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nationalgrid

SCHEME 33754 YORKSHIRE GREEN PROJECT

FACTUAL REPORT ON GROUND INVESTIGATION

Report No A1023-21

February 2022

Issue No 1

Carried out for:
National Grid
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Warwick
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Investigation Supervisor:
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Victory House
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Brighton
BN1 4FY

CONTENTS

1 INTRODUCTION

SOCOTEC UK Limited (SOCOTEC) was commissioned in May 2021 by Mott MacDonald Limited (MML), on behalf of National Grid, to carry out ground investigations, spanning multiple sites, as part of the larger Yorkshire Green Project. The investigations were required to provide information to assist in the development and delivery of the design works for a Development Consent Order (DCO) submission and de-risking of the Engineering Procurement and Construction (EPC) contract for two new substations and two new Cable Sealing End Compounds (CSEC's). The Client for the project was National Grid and MML were appointed as the Principal Contractor and Investigation Supervisor for the works.

The scope of the investigation was specified by MML and comprised boreholes, trial pits, monitoring, laboratory testing and reporting. The fieldwork was carried out between 27 September and 25 October 2021.

The investigation was performed in accordance with the contract specification (Document reference: 100102545-MMD-00-XXRP-C-00004), and the general requirements of BS 5930:2015+A1 (2020), BS EN 1997-2 (2007), BS EN ISO 22475-1 (2006) and other relevant related standards identified.

This report presents the factual records of the fieldwork, monitoring and laboratory testing. The information is also presented in digital data format as defined in AGS (2020).

2 SITE SETTING

2.1 Location and Description

Investigation works were undertaken at three separate locations, as detailed below. The areas are shown on the Site Location Plans in Appendix A.

Site 1: Monk Fryston

The site is located to the east and north west of the existing Monk Fryston substation, centred at National Grid reference SE 486 293, approximately 2.5 km west of Monk Fryston village.

The site is an irregular shaped parcel of land, approximately 22 Ha in size and comprises arable fields and lies at an approximate elevation of between 35 m and 38 mOD, with a slope from the south towards the north. The site is accessed through a field gate off Rawfield Lane, which runs adjacent to the western boundary of the site. Two hedged field boundaries bisect the site. An overhead electricity line passes across the centre of the site, in an east–west direction.

Two bunds, of unknown composition, are present in the northwest and southwest areas of the site, adjacent to the existing substation. The bund located in the south west is located at approximately 43 mOD and the bund in the north west is located at approximately 40 mOD.

The site bound to the north, east, south, west by arable fields.

Site 2: Overton

The Overton site is located approximately 1 km south of the village of Shipton, centred at National Grid reference SE 556 574.

The site comprises a large irregular shaped arable field, measuring approximately 1000 m at the longest point and approximately 600 m at the widest point with a small pond located in the eastern corner of the site. The site is generally flat, lying at an approximate elevation of between 13m and 15mOD. The site is accessible via a field gate off Overton Road, which runs adjacent to the northern boundary of the site.

The Overton site is bound to the north, east, south, west by arable fields.

Site 3: Shipton

The Shipton site is located approximately 1 km east of the village of Shipton, centred at National Grid reference SE 569 599.

The site comprises two large adjacent arable fields, measuring approximately 390 m by 200 m and 225 m by 220 m, separated by a hedged field boundary. The site is generally flat and lies at an approximate elevation of 15 m AOD.

The Shipton site is bound to the north, east, south, west by arable fields.

2.2 Published Geology

Site 1: Monk Fryston

The published geological map for the area, BGS Sheet 78 (1998), and the BGS GeoIndex Onshore online viewer (2022) show the site located on superficial deposits comprising Harrogate Till Formation of Quaternary age, characterised by slightly sandy clay with localised large sandstone blocks.

In the west of the site, the underlying bedrock is indicated to comprise the Brotherton Formation of Permian Age, characterised by limestone (often dolomitic). In the east of the site, the underlying bedrock is indicated to comprise the Roxby Formation of Triassic Age, characterised by reddish brown siltstone and mudstone with subordinate sandstone.

An unnamed fault is shown to run through the northwest corner of the existing substation site, orientated northeast to southwest. The down throw of the unnamed fault is to the south east.

Due to the current and historical land use of the site, a thickness of Made Ground is anticipated beneath the site, associated with the existing bunds in the north west and south west of the site. The existing National Grid substation does not form part of the area under investigation.

Site 2: Overton and Site 3: Shipton

The published geological map for the area, BGS Sheet 63 (1983), and the BGS GeoIndex Onshore online viewer (2022) show both sites to be located on Alne Glaciolacustrine deposits of Quaternary age, characterised by clay, silt and sand deposited within a glacial lake.

The underlying bedrock is indicated to comprise Sherwood Sandstone Group of Triassic Age, characterised by red, yellow and brown sandstone.

Due to the current and historical land use of both sites, Made Ground is not anticipated beneath the Overton and Shipton sites.

3 FIELDWORK

3.1 General

The exploratory hole locations were selected by MML and set out from local features. The positions were surveyed by SOCOTEC to National Grid and Ordnance Datum, and the locations are shown on the Site Plans in Appendix A.

Information on the locations of underground services was provided to SOCOTEC by MML to ensure exploratory holes were positioned at a suitable distance from known utilities. Hand dug service inspection pits were excavated all borehole locations to a depth of 1.2 m with simultaneous scanning using a cable avoidance tool (CAT).

3.2 Exploratory Holes

The exploratory holes are listed in Table 1.

TABLE 1 SUMMARY OF EXPLORATORY HOLES

TYPE	QUANTITY	DEPTH RANGE (m)	REMARKS
SITE 1: MONK FRYSTON			
Cable Percussion continued by Rotary Core Drilling	4	20.00 to 20.08	MFBH01, MFBH02, MMBH03 and MFBH03A. Note: MFBH03 terminated at 0.60 m within inspection pit due to the CAT indicating the possible presence of a service.
Trial Pits (Hand Dug)	4	1.20	MFTP01 to MFTP04
SITE 2: OVERTON			
Cable Percussion	2	17.00 and 30.00	OSBH1 and OSBH02 Note: OSBH01 was terminated at a depth of 17.00 m on MML instruction. Competent rock not encountered, boreholes developed using cable percussive methods only.

TYPE	QUANTITY	DEPTH RANGE (m)	REMARKS
Cable Percussion continued by Rotary Core Drilling	1	30.00	OSBH03
SITE 3: SHIPTON			
Cable Percussion	2	22.57 and 22.95	STBH01 and STBH02 Note: STBH01 and STBH02 were terminated at 22.95 m and 22.59 m respectively due on agreement between MML and the Overhead Line Consultant LSTC. Competent rock not encountered, boreholes developed using cable percussive methods only.

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 Carcroft laboratory of SOCOTEC for testing and temporary retention. Samples taken for geoenvironmental testing were transferred directly from site by SOCOTEC to Terra Tek Site Investigation & Laboratory Services, in Birmingham.

Photographs of the trial pits and rotary core are presented in Appendix F.

3.3 Groundwater and Ground Gas Monitoring

Groundwater monitoring instrumentation was installed in selected boreholes specified by MML. Details are shown on the logs and summarised in Appendix C.

Monitoring carried out by SOCOTEC after the main fieldwork period is listed in Table 2. The records are included in Appendix C.

TABLE 2 SUMMARY OF MONITORING

TYPE	DATE	REMARKS
Groundwater monitoring	26 November 2021	

4 LABORATORY TESTING

4.1 Geotechnical Testing

Geotechnical laboratory testing of selected samples was scheduled by MML. The testing was carried out by SOCOTEC at the Carcroft laboratory, near Doncaster, in accordance with test methods as stated within the test reports. The scope of testing is listed in Table 3 and the results are presented in Appendix D. At the time of writing of this report, the laboratory testing of selected rock cores is currently underway, the results of which, will be reported in due course.

TABLE 3 SUMMARY OF GEOTECHNICAL LABORATORY TESTS

TYPE	QUANTITY	REMARKS
Moisture Content	65	
Atterberg Limits	52	
Particle Size Distribution Analysis	36	
Unconsolidated Undrained Triaxial Compression Shear Strength	26	
One Dimensional Consolidation (Oedometer)	8	
Hand Vane	1	

TYPE	QUANTITY	REMARKS
Small Shear Box	8	
Rock Moisture Content	14	
Rock Dry Density	11	
Rock Porosity	11	
Point Load Index Test	23	
Uniaxial Compressive Strength of Rock	4	
Chalk Carbonate Content	3	
Organic Matter Content	4	
BRE SD1 Suite A	15	
BRE SD1 Suite B	1	

4.2 Geoenvironmental Testing

Geoenvironmental laboratory testing was scheduled by MML on selected soil and water samples recovered during the fieldwork. The soils testing was carried out by Terra Tek Site Investigation & Laboratory Services, in Birmingham and the water sample testing was carried out by Eurofins Chemtest, in Newmarket, 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 GEOENVIRONMENTAL LABORATORY TESTS

TYPE	QUANTITY	REMARKS
Mott MacDonald Comprehensive Soil Suite (Table C1)	12	Determinands detailed in MML Document Ref 100102545-MMD-00-XXRP-C-00004
Mott MacDonald PCB Soil Suite (Table C5)	2	Determinands detailed in MML Document Ref 100102545-MMD-00-XXRP-C-00004
Mott MacDonald Comprehensive Leachate Suite (Table C10)	6	Determinands detailed in MML Document Ref 100102545-MMD-00-XXRP-C-00004
MM Comprehesive Water Suite (Table C15)	7	Determinands detailed in MML Document Ref 100102545-MMD-00-XXRP-C-00004

5 REFERENCES

AGS : 2020 : Electronic Transfer of Geotechnical and Geoenvironmental Data (Edition 4.1 December 2020). Association of Geotechnical and Geoenvironmental Specialists.

BGS England and Wales Sheet 78 : 1999 : Wakefield. 1:50,000 geological map (Bedrock and Drift). British Geological Survey.

BGS England and Wales Sheet 63 : 1983 : York. 1:50,000 geological map (Bedrock and Drift). British Geological Survey.

BGS GeoIndex Onshore : 2022. www.bgs.ac.uk. British Geological Survey.

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

BS 1377 : 1990 : Methods of test for soils for civil engineering purposes. British Standards Institution.

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

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

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 22475-1 : 2006 (reproduced 2007) : Geotechnical investigation and testing – Sampling methods and groundwater measurements - Part 1 Technical principles for execution. British Standards Institution.

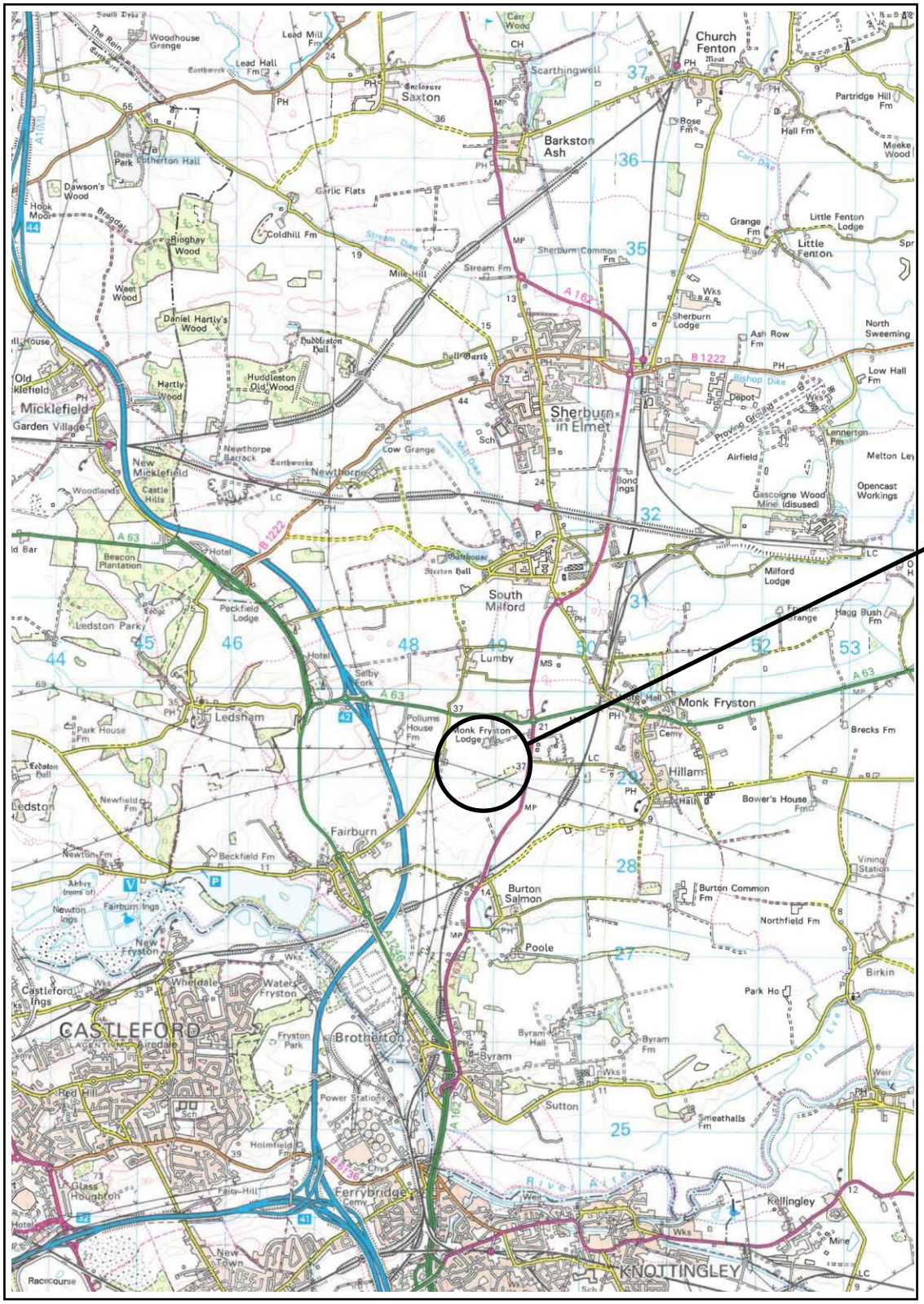
BS EN ISO 22476-3:2005+A1 : 2011 : Geotechnical investigation and testing - Field testing - Part 3 Standard penetration test. British Standards Institution.

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).

APPENDIX A
FIGURES AND DRAWINGS

Site Location Plan

SOCOTEC

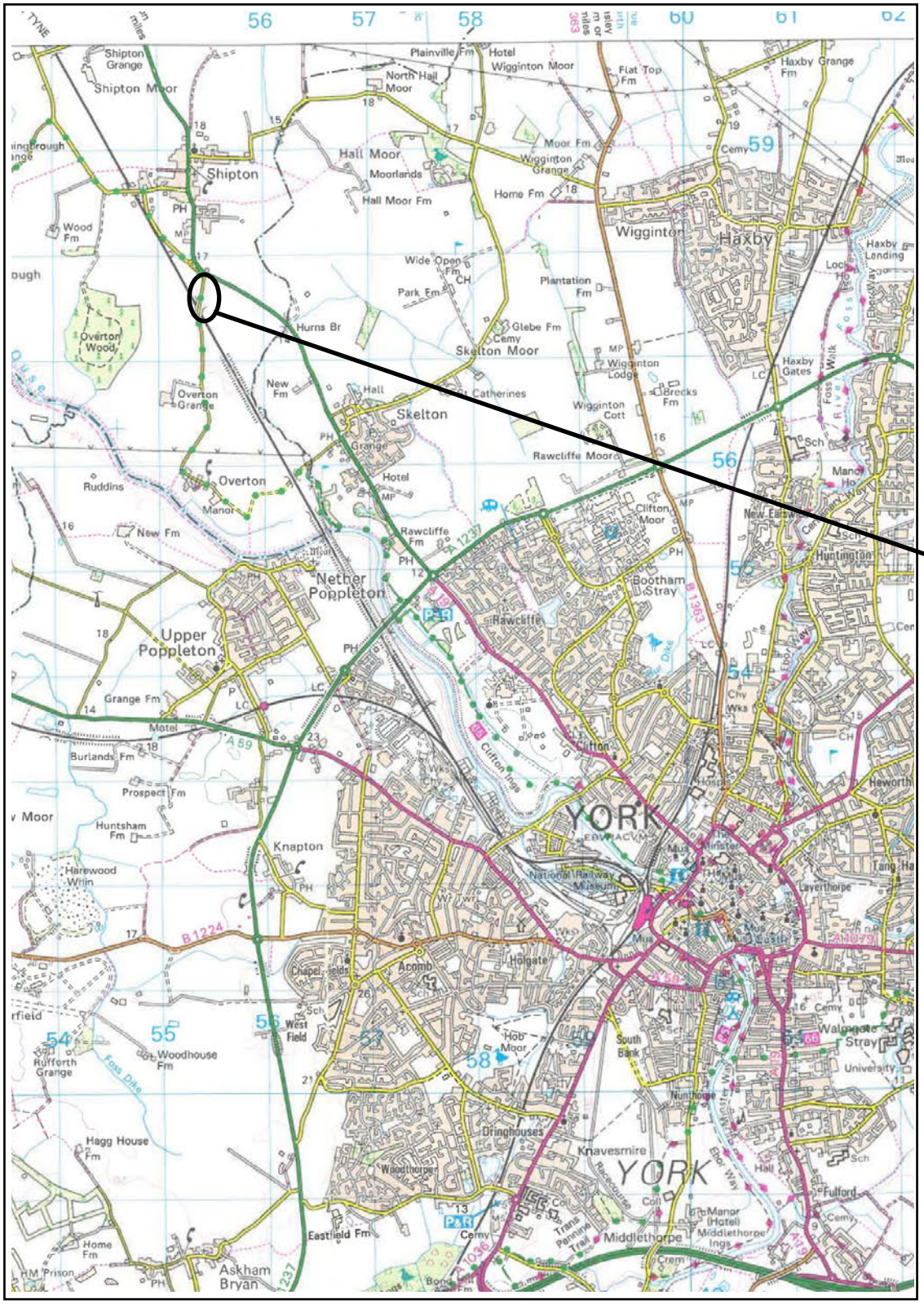


Reproduced from the 2006 Ordnance Survey 1:50 000 scale Landranger Map No 105 by permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright, SOCOTEC UK Limited. All rights reserved. Licence Number 100006060

Notes: Scale 1:50 000	**Project** Scheme 33754 Yorkshire Green **Project No.** A1023-21 **Carried out for** National Grid	**Figure** **A1-1**

Site Location Plan

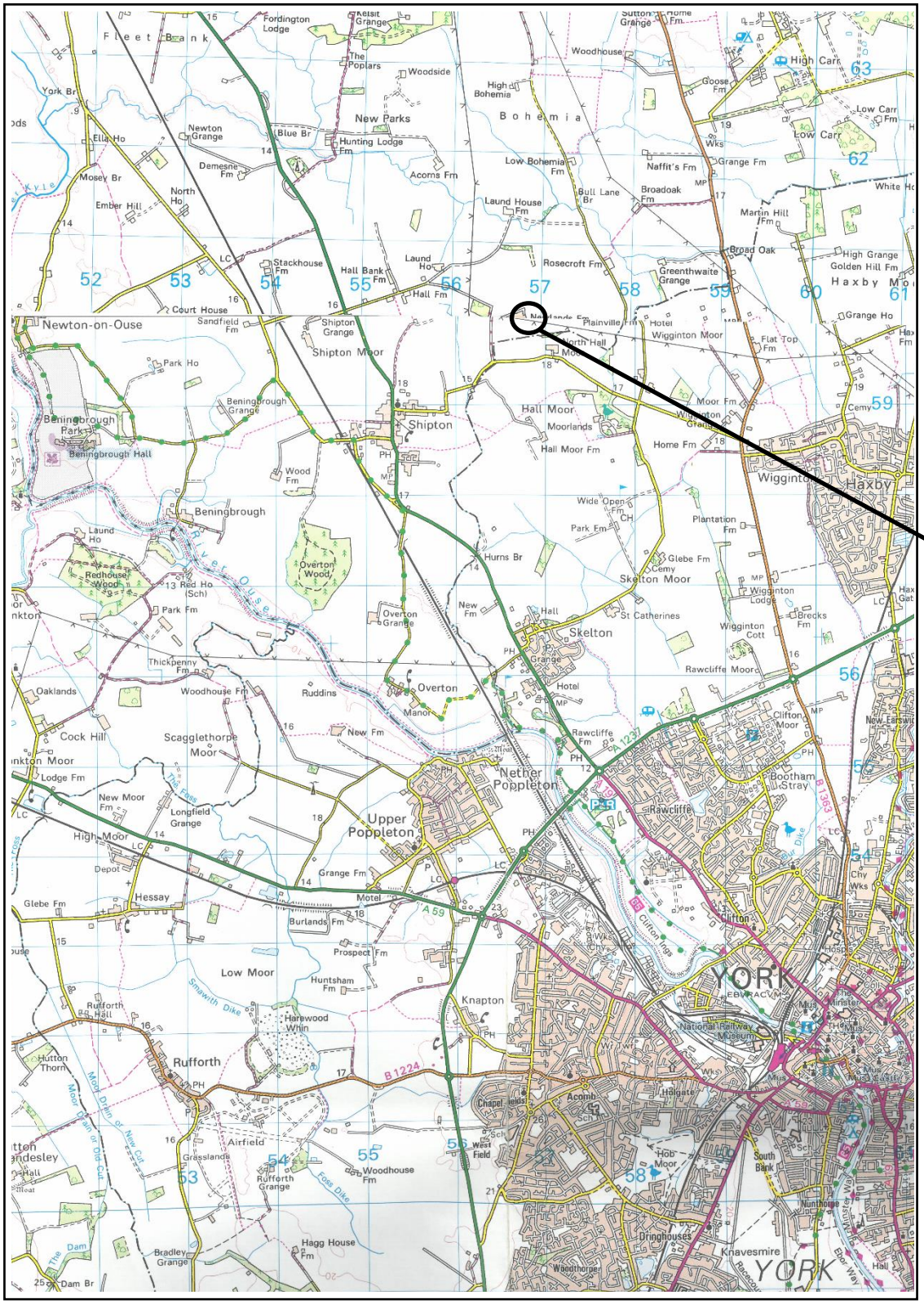
SOCOTEC



Notes: Scale 1:50 000	Project	Scheme 33754 Yorkshire Green	Figure
	Project No.	A1023-21	A1-2
	Carried out for	National Grid	

Site Location Plan

SOCOTEC



Notes: Scale 1:50 000	**Project** Scheme 33754 Yorkshire Green **Project No.** A1023-21 **Carried out for** National Grid	**Figure** **A1-3**

Site Plan

SOCOTEC

N
W
E
S

Notes:

Scale:	Sheet Size:
1:3500	A4

Surveyed By:

Socotec UK

Surveyed Date:

26/11/2021

Key:

Legend Key

- Locations By Type - CP
- Locations By Type - CP +RC
- Locations By Type - TP

Project	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Figure:

A4

Site Plan

SOCOTEC

N
W
E
S

Notes:

Site Plan created using HoleBASE SI incorporating Bing Maps included under licence with Bentley Ltd.

Scale:	Sheet Size:
1:4000	A4

Surveyed By:

Socotec UK

Surveyed Date:

26/11/2021

Key:

Legend Key

- Locations By Type - CP
- Locations By Type - CP +RC

Project	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Figure:

A5

Site Plan

SOCOTEC

N
W
E
S

Notes:

Scale:	Sheet Size:
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Surveyed By:

Socotec UK

Surveyed Date:

26/11/2021

Key:

Legend Key

Locations By Type - CP

Project	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Figure:

A6

APPENDIX B
EXPLORATORY HOLE RECORDS

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. (Used as alternative to Fracture Spacing)
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 June 2021 v1.3 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

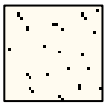
ESET	Electronic settlement cell/gauge
ETM	Magnetic extensometer settlement point

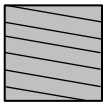
Pressure Cells

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

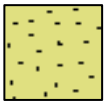
INSTALLATION / BACKFILL LEGENDS A legend describing the installation is shown in the rightmost column. Legend symbols used to describe the backfill materials are indicated below.

Macadam 

Concrete 

Grout 

Bentonite 

Sand 

Gravel 

Arisings 

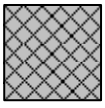
STRATUM LEGENDS The legend symbols used for graphical representation of soils, rocks and other materials on the borehole logs are shown below. For soils with significant proportions of secondary soil types, a combination of two or more symbols is used.

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

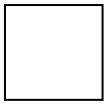
Macadam 

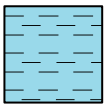
Concrete 

Topsoil 

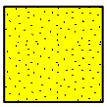
Made Ground / Fill 

Peat 

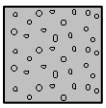
Void or No Information 

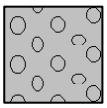
Clay 

Silt 

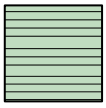
Sand 

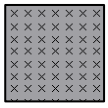
Gravel 

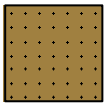
Cobbles 

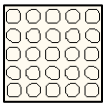
Boulders 

Coal 

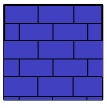
Mudstone 

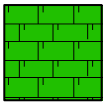
Siltstone 

Sandstone 

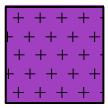
Conglomerate 

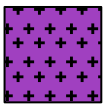
Breccia 

Limestone 

Chalk 

Igneous (Fine) 

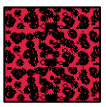
Igneous (Med) 

Igneous (Coarse) 

Metamorphic (Fine) 

Metamorphic (Med) 

Metamorphic (Coarse) 

Tuff 

Notes:
See report text for full references of standards.
Updated June 2021 v1.3 col

Key

Key to Exploratory Hole Records

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

Notes:
See report text for full references of standards.
Updated June 2021 v1.3 col

Key

Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Hammer Ref:	ACE002
Test Date:	27/09/2021
Report Date:	
File Name:	ACE002.spt
Test Operator:	B HUNTER

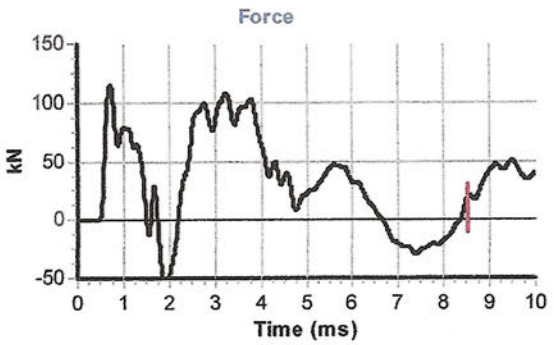
Instrumented Rod Data

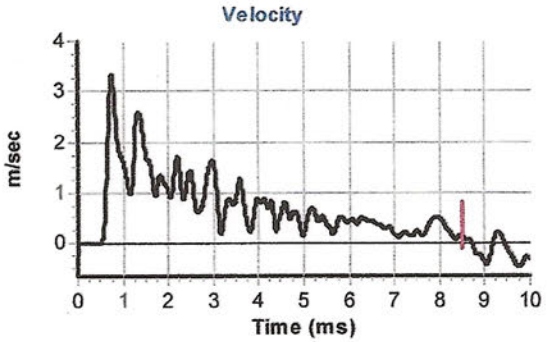
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	62901
Accelerometer No.2:	62902

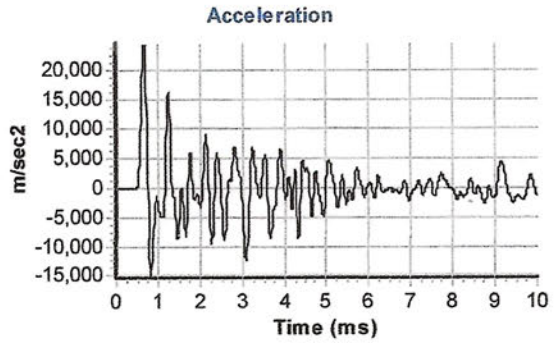
Hammer Information

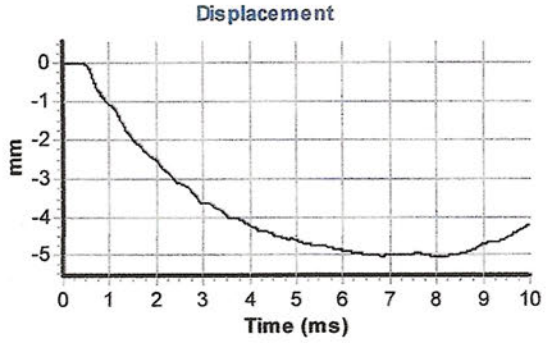
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
String Length L (m):	10.0

Comments / Location









Calculations

Area of Rod A (mm2):	905
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	287

Energy Ratio E_r (%): **61**

[redacted]

Signed: Operations Manager

Title:

The recommended calibration interval is 12 months

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Scott Pincher
JB Site Investigations
DC103/9
Windmill Way West
Ramparts Business Park

SPT Hammer Ref:	JB 14
Test Date:	18/06/2021
Report Date:	18/06/2021
File Name:	JB 14.spt
Test Operator:	SP

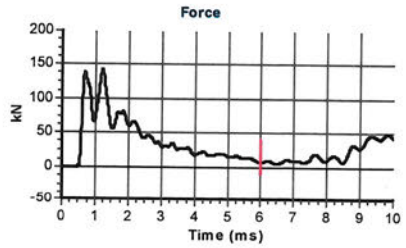
Instrumented Rod Data

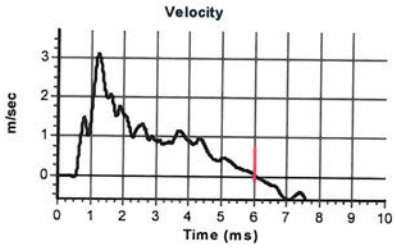
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.1
Rod Length l_r (m):	1.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	6178
Accelerometer No.2:	5843

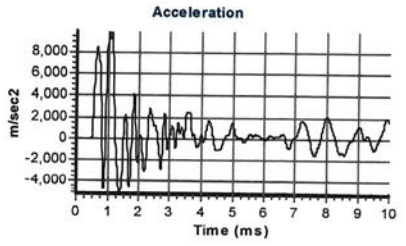
SPT Hammer Information

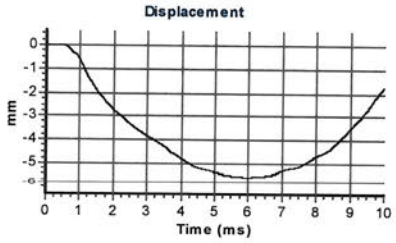
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.0

Comments / Location









Calculations

Area of Rod A (mm2):	918
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	329

Energy Ratio E_r (%): **70**

[redacted]

Title: Director

SPT Hammer Energy Test Report

in accordance with BSEN ISO 22476-3:2005

Scott Pincher
JB Site Investigations
DC103/9
Windmill Way West
Ramparts Business Park

SPT Hammer Ref:	JB016
Test Date:	29/07/2021
Report Date:	19/08/2021
File Name:	JB016.spt
Test Operator:	SP

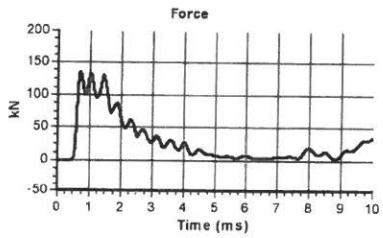
Instrumented Rod Data

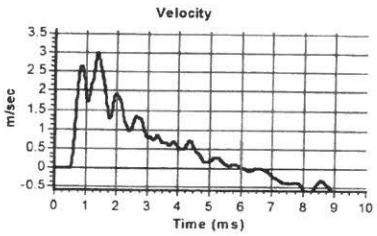
Diameter d_r (mm):	54
Wall Thickness t_r (mm):	6.1
Rod Length l_r (m):	1.0
Assumed Modulus E_a (GPa):	208
Accelerometer No.1:	6178
Accelerometer No.2:	5843

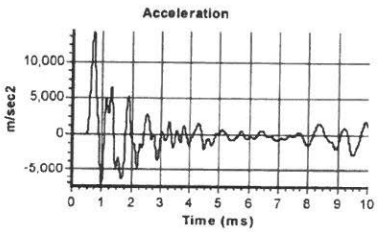
SPT Hammer Information

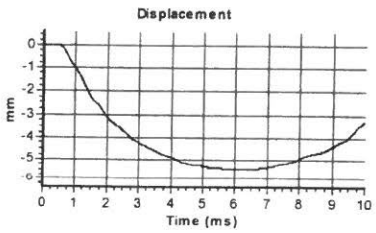
Hammer Mass m (kg):	63.5
Falling Height h (mm):	760
SPT String Length L (m):	14.2

Comments / Location









Calculations

Area of Rod A (mm2):	918
Theoretical Energy E_{theor} (J):	473
Measured Energy E_{meas} (J):	364

Energy Ratio E_r (%): **77**

[redacted]

Title: Director

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	37.32 mOD
G Swinbourne	0.00 - 1.20	28 Sep 21 - 28 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	28 Sep 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 448585.43
	1.20 - 4.10	28 Sep 21 - 29 Sep 21	Cable percussion boring from 1.20m to 4.10m	Dando 2000	JP	CF	30 Sep 21	4.10	150	4.10	150			National Grid	N 429323.61
Approved	4.10 - 20.00	30 Sep 21 - 01 Oct 21	Rotary coring from 4.10m to 20.00m	Beretta T41-2	JC	CF	07 Oct 21	20.00	146					System	OSGB
A Jones															

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
														(0.60)			Very stiff brown slightly gravelly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone and red brick. (MADE GROUND)	0.40-0.60 locally gravelly. Gravel is subangular to subrounded fine to coarse of pinkish white limestone			Raised cover
		0.20	D 1											0.60	+36.72						
		0.20 - 0.50	B 3		0.30	PID	0.0 ppmv (Test 1)							(0.30)			Firm to stiff reddish brown slightly sandy slightly gravelly CLAY with occasional rootlets. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of siltstone and limestone. (HARROGATE TILL FORMATION)				
		0.30	ES 2		0.50	PID	0.0 ppmv (Test 2)							0.90	+36.42						
		0.50	ES 4		0.70	PID	0.0 ppmv (Test 3)										Soft to firm brown, mottled greenish grey and yellowish brown, slightly sandy slightly gravelly silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of siltstone and mudstone. (HARROGATE TILL FORMATION)				
		0.70	D 5																		
		0.70 - 0.90	B 7																		
		0.70	ES 6		1.00	PID	0.0 ppmv (Test 4)														
		1.00	ES 8																		
		1.20	D 10		1.20 - 1.65	SPT S	N=7 (1,1/1,2,2,2) ID JB016 Er 77%	1.20	Dry												
		1.20 - 1.65	D 9																		
		1.60 - 1.70	B 11																		
		1.80	D 12																		
		2.00 - 2.45	U 13	30 blows 80% rec																	
28 Sep 21 1.50	1700 Dry													(2.80)							
29 Sep 21 1.50	0800 Dry																				
		2.80	D 15																		
		3.00 - 3.45	D 16		3.00 - 3.45	SPT S	N=16 (2,2/4,3,4,5) ID JB016 Er 77%	3.00	Dry												
		3.00 - 3.50	B 17																		
		3.70	D 18											3.70	+33.62						
29 Sep 21 3.00	1700 Dry	4.00 - 4.28	D 19		4.00 - 4.28	SPT S	50 (20,5 for 5mm/19,11,20 for 50mm) ID JB016 Er 77%	3.00	Dry					(0.40)			Very weak cream LIMESTONE, recovered as angular to subangular fine to coarse gravel size fragments. (BROTHERTON FORMATION)				
30 Sep 21 3.00	0800 Dry	4.10	D 20											4.10	+33.22		Strong thinly bedded light grey to cream LIMESTONE. Fractures are 20 to 30 degree, closely to medium spaced, planar, rough with rare brownish grey clay infill (<1mm), black staining and occasional black speckling on surfaces. (BROTHERTON FORMATION)	4.52-4.67 occasional voids (up to 9x6x4mm)			
		4.72 - 4.84	D 21							4.10 - 5.10	95 19 0	NI 90 130									
		5.55 - 5.74	C 22							5.10 - 6.10	100 48 17	NI 100 260						6.03-6.18 1 no. 40 to 50 degree fracture undulating rough with slight clay smearing (<1mm thick) on fracture surface			
		6.45 - 6.70	C 23							6.10 - 7.60	99 71 54							7.13-7.19 firm dark yellowish brown calcareous clay 7.26-7.34 thickly interlaminated limestone and calcareous clay 7.44-9.42 NI heavily fractured moderately weak limestone 7.60-8.00 AZCL			
		8.65	D 28							7.60 - 9.10	73 0 0	NI NI 82									
										9.10 - 9.85	96 12 0							9.42-9.50 frequent voids (up to 13x9x5mm) 9.50-11.78 NI moderately weak limestone			

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
3.70 - 4.10	60	Chisel

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:42

AGS

Borehole

MFBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	28 Sep 21 - 28 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	28 Sep 21
	1.20 - 4.10	28 Sep 21 - 29 Sep 21	Cable percussion boring from 1.20m to 4.10m	Dando 2000	JP	CF	30 Sep 21
Approved	4.10 - 20.00	30 Sep 21 - 01 Oct 21	Rotary coring from 4.10m to 20.00m	Beretta T41-2	JC	CF	07 Oct 21
A Jones							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
4.10	150	4.10	150
20.00	146		

Depth Related Remarks	
Depth	Remarks

Ground Level	37.32 mOD
Coordinates	E 448585.43
National Grid	N 429323.61
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
										9.85 - 10.85	98 6 0			(12.00)			Strong thinly bedded light grey to cream LIMESTONE. Fractures are 20 to 30 degree, closely to medium spaced, planar, rough with rare brownish grey clay infill (<1mm), black staining and occasional black speckling on surfaces. (BROTHERTON FORMATION)				
										10.85 - 12.35	99 6 0							11.78-12.11 2 no. fractures 70 degree undulating rough with brown clay infill (<1mm thick)			
30 Sep 21 4.10	1700 Dry	12.09 - 12.23	C 24										Air/mist flush: 4.10 - 20.00		0% rec			12.22-12.52 NI moderately weak limestone 12.35-12.52 AZCL			
01 Oct 21 4.10	0800 Dry									12.35 - 13.85	87 19 0							12.77-12.93 locally NI 12.93-13.01 1 no. 60 to 70 degree fracture undulating rough with clay smearing along fracture surface			
		13.75	D 29									NI 100 150						13.32-13.42 1 no. 80 degree fracture undulating smooth with gravelly clay infill (up to 3mm thick) 13.45-13.66 locally NI 13.66-13.85 1 no. 90 degree fracture undulating rough 13.69-13.82 1 no. 90 degree fracture undulating rough with slight clay smearing on fracture surface			
										13.85 - 14.60	83 24 0							13.85-13.95 AZCL 14.70-15.08 locally NI			
		15.10 - 15.21	C 25							14.60 - 15.35	97 21 0							15.26-15.35 1 no. 80 degree fracture undulating rough slight clay smearing along fracture surfaces 15.35-15.73 locally NI			
										15.35 - 16.10	93 13 13										
		16.44 - 16.71	C 26							16.10 - 16.85	100 NA NA			16.10	+21.22		Soft to firm bluish grey, mottled orangish brown and creamish brown, slightly calcareous slightly sandy CLAY with occasional pockets (10x8x6mm) of orangish brown sand. (EDLINGTON FORMATION)			16.32-16.37 locally moderately weak orangish brown limestone with frequent black speckling		17.00
														(1.30)				16.85-17.00 AZCL			
		17.79 - 18.22	C 27							16.85 - 18.35	90 NA NA	-		17.40	+19.92		Soft to firm reddish brown slightly calcareous slightly sandy silty CLAY with occasional pockets (12x10x2mm) of light brown fine sand. (EDLINGTON FORMATION)			17.74-17.76 locally moderately weak reddish grey limestone with rare black speckles (<1mm)		
										18.35 - 18.85	64 NA NA	NA						18.35-18.53 AZCL			
												-		(2.60)							19.00 SP
01 Oct 21 4.10	1700 Dry									18.85 - 20.00	63 NA NA							19.49-19.52 locally medium strong reddish grey limestone 19.64-19.67 locally medium strong reddish grey limestone			
														20.00	+17.32		END OF EXPLORATORY HOLE				20.00

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:42

AGS

Borehole

MFBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	36.68 mOD
G Swinbourne	0.00 - 1.20	29 Sep 21 - 29 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	29 Sep 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 448648.67
	1.20 - 6.40	29 Sep 21 - 30 Sep 21	Cable percussion boring from 1.20m to 6.40m	Dando 2000	JP	CF	04 Oct 21	6.40	200	6.00	200			National Grid	N 429125.10
Approved	6.40 - 20.00	04 Oct 21 - 05 Oct 21	Rotary coring from 6.40m to 20.00m	Beretta T41	JC	RF	18 Oct 21	20.00	146					System	OSGB
A Jones															

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
														(0.30)			Stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of red brick and quartzite. Frequent rootlets. (MADE GROUND)				
29 Sep 21	0800	0.10	D 1											0.30	+36.38						
		0.10 - 0.30	B 2		0.25	PID	0.0 ppmv (Test 1)														
		0.25	ES 3																		
		0.40 - 0.80	B 4		0.50	PID	0.0 ppmv (Test 2)														0.50
		0.50	ES 5																		
		0.60	D 6		0.70	PID	0.0 ppmv (Test 3)							(0.90)			Soft to firm reddish brown mottled greenish grey slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. Occasional rootlets. (HARROGATE TILL FORMATION)				
		0.70	ES 7																		
		1.00	D 8		1.00	PID	0.0 ppmv (Test 4)														1.00
		1.00	ES 9																		
		1.20 - 1.65	D 10		1.20 - 1.65	SPT S	N=10 (2,1/2,2,3,3) ID JB016 Er 77%	1.20	Dry					1.20	+35.48		Soft to firm reddish brown, mottled greenish grey, slightly gravelly, locally gravelly, sandy silty CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. (HARROGATE TILL FORMATION)				
		1.20 - 1.70	B 11																		
		1.80	D 12																		
		2.00 - 2.45	U 13	26 blows 100% rec				1.50	Dry					(1.60)							
		2.00 - 2.50	B 14																		
		2.80	D 15											2.80	+33.88						
		3.00 - 3.45	D 16		3.00 - 3.45	SPT S	N=21 (2,2/4,4,6,7) ID JB016 Er 77%	3.00	Dry								Soft to firm thinly laminated brown, mottled greenish grey and yellowish brown, slightly sandy silty CLAY. Sand is fine to coarse. (HARROGATE TILL FORMATION)				
		3.00 - 3.50	B 17											(1.00)							
		3.80	D 18											3.80	+32.88					1	
		4.00 - 4.45	D 19		4.00 - 4.45	SPT S	N=35 (8,7/7,9,9,10) ID JB016 Er 77%	4.00									Firm to stiff thinly laminated grey, mottled brown, slightly sandy clayey SILT. Sand is fine to coarse. (HARROGATE TILL FORMATION)				4.00 SPIE
		4.70	D 21											(1.20)							
29 Sep 21	1700																				
4.50	Dry																				
30 Sep 21	0800	5.00 - 5.45	D 22		5.00 - 5.45	SPT S	N=39 (2,4/6,13,9,11) ID JB016 Er 77%	4.50						5.00	+31.68		Firm to stiff thinly laminated yellowish brown, mottled grey, silty CLAY. (HARROGATE TILL FORMATION)				
4.50	Dry																				
		5.80	D 23											(1.40)							
		6.00 - 6.45	D 24		6.00 - 6.43	SPT S	50 (6,7/9,10,17,14 for 50mm) ID JB016 Er 77%	6.00													
30 Sep 21	1700																				
6.00	Dry																				
04 Oct 21	0800	6.40	D 25											6.40	+30.28						
6.00	7.00									6.40 - 7.40	100 90 73	80 220 430		(1.15)			Strong thinly to medium bedded dark yellowish grey coarse grained LIMESTONE. Frequent voids (up to 3x3x3mm). Fractures are 0 to 30 degree, medium spaced, undulating, rough with rare yellowish brown clay infill (up to 1mm). (BROTHERTON FORMATION)	7.15-7.25 NI			
		6.73 - 7.16	C 26															7.45-7.55 dark yellowish grey bands of cross bedded sections			
										7.40 - 7.90	100 60 20			7.55	+29.14		Medium strong thinly to medium bedded light yellowish grey medium to coarse grained LIMESTONE. Locally frequent voids (up to 3x3x3mm). Fractures are 0 to 30 degree, undulating, rough with yellowish brown clay infill (up to 1mm). (BROTHERTON FORMATION)	7.90 1 no. 50 to 60 degree fracture 8.00 1 no. 60 to 90 degree fracture 8.33-8.61 NI heavily fractured with black speckling and orangish clay smearing along fracture surfaces 8.71-8.91 dark yellowish grey coarse cross bedded bands 9.00 1 no. 20 degree stepped rough fracture 9.09-9.19 locally thickly laminated 9.40-9.72 NI moderately weak with clay smearing on surfaces 9.81-10.40 locally very weak thinly laminated limestone 9.83-10.08 NI very weak			
										7.90 - 9.40	100 41 8										
		8.80 - 8.94	C 27																		

Hole continues on next sheet

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
6.00 - 6.40	60	Chisel

Groundwater Entries

No.	Depth	Remarks	Sealed
1	3.50		

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

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Borehole

MFBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
G Swinbourne	0.00 - 1.20	29 Sep 21 - 29 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	29 Sep 21	6.40	200	6.00	200		
Approved	1.20 - 6.40	29 Sep 21 - 30 Sep 21	Cable percussion boring from 1.20m to 6.40m	Dando 2000	JP	CF	04 Oct 21	20.00	146				
A Jones	6.40 - 20.00	04 Oct 21 - 05 Oct 21	Rotary coring from 6.40m to 20.00m	Beretta T41	JC	RF	18 Oct 21						

Ground Level	36.68 mOD
Coordinates	E 448648.67
National Grid	N 429125.10
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
										9.40 - 10.90	100 22 0				(6.35)			Medium strong thinly to medium bedded light yellowish grey medium to coarse grained LIMESTONE. Locally frequent voids (up to 3x3x3mm). Fractures are 0 to 30 degree, undulating, rough with yellowish brown clay infill (up to 1mm). (BROTHERTON FORMATION)	10.16-10.36 1 no. 60 to 70 degree undulating rough fracture with yellowish brown clay infill (up to 1mm) 10.52-10.71 locally extremely closely spaced thinly laminated clay 10.90-11.29 AZCL 11.29-11.38 NI weak to moderately weak 11.55-11.57 localised frequent voids (up to 2x1.5x2mm) 11.67-11.97 NI moderately weak with frequent voids (up to 2.5x1.6x2mm) 12.13-12.20 NI heavy fractured moderately weak with brown clay infill on surfaces 12.31-12.40 locally NI moderately weak 12.48-12.59 locally NI moderately weak 12.64 1 no. 20 degree stepped rough fracture 12.77-12.80 NI 12.80-12.87 1 no. 70 to 75 degree undulating rough fracture 12.84 1 no. stepped fracture rough 12.89-13.15 locally NI moderately weak 13.15-13.27 AZCL 13.36-13.45 abundant voids (2.1x2.2x2.4mm) 13.46-13.48 NI 13.51-13.60 NI 13.76-13.90 locally NI moderately weak 15.11-15.40 locally moderately weak 15.70 1 no. 70 to 80 degree undulating rough fracture with brown clay smearing along surfaces 16.06-16.20 intersecting fractures 80 to 90 degree undulating rough and 60 to 65 degree undulating rough with clay smearing along surfaces 16.20-16.49 locally NI heavily fractured and moderately weak 16.55 1 no. 80 to 90 degree undulating rough fracture with brown staining 16.64-16.74 locally weak weathered section heavily fractured with orangish brown staining along fracture surfaces 16.90-17.17 AZCL 17.40-17.59 1 no. 90 degree undulating rough fracture with black speckling along surfaces 17.60-17.70 NI moderately weak 17.75-17.99 1 no. 20 to 30 degree stepped rough fracture with black speckling 18.60-18.70 1 no. 10 to 15 degree planar rough fracture with yellowish brown clay infill (up to 1.5mm) 18.70-19.10 1 no. 90 degree undulating yellowish brown clay infill (up to 1mm) 19.90-20.00 AZCL			
		11.36 - 11.49	C 28							10.90 - 12.40	74 12 0											
		11.80 - 12.00	D 29																			
										12.40 - 13.15	96 20 0	NI 70 190										
		13.57 - 13.67	C 30							13.15 - 13.90	87 25 0		Air/mist flush: 6.40 - 20.00	100% rec								
															13.90	+22.78		Assessed Zone of Core Loss.				
										13.90 - 15.40	23 4 0				(1.21)							
04 Oct 21 6.00	1700 14.90														15.11	+21.58		Strong medium bedded light yellowish grey fine to medium grained LIMESTONE. Fractures are: Set 1 - 0 to 30 degree, undulating, rough with yellowish brown infill (up to 1mm). Set 2 - 80 to 90 degree, undulating, rough. (BROTHERTON FORMATION)				
05 Oct 21 6.00	0800 Dry																					
		15.83 - 16.03	C 31							15.40 - 16.40	100 28 16											
										16.40 - 16.90	100 24 0											
		17.27	D 33							16.90 - 18.40	82 22 16	NI 185 330			(4.89)							
		18.10 - 18.40	C 32																			
										18.40 - 19.40	100 30 18											
										19.40 - 20.00	83 17 0											
05 Oct 21 6.00	1700 Dry														20.00	+16.68		END OF EXPLORATORY HOLE				20.00

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

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Borehole

MFBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level
G Swinbourne	0.00 - 0.60	05 Oct 21 - 05 Oct 21	Hand dug inspection pit from 0.00m to 0.60m, terminated due to	Hand tools	NA	CF	05 Oct 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates
Approved												0.00 - 0.60	No groundwater encountered	National Grid
A Jones														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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
05 Oct 21	0800	0.10	D 1										(0.30)			Firm to stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone with frequent rootlets. (TOPSOIL)				
		0.10 - 0.30	B 2										0.30							
		0.25	ES 3										(0.30)			Firm to stiff light orangish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone with occasional rootlets. (HARROGATE TILL FORMATION)				0.60
05 Oct 21	1200 Dry	0.40	D 4										0.60			END OF EXPLORATORY HOLE				
		0.40 - 0.60	B 5																	
		0.50	ES 6																	

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:43

AGS

Borehole

MFBH03

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	36.91 mOD
G Swinbourne	0.00 - 1.20	30 Sep 21 - 30 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	05 Oct 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 448678.54
	1.20 - 6.00	01 Oct 21 - 01 Oct 21	Cable percussion boring from 1.20m to 6.00m	Dando 2000	JP	CF	05 Oct 21	6.00	200	4.50	200			National Grid	N 428934.18
Approved	6.00 - 20.08	05 Oct 21 - 07 Oct 21	Rotary coring from 6.00m to 20.08m	Beretta T41-2	JC	RF	14 Oct 21	20.08	146	6.00	146			System	OSGB
A Jones															

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
														(0.30)			Firm to stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Frequent rootlets. (TOPSOIL)				
30 Sep 21	0800	0.10	D 1											0.30	+36.61		Firm to stiff light orangish brown sandy gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Occasional rootlets. (HARROGATE TILL FORMATION)				0.50
		0.10 - 0.30	B 2																		
		0.25	ES 3																		
		0.40	D 4																		
		0.50 - 0.80	B 6											(0.90)							
		0.50	ES 5																		
		0.70	ES 7																		
1		1.00	D 8																		
		1.00	ES 9		1.20 - 1.65	SPT S	N=14 (2,3/3,3,4,4) ID JB016 Er 77%	1.20	Dry					1.20	+35.71						
		1.20 - 1.65	D 10														Firm to stiff light orangish brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of limestone. Cobbles are subangular to subrounded of white limestone. Occasional rootlets. (HARROGATE TILL FORMATION)				
30 Sep 21	1700													(0.80)							
1.50	Dry	1.80	D 12																		
01 Oct 21	0800																				
2 1.50	Dry	2.00 - 2.45	U 13	20 blows 100% rec				1.50	Dry					2.00	+34.91		Firm to stiff thinly to thickly laminated reddish brown, mottled greenish grey, slightly sandy silty CLAY with frequent pockets (20x15x5mm) of greenish grey silt. Sand is fine to coarse. (HARROGATE TILL FORMATION)				
		2.00 - 2.50	B 14																		
		2.80	D 15																		
3		3.00 - 3.45	D 16		3.00 - 3.45	SPT S	N=14 (2,3/3,3,4,4) ID JB016 Er 77%	3.00	Dry												
		3.80	D 18																		
4		4.00 - 4.45	D 19		4.00 - 4.45	SPT S	N=17 (1,2/3,4,4,6) ID JB016 Er 77%	4.00	Dry					(4.00)							4.00
		4.00 - 4.50	B 20																	1	
		4.80	D 21																		
5		5.00 - 5.45	D 22		5.00 - 5.45	SPT S	N=25 (2,2/3,6,7,9) ID JB016 Er 77%	4.50													
		5.60	D 23														5.60 localised low cobble content of moderately weak grey limestone with abundant voids (3x3x3mm)				
01 Oct 21	1700																				
6 4.50		6.00 - 6.45	D 24		6.00 - 6.43	SPT S	50 (4,10/11,10,12,17 for 55mm) ID JB016 Er 77%	4.50						6.00	+30.91						6.00
05 Oct 21	0800													(0.05)	+30.86		Strong medium bedded light yellowish grey fine to medium LIMESTONE. (Weathered ROXBY FORMATION)				SPIE
4.50	3.00													6.05							
		6.49 - 6.65	C 25							6.00 - 7.00	100 5 0	- NA -		(0.42)			Very soft to soft (drilling induced?) grey and red mottled slightly calcareous slightly gravelly CLAY. Gravel is angular medium and coarse of very weak mudstone. (Weathered ROXBY FORMATION)		6.26 becoming stiff to very stiff, grey mottled brown		
														6.47	+30.44						
														(0.53)							
7		7.01 - 7.12	D 26											7.00	+29.91		Stiff to very stiff bluish grey slightly calcareous slightly gravelly CLAY. Gravel is angular to subangular medium to coarse of extremely weak mudstone. (Weathered ROXBY FORMATION)				
05 Oct 21	1700																				
6.00	3.90	7.28 - 7.50	C 27							7.00 - 7.50	100 68 64	NI 150 370					Extremely weak to very weak thinly to medium bedded dark bluish grey MUDSTONE. (Weathered ROXBY FORMATION)		6.80-6.85 locally medium strong very thinly bedded bluish grey mudstone 7.13-7.20 locally moderately weak to medium strong thinly bedded mudstone 7.50 pyrite crystals 7.50-7.55 locally moderately weak very thinly bedded mudstone		
06 Oct 21	0800													(1.35)							
6.00	Dry																				
8		8.01 - 8.19	C 28																8.20-8.29 locally moderately weak thinly bedded mudstone 8.35-8.48 NI heavily weathered		
										7.50 - 9.00	100 50 28	- NA -		8.35	+28.56						
														(0.41)			Very soft to soft (drilling induced?) brown, mottled grey, slightly calcareous slightly gravelly CLAY. Gravel is angular medium to coarse of extremely weak mudstone. (Weathered ROXBY FORMATION)				
														8.76	+28.15						
9		9.10 - 9.28	C 29		9.00 - 9.08	SPT S	100 (42, 58 for 7mm) ID ACE2 - 2 3/8 Er 61%	6.00	Dry					(0.80)			Medium strong thinly to medium bedded dark yellowish grey medium to coarse grained LIMESTONE. Localised frequent voids (up to 2x2x2mm). Fractures are 0 to 30 degree, undulating, rough with clay smearing. (BROTHERTON FORMATION)		9.09 1 no. 0 to 30 degree stepped rough fracture 9.19-9.25 localised voids (up to 2x1.5x1.3mm)		
											100 39 22			9.56	+27.35						
										9.00 - 10.50							Strong thinly to medium bedded light yellowish grey fine to medium LIMESTONE. Localised voids(up to 30x10x15mm). Fractures are:		9.68 1 no. 80 to 90 degree undulating rough fracture with black speckling and orange staining on fracture surface		
10																	Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
5.60 - 6.00	60	Chisel

Groundwater Entries

No.	Depth	Remarks	Sealed
1	4.40		

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

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Borehole

MFBH03A

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	36.91 mOD
G Swinbourne	0.00 - 1.20	30 Sep 21 - 30 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	05 Oct 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 448678.54
	1.20 - 6.00	01 Oct 21 - 01 Oct 21	Cable percussion boring from 1.20m to 6.00m	Dando 2000	JP	CF	05 Oct 21	6.00	200	4.50	200			National Grid	N 428934.18
Approved	6.00 - 20.08	05 Oct 21 - 07 Oct 21	Rotary coring from 6.00m to 20.08m	Beretta T41-2	JC	RF	14 Oct 21	20.08	146	6.00	146			System	OSGB
A Jones															

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
																Strong thinly to medium bedded light yellowish grey fine to medium LIMESTONE. Localised voids(up to 30x10x15mm). Fractures are: Set 1 - 0 to 30 degree, closely to medium spaced, undulating, rough with clay smearing, black speckling and orange staining on surface. Set 2 - 70 to 90 degree, undulating, rough with clay infill and black speckling along fracture surface and occasional orange staining. Set 3 - 0 to 30 degree, closely spaced, planar, rough with clay infill (up to 1mm) and black speckling. (BROTHERTON FORMATION)	9.95-9.98 frequent local voids (2.5x2x1mm) 10.00-10.26 NI rounded core (drilling induced) 10.34-10.41 rare voids (up to 20x10x5mm) 10.55-11.22 rare voids (up to 30x15x12mm) 10.68-10.77 locally dark yellowish grey and NI 10.86-11.00 locally dark yellowish grey and NI			
	11.22 - 11.40	C 30							10.50 - 12.00	100 54 30	NI 100 200									
				12.00 - 12.08	SPT S	100 (62, 38 for 6mm) ID ACE2 - 2 3/8 Er 61%	6.00	Dry					(5.44)				12.17-12.21 locally NI moderately weak clay smearing and black speckling along fracture surface 12.27-12.31 locally NI moderately weak clay smearing and black speckling along fracture surface 12.67-12.69 NI weathered and clayey 12.72-12.75 NI 12.91-12.95 weathered and clayey			
									12.00 - 13.50	100 45 7	NI 75 120	Air/mist flush: 6.00 - 20.00		100% rec			13.10-13.16 locally NI clay smearing and black speckling along fracture surface 13.27-13.31 locally NI clay smearing and black speckling along fracture surface 13.68-13.80 locally NI			
	13.31 - 13.41	C 31															13.80 1 no. 80 to 90 degree undulating rough fracture with orange staining and black speckling along fracture surface			
									13.50 - 15.00	100 13 0	NI 45 120						13.80-14.83 locally NI heavily fractured along bedding planes. Fractures are 0 to 30 degree planar rough. Orange staining and black speckling on fracture surface. Rare clay infill (up to 1mm). Frequent voids (up to 2x2x2mm)			
	14.84 - 14.92	C 32															14.96 1 no. 0 to 30 degree stepped rough fracture with slightly gravelly clay infill (up to 2mm)			
				15.00 - 15.08	SPT S	100 (81, 19 for 1mm) ID ACE2 - 2 3/8 Er 61%	6.00	Dry					15.00	+21.91		Assessed Zone of Core Loss.	15.00-15.89 AZCL			
													(0.89)							
									15.00 - 16.50	41 3 0	NI 75 120						16.06 1 no. 80 to 90 degree undulating rough fracture with black speckling and orange staining on fracture surface			
	06 Oct 21 1700 6.00 Dry												15.89	+21.02		Strong thinly to medium bedded light yellowish grey fine to medium LIMESTONE. Localised voids(up to 30x10x15mm). Fractures are: Set 1 - 0 to 30 degree, closely to medium spaced, undulating, rough with clay smearing, black speckling and orange staining on surface. Set 2 - 70 to 90 degree, undulating, rough with clay infill and black speckling along fracture surface and occasional orange staining. Set 3 - 0 to 30 degree, closely spaced, planar, rough with clay infill (up to 1mm) and black speckling. (BROTHERTON FORMATION)	16.06-16.12 frequent voids (up to 2.5x2x1.5mm) 16.33-16.45 NI 16.50-16.57 AZCL 16.57-16.67 NI 16.82-16.98 NI clay smearing on fracture surface 17.42-17.61 NI clay smearing on fracture surface 17.74-17.75 frequent voids (up to 12x13x10mm) 18.00-18.32 AZCL 18.37 1 no. 70 to 80 degree undulating rough fracture with black speckling and orange staining along fracture surface 18.48-18.66 NI with clay smearing black specking and orange staining along fracture surface 18.67 1 no. 70 to 80 degree undulating rough fracture with reddish brown staining and black speckling along fracture surface			
	07 Oct 21 0800 6.00 Dry																			
	17.16 - 17.29	C 33							16.50 - 18.00	95 33 7	NI 75 120									
				18.00 - 18.12	SPT S	100 (82, 18 for 42mm) ID ACE2 - 2 3/8 Er 61%	6.00	Dry					(4.19)							
									18.00 - 19.50	79 21 11	NI 200 210									
									19.50 - 20.00	100 24 0										
	07 Oct 21 1700 6.00 Dry															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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

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AGS

Borehole

MFBH03A

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	30 Sep 21 - 30 Sep 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	05 Oct 21
	1.20 - 6.00	01 Oct 21 - 01 Oct 21	Cable percussion boring from 1.20m to 6.00m	Dando 2000	JP	CF	05 Oct 21
Approved	6.00 - 20.08	05 Oct 21 - 07 Oct 21	Rotary coring from 6.00m to 20.08m	Beretta T41-2	JC	RF	14 Oct 21
A Jones							

Hole		Casing		Depth Related Remarks	
Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
6.00	200	4.50	200		
20.08	146	6.00	146		

Ground Level	36.91 mOD
Coordinates	E 448678.54
National Grid	N 428934.18
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
	20.00 - 20.08	20.00 - 20.08 SPT S 100 (82, 18 for 3mm) ID ACE2 - 2 3/8 Er 61%	6.00 Dry			20.08 (+16.83)		Strong thinly to medium bedded light yellowish grey fine to medium LIMESTONE. Localised voids(up to 30x10x15mm). Fractures are: Set 1 - 0 to 30 degree, closely to medium spaced, undulating, rough with clay smearing, black speckling and orange staining on surface. Set 2 - 70 to 90 degree, undulating, rough with clay infill and black speckling along fracture surface and occasional orange staining. Set 3 - 0 to 30 degree, closely spaced, planar, rough with clay infill (up to 1mm) and black speckling. (BROTHERTON FORMATION) END OF EXPLORATORY HOLE	~~19.10 1 no. 70 to 80 degree~~ undulating rough fracture with reddish brown staining and black speckling along fracture surface 19.38-19.50 NI clay smearing reddish staining and black speckling along fracture surface 19.60 1 no. 80 to 90 degree undulating rough fracture with reddish brown slightly gravelly clay infill (up to 2mm). Black speckling along fracture surface 19.62-19.65 frequent voids (up to 2x1x1mm) 19.73 rare voids (up to 10x5x7mm) 19.80-20.00 locally NI gravelly clay smearing and black speckling along fracture surfaces			20.08

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:43

AGS

Borehole

MFBH03A

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Depth Related Remarks Remarks
G Swinbourne	0.00 - 1.20	12 Oct 21 - 12 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	CF	28 Oct 21	17.00	200	15.00	200		
Approved	1.20 - 17.00	12 Oct 21 - 14 Oct 21	Cable percussion boring 1.20m to 17.00m	Dando 2000	JP	CF	28 Oct 21						
A Jones													

Ground Level	13.61 mOD
Coordinates	E 455671.17
National Grid	N 457471.94
System	OSGB

Date	Time	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
Casing	Water																			
12 Oct 21	0800	0.10 - 0.40	B 1										(0.40)			Soft to firm brown slightly sandy CLAY with frequent rootlets. (TOPSOIL)				
		0.30	ES 2										0.40	+13.21						
		0.40 - 0.80	D 3													Soft to firm greyish brown, mottled orangish brown, slightly sandy CLAY with occasional rootlets. Sand is fine to coarse.				
		0.50	ES 4																	
		0.70	ES 5										(0.80)							
		1.20 - 1.65	D 7		1.20 - 1.65	SPT S	N=10 (1,2/2,2,3)	1.20	Dry				1.20	+12.41						
		1.20 - 1.70	B 8				ID JB16 Er 77%									Firm to stiff thinly laminated dark brown, mottled light grey, slightly sandy silty CLAY. Sand is fine to coarse. Occasional lenses (4x3x1mm) of brown fine sand. Slight organic odour. (ALNE FORMATION)				
		1.80	D 9																	
		2.00 - 2.45	U 10	35 blows 100% rec				1.50	Dry											
													(2.20)							
		3.00 - 3.45	D 13		3.00 - 3.45	SPT S	N=9 (1,1/2,2,2,3)	3.00	Dry											
		3.00 - 3.50	B 14				ID JB16 Er 77%													
													3.40	+10.21		Firm to stiff slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to medium of sandstone and siltstone. (ALNE FORMATION)				
		3.80	D 15																	
		4.00 - 4.45	U 16	50 blows 100% rec				3.00	Dry											
		4.00 - 4.45	B 17																	
													(2.60)							
		4.80	D 18																	
		5.00 - 5.45	D 19		5.00 - 5.45	SPT S	N=14 (2,2/3,3,4,4)	4.50	Dry											
		5.00 - 5.50	B 20				ID JB16 Er 77%													
		5.80	D 21																	
		6.00 - 6.45	U 22	55 blows 100% rec				6.00	Dry				6.00	+7.61						
		6.00 - 6.50	B 23													Firm to stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. (ALNE FORMATION)				
		6.80	D 24																	
													(1.50)							
		7.00 - 7.45	D 25		7.00 - 7.45	SPT S	N=42 (2,5/7,9,14,12)	6.00	Dry											
12 Oct 21	1700						ID JB16 Er 77%													
6.00	Dry																			
		7.50 - 8.00	B 28										7.50	+6.11		Soft to firm brown slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone. (ALNE FORMATION)				
13 Oct 21	0800																			
6.00	6.00												(0.80)							
		8.00 - 8.45	D 29		8.00 - 8.43	SPT S	N=27 (19,6 for	8.00	6.00								8.00-8.30 low cobble content. Cobbles are very strong grey subangular of quartzite			
		8.00 - 8.30	B 30				50mm/8,6,6,7)													
		8.30 - 9.00	B 31				ID JB16 Er 77%						8.30	+5.31		Dense brown silty fine to medium SAND. (ALNE FORMATION)				
		9.00 - 9.45	U 32	50 blows No Recovery				9.00	6.00											
		9.00 - 9.50	B 33																	
													(2.90)							
																Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
7.50 - 8.20	180	Chisel

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:44

AGS

Borehole

OSBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	13.61 mOD
G Swinbourne	0.00 - 1.20 1.20 - 17.00	12 Oct 21 - 12 Oct 21 12 Oct 21 - 14 Oct 21	Hand dug inspection pit from 0.00m to 1.20m Cable percussion boring 1.20m to 17.00m	Hand tools Dando 2000	JP JP	CF CF	28 Oct 21 28 Oct 21	Depth 17.00	Dia. (mm) 200	Depth 15.00	Dia. (mm) 200	Depth	Remarks	Coordinates	E 455671.17
Approved														National Grid	N 457471.94
A Jones														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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	10.00 - 10.45 10.00 - 10.50	D 34 B 35		10.00 - 10.45	SPT S	N=48 (4,5/7,10,14,17) ID JB16 Er 77%	10.00	8.00							Dense brown silty fine to medium SAND. (ALNE FORMATION)				
	11.00 - 11.45 11.00 - 11.50	D 36 B 37		11.00 - 11.45	SPT S	N=47 (5,8/10,11,12,14) ID JB16 Er 77%	11.00	9.00				11.20 (0.80)	+2.41		Firm thinly laminated grey slightly sandy silty CLAY. Sand is fine to medium. Occasional thin laminae (<1mm) of brown fine to medium sand. (ALNE FORMATION)				
	11.80	D 38																	
	12.00 - 12.45 12.00 - 12.50	U 39 B 40	95 blows 85% rec				12.00	Dry				12.00 (3.00)	+1.61		Firm to stiff greyish brown slightly sandy CLAY. Sand is fine and medium. (ALNE FORMATION)				
	13.00 - 13.45 13.00 - 13.50	D 41 B 42		13.00 - 13.45	SPT S	N=49 (6,9/12,12,12,13) ID JB16 Er 77%	13.00	Dry											
	14.00 - 14.45 14.00 - 14.50	U 43 B 44	150 blows No Recovery				13.00	Dry											
13 Oct 21 1700 13.00 Dry																			
14 Oct 21 0800 13.00 6.00	15.00 - 15.45	D 45		15.00 - 15.34	SPT S	50 (8,10/15,20,15 for 37mm) ID JB16 Er 77%	15.00	6.00				15.00 (2.00)	-1.39		Firm to stiff slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is subangular to rounded fine to coarse of quartzite, sandstone and siltstone. Cobbles are very strong brown subangular of quartzite. (ALNE FORMATION)				
	15.60 - 16.00	B 46																	
	16.00 - 16.45 16.00 - 16.45	D 47 B 48		16.00 - 16.35	SPT S	40 (9,9/12,14,14 for 49mm) ID JB16 Er 77%	15.00	6.00											
14 Oct 21 1700 15.00 6.00												17.00	-3.39		END OF EXPLORATORY HOLE				17.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
15.40 - 16.00	180	Chisel

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:44

AGS

Borehole OSBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 455811.00
	1.20 - 30.00	07 Oct 21 - 14 Oct 21	Cable percussion boring from 1.20m to 30.00m	Dando 2000	CJ	RF	02 Nov 21	24.00	200	24.00	200			National Grid	N 457221.00
Approved								30.00	150	27.00	150			System	OSGB
A Jones															

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
07 Oct 21 0800	0.00	D 1											0		Soft to firm dark brown, mottled orangish grey, slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to medium of sandstone. (TOPSOIL)				Raised cover
	0.00 - 0.25	B 2										(0.90)							
	0.25	D 3											0.90		Soft dark brown, mottled bluish grey, slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
	0.25 - 0.60	B 6											1						
	0.30	ES 4										(0.70)							
	0.50	ES 5											1.60		Soft to firm thinly laminated dark brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
	0.60	D 7											2						
	0.60 - 0.90	B 9										(0.90)							
	0.70	ES 8											2.50		Soft to firm thinly laminated dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and quartzite. (ALNE FORMATION)				
	0.90	D 10		1.20 - 1.65	SPT S	N=7 (1,1/1,1,2,3) ID JB14 Er 70%	1.20	Dry					3						
	1.00	ES 11										(2.00)							
	1.20 - 1.65	D 13											4						
	1.20 - 1.70	B 14											4.50		Firm dark brown slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone and quartzite. Cobbles (72x61x110mm) are subrounded of extremely strong quartzite. (ALNE FORMATION)			1	4.50
	1.70	D 15											5					1	
	2.00 - 2.45	UT 16	72 blows 89% rec				1.80	Dry				(2.00)							
	2.50	D 17											6						6.00 SP
	2.50 - 3.00	B 18											6.50		Firm to stiff dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of sandstone and quartzite. (ALNE FORMATION)				
	3.00 - 3.45	D 19		3.00 - 3.45	SPT S	N=20 (2,3/3,4,6,7) ID JB14 Er 70%	1.50	Dry					7						
	3.00 - 3.50	B 20										(2.00)							
	3.50	D 21											8						7.50 SP
	4.00 - 4.45	UT 22	46 blows 100% rec				3.80	Dry					8.50		Very dense dark brown fine and medium silty fine to coarse SAND. (ALNE FORMATION)			2	
	4.50	D 23											9						9.00 SP
	4.50 - 5.00	B 24											10		Hole continues on next sheet				
	5.00 - 5.45	D 25		5.00 - 5.45	SPT S	N=9 (1,1/2,2,2,3) ID JB14 Er 70%	4.50	Dry											
	5.00 - 5.50	B 27																	
	5.00	W 26																	
	5.50	D 28																	
	6.00 - 6.45	UT 29	54 blows 100% rec				5.80	Dry											
	6.50	D 30																	
	6.50 - 7.00	B 31																	
	7.00 - 7.45	D 32		7.00 - 7.45	SPT S	N=24 (2,4/5,6,6,7) ID JB14 Er 70%	6.00	Dry											
	7.00 - 7.50	B 33																	
	7.50	D 34																	
	8.00 - 8.45	UT 35	83 blows 100% rec																
07 Oct 21 1600 / 8.50 6.27	8.50	D 36																	
08 Oct 21 0800 / 8.50 3.44	8.50 - 9.00	B 38																	
	8.50	W 37																	
	9.00 - 9.45	D 39		9.00 - 9.45	SPT S	50 (3,6/8,11,15,16 for 72mm) ID JB14 Er 70%	9.00	4.24											
	9.00 - 9.50	B 40																	
	9.50	D 41																	

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	5.00	Rose to 4.49 m after 20 minutes.	5.70
2	8.50	Rose to 6.26 m after 20 minutes.	

