

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Borehole BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	20.00	200	20.00	200		
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		72.00	146	72.00	146		
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA							
CP													

Ground Level 2.49 mOD
Coordinates E 567424.46
National Grid N 174069.14
System OSGB

Date / Time Casing / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing / Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
																Very weak medium density white CHALK with occasional nodular black flints (up to 75x100x70mm) rare inoceramid fossil fragments (10x5x5mm) and occasional sponge fossils (up to 25x2x2mm) Fracture set 1: 10 - 30 degrees very closely to closely spaced (20/70/300) planar undulating rough with moderate yellow staining and frequent black speckling with rare yellow silt infill (<0.55mm) Fracture set 2: Inclined 80 - 90 degrees planar to undulating rough with moderate yellow staining, frequent black speckling and occasional light grey infill (<0.5mm) (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE B4)				
								30.30 - 31.80 (101mm)	93 55 NA		Water flush: 30.30 - 31.80	90% rec								
								31.80 - 33.30 (101mm)	100 56 29	20 70 300	Water flush: 31.80 - 33.30	90% rec	(7.50)							
								33.30 - 34.80 (101mm)	100 58 45		Water flush: 33.30 - 34.80	90% rec								
	34.80 - 35.25	ES 71																		
	35.25 - 35.42	CS 72						34.80 - 36.30 (101mm)	90 27 18		Water flush: 34.80 - 36.30	90% rec					36.15-36.30 AZCL			
	36.30 - 36.50	CS 73											36.30	-33.81		Partial recovery. Core loss presumed to be of weaker material. Recovered core comprises very weak medium density white CHALK. Fracture set 1: 10 - 30 degrees very closely to closely spaced (30/90/160) with moderate yellow staining, frequent black speckling and rare yellow silt infill (<0.5mm). Fracture set 2: Inclined 85 degrees undulating with moderate yellow staining and a yellow silt infill (<0.5mm). WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE B3/4)				
								36.30 - 37.80 (101mm)	40 24 20	NA NA NA	Water flush: 36.30 - 37.80	90% rec	(1.50)							
													37.80	-35.31		Very weak medium density white CHALK with frequent nodular black flints (up to 100x70x70mm), and rare sponge fossils (up to 5x2x1mm). Fracture set 1: Inclined 20 - 30 degrees closely to medium spaced (30/100/270) planar rough with occasional light yellow staining frequent black specs. Fracture set 2: Inclined 80 - 90 degrees planar to undulating rough with frequent black specs (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE B3)		37.80-40.10 Full core diameter black flint (possible Bedwells columnar flint)		
								37.80 - 39.30 (101mm)	100 NA NA	30 100 270	Water flush: 37.80 - 39.30	90% rec								
													(3.70)			Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

Status FINAL

Scale 1:50
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Borehole BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	2.49 mOD
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 567424.46
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		20.00	200	20.00	200			National Grid	N 174069.14
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA		72.00	146	72.00	146			System	OSGB
CP															

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		40.33 - 40.58	ES 74							39.30 - 40.80 (101mm)	100 52 45		Water flush: 39.30 - 40.80	90% rec				Very weak medium density white CHALK with frequent nodular black flints (up to 100x70x70mm), and rare sponge fossils (up to 5x2x1mm). Fracture set 1: Inclined 20 - 30 degrees closely to medium spaced (30/100/270) planar rough with occasional light yellow staining frequent black specs. Fracture set 2: Inclined 80 - 90 degrees planar to undulating rough with frequent black specs (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - HAVEN BROW BEDS - CIRIA GRADE B3)	40.30-40.70 Fracture inclined 60 degrees 40.80-41.50 AZCL			
24 Mar 23 40.80	1800 0.10	40.58 - 40.70	CS 75																			
27 Mar 23 40.80	0800 0.10																					
											50				41.50	-39.01						
										40.80 - 42.30 (101mm)	35 20		Water flush: 40.80 - 42.30	90% rec				Very weak medium density white CHALK with frequent black nodular flints (up to 100x100x80mm) with rare yellow staining. Fracture set 1: Inclined 60 - 80 degrees closely to medium spaced planar rough with rare yellow staining and occasional black speckling. Fracture set 2: Inclined 10 - 20 degrees closely to medium spaced (30/100/270) planar rough with rare yellow staining and occasional black speckling. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - CIRIA GRADE A2/3)	41.50-41.60 Partially full core diameter black flint			
		41.70 - 41.86	CS 76																			
											100											
		43.08 - 43.25	CS 77							42.30 - 43.80 (101mm)	93 76		Water flush: 42.30 - 43.80	90% rec								
												30										
												120			(5.30)							
		44.35 - 44.55	CS 78								100	300										
										43.80 - 45.30 (101mm)	53 45		Water flush: 43.80 - 45.30	90% rec								
																			45.20-45.30 Partially full core diameter black flint			
		45.94 - 46.04 46.04 - 46.27	CS 79 ES 80							45.30 - 46.80 (101mm)	100 51 32		Water flush: 45.30 - 46.80	90% rec								
															46.80	-44.31		Minimal recovery core loss presumed to be of weaker material. Recovered core comprises subangular gravel and cobble size fragments of very weak medium density white chalk and flint. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - UNABLE TO DETERMINE CIRIA GRADE)				
										46.80 - 48.30 (101mm)	17 NA NA	NA NA NA	Water flush: 46.80 - 48.30	90% rec	(1.50)							
															48.30	-45.81		Very weak medium density white CHALK with frequent nodular black flints (up to 100x60x50mm), frequent sponge fossils and rare echinoid fossils (up to 5x5x2mm) Fracture set 1: inclined 80 - 90 degrees planar rough with occasional black speckling (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - CIRIA GRADE A2)	48.30-48.60 Fracture inclined 45 degrees with rare yellow staining (300mm)			
		49.24 - 49.36	CS 81							48.30 - 49.80 (101mm)	100 87 63		Water flush: 48.30 - 49.80	90% rec								

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

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Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Status FINAL

Scale 1:50

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Borehole **BH06**

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	20.00	200	20.00	200		
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		72.00	146	72.00	146		
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA							
CP													

Ground Level 2.49 mOD
Coordinates E 567424.46
National Grid N 174069.14
System OSGB

Date Casing	Time Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added Flush details		Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		50.20 - 50.55	ES 82							49.80 - 51.30 (101mm)	100 64 53		Water flush: 49.80 - 51.30	90% rec				Very weak medium density white CHALK with frequent nodular black flints (up to 100x60x50mm), frequent sponge fossils and rare echinoid fossils (up to 5x5x2mm) Fracture set 1: inclined 80 - 90 degrees planar rough with occasional black speckling (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - CUCKMERE BEDS - CIRIA GRADE A2)				
		51.06 - 51.20	CS 83												(5.50)							
		51.59 - 51.76	CS 84							51.30 - 52.80 (101mm)	100 93 80	260 300 400	Water flush: 51.30 - 52.80	90% rec					51.30-51.75 Fracture inclined 10 degrees planar rough with grey silt infill (<0.5mm)			
		53.36 - 53.40	CS 85							52.80 - 54.30 (101mm)	100 92 92		Water flush: 52.80 - 54.30	90% rec								
		54.30 - 54.56	ES 86												53.80	-51.31		Very weak medium density white CHALK with frequent black nodular flint (up to 70x50x30mm) frequent sponge fossils rare inoceramid fragments (up to 50x5x2mm) and rare echinoid fossils (up to 30x2x1mm) Fracture set 1: 5 - 30 degrees very closely to closely spaced (15/150/200) planar to undulating rough with rare light yellow staining black speckling and rarely with yellow silt infill (<0.5mm) (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - BELLE TOUT BEDS - CIRIA GRADE A4)	53.80-53.90 Partially full core diameter black flint (possible seven sisters flint)			
		54.80 - 54.96	CS 87							54.30 - 55.80 (101mm)	100 100 93		Water flush: 54.30 - 55.80	90% rec								
		56.19 - 56.50	CS 88							55.80 - 57.30 (101mm)	100 100 93	15 150 200	Water flush: 55.80 - 57.30	90% rec	(4.60)				57.30-57.70 Heavy yellow staining			
										57.30 - 58.80 (101mm)	100 93 75		Water flush: 57.30 - 58.80	90% rec								
		58.60 - 58.80	CS 89												58.40	-55.91		Very weak to medium density CHALK with frequent black nodular flints (up to 100x90x60mm), occasional inoceramid fossil fragments (up to 100x70x8mm), frequent sponge fossils and frequent grey wispy marls. Fracture set 1: Inclined 5 - 30 degrees medium spaced (35/300/450) planar rough with occasional light yellow staining and occasional black speckling Fracture set 2: Inclined 70 - 80 degrees planar rough locally striated with occasional black speckling and moderate grey staining. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - BELLE TOUT BEDS - CIRIA GRADE A3				
		59.30 - 59.55	CS 90							58.80 - 60.30 (101mm)	100 100 76		Water flush: 58.80 - 60.30	90% rec								

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
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Borehole BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks: Depth	Remarks
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23	20.00	200	20.00	200		
Approved	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA		72.00	146	72.00	146		
CP	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA							

Ground Level 2.49 mOD
Coordinates E 567424.46
National Grid N 174069.14
System OSGB

Date Casing	Time Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added: Flush details		Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
																		Very weak to medium density CHALK with frequent black nodular flints (up to 100x90x60mm), occasional inoceramid fossil fragments (up to 100x70x8mm), frequent sponge fossils and frequent grey wispy marls. Fracture set 1: Inclined 5 - 30 degrees medium spaced (35/300/450) planar rough with occasional light yellow staining and occasional black speckling Fracture set 2: Inclined 70 - 80 degrees planar rough locally striated with occasional black speckling and moderate grey staining. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - BELLE TOUT BEDS - CIRIA GRADE A3	60.30-60.75 Fracture inclined 45 degree planar rough with occasional black speckling			
		61.25 - 61.47	CS 91							60.30 - 61.80 (101mm)	100 100 83		Water flush: 60.30 - 61.80	90% rec								
		61.80 - 61.99	CS 92							61.80 - 63.30 (101mm)	100 80 77		Water flush: 61.80 - 63.30	90% rec								
										63.30 - 64.80 (101mm)	100 55 49		Water flush: 63.30 - 64.80	90% rec	(12.50)							
		64.33 - 64.71	CS 93									35 300 450										
		65.61 - 65.72	CS 94							64.80 - 66.30 (101mm)	60 60 60		Water flush: 64.80 - 66.30	90% rec								
										66.30 - 67.80 (101mm)	100 100 82		Water flush: 66.30 - 67.80	90% rec								
		67.43 - 67.59	CS 95																			
		68.14 - 68.29	CS 96							67.80 - 69.30 (101mm)	100 100 100		Water flush: 67.80 - 69.30	90% rec								
													Water flush: 69.30 - 70.50	90% rec				Hole continues on next sheet				

60 61 62 63 64 65 66 67 68 69 70

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Borehole BH06

Borehole Log

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Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
CP	0.00 - 1.20	13 Mar 23 - 13 Mar 23	Hand dug Inspection pit	Hand tools	KP/TN	KWA	13 Mar 23
	1.20 - 20.00	13 Mar 23 - 20 Mar 23	Cable percussion boring	Dando 3000	KP/TN	KWA	
Approved	20.00 - 72.00	22 Mar 23 - 28 Mar 23	Rotary coring	R72 Comacchio 405 HT	DP/SL	KWA	
CP							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
20.00	200	20.00	200
72.00	146	72.00	146

Depth Related Remarks Depth	Remarks

Ground Level 2.49 mOD
Coordinates E 567424.46
National Grid N 174069.14
System OSGB

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water
		70.58 - 70.80	CS 97						
27 Mar 23 / 72.00	1800 / 0.15								

Coring Depth (Diameter)	TCR % SCR % RQD %	If (mm)	Water added / Flush details		Depth (Thickness)	Level	Legend
69.30 - 70.80 (101mm)	100 100 100						
					70.90	-68.41	
70.80 - 72.00	100 100 100	1100 1100 1100	Water flush: 70.50 - 72.00	90% rec	(1.10)		
					72.00	-69.51	

Strata Description Main	Detail	Chisel.	Water Entry	Backfill
Very weak to medium density CHALK with frequent black nodular flints (up to 100x90x60mm), occasional inoceramid fossil fragments (up to 100x70x8mm), frequent sponge fossils and frequent grey wispy marls. Fracture set 1: Inclined 5 - 30 degrees medium spaced (35/300/450) planar rough with occasional light yellow staining and occasional black speckling Fracture set 2: Inclined 70 - 80 degrees planar rough locally striated with occasional black speckling and moderate grey staining. (WHITE CHALK SUBGROUP - SEAFORD CHALK FORMATION - BELLE TOUT BEDS - CIRIA GRADE A3	70.30-70.50 Frequent dark grey zoophycos streaks and occasional orangish brown sponge fossils 70.90-71.40 Nodular chalk hardground comprising very weak medium density white chalk with frequent intraclasts (up to 40x40x30mm) of weak medium to high density white chalk, occasional stylolites and dark grey sponge fossils			
Very weak medium density fractureless white CHALK with frequent nodular black flints (30x30x30mm) (WHITE CHALK SUBGROUP - LEWES NODULAR CHALK FORMATION - CIRIA GRADE A1)				
END OF EXPLORATORY HOLE				72.00

General Remarks

Hard Boring / Chiselling
Depths | Duration (mins) | Tool

Groundwater Entries
No. | Depth | Remarks | Sealed

Notes
For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Borehole **BH06**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.21 mOD
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	Labourers	WT	07 Mar 23	Width 0.30 m Length 0.30 m C / B / D / A	Depth	Remarks	Coordinates	E 567496.14
Approved											National Grid	N 174106.37
CP											System	OSGB

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
			0.00 - 0.20	B 1					(0.20)			Grass over soft dark brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium of flint and occasional brick. (MADE GROUND)			
07 Mar 23	0800	dry	0.20	D 2					0.20	+2.01		Soft to firm grey mottled brown silty CLAY with occasional rootlets. (MADE GROUND)			
			0.20 - 0.80	B 3											
			0.50	D 4					(0.60)						
			0.60	ES 5		0.60	PID	0.1 ppmv (Test 1)							
			0.80 - 1.20	B 6					0.80	+1.41		Firm grey rarely mottled brown silty CLAY with rare rootlets. (MADE GROUND)			
07 Mar 23	1800	dry	1.00	D 7		1.00	PID	0.0 ppmv (Test 2)	(0.40)						
			1.00	ES 8					1.20	+1.01		END OF EXPLORATORY HOLE			1.20

General Remarks

Termination Reason: Cone Penetration Test (CPT) undertaken at base of inspection pit (CPT12A).

Stability Stable
Shoring None
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **CPT12**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.25 mOD
CP	0.00 - 1.20	08 Mar 23 - 08 Mar 23	Hand dug inspection pit	Hand tools	Labourers	NH	08 Mar 23	Width 0.30 m Length 0.30 m C B D A	Depth	Remarks	Coordinates	E 567471.84
Approved											National Grid	N 174218.76
CP											System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
			0.05	ES 1		0.05	PID	0.1 ppmv (Test 1)	(0.10)			Grass over firm dark brown slightly gravelly silty CLAY with frequent rootlets and rare plant material (up to 5x2x1mm). Gravel is angular to subangular fine to medium of flint chalk and concrete.			
08 Mar 23	0800	dry	0.10	D 2					0.10	+2.15		(TOPSOIL)			
			0.20	D 3								Firm brown locally mottled orangish brown CLAY with rare lenses (15x15x3mm) of dark brown silt and occasional rootlets.			
			0.20 - 0.50	B 4					(0.40)			(MADE GROUND)			
			0.50	ES 5		0.50	PID	0.0 ppmv (Test 2)	0.50	+1.75		Firm brownish grey mottled brown CLAY with occasional pockets (25x25x25mm) of orangish brown silty clay.			
			0.60	D 6								(MADE GROUND)			
			0.60 - 1.00	B 7					(0.70)						
08 Mar 23	1800	dry	1.00	ES 8		1.00	PID	0.0 ppmv (Test 3)							
									1.20	+1.05		END OF EXPLORATORY HOLE			1.20

General Remarks

Termination Reason: Cone Penetration Test (CPT) undertaken at base of inspection pit (CPT13).

Stability Stable
Shoring None
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **CPT13**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.26 mOD
CP	0.00 - 1.20	08 Mar 23 - 08 Mar 23	Hand dug inspection pit	Hand tools	Labourers	NH	08 Mar 23	Width 0.30 m Length 0.30 m C B D A	Depth	Remarks	Coordinates	E 567417.63
Approved											National Grid	N 174080.03
CP											System	OSGB

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
		0.05	ES 1		0.05	PID	0.0 ppmv (Test 1)				Grass over soft to firm dark brown slightly gravelly silty CLAY with frequent rootlets and occasional plant material (up to 5x3x1mm). Gravel is angular to subangular fine to medium of flint and chalk. (TOPSOIL)			
08 Mar 23	0800 dry	0.10	D 2					(0.30)						
		0.10 - 0.30	B 3					0.30	+1.96					
		0.40	D 4								Firm brown gravelly CLAY with rare rootlets and rare plant material debris (3x2x1mm). Gravel is subangular medium to coarse of flint and chalk. (MADE GROUND)			
		0.50 - 0.80	B 6		0.50	PID	0.1 ppmv (Test 2)							
		0.50	ES 5					(0.50)						
								0.80	+1.46		Soft brown silty CLAY with rare lenses (5x5x2mm) of greyish yellow silt and rare plant material (up to 4x2x1mm). (MADE GROUND)			
		0.90	D 7											
08 Mar 23	1800 dry	1.00 - 1.20	B 9		1.00	PID	0.0 ppmv (Test 3)	(0.40)						
		1.00	ES 8					1.20	+1.06		END OF EXPLORATORY HOLE			1.20

General Remarks

Termination Reason: Cone Penetration Test (CPT) undertaken at base of inspection pit (CPT14).

Stability Stable
Shoring None
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **CPT14**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.37 mOD
CP	0.00 - 1.20	09 Mar 23 - 09 Mar 23	Hand dug inspection pit	Hand tools	Labourers	WT	09 Mar 23	Width 0.30 m Length 0.30 m C / B / D / A	Depth	Remarks	Coordinates	E 567456.11
Approved											National Grid	N 174019.84
CP											System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
09 Mar 23	0800	dry	0.00 - 0.80	B 1								Grass over soft greyish brown slightly gravelly silty CLAY with frequent rootlets. Gravel is subangular to subrounded fine to medium of flint and occasional brick. (MADE GROUND)			
			0.20	ES 2		0.20	PID	0.0 ppmv (Test 1)							
			0.50	D 3					(0.80)						
			0.80 - 1.20	B 4					0.80	+1.57					
			0.90	ES 5		0.90	PID	0.0 ppmv (Test 2)				Soft to firm grey mottled brown slightly gravelly silty CLAY with occasional rootlets. Gravel is subangular to subrounded fine to medium of flint and rare brick. (MADE GROUND)			
09 Mar 23	1800	dry	1.00	D 6					(0.40)						
									1.20	+1.17		END OF EXPLORATORY HOLE			1.20

General Remarks

Termination Reason: Cone Penetration Tests (CPTs) undertaken at base of inspection pit (CPT15, CPT15A, CPT15B)

Stability Stable
Shoring None
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **CPT15**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.41 mOD
CP	0.00 - 1.20	07 Mar 23 - 07 Mar 23	Hand dug inspection pit	Hand tools	Labourers	PS	07 Mar 23	Width 0.30 m Length 0.30 m C / B / D / A	Depth	Remarks	Coordinates	E 567384.30
Approved											National Grid	N 174182.46
CP											System	OSGB

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
								(0.10)			Grass over soft dark brown slightly sandy clayey SILT with frequent rootlets and roots (up to 5mm diameter). Sand is fine to medium. (TOPSOIL)			
07 Mar 23	0800 dry	0.10	D 1					0.10	+2.31					
		0.20	ES 2		0.20	PID	0.1 ppmv (Test 1)				Soft to firm dark brown slightly sandy slightly gravelly clayey SILT with low cobble content and frequent rootlets and roots (up to 5mm diameter). Sand is fine to medium. Gravel is subangular fine to coarse of flint limestone and rare brick. Cobbles are angular to subangular of concrete. (MADE GROUND)			
		0.30 - 0.40	B 3					(0.30)						
								0.40	+2.01		Firm dark greyish brown slightly sandy slightly gravelly CLAY with frequent rootlets. Sand is fine to medium. Gravel is subangular fine of limestone and red brick. (MADE GROUND)			
		0.80	D 4					(0.80)						
		0.90	ES 5		0.90	PID	0.0 ppmv (Test 2)							
07 Mar 23	1800 dry	1.00 - 1.20	B 6											
								1.20	+1.21		END OF EXPLORATORY HOLE			1.20

General Remarks

Termination Reason: Cone Penetration Test (CPT) undertaken at base of inspection pit (CPT16)

Stability Stable
Shoring None
Weather

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **CPT16**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.34 mOD
CP	0.00 - 3.00	24 Jan 23 - 24 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	24 Jan 23	Width 0.60 m, Length 4.00 m; C/B/D/A; 354 (Deg)	Depth	Remarks	Coordinates	E 567356.09
Approved											National Grid	N 174208.37
CP											System	OSGB

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
24 Jan 23	1422 Dry	0.00 - 0.30	B 1					(0.30)			Grass over firm dark brown slightly gravelly CLAY with frequent rootlets and rare roots (up to 5mm diameter). Gravel is subangular to subrounded fine to medium of flint. (TOPSOIL)			
		0.20	D 2											
		0.30 - 1.00	LB 4		0.30	PID	0.0 ppmv (Test 1)	0.30	+2.04		Cream slightly sandy gravelly SILT. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of extremely weak chalk and flint. (MADE GROUND)			
		0.30	ES 3											
								(1.70)						
		1.20	D 5											
		1.30	ES 6		1.30	PID	0.1 ppmv (Test 2)							
		2.00 - 2.50	LB 7					2.00	+0.34		Soft dark bluish grey CLAY with occasional lenses (up to 400x200x10mm) of fine to medium sand and occasional fragments (up to 10x10x10mm) of black decomposed wood. (ALLUVIUM)		1	
		2.20	D 8											
		2.30	ES 9		2.30	PID	0.2 ppmv (Test 3)							
								(1.00)						
24 Jan 23	1510 wet													
								3.00	-0.66		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Unstable, side C collapsed at 3.00m.
Shoring	None
Weather	Cold cloud no wind

Groundwater Entries

No.	Depth	Remarks	Sealed
1	2.00	Slow seepage	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit: **TP11**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.17 mOD
CP	0.00 - 3.00	25 Jan 23 - 25 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	25 Jan 23	Width 0.90 m, Length 4.00 m; C/B/D/A; 175 (Deg)	Depth	Remarks	Coordinates	E 567450.04
Approved											National Grid	N 174145.88
CP											System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
									0.00						
25 Jan 23	1334	Dry	0.10 - 0.40	LB 1					(0.10)						
									0.10	+2.07		Grass over firm dark brown slightly gravelly CLAY with frequent rootlets and with rare roots (up to 10mm diameter). Gravel is fine to coarse of flint. (TOPSOIL)			
									(0.50)			Soft orangish brown slightly sandy gravelly CLAY with medium cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of yellow and red brick and flint. Cobbles are angular to subrounded (up to 70x70x70mm) of yellow and red brick and flint. (MADE GROUND)	0.40-0.60 Becomes dark grey with high cobble content. Cobbles are angular to subrounded (up to 70x70x70mm) of red and yellow bricks and flint.		
			0.50	D 2											
			0.60	ES 3					0.60	+1.57		Stiff orangish brown mottled reddish brown and bluish grey CLAY with occasional lenses (up to 100x50x5mm of fine to medium sand). (ALLUVIUM).			
			0.70 - 1.20	LB 4											
									(1.40)						
			1.50	D 5											
			1.60	ES 6											
									2.00	+0.17		Soft bluish grey mottled orangish brown CLAY with frequent fragments (up to 10x10x10mm) of black decomposed wood and plant material. (ALLUVIUM)			
			2.00 - 2.50	LB 7											
			2.50	D 8					(1.00)						
			2.60	ES 9											
25 Jan 23	1515	Dry													
									3.00	-0.83		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Stable
Shoring	None
Weather	Cold cloud moderate wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **TP12**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.40 mOD
CP	0.00 - 4.00	24 Jan 23 - 24 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	24 Jan 23	Width 0.80 m, Length 4.00 m, C/B/D/A, 281 (Deg)	Depth	Remarks	Coordinates	E 567357.80
Approved											National Grid	N 174139.96
CP											System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
24 Jan 23	1204	Dry	0.00 - 0.30	B 1					(0.30)			Grass over firm dark brown slightly gravelly CLAY with frequent rootlets and occasional roots (up to 5mm diameter). Gravel is subangular to subrounded fine of flint. (TOPSOIL)			
			0.20	D 2											
			0.30 - 0.90	LB 4		0.30	PID	0.0 ppmv (Test 1)	0.30	+2.10		Firm brown gravelly CLAY with occasional rootlets. Gravel is angular to subrounded fine to coarse of flint. (MADE GROUND)			
			0.30	ES 3											
									(1.20)						
			1.00	ES 5		1.00	PID	0.2 ppmv (Test 2)							
			1.20	D 6									1.20 Black plastic pipe.		
			1.50 - 2.00	LB 7					1.50	+0.90		Soft light orangish brown mottled bluish grey CLAY with occasional lenses (up to 200x50x5mm) of fine to medium sand and rare rootlets. (ALLUVIUM).			
			2.00	ES 8		2.00	PID	0.3 ppmv (Test 3)	(1.00)						
			2.20	D 9											
			2.50 - 3.00	LB 10					2.50	-0.10		Soft dark bluish grey CLAY with low cobble content, occasional lenses (up to 400x200x10mm) of fine to medium sand and occasional fragments (up to 10x10x10mm) of black decomposed wood. Cobbles are subangular to subrounded (up to 70x70x70mm) of flint. (ALLUVIUM)			
			3.00	ES 11		3.00	PID	0.3 ppmv (Test 4)							
			3.20	D 12					(1.50)						
24 Jan 23	1301	Dry													
									4.00	-1.60		END OF EXPLORATORY HOLE			4.00

General Remarks

Unable to photograph faces A & C due to pit instability & safety concerns.

Stability	Unstable, face C collapsed at 4.00m.
Shoring	None
Weather	Cold cloud no wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
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Trial Pit **TP13**

Sheet 1 of 1

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation
CP	0.00 - 3.00	24 Jan 23 - 24 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	24 Jan 23	Width 1.50 m, Length 4.80 m, 214 (Deg)
Approved								
CP								

Depth Related Remarks	
Depth	**Remarks**

Ground Level	2.25 mOD
Coordinates	E 567409.30
National Grid	N 174165.96
System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
			0.00 - 0.20	B 1					(0.20)			Grass over firm dark brown slightly gravelly CLAY with frequent rootlets and with occasional roots (up to 10mm diameter). Gravel is angular to subangular fine to medium of flint. (TOPSOIL)			
24 Jan 23	1020	Dry	0.20 - 0.80	LB 4		0.20	PID	0.0 ppmv (Test 1)	0.20	+2.05		Soft light orangish brown mottled bluish grey CLAY with occasional lenses (up to 200x100x5mm) of orangish brown fine to medium sand and occasional rootlets. (ALLUVIUM)			
			0.20	D 2											
			0.20	ES 3											
									(1.40)						
			1.00	D 5											
			1.20	ES 6		1.20	PID	0.1 ppmv (Test 2)							
			1.60 - 2.20	LB 7					1.60	+0.65		Soft dark bluish grey CLAY. (ALLUVIUM)	1.60-3.00 Strong organic odour.		
			2.20	ES 8		2.20	PID	0.3 ppmv (Test 3)							
									(1.40)						
			2.60	D 9											
24 Jan 23	1125	Dry							3.00	-0.75		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Stable
Shoring	None
Weather	Cold cloud light wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Trial Pit **TP14**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.38 mOD
CP	0.00 - 3.00	25 Jan 23 - 25 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	25 Jan 23	Width 0.80 m, Length 4.00 m; C/B/D/A; 345 (Deg)	Depth	Remarks	Coordinates	E 567410.74
Approved											National Grid	N 174128.23
CP											System	OSGB

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
25 Jan 23	0954	Dry	0.00 - 0.30	B 1					(0.30)			Grass over firm dark brown CLAY with frequent rootlets and rare roots (up to 5mm diameter). (TOPSOIL)			
			0.30	D 2					0.30	+2.08		Soft orangish brown mottled bluish grey CLAY with frequent pockets (up to 50x50x10mm) of orangish brown fine to coarse sand, and rare rootlets. (ALLUVIUM)			
			0.30	ES 3											
			0.50 - 1.00	LB 4											
			1.30	D 5					(2.10)						
			1.30	ES 6											
			2.40 - 2.80	LB 7					2.40	-0.02		Soft dark bluish grey CLAY with occasional lenses (up to 300x150x10mm) of fine to coarse sand, and occasional fragments (up to 10x10x10mm) of black decomposed wood. (ALLUVIUM)	2.40-3.00 Strong organic odour.	1	
			2.40	D 8											
			2.40	ES 9					(0.60)						
25 Jan 23	1100	Dry							3.00	-0.62		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Unstable. Face A & C collapsed at 3.00m.
Shoring	None
Weather	Cold cloud light wind

Groundwater Entries

No.	Depth	Remarks	Sealed
1	2.40	Slow seepage	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **TP15**

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.13 mOD
CP	0.00 - 3.00	25 Jan 23 - 25 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	25 Jan 23	Width 0.80 m, Length 4.00 m; C/B/D/A; 300 (Deg)	Depth	Remarks	Coordinates	E 567446.06
Approved											National Grid	N 174097.94
CP											System	OSGB

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
									0.00						
25 Jan 23	1124	Dry	0.00 - 0.40	B 1					(0.50)			Grass over firm dark orangish brown slightly gravelly CLAY with frequent rootlets and with occasional roots (up to 10mm diameter). Gravel is subangular to subrounded fine to coarse of flint and chalk. (TOPSOIL)			
			0.40	D 2					0.50	+1.63			0.40-0.50 Becomes gravelly. Gravel is subangular to subrounded fine to medium of chalk.		
			0.50	ES 3								Soft dark orangish brown mottled bluish grey CLAY with frequent lenses (up to 100x50x5mm) of orangish brown fine to coarse sand, and occasional rootlets. (ALLUVIUM)			
			0.80 - 1.20	LB 4											
			1.40	D 5					(1.80)						
			1.50	ES 6											
			2.30 - 2.80	LB 7					2.30	-0.17		Soft dark bluish grey CLAY with frequent fragments (up to 10x10x10mm) of black decomposed wood and plant material. (ALLUVIUM)			
			2.40	D 8											
			2.50	ES 9											
									(0.70)						
25 Jan 23	1400	Dry							3.00	-0.87		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Stable
Shoring	None
Weather	Cloud light wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Trial Pit

TP16

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.31 mOD
CP	0.00 - 3.00	25 Jan 23 - 25 Jan 23	Machine excavated trial pit	Tracked 360 excavator	Labourers	HM	25 Jan 23	Width 0.80 m Length 4.00 m C / B / D / A 260 (Deg)	Depth	Remarks	Coordinates	E 567358.23
Approved											National Grid	N 174168.56
CP											System	

Date	Time	Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Water Entry	Backfill
25 Jan 23	0857	Dry	0.00 - 0.20	B 1					(0.30)			Grass over soft dark brown slightly gravelly CLAY frequent rootlets and with rare roots (up to 10mm diameter). Gravel is subangular to subrounded fine to coarse of flint. (TOPSOIL)			
			0.30	D 2					0.30	+2.01					
			0.30	ES 3								Soft orangish brown slightly gravelly CLAY with frequent rootlets and rare roots (up to 10mm diameter). Gravel is subangular to subrounded fine to coarse of flint. (MADE GROUND)			
			0.40 - 0.80	LB 4					(0.70)						
			0.80	D 5											
			1.00	ES 6					1.00	+1.31					
			1.20 - 1.80	LB 7								Soft dark orangish brown mottled grey CLAY with occasional pockets (up to 50x10x5mm) of fine to coarse sand, and rare roots (up to 10mm diameter). (ALLUVIUM).			
			1.80	D 8											
			2.00	ES 9					(2.00)						
25 Jan 23	0930	Dry													
									3.00	-0.69		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability Stable
Shoring None
Weather Cold cloud light wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit **TP17**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.14 mOD
CP	0.00 - 3.00	26 Jan 23 - 26 Jan 23	Machine excavated trial pit/trench	Tracked 360 excavator	Labourers	HM	26 Jan 23	Width 0.80 m, Length 4.00 m, C/B/D/A, 331 (Deg)	Depth	Remarks	Coordinates	E 567409.88
Approved											National Grid	N 174020.90
CP											System	

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
												Grass over firm dark brown CLAY with frequent rootlets and rare roots (up to 5mm in diameter). (TOPSOIL)			
26 Jan 23	0800	Dry	0.00 - 0.30	B 1					(0.30)						
			0.30 0.30	D 2 ES 3		0.30	PID	0.1 ppmv (Test 1)	0.30	+1.84		Soft orangish brown mottled bluish grey CLAY with occasional pockets (up to 20x20x5mm) of fine to medium sand and occasional rootlets. (ALLUVIUM)			
			0.50 - 1.00	LB 4					(1.50)						
			1.30 1.30	D 5 ES 6		1.30	PID	0.1 ppmv (Test 2)						1	
			1.80 - 2.20	LB 7					1.80	+0.34		Soft dark bluish grey CLAY with frequent fragments (up to 400x200x5mm) of black decomposed wood and plant material. Strong organic odour. (ALLUVIUM)			
			2.30 2.30	D 8 ES 9		2.30	PID	0.2 ppmv (Test 3)	(1.20)						
26 Jan 23	1700	Wet							3.00	-0.86		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Unstable. Side A collapsed In at 3.00m.
Shoring	None
Weather	cold cloud moderate wind

Groundwater Entries

No.	Depth	Remarks	Sealed
1	1.50	Slow seepage.	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Trial Pit **TP18**

Trial Pit Log

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Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.52 mOD
CP	0.00 - 3.00	26 Jan 23 - 26 Jan 23	Machine excavated trial pit/trench	Tracked 360 excavator	Labourers	HM	26 Jan 23	Width 0.80 m, Length 4.00 m, C/B/D/A, 260 (Deg)	Depth	Remarks	Coordinates	E 567506.53
Approved											National Grid	N 174001.88
CP											System	

Date	Time	Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
									0						
26 Jan 23	0800	Dry	0.10 - 0.40	LB 1					(0.10) 0.10	+2.42		Grass over firm dark brown slightly gravelly CLAY with frequent rootlets and occasional roots (up to 5mm in diameter). Gravel is subangular to subrounded fine to medium of flint. (TOPSOIL)			
									(0.40)			Firm greyish brown slightly sandy gravelly CLAY with occasional rootlets and rare fragments (up to 150x100x10mm) of black decaying wood. Sand is fine to medium. Gravel is subangular to subrounded fine to medium of flint. (MADE GROUND)			
			0.50 - 1.00	LB 4		0.50	PID	0.0 ppmv (Test 1)	0.50	+2.02		Soft orangish brown mottled greyish blue CLAY with occasional pockets (up to 50x30x5mm) of fine to medium sand. (ALLUVIUM)			
			0.50	D 2											
			0.50	ES 3											
									(1.00)						
			1.40	D 5											
			1.50	ES 6		1.50	PID	0.1 ppmv (Test 2)	1.50	+1.02		Soft dark bluish grey CLAY with occasional lenses (up to 300x200x10mm) of black decayed plant material. Strong organic odour. (ALLUVIUM)			
			1.60 - 2.00	LB 7											
									(1.50)						
			2.40	D 8											
			2.50	ES 9		2.50	PID	0.3 ppmv (Test 3)							
26 Jan 23	1700	Dry							3.00	-0.48		END OF EXPLORATORY HOLE			3.00

General Remarks

Stability	Stable
Shoring	None
Weather	cold cloud slight precipitation light wind

Groundwater Entries

No.	Depth	Remarks	Sealed

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

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Trial Pit

TP19

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	2.14 mOD
CP	0.00 - 3.00	26 Jan 23 - 26 Jan 23	Machine excavated trial pit/trench	Tracked 360 excavator	Labourers	hm	26 Jan 23	Width 0.80 m Length 4.00 m C / B / D / A 248 (Deg)	Depth	Remarks	Coordinates	E 567419.34
Approved											National Grid	N 174031.67
CP											System	

Date	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Water Entry	Backfill
								0						
26 Jan 23	0800 Dry	0.00 - 0.40	LB 1					(0.40)			Grass over firm dark brown CLAY with frequent rootlets with rare roots (up to 10mm in diameter). (TOPSOIL)			
		0.40 0.40 0.50 - 1.00	D 2 ES 3 LB 4		0.40	PID	0.0 ppmv (Test 1)	0.40	+1.74		Soft orangish brown mottled bluish grey CLAY with occasional pockets (up to 40x30x5mm) of fine to medium sand and rare rootlets. (ALLUVIUM)			
								1						
								(1.60)						
		1.40 1.40	D 5 ES 6		1.40	PID	0.1 ppmv (Test 2)							
								2						
		2.00 - 2.50	LB 7					2.00	+0.14		Soft dark bluish grey CLAY with frequent fragments (up to 250x200x5mm) of black decomposed wood and plant material. Strong organic odour. (ALLUVIUM)			
		2.40 2.40	D 8 ES 9		2.40	PID	0.2 ppmv (Test 3)							
								(1.00)						
26 Jan 23	1700 Wet												1	
								3						3.00
								3.00	-0.86		END OF EXPLORATORY HOLE			
								4						
								5						

General Remarks

Stability	Unstable. Side A collapsed at 3:00.
Shoring	None
Weather	cold cloud moderate wind

Groundwater Entries

No.	Depth	Remarks	Sealed
1	2.90	Slow seepage.	

Notes

For explanation of symbols and abbreviations see Key to Exploratory Hole Records. All depths and reduced levels in metres. Stratum thickness given in brackets in depth column.

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
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Trial Pit

TP20

APPENDIX C
FIELD TESTING

Variable Head Permeability Tests (Falling Head)	BH04, BH05 and BH06
Thermal Resistivity Tests	C2
Thermal Resistivity Needle Probe Calibration Certificate	TR-3 02656
Electrical Conductivity Tests	IRES-1 to IRES-3 (6 sheets)
Key to Cone Penetration Test Records	Key CPT
Cone Calibration Certificate	S15-CFIIPM
CPT Tests	CPT12A to CPT16 (13 sheets)
CPT Dissipation Test Results	CPT12A to CPT16 (6 sheets)
CPT Magnetometer Plots	CPT12A to CPT16 (13 sheets)
Packer Permeability Tests	BH05/1, BH05/2, BH06/1 and BH06/2

Variable Head Permeability Test

SOCOTEC

LOCATION TYPE	Borehole
TEST TYPE	Falling Head

DETAILS OF TEST ZONE:

Depth of casing	15.50	m BGL
Depth of borehole	16.00	m BGL
Diameter of borehole (D)	150	mm
Height of casing above ground level (datum)	0.20	m

BOREHOLE No.	BH04
TEST NUMBER	1
Date of test	09-Mar-23
Test operator	NH

TEST ZONE CONDITIONS

Diameter of response zone (D)	150	mm
Length of response zone (L)	500	mm
Well point or hole extended in uniform soil (8) Shape factor (F) after Hvorslev (1951)	1.64	m

GROUNDWATER CONDITIONS

Depth to groundwater prior to test	6.40	m BGL
Groundwater level for analysis (Based on observation in borehole)	6.40	m BGL

TEST DATA

Elapsed time, t (minutes)	Depth to water below datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	0.00	6.60	1.00
0.5	0.01	6.60	1.00
1	0.01	6.59	1.00
1.5	0.02	6.59	1.00
2	0.02	6.59	1.00
2.5	0.02	6.58	1.00
3	0.03	6.58	1.00
3.5	0.03	6.58	1.00
4	0.03	6.58	1.00
4.5	0.03	6.57	1.00
5	0.03	6.57	1.00
6	0.03	6.57	1.00
7	0.03	6.57	1.00
8	0.03	6.57	1.00
9	0.03	6.57	1.00
10	0.03	6.57	1.00
15	0.03	6.57	1.00
20	0.04	6.57	0.99
25	0.04	6.57	0.99
30	0.04	6.57	0.99
35	0.04	6.56	0.99
40	0.04	6.56	0.99
45	0.04	6.56	0.99
50	0.05	6.56	0.99
55	0.05	6.56	0.99
60	0.05	6.55	0.99

CALCULATED VALUES

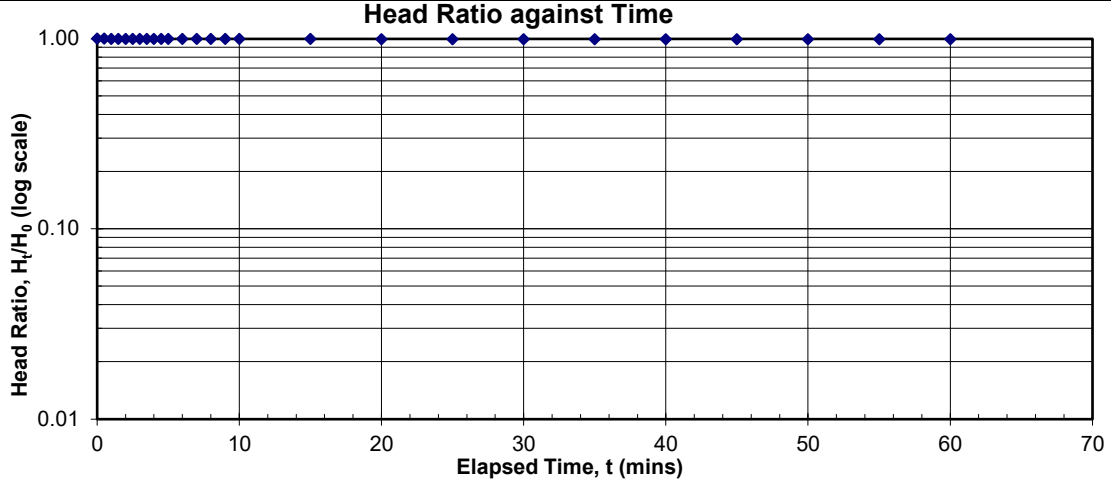
Permeability calculation based on BS EN ISO 22282-2 : 2012 Section B.4.2 (Hvorslev method - general approach)

Differential head at start of test, H_0	6.60	m
Differential head at end of test, H_f	6.55	m
Time elapsed at end of test	60	mins
Proportion of test recovery	1	%

Permeability (k) = m/sec

REMARKS

Test has not achieved 75% recovery.



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Checked: CP Approved: CP	Notes:	Project Project No. Carried out for	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed D2064-22 BakerHicks Limited	Test **BH04**

Variable Head Permeability Test

SOCOTEC

LOCATION TYPE	Borehole
TEST TYPE	Falling Head

DETAILS OF TEST ZONE:

Depth of casing	17.00	m BGL
Depth of borehole	17.00	m BGL
Diameter of borehole (D)	150	mm
Height of casing above ground level (datum)	0.21	m

BOREHOLE No.	BH05
TEST NUMBER	1
Date of test	23-Mar-23
Test operator	KWA

TEST ZONE CONDITIONS

Diameter of response zone (D)	150	mm
Length of response zone (L)	0	mm
Soil flush with bottom in uniform soil (4)		
Shape factor (F) after Hvorslev (1951)	0.41	m

GROUNDWATER CONDITIONS

Depth to groundwater prior to test	4.96	m BGL
Groundwater level for analysis	4.96	m BGL
(Based on groundwater depth prior to test)		

TEST DATA

Elapsed time, t (minutes)	Depth to water below datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	0.00	5.17	1.00
0.5	0.02	5.15	1.00
1	0.04	5.13	0.99
1.5	0.06	5.11	0.99
2	0.08	5.09	0.98
2.5	0.08	5.09	0.98
3	0.08	5.09	0.98
3.5	0.08	5.09	0.98
4	0.09	5.08	0.98
4.5	0.09	5.08	0.98
5	0.09	5.08	0.98
6	0.09	5.08	0.98
7	0.09	5.08	0.98
8	0.09	5.08	0.98
9	0.09	5.08	0.98
10	0.10	5.07	0.98
15	0.11	5.06	0.98
20	0.12	5.05	0.98
25	0.12	5.05	0.98
30	0.12	5.05	0.98
35	0.13	5.04	0.97
40	0.13	5.04	0.97
45	0.13	5.04	0.97
50	0.13	5.04	0.97
55	0.14	5.03	0.97
60	0.14	5.03	0.97

CALCULATED VALUES

Permeability calculation based on BS EN ISO 22282-2 : 2012
Section B.4.2 (Hvorslev method - general approach)

Differential head at start of test, H_0	5.17	m
Differential head at end of test, H_f	5.03	m
Time elapsed at end of test	60	mins
Proportion of test recovery	3	%

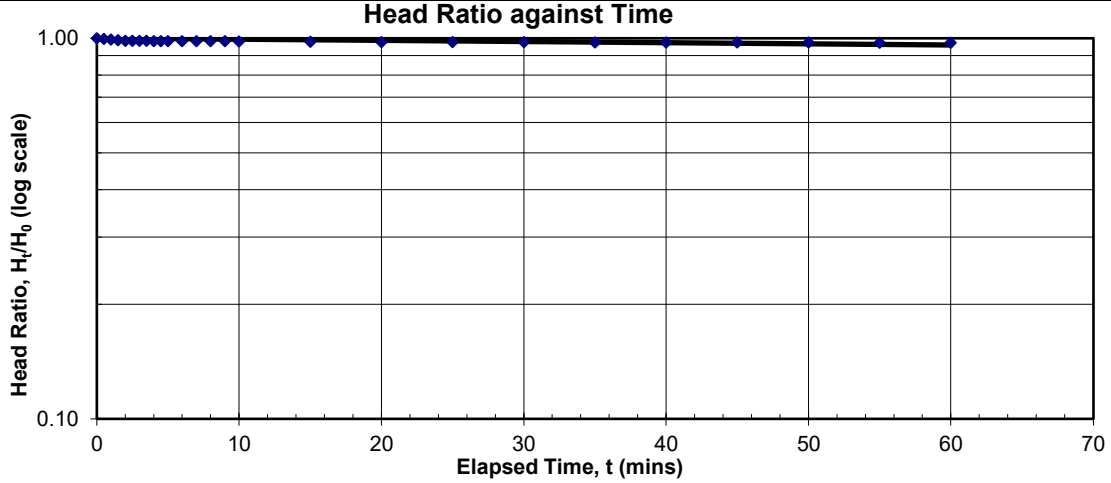
Coordinates of best fit line to data:

t_1 = 2.0 mins	H_1/H_0 = 1.000
t_2 = 60.0 mins	H_2/H_0= 0.960

Permeability (k) = 5.0E-07 m/sec

REMARKS

Test has not achieved 75% recovery.



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Checked: CP Approved: CP	Notes:	Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed	Test BH05
		Project No.	D2064-22	
		Carried out for	BakerHicks Limited	

Variable Head Permeability Test

SOCOTEC

LOCATION TYPE	Borehole
TEST TYPE	Falling Head

DETAILS OF TEST ZONE:

Depth of casing	16.00	m BGL
Depth of borehole	16.00	m BGL
Diameter of borehole (D)	200	mm
Height of casing above ground level (datum)	0.20	m

BOREHOLE No.	BH06
TEST NUMBER	1
Date of test	16-Mar-23
Test operator	KWA

TEST ZONE CONDITIONS

Diameter of response zone (D)	200	mm
Length of response zone (L)	0	mm
Soil in casing with bottom in uniform soil (6) Shape factor (F) after Hvorslev (1951)	0.55	m

TEST DATA

Elapsed time, t (minutes)	Depth to water below datum (m)	Head, H_t (m)	Head Ratio H_t/H_0
0	0.10	6.25	1.00
0.5	0.19	6.16	0.99
1	0.23	6.12	0.98
1.5	0.26	6.09	0.97
2	0.30	6.05	0.97
2.5	0.35	6.00	0.96
3	0.40	5.95	0.95
3.5	0.45	5.90	0.94
4	0.48	5.87	0.94
4.5	0.53	5.82	0.93
5	0.55	5.80	0.93
6	0.62	5.73	0.92
7	0.68	5.67	0.91
8	0.74	5.61	0.90
9	0.80	5.55	0.89
10	0.85	5.50	0.88
15	1.05	5.30	0.85
20	1.27	5.08	0.81
25	1.40	4.95	0.79
30	1.55	4.80	0.77
35	1.68	4.67	0.75
40	1.78	4.57	0.73
45	1.87	4.48	0.72
50	1.93	4.42	0.71
55	2.03	4.32	0.69
60	2.10	4.25	0.68

GROUNDWATER CONDITIONS

Depth to groundwater prior to test	6.15	m BGL
Groundwater level for analysis (Based on groundwater depth prior to test)	6.15	m BGL

CALCULATED VALUES

Permeability calculation based on BS EN ISO 22282-2 : 2012 Section B.4.2 (Hvorslev method - general approach)

Differential head at start of test, H_0	6.25	m
Differential head at end of test, H_f	4.25	m
Time elapsed at end of test	60	mins
Proportion of test recovery	32	%

Coordinates of best fit line to data:

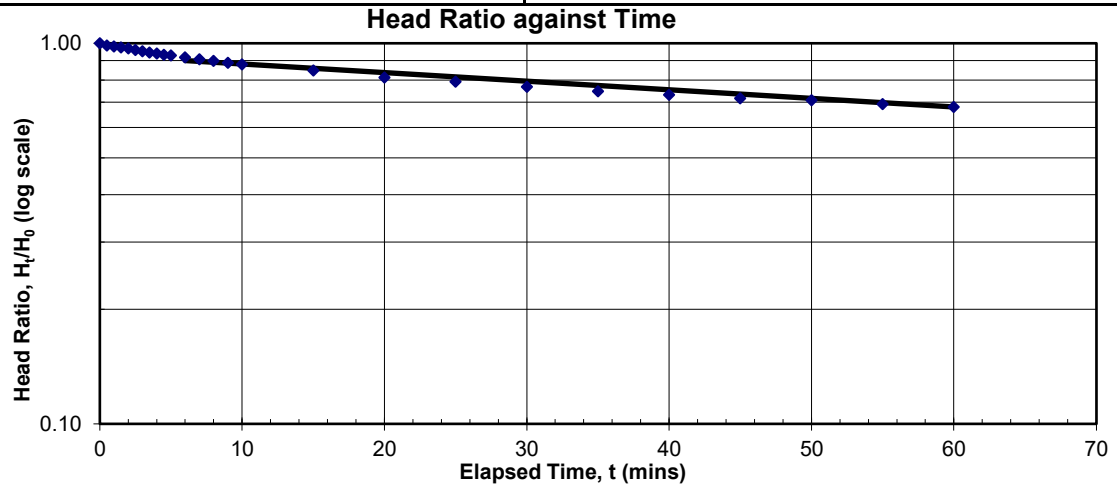
t_1 = 6.0 mins H_1/H_0 = 0.900

t_2 = 60.0 mins H_2/H_0 = 0.680

Permeability (k) = 4.9E-06 m/sec

REMARKS

Test has not achieved 75% recovery.



AGS

Checked: CP Approved: CP	Notes:	Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed	Test BH06
		Project No.	D2064-22	
		Carried out for	BakerHicks Limited	

In-situ Thermal Resistivity Summary

SOCOTEC

Borehole/ Sample Ref.	Test Depth (m)	Test No.	Sensor	Syx	Thermal Resistivity (°C.cm/W)	Thermal Conductivity (w/m.k)	Soil Temperature (°C)
Verification	N/A	1	02656	0.0004	271.89	0.37	19.1
CPT12	0.50	1	02656	0.0052	85.16	1.17	7.1
CPT12	0.50	2	02656	0.0015	94.17	1.06	6.7
CPT12	1.00	1	02656	0.0009	99.83	1.00	7.8
CPT14	0.50	1	02656	0.0013	76.02	1.32	6.5
CPT14	0.50	2	02656	0.0018	96.10	1.04	7.1
CPT14	1.00	1	02656	0.0024	84.59	1.18	7.7
CPT15	0.50	1	02656	0.0012	89.62	1.12	6.0
CPT15	0.50	2	02656	0.0013	71.34	1.40	6.1
CPT15	1.00	1	02656	0.0023	64.77	1.15	7.0
CPT16	0.50	1	02656	0.0014	108.42	0.92	6.6
CPT16	0.50	2	02656	0.0013	97.63	1.02	6.6
CPT16	1.00	1	02656	0.0010	90.13	1.11	7.5
CPT13	0.50	1	02656	0.0016	88.20	1.13	6.8
CPT13	0.50	2	02656	0.0019	92.41	1.08	6.6
CPT13	1.00	1	02656	0.0018	95.90	1.04	7.5

Notes: Tempos thermal properties analyser, TR-3 probe. Tests undertaken using ASTM/IEEE settings using 'high' power mode and a 10 minute run time. A verification check was undertaken on this device on 26 Feb 2023.

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed

Project No. D2064-22

Carried out for BakerHicks Limited

Figure C2

METER

METER Group, Inc. USA
Certificate of Quality Assurance

Model	TEMPOS	**Date**	March 9, 2022
Serial	TEM00000659	**Technician**	SL

Sensor		K ($Wm^{-1}K^{-1}$)	C ($MJ\ m^{-3}\ K^{-1}$)	D(mm^2s^{-1})	Temperature °C	Standard
TR-3	02656	0.284			21.10 °C	Glycerin

METER Certification

This document is to certify that the instrument indicated above has been tested and approved according to the METER Quality Assurance department, and has shown to function properly and to be free of event flaws or defects.

METER Group, Inc. USA
2365 NE Hopkins Court Pullman, WA 99163
T 509.332.2756 F 509.332.5158
E info@metergroup.com W metergroup.com

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	**IRES-1**	Easting (m):	567439.056
		Northing (m):	174142.247
		Ground Level (mOD):	2.368

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21.04.23
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
1	1.00	20	N/NE-S/SW	7.11	45	45
			NE-SE	7.32	46	
2	2.00	20	N/NE-S/SW	0.58	7	8
			NE-SE	0.65	8	
3	3.00	20	N/NE-S/SW	0.15	3	3
			NE-SE	0.17	3	
4	6.00	20-250	N/NE-S/SW	-0.04	-2	NA
			NE-SE	0.06	2	
5	9.00	20-250	N/NE-S/SW	-0.22	-13	NA
			NE-SE	-0.03	-2	

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

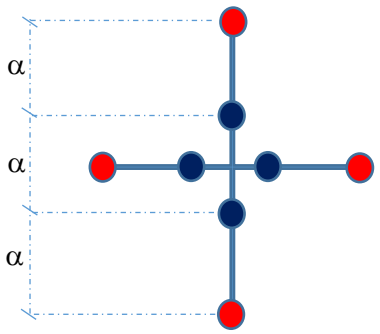
$$r_s = 2 \pi \alpha R \quad \text{ohm-m}$$ (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.



Test remarks:

Tests carried out with electrodes at ground level. Only one transect was able to be undertaken at 30, 40 and 60m spacings due to space restrictions at this location.

Weather:

Site had standing water in several areas during the test.

	Project	TKRE -Tilbury 400kV Uprating Feed	**Figure**
	Project No.	D2064-22B	**IRES-1**
	Carried out for	BakerHicks Limited	

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	IRES-1	Easting (m):	567439.056
		Northing (m):	174142.247
		Ground Level (mOD):	2.368

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21.04.23
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
6	14.00	20-250	N/NE-S/SW	0.02	2	NA
			NE-SE	-0.03	-3	
7	18.00	20-250	N/NE-S/SW	0.05	6	6
			NE-SE	0.05	6	
8	30.00	20-250	N/NE-S/SW	0.03	5	N/A
9	40.00	250	N/NE-S/SW	-0.06	-16	N/A
10	60.00	20-250	N/NE-S/SW	0.08	32	N/A

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

$r_s = 2 \pi \alpha R$ ohm-m (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

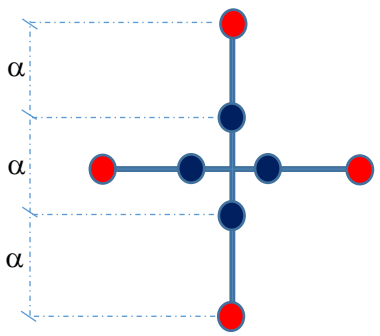
It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.

Test remarks:

Tests carried out with electrodes at ground level. Only one transect was able to be undertaken at 30, 40 and 60m spacings due to space restrictions at this location.

Weather:

Site had standing water in several areas during the test.



Project	TKRE -Tilbury 400kV Uprating Feed	**Figure**
Project No.	D2064-22B	**IRES-1**
Carried out for	BakerHicks Limited	

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	**IRES-2**	Easting (m):	(E-W) 567419.193 (N/NE-S/SW) 567439.056
		Northing (m):	(E-W) 174124.738 (N/NE-S/SW) 174142.247
		Ground Level (mOD):	(E-W) 2.317 (N/NE-S/SW) 2.368

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21 April 2023
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
1	1.00	20	N/NE-S/SW	7.11	100	NA
			E-W	1.46	9	
2	2.00	20	N/NE-S/SW	0.58	7	NA
			E-W	0.23	3	
3	3.00	20	N/NE-S/SW	0.15	3	3
			E-W	0.17	3	
4	6.00	20-250	N/NE-S/SW	-0.04	-2	NA
			E-W	0.03	1	
5	9.00	20-250	N/NE-S/SW	-0.22	-12	NA
			E-W	0.03	2	

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

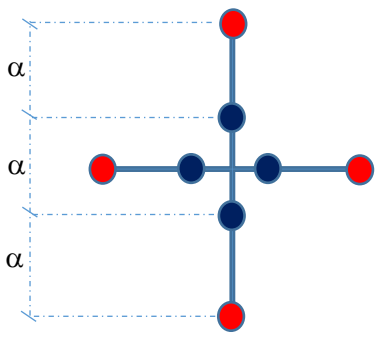
$r_s = 2 \pi \alpha R$ ohm-m (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.



Test remarks:

Shallow penetration due to concrete obstruction. Only one transect was able to be undertaken at 30, 42 and 60m spacings due to space restrictions at this location

Weather:

Very Heavy Rain - staning water present.

Project	TKRE -Tilbury 400kV Uprating Feed	**Figure**
Project No.	D2064-22B	**IRES-2**
Carried out for	BakerHicks Limited	

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	IRES-2	Easting (m):	(E-W) 567419.193 (N/NE-S/SW) 567439.056
		Northing (m):	(E-W) 174124.738 (N/NE-S/SW) 174142.247
		Ground Level (mOD):	(E-W) 2.317 (N/NE-S/SW) 2.368

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21 April 2023
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
1	14.00	20	N/NE-S/SW	0.02	100	NA
			E-W	0.04	3	
2	18.00	20	N/NE-S/SW	0.05	6	5
			E-W	0.04	4	
3	30.00	20	N/NE-S/SW	0.03	6	N/A
			E-W	N/A	N/A	
4	42.00	20-250	N/NE-S/SW	-0.06	-16	N/A
			E-W	N/A	N/A	
5	60.00	20-250	N/NE-S/SW	0.08	30	N/A
			E-W	N/A	N/A	

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

$$r_s = 2 \pi \alpha R \quad \text{ohm-m}$$ (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

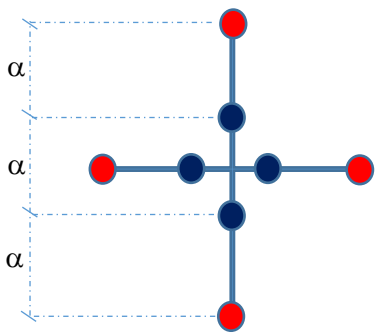
It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.

Test remarks:

Shallow penetration due to concrete obstruction. Only one transect was able to be undertaken at 30, 42 and 60m spacings due to space restrictions at this location

Weather:

Very Heavy Rain - standing water present



Project	TKRE -Tilbury 400kV Uprating Feed	**Figure** IRES-2
Project No.	D2064-22B	
Carried out for	BakerHicks Limited	

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	**IRES-3**	Easting (m):	567567.55
		Northing (m):	174234.79
		Ground Level (mOD):	2.04

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21 April 2023
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
1	1.00	250	W/NW-E/SE	0.75	5	N/A
2	2.00	250	W/NW-E/SE	0.24	3	N/A
3	3.00	250	W/NW-E/SE	0.35	7	N/A
4	6.00	250	W/NW-E/SE	0.00	0	N/A
5	9.00	250	W/NW-E/SE	0.29	17	N/A

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

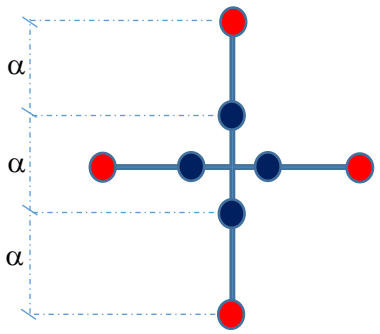
$r_s = 2 \pi \alpha R$ ohm-m (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.



Test remarks:

Only one transect was able to be undertaken due to space restrictions and dense vegetation at this location.

Weather:

Very Heavy Rain - Extremely boggy ground and standing water

Project	TKRE -Tilbury 400kV Uprating Feed	**Figure**
Project No.	D2064-22	**IRES-3**
Carried out for	BakerHicks Limited	

In situ Apparent Resistivity

SOCOTEC

Location:

Location Reference:	**IRES-3**	Easting (m):	567567.55
		Northing (m):	174234.79
		Ground Level (mOD):	2.04

Test:

Test Method:	Wenner Probe Method (BS1377 Part 9:1990:Clause 5.1)
Equipment:	
Test date:	21 April 2023
Operator:	JE/ WT

Results:

Test No	Depth m Note 1	Penetration mm Note 2	Orientation Note 3	Reading, R Ohm	Resistivity, r_s Ohm-m Note 4	Mean r_s Ohm-m Note 5
6	14.00	250	W/NW-E/SE	-0.85	-75	N/A
7	18.00	250	W/NW-E/SE	0.05	6	N/A
8	30.00	250	W/NW-E/SE	-0.01	-2	N/A
9	42.00	250	W/NW-E/SE	N/A	N/A	N/A
10	60.00	250	W/NW-E/SE	N/A	N/A	N/A

Notes:

Note 1: The depth to which resistivity is measured is equal to the spacing of the electrodes (α).

Note 2: Penetration of the electrodes into the soil.

Note 3: Approximate orientation of the orthoganal electrode arrays.

Note 4: Apparent resistivity, reported to two significant figures (using the SI units of ohm-m):

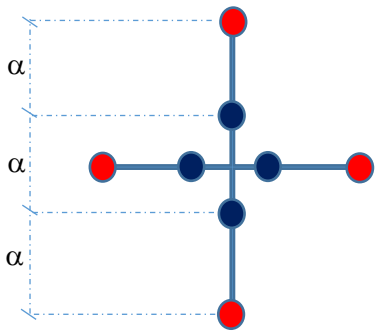
$r_s = 2 \pi \alpha R$ ohm-m (The customary unit, ohm.cm, is equal to 0.01 ohm-m)

Note 5: Mean result reported only where results in different orientations are within 15% of the mean.

General remarks:

Test configuration shown in sketch to right (with transmitting electrodes in red and receiving electrodes in blue). Coordinates and ground level relate to the centre of the test area.

It should be appreciated that Apparent Resistivity values can be affected by characteristics of the ground other than those which may be correlated with corrosion potential, and the presence of underground services and structures could produce anomalous results.



Test remarks:

Only one transect was able to be undertaken due to space restrictions and dense vegetation at this location.

Weather:

Very Heavy Rain - Extremely boggy ground and standing water

	Project	TKRE -Tilbury 400kV Uprating Feed	**Figure**
	Project No.	D2064-22	**IRES-3**
	Carried out for	BakerHicks Limited	

Key to Cone Penetration Test Records

SOCOTEC

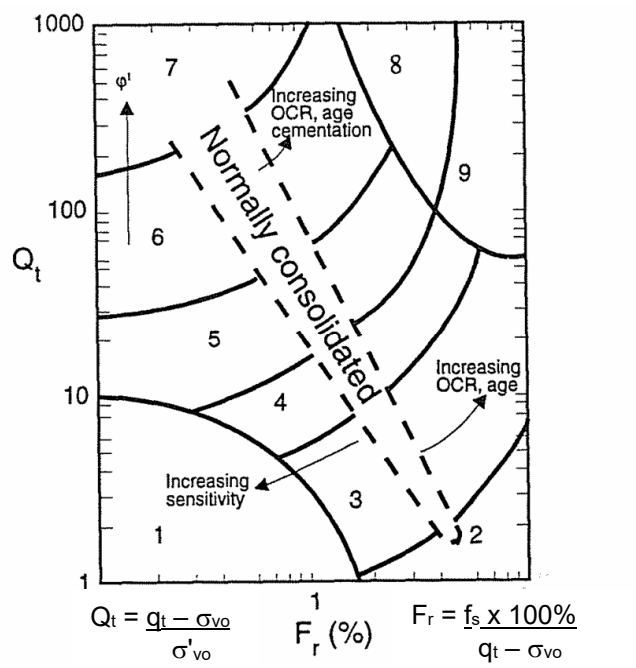
Parameter	Unit	Description	Equation
Measured parameters			
q_c	MPa	Cone resistance	Measured parameter
f_s	kPa	Sleeve friction	Measured parameter
I	degrees	Inclination	Measured parameter
u	kPa	Dynamic pore pressure (Piezocone only)	Measured parameter. Denoted as u_1 and u_2 for pore pressure filter locations on cone face and cone shoulder respectively.
-	m/s	Penetration depth and corresponding time	Measured parameters
Derived cone parameters			
R_f	%	Friction ratio	f_s / q_c . 100 %
q_t	MPa	Corrected cone resistance (Piezocone only)	$q_c + (1 - a) . u_2$ a = area ratio of cone = A_n/A_c A_n = cross sectional areas of cone tip shaft A_c = projected area of cone tip
f_t	MPa	Corrected sleeve friction (Piezocone only)	$(f_s – (u_2 . A_{sb} – u_3 . A_{st})) / A_s$ b = area ratio of friction sleeve A_{sb} and A_{st} are bottom and top cross sectional areas of friction sleeve
q_e	MPa	Effective cone resistance (Piezocone only)	$q_t – u_2$
q_n	MPa	Net cone resistance (Piezocone or using $q_t = q_c$)	$q_t - \sigma_{vo}$ σ_{vo} = vertical total stress
R_t'	%	Corrected friction ratio (Piezocone only)	f_t / q_t . 100 %
Δu	MPa	Excess pore pressure (Piezocone only)	$u - u_0$ u_0 = equilibrium pore water pressure
B_q	-	Pore pressure ratio (Piezocone only)	$(u - u_0) / (q_t - \sigma_{vo}) = \Delta u/q_n$
-	-	Dynamic pore pressure ratio (Piezocone only)	u / q_c
Q_t	-	Normalised cone resistance (Piezocone or using $q_t = q_c$)	$(q_t - \sigma_{vo}) / \sigma'_{vo} = q_n / \sigma'_{vo}$ σ'_{vo} = vertical effective stress
F_r	%	Normalised local friction (Piezocone or using $q_t = q_c$)	$f_s / (q_t - \sigma_{vo}) = f_s / q_n$. 100 %

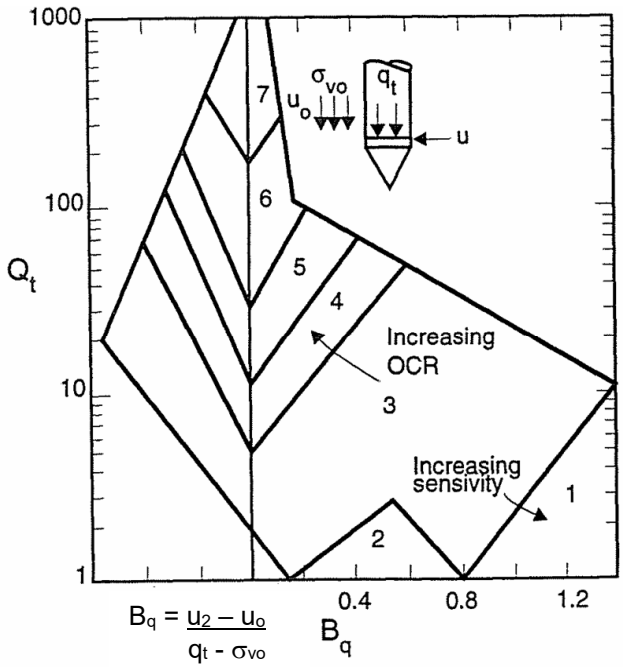
Figure
Key CPT

Key to Cone Penetration Test Records

SOCOTEC

MATERIAL DESCRIPTION			
Soil Type	After Robertson (1990) using normalised cone resistance (Q_t), normalised friction ratio (F_r) and pore pressure ratio (B_q).		
Undrained shear strength description	Material strength description presented using Method 1, Section 2.4.1 for fine soil. In accordance with BS EN ISO 14688-2:2018	Descriptive Term	Shear Strength, kPa
		Extremely low strength	<10
		Very low strength	10 to 20
		Low strength	20 to 40
		Medium strength	40 to 75
		High strength	75 to 150
		Very high strength	>150
Relative density description	Material relative density description presented using Method 3 Section 2.4.2 for coarse soil. In accordance with BS EN ISO 14688-2:2018	Descriptive Term	Relative Density, %
		Very loose	<15
		Loose	15 to 35
		Medium dense	35 to 65
		Dense	65 to 85
		Very dense	>85
GROUNDWATER LEVEL FOR INTERPRETATION		▽	





KEY TO SOIL BEHAVIOUR TYPES – after Robertson (1990)

ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE	ZONE	SOIL BEHAVIOUR TYPE
1	Sensitive fine grained	4	Silt mixtures: clayey silt to silty clay	7	Gravelly sand to sand
2	Organic soils – peats	5	Sand mixtures: silty sand to sandy silt	8	Very stiff sand to clayey sand
3	Clays: clay to silty clay	6	Sands: clean sand to silty sand	9	Very stiff fine grained

Figure
Key CPT

Eijkelkamp GeoPoint
SoilSolutions

Rijkstraatweg 22F
2171 AL Sassenheim
The Netherlands

T +31 71 301 9251
E info@eijkelkamp-geopoint.com
I eijkelkamp-geopoint.com

Cone Calibration Certificate

Certificate:	**GS-2103-001**
Instrument Type:	Magnetometer 250 µT(analog)
Model:	S15-CFIIPM
Serial number:	2103
Calibration date:	05-04-2022
Client:	Socotec
Calibrated by:	M.de Bruin
Calibration instruments	
Manufacturer:	Hottinger Baldwin Messtechnik GmbH
NMi certificate	2461165.00501
Calibration conditions	
Ambient temperature:	19.1 °C
Atmospheric pressure:	1007 mBar
Cone specifications	
Cone base area:	1500 mm2
Load tip resistance (nom.):	50 kN
Friction sleeve area:	22500 mm2
Load tip + local friction (nom.):	50 kN
Load friction sleeve (nom.):	22.5 kN
Load pore pressure (nom.):	2 MPa
Inclination (nom.):	+/- 20 °
Temperature compensation (all channels):	0…+40 °C
Maximum overload capacity (all channels):	50 %
Cone area ratio (a):	0.79
Max. Inaccuracy, relative to measurement value:	1.0 %

	Tip:		Sleeve:		Pore Pressure:		Inclinometer:		
	qc in kN	mV	fs in kN	mV	MPa	mV	Degrees	X (mV)	Y (mV)
Zero points:		0248		0268		0248			
	0	0	0	0	0	0	0	2464	2459
	5	0288	5	0300	0.4	1442	-20	0433	0362
	10	0578	10	0600	0.8	2886	20	4455	4504
	15	0867	15	0899	1.2	4337			
	20	1157	20	1200	1.6	5783			
	25	1448	25	1500	2.0	7157			
	30	1737	30	1800					
	35	2026	35	2099					
	40	2315	40	2398					
	45	2604	45	2698					
	50	2894	50	2998					

Max. eror, abs. qc:	35 kPa
Max. error, abs. fs:	2 kPa
Max. error, abs. u2:	10 kPa
Max. error, abs. I:	1 °

This calibration is compliant with Eijkelkamp GeoPoint SoilSolutions internal quality system, internal calibration procedures and meets the requirements of NEN2649, NEN-EN-ISO 22476-1, NORSOK G-001, ISSMFE and ASTM using calibration equipment traceable to (Inter-)National Standards.

