

A303 Amesbury to Berwick Down

**Applicant's provision of technical reports supporting the
Environmental Information Review**

Ground Investigation - Phase 7ai Factual Report

Document reference: Redetermination 2.13

Planning Act 2008

The Infrastructure Planning (Examination Procedure) Rules 2010

February 2022



Ground Investigation



A303 Amesbury to Berwick Down - Phase 7a (i)

Factual Report

for
Highways England

Engineer : AECOM

Project Number PC197510

September 2019

Issuing Office Head Office
The Geotechnical Centre
203 Torrington Avenue
Tile Hill
Coventry
CV4 9UT
Tel: 02476 694664
mail@geotechnics.co.uk

North West Office
The Geotechnical Centre
Unit 1, Borders Industrial Park
River Lane, Saltney
Chester
CH4 8RJ
Tel: 01244 671117
mail@chester.geotechnics.co.uk

South West Office
The Geotechnical Centre
7 Pinbrook Units
Venny Bridge
Exeter
EX4 8JQ
Tel: 01392 463110
mail@exeter.geotechnics.co.uk

North East Office
The Geotechnical Centre
Unit 1, Bypass Park Estate
Sherburn-in-Elmet
Leeds
LS25 6EP
Tel: 01977 525030
mail@yorkshire.geotechnics.co.uk

Ground Investigation
at

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1.0 INTRODUCTION

A geotechnical and geoenvironmental investigation was undertaken by Geotechnics Limited for a proposed upgrade of the A303 to a dual carriageway between Amesbury and Berwick Down, Wiltshire. The investigation was carried out to the instructions of the Engineer, AECOM, who acted as the Investigation Supervisor on behalf of the Client, Highways England. This report describes the work undertaken and presents the data obtained.

2.0 OBJECT AND SCOPE OF THE INVESTIGATION

The object of the investigation was to obtain information on the ground and groundwater conditions relating to the design of the proposed works within the limitations posed by trial hole numbers, locations, depths, methods adopted and the scope of approved in situ and laboratory testing. The Brief for the project is included in Appendix 1. During the fieldwork the Investigation Supervisor made changes to the scope, the most significant being the addition of two boreholes and the cancellation of another. The investigation comprised cable percussive and rotary boreholes, trial pits, in situ and laboratory testing and factual reporting.

3.0 PRESENTATION

The report is presented in electronic PDF format. A description of the site and a summary of the procedures followed during the investigation process are presented in Sections 4 to 6. The factual data obtained is presented in Appendices 2 to 13. Attention is drawn to the General Notes and Investigation Procedures presented in Appendix 14 to aid an understanding of the procedures followed and the context in which the report should be read.

The data obtained during the investigation is presented in electronic format separately, in accordance with "The Electronic Transfer of Geotechnical Data from Ground Investigations" published by the AGS (the AGS Format).

4.0 THE SITE

4.1 Location

The site is located in the vicinity of a 13km section of the A303 between Amesbury and Berwick Down, Wiltshire. The approximate Ordnance Survey National Grid Reference for the eastern end (Amesbury end) of the site is SU 184 424 and for the western end (Berwick Down end) SU 058 407. An extract from the relevant 1:50,000 Scale O.S. Map (Sheet No.184) is included as Appendix 2.

4.2 Description

The site is generally linear and aligned in an approximate east to west direction (bearing 080/260°). For description purposes the site has been subdivided into three areas; Allington Track, Stonehenge to Berwick Down and Rolleston Cross.

Allington Track

This area investigated is located within farmland adjacent to the eastern edge of Amesbury. The topography generally slopes down to the west, from approximately 140m down to about 100m AOD, with the A303 running in an east to west direction through the centre of the area. The northern section of the area is approximately triangular in shape and composed of dense woodland confined by the A303 to the south, the A3028 (Double Hedges) to the north east and fields to the west. The southern section comprises rough grassland immediately west of the Amesbury Road and the verges of a track extending parallel to the A303 from the Amesbury Road to the Allington Track.

Stonehenge to Berwick Down

This area is linear in shape and extends for approximately 5km, on either side of the A303, within agricultural fields. The topography is gently undulating within the eastern section from Stonehenge to approximately 1km east of Winterbourne Stoke, typically between 105m to 110m AOD, while in the western section the A303 crosses perpendicular to a valley at Winterbourne Stoke, through which the

River Till flows in a southerly direction, there are steep slopes down from 105m and 120m AOD to 75m AOD.

Rolleston Cross

This area investigated, approximately 0.5ha, is located 500m south east of Rollestone Camp, in the north west corner of a field bounded by the B3086 to the west and the Packway to the north. The field is generally flat and was cropped at the time of the investigation.

Photographs of the site taken during the fieldwork are presented in Appendix 3.

4.3 Site Geology

The following British Geological Survey maps were consulted:

Sheet	Type	Scale	Published
282	Bedrock and Superficial	1:50,000	2008
298	Bedrock and Superficial	1:50,000	2005

The bedrock underlying the site is shown to be predominantly the Seaford Chalk Formation of Upper Cretaceous period except for within the central area of the site, the area to the south east of Stonehenge, and the most eastern end of the site where the Newhaven Chalk Formation, also of the Upper Cretaceous period, is shown to outcrop.

Where present, the superficial strata overlying the solid geology is shown to include Alluvium, Head or River Terrace Deposits of Quaternary age, associated with the numerous re-entrants and river valleys crossing the site.

4.4 Hydrogeology

The Department for Environment, Food and Rural Affairs (Defra) website, <http://magic.defra.gov.uk/MagicMap.aspx>, accessed on the 23rd July 2019, shows the Seaford and Newhaven chalk to be Principal aquifers.

The superficial deposits are predominantly Secondary A aquifers, including the Alluvium, Terrace Deposits and some of the more gravelly Head deposits located in the river valleys (River Till and River Avon) crossing the site. The less gravelly Head deposits, located within the re-entrants and in areas within localised areas within the River valleys, are classified as Secondary (undifferentiated) aquifers.

5.0 PROCEDURE

5.1 Commissioning

The work was awarded following submission of a tender for work designed by the Investigation Supervisor for ground investigation of the site in accordance with the Client's requirements (see Appendix I).

5.2 General

The procedures followed in this site investigation are based on *BS 5930: 2015 – Code of Practice for Site Investigations* and *BS 10175:2011+A2:2017 - Investigation of Potentially Contaminated Sites*. The soils and rocks encountered have been described in accordance with BS5930:2015 and BS EN ISO 14688-1:2018 and BS EN ISO 14689:2018. The Chalk has been described in accordance with CIRIA Report C574, 2002 with the flints encountered within the chalk described in accordance with "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). The Cable Percussive Boreholes, Rotary Boreholes and Trial Pit Records are included in Appendices 4 to 6 and their approximate positions are shown on the Exploratory Hole Location Plan in Appendix 7.

The exploratory holes locations were specified by the Investigation Supervisor. The co-ordinates and levels shown on the Exploratory Hole Records were measured using a Leica Smart Rover GPS survey device and relate to Ordnance Survey data. The depths quoted on the exploratory hole records are in metres below ground level (bgl).

At each exploratory hole location, with the exception of the trial pits, an inspection pit was excavated using hand tools to a maximum depth of 1.20m bgl to check for the presence of underground services. Where the natural strata was encountered within the inspection pit and the excavation with hand tools was found to be impractical due to its hard nature, the pits were terminated as detailed on the individual exploratory hole records. Prior to and on completion of the excavation, the location was scanned using a cable avoidance tool (CAT).

Due to the archaeological significance of the area, Wessex Archaeology excavated either the upper portion or the full depth of the inspection pit as they considered appropriate as detailed on the individual records.

5.3 Cable Percussion Boreholes

Ten (10 No.) 150mm diameter boreholes were sunk by Cable Percussion Tool techniques to depths varying between 10.00m and 50.00m bgl. The work was carried out between the 10th June and 17th July 2019.

Representative disturbed (D and B) samples of the soils encountered were obtained at regular intervals and at selected locations driven open-tube thin-walled (UT) samples were also recovered. Standard Penetration Tests (SPTs) were undertaken at the depths indicated on the borehole records in accordance with BS EN ISO 22476-3:2005+A1:2011 to obtain a measure of the engineering properties of the proved strata. In addition, environmental soil samples (ES) were recovered at the depths indicated on the Borehole Records.

On encountering groundwater, boring operations were suspended for 20 minutes in order to record any rise in water level. Full details of groundwater observations during site work are included on the Borehole Records. It should be noted that the addition of water to the borehole as part of the drilling process may have masked the presence of groundwater in the borehole. Where water was added it has been noted on the Borehole Records.

On completion, the boreholes were backfilled with a combination of arisings, cement-bentonite grout and bentonite as detailed on the individual records.

5.4 Rotary Boreholes

Fourteen (14 No.) 120mm diameter boreholes were sunk utilising rotary coring techniques to depths varying between 29.00m and 50.65m bgl. Where necessary 150mm diameter casing was installed, as detailed on the individual borehole records, to aid the drilling process. The work was carried out between the 7th June and 12th July 2019.

The drilling equipment on this particular contract utilised air-mist as the flushing medium. The rock cores, 100mm in diameter, were extruded horizontally in transparent liners and placed into suitable core boxes. Photographs of the individual core boxes are included in Appendix 5.

Where rotary coring was not possible due to the strata encountered, the hole was progressed utilising open hole drilling techniques as detailed on the individual drilling records. The strata descriptions on the Borehole Records in the open hole sections of the

boreholes, or where no recovery was possible, are the Drilling Foreman's estimate based on sediment and chipping returns in the flushing medium. The rate of penetration is also used as an indicator of the type of material being drilled, particularly where there is a loss of flush returns.

Groundwater observations are included on the Borehole Records where appropriate. It should be noted that the addition of water to the borehole as part of the drilling process may have masked the presence of groundwater in the borehole.

On completion, standpipes were installed in Boreholes R71901 and R71903 (see Section 5.12). The other boreholes were backfilled with a combination of arisings, grout and bentonite as detailed on the individual records.

5.5 Trial Pits

Fourteen (14 No.) Trial Pits (numbered STP72801 to STP72811 and STP72901 to STP72903) were excavated to depths varying between 1.60m and 2.50m bgl using a tracked excavator between the 17th and 25th June 2019. Trial Pits STP72810 and STP72811 were terminated before their scheduled depths due to the presence of hard strata. This work was supervised on site by a geotechnical engineer.

The profiles of strata or other features were recorded as excavation proceeded and measurements taken from ground level. Representative samples, including Environmental samples (ES), were taken for laboratory examination and analysis at the depths indicated on the Trial Pit Records. Samples were taken directly from excavated materials deposited at the surface.

Groundwater observations and trench stability notes are included on the Trial Pit Records. Photographs of the pits are presented in Appendix 6.

5.6 Plate Load Tests

Twenty eight (28 No.) Plate Load Tests were carried out by Hixtra Ltd within each of the Trial Pits (see Section 5.5). Two tests per pit were undertaken, at a depths of between 0.50m and 0.80m bgl. The incremental loading tests were carried out in accordance with BS 1377-9:1990, Test 4.1 using a 300mm diameter plate. The reaction for the test was provided by a 14 Tonne excavator, except for STP72810 and STP72811 where a 4 Tonne excavator was used. The test loads were specified by the Investigation Supervisor and the results are presented in Appendix 8.

5.7 In Situ CBR Tests

Twenty (20 No.) in situ California Bearing Ratio (CBR) tests were carried out by Hixtra Ltd at depths of between 0.50m and 0.75m bgl, within each Trial Pit (see Section 5.5), except STP72801, STP72802, STP72810 and STP72811 where there were access issues. The reaction for the test was provided by a 4x4 vehicle. They were carried out in accordance with BS1377-9:1990, Test 4.3 and the results are presented in Appendix 8.

5.8 Dynamic Cone Penetration Tests

Four (4 No.) Dynamic Cone Penetration (DCP) Tests were carried out adjacent to Trial Pits STP72801, STP72802, STP72810 and STP72811. The tests were commenced from Ground Level to depth of between 0.49m and 1.53m bgl and were performed to give an indication of CBR values at shallow depths to aid pavement design. The test comprises the measurement of increments of penetration of a 60° cone driven into the ground using an 8kg hammer falling a distance of 575mm. The CBR is obtained from the relationship between the CBR and the DCP readings; $\text{Log}_{10}(\text{CBR}) = 2.48 - 1.057 \times \text{Log}_{10}(\text{mm/blow})$ as defined in Interim Advice Note 73/06 Revision 1 (2009) "Design Guidance for Road Pavement Foundations (Draft HD25)" published by the Highways Agency. The test results are presented in Appendix 8.

5.9 In Situ Permeability Tests

Three (3 No.) in situ Packer Permeability Tests were undertaken in Borehole R71901 in accordance with BS EN ISO 22282-3:2012 using a single packer configuration during a pause in the drilling operations over the following depth ranges:-

Test No.	Test Section (m bgl)
1	36.00 to 39.60
2	36.00 to 39.60
3	38.00 to 39.60

The flow rate was recorded using a flow meter and the test pressure was measured in the test section using a digital diver. The test locations were specified by the Investigation Supervisor and the results are presented in Appendix 9.

Seven (7 No.) In situ Falling Head Permeability tests were undertaken in Boreholes R71001, R71902, R71903 and R71904 during a pause in the drilling operations in accordance with BS EN ISO 22282-

2:2012 at the following depth ranges:-

Exploratory Hole	Test Section (m bgl)
R71001	22.50 to 29.40
R71902 (4 tests)	42.00 to 46.10
R71903	38.50 to 48.80
R71904	39.90 to 50.00

The test locations were specified by the Investigation Supervisor. The test data is presented in Appendix 9.

5.10 Geophysical Testing

Geophysical testing comprising caliper logging and natural gamma measurement together with an optical televiewer survey was carried out by European Geophysical Services Ltd in Boreholes R71901 and R71903. On completion of Boreholes R71901 and R71903 the boreholes were flushed with clean water and left to settle for minimum of 48 hours to allow for fine sediment settlement before the geophysical testing commenced. The work was carried out on the 27th June and 12th July 2019.

Caliper logging was performed first then by the measurement of natural gamma followed by the Optical Televiewer surveys. Due to the presence of groundwater within Borehole R71903 below 38.10m bgl an optical image was not possible and an acoustic image was taken instead. P and S wave velocity profiles were not possible due to an insufficient fluid filled interval. The composite logs of the Caliper, natural gamma and image data prepared by European Geophysical Services Ltd are presented in Appendix 10.

5.11 PID Meter Readings

Photo-ionisation detection (PID) tests were undertaken during the drilling of the boreholes by testing the headspace of the ES soil samples taken. The tests were carried out using a suitably calibrated MiniRAE 2000 PID Meter fitted with a 10.6eV UV lamp. The results of the PID tests are presented on the individual exploratory hole records with the readings reported as Volatile Organic Compounds (VOCs) recorded in parts per million.

5.12 High Pressure Dilatometer Testing

Five (5 No.) High Pressure Dilatometer (HPD) tests were undertaken by In Situ Site Investigation within Borehole R71903 at depths of 16.00m, 24.00m,

31.00m, 37.00m and 40.00m. Tests were undertaken in accordance with *BS EN ISO 22476-5:2012 Procedure B*. Test Pockets were formed by rotary coring a 3.00m length at a diameter of 101mm before the HPD instrument, 1.58m in length, was lowered into position. Tests at 28.00m and 34.70m were aborted as the test pockets created were too large. The test report prepared by In Situ Site Investigation is presented within Appendix II.

5.13 Instrumentation and Monitoring

Long-term monitoring of the groundwater levels was made possible by the installation of standpipes as follows:

Exploratory Hole	Standpipe Slotted Pipe & Filter Zone (m)
R70901	26.50 to 37.50
R70903	25.50 to 47.00

No monitoring was requested on this project. However, automatic water level logging instruments were provided to enable the Investigation Supervisor to remotely monitor the groundwater levels.

6.0 LABORATORY TESTING

6.1 Geotechnical

The laboratory testing schedule was specified by the Investigation Supervisor in order to relate to the proposed development. The majority of tests were carried out in Geotechnics Limited's UKAS accredited Laboratory (Testing No. 1365) and were undertaken in accordance with the appropriate Standards as indicated below and on the Laboratory Test Certificates in Appendix 12. Any descriptions, opinions and interpretations are outside the scope of UKAS accreditation.

The tests undertaken can be summarised as follows:-

BS EN ISO 17892-1:2014

96 No. Water Content Determination

BS EN ISO 17892-4:2016

5.2 36 No. Particle Size Distribution Determination – Sieving Method

5.4 33 No. Particle Size Distribution Determination – Pipette Method

BS EN ISO 17892-5:2017

7 No. Incremental loading oedometer test

BS EN ISO 17892-12:2018

47 No. Liquid Limit and Plastic Limit

BS 1377:1990

Test No. **Test Description**

Part 2

3.3 137 No. Saturation Moisture Content of Chalk

Part 4

7.2 7 No. California Bearing Ratio (CBR) Measurement - recompacted

7.3 7 No. California Bearing Ratio (CBR) Measurement - recompacted (Soaked)

Part 7

9 4 No. Shear Strength Measurement - 100mm diameter (Multi-Stage) Quick Undrained Triaxial Compression Test.

ISRM Testing Methods

40 No. Point Load Determination

The following testing was carried out at the laboratories of GEOLABS Limited (UKAS Accredited Laboratory, Number 1982).

BS 1377:1990

Test No. **Test Description**

Part 2

3.3 15 No. Saturation Moisture Content of Chalk

BS 1377:1990

Test No. **Test Description**

Part 8

7.1 2 No. Shear Strength Measurement - Consolidated Undrained Triaxial Compression Test with pore water pressure Measurement (Multi Stage).

ISRM Testing Methods

10 No.	Water Content Determination
6 No	Shear Strength Measurement Direct Shear on rock sample
60 No.	Unconfined Compressive Strength Determination
18 No.	Unconfined Compressive Strength Determination with Young's Modulus and Poisson's Ratio
12 No.	Indirect Tensile Strength by Brazil Test
3 No.	Cerchar Abrasivity
2 No.	Slake Durability Index Determination

Analysis for explosives residues within soil samples was subcontracted by DETS to a specialist laboratory; RPS Group Plc.

The sample and determinands were specified by the Investigation Supervisor and are detailed on the results sheets in Appendix 13 together with the test result, test method, accreditation and detection limit.

Signed for and on behalf of Geotechnics Limited.

Prepared by:

Clive Lange
BSc
Senior Engineer

Reviewed by:

The following testing was carried out at the laboratories of Derwentside Environmental Testing Services Limited (UKAS Accredited Laboratory, Number 2139).

Trevor N Hardie
BSc, MSc, DIC, CEng, MICE.
Chief Geotechnical Engineer

BRE Special Digest I Suite

21 No.	Suites comprising Soluble Sulphate and pH
1 No.	Loss on Ignition

The following testing was carried out at the laboratories of Chemtest Limited (UKAS Accredited Laboratory, Number 2183).

BRE Special Digest I Suite

1 No.	Suites comprising Soluble Sulphate and pH
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The results of the geotechnical testing are presented in Appendix 12.

6.2 Contamination

Selected samples of soil and groundwater were tested at the laboratories of Derwentside Environmental Testing Services for a number of determinands in order to check on potential site contamination. In addition, a number of leachate samples were also prepared from selected soil samples in accordance with the leachate methodology in BS EN 12457-1.

APPENDIX I

The Brief

1.5 Scope of investigation

1.5.1 A brief outline of the proposed ground investigation works is summarised below and is covered in more detail within Schedule 2 for Phase 7A.i & Phase 7A.ii and Phase 7B. A detailed outline of the investigation areas can be found within the following drawings:

Phase 7a Drawings HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0200 to HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0207 and HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0209; and,

Phase 7b Drawings HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0300 to HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0307.

- Archaeology and Ecology surveys will be conducted before and during and works, which will be managed by the Investigating Supervisor;
- Boreholes advanced using window sampling, cable percussive and rotary coring techniques;
- Shallow hand and machine excavated trial pits;
- Deep shored machine excavated trial pits;
- In situ geotechnical testing including high-pressure dilatometer testing and downhole wireline logging;
- In situ hydrogeological testing including large diameter pump testing, Packer testing, variable and constant rate permeability tests and soakaway testing in accordance with BRE 365;
- Soil, rock and groundwater sampling for geotechnical and geoenvironmental laboratory testing purposes;
- Construction of groundwater monitoring wells, including the supply, installation, maintenance and handover of automated logging systems;
- Logging of soils and rock in accordance with BS5930:2015 and CIRIA C574 as appropriate; and
- Laboratory geotechnical testing and chemical analysis.

1.5.2 The sections below set out the proposed scope of investigation within Phases 7A.i & 7A.ii, and Phase 7B, for specific areas. General requirements for the ground investigation are set out within Schedules 1 to 4 and more detail is provided within Schedule 5 and Annexes A to G.

1.5.3 Groundwater Level Monitoring

1.5.3.1 The hydrogeological investigation includes several boreholes installed as groundwater monitoring boreholes.

1.5.3.2 2No. monitoring boreholes (R71901 & R71903) are required near the tunnel alignment, but at locations that will not be affected by the proposed tunnel boring. This is to collect long-term data to provide baseline water levels and assess the impact of the tunnel on the surrounding area.

1.5.4 Groundwater level monitoring boreholes should be constructed as described in Section 4.5.

1.5.5 **Types of exploratory hole, sampling and in situ testing**

1.5.5.1 Cable Percussion boreholes

- Cable percussion boreholes shall generally be in accordance with Section 5 and Schedule 1.
- SPTs shall be carried out in accordance with Clause 1.15.1.1.

1.5.5.2 Rotary boreholes

- Rotary cored boreholes shall generally be in accordance with Section 5 and Schedule 1.
- Cored holes shall include discontinuity logging.
- Where core recovery is not required, rotary open-hole drilling techniques may be used in strict agreement with the Investigation Supervisor.

1.5.5.3 Trial pits

- Trial pits shall generally be in accordance with Section 5 and Schedule 1.
- Excavations to be protected against unauthorised entry.
- No personnel to enter trial pit excavations; except in the case of the deep trial pits indicated in 1.11.10.2.

1.5.5.4 Permeability testing

- Falling head permeability tests shall be in accordance with Annex E1.
- Packer tests shall be in accordance with Annex E3 or E4.

1.5.5.5 Downhole geophysical testing

- Downhole geophysical logging shall be undertaken in accordance with Annex D5.

1.5.6 **Groundwater monitoring**

1.5.6.1 Standpipes shall be installed in the boreholes identified in Schedule 2 in accordance with the requirements for monitoring wells given in Annex E5 in order to monitor groundwater levels following the ground investigation fieldwork (long-term monitoring).

1.5.6.2 Monitoring wells associated with the aquifer pump tests shall be monitored using automated water level logging instrumentation in order to provide a continuous record of aquifer (and other strata) response during the tests.

1.5.6.3 Specified standpipes/monitoring wells shall be monitored over a longer term using automated level logging instrumentation linked to a telemetry system in accordance with Annex E5. The Ground Investigation Contractor shall be responsible for contracting In situ Ltd for the supply, commissioning and operation of the monitoring system for the duration of the ground investigation contract and then handover the complete system to Highways England on completion of the contract.

1.5.7 Pumping tests

1.5.7.1 Pumping tests were conducted during a previous phase of investigation (Phase 6) in 2018. Further pumping tests will be carried out during Phase 7B within an existing pumping well (W617). Existing groundwater monitoring wells installed during Phase 6 will be used to monitor the water levels throughout the pump test.

1.5.7.2 A further pumping test, which would include the formation of a further large diameter pumping well and additional surrounding groundwater monitoring wells may also be needed during the Phase 7 works. These works are still to be confirmed.

1.5.7.3 The pumping test will be carried out as outlined in Annex E5.

1.5.8 **Water quality**

1.5.8.1 Water samples shall be collected during aquifer pumping tests and from standpipes/monitoring wells. The samples shall be tested at a UKAS accredited laboratory in accordance with Section 1.20 and Annex F.

1.5.9 Laboratory testing

1.5.9.1 Laboratory testing is expected to comprise index tests, strength tests, and chemical tests.

Geotechnical Soil Laboratory Testing

1.5.9.1.1 Classification:

- Natural moisture content
- Bulk and dry densities
- Atterberg limits
- Particle size distributions.

1.5.9.1.2 Strength:

- Unconsolidated-undrained triaxial compression with single-stage loading no porewater measurement
- Consolidated-drained triaxial compression with measurement of volume change
- Direct shear box.

1.5.9.1.3 Compressibility:

- One-dimensional consolidation.

Geotechnical Rock Laboratory Testing

1.5.9.1.4 Classification:

- Natural and saturated moisture contents
- Bulk, intact dry and particle densities
- Particle size distributions (structureless chalk only).

1.5.9.1.5 Strength:

- Uniaxial compressive strength
- Point load
- Direct shear box (on natural discontinuity and saw-cut surfaces)
- Consolidated-drained triaxial compression with measurement of volume change
- Indirect tensile strength by Brazilian test.

1.5.9.1.6 Compressibility:

- Uniaxial compressive strength with measurement of deformability and Poisson's ratio.

Chemical Testing

- BRE SD1 (pH, water soluble sulphate, total sulphate content, total sulphur)
- Organic matter
- Total phosphorus content

- Extractable phosphorus content.

Earthworks Classification

- 10% fines value
- Optimum moisture content
- Laboratory California Bearing Ratio on remoulded samples (at each compaction sequence, soaked and unsoaked)
- Chalk crushing value
- Slake durability
- Cerchar abrasivity value
- Frost susceptibility
- Moisture condition value.

1.5.10 Conformation of borehole and trial pit locations

1.5.10.1 The locations of exploratory holes for Phases 7A and Phase 7B are shown on Drawings:

- HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0200 to HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0207 and HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0209; and
- HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0300 to HE551506-AMW-HGT-SW_ML_M00_Z-DR-CE-0307.

The locations will generally be confirmed two weeks prior to commencement of the works.

Table 2-1 Phase 7A.i Works

Phase 7A.i Area No.	Proposed Works / Areas of Interest	Hole No.	Easting (m)	Northing (m)	AGS Hole Type	Target Depth (mbgl)	Primary Purposes	Env'tl Sample (Y/N)	In situ Testing ¹	Particular Geotechnical Sampling / Lab Testing ²	Remarks
2	Parsonage Access Green Bridge	R70201	406641	141194	RC	42	To acquire local ground and groundwater conditions and parameters for bridge foundation design.	N		Strength testing of the Chalk.	Each pair of boreholes should be drilled ≤ 10 m apart.
		CP70201	406650	141199	CP				SPT		
		R70202	406677	141158	RC						
		CP70202	406669	141152	CP				SPT		
9	River Till Viaduct	R70901	407737	141492	RC	40	To acquire local ground and groundwater conditions and parameters to greater depths for bridge viaduct foundation design.	Y		Strength testing of the chalk.	
		R70902	407819	141485							
		R70903	407875	141479							
10	Winterbourne Stoke Bridleway Bridge	R71001	408431	141394	RC	29	To acquire local ground and groundwater conditions and parameters to greater depths for bridge foundation design.	N	FHP	Strength testing of the Chalk.	Each pair of boreholes should be drilled ≤ 10 m apart.
		CP71001	408441	141393	CP				SPT		
		R71002	408433	141353	RC						
		CP71002	408423	141355	CP				SPT		
13	Longbarrow Green Bridge	R71301	409360	141283	RC	50	To acquire local ground and groundwater conditions and parameters to greater depths for bridge foundation design.	Y		Strength testing of the Chalk.	
		CP71301	409370	141283	CP			N	SPT		
		R71302	409390	141243	RC			Y			
		CP71302	409400	141243	CP			N	SPT		
17	Green Bridge 4	R71701	410168	141382	RC	48	To acquire local ground and groundwater conditions and parameters to	N		Strength testing of the chalk.	Each pair of boreholes should be drilled ≤ 10 m apart.
		CP71701	410171	141380	CP				SPT		
		R71702	410206	141337	RC				Y		

Phase 7A.i Area No.	Proposed Works / Areas of Interest	Hole No.	Easting (m)	Northing (m)	AGS Hole Type	Target Depth (mbgl)	Primary Purposes	Env'tl Sample (Y/N)	In situ Testing ¹	Particular Geotechnical Sampling / Lab Testing ²	Remarks
		CP71702	410200	141336	CP		greater depths for bridge foundation design.		SPT		
19	Tunnel	R71901*	411276.3	141648	RC	40	To provide sufficient depth and ground coverage parallel to the tunnel axis for the tunnel design.	Y	Packer (single) RHT in open hole DHG (Suite A)		Groundwater monitoring instrumentation for baseline, during and post construction monitoring.
		R71902	411465.1	141707		46	To provide further information on the phosphatic chalk zone and fault zones at the eastern tunnel portal.		RHT in open hole		
		R71903*	411649	141809		49	To target geoenvironmental sampling and testing at potential contamination sources.		HPD PMT RHT in open hole Packer (single) DHG (Suite A)		Groundwater monitoring instrumentation for baseline, during and post construction monitoring.
		R71904	411859	141790		50	RHT in open hole				
28	Allington Track	STP72801	417557	141576	TP	2.5	To provide subgrade parameters for proposed road.	N	PLT In situ CBR	Compressibility testing	
		STP72802	417658	141836							
		STP72803	417792	141931							
		STP72804	417901	141950							
		STP72805	417991	141964							
		STP72806	418103	141982							
		STP72807	418201	141998							

Phase 7A.i Area No.	Proposed Works / Areas of Interest	Hole No.	Easting (m)	Northing (m)	AGS Hole Type	Target Depth (mbgl)	Primary Purposes	Env'tl Sample (Y/N)	In situ Testing ¹	Particular Geotechnical Sampling / Lab Testing ²	Remarks
		STP72808	418288	1402012							
		STP72809	418404	142029							
		STP72810	418584	142414							
		STP72811	418633	142404							
29	Rolleston Cross	STP72901	409710	144523.5	TP	2.5	To provide subgrade parameters for proposed road.	N	PLT In situ CBR	Compressibility testing	
		STP72902	409719	144598				Y			
		STP72903	409798	144592				Y			

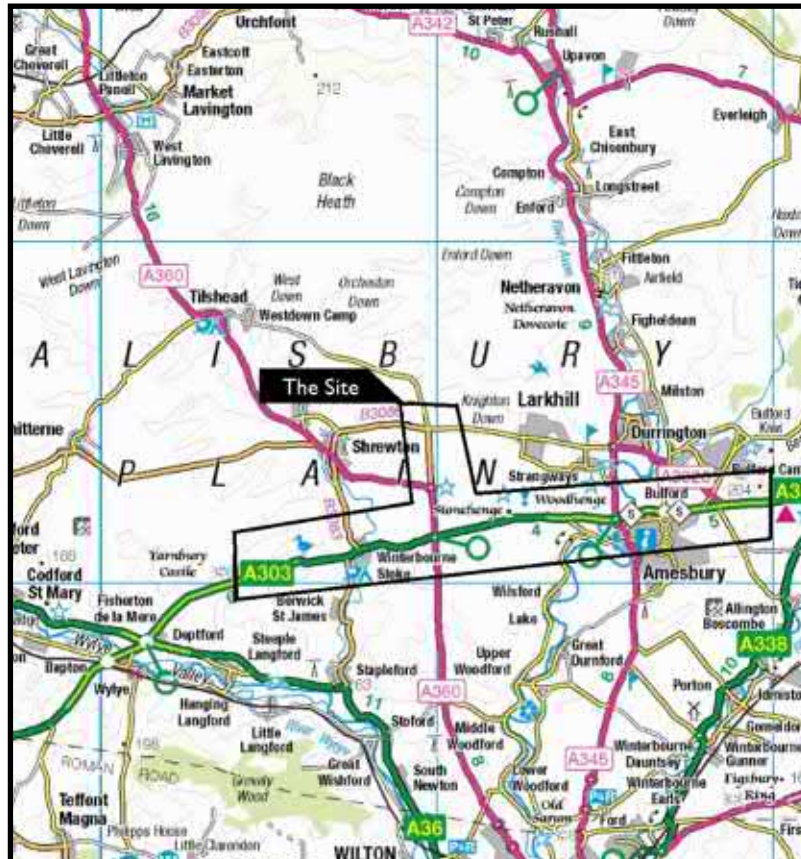
Note:

1. PLT = Plate Load Test; Soakaway = Pit soakaway; DHG = Downhole Geophysical Logging; SPT = Standard Penetration Test; HPD = High Pressure Dilatometer; FHP = Falling Head Permeability; RHT = Rising Head Test; PMT = Pressuremeter Testing; UT100 = Open Tube 100mm diameter thin walled sample.
2. Particular geotechnical laboratory testing that is required for the investigation area is indicated in this column. Other general geotechnical laboratory may also be required.
* Water level logger to be installed in borehole.

APPENDIX 2

Site Location Plan

SITE LOCATION PLAN



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Ground Investigation
at
A303 Amesbury to Berwick Down - Phase 7a (i)
for
Highways England

GEOTECHNICS
geotechnical and geoenvironmental specialists

APPENDIX 3

Site Photographs

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



Aerial view looking north towards CP71002

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



Aerial view looking north west towards CP71302 and R71301

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



Aerial view over R71903 looking north west

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



Aerial view over R71903 looking north east

APPENDIX 4
Cable Percussive Borehole Records

DATA SHEET - Symbols and Abbreviations used on Records



Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecon Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content
(All other strengths from undrained triaxial testing)	
S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/-(mm)	Total blows/penetration
()	Extrapolated value

Groundwater

Water Strike	
Depth Water Rose To	

Instrumentation

Seal	
Filter	
Seal	

Strata Legend

Made Ground Granular	
Made Ground Cohesive	
Topsoil	
Cobbles and Boulders	
Gravel	
Sand	
Silt	
Clay	
Peat	
Note: Composite soil types shown by combined symbols	
Chalk	
Limestone	
Sandstone	
Coal	

Strata, Continued

Mudstone	
Siltstone	
Metamorphic Rock	
Fine Grained	
Medium Grained	
Coarse Grained	
Igneous Rock	
Fine Grained	
Medium Grained	
Coarse Grained	

Backfill Materials

Arisings	
Bentonite Seal	
Concrete	
Fine Gravel Filter	
General Fill	
Gravel Filter	
Grout	
Sand Filter	
Tarmacadam	

Rotary Core

RQD	Rock Quality Designation (% of intact core >100mm)
FRACTURE INDEX	
Fractures/metre	
FRACTURE SPACING (m)	Maximum
NI	Non-intact core
NR	No core recovery
AZCL	Assumed zone of core loss
(where core recovery is unknown it is assumed to be at the base of the run)	

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.10- 0.25 0.10	B D					TOPSOIL: Greyish brown slightly sandy gravelly silt with many rootlets. Gravel is angular to subrounded fine to coarse of chalk and flint.	G.L.		115.46		
0.50- 0.70 0.50- 0.60	B D					CHALK, recovered as white slightly sandy very gravelly SILT. Sand is fine and medium. Clasts are weak, medium density, white, subangular to rounded and fine to coarse. With occasional angular to subangular fine to coarse rinded and unrinded flint gravel.	0.25 0.50		115.21 114.96		
1.00- 1.20 1.00- 1.10	B D					CHALK, recovered as slightly sandy silty subangular to subrounded fine to coarse GRAVEL. Clasts are weak, medium density, white with rare yellow and orangish brown penetrative staining (up to 5mm depth). With occasional angular to subangular small rinded flint gravel.	1.20		114.26		
1.20- 1.70 1.20- 1.65	B D	NIL (DRY)		21	S33	CHALK, recovered as white slightly sandy slightly gravelly SILT. Gravel is weak, medium density, white with rare yellow and orangish brown penetrative staining (<5mm depth), subangular to subrounded and fine to coarse. With rare angular to subrounded small to medium rinded and unrinded flint gravel.					
2.00- 2.10	D										
2.20- 2.65	D	1.50 (DRY)			S17						
3.00- 3.10	D					Between 3.00-3.20m, recovered as very gravelly silt. Clasts are white with occasional orangish brown surface staining with some yellow sand sized clasts. With occasional angular to subangular small flint gravel.					
3.20- 3.65	D	1.50 (DRY)			S32						
4.00- 4.10	D					Between 4.00-4.10m, clasts with occasional yellow surface staining.					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.25	0.50	Inspection Pit	Arch	G.I.			10/06/19	08:00						None encountered during boring.
1.20	0.50	Inspection Pit	DC/LC	0.25	NIL	DRY	10/06/19	18:00						
42.20	0.15	Cable Percussion	DC/LC	0.25	NIL	DRY	13/06/19	08:00						
				1.20	NIL	DRY	13/06/19	18:00						
				1.20	NIL	DRY	14/06/19	08:00						
				16.00	1.50	DRY	14/06/19	18:00						

Remarks Inspection pit hand excavated to 0.25m by archeologist and extended to 1.20m depth by Geotechnics. No services were found.
 Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Backfill details from base of hole: bentonite grout up to 1.00m, bentonite seal up to 0.50m, arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
 Figure **1 of 11**
 07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510


Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	D	1.50 (DRY)			S36					
5.00- 5.10	D									
5.20- 5.65	D	1.50 (DRY)			S18					
6.00- 6.10	D									
6.20- 6.65	D	1.50 (DRY)			S27					
7.00- 7.10	D			25						
7.20- 7.65	D	1.50 (DRY)			S26					
8.00- 8.10	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				16.00	1.50	DRY	17/06/19	08:00						
				31.70	1.50	DRY	17/06/19	18:00						
				31.70	1.50	DRY	18/06/19	08:00						
				42.20	1.50	DRY	18/06/19	18:00						

Remarks  Symbols and abbreviations are explained on the accompanying key sheet. All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **2 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	D	1.50 (DRY)			S27					
9.00- 9.10	D									
9.20- 9.65	D	1.50 (DRY)			S23					
10.00-10.10	D					Between 10.00-10.10m, clasts with occasional black specks.				
10.20-10.65	D	1.50 (DRY)			S28					
11.20-11.30	D			22						
11.70-12.15	D	1.50 (DRY)			S31	Between 11.50-11.70m, clasts with occasional small angular to subangular flint gravel (up to 30mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **3 of 11**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.50-12.60	D					Between 12.60-12.70m, chalk recovered as very gravelly silt.				
13.20-13.65	D	1.50 (DRY)		S58						
14.20-14.30	D				Between 13.70-13.80m, with occasional medium sized angular to subangular unrounded flint gravel and a sand sized iron nodule with reddish brown surface staining (10mm in size).					
14.70-15.15	D	1.50 (DRY)		S66						
15.70-15.80	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **4 of 11**
07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.20-16.65	D	1.50 (DRY)			S44	Between 16.60-16.75m, chalk recovered as very gravelly silt.				
17.20-17.30	D									
17.70-18.15	D	1.50 (DRY)			S60					
18.70-18.80	D					Between 18.70-18.80m, with occasional medium sized angular to subrounded unrounded flint gravel.				
19.20-19.65	D	1.50 (DRY)			S25					
						Between 20.00-21.00m, clasts with occasional black specks.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **5 of 11**
07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.20-20.30	D					Between 20.00-20.10m, clasts with occasional black specks. With occasional small sized subangular flint gravel.				
20.70-21.15	D	1.50 (DRY)			S25	Between 20.70-21.00m, with occasional subangular small flint gravel.				
21.70-21.80	D									
22.20-22.65	D	1.50 (DRY)			S48					
23.20-23.30	D									
23.70-23.85	D	1.50 (DRY)			S115* 145	Between 23.50-24.00m, with much angular small and medium unrounded flint gravel.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **6 of 11**
07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.70-24.80	D									
25.20-25.30 25.20-25.43	D	1.50 (DRY)			C100/75					
26.20-26.30	D									
26.70-26.80 26.70-27.06	D	1.50 (DRY)			C100/210					
						Between 27.00-27.10m, with occasional small angular to subangular unrounded flint gravel.				
						Between 27.20-28.20m, recovered as very gravelly.				
27.70-27.80	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**

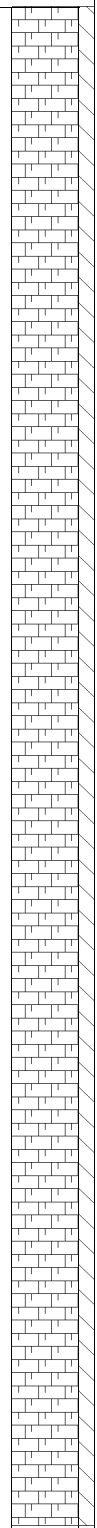
Figure **7 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.20-28.30 28.20-28.27	D	1.50 (DRY)			C100* 70					
29.20-29.30	D									
29.70-29.80 29.70-29.85	D	1.50 (DRY)			C113* 145					
30.70-30.80	D									
31.50-31.60 31.50-31.70	D	1.50 (DRY)			C100/ 50					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**

Figure **8 of 11**
07/10/2019



BOREHOLE RECORD - Cable Percussion


Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
32.30-32.40	D									
33.00-33.10 33.00-33.21	D	1.50 (DRY)			C100/60					
34.00-34.10	D									
34.50-34.60 34.50-34.60	D	1.50 (DRY)			C100/20					
35.50-35.60	D									
36.00-36.10	D									

Between 33.50-33.70m and 35.80-35.90m, with occasional angular to subangular small unrounded flint gravel.


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **9 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
36.00-36.12		1.50 (DRY)			C105* 120					
37.00-37.10	D									
37.50-37.60 37.50-37.67	D	1.50 (DRY)			C100/ 20					
38.40-38.50	D									
39.00-39.10 39.00-39.12	D	1.50 (DRY)			C120* 115					
40.00-40.10	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**

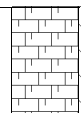
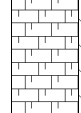
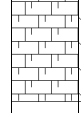
Figure **10 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406650.0 E 141199.2 N** Ground Level **115.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
40.50-40.60 40.50-40.67	D	1.50 (DRY)			C100/20					
41.50-41.60	D									
42.00-42.10 42.00-42.15	D	1.50 (DRY)			C100/70					
End of Borehole							42.20		73.26	


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **11 of 11**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.10- 0.25	B					TOPSOIL: Greyish brown slightly sandy gravelly silt with many rootlets. Gravel is angular to subrounded fine to coarse chalk and flint.	G.L.		117.50		
0.10	D						0.25		117.25		
0.20	D					CHALK, recovered as white slightly sandy gravelly SILT. Clasts are weak, medium density, white with black specks, subangular to subrounded and fine to coarse. With rare small rounded and unrounded flint gravel.					
0.50- 0.60	B										
0.50- 0.60	D										
1.00- 1.20	B					CHALK, recovered as slightly sandy silty subangular to subrounded fine to medium GRAVEL. Clasts are weak, medium density, white with rare yellow and orangish brown surface staining and rare black specks. Matrix is white with occasional angular to subangular small rounded and unrounded flint gravel.	1.00	116.50			
1.00- 1.10	D										
1.20- 1.70	B					CHALK, recovered as white slightly sandy slightly gravelly SILT, locally recovered as gravel. Clasts are weak, medium density, white with rare orangish brown surface staining, subangular to subrounded and fine to coarse. With rare small angular to subrounded rounded and unrounded finger flints (<10mm in size).	1.20	116.30			
1.20- 1.65	D	1.20 (DRY)			S16						
						Between 1.80-2.00m, recovered as yellow fine chalk gravel with yellow surface staining.					
1.90- 2.00	D										
2.20- 2.65	UT55	1.50 (DRY)									
						At 2.50m, possible small zoophycos flint.					
2.65- 2.70	D										
2.90- 3.00	D					Between 2.90-3.00m, band of angular to subrounded small flints (10-30mm in size).					
3.20- 3.65	D	1.50 (DRY)			S36						
3.90- 4.00	D										

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.25	0.50	Inspection Pit	Arch	G.I.			10/06/19	08:00						None encountered during boring
1.20	0.50	Inspection Pit	DC/LC	1.20	NIL	DRY	10/06/19	18:00						
42.30	0.15	Cable Percussion	DC/LC	1.20	NIL	DRY	11/06/19	08:00						
				26.00	1.50	DRY	11/06/19	18:00						
				26.00	1.50	DRY	12/06/19	08:00						
				36.00	1.50	DRY	12/06/19	18:00						

Remarks Inspection pit hand excavated to 0.25m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
 UT at 16.20-16.65m - UT shoe damaged during sampling.
 Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Backfill details from base of hole: bentonite grout up to 1.00m, bentonite seal up to 0.50m, arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015

Logged by **MM/JL**
 Figure **1 of 11**
 07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	UT55	1.50 (DRY)								
4.65- 4.70	D									
4.90- 5.00	D					At 4.80m, sand sized iron nodule with reddish brown staining (up to 20mm in size).				
5.20- 5.65	D	1.50 (DRY)			S28					
5.90- 6.00	D			24						
6.20- 6.65	UT50	1.50 (DRY)	210	31						
6.65- 6.70	D									
6.90- 7.00	D									
7.20- 7.65	D	1.50 (DRY)			S32					
7.90- 8.00	D					Between 7.90-8.00m, recovered as very gravelly.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				36.00	1.50	DRY	13/06/19	08:00						
				42.30	1.50	DRY	13/06/19	18:00						


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**

Figure **2 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	UT52	1.50 (DRY)								
8.65- 8.70	D					Between 8.65-8.70m, sand sized iron nodule with reddish brown staining (up to 20mm in size).				
8.90- 9.00	D									
9.20- 9.65	D	1.50 (DRY)			S25					
9.90-10.00	D									
10.20-10.65	UT70	1.50 (DRY)								
10.65-10.70	D									
11.00-11.10	D									
11.70-12.15	D	1.50 (DRY)			S32	At 11.50m, sheet flint fragments (25mm in size). At 11.70m, small nodular flint (10mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **3 of 11**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.70-12.80	D					At 12.80m, sand sized iron nodule with reddish brown staining (up to 10mm in size).				
13.20-13.65	UT60	1.50 (DRY)								
13.65-13.70	D									
14.10-14.20	D									
14.70-15.15	D	1.50 (DRY)			S32					
15.70-15.80	D					Between 16.00-17.00m, with occasional angular to subrounded small flint gravel.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **4 of 11**
07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.20-16.65	UT80	1.50 (DRY)	271	22						
16.65-16.70	D									
17.30-17.40	D									
17.70-18.15	D	1.50 (DRY)			S43	At 17.70m, with a small flint in SPT split spoon. At 17.90m, medium rinded flint (55x45x35mm in size).				
18.70-18.80	D									
19.20-19.65	UT80	1.50 (DRY)								
19.65-19.70	D									
20.00-20.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **5 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.70-21.15	D	1.50 (DRY)			S39					
21.60-21.70	D									
22.20-22.65	UT85	1.50 (DRY)								
22.65-22.70	D									
23.00-23.10	D					Between 23.00-23.50m, with occasional angular to subrounded small to medium flint gravel.				
23.70-24.15	D	1.50 (DRY)			S43					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **6 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.70-24.80	D									
25.20-25.65	UT90	1.50 (DRY)								
25.65-25.70	D									
26.20-26.30	D					Between 26.00-26.50m, recovered as very gravelly.				
26.70-27.08	D	1.50 (DRY)			S50/225	Between 26.50-27.00m, clasts with much yellow surface staining. With occasional angular to subrounded small to medium flint gravel.				
27.60-27.70	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **7 of 11**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.20-28.65	D	1.50 (DRY)			S35					
29.00-29.10	D			20						
29.70-30.50 29.70-29.85	B D	1.50 (DRY)			S100/ 75	CHALK, recovered as white gravelly SILT. Clasts are medium strong, medium density, white with rare orangish brown surface staining, subangular to subrounded and fine to coarse. With rare angular to subrounded small rinded and unrinded flints.	29.70		87.80	
30.50-30.60	D									
31.20-31.58	D	1.50 (DRY)			S100/ 225					
						Between 32.00-32.20m, band of angular to subrounded small unrinded flint gravel.				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **8 of 11**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole Project No **CP70202**
PC197510


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **406669.0 E**
141152.2 N

Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
32.10-32.20	D									
32.70-33.06	D	1.50 (DRY)			S100/210					
33.70-33.80	D									
34.20-34.34 34.20-34.34	D	1.50 (DRY)			C100/60					
35.00-35.10	D			23						
36.00-36.10	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**

Figure **9 of 11**
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BOREHOLE RECORD - Cable Percussion

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No CP70202 PC197510


Client HIGHWAYS ENGLAND

National Grid Coordinates 406669.0 E 141152.2 N

Ground Level 117.50 m OD

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
36.00-36.20		1.50 (DRY)			C100/50	Between 36.50-36.70m, band of angular to subrounded small to medium unrounded flint gravel.				
37.00-37.10	D									
37.50-37.60 37.50-37.77	D	1.50 (DRY)			C100/115					
38.50-38.60	D									
39.10-39.20 39.10-39.55	D	1.50 (DRY)			C100					
40.00-40.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

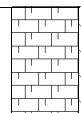
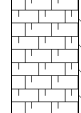
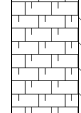
Logged by MM/JL
Figure 10 of 11
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406669.0 E 141152.2 N** Ground Level **117.50 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
40.50-40.60 40.50-40.87	D	1.50 (DRY)			C100/ 220					
41.50-41.60	D									
42.00-42.10 42.00-42.30	D	1.50 (DRY)			C100/ 150					
End of Borehole							42.30		75.20	


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **MM/JL**
Figure **11 of 11**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No CP70901 PC197510

Client HIGHWAYS ENGLAND

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
						TOPSOIL: Firm brown slightly sandy gravelly silt with occasional rootlets and roots (up to 2mm in diameter). Gravel is angular to subangular fine to coarse flint.	G.L.		
0.50- 0.70 0.50- 0.60	B D			6.4		Brown gravelly slightly silty SAND with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse sandstone, flint and chalk.	0.30		
1.00- 1.10	D					Dark brown sandy very silty angular to subrounded fine to coarse flint GRAVEL.	1.00		
1.30- 2.30 1.30- 1.40 1.30- 1.75	B D	1.30 (1.20)		15	C9	Loose light brown sandy slightly silty to silty angular to subrounded fine to coarse flint GRAVEL with a low cobble content of flint.	1.30		
1.90- 2.00	D								
2.30- 3.00 2.30- 2.75	B	2.30 (1.90)			C18	Below 2.30m, medium dense.			
3.00- 3.10	D						3.00		
3.20- 3.70 3.20- 3.65	B D	3.10 (DRY)		21	S11	CHALK, recovered as light creamish brown slightly sandy slightly gravelly SILT. Clasts are weak, medium density, white, angular to subrounded and fine to coarse. With occasional angular to subangular small flints (up to 50mm in size).	3.20		
3.90- 4.00	D					CHALK, recovered as slightly sandy very silty angular to subrounded fine to coarse GRAVEL, in places recovered as slightly sandy gravelly silt. Clasts are weak, medium density, high density in places, white with rare black specks and occasional light brown surface staining. Matrix is white. With occasional angular to subrounded small to medium flints (up to 115mm in size).			

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.50	Inspection Pit	Arch	G.I.			15/07/19	08:00	1.30	1.30	1.20	20	3.10	Slow inflow
10.00	0.15	Cable Percussion	DC/LC	1.20	NIL	DRY	15/07/19	18:00	4.20	4.20	1.60	20	NS	Fast inflow
				1.20	NIL	DRY	17/07/19	08:00						
				10.00	9.00	4.00	17/07/19	18:00						

Remarks Inspection pit hand excavated to 1.20m by the archeologist and no services were found. UT at 6.20-6.65m - UT shoe damaged during sampling. Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). On completion of drilling and removal of casing, water level in the borehole rose to 3.00m bgl. Backfill details from base of hole: bentonite seal up to 0.20m, arisings up to ground level.

Logged by JR
Figure 1 of 3
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP70901**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
4.20- 4.65	UT20	4.20 (1.60)	15	24					
4.65- 4.70	D								
4.90- 5.00	D								
5.20- 5.65	D	5.20 (3.60)			S18				
5.90- 6.00	D								
6.20- 6.65	UT50	6.00 (3.80)							
6.65- 6.70	D								
6.90- 7.00	D								
7.20- 7.65	D	7.20 (4.00)			S11	Below 7.00m, clasts with occasional black specks.			
7.90- 8.00	D								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JR**

Figure **2 of 3**
07/10/2019

BOREHOLE RECORD - Cable Percussion


Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP70901**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
8.20- 8.65	D	8.20 (4.00)			S12				
8.90- 9.00	D								
9.50- 9.95	D	9.00 (4.00)			S12				
End of Borehole							10.00		


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JR**
Figure **3 of 3**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No CP70902 PC197510

Client HIGHWAYS ENGLAND

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
0.00- 0.50	B	NIL (DRY)			C26	TOPSOIL: Dark brown slightly sandy gravelly silt with many roots (up to 2mm in diameter). Gravel is angular to subangular small flint.	G.L.		
0.30	D								
0.50- 1.20	B					Light brown sandy slightly silty angular to subangular fine to coarse flint GRAVEL.	0.50		
0.70	D								
1.20- 1.70	B	2.20 (1.90)	6.1	C15	At 1.20m, medium dense.				
1.20- 1.30	D								
1.20- 1.65	D								
2.20- 3.20	B	3.00 (2.70)	18	C11	Medium dense light brown very sandy silty angular to subangular fine to coarse flint GRAVEL.	1.70			
2.20- 2.30	D								
2.20- 2.65	D								
3.20- 3.30	D								
3.20- 3.65	B	3.00 (2.70)	18	C11	CHALK, recovered as a brownish white slightly sandy gravelly SILT. Clasts are weak, medium density, high density in places, white with brown surface staining, angular to subangular and fine to coarse. With occasional subangular small flints.	3.30			
3.30- 4.20	B								
3.30- 3.40	D								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.50	Inspection Pit	Arch	G.L.	NIL	DRY	15/07/19	08:00	1.70	NIL	1.30	20	3.30	Fast inflow.
11.20	0.15	Cable Percussion	DC/LC	1.70	NIL	1.30	15/07/19	18:00	4.50	4.20	1.40	20	NS	Fast inflow.
				1.70	NIL	1.30	16/07/19	08:00						
				11.20	9.00	5.50	16/07/19	18:00						

Remarks Inspection pit hand excavated to 0.80m by archeologist and extended to 1.20m depth by Geotechnics. No services were found.
 UT at 9.20-9.65m - UT shoe damaged during sampling.
 Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 On completion of drilling and removal of the casing, the water level in the borehole rose to 3.00m.
 Backfill details from base of hole: bentonite seal up to 0.50m, arisings up to ground level.
 Logged in accordance with BS5930:2015

Logged by JL
 Figure 1 of 3
 07/10/2019

geotechnics

BOREHOLE RECORD - Cable Percussion


Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No CP70902 PC197510

Client HIGHWAYS ENGLAND

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
4.20- 4.70 4.20- 4.65	B D	4.20 (DRY)			S11	Below 4.20m, silt is white. Between 4.30-4.70m, with many subangular small flints.			
5.10- 5.20 5.20- 5.70 5.20- 5.65	D B UT25	5.20 (2.00)	63	23					
5.65- 5.70 5.70- 5.80	D D						5.80		
6.20- 6.65	D	6.00 (3.00)			S13	CHALK, recovered as a slightly sandy very silty GRAVEL. Clasts are weak, high density, white with brown surface staining. Matrix is white. With occasional subangular small flints.			
6.90- 7.00	D								
7.20- 7.65	UT50	7.20 (6.00)							
7.65- 7.70	D								
7.90- 8.00	D								

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by JL

Figure 2 of 3
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BOREHOLE RECORD - Cable Percussion


Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP70902**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Sampling			Properties			Strata		Scale 1:20	
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	
8.20- 8.65	D	7.50 (3.50)			S23				
8.90- 9.00	D								
9.20- 9.50	UT60	9.00 (5.20)							
9.50- 9.60	D								
9.90-10.00	D								
10.20-10.65	D	9.00 (5.50)			S22				
10.70-11.15	D	9.00 (5.50)			S16				
End of Borehole							11.20		


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
Figure **3 of 3**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.00- 0.20 0.10	B D					TOPSOIL: Brown gravelly clayey sand. Gravel is angular to subangular fine to medium chalk.	G.L.		92.52		
0.50- 0.70 0.50- 0.60	B D					CHALK, recovered as slightly sandy silty angular fine to coarse GRAVEL. Clasts are weak, medium density, white and cream, with rare black specks. Matrix is light brown with traces of light brown clay and rare rootlets.	0.30		92.22		
1.00- 1.20 1.00- 1.10	B D			21		CHALK, recovered as white gravelly SILT with a trace of light brown clay. Clasts are weak, low to medium density, white with occasional orangish brown staining, angular and fine to coarse. At 1.20m, one medium nodular flint (70mm in size) with 2mm grey cortex.	1.00		91.52		
1.20- 1.65	D	NIL (DRY)			S27						
1.80- 1.90	D					Between 2.00-2.65m, with a sheet flint in SPT split spoon (10mm in thickness).					
2.20- 2.65	D	1.40 (DRY)			S63						
2.80- 2.90	D					Between 2.80-2.90m, with many small angular to subrounded nodular flints (25mm to 40mm in size).					
3.20- 3.65	D	1.40 (DRY)			S19	Between 3.20-3.65m, with occasional thin grey marl seams (up to 2mm thick) in clasts.					
3.80- 3.90	D					Between 3.80-3.90m, Clasts are weak, medium density, white with occasional black specks and rare orangish brown surface staining with many fossils remains (2mm to 5mm in size).					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.15	Inspection Pit	DC/LC	G.I.			03/07/19	08:00	23.00	1.40	21.50	20	NS	Fast Inflow
29.00		Cable Percussion	DC/LC	14.00	1.40	DRY	03/07/19	18:00						
				14.00	1.40	DRY	04/07/19	08:00						
				22.70	1.40	DRY	04/07/19	18:00						
				22.70	1.40	DRY	05/07/19	08:00						
				29.00	1.40	22.00	05/07/19	18:00						

Remarks Inspection pit hand excavated to 0.50m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
 Water was added to assist boring between 16.70 and 18.00m.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Backfill details from base of hole: bentonite seal up to 18.00m, bentonite grout up to 0.50m, arisings up to ground level.
 Logged in accordance with BS5930:2015

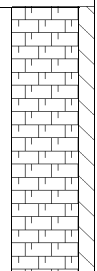

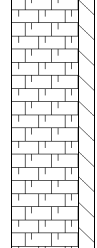

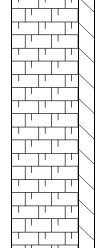

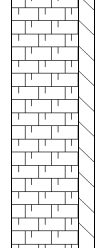

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged by **ECAD**
 Figure **1 of 8**
 07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	D	1.40 (DRY)			S17	Between 4.20-4.65m, with occasional small angular to subangular nodular flints (20mm to 30mm in size).				
4.80- 4.90	D									
5.20- 5.65	D	1.40 (DRY)			S20	Between 5.20-5.65m, with occasional angular to subangular sheet flint fragments (2mm to 10mm in size).				
5.80- 5.90	D					Between 5.80-6.65m, with rare orangish brown surface staining on clasts.				
6.20- 6.65	D	1.40 (DRY)			S27					
6.80- 6.90	D					Between 6.80-6.90m, recovered as gravel, with a layer (10mm thick) of thin grey wispy marls (<2mm thick) in clasts. With a fragment of medium nodular flint (60mm in size) with 2mm cortex and black core.				
7.20- 7.65	D	1.40 (DRY)			S37					
7.80- 7.90	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **2 of 8**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	D	1.40 (DRY)			S32	Between 8.20-8.65m, with rare orangish brown surface staining on clasts. With many very small angular to subrounded flints (<1mm to 15mm in size).				
8.80- 8.90	D					Between 8.80-8.90m, with some small angular to subangular nodular flints (20mm to 45mm in size).				
9.20- 9.65	D	1.40 (DRY)			S37	Between 9.20-9.65m, with a trace of grey marl in clasts.				
9.80- 9.90	D					Between 9.80-9.90m, with a medium angular to subrounded nodular flint (50mm in size).				
10.20-10.65	D	1.40 (DRY)			S60					
11.10-11.20	D					Between 11.10-12.15m, with a low subangular cobble content of chalk. Cobbles are weak, medium density, white with rare black specks and rare orangish brown surface staining. With occasional very small angular to subrounded flints (<1mm to 15mm in size).				
11.70-12.15	D	1.40 (DRY)			S32					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **3 of 8**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.70-12.80	D					At 12.70m, with a large angular to subrounded nodular flint (105mm in size) with 1mm cortex and black core.				
13.20-13.65	D	1.40 (DRY)			S56					
14.20-14.30	D					Between 14.20-15.15m, with occasional shell fragments (up to 3mm in size). Flint gravel is absent.				
14.70-15.15	D	1.40 (DRY)			S53					
15.60-15.70	D					Between 15.60-15.70m, with a small angular to subangular nodular flint (30mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **4 of 8**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.20-16.58	D	1.40 (DRY)			S100/225					
17.50-17.60	D									
18.00-18.10 18.00-18.45	D	1.40 (DRY)			C100	Between 18.00-18.10m, a cobble of weak, medium density, white chalk with occasional orange brown surface staining and rare black specks. With a small angular to subangular nodular flint (25mm in size).				
19.00-19.10	D									
19.50-19.60 19.50-19.71	D	1.40 (DRY)			C70/60					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **5 of 8**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **CP71001**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**


Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.50-20.60	D									
21.00-21.10 21.00-21.10	D	1.40 (DRY)			C100/20					
22.00-22.10	D									
22.50-22.60 22.50-22.69	D	1.40 (DRY)			C100/40					
22.90-23.00 23.00-24.00	D B					CHALK, recovered as silty subangular GRAVEL and COBBLES. Clasts are weak, medium to high density, white with many black specks and occasional orange brown surface staining and occasional shell fragments (<5mm in size). Matrix is white. At 22.90m, with some small nodular flints (30-45mm in size) with 1mm cortex.	22.90			69.62
23.50-23.60	D					Between 23.50-23.60m, with occasional thin grey marl (<2mm in size) on clasts. With occasional angular to subangular sheet flint fragments (5mm thick).				
24.00-24.10	D					Between 24.00-24.10m, clasts with occasional black specks and rare orange brown surface staining.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
 Figure **6 of 8**
 07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
24.00-24.14		1.40 (22.60)			C100/65						
25.00-25.10	D					Between 25.00-25.10m, with many angular to subangular sheet flint fragments (10mm to 15mm thick) and some fossils (5mm to 10mm in size).					
25.50-25.60 25.50-25.74	D	1.40 (21.70)			C100/85	Between 25.50-26.60m, with a layer of grey marl (5mm) on chalk cobble surface. 2x medium angular to subrounded nodular flints (80mm and 90mm in size) with 2mm cortex.					
26.50-26.60	D					Between 26.50-26.60m, with many fossils remains (up to 15mm in size).					
27.00-27.10 27.00-27.17	D	1.40 (21.90)			C100/95	Between 27.00-27.10m, with a sheet flint fragment (10mm thick) and 3x medium angular to subrounded nodular flints (60,70 and 80mm in size).					
28.00-28.10	D										


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **7 of 8**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408430.8 E 141393.8 N** Ground Level **92.52 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.50-28.60 28.50-28.66	D	1.40 (22.00)			C100/ 85	Between 28.00-29.00m, with many small flints (2mm to 10mm in size) and many fossils (up to 10mm in size).				
28.90-29.00	D					End of Borehole	29.00		63.52	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
Figure **8 of 8**
07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
0.00- 0.20 0.10	B D					TOPSOIL: Brown slightly gravelly clayey sand. Gravel is angular to subangular fine to medium chalk.	G.L.		95.46	
0.50- 0.70 0.50- 0.60	B D					CHALK, recovered as white slightly sandy silty subangular to subrounded fine to coarse GRAVEL with a low subrounded cobble content. Clasts are very weak to weak, low to medium density, white with rare black specks. Matrix is light brown. At 0.70m, a large nodular flint (110mm in size).	0.20		95.26	
1.00- 1.20 1.00- 1.10	B D					CHALK, recovered as white gravelly SILT with a low subrounded cobble content with a trace of brown clay. Clasts are very weak to weak, low to medium density, white with rare black specks and occasional orangish brown surface staining. With some small (2-3mm in size) and medium (5-7mm in size) nodular flint fragments.	1.00		94.46	
1.20- 1.70 1.20- 1.65	B D	1.20 (DRY)		S28						
1.90- 2.00	D									
2.20- 2.65	D	1.40 (DRY)		S41						
2.90- 3.00	D									
3.20- 3.65	D	1.40 (DRY)		S29						
3.90- 4.00	D					Between 3.90-4.00m, with rare angular to subangular sheet flints (5-10mm thick).				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.15	Inspection Pit	DC/LC	G.I.			27/06/19	08:00	25.50	1.40	24.50	20	NS	Slow inflow.
29.00		Cable Percussion	DC/LC	20.00	1.40	DRY	27/06/19	18:00						
				20.00	1.40	DRY	28/06/19	08:00						
				25.60	1.40	24.50	28/06/19	18:00						
				25.60	1.40	24.50	01/07/19	08:00						
				29.00	1.40	24.50	01/07/19	18:00						

Remarks Inspection pit hand excavated to 0.20m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
Chalk logged in accordance with CIRIA Report C574, 2002.
Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
Backfill details from base of hole: bentonite seal up to 19.50m, bentonite grout up to 0.50m, arisings up to ground level.

Logged by **ECAD**
Figure **1 of 8**
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All dimensions are in metres. Logged in accordance with BS5930:2015


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	D	1.40 (DRY)			S33					
4.90- 5.00	D					At 4.90m, with an angular white chalk cobble. Cobble is weak, medium density and white with occasional black specks. With a shell fragment (8mm in size).				
5.20- 5.65	D	1.40 (DRY)		26	S25	Between 5.20-5.65m, clasts with some shell fragments (2-6mm in size) and rare orangish brown surface staining.				
5.90- 6.00	D					Between 5.70-6.00m, with a small angular to subrounded nodular flint (40mm in size).				
6.20- 6.65	D	1.40 (DRY)			S40	Between 6.20-6.65m, clasts with rare orangish brown surface staining.				
6.90- 7.00	D					Between 6.90-7.00m, with some medium angular to subrounded nodular flint fragments (50-60mm in size) with 2mm grey cortex and black core.				
7.20- 7.65 7.20	D D	1.40 (DRY)			S34	Between 7.20-7.65m, clasts with occasional brown surface staining. Flints are absent.				
7.90- 8.00	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	D	1.40 (DRY)			S44	Between 8.20-8.65m, with some angular to subangular sheet flints fragments (2-10mm in size)				
8.90- 9.00	D									
9.20- 9.65	D	1.40 (DRY)			S63	Between 9.20-10.00m, clasts with rare orangish brown surface staining. With some medium angular to subrounded nodular flint fragments (50-70mm in size).				
9.90-10.00	D									
10.20-10.65	D	1.40 (DRY)			S57	At 10.20m, clasts with orangish brown surface staining (<2mm in size).				
11.20-11.30	D									
11.70-12.15	D	1.40 (DRY)			S51	Between 11.20-15.80m, clasts are medium to high density. With some small to medium angular to subrounded nodular flints (30-60mm in size) with 3mm thick grey cortex black core.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.70-12.80	D									
13.20-13.65	D	1.40 (DRY)			S34					
14.20-14.30	D									
14.70-15.15	D	1.40 (DRY)			S36					
15.70-15.80	D									
16.00-16.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.20-16.65	D	1.40 (DRY)			S65	Between 16.00-16.65m, clasts with much brown surface staining. With some medium to large angular to subangular zoophycos flints (70-105mm) with 3mm cortex.				
17.20-17.30	D					Between 17.20-17.30m, with a medium subangular chalk cobble content. Cobbles are weak, medium to high density, white with rare brown surface staining and rare black specks. With occasional angular to subangular sheet flints (5-15mm in size).				
17.70-18.08	D	1.40 (DRY)			S100/225	Between 18.20-22.50m, with occasional angular to subangular small flints (5-8mm in size).				
18.70-18.80	D					Between 18.70-18.80m, with grey wispy marl seams (3mm thick) on a subangular chalk cobble.				
19.20-19.30 19.20-19.35	D	1.40 (DRY)			C100/75					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.20-20.30	D									
20.90-21.00 20.90-21.12	D	1.40 (DRY)			C100/70					
22.00-22.10	D									
22.40-22.50 22.40-22.60	D	1.40 (DRY)			C100/50					
23.50-23.60	D					Between 23.50-24.10m, flints are absent.				
24.00-24.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.00-24.14		1.40 (DRY)			C100/65					
25.00-25.10	D									
25.50-25.65		1.40 (24.50)			C100/70					
26.00-27.00 26.00-26.10	B D					CHALK, recovered as silty subangular to subrounded GRAVEL with a medium subrounded cobble content. Clasts are weak, medium to high density, white with rare black specks, occasional orangish brown surface staining and occasional grey wispy marl seams (<2mm thick) on clasts. With some small nodular flint fragments (30-50mm in size) with 2mm grey cortex and black core.	26.00		69.46	
27.00-27.10 27.00-27.15	D	1.40 (25.00)			C100/70					
28.00-28.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408422.6 E 141354.6 N** Ground Level **95.46 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.50-28.60 28.50-28.67	D	1.40 (26.00)			C100/ 95					
28.90-29.00	D					Between 28.90-29.00m, with occasional shell fragments (<10mm in size).	29.00		66.46	
						End of Borehole				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**


Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.00- 0.20 0.10- 0.20	B D					TOPSOIL: Firm brown slightly sandy slightly gravelly silt with many roots (up to 3mm in diameter). Gravel is angular to subrounded fine to coarse flint and rare chalk. Below 0.20m, becoming stiff. CHALK, recovered as slightly sandy silty subangular to subrounded fine to coarse GRAVEL. Clasts are weak, medium density and white. Matrix is white and brown. Below 0.50m, with rare angular to subangular small unrounded and rounded flint gravel. CHALK, recovered as white slightly sandy to sandy slightly gravelly SILT. Clasts are weak, medium density, white with rare yellow and orangish brown penetrative staining (up 3mm depth), subangular to subrounded and fine to coarse. With rare subangular to subrounded small unrounded and rounded flints.	G.L.		110.92		
0.30- 0.50	B				0.30			110.62			
0.50- 0.60	D				0.80			110.12			
0.80- 1.20 0.80- 0.90	B D		19								
1.20- 1.65	D	1.20 (DRY)			S49						
1.90- 2.00	D										
2.20- 2.65	D	1.50 (DRY)			S36						
2.90- 3.00	D					Between 2.70-2.80m, with occasional angular to subangular small unrounded flint gravel (typically 20mm in size).					
3.20- 3.65	D	1.50 (DRY)			S72						
3.90- 4.00	D					Between 3.75-3.90m, with occasional angular to subangular small unrounded flint gravel (typically 25mm in size).					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.30	0.50	Inspection Pit	Arch	G.I.			19/06/19	08:00	45.00	1.50	44.50	20	NS	Slow inflow.
1.20	0.40	Inspection Pit	DC/LC	10.00	1.50	DRY	19/06/19	18:00						
50.00	0.15	Cable Percussion	DC/LC	10.00	1.50	DRY	20/06/19	08:00						
				27.00	1.50	DRY	20/06/19	18:00						
				27.00	1.50	DRY	24/06/19	08:00						
				41.00	1.50	DRY	24/06/19	18:00						

Remarks  Inspection pit hand excavated to 0.30m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
Backfill details from base of hole: bentonite seal up to 37.00m, bentonite grout up to 1.00m, bentonite seal up to 0.20m, arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.
All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
4.20- 4.65	D	1.00 (DRY)			S44	Between 4.00-4.20m, with occasional angular to subangular small unrinded flint gravel (typically 15mm in size).					
4.90- 5.00	D					Between 5.00-5.20m, with occasional angular to subangular small unrinded flint gravel (typically 20mm in size).					
5.20- 5.65	D	1.50 (DRY)			S30						
5.90- 6.00	D										
6.20- 6.65	D	1.50 (DRY)			S42	Between 6.40-6.90m, occasional angular to subangular small unrinded flint gravel (typically 20mm in size).					
6.90- 7.00	D										
7.20- 7.65	D	1.50 (DRY)			S24						
7.90- 8.00	D					Between 7.90-8.10m, chalk recovered as very gravelly silt.					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				41.00	1.50	DRY	25/06/19	08:00						
				50.00	1.50	46.70	25/06/19	18:00						

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	D	1.50 (DRY)			S39	Between 8.70-8.90m, with occasional angular to subangular small unrinded flint gravel (typically 15mm in size).				
8.90- 9.00	D									
9.20- 9.65	D	1.50 (DRY)			S31					
9.90-10.00	D									
10.50-10.60	D					Between 10.50-10.60m, clasts with occasional black specks.				
10.70-11.15	D	1.50 (DRY)			S33					
11.50-11.60	D			23						

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.20-12.65 12.20-12.65	D	1.50 (DRY)			S34					
13.00-13.10	D									
13.70-14.15	D	1.50 (DRY)			S62	At 13.70m, with angular to subangular small flint gravel in SPT sampler.				
14.50-14.60	D					Between 14.50-14.60m, with angular to subangular small flints (typically 15mm in size).				
15.20-15.65	D	1.50 (DRY)			S38					
16.00-16.10	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
Figure **4 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.70-17.15	D	1.50 (DRY)			S33	Between 16.00-16.10m, chalk recovered as slightly sandy silt. Sand is coarse grained yellow chalk. Clasts with occasional penetrative staining (up to 3mm depth).				
17.60-17.70	D									
18.20-18.65	D	1.50 (DRY)			S44					
19.00-19.10	D									
19.70-20.15	D	1.50 (DRY)			S42					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.50-20.60	D									
21.20-21.50	D	1.50 (DRY)			S100/150					
22.50-22.60	D					Between 22.50-22.70m, clasts with occasional penetrative yellow staining (up to 3mm depth).				
23.00-23.50 23.00-23.10 23.00-23.38	B D	1.50 (DRY)		29	C100/225	Between 23.00-23.50m, clasts with occasional reddish brown penetrative iron oxide staining (up to 5mm depth).				
24.00-24.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.50-24.60 24.50-24.81	D	1.50 (DRY)			C100/ 160					
25.50-25.60	D									
26.00-26.10 26.00-26.30	D	1.50 (DRY)			C100/ 145					
27.00-27.10	D					CHALK, recovered as white gravelly SILT. Clasts are weak, medium density, white with rare black specks and occasionally orangish brown surface staining, angular and fine to coarse. With many small broken flints (2-5mm in size).	27.00		83.92	
27.50-27.60 27.50-27.95	D	1.50 (DRY)			C59					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.50-28.60	D									
29.00-29.10 29.00-29.45	D	1.50 (DRY)			C66	Between 29.0-29.10m, black specs on clasts are absent.				
30.00-30.10	D									
30.50-30.60 30.50-30.95	D	1.50 (DRY)			C100					
31.50-31.60	D					Between 31.50-31.60m, with many small nodular flints (20-40mm in size).				
32.00-32.10	D					Between 32.00-32.10m, with some small to medium nodular flints (30-75m in size).				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
32.00-32.30		1.50 (DRY)			C100/150						
33.00-33.10	D					Between 33.00-33.10m, with a low subangular cobble content. Cobbles are weak, medium density, white with rare black specks and rare orangish brown surface staining (up to 3mm in size). Flints are absent.					
34.00-34.10 34.00-34.45	D	1.50 (DRY)			C69	Between 34.00-34.10m, clasts with occasional black specks. With rare small flints (2-10mm in size).					
35.00-35.10	D										
35.50-35.60 35.50-35.80	D	1.50 (DRY)			C100/150	Between 35.50-35.60m, with occasional small flints (4-12mm in size).					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
36.50-36.60	D					Below 36.50m, with rare shell fragments (2-5mm size).					
37.00-37.10 37.00-37.45	D	1.50 (DRY)			C101	Between 37.00-36.10m, clasts becoming weak, medium to high density with rare shell fragments (3-7mm in size).					
38.00-38.10	D										
38.50-38.60 38.50-38.75	D	1.50 (DRY)			C100/ 95						
39.50-39.60	D					Between 39.50-39.60m, with many angular to subangular small nodular flint fragments (20-45mm in size).					
40.00-40.10	D										


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
Figure **10 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
40.00-40.15		1.50 (DRY)			C115* 145						
40.90-41.00	D					Between 40.90-41.00m, with a medium nodular flint (60mm in size).					
41.50-41.60 41.50-41.71	D	1.50 (DRY)			C100/ 60	Between 41.50-41.60m, shell fragments are <3mm in size.					
42.50-42.60	D										
43.00-43.10 43.00-43.27	D	1.50 (DRY)			C100/ 115						
44.00-44.10	D					Below 44.00m, clasts with orangish brown surface staining (2-5mm in size).					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
44.50-44.60 44.50-44.73	D	1.50 (DRY)			C100/75					
45.50-45.60	D					CHALK, recovered as silty angular to subangular fine to coarse GRAVEL. Clasts are weak, medium density, white with rare black specks and some grey marl (<2mm thick) on clast surfaces. With some angular to subangular small nodular flints (15-40mm in size).	45.50			65.42
46.00-48.00 46.00-46.10 46.00-46.22	B D	1.50 (45.00)			C100/65	Between 46.00-46.10m, with occasional orangish brown surface staining (2mm in size) and many fossils remains (5 -20mm in size).				
47.00-47.10	D					Between 47.00-47.10m, with a large nodular flint (105mm in size).				
47.50-47.60 47.50-47.57	D	1.50 (46.00)			C100*70	Between 47.50-47.60m, with a finger flint (40mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71301**
 PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409369.9 E 141282.9 N** Ground Level **110.92 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
48.50-48.60	D					Between 48.50-48.60m, with a low angular cobble content. Cobbles are weak, medium density, white with rare black specks and some fossils remains (5-15mm in size).				
49.20-49.30 49.20-49.33	D	1.50 (46.00)		C120* 125						
49.90-50.00	D				At 49.90m, with many angular to subangular small flints (5mm thick).	50.00	60.92			
End of Borehole										

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL/ECAD**
 Figure **13 of 13**
 07/10/2019

BOREHOLE RECORD - Cable Percussion

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM Borehole Project No CP71302 PC197510

Client HIGHWAYS ENGLAND National Grid Coordinates 409400.1 E 141243.3 N Ground Level 111.59 m OD

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
0.00- 0.30 0.10	B D					TOPSOIL: Brown gravelly slightly silty sand with many rootlets. Gravel is angular to subrounded fine to coarse chalk and flint.	G.L.		111.59	
0.30- 0.60	B					CHALK, recovered as a sandy slightly silty angular to subrounded and fine to coarse GRAVEL. Clasts are very weak, low density and white. Matrix is white and brown. With rare small flints (4-8mm in size).	0.30		111.29	
0.60- 1.00	B					CHALK, recovered as a cream slightly sandy slightly gravelly SILT. Clasts are very weak, medium density, white, angular to subrounded, fine to coarse.	0.60		110.99	
1.10	D			23						
1.20- 1.65	D	NIL (DRY)			S39	CHALK, recovered as a white occasionally orangish brown slightly sandy gravelly SILT. Clasts are very weak, medium density, white, angular to subrounded and fine to coarse. With rare small nodular flint fragments (2-50mm in size).	1.20		110.39	
2.00	D									
2.20- 2.65	D	2.15 (DRY)			S52					
3.00	D					At 3.00m, recovered as sandy very silty gravel. With many subangular to subrounded fine to coarse small flints (10-20mm in size).				
3.20- 3.65	D	3.00 (DRY)			S29	Between 3.20-3.65m, clasts with occasional black specks and orangish brown staining.				
4.00	D									

Boring				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.15	Inspection Pit	CR/SS	G.I.		DRY	19/06/19	08:00	46.00	4.00	45.50	20		Possible strike.
50.05		Cable Percussion	CR/SS	0.40	NIL	DRY	19/06/19	18:00						
				G.L.		DRY	25/06/19	08:00						
				17.50	3.00	DRY	25/06/19	18:00						
				17.50	3.00	DRY	26/06/19	08:00						
				30.80	4.00	DRY	26/06/19	18:00						

Remarks Inspection pit hand excavated to 0.25m by archeologist and extended to 1.20m depth by Geotechnics. No services were found. Small amount of water added to assist drilling from ground level to 25.00m and below 31.00m. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: bentonite seal up to 38.50m, bentonite grout up to 5.00m, bentonite seal up to 0.50m, arisings up to ground level. Logged in accordance with BS5930:2015

Logged by JN/MM
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	D	3.00 (DRY)			S54	Between 4.20-4.65m, with black specks on chalk clasts. Flints are absent.				
5.00	D					At 5.00m, with occasional small tabular and nodular flint fragments (10-12mm in size).				
5.30- 5.75	D	3.00 (DRY)			S35					
6.10	D					At 6.10m, small flint fragments (5-40mm in size) and rare medium nodular flints (50-60mm in size).				
6.35- 6.80	D	3.00 (DRY)			S29	Between 6.35-7.20m, with much orangish brown staining on clasts.				
7.20	D					.At 7.20m, flints are absent.				
7.40- 7.85	D	3.00 (DRY)			S40	Between 7.40-8.90m, recovered as sandy very silty gravel. Clasts are very weak and medium density. With occasional small tabular and nodular flint fragments (5-20mm in size).				
8.00	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				30.80	4.00	DRY	27/06/19	08:00						
				44.00	4.00	DRY	27/06/19	18:00						
				44.00	4.00		28/06/19	08:00						
				50.05	4.00	45.50	28/06/19	18:00						

Remarks Chiselling: 24.30-24.50m for 45 minutes possible flint..