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:44

AGS

Borehole

OSBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 455811.00
Approved	1.20 - 30.00	07 Oct 21 - 14 Oct 21	Cable percussion boring from 1.20m to 30.00m	Dando 2000	CJ	RF	02 Nov 21	24.00	200	24.00	200			National Grid	N 457221.00
A Jones								30.00	150	27.00	150			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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
	10.00 - 10.45	D 42		10.00 - 10.45	SPT S	N=38 (4,4/7,10,10,11) ID JB14 Er 70%	10.00	6.02				(3.50)			Very dense dark brown fine and medium silty fine to coarse SAND. (ALNE FORMATION)				
	10.50	D 44																	
	11.00 - 11.45	D 45		11.00 - 11.45	SPT S	N=48 (3,6/9,11,12,16) ID JB14 Er 70%	11.00	7.16											
	11.00 - 11.50	B 46																	
	11.50	D 47																	
	12.00 - 12.45	D 48		12.00 - 12.45	SPT S	N=43 (3,5/7,9,12,15) ID JB14 Er 70%	12.00	7.32				12.00							
	12.00 - 12.50	B 49													Firm to stiff dark brown sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
	12.50	D 50										(0.80)							
	12.80	D 51										12.80							
	13.00 - 13.45	UT 52	81 blows 100% rec				12.80	Dry							Firm to stiff thinly laminated brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
	13.50	D 53																	
	13.50 - 14.00	B 54																	
08 Oct 21 1700 / 13.00 Dry																			
	14.00 - 14.45	D 55		14.00 - 14.45	SPT S	N=29 (2,3/5,6,9,9) ID JB14 Er 70%	13.25	13.62											
12 Oct 21 0800 / 13.00 13.62	14.00 - 14.50	B 56																	
	14.50	D 57																	
	15.00 - 15.45	UT 58	88 blows 100% rec				8.25	Dry				(4.10)							
	15.50	D 59																	
	15.50 - 16.00	B 60																	
	16.00 - 16.45	D 61		16.00 - 16.45	SPT S	N=41 (3,5/6,9,12,14) ID JB14 Er 70%	13.25	Dry											
	16.00 - 16.50	B 62																	
	16.50	D 63																	
	16.90	D 64										16.90							
	17.00 - 17.45	UT 65	150 blows 100% rec				13.25	Dry							Firm to stiff slightly gravelly sandy CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of quartzite and sandstone. Cobbles (70x110x110mm) are subrounded of strong sandstone. (VALE OF YORK FORMATION)				
	17.50	D 66										(1.10)						3	
	17.50 - 17.80	B 67																	
	17.80	D 68																	
	18.00 - 18.45	D 69		18.00 - 18.43	SPT S	50 (10,11/11,13,15,11 for 57mm) ID JB14 Er 70%	18.00	7.42				18.00			Very dense brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to medium of sandstone. (VALE OF YORK FORMATION)				
	18.00 - 18.50	B 70																	
	18.50	D 71																	
	19.00 - 19.45	D 72		19.00 - 19.44	SPT S	50 (8,9/10,12,14,14 for 61mm) ID JB14 Er 70%	19.00	7.58											
	19.00 - 19.50	B 73																	
	19.50	D 74										(2.60)							
															Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
10.00 - 11.00	120	Chisel
11.00 - 11.50	60	Chisel
17.50 - 18.00	60	Chisel

Groundwater Entries

No.	Depth	Remarks	Sealed
3	17.50	Rose to 7.91 m after 20 minutes.	

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:44

AGS

Borehole OSBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks	
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
Approved	1.20 - 30.00	07 Oct 21 - 14 Oct 21	Cable percussion boring from 1.20m to 30.00m	Dando 2000	CJ	RF	02 Nov 21	24.00	200	24.00	200	23.00 - 24.00	Bentonite seal
A Jones								30.00	150	27.00	150		

Ground Level	
Coordinates	E 455811.00
National Grid	N 457221.00
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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		20.00 - 20.45	D 75		20.00 - 20.39	SPT S	50 (9,10/13,15,18,4 for 11mm) ID JB14 Er 70%	20.00	7.46							Very dense brown slightly gravelly fine to coarse SAND. Gravel is angular to subangular fine to medium of sandstone. (VALE OF YORK FORMATION)				
		20.00 - 20.50	B 76																	
12 Oct 21	1700																			
20.50	7.38																			
13 Oct 21	0800	20.60	D 77										20.60							
20.50	3.34															Very dense dark brown fine to coarse SAND and angular to subrounded fine to coarse GRAVEL of sandstone and quartzite. (VALE OF YORK FORMATION)				
		21.00 - 21.45	D 78		21.00 - 21.41	SPT S	50 (5,9/11,15,16,8 for 39mm) ID JB14 Er 70%	21.00	7.26				(1.10)							
		21.50	D 80																	
		21.70	D 81										21.70							
		22.00 - 22.45	D 82		22.00 - 22.45	SPT S	N=41 (4,7/8,10,11,12) ID JB14 Er 70%	22.00	7.64				(0.80)			Firm to stiff brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is subangular to subrounded fine to coarse of sandstone. (VALE OF YORK FORMATION)				
		22.00 - 22.50	B 83																	
		22.50	D 84										22.50							
		23.00 - 23.45	D 85		23.00 - 23.45	SPT S	N=41 (4,6/9,10,11,11) ID JB14 Er 70%	23.00	7.49							Dense yellowish brown gravelly fine to coarse SAND. Gravel is subangular to subrounded fine to medium of sandstone. (Weathered SHERWOOD SANDSTONE FORMATION)				
		23.00 - 23.50	B 86																	
		23.50	D 87																	
13 Oct 21	1700																			
24.00	7.54																			
		24.00 - 24.45	D 87		24.00 - 24.45	SPT S	N=47 (6,8/9,11,12,15) ID JB14 Er 70%	24.00	3.62				(3.00)							
14 Oct 21	0800	24.00 - 24.50	B 88																	
24.00	3.41																			
		24.50	D 89																	
		25.00 - 25.45	D 90		25.00 - 25.32	SPT S	55 (7,8 for 5mm/12,13,15,15 for 19mm) ID JB14 Er 70%	25.00	3.11								25.00-25.32 very dense				
		25.00 - 25.50	B 91																	
		25.50	D 92										25.50			Very dense dark yellowish brown slightly silty fine and medium SAND. (Weathered SHERWOOD SANDSTONE formation)				
		26.00 - 26.45	D 93		26.00 - 26.38	SPT S	50 (7,12/12,16,18,4 for 6mm) ID JB14 Er 70%	26.00	3.92											
		26.50	D 94																	
		27.00 - 27.45	B 95		27.00 - 27.08	SPT C	50 (25 for 46mm/50 for 31mm) ID JB14 Er 70%	27.00	4.26											
													(4.50)							
		28.00 - 28.45	B 96		28.00 - 28.07	SPT C	50 (25 for 35mm/50 for 39mm) ID JB14 Er 70%	27.00	4.16											
		28.00 - 28.50	B 96A																	
		29.00 - 29.50	B 97A		29.00 - 29.06	SPT C	50 (25 for 29mm/50 for 30mm) ID JB14 Er 70%	27.00	4.34											
		29.50	D 98																	
14 Oct 21	1700																			
27.00	4.21												30.00			Hole continues on next sheet				30.00

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
21.00 - 22.00	120	Chisel
22.00 - 22.50	60	Chisel
27.00 - 28.00	120	Chisel
28.50 - 29.00	60	Chisel

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:44

AGS

Borehole

OSBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)	Depth Related Remarks Depth	Remarks
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	CJ	RF	02 Nov 21	24.00	200	24.00	200		
Approved	1.20 - 30.00	07 Oct 21 - 14 Oct 21	Cable percussion boring from 1.20m to 30.00m	Dando 2000	CJ	RF	02 Nov 21	30.00	150	27.00	150		
A Jones													

Ground Level
Coordinates E 455811.00
National Grid N 457221.00
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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
	30.00 - 30.07	B 99		30.00 - 30.07	SPT C	50 (25 for 36mm/50 for 29mm) ID JB14 Er 70%	27.00	3.40							END OF EXPLORATORY HOLE				

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:44

AGS

Borehole **OSBH02**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit	Hand tools	JP	MT	22 Oct 21
	1.20 - 15.20	07 Oct 21 - 11 Oct 21	Cable percussion boring	Dando 2000	JP	MT	22 Oct 21
Approved	15.20 - 19.70	12 Oct 21 - 12 Oct 21	Rotary coring	Beretta T41-2	JC	CF	09 Nov 21
	19.70 - 30.00	13 Oct 21 - 13 Oct 21	Rotary open hole drilling	Beretta T41-2	JC	CF	09 Nov 21
A Jones	30.00 - 30.45	-	SPT from 30.00m to 30.45m				

Hole		Casing		Depth Related Remarks	
Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
19.70	200	15.00	200		
30.00	146	21.00	146		
30.45	52				

Ground Level	15.97 mOD
Coordinates	E 455542.18
National Grid	N 457633.86
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		Chisel.	Water Entry	Backfill
Casing / Water	Depth	Type & No.	Records	Depth	Type	Records	Casing	Water				Flush details				Main	Detail			
07 Oct 21 0800	0.10 - 0.30	B 1											(0.30)			Firm yellowish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subrounded fine of chert. (TOPSOIL)				
	0.25	ES 2											0.30	+15.67						
	0.30 - 0.60	B 3														Firm fissured grey, mottled dark orangish brown slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to medium of chert. (ALNE FORMATION)				0.50
	0.50	ES 4											(0.70)							
	0.75	ES 5																		
	1.00	ES 7											1.00	+14.97						
	1.20 - 1.65	D 8		1.20 - 1.65	SPT S	N=9 (1,2/2,2,2,3)	1.20	Dry								Stiff fissured dark brown, mottled grey and light yellowish grey, slightly sandy slightly gravelly CLAY. Sand is fine. Gravel is subangular to subrounded fine to medium of chert. (ALNE FORMATION)				
	1.20 - 1.70	B 9				ID JB16 Er 77%														
													(1.00)							
	1.80	D 10																		
	2.00 - 2.45	D 11		2.00 - 2.45	SPT S	N=8 (1,2/2,2,2,2)	1.50	Dry					2.00	+13.97		Firm to stiff dark reddish brown slightly gravelly sandy CLAY. Sand is fine. Gravel is angular to subrounded fine to medium of sandstone. (ALNE FORMATION)				2.00
	2.00 - 2.50	B 12				ID JB16 Er 77%														
	2.80	D 13																		
	3.00 - 3.45	U 14	25 blows 100% rec				3.00	Dry												
													(2.00)							
	3.80	D 16																		
	4.00 - 4.45	D 17		4.00 - 4.45	SPT S	N=26 (2,4/5,5,7,9)	3.00	Dry					4.00	+11.97		Firm dark orangish brown very sandy CLAY. Sand is medium. (ALNE FORMATION)	4.00-4.50 fine and medium sand			
	4.00 - 4.50	B 18				ID JB16 Er 77%														
	4.80	D 19																		
	5.00 - 5.45	D 20		5.00 - 5.45	SPT S	N=24 (2,4/4,5,6,9)	4.50	Dry												
	5.00 - 5.50	B 21				ID JB16 Er 77%														
													(2.80)							
	5.80	D 22																		
	6.00 - 6.45	D 23		6.00 - 6.45	SPT S	N=26 (2,4/5,6,7,8)	6.00	Dry											2	
	6.00 - 6.50	B 24				ID JB16														
07 Oct 21 1700	6.80	D 25											6.80	+9.17		Soft dark greyish brown sandy CLAY. Sand is medium. (ALNE FORMATION)				
4.50 Dry																				
08 Oct 21 0800																				
4.50 Dry																				
	7.50 - 7.95	U 26	45 blows 50% rec				7.50	Dry												
	7.50 - 8.00	B 27											(1.70)							
	8.50	D 28											8.50	+7.47		Dark greyish brown slightly clayey medium SAND. (ALNE FORMATION)				
													(0.50)							
	9.00 - 9.45	D 29		9.00 - 9.45	SPT S	N=25 (4,4/5,6,6,8)	9.00	9.00					9.00	+6.97		Firm dark greyish brown very sandy CLAY. Sand is medium. (ALNE FORMATION)			1	
	9.00 - 9.50	B 30				ID JB16														
													(0.90)							
	9.90	D 31											9.90	+6.07		Hole continues on next sheet				10.00 SPIE

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
2	6.00		
1	9.00		

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:45

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Borehole

OSBH03

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	15.97 mOD
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit	Hand tools	JP	MT	22 Oct 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 455542.18
	1.20 - 15.20	07 Oct 21 - 11 Oct 21	Cable percussion boring	Dando 2000	JP	MT	22 Oct 21	19.70	200	15.00	200			National Grid	N 457633.86
Approved	15.20 - 19.70	12 Oct 21 - 12 Oct 21	Rotary coring	Beretta T41-2	JC	CF	09 Nov 21	30.00	146	21.00	146				
	19.70 - 30.00	13 Oct 21 - 13 Oct 21	Rotary open hole drilling	Beretta T41-2	JC	CF	09 Nov 21	30.45	52					System	OSGB
A Jones	30.00 - 30.45	-	SPT from 30.00m to 30.45m												

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 - 10.45	D 32		10.00 - 10.45	SPT S	N=24 (3,4/5,5,7,7) ID JB16 Er 77%	10.50	9.00								Firm dark grey slightly gravelly sandy CLAY. Sand is medium. Gravel is rounded medium of sandstone. (VALE OF YORK FORMATION - GLACIAL TILL)				
		10.00 - 10.50	B 33																		
		11.00 - 11.45	D 34		11.00 - 11.45	SPT S	N=30 (4,4/5,7,7,11) ID JB16 Er 77%	10.50	9.00					(2.10)							
		11.30 - 11.80	B 35															11.30-12.00 high cobble content. Cobbles are strong light grey subrounded of sandstone			
08 Oct 21 12.00	1700 9.00																				
		12.00 - 12.45	D 36		12.00 - 12.45	SPT S	N=43 (5,6/9,9,11,14) ID JB16 Er 77%	12.00	9.00					12.00	+3.97		Stiff dark reddish brown very sandy CLAY. Sand is medium. (VALE OF YORK FORMATION - GLACIAL TILL)				
11 Oct 21 12.00	0800 6.00																				
		13.00	D 38		13.00 - 13.45	SPT S	N=34 (3,3/6,8,10,10) ID JB16 Er 77%	13.00	6.00					(1.90)				13.00 becoming fine sand			
		13.00 - 13.45	D 39																		
		13.00 - 13.50	B 40																		
		13.90	D 41											13.90	+2.07						
		14.00 - 14.45	D 42		14.00 - 14.45	SPT S	N=38 (3,4/5,8,11,14) ID JB16 Er 77%	14.00	6.00								Stiff dark grey, mottled orangish brown, slightly gravelly sandy CLAY. Sand is medium. Gravel is subangular to rounded medium of chert and sandstone. (VALE OF YORK FORMATION - GLACIAL TILL)				
		14.00 - 14.50	B 43											(1.30)							
11 Oct 21 15.20	1700 6.00	15.00 - 15.45	D 44		15.00 - 15.06	SPT S	50 (25 for 40mm/50 for 15mm) ID JB16 Er 77%	15.00	6.00					15.20	+0.77						
		15.20 - 15.65	D 45														NO RECOVERY.				
12 Oct 21 15.20	0800 7.00				15.20 - 15.63	SPT S	50 (11,10/12,12,14,12 for 50mm) ID JB16 Er 77%	15.00	6.00	15.20 - 16.70	0 0 0	- NA -		(1.50)							
					16.70 - 16.72	SPT S	50 (50 for 20mm) ID ACE2 Er 61%	15.20	14.30					16.70	-0.73		Stiff to very stiff brown sandy gravelly CLAY. Sand is fine to coarse. gravel is angular to rounded fine to coarse of quartzite, sandstone and siltstone. (VALE OF YORK FORMATION)	16.70-16.76 1 No. subangular cobble of extremely strong dark grey fossiliferous limestone			
										16.70 - 18.20	100 97 84		Air/mist flush: 15.20 - 19.70	(1.90)						
													100% rec	18.60	-2.63		Assessed Zone of Core Loss. SAND. (Drillers description) (Possible ALNE FORMATION)				
										18.20 - 19.70	25 19 19			(1.10)							
12 Oct 21 19.70	1600 16.20													19.70	-3.73		NO RECOVERY. OPEN HOLE DRILLING.				
13 Oct 21 19.70	0800 1.30																Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
11.30 - 11.70	60	Chisel

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:45

AGS

Borehole OSBH03

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit	Hand tools	JP	MT	22 Oct 21
	1.20 - 15.20	07 Oct 21 - 11 Oct 21	Cable percussion boring	Dando 2000	JP	MT	22 Oct 21
Approved	15.20 - 19.70	12 Oct 21 - 12 Oct 21	Rotary coring	Beretta T41-2	JC	CF	09 Nov 21
	19.70 - 30.00	13 Oct 21 - 13 Oct 21	Rotary open hole drilling	Beretta T41-2	JC	CF	09 Nov 21
A Jones	30.00 - 30.45	-	SPT from 30.00m to 30.45m				

Hole		Casing		Depth Related Remarks	
Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
19.70	200	15.00	200		
30.00	146	21.00	146		
30.45	52				

Ground Level	15.97 mOD
Coordinates	E 455542.18
National Grid	N 457633.86
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
								NO RECOVERY. OPEN HOLE DRILLING. SAND. (Drillers description) (Possible ALNE FORMATION)			
		24.00 - 24.45 SPT S N=11 (2,2/2,3,2,4) ID ACE2 Er 61%	21.00 0.90								
					Air/mist flush: 21.00 - 30.00 20% rec	(10.30)					25.00
		27.00 - 27.45 SPT S N=12 (2,3/3,2,3,4) ID ACE2 Er 61%	21.00 1.40								26.50 SP
13 Oct 21 1600 21.00 1.40						30.00 -14.03		Hole continues on next sheet			30.00

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:45

AGS

Borehole

OSBH03

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	07 Oct 21 - 07 Oct 21	Hand dug inspection pit	Hand tools	JP	MT	22 Oct 21
	1.20 - 15.20	07 Oct 21 - 11 Oct 21	Cable percussion boring	Dando 2000	JP	MT	22 Oct 21
Approved	15.20 - 19.70	12 Oct 21 - 12 Oct 21	Rotary coring	Beretta T41-2	JC	CF	09 Nov 21
	19.70 - 30.00	13 Oct 21 - 13 Oct 21	Rotary open hole drilling	Beretta T41-2	JC	CF	09 Nov 21
A Jones	30.00 - 30.45	-	SPT from 30.00m to 30.45m				

Hole		Casing		Depth Related Remarks	
Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
19.70	200	15.00	200		
30.00	146	21.00	146		
30.45	52				

Ground Level	15.97 mOD
Coordinates	E 455542.18
National Grid	N 457633.86
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
					30.00 - 30.45	SPT S	N=12 (3,4/2,3,5,2) ID ACE2 Er 61%	21.00	1.40								END OF EXPLORATORY HOLE				

30 31 32 33 34 35 36 37 38 39 40

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:45

AGS

Borehole

OSBH03

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks	
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks
Approved	1.20 - 22.95	18 Oct 21 - 21 Oct 21	Cable percussion boring	Dando 2000	CJ	RF	02 Nov 21	15.00 22.95	200 150	15.00 22.50	200 150		
A Jones													

Ground Level	14.91 mOD
Coordinates	E 456617.11
National Grid	N 459997.48
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 %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
18 Oct 21 0800	0.00	D 1										(0.80)			Soft to firm dark brown, mottled orange, slightly sandy CLAY. Sand is fine to coarse with rare lithorelicts of fine to medium angular sandstone. (TOPSOIL)				Stand up Cover
	0.00 - 0.30	B 3																	0.50
	0.25	ES 2																	
	0.30	D 4																	
	0.30 - 0.80	B 7																	
	0.50	ES 5																	
	0.70	ES 6										0.80	+14.11		Firm thinly laminated orangish brown slightly sandy CLAY. Sand is fine to coarse. Sand is present on the laminations. (ALNE FORMATION)				
	0.80	D 8																	
	0.80 - 1.20	B 10																	
	1.00	ES 9		1.20 - 1.65	SPT S	N=11 (1,2/2,3,3,3) ID JB14 - NWY Er 70%	1.20	Dry											
	1.20 - 1.65	D 11																	
	1.20 - 1.70	B 12																	
	1.70	D 13																	
	2.00 - 2.45	UT 14	44 blows 100% rec				1.50	Dry								2.00-2.50 stiff			
	2.50	D 15																	
	2.50 - 3.00	B 16																	
	3.00 - 3.45	D 17		3.00 - 3.45	SPT S	N=12 (1,2/2,3,3,4) ID JB14 - NWY Er 70%	1.50	Dry											
	3.50	D 19																	
												(5.70)							
18 Oct 21 1700																			
1.50 Dry	4.00 - 4.45	UT 20	43 blows 100% rec				1.50	Dry											
19 Oct 21 0800																			
1.50 Dry	4.50	D 21																	
	4.50 - 5.00	B 22																	
	5.00 - 5.45	D 23		5.00 - 5.45	SPT S	N=9 (1,2/2,2,2,3) ID JB14 - NWY Er 70%	4.50	Dry											
	5.00 - 5.50	B 24																	
	5.50	D 25																	
	6.00 - 6.45	UT 26	33 blows 100% rec				4.50	Dry											
	6.50	D 27										6.50	+8.41		Firm to stiff thinly laminated dark brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to medium of sandstone. (ALNE FORMATION)			1	
	6.50 - 7.00	B 28																	
	7.00 - 7.45	D 29		7.00 - 7.45	SPT S	N=8 (1,2/1,2,2,3) ID JB14 - NWY Er 70%	4.50	Dry											
	7.00 - 7.50	B 30																	
	7.50	D 31										(2.00)							
	8.00 - 8.45	UT 32	38 blows 100% rec				4.50	Dry											
	8.50	D 33										8.50	+6.41		Firm dark reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular fine to medium of sandstone. (ALNE FORMATION)				
	8.50 - 9.00	B 34																	
	9.00 - 9.45	D 35		9.00 - 9.45	SPT S	N=40 (5,11/14,11,7,8) ID JB14 - NWY Er 70%	9.00	Dry				(1.00)							9.00
	9.00 - 9.50	B 36																	
	9.40	W 37																	
	9.50	D 38										9.50	+5.41		Medium dense light yellowish brown slightly silty fine and medium SAND. (SUTTON SAND FORMATION)			1	
															Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	9.40	Rose to 6.35 m after 20 minutes.	

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:46

AGS

Borehole

STBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	14.91 mOD
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 456617.11
	1.20 - 22.95	18 Oct 21 - 21 Oct 21	Cable percussion boring	Dando 2000	CJ	RF	02 Nov 21	15.00	200	15.00	200	14.00 - 15.00	Bentonite Seal	National Grid	N 459997.48
Approved								22.95	150	22.50	150			**System**	OSGB
A Jones															

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
		10.00 - 10.45	D 39		10.00 - 10.45	SPT S	N=33 (4,5/7,8,8,10)	10.00	6.82							Medium dense light yellowish brown slightly silty fine and medium SAND. (SUTTON SAND FORMATION)				
		10.00 - 10.50	B 40				ID JB14 - NWY Er 70%													
		10.50	D 41																	
		11.00 - 11.45	D 42		11.00 - 11.45	SPT S	N=36 (5,6/7,8,10,11)	11.00	7.11											
		11.00 - 11.50	B 43				ID JB14 - NWY Er 70%													
		11.50	D 44																	
19 Oct 21	1630																			
12.00	6.93																			
		12.00 - 12.45	D 45		12.00 - 12.45	SPT S	N=32 (4,6/8,8,7,9)	12.00	7.02								12.00-12.50 very sandy silt			
20 Oct 21	0800	12.00 - 12.50	B 46				ID JB14 - NWY Er 70%													
12.00	7.02	12.50	D 47										(6.10)							
		13.00 - 13.45	D 48		13.00 - 13.45	SPT S	N=43 (5,7/8,10,11,14)	13.00	8.23								13.00-13.45 dense			
		13.00 - 13.50	B 49				ID JB14 - NWY Er 70%													
		13.50	D 50																	
		14.00 - 14.45	D 51		14.00 - 14.45	SPT S	N=35 (6,6/7,8,9,11)	14.00	7.94											
		14.00 - 14.50	B 52				ID JB14 - NWY Er 70%													
		14.50	D 53																	
		15.00 - 15.45	D 54		15.00 - 15.45	SPT S	N=45 (6,7/8,10,13,14)	15.00	8.56											15.00 SP
		15.00 - 15.50	B 55				ID JB14 - NWY Er 70%													
		15.60	D 56										15.60	-0.69			15.50-15.60 becoming slightly clayey			
		16.00 - 16.45	UT 57	53 blows 100% rec												Firm to stiff thinly laminated brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
		16.50	D 58																	
		16.50 - 17.00	B 59																	
		17.00 - 17.45	D 60		17.00 - 17.45	SPT S	N=25 (2,4/5,6,7,7)	17.00	Dry											
		17.00 - 17.50	B 61				ID JB14 - NWY Er 70%													
		17.50	D 62																	
		18.00 - 18.45	UT 63	33 blows 100% rec																
		18.50	D 64										(5.40)							
		19.00 - 19.45	D 66		19.00 - 19.45	SPT S	N=28 (3,5/6,7,7,8)	18.00	Dry											
		19.00 - 19.50	B 67				ID JB14 - NWY Er 70%													
		19.50	D 68																	
20 Oct 21	1630																			
18.00	Dry																			

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:46

AGS

Borehole STBH01

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	14.91 mOD
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit	Hand tools	CJ	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 456617.11
	1.20 - 22.95	18 Oct 21 - 21 Oct 21	Cable percussion boring	Dando 2000	CJ	RF	02 Nov 21	15.00	200	15.00	200	21.65 - 17.00	Driller notes blowing sands	National Grid	N 459997.48
Approved								22.95	150	22.50	150			System	OSGB
A Jones															

Date / Casing	Time / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
21 Oct 21	0800	20.00 - 20.45	UT 69	38 blows 100% rec				18.00	Dry							Firm to stiff thinly laminated brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
18.00	Dry	20.50	D 70																	
		20.50 - 21.00	B 71																	
		21.00 - 21.45	D 72		21.00 - 21.45	SPT S	N=29 (3,4/6,7,8,8)	18.00	Dry				21.00	-6.09						
		21.00 - 21.50	B 73				ID JB14 - NWY Er 70%									Stiff to very stiff brown, mottled bluish grey, slightly sandy CLAY. Sand is fine to coarse. (Weathered MERCIA MUDSTONE GROUP)				
		21.50	D 74										(1.00)							
		21.70	D 75																2	
		21.70	W 76																	
		22.00 - 22.45	D 77		22.00 - 22.24	SPT S	50 (6,8/42,8 for 12mm)	22.00	12.15				22.00	-7.09						
		22.00 - 22.50	B 78				ID JB14 - NWY Er 70%									Very dense angular fine to coarse GRAVEL of very weak mudstone with frequent gypsum crystals (20x30x20mm). (MERCIA MUDSTONE GROUP)				
		22.50 - 22.95	B 79		22.50 - 22.60	SPT C	50 (25 for 46mm/50 for 56mm)	22.50	10.98				(0.95)							
21 Oct 21	1700						ID JB14 - NWY Er 70%													
22.50	8.19												22.95	-8.04		END OF EXPLORATORY HOLE				22.95

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
21.70 - 22.00	60	Chisel
22.00 - 22.50	120	Chisel

Groundwater Entries

No.	Depth	Remarks	Sealed
2	21.70	Rose to 14.36 m after 20 minutes.	

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:46

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Borehole **STBH01**

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	14.83 mOD
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 456559.09
	1.20 - 22.57	18 Oct 21 - 25 Oct 21	Cable percussion boring from 1.20m to 22.57m	Dando 2000	JP	RF	02 Nov 21	21.00	200	21.00	200			National Grid	N 459857.06
Approved								22.50	150	22.00	150			System	
A Jones															

Date / Casing	Time / Water	Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
																Firm brown slightly sandy CLAY. Sand is fine to coarse. (TOPSOIL)				
													(0.40)							
													0.40	+14.43		Firm thinly laminated brown, mottled grey, slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
18 Oct 21	0800	0.10 - 0.40	B 1																	
		0.30	ES 2																	
		0.50	ES 4																	
		0.70	ES 6																	
		1.00	ES 7																	
		1.20 - 1.65	D 8		1.20 - 1.65	SPT S	N=8 (1,1/2,2,2,2)	1.20	Dry											
		1.20 - 1.70	B 9				ID JB16 Er 77%													
													(1.60)							
		1.80	D 10																	
		2.00 - 2.45	U 11	35 blows 100% rec				1.50	Dry				2.00	+12.83						
		2.00 - 2.50	B 12													Firm thinly laminated brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
		2.80	D 13																	
		3.00 - 3.45	D 14		3.00 - 3.45	SPT S	N=11 (1,2/2,3,3,3)	3.00	Dry											
		3.00 - 3.50	B 15				ID JB16 Er 77%													
		3.80	D 16																	
		4.00 - 4.45	U 17	40 blows 100% rec				3.00	Dry				(3.80)							
		4.00 - 4.50	B 18																	
18 Oct 21	1700	4.80	D 19																	
4.50	Dry																			
		5.00 - 5.45	D 20		5.00 - 5.45	SPT S	N=13 (1,2/3,3,3,4)	4.50	Dry											
19 Oct 21	0800	5.00 - 5.50	B 21				ID JB16 Er 77%													
4.50	Dry																			
		5.80	D 22										5.80	+9.03						
		6.00 - 6.45	U 23	50 blows 100% rec				6.00	Dry							Firm dark brown slightly sandy silty CLAY. Sand is fine to coarse. (ALNE FORMATION)				
		6.00 - 6.50	B 24																	
													(1.00)							
		6.80	D 25										6.80	+8.03						
		7.00 - 7.45	D 26		7.00 - 7.45	SPT S	N=32 (4,6/6,8,8,10)	6.00	Dry							Firm, locally stiff, reddish brown slightly sandy slightly gravelly CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone, quartzite and mudstone. (ALNE FORMATION)			1	
		7.00 - 7.50	B 27				ID JB16 Er 77%													
		7.60	D 28																	
		8.00 - 8.45	U 29	120 blows 100% rec				7.50	Dry											
		8.00 - 8.50	B 30																	
													(3.00)							
		8.80	D 31																	
		9.00 - 9.45	D 32		9.00 - 9.45	SPT S	N=39 (9,8/8,9,12,10)	9.00	Dry										1	
		9.00 - 9.50	B 33				ID JB16 Er 77%													
		9.80	D 34										9.80	+5.03		Dense brown clayey fine to coarse SAND.				
																Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool

Groundwater Entries

No.	Depth	Remarks	Sealed
1	9.00	Rose to 7.40 m after 20 minutes.	

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:47

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Borehole

STBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Hole		Casing		Depth Related Remarks		Ground Level	14.83 mOD
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	RF	02 Nov 21	Depth	Dia. (mm)	Depth	Dia. (mm)	Depth	Remarks	Coordinates	E 456559.09
	1.20 - 22.57	18 Oct 21 - 25 Oct 21	Cable percussion boring from 1.20m to 22.57m	Dando 2000	JP	RF	02 Nov 21	21.00	200	21.00	200			National Grid	N 459857.06
Approved								22.50	150	22.00	150			System	
A Jones															

Date / Time Casing / Water	Samples: Depth	Type & No.	Records	Field Tests: Depth	Type	Records	Samp / Test: Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description: Main	Detail	Chisel.	Water Entry	Backfill
10	10.00 - 10.45 10.00 - 10.50	B 35 B 36		10.00 - 10.45	SPT C	N=45 (8,10/10,11,11,13) ID JB16 Er 77%	9.00	9.00							Dense brown clayey fine to coarse SAND. (SUTTON SAND FORMATION)				
	10.80	D 37										(2.20)							
11	11.00 - 11.45 11.00 - 11.50	D 38 B 39		11.00 - 11.45	SPT S	N=42 (5,6/9,9,11,13) ID JB16 Er 77%	10.50	9.00											11.00
	11.70 - 12.15	D 40		11.70 - 12.82	SPT S	50 (25 for 35mm/42,8 for 5mm) ID JB16 Er 77%	11.00	9.00								11.70-12.15 SPT angular fine to coarse gravel of sandstone			
12	12.00 - 12.45 12.00 - 12.50	D 41 B 42		12.00 - 12.45	SPT S	N=27 (7,5/5,7,7,8) ID JB16 Er 77%	12.00	9.00				12.00	+2.83		Medium dense brown slightly silty fine to coarse SAND with low cobble content. Cobbles are subrounded of quartzite. (SUTTON SAND FORMATION)	12.00 1 no. subrounded cobble (200x150x220mm) of extremely strong quartzite			
13	13.00 - 13.45 13.00 - 13.50	D 43 B 44		13.00 - 13.45	SPT S	N=38 (5,7/9,9,10,10) ID JB16 Er 77%	12.00	9.00											
												(3.00)							
14	14.00 - 14.45 14.00 - 14.50	D 45 B 46		14.00 - 14.45	SPT S	N=39 (4,7/8,9,10,12) ID JB16 Er 77%	13.50	9.00											
15	15.00 - 15.45 15.00 - 15.50	D 47 B 48		15.00 - 15.45	SPT S	N=38 (5,6/9,9,9,11) ID JB16 Er 77%	15.00	9.00				15.00	-0.17		Firm to stiff thinly laminated reddish brown slightly sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
	15.70	D 49																	
	19 Oct 21 1700 15.00 9.00																		
16	16.00 - 16.45 16.00 - 16.50	D 50 B 51		16.00 - 16.45	SPT S	N=48 (6,9/10,12,12,14) ID JB16 Er 77%	15.00	6.90											16.00 SP
	20 Oct 21 0800 15.00 6.90											(3.00)							
17	17.00 - 17.45 17.00 - 17.50	D 52 B 53		17.00 - 17.45	SPT S	N=46 (5,7/9,12,12,13) ID JB16 Er 77%	15.00	6.90											
18	18.00 - 18.45 18.00 - 18.50	D 54 B 55		18.00 - 18.45	SPT S	N=44 (6,6/9,9,11,15) ID JB16 Er 77%	15.00	6.90				18.00	-3.17		Stiff thinly laminated brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of sandstone and quartzite. (ALNE FORMATION)				
												(1.50)							
19	19.00 - 19.45	D 56		19.00 - 19.45	SPT S	N=49 (6,7/9,12,13,15) ID JB16 Er 77%	15.00	6.90											
	19.50 - 20.00	B 57										19.50	-4.67		Stiff brown sandy CLAY. Sand is fine to coarse. (ALNE FORMATION)				
												(0.50)							
20												20.00	-5.17		Hole continues on next sheet				

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
11.00 - 12.00	180	Chisel

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:50
Printed 23 Feb 2022 11:46:47

AGS

Borehole STBH02

Borehole Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged
G Swinbourne	0.00 - 1.20	18 Oct 21 - 18 Oct 21	Hand dug inspection pit from 0.00m to 1.20m	Hand tools	JP	RF	02 Nov 21
Approved	1.20 - 22.57	18 Oct 21 - 25 Oct 21	Cable percussion boring from 1.20m to 22.57m	Dando 2000	JP	RF	02 Nov 21
A Jones							

Hole Depth	Hole Dia. (mm)	Casing Depth	Casing Dia. (mm)
21.00	200	21.00	200
22.50	150	22.00	150

Depth Related Remarks Depth	Remarks
21.00 - 20.00	Bentonite seal

Ground Level	14.83 mOD
Coordinates	E 456559.09
National Grid	N 459857.06
System	

Date / Casing	Time / Water	Samples Depth	Type & No.	Records	Field Tests Depth	Type	Records	Samp / Test Casing	Water	Coring Depth (Diameter)	TCR % SCR % RQD %	Water added / Flush details	Depth (Thickness)	Level	Legend	Strata Description Main	Detail	Chisel.	Water Entry	Backfill
		20.00 - 20.45	D 58		20.00 - 20.42	SPT S	50 (5,9/12,12,15,11 for 45mm) ID JB16 Er 77%	15.00	6.90							Very dense brown fine to coarse SAND. (SUTTON SAND FORMATION)				
20 Oct 21	1700												(1.45)							
21.00	6.90	21.00 - 21.45	D 60		21.00 - 21.39	SPT S	N=50 (11,12 for 15mm/12,14,14,10) ID JB16 Er 77%	21.00	9.00								21.00-21.50 locally silty and clayey			
25 Oct 21	0800	21.00 - 21.50	B 61																	
21.00	9.00												21.45	-6.62		Stiff to very stiff brown very sandy CLAY. Sand is fine to coarse.				
													(0.55)							
		22.00 - 22.50	D 62		22.00 - 22.12	SPT S	50 (20,5 for 10mm/50 for 30mm) ID JB16 Er 77%	22.00	9.00				22.00	-7.17		Very dense reddish brown fine to coarse SAND. (SUTTON SAND FORMATION)				
		22.20	D 63										(0.57)				22.20 greyish brown sandy angular fine to medium gravel of sandstone. Sand is fine to coarse			
25 Oct 21	1700																			
22.00	9.00	22.50 - 22.57	D 64		22.50 - 22.57	SPT S	50 (25 for 45mm/50 for 25mm) ID JB16 Er 77%	22.00	9.00				22.57	-7.74		END OF EXPLORATORY HOLE				22.57

General Remarks

Hard Boring / Chiselling

Depths	Duration (mins)	Tool
21.80 - 22.50	60	Chisel

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	SCHEME 33754 YORKSHIRE GREEN
Project No.	A1023-21
Carried out for	National Grid

Status

FINAL

Scale 1:50

Printed 23 Feb 2022 11:46:47

AGS

Borehole

STBH02

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks	
G Swinbourne	0.00 - 1.20	13 Oct 21 - 13 Oct 21	Hand dug pit from 0.00m to 1.20m	Hand tools	NA	CF	13 Oct 21	Width 0.40 m, Length 0.40 m, C/B/D/A, 0 (Deg)	Depth: 0.00 - 1.20	Remarks: No groundwater encountered
Approved A Jones										

Ground Level 41.31 mOD
Coordinates E 448530.33
National Grid N 429305.02
System OSGB

Date	Time	Water	Depth	Type & No.	Records	Depth	Type	Records	Depth (Thickness)	Level	Legend	Strata Description Main	Strata Description Detail	Water Entry	Backfill
									(0.20)			Firm to stiff brown slightly gravelly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of limestone and red brick. (MADE GROUND)			
									0.20	+41.11					
			0.30	ES 1								Firm light brown sandy very gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone and red brick. Cobbles (up to 250x250x150mm) are subangular of concrete. (MADE GROUND)			
			0.40	D 2											
			0.40 - 0.50	B 3											
			0.50	ES 4											
			0.70	ES 5					(1.00)						
13 Oct 21	1400	Dry	1.00	ES 6											
			1.10	D 7											
									1.20	+40.11		END OF EXPLORATORY HOLE			1.20

General Remarks

Stability Stable
Shoring None
Weather Rain

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:25
Printed 23 Feb 2022 11:49:42

AGS

Trial Pit MFTP01

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	41.94 mOD
G Swinbourne	0.00 - 1.20	13 Oct 21 - 13 Oct 21	Hand dug pit from 0.00m to 1.20m	Hand tools	NA	CF	13 Oct 21	Width 0.40 m, Length 0.40 m, C/B/D/A, 0 (Deg)	Depth 0.00 - 1.20	Remarks No groundwater encountered	Coordinates	E 448606.92
Approved A Jones											National Grid	N 429292.00
											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
									(0.20)			Firm to stiff brown slightly gravelly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of limestone and red brick. (MADE GROUND)			
			0.25	D 1					0.20	+41.74					
			0.30 - 0.50	B 3								Firm light brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of limestone and red brick. Cobbles (up to 250x250x150mm) are subangular of concrete. (MADE GROUND)			
			0.30	ES 2											
			0.50	ES 4											
			0.70	ES 5					(1.00)						
13 Oct 21	1600	Dry	1.00	ES 6											
			1.10	D 7											
									1.20	+40.74		END OF EXPLORATORY HOLE			1.20

0 1 2 3 4 5

General Remarks

Stability Stable
Shoring None
Weather Rain

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:25
Printed 23 Feb 2022 11:49:42

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Trial Pit MFTP02

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	42.70 mOD
G Swinbourne	0.00 - 1.20	13 Oct 21 - 13 Oct 21	Hand dug pit from 0.00m to 1.20m	Hand tools	NA	CF	13 Oct 21	Width 0.40 m Length 0.40 m C / B / D / A 0 (Deg)	Depth 0.00 - 1.20	Remarks No groundwater encountered	Coordinates	E 448552.18
Approved											National Grid	N 429043.16
A Jones											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	D 1					(0.65)			Firm to stiff brown slightly gravelly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of limestone, red brick with fragments of clear glass. (MADE GROUND)			
		0.30 - 0.50 0.30	B 3 ES 2											
		0.50	ES 4											
		0.70	ES 5					0.65	+42.05		Firm brown sandy gravelly CLAY with low cobble content. Gravel is angular to subrounded fine to coarse of red brick, limestone, mudstone, siltstone and concrete. Cobbles (up to 250x250x150mm) are subangular of concrete. Occasional fragments of wood. 1 No. metal rebar (150x5mm). (MADE GROUND)			
		0.80	D 6											
13 Oct 21	1200 Dry	1.00 - 1.20 1.00	B 8 ES 7					(0.55)						
								1.20	+41.50		END OF EXPLORATORY HOLE			1.20

General Remarks

Stability Stable
Shoring None
Weather Rain

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:25
Printed 23 Feb 2022 11:49:42

AGS

Trial Pit **MFTP03**

Trial Pit Log

SOCOTEC

Checked	Depth	Dates	Method	Equipment	Rig Crew	Logger	Logged	Dimensions and Orientation	Depth Related Remarks		Ground Level	42.97 mOD
G Swinbourne	0.00 - 1.20	13 Oct 21 - 13 Oct 21	Hand dug pit from 0.00m to 1.20m	Hand tools	NA	CF	13 Oct 21	Width 0.40 m, Length 0.40 m, 0 (Deg)	Depth 0.00 - 1.20	Remarks No groundwater encountered	Coordinates	E 448544.83
Approved A Jones											National Grid	N 429008.79
											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
			0.20	D 1					(0.65)			Firm to stiff brown slightly gravelly sandy CLAY with frequent rootlets. Sand is fine to coarse. Gravel is angular to subangular fine to coarse of limestone and red brick. (MADE GROUND)			
			0.20 - 0.30	B 2											
			0.30	ES 3											
			0.50	ES 4											
			0.70	ES 5					0.65	+42.32		Firm brown sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is angular to subrounded fine to coarse of red brick, limestone and concrete. Cobbles (up to 250x250x150mm) are subangular of concrete. (MADE GROUND)			
13 Oct 21	1000	Dry	1.00	ES 6					(0.55)						
			1.10	D 7					1.20	+41.77		END OF EXPLORATORY HOLE			1.20

General Remarks

Stability Stable
Shoring None
Weather Rain

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 SCHEME 33754 YORKSHIRE GREEN
Project No. A1023-21
Carried out for National Grid

Status FINAL

Scale 1:25
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AGS

Trial Pit **MFTP04**

APPENDIX C
INSTRUMENTATION AND MONITORING

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
MFBH01 (1)	SP	01/10/2021	50	19.00	17.00 to 19.00		Raised cover	
MFBH02 (1)	SPIE	05/10/2021	50	4.00	1.00 to 4.00		Raised cover	
MFBH03A (1)	SPIE	06/10/2021	50	6.00	4.00 to 6.00		Raised cover	
OSBH02 (D)	SP	15/10/2021	50	9.00	7.50 to 9.00		Raised cover	
OSBH02 (S)	SP	15/10/2021	50	6.00	4.50 to 6.00		Raised cover	
OSBH03 (D)	SP	13/10/2021	50	26.50	25.00 to 26.50		Raised cover	
OSBH03 (S)	SPIE	13/10/2021	50	10.00	2.00 to 10.00		Raised cover	
STBH01 (1)	SP	22/10/2021	50	15.00	9.00 to 15.00		Raised cover	
STBH02 (1)	SP	25/10/2021	50	16.00	11.00 to 16.00		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	Groundwater depth, mbgl	Comments
MFBH01 (1)	SP	19.00	26/11/2021 10:15:00	15.05	
MFBH02 (1)	SPIE	4.00	26/11/2021 10:00:00	2.31	
MFBH03A (1)	SPIE	6.00	26/11/2021 09:16:00	3.20	
OSBH02 (D)	SP	9.00	26/11/2021 11:10:00	2.72	
OSBH02 (S)	SP	6.00	26/11/2021 11:15:00	2.70	
OSBH03 (D)	SP	26.50	26/11/2021 11:25:00	7.18	
OSBH03 (S)	SPIE	10.00	26/11/2021 11:21:00	4.86	
STBH01 (1)	SP	15.00	26/11/2021 11:53:00	4.55	
STBH02 (1)	SP	16.00	26/11/2021 11:46:00	4.47	

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

APPENDIX D
GEOTECHNICAL LABORATORY TEST RESULTS

Index Properties – Summary of Results	INDX (5 Sheets)
Particle Size Distribution Analyses	PSD (36 sheets)
Unconsolidated Undrained Triaxial Compression Tests – Summary of results	UUSUM (2 Sheet)
One Dimensional Consolidation Tests	OED (8 Sheets)
Laboratory Hand Vane – Summary of result	HV (1 Sheet)
Determination of Shear Strength by Direct Shear (Small Shearbox Apparatus)	SSB (16 Sheets)
Index Properties of Rock – Summary of Results	RINDX (2 Sheets)
Point Load Index Tests	PLT (2 Sheets)
Uniaxial Compressive Strength of Rock – Summary of Results	RUCS (1 Sheet)
Certificate of Analysis – Chemical Tests (pH and Sulphate Content)	21-25584 21-25950 21-25952

INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m3	ρ_d Mg/m3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m3	Remarks
MFBH01	5	0.70		D	Reddish brown slightly sandy CLAY.			21	100 h	56 a	23	33		
MFBH01	12	1.80		D	Brown mottled grey slightly sandy CLAY.			33	100 n	61 a	27	34		
MFBH01	15	2.80		D	Light brown slightly sandy CLAY.			29	100 n	59 a	26	33		
MFBH02	6	0.60		D	Brown slightly sandy CLAY.			20	100 n	59 a	24	35		
MFBH02	12	1.80		D	Brown gravelly CLAY.			16	86 s	45 a	21	24		
MFBH02	15	2.80		D	Brownish grey slightly sandy slightly gravelly silty CLAY.			24	85 s	39 a	21	18		
MFBH02	21	4.70		D	Brown GRAVEL.			7.1			NP			
MFBH02	23	5.80		D	Brown slightly sandy CLAY.			22	100 n	43 a	23	20		
MFBH03	4	0.40		D	Brown gravelly CLAY.			17	75 s	41 a	18	23		
MFBH03A	12	1.80		D	Brown slightly gravelly CLAY.			15	82 s	33 a	16	17		
MFBH03A	15	2.80		D	Brown slightly sandy CLAY.			22	100 n	47 a	19	28		
MFBH03A	23	5.60		D	Limestone			13			NP			
MFTP03	6	0.80		D	Brown slightly sandy slightly gravelly CLAY.			19	46 s	49 a	24	25		

General notes: All above tests carried out to BS1377 : 1990 unless annotated otherwise. See Remarks for further details

Key : p bulk density, linear; *pd* dry density; *w* moisture content; * test carried out to BS EN ISO 17892

WL Liquid limit; a 4 point cone test; b 1 point cone test

WP Plastic limit; NP non - plastic; IP Plasticity Index

<425um preparation; n from natural soil; s sieved specimen; h removed by hand

ps particle density; -g = gas jar; -p = small pyknometer

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Figure

INDX

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INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m3	ρ_d Mg/m3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m3	Remarks
MFTP04	1	0.20		D	Brown CLAY.			24	93 h	54 a	27	27		
MFTP04	7	1.10		D	Brown slightly sandy slightly gravelly CLAY.			19	46 s	42 a	23	19		
OSBH01	3	0.40	0.80	D	Light brown slightly sandy slightly gravelly CLAY.			12	78 s	40 a	18	22		
OSBH01	9	1.80		D	Grey CLAY.			31	100 n	62 a	25	37		
OSBH01	15	3.80		D	Dark grey CLAY.			30	100 n	66 a	24	42		
OSBH01	21	5.80		D	Dark brown CLAY.			26	100 n	66 a	26	40		
OSBH01	29	8.00	8.45	D	Brown slightly sandy CLAY.			13	85 s	26 a	14	12		
OSBH01	33	9.00	9.50	B	Brown silty SAND.			22						
OSBH01	38	11.80		D	Dark brown sandy silty CLAY.			23	100 n	50 a	22	28		
OSBH01	41	13.00	13.45	D	Brown CLAY.			28	100 n	62 a	27	35		
OSBH02	3	0.25		D	Multicoloured slightly sandy silty CLAY.			32	n	72 a	28	44		
OSBH02	10	0.90		D	Brown slightly sandy CLAY.			30	100	62 a	25	37		
OSBH02	15	1.70		D	Brown slightly sandy CLAY.			26	98 h	64 b	25	39		

General notes: All above tests carried out to BS1377 : 1990 unless annotated otherwise. See Remarks for further details

Key : p bulk density, linear; *pd* dry density; *w* moisture content; * test carried out to BS EN ISO 17892

WL Liquid limit; a 4 point cone test; b 1 point cone test

WP Plastic limit; NP non - plastic; IP Plasticity Index

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Figure

INDX

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INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m3	ρ_d Mg/m3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m3	Remarks
OSBH02	21	3.50		D	Brown slightly sandy slightly gravelly CLAY.			13	94 s	32 a	16	16		
OSBH02	28	5.50		D	Brown sandy CLAY.			15	98 h	26 a	14	12		
OSBH02	34	7.50		D	Brown slightly sandy slightly gravelly CLAY.			12	96 h	27 a	13	14		
OSBH02	41	9.50		D	Brown SILT.			37						
OSBH02	51	12.80		D	Brown slightly sandy CLAY.			28	n	60 a	26	34		
OSBH02	59	15.50		D	Dark grey slightly sandy CLAY.			24	100 n	62 a	23	39		
OSBH02	66	17.50		D	Brown slightly sandy slightly gravelly CLAY.			13	72 s	30 a	14	16		
OSBH02	74	19.50		D	Brown SAND.			23						
OSBH02	82	22.00	22.45	D	Brown slightly sandy CLAY.			17	100 n	35 a	19	16		
OSBH03	3	0.30	0.60	B	Brown slightly sandy CLAY.			28	99 n	60 a	27	33		
OSBH03	10	1.80		D	Brown CLAY.			27	100 n	69 a	29	40		
OSBH03	13	2.80		D	Brown slightly sandy slightly gravelly CLAY.			23	95 h	37 a	19	18		
OSBH03	19	4.80		D	Brown SAND.			24			NP			

General notes: All above tests carried out to BS1377 : 1990 unless annotated otherwise. See Remarks for further details

Key : p bulk density, linear; *pd* dry density; *w* moisture content; * test carried out to BS EN ISO 17892

WL Liquid limit; a 4 point cone test; b 1 point cone test

WP Plastic limit; NP non - plastic; IP Plasticity Index

<425um preparation; n from natural soil; s sieved specimen; h removed by hand

ps particle density; -g = gas jar; -p = small pyknometer

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Figure

INDX

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INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m3	ρ_d Mg/m3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m3	Remarks
OSBH03	25	6.80		D	Dark brown CLAY.			20	100 n	35 a	18	17		
OSBH03	28	8.50		D	Brown SAND.			24						
OSBH03	29	9.00	9.45	D	Brown SAND.			21			NP			
OSBH03	34	11.00	11.45	D	Brown gravelly clayey SILT.			14	78 h	23 b	15	8		
OSBH03	38	13.00		D	Dark brown SAND.			21			NP			
OSBH03	41	13.90		D	Dark grey CLAY.			20	100 n	50 a	20	30		
STBH01	8	0.80		D	Brown slightly sandy CLAY.			24	100 n	51 a	21	30		
STBH01	15	2.50		D	Dark grey CLAY.			30	100 n	57 a	23	34		
STBH01	21	4.50		D	Brown silty CLAY.			31	100 n	65 a	25	40		
STBH01	27	6.50		D	Brown CLAY.			27	100 n	66 a	25	41		
STBH01	33	8.50		D	Brown slightly sandy slightly gravelly CLAY.			15	76 s	32 b	15	17		
STBH01	45	12.00	12.45	D	Brown slightly sandy CLAY.			24						
STBH01	58	16.50		D	Brown slightly sandy CLAY.			26	100 n	58 a	26	32		

General notes: All above tests carried out to BS1377 : 1990 unless annotated otherwise. See Remarks for further details

Key : p bulk density, linear; *pd* dry density; *w* moisture content; * test carried out to BS EN ISO 17892

WL Liquid limit; a 4 point cone test; b 1 point cone test

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<425um preparation; n from natural soil; s sieved specimen; h removed by hand

ps particle density; -g = gas jar; -p = small pyknometer

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Figure

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INDEX PROPERTIES - SUMMARY OF RESULTS

Hole No.	Sample No.	Depth (m) from	Depth (m) to	type	Soil Description	ρ Mg/m3	ρ_d Mg/m3	w %	< 425 µm sieve %	W_L %	W_P %	I_P	ρ_s Mg/m3	Remarks
STBH01	64	18.50		D	Greyish brown CLAY.			27	100 n	59 a	25	34		
STBH01	70	20.50		D	Brown slightly sandy silty CLAY.			30	100 n	59 a	26	33		
STBH01	74	21.50		D	Grey CLAY.			39	100 n	53 a	23	30		
STBH02	3	0.40	0.60	B	Greyish brown silty CLAY.			28	100 n	53 a	20	33		
STBH02	8	1.20	1.65	D	Dark grey CLAY.			28	100 n	55 b	30	25		
STBH02	16	3.80		D	Brown silty CLAY.			33	100 n	63 a	26	37		
STBH02	22	5.80		D	Brown CLAY.			32	100 n	69 a	28	41		
STBH02	28	7.60		D	Brownish red slightly sandy slightly gravelly CLAY.			19	82 s	30 a	14	16		
STBH02	32	9.00	9.45	D	Brown slightly gravelly sandy CLAY.			15						
STBH02	37	10.80		D	Brown sandy CLAY.			43						
STBH02	43	13.00	13.45	D	Brown slightly sandy CLAY.			20						
STBH02	49	15.70		D	Brown slightly sandy CLAY.			35	100 n	60 a	21	39		
STBH02	54	18.00	18.45	D	Brown slightly sandy slightly gravelly CLAY.			17	94 h	36 b	16	20		

General notes: All above tests carried out to BS1377 : 1990 unless annotated otherwise. See Remarks for further details

Key : p bulk density, linear; *pd* dry density; *w* moisture content; * test carried out to BS EN ISO 17892

WL Liquid limit; a 4 point cone test; b 1 point cone test

WP Plastic limit; NP non - plastic; IP Plasticity Index

<425um preparation; n from natural soil; s sieved specimen; h removed by hand

ps particle density; -g = gas jar; -p = small pyknometer

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Figure

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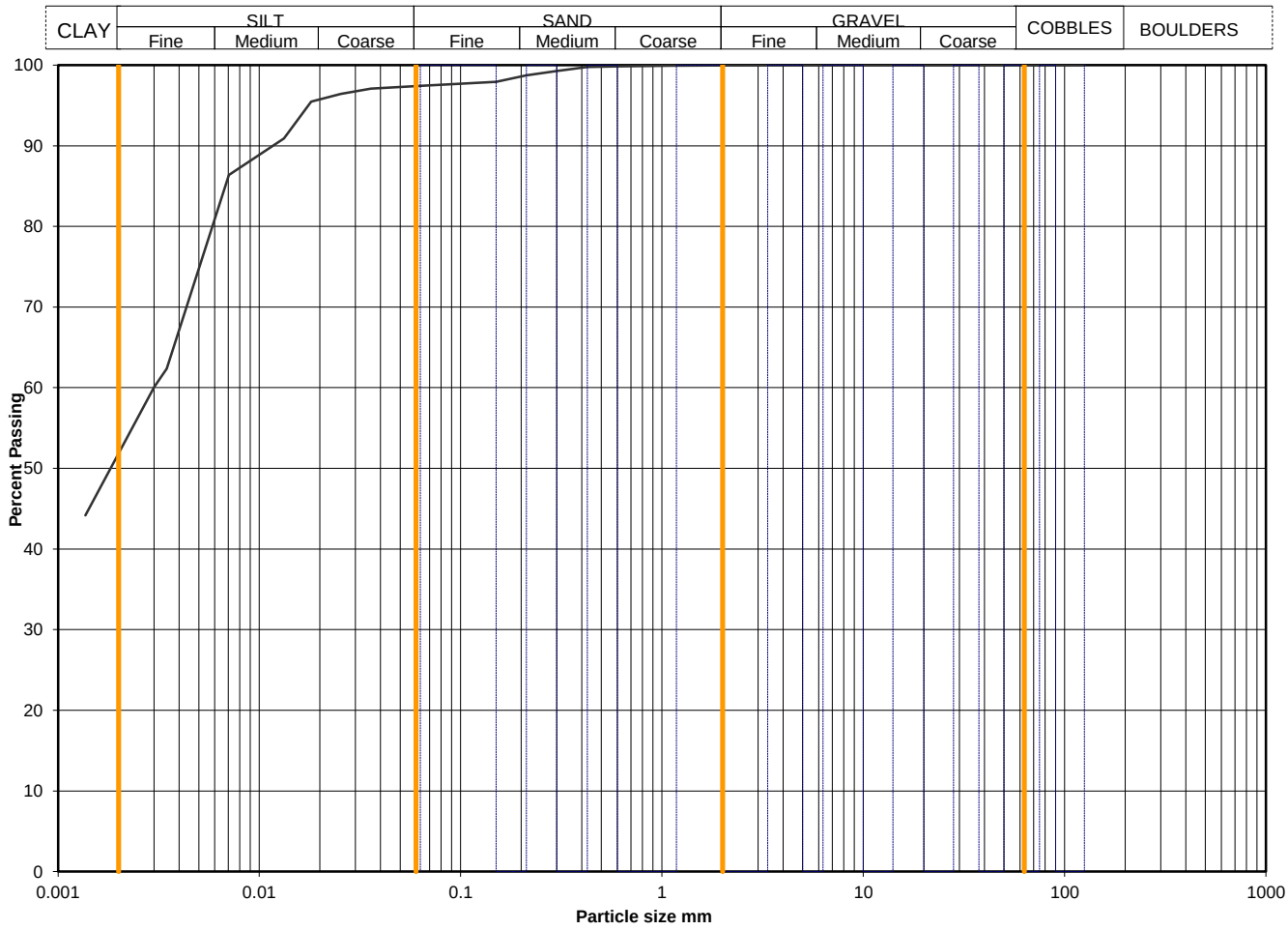
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211011035343

Hole No	MFBH01
Sample Depth (m BGL)	3.00 - 3.50
Sample Type and No	B17
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0358	97
75	100	0.0254	96
63	100	0.0181	95
50	100	0.0132	91
37.5	100	0.0071	86
28	100	0.0035	62
20	100	0.0030	60
14	100	0.0014	44
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	99	Dry mass of sample, kg	
0.212	99		
0.15	98	1.2	
0.063	97		

Soil description	Greyish brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	2.6	2.6
*<60mm values to aid description only	Silt	45.5	45.5
	Clay	51.9	51.9

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
PSD

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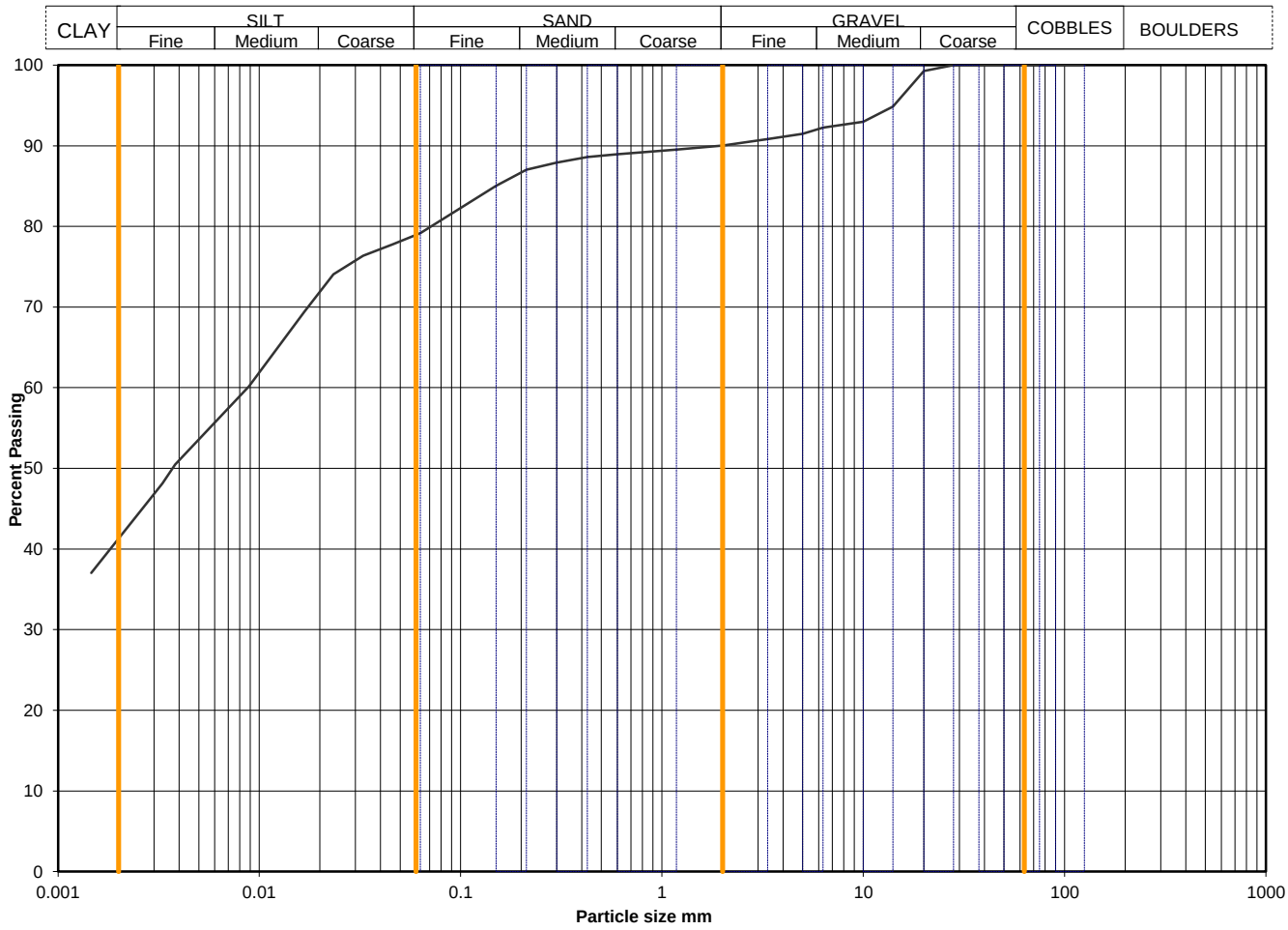
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120210930080906

Hole No	MFBH02
Sample Depth (m BGL)	0.40 - 0.80
Sample Type and No	B4
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	79
90	100	0.0461	78
75	100	0.0327	76
63	100	0.0233	74
50	100	0.0167	69
37.5	100	0.0089	60
28	100	0.0038	50
20	99	0.0033	48
14	95	0.0015	37
10	93		
6.3	92		
5	91		
3.35	91		
2	90		
1.18	90	Particle density, Mg/m3	
0.6	89		
0.425	89	2.65 assumed	
0.3	88	Dry mass of sample, kg	
0.212	87		
0.15	85	1.4	
0.063	79		

Soil description	Reddish brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	10.0	10.0
	Sand	10.8	10.8
*<60mm values to aid description only	Silt	37.9	37.9
	Clay	41.3	41.3