Approved by: B. Kop
Date: 05-04-2022

CPT LOG

SOCOTEC

PointID
CPT12A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567496.1 m NORTHING : 174106.4 m COORD. SYS. : OSGB ELEVATION : 2.21 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 13/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa): -300 0 300 600 900
Porewater Pressure, u_2 (kPa)

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_{kt}$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely Low | Very Low | Low | Medium | High | Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose | Loose | Medium Dense | Dense | Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

SANDS - clean SAND to silty SAND

0.84

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

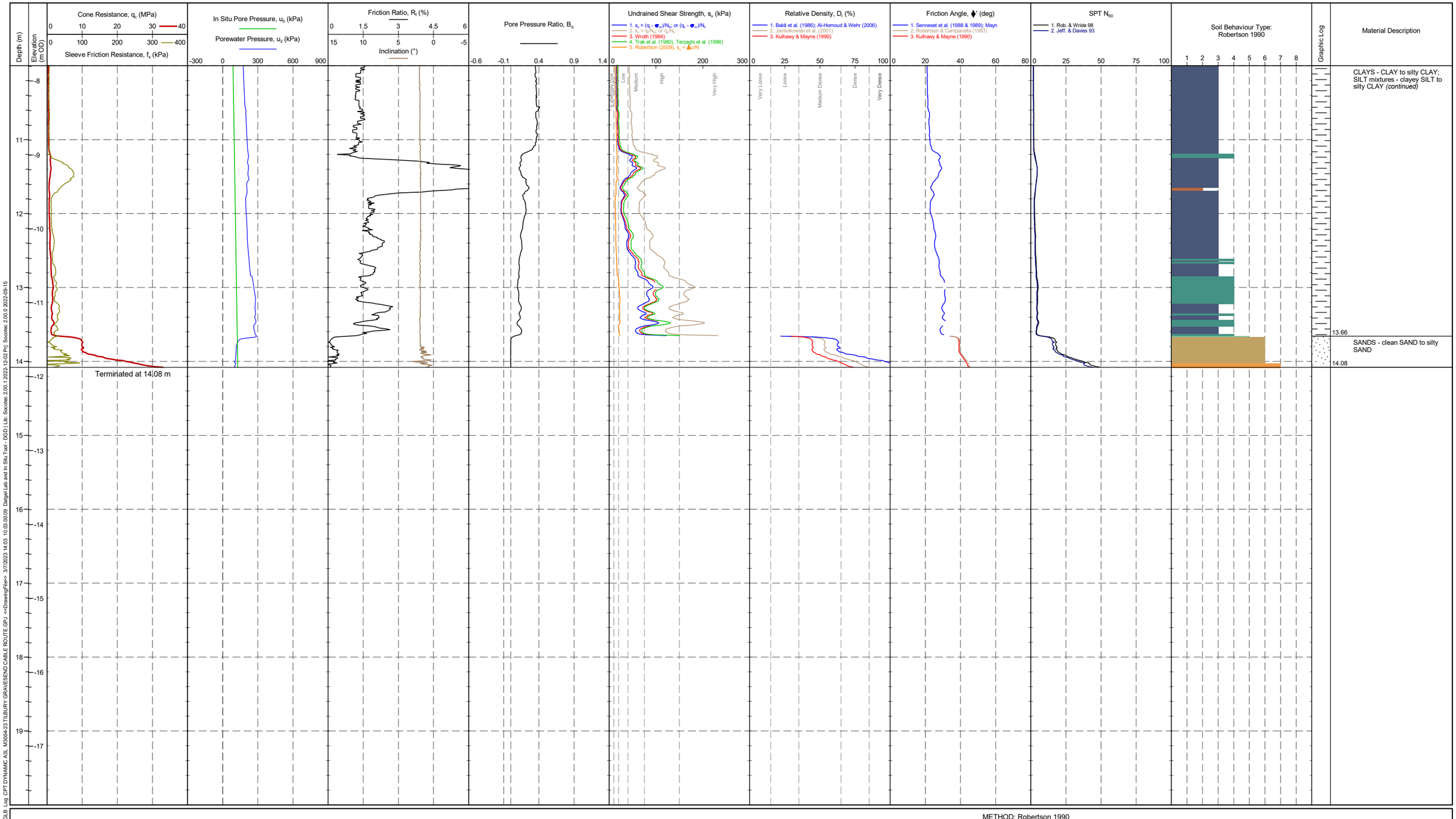
SOCOTEC 2.00.1 UB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:03 10.03.00.09 Dataset Lab and In Situ Test - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT12A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567496.1 m NORTHING : 174106.4 m COORD. SYS. : OSGB ELEVATION : 2.21 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 13/3/2023



METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

Dissipation Test

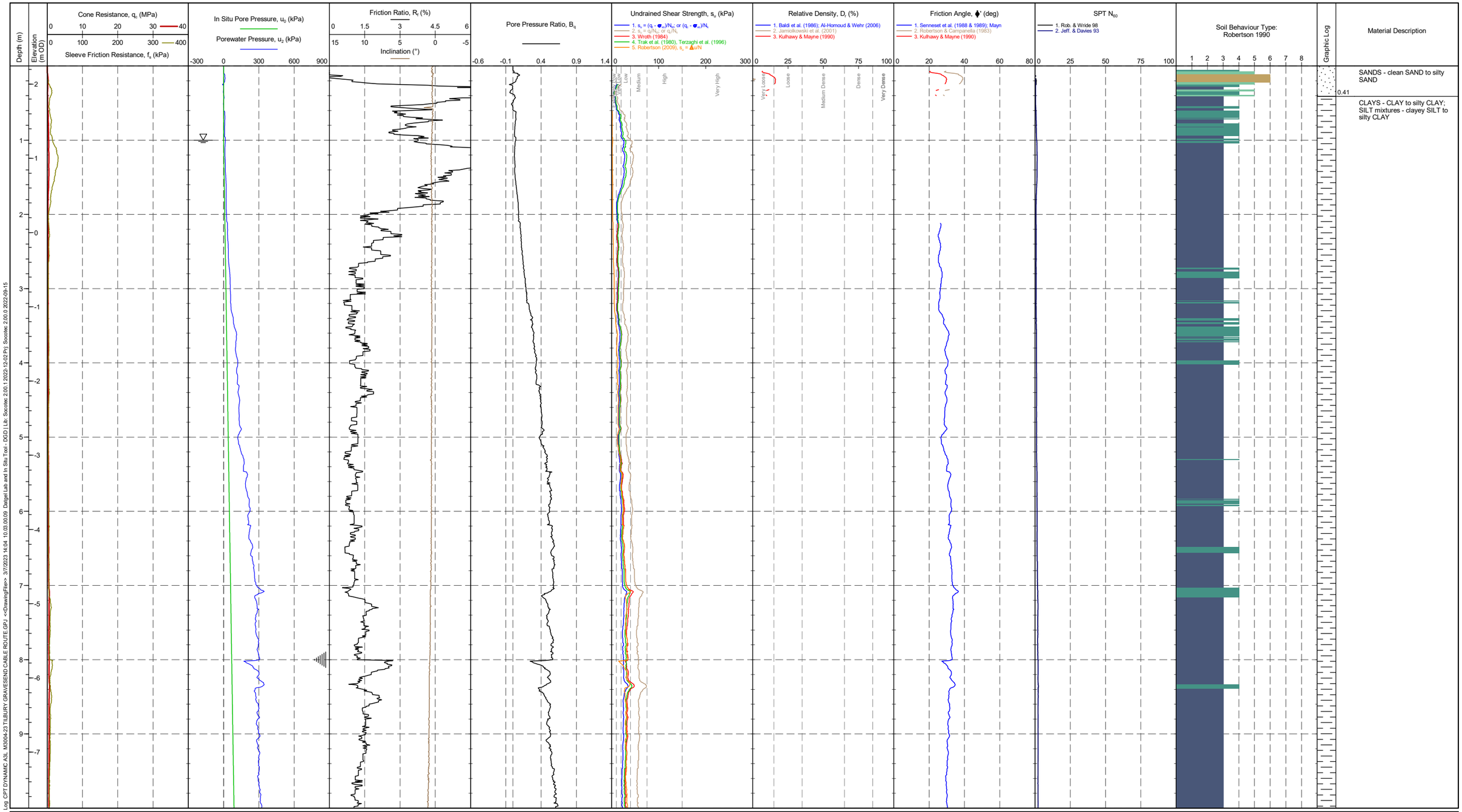
SOCOTEC 2.00.1 LIB:GLB_Log_CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:03 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT13

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567471.8 m NORTHING : 174218.8 m COORD. SYS. : OSGB ELEVATION : 2.25 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023



SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:04 10.03.00.09 Datgel Lab and In Situ Test - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT13**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567471.8 m NORTHING : 174218.8 m COORD. SYS. : OSGB ELEVATION : 2.25 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_{kt}$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely low, Very low, Low, Medium, High, Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose, Loose, Medium Dense, Dense, Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

12.31

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

13.73

13.85 SILT mixtures - clayey SILT to silty CLAY

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

14.38

SAND mixtures - silty SAND to sandy SILT

15.16

Terminated at 15.16 m

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

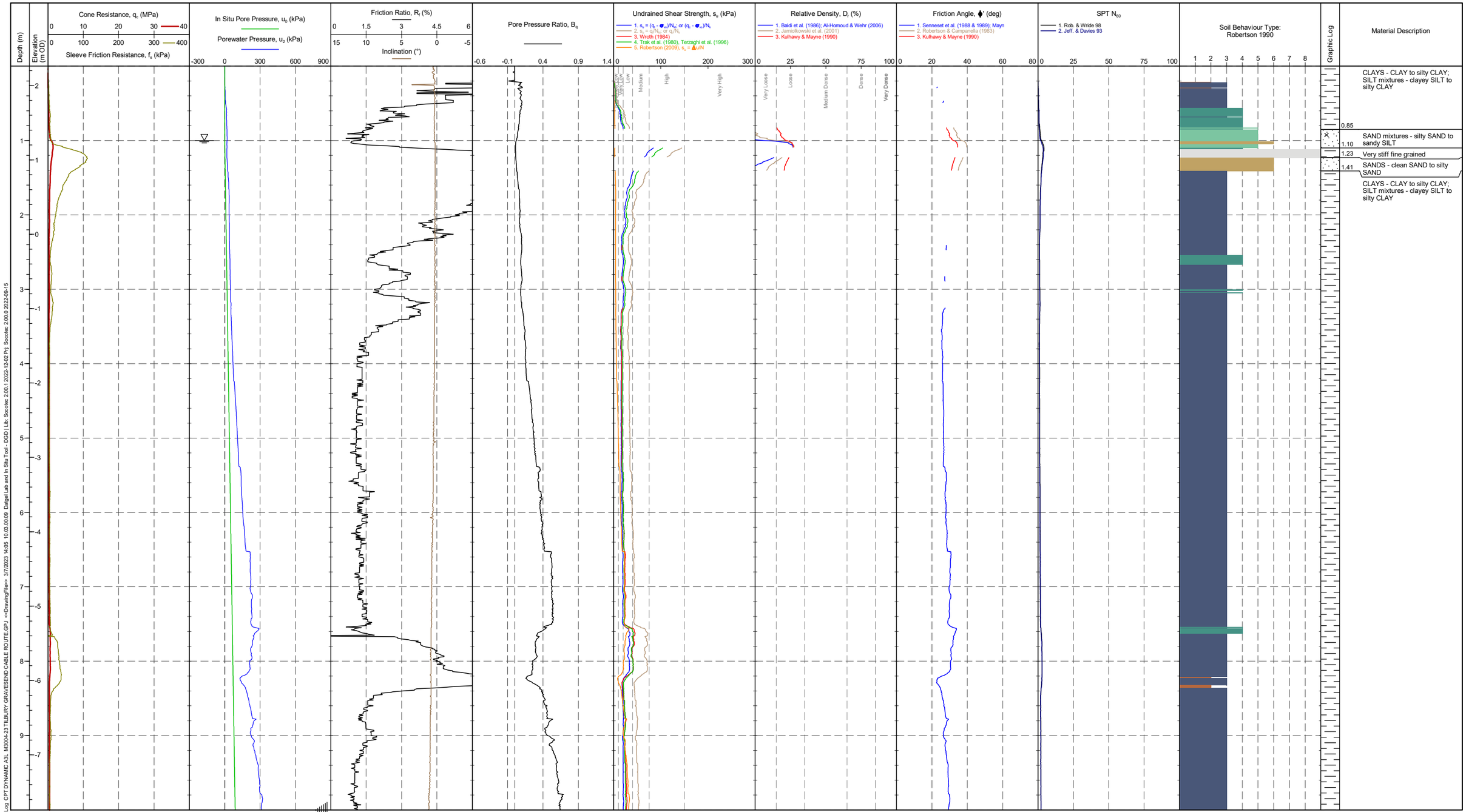
SOCOTEC 2.00.1 LIB GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:04 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: 2022-12-02 Prj: Socotec 2.00.0

CPT LOG

SOCOTEC

PointID
CPT14

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567417.6 m NORTHING : 174080.0 m COORD. SYS. : OSGB ELEVATION : 2.26 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023



SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:05 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT14**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567417.6 m NORTHING : 174080.0 m COORD. SYS. : OSGB ELEVATION : 2.26 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$, or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_{kt}$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely low, Very low, Low, Medium, High, Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Hamoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose, Loose, Medium Dense, Dense, Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

12.69 SAND mixtures - silty SAND to sandy SILT

13.08 13.18 SILT mixtures - clayey SILT to silty CLAY

SANDS - clean SAND to silty SAND; SAND mixtures - silty SAND to sandy SILT

14.22 SILT mixtures - clayey SILT to silty CLAY

14.43 SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

15.05 15.21 SILT mixtures - clayey SILT to silty CLAY

15.32 SANDS - clean SAND to silty SAND

Terminated at 15.32 m

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

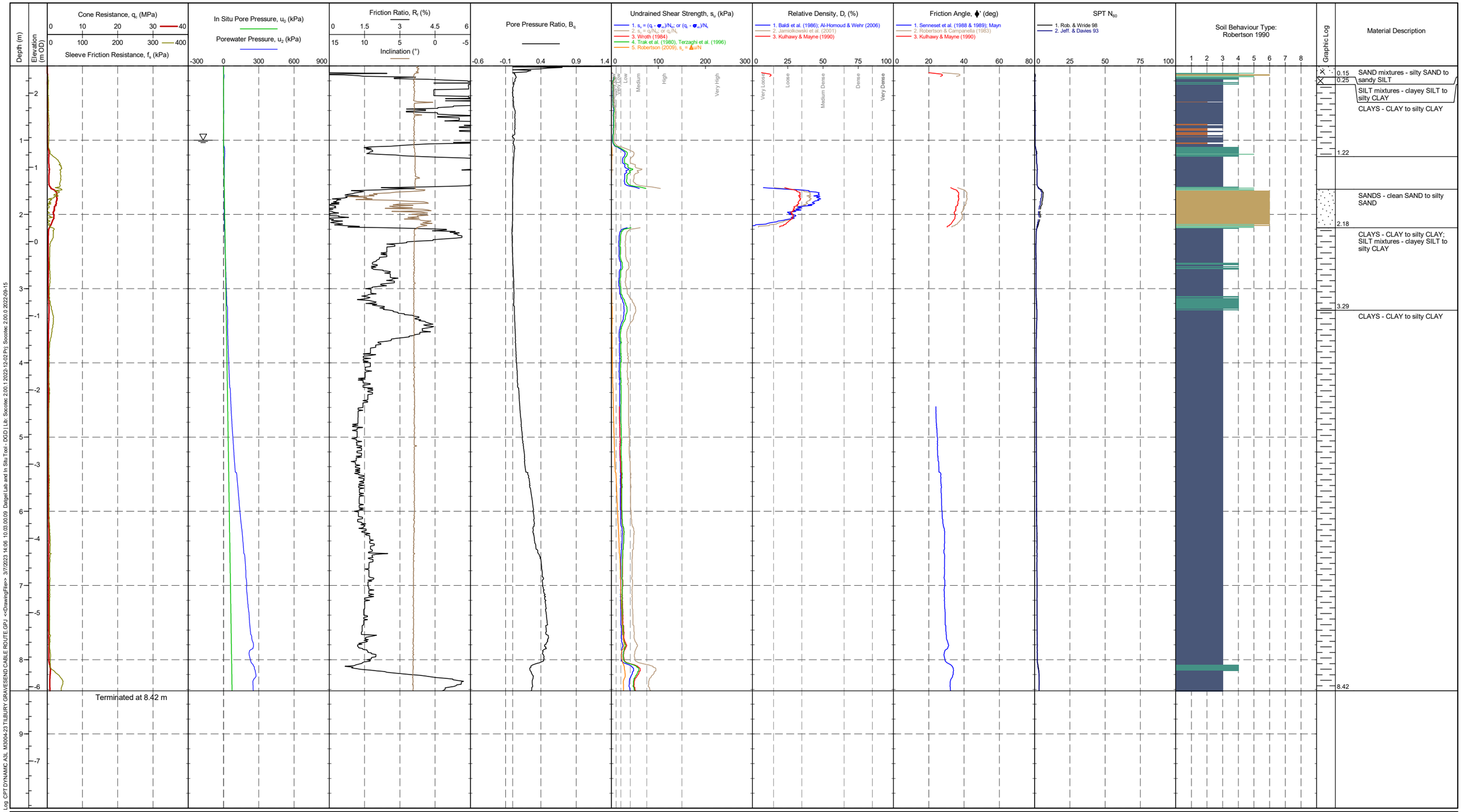
SOCOTEC 2.00.1 LIB GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:05 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

CPT LOG

SOCOTEC

PointID **CPT15**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 1 STATUS : Final DATE : 10/3/2023



Dissipation Test

METHOD: Robertson 1990

1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1 UB.GLB Log_CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:06 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1.2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 10/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa)
1. $s_u = (q_t - \sigma_{vo})/N_k$, or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_k$, or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
0 100 200 300
Extremely low | Very Low | Low | Medium | High | Very High

Relative Density, D, (%)
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
0 25 50 75 100
Very Loose | Loose | Medium Dense | Dense | Very Dense

Friction Angle, ϕ' (deg)
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)
0 20 40 60 80

SPT N_{60}
1. Rob. & Wride 98
2. Jeff. & Davies 93
0 25 50 75 100

Soil Behaviour Type: Robertson 1990
1 2 3 4 5 6 7 8

Graphic Log | Material Description

0.13	CLAYS - CLAY to silty CLAY
2.32	SAND mixtures - silty SAND to sandy SILT
	CLAYS - CLAY to silty CLAY
5.45	Sensitive, fine grained; CLAYS - CLAY to silty CLAY
6.78	Sensitive, fine grained; CLAYS - CLAY to silty CLAY; Organic soil - PEATS
8.48	CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1 LIB GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:07 10.00.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 10/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_k$, or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_k$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely low | Very Low | Low | Medium | High | Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose | Loose | Medium Dense | Dense | Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

13.90

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

14.66

Terminated at 14.66 m

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1 LIB GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:07 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15B

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 13/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa): -300 0 300 600 900
Porewater Pressure, u_2 (kPa)

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_{kt}$ or $(q_t - \sigma_{vo})/N_k$
2. $s_u = Q_t/N_{kt}$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely Low, Very Low, Low, Medium, High, Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose, Loose, Medium Dense, Dense, Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

- 0.22 — Gravelly SAND to SAND
- Very stiff fine grained; CLAYS - CLAY to silty CLAY
- 1.27 / 1.38 — SAND mixtures - silty SAND to sandy SILT
- SILT mixtures - clayey SILT to silty CLAY
- 1.69 — CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

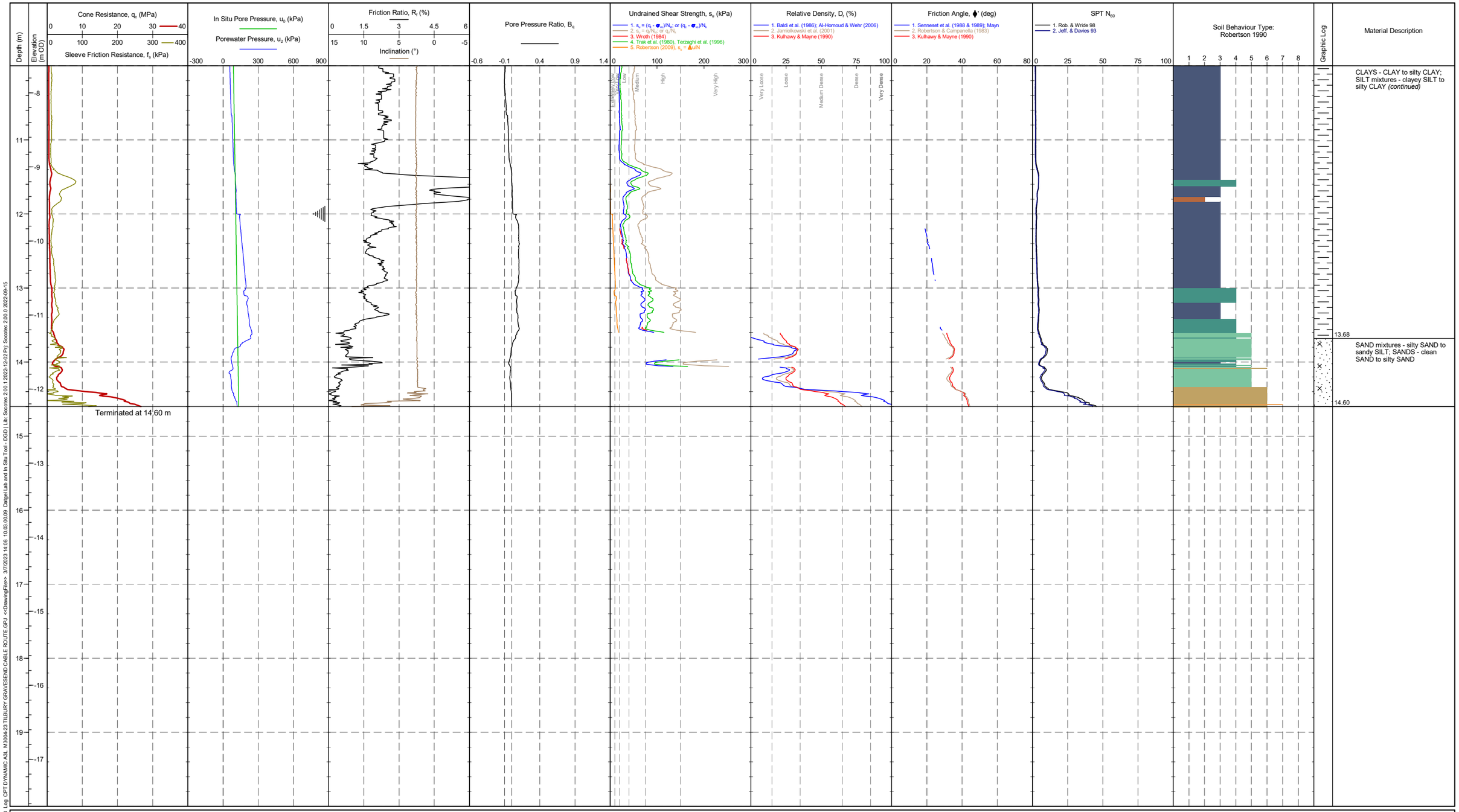
SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:08 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

CPT LOG

SOCOTEC

PointID **CPT15B**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 13/3/2023



Dissipation Test

METHOD: Robertson 1990

1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1 LIB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:08 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT16**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567384.3 m NORTHING : 174182.5 m COORD. SYS. : OSGB ELEVATION : 2.41 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Pore Pressure Ratio, B_q: -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa): 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_k$, or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_k$, or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely low, Very Low, Low, Medium, High, Very High

Relative Density, D, (%): 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose, Loose, Medium Dense, Dense, Very Dense

Friction Angle, ϕ' (deg): 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60}: 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY

Dissipation Test

METHOD: Robertson 1990
- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

SOCOTEC 2.00.1 UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:09 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1.2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT16**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567384.3 m NORTHING : 174182.5 m COORD. SYS. : OSGB ELEVATION : 2.41 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) / Elevation (m OD)

Cone Resistance, q_c (MPa) 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa) 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa)
-300 0 300 600 900

Friction Ratio, R_f (%) 0 1.5 3 4.5 6
Inclination (°) 15 10 5 0 -5

Pore Pressure Ratio, B_q -0.6 -0.1 0.4 0.9 1.4

Undrained Shear Strength, s_u (kPa) 0 100 200 300
1. $s_u = (q_t - \sigma_{vo})/N_k$, or $(q_t - \sigma_{vo})/N_k$
2. $s_u = q_t/N_k$ or q_t/N_k
3. Wroth (1984)
4. Trak et al. (1980), Terzaghi et al. (1996)
5. Robertson (2009), $s_u = \Delta u/N$
Extremely low / Very Low / Low / Medium / High / Very High

Relative Density, D, (%) 0 25 50 75 100
1. Baldi et al. (1986); Al-Homoud & Wehr (2006)
2. Jamiolkowski et al. (2001)
3. Kulhawy & Mayne (1990)
Very Loose / Loose / Medium Dense / Dense / Very Dense

Friction Angle, ϕ' (deg) 0 20 40 60 80
1. Senneset et al. (1988 & 1989); Mayn
2. Robertson & Campanella (1983)
3. Kulhawy & Mayne (1990)

SPT N_{60} 0 25 50 75 100
1. Rob. & Wride 98
2. Jeff. & Davies 93

Soil Behaviour Type: Robertson 1990 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

13.15

CLAYS - CLAY to silty CLAY

14.04

SANDS - clean SAND to silty SAND

14.39

SILT mixtures - clayey SILT to silty CLAY

14.81

14.94 SANDS - clean SAND to silty SAND

Terminated at 14.94 m

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFiles>> 3/7/2023 14:09 10.03.00.09 Datgel Lab and In Situ Tool - DGD Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

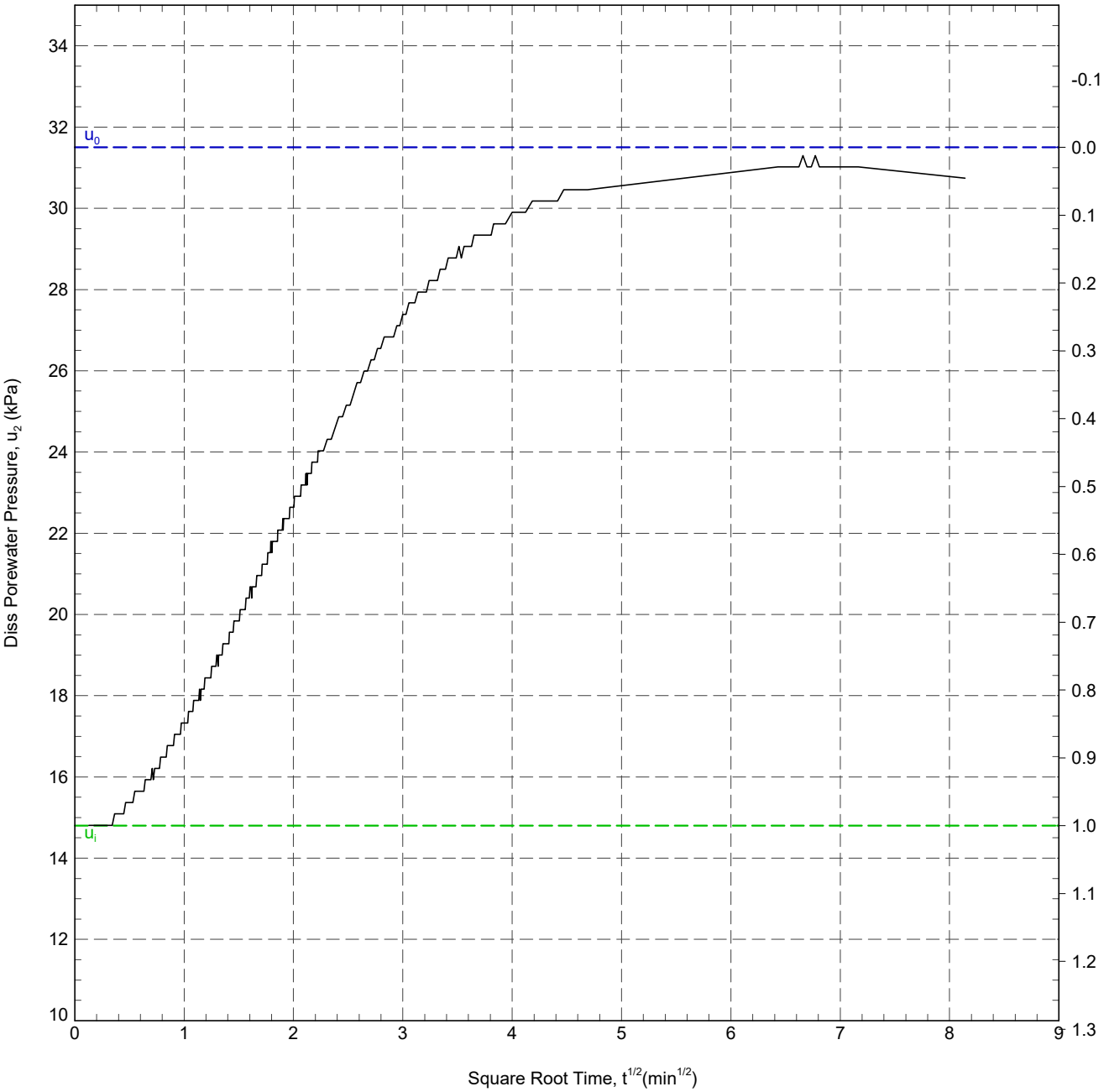
DISSIPATION TEST

SOCOTEC

Test ID

CPT12A - 3.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567496.1 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174106.4 m	DATE	: 13/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.21 m OD		



In Situ Pore Pressure, u_0:	32 kPa
Initial Pore Pressure, u_i:	15 kPa
Final Pore Pressure:	31 kPa

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

SOCOTEC 2.00.0 UB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prj: Socotec 2.00.0 2022-09-15

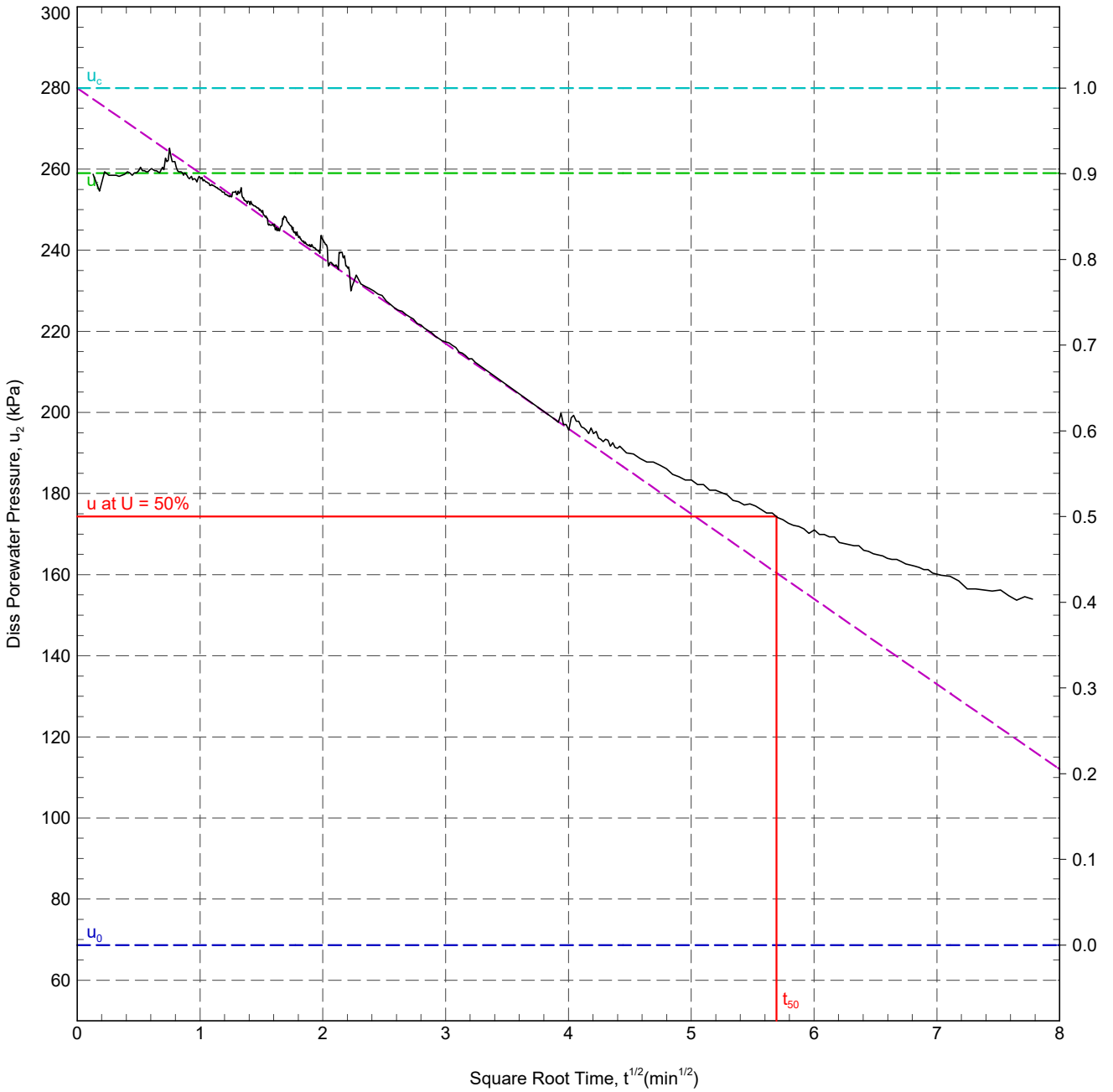
SOCOTEC

DISSIPATION TEST

Test ID

CPT13 - 8.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567471.8 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174218.8 m	DATE	: 09/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.25 m OD		



In Situ Pore Pressure, u_0:	69 kPa	Rigidity Index, I_r:	38.5
Initial Pore Pressure, u_i:	259 kPa	Horizontal Coefficient of Consolidation, c_h:	1.18×10^1 m²/yr
Final Pore Pressure:	154 kPa		
Back Extrapolated Pore Pressure, u_c:	280 kPa		
Degree of Dissipation:	50%		
Dissipation Pressure:	174.3 kPa		
Time for 50% Dissipation, t_{50}:	32.42 min		

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

SOCOTEC 2.00.0 UIB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prg: Socotec 2.00.0 2022-09-15

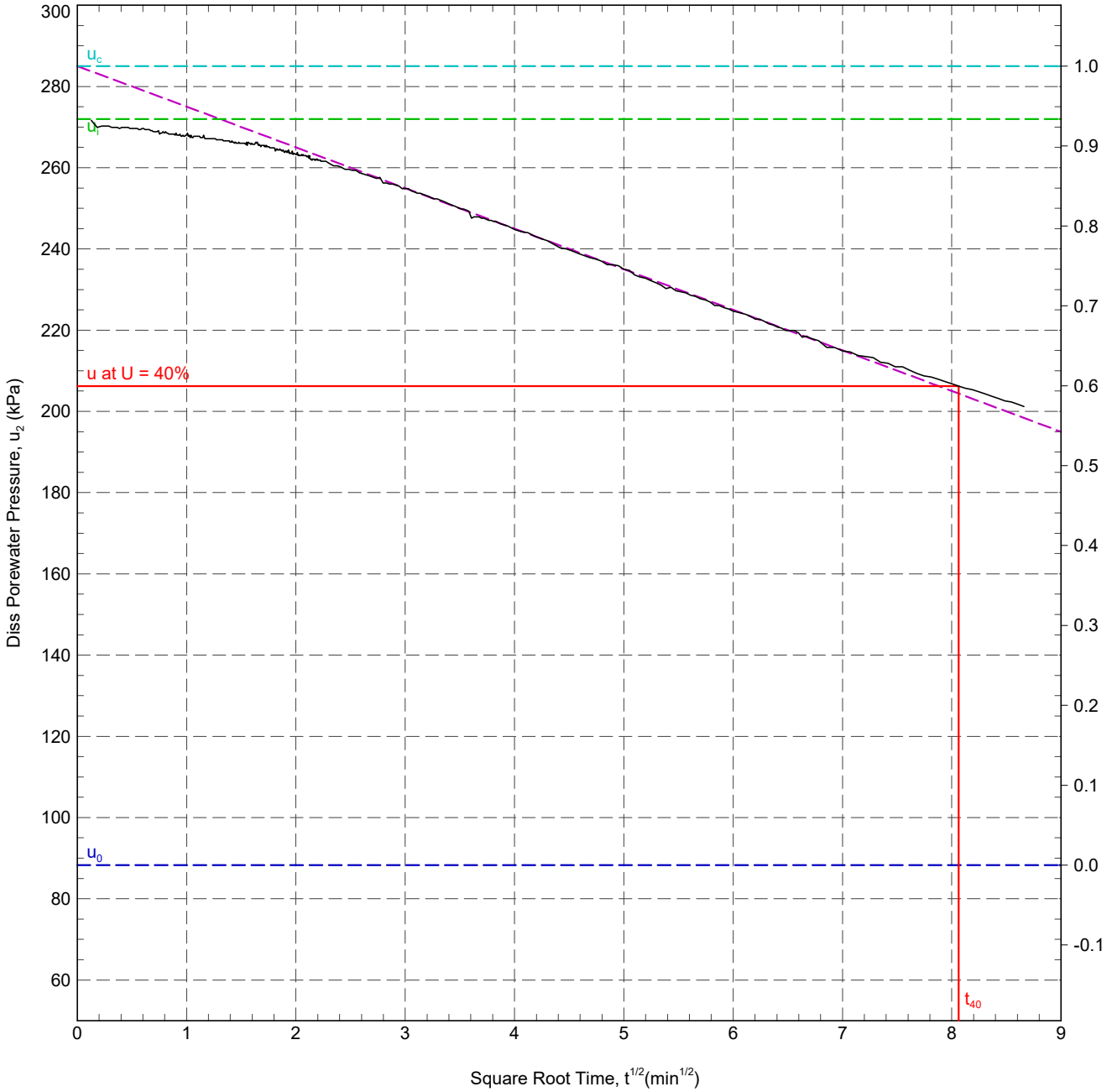
SOCOTEC

DISSIPATION TEST

Test ID

CPT14 - 10.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567417.6 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174080.0 m	DATE	: 09/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.26 m OD		



In Situ Pore Pressure, u_0:	88 kPa	Rigidity Index, I_r:	49.8
Initial Pore Pressure, u_i:	272 kPa	Horizontal Coefficient of Consolidation, c_h:	3.87×10^0 m²/yr
Final Pore Pressure:	201 kPa		
Back Extrapolated Pore Pressure, u_c:	285 kPa		
Degree of Dissipation:	40%		
Dissipation Pressure:	206.2 kPa		
Time for 40% Dissipation, t_{40}:	65.00 min		

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

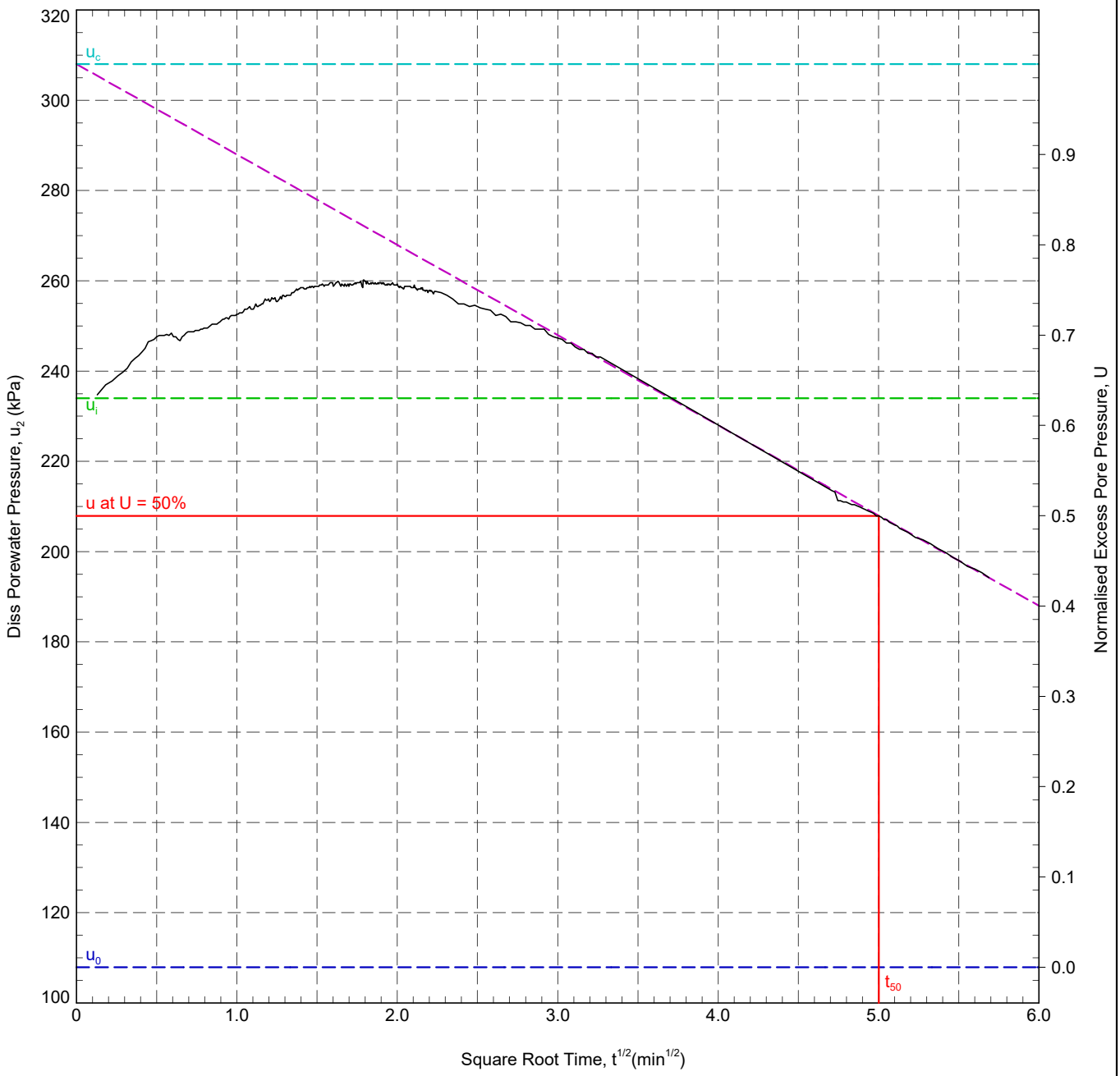
SOCOTEC 2.00.0 UIB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prg: Socotec 2.00.0 2022-09-15

DISSIPATION TEST

Test ID

CPT15A - 12.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567456.1 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174019.8 m	DATE	: 10/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.37 m OD		



In Situ Pore Pressure, u_0:	108 kPa	Rigidity Index, I_r:	4.7
Initial Pore Pressure, u_i:	234 kPa	Horizontal Coefficient of Consolidation, c_h:	5.33×10^0 m²/yr
Final Pore Pressure:	194 kPa		
Back Extrapolated Pore Pressure, u_c:	308 kPa		
Degree of Dissipation:	50%		
Dissipation Pressure:	207.9 kPa		
Time for 50% Dissipation, t_{50}:	25.02 min		

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

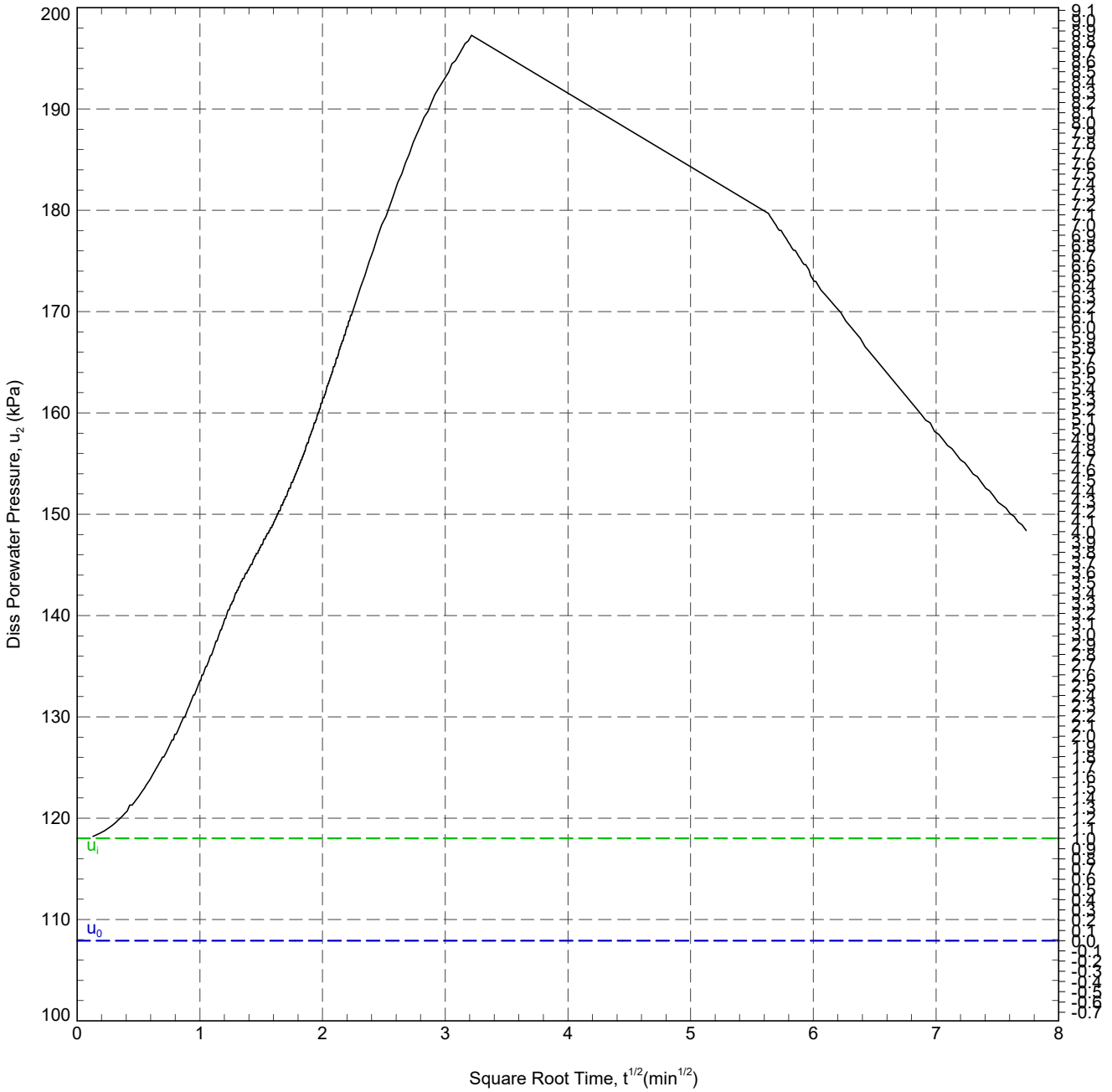
SOCOTEC 2.00.0 UIB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prj: Socotec 2.00.0 2022-09-15

DISSIPATION TEST

Test ID

CPT15B - 12.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567456.1 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174019.8 m	DATE	: 13/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.37 m OD		



In Situ Pore Pressure, u_0:	108 kPa
Initial Pore Pressure, u_i:	118 kPa
Final Pore Pressure:	148 kPa

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

SOCOTEC 2.00.0 UIB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prj: Socotec 2.00.0 2022-09-15

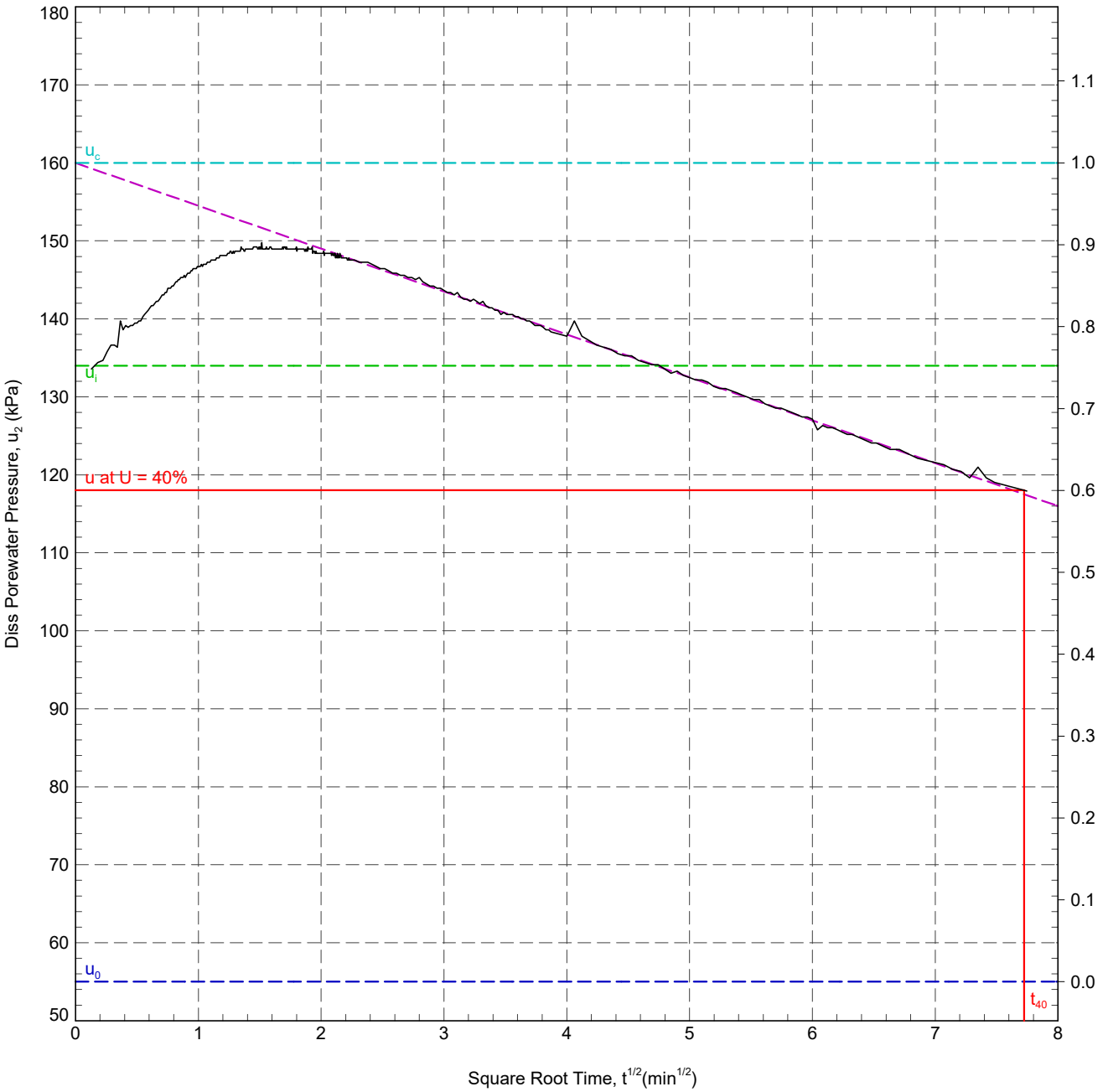
DISSIPATION TEST

SOCOTEC

Test ID

CPT16 - 6.00 m

CLIENT	: BakerHicks	AREA	:	SHEET	: 1 OF 1
ENGINEER	:	EASTING	: 567384.3 m	STATUS	: Final
PROJECT	: TILBURY GRAVESEND CABLE ROUTE	NORTHING	: 174182.5 m	DATE	: 09/03/23
LOCATION	: Gravesend	COORD. SYS.	: OSGB		
PROJECT No.	: M3004-23	ELEVATION	: 2.41 m OD		



In Situ Pore Pressure, u_0:	55 kPa	Rigidity Index, I_r:	10.6
Initial Pore Pressure, u_i:	134 kPa	Horizontal Coefficient of Consolidation, c_h:	1.94×10^0 m²/yr
Final Pore Pressure:	118 kPa		
Back Extrapolated Pore Pressure, u_c:	160 kPa		
Degree of Dissipation:	40%		
Dissipation Pressure:	118.0 kPa		
Time for 40% Dissipation, t_{40}:	59.67 min		

RIG	: 9 Tonne tracked rig	ANALYSED BY	: Ian Campbell	DATE:	15/03/2023
CONE TYPE	:	CHECKED BY	: Ian Campbell	DATE:	30/06/2023
CONE ID	: S15-CFIP.2103	APPROVED BY	: Ian Campbell	DATE:	30/06/2023
OPERATOR	: Dominic Barnett				

REMARK

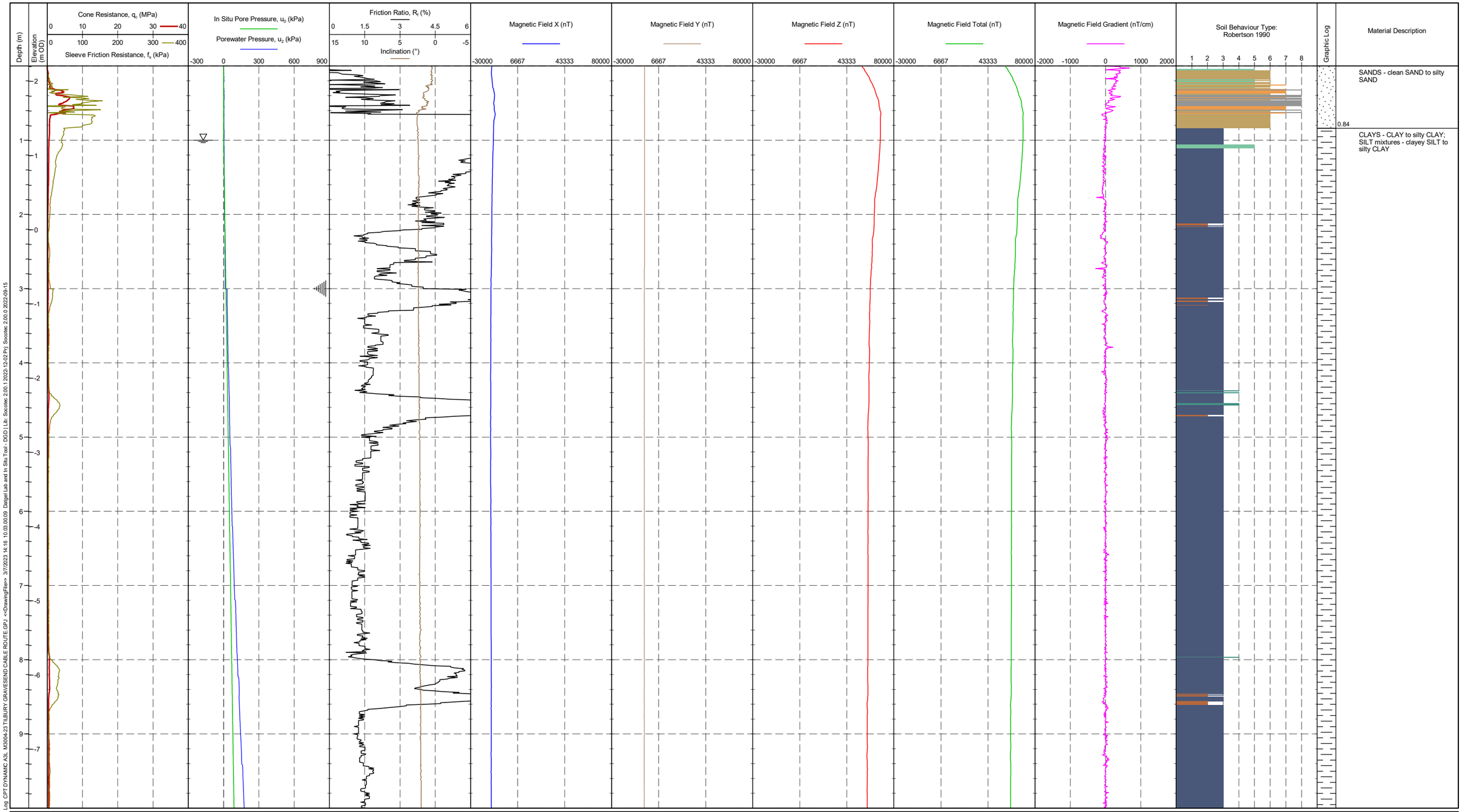
SOCOTEC 2.00.0 UB.GLB Graph PPDT PORE PRESSURE VS. SQR T A4P M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 12:55 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15 Prg: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT12A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567496.1 m NORTHING : 174106.4 m COORD. SYS. : OSGB ELEVATION : 2.21 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 13/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

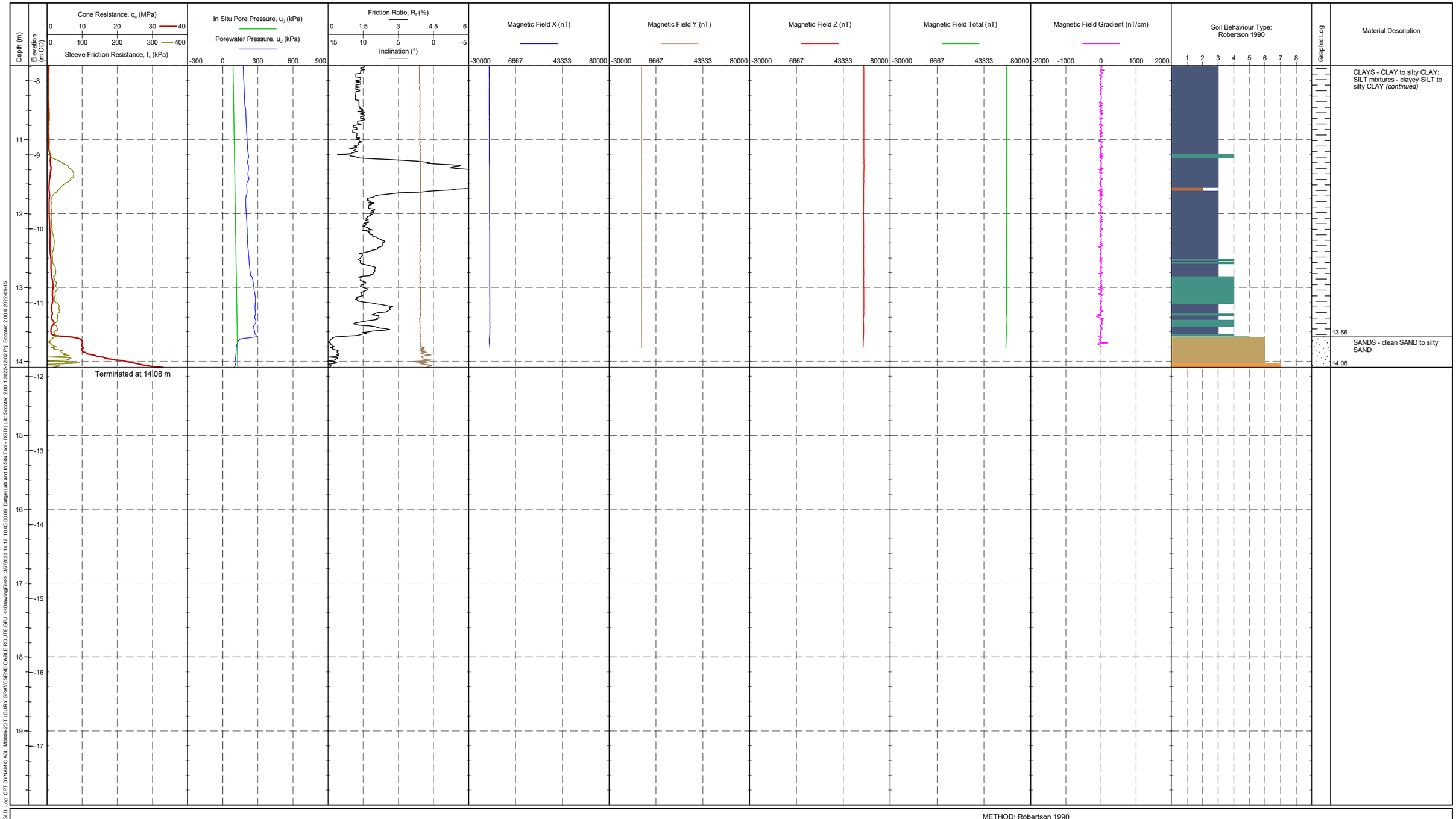
SOCOTEC 2.00.1 UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:16 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT12A**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567496.1 m NORTHING : 174106.4 m COORD. SYS. : OSGB ELEVATION : 2.21 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 13/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

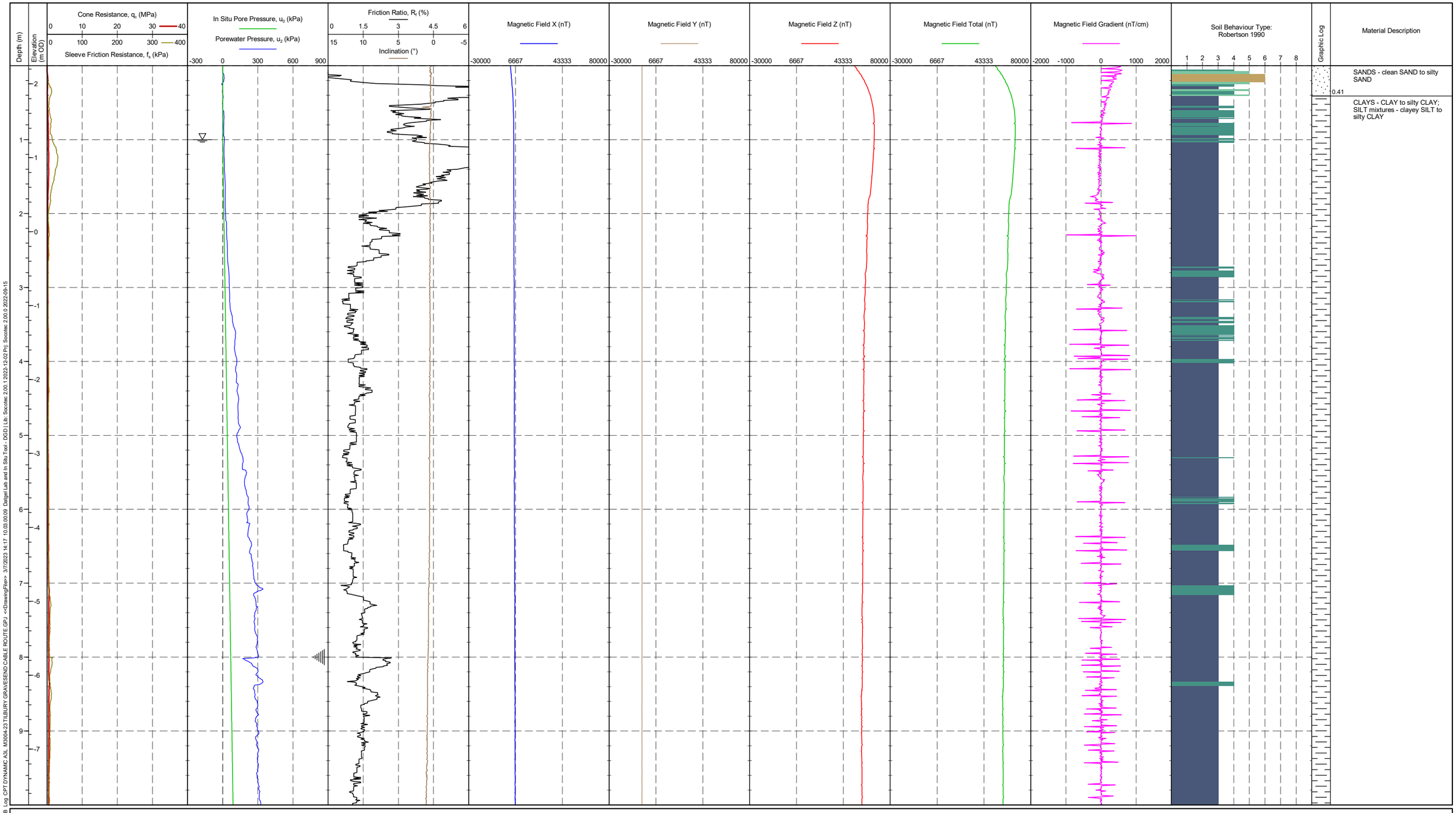
SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:17 10.00.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT13**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567471.8 m NORTHING : 174218.8 m COORD. SYS. : OSGB ELEVATION : 2.25 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023



Dissipation Test

METHOD: Robertson 1990

1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

SOCOTEC 2.00.1 LIB.GLB | Log: CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:17 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT13**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567471.8 m NORTHING : 174218.8 m COORD. SYS. : OSGB ELEVATION : 2.25 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Magnetic Field X (nT): -30000 6667 43333 80000
Magnetic Field Y (nT): -30000 6667 43333 80000
Magnetic Field Z (nT): -30000 6667 43333 80000
Magnetic Field Total (nT): -30000 6667 43333 80000
Magnetic Field Gradient (nT/cm): -2000 -1000 0 1000 2000

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

12.31

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

13.73

13.85 SILT mixtures - clayey SILT to silty CLAY

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

14.38

SAND mixtures - silty SAND to sandy SILT

15.16

Terminated at 15.16 m

Dissipation Test

METHOD: Robertson 1990

1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

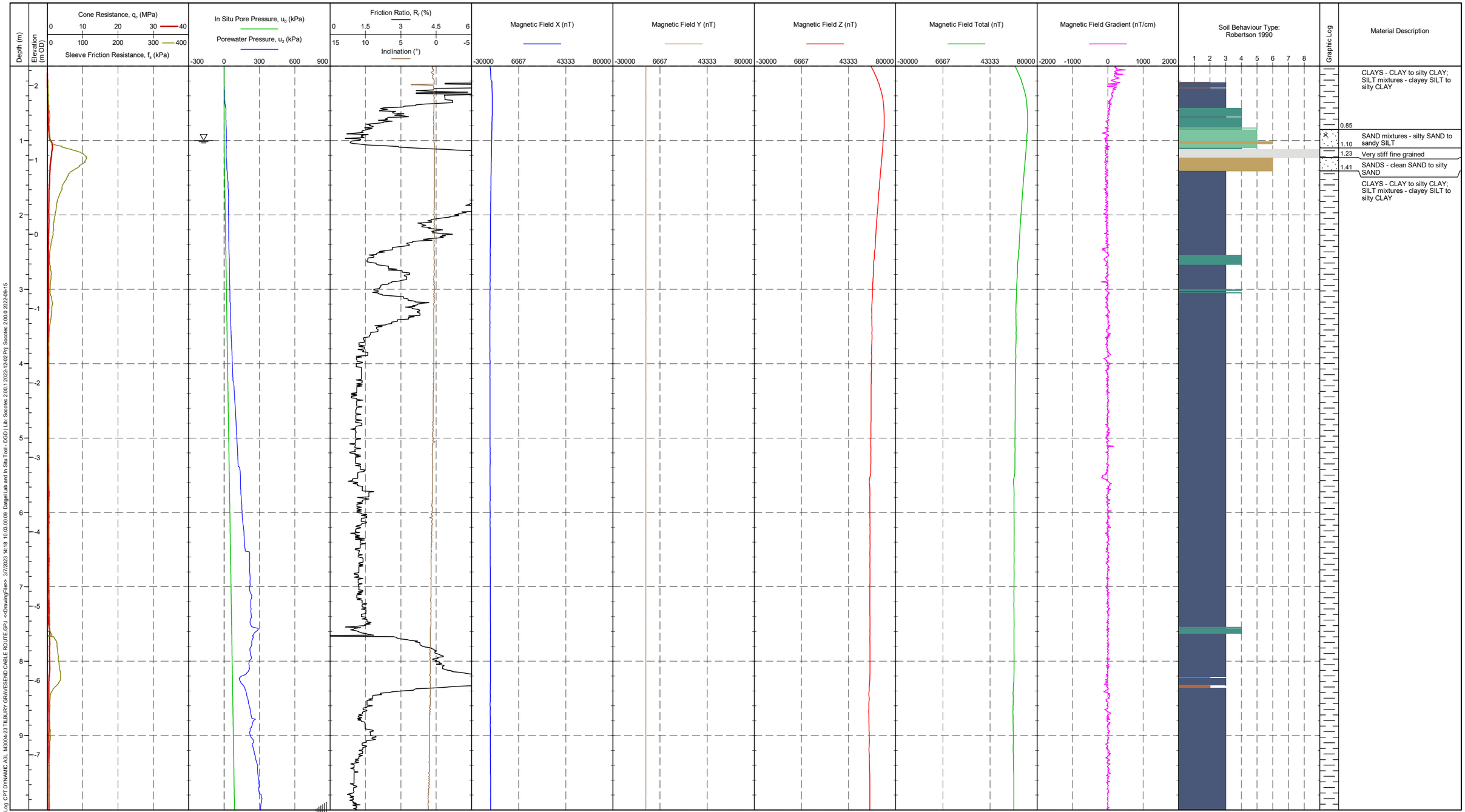
SOCOTEC 2.00.1 LIB GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:17 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT14

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567417.6 m NORTHING : 174080.0 m COORD. SYS. : OSGB ELEVATION : 2.26 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

SOCOTEC 2.00.1 UB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:18 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT14**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567417.6 m NORTHING : 174080.0 m COORD. SYS. : OSGB ELEVATION : 2.26 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Magnetic Field X (nT): -30000 6667 43333 80000
Magnetic Field Y (nT): -30000 6667 43333 80000
Magnetic Field Z (nT): -30000 6667 43333 80000
Magnetic Field Total (nT): -30000 6667 43333 80000
Magnetic Field Gradient (nT/cm): -2000 -1000 0 1000 2000

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Terminated at 15.32 m

Graphic Log / Material Description

- CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*
- 12.69 — SAND mixtures - silty SAND to sandy SILT
- 13.08 — 13.18 — SILT mixtures - clayey SILT to silty CLAY
- SANDS - clean SAND to silty SAND; SAND mixtures - silty SAND to sandy SILT
- 14.22 — 14.43 — SILT mixtures - clayey SILT to silty CLAY
- SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND
- 15.05 — 15.21 — 15.32 — SILT mixtures - clayey SILT to silty CLAY
- SANDS - clean SAND to silty SAND

Dissipation Test

METHOD: Robertson 1990
1 - Sensitive, fine grained
2 - Organic soil - PEATS
3 - CLAYS - CLAY to silty CLAY
4 - SILT mixtures - clayey SILT to silty CLAY
5 - SAND mixtures - silty SAND to sandy SILT
6 - SANDS - clean SAND to silty SAND
7 - Gravelly SAND to SAND
8 - Very stiff SAND to clayey SAND
9 - Very stiff fine grained

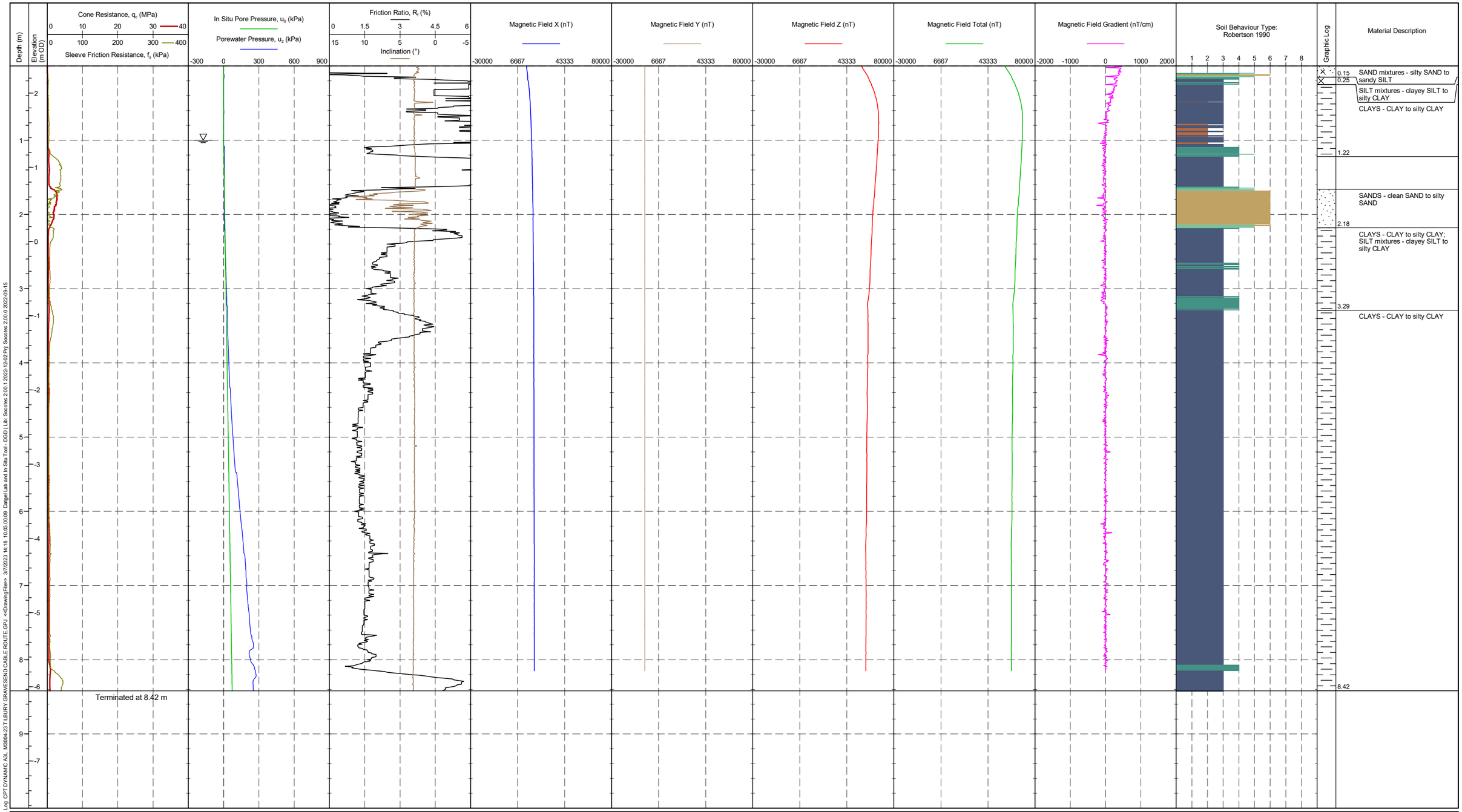
SOCOTEC 2.00.1.LIB GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:18 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT15**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 1 STATUS : Final DATE : 10/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

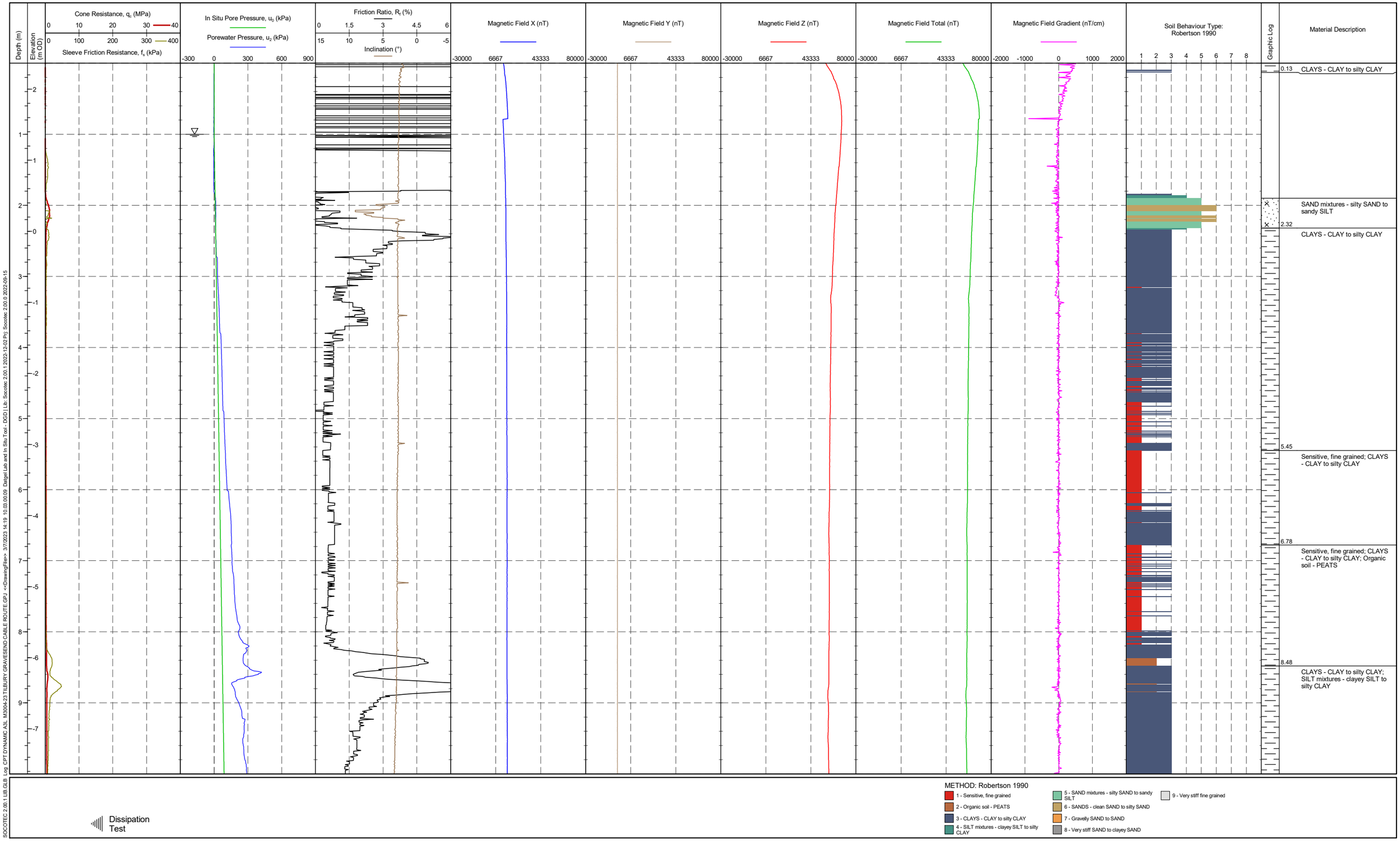
SOCOTEC 2.00.1 LIB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:18 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1.2022-12-02 Prj: Socotec 2.00.0 2022-09-15

CPT LOG

SOCOTEC

PointID
CPT15A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 10/3/2023



SOCOTEC 2.00.1 LIB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:19 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15A

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 10/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Magnetic Field X (nT): -30000 6667 43333 80000
Magnetic Field Y (nT): -30000 6667 43333 80000
Magnetic Field Z (nT): -30000 6667 43333 80000
Magnetic Field Total (nT): -30000 6667 43333 80000
Magnetic Field Gradient (nT/cm): -2000 -1000 0 1000 2000