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
 Figure **2 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.45- 8.90	D	3.00 (DRY)			S50					
9.20	D									
9.55-10.00	D	3.00 (DRY)			S64	Between 9.55-10.00m, with some small flint fragments (5-20mm in size).				
10.30	D					At 10.30m, clasts with occasional black specks.				
10.55-11.00	D	3.00 (DRY)			S51	Between 10.55-11.10m, very small flint fragments (5-10mm in size).				
11.50	D					At 11.50m, clasts with occasional orangish brown surface staining.				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
Figure **3 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.10-12.55	D	3.00 (DRY)			S39	Between 12.10-12.55m, clasts with much orange surface staining and occasional black specks.				
13.00	D				At 13.00m, clasts with occasional orangish brown surface staining.					
13.55-14.00	D	3.00 (DRY)			S55					
14.50	D				At 14.50m, with rare small nodular flint fragments (20-30mm in size).					
15.05-15.50	D	3.00 (DRY)			S52					
16.00	D					Between 16.00-17.50m, flints are absent.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.55-17.00	D	3.00 (DRY)			S31					
17.50	D									
18.10-18.55	D	3.00 (DRY)			S55	Between 18.10-18.55m, with occasional small flint fragments (5-25mm in size).				
19.00	D									
19.55-20.00	D	3.00 (DRY)			S34					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
Figure **5 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.50	D					At 20.50m, clasts with much orangish brown surface staining. With many small flint fragments (5-25mm in size).				
21.05-21.50	D	3.00 (DRY)			S100/297					
22.00	D									
22.55-22.92		3.00 (DRY)			C100/256					
22.70-22.80	D					Between 22.70-22.80m, clasts with much orangish brown surface staining.				
23.50	D					At 23.50m, with occasional medium rinded nodular finger flint fragments (20-30mm in size) with a 1-2mm cortex.				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.10-24.28	D	3.00 (DRY)			C100/107	Between 24.20-24.30m, clasts with occasional black specks.				
24.20-24.30										
25.00	D					At 25.00m, with rare small nodular flints (30-40mm in size).				
25.55-26.00	D	3.00 (DRY)			C88					
25.80										
26.50	D					At 26.50m, clasts with occasional black specks. With occasional small flint fragments (5-10mm in size).				
27.00-27.45	D	3.00 (DRY)			S53	Between 27.10-29.05m, clasts with much orangish brown surface staining. With rare small nodular flint fragments (40-50mm in size).				
27.10-27.55										
28.00	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.60-29.05	D	4.00 (DRY)			S49					
29.50	D					Between 29.05-30.80m, clasts with occasional orangish brown surface staining. Flints are absent.				
30.35-30.80	D	4.00 (DRY)			S54					
31.00	D									
31.65-32.09	D	4.00 (DRY)			S87	Between 31.65-32.09m, with occasional small unrounded nodular flint fragments (30-50mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
32.50	D									
33.25-33.70	D	4.00 (DRY)			S82	Between 33.25-34.85m, with many very small rinded and unrinded flints (15-20mm in size).				
34.00	D									
34.75-34.87	D	4.00 (DRY)			S100/64					
35.50	D					At 35.50m, clasts with much orangish brown surface staining and specks.				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
36.40-36.50 36.40-36.66	D	4.00 (DRY)			C100/150					
37.25	D					Between 37.25-38.10m, clasts are weak, medium density, white with occasional orangish brown surface staining, subangular to subrounded and coarse. With very small rounded and unrounded flints (15-20mm in size).				
37.90-38.10 38.00-38.10	D	4.00 (DRY)			C100/95					
38.80	D									
39.50-39.60 39.50-39.60	D	4.00 (DRY)			C100/61	Between 39.50-43.50m, clasts with occasional orangish brown surface staining. With many medium nodular flint fragments (50-70mm in size).				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
Figure **10 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
40.50	D									
41.10-41.20 41.10-41.20	D	4.00 (DRY)			C100/45					
42.00	D									
42.60-42.70 42.60-42.78	D	4.00 (DRY)			C100/103					
43.50	D					Between 43.50-44.65m, flints are absent.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**

Figure **11 of 13**
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BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409400.1 E 141243.3 N** Ground Level **111.59 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
44.05-44.15 44.05-44.24	D	4.00 (DRY)			C100/91						
45.00	D					At 45.00m, with occasional small sheet flint fragments (5-20mm in size).					
45.50-45.60 45.50-45.62	D	4.00 (45.00)			C100/71	5At 45.50m, with some small and medium nodular flint fragments (10-50mm in size). Below 45.50m, clasts are fine to medium.					
46.50	D					At 46.60m, with occasional small sheet flint fragments (3-30mm in size).					
47.05-47.15 47.05-47.14	D	4.00 (45.50)			C100/45	Between 47.05-47.15m, with occasional small nodular flint fragments (30-50mm in size).					
48.00	D					From 48.00-50.00m, with occasional small nodular and sheet flint fragments (2-40mm in size).					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
Figure **12 of 13**
07/10/2019



BOREHOLE RECORD - Cable Percussion

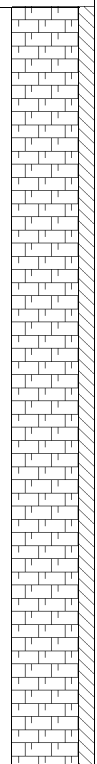
Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP71302**
Project No **PC197510**


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **409400.1 E**
141243.3 N

Ground Level **111.59 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
48.50-48.60 48.50-48.58	D	4.00 (45.50)			C100/ 44					
49.00-50.00	D									
50.00-50.05		4.00 (45.50)			C100/ 24		50.05		61.54	
						End of Borehole				


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JN/MM**
Figure **13 of 13**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata			Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.00- 0.40 0.00- 0.40	B D					TOPSOIL: Stiff brown slightly sandy gravelly silt with occasional roots (up to 3mm in diameter) and many rootlets. Gravel is subangular to subrounded fine to coarse chalk with rare angular to subangular small flints.	G.L.		105.10		
0.50- 0.70 0.50- 0.60	B D					CHALK, recovered as slightly sandy silty subangular to subrounded fine to coarse GRAVEL. Clasts are weak, medium density and white. Matrix is white and brown. With rare angular to subangular small flints (typically 25mm in size).	0.40		104.70		
1.00- 1.20 1.00- 1.10	B D					Below 1.00m, matrix is white.					
1.20- 1.80 1.20- 1.65	B D	NIL (DRY)		22	S49	CHALK, recovered as white slightly sandy slightly gravelly SILT. Clasts are weak, medium density, white with rare yellowish brown penetrative staining (up to 3mm depth), subangular to subrounded and fine to coarse. With rare subangular small to medium to flints.	1.20		103.90		
1.80- 1.90	D					Between 1.80-1.90m, with occasional brownish yellow surface staining on clasts.					
2.20- 2.65	D	1.40 (DRY)			S47						
2.80- 2.90	D										
3.20- 3.65	D	1.40 (DRY)			S27						
3.80- 3.90	D					Between 3.80-3.90m, with occasional angular to subangular small unrounded flints (up to 30mm in size).					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.50	Inspection Pit	DC/LC	G.I.			01/07/19	08:00	37.20	1.40	36.30	20	NS	Fast inflow.
48.00	0.15	Cable Percussion	DC/LC	0.40	NIL	DRY	01/07/19	18:00						
				0.40	NIL	DRY	08/07/19	08:00						
				12.20	1.40	DRY	08/07/19	18:00						
				12.20	1.40	DRY	09/07/19	08:00						
				30.15	1.40	DRY	09/07/19	18:00						

Remarks Inspection pit hand excavated to 0.40m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
 Chalk described in accordance with CIRIA Report C574, 2002 and Flints described following "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing)..
 Backfill details from base of hole: bentonite seal up to 31.00m, bentonite grout up to 0.50m, arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
 Figure **1 of 12**
 07/10/2019


BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
4.20- 4.65	D	1.40 (DRY)			S32					
4.80- 4.90	D									
5.20- 5.65	D	1.40 (DRY)			S75					
5.80- 5.90	D					Between 5.70-5.90m, with occasional subangular medium unrinded flints.				
6.20- 6.65	D	1.40 (DRY)			S53					
6.80- 6.90	D					Between 6.80-6.90m, with occasional orangish brown penetrative staining (3mm depth) on clasts.				
7.20- 7.65	D	1.40 (DRY)			S61					
7.80- 7.90	D					Between 7.20-7.50m, with many subangular very small flints (up to 8mm in size).				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				30.15	1.40	DRY	10/07/19	08:00						
				41.00	1.40	39.00	10/07/19	18:00						
				41.00	1.40	36.00	11/07/19	08:00						
				48.00	1.40	36.00	11/07/19	18:00						


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **2 of 12**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
8.20- 8.65	D	1.40 (DRY)			S35					
8.80- 8.90	D									
9.20- 9.65	D	1.40 (DRY)			S35					
9.80- 9.90	D									
10.20-10.65	D	1.40 (DRY)			S33					
11.00-11.10	D									
11.70-12.15	D	1.40 (DRY)			S32	Between 11.70-11.80m, with occasional dark orangish brown penetrative staining (5mm depth) on clasts.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **3 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP71701**
Project No **PC197510**


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **410170.5 E**
141379.9 N

Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
12.50-12.60	D					Between 12.50-12.60m, clasts have many black speckles.				
13.20-13.65	D	1.40 (DRY)			S34					
14.10-14.20	D					Between 14.00-14.20m, with occasional subangular small flints.				
14.70-15.15	D	1.40 (DRY)			S43	At 14.70m, flint in SPT split spoon (possible sheet flint).				
15.50-15.60	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **4 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
16.20-16.65	D	1.40 (DRY)			S35	Between 16.80-17.20m, with occasional subangular small flints (up to 15mm in size).				
17.10-17.20	D									
17.70-18.08	D	1.40 (DRY)			S100/225	Between 18.60-18.80m, with many angular to subangular small flints (up to 30mm in size).				
18.70-18.80	D									
19.20-19.65	D	1.40 (DRY)			S34					
20.00-20.10	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **5 of 12**
07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.70-21.15	D	1.40 (DRY)			S44	Between 20.00-20.30m, with many angular to subangular small to medium flints (up to 40mm in size).				
21.60-21.70	D									
22.20-22.65	D	1.40 (DRY)		S53						
23.10-23.20	D									
23.70-24.15	D	1.40 (DRY)		S37						

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **6 of 12**
07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole Project No **CP71701**
PC197510


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **410170.5 E**
141379.9 N

Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
24.70-24.80	D									
25.20-25.50	D	1.40 (DRY)			S100/225					
26.20-26.30	D									
26.70-27.15	D	1.40 (DRY)			S47					
27.70-27.80	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **7 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
28.20-28.50	D	1.40 (DRY)			S100/150					
29.20-29.30	D									
29.70-30.15	D	1.40 (DRY)			S49					
30.50-30.60	D					Between 30.40-30.70m, with occasional small flints (up to 10mm in size), possible sheet flints (7mm thick).				
31.20-31.65	D	1.40 (DRY)			S58					
32.00-32.10	D					Between 31.80-32.80m, with occasional yellow penetrative staining (3mm depth) on clasts.				

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **8 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole Project No **CP71701**
PC197510


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **410170.5 E**
141379.9 N

Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
32.70-33.15	D	1.40 (DRY)			S50					
33.70-33.80	D									
34.20-34.65	D	1.40 (DRY)			S88					
35.20-35.30	D					Between 34.80-35.20m, chalk recovered as very gravelly silt.				
35.70-36.15	D	1.40 (DRY)			S56					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **9 of 12**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
36.70-36.80	D					Between 36.40-36.60m, with occasional orange penetrative staining (3mm depth) on clasts. With occasional angular to subangular small flints (up to 10mm in size).				
37.20-37.65	D	1.40 (36.30)		S46						
38.00-38.10	D									
38.70-38.98	D	1.40 (38.00)		S100/200						
39.70-39.80	D									

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **10 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **CP71701**
Project No **PC197510**


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **410170.5 E**
141379.9 N

Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
40.20-40.30 40.20-40.50	D	1.40 (39.00)			C100/ 150					
40.90-41.00	D									
41.70-41.80 41.70-42.15	D	1.40 (35.00)			C92	Below 41.50m, with occasional angular to subangular small flint gravel.				
42.70-42.80	D									
43.20-43.30 43.20-43.45	D	1.40 (35.70)			C100/ 95					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **11 of 12**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410170.5 E 141379.9 N** Ground Level **105.10 m OD**

Sampling			Properties			Strata		Scale 1:20		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
44.20-44.30	D									
44.70-44.80 44.70-44.93	D	1.40 (36.00)			C100/ 150					
45.70-45.80	D									
46.20-46.30 46.20-46.35	D	1.40 (36.00)			C100/ 70					
47.20-47.30	D									
47.70-47.80 47.70-47.93	D	1.40 (36.00)			C100/ 75					
End of Borehole							48.00		57.10	

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**

Figure **12 of 12**
07/10/2019



BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71702** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410200.1 E 141335.1 N** Ground Level **102.72 m OD**

Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
0.00- 0.32	B					TOPSOIL: Stiff brown slightly gravelly sandy SILT with occasional roots (up to 3mm in diameter). Gravel is subangular to subrounded fine to coarse chalk and flint.	G.L.		102.72		
0.00- 0.30	D				CHALK, recovered as a white and brown slightly sandy gravelly SILT. Clasts are weak, medium density, white with rare yellowish brown surface staining, subangular to subrounded and fine to coarse. With rare subangular small flints. Below 1.00m, silt is white with rare light brown pockets (up to 30mm in size) of clay. Below 1.20m, clay pockets are absent.		0.32		102.40		
0.00	ES										
0.30	ES		PID<0.1								
0.32- 0.60	B					Between 2.00-2.10m, clasts with occasional yellow surface staining (2mm in size).					
0.60- 1.00	B										
1.10	D			20		At 2.60m, with a angular small flint fragment in SPT split spoon.					
1.20- 1.70	B										
1.20- 1.65	D	NIL (DRY)			S53						
2.00	D					At 5.25m, with a angular small flint fragment in SPT split spoon.					
2.20- 2.65	D	2.15 (DRY)			S30						
3.00	D					Between 7.30-7.75m, driller notes flint in SPT split spoon.** Between 7.50-7.70m, clasts with occasional yellow penetrating staining (2mm depth).					
3.20- 3.65	D	2.50 (DRY)			S39						
4.00	D					Between 10.00-10.10m, clasts with many black specks.					
4.20- 4.65	D	2.50 (DRY)			S27						
5.00	D					Between 10.00-10.10m, clasts with many black specks.					
5.25- 5.70	D	2.50 (DRY)			S39						
6.00	D					Between 10.00-10.10m, clasts with many black specks.					
6.25- 6.70	D	2.50 (DRY)			S29						
7.00	D					Between 10.00-10.10m, clasts with many black specks.					
7.30- 7.75	D	2.50 (DRY)			S29						
7.50	D					Between 10.00-10.10m, clasts with many black specks.					
8.00	D										
8.25- 8.70	D	2.50 (DRY)			S34						
9.00	D			21		Between 10.00-10.10m, clasts with many black specks.					
9.35- 9.80	D	2.50 (DRY)			S47						
10.00	D										

Boring				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.50	Inspection Pit	CR	G.I.			01/07/19	08:00	37.00	2.50	36.20	20		Medium inflow.
48.04	0.15	Cable Percussion	CR	1.65	1.50	DRY	01/07/19	18:00						
				1.65	1.50	DRY	02/07/19	08:00						
				22.00	2.50	DRY	02/07/19	18:00						
				22.00	2.50	DRY	03/07/19	08:00						
				36.00	2.50	DRY	03/07/19	18:00						

Remarks Inspection pit hand excavated to 0.32m by archaeologist and extended to 1.20m depth by Geotechnics. No services were found.
 ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
 Small amounts of water was added to assist boring between 1.20m and 36.00m.
 ** Drillers description.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Logged in accordance with BS5930:2015

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged by **JL**
 Checked by **DRB**
 Figure **1 of 5**
 07/10/2019

BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71702** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410200.1 E 141335.1 N** Ground Level **102.72 m OD**


Sampling			Properties			Strata			Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD		
10.55-11.00	B	2.50 (DRY)			S37						
11.50	D										
12.05-12.50	D	2.50 (DRY)			S36						
13.00	D					At 12.50m, with a angular small flint fragment in SPT split spoon.					
13.60-14.05	D	2.50 (DRY)			S39						
14.50	D					Between 14.00-16.00m, clasts with occasional yellow penetrating staining (2mm depth).					
15.10-15.55	D	2.50 (DRY)			S43						
16.00	D										
16.60-17.05	D	2.50 (DRY)			S36						
17.50	D					Between 17.50-18.00m, with occasional subangular medium flint fragments. Between 17.90-18.20m, driller notes pushing cobble.**					
18.20-18.59	D	2.50 (DRY)			S100/279						
19.00	D										
19.65-20.10 19.70-19.80	D	2.50 (DRY)			C68						
						Between 20.00-20.50m, with occasional subangular small flint fragments.					

Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				36.00	2.50	DRY	04/07/19	08:00						
				46.50	2.50	33.80	04/07/19	18:00						
				46.50	2.50	34.10	05/07/19	08:00						
				48.04	2.50	34.00	05/07/19	18:00						

Remarks **AB** Backfill details from base of hole: bentonite seal up to 28.80m, bentonite grout up to 0.70m, arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.
All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
Checked by **DRB**
Figure **2 of 5**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71702** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410200.1 E 141335.1 N** Ground Level **102.72 m OD**

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
20.50	D									
21.10-21.55	D	2.50 (DRY)			S32					
21.50	D									
22.05-22.50	D	2.50 (DRY)			S46					
23.00	D					At 23.00m, small angular flint (possible sheet flint).				
23.70-24.15	D	2.50 (DRY)			S55					
24.50	D									
25.30-25.70	D	2.50 (DRY)			S100/253					
26.00	D					At 26.00m, possible marl band.				
26.75-26.91		2.50 (DRY)			C100/70					
26.80-26.90	D									
27.50	D									
28.40-28.83		2.50 (DRY)			C100/284	Between 28.50-28.60m, with occasional subangular small flint fragments.				
28.50-28.60	D									
29.00	D									
29.70-30.15		2.50 (DRY)			C100	Between 29.90-30.00m, with a subangular small flint (typically 5mm in size).				
29.90-30.10	D									


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
Checked by **DRB**
Figure **3 of 5**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71702** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410200.1 E 141335.1 N** Ground Level **102.72 m OD**

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
30.50	D									
31.30-31.63 31.30-31.63	D	2.50 (DRY)			C100/222					
32.10	D									
32.85-33.15 32.85-33.15	D	2.15 (DRY)			C100/197					
33.60	D									
34.50-34.80 34.50-34.80	D	2.50 (DRY)			C100/192					
35.30	D									
36.00-36.20 36.00-36.23	D	2.50 (DRY)			C100/128	Below 36.20m, with rare subangular small flint fragments.				
37.00-37.50	D									
37.75-37.99 37.80-38.00	D	2.50 (36.20)			C100/150					
39.00	D									
39.20-39.30 39.20-39.33	D	2.50 (36.20)			C100/62					


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
Checked by **DRB**
Figure **4 of 5**
07/10/2019




BOREHOLE RECORD - Cable Percussion

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **CP71702** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410200.1 E 141335.1 N** Ground Level **102.72 m OD**

Sampling			Properties			Strata		Scale 1:50		
Depth	Sample Type	Depth Cased & (to Water)	Strength kPa	w %	SPT N	Description	Depth	Legend	Level m OD	
40.20	D									
40.55-42.00	D	2.50 (35.50)			C100/89					
40.55-40.69										
42.20-43.50	D	2.50 (36.00)			C100/85					
42.20-42.34										
43.75-45.30	D	NIL (33.50)			C100/54					
43.75-43.84										
45.30-46.50	D	2.50 (33.80)			C100/45					
45.30-45.37										
46.70-48.00	D	2.50 (34.10)			C100/32					
46.70-46.75										
48.00-48.04		2.50 (33.90)			C100/29	End of Borehole	48.04		54.68	


Boring				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015

Logged by **JL**
Checked by **DRB**
Figure **5 of 5**
07/10/2019



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
CP70201	1.20	114.26	S	-	3	6	7	8	9	9	33			*		
CP70201	2.20	113.26	S	-	2	4	3	4	5	5	17		*			
CP70201	3.20	112.26	S	-	4	8	9	8	7	8	32			*		
CP70201	4.20	111.26	S	-	3	7	9	10	9	8	36			*		
CP70201	5.20	110.26	S	-	2	5	4	5	4	5	18		*			
CP70201	6.20	109.26	S	-	2	4	5	6	8	8	27			*		
CP70201	7.20	108.26	S	-	2	5	4	6	7	9	26			*		
CP70201	8.20	107.26	S	-	2	4	4	7	7	9	27			*		
CP70201	9.20	106.26	S	-	3	5	6	7	5	5	23		*			
CP70201	10.20	105.26	S	-	2	5	7	7	7	7	28			*		
CP70201	11.70	103.76	S	-	8	8	6	9	8	8	31			*		
CP70201	13.20	102.26	S	-	6	9	10	20	13	15	58					∇
CP70201	14.70	100.76	S	-	6	7	12	15	18	21	66					∇
CP70201	16.20	99.26	S	-	5	12	13	13	8	10	44				*	∇
CP70201	17.70	97.76	S	-	8	10	10	15	16	19	60					∇
CP70201	19.20	96.26	S	-	5	7	7	6	6	6	25			*		∇
CP70201	20.70	94.76	S	-	2	4	4	5	6	10	25			*		∇
CP70201	22.20	93.26	S	-	6	16	13	10	10	15	48					*
CP70201	23.70	91.76	S	-	15	100/70					115*/145					∇
CP70201	25.20	90.26	C	-	6	25	100				100/75					∇
CP70201	26.70	88.76	C	-	10	17	20	25	55/60		100/210					∇
CP70201	28.20	87.26	C	-	100/70						100*/70					∇
CP70201	29.70	85.76	C	-	13	100/70					113*/145					∇
CP70201	31.50	83.96	C	-	18	50	100/50				100/50					∇
CP70201	33.00	82.46	C	-	20	49	100/60				100/60					∇
CP70201	34.50	80.96	C	-	56		100/20				100/20					∇
CP70201	36.00	79.46	C	-	5	100/45					105*/120					∇
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			AR1962													
Energy Ratio, Er (%)			68.00													
Calibration Date			11/10/2018													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'									
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50					
CP70201	37.50	77.96	C	-	15	45	100/20				100/20										
CP70201	39.00	76.46	C	-	20	100/40					120*/115										
CP70201	40.50	74.96	C	-	15	42	100/20				100/20										
CP70201	42.00	73.46	C	-	50		100/70				100/70										
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005														
Hammer No.			AR1962																		
Energy Ratio, Er (%)			68.00																		
Calibration Date			11/10/2018																		

-/- Blows/penetration (mm) after seating
 -*/- Total blows/penetration (mm)
 SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)
 C - SPT with cone
 L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP70202	1.20	116.30	S	-	2	4	4	4	4	4	16		*				
CP70202	3.20	114.30	S	-	8	9	15	9	7	5	36				*		
CP70202	5.20	112.30	S	-	3	5	4	7	7	10	28			*			
CP70202	7.20	110.30	S	-	3	7	9	8	8	7	32				*		
CP70202	9.20	108.30	S	-	3	6	6	7	6	6	25			*			
CP70202	11.70	105.80	S	-	5	6	7	6	7	12	32				*		
CP70202	14.70	102.80	S	-	4	7	6	8	8	10	32				*		
CP70202	17.70	99.80	S	-	5	11	8	11	10	14	43					*	
CP70202	20.70	96.80	S	-	4	7	8	9	10	12	39					*	
CP70202	23.70	93.80	S	-	6	7	7	10	12	14	43					*	
CP70202	26.70	90.80	S	-	3	9	10	20	20		50/225						∇
CP70202	28.20	89.30	S	-	8	8	6	8	7	14	35				*		
CP70202	29.70	87.80	S	-	14		100				100/75						∇
CP70202	31.20	86.30	S	-	10	14	24	26	50		100/225						∇
CP70202	32.70	84.80	S	-	12	15	15	50	35/60		100/210						∇
CP70202	34.20	83.30	C	-	11		100/60				100/60						∇
CP70202	36.00	81.50	C	-	10	30	100/50				100/50						∇
CP70202	37.50	80.00	C	-	12	12	25	75/40			100/115						∇
CP70202	39.10	78.40	C	-	6	14	20	20	25	35	100						∇
CP70202	40.50	77.00	C	-	8	15	25	27	48/70		100/220						∇
CP70202	42.00	75.50	C	-	10	20	40	60			100/150						∇
Driller			David Cowling				Remarks										
Hammer No.			AR1962				Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Energy Ratio, Er (%)			68.00														
Calibration Date			11/10/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP70901	1.30		C	-	1	2	2	2	3	2	9	*					
CP70901	2.30		C	-	2	4	3	5	5	5	18		*				
CP70901	3.20		S	-	1	3	3	2	2	4	11	*					
CP70901	5.20		S	-	1	3	4	4	5	5	18		*				
CP70901	7.20		S	-	2	3	2	3	3	3	11	*					
CP70901	8.20		S	-	2	1	2	3	3	4	12	*					
CP70901	9.50		S	-	1	2	2	3	3	4	12	*					
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			AR1962														
Energy Ratio, Er (%)			68.00														
Calibration Date			11/10/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'						
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50		
CP70902	1.20		C	-	7	6	8	7	5	6	26			*				
CP70902	2.20		C	-	6	5	4	4	3	4	15		*					
CP70902	3.20		C	-	2	1	3	3	2	3	11		*					
CP70902	4.20		S	-	1	3	2	4	3	2	11		*					
CP70902	6.20		S	-	2	2	1	4	4	4	13		*					
CP70902	8.20		S	-	2	2	5	5	5	8	23			*				
CP70902	10.20		S	-	1	5	6	5	5	6	22			*				
CP70902	10.70		S	-	2	3	2	4	5	5	16		*					
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005											
Hammer No.			AR1962															
Energy Ratio, Er (%)			68.00															
Calibration Date			11/10/2018															

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS

Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
CP71001	1.20	91.32	S	-	3	4	7	7	7	6	27		*			
CP71001	2.20	90.32	S	-	2	4	13	13	17	20	63					▼
CP71001	3.20	89.32	S	-	2	5	3	5	5	6	19		*			
CP71001	4.20	88.32	S	-	5	5	4	4	4	5	17		*			
CP71001	5.20	87.32	S	-	3	5	6	6	4	4	20		*			
CP71001	6.20	86.32	S	-	6	6	11	6	5	5	27			*		
CP71001	7.20	85.32	S	-	4	10	9	10	9	9	37				*	
CP71001	8.20	84.32	S	-	8	6	12	6	6	8	32				*	
CP71001	9.20	83.32	S	-	4	7	8	7	8	14	37				*	
CP71001	10.20	82.32	S	-	4	7	12	19	14	15	60					▼
CP71001	11.70	80.82	S	-	5	9	8	8	6	10	32			*		
CP71001	13.20	79.32	S	-	4	9	10	15	15	16	56					▼
CP71001	14.70	77.82	S	-	7	16	19	10	11	13	53					▼
CP71001	16.20	76.32	S	-	9	12	18	30	52		100/225					▼
CP71001	18.00	74.52	C	-	7	8	10	10	20	60	100					▼
CP71001	19.50	73.02	C	-	25	30	70/60				70/60					▼
CP71001	21.00	71.52	C	-	25		100/20				100/20					▼
CP71001	22.50	70.02	C	-	5	20	100/40				100/40					▼
CP71001	24.00	68.52	C	-	25		100/65				100/65					▼
CP71001	25.50	67.02	C	-	5	20	50	50/10			100/85					▼
CP71001	27.00	65.52	C	-	25		70	30/20			100/95					▼
CP71001	28.50	64.02	C	-	25		50	50/10			100/85					▼
Driller				David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005								
Hammer No.				AR1962												
Energy Ratio, Er (%)				68.00												
Calibration Date				11/10/2018												

-/- Blows/penetration (mm) after seating
 -*/- Total blows/penetration (mm)
 SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)
 C - SPT with cone
 L - Split Spoon with liner used



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP71002	1.20	94.26	S	-	4	7	9	7	6	6	28			*			
CP71002	2.20	93.26	S	-	2	4	7	10	10	14	41					*	
CP71002	3.20	92.26	S	-	2	5	5	8	8	8	29			*			
CP71002	4.20	91.26	S	-	2	5	7	8	8	10	33			*			
CP71002	5.20	90.26	S	-	2	6	5	6	6	8	25			*			
CP71002	6.20	89.26	S	-	3	6	7	8	15	10	40					*	
CP71002	7.20	88.26	S	-	2	5	7	7	8	12	34			*			
CP71002	8.20	87.26	S	-	4	5	6	14	10	14	44					*	
CP71002	9.20	86.26	S	-	6	13	16	16	15	16	63						∇
CP71002	10.20	85.26	S	-	6	14	15	15	15	12	57						∇
CP71002	11.70	83.76	S	-	4	9	10	15	12	14	51						∇
CP71002	13.20	82.26	S	-	4	7	7	10	9	8	34			*			
CP71002	14.70	80.76	S	-	6	9	10	10	8	8	36			*			
CP71002	16.20	79.26	S	-	4	8	20	15	15	15	65						∇
CP71002	17.70	77.76	S	-	5	20	17	14	20	49/0	100/225						∇
CP71002	19.20	76.26	C	-	10		100				100/75						∇
CP71002	20.90	74.56	C	-	3	22	100/70				100/70						∇
CP71002	22.40	73.06	C	-	4	15	100/50				100/50						∇
CP71002	24.00	71.46	C	-	25		100/65				100/65						∇
CP71002	25.50	69.96	C	-	25		100/70				100/70						∇
CP71002	27.00	68.46	C	-	25		100/70				100/70						∇
CP71002	28.50	66.96	C	-	25		40	60/20			100/95						∇
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			AR1962														
Energy Ratio, Er (%)			68.00														
Calibration Date			11/10/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
CP71301	1.20	109.72	S	-	5	10	9	10	14	16	49					*
CP71301	2.20	108.72	S	-	5	7	7	8	10	11	36			*		
CP71301	3.20	107.72	S	-	3	10	12	17	18	25	72					∇
CP71301	4.20	106.72	S	-	3	5	7	7	13	17	44				*	
CP71301	5.20	105.72	S	-	7	6	6	6	8	10	30		*			
CP71301	6.20	104.72	S	-	5	7	7	11	11	13	42				*	
CP71301	7.20	103.72	S	-	3	5	6	6	6	6	24		*			
CP71301	8.20	102.72	S	-	2	3	9	7	9	14	39				*	
CP71301	9.20	101.72	S	-	2	3	6	8	8	9	31			*		
CP71301	10.70	100.22	S	-	3	3	6	7	9	11	33			*		
CP71301	12.20	98.72	S	-	3	4	7	8	9	10	34			*		
CP71301	13.70	97.22	S	-	2	11	12	16	16	18	62					∇
CP71301	15.20	95.72	S	-	3	6	9	10	10	9	38			*		
CP71301	16.70	94.22	S	-	8	11	9	8	8	8	33			*		
CP71301	18.20	92.72	S	-	3	6	6	8	13	17	44				*	
CP71301	19.70	91.22	S	-	4	8	7	11	10	14	42				*	
CP71301	21.20	89.72	S	-	8	20	25	75			100/150					∇
CP71301	23.00	87.92	C	-	8	20	25	25	50		100/225					∇
CP71301	24.50	86.42	C	-	10	25	30	35	35/10		100/160					∇
CP71301	26.00	84.92	C	-	8	23	30	70/70			100/145					∇
CP71301	27.50	83.42	C	-	4	6	11	12	15	21	59					∇
CP71301	29.00	81.92	C	-	4	9	20	20	12	14	66					∇
CP71301	30.50	80.42	C	-	5	11	20	25	25	30	100					∇
CP71301	32.00	78.92	C	-	8	12	50	50			100/150					∇
CP71301	34.00	76.92	C	-	2	7	11	13	15	30	69					∇
CP71301	35.50	75.42	C	-	8	20	42	58			100/150					∇
CP71301	37.00	73.92	C	-	5	8	14	23	29	35	101					∇
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			AR1962													
Energy Ratio, Er (%)			68.00													
Calibration Date			11/10/2018													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP71302	1.20	110.39	S	-	3	6	9	10	11	9	39				*		
CP71302	2.20	109.39	S	-	6	10	13	12	13	14	52						∇
CP71302	3.20	108.39	S	-	15	10	7	5	7	10	29			*			
CP71302	4.20	107.39	S	-	4	8	10	13	13	18	54						∇
CP71302	5.30	106.29	S	-	7	11	8	11	8	8	35				*		
CP71302	6.35	105.24	S	-	7	7	7	7	7	8	29			*			
CP71302	7.40	104.19	S	-	5	5	7	8	11	14	40				*		
CP71302	8.45	103.14	S	-	6	12	13	10	12	15	50						*
CP71302	9.55	102.04	S	-	4	12	25	12	12	15	64						∇
CP71302	10.55	101.04	S	-	12	10	11	13	10	17	51						∇
CP71302	12.10	99.49	S	-	4	9	8	11	8	12	39				*		
CP71302	13.55	98.04	S	-	8	8	10	16	14	15	55						∇
CP71302	15.05	96.54	S	-	7	7	12	10	13	17	52						∇
CP71302	16.55	95.04	S	-	3	7	7	8	8	8	31			*			
CP71302	18.10	93.49	S	-	4	9	11	13	13	18	55						∇
CP71302	19.55	92.04	S	-	6	9	8	7	9	10	34			*			
CP71302	21.05	90.54	S	-	6	10	16	19	28	37/72	100/297						∇
CP71302	22.55	89.04	C	-	15	10/40	30	26	25	19/31	100/256						∇
CP71302	24.10	87.49	C	-	25		71	29/32			100/107						∇
CP71302	25.55	86.04	C	-	5	5	14	15	27	32	88						∇
CP71302	27.00	84.59	S	-	4	5	7	13	15	18	53						∇
CP71302	28.60	82.99	S	-	8	9	10	11	13	15	49					*	
CP71302	30.35	81.24	S	-	9	8	9	9	16	20	54						∇
CP71302	31.65	79.94	S	-	12	13/65	17	16	16	38	87						∇
CP71302	33.25	78.34	S	-	10	14	23	16	17	26	82						∇
CP71302	34.75	76.84	S	-	25/53		100/64				100/64						∇
CP71302	36.40	75.19	C	-	13	12/33	46	54			100/150						∇
Driller			Craig Roberts				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			AR2475														
Energy Ratio, Er (%)			65.00														
Calibration Date			21/09/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'				
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50
CP71701	1.20	103.90	S	-	2	8	10	13	13	13	49					*
CP71701	2.20	102.90	S	-	3	6	14	12	7	14	47					*
CP71701	3.20	101.90	S	-	3	5	8	4	6	9	27		*			
CP71701	4.20	100.90	S	-	3	7	8	9	7	8	32			*		
CP71701	5.20	99.90	S	-	2	5	10	10	25	30	75					∇
CP71701	6.20	98.90	S	-	6	13	12	11	14	16	53					∇
CP71701	7.20	97.90	S	-	5	10	20	13	13	15	61					∇
CP71701	8.20	96.90	S	-	3	7	9	9	7	10	35			*		
CP71701	9.20	95.90	S	-	4	5	7	9	9	10	35			*		
CP71701	10.20	94.90	S	-	3	4	7	6	9	11	33			*		
CP71701	11.70	93.40	S	-	8	7	7	7	7	11	32			*		
CP71701	13.20	91.90	S	-	5	6	7	8	9	10	34			*		
CP71701	14.70	90.40	S	-	5	5	7	15	12	9	43				*	
CP71701	16.20	88.90	S	-	4	6	10	11	6	8	35			*		
CP71701	17.70	87.40	S	-	9	16	30	30	40		100/225					∇
CP71701	19.20	85.90	S	-	6	9	9	7	8	10	34			*		
CP71701	20.70	84.40	S	-	5	7	8	10	11	15	44				*	
CP71701	22.20	82.90	S	-	3	6	12	13	15	13	53					∇
CP71701	23.70	81.40	S	-	5	12	8	9	9	11	37			*		
CP71701	25.20	79.90	S	-	25		30	20	50		100/225					∇
CP71701	26.70	78.40	S	-	3	7	10	13	10	14	47				*	
CP71701	28.20	76.90	S	-	12	13	33	35	32/0		100/150					∇
CP71701	29.70	75.40	S	-	5	7	8	9	12	20	49				*	
CP71701	31.20	73.90	S	-	6	9	10	13	19	16	58					∇
CP71701	32.70	72.40	S	-	4	10	12	9	13	16	50				*	
CP71701	34.20	70.90	S	-	8	17	15	13	30	30	88					∇
CP71701	35.70	69.40	S	-	4	7	10	10	15	21	56					∇
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005									
Hammer No.			AR1962													
Energy Ratio, Er (%)			68.00													
Calibration Date			11/10/2018													

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP71701	37.20	67.90	S	-	6	8	8	10	11	17	46					*	
CP71701	38.70	66.40	S	-	25		25	45	30/50		100/200						∇
CP71701	40.20	64.90	C	-	5	20	30	70			100/150						∇
CP71701	41.70	63.40	C	-	7	13	18	30	24	20	92						∇
CP71701	43.20	61.90	C	-	5	20	50	50/20			100/95						∇
CP71701	44.70	60.40	C	-	25		30	70			100/150						∇
CP71701	46.20	58.90	C	-	25		100/70				100/70						∇
CP71701	47.70	57.40	C	-	5	20	100				100/75						∇
Driller			David Cowling				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			AR1962														
Energy Ratio, Er (%)			68.00														
Calibration Date			11/10/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'					
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50	
CP71702	1.20	101.52	S	-	5	6	5	8	20	20	53						✓
CP71702	2.20	100.52	S	-	6	6	7	7	8	8	30			*			✓
CP71702	3.20	99.52	S	-	8	7	6	8	12	13	39				*		✓
CP71702	4.20	98.52	S	-	13	12	7	5	9	6	27		*				✓
CP71702	5.25	97.47	S	-	4	5	7	9	10	13	39				*		✓
CP71702	6.25	96.47	S	-	5	6	6	7	8	8	29			*			✓
CP71702	7.30	95.42	S	-	4	5	6	7	7	9	29			*			✓
CP71702	8.25	94.47	S	-	6	8	8	9	9	8	34			*			✓
CP71702	9.35	93.37	S	-	4	5	8	7	13	19	47					*	✓
CP71702	10.55	92.17	S	-	5	5	6	10	10	11	37			*			✓
CP71702	12.05	90.67	S	-	5	10	7	8	10	11	36			*			✓
CP71702	13.60	89.12	S	-	5	7	9	10	10	10	39			*			✓
CP71702	15.10	87.62	S	-	7	9	11	10	12	10	43				*		✓
CP71702	16.60	86.12	S	-	11	11	10	6	6	14	36			*			✓
CP71702	18.20	84.52	S	-	7	19/38	41	22	21	16/54	100/279						✓
CP71702	19.65	83.07	C	-	7	11	11	14	17	26	68						✓
CP71702	21.10	81.62	S	-	5	5	8	8	8	8	32			*			✓
CP71702	22.05	80.67	S	-	8	8	10	10	12	14	46					*	✓
CP71702	23.70	79.02	S	-	7	9	13	12	14	16	55						✓
CP71702	25.30	77.42	S	-	6	9	11	13	17	59/28	100/253						✓
CP71702	26.75	75.97	C	-	18	7/19	100/70				100/70						✓
CP71702	28.40	74.32	C	-	10	13	21	23	27	29/59	100/284						✓
CP71702	29.70	73.02	C	-	9	14	18	26	27	29	100						✓
CP71702	31.30	71.42	C	-	13	12/29	37	30	33/72		100/222						✓
CP71702	32.85	69.87	C	-	17	8/24	43	33	24/47		100/197						✓
CP71702	34.50	68.22	C	-	18	7/37	31	38	31/42		100/192						✓
CP71702	36.00	66.72	C	-	19	6/24	49	51/53			100/128						✓
Driller			Craig Roberts				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005										
Hammer No.			AR2475														
Energy Ratio, Er (%)			65.00														
Calibration Date			21/09/2018														

-/- Blows/penetration (mm) after seating

-*/- Total blows/penetration (mm)

SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)

C - SPT with cone

L - Split Spoon with liner used

GEOTECHNICS



Fieldwork Results - SPT Results Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No PC197510

Client HIGHWAYS ENGLAND

Hole	Depth m bgl	Level m OD	Type	SWP (mm)	Seating Drive		Test Drive				SPT 'N' Value	Uncorrected SPT 'N'						
					0-75 (mm)	75-150 (mm)	0-75 (mm)	75-150 (mm)	150-225 (mm)	225-300 (mm)		10	20	30	40	50		
CP71702	37.75	64.97	C	-	20	5/17	44	56			100/150							
CP71702	39.20	63.52	C	-	25/70		100/62				100/62							
CP71702	40.55	62.17	C	-	25/55		76	24/14			100/89							
CP71702	42.20	60.52	C	-	25/55		89	11/10			100/85							
CP71702	43.75	58.97	C	-	25/35		100/54				100/54							
CP71702	45.30	57.42	C	-	25/25		100/45				100/45							
CP71702	46.70	56.02	C	-	25/15		100/32				100/32							
CP71702	48.00	54.72	C	-	25/10		100/29				100/29							
Driller			Craig Roberts				Remarks Equipment checked and calibration carried out in accordance with BS EN ISO 22476-3: 2005											
Hammer No.			AR2475															
Energy Ratio, Er (%)			65.00															
Calibration Date			21/09/2018															

-/- Blows/penetration (mm) after seating
 -*/- Total blows/penetration (mm)
 SWP Penetration under own weight (mm)

S - Standard Penetration Test (SPT)
 C - SPT with cone
 L - Split Spoon with liner used

GEOTECHNICS



APPENDIX 5

Rotary Drillhole Records

DATA SHEET - Symbols and Abbreviations used on Records



Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecon Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content
(All other strengths from undrained triaxial testing)	
S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/-(mm)	Total blows/penetration
()	Extrapolated value

Groundwater

Water Strike	
Depth Water Rose To	

Instrumentation

Seal	
Filter	
Seal	

Strata Legend

Made Ground Granular	
Made Ground Cohesive	
Topsoil	
Cobbles and Boulders	
Gravel	
Sand	
Silt	
Clay	
Peat	
Note: Composite soil types shown by combined symbols	
Chalk	
Limestone	
Sandstone	
Coal	

Strata, Continued

Mudstone	
Siltstone	
Metamorphic Rock	
Fine Grained	
Medium Grained	
Coarse Grained	
Igneous Rock	
Fine Grained	
Medium Grained	
Coarse Grained	

Backfill Materials

Arisings	
Bentonite Seal	
Concrete	
Fine Gravel Filter	
General Fill	
Gravel Filter	
Grout	
Sand Filter	
Tarmacadam	

Rotary Core

RQD	Rock Quality Designation (% of intact core >100mm)
FRACTURE INDEX	
Fractures/metre	
FRACTURE SPACING (m)	Maximum
NI	Non-intact core
NR	No core recovery
AZCL	Assumed zone of core loss
(where core recovery is unknown it is assumed to be at the base of the run)	

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.00		B				TOPSOIL: Greyish brown slightly sandy gravelly silt with many rootlets. Gravel is angular to subrounded fine to coarse of chalk and flint. Light brown and white sandy silty GRAVEL of angular to subrounded fine to coarse chalk.	G.L. (115.88)			
0.00- 0.20		C								
0.10- 0.25		D								
0.10		B								
0.20- 0.50		D					0.25 (115.63)			
0.20- 0.50		D								
0.70- 2.20	0.70	100 0				CHALK, recovered as silty angular to subangular fine to coarse GRAVEL with a low cobble content. Clasts are very weak, medium density, locally low density, white with occasional black specks and occasional orangish brown mottling. Matrix is white.	0.70 (115.18)			
1.20- 1.40		C								
2.20- 2.55	2.20	86 0			(NI)	Between 2.20-2.55m, very silty.				
						Between 2.30-2.40m, with angular to subangular small nodular flint fragments (up to 40mm in size) with a medium nodular flint (80mm in size).				
2.55- 3.20	2.55	92 0				Between 2.55-3.20m, with a medium cobble content of subangular to subrounded chalk.				
						At 3.20m, clasts with many black specks.				
3.20- 4.05	3.20	82 15 C	0.04 0.02	0		Between 3.44-4.56m, with occasional angular small nodular flint fragments (up to 45mm in size).				
3.20- 3.40										
					(>25)	Very weak, medium density, white with occasional black specks and occasional orangish brown mottling CHALK. Discontinuities are: Set 1 are 40-50 degrees, extremely closely to very closely spaced (15/20/40), clean (0/0/0), undulating and smooth. [GRADE A4]	3.70 (112.18)			
					(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.25	0.50	Inspection Pit	Arch	G.I.			12/06/19	08:00						None encountered during drilling. Possibly masked by flush.
0.70	0.50	Inspection Pit	AC	0.25	NIL	DRY	12/06/19	18:00						
42.55	0.12	Geobor S	AC	0.25	NIL	DRY	17/06/19	08:00						
				11.55	11.55	11.15	17/06/19	18:00						
				11.55	11.55		18/06/19	08:00						
				42.55	42.55	40.10	18/06/19	18:00						

Remarks Inspection pit hand excavated to 0.25m by archeologist and extended to 0.70m depth by geotechnics. No services were found. Unable to hand excavate below 0.70m due to hard strata. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB/RP**
Figure **1 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.05- 5.55	4.05	93 62	0.26 0.11	43	(NI)	Between 3.85-3.90m, non intact, recovered as angular fine to coarse gravel. Between 3.90-4.05m, assumed zone of core loss.	4.05 (111.83)		2	
4.80- 5.08		C			(11)	Very weak, locally weak, medium density, white with occasional black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced, (60/130/310), clean, undulating and rough, with many black specks and rare orangish brown surface staining. Set 2 are 30-40 degrees, infilled (1/3/3) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining. Set 3 are 65-70 degrees, clean rarely infilled (0/0/2) with comminuted chalk, stepped and rough. [GRADE B3] Between 4.15-4.25m, non intact, recovered as subangular coarse gravel. (Possibly drilling induced).			1	
					(4)	At 5.15m, with occasional relic burrows (up to 40mm in size) with orangish brown infill (up to 1mm thick). At 5.30m, with angular small nodular flint fragment (45mm long x 20mm thick).			1	
5.55- 7.05	5.55	100 70	0.31 0.04	14	(8)	At 5.75m, with occasional relic burrows (up to 50mm in size) with orangish brown infill (up to 1mm thick).			2	
6.08- 6.23		C			(10)	At 6.03m, with angular to subangular small nodular flint fragments (up to 50mm in size).		3		
					(8)	Between 6.80-6.90m, discontinuity inclined 85 degrees, infilled (2mm thick) with comminuted chalk, rough and undulating, with many black specks.		3		
7.05- 8.55	7.05	67 41	0.24 0.14	17	(6)	Very weak locally weak, medium locally high density, white with occasional black specks and occasional relic burrows (up to 50mm in size) with orangish brown infill (up to 1mm thick) CHALK. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (40/180/330), clean or infilled (0/1/5) with comminuted chalk, undulating and rough, rarely planar and smooth, with many black specks and occasional orangish brown surface staining. Set 2 are 60-70 degrees, clean (0/0/1), planar and smooth with many black specks and rare orangish brown staining. Set 3 are 80-90 degrees, clean (0/0/1), planar and rough with many black specks. [GRADE C3] At 7.48m, with a possible fossil (<1mm thick) stained orangish brown. At 7.51m, with a grey wispy marl seam (<1mm thick).	7.05 (108.83)		2	
7.05- 7.29		C			(NI)			1		

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks Backfill details from base of hole: bentonite grout up to 1.00m, bentonite seal up to 0.20m, Logged by **AB/RP**
 Arisings up to ground level.
 Flush: 0.70-11.55m, Air/Mist, 100% returns; 11.55-31.05m, Air/Mist, 25% returns;
 31.05-42.55m, Air/Mist, 100% return.
 Figure **2 of 11**
 07/10/2019

 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)	Between 7.76-8.05m, non intact, recovered as a silty angular to subangular fine to coarse gravel with a low cobble content and occasional orangish brown surface staining (up to 45mm in size). At 8.00m, with angular small nodular flint fragments (up to 15mm in size). Between 8.05-8.55m, assumed zone of core loss.				
8.55-10.05 8.70- 8.89	8.55	100 43 C	0.19 0.06	23	(NI)	Between 8.55-8.70m, non intact, recovered as angular to subangular coarse gravel. (possibly drilling induced). At 8.60m, with angular to subangular small and medium nodular flint fragments (up to 70mm in size).				
					(7)	Between 9.18-9.30m, with many wispy marl seams (1mm thick).			1	
					(NI)	Between 9.38-10.05m, non intact, recovered as angular fine to coarse gravel. (possible drilling induced). At 9.56m, small nodular flint (20mm long x 10mm thick). At 9.70m, discontinuity inclined 35 degrees, infilled (2mm thick) with comminuted chalk, rough and planar, with many black specks.			2 2 2	
10.05-11.55 10.12-10.21	10.05	77 25 C	0.18 0.04	7	(10)	Between 10.33-10.62m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 10.35m, with angular small and medium nodular flint fragments (up to 90mm in size).			1	
					(NI)	At 10.67m, with a trace fossil (<1mm thick) stained orangish brown.			1	
					(8)	Between 10.80-11.00m, with shelly fragments (<2mm thick) with orangish brown surface staining. With a discontinuity inclined 85 degrees, clean, undulating and rough with many black specks and rare orangish brown surface staining.			1	
					(AZCL)	Between 11.20-11.55m, assumed zone of core loss.				
11.55-13.05	11.55	100 71	0.25 0.08	66	(7)	At 11.62m, with angular small nodular flint fragments (up to 30mm in size).			1 1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB/RP**
Figure **3 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.35-12.60		C			(2)	Between 12.18-12.20m, with many grey wispy horsetail marl seams (up to 1mm thick).			1	
					(NI)	Between 12.60-13.05m, with many broken shell fragments (up to 1mm thick).			1	
					(NI)	Between 12.75-13.05m, non intact, recovered as angular fine to coarse gravel and cobbles. Clasts have many wispy marl seams (<1mm thick). At 12.76m, with angular small and medium nodular flint fragments (up to 70mm in size).			1	
13.05-14.55	13.05	100 77 C	0.33 0.09	51	(3)	At 13.13m, ridged shell fragment (<1mm thick).			2	
13.11-13.44					(NI)	At 13.40m, with angular to subangular small and medium nodular rinded flint fragments (up to 80mm in size). Between 13.44-13.70m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 13.69m, with angular to subangular small nodular rinded flint fragments (up to 60mm in size).			2	
					(5)				1	
					(NI)	Between 14.28-14.40m, with angular small and medium nodular flint fragments (<100mm in size)..			1	
					(13)				1	
14.55-16.05	14.55	100 35	0.32 0.06	21	(NI)	Between 14.55-15.10m, non intact, recovered as a silty sandy angular to subangular fine to coarse gravel. Between 14.55-14.60m, with angular small nodular partially rinded flint fragments (up to 50mm in size). At 14.90m, with ridged shell fragments of platyceramus.			2	
15.43-15.75		C			(10)	At 15.15m, grey wispy horsetail marl seams (<2mm thick). Between 15.25-15.33m, with grey wispy horsetail marl seams (<2mm thick). At 15.26m, with a thin flint (<3mm in size) of either a sheet flint or a zoophycos burrow. Between 15.28-15.48m, discontinuity inclined 85 degrees, clean, undulating and rough with an associated sheet flint (<1mm thick, possible zoophycos). Between 15.57-15.68m, flint band recovered as angular small partially rinded nodular flint fragments (up to 55mm in size). Between 15.78-16.05m, non intact, recovered as slightly silty locally silty angular to subangular fine to coarse gravel.			2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB/RP**
Figure **4 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70201** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.05-17.55	16.05	100 37	0.25 0.07	23	(NI)	<p>Very weak, locally weak, medium density, white with occasional black specks CHALK with many shell fragments. Discontinuities are:</p> <p>Set 1 are 40-50 degrees, very closely to medium spaced (50/300/320), infilled (1/1/5) with comminuted chalk, planar and rough with many black specks and occasional orangish brown surface staining.</p> <p>Set 2 are subhorizontal (0-10 degrees)closely to medium spaced (190/300/650) infilled (1/1/3) with comminuted chalk, undulating and smooth locally rough with many black specks and rare orangish brown surface staining.</p> <p>Set 3 are 80-90 degrees, clean (0/0/1), planar and rough with many black specks.</p> <p>[GRADE B2]</p> <p>Between 16.05-16.26m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium angular cobble content.</p> <p>At 16.84m, trace fossils (10mm x 25mm oval) with much orangish brown staining. (Possibly a sponge).</p> <p>Between 17.08-17.55m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content.</p> <p>At 17.25m, with ribbed shell fragments (up to 25mm long). (Possibly platyceramus).</p>	16.05 (99.83)			
16.25-16.50		C								
16.64-16.75		C			(4)					
17.55-19.05	17.55	100 49	0.32 0.11	47	(3)	At 17.55m, with angular small nodular flints fragments (up to 15mm in size).				
18.46-18.77		C			(5)	At 18.40m, shell fragment (1mm thick).				
					(NI)	At 18.82-19.05m, non intact, recovered as angular to subangular fine to coarse gravel with a low angular cobble content, occasional marl seams (<1mm thick) and shell fragments (1mm thick).				
19.05-20.55	19.05	100 80	0.34 0.05	23	(8)	At 19.05m, marl seam (<1mm thick).				
					(NI)	Between 19.18-19.55m, non intact, recovered as angular coarse gravel with a high angular and subangular cobble content. (Possibly drilling induced).				
19.58-19.76		C			(10)					
						At 20.00m, with shell fragments (up to 5mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 


Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB/RP**

Figure **5 of 11**

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70201** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 20.15-20.36m, non intact, recovered as silty angular to subangular fine to coarse gravel. (Possibly drilling induced). At 20.25m, with many angular small nodular flint fragments (up to 10mm in size). (probably a medium flint but broken during drilling).				
20.55-22.05	20.55	97 74	0.33 0.14	45	(8)	Between 20.55-20.69m, discontinuity inclined 80-90 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks. (Possibly drilling induced). Between 20.69-20.74m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel.	20.74 (95.14)			
21.21-21.45		C			(5)	Very weak, locally weak, medium density, white with many black specks and occasional orangish brown staining CHALK with rare shell fragments. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), very closely to widely spaced (50/350/610), infilled (1/1/1) with comminuted chalk, planar and smooth or rough. Set 2 are 50-60 degrees, closely to widely spaced (80/520/840), infilled (1/1/2) with comminuted chalk, undulating and rough or smooth with many black specks and occasional orangish brown or greenish brown mottling. [GRADE B2] At 20.99m, with angular small nodular flint fragments in Set 1 discontinuity. At 21.03m, with rounded small nodular rinded flint (30mm x 35mm in size). At 21.45m, with angular small nodular rinded flint (25mm x 35mm in size). Between 21.48-21.57m, with occasional relic burrows (up to 40mm in size) with orangish brown infill (up to 1mm thick). At 21.61m, with rounded small nodular rinded flint (15mm x 25mm in size). At 21.82m, with subangular small nodular flint (15mm x 20mm in size). At 22.05m, with angular small and medium nodular flints fragments (up to 80mm in size). At 22.18m, with grey wispy horsetail marl seams (<1mm thick) At 22.45m, with many angular and subangular small and medium nodular rinded flint fragments (up to 70mm in size).				
22.05-23.55	22.05	94 73	0.45 0.13	27	(NI)	Between 22.94-23.10m, non intact, recovered as angular to subrounded fine to coarse gravel. Between 22.99-23.04m, discontinuity inclined 20 degrees, infilled (1mm thick) with comminuted chalk, rough and planar, with many black specks.				
22.48-22.70		C			(6)	Between 23.39-23.46m, marl seam and burrows (up to 5mm thick). Between 23.46-23.55m, assumed zone of core loss.				
23.55-25.05	23.55	100 75	0.26 0.07	27	(AZCL)					
23.96-24.10		C				At 23.90m, with occasional relic burrows (up to 50mm in size) with orangish brown infill (up to 1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB/RP**

Figure **6 of 11**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(7)	At 24.10m, with angular to subangular small and medium nodular flint fragments (up to 75mm in size). Between 24.22-24.28m, with grey wispy horsetail marl seam (<2mm thick). At 24.26m, with many shell fragments (up to 3mm thick). (Possibly platyceramus).				
25.05-26.55 25.13-25.54	25.05	100 70 C	0.41 0.11	48	(5)	At 25.13m, with shell fragment (1mm thick) on Set 1 discontinuity. Between 25.49-25.59m, with many wispy horsetail marl seams (up to 4mm tick). At 25.65m, with shell fragments (1mm thick) on Set 1 discontinuity. At 25.79m, with angular small flint fragments (up to 10mm in size) on Set 1 discontinuity. At 25.82m, with angular to subangular small nodular flint fragments (up to 10mm in size).				
					(NI)	Weak, locally very weak, high density locally medium density, white with occasional black specks, occasional orangish brown staining (up to 50mm in size) and rare relic burrows (up to 50mm in size) with orangish brown infill (up to 2mm thick) CHALK with many shell fragments (up to 5mm thick) and occasional marl seams (up to 1mm thick). Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to widely spaced (60/310/810) clean or infilled (0/1/4) with comminuted chalk, undulating and rough with rare black specks and orangish brown surface staining. [GRADE C2]	25.95 (89.93)			
26.55-28.05 27.36-27.45	26.55	93 37 C	0.27 0.10	31	(20) (NI) (6) (AZCL)	At 25.95m, with a shell fragment (4mm thick) on Set 1 discontinuity. Below 26.03m, with a shell fragment (3mm thick). Between 26.27-26.55m, non intact, recovered as silty angular to subangular fine to coarse gravel with occasional ridged shell fragments (up to 1mm thick). With many angular to subangular small rounded flint fragments. Between 26.55-26.72m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 26.65-26.95m, with many relic burrows (up to 45mm in size) with orangish brown infill (up to 1mm thick). At 26.82m, with wispy grey marl seams (<3mm thick). Between 26.97-27.36m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 27.00m, with angular to subangular small nodular flint, recovered as fragments (up to 50mm in size) surrounded by comminuted chalk. Between 27.46-27.68m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. At 27.87m, with a grey marl seam (20mm thick) with wispy horsetail marl partings (<2mm thick) branching off. Between 27.95-28.05m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB/RP**
Figure **7 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70201** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.05-29.55	28.05	97 91	0.30 0.10	55		Between 28.05-28.26m, with occasional grey wispy marl seams (up to 5mm thick).			1	
28.46-28.73		C			(3)	At 28.39m, with shell fragments (up to 35mm in size) with orangish brown staining.			1	
29.15-29.45		C				At 28.82m, with angular to subangular small nodular rinded flint, recovered as fragments (up to 15mm in size).			1	
29.55-31.05	29.55	100 97	0.33 0.16	50		Between 29.12-29.55m, with many marl seams (<15mm thick) with wispy marl partings (<1mm thick).			1	
					(NI)	Between 29.87-30.18m, discontinuity inclined 85 degrees, infilled (2mm thick) with comminuted chalk, rough and planar, with many black specks.			1	
					(4)	Between 30.10-30.15m, with angular small and medium rinded flint fragments (up to 30mm in size). At 30.20m, with a small rinded finger flint fragment (15x80mm). Between 30.22-30.30m, with many undulating grey marl seams (1-2mm thick). At 30.30m, discontinuity inclined 70 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks. Between 30.42-30.45m, with many undulating marl seams (up to 3mm thick). At 30.67m, with undulating marl seam (<1mm thick).			1	
31.05-32.55	31.05	100 80	0.55 0.16	39	(6)	At 30.84m, with a shell fragment (<1mm thick x 25mm in size). Between 30.91-30.93m, with many undulating marl seams (20mm thick). At 30.92m, discontinuity inclined 70 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks.			1	
					(NI)	At 31.00m, with a shell fragment (1mm thick) with orangish brown penetrative staining (2mm depth). Between 31.05-31.35m, with many shell fragments (up to 20mm in size). At 31.08m, with angular small nodular flint (40mm in size). Discontinuity inclined 50 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with occasional black specks. At 31.28m, grey wispy horsetail marl seam (<5mm thick).			1	
31.83-32.07		C				Between 31.37-31.59m, non intact, recovered as very silty angular to subangular fine to coarse gravel. Between 31.49-31.58m, with a band of angular to subangular small and medium nodular flint fragments (up to 70mm in size) surrounded by comminuted chalk. At 31.61m, with shell fragments (10mm in size) with much orangish brown staining.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB/RP**

Figure **8 of 11**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70201** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(2)	At 31.83m, discontinuity inclined 30 degrees, clean, stepped and rough with occasional black specks. Between 31.93-32.05m, with many wispy marl seams (<3mm thick). Between 32.05-32.55m, discontinuity inclined 85 degrees, clean (0/0/0), rough and planar, with many black specks. At 32.21m, wispy horsetail marl seams (<2mm thick). At 32.28m, with wispy marl seams (<3mm thick) with wispy marl partings (<1mm thick). At 32.45m, with a semi-circular shaped fossil (<3mm thick) with much orangish brown staining. (Possible sponge). At 32.55m, wispy marl seam (<6mm thick) with thin marl partings leaving seam (<1mm thick). Between 32.65-32.80m, grey wispy horsetail marl seams (<2mm thick). At 32.83m, with some calcite mineralisation along Set 1 discontinuity. At 32.91m, with wispy marl seam (<5mm thick). Between 33.05-33.22m, with occasional orangish brown surface staining. (Possible sponges). At 33.21m, shell fragment (up to 30mm in size) stained orangish brown. (Possible Inoceramid). Between 33.22-33.45m, non intact, recovered as silty angular to subangular fine to coarse gravel. Between 33.32-33.43m, with angular and subangular small nodular flint fragments (up to 50mm in size). At 33.51m, with occasional shell fragments (<3mm in size).				
32.55-34.05	32.55	87 67	0.28 0.12	47						
33.56-33.69		C			(NI) (5) (AZCL)	At 33.54m, discontinuity inclined 60 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks and rare greenish grey surface staining. Between 33.72-33.80m, with occasional rounded small nodules (<5mm in size) of phosphatic chalk. At 33.85m, grey wispy horsetail marl seams (<1mm thick). Between 33.85-34.05m, assumed zone of core loss. At 34.05m, with angular small and medium nodular flint fragments (up to 60mm in size). Between 34.05-34.16m, non intact, recovered as angular to subangular coarse gravel and cobbles with marl seams (up to 4mm thick). At 34.38m, grey wispy horsetail marl seams (10mm wide).				
34.05-35.55	34.05	100 85	0.26 0.10	71	(NI)					
34.55-34.67		C			(5)					
35.29-35.55		C			(9)	At 34.90m, planar marl seam (<1mm thick). Between 34.99-35.07m, non intact, recovered as subangular coarse gravel. With subangular small flint fragments. (possibly drilling induced). At 35.07, sheet flint (up to 2mm thick) on Set 1 discontinuity. Between 35.07-35.29m, intact section with subvertical discontinuity, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. Between 35.16-35.22m, non intact, recovered as subangular coarse gravel and cobbles. With angular to subangular small flint fragments (up to 30mm in size). (Possible sheet flint). At 35.47m, with undulating marl seam (<1mm thick).				
35.55-37.05	35.55	77 68	0.42 0.09	63	(4)	Between 35.77-36.04m, with orangish brown sponge trace. Between 35.91-35.99m, grey wispy horsetail marl seams (<2mm thick).				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB/RP**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70201** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 36.05-36.15m, non intact, recovered as very silty angular to subangular fine to coarse gravel. With a band of tabular small to large flint fragments (up to 100mm in size). (Possibly drilling induced).			1	
					(4)	Between 36.33-36.38m, grey marl seams (<2mm thick) with wispy marl partings (<1mm thick). At 36.41m, with orangish brown trace sponge fossils (<5mm thick).				
					(AZCL)	Between 36.70-37.05m, assumed zone of core loss.				
37.05-38.55	37.05	100 80	0.19 0.07	60	(13)	Between 37.05-37.16m, grey wispy horsetail marl seams (<4mm thick).				
					(NI)	Between 37.29-37.39m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 37.32m, with angular small nodular flint fragments (up to 20mm in size). Between 37.37-37.49m, subvertical discontinuity infilled (1mm thick) with comminuted chalk, stepped and rough.				
					(10)	Between 37.49-37.68m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 37.64m, band of subangular to subrounded small and medium nodular flint fragments (up to 100mm in size). Between 37.68-37.98m, subvertical discontinuity, clean, stepped and rough with many black specks and orangish brown surface staining.				
38.07-38.17		C			(NI)	At 38.13m, with many angular to subangular small nodular flint fragments (up to 20mm in size) surrounded by comminuted chalk. Between 38.22-38.37m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.				
						Between 38.29-38.55m, discontinuity inclined 85 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks. At 38.39m, discontinuity inclined 60 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with many black specks.			1	
38.55-40.05	38.55	100 100	0.27 0.02	84		At 38.50m, greenish grey wispy horsetail marl seams (<3mm thick).			1	
38.74-38.99		C			(7)	At 38.62m, grey wispy horsetail marl seams (up to 5mm thick). At 38.68-38.74m, non intact, recovered as subangular fine to coarse gravel. (Probably drilling induced). At 38.98m, with angular small nodular rinded flint fragments (7mm in size). At 39.08m, with angular to subangular sheet flint fragment (up to 11mm thick) along Set 1 discontinuity.			1	
						At 39.35m, subhorizontal grey wispy horsetail marl seams (4mm thick). At 39.41m, grey wispy horsetail marl seams (2mm thick). At 39.45m, discontinuity inclined 50 degrees, clean, rough and planar with clay or calcite mineralised slickensides. At 39.50, with a subangular small nodular rinded flint fragments (up to 25mm in size) with orangish brown surface staining. Between 39.58-39.60m, grey wispy horsetail marl seams (<2mm thick). At 39.60m, with angular small nodular rinded flint (15mm in size).			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70201**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406640.7 E 141194.2 N** Ground Level **115.88 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
40.05-41.55	40.05	100 93	0.30 0.02	80	(8)	At 39.67m, subhorizontal grey wispy horsetail marl seam (5mm thick). At 39.74m, subhorizontal grey wispy horsetail marl seams (20mm thick). At 39.84m, discontinuity inclined 20 degrees, clean, undulating and rough with occasional black specks and orangish brown surface staining. At 39.90m, subhorizontal grey wispy horsetail meal seams (4mm thick). A 39.98m, subhorizontal grey wispy horsetail marl seams (up to 10mm thick). At 40.02m, subhorizontal grey wispy horsetail marl seams (up to 5mm thick). At 40.05m, with angular medium and large nodular rinded (<3mm thick) flint fragments (up to 110mm in size). At 40.15m, grey wispy horsetail marl seams (<2mm thick). At 40.33m, possible sheet flint, recovered as tabular small rinded (<1mm thick) flint fragments (up to 25mm in size). At 40.38m, orangish brown sponge trace (<4mm in size). At 40.62m, grey wispy horsetail marl seams (<3mm thick). Between 40.69-40.74m, non intact, recovered as angular to subangular medium to coarse gravel. Below 40.72m, Discontinuity sets includes Set 2: 50-60 degrees, very closely to closely spaced (20/60/130), clean or infilled (0/1/1) with marl or comminuted chalk, stepped locally undulating and rough.			
41.13-41.34		C			(6)	At 40.78m, with some marl and calcite mineralisation on Set 2 discontinuity. Between 41.08-41.13m, greenish grey marl seam within Set 1 discontinuity. Between 41.23-41.50m, with many interwoven wispy undulating marl seams (<3mm thick). At 42.01m, elliptical shell fragment (1mm thick x 40mm in size) stained orangish brown. At 42.11m, undulating marl seams (up to 3mm thick). At 42.15m, undulating marl seam (<1mm thick). Between 42.20-42.55m, assumed zone of core loss.			
41.55-42.55	41.55	65 65	0.36 0.10	53	(5)	At 40.78m, with some marl and calcite mineralisation on Set 2 discontinuity. Between 41.08-41.13m, greenish grey marl seam within Set 1 discontinuity. Between 41.23-41.50m, with many interwoven wispy undulating marl seams (<3mm thick). At 42.01m, elliptical shell fragment (1mm thick x 40mm in size) stained orangish brown. At 42.11m, undulating marl seams (up to 3mm thick). At 42.15m, undulating marl seam (<1mm thick). Between 42.20-42.55m, assumed zone of core loss.			
					(AZCL)				
End of Borehole							42.55 (73.33)		

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70202**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Project No **PC197510**
 Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.10- 0.25 0.10		D B D				TOPSOIL: Greyish brown slightly sandy silt with many rootlets. Gravel is angular to subangular fine to medium chalk and flint.	G.L. (117.06)			
0.50 0.50		B D				Structureless CHALK composed of white slightly sandy gravelly SILT. Clasts are very weak, low to medium density, white, angular to subrounded and fine to coarse. [GRADE Dm]	0.25 (116.81)			
						Structureless CHALK composed of slightly sandy silty angular to subrounded and fine to coarse GRAVEL with a medium to high subangular to subrounded cobble content. Clasts are very weak, low to medium density and white. Matrix is white. [GRADE Dc]	0.80 (116.26)			
1.20- 2.55 1.20 1.20	1.20	100 25 B D	0.12 0.04	0	(NI)	Below 1.20m, with rare angular to subangular small and medium flint gravel (<80mm in size). At 1.32m, subhorizontal tabular flint (8mm thick) recovered as angular fine to medium gravel.				
						Extremely weak to very weak, low density, white with occasional black specks CHALK.	2.11 (114.95)		1 2	
2.39- 2.55		C			(2)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), very closely to closely spaced (40/70/110), clean or infilled (0/3/4) with comminuted chalk, stepped and rough with many black specks and rare orangish brown surface staining.			1 1 1 1	
2.55- 4.05	2.55	93 47	0.09 0.01	0	(AZCL)	Between 2.20-2.55m, discontinuity inclined 85 degrees, infilled (<3mm thick) with comminuted chalk, stepped and rough with many black specks and rare orangish brown surface staining. [GRADE C3]			1 1 1 1	
					(18)	Between 2.55-2.65m, assumed zone of core loss.				
3.43- 3.58		C			(NI)	Very weak, medium density, white with occasional black specks CHALK some orangish brown staining around flints and in pockets (<1mm thick and <30mm long or <8mm in diameter).	3.12 (113.94)		1	
					(19)	Discontinuities are: Set 1: 70 degrees, extremely closely spaced, clean, planar and smooth with occasional black specks. [GRADE B5] At 3.26m, discontinuity crossing Set 1: 60 degrees, infilled with comminuted chalk (<1mm thick), planar and smooth with occasional black specks and orangish brown surface staining. Between 3.59-5.45, non intact, recovered as angular to subangular fine to coarse gravel.. At 3.86m, with a band of angular to subangular small nodular flint fragments (up to 40mm in size).			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.25	0.50	Inspection Pit	Arch	G.I.	NIL		11/06/19	08:00						None observed during drilling, possibly masked by flush.
1.20	0.50	Inspection Pit	AC/RW	20.45	20.45	20.40	11/06/19	18:00						
42.45	0.12	Geobor S	AC/RW	20.45	20.45		12/06/19	08:00						
				32.45	32.45	32.20	12/06/19	18:00						
				32.45	32.45		13/06/19	08:00						
				42.45	42.45	42.05	13/06/19	18:00						

Remarks **AB** Inspection pit hand excavated to 0.25m by archaeologist and extended to 1.20m depth by geotechnics. No services were found.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite grout up to 1.00m, bentonite up to ground

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geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70202**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.05- 5.45	4.05	100 26	0.06 0.05	0		Very weak, medium density, white with occasional black specks CHALK. Rare orangish brown staining around flints and in pockets (<1mm thick and <30mm long or <5mm in diameter). Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (50/223//970), clean or infilled (0/1/5) with comminuted chalk, undulating, locally stepped, and smooth with occasional black specks and rare orangish brown surface staining. Set 2 are subvertical (80-90 degrees), undulating, locally stepped, and smooth with many black specks. [GRADE B3] Between 4.05-5.45m, recovered as slightly silty sandy gravel with a medium cobble content. At 4.92m, with a very small tabular flint (15mm length x 4mm thick). At 5.14m, with a spherical flint (20mm in length) and subangular small and medium nodular flint fragments (up to 97mm in size).	4.05 (113.01)			
4.32- 4.47		C			(NI)					
5.45- 6.95	5.45	100 83	0.27 0.04	0		Between 5.45-5.74m, discontinuity inclined 70-80 degrees, clean, undulating and smooth with occasional black specks and rare orangish brown mottling. At 5.54m, with a grey marl seam (1mm thick). At 6.45m, with grey marl seams visible on Set 1 discontinuity surface and much orangish brown staining (penetrating up to 1mm depth). Between 6.80-6.95m, non intact, recovered as very silty angular to subangular fine to coarse gravel. (Possibly drilling induced). Between 6.95-7.65m, assumed zone of core loss. (Possibly drilling induced).				
5.85- 6.00		C			(7)					
6.95- 8.45	6.95	53 0								
7.65- 7.80		C			(AZCL)	Between 7.65-8.45m, non intact, recovered as a silty angular to subangular fine to coarse gravel with a high cobble content. (Possibly drilling induced). Between 7.65m-7.75m, with a flint band of angular and subangular small and medium nodular flint fragments (up to 100mm in size). (Possibly zoophycos).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks **Fl level.**
AGS Flush: 1.20-42.45m, Air/Mist, 100% return.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)					
8.45- 9.95	8.45	90 51	0.16 0.07	0	(2)	At 8.45m, with angular to subangular small nodular flint fragments (up to 80mm in size). At 8.81m, with a shell fragment (2mm x 10mm), orangish brown stained.				
9.55- 9.68		C			(14)	Very weak, locally weak, medium density, white with many black specks and CHALK with occasional orangish brown staining around flints and in pockets (<1mm thick and <30mm long or <8mm in diameter). Discontinuities are: Set 1 are 40-50 degrees, closely to medium spaced (30/130/210), infilled (1/1/2) with comminuted chalk, undulating or stepped and smooth with many black specks and rare orangish brown surface staining. Set 2 are 40-50 degrees cross cutting Set 1, closely spaced, infilled (1/1/1) with comminuted chalk, undulating and smooth with many black specks and rare orangish brown surface staining. [GRADE B3] At 9.22m, with many shell fragments (<1mm in size), orangish brown stained At 9.38m and 9.42m, discontinuities inclined 70-80 degrees, clean or infilled with comminuted chalk (<1mm), undulating and smooth with many black specks and rare orangish brown surface staining. At 9.55, discontinuity inclined 50-60 degrees, clean, stepped and rough with many black specks and orangish brown surface staining. Between 9.68-9.80m, non intact, recovered as angular to subangular fine to coarse gravel. At 9.80m, with a subangular medium nodular flint (75mm long x 35mm thick). Between 9.80-9.95m, assumed zone of core loss. At 9.95m, with a subangular small nodular flint (80mm long x 30mm thick). Between 10.20-10.25m, with grey wispy horsetail marl seams (<1mm thick). At 10.27m, with orangish brown staining (30mm x 5mm), possible sponge. Between 10.28-10.48m, non intact, recovered as silty angular to subangular fine to coarse gravel. Below 10.28m, discontinuity sets include Set 3: inclined 0-10 degrees, very closely to closely spaced (40/60/80), undulating and smooth with occasional comminuted chalk infill, many black specks and occasional orangish brown surface staining. Between 10.60-10.68m, flint band recovered as angular to subangular small and medium nodular flint fragments (<70mm in size). At 10.75m, grey marl seam (<1mm thick). Between 10.89-11.10m, non intact, recovered as angular to subangular fine to coarse gravel. (Possibly drilling induced). Between 11.10m-11.45m, assumed zone of core loss. (Possibly drilling induced).	8.90 (108.16)		1 1 2 1 2 1 1	
9.95-11.45	9.95	77 23	0.16 0.02	20	(12)					
10.60-10.76		C			(10)				2 1 3	
11.45-12.95	11.45	100 73	0.20 0.04	34	(8)				2 3 3 3	
11.80-12.00		C				At 11.97m, two tabular ribbed shell fragments (1mm thick).			2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB**

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 12.19-12.36m, band of nodular flints recovered as small and medium nodular flint fragments (up to 60mm in size) and one flint covering the full core diameter (100mm).			1	
					(8)	At 12.44m, with a subangular small nodular flint (45mm long x 35mm thick). At 12.50m, with a angular small nodular flint fragment. (Possibly moved by drilling).			3 3 1	
						Between 12.78-12.82m, wispy horsetail marl seams (<1mm thick).				
12.95-14.45	12.95	20 0			(NI)	Between 12.95-13.25m, non intact, recovered as gravel and cobbles of flint. Possible flint band recovered as small to large nodular flints (Largest flint is 120mm long x full diameter).				
					(AZCL)	Between 13.25-14.45m, assumed zone of core loss.				
14.45-15.95 14.45-14.63	14.45	70 34 C	0.22 0.11	34	(6)	Very weak, medium density, white with many black specks CHALK. With occasional flint gravel and flint bands and rare orangish brown staining around flints and in pockets (<1mm thick and <30mm long or <5mm in diameter).	14.45 (102.61)		1 2 1	
					(NI)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (120/120/220), infilled (1/1/1) with comminuted chalk, undulating and smooth. Set 2 are subvertical (80-90 degrees), clean, stepped and rough with many black specks. [GRADE B3] At 14.77m, sheet-like ribbed shell fragments (2mm thick). (Possibly platyceramus) Between 15.00m-15.05m, with a flint band of finger flints and angular to subangular small nodular flint fragments (up to 40mm in size). Between 15.00m-15.60m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 15.15m, with subangular to rounded small nodular flint fragments (up to 50mm in size). At 15.25m, with a rounded small nodular flint (10 x15mm in size). At 15.50m, wispy horsetail marl seams (<1mm thick). Between 15.60-15.95m, assumed zone of core loss.			1	
15.95-17.45	15.95	100 63	0.23 0.05	25	(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70202**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.07-16.30		C			(7)					
					(NI)	Very weak to weak, medium density white with many black specks CHALK. Discontinuities are:	16.30 (100.76)			
					(5)	Set 1 are 40-50 degrees, very closely to closely spaced (30/60/130), infilled (1/1/1) with comminuted chalk, undulating, locally stepped, and rough with many black specks.				
					(NI)	Set 2: 30-40 degrees, closely to medium spaced (60/180/240), infilled (1/1/1) with comminuted chalk, undulating and smooth, locally rough, with many black specks [GRADE B3]				
					(13)	Between 16.30m-16.33m, intact section with grey wispy horsetail marl seams (<2mm thick). Between 16.30-16.60m, non intact, recovered as angular to subangular fine to coarse gravel with a low subangular cobble content.				
					(NI)	Between 16.80-16.98m, non intact, recovered as angular to subangular fine to coarse gravel. At 16.82m, with a pocket (<2mm) of black silt, possibly organic.				
17.45-18.95	17.45	93 70	0.31 0.05	30		Between 16.90m-17.25m, with a shell fragment (2mm thick). (Possibly platyceramus). At 17.25m, with a wispy horsetail marl seams (<1mm thick). Between 17.30-17.45m, non intact, recovered as subangular fine to coarse gravel.	17.45 (99.61)			
17.61-17.74		C			(10)					
					(NI)	Very weak, medium to high density, white with many black specks CHALK with occasional shell fragments (1mm thick) and rare orangish brown staining around flints, on joint surfaces and in pockets (<1mm thick and <20mm long or <3mm in diameter). At 17.60m, with marl on Set 1 joint surface. Discontinuities are:				
					(7)	Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (10/160/410), infilled (1/1/2) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining. Set 2 are subvertical (80-90 degrees), clean or infilled (0/0/1) with comminuted chalk, planar and smooth. [GRADE B3] At 17.45m, with angular to subangular small and medium nodular flint fragments (up to 80mm in size). At 17.82m, with wispy horsetail marl seams (<1mm thick).				
18.95-20.45	18.95	100 92	0.43 0.01	61		Between 18.05m-18.14m, non-intact, recovered as a silty angular to subangular fine to coarse gravel. At 18.16m, with a sheet flint (2mm thick) recovered as angular small flint fragments along Set 1 discontinuity. At 18.53m, with wispy horsetail marl seams (<1mm thick). Between 18.85-18.95m, assumed zone of core loss. At 19.02m, circular orangish brown staining (up to 10mm in diameter). (Possible sponges). At 19.32m, with a angular nodular flint (80mm in size).				
18.95-19.34		C			(3)	At 19.75m, with silty angular small flint along Set 1 discontinuity.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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 Figure **5 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 20.33-20.45m, non intact, recovered as silty subangular medium to coarse gravel. (Possibly drilling induced).			1	
20.45-21.95 20.45-20.76	20.45	77 59 C	0.31 0.07	27	(6)	At 20.50m, with a shell fragment(40mm long x 5mm thick) in Set 1 discontinuity. Between 20.55-20.69m, with occasional wispy horsetail marl seams (<1mm). At 20.77m, with some shell fragments (<2mm thick).			1 1 1 2 1 1 2 1	
					(NI)	Between 21.40-21.50m, non intact, recovered as angular to subangular fine to coarse gravel.				
					(AZCL)	At 21.60m, with a angular small nodular flint fragment (30mm thick x 70mm long). Between 21.60-21.95m, assumed zone of core loss.				
21.95-23.45	21.95	70 19	0.10 0.06	7	(8)	At 22.15m, with a subangular small nodular flint (40mm in size). At 22.23m, with a subrounded small nodular flint (40mm in size).			1 2 1	
					(NI)	Between 22.43m-22.57m, non-intact, recovered as very silty angular to subangular fine to coarse gravel. (Possibly drilling induced). At 22.59m, with many angular to subangular small nodular flint fragments (<45mm).			1	
22.87-22.97		C			(5)	Between 22.80-22.93m, with wispy horsetail marl seams (<1mm thick).			1	
					(NI)	Between 22.97-23.10m, non-intact, recovered as angular to subangular fine to coarse gravel. (Probably drilling induced).			1	
					(AZCL)	At 23.00m, with a subangular small nodular flint (40mm in size). Between 23.10-23.45m, assumed zone of core loss.				
23.45-24.95	23.45	87 55	0.16 0.09	9	(NI)	Very weak, locally weak, medium density, white with many black specks CHALK with occasional orangish brown staining around flints, on joint surfaces and in pockets (<1mm thick and <40mm long or <3mm in diameter).	23.45 (93.61)		1	
					(8)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (10/130/290), clean (0/0/0) stepped locally undulating and rough with many black specks and rare orangish brown surface staining.			3 2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Figure **6 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
24.50-24.60		C			(NI) (3) (AZCL)	Set 2 are 40-60 degrees, very closely to closely spaced (10/70/150), infilled (1/1/1) with comminuted chalk, undulating and rough locally smooth with many black specks. Set 3 are 60-70 degrees, clean (0/0/0), stepped and rough with many black specks. [GRADE A3] Between 23.45-23.50m, non intact, recovered as a silty angular to subangular fine to coarse gravel. At 23.45m, with a subangular small nodular flint (20mm in size). At 23.66m, with angular to subangular small nodular flint fragments (up to 40mm in size) within Set 1 discontinuity. At 23.95m, with a flint band recovered as angular to subangular small nodular flint fragments (up to 50mm in size).				
24.95-26.45	24.95	93 60	0.48 0.08	19	(10) (NI) (16) (NI)	Between 24.10-24.43m, non intact, recovered as silty angular to subangular fine to coarse gravel. (Possible drilling induced). Between 24.65-24.72m, with wispy horsetail marl seams (<1mm thick). Between 24.75-24.95m, assumed zone of core loss. At 25.00m, with 3 shell fragments (<2mm in thick). (Possibly platyceramus). Between 25.37-25.59m, non intact, recovered as silty angular to subangular fine to coarse gravel.				
26.05-26.23		C			(9) (AZCL)	Between 25.78-25.88m, non intact, recovered as a silty angular to subangular fine to coarse gravel. At 25.85m, with two medium nodular flints (75mm and 65mm in size). At 26.00m, with wispy horsetail marl seams (<1mm thick). Between 26.35-26.45m, assumed zone of core loss.				
26.45-27.95	26.45	77 60	0.27 0.01	8	(9)	Between 26.50-26.60m, with wispy horsetail marl seams (<2mm thick).				
27.17-27.27		C			(9) (AZCL)	At 27.15m, flint band recovered as subangular small nodular flints (up to 60mm in size). At 27.43m, flint band recovered as subangular to subrounded small nodular flint fragments (up to 40mm in size). Between 27.60m-27.95m, assumed zone of core loss.				
27.95-29.45	27.95	100 87	0.39 0.02	41						