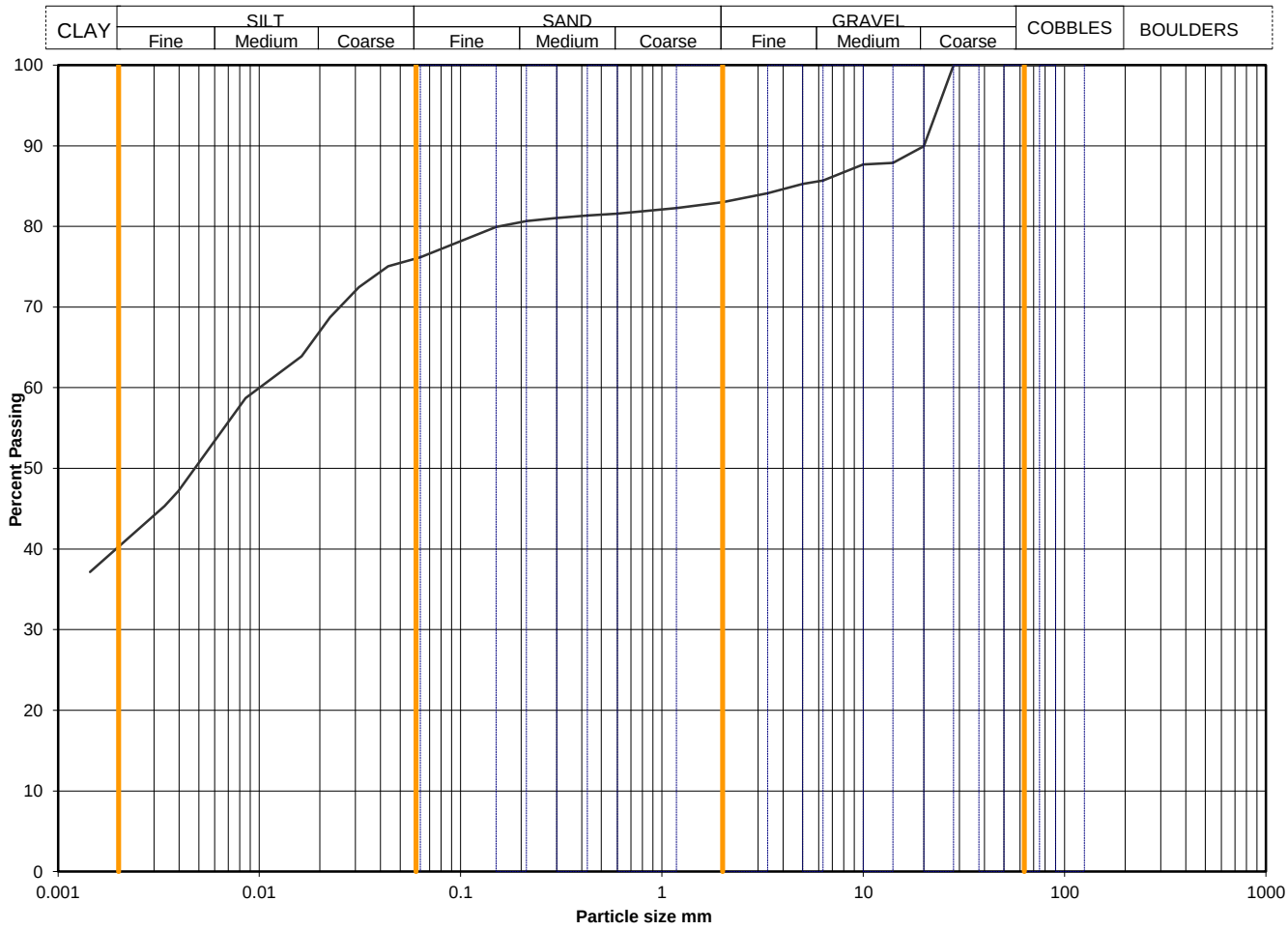
Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211011042228

Hole No	MFBH02
Sample Depth (m BGL)	2.00 - 2.50
Sample Type and No	B14
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0436	75
75	100	0.0312	72
63	100	0.0224	69
50	100	0.0162	64
37.5	100	0.0085	59
28	100	0.0040	47
20	90	0.0034	45
14	88	0.0014	37
10	88		
6.3	86		
5	85		
3.35	84		
2	83		
1.18	82	Particle density, Mg/m3	
0.6	82		
0.425	81	2.65 assumed	
0.3	81	Dry mass of sample, kg	
0.212	81		
0.15	80	1.0	
0.063	76		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	17.0	17.0
	Sand	6.8	6.8
*<60mm values to aid description only	Silt	35.9	35.9
	Clay	40.3	40.3

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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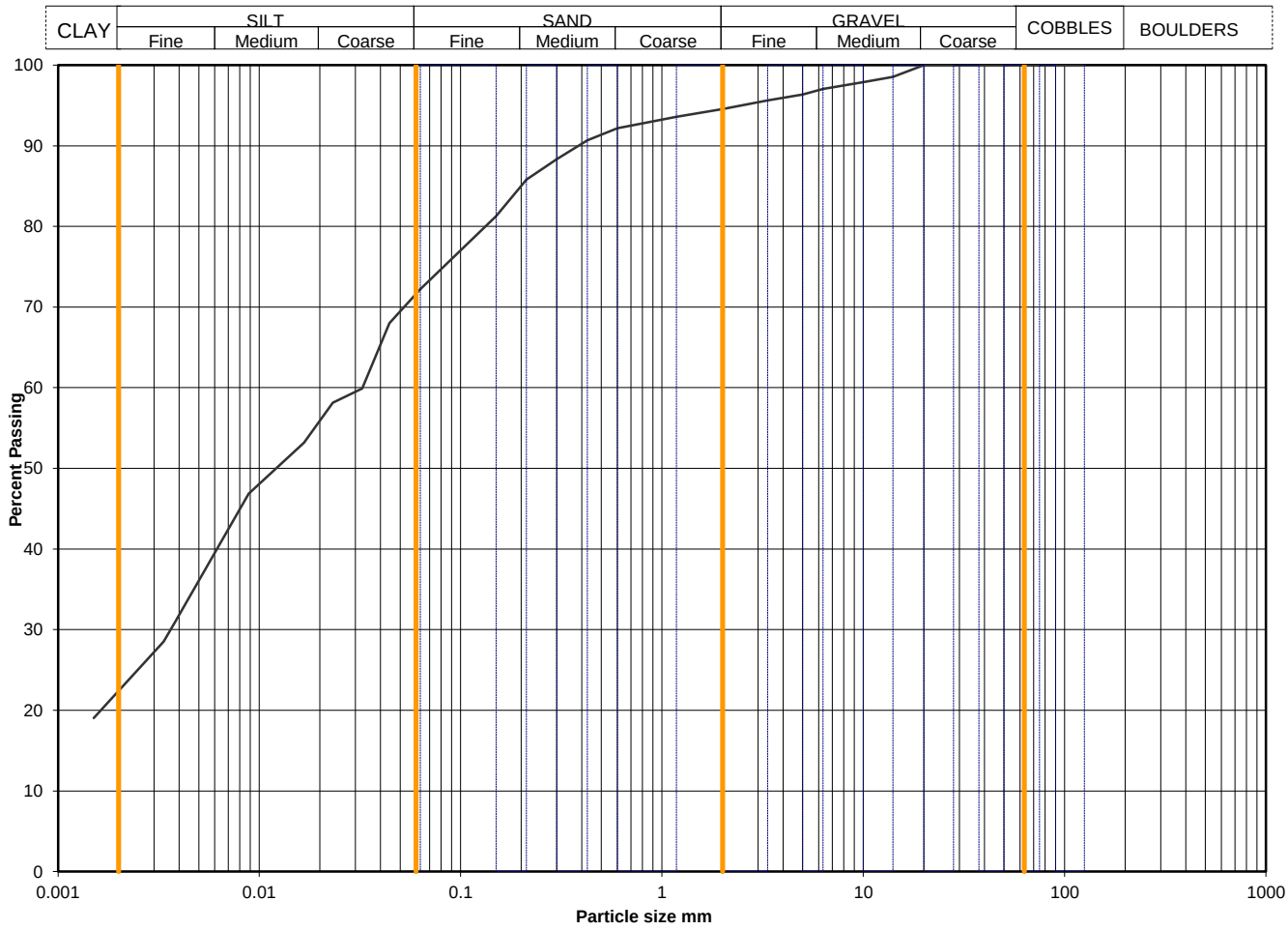
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211006044206

Hole No	MFBH03
Sample Depth (m BGL)	0.40 - 0.60
Sample Type and No	B5
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	72
90	100	0.0443	68
75	100	0.0325	60
63	100	0.0231	58
50	100	0.0167	53
37.5	100	0.0088	47
28	100	0.0038	31
20	100	0.0033	29
14	99	0.0015	19
10	98		
6.3	97		
5	96		
3.35	96		
2	95		
1.18	94	Particle density, Mg/m3	
0.6	92		
0.425	91	2.65 assumed	
0.3	88	Dry mass of sample, kg	
0.212	86		
0.15	81	2.2	
0.063	72		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	5.4	5.4
	Sand	22.4	22.4
*<60mm values to aid description only	Silt	49.8	49.8
	Clay	22.4	22.4

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

QA Ref
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0001

SOCOTEC

Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

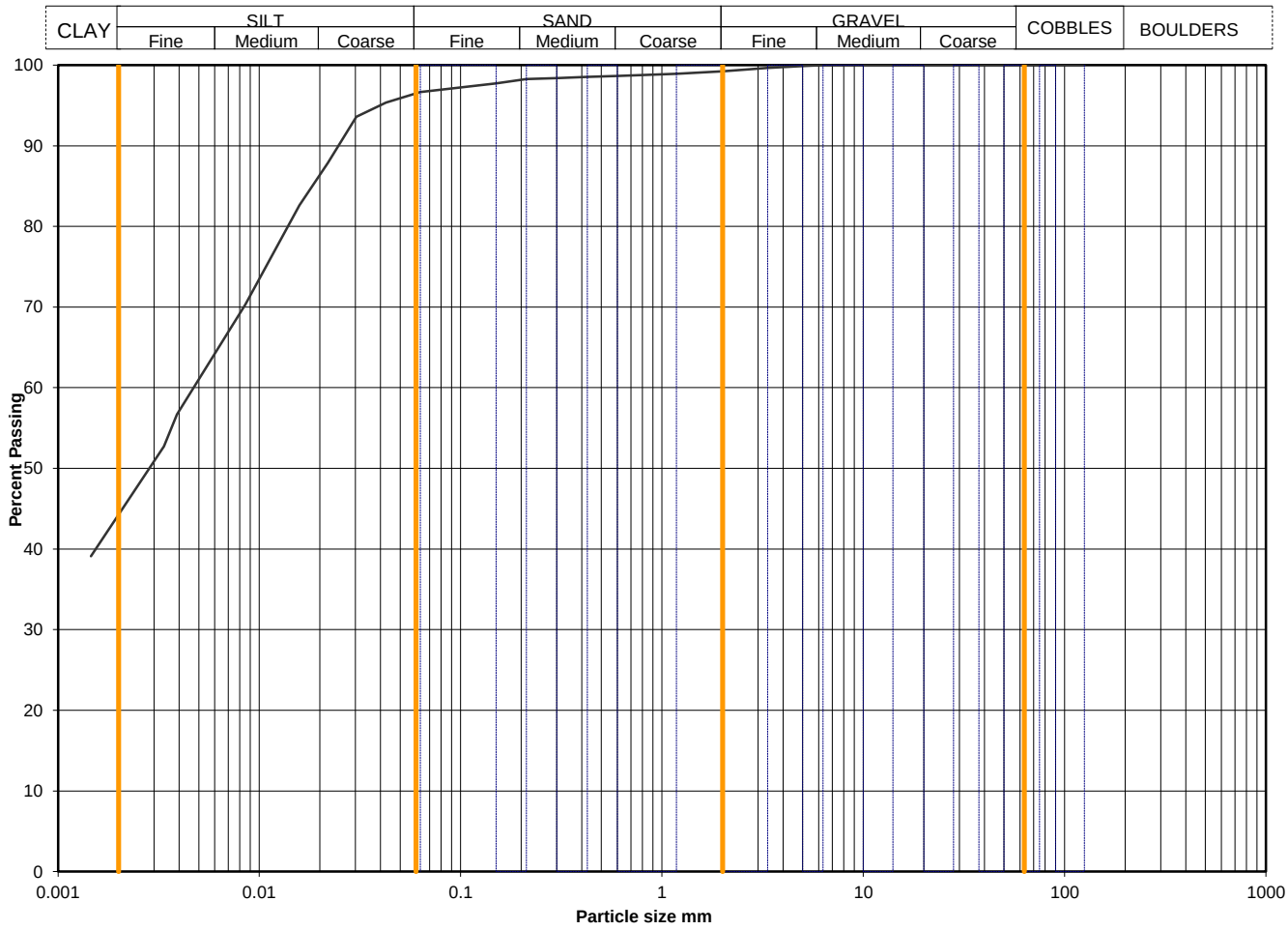
Figure
PSD

Printed: 13/01/2022 12:54

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211011043554

Hole No	MFBH03A
Sample Depth (m BGL)	4.00 - 4.50
Sample Type and No	B20
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0425	95
75	100	0.0303	94
63	100	0.0219	88
50	100	0.0158	83
37.5	100	0.0085	70
28	100	0.0039	57
20	100	0.0034	53
14	100	0.0015	39
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99	Particle density, Mg/m3	
0.6	99		
0.425	99	2.65 assumed	
0.3	98	Dry mass of sample, kg	
0.212	98		
0.15	98	1.1	
0.063	97		

Soil description	Reddish brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.7	0.7
	Sand	2.6	2.6
*<60mm values to aid description only	Silt	52.4	52.4
	Clay	44.3	44.3

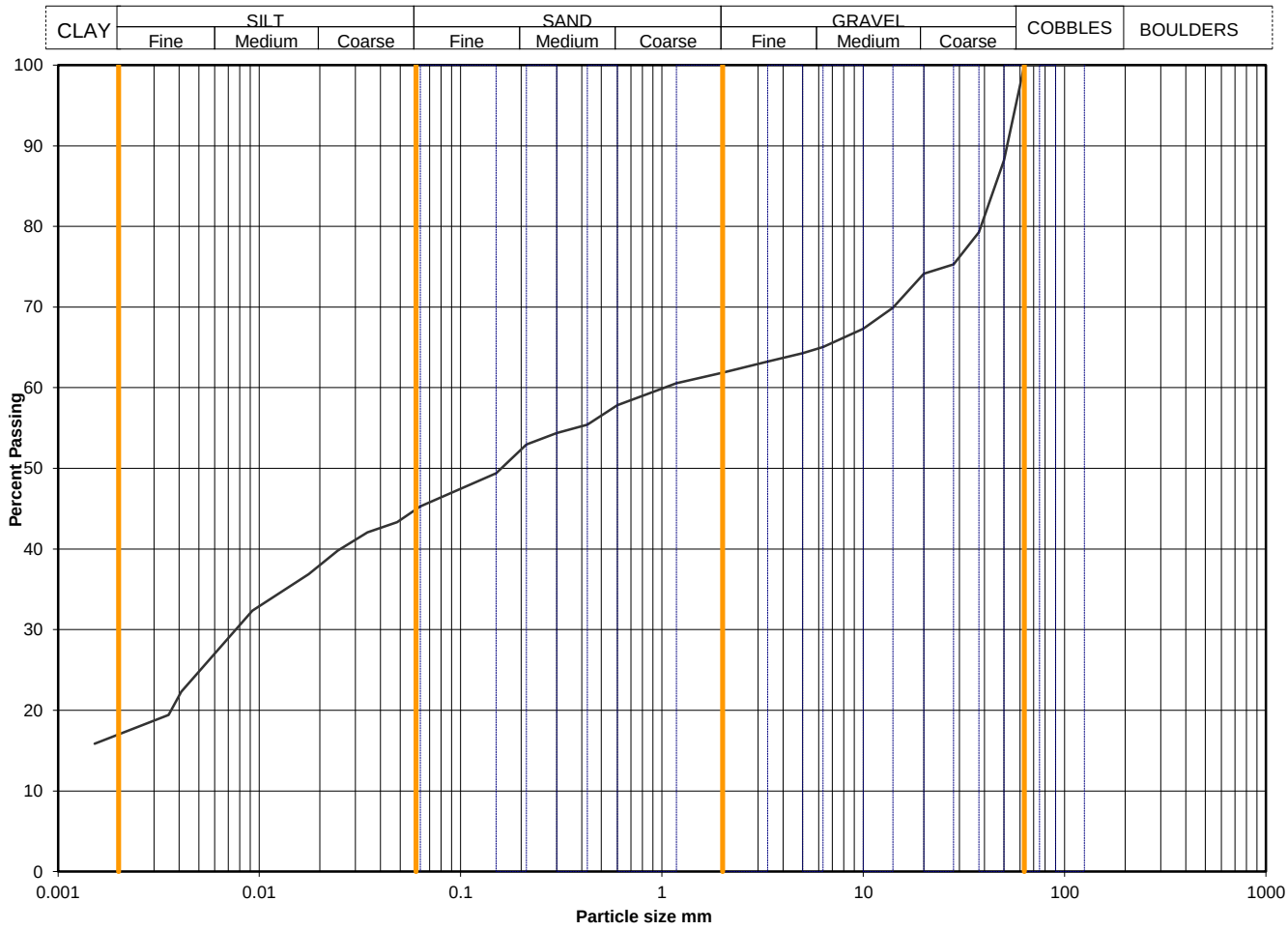
Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014031046

Hole No	MFTP01
Sample Depth (m BGL)	0.40 - 0.50
Sample Type and No	B3
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	45
90	100	0.0484	43
75	100	0.0344	42
63	100	0.0245	40
50	88	0.0176	37
37.5	79	0.0092	32
28	75	0.0041	22
20	74	0.0035	19
14	70	0.0015	16
10	67		
6.3	65		
5	64		
3.35	63		
2	62		
1.18	61	Particle density, Mg/m3	
0.6	58		
0.425	55	2.65 assumed	
0.3	54	Dry mass of sample, kg	
0.212	53		
0.15	49	2.3	
0.063	45		

Soil description	Brown slightly sandy gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	38.1	38.1
	Sand	16.6	16.6
*<60mm values to aid description only	Silt	28.3	28.3
	Clay	17.0	17.0

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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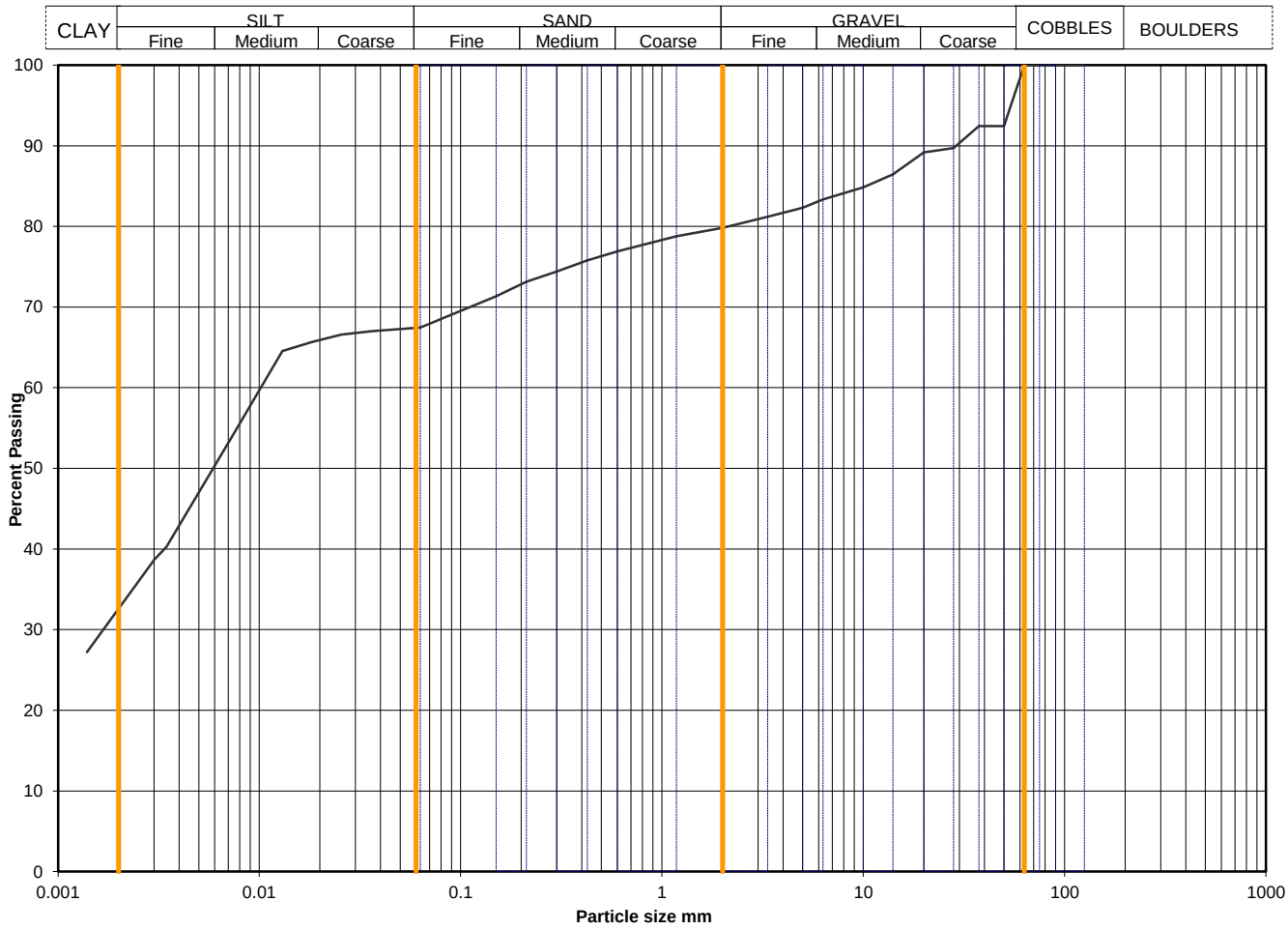
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014031403

Hole No	MFTP02
Sample Depth (m BGL)	0.30 - 0.50
Sample Type and No	B3
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	67
90	100	0.0359	67
75	100	0.0255	67
63	100	0.0182	66
50	92	0.0130	65
37.5	92	0.0074	54
28	90	0.0035	40
20	89	0.0030	39
14	86	0.0014	27
10	85		
6.3	83		
5	82		
3.35	81		
2	80		
1.18	79	Particle density, Mg/m3	
0.6	77		
0.425	76	2.65 assumed	
0.3	74	Dry mass of sample, kg	
0.212	73		
0.15	71	2.5	
0.063	67		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	20.2	20.2
	Sand	12.3	12.3
*<60mm values to aid description only	Silt	34.9	34.9
	Clay	32.6	32.6

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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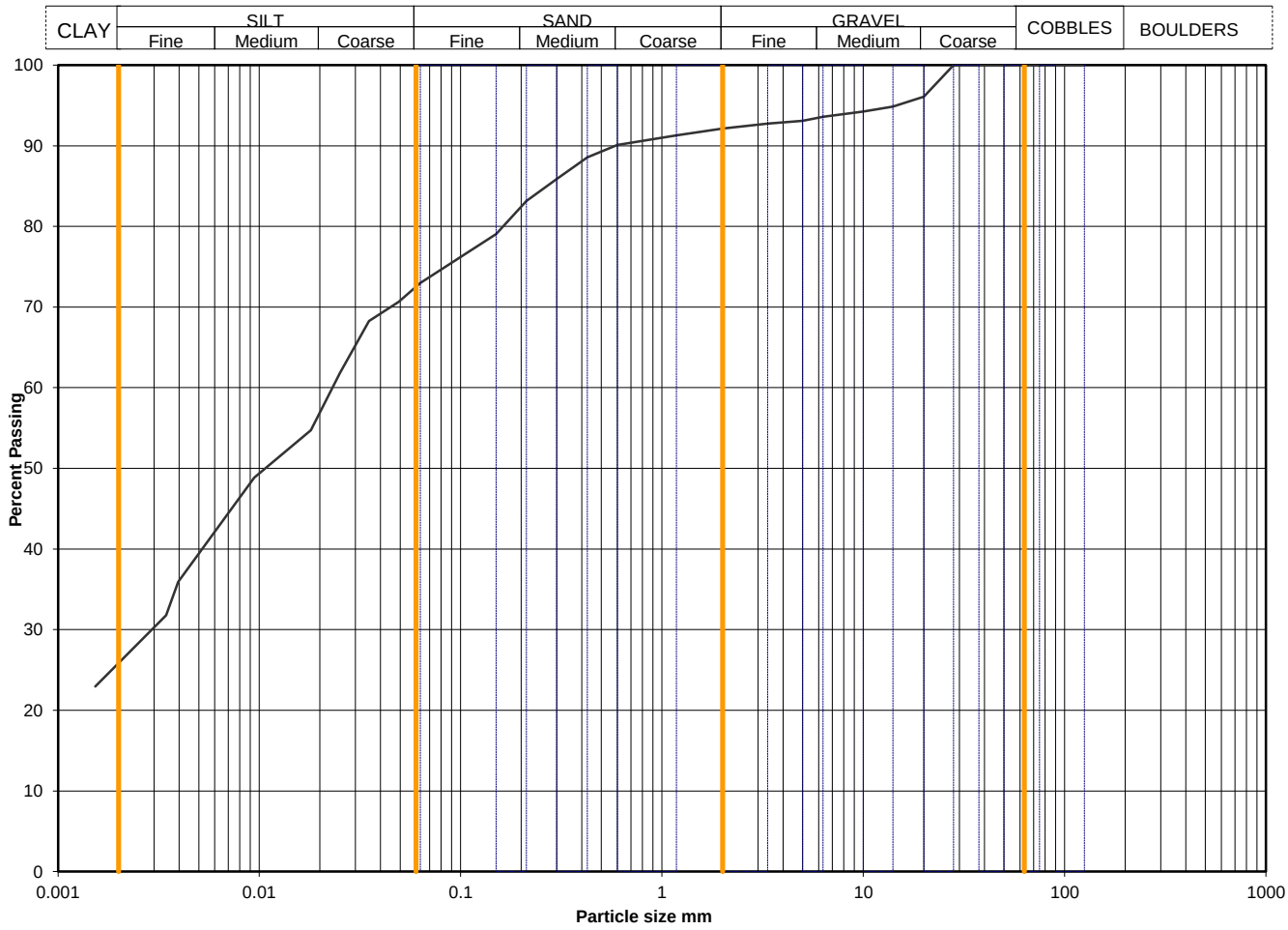
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014032047

Hole No	MFTP03
Sample Depth (m BGL)	0.30 - 0.50
Sample Type and No	B3
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	73
90	100	0.0493	71
75	100	0.0350	68
63	100	0.0251	62
50	100	0.0180	55
37.5	100	0.0094	49
28	100	0.0040	36
20	96	0.0034	32
14	95	0.0015	23
10	94		
6.3	94		
5	93		
3.35	93		
2	92		
1.18	91	Particle density, Mg/m3	
0.6	90		
0.425	89	2.65 assumed	
0.3	86	Dry mass of sample, kg	
0.212	83		
0.15	79	1.2	
0.063	73		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	7.9	7.9
	Sand	19.1	19.1
*<60mm values to aid description only	Silt	47.1	47.1
	Clay	25.9	25.9

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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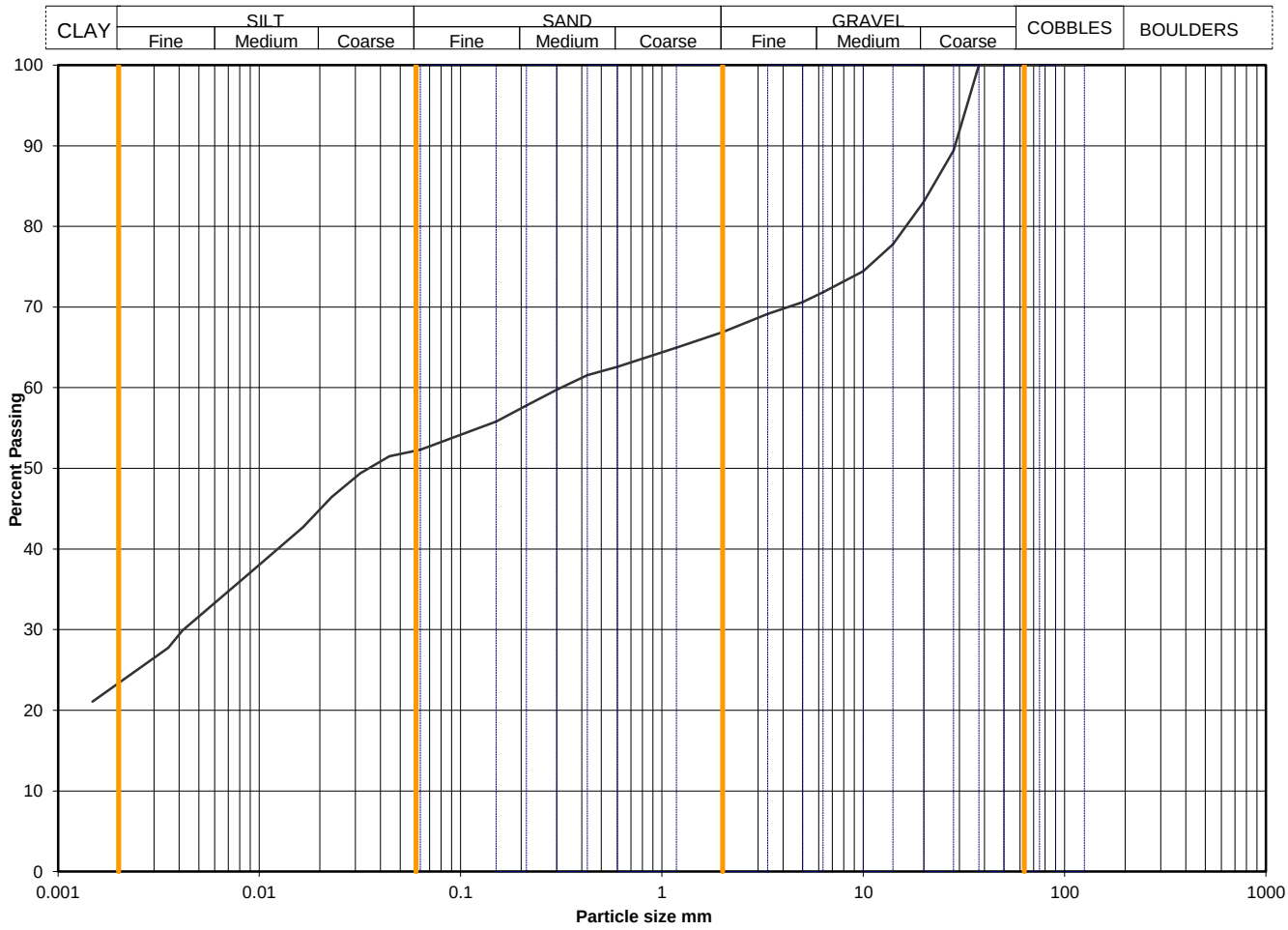
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014032058

Hole No	MFTP03
Sample Depth (m BGL)	1.00 - 1.20
Sample Type and No	B8
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	52
90	100	0.0443	52
75	100	0.0317	49
63	100	0.0228	46
50	100	0.0165	43
37.5	100	0.0088	37
28	89	0.0042	30
20	83	0.0035	28
14	78	0.0015	21
10	74		
6.3	72		
5	71		
3.35	69		
2	67		
1.18	65	Particle density, Mg/m3	
0.6	63		
0.425	62	2.65 assumed	
0.3	60	Dry mass of sample, kg	
0.212	58		
0.15	56	2.0	
0.063	52		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	33.1	33.1
	Sand	14.6	14.6
*<60mm values to aid description only	Silt	28.9	28.9
	Clay	23.4	23.4

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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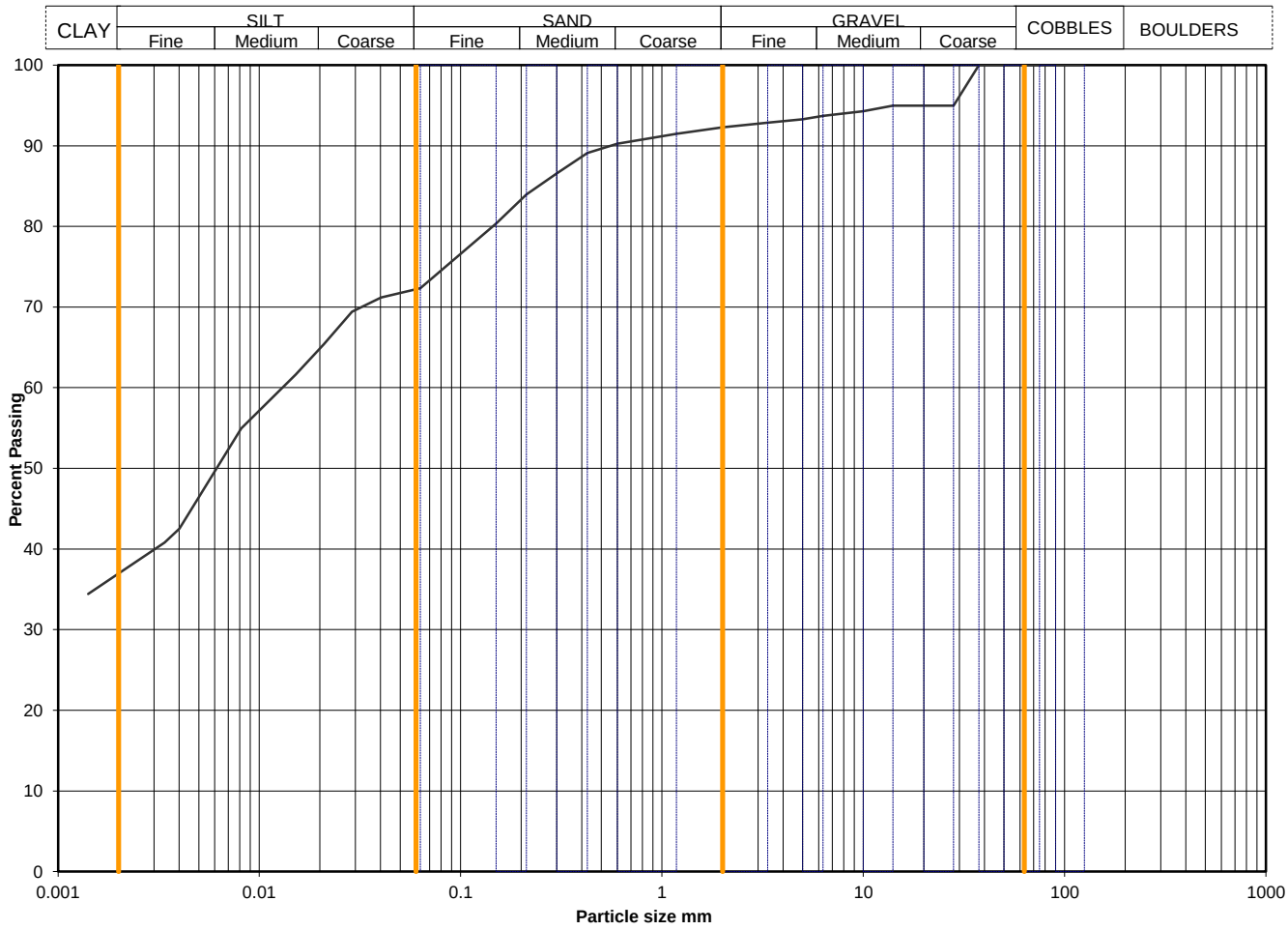
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014031723

Hole No	MFTP04
Sample Depth (m BGL)	0.20 - 0.30
Sample Type and No	B2
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	72
90	100	0.0403	71
75	100	0.0288	69
63	100	0.0209	65
50	100	0.0151	62
37.5	100	0.0081	55
28	95	0.0040	43
20	95	0.0034	41
14	95	0.0014	34
10	94		
6.3	94		
5	93		
3.35	93		
2	92		
1.18	91	Particle density, Mg/m3	
0.6	90		
0.425	89	2.65 assumed	
0.3	87	Dry mass of sample, kg	
0.212	84		
0.15	80	1.2	
0.063	72		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	7.6	7.6
	Sand	20.0	20.0
*<60mm values to aid description only	Silt	35.4	35.4
	Clay	37.0	37.0

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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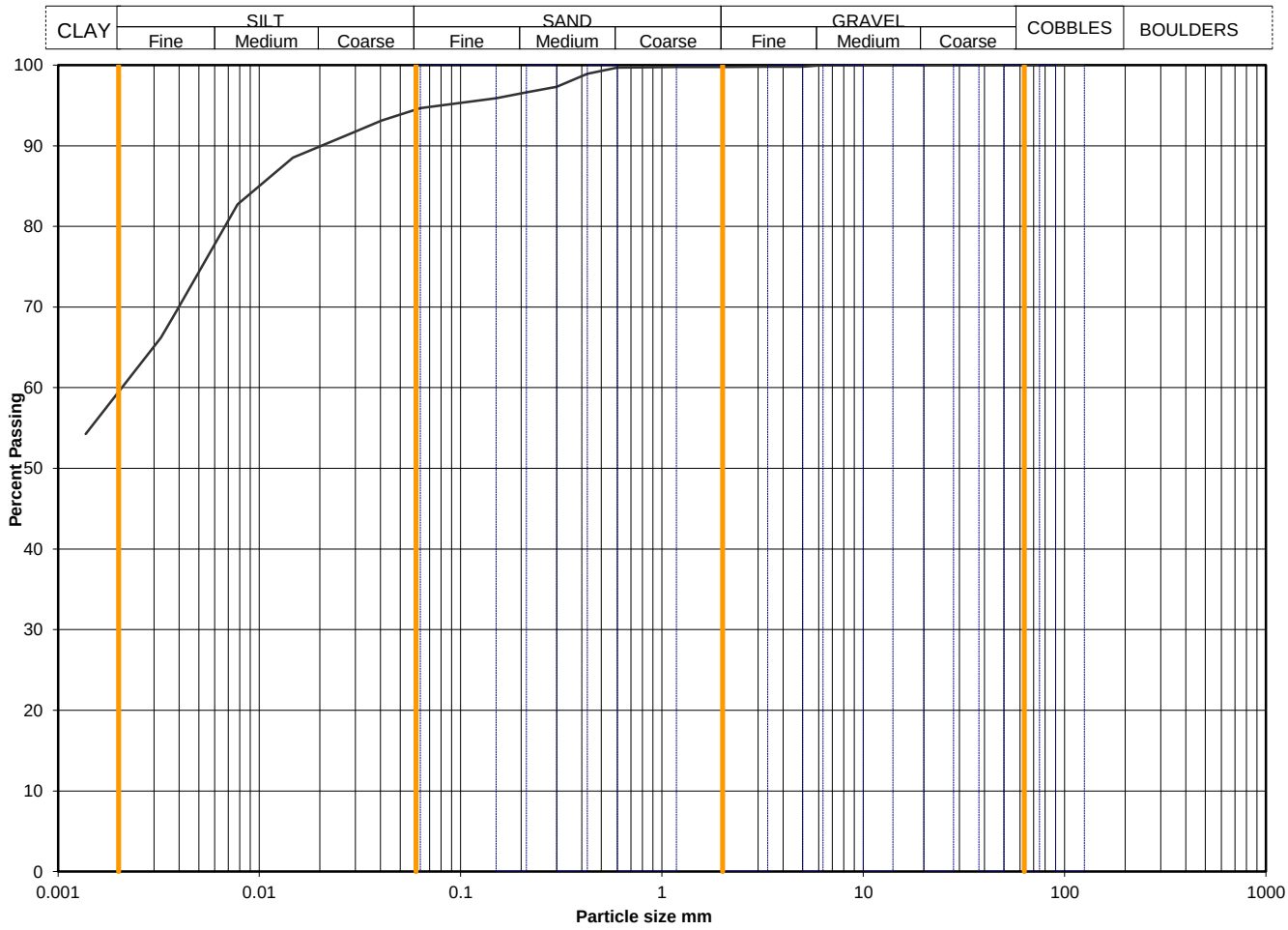
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014021406

Hole No	OSBH01
Sample Depth (m BGL)	1.20 - 1.70
Sample Type and No	B8
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	95
90	100	0.0406	93
75	100	0.0289	92
63	100	0.0206	90
50	100	0.0147	89
37.5	100	0.0078	83
28	100	0.0038	69
20	100	0.0032	66
14	100	0.0014	54
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	99	2.65 assumed	
0.3	97	Dry mass of sample, kg	
0.212	97		
0.15	96	1.4	
0.063	95		

Soil description	Dark grey slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.2	0.2
	Sand	5.1	5.1
*<60mm values to aid description only	Silt	35.2	35.2
	Clay	59.5	59.5

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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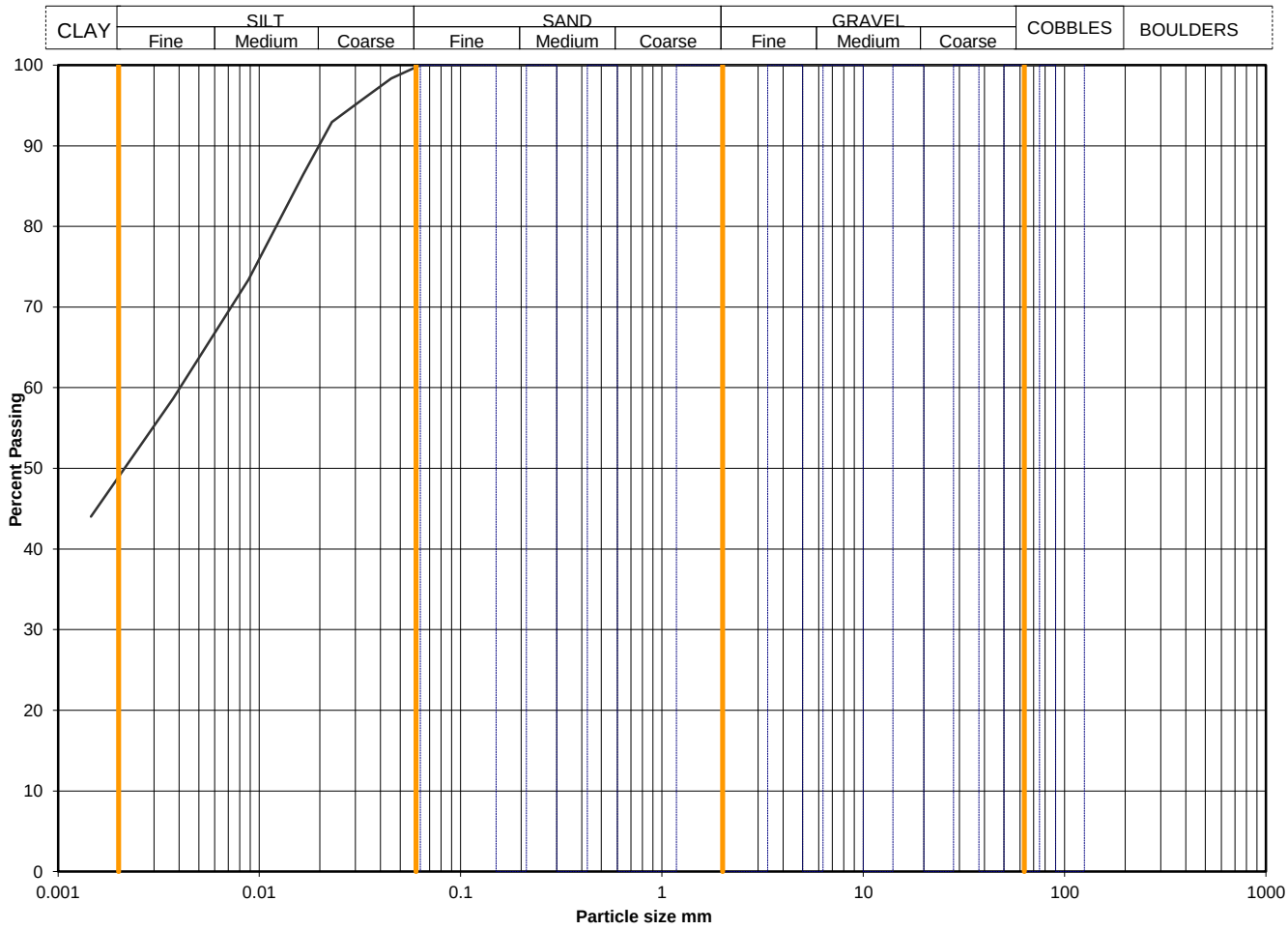
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014021507

Hole No	OSBH01
Sample Depth (m BGL)	5.00 - 5.50
Sample Type and No	B20
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	100
90	100	0.0451	98
75	100	0.0322	96
63	100	0.0229	93
50	100	0.0165	86
37.5	100	0.0088	73
28	100	0.0037	59
20	100	0.0032	57
14	100	0.0015	44
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	100	1.2	
0.063	100		

Soil description	Dark brown CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	0.0	0.0
*<60mm values to aid description only	Silt	51.1	51.1
	Clay	48.9	48.9

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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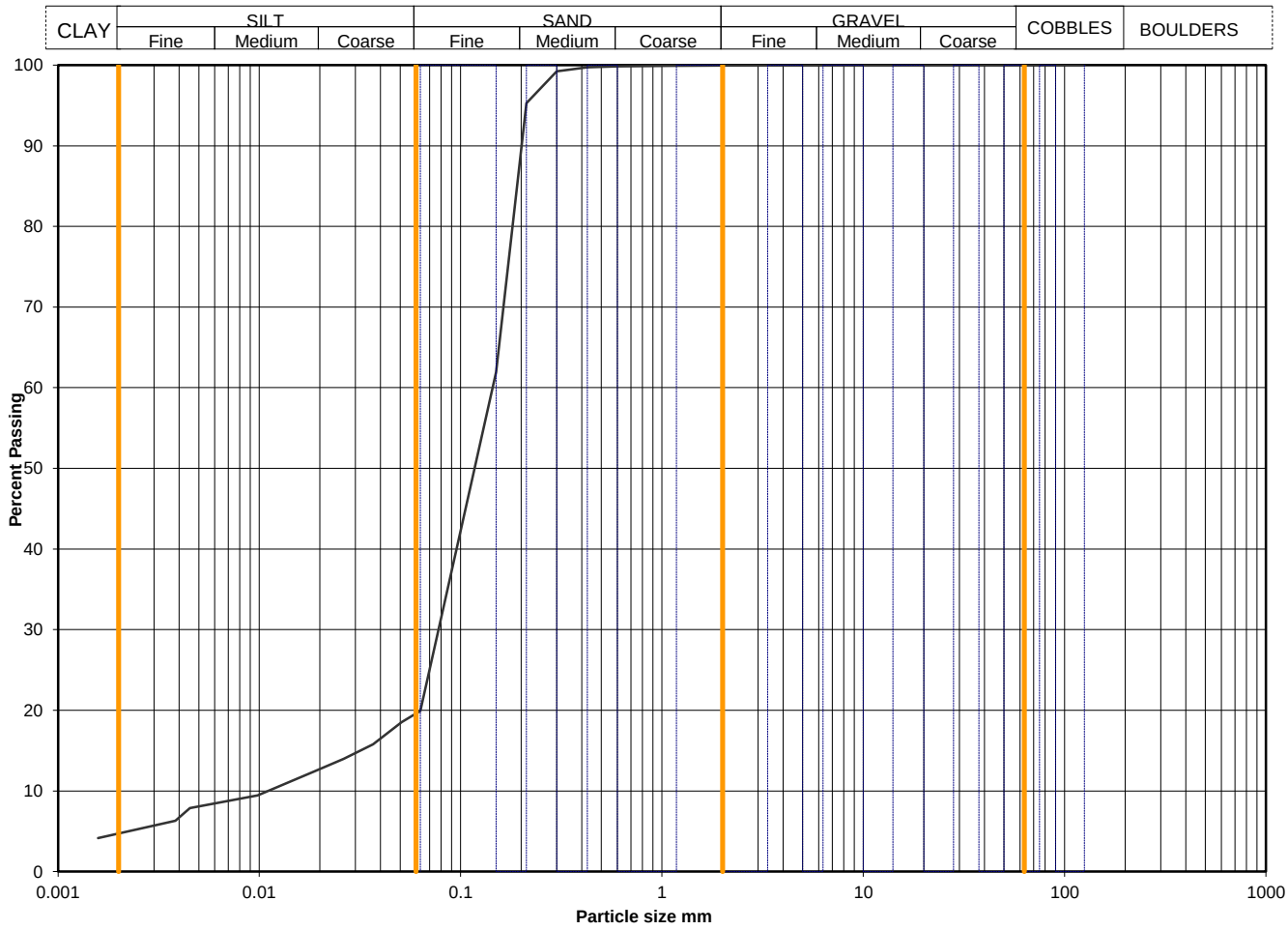
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020122207

Hole No	OSBH01
Sample Depth (m BGL)	9.00 - 9.50
Sample Type and No	B33
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	20
90	100	0.0510	19
75	100	0.0367	16
63	100	0.0262	14
50	100	0.0187	12
37.5	100	0.0098	9
28	100	0.0045	8
20	100	0.0038	6
14	100	0.0016	4
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	99	Dry mass of sample, kg	
0.212	95		
0.15	62	2.0	
0.063	20		

Soil description	Brown silty SAND.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.1	0.1
	Sand	80.0	80.0
*<60mm values to aid description only	Silt	15.2	15.2
	Clay	4.7	4.7

Uniformity Coefficient	D60 / D10	13

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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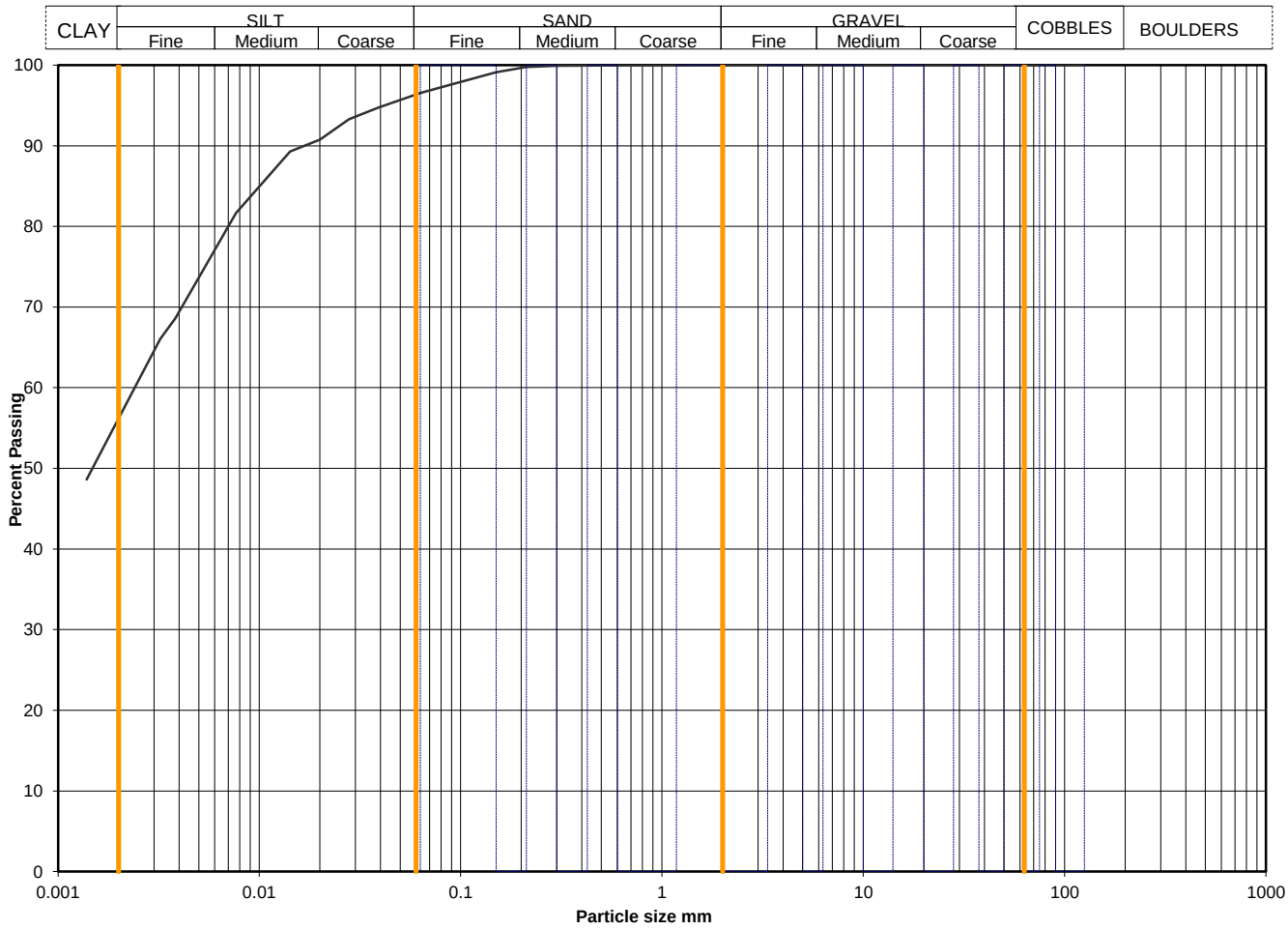
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020122342

Hole No	OSBH01
Sample Depth (m BGL)	14.00 - 14.50
Sample Type and No	B44
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	97
90	100	0.0390	95
75	100	0.0278	93
63	100	0.0200	91
50	100	0.0142	89
37.5	100	0.0076	82
28	100	0.0038	69
20	100	0.0032	66
14	100	0.0014	49
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	99	1.3	
0.063	97		

Soil description	Dark grey slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	3.5	3.5
*<60mm values to aid description only	Silt	40.3	40.3
	Clay	56.2	56.2

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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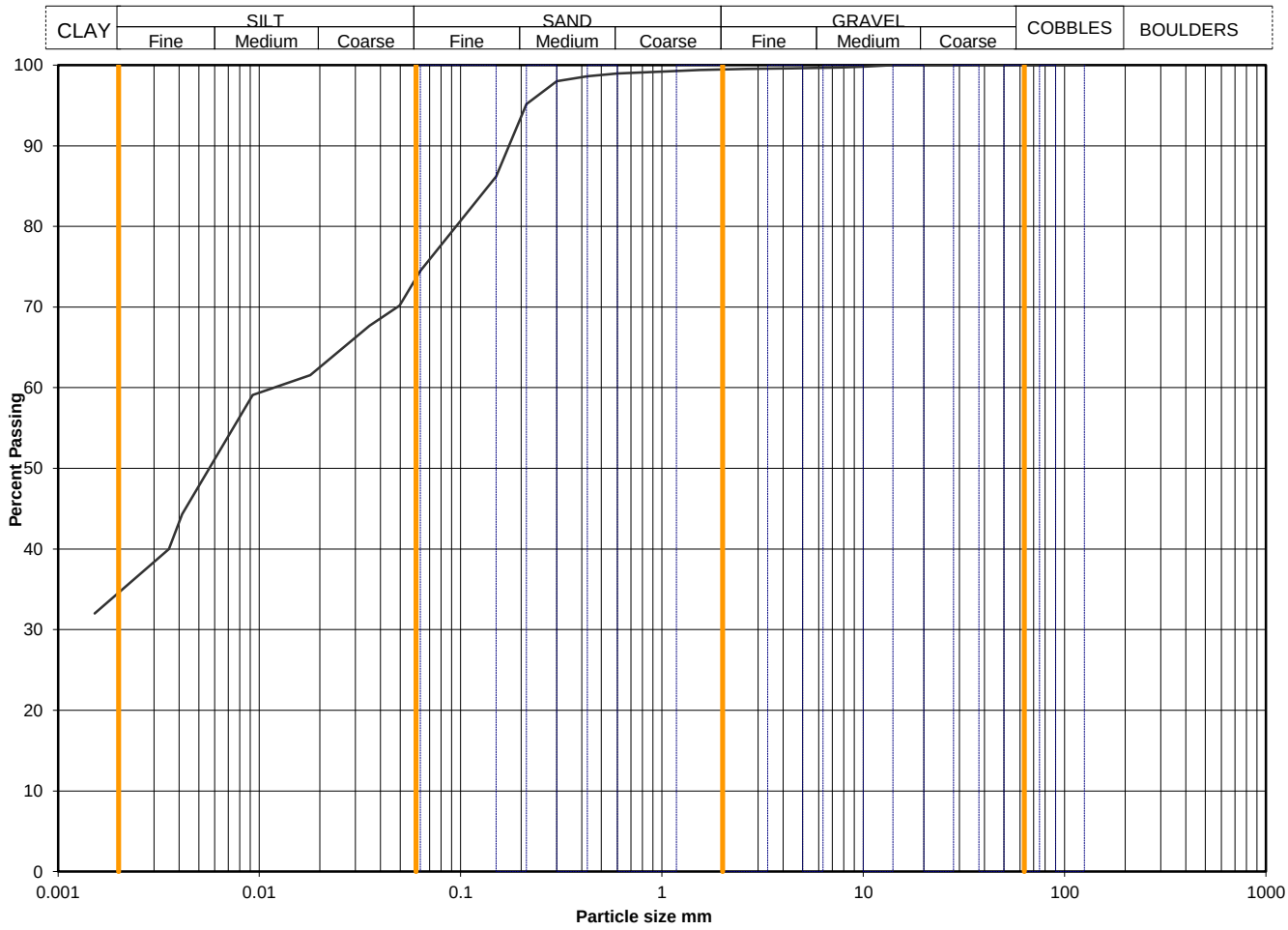
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014014920

Hole No	OSBH02
Sample Depth (m BGL)	0.00 - 0.25
Sample Type and No	B2
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	74
90	100	0.0497	70
75	100	0.0353	68
63	100	0.0251	65
50	100	0.0179	62
37.5	100	0.0093	59
28	100	0.0041	44
20	100	0.0036	40
14	100	0.0015	32
10	100		
6.3	100		
5	100		
3.35	100		
2	99		
1.18	99	Particle density, Mg/m3	
0.6	99		
0.425	99	2.65 assumed	
0.3	98	Dry mass of sample, kg	
0.212	95		
0.15	86	1.0	
0.063	74		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.5	0.5
	Sand	25.0	25.0
*<60mm values to aid description only	Silt	39.9	39.9
	Clay	34.6	34.6

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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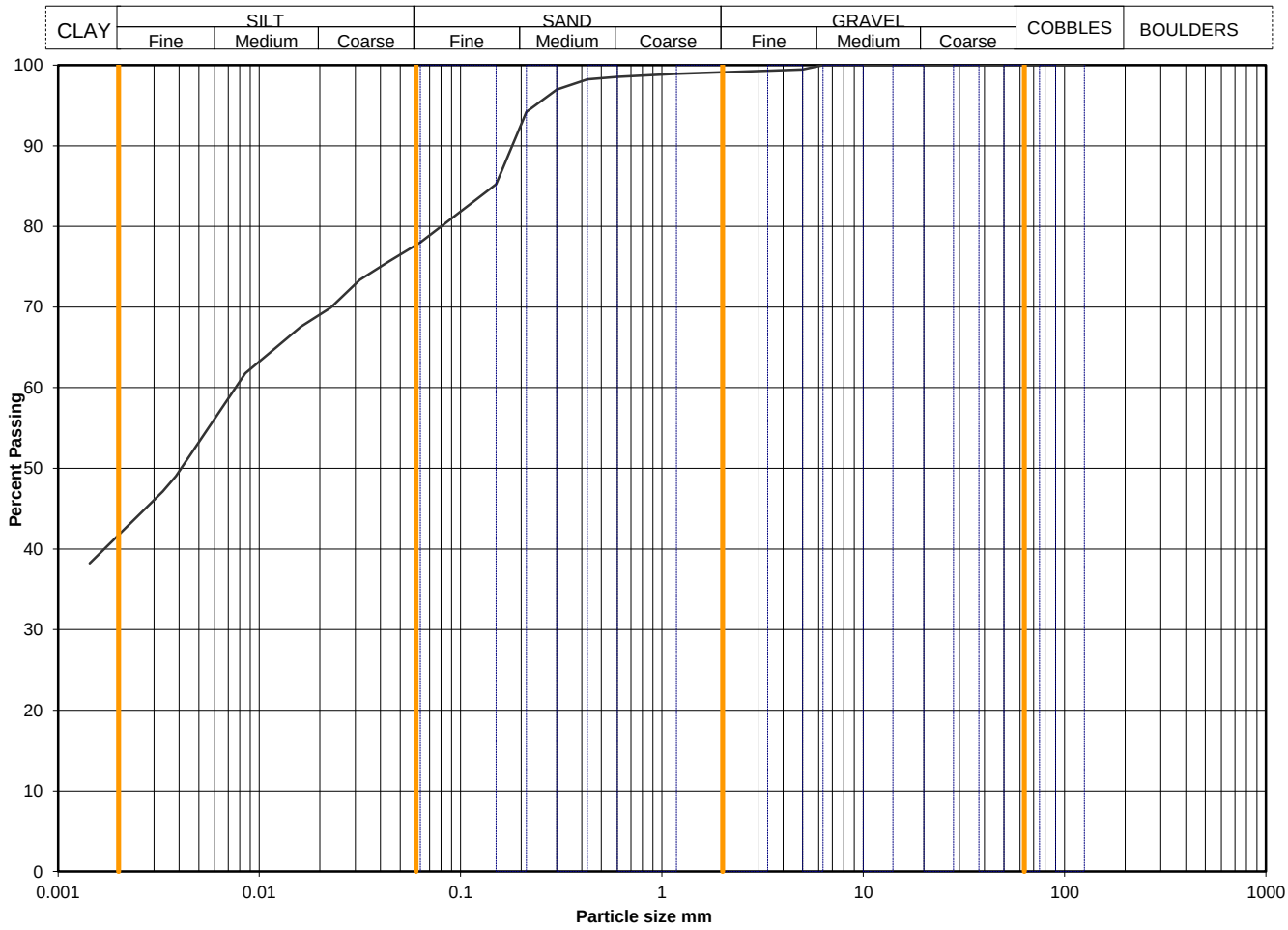
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014015055

Hole No	OSBH02
Sample Depth (m BGL)	3.00 - 3.50
Sample Type and No	B20
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	78
90	100	0.0441	76
75	100	0.0315	73
63	100	0.0226	70
50	100	0.0161	68
37.5	100	0.0085	62
28	100	0.0039	49
20	100	0.0033	47
14	100	0.0014	38
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	99	Particle density, Mg/m3	
0.6	99		
0.425	98	2.65 assumed	
0.3	97	Dry mass of sample, kg	
0.212	94		
0.15	85	1.1	
0.063	78		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.9	0.9
	Sand	21.1	21.1
*<60mm values to aid description only	Silt	36.3	36.3
	Clay	41.7	41.7

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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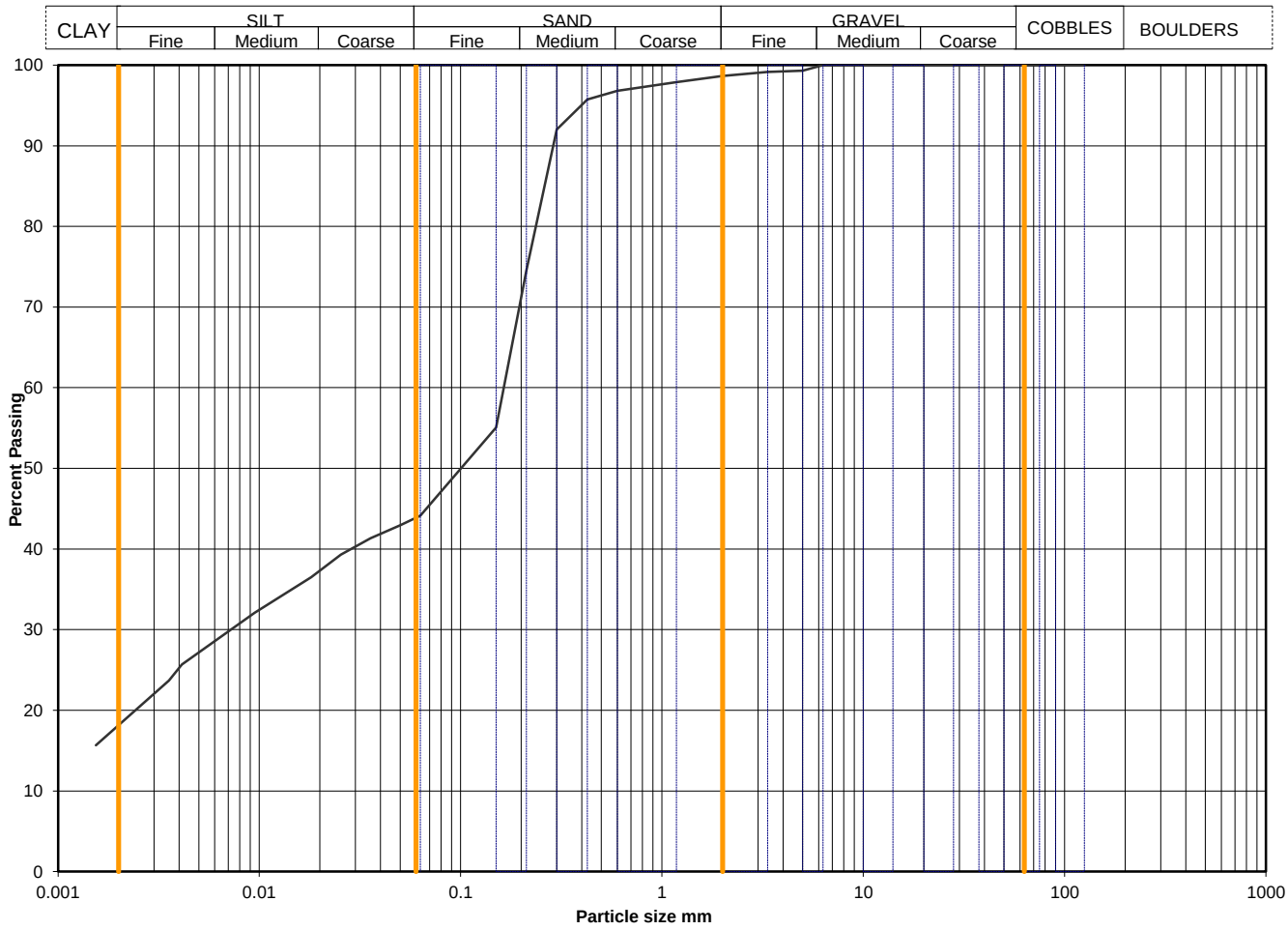
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014015358

Hole No	OSBH02
Sample Depth (m BGL)	7.00 - 7.50
Sample Type and No	B33
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	44
90	100	0.0501	43
75	100	0.0356	41
63	100	0.0254	39
50	100	0.0181	37
37.5	100	0.0095	32
28	100	0.0041	26
20	100	0.0035	24
14	100	0.0015	16
10	100		
6.3	100		
5	99		
3.35	99		
2	99		
1.18	98	Particle density, Mg/m3	
0.6	97		
0.425	96	2.65 assumed	
0.3	92	Dry mass of sample, kg	
0.212	75		
0.15	55	1.5	
0.063	44		

Soil description	Brown slightly gravelly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	1.3	1.3
	Sand	54.5	54.5
*<60mm values to aid description only	Silt	26.0	26.0
	Clay	18.2	18.2

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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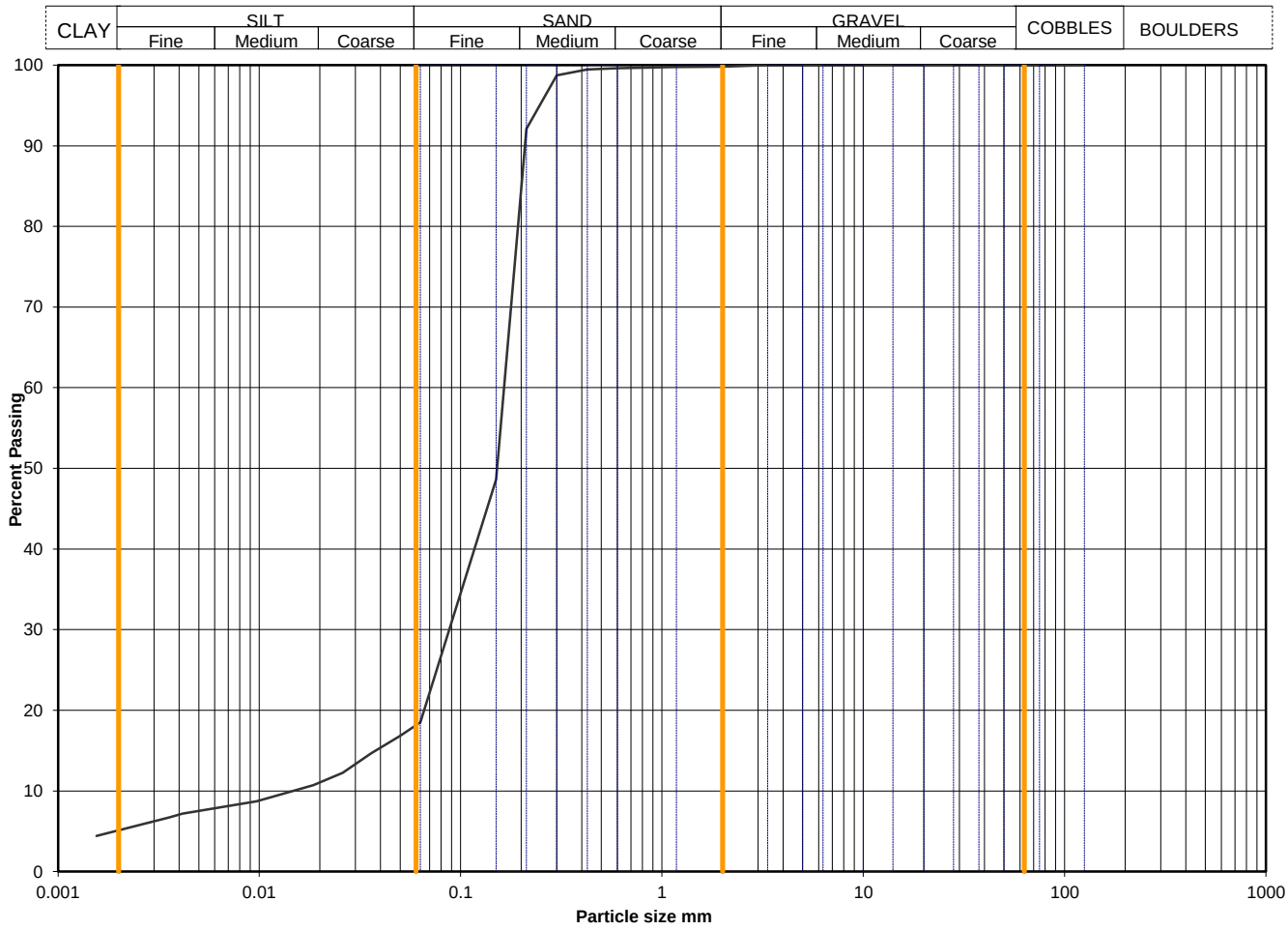
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014015516