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

13.90

SAND mixtures - silty SAND to sandy SILT; SANDS - clean SAND to silty SAND

14.66

Terminated at 14.66 m

Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

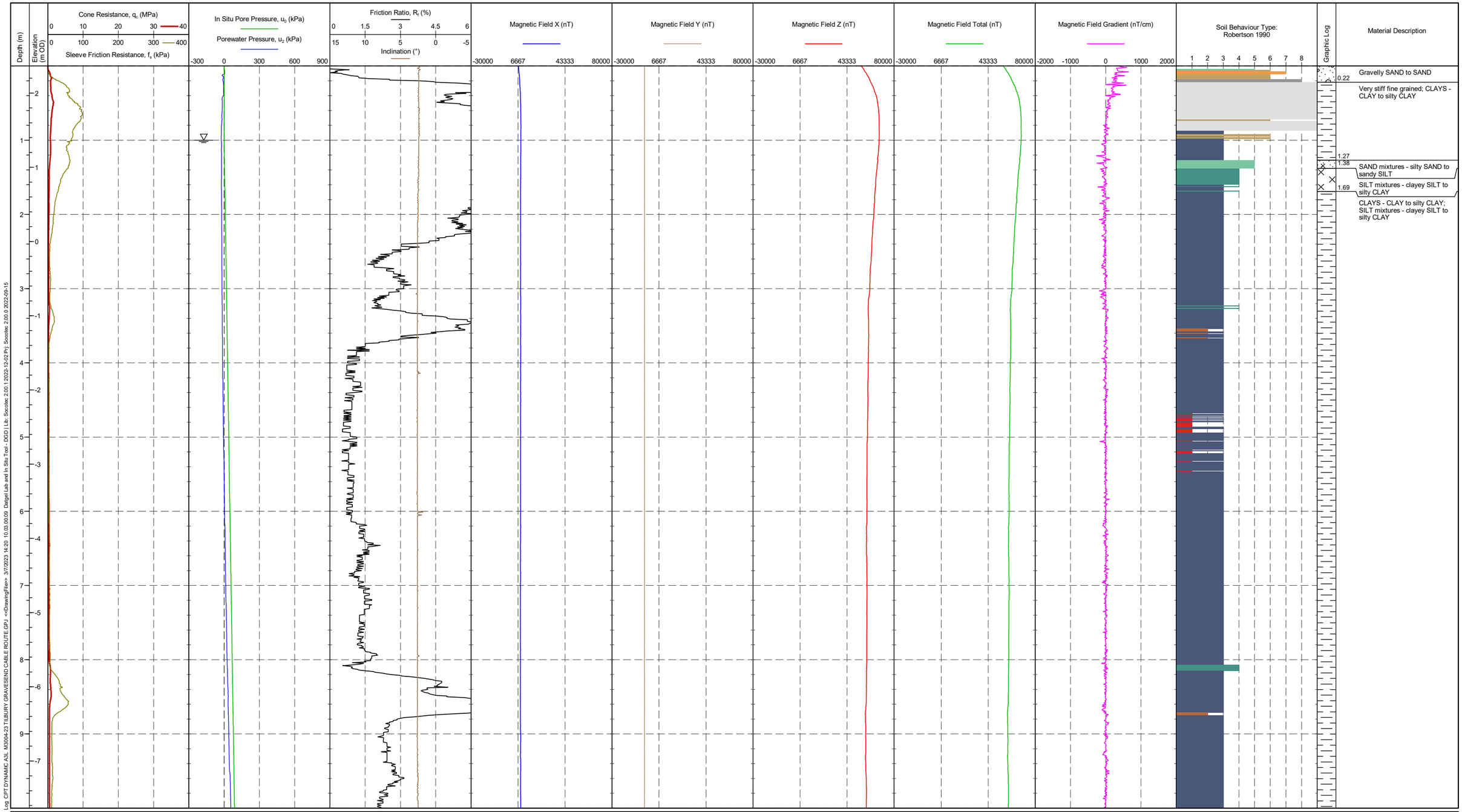
SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC A3L M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:19 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15B

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 13/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

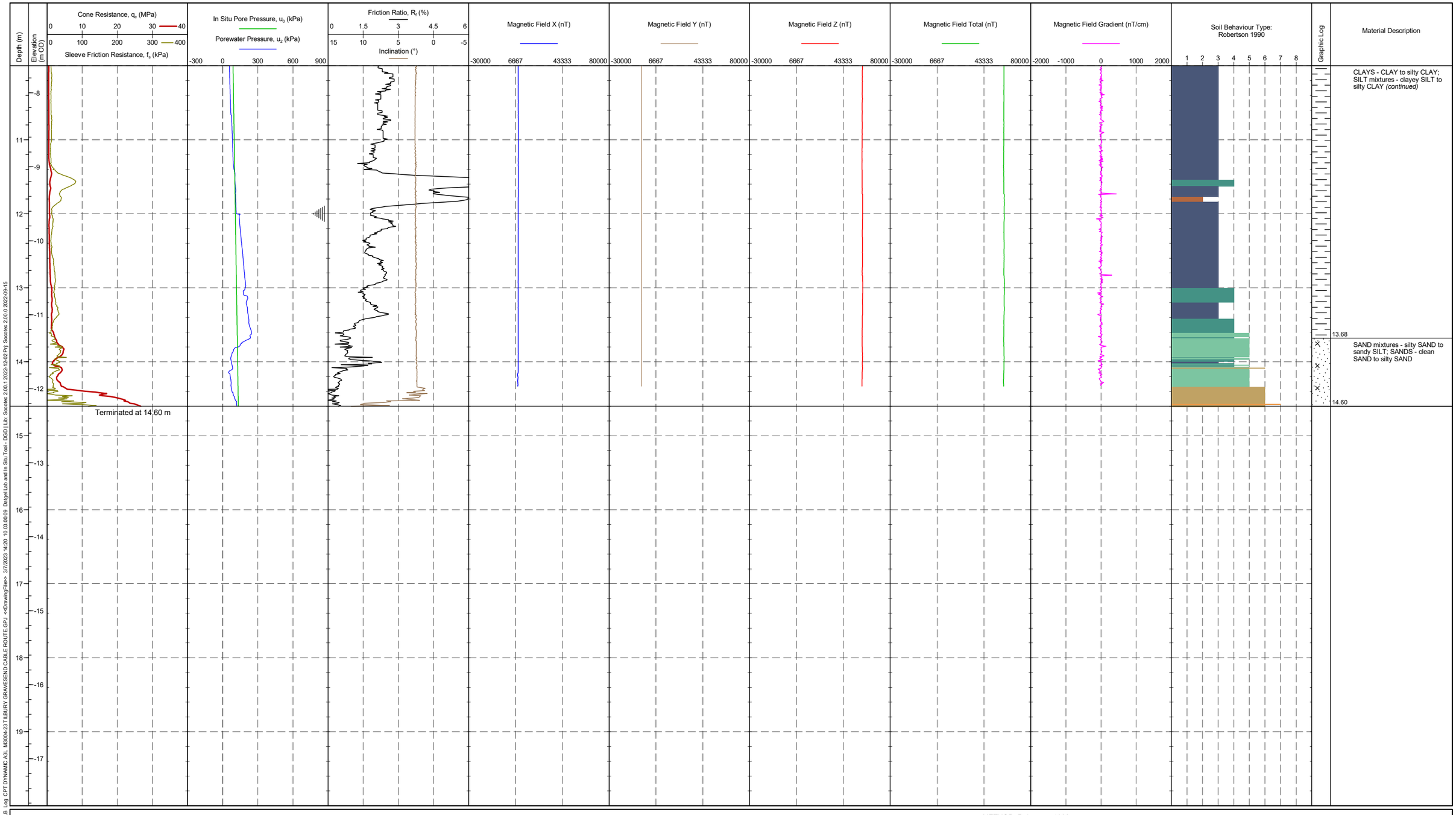
SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID
CPT15B

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567456.1 m NORTHING : 174019.8 m COORD. SYS. : OSGB ELEVATION : 2.37 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 13/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

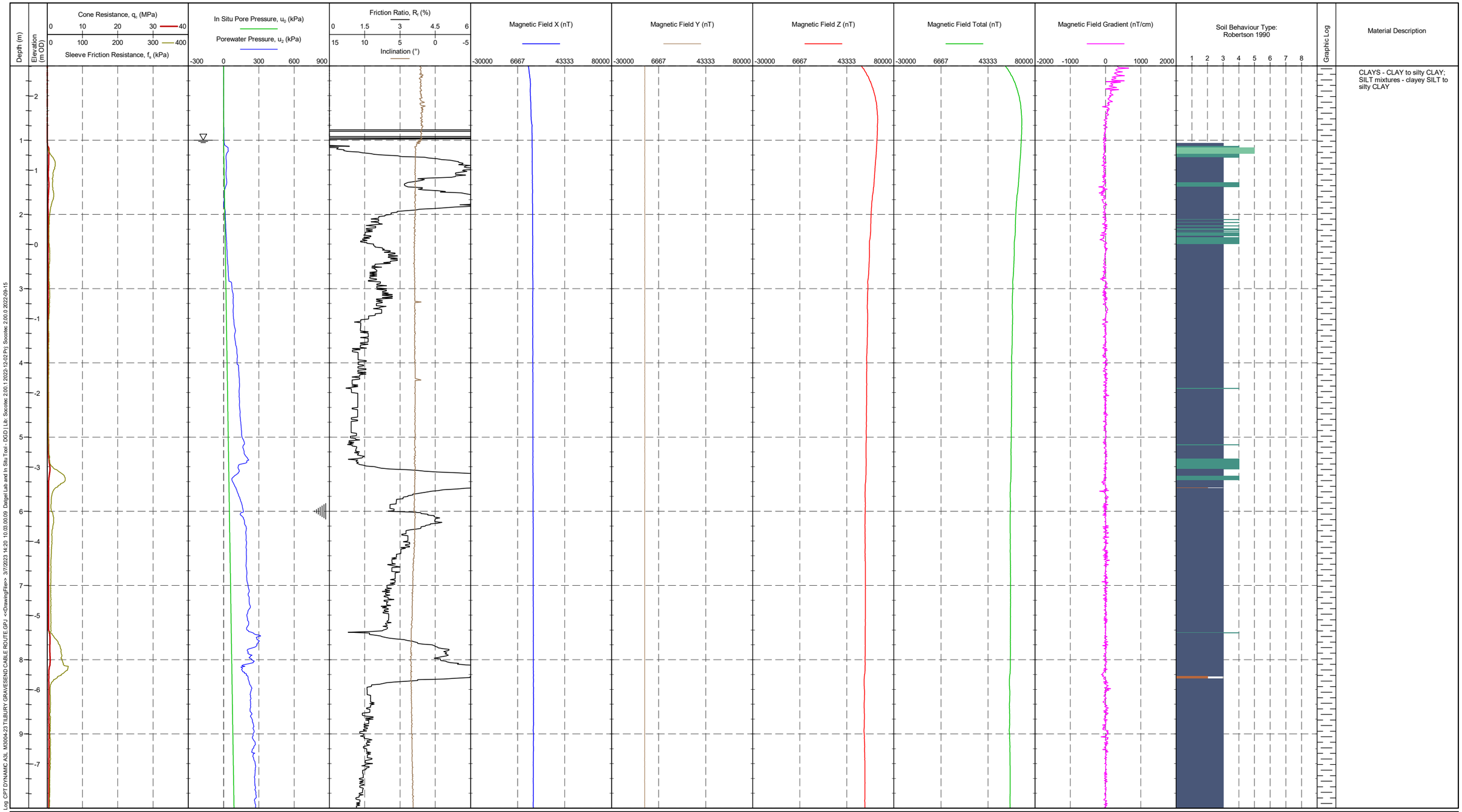
SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFiles>> 3/7/2023 14:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT16**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567384.3 m NORTHING : 174182.5 m COORD. SYS. : OSGB ELEVATION : 2.41 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 1 OF 2 STATUS : Final DATE : 9/3/2023



Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

SOCOTEC 2.00.1 LIB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFile>> 3/7/2023 14:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1.2022-12-02 Prj: Socotec 2.00.0 2022-09-15

SOCOTEC

CPT LOG

PointID **CPT16**

CLIENT : BakerHicks ENGINEER : PROJECT : TILBURY GRAVESEND CABLE ROUTE LOCATION : Gravesend PROJECT No. : M3004-23	AREA : EASTING : 567384.3 m NORTHING : 174182.5 m COORD. SYS. : OSGB ELEVATION : 2.41 m OD	RIG : 9 Tonne tracked rig CONE TYPE : CONE ID : S15-CFIP.2103 OPERATOR : Dominic Barnett	CHECKED BY : Ian Campbell CHECKED DATE : 30/6/2023 APPROVED BY : Ian Campbell APPROVED DATE : 30/6/2023	REMARK	SHEET : 2 OF 2 STATUS : Final DATE : 9/3/2023

Depth (m) | Elevation (m OD)

Cone Resistance, q_c (MPa): 0 10 20 30 40
Sleeve Friction Resistance, f_s (kPa): 0 100 200 300 400

In Situ Pore Pressure, u_0 (kPa)
Porewater Pressure, u_2 (kPa): -300 0 300 600 900

Friction Ratio, R_f (%): 0 1.5 3 4.5 6
Inclination (°): 15 10 5 0 -5

Magnetic Field X (nT): -30000 6667 43333 80000
Magnetic Field Y (nT): -30000 6667 43333 80000
Magnetic Field Z (nT): -30000 6667 43333 80000
Magnetic Field Total (nT): -30000 6667 43333 80000
Magnetic Field Gradient (nT/cm): -2000 -1000 0 1000 2000

Soil Behaviour Type: Robertson 1990: 1 2 3 4 5 6 7 8

Graphic Log

Material Description

CLAYS - CLAY to silty CLAY; SILT mixtures - clayey SILT to silty CLAY *(continued)*

13.15 CLAYS - CLAY to silty CLAY

14.04 SANDS - clean SAND to silty SAND

14.39 SILT mixtures - clayey SILT to silty CLAY

14.81 SANDS - clean SAND to silty SAND

14.94

Terminated at 14.94 m

Dissipation Test

METHOD: Robertson 1990

- 1 - Sensitive, fine grained
- 2 - Organic soil - PEATS
- 3 - CLAYS - CLAY to silty CLAY
- 4 - SILT mixtures - clayey SILT to silty CLAY
- 5 - SAND mixtures - silty SAND to sandy SILT
- 6 - SANDS - clean SAND to silty SAND
- 7 - Gravelly SAND to SAND
- 8 - Very stiff SAND to clayey SAND
- 9 - Very stiff fine grained

SOCOTEC 2.00.1.UB.GLB Log CPT DYNAMIC ASL M3004-23 TILBURY GRAVESEND CABLE ROUTE.GPJ <<DrawingFiles>> 3/7/2023 14:20 10.03.00.09 Datgel Lab and In Situ Tool - DGD | Lib: Socotec 2.00.1 2022-12-02 Prj: Socotec 2.00.0 2022-09-15

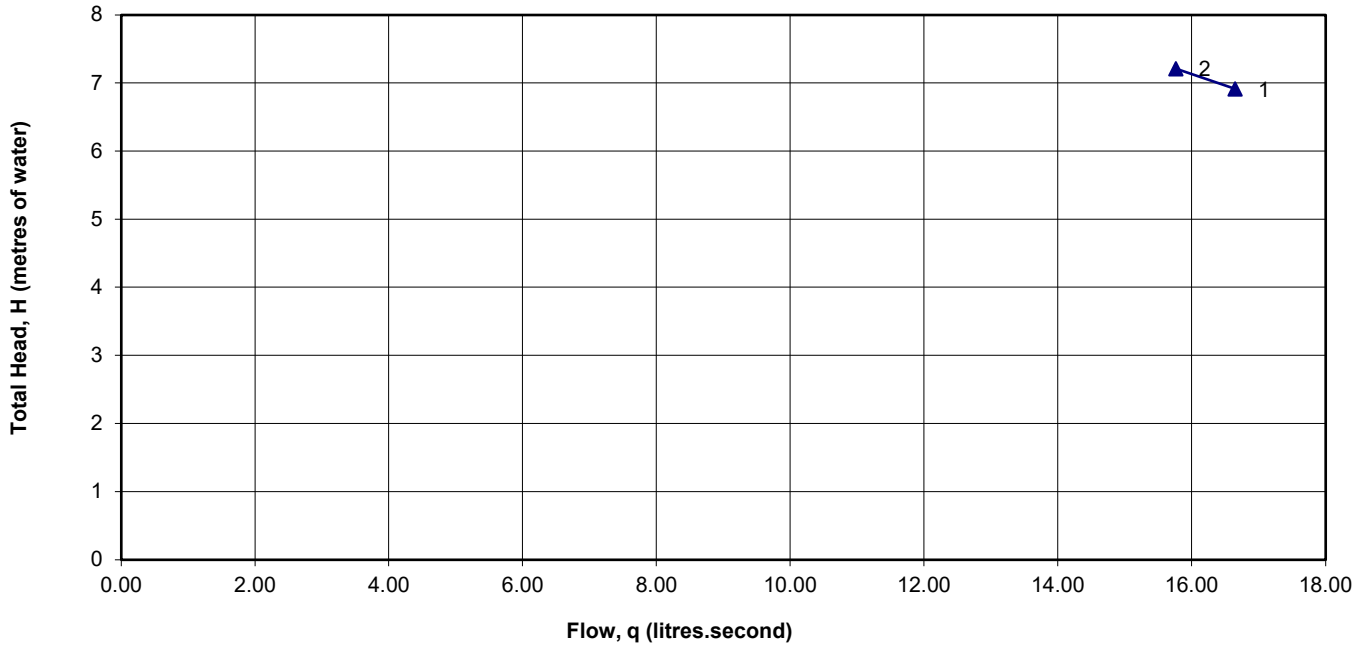
Packer Permeability Test

Borehole No.	**BH05**	Rock type	CHALK
Test No.	**1**		
Test type	Double packer		
Date of test	12 Apr 2023	TPSR No	2
Time of start	14:11	Water source	IBC
Time of finish	15:20	Pump type	
Test section from	27.50 m to 32.50 m		
Length of test section (L)	5.00 m		
Centre of test section	30.00 m		
Diameter of test section (D)	146 mm		
Depth of borehole at time of test	27.00 m		
Depth of casing at time of test	2.50 m		
Depth to water level before test	0.55 m		
Depth to water level after test	m		
Test section pressure zero (Tz)	248 kPa		

Remarks:

Unable to achieve Stage 2 pressure, carried out test at 332kPa.

Stage	Average flow q (l/s)	Average test section pressure Tp (kPa)	Test head H=Tp - Tz (m)	Stage permeability k (m/s)
1	16.65	315	6.91	3.2E-04
2	15.77	318	7.21	2.9E-04
Linear regression to all points				



Notes: Computed using eqn C.1 from BS EN ISO 22282-3 2012, assuming R = L

Project	**TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed**
Project No.	**D2064-22**
Carried out for	**BakerHicks Limited**

Borehole/Test

BH05/1

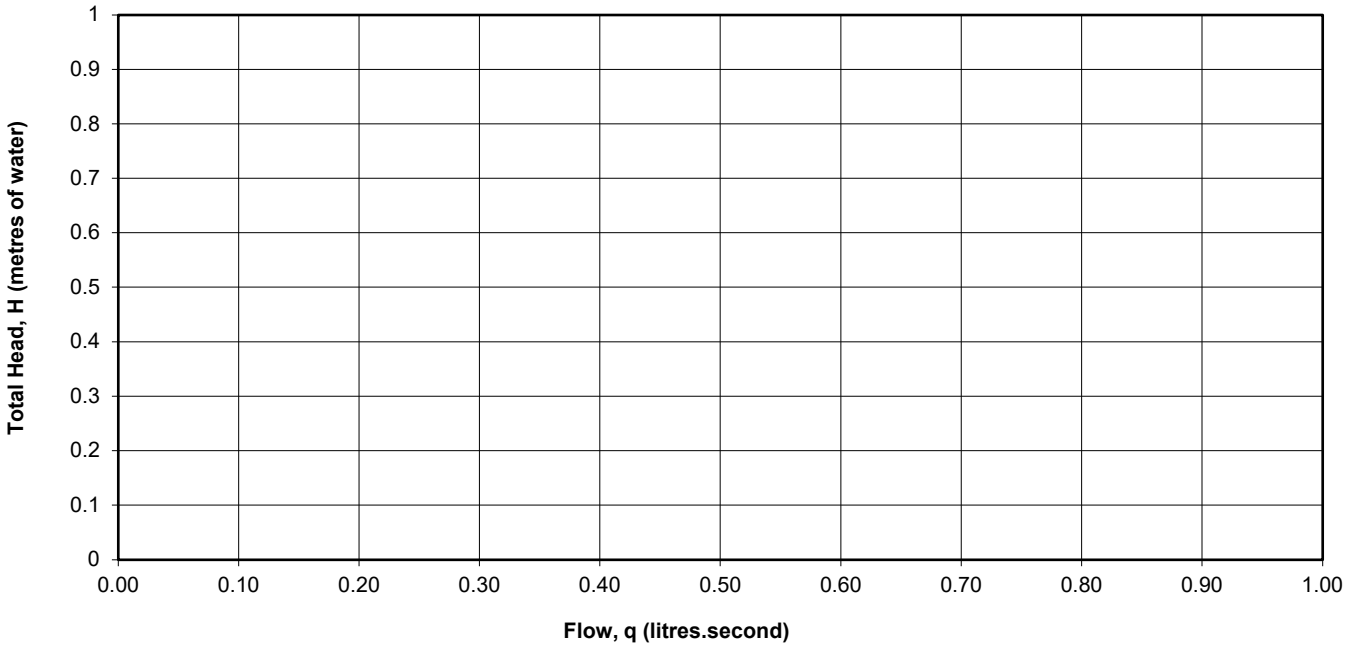
Packer Permeability Test

Borehole No.	**BH05**	Rock type	Chalk
Test No.	**1**		
Test type	Double packer		
Date of test	12 Apr 2023	TPSR No	2
Time of start	09:47	Water source	IBC
Time of finish	12:30	Pump type	
Test section from	45.00 m to 50.00 m		
Length of test section (L)	5.00 m		
Centre of test section	47.50 m		
Diameter of test section (D)	146 mm		
Depth of borehole at time of test	50.00 m		
Depth of casing at time of test	m		
Depth to water level before test	1.45 m		
Depth to water level after test	m		
Test section pressure zero (Tz)	418 kPa		

Remarks:

Unable to download data in final stage.

Stage	Average flow q (l/s)	Average test section pressure Tp (kPa)	Test head H=Tp - Tz (m)	Stage permeability k (m/s)
Linear regression to all points				



Notes: Computed using eqn C.1 from BS EN ISO 22282-3 2012, assuming R = L

Project	**TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed**
Project No.	**D2064-22**
Carried out for	**BakerHicks Limited**

Borehole/Test

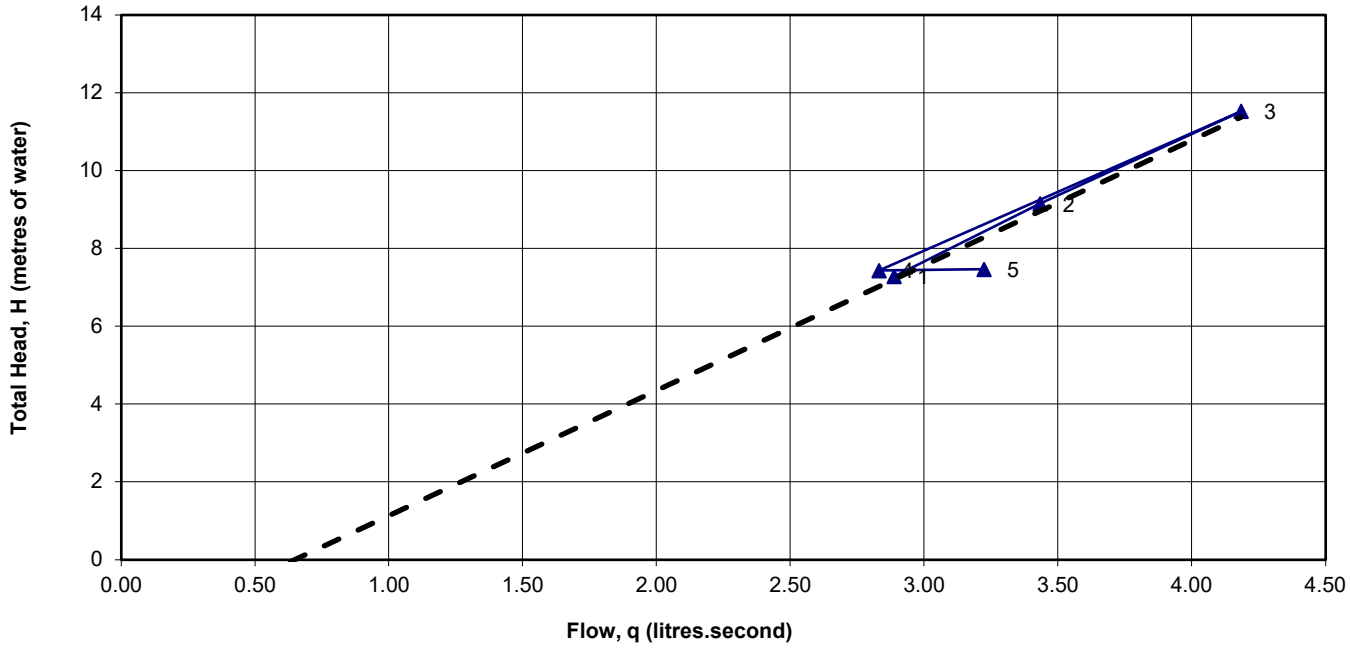
BH05/2

Packer Permeability Test

Borehole No.	**BH06**	Rock type	Chalk
Test No.	**1**		
Test type	Double packer		
Date of test	29 Mar 2023	TPSR No	2
Time of start	09:43	Water source	IBC
Time of finish	12:01	Pump type	
Test section from	23.00 m to 26.00 m		
Length of test section (L)	3.00 m		
Centre of test section	24.50 m		
Diameter of test section (D)	146 mm		
Depth of borehole at time of test	70.50 m		
Depth of casing at time of test	23.00 m		
Depth to water level before test	1.35 m		
Depth to water level after test	m		
Test section pressure zero (Tz)	212 kPa		

Remarks:

Stage	Average flow q (l/s)	Average test section pressure Tp (kPa)	Test head H=Tp - Tz (m)	Stage permeability k (m/s)
1	2.89	283	7.28	7.8E-05
2	3.43	301	9.15	7.4E-05
3	4.19	325	11.52	7.2E-05
4	2.83	285	7.43	7.5E-05
5	3.23	285	7.47	8.5E-05
Linear regression to all points				6.1E-05



Notes: Computed using eqn C.1 from BS EN ISO 22282-3 2012, assuming R = L

Project	**TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed**
Project No.	**D2064-22**
Carried out for	**BakerHicks Limited**

Borehole/Test

BH06/1

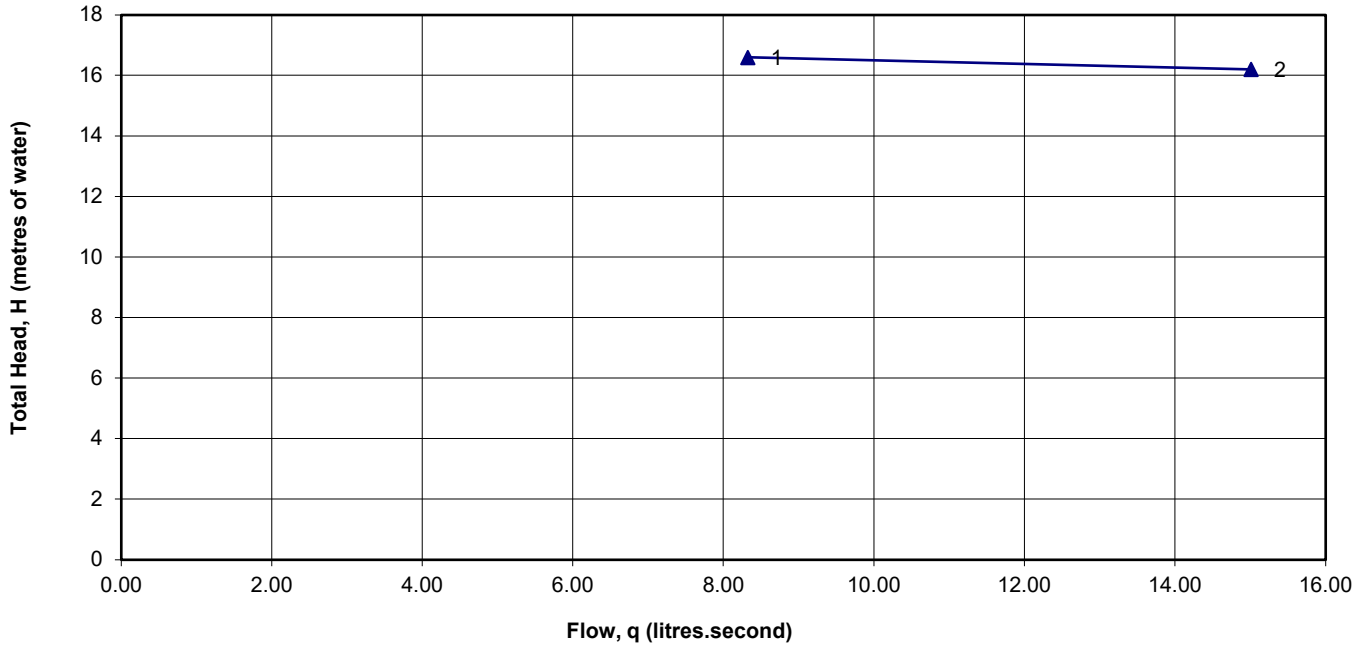
Packer Permeability Test

Borehole No.	**BH06**	Rock type	Chalk
Test No.	**1**		
Test type	Double packer		
Date of test	28 Mar 2023	TPSR No	2
Time of start	15:02	Water source	IBC
Time of finish	16:42	Pump type	
Test section from	37.50 m to	42.50 m	
Length of test section (L)		5.00 m	
Centre of test section		40.00 m	
Diameter of test section (D)		146 mm	
Depth of borehole at time of test		70.50 m	
Depth of casing at time of test		36.00 m	
Depth to water level before test		2.80 m	
Depth to water level after test		2.40 m	
Test section pressure zero (Tz)		343 kPa	

Remarks:

Failed to reach Stage 2 targe pressure of 600 kPa.

Stage	Average flow q (l/s)	Average test section pressure Tp (kPa)	Test head H=Tp - Tz (m)	Stage permeability k (m/s)
1	8.33	505	16.60	6.7E-05
2	15.01	502	16.20	1.2E-04
Linear regression to all points				



Notes: Computed using eqn C.1 from BS EN ISO 22282-3 2012, assuming R = L

Project	**TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed**
Project No.	**D2064-22**
Carried out for	**BakerHicks Limited**

Borehole/Test

BH06/2

APPENDIX D
INSTRUMENTATION AND MONITORING

Monitoring Installations Summary	Table D1
Groundwater Monitoring	Table D2
Groundwater Monitoring Results	Figures D3 to D5
Gas Monitoring	Table D6

Monitoring Installations Summary

Instrument Reference	Instrument Type (See Notes)	Installation Date, dd/mm/yyyy	Pipe Diameter, mm	Instrument Base, mbgl	Response Zone Range, mbgl	Pipe Top Details	Headworks	Remarks
BH04 (1)	SP	21/03/2023	50	50.20	42.00 to 44.00		Raised Cover	Data logger installed
BH04 (2)	SP	21/03/2023	19	16.00	15.00 to 16.00	Gas tap	Raised cover	
BH05 (1)	SP	12/04/2023	50	53.00	50.00 to 53.00		Raised Cover	Data logger installed
BH05 (2)	SP	12/04/2023	19	18.00	16.00 to 19.00	Gas tap	Raised Cover	
BH06 (1)	SP	27/03/2023	50	27.50	25.00 to 27.50		Raised Cover	Data logger installed
BH06 (2)	SP	27/03/2023	19	7.50	5.00 to 7.50	Gas tap	Raised Cover	

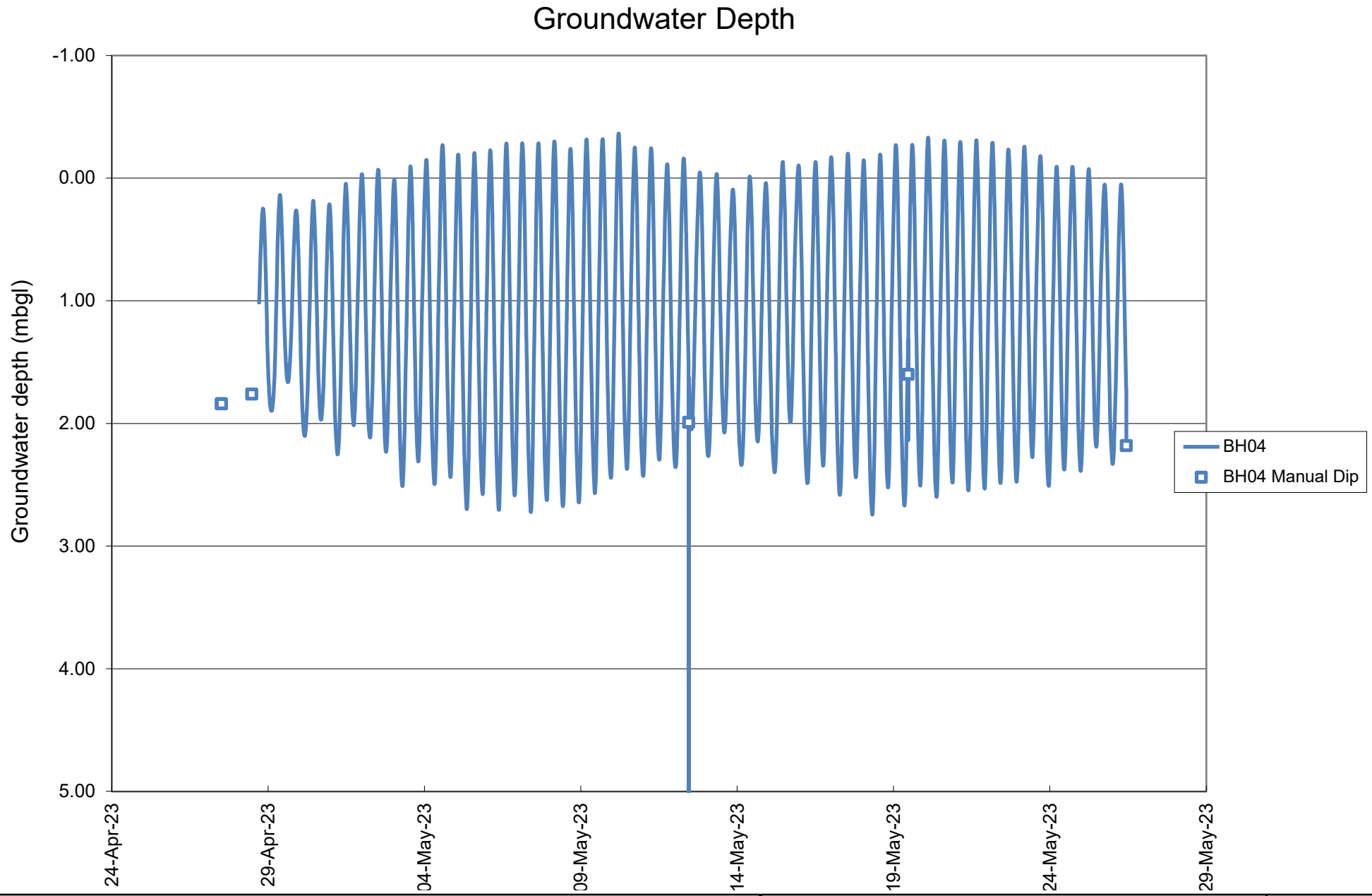
Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Groundwater Monitoring

Instrument Reference	Instrument Type	Instrument Base, mbgl	Date Time dd/mm/yyyy hh:mm:ss	Result (mbgl)	Comments
BH04 (1)	SP	50.20	28/04/2023 11:30:00	1.76	
BH04 (1)	SP	50.20	12/05/2023 10:45:00	1.99	
BH04 (1)	SP	50.20	19/05/2023 11:12:00	1.60	
BH04 (1)	SP	50.20	26/05/2023 10:41:00	2.18	
BH04 (2)	SP	16.00	28/04/2023 11:30:00	1.56	
BH04 (2)	SP	16.00	12/05/2023 10:42:00	1.61	
BH04 (2)	SP	16.00	19/05/2023 11:25:00	1.33	
BH04 (2)	SP	16.00	26/05/2023 10:41:00	2.07	
BH05 (1)	SP	53.00	28/04/2023 08:30:00	0.80	
BH05 (1)	SP	53.00	12/05/2023 09:10:00	1.26	
BH05 (1)	SP	53.00	19/05/2023 11:40:00		No access.
BH05 (1)	SP	53.00	26/05/2023 09:46:00	1.96	
BH05 (2)	SP	18.00	28/04/2023 08:30:00	0.81	
BH05 (2)	SP	18.00	12/05/2023 09:15:00	1.10	
BH05 (2)	SP	18.00	19/05/2023 11:40:00		No access.
BH05 (2)	SP	18.00	26/05/2023 09:43:00	1.87	
BH06 (1)	SP	27.50	28/04/2023 09:30:00	1.09	
BH06 (1)	SP	27.50	12/05/2023 09:50:00	1.53	
BH06 (1)	SP	27.50	19/05/2023 12:00:00		No access.
BH06 (1)	SP	27.50	26/05/2023 09:18:00	1.66	
BH06 (2)	SP	7.50	28/04/2023 09:30:00	1.05	
BH06 (2)	SP	7.50	12/05/2023 09:39:00	1.24	
BH06 (2)	SP	7.50	19/05/2023 12:00:00		No access.
BH06 (2)	SP	7.50	26/05/2023 09:05:00	1.30	

Notes: Type: SP - Standpipe, SPIE - Standpipe Piezometer, HPIE - Hydraulic Piezometer, PPIE - Pneumatic Piezometer, EPIE - Vibrating Wire Piezometer, PWEL - Pumping Well

Groundwater Monitoring Results



Notes: Water Sampling undertaken 12 May 2023

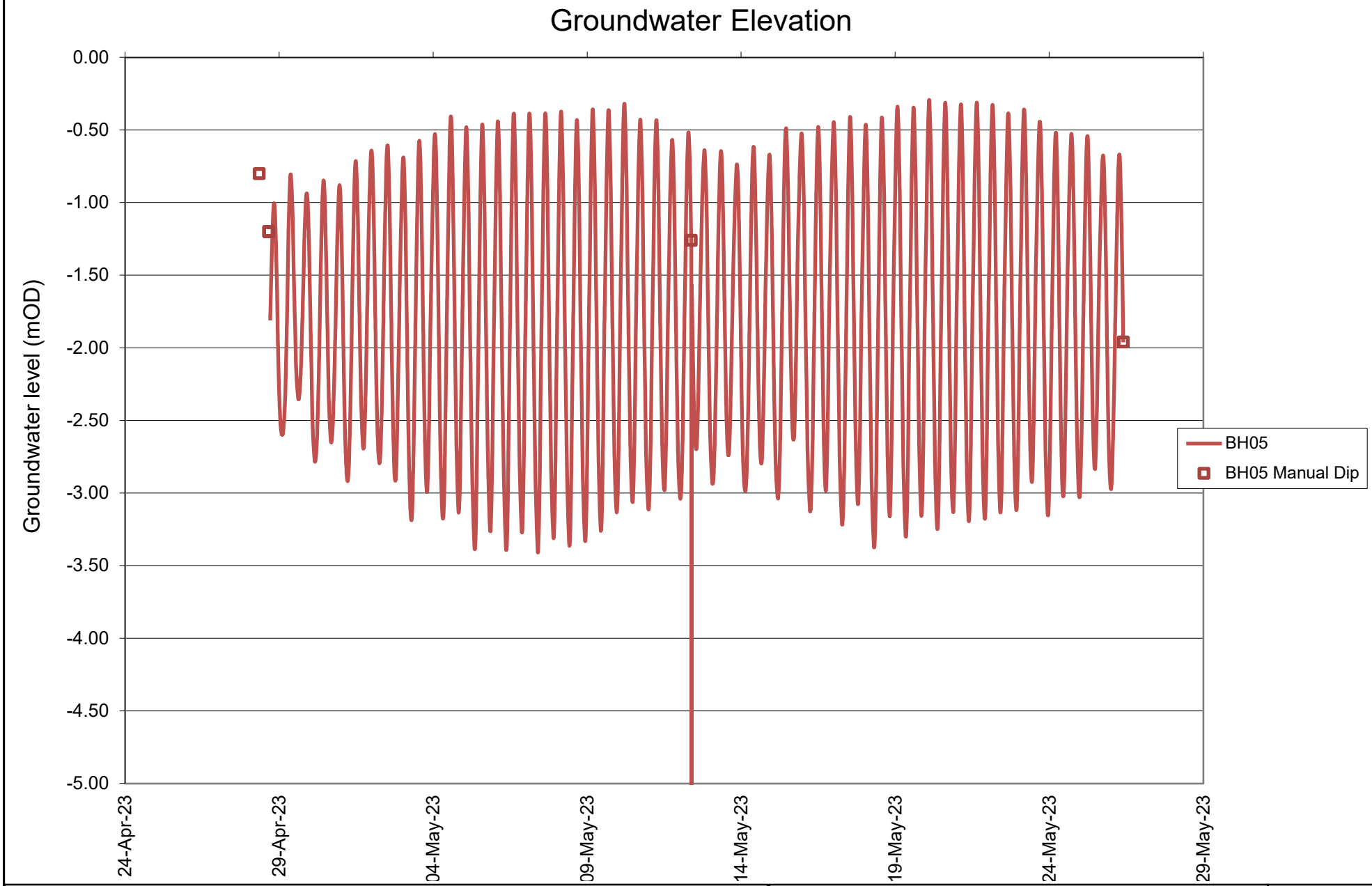
Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Figure

D3

Sheet 1 of 1

Groundwater Monitoring Results



Notes:

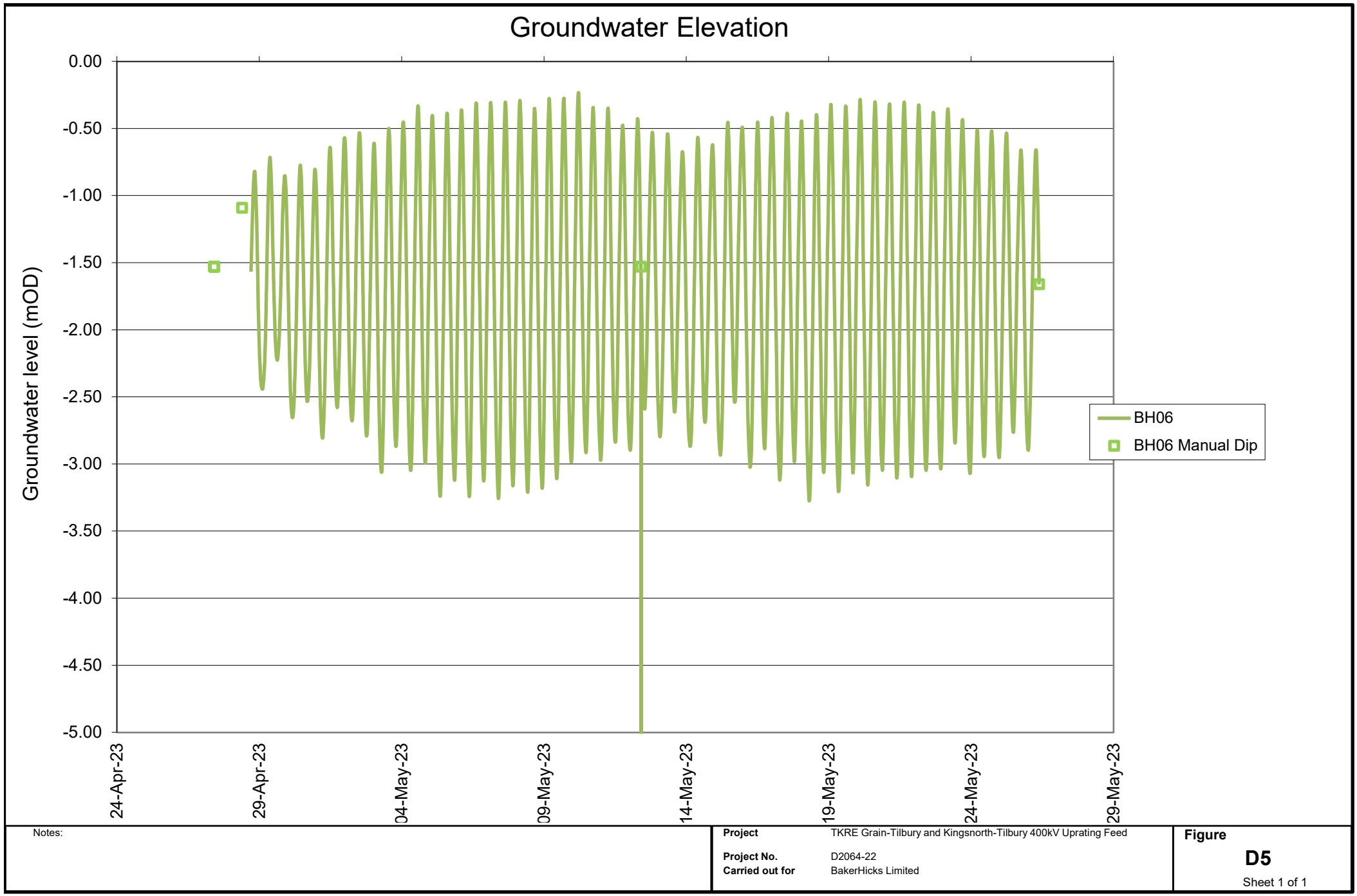
Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Figure

D4

Sheet 1 of 1

Groundwater Monitoring Results



Notes:

Project	TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No.	D2064-22
Carried out for	BakerHicks Limited

Figure

D5

Sheet 1 of 1

Gas Monitoring Summary

Notes: Peak gas concentrations, flow rates and differential pressures represent the interpreted highest values (or lowest gas concentration value for oxygen) recorded during the monitoring period. Steady state values are taken as the end of monitoring values. Values below the limit of detection (LoD) of the monitoring equipment are recorded as the LoD value preceded by '<' (eg <0.1).

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

D6

Location	Date	Air Temp, oC	Balance (pk), %vol	Balance (st), %vol	Baro Press, mbar	CH4 (pk), %vol	CH4 (st), %vol	CO (pk), ppm	CO (st), ppm	CO2 (pk), %vol	CO2 (st), %vol	Diff Press (pk), Pa	Diff Press (st), Pa	Gas Flow Rate (pk), l/hr	Gas Flow Rate (st), l/hr	H2S (pk), ppm	H2S (st), ppm	O2 (min), %vol	O2 (st), %vol	Equipment	Remarks
BH04 (1)																					
	28 Apr 2023	11	78.6	78.6	1011	0.2	0.2	<1	<1	0.1	0.1	-71	-71	-0.2	-0.2	<1	<1	21.1	21.1	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Hard standing, Condition: Flooded, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: Overcast, Precipitation:None; Remarks: Gas tubing filled with water after 5 seconds.
	12 May 2023	13	83.6	83.6	1022	1.6	1.6	323	321	2.4	2.4	-27	-27	-0.4	-0.4	3	3	12.5	12.5	Equipment:GA5000. Cal:12-Jun-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Damp, Vegetation stress: None; WeathCond: Wind speed: Light, Cloud cover: Cloudy, Precipitation:Slight; Remarks: Pump failed after 4 minutes.
	19 May 2023	12	79.2	79.2	1028	0.3	0.3	91	91	1.1	1.1	1	1	0.2	0.2	1	1	19.4	19.4	Equipment:GA5000. Cal:12-Jun-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Dry, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: Cloudy, Precipitation:None; Remarks: Gas tubing filled with water at 2:30 minutes.
	26 May 2023	17	79.2	79.2	1033	0.2	0.2	<1	<1	0.3	0.3	<1	<1	7.8	7.8	<1	<1	20.3	20.3	Equipment:GA5000. Cal:12-Jun-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Dry, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: None, Precipitation:None; Remarks: Pump flow failed after 5 seconds.
BH05 (1)																					
	28 Apr 2023	11	78.7	78.7	1009	0.2	0.2	<1	<1	0.3	0.3	<1	<1	0.1	0.1	<1	<1	20.8	20.8	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Other, Condition: Wet, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: Cloudy, Precipitation:None; Remarks: Gas tubing filled with water after 1 minute.
	12 May 2023	13	78.9	78.9	1022	0.2	0.2	2	2	0.3	0.3	28	28	<0.1	<0.1	<1	<1	20.5	20.5	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Dry, Vegetation stress: None; WeathCond: Wind speed: Light, Cloud cover: Cloudy, Precipitation:None; Remarks: Pump flow failed after 1 minute and gas tubing filled with water.
	19 May 2023	12			1028																No access.
	26 May 2023	17	78.8	78.8	1033	0.2	0.2	2	2	0.5	0.5	2	2	0.1	0.1	<1	<1	20.5	20.5	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Dry, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: None, Precipitation:None; Remarks: Pump failed after 5 seconds.
BH06 (1)																					
	28 Apr 2023	11			1009															Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Open; GroundCond :Type: Other, Condition: Flooded, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: Cloudy, Precipitation:Slight; Remarks:Gas tap left open.

Gas Monitoring Summary

Notes: Peak gas concentrations, flow rates and differential pressures represent the interpreted highest values (or lowest gas concentration value for oxygen) recorded during the monitoring period. Steady state values are taken as the end of monitoring values. Values below the limit of detection (LoD) of the monitoring equipment are recorded as the LoD value preceded by '<' (eg <0.1).

Project TKRE Grain-Tilbury and Kingsnorth-Tilbury 400kV Uprating Feed
Project No. D2064-22
Carried out for BakerHicks Limited

D6

Location	Date	Air Temp, oC	Balance (pk), %vol	Balance (st), %vol	Baro Press, mbar	CH4 (pk), %vol	CH4 (st), %vol	CO (pk), ppm	CO (st), ppm	CO2 (pk), %vol	CO2 (st), %vol	Diff Press (pk), Pa	Diff Press (st), Pa	Gas Flow Rate (pk), l/hr	Gas Flow Rate (st), l/hr	H2S (pk), ppm	H2S (st), ppm	O2 (min), %vol	O2 (st), %vol	Equipment	Remarks
	12 May 2023	13	79.1	79.1	1022	0.2	0.2	<1	<1	0.5	0.5	<1	<1	<0.1	<0.1	<1	<1	20.1	20.1	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Damp, Vegetation stress: None; WeathCond: Wind speed: Light, Cloud cover: Cloudy, Precipitation:Slight; Remarks: Pump flow failed after 2 minutes and gas tubing filled with water.
	19 May 2023	12			1028																No access.
	26 May 2023	17	78.9	78.9	1032	0.3	0.3	112	<1	0.8	0.8	<1	-1	<0.1	<0.1	<1	<1	20.1	20.1	Equipment:GA5000. Cal:12-Dec-22	Operator: LD; Cover Cond: OK, Cap/bung: OK, Tap(s): Closed; GroundCond :Type: Bare ground, Condition: Dry, Vegetation stress: None; WeathCond: Wind speed: Calm, Cloud cover: None, Precipitation:None

APPENDIX E

GEOTECHNICAL LABORATORY TEST RESULTS

Laboratory Test Reports (PSL)	Report Numbers PSL2281, PSL3149, PSL3150 & PSL3151
Laboratory Test Reports (DETS)	23-08601 & 23-10911

LABORATORY REPORT

Contract Number: PSL23/2281

Report Date: 03 May 2023

Client's Reference: D2064-22

Client Name: Socotec
The Oasts, Newnham Court
Bearstead Road
Maidstone
Kent
ME14 5LH

For the attention of: John Emerson

Contract Title: TKRE, Tilbury and Eastcourt Marshes Land Investigation

Date Received: 3/4/2023
Date Commenced: 3/4/2023
Date Completed: 3/05/2023

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

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	M Fennell (Senior Technician)

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Doncaster,
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Tel: 01302 768098
Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP-11	4	LB	0.30	1.00	Brown CLAY.
TP-11	7	LB	2.00	2.50	Brown CLAY with some organic material.
TP-12	2	D	0.50		Brown very gravelly very sandy CLAY with some organic material.
TP-12	4	LB	0.70	1.20	Brown organic CLAY.
TP-12	7	LB	2.00	2.50	Brown organic CLAY.
TP-13	4	LB	0.30	0.90	Brown gravelly slightly sandy CLAY.
TP-13	6	D	1.20		Brown CLAY.
TP-13	10	LB	2.50	3.00	Brown CLAY.
TP-13	12	D	3.20		Brown organic CLAY.
TP-14	4	LB	0.20	0.80	Brown CLAY with some organic material.
TP-14	7	LB	1.60	2.20	Grey organic CLAY.
TP-15	4	LB	0.50	1.00	Brown CLAY with some organic material.
TP-15	7	LB	2.40	2.80	Brown organic CLAY.
TP-16	4	LB	0.80	1.20	Brown CLAY with some organic material.
TP-17	4	LB	0.40	0.80	Brown CLAY.
TP-17	7	LB	1.20	1.80	Brown CLAY.
TP-17	8	D	1.80		Brown CLAY with some organic material.
TP-18	4	LB	0.50	1.00	Brown CLAY.
TP-19	4	LB	0.50	1.00	Brown CLAY.

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
TP-19	7	LB	1.60	2.00	Brown CLAY.
TP-19	8	D	2.40		Brown organic CLAY.
TP-20	4	LB	0.50	1.00	Brown CLAY.
TP-20	7	LB	2.00	2.50	Grey organic CLAY.

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE: Tilbury and Eastcourt Marshes Land Investigation

Contract No:
PSL23/2281
Client Ref:
D2064-22

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
TP-11	7	LB	2.00	2.50	75			93	34	59	100	Extremely High Plasticity CE
TP-12	2	D	0.50		45			59	29	30	61	High Plasticity CH
TP-12	7	LB	2.00	2.50	131			128	49	79	100	Extremely High Plasticity CE
TP-13	6	D	1.20		36			71	30	41	99	Very High Plasticity CV
TP-13	12	D	3.20		84			109	43	66	100	Extremely High Plasticity CE
TP-14	4	LB	0.20	0.80	45			81	33	48	100	Very High Plasticity CV
TP-14	7	LB	1.60	2.20	124			127	47	80	100	Extremely High Plasticity CE
TP-15	4	LB	0.50	1.00	59			80	35	45	100	Very High Plasticity CV
TP-15	7	LB	2.40	2.80	94			117	44	73	100	Extremely High Plasticity CE
TP-16	4	LB	0.80	1.20	54			90	36	54	100	Extremely High Plasticity CE
TP-17	4	LB	0.40	0.80	29			70	30	40	100	Very High Plasticity CV
TP-17	8	D	1.80		48			81	32	49	100	Very High Plasticity CV
TP-18	4	LB	0.50	1.00	42			71	30	41	100	Very High Plasticity CV
TP-19	4	LB	0.50	1.00	35			72	30	42	100	Very High Plasticity CV
TP-19	8	D	2.40		91			110	44	66	100	Extremely High Plasticity CE
TP-20	4	LB	0.50	1.00	34			78	32	46	100	Very High Plasticity CV
TP-20	7	LB	2.00	2.50	144			137	51	86	100	Extremely High Plasticity CE

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

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE: Tilbury and Eastcourt Marshes Land Investigation

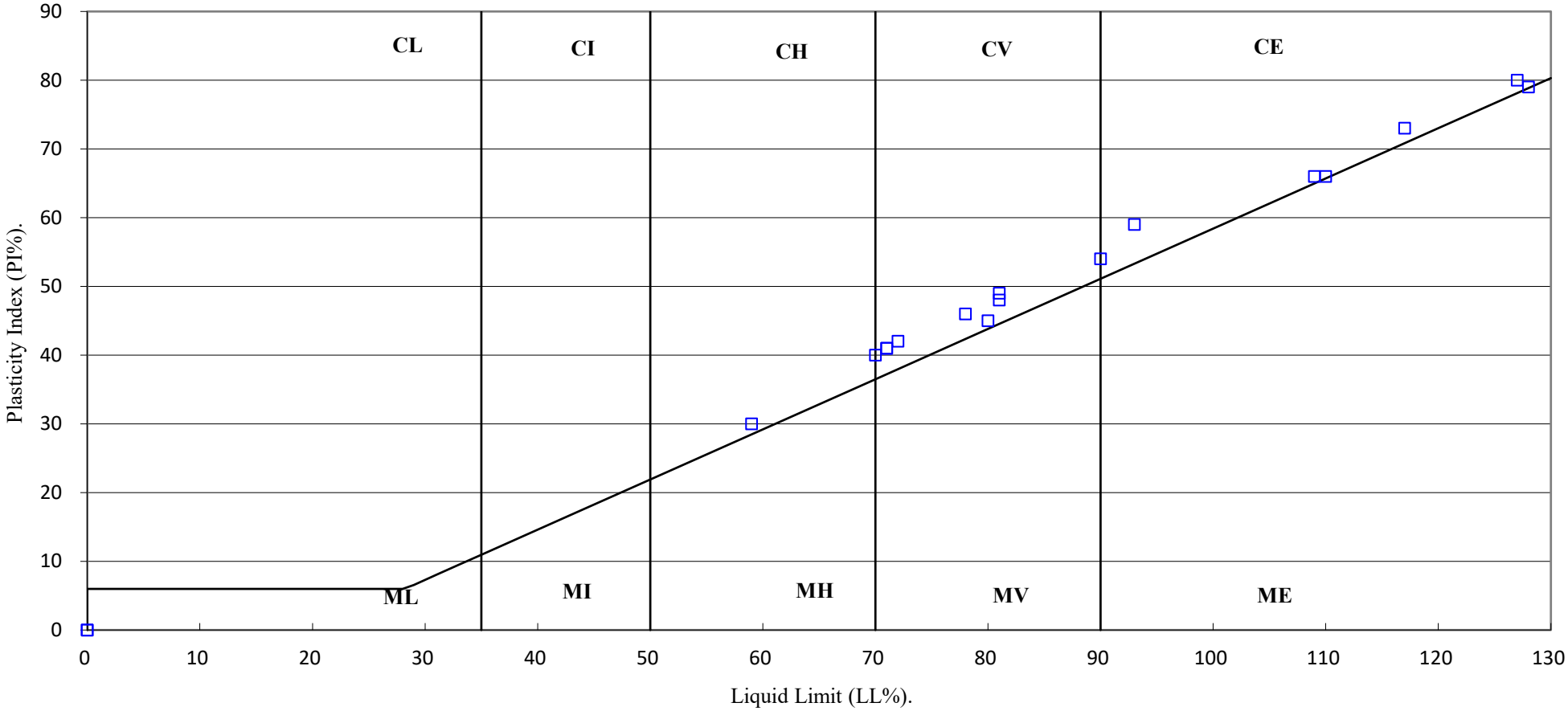
Contract No:

PSL23/2281

Client Ref:

D2064-22

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



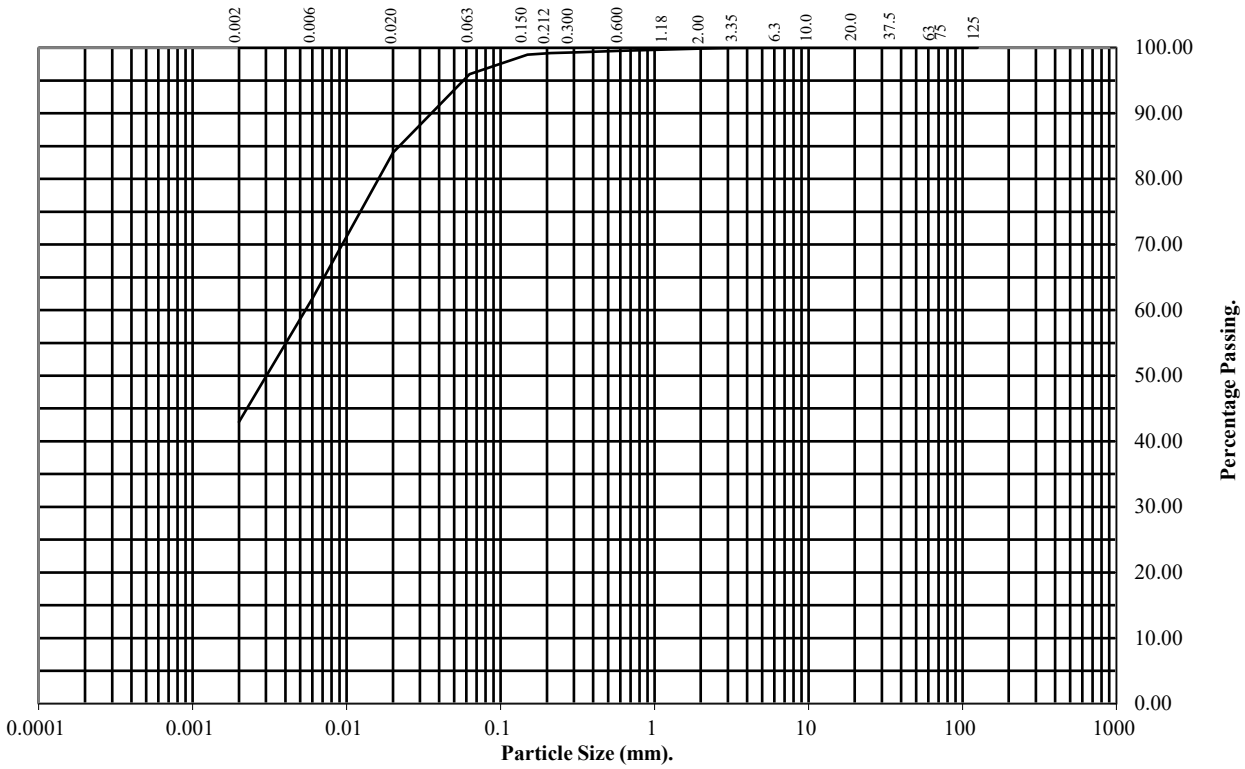
UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**TKRE: Tilbury and Eastcourt Marshes Land Investigation**	**Contract No:**
		PSL23/2281
		Client Ref:
		D2064-22

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-11**	**Top Depth (m):**	**0.30**
Sample Number:	**4**	**Base Depth(m):**	**1.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	84
0.006	62
0.002	43

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	53
Clay	43

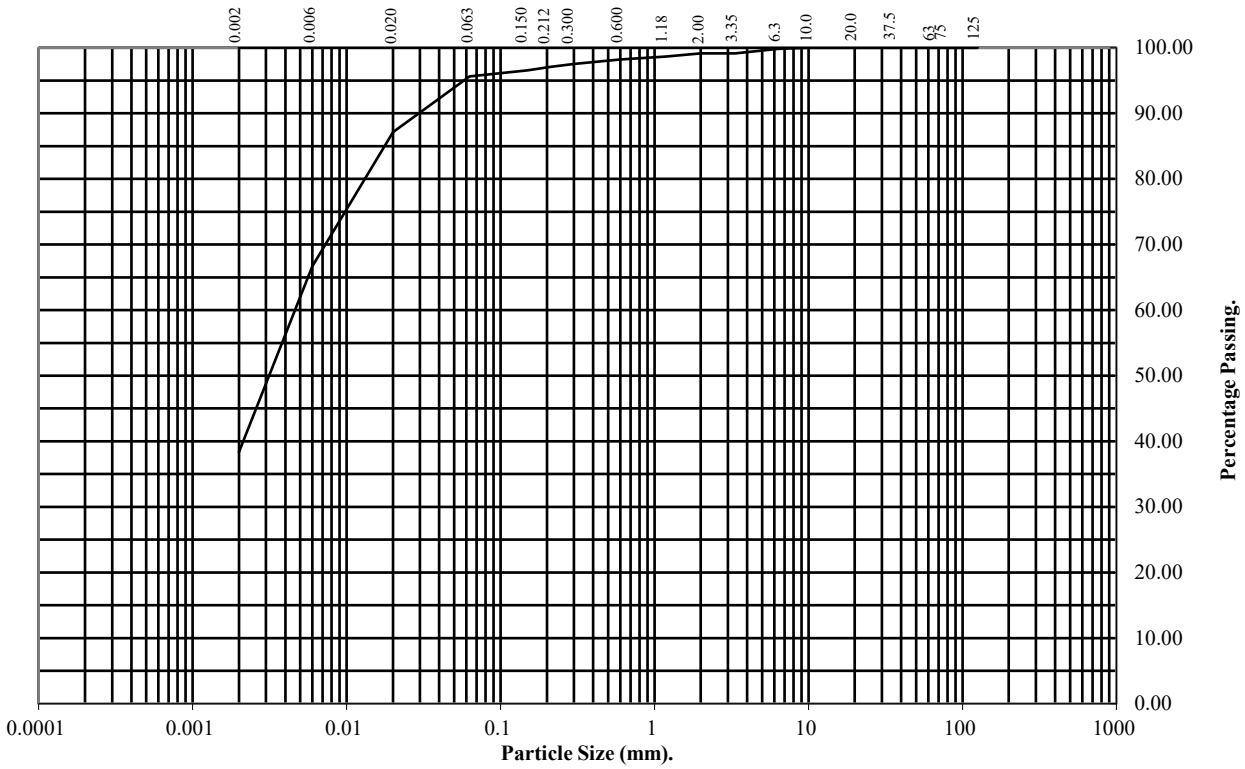
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-12**	**Top Depth (m):**	**0.70**
Sample Number:	**4**	**Base Depth(m):**	**1.20**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	87
0.006	67
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	3
Silt	58
Clay	38

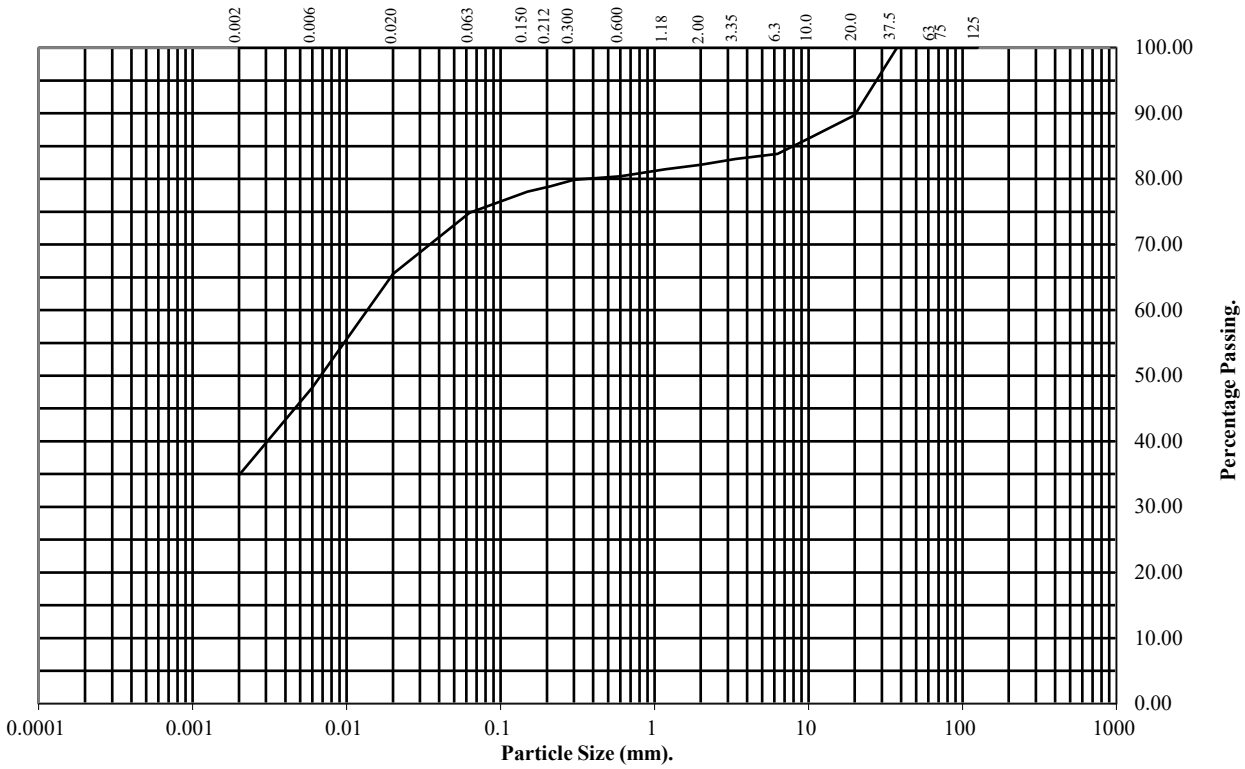
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-13**	**Top Depth (m):**	**0.30**
Sample Number:	**4**	**Base Depth(m):**	**0.90**
Sample Type:	**LB**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	90
10	86
6.3	84
3.35	83
2	82
1.18	81
0.6	80
0.3	80
0.212	79
0.15	78
0.063	75

Particle Diameter	Percentage Passing
0.02	66
0.006	48
0.002	35

Soil Fraction	Total Percentage
Cobbles	0
Gravel	18
Sand	7
Silt	40
Clay	35

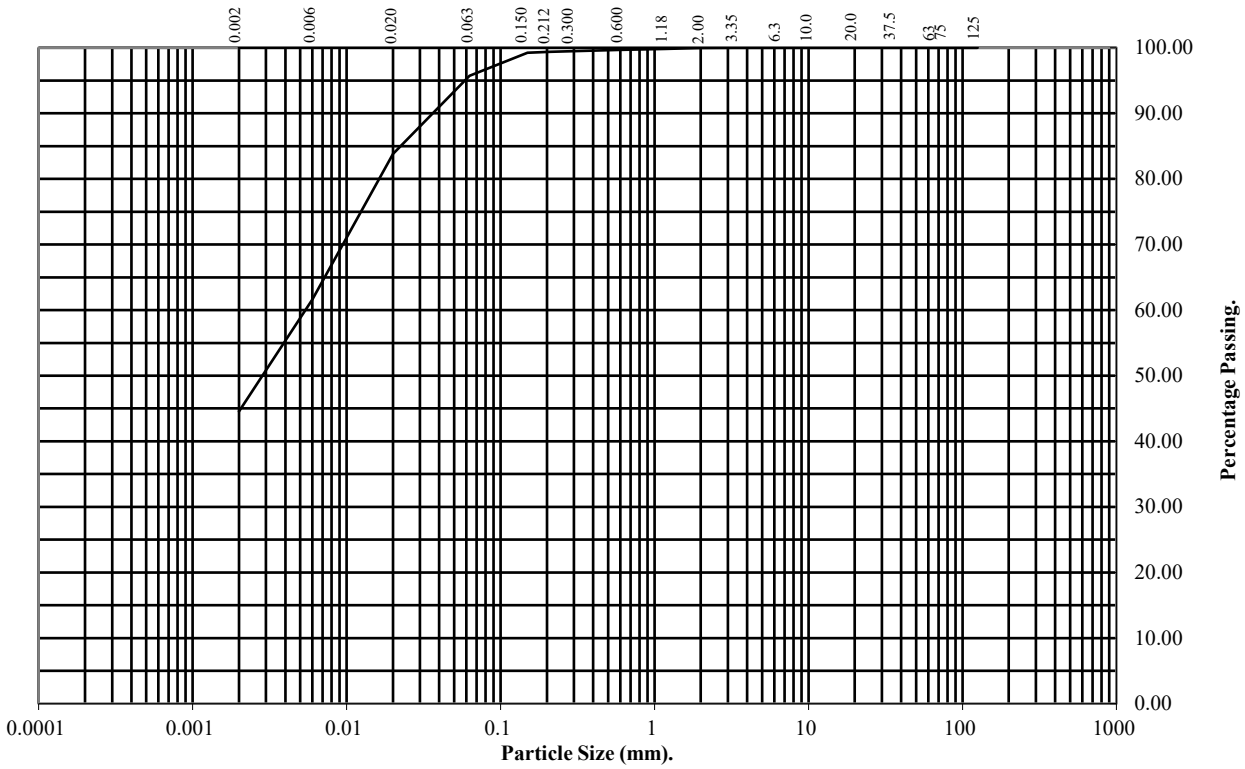
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-13**	**Top Depth (m):**	**2.50**
Sample Number:	**10**	**Base Depth(m):**	**3.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	84
0.006	62
0.002	45

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	51
Clay	45

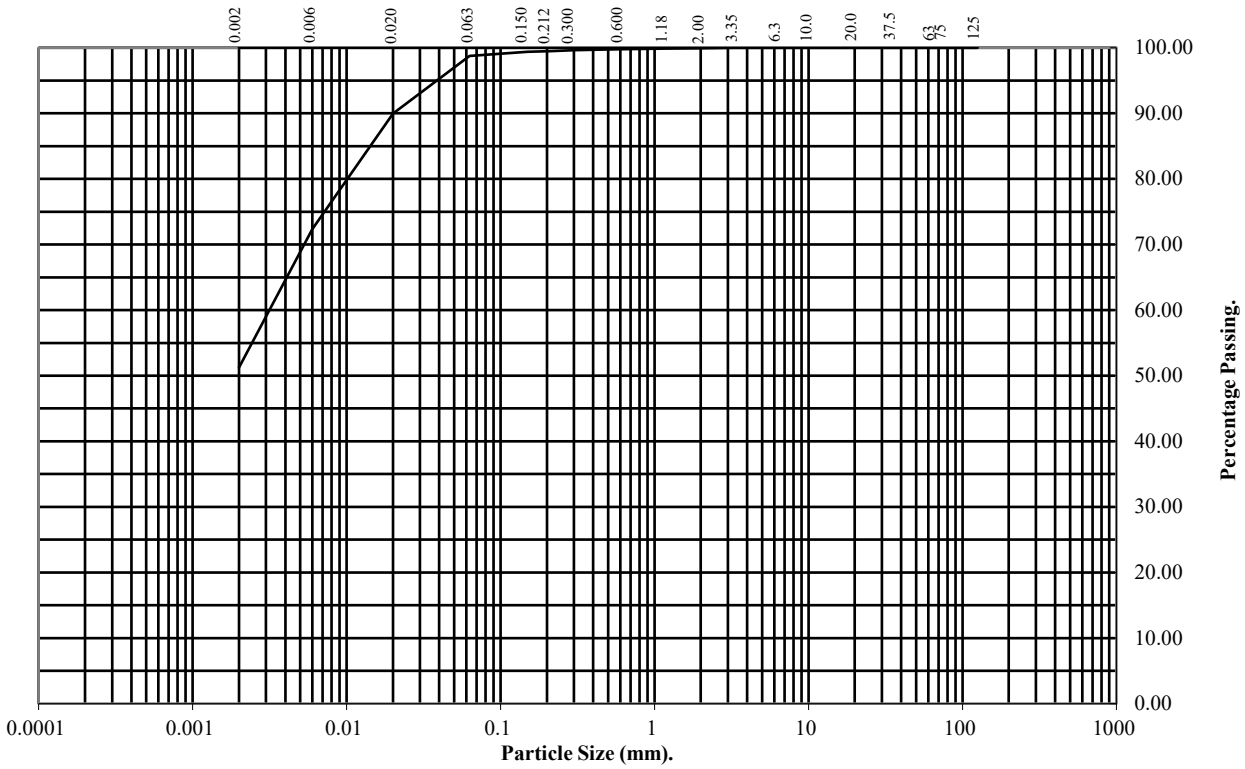
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-14**	**Top Depth (m):**	**0.20**
Sample Number:	**4**	**Base Depth(m):**	**0.80**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	90
0.006	72
0.002	51