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Figure **7 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.51-28.71		C			(11) (NI) (8)	At 28.14m & 28.69m, discontinuities inclined 20-30 degrees, medium spaced, undulating or stepped and rough. Between 28.10-28.50m, non intact, recovered as angular to subangular fine to coarse gravel with a low subangular cobble content. At 28.18m, with wispy horsetail marl seams (<1mm thick). At 28.44m, with a subrounded small rounded nodular flint (30mm in size). At 28.50m, with a band of subangular small nodular flints (up to 40mm in size).	28.75 (88.31)			
29.45-30.95	29.45	53 51	0.30 0.11	39	(10)	Weak, locally very weak, medium to high density white with many black specks CHALK with rare orangish brown staining around flints, on joint surfaces and in pockets (<1mm thick and <40mm long or <3mm in diameter). Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to widely spaced (160/227/390), clean or with occasional comminuted chalk (<1mm), undulating or stepped and rough. Set 2 are 20-30 degrees, clean, undulating and rough. [GRADE B2] At 28.98m, with a sheet flint (<2mm thick). (possible zoophycos). Between 29.10-29.33m, with wispy horsetail marl seams (<2mm thick). Between 29.50-29.60m, with wispy horsetail marl seams (up to 5mm thick) and marl partings (<1mm thick). At 29.71m, with orangish brown staining (30 mm size, penetrating 3mm depth, possible trace fossil).				
30.68-30.98		C			(AZCL)	Between 30.25m-30.95m, assumed zone of core loss.				
30.95-32.45	30.95	100 55	0.17 0.12	39	(NI)	At 30.95m, with two subangular small nodular flints (up to 40mm in size). Between 30.95-31.10m, non intact, recovered as subangular cobbles.				
31.23-31.37		C			(10) (NI) (5)	At 31.11m, with a possible fossil fragment (12mm x 4mm in size). Between 31.40-31.57m, non intact, recovered as angular to subangular fine to coarse gravel. At 31.53m, flint band recovered as small and medium nodular flints (up to 85mm in size). Between 31.62-31.70m, with wispy horsetail marl seams (<5mm thick). Between 31.69-31.70m, fossil traces (20mm in size) with orangish brown penetrative staining (up to 10mm depth). (Possible sponge).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 32.41-32.45m, assumed zone of core loss.			1	
32.45-33.45	32.45	100 72	0.55 0.09	65	(AZCL)	At 32.64m, with a medium nodular flint fragment (75mm in size) and 4 small finger flints (30x8mm).			1	
33.00-33.16		C				At 32.92m, with a subangular small nodular flint (25mm in size).			2	
33.45-34.95	33.45	93 77	0.31 0.07	41	(3)	Weak, locally very weak, medium to high density, white with many black specks CHALK with rare orangish brown staining around flints, on joint surfaces and in pockets (<1mm thick and <40mm long or <3mm in diameter). Discontinuities are: Set 1 are subhorizontal (40-50 degrees), closely to medium spaced (180/200/380), clean (0/0/0), undulating and rough, locally smooth. Set 2 are 20-30 degrees, closely to medium spaced (150/210/400), clean (0/0/0), undulating and rough. [GRADE A2] Between 33.90-33.98m, with wispy horsetail marl seams (<3mm thick). At 34.09m, with wispy horsetail marl seams (<2mm thick). Between 34.23-34.26m, with wispy horsetail marl seams (up to 10mm thick) and marl partings (up to <2mm thick). At 34.63m, with marl seams (up to 8mm thick) and wispy horsetail marl seams (<1mm thick). Between 34.65-34.85m, non intact, recovered as silty angular to subangular fine to coarse gravel with nodular flint fragments (<40mm in size). Between 34.85-34.95m, assumed zone of core loss.	33.45 (83.61)		1 2 1	
34.21-34.52		C			(NI)				2	
34.95-36.45	34.95	73 47	0.36 0.24	47		Between 35.05-35.12m, with many shell fragments (<2mm thick and 25mm long). At 35.24m, with a wispy horsetail marl seam (1mm thick). Between 35.37-35.43m, with extremely closely spaced wispy horsetail marl seams (<3mm thick). Between 35.58-35.80m, non intact, recovered as angular to subangular fine to coarse gravel. With subangular small and medium nodular flint fragments (up to 90mm in size). Between 35.80-36.45m, assumed zone of core loss.			2 2	
35.22-35.58		C			(NI)				2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)					
36.45-37.95	36.45	100 76	0.72 0.20	61	(2)	Between 36.45-36.60m, non-intact, recovered as angular to subangular fine to medium gravel. With angular to subangular small to medium nodular flint fragments (<50mm in size). At 36.50m, with wispy horsetail marl bands (<3mm thick). Between 36.71-36.83m, with occasional wispy horsetail marl bands (<1mm thick).			2	
					(NI)	Between 37.20-37.26m, with angular to subangular small and medium nodular flint fragments (<50mm in size).				
					(7)	Between 37.35-37.50m, with some nodular flint fragments (<80mm)				
					(NI)	Between 37.53-37.63m, with many marl seams (<10mm thick).			1	
37.78-37.95		C			(3)				1	
37.95-39.45	37.95	100 65	0.47 0.15	43	(NI)	Between 37.95-38.15m, non intact, recovered as silty angular to subangular fine to coarse gravel. (Possibly drilling induced). At 38.00m, band of small nodular and finger flints (up to 35mm in size). Between 38.15-38.20m, with wispy horsetail marl seams (<3mm thick).			2	
38.30-38.44		C			(4)				2	
					(NI)	At 38.66m, with a subrounded small nodular flint (40mm in size). Between 38.70-38.84m, non-intact, recovered as silty angular to subangular fine to coarse gravel. At 38.80m, with many subangular small nodular flint fragments (<20mm) and a medium nodular flint fragment (80mm in size).			2	
					(3)	At 39.13m, possible shell fragments (<1mm in size). At 39.22m, with a medium nodular flint (80mm in size). Between 39.34-39.45m, assumed zone of core loss.				
					(AZCL)	At 39.40m, with subangular small nodular flint fragments (up to 30mm in size).				
39.45-40.95	39.45	90 49 C	0.22 0.05	37	(4)				2	
39.56-39.67					(NI)	Between 39.92-39.96m, with angular to subangular small nodular flint fragments (up to 45mm in size). Weak, high density, white with many black specks	39.96 (77.10)		2	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70202** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **406676.9 E 141158.0 N** Ground Level **117.06 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(6)	CHALK with rare orangish brown staining around flints, on joint surfaces and in pockets (<1mm thick and <40mm long or <5mm in diameter). At 40.12m, with a undulating marl band (1mm thick). Discontinuities are:			2	
					(NI)					
					(7)	Set 1 are subhorizontal (0-10 degrees), medium to widely spaced (30/180/420), infilled (1/2/2) with comminuted chalk, undulating and rough locally smooth. At 40.44m, with a subangular small flint fragment. Set 2 are 50-60 degrees, infilled (1/1/2) with comminuted chalk, undulating and rough.				
					(NI)	[GRADE B2] Between 40.16-40.35m, non intact, recovered as very silty subangular fine to medium gravel with many pockets (<10mm) of orangish brown staining. Between 40.50-40.80m, non intact, recovered as subangular to subrounded fine to coarse gravel. (Possibly drilling induced). Between 40.70-40.80m, with tabular small flint fragments (up to 50mm in size). Between 40.80-40.95m, assumed zone of core loss. Between 40.95-41.15m, non intact, recovered as angular fine to coarse gravel with a medium subangular cobble content.				
40.95-42.45	40.95	100 83	0.42 0.03	41	(NI)				1	
41.25-41.67		C			(5)	At 41.41m, with a wispy horsetail marl seam (<1mm thick). At 41.49m, with a subangular small nodular flint (25mm in size). At 41.55m, with marl seams (<3mm thick). At 41.62m, with marl seam (<6mm thick). At 41.70m, with angular small modular flint fragments (up to 50mm in size) in Set 1 discontinuity. At 41.75m, with wispy horsetail marl seams (<2mm thick).			1	
					(NI)	At 42.20m, with subangular small nodular flint fragments (up to 15mm in size). Between 42.26-42.45m, non-intact, recovered as silty angular to subangular fine to coarse gravel. (Probable drilling induced). At 42.37m, with subangular to subrounded medium flints (up to 95mm in size).	42.45 (74.61)		2	
End of Borehole										


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB**
Figure **11 of 11**
07/10/2019



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.10 0.10 0.20- 0.80		B D ES B				MADE GROUND: Dark brown slightly gravelly slightly silty sand with many rootlets. Gravel is subangular to subrounded fine to coarse flint and chalk with rare rope fragments.	G.L. (72.18)			
0.30 0.30 0.30		D ES	PID=0.4			Brown gravelly slightly silty SAND with a low cobble content of subangular flint. Gravel is angular to subangular fine to coarse sandstone, flint and chalk.	0.30 (71.88)			
0.50 0.50 0.50		D ES	PID=<0.1			Below 0.80m, silty.				
0.90- 1.20 1.00 1.00		B ES	PID=0.7			Brown very sandy clayey GRAVEL with a medium cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and rare chalk.	0.90 (71.28)			
1.20- 1.50 1.20	1.50	OH D				SAND and GRAVEL**	1.20 (70.98)			
1.50- 3.50	NIL	OH				SAND and GRAVEL with flint**	1.50 (70.68)			
3.20- 4.05 3.40- 3.53	3.20	39 0 C			(NI) (AZCL)	CHALK, recovered as silty angular to subangular fine to coarse GRAVEL with a medium subangular cobble content. Clasts are weak locally very weak, medium density, locally high density, white with occasional black specks, orangish brown surface staining and grey marl seems. Matrix is white. At 3.28m, 2x subangular small flint fragments (up to 20mm in size). Between 3.53-4.05m, assumed zone of core loss.	3.20 (68.98)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
1.20	0.50	Inspection Pit	Arch	G.I.			08/07/19	08:00	2.60	2.60			NS	
39.90	0.12	Geobor S	AC/RW	16.05	16.05	2.40	08/07/19	18:00						
				16.05	16.05	1.60	09/07/19	08:00						
				25.05	25.05	1.50	09/07/19	18:00						
				25.05	25.05	1.50	10/07/19	08:00						
				39.90	39.90	1.50	10/07/19	18:00						

Remarks **AGS** Inspection pit hand excavated to 1.20m by archaeologist. No services were found. ** Drillers description.
 Between 3.20m and 11.55m, driller notes quick rate of drilling penetration
 At 1.50m, 150mm diameter casing installed to 1.50m depth, then at 3.20m extended to 3.00m, at 16.05m extended to 4.30m, at 17.55m extended to 8.30m and at 32.50m extended to 9.00m.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **CW/RP**
 Figure **1 of 10**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.05- 5.55	4.05	290			(NI)	Between 4.05-4.48m, with occasional angular to subangular small flint fragments (up to 20mm in size).				
4.35- 4.48		C			(AZCL)	Between 4.48-5.55m, assumed zone of core loss.				
5.55- 7.05	5.55	500			(NI)	Between 5.55-8.55m, with a low cobble content with many black specks and marl partings. With many angular to subrounded small flint fragments. At 5.60m, with a medium nodular rinded flint (50mm x 100mm in size). At 5.85m, with subangular small nodular rinded flint fragments (up to 50mm in size).				
					(AZCL)	Between 6.10-6.30m, with many marl seams and partings in cobbles (up to 7mm thick). Between 6.30-7.05m, assumed zone of core loss.				
7.05- 8.55	7.05	370			(NI)	At 7.25m, with a small (15x35mm) and a medium (50x80mm) nodular flint and many broken angular flint fragments.				
7.30- 7.40		C			(AZCL)	Between 7.32-7.43m, with many marl partings in cobbles (up to 2mm thick). Between 7.35-7.45m, Solid core with subvertical (80-90 degrees) discontinuity, undulating and stepped, rough with occasional black specks and comminuted chalk infill (1mm). At 7.47m, with angular to subangular small and medium nodular rinded flint fragments (up to 100mm in size). Between 7.60-8.55m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite seal up to ground level.
 Flush: 1.20-39.90m, Air/Mist, 100% return.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged by **CW/RP**
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geotechnics

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)					
8.55-10.05	8.55	300			(NI)	Below 8.55m, recovered as slightly silty with a high cobble content. Clasts have many black specks and marl seams (up to 2mm thick).				
					(AZCL)	Between 8.90-9.00m, 2x medium nodular rinded flint fragments (up to 100mm in size). Between 9.00-10.05m, assumed zone of core loss.				
10.05-11.55	10.05	436	0.09 0.09	0	(NI)	Below 10.05m, recovered with a low cobble content with occasional marl partings. With many small and medium nodular rinded flints (up to 65mm in size). Between 10.24-10.52m, subvertical (80-90 degrees) discontinuity, partially visible in non-intact zone.				
10.60-10.70		C			(AZCL)	CHALK, recovered as white angular to subangular fine to coarse GRAVEL and COBBLES. Clasts are weak, medium to high density with rare black specks. Matrix is white. [GRADE B3] At 10.69m, with a subangular small rinded sheet flint (7mm thick). Between 10.70-11.55m, assumed zone of core loss.	10.61 (61.57)		2	
11.55-13.05	11.55	9315	0.09 0.04	0		Between 11.55-11.87m, non intact, recovered as angular to subangular fine to coarse gravel. Between 11.87-12.02m, intact core recovered.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.80-12.95		C			(NI)	<p>Between 12.02-12.38m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have occasional orangish brown surface staining. With occasional subangular small flint fragments (up to 25mm in size).</p> <p>Between 12.38-12.64m, intact core recovered with subvertical discontinuity.</p> <p>Between 12.60-12.62m, with interwoven grey marl seam.</p> <p>Between 12.64-12.80m, non intact, recovered as angular to subangular fine to coarse gravel.</p> <p>Between 12.80-12.95m, intact core recovered with one subvertical discontinuity.</p> <p>Between 12.95-13.05m, assumed zone of core loss.</p>				
13.05-14.55 13.18-13.29	13.05	63 13 C	0.11 0.10	7	(NI)	<p>Between 13.05-13.18m, non intact, recovered as angular to subangular fine to coarse gravel with a low subangular cobble content.</p> <p>At 13.15m, with a sheet flint fragment (90x30mm).</p> <p>Between 13.18-13.29m, zone of intact core.</p> <p>Between 13.23-13.24m, with interwoven grey marl seam <1mm.</p> <p>Between 13.27-13.28m, with interwoven grey marl seam <1mm.</p> <p>At 13.29m, discontinuity inclined 55 degrees, undulating and rough with many black specks.</p> <p>Between 13.29-13.96m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content.</p> <p>At 13.62m, with subangular to subrounded small flint fragments (up to 15mm in size).</p> <p>Between 13.96-14.05m, zone of intact core.</p> <p>Between 14.05-14.55m, assumed zone of core loss.</p>				
14.55-16.05	14.55	73 23	0.08 0.03	0	(NI)	<p>Between 14.55-15.25m, non intact, recovered as slightly silty gravel with a high cobble content. Clasts have many marl seams and partings. With occasional subangular small nodular flints.</p> <p>Between 14.55-14.65m, zone of intact core.</p> <p>At 14.60m, 60 degree dipping, clean, undulating and rough discontinuity with many black specks.</p> <p>Between 14.70-14.94m, with many undulating marl seams (<1mm thick) in chalk clasts.</p> <p>At 15.02m, with a subangular medium nodular rinded flint (55mm x 20mm in size).</p> <p>At 15.16m, with a undulating marl seam (<6mm thick) in chalk clasts.</p> <p>At 15.20m, with angular to subangular small nodular rinded flint fragments (up to 20mm in size).</p> <p>Between, 15.25-15.36m, zone of intact core.</p> <p>At 15.29m, with undulating marl partings (<1mm thick) in chalk clasts.</p> <p>At 15.33m, discontinuity inclined 50 degrees, infilled (1mm thick) with comminuted chalk and marl, stepped and rough with many black specks and rare orangish brown surface staining.</p> <p>Between 15.36-15.65m, non intact, recovered as slightly silty gravel with a high cobble content. Clasts have many marl seams and partings. With occasional subangular small nodular flints.</p> <p>At 15.37m, with subangular medium nodular rinded flint fragments (up to 60mm in size).</p> <p>Between 16.65-16.05m, assumed zone of core loss.</p>				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70901**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Project No **PC197510**
 Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.05-17.55	16.05	97 57	0.20 0.04	27	(NI)	Between 16.05-16.45m, non intact, recovered as slightly silty gravel with a high subangular cobble content. Clasts with occasional yellowish green surface staining (possibly glauconite). At 16.25m, with subangular to subrounded small and medium nodular rinded flint fragments (up to 70mm in size). At 16.40m, with a subangular medium nodular rinded flint (90mm in size).	16.45 (55.73)			
16.45-16.65		C			(4)	Weak, medium density locally high density, white and grey with occasional black specks CHALK with many interbedded / lenticular marl seams and occasional shell fragments (up to 13mm in size).				
					(NI)	Discontinuities are:				
					(6)	Set 1 are subhorizontal (0-10 degrees), closely spaced (110/140/160), clean or infilled (0/1/1) with comminuted chalk or grey marl, stepped and rough with occasional black specks. [GRADE B3] Between 16.71-16.85m, non intact, recovered as angular to subangular fine to coarse gravel. At 17.34m, possible micraster / bivalve shell fragment (20mm in size).			1 1 1 1	
17.55-18.90	17.55	100 12	0.13 0.05	9	(NI)	Weak, medium density, locally high density, white with occasional grey marl seams, occasional black specks CHALK. Discontinuities are:	17.55 (54.63)			
					(5)	Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (70/150/290), clean or infilled (0/1/1) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining. [GRADE B3] At 17.55-17.82m, non intact, recovered as angular to subangular fine to coarse gravel with a low subangular cobble content.			1 1	
18.45-18.58		C			(NI)	Between 17.99-18.03m, with many interwoven grey marl seams <1mm.				
					(8)	Between 18.26-18.45m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content.			1	
					(NI)	Between 18.58-18.84m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content.				
					(17)	Between 18.84-18.90m, with many interwoven grey marl seams <1mm.			1 2	
18.90-20.45	18.90	100 39	0.14 0.10	9	(9)				1 1 1 1	
19.38-19.52		C				At 19.45m, with wavy light grey marl seam (10mm thick). Between 19.52-19.70m, with many wispy light grey marl seams (2mm thick).			1 2	
					(NI)	At 19.70m, with a sheet flint (10mm thick). Between 19.70-19.92m, non intact, recovered as slightly silty slightly gravelly angular to subangular cobbles.			2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(8)	At 20.00m, with wavy light grey marl seam (10mm thick). Between 20.05-20.16m, with occasional wispy light grey marl seams (up to 2mm thick). Between 20.16-20.45m, non intact, recovered as slightly gravelly subangular to subrounded cobbles.				
					(NI)					
20.45-22.05	20.45	100 94	0.36 0.06	49		At 20.48m, with a undulating marl seam (4mm thick). At 20.56m, with a undulating marl seam (3mm thick). At 20.68m, with a undulating marl seam (up to 5mm thick).				
20.95-21.16		C			(7)	Between 20.96-21.24m, with many undulating marl seams (up to 15mm thick).				
					(NI)	Medium strong, locally weak, high density, white with many black specks. CHALK with many marl seams and partings and occasional fine gravel sized glauconitic grains. Between 21.38-21.77m, very high density chalk. Discontinuities are:	21.32 (50.86)			
					(7)	Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (20/100/220), clean or infilled (0/1/1) with comminuted chalk, stepped locally undulating and rough with many black specks and occasional green glauconite staining and orangish brown surface staining.				
22.05-23.55	22.05	83 47	0.12 0.02	8	(9)	Set 2 are subvertical (80-90 degrees), clean (0/0/0), undulating and rough, clean with many black specks and orangish and green surface staining. [GRADE B3] Between 21.32-21.38m, non intact, recovered as slightly silty angular to rounded fine to coarse gravel with much green or orangish brown surface staining. With a subangular small nodular rinded flint (20mm in size). At 22.02m, with a undulating marl parting (1mm thick). Between 22.05-22.60m, with many undulating marl seams (up to 7mm thick) and partings (up to 1mm thick). At 22.29m, 30 degree dipping, clean, stepped and rough discontinuity with many black specks and rare mineralised striations. At 22.45m, with a broken ridged shell fragment (up to 20mm in size). (Possible Bivalve). Between 22.61-22.68m, with much green and orangish brown penetrative staining (up to 10mm depth). Between 23.07-23.30m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with many marl seams, partings and black specks and occasional mineralised slickensides. Between 23.30-23.55m, assumed zone of core loss.				
					(NI)					
					(AZCL)					
23.55-25.05	23.55	90 12	0.08 0.02	0	(NI)	Between 23.55-23.93m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content and green surface staining. (Possible glauconite).				
23.99-24.07		C				Between 23.99-24.07m, with irregular interbedded chalk and marl (<3mm).				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(14)	Between 24.12-24.27m, non intact, recovered as angular to subangular fine to coarse cobbles with much green surface staining and occasional green mineralised striations. At 24.42m, discontinuity inclined 55 degrees, clean, undulating locally stepped and rough with rare black specks and green surface staining. Between 24.66-24.90m, non intact, recovered as angular to subangular fine to coarse cobbles with much green surface staining and striations and many grey marl seams. Between 24.90-25.05m, assumed zone of core loss. Between 25.05-25.30m, with occasional thinly bedded grey marls <3mm. Between 25.30-25.36m, non intact, recovered as silty angular to subangular fine to coarse gravel. Between 25.36-25.64m, with occasional thinly bedded grey marls <5mm. Between 25.45-25.49m, non intact, recovered as angular to subangular fine and medium gravel with a subangular cobble. Between 25.54-25.61m, with orangish brown and green surface staining on subhorizontal striations. Between 25.70-25.74m, discontinuity inclined 55 degrees, clean, undulating, locally stepped and rough with many black specks and rare orangish brown surface staining. At 26.22m, with occasional wavy grey marl seams (20mm thick). At 26.26m, with wispy marl seams (1mm thick) staining orangish brown. Between 28.46-28.49m, mottled orange brown.				
					(NI)					
					(5)					
					(NI)					
					(AZCL)					
25.05-26.55	25.05	100 51	0.23 0.02	37	(4)					
					(NI)					
26.20-26.40		C			(6)					
26.55-28.05	26.55	87 59	0.34 0.09	60		Weak, locally medium strong, medium to high density, white with black specks and occasional orangish brown staining CHALK with many marl seams. At 26.68m, with a wavy grey marl seam (2mm thick). Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to widely spaced (10/200/350), clean or infilled (0/1/1) with comminuted chalk, undulating or stepped and rough with many black specks and rare orangish brown surface staining. [GRADE B2] Between 27.03-27.27m, with occasional interwoven grey marl seams (up to 5mm thick). Between 27.27-27.38m, discontinuity inclined 75 degrees, clean, undulating and rough, with many black specks. Between 27.60-27.71m, with occasional interwoven grey marl seams (up to 5mm thick). At 27.71m, discontinuity inclined 30 degrees, undulating and rough with many black specks. Between 27.85-28.05m, assumed zone of core loss.	26.55 (45.63)			
27.03-27.27		C			(5)					
					(AZCL)					


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.05-29.55	28.05	100 98	0.72 0.23	98		Between 28.05-29.17m, with many wavy marl seams (up to 25mm thick) and wispy partings (up to 2mm thick). Between 28.08-28.10m, mottled orangish brown.				
28.36-28.58		C			(1)	Between 28.46-28.49m, mottled orangish brown.			1	
29.55-30.80	29.55	96 66	0.44 0.02	45		At 29.64m, with wavy grey marl seam (up to 20mm thick). Between 29.88-30.02m, with many light grey marl seams (up to 10mm thick). Between 29.99-30.20m, discontinuity inclined 80 degrees, clean, undulating and rough, locally stepped, with many black specks. Between 30.19-30.60m, with thinly interwoven bedded light grey marl seams <1mm.			1 1 1 1	
30.56-30.75		C				Weak, locally medium strong, medium density, locally high density, white with black specks and occasional orangish brown staining CHALK with many marl seams. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to widely spaced (140/380/1010), clean or infilled (0/1/1) with comminuted chalk, undulating or stepped and rough with many black specks and rare orangish brown surface staining. [GRADE B2] Between 30.80-31.66m, with many light grey marl seams (up to 30mm thick) and wispy partings (up to 2mm thick). At 31.20m, with orangish brown surface staining. At 31.31m, with a subangular nodular flint fragment (20mm in size).	30.35 (41.83)			
30.80-32.50	30.80	97 48	0.36 0.03	42					1	
31.46-31.86		C			(1)					
					(NI)	Between 31.66-31.77, non intact, recovered as angular to subangular fine to coarse gravel of chalk.				
					(3)	Between 31.66-32.45m, with occasional marl seams (up to 20mm thick) and marl partings (<1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 32.07-32.45m, non intact, recovered as angular to subangular fine to coarse gravel.				
					(AZCL)	Between 32.45-32.50m, assumed zone of core loss.				
32.50-34.15	32.50	97 88	0.45 0.02	72		Between 32.72-33.95m, many wispy undulating light grey marl seams (up to 40mm thick) with many partings (up to 2mm thick). At 32.95m, discontinuity inclined 20 degrees, clean, undulating and rough with occasional black specks.			1	
33.86-34.10		C			(2)	Between 33.46-33.57m, with many interwoven marl seams <5mm.			1	
34.15-34.85	34.15	100 74	0.34 0.01	59		Between 34.15-34.23m, with many interwoven grey marl seams (up to 3mm thick). Between 34.75-35.19m, with many interwoven grey marl seams (up to 20mm thick).				
34.85-37.05	34.85	85 45	0.39 0.02	43		Between 35.40-35.50m, with a full core diameter fragmented angular flint (<90mm). Between 35.64-35.68m, with a subangular nodular flint fragment (up to 40mm in size).				
35.05-35.22		C			(1)					
35.85-36.27		C								

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407737.0 E 141492.1 N** Ground Level **72.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 36.26-36.81m, discontinuity inclined 85 degrees, clean, undulating and rough with occasional black specks.			1	
					(AZCL)	Between 36.70-36.85m, with many interwoven grey marl seams (up to 10mm thick). Between 36.83-36.87m, with many interwoven grey marl seams (up to 30mm thick). Between 36.87-37.05m, assumed zone core loss.				
37.05-38.20	37.05	73 47	0.39 0.13	47		Between 37.05-37.27m, subvertical discontinuity, undulating and rough with rare black specks.			1	
37.27-37.42		C			(3)	Between 37.43-37.71m, discontinuity inclined 80-90 degrees, clean, undulating and rough with rare black specks. Between 37.59-37.64m, mottled orangish brown.			1	
						Between 37.89-38.10m, with many interwoven grey marl seams (up to 10mm thick).				
38.20-39.90	38.20	100 45	0.24 0.06	35		At 38.46m, discontinuity inclined 25 degrees, clean, undulating and rough with rare black specks.		1		
38.96-39.14		C			(3)			1		
					(NI)	Between 39.45-39.60m, discontinuity inclined 90 degrees, clean, undulating and rough with occasional black specks. Between 39.48-39.60m, with many interwoven grey marl seams (up to 15mm thick). Between 39.60-39.90m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content.		1		
End of Borehole							39.90 (32.28)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **CW/RP**
Figure **10 of 10**
07/10/2019

BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.10- 0.50		B				TOPSOIL: Dark brown gravelly silty sand with many rootlets. Gravel is angular to subrounded fine to coarse flint and occasional chalk	G.L. (71.77)			
0.20 0.20 0.20		D ES					0.30 (71.47)			
0.30- 0.50		B				Brown very gravelly silty SAND with a medium cobble content of subangular flint and occasional rootlets. Gravel is angular to subangular fine to coarse sandstone, flint and chalk.	0.50 (71.27)			
0.50- 1.20		B D ES					0.50 (71.27)			
0.50 0.50 0.50		D				Brown slightly sandy very silty GRAVEL with a medium cobble content of subangular flint. Gravel is angular to subangular fine to coarse flint and chalk.				
0.60 0.80 0.80		D								
1.00		ES								
1.20- 2.00	1.20	0				Gravels. **	1.20 (70.57)			
2.00- 3.50	2.00	0			(NR)					
3.50- 5.00	3.50	33 0				CHALK, recovered as silty angular to subangular fine to coarse GRAVEL. Clasts are very weak, low to medium density and white with occasional black specks and rare orangish brown surface staining. Matrix is white locally cream. With much angular to subangular fine to coarse flint gravel. At 3.50m, with angular to subangular small and medium nodular flint fragments (up to 80mm in size) with a 2mm thick cortex. At 3.80m, tabular small and medium flint fragments (up to 100mm in size).	3.50 (68.27)			
3.80- 4.00		C			(NI)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.80	0.50	Inspection Pit	Arch	G.I.			08/07/19	08:00						None encountered during drilling. Possibly masked by drilling flush.
1.20	0.40	Inspection Pit	AW/PB	12.50	12.50	2.00	08/07/19	18:00						
40.00	0.12	Geobor S	AW/PB	12.50	12.50	2.00	09/07/19	08:00						
				36.50	36.50	1.85	09/07/19	18:00						
				36.50	36.50	2.20	10/07/19	08:00						
				40.00	40.00	1.80	10/07/19	18:00						

Remarks **AB** Inspection pit hand excavated to 0.80m by archeologist and extended to 1.20m depth by **ABS** geotechnics. No services were found. **** Drillers description.** At 2.00m, 150mm diameter casing installed to 2.00m, then at 12.50m, extended to 8.00m depth. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). The graphical representation of discontinuities on the Borehole Record is for indicative

Logged by AB
Checked by DRB
Figure 1 of 11
07/10/2019

geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 4.00-5.00m, assumed zone of core loss.				
5.00- 6.50	5.00	40 13	0.11 0.04	7	(NI)	At 5.00m, with subangular small nodular flint fragments (up to 50mm in size) with a 1mm thick cortex. Below 5.00m, with a medium subangular cobble content of chalk.				
					(AZCL)	At 5.40m, angular to subrounded small finger flints, nodular flints and nodular flint fragments (up to 30mm in size). Between 5.60-6.50m, assumed zone of core loss.				
6.50- 8.00 6.66- 6.76	6.50	53 12 C	0.15 0.04	10	(NI)	Very weak locally weak, medium density, white with occasional black specks and rare orangish brown surface staining CHALK.	6.50 (65.27)			
					(9)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely spaced, infilled (1/1/1) with comminuted chalk, undulating locally stepped and rough with occasional black specks and rare orangish brown surface staining.				
					(NI)	Between 6.50-6.79m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel, with a medium angular cobble content. With occasional angular to subangular finger and nodular flint fragments (up to 50mm in size) with a 1mm thick cortex.				
					(AZCL)	At 6.88-7.10m, subvertical (85 degrees) discontinuity, infilled (1mm thick) with comminuted chalk, stepped, locally undulating, and rough with occasional black specks and rare orangish brown surface staining. At 6.88m, discontinuity inclined 55 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. Between 7.12-7.30m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. With many subangular small and medium nodular flints (up to 60mm in size) with a 1mm thick cortex. Between 7.30-8.00m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks: For purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite seal up to 2.00m, arisings up to ground level.
 Flush: 1.20-3.50m, Air/Mist, 100% returns; 3.50-5.00m, Air/Mist, 50% returns; 5.00-9.50m, Air/Mist, 70% returns; 9.50-40.00m, Air/Mist, 100% return.

Logged by AB
 Checked by DRB
 Figure 2 of 11
 07/10/2019

geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**

Borehole **R70902**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Ground Level **71.77 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
8.00- 9.50	8.00	60 18	0.17 0.10	11	(NI)	Between 8.00-8.45m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel. With many angular to subangular small and medium nodular flint fragments (up to 60mm in size) with a 1mm thick cortex.			
8.53- 8.73		C			(2)	At 8.53m, interwoven grey marl seams (up to 4mm thick) with wispy marl partings (<1mm thick).			
					(AZCL)	Between 8.90-9.50m, assumed zone of core loss.			
9.50-11.00	9.50	0			(NR)	Chalk with flints. **	9.50 (62.27)		
11.00-12.50	11.00	0			(NR)				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB**
Checked by **DRB**
Figure **3 of 11**
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BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Borehole R70902
Project No PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
12.50-14.00	12.50	63 9	0.11 0.03	7	(NI)	CHALK, recovered as a slightly silty angular to subangular fine to coarse gravel with a medium subangular to subrounded cobble contact. Clasts have occasional black specks, orangish brown surface staining and occasional to many marl seams (<5mm thick). At 12.50m, with tabular small and medium flint fragments (up to 90mm in size) with a 1mm thick cortex. (Possible sheet flint). At 12.83m, with marl seams (up to 30mm thick) with wispy marl partings (<2mm thick) in clasts. At 12.85m, with much orangish brown mottling on clasts. (Possible sponge beds). Between 13.05-13.17m, intact section with interwoven greenish grey marl seams (up to 10mm thick) and wispy marl partings (<3mm thick). Between 13.17-13.45m, clasts have occasional black specks and rare orangish brown surface staining and occasional marl seams (<5mm thick) Between 13.45-14.00m, assumed zone of core loss.	12.50 (59.27)		
13.05-13.17		C			(O)				
					(NI)				
					(AZCL)				
14.00-15.50	14.00	73 7	0.04 0.04	0	(NI)	Between 14.00-15.10m, clasts have occasional black specks and orangish brown surface staining and many marl seams (<5mm thick) At 14.18m, with angular to subangular small nodular flint fragments (up to 40mm in size) with a 2mm thick cortex. At 14.50m, with subangular small nodular flint fragments (up to 20mm in size) with a 3mm thick cortex. At 14.90m, with many interwoven wispy marl seams (<5mm thick) in clasts. Between 15.10-15.50m, assumed zone of core loss.			
					(AZCL)				
15.50-17.00	15.50	47 13	0.10 0.02	7	(NI)	At 15.67m, with subangular small nodular flint fragments (up to 50mm in size). At 15.84m, with angular to subangular small nodular flint fragments (up to 50mm in size). Between 15.90-16.10m, with many interwoven grey marl seams (<5mm thick) and wispy marl partings (<2mm thick) in clasts.			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by AB
Checked by DRB
Figure 4 of 11
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BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM


Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.10-16.20		C				Between 16.20-17.00m, assumed zone of core loss.				
17.00-18.50	17.00	73 32	0.10 0.06	7	(AZCL)	Very weak locally weak, medium density, white with occasional black specks and rare orangish brown surface staining CHALK. Between 17.19-17.44m, zone of intact core. Discontinuities are:	17.00 (54.77)			
17.34-17.44		C			(NI)	Set 1 are subhorizontal (0-10 degrees), closely spaced (100/120/130), infilled (1/1/1) with comminuted chalk, occasionally clean, undulating, locally stepped, and rough with occasional to many black specks and rare orangish brown surface staining. [GRADE B3] Between 17.00-17.19m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. Clasts have occasional black specks and rare orangish brown mottling. With occasional angular to subangular small nodular flint fragments (up to 15mm in size). At 17.19-17.27m, discontinuity inclined 80-90 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough, with occasional black specks and rare orangish brown staining. Between 17.44-17.60m, non intact, recovered as slightly silty angular to subangular gravel. At 17.56m, with many interwoven marl seams (<5mm thick) and wispy marl parings (<1mm thick) in clasts.				
18.50-20.00	18.50	73 44	0.12 0.03	9	(AZCL)	Between 17.60-17.98m, zone of intact core. At 17.65m, with many interwoven marl seams (up to 5mm thick) with marl partings (<1mm thick). Between 17.98-18.10m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 18.10-18.50m, assumed zone of core loss.	18.50 (53.27)			
					(NI)	Very weak, locally weak, medium density, white locally greyish white with occasional black specks and rare orangish brown staining CHALK with many greenish grey marl seams. Between 18.72-19.17m, zone of intact core. Discontinuities are:				
					(AZCL)	Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (60/140/290), clean or infilled (0/1/3), undulating, locally stepped, and rough. [GRADE B3] Between 18.50-18.72m, non intact, recovered as slightly silty angular to subangular gravel with a low subangular cobble content. Below 18.75m, with many interwoven greenish grey marl seams (up to 10mm thick) with wispy marl partings <2mm thick). At 18.83m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks. Between 19.17-19.39m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with many marl seams. Between 19.39-19.60m, zone of intact core. Between 19.60-20.00m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Figure 5 of 11
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**


Borehole **R70902**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Ground Level **71.77 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	100 65	0.29 0.05	29						
20.25-20.44		C			(6)	Between 20.25-20.90m, with occasional greenish grey marl seams (up to 15mm thick). At 20.47m, with orangish brown sponge beds (<10mm thick). At 20.78m, with angular to subangular small and medium nodular flint fragments (up to 70mm in size) with 3mm thick cortex and orangish brown surface staining.				
					(NI)	Between 20.84-21.05m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content.				
					(4)	Between 21.00-21.20m, with occasional grey marl seams (<5mm thick) and marl partings (<3mm thick).				
21.50-23.00	21.50	97 65	0.24 0.04	21		Medium strong, locally weak, high density locally medium density, white with many black specks and occasional green mottling and orangish brown staining CHALK. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (70/120/240), clean rarely infilled (0/0/1) with comminuted chalk and marl, undulating locally stepped and rough. [GRADE A3] At 21.67m, with subangular small nodular flint fragments (up to 30mm in size) with a 1mm thick cortex. Between 21.69-21.82m, with much green mottling. (Possible glauconitic chalk). At 22.00m, with occasional elongated orangish brown mottling (up to 30mm in size). (Possible sponge beds). From 22.24m, with many interwoven marl seams (<5mm thick) with wispy marl partings (<1mm thick). Between 22.60-22.77m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel.	21.50 (50.27)			
22.19-22.32		C			(10)					
					(NI)					
					(0)					
23.00-24.50	23.00	97 52	0.21 0.04	28		Between 23.00-23.20m, with much green mottling (Possible glauconitic chalk) and pockets (up to 10mm in size) of possible phosphatic chalk nodules. Between 23.31-23.34m, with occasional thin grey marl seems <5mm.				
23.50-23.62		C			(5)	At 23.55m, with a grey marl seam (20mm thick) with wispy marl partings (<3mm thick) branching off. Between 23.61-23.70m, with occasional thin grey marl seems <5mm. At 23.82m, green glauconitic chalk with rare orangish brown mottling.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB**
Checked by **DRB**
Figure **6 of 11**
07/10/2019



BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 24.05-24m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel. Between 24.24-24.45m, with many marl seams (up to 10mm thick) and wispy marl partings (<1mm thick).			1	
					(4)					
24.50-26.00	24.50	0			(NR)	CHALK. **	24.50 (47.27)			
					(NI)	CHALK, recovered as angular to subangular fine to coarse GRAVEL and COBBLES. Clasts are weak, medium density and white. Between 26.00-26.17m, non intact, recovered as subrounded coarse gravel and a subrounded cobble. Between 26.17-27.50m, assumed zone of core loss.	26.00 (45.77)			
					(AZCL)					
27.50-29.00	27.50	67 37	0.20 0.05	11	(1)	Weak, locally medium strong, medium density, locally high density, white rarely mottled orangish brown and green with many black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (70/160/240) clean, rarely infilled (0/0/1) with comminuted chalk and marl, undulating locally stepped and rough, with many black specks and rare orangish brown surface staining.	27.50 (44.27)		1	
										1

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by AB
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Figure 7 of 11
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BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM


Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.04-28.14		C				[GRADE A3] Between 27.60-27.80m, medium strong locally weak, high density, with much green mottling of glauconitic chalk. At 27.91m, with interwoven marl seems (up to 15mm thick) and marl partings (<1mm thick). Between 28.04-28.50m, with thinly bedded marl seams (up to 5mm thick) with marl partings (<1mm thick). Between 28.50-29.00m, assumed zone of core loss.				
					(AZCL)					
29.00-30.50	29.00	100 93	0.59 0.10	72		Weak, locally medium strong, medium density, locally high density, white locally greyish white with occasional black specks and rare orangish brown mottling CHALK with many grey marl seems (1-100mm thick). Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (100/440/820), clean, rarely infilled (0/0/1) with comminuted chalk and marl, undulating locally stepped and rough with occasional black specks. [GRADE A3] At 29.21m, discontinuity inclined 55 degrees, clean, undulating and rough with many black specks. At 29.48m, with grey marl seam (40mm thick).	29.00 (42.77)			
29.23-29.51		C			(2)	At 30.30m, with a marl seam (up to 80mm thick) with wispy marl partings (<1mm thick) branching off.				
30.50-32.00	30.50	100 97	0.73 0.13	89	(3)	At 30.50m, with a marl seam (40mm thick) with wispy marl partings (<1mm thick) branching off. Between 30.60-32.00m, with many thinly bedded undulating marl seams (up to 20mm thick) with wispy marl partings (<3mm thick). Between 31.20-32.00m, with many marl seams (5-10mm thick) with wispy marl partings (<1mm thick) branching off. Between 31.41-31.58m, with circular and semicircular trace fossils (1mm thick). (Possible sponges). At 31.54m, with a small pyrite sponge nodule (8mm in diameter). At 31.68m, with angular to subangular small and medium nodular flint fragments (up to 90mm in size) and rare pyrite mineralisation (2mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by AB
Checked by DRB
Figure 8 of 11
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BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) Engineer AECOM

Borehole Project No R70902 PC197510

Client HIGHWAYS ENGLAND

Ground Level 71.77 m OD

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
32.00-33.50	32.00	100 100	0.64 0.08	94	(1)	Between 32.00-33.50m, with many dark grey marl seams (up to 20mm thick) with wispy marl partings (<1mm thick) branching off. At 32.70m, with a marl seam (45mm thick).			1
32.94-33.50		C				At 33.42m, with a marl seam (60mm thick) with wispy marl partings (<1mm thick) branching off. Between 33.50-35.00m, with many marl seams (up to 20mm thick). At 33.50m, with a grey marl seam (20mm thick) with interwoven wispy marl partings (up to 5mm thick) At 33.75m, discontinuity inclined 25 degrees, clean, undulating and rough with occasional black specks and rare orangish brown mottling. At 34.08m, with a grey marl seam (30mm thick) with wispy marl partings (<1mm thick) branching off. At 34.58m, with angular to subangular small nodular flint fragments (up to 60mm in size) with a 1mm thick cortex. Between 34.62-36.50m, with thinly bedded marl seams (up to 10mm thick) with occasional marl partings (<1mm thick) branching off. Between 35.00-36.50m, with many interwoven grey marl seams (up to 15mm thick) and wispy marl partings (<1mm thick).			1
33.50-35.00	33.50	93 93	0.44 0.07	74		At 34.58m, with angular to subangular small nodular flint fragments (up to 60mm in size) with a 1mm thick cortex. Between 34.62-36.50m, with thinly bedded marl seams (up to 10mm thick) with occasional marl partings (<1mm thick) branching off. Between 35.00-36.50m, with many interwoven grey marl seams (up to 15mm thick) and wispy marl partings (<1mm thick).			1
35.00-36.50 35.00-35.48	35.00	100 9 C	0.48 0.06	81	(2)	At 35.45m, with subangular small and medium nodular flint fragments (up to 60mm in size) with 2mm thick cortex. At 35.50m, grey marl seam (20-30mm thick) interwoven with marl partings (<5mm thick) and wispy marls branching off.			1

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by AB
Checked by DRB
Figure 9 of 11
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**


Borehole **R70902**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Ground Level **71.77 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
						At 36.32m, with angular to subangular small nodular flint fragments (up to 20mm in size) and shell fragments along Set 1 discontinuity.			
36.50-38.00	36.50	97 94	0.59 0.02	87		Between 36.50-38.00m, with many grey marl seams (up to 20mm thick) with many interwoven marl partings (<1mm thick). At 36.62m, with a undulating marl seam (30mm thick) with wispy marl partings (<5mm thick) branching off.			
37.52-37.95		C				At 37.48m, with a marl seam (20mm thick) with interwoven marl partings (<5mm thick) branching off.			1
38.00-39.50	38.00	100 100	0.42 0.13	85		Between 38.00-40.00m, with many marl seams (<40mm thick) with interwoven marl partings (<5mm thick) branching off. At 38.18m, with orangish brown mottling (up to 50mm in size) of sponge beds.			
					(2)	At 39.05m, marl seam (40mm thick) with interwoven seams (<5mm) branching off.			1
						At 39.33-39.50m, discontinuity inclined 85 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks and occasional orangish brown surface staining.			1
39.50-40.00	39.50	96 96	0.48 0.48	96					
39.50-39.98		C							
						At 40.00m, with a grey marl seam (30mm thick) with interwoven wispy marl partings (<5mm thick).	40.00 (31.77)		

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB**
Checked by **DRB**
Figure **10 of 11**
07/10/2019



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM**


Borehole **R70902**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

Ground Level **71.77 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						End of Borehole	40.00 (31.77)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **AB**
Checked by **DRB**
Figure **11 of 11**
07/10/2019



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.30		B				TOPSOIL: Brown gravelly slightly silty sand with many rootlets. Gravel is angular to subrounded fine to coarse chalk, flint and sandstone Brown gravelly slightly silty SAND with a medium cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse chalk, flint and sandstone. White sandy silty GRAVEL with a low cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse chalk, flint and sandstone. Brown sandy slightly clayey GRAVEL with a medium cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and chalk. CHALK, recovered as white and light brown slightly sandy gravelly SILT. Clasts are very weak, low density, white with occasional black specks, subangular and fine to coarse. With occasional subangular fine and medium nodular flint gravel. No recovery.	G.L. (71.98)			
0.20		D								
0.20		ES								
0.20			PID=<0.1							
0.30- 0.60		B								
0.30		D								
0.50		D								
0.50		ES								
0.50			PID=<0.1							
0.60- 0.80		B								
0.60		D								
0.80		D								
0.80		ES								
0.80			PID=<0.1							
1.00		D								
1.10- 1.20		D								
1.20- 2.00	1.20	0								
2.00- 3.50	2.00	27 0								
3.50- 5.00	3.50	27 0								
3.50- 3.65		C								

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.80	0.50	Inspection Pit	Arch	G.I.			10/07/19	08:00						None encountered during drilling. Possibly masked by flush.
1.20	0.50	Inspection Pit	AW/PB	8.00	8.00	1.80	10/07/19	18:00						
40.20	0.12	Geobor S	AW/PB	8.00	8.00	2.00	11/07/19	08:00						
				38.00	38.00	2.20	11/07/19	18:00						
				38.00	38.00	3.20	12/07/19	08:00						
				40.20	42.00		12/07/19	18:00						

Remarks Inspection pit hand excavated to 0.80m by archaeologist. No services were found. Unable to hand excavate below 0.80m due to hard strata.
 ** Drillers description.
 At 38.00m, 150mm diameter casing advanced to 8.50m depth.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative
 Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **1 of 11**
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Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70903**
 Project No **PC197510**


Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)					
5.00- 6.50	5.00	47 11	0.16 0.02	7	(NI)	Weak, locally very weak, medium density, locally high density, white with many black specks CHALK. With occasional angular to subangular fine and medium flint gravel.	5.00 (66.98)			
5.42- 5.56		C			(11)	Discontinuities, where seen, are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced, clean or infilled (0/3/7) with comminuted chalk, planar and rough with many black specks. Set 2 are 50-60 degrees, infilled (2/3/5) with comminuted chalk, undulating and rough with many black specks. [GRADE C3] Between 5.00-5.34m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. Clasts have many black specks. At 5.58m, with small sheet flint fragments (up to 7mm in size) along Set 1 discontinuity. At 5.60-5.70m, subvertical discontinuity, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. Between 5.70-6.50m, assumed zone of core loss.				
6.50- 8.00	6.50	70 20	0.03 0.03	0	(NI)	Between 6.50-6.66m, non intact, recovered as slightly silty subangular to rounded medium to coarse gravel. With occasional subangular small nodular rinded and sheet flint fragments (up to 20mm in size). At 6.57m, with a subangular small nodular rinded flint (70mm x 35mm in size). Between 6.82-7.55m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. With occasional angular to subangular small flint fragments. At 6.95m, with a subangular small nodular rinded flint fragment (up to 70mm in size).				
6.66- 6.82		C			(15)	At 7.37m, with a subangular medium rinded finger flint fragment (60mm in size).				
					(NI)	Between 7.55-8.00m, assumed zone of core loss.				
					(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks **For purposes only, the details of each are presented on the discontinuity summary table.**
ABS Backfill details from base of hole: bentonite seal up to 2.00m, arisings up to ground level.
 Flush: 1.20-8.00m, Air/Mist, 100% returns; 8.00-16.50m, Air/Mist, 50% returns; 16.50-40.00m, Air/Mist, 80% return.
 Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.
 Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **2 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
8.00- 9.50	8.00	53 22	0.23 0.11	22	(NI)	Between 8.00-8.20m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. With rare angular to subrounded small nodular rinded flint (50mm in size). Between 8.20-8.80m, with many undulating wispy marl seams (up to 2mm thick). Between 8.32-8.55m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. At 8.53m, with subrounded small and medium nodular flint fragments (up to 55mm in size). At 8.79m, with a subangular medium nodular rinded flint (80mm in size). Between 8.80-9.00m, assumed zone of core loss.				
8.55- 8.78		C			(8)					
					(NI)					
					(8)					
9.50-11.00	9.50	13 6	0.09 0.09	0	(NI)	Between 9.50-9.70m, non intact, recovered as angular to subrounded coarse gravel with a low subrounded cobble content. Between 9.70-11.00m, assumed zone of core loss.				
					(AZCL)					
					(AZCL)					
11.00-12.50	11.00	0				No recovery	11.00 (60.98)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **3 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.50-14.00	12.50	0			(NR)					
14.00-15.50	14.00	0								
15.50-16.50	15.50	90 27	0.11 0.05	11	(NI)	Weak, medium density, locally high density, white with many black specks CHALK. With occasional angular to subangular fine and medium flint gravel.	15.50 (56.48)			
						(30)	Discontinuities, where seen, are:			
						(NI)	Set 1 are subhorizontal (0-10 degrees), closely spaced (50/80/100), clean or infilled (0/1/3) with comminuted chalk, undulating, locally stepped and rough with many black specks and rare to occasional orangish brown staining.			
						(25)				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
Figure **4 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	[GRADE B3]			1	
					(13)	Between 15.50-15.71m, non intact, recovered as angular to subrounded fine to coarse gravel with a low subangular cobble content.			1	
					(NI)	Between 15.81-15.98m, non intact, recovered as silty angular to subangular fine to coarse gravel. With rare sheet like shell fragments (up to 2mm thick). (Possibly Platyceramus).			1	
					(AZCL)	Between 16.06-16.15m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have occasional black specks and orangish brown surface staining. With an angular medium nodular rinded flint (60mm in size).			1	
16.50-17.00	16.50	100	0.09	0		At 16.30m, discontinuity inclined 20 degrees, clean, undulating and rough with many black specks and occasional orangish brown surface staining.	16.68 (55.30)		1	
16.59-16.68		40	0.09			Between 16.30-16.59m, non intact, recovered as angular to subrounded coarse gravel with a medium subangular cobble content. With angular to subangular medium nodular rinded flints (up to 90mm in size).			1	
16.80-17.00		C			(NI)	Between 16.40-16.50m, assumed zone of core loss. Between 16.59-16.68m, solid core within non intact zone.			1	
17.00-18.50	17.00	91	0.13	14		CHALK, recovered as slightly silty angular to subangular fine to coarse GRAVEL with a medium subangular cobble content. Clasts are weak, locally medium strong, high density locally very high density, white with many black specks and orangish brown and green surface staining and occasional mineralised slickensides.	17.43 (54.55)		1	
		31	0.09		(10)	At 17.14m, with medium strong, high density, green glauconitic chalk gravel.			1	
					(NI)	Weak, locally very weak, medium density locally high density, white with occasional black specks and rare orangish brown mottling CHALK with occasional marl seams.			1	
					(7)	Discontinuities are:			1	
					(NI)	Set 1 are subhorizontal (0-10 degrees), closely spaced (70/130/180), clean or infilled (0/1/3) with comminuted chalk and marl, undulating locally stepped and rough.			1	
					(AZCL)	[GRADE B3]			1	
18.50-20.00	18.50	100	0.18	20		At 17.55m, with marl seam (up to 20mm thick) with interwoven wispy marl partings (up to 5mm thick) branching off.			1	
		63	0.10		(NI)	Between 17.63-17.72m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With angular to subangular small nodular flint fragments (<20mm in size) with a <1mm thick cortex.			1	
18.82-18.94		C			(7)	Between 18.00-18.37m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. Between 18.37-18.50m, assumed zone of core loss. Between 18.50-18.68m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. Clasts with rare orangish brown mottling.			1	
						At 18.65m, with angular to subangular small and medium nodular flint fragments (up to 100mm in size) with a 5mm thick cortex.			1	
					(NI)	At 19.26m, with marl seam (45mm thick) with chalk inclusions (<10mm in size, possible burrows) with wispy interwoven marl partings (<1mm thick).			1	
						At 19.40m, with rare pockets (up to 30mm in size) of calcite and slickensides.			1	
					(8)	At 19.43m with orangish brown mottling (up to 30mm in size. (Possible sponges). Between 19.45-19.50m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel.			1	
						At 19.50m, with marl seam (30mm thick) with wispy marl partings (<5mm thick) branching off.			1	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **5 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R70903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	0				Between 20.00-21.50m, no recovery. Chalk with flints**				
21.36-21.77		C			(NR)					
21.50-23.00	21.50	100 77	0.42 0.04	41	(NI)	Between 21.50-21.62m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. With angular to subangular small nodular flint fragments (up to 60mm in size) with a 2mm thick cortex.				
					(11)	At 21.90m, with grey marl seam (<5mm thick) interwoven with marl partings (<1mm thick). At 21.97m, discontinuity inclined 45 degrees, clean, stepped and rough with many black specks and rare orangish brown mottling. At 22.10m, discontinuity inclined 25 degrees, clean, undulating and rough. At 22.15m, with rare orangish brown mottling (Possible sponges) on Set 1 discontinuity.	22.25 (49.73)			
					(3)	Weak, locally medium strong, high density locally very high density, white with localised greenish and orangish brown mottling and many black specks CHALK with rare marl seams. Discontinuities are: Set 1 are subhorizontal, (0-10 degrees), very closely to medium spaced (50/150/540), clean or rarely infilled (0/0/3) with comminuted chalk, undulating, locally stepped, and rough. [GRADE B3]				
23.00-24.50	23.00	100 90	0.40 0.09	50		Between 22.30-25.50m, with much green mottling (glaucanitic chalk) and possible nodules (<15mm in size) of phosphatic chalk. Between 22.50-22.80m, with much orangish brown mottling (<30mm in size). (Possible sponge beds). At 23.00m, with slickensides and pockets (<10mm in size) of calcite mineralisation. Between 23.00-26.67m, with many closely to very closely spaced marl seams (up to 35mm thick).				
23.31-23.50		C				Between 23.48-23.61m, with much orangish brown and green glauconite surface staining.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **6 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 24.10m, discontinuity inclined 20 degrees, clean, undulating and rough with occasional black specks. Between 24.20-24.30m, with much green glauconite surface staining.				
24.50-26.00	24.50	100 100	0.42 0.05	65	(7)	Between 24.77-25.40m, very high density.				
24.98-25.40		C				Between 25.04-25.15m, with much orangish brown and green glauconitic staining and mottling.				
						At 25.66m, discontinuity inclined 60 degrees, clean, stepped and rough with many black specks and mineralised slickenlines.				
26.00-27.50	26.00	100 100	0.29 0.05	93	(4)	Between 26.00-26.56m, with much orangish brown and green glauconitic staining around possible shells (<40mm in size). Between 26.00-26.67m, very high density.				
27.36-27.50		C			(5)	Weak locally medium strong, high density locally very high density, white CHALK with many marl seams (up to 80mm thick). Discontinuities are: Set 1 between 26.67-27.50m and below 30.00m are subhorizontal (0-10 degrees), very closely to widely (40/350/1390) spaced clean, rarely infilled (0/0/1), undulating and rough with occasional black specks and mineralised slickensides. Set 2 below 30.00m are 50-60 degrees, clean (0/0/0), undulating and rough with grey mottling and occasional slickenlines. [GRADE A2]	26.67 (45.31)			
27.50-29.00	27.50	100 100	0.64 0.64	97		Between 27.67-27.78m, grey marl seam. At 27.71m, discontinuity inclined 40 degrees, clean, stepped and smooth and slickensided.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
Figure **7 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.72-29.00		C			(1)	At 28.35m, discontinuities inclined 20 degrees, clean, undulating and rough and slickensided.				
29.00-30.50	29.00	100 100	1.15 0.34	81	(3)	At 29.65m, subvertical discontinuity, clean, undulating and smooth with many black specks and grey mottling and occasional orangish brown surface staining and slickensided.			2	
30.05-33.50		C							1	
30.50-32.00	30.50	100 96	1.02 0.11	93	(4)	Between 30.67-30.85m, grey marl seam.			1	
30.82-31.27		C			(NI)	At 30.71m, with light brown fine sandy (1mm thick) on Set 1 discontinuity (Possibly phosphatic chalk). Between 30.74-30.80m, non intact, recovered as soft grey slightly gravelly clay. Gravel is angular to subangular fine to coarse marl.			1	
						At 31.57m, with a subangular small nodular rinded flint. Between 31.60-31.78m, grey wavy marl seam.				
						At 31.76m, with a pyrite lense (8mm thick). At 31.84m, discontinuity inclined 10-20 degrees, clean, stepped and rough and slickensided.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
Figure **8 of 11**
07/10/2019




BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
32.00-33.50	32.00	99 99	1.05 0.03	93	(2)	<p>Between 32.00-33.50m, with many closely to very closely spaced marl seams (up to 20mm thick) with wispy interwoven marl partings (<2mm thick) branching off.</p> <p>At 32.18m, discontinuity inclined 40 degrees, clean, undulating and rough with many black specks. Between 32.28-32.41m, with subangular to subrounded small nodular flint fragments (up to 50mm in size).</p> <p>Between 32.55-32.71m, with many grey marl seams (up to 15mm thick) with wispy marl partings (<1mm thick) branching off.</p>			
33.26-33.48		C				<p>At 33.20m, grey marl seam (55mm thick) with wispy marl partings (<1mm thick) branching off.</p> <p>At 33.42m, with orangish brown mottling (up to 10mm in size). (Possible sponges).</p>			
33.50-35.00	33.50	98 91	0.69 0.03	73	(3)	<p>At 34.10m, with a grey marl seam (10mm thick) with wispy marl partings (<1mm thick) branching off.</p> <p>Between 34.30-35.00m, with orangish brown mottling (<15mm in size). (Possible sponge beds).</p>			
34.58-34.84		C				<p>At 34.68m, with a subangular to subrounded small nodular flint fragment (50mm in size) with a 3mm thick cortex surrounded by grey marl seam (10mm thick) with wispy marl partings (<1mm thick).</p>			
35.00-36.50	35.00	100 69	0.23 0.04	65	(5)				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
Figure **9 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E 141479.2 N** Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
36.27-36.50		C			(3)	Between 36.07-36.17m, non intact, recovered as angular to subangular fine to coarse gravel. Between 36.13-36.44m, with thin bedded interwoven grey marl seams (up to 10mm thick). Between 36.25-36.27m, grey interwoven marl seams (10mm thick).				
36.50-38.00	36.50	100 75	0.38 0.03	71	(2)	Between 36.80-37.08m, discontinuity inclined 70 degrees, clean, undulating and rough with many black specks. Between 37.12-37.18m, grey interwoven marl seam (up to 7mm thick). Between 37.41-37.2m, with orangish brown surface staining.			1	
37.68-38.00		C							1	
38.00-39.50	38.00	100 91	0.63 0.04	81	(3)	Between 38.00-39.50m, with many closely to very closely spaced undulating interwoven grey marl seams (up to 10mm thick). At 38.10m, with a grey undulating marl seam (25mm thick) with wispy interwoven marl partings (<1mm thick) branching off.			1	
39.12-39.50		C							1	
39.50-40.20	39.50	100 100	0.42 0.04	60	(6)	Between 39.58-39.85m, discontinuity inclined 80 degrees, clean, undulose and rough with many black specks and occasional orangish brown surface staining.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
Figure **10 of 11**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R70903**
PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **407875.0 E**
141479.2 N Ground Level **71.98 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						End of Borehole	40.20 (31.78)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **RP/AB**
 Figure **11 of 11**
 07/10/2019

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71001** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.10		B D				TOPSOIL: Brown gravelly slightly silty sand with many rootlets. Gravel is angular to subrounded fine to coarse chalk, flint and sandstone.	G.L. (92.29)			
0.50 0.50 0.50		D ES			PID=<0.1	CHALK, recovered as white slightly sandy slightly gravelly SILT. Clasts are very weak to weak, low to medium density, white with rare black specks. With occasional angular to subangular small to medium flints (up to 140mm in size).	0.40 (91.89)			
1.00 1.00 1.00		D ES			PID=<0.1	CHALK, recovered as slightly sandy silty angular to subangular fine to coarse GRAVEL. Clasts are weak, medium density, white with occasional black specks. Matrix is white. With occasional angular to subrounded small to medium flint (up to 180mm in size).	0.75 (91.54)			
						Fractured CHALK with flints**	1.20 (91.09)			
1.40- 2.90	1.40	99 80	0.06 0.01	0	(NI)	CHALK, recovered as angular to subangular fine to coarse GRAVEL with a low subangular cobble content. Clasts are weak, medium density, white with occasionally to much orangish brown surface staining. (Non intact possibly due to extremely closely to very closely spaced subhorizontal (80-90 degrees) discontinuities).	1.40 (90.89)			
2.50- 2.56		C								
2.90- 4.40	2.90	87 80	0.12 0.06	20	(11)	Weak, locally very weak, medium density, white with occasional black specks and orangish brown surface staining CHALK. Discontinuities are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (80/190/300), clean (0/0/0), stepped and rough with rare black specks and occasional orangish brown surface staining. Set 2 are 20-40 degrees, closely spaced (120/130/140), clean (0/0/0), stepped and rough with many black specks and rare orangish brown surface staining. Set 3 are 50-70 degrees, clean (0/0/0), stepped and rough, with many black specks and occasional orangish brown surface staining. Set 4, 80-90 degrees, clean rarely infilled (0/0/1) with marl, stepped and rough with many black specks and occasional orangish brown surface staining.	2.90 (89.39)		1 1 4 1 1 3 4	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.50	0.50	Inspection Pit	Arch	G.I.			10/07/19	08:00						None encountered during drilling. Possibly masked by flush.
1.20	0.40	Inspection Pit	SP/GC	13.40	13.40	DRY	10/07/19	18:00						
1.40	0.12	Rotary Open Hole	SP/GC	13.40	13.40		11/07/19	08:00						
29.90	0.12	Geobor S	SP/GC	29.90	29.90	21.70	11/07/19	18:00						

Remarks **SI** Inspection pit hand excavated to 0.50m by an archeologist and extended to 1.20m depth by **SI** Geotechnics. No services were found. Logged by **SI**
 ** Drillers description. Figure **1 of 8**
 Chalk logged in accordance with CIRIA Report C574, 2002. 07/10/2019
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71001**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Project No **PC197510**
 Ground Level **92.29 m OD**


Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						[GRADE A3] At 2.95m, with a subrounded small nodular flint fragment (40mm in size). At 3.01m and 3.03m, wispy grey marl seams (<3mm thick) with thin grey marl partings (<1mm thick). At 3.10m, with occasional subangular to subrounded small and medium nodular flint fragments (up to 60mm in size). Between 3.45-3.65m, with many pockets of orangish brown staining (up to 3mm in size). At 3.55m, with occasional subangular small nodular flint fragments (up to 20mm in size). At 3.72m, with occasional subangular small nodular flint fragments (up to 30mm in size). Between 3.74-3.86m, platyceramus sheet fossils (<3mm thick) along Set 3 discontinuity. Between 4.20-4.40m, assumed zone of core loss. Between 4.40-4.56m, non intact, recovered as angular to subangular fine to coarse gravel with a low subangular cobble content (possibly drilling induced). Between 4.74-4.80m, non intact, recovered as silty angular to subangular fine to coarse gravel. Between 4.80-5.10m, 3x extremely closely spaced Set 4 discontinuities (locally recovered as non intact angular to subangular fine to coarse gravel).				
4.40- 5.90	4.40	100 47	0.10 0.01	7	(NI)					
4.60- 4.70		C			(5)					
					(NI)					
					(16)					
					(NI)					
5.90- 7.40	5.90	100 77	0.27 0.02	30	(6)					
					(NI)					
6.70- 6.94		C			(5)					
					(NI)					
					(7)					
7.40- 8.90	7.40	93 50	0.12 0.02	8	(NI)					
					(8)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks **Backfill details from base of hole: bentonite seal up to 16.70m, bentonite grout up to 16.40m, arisings up to ground level.**
Flush: 1.40-29.90m, Air/Mist, 100% return.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI**
 Figure **2 of 8**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71001**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Project No **PC197510**
 Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 7.98-8.50m, 3x extremely to very closely spaced Set 4 discontinuities, recovered locally as non intact. Between 8.50-8.70m, non intact, recovered as angular to subangular fine gravel. (possibly drilling induced).			4	
						Weak, locally very weak, medium density, white CHALK. Discontinuities are:	8.70 (83.59)		3	
8.90-10.40 9.00- 9.17	8.90	97 53 C	0.17 0.02	21	(6)	Set 1 are subhorizontal (0-15 degrees), closely to widely spaced (80/280/1120), clean rarely infilled (0/0/2) with comminuted chalk and rare platyceramus sheet fossil (up to 4mm thick), stepped and rough with rare black specks and rare orangish brown rarely grey surface staining. Set 2 are 20-35 degrees, clean (0/0/0), stepped and rough with occasional black specks and rare orangish brown surface staining.			1 1 1	
					(NI)	Set 3 are 40-70 degrees, clean (0/0/0), stepped and rough with many black specks and occasional grey surface staining.			2	
					(9)	Set 4 are 75-90 degrees, clean rarely infilled (0/0/2) with comminuted chalk or grey marl, stepped and rough with rare black specks and orangish brown surface staining.			3	
					(NI)	[GRADE A2] At 9.32m, with a subangular small nodular flint (40mm in size). Between 9.50-9.62m and 9.79-9.80m, non intact, recovered as angular to subangular fine to coarse gravel. With occasional angular to subangular small and medium flint fragments (10-70mm in size). Between 9.80-10.10m, non intact, recovered as angular to subangular fine to coarse gravel. (Possibly drilling induced). At 10.43m, platyceramus sheet fossil (<3mm thick).			2 3 3	
10.40-11.90	10.40	87 70	0.20 0.06	20	(7)	At 10.75m, intersecting Set 1 and Set 3 discontinuities. At 10.92m, Platyceramus sheet fossil along Set 1 discontinuity surface.			3 1 1 2	
					(NI)	Between 11.22-11.32m, non intact, recovered as angular to subangular fine to coarse gravel. (possible drilling induced due to Set 4 discontinuity).			4	
					(5)					
					(AZCL)	Between 11.70-11.90m, assumed zone of core loss.				
11.90-13.40	11.90	100 62	0.10 0.02	13	(NI)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI**
 Figure **3 of 8**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71001**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.34-12.48		C			(8)	<p>Between 11.90-12.10m, non intact, recovered as silty angular to subangular fine to coarse gravel and a cobble. With occasional subangular small nodular flint fragments (10-50mm in size).</p> <p>At 12.30m, with occasional angular small nodular flint fragments (up to 40mm in size).</p> <p>At 12.50m, with occasional angular to subangular small nodular flint fragments (5-10mm in size) in Set 1 discontinuity.</p> <p>Between 12.60-12.80m, locally non intact, recovered as angular to subangular fine to coarse gravel. (possibly drilling induced due to 3 x Set 3 discontinuities).</p> <p>At 12.90m, with occasionally patches of orangish brown staining on core surface (up to 2mm in size). Between 13.00-13.20m, non intact, recovered as angular to subangular fine to coarse gravel. With some angular to subangular small and medium nodular flint fragments (10-80mm in size).</p> <p>At 13.33m, with occasional thin grey undulating marl partings (<2mm thick).</p>				
13.40-14.90 13.40-13.82	13.40	80 73 C	0.42 0.06	53		<p>At 13.55m and 13.60m, platyceramus sheet fossil fragments (<4mm thick) embedded in the core. At 13.66m, a fragment of angular small nodular flint (30mm in size).</p> <p>At 13.91m, platyceramus sheet fossil (<4mm thick) and a angular small nodular flint (30mm in size) on Set 1 discontinuity.</p> <p>Between 14.23-14.33m, with multiple wispy marl seams (up to 5mm thick) and occasional thin grey undulating marl partings (<1mm thick).</p> <p>Between 14.60-14.90m, assumed zone of core loss.</p>				
14.90-16.40 16.00-16.40	14.90	100 83 C	0.40 0.01	57	(13) (2)	<p>At 15.00m, with occasional patches of orangish brown staining on core surface (up to 2mm in size). (Possible sponges). Between 15.11-15.35m, with multiple wispy marl seams (<5mm thick) and occasional thin grey undulating marl partings (<1mm thick).</p> <p>Between 15.74-15.78m, with occasional angular small nodular flint fragments (up to 35mm in size) and a platyceramus sheet fossil (<3mm thick). Between 15.86-15.90m, with multiple wispy marl seams (<5mm thick) with occasional thin grey undulating marl partings (<1mm thick).</p>				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **SI**

Figure **4 of 8**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 16.04m, with occasional platyceramus sheet fossil fragments (<3mm thick) embedded horizontally in the core.				
16.40-17.90	16.40	93 63	0.17 0.02	30	(8)	Between 16.50-16.65m, with multiple undulating wispy marl seams (<5mm thick). At 16.75m, with occasional platyceramus sheet fossil fragments (<4mm thick) embedded horizontal across the full core diameter. At 16.80m, with small sheet flint fragments (<5mm) thick) along Set 1 discontinuity. At 16.90m, with occasional angular to subangular small nodular flint fragments (up to 30mm in size). Between 17.08-17.12m, with multiple undulating wispy marl seams (<5mm thick).			2 1 1 4 1	
					(NI)	Between 17.40-17.70m, non intact, recovered as angular to subangular fine to coarse gravel and cobbles. (Possibly drilling induced). Between 17.70-17.90m, non intact, recovered as subangular small and medium nodular flint fragments (10-80mm in size).				
17.90-19.40	17.90	77 61	0.26 0.02	41	(6)	At 18.40m, with occasional grey undulating marl seams (<4mm thick). Between 18.72-18.80m, non intact, recovered as silty angular to subangular fine to coarse gravel.			1 1 4	
18.91-19.06		C			(NI) (20) (AZCL)	At 19.06m, with multiple wispy marl (<3mm thick). Between 19.06-19.40m, assumed zone of core loss.			1	
19.40-20.90	19.40	93 87	0.44 0.07	73		Between 19.65-19.84m, with occasional grey marl seams (<4mm thick) with rare thin grey undulating marl partings (<1mm thick). At 19.72m, with occasional patches of thin orangish brown parting (<2mm thick). Between 19.90-20.00m, with occasional grey undulating marl seams (<5mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(3)	Between 20.22-20.40m, with occasional grey marl seams (<5mm thick) with many thin grey undulating marl partings (<1mm thick).			1	
20.90-22.40	20.90	99 80	0.37 0.02	72		At 21.00m, with occasional angular small nodular flint fragments (up to 30mm in size). Between 21.17-21.30m, with multiple wispy grey marl seams (<5mm thick) and occasionally thin grey undulating marl partings (<1mm thick). Between 21.50-21.63m, with multiple wispy grey marl seams (<5mm thick) with occasional thin grey undulating marl partings (<1mm thick).			1 4 3 3	
21.63-22.00		C								
					(NI)	Weak, medium density, white with rare black speck CHALK. Discontinuities are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (80/160/290), clean or infilled (0/0/5) with comminuted chalk, stepped and rough with rare black specks, orangish brown surface staining and slickenlines.	22.00 (70.29)			
22.40-23.90	22.40	83 73	0.15 0.07	57	(5)	Set 2 are 40-65 degrees, clean or infilled (0/1/2) with grey marl or comminuted chalk, stepped and rough with occasional black specks and orangish brown surface staining and many slickenlines. [GRADE A3] Between 22.00-22.30m, non intact, recovered as angular to subangular fine to coarse gravel. With occasional angular to subangular small and medium nodular flints fragments (20-80mm in size). Between 22.00-22.10m, with occasional thin grey marl partings (<1mm thick). At 22.31m, with occasional wispy undulating grey marl seams (<4mm thick). Between 22.50-22.80m, with multiple wispy undulating grey marl seams (<5mm thick), with many patches of orangish brown surface staining (<3mm in size). (Possible sponges). Between 22.88-23.00m, with occasional patches of orangish brown surface staining (<3mm in size). At 23.10m, 25 degree dipping, infilled (<1mm thick) with marl, stepped and rough discontinuity with many black specks. Between 23.20-23.40m, with multiple wispy grey marl seams (<5mm thick) with occasional thin grey undulating marl partings (<1mm thick). Between 23.54-23.65m, non intact, recovered as angular to subangular fine to coarse gravel and a cobble. With occasional angular to subangular small and medium nodular flint fragments (30-60mm in size).			1 2 2 2	
23.90-25.40	23.90	87 75	0.23 0.11	64	(AZCL)				1	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71001** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
24.60-24.81		C			(4)	<p>Between 23.65-23.90m, assumed zone of core loss. At 23.91m, with occasional angular small nodular flint fragments (10-35mm in size).</p> <p>At 24.33m, with occasional thin grey marl partings (<2mm thick). At 24.38m, rare platyceramus sheet fossil fragments (<3mm thick). Between 24.47-24.60, with occasional multiple wispy grey marl seams (<3mm thick) and occasional thin grey undulating marl partings (<1mm thick).</p> <p>At 24.73m, with occasional thin grey marl partings (<1mm thick). At 24.81m, with occasional angular small nodular flint fragments (10-40mm in size).</p> <p>At 25.10m, with occasional patches of orangish brown surface staining (<3mm in size). Between 25.20-25.40m, assumed zone of core loss.</p>				
25.40-26.90	25.40	77 53	0.26 0.02	25	(NI)	<p>Between 25.40-25.58m, non intact, recovered as silty angular to subangular fine to coarse gravel and a cobble. With occasional angular to subangular small nodular flint fragments (15-45mm in size).</p> <p>At 25.69m, with occasional angular small nodular flint fragments (30mm in size) along Set 1 discontinuity.</p> <p>At 26.21m, with angular small nodular flint fragments (10-40mm in size) along Set 1 discontinuity.</p> <p>Between 26.50-26.55m, non intact, recovered as angular to subangular fine to coarse gravel and a cobble. (Possibly drilling induced). Between 26.55-26.90m, assumed zone of core loss.</p>				
26.90-28.40	26.90	97 57	0.16 0.02	27	(NI)	<p>Between 26.90-27.25m, non intact, recovered as angular to subangular fine to coarse gravel. With occasional angular to subangular small nodular flint fragments (2-20mm in size).</p>				
27.26-27.42		C			(5)	<p>At 27.50m and 27.56m, with angular small nodular flint fragments (up to 30mm in size).</p>				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71001** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408440.7 E 141392.5 N** Ground Level **92.29 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 28.09m, with occasional thin grey marl partings (<1mm thick). At 28.14m, with occasional patches of orangish brown staining on core surface (<2mm in size). (Possibly sponges). Between 28.27-28.56m, non intact, recovered as angular to subangular fine to coarse gravel. With many angular and subangular small and medium nodular flint fragments (10-70mm in size).				
28.40-29.90	28.40	77 53	0.49 0.02	51	(NI)					
29.00-29.49		C			(2)	At 28.77m and 28.8m, with occasional thin grey undulating marl partings (<1mm thick). At 29.00m, with angular to subangular small and medium nodular flint fragments (20-60mm in size) along Set 1 discontinuity. Between 29.10-29.32m, with occasional patches of orangish brown staining on core surface (<2mm in size). (Possibly sponges). At 29.18m and 29.32m, with occasional grey undulating marl seams (<4mm thick). Between 29.50-29.56m, non intact, recovered as angular to subangular small and medium flint fragments (40-90mm in size). Between 29.56-29.90m, assumed zone of core loss.				
					(NI) (AZCL)					
End of Borehole							29.90 (62.39)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Figure **8 of 8**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 2.00 0.10		B D				TOPSOIL: Brown gravelly slightly silty sand with many rootlets. Gravel is angular to subrounded fine to coarse chalk and flint.	G.L. (95.61)			
0.50 0.50 0.50		D ES	PID=<0.1			CHALK, recovered as white slightly sandy gravelly SILT. Clasts are very weak, low to medium density, white, angular to subangular and fine to coarse and white. With occasional nodular flint fragments (up to 60mm in size) with grey cortex (up to 2mm thick).	0.50 (95.11)			
0.80- 1.20		B								
1.00 1.00		ES	PID=<0.1							
1.20- 2.00	1.20	100 0		0		CHALK, recovered as slightly sandy silty GRAVEL. Clasts are weak, medium density, white occasionally orangish brown surface staining.	1.20 (94.41)			
1.60- 1.66		C			(NI)	Discontinuities are: Set lare subhorizontal (0-15 degrees), extremely closely to closely spaced (10/20/60), clean or infilled (0/1/3) with comminuted chalk, stepped and rough with localised heavy orangish brown penetrative staining (up to 4mm depth). At 1.35m, with occasional angular small nodular flint fragments (up to 50mm in size) Between 1.52-1.60m, clasts have much orangish brown penetrative staining (up to 4mm depth).				
2.00- 3.50	2.00	97 67	0.10 0.02	14		Weak, medium density, white with occasional orangish brown surface staining CHALK.	2.00 (93.61)			
					(10)	Discontinuities are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (100/100/200), clean or infilled (0/1/2) with comminuted chalk, stepped, locally undulating and rough with much orangish brown surface staining.				
					(NI)	Set 2 are 45 degrees, clean (0/0/0), stepped or undulating and rough with much orangish brown surface staining. [GRADE B3] At 2.53m, with a subangular small nodular flint (10mm in size). Between 2.56-2.80m, discontinuity inclined 85 degrees, infilled (1mm thick) of comminuted chalk, undulating locally stepped and rough with occasional orangish brown surface staining. (Locally recovered non intact). At 2.80m, possible sponge fossils (up to 8mm in size). Between 2.80-3.05m, non intact, recovered as silty angular to subangular fine to coarse gravel with occasionally orangish brown surface stained (possibly drilling induced). At 3.40m, 2 x grey sheet fossils (<3mm thick). (possibly Platyceramus)				
3.50- 5.00	3.50	87 67	0.09 0.03	0		Weak, medium density, white with occasional black specks CHALK.	3.63 (91.98)			
					(9)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), clean (0/0/0), stepped or undulating and rough with occasional black specks and rare orangish brown or				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.20	0.50	Inspection Pit	Arch	G.I.			04/07/19	08:00						None encountered during drilling. Possible masked by flush.
1.20	0.40	Inspection Pit	AW/PB	29.00			04/07/19	18:00						
29.00	0.12	Geobor S	AW/PB											

Remarks **INS** Inspection pit hand excavated to 0.20m by an archeologist and extended to 1.20m depth by **ABS** Geotechnics. No services were found.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite seal up to 20.00m, bentonite grout up to

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 Figure **1 of 8**
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geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.04- 4.11		C				<p>grey surface staining.</p> <p>Set 2 are 30-40 degrees, clean occasionally infill (0/0/1) with comminuted chalk, stepped and rough with rare black specks and orangish brown surface staining.</p> <p>Set 3 are 50-70 degrees, clean or infill (0/0/3) with comminuted chalk, stepped and rough, with occasional black specks and orangish brown surface staining.</p> <p>Between 3.63-3.90m, discontinuity inclined 90 degrees, clean, undulating and smooth with many black specks.</p> <p>At 3.96m, with grey wispy marl seam (up to 5mm thick).</p> <p>Between 4.17-4.30m, with many patches of orangish brown staining (up to 30mm in size).</p> <p>At 4.28m, intersecting Set 2 and Set 3 discontinuities.</p>				
5.00- 6.50	5.00	99 73	0.20 0.06	57	(5)	<p>Between 4.31-4.80m, non intact, recovered as angular to subangular fine to coarse gravel, possibly due to (80-90 degrees) extremely closely spaced and closely spaced discontinuities (5/10/25).</p>				
					(NI)	<p>Between 4.80-5.00m, assumed zone of core loss.</p>				
					(6)	<p>Between 5.10-5.20m, discontinuity inclined 85 degrees, clean, undulating and rough with many black specks.</p> <p>At 5.15m, a patch of thin orangish brown staining (<2mm wide x 6mm length).</p> <p>Between 5.22-5.33m, non intact, recovered as angular to subangular fine to coarse gravel.</p> <p>At 5.30m, with a subangular small nodular flint (40mm in size).</p> <p>At 5.35m and 5.43m, with occasional patches of orangish brown surface staining (4mm in size). (Possible sponge fossils).</p> <p>At 5.50m, with a subangular small nodular flint (40mm in size).</p>				
					(NI)	<p>Between 5.64-5.72m, with occasional patches of orangish brown staining (<4mm in size).</p>				
6.50- 8.00	6.50	97 77	0.12 0.07	25	(20)	<p>Between 6.10-6.25m, non intact, recovered as silty angular to subangular fine to coarse gravel.</p> <p>At 6.20m, clasts have occasional orangish brown surface staining.</p> <p>At 6.35m, intersecting Set 2 and Set 3 discontinuities.</p>	6.40 (89.21)			
					(6)	<p>Weak, medium density, white CHALK.</p> <p>Discontinuities are:</p> <p>Set 1 are subhorizontal (0-5 degrees), closely to medium spaced (110/120/440), clean or infilled (0/1/2) with comminuted chalk or mineralisation, stepped and rough with many black specks and rare orangish brown surface staining and grey marl (<1mm thick).</p> <p>[GRADE B3]</p> <p>At 6.50m, with angular to subangular small and medium nodular flint fragments (up to 80mm in size).</p> <p>Between 6.80-7.00m, with multiple thin grey marl partings (<1mm).</p> <p>At 7.25m, discontinuity inclined 30 degrees, clean, stepped and rough with many black specks and rare orangish brown surface staining.</p> <p>At 7.40m, discontinuity inclined 70 degrees, clean, stepped and smooth with many black specks and occasional orangish brown surface staining.</p>				
6.88- 7.00		C			(5)	<p>Between 7.70-7.83m, non intact, recovered as angular to subangular fine to coarse gravel. With subangular small and medium nodular flint fragments (up to 60mm in size).</p> <p>At 7.75m, discontinuity inclined 80 degrees, clean, undulating and smooth with many black specks.</p>				
8.00- 8.39		C					8.00 (87.61)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 1.00m, bentonite seal up to ground level.
 ABS Flush: 1.20-11.00m, Air/Mist, 100% returns; 11.00-12.50m, Air/Mist, 80% returns; 11.00-15.50m, Air/Mist, 100% returns; 14.00-15.50m, Air/Mist, 60% returns; 15.50-21.50m, Air/Mist, 100% returns; 21.50-23.00m, Air/Mist, 60% returns; 23.00-29.00m, Air/Mist, 80% return.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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


geotechnics

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)	Engineer AECOM	Borehole Project No R71002 PC197510
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Client HIGHWAYS ENGLAND	National Grid Coordinates 408433.0 E 141352.5 N	Ground Level 95.61 m OD
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Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(F1)	Description	Depth (Level)	Legend	Discontinuity	
8.00- 9.50	8.00	100 97	0.40 0.05	60	(1)	<p>Weak, locally very weak, medium density, white CHALK.</p> <p>Discontinuous are:</p> <p>Set 1 are subhorizontal (0-15 degrees), very closely to medium spaced (30/240/520), clean or infilled (0/0/4) with comminuted chalk or marl, undulating rarely stepped and rough with many black specks and rare orangish brown surface staining.</p> <p>Set 2 are 20-30 degrees, clean (0/0/0), stepped and rough with occasional black specks and rare orangish brown surface staining.</p> <p>Set 3 are 40-70 degrees, closely to widely spaced (120/500/750) clean (0/0/0), stepped or undulating and rough with many black specks.</p> <p>Set 4 are 75-85 degrees, clean rarely infilled (0/0/2) with comminuted chalk, undulating locally stepped and rough with occasional black specks and rare orangish brown surface staining and slickenlines. [GRADE A2] Between 8.39-8.72m, non intact, recovered as angular to subangular fine to coarse gravel and cobbles. (Possibly drilling induced due to 2 No extremely closely to closely spaced (10/15/35) discontinuities).</p>	8.00 (87.61)		3	
9.50-11.00	9.50	80 63	0.20 0.07	37	(3)	<p>Between 8.73-8.83m, with an angular to subangular large nodular flint (100mm in size).</p> <p>At 9.20m, with multiple wispy grey marl seams (up to 15mm thick).</p> <p>At 9.60m, with occasional patches of orangish brown staining (<5mm in size). (Possibly sponges).</p> <p>At 10.20m, with grey marl parting (<1mm thick).</p> <p>Between 10.70-11.00m, assumed zone of core loss.</p>			3 3 1 4 3	
11.00-12.50 11.33-11.63	11.00	93 77 C	0.30 0.10	63	 (AZCL)	<p>At 11.05m, with occasional patches of orangish brown staining (up to 3mm in size).</p> <p>Between 11.31-11.33m, with multiple wispy horsetail grey marl seams (up to 3mm thick).</p> <p>Between 11.65-11.75m, with subangular to subrounded small and medium nodular flint fragments (up to 70mm in size). (Possibly flint band).</p> <p>At 11.90m, with patches or orangish brown surface staining (<3mm in size).</p>			4 2 1	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 12.10-12.20m, with occasional patches of orangish brown surface staining (<4mm in size). With angular to subangular medium nodular flint fragments (up to 60mm in size). At 12.20m, with multiple wispy undulating grey marl seams (<4mm thick).			4	
12.50-14.00 12.58-13.02	12.50	93 80 C	0.44 0.10	67	(3)	At 13.08m, with occasional patches of orangish brown surface staining (<3mm in size). At 13.26m, with a subrounded small nodular flint (30mm in size).			2 3 1 1 1 3 1 1 1 4 3	
14.00-15.50 14.95-15.40	14.00	100 99 C	0.45 0.09	80		At 14.05m, with occasional patches of orangish brown surface staining (<5mm in size). (Possibly sponges). Between 14.40-14.45m, with occasional grey marl partings (<1mm thick). At 14.72m, with a subrounded small nodular flint fragment (30mm in size) in a Set 1 discontinuity. At 15.10m, with occasional patches of orangish brown surface staining (up to 2mm in size). (Possibly sponges).			1 3 1 1 4 3 1	
15.50-17.00	15.50	95 63	0.18 0.02	43		At 15.60m, with subangular small nodular flint fragments (up to 50mm in size).			1 1 4	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

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All dimensions are in metres.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 16.10-16.23m, non intact, recovered as angular to subangular fine to coarse gravel. Clasts have occasional orangish brown surface staining. (Possibly drilling induced).			4	
					(5)	At 16.80m, with subangular small and medium nodular flint fragments (up to 65mm in size).			4	
17.00-18.50 17.00-17.50	17.00	93 87 C	0.50 0.22	87	(3)	At 17.02m, with occasional patches of orangish brown surface staining (up to 2mm in size). At 17.20m, with occasional white fossils (2mm in size). At 17.52m, with subangular medium nodular flint fragment (60mm in size). Between 17.60-17.65m, with occasionally sheet-like grey fossils (up to 3mm thick). (Possibly Platyceramus) At 17.70m, with wispy grey marl seams (up to 4mm thick). Between 17.90-18.00m, with occasional thin grey marl partings (<1mm thick). At 18.27m, with occasional patches of orangish brown surface staining (up to 15mm in size).			3 2	
18.50-20.00 18.80-18.94	18.50	93 81 C	0.35 0.15	77	(3)	At 19.10m, with a subangular small nodular flint (30mm in size). Between 19.12-19.34m, with multiple wispy undulating grey marl seams (up to 5mm thick). Between 19.90-20.00m, with multiple wispy undulating grey marl (up to 5mm thick).			3 1 3 4	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	97 47	0.30 0.05	28	(NI)	Between 20.00-20.40m, non intact, recovered as angular to subangular fine to coarse gravel. With angular small and medium nodular flints fragments (up to 70mm in size).				
20.95-21.21		C			(5)	Between 20.55-20.69m, with many grey sheet-like fossils (3mm thick). (Possible Platyceramus). At 20.77m, with occasional sheet-like fossils (3mm thick). (Possible Platyceramus)			1 1 3 4	
21.50-23.00	21.50	93 72	0.25 0.06	55	(3)	At 21.98m, with occasional subangular small nodular flint fragments (up to 50mm in size) in a Set 1 discontinuity.	21.90 (73.71)		1 1 1 1	
23.00-24.50	23.00	100 85	0.26 0.10	70	(NI)	Between 21.90-22.07m, with occasional undulating grey marl seams (<4mm thick) with rare grey marl partings (<1mm thick). At 22.20m, with occasional patches of orangish brown surface staining (<3mm in size). Between 22.45-22.56m, with occasional grey marl seams (<5mm thick) with rare grey marl partings (up to 1mm thick).			1 1	
23.62-23.88		C			(4)	Weak, locally very weak, medium density, white with rare black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-5 degrees), clean (0/0/0), stepped and rough with occasional black specks. Set 2 are 30 degrees, clean (0/0/0), stepped and rough with many black specks and rare slickenlines. Set 3, 45-60degrees, closely to medium spaced	23.40 (72.21)		1 3	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E 141352.5 N** Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(4)	(150/200/250), clean or infilled (0/0/2) of grey marl or comminuted chalk, stepped and rough with many black specks and rare orangish brown surface staining. [GRADE A2] Between 23.88-23.98m, non intact, recovered as angular to subangular small and medium nodular flint fragments (up to 80mm in size). (Possible flint band).				
24.50-26.00	24.50	93 73	0.22 0.06	49	(7)	At 24.30m, with occasional circular white fossils (up to 8mm in size). Between 24.40-24.50m, with occasional marl bands (up to 8mm thick) and grey marl partings (<1mm thick). At 24.72m, occasional grey sheet-like fossils (<3mm thick). (Possibly Platyceramus). Between 24.80-24.88m, non intact, recovered as angular to subangular fine to coarse gravel. At 24.95m, with occasional subrounded small and medium nodular flint fragments (up to 60mm in size). Between 24.96-25.10m, with occasional grey marl seams (<4mm thick) and rare grey marl partings (<1mm thick).			2 2 3 3 3 3 3 3	
					(NI)	Between 25.32-25.40m, with occasional grey marl seams (<5mm thick) and rare grey marl partings (<1mm thick). Between 25.13-25.40m, discontinuity inclined 85 degrees, infilled (1mm thick) with grey marl, steeped and rough. At 25.60m, with occasional patches of orangish brown surface staining (<2mm in size).			3 3 3 3 3 3 3 3	
26.00-27.50	26.00	93 63	0.22 0.04	45	(2)	Between 26.00-26.15m, with occasional grey marl seams (<5mm thick) and rare grey marl partings (<1mm thick). Between 26.34-26.46m and 26.78-26.96m, non intact, recovered as angular to subangular small and medium nodular flint fragments (up to 90mm in size). (Possibly flint bands).			1	
26.58-26.78		C			(3)	Between 26.96-27.05m, discontinuity inclined 85 degrees, clean, undulating and smooth with many black specks and occasional orangish brown surface staining.			2	
					(NI)					
27.50-29.00	27.50	93 57	0.16 0.03	47	(4)	At 27.50m, with occasional subangular small nodular flint fragments (up to 50mm in size). Between 27.67-27.85m, with occasional undulating grey marl seams (<5mm thick) with rare wispy grey marl partings (<1mm thick).			1	
27.68-27.89		C								

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71002**
 PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **408433.0 E**
141352.5 N Ground Level **95.61 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 28.13-28.41m, non intact, recovered as angular to subangular fine to coarse gravel. With many subangular to subrounded small and medium nodular flint fragments (up to 90mm in size).			3	
					(4)	Between 28.41-28.60m, subvertical discontinuity, clean, undulating locally stepped and rough.			1	
					(NI)	Between 28.75-29.00m, non intact, recovered as angular to subangular fine to coarse gravel. With many subangular to subrounded small and medium nodular flint fragments (up to 70mm in size).	29.00 (66.61)			
End of Borehole										

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.00 0.10 0.10 0.10		B C D ES	PID=<0.1			Firm brown slightly sandy slightly gravelly SILT with many roots (up to 4mm in diameter). Gravel is angular to subangular fine to coarse flint and rare subangular to rounded fine to medium chalk. Below 0.20m, becomes stiff.	G.L. (110.87) 0.25 (110.62)			
0.40- 0.90 0.50 0.50 0.50		B D ES	PID=<0.1			CHALK, recovered as white very sandy very silty GRAVEL. Clasts are very weak, low to medium density, white with occasional brown surface staining, angular to subangular and fine to coarse. CHALK with flints**	0.90 (109.97) 1.20 (109.67)			
1.20- 2.00	1.20	63 0	0 0	0	(NI)	Structureless CHALK, composed of silty subrounded to rounded fine to coarse GRAVEL. Clasts are very weak, medium density and white with occasional black specks. Matrix is light brown silt. [GRADE Dc] Between 1.39-1.43m, with a angular to subangular medium nodular rinded flint (80mm in size). Very weak, medium density, white with many black specks CHALK with occasional flints and rare marl seams. Between 1.70-2.00m, assumed zone of core loss. Discontinuities are:	1.20 (109.67) 1.43 (109.44)			
2.00- 3.50	2.00	100 31	0.09 0.01	0	(29)	Set lare subhorizontal (0-10 degrees), extremely closely to medium spaced (50/200/560) clean or occasionally (0/0/1) with comminuted chalk, planar and rough with many black specks. Set 2 are 50-60 degrees, extremely closely to medium (5/175/450), clean with rare infill (0/0/1) of comminuted chalk, undulating and smooth with many black specks. [GRADE A3] Between 1.43-1.70m, non intact, recovered as subangular to subrounded fine to coarse gravel. Between 1.60-1.70m, with angular medium flint fragments (up to 90mm in size). At 2.21m, discontinuity inclined 40 degrees, clean, planar and rough with many black specks. Between 2.48-2.75m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. (Possible drilling induced due to very closely spaced fractures). At 2.81m, with a undulating marl seam (<1mm thick).	2.00 (108.00)			
2.95- 3.04		C			(NI)	CHALK, recovered as slightly silty angular to subangular fine to coarse GRAVEL with a low subangular cobble content. Clasts are very weak, medium density, white with many black specks and occasional orangish brown surface staining. Matrix is white.	2.87 (108.00)			
3.50- 5.00 3.50- 3.61	3.50	100 18 C	0.15 0.15	7	(17)	Between 3.50-3.73 solid core. Discontinuity is inclined 70 degrees, clean, planar and smooth with many black specks. At 4.02m, with a sheet flint along part of a Set 1 discontinuity.				