Hole No	OSBH02
Sample Depth (m BGL)	9.00 - 9.50
Sample Type and No	B40
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	19
90	100	0.0499	17
75	100	0.0359	15
63	100	0.0259	12
50	100	0.0185	11
37.5	100	0.0097	9
28	100	0.0042	7
20	100	0.0036	7
14	100	0.0016	4
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	99	2.65 assumed	
0.3	99	Dry mass of sample, kg	
0.212	92		
0.15	49	1.7	
0.063	19		

Soil description	Brown very sandy SILT.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.2	0.2
	Sand	81.3	81.3
*<60mm values to aid description only	Silt	13.4	13.4
	Clay	5.1	5.1

Uniformity Coefficient	D60 / D10	11

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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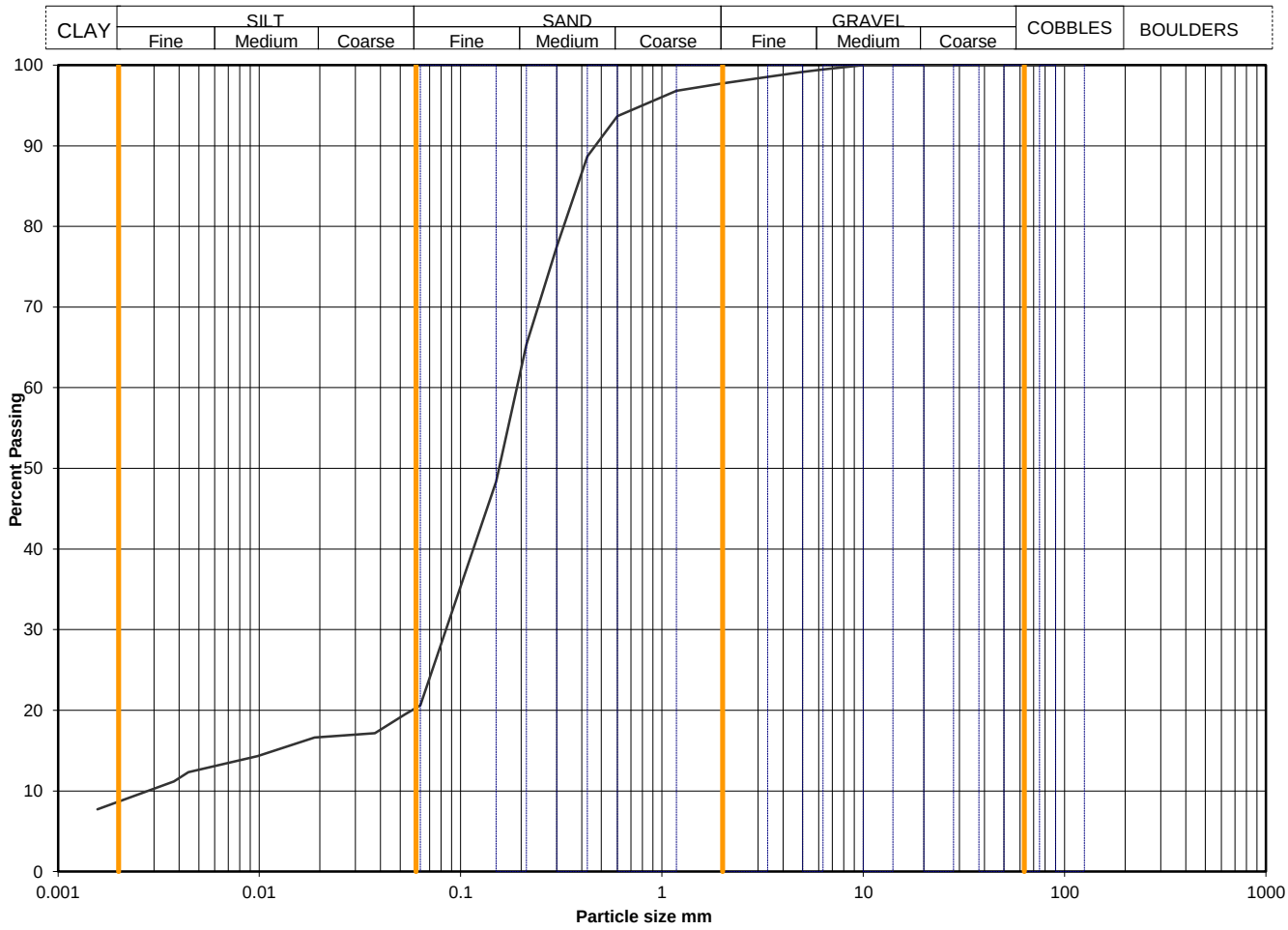
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014015808

Hole No	OSBH02
Sample Depth (m BGL)	19.00 - 19.50
Sample Type and No	B73
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0526	19
75	100	0.0375	17
63	100	0.0266	17
50	100	0.0188	17
37.5	100	0.0098	14
28	100	0.0044	12
20	100	0.0038	11
14	100	0.0016	8
10	100		
6.3	99		
5	99		
3.35	99		
2	98		
1.18	97	Particle density, Mg/m3	
0.6	94		
0.425	89	2.65 assumed	
0.3	77	Dry mass of sample, kg	
0.212	65		
0.15	48	2.0	
0.063	21		

Soil description	Brown slightly gravelly very sandy clayey SILT.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	2.3	2.3
	Sand	77.1	77.1
*<60mm values to aid description only	Silt	11.9	11.9
	Clay	8.7	8.7

Uniformity Coefficient	D60 / D10	68

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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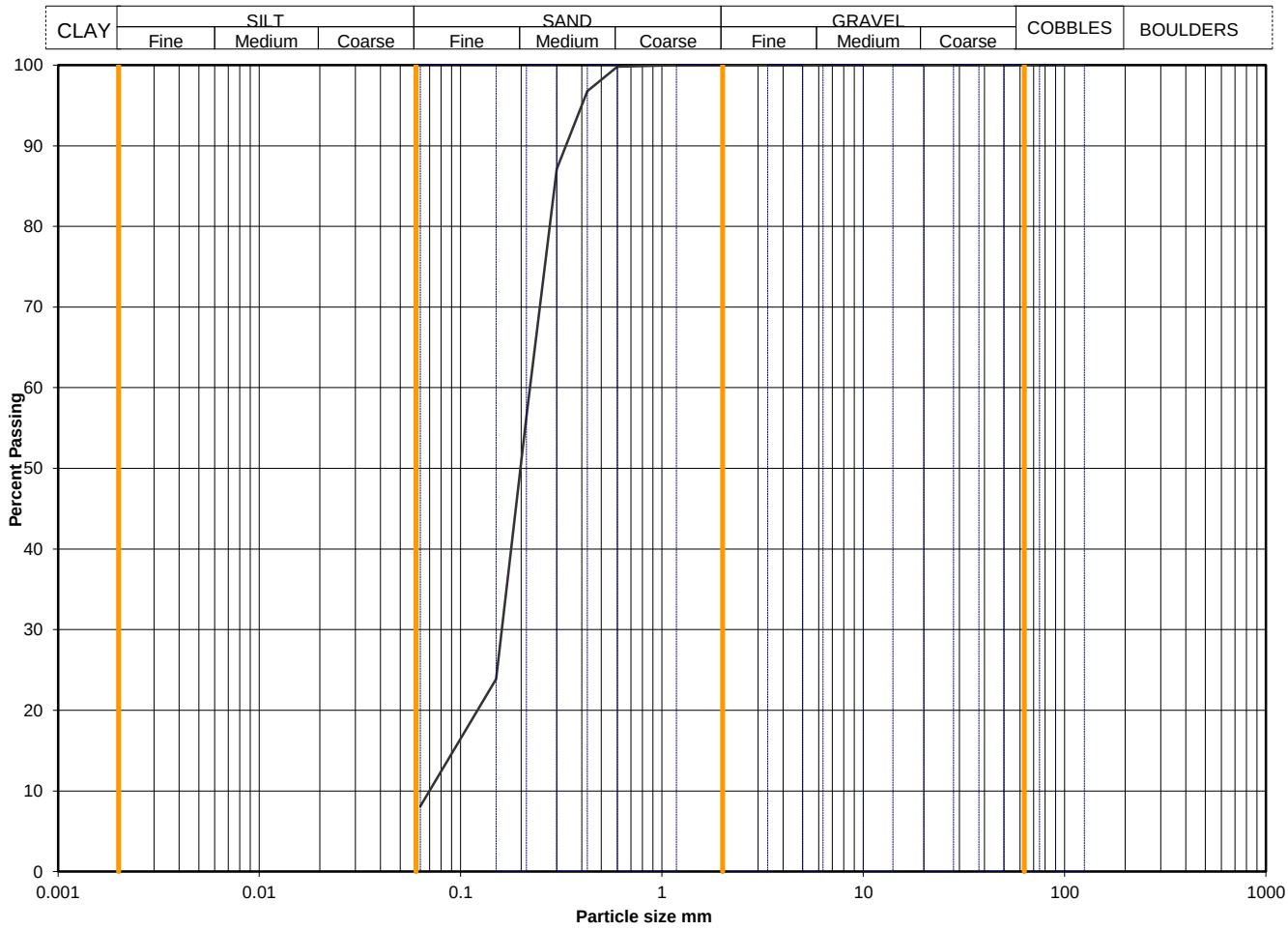
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020124830

Hole No	OSBH02
Sample Depth (m BGL)	28.00 - 28.50
Sample Type and No	B96A
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	100		
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100		
0.6	100		
0.425	97		
0.3	87	Dry mass of sample, kg	
0.212	56		
0.15	24	1.5	
0.063	8		

Soil description	Light brown clayey SAND.
Preparation / Pretreatment	Sieve: pre dried,
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	91.9	91.9
*<60mm values to aid description only	Silt	silt+clay =	
	Clay	8.1	8.1

Uniformity Coefficient	D60 / D10	3

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

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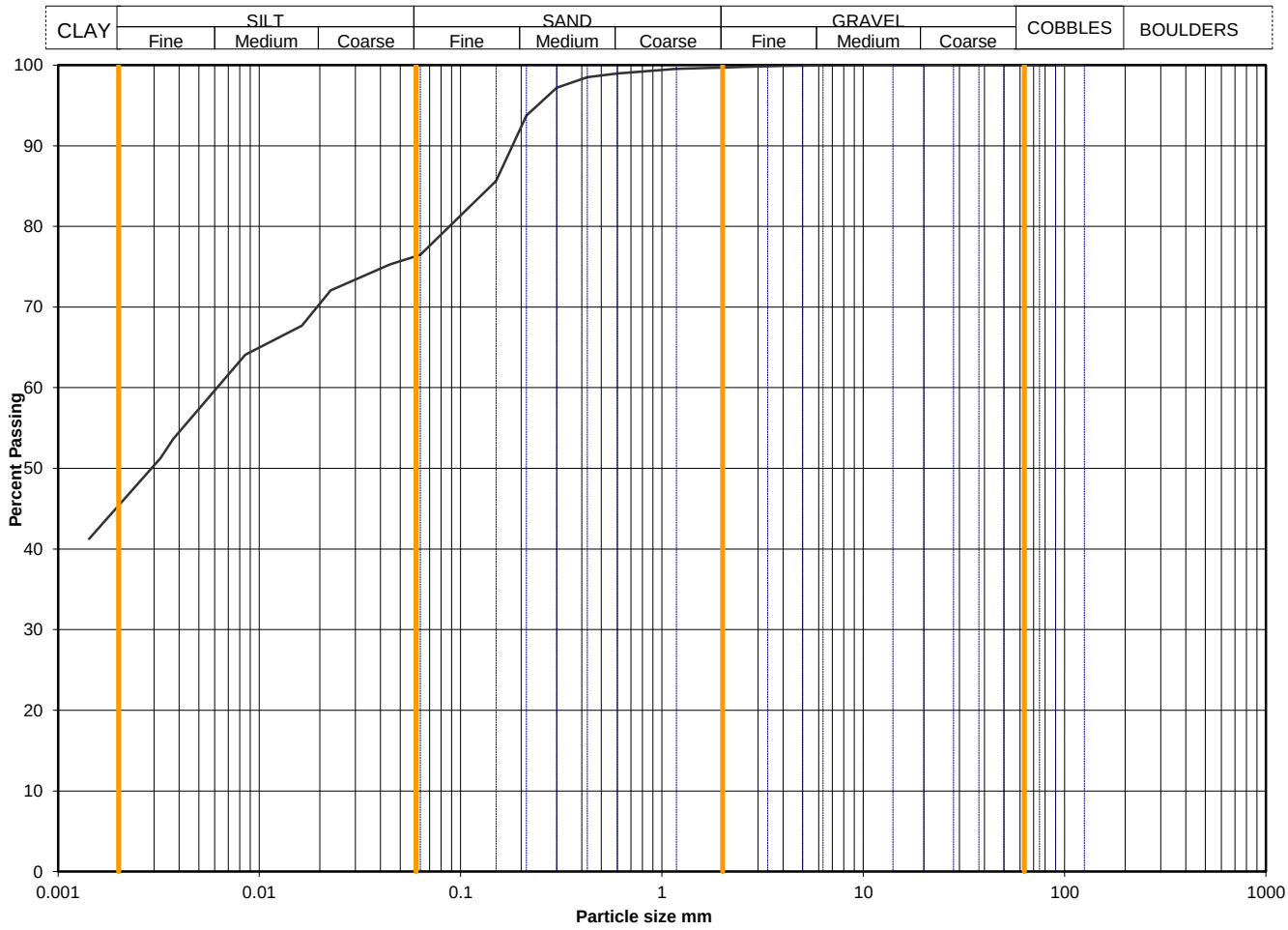
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014022840

Hole No	OSBH03
Sample Depth (m BGL)	0.30 - 0.60
Sample Type and No	B3
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	76
90	100	0.0446	75
75	100	0.0318	74
63	100	0.0226	72
50	100	0.0163	68
37.5	100	0.0085	64
28	100	0.0037	54
20	100	0.0032	51
14	100	0.0014	41
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	99		
0.425	99	2.65 assumed	
0.3	97	Dry mass of sample, kg	
0.212	94		
0.15	86	1.1	
0.063	76		

Soil description	Brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.3	0.3
	Sand	23.2	23.2
*<60mm values to aid description only	Silt	31.1	31.1
	Clay	45.4	45.4

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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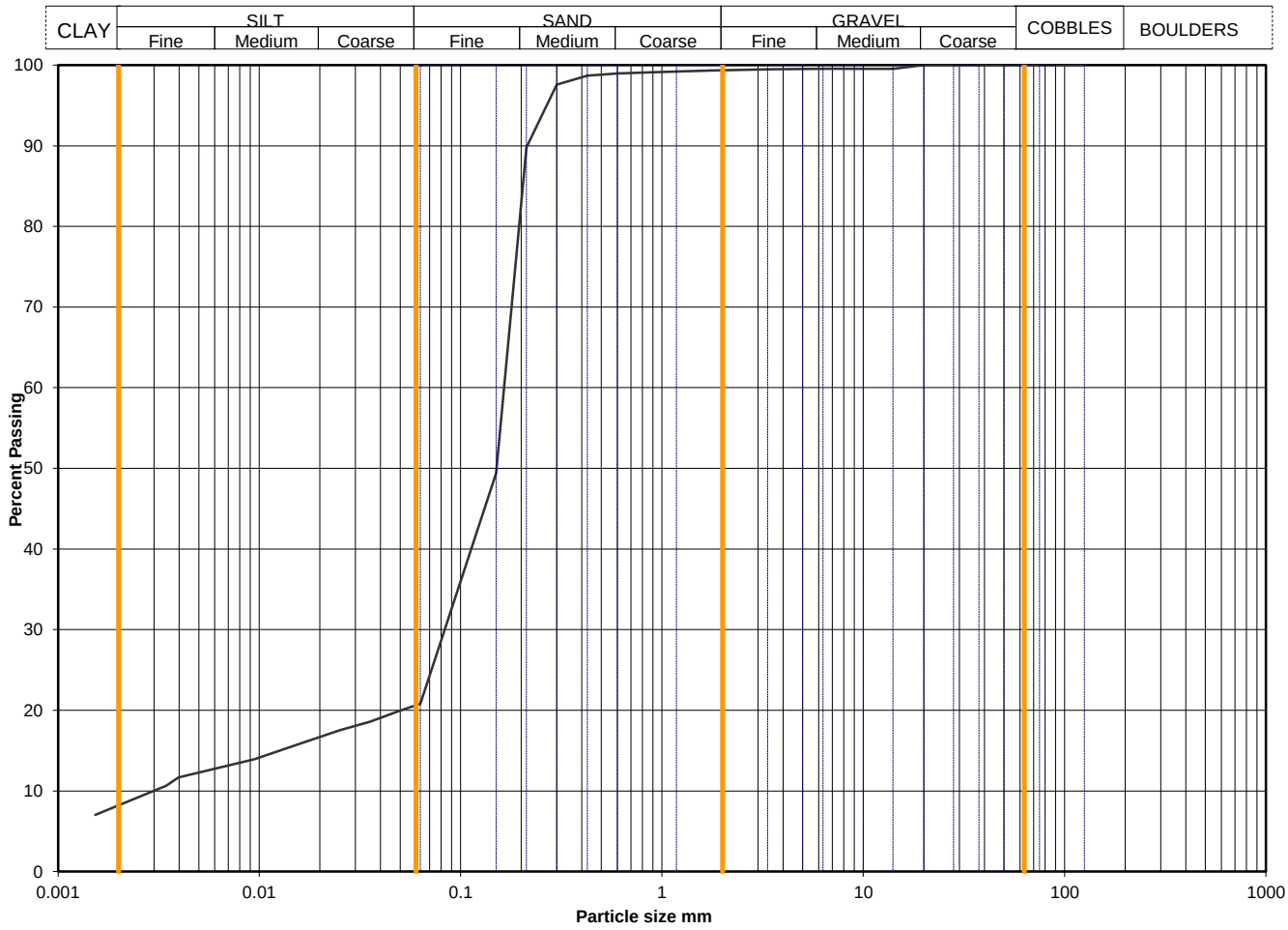
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014022942

Hole No	OSBH03
Sample Depth (m BGL)	4.00 - 4.50
Sample Type and No	B18
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0496	20
75	100	0.0354	19
63	100	0.0252	18
50	100	0.0180	16
37.5	100	0.0095	14
28	100	0.0040	12
20	100	0.0034	11
14	100	0.0015	7
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99	Particle density, Mg/m3	
0.6	99		
0.425	99	2.65 assumed	
0.3	98	Dry mass of sample, kg	
0.212	90		
0.15	49	1.4	
0.063	21		

Soil description	Brown slightly gravelly clayey SAND.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.6	0.6
	Sand	78.6	78.6
*<60mm values to aid description only	Silt	12.6	12.6
	Clay	8.2	8.2

Uniformity Coefficient	D60 / D10	55

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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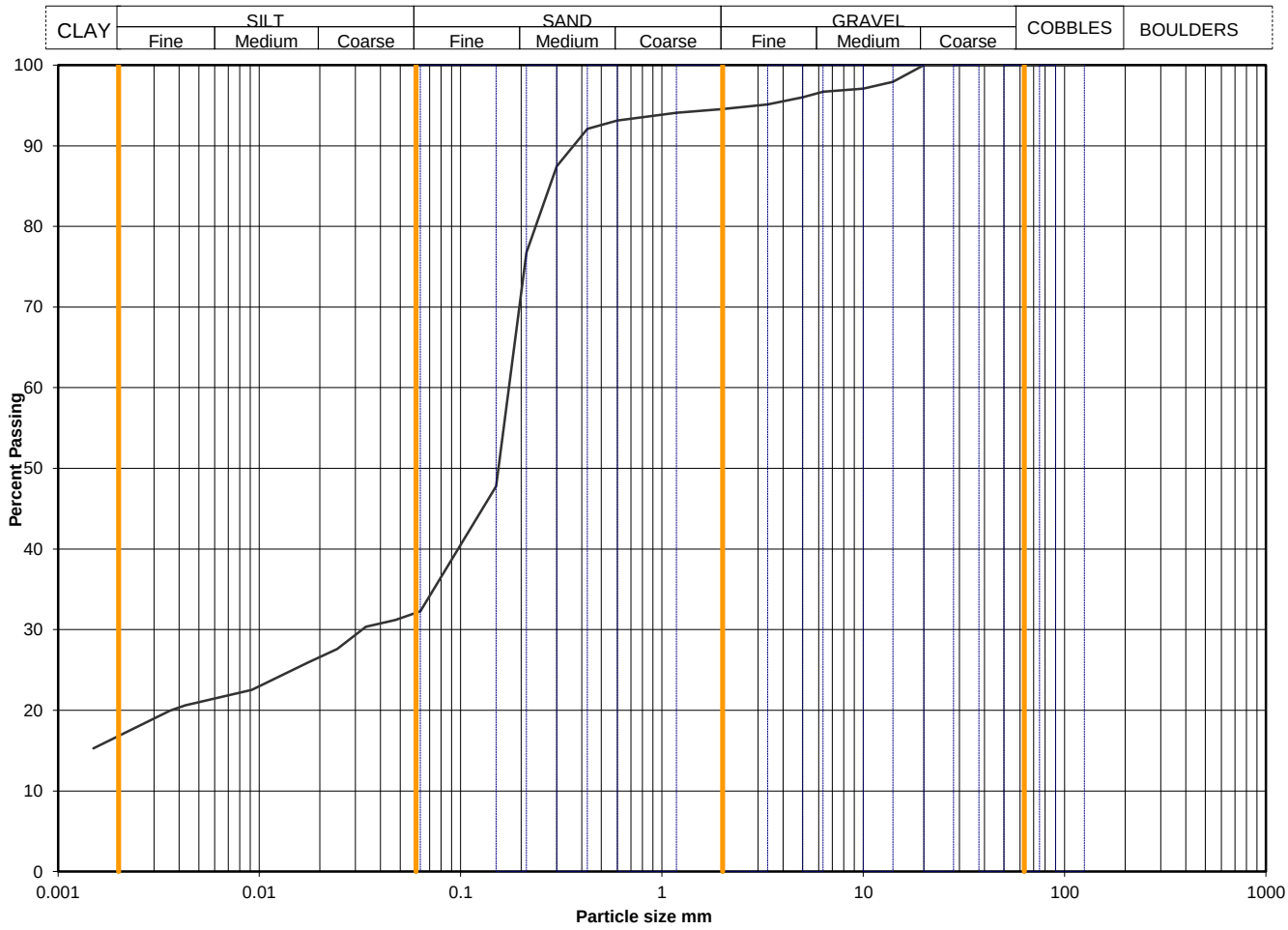
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014023108

Hole No	OSBH03
Sample Depth (m BGL)	9.00 - 9.50
Sample Type and No	B30
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	32
90	100	0.0475	31
75	100	0.0338	30
63	100	0.0243	28
50	100	0.0174	26
37.5	100	0.0092	23
28	100	0.0043	21
20	100	0.0036	20
14	98	0.0015	15
10	97		
6.3	97		
5	96		
3.35	95		
2	95		
1.18	94	Particle density, Mg/m3	
0.6	93		
0.425	92	2.65 assumed	
0.3	87	Dry mass of sample, kg	
0.212	77		
0.15	48	1.8	
0.063	32		

Soil description	Brown slightly gravelly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	5.4	5.4
	Sand	62.3	62.3
*<60mm values to aid description only	Silt	15.5	15.5
	Clay	16.8	16.8

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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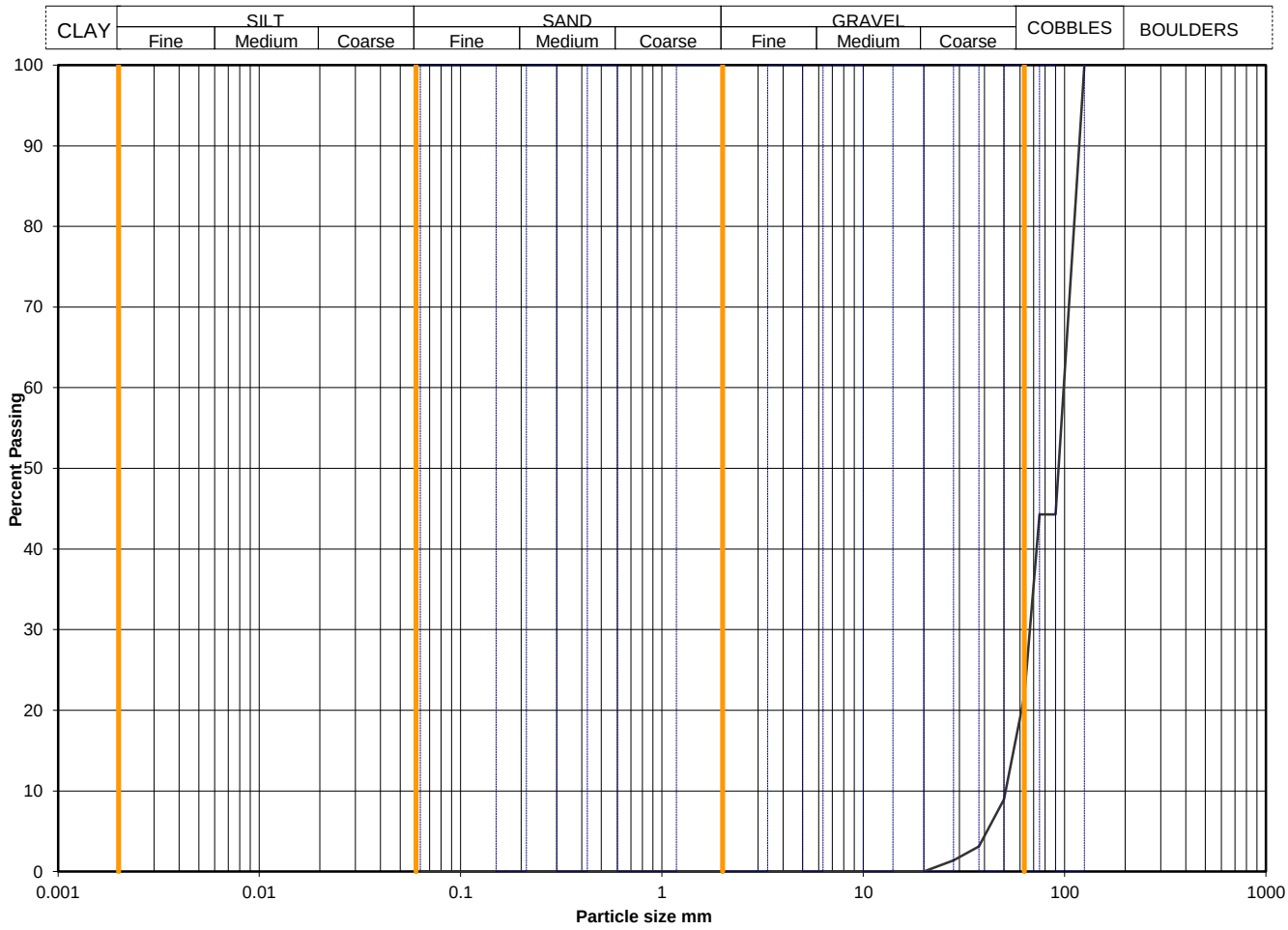
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211014023130

Hole No	OSBH03
Sample Depth (m BGL)	11.30 - 11.80
Sample Type and No	B35
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	44		
75	44		
63	22		
50	9		
37.5	3		
28	1		
20	0		
14	0		
10	0		
6.3	0		
5	0		
3.35	0		
2	0		
1.18	0		
0.6	0		
0.425	0		
0.3	0	Dry mass of sample, kg	
0.212	0		
0.15	0	6.1	
0.063	0		

Soil description	Brown very gravelly COBBLES.
Preparation / Pretreatment	Sieve: pre dried,
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	78.2	0.0
	Gravel	21.8	100.0
	Sand	0.0	0.0
*<60mm values to aid description only	Silt	silt+clay =	
	Clay	0.0	0.0

Uniformity Coefficient	D60 / D10	2

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	none

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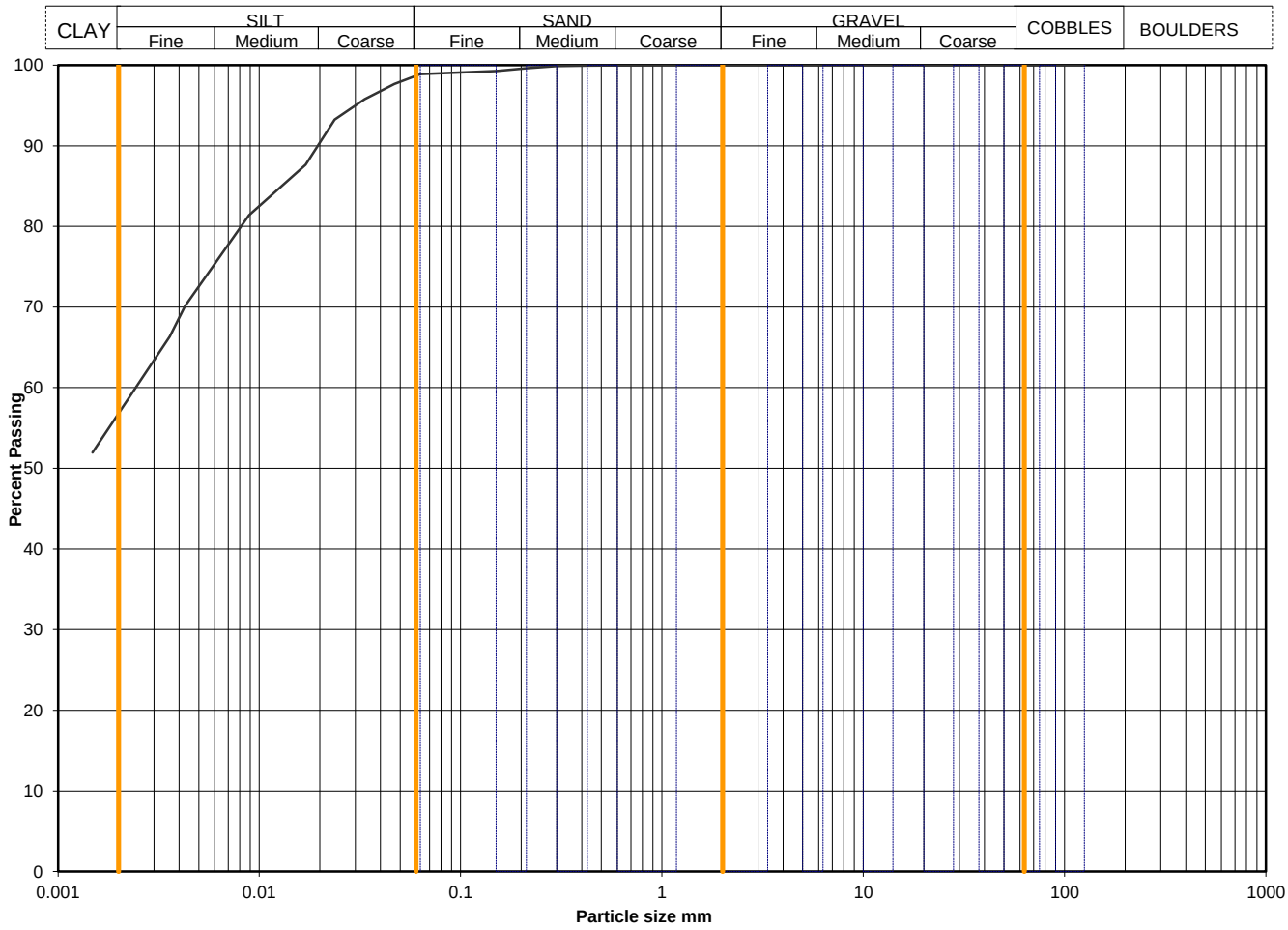
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020093131

Hole No	STBH01
Sample Depth (m BGL)	2.50 - 3.00
Sample Type and No	B16
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0469	98
75	100	0.0333	96
63	100	0.0237	93
50	100	0.0170	88
37.5	100	0.0089	81
28	100	0.0043	70
20	100	0.0036	66
14	100	0.0015	52
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	99	0.8	
0.063	99		

Soil description	Brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	1.1	1.1
*<60mm values to aid description only	Silt	42.1	42.1
	Clay	56.8	56.8

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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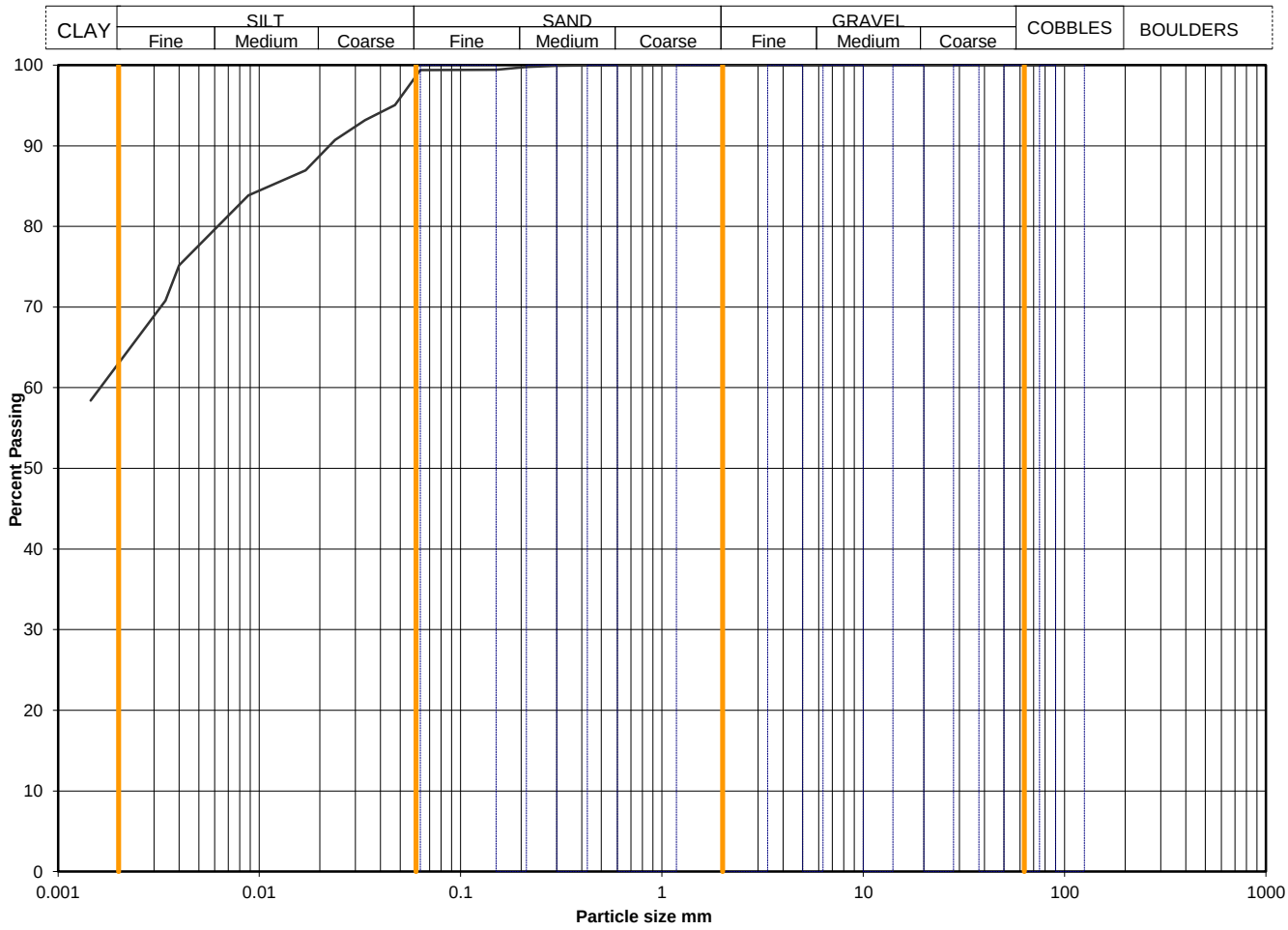
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020125534

Hole No	STBH01
Sample Depth (m BGL)	5.00 - 5.50
Sample Type and No	B24
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0471	95
75	100	0.0334	93
63	100	0.0238	91
50	100	0.0170	87
37.5	100	0.0088	84
28	100	0.0040	75
20	100	0.0034	71
14	100	0.0015	58
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	99	0.6	
0.063	99		

Soil description	Brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	0.6	0.6
*<60mm values to aid description only	Silt	36.3	36.3
	Clay	63.1	63.1

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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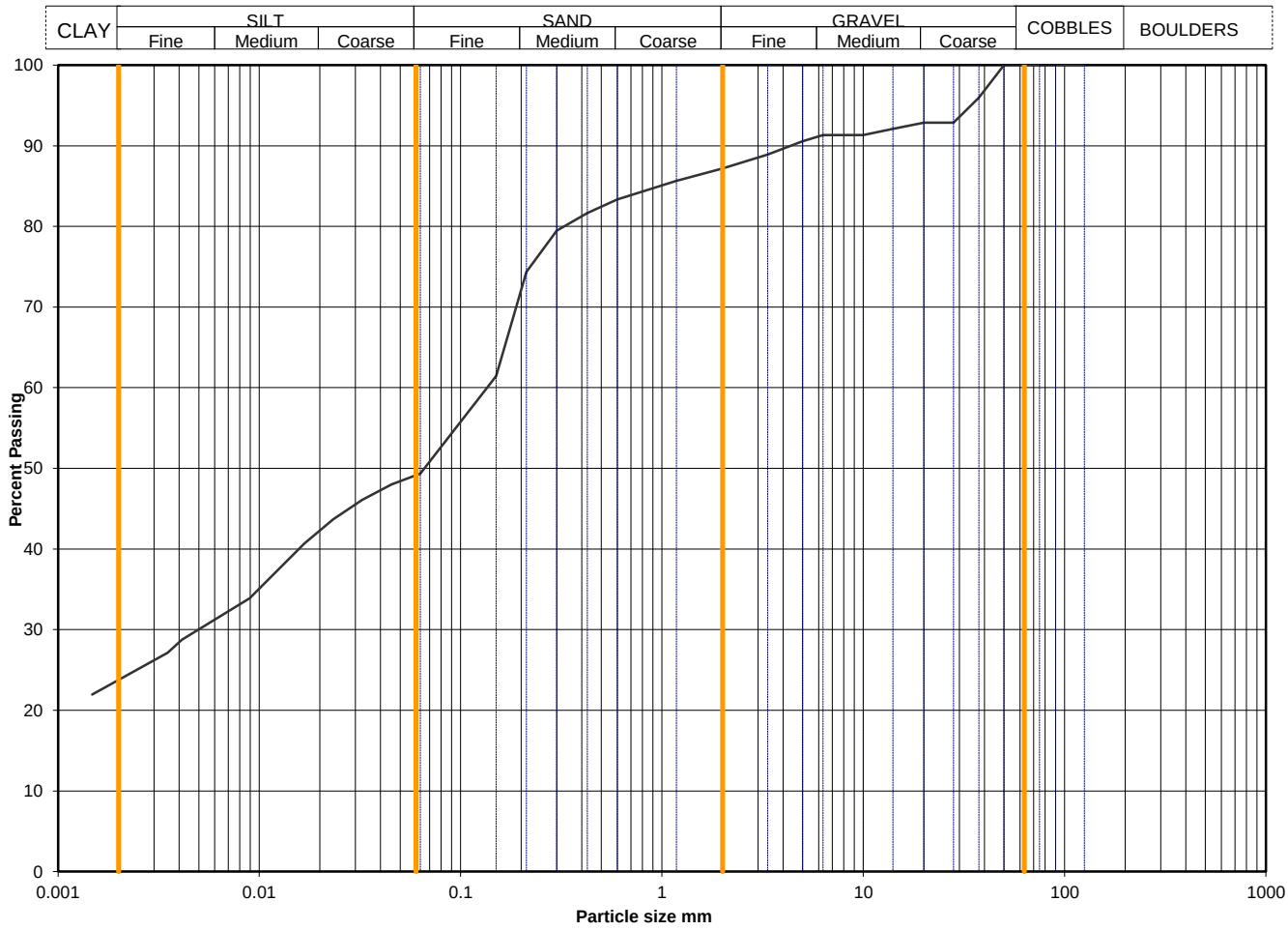
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020125645

Hole No	STBH01
Sample Depth (m BGL)	9.00 - 9.50
Sample Type and No	B36
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	49
90	100	0.0454	48
75	100	0.0325	46
63	100	0.0233	44
50	100	0.0167	41
37.5	96	0.0089	34
28	93	0.0041	29
20	93	0.0035	27
14	92	0.0015	22
10	91		
6.3	91		
5	91		
3.35	89		
2	87		
1.18	86	Particle density, Mg/m3	
0.6	83		
0.425	82	2.65 assumed	
0.3	79	Dry mass of sample, kg	
0.212	74		
0.15	61	2.7	
0.063	49		

Soil description	Brown slightly gravelly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	12.8	12.8
	Sand	37.8	37.8
*<60mm values to aid description only	Silt	25.6	25.6
	Clay	23.8	23.8

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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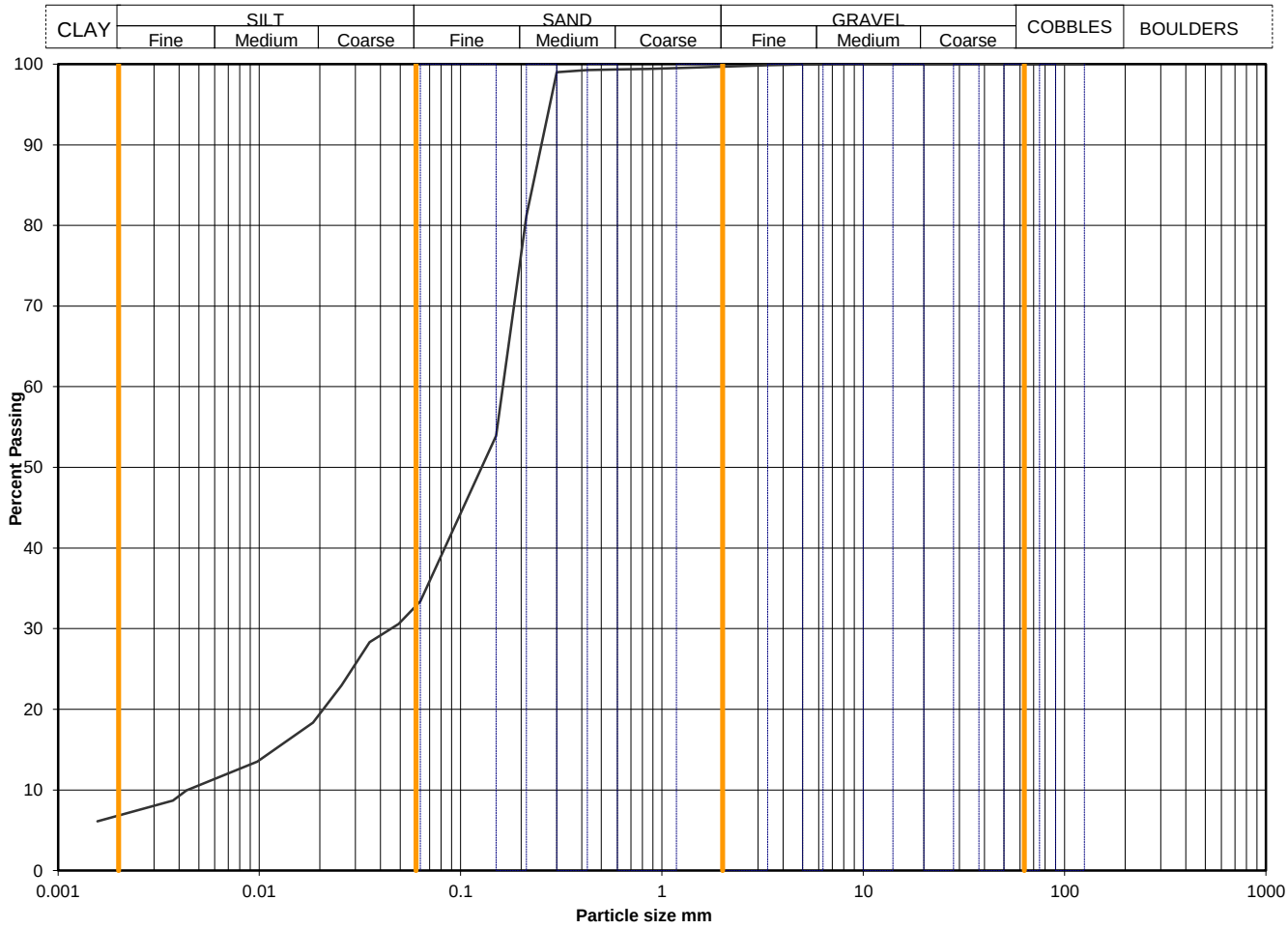
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211021025334

Hole No	STBH01
Sample Depth (m BGL)	12.00 - 12.50
Sample Type and No	B46
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	33
90	100	0.0493	31
75	100	0.0353	28
63	100	0.0256	23
50	100	0.0185	18
37.5	100	0.0098	14
28	100	0.0043	10
20	100	0.0037	9
14	100	0.0016	6
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	99		
0.425	99	2.65 assumed	
0.3	99	Dry mass of sample, kg	
0.212	81		
0.15	54	2.3	
0.063	33		

Soil description	Brown very sandy clayey SILT.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.4	0.4
	Sand	66.2	66.2
*<60mm values to aid description only	Silt	26.6	26.6
	Clay	6.8	6.8

Uniformity Coefficient	D60 / D10	37

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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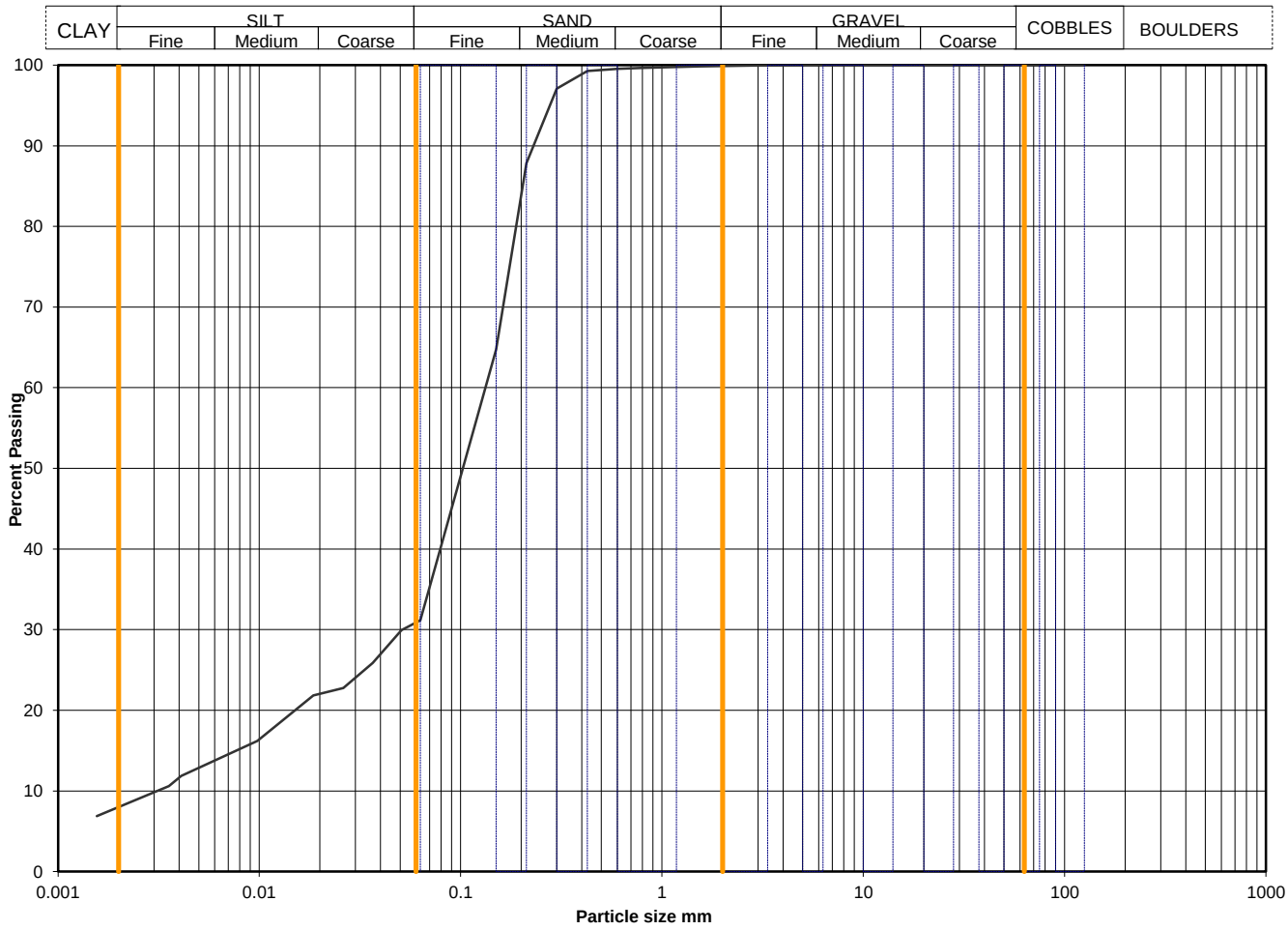
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211021025407

Hole No	STBH01
Sample Depth (m BGL)	15.00 - 15.50
Sample Type and No	B55
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	31
90	100	0.0508	30
75	100	0.0365	26
63	100	0.0261	23
50	100	0.0185	22
37.5	100	0.0098	16
28	100	0.0041	12
20	100	0.0036	11
14	100	0.0016	7
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	99	2.65 assumed	
0.3	97	Dry mass of sample, kg	
0.212	88		
0.15	65	1.3	
0.063	31		

Soil description	Brown very sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.1	0.1
	Sand	68.7	68.7
*<60mm values to aid description only	Silt	23.2	23.2
	Clay	8.0	8.0

Uniformity Coefficient	D60 / D10	43

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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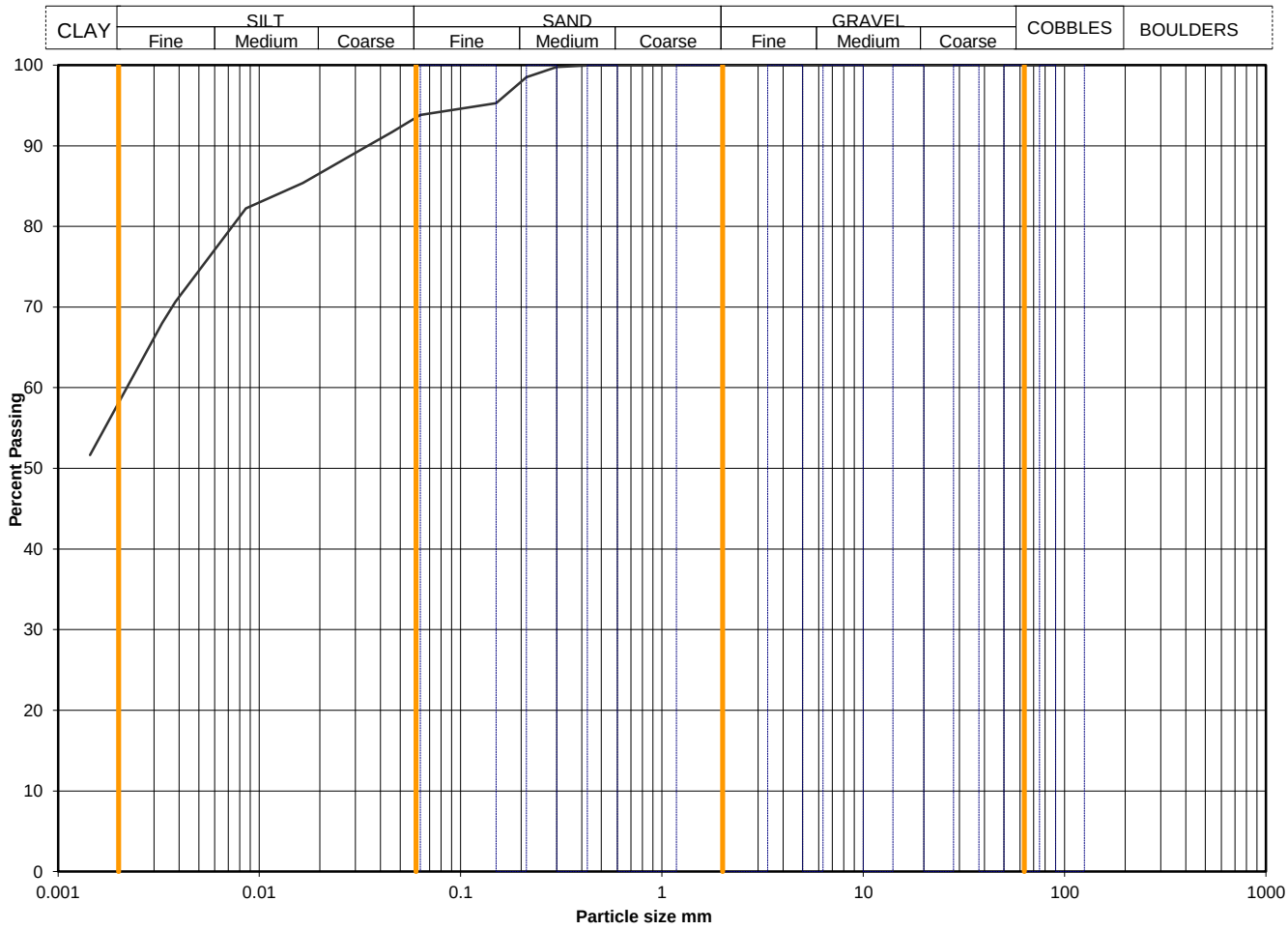
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211022025750

Hole No	STBH01
Sample Depth (m BGL)	20.50 - 21.00
Sample Type and No	B71
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	94
90	100	0.0456	92
75	100	0.0325	90
63	100	0.0231	88
50	100	0.0164	85
37.5	100	0.0086	82
28	100	0.0038	71
20	100	0.0033	68
14	100	0.0014	52
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	98		
0.15	95	0.8	
0.063	94		

Soil description	Brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	6.1	6.1
*<60mm values to aid description only	Silt	35.7	35.7
	Clay	58.2	58.2

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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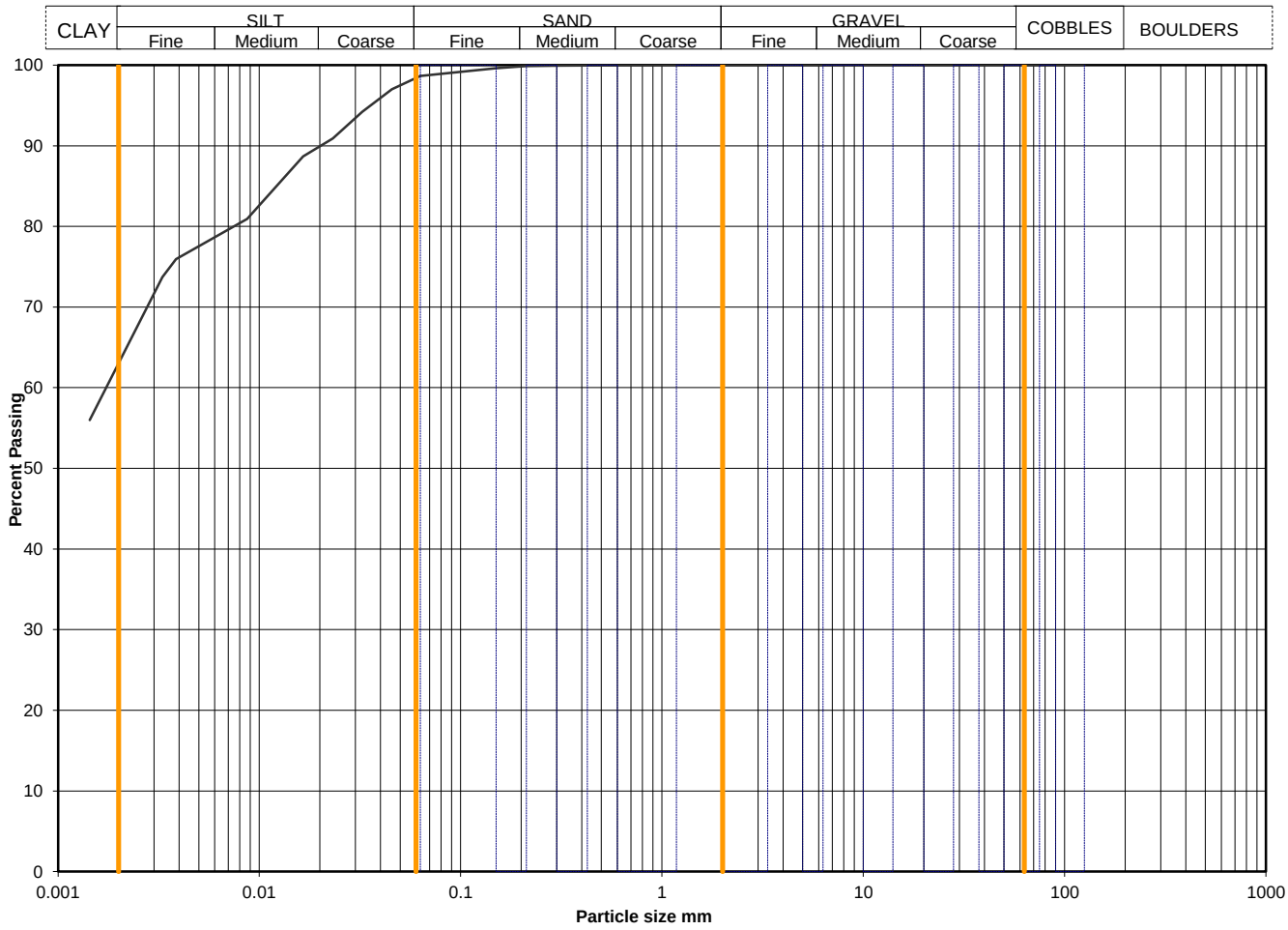
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020093716

Hole No	STBH02
Sample Depth (m BGL)	4.00 - 4.50
Sample Type and No	B18
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	99
90	100	0.0456	97
75	100	0.0325	94
63	100	0.0232	91
50	100	0.0165	89
37.5	100	0.0087	81
28	100	0.0039	76
20	100	0.0033	74
14	100	0.0014	56
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	100	1.1	
0.063	99		

Soil description	Brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	1.4	1.4
*<60mm values to aid description only	Silt	35.6	35.6
	Clay	63.0	63.0

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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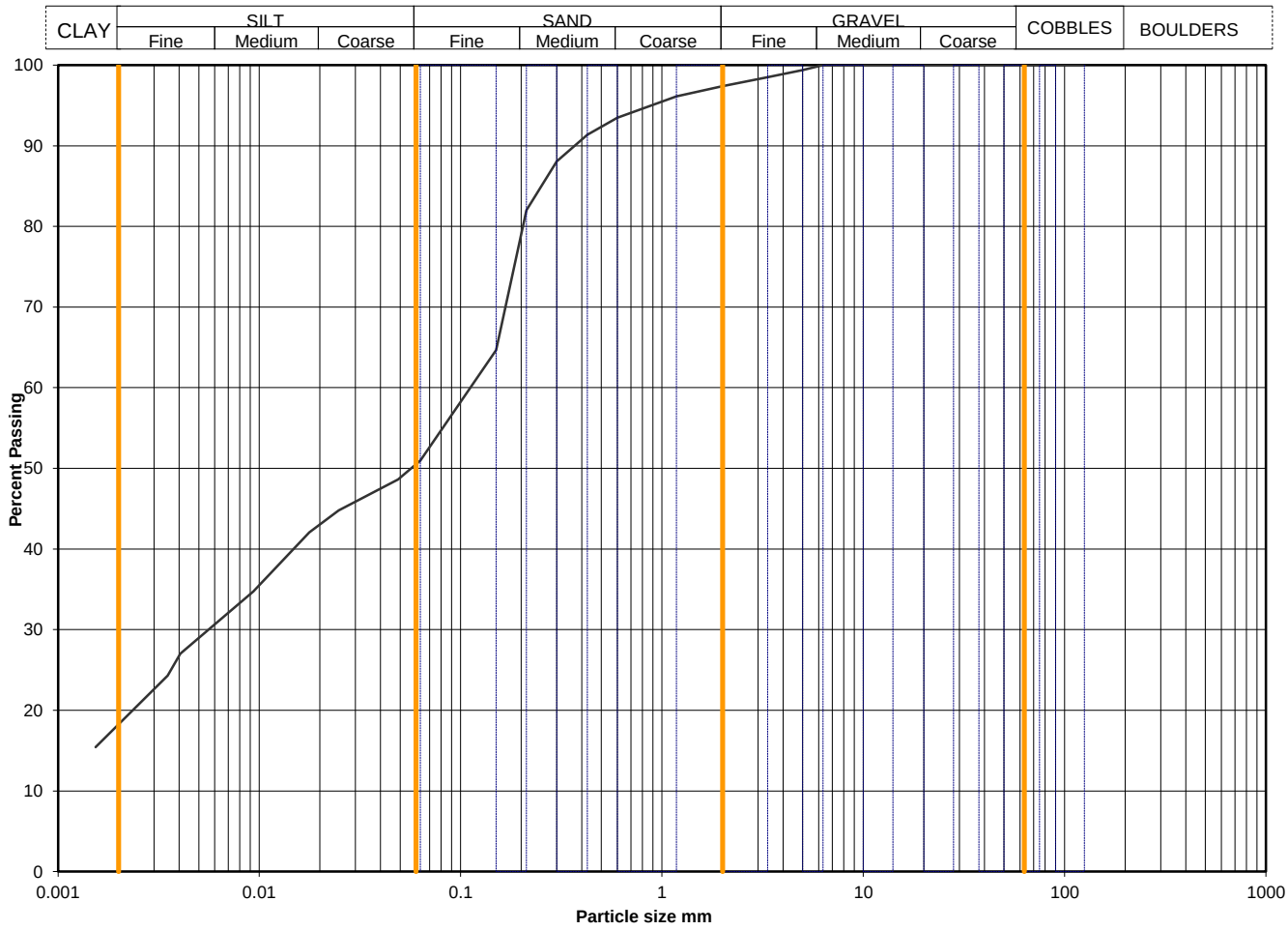
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020010159

Hole No	STBH02
Sample Depth (m BGL)	8.00 - 8.50
Sample Type and No	B30
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	51
90	100	0.0489	49
75	100	0.0348	47
63	100	0.0248	45
50	100	0.0177	42
37.5	100	0.0094	35
28	100	0.0040	27
20	100	0.0035	24
14	100	0.0015	15
10	100		
6.3	100		
5	99		
3.35	98		
2	97		
1.18	96	Particle density, Mg/m3	
0.6	93		
0.425	91	2.65 assumed	
0.3	88	Dry mass of sample, kg	
0.212	82		
0.15	65	0.9	
0.063	51		

Soil description	Brown slightly gravelly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	2.5	2.5
	Sand	46.5	46.5
*<60mm values to aid description only	Silt	32.7	32.7
	Clay	18.3	18.3

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
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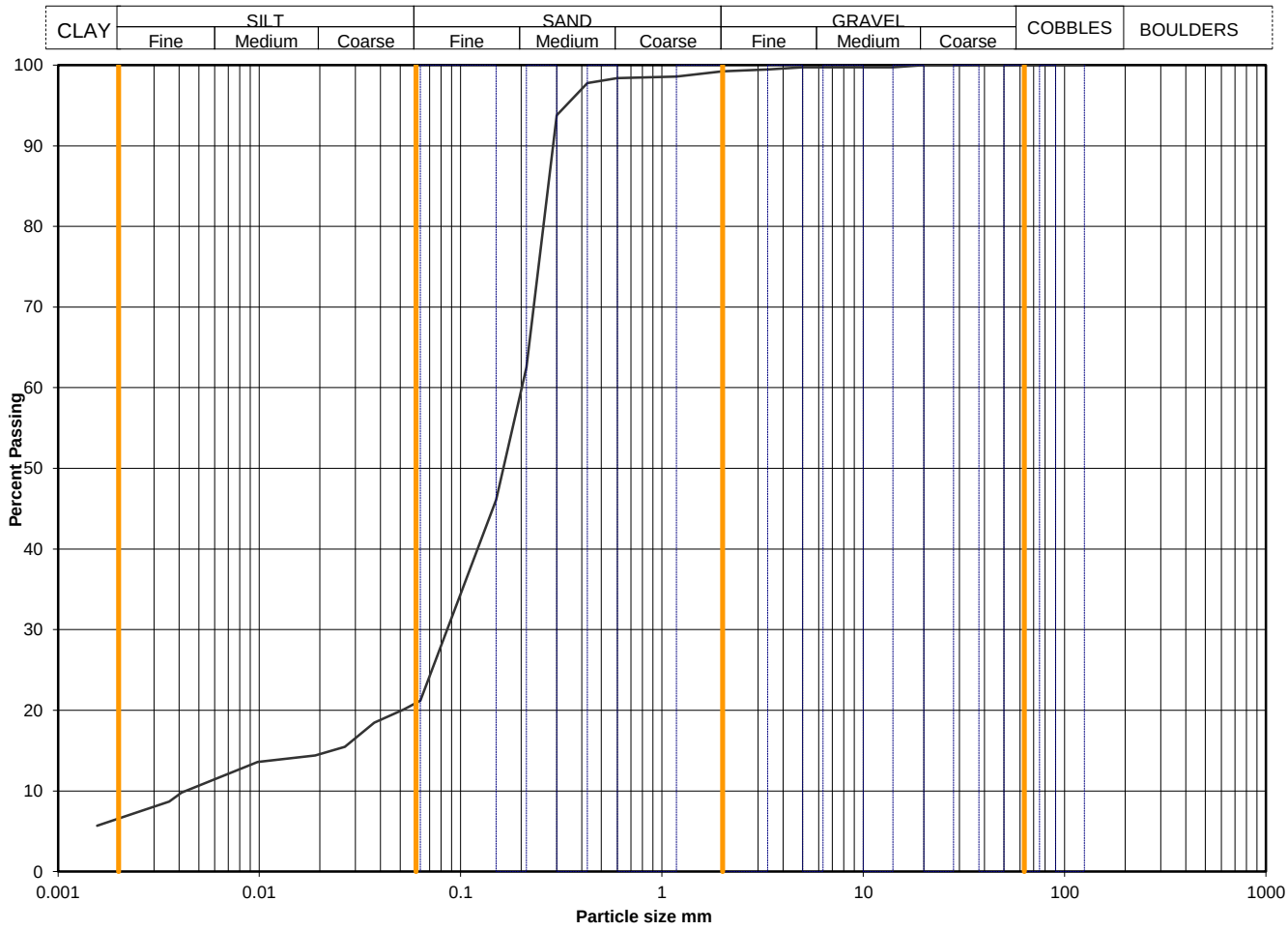
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211020010307

Hole No	STBH02
Sample Depth (m BGL)	13.00 - 13.50
Sample Type and No	B44
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	21
90	100	0.0522	20
75	100	0.0372	18
63	100	0.0266	15
50	100	0.0189	14
37.5	100	0.0098	14
28	100	0.0041	10
20	100	0.0036	9
14	100	0.0016	6
10	100		
6.3	100		
5	100		
3.35	99		
2	99		
1.18	99	Particle density, Mg/m3	
0.6	98		
0.425	98	2.65 assumed	
0.3	94	Dry mass of sample, kg	
0.212	63		
0.15	46	1.9	
0.063	21		

Soil description	Brown slightly gravelly clayey SAND.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.8	0.8
	Sand	78.0	78.0
*<60mm values to aid description only	Silt	14.6	14.6
	Clay	6.6	6.6

Uniformity Coefficient	D60 / D10	48

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
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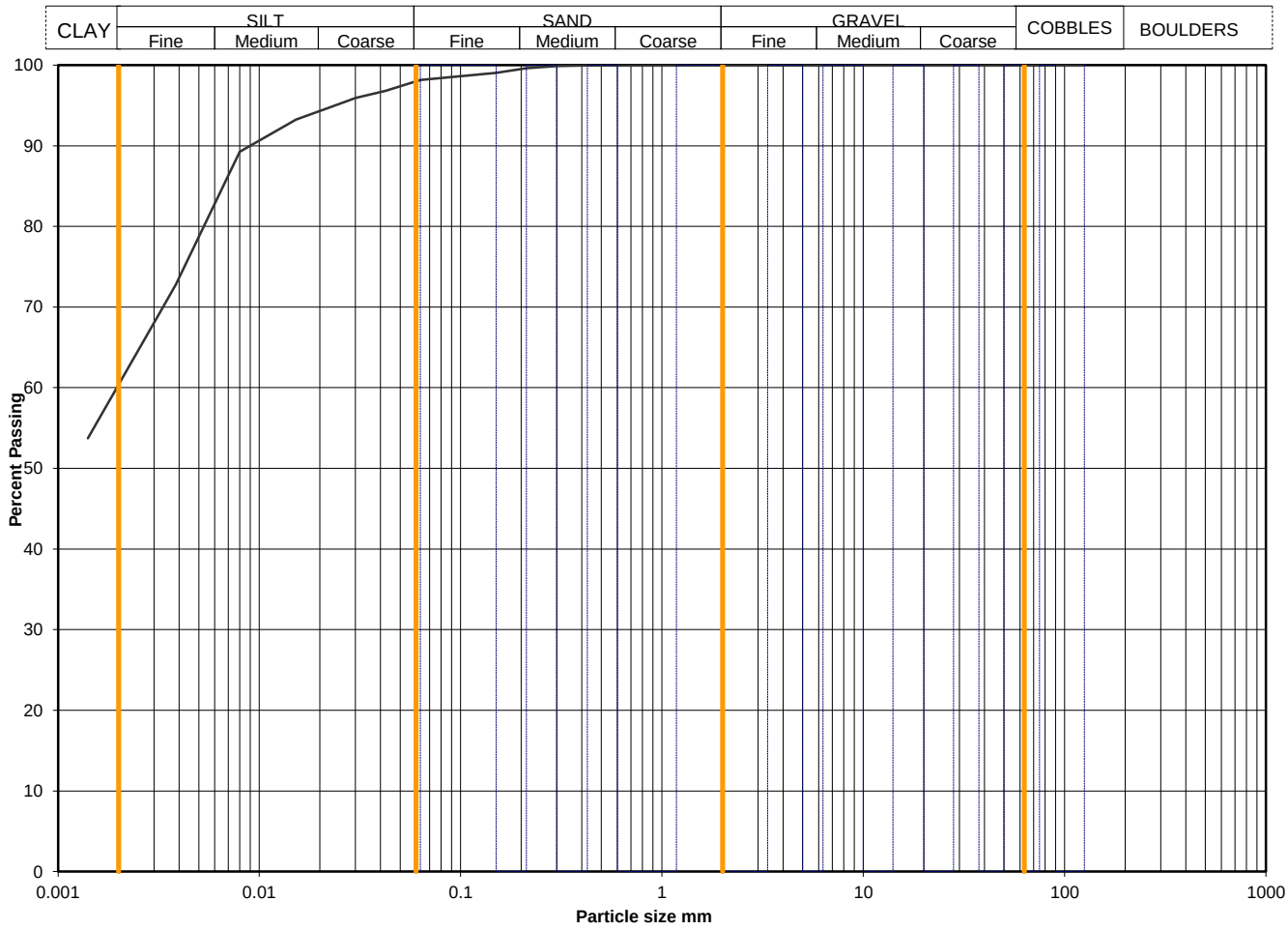
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211028094029