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	48
Clay	51

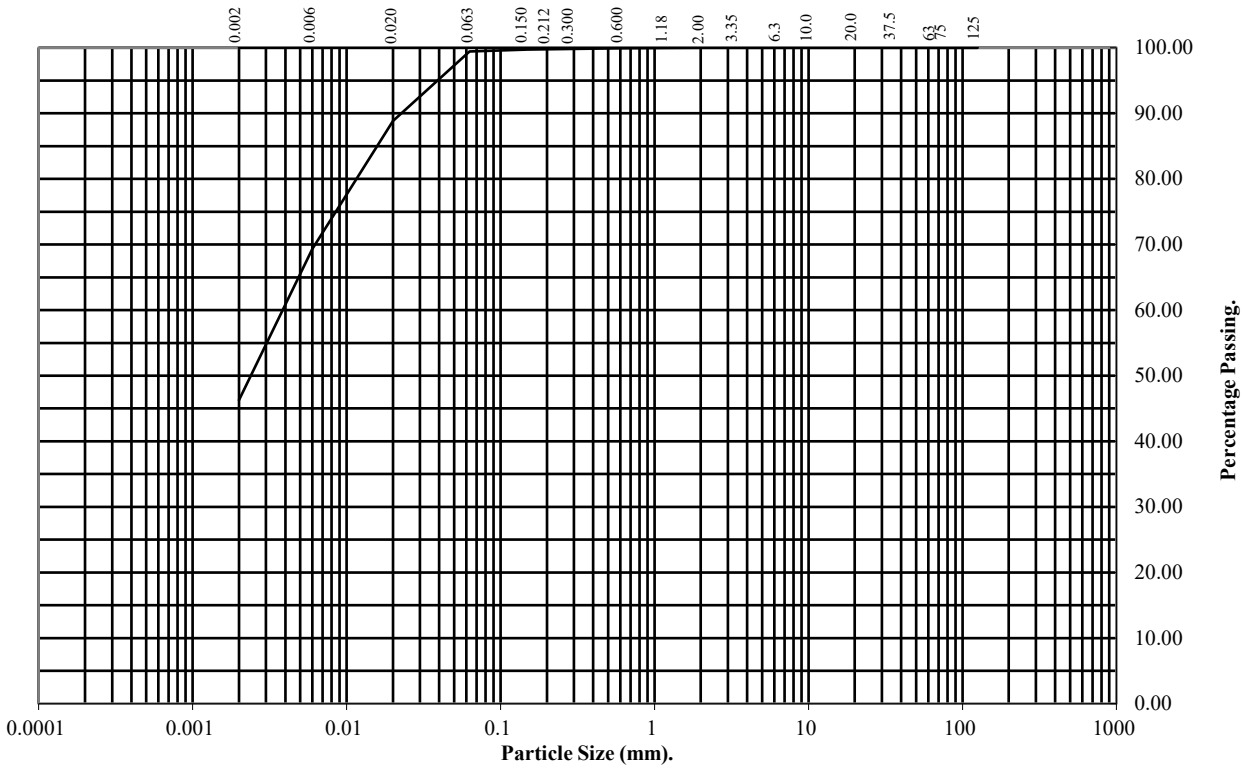
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-15**	**Top Depth (m):**	**0.50**
Sample Number:	**4**	**Base Depth(m):**	**1.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	89
0.006	69
0.002	46

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	53
Clay	46

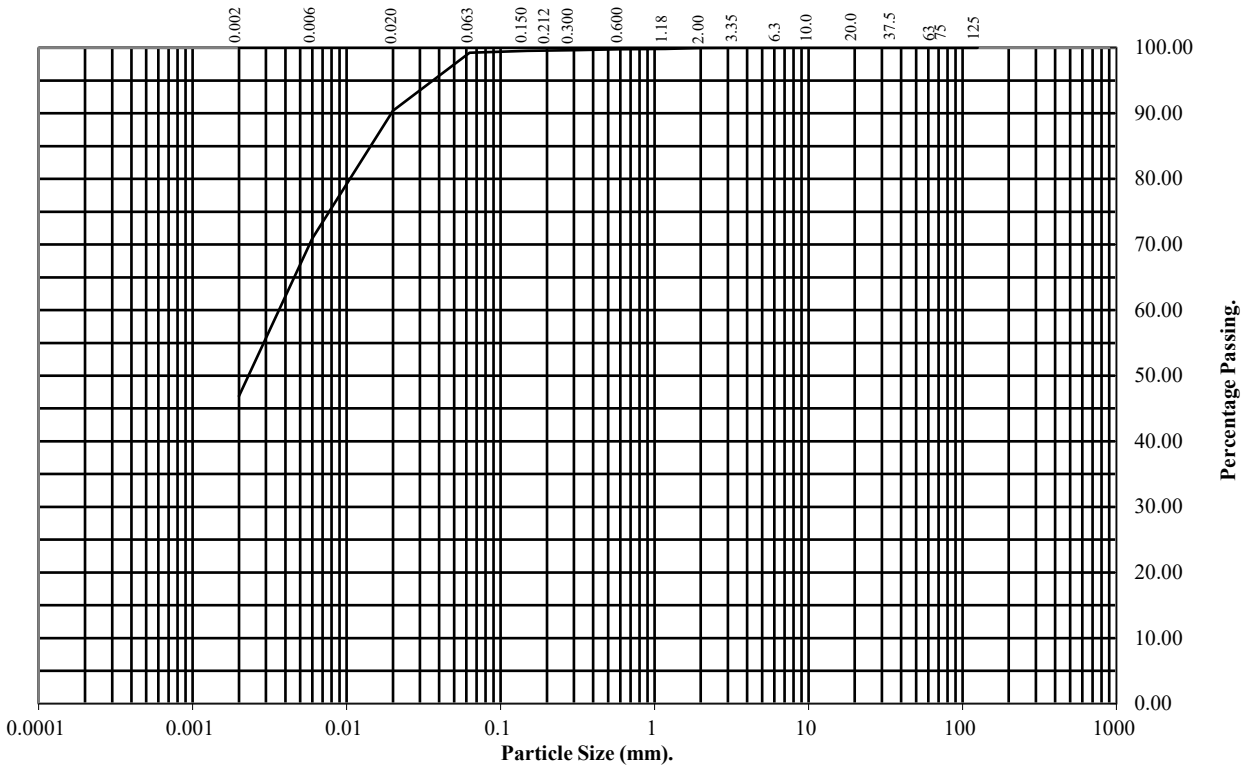
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-16**	**Top Depth (m):**	**0.80**
Sample Number:	**4**	**Base Depth(m):**	**1.20**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	90
0.006	71
0.002	47

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	52
Clay	47

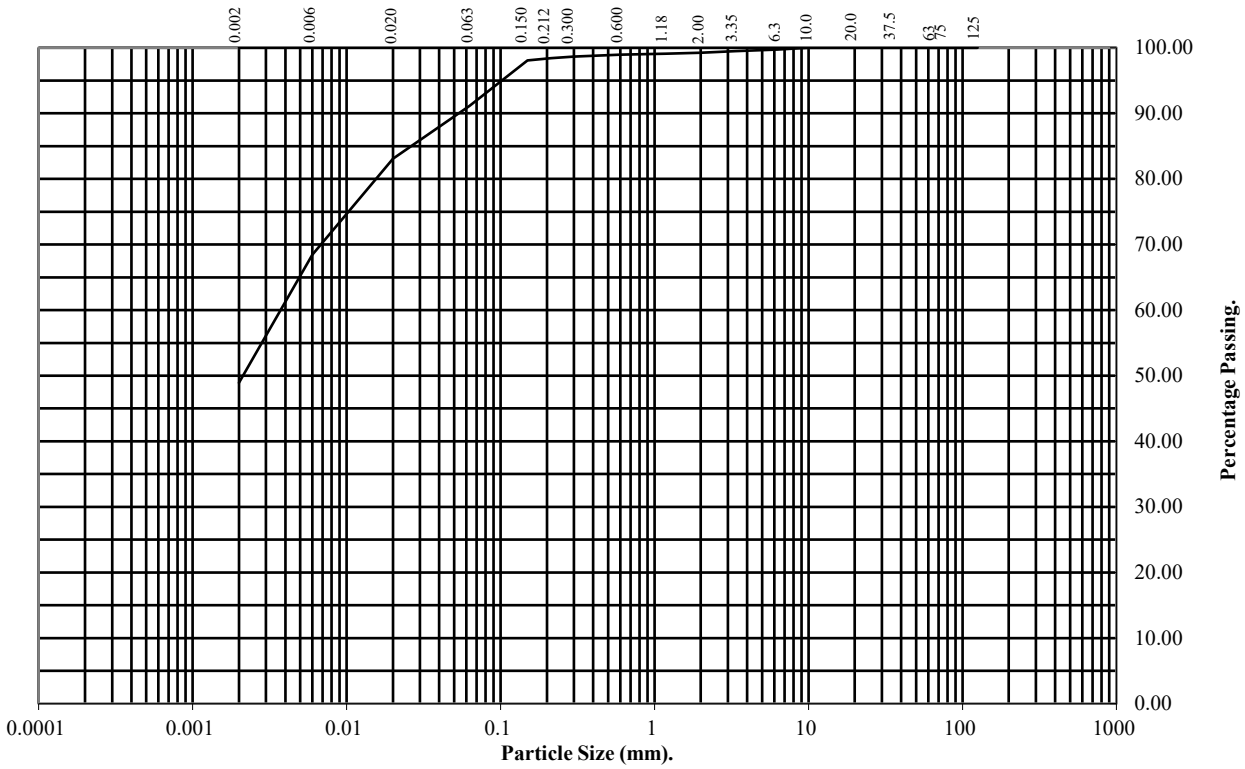
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-17**	**Top Depth (m):**	**0.40**
Sample Number:	**4**	**Base Depth(m):**	**0.80**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	83
0.006	68
0.002	49

Soil Fraction	Total Percentage
Cobbles	0
Gravel	1
Sand	8
Silt	42
Clay	49

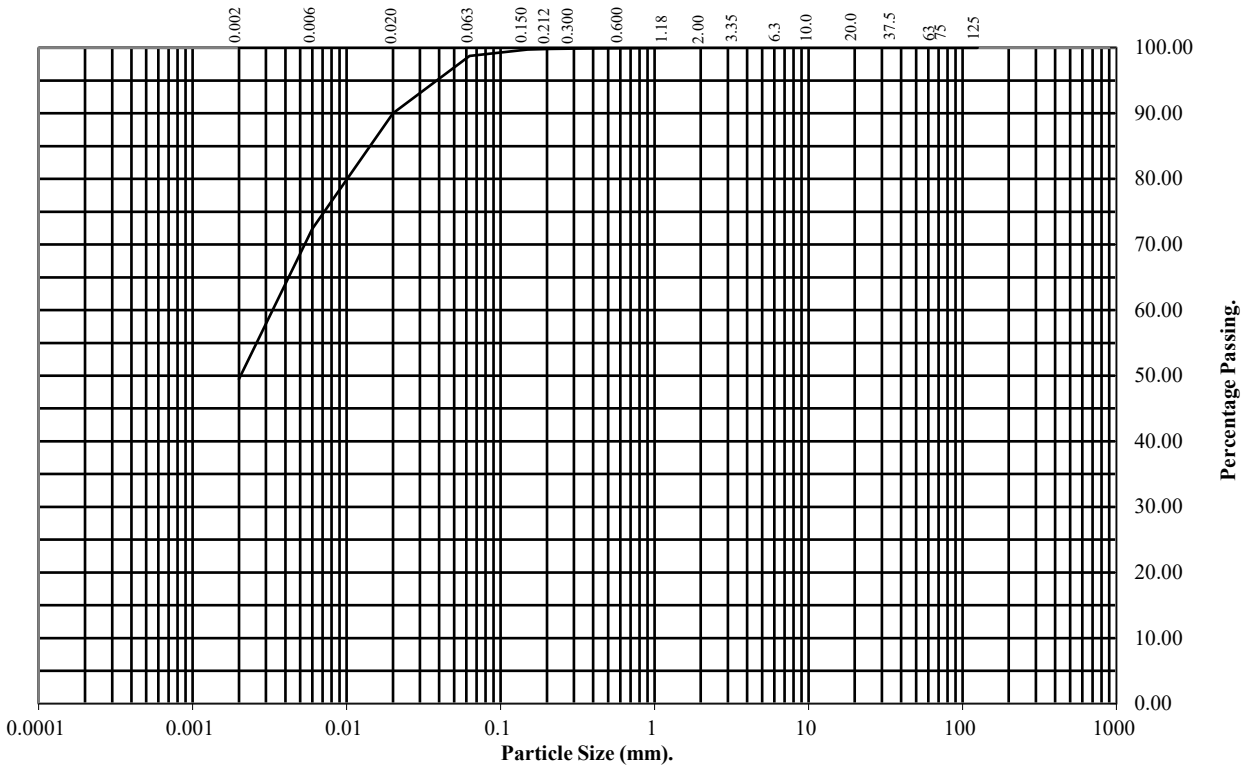
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-17**	**Top Depth (m):**	**1.20**
Sample Number:	**7**	**Base Depth(m):**	**1.80**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	90
0.006	72
0.002	49

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	50
Clay	49

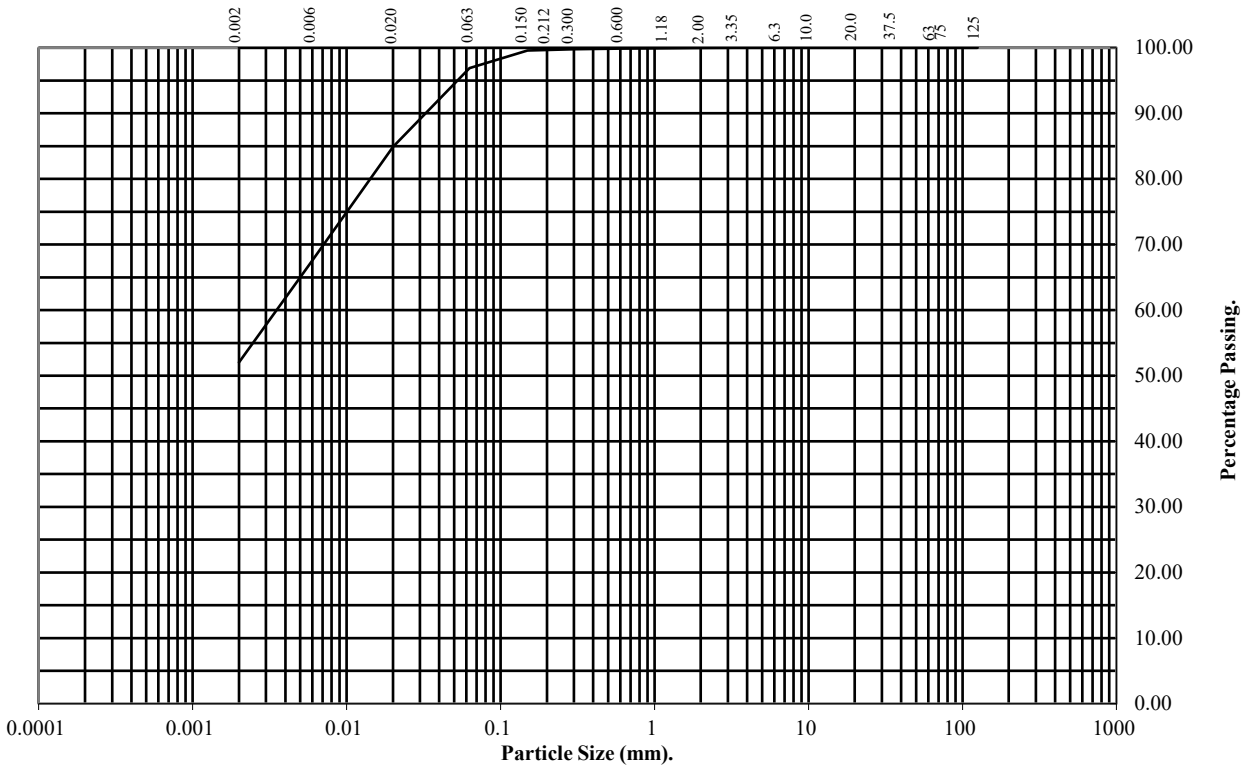
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-18**	**Top Depth (m):**	**0.50**
Sample Number:	**4**	**Base Depth(m):**	**1.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	85
0.006	68
0.002	52

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	3
Silt	45
Clay	52

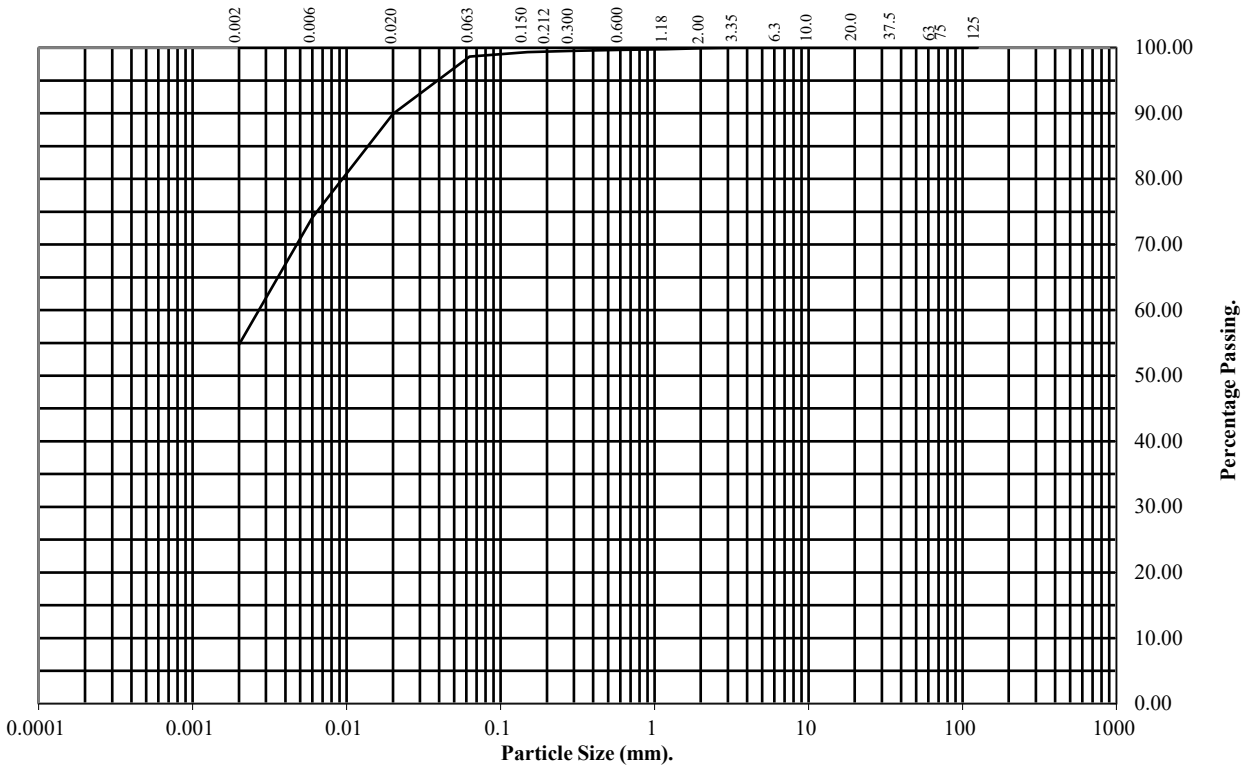
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-19**	**Top Depth (m):**	**0.50**
Sample Number:	**4**	**Base Depth(m):**	**1.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	90
0.006	74
0.002	55

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	1
Silt	44
Clay	55

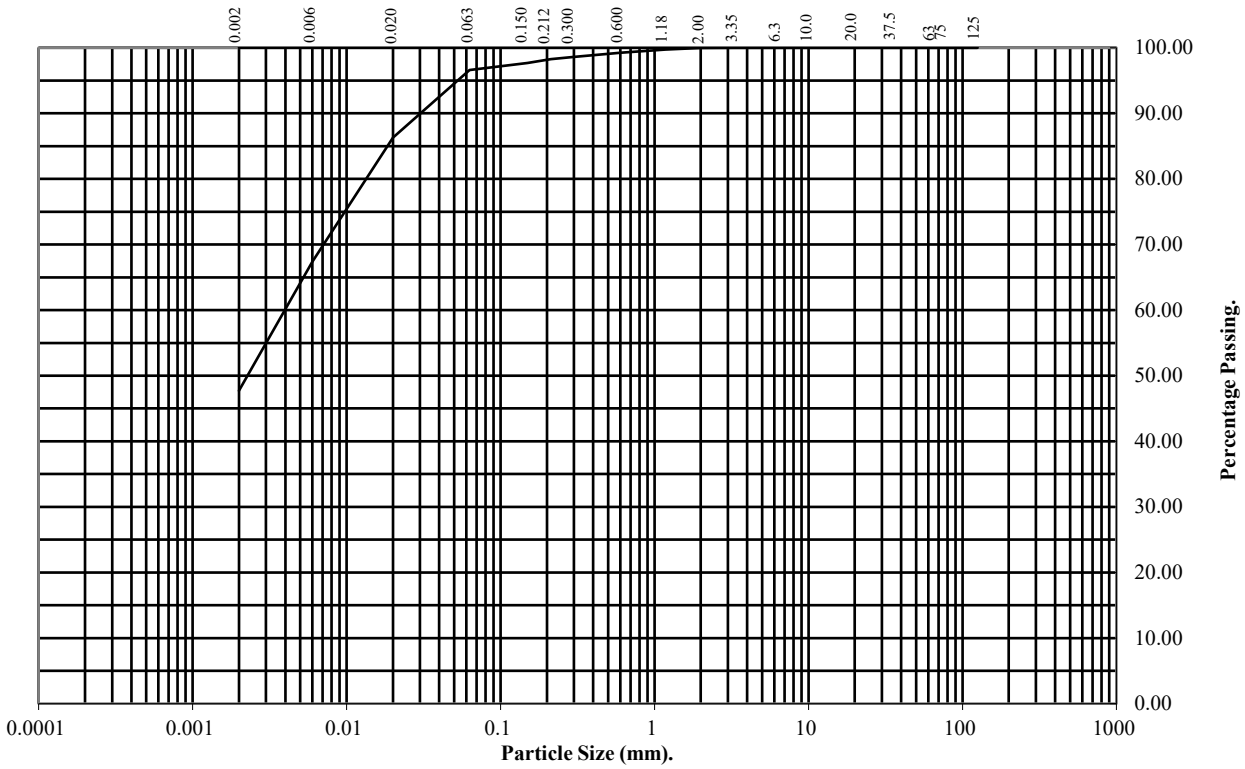
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-19**	**Top Depth (m):**	**1.60**
Sample Number:	**7**	**Base Depth(m):**	**2.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	86
0.006	67
0.002	48

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	3
Silt	49
Clay	48

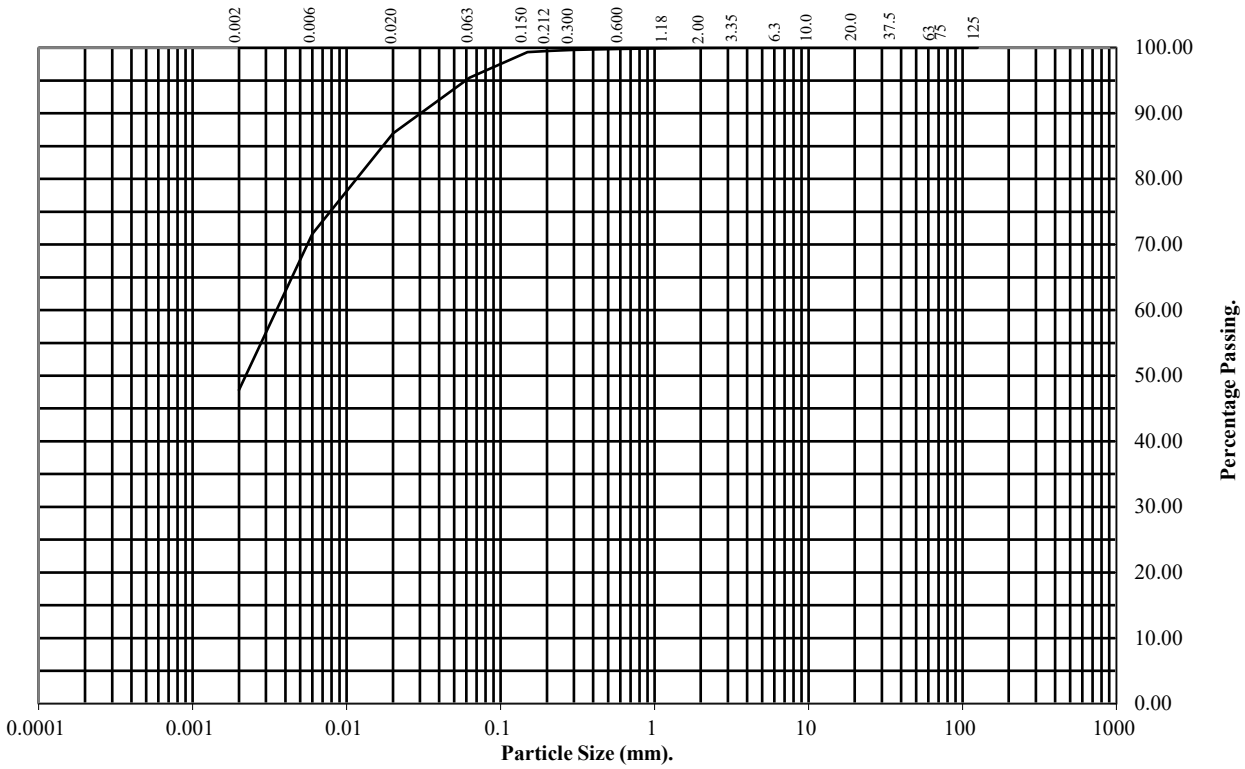
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**TP-20**	**Top Depth (m):**	**0.50**
Sample Number:	**4**	**Base Depth(m):**	**1.00**
Sample Type:	**LB**		



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

Particle Diameter	Percentage Passing
0.02	87
0.006	72
0.002	48

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	5
Silt	47
Clay	48

Remarks:
See Summary of Soil Descriptions

LABORATORY REPORT

Contract Number: PSL23/3149

Report Date: 08 June 2023

Client's Reference: D2064-22

Client Name: Socotec
The Oasts, Newnham Court
Bearstead Road
Maidstone
Kent
ME14 5LH

For the attention of: Samantha Rawlins

Contract Title: TKRE, Tilbury and Eastcourt Marshes Land Investigation

Date Received: 3/4/2023
Date Commenced: 3/4/2023
Date Completed: 8/6/2023

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	T Watkins (Senior Technician)

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SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH04	18	B	3.20	3.70	Grey slightly sandy CLAY with some organic material.
BH04	21	B	4.20	4.65	Grey slightly sandy CLAY with some organic material.
BH04	24	B	5.20	5.70	Grey slightly sandy CLAY with some organic material.
BH04	26	UT	6.20	6.65	Soft grey slightly sandy CLAY with some organic material.
BH04	30	B	7.40	7.60	Grey slightly sandy CLAY with some organic material.
BH04	32	B	7.70	8.20	Grey slightly sandy peaty CLAY.
BH04	37	B	9.70	10.20	Grey slightly sandy CLAY with some organic material.
BH04	39	UT	11.20	11.64	Very soft grey slightly sandy CLAY with some organic material.
BH04	42	B	12.00	12.50	Grey slightly gravelly slightly sandy organic CLAY.
BH04	50	B	14.20	14.70	Brown mottled grey slightly gravelly very sandy CLAY.
BH04	56	B	17.20	17.70	Brown very sandy GRAVEL with some cobbles.
BH04	58	B	18.70	19.20	Brown very sandy GRAVEL.
BH04	66	CS	23.42	23.53	White CHALK.
BH04	70	CS	30.63	30.85	White CHALK.
BH04	76	CS	45.08	45.29	White CHALK.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH04	18	B	3.20	3.70	80			95	40	55	100	Extremely High Plasticity CE
BH04	24	B	5.20	5.70	67			76	36	40	100	Very High Plasticity MV
BH04	30	B	7.40	7.60	80			96	40	56	100	Extremely High Plasticity CE
BH04	37	B	9.70	10.20	74			93	39	54	100	Extremely High Plasticity CE
BH04	42	B	12.00	12.50	125			168	60	108	98	Extremely High Plasticity CE
BH04	50	B	14.20	14.70	20			28	15	13	84	Low Plasticity CL
BH04	56	B	17.20	17.70	4.4							
BH04	58	B	18.70	19.20	4.9							

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

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

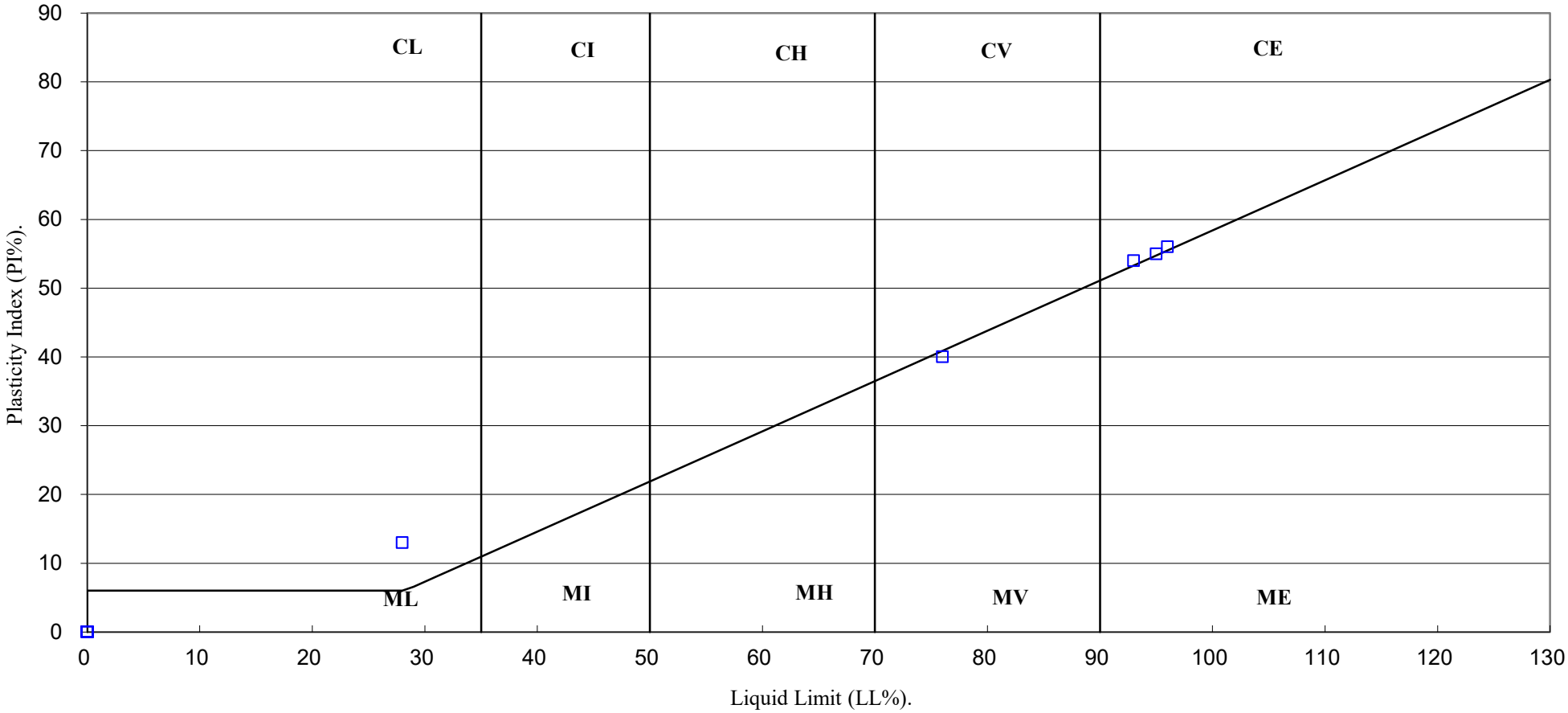
Contract No:

PSL23/3149

Client Ref:

D2064-22

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



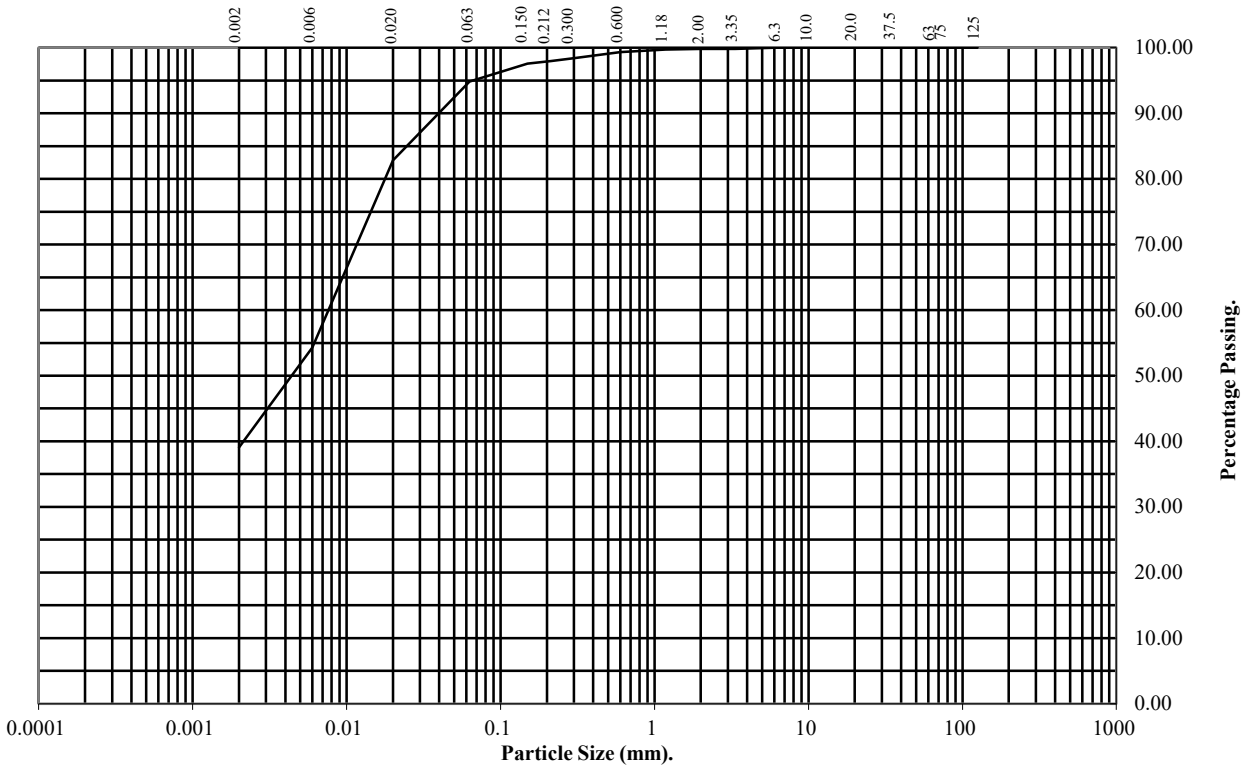
UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	TKRE, Tilbury and Eastcourt Marshes Land Investigation	Contract No: PSL23/3149 Client Ref: D2064-22

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH04**	**Top Depth (m):**	**4.20**
Sample Number:	**21**	**Base Depth(m):**	**4.65**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	83
0.006	54
0.002	39

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	5
Silt	56
Clay	39

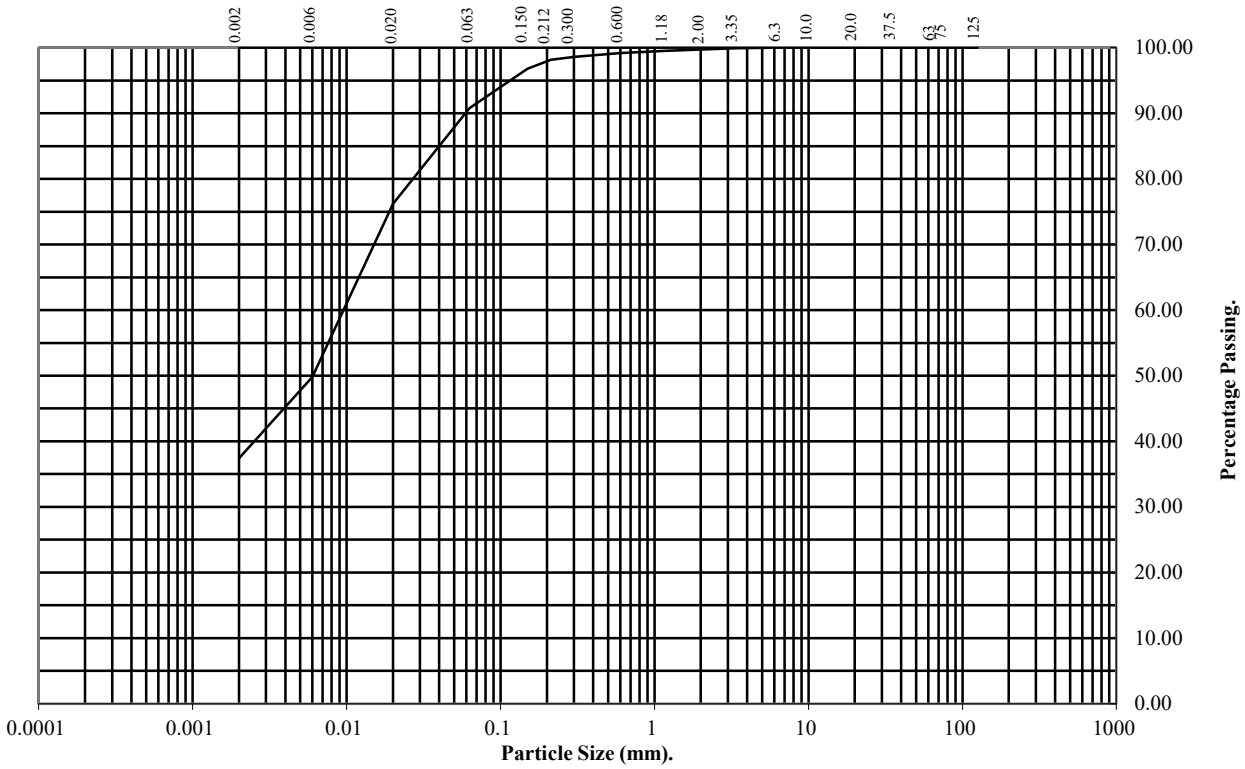
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH04**	**Top Depth (m):**	**7.40**
Sample Number:	**30**	**Base Depth(m):**	**7.60**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	76
0.006	50
0.002	37

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	9
Silt	54
Clay	37

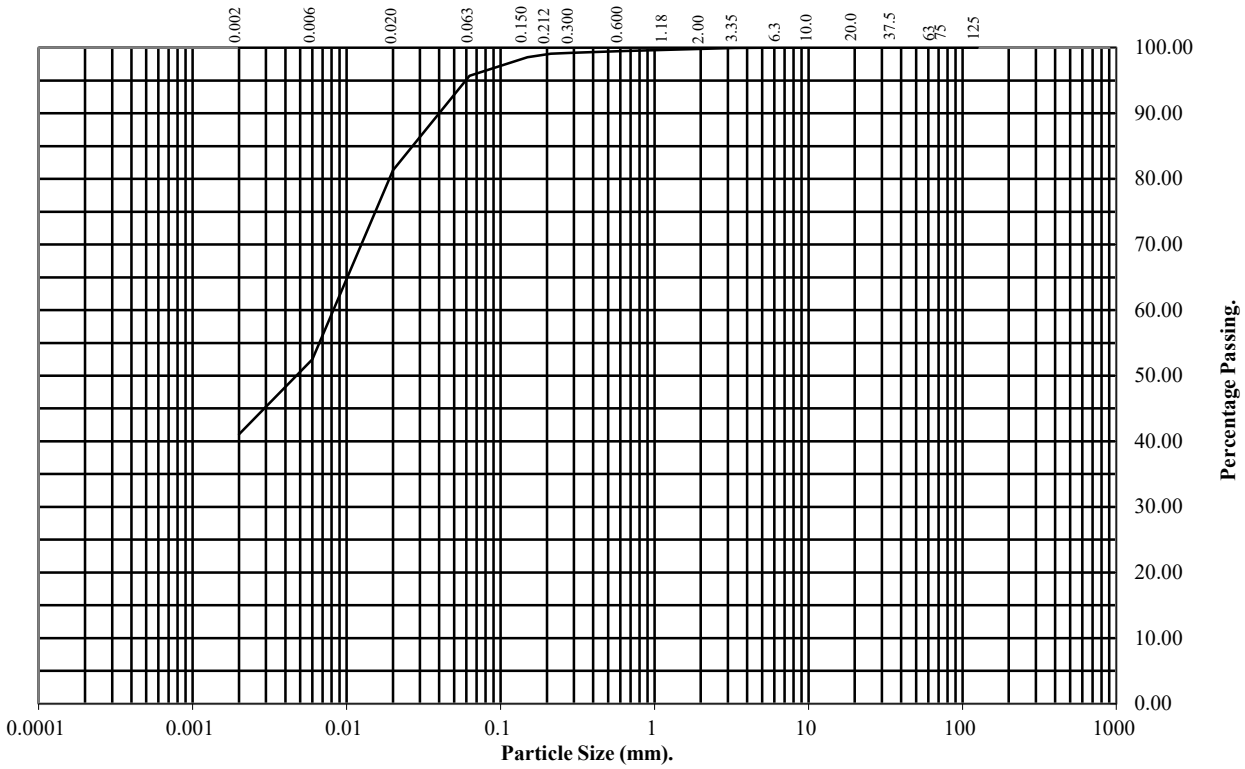
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH04**	**Top Depth (m):**	**9.70**
Sample Number:	**37**	**Base Depth(m):**	**10.20**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	81
0.006	53
0.002	41

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	55
Clay	41

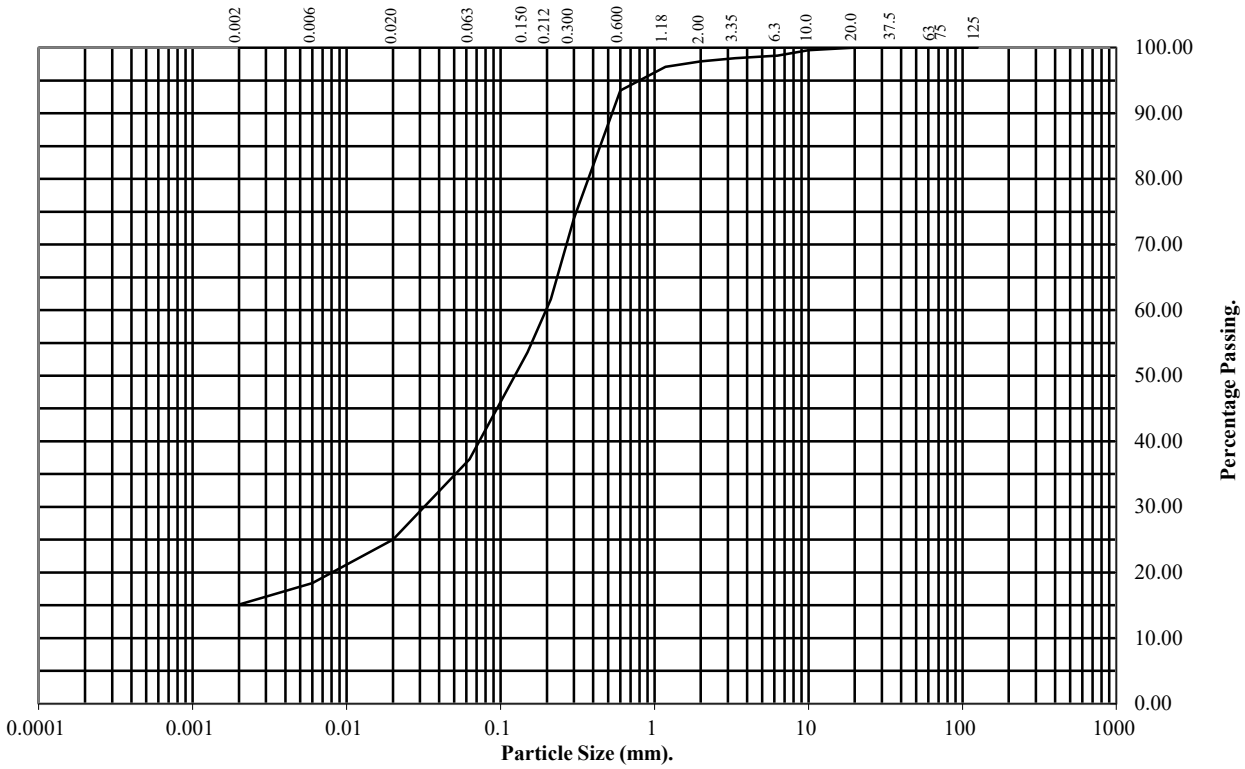
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH04**	**Top Depth (m):**	**14.20**
Sample Number:	**50**	**Base Depth(m):**	**14.70**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	99
3.35	98
2	98
1.18	97
0.6	93
0.3	74
0.212	62
0.15	54
0.063	37

Particle Diameter	Percentage Passing
0.02	25
0.006	18
0.002	15

Soil Fraction	Total Percentage
Cobbles	0
Gravel	2
Sand	61
Silt	22
Clay	15

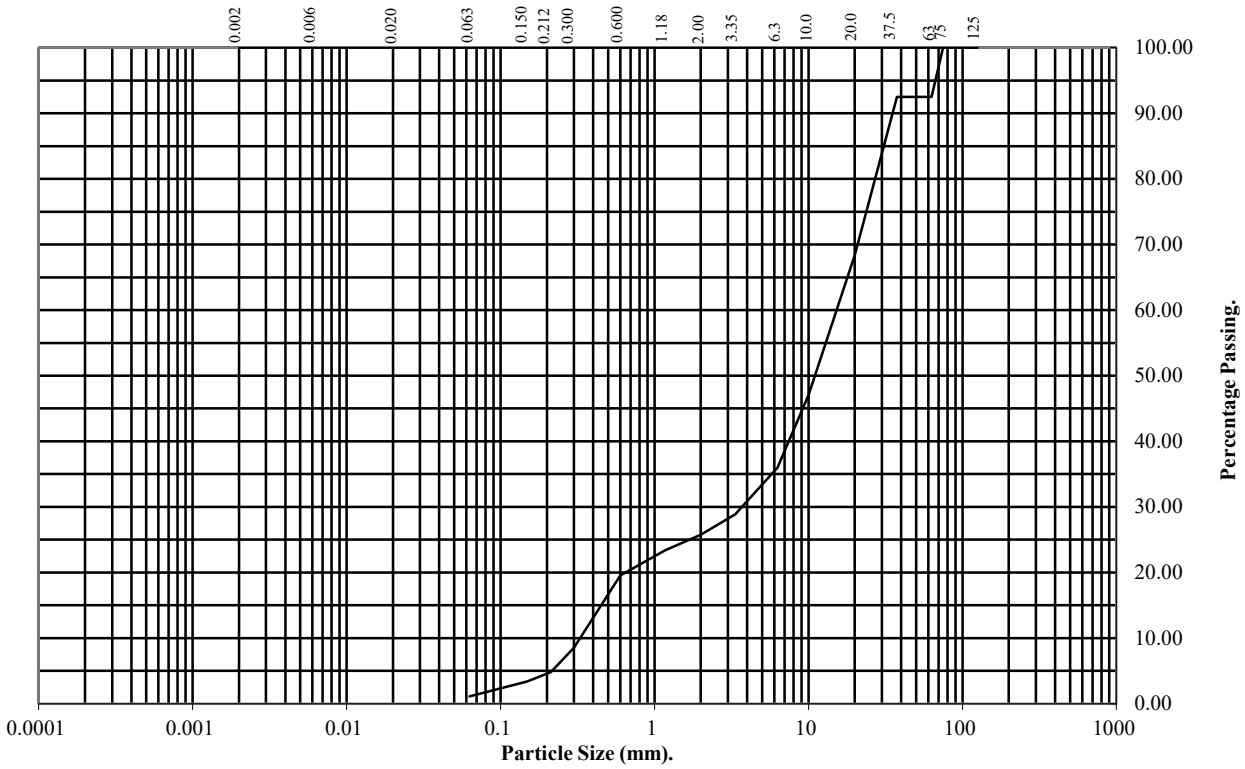
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH04**	**Top Depth (m):**	**17.20**
Sample Number:	**56**	**Base Depth(m):**	**17.70**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	92
37.5	92
20	68
10	47
6.3	36
3.35	29
2	26
1.18	23
0.6	20
0.3	9
0.212	5
0.15	3
0.063	1

Soil Fraction	Total Percentage
Cobbles	8
Gravel	66
Sand	25
Silt/Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

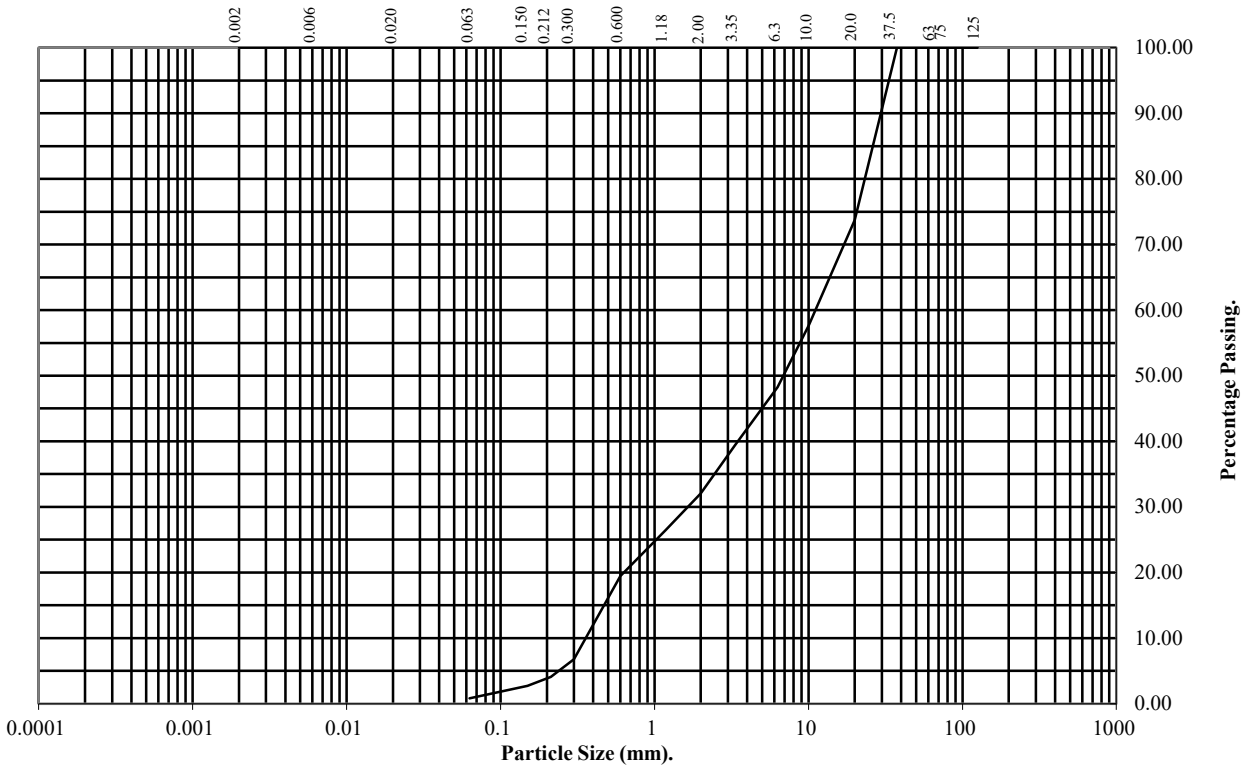
Contract No:
PSL23/3149
Client Ref:
D2064-22

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH04**	**Top Depth (m):**	**18.70**
Sample Number:	**58**	**Base Depth(m):**	**19.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	74
10	58
6.3	48
3.35	39
2	32
1.18	26
0.6	19
0.3	7
0.212	4
0.15	3
0.063	1

Soil Fraction	Total Percentage
Cobbles	0
Gravel	68
Sand	31
Silt/Clay	1

Remarks:
See Summary of Soil Descriptions

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No: PSL23/3149

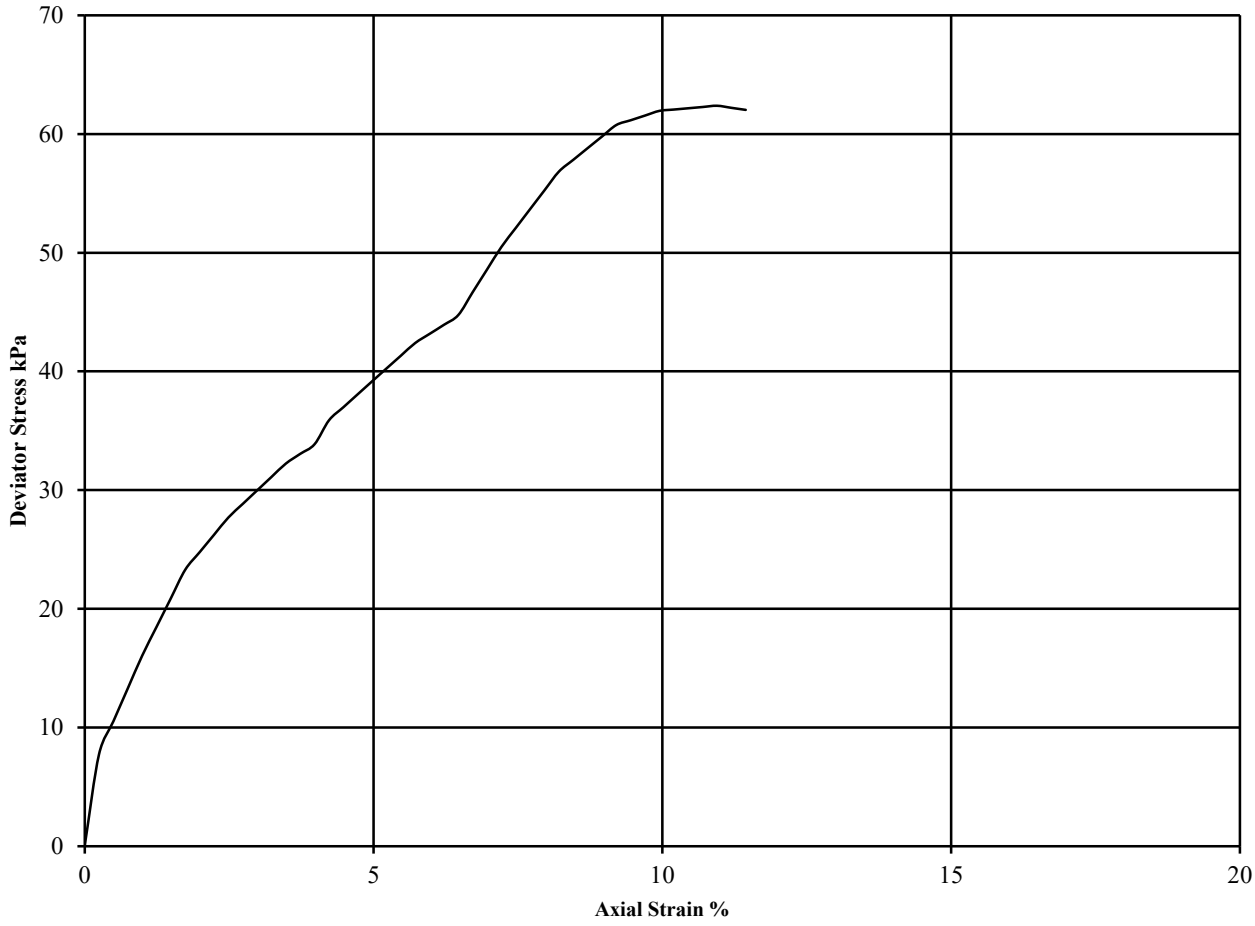
Client Ref: D2064-22

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number:	**BH04**	**Top Depth (m):**	**6.20**
Sample Number:	**26**	**Base Depth (m):**	**6.65**
Sample Type	**UT**		



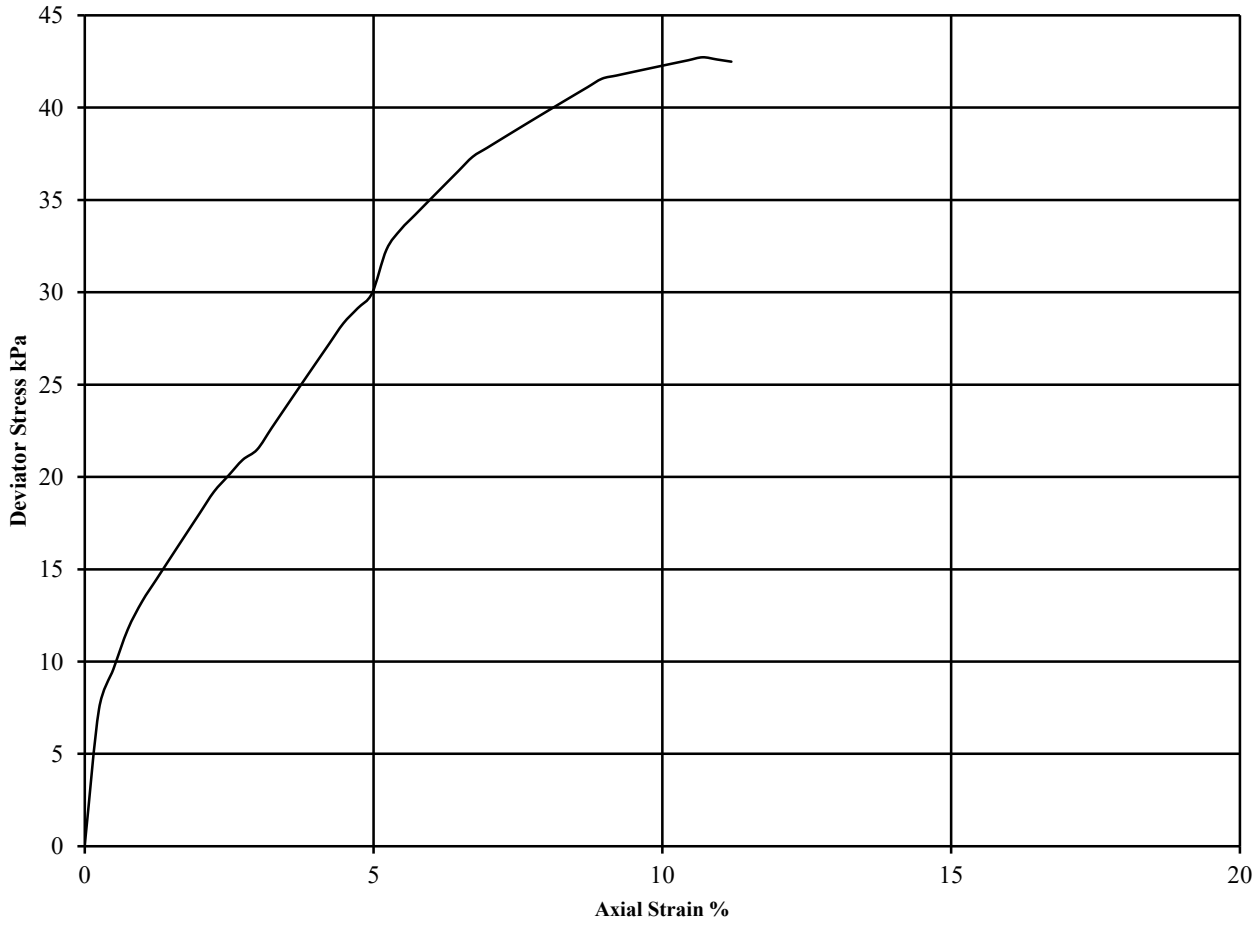
Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa)
1	78	1.46	0.82	50	34	17	4.0		0.36 0.36 0.35
				100	44	22	6.2		See summary of soil descriptions
				200	62	31	10.9	Plastic	

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number:	**BH04**	**Top Depth (m):**	**11.20**
Sample Number:	**39**	**Base Depth (m):**	**11.64**
Sample Type	**UT**		



Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa)
1	73	1.44	0.83	100	21	10	2.7		0.36 0.36 0.35
				200	30	15	5.0		See summary of soil descriptions
				400	43	21	10.7	Plastic	

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:
PSL23/3149
Client Ref:
D2064-22

ONE DIMENSIONAL CONSOLIDATION TEST

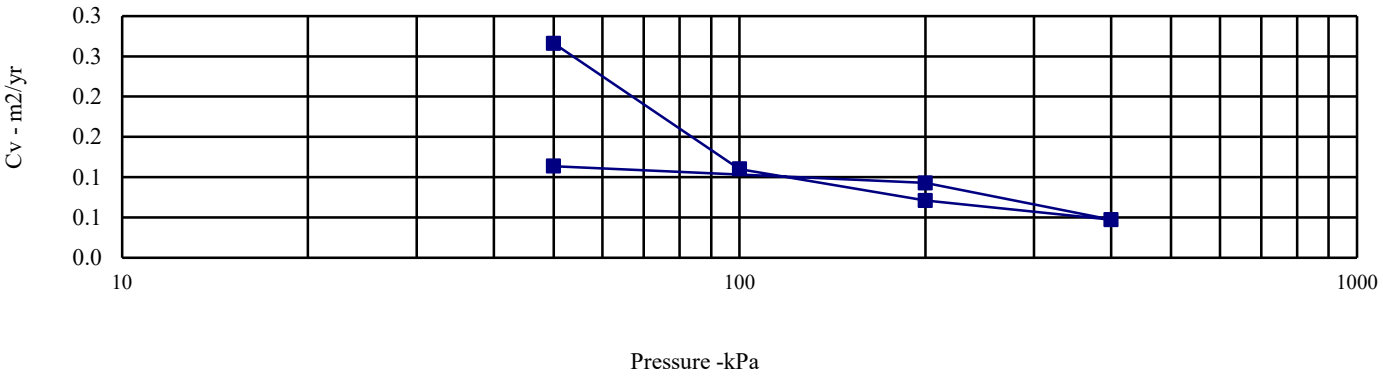
BS 1377: Part 5: 1990: Clause 3

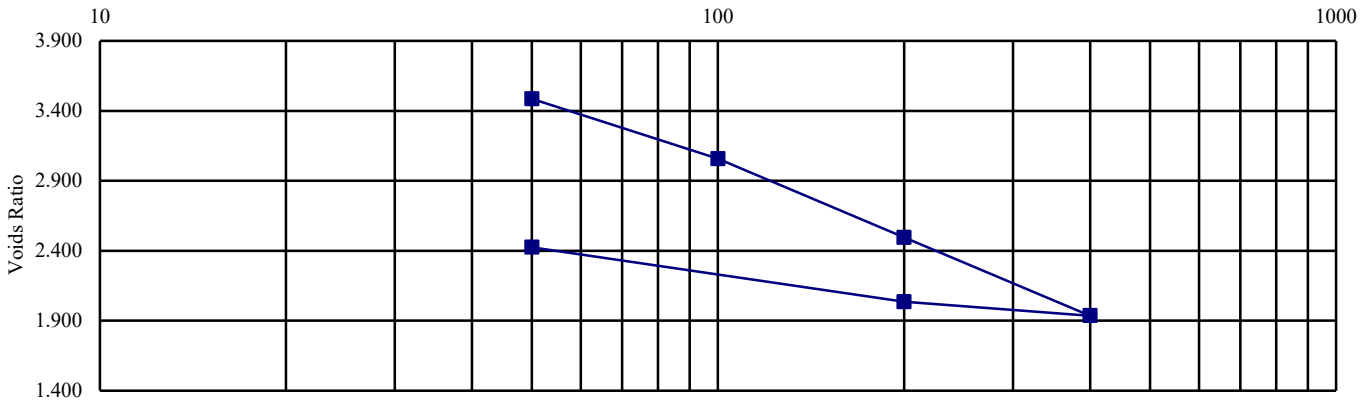
Hole Number: **BH04** **Top Depth (m):** **7.70**

Sample Number: **32** **Base Depth (m) :** **8.20**

Sample Type: **B**

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	n/a
Moisture Content (%):	209						
Bulk Density (Mg/m3):	1.21	0	50	3.298	0.266	Method used to determine CV:	T90
Dry Density (Mg/m3):	0.39	50	100	1.911	0.110		
Voids Ratio:	4.372	100	200	1.384	0.071	Nominal temperature during test ' C:	20
Degree of saturation:	100.5	200	400	0.801	0.047		
Height (mm):	20.006	400	200	0.169	0.093	Remarks: See summary of soil descriptions	
Diameter (mm)	75.01	200	50	0.856	0.114		
Particle Density (Mg/m3): Assumed	2.10						





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No: PSL23/3149

Client Ref: D2064-22

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH04	66	CS	23.42	23.53	28	30	1.50	11	4.1	
BH04	70	CS	30.63	30.85	25	29	1.50	55	4.2	
BH04	76	CS	45.08	45.29	26	28	1.53	61	4.1	

* CCV testing is not UKAS accredited

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3149

Client Ref:

D2064-22

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH04	23.42	66	A	Perp	100	38	3800	4838.31	69.56	-	0.27	0.06	1.160	0.06	Valid	
BH04	30.00	69	A	Perp	100	37	3700	4710.99	68.64	-	0.21	0.04	1.153	0.05	Valid	
BH04	35.64	72	A	Perp	100	48	4800	6111.55	78.18	-	0.28	0.05	1.223	0.06	Valid	
BH04	43.23	75	A	Perp	100	50	5000	6366.20	79.79	-	0.28	0.04	1.234	0.05	Valid	
BH04	47.78	78	A	Perp	100	42	4200	5347.61	73.13	-	0.25	0.05	1.187	0.06	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3149

Client Ref:

D2064-22

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH04	23.42	66	D	Par		100	10000	100.00	-	0.13	0.013	1.366	0.02	Valid	
BH04	30.00	69	D	Par		100	10000	100.00	-	0.17	0.017	1.366	0.02	Valid	
BH04	35.64	72	D	Par		100	10000	100.00	-	0.16	0.016	1.366	0.02	Valid	
BH04	43.23	75	D	Par		100	10000	100.00	-	0.15	0.015	1.366	0.02	Valid	
BH04	47.78	78	D	Par		100	10000	100.00	-	0.14	0.014	1.366	0.02	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3149

Client Ref:

D2064-22

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH04**	**Top Depth (m):**	**35.64**
Sample Number:	**72**	**Base Depth (m):**	**35.86**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.01
Height - mm:	173.02
Water Content - %:	26.0
Sample Mass - g:	2657.5
Bulk Density - Mg/m^3:	1.96
Dry Density - Mg/m^3:	1.55
Height Ratio: * Sample does not comply with H:D ratio	1.7
Degree of Saturation - %:	97
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:30
Orientation:	Unknown
Stress Rate - MPa/s:	0.08
Strain at Failure - kN:	18.72
Unconfined Compressive Strength - Mpa:	2.38
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH04**	**Top Depth (m):**	**46.64**
Sample Number:	**77**	**Base Depth (m):**	**46.84**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.00
Height - mm:	181.15
Water Content - %:	25.0
Sample Mass - g:	2841.0
Bulk Density - Mg/m^3:	2.00
Dry Density - Mg/m^3:	1.60
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	101
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:34
Orientation:	Unknown
Stress Rate - MPa/s:	0.07
Strain at Failure - kN:	19.78
Unconfined Compressive Strength - Mpa:	2.52
Mode of Failure:	Vertical Shear

Remarks: -

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 66763

Client Ref: **PSL23/3149**
Client PO: **PSL23/3149**

Date Received: **26-05-2023**
Date Completed: **06-06-2023**
Report Date: **06-06-2023**

Client: **Professional Soils Laboratory Limited**
5/7 Hexthorpe Road
Doncaster
South Yorkshire
DN4 0AR

This report has been checked and approved by:

Paul Evans
Director

Contract Title: **TKRE, Tilbury and Eastcourt Marshes Land Investigation**
For the attention of: **Robert Berriman**

Test Description	Qty
Determination of the Cerchar abrasivity value per set of four values. The Cerchar Abrasiveness Index Document October 1986 - @ Non Accredited Test	2
Disposal of samples for job	1

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

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd
Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

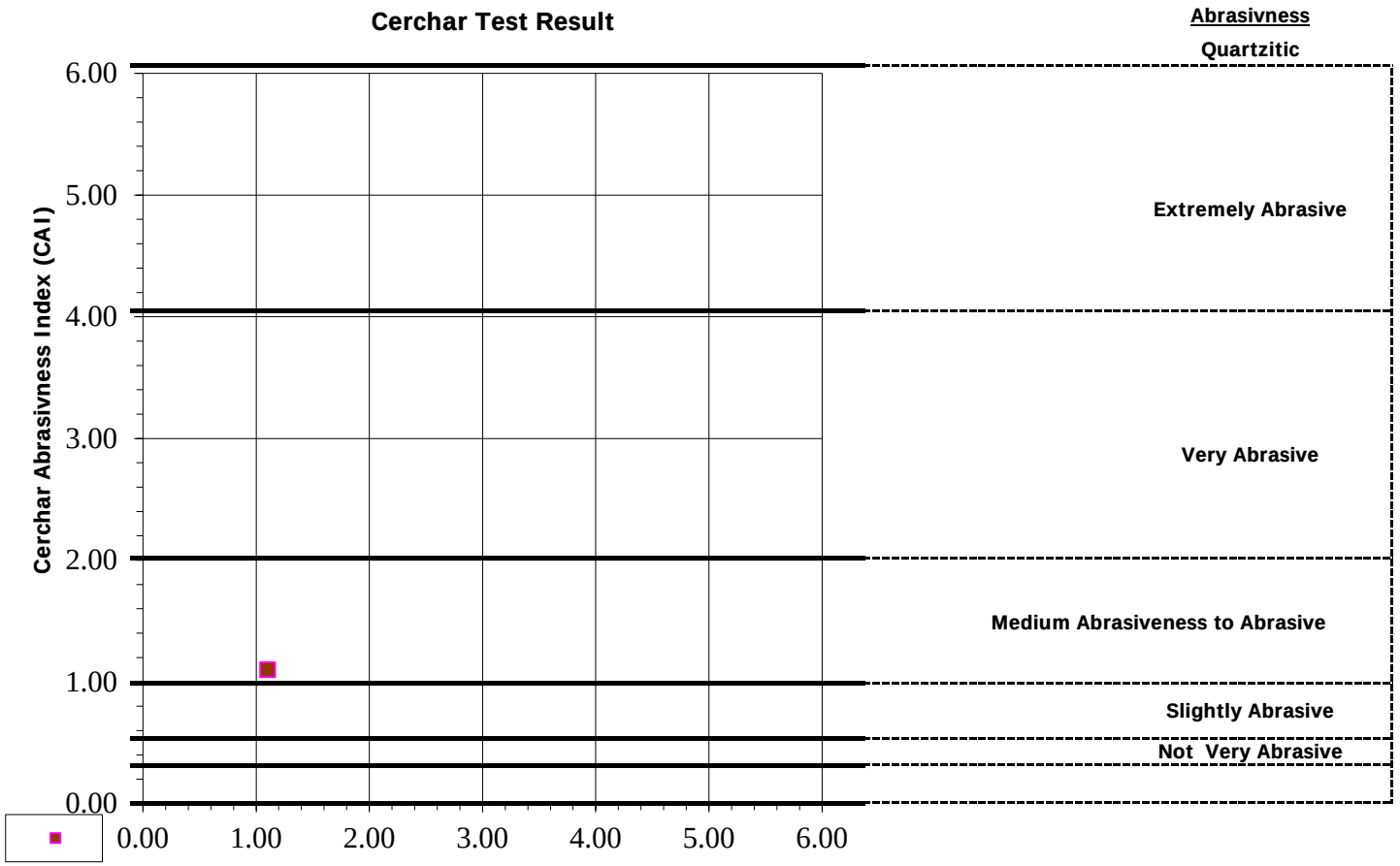
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcou**
Contract Number:	**66763**
Date tested:	**02/06/2023**
BH Number:	**BH04**
Sample Number:	
Depth (m) :	**31.97-32.06**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.11**	**(mm)**
C.A.I	**1.10**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

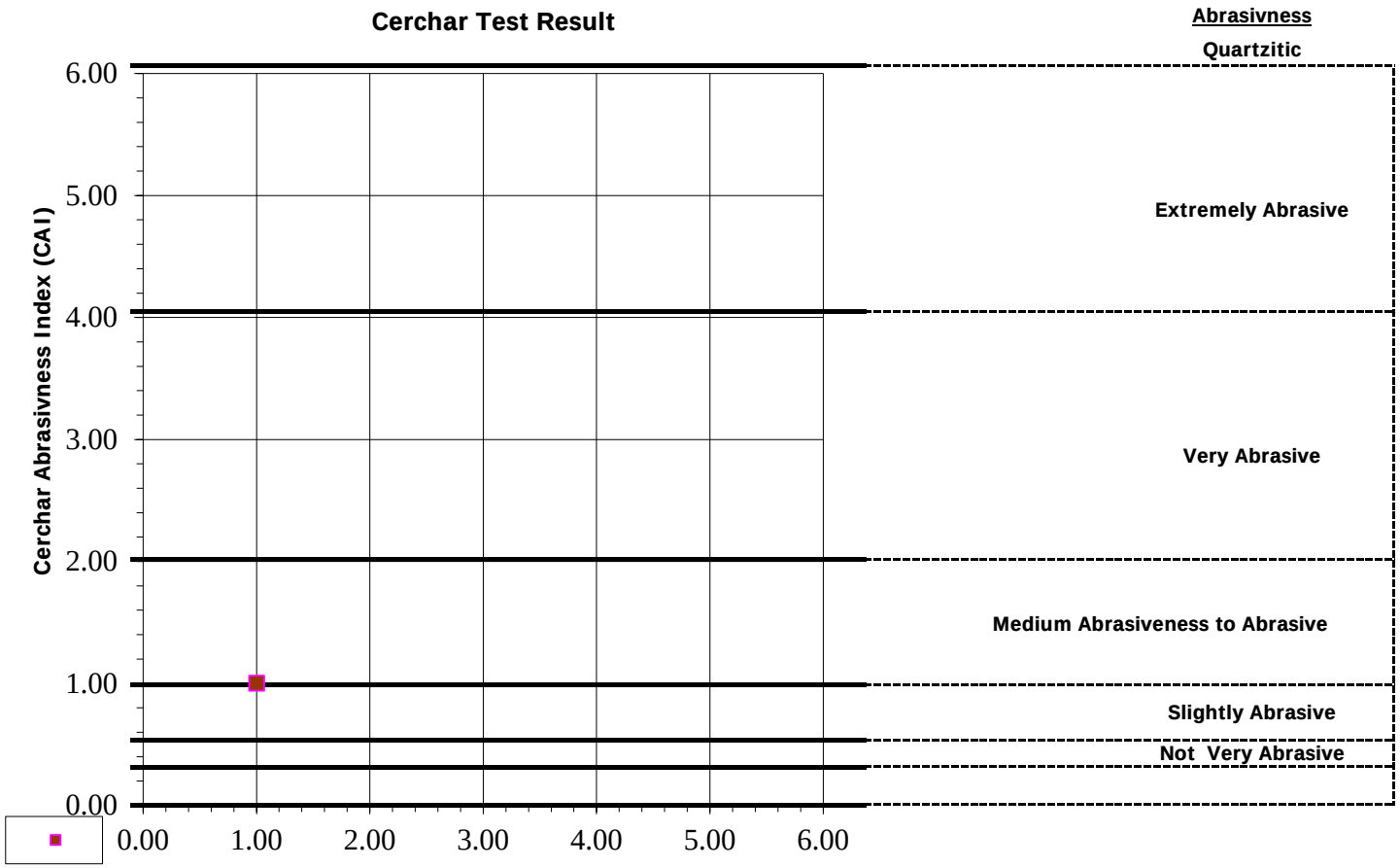
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcou**
Contract Number:	**66763**
Date tested:	**02/06/2023**
BH Number:	**BH04**
Sample Number:	
Depth (m) :	**37.92-38.02**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.10**	**(mm)**
C.A.I	**1.00**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