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.90	0.50	Inspection Pit	Arch	G.I.			19/06/19	08:00						None encountered during drilling. Possibly masked by flush.
1.20	0.12	Rotary Open Hole		0.90	NIL	DRY	19/06/19	18:00						
50.00	0.12	Geobor S	AW/PB	0.90	NIL	DRY	28/06/19	08:00						
				11.00	11.00	DRY	28/06/19	18:00						
				11.00	11.00	DRY	01/07/19	08:00						
				44.00	44.00	42.40	01/07/19	18:00						

Remarks Inspection pit hand excavated to 0.90m by archaeologist, unable to extend pit due to hard strata. No services were found. Unable to hand excavate below 0.90m due to hard strata. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table. Backfill details from base of hole: bentonite seal up to 20.00m, bentonite grout up to

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geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**


Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	At 4.07m, with subangular small and medium nodular rinded flint fragments (up to 75mm in size). Between 4.08-5.48m, clasts have many orangish brown surface staining and mottling. (Possible sponge beds).				
5.00- 6.50	5.00	70 11	0.25 0.07	17	(6)	Between 5.00-5.32m, solid core. Discontinuities are subhorizontal, clean, undulating and smooth and subvertical, clean, planar and rough.				
5.24- 5.32		C			(NI)	At 5.45m, with angular to subangular small to medium rinded nodular flint fragments (up to 75mm in size).				
					(AZCL)	Between 6.05-6.50m, assumed zone of core loss.				
6.50- 8.00	6.50	70 51	0.17 0.03	18	(8)	Very weak, medium density, white with many black specks CHALK with occasional flints and rare marl seams. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), medium spaced (220/225/230), clean or mainly infilled (0/1/1) with comminuted chalk, planar or stepped and rough with many black specks. Set 2 are 50-60 degrees, medium spaced (270/305/340), infilled (1/1/1) with comminuted chalk, undulating or planar and smooth with many black specks. [GRADE B2] At 6.50m, with a subangular medium nodular rinded flint (70mm in size). At 7.14m, with subangular to subrounded small nodular flint fragments (up to 40mm in size). Between 7.14-7.33m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content. With occasional subangular small flints. Between 7.55-8.00m, assumed zone of core loss.	6.50 (104.37)			
7.33- 7.46		C			(NI)					
					(5)					
					(AZCL)					

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				44.00 50.00	44.00 50.00	41.10 43.40	02/07/19 02/07/19	08:00 18:00						

Remarks **1.00m, bentonite seal up to ground level.**
Flush: 1.20-21.50m, Air/Mist, 100% returns; 21.50-23.00m, Air/Mist, 70% returns; 23.00-50.00m, Air/Mist, 0% return.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
8.00- 9.50	8.00	100 39	0.17 0.01	0	(NI)	Between 8.00-8.24, non intact, recovered as slightly silty angular to subangular medium to coarse gravel with a high angular to subangular cobble content. With occasional subangular small flints. (Possibly drilling induced). At 8.07, with a subangular medium nodular rinded flint (90mm in size). At 8.20m, with a subangular small nodular rinded flint (30mm in size).	8.24 (102.63)		1 3 1 1 2 1 2 3 1 1 1	
9.21- 9.34		C			(17)	Very weak, medium density, white with many black specks CHALK with occasional flints and rare marl seams. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), extremely closely to medium spaced (10/80/280), clean or infilled (0/0/1) with comminuted chalk, undulating and rough with many black specks.			1 1 1	
9.50-11.00	9.50	90 79	0.19 0.01	17	(NI)	Set 2 are 50-60 degrees, very closely to medium (30/150/230), clean or infilled (0/0/1) with comminuted chalk, undulating and smooth with many black specks.			1 3	
10.31-10.50		C			(15)	Set 3 are subvertical (85-90 degrees), clean rarely infilled (0/0/1) with comminuted chalk, undulating and smooth with many black specks and occasional orangish brown surface staining.			1 2 2 1	
10.31-10.50		C			(21)	Between 8.67-9.05m, with much orangish brown staining and mottling on clasts. (Possible sponge bed). Between 9.05-9.21, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With angular to subangular medium to large nodular rinded flints (between 60mm to 120mm in size). Between 9.34-9.50m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. At 9.67m, discontinuity inclined 30 degrees, clean, planar and rough with many black specks. Between 9.67-9.77m, 5 No. extremely closely spaced Set 2 discontinuities. At 9.87m, discontinuity inclined 30 degrees, clean, planar and rough with many black specks.			1 2 2 1 2 1 1 1 2	
10.31-10.50		C			(NI)	Between 10.50-10.60m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With many subangular small rinded nodular and finger flint fragments (up to 40mm in size).			2 3	
10.31-10.50		C			(18)	Between 10.82-10.85m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.			1	
10.31-10.50		C			(NI)	Between 10.85-11.00m, assumed zone of core loss.	11.00 (99.87)		3	
11.00-12.50	11.00	100 100	0.40 0.05	89	(AZCL)	Very weak, medium density, white with many black specks CHALK with occasional flints and rare marl seams. Discontinuities are:			1	
11.41-11.75		C			(5)	Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (20/150/340) clean or infilled (0/1/2) with comminuted chalk, undulating rarely planar and rough with many black specks and rare orangish brown surface staining. Set 2 are 50 degrees, clean (0/0/0), undulating and smooth with many black specks. Set 3 are subvertical (80-90 degrees), clean rarely infilled (0/0/1) with comminuted chalk, undulating and smooth with many black specks and occasional orangish brown surface staining. [GRADE B3]			1 1 1 2 3	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

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All dimensions are in metres.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Project No **PC197510**
 Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 11.00-11.27m, subvertical discontinuity, clean, undulating and rough. At 11.75m, with a small rinded finger flint (30mm in size) cross cutting Set 1 discontinuity. Between 11.81-12.45m, with much orangish brown staining and mottling (up to 30mm in size). (Possible sponge bed). At 11.81m, with a subangular small rinded nodular flint (50mm in size). Between 12.50-12.65m, 3 No. extremely closely spaced subvertical fractures.				
12.50-14.00	12.50	93 79	0.13 0.06	20	(>25)	Between 12.65-12.89m, with a medium to large nodular/branching rinded flint (up to 260mm in size) with small nodular rinded finger flints. (Locally recovered non intact).				
					(NI)					
13.21-13.34		C			(9)	At 13.05m, shell fragment (2mm thick x 60mm in size) stained orangish brown. At 13.10m, 30 degree dipping, clean, planar and rough discontinuity with many black specks. At 13.45m, with subrounded small nodular rinded flint fragments (up to 40mm in size).				
14.00-15.50 14.00-14.24	14.00	87 49 C	0 0	28	(NI)	Between 14.22-14.51m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a high subangular cobble content. With many subangular small to medium nodular rinded flints (up to 80mm in size).				
					(15)	Between 14.55-14.70m, with occasional undulating wispy grey and orange marl partings (<2mm thick).				
					(NI)	Between 14.85-14.95 and 15.19-15.30m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Clast have many black specks. (Possibly drilling induced)				
					(4)					
					(NI)	Between 15.30-15.50m, assumed zone of core loss.				
					(AZCL)					
15.50-17.00	15.50	70 49	0.16 0.02	0	(NI)	Between 15.50-15.57m, non intact, recovered as subangular coarse gravel and cobbles. Between 14.55-14.70m, with occasional undulating wispy grey and orange marl partings. At 15.68m, with a small rinded finger flint (40mm in size) in Set 1 discontinuity.				
					(8)	Between 16.00-6.10m, with many shell fragments (up to 2mm in size) with orangish brown staining.				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.17-16.29		C				(NI) CHALK, recovered as angular to subangular fine to coarse GRAVEL with a medium subrounded cobble content. Clast are very weak, medium density, white with many black specks Between 16.55-17.00m, assumed zone of core loss.	16.40 (94.47)		1, 3	
17.00-18.50	17.00	53 21	0 0	21	(NI)	Between 17.00-17.13m, with many subangular small flints (up to 50mm in size). Between 17.13-17.46m, solid core. Discontinuity is inclined 5 degrees, clean, stepped and rough with occasional orangish brown surface staining. At 17.33m, with wispy marl parting (<1mm thick).				
					(3)	At 17.33m, with wispy marl parting (<1mm thick).				
					(NI)	Between 17.46-17.80m, non intact, recovered as angular small to medium rinded nodular flint fragments (up to 90mm in size).				
					(AZCL)	Between 17.80-18.50m, assumed zone of core loss.				
18.50-20.00	18.50	7 0	0 0	0	(NA)	Between 18.50-18.60m, recovered as a rinded flint (full diameter). Between 18.60-20.00m, assumed zone of core loss.				
					(AZCL)					
							20.00 (90.87)			
Very weak, medium density, white with many black										

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	63 40	0.20 0.11	18		specks CHALK with occasional flints and rare marl seams.	20.00 (90.87)		3	
20.19-20.40		C			(5)	Discontinuities are: Set 1 are subhorizontal (0-10 degrees), extremely closely to medium spaced (140/270/410), clean or infilled (0/1/1) with comminuted chalk, undulating and rough with many black specks. Set 2 are 50-60 degrees, extremely closely to medium spaced (10/110/270), clean or infilled (0/0/1) with comminuted chalk, undulating and rough with many black specks. Set 3 are subvertical (80-85 degrees), clean (0/0/0), undulating and smooth with many black specks. [GRADE B3] At 20.00m, with a angular medium nodular rinded flint (80mm in size). Between 20.05-20.19m, subvertical discontinuity, clean and undulating. Between 20.19-20.40m, with occasional pockets of marl (up to 10mm in size). Between 20.40-20.50m, non intact, recovered as angular to subangular fine to coarse gravel. At 20.61m, with shell fragments (2mm thick x 50mm long) with orangish brown staining. Between 20.63-20.78m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 20.95-21.50m, assumed zone of core loss. At 21.50m, with a subangular medium nodular flint (60mm in size).			1 3 2 2	
21.50-23.00	21.50	100 47	0.23 0.05	41	(8)	Between 21.88-21.99m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With many angular to subangular medium nodular rinded flint fragments (up to 70mm in size).			1 3 1 1	
22.17-22.40		C			(13)	At 22.17 and 22.473m, discontinuities inclined 30-40 degrees, clean, undulating or planar and smooth with many black specks. Between 22.40-22.66m, with occasional orangish brown staining on clasts (up to 20mm in size). Chalk is locally low density around staining. Between 22.68-23.00m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Clasts have many black specks.			2 2 3 1	
23.00-24.50	23.00	93 47	0.24 0.03	33	(13)	At 23.00m, with subangular small rinded nodular and finger flint fragments (up to 50mm in size). Between 23.80-24.02m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low angular cobble content. With rare angular to subangular small nodular flints (up to 30mm in size).			1 2 2 2 2 2 2 2 1 2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
24.02-24.26		C			(8)					
					(AZCL)					
24.50-26.00	24.50	80 71	0.38 0.25	51	(3)	Very weak to weak, low to medium density, white with many black specks CHALK with occasional flint gravel and marl seams (up to 2mm in size). Discontinuities where seen are: Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (40/150/250) clean or infilled (0/0/2) with comminuted chalk, undulating and rough with many black specks.	24.50 (86.37)			
25.10-25.25		C			(NI)	Set 2 are 50-60 degrees, clean or infilled (0/0/1) with comminuted chalk, planar and rough with many black specks. [GRADE A3] At 24.63m, with many undulating marl partings (up to 5mm thick). At 24.70m, with undulating marl partings (up to 5mm thick). At 24.95m, with undulating marl partings (up to 2mm thick). At 25.25m, with subrounded small nodular rinded flint fragments (50mm in size). Between 25.42-25.46m, with many undulating marl partings (<1mm thick). Between 25.46-25.56m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Clasts have occasional marl partings. Between 25.70-26.00m, assumed zone of core loss.				
					(7)					
					(AZCL)					
26.00-27.50 26.07-26.20	26.00	87 33 C	0.26 0.04	23	(4)	At 26.02m, with undulating marl partings (<1mm thick). Between 26.33-26.56m, discontinuity inclined 90 degrees, clean, undulating and smooth with occasional black specks. Between 26.52-26.78m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Clasts have many black specks.				
					(NI)					
					(15)					
					(NI)	CHALK, recovered as slightly silty angular to subangular fine to coarse GRAVEL with a medium subangular cobble content. Clasts are very weak to weak, medium to high density, white with many black specks. With occasional angular to subangular flint gravel (up to 40mm in size). Between 27.30-27.50m, assumed zone of core loss.	27.04 (83.83)			
					(AZCL)					
27.50-29.00	27.50	40 19	0 0	0	(NI)	Between 27.50-28.10mm, Clasts have occasional marl partings (<1mm thick) and black specks. With occasional angular to subangular small nodular rinded flint fragments (up to 40mm in size).				
27.94-28.10		C								


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **MM/RP**
Figure **7 of 13**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)	Between 28.10-29.00m, assumed zone of core loss.				
29.00-30.50	29.00	81 11	0.21 0.21	14		At 29.00m, with subangular small and medium flint fragments (up to 75mm in size).				
29.25-29.36		C			(NI)	At 29.40m, with subangular small and medium nodular rinded flints (up to 75mm in size). With orangish brown surface staining on surrounding chalk clasts.				
					(5)	Between 30.01-30.22m, solid core with no discontinuities noted.				
					(AZCL)	Between 30.22-30.50m, assumed zone of core loss.				
30.50-32.00	30.50	63 27	0.21 0.15	7	(NI)	Between 30.50-30.96m, with occasional subangular small flint fragments (up to 40mm in size). At 30.75m, with a grey ridged sheet-like shell fragment (up to 7mm thick). At 30.93m, with subangular small nodular rinded flint fragments (up to 50mm in size).				
31.17-31.32		C			(3)	Between 30.96-31.32m, solid core. Discontinuities are inclined 60 degrees, medium spaced, clean or infilled (0/0/1) with comminuted chalk, planar and rough or stepped and smooth with many black speck and rare orangish brown surface staining or subhorizontal, infilled (1mm thick) with comminuted chalk planar and rough with rare black specks.				
					(NI)	Between 31.32-31.45m, with a subangular to subrounded medium nodular flint (60mm thick and full diameter).				
					(AZCL)	Between 31.45-32.00m, assumed zone of core loss.				
							32.00 (78.87)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
32.00-33.50	32.00	310	00	0	(NI)	angular to subangular fine to coarse GRAVEL with a medium cobble content and occasional ridged shell fragments. Clasts are very weak, medium density, white with many black speckles. Matrix is white, locally orangish brown with many pockets of fine brown sand. With occasional flints. (Possible phosphatic chalk)	32.00 (78.87)			
32.40-32.46		C			(AZCL)	Between 33.00-35.60m, predominantly brown and sand (Possible phosphoric chalk). Between 32.46-33.50m, assumed zone of core loss.				
33.50-35.00	33.50	770	00	0	(NI)	Between 33.50m, with a subangular small nodular rinded flint fragment (20mm in size). At 33.80m, with subangular to subrounded medium nodular rinded flint fragment (80mm in size).				
34.40-34.50		C			(AZCL)	Between 34.60-34.65m, with medium nodular rinded flint fragments (up to 90mm in size). Between 34.65-35.00m, assumed zone of core loss.				
35.00-36.50	35.00	6753	0.22 0.03	17	(NI)	Weak, high density, locally medium density, white with many black specks CHALK with occasional flints, marl seams and sheet-like shell fragments and rare pockets of fine brown sand (possibly phosphatic chalk). Discontinuities are:	35.00 (75.87)			
35.50-35.72		C			(5)	Set 1 are subhorizontal (0-10 degree), very closely to medium spaced (30/160/320), clean or infilled (0/0/2) with comminuted chalk, undulating and rough with many black specks. Set 2 are 50-60 degrees, clean rarely infilled (0/0/1) with comminuted chalk, undulose and rough with many black specks. Set 3 are 20-30 degrees, clean (0/0/0), planar and smooth with many black specks. [GRADE A3] Between 36.00-36.50m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71301** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 35.00-35.12m, non intact, recovered as angular to subangular fine to coarse gravel. At 35.01m, with subrounded small to medium nodular rinded flint fragments (up to 80mm in size). Between 35.17-35.25m, with many undulating marl partings (up to 1mm thick).				
36.50-38.00	36.50	73 39	0.22 0.12	15	(NI)	Between 36.50-36.92m, non intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular cobble content and many shell fragments (up to 1mm thick). Matrix is light brown fine sand. (Possible phosphoric chalk). At 36.55m, with subrounded small to medium nodular rinded flint fragments (up to 90mm in size). (Possibly zoophycos). At 36.72m, Set 1 discontinuity infilled (1mm thick) with sandy phosphatic chalk.			1	
37.02-37.18		C			(6)	Between 37.07-37.23m, with many shell fragments (up to 1mm in size). At 37.24m, with subangular small rinded nodular and finger flint fragments (up to 50mm in size).			3	
					(AZCL)	Between 37.60-38.00m, assumed zone of core loss.			2	
38.00-39.50	38.00	93 77	0.31 0.17	57	(5)	At 38.08m, with sheet like shell fragments (up to 1mm in size). At 38.20m, Set 2 discontinuity infilled (1mm thick) with comminuted chalk and phosphatic chalk. At 38.21m, with undulating marl partings (<1mm thick). At 38.43m, with a subangular small nodular flint (10mm in size).			2	
38.20-38.47		C			(NI)	Between 38.64-38.80m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With many subangular to subrounded small to medium nodular rinded flint fragments (up to 70mm in size).			1	
					(3)	Weak, high density, locally medium density white with many black specks CHALK with occasional flints, marl seams and sheet-like shell fragments. Discontinuities where seen are: Set 1 are subhorizontal (0-10 degrees), very closely to closely spaced (20/75/130) clean or infilled (0/1/1) with comminuted chalk, undulating or planar and rough and occasional black specks and rare orangish brown surface staining. Between 39.40-39.50m, assumed zone of core loss. Set 2 are 50-55 degrees, clean (0/0/0), undulating and smooth with occasional black specks.	38.80 (72.07)		1 2	
39.50-41.00	39.50	100 59	0 0	23	(NI)	Set 3 are 20-30 degrees, clean, undulating and rough with many black specks. At 38.02m, with sheet like shell fragments (up to 1mm thick). [GRADE B3] At 39.13m, with a subangular small nodular rinded flint fragment (40mm in size). At 39.23m, with a undulating marl parting (1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **MM/RP**

Figure **10 of 13**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Project No **PC197510**
 Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(3)	Between 39.50-39.56m, with marl seams (<1mm thick) with burrows (up to 15mm in size). Between 39.60-39.89m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. Between 39.60-39.70m, with many angular to subangular small and medium nodular rinded flint fragments (up to 80mm in size). At 39.70m, with subangular medium nodular rinded flint fragments (up to 80mm in size). At 39.84m, with subangular medium nodular flint (90mm in size). Between 40.24-40.34m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With occasional subangular small nodular rinded flint fragments (up to 40mm in size). Between 40.45-40.53m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With occasional subangular small rinded flint fragments (up to 20mm in size). At 40.58m, with a subrounded small nodular rinded flint (45mm in size). At 40.98m, with a small nodular finger flint (10mm in size). Between 41.07-41.15m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With many subangular to subrounded small and medium nodular rinded flint fragments (up to 70mm in size). At 41.39m, with a small rinded finger flint (60mm in size). At 41.41m, with many undulating marl partings (up to 3mm thick). At 41.47m, with undulating marl partings (<1mm thick). Between 41.52-41.75m, with many sheet-like shell fragments (up to 1mm in size). At 41.63m, with undulating marl partings (<1mm thick). At 41.85m, with undulating marl parting (up to 2mm thick). At 42.10m, with a subrounded small nodular flint (70mm in size). At 42.19m, with a subangular small nodular rinded flint (15m in size). Between 42.23-42.30m, non intact, recovered as angular to subangular coarse gravel. With a subangular medium nodular rinded flint (90mm in size). (Possible Zoophycos).				
41.00-42.50	41.00	93 81	0.33 0.09	40	(NI)					
41.76-41.99		C			(4)					
					(NI)					
					(10)		42.40 (68.47)			
42.50-44.00	42.50	70 5	0 0	0	(NI)	CHALK, recovered as silty angular to subangular fine to coarse gravel. Clast are weak, high density locally medium density, white with many black specks. At 43.05m, with angular small nodular rinded flint (up to 70mm in size). Between 43.55-44.00m, assumed zone of core loss.				
					(AZCL)					
						Weak, high density, locally medium density, white	44.00 (66.87)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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 Figure **11 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
44.00-45.50	44.00	100 89	0 0	33	(10)	with rare black specks CHALK with occasional sheet-like shell fragments and many marl bands and flints.	44.00 (66.87)		1	
44.62-44.75		C			(1)	Discontinuities where seen are: Set 1 are subhorizontal (0-5 degrees), closely to medium spaced (90/250/480), clean rarely infilled (0/0/1) with comminuted chalk, undulating or stepped and rough with many black specks and occasional orangish brown surface staining. Set 2 are 50-60 degrees, clean or infilled (0/0/1) with comminuted chalk, planar and smooth or rough with occasional mineralised slickenlines and many black specks. Set 3 are 20 degrees, clean or infilled (0/0/1) with comminuted chalk, undulating and rough or smooth with many black specks and occasional mineralised slickenlines.			1 1	
45.50-47.00	45.50	100 93	0.34 0.08	29	(NI)	[GRADE A2] Between 44.10-44.20m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.			1	
45.85-46.10		C			(3)	At 44.16m, with subangular to subrounded medium nodular rinded flint fragments (100mm thick and 80% core diameter). Between 44.20-45.06m, many discontinuities are drilling induced. At 44.80m, with subangular small nodular rounded flint (5mm in size). At 44.94m, with subangular small nodular rinded flint (15mm in size). Between 45.06-45.16m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With many angular to subangular medium nodular rinded flint fragments (up to 100mm in size). Between 45.16-45.28m, with many marl seams up to (25mm thick) with many burrows (up to 15mm in size). At 45.51m, with subrounded small nodular rinded flint (10mm in size). At 45.80m, with a subrounded medium nodular rinded flint (60mm thickness and 90% core diameter). Between 45.85-46.09m, with many undulating marl seams (up to 10mm thick). At 45.94m, with a subrounded small nodular rinded flint (10mm in size). Between 46.60-46.76m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With occasional subangular small nodular rinded flint fragments (up to 60mm in size). Below 46.76m, many discontinuities are drilling induced			2 2 3	
47.00-48.50	47.00	73 69	0.22 0.05	35	(12)	At 46.95m, with a subrounded small nodular rinded flint (15mm in size). At 49.96m, with undulating marl partings (<1mm thick).			1	
47.68-47.86		C			(1)	Between 47.07-47.13m, non intact, recovered as angular to subangular fine to coarse gravel. Between 47.78-47.87m, with many undulating marl seams (up to 20mm thick).			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/RP**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71301** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409359.9 E 141283.0 N** Ground Level **110.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 48.08m, with a subangular medium flint (90mm in size). (Possibly sheet flint). Between 48.10-48.50, assumed zone of core loss.				
					(AZCL)					
48.50-50.00	48.50	100 85	0.25 0.06	37	(2)	At 48.73m, with a small rinded sheet flint (30mm thick)				
					(NI)	Between 48.93-48.97m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with many sheet like shell fragments (<1mm thick).			1	
					(11)	At 49.00m, with a subrounded small nodular rinded flint (15mm in size).			3	
					(NI)	At 49.06m, with a sheet like shell fragment on Set 1 discontinuity.				
						Between 49.16-49.23m, non intact, recovered as angular to subangular fine to coarse gravel. Clasts have many marl partings (up to 1mm thick). With many subangular to subrounded small and medium nodular rinded flint fragments (up to 70mm in size).				
49.60-49.79		C			(3)	At 49.34m, with undulating marl seams (up to 13mm thick). At 49.52m, with undulating marl partings (1mm thick). At 49.65m, with a subangular medium nodular flint (75mm in size). Between 49.77-49.81m, with many undulating marl partings (<1mm thick).			1	
						At 49.85m, with a subrounded small nodular rinded flint (25mm in size). At 49.90m, with undulating marl seams (up to 20mm thick).	50.00 (60.87)		1	
End of Borehole										

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.20 0.10- 0.20 0.10 0.10		B D ES	PID=<0.1			TOPSOIL: Firm brown slightly sandy slightly gravelly silt with many roots up to 3mm in diameter. Gravel is angular to subrounded fine to coarse flint and rare chalk. Below 0.20m, becoming stiff.	G.L. (111.52) 0.30 (111.22)			
0.50 0.50 0.50 0.50 0.60 0.60 0.65 0.65 0.70- 1.20		B D ES B D ES B	PID=<0.1			Brown and grey sandy silty GRAVEL. Gravel is angular to subangular fine to coarse of flint and chalk. CHALK, recovered as sandy silty angular to subrounded, fine to coarse GRAVEL. Clasts are extremely weak and very weak, low to medium density, white. Matrix is white. At 0.67m, with a subangular flint cobble/ boulder.	0.55 (110.97)			
1.20- 2.00 1.40- 1.60	1.20	100 13 D	0.05 0.02	0		CHALK, recovered as white with rare orangish brown mottling gravelly SILT. Gravel is very weak, low density, white, angular to subangular and fine to coarse. With many angular to subangular fine to coarse gravel sized flints. (Grade Dm) At 1.20m, with subangular to subrounded small flint fragments (up to 40mm in size). CHALK, recovered as slightly silty angular to subrounded, fine to coarse GRAVEL with a medium subangular cobble content. Clasts are extremely weak and very weak, low to medium density and white with many black specks. Matrix is white. (Discontinuity traces in places) Between 1.52-1.81m, discontinuity inclined 85 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. At 1.81m, discontinuity inclined 55 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks.	1.20 (110.32) 1.40 (110.12)			
2.00- 3.50	2.00	33 7	0.04 0.04	0	(NI)	At 2.50m, with a medium nodular flint (up to 90mm in size) with a 6mm thick cortex. Between 2.50m-3.50m, assumed zone of core loss.				
2.00- 3.50	2.00	33 7	0.04 0.04	0	(AZCL)	At 3.04m, sheet flint (<3mm thick) with much orangish brown staining on surrounding chalk.				
3.50- 5.00 3.59- 3.68	3.50	73 38 C	0.15 0.04	7	(6) (NI)	Very weak, locally weak, low locally medium density, white CHALK, with much black speckling and rare orangish brown staining. Discontinuities where seen are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (60/250/510), clean or infilled (0/1/2) with comminuted chalk, undulating locally stepped and rough with many black specks.	3.50 (108.02)		1 1 1	

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.30	0.50	Inspection Pit	Arch	G.I.			19/06/19	08:00						None encountered during drilling. Possibly masked by flush.
1.20	0.40	Inspection Pit	AW/PB	0.67	NIL	DRY	19/06/19	18:00						
50.00	0.12	Geobor S	AW/PB	0.67	NIL	DRY	26/06/19	08:00						
				38.00	38.00	37.20	26/06/19	18:00						
				38.00	38.00	36.90	27/06/19	08:00						
				50.00	50.00	46.00	27/06/19	18:00						

Remarks **AB** Inspection pit hand excavated to 0.30m by an archaeologist and extended to 0.67m depth by geotechnics. No services were found. Unable to hand excavate below 0.67m due to hard strata.
At 2.00m, 150mm diameter casing installed to 1.20m depth.
** Drillers description.
ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
Chalk logged in accordance with CIRIA Report C574, 2002.
Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles

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All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Project No **PC197510**
 Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Set 2 are subvertical (80-90 degrees), clean or infilled (0/0/1) with comminuted chalk, undulating locally stepped and rough with many black specks.				
					(6)	Set 3, 50-60 degrees, generally closely to medium spaced, occasionally widely spaced (50/163/320), clean or infilled (0/0/1) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining. [GRADE B2/3]				
					(AZCL)	Between 3.81m-4.13m, non-intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. At 4.00m, with subangular small flint fragments (up to 30mm in size) with a 2mm thick cortex. Between 4.60m-5.00m, assumed zone of core loss.				
5.00- 6.50	5.00	27 3	0.04 0.04	0	(NI)	Between 5.00m-5.40m, non-intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subrounded cobble content.				
					(AZCL)	Between 5.40m-6.50m, assumed zone of core loss. At 5.40m, with a medium nodular flint (60mm width and full diameter) with a 7mm thick cortex. (flint blocked barrel**)				
6.50- 8.00 6.60- 6.80	6.50	100 17 C	0.20 0.02	9	(NI)					
					(9)					
					(NI)	Between 7.25m-8.10m, non-intact, recovered as silty subangular to subrounded fine to coarse gravel with a low subangular cobble content. At 7.35m, with a subrounded medium nodular flint fragment (80mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks (Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite seal up to 35.50m, bentonite grout up to 1.00m, bentonite seal up to ground level.
 Flush: 1.20-50.00m, Air/Mist, 100% return.

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geotechnics


All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Project No **PC197510**
 Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
8.00- 9.50	8.00	93 63	0.42 0.02	51		Between 8.20m-8.28m, non-intact, recovered as silty subangular fine to coarse gravel. With occasional subangular to subrounded small flint fragments (up to 20mm in size).			2 3 1	
8.90- 9.31		C			(3)				2	
					(NI) (AZCL)	Between 9.31m-9.50m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular cobble content. At 9.40m, with a subrounded medium nodular flint fragment (60mm in size).			2	
9.50-11.00	9.50	93 70	0.25 0.03	7		At 9.65m, with trace fossil with orangish brown staining (up to 10mm in size).			3 1 3	
9.93-10.05		C			(9)	At 10.10m, band of sheet flint, recovered as tabular small fragments (up to 70mm in size) with a 2mm thick cortex.			1 3 3	
					(NI) (AZCL)	Between 10.60m-10.90m, non-intact, recovered as slightly silty angular medium to coarse gravel with a low subangular cobble content. At 10.62m, with subangular small and medium nodular flint fragments (up to 90mm in size). Between 10.90m-11.00m, assumed zone of core loss.			3 3 3	
11.00-12.50	11.00	90 42	0.15 0.04	10	(9)	At 11.06m, sponge trace fossil with much orangish brown staining (<1x10mm).			1	
11.00-11.14		C			(NI)	Between 11.14m-11.30m, non-intact, recovered as silty subangular fine to coarse gravel with a medium subrounded cobble content. At 11.24m, with occasional subangular small nodular flint fragments (up to 40mm in size).			2 3 3	
					(10)				1	
					(NI)	Between 11.69m-11.77m, non-intact, recovered as slightly silty angular to subangular medium to coarse gravel.			3 2	
					(6)					


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI) (AZCL)	Between 12.10m-12.35m, non-intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. At 12.15m, with angular to subangular small and medium nodular flint fragments (up to 90mm in size). Between 12.35m-12.50m, assumed zone of core loss.			2	
12.50-14.00	12.50	100 28	0.18 0.02	12					1	
12.72-12.90		C			(5)	At 12.83m and 12.91m, irregular orangish brown mottling (up to 40mm in size). At 13.26m, single finger flint, partially broken (10x20mm). Between 13.60m-14.00m and 14.74-14.83m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a low subrounded cobble content.			1 2 3 1	
14.00-15.50	14.00	100 31	0.16 0.03	21	(4)				1 2	
					(NI)				2	
15.10-15.25		C			(5) (NI)	Between 15.03m-15.10m, non-intact, recovered as silty subangular to subrounded fine to coarse gravel with a low subrounded cobble content.			2 1	
15.50-17.00	15.50	100 90	0.30 0.03	51		Between 15.84m-16.07m, with much orangish brown staining. (Probable sponge bed).			1 3 3	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Project No **PC197510**
 Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
16.45-16.65		C			(5)	At 16.84m, orangish brown staining, mottled in semi-circle shapes (<5mm diameter). (Possible sponges). At 17.20m, small nodular flint, recovered broken (<40x110mm in size). Between 17.38m-17.64m, with occasional orangish brown mottling. (possible sponge beds).			3 2 1
17.00-18.50	17.00	100 78	0.46 0.08	44			1 1 1 1 1 1 1 1 1 1		
17.38-17.61		C			(NI)	Between 19.35m-19.50m, occasional orangish brown mottling (up to 10mm in size). (Possible sponge) Between 19.77m-19.85m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content. Between 19.85-20.00m, assumed zone of core loss.			1 1 1 1 1 1 1 1 1 1
18.50-20.00	18.50	90 27	0.14 0.03	17	(6)		2 1 1 1 1		
19.31-19.52		C			(NI) (AZCL)		1 1 1		

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	100 53	0.36 0.04	41	(3)	At 20.66m, small nodular flint, recovered broken (10mm in size). Between 20.67m-20.79m, non-intact, recovered as angular to subangular fine to coarse gravel with a medium subangular cobble content. At 20.85m, finger flint, recovered broken (10mm in size). Between 20.85m-20.94m, non-intact, recovered as silty angular to subangular fine to coarse gravel. Between 21.02m-21.10m, grey wispy interwoven marl seams (up to 2mm thick).			2	
20.43-20.66		C			(NI)				1	
					(10)					
					(NI)					
21.50-23.00	21.50	100 79	0.34 0.04	41	(7)	Between 22.55m-23.00m, non-intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subrounded cobble content. At 22.74m, with subangular small nodular flint fragments (up to 10mm in size). At 22.84m, with orangish brown staining (<5mm in size). (Possible sponges)			3	
22.36-22.53		C			(NI)				3	
23.00-24.50	23.00	100 92	0.41 0.07	67	(3)	Weak, locally very weak, medium density, locally low density, white CHALK with occasional black speckling. Discontinuities where seen are: Set 1, subhorizontal (0-10 degrees), very closely to widely spaced (40/350/1080), clean or infilled (0/0/3) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining. Set 2 are subvertical (80-90 degrees), clean, undulating and rough with many black specks and rare orangish brown surface staining. Between 30.00-32.00m, 37.00-38.00m and 43.00-44.00m, Set 3 are inclined 50-60 degrees, generally closely to medium spaced, occasionally widely spaced (40/450/820), clean or infilled (0/1/1) with comminuted chalk, undulating and rough	23.00 (88.52)		1	
23.10-23.53		C			(NI)					
									2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(3)	with many black specks. [GRADE A2] At 23.20m, with orange brown mottling on clasts (up to 20mm in size). (Possible sponges) Between 23.37m-23.47m, irregular light orange brown mottling. At 23.55m & 23.68m, grey wispy marl seam (<1mm thick).			2	
					(NI)	Between 23.84m-23.98m, non-intact, recovered as silty angular to subangular fine to coarse gravel. With a subrounded nodular flint (70mm in size). Between 23.98m-24.12m, dark orange brown mottled. (Possible sponge). Between 24.33m-24.42m, non-intact, recovered as subangular to angular fine to coarse gravel with a medium cobble content. At 24.61m, with wispy orangish brown trace fossils with much orangish brown staining (up to 2mm in size) (Possible sponges) At 24.78m, with subangular small and medium sheet flint fragments (up to 80mm in size) with a 1mm thick cortex. At 24.84m, interwoven wispy marl seams (<1mm thick). At 24.92m, orangish brown trace fossil (up to 10mm in size). Between 25.36m-25.61m, thin grey marl seam (<3mm thick) interwoven with wispy marl partings (<1mm). At 25.47m, orangish brown staining (<3mm in size). (Possible sponges)			1	
24.50-26.00 24.54-24.80	24.50	100 94 C	0.52 0.02	69	(3)				1	
25.84-25.95		C							1	
26.00-27.50	26.00	100 94	0.29 0.04	41	(10)	At 26.18m, with a subangular medium nodular flint fragment (70mm in size). At 26.57m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks. At 26.64m, zoophycos flint, recovered broken (80mm in size) with a 1mm thick cortex.			1 1 1 3 2	
26.81-27.10		C			(5)	Between 26.85m-27.05m, interwoven marl seams (<2mm thick) with thin wisps marl partings (<1mm thick). Between 27.13m-27.50m, possible trace sponge fossils stained orangish brown (<3mm in size).			1 2 1	
27.50-29.00	27.50	92 55	0.46 0.02	46	(AZCL) (NI)	Between 27.60m-27.70m, non-intact, recovered as subangular to angular fine to coarse flint gravel (fragmented sheet flints).				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.79-28.92		C			(2)	<p>Between 28.36m-28.44m, with occasional orangish brown staining. (Possible sponge).</p> <p>At 28.65m, sheet flint (25mm thick).</p>			1 2	
29.00-30.50	29.00	100 88	0.53 0.06	67		<p>At 29.00m, with much orangish brown staining, trace sponge fossil (<5mm in size).</p>			1	
29.19-29.42		C				<p>Between 29.63-30.10m, with occasional orangish brown mottling (up to 15mm in size). (Possible sponges).</p> <p>At 29.85m, thin wispy interwoven marl seams (<3mm thick) with thin wisps marl partings (<1mm thick). At 29.97m, thin grey wispy interwoven marl seams (<2mm thick).</p> <p>At 30.20m, with a subangular medium nodular flint (70mm in size). At 30.22m, with rare shell fragments (<2x10mm).</p>			1 1 3 1	
30.50-32.00	30.50	100 93	0.27 0.06	42		<p>At 30.83m, occasional orangish brown sponge trace fossils (<5mm in size).</p> <p>At 31.00m, with subangular to subrounded small nodular flint fragments (up to 50mm in size). At 31.02m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks.</p>			1 1 3	
31.53-31.71		C				<p>At 31.67m, trace sponge fossils stained orangish brown (<10mm in diameter).</p> <p>At 31.94m, with subangular to subrounded small and medium nodular flint fragments (up to 100mm in size) with a 1mm thick cortex.</p>			3 1 3	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Checked by **DRB**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
32.00-33.50	32.00	100 72	0.37 0.08	41	(4)	At 33.22m, light grey shell fragments (up to 20mm in size).			1	
32.28-32.56		C				At 32.46m, grey interwoven wispy marl seams (15mm thick). Between 32.56-32.65m, with a subangular nodular flint fragment (9mm in size).			1	
						At 32.80m, light grey curved shell fragment (35x25mm in size).			1	
						Between 33.01-33.05m, with subangular to subrounded nodular flint fragments (up to 30mm in size).			1	
						At 33.18m, light grey shell fragment (15mm in size) Between 33.24-33.27m, with occasional grey shell fragments (up to 30mm in size).			1	
						At 33.42m, small grey shell fragment (10mm in size)			1	
33.50-35.00	33.50	100 85	0.37 0.08	73	(NI)				1	
33.88-34.24		C				Between 33.92-34.02m, light orangish brown mottling. (Possible sponge).			1	
									1	
					(3)	At 34.5m, with rare light grey shell fragments (up to 20mm in size). Between 34.6-34.70m, non-intact, recovered as angular to subangular fine to coarse gravel.			2	
						At 34.85m, with a subangular to subrounded nodular flint (20mm in size).			1	
35.00-36.50	35.00	85 52 C	0.36 0.03	33	(5)				1	
35.00-35.12						Between 35.18-35.43m, with orangish brown mottling (<5mm in size). (Possible sponge beds).			1	
									2	
						Between 35.83-36.11m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular cobble content.			1	
					(NI)	At 35.84m, flint (100mm height and full diameter).			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


Logged by **MM/AB**
 Checked by **DRB**
 Figure **9 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(6)	At 36.07m, with a subangular small finger flint (50mm in size).				
					(AZCL)	Between 36.27-36.50m, assumed zone of core loss.				
36.50-38.00	36.50	100 91	0.21 0.04	27	(6)	At 36.57m, with subangular to subrounded small nodular flint fragments (up to 30mm in size). At 36.65m, with interwoven greenish grey marl seams (<8mm thick) with thin wispy marl partings (<1mm thick). At 36.83m, discontinuity inclined 30 degrees, clean, undulating and rough with many black specks and rare orangish brown surface staining. Between 36.84-36.92m, with occasional orangish brown staining (<5mm in size). (Possible trace sponge fossil) Between 36.96-37.09m, thin grey interwoven wispy marl seams (<5mm thick).				
37.41-37.57		C			(6)	At 37.32m, discontinuity inclined 20 degrees, clean, undulating and rough with many black specks. At 37.52 and 37.74m, thin wispy grey marl seams (<4mm thick) interwoven by wispy marl partings (<1mm thick).				
38.00-39.50	38.00	100 28	0.13 0.02	9	(NI)	Between 38.00-38.40m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular cobble content.				
38.37-38.52		C			(10)	At 38.37m, nodular flint finger (30mm in size). At 38.72m, grey interwoven marl seams (10mm thick) with wispy marl partings (<1mm thick). Between 39.00-39.50, non-intact, recovered as silty subangular to subrounded fine to coarse gravel with a medium subrounded cobble content.				
39.50-41.00	39.50	100 79	0.22 0.06	60	(NI)	At 39.40m, with grey interwoven marl seams (<15mm thick) with wispy marl partings (<1mm thick). At 39.71m, grey wispy marl seam (1mm thick). At 39.82m, grey linear feature (1-2mm thick), radiating around core for 45mm, before turning 90 degrees along length of core for 40mm, possible trace fossil. At 40.00m, patch of orange brown staining (up to 10mm in size). (Possible sponge).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
 Checked by **DRB**
 Figure **10 of 13**
 07/10/2019



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
40.40-40.60		C				(2) Between 40.75-40.83m, with a subangular medium nodular flint (80mm in size). At 40.85m & 40.90m, with grey interwoven marl seams (15mm thick). At 41.00m, with a subangular small and medium nodular flint fragments (up to 80mm in size). At 41.20m, with a subangular small nodular flint (20mm in size).			1	
41.00-42.50	41.00	93 87	0.47 0.07	78					1	
41.42-41.53		C				At 41.55m, interwoven grey locally stained orangish brown marl seams (<5mm thick). Between 41.63-42.39m, with many shell fragments (<3mm in size). Between 41.76-42.23m, grey, locally greenish grey interwoven undulating wispy marl seams (<1mm thick). At 42.27m, with subangular to subrounded small nodular flint fragment (<20mm in size).			1	
42.50-44.00	42.50	93 79	0.61 0.05	46					1	
42.73-43.05		C				(4) At 42.68m, grey interwoven marl seams (<3mm thick) with thin wispy marl partings (<1mm thick). At 42.83m, orangish brown stained possible sponge trace fossil (up to 10mm in size). At 43.31m, orangish brown staining, possible sponges (<3mm diameter). At 43.66m, with occasional shell fragments (<10mm long).			1	
									3	
					(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
Checked by **DRB**
Figure **11 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71302** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
44.00-45.50	44.00	100 87	0.50 0.05	83						
44.21-44.30		C				<p>At 44.34m, with angular to subangular fine to coarse flint fragments (up to 10mm in size).</p> <p>At 44.43m, grey wispy marl seam (1mm thick) radiating around core.</p> <p>At 44.45m, grey 'U' shaped shell fragment (12x20mm).</p> <p>At 44.50m, grey undulating marl seam (20mm thick).</p> <p>At 44.76m, grey undulating marl seam (10mm thick).</p> <p>Between 44.97-45.06m, with a subangular nodular flint (90mm in size).</p> <p>Between 45.30-45.32m, with orange brown mottling. (Possible sponge).</p> <p>Between 45.42-45.47m, with a subangular nodular flint (50mm in size).</p> <p>At 45.75m, with wispy orange brown staining (50mm thick layer). (Possible trace fossil).</p> <p>Between 45.80-45.90m, light grey interwoven marl seams (<1mm thick).</p> <p>Between 46.19-46.21m, orange brown mottling. (Possible sponge).</p> <p>Between 46.42-46.52m, grey interwoven wispy marl seams (<1mm). Some small inclusions of chalk within seams.</p> <p>At 46.68m, lenses of grey marl (up to 50mm thick).</p> <p>Between 46.76-46.78m, with a subangular nodular flint fragment (20mm in size).</p> <p>At 46.88m, wispy grey marl seam (<1mm thick).</p> <p>Between 47.00-47.30m, undulating and interwoven marl seams (<10mm thick) with wisps marl partings (<1mm thick).</p> <p>At 47.13m, orangish brown staining (up to 40mm in size). (Possible trace sponge fossil)</p> <p>At 47.50m, with a subangular small nodular flint fragment (25mm in size), with orangish brown staining on surrounding chalk.</p> <p>Between 47.60-47.67, greenish grey marl seam with minor inclusions of chalk.</p>				
45.50-47.00	45.50	100 83	0.45 0.07	69	(3)					
46.85-47.00		C								
47.00-48.50	47.00	89 84	0.39 0.04	55						
47.86-48.04		C								

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
 Checked by **DRB**
 Figure **12 of 13**
 07/10/2019



BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71302** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **409389.8 E 141242.9 N** Ground Level **111.52 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)	Between 48.06-48.18m, with subangular to subrounded small nodular flint fragments (up to 30mm in size). Between 48.20-48.34m, undulating marl seams (up to 50mm thick) with wisps undulating marl partings (<1mm thick).			1 1	
48.50-50.00	48.50	100 83	0.25 0.04	67	(4)	Between 48.56-48.60m, with grey interwoven marl seams (40mm thick) with wispy marl partings (<1mm thick). At 48.72m, light grey shell fragments (up to 40mm in size). At 48.80m, light grey linear shell fragments (up to 22mm in size). At 48.84m, bands of grey interwoven marls (20mm thick). Between 49.09-49.14m, with grey interwoven marl seams (up to 50mm thick) with marl partings (<1mm thick). At 49.41m, with an angular nodular flint (25mm in size).			1 1 1	
49.76-50.00		C				At 49.96m, grey wispy marl seam (1mm thick).			1	
End of Borehole							50.00 (61.52)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
Checked by **DRB**
Figure **13 of 13**
07/10/2019

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.00- 0.30		B				TOPSOIL: Brown slightly sandy gravelly silt with occasional roots (up to 3mm in diameter) and a low cobble content of subangular flint. Gravel is subangular to subrounded fine to coarse flint and chalk	G.L. (105.22)			
0.40- 0.60		B				CHALK, recovered as slightly sandy silty GRAVEL. Clasts are weak, medium density, white subangular to subrounded fine to coarse. Matrix is white and brown. With occasional subangular small flints (up to 30mm in size).	0.35 (104.87)			
0.50		D								
0.70- 0.90		B								
1.00- 1.20		B			Below 1.00m, matrix is white.					
1.35- 2.65	1.35	100 4	0.12 0.02	0	(NI)	Weak, locally very weak, medium density, white with occasional black specks and rare orange brown mottling CHALK. Discontinuities where seen are: Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (20/200/770), infilled (0/2/4) with comminuted chalk, undulating or stepped with occasional black specks and rare orange brown surface staining. Set 2 are subvertical (80-90 degrees), infilled (0/1/2) with comminuted chalk, undulating or stepped and rough with occasional black specks and rare orange brown surface staining. [GRADE B2/3]	1.20 (104.02)			
2.02- 2.11		C			(20)	Between 1.35-1.83m, non intact, recovered as silty angular and subangular fine to coarse gravel with a low to medium subangular cobble content. At 1.43m, with a subrounded nodular flint (20mm in size). Between 2.33-2.65m, non intact, recovered as subangular to angular fine to coarse gravel and cobbles. Clasts have many black specks.				
2.65- 4.15	2.65	97 7	0.06 0.01	0	(14)	Between 2.95-3.48m, non intact, recovered as silty subangular to angular fine to coarse gravel with a medium subangular cobble content. Between 3.30-3.35m, with a subangular small nodular flint fragment (30mm in size).				
2.78- 2.83		C			(NI)					
					(8)		Between 3.76-5.45m, non intact, recovered as slightly silty subangular to angular fine to coarse gravel and cobbles. Clasts have many black specks. At 3.82m, 2x angular to subangular small nodular flints (up to 20mm in size).			

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.35	0.50	Inspection Pit	Arch	0.30	NIL	DRY	02/07/19	08:00	42.50	42.50				
1.20	0.40	Inspection Pit	AC/RW	17.65	17.65		02/07/19	18:00						
49.05	0.12	Geobor S	AC/RW	17.65	17.65	17.65	03/07/19	08:00						
				46.05	46.05	42.50	03/07/19	18:00						
				46.05	46.05	42.50	04/07/19	08:00						
				49.05	49.05		04/07/19	18:00						

Remarks Inspection pit hand excavated to 0.35m by an archeologist and extended to 1.20m depth by Geotechnics. No services were found.
 ** Drillers description.
 At 1.35m, 150mm diameter casing installed to 1.35m.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative
 Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged by **AB/CW**
 Figure **1 of 13**
 07/10/2019

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.15- 5.65	4.15	870			(NI)					
4.80- 4.87		C			(AZCL)	At 5.35m, with subangular small flint fragments (up to 10mm in size) Between 5.45-5.65m, assumed zone of core loss.				
5.65- 7.15	5.65	10043	0.14 0.02	28	(NI)	Between 5.65-5.88, non intact, recovered as angular to subrounded fine to coarse gravel with a low subangular cobble content.			2	
6.10- 6.27		C			(7)	Between 5.99-6.06m, discontinuity inclined 55 degrees, clean, undulating and rough with rare black specks.			1	
7.15- 8.65	7.15	10027	0.21 0.02	14	(NI)	At 6.50m, discontinuity inclined 25 degrees, infilled (1mm thick) with comminuted chalk, planar and smooth with many black specks. At 6.63-6.80m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content.			2	
7.30- 7.53		C			(6)	Between 6.90-6.97m, discontinuity inclined 55 degrees, clean, undulating and rough with rare black specks.			1	
					(10)	Between 7.15-7.30m, non intact, recovered as slightly silty angular to subangular coarse gravel. With many subangular to subrounded small flint fragments (up to 35mm in size).			1	
					(NI)	Between 7.70-7.84m, non intact, recovered as silty angular to subangular fine to coarse gravel. With many angular to subangular small nodular flints (up to 45mm thick). Between 7.84-7.98m, non intact, recovered angular to subangular fine to coarse gravel.			2	
					(25)				1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks For purposes only, the details of each are presented on the discontinuity summary table.
 Backfill details from base of hole: bentonite seal up to 37.50m, bentonite grout up to 1.00m, bentonite seal up to ground level.
 Flush: 1.35-31.05m, Air/Mist, 100% returns; 31.05-35.55m, Air/Mist, 50% returns; 35.55-41.55m, Air/Mist, 25% returns; 41.55-49.05m, Air/Mist, 100% return.

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged by **AB/CW**
 Figure **2 of 13**
 07/10/2019

geotechnics


Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I) **Engineer** AECOM
Borehole Project No R71701 PC197510
Client HIGHWAYS ENGLAND **National Grid Coordinates** 410167.4 E 141381.5 N
Ground Level 105.22 m OD

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 8.06-8.12m, non intact, recovered as silty angular to subangular fine to coarse gravel with many angular to subangular nodular flint fragments (up to 40mm in size). Between 8.12-8.22m, solid core within non intact zone. Between 8.22-8.73m, non intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular cobble content. Clasts have many black specks.			2	
8.65-10.15	8.65	97 41	0.36 0.02	39						
8.89- 9.33		C			(3)	Between 8.89-8.92m, with a subrounded nodular flint fragment (up to 30mm in size). At 9.22m, with orange brown wispy staining (up to 1mm thick).			1	
									1	
									2	
					(NI)	Between 9.65-10.11m, non intact, recovered as silty angular to subangular fine to coarse gravel. Between 9.75-9.80m, with a subangular small nodular flint (50mm in size).				
						Between 10.11-10.15m, assumed zone of core loss.			2	
10.15-11.65	10.15	100 47	0.18 0.03	39		At 10.26m, Set 1 and Set 2 discontinuities intersecting.			1	
10.47-10.63		C			(6)	At 10.45m, with wispy grey marl partings (<1mm thick).			1	
									1	
									1	
									1	
									1	
									1	
									2	
11.65-13.15	11.65	77 22	0.14 0.02	9		At 11.55m, with a angular to subangular medium nodular flint (90mm in size).			2	
11.86-12.03		C				At 11.74m, discontinuity inclined 55 degrees, clean, undulating locally stepped and rough with many black specks.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Logged by AB/CW
Figure 3 of 13
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Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet




BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(8)	At 12.05m, discontinuity inclined 55 degrees, clean, undulating and rough with many black specks.			1	
					(AZCL)	Between 12.80-13.15m, assumed zone of core loss.			2	
13.15-14.65	13.15	88 71	0.23 0.09	40	(NI)	At 13.15m, with a subangular medium nodular flint (100mm in size) with a 4mm thick cortex. Between 13.15-13.38m, non intact, recovered as a slightly silty angular to subangular coarse gravel and cobbles.			1	
					(11)	At 13.53m, discontinuity inclined 55 degrees, clean, undulating and rough with many black specks			1	
					(NI)	Between 13.57-13.71m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel and cobbles.			1	
					(5)	At 13.64m, with subangular small and medium nodular flint fragments (up to 80mm in size). At 13.75m, with grey interwoven marl seams (<2mm thick) with greenish grey wispy marl partings (<1mm thick). Between 14.00-14.47m, with occasional orangish brown mottling (up to 20mm in size). (Possible sponge beds).			1	
14.26-14.47		C			(AZCL)	Between 14.47-14.65m, assumed zone of core loss. At 14.47m, discontinuity inclined 55 degrees, clean, undulating and rough with many black specks and rare orangish brown surface staining.			1	
					(NI)	Between 14.65-15.09m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular to subrounded cobble content.			1	
					(3)	At 14.72, discontinuity inclined 55 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. Between 14.92-15.09m, with subangular to subrounded small and medium nodular flints (up to 140mm in size) with a <5mm thick cortex. At 15.15m, with interwoven greenish grey marl seams (<3mm thick) with wispy marl partings (<1mm thick). Between 15.32-15.50m, with much orangish brown mottling (up to 15mm in size). (Sponge beds).			1	
					(NI)	Between 15.85-15.96m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. At 15.92m, with subangular small and medium nodular flints (up to 60mm in size) with <3mm thick cortex.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged by **AB/CW**

Figure **4 of 13**
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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(8)					
16.15-17.65	16.15	95 34	0.20 0.02	20	(2)	Weak, locally very weak, medium density, white with occasional black specks and orangish brown mottling CHALK. Discontinuities are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (20/290/1230), clean or infilled (1/1/3) with comminuted chalk, undulating or stepped and rough with occasional black specks and rare orange brown surface staining. (NI)	16.15 (89.07)		1 2	
16.86-17.07		C			(6)	Set 2 are subvertical (80-90 degrees), infilled (1/1/3) with comminuted chalk, undulating or stepped and rough with occasional black specks and rare orange brown surface staining. Set 3 are 50-60 degrees, clean or infilled (0/1/1) with comminuted chalk, undulating and rough with many black specks and occasional orangish brown surface staining. [GRADE B2] Between 16.63-16.66m, non intact, recovered as silty angular to subangular fine to coarse gravel. With occasional subangular to subrounded small flint fragments (up to 15mm in size).			2 1 1 2 1	
17.65-19.15	17.65	100 45	0.23 0.02	37	(5)					
18.25-18.48		C			(NI)	Between 17.85-18.02m, non intact, recovered as angular to subangular flint fragments (<50mm). (NI) Between 18.02-18.25m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content.			1	
					(2)				3	
					(NI)	At 18.75, grey "v" shaped fossil (1-2mm thick x40mm long x 30mm wide).				
					(NI)	Between 18.90-19.05m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have many black specks.				
19.15-20.65	19.15	90 63	0.32 0.03	29	(8)					
19.51-19.69		C							1 3 1 3	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 19.90-20.20m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel. With many subangular to subrounded small nodular flints (up to 50mm in size) with a <3mm thick cortex.			2	
					(7)				1	
					(AZCL)	Between 20.50-20.65m, assumed zone of core loss.				
20.65-21.95	20.65	88 58	0.18 0.05	8	(NI)	Between 20.65-20.84m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. With occasional subangular to subrounded small and medium nodular flints (up to 60mm in size) with a <2mm thick cortex.			1	
					(9)					
					(NI)	Between 20.95-21.04m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Clasts have occasional black specks.			1	
21.59-21.80		C			(7)	At 21.54m, with a band of angular to subangular small and medium nodular flint fragments (up to 60mm in size).			1 3 3 1 3	
					(AZCL)	Between 21.80-21.95m, assumed zone of core loss.				
21.95-23.45	21.95	100 90	0.29 0.06	20					1 2	
					(5)				1 3 2 3	
23.45-24.95	23.45	100 90	0.38 0.09	85					1	
						Between 23.84-23.89m, with a subangular small nodular flint fragment (50mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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 Figure **6 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
24.54-24.91		C			(2)	Between 24.10-24.15m, non intact, recovered as very silty angular to subangular fine to coarse gravel with some subangular to subrounded small flint fragments (up to 40mm in size). Between 24.33-24.36m, with orange brown surface staining.			1	
24.95-26.55	24.95	100 70	0.33 0.05	15	(NI)	Between 24.91-24.95m, with a sheet flint fragment (40mm thick and full diameter). Between 24.95-25.24m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with a low subangular cobble content. With many angular to subangular small and medium flint fragments (up to 80mm in size) with a <2mm thick cortex.			1	
					(8)				1	
					(NI)	Between 25.50-25.64m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. With a subangular to subrounded medium nodular flint (70mm thick and full diameter).			1	
					(10)				2	
						Between 26.22-26.55m, with occasional orangish brown mottling (up to 8mm in size). (Possible sponge beds)			1	
26.55-28.05	26.55	100 81	0.29 0.07	53					3	
27.14-27.45		C			(6)	Between 26.88-27.12m, with occasional orangish brown elongated surface staining (up to 20mm in size). (Sponge beds). Between 27.50-27.68m, with small finger flint fragments (up to 45mm in size) associated with Set 3 discontinuity. At 27.66m, with interwoven and wispy greenish grey marl seams (up to 3mm thick) and marl partings (<1mm thick). At 27.72m, with occasional orangish brown sponge beds (up to 20mm in size). Between 28.00-28.05m, with grey interwoven marl seams (<10mm thick) and marl partings (<2mm thick).			1	
									1	
									2	
									1	
									2	
									3	
									3	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.05-29.55	28.05	97 83	0.69 0.06	76	(4)	Between 28.05-28.73m, with occasional orangish brown mottling (up to 20mm in size) of Sponge beds.				
					(NI)	At 29.18m, discontinuity inclined 25 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks. Between 29.23-29.50m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. At 29.33m, with a angular to subangular medium nodular flint fragment (100mm in size).				
29.55-31.05	29.55	95 85	0.27 0.05	53	(AZCL)					
29.83-30.06		C			(5)	At 29.83m, with subangular small nodular flint (up to 40mm in size) in Set 1 discontinuity. Between 30.20-30.64m, with much orangish brown stained trace sponge fossils (up to 20mm in size). Between 30.68-30.74m, with subangular to subrounded small nodular flint fragments (up to 55mm in size). At 30.76m, with interwoven grey marl seams (up to 3mm thick) with wispy gray marl partings (<1mm thick).				
31.05-32.55	31.05	97 63	0.33 0.04	28	(6)	Between 31.14-31.39m, with many orangish brown staining of trace sponge bed (up to 50mm in size). At 31.52m, with angular to subangular small and medium nodular flint fragments (up to 80mm in size) with a 2mm thick cortex. At 31.93m, with subangular small nodular flints (up to 15mm in size) in Set 1 discontinuity.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 32.31m, with elongate ribbed shell fragments (<2mm thick and <20mm in size). Between 32.32-32.34m, with orange brown mottling (Possible sponge). At 32.38m, with interwoven grey marl seams (<3mm thick).			2	
32.55-34.05	32.55	98 76	0.25 0.06	63	(AZCL)	At 32.69m, with a grey wispy marl seam (1mm thick).			3	
					(3)	At 32.88m, with a grey wispy marl seam (1mm thick). Between 32.90-32.94m, with a grey wispy marl seams (1mm thick). Between 33.07-33.09m, with angular to subangular small flint fragments (up to 20mm in size).			1	
33.53-33.77		C			(NI)	Between 33.32-33.34m, with orangish brown mottling (possible sponge). Between 33.34-33.37m, non intact, recovered as silty angular to subangular fine to coarse gravel of chalk. Between 33.37-33.47m, solid core within non intact zone. Between 33.47-33.53, non intact, recovered as silty angular to subangular fine to coarse gravel.			1	
						At 33.93m, with grey wispy marl seam (10mm thick). Between 33.97-34.00m, with orangish brown mottling. (Possible sponge). At 34.00m, with a angular small nodular flint fragment (15mm in size).			1	
34.05-35.55	34.05	100 80	0.32 0.06	65	(4)				2 1 1 1	
35.19-35.55		C							1 1	
35.55-37.05	35.55	100 81	0.30 0.13	77						

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata	Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
36.76-37.02		C			(3)	Between 36.13-36.16m, with interwoven grey marl seams (up to 30mm thick).			1
37.05-38.55	37.05	53/34	0.34/0.04	0	(NI)	Between 36.96-36.98m, with a angular small nodular flint (20mm in size). Between 37.05-37.17m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with a medium angular to subangular cobble content. With subangular small nodular flint fragments (up to 50mm in size).			1
					(5)	Between 37.56-37.85m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. At 37.72m, with subangular to subrounded small nodular flint fragments (up to 30mm in size).			3
					(NI)	Between 37.85-38.55m, assumed zone of core loss.			2
					(AZCL)				
38.55-40.05	38.55	100/84	0.66/0.05	49	(2)	Between 38.55-39.23m, with interwoven grey marl seams (up to 3mm thick) with wispy marl partings (<1mm thick) and rare orangish brown stained sponge beds (<5mm in size).			1
39.78-40.02		C			(NI)	Between 39.80-40.05m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a low angular cobble content. Clasts have occasional orangish brown surface staining. (Possible sponge beds).			1

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
40.05-41.55	40.05	100 65	0.41 0.05	54	(2)	At 39.80m, with angular to subangular small nodular and tabular flints (up to 40mm in size) with a 2mm thick cortex. (Possible zoophycos). At 40.00m, with subangular to subrounded small nodular flint fragments (up to 50mm in size).			1	
					(NI)	Between 40.44-40.52m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.			1	
					(2)				1	
					(NI)	Between 41.19-41.21m, non intact, recovered as angular to subangular fine to coarse gravel.			1 2	
41.55-43.05	41.55	100 73	0.32 0.03	42	(4)	At 41.82m, with occasional elongated orangish brown sponge trace fossils (<15mm in size) At 41.91m, with subangular small nodular flint fragments (up to 30mm in size).			1	
41.74-41.97		C							3 1	
					(NI)	Between 42.59-42.86m, non intact, recovered as a slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. With a small sheet flint fragment (15mm thick).			2	
43.05-44.55	43.05	103 97	0.40 0.07	67	(2)	At 43.00m, with many ribbed shell fragments (up to 2mm thick x 10mm in size). At 43.22m, with subangular small and medium nodular flints (up to 70mm in size) with a <1mm thick cortex. At 43.32m, with much orangish brown mottling (up to 10mm in size). (Possible Sponges). At 43.38m, with a subrounded medium flint fragment (80mm in size). (Probable finger or nodular flint). At 43.43m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks and calcite and clay mineralised slickensides. At 43.53m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks and calcite and clay mineralised slickensides. At 43.55m, with a grey marl seam (10mm thick) with interwoven wispy marl partings (<2mm thick). Between 43.60-43.72m, with much orangish brown mottling (up to 5mm in size) of sponge beds.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
44.11-44.55		C				At 43.86m, with a elongated trace fossil (<2mm thick and 80mm in size) stained orangish brown. At 44.24m, with interwoven grey wispy marl seams (3mm thick).				
44.55-46.05	44.55	0			(NR)	At 44.55m, with occasional elongated shell fragments (up to 2mm thick x 10mm in size). Between 45.55-46.05m, no recovery. Chalk with flints**				
46.05-47.55	46.05	100 36	0.13 0.01	17	(NI)	Between 46.05-46.42m, non intact, recovered as angular to subangular fine to coarse gravel with a high subrounded cobble content. Between 46.10-46.18m, with elongated orangish brown mottling (up to 100mm in size) on sponges. Between 46.42-46.55m, sheet flint (90mm thick), recovered as angular to subangular small fragments. At 46.52m, with orangish brown trace fossil(1mm thick). Between 46.55-46.67m, non intact, recovered as angular to subangular fine to coarse gravel.				
47.01-47.10		C			(5)	Weak, locally very weak, medium density, locally high density, white with occasional black specks and rare to occasional orangish brown mottling CHALK with many marl seams.	46.69 (58.53)		1	
					(NI)	Discontinuities are:				
47.01-47.10		C			(8)	Set 1 are subhorizontal (0-10 degrees), extremely closely to medium spaced (140/340/650), infilled (1/1/2) with comminuted chalk, undulating or stepped and rough with occasional black specks and rare orangish brown surface staining.			1	
					(NI)	Set 2 are subvertical (80-90 degrees), infilled (1/1/3) with comminuted chalk, undulating or stepped and rough with occasional black specks and rare orangish brown surface staining.			2	
47.55-49.05	47.55	100 57	0.24 0.02	53	(2)	[GRADE B2] Between 46.69-46.82m, with many thinly bedded grey interwoven marl seams (up to 3mm thick). At 46.85m, with a band of angular to subangular small and medium nodular flint fragments (up to 90mm in size) with a 1mm thick cortex.. Between 46.85-46.88m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. At 47.48m, with a grey wispy marl seam (1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71701** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **410167.4 E 141381.5 N** Ground Level **105.22 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
48.15-48.44		C				At 46.92m and 46.95m, with a grey wispy marl seam (1mm thick). At 47.00m, wispy orangish brown trace fossils (1mm in size). At 47.09m and 47.13m, with a grey wispy marl seam (1mm thick). Between 47.23-47.31m, non intact, recovered as angular to subangular flint fragments (<50mm). Between 47.31-47.36m, large nodular flint across full width of core (50mm thick). At 47.79m, with an angular small flint (15mm in size). At 47.95m, with elliptical and elongate trace fossils (<1mm thick), stained orangish brown. At 48.22m, with small sheet flint fragments (up to 5mm in size). At 48.25m, with orangish brown staining (up to 10mm in size). (Possible sponge fossils). At 48.38m, with a grey wispy marl seam (1mm thick). Between 48.44-48.66m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 48.60-48.66m, with a angular to subangular flint (60mm thick). Between 48.93-49.01m, with interwoven grey marl seams (up to 3mm thick).	49.05 (56.17)		1	
					(NI)					
					(3)					
						End of Borehole				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.10- 0.30 0.10 0.10 0.10		B D ES	PID=<0.1			TOPSOIL: Firm greyish brown slightly sandy gravelly silt with many rootlets. Gravel is angular to subangular fine to coarse chalk and flint.	G.L. (101.37)			
0.50 0.50 0.50		D ES	PID=<0.1		Structureless CHALK, composed of slightly sandy silty subangular to subrounded fine to coarse GRAVEL. Clast are very weak, low to medium density, white with rare brown surface staining. Matrix is cream. With occasional angular to subangular fine to medium gravel of black rinded flint. (Grade Dc)	0.30 (101.07)				
0.80- 1.20		B								
1.00 1.00		ES	PID=<0.1							
1.20- 2.00	1.20	0			(NR)	No recovery. Driller notes CHALK**	1.20 (100.17)			
2.00- 3.50	2.00	93 60	0.04 0.02	0	(>25)	Weak, low and medium density, white with occasional black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-15 degrees), very closely to closely spaced (30/60/170), clean or infilled (0/0/5) with comminuted chalk, stepped and rough with rare black specks and much orangish brown surface staining. [GRADE A4] At 3.10m, 4 No. subangular small nodular flint fragments (up to 50mm in size). Between 3.10-3.50m, non intact, recovered as angular fine to coarse gravel (possibly drilling induced).	2.00 (99.37)			
3.50- 5.00	3.50	93 57	0.10 0.02	6	(NI)	Between 3.60-3.72m, with angular to subangular small and medium nodular flint fragments (up to 80mm in size). Between 3.70-3.80m, discontinuity inclined 88 degrees, clean, stepped and rough with occasional black specks. Between 3.72-3.80m, non intact, recovered as angular fine to coarse gravel. At 4.00m, with a subrounded small nodular flint (4mm in size).				
3.80- 3.84		C			(8)					

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.30	0.50	Inspection Pit	Arch	G.I.			07/06/19	08:00	35.20	35.20				Possible strike.
1.20	0.50	Inspection Pit	AW/PB	1.20	NIL	DRY	07/06/19	18:00						
40.00	0.12	Geobor S	AW/PB	1.20	NIL		13/06/19	08:00						
				30.50	30.50		13/06/19	18:00						
				30.50	30.50		14/06/19	08:00						
				40.00	40.00		14/06/19	18:00						

Remarks **INS** Inspection pit hand excavated to 0.30m by an archeologist and extended to 1.20m depth by **ABS** Geotechnics. No services were found.
 ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
 ** Drillers description.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 The graphical representation of discontinuities on the Borehole Record is for indicative
 Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/SI**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 4.20-4.34m, non intact, recovered as angular to subangular fine to coarse gravel.			1	
					(8)	At 4.36m, discontinuity inclined 65 degrees, clean, stepped and rough with rare orangish brown surface staining.			1	
					(NI)	At 4.60m, with a subangular to subrounded medium nodular flint (80mm in size) coated (<1mm thick) with grey marl.	4.80 (96.57)		1	
					(NI)	Between 4.67-4.80m, non intact, recovered as angular to subangular fine to coarse gravel.			1	
5.00- 6.50	5.00	100 73	0.15 0.04	45		Weak, low, medium and high density, white with many black specks CHALK, with occasional wispy grey marl partings (up to 1mm thick).			1	
5.40- 5.53		C			(6)	Discontinuities are: Set 1 are subhorizontal (0-20 degrees), very closely to medium spaced (50/200/650), clean occasionally infilled (0/0/1) with comminuted chalk, stepped and rough with occasional black specks and orangish brown surface staining. Set 2 are 45-70 degrees, clean or infilled (0/0/2) with comminuted chalk or marl, undulating rarely planar and stepped and rough with many black specks, rare orangish brown surface staining and slickenlines. Set 3 are subvertical (80-90 degrees), clean (0/0/0), undulating and rough with many black specks and rare orangish brown surface staining and slickenlines. [Grade A2/3] At 5.46m, with fossil shell fragments (up to 3mm in size). At 5.50m and 5.54m, with grey marl seams (up to 5mm thick) At 5.85m, with a subangular medium nodular flint (90mm in size). At 6.00m and 6.06m, with wispy grey marl seams (up to 2mm thick). At 6.06m, with many wispy grey marl partings (<1mm thick). At 6.08m, with orangish brown surface staining on clasts. At 6.30m, with fossils remains (up to 10mm in size) and associated orangish brown surface staining on surrounding chalk.			1	
6.50- 8.00	6.50	99 77	0.12 0.05	33					1	
7.38- 7.50		C			(4)				1	
					(NI)	Between 7.70-7.80m, non intact, recovered as angular to subangular fine to coarse gravel.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks For purposes only, the details of each are presented on the discontinuity summary table.
 ABSA 50mm standpipe was installed to 37.50m with a geowrapped slotted section from 28.50m to 37.50m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 26.50m, cement bentonite up to 23.50m, bentonite seal up to 2.00m, grout up to ground level.
 Flush: 1.20-40.00m, Air/Mist, 100% return.