Hole No	STBH02
Sample Depth (m BGL)	16.00 - 16.50
Sample Type and No	B51
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	98
90	100	0.0424	97
75	100	0.0301	96
63	100	0.0214	95
50	100	0.0152	93
37.5	100	0.0080	89
28	100	0.0039	73
20	100	0.0033	70
14	100	0.0014	54
10	100		
6.3	100		
5	100		
3.35	100		
2	100		
1.18	100	Particle density, Mg/m3	
0.6	100		
0.425	100	2.65 assumed	
0.3	100	Dry mass of sample, kg	
0.212	100		
0.15	99	1.3	
0.063	98		

Soil description	Dark brown slightly sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	0.0	0.0
	Sand	1.8	1.8
*<60mm values to aid description only	Silt	37.8	37.8
	Clay	60.4	60.4

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
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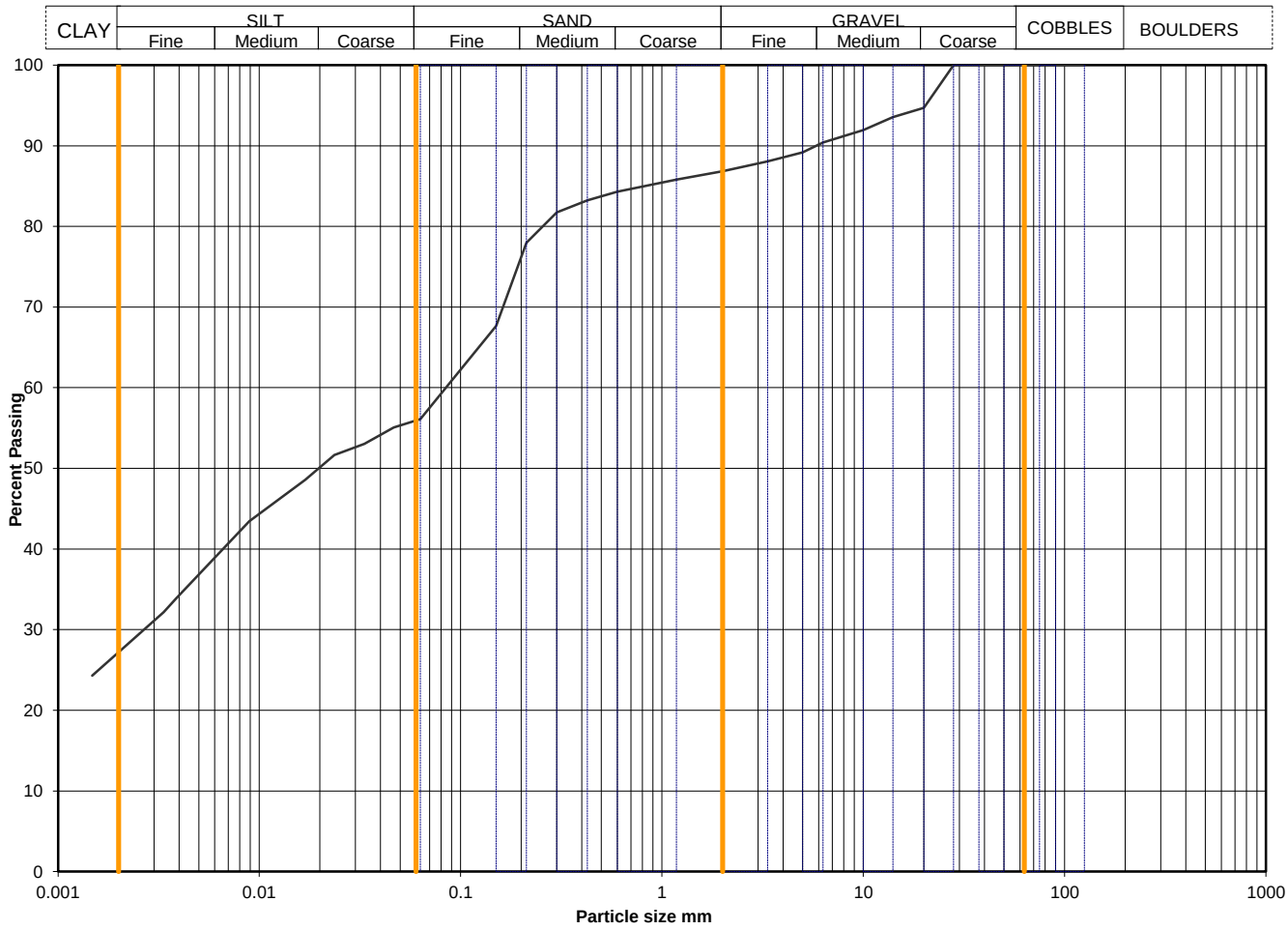
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211028094101

Hole No	STBH02
Sample Depth (m BGL)	18.00 - 18.50
Sample Type and No	B55
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	56
90	100	0.0465	55
75	100	0.0332	53
63	100	0.0236	52
50	100	0.0169	49
37.5	100	0.0089	43
28	100	0.0039	34
20	95	0.0033	32
14	94	0.0015	24
10	92		
6.3	90		
5	89		
3.35	88		
2	87		
1.18	86	Particle density, Mg/m3	
0.6	84		
0.425	83	2.65 assumed	
0.3	82	Dry mass of sample, kg	
0.212	78		
0.15	68	1.4	
0.063	56		

Soil description	Brown slightly sandy slightly gravelly CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	13.2	13.2
	Sand	30.7	30.7
*<60mm values to aid description only	Silt	28.9	28.9
	Clay	27.2	27.2

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
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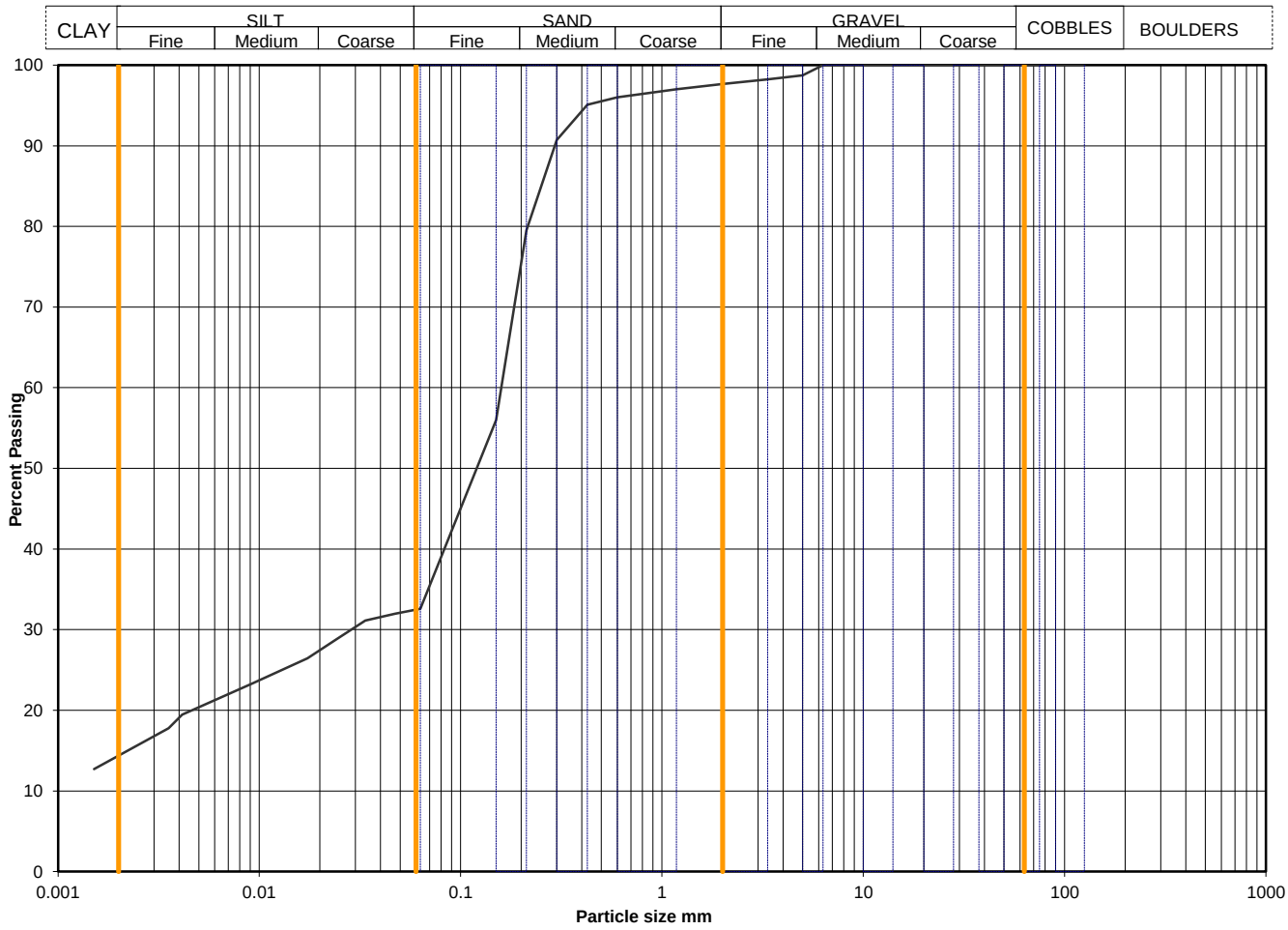
Particle Size Distribution Analysis

Sample Details:	SAMPLE ID:
	A1023-2120211028094143

Hole No	STBH02
Sample Depth (m BGL)	21.00 - 21.50
Sample Type and No	B61
Specimen Ref	



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100	0.0630	33
90	100	0.0472	32
75	100	0.0336	31
63	100	0.0241	29
50	100	0.0173	26
37.5	100	0.0091	23
28	100	0.0041	19
20	100	0.0035	18
14	100	0.0015	13
10	100		
6.3	100		
5	99		
3.35	98		
2	98		
1.18	97	Particle density, Mg/m3	
0.6	96		
0.425	95	2.65 assumed	
0.3	91	Dry mass of sample, kg	
0.212	80		
0.15	56	1.6	
0.063	33		

Soil description	Grey slightly gravelly very sandy CLAY.
Preparation / Pretreatment	Sieve: pre dried, Hydro: as BS1377
Remarks	

Sample Proportions		Whole	*<60mm
	Cobbles / boulders	0.0	0.0
	Gravel	2.4	2.4
	Sand	65.0	65.0
*<60mm values to aid description only	Silt	18.2	18.2
	Clay	14.4	14.4

Uniformity Coefficient	D60 / D10	Not applicable

Test Method	BS 1377 : Part 2 : 1990	
	Sieving	9.2 wet sieve
	Sedimentation	9.5 hydrometer

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Figure
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UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS WITHOUT MEASUREMENT OF PORE PRESSURE - SUMMARY OF RESULTS

Hole No.	Sample				Soil Description	Density		*w*	Test type	Dia.	$\acute{o}_3$	At failure / end of stage				Membrane Thickness	Remarks
	No.	Depth (m) from	Depth (m) to	type		bulk Mg/m³	dry Mg/m³	%		mm	kPa	Axial strain %	$\acute{o}_1 - \acute{o}_3$ kPa	C_u kPa	MODE	mm	
MFBH01	13	2.00	2.45	U	Firm light yellowish brown mottled reddish brown slightly sandy slightly gravelly CLAY.	1.92	1.55	24	UU	100.9	40	9	78	39	C	0.3	
MFBH02	13	2.00	2.45	U	Firm red slightly gravelly silty CLAY.	2.05	1.92	7.1	UU	102.7	40	19.9	114	57	C	0.3	
MFBH03A	13	2.00	2.45	U	Firm reddish brown slightly sandy silty CLAY.	2.1	1.46	44	UU	103.4	40	19.3	74	37	C	0.3	
OSBH01	10	2.00	2.45	U	Firm to stiff brown slightly sandy silty CLAY.	1.94	1.51	28	UU	103.3	40	5.9	153	76	B	0.3	
OSBH01	16	4.00	4.45	U	Firm to stiff greyish brown slightly sandy slightly gravelly CLAY.	2.28	1.8	27	UU	97.8	80	11.6	173	87	B	0.3	
OSBH01	22	6.00	6.45	U	Firm brown slightly sandy slightly gravelly CLAY.	2.24	1.95	15	UU	103	120	19.8	135	68	B	0.3	
OSBH01	39	12.00	12.45	U	Firm to stiff thinly laminated greyish brown slightly sandy CLAY with silt on laminae.	2.27	1.77	28	UU	103.4	240	4.9	142	71	B	0.3	
OSBH02	16	2.00	2.45	UT	Stiff thinly laminated brown slightly sandy CLAY.	2.04	1.67	23	UU	101.5	40	10.8	250	125	B	0.3	
OSBH02	22	4.00	4.45	UT	Firm brown slightly sandy silty CLAY.	2.23	1.92	16	UU	102.8	80	20.1	196	98	P	0.3	
OSBH02	29	6.00	6.45	UT	Firm greyish brown slightly sandy slightly gravelly CLAY.	2.26	1.98	15	UU	102.8	120	19.8	149	75	P	0.3	
OSBH02	35	8.00	8.45	UT	Stiff brown slightly sandy gravelly CLAY.	2.3	2.08	11	UU	103.6	160	19.7	605	302	C	0.3	
OSBH02	52	13.00	13.45	UT	Stiff brown slightly sandy silty CLAY.	1.99	1.56	28	UU	103.3	260	3	208	104	B	0.3	
OSBH02	58	15.00	15.45	UT	Soft to firm brown slightly sandy CLAY.	1.95	1.5	30	UU	103.5	300	13.3	94	47	B	0.3	
OSBH02	65	17.00	17.45	UT	Stiff brown slightly sandy gravelly CLAY.	2.29	2.06	11	UU	103.3	340	20.6	30	15	C	0.3	
OSBH03	14	3.00	3.45	U	Firm brown slightly sandy slightly gravelly silty CLAY.	1.97	1.54	28	UU	103.8	60	8.4	132	66	B	0.3	
OSBH03	26	7.50	7.95	U	Firm thinly laminated brown slightly sandy CLAY.	2.12	1.75	21	UU	103	150	20.1	149	74	C	0.3	
STBH01	14	2.00	2.45	UT	Firm to stiff thinly laminated greyish brown slightly sandy CLAY.	2.72	2.12	28	UU	91.7	40	6.4	191	96	B	0.3	
STBH01	20	4.00	4.45	UT	Firm to stiff brown silty CLAY.	1.94	1.46	33	UU	103.5	80	19.4	98	49	B	0.3	
STBH01	26	6.00	6.45	UT	Firm to stiff thinly laminated greyish brown slightly sandy CLAY.	1.96	1.48	33	UU	102.6	120	5.5	105	53	B	0.3	
STBH01	32	8.00	8.45	UT	Firm brown slightly sandy slightly gravelly CLAY.	2.23	1.92	16	UU	102.6	160	19.7	183	91	P	0.3	
STBH01	57	16.00	16.45	UT	Stiff thinly laminated greyish brown slightly sandy CLAY.	2.02	1.6	26	UU	103.3	320	12.9	277	139	B	0.3	
STBH01	63	18.00	18.45	UT	Firm greyish brown slightly sandy CLAY.	1.91	1.48	28	UU	103.2	360	15.9	81	40	C	0.3	

General notes: Tests carried out in accordance with BS1377: Part 7: 1990, clause 8 for single stage, clause 9 for multistage tests. Specimens nominally 2:1 height diameter ratio and tested at a rate of strain of 2%/minute, unless annotated otherwise. Latex rubber membrane used and membrane correction applied in accordance with BS1377-7 8.5.1.4 unless stated. Tested from base depth and in a vertical orientation unless stated otherwise.

Legend

UU - single stage test (may be in sets of specimens)	$\acute{o}_3$	cell pressure	Mode of failure	P	plastic
UUM - multistage test on a single specimen	$\acute{o}_1 - \acute{o}_3$	deviator stress		B	brittle
suffix R - remoulded or recompacted	c_u	undrained shear strength		C	compound

QA Ref SLR 2 Rev 2.8 Apr 19

UKAS TESTING 0001

SOCOTEC

Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure **UUSUM**

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UNCONSOLIDATED UNDRAINED TRIAXIAL COMPRESSION TESTS WITHOUT MEASUREMENT OF PORE PRESSURE - SUMMARY OF RESULTS

Hole No.	Sample				Soil Description	Density		*w*	Test type	Dia.	$\acute{o}_3$	At failure / end of stage				Membrane Thickness	Remarks
	No.	Depth (m) from	Depth (m) to	type		bulk Mg/m³	dry Mg/m³	%		mm	kPa	Axial strain %	$\acute{o}_1 - \acute{o}_3$ kPa	C_u kPa	MODE	mm	
STBH01	69	20.00	20.45	UT	Firm thinly laminated greyish brown slightly sandy CLAY.	1.94	1.49	30	UU	103.4	400	19.9	135	67	P	0.3	
STBH02	11	2.00	2.45	U	Firm brown slightly sandy silty CLAY.	1.95	1.48	31	UU	101.7	40	8.4	122	61	B	0.3	
STBH02	17	4.00	4.45	U	Firm to stiff thinly laminated greyish brown slightly sandy CLAY.	1.94	1.46	33	UU	103.3	80	6.4	102	51	B	0.3	
STBH02	23	6.00	6.45	U	Firm to stiff thinly laminated greyish brown slightly sandy slightly gravelly CLAY.	1.89	1.41	34	UU	103	120	19.5	96	48	C	0.3	

General notes: Tests carried out in accordance with BS1377: Part 7: 1990, clause 8 for single stage, clause 9 for multistage tests. Specimens nominally 2:1 height diameter ratio and tested at a rate of strain of 2%/minute, unless annotated otherwise. Latex rubber membrane used and membrane correction applied in accordance with BS1377-7 8.5.1.4 unless stated. Tested from base depth and in a vertical orientation unless stated otherwise.

Legend

UU - single stage test (may be in sets of specimens)	$\acute{o}_3$	cell pressure	Mode of failure	P	plastic
UUM - multistage test on a single specimen	$\acute{o}_1 - \acute{o}_3$	deviator stress		B	brittle
suffix R - remoulded or recompacted	c_u	undrained shear strength		C	compound

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SOCOTEC

Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure **UUSUM**

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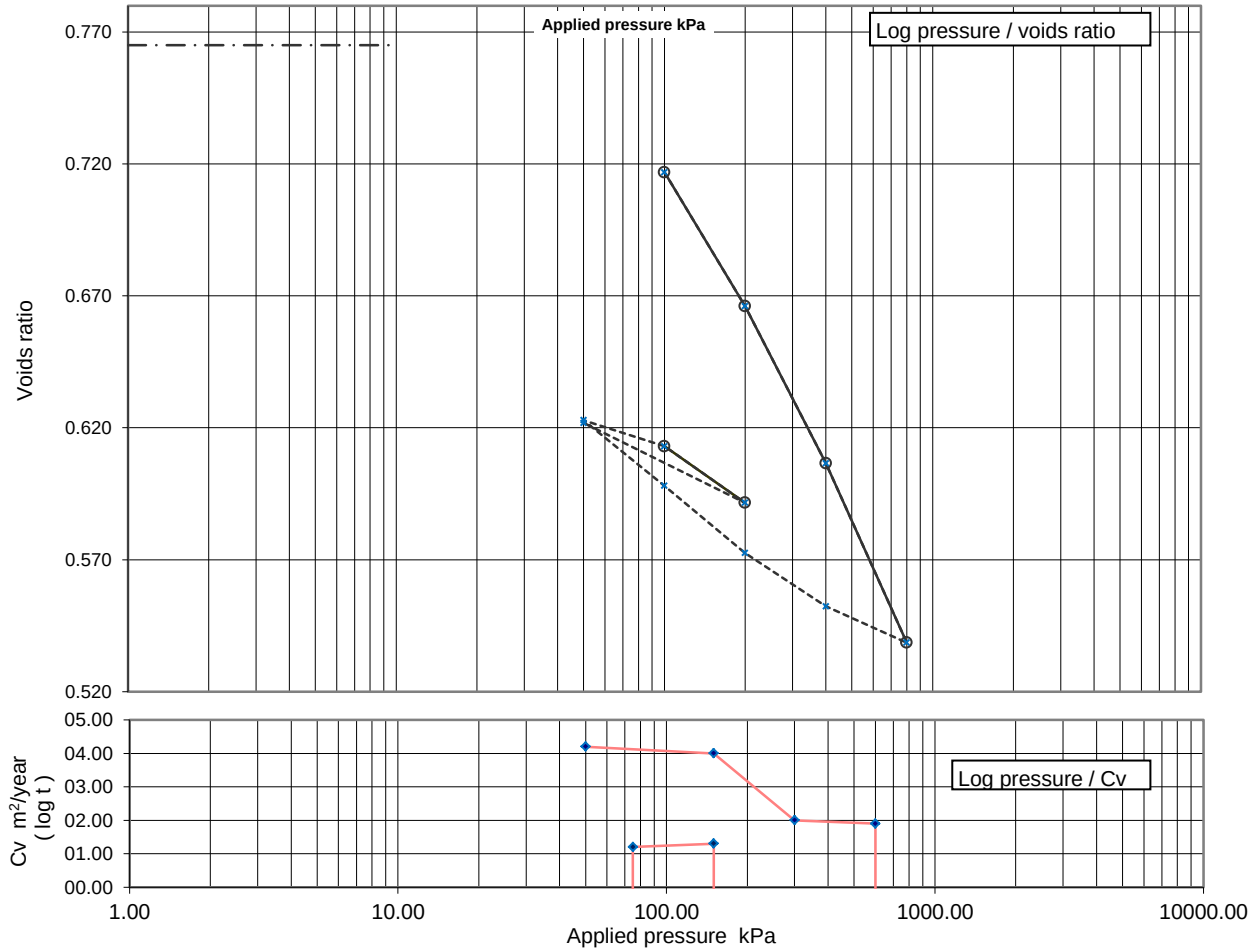
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211011035319

Hole No	MFBH01
Sample Depth (m BGL)	2.00 - 2.45
Sample Type and No	U13
Specimen Ref	



Soil description	Firm light yellowish brown mottled reddish brown slightly sandy slightly gravelly CLAY.
Preparation	Undisturbed
Index properties	Liquid limit % / Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m3
Diameter	74.97		mm
Height	18.95	17.41	mm
Voids ratio	0.765	0.622	
Moisture content	28	25	%
Bulk density	1.92	2.04	Mg/m3
Dry density	1.50	1.63	Mg/m3
Saturation	98	105	%
Average temperature for test	20		oC

Swelling pressure	not measured	kPa

Notes :

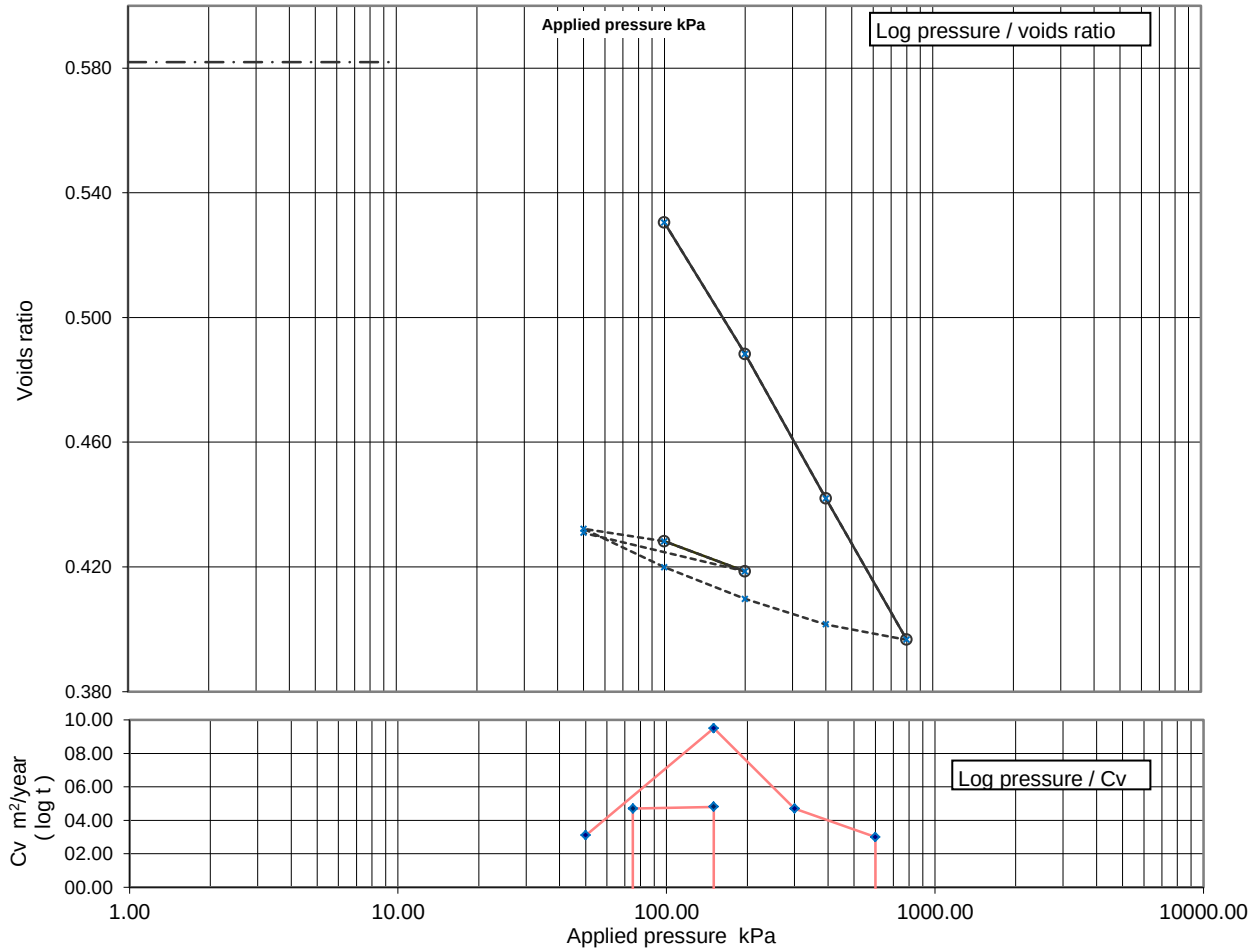
Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.7651				
100	0.7168	0.270	4.2	4.2	
200	0.6661	0.300	4	4.2	
400	0.6066	0.180	2	2.1	
800	0.5386	0.110	1.9	2	
400	0.5523	0.022	-	-	
200	0.5726	0.065	-	-	
100	0.5980	0.160	-	-	
50	0.6229	0.310	-	-	
100	0.6130	0.120	1.2	1.4	
200	0.5916	0.130	1.3	1.4	
50	0.6218	0.130	-	-	

Specimen taken 60 mm from base of sample

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211011042220

Hole No	MFBH02
Sample Depth (m BGL)	2.00 - 2.45
Sample Type and No	U13
Specimen Ref	



Soil description	Firm red slightly gravelly silty CLAY.
Preparation	Undisturbed
Index properties	Liquid limit % / Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m3
Diameter	74.77		mm
Height	18.85	17.05	mm
Voids ratio	0.582	0.431	
Moisture content	21	17	%
Bulk density	2.02	2.17	Mg/m3
Dry density	1.68	1.85	Mg/m3
Saturation	94	105	%
Average temperature for test	20		oC

Swelling pressure	not measured	kPa

Notes :

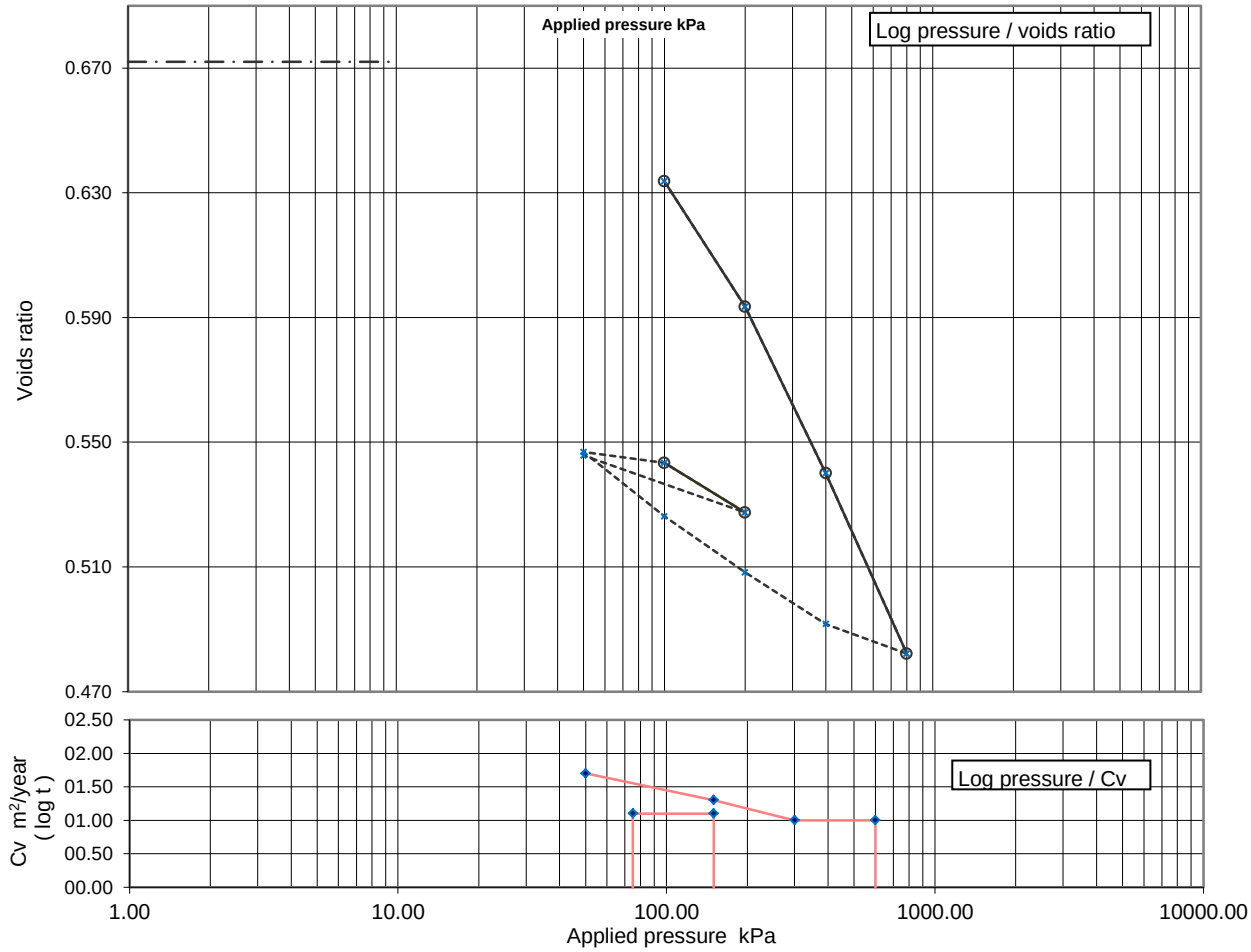
Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.5819				
100	0.5304	0.330	3.1	3.2	
200	0.4883	0.280	9.5	10	
400	0.4419	0.160	4.7	5.2	
800	0.3966	0.079	3	3.2	
400	0.4016	0.009	-	-	
200	0.4097	0.029	-	-	
100	0.4199	0.072	-	-	
50	0.4322	0.170	-	-	
100	0.4282	0.056	4.7	4.9	
200	0.4185	0.068	4.8	5.3	
50	0.4309	0.058	-	-	

Specimen taken 50 mm from base of sample

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211011043518

Hole No	MFBH03A
Sample Depth (m BGL)	2.00 - 2.45
Sample Type and No	U13
Specimen Ref	



Soil description: Firm reddish brown slightly sandy silty CLAY.

Preparation: Undisturbed

Index properties: Liquid limit % | Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.72	assumed	Mg/m3
Diameter	75.12		mm
Height	20.13	18.61	mm
Voids ratio	0.672	0.546	
Moisture content	25	21	%
Bulk density	2.03	2.13	Mg/m3
Dry density	1.63	1.76	Mg/m3
Saturation	100	105	%
Average temperature for test	20		oC

Swelling pressure: not measured kPa

Notes :

Specimen taken 40 mm from base of sample

Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.6720				
100	0.6336	0.230	1.7	1.7	
200	0.5934	0.250	1.3	1.4	
400	0.5400	0.170	1	1.1	
800	0.4822	0.094	1	1.1	
400	0.4916	0.016	-	-	
200	0.5083	0.056	-	-	
100	0.5262	0.120	-	-	
50	0.5468	0.270	-	-	
100	0.5433	0.045	1.1	1.2	
200	0.5275	0.100	1.1	1.1	
50	0.5457	0.080	-	-	

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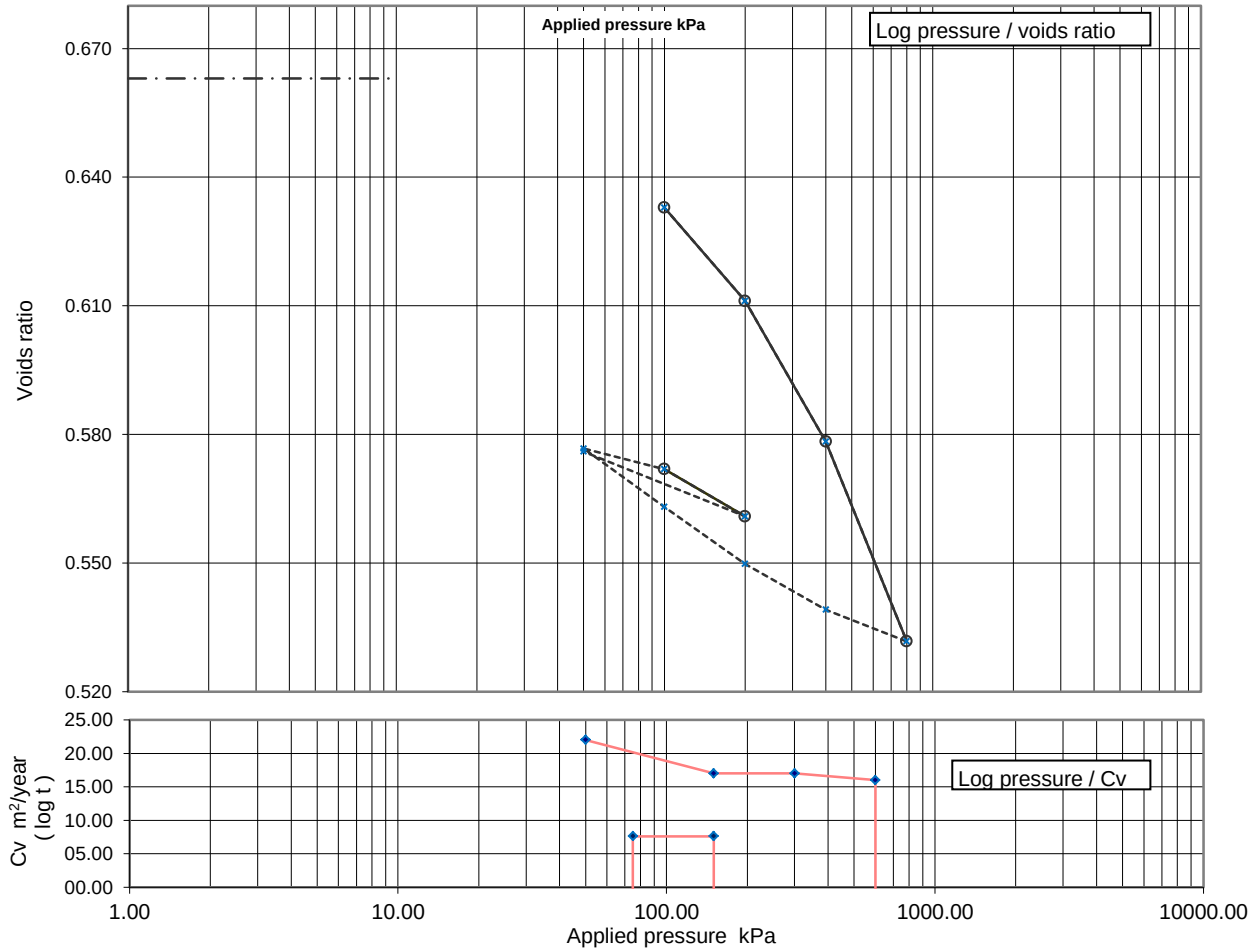
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211014021412

Hole No	OSBH01
Sample Depth (m BGL)	2.00 - 2.45
Sample Type and No	U10
Specimen Ref	



Soil description: Firm to stiff brown slightly sandy silty CLAY.

Preparation: Undisturbed

Index properties: Liquid limit % | Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m3
Diameter	74.86		mm
Height	18.89	17.90	mm
Voids ratio	0.663	0.576	
Moisture content	24	23	%
Bulk density	1.97	2.07	Mg/m3
Dry density	1.59	1.68	Mg/m3
Saturation	94	105	%
Average temperature for test	20		oC

Swelling pressure: not measured kPa

Notes :

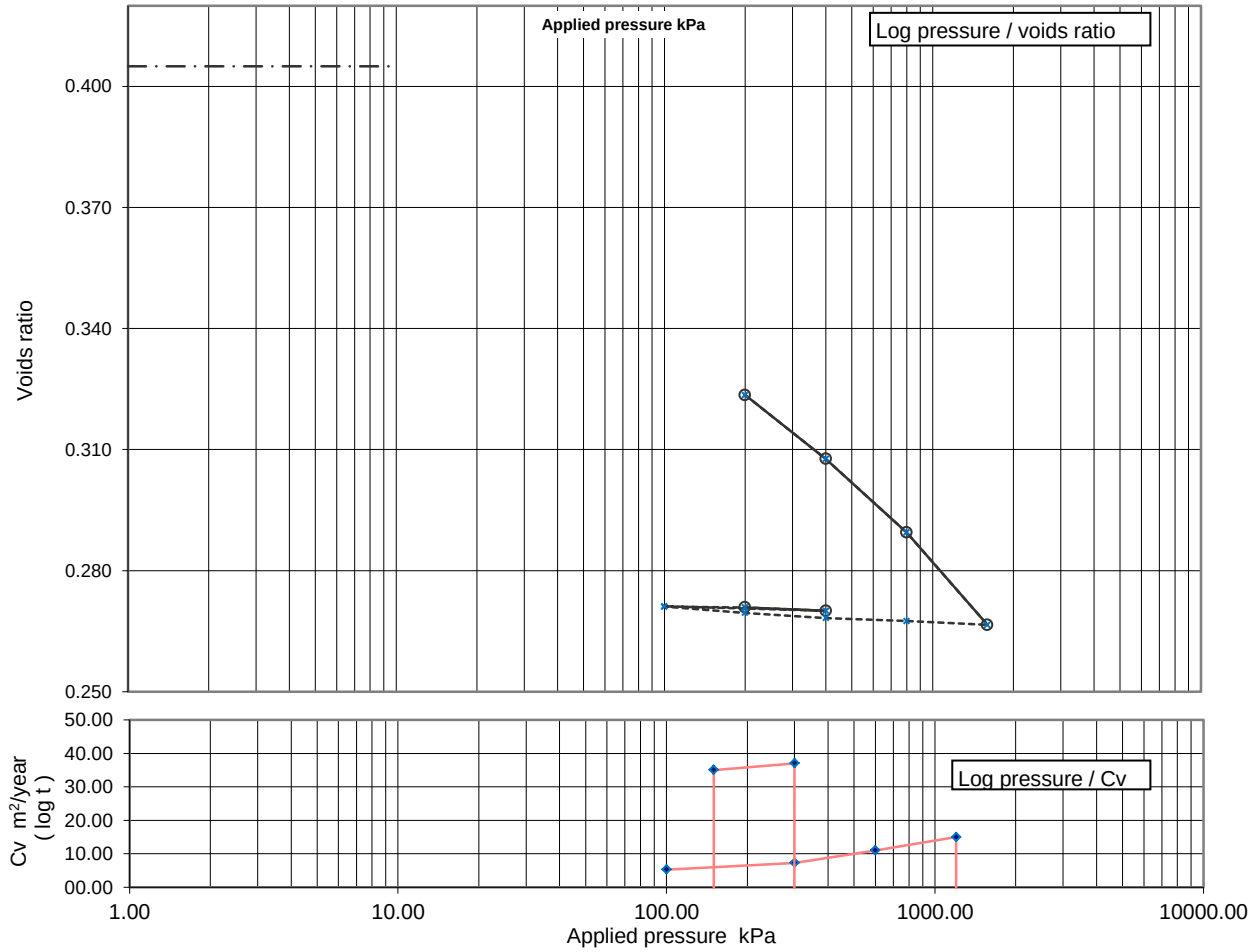
Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.6630				
100	0.6329	0.180	22	23	
200	0.6111	0.130	17	18	
400	0.5783	0.100	17	18	
800	0.5317	0.074	16	17	
400	0.5391	0.012	-	-	
200	0.5498	0.035	-	-	
100	0.5631	0.086	-	-	
50	0.5767	0.170	-	-	
100	0.5719	0.061	7.6	7.9	
200	0.5609	0.070	7.6	7.8	
50	0.5760	0.065	-	-	

Specimen taken 50 mm from base of sample

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211014015102

Hole No	OSBH02
Sample Depth (m BGL)	4.00 - 4.45
Sample Type and No	UT22
Specimen Ref	



Soil description: Firm brown slightly sandy silty CLAY.

Preparation: Undisturbed

Index properties: Liquid limit % | Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.72	assumed	Mg/m3
Diameter	74.95		mm
Height	18.90	17.10	mm
Voids ratio	0.405	0.271	
Moisture content	15	10	%
Bulk density	2.22	2.36	Mg/m3
Dry density	1.94	2.14	Mg/m3
Saturation	100	105	%
Average temperature for test	20		oC

Swelling pressure: not measured kPa

Notes :

Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.4050				
200	0.3235	0.290	5.3	5.6	
400	0.3077	0.060	7.3	7.6	
800	0.2894	0.035	11	12	
1600	0.2665	0.022	15	17	
800	0.2675	0.001	-	-	
400	0.2682	0.002	-	-	
200	0.2695	0.005	-	-	
100	0.2711	0.012	-	-	
200	0.2708	0.002	35	39	
400	0.2700	0.003	37	47	
100	0.2711	0.003	-	-	

Specimen taken 10 mm from base of sample

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Feb 19

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Figure
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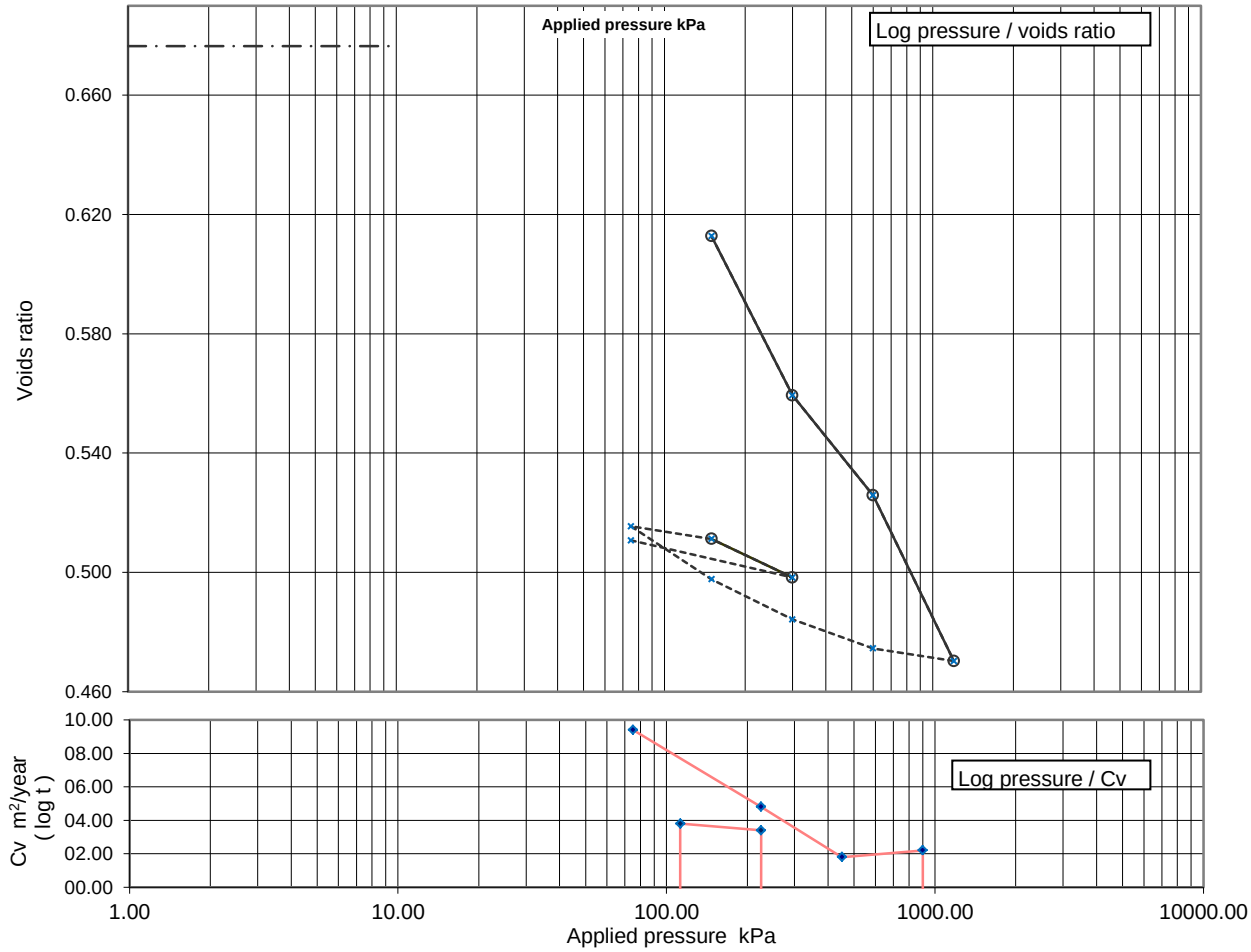
ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211014022915

Hole No	OSBH03
Sample Depth (m BGL)	3.00 - 3.45
Sample Type and No	U14
Specimen Ref	



Soil description: Firm brown slightly sandy slightly gravelly silty CLAY.

Preparation: Undisturbed

Index properties: Liquid limit % | Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.65	assumed	Mg/m3
Diameter	75.00		mm
Height	18.59	16.75	mm
Voids ratio	0.676	0.511	
Moisture content	23	20	%
Bulk density	1.95	2.11	Mg/m3
Dry density	1.58	1.75	Mg/m3
Saturation	92	105	%
Average temperature for test	20		oC

Swelling pressure: not measured kPa

Notes :

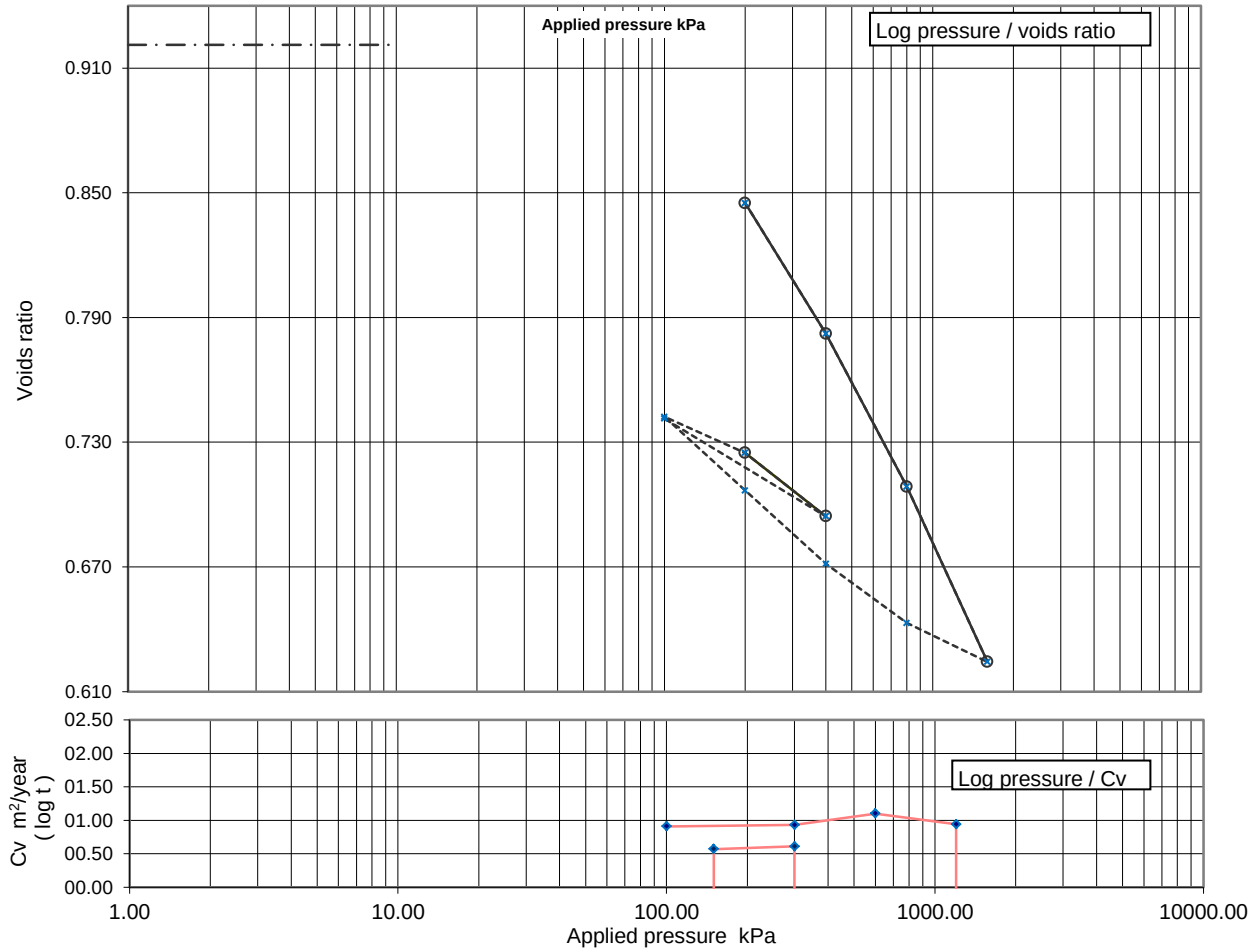
Specimen taken 110 mm from base of sample

Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.6765				
150	0.6127	0.250	9.4	10	
300	0.5593	0.220	4.8	5.1	
600	0.5258	0.072	1.8	2	
1200	0.4702	0.061	2.2	2.4	
600	0.4745	0.005	-	-	
300	0.4842	0.022	-	-	
150	0.4976	0.060	-	-	
75	0.5154	0.160	-	-	
150	0.5112	0.037	3.8	3.7	
300	0.4983	0.057	3.4	16	
75	0.5107	0.037	-	-	

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211020125457

Hole No	STBH01
Sample Depth (m BGL)	4.00 - 4.45
Sample Type and No	UT20
Specimen Ref	



Soil description	Firm to stiff brown silty CLAY.
Preparation	Undisturbed
Index properties	Liquid limit % / Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.72	assumed	Mg/m3
Diameter	74.98		mm
Height	19.12	17.33	mm
Voids ratio	0.921	0.741	
Moisture content	34	29	%
Bulk density	1.90	2.01	Mg/m3
Dry density	1.42	1.56	Mg/m3
Saturation	100	105	%
Average temperature for test	20		oC

Swelling pressure	not measured	kPa

Notes :

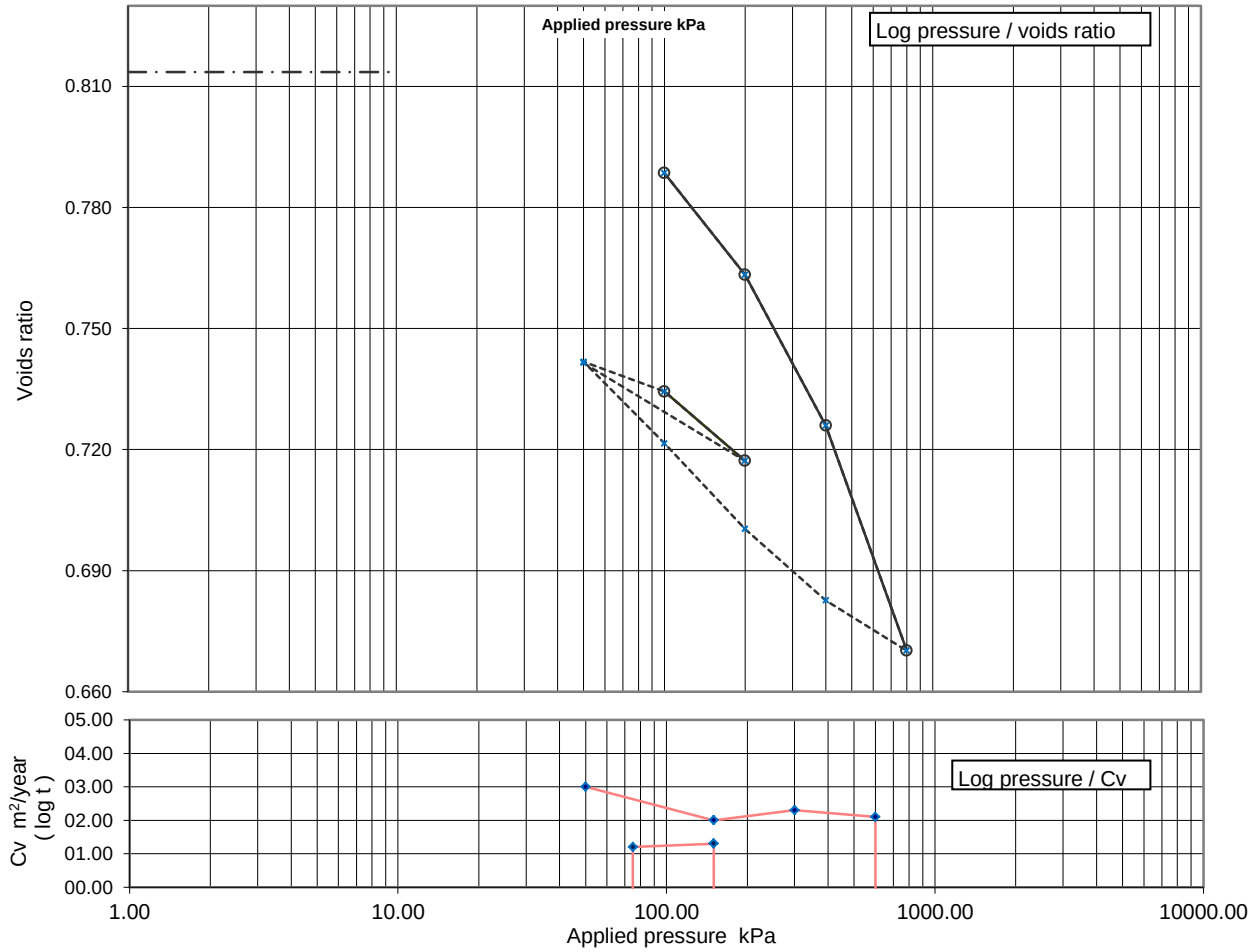
Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.9211				
200	0.8450	0.200	0.91	0.99	
400	0.7822	0.170	0.93	0.99	
800	0.7087	0.100	1.1	1.2	
1600	0.6243	0.062	0.94	1	
800	0.6430	0.014	-	-	
400	0.6715	0.043	-	-	
200	0.7068	0.110	-	-	
100	0.7422	0.210	-	-	
200	0.7248	0.100	0.57	0.61	
400	0.6944	0.088	0.61	0.65	
100	0.7413	0.092	-	-	

Specimen taken 40 mm from base of sample

ONE DIMENSIONAL CONSOLIDATION TEST
BS 1377 : Part 5 : 1990 : clause 3

Sample Details:	SAMPLE ID:
	A1023-2120211020093629

Hole No	STBH02
Sample Depth (m BGL)	2.00 - 2.45
Sample Type and No	U11
Specimen Ref	



Soil description	Firm brown slightly sandy silty CLAY.
Preparation	Undisturbed
Index properties	Liquid limit % / Plastic limit %

(if available)

Specimen details	Initial	Final	
Particle density	2.72	assumed	Mg/m3
Diameter	74.98		mm
Height	18.89	18.14	mm
Voids ratio	0.814	0.741	
Moisture content	30	29	%
Bulk density	1.95	2.01	Mg/m3
Dry density	1.50	1.56	Mg/m3
Saturation	100	105	%
Average temperature for test	20		oC

Swelling pressure: not measured kPa

Notes :

Applied Pressure kPa	Voids ratio	mv m2/MN	cv (t50, log) m2/year	cv (t90, root) m2/year	
0	0.8136				
100	0.7885	0.140	3	3.3	
200	0.7633	0.140	2	2.1	
400	0.7259	0.110	2.3	2.5	
800	0.6701	0.081	2.1	2.2	
400	0.6826	0.019	-	-	
200	0.7003	0.052	-	-	
100	0.7215	0.120	-	-	
50	0.7418	0.240	-	-	
100	0.7344	0.085	1.2	1.3	
200	0.7172	0.099	1.3	1.4	
50	0.7415	0.094	-	-	

Specimen taken 40 mm from base of sample

Shear Strength by Pilcon Hand method - Summary of Results

Hole No.	Sample				Spec ref	Soil Description	Undrained shear strength kPa	Residual shear strength kPa	Remarks
	No.	Depth (m)		type					
		from	to						
STBH02	29	8.00	8.45	U		Firm brown gravelly CLAY.	83		Taken from base

Notes : 1 Tests carried out in accordance with Manufacturers Instructions

QA Ref
SLR Lvane
Rev 2.1
Sep 17

SOCOTEC

Project No A1023-21

Project Name SCHEME 33754 YORKSHIRE GREEN

Figure

HV

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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	OSBH01	
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	10.00 - 10.50	
			Sample No	35	Type B
			ID		
			Spec Ref		

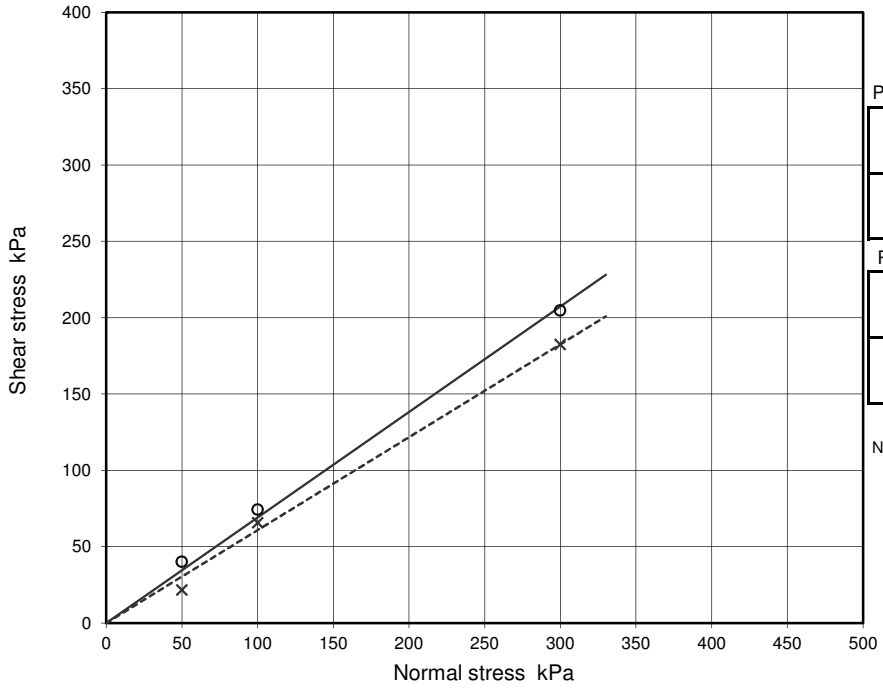
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	26.3	26.3	26.3			
	Bulk Density	Mg/m^3	2.02	2.02	2.02			
	Water Content	%	16.7	16.8	16.8			
	Dry density	Mg/m^3	1.73	1.73	1.73			
	Voids ratio		0.532	0.532	0.533			
	Degree of Saturation	%	83	84	84			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.090	-0.174	-0.422			
	Voids ratio after consolidation		0.526	0.522	0.508			
Shear see note 1	Voids ratio at end of test		0.533	0.499	0.420			
	Moisture content at end of test	%	18.2	18.8	15.8			
	Saturation at end of test	%	91	100	100			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.30	2.25	2.25			
	Shear stress	kPa	40.0	74.2	204.7			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	24.00	30.00	9.00			
	Shear stress	kPa	21.5	65.6	182.5			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	(7.7)	0.0
Ø '	degrees	(33½)	34½

Residual strength, (x)

c'_R	kPa	(-4.1)	0.0
$Ø'_R$	degrees	(32)	31½

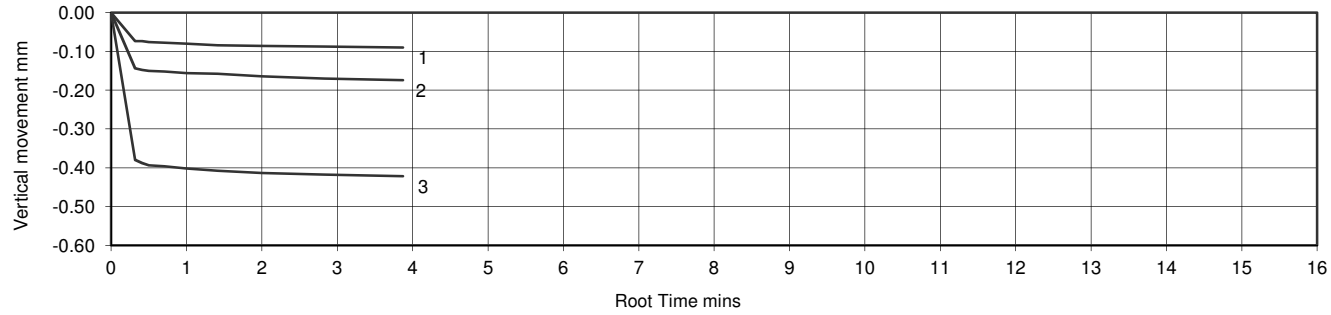
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

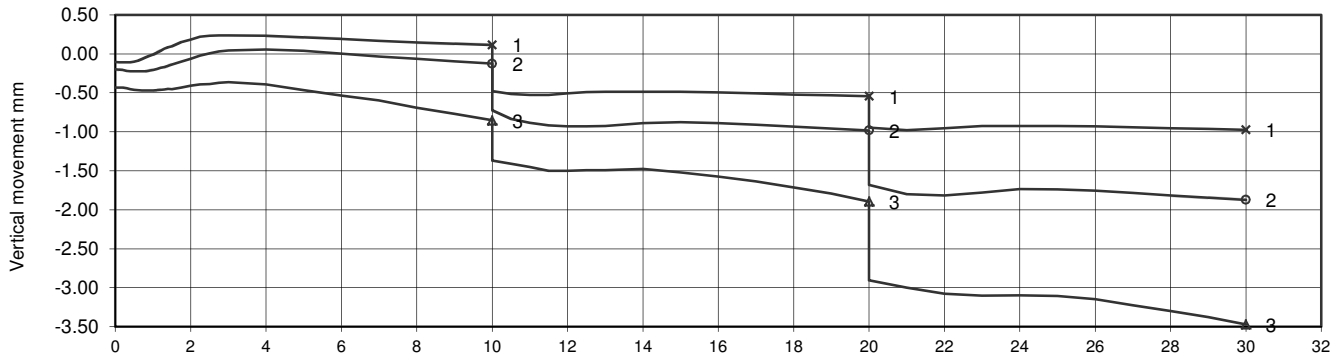
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

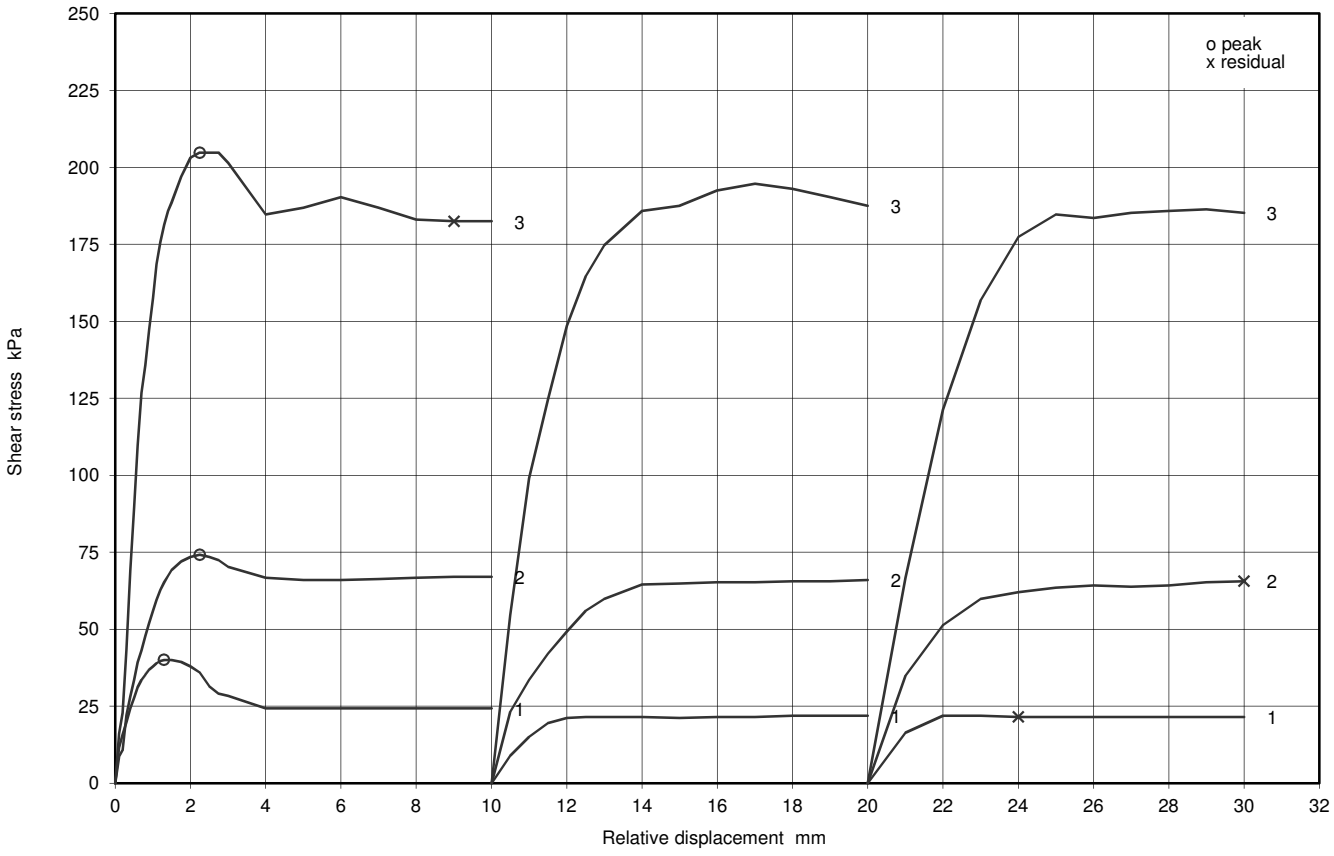
Project No	A1023-21	Sample Details:	Hole No.	OSBH01		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	10.00 - 10.50		
			Sample No	35	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





Ref			Figure
SLR7.4 Rev 86.1 Feb18	SOCOTEC UKAS TESTING 0001	Printed:23/12/2021 10:32	**SSB** sheet 2 of 2

Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	OSBH02	
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	11.00 - 11.50	
			Sample No	46	Type B
			ID		
			Spec Ref		