LABORATORY REPORT

Contract Number: PSL23/3150

Report Date: 06 June 2023

Client's Reference: D2064-22

Client Name: Socotec
The Oasts, Newnham Court
Bearstead Road
Maidstone
Kent
ME14 5LH

For the attention of: Samantha Rawlins

Contract Title: TKRE, Tilbury and Eastcourt Marshes Land Investigation

Date Received: 3/4/2023
Date Commenced: 3/4/2023
Date Completed: 1/6/2023

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)	R Berriman (Quality Manager)	S Royle (Laboratory Manager)
L Knight (Assistant Laboratory Manager)	S Eyre (Senior Technician)	T Watkins (Senior Technician)

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Email: rberriman@prosoils.co.uk
awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH06	6	B	0.80	1.20	Brown slightly sandy CLAY.
BH06	13	UT	2.20	2.65	Grey slightly sandy organic CLAY.
BH06	21	UT	4.20	4.65	Very soft grey slightly sandy organic CLAY.
BH06	34	UT	8.20	8.65	Grey slightly sandy organic CLAY.
BH06	45	UT	11.70	12.15	Soft grey sandy CLAY.
BH06	51	B	13.20	13.70	Brown very sandy clayey GRAVEL.
BH06	56	B	14.70	15.20	Brown slightly clayey SAND & GRAVEL.
BH06	61	B	17.70	18.20	Brown sandy GRAVEL.
BH06	72	CS	35.25	35.42	White CHALK.
BH06	73	CS	36.30	36.50	White CHALK.
BH06	76	CS	41.70	41.86	White CHALK.
BH06	77	CS	43.08	43.25	White CHALK.
BH06	79	CS	45.94	46.04	White CHALK.
BH06	83	CS	51.06	51.20	White CHALK.
BH06	84	CS	51.59	51.76	White CHALK.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH06	6	B	0.80	1.20	31			69	29	40	100	High Plasticity CH
BH06	51	B	13.20	13.70	22							
BH06	56	B	14.70	15.20	11							
BH06	61	B	17.70	18.20	4.1							

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

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

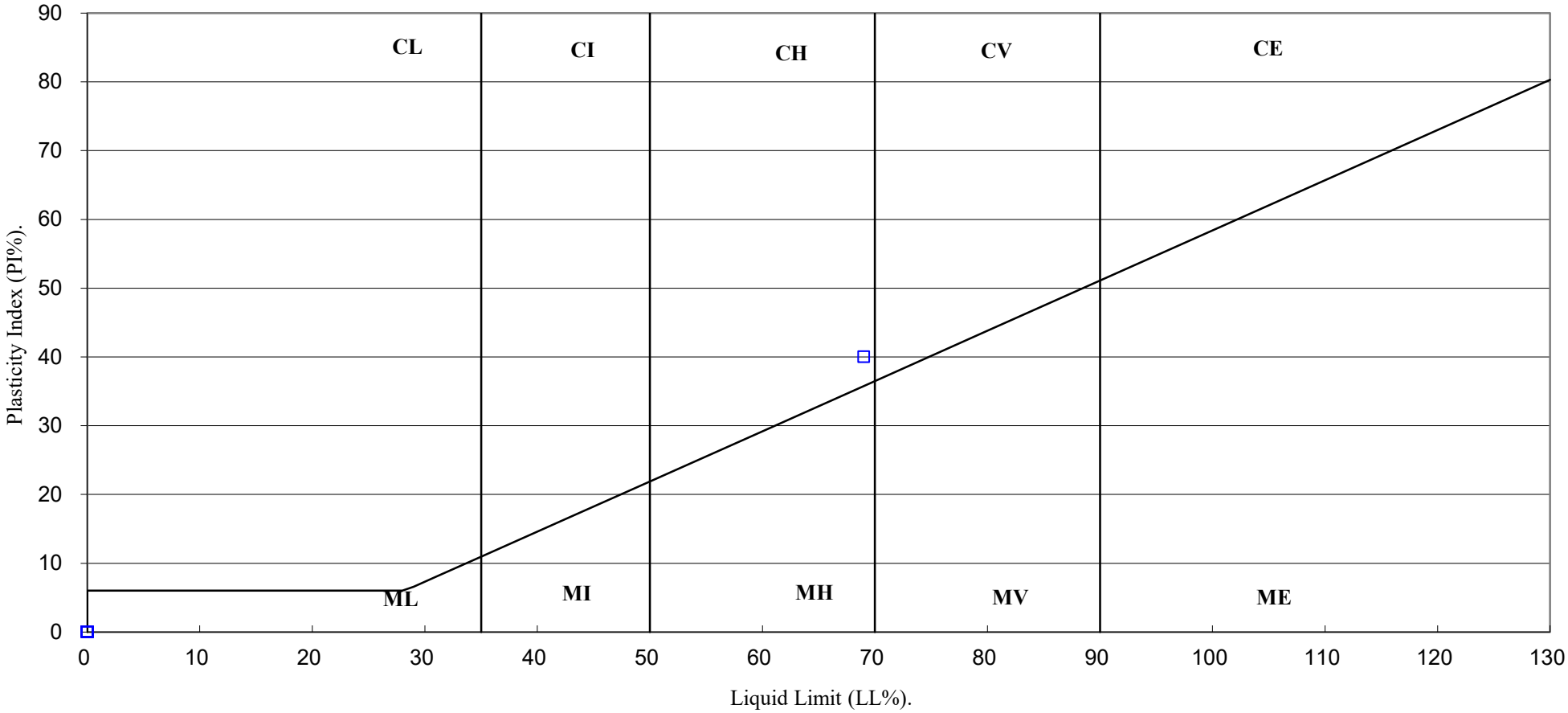
Contract No:

PSL23/3150

Client Ref:

D2064-22

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



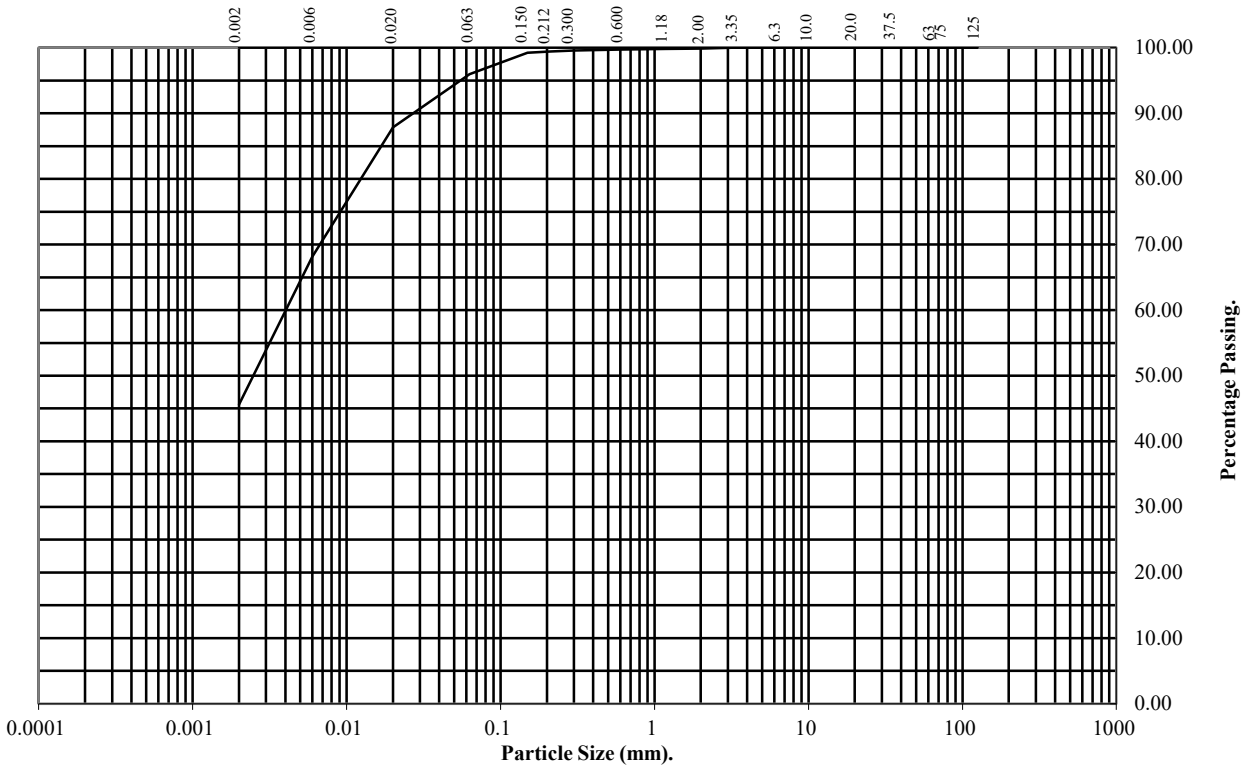
UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	**TKRE, Tilbury and Eastcourt Marshes Land Investigation**	**Contract No:**
		PSL23/3150
		Client Ref:
		D2064-22

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH06**	**Top Depth (m):**	**0.80**
Sample Number:	**6**	**Base Depth(m):**	**1.20**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	88
0.006	68
0.002	46

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	4
Silt	50
Clay	46

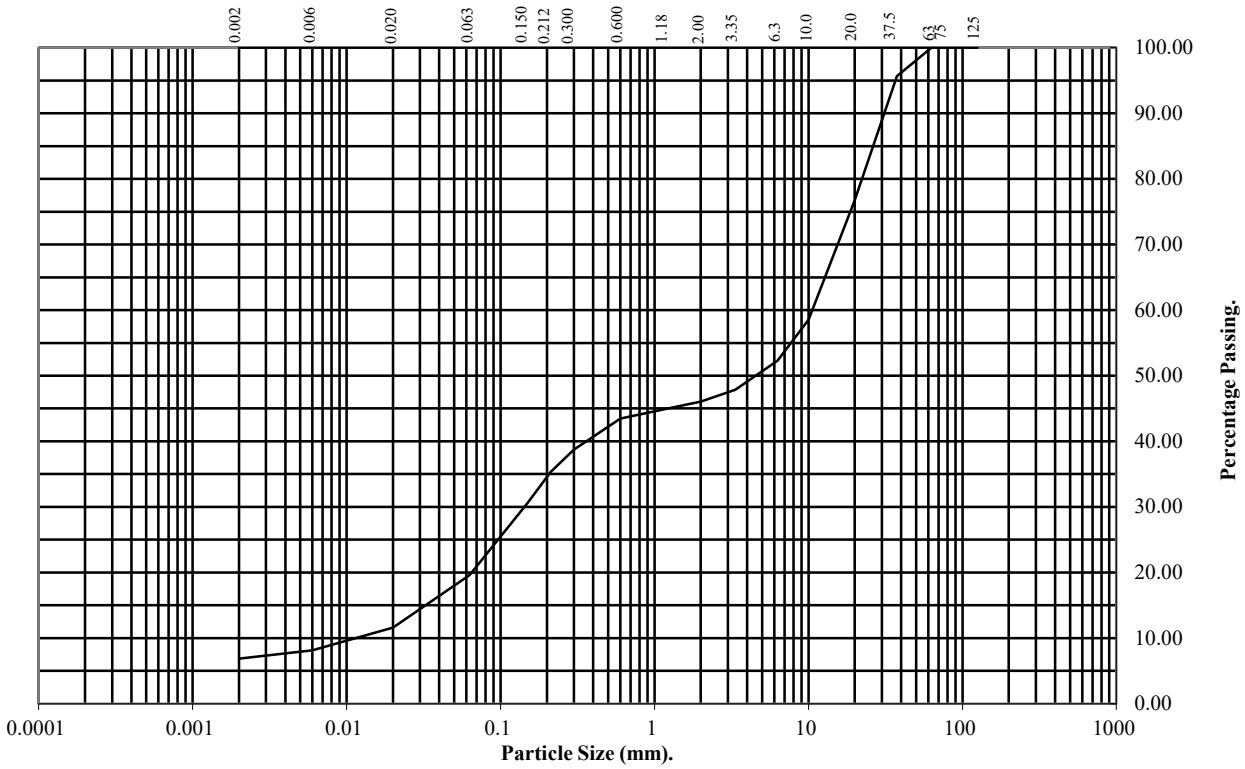
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH06**	**Top Depth (m):**	**13.20**
Sample Number:	**51**	**Base Depth(m):**	**13.70**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	96
20	77
10	59
6.3	52
3.35	48
2	46
1.18	45
0.6	43
0.3	39
0.212	35
0.15	31
0.063	20

Particle Diameter	Percentage Passing
0.02	12
0.006	8
0.002	7

Soil Fraction	Total Percentage
Cobbles	0
Gravel	54
Sand	26
Silt	13
Clay	7

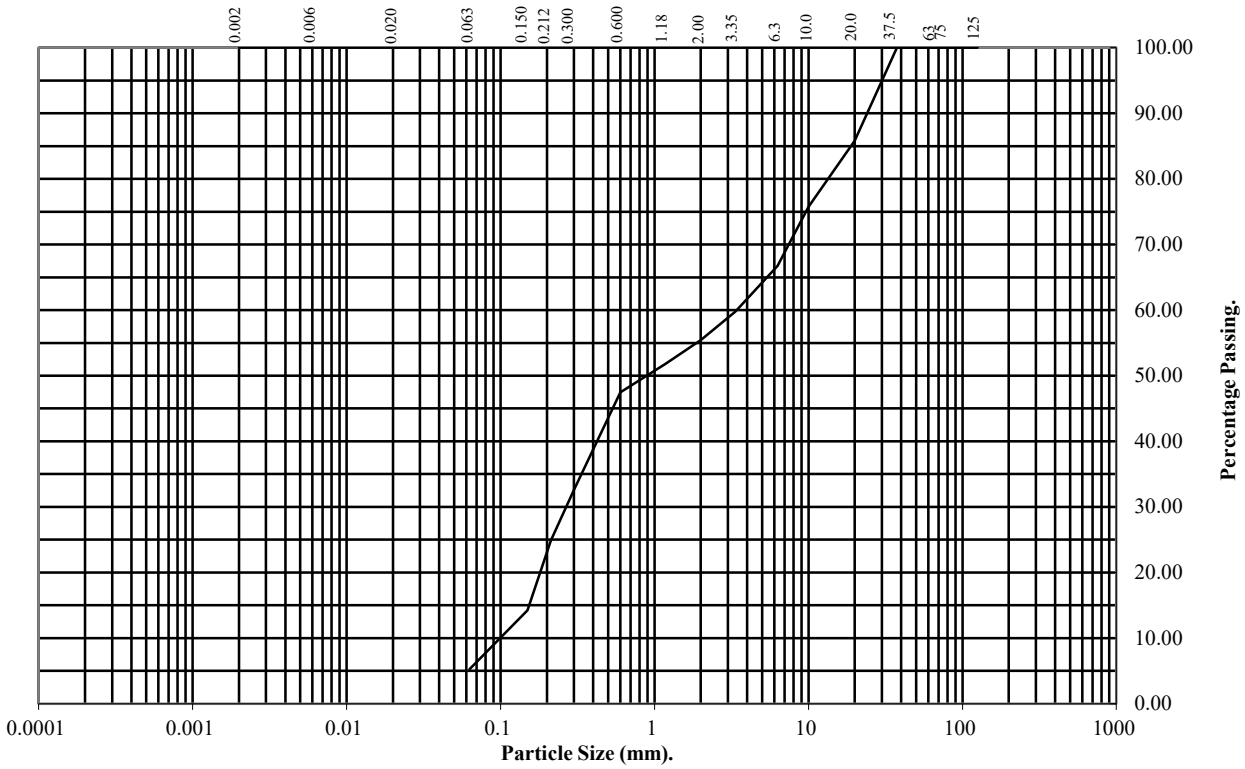
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH06**	**Top Depth (m):**	**14.70**
Sample Number:	**56**	**Base Depth(m):**	**15.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	86
10	76
6.3	67
3.35	60
2	55
1.18	52
0.6	47
0.3	33
0.212	25
0.15	14
0.063	5

Soil Fraction	Total Percentage
Cobbles	0
Gravel	45
Sand	50
Silt/Clay	5

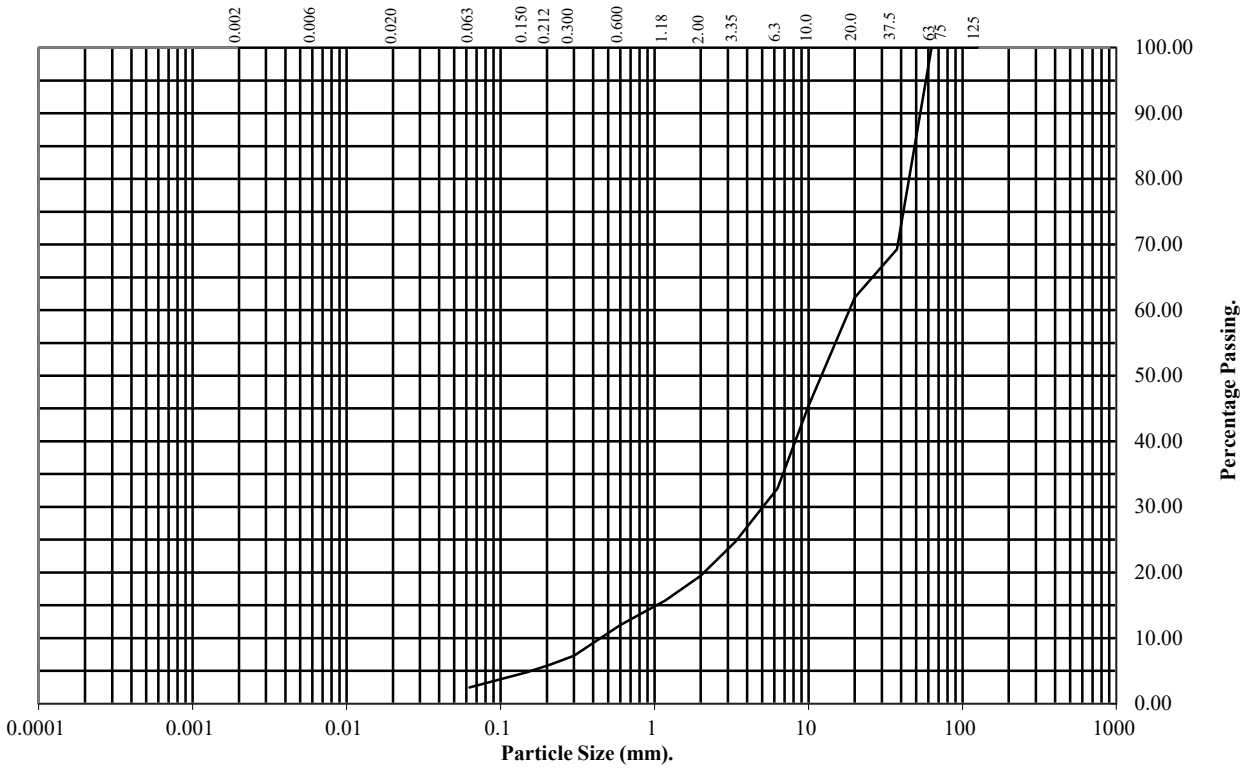
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH06**	**Top Depth (m):**	**17.70**
Sample Number:	**61**	**Base Depth(m):**	**18.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	69
20	62
10	45
6.3	33
3.35	25
2	19
1.18	16
0.6	12
0.3	7
0.212	6
0.15	5
0.063	2

Soil Fraction	Total Percentage
Cobbles	0
Gravel	81
Sand	17
Silt/Clay	2

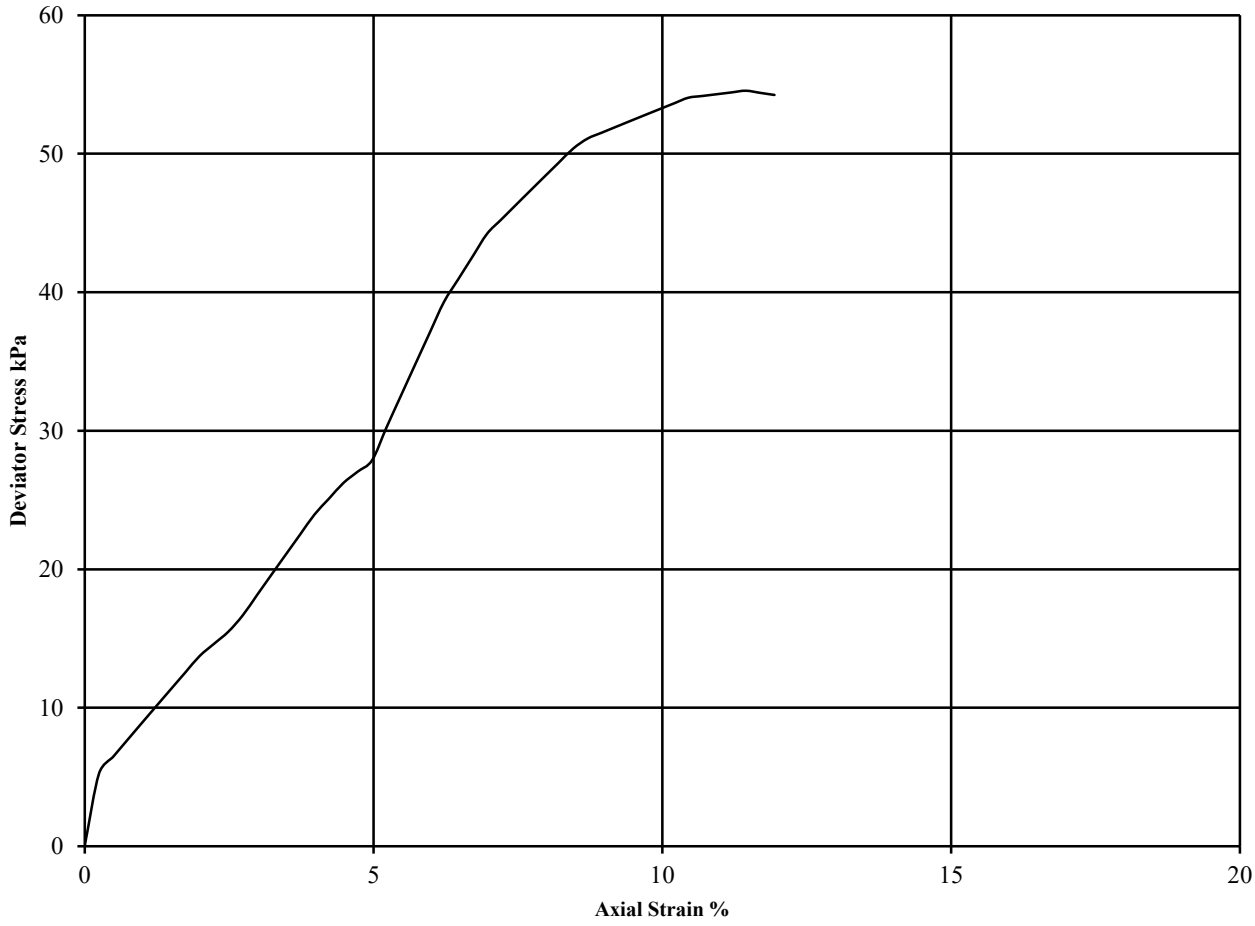
Remarks:
See Summary of Soil Descriptions

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number:	**BH06**	**Top Depth (m):**	**4.20**
Sample Number:	**21**	**Base Depth (m):**	**4.65**
Sample Type	**UT**		



Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa)
1	65	1.53	0.93	50	15	8	2.5		0.36 0.36 0.35
				100	28	14	5.0		See summary of soil descriptions
				200	55	27	11.4	Plastic	

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

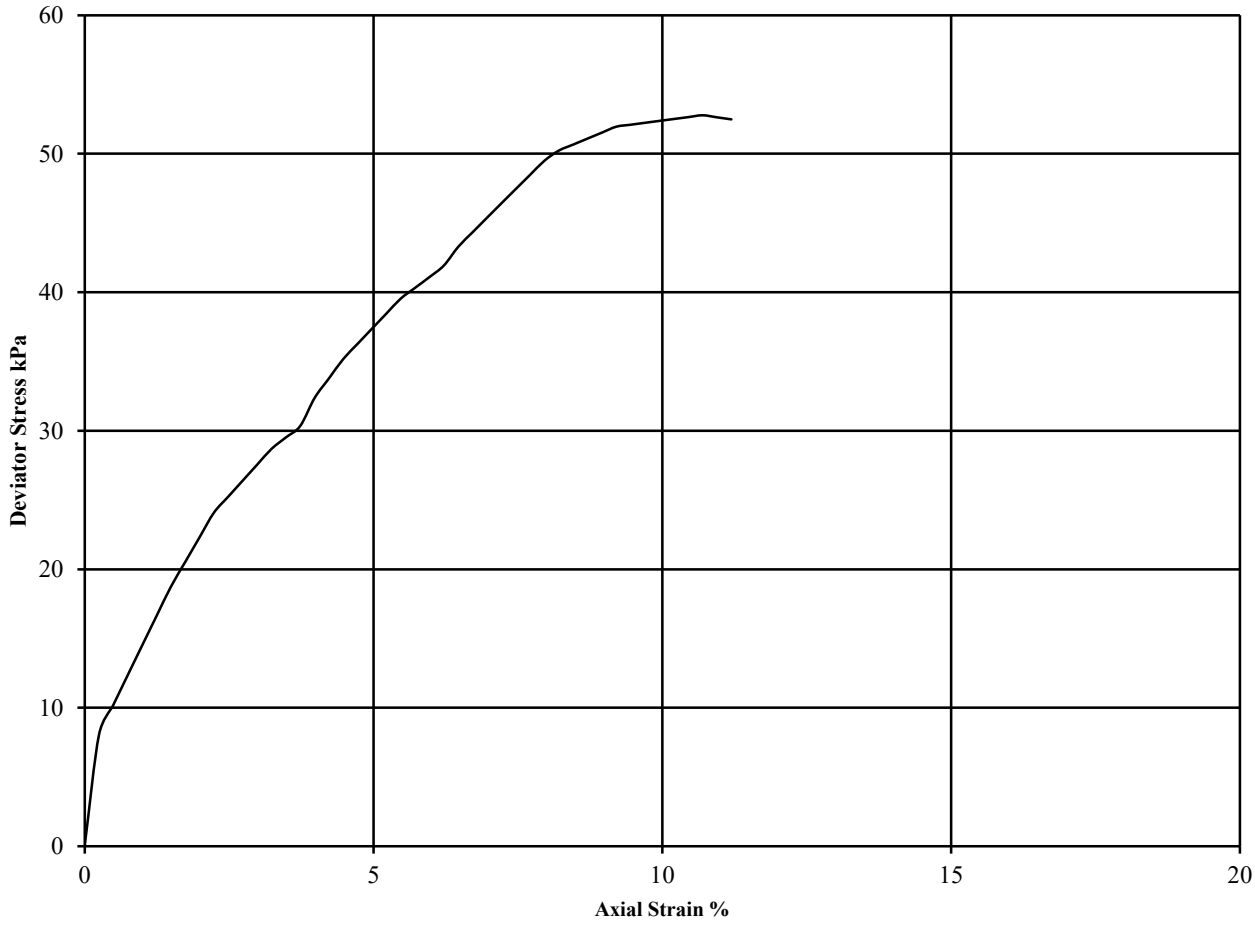
Contract No:
PSL23/3150
Client Ref:
D2064-22

UNDRAINED SHEAR STRENGTH IN TRIAXIAL COMPRESSION

WITHOUT MEASUREMENT OF PORE PRESSURE

BS1377 : Part7 : 1990: Clause 9

Hole Number:	**BH06**	**Top Depth (m):**	**11.70**
Sample Number:	**45**	**Base Depth (m):**	**12.15**
Sample Type	**UT**		



Diameter (mm):		103	Height (mm):		207	Test:	UU Multistage		Remarks
Specimen	Moisture Content (%)	Bulk Density (Mg/m3)	Dry Density (Mg/m3)	Cell Pressure (kPa) θ_3	Corr. Max. Deviator Stress (kPa) $(\theta_1-\theta_3)_f$	Shear Strength Cu (kPa) $^1/_2(\theta_1-\theta_3)_f$	Failure Strain (%)	Mode of Failure	Undisturbed Sample Sample taken from top of tube Rate of strain = 2 %/min Latex Membrane used 0.2 mm thick Membrane Correction applied (kPa)
1	29	1.92	1.49	150	30	15	3.7		0.36 0.36 0.35
				300	41	21	6.0		See summary of soil descriptions
				600	53	26	10.7	Plastic	

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:
PSL23/3150
Client Ref:
D2064-22

ONE DIMENSIONAL CONSOLIDATION TEST

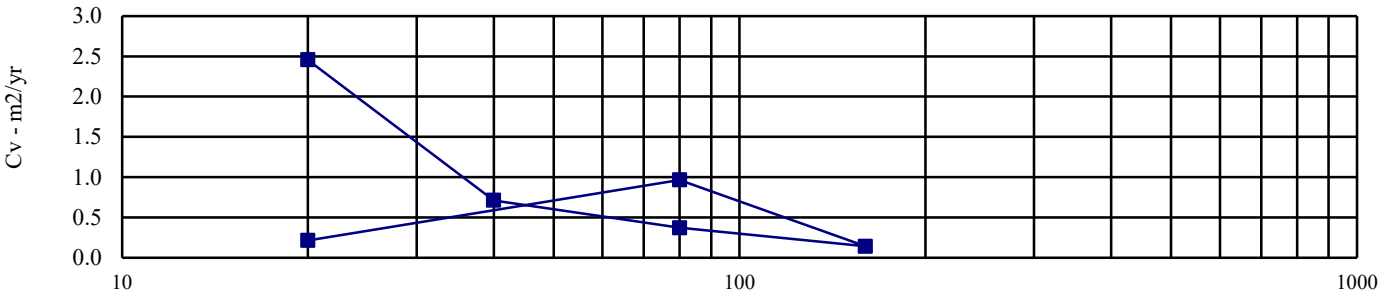
BS 1377: Part 5: 1990: Clause 3

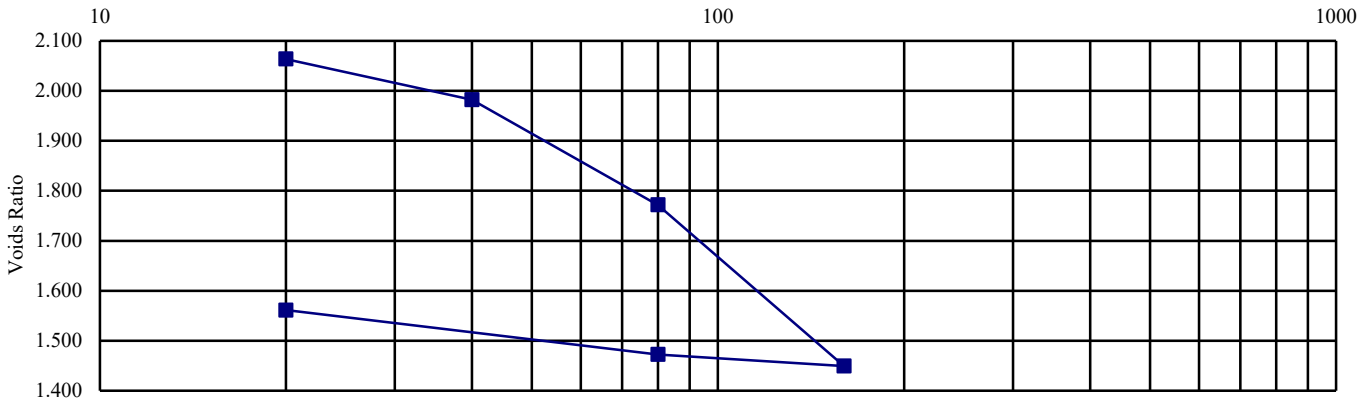
Hole Number: BH06 **Top Depth (m):** 2.20

Sample Number: 13 **Base Depth (m) :** 2.65

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	87						
Bulk Density (Mg/m3):	1.47	0	20	0.885	2.456	Method used to determine CV:	T90
Dry Density (Mg/m3):	0.79	20	40	1.326	0.713		
Voids Ratio:	2.119	40	80	1.767	0.373	Nominal temperature during test ' C:	20
Degree of saturation:	100.2	80	160	1.455	0.143		
Height (mm):	20.004	160	80	0.119	0.967	Remarks: See summary of soil descriptions	
Diameter (mm)	75.005	80	20	0.600	0.216		
Particle Density (Mg/m3): Assumed	2.45						





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No: PSL23/3150

Client Ref: D2064-22

ONE DIMENSIONAL CONSOLIDATION TEST

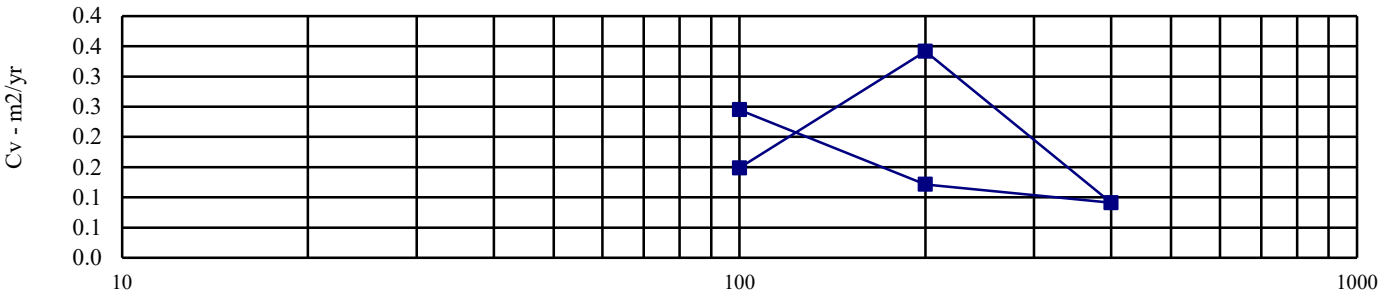
BS 1377: Part 5: 1990: Clause 3

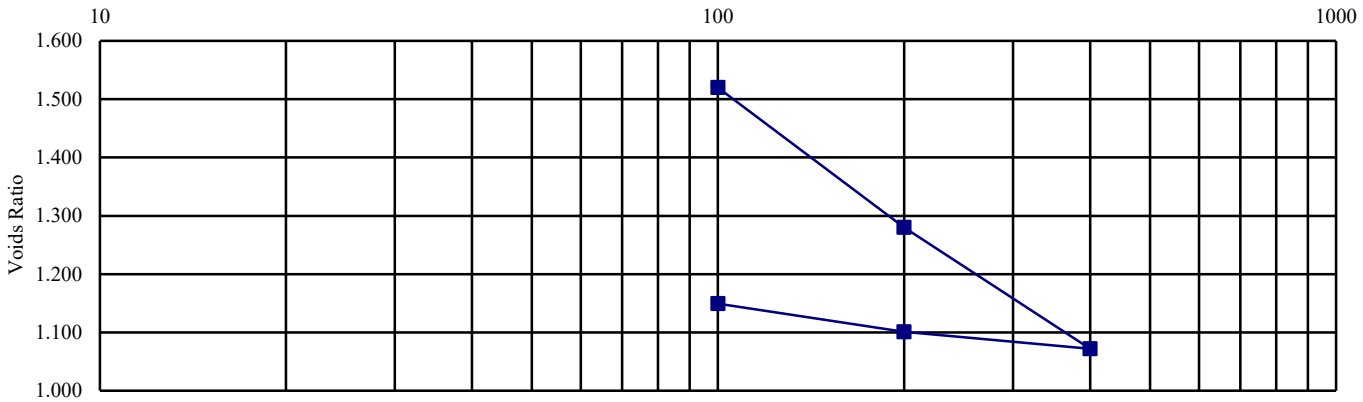
Hole Number: BH06 **Top Depth (m):** 8.20

Sample Number: 34 **Base Depth (m) :** 8.65

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	87						
Bulk Density (Mg/m3):	1.45	0	100	1.885	0.245	Method used to determine CV:	T90
Dry Density (Mg/m3):	0.77	100	200	0.952	0.122		
Voids Ratio:	2.105	200	400	0.456	0.091	Nominal temperature during test ' C:	20
Degree of saturation:	99.7	400	200	0.069	0.342		
Height (mm):	20.044	200	100	0.232	0.149	Remarks: See summary of soil descriptions	
Diameter (mm)	75.005						
Particle Density (Mg/m3): Assumed	2.40						





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No: PSL23/3150

Client Ref: D2064-22

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH06	72	CS	35.25	35.42	29			44	4.1	
BH06	73	CS	36.30	36.50	29	31	1.48			
BH06	76	CS	41.70	41.86	28			31	4.4	
BH06	77	CS	43.08	43.25	27	29	1.51			
BH06	79	CS	45.94	46.04	28			18	4.1	
BH06	83	CS	51.06	51.20	28	30	1.49			
BH06	84	CS	51.59	51.76	28			48	4.0	

* CCV testing is not UKAS accredited

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH06	27.20	68	A	Perp	100	48	4800	6111.55	78.18	-	0.21	0.03	1.223	0.04	Valid	
BH06	35.25	72	A	Perp	100	50	5000	6366.20	79.79	-	0.20	0.03	1.234	0.04	Valid	
BH06	40.58	75	A	Perp	100	39	3900	4965.63	70.47	-	0.28	0.06	1.167	0.07	Valid	
BH06	44.35	78	A	Perp	100	57	5700	7257.47	85.19	-	0.31	0.04	1.271	0.05	Valid	
BH06	51.06	83	A	Perp	100	61	6100	7766.76	88.13	-	0.27	0.03	1.291	0.04	Valid	
BH06	53.36	85	A	Perp	100	57	5700	7257.47	85.19	-	0.26	0.04	1.271	0.05	Valid	
BH06	54.80	87	A	Perp	100	57	5700	7257.47	85.19	-	0.24	0.03	1.271	0.04	Valid	
BH06	59.30	90	A	Perp	100	47	4700	5984.23	77.36	-	0.28	0.05	1.217	0.06	Valid	
BH06	64.30	93	A	Perp	100	56	5600	7130.14	84.44	-	0.27	0.04	1.266	0.05	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3150

Client Ref:

D2064-22

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH06	27.20	68	D	Par		100	10000	100.00	-	0.11	0.011	1.366	0.02	Valid	
BH06	35.25	72	D	Par		100	10000	100.00	-	0.16	0.016	1.366	0.02	Valid	
BH06	40.58	75	D	Par		100	10000	100.00	-	0.13	0.013	1.366	0.02	Valid	
BH06	44.35	78	D	Par		100	10000	100.00	-	0.18	0.018	1.366	0.02	Valid	
BH06	51.06	83	D	Par		100	10000	100.00	-	0.16	0.016	1.366	0.02	Valid	
BH06	53.36	85	D	Par		100	10000	100.00	-	0.14	0.014	1.366	0.02	Valid	
BH06	54.80	87	D	Par		100	10000	100.00	-	0.13	0.013	1.366	0.02	Valid	
BH06	59.30	90	D	Par		100	10000	100.00	-	0.20	0.020	1.366	0.03	Valid	
BH06	64.30	93	D	Par		100	10000	100.00	-	0.12	0.012	1.366	0.02	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3150

Client Ref:

D2064-22

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH06**	**Top Depth (m):**	**44.35**
Sample Number:	**78**	**Base Depth (m):**	**44.55**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.03
Height - mm:	178.20
Water Content - %:	27.0
Sample Mass - g:	2735.2
Bulk Density - Mg/m^3:	1.95
Dry Density - Mg/m^3:	1.54
Height Ratio: * Sample does not comply with H:D ratio	1.8
Degree of Saturation - %:	99
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:24
Orientation:	Unknown
Stress Rate - MPa/s:	0.08
Strain at Failure - kN:	15.45
Unconfined Compressive Strength - Mpa:	1.97
Mode of Failure:	Vertical Shear

Remarks: -

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 66764

Client Ref: **PSL23/3150**
Client PO: **PSL23/3150**

Date Received: **26-05-2023**
Date Completed: **06-06-2023**
Report Date: **06-06-2023**

Client: **Professional Soils Laboratory Limited**
5/7 Hexthorpe Road
Doncaster
South Yorkshire
DN4 0AR

This report has been checked and approved by:

Paul Evans
Director

Contract Title: **TKRE, Tilbury and Eastcourt Marshes Land Investigation**
For the attention of: **Robert Berriman**

Test Description	Qty
Determination of the Cerchar abrasivity value per set of four values. The Cerchar Abrasiveness Index Document October 1986 - @ Non Accredited Test	2
Disposal of samples for job	1

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

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd
Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

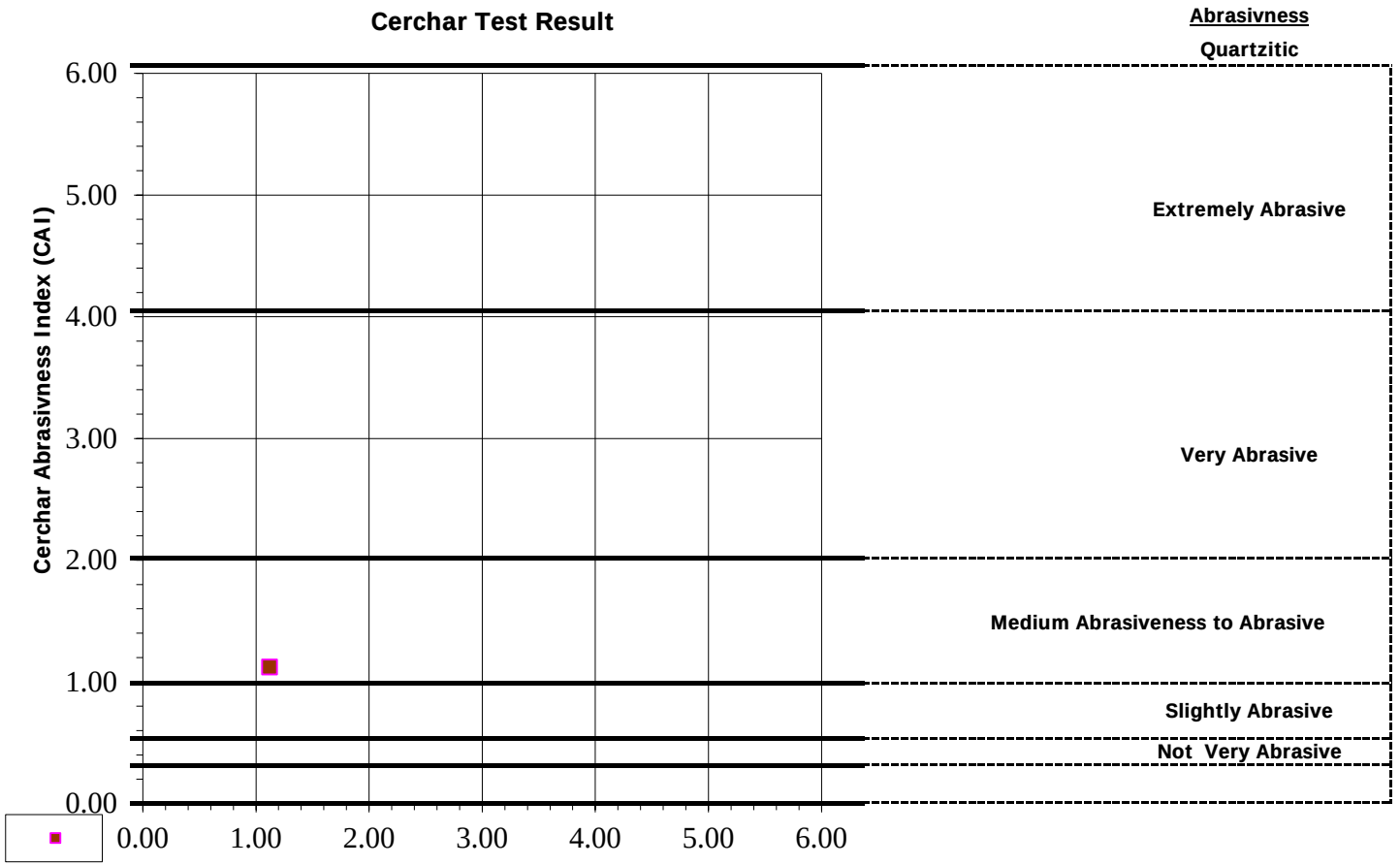
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcourt Marshes Land Investigation**
Contract Number:	**66764**
Date tested:	**02/06/2023**
BH Number:	**BH06**
Sample Number:	
Depth (m) :	**35.25-35.42**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.11**	**(mm)**
C.A.I	**1.12**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

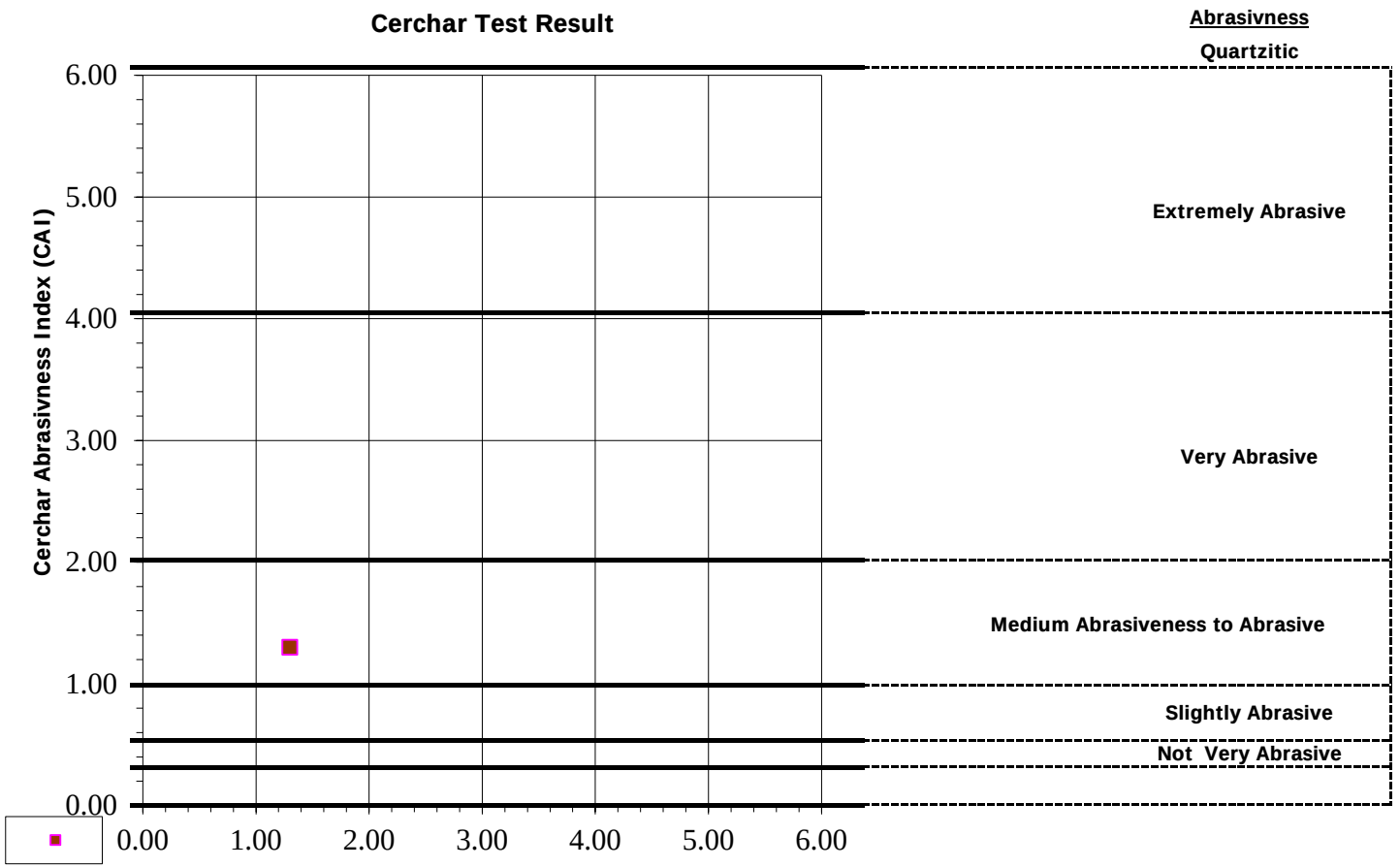
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcourt Marshes Land Investigation**
Contract Number:	**66764**
Date tested:	**02/06/2023**
BH Number:	**BH06**
Sample Number:	
Depth (m) :	**40.58-40.70**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.13**	**(mm)**
C.A.I	**1.30**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

LABORATORY REPORT

Contract Number: PSL23/3151

Report Date: 06 June 2023

Client's Reference: D2064-22

Client Name: Socotec
The Oasts, Newnham Court
Bearstead Road
Maidstone
Kent
ME14 5LH

For the attention of: Samantha Rawlins

Contract Title: TKRE, Tilbury and Eastcourt Marshes Land Investigation

Date Received: 3/4/2023
Date Commenced: 3/4/2023
Date Completed: 1/6/2023

Notes: Opinions and Interpretations are outside the UKAS Accreditation

A copy of the Laboratory Schedule of accredited tests as issued by UKAS is attached to this report. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced other than in full, without the prior written approval of the laboratory.

Checked and Approved Signatories:

A Watkins (Director)
R Berriman (Quality Manager)
S Royle (Laboratory Manager)

L Knight (Assistant Laboratory Manager)
S Eyre (Senior Technician)
T Watkins (Senior Technician)

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awatkins@prosoils.co.uk

SUMMARY OF LABORATORY SOIL DESCRIPTIONS

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Description of Sample
BH05	19	B	3.20	3.70	Grey slightly sandy CLAY with some organic material.
BH05	21	UT	4.20	4.65	Grey slightly sandy CLAY with some organic material.
BH05	27	B	5.20	5.70	Grey slightly sandy CLAY with some organic material.
BH05	29	UT	6.70	7.15	Grey slightly sandy organic CLAY.
BH05	34	B	8.20	8.70	Grey slightly sandy organic CLAY.
BH05	43	B	12.70	13.20	Grey sandy CLAY.
BH05	46	UT	14.20	14.65	Grey slightly gravelly sandy CLAY.
BH05	52	B	15.70	16.20	Brown slightly sandy slightly clayey GRAVEL.
BH05	59	B	18.70	19.20	Brown slightly sandy GRAVEL with cobbles.
BH05	68	CS	27.72	27.92	White CHALK.
BH05	72	CS	35.74	35.82	White CHALK.
BH05	74	CS	38.36	38.50	White CHALK.
BH05	77	CS	40.84	41.60	White CHALK.
BH05	78	CS	41.00	41.35	White CHALK.
BH05	79	CS	44.00	44.60	White CHALK.

SUMMARY OF SOIL CLASSIFICATION TESTS

(BS1377 : PART 2 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content % Clause 3.2	Linear Shrinkage % Clause 6.5	Particle Density Mg/m^3 Clause 8.2	Liquid Limit % Clause 4.3/4	Plastic Limit % Clause 5.3	Plasticity Index % Clause 5.4	Passing .425mm %	Remarks
BH05	19	B	3.20	3.70	79			97	39	58	100	Extremely High Plasticity CE
BH05	27	B	5.20	5.70	62			87	36	51	100	Very High Plasticity CV
BH05	34	B	8.20	8.70	82			130	49	81	100	Extremely High Plasticity CE
BH05	43	B	12.70	13.20	35			41	23	18	100	Intermediate Plasticity CI
BH05	52	B	15.70	16.20	5.9							
BH05	59	B	18.70	19.20	2.7							

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

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

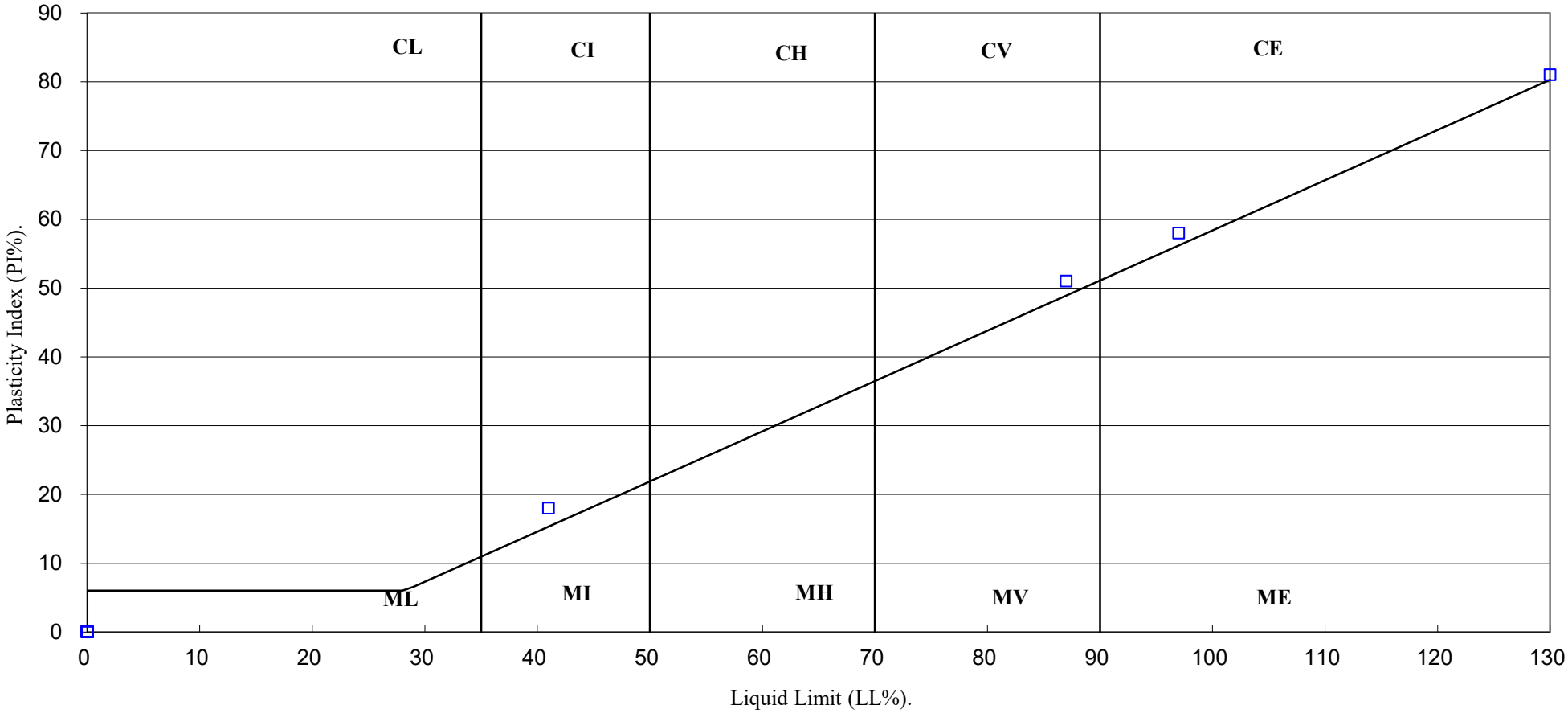
Contract No:

PSL23/3151

Client Ref:

D2064-22

PLASTICITY CHART FOR CASAGRANDE CLASSIFICATION.



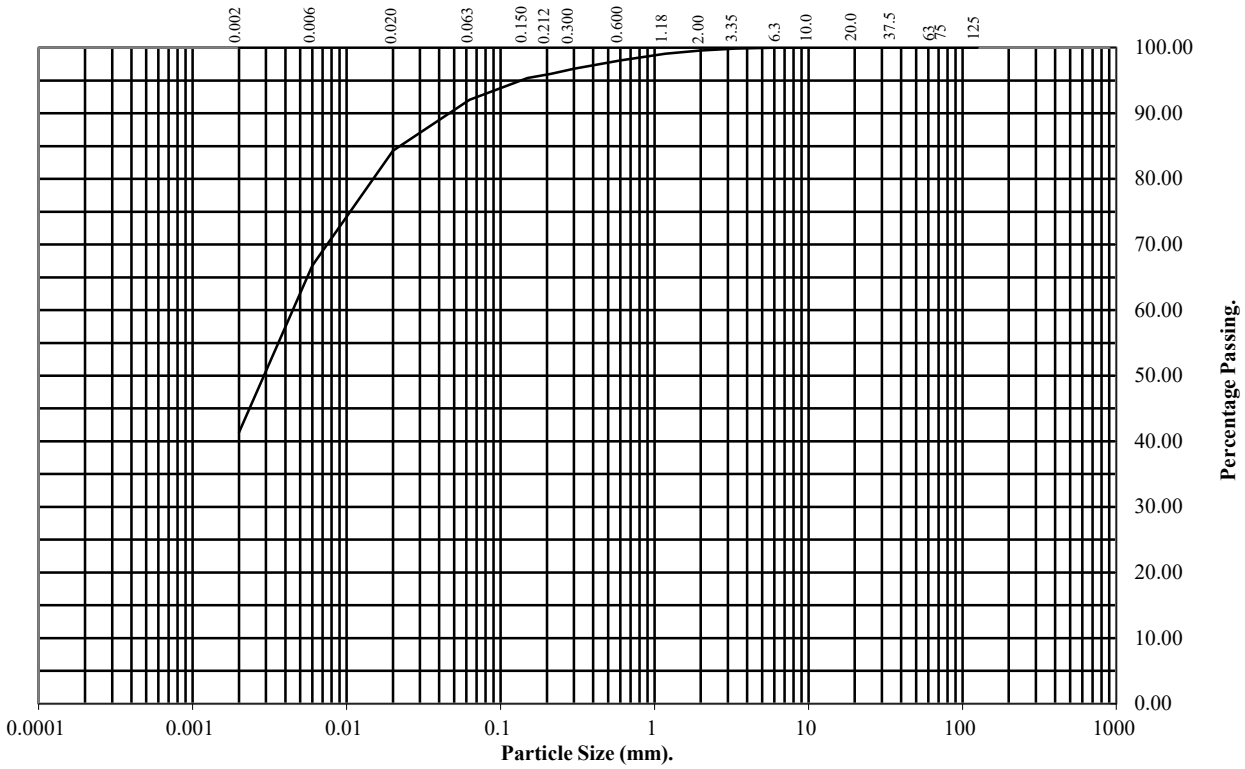
UKAS TESTING 4043 / PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY	TKRE, Tilbury and Eastcourt Marshes Land Investigation	Contract No: PSL23/3151 Client Ref: D2064-22

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH05**	**Top Depth (m):**	**3.20**
Sample Number:	**19**	**Base Depth(m):**	**3.70**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	98
0.3	97
0.212	96
0.15	95
0.063	92

Particle Diameter	Percentage Passing
0.02	84
0.006	67
0.002	41

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	8
Silt	51
Clay	41

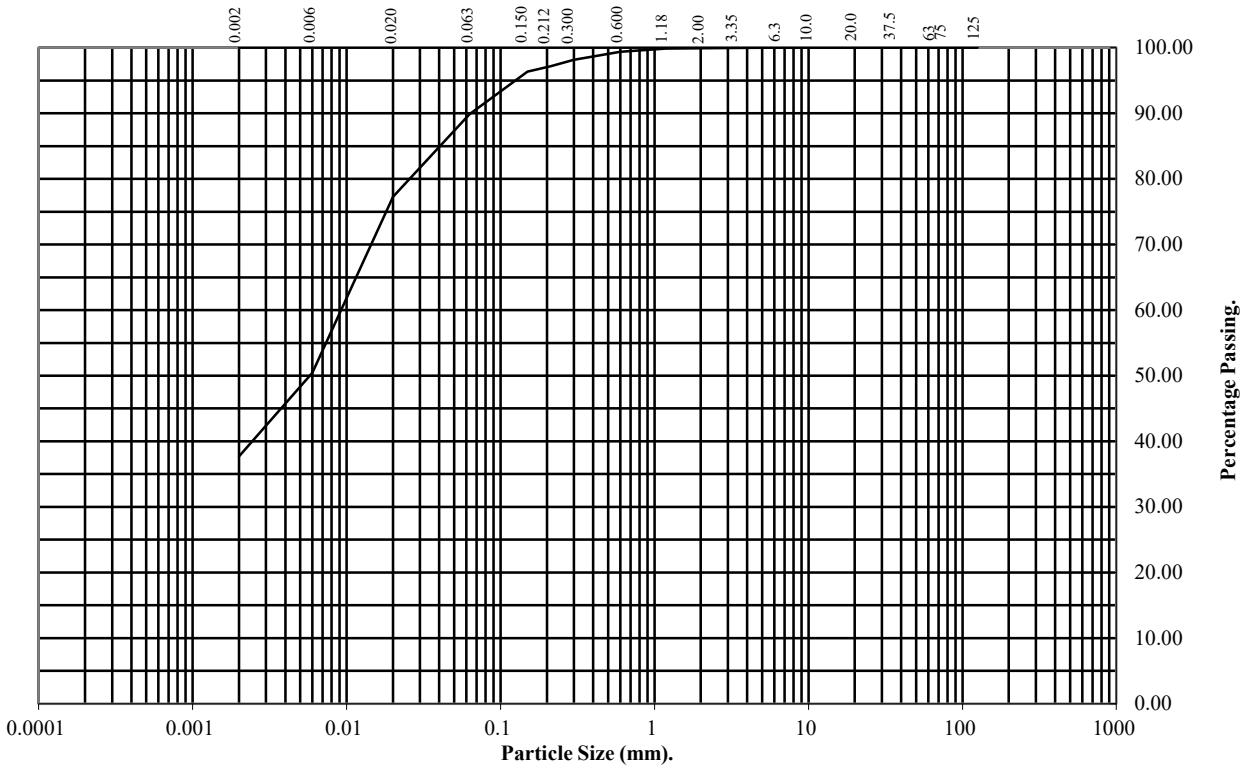
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH05**	**Top Depth (m):**	**5.20**
Sample Number:	**27**	**Base Depth(m):**	**5.70**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	77
0.006	50
0.002	38

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	10
Silt	52
Clay	38

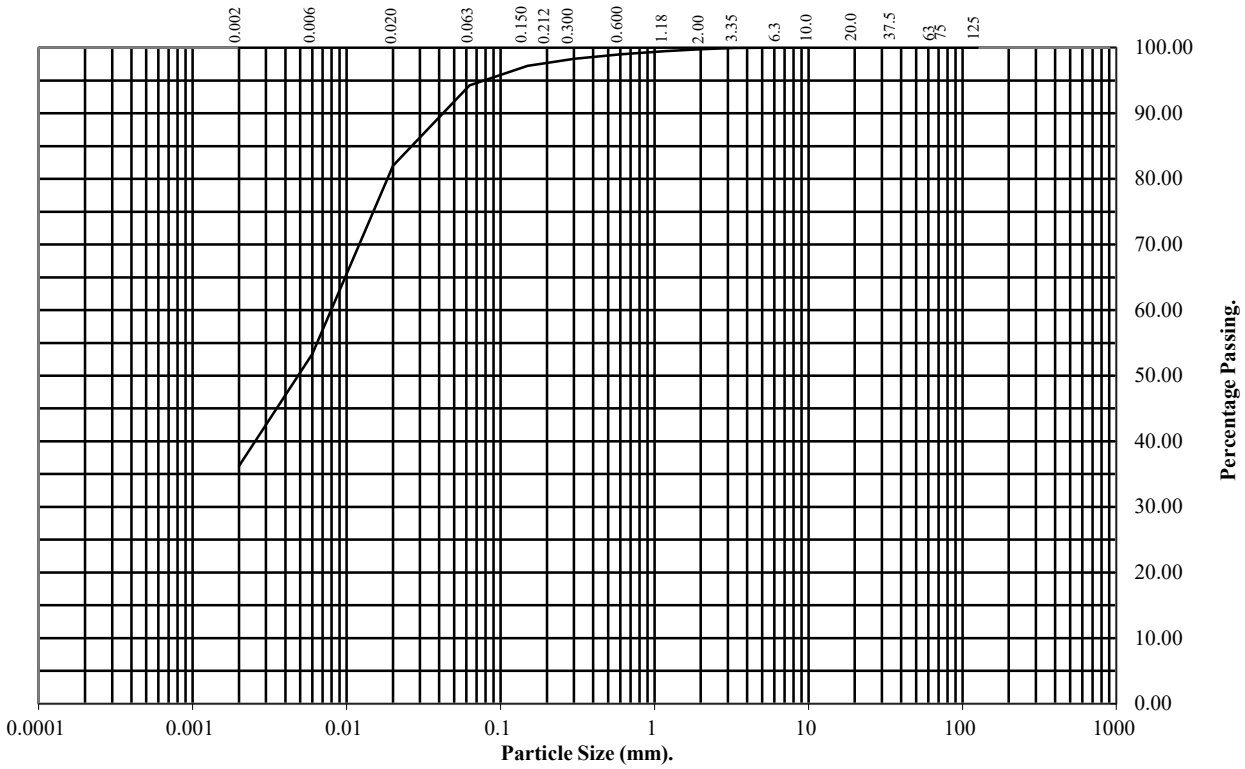
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH05**	**Top Depth (m):**	**8.20**
Sample Number:	**34**	**Base Depth(m):**	**8.70**
Sample Type:	**B**		



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

Particle Diameter	Percentage Passing
0.02	82
0.006	53
0.002	36

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	6
Silt	58
Clay	36

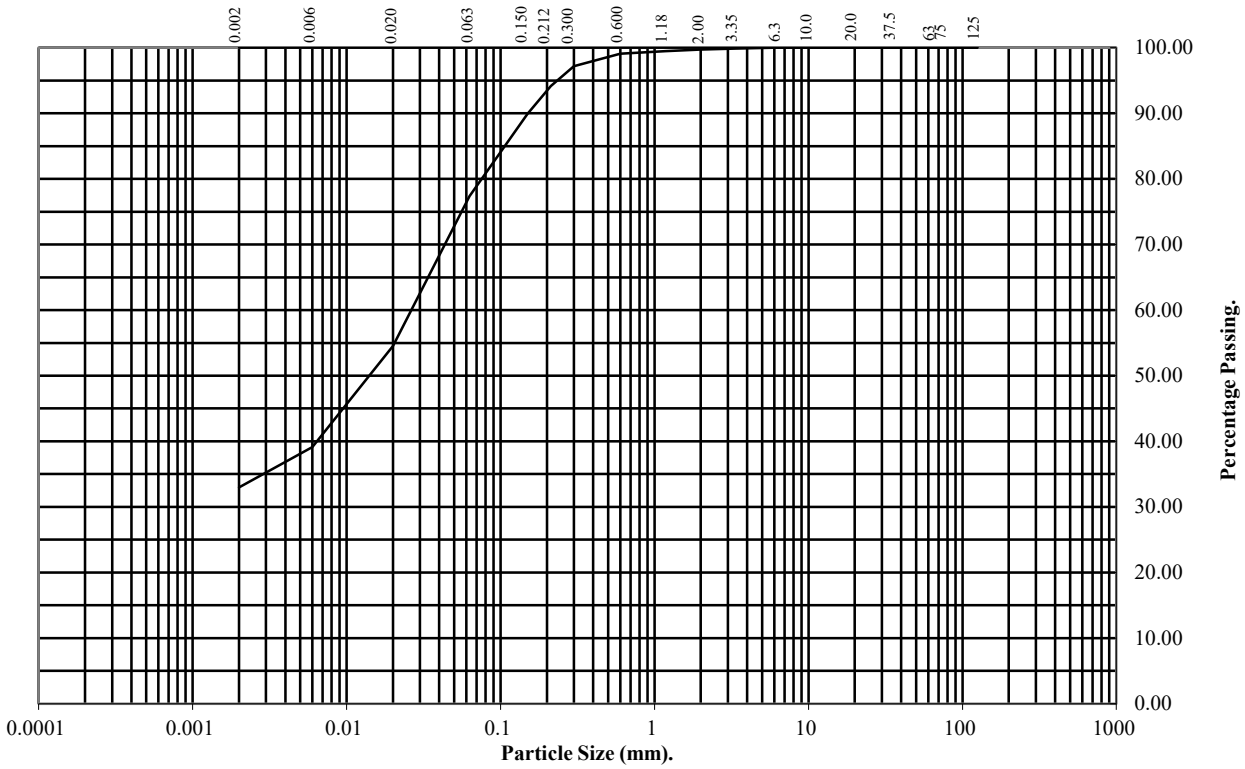
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve & Pipette Analysis, Clause 9.2 & 9.4

Hole Number:	**BH05**	**Top Depth (m):**	**12.70**
Sample Number:	**43**	**Base Depth(m):**	**13.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	100
20	100
10	100
6.3	100
3.35	100
2	100
1.18	99
0.6	99
0.3	97
0.212	94
0.15	90
0.063	77

Particle Diameter	Percentage Passing
0.02	55
0.006	39
0.002	33

Soil Fraction	Total Percentage
Cobbles	0
Gravel	0
Sand	23
Silt	44
Clay	33

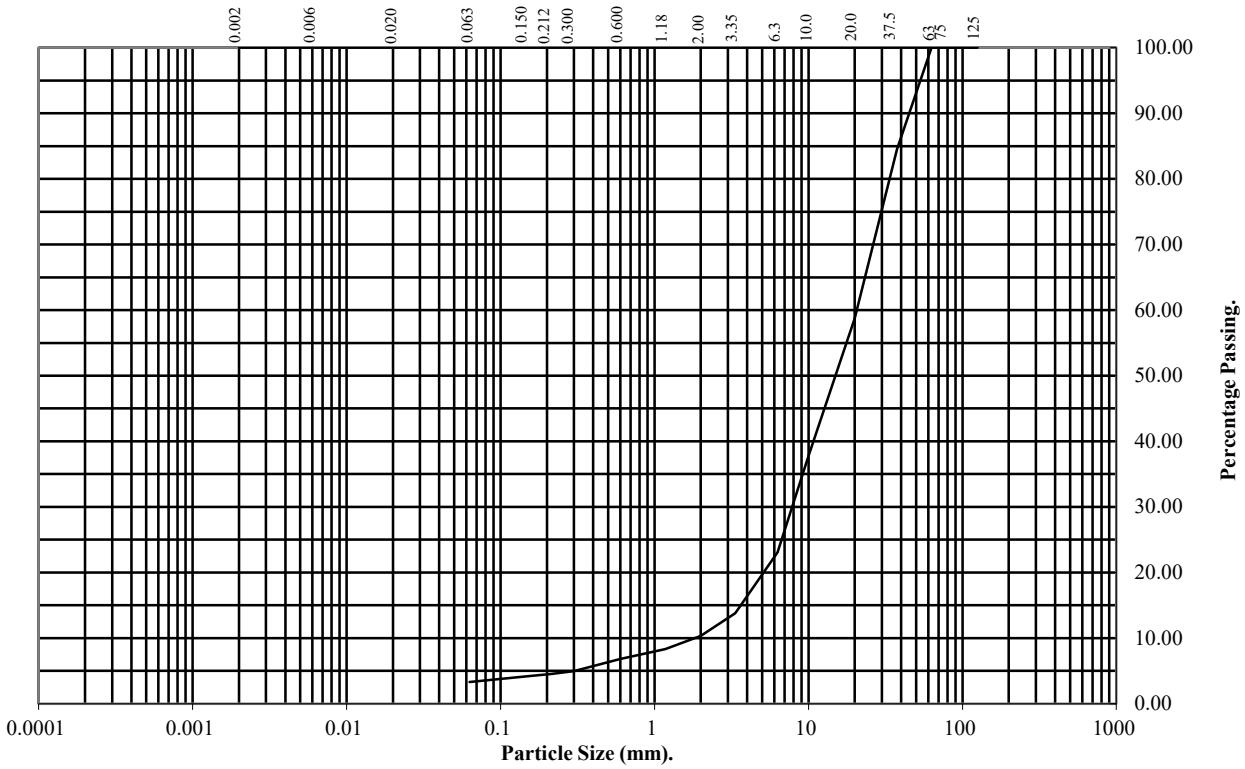
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH05**	**Top Depth (m):**	**15.70**
Sample Number:	**52**	**Base Depth(m):**	**16.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	100
37.5	84
20	59
10	38
6.3	23
3.35	14
2	10
1.18	8
0.6	7
0.3	5
0.212	5
0.15	4
0.063	3

Soil Fraction	Total Percentage
Cobbles	0
Gravel	90
Sand	7
Silt/Clay	3

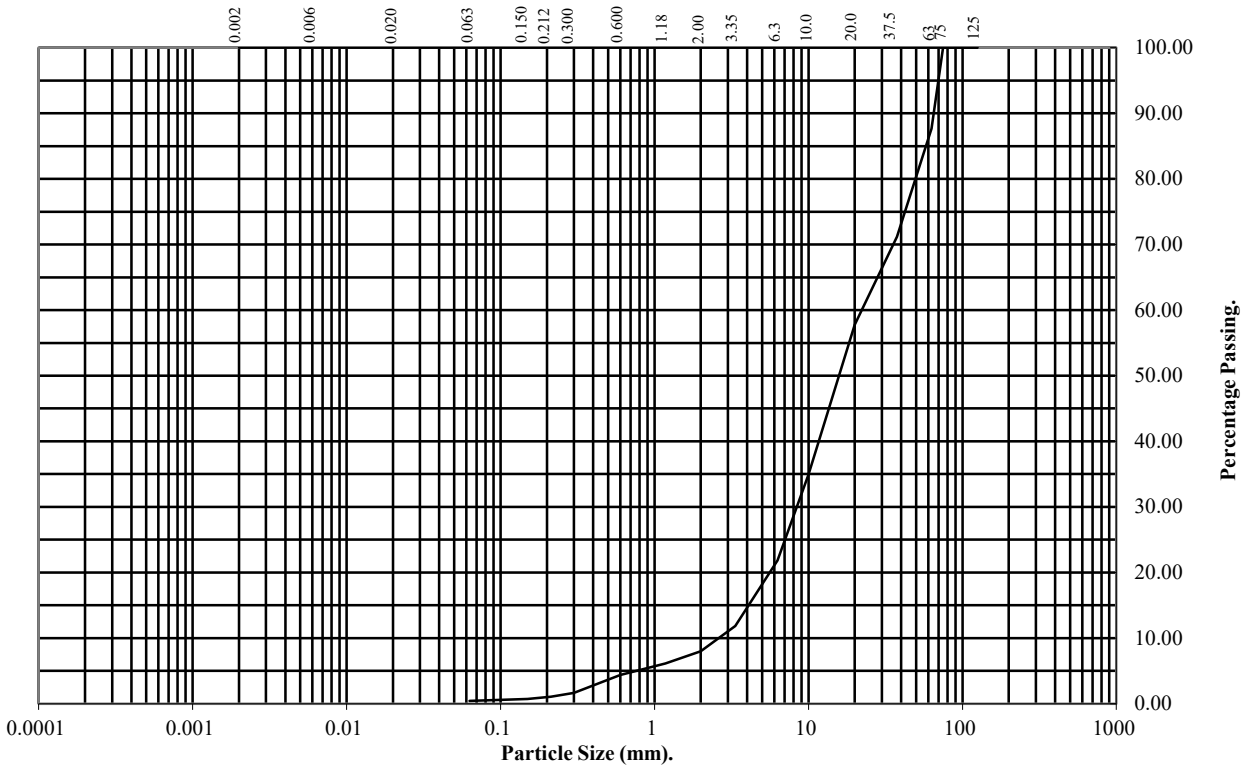
Remarks:
See Summary of Soil Descriptions