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geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
8.00- 9.50	8.00	93 73	0.12 0.04	23	(2)	Between 8.30-8.80m, non intact, recovered as angular to subangular fine to coarse tabular gravel.			3	
					(NI)				1	
9.50-11.00	9.50	27 73	0.22 0.07	33	(AZCL)	Between 9.50-9.70m, assumed zone of core loss.			1	
9.94-10.10		C			(5)				1 3	
11.00-12.50	11.00	90 60	0.12 0	24	(AZCL)	Between 11.00-11.15m, assumed zone of core loss.			1 2	
					(13)	Between 11.30-11.95m, non intact, recovered as angular to subangular gravel.			3	
					(NI)				2 2 3	
									1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(8)	At 12.45m, 3 No. subangular to subrounded small nodular flints (up to 15mm in size)			1 3 1 3	
12.50-14.00 12.60-12.84	12.50	97 67 C	0.24 0	32	(NI)	Between 12.90-13.14m, non intact, recovered as angular fine to coarse gravel. (Possibly drilling induced).			2 2 3	
					(6)	At 13.50m, with a subangular small nodular flint (40mm in size).			1 2 1	
14.00-15.50	14.00	87 60	0.12 0.06	33	(AZCL)	Between 14.00-14.20m, assumed zone of core loss.			1	
					(NI)	Weak, medium to high density, white with occasional black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (140/200/290), clean occasionally infilled (0/0/1) with grey marl, stepped rarely undulating and rough with occasional black specks, rare orangish brown or grey surface staining and slickenlines. Set 2 are 30-40 degrees, clean (0/0/0), stepped and rough with many black specks and rare grey surface staining. At 14.84m, with grey marl partings (<1mm thick). Set 3 are 50-60 degrees, clean (0/0/0), stepped and rough, with many black specks and rare orangish brown surface staining. Set 4 are 80-90 degrees, clean (0/0/0), stepped or undulating and rough with many black specks and rare orangish brown surface staining. [Grade A2/3]	14.20 (87.17)		1 1 4 1 3 1	
15.37-15.50		C			(6)	Between 14.20-14.30m, non intact, recovered as angular fine to coarse gravel. Between 14.40-14.53m, non intact, recovered as angular to subangular small rinded flint fragments (up to 30mm in size). At 15.30m, with a subangular small nodular flint (10mm in size). Between 15.50-15.70m, assumed zone of core loss. At 15.80m, with a fossil (1mm in size).			3 4	
15.50-17.00	15.50	87 76	0.19 0.10	60	(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(5)					
17.00-18.50	17.00	87 64	0.17 0.05	40	(AZCL)	Between 17.00-17.20m, assumed zone of core loss.				
17.90-18.04		C			(4)	At 17.42m and 17.46m, with grey marl partings (<1mm thick). At 17.54m, with orangish brown surface staining on clasts (<3mm in size). At 17.60m and 17.66m, with grey marl partings (<1mm thick)				
					(NI)	At 17.80m, with many angular to subangular small flint fragments (up to 45mm in size). Between 17.80-19.14m, with broken pyrite nodule fossils (up to 50mm in size) with much heavy orangish brown surface staining of surrounding chalk. Between 18.04-18.36m, non intact, recovered as very silty subangular to subrounded small to medium nodular flints (up to 100mm in size).				
18.50-20.00	18.50	100 80	0.31 0.08	50	(NI)	Between 18.50-18.70m, non intact, recovered as angular fine to coarse gravel with grey marl seams (<1mm thick). Possibly drilling induced).				
18.70-19.02		C			(4)					
					(NI)	Between 19.40-19.65m, non intact, recovered as angular fine to coarse gravel. With occasional subangular small nodular flints (up to 30mm in size).				
					(2)					
Weak, locally very weak, medium to high density,							20.00 (81.37)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71901** Project No **PC197510**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E** Ground Level **101.37 m OD**
141648.2 N

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
20.00-21.50	20.00	100 95	0.24 0.05	69		white with occasional black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-15degrees), very closely to medium spaced (50/220/400), clean, rarely infilled (0/0/2) with comminuted chalk rarely grey marl and a sheet flint (5mm thick), stepped and rough with many black specks and rare orangish brown surface staining. Set 2 are 40-50 degrees, clean (0/0/0), stepped and rough with occasional black specks and rare orangish brown surface staining. Set 3 are 70-80 degrees, clean (0/0/0), undulating and rough with occasional black specks, rare orangish brown surface staining and slickenlines. [GRADE A2] Between 20.30-20.33m, non intact, recovered as tabular small flints (up to 3mm thick). At 20.43m and 20.68m, discontinuities inclined 20 degrees, infilled (1mm thick) with marl, stepped and rough. At 20.67m, with a fossil shell fragment (10mm in size) stained orangish brown. At 21.16m, with a fossil shell fragment (20mm in size) stained orangish brown. At 21.40m, with a fossil shell fragment (10mm in size).	20.00 (81.37)		1 1 1 1 1 1 1 1 1 1 1 1 1 1	
20.70-20.95		C			(8)					
21.50-23.00	21.50	77 60 C	0.27 0.08	53		Between 21.90-22.00m, non intact, recovered as very silty angular fine to medium gravel.				
21.59-21.72					(NI)					
					(3)	At 22.10m, with a grey marl seam (<2mm thick). At 22.17m, grey marl partings (<2mm thick).				
					(NI)	At 22.30m, 3 No. subangular small nodular flint fragments (15.30 and 40mm in size). At 22.40m, with orangish brown surface staining (10mm in size). Between 22.40-22.75m, non intact, recovered as subangular fine to coarse gravel with a low subrounded cobble content.				
					(AZCL)	Between 22.75-23.00m, assumed zone of core loss.				
23.00-24.50	23.00	100 93	0.40 0.07	75		At 23.22m, with orangish brown surface staining on clasts (3mm in size).				
23.35-23.71		C			(3)	Between 23.69-23.98m, with orangish brown staining.				
					(NI)	Between 23.94-24.02m, non intact, recovered as subangular small and medium nodular flints (up to 80mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(2)					
24.50-26.00	24.50	73 53	0.24 0.05	40	(AZCL)	Between 24.50-24.90m, assumed zone of core loss.				
					(NI)	Between 24.90-25.07m, non intact, recovered as angular fine to coarse gravel. (possibly drilling induced).				
					(3)	At 25.33m, with occasional fossils (up to 10mm in size) with associated orangish brown surface staining.			1	
					(NI)	Between 25.68-25.80m, non intact, recovered as very silty angular fine to coarse gravel. With occasional angular to subrounded small to medium nodular flint fragments (up to 70mm in size).			3	
									1	
26.00-27.50	26.00	97 86	0.50 0.05	53	(3)	At 26.14m, with orangish brown surface staining on clasts (50mm in size).			1	
									3	
					(NI)	Between 26.90-27.15m, non intact, recovered as angular fine to coarse gravel and a low subangular cobble content. With occasional subangular small to medium nodular flint fragments (up to 60mm in size).				
27.18-27.35		C				At 27.30m, with possible trace fossil (3mm in size) with orangish brown surface staining on clasts.			2	
27.50-29.00	27.50	97 85	0.28 0.08	80	(3)	At 27.67m, with grey marl parings (<1mm thick).			1	
									1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 28.45-28.51m, non intact, recovered as angular fine to coarse gravel. With occasional angular to subangular small nodular and finger flint fragments (up to 50mm in size).			1	
					(1)	Between 29.00-29.30m, with possible trace fossils (20mm in size) with orangish brown surface staining.			2	
29.00-30.50	29.00	100 76	0.45 0.26	93	(NI)	Between 29.30-29.47m, non intact, recovered as angular fine to coarse gravel. With occasional subangular small to medium nodular flint fragments (up to 60mm in size).			1	
					(4)	At 29.57m, with a angular to subangular small nodular flint (40mm in size).			1	
30.00-30.50		C			(4)	At 30.32m, with orangish brown surface staining on clasts (2mm in size).			1	
30.50-32.00	30.50	97 93	0.26 0.03	61	(NI)	Weak, medium to high density, white with occasional black specks CHALK. Discontinuities where seen are: Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (110/195/350), clean or infilled (0/0/1) with marl, stepped rarely undulating and rough with occasional black specks and orangish brown surface staining. Set 2 are 50-60 degrees, clean or infilled (0/1/1) with comminuted chalk, stepped or planar and rough with rare black specks and orangish brown surface staining. Set 3 are 70 degrees, clean rarely infilled (0/0/1) with comminuted chalk, stepped and rough with occasional black specks and much orangish brown surface staining. [GRADE A3] Between 30.50-30.75m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low angular to subangular cobble content. At 30.75m, with subangular small nodular rinded flints (up to 40mm in size). Between 30.80-30.84m, with a wispy grey marl seam (<1mm thick). At 30.90m, with a small pocket (<10mm in size) of brown phosphatic chalk.	30.50 (70.87)		3	
					(4)				3	
					(4)				2	
					(4)				1	
					(4)				1	


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71901** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
32.00-33.50 32.12-32.22	32.00	100 67 C	0.20 0.07	32	(NI)	At 31.00m, with occasional grey wispy marl seams (<1mm thick). At 31.85m, with a greenish grey marl seam (<1mm thick). Between 32.00-32.75m, discontinuity inclined 85 degrees, clean, undulating and rough discontinuity with rare black specks. Between 32.30-32.74m, non intact, recovered as angular to subangular fine to coarse gravel with a medium angular to subangular cobble content. Between 32.35m, with a subangular small nodular flint (50mm in size). At 32.70m, with a small finger flint (30mm in size). At 32.78m, with a grey wispy marl seam (<1mm thick). Between 32.85-32.91m, with extremely closely spaced grey wispy marl seams (<1mm thick). Between 32.95-33.05m, flint (full diameter). Between 33.05-33.10m, non intact, recovered as silty angular and subangular fine to coarse gravel. With rare subangular small nodular flint fragments (up to 10mm in size). Between 33.10-33.23m, with occasional subrounded small nodular flints (up to 30mm in size). At 33.20m, with a white fossil (20mm in size). At 33.45m, with a small finger flint (40mm in size).				
33.50-35.00	33.50	100 87	0.20 0.07	57	(5)	At 33.65m and 33.72, with a wispy marl seam (<1mm thick). Between 34.28-34.35m, discontinuity inclined 30 degrees, clean, stepped and rough with slickenlines. Between 34.34-34.53m, non intact, recovered as silty angular to subangular fine to coarse gravel. With many subangular small nodular flints (up to 40mm in size). At 34.40m, with a possible trace fossil (50mm in size) with orangish brown surface staining on clasts.				
35.00-36.50	35.00	70 46	0.30 0.08	40	(AZCL)	Between 34.90-35.00m, non intact, recovered as angular to subangular small and medium nodular flint fragments (up to 80mm in size). Between 35.00-35.45m, assumed zone of core loss.				
35.70-35.94		C			(6)	Between 35.45-35.55m, non intact, recovered as silty subangular fine to coarse gravel. With 2x subrounded small nodular flints (10 and 20mm in size). At 35.78m, with grey wispy marl seam (<1mm thick). Between 35.92-35.98m, with orangish brown surface staining on clasts (60mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71901**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411276.2 E 141648.2 N** Ground Level **101.37 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Between 36.05-36.08m, with many subangular to subrounded small nodular flint fragments (up to 40mm in size).			3	
					(NI)	Between 36.26-36.50m, non intact, recovered as silty subangular fine to coarse gravel with a low subangular to subrounded cobble content.			3	
36.50-38.00	36.50	67 29	0.14 0.07	17	(AZCL)	Between 36.50-37.00m, assumed zone of core loss.			3	
					(NI)	Between 37.00-37.05m, non intact, recovered as angular to subangular fine to coarse gravel.			3	
					(7)		37.20 (64.17)		3	
					(2)	Weak locally very weak, low to medium density, white with rare black specks CHALK. Between 37.33-37.48m, flint (full diameter). Discontinuities where seen are: Set 1 are 0 degrees, very closely spaced (40/40/40), clean (0/0/0), stepped and rough with occasional black specks. [GRADE A4]			2	
					(NI)	Between 37.56-37.65m, discontinuity inclined 50 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with rare black specks. Between 37.65-38.00m, non intact, recovered as silty subangular fine to coarse gravel. With 2x angular small nodular flints (10 and 20mm in size).			2	
38.00-39.50	38.00	83 27	0.15 0.05	18	(AZCL)	Between 38.00-38.25m, assumed zone of core loss.			1	
					(NI)	Between 38.25-39.00m, non intact, recovered as silty angular and subangular fine to coarse gravel with a low subangular cobble content and occasional orangish brown surface staining.			1	
39.20-39.37		C			(5)				1	
					(NI)	At 39.28m, grey marl parting (<1mm thick). Between 39.35-39.50m, non intact, recovered as subangular fine to coarse gravel.		1		
39.50-40.00	39.50	0			(NR)	Between 39.50-40.00m, no recovery. Chalk**		1		
End of Borehole							40.00 (61.37)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.10- 0.30 0.10 0.10 0.10		B D ES	PID=<0.1			TOPSOIL: Firm greyish brown slightly sandy gravelly silt with many rootlets. Gravel is angular to subangular fine to coarse of chalk and flint.	G.L. (107.87)			
0.50 0.50 0.50		D ES	PID=<0.1			Structureless CHALK, composed of slightly sandy silty subangular to subrounded fine to coarse gravel. Clasts are very weak, low to medium density, white with occasional brown surface staining, subangular to subrounded and fine to coarse. Matrix is white. With occasional subangular to subrounded fine to coarse rinded flint. (Grade Dc)	0.35 (107.52)			
0.80- 1.10 1.00 1.00 1.10		B ES D	PID=<0.1			CHALK**	1.10 (106.77)			
1.55- 2.55 1.84- 1.94	1.55	100 0 C		0		CHALK, recovered as white gravelly sandy silt. Clasts are very weak, low to medium density, white, subangular to angular and fine to coarse.	1.55 (106.32)			
					(NI)	CHALK, recovered as slightly silty angular to subangular fine to coarse GRAVEL. Clasts are very weak, low density, white with occasional black specks. Matrix is white.	1.95 (105.92)			
2.55- 4.05	2.55	0			(NR)	CHALK with flints**. No recovery, driller notes flint stuck in barrel, core scrubbed.	2.55 (105.32)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.35	0.50	Inspection Pit	Arch	G.I.			07/06/19	08:00						None encountered during drilling. Possible masked by flush.
1.20	0.40	Inspection Pit	AC/PB	1.20	NIL	DRY	07/06/19	18:00						
1.55	0.12	Rotary Open Hole	AC/PB	1.20	NIL	DRY	20/06/19	08:00						
46.10	0.12	Geobor S	AC/PB	9.90	9.90	9.70	20/06/19	18:00						
				9.90	9.90		24/06/19	08:00						
				46.10	46.10	41.1	24/06/19	18:00						

Remarks Inspection pit hand excavated to 0.35m by an archeologist and extended to 1.10m depth by geotechnics. No services were found. Unable to hand excavate below 1.10m due to hard strata.
 Symbols and abbreviations are explained on the accompanying key sheet.
 ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
 Falling Head Permeability Tests were carried out during on completion of drilling at 46.10m.
 ** Drillers description.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles)
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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geotechnics

BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Project No **PC197510**
 Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.05- 5.55	4.05	0								
5.05- 5.55 5.05- 5.22	5.05	100 100 C	0.15 0.02	40	(8)	Very weak, locally weak, medium density, white with many black specks CHALK. Discontinuities where seen are: Set 1 are subhorizontal (0-15 degrees), very closely to medium spaced (30/250/610), clean or infilled (0/1/3) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining.	5.05 (102.82)		1 1 1	
5.55- 7.05	5.55	89 35	0.22 0.05	23	(NI)	Set 2 are subvertical (80-90 degrees), clean rarely infilled (0/0/1) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining			1	
6.52- 6.75		C			(8)	Set 3 are 45-75 degrees, very closely to medium spaced (30/130/420), clean or infilled (0/0/1) with comminuted chalk, undulating and rough with much black specks and rare orangish brown surface staining. [GRADE B2] At 5.11m, with trace fossils (up to 30mm in size) stained orangish brown. At 5.55m, with an angular medium nodular rinded flint (up to 110mm in size). Between 5.67-6.00m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.			1 2 3 1 1	
7.05- 8.40	7.05	100 73	0.39 0	49	(NI)	At 6.71m, with a sponge fossil (<3mm thick) stained orangish brown. Between 6.76-7.20m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 6.88-7.05m, assumed zone of core loss.			1 2	
7.40- 7.64		C			(5)	Between 7.23-7.27m, with orange brown staining (up to 2mm in size). (Possible sponge fossil). At 7.31m, with wispy orange brown staining (up to 60mm in size). (Possible trace fossil)			1 3 3 3 2	
					(10)	At 7.77m, with a possible trace fossil (50mm in size) stained orangish brown. At 7.94m, with wispy orange brown staining (<1mm thick). (Possible trace fossil)				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks **ABG** Publishing). The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table. Backfill details from base of hole: bentonite seal up to 25.00m, bentonite grout up to 1.00m, bentonite seal up to ground level. Flush: 1.55-21.90m, Air/Mist, 100% returns; 21.90-46.10m, Air/Mist, 0% return.

Symbols and abbreviations are explained on the accompanying key sheet.

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	At 8.04m, with a wispy light grey marl seam (<10mm thick). At 8.08m, discontinuity inclined 25 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with occasional black specks. Between 8.08-8.20m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 8.23m, with a small finger flint fragment (40mm in size).				
8.40- 9.90 8.40- 8.56	8.40	100 51 C	0.21 0.04	25	(5)	At 8.67m, with a interwoven wispy marl seam (<1mm thick). Between 8.80-8.93m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.				
					(6)					
					(8)					
9.90-11.40 10.44-10.63	9.90	100 55 C	0.19 0.02	37	(6)	Between 9.85-9.90m, with occasional trace fossils stained orangish brown. At 9.97m, discontinuity inclined 35 degrees, clean, undulating and rough with occasional black specks. At 10.10m, with a subangular small nodular flint fragment (60mm in size). At 10.50m, with orange brown mottling (up to 10mm in size). (Possible sponge) At 11.03m & 11.06m, with orange brown mottling (up to 10mm in size). (Possible sponges) Between 11.20-11.40m, non intact, recovered as silty angular to subangular fine to coarse gravel with a medium subangular to subrounded cobble content. At 11.23m, with a subangular nodular flint fragment (50mm in size). At 11.42m, with orangish brown speckling (2mm in size). (Possible sponge)				
					(10)					
					(NI)					
11.40-12.90	11.40	100 41	0.16 0.02	11	(9)	At 11.72m, with a subangular small nodular flint fragment (40mm in size).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.32-12.42		C				At 12.20m, with orangish brown mottling (up to 1mm in size). (Possible sponge) Between 12.40-12.60m, non intact, recovered as silty angular to subangular fine to coarse gravel with a low angular to subrounded cobble content. At 12.96m, discontinuity inclined 25 degrees, infilled (2mm thick) with comminuted chalk, undulating and rough with occasional black specks. At 12.80m, with orangish brown mottling (up to 10mm in size). (Possible sponge)			1 2 3 3	
12.90-14.40	12.90	97 61	0.29 0.03	43		(NI)			1 2	
14.03-14.26		C				(6) At 13.46m, with wispy brown orange staining on clasts (up to 50mm in size) (Possible trace fossil) At 13.69m, with wispy brown orange staining on clasts (up to 40mm in size) (Possible trace fossil) At 13.80m, with subangular medium nodular flint fragments (up to 70mm in size).			2 1 1 1 1	
14.40-15.90	14.40	100 40	0.33 0.02	29		(10) (NI)			2 1	
15.06-15.39		C				(8) (3) (2)			1 1 1	
15.90-17.40	15.90	100 93	0.45 0.06	61		At 15.24m, mottled orange brown (up to 80mm in size). (Possible sponge). At 15.39m, with wispy orange brown staining (up to 70mm in size). (Possible sponge). At 15.42m, dark orange brown "U" shaped staining (22x20mm in length) with orangish brown mottling inside. At 15.60m, with orangish brown wispy staining (up to 1mm thick). At 15.62m, with orangish brown wispy staining (1mm thick). At 15.71m, discontinuity inclined 25 degrees, clean, undulating and rough with many black specks, occasional orangish brown staining and slickenlines. Very weak, locally weak, medium density, white,	15.90 (91.97)		1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.80-17.02		C			(4)	<p>with many black specks and occasional orangish brown mottling CHALK.</p> <p>Discontinuities are:</p> <p>Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (80/250/690), clean or infilled (0/1/1) with comminuted chalk rarely greenish grey clay, undulating and rough with many black specks and occasional orangish brown surface staining.</p> <p>Set 2 are 45-50 degrees, closely to medium spaced (80/220/410), clean or infilled (0/0/1) with comminuted chalk, undulating locally stepped and rough with many black specks and orangish brown surface staining.</p> <p>[GRADE B2]</p> <p>Between 16.12-16.33m, with much orangish brown surface staining on clasts (up to 5mm in size). (Possible sponge)</p> <p>At 16.30m, with occasional interwoven wispy marl seam (<1mm thick).</p> <p>At 16.55m, trace sponge fossil (4mm in size) stained orangish brown.</p> <p>Between 16.80-16.85m, with occasional interwoven marl seams (<2mm thick) with undulating wispy marl partings (<1mm thick).</p> <p>At 17.22m, discontinuity inclined 70 degrees, clean, undulating and rough with occasional black specks and rare grey surface staining.</p>				
17.40-18.90 17.49-17.64	17.40	97 82 C	0.29 0.07	45	(6)	<p>At 17.65m, with orangish brown staining on clasts (up to 5mm in size). (Possible sponge fossil)</p> <p>Between 17.73-17.81m, with much orangish brown staining on clasts.. (possible fossils)</p> <p>Between 17.93-18.02m, with occasional wispy interwoven marl seams (<2mm thick).</p> <p>Between 18.25-18.30m, with subangular small nodular and finger flint fragments (up to 10mm in size).</p> <p>At 18.55m, with a wispy grey marl seams (up to 1mm thick).</p> <p>Between 18.90-19.05m, discontinuity inclined 90 degrees, clean, stepped and smooth with many black specks and rare orangish brown surface staining.</p>				
18.90-20.40 19.39-19.52	18.90	88 79 C	0.32 0.03	64	(4)	<p>At 19.25m, discontinuity inclined 20 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with many black specks and grey surface staining.</p> <p>Very weak, locally weak, medium density, white, with many black specks and occasional orangish brown mottling CHALK.</p> <p>Discontinuities are:</p> <p>Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (30/170/360), clean or infilled (0/1/2) with comminuted chalk, undulating and rough with many black specks and rare orangish brown surface staining.</p>	19.40 (88.47)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						Set 2 are 40-50 degrees, closely to medium spaced (80/160/220), clean or infilled (0/1/1) with comminuted chalk, undulating locally stepped and rough with many black specks. [GRADE B3] At 19.86m, discontinuity inclined 80 degrees, clean, undulating and rough with many black specks. At 19.92m, with small to medium sheet flint fragments (up to 160mm in size) in a matrix of comminuted chalk. Between 20.22-20.40m, assumed zone of core loss.				
20.40-21.90 20.40-20.60	20.40	99 71 C	0.30 0.03	33	(AZCL)	At 20.68m, with grey wispy structure (30mm in size). (Possible shell fragment) Between 20.81-20.91m, with a subangular to subrounded medium nodular flint (90mm in size). At 20.81m, with a grey wispy structure (20mm in size). (Possible shell fragment).				
					(5)	At 21.32m, with a subrounded medium nodular flint (100mm in size).				
21.90-23.40 22.15-22.36	21.90	76 65 C	0.22 0.04	25	(NI)	At 22.15m, discontinuity inclined 30 degrees, infilled (3mm thick) with comminuted chalk, undulating and rough with many black specks. At 22.50-22.70m, discontinuity inclined 85 degree dipping, infilled (1mm thick) with phosphatic chalk, planar and smooth with occasional black specks and much orangish brown surface staining.				
					(AZCL)	Between 22.80-23.05m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel with a medium subangular cobble content. At 22.92m, with subangular small and medium nodular flint fragments (up to 70mm in size) with a 2mm thick cortex. Between 23.05-23.65m, assumed zone of core loss.				
23.40-24.90	23.40	83 45	0.23 0.05	23	(NI)	Very weak, low to medium density, orangish white with many black specks phosphatic CHALK. Between 23.65-24.10m, non intact, recovered as silty subangular to subrounded fine to coarse gravel. With subangular to subrounded small and medium nodular flint fragments (up to 110mm in size) with 1mm thick cortex.	23.65 (84.22)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
24.68-24.90		C				<p>At 24.27m, subhorizontal discontinuity, infilled (1mm thick) with comminuted chalk, undulating and rough with rare black specks.</p> <p>Very weak locally weak, medium density, locally low density, white with many black specks and occasional orangish brown surface staining CHALK.</p> <p>Discontinuities are:</p> <p>Set 1 are subhorizontal (0-10 degrees), closely to medium spaced (140/170/450), clean rarely infilled (0/1/1) with comminuted chalk, undulating and rough with many black specks.</p>	24.30 (83.57)			
24.90-26.40 25.04-25.40	24.90	85 43 C	0.30 0.03	20	(6)	<p>Set 2 are 35-45 degrees, clean (0/0/0), undulating or stepped and rough with many black specks and occasional orangish brown surface staining. [GRADE B3]</p> <p>At 25.41m, with a subangular finger flint fragment (40mm in size).</p> <p>A5 25.64m, with a subangular finger flint fragment (22mm in size).</p> <p>At 25.75m, with grey wispy irregular structures (up to 25mm in size). (Possible shells).</p> <p>At 25.88-26.18m, non-intact, recovered as silty subangular to subrounded fine to coarse gravel with a low subrounded cobble content.</p>			1 2 1 1	
					(NI)	At 26.18-26.40m, assumed zone of core loss.				
					(AZCL)					
26.40-27.90	26.40	100 67	0.26 0.02	35	(5)	<p>Very weak locally weak, medium density, white with many black specks CHALK.</p> <p>Discontinuities are:</p> <p>Set 1 are subhorizontal (0-10 degrees), very closely to medium spaced (40/200/530), clean or infilled (0/0/3) with comminuted chalk, undulating and rough with many black specks and occasional orangish brown surface staining.</p>	26.40 (81.47)		1 1 1	
27.33-27.59		C			(3)	<p>Set 2 are subvertical (80-90 degrees), clean (0/0/0), undulating or stepped and rough with many black specks and rare orangish brown surface staining.</p> <p>Set 3 are 40-60 degrees, very closely to medium spaced (50/150/250), clean or infilled (0/1/3) with comminuted chalk, stepped or undulating and rough with many black specks and rare orangish brown or grey surface staining. [Grade A2/3]</p> <p>Between 26.40-27.05m, discontinuity inclined 85 degrees, clean, undulating and rough with many black specks and orangish brown surface staining.</p>			1 1	
27.90-29.40 27.90-28.02	27.90	100 78 C	0.28 0.06	35					1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Project No **PC197510**
 Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
						At 28.05m, with a circular sponge fossil (3mm in size) stained orangish brown.			1	
					(NI)	At 28.33m, with shell fragments / trace fossils (<60mm in size) with much orangish brown staining. Between 28.43-28.49m, non intact recovered as slightly silty subangular coarse gravel. With angular to subangular small and medium nodular flint fragments (up to 120mm in size).			1	
					(3)	At 28.87m, with a interwoven marl seam (<1mm thick). Between 28.91-29.08m, with occasional interwoven grey marl seams (up to 2mm thick).			1 1 1	
29.40-30.90	29.40	73 57	0.29 0.04	29		At 29.37m, with a interwoven wispy grey marl seam (<1mm thick) and orangish brown trace sponges (up to 5mm in size). At 29.40m, with nodular flint (60mm thick and full diameter) with a 1mm thick cortex. At 29.56m, with a flint band of subangular small nodular flint fragments (up to 40mm in size).			1 1 1 1	
30.02-30.31		C			(8)	At 29.93m, with a interwoven thin grey marl seam (<1mm thick). At 30.07m, with interwoven wispy marl seams (<1mm thick).			3 2 1	
					(AZCL)	Between 30.50-30.90m, assumed zone of core loss.			1 1	
30.90-32.40 30.96-31.12	30.90	78 36 C	0.17 0.03		(5)				1	
					(NI)	Between 31.12-31.40m, non-intact, recovered as slightly silty angular to subrounded fine to coarse gravel with a low subangular cobble content.			2	
					(4)					
					(NI)	Between 31.64-32.00m, non-intact, recovered as silty angular to subangular fine to coarse gravel. At 31.64m, with many angular to subangular small nodular flint fragments (up to 60mm in size) with a 2mm thick cortex. At 31.73m, with orangish brown staining. (Possible sponge trace fossils). At 31.92m, with very silty angular to subangular small nodular flint fragments (up to 20mm in size).			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
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 Figure **8 of 12**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(8)	Between 32.13-32.40m, assumed zone of core loss.				
					(AZCL)					
32.40-33.90	32.40	100 55	0.25 0.02	39	(NI)	Between 32.40-32.70m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content.				
33.13-33.30		C			(5)	At 32.85m, with dark orangish brown irregular staining (30m in size). (Possible fossil) Between 32.90-33.01m, with irregular orange brown mottled staining on clasts. At 33.01m, with orangish brown staining (up to 120mm in size). (Possible sponges) At 33.10m, with a circular shaped orangish brown surface stain on clast (Possible sponge) on Set 1 discontinuity.			1 1 1	
					(NI)	Between 33.30-33.40m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content. With many angular to subangular small nodular flint fragments (40mm in size).				
					(6)				1 2	
33.90-35.40	33.90	99 35	0.17 0.02	19	(NI)	Between 33.90-33.98m, non-intact, recovered as subangular coarse gravel.			1 3 1 1	
					(6)				1 1 1	
34.56-34.72		C			(NI)	Between 34.72-35.02m, with subangular to subrounded small and medium nodular flint fragments (up to 90mm in size). Between 34.81-35.60m, non intact, recovered as angular to subangular fine to coarse gravel with a medium subangular to subrounded cobble content.				
					(NI)	At 35.26m, with oval shaped orangish brown surface staining on clasts (up to 20mm in size) with a white centre. (Possible sponge)			2	
35.40-36.90	35.40	100 87	0.29 0.04	54		At 35.58m, with a subangular medium nodular flint fragment (up to 110mm in size) and subangular to subrounded small nodular flint fragments (up to 15mm in size).			1 1	
35.87-36.12		C							1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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Figure **9 of 12**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71902**
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Project No **PC197510**
 Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(5)	At 36.28m, with rare shell fragments (up to 8mm in size). Between 36.30-36.33m, with orangish brown surface staining. (Possible sponge fossils). At 36.39m, with angular to subangular small nodular flint fragments (up to 20mm in size). At 36.58m, with interwoven wispy marl seams (<1mm thick). At 36.62m, with orangish brown mottling (up to 5mm in size). (Possible sponge trace fossils)				
36.90-38.40	36.90	93 62	0.28 0.03	36	(NI)	Between 36.90-37.28m, non-intact, recovered as slightly silty angular coarse gravel with a medium angular to subangular cobble content.				
37.63-37.82		C			(6)	At 37.63m, with orangish brown staining. (Possible fossil). With occasional subangular small sheet flint fragments (up to 30mm in size).				
38.40-39.90 38.40-38.62	38.40	100 58 C	0.25 0.03	51	(NI)	Between 38.80-39.00m, non-intact, recovered as gravelly silt. Between 39.17-39.49m, non-intact, recovered as gravelly silt.				
					(3)	At 39.85m, with subangular small nodular flint fragments (up to 50mm in size).				
39.90-41.40	39.90	96 77	0.42 0.03	73	(NI)	Between 39.85-40.08m, non-intact, recovered as silty angular to subangular fine to coarse gravel with a low subangular cobble content.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
 Checked by **DRB**
 Figure **10 of 12**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(Fl)	Description	Depth (Level)	Legend	Discontinuity	
40.53-40.76		C			(3)	At 40.80m, with a subrounded finger flint fragment (40mm in size).			1	
41.40-42.90 41.50-41.76	41.40	100 82 C	0.32 0.05	49		At 41.52m, with occasional wispy grey interwoven marl seams (<2mm thick). At 41.83m, with orangish brown pyritised sponge fossil (50mm in size). At 42.08m, with a orangish brown trace fossil (<5mm in size). (Possible sponges) Between 42.50-42.55m, with many wispy grey interwoven marl seams (<3mm thick).			1 1 1 2 3 3	
42.90-44.40 43.05-43.18	42.90	77 63 C	0.19 0.09	34	(9)	At 43.57m, with a nodular flint (110mm thick and full diameter) with a 2mm thick cortex. At 43.70m, with orangish brown mottling (<5mm in size). (Possible sponge fossils)			1 1 1 1 3 2	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71902** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411422.9 E 141797.2 N** Ground Level **107.87 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)	At 44.00m, with subangular to subrounded medium flint fragments (up to 80mm in size) with a 2mm thick cortex. Between 44.05-44.40m, assumed zone of core loss. (Possibly drilling induced).				
44.40-46.10	44.40	100 69	0.21 0.02	39	(5)				1	3
45.11-45.32		C			(NI)	Between 45.49-45.59m, 45.64-45.69 & 45.76-46.10m, non-intact, recovered as silty subangular to subrounded fine to coarse gravel. With occasional angular small flint fragments (up to 40mm in size). At 45.69m, wispy grey marl seam (<1mm thick).			3	1
						End of Borehole	46.10 (61.77)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **MM/AB**
Checked by **DRB**
Figure **12 of 12**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.10- 0.30 0.10 0.10 0.10 0.20		B D ES B	PID=<0.1			MADE GROUND: Firm greyish brown slightly sandy gravelly silt with many rootlets and occasional medium to coarse gravel sized tile fragments (possible asbestos containing material). Gravel is angular to subrounded fine to coarse of chalk, flint and brick.	G.L. (105.18) 0.35 (104.83)			
0.50 0.50 0.50		D ES	PID=<0.1			Structureless CHALK composed of slightly sandy silty subangular to subrounded fine to coarse gravel. Clasts are very weak, low to medium density, white with rare brown surface staining. With occasional subangular fine to coarse rounded flints.	1.00 (104.18)			
0.80- 1.00		B				(Grade Dc) [GRADE Dc]				
1.00 1.00 1.00		D ES	PID=<0.1			CHALK**	1.15 (104.03)			
1.15- 2.35	1.15	100 67	0.07 0.02	0		CHALK, recovered as silty angular to subangular fine to coarse gravel. Clasts are weak, medium density, white with occasional black specks. Matrix is white. At 1.15m, 2 No. subangular small nodular flint fragments (40mm and 45mm).				
1.90- 1.95 1.95- 2.00		C C			(NI)	Between 1.77-1.94m, solid core. Discontinuities are: Set 1 are subhorizontal, clean or infilled (0/0/1) with comminuted chalk, planar and rough with much orangish brown surface staining. Set 2 are inclined 60 degrees, clean, undulating and rough with occasional black specks.			1 2 1	
2.35- 3.85	2.35	87 60	0.09 0.02	0	(AZCL)	Between 2.35-2.55m, assumed zone of core loss.				
					(NI)					
					(12)	Weak, medium density, white with occasional black specks CHALK. Discontinuities are:	2.80 (102.38)		2	
					(NI)	Set 1 are subhorizontal 0-10 degrees, very closely to closely spaced (20/60/120), clean rarely infilled (0/0/1) with comminuted chalk, undulating rarely planar and rough with many black specks and rare orangish brown surface staining.			1 1 1 1 1 1	
					(18)	[GRADE A4] Between 3.05-3.16m, non intact, recovered as silty angular fine to coarse gravel.				
						Weak, medium density, white with many black specks and rare orange brown surface staining CHALK.	3.70 (101.48)			
3.85- 5.35	3.85	100 57	0.12 0.05	15	(NI)	Discontinuities are: Set 1 are subhorizontal 0-10 degrees, clean (70/135/200), stepped and rough with many black				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.30	0.50	Inspection Pit	Arch	G.I.			07/06/19	08:00						None encountered during drilling. Possible masked by flush.
1.00	0.50	Inspection Pit	SP/PB	1.00	NIL	DRY	07/06/19	18:00						
49.00	0.12	Geobor S	SP/PB	1.00	NIL	DRY	11/06/19	08:00						
				11.35	11.35		11/06/19	18:00						
				11.35	11.35		12/06/19	08:00						
				14.35	14.35		12/06/19	18:00						

Remarks **AB** Inspection pit hand excavated to 0.35m by an archeologist and extended to 1.00m depth by geotechnics. No services were found. Unable to hand excavate below 1.00m due to hard strata.
 ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
 150mm diameter casing installed to 1.15m depth.
 ** Drillers description.
 On completion hole collapsed back to 47.00m prior to standpipe installation.
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI/AB**
 Figure **1 of 13**
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Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.



BOREHOLE RECORD - Rotary Core


Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.50- 4.60		C			(9)	specks. Set 2 are 50-60 degrees, clean (0/0/0), undulating and rough with many black specks and rare slickenlines. Set 3 are 85 degrees, clean, undulating and rough with many black specks. [GRADE A3] Between 3.70-3.85m, non intact, recovered as angular fine to coarse gravel. Between 3.85-4.20m, non intact, recovered as angular fine to coarse gravel with a low subangular cobble content. At 4.55m, discontinuities inclined 35 degrees, clean, undulating and rough with rare black specks. Between 4.68-5.15m, with occasionally seams and patches of orangish brown surface staining on clasts (up to 15mm in size). Between 4.90-5.35m, non intact, recovered as silty angular fine to coarse gravel.				
5.35- 6.85	5.35	99 63	0.10 0.02	7	(7)					
					(NI)	CHALK, recovered as angular to subangular, fine to coarse GRAVEL. Clasts are weak, medium density, white with occasional black specks.	5.95 (99.23)			
					(10)	Between 6.50-6.60m, solid core.				
					(NI)					
6.85- 8.35	6.85	87 58	0.17 0.05	31	(AZCL)	Between 6.85-7.05m, assumed zone of core loss.				
						Weak, medium density, white with occasional black specks CHALK.	6.95 (98.23)			
						Discontinuities are:				
7.30- 7.47		C			(6)	Set 1 are subhorizontal 0-5 degrees, clean, stepped and rough with occasional black specks. Set 2 are 60-70 degrees, medium spaced (30/50/70), clean, undulating and rough with many black specks and rare slickenlines. [GRADE A4]				
					(NI)	Between 7.70-8.00m, non intact, recovered as angular fine to coarse gravel.				

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				14.35	14.35		13/06/19	08:00						
				21.10	21.10	DRY	13/06/19	18:00						
				21.10	21.40		25/06/19	08:00						
				25.50	25.50		25/06/19	18:00						
				25.50	25.50	25.20	26/06/19	08:00						
				32.50	29.50		26/06/19	18:00						

Remarks **Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).**
 The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
 A 50mm standpipe was installed to 47.00m with a slotted section from 27.50m to 45.50m with upright lockable protective cover. Backfill details from base of hole: gravel filter up to 25.50m, cement bentonite up to 22.50m, bentonite up to 2.00m, concrete up to ground level.
 Flush: 1.15-26.50m, Air/Mist, 100% returns; 26.50-29.50m, Air/Mist, 0% returns;
 All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(11)	At 8.27m, discontinuity inclined 35 degrees, clean, undulating and rough with rare black specks.				
8.35- 9.85	8.35	95 80	0.30 0.09	57		Weak, medium density, white with occasional black specks CHALK with some fossil remains (up to 10mm in size) and occasional grey marl seams (up to 10mm thick) and rare wispy grey marl partings (<1mm). Discontinuities are: Set 1 are subhorizontal 0-10 degrees, clean rarely infilled (0/0/1) with comminuted chalk, stepped and rough with many black specks. Set 2 are 60-80 degrees, clean, stepped or undulating and rough with many black specks and rare fossils (up to 10mm in size). Between 8.35-8.45m, with occasional fossils (up to 10mm in size) with orangish brown surface staining. At 8.44m, discontinuity inclined 20 degrees, infilled (1mm thick) with comminuted chalk, undulating and rough with rare black specks and orangish brown surface staining. At 8.50m, with a subangular medium nodular flint (80mm in size). At 9.04m, 2 No. fossil remains (5mm and 8mm in size). At 9.34m, with many interwoven grey marl seams (up to 5mm thick) with wispy marl partings (<1mm thick). At 9.74m, with a pocket (8mm in size) of light brown phosphatic chalk.	8.35 (96.83)			
9.55- 9.85		C			(4)					
9.85-11.35	9.85	87 77	0.26 0.06	49	(AZCL)	Between 9.85-10.05m, assumed zone of core loss. Between 10.43-10.66m, discontinuity inclined 85 degrees, clean, undulating and smooth with many black specks. At 10.91m, with many interwoven grey marl seams (up to 5mm thick) with grey marl partings (up to 1mm thick). At 10.95m, with many very thinly bedded wispy grey marl partings (<1mm thick). At 11.20m, with occasional shell fragments (up to 2mm in size). Between 11.28-11.38m, with many thinly laminated grey marl partings (<1mm thick). Between 11.32-11.35m, non intact, recovered as angular to subrounded fine to coarse gravel.				
11.35-12.85	11.35	100 87	0.17 0.06	47	(NI)	Weak, locally very weak, medium density, white with occasional black specks CHALK. Discontinuities are: Set 1 are 0-10 degrees, medium spaced (280/310/360), clean or infilled (0/0/1) with marl, stepped or undulating and rough with many black specks occasional orangish brown surface staining and rare fossils.	11.35 (93.83)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
				32.50	29.50	29.30	27/06/19	08:00						
				38.50	35.50		27/06/19	18:00						
				38.50	35.50	36.40	28/06/19	08:00						
				41.50	35.50		28/06/19	18:00						
				41.50	35.50	37.80	01/07/19	08:00						
				49.00	49.00		01/07/19	18:00						

Remarks **AGS** 29.50-32.50m, Air/Mist, 5% returns; 32.50-49.00m, Air/Mist, 100% return.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
12.60-12.70		C			(NI)	Set 2 are 25-35 degrees, closely to medium spaced (140/185/230), clean or infilled (0/0/2) with comminuted chalk, stepped and rough with many black specks. Set 3 are 80-90 degrees, clean or infilled (0/0/1) with marl, undulating or stepped and rough with many black specks and occasional orangish brown surface staining. [GRADE A2] Between 11.42-11.56m, with occasional orange brown surface staining on clasts. At 11.50m, 2 No. fossil remains (up to 2mm in size). At 11.50m, cladoceramus undulatoaplicatus fossil (30mm x 65mm) in Set 1 discontinuity.				
12.85-14.35	12.85	87 71	0.29 0.09	43	(AZCL)	Between 12.45-12.85m, non intact, recovered as silty angular to subangular fine to coarse gravel. Between 12.85-13.05m, assumed zone of core loss.				
13.32-13.62		C			(NI)	At 13.10m, with a subangular small rinded flint (40mm in size). At 13.38m, 45 degrees dipping, clean, stepped and rough discontinuity. At 13.55m, with a circular fossil (30mm diameter).				
14.35-15.85	14.35	80 67	0.26 0.05	17	(AZCL)	Between 14.10-14.35m, non intact, recovered as angular to subrounded fine to coarse gravel with a subrounded cobble. Between 14.35-14.65m, assumed zone of core loss.				
15.13-15.93		C			(5)					
15.13-15.93		C			(NI)	At 15.30m, with a wispy grey marl parting (<1mm thick). Between 15.39-15.85m, non intact, recovered as angular fine to coarse gravel.				
15.85-17.35	14.35	67 60	0.20 0.05	25		Between 15.85-16.35m, assumed zone of core loss.				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.
 All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
16.84-17.04		C			(4)	<p>(AZCL)</p> <p>Weak, medium to high density, white with occasional black specks CHALK.</p> <p>Discontinuations are:</p> <p>Set 1 are 0-15 degrees, closely to medium spaced (60/160/400), clean rarely infilled (0/0/1) with comminuted chalk or marl, stepped and rough with many black specks and rare orangish brown surface staining.</p> <p>Set 2 are 80-90 degrees, clean, undulating and rough with many black specks and rare polished surface. [GRADE A3] Between 16.35-16.43m, medium strong dark grey shale.</p>	16.35 (88.83)			
17.35-18.85	17.35	100 50	0.15 0.05	29	(NI)	<p>At 17.35m, with occasional subangular small and medium flint fragments (up to 60mm in size) with 1mm thick grey cortex.</p> <p>Between 17.35-18.21m, non intact, recovered as silty angular fine to coarse gravel.</p> <p>Between 17.95-18.10m, with occasional subangular small and medium nodular flints (up to 70mm in size).</p> <p>Between 18.36-18.45m, with occasional subangular to subrounded medium nodular flint fragments (up to 100mm in size).</p>				
18.85-20.35	18.00	100 77	0.18 0.07	56	(2)	<p>At 18.75m, 2 No. pockets of light brown phosphatic chalk (8mm and 12mm in size).</p> <p>At 18.88m, with a grey wispy marl parting (<1mm thick).</p>				
19.98-20.10		C			(13)	<p>Between 19.37-19.43m, non intact, recovered as angular fine to coarse gravel.</p> <p>At 19.60m, with a grey wispy marl seam (<1mm thick).</p> <p>At 19.73m, with a fossil (2mm in size).</p> <p>At 19.73m, discontinuity inclined 20 degrees, infilled (1mm thick) with marl, stepped and rough with many black specks.</p> <p>At 19.74m, with a grey wispy marl seam (<1mm thick).</p>				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903**
 PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 19.98-20.00m, 2 No. grey wispy marl seams (1mm thick). At 20.08m, with a fossil remain (<2mm in size). Between 20.10-20.35m, non intact, recovered as slightly sandy angular fine to coarse gravel.	20.35 (84.83)			
20.35-21.10	20.35	0				CHALK**. At 20.35m, with a subangular medium nodular flint fragment (100mm in size).				
21.10-22.50	21.10	0			(NR)					
22.50-23.60	22.50	68 41	0.15 0.06	0	(NI)	Weak locally very weak, medium density, white with occasional black specks CHALK .	22.50 (82.68)			
22.93-23.06		C			(2)	Discontinuity is 60 degrees, clean, stepped and rough with occasional black specks. Between 22.50-22.61m, non intact, recovered as a slightly silty subrounded to rounded fine to coarse gravel.			1	
					(NI)	At 22.60m, with a subangular a small nodular flint (50mm in size). At 22.81m, with a undulating trace fossil (<1mm thick), stained orangish brown.				
					(AZCL)	Between 23.06-23.25m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel. Between 23.10-23.25m, with many subangular to subrounded small nodular flints (up to 50mm in size) with a 2mm thick cortex. Between 23.25-23.60m, assumed zone of core loss.				
23.60-25.50	23.60	0 0	0 0	0		CHALK**.	23.60 (81.58)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NR)					
25.50-26.50	25.50	100 78	0.20 0.08	25	(NI)	Weak locally very weak, medium density, white with occasional black specks CHALK .	25.50 (79.68)			
26.00-26.21		C			(8)	Discontinuities are: Set 1 are 0-5 degrees, closely spaced (80/95/110), clean or infilled (0/1/1) with comminuted chalk,, undulating and rough with many black specks. [GRADE B3] Between 25.50-25.66m, non intact, recovered as slightly silty angular to subangular coarse gravel with a low subrounded cobble content. At 25.64m, with a subangular to subrounded small nodular flint fragments (up to 50mm in size). At 25.86m, discontinuity inclined 55 degrees, clean, undulating and rough with occasional black specks.	26.21 (78.97)			
26.50-29.50	26.50	6 5	0.06 0.04	0	(NI)	CHALK, recovered as slightly silty angular to subangular fine to coarse GRAVEL. Clasts are very weak to weak, medium density and white with occasional black specks. Matrix is white. Between 26.21-26.50m, with a low subangular cobble content. Clast with rare orangish brown surface staining. Between 26.50-26.67m, Clasts with occasional orangish brown surface staining of trace fossils. Between 26.67-29.50m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core


Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling Properties/Sampling Strata Scale 1:20

Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity
					(AZCL)				
29.50-32.50	29.50	13 3	0.06 0.05	0	(NI)	<p>Between 29.50-29.90m, with a medium subangular cobble content. Clasts with occasional orangish brown mottling.</p> <p>At 29.50m, with a nodular flint fragment (75mm thick and full diameter).</p> <p>At 29.85m, with a nodular flint (83mm thick and full diameter).</p> <p>Between 29.90-32.50m, assumed zone of core loss.</p>			
					(AZCL)				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
32.50-35.50	32.50	12 9	0.08 0.06	0	(NI) (13)	<p>Between 32.50-32.55m, non intact, recovered as a angular to subangular small nodular flint fragments (up to 40mm in size).</p> <p>Between 32.55-32.85m, solid core. Discontinuities are 0-10 degrees, clean or infilled (0/0/1) with comminute chalk, undulating and rough with occasional black specks.</p> <p>Between 32.55-32.65m, discontinuity inclined 90 degrees, clean, undulating and smooth with many black specks.</p> <p>Between 32.85-35.50m, assumed zone of core loss.</p>			1 1	
35.50-38.50	35.50	30 16	0.19 0.05	6	(NI) (5)	<p>Between 35.50-35.55m, non intact, recovered as angular to subangular small nodular flint fragments (up to 40mm in size).</p> <p>Between 35.55-35.75m and 35.83-36.00m, solid core. At 35.68m, subhorizontal discontinuity, clean, undulating and rough with occasional black specks.</p>			1	
35.83-36.02		C			(NI) (6)	<p>At 35.84m, with interwoven wispy marl seams (<1mm thick) with wispy marl partings.</p> <p>Between 36.00-36.40m, with a low subangular cobble content.</p>				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)					
					(AZCL)	Between 36.40-38.50m, assumed zone of core loss.				
38.50-41.50	35.50	0			(NR)	CHALK**	38.50 (66.68)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI/AB**
Figure **10 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
41.50-43.00	41.50	97 77	0.49 0.10	53		Weak locally very weak, medium density, white CHALK with occasional greenish grey marl seams.	41.50 (63.68)		1	
41.77-42.07		C			(3)	Discontinuities where seen are: Set 1 are subhorizontal (0-5 degrees), closely to medium spaced (130/200/490), clean or infilled (0/0/1) with comminuted chalk rarely greenish grey clay, undulating rarely stepped and rough with many black specks. [Grade A2/3] At 41.67m, with many interwoven grey marl seams (<3mm thick) with wispy marl partings (<1mm thick). Between 42.07-42.17m, flint band of rounded small flints (up to 30mm in size) with a 5mm thick cortex. Between 42.43-42.55m, with orangish brown mottling (up to 10mm in size). (Possible trace sponge beds).			1 1 1 1 1	
43.00-44.50	43.00	67 14	0.18 0.02	12		Between 43.00-44.00m, non intact, recovered as silty angular to subangular fine to coarse gravel. With many angular to subangular small flint fragments.				
43.41-43.57		C			(NI)	At 43.80m, with a subangular small nodular flint (20mm in size) with <1mm thick cortex. Between 44.00-44.50m, assumed zone or core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71903** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E 141725.5 N** Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(AZCL)					
44.50-46.00	44.50	88 61	0.21 0.04	37	(NI)	Between 44.50-44.61m, with subangular to subrounded small nodular flint fragments (up to 50mm in size) with a 2mm thick cortex. At 44.66m, with elongated orangish brown mottling (<100mm long x <10mm wide). (Possible sponge beds)			1	
44.77-44.95		C			(4)				1	
					(NI)	Between 45.16-45.35m, non intact, recovered as slightly silty angular to subangular fine to coarse gravel.			1	
					(4)	At 45.45m, with trace sponge fossil (up to 25mm in size), stained orangish brown. At 45.49m, discontinuity inclined 55 degrees, infilled (1mm thick) with comminuted chalk, stepped and rough with occasional black specks. At 45.71m, with rare wispy grey marl seams (<3mm thick) with wispy grey partings (<1mm thick). Between 45.82-46.00m, assumed zone or core loss.			1	
					(AZCL)					
46.00-47.50	46.00	100 84	0.23 0.03	31		Between 46.10-46.18m, with elongated orangish brown mottling (100mm x <20mm). (Sponges). Between 46.22-46.37m, discontinuity inclined 85 degrees, clean, stepped and rough with many black specks.			1	
46.54-46.79		C			(5)	At 46.52m, with trace fossil (<1mm thick) stained orangish brown. At 46.85m, with angular to subangular small nodular flint fragments (up to 90mm in size) with 1mm thick cortex. At 47.00m, with wispy trace fossils (<1mm thick), stained orangish brown.			1	
47.50-49.00	47.50	100 81	0.16 0.07	45		At 47.95m, with elliptical trace fossils (1mm thick), stained orangish brown.			1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71903**
 PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411650.6 E**
141725.5 N Ground Level **105.18 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
48.19-48.36		C			(6)	Between 48.04-48.19m, discontinuity inclined 85 degrees, clean, undulating and smooth. (incipient). At 48.22m, small sheet flint fragments (up to 5mm in size). At 48.25m, with orangish brown staining of possible sponge fossils (up to 10mm in size).				
End of Borehole							49.00 (56.18)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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 Figure **13 of 13**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71904** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
0.10- 0.30 0.10 0.10 0.10		B D ES	PID=<0.1			TOPSOIL: Firm greyish brown slightly sandy gravelly silt with a low cobble content of subangular flint and many rootlets. Gravel is angular to subangular fine to coarse of chalk and flint.	G.L. (106.09)			
0.50 0.50 0.50		D ES	PID=<0.1		Structureless CHALK composed of sandy silty subangular to subrounded fine to coarse GRAVEL. Clasts are extremely weak to very weak, low to medium density, white with occasional brown surface staining. Matrix is white. With occasional angular to subangular small flint gravel. [GRADE Dc]	0.30 (105.79)				
0.80- 1.20 1.00 1.00		B ES	PID=<0.1							
1.20		D			CHALK**	1.20 (104.89)				
1.40- 2.65	1.40	100 40	0.06 0.02		(NI)	Weak, locally very weak, medium density white with occasional black specks CHALK. Discontinuities are: Set 1 are subhorizontal (0-15 degrees), very closely to closely spaced (20/50/100), clean (0/0/0), stepped rarely undulating and rough with occasional black specks. Set 2 are 70-80 degrees, clean or infilled (0/1/1) with comminuted chalk, undulating and rough with occasional black specks. [GRADE A4] Between 1.40-1.85m, non intact, recovered as angular to subangular fine to coarse gravel. With 2 No. rounded small flints (25mm in size). (Possibly Platyceramus). At 1.47m, with occasional trace fossils (up to 10mm in size), stained orangish brown. Between 2.00-2.34m, with occasional sponge fossils (up to 7mm in size), stained orangish brown. Between 2.20-3.00m, non intact, recovered as angular to subangular fine to coarse gravel. (Possibly drilling induced). At 2.70m, clasts have occasional orangish brown surface staining and some sponge fossils (up to 20mm in size).	1.40 (104.69)		1 1 2 1 2	
2.65- 4.15 3.11- 3.13	2.65	93 20	0.06 0		(19)	At 3.00m, clasts have occasional orangish brown surface staining and some sponge fossils (up to 10mm in size). At 3.15m, discontinuity inclined 45 degrees, clean, stepped and rough with occasional black specks. Between 3.16-4.45m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have occasional orange brown surface staining and some fossil remains.			2	
					(NI)					

Drilling				Progress				Groundwater						
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater
0.30	0.50	Inspection Pit	Arch	G.I.			07/06/19	08:00	24.65	24.65				
1.20	0.30	Inspection Pit	AC/RW	1.20	NIL	DRY	07/06/19	18:00						Possible water strike.
1.40	0.12	Rotary Open Hole	AC/RW	1.20	NIL		26/06/19	08:00	40.65	40.65				
50.65	0.12	Geobor S	AC/RW	13.15	13.15	13.00	08/06/19	18:00						
				13.15	13.15		27/06/19	08:00						
				50.65	50.65	38.90	27/06/19	18:00						

Remarks Inspection pit hand excavated to 0.30m by an archeologist and extended to 1.20m depth by geotechnics. No services were found.
ES sample = 1 x vial, 1 x plastic jar and 1 amber jar
Chalk logged in accordance with CIRIA Report C574, 2002.
Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
The graphical representation of discontinuities on the Borehole Record is for indicative purposes only, the details of each are presented on the discontinuity summary table.
Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI**
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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
4.15- 5.56 4.20- 4.31	4.15	100 47 C	0.11 0.07	20	(10)	Weak, medium density, white with many black specks CHALK. Discontinuities where seen are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (60/170/430), clean (0/0/1) with comminuted chalk and rare marl, stepped rarely undulating and rough with occasional black specks and rare orangish brown surface staining. Set 2 are 30-45 degrees, closely to widely spaced (40/270/610), clean or infilled (0/1/1) with comminuted chalk or marl, stepped rarely undulating and rough with many black specks and rare orangish brown surface staining and slickenlines. Set 3 are 55-70 degrees, clean or infilled (0/0/2) with comminuted chalk, stepped locally undulating and rough with many black specks and rare orangish brown surface staining. Set 4 are 80-90 degrees, clean (0/0/0), undulating or stepped and rough with many black specks are rare orangish brown surface staining. [GRADE A3] Between 4.93-5.00m, non intact, recovered as angular to subangular fine to coarse gravel. Clasts have occasionally orangish brown surface stained with rare possible trace fossils (up to 3mm in size). Between 5.32-5.65m, with much orangish brown penetrative staining (up to 5mm depth) with occasional sponge fossils and some shell fragments (up to 10mm in size). Between 5.65-6.30m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have occasional orangish brown surface staining (up to 2mm in size). (Possible sponge fossils) At 5.80m, with orangish brown staining (up to 3mm in size). (Possibly sponge fossils)	4.15 (101.94)		1 1 1 2 2 3 1 1 4 4 1 1	
5.56- 7.15	5.56	99 43	0.11 0	28	(NI)	Between 6.80-7.15m, non intact, recovered as angular to subangular fine to coarse gravel with a low angular cobble content.			1	
6.50- 6.80		C			(4)				2	
7.15- 8.65	7.15	99 47	0.13 0.06	17	(6)	Between 7.70-8.10m, non intact, recovered as angular to subangular fine to coarse gravel. At 7.80m, with occasional fossils (up to 3mm in size) stained orangish brown.			1 1 4	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks **Backfill details from base of hole: bentonite seal up to 33.20m, grout up to ground level. ABG Flush: 1.40-20.65m, Air/Mist, 100% returns; 20.65-23.65m, Air/Mist, 25% returns; 23.65-50.65m, Air/Mist, 100% return.**

Symbols and abbreviations are explained on the accompanying key sheet.
All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71904**
 Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(14)					
8.65-10.15	8.65	100 83	0.02 0.06	37		At 8.60m, with occasional fossils (up to 2mm in size), stained orangish brown with a grey marl seam (<1mm thick).				
9.50- 9.70		C			(4)	At 9.04m, discontinuity inclined 20 degrees, clean, stepped and rough with many black specks. At 9.08m, with a marl seam (5mm thick) with many wispy grey marl partings (<1mm thick).				
10.15-11.65	10.15	93 63	0.20 0.06	33	(NI)	Between 10.15-10.25m, non intact, recovered as angular to subangular fine to coarse gravel. (Possibly drilling induced).				
					(5)	Between 10.38-10.41m, with a pocket (up to 10mm in size) of light grey and light brown phosphatic chalk. At 10.43m, with orangish brown staining (up to 3mm in size). (Possibly sponge fossils) Between 10.60-10.71m, with a pocket of light grey and light brown phosphatic chalk (20 x 30mm in size) with occasional orangish brown surface staining and possible fossils. At 10.70m, with a grey marl seam (<1mm thick) and 2 No. angular to subangular small nodular flint fragments (up to 40mm in size). At 10.96m, with orangish brown staining (<1mm in size). (Possibly fossils) At 11.01m, with orangish brown staining (<2mm in size).				
					(NI)	Between 11.21m and 11.44m, with occasional pockets (up to 20mm in size) of light grey and light brown phosphatic chalk. At 11.26m, with orangish brown surface staining (<2mm in size). (Possible sponge fossil) Between 11.44-11.65m, non intact, recovered as angular to subangular fine to coarse gravel. With 2x subangular to subrounded small nodular flint fragments (15 and 20mm in size).				
11.65-13.15	11.65	99 80	0.20 0.07	47		Between 11.65-11.80m, with many trace fossils (4mm in size), stained orangish brown and occasional grey marl partings (<1mm thick) with a small pocket (2mm in size) of light grey and light brown phosphatic chalk. At 11.77m, with a undulating grey wispy marl seam (up to 5mm thick).				
12.00-12.13		C				At 11.88m, with a pocket (40mm in size) of light grey and light brown phosphatic chalk.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(5)	At 12.13m and 12.15m, with occasional white fossils (up to 3mm in size).				
					(NI)	Between 12.65-12.75m, non intact, recovered as silty angular to subangular fine to coarse gravel. At 12.75m, with a subangular medium nodular flint (100mm in size). At 12.86m, with occasional orangish brown staining (3mm in size). (Possibly fossils).				
					(5)					
13.15-14.65	13.15	95 65	0.16 0	20	(NI)	Between 13.15-13.43m, non intact, recovered as angular to subangular fine to coarse gravel. At 13.35m, with a subangular medium nodular flint (60mm in size).				
					(8)					
					(NI)	Between 13.92-14.05m, non intact, recovered as silty angular to subangular fine to coarse gravel. With 3x subangular small nodular flint fragments (up to 30mm in size).				
					(3)					
					(NI)	Between 14.40-14.65m, non intact, recovered as silty angular to subangular fine to coarse gravel.				
					(5)					
14.65-16.15	14.65	87 53	0.20 0.06	23						
15.50-15.70		C				Between 15.50-15.95m, with much orangish brown staining (up to 5mm in size). (Possible sponge fossils). Between 15.95-16.15m, assumed zone of core loss.				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 20.30-20.45m, non intact, recovered as angular to subangular small and medium nodular flints (up to 60mm in size) with a small elongated sponge flint (25mm in size).				
					(AZCL)	Between 20.45-20.65m, assumed zone of core loss.				
20.65-22.15	20.65	100 99	0.20 0.11	62	(4)	Between 21.02-21.20m, with occasional orangish brown mottling. (Possible fossils).				
						At 21.95m, discontinuity inclined 70 degrees, clean, stepped and rough with many black specks.				
22.15-23.65	22.15	100 63	0.29 0	27	(NI)	Between 22.15-22.65m, non intact, recovered as angular to subangular fine to coarse gravel.				
					(13)	At 22.50m, with a sheet flint (5mm thick).				
23.10-23.39		C			(NI)	Between 22.85-23.08m, non intact, recovered as subangular small and medium nodular flint fragments (up to 90mm in size).				
					(5)					
23.65-25.15	23.65	95 69	0.35 0	67		At 23.65m, 4 No. subangular small nodular flints (up to 45mm in size) coated with marl.				
						At 23.85m, with a subrounded small nodular flint (50mm in size).				
						Between 23.90-24.00m, with occasional orangish brown mottling (2mm in size). (Possible sponge fossils).				


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

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Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet


BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(2)	Between 24.20-24.40m, with occasional orangish brown mottling (up to 2mm in size). (Possible sponge fossils). Between 24.50-24.65m, with much orangish brown surface staining (up to 5mm in size). (Possible sponge fossils).				
					(NI)	Between 24.90-25.15m, non intact, recovered as angular to subangular fine to coarse gravel. With 3 x angular to subangular small nodular flint fragments (up to 30mm in size).				
25.15-26.65	25.15	95 67	0.20 0	40	(6)	Weak, medium density, white with occasional black specks and orangish brown surface staining CHALK. Discontinuities are: Set 1 are 55-60 degrees, clean rarely infilled (0/0/1) with comminuted chalk, stepped and rough with occasional black specks and rare orangish brown and grey surface staining. Set 2 are 80-90 degrees, clean rarely infilled (0/0/1) with comminuted chalk, stepped rarely undulating and rough with occasional black specks and rare orangish brown surface staining. At 25.65m, discontinuity inclined 15 degrees, clean, stepped and rough with rare black specks. Between 25.75-25.96m, with orangish brown surface staining (up to 40mm in size). (Possibly sponge fossils). Between 25.96-26.11m, non intact, recovered as subangular to subrounded small and medium nodular flints (up to 60mm in size) with a finger flint (35mm in size). Between 26.11-26.65m, with occasional orangish brown surface staining (up to 3mm in size). (Possibly sponge fossils)	25.15 (80.94)			
26.11-26.23		C			(NI)					
26.65-28.15	26.65	93 60	0.19 0	45	(3)	At 26.80m, 3 No. subangular small nodular flints (up to 40mm in size). At 26.85m, 40 degree dipping, infilled (2mm thick) with comminuted chalk, stepped and rough discontinuity. At 27.00m, with a subangular medium nodular flint (80mm in size).				
					(NI)	Between 27.30-27.36m, non intact, recovered as silty angular to subangular fine to coarse gravel.				
					(5)					
					(NI)	Between 27.55-27.65m, non intact, recovered as silty angular to subangular fine to coarse gravel. With 4x subangular to subrounded small nodular flints (up to 25mm in size).				
					(2)					


Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres. Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71904** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
28.15-29.65	28.15	83 40	0.13 0	23		Between 28.15-28.45m, with much orangish brown surface staining (<5mm in size).				
28.55-28.68		C			(3)	At 28.65m, with wispy grey marl partings (<2mm thick).			2	
					(NI)	Between 28.85-29.40m, non intact, recovered as silty angular to subangular fine to coarse gravel. With subangular small and medium nodular flint fragments (up to 80mm in size).			2	
					(AZCL)	Between 29.40-29.65m, assumed zone of core loss.				
29.65-31.15	29.65	95 88	0.43 0.15	85		Weak, medium to high density, white with occasional black specks CHALK. Discontinuations are: Set 1 are subhorizontal (0-15 degrees), closely to medium spaced (90/200/400), clean rarely infilled (0/0/2) with comminuted chalk or marl, stepped and rough with many black specks and rare orangish brown surface staining and rare wispy grey marl partings (<2mm thick). Set 2 are 35-60 degrees, medium spaced (420/440/530), clean or infilled (0/0/2) with comminuted chalk, stepped and rough with occasional black specks and rare orangish brown surface staining. Set 3 are 80-90 degrees, clean rarely infilled (0/0/1) with comminuted chalk or marl, undulating or stepped and rough with occasional black specks and rare orangish brown surface staining. [Grade A2/3] Between 29.65-30.10m with many grey wispy marl partings (<1mm thick) and orangish brown surface staining on clasts (up to 100mm in size). Between 30.30-30.44m, with occasional grey wispy marl seams (<1mm thick) with occasional orangish brown surface staining (<2mm in size).	29.65 (76.44)		3	
30.17-30.50		C			(2)				1	
31.15-32.65	31.15	100 68	0.34 0.07	53					3	
31.15-31.28		C			(11)				1	
					(NI)	Between 31.42-31.48m, non intact, recovered as angular to subangular fine to coarse gravel				
					(14)	Between 31.55-31.75m, non intact, recovered as angular to subangular fine to coarse gravel. With a subangular to subrounded medium nodular flint (90mm in size).				
					(NI)	Between 31.75-31.90m, discontinuity inclined 70 degrees, clean, stepped and rough with many black specks.				
					(2)	Between 31.80-32.00m, with occasional orangish brown surface staining. (Possible sponge fossils).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole **R71904** Project No **PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	At 32.15m, with rare orangish brown circular staining (up to 10mm in size). (Possible fossils). Between 32.20-32.40m, non intact, recovered as angular to subangular fine to coarse gravel. (Possibly drilling induced).				
					(3)	At 32.40m, 32.50m and 32.65m, with rare orangish brown circular staining (up to 10mm in size). (Possible fossils).				
32.65-34.15	32.65	73 59	0.25 0.09	53	(NI)	Between 32.75-32.87m, with many subangular small and medium nodular flint fragments (up to 90mm in size). (Possibly flint band)				
33.08-33.26		C			(5)	At 33.38m, with orangish brown surface staining on clasts (<3mm in size).				
					(NI)	Between 33.70-33.75m, non intact, recovered as subangular small and medium nodular flints (up to 60mm in size).				
					(AZCL)	Between 33.75-34.15m, assumed zone of core loss.				
34.15-35.65	34.15	100 97	0.40 0.14	93	(3)	At 34.25m, with a wispy marl seam (<3mm thick). Between 34.35-34.50m, with occasional grey wispy marl seams (up to 3mm thick). At 34.80m, with wispy grey marl partings (<3mm thick). At 35.08m, with orangish brown surface staining on clasts (<2mm in size). Between 35.11-35.65m, with rare orangish brown surface staining on clasts. Below 35.16m, with a subrounded small nodular flint (45mm in size). At 35.18m, with orangish brown surface staining on clasts (<2mm in size).				
35.65-37.15	35.65	93 80	0.27 0.11	63	(NI)	Between 35.80-35.90m, non intact, recovered as subangular small and medium flint fragments (up to 70mm in size).				
35.98-36.25		C				At 35.90m, with wispy grey marl partings (<1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510
 Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(2)	At 36.00m, with orangish brown surface staining on clasts (up to 10mm in size). (Possible trace fossils).				
37.15-38.65	37.15	88 84	0.40 0.16	84	(3)	Between 37.60-37.85m, with much orangish brown surface staining (up to 5mm in size). (Possible fossils). At 38.44m, with a subangular medium nodular flint (80mm in size). Between 38.47-38.65m, assumed zone of core loss.				
38.65-40.15	38.65	67 40	0.19 0.07	30	(NI)	Between 38.65-38.86m, non intact, recovered as angular to subangular fine to coarse gravel. With 5x subangular small and medium nodular flint fragments (up to 60mm in size).				
39.00-39.15		C			(4)	Between 39.65-40.15m, assumed zone of core loss.				
					(AZCL)					

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
40.15-41.65	40.15	100 63	0.26 0	59	(3)	Between 40.20-40.60m, with much orangish brown surface staining on clasts (up to 3mm in size).			2	
					(NI)	Between 41.20-41.65m, non intact, recovered as silty angular to subangular fine to coarse gravel. Clasts have rare orangish brown surface staining (up to 2mm in size). (Possible fossils)			1	
41.65-43.15	41.65	100 69	0.23 0.06	60	(3)	At 45.25m, with occasional orangish brown surface staining (<3mm in size).			1	
42.20-42.43		C			(NI)	At 42.50m, with a subangular to subrounded small nodular flint (50mm in size).			1	
					(10)	Between 42.65-42.80m, non intact, recovered as silty angular to subangular fine to coarse gravel. With subangular small and medium nodular flint fragments (up to 80m in size).			1	
					(NI)	Between 42.90-43.48m, non intact, recovered as angular to subangular fine to coarse gravel.			1	
43.15-44.65	43.15	99 62	0.26 0	33	(NI)	At 43.85m, 43.90m and 44.01m, with occasional white fossils (up to 10mm in size).			2	
									1	

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater

Remarks

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904** PC197510

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
44.65-46.15	44.65	96 93	0.21 0.12	75		<p>(3)</p> <p>At 45.25m, with orangish brown surface staining on clasts (up to 3mm in size). At 45.32m, with a flint band of subangular small nodular flints (up to 20mm in size). Between 45.33-45.47m, with bands of orangish brown surface staining (up to 10mm thick).</p> <p>At 45.95m, with subrounded small nodular flint (40mm in size). Between 45.99-46.02m, with much orangish brown surface staining on clasts (<2mm in size). (Possible sponges). Between 46.02-46.15m, with many wispy marl seams (<3mm thick). Between 46.15-46.30m, with orangish brown surface staining on clasts (<20mm in size). (Possible sponges)</p> <p>At 47.00m, with a subangular small nodular flint (<30mm in size). At 47.10m, with grey marl partings (<1mm thick).</p> <p>Between 47.45-47.65m, assumed zone of core loss.</p>				
46.15-47.65	46.15	87 82	0.30 0.15	82						
47.65-49.15	47.65	99 78	0.24 0	64						
47.94-48.14		C			(4)	At 48.04m, with wispy grey marl partings (<1mm thick).				

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

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BOREHOLE RECORD - Rotary Core

Project **A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)** Engineer **AECOM** Borehole Project No **R71904 PC197510**

Client **HIGHWAYS ENGLAND** National Grid Coordinates **411774.9 E 141875.0 N** Ground Level **106.09 m OD**

Drilling		Properties/Sampling				Strata		Scale 1:20		
Core Run/Depth (Core Dia/Time)	Depth Cased & (to Water)	Type TCR/SCR%	Length Max/Min	RQD %	(FI)	Description	Depth (Level)	Legend	Discontinuity	
					(NI)	Between 48.13-48.25m, non intact, recovered as angular to subangular small and medium nodular flints (up to 80mm in size). (Possibly flint band). Between 48.25-49.15m, non intact, recovered as subangular gravel with a medium subangular cobble content. Clasts have occasionally fossils stained orangish brown. At 48.55m, with orangish brown surface staining (<3mm in size).				
49.15-50.65	49.15	100 80	0.28 0.10	60	(3)	At 49.30m, with a subangular medium nodular flint (90mm in size).				
50.11-50.39		C				At 50.40m, with a subangular to subrounded medium nodular flint (85mm in size).				
End of Borehole							50.65 (55.44)			

Drilling				Progress					Groundwater					
Depth	Hole Dia	Technique	Crew	Depth of Hole	Depth Cased	Depth to Water	Date	Time	Depth Struck	Depth Cased	Rose to	in Mins	Depth Sealed	Remarks on Groundwater


Remarks 

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015 Discontinuity column graphic is illustrative only & does not represent discontinuities as found in the core, refer to Discontinuity Summary Sheet

Logged by **SI**
Figure **13 of 13**
07/10/2019



PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 0.70-2.20m



R70201 2.20-2.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 2.55-4.05m



R70201 4.05-5.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 5.55-7.05m



R70201 7.05-8.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 8.55-10.05m



R70201 10.05-11.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 11.55-13.05m



R70201 13.05-14.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 14.55-16.05m



R70201 16.05-17.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 17.55-19.05m



R70201 19.05-20.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 20.55-22.05m



R70201 22.05-23.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 23.55-25.05m



R70201 25.05-26.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 26.55-28.05m



R70201 28.05-29.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 29.55-31.05m



R70201 31.05-32.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 32.55-34.05m



R70201 34.05-35.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 35.55-37.05m



R70201 37.05-38.55m

PHOTOGRAPHS

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 38.55-40.05m



R70201 40.05-41.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70201 41.55-42.55m



R70202 1.20-2.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 2.55-4.05m



R70202 4.05-5.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 5.45-6.95m



R70202 6.95-8.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 8.45-9.95m



R70202 9.95-11.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 11.45-12.95m



R70202 12.95-14.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 14.45-15.95m



R70202 15.95-17.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 17.45-18.95m



R70202 18.95-20.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 20.45-21.95m



R70202 21.95-23.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 23.45-24.95m



R70202 24.95-26.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 26.45-27.95m



R70202 27.95-29.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 29.45-30.95m



R70202 30.95-32.45m

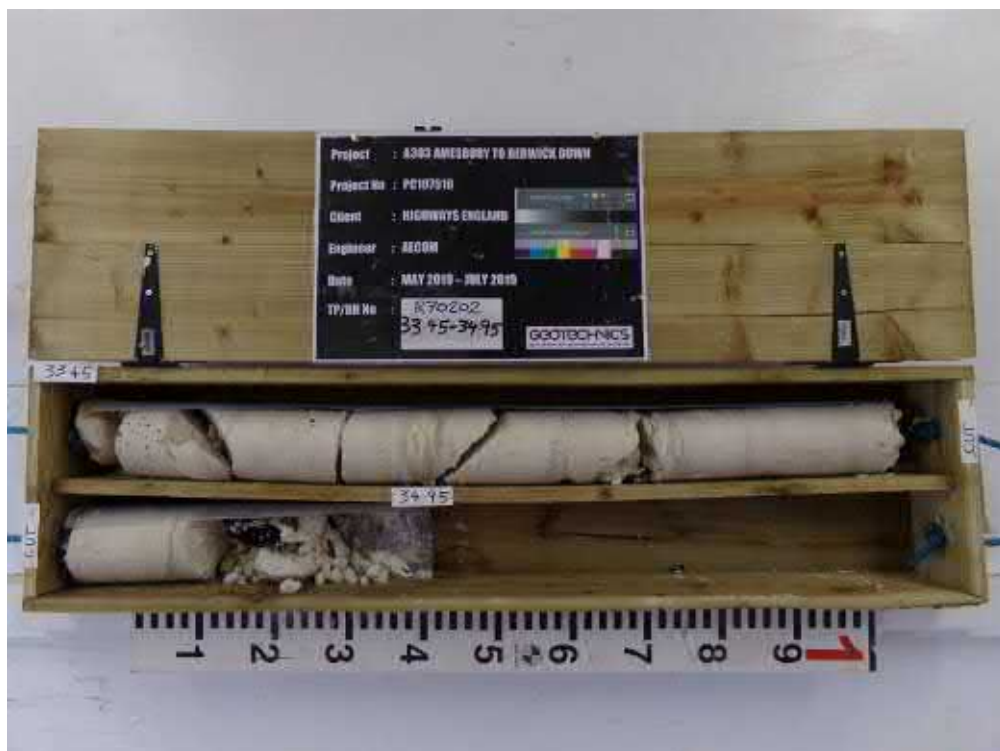
PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 32.45-33.45m



R70202 33.45-34.95m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 34.95-36.45m



R70202 36.45-37.95m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 37.95-39.45m



R70202 39.45-40.95m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70202 40.95-42.45m



R70901 3.20-5.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 5.55-8.55m



R70901 8.55-11.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 11.55-13.05



R70901 13.05-14.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 14.55-16.05m



R70901 16.05-17.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 17.55-18.90m



R70901 18.90-20.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 20.45-22.05m



R70901 22.05-23.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 23.55-25.05m



R70901 25.05-26.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 26.55-28.05m



R70901 28.05-29.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 29.55-30.80m



R70901 30.80-32.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 32.50-34.15m



R70901 34.15-35.85m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 35.85-37.05m



R70901 37.05-38.20m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70901 38.20-39.90m



R70902 3.50-5.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 5.00-6.50m



R70902 6.50-8.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 8.00-9.50m

no photograph as no core recovery

R70902 9.50-11.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)

no photograph as no core recovery

R70902 | 11.00-12.50m



R70902 | 12.50-14.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 14.00-15.50m



R70902 15.50-17.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 17.00-18.50m



R70902 18.50-20.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 20.00-21.50m



R70902 21.50-23.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 23.00-24.50m

no photograph as no core recovery

R70902 24.50-26.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 26.00-29.00m



R70902 29.00-30.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 30.50-32.00m



R70902 32.00-33.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 33.50-35.00m



R70902 35.00-36.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70902 36.50-38.00m



R70902 38.00-40.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 2.00-6.50m



R70903 6.50-8.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 8.00-9.50m



R70903 9.50-17.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 17.00-18.50m



R70903 18.50-20.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)

no photograph as no core recovery

R70903 20.00-21.50m



R70903 21.50-23.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 23.00-24.50m



R70903 24.50-26.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 26.00-27.50m



R70903 27.50-29.00m

PHOTOGRAPHS

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 29.00-30.50m



R70903 30.50-32.00m

PHOTOGRAPHS

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R70903 32.00-33.50m



R70903 33.50-35.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 35.00-36.50m



R70903 36.50-38.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R70903 38.00-39.50m



R70903 39.50-40.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 1.40-2.90m



R71001 2.90-4.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 4.40-5.90m



R71001 5.90-7.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 7.40-8.90m



R71001 8.90-10.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 10.40-11.90m



R71001 11.90-13.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 13.40-14.90m



R71001 14.90-16.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 16.40-17.90m



R71001 17.90-19.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 19.40-20.90m



R71001 20.90-22.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 22.40-23.90m



R71001 23.90-25.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 25.40-26.90m



R71001 26.90-28.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71001 28.40-29.90m



R71002 1.20-2.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 2.00-3.50m



R71002 3.50-5.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 5.00-6.50m



R71002 6.50-8.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 8.00-9.50m



R71002 9.50-11.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 11.00-12.50m



R71002 12.50-14.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 14.00-15.50m



R71002 15.50-17.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 17.00-18.50m



R71002 18.50-20.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 20.00-21.50m



R71002 21.50-23.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 23.00-24.50m



R71002 24.50-26.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71002 26.00-27.50m



R71002 27.50-29.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 1.20-2.00m



R71301 2.00-3.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 3.50-5.00m



R71301 5.00-6.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 6.50-8.00m



R71301 8.00-9.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 9.50-11.00m



R71301 11.00-12.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 12.50-14.00m



R71301 14.00-15.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 15.50-17.00m



R71301 17.00-20.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 20.00-21.50m



R71301 21.50-23.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 23.00-24.50m



R71301 24.50-26.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 26.00-27.50m



R71301 27.50-29.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 29.00-30.50m



R71301 30.50-32.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 32.00-33.50m



R71301 33.50-35.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 35.00-36.50m



R71301 36.50-38.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 38.00-39.50m



R71301 39.50-41.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 41.00-42.50m



R71301 42.50-44.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 44.00-45.50m



R71301 45.50-47.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71301 47.00-48.50m



R71301 48.50-50.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 1.20-3.50m



R71302 3.50-6.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 6.50-8.00m



R71302 8.00-9.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 9.50-11.00m



R71302 11.00-12.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 12.50-14.00m



R71302 14.00-15.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 15.50-17.00m



R71302 17.00-18.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 18.50-20.00m



R71302 20.00-21.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 21.50-23.00m



R71302 23.0-24.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 24.50-26.00m



R71302 26.00-27.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 27.50-29.00m



R71302 29.00-30.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 30.50-32.00m



R71302 32.00-33.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 33.50-35.00m



R71302 35.00-36.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 36.50-38.00m



R71302 38.00-39.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 39.50-41.00



R71302 41.00-42.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 42.50-44.00m



R71302 44.00-45.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 45.50-47.00m



R71302 47.00-48.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71302 48.50-50.00m



R71701 1.35-2.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 2.65-4.15m



R71701 4.15-5.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 5.65-7.15m



R71701 7.15-8.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 8.65-10.15m



R71701 10.15-11.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 11.65-13.15m



R71701 13.15-14.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 14.65-16.15m



R71701 16.15-17.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 17.65-19.15m



R71701 19.15-20.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 20.65-21.95m



R71701 21.95-23.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 23.45-24.95m



R71701 24.95-26.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 26.55-28.05m



R71701 28.05-29.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 29.55-31.05



R71701 31.05-32.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 32.55-34.05m



R71701 34.05-35.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 35.55-37.05m



R71701 37.05-38.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 38.55-40.05m



R71701 40.05-41.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 41.55-43.05m



R71701 43.05-44.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71701 46.05-47.55m



R71701 47.55-49.05m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 2.00-3.50m



R71901 3.50-5.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 5.00-6.50m



R71901 6.50-8.10m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 8.10-9.50m



R71901 9.50-11.15m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 11.15-12.50m



R71901 12.50-14.20m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 14.20-15.70m



R71901 15.70-17.20m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 17.20-18.50m



R71901 18.50-20.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 20.00-21.50m



R71901 21.50-23.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 23.00-24.50m



R71901 24.50-26.05m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 26.05-27.55m



R71901 27.55-29.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 29.00-30.50m



R71901 30.50-32.00m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 32.00-33.50m



R71901 33.50-35.45m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 35.45-37.00m



R71901 37.00-38.25m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71901 38.25-40.00m



R71902 1.55-2.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 5.05-7.05m



R71902 7.05-8.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 8.40-9.90m



R71902 9.90-11.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 11.40-12.90m



R71902 12.90-14.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 14.40-15.90m



R71902 15.90-17.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 17.40-18.90m



R71902 18.90-20.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 20.40-21.90m



R71902 21.90-23.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 23.40-24.90m



R71902 24.90-26.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 26.40-27.90m



R71902 27.90-29.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 29.40-30.90m



R71902 30.90-32.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 32.40-33.90m



R71902 33.90-35.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 35.40-36.90m



R71902 36.90-38.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 38.40-39.90m



R71902 39.90-41.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 41.40-42.90m



R71902 42.90-44.40m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71902 44.90-46.10



R71903 1.15-2.55m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 2.55-3.85m



R71903 3.85-5.35m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 5.35-6.95m



R71903 6.95-8.35m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 8.35-10.15m



R71903 10.15-11.35m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 11.35-13.05m



R71903 13.05-14.35m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 14.35-17.35m



R71903 17.35-18.85m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 18.85-20.35m

no photograph as no core recovery

R71903 20.35-21.10m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)

no photograph as no core recovery

R71903 21.10-22.50m



R71903 22.50-23.60m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)

no photograph as no core recovery

R71903 23.60-25.50m



R71903 25.50-35.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 35.50-38.50m

no photograph as no core recovery

R71903 38.50-41.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 41.50-43.00m



R71903 43.00-44.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 44.50-46.00m



R71903 46.00-47.50m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71903 47.50-49.00m



R71904 1.40-2.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 2.65-4.15m



R71904 4.15-5.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 5.65-7.15m



R71904 7.15-8.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 8.65-10.15m



R71904 10.15-11.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 11.65-13.15m



R71904 13.15-14.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 14.65-16.15m



R71904 16.15-17.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 17.65-19.15m



R71904 19.15-20.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 20.65-22.15m



R71904 22.15-23.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 23.65-25.15m



R71904 25.15-26.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 26.65-28.15m



R71904 28.15-29.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 29.65-31.15m



R71904 31.15-32.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 32.65-34.15m



R71904 34.15-35.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 35.65-37.15m



R71904 37.15-38.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 38.65-40.15m



R71904 40.15-41.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 41.65-43.15m



R71904 43.15-44.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 44.65-46.15m



R71904 46.15-47.65m

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



R71904 47.65-49.15m



R71904 49.15-50.65m

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
3.70	1	Joint	40		0		Undulating	Smooth	with many black specks and rare orangish brown surface staining.
3.74	1	Joint	40		0		Undulating	Smooth	with many black specks and rare orangish brown surface staining.
3.78	1	Joint	50		0		Undulating	Smooth	with many black specks and rare orangish brown surface staining.
4.18	2	Joint	30		0		Planar	Rough	with many black specks and rare orangish brown surface staining
4.39	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
4.45	1	Joint	1		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
4.57-4.85	3	Joint	80		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining.
4.67	1	Joint	1		0		Undulating	Smooth	with many black specks and occasional orangish brown surface staining.
4.75	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
4.85	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
4.90	2	Joint	30		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining.
5.10	1	Joint	0		3	Comminuted chalk	Planar	Rough	with many black specks
5.18	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown relic burrows.
5.40	1	Joint	5		0		Undulating	Rough	with many black specks.
5.75-5.85	3	Joint	70		1	Marl	Planar	Smooth	
5.79	2	Joint	40		3	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining.
5.97	2	Joint	35		3	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining.
6.23	3	Joint	70		0		Stepped	Rough	with many black specks.
6.46	3	Joint	65		0		Stepped	Rough	with many black specks.
6.50	3	Joint	65		0		Stepped	Rough	with many black specks.
6.70	3	Joint	70		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining.