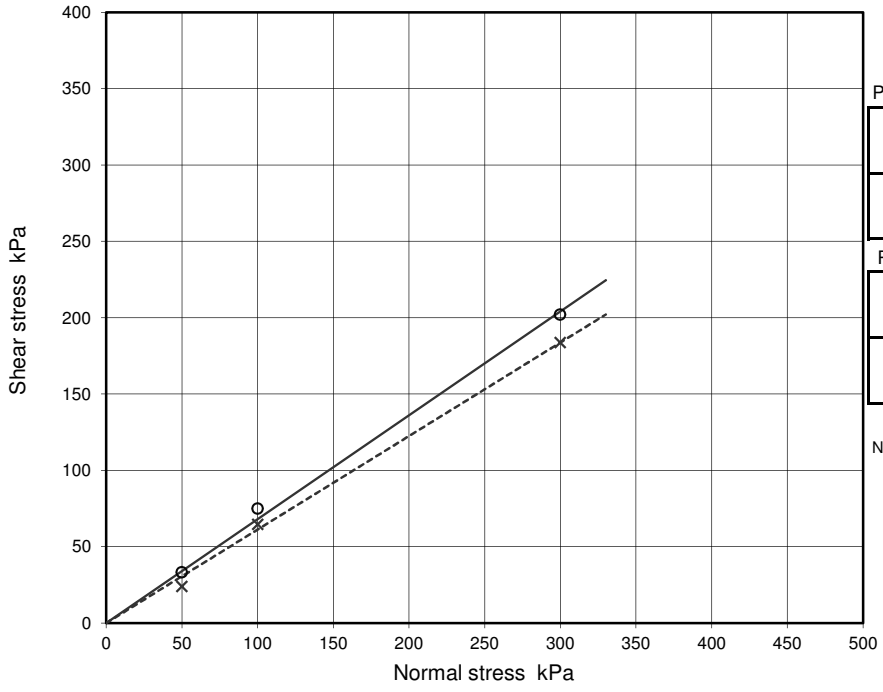
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	27.2	27.2	27.2			
	Bulk Density	Mg/m^3	2.01	2.01	2.01			
	Water Content	%	20.1	19.5	20.1			
	Dry density	Mg/m^3	1.67	1.68	1.68			
	Voids ratio		0.582	0.574	0.582			
	Degree of Saturation	%	92	90	92			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.298	-0.400	-0.768			
	Voids ratio after consolidation		0.565	0.551	0.537			
Shear see note 1	Voids ratio at end of test		0.562	0.523	0.500			
	Moisture content at end of test	%	18.3	18.7	17.6			
	Saturation at end of test	%	86	95	93			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.75	2.75	2.75			
	Shear stress	kPa	33.2	74.9	202.0			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	18.00	27.00	29.00			
	Shear stress	kPa	23.9	64.5	183.6			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	(3.8)	0.0
Ø '	degrees	(33½)	34

Residual strength, (x)			
c'_R	kPa	(-3.3)	0.0
$Ø'_R$	degrees	(32)	31½

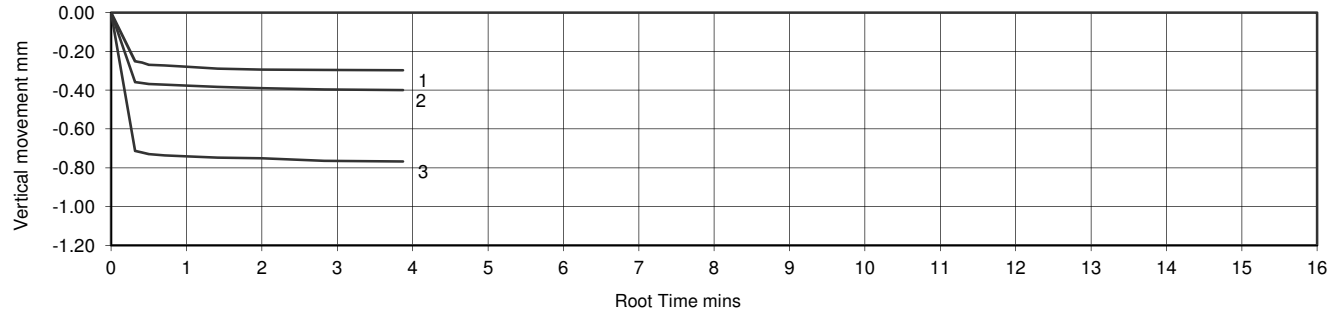
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

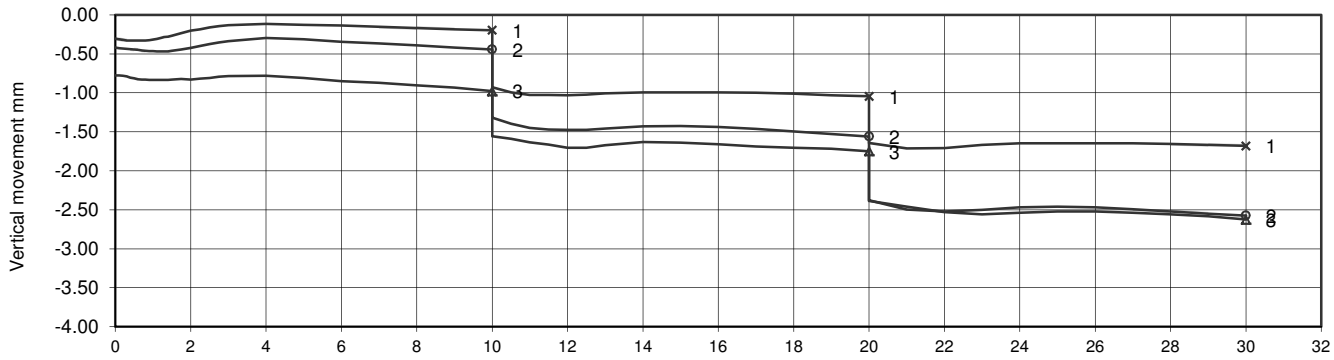
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

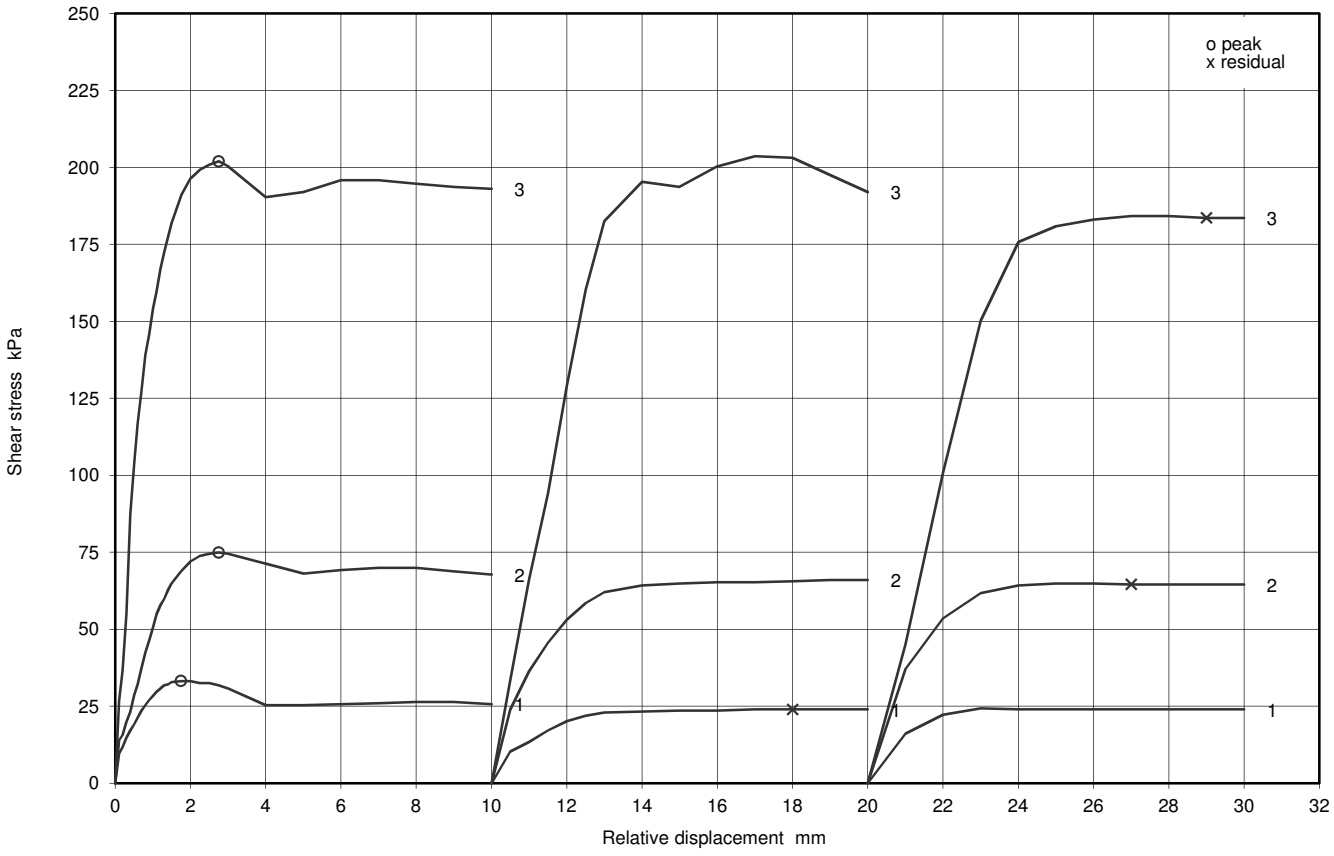
Project No	A1023-21	Sample Details:	Hole No.	OSBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	11.00 - 11.50		
			Sample No	46	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	OSBH02	
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	19.00 - 19.50	
			Sample No	73	Type B
			ID		
			Spec Ref		

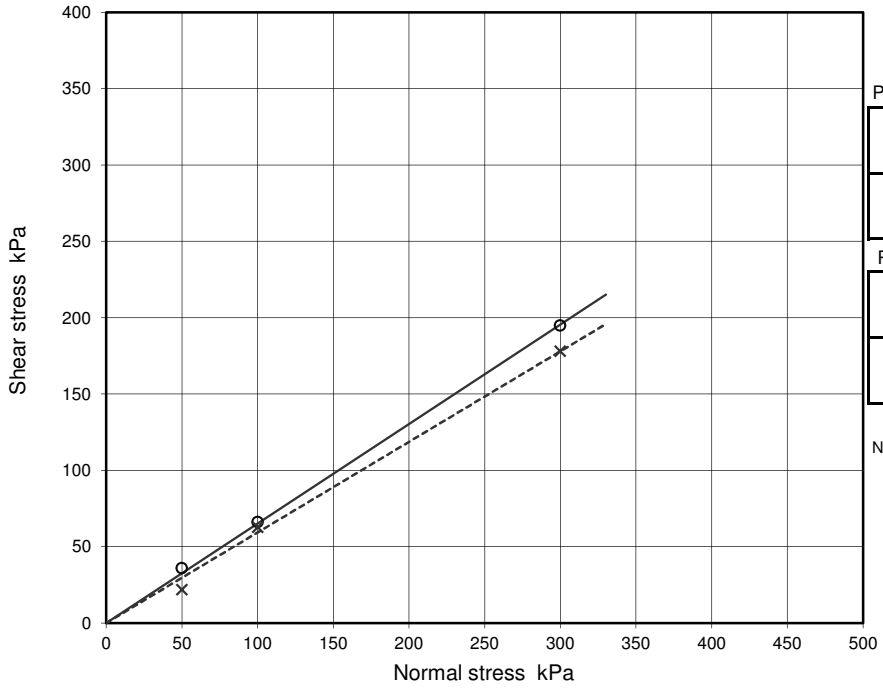
Soil Description	Brown slightly silty SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	27.3	27.3	27.3			
	Bulk Density	Mg/m^3	2.02	2.02	2.02			
	Water Content	%	17.9	19.5	18.1			
	Dry density	Mg/m^3	1.71	1.69	1.71			
	Voids ratio		0.548	0.569	0.550			
	Degree of Saturation	%	87	91	87			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.266	-0.578	-0.792			
	Voids ratio after consolidation		0.533	0.535	0.505			
Shear see note 1	Voids ratio at end of test		0.523	0.488	0.445			
	Moisture content at end of test	%	17.4	18.2	16.8			
	Saturation at end of test	%	88	99	100			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.75	3.00	2.75			
	Shear stress	kPa	35.9	66.0	194.7			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	28.00	30.00	30.00			
	Shear stress	kPa	21.9	62.8	178.0			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	(3.2)	0.0
Ø '	degrees	(32½)	33

Residual strength, (x)			
c'_R	kPa	(-4.1)	0.0
$Ø'_R$	degrees	(31½)	30½

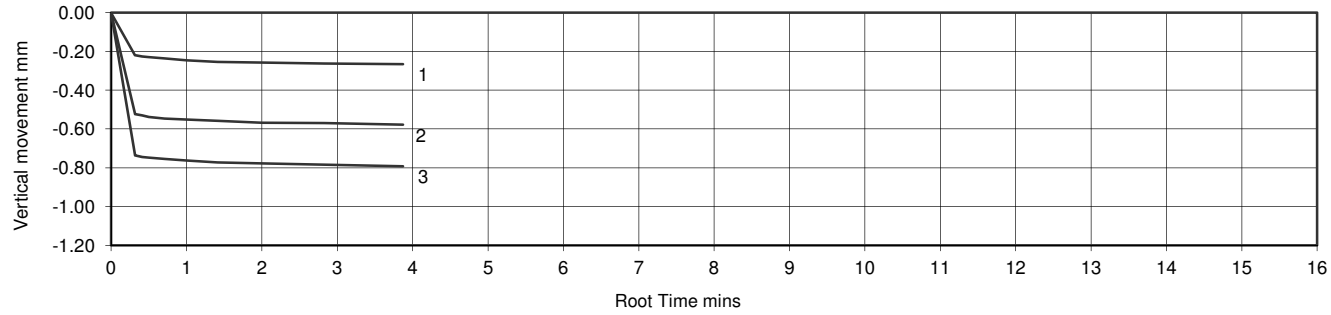
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

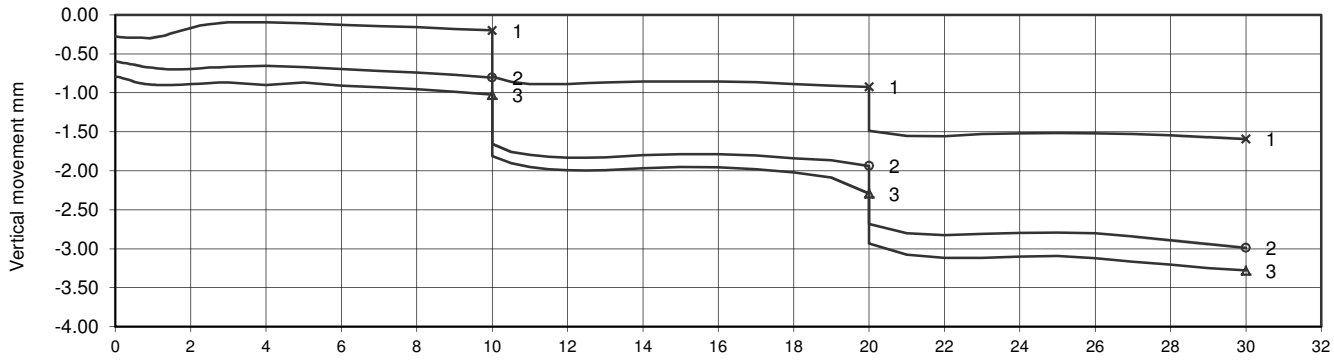
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

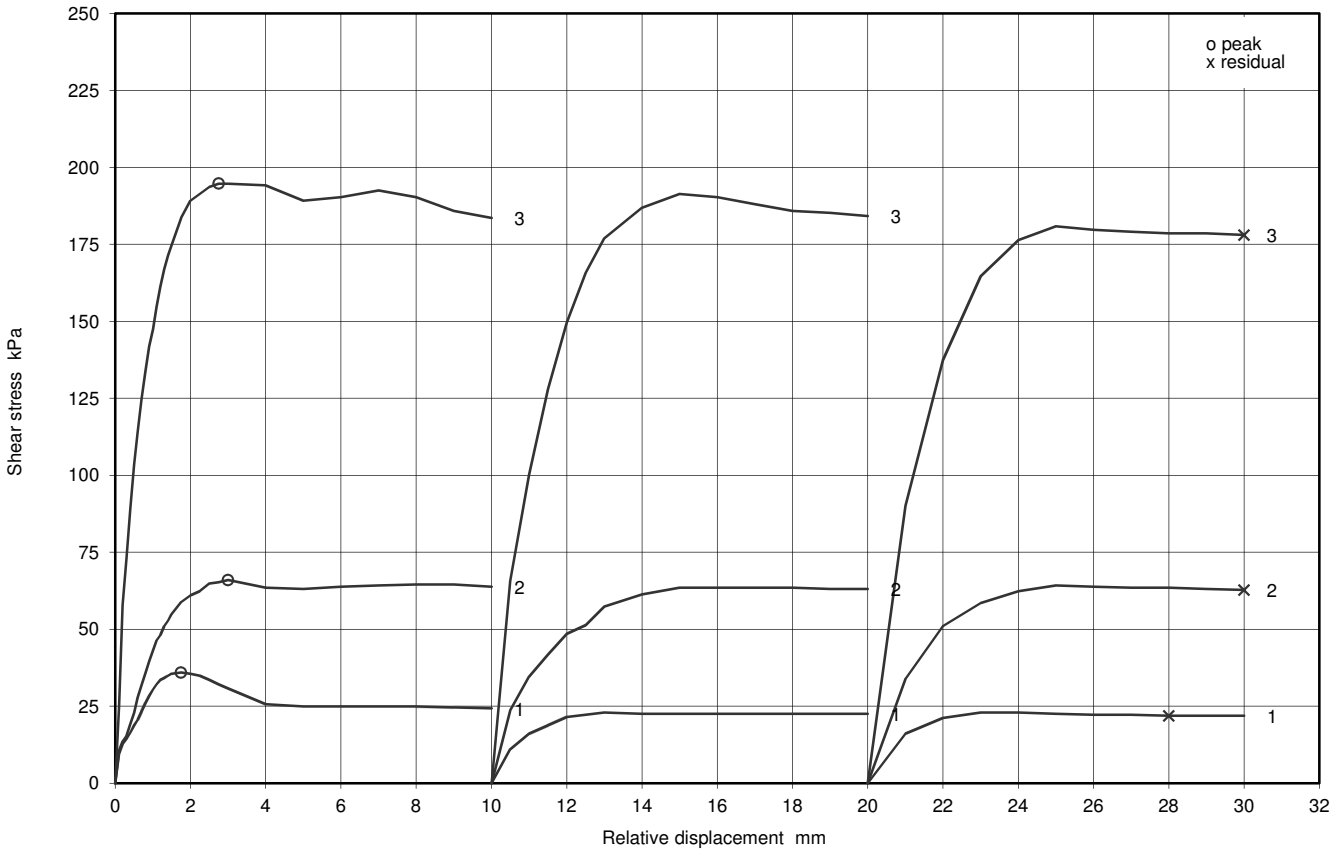
Project No	A1023-21	Sample Details:	Hole No.	OSBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	19.00 - 19.50		
			Sample No	73	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.		STBH01	
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)		11.00 - 11.50	
			Sample No	43	Type	B
			ID			
			Spec Ref			

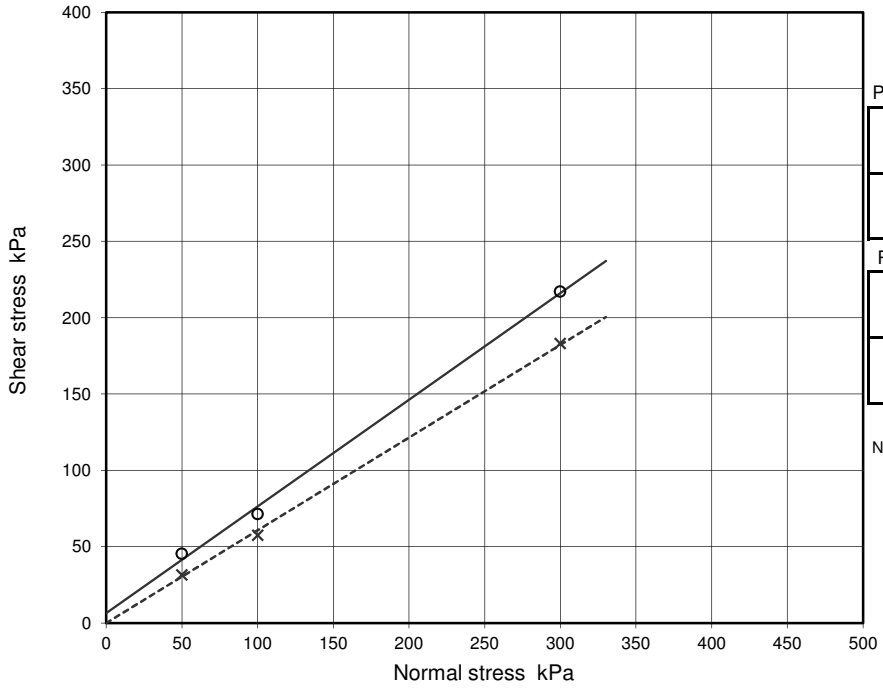
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	27.2	27.2	27.2			
	Bulk Density	Mg/m^3	2.00	2.00	2.00			
	Water Content	%	19.6	19.4	19.6			
	Dry density	Mg/m^3	1.67	1.67	1.67			
	Voids ratio		0.585	0.583	0.586			
	Degree of Saturation	%	89	88	89			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.286	-0.518	-0.712			
	Voids ratio after consolidation		0.569	0.552	0.544			
Shear see note 1	Voids ratio at end of test		0.564	0.547	0.498			
	Moisture content at end of test	%	17.5	17.4	16.7			
	Saturation at end of test	%	82	84	89			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	2.25	2.25	2.50			
	Shear stress	kPa	45.4	71.4	217.1			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	28.00	26.00	30.00			
	Shear stress	kPa	31.4	57.5	183.0			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	6.5	-
Ø '	degrees	35	-

Residual strength, (x)			
c'_R	kPa	(-1.3)	0.0
$Ø'_R$	degrees	(31½)	31½

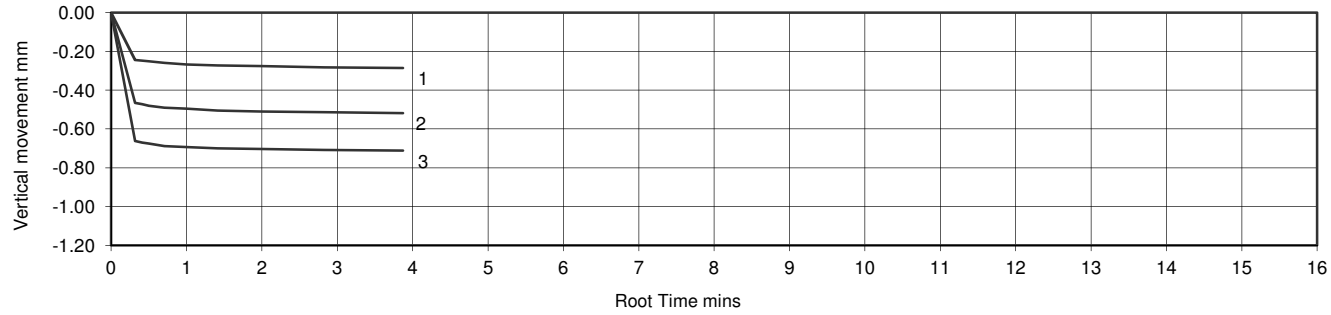
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

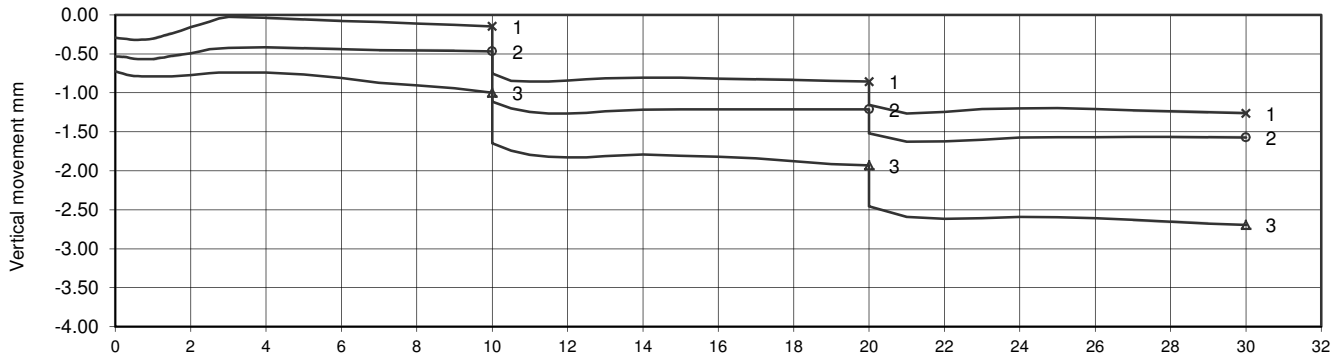
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

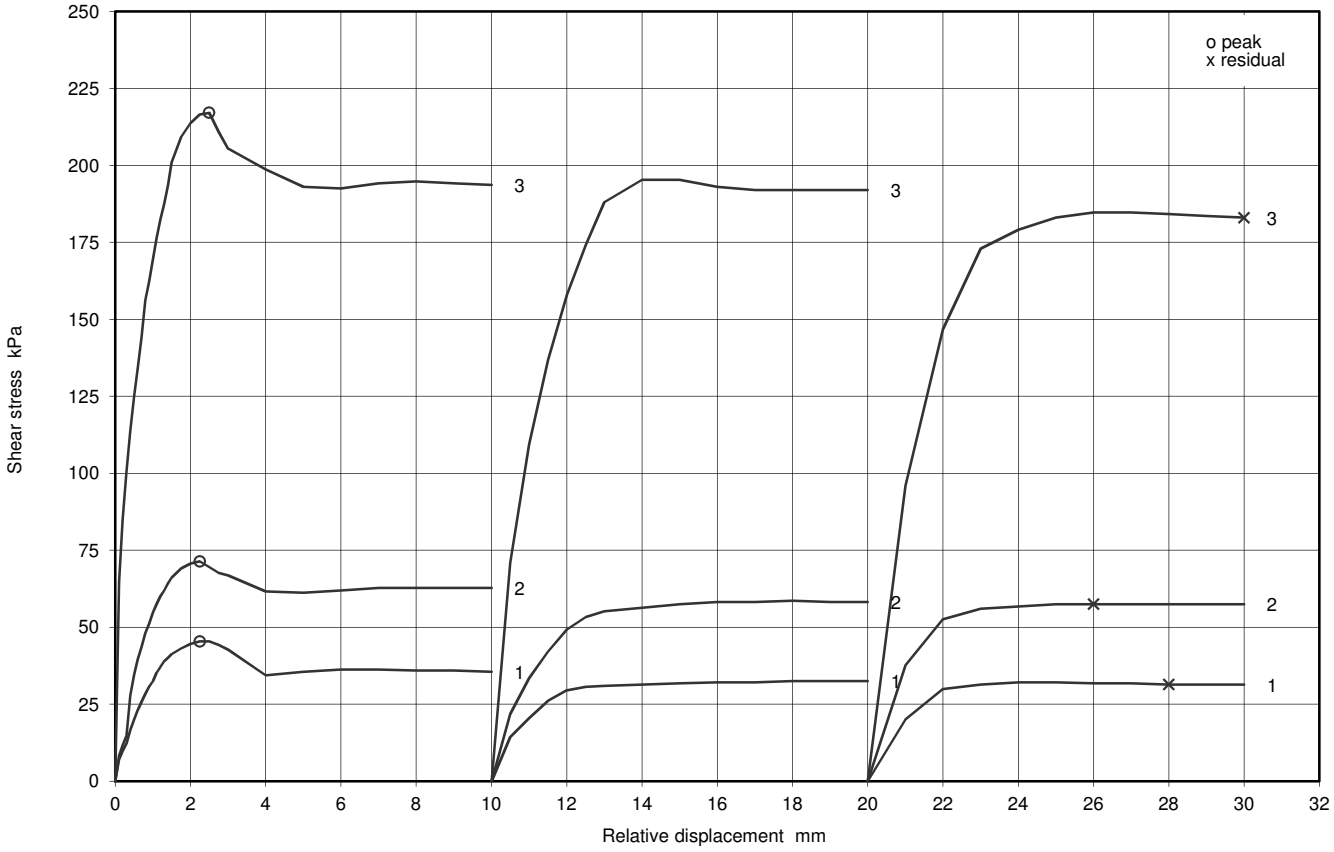
Project No	A1023-21	Sample Details:	Hole No.	STBH01		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	11.00 - 11.50		
			Sample No	43	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	STBH01		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	14.00 - 14.50		
			Sample No	52	Type	B
			ID			
			Spec Ref			

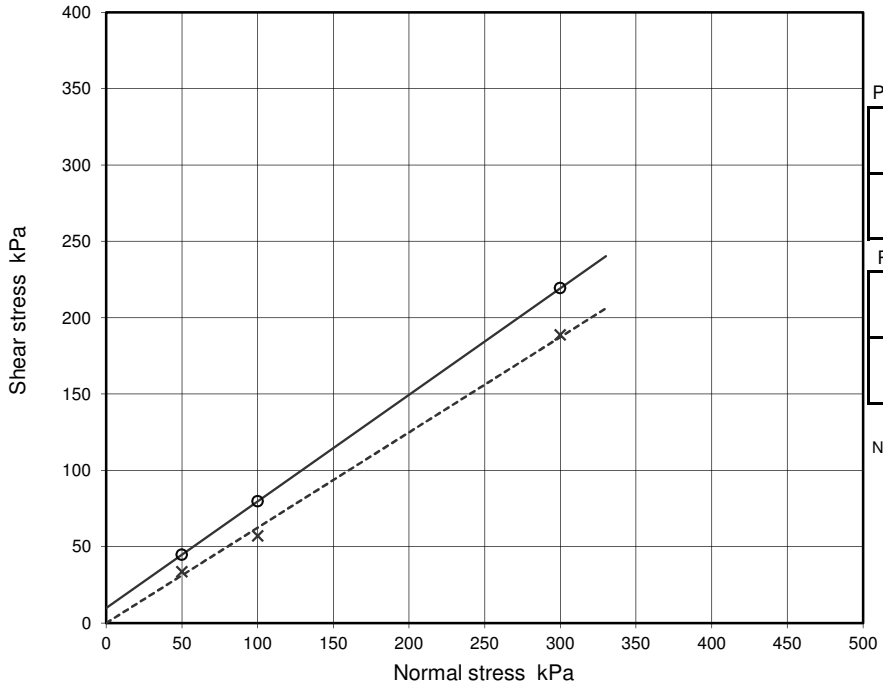
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	27.0	27.0	27.0			
	Bulk Density	Mg/m^3	2.01	2.01	2.01			
	Water Content	%	18.7	18.7	18.6			
	Dry density	Mg/m^3	1.69	1.69	1.69			
	Voids ratio		0.568	0.568	0.567			
	Degree of Saturation	%	87	87	87			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.142	-0.180	-0.486			
	Voids ratio after consolidation		0.560	0.558	0.539			
Shear see note 1	Voids ratio at end of test		0.536	0.548	0.496			
	Moisture content at end of test	%	19.3	18.5	18.5			
	Saturation at end of test	%	96	89	99			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.75	2.00	2.25			
	Shear stress	kPa	44.6	79.6	219.3			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	27.00	30.00	7.00			
	Shear stress	kPa	33.7	57.1	188.6			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	9.7	-
Ø '	degrees	35	-

Residual strength, (x)			
c'_R	kPa	(-1.5)	0.0
$Ø'_R$	degrees	(32)	32

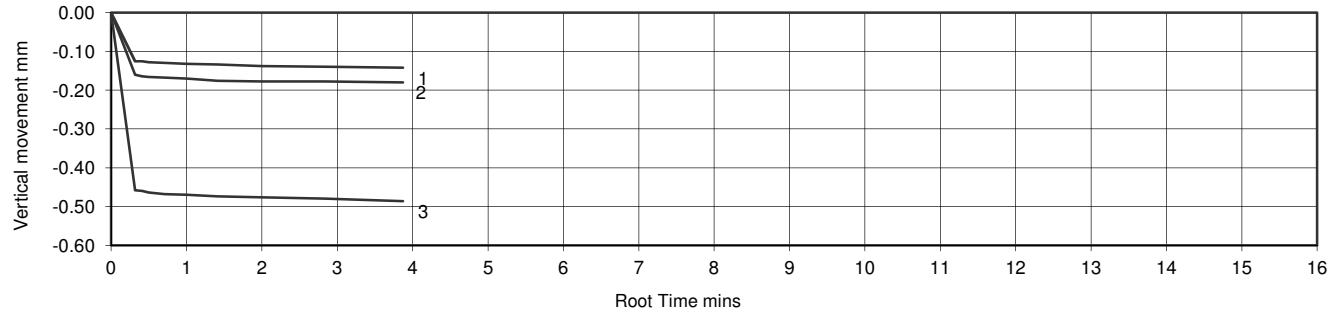
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

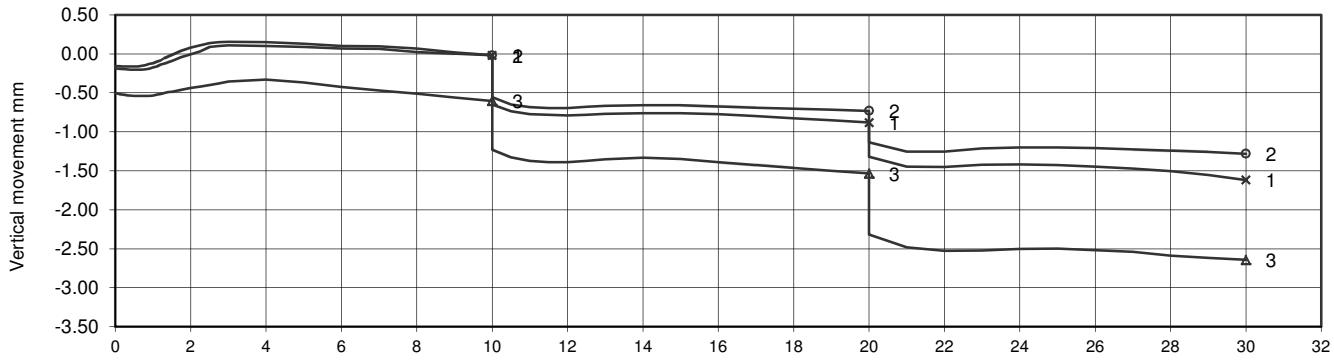
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

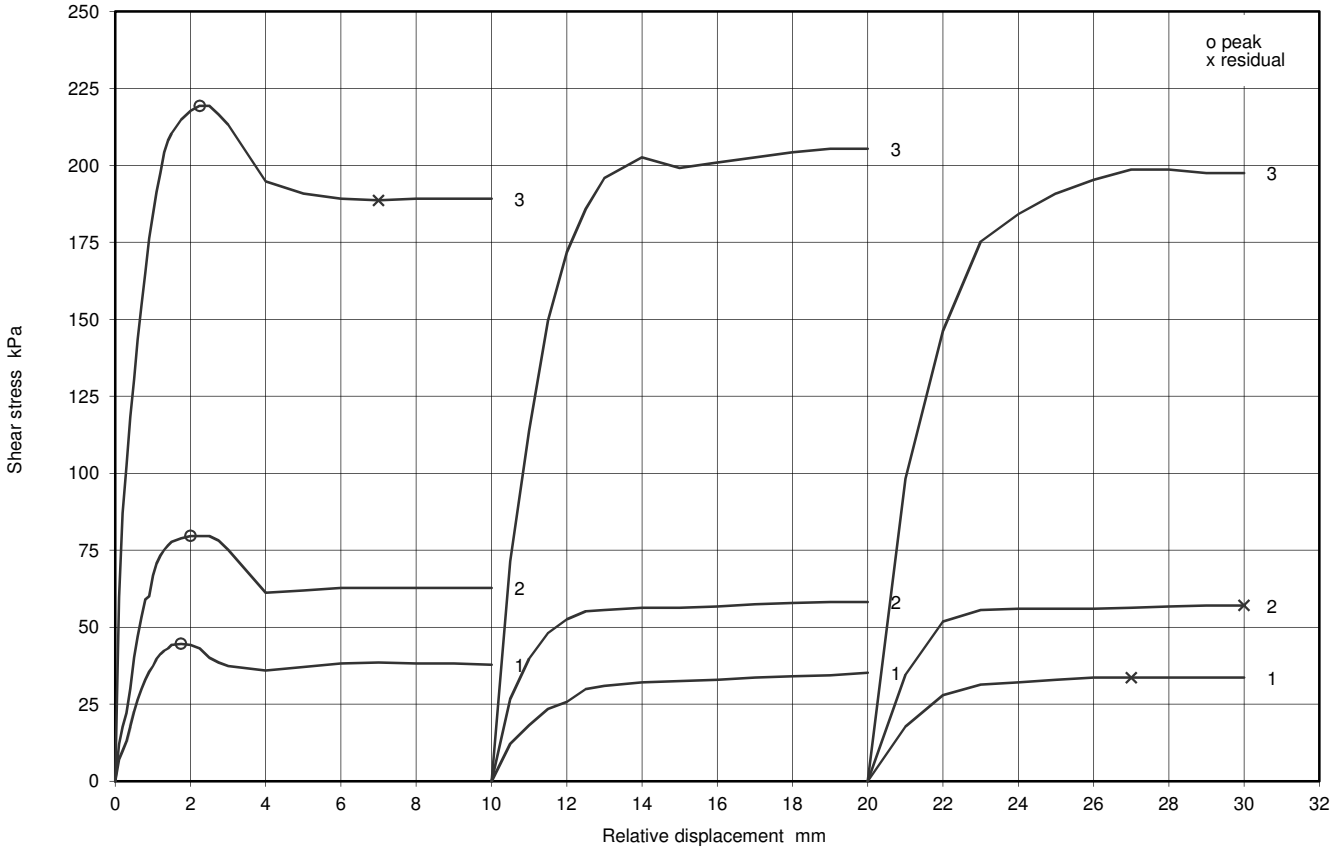
Project No	A1023-21	Sample Details:	Hole No.	STBH01		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	14.00 - 14.50		
			Sample No	52	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	STBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	10.00 - 10.50		
			Sample No	36	Type	B
			ID			
			Spec Ref			

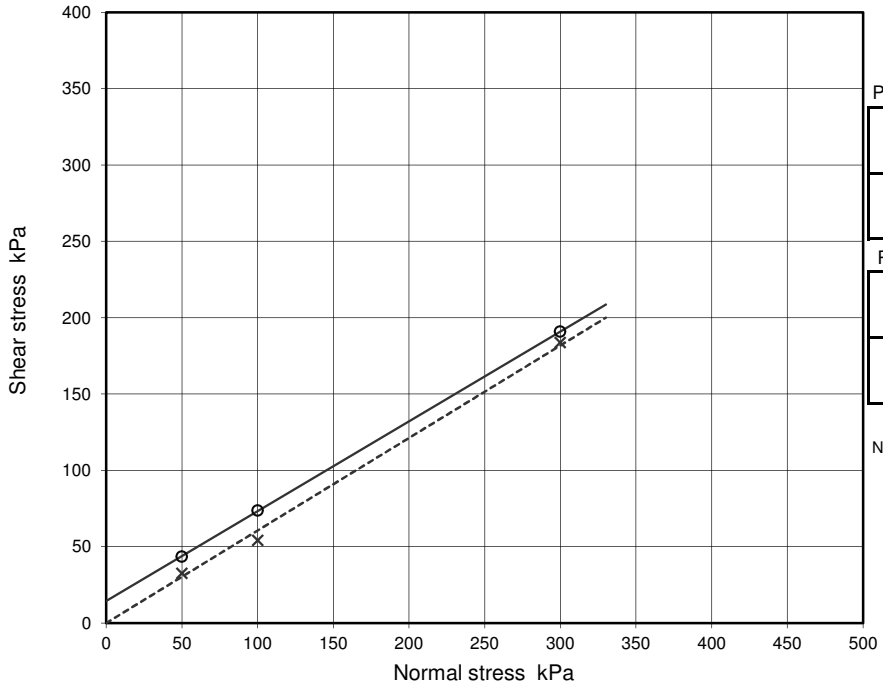
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	26.4	26.4	26.4			
	Bulk Density	Mg/m^3	1.96	1.96	1.96			
	Water Content	%	19.9	19.4	19.3			
	Dry density	Mg/m^3	1.63	1.64	1.64			
	Voids ratio		0.623	0.617	0.616			
	Degree of Saturation	%	84	83	83			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.092	-0.294	-0.432			
	Voids ratio after consolidation		0.618	0.599	0.590			
Shear see note 1	Voids ratio at end of test		0.611	0.590	0.524			
	Moisture content at end of test	%	20.0	19.7	19.5			
	Saturation at end of test	%	87	89	99			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.50	1.75	2.25			
	Shear stress	kPa	43.5	73.6	190.8			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	28.00	30.00	5.00			
	Shear stress	kPa	32.5	54.1	183.6			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	14	-
Ø '	degrees	30½	-

Residual strength, (x)			
c'_R	kPa	(-2.4)	0.0
$Ø'_R$	degrees	(31½)	31

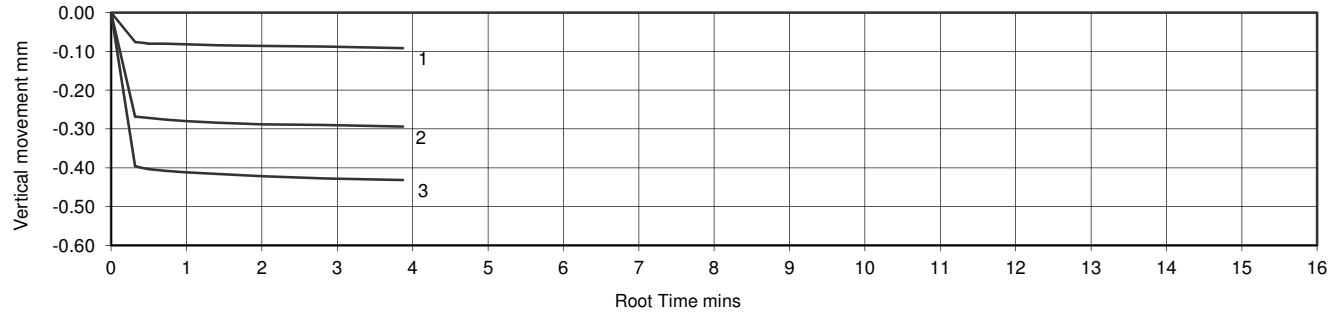
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

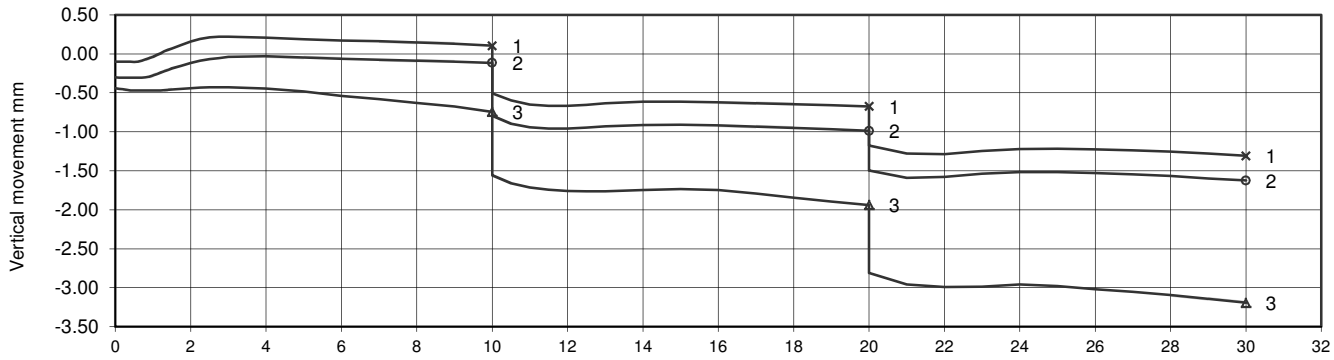
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

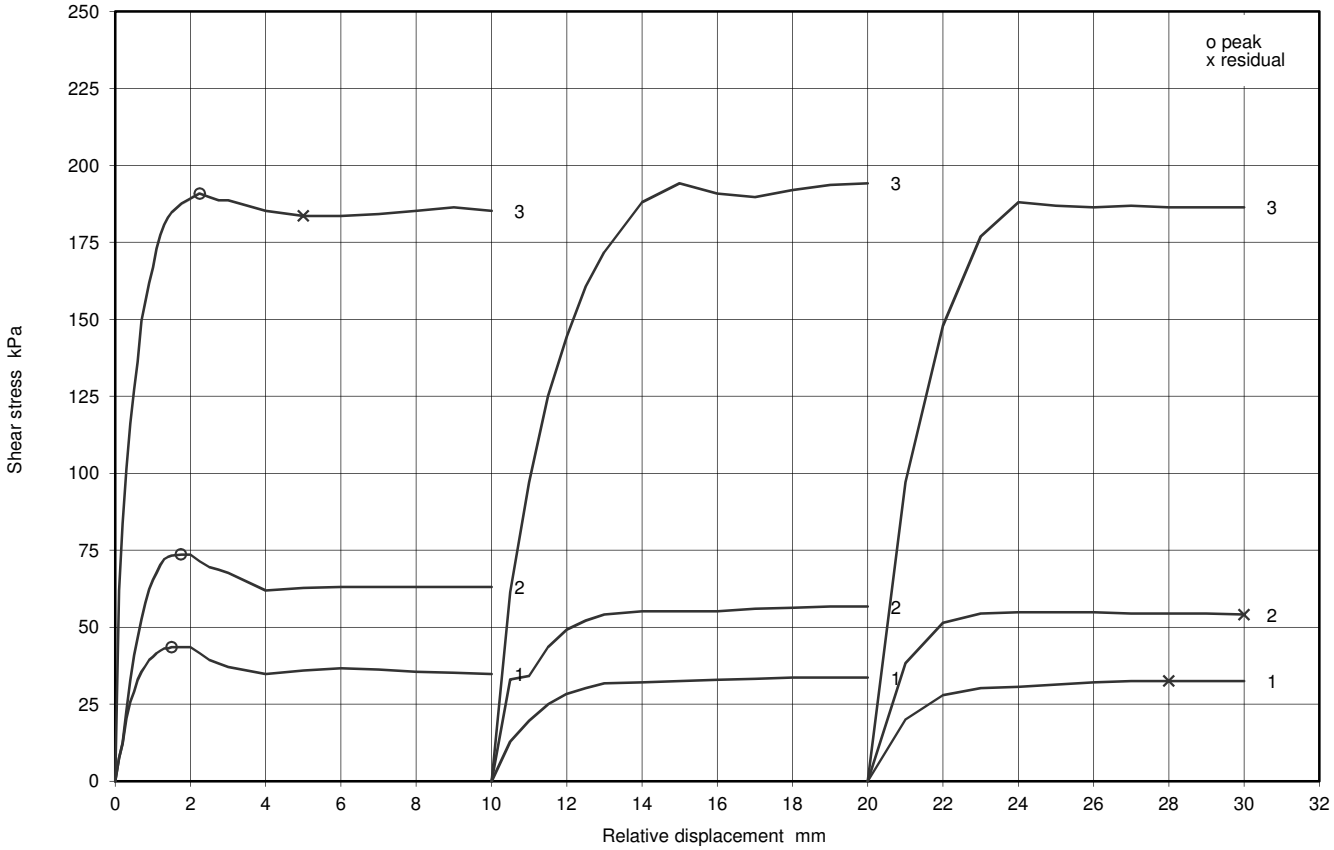
Project No	A1023-21	Sample Details:	Hole No.	STBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	10.00 - 10.50		
			Sample No	36	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	STBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	15.00 - 15.50		
			Sample No	48	Type	B
			ID			
			Spec Ref			

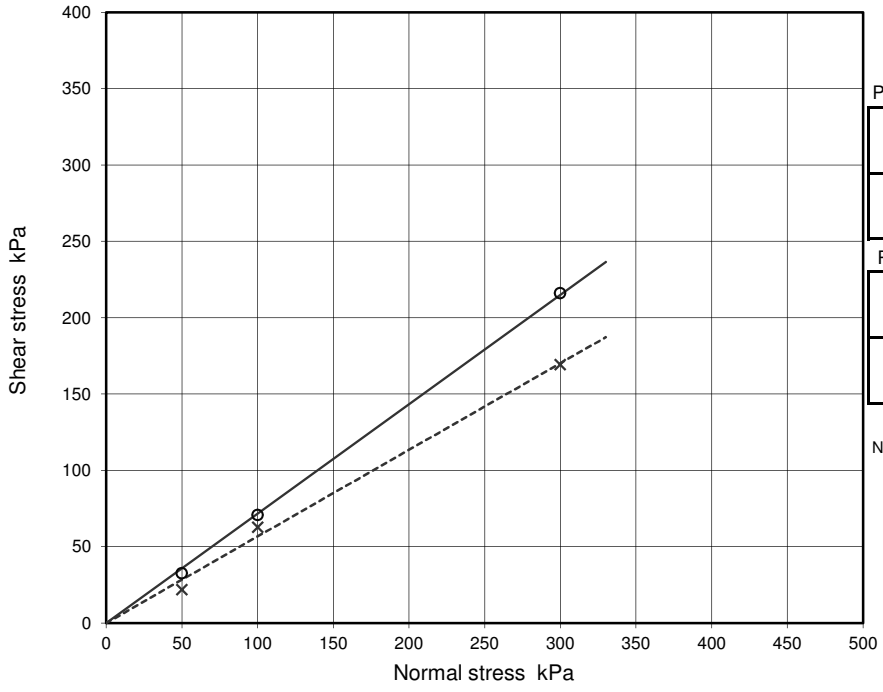
Soil Description	Brown SAND.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.65 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	26.6	26.6	26.6			
	Bulk Density	Mg/m^3	2.00	2.00	2.00			
	Water Content	%	21.1	20.6	20.4			
	Dry density	Mg/m^3	1.66	1.66	1.66			
	Voids ratio		0.601	0.594	0.592			
	Degree of Saturation	%	93	92	91			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.146	-0.314	-0.554			
	Voids ratio after consolidation		0.592	0.575	0.559			
Shear see note 1	Voids ratio at end of test		0.598	0.528	0.448			
	Moisture content at end of test	%	19.3	19.9	16.9			
	Saturation at end of test	%	86	100	100			

Shearing stage

Rate of displacement	Peak	mm/min	0.600	0.600	0.600			
	Residual	mm/min	0.600	0.600	0.600			
Peak values, (o)	Relative displacement	mm	1.75	2.25	2.50			
	Shear stress	kPa	32.5	70.6	215.9			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	29.00	30.00	10.00			
	Shear stress	kPa	21.9	62.8	169.1			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	(-3.4)	0.0
Ø '	degrees	(36)	35½

Residual strength, (x)

c'_R	kPa	(-1.3)	0.0
$Ø'_R$	degrees	(30)	29½

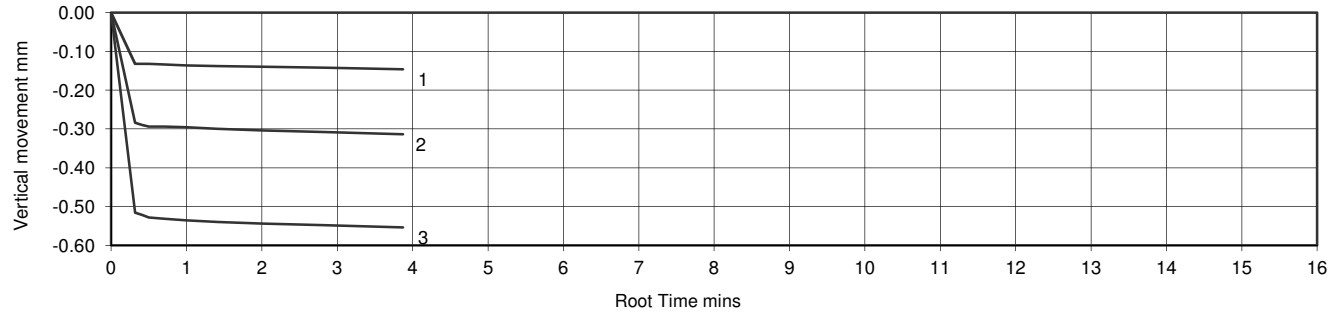
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.
2. The automated regression line results in a negative c' value, therefore a manual line has been used which assumes a c' value of 0.0 kPa. The manual data is presented in the AGS.

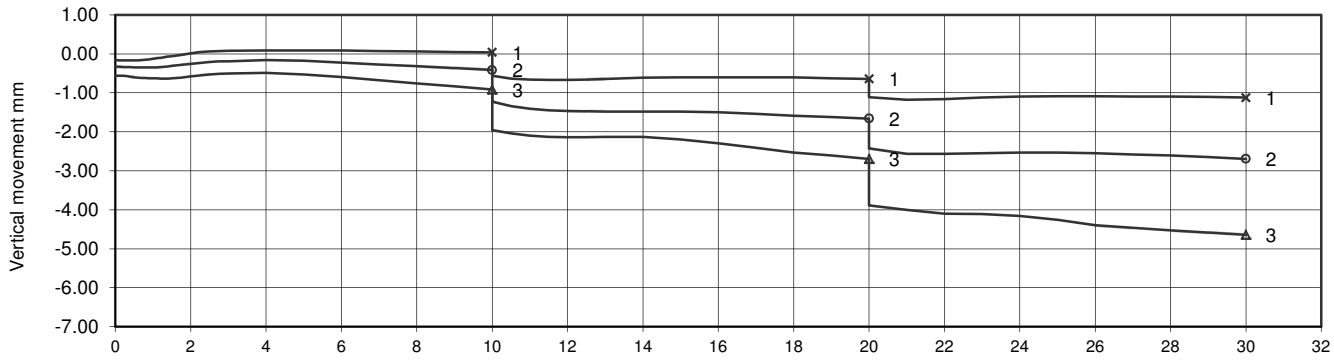
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

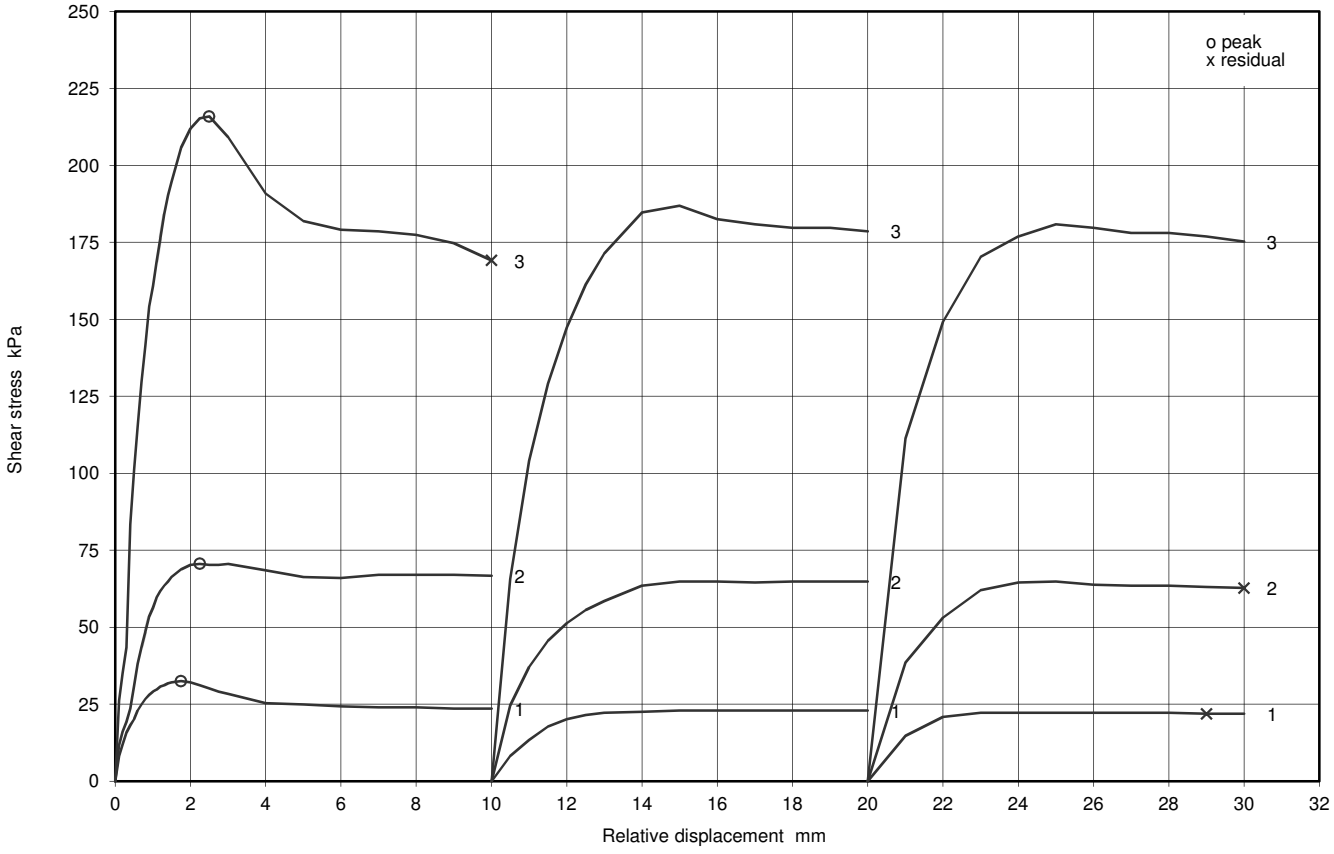
Project No	A1023-21	Sample Details:	Hole No.	STBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	15.00 - 15.50		
			Sample No	48	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





Ref			Figure
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Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

Project No	A1023-21	Sample Details:	Hole No.	STBH02	
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	17.00 - 17.50	
			Sample No	53	Type B
			ID		
			Spec Ref		

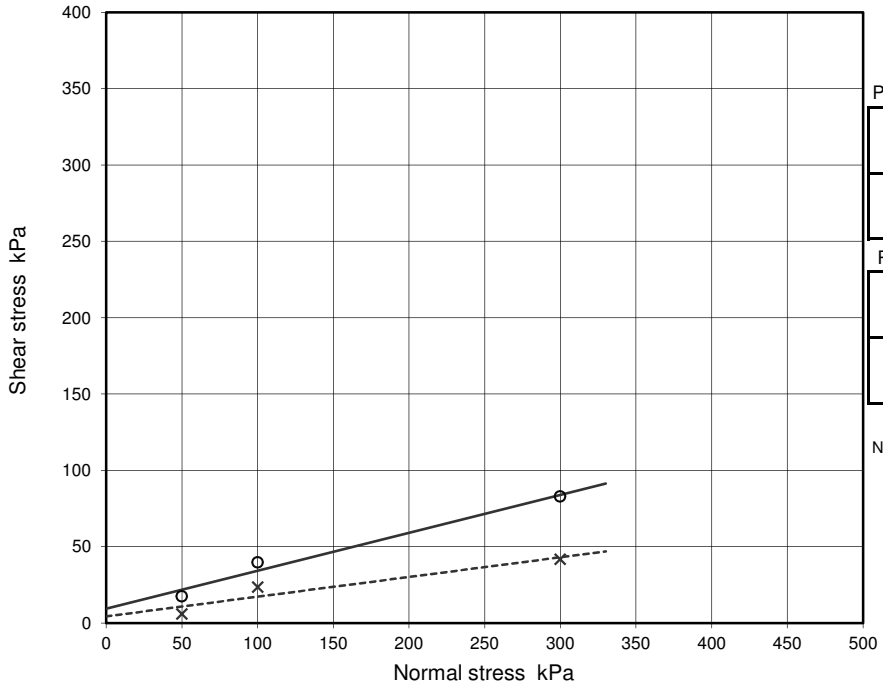
Soil Description	Dark grey CLAY.
Specimen Type /Preparation	-2mm material. Recompacted using heavy tamping method at as received moisture content.