PARTICLE SIZE DISTRIBUTION TEST

BS1377 : Part 2 : 1990

Wet Sieve, Clause 9.2

Hole Number:	**BH05**	**Top Depth (m):**	**18.70**
Sample Number:	**59**	**Base Depth(m):**	**19.20**
Sample Type:	**B**		



BS Test Sieve (mm)	Percentage Passing
125	100
75	100
63	88
37.5	71
20	58
10	35
6.3	22
3.35	12
2	8
1.18	6
0.6	4
0.3	2
0.212	1
0.15	1
0.063	0

Soil Fraction	Total Percentage
Cobbles	12
Gravel	80
Sand	8
Silt/Clay	0

Remarks:
See Summary of Soil Descriptions

ONE DIMENSIONAL CONSOLIDATION TEST

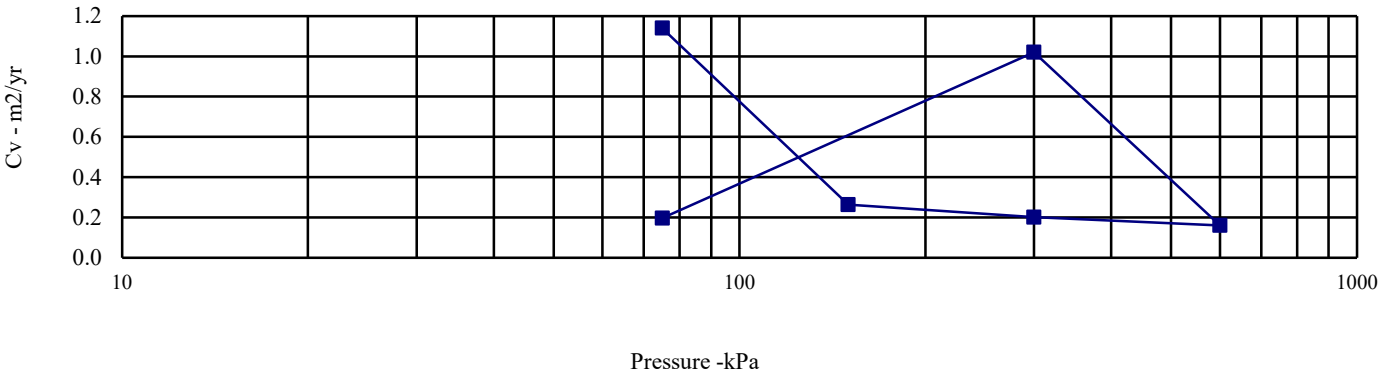
BS 1377: Part 5: 1990: Clause 3

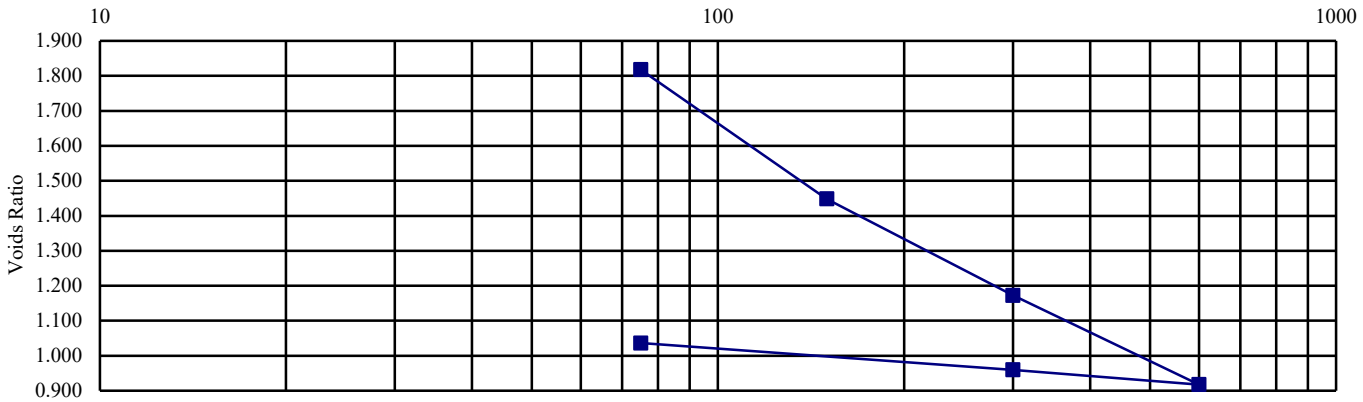
Hole Number: BH05 **Top Depth (m):** 6.70

Sample Number: 29 **Base Depth (m) :** 7.15

Sample Type: UT

Initial Conditions		Pressure Range kPa		Mv m2/MN	Cv m2/yr	Specimen location within tube:	Top
Moisture Content (%):	84						
Bulk Density (Mg/m3):	1.51	0	75	1.050	1.139	Method used to	
Dry Density (Mg/m3):	0.82	75	150	1.748	0.264	determine CV:	T90
Voids Ratio:	2.058	150	300	0.751	0.202	Nominal temperature	
Degree of saturation:	102.3	300	600	0.391	0.161	during test ' C:	20
Height (mm):	20.012	600	300	0.074	1.020	Remarks:	
Diameter (mm)	74.975	300	75	0.173	0.197	See summary of soil descriptions	
Particle Density (Mg/m3): Assumed	2.50						





UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

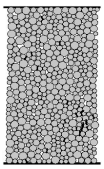
Contract No: PSL23/3151

Client Ref: D2064-22

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details				
 *sketch showing specimen location in original sample*	Depth	4.20-4.65m UT21		
	Description	See summary of soil descriptions.		
	Type	Undisturbed, vertical orientation.		
	Initial Sample Length	L_0	(mm)	200.0
	Initial Sample Diameter	D_0	(mm)	100.0
	Initial Sample Weight	W_0	(gr)	2666.0
	Initial Bulk Density	ρ_0	(Mg/m3)	1.70
	Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	350	400	500	
Initial Back Pressure	U_{bi}	(kPa)	300	300	300	
Membrane Thickness	m_b	(mm)	0.600			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 1			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	57			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.08			
Initial Voids Ratio	e_i	.	1.458			
Initial Degree of Saturation	S_i	(%)	100			
B Value	B	.	0.99			

Final Conditions						
Final Moisture	ω_f	(%)	29			
Final Dry Density	ρ_{df}	(Mg/m3)	1.39			
Final Voids Ratio	e_f	.	0.912			
Final Degree of Saturation	S_f	(%)	83.9			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev.	Max. Dev.	Max. Dev.	
Strain At Failure	ε_f	(%)	1.79	3.91	9.40	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	51.1	81.5	146.0	
Minor Stress At Failure	σ_3'	(kPa)	37.0	65.8	129.0	
Major Stress At Failure	σ_1'	(kPa)	88.1	147.3	275.0	
Principal Stress Ratio At Failure	σ_1'/σ_3'		2.381	2.238	2.131	
PwP At Failure Criteria	u_f		313.0	334.2	372.0	

Notes

Plastic

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY
UKAS TESTING 4043

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH05 4.20-4.65m
		Test Date	25/05/2023
Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation	Borehole	BH05
		Sample	4.20-4.65m
Client	Socotec	Depth	4.20-4.65m UT21

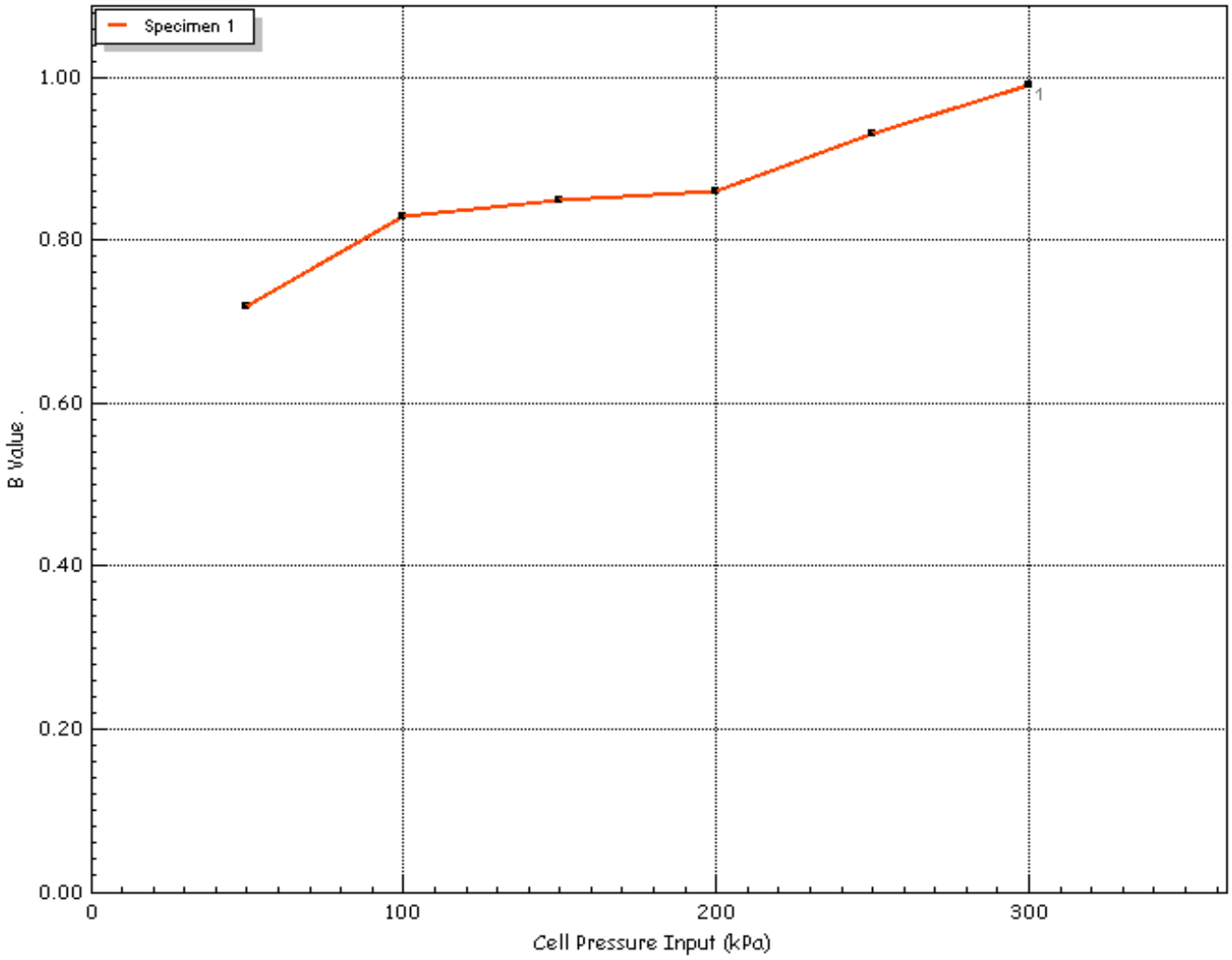
Operator	D.Burton	Checked	S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	300
Pore Water Pressure Input	u pwp	(kPa)	315
B Value	B	.	0.99



PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY UKAS TESTING 4043	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 4.20-4.65m
				Test Date	25/05/2023
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
				Sample	4.20-4.65m
	Client	Socotec		Depth	4.20-4.65m UT21
	Operator	D.Burton	Checked S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

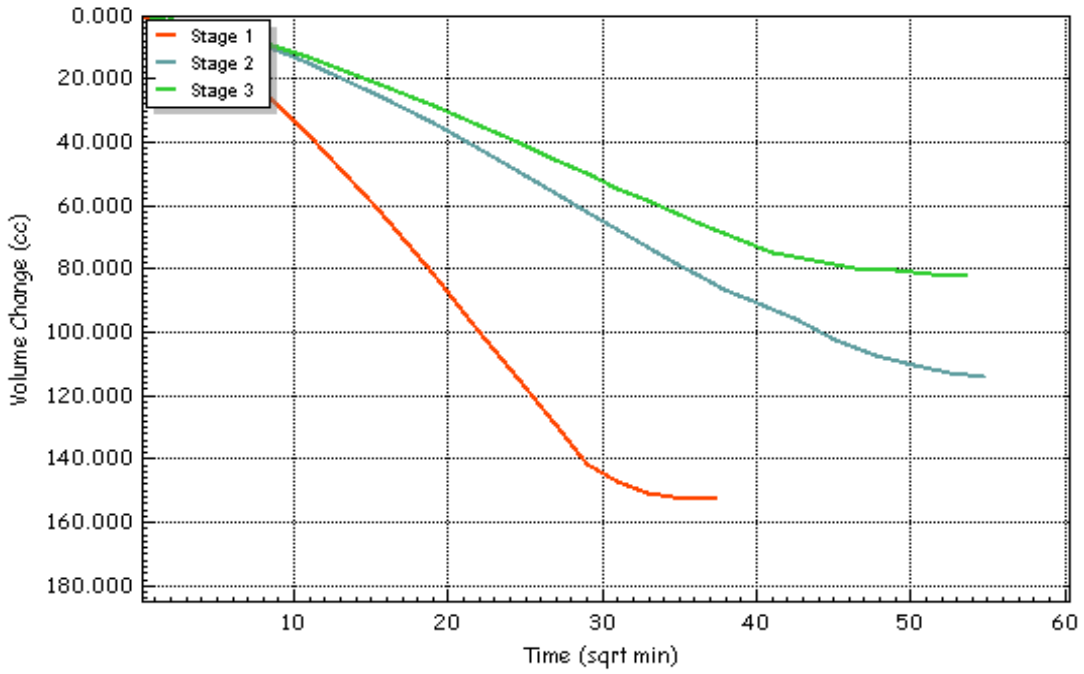
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	350	400	500
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	342	395	469
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	95.80	95.27
Volumetric Strain	ε_v%	(%)	9.72	7.27	5.24
Corrected Length	L_C	(mm)	193.5	185.0	178.0
Corrected Area	A_C	(cm2)	73.45	70.61	68.72
Corrected Volume	V_C	(cc)	1418.138	1304.013	1221.754
t100	t_{100}	(min)	854.27	2242.21	1751.82
Consolidation	c_v	(m2/year)	0.002	0.001	0.001
Compressibility	m_v	(m2/MN)	2.314	0.797	0.325
Test Time	t_F	(h:m:s)	25:37:41	67:15:58	52:33:16
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.00629	0.00629	0.00629

Notes



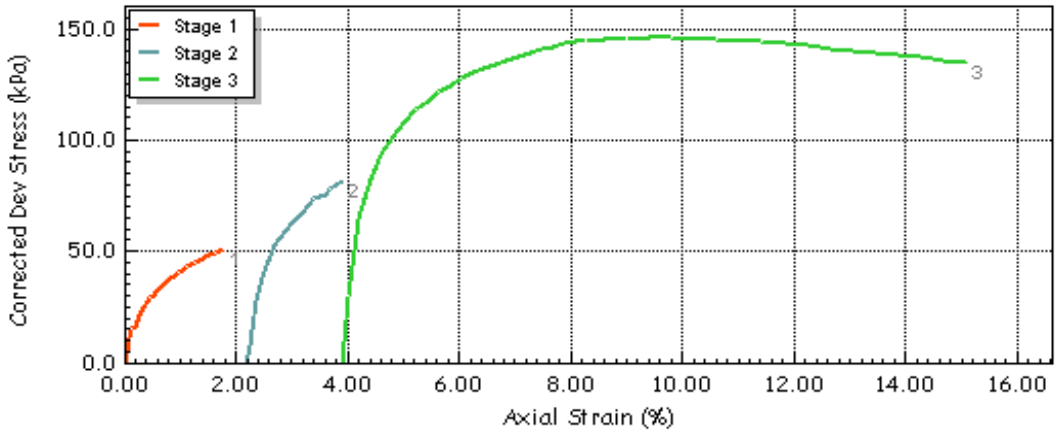
PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 4.20-4.65m
				Test Date	25/05/2023
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
				Sample	4.20-4.65m
	Client	Socotec		Depth	4.20-4.65m UT21
	Operator	D.Burton	Checked S.Royle	Approved	S.Royle

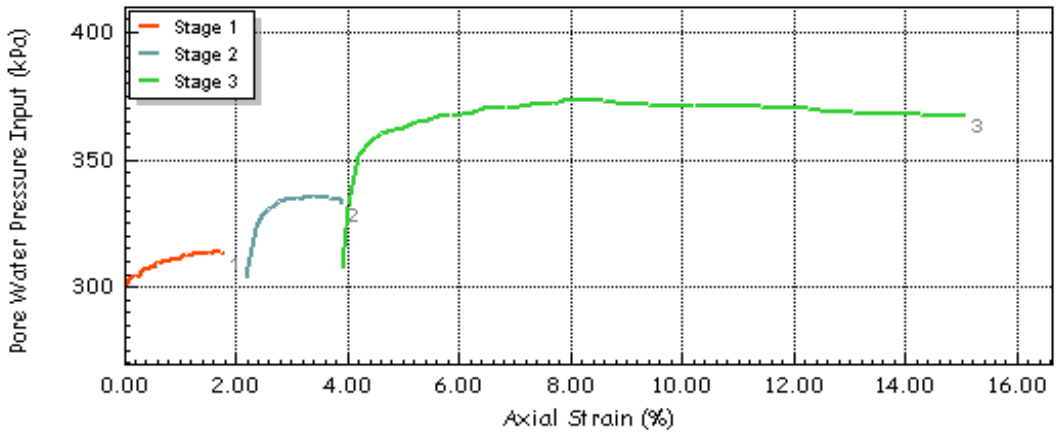
UKAS TESTING 4043

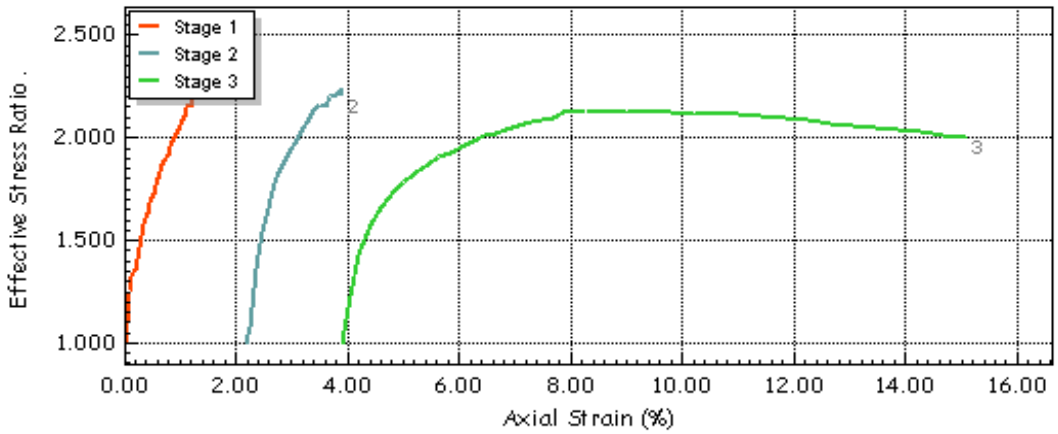
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







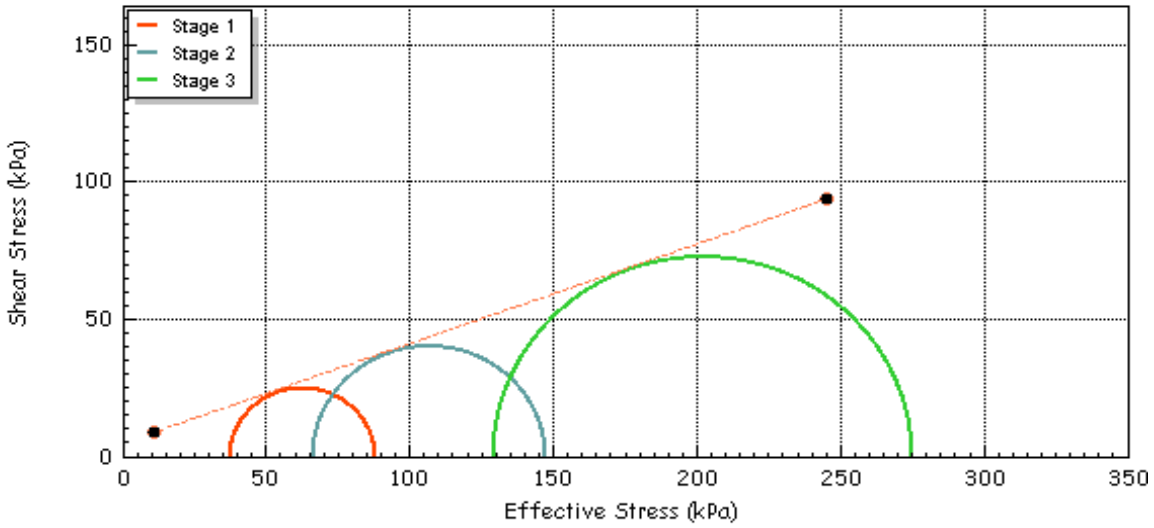
PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 4.20-4.65m
				Test Date	25/05/2023
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
				Sample	4.20-4.65m
UKAS TESTING 4043	Client	Socotec		Depth	4.20-4.65m UT21
	Operator	D.Burton	Checked	S.Royle	Approved S.Royle

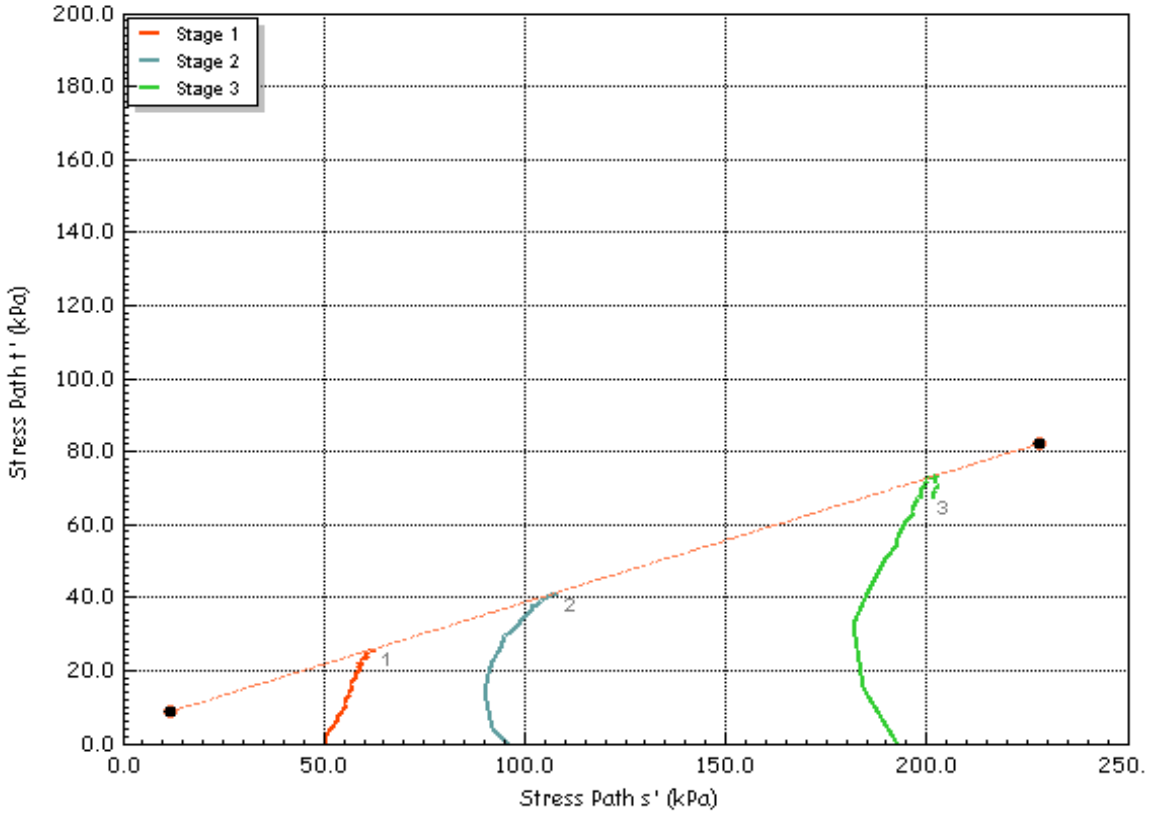
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	4.83	Effective Cohesion	c'	(kPa)	4.83
Effective Friction	ϕ'	(deg)	19.9	Effective Friction	ϕ'	(deg)	19.9



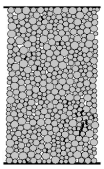


PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH05 4.20-4.65m	
			Test Date	25/05/2023	
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation	Borehole	BH05	
			Sample	4.20-4.65m	
	Client	Socotec	Depth	4.20-4.65m UT21	
UKAS TESTING 4043	Operator	D.Burton	Checked	S.Royle	Approved S.Royle

Effective Stress Triaxial Compression

Consolidated Undrained

Summary Report

Sample Details				
	Depth	14.20-14.65m 46UT		
	Description	See summary of soil descriptions.		
	Type	Undisturbed, vertical orientation.		
	Initial Sample Length	L_0	(mm)	200.0
	Initial Sample Diameter	D_0	(mm)	100.0
	Initial Sample Weight	W_0	(gr)	2924.0
	Initial Bulk Density	ρ_0	(Mg/m3)	1.86
sketch showing specimen location in original sample	Particle Density	ρ_s	(Mg/m3)	2.66

Initial Conditions			Stage 1	2	3	4
Initial Cell Pressure	σ_{3i}	(kPa)	450	600	900	
Initial Back Pressure	U_{bi}	(kPa)	300	300	300	
Membrane Thickness	m_b	(mm)	0.600			
Displacement Input	L_{IP}	(mm)	CH 2			
Load Input	N_{IP}	(N)	CH 1			
Pore Water Pressure Input	u_{pwp}	(kPa)	CH 3			
Sample Volume	V	(cc)	CH 6			
Initial Moisture	ω_i	(%)	35			
Initial Dry Density	ρ_{di}	(Mg/m3)	1.38			
Initial Voids Ratio	e_i	.	0.927			
Initial Degree of Saturation	S_i	(%)	100			
B Value	B	.	0.98			

Final Conditions						
Final Moisture	ω_f	(%)	29			
Final Dry Density	ρ_{df}	(Mg/m3)	1.56			
Final Voids Ratio	e_f	.	0.701			
Final Degree of Saturation	S_f	(%)	100.0			
			Stage 1	2	3	4
Failure Criteria		.	Max. Dev.	Max. Dev.	Max. Dev.	
Strain At Failure	ε_f	(%)	3.71	6.94	11.69	
Stress At Failure	$(\sigma_1-\sigma_3)$	(kPa)	128.3	265.4	510.6	
Minor Stress At Failure	σ_3'	(kPa)	98.0	226.0	452.0	
Major Stress At Failure	σ_1'	(kPa)	226.3	491.4	962.6	
Principal Stress Ratio At Failure	σ_1'/σ_3'		2.309	2.174	2.130	
PwP At Failure Criteria	u_f		352.0	374.0	448.0	

Notes

Plastic

PSL PROFESSIONAL SOILS LABORATORY — A PHENNA GROUP COMPANY — UKAS TESTING 4043

Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH05 14.20-14.65m
		Test Date	25/05/2023
Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation	Borehole	BH05
		Sample	14.20-14.65m
Client	Socotec	Depth	14.20-14.65m 46UT

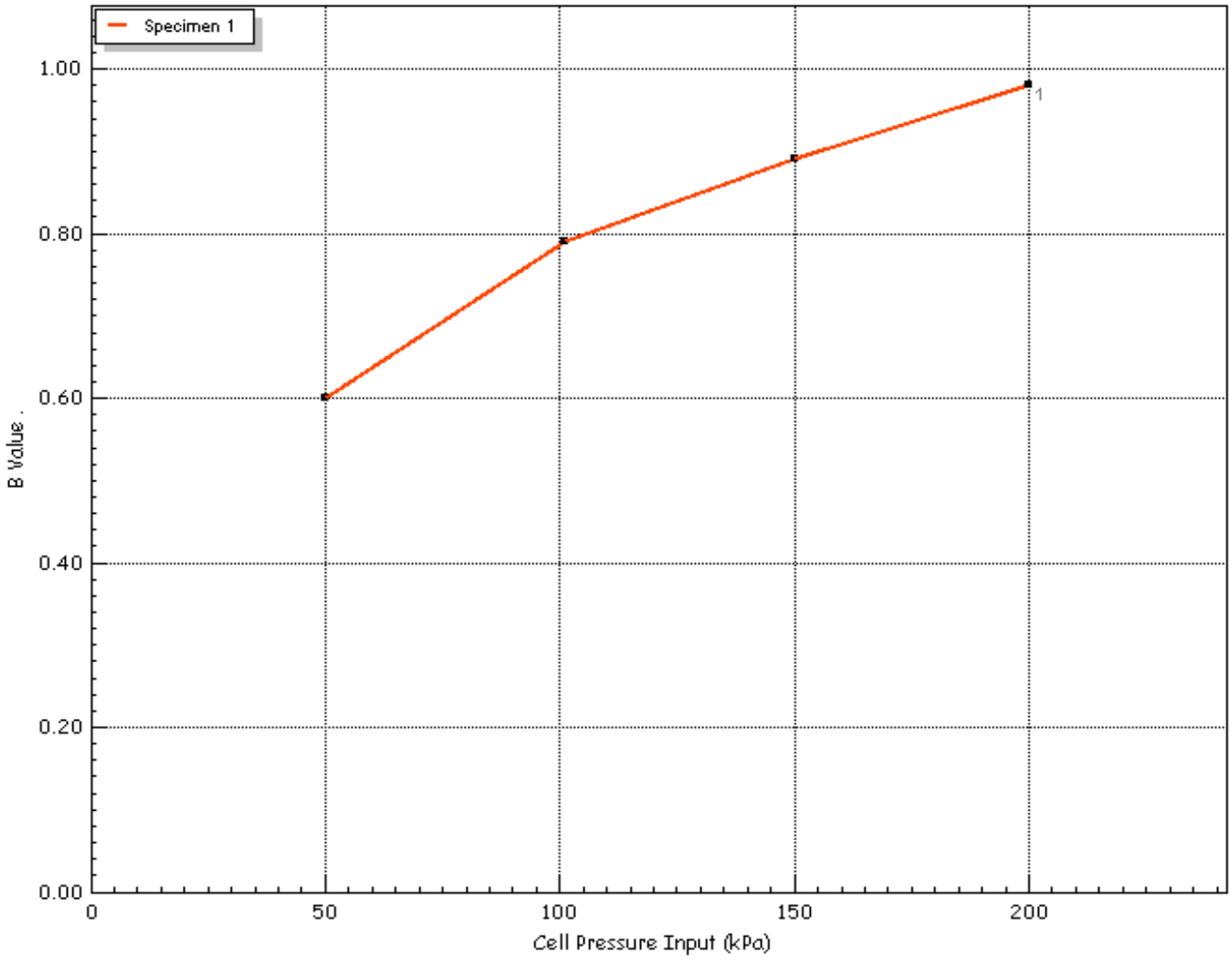
Operator	D.Burton	Checked	S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

Consolidated Undrained

Saturation Plots

Saturation Method			Stepped
Cell Pressure Input	σ	(kPa)	200
Pore Water Pressure Input	u pwp	(kPa)	165
B Value	B	.	0.98



PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 14.20-14.65m
				Test Date	25/05/2023
UKAS TESTING 4043	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
				Sample	14.20-14.65m
	Client	Socotec		Depth	14.20-14.65m 46UT
	Operator	D.Burton	Checked S.Royle	Approved	S.Royle

Effective Stress Triaxial Compression

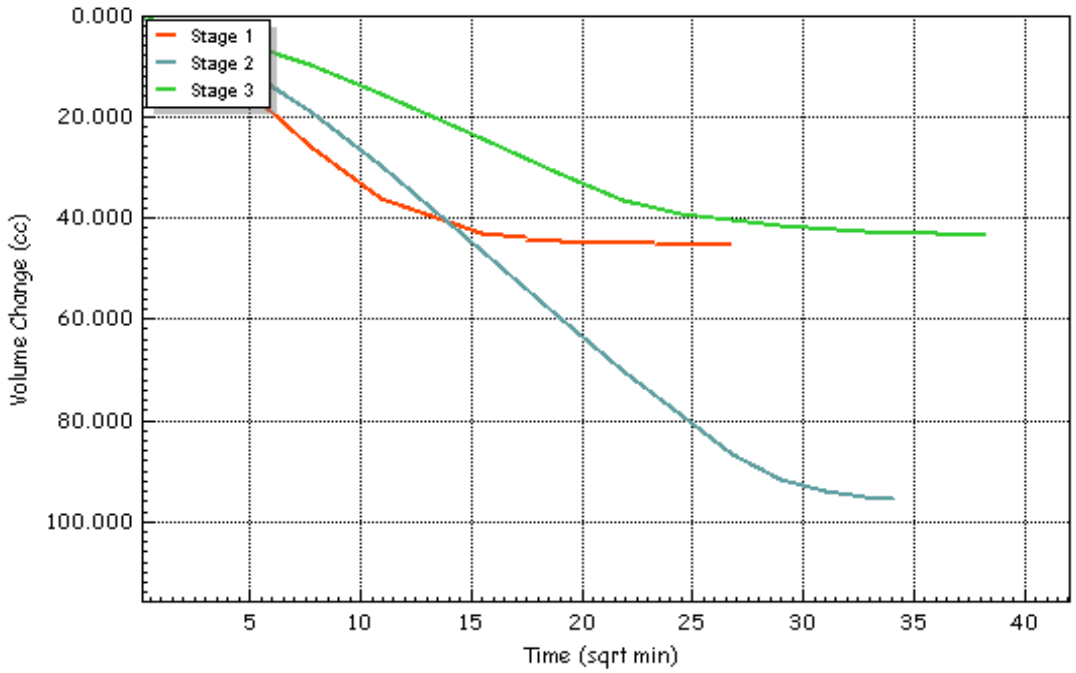
Consolidated Undrained

Consolidation Plots

Initial Conditions			Stage 1	2	3
Initial Cell Pressure	σ_3	(kPa)	450	600	900
Initial Back Pressure	u_{bi}	(kPa)	300	300	300
Pore Water Pressure Input	u_{pwp}	(kPa)	425	574	819
Drainage Method			Radial+One End		

Final Conditions			Stage 1	2	3
PWP Dissipation %	U%	(%)	100.00	100.00	100.00
Volumetric Strain	ε_v%	(%)	2.88	6.08	2.76
Corrected Length	L_c	(mm)	198.1	186.8	179.5
Corrected Area	A_c	(cm2)	77.03	76.64	77.28
Corrected Volume	V_c	(cc)	1525.535	1430.005	1386.637
t100	t_{100}	(min)	158.13	749.21	583.68
Consolidation	c_v	(m2/year)	0.013	0.003	0.003
Compressibility	m_v	(m2/MN)	0.231	0.222	0.053
Test Time	t_F	(h:m:s)	04:44:38	22:28:34	17:30:37
Estimated Strain to Failure	ε%	(%)	5.0	5.0	5.0
Shear Machine Speed	d_r	(mm/min)	0.03480	0.03480	0.03480

Notes

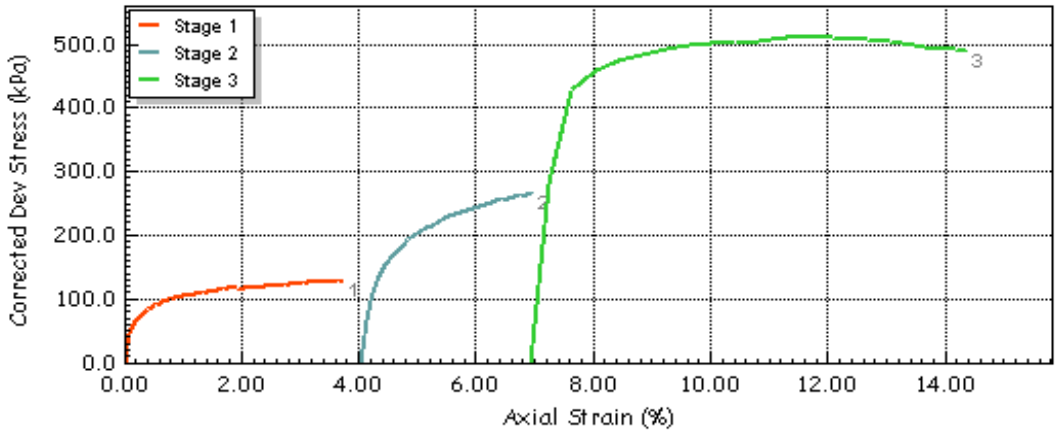


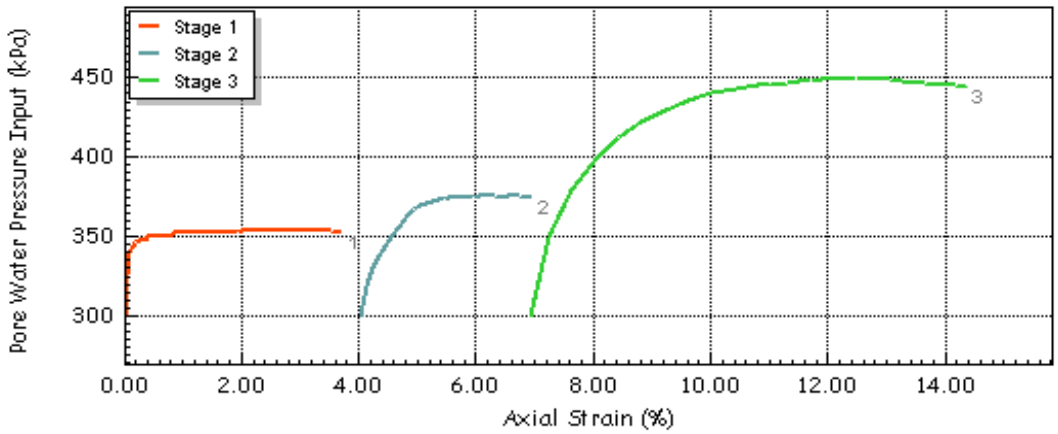
PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 14.20-14.65m
				Test Date	25/05/2023
		TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
	Jobfile			Sample	14.20-14.65m
	Client	Socotec		Depth	14.20-14.65m 46UT
UKAS TESTING 4043	Operator	D.Burton	Checked S.Royle	Approved	S.Royle

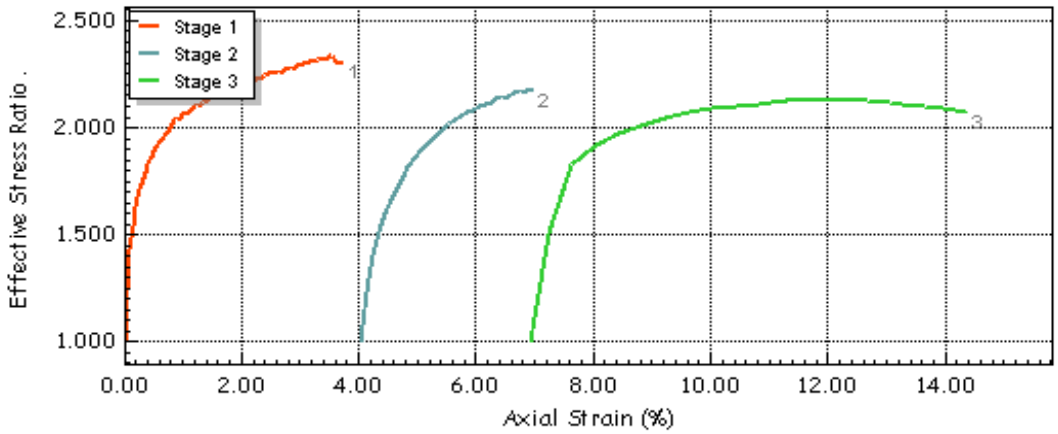
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots







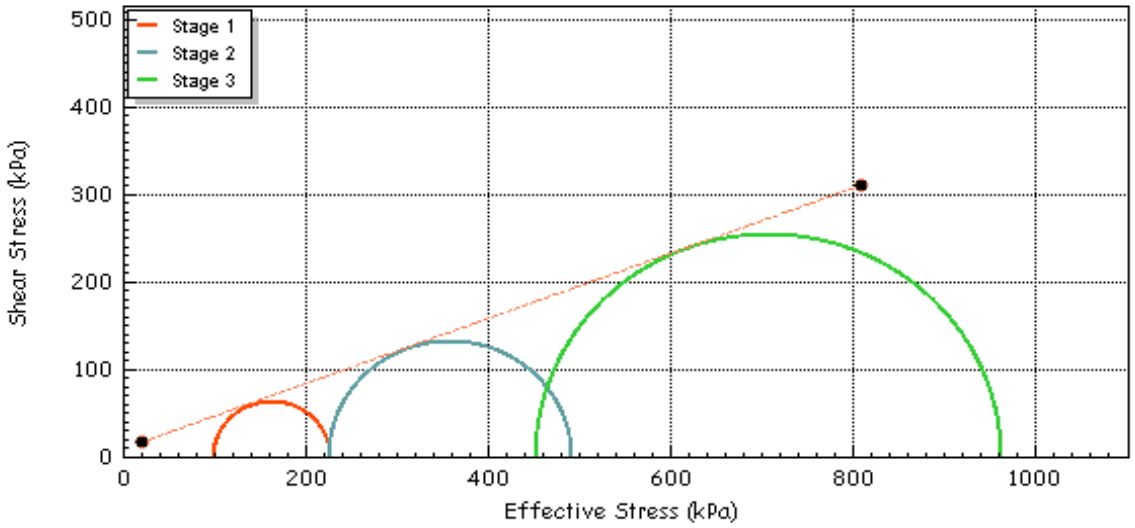
PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY UKAS TESTING 4043	Test Method	BS1377-8 : 1990 : Clause 7		Test Name	BH05 14.20-14.65m
				Test Date	25/05/2023
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation		Borehole	BH05
				Sample	14.20-14.65m
	Client	Socotec		Depth	14.20-14.65m 46UT
	Operator	D.Burton	Checked	S.Royle	Approved S.Royle

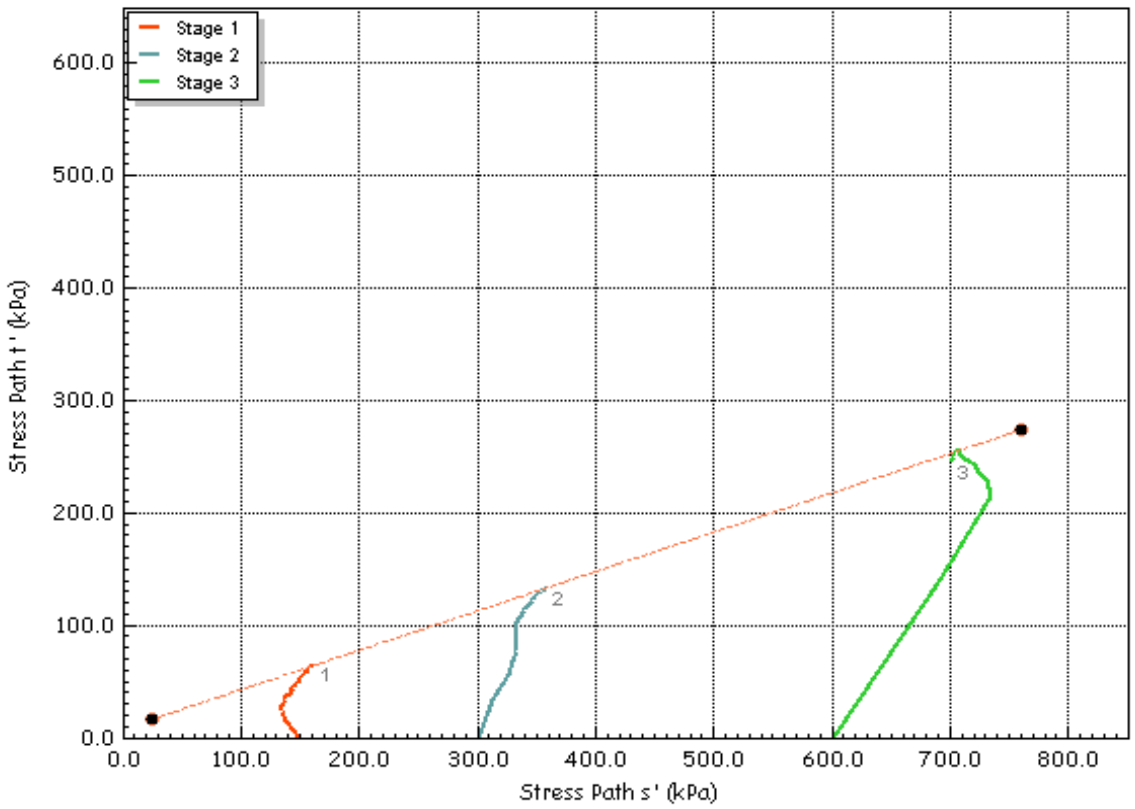
Effective Stress Triaxial Compression

Consolidated Undrained

Shear Stage Plots

Effective	c'	(kPa)	8.27	Effective Cohesion	c'	(kPa)	8.27
Effective Friction	ϕ'	(deg)	20.5	Effective Friction	ϕ'	(deg)	20.5





PSL PROFESSIONAL SOILS LABORATORY	Test Method	BS1377-8 : 1990 : Clause 7	Test Name	BH05 14.20-14.65m	
			Test Date	25/05/2023	
	Jobfile	TKRE-Tilbury and Eastcourt Marshes Land Investigation	Borehole	BH05	
			Sample	14.20-14.65m	
	Client	Socotec	Depth	14.20-14.65m 46UT	
	Operator	D.Burton	Checked	S.Royle	Approved S.Royle

SUMMARY OF CHALK TESTS

(BS1377 : PART 2 & 4 : 1990)

Hole Number	Sample Number	Sample Type	Top Depth m	Base Depth m	Moisture Content %	Saturated MC %	Dry Density Mg/m^3	Passing 10mm Sieve %	Chalk Crushing Value CCV	Remarks
BH05	68	CS	27.72	27.92	27	29	1.52	42	3.9	
BH05	72	CS	35.74	35.82	26	28	1.54	43	3.9	
BH05	74	CS	38.36	38.50	27	29	1.51			
BH05	77	CS	40.84	41.60	29			29	4.5	
BH05	78	CS	41.00	41.35	26	28	1.54			
BH05	79	CS	44.00	44.60	28			49	4.4	

* CCV testing is not UKAS accredited

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3151

Client Ref:

D2064-22

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		Area	D_e^2	D_e	Failure Load (P)		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	W	D	(mm2)		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH05	27.72	68	A	Perp	100	50	5000	6366.20	79.79	-	0.73	0.11	1.234	0.14	Valid	
BH05	33.00	70	A	Perp	100	50	5000	6366.20	79.79	-	0.60	0.09	1.234	0.12	Valid	
BH05	35.74	72	A	Perp	100	47	4700	5984.23	77.36	-	0.69	0.12	1.217	0.14	Valid	
BH05	37.22	73	A	Perp	100	57	5700	7257.47	85.19	-	0.55	0.08	1.271	0.10	Valid	
BH05	40.84	77	A	Perp	100	51	5100	6493.52	80.58	-	0.51	0.08	1.240	0.10	Valid	
BH05	44.00	79	A	Perp	100	43	4300	5474.93	73.99	-	0.44	0.08	1.193	0.10	Valid	
BH05	48.00	82	A	Perp	100	52	5200	6620.85	81.37	-	0.59	0.09	1.245	0.11	Valid	
BH05	51.27	85	A	Perp	100	51	5100	6493.52	80.58	-	0.88	0.14	1.240	0.17	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

A = Axial, D = Diametral, I = Irregular

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3151

Client Ref:

D2064-22

SUMMARY OF POINT LOAD TEST RESULTS

ISRM Suggested Methods : 2007

Borehole Number	Depth (m)	Sample Ref	Test Type	Orientation	Dimensions (mm)		D_e^2	D_e	Failure Load		I_s	Corr Fac	I_{s50}	Failure Type	Remarks
				Par / Perp	L	D		(mm)	(Mpa)	(kN)	(MPa)	F	(MPa)		
BH05	27.72	68	D	Par		100	10000	100.00	-	0.27	0.027	1.366	0.04	Valid	
BH05	33.00	70	D	Par		100	10000	100.00	-	0.30	0.030	1.366	0.04	Valid	
BH05	35.74	72	D	Par		100	10000	100.00	-	0.40	0.040	1.366	0.05	Valid	
BH05	37.22	73	D	Par		100	10000	100.00	-	0.40	0.040	1.366	0.05	Valid	
BH05	40.84	77	D	Par		100	10000	100.00	-	0.41	0.041	1.366	0.06	Valid	
BH05	44.00	79	D	Par		100	10000	100.00	-	0.40	0.040	1.366	0.05	Valid	
BH05	48.00	82	D	Par		100	10000	100.00	-	0.38	0.038	1.366	0.05	Valid	
BH05	51.27	85	D	Par		100	10000	100.00	-	0.61	0.061	1.366	0.08	Valid	

Note All testing carried out on samples at as received water content

Par = parallel, Perp = perpendicular, U = Random

UKAS TESTING 4043

PSL PROFESSIONAL SOILS LABORATORY A PHENNA GROUP COMPANY

TKRE, Tilbury and Eastcourt Marshes Land Investigation

Contract No:

PSL23/3151

Client Ref:

D2064-22

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH05**	**Top Depth (m):**	**33.00**
Sample Number:	**70**	**Base Depth (m):**	**33.30**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.12
Height - mm:	201.20
Water Content - %:	26.0
Sample Mass - g:	3154.2
Bulk Density - Mg/m^3:	1.99
Dry Density - Mg/m^3:	1.58
Height Ratio: * Sample does not comply with H:D ratio	2.0
Degree of Saturation - %:	102
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:34
Orientation:	Unknown
Stress Rate - MPa/s:	0.08
Strain at Failure - kN:	22.32
Unconfined Compressive Strength - Mpa:	2.84
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH05**	**Top Depth (m):**	**41.00**
Sample Number:	**78**	**Base Depth (m):**	**41.35**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.03
Height - mm:	224.30
Water Content - %:	26.0
Sample Mass - g:	3432.1
Bulk Density - Mg/m^3:	1.95
Dry Density - Mg/m^3:	1.55
Height Ratio: * Sample does not comply with H:D ratio	2.2
Degree of Saturation - %:	96
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:38
Orientation:	Unknown
Stress Rate - MPa/s:	0.08
Strain at Failure - kN:	25.20
Unconfined Compressive Strength - Mpa:	3.21
Mode of Failure:	Vertical Shear

Remarks: -

UNIAXIAL COMPRESSIVE STRENGTH

ISRM Suggested Methods - Rock Characterization Testing and Monitoring 1974 - 2006

Borehole Number:	**BH05**	**Top Depth (m):**	**45.70**
Sample Number:	**80**	**Base Depth (m):**	**45.90**
Sample Type:	**CS**	**Sample Date:**	**-**
Storage Condition:	**Sealed in corebox**	**Date of Reciept**	**-**
Sample Description:	**White CHALK.**		

Specimen Details/Conditions	
Diameter - mm:	100.08
Height - mm:	174.20
Water Content - %:	27.0
Sample Mass - g:	2674.2
Bulk Density - Mg/m^3:	1.95
Dry Density - Mg/m^3:	1.54
Height Ratio: * Sample does not comply with H:D ratio	1.7
Degree of Saturation - %:	99
Assumed Specific Gravity for Degree of Saturation:	2.65

Test Result	
Load Frame/Machine:	CM1/Controls
Date of test:	24/05/2023
Test Duration - mins:	00:26
Orientation:	Unknown
Stress Rate - MPa/s:	0.09
Strain at Failure - kN:	18.45
Unconfined Compressive Strength - Mpa:	2.35
Mode of Failure:	Vertical Shear

Remarks: -

Laboratory Report

UKAS TESTING 2788

GSTL GEOTECHNICAL SITE & TESTING LABORATORIES A PHENNA GROUP COMPANY

Contract Number: 66765

Client Ref: **PSL23/3151**
Client PO: **PSL23/3151**

Date Received: **26-05-2023**
Date Completed: **06-06-2023**
Report Date: **06-06-2023**

Client: **Professional Soils Laboratory Limited**
5/7 Hexthorpe Road
Doncaster
South Yorkshire
DN4 0AR

This report has been checked and approved by:

Paul Evans
Director

Contract Title: **TKRE, Tilbury and Eastcourt Marsehs Land Investigation**
For the attention of: **Robert Berriman**

Test Description	Qty
Determination of the Cerchar abrasivity value per set of four values. The Cerchar Abrasiveness Index Document October 1986 - @ Non Accredited Test	2
Disposal of samples for job	1

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

This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This test report/certificate shall not be reproduced except in full, without the approval of GEO Site & Testing Services Ltd. Any opinions or interpretations stated - within this report/certificate are excluded from the laboratories UKAS accreditation.

Approved Signatories:
Brendan Evans (Office Administrator) - Darren Bourne (Quality Senior Technician) - Paul Evans (Director)
Richard John (Quality/Technical Manager) - Shaun Jones (Laboratory manager) - Shaun Thomas (Site Manager)
Wayne Honey (Human Resources/ Health and Safety Manager)

GEO Site & Testing Services Ltd
Units 3-4, Heol Aur, Dafen, Llanelli, Carmarthenshire, Wales SA14 8QN
Tel: 01554 784040 Fax: 01554 784041 info@gstl.co.uk gstl.co.uk

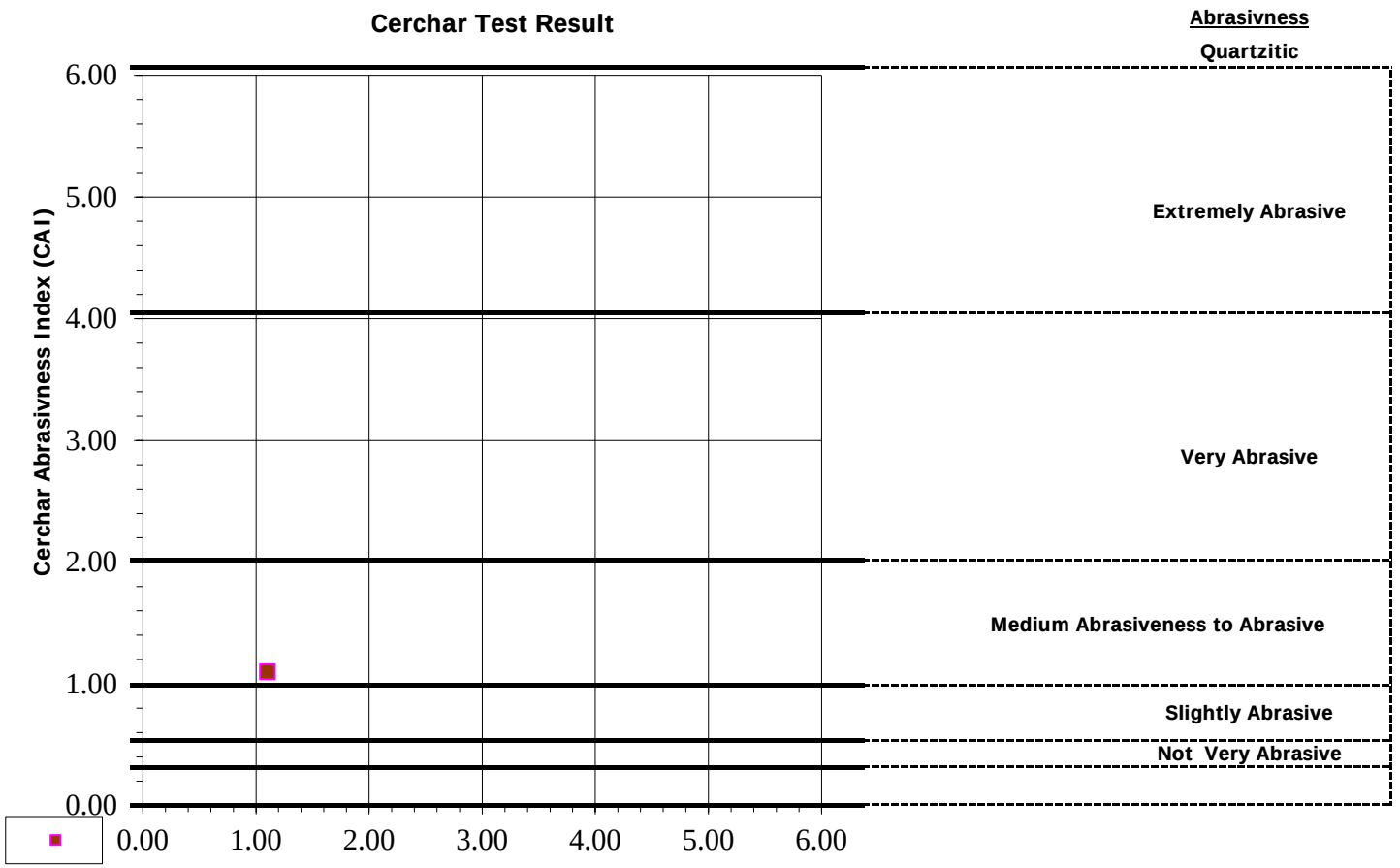
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcourt Marshes Land Investigation**
Contract Number:	**66765**
Date tested:	**02/06/2023**
BH Number:	**BH05**
Sample Number:	
Depth (m) :	**35.74-35.82**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.11**	**(mm)**
C.A.I	**1.10**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

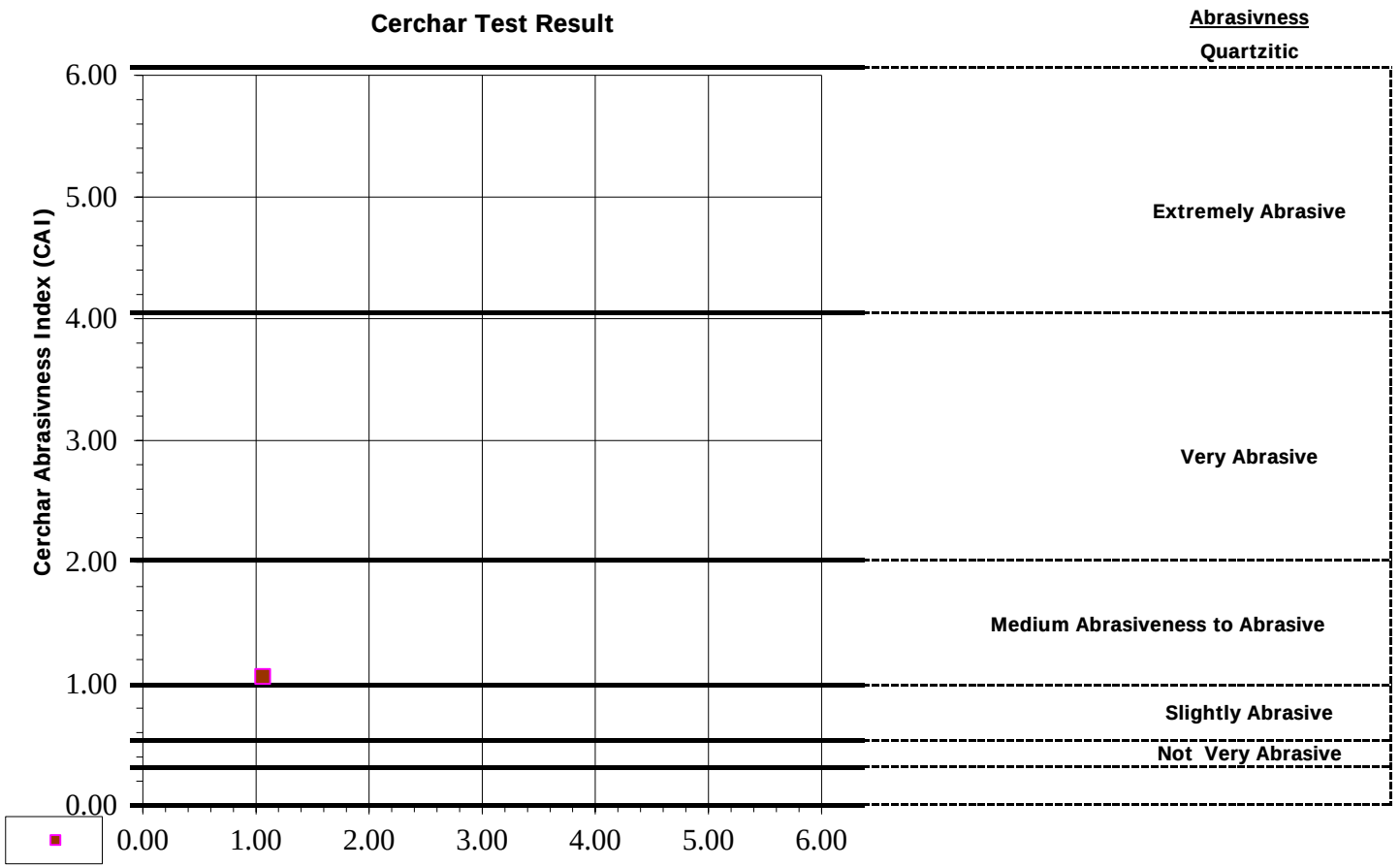
Test Report: The Cerchar Abrasiveness Index Test

Test Method : The Cerchar Abrasiveness Index (1986) GAI-JTr/JS No. 86-538

Client ref:	**D2064-22**
Project Name:	**TKRE, Tilbury and Eastcourt Marshes Land Investigation**
Contract Number:	**66765**
Date tested:	**02/06/2023**
BH Number:	**BH05**
Sample Number:	
Depth (m) :	**38.36-38.50**
Sample Type:	**I**

Tested By Julian Jones

Mean Test Result (5 pins)	**0.11**	**(mm)**
C.A.I	**1.06**	



Sample Tested with a pin of hardened steel with a Rockwell hardness HRC of 54-56

GSTL
GEOTECHNICAL SITE & TESTING LABORATORIES

Certificate of Analysis

Certificate Number 23-08601 *Issued:* 19-Apr-23

Client SOCOTEC UK Ltd
Glossop House
Hogwood Lane
Wokingham
RG40 4QW

Our Reference 23-08601

Client Reference D2064-22

Order No D/12710

Contract Title TKYRE, Tilbury and Eastcount Marshes Land Investigation

Description 9 Soil samples.

Date Received 12-Apr-23

Date Started 12-Apr-23

Date Completed 19-Apr-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-08601
Client Ref D2064-22
Contract Title TKYRE, Tilbury and Eastcount Marshes Land Investigation

				Lab No	2154476	2154477	2154478	2154479	2154480	2154481	2154482	2154483	2154484
				.Sample ID	TP-11	TP-12	TP-13	TP-14	TP-15	TP-16	TP-17	TP-18	TP-19
				Depth	1.20	1.50	1.20	0.00-0.20	2.40-2.80	1.40	0.30	1.30	2.40
				Other ID	D5	D5	D6	B1	LB7	D5	D2	D5	D8
				Sample Type	D	D	D	B	LB	D	D	D	D
				Sampling Date	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
				Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s	n/s
Test	**Method**		**LOD**	**Units**									
Inorganics													
pH	DETSC 2008#			pH	8.2	8.0	8.0	7.2	8.0	7.6	7.6	5.7	8.1
Sulphate Aqueous Extract as SO4 (2:1)	DETSC 2076#		10	mg/l	150	270	130	68	790	860	130	2600	160

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo). n/s -not supplied.

Information in Support of the Analytical Results

Our Ref 23-08601
Client Ref D2064-22
Contract TKYRE, Tilbury and Eastcount Marshes Land Investigation

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2154476	TP-11 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154477	TP-12 1.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154478	TP-13 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154479	TP-14 0.00-0.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154480	TP-15 2.40-2.80 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154481	TP-16 1.40 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154482	TP-17 0.30 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154483	TP-18 1.30 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	
2154484	TP-19 2.40 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (30 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

Certificate of Analysis

Certificate Number 23-10911 *Issued:* 16-May-23

Client SOCOTEC UK Ltd
Glossop House
Hogwood Lane
Wokingham
RG40 4QW

Our Reference 23-10911

Client Reference D2064-22

Order No D/12710

Contract Title Tilbury Gravesend

Description One Soil sample.