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
6.77	1	Joint	5		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
6.80-6.90	1	Fracture	90		2	Comminuted chalk	Undulating	Rough	with many black specks
6.90	1	Joint	8		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
7.25	2	Joint	60		0		Planar	Smooth	
7.30-7.47	3	Joint	85		0		Planar	Smooth	with many black specks
7.41	1	Joint	7		1	Comminuted chalk	Undulating	Rough	
7.55	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining.
7.55-7.60	2	Joint	45		0		Planar	Smooth	with many black specks
7.55-7.70	3	Joint	85		01	Comminuted chalk	Planar	Rough	with many black specks
7.69	1	Joint	5		0		Planar	Smooth	
8.90	1	Joint	2		0		Undulating	Rough	
9.10	2	Joint	35		0		Undulating	Smooth	with many black specks
9.20	2	Joint	70		0		Planar	Smooth	with many black specks
9.50	2	Joint	70		0		Planar	Smooth	with many black specks and occasional orangish brown surface staining.
9.70		Joint	35		2	Comminuted chalk	Planar	Rough	with many black specks and occasional orangish brown surface staining
10.20	1	Joint	2		0		Planar	Smooth	with many black specks
10.63	1	Joint	7		0		Planar	Smooth	with many black specks
10.80-11.10		Fracture	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
10.94	1	Joint	10		0		Undulating	Rough	
11.72	1	Joint	3		2	Comminuted chalk	Undulating	Rough	with rare orangish brown surface staining
11.82	1	Joint	3		0		Undulating	Rough	
12.03	1	Joint	3		2	Comminuted chalk	Undulating	Rough	with rare orangish brown surface staining
12.10	1	Joint	2		0		Undulating	Rough	
12.30	1	Joint	5		5	Comminuted chalk and gravel	Undulating	Rough	Gravel is angular to subangular fine and medium chalk.
13.15	2	Joint	60		1	Comminuted chalk	Planar	Smooth	with many black specks
13.63	2	Joint	60		2	Comminuted chalk	Planar	Smooth	with occasional black specks
13.85-14.00		Fracture	80		0		Planar	Smooth	with many black specks
13.95	1	Joint	3		1	Comminuted chalk	Planar	Smooth	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
14.50	1	Joint	5		3	Comminuted chalk	Stepped	Smooth	with many black specks
15.11	2	Joint	63		0		Planar	Rough	with many black specks
15.17	2	Joint	60		0		Planar	Smooth	with many black specks
15.26	1	Joint	5		1	Flint	Planar	Smooth	with small flint fragments.
15.28-15.48		Fracture	85		1	Flint	Undulating	Rough	Sheet flint (possible Zoophycos burrow).
15.39	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
15.73-16.05		Fracture	90		0		Planar	Smooth	with many black specks and rare orangish brown surface staining
16.20-16.35		Fracture	80		0		Planar	Rough	with many black specks
16.26	2	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
16.75	1	Joint	50		1	Comminuted chalk	Planar	Rough	with many black specks and rare orangish brown mottling
16.75	2	Fracture	50		0		Planar	Rough	with many black specks
16.93	2	Joint	10		3	Comminuted chalk	Undulating	Rough	with many black specks
17.10-17.20	2	Joint	50		1	Comminuted chalk	Planar	Smooth	with many black specks
17.83	1	Joint	50		5	Comminuted chalk	Planar	Rough	with many black specks
17.94	1	Joint	45		1	Comminuted chalk	Planar	Rough	with many black specks and occasional orangish brown surface staining
17.95-18.22	3	Joint	90		0		Planar	Smooth	with many black specks
18.30	1	Joint	50		1	Comminuted chalk	Planar	Rough	with many black specks
18.77	3	Joint	85		1	Communitated chalk	Planar	Rough	with many black specks
18.80-19.05	3	Joint	85		0		Undulating	Rough	with many black specks
19.05-19.18	1	Joint	55		1	Communitated chalk	Planar	Smooth	with many black specks
19.18	1	Joint	40		1	Comminuted chalk	Planar	Smooth	with many black specks
19.31	2	Joint	5		1	Cominuted chalk	Planar	Rough	with many black specks
19.31-19.42	3	Joint	90		1	Comminuted chalk	Planar	Rough	with many black specks
19.42	1	Joint	40		1	Comminuted chalk	Planar	Smooth	with many black specks
19.50	1	Joint	40		1	Comminuted chalk	Planar	Smooth	with many black specks
19.76	2	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
19.90	1	Joint	45		2	Comminuted chalk	Planar	Rough	with many black specks
19.95	2	Joint	15		1	Comminuted	Undulating	Rough	with many black specks and



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			occasional orangish brown and greyish brown mottling
20.05		Joint	0		0		Planar	Rough	with many black specks
20.15	1	Joint	45		2	Comminuted chalk	Undulating	Rough	with many black specks
20.15	2	Joint	3		0		Undulating	Rough	with many black specks
20.36	1	Joint	45		2	Comminuted chalk	Undulating	Rough	with many black specks
20.55-21.10	3	Joint	85		0		Planar	Smooth	with many black specks
20.99	1	Joint	0		1	Comminuted chalk and flint gravel	Planar	Rough	with many black specks.
21.45	1	Joint	8		0		Undulating	Rough	with many black specks
21.76	1	Joint	3		1	Comminuted chalk	Planar	Rough	with many black specks.
22.16	1	Joint	8		1	Comminuted chalk	Planar	Smooth	with rare black specks.
22.16-22.22	1	Joint	45		0		Planar	Smooth	with many black specks
22.29	2	Joint	50		1	Comminuted chalk	Planar	Smooth	with many black specks and greenish grey mottling and slickensides.
22.70	1	Joint	5		1	Comminuted chalk	Undulating	Rough	
22.85	2	Joint	45		1	Comminuted chalk	Planar	Smooth	with many black specks and greenish grey mottling.
22.99-23.04		Fracture	20		1	Comminuted chalk	Planar	Rough	with many black specks
23.10-23.36	3	Joint	85		0		Planar	Rough	with many black specks and rare orangish brown surface staining
23.30	2	Joint	45		1	Comminuted chalk	Undulating	Rough	with many black specks.
23.73	1	Joint	4		1	Comminuted chalk	Planar	Rough	with occasional black specks.
23.78	1	Joint	10		1	Comminuted chalk	Planar	Rough	with occasional black specks.
23.96	1	Joint	3		1	Comminuted chalk	Planar	Smooth	
24.14	2	Joint	50		3	Comminuted chalk	Undulating	Smooth	with many black specks.
24.24	1	Joint	6		1	Comminuted chalk	Undulating	Rough	with occasional black specks.
24.32	2	Joint	60		1	Comminuted chalk	Planar	Smooth	with many black specks and greenish grey surface staining.
24.40	2	Joint	55		1	Comminuted chalk	Planar	Smooth	with many black specks and greenish grey surface staining.
24.66	2	Joint	53		5	Comminuted chalk	Undulating	Rough	with many black specks and rare greenish grey surface staining.
24.85	1	Joint	10		1	Comminuted chalk	Undulating	Smooth	



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
25.00	2	Joint	58		0		Planar	Rough	with many black specks and greenish grey mottling.
25.13	1	Joint	3		1	Comminuted chalk and shell fragment	Undulating	Rough	with orangish brown surface staining
25.54	2	Joint	40		1	Comminuted chalk	Planar	Smooth	with occasional black specks and rare orangish brown surface staining.
25.65	1	Joint	0		1	Comminuted chalk and shell fragments	Undulating	Rough	with many black specks and rare orangish brown surface staining.
25.79	1	Joint	5		2	Comminuted chalk and flint gravel	Undulating	Rough	
25.79-26.27	1	Joint	0		0		Planar	Smooth	with many black specks
25.95	1	Bedding	1		4	Comminuted chalk and shell fragments	Undulating	Rough	with occasional orangish brown surface staining.
26.18	1	Joint	0		0		Undulating	Rough	with occasional orangish brown surface staining.
26.72	1	Joint	14		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining.
26.95	2	Joint	40		0		Planar	Rough	with many black specks
27.36	1	Joint	8		1	Comminuted chalk	Undulating	Smooth	with many black specks.
28.17	1	Joint	8		0		Undulating	Smooth	with occasional black specks
28.30	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
28.46	1	Joint	2		1	Comminuted chalk	Undulating	Rough	
28.81	1	Joint	0		0		Undulating	Rough	
28.94	1	Joint	10		0		Undulating	Rough	locally stepped
29.72	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and orangish brown surface staining.
29.87-30.18		Fracture	90		0		Planar	Rough	with many black specks
30.05	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
30.30		Fracture	70		1	Comminuted chalk	Stepped	Rough	with many black specks
30.59	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with rare black specks
30.75	1	Joint	10		1	Comminuted chalk	Undulating	Rough	
30.92		Fracture	70		1	Comminuted chalk	Stepped	Rough	with many black specks
31.08		Fracture	50		1	Comminuted	Stepped	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
31.24	1	Joint	10		1	Comminuted chalk	Planar	Smooth	with many black specks
31.66	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
31.83		Fracture	30		0		Stepped	Rough	with occasional black specks
32.05-32.55		Fracture	90		0		Planar	Rough	with many black specks
32.83	1	Joint	3		1	Comminuted chalk and calcite mineralisation	Planar	Smooth	with many black specks
33.54		Fracture	60		1	Comminuted chalk	Stepped	Rough	with many black specks and rare greenish grey surface staining.
33.70	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
34.20	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
34.69	1	Joint	2		0		Undulating	Rough	
34.88	1	Joint	3		0		Planar	Rough	with many black specks
34.99	1	Joint	0		1	Comminuted chalk and marl	Planar	Rough	with many black specks and greyish brown mottling
35.07-35.29		Fracture	90		1	Comminuted chalk	Undulating	Rough	with many black specks
35.29	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
35.67	1	Joint	10		0		Stepped	Rough	with many black specks
36.28	1	Joint	10		1	Comminuted chalk	Stepped	Smooth	with many black specks
37.37-37.49		Fracture	90		1	Comminuted chalk	Stepped	Rough	
37.68-37.98		Fracture	85		0		Stepped	Rough	with many black specks and orangish brown surface staining.
38.29-38.55		Fracture	85		1	Comminuted chalk	Stepped	Rough	with many black specks
38.39		Fracture	60		1	Comminuted chalk	Stepped	Rough	with many black specks
38.55			0						
38.68	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
38.74	1	Joint	0		3	Comminuted chalk and greenish grey marl	Undulating	Rough	
38.94	1	Joint	5		0		Undulating	Rough	
39.08	1	Joint	3		1	Comminuted chalk and sheet flint	Undulating	Rough	with occasional black specks
39.20	1	Joint	10		1	Comminuted chalk	Undulating	Rough	
39.25	1	Joint	10		1	Comminuted	Stepped	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70201

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
39.45		Fracture	50		1	Mineralised slickensides	Planar	Rough	with many black specks
39.78	1	Joint	5		1	Comminuted chalk	Undulating	Rough	
39.84		Fracture	20		0		Undulating	Rough	with occasional black specks and orangish brown surface staining
40.05	1	Joint	5		0		Undulating	Rough	with many black specks
40.35	1	Joint	5		2	Comminuted chalk	Undulating	Smooth	
40.50	1	Joint	10		2	Comminuted chalk	Stepped	Rough	
40.61	1	Joint	5		2	Comminuted chalk and marl	Stepped	Rough	
40.65-40.75	2	Joint	35		0		Undulating	Rough	with many black specks
40.72	2	Joint	55		1	Calcite mineralisation	Stepped	Rough	
40.78	2	Joint	55		1	Comminuted chalk, marl and calcite mineralisation	Undulating	Smooth	
40.93	2	Joint	35		1	Comminuted chalk	Stepped	Rough	with many black specks
40.95	2	Joint	35		1	Comminuted chalk	Stepped	Rough	with many black specks
41.00	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with many black specks
41.13	1	Joint	10		3	Marl	Stepped	Rough	
41.37	1	Joint	10		2	Comminuted chalk	Stepped	Rough	with many black specks
41.43	1	Joint	7		2	Comminuted chalk	Undulating	Rough	with many black specks
41.69	1	Joint	10		0		Undulating	Rough	with occasional orangish brown surface staining
41.95	1	Joint	10		1	Comminuted chalk	Undulating	Rough	
42.05	1	Joint	2		1	Comminuted chalk	Stepped	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70202

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
2.20	1	Joint	5		0		Stepped	Rough	
2.20-2.55	2	Joint	85		3	Comminuted chalk	Undulating	Rough	
2.31	1	Joint	5		0		Stepped	Rough	
2.38	1	Joint	3		0		Stepped	Rough	
2.43	1	Joint	3		0		Stepped	Rough	
2.47	1	Joint	8		0		Stepped	Rough	
2.74	1	Joint	4				Stepped	Rough	drill flush masking any infill.
2.81	1	Joint	6				Stepped	Rough	drill flush masking any infill.
2.90	1	Joint	7				Stepped	Rough	drill flush masking any infill.
2.98	1	Joint	10				Stepped	Rough	drill flush masking any infill.
3.26		Joint	60		1	Comminuted chalk	Planar	Smooth	Occasional black specks and surface orange iron staining
3.40	1	Joint	70		0		Planar	Smooth	clean
3.42	1	Joint	70		0		Planar	Smooth	clean
4.66	1	Joint	5		0		Stepped	Smooth	
4.66-4.74	2	Joint	86		0		Undulating	Smooth	
4.72	1	Joint	10		0		Undulating	Smooth	
4.77	1	Joint	6		0		Undulating	Smooth	
5.45-5.74		Fracture	75		0		Undulating	Smooth	with occasional black specks and rare orangish brown mottling
5.74	1	Joint	3		0		Undulating	Smooth	
5.83	1	Joint	5		0		Undulating	Smooth	
6.02	1	Joint	3		0		Planar	Smooth	
6.13	1	Joint	7		0		Undulating	Smooth	
6.20-6.80	2	Joint	85		1	Comminuted chalk	Undulating	Smooth	
6.26	1	Joint	2		0		Stepped	Smooth	
6.45	1	Joint	4		1	marl	Undulating	Smooth	with dark grey marl seams and orangish brown penetrative staining (<1mm)
6.60	1	Joint	0		0		Stepped	Smooth	faint rare black specks.
6.72		Joint	50		0		Stepped	Smooth	occasional black specks
8.82	1	Joint	50		0		Undulating	Smooth	
8.90	1	Joint	50		0		Undulating	Smooth	
8.98	2	Joint	50		1	Comminuted chalk	Undulating	Smooth	
9.05	1	Joint	45		0		Stepped	Smooth	
9.20	2	Joint	42		1	Comminuted chalk	Undulating	Smooth	
9.26	1	Joint	48		0		Undulating	Smooth	
9.29	1	Joint	50		0		Undulating	Smooth	
9.38		Joint	70		0		Undulating	Smooth	
9.42		Joint	70		0		Undulating	Smooth	
9.55		Fracture	55		0		Stepped	Rough	
10.05	2	Joint	42		1	Comminuted	Undulating	Smooth	



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70202

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
10.08	1	Joint	50		0		Stepped	Smooth	
10.28	3	Joint	5		0		Undulating	Smooth	
10.60	2	Joint	40		3	Comminuted chalk	Undulating	Smooth	
10.76	1	Joint	50		2	Comminuted chalk	Undulating	Smooth	
10.78	3	Joint	5		2	Comminuted chalk	Undulating	Smooth	
11.65	3	Joint	6		0		Undulating	Smooth	
11.72	3	Joint	4		0		Undulating	Smooth	
11.76	3	Joint	7		0		Undulating	Smooth	
11.98	2	Joint	45		1	Comminuted chalk	Undulating	Smooth	
12.18	1	Joint	45		0		Undulating	Smooth	
12.37	3	Joint	5		2	Comminuted chalk	Undulating	Smooth	
12.45	3	Joint	8		2	Comminuted chalk	Undulating	Smooth	
12.56	1	Joint	45		2	Comminuted chalk	Undulating	Smooth	
14.65-14.70		Joint	50		0		Planar	Rough	occasional surface orange iron staining, some faint black specks, terminates in adjacent 85 degree joint.
14.65	1	Joint	7		1	Comminuted chalk	Undulating	Smooth	Scar marks; drilling affected
14.70-14.76	2	Joint	85		0		Undulating	Rough	some surface orange iron staining, some faint black specks
14.76	1	Joint	2		1	Comminuted chalk	Undulating	Smooth	Shell fragments (2mm thick), scar marks; drilling affected.
14.96	1	Joint	2		1	Comminuted chalk	Undulating	Smooth	
16.08-16.27	2	Joint	85		0	Comminuted chalk/ drill flush	Undulating	Rough	
16.27	1	Joint	5		1		Undulating	Smooth	Grey Marl on surface. Possible drill flush residue.
16.32	1	Joint	47		1	Comminuted chalk	Undulating	Rough	Many black specks
16.45	1	Joint	50		1	Comminuted chalk	Undulating	Rough	Some black specks
16.47	2	Joint	40		1	Comminuted chalk	Undulating	Smooth	Some black specks
16.52	1	Joint	47		1	Comminuted chalk	Undulating	Rough	Occasional black specks
16.58	1	Joint	45		1	Comminuted chalk	Stepped	Rough	Possibly drilling induced.



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70202

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
16.80	2	Joint	35		1	Comminuted chalk	Undulating	Smooth	Rare black specks
16.95	2	Joint	30		1	Comminuted chalk	Undulating	Smooth	Occasional black specks
17.20	2	Joint	32		1	Comminuted chalk	Undulating	Rough	
17.21	1	Joint	30		1	Comminuted chalk	Undulating	Rough	Occasional black specks
17.24	1	Joint	40		1	Comminuted chalk	Undulating	Rough	Occasional black specks
17.53	1	Joint	5		0		Undulating	Rough	
17.60	1	Joint	3		0		Undulating	Rough	Marl band (<1mm thick)
17.64-17.92	2	Joint	85		0		Planar	Smooth	
17.65	1	Joint	2		0		Undulating	Rough	
17.79	1	Joint	4		0		Undulating	Rough	
17.98	1	Joint	7		0		Undulating	Rough	
18.04		Fracture	30		0		Undulating	Rough	with many black specks
18.16	1	Joint	5		1	Sheet flint	Undulating	Rough	
18.38	1	Joint	5		0		Undulating	Rough	
18.48-18.78	2	Joint	85		0		Planar	Smooth	
18.49	1	Joint	7		0		Undulating	Rough	
18.80	1	Joint	4		0		Undulating	Rough	
19.32	1	Joint	0		0		Undulating	Rough	
19.75	1	Joint	5		5	Comminuted chalk and flint gravel	Undulating	Rough	
19.76	1	Joint	7		0		Undulating	Rough	
19.84	1	Joint	5		0		Undulating	Rough	
20.25	1	Joint	3		0		Undulating	Rough	
20.50	1	Joint	3		0		Undulating	Rough	with shell fragment (40x5mm)
20.77	1	Joint	8		0		Undulating	Rough	
20.93-21.02	2	Joint	85		0		Planar	Smooth	
20.94	1	Joint	5		0		Undulating	Rough	
21.02	1	Joint	5		0		Undulating	Rough	
21.20	1	Joint	5		0		Undulating	Rough	
21.20-21.38	2	Joint	85		0		Planar	Smooth	
21.28	1	Joint	5		0		Undulating	Rough	
22.15	1	Joint	3		0		Undulating	Rough	
22.18-22.45	2	Joint	85		0		Planar	Smooth	
22.23	1	Joint	3		0		Undulating	Rough	
22.35	1	Joint	2		0		Undulating	Rough	
22.89	1	Joint	5		0		Undulating	Rough	
22.99	1	Joint	5		0		Undulating	Rough	
23.66	1	Joint	5		5	Flint gravel	Stepped	Rough	
23.82	3	Joint	50		0		Stepped	Rough	
24.00	2	Joint	55		0		Undulating	Rough	Marl seam (<1mm thick), rare black specks
24.30	3	Joint	70		0		Undulating	Rough	Occasional black specks



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70202

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
24.45	1	Joint	2		0		Stepped	Rough	
25.05	1	Joint	10		0		Stepped	Rough	
25.13	2	Joint	50		1	Comminuted chalk	Undulating	Rough	
25.22	3	Joint	62		0		Stepped	Rough	
25.37	1	Joint	3		0		Stepped	Rough	
25.55	2	Joint	45		1	Comminuted chalk	Undulating	Smooth	
25.63	1	Joint	5		0		Stepped	Rough	
25.78	1	Joint	45		0		Stepped	Rough	Many black specks
26.26	1	Joint	5		0		Stepped	Rough	
26.47	2	Joint	42		1	Comminuted chalk	Undulating	Rough	
26.62	2	Joint	45		1	Comminuted chalk	Undulating	Rough	
26.67	2	Joint	40		1	Comminuted chalk	Undulating	Rough	Cross cutting 26.68
26.68	2	Joint	50		1	Comminuted chalk	Undulating	Rough	Cross cutting 26.67
26.79	1	Joint	1		0		Stepped	Rough	
26.94	3	Joint	7		0		Stepped	Rough	
27.05	1	Joint	7		0		Stepped	Rough	Possibly drilling induced
27.13	1	Joint	3		0		Stepped	Rough	
27.14	1	Joint	0		0		Stepped	Rough	
27.43	1	Joint	5		0		Stepped	Rough	
28.04	2	Joint	62		1	Comminuted chalk	Undulating	Rough	
28.06	1	Joint	5		0		Stepped	Rough	
28.14		Joint	25		0		Undulating	Rough	Marl seam (5mm thick)
28.51	1	Joint	0		0		Stepped	Rough	
28.69		Joint	25		2	Comminuted chalk	Undulating	Rough	Some black specks
28.98	1	Joint	3		2	Flint	Undulating	Rough	possibly Zoophykp
29.37	1	Joint	10		0		Undulating	Rough	
29.57	1	Joint	5		0		Undulating	Rough	
29.73	2	Joint	20		0		Undulating	Rough	
30.07	1	Joint	10		0		Undulating	Rough	
31.08	1	Joint	5		1	Comminuted chalk	Undulating	Rough	Occasional black specks
31.23		Joint	60		0		Stepped	Rough	some black specks, Marl seam (<1mm thick)
31.23	1	Joint	2		0		Undulating	Rough	
31.39	1	Joint	8		3	Comminuted chalk / drilling flush	Undulating	Rough	possibly drilling induced
31.56	2	Joint	30		0		Undulating	Rough	Shell (1mm x 40mm)
31.68	2	Joint	27		0		Undulating	Rough	
31.90	1	Joint	5		1	Comminuted chalk	Stepped	Rough	



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70202

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
32.06	1	Joint	5		0		Stepped	Rough	Rare black speckling, occasional orangish brown staining (<2mm)
32.22	1	Joint	5		1	Comminuted chalk	Stepped	Rough	Rare pockets (<1mm x 20mm) of orangish brown staining.
32.65	1	Joint	5		0		Undulating	Rough	
33.20	2	Joint	20		0		Undulating	Rough	
33.29	2	Joint	24		0		Undulating	Rough	
33.66	1	Joint	50		1	Comminuted chalk	Undulating	Rough	some black specks, orange iron staining
33.81	2	Joint	3		0		Undulating	Rough	clean
34.00	1	Joint	45		0		Undulating	Rough	Some black specks, rare orange iron staining
34.21	2	Joint	7		0		Undulating	Rough	
35.22	2	Joint	5		0		Undulating	Rough	
35.58	2	Joint	10		0		Undulating	Rough	
37.10	2	Joint	40		0		Undulating	Rough	Many black specks
37.60	1	Joint	7		0		Undulating	Rough	Rare black specks
37.75	1	Joint	10		0		Undulating	Rough	
38.31	2	Joint	3		0		Undulating	Rough	clean
38.46	2	Joint	7		0		Undulating	Rough	clean
38.93	2	Joint	7		0		Undulating	Rough	clean
39.57	2	Joint	5		0		Undulating	Rough	clean
39.69	2	Joint	10		0		Undulating	Rough	Rare black specks
40.10	2	Joint	10		0		Undulating	Rough	clean
41.12	1	Joint	5		1	Comminuted chalk	Undulating	Rough	
41.25	1	Joint	4		1	Comminuted chalk/ drill flush	Undulating	Rough	
41.70	1	Joint	1		1	Comminuted chalk/ drill flush	Undulating	Rough	
41.90	1	Joint	5		0		Undulating	Rough	
42.25	2	Joint	55		0		Undulating	Rough	



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
7.35-7.45	2	Joint	85		1	Comminuted chalk	Undulating	Rough	
10.61-10.70	2	Joint	90		1	Comminuted chalk	Stepped	Rough	with many black specks
12.38-12.60	2	Joint	85		0		Undulating	Rough	with many black specks
12.48	1	Joint	0		0		Undulating	Rough	with many black specks
12.80-12.90	2	Joint	85		0		Undulating	Rough	with occasional black specks and orange brown staining.
13.29		Fracture	55		0		Undulating	Rough	with many black specks
13.96-14.05	2	Joint	85		0		Undulating	Rough	with occasional black specks
14.60		Fracture	60		0		Undulating	Rough	with many black specks
14.82	1	Joint	10		1	Comminuted chalk and marl	Undulating	Rough	with many black specks
14.88	1	Joint	0		1	Marl	Planar	Rough	with many black specks
14.94	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with many black specks
15.33		Fracture	50		1	Comminuted chalk	Stepped	Rough	with many black specks and rare orangish brown surface staining
16.93	1	Joint	5		1	Comminuted chalk and marl	Stepped	Rough	with many black specks
17.04	1	Joint	3		1	Comminuted chalk and marl	Stepped	Rough	with occasional black specks and polished slickensides
17.20	1	Joint	2		0		Stepped	Rough	with many black specks and occasional mineralised or polished slickensides
17.36	1	Joint	10		1	Comminuted chalk and marl	Stepped	Rough	with many black specks
17.99	1	Joint	0		1	Comminuted chalk and marl	Undulating	Rough	with occasional black specks
18.15	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
18.45	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
18.84	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
18.90-19.00	2	Joint	80		0	Comminuted chalk	Undulating	Rough	with rare black specks
19.00	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
19.07	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
19.19	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
19.38	1	Joint	3		1	Comminuted chalk	Undulating	Rough	with many black specks
19.52	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
19.64-19.70	2	Joint	80		0	Comminuted chalk	Undulating	Rough	with many black specks
19.92-20.05	2	Joint	85		0	Comminuted chalk	Undulating	Rough	with many black specks
20.05	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
20.47	1	Joint	5		1	Comminuted chalk and marl	Undulating	Rough	with many black specks
20.76	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with occasional black specks
20.86	1	Joint	6		1	Comminuted chalk	Undulating	Rough	with many black specks
20.95	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
21.16	1	Joint	3		0		Stepped	Rough	with many black specks and occasional mineralised slickensides
21.31	1	Bedding	3		1	Comminuted chalk and marl	Stepped	Rough	with many black specks
21.38	1	Joint	10		0		Stepped	Rough	with many black specks and occasional green and orange surface staining
21.38-21.77	2	Joint	85		0		Undulating	Rough	with many black specks and occasional green and orange surface staining
21.44	1	Joint	2		0		Stepped	Rough	with many black specks and much green and orange surface staining
21.80	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional green and orange surface staining
21.92	1	Joint	5		0		Undulating	Rough	with occasional black specks and sand sized grains of glauconite
22.29		Fracture	30		0		Stepped	Rough	with many black specks and rare mineralised striations
22.48-22.55	2	Joint	85		0		Stepped	Rough	with many black specks
22.61	1	Joint	5		1	glauconite mineralisation	Stepped	Rough	with many black specks. Incipient discontinuity.
22.68	1	Joint	5		0		Undulating	Rough	with occasional black specks
22.73	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
22.78	1	Joint	5		0		Undulating	Rough	with many black specks
22.91	1	Joint	10		0		Undulating	Rough	with many black specks
22.96	1	Joint	0		0		Undulating	Rough	with many black specks
22.97-23.04	2	Joint	90		0		Undulating	Rough	with many black specks and mineralised slickensides
23.99	1	Joint	0				Undulating	Rough	with rare black specks
24.07	1	Joint	5		0		Undulating	Rough	with rare black specks, green



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									surface staining and striations
24.34	1	Joint	0		0		Undulating	Rough	with rare black specks and occasional green or oranghs brown surface staining
24.42		Fracture	55		0		Undulating	Rough	stepped in parts with rare black specks and green surface staining
25.67	1	Joint	3		0		Undulating	Rough	with occasional black specks
25.70-25.74		Fracture	55		0		Undulating	Rough	locally stepped with many black specks and rare orangish brown surface staining
25.89	1	Joint	3		0		Undulating	Rough	with occasional black specks
26.08	1	Joint	0		0		Undulating	Rough	with occasional black specks
26.13	2	Joint	5		0		Undulating	Rough	with occasional black specks
26.20	1	Joint	0		0		Undulating	Rough	with occasional black specks
26.55	1	Bedding	5		0		Undulating	Rough	with occasional black specks
26.91	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with occasional black specks
27.27-27.38		Joint	75		0		Undulating	Rough	with many black specks
27.27	1	Joint	0		0		Undulating	Rough	with rare black specks
27.48	1	Joint	0		0		Undulating	Rough	with many black specks
27.71		Fracture	30		0		Undulating	Rough	with many black specks
28.36	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
28.83	1	Joint	2		0	Marl	Undulating	Rough	with occasional black specks
29.84	1	Joint	5		0		Undulating	Rough	with occasional black specks
29.85	1	Joint	0		0		Undulating	Rough	with occasional black specks
29.99-30.20		Joint	80		0		Undulating	Rough	locally stepped with many black specks
30.20	1	Joint	0		0		Undulating	Rough	with occasional black specks
30.27	1	Joint	7		0		Undulating	Rough	with occasional black specks
31.27	1	Joint	2		1	Marl	Undulating	Rough	with occasional black specks
32.77	1	Joint	5		2	Comminuted chalk	Undulating	Rough	
32.95		Fracture	20		1	Marl	Undulating	Rough	with occasional black specks
33.54	1	Joint	2		3	Comminuted chalk	Undulating	Rough	
36.26-36.81		Fracture	85		1	Comminuted chalk	Undulating	Rough	with occasional black specks
36.27	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
37.05-37.27		Fracture	90		1	Comminuted chalk	Undulating	Rough	with rare black specks
37.27	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with rare black specks
37.43-37.71		Fracture	80		0		Undulating	Rough	with rare black specks
38.31	1	Joint	3		1	Comminuted chalk	Undulating	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
38.96	1	Joint	0		0		Undulating	Rough	with rare black specks
39.45-39.60		Fracture	90		0		Undulating	Rough	with occasional black specks
39.45	1	Joint	0		0		Undulating	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
6.79	1	Joint	5		1	calcite mineralisation	Undulating	Rough	with many black specks
6.88		Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
6.88-7.10		Joint	85		1	Comminuted chalk	Stepped	Rough	locally undulating with occasional black specks and rare orangish brown surface staining
8.63	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
17.19-17.27	2	Joint	85		1	Comminuted chalk	Stepped	Rough	with occasional black specks and rare orangish brown surface staining
17.34	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
17.44	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
17.60	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
17.71	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown mottling
17.90	1	Joint	3		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
18.72	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
18.83		Fracture	25		0		Undulating	Rough	with many black specks
18.87	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks and rare orangish brown mottling
18.99	1	Joint	2		1	marl	Stepped	Rough	with occasional black specks
19.51	1	Joint	0		1	greenish grey mal	Undulating	Rough	with occasional black specks
20.08	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
20.17	1	Joint	0		0		Undulating	Rough	with occasional black specks
20.25	1	Joint	5		1	Comminuted chalk and marl	Stepped	Rough	with many black specks
20.44	1	Joint	5		1	Comminuted chalk and marl	Undulating	Rough	with many black specks
20.84	1	Joint	0		0		Undulating	Rough	with occasional black specks
21.23	1	Joint	0		0		Undulating	Rough	with occasional black specks
21.29	1	Joint	5		0		Undulating	Rough	with many black specks
21.56	1	Joint	5		0		Undulating	Rough	with occasional black specks
21.93	1	Joint	2		0		Undulating	Rough	with many black specks
22.04	1	Joint	2		0		Stepped	Rough	with occasional black specks
22.13	1	Joint	3		0		Undulating	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
22.31	1	Joint	2		0		Undulating	Rough	with occasional black specks
22.39	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
23.20	1	Joint	0		0		Stepped	Rough	with occasional black specks, orangish brown surface staining and green mottling
23.41	1	Joint	2		0		Stepped	Rough	with occasional black specks
23.50	1	Joint	0		0		Undulating	Rough	with many black specks
23.71	1	Joint	3		0		Undulating	Rough	with many black specks
23.77	1	Joint	0		0		Undulating	Rough	with many black specks
23.90	1	Joint	0		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
24.00	1	Joint	3		1	Marl	Undulating	Rough	with occasional black specks
24.33	1	Joint	5		1	Marl	Stepped	Rough	with occasional black specks
27.57	1	Joint	5		0		Undulating	Rough	locally stepped with many black specks
27.88	1	Joint	3		0		Stepped	Rough	with many black specks
28.04	1	Joint	2		0		Undulating	Rough	with many black specks
28.31	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown mottling
29.21		Fracture	55		0		Undulating	Rough	with many black specks
29.25	1	Joint	5		1	Marl	Undulating	Rough	with many black specks
30.25	1	Joint	5		1	Marl	Undulating	Rough	with many black specks
30.62	1	Joint	0		1	Marl	Undulating	Rough	with many black specks
31.35	1	Joint	0		1	Marl	Stepped	Rough	with many black specks
31.70	1	Joint	0		0		Undulating	Rough	with many black specks
31.87	1	Joint	0		0		Undulating	Rough	with many black specks
32.12	1	Joint	10		0		Undulating	Rough	with many black specks
32.94	1	Joint	0		1	Marl	Undulating	Rough	with many black specks
33.65	1	Joint	0		0		Undulating	Rough	with many black specks
33.75		Fracture	25				Undulating	Rough	with many black specks and orangish brown surface staining
34.04	1	Joint	0		1	Marl	Undulating	Rough	with occasional black specks
34.80	1	Joint	3		0		Undulating	Rough	with occasional black specks
35.49	1	Joint	0		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
35.59	1	Joint	0				Undulating	Rough	with many black specks and slickensides
36.95	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
37.50	1	Joint	0		1	Marl	Undulating	Rough	with occasional black specks
38.63	1	Joint	0		1	Marl	Undulating	Rough	with many black specks and rare orangish brown surface staining
39.18	1	Joint	5		1	Marl	Undulating	Rough	with occasional black specks and rare orangish brown surface



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									staining
39.33-39.50		Fracture	85		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
5.42	2	Joint	50		5	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
5.58	1	Joint	10		7	Comminuted chalk	Planar	Rough	with many black specks and rare orangish brown surface staining. With sheet flint fragments.
5.60-5.70		Joint	85		1	Comminuted chalk	Undulating	Rough	with many black specks
5.70	1	Joint	0		3	Comminuted chalk	Planar	Rough	with many black specks
6.66	1	Joint	3		2	Comminuted chalk	Undulating	Rough	with occasional black specks
6.69	2	Joint	60		2	Comminuted chalk	Undulating	Rough	with many black specks
7.00	2	Joint	55		2	Comminuted chalk	Stepped	Rough	with occasional black specks
7.06	1	Joint	10		2	Comminuted chalk	Planar	Smooth	with many black specks
8.32	1	Joint	3		0		Planar	Rough	with rare black specks
8.55	1	Joint	10		3	Comminuted chalk	Undulating	Rough	with many black specks
8.78	1	Joint	0		3	Comminuted chalk	Undulating	Rough	with many black specks
15.71	1	Joint	3		3	Comminuted chalk	Undulating	Rough	with many black specks
15.76	1	Joint	10		0		Undulating	Rough	with many black speck and rare orangish brown surface staining
15.81	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks.
15.97	1	Joint	5		2	Comminuted chalk	Undulating	Rough	with many black specks
16.06	1	Joint	5		1	Comminuted chalk and marl	Undulating	Rough	with occasional black specks
16.15	1	Joint	10		2	Comminuted chalk and marl	Undulating	Rough	with many black specks
16.20	1	Joint	5		0		Stepped	Rough	with many black specks and slickenlines
16.30		Fracture	20		0		Undulating	Rough	with many black speck and occasional orangish brown surface staining
16.59	1	Joint	7		0		Undulating	Rough	
16.68	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
17.43	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black speck and rare orangish brown surface staining
17.52	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many balck specks
17.72	1	Joint	5		1	Comminuted	Stepped	Rough	



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
17.85	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
18.77	1	Joint	5		0		Undulating	Rough	with many black speck and rare orangish brown surface staining
18.94	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black speck and rare orangish brown surface staining
19.04	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
19.17	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many balck specks
19.35	1	Joint	5		1	Comminuted chalk and marl	Stepped	Rough	with many black specks
19.61	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black speck and rare orangish brown surface staining
19.72	1	Joint	5		0		Undulating	Rough	with many black specks
19.80	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
19.91	1	Joint	5		0		Stepped	Rough	with many black specks
21.67	1	Joint	2		0		Undulating	Rough	with occasional black specks
21.84	1	Joint	0		0		Stepped	Rough	with occasional black speck and orangish brown surface staining
21.97		Fracture	45		0		Stepped	Rough	with many black speck and rare orangish brown surface staining
22.02	1	Joint	5		0		Undulating	Rough	with many balck specks
22.10		Fracture	25		0		Undulating	Rough	
22.15	1	Joint	5		0		Undulating	Rough	with occasional black specks and rare orangish brown mottling (Possible sponges).
22.22	1	Joint	5		0		Undulating	Rough	with many black speck and rare orangish brown surface staining
22.84	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
22.98	1	Joint	5		0		Undulating	Rough	wit many black specks
23.10	1	Joint	5		0		Undulating	Rough	with many black speck and occasional orangish brown surface staining
23.22	1	Joint	3		0		Undulating	Rough	with occasional black speck, orangish brown surface staining and slickenlines
23.31	1	Joint	5		3	Comminuted chalk	Undulating	Rough	with occasional black specks
23.48	1	Joint	6		0		Undulating	Rough	with occasional black specks and much green and orange surface staining
23.61	1	Joint	5		0		Stepped	Rough	with much green and orange surface staining
23.71	1	Joint	7		0		Undulating	Rough	with occasional black specks
23.80	1	Joint	5		1	Comminuted	Undulating	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
23.96	1	Joint	0		1	Marl and comminuted chalk	Undulating	Rough	with occasional black specks
24.10		Fracture	20		0		Undulating	Rough	with occasional black specks
24.50	1	Joint	5		0		Stepped	Rough	with occasional mineralised slickenlines
24.57	1	Joint	6		0		Undulating	Rough	with occasional black speck and slickenlines and much orangish brown surface staining
24.64	1	Joint	5		0		Stepped	Rough	with occasional black speck and mineralised slickenlines and much orangish brown surface staining
24.74	1	Joint	0		1	green glauconitic silt	Undulating	Rough	with rare black specks and mineralised slickenlines
24.93	1	Joint	5		0		Stepped	Rough	with rare black specks and occasional mineralised slickenlines
24.98	1	Joint	7		0		Undulating	Rough	with rare black specks and occasional orangish brown staining
25.40	1	Joint	5		0		Undulating	Rough	with many black specks
25.45	1	Joint	2		0		Undulating	Rough	with occasional black speck and orangish brown surface staining
25.56	1	Joint	2		0		Undulating	Rough	with many black specks and occasional mineralised slickensides
25.66		Fracture	60		0		Stepped	Rough	with many black specks and mineralised slickensides
25.94	1	Joint	5		0		Stepped	Rough	with many black specks and occasional light green surface staining and mineralised slickenlines
26.10	1	Joint	5		0		Undulating	Rough	with many black specks and green surface staining and occasional orange surface staining and mineralised slickenlines
26.15	1	Joint	6		0		Stepped	Rough	with much green surface staining and occasional orangish brown surface staining
26.44	1	Joint	5		0		Undulating	Rough	with many black speck and orangish brown surface staining and occasional mineralised slickenlines
26.67	1	Joint	2		0		Undulating	Rough	with rare black specks
26.80	1	Joint	5		0		Undulating	Rough	with rare black specks
27.00	1	Joint	5		0		Undulating	Rough	with occasional mineralised slickenlines



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
27.14	1	Joint	10		0		Planar	Rough	
27.71		Fracture	40		0		Stepped	Smooth	with many slickenlines
28.35		Fracture	20		0		Undulating	Rough	with many slickenlines
29.20	2	Joint	60		0		Undulating	Rough	with occasional grey mottling and slickenlines
29.65		Fracture	90		0		Undulating	Smooth	with many black specks and grey mottling and occasional orangish brown surface staining and slickenlines
29.99	1	Joint	3		0		Undulating	Rough	with occasional black specks
30.35	1	Joint	0		0		Undulating	Rough	
30.71	1	Joint	0		1	light brown fine sand	Planar	Rough	(Possible phosphatic chalk)
30.82	1	Joint	0		0		Undulating	Rough	with occasional orangish brown surface staining
31.84		Fracture	15		0		Stepped	Rough	with many slickenlines and grey and black mottling
32.18		Fracture	40		0		Undulating	Rough	with many black specks
32.21	1	Joint	5		0		Planar	Rough	with occasional black specks and orangish brown mottlin (Possible sponges)
33.26	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown mottling
33.86	2	Joint	55		1	calcite mineralisation	Undulating	Smooth	with many black speck and slickenlines
33.98	1	Joint	5		1	Comminuted chalk and marl	Undulating	Rough	with many black specks
34.05	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown mottling
34.84	1	Joint	5		0		Undulating	Rough	with many black specks and rare orangish brown mottling
34.92	1	Joint	5		0		Undulating	Rough	with many black specks
35.05	2	Joint	65		0		Undulating	Striated	with occaasional orangish brown mottling
35.36	1	Joint	2		0		Undulating	Rough	with occasional black specks
35.59	1	Joint	0		0		Undulating	Rough	with occasional black specks
35.73	1	Joint	0		0		Undulating	Rough	with occasional black specks
36.00	1	Joint	0		0		Undulating	Rough	with rare black specks
36.64	1	Joint	2		0		Undulating	Rough	with many black specks
36.80-37.08		Fracture	70		0		Undulating	Rough	with many black specks
37.31	1	Joint	1		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
38.12	1	Joint	5		0		Undulating	Rough	with many black speck and rare orangish brown surface staining
38.76	1	Joint	5		0		Undulating	Rough	with many black specks
38.81	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
38.89	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R70903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
39.08	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown mottling
39.12	1	Joint	5		0		Undulating	Rough	with many black specks and rare orangish brown mottling
39.50	1	Joint	5		0		Planar	Smooth	clean with many black specks. Marl seam.
39.54	1	Joint	5		0		Planar	Smooth	with occasional black specks
39.58-40.20		Fracture	80		0		Undulating	Smooth	
39.58	1	Joint	5		0		Undulating	Smooth	with occasional black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71001

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
3.00	1	Joint	0		0		Stepped	Smooth	with many black specks and occasional orangish brown surface staining
3.18	1	Joint	5		0		Stepped	Rough	with occasional orangish brown surface staining
3.26	1	Joint	10		0		Stepped	Rough	with rare orangish brown surface staining
3.30-3.42	4	Joint	90		0		Stepped	Rough	with rare orangish brown surface staining
3.42	1	Joint	5		0		Stepped	Rough	with rare brown surface staining
3.65	1	Joint	15		0		Stepped	Rough	with occasional orangish brown surface staining
3.74-3.86	3	Joint	65		0		Stepped	Rough	with occasional black specks
3.86-4.20	4	Joint	85		0		Stepped	Rough	with many black specks and orangish brown surface staining
4.56	1	Joint	13		0		Stepped	Rough	with occasional black specks and orangish brown surface staining
4.80-5.10	4	Joint	85		0		Stepped	Rough	3x fractures- extremely closely spaced with many black specks.
4.98	1	Joint	35		0		Stepped	Rough	with many black specks
5.10-5.90	4	Joint	85		0		Stepped	Rough	2x fractures - very closely spaced with many black specks and occasional orangish brown surface staining
5.11	2	Joint	40		0		Stepped	Rough	with rare orangish brown surface staining
5.25	1	Joint	0		0		Stepped	Rough	with rare orangish brown surface staining
5.36	3	Joint	60		0		Stepped	Rough	with many black specks
5.36-5.50	4	Joint	90		0		Undulating	Rough	with occasional black specks
5.50	3	Joint	60		0		Stepped	Rough	with occasional orangish brown surface staining
6.00-6.17	4	Joint	80		0		Stepped	Smooth	with occasional black specks
6.03	2	Joint	30		0		Undulating	Smooth	with occasional black specks
6.40	1	Joint	15		0		Stepped	Rough	with rare black specks
6.45-6.60	3	Joint	60		0		Stepped	Rough	with many black specks
6.70	1	Joint	1		0		Stepped	Rough	with rare black specks
7.02	2	Joint	40		0		Stepped	Rough	with many black specks
7.65	2	Joint	25		0		Stepped	Rough	with rare black specks
7.77	2	Joint	40		0		Stepped	Rough	with many black specks
7.98-8.50	4	Joint	85		1	Marl	Stepped	Rough	3x fractures - extremely to very closely spaced. With occasional orangish brown staining.
8.70	3	Joint	70		0		Stepped	Rough	with rare orangish brown surface staining
8.90	1	Joint	0		0		Stepped	Rough	with rare black specks and much grey surface staining



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71001

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
9.00	1	Joint	10		0		Undulating	Rough	with rare black specks
9.20	1	Joint	5		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
9.50	2	Joint	20		0		Undulating	Rough	with many black specks
9.79	3	Joint	55		0		Stepped	Rough	with many black specks
10.10	2	Joint	35		0		Stepped	Rough	with many black specks
10.15	3	Joint	65		0		Stepped	Rough	with occasional black specks
10.20	3	Joint	65		0		Stepped	Rough	with occasional black specks
10.75	3	Joint	70		0		Stepped	Rough	with occasional black specks
10.83	1	Joint	15		1	Comminuted chalk	Stepped	Rough	with rare black specks
10.92	1	Joint	5		3	Mineralised	Stepped	Rough	Platyceramus sheet fossil
11.00-11.04	2	Joint	30		0		Stepped	Rough	with rare black specks and orangish brown surface staining
11.44-11.70	4	Joint	85		1	Comminuted chalk	Stepped	Rough	with many black specks
12.10-12.30	4	Joint	80		0		Stepped	Rough	with rare black specks and orangish brown surface staining
12.50	1	Joint	0		10	Comminuted chalk and small flints.	Stepped	Rough	with occasional black specks
12.60-12.80	3	Joint	55		1	Comminuted chalk	Stepped	Rough	3x fractures - extremely to very closely spaced with rare black specks and light brown surface staining.
13.00	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
13.26	1	Joint	15		1	Comminuted chalk	Stepped	Rough	with rare orangish brown surface staining
13.83	1	Joint	15		1	Comminuted chalk	Stepped	Rough	with rare black specks
13.91	1	Joint	5		4	Mineralised	Stepped	Rough	Platyceramus sheet fossil and flint fragment.
14.04	1	Joint	15		0		Stepped	Rough	with rare black specks
14.23	1	Joint	0		0		Stepped	Rough	with rare black specks
15.18	3	Joint	65		0		Stepped	Rough	with many black specks and occasional grey surface staining
15.20	3	Joint	65		0		Stepped	Rough	with many black specks
15.50	1	Joint	13		1	Comminuted chalk	Stepped	Rough	with rare black specks
15.60	1	Joint	0		0		Stepped	Rough	with rare orangish brown surface staining
15.90	2	Joint	30		0		Stepped	Rough	with many black specks and orangish brown surface staining
16.58	2	Joint	35		0		Stepped	Rough	with many black specks
16.72	1	Joint	10		0		Stepped	Rough	with rare orangish brown surface staining
16.80	1	Joint	10		5	Small flint fragments.	Stepped	Rough	with many black specks
16.92-17.04	4	Joint	85		0		Stepped	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71001

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
17.13	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with rare black specks
18.10	1	Joint	5		0		Stepped	Rough	with rare black specks and much orangish brown surface staining
18.62	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with rare orangish brown surface staining
18.70-18.85	4	Joint	85		2	Marl	Stepped	Rough	with rare black specks
19.06	1	Joint	0		0		Stepped	Rough	with occasional black specks
20.04	1	Joint	5		0		Stepped	Rough	with much grey surface staining
20.15	2	Joint	25		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
20.20	1	Joint	0		0		Stepped	Rough	with many black specks
20.40-20.70	4	Joint	85		2	Comminuted chalk	Stepped	Rough	with occasional black specks and much grey surface staining.
21.14	3	Joint	45		0		Stepped	Rough	with occasional black specks and slickenlines
21.34-21.45	3	Joint	45		0		Stepped	Rough	with many black specks and orangish brown surface staining
22.64	1	Joint	5		0		Stepped	Rough	with occasional black specks and orangish brown surface staining and slickenlines
22.80	2	Joint	40		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
22.95		Fracture	80		0		Stepped	Smooth	with many black specks and occasional orangish brown surface staining
23.10		Fracture	25		<1	Marl	Stepped	Rough	with many black specks
23.40-23.48	2	Joint	45		2	Comminuted chalk	Stepped	Rough	with many black specks and slickenlines
24.00	1	Joint	0		0		Stepped	Rough	with rare black specks
24.30	2	Joint	55		0		Stepped	Rough	with rare black specks
24.47-24.60	2	Joint	55		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining and slickenlines
25.69	1	Joint	5		5	Comminuted chalk	Stepped	Rough	with rare black specks
25.98	1	Joint	15		0		Stepped	Rough	with rare black specks
26.01	2	Joint	40		1	Comminuted chalk	Stepped	Rough	with rare black specks
26.13	1	Joint	0		3	Comminuted chalk	Stepped	Rough	with rare black specks
26.40-26.50	2	Joint	55		0		Stepped	Rough	with rare black specks
27.26	1	Joint	0		0		Stepped	Rough	with rare black specks
27.42	1	Joint	0		0		Stepped	Rough	with rare black specks
27.90-28.00	2	Joint	65		<1	Marl	Stepped	Rough	rare orangish brown surface staining and slickenlines
28.15	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare orangish brown surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71001

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
28.25	1	Joint	10		0		Planar	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

Stratum boundary



Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71002

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
2.10	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with much orangish brown surface staining
2.10	2	Joint	45		0		Undulating	Rough	with much dark orangish brown surface staining
2.16	2	Joint	45		0		Stepped	Rough	with much orangish brown surface staining
2.20	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with much orangish brown surface staining
2.30	1	Joint	0		0		Undulating	Rough	with much orangish brown surface staining
2.56-2.80		Fracture	85		1	Comminuted chalk	Undulating	Rough	locally stepped with occasional orangish brown surface staining (Possible sponge)
2.70	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with many black specks
3.25	1	Joint	15		0		Stepped	Rough	with much dark orangish brown surface staining
3.45	1	Joint	15		0		Stepped	Rough	with occasional dark orangish brown surface staining
3.63-3.90		Fracture	90		0		Undulating	Smooth	with many black specks
3.92	1	Joint	0		0		Undulating	Rough	with much grey surface staining
4.04	3	Joint	70		3	Comminuted chalk	Stepped	Rough	with many black specks and occasional orangish brown surface staining
4.28	2	Joint	30		1	Comminuted chalk	Stepped	Rough	intercepting with Set 3 with occasional orangish brown surface staining
4.28	3	Joint	50		0		Stepped	Rough	intercepting with Set 2 with rare black specks and occasional orangish brown surface staining
5.10-5.20		Fracture	85		0		Undulating	Rough	with many black specks
5.22	1	Joint	10		0		Stepped	Rough	with many black specks
5.60	2	Joint	30		30	Fossil	Stepped	Rough	Platyceramus fossil
5.80	1	Joint	0		0		Stepped	Rough	with rare black specks
6.25	2	Joint	40		0		Stepped	Rough	with occasional black specks
6.35	1	Joint	5		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
6.76	1	Joint	0		2	Mineralised	Stepped	Rough	
6.88	1	Joint	5		2	Marl	Stepped	Rough	with many black specks
7.00	1	Joint	0		1	mineralised	Stepped	Rough	with rare orangish brown surface staining
7.11	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with rare black specks
7.25		Fracture	30		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
7.40		Fracture	70		0		Stepped	Smooth	with many black specks and



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71002

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									occasional orangish brown surface staining
7.55	1	Joint	0		0		Undulating	Smooth	with many black specks
7.75		Fracture	80		0		Undulating	Smooth	with many black specks
7.85	1	Joint	0		0		Undulating	Rough	with many black specks
8.39-8.72	3	Joint	55		0		Undulating	Rough	2x extremely closely spaced discontinuities with many black specks
9.17	1	Joint	5		0		Stepped	Rough	with many black specks
9.61-9.90	3	Joint	80		0		Undulating	Rough	with many black specks
10.07	3	Joint	55		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
10.15	1	Joint	0		0		Stepped	Rough	with many black specks
10.50	4	Joint	80		2	Comminuted chalk	Undulating	Smooth	with occasional black specks and slickenlines
10.80	3	Joint	55		0		Stepped	Rough	with many black specks and orangish brown surface staining
11.25-11.35	4	Joint	85		0		Undulating	Smooth	with many black specks and occasional orangish brown surface staining
11.33	2	Joint	20		0		Stepped	Rough	with occasional black specks and much orangish brown surface staining
11.82	1	Joint	15		3	Marl	Undulating	Rough	with many black specks and slickenlines
12.10-12.30	4	Joint	85		0		Undulating	Rough	with occasional orangish brown surface staining
12.58	2	Joint	30		0		Stepped	Rough	with many black specks
13.02	3	Joint	55		0		Stepped	Rough	with many black specks
13.37	1	Joint	5		0		Stepped	Rough	with many black specks
13.40	1	Joint	10		0		Undulating	Rough	with many black specks
13.75	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
13.75	3	Joint	70		0		Undulating	Smooth	with many black specks
13.93	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
14.20	1	Joint	0		0		Undulating	Rough	with occasional black specks
14.50	3	Joint	45		1	Comminuted chalk	Undulating	Rough	with many black specks
14.72	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with many black specks
14.80	1	Joint	10		0		Undulating	Rough	with many black specks
14.80-14.90	4	Joint	85		0		Undulating	Smooth	with many black specks
14.90	3	Joint	45		0		Undulating	Rough	with many black specks
15.40	1	Joint	15		1	Marl	Stepped	Rough	with rare black specks
15.67	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with rare black specks
15.80	1	Joint	15		0		Stepped	Rough	with rare black specks
15.90-16.10	4	Joint	75		0		Stepped	Rough	with many black specks and



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71002

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									orangish brown surface staining and slickenlines
16.50-16.75	4	Joint	80		0		Stepped	Rough	with many black specks and grey surface staining
17.80	3	Joint	50		0		Stepped	Rough	with occasional black specks
18.00	2	Joint	25		0		Stepped	Rough	with many black specks
18.50-18.65	3	Joint	65		0		Stepped	Rough	with many black specks and slickenlines
18.65	1	Joint	0		0		Stepped	Rough	with rare black specks
18.92	3	Joint	40		0		Stepped	Rough	with slickenlines
19.34-19.75	4	Joint	85		0		Stepped	Rough	with occasional orangish brown surface staining
20.55	1	Joint	0		0		Undulating	Smooth	with many black specks
20.70	1	Joint	0		4	Mineralised	Stepped	Rough	Platyceramus with rare orangish brown surface staining
20.95	3	Joint	70		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
21.21	4	Joint	80		0		Stepped	Rough	with occasional orangish brown surface staining
21.80	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
22.07	1	Joint	10		0		Stepped	Rough	with many black specks
22.25	1	Joint	5		0		Stepped	Rough	with rare orangish brown surface staining
22.30	1	Joint	10		0		Stepped	Rough	with many black specks and slickenlines
22.80	1	Joint	0		0		Stepped	Rough	Platyceramus with many black specks
23.20	1	Joint	5		0		Stepped	Rough	with rare black specks and orangish brown surface staining
23.40	1	Joint	0		0		Stepped	Rough	with many black specks
24.00	3	Joint	60		2	Comminuted chalk	Undulating	Rough	with occasional black specks
24.55	2	Joint	30		0		Stepped	Rough	with many black specks
24.60	2	Joint	30		0		Stepped	Rough	with slickenlines
24.76	3	Joint	50		0		Stepped	Rough	with many black specks
24.90	3	Joint	55		0		Stepped	Rough	with many black specks
25.05-25.13	3	Joint	45		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
25.13-25.40		Fracture	85		1	Marl	Stepped	Rough	with much orangish brown surface staining and slickenlines
25.20	3	Joint	45		0		Stepped	Rough	with many black specks
25.45-25.60	3	Joint	60		0		Stepped	Rough	with occasional black specks
25.80	1	Joint	0		0		Planar	Rough	with occasional black specks
26.58	2	Joint	30		0		Stepped	Rough	with many black specks and slickenlines



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71002

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
26.96-27.05		Fracture	85		0		Undulating	Smooth	with many black specks and occasional orangish brown surface staining
27.84	1	Joint	5		0		Stepped	Rough	with occasional black specks
28.10	3	Joint	50		1	Marl	Stepped	Rough	with many black specks and slickenlines
28.41-28.60		Fracture	85		0		Undulating	Rough	locally stepped with light brown surface staining
28.60	1	Joint	0		0		Stepped	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
2.08	1	Joint	0		1	Comminuted chalk	Planar	Rough	with many black specks
2.09	1	Joint	0		0		Planar	Rough	with many black specks
2.10	2	Joint	50		1	Comminuted chalk	Undulating	Smooth	with many black specks
2.17	1	Joint	5		0		Planar	Smooth	with many black specks
2.20	2	Joint	55		1	Comminuted chalk	Undulating	Smooth	with many black specks
2.21		Fracture	40		0		Planar	Rough	with many black specks
2.22	1	Joint	10		1	Comminuted chalk	Planar	Rough	with many black specks
2.28	1	Joint	2		1	Comminuted chalk	Planar	Rough	with many black specks
2.31	2	Joint	52		0		Undulating	Smooth	with many black specks
2.33	1	Joint	5		0		Planar	Smooth	with many black specks
2.37	1	Joint	10		0		Planar	Smooth	with many black specks
2.43	1	Joint	3		0		Undulating	Rough	with many black specks
2.45	1	Joint	8		1	Comminuted chalk	Planar	Rough	with many black specks
2.48	2	Joint	55		0		Planar	Smooth	with many black specks
2.75	2	Joint	50		1	Comminuted chalk	Planar	Smooth	with many black specks
2.76	1	Joint	3		1	Comminuted chalk	Planar	Rough	with many black specks
2.87	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with many black specks
3.05	2	Joint	50		0		Undulating	Smooth	with many black specks
3.50	2	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
3.61	1	Joint	10		1	Comminuted chalk	Planar	Rough	with many black specks
3.73		Fracture	70		0		Planar	Smooth	with many black specks
4.02	1	Joint	0		2	Sheet flint	Undulating	Rough	with many black specks. Flint covers 10% of fracture plane.
5.00-5.32		Fracture	85		0		Planar	Rough	with occasional orangish brown surface staining
5.25		Fracture	0		0		Undulating	Smooth	with occasional orangish brown surface staining
6.50	2	Joint	50		1	Comminuted chalk	Undulating	Smooth	with many black specks
6.74	1	Joint	5		1	Comminuted chalk	Planar	Rough	with many black specks
6.77	2	Joint	60		1	Comminuted chalk	Undulating	Smooth	with many black specks
6.97	1	Joint	0		1	Comminuted chalk	Planar	Smooth	with many black specks
7.11	2	Joint	50		1	Comminuted	Planar	Smooth	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
7.22	2	Joint	55		1	Comminuted chalk	Planar	Rough	with many black specks
7.33	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
7.55	1	Joint	0		0		Stepped	Rough	with rare black specks
8.15	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
8.24-9.05	3	Joint	85		0		Undulating	Smooth	with many black specks
8.26	1	Joint	5		0		Planar	Smooth	with many black specks
8.31	1	Joint	2		0		Undulating	Rough	with many black specks
8.36	2	Joint	60		0		Undulating	Smooth	with many black specks
8.37	1	Joint	2		0		Undulating	Rough	with many black specks
8.47	2	Joint	55		1	Comminuted chalk	Planar	Rough	with many black specks
8.52	1	Joint	0		0		Planar	Rough	with many black specks
8.67	2	Joint	50		1	Comminuted chalk	Undulating	Smooth	with many black specks and orangish brown surface staining
8.68-9.05	3	Joint	85		0		Undulating	Smooth	with many black specks
8.80	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
8.88	1	Joint	5		0		Undulating	Rough	with many black specks
8.89	1	Joint	5		0		Undulating	Rough	with many black specks
9.20	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
9.20-9.32	3	Joint	90		0		Planar	Smooth	with many black specks
9.50	1	Joint	50		1	Comminuted chalk	Undulating	Rough	with many black specks
9.55	2	Joint	50		0		Undulating	Smooth	with many black specks
9.58	2	Joint	50		0		Undulating	Smooth	with many black specks
9.67		Fracture	30		0		Planar	Rough	with many black specks
9.67-9.77	2	Joint	60		0		Stepped	Rough	5x extremely closely spaced
9.68	2	Joint	60		0		Undulating	Smooth	with many black specks
9.78	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
9.87		Fracture	30		0		Planar	Rough	with many black specks
9.91	2	Joint	50		0		Undulating	Rough	with many black specks
9.98	1	Joint	0		1	Comminuted chalk	Planar	Rough	with many black specks
9.99	1	Joint	0		0		Planar	Rough	with many black specks
10.01	1	Joint	10		0		Planar	Rough	with many black specks
10.05	1	Joint	10		1	Comminuted chalk	Undulating	Smooth	with many black specks
10.08	2	Joint	50		0		Undulating	Rough	with many black specks
10.13	1	Joint	5		0		Undulating	Smooth	
10.19	1	Joint	0		0		Planar	Rough	
10.31	2	Joint	50		1	Comminuted chalk	Undulating	Rough	with many black specks
10.60	2	Joint	50		1	Comminuted	Undulating	Smooth	with many black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
10.62-10.82	3	Joint	90		1	Comminuted chalk	Undulating	Smooth	with many black specks
10.75	1	Joint	3		1	Comminuted chalk	Planar	Smooth	
11.00-11.27	3	Joint	90		0		Undulating	Smooth	incipient
11.27	1	Joint	5		0		Planar	Rough	with many black specks
11.41	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
11.75	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
11.81	2	Joint	50		0		Undulating	Smooth	with many black specks
11.81-12.45	3	Joint	90		0		Undulating	Smooth	incipient
12.05	1	Joint	0		1	Comminuted chalk	Planar	Smooth	with many black specks
12.07	1	Joint	0		0		Planar	Smooth	incipient
12.45	1	Joint	2		0		Undulating	Rough	with many black specks
12.50	1	Joint	2		0		Undulating	Smooth	with many black specks
12.50-12.65	3	Joint	85		0		Undulating	Smooth	3x extremely closely spaced with many black specks
12.62	1	Joint	10		1	Comminuted chalk	Undulating	Smooth	with many black specks
12.65	1	Joint	5		0		Undulating	Rough	with many black specks
12.98-13.21	3	Joint	90		0		Undulating	Smooth	with many black specks
13.04	1	Joint	10		1	Comminuted chalk	Planar	Smooth	with many black specks
13.10		Fracture	30		0		Planar	Rough	with many black specks
13.21	1	Joint	10		0		Planar	Rough	with many black specks
13.34	1	Joint	10		1	Comminuted chalk	Planar	Rough	with many black specks
13.34-13.53	3	Joint	85		0		Undulating	Rough	with many black specks
13.59	1	Joint	2		1	Comminuted chalk	Undulating	Smooth	with rare black specks
13.65	1	Joint	6		1	Comminuted chalk	Undulating	Rough	with rare black specks
13.78-13.90	3	Joint	80		1	Comminuted chalk	Undulating	Smooth	with many black specks
14.10-14.41	3	Joint	90		0		Undulating	Smooth	with many black specks
14.24	1	Joint	8		1	Comminuted chalk	Undulating	Smooth	with many black specks
14.52	1	Joint	2		1	Comminuted chalk	Planar	Smooth	with many black specks
14.52-14.85	3	Joint	85		0		Undulating	Smooth	2x fractures with many black specks
14.67	1	Joint	10		0		Undulating	Smooth	
14.71	1	Joint	10		0		Undulating	Smooth	with rare orangish brown surface staining
15.19	1		5		2	Comminuted chalk	Undulating	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
15.58	1	Joint	2		1	Comminuted chalk	Planar	Rough	with and occasional orangish brown surface staining
15.62	2	Joint	50		0		Undulating	Smooth	with many black specks
15.70-15.84	3	Joint	90		0		Undulating	Smooth	incipient with occasional black specks
15.84-16.40	3	Joint	85		0		Undulating	Smooth	with many black specks and occasional orangish brown surface staining
15.87	1	Joint	10		0		Planar	Smooth	with occasional black specks
16.00	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with occasional black specks
16.17	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
17.46		Fracture	5		0		Stepped	Rough	with occasional orangish brown surface staining
20.05-20.19	3	Joint	80		0		Undulating	Smooth	incipient
20.19	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with rare black specks
20.30-20.40	3	Joint	85		0		Undulating	Rough	with many black specks
20.63	2	Joint	60		1	Comminuted chalk	Undulating	Rough	with many black specks
20.90	2	Joint	55		1	Comminuted chalk	Stepped	Rough	with occasional black specks
21.68	1	Joint	2		1	Comminuted chalk and calcite mineralisation	Planar	Rough	with many black specks and occasional slickenlines
21.68-21.88	3	Joint	80		0		Undulating	Smooth	with many black specks
21.88	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with many black specks
21.99	1	Joint	1		1	Comminuted chalk	Undulating	Rough	with many black specks
22.17		Fracture	40		0		Undulating	Smooth	with occasional black specks
22.40	1	Joint	10		0		Undulating	Rough	with many black specks and intersecting with Set 2
22.40	2	Joint	60		0		Planar	Smooth	with many black specks intersecting with Set 1
22.43		Fracture	30		0		Planar	Smooth	with many black specks
22.48	2	Joint	60		0		Undulating	Smooth	with occasional black specks
22.55-22.66	3	Joint	80		0		Undulating	Smooth	with many black specks
22.66	1	Joint	10		1	Marl	Stepped	Rough	with many black specks
23.00	1	Joint	5		1	Comminuted chalk	Undulating	Smooth	with many black specks
23.20	2	Joint	60		0		Undulating	Smooth	with many black specks
23.21	2	Joint	60		0		Undulating	Smooth	with many black specks
23.25	2	Joint	60		0		Undulating	Smooth	with many black specks
23.34	2	Joint	50		0		Stepped	Smooth	with many black specks



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
23.45	2	Joint	50		1	Comminuted chalk	Undulating	Rough	with occasional black specks
23.58	2	Joint	60		0		Undulating	Rough	with many black specks
23.75	2	Joint	50		1	Comminuted chalk	Undulating	Rough	with many black specks
23.80	1	Joint	0		0		Planar	Smooth	with occasional black specks
23.81	2	Joint	60		0		Planar	Smooth	with many black specks
24.02-24.10	3	Joint	85		0		Planar	Smooth	with many black specks
24.26	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with many black specks
24.40	1	Joint	3		0		Planar	Rough	with occasional black specks
24.65	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
24.90	2	Joint	50		1	Comminuted chalk	Planar	Rough	with many black specks
25.44	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with rare black specks
25.70	1	Joint	0		0		Undulating	Smooth	with rare black specks and occasional orangish brown surface staining
26.07	2	Joint	50		0		Planar	Smooth	with many black specks
26.33-26.56	3	Joint	90		0		Undulating	Smooth	with occasional black specks
26.78	2	Joint	60		1	Comminuted chalk	Undulating	Rough	with many black specks
26.86	1	Joint	5		0		Undulating	Rough	with many black specks
26.90	1	Joint	1		0		Planar	Smooth	with many black specks
26.97	2	Joint	60		0		Planar	Smooth	with many black specks
30.96	2	Joint	60		1	Comminuted chalk	Planar	Rough	with occasional black specks and orangish brown surface staining
31.17	2	Joint	60		0		Stepped	Smooth	with many black specks
31.32	1	Joint	10		1	Comminuted chalk	Planar	Rough	with rare black specks
35.47	1	Joint	0		0		Undulating	Rough	with many black specks
35.50	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with occasional black specks
35.72	3	Joint	20		0		Planar	Smooth	with many black specks
35.82	1	Joint	10		1	Comminuted chalk	Planar	Smooth	
36.72	1	Joint	10		1	sandy phosphatic chalk	Undulating	Rough	with many black specks
36.93	1	Joint	5		0		Undulating	Rough	with many black specks
37.18	3	Joint	20		0		Planar	Smooth	with many black specks
37.30	2	Joint	50		0		Planar	Smooth	with many black specks
37.52	2	Joint	60		0		Stepped	Rough	with many black specks
38.20	2	Joint	50		1	Comminuted chalk and	Planar	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71301

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						phosphatic chalk			
38.47	1	Joint	5		1	Comminuted chalk	Planar	Rough	with occasional black specks
38.64	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
38.95	1	Joint	1		1	Comminuted chalk	Planar	Rough	with occasional black specks
39.03	2	Joint	50		0		Planar	Rough	with rare black specks
40.08	1	Joint	0		0		Undulating	Rough	with occasional orangish brown surface staining
40.32	1	Joint	5		1	Comminuted chalk	Stepped	Smooth	with occasional black specks
40.34	1	Joint	10		1	Comminuted chalk	Planar	Rough	with many black specks
41.07	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks and occasional orangish brown surface staining
41.43	3	Joint	30		0		Undulating	Rough	with many black specks
41.52	3	Joint	20		0		Undulating	Rough	with many black specks
41.66	2	Joint	55		0		Undulating	Smooth	with many black specks
41.99	2	Joint	50		0		Undulating	Smooth	with many black specks and calcite mineralised slickenlines
44.05	1	Joint	0		0		Undulating	Smooth	with rare black specks and occasional orangish brown surface staining
44.75	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional orangish brown surface staining
45.00	1	Joint	5		0		Stepped	Rough	with occasional orangish brown surface staining
45.76	1	Joint	5		1	Comminuted chalk and marl	Undulating	Rough	with many black specks
46.22	2	Joint	60		0		Planar	Smooth	with many black specks and mineralised slickenlines
46.32	2	Joint	50		1	Marl	Planar	Rough	with many black specks
46.40	3	Joint	20		1	Comminuted chalk	Undulating	Smooth	with many black specks
47.20	1	Joint	5		0		Undulating	Smooth	with many black specks
47.68	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
49.06	1	Joint	5		1	Comminuted chalk and shell fragment	Planar	Smooth	with many black specks
49.12	3	Joint	20		0		Undulating	Rough	with many black specks and mineralised slickenlines
49.81	1	Joint	5		0		Planar	Rough	with occasional black specks
49.90	1	Joint	5		0		Planar	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
1.52-1.81		Fracture	85		1	Comminuted chalk	Undulating	Rough	with many black specks
1.81		Fracture	55		1	Comminuted chalk	Undulating	Rough	with many black specks
3.59	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
3.68	1	Joint	3		1	Comminuted chalk	Undulating	Rough	with many black specks
3.81	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
4.13	3	Joint	50		1	Comminuted chalk	Undulating	Rough	with many black specks
4.20-4.42	2	Joint	85		1	Comminuted chalk	Stepped	Rough	with many black specks and rare orangish brown surface staining
4.42	3	Joint	55		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
4.50	1	Joint	5		0		Stepped	Rough	with many black specks
4.56	1	Joint	5		0		Stepped	Rough	with many black specks
6.60	1	Joint	0		0		Undulating	Rough	with occasional black specks
6.80	3	Joint	55		0		Undulating	Rough	with occasional black specks
6.88	1	Joint	0		0		Undulating	Rough	with occasional black specks
6.93	3	Joint	50		0		Undulating	Rough	with occasional black specks
7.07	1	Joint	0		0		Undulating	Rough	with occasional black specks
7.07-7.25	2	Joint	85		0		Undulating	Rough	with many black specks
8.11-8.20	2	Joint	85		0		Undulating	Rough	with many black specks
8.19	3	Joint	55		0		Undulating	Rough	with many black specks
8.38	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
8.55-8.86	2	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
9.50-9.93	2	Joint	85		1	Comminuted chalk	Stepped	Rough	with many black specks
9.85	3	Joint	60		0		Undulating	Rough	with many black specks
9.93	1	Joint	1		1	Comminuted chalk	Undulating	Rough	with many black specks
10.00	3	Joint	60		0				incipient
10.15	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with rare black specks
10.32	3	Joint	60		0		Undulating	Rough	with many black specks
10.39	3	Joint	60		0		Planar	Rough	with many black specks
10.41		Fracture	20		1	Comminuted chalk	Stepped	Rough	with many black specks
10.58	3	Joint	60		1	Comminuted chalk	Stepped	Rough	with many black specks
11.14	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
11.30-11.77	2	Joint	85		1	Comminuted chalk	Stepped	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
11.41	3	Joint	60		1	Comminuted chalk	Undulating		with many black specks
11.46	3	Joint	60		1	Comminuted chalk	Stepped	Rough	with many black specks
11.53	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with many black specks
11.81	3	Joint	60		0		Stepped	Rough	with many black specks
11.92-12.10	2	Joint	85		1	Comminuted chalk	Stepped	Rough	with many black specks
12.60	1	Joint	0		0		Undulating	Rough	with many black specks
12.72	1	Joint	0		0		Undulating	Rough	with many black specks
12.90-13.60	2	Joint	85		1	Comminuted chalk	Undulating	Rough	with many black specks
12.90	3	Joint	50		0		Stepped	Rough	with occasional black specks
13.10	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
14.26	1	Joint	5		0		Undulating	Rough	with many black specks
14.26-14.64	2	Joint	85		0		Undulating	Rough	with many black specks
14.47-14.64	2	Joint	85		0		Undulating	Rough	with many black specks
14.83-14.89	2	Joint	85		0		Undulating	Rough	with many black specks
15.25	1	Joint	0		0		Undulating	Rough	with many black specks
15.69	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with many black specks
15.80	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
15.92	3	Joint	50		0		Undulating	Rough	cross-cutting with many black specks and rare orangish brown surface staining
16.03-16.14	2	Joint	85		0		Undulating	Rough	with many black specks
16.03	3	Joint	60		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
16.14	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
16.65	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
16.84	1	Joint	0		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
17.12	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
17.38	1	Joint	15		1	Comminuted chalk	Undulating	Rough	with many black specks
17.61	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
17.70	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
18.16	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
18.33	1	Joint	5		2	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
18.58-19.10	2	Joint	85		0		Undulating	Rough	with many black specks
18.70	1	Joint	0		0		Undulating	Rough	with many black specks
18.94	1	Joint	0		0		Undulating	Rough	with occasional black specks
19.10	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
19.31	1	Joint	0		0		Undulating	Rough	with rare black specks
20.00-20.19	2	Joint	85		0		Undulating	Rough	with many black specks
20.30	1	Joint	5		0		Undulating	Rough	with rare black specks
21.32	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks and orangish brown surface staining
21.71	3	Joint	60		1	Comminuted chalk	Undulating	Rough	with many black specks
21.81	3	Joint	60		1	Comminuted chalk	Undulating	Rough	with greenish grey clay and slickenlines
21.91	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with many black specks
22.32	3	Joint	55		0		Stepped	Rough	with many black specks
22.36	1	Joint	5		1	Comminuted chalk	Stepped	Rough	with many black specks
22.53	3	Joint	55		1	Comminuted chalk	Stepped	Rough	with many black specks
23.10	1	Joint	0		0		Undulating	Rough	with many black specks
23.53	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks and much orangish brown surface staining
23.53-23.84	2	Joint	85		0		Undulating	Rough	with many black specks
24.15-24.33	2	Joint	85		0		Undulating	Rough	with rare black specks
24.53	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
24.80	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with occasional black specks
25.15	1	Joint	0		0		Stepped	Rough	with occasional black specks
25.80	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
25.84	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
26.11	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
26.18	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
26.33	1	Joint	5		0		Undulating	Rough	with occasional black specks
26.57		Fracture	25		0		Undulating	Rough	with many black specks
26.59-26.61	3	Joint	55	Very tight	0		Stepped	Rough	incipient with many black specks
26.64-26.77	2	Joint	85		0		Undulating	Rough	with many black specks
27.10	1	Joint	0		0		Undulating	Rough	with many black specks
27.18-27.50	2	Joint	85		0		Stepped	Rough	with many black specks
27.19	1	Joint	5		0		Undulating	Rough	with many black specks
28.23	1	Joint	0		0		Undulating	Rough	with rare black specks
28.23-28.33	2	Joint	85		0		Undulating	Rough	with rare black specks
28.79	1	Joint	0		0		Undulating	Rough	with rare black specks and