Specimen(s) nominally 60mm x 60mm square
Test(s) carried out in submerged condition
Particle density, assumed 2.70 Mg/m^3

Specimen Details		No.	1	2	3	4	5	6
Initial	Height	mm	27.9	27.9	27.9			
	Bulk Density	Mg/m^3	1.89	1.89	1.89			
	Water Content	%	33.3	33.3	33.6			
	Dry density	Mg/m^3	1.42	1.42	1.41			
	Voids ratio		0.907	0.908	0.912			
	Degree of Saturation	%	99	99	99			
Consol^n	Consolidation / Normal Stress applied	kPa	**50**	**100**	**300**			
	Change in height during consolidation	mm	-0.412	-0.982	-2.750			
	Voids ratio after consolidation		0.879	0.840	0.724			
Shear see note 1	Voids ratio at end of test		0.887	0.808	0.648			
	Moisture content at end of test	%	32.8	29.9	24.0			
	Saturation at end of test	%	100	100	100			

Shearing stage

Rate of displacement	Peak	mm/min	0.026	0.026	0.026			
	Residual	mm/min	0.066	0.066	0.066			
Peak values, (o)	Relative displacement	mm	1.14	2.31	2.39			
	Shear stress	kPa	17.4	39.6	82.9			
Residual values, (x)	No. of reversals		2	2	2			
	Relative displacement	mm	19.50	29.00	12.17			
	Shear stress	kPa	5.8	23.5	41.7			



Shear Strength Parameters

Peak strength, (o)		Regression	Manual
c '	kPa	9.3	-
Ø '	degrees	14	-

Residual strength, (x)			
c'_R	kPa	4.4	-
$Ø'_R$	degrees	7½	-

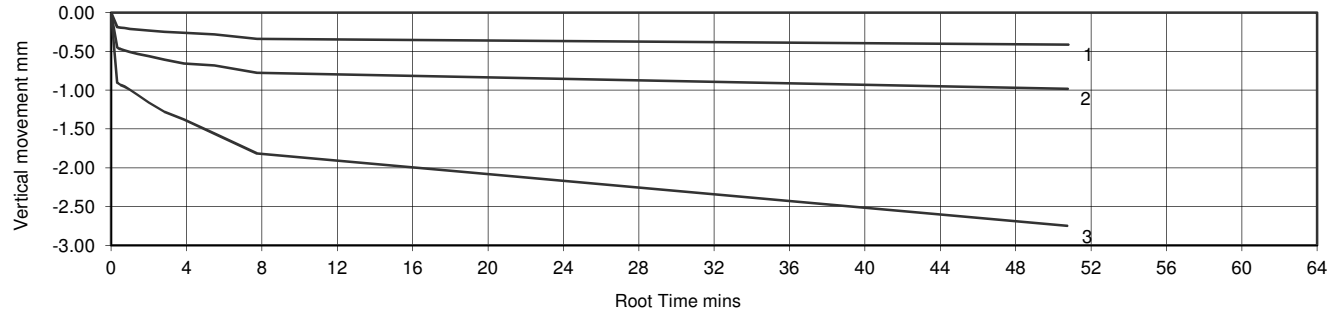
Notes :

1. After shear values based on BS1377. Pt 7 cl. 4.6.1.6 using δH calculated from consolidation and shear stages.

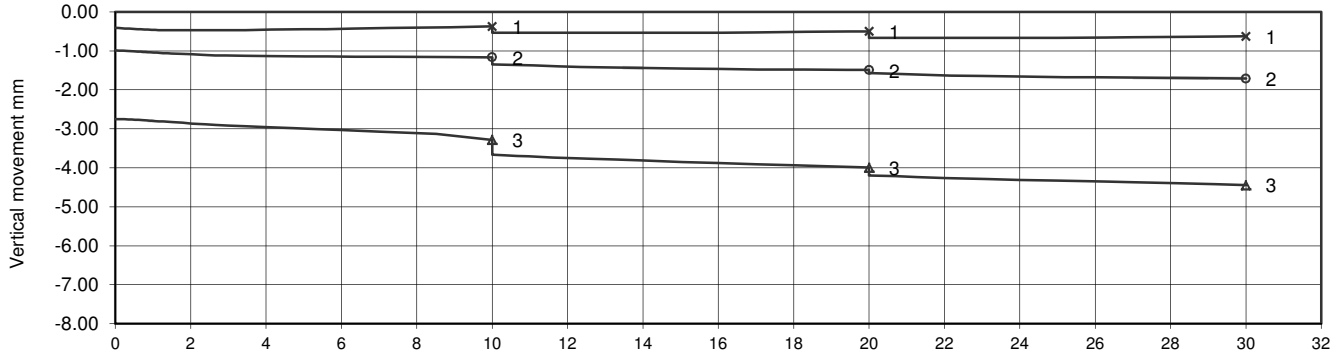
Determination of shear strength by direct shear (Small shearbox apparatus)
(BS1377 : Part 7 : clause 4 : 1990)

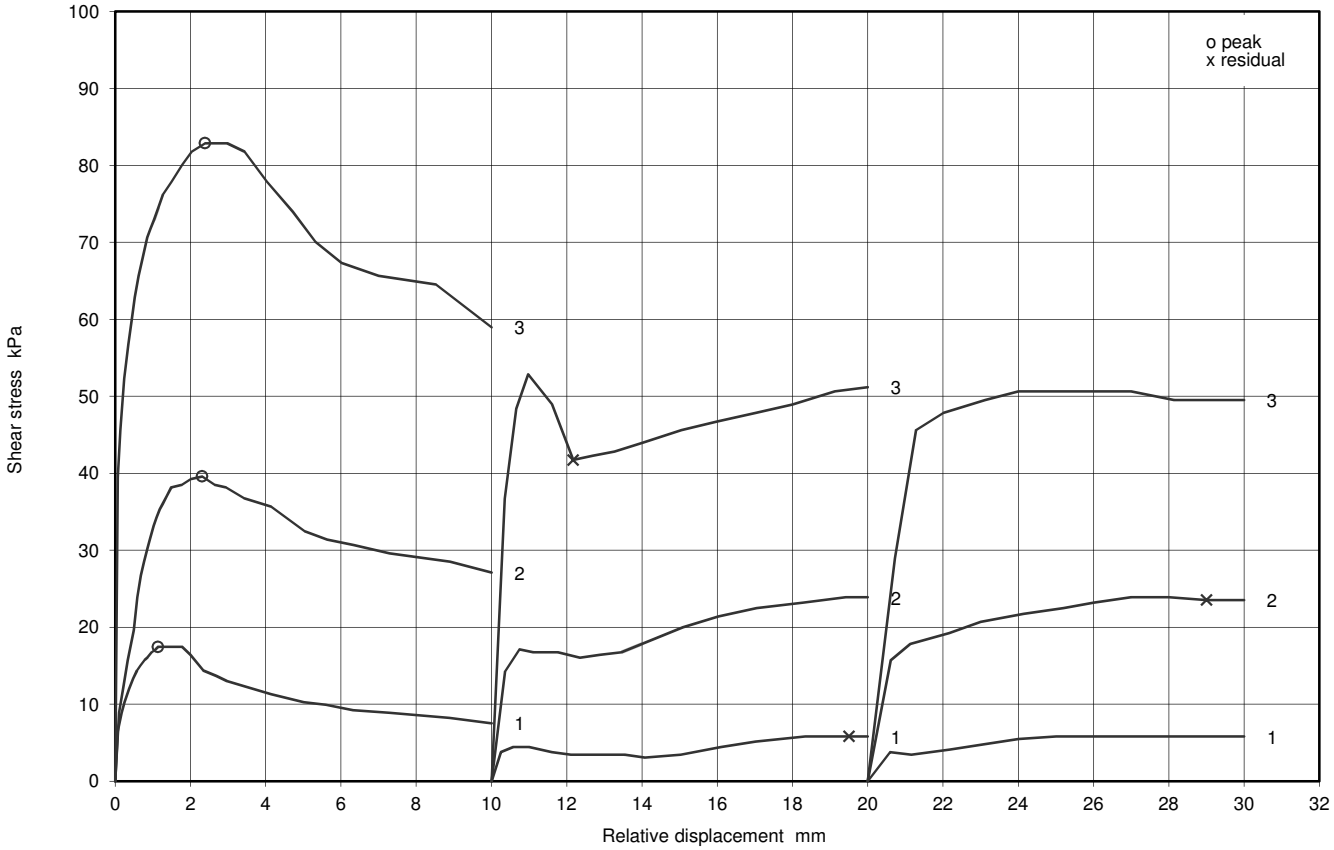
Project No	A1023-21	Sample Details:	Hole No.	STBH02		
Project Name	Scheme 33754 Yorkshire Green		Depth (m BGL)	17.00 - 17.50		
			Sample No	53	Type	B
			ID			
			Spec Ref			

Consolidation stage(s)



Shearing stage(s)





Ref			Figure
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INDEX PROPERTIES OF ROCK - SUMMARY OF RESULTS

Hole No.	Sample				Water Content1	Saturation and Caliper 2		Saturation and Buoyancy 3		Bulk density	Remarks
	No.	Depth (m)		type		Dry density	Porosity	Dry density	Porosity		
		from	to		%	Mg/m3	%	Mg/m3	%	Mg/m3	
MFBH01	22	5.55	5.74	C	11			2.08	26.8		
MFBH01	28	8.65	8.65	D	12						
MFBH01	24	12.09	12.23	C	17			1.85	35.1		
MFBH01	29	13.75	13.75	D	15						
MFBH01	25	15.10	15.21	C	13			2.02	29.1		
MFBH01	26	16.44	16.71	C	23			1.65	28.1		
MFBH02	27	8.80	8.94	C	9.9			2.04	28.1		
MFBH02	28	11.36	11.49	C	9.5			2.13	25.1		
MFBH02	30	13.57	13.67	C	5.5			2.27	17.1		
MFBH02	31	15.83	16.03	C	17			1.93	29.7		

Notes :

Test Specification : International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as received at the laboratory

2 ISRM p87 test 2, Porosity/density determination using saturation and caliper techniques

3 ISRM p88 test 3, Porosity/density determination using saturation and buoyancy techniques

above notes apply unless annotated otherwise in the remarks

INDEX PROPERTIES OF ROCK - SUMMARY OF RESULTS

Hole No.	Sample				Water Content1	Saturation and Caliper 2		Saturation and Buoyancy 3		Bulk density	Remarks
	No.	Depth (m)		type		Dry density	Porosity	Dry density	Porosity		
		from	to		%	Mg/m3	%	Mg/m3	%	Mg/m3	
MFBH02	33	17.27	17.27	D	9.3						
MFBH03A	25	6.49	6.65	C	19			1.45	53.6		
MFBH03A	27	7.28	7.50	C	13						
MFBH03A	29	9.10	9.28	C	6.4			1.98	30.2		
MFBH03A	30	11.22	11.40	C	11			2.11	25.0		
MFBH03A	31	13.31	13.41	C	4.3			2.30	17.5		
MFBH03A	32	14.84	14.92	C	4.6			2.36	13.8		
MFBH03A	33	17.16	17.29	C	3.1			2.45	10.5		

Notes :

Test Specification : International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as received at the laboratory

2 ISRM p87 test 2, Porosity/density determination using saturation and caliper techniques

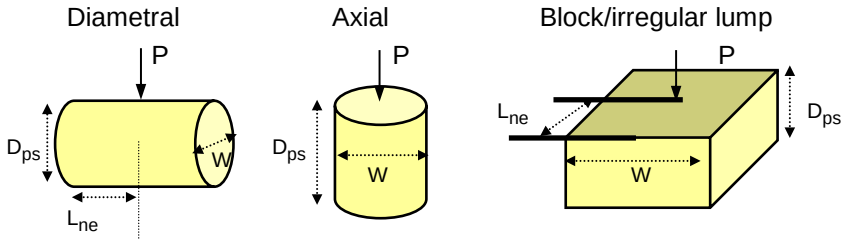
3 ISRM p88 test 3, Porosity/density determination using saturation and buoyancy techniques

above notes apply unless annotated otherwise in the remarks

Point Load Index Test

All specimens tested at as received water content unless shown otherwise

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction (U = unknown or random)
L - parallel to planes of weakness
P - perpendicular to planes of weakness
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Borehole	Depth, m	Sample Ref	Sample Type	Specimen Ref	Specimen Depth	Rock type	Test Type see ISRM Fig 5 and 8		Failure Valid (Y/N)	Dimensions				LOAD P	De equivalent diameter, mm	Point Load Index MPa F = (De/50)0.45		Remarks
							Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN		Is	Is(50)	
MFBH01	5.55	22	C	1		SILTSTONE	A	P	Y		100.9	63.0	57.0	5.68	85.59	0.78	0.99	
MFBH01	8.65	28	D	1		SILTSTONE	I	L	Y	37.0	70.1	53.0	51.0	0.10	67.48	0.02	0.03	
MFBH01	12.09	24	C	1		SILTSTONE	I	P	Y	53.0	101.4	41.0	38.0	1.34	70.03	0.27	0.32	
MFBH01	13.75	29	D	1		SILTSTONE	I	P	Y	41.0	80.4	58.0	55.0	0.10	75.02	0.02	0.02	
MFBH01	15.10	25	C	1		SILTSTONE	A	P	Y		101.1	48.0	44.0	0.10	75.25	0.02	0.02	
MFBH01	16.44	26	C	1		SILTSTONE	D	L	Y	54.0	100.7	95.0	90.0	0.10	95.20	0.01	0.01	
MFBH01	16.44	26	C	2		MUDSTONE	A	L	Y		100.7	48.0	40.0	0.10	71.61	0.02	0.02	
MFBH02	8.80	27	C	1		SILTSTONE	A	P	Y		101.0	55.0	44.0	11.82	75.23	2.09	2.51	
MFBH02	11.36	28	C	1		SILTSTONE	A	P	Y		100.9	43.0	33.0	3.17	65.12	0.75	0.84	
MFBH02	13.57	30	C	1		SILTSTONE	A	P	Y		101.6	53.0	50.0	3.41	80.42	0.53	0.65	
MFBH02	15.83	31	C	1		MUDSTONE	D	L	Y	55.0	101.0	100.0	96.0	5.00	98.44	0.52	0.70	
MFBH02	15.83	31	C	2		MUDSTONE	A	P	Y		101.0	53.0	50.0	3.23	80.17	0.50	0.62	

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SOCOTEC

Project No A1023-21
Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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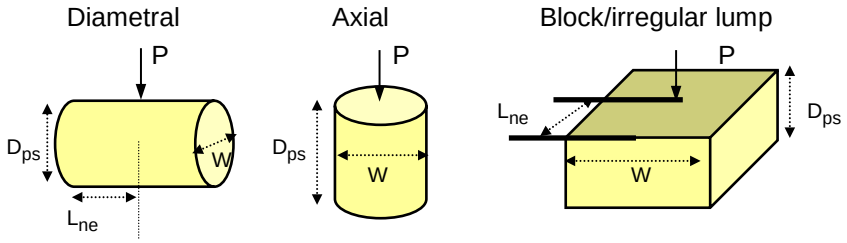
Point Load Index Test

All specimens tested at as received water content unless shown otherwise

Test Type
D - Diametral, A - Axial, I - Irregular Lump, B - Block
Direction (U = unknown or random)
L - parallel to planes of weakness
P - perpendicular to planes of weakness
Dimensions
Dps - Distance between platens (platen separation)
Dps' - at failure
Lne - Length from platens to nearest free end
W - Width of shortest dimension perpendicular to load, P



Borehole	Depth, m	Sample Ref	Sample Type	Specimen Ref	Specimen Depth	Rock type	Test Type see ISRM Fig 5 and 8		Failure Valid (Y/N)	Dimensions				LOAD P	De equivalent diameter, mm	Point Load Index MPa F = (De/50)0.45		Remarks
							Type (D, A, I, B)	Direction (L, P or U)		Lne mm	W mm	Dps mm	Dps' mm	kN		Is	Is(50)	
MFBH02	17.27	33	D	1		SILTSTONE	I	L	Y	40.0	75.4	54.0	51.0	2.19	69.99	0.45	0.52	
MFBH03A	6.49	25	C	1		SILTSTONE	A	P	Y		99.7	44.0	32.0	0.10	69.99	0.02	0.52	
MFBH03A	7.28	27	C	1		SILTSTONE	D	L	Y	54.0	107.3	106.0	100.0	0.10	103.57	0.01	0.01	
MFBH03A	7.28	27	C	2		SILTSTONE	A	P	Y		107.3	52.0	43.0	0.10	76.63	0.02	0.02	
MFBH03A	8.01	28	C	1		MUDSTONE	A	P	Y		101.5	57.0	46.0	0.10	63.74	0.02	0.03	
MFBH03A	9.10	29	C	1		SANDSTONE	A	P	Y		100.5	46.0	43.0	2.41	63.74	0.44	0.03	
MFBH03A	11.22	30	C	1		MUDSTONE	D	L	Y	51.0	100.4	100.0	97.0	2.29	98.67	0.24	0.32	
MFBH03A	11.22	30	C	2		MUDSTONE	A	P	Y		100.4	45.0	39.0	2.86	70.60	0.57	0.67	
MFBH03A	13.31	31	C	1		SILTSTONE	A	P	Y		101.6	56.0	42.0	15.23	73.70	2.80	3.34	
MFBH03A	14.84	32	C	1		SILTSTONE	I	L	Y	50.0	95.2	78.0	76.0	0.10	96.00	0.01	0.01	
MFBH03A	17.16	33	C	1		SILTSTONE	A	P	Y		100.1	43.0	38.0	12.88	69.58	2.66	3.09	

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Project No A1023-21
Project Name SCHEME 33754 YORKSHIRE GREEN

Figure
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Uniaxial Compressive Strength Of Rock - Summary of Results

Hole No.	Sample				Rock Type	Specimen Dimensions [2]			Bulk Density [2]	Water Content [1]	Uniaxial Compression [3]				Remarks
	No.	Depth (m)		type		Dia.	Height	H/D			Stress Rate	Time to failure	Mode of failure	UCS	
		from	to			mm	mm		Mg/m 3	%	MPa/s	secs		MPa	
MFBH01	23	6.45	6.70	C	SILTSTONE	101.2	167.4	1.7	2.19	9.7	0.0	385	axial cleavage	17	Outside ISRM Specification
MFBH01	27	17.79	18.22	C	MUDSTONE	102.0	265.8	2.6	2.04	12	0.0	25	shear	0.0734	
MFBH02	26	6.73	7.16	C	SILTSTONE	101.3	267.9	2.6	2.09	3.8	0.0	585	axial cleavage	13.2	
MFBH02	32	18.10	18.40	C	SILTSTONE	99.2	237.8	2.4	2.25	15	0.0	272	axial cleavage	7.19	Outside ISRM Specification

Notes :

Test Specification : International Society for Rock Mechanics, The complete ISRM suggested methods for Rock Characterization Testing and Monitoring, 2007

1 ISRM p87 test 1, water content at 105 ± 3 oC, specimen as received at the laboratory

2 ISRM p86 clause (vii), Caliper method used for determination of bulk volume and derivation of bulk density

3 ISRM p153 part 1, determination of Uniaxial Compressive Strength (UCS) of Rock Materials

above notes apply unless annotated otherwise in the remarks

Mode of failure :

S - Single shear MS - multiple shear

AC - Axial cleavage F - Fragmented

Summary of Chemical Analysis
Soil Samples

Our Ref 21-25584
Client Ref A1023-21
Contract Title A Yorkshire Green

	Lab No	1941631	1941632	1941633	1941634	1941635	1941636	1941637
	.Sample ID	OSBH03	OSBH03	OSBH01	OSBH02	OSBH01	STBH02	OSBH01
	Depth	1.00	3.00	7.00	0.90	2.00	0.40	2.80
	Other ID	6	15	26	12	11	39	12
	Sample Type	B	B	B	B	B	B	D
	Sampling Date	29/11/2021	29/11/2021	29/11/2021	29/11/2021	29/11/2021	29/11/2021	29/11/2021
	Sampling Time	1236	1240	1320	1356	1400	1410	1610
Test	**Method**	**LOD**	**Units**					
Inorganics								
pH	DETSC 2008#		pH	7.6	8.1	8.2		8.1	8.1	
Organic matter	DETSC 2002#	0.1	%				1.9	2.7		2.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	35	15	72		29	140	

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 21-25584
Client Ref A1023-21
Contract A Yorkshire Green

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1941631	OSBH03 1.00 SOIL	29/11/21	PT 1L		
1941632	OSBH03 3.00 SOIL	29/11/21	PT 1L		
1941633	OSBH01 7.00 SOIL	29/11/21	PT 1L		
1941634	OSBH02 0.90 SOIL	29/11/21	PT 1L		
1941635	OSBH01 2.00 SOIL	29/11/21	PT 1L		
1941636	STBH02 0.40 SOIL	29/11/21	PT 1L		
1941637	OSBH01 2.80 SOIL	29/11/21	PT 1L		

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

Summary of Chemical Analysis
Soil Samples

Our Ref 21-25950
Client Ref A1023-21
Contract Title Yorkshire Green

			Lab No	1944306	1944307	1944308	1944309	1944310	1944311	1944312	1944313	1944314	1944315
			.Sample ID	OSBH02	STBH01	MFBH01	OSBH02	MFBH03	MFBH03A	MFBH02	STBH02	STBH01	OSBH03
			Depth	10.10	3.00	2.00	21.00	3.00	1.20	4.00	0.60	18.50	12.00
			Other ID	43	18	14	79	17	11	20	5	65	37
			Sample Type	B	B	B	B	B	B	B	B	B	B
			Sampling Date	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021	30/11/2021
			Sampling Time	1230	1313	1317	1325	1337	1344	1353	1401	1406	1413
Test	**Method**	**LOD**	**Units**										
Inorganics													
pH	DETSC 2008#		pH	8.4	8.3	8.2	8.4	8.5	8.4	8.5	8.1	8.0	8.6
Carbonate (as CO2)	DETSC 2005	1	%			1.2			16	5.4			
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	59	64	33	19	47	28	41	39	190	41
Sulphur as S, Total	DETSC 2320	0.01	%							0.04			
Sulphate as SO4, Total	DETSC 2321#	0.01	%							0.10			

Key: # -MCERTS (accreditation only applies if report carries the MCERTS logo).

Information in Support of the Analytical Results

Our Ref 21-25950
Client Ref A1023-21
Contract Yorkshire Green

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1944306	OSBH02 10.10 SOIL	30/11/21	PG		
1944307	STBH01 3.00 SOIL	30/11/21	PG		
1944308	MFBH01 2.00 SOIL	30/11/21	PG		
1944309	OSBH02 21.00 SOIL	30/11/21	PG		
1944310	MFBH03 3.00 SOIL	30/11/21	PG		
1944311	MFBH03A 1.20 SOIL	30/11/21	PG		
1944312	MFBH02 4.00 SOIL	30/11/21	PG		
1944313	STBH02 0.60 SOIL	30/11/21	PG		
1944314	STBH01 18.50 SOIL	30/11/21	PG		
1944315	OSBH03 12.00 SOIL	30/11/21	PG		

Key: P-Plastic G-Bag

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

Summary of Chemical Analysis
Soil Samples

Our Ref 21-25952
Client Ref A1023-21
Contract Title Yorkshire Green

Lab No	1944321
.Sample ID	OSBH01
Depth	0.80-1.20
Other ID	6
Sample Type	B
Sampling Date	30/11/2021
Sampling Time	n/s

Test	Method	LOD	Units	
Inorganics				
Organic matter	DETSC 2002#	0.1	%	1.2

Information in Support of the Analytical Results

Our Ref 21-25952
Client Ref A1023-21
Contract Yorkshire Green

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1944321	OSBH01 0.80-1.20 SOIL	30/11/21	PG		

Key: P-Plastic G-Bag

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 E

GEOENVIRONMENTAL LABORATORY TEST RESULTS

Certificate of Analysis – (Soil/Leachate)	B27494
	B27509
	B27567
	B27597
	B27641
Certificate of Analysis – (Water)	21-41172-1

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

SOCOTEC
Units 4 & 5
Gainsborough Trading Estate
Leamington Road
Southam
Warwickshire
For the attention of Emma Cronin

Report No: B27494
Issue No 01

LABORATORY TEST REPORT

Project Name	**YORKSHIRE GREEN G.I.**		
Project Number	**B27494**	Date samples received	01/10/2021
Your Ref		Date written instructions received	04/10/2021
Purchase Order	A23142	Date testing commenced	04/10/2021

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1 - 8	3	Client Specified Suites - Soil	See report
9 - 10	2	Client Specified Suite - L2 Leachate	No

Remarks :

Issued by : Stephen Langman Date of Issue : 15/10/2021

[redacted]

Approved Signatories :
S Langman (Laboratory Coordinator), D Bowen (Production Manager)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
Samples tested for asbestos are retained for 6 months from the date of analysis.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our website [redacted]

mCERTS UKAS TESTING 0126 30 YEARS 1990-2020

[redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification				Lab Sample ID	Arsenic	Cadmium	Lead	Mercury	Selenium	Copper	Nickel	Zinc	Antimony	Iron	Manganese	Molybdenum	Barium	Beryllium	Vanadium	Boron (water soluble)	Chromium	Hexavalent Chromium	Chrominm Trivalent	Fraction Organic Carbon
Hole	Depth m	Sample Ref	Sample Type		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	%
MFBH01	0.30	2	ES	793897	11.9	0.68	36	<0.1	<0.5	23	27	70.8	1	14,888	1,383.1	2.0	288.4	0.87	30	1.2	22	<0.3	22	38
MFBH01	1.00	8	ES	793912	31.6	0.63	17	0.32	<0.5	11	38	83.0	2	7,846	773.5	1.3	299.5	1.25	44	1.0	32	<0.3	32	10
MFBH02	0.25	3	ES	793917	16.1	0.70	42	0.21	<0.5	22	31	100.4	2	8,517	791.3	1.1	248.0	1.03	41	1.3	29	<0.3	29	100
Limits of Detection					0.5	0.10	1	0.10	0.5	1	1	0.5	0.5	1	0.5	0.5	0.5	0.05	1	0.2	1	0.3	1	1
Terra Tek Analysis Method					TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP032	TP137	TP040	~	TP174
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	U	M	M	M	U	N	M	M	M	M	M	U	M	N	N	N

Originator: DAB

Checked & Approved: [redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification				Lab Sample ID	Free Cyanide mg/kg	Sulphate (soluble in 2:1 water extract) as SO4 g/l	Total Sulphur %	pH
Hole	Depth m	Sample Ref	Sample Type					
MFBH01	0.30	2	ES	793897	<1.0	<0.01	0.04	8.2
MFBH01	1.00	8	ES	793912	<1.0	0.04	0.04	8.5
MFBH02	0.25	3	ES	793917	<1.0	0.01	0.04	7.3
Limits of Detection					1.0	0.01	0.01	~
Terra Tek Analysis Method					TP047	TP169	TP129	TP019
Accreditation M=Mcerts U=UKAS N=No accreditation					N	M	M	M

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene mg/kg	Acenaphthylene mg/kg	Acenaphthene mg/kg	Fluorene mg/kg	Phenanthrene mg/kg	Anthracene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg	Benzo (a) anthracene mg/kg	Chrysene mg/kg	Benzo (b) fluoranthene mg/kg	Benzo (k) fluoranthene mg/kg	Benzo (a) pyrene mg/kg	Indeno (1,2,3 - cd) pyrene mg/kg	Dibenzo (ah) anthracene mg/kg	Benzo (ghi) perylene mg/kg	Total PAHs (USEPA 16) mg/kg			
MFBH01	0.30	2	ES	793897	<0.05	<0.05	<0.10	<0.05	0.14	<0.10	0.26	0.24	0.18	0.13	0.11	0.07	0.08	<0.10	<0.10	<0.10	<1.3			
MFBH01	1.00	8	ES	793912	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
MFBH02	0.25	3	ES	793917	<0.05	<0.05	<0.10	<0.05	0.10	<0.10	0.16	0.15	<0.10	0.10	0.10	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
Limits of Detection					0.05	0.05	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.10	0.10	1.3			
Terra Tek Analysis Method					TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045			
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			

Originator	Checked & Approved
DAB	[redacted]

POLYAROMATIC HYDROCARBONS (USEPA 16) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C8-C10) mg/kg	TPH (Aliphatics >C10-C12) mg/kg	TPH (Aliphatics >C12-C16) mg/kg	TPH (Aliphatics >C16-C21) mg/kg	TPH (Aliphatics >C21-C35) mg/kg	TPH (Aliphatics >C35-C40) mg/kg	TPH (Aromatics >C10-C12) mg/kg	TPH (Aromatics >C12-C16) mg/kg	TPH (Aromatics >C16-C21) mg/kg	TPH (Aromatics >C21-C35) mg/kg	TPH (Aromatics >C35-C40) mg/kg								**Sample received in appropriate container**
MFBH01	0.30	2	ES	793898	<1	<1	1	2	<1	<1	2	1	<1	<1	<1									**No**
MFBH01	1.00	8	ES	793913	<1	<1	<1	<1	<1	<1	2	2	1	<1	<1									**No**
MFBH02	0.25	3	ES	793918	<1	<1	1	1	<1	<1	2	3	2	<1	<1									**No**
Limits of Detection					1	1	1	1	1	1	1	1	1	1	1									
Terra Tek Analysis Method					TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126									
Accreditation U=UKAS N=No accreditation					U	U	U	U	U	U	U	U	U	U	U									

Originator	Checked & Approved
DAB	[redacted]

TPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/kg	TPH (Aliphatics C6-C8) µg/kg	TPH (Aromatics C6-C7) µg/kg	TPH (Aromatics C7-C8) µg/kg	TPH (Aromatics C8-C10) µg/kg	Benzene µg/kg	Ethylbenzene µg/kg	m & p - Xylene µg/kg	o - Xylene µg/kg	Toluene µg/kg	MTBE µg/kg								**Sample received in appropriate container**
MFBH01	0.30	2	ES	793898	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
MFBH01	1.00	8	ES	793913	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
MFBH02	0.25	3	ES	793918	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
Limits of Detection					10	10	10	10	10	5	5	10	5	5	5								
Terra Tek Analysis Method					TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M								
Accreditation U=UKAS N=No accreditation																							

Originator	Checked & Approved
DAB	[redacted]

VPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 4

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification				Lab Sample ID	Phenol µg/kg	2 - Chlorophenol µg/kg	2 - Methylphenol µg/kg	4 - Methylphenol µg/kg	2 - Nitrophenol µg/kg	2,4 - Dimethylphenol µg/kg	2,4 - Dichlorophenol µg/kg	4 - Chloro - 3 - Methylphenol µg/kg	2,4,6 - Trichlorophenol µg/kg	2,4,5 - Trichlorophenol µg/kg	2,4 - Dinitrophenol µg/kg	4 - Nitrophenol µg/kg	Pentachlorophenol µg/kg							Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type																					
MFBH01	0.30	2	ES	793898	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
MFBH01	1.00	8	ES	793913	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
MFBH02	0.25	3	ES	793918	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
Limits of Detection					100	100	100	100	100	100	100	100	100	100	500	100	80							
Terra Tek Analysis Method					TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145							
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	U	M	M	M	M	U	M	M							

Originator	Checked & Approved
DAB	[redacted]

PHENOLS (SPECIATED) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 5

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	1,1,1,2 - Tetrachloroethane µg/kg	1,1,1 - Trichloroethane µg/kg	1,1,2,2 - Tetrachloroethane µg/kg	1,1,2 - Trichloroethane µg/kg	1,1 - Dichloroethane µg/kg	1,1 - Dichloroethene µg/kg	1,1 - Dichloropropene µg/kg	1,2,3 - Trichloropropane µg/kg	1,2,4 - Trimethylbenzene µg/kg	1,2 - Dibromoethane µg/kg	1,2 - Dichlorobenzene µg/kg	1,2 - Dichloroethane µg/kg	1,2 - Dichloropropane µg/kg	1,3,5 - Trimethylbenzene µg/kg	1,3 - Dichlorobenzene µg/kg	1,3 - Dichloropropane µg/kg	1,4 - Dichlorobenzene µg/kg	2,2 - Dichloropropane µg/kg	2 - Chlorotoluene µg/kg	4 - Chlorotoluene µg/kg
MFBH01	0.30	2	ES	793898	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MFBH01	1.00	8	ES	793913	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MFBH02	0.25	3	ES	793918	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	U	M	M	M	U	U	M	U	M	M	M

Originator: DAB

Checked & Approved: [redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	4 - Isopropyltoluene µg/kg	Benzene µg/kg	Bromobenzene µg/kg	Bromochloromethane µg/kg	Bromodichloromethane µg/kg	Tribromomethane µg/kg	Bromomethane µg/kg	Tetrachloromethane µg/kg	Chlorobenzene µg/kg	Chloroethane µg/kg	Chloroform µg/kg	Chloromethane µg/kg	cis 1,2 - Dichloroethene µg/kg	cis 1,3 - Dichloropropene µg/kg	Dibromochloromethane µg/kg	Dibromomethane µg/kg	Dichlorodifluoromethane µg/kg	Ethylbenzene µg/kg	iso - Propylbenzene µg/kg	m & p - Xylene µg/kg
MFBH01	0.30	2	ES	793898	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MFBH01	1.00	8	ES	793913	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MFBH02	0.25	3	ES	793918	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					U	M	M	M	M	U	U	M	M	M	M	M	M	M	M	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification				Lab Sample ID	Methylene chloride (Dichloromethane) µg/kg	n - Butylbenzene µg/kg	n - Propylbenzene µg/kg	o - Xylene µg/kg	sec - Butylbenzene µg/kg	Styrene µg/kg	tert - Butylbenzene µg/kg	Tetrachloroethene µg/kg	Toluene µg/kg	Trans - 1,2 - Dichloroethene µg/kg	Trans - 1,3 - Dichloropropene µg/kg	Trichloroethene µg/kg	Trichlorofluoromethane µg/kg	Chloroethene µg/kg						Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type																					
MFBH01	0.30	2	ES	793898	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						No
MFBH01	1.00	8	ES	793913	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						No
MFBH02	0.25	3	ES	793918	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5						No
Limits of Detection					50	5	5	5	5	5	5	5	5	5	5	5	5	5						
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154						
Accreditation M=Mcerts U=UKAS N=No accreditation					U	U	M	M	M	U	M	U	M	M	M	M	M	M						

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	PCB Congener 81 µg/kg	PCB Congener 77 µg/kg	PCB Congener 123 µg/kg	PCB Congener 118 µg/kg	PCB Congener 114 µg/kg	PCB Congener 105 µg/kg	PCB Congener 126 µg/kg	PCB Congener 167 µg/kg	PCB Congener 156 µg/kg	PCB Congener 157 µg/kg	PCB Congener 169 µg/kg	PCB Congener 189 µg/kg	Total 12 PCB Congeners µg/kg						
MFBH01	0.30	2	ES	793898	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.7	<6						
MFBH02	0.25	3	ES	793918	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.7	<6						
Limits of Detection					0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.7	6						
Terra Tek Analysis Method					TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147	TP147						
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N	N	N	N	N	N						

Originator: DAB

Checked & Approved: [redacted]

POLYCHLORINATED BIPHENYLS (WHO 12) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 7

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification				Lab Sample ID	Asbestos	Chrysotile (white asbestos)	Amosite (brown asbestos)	Crocidolite (blue asbestos)	Anthophyllite asbestos	Tremolite asbestos	Actinolite asbestos	Quantity of soil/material provided	Comments	Quantification Result (dry mass)	Analyst
Hole	Depth m	Sample Ref	Sample Type									g		%	
MFBH01	0.30	2	ES	793896	ND	~	~	~	~	~	~	999		~	SK
MFBH01	1.00	8	ES	793911	ND	~	~	~	~	~	~	1,060		~	SK
MFBH02	0.25	3	ES	793916	ND	~	~	~	~	~	~	855		~	SK
				Limits of Detection								~		0.001	
				Terra Tek Analysis Method								TP181		TP183	
				Accreditation M=Mcerts U=UKAS N=No accreditation								U		U	

Originator	Checked & Approved
MN	[redacted]

ASBESTOS IDENTIFICATION

Refer to Appendix S4 notes when interpreting asbestos results

KEY

ND - no asbestos detected

D - asbestos detected

Figure 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic µg/l	Cadmium µg/l	Lead µg/l	Mercury µg/l	Selenium µg/l	Copper µg/l	Nickel µg/l	Zinc µg/l	Antimony µg/l	Iron µg/l	Manganese µg/l	Molybdenum µg/l	Calcium mg/l	Magnesium mg/l	Barium µg/l	Beryllium µg/l	Vanadium µg/l	Boron mg/l	Chromium µg/l	Hexavalent Chromium mg/l
MFBH01	0.30	2	ES	793897	0.7	<0.04	<0.01	<0.05	0.9	0.84	0.3	<0.3	0.10	45	3.92	3.8	41	11	118.24	<0.01	0.4	0.1	<0.04	<0.03
MFBH02	0.25	3	ES	793917	5.5	<0.04	5.35	<0.05	0.9	14.05	5.6	8.3	1.16	7,767	29.30	1.1	25	8	83.00	0.09	10.7	0.1	4.07	<0.03
Limits of Detection					0.2	0.04	0.01	0.05	0.5	0.03	0.3	0.3	0.05	1	0.02	0.2	4	1	0.08	0.01	0.2	0.5	0.04	0.03
Terra Tek Analysis Method					TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP117	TP117	TP156	TP156	TP156	TP054	TP156	TP057
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 9

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Chromiun Triavlent µg/l	Phenol µg/l	Free Cyanide mg/l	Complex Cyanide mg/l	Ammoniacal Nitrogen (as N) mg/l	Chloride mg/l	Sulphate (as SO4) mg/l	Fluoride mg/l	pH											
MFBH01	0.30	2	ES	793897	<0.04	<1.00	<0.05	<0.05	0.1	10.3	<4	1.6	8.5											
MFBH02	0.25	3	ES	793917	<5	<1.00	<0.05	<0.05	<0.1	15.8	<4	1.2	8.3											
Limits of Detection					0.04	0.50	0.05	0.05	0.1	0.1	4	0.1	0.1											
Terra Tek Analysis Method					TP156	TP128	TP061	TP063	TP184	TP184	TP065	TP184	TP020											
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N	N											

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 9

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27494

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Phenol µg/l	2 - Chlorophenol µg/l	2 - Methylphenol µg/l	4 - Methylphenol µg/l	2 - Nitrophenol µg/l	2,4 - Dimethylphenol µg/l	2,4 - Dichlorophenol µg/l	4 - Chloro - 3 - Methylphenol µg/l	2,4,6 - Trichlorophenol µg/l	2,4,5 - Trichlorophenol µg/l	2,4 - Dinitrophenol µg/l	4 - Nitrophenol µg/l	Pentachlorophenol µg/l							
MFBH01	0.30	2	ES	793897	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<4.00	<1.00	<1.00	<2.00	<2.00	<2.00							
MFBH02	0.25	3	ES	793917	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<4.00	<1.00	<1.00	<2.00	<2.00	<2.00							
Limits of Detection					0.50	0.50	0.50	0.50	0.50	0.50	0.50	2.00	0.50	0.50	1.00	1.00	1.00							
Terra Tek Analysis Method					TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128							
Accreditation U=UKAS or N/A					N	N	N	N	N	N	N	N	N	N	N	N	N							

Originator	Checked & Approved
DAB	[redacted]

SPECIATED PHENOLS (GC/MS) - L2 LEACHATE

KEY

Figure 10

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27494

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
MFBH01	0.30	2	ES	793897	28/09/21	17.5	Clayey SAND	Fine to medium gravel	Roots/twigs	10.3	9.9
MFBH01	1.00	8	ES	793912	28/09/21	17.5	CLAY	Fine to medium gravel		15.6	14.2
MFBH02	0.25	3	ES	793917	28/09/21	18.0	Sandy CLAY		Roots/twigs	10.4	8.9

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated. Samples for asbestos testing are dried at 85^{o}C.

With the exception of samples analysed for asbestos, the laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SAMPLE DESCRIPTIONS	Appendix S1
DAB	[redacted]		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27494

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
MFBH01	0.30	2	ES	793896	28/09/21							
MFBH01	0.30	2	ES	793897	28/09/21							
MFBH01	0.30	2	ES	793898	28/09/21							
MFBH01	1.00	8	ES	793911	28/09/21							
MFBH01	1.00	8	ES	793912	28/09/21							
MFBH01	1.00	8	ES	793913	28/09/21							
MFBH02	0.25	3	ES	793916	28/09/21							
MFBH02	0.25	3	ES	793917	28/09/21							
MFBH02	0.25	3	ES	793918	28/09/21							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted]

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27494

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by ICP-OES	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27494

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP129	In-house documented method	Determination of total sulphur by ICP-OES spectroscopy	Yes	Yes	Dry
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP137	BS7755: Section 3.9: 1995/ISO 11466:1995	Determination of acid extractable metals in soil by ICP-OES	Selected	Selected	Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols by GC/FID DI			Wet
TP169	In-house documented method	Determination of water soluble sulphate in 2:1 water/soil extract by ICP-OES spectroscopy	Yes	Yes	Wet
TP171	In-house documented method	Determination of acid soluble sulphate by ICP-OES spectroscopy	Yes	Yes	Dry
TP174	In-house documented method	Determination of Total Organic Carbon in soils by high temperature combustion & NDIR detection	Yes		Dry
TP178	In-house documented method	Determination of water soluble nitrate by ion selective electrode			Dry
TP181	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021)	Asbestos Identification in bulk materials	Yes	No	Dry
TP183	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021) & Standing Committee of Analysts: The Quantification of Asbestos in Soil (2017, withdrawn Oct 2020)	Asbestos Identification & Quantification in soils	Yes	No	Dry
TP185	In-house documented method	Determination of loss on ignition at 150-440°C by gravimetry	No	No	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	**SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)**	**Appendix S3**
N/A	N/A		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site YORKSHIRE GREEN G.I.	Contract No **B27494**
	Client SOCOTEC	
	Engineer	

NOTES - ASBESTOS TESTING

The Limit of Detection of the method is 0.001% dry mass of asbestos fibre of the dry weight of soil provided. Where the result of analysis is ND (Not Detected), this indicates that presence of asbestos is below this level.

The Limit of Quantitation of the test is 0.001% dry mass of asbestos fibre of dry weight of soil/material provided based on method validation where the size of sample provided is in excess of 600g.

Asbestos analysis is only undertaken at the Birmingham Laboratory only.

The uncertainty of measurement for the quantification of asbestos fibre in soil can be provided on request.

The identification of product type or the Asbestos Containing Material (ACM) within a soil sample is based on the opinion of the analyst based on the visual assessment and may not be accurate and is not covered by the scope of UKAS accreditation.

The analysis result pertains only to the sample provided and is not guaranteed to be representative in whole or part from where it was taken.

Information relating to the sampling site, ie hole depth and location, is provided by the client and Terra Tek do not accept any responsibilty for the accuracy of validity of this information.

Originator	Checked & Approved	NOTES - ASBESTOS TESTING	Appendix S4
MN	N/A		Sheet 1 of 1

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

SOCOTEC
Units 4 & 5
Gainsborough Trading Estate
Leamington Road
Southam
Warwickshire
For the attention of Emma Cronin

Report No: B27509
Issue No 01

LABORATORY TEST REPORT

Project Name	**YORKSHIRE GREEN G.I.**		
Project Number	**B27509**	Date samples received	05/10/2021
Your Ref	A1023-21	Date written instructions received	05/10/2021
Purchase Order	A23142	Date testing commenced	06/10/2021

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1	1	Client Specified Suite - Soil	Yes
2	1	PAHs (speciated) - Soil	Yes
3	1	TPHCWG - Soil	Yes
4	1	VPHCWG / BTEX - Soil	Yes
5	1	Phenols (Speciated) - Soil	Yes
6	1	VOCs - Soil	Yes
7	1	Asbestos Screen - Soil	Yes

Remarks :

Issued by : Stephen Langman Date of Issue : 18/10/2021

[redacted]

Approved Signatories :
S Langman (Laboratory Coordinator), D Bowen (Production Manager)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
Samples tested for asbestos are retained for 6 months from the date of analysis.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our [redacted]

mCERTS UKAS TESTING 0126 30 YEARS 1990-2020

[redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic mg/kg	Cadmium mg/kg	Lead mg/kg	Mercury mg/kg	Selenium mg/kg	Copper mg/kg	Nickel mg/kg	Zinc mg/kg	Barium mg/kg	Beryllium mg/kg	Vanadium mg/kg	Boron (water soluble) mg/kg	Antimony mg/kg	Manganese mg/kg	Molybdenum mg/kg	Iron mg/kg	Chromium mg/kg	Hexavalent Chromium mg/kg	Chromium Trivalent mg/kg	Free Cyanide mg/kg
MFBH03A	0.50	5	ES	794539	4.1	0.34	11	<0.1	<0.5	13	17	64.2	518	0.58	20	0.8	0.5	386.2	<0.5	16,238	15	<0.3	15	<1.0
Limits of Detection					0.5	0.10	1	0.10	0.5	1	1	0.5	0.5	0.05	1	0.2	0.5	0.5	0.5	1	1	0.3	1	1.0
Terra Tek Analysis Method					TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP032	TP137	TP137	TP137	TP137	TP137	TP184	TP137	TP047
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	U	M	M	M	M	M	M	U	U	M	M	N	M	U	M	N

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification				Lab Sample ID	Phenol mg/kg	Sulphate (soluble in 2:1 water extract) as SO4 g/l	Total Sulphur %	Fraction organic carbon %	pH
Hole	Depth m	Sample Ref	Sample Type						
MFBH03A	0.50	5	ES	794539	1.4	0.04	0.03	22.2	8.5
Limits of Detection					0.7	0.01	0.01	1	~
Terra Tek Analysis Method					TP046	TP169	TP129	TP189	TP019
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	N	n

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No A1023-21

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene mg/kg	Acenaphthylene mg/kg	Acenaphthene mg/kg	Fluorene mg/kg	Phenanthrene mg/kg	Anthracene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg	Benzo (a) anthracene mg/kg	Chrysene mg/kg	Benzo (b) fluoranthene mg/kg	Benzo (k) fluoranthene mg/kg	Benzo (a) pyrene mg/kg	Indeno (1,2,3 - cd) pyrene mg/kg	Dibenzo (ah) anthracene mg/kg	Benzo (ghi) perylene mg/kg	Total PAHs (USEPA 16) mg/kg			
MFBH03A	0.50	5	ES	794539	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
Limits of Detection					0.05	0.05	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.10	0.10	1.3			
Terra Tek Analysis Method					TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045			
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			

Originator	Checked & Approved
DAB	[redacted]

POLYAROMATIC HYDROCARBONS (USEPA 16) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No **A1023-21**

Sample Identification				Lab Sample ID	TPH (Aliphatics C8-C10) mg/kg	TPH (Aliphatics >C10-C12) mg/kg	TPH (Aliphatics >C12-C16) mg/kg	TPH (Aliphatics >C16-C21) mg/kg	TPH (Aliphatics >C21-C35) mg/kg	TPH (Aliphatics >C35-C40) mg/kg	TPH (Aromatics >C10-C12) mg/kg	TPH (Aromatics >C12-C16) mg/kg	TPH (Aromatics >C16-C21) mg/kg	TPH (Aromatics >C21-C35) mg/kg	TPH (Aromatics >C35-C40) mg/kg									**Sample received in appropriate container**
Hole	Depth m	Sample Ref	Sample Type																					
MFBH03A	0.50	5	ES	794540	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1									**No**
Limits of Detection					1	1	1	1	1	1	1	1	1	1	1									
Terra Tek Analysis Method					TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126									
Accreditation U=UKAS N=No accreditation					U	U	U	U	U	U	U	U	U	U	U									

Originator	Checked & Approved
DAB	[redacted]

TPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/kg	TPH (Aliphatics C6-C8) µg/kg	TPH (Aromatics C6-C7) µg/kg	TPH (Aromatics C7-C8) µg/kg	TPH (Aromatics C8-C10) µg/kg	Benzene µg/kg	Ethylbenzene µg/kg	m & p - Xylene µg/kg	o - Xylene µg/kg	Toluene µg/kg	MTBE µg/kg								**Sample received in appropriate container**
MFBH03A	0.50	5	ES	794540	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
Limits of Detection					10	10	10	10	10	5	5	10	5	5	5								
Terra Tek Analysis Method					TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M								
Accreditation U=UKAS N=No accreditation																							

Originator	Checked & Approved
DAB	[redacted]

VPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 4

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No A1023-21

Sample Identification				Lab Sample ID	Phenol µg/kg	2 - Chlorophenol µg/kg	2 - Methylphenol µg/kg	4 - Methylphenol µg/kg	2 - Nitrophenol µg/kg	2,4 - Dimethylphenol µg/kg	2,4 - Dichlorophenol µg/kg	4 - Chloro - 3 - Methylphenol µg/kg	2,4,6 - Trichlorophenol µg/kg	2,4,5 - Trichlorophenol µg/kg	2,4 - Dinitrophenol µg/kg	4 - Nitrophenol µg/kg	Pentachlorophenol µg/kg							Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type																					
MFBH03A	0.50	5	ES	794540	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
Limits of Detection					100	100	100	100	100	100	100	100	100	100	500	100	80							
Terra Tek Analysis Method					TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145							
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	U	M	M	M	M	U	M	M							

Originator	Checked & Approved
DAB	[redacted]

PHENOLS (SPECIATED) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 5

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No A1023-21

Sample Identification					1,1,1,2 - Tetrachloroethane	1,1,1 - Trichloroethane	1,1,2,2 - Tetrachloroethane	1,1,2 - Trichloroethane	1,1 - Dichloroethane	1,1 - Dichloroethene	1,1 - Dichloropropene	1,2,3 - Trichloropropane	1,2,4 - Trimethylbenzene	1,2 - Dibromoethane	1,2 - Dichlorobenzene	1,2 - Dichloroethane	1,2 - Dichloropropane	1,3,5 - Trimethylbenzene	1,3 - Dichlorobenzene	1,3 - Dichloropropane	1,4 - Dichlorobenzene	2,2 - Dichloropropane	2 - Chlorotoluene	4 - Chlorotoluene
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
MFBH03A	0.50	5	ES	794540	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	U	M	M	M	U	U	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No A1023-21

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	4 - Isopropyltoluene µg/kg	Benzene µg/kg	Bromobenzene µg/kg	Bromochloromethane µg/kg	Bromodichloromethane µg/kg	Tribromomethane µg/kg	Bromomethane µg/kg	Tetrachloromethane µg/kg	Chlorobenzene µg/kg	Chloroethane µg/kg	Chloroform µg/kg	Chloromethane µg/kg	cis 1,2 - Dichloroethene µg/kg	cis 1,3 - Dichloropropene µg/kg	Dibromochloromethane µg/kg	Dibromomethane µg/kg	Dichlorodifluoromethane µg/kg	Ethylbenzene µg/kg	iso - Propylbenzene µg/kg	m & p - Xylene µg/kg
MFBH03A	0.50	5	ES	794540	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					U	M	M	M	M	U	U	M	M	M	M	M	M	M	M	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client:

Engineer:

Contract No A1023-21

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Methylene chloride (Dichloromethane) µg/kg	n - Butylbenzene µg/kg	n - Propylbenzene µg/kg	o - Xylene µg/kg	sec - Butylbenzene µg/kg	Styrene µg/kg	tert - Butylbenzene µg/kg	Tetrachloroethene µg/kg	Toluene µg/kg	Trans - 1,2 - Dichloroethene µg/kg	Trans - 1,3 - Dichloropropene µg/kg	Trichloroethene µg/kg	Trichlorofluoromethane µg/kg	Chloroethene µg/kg					Sample received in appropriate container
MFBH03A	0.50	5	ES	794540	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
Limits of Detection					50	5	5	5	5	5	5	5	5	5	5	5	5	5					
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154					
Accreditation M=Mcerts U=UKAS N=No accreditation					U	U	M	M	M	U	M	U	M	M	M	M	M	M					

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification				Lab Sample ID	Asbestos	Chrysotile (white asbestos)	Amosite (brown asbestos)	Crocidolite (blue asbestos)	Anthophyllite asbestos	Tremolite asbestos	Actinolite asbestos	Quantity of soil/material provided	Comments	Quantification Result (dry mass)	Analyst
Hole	Depth m	Sample Ref	Sample Type									g		%	
MFBH03A	0.50	5	ES	794539	ND	~	~	~	~	~	~	1,234		~	SK
Limits of Detection Terra Tek Analysis Method Accreditation M=Mcerts U=UKAS N=No accreditation												~ TP181 U		0.001 TP183 U	

Originator	Checked & Approved
MN	[redacted]

ASBESTOS IDENTIFICATION

Refer to Appendix S4 notes when interpreting asbestos results

KEY

ND - no asbestos detected

D - asbestos detected

Figure 7

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
MFBH03A	0.50	5	ES	794539	30/09/21	14.0	Sandy CLAY	Fine to medium gravel	gravel	13.4	9.4

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated. Samples for asbestos testing are dried at 85^{o}C.

With the exception of samples analysed for asbestos, the laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	**SAMPLE DESCRIPTIONS**	**Appendix S1**
DAB	[redacted]		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
MFBH03A	0.50	5	ES	794539	30/09/21							
MFBH03A	0.50	5	ES	794540	30/09/21							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted]

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by ICP-OES	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	**SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)**	**Appendix S3**
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client

Engineer

Contract No A1023-21

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP129	In-house documented method	Determination of total sulphur by ICP-OES spectroscopy	Yes	Yes	Dry
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP137	BS7755: Section 3.9: 1995/ISO 11466:1995	Determination of acid extractable metals in soil by ICP-OES	Selected	Selected	Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols by GC/FID DI			Wet
TP169	In-house documented method	Determination of water soluble sulphate in 2:1 water/soil extract by ICP-OES spectroscopy	Yes	Yes	Wet
TP171	In-house documented method	Determination of acid soluble sulphate by ICP-OES spectroscopy	Yes	Yes	Dry
TP174	In-house documented method	Determination of Total Organic Carbon in soils by high temperature combustion & NDIR detection	Yes		Dry
TP178	In-house documented method	Determination of water soluble nitrate by ion selective electrode			Dry
TP181	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021)	Asbestos Identification in bulk materials	Yes	No	Dry
TP183	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021) & Standing Committee of Analysts: The Quantification of Asbestos in Soil (2017, withdrawn Oct 2020)	Asbestos Identification & Quantification in soils	Yes	No	Dry
TP185	In-house documented method	Determination of loss on ignition at 150-440°C by gravimetry	No	No	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site YORKSHIRE GREEN G.I.	Contract No **A1023-21**
	Client	
	Engineer	

NOTES - ASBESTOS TESTING

The Limit of Detection of the method is 0.001% dry mass of asbestos fibre of the dry weight of soil provided. Where the result of analysis is ND (Not Detected), this indicates that presence of asbestos is below this level.

The Limit of Quantitation of the test is 0.001% dry mass of asbestos fibre of dry weight of soil/material provided based on method validation where the size of sample provided is in excess of 600g.

Asbestos analysis is only undertaken at the Birmingham Laboratory only.

The uncertainty of measurement for the quantification of asbestos fibre in soil can be provided on request.

The identification of product type or the Asbestos Containing Material (ACM) within a soil sample is based on the opinion of the analyst based on the visual assessment and may not be accurate and is not covered by the scope of UKAS accreditation.

The analysis result pertains only to the sample provided and is not guaranteed to be representative in whole or part from where it was taken.

Information relating to the sampling site, ie hole depth and location, is provided by the client and Terra Tek do not accept any responsibilty for the accuracy of validity of this information.

Originator	Checked & Approved	NOTES - ASBESTOS TESTING	Appendix S4
MN	N/A		Sheet 1 of 1

TERRA TEK
SITE INVESTIGATION & LABORATORY SERVICES

SOCOTEC
Units 4 & 5
Gainsborough Trading Estate
Leamington Road
Sotham
Warwickshire
For the attention of Dan Senkans

Report No: B27567
Issue No 01

LABORATORY TEST REPORT

Project Name	**YORKSHIRE GREEN G.I.**		
Project Number	**B27567**	Date samples received	12/10/2021
Your Ref		Date written instructions received	26/10/2021
Purchase Order	A23142	Date testing commenced	26/10/2021

Please find enclosed the results as summarised below

Figure / Table	Test Quantity	Description	ISO 17025 Accredited
1 - 7	2	Client Specified Suite - Soil	See report
8 - 9	1	Client Specified Suite - L2 Leachate	No

Remarks :

Issued by : Stephen Langman Date of Issue : 06/11/2021

[redacted]

Approved Signatories :

S Langman (Laboratory Coordinator), D Bowen (Production Manager)

Key to symbols used in this report
S/C : Testing was sub-contracted

Unless we are notified to the contrary, samples will be disposed after a period of one month from this date.
Samples tested for asbestos are retained for 6 months from the date of analysis.
The results reported relate to samples received in the laboratory only.
All results contained in this report are provisional unless signed by an approved signatory
This report should not be reproduced except in full without the written approval of the laboratory.
Under multisite accreditation the testing contained in this report may have been performed at another Terra Tek laboratory.
The enclosed results remain the property of Terra Tek Limited and we reserve the right to withdraw
our report if we have not received cleared funds in accordance with our standard terms and conditions
Only those results indicated in this report are UKAS accredited and any opinions or interpretations expressed are outside the scope of UKAS accreditation.
Feedback on the this report may be left via our website [redacted]

mCERTS UKAS TESTING 0126 30 YEARS 1990-2020

Head Office : 62 Rochsolloch Road, Airdrie, ML6 9BG

[redacted]

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic mg/kg	Cadmium mg/kg	Lead mg/kg	Mercury mg/kg	Selenium mg/kg	Copper mg/kg	Nickel mg/kg	Zinc mg/kg	Barium mg/kg	Beryllium mg/kg	Vanadium mg/kg	Boron (water soluble) mg/kg	Antimony mg/kg	Manganese mg/kg	Molybdenum mg/kg	Iron mg/kg	Chromium mg/kg	Hexavalent Chromium mg/kg	Chromium Trivalent mg/kg	Free Cyanide mg/kg
OSBH03	0.30	4	ES	795755	6.8	0.29	27	0.16	0.5	18	24	60.4	98	0.83	35	0.6	1.5	446.4	0.6	3,086	28	<0.3	28	<1.0
OSBH02	0.50	4	ES	795785	7.2	0.18	22	<0.1	<0.5	19	27	53.0	87	1.08	41	0.3	1.5	122.9	0.5	1,170	36	<0.3	36	<1.0
Limits of Detection					0.5	0.10	1	0.10	0.5	1	1	0.5	0.5	0.05	1	0.2	0.5	0.5	0.5	1	1	0.3	1	1.0
Terra Tek Analysis Method					TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP032	TP137	TP137	TP137	TP137	TP137	TP184	TP137	TP047
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	U	M	M	M	M	M	M	U	U	M	M	N	M	N	M	N

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Phenol mg/kg	Sulphate (soluble in 2:1 water extract) as SO4 g/l	Total Sulphur %	Fraction organic carbon %	pH															
OSBH03	0.30	4	ES	795755	<0.7	0.02	0.02	85	7.9															
OSBH02	0.50	4	ES	795785	<0.7	0.02	0.01	100	7.8															
Limits of Detection					0.7	0.01	0.01	1	~															
Terra Tek Analysis Method					TP145	TP169	TP129	TP189	TP019															
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	N	n															

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene mg/kg	Acenaphthylene mg/kg	Acenaphthene mg/kg	Fluorene mg/kg	Phenanthrene mg/kg	Anthracene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg	Benzo (a) anthracene mg/kg	Chrysene mg/kg	Benzo (b) fluoranthene mg/kg	Benzo (k) fluoranthene mg/kg	Benzo (a) pyrene mg/kg	Indeno (1,2,3 - cd) pyrene mg/kg	Dibenzo (ah) anthracene mg/kg	Benzo (ghi) perylene mg/kg	Total PAHs (USEPA 16) mg/kg			
OSBH03	0.30	4	ES	795755	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	0.11	0.10	<0.10	<0.10	0.60	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
OSBH02	0.50	4	ES	795785	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
Limits of Detection					0.05	0.05	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.10	0.10	1.3			
Terra Tek Analysis Method					TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045			
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			

Originator	Checked & Approved
DAB	[redacted]

POLYAROMATIC HYDROCARBONS (USEPA 16) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C8-C10) mg/kg	TPH (Aliphatics >C10-C12) mg/kg	TPH (Aliphatics >C12-C16) mg/kg	TPH (Aliphatics >C16-C21) mg/kg	TPH (Aliphatics >C21-C35) mg/kg	TPH (Aliphatics >C35-C40) mg/kg	TPH (Aromatics >C10-C12) mg/kg	TPH (Aromatics >C12-C16) mg/kg	TPH (Aromatics >C16-C21) mg/kg	TPH (Aromatics >C21-C35) mg/kg	TPH (Aromatics >C35-C40) mg/kg								**Sample received in appropriate container**
OSBH03	0.30	4	ES	795756	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1								**No**
OSBH02	0.50	4	ES	795786	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1								**No**
Limits of Detection					1	1	1	1	1	1	1	1	1	1	1								
Terra Tek Analysis Method					TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126								
Accreditation U=UKAS N=No accreditation					U	U	U	U	U	U	U	U	U	U	U								

Originator	Checked & Approved
DAB	[redacted]

TPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/kg	TPH (Aliphatics C6-C8) µg/kg	TPH (Aromatics C6-C7) µg/kg	TPH (Aromatics C7-C8) µg/kg	TPH (Aromatics C8-C10) µg/kg	Benzene µg/kg	Ethylbenzene µg/kg	m & p - Xylene µg/kg	o - Xylene µg/kg	Toluene µg/kg	MTBE µg/kg								**Sample received in appropriate container**
OSBH03	0.30	4	ES	795756	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
OSBH02	0.50	4	ES	795786	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
Limits of Detection					10	10	10	10	10	5	5	10	5	5	5								
Terra Tek Analysis Method					TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M	TP154 M								
Accreditation U=UKAS N=No accreditation																							

Originator	Checked & Approved
DAB	[redacted]

VPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 4

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification				Lab Sample ID	Phenol µg/kg	2 - Chlorophenol µg/kg	2 - Methylphenol µg/kg	4 - Methylphenol µg/kg	2 - Nitrophenol µg/kg	2,4 - Dimethylphenol µg/kg	2,4 - Dichlorophenol µg/kg	4 - Chloro - 3 - Methylphenol µg/kg	2,4,6 - Trichlorophenol µg/kg	2,4,5 - Trichlorophenol µg/kg	2,4 - Dinitrophenol µg/kg	4 - Nitrophenol µg/kg	Pentachlorophenol µg/kg							Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type																					
OSBH03	0.30	4	ES	795756	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
OSBH02	0.50	4	ES	795786	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
Limits of Detection					100	100	100	100	100	100	100	100	100	100	500	100	80							
Terra Tek Analysis Method					TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145							
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	U	M	M	M	M	U	M	M							

Originator	Checked & Approved
DAB	[redacted]

PHENOLS (SPECIATED) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 5

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification					1,1,1,2 - Tetrachloroethane	1,1,1 - Trichloroethane	1,1,2,2 - Tetrachloroethane	1,1,2 - Trichloroethane	1,1 - Dichloroethane	1,1 - Dichloroethene	1,1 - Dichloropropene	1,2,3 - Trichloropropane	1,2,4 - Trimethylbenzene	1,2 - Dibromoethane	1,2 - Dichlorobenzene	1,2 - Dichloroethane	1,2 - Dichloropropane	1,3,5 - Trimethylbenzene	1,3 - Dichlorobenzene	1,3 - Dichloropropane	1,4 - Dichlorobenzene	2,2 - Dichloropropane	2 - Chlorotoluene	4 - Chlorotoluene
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
OSBH03	0.30	4	ES	795756	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
OSBH02	0.50	4	ES	795786	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	U	M	M	M	U	U	M	U	M	M	M

Originator: DAB

Checked & Approved: [redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	4 - Isopropyltoluene µg/kg	Benzene µg/kg	Bromobenzene µg/kg	Bromochloromethane µg/kg	Bromodichloromethane µg/kg	Tribromomethane µg/kg	Bromomethane µg/kg	Tetrachloromethane µg/kg	Chlorobenzene µg/kg	Chloroethane µg/kg	Chloroform µg/kg	Chloromethane µg/kg	cis 1,2 - Dichloroethene µg/kg	cis 1,3 - Dichloropropene µg/kg	Dibromochloromethane µg/kg	Dibromomethane µg/kg	Dichlorodifluoromethane µg/kg	Ethylbenzene µg/kg	iso - Propylbenzene µg/kg	m & p - Xylene µg/kg
OSBH03	0.30	4	ES	795756	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
OSBH02	0.50	4	ES	795786	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					U	M	M	M	M	U	U	M	M	M	M	M	M	M	M	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Methylene chloride (Dichloromethane) µg/kg	n - Butylbenzene µg/kg	n - Propylbenzene µg/kg	o - Xylene µg/kg	sec - Butylbenzene µg/kg	Styrene µg/kg	tert - Butylbenzene µg/kg	Tetrachloroethene µg/kg	Toluene µg/kg	Trans - 1,2 - Dichloroethene µg/kg	Trans - 1,3 - Dichloropropene µg/kg	Trichloroethene µg/kg	Trichlorofluoromethane µg/kg	Chloroethene µg/kg					Sample received in appropriate container
OSBH03	0.30	4	ES	795756	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
OSBH02	0.50	4	ES	795786	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
Limits of Detection					50	5	5	5	5	5	5	5	5	5	5	5	5	5					
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154					
Accreditation M=Mcerts U=UKAS N=No accreditation					U	U	M	M	M	U	M	U	M	M	M	M	M	M					

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification				Lab Sample ID	Asbestos	Chrysotile (white asbestos)	Amosite (brown asbestos)	Crocidolite (blue asbestos)	Anthophyllite asbestos	Tremolite asbestos	Actinolite asbestos	Quantity of soil/material provided	Comments	Quantification Result (dry mass)	Analyst
Hole	Depth m	Sample Ref	Sample Type									g		%	
OSBH03	0.30	4	ES	795754	ND	~	~	~	~	~	~	985		~	MN
OSBH02	0.50	4	ES	795784	ND	~	~	~	~	~	~	830		~	MN
Limits of Detection Terra Tek Analysis Method Accreditation M=Mcerts U=UKAS N=No accreditation												~ TP181 U		0.001 TP183 U	

Originator	Checked & Approved
MN	[redacted]

ASBESTOS IDENTIFICATION

Refer to Appendix S4 notes when interpreting asbestos results

KEY

ND - no asbestos detected

D - asbestos detected

Figure 7

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic µg/l	Cadmium µg/l	Lead µg/l	Mercury µg/l	Selenium µg/l	Copper µg/l	Nickel µg/l	Zinc µg/l	Antimony µg/l	Iron µg/l	Manganese µg/l	Molybdenum µg/l	Calcium mg/l	Magnesium mg/l	Barium µg/l	Beryllium µg/l	Vanadium µg/l	Boron mg/l	Chromium µg/l	Hexavalent Chromium mg/l
OSBH02	0.50	4	ES	795785	1.6	<0.04	2.95	<0.05	0.8	3.30	0.7	1.6	0.36	1,980	4.59	0.5	21	4	12.87	0.08	4.9	<0.05	1.93	<0.03
Limits of Detection					0.2	0.04	0.01	0.05	0.5	0.03	0.3	0.3	0.05	1	0.02	0.2	4	1	0.08	0.01	0.2	0.5	0.04	0.03
Terra Tek Analysis Method					TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP156	TP117	TP117	TP156	TP156	TP156	TP054	TP156	TP057
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Chromiun Triavlent µg/l	Phenol µg/l	Free Cyanide mg/l	Complex Cyanide mg/l	Ammoniacal Nitrogen (as N) mg/l	Chloride mg/l	Sulphate (as SO4) mg/l	Fluoride mg/l	pH											
OSBH02	0.50	4	ES	795785	1.93	<2.00	<0.05	<0.05	<0.1	6.4	14	2.9	8.0											
Limits of Detection					0.04	0.50	0.05	0.05	0.1	0.1	4	0.1	0.1											
Terra Tek Analysis Method					TP156	TP128	TP194	TP194	TP184	TP184	TP065	TP184	TP020											
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N	N											

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27567

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Phenol µg/l	2 - Chlorophenol µg/l	2 - Nitrophenol µg/l	2,4 - Dimethylphenol µg/l	2,4 - Dichlorophenol µg/l	4 - Chloro - 3 - Methylphenol µg/l	2,4,6 - Trichlorophenol µg/l	4 - Nitrophenol µg/l	Pentachlorophenol µg/l										
OSBH02	0.50	4	ES	795785	<2.00	<2.00	<2.00	<2.00	<2.00	<8.00	<2.00	<4.00	<4.00										
Limits of Detection					0.50	0.50	0.50	0.50	0.50	2.00	0.50	1.00	1.00										
Terra Tek Analysis Method					TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128										
Accreditation U=UKAS or N/A					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A										

Originator	Checked & Approved
DAB	[redacted]

SPECIATED PHENOLS (GC/MS) - NRA LEACHATE

Figure 9

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
OSBH03	0.30	4	ES	795755	Deviating	16.7	CLAY	Fine gravel		14.0	19.2
OSBH02	0.50	4	ES	795785	Deviating	16.7	Sandy CLAY	Fine gravel		16.4	24.3

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated. Samples for asbestos testing are dried at 85^{o}C.

With the exception of samples analysed for asbestos, the laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SAMPLE DESCRIPTIONS	Appendix S1
DAB	[redacted]		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
OSBH03	0.30	4	ES	795754	Deviating							
OSBH03	0.30	4	ES	795755	Deviating							
OSBH03	0.30	4	ES	795756	Deviating							
OSBH02	0.50	4	ES	795784	Deviating							
OSBH02	0.50	4	ES	795785	Deviating							
OSBH02	0.50	4	ES	795786	Deviating							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted]

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by ICP-OES	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27567

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP129	In-house documented method	Determination of total sulphur by ICP-OES spectroscopy	Yes	Yes	Dry
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP137	BS7755: Section 3.9: 1995/ISO 11466:1995	Determination of acid extractable metals in soil by ICP-OES	Selected	Selected	Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols by GC/FID DI			Wet
TP169	In-house documented method	Determination of water soluble sulphate in 2:1 water/soil extract by ICP-OES spectroscopy	Yes	Yes	Wet
TP171	In-house documented method	Determination of acid soluble sulphate by ICP-OES spectroscopy	Yes	Yes	Dry
TP174	In-house documented method	Determination of Total Organic Carbon in soils by high temperature combustion & NDIR detection	Yes		Dry
TP178	In-house documented method	Determination of water soluble nitrate by ion selective electrode			Dry
TP181	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021)	Asbestos Identification in bulk materials	Yes	No	Dry
TP183	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021) & Standing Committee of Analysts: The Quantification of Asbestos in Soil (2017, withdrawn Oct 2020)	Asbestos Identification & Quantification in soils	Yes	No	Dry
TP185	In-house documented method	Determination of loss on ignition at 150-440°C by gravimetry	No	No	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site YORKSHIRE GREEN G.I.	Contract No **B27567**
	Client SOCOTEC	
	Engineer	

NOTES - ASBESTOS TESTING

The Limit of Detection of the method is 0.001% dry mass of asbestos fibre of the dry weight of soil provided. Where the result of analysis is ND (Not Detected), this indicates that presence of asbestos is below this level.

The Limit of Quantitation of the test is 0.001% dry mass of asbestos fibre of dry weight of soil/material provided based on method validation where the size of sample provided is in excess of 600g.

Asbestos analysis is only undertaken at the Birmingham Laboratory only.

The uncertainty of measurement for the quantification of asbestos fibre in soil can be provided on request.

The identification of product type or the Asbestos Containing Material (ACM) within a soil sample is based on the opinion of the analyst based on the visual assessment and may not be accurate and is not covered by the scope of UKAS accreditation.

The analysis result pertains only to the sample provided and is not guaranteed to be representative in whole or part from where it was taken.

Information relating to the sampling site, ie hole depth and location, is provided by the client and Terra Tek do not accept any responsibilty for the accuracy of validity of this information.