Date Received 09-May-23

Date Started 09-May-23

Date Completed 16-May-23

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By

Kirk Bridgewood
General Manager

2139

Summary of Chemical Analysis
Soil Samples

Our Ref 23-10911
Client Ref D2064-22
Contract Title Tilbury Gravesend

Lab No	2168030
.Sample ID	BH04
Depth	12.00-12.50
Other ID	42
Sample Type	B
Sampling Date	08/03/2023
Sampling Time	n/s

Test	Method	LOD	Units	
Inorganics				
Organic matter	DETSC 2002#	0.1	%	18

Information in Support of the Analytical Results

Our Ref 23-10911
Client Ref D2064-22
Contract Tilbury Gravesend

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
2168030	BH04 12.00-12.50 SOIL	08/03/23	PT 1L	Organic Matter (Manual) (28 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal

From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

End of Report

APPENDIX F

GEOENVIRONMENTAL LABORATORY TEST RESULTS

Certificate of Analysis – (Soil/Leachate)	23012669, 23031582, 23031664, 23031791, 23032324, 23032441, 23032766, 23032769, 23041026, 23041188, 23042005 & 23042668
Certificate of Analysis – (Water)	23051661

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23012669

Quote: BEC221127630 V1.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 10

Date Received: 30/01/2023

Analysis Date: 09/02/2023

Date Issued: 09/02/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Lead
Martin Elliott-Palmer
01283 554137

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23012669
Date Issued:	09/02/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23012669-001	TP-11-3-ES-0.30	24/01/2023 14:27:00	SOLID	Soil Sample
23012669-002	TP-12-3-ES-0.60	25/01/2023 13:53:00	SOLID	Soil Sample
23012669-003	TP-13-5-ES-1.00	24/01/2023 12:10:00	SOLID	Soil Sample
23012669-004	TP-14-8-ES-2.20	24/01/2023 10:50:00	SOLID	Soil Sample
23012669-005	TP-15-3-ES-0.30	25/01/2023 10:03:00	SOLID	Soil Sample
23012669-006	TP-16-6-ES-1.50	25/01/2023 11:44:00	SOLID	Soil Sample
23012669-007	TP-17-3-ES-0.30	25/01/2023 09:03:00	SOLID	Soil Sample
23012669-008	TP-18-6-ES-1.30	26/01/2023 13:46:00	SOLID	Soil Sample
23012669-009	TP-19-3-ES-0.50	26/01/2023 10:29:00	SOLID	Soil Sample
23012669-010	TP-20-9-ES-2.40	26/01/2023 12:57:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.297		<0.258		<0.260		
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.015		<0.013		<0.013		
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.297		<0.258		<0.260		
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.060		<0.052		<0.052		
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.297		<0.258		<0.260		
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.015		<0.013		<0.013		
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.297		<0.258		<0.260		
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		0.02		<0.01		<0.1 D	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.06		0.08		0.02		0.35	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1		<0.1		<0.1		<1.0 D	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		<0.0002		<0.0002		<0.002 D	
Chloride as Cl	KONENS	10	mg/kg^	N	20		<10		<10		2440	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.1 D	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.18		0.11		0.04		<0.1 D	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.1 D	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		<0.0003		<0.0003		<0.003 D	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.18		0.05		0.05		0.54	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.08		0.02		0.02		0.18	
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		<0.5		<0.5			

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.311		<0.264		<0.278		<0.303
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.016		<0.013		<0.014		<0.015
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.311		<0.264		<0.278		<0.303
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.063		<0.053		<0.056		<0.061
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.311		<0.264		<0.278		<0.303
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.016		<0.013		<0.014		<0.015
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.311		<0.264		<0.278		<0.303
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		<0.01		<0.1 D	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		<0.01		0.11	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N			<0.1		<0.1		<0.1	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N			<0.002 D		<0.0002		<0.002 D	
Chloride as Cl	KONENS	10	mg/kg^	N			<10		198		20	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		<0.01		<0.1 D	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		0.03		0.11	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		<0.01		<0.1 D	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N			<0.003 D		<0.0003		<0.003 D	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		0.15		<0.1 D	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.1 D		0.02		<0.1 D	
Phenol Index	SFAPI	0.5	mg/kg^	N			<0.5		<0.5		<0.5	

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Analysis	Method Code	MDL	Units	Accred.							
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.287		<0.251		<0.413	
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.014		<0.013		<0.021	
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.287		<0.251		<0.413	
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.057		<0.051		<0.083	
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.287		<0.251		<0.413	
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.014		<0.013		<0.021	
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.287		<0.251		<0.413	
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		0.03		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		0.02		0.11		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1		<0.1		0.2		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		<0.0002		<0.0002		
Chloride as Cl	KONENS	10	mg/kg^	N	768		20		3920		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.02		0.07		<0.01		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		<0.0003		<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.08		0.06		0.71		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		0.02		0.02		
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		<0.5				

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		<0.01		<0.01		<0.1 D
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		235		50		129		1390
TDS as mg/kg	PHCONDW	700	mg/kg^	N		1570		819		1110		8640
Leached Organic Carbon	WSLM13	2	mg/kg^	N		113		44.2		51.5		345
Fluoride as F	ISEF	1	mg/kg^	N		11		5		9		12
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		0.04		0.03		<0.02		<0.2 D
Conductivity at 25°C	PHCONDW	100	µS/cm	N		236		120		164		1350
pH	PHCONDW	1	pH units	N		6.8		6.8		6.8		7.9
TDS as mg/l	PHCONDW	70	mg/l	N		160		82		112		915
ANC	ANC	0.04	mol/kg^	N								
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.3		8.6		8.5	
Chloride as Cl	KONENS	1	mg/l	U		2		<1		<1		258
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05		<0.05		
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7		<0.6		<0.7	
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7		<0.6		<0.7	
Fluoride as F	ISEF	0.1	mg/l	U		1.1		0.5		0.9		1.3
Soil Organic Matter	WSLM59	0.04	% m/m^	U			4.91		4.13		2.61	
Total Organic Carbon	WSLM59	0.02	% m/m^	U			2.85		2.39		1.52	
LOI @ 450°C	LOI(%MM)	0.2	% m/m^	N								

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.1 D		<0.01		<0.1 D		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		<30		1440		59		
TDS as mg/kg	PHCONDW	700	mg/kg^	N		950		3330		1450		
Leached Organic Carbon	WSLM13	2	mg/kg^	N		80.0		53.0		129		
Fluoride as F	ISEF	1	mg/kg^	N		11		14		2		
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.2 D		0.03		<0.2 D		
Conductivity at 25°C	PHCONDW	100	µS/cm	N		142		496		218		
pH	PHCONDW	1	pH units	N		6.9		7.1		7.2		
TDS as mg/l	PHCONDW	70	mg/l	N		96		337		148		
ANC	ANC	0.04	mol/kg^	N	0.80							
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM	8.9		7.8		7.8		7.8	
Chloride as Cl	KONENS	1	mg/l	U		<1		20		2		
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05		<0.05		
Phenol Index	SFAPI	0.5	mg/kg^	U	<0.8		<0.7		<0.7		<0.8	
Total Cyanide	SFAPI	0.5	mg/kg^	UM	<0.8		<0.7		<0.7		<0.8	
Fluoride as F	ISEF	0.1	mg/l	U		1.1		1.4		0.2		
Soil Organic Matter	WSLM59	0.04	% m/m^	U	1.99		3.67		1.29		7.68	
Total Organic Carbon	WSLM59	0.02	% m/m^	U	1.15		2.13		0.75		4.46	
LOI @ 450°C	LOI(%MM)	0.2	% m/m^	N	6.2							

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		<0.01		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		443		60		5050	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		2860		1000		14500	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		39.0		60.3		138	
Fluoride as F	ISEF	1	mg/kg^	N		12		10		5	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02		0.03		<0.02	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		427		149		2350	
pH	PHCONDW	1	pH units	N		6.8		6.9		6.9	
TDS as mg/l	PHCONDW	70	mg/l	N		290		101		1600	
ANC	ANC	0.04	mol/kg^	N							0.24
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			7.6		7.9		7.3
Chloride as Cl	KONENS	1	mg/l	U		78		2		432	
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05			
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7		<0.6		<1.0
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7		<0.6		<1.0
Fluoride as F	ISEF	0.1	mg/l	U		1.2		1.0		0.5	
Soil Organic Matter	WSLM59	0.04	% m/m^	U			1.86		2.50		5.46
Total Organic Carbon	WSLM59	0.02	% m/m^	U			1.08		1.45		3.17
LOI @ 450°C	LOI(%MM)	0.2	% m/m^	N							10.9

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Analysis	Method Code	MDL	Units	Accred.								
Leached Organic Carbon	TOCW	0.4	mg/l	U		11.5		4.43		5.20		36.5
Arsenic as As	ICPMSS	0.3	mg/kg^	UM			15.5		22.2		16.3	
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM			0.6		0.4		0.3	
Copper as Cu	ICPMSS	1.6	mg/kg^	UM			40.3		90.1		17.3	
Lead as Pb	ICPMSS	0.7	mg/kg^	UM			69.1		380.3		27.5	
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM			<0.5		0.9		<0.5	
Nickel as Ni	ICPMSS	2	mg/kg^	UM			32.2		23.1		28.8	
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM			48.1		27.5		38.6	
Zinc as Zn	ICPMSS	16	mg/kg^	UM			146.2		210.1		75.5	
Boron as B	ICPBOR	0.5	mg/kg^	UM			5.7		1.5		4.7	
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM			155		219		144	
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		0.002		<0.001		<0.010 D
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U		0.006		0.008		0.002		0.037
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U		<0.00002		<0.00002		<0.00002		<0.00020 D
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		0.001		0.001		<0.001		<0.010 D
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		0.018		0.011		0.004		<0.010 D
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.010 D
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003		<0.00003		<0.00003		<0.00030 D
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		0.018		0.005		0.005		0.057

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Leached Organic Carbon	TOCW	0.4	mg/l	U			8.09		5.36		13.1	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		15.1		17.6		22.2		14.8
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2		0.3		0.3		0.5
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		14.9		19.4		16.1		30.2
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		17.0		35.4		17.9		53.8
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5		<0.5		<0.5		<0.5
Nickel as Ni	ICPMSS	2	mg/kg^	UM		29.6		30.3		36.4		29.9
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		40.2		44.0		53.3		44.5
Zinc as Zn	ICPMSS	16	mg/kg^	UM		72.2		91.2		82.1		121.0
Boron as B	ICPBOR	0.5	mg/kg^	UM		7.7		4.0		9.4		4.5
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		1010		35		1370		67
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		<0.001		<0.010 D	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		<0.001		0.011	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U			<0.00020 D		<0.00002		<0.00020 D	
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		<0.001		<0.010 D	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		0.003		0.011	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		<0.001		<0.010 D	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U			<0.00030 D		<0.00003		<0.00030 D	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		0.015		<0.010 D	

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Leached Organic Carbon	TOCW	0.4	mg/l	U		3.96		6.08		15.2	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM			18.7		19.7		13.1
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM			0.2		0.3		0.3
Copper as Cu	ICPMSS	1.6	mg/kg^	UM			17.2		17.0		25.1
Lead as Pb	ICPMSS	0.7	mg/kg^	UM			21.3		16.7		42.2
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM			<0.5		<0.5		<0.5
Nickel as Ni	ICPMSS	2	mg/kg^	UM			35.2		32.9		29.7
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM			52.5		48.8		36.0
Zinc as Zn	ICPMSS	16	mg/kg^	UM			82.6		79.0		97.8
Boron as B	ICPBOR	0.5	mg/kg^	UM			6.4		2.9		14.1
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM			278		57		2890
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		0.001		0.003	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		0.002		0.012	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U		<0.00002		<0.00002		<0.00002	
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		0.002		0.007		<0.001	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003		<0.00003		<0.00003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		0.008		0.006		0.078	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		0.008		0.002		0.002		0.019
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		0.001		<0.001		<0.001		<0.010 D
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		0.004		0.003		<0.002		<0.020 D
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01		<0.01		<0.01		<0.10 D
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		24		5		13		147
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<15		<13		<13	
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<15		<13		<13	
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<30		<26		<26	
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<15		<13		<13	
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<15		<13		<13	
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.015		<0.013		<0.013	
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.015		<0.013		<0.013	
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.030		<0.026		<0.026	
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.015		<0.013		<0.013	
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.015		<0.013		<0.013	
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			<0.089		<0.077		<0.078	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.10	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.10	
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.10	

Client: SOCOTEC Geotechnical
Project Name:
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		0.002		<0.010 D	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U			<0.010 D		<0.001		<0.010 D	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U			<0.020 D		0.003		<0.020 D	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U			<0.01		<0.01		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U			<3		146		6	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<16		<13		<14		<15
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<16		<13		<14		<15
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM		<31		<26		<28		<30
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<16		<13		<14		<15
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<16		<13		<14		<15
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013		<0.014		<0.015
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013		<0.014		<0.015
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM				<0.026		<0.028		<0.030
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013		<0.014		<0.015
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013		<0.014		<0.015
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM				<0.079		<0.083		<0.091
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.12		<0.11		<0.11		<0.12
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.12		<0.11		<0.11		<0.12

Client: SOCOTEC Geotechnical
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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		0.001		0.002		0.002	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		<0.002		0.003		0.002	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01		<0.01		0.02	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		45		6		557	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14		<13		<21
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14		<13		<21
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<29		<25		<41
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14		<13		<21
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14		<13		<21
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014		<0.013		
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014		<0.013		
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.029		<0.025		
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014		<0.013		
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014		<0.013		
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			<0.086		<0.075		
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.17
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.17
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.17

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.20		<0.10	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			0.12		0.26		<0.10	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			0.15		0.29		<0.10	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.16		<0.10	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.12		<0.10	
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.23		<0.10	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.10	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			0.14		0.38		<0.10	
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.10	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			0.14		0.21		<0.10	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.10	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.14		<0.10	
Pyrene	PAHMSUS	0.08	mg/kg^	UM			0.12		0.34		<0.10	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			1.97		2.95		<1.67	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.12		<0.10		<0.10	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.10	
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.12		<0.10		<0.10	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.12		0.20		<0.10	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			0.12		0.26		<0.10	

Client: SOCOTEC Geotechnical
Project Name:
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.11		<0.11		<0.12
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.99		<1.69		<1.78		<1.94
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM				<0.11		<0.11		<0.12
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U				<0.11		<0.11		<0.12
Anthracene	PAHMSUS	0.08	mg/kg^	U				<0.11		<0.11		<0.12
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM				<0.11		<0.11		<0.12
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM				<0.11		<0.11		<0.12

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.27		<0.17	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.31		<0.17	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.33		<0.17	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.15		<0.17	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.16		<0.17	
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.28		<0.17	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.17	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.58		<0.17	
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.17	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.19		<0.17	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.17	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.26		<0.17	
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.48		<0.17	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.84		3.63		<2.64	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10			
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.12		<0.10			
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.12		<0.10			
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.27			
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.31			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		0.15		0.29		<0.10		
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.16		<0.10		
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.12		<0.10		
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.23		<0.10		
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.12		<0.10		<0.10		
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.10		
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		0.14		0.38		<0.10		
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.10		
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		0.14		0.21		<0.10		
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		<0.10		
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.14		<0.10		
Pyrene	PAHMSUS	0.08	mg/kg^	UM		0.12		0.34		<0.10		
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		1.97		2.95		<1.67		
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		2.09		3.06		<1.77		
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		<0.007		
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		<0.007		
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		<0.007		
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		<0.007		
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		<0.007		

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.11		<0.11		<0.12
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.11		<0.12
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.69		<1.78		<1.94
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			<1.80		<1.89		<2.06
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.33		
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.15		
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.16		
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.28		
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.12		<0.10		
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.58		
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.19		
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.12		<0.10		
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.26		
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.12		0.48		
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.84		3.63		
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<1.95		3.73		
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Analysis	Method Code	MDL	Units	Accred.								
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.007		<0.006		<0.007	
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.007		<0.006		<0.007	
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.052		<0.045		<0.046	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.93		<5.16		<5.21	
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			6.76		<5.16		<5.21	
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			10.4		<5.16		<5.21	
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U			35.5		<12.9		<13.0	
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N			<8.90		<7.74		<7.81	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			62.6		<25.8		<26.0	
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			<5.93		5.93		<5.21	
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			14.7		10.5		<5.21	
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			7.58		6.39		<5.21	
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U			31.4		28.4		<13.0	
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N			28.9		25.6		<7.81	
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U			77.5		67.4		<26.0	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			59.8		<25.8		<26.0	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			62.6		<25.8		<26.0	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.007		<0.007		<0.008
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.046		<0.049		<0.053
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<6.21		<5.28		<5.56		<6.06
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<6.21		5.43		<5.56		<6.06
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<6.21		<5.28		<5.56		<6.06
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U	<15.5		<13.2		<13.9		<15.2
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N	<9.32		<7.93		<8.34		<9.09
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U	<31.1		<26.4		<27.8		<30.3
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	<6.21		<5.28		<5.56		6.30
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	7.05		7.51		7.11		16.6
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	<6.21		<5.28		<5.56		<6.06
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U	<15.5		<13.2		<13.9		17.7
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N	<9.32		13.5		<8.34		21.8
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U	<31.1		29.5		<27.8		59.6
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<26.4		<27.8		<30.3
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<26.4		<27.8		<30.3
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM	<2		<1		<1		<1
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM	<2		<1		<1		<1

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
Date Issued: 09/02/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.007		<0.006		
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.007		<0.006		
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.050		<0.044		
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.74		<5.01		<8.26
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.74		<5.01		<8.26
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.74		<5.01		<8.26
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U			<14.3		<12.5		<20.7
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N			<8.61		<7.52		<12.4
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<28.7		25.2		<41.3
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			<5.74		<5.01		<8.26
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			8.27		6.29		13.2
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			<5.74		<5.01		<8.26
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U			<14.3		13.5		<20.7
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N			14.3		13.9		17.4
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U			<28.7		33.8		<41.3
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<28.7		<25.1		
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<28.7		25.2		
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<2
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<2

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Analysis	Method Code	MDL	Units	Accred.								
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<2		<1		<1		
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<5		<4		<4		
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<5		<4		<4		
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<2		<1		<1		
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3		<2		<2		

Client: SOCOTEC Geotechnical
Project Name:
Project No: 23012669
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<2		<1		<1		<1
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		<1
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<5		<4		<4		<4
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<5		<4		<4		<4
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<2		<1		<1		<1
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3		<3		<3		<3

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<2		<1		<2	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<2	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<5		<4		<6	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<5		<4		<6	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<2		<1		<2	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3		<3		<4	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Benzene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Bromobenzene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Bromochloromethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Bromoform	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Bromomethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Chlorobenzene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Chloroethane	VOCHSAS	2	µg/kg^	UM			<3		<2		<2	
Chloroform	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Chloromethane	VOCHSAS	3	µg/kg^	U			<5* B		<4* B		<4* B	
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM			<8		<6		<6	
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Dibromomethane	VOCHSAS	1	µg/kg^	UM			<2		<1		<1	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N			<2		<1		<1	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM			<3		<2		<2	

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Benzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Bromoform	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Bromomethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Chloroethane	VOCHSAS	2	µg/kg^	UM		<3		<3		<3		<3
Chloroform	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Chloromethane	VOCHSAS	3	µg/kg^	U		<5* B		<4* B		<4* B		<4* B
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<9		<7		<7		<7
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<2		<1		<1		<1
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3		<3		<3		<3

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Benzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Bromoform	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Bromomethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Chloroethane	VOCHSAS	2	µg/kg^	UM		<3		<3		<4	
Chloroform	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Chloromethane	VOCHSAS	3	µg/kg^	U		<5* B		<4* B		<6* B	
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<8		<7		<11	
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<2		<1		<2	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3		<3		<4	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<2		<2		
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<6		<5		<5		
MTBE	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Naphthalene	VOCHSAS	5	µg/kg^	UM		<8		<6		<6		
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3		<2		<2		
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Styrene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<5		<4		<4		
Toluene	VOCHSAS	5	µg/kg^	UM		<8* B		<6* B		<6* B		
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Trichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<2* B		<1* B		<1* B		

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<3		<3		<3
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<7		<6		<6		<6
MTBE	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Naphthalene	VOCHSAS	5	µg/kg^	UM		<9		<7		<7		<7
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		<1
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3		<3		<3		<3
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Styrene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<5		<4		<4		<4
Toluene	VOCHSAS	5	µg/kg^	UM		<9* B		<7* B		<7* B		<7* B
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Trichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<1		<1
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<1		<1
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<2* B		<1* B		<1* B		<1* B

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<3		<4	
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<6		<5		<9	
MTBE	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Naphthalene	VOCHSAS	5	µg/kg^	UM		<8		<7		<11	
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<2		<1		<2	
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3		<3		<4	
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Styrene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<5		<4		<6	
Toluene	VOCHSAS	5	µg/kg^	UM		<8* B		<7* B		<11* B	
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Trichloroethene	VOCHSAS	1	µg/kg^	U		<2		<1		<2	
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<2		<1		<2	
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<2* B		<1* B		<2* B	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	TP-11-3-ES-0.30		TP-12-3-ES-0.60		TP-13-5-ES-1.00		TP-14-8-ES-2.20
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	24/01/2023	24/01/2023	25/01/2023	25/01/2023	24/01/2023	24/01/2023	24/01/2023
Total Moisture at 35°C	CLANDPREP	0.1	%	N		32.6		22.5		23.2		
Description of Solid Material	CLANDPREP		-	N		SILT		SILT		SILT		
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090		0.090		0.090		
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		0		49.9		0		
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0		0		0		
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.847		0.888		0.868		
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.143		0.102		0.122		
WAC Report	WAC		-	N		See Attached		See Attached		See Attached		
Asbestos Identification	SUB020		-	N		NAIIS		NAIIS		NAIIS		

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	004	005		006		007	
					Customer ID	TP-14-8-ES-2.20	TP-15-3-ES-0.30		TP-16-6-ES-1.50		TP-17-3-ES-0.30	
					Sample Type	SOLID	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	24/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023	25/01/2023
Total Moisture at 35°C	CLANDPREP	0.1	%	N		35.6		24.3		28.1		34.0
Description of Solid Material	CLANDPREP		-	N		CLAY		SILT		CLAY		SILT
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090		0.090		0.090		0.090
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		0		0		0		0
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0		0		0		0
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.803		0.865		0.866		0.854
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.187		0.125		0.124		0.136
WAC Report	WAC		-	N		See Attached		See Attached		See Attached		See Attached
Asbestos Identification	SUB020		-	N		NAIIS		NAIIS		NAIIS		NAIIS

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	008		009		010	
					Customer ID	TP-18-6-ES-1.30		TP-19-3-ES-0.50		TP-20-9-ES-2.40	
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID
					Sampling Date	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023	26/01/2023
Total Moisture at 35°C	CLANDPREP	0.1	%	N		30.3		20.2		51.6	
Description of Solid Material	CLANDPREP		-	N		CLAY		CLAY		CLAY	
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090		0.090		0.090	
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		0		0		0	
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0		0		0	
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.857		0.871		0.762	
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.133		0.119		0.228	
WAC Report	WAC		-	N		See Attached		See Attached		See Attached	
Asbestos Identification	SUB020		-	N		NAIIS		NAIIS		NAIIS	

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-001	TP-11-3-ES-0.30	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.143
Moisture content @ 105°C (% Wet Weight)	37.2
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.847
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	2.85	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.089	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.052	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	59.8	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	2.09	100		
UM	PHSOIL	pH (pH Units)	8.3		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.8				
N	WSLM2**	Conductivity (µS/cm)	236				
U	ICPMSW	Arsenic	0.006	0.06	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.018	0.18	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.018	0.18	0.5	10	30
U	ICPMSW	Nickel	0.008	0.08	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.004	0.04	4	50	200
U	KONENS	Chloride	2	20	800	15000	25000
U	ISEF	Fluoride	1.1	11	10	150	500
U	ICPWATVAR	Sulphate as SO4	24	235	1000	20000	50000
N	WSLM27	Total Dissolved Solids	160	1570	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	11.5	113	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-002	TP-12-3-ES-0.60	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.102
Moisture content @ 105°C (% Wet Weight)	11.7
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.888
Fraction of sample above 4mm %	49.9
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	2.39	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.077	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.045	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<25.8	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	3.06	100		
UM	PHSOIL	pH (pH Units)	8.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.8				
N	WSLM2**	Conductivity (µS/cm)	120				
U	ICPMSW	Arsenic	0.008	0.08	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.011	0.11	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.005	0.05	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.002	0.02	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.5	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	5	50	1000	20000	50000
N	WSLM27	Total Dissolved Solids	82	819	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	4.43	44.2	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-003	TP-13-5-ES-1.00	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.122
Moisture content @ 105°C (% Wet Weight)	26.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.868
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.52	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.078	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<26.0	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.77	100		
UM	PHSOIL	pH (pH Units)	8.5		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.8				
N	WSLM2**	Conductivity (µS/cm)	164				
U	ICPMSW	Arsenic	0.002	0.02	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.004	0.04	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.005	0.05	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.9	9	10	150	500
U	ICPWATVAR	Sulphate as SO4	13	129	1000	20000	50000
N	WSLM27	Total Dissolved Solids	112	1110	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	5.20	51.5	500	800	1000

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Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-004	TP-14-8-ES-2.20	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.187
Moisture content @ 105°C (% Wet Weight)	51.9
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.803
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.15	3	5	6
N	LOI450	Loss on Ignition (%)	6.2			10
	BTEXHSA	Sum of BTEX (mg/kg)		6		
	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)		1		
	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL		500		
	PAHMSUS	Sum of 17 PAHs (mg/kg)		100		
UM	PHSOIL	pH (pH Units)	8.9		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg)	0.80		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	7.9				
N	WSLM2**	Conductivity (µS/cm)	1350				
U	ICPMSW	Arsenic	0.037	0.35	0.5	2	25
U	ICPWATVAR	Barium	<0.10	<1.0	20	100	300
U	ICPMSW	Cadmium	<0.00020	<0.002	0.04	1	5
U	ICPMSW	Chromium	<0.010	<0.1	0.5	10	70
U	ICPMSW	Copper	<0.010	<0.1	2	50	100
U	ICPMSW	Mercury	<0.00030	<0.003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.057	0.54	0.5	10	30
U	ICPMSW	Nickel	0.019	0.18	0.4	10	40
U	ICPMSW	Lead	<0.010	<0.1	0.5	10	50
U	ICPMSW	Antimony	<0.010	<0.1	0.06	0.7	5
U	ICPMSW	Selenium	<0.010	<0.1	0.1	0.5	7
U	ICPMSW	Zinc	<0.020	<0.2	4	50	200
U	KONENS	Chloride	258	2440	800	15000	25000
U	ISEF	Fluoride	1.3	12	10	150	500
U	ICPWATVAR	Sulphate as SO4	147	1390	1000	20000	50000
N	WSLM27	Total Dissolved Solids	915	8640	4000	60000	100000
	SFAPI	Phenol Index			1		
U	WSLM13	Dissolved Organic Carbon	36.5	345	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-005	TP-15-3-ES-0.30	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.125
Moisture content @ 105°C (% Wet Weight)	28.2
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.865
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	2.13	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.079	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<26.4	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.80	100		
UM	PHSOIL	pH (pH Units)	7.8		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.9				
N	WSLM2**	Conductivity (µS/cm)	142				
U	ICPMSW	Arsenic	<0.010	<0.1	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00020	<0.002	0.04	1	5
U	ICPMSW	Chromium	<0.010	<0.1	0.5	10	70
U	ICPMSW	Copper	<0.010	<0.1	2	50	100
U	ICPMSW	Mercury	<0.00030	<0.003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.010	<0.1	0.5	10	30
U	ICPMSW	Nickel	<0.010	<0.1	0.4	10	40
U	ICPMSW	Lead	<0.010	<0.1	0.5	10	50
U	ICPMSW	Antimony	<0.010	<0.1	0.06	0.7	5
U	ICPMSW	Selenium	<0.010	<0.1	0.1	0.5	7
U	ICPMSW	Zinc	<0.020	<0.2	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	1.1	11	10	150	500
U	ICPWATVAR	Sulphate as SO4	<3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	96	950	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	8.09	80.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-006	TP-16-6-ES-1.50	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.124
Moisture content @ 105°C (% Wet Weight)	27.3
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.866
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.75	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.083	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.049	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<27.8	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.89	100		
UM	PHSOIL	pH (pH Units)	7.8		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	7.1				
N	WSLM2**	Conductivity (µS/cm)	496				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.003	0.03	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.015	0.15	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	20	198	800	15000	25000
U	ISEF	Fluoride	1.4	14	10	150	500
U	ICPWATVAR	Sulphate as SO4	146	1440	1000	20000	50000
N	WSLM27	Total Dissolved Solids	337	3330	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	5.36	53.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-007	TP-17-3-ES-0.30	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.136
Moisture content @ 105°C (% Wet Weight)	33.7
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.854
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	4.46	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.091	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.053	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<30.3	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<2.06	100		
UM	PHSOIL	pH (pH Units)	7.8		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	7.2				
N	WSLM2**	Conductivity (µS/cm)	218				
U	ICPMSW	Arsenic	0.011	0.11	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00020	<0.002	0.04	1	5
U	ICPMSW	Chromium	<0.010	<0.1	0.5	10	70
U	ICPMSW	Copper	0.011	0.11	2	50	100
U	ICPMSW	Mercury	<0.00030	<0.003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.010	<0.1	0.5	10	30
U	ICPMSW	Nickel	<0.010	<0.1	0.4	10	40
U	ICPMSW	Lead	<0.010	<0.1	0.5	10	50
U	ICPMSW	Antimony	<0.010	<0.1	0.06	0.7	5
U	ICPMSW	Selenium	<0.010	<0.1	0.1	0.5	7
U	ICPMSW	Zinc	<0.020	<0.2	4	50	200
U	KONENS	Chloride	2	20	800	15000	25000
U	ISEF	Fluoride	0.2	2	10	150	500
U	ICPWATVAR	Sulphate as SO4	6	59	1000	20000	50000
N	WSLM27	Total Dissolved Solids	148	1450	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	13.1	129	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-008	TP-18-6-ES-1.30	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.133
Moisture content @ 105°C (% Wet Weight)	32.5
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.857
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.08	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.086	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.050	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<28.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.95	100		
UM	PHSOIL	pH (pH Units)	7.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.8				
N	WSLM2**	Conductivity (µS/cm)	427				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.002	0.02	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.008	0.08	0.5	10	30
U	ICPMSW	Nickel	0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	78	768	800	15000	25000
U	ISEF	Fluoride	1.2	12	10	150	500
U	ICPWATVAR	Sulphate as SO4	45	443	1000	20000	50000
N	WSLM27	Total Dissolved Solids	290	2860	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	3.96	39.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-009	TP-19-3-ES-0.50	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.119
Moisture content @ 105°C (% Wet Weight)	24.2
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.871
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.45	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.075	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.044	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<25.1	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	3.73	100		
UM	PHSOIL	pH (pH Units)	7.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.9				
N	WSLM2**	Conductivity (µS/cm)	149				
U	ICPMSW	Arsenic	0.002	0.02	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.007	0.07	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.006	0.06	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	2	20	800	15000	25000
U	ISEF	Fluoride	1.0	10	10	150	500
U	ICPWATVAR	Sulphate as SO4	6	60	1000	20000	50000
N	WSLM27	Total Dissolved Solids	101	1000	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	6.08	60.3	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23012669	
Sample No	Sample Description	Issue Date
23012669-010	TP-20-9-ES-2.40	09/02/2023

Leaching Data	
Weight of Sample (kg)	0.228
Moisture content @ 105°C (% Wet Weight)	60.5
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.762
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	3.17	3	5	6
N	LOI450	Loss on Ignition (%)	10.9			10
	BTEXHSA	Sum of BTEX (mg/kg)		6		
	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)		1		
	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL		500		
	PAHMSUS	Sum of 17 PAHs (mg/kg)		100		
UM	PHSOIL	pH (pH Units)	7.3		>6	
N	ANC	Acid Neutralisation Capacity (mol/kg)	0.24		To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	6.9				
N	WSLM2**	Conductivity (µS/cm)	2350				
U	ICPMSW	Arsenic	0.012	0.11	0.5	2	25
U	ICPWATVAR	Barium	0.02	0.2	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.078	0.71	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.003	0.03	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.002	<0.02	4	50	200
U	KONENS	Chloride	432	3920	800	15000	25000
U	ISEF	Fluoride	0.5	5	10	150	500
U	ICPWATVAR	Sulphate as SO4	557	5050	1000	20000	50000
N	WSLM27	Total Dissolved Solids	1600	14500	4000	60000	100000
	SFAPI	Phenol Index			1		
U	WSLM13	Dissolved Organic Carbon	15.2	138	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23012669
Date Issued:	09/02/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

Analysis Method

Method Code	Method Description	Analysis Method
ANC	ANC: Acid Neutralisation Capacity (mol/kg)	Air Dried & Ground
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
LOI(%MM)	LOI: Loss on Ignition @ 450°C	Air Dried & Ground
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23012669
Date Issued: 09/02/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23031582

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 2

Date Received: 14/03/2023

Analysis Date: 27/03/2023

Date Issued: 27/03/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Lead
Martin Elliott-Palmer
01283 554137

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064 - Tilbury
Project No:	23031582
Date Issued:	27/03/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23031582-001	BH04-28-ES-6.80-6.80	08/03/2023 10:10:00	SOLID	Soil Sample
23031582-002	BH04-41-ES-11.80-11.80	08/03/2023 15:47:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002
					Customer ID	BH04-28-ES-6.80-6.80		BH04-41-ES-11.80-11.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	08/03/2023	08/03/2023	08/03/2023
Analysis	Method Code	MDL	Units	Accred.				
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM			<0.348	<0.424
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM			0.021	<0.021
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM			<0.348	<0.424
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM			<0.07	<0.085
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM			<0.348	<0.424
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM			<0.017	<0.021
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM			<0.348	<0.424
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.05		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.09		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N		<0.1		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N		<0.0002		
Chloride as Cl	KONENS	10	mg/kg^	N		5420		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N		<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.21		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.03		
Phenol Index	SFAPI	0.5	mg/kg^	N		<0.5		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023 / 08/03/2023	08/03/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.02	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		135	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		14200	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		134	
Fluoride as F	ISEF	1	mg/kg^	N		2	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		2160	
pH	PHCONDW	1	pH units	N		8.4	
TDS as mg/l	PHCONDW	70	mg/l	N		1470	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM		7.9	7.7
Chloride as Cl	KONENS	1	mg/l	U		560	
Phenol Index	SFAPI	0.05	mg/l	U		<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U		<0.9	<1.1
Total Cyanide	SFAPI	0.5	mg/kg^	UM		<0.9	<1.1
Fluoride as F	ISEF	0.1	mg/l	U		0.2	
Soil Organic Matter	WSLM59	0.04	% m/m^	U		2.73	12.5
Total Organic Carbon	WSLM59	0.02	% m/m^	U		1.58	
Leached Organic Carbon	TOCW	0.4	mg/l	U		13.9	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		18.4	25.6

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023 / 08/03/2023	08/03/2023
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2	0.2
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		23.0	13.2
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		64.7	10.4
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5	<0.5
Nickel as Ni	ICPMSS	2	mg/kg^	UM		27.1	25.1
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		37.7	25.9
Zinc as Zn	ICPMSS	16	mg/kg^	UM		122.0	63.5
Boron as B	ICPBOR	0.5	mg/kg^	UM		8.8	7.9
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		353	1620
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	0.005		
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.009		
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	<0.00002		
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U	<0.00003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U	0.022		
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U	0.003		
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U	0.002		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002
					Customer ID	BH04-28-ES-6.80-6.80		BH04-41-ES-11.80-11.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	08/03/2023	08/03/2023	08/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		<0.002		
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		0.01		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		14		
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<17	<21
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<17	<21
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<35	<42
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<17	<21
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			21	<21
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.017	
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.017	
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.035	
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.017	
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			0.021	
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			0.108	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.14	<0.17
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.14	<0.17
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.14	<0.17
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.14	<0.17
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.14	<0.17

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023 / 08/03/2023	08/03/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.14* B	<0.17* B
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	<0.17
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<2.23	<2.71
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.14	
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.14	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.14* B	

Client: SOCOTEC Geotechnical
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Analysis Results

			Sample ID	001		002
			Customer ID	BH04-28-ES-6.80-6.80		BH04-41-ES-11.80-11.80
			Sample Type	LPL	SOLID	SOLID
			Sampling Date	08/03/2023	08/03/2023	08/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.14	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.14	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<2.23	
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<2.37	
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 28	PCBECD	0.005	mg/kg^	UM		<0.009	
PCB 52	PCBECD	0.005	mg/kg^	UM		<0.009	

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023	08/03/2023
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.061	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		11.2	13.7
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		18.2	20.4
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		16.9	20.9
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		25.3	33.3
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		12.5	16.9
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		79.8	99.1
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<6.96	10.4
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		7.92	9.58
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<6.96	<8.47
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		<17.4	29.8
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		<10.4	25.6
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		<34.8	79.8
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		77.4	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		79.8	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<2	<2
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<2	<2

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023	08/03/2023
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<2	<2
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<5	<7
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<5	<7
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<2	<2
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<2	<2
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<4	<5
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2	<2
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<2	<2

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023 / 08/03/2023	08/03/2023
Benzene	VOCHSAS	1	µg/kg^	UM		<2	<2
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<2	<2
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<2	<2
Bromoform	VOCHSAS	1	µg/kg^	UM		<2	<2
Bromomethane	VOCHSAS	1	µg/kg^	UM		<2* B	<2* B
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<2	<2
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
Chloroethane	VOCHSAS	2	µg/kg^	UM		<4	<5
Chloroform	VOCHSAS	1	µg/kg^	UM		<2	<2
Chloromethane	VOCHSAS	3	µg/kg^	U		<5	<7
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<9	<12
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2	<2
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<2	<2
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<2	<2
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<2	<2
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<4	<5
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<4	<5
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH04-28-ES-6.80-6.80	BH04-41-ES-11.80-11.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	08/03/2023	08/03/2023
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<7	<9
MTBE	VOCHSAS	1	µg/kg^	UM		<2	<2
Naphthalene	VOCHSAS	5	µg/kg^	UM		<9	<12
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<2	<2
o-Xylene	VOCHSAS	2	µg/kg^	UM		<4	<5
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<2	<2
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
Styrene	VOCHSAS	1	µg/kg^	UM		<2	<2
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<2	<2
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<5	<7
Toluene	VOCHSAS	5	µg/kg^	UM		<9	17
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<2	<2
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<2	<2
Trichloroethene	VOCHSAS	1	µg/kg^	U		<2	<2
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<2	<2
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<2* B	<2* B
Total Moisture at 35°C	CLANDPREP	0.1	%	N		42.5	52.8
Description of Solid Material	CLANDPREP		-	N		CLAY	CLAY

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

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Analysis Results

			Sample ID	001		002
			Customer ID	BH04-28-ES-6.80-6.80		BH04-41-ES-11.80-11.80
			Sample Type	LPL	SOLID	SOLID
			Sampling Date	08/03/2023	08/03/2023	08/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090	
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		100	
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0	
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.832	
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.158	
WAC Report	WAC		-	N		See Attached	
Asbestos Identification	SUB020		-	N		NAIIS	NAIIS

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064 - Tilbury	
Project	23031582	
Sample No	Sample Description	Issue Date
23031582-001	BH04-28-ES-6.80-6.80	27/03/2023

Leaching Data	
Weight of Sample (kg)	0.158
Moisture content @ 105°C (% Wet Weight)	43.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.832
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.58	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	0.108	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.061	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	77.4	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<2.37	100		
UM	PHSOIL	pH (pH Units)	7.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.4				
N	WSLM2**	Conductivity (µS/cm)	2160				
U	ICPMSW	Arsenic	0.009	0.09	0.5	2	25
U	ICPWATVAR	Barium	0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.022	0.21	0.5	10	30
U	ICPMSW	Nickel	0.003	0.03	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.005	0.05	0.06	0.7	5
U	ICPMSW	Selenium	0.002	0.02	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	560	5420	800	15000	25000
U	ISEF	Fluoride	0.2	2	10	150	500
U	ICPWATVAR	Sulphate as SO4	14	135	1000	20000	50000
N	WSLM27	Total Dissolved Solids	1470	14200	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	13.9	134	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31670-14

DATE OF ISSUE: 23.03.23

DATE SAMPLES RECEIVED: 16.03.23

DATE ANALYSIS COMPLETED: 22.03.23

DESCRIPTION: Two soil/loose aggregate samples each weighing approximately 0.7-1.1kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31670-14
DATE OF ISSUE: 23.03.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23031582

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31670-44	23031582-001	BH04-28-ES-6.80-6.80	-	No Asbestos Detected
S31670-45	23031582-002	BH04-41-ES-11.80-11.80	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
J Simpson
Senior Laboratory Analyst

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064 - Tilbury
Project No:	23031582
Date Issued:	27/03/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered

PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031582
Date Issued: 27/03/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23031664

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064 - Tilbury

Contact: Steve Green

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: steve.green@socotec.com

Phone: 01189 324480

No. Samples Received: 1

Date Received: 15/03/2023

Analysis Date: 24/03/2023

Date Issued: 24/03/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

J. Hannah

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064 - Tilbury
Project No:	23031664
Date Issued:	24/03/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23031664-001	BH04-59-ES-19.20-19.20	09/03/2023 15:58:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH04-59-ES-19.20-19.20
					Sample Type	LPL / SOLID
					Sampling Date	09/03/2023 / 09/03/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.217
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.011
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.217* B
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.044* B
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.217* B
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.011
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.217
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.02	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002	
Chloride as Cl	KONENS	10	mg/kg^	N	40	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.07	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001	
					Customer ID	BH04-59-ES-19.20-19.20	
					Sample Type	LPL	SOLID
					Sampling Date	09/03/2023	09/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		70	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		<700	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		10.6	
Fluoride as F	ISEF	1	mg/kg^	N		<1	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		<100	
pH	PHCONDW	1	pH units	N		8.8	
TDS as mg/l	PHCONDW	70	mg/l	N		<70	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.8
Chloride as Cl	KONENS	1	mg/l	U		4	
Phenol Index	SFAPI	0.05	mg/l	U		<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.5
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.5
Fluoride as F	ISEF	0.1	mg/l	U		0.1	
Soil Organic Matter	WSLM59	0.04	% m/m^	U			0.17
Total Organic Carbon	WSLM59	0.02	% m/m^	U			0.10
Leached Organic Carbon	TOCW	0.4	mg/l	U		1.06	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM			8.0

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

					Sample ID	001	
					Customer ID	BH04-59-ES-19.20-19.20	
					Sample Type	LPL	SOLID
					Sampling Date	09/03/2023	09/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2	
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		7.9	
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		6.3	
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5	
Nickel as Ni	ICPMSS	2	mg/kg^	UM		19.5	
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		12.4	
Zinc as Zn	ICPMSS	16	mg/kg^	UM		29.8	
Boron as B	ICPBOR	0.5	mg/kg^	UM		0.6	
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		56	
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.002		
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	<0.00002		
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U	0.001		
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U	<0.00003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U	0.007		
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH04-59-ES-19.20-19.20	
					Sample Type: LPL	SOLID
					Sampling Date: 09/03/2023	09/03/2023
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U	<0.002	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U	<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U	7	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<11
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<11
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM		<22
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<11* B
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<11
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.011
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.011
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM		<0.022
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.011* B
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.011
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM		<0.065
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.09
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.09
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.09

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH04-59-ES-19.20-19.20
					Sample Type	LPL / SOLID
					Sampling Date	09/03/2023 / 09/03/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.39
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.09
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.09
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.09
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.09

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

					Sample ID	001	
					Customer ID	BH04-59-ES-19.20-19.20	
					Sample Type	LPL	SOLID
					Sampling Date	09/03/2023	09/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.09
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.09
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.39
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			<1.48
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.005
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.005

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH04-59-ES-19.20-19.20
					Sample Type	LPL / SOLID
					Sampling Date	09/03/2023 / 09/03/2023
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.038
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		7.29
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		12.1
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		12.1
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		15.9
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		14.5
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		57.8
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		4.62
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		4.66
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<4.34
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		<10.9
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		15.7
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		32.2
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		53.0
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		57.8
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

			Sample ID		001	
			Customer ID		BH04-59-ES-19.20-19.20	
			Sample Type		LPL	SOLID
			Sampling Date		09/03/2023	09/03/2023
Analysis	Method Code	MDL	Units	Accred.		
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<3
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<3
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<2
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH04-59-ES-19.20-19.20
					Sample Type	LPL / SOLID
					Sampling Date	09/03/2023 / 09/03/2023
Benzene	VOCHSAS	1	µg/kg^	UM		<1
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1
Bromoform	VOCHSAS	1	µg/kg^	UM		<1
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
Chloroethane	VOCHSAS	2	µg/kg^	UM		<2
Chloroform	VOCHSAS	1	µg/kg^	UM		<1
Chloromethane	VOCHSAS	3	µg/kg^	U		<3
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<5
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<2
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<2
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH04-59-ES-19.20-19.20
					Sample Type	LPL / SOLID
					Sampling Date	09/03/2023 / 09/03/2023
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<4
MTBE	VOCHSAS	1	µg/kg^	UM		<1
Naphthalene	VOCHSAS	5	µg/kg^	UM		<5
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1
o-Xylene	VOCHSAS	2	µg/kg^	UM		<2
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1
Styrene	VOCHSAS	1	µg/kg^	UM		<1
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<3
Toluene	VOCHSAS	5	µg/kg^	UM		<5
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<1
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1
Trichloroethene	VOCHSAS	1	µg/kg^	U		<1
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<1
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<1
Total Moisture at 35°C	CLANDPREP	0.1	%	N		7.9
Description of Solid Material	CLANDPREP		-	N		SAND

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

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Analysis Results

					Sample ID	001	
					Customer ID	BH04-59-ES-19.20-19.20	
					Sample Type	LPL	SOLID
					Sampling Date	09/03/2023	09/03/2023
Analysis	**Method Code**	**MDL**	**Units**	**Accred.**			
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090	
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		100	
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0	
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.893	
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.097	
WAC Report	WAC		-	N		See Attached	
Asbestos Identification	SUB020		-	N		NAIIS	

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064 - Tilbury	
Project	23031664	
Sample No	Sample Description	Issue Date
23031664-001	BH04-59-ES-19.20-19.20	24/03/2023

Leaching Data	
Weight of Sample (kg)	0.097
Moisture content @ 105°C (% Wet Weight)	7.4
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.893
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.10	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.065	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.038	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	53.0	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.48	100		
UM	PHSOIL	pH (pH Units)	8.8		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
			mg/l except **	mg/kg (dry wt)	Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM3**	pH (pH Units)	8.8				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	0.002	0.02	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.007	0.07	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	4	40	800	15000	25000
U	ISEF	Fluoride	0.1	<1	10	150	500
U	ICPWATVAR	Sulphate as SO4	7	70	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	1.06	10.6	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31670-16

DATE OF ISSUE: 23.03.23

DATE SAMPLE RECEIVED: 16.03.23

DATE ANALYSIS COMPLETED: 22.03.23

DESCRIPTION: One soil/loose aggregate sample weighing approximately 1.8kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of a soil/loose aggregate sample for mass determination of asbestos.

METHODS:

Qualitative - The sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in the soil sample by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org

Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31670-16
DATE OF ISSUE: 23.03.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23031664

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31670-47	23031664-001	BH04-59-ES-19.20-19.20	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....

J Simpson
Senior Laboratory Analyst

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064 - Tilbury
Project No:	23031664
Date Issued:	24/03/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered

PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064 - Tilbury
Project No: 23031664
Date Issued: 24/03/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23031791

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 Tilbury

Contact: John Emerson

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No. Samples Received: 2

Date Received: 16/03/2023

Analysis Date: 25/03/2023

Date Issued: 25/03/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Lead
Martin Elliott-Palmer
01283 554137

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 Tilbury
Project No: 23031791
Date Issued: 25/03/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23031791-001	BH06-8-ES-1.00-1.00	13/03/2023 14:08:00	SOLID	Soil Sample
23031791-002	BH06-15-ES-2.80-2.80	13/03/2023 16:15:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 Tilbury
Project No: 23031791
Date Issued: 25/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH06-8-ES-1.00-1.00	BH06-15-ES-2.80-2.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	13/03/2023 / 13/03/2023	13/03/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.264	<0.360
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		0.018	<0.018
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.264	<0.360
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.053	<0.072
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.264	<0.360
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013	<0.018
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.264	<0.360
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.26		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.15		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	0.4		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		
Chloride as Cl	KONENS	10	mg/kg^	N	<10		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.02		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.12		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.08		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.06		
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 Tilbury
Project No: 23031791
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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002
					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.02		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		288		
TDS as mg/kg	PHCONDW	700	mg/kg^	N		893		
Leached Organic Carbon	WSLM13	2	mg/kg^	N		39.8		
Fluoride as F	ISEF	1	mg/kg^	N		11		
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		0.11		
Conductivity at 25°C	PHCONDW	100	µS/cm	N		132		
pH	PHCONDW	1	pH units	N		8.0		
TDS as mg/l	PHCONDW	70	mg/l	N		90		
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			7.1	8.1
Chloride as Cl	KONENS	1	mg/l	U		<1		
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7	<0.9
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7	<0.9
Fluoride as F	ISEF	0.1	mg/l	U		1.1		
Soil Organic Matter	WSLM59	0.04	% m/m^	U			1.69	2.39
Total Organic Carbon	WSLM59	0.02	% m/m^	U			0.98	
Leached Organic Carbon	TOCW	0.4	mg/l	U		4.01		
Arsenic as As	ICPMSS	0.3	mg/kg^	UM			19.0	43.5

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Analysis Results

					Sample ID	001		002
					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM			<0.2	<0.2
Copper as Cu	ICPMSS	1.6	mg/kg^	UM			21.5	17.1
Lead as Pb	ICPMSS	0.7	mg/kg^	UM			20.9	19.2
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM			<0.5	<0.5
Nickel as Ni	ICPMSS	2	mg/kg^	UM			30.6	34.4
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM			41.8	45.7
Zinc as Zn	ICPMSS	16	mg/kg^	UM			87.8	90.2
Boron as B	ICPBOR	0.5	mg/kg^	UM			6.0	8.7
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM			202	2580
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U		0.026		
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U		0.015		
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U		<0.00002		
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		0.002		
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		0.012		
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		0.008		
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		0.006		
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		0.002		

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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002
					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		0.011		
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		0.04		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		29		
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13	<18
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13	<18
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<26	<36
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13	<18
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			18	<18
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013	
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013	
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.026	
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013	
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			0.018	
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			0.084	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.11	<0.14
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.11	<0.14
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.11	<0.14
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11	<0.14
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11	<0.14

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Analysis Results

			Sample ID	001		002
			Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
			Sample Type	LPL	SOLID	SOLID
			Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	<0.14
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.69	<2.31
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.11	
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.11	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.11	

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					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.11	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.69	
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			<1.79	
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.007	
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.007	

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					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.046	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			6.40	11.4
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			15.8	24.5
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			18.4	30.6
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U			21.8	41.4
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N			<7.91	16.5
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			69.6	123
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			<5.27	8.82
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			15.8	27.0
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			9.29	23.9
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U			16.9	40.2
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N			<7.91	24.6
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U			55.0	126
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			65.7	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			69.6	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N			<1	<2
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2

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Analysis Results

					Sample ID	001		002
					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U			<1	<2
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM			<4	<5
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N			<4	<5
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U			<1	<2
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM			<1	<2
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM			<3	<3
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<1	<2
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<1	<2

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					Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
					Sample Type	LPL	SOLID	SOLID
					Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.				
Benzene	VOCHSAS	1	µg/kg^	UM			<1	<2
Bromobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
Bromochloromethane	VOCHSAS	1	µg/kg^	UM			<1	<2
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM			<1	<2
Bromoform	VOCHSAS	1	µg/kg^	UM			<1	<2
Bromomethane	VOCHSAS	1	µg/kg^	UM			<1	<2
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM			<1	<2
Chlorobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2
Chloroethane	VOCHSAS	2	µg/kg^	UM			<3	<3
Chloroform	VOCHSAS	1	µg/kg^	UM			<1	<2
Chloromethane	VOCHSAS	3	µg/kg^	U			<4	<5
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM			<7	<8
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1	<2
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM			<1	<2
Dibromomethane	VOCHSAS	1	µg/kg^	UM			<1	<2
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N			<1	<2
Ethylbenzene	VOCHSAS	2	µg/kg^	UM			<3	<3
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N			<3	<3
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM			<1	<2

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Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002
					Customer ID	BH06-8-ES-1.00-1.00	BH06-15-ES-2.80-2.80
					Sample Type	LPL / SOLID	SOLID
					Sampling Date	13/03/2023 / 13/03/2023	13/03/2023
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<6	<7
MTBE	VOCHSAS	1	µg/kg^	UM		<1	<2
Naphthalene	VOCHSAS	5	µg/kg^	UM		<7	<8
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1	<2
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3	<3
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1	<2
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2
Styrene	VOCHSAS	1	µg/kg^	UM		<1	<2
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4	<5
Toluene	VOCHSAS	5	µg/kg^	UM		9	<8
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<1	<2
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1	<2
Trichloroethene	VOCHSAS	1	µg/kg^	U		<1	<2
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<1	<2
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<1	<2
Total Moisture at 35°C	CLANDPREP	0.1	%	N		24.1	44.5
Description of Solid Material	CLANDPREP		-	N		CLAY	CLAY

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 Tilbury
Project No: 23031791
Date Issued: 25/03/2023

1252

Analysis Results

			Sample ID	001		002
			Customer ID	BH06-8-ES-1.00-1.00		BH06-15-ES-2.80-2.80
			Sample Type	LPL	SOLID	SOLID
			Sampling Date	13/03/2023	13/03/2023	13/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090	
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		100	
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0	
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.872	
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.118	
WAC Report	WAC		-	N		See Attached	
Asbestos Identification	SUB020		-	N		NAIIS	NAIIS

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 Tilbury	
Project	23031791	
Sample No	Sample Description	Issue Date
23031791-001	BH06-8-ES-1.00-1.00	25/03/2023

Leaching Data	
Weight of Sample (kg)	0.118
Moisture content @ 105°C (% Wet Weight)	23.6
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.872
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.98	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	0.084	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	65.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.79	100		
UM	PHSOIL	pH (pH Units)	7.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.0				
N	WSLM2**	Conductivity (µS/cm)	132				
U	ICPMSW	Arsenic	0.015	0.15	0.5	2	25
U	ICPWATVAR	Barium	0.04	0.4	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	0.002	0.02	0.5	10	70
U	ICPMSW	Copper	0.012	0.12	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.008	0.08	0.5	10	30
U	ICPMSW	Nickel	0.006	0.06	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.026	0.26	0.06	0.7	5
U	ICPMSW	Selenium	0.002	0.02	0.1	0.5	7
U	ICPMSW	Zinc	0.011	0.11	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	1.1	11	10	150	500
U	ICPWATVAR	Sulphate as SO4	29	288	1000	20000	50000
N	WSLM27	Total Dissolved Solids	90	893	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	4.01	39.8	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31673-5

DATE OF ISSUE: 24.03.23

DATE SAMPLES RECEIVED: 17.03.23

DATE ANALYSIS COMPLETED: 23.03.23

DESCRIPTION: Two soil/loose aggregate samples each weighing approximately 1.0-1.2kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31673-5
DATE OF ISSUE: 24.03.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23031791

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31673-24	23031791-001	BH06-8-ES-1.00-1.00	-	No Asbestos Detected
S31673-25	23031791-002	BH06-15-ES-2.80-2.80	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....

J Simpson
Senior Laboratory Analyst

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 Tilbury
Project No:	23031791
Date Issued:	25/03/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 Tilbury
Project No: 23031791
Date Issued: 25/03/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered

PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 Tilbury
Project No:	23031791
Date Issued:	25/03/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23032324

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: Dan Strong

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: daniel.strong@socotec.com

Phone: 07919 214 293

No. Samples Received: 1

Date Received: 21/03/2023

Analysis Date: 06/04/2023

Date Issued: 06/04/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032324
Date Issued:	06/04/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23032324-001	BH06-50-ES-13.00-13.00	16/03/2023 15:00:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-50-ES-13.00-13.00	
					Sample Type: LPL	SOLID
					Sampling Date: 16/03/2023	16/03/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.272* B
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.014* B
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.272
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.055
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.272* B
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.014
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.272
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.03	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.03	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	0.0003	
Chloride as Cl	KONENS	10	mg/kg^	N	1090	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.11	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.02	
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

			Sample ID		001	
			Customer ID		BH06-50-ES-13.00-13.00	
			Sample Type		LPL	SOLID
			Sampling Date		16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.		
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N	257	
TDS as mg/kg	PHCONDW	700	mg/kg^	N	4200	
Leached Organic Carbon	WSLM13	2	mg/kg^	N	46.5	
Fluoride as F	ISEF	1	mg/kg^	N	3	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N	0.03	
Conductivity at 25°C	PHCONDW	100	µS/cm	N	623	
pH	PHCONDW	1	pH units	N	8.6	
TDS as mg/l	PHCONDW	70	mg/l	N	424	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM		8.9
pH (2.5:1 extraction)	PHSOIL	1	pH units	U		8.9
Chloride as Cl	KONECL	2	mg/kg	N		505
Chloride as Cl	KONENS	1	mg/l	U	110	
Nitrate as NO3	KONENO3	2	mg/kg	N		<2.0
Phenol Index	SFAPI	0.05	mg/l	U	<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U		<0.7
Total Cyanide	SFAPI	0.5	mg/kg^	UM		<0.7
Fluoride as F	ISEF	0.1	mg/l	U	0.3	
Soil Organic Matter	WSLM59	0.04	% m/m^	U		0.90

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-50-ES-13.00-13.00
					Sample Type	LPL / SOLID
					Sampling Date	16/03/2023 / 16/03/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U		0.52
Sulphur as S	WSLM59	0.005	% m/m	N		0.168
Leached Organic Carbon	TOCW	0.4	mg/l	U	4.70	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		4.4
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		0.4
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		12.7
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		10.4
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5
Nickel as Ni	ICPMSS	2	mg/kg^	UM		24.0
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		27.7
Zinc as Zn	ICPMSS	16	mg/kg^	UM		47.0
Boron as B	ICPBOR	0.5	mg/kg^	UM		2.6
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		20.9
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		256
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		128
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		588
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	0.003	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.003	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	0.00003	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001	
					Customer ID	BH06-50-ES-13.00-13.00	
					Sample Type	LPL	SOLID
					Sampling Date	16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		0.011	
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		0.002	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		0.001	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		0.003	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		26	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<27
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<14* B
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.027
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.014

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-50-ES-13.00-13.00
					Sample Type	LPL / SOLID
					Sampling Date	16/03/2023 / 16/03/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.014* B
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM		<0.082
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.11
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.11
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.11* B
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.74

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001	
					Customer ID	BH06-50-ES-13.00-13.00	
					Sample Type	LPL	SOLID
					Sampling Date	16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.11	
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.11	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.11	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.11* B	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.11	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.74	
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<1.85	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-50-ES-13.00-13.00	
					Sample Type: LPL	SOLID
					Sampling Date: 16/03/2023	16/03/2023
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 28	PCBECD	0.005	mg/kg^	UM		<0.007
PCB 52	PCBECD	0.005	mg/kg^	UM		<0.007
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.048
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		6.59
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		11.0
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		12.2
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		28.9
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		16.5
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		76.5
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		21.8
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		42.6
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		41.4
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		75.2
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		74.4

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

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Analysis Results

					Sample ID	001	
					Customer ID	BH06-50-ES-13.00-13.00	
					Sample Type	LPL	SOLID
					Sampling Date	16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		233	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		68.2	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		76.5	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1	
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<4	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<4	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-50-ES-13.00-13.00	
					Sample Type: LPL	SOLID
					Sampling Date: 16/03/2023	16/03/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3* B
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1
Benzene	VOCHSAS	1	µg/kg^	UM		<1
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1
Bromoform	VOCHSAS	1	µg/kg^	UM		<1
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1
Chloroethane	VOCHSAS	2	µg/kg^	UM		<3
Chloroform	VOCHSAS	1	µg/kg^	UM		<1
Chloromethane	VOCHSAS	3	µg/kg^	U		<4
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<7

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001	
					Customer ID	BH06-50-ES-13.00-13.00	
					Sample Type	LPL	SOLID
					Sampling Date	16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.			
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1	
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3	
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3	
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1	
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<6	
MTBE	VOCHSAS	1	µg/kg^	UM		<1	
Naphthalene	VOCHSAS	5	µg/kg^	UM		<7	
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1	
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3	
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1	
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1	
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	
Styrene	VOCHSAS	1	µg/kg^	UM		<1	
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4	
Toluene	VOCHSAS	5	µg/kg^	UM		<7	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

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Analysis Results

					Sample ID	001	
					Customer ID	BH06-50-ES-13.00-13.00	
					Sample Type	LPL	SOLID
					Sampling Date	16/03/2023	16/03/2023
Analysis	Method Code	MDL	Units	Accred.			
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM			<1
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1
Trichloroethene	VOCHSAS	1	µg/kg^	U			<1
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM			<1
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM			<1
Total Moisture at 35°C	CLANDPREP	0.1	%	N			26.6
Total Moisture at 35°C	CLANDPREP	0.1	%	N			26.6
Description of Solid Material	CLANDPREP		-	N			CLAY
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N			0.090
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N			100
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N			0
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N			0.866
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N			0.124
WAC Report	WAC		-	N			See Attached
Asbestos Identification	SUB020		-	N			NAIIS

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31978-2

DATE OF ISSUE: 05.04.23

DATE SAMPLE RECEIVED: 29.03.23

DATE ANALYSIS COMPLETED: 05.04.23

DESCRIPTION: One soil/loose aggregate sample weighing approximately 1.2kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of a soil/loose aggregate sample for mass determination of asbestos.

METHODS:

Qualitative - The sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in the soil sample by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org
IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31978-2
DATE OF ISSUE: 05.04.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23032324

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31978-3	23032324-001	BH06-50-ES-13.00-13.00	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
D Third
Laboratory Analyst

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23032324	
Sample No	Sample Description	Issue Date
23032324-001	BH06-50-ES-13.00-13.00	06/04/2023

Leaching Data	
Weight of Sample (kg)	0.124
Moisture content @ 105°C (% Wet Weight)	27.4
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.866
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.52	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.082	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.048	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	68.2	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.85	100		
UM	PHSOIL	pH (pH Units)	8.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
			mg/l except **	mg/kg (dry wt)	Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM3**	pH (pH Units)	8.6				
N	WSLM2**	Conductivity (µS/cm)	623				
U	ICPMSW	Arsenic	0.003	0.03	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00003	0.0003	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.011	0.11	0.5	10	30
U	ICPMSW	Nickel	0.002	0.02	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.003	0.03	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	110	1090	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	26	257	1000	20000	50000
N	WSLM27	Total Dissolved Solids	424	4200	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	4.70	46.5	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032324
Date Issued:	06/04/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032324
Date Issued: 06/04/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032324
Date Issued:	06/04/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23032441

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 1

Date Received: 22/03/2023

Analysis Date: 31/03/2023

Date Issued: 31/03/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

J. Hannah

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23032441-001	BH06-62-ES-19.00-19.00	20/03/2023 15:45:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-62-ES-19.00-19.00	
					Sample Type: LPL	SOLID
					Sampling Date: 20/03/2023	20/03/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.209* B
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.011* B
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.209*
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.043*
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.209*
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.011*
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.209*
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.03	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002	
Chloride as Cl	KONENS	10	mg/kg^	N	30	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01	
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

UKAS TESTING
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Analysis Results

					Sample ID	001	
					Customer ID	BH06-62-ES-19.00-19.00	
					Sample Type	LPL	SOLID
					Sampling Date	20/03/2023	20/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		<30	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		<700	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		12.8	
Fluoride as F	ISEF	1	mg/kg^	N		<1	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		<100	
pH	PHCONDW	1	pH units	N		8.9	
TDS as mg/l	PHCONDW	70	mg/l	N		<70	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.9*
pH (2.5:1 extraction)	PHSOIL	1	pH units	U			8.9*
Chloride as Cl	KONECL	2	mg/kg	N			18
Chloride as Cl	KONENS	1	mg/l	U		3	
Nitrate as NO3	KONENO3	2	mg/kg	N			<4.0 D
Phenol Index	SFAPI	0.05	mg/l	U		<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.5*
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.5*
Fluoride as F	ISEF	0.1	mg/l	U		0.1	
Soil Organic Matter	WSLM59	0.04	% m/m^	U			0.26*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-62-ES-19.00-19.00	
					Sample Type: LPL	Sample Type: SOLID
					Sampling Date: 20/03/2023	Sampling Date: 20/03/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U		0.15*
Sulphur as S	WSLM59	0.005	% m/m	N		0.037
Leached Organic Carbon	TOCW	0.4	mg/l	U	1.28	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		5.3*
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2*
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		10.1*
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		9.5*
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5*
Nickel as Ni	ICPMSS	2	mg/kg^	UM		16.6*
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		8.8*
Zinc as Zn	ICPMSS	16	mg/kg^	UM		30.1*
Boron as B	ICPBOR	0.5	mg/kg^	UM		<0.5*
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		9.6
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		55*
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		27*
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		970*
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.003	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	<0.00002	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

1252

Analysis Results

					Sample ID	001	
					Customer ID	BH06-62-ES-19.00-19.00	
					Sample Type	LPL	SOLID
					Sampling Date	20/03/2023	20/03/2023
Analysis	Method Code	MDL	Units	Accred.			
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		0.001	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		0.001	
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		<0.002	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		3	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<11*
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<11*
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<21*
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<11*
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<11* B
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.011*
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.011*
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.021*
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.011*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-62-ES-19.00-19.00
					Sample Type	LPL / SOLID
					Sampling Date	20/03/2023 / 20/03/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.011* B
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM		<0.063*
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.08*
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.08*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.34*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

UKAS TESTING
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-62-ES-19.00-19.00	
					Sample Type: LPL	SOLID
					Sampling Date: 20/03/2023	20/03/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.08*
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.08*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.08
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.08*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.34*
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<1.42

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-62-ES-19.00-19.00
					Sample Type	LPL / SOLID
					Sampling Date	20/03/2023 / 20/03/2023
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 28	PCBECD	0.005	mg/kg^	UM		<0.005*
PCB 52	PCBECD	0.005	mg/kg^	UM		<0.005*
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.037*
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<4.19*
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<4.19*
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<4.19*
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		<10.5*
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		<6.28
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		<20.9*
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<4.19*
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<4.19*
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<4.19*
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		<10.5*
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		<6.28

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-62-ES-19.00-19.00
					Sample Type	LPL / SOLID
					Sampling Date	20/03/2023 / 20/03/2023
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		<20.9*
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		<20.9*
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		<20.9*
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1* B
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1*
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<3*
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1*
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<3
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1*
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1*
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

UKAS TESTING
1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-62-ES-19.00-19.00	
					Sample Type: LPL	SOLID
					Sampling Date: 20/03/2023	20/03/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<2*
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*
Benzene	VOCHSAS	1	µg/kg^	UM		<1*
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1*
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1*
Bromoform	VOCHSAS	1	µg/kg^	UM		<1*
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1*
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1*
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*
Chloroethane	VOCHSAS	2	µg/kg^	UM		<2*
Chloroform	VOCHSAS	1	µg/kg^	UM		<1*
Chloromethane	VOCHSAS	3	µg/kg^	U		<3*
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<6*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	
					Customer ID: BH06-62-ES-19.00-19.00	
					Sample Type: LPL	SOLID
					Sampling Date: 20/03/2023	20/03/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1*
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<2*
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<2
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<4*
MTBE	VOCHSAS	1	µg/kg^	UM		<1*
Naphthalene	VOCHSAS	5	µg/kg^	UM		<6*
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1*
o-Xylene	VOCHSAS	2	µg/kg^	UM		<2*
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1*
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
Styrene	VOCHSAS	1	µg/kg^	UM		<1*
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<3*
Toluene	VOCHSAS	5	µg/kg^	UM		<6*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

UKAS TESTING
1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001
					Customer ID	BH06-62-ES-19.00-19.00
					Sample Type	LPL / SOLID
					Sampling Date	20/03/2023 / 20/03/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<1*
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*
Trichloroethene	VOCHSAS	1	µg/kg^	U		<1*
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<1*
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<1*
Total Moisture at 35°C	CLANDPREP	0.1	%	N		4.5
Total Moisture at 35°C	CLANDPREP	0.1	%	N		4.5
Description of Solid Material	CLANDPREP		-	N		GRAVEL
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		100
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.894
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.096
WAC Report	WAC		-	N		See Attached
Asbestos Identification	SUB020		-	N		NAIIS

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31851-2

DATE OF ISSUE: 31.03.23

DATE SAMPLE RECEIVED: 24.03.23

DATE ANALYSIS COMPLETED: 31.03.23

DESCRIPTION: One soil/loose aggregate sample weighing approximately 1.4kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of a soil/loose aggregate sample for mass determination of asbestos.

METHODS:

Qualitative - The sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in the soil sample by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31851-2
DATE OF ISSUE: 31.03.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23032441

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31851-2	23032441-001	BH06-62-ES-19.00-19.00	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

Julie Simpson

AUTHORISED BY: .....

J Simpson

Senior Laboratory Analyst

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23032441	
Sample No	Sample Description	Issue Date
23032441-001	BH06-62-ES-19.00-19.00	31/03/2023

Leaching Data	
Weight of Sample (kg)	0.096
Moisture content @ 105°C (% Wet Weight)	6.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.894
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.15	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.063	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.037	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<20.9	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.42	100		
N	PHSOIL	pH (pH Units)	8.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.9				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	0.003	0.03	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	3	30	800	15000	25000
U	ISEF	Fluoride	0.1	<1	10	150	500
U	ICPWATVAR	Sulphate as SO4	3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	1.28	12.8	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032441
Date Issued:	31/03/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032441
Date Issued: 31/03/2023

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032441
Date Issued:	31/03/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23032766

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 3

Date Received: 24/03/2023

Analysis Date: 06/04/2023

Date Issued: 06/04/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23032766-001	BH05-6-ES-0.60	21/03/2023 10:57:00	SOLID	Soil Sample
23032766-002	BH05-14-ES-1.70	21/03/2023 14:26:00	SOLID	Soil Sample
23032766-003	BH05-16-ES-3.00	21/03/2023 15:29:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023 / 21/03/2023	21/03/2023	21/03/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.260* B	<0.318* B	
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013* B	<0.016* B	
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.260	<0.318	
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.052	<0.064	
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.260	<0.318	
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013	<0.016	
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.260	<0.318	
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01			
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01			
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1			
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002			
Chloride as Cl	KONENS	10	mg/kg^	N	69			
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01			
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.03			
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01			
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003			
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.05			
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01			
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL	SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023	21/03/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01			
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		99			
TDS as mg/kg	PHCONDW	700	mg/kg^	N		1410			
Leached Organic Carbon	WSLM13	2	mg/kg^	N		50.3			
Fluoride as F	ISEF	1	mg/kg^	N		13			
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02			
Conductivity at 25°C	PHCONDW	100	µS/cm	N		209			
pH	PHCONDW	1	pH units	N		8.3			
TDS as mg/l	PHCONDW	70	mg/l	N		142			
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.6	7.7	
pH (2.5:1 extraction)	PHSOIL	1	pH units	U			8.6		8.7
Chloride as Cl	KONECL	2	mg/kg	N			87		2630
Chloride as Cl	KONENS	1	mg/l	U		7			
Nitrate as NO3	KONENO3	2	mg/kg	N			15.4		<4.0 D
Phenol Index	SFAPI	0.05	mg/l	U		<0.05			
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7	<0.8	
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7	<0.8	
Fluoride as F	ISEF	0.1	mg/l	U		1.3			
Soil Organic Matter	WSLM59	0.04	% m/m^	U			3.32	1.75	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL	SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023	21/03/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U		1.93		
Sulphur as S	WSLM59	0.005	% m/m	N		0.021		1.59
Leached Organic Carbon	TOCW	0.4	mg/l	U	5.07			
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		18.6	20.2	
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2	0.3	
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		15.7	16.0	
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		21.2	22.5	
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5	<0.5	
Nickel as Ni	ICPMSS	2	mg/kg^	UM		39.6	56.7	
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		55.8	77.5	
Zinc as Zn	ICPMSS	16	mg/kg^	UM		90.1	103.3	
Boron as B	ICPBOR	0.5	mg/kg^	UM		5.3	5.3	
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		8.8		43.2
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		136	595	
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		68		425
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		543		1270
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001			
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.001			
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	<0.00002			

Client: SOCOTEC Geotechnical
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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	003
					Customer ID	BH05-6-ES-0.60		BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL	SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023	21/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001				
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U	0.003				
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001				
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U	<0.00003				
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U	0.005				
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U	0.001				
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001				
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U	<0.002				
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U	<0.01				
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U	10				
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<16	
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<16	
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM		<26		<32	
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<16	
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13* B		<16* B	
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013			
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013			
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM		<0.026			
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023 / 21/03/2023	21/03/2023	21/03/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013* B		
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM		<0.078		
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.10	<0.13	
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.10	<0.13	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10	<0.13	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.67	<2.03	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023 / 21/03/2023	21/03/2023	21/03/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.10		
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.10		
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.10		
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10		
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.67		
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<1.77		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023 / 21/03/2023	21/03/2023	21/03/2023
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 28	PCBECD	0.005	mg/kg^	UM		<0.007		
PCB 52	PCBECD	0.005	mg/kg^	UM		<0.007		
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.046		
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<5.21	<6.36	
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		7.54	<6.36	
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		7.86	6.56	
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		28.4	26.6	
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		16.4	11.8	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		56.1	40.7	
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		<5.21	<6.36	
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		11.4	18.3	
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		11.7	13.6	
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		20.9	24.1	
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		13.8	12.2	

Client: SOCOTEC Geotechnical
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UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	003
					Customer ID	BH05-6-ES-0.60		BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL	SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023	21/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U			57.7	70.9	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			53.7		
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			56.1		
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N			<1	<2	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U			<1	<2	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM			<4	<5	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N			<4	<5	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U			<1	<2	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1	<2	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM			<1	<2	

Client: SOCOTEC Geotechnical
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Project No: 23032766
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023 / 21/03/2023	21/03/2023	21/03/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1	<2	
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<2* B	<3* B	
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1	<2	
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Benzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Bromoform	VOCHSAS	1	µg/kg^	UM		<1	<2	
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1	<2	
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Chloroethane	VOCHSAS	2	µg/kg^	UM		<2	<3	
Chloroform	VOCHSAS	1	µg/kg^	UM		<1	<2	
Chloromethane	VOCHSAS	3	µg/kg^	U		<4	<5	
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<6	<9	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1	<2	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<2	<3	
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<2	<3	
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<5	<7	
MTBE	VOCHSAS	1	µg/kg^	UM		<1	<2	
Naphthalene	VOCHSAS	5	µg/kg^	UM		<6	<9	
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1	<2	
o-Xylene	VOCHSAS	2	µg/kg^	UM		<2	<3	
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Styrene	VOCHSAS	1	µg/kg^	UM		<1	<2	
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4	<5	
Toluene	VOCHSAS	5	µg/kg^	UM		<6	<9	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH05-6-ES-0.60	BH05-14-ES-1.70	BH05-16-ES-3.00
					Sample Type	LPL / SOLID	SOLID	SOLID
					Sampling Date	21/03/2023	21/03/2023	21/03/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<1	<2	
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1	<2	
Trichloroethene	VOCHSAS	1	µg/kg^	U		<1	<2	
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<1	<2	
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<1	<2	
Total Moisture at 35°C	CLANDPREP	0.1	%	N		23.2	37.1	
Total Moisture at 35°C	CLANDPREP	0.1	%	N		23.2		39.5
Description of Solid Material	CLANDPREP		-	N		CLAY	CLAY	CLAY
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090		
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		0		
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0		
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.871		
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.119		
WAC Report	WAC		-	N		See Attached		
Asbestos Identification	SUB020		-	N		NAIIS	NAIIS	

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31978-16

DATE OF ISSUE: 05.04.23

DATE SAMPLES RECEIVED: 29.03.23

DATE ANALYSIS COMPLETED: 05.04.23

DESCRIPTION: Two soil/loose aggregate samples each weighing approximately 0.7kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31978-16
DATE OF ISSUE: 05.04.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23032766

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31978-44	23032766-001	BH05-6-ES-0.60	-	No Asbestos Detected
S31978-45	23032766-002	BH05-14-ES-1.70	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
D Third
Laboratory Analyst

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23032766	
Sample No	Sample Description	Issue Date
23032766-001	BH05-6-ES-0.60	06/04/2023

Leaching Data	
Weight of Sample (kg)	0.119
Moisture content @ 105°C (% Wet Weight)	24.1
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.871
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	1.93	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.078	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	53.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.77	100		
UM	PHSOIL	pH (pH Units)	8.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.3				
N	WSLM2**	Conductivity (µS/cm)	209				
U	ICPMSW	Arsenic	0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.003	0.03	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.005	0.05	0.5	10	30
U	ICPMSW	Nickel	0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	7	69	800	15000	25000
U	ISEF	Fluoride	1.3	13	10	150	500
U	ICPWATVAR	Sulphate as SO4	10	99	1000	20000	50000
N	WSLM27	Total Dissolved Solids	142	1410	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	5.07	50.3	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032766
Date Issued:	06/04/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032766
Date Issued: 06/04/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23032769

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: Dan Strong

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: daniel.strong@socotec.com

Phone: 07919 214 293

No. Samples Received: 2

Date Received: 24/03/2023

Analysis Date: 06/04/2023

Date Issued: 06/04/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23032769
Date Issued:	06/04/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23032769-001	BH05-49-ES-15.00	23/03/2023 10:32:00	SOLID	Soil Sample
23032769-002	BH05-60-ES-19.00	23/03/2023 16:29:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.268* B		<0.226* B	
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013* B		<0.011* B	
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.268		<0.226*	
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.054		<0.045*	
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.268		<0.226*	
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013		<0.011*	
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.268		<0.226*	
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.04		0.04		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.11		0.10		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1		<0.1		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		0.0004		
Chloride as Cl	KONENS	10	mg/kg^	N	922		1510		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.02		0.02		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.14		0.18		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	0.03		0.06		
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		<0.5		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		0.05		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		60		110	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		3760		5510	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		63.2		77.3	
Fluoride as F	ISEF	1	mg/kg^	N		3		4	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02		0.03	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		558		810	
pH	PHCONDW	1	pH units	N		9.0		8.8	
TDS as mg/l	PHCONDW	70	mg/l	N		379		551	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.7		8.9*
pH (2.5:1 extraction)	PHSOIL	1	pH units	U			8.7		8.9*
Chloride as Cl	KONECL	2	mg/kg	N			815		132
Chloride as Cl	KONENS	1	mg/l	U		93		151	
Nitrate as NO3	KONENO3	2	mg/kg	N			<4.0 D		<4.0 D
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7		<0.6*
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7		<0.6*
Fluoride as F	ISEF	0.1	mg/l	U		0.3		0.4	
Soil Organic Matter	WSLM59	0.04	% m/m^	U			0.81		0.24*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Total Organic Carbon	WSLM59	0.02	% m/m^	U		0.47		0.14*
Sulphur as S	WSLM59	0.005	% m/m	N		0.036		0.023
Leached Organic Carbon	TOCW	0.4	mg/l	U	6.38		7.73	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		5.0		8.6*
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		<0.2		<0.2*
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		14.4		10.1*
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		10.0		4.1*
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5		<0.5*
Nickel as Ni	ICPMSS	2	mg/kg^	UM		31.3		24.0*
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		30.1		13.4*
Zinc as Zn	ICPMSS	16	mg/kg^	UM		55.5		35.1*
Boron as B	ICPBOR	0.5	mg/kg^	UM		2.4		1.3*
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		15.9		7.0
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		99		53*
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		49		26*
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		326		120*
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	0.004		0.004	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	0.011		0.010	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	0.00002		0.00004	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		<0.001	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U	0.002		0.002	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		<0.001	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U	<0.00003		<0.00003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U	0.014		0.018	
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U	0.003		0.006	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U	0.005		0.001	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U	<0.002		0.003	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U	<0.01		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U	6		11	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<11*
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<11*
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM		<27		<23*
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13		<11*
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13* B		<11* B
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013		<0.011*
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013		<0.011*
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM		<0.027		<0.023*
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013		<0.011*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013* B		<0.011* B
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			<0.081		<0.068*
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.11		<0.09*
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.11		<0.09*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.72		<1.45*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.11		<0.09*
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.11		<0.09*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.11		<0.09
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.11		<0.09*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.72		<1.45*
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			<1.83		<1.54

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
PCB 101	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 118	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 138	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 153	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 180	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 28	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
PCB 52	PCBECD	0.005	mg/kg^	UM		<0.007		<0.006*	
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM		<0.047		<0.040*	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<5.37		<4.52*	
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<5.37		<4.52*	
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<5.37		<4.52*	
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		19.4		<11.3*	
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		<8.05		<6.79	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		36.0		<22.6*	
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		9.90		7.19*	
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		17.0		10.7*	
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		18.0		10.7*	
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		26.4		<11.3*	
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		25.7		12.3	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

					Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
Analysis	Method Code	MDL	Units	Accred.					
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		89.5		49.3*	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		30.7		<22.6*	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		36.0		<22.6*	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1		<1	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1		<1*	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<4		<3*	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<4		<3	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1		<1*	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1		<1*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

UKAS TESTING 1252

mCERTS THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM			<1		<1*
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM			<3* B		<2* B
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<1		<1*
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM			<1		<1*
Benzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
Bromobenzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
Bromochloromethane	VOCHSAS	1	µg/kg^	UM			<1		<1*
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM			<1		<1*
Bromoform	VOCHSAS	1	µg/kg^	UM			<1		<1*
Bromomethane	VOCHSAS	1	µg/kg^	UM			<1		<1*
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM			<1		<1*
Chlorobenzene	VOCHSAS	1	µg/kg^	UM			<1		<1*
Chloroethane	VOCHSAS	2	µg/kg^	UM			<3		<2*
Chloroform	VOCHSAS	1	µg/kg^	UM			<1		<1*
Chloromethane	VOCHSAS	3	µg/kg^	U			<4		<3*
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM			<7		<5*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1		<1	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3		<2*	
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<2	
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<5		<4*	
MTBE	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Naphthalene	VOCHSAS	5	µg/kg^	UM		<7		<5*	
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1		<1*	
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3		<2*	
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Styrene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1		<1*	
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4		<3*	
Toluene	VOCHSAS	5	µg/kg^	UM		<7		<5*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH05-49-ES-15.00		BH05-60-ES-19.00	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	23/03/2023	23/03/2023	23/03/2023	23/03/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM			<1		<1*
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1		<1*
Trichloroethene	VOCHSAS	1	µg/kg^	U			<1		<1*
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM			<1		<1*
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM			<1		<1*
Total Moisture at 35°C	CLANDPREP	0.1	%	N			25.5		11.6
Total Moisture at 35°C	CLANDPREP	0.1	%	N			25.5		11.6
Description of Solid Material	CLANDPREP		-	N			CLAY		GRAVEL
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N			0.090		0.090
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N			0		100
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N			0		0
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N			0.869		0.893
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N			0.121		0.097
WAC Report	WAC		-	N			See Attached		See Attached
Asbestos Identification	SUB020		-	N			NAIIS		NAIIS

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CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S31978-18

DATE OF ISSUE: 05.04.23

DATE SAMPLES RECEIVED: 29.03.23

DATE ANALYSIS COMPLETED: 05.04.23

DESCRIPTION: Two soil/loose aggregate samples each weighing approximately 1.5kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

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IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S31978-18
DATE OF ISSUE: 05.04.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23032769

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S31978-49	23032769-001	BH05-49-ES-15.00	-	No Asbestos Detected
S31978-50	23032769-002	BH05-60-ES-19.00	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
D Third
Laboratory Analyst

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23032769	
Sample No	Sample Description	Issue Date
23032769-001	BH05-49-ES-15.00	06/04/2023

Leaching Data	
Weight of Sample (kg)	0.121
Moisture content @ 105°C (% Wet Weight)	25.5
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.869
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
U	WSLM59	Total Organic Carbon (% M/M)	0.47	3	5	6
	LOI450	Loss on Ignition (%)				10
UM	BTEXHSA	Sum of BTEX (mg/kg)	<0.081	6		
UM	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.047	1		
U	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	30.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.83	100		
UM	PHSOIL	pH (pH Units)	8.7		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
			mg/l except **	mg/kg (dry wt)	Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM3**	pH (pH Units)	9.0				
N	WSLM2**	Conductivity (µS/cm)	558				
U	ICPMSW	Arsenic	0.011	0.11	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.002	0.02	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.014	0.14	0.5	10	30
U	ICPMSW	Nickel	0.003	0.03	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.004	0.04	0.06	0.7	5
U	ICPMSW	Selenium	0.005	0.05	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	93	922	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	6	60	1000	20000	50000
N	WSLM27	Total Dissolved Solids	379	3760	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	6.38	63.2	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23032769	
Sample No	Sample Description	Issue Date
23032769-002	BH05-60-ES-19.00	06/04/2023

Leaching Data	
Weight of Sample (kg)	0.097
Moisture content @ 105°C (% Wet Weight)	7.5
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.893
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.14	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.068	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.040	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<22.6	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.54	100		
N	PHSOIL	pH (pH Units)	8.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.8				
N	WSLM2**	Conductivity (µS/cm)	810				
U	ICPMSW	Arsenic	0.010	0.10	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00004	0.0004	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	0.002	0.02	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	0.018	0.18	0.5	10	30
U	ICPMSW	Nickel	0.006	0.06	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.004	0.04	0.06	0.7	5
U	ICPMSW	Selenium	0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.003	0.03	4	50	200
U	KONENS	Chloride	151	1510	800	15000	25000
U	ISEF	Fluoride	0.4	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	11	110	1000	20000	50000
N	WSLM27	Total Dissolved Solids	551	5510	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	7.73	77.3	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23032769
Date Issued: 06/04/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23041026

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 3

Date Received: 13/04/2023

Analysis Date: 24/04/2023

Date Issued: 24/04/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

J. Hannah

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23041026-001	BH06-66-ES-22.20-22.80	04/04/2023 14:30:00	SOLID	Soil Sample
23041026-002	BH06-69-ES-27.40-27.65	04/04/2023 14:50:00	SOLID	Soil Sample
23041026-003	BH06-71-ES-34.80-35.25	04/04/2023 16:45:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

UKAS TESTING
1252

Analysis Results

					Sample ID	001	002		003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL	SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.					
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.260*	<0.260*
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.013*	<0.013*
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.260*	<0.260*
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.052*		<0.052*	<0.052*
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.260*	<0.260*
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.013*	<0.013*
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.260*	<0.260*
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N			0.2		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N			0.0006		
Chloride as Cl	KONENS	10	mg/kg^	N			<10		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N			<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N			0.14		
Phenol Index	SFAPI	0.5	mg/kg^	N			<0.5		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

UKAS TESTING 1252

Analysis Results

					Sample ID	001	002		003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL	SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.					
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N			<0.01		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N			5270		
TDS as mg/kg	PHCONDW	700	mg/kg^	N			7220		
Leached Organic Carbon	WSLM13	2	mg/kg^	N			9.4		
Fluoride as F	ISEF	1	mg/kg^	N			2		
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N			0.11		
Conductivity at 25°C	PHCONDW	100	µS/cm	N			1070		
pH	PHCONDW	1	pH units	N			7.4		
TDS as mg/l	PHCONDW	70	mg/l	N			726		
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM		9.1*		9.1*	9.1*
pH (2.5:1 extraction)	PHSOIL	1	pH units	U		9.1*		9.1*	9.1*
Chloride as Cl	KONECL	2	mg/kg	N		22		13	13
Chloride as Cl	KONENS	1	mg/l	U			<1		
Nitrate as NO3	KONENO3	2	mg/kg	N		7.3		10.6	9.5
Phenol Index	SFAPI	0.05	mg/l	U			<0.05		
Phenol Index	SFAPI	0.5	mg/kg^	U		<0.7*		<0.6*	<0.7*
Total Cyanide	SFAPI	0.5	mg/kg^	UM		<0.7*		<0.6*	<0.7*
Fluoride as F	ISEF	0.1	mg/l	U			0.2		
Soil Organic Matter	WSLM59	0.04	% m/m^	U		0.71*		0.70*	0.64*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

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Analysis Results

					Sample ID	001	002		003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL	SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.					
Total Organic Carbon	WSLM59	0.02	% m/m^	U				0.41*	
Sulphur as S	WSLM59	0.005	% m/m	N		0.022		0.022	0.024
Leached Organic Carbon	TOCW	0.4	mg/l	U			0.94		
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		0.7*		1.4*	0.5*
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		0.5*		0.5*	0.3*
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		3.4*		3.8*	2.5*
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		2.4*		1.8*	1.0*
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5*		<0.5*	<0.5*
Nickel as Ni	ICPMSS	2	mg/kg^	UM		7.2*		9.3*	5.8*
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		1.6*		1.6*	1.4*
Zinc as Zn	ICPMSS	16	mg/kg^	UM		21.2*		30.5*	<16.0*
Boron as B	ICPBOR	0.5	mg/kg^	UM		0.6*		<0.5*	<0.5*
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		2.4		1.9	2.1
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		50*		45*	75*
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		25*		22*	37*
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		329*		438*	392*
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U			0.00006		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65	BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL / SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023 / 04/04/2023	04/04/2023
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U			<0.00003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U			0.014		
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U			<0.001		
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U			0.011		
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U			0.02		
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U			530		
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13*		<13*	<13*
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13*		<13*	<13*
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM		<26*		<26*	<26*
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13*		<13*	<13*
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM		<13*		<13*	<13*
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013*	
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013*	
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM				<0.026*	
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM				<0.013*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

			Sample ID	001	002		003
			Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
			Sample Type	SOLID	LPL	SOLID	SOLID
			Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.				
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*	
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			<0.078*	
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U	<0.10*		<0.10*	<0.10*
Anthracene	PAHMSUS	0.08	mg/kg^	U	<0.10*		<0.10*	<0.10*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10* B		<0.10* B	<0.10*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Chrysene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Fluorene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM	0.20*		0.22*	<0.10*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		0.11*	<0.10*
Pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*		<0.10*	<0.10*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U	1.77*		1.79*	<1.67*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65	BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL / SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023 / 04/04/2023	04/04/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.10*	
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.10*	
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10* B	
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.10	
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			0.22*	
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			0.11*	
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*	
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			1.79*	
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			1.89	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65	BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL / SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023 / 04/04/2023	04/04/2023
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.006*	
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.006*	
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.046*	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		6.15*	7.66*	<5.21*
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		<5.22*	<5.19*	6.98*
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U		5.33*	7.32*	<5.21*
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U		<13.1*	13.1*	15.4*
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N		20.8	19.9	12.0
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		28.0*	41.4*	41.2*
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		8.69*	<5.19*	<5.21*
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		9.97*	8.89*	5.22*
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U		10.7*	12.1*	<5.21*
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U		<13.1*	<13.0*	17.5*
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N		27.1	13.7	15.0

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65	BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL / SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023 / 04/04/2023	04/04/2023
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		54.6*		37.6*	43.5*
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U				39.8*	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U				41.4*	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1		<1	<1
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1*		<1*	<1*
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<4*		<4*	<4*
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<4		<4	<4
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1*		<1*	<1*
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65	BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL / SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023 / 04/04/2023	04/04/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3*	<3*	<3*
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Benzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Bromoform	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Chloroethane	VOCHSAS	2	µg/kg^	UM		<3* B	<3* B	<3* B
Chloroform	VOCHSAS	1	µg/kg^	UM		<1*	<1*	<1*
Chloromethane	VOCHSAS	3	µg/kg^	U		<4*	<4*	<4*
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<7*	<7*	<7*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

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Analysis Results

					Sample ID	001	002		003
					Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
					Sample Type	SOLID	LPL	SOLID	SOLID
					Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.					
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1		<1	<1
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3*		<3*	<3*
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<3	<3
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<5*		<6*	<5*
MTBE	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Naphthalene	VOCHSAS	5	µg/kg^	UM		<7*		<7*	<7*
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1*		<1*	<1*
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3*		<3*	<3*
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Styrene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	<1*
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4*		<4*	<4*
Toluene	VOCHSAS	5	µg/kg^	UM		<7*		<7*	<7*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

1252

Analysis Results

				Sample ID	001	002		003
				Customer ID	BH06-66-ES-22.20-22.80	BH06-69-ES-27.40-27.65		BH06-71-ES-34.80-35.25
				Sample Type	SOLID	LPL	SOLID	SOLID
				Sampling Date	04/04/2023	04/04/2023	04/04/2023	04/04/2023
Analysis	Method Code	MDL	Units	Accred.				
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM	<1*		<1*	<1*
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM	<1*		<1*	<1*
Trichloroethene	VOCHSAS	1	µg/kg^	U	<1*		<1*	<1*
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM	<1*		<1*	<1*
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM	<1*		<1*	<1*
Total Moisture at 35°C	CLANDPREP	0.1	%	N	23.4		23.0	23.2
Total Moisture at 35°C	CLANDPREP	0.1	%	N	23.4		23.0	23.2
Description of Solid Material	CLANDPREP		-	N	CHALK		CHALK	CHALK
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N			0.090	
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N			100	
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N			0	
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N			0.875	
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N			0.115	
WAC Report	WAC		-	N			See Attached	
Asbestos Identification	SUB002		-	N	NAIIS		NAIIS	NAIIS

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23041026	
Sample No	Sample Description	Issue Date
23041026-002	BH06-69-ES-27.40-27.65	24/04/2023

Leaching Data	
Weight of Sample (kg)	0.115
Moisture content @ 105°C (% Wet Weight)	22.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.875
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.41	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.078	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	39.8	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	1.89	100		
N	PHSOIL	pH (pH Units)	9.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	7.4				
N	WSLM2**	Conductivity (µS/cm)	1070				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	0.02	0.2	20	100	300
U	ICPMSW	Cadmium	0.00006	0.0006	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	0.014	0.14	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	0.011	0.11	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.2	2	10	150	500
U	ICPWATVAR	Sulphate as SO4	530	5270	1000	20000	50000
N	WSLM27	Total Dissolved Solids	726	7220	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	0.94	9.4	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

ASBESTOS ANALYSIS RESULTS

SOCOTEC Asbestos Limited Certificate of Analysis for Asbestos in Soils, Sediments and Aggregates

UKAS TESTING 1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

SOCOTEC

Client:	SOCOTEC Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-28572**
For the attention of:	SOCOTEC Environmental Chemistry	**Report Date:**	**20/04/2023**
Site Address:	D2064-22 - Tilbury	**Project Number:**	**23041026**

Sample Number	Sample Date	Sample Location & Matrix	Test Date	Total Sample Dry Weight (g)	Weight of <10mm Fraction (g)	Asbestos(g) in >10mm	Asbestos(g) in < 10mm	% Asbestos by weight of Total Dried Sample	Moisture Content	Asbestos Fibre Types Identified
1	04/04/23	BH06-66-ES-22.20-22.80 Chalk	20/04/2023	945.3	945.3		0.00000			NADIS Stage 1
2	04/04/23	BH06-69-ES-27.40-27.65 Chalk	20/04/2023	939.0	939.0		0.00000			NADIS Stage 1
3	04/04/23	BH06-71-ES-34.80-35.25 Chalk	20/04/2023	875.0	875.0		0.00000			NADIS Stage 1

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Identification Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name:	Rachel Howell	Authorised Signatory:
Position:	Lab Analyst	

The sample analysis for the above results was carried out using the procedures detailed in SOCOTEC Asbestos Limited in house method (SCI-ASB-020) based on EA document Quantification of asbestos in soil and associated materials - Draft 2017. Fibre identification was carried out using SOCOTEC Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of the < 10mm fraction for asbestos content only includes ACMs and fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at a SOCOTEC Asbestos Ltd laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, DE15 0YZ. UKAS Testing Number 1089. Recommended sample weight is 1kg-2kg, samples less than 1kg are classified as deviating samples.