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									orangish brown surface staining
29.19	1	Joint	10		0		Stepped	Rough	with occasional black specks
29.42	1	Joint	5		0		Undulating	Rough	with many black specks
30.04	3	Joint	55		2	Flint	Undulating	Rough	with many black specks and broken sheet flint on surface (2mm thick), orangish brown staining around flint.
30.19	1	Joint	5		3	Comminuted chalk	Undulating	Rough	with occasional black specks
30.42	1	Joint	0		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
30.68	1	Joint	5		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
30.75	1	Joint	10		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
30.86	3	Joint	55		0		Undulating	Rough	with many black specks
31.02		Fracture	25		0		Undulating	Rough	with many black specks
31.33	3	Joint	60		0		Undulating	Rough	with many black specks
31.71	1	Joint	10		0		Stepped	Rough	with many black specks
31.92	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
32.28	1	Joint	5		0		Undulating	Rough	with rare black specks
32.79	1	Joint	0		0		Undulating	Rough	with rare black specks
33.12	1	Joint	0		0		Undulating	Rough	with rare black specks
33.32	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
33.66	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
33.88	1	Joint	5		0		Undulating	Rough	with occasional orangish brown surface staining
34.24	1	Joint	0		0		Undulating	Rough	with many black specks
34.55-34.60	2	Joint	85		0		Undulating	Rough	with many black specks
34.90	1	Joint	5		0		Undulating	Rough	with occasional orangish brown surface staining
35.12	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
35.49-35.76	2	Joint	85		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
35.58	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks and broken ribbed shell fragments
35.67	1	Joint	0		0		Undulating	Rough	with occasional black specks and ribbed shell fragments
36.21	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
36.71	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
36.83		Fracture	30		0		Undulating	Rough	with many black specks and rare orangish brown surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
36.95	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
36.98-37.21	2	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
37.32		Fracture	20		0		Undulating	Rough	with many black specks
37.41	1	Joint	5		0		Undulating	Rough	with many black specks
37.56	3	Joint	60		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
37.63	3	Joint	60		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
37.74-38.00	2	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
38.52	1	Joint	5		0		Undulating	Rough	with rare black specks
38.52-39.00	2	Joint	85		1	Comminuted chalk	Undulating	Rough	with rare black specks
38.74	1	Joint	5		0		Undulating	Rough	with many black specks
38.89	1	Joint	5		0		Undulating	Rough	with many black specks
39.69	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
39.88	1	Joint	0		0		Undulating	Rough	with occasional black specks
39.94	1	Joint	5		0		Undulating	Rough	with rare black specks
40.10	1	Joint	0		0		Undulating	Rough	with rare black specks
40.32	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
41.33	1	Joint	0		1	Comminuted chalk	Undulating	Rough	small nodular flint (50x20mm)
41.42	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
41.59	1	Joint	5		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
42.73	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks and small nodular flints (<15x20mm size)
43.05	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with rare black specks
43.12	3	Joint	60		0		Planar	Smooth	with many black specks
43.16	3	Joint	60		0		Planar	Rough	with many black specks and greenish grey striations
43.77	3	Joint	60		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
44.30	1	Joint	5		0		Undulating	Rough	with rare black specks
44.81	1	Joint	0		0		Undulating	Rough	with many black specks
45.72	1	Joint	0		0		Undulating	Rough	with rare black specks
46.15	1	Joint	5		0		Undulating	Rough	with rare black specks
46.60	1	Joint	0		0		Undulating	Rough	with rare black specks
46.84	1	Joint	5		0		Undulating	Rough	with occasional grey surface staining
47.05	3	Joint	60		1	Clay	Planar	Rough	with many black specks and greenish grey clay



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71302

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
47.42	1	Joint	5		0		Undulating	Rough	with occasional black specks
47.60	1	Joint	0		0		Undulating	Rough	much orangish brown staining
47.77	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with much orangish brown surface staining
47.86	1	Joint	0		0		Undulating	Rough	with occasional black specks
48.14	1	Joint	0		0		Undulating	Rough	with occasional black specks
48.30	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks and ribbed shell fragments
48.64	1	Joint	5		0		Undulating	Rough	with rare black specks
48.93	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
49.18	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with rare black specks and occasional orangish brown surface staining
49.72	1	Joint	0		0		Undulating	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
1.83	1	Joint	0		0		Undulating	Rough	with rare black specks
1.83-2.33	2	Joint	85		1	Comminuted chalk	Undulating	Rough	locally stepped with rare black specks
1.88	1	Joint	15		0		Undulating	Rough	with rare black specks and orangish brown surface staining
1.94	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
1.94-2.02	2	Joint	90		0		Undulating	Rough	with rare black specks
2.00	1	Joint	5		0		Undulating	Rough	with rare black specks
2.02	1	Joint	0		0		Undulating	Rough	
2.14	1	Joint	0		0		Undulating	Rough	locally stepped with rare black specks
2.23	1	Joint	2		0		Undulating	Rough	with rare black specks
2.78	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
2.86	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
2.95	1	Joint	2		1	Comminuted chalk	Undulating	Rough	
3.48	1	Joint	0		0		Undulating	Rough	with rare black specks
3.48-3.76	2	Joint	90		0		Undulating	Rough	with many black specks
5.81-5.86	2	Joint	85		0		Undulating	Rough	with many black specks
5.99-6.06		Fracture	55		0		Undulating	Rough	with rare black specks
6.10	1	Joint	15		0		Undulating	Rough	with many black specks
6.27	1	Joint	0		0		Undulating	Rough	with rare black specks
6.50		Fracture	25		1	Comminuted chalk	Planar	Smooth	with many black specks
6.50-6.63	2	Joint	85		0		Undulating	Rough	with many black specks
6.90-6.97		Fracture	55		0		Undulating	Rough	with rare black specks
6.90	1	Joint	0		0		Undulating	Rough	with rare black specks
7.53	1	Joint	0		0		Undulating	Rough	with rare black specks
7.53-7.70	2	Joint	85		0		Undulating	Rough	with many black specks
7.61	1	Joint	5		0		Undulating	Rough	with rare black specks
8.12-8.22	2	Joint	90		0		Undulating	Rough	with many black specks
8.89	1	Joint	0		0		Undulating	Rough	with many black specks
9.33	1	Joint	0		2	Comminuted chalk	Undulating	Rough	
9.51-9.65	2	Joint	85		1	Comminuted chalk	Undulating	Rough	with occasional black specks
10.15-10.32	2	Joint	90		0		Undulating	Rough	with many black specks cross cutting Set 1 at 10.26m.
10.26	1	Joint	0		0		Undulating	Rough	with rare black specks cross cutting Set 2 at 10.15m
10.47	1	Joint	3		2	Comminuted chalk	Undulating	Rough	with occasional black specks
10.63	1	Joint	0		0		Undulating	Rough	
10.81	1	Joint	5		0		Undulating	Rough	with many black specks
10.88	1	Joint	0		0		Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
11.09	1	Joint	2		3	Comminuted chalk	Undulating	Rough	with many black specks
11.09-11.49	2	Joint	90		0		Undulating	Rough	locally stepped with many black specks
11.74		Fracture	55		0		Undulating	Rough	locally stepped with many black specks
11.74-11.86	2	Joint	90		0		Undulating	Rough	with rare black specks
11.86	1	Joint	0		0		Undulating	Rough	with many black specks
12.03	1	Joint	0		0		Undulating	Rough	with many black specks
12.05		Fracture	55		2	Comminuted chalk	Undulating	Rough	with many black specks
12.06-12.64	2	Joint	0		0		Undulating	Rough	with many black specks
12.21	1	Joint	0		0		Undulating	Rough	with many black specks
12.49	1	Joint	0		0		Undulating	Rough	with many black specks
13.37	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with occasional black specks
13.53		Fracture	55		0		Undulating	Rough	with many black specks
13.71	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
13.86	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks and rare orangish brown surface staining
14.26	1	Joint	2		0		Undulating	Rough	with many black specks
14.47		Fracture	55				Undulating	Rough	with many black specks and rare orangish brown surface staining
14.72		Fracture	55		1	Comminuted chalk	Undulating	Rough	with many black specks
15.52	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
15.85	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with many black specks
16.08	1	Joint	0		0		Stepped	Rough	with many black specks
16.15-16.60	2	Joint	90		1	Comminuted chalk	Undulating	Rough	locally stepped with many black specks
16.74-16.89	2	Joint	85		2	Comminuted chalk	Undulating	Rough	with many black specks and orangish brown surface staining
16.86	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
17.07	1	Joint	0		0		Undulating	Rough	locally stepped with occasional black specks
17.09	1	Joint	0		0		Undulating	Rough	locally stepped with many black specks
17.09-17.29	2	Joint	0		0		Undulating	Rough	with rare black specks and rare orangish brown surface staining
17.12	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
17.32-17.58	2	Joint	0		0		Undulating	Rough	with rare black specks
17.85	1	Joint	0		1	Comminuted chalk	Undulating	Rough	



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
18.48-18.73	3	Joint	55		0		Undulating	Rough	locally stepped with occasional black specks
19.48	1	Joint	2		0		Undulating	Rough	with many black specks
19.51	1	Joint	0		0		Undulating	Rough	with many black specks
19.56	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
19.69	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
19.77	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
20.20-20.50	2	Joint	85		1	Comminuted chalk	Planar	Rough	with many black specks
20.29	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
20.95	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
21.23	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
21.30	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
21.42	3	Joint	55		0		Undulating	Rough	with many black specks
21.45	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
21.59	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks
22.10	1	Joint	5		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
22.10-22.56	2	Joint	85		0		Stepped	Rough	with many black specks and rare orangish brown staining
22.41	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
22.56	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
22.92	3	Joint	55		0		Undulating	Rough	with many black specks
23.05-23.45	2	Joint	85		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
23.32	3	Joint	55		0		Stepped	Rough	with many black specks
23.79	1	Joint	0		0		Undulating	Rough	with rare black specks
24.54	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
25.24	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
25.50	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
25.64-25.64	2	Joint	85		0		Undulating	Rough	locally stepped with many black specks
25.83	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
26.17	1	Joint	0		0		Undulating	Rough	with occasional black specks
26.55	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
26.77	1	Joint	2		0		Undulating	Rough	with many black specks
26.84	1	Joint	5		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
27.14	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
27.45	1	Joint	0		0		Undulating	Rough	with many black specks
27.50-27.68	2	Joint	85				Undulating	Rough	with many black specks and finger flint fragments
27.68	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
27.84-28.05	2	Joint	85		0		Undulating	Rough	with many black specks
27.86	3	Joint	55		0		Undulating	Rough	with many black specks
27.94	3	Joint	55		0		Undulating	Rough	with many black specks
28.73	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
28.73-29.08	2	Joint	90		1	Comminuted chalk	Stepped	Rough	
29.18		Fracture	25		0		Undulating	Rough	with many black specks
29.27	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
29.74	1	Joint	0		0		Undulating	Rough	with occasional black specks
29.83	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
30.06	1	Joint	0		0		Undulating	Rough	Possibly drilling induced
30.17	3	Joint	55		0		Undulating	Rough	with many black specks
30.20	1	Joint	5		0		Undulating	Rough	with occasional black specks
30.64	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
30.71	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
31.25	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
31.25-31.32	2	Joint	85		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
31.32	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
31.48	1	Joint	0		0		Undulating	Rough	with occasional black specks
31.70	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
31.70-32.20	2	Joint	85		0		Undulating	Rough	locally stepped with occasional black specks
31.80	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
31.93	1	Joint	5		2	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
32.42	3	Joint	55		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
32.86	1	Joint	0		0		Undulating	Rough	with many black specks
33.77	1	Joint	0		0		Undulating	Rough	with occasional black specks
33.84	1	Joint	0		0		Undulating	Rough	with occasional black specks
34.30-34.62	2	Joint	85		0		Undulating	Rough	with occasional black specks
34.32	1	Joint	0		0		Undulating	Rough	with occasional black specks
34.45	1	Joint	0		0		Undulating	Rough	with occasional black specks
34.61	1	Joint	0		0		Undulating	Rough	with occasional black specks
34.70	1	Joint	0		0		Undulating	Rough	with occasional black specks
35.04	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
35.19	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
36.11	1	Joint	0		0		Undulating	Rough	with rare black specks
36.24	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
36.46	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
36.76	1	Joint	0		0		Undulating	Rough	
37.20	3	Joint	55		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
37.29-37.56	2	Joint	85		0		Undulating	Rough	locally stepped with occasional black specks
39.25	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
39.51	1	Joint	0		0		Stepped	Rough	Possibly drilling induced with occasional orangish brown surface staining
39.64	1	Joint	0		0		Undulating	Rough	with occasional black specks and orangish brown surface staining
40.30	1	Joint	0		0		Undulating	Rough	with rare black specks
40.93	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
41.21	1	Joint	0		3	Comminuted chalk	Undulating	Rough	with rare black specks
41.21-41.33	2	Joint	85		0		Undulating	Rough	with rare black specks
42.04	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks and occasional orangish brown surface staining
42.25	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
42.27	3	Joint	55		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
42.38	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
43.05-43.20	2	Joint	85		1	Comminuted chalk	Planar	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71701

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
43.43		Fracture	25		0		Undulating	Rough	with many black specks and calcite and clay mineralised slickensides
43.53		Fracture	25		0		Undulating	Rough	with many black specks and calcite and clay mineralised slickensides
43.76	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
46.79	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with many black specks
47.01	1	Joint	0		0		Undulating	Rough	with rare black specks
47.10-47.23	2	Joint	85		0		Undulating	Rough	with occasional black specks
48.01	1	Joint	0		1	Comminuted chalk	Undulating	Rough	
48.15	1	Joint	0		0		Undulating	Rough	with rare black specks
48.80	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
2.32	1	Joint	0		0		Stepped	Rough	with many black specks
2.36	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional orangish brown surface staining
2.40	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with rare orangish brown surface staining
2.44	1	Joint	3		0		Stepped	Rough	incipient
2.47	1	Joint	5		0		Stepped	Rough	incipient
2.52	1	Joint	0		0		Stepped	Rough	incipient
2.57	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional orangish brown surface staining
2.61	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with much orangish brown surface staining
2.64	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
2.69	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
2.77	1	Joint	0		0		Stepped	Rough	with occasional black specks and orangish brown surface staining
2.80	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
2.93	1	Joint	5		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
2.96	1	Joint	0		0		Stepped	Rough	with rare orangish brown surface staining
3.00	1	Joint	5		5	Comminuted chalk	Stepped	Rough	with rare black specks and orangish brown surface staining
3.10	1	Joint	0		0		Stepped	Rough	with occasional black specks
3.70-3.80		Fracture	88		0		Stepped	Rough	with occasional black specks
3.86	1	Joint	0		0		Undulating	Rough	with occasional black specks
4.03	1	Joint	0		0		Stepped	Rough	with rare black specks
4.36		Fracture	65		0		Stepped	Rough	with rare orangish brown surface staining
4.48	1	Joint	15		1	Comminuted chalk	Stepped	Rough	with many black specks
4.55	1	Joint	15		1	Comminuted chalk	Stepped	Rough	with rare orangish brown surface staining
5.18	1	Joint	5		0		Stepped	Rough	with occasional grey surface staining
5.25	1	Joint	0		0		Stepped	Rough	with rare black specks
5.43	1	Joint	0		0		Stepped	Rough	with rare orangish brown surface staining
5.50-5.65	2	Joint	70		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
5.78	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with rare black specks and occasional orangish brown



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									surface staining
5.95	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with occasional black specks and much orangish brown surface staining
6.25		Fracture	25		0		Undulating	Rough	with occasional orangish brown surface staining
6.35	1	Joint	10		0		Stepped	Rough	with rare orangish brown surface staining
6.40	1	Joint	5		0		Stepped	Rough	with occasional black specks and grey surface staining
6.50-6.75	3	Joint	80		0		Stepped	Rough	with many black specks and orangish brown surface staining
7.05	1	Joint	5		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
7.20	1	Joint	0		0		Stepped	Rough	with rare black specks
7.45	1	Joint	20		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
8.15	3	Joint	80		0		Undulating	Smooth	with many black specks
8.80	1	Joint	5		0		Stepped	Rough	with occasional black specks
8.95	1	Joint	15		0		Planar	Rough	with much orangish brown surface staining
9.05	1	Joint	0		0		Stepped	Rough	with much orangish brown surface staining
9.30	1	Joint	0		0		Stepped	Smooth	with occasional black specks and rare orangish brown surface staining
9.40	1	Joint	5		0		Undulating	Rough	with occasional orangish brown surface staining
9.90	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional orangish brown surface staining
10.10	1	Joint	0		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
10.10-10.70	3	Joint	90		0		Planar	Rough	with many black specks and rare orangish brown surface staining
10.55	1	Joint	20		0		Undulating	Rough	with many black specks
10.70	1	Joint	10		0		Stepped	Rough	with occasional black specks and grey surface staining
10.90	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with many black specks
10.95	2	Joint	45		0		Planar	Smooth	with slickenlines
11.10-11.30	3	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
11.30	2	Joint	45		2	Marl	Stepped	Rough	with many black specks
11.40	2	Joint	70		0		Planar	Smooth	with slickenlines
11.50	3	Joint	85		0		Undulating	Smooth	with slickenlines
11.96	1	Joint	5		0		Stepped	Rough	with occasional black specks
12.15	1	Joint	5		0		Stepped	Rough	with many black specks
12.15-12.50	3	Joint	80		0		Undulating	Smooth	with many black specks and rare



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									mineralisation
12.26	1	Joint	0		0		Stepped	Rough	with occasional black specks
12.50-12.85	3	Joint	90		0		Undulating	Rough	with occasional black specks
12.85	2	Joint	70		1	Comminuted chalk	Stepped	Rough	with many black specks
13.25	2	Joint	70		0		Undulating	Smooth	with many black specks
13.35	3	Joint	80		0		Undulating	Smooth	with many black specks and occasional orangish brown surface staining
13.80	1	Joint	0		1	Comminuted chalk	Undulating	Smooth	with occasional black specks
13.85-14.00	2	Joint	70		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
13.95	1	Joint	10		0		Stepped	Rough	with occasional orangish brown and grey surface staining
14.53	1	Joint	0		0		Undulating	Rough	with much grey surface staining
14.75	1	Joint	0		0		Stepped	Rough	with many black specks and grey surface staining
14.90-15.15	4	Joint	80		0		Stepped	Rough	with many black specks
14.96	1	Joint	10		0		Stepped	Rough	with occasional black specks
15.10	3	Joint	50		0		Stepped	Rough	with many black specks
15.25	1	Joint	5		0		Stepped	Rough	with rare black specks
15.75	3	Joint	60		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
15.85-16.00	4	Joint	85		0		Stepped	Rough	with occasional black specks
16.20	2	Joint	40		0		Stepped	Rough	with many black specks
16.40	2	Joint	30		0		Stepped	Rough	with many black specks and grey surface staining
16.50-16.65	4	Joint	90		0		Stepped	Rough	with many black specks
16.80	1	Joint	5		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
16.95	1	Joint	10		1	Marl	Stepped	Rough	with occasional grey surface staining
17.20-17.75	4	Joint	80		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
17.90	1	Joint	0		0		Undulating	Rough	with occasional black specks
18.04	1	Joint	5		0		Undulating	Rough	with occasional orangish brown surface staining
18.70	1	Joint	0		0		Stepped	Rough	with rare black specks
19.02-19.40	4	Joint	80		0		Undulating	Rough	locally stepped with many black specks and rare orangish brown surface staining
19.45	1	Joint	15		0		Undulating	Rough	with many black specks
19.80	1	Joint	0		0		Stepped	Rough	with rare black specks
20.10	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
20.20	1	Joint	3		1	Comminuted chalk	Stepped	Rough	with rare black specks
20.40	1	Joint	0		1	Marl	Stepped	Rough	with rare orangish brown surface staining
20.43		Fracture	20		1	Marl	Stepped	Rough	with rare orangish brown surface staining
20.68		Fracture	20		1	Marl	Stepped	Rough	with occasional black specks and rare orangish brown surface staining
20.68	1	Joint	0		0		Stepped	Rough	with occasional black specks
20.85	2	Joint	50		0		Stepped	Rough	with rare black specks
21.02	1	Joint	5		0		Stepped	Rough	with rare black specks
21.32	1	Joint	10		0		Stepped	Rough	with occasional black specks
21.59	1	Joint	0		0		Stepped	Rough	with rare black specks
21.72	1	Joint	3		0		Stepped	Rough	with rare black specks
21.78	1	Joint	0		0		Stepped	Rough	with occasional black specks
21.90	1	Joint	0		0		Stepped	Rough	with rare black specks
22.30	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with occasional black specks
23.30	1	Joint	0		0		Stepped	Rough	with much orangish brown surface staining
23.50	1	Joint	0		0		Undulating	Rough	with many black specks
23.71	1	Joint	0		0		Stepped	Rough	with many black specks and slickenlines
24.30-24.45	3	Joint	80		0		Undulating	Rough	with occasional black specks
25.28	1	Joint	15		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
25.47-25.58	3	Joint	70		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
25.85	1	Joint	0		0		Stepped	Rough	with rare orangish brown surface staining
26.10	1	Joint	5		2	Comminuted chalk	Stepped	Rough	with many black specks and slickenlines
26.67-26.80	3	Joint	70		0		Stepped	Rough	with occasional orangish brown surface staining
27.20	2	Joint	40		0		Stepped	Rough	with rare orangish brown surface staining
27.80	1	Joint	0		0		Stepped	Rough	with rare black specks
27.90	1	Joint	5		0		Stepped	Rough	with occasional orangish brown surface staining
28.30	1	Joint	0		0		Undulating	Rough	with occasional black specks
28.80	2	Joint	50		0		Stepped	Rough	with occasional orangish brown surface staining
29.40	1	Joint	0		5	sheet flint	Undulating	Smooth	
29.50	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with much orangish brown and grey surface staining
29.90	1	Joint	0		0		Undulating	Rough	with rare black specks
30.00	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71901

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
30.69-30.80	3	Joint	70		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
31.20-31.35	3	Joint	70		0		Stepped	Rough	with rare orangish brown surface staining
31.30-31.34	2	Joint	50		0		Stepped	Rough	with rare orangish brown surface staining
31.59	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
31.70	1	Joint	0		1	Marl	Stepped	Rough	with occasional orangish brown surface staining
32.00-32.75		Fracture	85		0		Undulating	Rough	with rare black specks
32.75	1	Joint	0		0		Undulating	Rough	with occasional black specks
32.90	1	Joint	10		1	Marl	Undulating	Rough	locally smooth with occasional orangish brown surface staining
33.33	1	Joint	0		0		Stepped	Rough	with rare black specks
33.40-33.55		Fracture	50		1	Marl	Planar	Rough	with rare orangish brown surface staining
33.55	1	Joint	0		0		Stepped	Rough	with rare black specks
33.70	1	Joint	2		0		Stepped	Rough	with occasional orangish brown surface staining
34.05	1	Joint	0		0		Stepped	Rough	with rare black specks
34.28-34.35		Fracture	30		0		Stepped	Rough	with slickenlines
34.64	2	Joint	60		0		Stepped	Rough	with rare black specks and orangish brown surface staining
34.80	3	Joint	70		0		Stepped	Rough	with occasional orangish brown surface staining
35.55-35.63	3	Joint	70		0		Stepped	Rough	with occasional black specks
35.70	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
35.93-36.05	3	Joint	70		1	Comminuted chalk	Stepped	Rough	with orangish brown penetrative staining (3mm depth).
36.18-36.25	3	Joint	70		0		Stepped	Rough	with occasional black specks
37.16-37.20	3	Joint	50		1	Comminuted chalk	Stepped	Rough	with rare black specks
37.56-37.65	2	Joint	50		1	Comminuted chalk	Undulating	Rough	with rare black specks
39.14	1	Joint	0		0		Stepped	Rough	with rare black specks
39.18	1	Joint	0		0		Stepped	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
5.23	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
5.31	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
5.41	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
5.67	1	Joint	4		3	Comminuted chalk	Undulating	Rough	with many black specks
6.02	1	Joint	10		3	Comminuted chalk	Undulating	Rough	with many black specks
6.02-6.15	2	Joint	85		0		Undulating	Rough	with many black specks
6.35	3	Joint	50		1	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
6.42	1	Joint	10		0		Undulating	Rough	with rare black specks
6.52	1	Joint	8		1	Comminuted chalk	Undulating	Rough	with many black specks
6.75	1	Joint	5		0		Undulating	Rough	with many black specks
7.05-7.21	2	Joint	85		0		Undulating	Rough	with occasional black specks
7.21	1	Joint	5		1	Comminuted chalk	Planar	Rough	locally undulating with occasional black specks
7.59	3	Joint	55		0		Stepped	Rough	with occasional black specks
7.72-7.78	3	Joint	75		0		Undulating	Rough	undulates 60-90 degrees with occasional black specks
7.81	3	Joint	45		0		Undulating	Rough	with many black specks
7.87-8.08	2	Joint	80		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
8.08		Fracture	25		1	Comminuted chalk	Undulating	Rough	with occasional black specks
8.20-8.40	2	Joint	85		0		Stepped	Rough	with many black specks
8.58	1	Joint	5		0		Stepped	Rough	locally undulating with many black specks
8.79	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with many black specks
8.92-9.15	2	Joint	85		0		Stepped	Rough	with many black specks
9.18		Fracture	15		2	Comminuted chalk	Stepped	Rough	with many black specks
9.19-9.67	2	Joint	85		0		Planar	Rough	with many black specks and rare orangish brown surface staining
9.40	3	Joint	45		1	Comminuted chalk	Undulating	Rough	with many black specks
9.44	3	Joint	60		0		Undulating	Rough	with many black specks
9.48	3	Joint	45		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
9.90-10.25	2	Joint	90		0		Undulating	Rough	with many black specks
9.97		Fracture	35		0		Undulating	Rough	with occasional black specks
10.20	1	Joint	5		0		Undulating	Rough	with many black specks and occasional orangish brown



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									surface staining
10.28	1	Joint	0		0		Undulating	Rough	with rare black specks and orangish brown surface staining
10.62	1	Joint	15		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
10.78	3	Joint	55		1	Marl	Undulating	Rough	with occasional black specks
10.80	2	Joint	80		1	Comminuted chalk	Undulating	Rough	with many black specks
10.84-11.06	2	Joint	90		0		Undulating	Rough	with many black specks
11.06	1	Joint	10		0		Undulating	Rough	with many black specks
11.20		Fracture	45		0		Planar	Rough	with many black specks and occasional orangish brown surface staining
11.67-11.74	2	Joint	85		0		Undulating	Rough	with occasional black specks
11.77	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with occasional black specks
12.10	1	Joint	0		0		Undulating	Rough	with rare black specks
12.20-12.30	2	Joint	80		0		Undulating	Rough	with many black specks
12.71-12.80	3	Joint	55		0		Undulating	Rough	with occasional black specks and slickenlines
12.80-12.90	3	Joint	60		0		Undulating	Rough	with occasional black specks
12.96		Fracture	25		2	Comminuted chalk	Undulating	Rough	with occasional black specks
13.00	1	Joint	10		2	Comminuted chalk	Undulating	Rough	with occasional black specks
13.00-13.18	2	Joint	85		0		Undulating	Rough	with occasional black specks
13.54-13.61	2	Joint	85		0		Undulating	Rough	with occasional black specks and orangish brown surface staining
13.61	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with occasional black specks and rare orangish brown surface staining
13.81	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
13.97	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
14.26	1	Joint	0		3	Comminuted chalk	Undulating	Rough	with occasional black specks
14.30	2	Joint	90		0		Undulating	Rough	with occasional black specks
14.47-15.06	2	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
14.61	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
14.88		Fracture	15		0		Undulating	Rough	with occasional black specks
15.03	1	Joint	5		0		Undulating	Rough	with occasional black specks
15.06	1	Joint	0		0		Undulating	Rough	with occasional black specks
15.52	1	Joint	5		0		Undulating	Rough	with many black specks with occasional black specks
15.71		Fracture	25		0		Undulating	Rough	with many black specks, occasional orangish brown



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									surface staining and slickenlines
16.44	2	Joint	50		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
16.52	2	Joint	45		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
16.62	1	Joint	7		1	greenish grey clay	Undulating	Rough	with many black specks and occasional orangish brown surface staining
17.22		Fracture	70		0		Undulating	Rough	with occasional black specks and rare grey surface staining
17.64	1	Joint	0		0		Undulating	Rough	with occasional black specks
17.74	2	Joint	50		0		Undulating	Rough	with many black specks and dark orangish brown surface staining
17.90	1	Joint	8		1	Comminuted chalk	Undulating	Rough	with occasional black specks
18.15	2	Joint	50		1	Comminuted chalk	Undulating	Rough	with many black specks
18.34	2	Joint	45		1	Comminuted chalk	Stepped	Rough	with many black specks and rare orangish brown surface staining
18.50	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
18.74	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with occasional black specks
18.82	1	Joint	10		0		Undulating	Smooth	with occasional black specks and grey surface staining
18.90-19.05	2	Joint	90		0		Stepped	Smooth	with many black specks and rare orangish brown surface staining
19.07	1	Joint	0		0		Undulating	Rough	with rare black specks
19.25		Fracture	20		1	Comminuted chalk	Undulating	Rough	with many black specks and grey surface staining
19.86		Fracture	80		0		Undulating	Rough	with many black specks
19.91	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
20.24	1	Joint	0		0		Undulating	Rough	with rare orangish brown surface staining
20.70	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
20.81	1	Joint	5		0		Undulating	Rough	with rare black specks
21.17	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with rare black specks
21.32	1	Joint	5		0		Undulating	Rough	with rare black specks
21.35	1	Joint	5		2	Comminuted chalk	Undulating	Rough	with occasional black specks
21.61	1	Joint	0		0		Undulating	Rough	with occasional black specks
21.64	1	Joint	5		0		Undulating	Rough	with occasional black specks
22.15		Fracture	30		3	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
22.36	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
22.50-22.70		Fracture	85		1	Phosphatic chalk	Planar	Smooth	with occasional black specks and much orangish brown surface staining
22.52	1	Joint	10		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
22.66	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with many black specks and orangish brown surface staining
24.27		Fracture	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
25.03	1	Joint	10		0		Undulating	Rough	with occasional black specks
25.36	2	Joint	35		0		Undulating	Rough	with occasional black specks
25.48	1	Joint	5		0		Undulating	Rough	with many black specks
25.52-25.65	2	Joint	45		0		Stepped	Rough	with many black specks and orangish brown surface staining
25.65	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with many black specks
25.79	1	Joint	5		0		Undulating	Rough	with rare black specks
26.40-27.05		Fracture	85		0		Undulating	Rough	with many black specks and orangish brown surface staining
26.62	1	Joint	5		2	Comminuted chalk	Undulating	Rough	with rare black specks
26.77	1	Joint	0		0		Undulating	Rough	with rare black specks
26.96	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
27.32	1	Joint	10		0		Undulating	Rough	with rare black specks
27.59	1	Joint	5		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
28.02	1	Joint	8		0		Undulating	Rough	with occasional black specks
28.31	1	Joint	0		0		Undulating	Rough	with occasional black specks
28.81	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
28.90	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
29.00	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks
29.44	1	Joint	3		1	Comminuted chalk	Undulating	Rough	with many black specks
29.56	1	Joint	0		3	Comminuted chalk	Undulating	Rough	with many black specks
29.69	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
29.78	1	Joint	8		1	Comminuted chalk	Undulating	Rough	with many black specks
29.88	3	Joint	60		0		Planar	Rough	with many black specks
29.93-30.31	2	Joint	90		0		Stepped	Rough	with many black specks
30.02	1	Joint	10		1	Comminuted	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
30.31	1	Joint	8		1	Comminuted chalk	Undulating	Rough	with many black specks
30.40	1	Joint	8		1	Comminuted chalk	Stepped	Rough	with many black specks and rare orangish brown surface staining
30.96	1	Joint	3		0		Stepped	Rough	with many black specks
31.41-31.62	2	Joint	85		0		Stepped	Rough	with occasional orangish brown surface staining
32.00	1	Joint	8		1	Comminuted chalk	Undulating	Rough	with many black specks
32.74	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
33.01	1	Joint	0		0		Undulating	Rough	with much orangish brown surface staining
33.10	1	Joint	10		0		Stepped	Rough	with rare orangish brown surface staining
33.64	1	Joint	0		0		Undulating	Rough	with rare orangish brown surface staining
33.65-33.85	2	Joint	85		0		Undulating	Rough	with many black specks
33.90	1	Joint	0		0		Undulating	Rough	with many orangish brown surface staining
33.98-34.08	3	Joint	55		0		Undulating	Rough	with many black specks and occasional surface staining
34.21	1	Joint	5		0		Undulating	Rough	with occasional black specks
34.26	1	Joint	0		0		Undulating	Rough	with rare black specks and orangish brown surface staining
34.44	1	Joint	0		0		Undulating	Rough	with occasional orangish brown surface staining
34.56	1	Joint	0		0		Undulating	Rough	with rare orangish brown surface staining
35.30	2	Joint	80		0		Undulating	Rough	with many black specks
35.72	1	Joint	8		0		Undulating	Rough	with many black specks
35.76	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with many black specks and rare orangish brown surface staining
35.87	1	Joint	10		0		Stepped	Rough	with rare orangish brown surface staining
36.12	1	Joint	3		1	Comminuted chalk	Undulating	Rough	with rare black specks
36.74	3	Joint	60		1	Comminuted chalk	Undulating	Rough	with many black specks and rare grey surface staining
36.80	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with many black specks
37.28	3	Joint	45		1	Comminuted chalk	Stepped	Rough	with many black specks
37.33	3	Joint	45		1	Comminuted chalk	Stepped	Rough	with many black specks
37.43	3	Joint	40		1	Comminuted chalk	Stepped	Rough	with many black specks
37.53	1	Joint	10		0		Stepped	Rough	with many black specks
37.63	1	Joint	10		0		Stepped	Rough	with orangish brown fossil trace



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71902

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
37.82	1	Joint	8		1	Comminuted chalk	Stepped	Rough	with many black specks
38.25	3	Joint	45		0		Undulating	Rough	with many black specks
38.64	1	Joint	5		0		Undulating	Rough	with rare black specks
38.73	1	Joint	0		0		Undulating	Rough	with occasional black specks
39.70-39.85	2	Joint	85		0		Undulating	Rough	with many black specks
40.00	1	Joint	5		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
40.53	1	Joint	5		0		Undulating	Rough	with rare black specks
40.75	1	Joint	0		2	Comminuted chalk	Undulating	Rough	with rare black specks
41.20	3	Joint	55		0		Undulating	Rough	with occasional black specks
41.50	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with occasional black specks
41.76	1	Joint	8		3	Comminuted chalk	Stepped	Rough	with many black specks
41.95	1	Joint	0		3	Comminuted chalk	Undulating	Rough	with many black specks
42.37-42.46	2	Joint	85		0		Stepped	Rough	with many black specks
42.45	3	Joint	55		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
42.51	3	Joint	60		1	Comminuted chalk	Stepped	Rough	with many black specks and slickenlines
42.63	3	Joint	55		1	Comminuted chalk and marl	Stepped	Rough	with many black specks and possible calcite mineralisation
43.05	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with occasional black specks and orangish brown surface staining
43.18	1	Joint	0		0		Stepped	Rough	with rare black specks
43.34	1	Joint	0		0		Stepped	Rough	with occasional black specks
43.55	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional orangish brown surface staining
43.83	3	Joint	55		3	Comminuted chalk	Stepped	Rough	with many black specks
43.84	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
43.84-43.98	2	Joint	85		0		Stepped	Rough	with occasional black specks
44.51	1	Joint	0		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
44.60-44.70	3	Joint	55		0		Undulating	Rough	with rare orangish brown surface staining
44.85-45.04	3	Joint	55		0		Undulating	Rough	with many black specks
45.00	1	Joint	0		1	Comminuted chalk	Undulating	Rough	locally stepped with occasional orangish brown surface staining
45.11	1	Joint	0		0		Undulating	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
1.77	1	Joint	10		1	Comminuted chalk	Planar	Rough	with much orangish brown surface staining
1.80-1.94	2	Joint	60		0		Undulating	Rough	with occasional black specks
1.83	1	Joint	5		0		Planar	Rough	with occasional orangish brown surface staining
3.00	2	Joint	60		0		Undulating	Rough	with occasional black specks and rare orangish brown surface staining
3.16	1	Joint	0		0		Planar	Rough	with occasional black specks
3.22	1	Joint	0		1	Comminuted chalk	Planar	Rough	with occasional black specks
3.24	1	Joint	0		0		Planar	Rough	with occasional black specks and much orangish brown surface staining
3.27	1	Joint	0		0		Undulating	Rough	with many black specks
3.37	1	Joint	0		0		Planar	Rough	locally undulating with many black specks and rare orangish brown surface staining
3.43	1	Joint	0		0		Undulating	Rough	with many black specks
3.55	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
3.59	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
4.20-4.35	2	Joint	60		0		Undulating	Rough	with many black specks and slickenlines
4.40	1	Joint	5		0		Stepped	Rough	with occasional black specks
4.43	2	Joint	50		0		Undulating	Rough	with rare black specks
4.55		Fracture	35		0		Undulating	Rough	with rare black specks
4.60	1	Joint	10		0		Stepped	Rough	with occasional black specks
4.67	1	Joint	0		0		Stepped	Rough	with occasional black specks
5.40-5.60	3	Joint	85		0		Undulating	Smooth	with occasional black specks
5.65-5.80	3	Joint	85		0		Undulating	Rough	with many black specks
5.84	1	Joint	0		0		Stepped	Rough	with many black specks
6.95-7.20	2	Joint	60		0		Undulating	Rough	with occasional black specks
7.30	1	Joint	5		0		Stepped	Rough	with occasional black specks
7.47	1	Joint	0		0		Stepped	Rough	with occasional black specks
7.50	2	Joint	65		0		Stepped	Rough	with occasional black specks and slickenlines
8.20	2	Joint	70		0		Undulating	Smooth	with occasional black specks
8.27		Fracture	30		0		Planar	Rough	with occasional black specks
8.32	1	Joint	0		0		Stepped	Rough	with rare black specks
8.44		Fracture	20		1	Comminuted chalk	Undulating	Rough	with rare black specks and orangish brown surface staining
8.60-8.75	2	Joint	80		0		Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
8.70	1	Joint	10		0		Stepped	Rough	with many black specks and grey and orangish brown surface staining
8.90-9.10	2	Joint	60		0		Undulating	Rough	with many fossil remains and rare black specks
9.35	1	Joint	10		1	Comminuted chalk	Stepped	Rough	with occasional black specks
10.25-10.42	2	Joint	80		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
10.43-10.66		Fracture	85		0		Undulating	Smooth	with many black specks
10.60	1	Joint	0		0		Stepped	Rough	with occasional black specks
10.65-10.70	2	Joint	60		0		Stepped	Rough	with many black specks
10.74	2	Joint	60		0		Undulating	Rough	with many black specks
10.90	1	Joint	5		0		Stepped	Rough	locally undulating with occasional black specks
11.42-11.56		Fracture	85		0		Undulating	Smooth	with occasional black specks and grey surface staining
11.50	1	Joint	5		1	Fossil	Undulating	Rough	
11.82	1	Joint	10		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
11.90	2	Joint	25		0		Undulating	Rough	with many black specks
12.04	2	Joint	35		2	Comminuted chalk	Stepped	Rough	with occasional black specks
13.27	2	Joint	30		0		Stepped	Rough	incipient
13.35-13.50	3	Joint	90		0		Undulating	Rough	with many black specks
13.50	1	Joint	0		0		Stepped	Rough	with rare black specks
13.79	1	Joint	5		0		Stepped	Rough	with rare orangish brown surface staining
14.75	1	Joint	0		1	Marl	Stepped	Rough	with slickenlines
15.11	1	Joint	0		1	Marl	Stepped	Rough	with rare orangish brown surface staining
15.11-15.17	3	Joint	80		0		Planar	Smooth	with many black specks and rare orangish brown surface staining and slickenlines
15.39	1	Joint	0		1	Marl	Stepped	Rough	with many black specks and slickenlines
15.77-15.85	3	Joint	80		1	Marl	Stepped	Rough	with many black specks and grey and orangish brown surface staining
16.58	1	Joint	15		0		Stepped	Rough	with occasional black specks
16.60-16.76	2	Joint	90		0		Undulating	Rough	with rare black specks
16.68	1	Joint	10		0		Stepped	Rough	with rare black specks
18.54	1	Joint	0		0		Stepped	Rough	with occasional fossil remains
18.70	1	Joint	10		0		Stepped	Rough	with occasional orangish brown surface staining
18.95	1	Joint	2		0		Stepped	Rough	with occasional black specks
18.95-19.13	2	Joint	80		0		Undulating	Smooth	with many black specks and



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
									polished surface
19.01	1	Joint	0		0		Stepped	Rough	with rare black specks
19.13	1	Joint	0		0		Stepped	Rough	with occasional black specks
19.24	1	Joint	5		0		Stepped	Rough	with rare black specks
19.44	1	Joint	15		0		Undulating	Rough	with occasional black specks
19.56	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with occasional black specks
19.73		Fracture	20		1	Marl	Stepped	Rough	with many black specks
19.73-19.98	2	Joint	90		0		Undulating	Rough	with many black specks
19.96	1	Joint	0		1	Marl	Stepped	Rough	with many black specks
22.77-23.00	1	Joint	60		0		Stepped	Rough	with occasional black specks
25.81	1	Joint	5		1	Comminuted chalk	Undulating	Rough	with occasional black specks
25.86	2	Joint	55		0		Undulating	Rough	with occasional black specks
25.89	1	Joint	0		0		Undulating	Rough	with occasional black specks
26.00	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
32.55-32.65		Fracture	90		0		Undulating	Smooth	with many black specks
32.67	1	Joint	10		1	Comminuted chalk	Undulating	Rough	with rare black specks
32.75	1	Joint	0		0		Undulating	Rough	with occasional black specks
35.68	1	Joint	0		0		Undulating	Rough	with occasional black specks
41.58	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
41.77	1	Joint	0		1	greenish grey clay	Undulating	Smooth	with many black specks
42.07	1	Joint	0		0		Undulating	Rough	with occasional black specks
42.17	1	Joint	0		0		Stepped	Rough	with occasional black specks
42.66	1	Joint	2		0		Undulating	Rough	with occasional black specks
44.77	1	Joint	5		0		Undulating	Rough	with many black specks
44.95	1	Joint	5		0		Undulating	Smooth	with occasional black specks
45.49		Fracture	55		1	Comminuted chalk	Stepped	Rough	with occasional black specks
45.64	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with occasional black specks
46.22-46.37		Fracture	85		0		Stepped	Rough	with many black specks
46.22	1	Joint	5		0		Stepped	Rough	with many black specks
46.37	1	Joint	0		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
46.54	1	Joint	2		0		Stepped	Rough	with occasional black specks
46.79	1	Joint	0		1	Comminuted chalk	Planar	Smooth	with occasional black specks
47.23	1	Joint	5		0		Undulating	Rough	with occasional black specks
47.36	1	Joint	3		0		Undulating	Rough	with occasional black specks
47.63	1	Joint	0		0		Undulating	Rough	with occasional black specks
47.77	1	Joint	2		0		Undulating	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71903

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
47.88	1	Joint	0		0		Undulating	Rough	with many black specks
48.04-48.19		Fracture	85		0		Undulating	Smooth	incipient
48.04	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
48.19	1	Joint	2		1	Comminuted chalk	Undulating	Rough	with many black specks
48.41	1	Joint	1		0		Stepped	Rough	with many black specks
48.57	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks
48.69	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71904

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
1.85	1	Joint	0		0		Stepped	Rough	with occasional black specks
1.95	1	Joint	10		0		Undulating	Rough	with occasional black specks
1.98	1	Joint	0		0		Undulating	Rough	with rare black specks
1.98-2.20	2	Joint	80		1	Comminuted chalk	Undulating	Rough	
2.07	1	Joint	0		0		Stepped	Rough	with occasional black specks
2.14	2	Joint	70		0		Undulating	Rough	with many black specks
3.11	2	Joint	15		0		Stepped	Rough	with rare black specks
3.13	1	Joint	10		0		Stepped	Rough	with occasional black specks
3.15		Fracture	45		0		Stepped	Rough	with occasional black specks
4.20	1	Joint	0		0		Stepped	Rough	with occasional black specks
4.31	1	Joint	15		0		Stepped	Rough	with rare black specks
4.40	1	Joint	12		0		Stepped	Rough	with rare black specks
4.50	2	Joint	30		1	Marl	Stepped	Rough	with occasional black specks
4.65	2	Joint	45		1	Marl	Planar	Smooth	with many black specks and slickenlines
4.75	3	Joint	70		0		Stepped	Rough	with rare black specks
4.93	1	Joint	5		0		Stepped	Rough	with occasional black specks
5.05	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with occasional black specks
5.05-5.65	4	Joint	85		0		Undulating	Rough	with many black specks and occasional orangish brown surface staining
5.20	4	Joint	80		0		Stepped	Smooth	with many black specks
5.33	1	Joint	5		0		Stepped	Rough	with occasional black specks
5.45	1	Joint	0		0		Undulating	Rough	with occasional black specks
6.30	1	Joint	0		0		Stepped	Rough	with occasional black specks and rare orangish brown surface staining
6.80	2	Joint	45		0		Stepped	Rough	with occasional black specks
7.40	1	Joint	0		0		Undulating	Smooth	with many black specks
7.54	1	Joint	0		0		Stepped	Rough	with many black specks
7.54-7.70	4	Joint	85		0		Undulating	Smooth	with many black specks
8.10-8.25	4	Joint	90		0		Undulating	Smooth	with many black specks and slickenlines
8.25	2	Joint	30		1	Comminuted chalk	Undulating	Rough	with many black specks and rare orangish brown surface staining
8.30	3	Joint	55		1	Comminuted chalk	Undulating	Smooth	with many black specks
8.35	1	Joint	0		0		Undulating	Smooth	with many black specks
8.42	1	Joint	0		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
8.55	1	Joint	10		0		Undulating	Smooth	with many black specks
8.55-8.65	4	Joint	85		0		Undulating	Smooth	with many black specks
8.86	2	Joint	30		0		Stepped	Rough	with many black specks
8.90	2	Joint	33		1	Comminuted	Undulating	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71904

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
						chalk			
8.90-9.00	4	Joint	90		0		Stepped	Rough	with many black specks
9.04		Fracture	20		0		Stepped	Rough	with many black specks
9.30-9.50	4	Joint	90		0		Planar	Rough	with many black specks
9.70	3	Joint	55		0		Undulating	Rough	with occasional orangish brown surface staining
10.32-10.50	3	Joint	70		0		Stepped	Rough	with occasional black specks
10.55	1	Joint	0		0		Stepped	Rough	with many black specks
10.55-10.66	3	Joint	70		0		Stepped	Rough	with occasional black specks
10.77	1	Joint	15		0		Stepped	Rough	with many black specks
11.20	1	Joint	15		0		Stepped	Rough	with rare black specks
11.44	2	Joint	70		2	Comminuted chalk	Stepped	Rough	with occasional black specks
11.80	1	Joint	0		0		Stepped	Rough	with occasional black specks
12.00	2	Joint	30		0		Stepped	Rough	with rare black specks
12.30	2	Joint	40		1	Comminuted chalk	Stepped	Rough	with many black specks
12.40	1	Joint	3		2	Comminuted chalk	Stepped	Rough	with many black specks
12.45-12.60	4	Joint	80		0		Stepped	Rough	with occasional black specks
12.95	1	Joint	0		0		Undulating	Smooth	with many black specks
13.43	1	Joint	8		1	Marl	Stepped	Rough	with many black specks
13.43-13.63	4	Joint	85		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
13.81	1	Joint	0		0		Stepped	Rough	with occasional black specks
13.81-13.95	4	Joint	80		0		Undulating	Smooth	with many black specks
14.25-14.40	3	Joint	70		0		Stepped	Rough	with occasional black specks
14.78-14.84	2	Joint	40		0		Stepped	Rough	with many black specks
14.93	1	Joint	0		0		Stepped	Rough	with occasional black specks
15.15	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with occasional black specks
15.22	1	Joint	0		1	Comminuted chalk	Stepped	Rough	with rare black specks
15.28	1	Joint	0		0		Stepped	Rough	with rare black specks
15.35-15.50	4	Joint	90		0		Undulating	Rough	with occasional orangish brown surface staining
15.55	1	Joint	15		0		Stepped	Rough	with many black specks
16.10	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with occasional black specks and grey and orangish brown surface staining
16.55-16.66	2	Joint	60		0		Stepped	Rough	with many black specks and rare orangish brown surface staining and slickenlines
16.66-16.80	3	Joint	90		0		Undulating	Smooth	with many black specks and rare orangish brown surface staining
17.81	1	Joint	10		0		Stepped	Rough	with many black specks and occasional orangish brown surface staining
18.00	1	Joint	3		0		Stepped	Rough	with rare black specks



Dip recorded as measured perpendicular to the core axis.

█ Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71904

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
18.10	1	Joint	0		0		Undulating	Rough	with rare black specks
18.10-18.40	3	Joint	80		0		Stepped	Rough	with many black specks
18.53	1	Joint	0		1	Marl	Planar	Rough	with occasional black specks
18.60	2	Joint	45		0		Stepped	Rough	with many black specks
19.15	2	Joint	45		1	Comminuted chalk	Undulating	Rough	with many black specks
19.15-19.30	3	Joint	90		0		Stepped	Rough	with many black specks
19.50		Fracture	20		1	Comminuted chalk	Undulating	Rough	locally stepped with many black specks
20.00-20.30	3	Joint	85		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
21.01	1	Joint	3		0		Stepped	Rough	with many black specks
21.04-21.15	2	Joint	55		0		Undulating	Rough	with many black specks
21.11-21.33	2	Joint	60		2	Comminuted chalk	Stepped	Rough	with many black specks
21.50	2	Joint	45		0		Undulating	Rough	with many black specks
21.95		Fracture	70		0		Stepped	Rough	with many black specks
21.95	2	Joint	40		0		Stepped	Rough	with many black specks
23.00	2	Joint	50		2	Comminuted chalk	Stepped	Rough	with occasional orangish brown surface staining
23.39	2	Joint	40		0		Stepped	Rough	with rare black specks
23.50	2	Joint	55		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
24.15	1	Joint	0		0		Stepped	Rough	with rare black specks
24.40	2	Joint	40		2	Comminuted chalk	Stepped	Rough	with occasional black specks
24.50-24.65	3	Joint	85		0		Undulating	Rough	with rare orangish brown surface staining
25.30	1	Joint	55		1	Comminuted chalk	Stepped	Rough	with occasional black specks
25.30-25.75	2	Joint	90		0		Stepped	Rough	with occasional black specks
25.56		Fracture	15		0		Stepped	Rough	with rare black specks
25.65-25.75	2	Joint	80		1	Comminuted chalk	Undulating	Rough	with many black specks
26.40	1	Joint	60		0		Stepped	Rough	with occasional grey and orangish brown surface staining
26.85		Fracture	40		2	Comminuted chalk	Stepped	Rough	with many black specks
27.15	1	Joint	60		0		Stepped	Rough	with occasional black specks
27.36-27.55	2	Joint	90		0		Stepped	Rough	with rare black specks and occasional orangish brown surface staining
28.55	2	Joint	85		0		Stepped	Rough	with occasional black specks
28.68-28.85	2	Joint	80		0		Undulating	Rough	with many black specks and rare orangish brown surface staining
29.90-30.17	3	Joint	80		0		Undulating	Rough	with many black specks
30.17	1	Joint	0		1	Comminuted chalk	Undulating	Rough	with rare black specks and occasional grey surface staining



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71904

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
30.50-30.80	3	Joint	80		0		Planar	Rough	with many black specks
31.28	1	Joint	12		0		Stepped	Rough	with rare black specks
31.75-31.90		Fracture	70		0		Stepped	Rough	with many black specks
32.96	1	Joint	0		0		Stepped	Rough	with occasional black specks
33.08	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with rare black specks
33.26	1	Joint	3		0		Stepped	Rough	with rare black specks
33.50	1	Joint	0		0		Stepped	Rough	with occasional orangish brown surface staining
34.60	1	Joint	10		0		Stepped	Rough	with rare black specks
34.85	1	Joint	0		0		Undulating	Rough	with many black specks
35.20	2	Joint	35		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
35.40	1	Joint	15		0		Stepped	Rough	with rare black specks and orangish brown surface staining
35.80	1	Joint	5		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
35.98	2	Joint	45		2	Comminuted chalk	Stepped	Rough	with occasional black specks
36.40	2	Joint	55		0		Stepped	Rough	with rare black specks
36.70	1	Joint	5		0		Stepped	Rough	with rare black specks
36.93	2	Joint	40		0		Stepped	Rough	with rare black specks
38.20-38.45	3	Joint	90		0		Undulating	Rough	with many black specks
39.00	1	Joint	0		0		Stepped	Rough	with occasional black specks
39.20	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with occasional black specks
39.40-39.65	3	Joint	85		0		Stepped	Rough	with occasional black specks
40.36	2	Joint	45		0		Stepped	Rough	with occasional black specks
40.65	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with rare black specks
40.80-40.95	2	Joint	60		0		Stepped	Rough	with many black specks and rare orangish brown surface staining
41.80	1	Joint	3		0		Stepped	Rough	with rare black specks and orangish brown surface staining
41.94	1	Joint	0		2	Comminuted chalk	Stepped	Rough	with rare black specks
42.03	1	Joint	0		0		Stepped	Rough	with rare black specks
42.80	1	Joint	0		0		Undulating	Rough	with occasional black specks
43.45-43.65	2	Joint	50		2	Comminuted chalk	Stepped	Rough	with much orangish brown surface staining
43.65	1	Joint	15		1	Marl	Stepped	Rough	with rare orangish brown surface staining
43.90	1	Joint	5		0		Stepped	Rough	with occasional black specks
44.21-44.65	3	Joint	85		0		Undulating	Rough	with occasional black specks
44.65-44.89	3	Joint	90		1	Marl	Stepped	Rough	with occasional orangish brown surface staining
45.49	1	Joint	12		0		Stepped	Rough	with occasional black specks
45.64	1	Joint	8		0		Stepped	Rough	with rare black specks
46.05-46.30	3	Joint	80		0		Stepped	Rough	with many black specks



Dip recorded as measured perpendicular to the core axis.

— Stratum boundary

GEOTECHNICS

Fieldwork Results - Discontinuity Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)


Project No. PC197510

Client HIGHWAYS ENGLAND

Hole No. R71904

Depth / Length (m)	Discontinuity								Remarks
	Set No.	Type	Dip	Aperture	Infill (mm)	Infill Material Desc.	Roughness (Intermediate)	Roughness (Small)	
47.30	1	Joint	3		0		Stepped	Rough	with occasional orangish brown surface staining
47.35	2	Joint	35		2	orangish brown comminuted chalk	Stepped	Rough	with occasional black specks
47.94	1	Joint	10		0		Stepped	Rough	with occasional black specks
48.15	2	Joint	45		0		Stepped	Rough	with occasional orangish brown surface staining
48.25-49.15	3	Joint	85		0		Stepped	Rough	with rare black specks
48.44	1	Joint	8		0		Stepped	Rough	with occasional black specks
48.60	1	Joint	7		0		Stepped	Rough	with many black specks
49.15-49.90	3	Joint	85		2	Comminuted chalk	Undulating	Rough	locally stepped with occasional orangish brown surface staining
49.54	1	Joint	0		0		Stepped	Rough	with occasional black specks



Dip recorded as measured perpendicular to the core axis.
 Stratum boundary

APPENDIX 6
Trial Pit Records

DATA SHEET - Symbols and Abbreviations used on Records



Sample Types

B	Bulk disturbed sample
BLK	Block sample
C	Core sample
D	Small disturbed sample (tub/jar)
E	Environmental test sample
ES	Environmental soil sample
EW	Environmental water sample
G	Gas sample
L	Liner sample
LB	Large bulk disturbed sample
P	Piston sample (PF - failed P sample)
TW	Thin walled push in sample
U	Open Tube - 102mm diameter with blows to take sample. (UF - failed U sample)
UT	Thin wall open drive tube sampler - 102mm diameter with blows to take sample. (UTF - failed UT sample)
V	Vial sample
W	Water sample
#	Sample Not Recovered

Insitu Testing / Properties

CBRP	CBR using TRL probe
CHP	Constant Head Permeability Test
COND	Electrical conductivity
TC	Thermal Conductivity
TR	Thermal Resistivity
HV	Strength from Hand Vane
ICBR	CBR Test
IDEN	Density Test
IRES	Resistivity Test
MEX	CBR using Mexecon Probe Test
PKR	Packer Permeability Test
PLT	Plate Load Test
PP	Strength from Pocket Penetrometer
Temp	Temperature
VHP	Variable Head Permeability Test
VN	Strength from Insitu Vane
w%	Water content
(All other strengths from undrained triaxial testing)	
S	Standard Penetration Test (SPT)
C	SPT with cone
N	SPT Result
-/-	Blows/penetration (mm) after seating drive
-*/-(mm)	Total blows/penetration
()	Extrapolated value

Groundwater

Water Strike	
Depth Water Rose To	

Instrumentation

Seal	
Filter	
Seal	

Strata Legend

Made Ground Granular	
Made Ground Cohesive	
Topsoil	
Cobbles and Boulders	
Gravel	
Sand	
Silt	
Clay	
Peat	
Note: Composite soil types shown by combined symbols	
Chalk	
Limestone	
Sandstone	
Coal	

Strata, Continued

Mudstone	
Siltstone	
Metamorphic Rock	
Fine Grained	
Medium Grained	
Coarse Grained	
Igneous Rock	
Fine Grained	
Medium Grained	
Coarse Grained	

Backfill Materials

Arisings	
Bentonite Seal	
Concrete	
Fine Gravel Filter	
General Fill	
Gravel Filter	
Grout	
Sand Filter	
Tarmacadam	

Rotary Core

RQD	Rock Quality Designation (% of intact core >100mm)
FRACTURE INDEX	
Fractures/metre	
FRACTURE SPACING (m)	Maximum
NI	Non-intact core
NR	No core recovery
AZCL	Assumed zone of core loss
(where core recovery is unknown it is assumed to be at the base of the run)	

TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72801
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid Coordinates 417561.8 E
141577.0 N

Ground Level 93.47 m OD

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.30 0.10	B D			TOPSOIL: Grass over brown gravelly slightly clayey sand. Gravel is angular to subangular fine to coarse of flint with rare chalk.	G.L.		93.47
0.00- 1.53 0.25 0.30- 1.10	DCP D B		mc=25%	Structureless CHALK composed of slightly sandy to sandy silty angular fine to coarse GRAVEL. Clasts are very weak, low density to medium density, pale brown and off white with slight brown staining. Matrix is cream. With rare small rinded flint (<50mm). (Grade Dc)	0.30		93.17
0.50	D			At 0.40m, band of large to very large rinded nodular flints (100-210mm) across the pit.			
0.80	D		mc=23%	Between 0.70-0.80m, chalk bedding, extremely closely spaced (<20mm), gravel is tabular.			
1.10- 1.60	B			Structureless CHALK, composed of silty, angular, fine to coarse GRAVEL. Clasts are very weak, low density to medium density, white, occasionally brown stained. Matrix is white. (Grade Dc)	1.10		92.37
1.50	D		mc=27%	At 1.50m, band of large to very large rinded nodular flints (100-230mm) across the pit.	1.60		91.87
1.60- 2.50	B			Structureless CHALK, composed of slightly sandy gravelly SILT, grading to a sandy very silty gravel in parts. Gravel is weak, medium density, white, angular fine to coarse. (Grade Dm)			
2.50	D			End of Excavation	2.50		90.97

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	3.00	Depth Observed	Depth of Pit	Details
Date	17/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	026 deg			
Stability	stable during excavation.	Date Backfilled	17/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged in accordance with BS5930:2015

Logged by SI
Checked by CPL
Figure 1 of 1
07/10/2019

All dimensions are in metres.

TRIAL PIT RECORD

Trial Pit

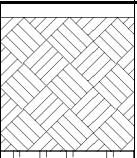
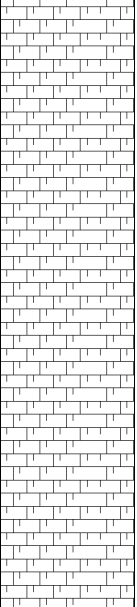
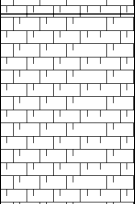
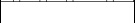
Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72802
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid Coordinates 417658.9 E
141834.2 N

Ground Level 95.56 m OD

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.35 0.10	B D			TOPSOIL: Grass over brown gravelly slightly clayey sand. Gravel is subangular to subrounded fine to coarse of chalk and very small to medium sized nodular flint (5-120mm).	G.L.		95.56
0.00- 0.50 0.32 0.35- 1.50	DCP D B		mc=22%	Structureless CHALK, composed of sandy very silty, angular, fine to coarse GRAVEL with a low cobble content, locally recovered as slightly sandy slightly gravelly silt. Clasts are weak, medium density, off white, slightly stained brown. Matrix is cream. With rare subangular small rinded flint (<50mm). (Grade Dc)	0.35		95.21
1.00	D		mc=20%				
1.80	D		mc=21%	At 1.80m, band of large to very large rinded nodular flints (100-250mm) across the pit.			
2.00- 2.50	B			Structureless CHALK, composed of slightly sandy gravelly SILT grading to a sandy very silty gravel in parts. Gravel is weak, medium density, white, angular, fine to coarse. (Grade Dm)	2.00		93.56
2.50	D			End of Excavation	2.50		93.06

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	4.00	Depth Observed	Depth of Pit	Details
Date	17/06/2019	Length (C)	4.70			None encountered during excavation.
Shoring	None.	Orientation	215 deg			
Stability	stable during excavation.	Date Backfilled	17/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by SI
Checked by CPL
Figure 1 of 1
07/10/2019

geotechnics

All dimensions are in metres. Logged in accordance with BS5930:2015

TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72803
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid Coordinates 417793.6 E
141938.6 N

Ground Level 96.74 m OD

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.15	B			MADE GROUND: Grass over dark brown gravelly sand with occasional plastic (<10mm in size). Gravel is angular to subangular fine to coarse flint, sandstone, chalk and granite.	G.L.		96.74
0.10	D				0.15		96.59
0.40	D			Orangish brown sandy clayey GRAVEL with a low cobble content of large nodular rinded flints (<150mm). Gravel is angular and subangular fine to coarse of very small to medium nodular flints (10-100mm).			
0.50- 0.60	B		mc=23%				
0.50- 0.60	D		mc=22%	Below 0.50m, grading to slightly sandy gravelly silt.	0.60		96.14
0.70- 0.80	B			Structureless CHALK, composed of pale brown gravelly SILT. Gravel is very weak, low to medium density, off white, stained brown, subangular and fine to coarse. With rare small nodular flints (<50mm). [GRADE Dm]			
0.70- 0.80	D						
1.10- 1.50	B			Structureless CHALK, composed of slightly sandy silty subangular GRAVEL with occasional large and very large nodular rinded flints. Clasts are weak, medium density, cream and occasionally brown stained. Matrix is cream. [GRADE Dc]	1.10		95.64
1.30	D		mc=24%				
1.50- 2.50	B			Between 1.35-1.50m, band of large to very large nodular rinded flint (100-150mm) across the pit.	1.50		95.24
				Structureless CHALK, composed of off white and cream, gravelly SILT. Gravel is weak, medium density, off white and occasionally brown stained, subangular and fine to coarse. [GRADE Dm]			
2.50	D			End of Excavation	2.50		94.24

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	18/06/2019	Length (C)	4.00			
Shoring	None.	Orientation	253 deg			None encountered during excavation.
Stability	stable during excavation.	Date Backfilled	18/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load and in situ CBR Tests were carried out at depths of 0.50m and 0.75m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by SI
Checked by CPL
Figure 1 of 1
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015

TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72804
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid 417893.4 E
Coordinates 141953.1 N

Ground Level 99.79 m OD

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.15	B			<p>MADE GROUND: Grass over dark brown sandy very clayey gravel. Gravel is angular to subangular fine to coarse granite.</p> <p>MADE GROUND: Grey and pink sandy gravel. Gravel is angular to subangular fine to coarse granite.</p> <p>At 0.30m, geotextile membrane.</p>	G.L.		99.79
0.10	D				0.15		
0.15- 0.30	B				0.30		99.49
0.20	D						
0.50- 0.60	B			<p>Structureless CHALK, composed of pale brown slightly sandy gravelly SILT. Gravel is very weak, low and medium density, off white and brown stained, subangular fine to coarse. With rare large nodular flint (100-120mm in size). [GRADE Dm]</p>	0.65		99.14
0.50- 0.60	D						
0.75- 0.85	B		mc=24%	<p>Between 0.60-0.80m, band of large to very large nodular rinded flint, (100-200mm) across the pit.</p>			
0.75- 0.85	D		mc=25%				
1.60- 2.50	B			<p>Structureless CHALK, composed of off white gravelly SILT. Gravel is weak, medium density, occasionally brown stained, subangular fine to coarse. [GRADE Dm]</p>	1.60		98.19
2.00	D		mc=25%				
				End of Excavation	2.50		97.29

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.80	Depth Observed	Depth of Pit	Details
Date	19/06/2019	Length (C)	3.50			None encountered during excavation.
Shoring	None.	Orientation	074 deg			
Stability	stable during excavation.	Date Backfilled	19/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR tests at 0.50m and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged in accordance with BS5930:2015

Logged by SI
Checked by CPL
Figure 1 of 1
07/10/2019

TRIAL PIT RECORD

Trial Pit

Project **A303 AMESBURY TO BERWICK DOWN - PHASE Engineer** AECOM

Trial Pit **STP72805**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

National Grid Coordinates **417987.9 E**
141968.2 N

Ground Level **104.33 m OD**

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.15	B			<p>MADE GROUND: Grass over dark brown gravelly slightly clayey sand. Gravel is angular to subangular fine to coarse granite.</p> <p>MADE GROUND: Grey and pink sandy gravel. Gravel is angular to subangular fine to coarse granite.</p> <p>At 0.30m, geotextile membrane.</p>	G.L.		104.33
0.10	D		0.15		104.18		
0.15- 0.30	B				0.30		104.03
0.50- 0.60	B		mc=24%	<p>Structureless CHALK, composed of cream slightly sandy slightly gravelly to gravelly SILT. Clasts are weak, low density and medium density, off white and brown stained, subangular and fine to coarse. With occasional small to medium nodular rinded flint (50-100mm). [GRADE Dm]</p>			
0.50- 0.60	D		mc=25%				
0.75- 0.85	B			<p>Between 1.68-1.78m, band of large nodular rinded flint (130mm).</p> <p>Structureless CHALK, composed of silty subangular GRAVEL with a low cobble content. Clasts are weak, medium density, off white occasionally brown stained. Matrix is cream. [GRADE Dc]</p>			
0.75- 0.85	D		mc=26%				
1.70- 2.50	B				1.70		102.63
2.00	D						
				End of Excavation	2.50		101.83

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	19/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	260 deg			
Stability	stable during excavation.	Date Backfilled	19/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR test at 0.50m and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged in accordance with BS5930:2015

Logged by **SI**
Checked by **CPL**
Figure **1 of 1**
07/10/2019

TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72806
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid Coordinates 418102.2 E
141986.1 N

Ground Level 110.15 m OD

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.10	B			<p>MADE GROUND: Grass over dark brown gravelly slightly clayey sand. Gravel is angular to subangular fine to coarse granite.</p> <p>MADE GROUND: Grey and pink sandy gravel. Gravel is angular to subangular fine to coarse granite.</p> <p>At 0.30m, geotextile membrane.</p>	G.L.		110.15
0.05	D		0.10		110.05		
0.10- 0.30	B		0.30		109.85		
0.20	D						
0.50- 0.60	B		mc=26%	<p>Structureless CHALK, composed of off white slightly sandy slightly gravelly SILT. Gravel is weak, low density to medium density, off white occasionally brown stained, subangular fine to coarse. [GRADE Dm]</p>			
0.50- 0.60	D						
0.75- 0.85	B		mc=28%	<p>Structureless CHALK, composed of slightly sandy slightly gravelly SILT with a medium cobble content and occasional fossils (up to 100mm in size). Clasts are weak, medium density to high density, off white occasionally brown stained with rare grey marl smearing (<1mm) on clast surfaces. Matrix is cream. [GRADE Dm]</p>			
0.75- 0.85	D						
2.00- 2.40	B		mc=28%	<p>At 2.50m, many medium and large nodular rinded flints (100-150mm in size).</p> <p>End of Excavation</p>	2.00		108.15
2.50	D		mc=28%		2.50		107.65

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	19/06/2019	Length (C)	4.10			None encountered during excavation.
Shoring	None.	Orientation	245 deg			
Stability	stable during excavation.					
		Date Backfilled	19/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR tests at 0.50m and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged in accordance with BS5930:2015

Logged by SI
Checked by CPL
Figure 1 of 1
07/10/2019

TRIAL PIT RECORD

Trial Pit

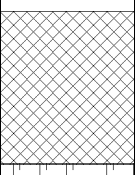

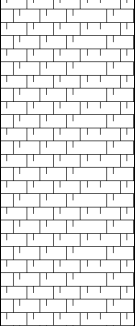
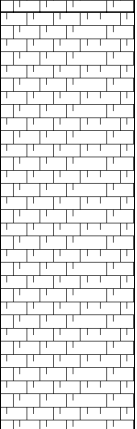
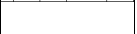
Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72807
Project No PC197510


Client HIGHWAYS ENGLAND

National Grid Coordinates 418199.5 E
142001.8 N

Ground Level 114.60 m OD


Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.40	B			MADE GROUND: Grass over dark brown and grey sandy gravel. Gravel is angular to subangular fine to coarse granite.	G.L.		114.60
0.30	D			At 0.40m, geotextile membrane.	0.40		114.20
0.50- 0.60	B		mc=29%	Structureless CHALK composed of sandy very silty subangular GRAVEL varying in places to slightly sandy gravelly silt. Clasts are weak, low density to high density, cream, stained brown. Matrix is cream. (Grade Dc).			
0.50- 0.60	D						
0.70- 0.80	B		mc=28%				
0.70- 0.80	D		mc=26%				
1.40- 2.50	B			Structureless CHALK, composed of silty subangular GRAVEL with a low to a medium cobble content. Clasts are weak, medium density to high density, off white, occasionally stained brown. Matrix is cream. With rare large nodular, flints (100-150mm) with occasional fossil fragments (<15mm in size). (Grade Dc).	1.40		113.20
2.00	D						
				End of Excavation	2.50		112.10

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	20/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	259 deg			
Stability	stable during excavation.					
		Date Backfilled	20/06/2019			

Remarks  Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load and in situ CBR Tests were carried out at depths of 0.50m and 0.70m and the results are presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by SI
Figure 1 of 1
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015



TRIAL PIT RECORD

Trial Pit

Project **A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM**

Trial Pit **STP72808**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

National Grid Coordinates **418286.0 E
142016.1 N**

Ground Level **118.87 m OD**

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.40	B			MADE GROUND: Grass over dark brown and grey sandy gravel. Gravel is angular to subangular fine to coarse granite.	G.L.		118.87
0.30	D			At 0.40m, Geotextile membrane.	0.40		118.47
0.50- 0.60	B			Structureless CHALK, composed of slightly sandy silty subangular GRAVEL. Clasts are weak, low to medium density, cream, stained brown. Matrix is cream. (Grade Dc).			
0.50- 0.60	D						
0.75- 0.85	B		mc=28%	Structureless CHALK, composed of silty subangular GRAVEL with low to medium cobble content. Clasts are weak, medium density to high density, off white, occasionally stained brown. Matrix is cream. With occasional large to medium nodular rinded flints (100-150mm). (Grade Dc).			
0.75- 0.85	D		mc=27%				
1.60- 2.50	B			Below 2.00m, with rare fossil shell fragments.			
2.00	D						
				End of Excavation	2.50		116.37

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	20/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	256 deg			
Stability	stable during excavation.					
		Date Backfilled	20/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR tests at 0.50m and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by **SI**
Figure **1 of 1**
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015

TRIAL PIT RECORD

Trial Pit

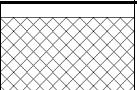
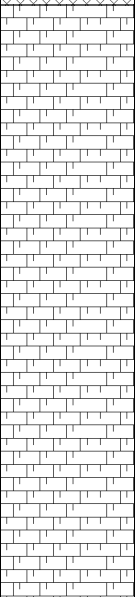
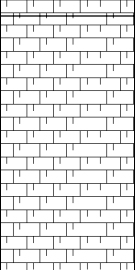
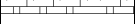
Project **A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM**
7A(I)

Trial Pit **STP72809**
Project No **PC197510**


Client **HIGHWAYS ENGLAND**

National Grid Coordinates **418401.2 E
142034.6 N**

Ground Level **124.69 m OD**

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.20 0.10	B D			<p>MADE GROUND: Grass over dark brown and grey sandy gravel. Gravel is angular to subangular fine to coarse granite.</p> <p>At 0.20m, geotextile membrane.</p>	G.L. 0.20		124.69 124.49
0.50- 0.60 0.50- 0.60	B D		mc=24% mc=21%	<p>Structureless CHALK, composed of cream slightly sandy slightly gravelly SILT. Gravel is weak, low to medium density, occasionally stained brown. With rare large nodular flints (100m-150mm). (Grade Dm)</p>			
0.70- 0.80 0.70- 0.80	B D						
1.80- 2.50	B			<p>Structureless CHALK, composed of silty subangular GRAVEL with a medium cobble content. Clasts are weak, medium density to high density, off white, stained brown, with occasional grey marl smearing (<1mm) on clast surfaces, and rare shell fragments (<15mm in size). Matrix is cream. (Grade Dc)</p>	1.80		122.89
2.00	D			<p>At 2.10m, occasional tabular flint with thick cortex.</p>			
				End of Excavation	2.50		122.19

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	20/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	255 deg			
Stability	stable during excavation.	Date Backfilled	20/06/2019			


Remarks  Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.70m and in situ CBR tests at 0.50m and 0.75m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015

Logged by **SI**
Figure **1 of 1**
07/10/2019



TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72810
Project No PC197510

Client HIGHWAYS ENGLAND


National Grid Coordinates 418566.9 E
142414.7 N

Ground Level 147.89 m OD

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.30	B			MADE GROUND: Light greyish brown slightly gravelly sand with many roots (<6mm in size), occasional rootlets and rare gravel sized plastic fragments. Gravel is rare angular and subangular fine to coarse chalk.	G.L.		147.89
0.20	D						
0.00- 1.09	DCP			Light grey to light brown slightly gravelly sandy SILT with occasional roots (<4mm in size). Gravel is subangular fine to coarse gravel of chalk.	0.30		147.59
0.50- 0.57	B		mc=21%				
0.50- 0.57	D		mc=19%				
0.70- 0.80	B			Structureless CHALK, composed of silty angular and subangular fine to coarse GRAVEL. Gravel is weak, low to medium density, pale brown to cream and stained brown. Matrix is cream (Grade Dc).	0.57		147.32
0.70- 0.80	D						
0.80- 1.20	B				0.80		147.09
1.00	D		mc=16%	Structureless CHALK, composed of slightly sandy very silty subangular and tabular fine to coarse GRAVEL. Clasts are weak, medium density, cream, stained brown. Matrix is cream (Grade Dc).			
1.20- 1.60	B			CHALK, recovered as silty tabular fine to coarse GRAVEL with a high cobble content. Clasts are weak, medium density, off white, stained brown. Matrix is cream, With rare fossils (bivalve, zoophycos and conulous). With rare small elongated sponge flints, pseudo flint and large nodular flints (100-150mm). Possibly structured with discontinuities being very closely to closely spaced (40/60/100).	1.20		146.69
1.60	D			End of Excavation	1.60		146.29

Excavation				Groundwater		
Plant	4 Tonne 360 Excavator	Width (B)	0.80	Depth Observed	Depth of Pit	Details
Date	25/06/2019	Length (C)	2.90			None encountered during excavation.
Shoring	None.	Orientation	280 deg			
Stability	stable during excavation.	Date Backfilled	25/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Logged by SI
 Plate Load Tests were carried out at depths of 0.50m and 0.70m with the results presented in Appendix 8. Figure 1 of 1
 The Trial Pit was terminated at a depth of 1.60m due to hard strata. 07/10/2019
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Backfill details from base of hole: arisings up to ground level.
 Logged in accordance with BS5930:2015



TRIAL PIT RECORD

Trial Pit

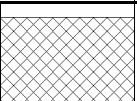

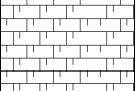
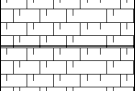
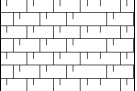
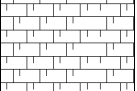
Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72811
Project No PC197510

Client HIGHWAYS ENGLAND


National Grid Coordinates 418582.9 E
142402.2 N

Ground Level 149.48 m OD

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.25	B			MADE GROUND: Brown gravelly sand with many rootlets and occasional roots (<15mm in size). Gravel is angular to subangular fine to coarse chalk with rare flint and a piece of drinks can (Fanta).	G.L.		149.48
0.20 0.00- 0.72	D DCP			Structureless CHALK, composed of angular and subangular fine to coarse GRAVEL. Clasts are weak, low to medium density, pale brown to cream, brown stained. Matrix is cream. With rare small nodular flints (45mm). (Grade Dc)	0.25		149.23
0.50- 0.60 0.50- 0.60	B D		mc=25%	Structureless CHALK, composed of slightly sandy silty angular to subangular fine to coarse GRAVEL. Clasts are weak, medium density, cream, stained brown. Matrix is cream. With single fossil shell fragment (5mm). (Grade Dc)	0.70		148.78
0.75- 0.85 0.75- 0.85	B D		mc=23%	CHALK, recovered as silty tabular fine to coarse GRAVEL with a high cobble content. Clasts are weak, medium density, brown occasionally stained orangish brown. Matrix is cream. With rare shell fragments (5mm). Possibly structured with discontinuities being very closely to closely spaced, (40/60/90).	0.90		148.58
0.90- 1.30	B			Between 1.38-1.49m, a band of large and very large nodular flint (100-210mm) across the pit.			
1.60	D			End of Excavation	1.60		147.88

Excavation				Groundwater		
Plant	4 Tonne 360 Excavator	Width (B)	0.80	Depth Observed	Depth of Pit	Details
Date	25/06/2019	Length (C)	3.00			None encountered during excavation.
Shoring	None.	Orientation	291 deg			
Stability	stable during excavation.	Date Backfilled	25/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Logged by SI
 Plate Load Tests were carried out at depths of 0.50m and 0.75m with the results presented in Appendix 8. Figure 1 of 1
 The Trial Pit was terminated at a depth of 1.60m due to hard strata. 07/10/2019
 Chalk logged in accordance with CIRIA Report C574, 2002.
 Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing).
 Backfill details from base of hole: arisings up to ground level.
 Logged in accordance with BS5930:2015



TRIAL PIT RECORD

Trial Pit

Project **A303 AMESBURY TO BERWICK DOWN - PHASE Engineer** AECOM
7A(I)

Trial Pit **STP72901**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

National Grid Coordinates **409711.0 E**
144521.9 N

Ground Level **113.82 m OD**

Samples and Tests				Strata		Scale 1:20	
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.30	B			TOPSOIL: Crop over brown gravelly sand. Gravel is angular to subangular fine to coarse chalk and flint.	G.L.		113.82
0.20	D			Structureless CHALK, composed of pale brown to cream subangular very sandy gravelly SILT. Gravel is very weak, low to medium density, cream. With occasional small to medium flints (50-100mm). (Grade Dm)	0.30		113.52
0.50- 0.60	B		mc=23%		Structureless CHALK, composed of angular and subangular fine to coarse GRAVEL and a low cobble content. Clasts are weak, medium density, off white, stained brown. Matrix is cream. (Grade Dc)	0.75	
0.50- 0.60	D		mc=24%	Between 1.60m-1.80m, band of medium to very large modular flints (100-220mm) and zoophycos flints. Below 1.80m, many fossil shell fragments (20mm in size) with occasionally nodular finger flints.			
0.75- 0.85	B		mc=26%		End of Excavation		
0.75- 0.85	D						
2.00- 2.50	B						
2.50	D				2.50		111.32

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	24/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	090 deg			
Stability	stable during excavation.	Date Backfilled	24/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR tests at 0.50m and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by **SI**
Figure **1 of 1**
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015

TRIAL PIT RECORD

Trial Pit

Project A303 AMESBURY TO BERWICK DOWN - PHASE Engineer AECOM
7A(I)

Trial Pit STP72902
Project No PC197510

Client HIGHWAYS ENGLAND

National Grid Coordinates 409717.9 E
144596.1 N

Ground Level 115.61 m OD

Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.25 0.10 0.10 0.20	B ES D		PID=<0.1	TOPSOIL: Crop over brown gravelly sandy. Gravel is angular to subangular fine to coarse chalk and flint .	G.L.		115.61
0.30 0.30	ES		PID=<0.1	Structureless CHALK, composed of sandy very silty subangular fine to coarse GRAVEL. Clasts are weak, low to medium density, pale brown to cream, stained brown, occasionally stained orangish brown. Matrix is cream. With rare small nodular flint (<50mm). (Grade Dc)	0.35		115.26
0.50- 0.60 0.50- 0.60 0.50 0.50	B D ES		mc=26% PID=<0.1		1.00		114.61
0.80- 0.90 0.80- 0.90	B D		mc=26% mc=28%	Structureless CHALK, composed of silty subangular fine to coarse GRAVEL with a low cobble content. Clasts are weak, medium density, off white, stained brown, rarely stained orangish brown. Matrix is cream. (Grade Dc) Between 1.10-1.25m, band of large to very large nodular flints (100-230mm).	1.00		114.61
1.00 1.00	ES		PID=<0.1				
2.00- 2.50 2.00 2.00 2.00	B D ES		PID=<0.1	End of Excavation	2.50		113.11

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	24/06/2019	Length (C)	4.10			None encountered during excavation.
Shoring	None.	Orientation	091 deg			
Stability	stable during excavation.					
		Date Backfilled	24/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.80m and in situ CBR tests at 0.50 and 0.70m with the results presented in Appendix 8. Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Symbols and abbreviations are explained on the accompanying key sheet.

All dimensions are in metres.

Logged in accordance with BS5930:2015

Logged by SI
Figure 1 of 1
07/10/2019

TRIAL PIT RECORD

Trial Pit

Project **A303 AMESBURY TO BERWICK DOWN - PHASE Engineer** AECOM

Trial Pit **STP72903**
Project No **PC197510**

Client **HIGHWAYS ENGLAND**

National Grid Coordinates **409796.4 E**
144590.8 N

Ground Level **113.10 m OD**


Samples and Tests				Strata	Scale 1:20		
Depth	Type	Stratum No	Results	Description	Depth	Legend	Level m OD
0.00- 0.33 0.10 0.10 0.10	B D ES		PID=<0.1	TOPSOIL: Crop over brown gravelly sand. Gravel is angular to subangular fine to coarse chalk and flint.	G.L.		113.10
0.30 0.30 0.30	D ES		PID=<0.1	Structureless CHALK, composed of sandy very silty subangular fine to coarse GRAVEL. Clasts are weak low density to medium density, pale brown to cream, stained brown. Matrix is cream. With rare small nodular flints (<50mm size). (Grade Dc)	0.33		112.77
0.50 0.50 0.55- 0.65 0.55- 0.65	ES B D		PID=<0.1 mc=23%				
0.75- 0.85	B		mc=27%	At 0.75m, grading to a sandy gravelly silt.	0.80		112.30
1.00 1.00 1.00	D ES		mc=27% PID=<0.1	Structureless CHALK, composed of silty angular and subangular fine to coarse GRAVEL with a low cobble content. Clasts are weak, low to medium density, off white, stained orangish brown, occasionally stained orangish brown. Matrix is cream. With rare nodular flints (<50mm in size). (Grade Dc)			
2.00 2.00 2.00	D ES		PID=<0.1				
2.30- 2.50	B			Structureless CHALK, composed of silty subangular tabular fine to coarse GRAVEL with a medium cobble content. Clasts are weak, medium density, off white, stained orangish brown and brown. Matrix is cream. With various fossils remains (<20mm in size). Occasional large to very large nodular flints (100-225mm). (Grade Dc)	2.30 2.50		110.80 110.60
				End of Excavation			

Excavation				Groundwater		
Plant	14 Tonne Excavator (DX140)	Width (B)	0.90	Depth Observed	Depth of Pit	Details
Date	24/06/2019	Length (C)	4.00			None encountered during excavation.
Shoring	None.	Orientation	092 deg			
Stability	stable during excavation.	Date Backfilled	24/06/2019			

Remarks Wessex Archaeology provided a watching brief throughout the pit excavation. Plate Load Tests were carried out at depths of 0.50m and 0.75m and in situ CBR tests at 0.50 and 0.70m with the results presented in Appendix . Chalk logged in accordance with CIRIA Report C574, 2002. Flints described as in "Logging the Chalk", Appendix B (R.N. Mortimore, 2014, Whittles Publishing). Backfill details from base of hole: arisings up to ground level.