Originator	Checked & Approved	NOTES - ASBESTOS TESTING	Appendix S4
MN	N/A		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification				Lab Sample ID	Arsenic	Cadmium	Lead	Mercury	Selenium	Copper	Nickel	Zinc	Barium	Beryllium	Vanadium	Boron (water soluble)	Antimony	Manganese	Molybdenum	Iron	Chromium	Hexavalent Chromium	Chromium Trivalent	Free Cyanide
Hole	Depth m	Sample Ref	Sample Type		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
MTFP01	0.50	4	ES	796363	11.3	0.36	27	<0.1	1.0	29	27	58.1	1,025	0.81	31	1.2	1.1	907.7	2.8	27,011	21	<0.3	21	<1.0
MTFP03	0.70	4	ES	796388	15.0	0.44	25	0.14	0.8	24	33	116.2	341	1.06	39	1.1	2.0	637.0	2.1	30,667	28	<0.3	28	<1.0
MTFP03	1.00	7	ES	796393	13.8	0.42	22	0.13	<0.5	19	31	105.8	310	0.95	36	1.1	1.8	530.8	1.9	30,795	26	<0.3	26	<1.0
Limits of Detection					0.5	0.10	1	0.10	0.5	1	1	0.5	0.5	0.05	1	0.2	0.5	0.5	0.5	1	1	0.3	1	1.0
Terra Tek Analysis Method					TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP032	TP137	TP137	TP137	TP137	TP137	TP184	TP137	TP047
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	U	M	M	M	M	M	M	U	U	M	M	N	M	N	M	N

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27597

Sample Identification				Lab Sample ID	Fraction Organic Carbon %	Sulphate (soluble in 2:1 water extract) as SO4 g/l	Total Sulphur %	pH
Hole	Depth m	Sample Ref	Sample Type					
MTFP01	0.50	4	ES	796363	22	0.04	0.09	7.9
MTFP03	0.70	4	ES	796388	19	0.09	0.07	8.8
MTFP03	1.00	7	ES	796393	21	0.05	0.06	8.6
Limits of Detection					1	0.01	0.01	~
Terra Tek Analysis Method					TP174	TP169	TP129	TP019
Accreditation M=Mcerts U=UKAS N=No accreditation					N	M	M	n

Originator: DAB

Checked & Approved: [redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene mg/kg	Acenaphthylene mg/kg	Acenaphthene mg/kg	Fluorene mg/kg	Phenanthrene mg/kg	Anthracene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg	Benzo (a) anthracene mg/kg	Chrysene mg/kg	Benzo (b) fluoranthene mg/kg	Benzo (k) fluoranthene mg/kg	Benzo (a) pyrene mg/kg	Indeno (1,2,3 - cd) pyrene mg/kg	Dibenzo (ah) anthracene mg/kg	Benzo (ghi) perylene mg/kg	Total PAHs (USEPA 16) mg/kg			
MTFP01	0.50	4	ES	796363	<0.05	<0.05	0.14	0.10	0.79	0.37	1.68	1.38	0.65	0.67	0.65	0.44	0.61	0.36	<0.10	0.46	8.3			
MTFP03	0.70	4	ES	796388	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	0.26	0.22	0.11	0.13	0.10	0.09	0.06	<0.10	<0.10	<0.10	<1.3			
MTFP03	1.00	7	ES	796393	<0.05	<0.05	<0.10	<0.05	0.19	0.11	0.31	0.27	0.14	0.16	0.13	0.11	0.08	<0.10	<0.10	<0.10	1.5			
Limits of Detection					0.05	0.05	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.10	0.10	1.3			
Terra Tek Analysis Method					TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045			
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			

Originator	Checked & Approved
DAB	[redacted]

POLYAROMATIC HYDROCARBONS (USEPA 16) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification					TPH (Aliphatics C8-C10)	TPH (Aliphatics >C10-C12)	TPH (Aliphatics >C12-C16)	TPH (Aliphatics >C16-C21)	TPH (Aliphatics >C21-C35)	TPH (Aliphatics >C35-C40)	TPH (Aromatics >C10-C12)	TPH (Aromatics >C12-C16)	TPH (Aromatics >C16-C21)	TPH (Aromatics >C21-C35)	TPH (Aromatics >C35-C40)									
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg									**Sample received in appropriate container**
MTFP01	0.50		V	796364	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1									**Yes**
MTFP03	0.70		V	796389	<1	<1	<1	<1	<1	<1	<1	<1	<1	12	<1									**Yes**
MTFP03	1.00		V	796394	<1	<1	<1	<1	<1	<1	<1	<1	<1	18	<1									**Yes**
Limits of Detection					1	1	1	1	1	1	1	1	1	1	1									
Terra Tek Analysis Method					TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126									
Accreditation U=UKAS N=No accreditation					U	U	U	U	U	U	U	U	U	U	U									

Originator	Checked & Approved
DAB	[redacted]

TPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/kg	TPH (Aliphatics C6-C8) µg/kg	TPH (Aromatics C6-C7) µg/kg	TPH (Aromatics C7-C8) µg/kg	TPH (Aromatics C8-C10) µg/kg	Benzene µg/kg	Ethylbenzene µg/kg	m & p - Xylene µg/kg	o - Xylene µg/kg	Toluene µg/kg	MTBE µg/kg								**Sample received in appropriate container**
MTFP01	0.50	4	ES	796364	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
MTFP03	0.70	4	ES	796389	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
MTFP03	1.00	7	ES	796394	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
Limits of Detection					10	10	10	10	10	5	5	10	5	5	5								
Terra Tek Analysis Method					TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M								
Accreditation U=UKAS N=No accreditation																							

Originator: DAB

Checked & Approved: [redacted]

VPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 4

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Phenol µg/kg	2 - Chlorophenol µg/kg	2 - Methylphenol µg/kg	4 - Methylphenol µg/kg	2 - Nitrophenol µg/kg	2,4 - Dimethylphenol µg/kg	2,4 - Dichlorophenol µg/kg	4 - Chloro - 3 - Methylphenol µg/kg	2,4,6 - Trichlorophenol µg/kg	2,4,5 - Trichlorophenol µg/kg	2,4 - Dinitrophenol µg/kg	4 - Nitrophenol µg/kg	Pentachlorophenol µg/kg							Sample received in appropriate container
MTFP01	0.50	4	ES	796364	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
MTFP03	0.70	4	ES	796389	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
MTFP03	1.00	7	ES	796394	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
Limits of Detection					100	100	100	100	100	100	100	100	100	100	500	100	80							
Terra Tek Analysis Method					TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145							
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	U	M	M	M	M	U	M	M							

Originator	Checked & Approved
DAB	[redacted]

PHENOLS (SPECIATED) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 5

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification					1,1,1,2 - Tetrachloroethane	1,1,1 - Trichloroethane	1,1,2,2 - Tetrachloroethane	1,1,2 - Trichloroethane	1,1 - Dichloroethane	1,1 - Dichloroethene	1,1 - Dichloropropene	1,2,3 - Trichloropropane	1,2,4 - Trimethylbenzene	1,2 - Dibromoethane	1,2 - Dichlorobenzene	1,2 - Dichloroethane	1,2 - Dichloropropane	1,3,5 - Trimethylbenzene	1,3 - Dichlorobenzene	1,3 - Dichloropropane	1,4 - Dichlorobenzene	2,2 - Dichloropropane	2 - Chlorotoluene	4 - Chlorotoluene
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
MTFP01	0.50	4	ES	796364	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MTFP03	0.70	4	ES	796389	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
MTFP03	1.00	7	ES	796394	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	U	M	M	M	U	U	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	4 - Isopropyltoluene µg/kg	Benzene µg/kg	Bromobenzene µg/kg	Bromochloromethane µg/kg	Bromodichloromethane µg/kg	Tribromomethane µg/kg	Bromomethane µg/kg	Tetrachloromethane µg/kg	Chlorobenzene µg/kg	Chloroethane µg/kg	Chloroform µg/kg	Chloromethane µg/kg	cis 1,2 - Dichloroethene µg/kg	cis 1,3 - Dichloropropene µg/kg	Dibromochloromethane µg/kg	Dibromomethane µg/kg	Dichlorodifluoromethane µg/kg	Ethylbenzene µg/kg	iso - Propylbenzene µg/kg	m & p - Xylene µg/kg
MTFP01	0.50	4	ES	796364	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MTFP03	0.70	4	ES	796389	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
MTFP03	1.00	7	ES	796394	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					U	M	M	M	M	U	U	M	M	M	M	M	M	M	M	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Methylene chloride (Dichloromethane) µg/kg	n - Butylbenzene µg/kg	n - Propylbenzene µg/kg	o - Xylene µg/kg	sec - Butylbenzene µg/kg	Styrene µg/kg	tert - Butylbenzene µg/kg	Tetrachloroethene µg/kg	Toluene µg/kg	Trans - 1,2 - Dichloroethene µg/kg	Trans - 1,3 - Dichloropropene µg/kg	Trichloroethene µg/kg	Trichlorofluoromethane µg/kg	Chloroethene µg/kg					Sample received in appropriate container
MTFP01	0.50	4	ES	796364	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
MTFP03	0.70	4	ES	796389	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
MTFP03	1.00	7	ES	796394	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
Limits of Detection					50	5	5	5	5	5	5	5	5	5	5	5	5	5					
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154					
Accreditation M=Mcerts U=UKAS N=No accreditation					U	U	M	M	M	U	M	U	M	M	M	M	M	M					

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification				Lab Sample ID	Asbestos	Chrysotile (white asbestos)	Amosite (brown asbestos)	Crocidolite (blue asbestos)	Anthophyllite asbestos	Tremolite asbestos	Actinolite asbestos	Quantity of soil/material provided	Comments	Quantification Result (dry mass)	Analyst
Hole	Depth m	Sample Ref	Sample Type									g		%	
MTFP01	0.50	4	ES	796362	ND	~	~	~	~	~	~	1,393		~	MN
MTFP03	0.70	4	ES	796387	ND	~	~	~	~	~	~	1,436		~	MN
MTFP03	1.00	7	ES	796392	ND	~	~	~	~	~	~	1,309		~	MN
Limits of Detection Terra Tek Analysis Method Accreditation M=Mcerts U=UKAS N=No accreditation												~ TP181 U		0.001 TP183 U	

Originator	Checked & Approved
MN	[redacted]

ASBESTOS IDENTIFICATION

Refer to Appendix S4 notes when interpreting asbestos results

KEY

ND - no asbestos detected

D - asbestos detected

Figure 7

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Arsenic µg/l	Cadmium µg/l	Lead µg/l	Mercury µg/l	Selenium µg/l	Copper µg/l	Nickel µg/l	Zinc µg/l	Antimony µg/l	Iron µg/l	Manganese µg/l	Molybdenum µg/l	Calcium mg/l	Magnesium mg/l	Barium µg/l	Beryllium µg/l	Vanadium µg/l	Boron mg/l	Chromium µg/l	Hexavalent Chromium mg/l
MTFP01	0.50	4	ES	796363	0.5	<0.04	<0.01	<0.05	<0.5	5.72	<0.3	<0.3	0.26	34	0.53	4.5	39	11	122.46	<0.01	0.1	<0.5	<0.04	<0.03
MTFP03	0.70	4	ES	796388	1.1	<0.04	<0.01	<0.05	1.3	7.53	<0.3	<0.3	0.62	46	0.47	14.0	35	10	51.70	<0.01	0.9	0.08	<0.04	<0.03
MTFP03	1.00	7	ES	796393	2.0	<0.04	<0.01	<0.05	1.3	5.32	<0.3	<0.3	0.88	1	0.36	15.7	38	8	45.70	0.03	1.5	0.10	1.09	<0.03
Limits of Detection					0.2	0.04	0.01	0.05	0.5	0.03	0.3	0.3	0.05	1	0.02	0.2	4	1	0.08	0.01	0.2	0.05	0.04	0.03
Terra Tek Analysis Method					TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP156 N	TP117 N	TP117 N	TP156 N	TP156 N	TP156 N	TP054 N	TP156 N	TP057 N
Accreditation M=Mcerts U=UKAS N=No accreditation																								

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27597

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Chromiun Triavlent µg/l	Free Cyanide mg/l	Complex Cyanide mg/l	Ammoniacal Nitrogen (as N) mg/l	Chloride mg/l	Sulphate (as SO4) mg/l	Fluoride mg/l	pH												
MTFP01	0.50	4	ES	796363	<0.04	<0.05	<0.05	0.2	14.0	16	1.3	8.3												
MTFP03	0.70	4	ES	796388	<0.04	<0.05	<0.05	<0.1	3.2	33	1.8	8.3												
MTFP03	1.00	7	ES	796393	1.09	<0.05	<0.05	<0.1	3.3	39	1.8	8.3												
Limits of Detection					0.04	0.05	0.05	0.1	0.1	4	0.1	0.1												
Terra Tek Analysis Method					TP156	TP194	TP194	TP184	TP184	TP065	TP184	TP020												
Accreditation M=Mcerts U=UKAS N=No accreditation					N	N	N	N	N	N	N	N												

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - L2 LEACHATE

Figure 8

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27597

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Phenol µg/l	2 - Chlorophenol µg/l	2 - Nitrophenol µg/l	2,4 - Dimethylphenol µg/l	2,4 - Dichlorophenol µg/l	4 - Chloro - 3 - Methylphenol µg/l	2,4,6 - Trichlorophenol µg/l	4 - Nitrophenol µg/l	Pentachlorophenol µg/l										
MTFP01	0.50	4	ES	796363	<0.50	<0.50	<0.50	<0.50	<0.50	<2.00	<0.50	<1.00	<1.00										
MTFP03	0.70	4	ES	796388	<0.50	<0.50	<0.50	<0.50	<0.50	<2.00	<0.50	<1.00	<1.00										
MTFP03	1.00	7	ES	796393	<0.50	<0.50	<0.50	<0.50	<0.50	<2.00	<0.50	<1.00	<1.00										
Limits of Detection					0.50	0.50	0.50	0.50	0.50	2.00	0.50	1.00	1.00										
Terra Tek Analysis Method					TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128	TP128										
Accreditation U=UKAS or N/A					N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A										

Originator	Checked & Approved
DAB	[redacted]

SPECIATED PHENOLS (GC/MS) - NRA LEACHATE

Figure 9

Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27597

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
MTFP01	0.50	4	ES	796363	Deviating	17.0	Clayey SAND	Fine gravel		11.6	21.0
MTFP03	0.70	4	ES	796388	Deviating	17.0	Sandy CLAY	Fine to medium gravel		14.7	34.1
MTFP03	1.00	7	ES	796393	Deviating	17.0	Sandy CLAY	Fine to medium gravel		17.6	20.0

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated. Samples for asbestos testing are dried at 85^{o}C.

With the exception of samples analysed for asbestos, the laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	SAMPLE DESCRIPTIONS	Appendix S1
DAB	[redacted]		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27597

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
MTFP01	0.50	4	ES	796362	Deviating							
MTFP01	0.50	4	ES	796363	Deviating							
MTFP01	0.50	4	ES	796364	Deviating							
MTFP03	0.70	4	ES	796387	Deviating							
MTFP03	0.70	4	ES	796388	Deviating							
MTFP03	0.70	4	ES	796389	Deviating							
MTFP03	1.00	7	ES	796392	Deviating							
MTFP03	1.00	7	ES	796393	Deviating							
MTFP03	1.00	7	ES	796394	Deviating							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted]

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27597

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by ICP-OES	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	**SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)**	**Appendix S3**
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site YORKSHIRE GREEN G.I.	Contract No **B27597**
	Client SOCOTEC	
	Engineer	

NOTES - ASBESTOS TESTING

The Limit of Detection of the method is 0.001% dry mass of asbestos fibre of the dry weight of soil provided. Where the result of analysis is ND (Not Detected), this indicates that presence of asbestos is below this level.

The Limit of Quantitation of the test is 0.001% dry mass of asbestos fibre of dry weight of soil/material provided based on method validation where the size of sample provided is in excess of 600g.

Asbestos analysis is only undertaken at the Birmingham Laboratory only.

The uncertainty of measurement for the quantification of asbestos fibre in soil can be provided on request.

The identification of product type or the Asbestos Containing Material (ACM) within a soil sample is based on the opinion of the analyst based on the visual assessment and may not be accurate and is not covered by the scope of UKAS accreditation.

The analysis result pertains only to the sample provided and is not guaranteed to be representative in whole or part from where it was taken.

Information relating to the sampling site, ie hole depth and location, is provided by the client and Terra Tek do not accept any responsibilty for the accuracy of validity of this information.

Originator	Checked & Approved	NOTES - ASBESTOS TESTING	Appendix S4
MN	N/A		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification				Lab Sample ID	Arsenic	Cadmium	Lead	Mercury	Selenium	Copper	Nickel	Zinc	Barium	Beryllium	Vanadium	Boron (water soluble)	Antimony	Manganese	Molybdenum	Iron	Calcium	Chromium	Hexavalent Chromium	Chromium Trivalent
Hole	Depth m	Sample Ref	Sample Type		mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
STBH01	0.25	2	ES	797060	5.8	0.26	27	0.16	<0.5	28	15	68.7	89	0.55	31	1.2	0.8	170.5	<0.5	12,536	2,138	22	<0.3	22
STBH02	0.50	4	ES	797086	4.8	0.13	27	0.15	<0.5	17	26	56.2	175	1.27	43	0.5	1.1	67.9	<0.5	15,000	2,081	35	<0.3	35
Limits of Detection					0.5	0.10	1	0.10	0.5	1	1	0.5	0.5	0.05	1	0.2	0.5	0.5	0.5	1	1	1	0.3	1
Terra Tek Analysis Method					TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP137	TP032	TP137	TP137	TP137	TP137	TP137	TP137	TP184	TP137
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	U	M	M	M	M	M	M	U	U	M	M	N	N	M	N	M

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK
SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27641

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Free Cyanide mg/kg	Phenol mg/kg	Sulphate (soluble in 2:1 water extract) as SO4 g/l	Total Sulphur %	Fraction organic carbon %	pH														
STBH01	0.25	2	ES	797060	<1.0	<0.7	0.03	0.05	77.4	7.0														
STBH02	0.50	4	ES	797086	<1.0	<0.7	0.04	0.02	76.2	7.7														
Limits of Detection					1.0	0.7	0.01	0.01	1	~														
Terra Tek Analysis Method					TP047	TP145	TP169	TP129	TP189	TP019														
Accreditation M=Mcerts U=UKAS N=No accreditation					N	M	M	M	N	n														

Originator	Checked & Approved
DAB	[redacted]

RESULTS OF CHEMICAL CONTAMINATION TESTS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification																								
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Naphthalene mg/kg	Acenaphthylene mg/kg	Acenaphthene mg/kg	Fluorene mg/kg	Phenanthrene mg/kg	Anthracene mg/kg	Fluoranthene mg/kg	Pyrene mg/kg	Benzo (a) anthracene mg/kg	Chrysene mg/kg	Benzo (b) fluoranthene mg/kg	Benzo (k) fluoranthene mg/kg	Benzo (a) pyrene mg/kg	Indeno (1,2,3 - cd) pyrene mg/kg	Dibenzo (ah) anthracene mg/kg	Benzo (ghi) perylene mg/kg	Total PAHs (USEPA 16) mg/kg			
STBH01	0.25	2	ES	797060	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
STBH02	0.50	4	ES	797086	<0.05	<0.05	<0.10	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.05	<0.05	<0.05	<0.10	<0.10	<0.10	<1.3			
Limits of Detection					0.05	0.05	0.10	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.05	0.05	0.05	0.10	0.10	0.10	1.3			
Terra Tek Analysis Method					TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045	TP045			
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M	M			

Originator	Checked & Approved
DAB	[redacted]

POLYAROMATIC HYDROCARBONS (USEPA 16) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C8-C10) mg/kg	TPH (Aliphatics >C10-C12) mg/kg	TPH (Aliphatics >C12-C16) mg/kg	TPH (Aliphatics >C16-C21) mg/kg	TPH (Aliphatics >C21-C35) mg/kg	TPH (Aliphatics >C35-C40) mg/kg	TPH (Aromatics >C10-C12) mg/kg	TPH (Aromatics >C12-C16) mg/kg	TPH (Aromatics >C16-C21) mg/kg	TPH (Aromatics >C21-C35) mg/kg	TPH (Aromatics >C35-C40) mg/kg								**Sample received in appropriate container**
STBH01	0.25	2	ES	797061	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1								**No**
STBH02	0.50	4	ES	797087	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1								**No**
Limits of Detection					1	1	1	1	1	1	1	1	1	1	1								
Terra Tek Analysis Method					TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126	TP126								
Accreditation U=UKAS N=No accreditation					U	U	U	U	U	U	U	U	U	U	U								

Originator	Checked & Approved
DAB	[redacted]

TPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 3

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	TPH (Aliphatics C5-C6) µg/kg	TPH (Aliphatics C6-C8) µg/kg	TPH (Aromatics C6-C7) µg/kg	TPH (Aromatics C7-C8) µg/kg	TPH (Aromatics C8-C10) µg/kg	Benzene µg/kg	Ethylbenzene µg/kg	m & p - Xylene µg/kg	o - Xylene µg/kg	Toluene µg/kg	MTBE µg/kg								**Sample received in appropriate container**
STBH01	0.25	2	ES	797061	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
STBH02	0.50	4	ES	797087	<10	<10	<10	<10	<10	<5	<5	<10	<5	<5	<5								**No**
Limits of Detection					10	10	10	10	10	5	5	10	5	5	5								
Terra Tek Analysis Method					TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M	TP154M								
Accreditation U=UKAS N=No accreditation																							

Originator	Checked & Approved
DAB	[redacted]

VPHCWG - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 4

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification				Lab Sample ID	Phenol µg/kg	2 - Chlorophenol µg/kg	2 - Methylphenol µg/kg	4 - Methylphenol µg/kg	2 - Nitrophenol µg/kg	2,4 - Dimethylphenol µg/kg	2,4 - Dichlorophenol µg/kg	4 - Chloro - 3 - Methylphenol µg/kg	2,4,6 - Trichlorophenol µg/kg	2,4,5 - Trichlorophenol µg/kg	2,4 - Dinitrophenol µg/kg	4 - Nitrophenol µg/kg	Pentachlorophenol µg/kg							Sample received in appropriate container
Hole	Depth m	Sample Ref	Sample Type																					
STBH01	0.25	2	ES	797061	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
STBH02	0.50	4	ES	797087	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100	<500	<100	<80							No
Limits of Detection					100	100	100	100	100	100	100	100	100	100	500	100	80							
Terra Tek Analysis Method					TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145	TP145							
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	U	M	M	M	M	U	M	M							

Originator: DAB

Checked & Approved: [redacted]

PHENOLS (SPECIATED) - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 5

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification					1,1,1,2 - Tetrachloroethane	1,1,1 - Trichloroethane	1,1,2,2 - Tetrachloroethane	1,1,2 - Trichloroethane	1,1 - Dichloroethane	1,1 - Dichloroethene	1,1 - Dichloropropene	1,2,3 - Trichloropropane	1,2,4 - Trimethylbenzene	1,2 - Dibromoethane	1,2 - Dichlorobenzene	1,2 - Dichloroethane	1,2 - Dichloropropane	1,3,5 - Trimethylbenzene	1,3 - Dichlorobenzene	1,3 - Dichloropropane	1,4 - Dichlorobenzene	2,2 - Dichloropropane	2 - Chlorotoluene	4 - Chlorotoluene
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
STBH01	0.25	2	ES	797061	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
STBH02	0.50	4	ES	797087	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					M	M	M	M	M	M	M	M	M	U	M	M	M	U	U	M	U	M	M	M

Originator: DAB

Checked & Approved: [redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification																							
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	4 - Isopropyltoluene µg/kg	Benzene µg/kg	Bromobenzene µg/kg	Bromochloromethane µg/kg	Bromodichloromethane µg/kg	Tribromomethane µg/kg	Bromomethane µg/kg	Tetrachloromethane µg/kg	Chlorobenzene µg/kg	Chloroethane µg/kg	Chloroform µg/kg	Chloromethane µg/kg	cis 1,2 - Dichloroethene µg/kg	cis 1,3 - Dichloropropene µg/kg	Dibromochloromethane µg/kg	Dibromomethane µg/kg	Dichlorodifluoromethane µg/kg	Ethylbenzene µg/kg	iso - Propylbenzene µg/kg	m & p - Xylene µg/kg
STBH01	0.25	2	ES	797061	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
STBH02	0.50	4	ES	797087	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<10
Limits of Detection					5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	10
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154
Accreditation M=Mcerts U=UKAS N=No accreditation					U	M	M	M	M	U	U	M	M	M	M	M	M	M	M	M	U	M	M	M

Originator	Checked & Approved
DAB	[redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification																						
Hole	Depth m	Sample Ref	Sample Type	Lab Sample ID	Methylene chloride (Dichloromethane) µg/kg	n - Butylbenzene µg/kg	n - Propylbenzene µg/kg	o - Xylene µg/kg	sec - Butylbenzene µg/kg	Styrene µg/kg	tert - Butylbenzene µg/kg	Tetrachloroethene µg/kg	Toluene µg/kg	Trans - 1,2 - Dichloroethene µg/kg	Trans - 1,3 - Dichloropropene µg/kg	Trichloroethene µg/kg	Trichlorofluoromethane µg/kg	Chloroethene µg/kg					Sample received in appropriate container
STBH01	0.25	2	ES	797061	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
STBH02	0.50	4	ES	797087	<50	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5					No
Limits of Detection					50	5	5	5	5	5	5	5	5	5	5	5	5	5					
Terra Tek Analysis Method					TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154	TP154					
Accreditation M=Mcerts U=UKAS N=No accreditation					U	U	M	M	M	U	M	U	M	M	M	M	M	M					

Originator: DAB

Checked & Approved: [redacted]

VOLATILE ORGANIC COMPOUNDS - SOIL

KEY

* - deviating result (refer to Appendix S2 for details)

^ - result expressed on as-received basis

Figure 6

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site: YORKSHIRE GREEN G.I.

Client: SOCOTEC

Engineer:

Contract No B27641

Sample Identification				Lab Sample ID	Asbestos	Chrysotile (white asbestos)	Amosite (brown asbestos)	Crocidolite (blue asbestos)	Anthophyllite asbestos	Tremolite asbestos	Actinolite asbestos	Quantity of soil/material provided	Comments	Quantification Result (dry mass)	Analyst
Hole	Depth m	Sample Ref	Sample Type									g		%	
STBH01	0.25	2	ES	797059	ND	~	~	~	~	~	~	857		~	MN
STBH02	0.50	4	ES	797086	ND	~	~	~	~	~	~	694		~	MN
Limits of Detection Terra Tek Analysis Method Accreditation M=Mcerts U=UKAS N=No accreditation												~ TP181 U		0.001 TP183 U	

Originator	Checked & Approved
MN	[redacted]

ASBESTOS IDENTIFICATION

Refer to Appendix S4 notes when interpreting asbestos results

KEY

ND - no asbestos detected

D - asbestos detected

Figure 7

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27641

Sample Identification				Lab Sample ID	Date Sampled	Temperature on receipt °C	PRIMARY MATRIX	Secondary Matrix	Additional matrix	% Loss at 30C	% Retained 2mm
Exploratory Hole	Depth m	Sample Ref	Sample Type								
STBH01	0.25	2	ES	797060	19/10/21	15.1	Sandy CLAY	Fine to medium gravel		16.9	22.6
STBH02	0.50	4	ES	797085	19/10/21	15.1	CLAY			19.6	42.5

Notes

Terra Tek are accredited for clay, sand and loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials such as gravel, are not accredited where they comprise the major component of the sample.

Results are expressed on a dry-weight basis (samples dried at <30^{o}C) except where stated. Samples for asbestos testing are dried at 85^{o}C.

With the exception of samples analysed for asbestos, the laboratory removes any material > 2mm prior to analysis. The quantity and nature of the material is shown as the secondary and additional matrix types in the above table.

Where a parameter cannot be determined in house it is our policy to use a UKAS/MCERTS accredited laboratory wherever possible. Terra Tek will assume responsibility for the quality of subcontracted tests and the performance of the subcontractor chosen. Where there is no known UKAS/MCERTS laboratory for a particular parameter, a laboratory listed within the Terra Tek Approved Subcontractors List, which is subject to performance assessment, will be selected.

Originator	Checked & Approved	**SAMPLE DESCRIPTIONS**	**Appendix S1**
DAB	[redacted]		Sheet 1 of 1

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27641

Sample Identification				Lab Sample ID	Date Sampled	Deviating conditions						Preservatives used
Exploratory Hole	Depth m	Sample Ref	Sample Type			Sampling date has not been provided	Exceeded maximium holding time for selected test(s)	Presence of headspace in sample vial	Poorly fitting cap or lid	Damaged container		
STBH01	0.25	2	ES	797059	19/10/21							
STBH01	0.25	2	ES	797060	19/10/21							
STBH01	0.25	2	ES	797061	19/10/21							
STBH02	0.50	4	ES	797085	19/10/21							
STBH02	0.50	4	ES	797086	19/10/21							
STBH02	0.50	4	ES	797087	19/10/21							

NOTES
1 Results reported for samples classified as deviating may be compromised. Deviation types are shown as "X" or "Yes" in the table above.
2 The absence of "X" or "Yes" in the table above indicates no reported deviations.
3 Deviations due to use of incorrect sample container are shown on result tables.
4 Deviating results are indicated within result tables.

Originator	Checked & Approved
DAB	[redacted]

DEVIATING SAMPLES - SOIL

Appendix S2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27641

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
GP001	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Preparation of soil samples for chemical analysis	Yes	Yes	N/A
GP012	BS EN 12457-3: Characterisation of Waste - Compliance test for leaching of granular waste materials and sludges (two-stage batch test)	Preparation of soil samples for two-stage leachate test			Dry
TP019	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of pH in 2.5:1 water/soil extract using pH meter.	Yes	Yes	Dry
TP032	MAFF Book 427: The Analysis of Agricultural Materials: Method 8	Determination of water soluble boron by ICP-OES	Yes		Dry
TP040	APHA/AWWA, 19th edition: Method 3500Cr-D	Determination of hexavalent chromium by colorimetry.	Yes		Dry
TP041	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of organic matter by titrimetry.	Yes		Dry
TP042	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of loss on ignition at 50-440°C by gravimetry	Yes	Yes	Dry
TP045	GACHAMJA A.M. Chromatography and Analysis: 1992 9-11 (modified)	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS	Yes	Yes	Dry
TP046	MEWAM method: Phenols in water and Effluents: 4-aminoantipyrine method	Determination of monohydric phenols by steam distillation/colorimetry	Yes	Yes	Dry
TP047	MEWAM method: Cyanide in Waters etc	Determination of free cyanide by steam distillation/colorimetry	Yes		Dry
TP048	MEWAM method: Cyanide in Waters etc	Determination of total cyanide by steam distillation/colorimetry.	Yes	Yes	Dry
TP049	MEWAM method: Cyanide in Waters etc	Determination of complex cyanide by calculation	Yes		Dry
TP050	MEWAM method: Determination of Thiocyanate ,1985	Determination of thiocyanate by colorimetry	Yes	Yes	Dry
TP051	USEPA Method 9030B	Determination of acid soluble sulphides by steam distillation/colorimetry.	Yes	Yes	Wet
TP067	TNRCC Method 1005: 2001 (modified)	Determination of pentane/acetone extractable petroleum hydrocarbons (C8 - C40) by GC/FID	Yes	Yes	Wet
TP072	In-house documented method	Determination of ammoniacal nitrogen by colorimetry			Dry
TP074	In-house documented method	Determination of water soluble fluoride by ion selective electrode			Dry
TP098	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of acid soluble chloride by titrimetry			Dry
TP099	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP100	Wisconsin DNR Modified GRO method, Method for Determining Gasoline Range Organics	Determination of Volatile Petroleum Hydrocarbons/GRO.	Yes	Yes	Wet

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 1 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES

Site YORKSHIRE GREEN G.I.

Client SOCOTEC

Engineer

Contract No B27641

Method Code	Reference	Description of Method	ISO17025 Accredited	MCERTS Accredited	Wet/Dry Sample Tested
TP110	USEPA Methods 8082A & 3665A	Determination of Total & Speciated 7 PCB Congeners by GC/MS SIM	Yes	Yes	Wet
TP114	BS1377, Part 3, 1990: Soils for Civil Engineering Purposes.	Determination of carbonate in soil (rapid titration method)			Dry
TP126	TNRCC Method 1006 (modified)	Extracted petroleum hydrocarbons from TP067 split into aromatic and aliphatic fractions. Analysed by GC/FID.	Yes		Wet
TP129	In-house documented method	Determination of total sulphur by ICP-OES spectroscopy	Yes	Yes	Dry
TP134	In-house documented method	Determination of water soluble chloride by titrimetry	Yes	Yes	Dry
TP135	USEPA Methods 8100 & 8270D. In-house method TP045	Determination of polyaromatic hydrocarbons extractable in dichloromethane, by GC/MS (with concentration stage)			Dry
TP137	BS7755: Section 3.9: 1995/ISO 11466:1995	Determination of acid extractable metals in soil by ICP-OES	Selected	Selected	Dry
TP145	USEPA Methods 3550C & 8270D	Determination of Semi-Volatile Organic Compounds by GC/MS	Yes	Yes	Wet
TP147	USEPA Methods 8082A & 3665A	Determination of total & speciated WHO 12 PCB Congeners by GC/MS SIM.			Wet
TP150	USEPA Methods 8081B & 8141B	Determination of pesticides and herbicides in soil by GC/MS SIM			Dry
TP152	USEPA Method 556	Determination of carbonyls by GC/MS.			Wet
TP154	USEPA Method 5021. Wisconsin DNR modified GRO method	Determination of volatiles in by GC/MS headspace	Yes	Selected	Wet
TP158	USEPA Method 1671	Determination of glycols by GC/FID DI			Wet
TP169	In-house documented method	Determination of water soluble sulphate in 2:1 water/soil extract by ICP-OES spectroscopy	Yes	Yes	Wet
TP171	In-house documented method	Determination of acid soluble sulphate by ICP-OES spectroscopy	Yes	Yes	Dry
TP174	In-house documented method	Determination of Total Organic Carbon in soils by high temperature combustion & NDIR detection	Yes		Dry
TP178	In-house documented method	Determination of water soluble nitrate by ion selective electrode			Dry
TP181	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021)	Asbestos Identification in bulk materials	Yes	No	Dry
TP183	HSG 248 Asbestos: The Analysts Guide (Appendix 2), Edition 2 (May 2021) & Standing Committee of Analysts: The Quantification of Asbestos in Soil (2017, withdrawn Oct 2020)	Asbestos Identification & Quantification in soils	Yes	No	Dry
TP185	In-house documented method	Determination of loss on ignition at 150-440°C by gravimetry	No	No	Dry

Notes

1. Terra Tek (Birmingham) are MCERTS accredited for clay, sand & loam matrix types only, where they constitute the major component of the sample. Other coarse granular materials, ie gravel, are not accredited where they comprise the major component of the sample.
2. Results are expressed on a dry-weight basis (samples dried at <30°C) except where stated. Samples tested for asbestos are dried at <90°C.
3. With the exception of samples analysed for asbestos, the laboratory removes any material >2mm prior to analysis. The quantity and nature of any material removed from samples is recorded and the information is available on request.
4. The laboratory records the date of analysis of each parameter. This information is available on request.
5. The test results pertain only to the samples provided and is not guaranteed to be representative of the parent material in whole or part from which the sample was taken. Sample location, site address, taken by and client reference are included where provided by the client, Terra Tek accepts no responsibility for the validity or accuracy of this information.

Originator	Checked & Approved	SUMMARY OF IN-HOUSE ANALYTICAL TEST METHODS (SOIL)	Appendix S3
N/A	N/A		Sheet 2 of 2

TERRA TEK SITE INVESTIGATION AND LABORATORY SERVICES	Site YORKSHIRE GREEN G.I.	Contract No **B27641**
	Client SOCOTEC	
	Engineer	

NOTES - ASBESTOS TESTING

The Limit of Detection of the method is 0.001% dry mass of asbestos fibre of the dry weight of soil provided. Where the result of analysis is ND (Not Detected), this indicates that presence of asbestos is below this level.

The Limit of Quantitation of the test is 0.001% dry mass of asbestos fibre of dry weight of soil/material provided based on method validation where the size of sample provided is in excess of 600g.

Asbestos analysis is only undertaken at the Birmingham Laboratory only.

The uncertainty of measurement for the quantification of asbestos fibre in soil can be provided on request.

The identification of product type or the Asbestos Containing Material (ACM) within a soil sample is based on the opinion of the analyst based on the visual assessment and may not be accurate and is not covered by the scope of UKAS accreditation.

The analysis result pertains only to the sample provided and is not guaranteed to be representative in whole or part from where it was taken.

Information relating to the sampling site, ie hole depth and location, is provided by the client and Terra Tek do not accept any responsibilty for the accuracy of validity of this information.

Originator	Checked & Approved	NOTES - ASBESTOS TESTING	Appendix S4
MN	N/A		Sheet 1 of 1

Results - Water

Project: A1023-21

Client: SOCOTEC			**Chemtest Job No.:**		21-41172	21-41172	21-41172	21-41172	21-41172	21-41172	21-41172
Quotation No.: Q21-24719			**Chemtest Sample ID.:**		1325813	1325814	1325815	1325816	1325817	1325818	1325819
			Client Sample ID.:		1	1	1	1	1	1	1
			Sample Location:		MFBH01	MFBH02	MFBH03A	OSBH03	OSBH02	STBH01	STBH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
pH	U	1010		N/A	8.4	8.4	8.6	8.6	8.8	8.2	8.3
Total Dissolved Solids	N	1020	mg/l	1.0	740	1500	590	500	810	2500	1500
Alkalinity (Bicarbonate)	U	1220	mg CaCO3/l	10	310	410	370	200	490	570	350
Chloride	U	1220	mg/l	1.0	85	220	37	32	44	130	64
Fluoride	U	1220	mg/l	0.050	0.46	0.87	0.57	0.46	0.64	0.18	0.20
Ammoniacal Nitrogen	U	1220	mg/l	0.050	0.13	0.073	0.19	0.093	0.11	0.43	0.25
Nitrate	U	1220	mg/l	0.50	83	1.1	2.4	< 0.50	< 0.50	< 0.50	< 0.50
Sulphur	N	1220	mg/l	1.0	37	260	23	22	29	630	300
Sulphate	U	1220	mg/l	1.0	110	780	70	67	86	1900	890
Cyanide (Total)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Cyanide (Free)	U	1300	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Calcium	U	1455	mg/l	2.00	120	220	83	60	65	520	270
Magnesium	U	1455	mg/l	0.20	46	170	52	17	27	110	47
Sodium	U	1455	mg/l	1.50	36	88	17	35	170	390	96
Total Hardness as CaCO3	U	1270	mg/l	15	480	1200	420	220	270	1700	870
Arsenic (Dissolved)	U	1455	mg/l	0.0002	< 0.0002	0.0003	0.0004	0.0016	0.0026	0.0006	0.0004
Boron (Dissolved)	U	1455	mg/l	0.01	0.06	0.04	0.03	0.02	0.03	0.16	0.11
Barium (Dissolved)	U	1455	mg/l	0.005	0.075	0.031	0.23	0.077	0.094	0.036	0.037
Beryllium (Dissolved)	U	1455	mg/l	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium (Dissolved)	U	1455	mg/l	0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011	< 0.00011
Copper (Dissolved)	U	1455	mg/l	0.0005	0.0012	0.0010	0.0010	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Manganese (Dissolved)	U	1455	mg/l	0.0005	0.0024	0.22	0.16	0.46	0.51	1.4	2.1
Molybdenum (Dissolved)	U	1455	mg/l	0.0002	0.0005	0.0010	0.0012	0.0026	0.0086	0.0022	0.0022
Nickel (Dissolved)	U	1455	mg/l	0.0005	0.0005	0.0033	0.0015	0.0038	0.0016	0.0068	0.0040
Lead (Dissolved)	U	1455	mg/l	0.0005	< 0.0005	< 0.0005	< 0.0005	0.0015	< 0.0005	< 0.0005	< 0.0005
Antimony (Dissolved)	U	1455	mg/l	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Selenium (Dissolved)	U	1455	mg/l	0.0005	0.0014	0.0069	< 0.0005	0.0013	0.0026	0.0013	0.0019
Zinc (Dissolved)	U	1455	mg/l	0.002	< 0.003	< 0.003	< 0.003	0.004	< 0.003	< 0.003	< 0.003
Vanadium (Total)	N	1455	mg/l	0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005	< 0.0005
Mercury Low Level	U	1460	mg/l	0.000010	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001	< 0.00001
Iron (Dissolved)	N	1455	mg/l	0.005	< 0.005	< 0.005	< 0.005	1.8	0.19	1.2	1.0
Chromium (Trivalent)	N	1490	mg/l	0.020	[B] 0.51	[B] < 0.020	[B] < 0.020	[B] 0.74	[B] < 0.020	[B] < 0.020	[B] < 0.020
Low-Level Chromium (Hexavalent)	U	1495	mg/l	0.00	[B] 0.00	[B] 0.00	[B] < 0.00	[B] < 0.00	[B] < 0.00	[B] < 0.00	[B] < 0.00
Aliphatic TPH >C5-C6	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C6-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10

Results - Water

Project: A1023-21

Client: SOCOTEC			**Chemtest Job No.:**		21-41172	21-41172	21-41172	21-41172	21-41172	21-41172	21-41172
Quotation No.: Q21-24719			**Chemtest Sample ID.:**		1325813	1325814	1325815	1325816	1325817	1325818	1325819
			Client Sample ID.:		1	1	1	1	1	1	1
			Sample Location:		MFBH01	MFBH02	MFBH03A	OSBH03	OSBH02	STBH01	STBH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Aliphatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aliphatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aliphatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Aromatic TPH >C5-C7	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C7-C8	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C8-C10	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C10-C12	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C12-C16	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C16-C21	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C21-C35	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Aromatic TPH >C35-C44	N	1675	µg/l	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Total Aromatic Hydrocarbons	N	1675	µg/l	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Total Petroleum Hydrocarbons	N	1675	µg/l	10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Naphthalene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthylene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Acenaphthene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluorene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Phenanthrene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Anthracene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Fluoranthene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Pyrene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]anthracene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chrysene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[b]fluoranthene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[k]fluoranthene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[a]pyrene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Indeno(1,2,3-c,d)Pyrene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Dibenz(a,h)Anthracene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Benzo[g,h,i]perylene	N	1700	µg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Total Of 16 PAH's	N	1700	µg/l	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Dichlorodifluoromethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Chloromethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Vinyl Chloride	N	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromomethane	U	1760	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chloroethane	U	1760	mg/l	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Trichlorofluoromethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans 1,2-Dichloroethene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloroethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
cis 1,2-Dichloroethene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Results - Water

Project: A1023-21

Client: SOCOTEC			**Chemtest Job No.:**		21-41172	21-41172	21-41172	21-41172	21-41172	21-41172	21-41172
Quotation No.: Q21-24719			**Chemtest Sample ID.:**		1325813	1325814	1325815	1325816	1325817	1325818	1325819
			Client Sample ID.:		1	1	1	1	1	1	1
			Sample Location:		MFBH01	MFBH02	MFBH03A	OSBH03	OSBH02	STBH01	STBH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
Bromochloromethane	U	1760	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Trichloromethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1-Trichloroethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tetrachloromethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1-Dichloropropene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Benzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloroethane	U	1760	mg/l	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Trichloroethene	N	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dichloropropane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Dibromomethane	U	1760	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Bromodichloromethane	U	1760	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
cis-1,3-Dichloropropene	N	1760	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Toluene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Trans-1,3-Dichloropropene	N	1760	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,1,2-Trichloroethane	U	1760	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Tetrachloroethene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichloropropane	U	1760	mg/l	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Dibromochloromethane	U	1760	mg/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
1,2-Dibromoethane	U	1760	mg/l	0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chlorobenzene	N	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,1,1,2-Tetrachloroethane	U	1760	mg/l	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Ethylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
m & p-Xylene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
o-Xylene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Styrene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tribromomethane	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Isopropylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Bromobenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichloropropane	N	1760	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
N-Propylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
2-Chlorotoluene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3,5-Trimethylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Chlorotoluene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Tert-Butylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,4-Trimethylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Sec-Butylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,3-Dichlorobenzene	N	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
4-Isopropyltoluene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,4-Dichlorobenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
N-Butylbenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010

Results - Water

Project: A1023-21

Client: SOCOTEC			**Chemtest Job No.:**		21-41172	21-41172	21-41172	21-41172	21-41172	21-41172	21-41172
Quotation No.: Q21-24719			**Chemtest Sample ID.:**		1325813	1325814	1325815	1325816	1325817	1325818	1325819
			Client Sample ID.:		1	1	1	1	1	1	1
			Sample Location:		MFBH01	MFBH02	MFBH03A	OSBH03	OSBH02	STBH01	STBH02
			Sample Type:		WATER	WATER	WATER	WATER	WATER	WATER	WATER
			Date Sampled:		19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021	19-Nov-2021
Determinand	**Accred.**	**SOP**	**Units**	**LOD**							
1,2-Dichlorobenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2-Dibromo-3-Chloropropane	U	1760	mg/l	0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
1,2,4-Trichlorobenzene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Hexachlorobutadiene	U	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
1,2,3-Trichlorobenzene	U	1760	mg/l	0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Methyl Tert-Butyl Ether	N	1760	mg/l	0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010	< 0.0010
Resorcinol	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Phenol	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Cresols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Xylenols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
1-Naphthol	N	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Trimethylphenols	U	1920	mg/l	0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050	[B] < 0.0050
Total Phenols	U	1920	mg/l	0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030	[B] < 0.030

Deviations

In accordance with UKAS Policy on Deviating Samples TPS 63. Chemtest have a procedure to ensure 'upon receipt of each sample a competent laboratory shall assess whether the sample is suitable with regard to the requested test(s)'. This policy and the respective holding times applied, can be supplied upon request.The reason a sample is declared as deviating is detailed below. Where applicable the analysis remains UKAS/MCERTs accredited but the results may be compromised.

Sample:	Sample Ref:	Sample ID:	Sample Location:	Sampled Date:	Deviation Code(s):	Containers Received:
1325813		1	MFBH01	19-Nov-2021	B	Coloured Winchester 1000ml
1325813		1	MFBH01	19-Nov-2021	B	EPA Vial 40ml
1325813		1	MFBH01	19-Nov-2021	B	Plastic Bottle 1000ml
1325814		1	MFBH02	19-Nov-2021	B	Coloured Winchester 1000ml
1325814		1	MFBH02	19-Nov-2021	B	EPA Vial 40ml
1325814		1	MFBH02	19-Nov-2021	B	Plastic Bottle 1000ml
1325815		1	MFBH03A	19-Nov-2021	B	Coloured Winchester 1000ml
1325815		1	MFBH03A	19-Nov-2021	B	EPA Vial 40ml
1325815		1	MFBH03A	19-Nov-2021	B	Plastic Bottle 1000ml
1325816		1	OSBH03	19-Nov-2021	B	Coloured Winchester 1000ml
1325816		1	OSBH03	19-Nov-2021	B	EPA Vial 40ml
1325816		1	OSBH03	19-Nov-2021	B	Plastic Bottle 1000ml
1325817		1	OSBH02	19-Nov-2021	B	Coloured Winchester 1000ml
1325817		1	OSBH02	19-Nov-2021	B	EPA Vial 40ml
1325817		1	OSBH02	19-Nov-2021	B	Plastic Bottle 1000ml
1325818		1	STBH01	19-Nov-2021	B	Coloured Winchester 1000ml
1325818		1	STBH01	19-Nov-2021	B	EPA Vial 40ml
1325818		1	STBH01	19-Nov-2021	B	Plastic Bottle 1000ml
1325819		1	STBH02	19-Nov-2021	B	Coloured Winchester 1000ml
1325819		1	STBH02	19-Nov-2021	B	EPA Vial 40ml
1325819		1	STBH02	19-Nov-2021	B	Plastic Bottle 1000ml

Test Methods

SOP	Title	Parameters included	Method summary
1010	pH Value of Waters	pH	pH Meter
1020	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Electrical Conductivity and Total Dissolved Solids (TDS) in Waters	Conductivity Meter
1220	Anions, Alkalinity & Ammonium in Waters	Fluoride; Chloride; Nitrite; Nitrate; Total; Oxidisable Nitrogen (TON); Sulfate; Phosphate; Alkalinity; Ammonium	Automated colorimetric analysis using 'Aquakem 600' Discrete Analyser.
1270	Total Hardness of Waters	Total hardness	Calculation applied to calcium and magnesium results, expressed as mg l-1 CaCO3 equivalent.
1300	Cyanides & Thiocyanate in Waters	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Continuous Flow Analysis.
1455	Metals in Waters by ICP-MS	Metals, including: Antimony; Arsenic; Barium; Beryllium; Boron; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Tin; Vanadium; Zinc	Filtration of samples followed by direct determination by inductively coupled plasma mass spectrometry (ICP-MS).
1460	Mercury low-level in Waters by AFS	Mercury	Atomic Fluorescence Spectrometry, with collimated UV source, wavelength 253.7 nm.
1490	Hexavalent Chromium in Waters	Chromium [VI]	Automated colorimetric analysis by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
1495	Low Level Hexavalent Chromium in Waters	Chromium [VI]	Colorimetric determination of hexavalent chromium expressed as Cr (VI) µg/l in water, using Ion Chromatography and UV-visible spectrophotometry.
1675	TPH Aliphatic/Aromatic split in Waters by GC-FID(cf. Texas Method 1006 / TPH CWG)	Aliphatics: >C5–C6, >C6–C8, >C8– C10, >C10–C12, >C12–C16, >C16–C21, >C21–C35, >C35– C44Aromatics: >C5–C7, >C7–C8, >C8– C10, >C10–C12, >C12–C16, >C16– C21, >C21– C35, >C35– C44	Pentane extraction / GCxGC FID detection
1700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Waters by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenz[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
1760	Volatile Organic Compounds (VOCs) in Waters by Headspace GC-MS	Volatile organic compounds, including BTEX and halogenated Aliphatic/Aromatics. (cf. USEPA Method 8260)	Automated headspace gas chromatographic (GC) analysis of water samples with mass spectrometric (MS) detection of volatile organic compounds.
1920	Phenols in Waters by HPLC	Phenolic compounds including: Phenol, Cresols, Xylenols, Trimethylphenols Note: Chlorophenols are excluded.	Determination by High Performance Liquid Chromatography (HPLC) using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation
The results relate only to the items tested
Uncertainty of measurement for the determinands tested are available upon request
None of the results in this report have been recovery corrected
All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis
All Asbestos testing is performed at the indicated laboratory
Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

A - Date of sampling not supplied
B - Sample age exceeds stability time (sampling to extraction)
C - Sample not received in appropriate containers
D - Broken Container
E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

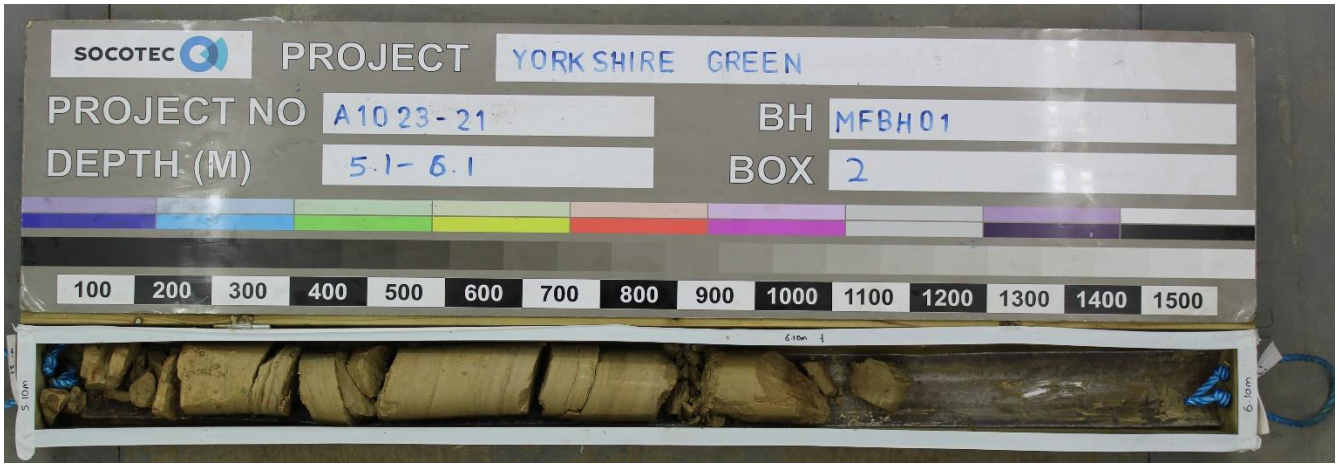
All soil samples will be retained for a period of 30 days from the date of receipt
All water samples will be retained for 14 days from the date of receipt
Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:
customerservices@chemtest.com

APPENDIX F
PHOTOGRAPHS

Photographs

MFBH01 (4.10 – 5.10 m)



MFBH01 (5.10 – 6.10 m)

MFBH01 (6.10 – 7.60 m)

Notes:	Project	Scheme 33754 Yorkshire Green	Sheet
	Project No.	A1023-21	1
	Carried out for	National Grid	

Photographs

MFBH01 (7.60 – 9.10 m)

MFBH01 (9.10 – 9.85 m)

MFBH01 (9.85 – 10.85 m)

Photographs

MFBH01 (10.85 – 12.35 m)

MFBH01 (12.35 – 13.85 m)

MFBH01 (13.85 – 15.35 m)

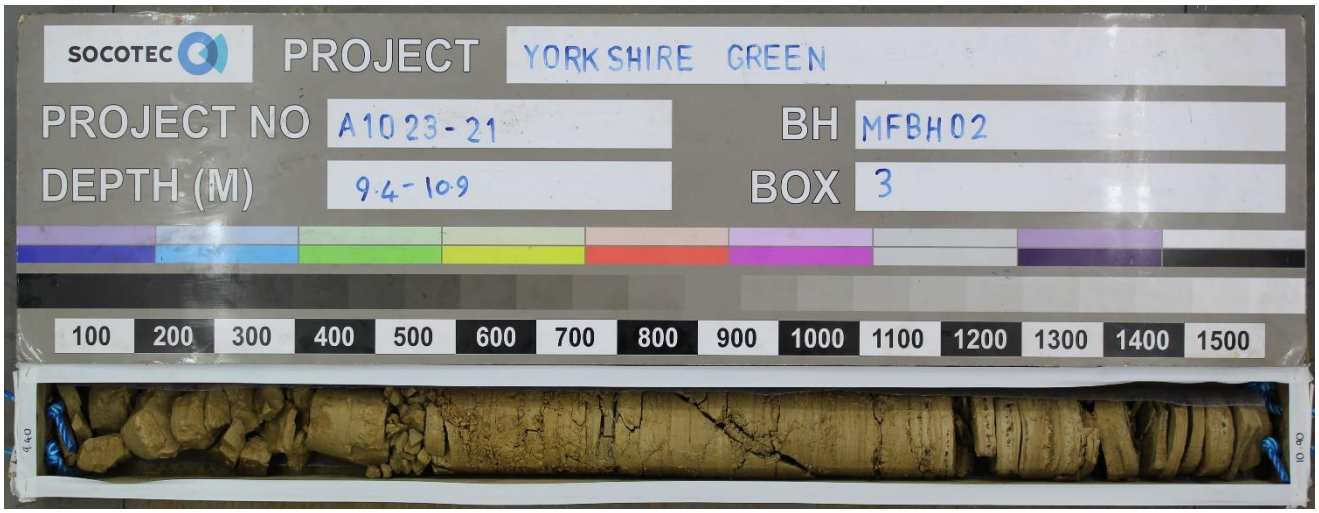
Photographs

MFBH01 (15.35 – 16.85 m)

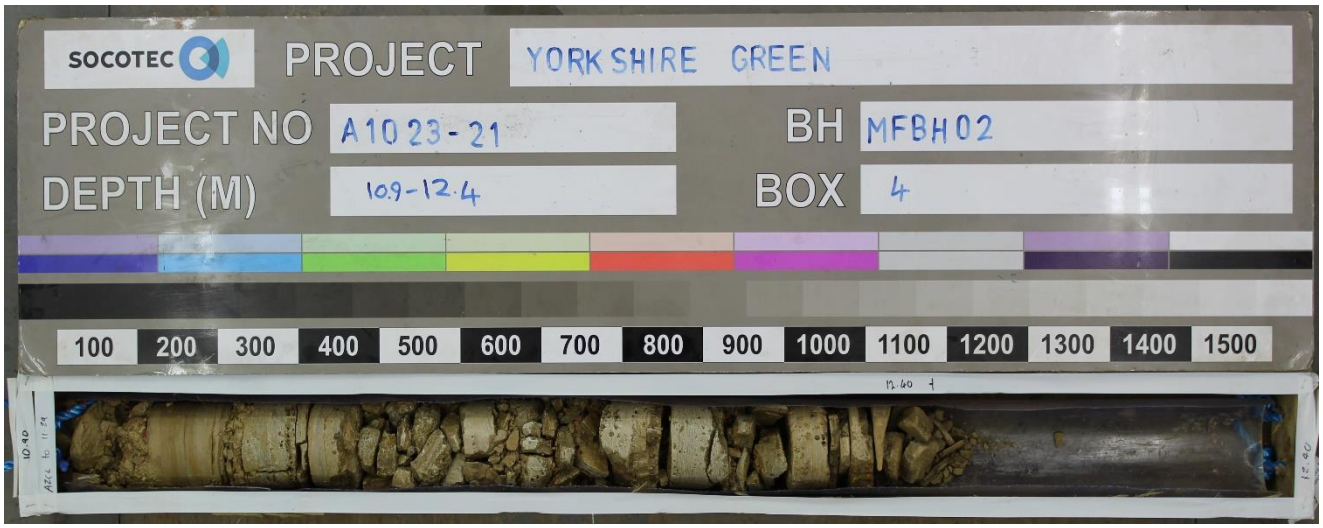
MFBH02 (6.40 – 7.90 m)

MFBH02 (7.90 – 9.40 m)

Photographs



MFBH02 (9.40 – 10.90 m)

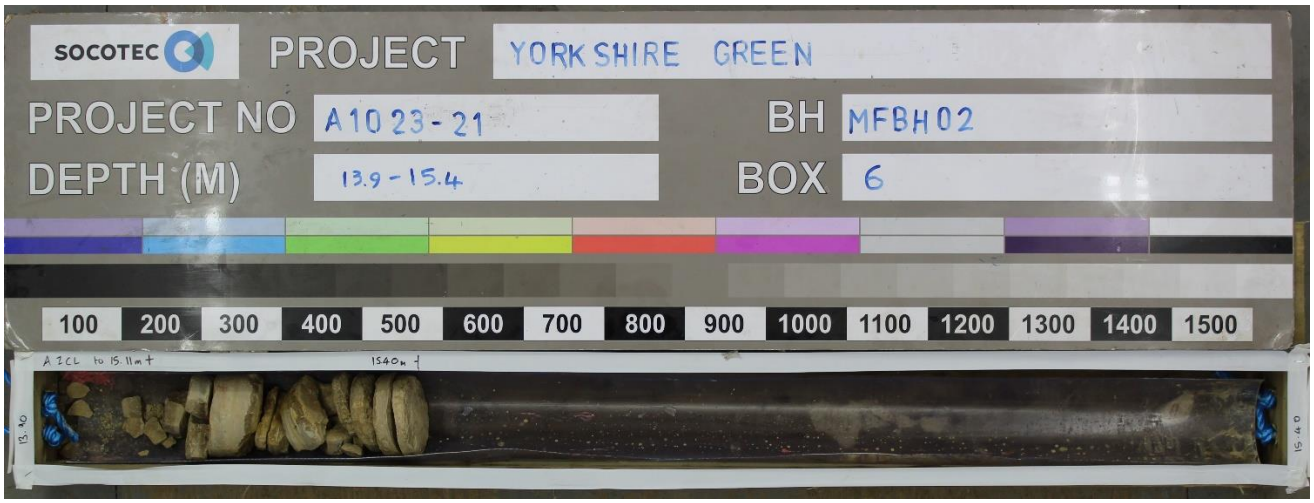


MFBH02 (10.90– 12.40 m)

MFBH02 (12.40 – 13.90 m)

Notes:	Project	Scheme 33754 Yorkshire Green	Sheet
	Project No.	A1023-21	5
	Carried out for	National Grid	

Photographs



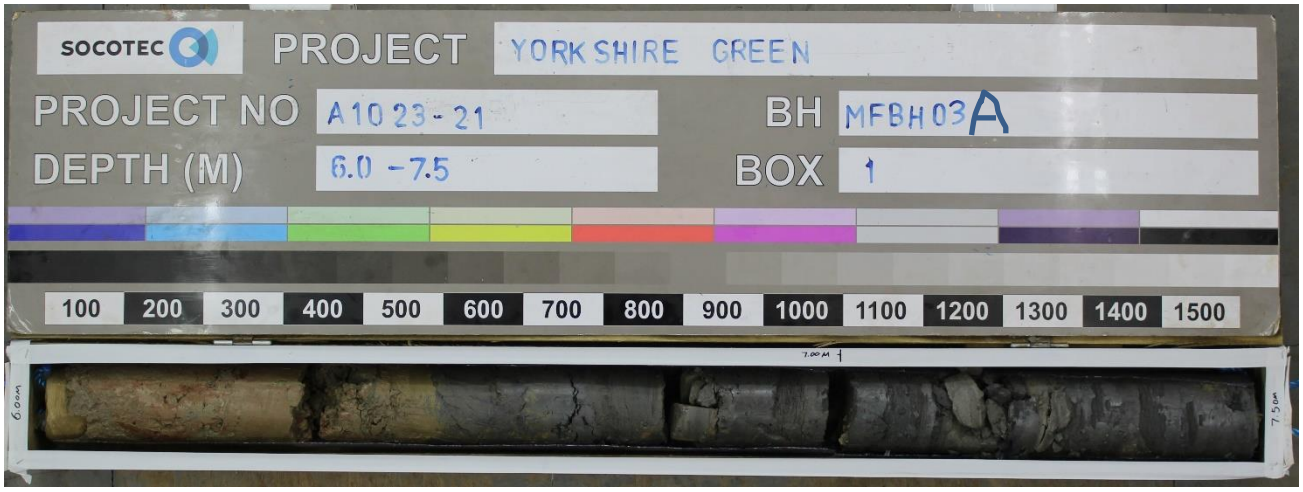
MFBH02 (13.90 – 15.40 m)

MFBH02 (15.40 – 16.90 m)

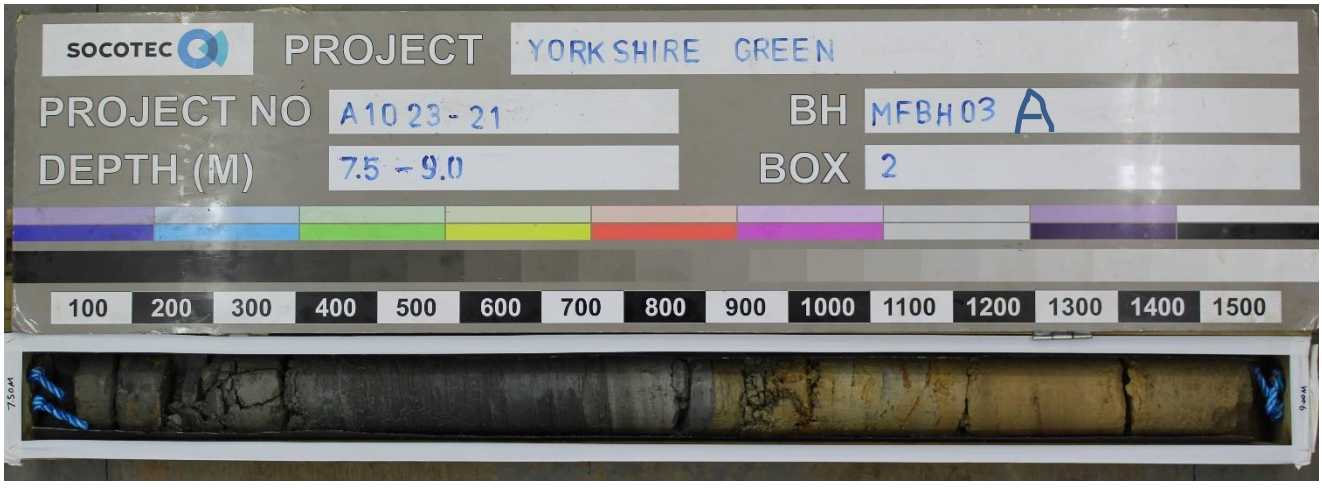
MFBH02 (16.90 – 18.40 m)

Photographs

MFBH02 (18.40 – 20.00 m)

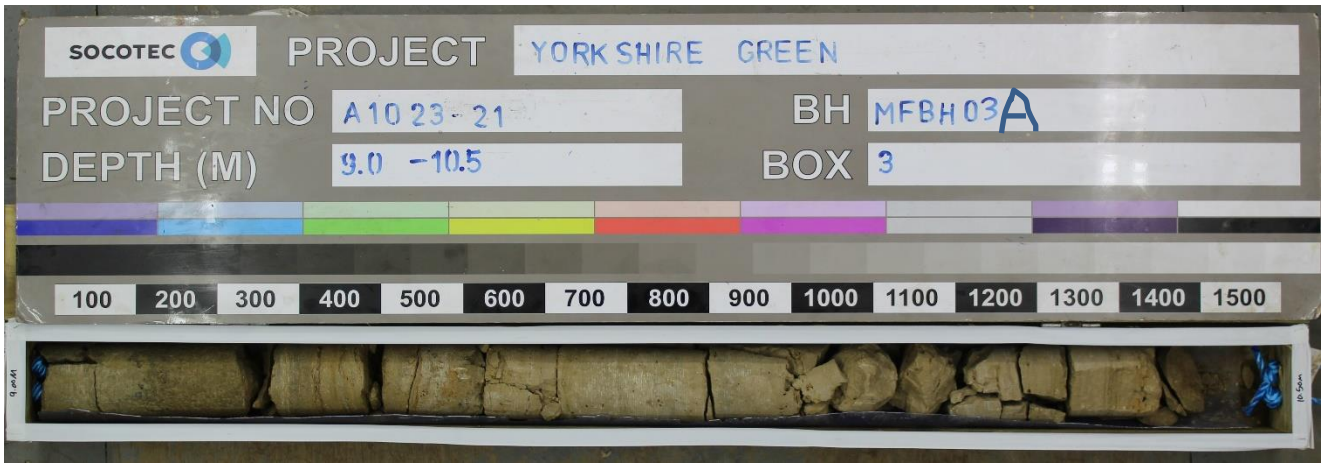


MFBH03A (6.00 – 7.50 m)

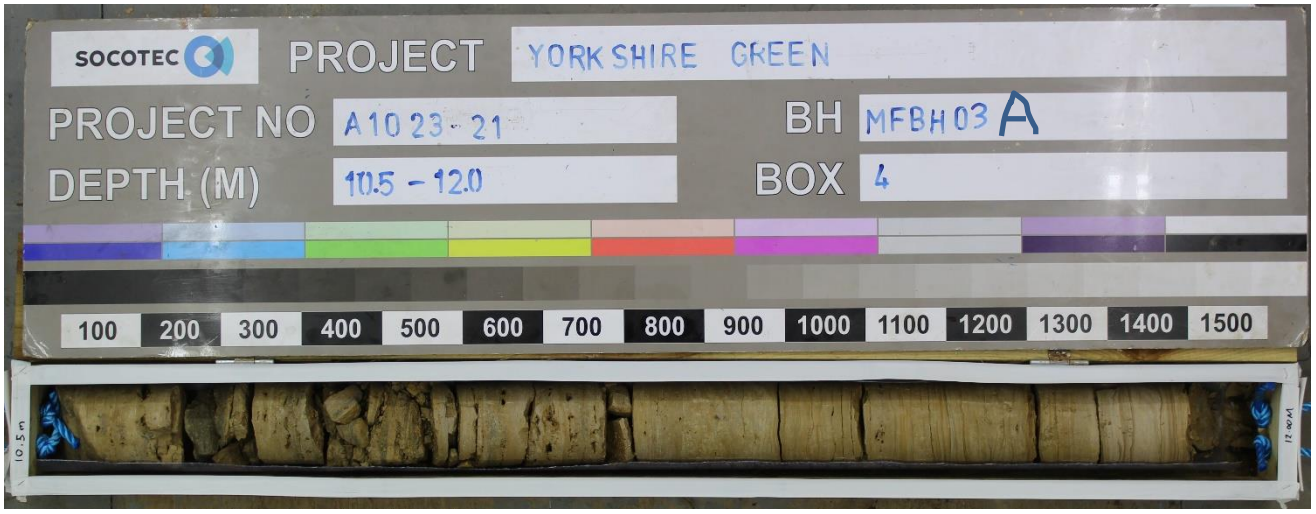


MFBH03A (7.50 – 9.00 m)

Photographs



MFBH03A (9.00 – 10.50 m)



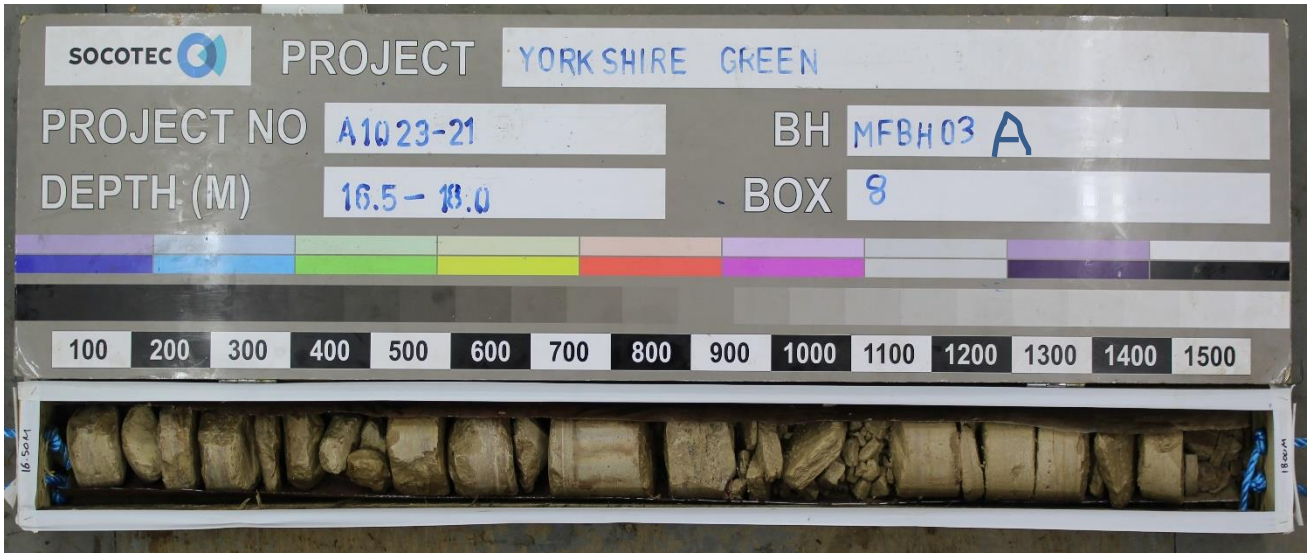
MFBH03A (10.50 – 12.00 m)

MFBH03A (12.00 – 13.50 m)

Photographs

MFBH03A (13.50 – 15.00 m)

MFBH03A (15.00 – 16.50 m)

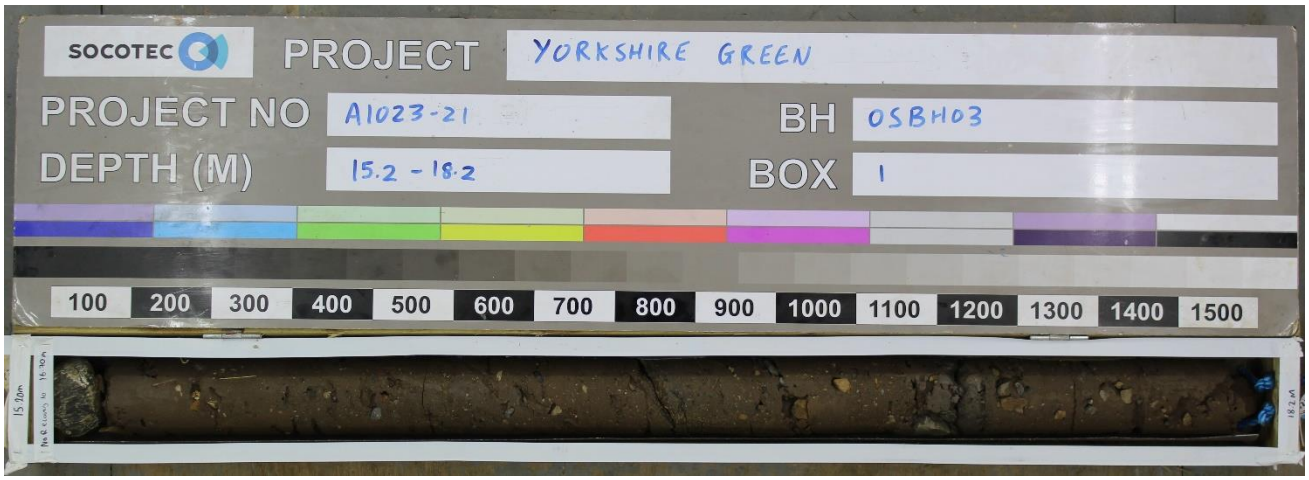


MFBH03A (16.50 – 18.00 m)

Photographs

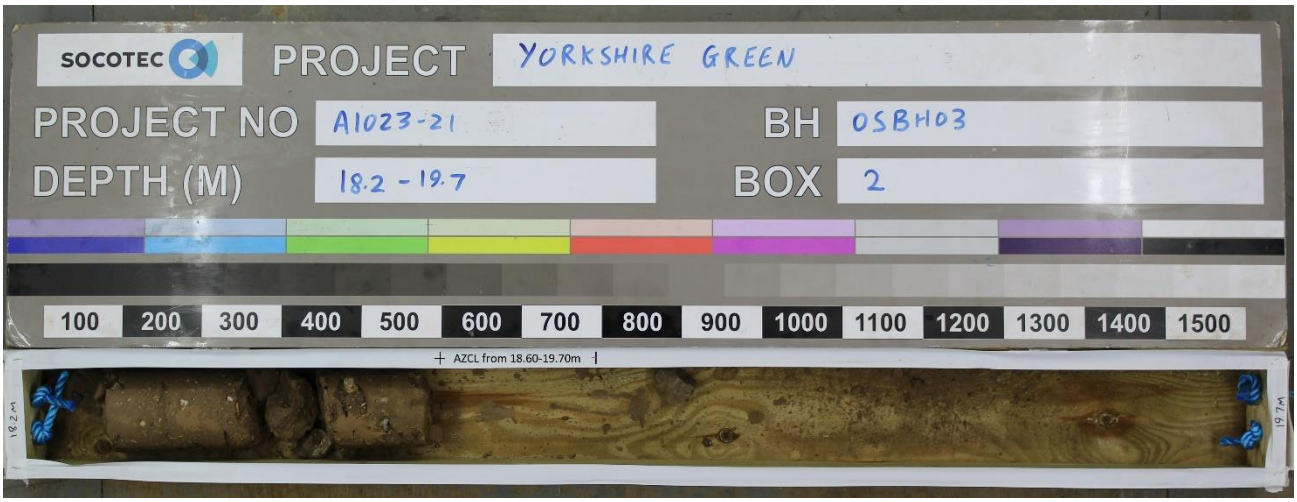
MFBH03A (18.00 – 19.50 m)

MFBH03A (19.50 – 20.00 m)



OSBH03 (15.20 – 18.20 m)

Photographs



OSBH03 (18.20 – 19.70 m)

Photographs

MFTP01 (GL – 1.2 M)

Notes:	Project	Scheme 33754 Yorkshire Green	Sheet
	Project No.	A1023-21	12
	Carried out for	National Grid	

Photographs

MFTP02 (GL – 1.2 M)

Photographs

MFTP03 (GL – 1.2 M)

Photographs

MFTP04 (GL – 1.2 M)

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