SOCOTEC Asbestos Limited is a wholly owned subsidiary of SOCOTEC UK Limited, registered in England and Wales, registered company 04951688.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23041026
Date Issued:	24/04/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB002	Asbestos Stage 1 (with Stage 2+3 Trigger)	
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041026
Date Issued: 24/04/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23041188

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 2

Date Received: 14/04/2023

Analysis Date: 03/05/2023

Date Issued: 03/05/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

J. Hannah

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23041188-001	BH06-80-ES-46.04-46.27	05/04/2023 14:00:00	SOLID	Soil Sample
23041188-002	BH06-86-ES-54.30-54.56	11/04/2023 14:00:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.249*	
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.012*	
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.249*	
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.052*		<0.05*	
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.249*	
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.012*	
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.261*		<0.249*	
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1		<0.1		
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		<0.0002		
Chloride as Cl	KONENS	10	mg/kg^	N	<10		<10		
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		<0.0003		
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		<0.5		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		70		60	
TDS as mg/kg	PHCONDW	700	mg/kg^	N		<700		<700	
Leached Organic Carbon	WSLM13	2	mg/kg^	N		6.9		6.0	
Fluoride as F	ISEF	1	mg/kg^	N		3		3	
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02		<0.02	
Conductivity at 25°C	PHCONDW	100	µS/cm	N		<100		<100	
pH	PHCONDW	1	pH units	N		8.7		9.0	
TDS as mg/l	PHCONDW	70	mg/l	N		<70		<70	
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			8.9*		9.2*
pH (2.5:1 extraction)	PHSOIL	1	pH units	U			8.9*		9.2*
Chloride as Cl	KONECL	2	mg/kg	N			14		9
Chloride as Cl	KONENS	1	mg/l	U		<1		<1	
Nitrate as NO3	KONENO3	2	mg/kg	N			7.2		10.5
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05	
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.7*		<0.6*
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.7*		<0.6*
Fluoride as F	ISEF	0.1	mg/l	U		0.3		0.3	
Soil Organic Matter	WSLM59	0.04	% m/m^	U			0.76*		1.07*

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Project No: 23041188
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U			0.44*		0.62*
Sulphur as S	WSLM59	0.005	% m/m	N			0.023		0.025
Leached Organic Carbon	TOCW	0.4	mg/l	U		0.69		0.60	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM			1.4*		1.4*
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM			0.4*		0.4*
Copper as Cu	ICPMSS	1.6	mg/kg^	UM			10.2*		28.4*
Lead as Pb	ICPMSS	0.7	mg/kg^	UM			2.2*		3.4*
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM			<0.5*		<0.5*
Nickel as Ni	ICPMSS	2	mg/kg^	UM			5.6*		4.8*
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM			2.1*		2.1*
Zinc as Zn	ICPMSS	16	mg/kg^	UM			20.1*		33.2*
Boron as B	ICPBOR	0.5	mg/kg^	UM			1.9*		1.1*
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N			3.3		5.4
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM			97*		239*
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U			48*		120*
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U			2130*		630*
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U		0.001		<0.001	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U		<0.00002		<0.00002	

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Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003		<0.00003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001	
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		<0.002		<0.002	
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01		<0.01	
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		7		6	
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<12*
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<12*
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<26*		<25*
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<12*
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<12*
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.012*
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.012*
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.026*		<0.025*
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.012*

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Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

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					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.012*
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM			<0.078*		<0.075*
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.10*		<0.10*
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.10*		<0.10*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10* B		<0.10* B
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		0.20*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.67*		1.69*

Client: SOCOTEC Geotechnical
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Project No: 23041188
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Analysis Results

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					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U			<0.10*		<0.10*
Anthracene	PAHMSUS	0.08	mg/kg^	U			<0.10*		<0.10*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10* B		<0.10* B
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Chrysene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Coronene	PAHMSUS	0.08	mg/kg^	N			<0.10		<0.10
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Fluorene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		0.20*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Pyrene	PAHMSUS	0.08	mg/kg^	UM			<0.10*		<0.10*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U			<1.67*		1.69*
Total PAH 17	PAHMSUS	1.36	mg/kg^	N			<1.77		1.79

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.007*		<0.006*
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.046*		<0.044*
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.22*		5.36*
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			6.02*		<4.98*
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			6.43*		<4.98*
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U			<13.0*		<12.4*
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N			23.7		<7.46
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			39.5*		<24.9*
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			6.93*		8.20*
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			6.33*		10.4*
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			7.71*		9.83*
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U			<13.0*		<12.4*
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N			16.8		26.3

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U		43.3*		56.2*	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		38.0*		<24.9*	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U		39.5*		<24.9*	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N		<1		<1	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U		<1*		<1*	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM		<4*		<4*	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N		<4		<4	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U		<1*		<1*	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<3*		<3*	
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Benzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Bromoform	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Chloroethane	VOCHSAS	2	µg/kg^	UM		<3* B		<3* B	
Chloroform	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Chloromethane	VOCHSAS	3	µg/kg^	U		<4*		<4*	
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<7*		<7*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1		<1	
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<3*		<3*	
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<3		<3	
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<5*		<5*	
MTBE	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Naphthalene	VOCHSAS	5	µg/kg^	UM		<7*		<7*	
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1*		<1*	
o-Xylene	VOCHSAS	2	µg/kg^	UM		<3*		<3*	
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Styrene	VOCHSAS	1	µg/kg^	UM		<1* B		<1* B	
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*	
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4*		<4*	
Toluene	VOCHSAS	5	µg/kg^	UM		<7*		<7*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002	
					Customer ID	BH06-80-ES-46.04-46.27		BH06-86-ES-54.30-54.56	
					Sample Type	LPL	SOLID	LPL	SOLID
					Sampling Date	05/04/2023	05/04/2023	11/04/2023	11/04/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM			<1*		<1*
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1*		<1*
Trichloroethene	VOCHSAS	1	µg/kg^	U			<1*		<1*
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM			<1*		<1*
Total Moisture at 35°C	CLANDPREP	0.1	%	N			23.3		19.6
Total Moisture at 35°C	CLANDPREP	0.1	%	N			23.3		19.6
Description of Solid Material	CLANDPREP		-	N			CHALK		CHALK
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N			0.090		0.090
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N			100		100
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N			0		0
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N			0.873		0.877
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N			0.117		0.113
WAC Report	WAC		-	N			See Attached		See Attached
Asbestos Identification	SUB020		-	N			NAIIS		NAIIS

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S32590-2

DATE OF ISSUE: 02.05.23

DATE SAMPLES RECEIVED: 25.04.23

DATE ANALYSIS COMPLETED: 02.05.23

DESCRIPTION: Two soil/loose aggregate samples each weighing approximately 0.6-0.7kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of soil/loose aggregate samples for mass determination of asbestos.

METHODS:

Qualitative - The samples were analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in either of the soil samples by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org
Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax: 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S32590-2
DATE OF ISSUE: 02.05.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23041188

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S32590-2	23041188-001	BH06-80-ES-46.04-46.27	-	No Asbestos Detected
S32590-3	23041188-002	BH06-86-ES-54.30-54.56	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
D Third
Laboratory Analyst

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23041188	
Sample No	Sample Description	Issue Date
23041188-001	BH06-80-ES-46.04-46.27	03/05/2023

Leaching Data	
Weight of Sample (kg)	0.117
Moisture content @ 105°C (% Wet Weight)	23.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.873
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.44	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.078	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	38.0	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.77	100		
N	PHSOIL	pH (pH Units)	8.9		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	8.7				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	7	70	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	0.69	6.9	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23041188	
Sample No	Sample Description	Issue Date
23041188-002	BH06-86-ES-54.30-54.56	03/05/2023

Leaching Data	
Weight of Sample (kg)	0.113
Moisture content @ 105°C (% Wet Weight)	20.2
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.877
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.62	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.075	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.044	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<24.9	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	1.79	100		
N	PHSOIL	pH (pH Units)	9.2		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	9.0				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	6	60	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	0.60	6.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
BH06-80-ES-46.04-46.27	23041188-001	**VOCHSAS**						✓

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23041188
Date Issued: 03/05/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23042005

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: Josh Simmonds

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: josh.simmonds@socotec.com

Phone: 000

No. Samples Received: 4

Date Received: 21/04/2023

Analysis Date: 15/05/2023

Date Issued: 15/05/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23042005-001	BH05-67-ES-24.86-25.11	14/04/2023 10:59:00	SOLID	Soil Sample
23042005-002	BH05-69-ES-29.50-29.77	14/04/2023 11:24:00	SOLID	Soil Sample
23042005-003	BH05-76-ES-40.47-40.83	14/04/2023 15:16:00	SOLID	Soil Sample
23042005-004	BH05-84-ES-50.36-50.66	14/04/2023 17:02:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.257*		<0.263*		<0.257*		
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.013*		<0.013*		
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.257*		<0.263*		<0.257*		
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM		<0.052*		<0.053*		<0.052*		
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.257*		<0.263*		<0.257*		
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.013*		<0.013*		
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM		<0.257*		<0.263*		<0.257*		
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	<0.1		<0.1		<0.1		<0.1	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	<0.0002		0.0004		0.0016		0.0015	
Chloride as Cl	KONENS	10	mg/kg^	N	<10		<10		<10		30	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	<0.0003		<0.0003		<0.0003		<0.0003	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	<0.01		<0.01		<0.01		<0.01	
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.5		<0.5		<0.5		<0.5	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM	<0.258*
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM	<0.013*
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM	<0.258*
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	UM	<0.052*
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	UM	<0.258*
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	UM	<0.013*
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	UM	<0.258*
Antimony as Sb	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Arsenic as As	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Barium as Ba	ICPWATVAR (Dissolved)	0.1	mg/kg^	N	
Cadmium as Cd	ICPMSW (Dissolved)	0.0002	mg/kg^	N	
Chloride as Cl	KONENS	10	mg/kg^	N	
Total Chromium as Cr	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Copper as Cu	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Lead as Pb	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Mercury as Hg	ICPMSW (Dissolved)	0.0003	mg/kg^	N	
Molybdenum as Mo	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Nickel as Ni	ICPMSW (Dissolved)	0.01	mg/kg^	N	
Phenol Index	SFAPI	0.5	mg/kg^	N	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N		<0.01		<0.01		<0.01		<0.01
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N		<30		<30		<30		<30
TDS as mg/kg	PHCONDW	700	mg/kg^	N		<700		<700		<700		<700
Leached Organic Carbon	WSLM13	2	mg/kg^	N		6.1		<4.0		4.7		<4.0
Fluoride as F	ISEF	1	mg/kg^	N		3		3		4		3
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N		<0.02		<0.02		<0.02		<0.02
Conductivity at 25°C	PHCONDW	100	µS/cm	N		<100		<100		<100		<100
pH	PHCONDW	1	pH units	N		9.0		9.1		9.2		9.2
TDS as mg/l	PHCONDW	70	mg/l	N		<70		<70		<70		<70
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM			9.1*		9.5*		9.4*	
pH (2.5:1 extraction)	PHSOIL	1	pH units	U			9.1*		9.5*		9.4*	
Chloride as Cl	KONECL	2	mg/kg	N			19		19		7	
Chloride as Cl	KONENS	1	mg/l	U		<1		1		<1		3
Nitrate as NO3	KONENO3	2	mg/kg	N			<4.0 D		4.9		<4.0 D	
Phenol Index	SFAPI	0.05	mg/l	U		<0.05		<0.05		<0.05		<0.05
Phenol Index	SFAPI	0.5	mg/kg^	U			<0.6*		<0.7*		<0.6*	
Total Cyanide	SFAPI	0.5	mg/kg^	UM			<0.6*		<0.7*		<0.6*	
Fluoride as F	ISEF	0.1	mg/l	U		0.3		0.3		0.4		0.3
Soil Organic Matter	WSLM59	0.04	% m/m^	U			0.76*		0.80*		0.89*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004	Customer ID: BH05-84-ES-50.36-50.66	Sample Type: SOLID	Sampling Date: 14/04/2023
Selenium as Se	ICPMSW (Dissolved)	0.01	mg/kg^	N				
Total Sulphur as SO4	ICPWATVAR (Dissolved)	30	mg/kg^	N				
TDS as mg/kg	PHCONDW	700	mg/kg^	N				
Leached Organic Carbon	WSLM13	2	mg/kg^	N				
Fluoride as F	ISEF	1	mg/kg^	N				
Zinc as Zn	ICPMSW (Dissolved)	0.02	mg/kg^	N				
Conductivity at 25°C	PHCONDW	100	µS/cm	N				
pH	PHCONDW	1	pH units	N				
TDS as mg/l	PHCONDW	70	mg/l	N				
pH (2.5:1 extraction)	PHSOIL	1	pH units	UM	9.6*			
pH (2.5:1 extraction)	PHSOIL	1	pH units	U	9.6*			
Chloride as Cl	KONECL	2	mg/kg	N	63			
Chloride as Cl	KONENS	1	mg/l	U				
Nitrate as NO3	KONENO3	2	mg/kg	N	<4.0 D			
Phenol Index	SFAPI	0.05	mg/l	U				
Phenol Index	SFAPI	0.5	mg/kg^	U	<0.6*			
Total Cyanide	SFAPI	0.5	mg/kg^	UM	<0.6*			
Fluoride as F	ISEF	0.1	mg/l	U				
Soil Organic Matter	WSLM59	0.04	% m/m^	U	0.64*			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U		0.44*		0.46*		0.52*		
Sulphur as S	WSLM59	0.005	% m/m	N		0.018		0.021		0.018		
Leached Organic Carbon	TOCW	0.4	mg/l	U	0.61		<0.40		0.47		<0.40	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM		0.6*		<0.3*		<0.3*		
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM		0.2*		0.2*		<0.2*		
Copper as Cu	ICPMSS	1.6	mg/kg^	UM		2.1*		2.3*		2.4*		
Lead as Pb	ICPMSS	0.7	mg/kg^	UM		1.3*		1.2*		1.1*		
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM		<0.5*		<0.5*		<0.5*		
Nickel as Ni	ICPMSS	2	mg/kg^	UM		4.4*		4.2*		4.0*		
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM		1.5*		1.4*		<1.2*		
Zinc as Zn	ICPMSS	16	mg/kg^	UM		19.3*		<16.0*		<16.0*		
Boron as B	ICPBOR	0.5	mg/kg^	UM		<0.5*		<0.5*		<0.5*		
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N		2.2		1.9		2.4		
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM		31*		29*		31*		
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U		15*		15*		15*		
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U		706*		452*		392*		
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		<0.001		<0.001		<0.001	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001		<0.001		<0.001		<0.001	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	<0.00002		0.00004		0.00016		0.00015	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING
1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
Total Organic Carbon	WSLM59	0.02	% m/m^	U	0.37*
Sulphur as S	WSLM59	0.005	% m/m	N	0.021
Leached Organic Carbon	TOCW	0.4	mg/l	U	
Arsenic as As	ICPMSS	0.3	mg/kg^	UM	7.6*
Cadmium as Cd	ICPMSS	0.2	mg/kg^	UM	0.2*
Copper as Cu	ICPMSS	1.6	mg/kg^	UM	60.1*
Lead as Pb	ICPMSS	0.7	mg/kg^	UM	16.8*
Mercury as Hg	ICPMSS	0.5	mg/kg^	UM	<0.5*
Nickel as Ni	ICPMSS	2	mg/kg^	UM	20.2*
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	UM	20.2*
Zinc as Zn	ICPMSS	16	mg/kg^	UM	54.0*
Boron as B	ICPBOR	0.5	mg/kg^	UM	<0.5*
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N	2.2
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	UM	37*
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	U	19*
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	U	370*
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

					Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Analysis	Method Code	MDL	Units	Accred.								
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003		<0.00003		<0.00003		<0.00003
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001		<0.001		<0.001		<0.001
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		<0.002		<0.002		<0.002		<0.002
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U		<0.01		<0.01		<0.01		<0.01
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		<3		<3		<3		<3
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<13*		<13*	
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<13*		<13*	
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM			<26*		<26*		<26*	
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<13*		<13*	
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM			<13*		<13*		<13*	
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.013*		<0.013*	
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.013*		<0.013*	
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM			<0.026*		<0.026*		<0.026*	
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM			<0.013*		<0.013*		<0.013*	

Client: SOCOTEC Geotechnical
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004	Customer ID: BH05-84-ES-50.36-50.66	Sample Type: SOLID	Sampling Date: 14/04/2023
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U				
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U				
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U				
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U				
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U				
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U				
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U				
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U				
Barium as Ba	ICPWATVAR (Dissolved)	0.01	mg/l	U				
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U				
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM	<13*			
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	UM	<13*			
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	UM	<26*			
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	UM	<13*			
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	UM	<13*			
Benzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM	<0.013*			
Ethylbenzene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM	<0.013*			
m/p-Xylene HS_1D_AR	BTEXHSA	0.02	mg/kg^	UM	<0.026*			
o-Xylene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM	<0.013*			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM		<0.013*		<0.013*		<0.013*		
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM		<0.077*		<0.079*		<0.077*		
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.10*		<0.11*		<0.10*		
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.10*		<0.11*		<0.10*		
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.65*		<1.68*		<1.65*		

Client: SOCOTEC Geotechnical
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Project No: 23042005
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
Toluene HS_1D_AR	BTEXHSA	0.01	mg/kg^	UM	<0.013*
Total BTEX HS_1D_AR	BTEXHSA	0.06	mg/kg^	UM	<0.078*
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U	<0.10*
Anthracene	PAHMSUS	0.08	mg/kg^	U	<0.10*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Chrysene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Fluorene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U	<1.65*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U		<0.10*		<0.11*		<0.10*		
Anthracene	PAHMSUS	0.08	mg/kg^	U		<0.10*		<0.11*		<0.10*		
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Chrysene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Coronene	PAHMSUS	0.08	mg/kg^	N		<0.10		<0.11		<0.10		
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Fluorene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Naphthalene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Pyrene	PAHMSUS	0.08	mg/kg^	UM		<0.10*		<0.11*		<0.10*		
Total PAH 16	PAHMSUS	1.28	mg/kg^	U		<1.65*		<1.68*		<1.65*		
Total PAH 17	PAHMSUS	1.36	mg/kg^	N		<1.75		<1.79		<1.75		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004 Customer ID: BH05-84-ES-50.36-50.66 Sample Type: SOLID Sampling Date: 14/04/2023
Acenaphthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Acenaphthylene	PAHMSUS	0.08	mg/kg^	U	<0.10*
Anthracene	PAHMSUS	0.08	mg/kg^	U	<0.10*
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Chrysene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Coronene	PAHMSUS	0.08	mg/kg^	N	<0.10
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Fluoranthene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Fluorene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Naphthalene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Phenanthrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Pyrene	PAHMSUS	0.08	mg/kg^	UM	<0.10*
Total PAH 16	PAHMSUS	1.28	mg/kg^	U	<1.65*
Total PAH 17	PAHMSUS	1.36	mg/kg^	N	<1.76

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
PCB 101	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
PCB 118	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
PCB 138	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
PCB 153	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
PCB 180	PCBECD	0.005	mg/kg^	UM			<0.006* B		<0.007* B		<0.006* B	
PCB 28	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
PCB 52	PCBECD	0.005	mg/kg^	UM			<0.006*		<0.007*		<0.006*	
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM			<0.045*		<0.046*		<0.045*	
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.15*		<5.26*		<5.15*	
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.15*		<5.26*		<5.15*	
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U			<5.15*		<5.26*		<5.15*	
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U			<12.9*		<13.2*		<12.9*	
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N			<7.72		<7.89		<7.72	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<25.7*		<26.3*		<25.7*	
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			10.3*		9.17*		12.0*	
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			10.2*		11.0*		10.6*	
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U			7.89*		8.07*		7.96*	
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U			22.7*		37.3*		25.7*	
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N			28.1		37.3		33.2	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004	Customer ID: BH05-84-ES-50.36-50.66	Sample Type: SOLID	Sampling Date: 14/04/2023
PCB 101	PCBECD	0.005	mg/kg^	UM	<0.006*			
PCB 118	PCBECD	0.005	mg/kg^	UM	<0.006*			
PCB 138	PCBECD	0.005	mg/kg^	UM	<0.006*			
PCB 153	PCBECD	0.005	mg/kg^	UM	<0.006*			
PCB 180	PCBECD	0.005	mg/kg^	UM	<0.006* B			
PCB 28	PCBECD	0.005	mg/kg^	UM	<0.006*			
PCB 52	PCBECD	0.005	mg/kg^	UM	<0.006*			
Total PCB 7 Congeners	PCBECD	0.035	mg/kg^	UM	<0.045*			
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<5.17*			
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<5.17*			
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	U	<5.17*			
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	U	<12.9*			
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N	<7.75			
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U	<25.8*			
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	7.60*			
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	<5.17*			
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	U	<5.17*			
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	U	<12.9*			
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N	<7.75			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U			69.4*		87.6*		80.1*	
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<25.7*		<26.3*		<25.7*	
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U			<25.7*		<26.3*		<25.7*	
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N			<1		<1		<1	
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U			<1*		<1*		<1*	
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM			<4*		<4*		<4*	
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N			<4		<4		<4	
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U			<1*		<1*		<1*	
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM			<1*		<1*		<1*	

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	U	<25.8*
>C10-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U	<25.8*
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	U	<25.8*
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	UM	<1*
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	UM	<1*
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N	<1
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	UM	<1*
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	UM	<1*
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	U	<1*
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	UM	<1*
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	UM	<4*
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	UM	<1*
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N	<4
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	U	<1*
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	UM	<1*
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM	<1*
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	UM	<1*
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	UM	<1*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM		<2*		<3*		<3*		
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Benzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Bromobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Bromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Bromoform	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Bromomethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Chlorobenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Chloroethane	VOCHSAS	2	µg/kg^	UM		<2*		<3*		<3*		
Chloroform	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Chloromethane	VOCHSAS	3	µg/kg^	U		<4*		<4*		<4*		
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM		<6*		<7*		<7*		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM	<1*
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	UM	<1*
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	UM	<1*
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	UM	<3*
2-Chlorotoluene	VOCHSAS	1	µg/kg^	UM	<1*
4-Chlorotoluene	VOCHSAS	1	µg/kg^	UM	<1*
Benzene	VOCHSAS	1	µg/kg^	UM	<1*
Bromobenzene	VOCHSAS	1	µg/kg^	UM	<1*
Bromochloromethane	VOCHSAS	1	µg/kg^	UM	<1*
Bromodichloromethane	VOCHSAS	1	µg/kg^	UM	<1*
Bromoform	VOCHSAS	1	µg/kg^	UM	<1*
Bromomethane	VOCHSAS	1	µg/kg^	UM	<1*
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	UM	<1*
Chlorobenzene	VOCHSAS	1	µg/kg^	UM	<1*
Chloroethane	VOCHSAS	2	µg/kg^	UM	<3*
Chloroform	VOCHSAS	1	µg/kg^	UM	<1*
Chloromethane	VOCHSAS	3	µg/kg^	U	<4*
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	UM	<7*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING 1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Dibromomethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N		<1		<1		<1		
Ethylbenzene	VOCHSAS	2	µg/kg^	UM		<2*		<3*		<3*		
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N		<2		<3		<3		
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
m and p-Xylene	VOCHSAS	4	µg/kg^	UM		<5*		<5*		<6*		
MTBE	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Naphthalene	VOCHSAS	5	µg/kg^	UM		<6*		<7*		<7*		
n-Butylbenzene	VOCHSAS	1	µg/kg^	U		<1*		<1*		<1*		
o-Xylene	VOCHSAS	2	µg/kg^	UM		<2*		<3*		<3*		
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Propylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Styrene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM		<4*		<4*		<4*		
Toluene	VOCHSAS	5	µg/kg^	UM		<6*		<7*		<7*		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

UKAS TESTING
1252

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004
					Customer ID: BH05-84-ES-50.36-50.66
					Sample Type: SOLID
					Sampling Date: 14/04/2023
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM	<1*
Dibromochloromethane	VOCHSAS	1	µg/kg^	UM	<1*
Dibromomethane	VOCHSAS	1	µg/kg^	UM	<1*
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N	<1
Ethylbenzene	VOCHSAS	2	µg/kg^	UM	<3*
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N	<3
iso-Propylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
m and p-Xylene	VOCHSAS	4	µg/kg^	UM	<6*
MTBE	VOCHSAS	1	µg/kg^	UM	<1*
Naphthalene	VOCHSAS	5	µg/kg^	UM	<7*
n-Butylbenzene	VOCHSAS	1	µg/kg^	U	<1*
o-Xylene	VOCHSAS	2	µg/kg^	UM	<3*
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	UM	<1*
Propylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
sec-Butylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
Styrene	VOCHSAS	1	µg/kg^	UM	<1*
tert-Butylbenzene	VOCHSAS	1	µg/kg^	UM	<1*
Tetrachloroethene	VOCHSAS	3	µg/kg^	UM	<4*
Toluene	VOCHSAS	5	µg/kg^	UM	<7*

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001		002		003		004
					Customer ID	BH05-67-ES-24.86-25.11		BH05-69-ES-29.50-29.77		BH05-76-ES-40.47-40.83		BH05-84-ES-50.36-50.66
					Sample Type	LPL	SOLID	LPL	SOLID	LPL	SOLID	LPL
					Sampling Date	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023	14/04/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Trichloroethene	VOCHSAS	1	µg/kg^	U		<1*		<1*		<1*		
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM		<1*		<1*		<1*		
Total Moisture at 35°C	CLANDPREP	0.1	%	N		22.3		24.0		22.3		
Total Moisture at 35°C	CLANDPREP	0.1	%	N		22.3		24.0		22.3		
Description of Solid Material	CLANDPREP		-	N		CHALK		CHALK		CHALK		
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N		0.090		0.090		0.090		
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N		0		100		100		
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N		0		0		0		
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N		0.882		0.875		0.879		
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N		0.108		0.115		0.111		
WAC Report	WAC		-	N		See Attached		See Attached		See Attached		
Asbestos Identification	SUB002		-	N		NAIIS		NAIIS		NAIIS		

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 004	Customer ID: BH05-84-ES-50.36-50.66	Sample Type: SOLID	Sampling Date: 14/04/2023
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	UM	<1*			
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	UM	<1*			
Trichloroethene	VOCHSAS	1	µg/kg^	U	<1*			
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	UM	<1*			
Vinyl Chloride	VOCHSAS	1	µg/kg^	UM	<1*			
Total Moisture at 35°C	CLANDPREP	0.1	%	N	22.6			
Total Moisture at 35°C	CLANDPREP	0.1	%	N	22.6			
Description of Solid Material	CLANDPREP		-	N	CHALK			
Equivalent Weight of Dry Material (kg)	Leachate Prep CEN 10:1		kg	N	0.090			
Fraction above 4mm (%)	Leachate Prep CEN 10:1		%	N	100			
Fraction of non-crushable material (%)	Leachate Prep CEN 10:1		%	N	0			
Volume of Water for 10:1 Leach (ltr)	Leachate Prep CEN 10:1		l	N	0.877			
Weight of Sample Leached (kg)	Leachate Prep CEN 10:1		kg	N	0.113			
WAC Report	WAC		-	N	See Attached			
Asbestos Identification	SUB002		-	N	NAIIS			

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23042005	
Sample No	Sample Description	Issue Date
23042005-001	BH05-67-ES-24.86-25.11	15/05/2023

Leaching Data	
Weight of Sample (kg)	0.108
Moisture content @ 105°C (% Wet Weight)	17.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.882
Fraction of sample above 4mm %	0
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.44	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.077	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.045	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<25.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.75	100		
N	PHSOIL	pH (pH Units)	9.1		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	9.0				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	<0.00002	<0.0002	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	<3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	0.61	6.1	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23042005	
Sample No	Sample Description	Issue Date
23042005-002	BH05-69-ES-29.50-29.77	15/05/2023

Leaching Data	
Weight of Sample (kg)	0.115
Moisture content @ 105°C (% Wet Weight)	22.1
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.875
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.46	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.079	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.046	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<26.3	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.79	100		
N	PHSOIL	pH (pH Units)	9.5		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	9.1				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00004	0.0004	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	1	<10	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	<3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	<0.40	<4.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23042005	
Sample No	Sample Description	Issue Date
23042005-003	BH05-76-ES-40.47-40.83	15/05/2023

Leaching Data	
Weight of Sample (kg)	0.111
Moisture content @ 105°C (% Wet Weight)	19.0
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.879
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.52	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.077	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.045	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<25.7	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.75	100		
N	PHSOIL	pH (pH Units)	9.4		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	9.2				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00016	0.0016	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	<1	<10	800	15000	25000
U	ISEF	Fluoride	0.4	4	10	150	500
U	ICPWATVAR	Sulphate as SO4	<3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	0.47	4.7	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

WASTE ACCEPTANCE CRITERIA TESTING
BSEN 12457/2

Client	SOCOTEC Geotechnical	
Site	D2064-22 - Tilbury	
Project	23042005	
Sample No	Sample Description	Issue Date
23042005-004	BH05-84-ES-50.36-50.66	15/05/2023

Leaching Data	
Weight of Sample (kg)	0.113
Moisture content @ 105°C (% Wet Weight)	20.6
Equivalent weight based on drying @ 105°C (kg)	0.090
Volume of Water required for 10:1 stage (ltres)	0.877
Fraction of sample above 4mm %	100
Fraction of non-crushable material %	0

Note: The >4mm fraction is crushed using a disc mill

Accreditation	Method Code	Solid Waste Analysis (Dry Basis)	Concentration in Solid (Dry Weight Basis)	Landfill Waste Acceptance Criteria Limit Values		
				Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
N	WSLM59	Total Organic Carbon (% M/M)	0.37	3	5	6
	LOI450	Loss on Ignition (%)				10
N	BTEXHSA	Sum of BTEX (mg/kg)	<0.078	6		
N	PCBUSECD	Sum of 7 Congener PCBs (mg/kg)	<0.045	1		
N	TPHFIDUS	>C10-C40 Aliphatic (mg/kg) EH_1D_AL	<25.8	500		
N	PAHMSUS	Sum of 17 PAHs (mg/kg)	<1.76	100		
N	PHSOIL	pH (pH Units)	9.6		>6	
	ANC	Acid Neutralisation Capacity (mol/kg)			To be evaluated	To be evaluated

Accreditation	Method Code	Leachate Analysis	10:1 Single Stage Leachate	Cumulative Amount Leached at 10:1	Landfill Waste Acceptance Criteria Limit Values		
					Inert Waste Landfill	Stable Non-Reactive Hazardous Waste in Non-Hazardous Landfill	Hazardous Waste Landfill
			mg/l except **	mg/kg (dry wt)			
N	WSLM3**	pH (pH Units)	9.2				
N	WSLM2**	Conductivity (µS/cm)	<100				
U	ICPMSW	Arsenic	<0.001	<0.01	0.5	2	25
U	ICPWATVAR	Barium	<0.01	<0.1	20	100	300
U	ICPMSW	Cadmium	0.00015	0.0015	0.04	1	5
U	ICPMSW	Chromium	<0.001	<0.01	0.5	10	70
U	ICPMSW	Copper	<0.001	<0.01	2	50	100
U	ICPMSW	Mercury	<0.00003	<0.0003	0.01	0.2	2
U	ICPMSW	Molybdenum	<0.001	<0.01	0.5	10	30
U	ICPMSW	Nickel	<0.001	<0.01	0.4	10	40
U	ICPMSW	Lead	<0.001	<0.01	0.5	10	50
U	ICPMSW	Antimony	<0.001	<0.01	0.06	0.7	5
U	ICPMSW	Selenium	<0.001	<0.01	0.1	0.5	7
U	ICPMSW	Zinc	<0.002	<0.02	4	50	200
U	KONENS	Chloride	3	30	800	15000	25000
U	ISEF	Fluoride	0.3	3	10	150	500
U	ICPWATVAR	Sulphate as SO4	<3	<30	1000	20000	50000
N	WSLM27	Total Dissolved Solids	<70	<700	4000	60000	100000
U	SFAPI	Phenol Index	<0.05	<0.5	1		
U	WSLM13	Dissolved Organic Carbon	<0.40	<4.0	500	800	1000

Tests where the accreditation is set to U are UKAS accredited, those where the accreditation is set to N are not UKAS accredited.
Calculated data is not UKAS accredited
Landfill Waste Acceptance Criteria limit values correct as of 11th March 2009.

ASBESTOS ANALYSIS RESULTS

SOCOTEC Asbestos Limited Certificate of Analysis for Asbestos in Soils, Sediments and Aggregates

UKAS TESTING 1089

Detection limit of Method SCI-ASB-020 is 0.001%

Sampling has been carried out by a third party

SOCOTEC

Client:	SOCOTEC Environmental Chemistry	**Page 1 of 1**	
Address:	Etwall House, Bretby Business Park, Ashby Road, Burton upon Trent	**Report No:**	**ANO-0503-28607**
For the attention of:	SOCOTEC Environmental Chemistry	**Report Date:**	**03/05/2023**
Site Address:	D2064-22 - Tilbury	**Project Number:**	**23042005**

Sample Number	Sample Date	Sample Location & Matrix	Test Date	Total Sample Dry Weight (g)	Weight of <10mm Fraction (g)	Asbestos(g) in >10mm	Asbestos(g) in < 10mm	% Asbestos by weight of Total Dried Sample	Moisture Content	Asbestos Fibre Types Identified
1	14/04/23	BH05-67-ES-24.86-25.11 Chalk	03/05/2023	937.1	889.4	0.00000	0.00000			NADIS Stage 1
2	14/04/23	BH05-69-ES-29.50-29.77 Chalk	03/05/2023	924.1	924.1		0.00000			NADIS Stage 1
3	14/04/23	BH05-76-ES-40.47-40.83 Chalk	03/05/2023	583.2	583.2		0.00000			NADIS Stage 1
4	14/04/23	BH05-84-ES-50.36-50.66 Chalk	03/05/2023	763.8	739.3	0.00000	0.00000			NADIS Stage 1

Keys

NAACR = Not Analysed at Clients Request

*** visible to naked eye**

NAIIS = No Asbestos Identified in Sample (Identification Only)

NADIS = No Asbestos Detected in Sample (ID & Quant Only)

Name: Rachel Howell

Position: Lab Analyst

Authorised Signatory:

The sample analysis for the above results was carried out using the procedures detailed in SOCOTEC Asbestos Limited in house method (SCI-ASB-020) based on EA document Quantification of asbestos in soil and associated materials - Draft 2017. Fibre identification was carried out using SOCOTEC Asbestos Limited in house method of transmitted/polarised light microscopy and centre stop dispersion staining (SCI-ASB-007), based on HSE's HSG 248. The analysis of the < 10mm fraction for asbestos content only includes ACMs and fibres and does not discriminate non-asbestos fibres. All fibres are assumed, unless specified, to be amphiboles. All tests were carried out at a SOCOTEC Asbestos Ltd laboratory, Ashbourne House, Bretby Business Park, Ashby Road, Burton-upon-Trent, DE15 0YZ. UKAS Testing Number 1089. Recommended sample weight is 1kg-2kg, samples less than 1kg are classified as deviating samples.

SOCOTEC Asbestos Limited is a wholly owned subsidiary of SOCOTEC UK Limited, registered in England and Wales, registered company 04951688.

Client:	SOCOTEC Geotechnical
Project Name:	D2064-22-D2064-22 - Tilbury
Project No:	23042005
Date Issued:	15/05/2023

Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
BTEXHSA	BTEX for WAC by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPMSW (Dissolved)	Antimony (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Antimony in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Arsenic (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Arsenic in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Copper in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Lead in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Molybdenum (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Molybdenum in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Selenium (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Selenium in Solids (BSEN 12457-2)	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Lab Leachate by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Barium (Diss.) in Lab Leachate by ICPOES	Filtered
ICPWATVAR (Dissolved)	Barium in Solids (BSEN 12457-2)	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Lab Leachate	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 in Solids (BSEN 12457-2)	Filtered
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
ISEF	Fluoride by ISE	Filtered
ISEF	Fluoride in Solids (BSEN 12457-2)	Filtered
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
KONENS	Chloride by Colorimetry	Filtered

KONENS	Chloride in Solids (BSEN 12457-2)	Filtered
Leachate Prep CEN 10:1	WAC Leachate Prep, 1-Stage 10:1 (BSEN 12457-2)	As Received
PAHMSUS	16 PAHs by GCMS	As Received
PAHMSUS	17 PAHs (inc. Coronene) for WAC by GCMS	As Received
PCBECD	PCBs, ICES 7 Congeners inc. Total Calculation	As Received
PHCONDW	Electrical Conductivity @ 25°C	Filtered
PHCONDW	pH	Filtered
PHCONDW	TDS: Total Dissolved Solids (Calc)	Filtered
PHCONDW	Total Dissolved Solids in Solids (BSEN 12457-2)	Filtered
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	Filtered
SFAPI	Phenol Index in Solids (BSEN 12457-2)	Filtered
SUB002	Asbestos Stage 1 (with Stage 2+3 Trigger)	
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TOCW	LOC: Leached Organic Carbon	Filtered
TPHFIDUS (Aliphatic)	TPH (>C8-C40) Aliphatic and Carbon Band (>C10-C40)	As Received
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WAC	WAC Report	
WSLM13	Leached Organic Carbon in Solids (BSEN 12457-2)	Filtered
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	TOC: Total Organic Carbon	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042005
Date Issued: 15/05/2023

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23042668

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: John Emerson

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: john.emerson@socotec.com

Phone: 01189 324464

No. Samples Received: 1

Date Received: 27/04/2023

Analysis Date: 11/05/2023

Date Issued: 11/05/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

J. Hannah

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23042668-001	BH05-88-ES-54.50-54.50	19/04/2023 11:40:00	SOLID	Soil Sample

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	N	<0.247 B			
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	N	<0.012 B			
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	N	<0.247			
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.04	mg/kg^	N	<0.049			
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.2	mg/kg^	N	<0.247			
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.01	mg/kg^	N	<0.012			
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.2	mg/kg^	N	<0.247			
pH (2.5:1 extraction)	PHSOIL	1	pH units	N	9.2			
pH (2.5:1 extraction)	PHSOIL	1	pH units	N	9.2			
Chloride as Cl	KONECL	2	mg/kg	N	94			
Nitrate as NO3	KONENO3	2	mg/kg	N	<4.0 D			
Phenol Index	SFAPI	0.5	mg/kg^	N	<0.6			
Total Cyanide	SFAPI	0.5	mg/kg^	N	<0.6			
Soil Organic Matter	WSLM59	0.04	% m/m^	N	0.82			
Sulphur as S	WSLM59	0.005	% m/m	N	0.042			
Arsenic as As	ICPMSS	0.3	mg/kg^	N	18.0			
Cadmium as Cd	ICPMSS	0.2	mg/kg^	N	0.5			
Copper as Cu	ICPMSS	1.6	mg/kg^	N	36.8			
Lead as Pb	ICPMSS	0.7	mg/kg^	N	308.7			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
Mercury as Hg	ICPMSS	0.5	mg/kg^	N	0.6			
Nickel as Ni	ICPMSS	2	mg/kg^	N	24.7			
Total Chromium as Cr	ICPMSS	1.2	mg/kg^	N	29.3			
Zinc as Zn	ICPMSS	16	mg/kg^	N	170.8			
Boron as B	ICPBOR	0.5	mg/kg^	N	<0.5			
Magnesium as Mg (2:1 Extract)	ICPWSMG	0.1	mg/l	N	1.3			
Water Soluble Sulphate as SO4 by Mass	ICPWSS	20	mg/kg^	N	190			
Water Soluble Sulphate as SO4 2:1 Ext	ICPWSS	10	mg/l	N	95			
Acid Soluble Sulphate as SO4	ICPACIDS	20	mg/kg	N	422			
Benzene HS_1D_AR	BTEXHSA	10	µg/kg^	N	<12			
Ethylbenzene HS_1D_AR	BTEXHSA	10	µg/kg^	N	<12			
m/p-Xylene HS_1D_AR	BTEXHSA	20	µg/kg^	N	<25			
o-Xylene HS_1D_AR	BTEXHSA	10	µg/kg^	N	<12			
Toluene HS_1D_AR	BTEXHSA	10	µg/kg^	N	<12 B			
Acenaphthene	PAHMSUS	0.08	mg/kg^	N	<0.10			
Acenaphthylene	PAHMSUS	0.08	mg/kg^	N	<0.10			
Anthracene	PAHMSUS	0.08	mg/kg^	N	<0.10			
Benzo[a]anthracene	PAHMSUS	0.08	mg/kg^	N	<0.10			
Benzo[a]pyrene	PAHMSUS	0.08	mg/kg^	N	<0.10			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001 Customer ID: BH05-88-ES-54.50-54.50 Sample Type: SOLID Sampling Date: 19/04/2023
Benzo[b]fluoranthene	PAHMSUS	0.08	mg/kg^	N	<0.10
Benzo[g,h,i]perylene	PAHMSUS	0.08	mg/kg^	N	<0.10
Benzo[k]fluoranthene	PAHMSUS	0.08	mg/kg^	N	<0.10
Chrysene	PAHMSUS	0.08	mg/kg^	N	<0.10
Dibenzo[a,h]anthracene	PAHMSUS	0.08	mg/kg^	N	<0.10
Fluoranthene	PAHMSUS	0.08	mg/kg^	N	<0.10
Fluorene	PAHMSUS	0.08	mg/kg^	N	<0.10
Indeno[1,2,3-cd]pyrene	PAHMSUS	0.08	mg/kg^	N	<0.10
Naphthalene	PAHMSUS	0.08	mg/kg^	N	<0.10
Phenanthrene	PAHMSUS	0.08	mg/kg^	N	<0.10
Pyrene	PAHMSUS	0.08	mg/kg^	N	<0.10
Total PAH 16	PAHMSUS	1.28	mg/kg^	N	<1.58
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	N	<4.94
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	N	<4.94
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	4	mg/kg^	N	<4.94
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	10	mg/kg^	N	18.8
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	6	mg/kg^	N	7.72
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFIDUS (Aliphatic)	20	mg/kg^	N	25.9
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	N	<4.94 B

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	N	<4.94			
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	4	mg/kg^	N	<4.94			
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	10	mg/kg^	N	<12.3			
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	6	mg/kg^	N	16.1			
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFIDUS (Aromatic)	20	mg/kg^	N	<24.7			
1,1,1,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,1,1-Trichloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,1,2,2-Tetrachloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,1,2-Trichloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,1-Dichloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,1-Dichloroethene	VOCHSAS	1	µg/kg^	N	<1 B			
1,1-Dichloropropene	VOCHSAS	1	µg/kg^	N	<1			
1,2,3-Trichlorobenzene	VOCHSAS	3	µg/kg^	N	<4			
1,2,3-Trichloropropane	VOCHSAS	1	µg/kg^	N	<1			
1,2,4-Trichlorobenzene	VOCHSAS	3	µg/kg^	N	<4			
1,2,4-Trimethylbenzene	VOCHSAS	1	µg/kg^	N	<1			
1,2-Dibromo-3-chloropropane	VOCHSAS	1	µg/kg^	N	<1			
1,2-Dibromoethane	VOCHSAS	1	µg/kg^	N	<1			
1,2-Dichlorobenzene	VOCHSAS	1	µg/kg^	N	<1			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
1,2-Dichloroethane	VOCHSAS	1	µg/kg^	N	<1			
1,2-Dichloropropane	VOCHSAS	1	µg/kg^	N	<1			
1,3,5-Trimethylbenzene	VOCHSAS	1	µg/kg^	N	<1			
1,3-Dichlorobenzene	VOCHSAS	1	µg/kg^	N	<1			
1,3-Dichloropropane	VOCHSAS	1	µg/kg^	N	<1			
1,4-Dichlorobenzene	VOCHSAS	1	µg/kg^	N	<1			
2,2-Dichloropropane	VOCHSAS	2	µg/kg^	N	<3			
2-Chlorotoluene	VOCHSAS	1	µg/kg^	N	<1			
4-Chlorotoluene	VOCHSAS	1	µg/kg^	N	<1			
Benzene	VOCHSAS	1	µg/kg^	N	<1			
Bromobenzene	VOCHSAS	1	µg/kg^	N	<1			
Bromochloromethane	VOCHSAS	1	µg/kg^	N	<1			
Bromodichloromethane	VOCHSAS	1	µg/kg^	N	<1			
Bromoform	VOCHSAS	1	µg/kg^	N	<1			
Bromomethane	VOCHSAS	1	µg/kg^	N	<1			
Carbon Tetrachloride	VOCHSAS	1	µg/kg^	N	<1			
Chlorobenzene	VOCHSAS	1	µg/kg^	N	<1			
Chloroethane	VOCHSAS	2	µg/kg^	N	<3			
Chloroform	VOCHSAS	1	µg/kg^	N	<1			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
Chloromethane	VOCHSAS	3	µg/kg^	N	<4			
cis 1,2-Dichloroethene	VOCHSAS	5	µg/kg^	N	<6			
cis 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	N	<1			
Dibromochloromethane	VOCHSAS	1	µg/kg^	N	<1			
Dibromomethane	VOCHSAS	1	µg/kg^	N	<1			
Dichlorodifluoromethane	VOCHSAS	1	µg/kg^	N	<1			
Ethylbenzene	VOCHSAS	2	µg/kg^	N	<3			
Hexachlorobutadiene	VOCHSAS	2	µg/kg^	N	<3			
iso-Propylbenzene	VOCHSAS	1	µg/kg^	N	<1			
m and p-Xylene	VOCHSAS	4	µg/kg^	N	<5			
MTBE	VOCHSAS	1	µg/kg^	N	<1			
Naphthalene	VOCHSAS	5	µg/kg^	N	<6			
n-Butylbenzene	VOCHSAS	1	µg/kg^	N	<1			
o-Xylene	VOCHSAS	2	µg/kg^	N	<3			
p-Isopropyltoluene	VOCHSAS	1	µg/kg^	N	<1			
Propylbenzene	VOCHSAS	1	µg/kg^	N	<1			
sec-Butylbenzene	VOCHSAS	1	µg/kg^	N	<1			
Styrene	VOCHSAS	1	µg/kg^	N	<1			
tert-Butylbenzene	VOCHSAS	1	µg/kg^	N	<1			

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	Customer ID: BH05-88-ES-54.50-54.50	Sample Type: SOLID	Sampling Date: 19/04/2023
Tetrachloroethene	VOCHSAS	3	µg/kg^	N	<4			
Toluene	VOCHSAS	5	µg/kg^	N	<6			
trans 1,2-Dichloroethene	VOCHSAS	1	µg/kg^	N	<1			
trans 1,3-Dichloropropene	VOCHSAS	1	µg/kg^	N	<1			
Trichloroethene	VOCHSAS	1	µg/kg^	N	<1			
Trichlorofluoromethane	VOCHSAS	1	µg/kg^	N	<1			
Vinyl Chloride	VOCHSAS	1	µg/kg^	N	<1			
Total Moisture at 35°C	CLANDPREP	0.1	%	N	19.0			
Total Moisture at 35°C	CLANDPREP	0.1	%	N	19.0			
Description of Solid Material	CLANDPREP		-	N	CHALK			
Asbestos Identification	SUB020		-	N	NAIIS			

working for a healthy and sustainable world

CERTIFICATE OF ANALYSIS

ANALYSIS REQUESTED BY: SOCOTEC UK Ltd
Environmental Chemistry
PO Box 100
Burton upon Trent
Staffordshire
DE15 0XD

CONTRACT NO: S32860-2

DATE OF ISSUE: 11.05.23

DATE SAMPLE RECEIVED: 04.05.23

DATE ANALYSIS COMPLETED: 11.05.23

DESCRIPTION: One soil/loose aggregate sample weighing approximately 0.6kg.

ANALYSIS REQUESTED: Qualitative and quantitative analysis of a soil/loose aggregate sample for mass determination of asbestos.

METHODS:

Qualitative - The sample was analysed qualitatively for asbestos by polarised light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative - The analysis was carried out using our documented in-house method based on HSE Contract Research Report No. 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies *et al*, 1996) and HSG 248. Our method includes initial examination of the entire sample, detailed analysis of a representative sub-sample and quantification by hand picking/weighing and/or fibre counting/sizing as appropriate.

RESULTS:

Initial Screening

No asbestos was detected in the soil sample by stereo-binocular and polarised light microscopy.

A summary of the results is given in Table 1.

www.iom-world.org

Registered Address: Research Avenue North, Riccarton, Edinburgh, EH14 4AP, United Kingdom
Tel: 0131 449 8000 Fax. 0131 449 8084 Email: iom@iom-world.org

IOM CONSULTING LIMITED, registered in Scotland No. SC205670

UKAS TESTING
0374

CONTRACT NO: S32860-2
DATE OF ISSUE: 11.05.23

RESULTS: (cont.)

Table 1: Qualitative Results

SOCOTEC Job I.D: 23042668

IOM sample number	SOCOTEC Sample ID	Client Sample ID	ACM type detected	PLM result
S32860-2	23042668-001	BH05-88-ES-54.50-54.50	-	No Asbestos Detected

Our detection limit for this method is 0.001%.

COMMENTS:

IOM Consulting cannot accept responsibility for samples that have been incorrectly collected or despatched by external clients.

Any opinions and interpretations expressed herein are out with the scope of our UKAS accreditation.

AUTHORISED BY: .....
J Simpson
Senior Scientific Technician

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Deviating Sample Report

Sample Reference	Text ID	Method Code	Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time
BH05-88-ES-54.50-54.50	23042668-001	**PHSOIL**						✓

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	As Received
CLANDPREP	Basic Solid Description	As Received
CLANDPREP	CLand Prep Dry Weight Content @ 35°C	As Received
CLANDPREP	DW35 - CLand Prep and Dry Weight Correction to 35°C	As Received
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	As Received
ICPACIDS	Sulphate as SO4 (Acid Soluble)	Air Dried & Ground
ICPBOR	Boron (Water Soluble) by ICPOES	Air Dried & Ground
ICPMSS	Arsenic in Solids by ICPMS	Air Dried & Ground
ICPMSS	Cadmium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Chromium in Solids by ICPMS	Air Dried & Ground
ICPMSS	Copper in Solids by ICPMS	Air Dried & Ground
ICPMSS	Lead in Solids by ICPMS	Air Dried & Ground
ICPMSS	Mercury in Solids by ICPMS	Air Dried & Ground
ICPMSS	Nickel in Solids by ICPMS	Air Dried & Ground
ICPMSS	Zinc in Solids by ICPMS	Air Dried & Ground
ICPWSMG	Magnesium (Water Soluble) (2:1)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble 2:1 Extract)	Air Dried & Ground
ICPWSS	Sulphate as SO4 (Water Soluble)	Air Dried & Ground
KONECL	Chloride (2:1) by Colorimetry	Air Dried & Ground
KONENO3	Nitrate as NO3 (2:1) by Colorimetry	Air Dried & Ground
PAHMSUS	16 PAHs by GCMS	As Received
PHSOIL	pH (2.5:1)	As Received
SFAPI	Cyanide (Total) by SFA	As Received
SFAPI	Phenol Index (Total) by SFA	As Received
SUB020	Asbestos Stage 1 (with Stage 2+3 Trigger)	
TPHFIDUS (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	As Received
TPHFIDUS (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	As Received
VOCHSAS	VOCs (Target List) by GCMS	As Received
WSLM59	SOM: Soil Organic Matter (%) (Calc)	Air Dried & Ground
WSLM59	Total Sulphur	Air Dried & Ground

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.
F	Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.
G	The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23042668
Date Issued: 11/05/2023

Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 35°C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35°C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis

SOCOTEC

Environmental Chemistry

Certificate of Analysis

Client: SOCOTEC Geotechnical

Project: 23051661

Quote: BEC221127630 V2.1

Project Ref: D2064-22

Site: D2064-22 - Tilbury

Contact: Steve Green

Address: Glossop House
Hogwood Lane Industrial Estate
Finchampstead
Wokingham
RG40 4QW

E-Mail: steve.green@socotec.com

Phone: 01189 324480

No. Samples Received: 3

Date Received: 17/05/2023

Analysis Date: 30/05/2023

Date Issued: 30/05/2023

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory

Reported by Customer Service Co-Ordinator
Jacqui Hannah
01283 204384

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
Date Issued: 30/05/2023

Samples Analysed

Text ID	Sample Reference	Sampling Date	Sample Type	Sample Description
23051661-001	BH04-120523-EW-10.00-10.00	12/05/2023 00:00:00	WATER	Ground Water
23051661-002	BH05-120523-EW-10.00-10.00	12/05/2023 00:00:00	WATER	Ground Water
23051661-003	BH06-120523-EW-10.00-10.00	12/05/2023 00:00:00	WATER	Ground Water

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
Date Issued: 30/05/2023

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Analysis Results

					Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
Analysis	Method Code	MDL	Units	Accred.				
>C6-C8 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.1	mg/l	N		<0.100	<0.100	<0.100
>C7-C8 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.005	mg/l	U		<0.005	<0.005	<0.005
>C8-C10 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.1	mg/l	N		<0.100	<0.100	<0.100
>C8-C10 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.02	mg/l	U		<0.020	<0.020	<0.020
C5-C6 Aliphatic HS_1D_AL	GROHSA/BTEXHSA	0.1	mg/l	N		<0.100	<0.100	<0.100
C5-C7 Aromatic HS_1D_AR	GROHSA/BTEXHSA	0.005	mg/l	U		<0.005	<0.005	<0.005
Total GRO C5-C10 HS_1D_Total	GROHSA/BTEXHSA	0.1	mg/l	U		<0.100	<0.100	<0.100
pH	PHCONDW	1	pH units	U		7.3	7.0	7.4
Chloride as Cl	KONENS	1	mg/l	U		1630	3200	252
Nitrate as NO3	KONENS	0.9	mg/l	U		6.0	10.2	<0.9
Total Cyanide	SFAPI	0.02	mg/l	U		<0.02	<0.02	<0.02
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U		0.003	0.014	0.002
Cadmium as Cd	ICPMSW (Dissolved)	0.00002	mg/l	U		<0.00002	<0.00002	<0.00002
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	0.002	<0.001
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	0.001	<0.001
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U		<0.001	<0.001	<0.001
Mercury as Hg	ICPMSW (Dissolved)	0.00003	mg/l	U		<0.00003	<0.00003	<0.00003
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U		0.002	0.005	0.004
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U		0.005	0.017	0.004

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
Date Issued: 30/05/2023

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Analysis Results

					Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
Analysis	Method Code	MDL	Units	Accred.				
Boron as B	ICPWATVAR (Dissolved)	0.01	mg/l	U		0.69	1.99	0.18
Magnesium as Mg	ICPWATVAR (Dissolved)	1	mg/l	U		93	186	22
Total Sulphur as SO4	ICPWATVAR (Dissolved)	3	mg/l	U		146	54	67
Benzene HS_1D_AR	BTEXHSA	5	µg/l	U		<5	<5	<5
Ethylbenzene HS_1D_AR	BTEXHSA	5	µg/l	U		<5	<5	<5
m/p-Xylene HS_1D_AR	BTEXHSA	10	µg/l	U		<10	<10	<10
o-Xylene HS_1D_AR	BTEXHSA	5	µg/l	U		<5	<5	<5
Toluene HS_1D_AR	BTEXHSA	5	µg/l	U		<5	<5	<5
Acenaphthene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Acenaphthylene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Anthracene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Benzo[a]anthracene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Benzo[a]pyrene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Benzo[b]fluoranthene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Benzo[g,h,i]perylene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Benzo[k]fluoranthene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Chrysene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Dibenzo[a,h]anthracene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Fluoranthene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	0.01

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
Date Issued: 30/05/2023

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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
Fluorene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Indeno[1,2,3-cd]pyrene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Naphthalene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	<0.01
Phenanthrene	PAHMSW	0.01	µg/l	U		<0.04 D	0.02	0.04
Pyrene	PAHMSW	0.01	µg/l	U		<0.04 D	<0.01	0.01
Total PAH 16	PAHMSW	0.16	µg/l	U		<0.64 D	0.17	0.19
Dimethylphenols	PHEHPLCUV	0.05	mg/l	U		<0.05	<0.05	<0.05
Methylphenols	PHEHPLCUV	0.05	mg/l	U		<0.05	<0.05	<0.05
Phenol	PHEHPLCUV	0.05	mg/l	U		<0.05	<0.05	<0.05
Total Phenols	PHEHPLCUV	0.2	mg/l	U		<0.20	<0.20	<0.20
Trimethylphenols	PHEHPLCUV	0.05	mg/l	U		<0.05	<0.05	<0.05
>C10-C12 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	U		<0.04 D	<0.01	<0.01
>C12-C16 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	U		<0.04 D	<0.01	0.01
>C16-C21 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	U		<0.04 D	<0.01	0.01
>C21-C35 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	U		<0.04 D	0.02	0.01
>C35-C44 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	N		<0.04 D	0.01	<0.01
Total TPH >C8-C40 (Aliphatic) EH_CU_1D_AL	TPHFID (Aliphatic)	0.01	mg/l	U		0.12	0.05	0.04
>C10-C12 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	U		<0.04 D	<0.01	<0.01
>C12-C16 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	U		<0.04 D	<0.01	<0.01

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
>C16-C21 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	U		<0.04 D	<0.01	<0.01
>C21-C35 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	U		<0.04 D	<0.01	<0.01
>C35-C44 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	N		0.05	0.01	0.01
Total TPH >C8-C40 (Aromatic) EH_CU_1D_AR	TPHFID (Aromatic)	0.01	mg/l	U		0.09	0.02	0.02
1,1,1,2-Tetrachloroethane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,1,1-Trichloroethane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,1,2,2-Tetrachloroethane	VOCHSAW	1	µg/l	N		<1	<1	<1
1,1,2-Trichloroethane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,1-Dichloroethane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,1-Dichloroethene	VOCHSAW	1	µg/l	U		<1	<1	<1
1,1-Dichloropropene	VOCHSAW	1	µg/l	U		<1	<1	<1
1,2,3-Trichlorobenzene	VOCHSAW	5	µg/l	U		<5	<5	<5
1,2,3-Trichloropropane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,2,4-Trichlorobenzene	VOCHSAW	5	µg/l	U		<5	<5	<5
1,2,4-Trimethylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
1,2-Dibromo-3-chloropropane	VOCHSAW	5	µg/l	U		<5	<5	<5
1,2-Dibromoethane	VOCHSAW	1	µg/l	U		<1	<1	<1
1,2-Dichlorobenzene	VOCHSAW	5	µg/l	U		<5	<5	<5
1,2-Dichloroethane	VOCHSAW	1	µg/l	U		<1	<1	<1

Client: SOCOTEC Geotechnical
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Project No: 23051661
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Analysis Results

Analysis	Method Code	MDL	Units	Accred.	Sample ID: 001	002	003
					Customer ID: BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type: WATER	WATER	WATER
					Sampling Date: 12/05/2023	12/05/2023	12/05/2023
1,2-Dichloropropane	VOCHSAW	1	µg/l	U	<1	<1	<1
1,3,5-Trimethylbenzene	VOCHSAW	0.6	µg/l	U	<0.6	<0.6	<0.6
1,3-Dichlorobenzene	VOCHSAW	1	µg/l	U	<1	<1	<1
1,3-Dichloropropane	VOCHSAW	1	µg/l	N	<1	<1	<1
1,4-Dichlorobenzene	VOCHSAW	1	µg/l	U	<1	<1	<1
2,2-Dichloropropane	VOCHSAW	1	µg/l	N	<1	<1	<1
2-Chlorotoluene	VOCHSAW	1	µg/l	U	<1	<1	<1
4-Chlorotoluene	VOCHSAW	1	µg/l	U	<1	<1	<1
Benzene	VOCHSAW	1	µg/l	U	<1	<1	<1
Bromobenzene	VOCHSAW	1	µg/l	U	<1	<1	<1
Bromochloromethane	VOCHSAW	1	µg/l	U	<1	<1	<1
Bromodichloromethane	VOCHSAW	1	µg/l	U	<1	<1	<1
Bromoform	VOCHSAW	1	µg/l	U	<1	<1	<1
Bromomethane	VOCHSAW	5	µg/l	N	<5	<5	<5
Carbon Tetrachloride	VOCHSAW	1	µg/l	U	<1	<1	<1
Chlorobenzene	VOCHSAW	1	µg/l	U	<1	<1	<1
Chloroethane	VOCHSAW	5	µg/l	U	<5	<5	<5
Chloroform	VOCHSAW	5	µg/l	U	<5	<5	<5
Chloromethane	VOCHSAW	1	µg/l	U	<1* B	<1* B	<1* B

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					Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
Analysis	Method Code	MDL	Units	Accred.				
cis 1,2-Dichloroethene	VOCHSAW	1	µg/l	U		<1	<1	<1
cis 1,3-Dichloropropene	VOCHSAW	1	µg/l	N		<1	<1	<1
Dibromochloromethane	VOCHSAW	1	µg/l	U		<1	<1	<1
Dibromomethane	VOCHSAW	1	µg/l	U		<1	<1	<1
Dichlorodifluoromethane	VOCHSAW	1	µg/l	N		<1	<1	<1
Ethylbenzene	VOCHSAW	0.5	µg/l	U		<0.5	<0.5	<0.5
Hexachlorobutadiene	VOCHSAW	5	µg/l	U		<5	<5	<5
iso-Propylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
m and p-Xylene	VOCHSAW	1	µg/l	U		<1	<1	<1
MTBE	VOCHSAW	1	µg/l	N		<1	<1	<1
Naphthalene	VOCHSAW	5	µg/l	U		<5	<5	<5
n-Butylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
o-Xylene	VOCHSAW	1	µg/l	U		<1	<1	<1
p-Isopropyltoluene	VOCHSAW	1	µg/l	U		<1	<1	<1
Propylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
sec-Butylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
Styrene	VOCHSAW	1	µg/l	U		<1	<1	<1
tert-Butylbenzene	VOCHSAW	1	µg/l	U		<1	<1	<1
Tetrachloroethene	VOCHSAW	5	µg/l	U		<5	<5	<5

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Analysis Results

					Sample ID	001	002	003
					Customer ID	BH04-120523-EW-10.00-10.00	BH05-120523-EW-10.00-10.00	BH06-120523-EW-10.00-10.00
					Sample Type	WATER	WATER	WATER
					Sampling Date	12/05/2023	12/05/2023	12/05/2023
Analysis	Method Code	MDL	Units	Accred.				
Toluene	VOCHSAW	1	µg/l	U		<1	<1	<1
trans 1,2-Dichloroethene	VOCHSAW	1	µg/l	U		<1	<1	<1
trans 1,3-Dichloropropene	VOCHSAW	1	µg/l	U		<1	<1	<1
Trichloroethene	VOCHSAW	5	µg/l	U		<5	<5	<5
Trichlorofluoromethane	VOCHSAW	1	µg/l	U		<1	<1	<1
Vinyl Chloride	VOCHSAW	1	µg/l	U		<1	<1	<1

Client: SOCOTEC Geotechnical
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Deviating Sample Report

All samples received in an appropriate condition with no deviancies noted with the samples.

Analysis Method

Method Code	Method Description	Analysis Method
BTEXHSA	BTEX by GCFID	Unfiltered
GROHSA/BTEXHSA	GRO CWG UK (C5-C10) Ali/Aro Split	Unfiltered
ICPMSW (Dissolved)	Arsenic (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Cadmium (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Chromium (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Copper (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Lead (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Mercury (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Nickel (Diss.) in Water by ICPMS	Filtered
ICPMSW (Dissolved)	Zinc (Diss.) in Water by ICPMS	Filtered
ICPWATVAR (Dissolved)	Boron (Diss.) in Water by ICPOES	Filtered
ICPWATVAR (Dissolved)	Magnesium (Diss.) in Water by ICPOES	Filtered
ICPWATVAR (Dissolved)	Total Sulphur as SO4 (Diss.) in Water	Filtered
KONENS	Chloride by Colorimetry	Filtered
KONENS	Nitrate as NO3 by Colorimetry	Filtered
PAHMSW	16 PAHs by GCMS	Unfiltered
PHCONDW	pH	Unfiltered
PHEHPLCUV	Phenols Suite by HPLC UV	Unfiltered
SFAPI	Cyanide (Total) by SFA	Unfiltered
TPHFID (Aliphatic)	TPH (CWG UK) Aliphatic Split with Carbon Banding	Unfiltered
TPHFID (Aromatic)	TPH (CWG UK) Aromatic Split with Carbon Banding	Unfiltered
VOCHSAW	VOCs (Target List) by GCMS	Unfiltered

Result Report Notes

Letters alongside results signify that the result has associated report notes.
The report notes are as follows:

Letter	Note
A	Due to the matrix of the sample the laboratory has had to deviate from our standard protocols to be able to process the sample and provide a result. Where applicable the accreditation has been removed and this should be taken into consideration when utilising the data.
B	The QC associated with this result has not wholly met the QMS requirements, the accreditation has therefore been removed. However, the Laboratory has confidence in the performance of the method as a whole and that the integrity of the data has not been significantly compromised.
C	Due to matrix interference, the internal standard and/or surrogate has not met the QMS requirements. This should be taken into consideration when utilising the data.
D	A non-standard volume or mass has been used for this test which has resulted in a raised detection limit.
E	Due to the parameter value being beyond our calibration range (and following the maximum size of dilution allowed, where applicable), the result cannot be quantified and as such the result will appear as a greater than symbol (>) with the accreditation removed. This data should be used for indicative purposes only.

F Based on the sample history, appearance and smell a dilution was applied prior to testing . Unfortunately, the result is either above (>) or below (<) our calibration range. Results above our calibration range have accreditation removed. The data should be used for indicative purposes only.

G The day 5 oxygen reading was below the capability of the instrument to detect, and therefore the calculated BOD has been reported unaccredited for guidance purposes only.

HWOL Acronym Key

Acronym	Description
HS	Headspace Analysis
EH	Extractable Hydrocarbons - i.e everything extracted by the solvent(s)
CU	Clean up - e.g. by florisil, silica gel
1D	GC - Single coil gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics only
AR	Aromatics only
+	Operator to indicate cumulative e.g. EH_CU+HS_1D_Total

Client: SOCOTEC Geotechnical
Project Name: D2064-22-D2064-22 - Tilbury
Project No: 23051661
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Additional Information

This report refers to samples as received. SOCOTEC UK Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

The accreditation codes are as follows:

U = UKAS accredited analysis
M = MCERT accredited analysis
N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 105° C.

All Air Dried and Ground Samples (ADG) are oven dried at less than 35° C.

This report shall not be reproduced except in full, without written approval of the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis
NA = Sample is not amenable for the required analysis
ND = Results cannot be determined

Items listed with a 'SUB' method code prefix have been carried out by an external subcontracted laboratory.

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the subcontracted lab for information regarding any deviancies for this analysis.

Summaries of analysis methods are available upon request.

End of Certificate of Analysis