Logged by **SI**
Figure **1 of 1**
07/10/2019

All dimensions are in metres. Logged in accordance with BS5930:2015



PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72801 [Photo 1]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72801 [Photo 2]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72801 [Photo 3]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP7280I [Photo 4]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72801 [Photo 5]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72801 [Photo 6]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 1]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 2]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 3]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 4]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 5]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72802 [Photo 6]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72803 [Photo 1]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72803 [Photo 2]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72803 [Photo 3]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72803 [Photo 4]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72803 [Photo 5]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72804 [Photo 1]

PHOTOGRAPHS

Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72804 [Photo 2]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72804 [Photo 3]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72804 [Photo 4]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72805 [Photo 1]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72805 [Photo 2]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72805 [Photo 3]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72805 [Photo 4]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72805 [Photo 5]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)

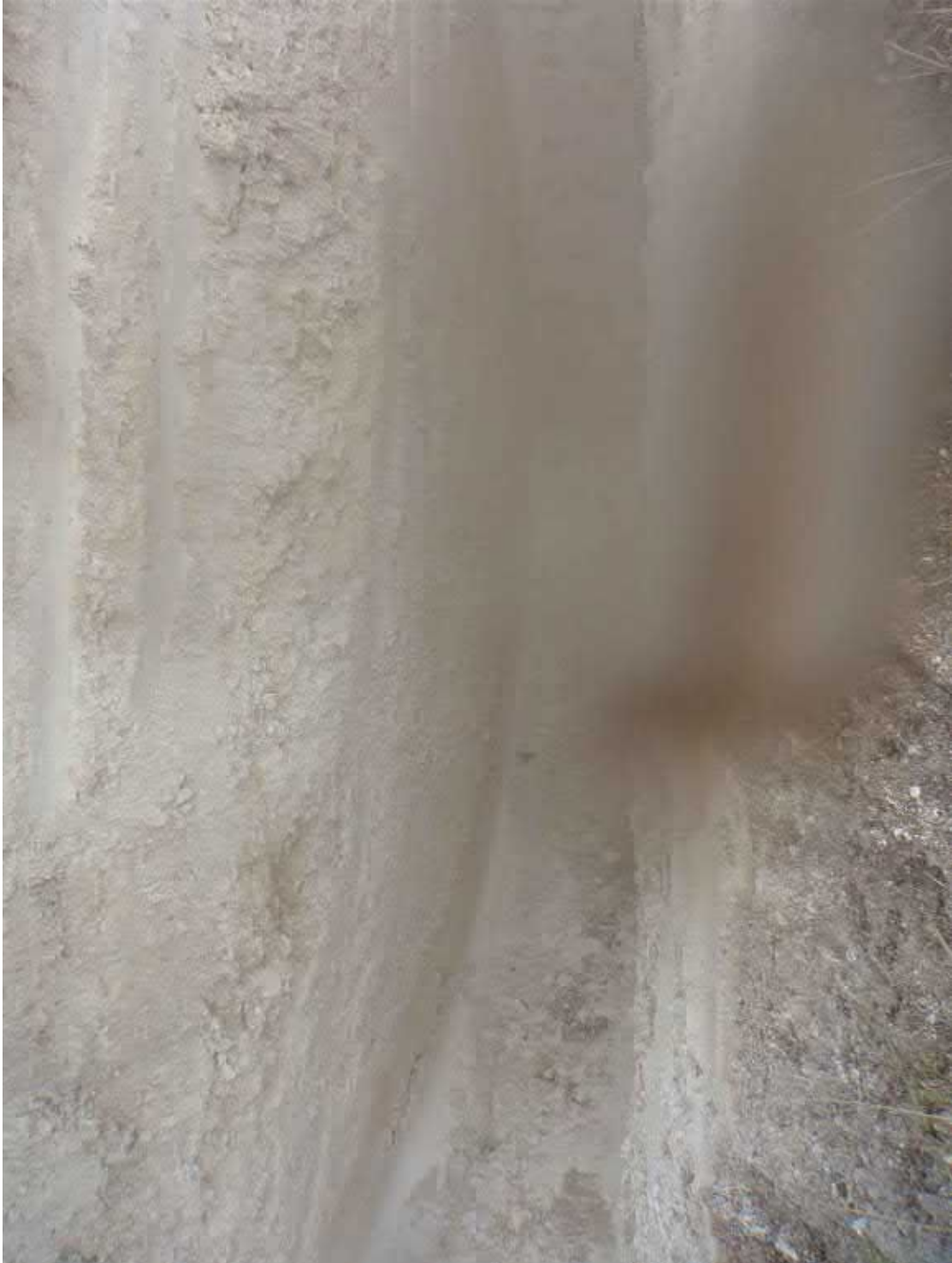


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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72806 [Photo 3]

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Project Number : PCI97510

Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72806 [Photo 7]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72807 [Photo 3]

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STP72807 [Photo 4]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72807 [Photo 5]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72809 [Photo 1]

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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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Project : A303 Amesbury to Berwick Down - Phase 7a (i)



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STP72903 [Photo 2]

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STP72903 [Photo 3]

PHOTOGRAPHS

Project Number : PCI97510

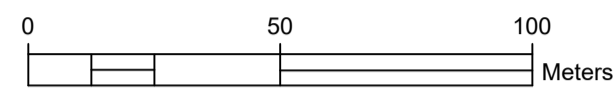
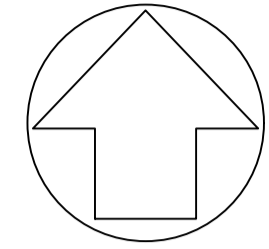
Project : A303 Amesbury to Berwick Down - Phase 7a (i)



STP72903 [Photo 4]

APPENDIX 7

Exploratory Hole Location Plan



92.0m

77.4m

Field System

Mast (Telecommunication)

Track

Tank




Lodge

GP

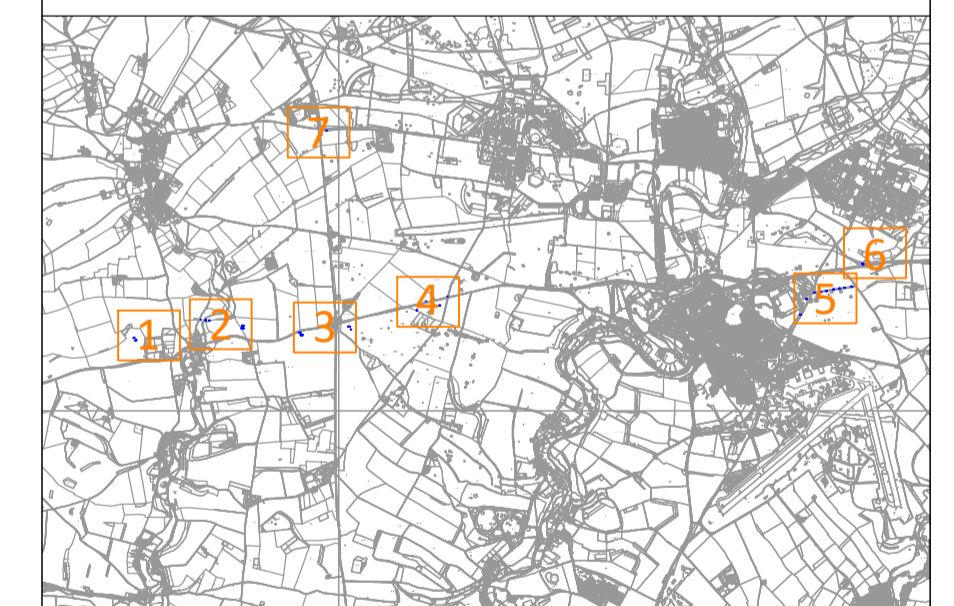
Mast

A 303

Key

-  Rotary Core
-  Cable Percussion Borehole
-  Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141494.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141797.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP2801	417561.8	141377.0	93.47
STP2802	417658.9	141834.2	95.56
STP2803	417793.6	141938.6	96.74
STP2804	417893.4	141953.1	99.79
STP2805	417987.9	141968.2	104.33
STP2806	418102.2	141986.1	110.15
STP2807	418199.5	142001.8	114.60
STP2808	418286.0	142015.1	118.87
STP2809	418401.2	142034.6	124.69
STP2810	418566.9	142141.7	147.89
STP2811	418582.9	142402.2	149.48
STP2801	409711.0	144521.9	113.82
STP2802	409717.9	144596.1	115.61
STP2803	409796.4	144590.7	113.10



GEOTECHNICS
geotechnical and geoenvironmental specialists

Head Office
The Geotechnical Centre,
203 Torrington Avenue,
The Hill,
Coventry CV4 9AP

Phone: 024 7669 4664
Fax: 024 7669 4642
Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

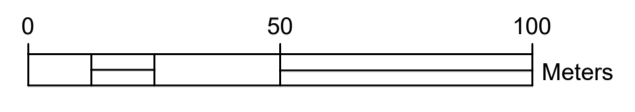
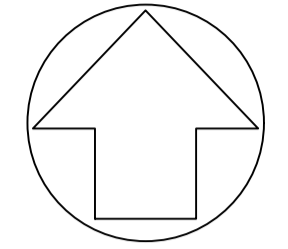
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Date:
July 2019

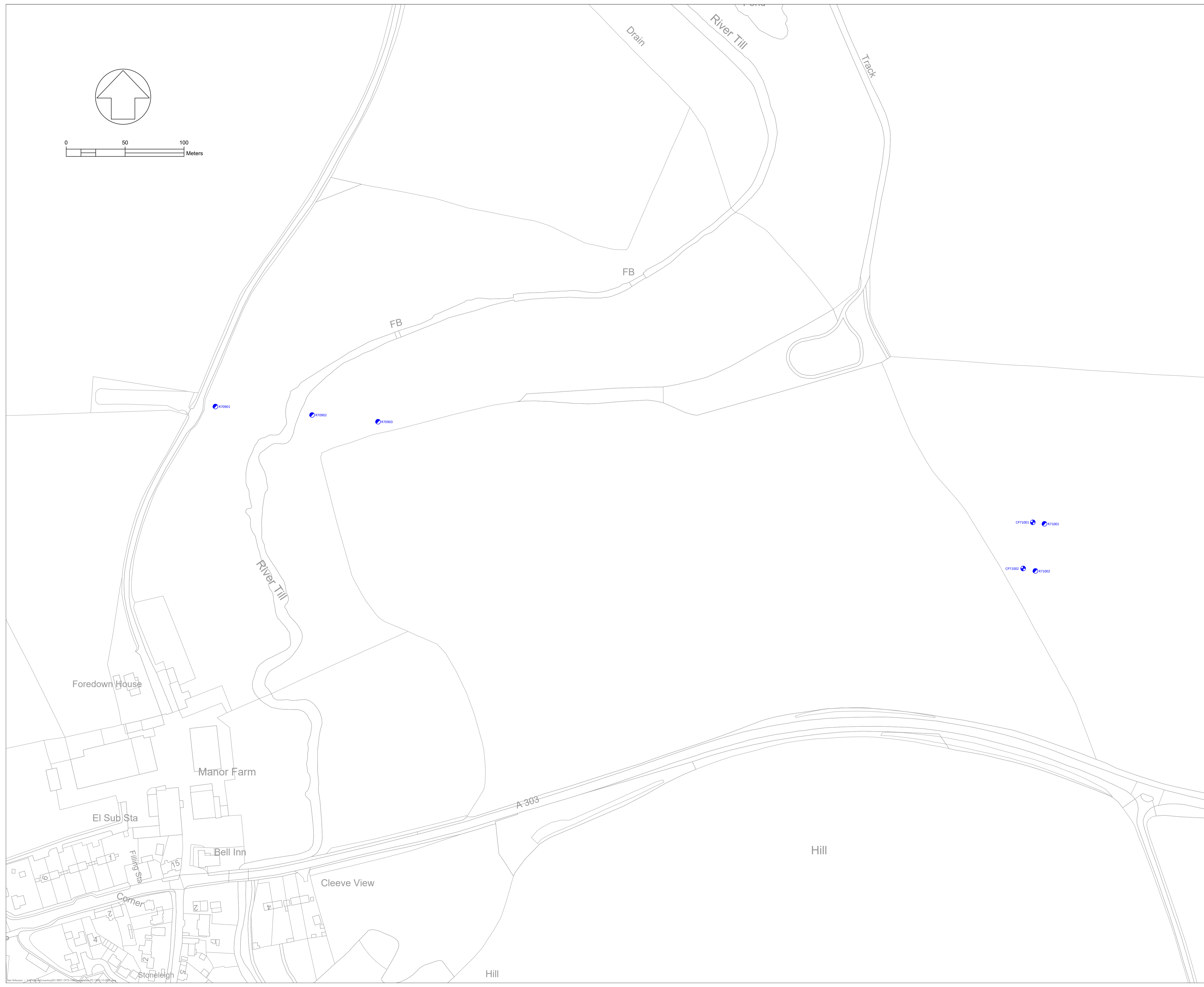
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File Name:
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- Key**
- Rotary Core
 - Cable Percussion Borehole
 - Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141494.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141797.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP72801	417561.8	141377.0	93.47
STP72802	417658.9	141384.2	95.56
STP72803	417793.6	141988.6	96.74
STP72804	417893.4	141953.1	99.79
STP72805	417987.9	141968.2	104.33
STP72806	418102.2	141986.1	110.15
STP72807	418199.5	142001.8	114.60
STP72808	418286.0	142015.1	118.87
STP72809	418401.2	142034.6	124.69
STP72810	418566.9	142414.7	147.89
STP72811	418582.9	142402.2	149.48
STP72801	409711.0	144521.9	113.82
STP72802	409717.9	144596.1	115.61
STP72803	409796.4	144590.7	113.10



GEOTECHNICS
geotechnical and geoenvironmental specialists

Head Office: The Geotechnical Centre, 203 Torrington Avenue, Tile Hill, Coventry CV4 9AP
Phone: 024 7659 4664
Fax: 024 7669 4642
Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

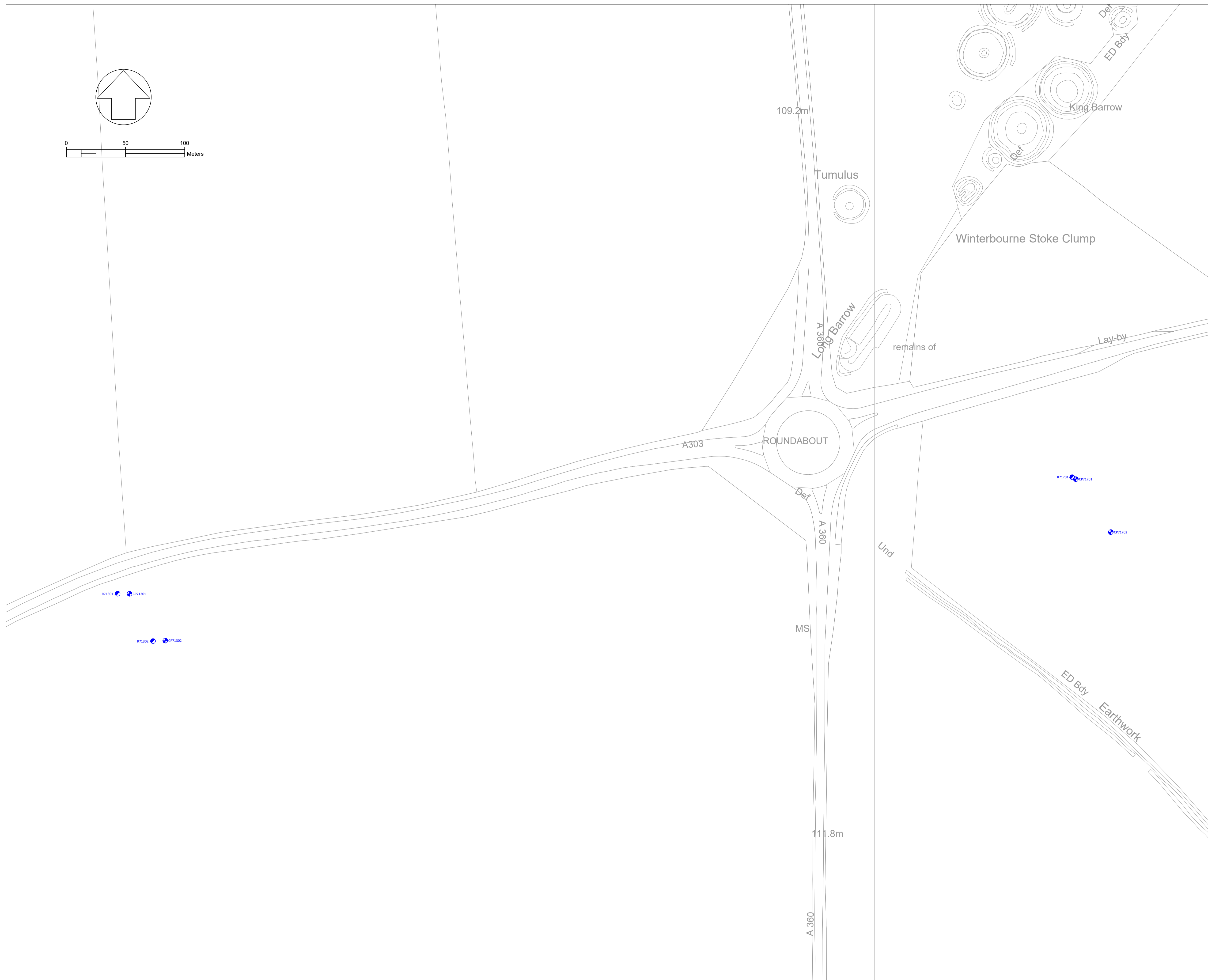
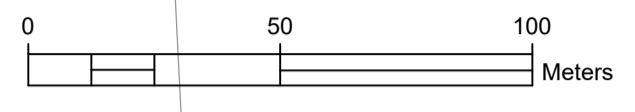
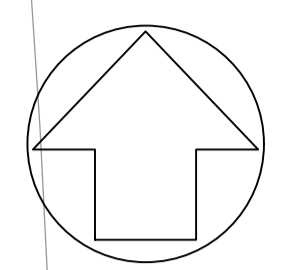
Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 2 of 7

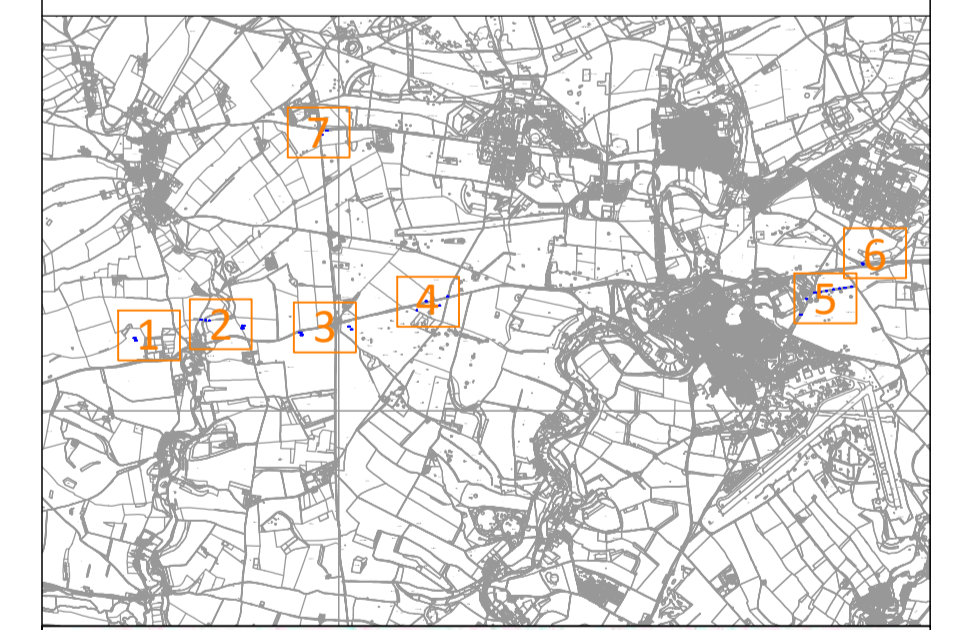
Scale: 1:1500@A1
Date: July 2019

Project No: PC197510
File Name: Geo-PC197510-002(2)



- Key**
- Rotary Core
 - Cable Percussion Borehole
 - Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141494.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141597.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP2801	417561.8	141377.0	93.47
STP2802	417658.9	141834.2	95.56
STP2803	417793.6	141938.6	96.74
STP2804	417893.4	141953.1	99.79
STP2805	417987.9	141968.2	104.33
STP2806	418102.2	141986.1	110.15
STP2807	418199.5	142001.8	114.60
STP2808	418286.0	142015.1	118.87
STP2809	418401.2	142034.6	124.69
STP2810	418566.9	142141.7	147.89
STP2811	418582.9	142402.2	149.48
STP2801	409711.0	144521.9	113.82
STP2802	409717.9	144586.1	115.61
STP2803	409796.4	144590.7	113.10



GEOTECHNICS
geotechnical and geoenvironmental specialists

Head Office
The Geotechnical Centre,
203 Torrington Avenue,
Tile Hill,
Coventry CV4 9AP

Phone: 024 7669 4664
Fax: 024 7669 4642
Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

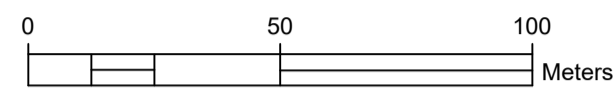
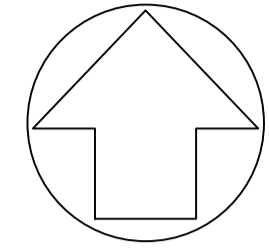
Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 3 of 7

Scale: 1:1500@A1 **Date:** July 2019

Project No: PC197510 **File Name:** Geo-PC197510-002(3)



Stonehenge Down

Long Barrow

Tumulus

Tumuli

Long Barrow

Tumulus

Tumulus

Normanton Gorse

Path (um)

Water Tank

Water Tank

Earthwork

ED Bdy

1.83m TB

108.8m

RF1904

RF1902

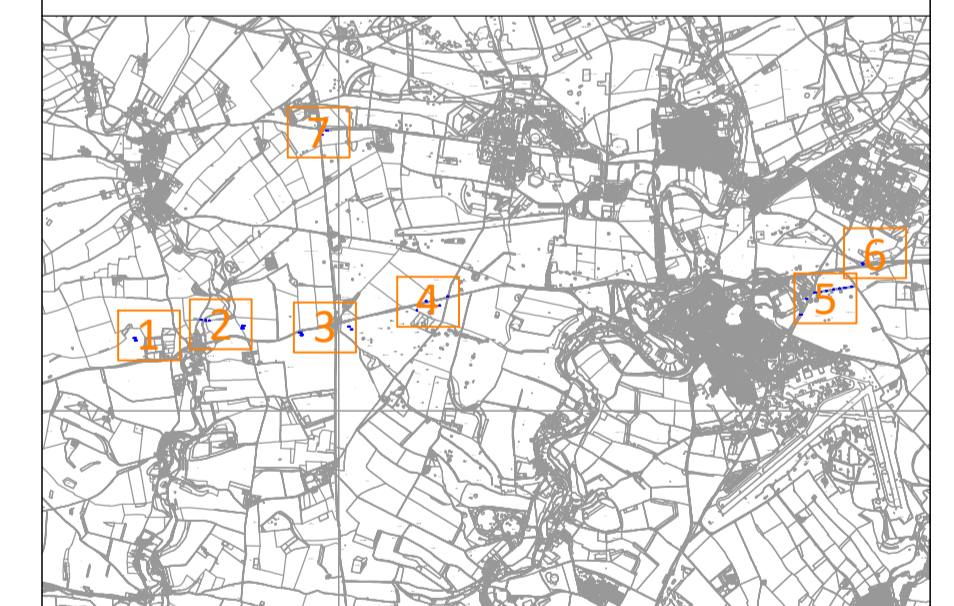
RF1903

RF1901

Key

- Rotary Core
- Cable Percussion Borehole
- Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	406430.8	141393.8	92.52
CP71002	406422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141494.9	71.77
R70903	407875.0	141479.2	71.98
R71001	406440.7	141392.5	92.29
R71002	406433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141597.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP2801	417561.8	141377.0	93.47
STP2802	417658.9	141834.2	95.56
STP2803	417793.6	141938.6	96.74
STP2804	417893.4	141953.1	99.79
STP2805	417987.9	141968.2	104.33
STP2806	418102.2	141986.1	110.15
STP2807	418199.5	142001.8	114.60
STP2808	418286.0	142015.1	118.87
STP2809	418401.2	142034.6	124.69
STP2810	418566.9	142141.7	147.89
STP2811	418582.9	142402.2	149.48
STP2801	409711.0	144521.9	113.82
STP2802	409717.9	144586.1	115.61
STP2803	409796.4	144590.7	113.10



GEOTECHNICS
geotechnical and geoenvironmental specialists

Head Office: Phone: 024 7669 4664
The Geotechnical Centre, Fax: 024 7669 4642
203 Torrington Avenue, Email: mail@geotechnics.co.uk
Tile Hill,
Coventry CV4 9AP

Engineer:
AECOM

Client:
Highways England

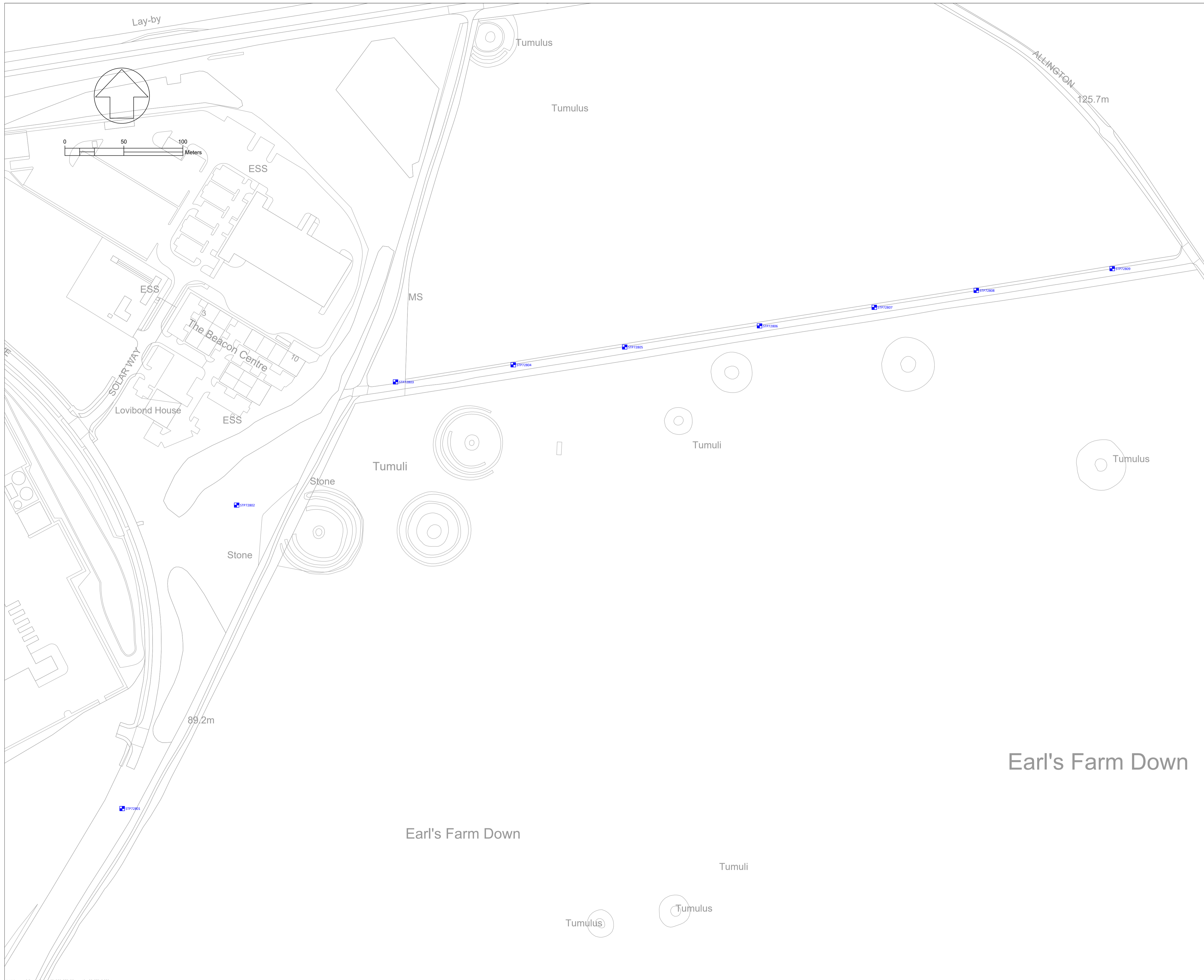
Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 4 of 7

Scale: 1:1500@A1 Date:
July 2019

Project No: File Name:
PC197510 Geo-PC197510-002(4)



Key

- Rotary Core
- Cable Percussion Borehole
- Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141484.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141797.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP2801	417561.8	141377.0	93.47
STP2802	417658.9	141834.2	95.56
STP2803	417793.6	141938.6	96.74
STP2804	417893.4	141953.1	99.79
STP2805	417987.9	141968.2	104.33
STP2806	418102.2	141986.1	110.15
STP2807	418199.5	142001.8	114.60
STP2808	418286.0	142015.1	118.87
STP2809	418401.2	142034.6	124.69
STP2810	418566.9	142414.7	147.89
STP2811	418582.9	142402.2	149.48
STP2801	409711.0	144521.9	113.82
STP2802	409717.9	144596.1	115.61
STP2803	409796.4	144590.7	113.10



Earl's Farm Down

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geotechnical and geoenvironmental specialists

Head Office: The Geotechnical Centre, 203 Torrington Avenue, Tile Hill, Coventry CV4 9AP
 Phone: 024 7659 4664
 Fax: 024 7669 4642
 Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

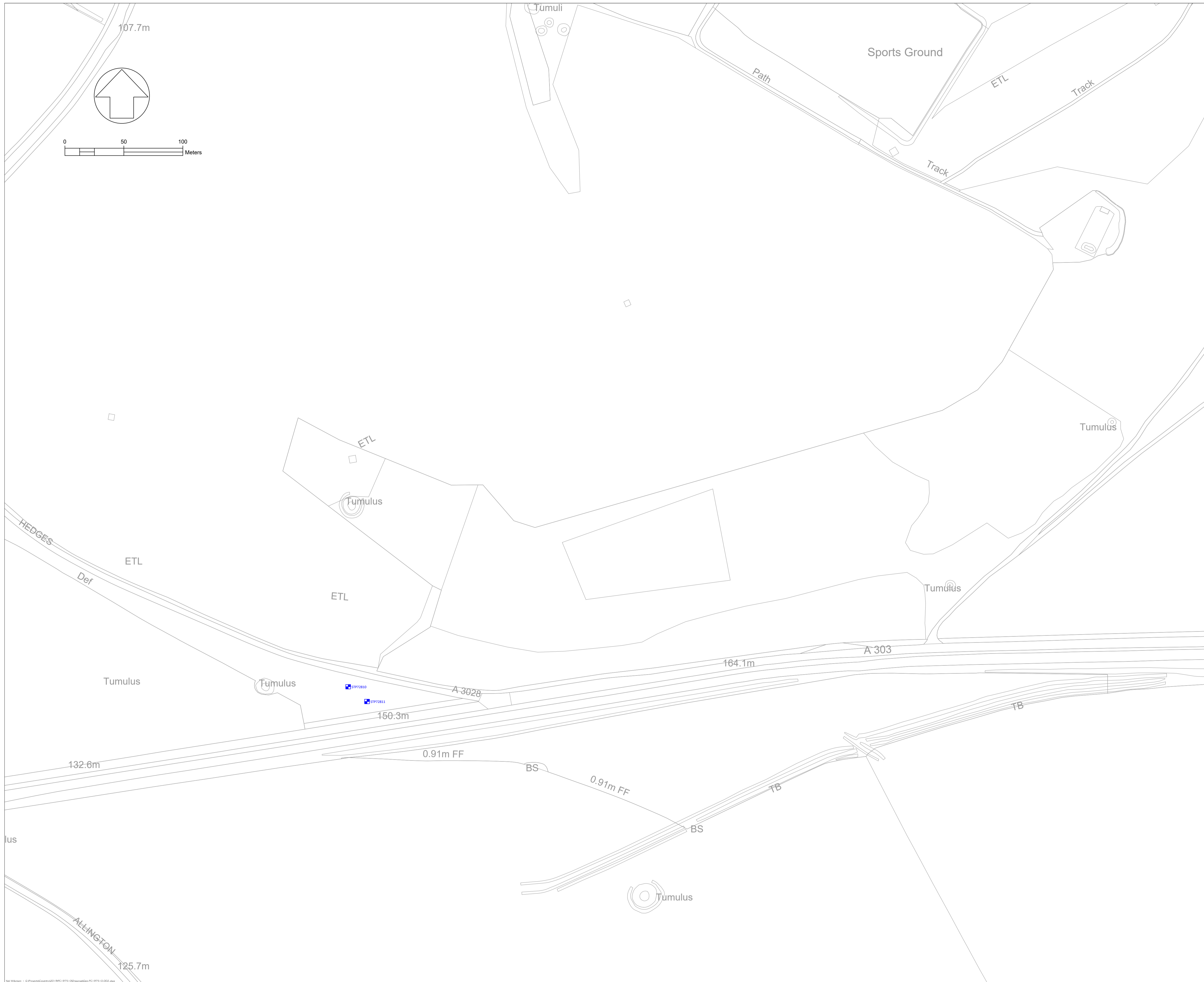
Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 5 of 7

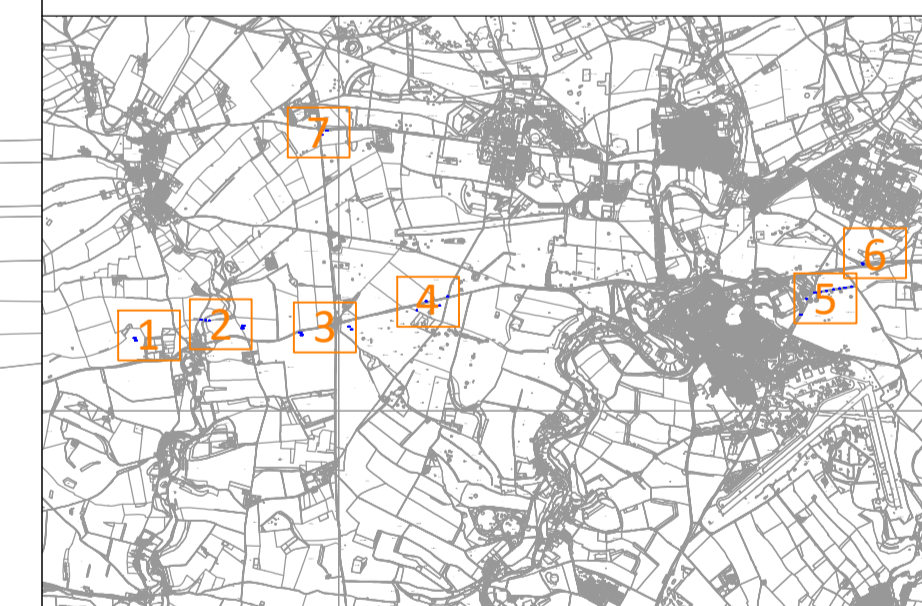
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Date: July 2019

Project No: PC197510
File Name: Geo-PC197510-002(5)



- Key**
- Rotary Core
 - ⊕ Cable Percussion Borehole
 - Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141484.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409389.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141597.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP2801	417561.8	141377.0	93.47
STP2802	417658.9	141834.2	95.56
STP2803	417793.6	141938.6	96.74
STP2804	417893.4	141953.1	99.79
STP2805	417987.9	141968.2	104.33
STP2806	418102.2	141986.1	110.15
STP2807	418199.5	142001.8	114.60
STP2808	418286.0	142015.1	118.87
STP2809	418401.2	142034.6	124.69
STP2810	418566.9	142414.7	147.89
STP2811	418582.9	142402.2	149.48
STP2801	409711.0	144521.9	113.82
STP2802	409717.9	144586.1	115.61
STP2803	409796.4	144590.7	113.10



GEOTECHNICS
geotechnical and geoenvironmental specialists

Head Office: The Geotechnical Centre, 203 Torrington Avenue, Tile Hill, Coventry CV4 9AP
 Phone: 024 7659 4664
 Fax: 024 7669 4642
 Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

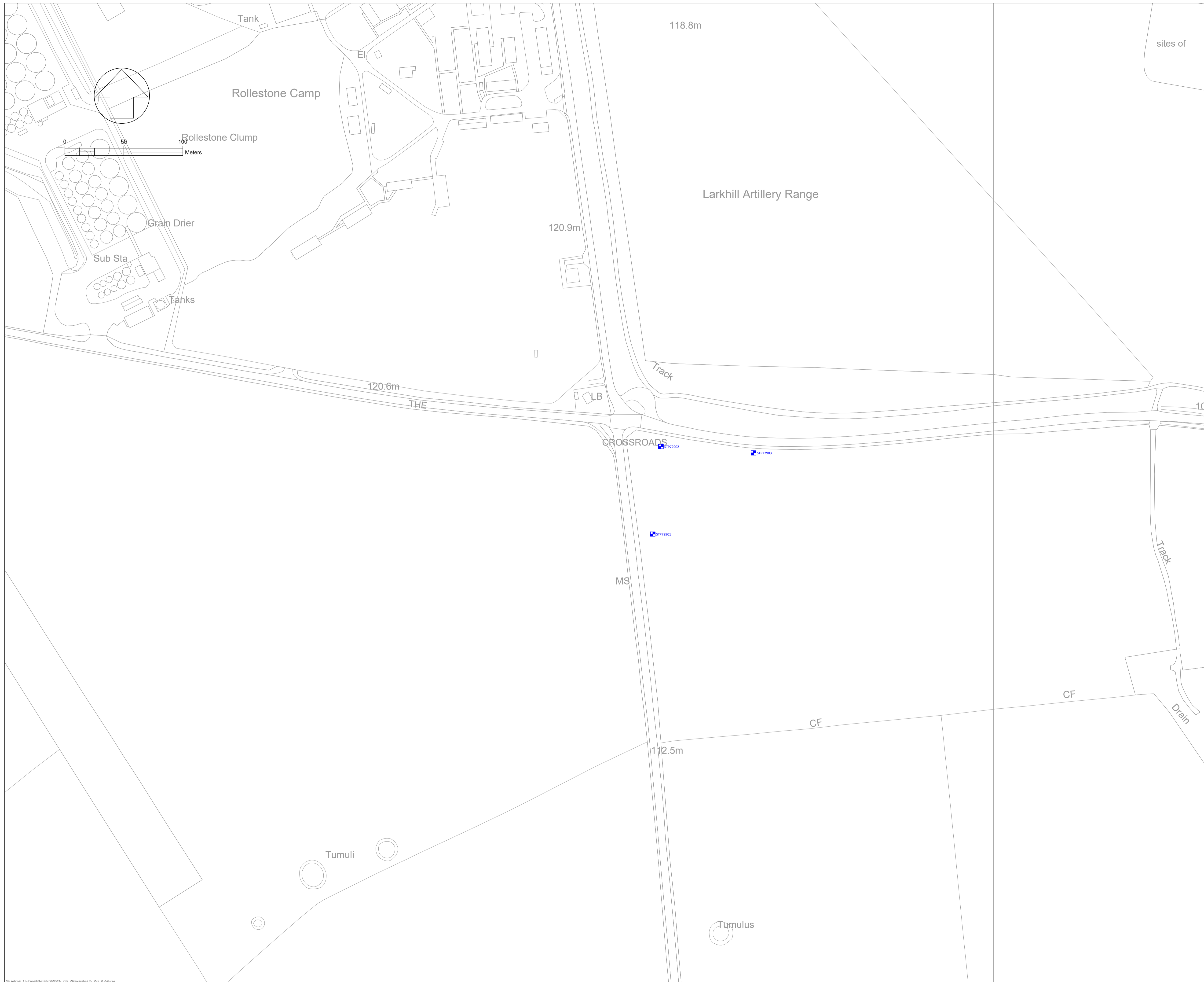
Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 6 of 7

Scale: 1:1500@A1
Date: July 2019

Project No: PCI97510
File Name: Geo-PCI97510-002(6)



- Key**
- Rotary Core
 - Cable Percussion Borehole
 - Trial Pit

Hole ID	Easting (mE)	Northing (mN)	Level (mOD)
CP70201	406650.0	141199.2	115.46
CP70202	406669.0	141152.2	117.50
CP71001	408430.8	141393.8	92.52
CP71002	408422.6	141354.6	95.46
CP71301	409369.9	141282.9	110.92
CP71302	409400.1	141243.3	111.59
CP71701	410170.5	141379.9	105.10
CP71702	410300.1	141335.1	102.72
R70201	406640.7	141194.2	115.88
R70202	406676.9	141158.0	117.06
R70901	407737.0	141492.1	72.18
R70902	407819.0	141484.9	71.77
R70903	407875.0	141479.2	71.98
R71001	408440.7	141392.5	92.29
R71002	408433.0	141352.5	95.61
R71301	409359.9	141283.0	110.87
R71302	409388.8	141242.9	111.52
R71701	410167.4	141381.5	105.22
R71901	411276.2	141548.2	101.37
R71902	411422.9	141797.2	107.87
R71903	411650.6	141725.5	105.18
R71904	411774.9	141875.0	106.09
STP22801	417561.8	141377.0	93.47
STP22802	417658.9	141834.2	95.56
STP22803	417793.6	141938.6	96.74
STP22804	417893.4	141953.1	99.79
STP22805	417987.9	141968.2	104.33
STP22806	418102.2	141986.1	110.15
STP22807	418199.5	142001.8	114.60
STP22808	418286.0	142015.1	118.87
STP22809	418401.2	142034.6	124.69
STP22810	418566.9	142414.7	147.89
STP22811	418582.9	142402.2	149.48
STP22901	409711.0	144521.9	113.82
STP22902	409717.9	144596.1	115.61
STP22903	409796.4	144590.7	113.10



GEOTECHNICS
 geotechnical and geoenvironmental specialists

Head Office: The Geotechnical Centre, 203 Torrington Avenue, Tile Hill, Coventry CV4 9AP
 Phone: 024 7669 4664
 Fax: 024 7669 4642
 Email: mail@geotechnics.co.uk

Engineer:
AECOM

Client:
Highways England

Project:
A303 Amesbury to Berwick Down - Phase 7a(i)

Drawing Title:
EXPLORATORY HOLE LOCATION PLAN

Drawing 7 of 7

Scale: 1:1500@A1 | **Date:** July 2019

Project No: PCI97510 | **File Name:** Geo-PCI97510-002(7)

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APPENDIX 8

Plate Load, CBR and Dynamic Cone Penetration Test Results



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2989-r3
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 3 STP72801
Description: White Chalky Clay
Material Class: Formation
Layer: 500mm BGL

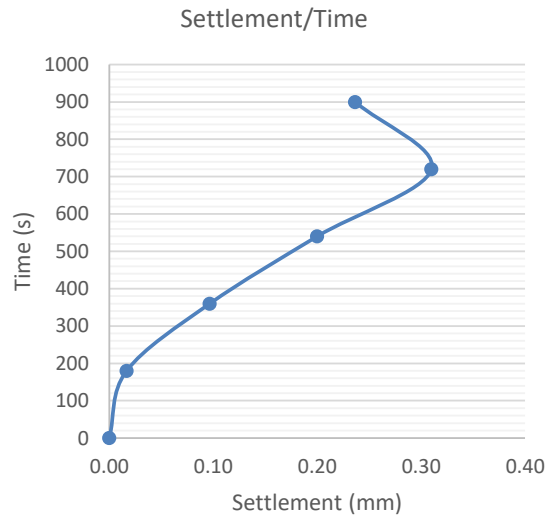
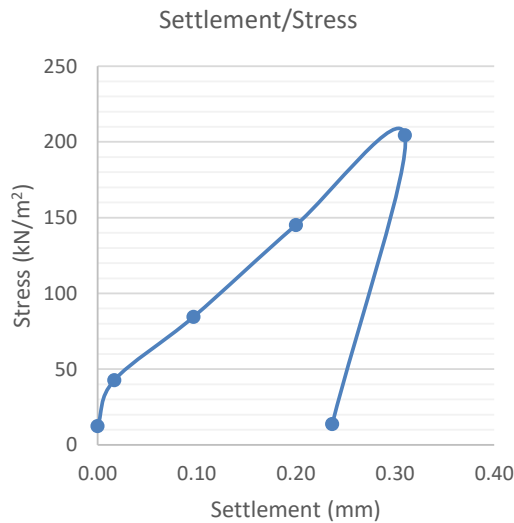
Date of Test: 17/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.02	43
360	0.10	84
540	0.20	145
720	0.31	204
900	0.24	14

Maximum Applied Stress (kN/m ²):	204
Maximum Settlement (mm):	0.31
Equivalent CBR Value (%):	>16
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	71

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2989-r4
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 4 STP72801
Description: White Chalky Clay
Material Class: Formation
Layer: 750mm BGL

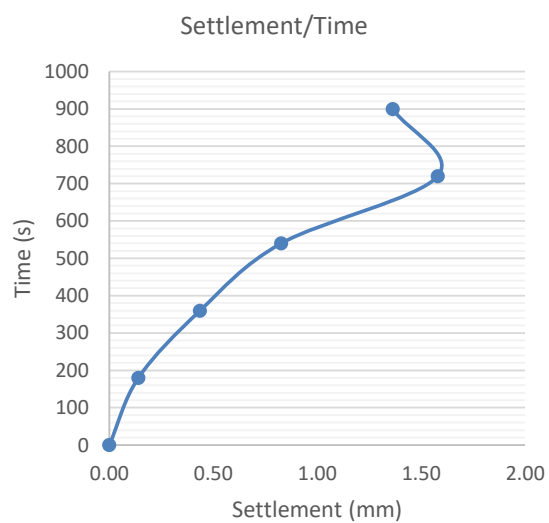
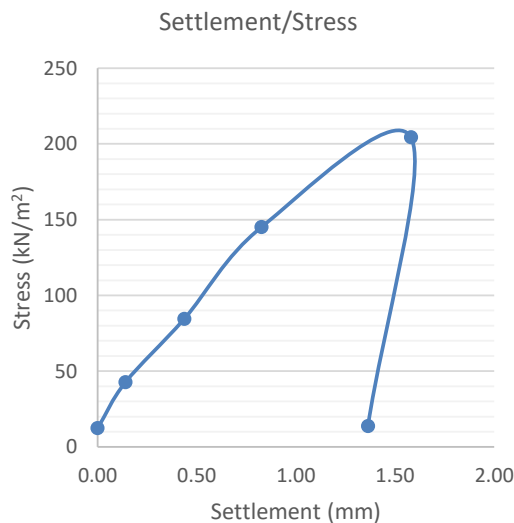
Date of Test: 17/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 297

Test Results

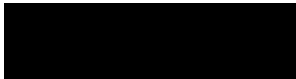
Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.14	43
360	0.44	84
540	0.83	145
720	1.58	204
900	1.36	14

Maximum Applied Stress (kN/m ²):	204
Maximum Settlement (mm):	1.58
Equivalent CBR Value (%):	12
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	62

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2989-r1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park
River Lane, Saltney
Chester
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 1 STP72802
Description: White Chalky Clay
Material Class: Formation
Layer: 500mm BGL

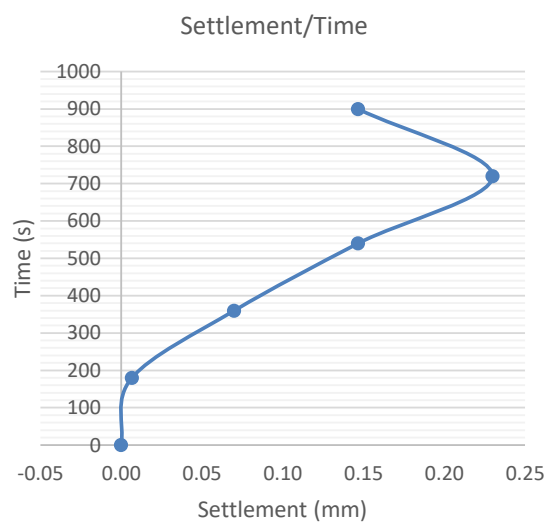
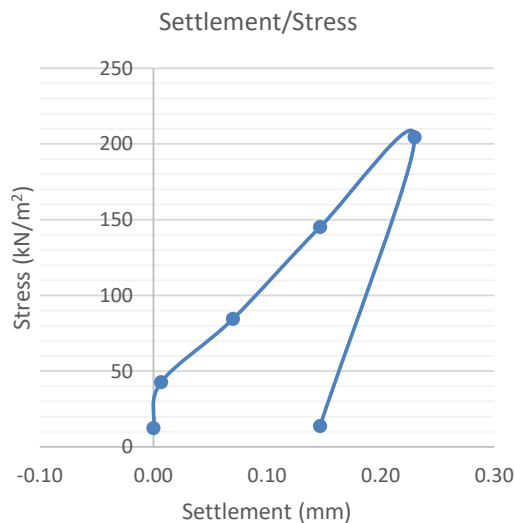
Date of Test: 17/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.01	43
360	0.07	84
540	0.15	145
720	0.23	204
900	0.15	14

Maximum Applied Stress (kN/m ²):	204
Maximum Settlement (mm):	0.23
Equivalent CBR Value (%):	>16
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	71

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2989-r2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 2 STP72802
Description: White Chalky Clay
Material Class: Formation
Layer: 780mm BGL

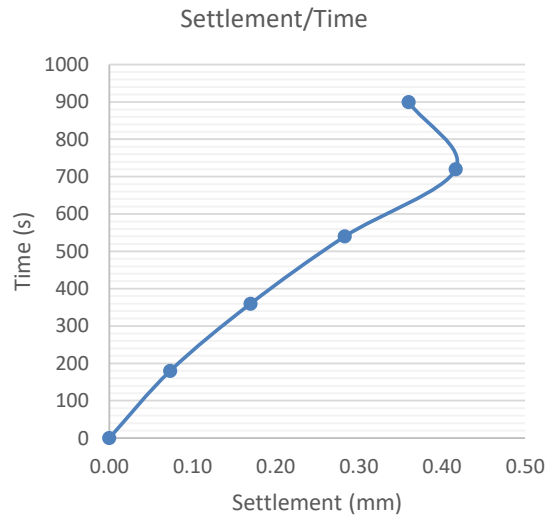
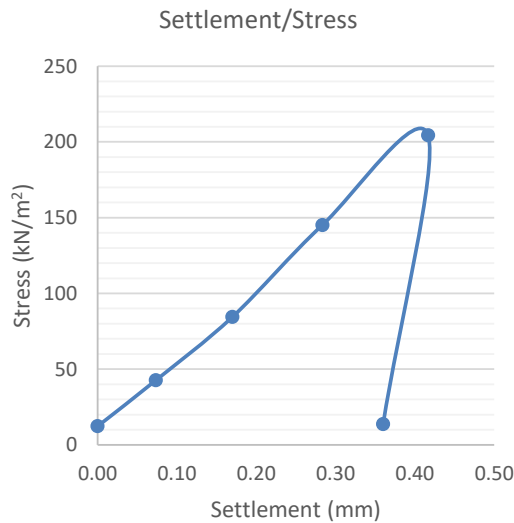
Date of Test: 17/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 297

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.07	43
360	0.17	84
540	0.28	145
720	0.42	204
900	0.36	14

Maximum Applied Stress (kN/m ²):	204
Maximum Settlement (mm):	0.42
Equivalent CBR Value (%):	>16
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	71

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2993-r1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: Test 1 STP72803
Description: Reddish-brown Clay
Material Class: Formation
Layer: 500mm BGL

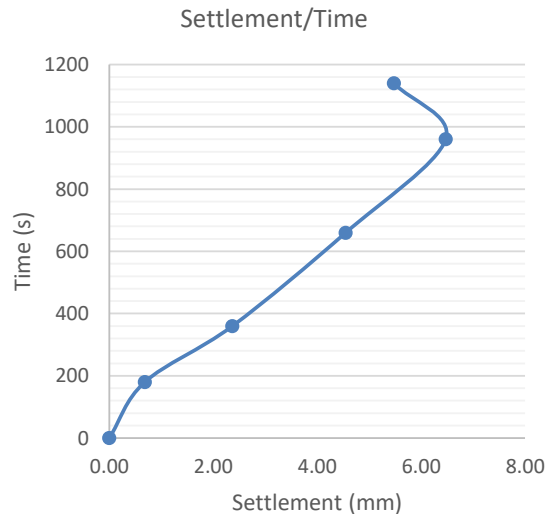
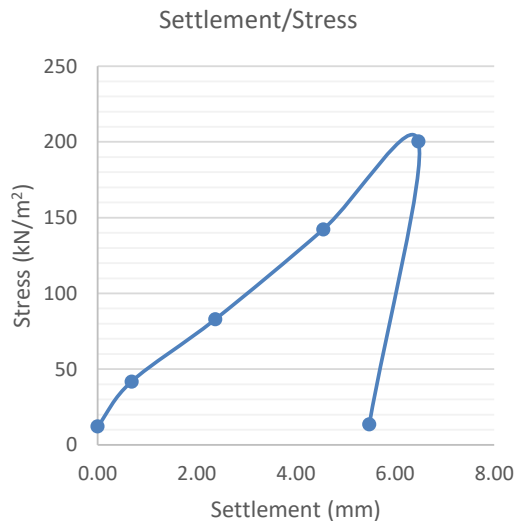
Date of Test: 18/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Wet
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.68	42
360	2.37	83
660	4.55	142
960	6.47	200
1140	5.48	13

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	6.47
Equivalent CBR Value (%):	2
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	20

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2993-r2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 1 STP72803
Description: White chalk
Material Class: Formation
Layer: 750mm BGL

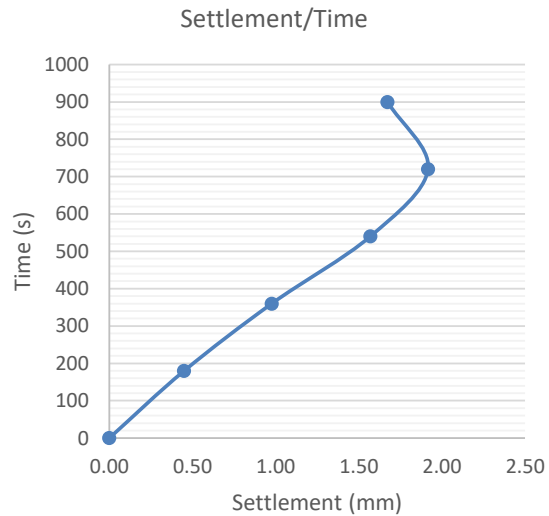
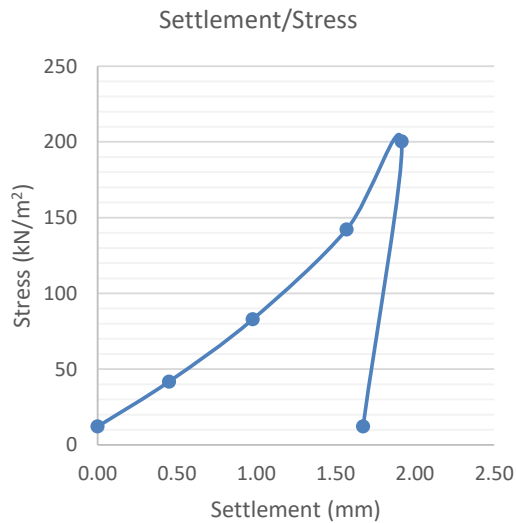
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.45	42
360	0.98	83
540	1.57	142
720	1.92	200
900	1.67	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.92
Equivalent CBR Value (%):	6
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	39

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 1 STP72804
Description: White chalk
Material Class: Formation
Layer: 500mm BGL

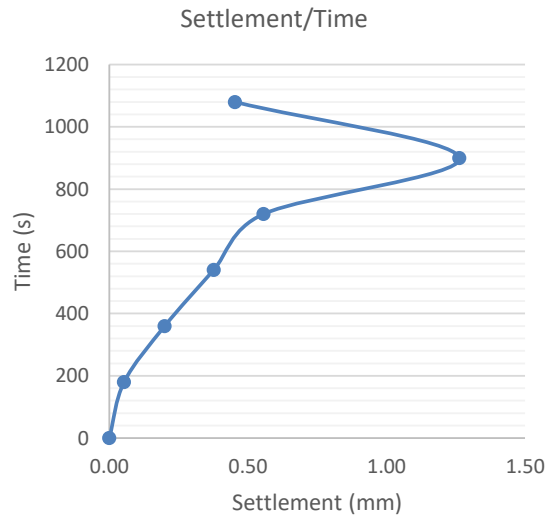
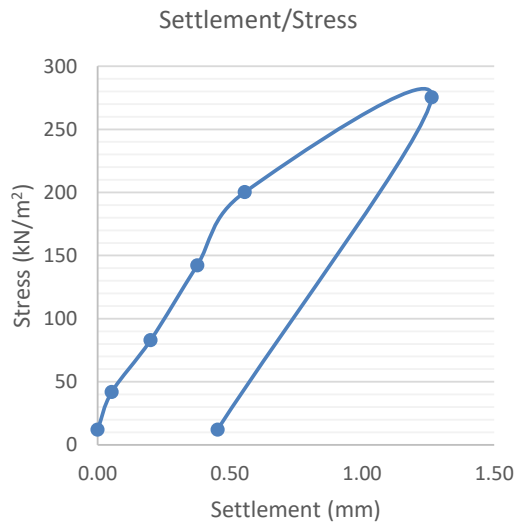
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

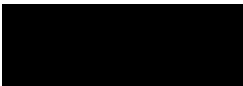
Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.05	42
360	0.20	83
540	0.38	142
720	0.56	200
900	1.26	275
1080	0.45	12

Maximum Applied Stress (kN/m ²):	275
Maximum Settlement (mm):	1.26
Equivalent CBR Value (%):	27
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	97

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 2 STP72804
Description: White chalk
Material Class: Formation
Layer: 750mm BGL

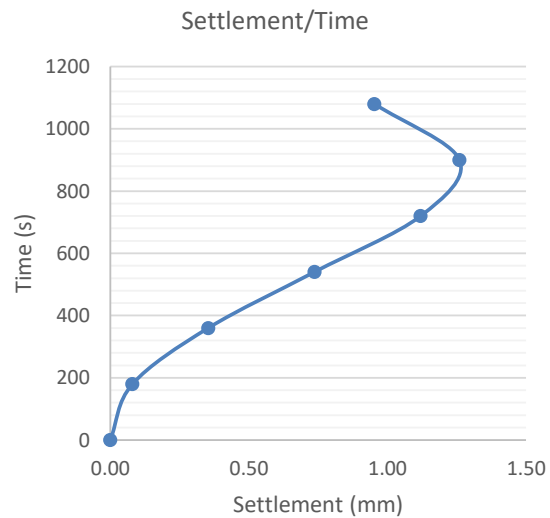
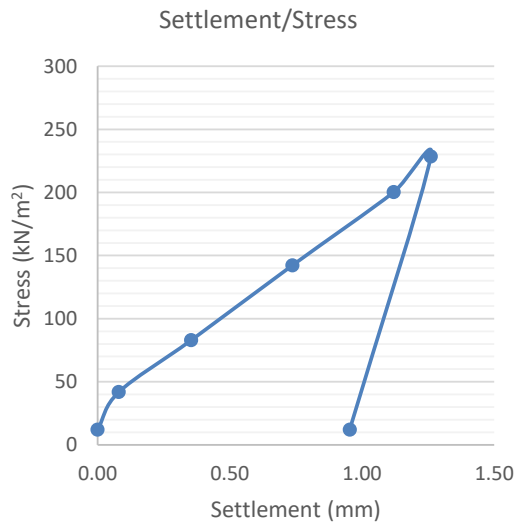
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.08	42
360	0.35	83
540	0.74	142
720	1.12	200
900	1.26	229
1080	0.95	12

Maximum Applied Stress (kN/m ²):	229
Maximum Settlement (mm):	1.26
Equivalent CBR Value (%):	19
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	80

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

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HU-SOI-01 Issue 4



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r3
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 1 STP72805
Description: White chalk
Material Class: Formation
Layer: 500mm BGL

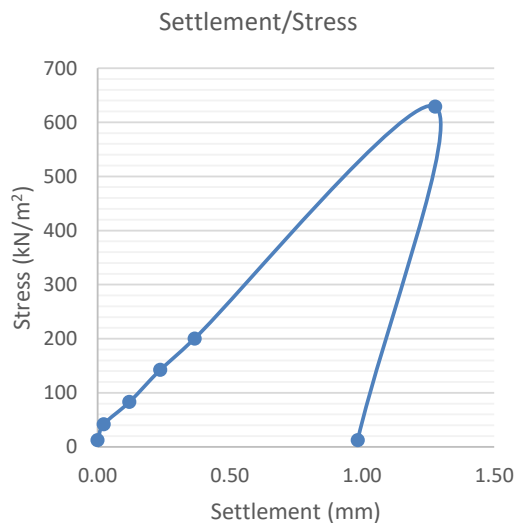
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.02	42
360	0.12	83
540	0.24	142
720	0.37	200
900	1.28	629
1080	0.98	12

Maximum Applied Stress (kN/m ²):	629
Maximum Settlement (mm):	1.28
Equivalent CBR Value (%):	109
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	218

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r4
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 2 STP72805
Description: White chalk
Material Class: Formation
Layer: 750mm BGL

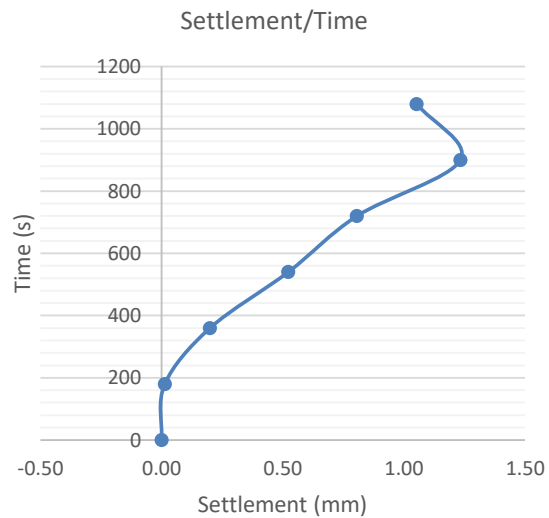
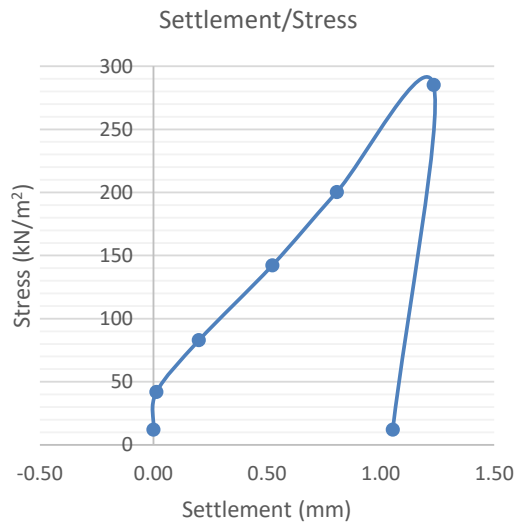
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.01	42
360	0.20	83
540	0.52	142
720	0.81	200
900	1.23	285
1080	1.05	12

Maximum Applied Stress (kN/m ²):	285
Maximum Settlement (mm):	1.23
Equivalent CBR Value (%):	>29
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	101

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

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HU-SOI-01 Issue 4



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r5
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 1 STP72806
Description: White chalk
Material Class: Formation
Layer: 500mm BGL

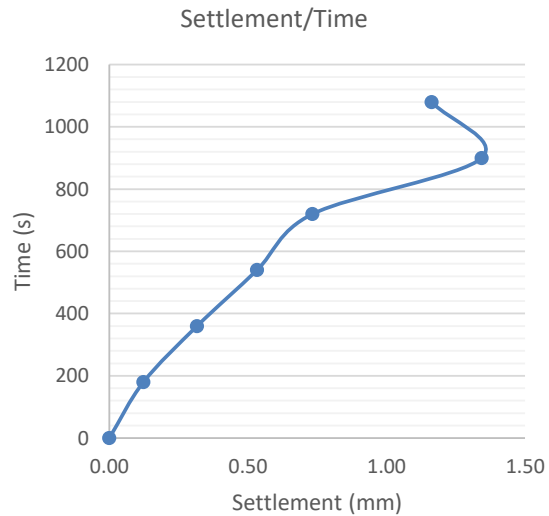
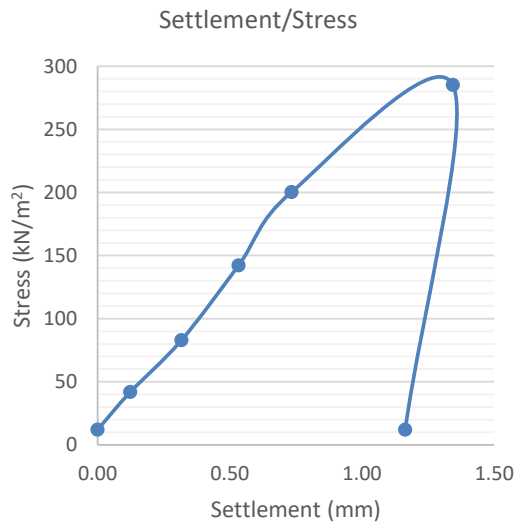
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

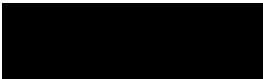
Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.12	42
360	0.32	83
540	0.53	142
720	0.73	200
900	1.34	285
1080	1.16	12

Maximum Applied Stress (kN/m ²):	285
Maximum Settlement (mm):	1.34
Equivalent CBR Value (%):	26
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	96

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS2996-r6
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 20/06/2019

Test Details

Test Location: Test 2 STP72806
Description: White chalk
Material Class: Formation
Layer: 750mm BGL

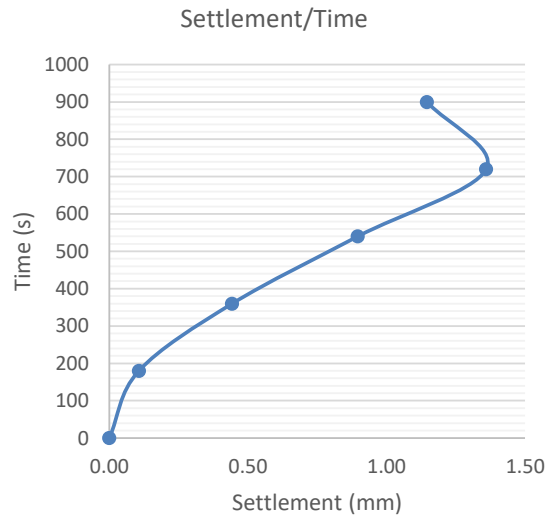
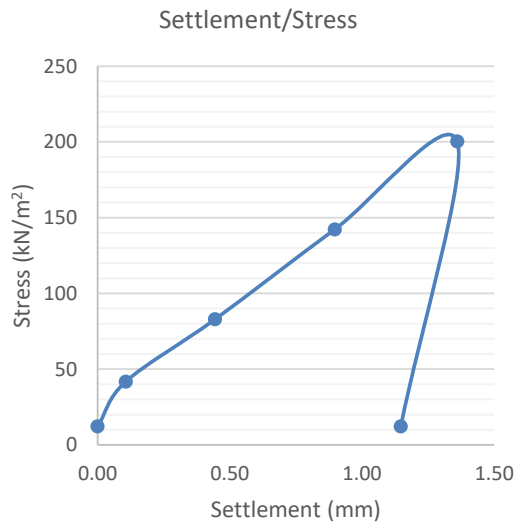
Date of Test: 19/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.11	42
360	0.44	83
540	0.90	142
720	1.36	200
900	1.15	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.36
Equivalent CBR Value (%):	14
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	66

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72807
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

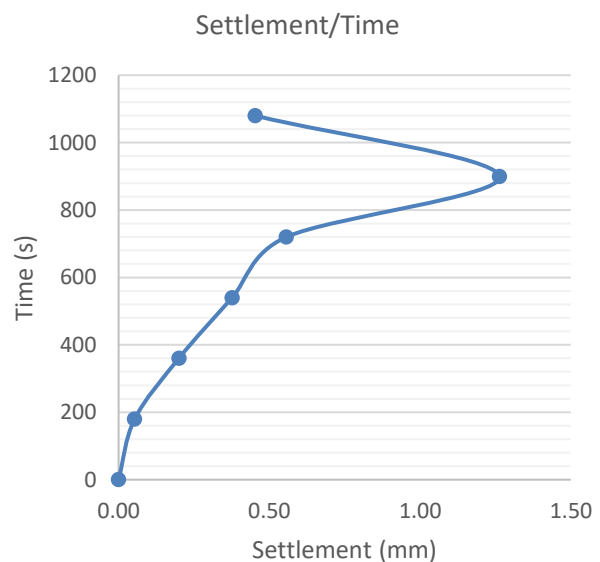
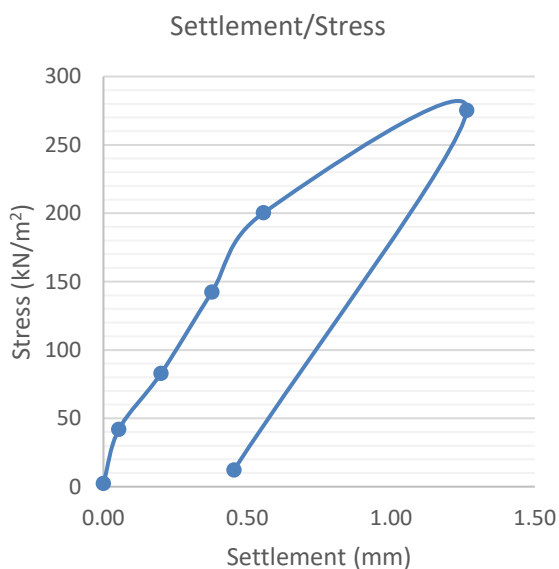
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	2
180	0.05	42
360	0.20	83
540	0.38	142
720	0.56	200
900	1.26	275
1080	0.45	12

Maximum Applied Stress (kN/m ²):	275
Maximum Settlement (mm):	1.26
Equivalent CBR Value (%):	27
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	97

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available at



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72807
Description: Chalk
Material Class: Formation
Layer: -750mm bgl

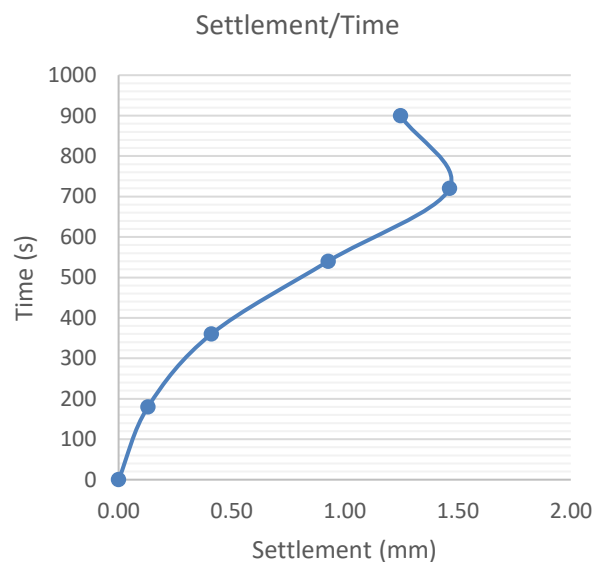
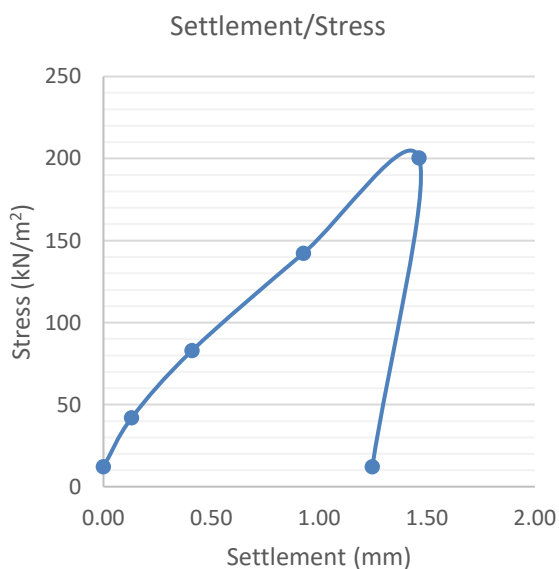
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.13	42
360	0.41	83
540	0.93	142
720	1.46	200
900	1.25	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.46
Equivalent CBR Value (%):	12
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	62

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-3
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72808
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

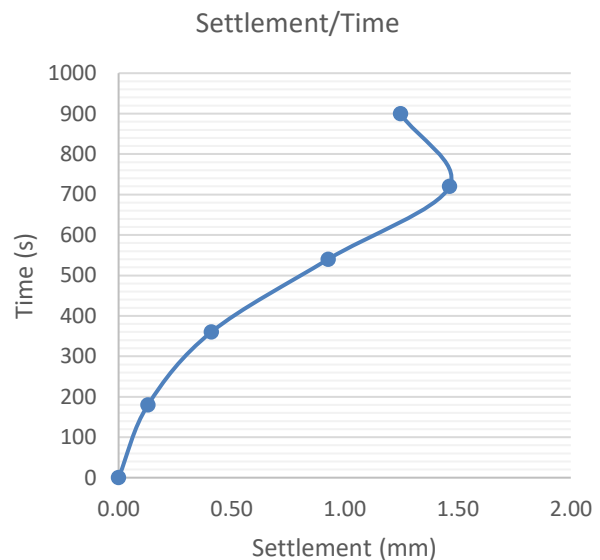
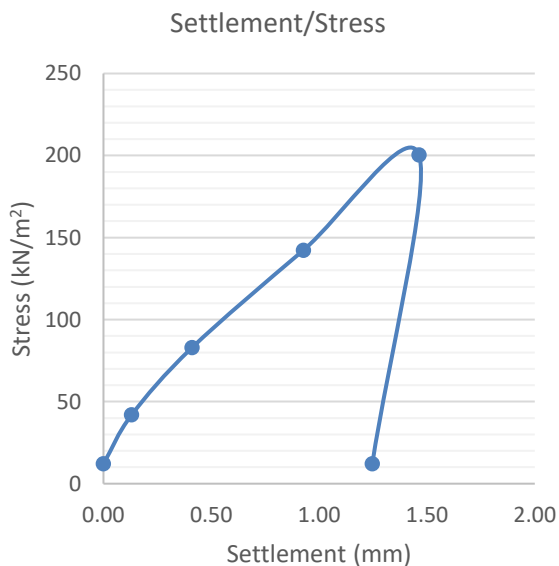
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.13	42
360	0.41	83
540	0.93	142
720	1.46	200
900	1.25	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.46
Equivalent CBR Value (%):	12
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	63

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-4
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72808
Description: Chalk
Material Class: Formation
Layer: -750mm bgl

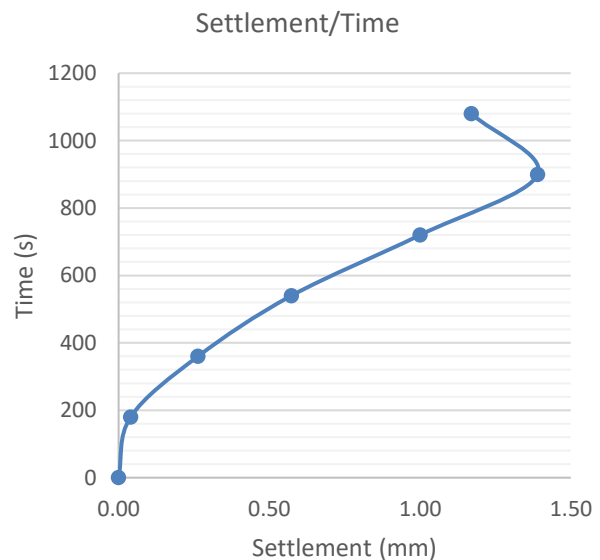
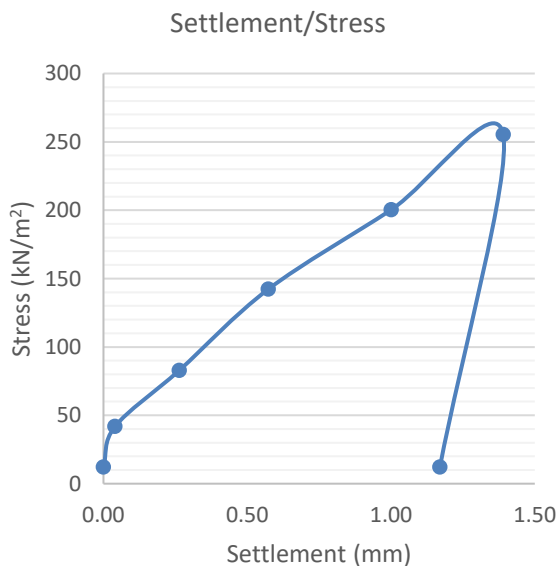
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.04	42
360	0.26	83
540	0.57	142
720	1.00	200
900	1.39	255
1080	1.17	12

Maximum Applied Stress (kN/m ²):	255
Maximum Settlement (mm):	1.39
Equivalent CBR Value (%):	20
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	83

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-5
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72809
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

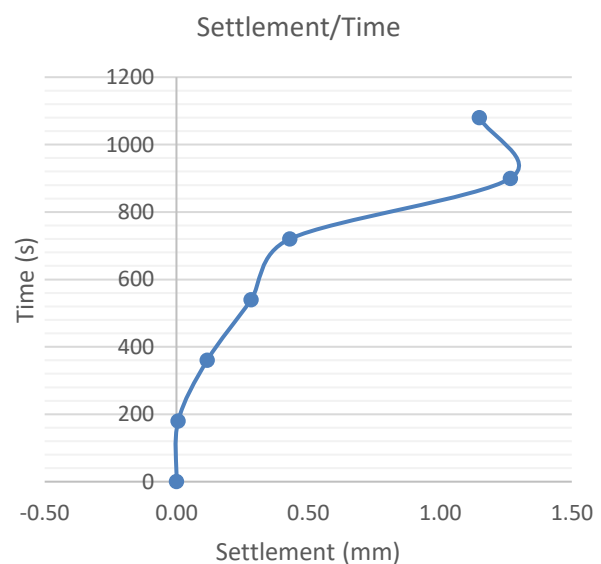
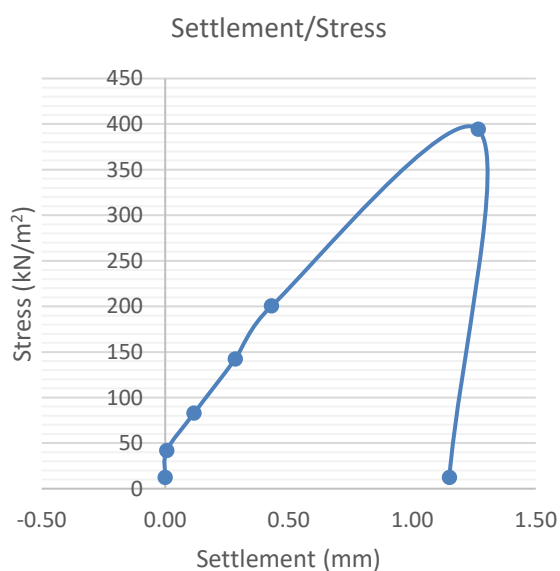
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.01	42
360	0.12	83
540	0.28	142
720	0.43	200
900	1.27	394
1080	1.15	12

Maximum Applied Stress (kN/m ²):	394
Maximum Settlement (mm):	1.27
Equivalent CBR Value (%):	49
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	138

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

[Redacted]
Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3004-6
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 28/08/2019

Test Details

Test Location: STP72809
Description: Chalk
Material Class: Formation
Layer: -750mm bgl

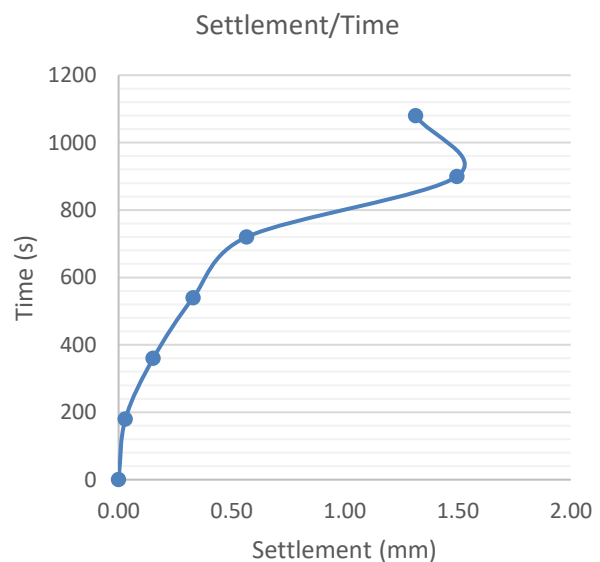
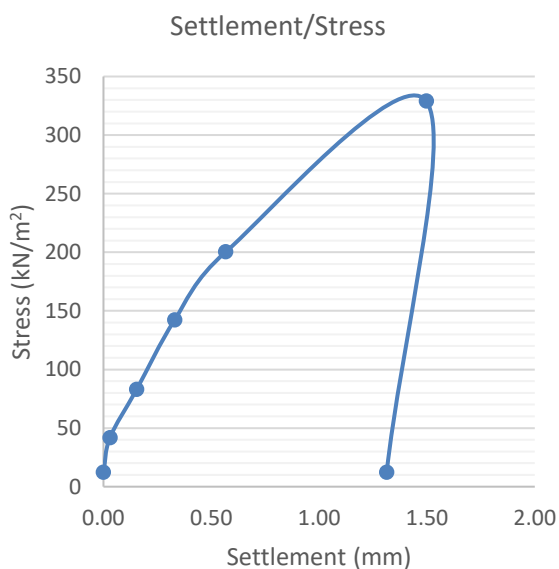
Date of Test: 20/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.03	42
360	0.15	83
540	0.33	142
720	0.57	200
900	1.50	329
1080	1.31	12

Maximum Applied Stress (kN/m ²):	329
Maximum Settlement (mm):	1.50
Equivalent CBR Value (%):	30
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	104

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available

01908 505 833
HU-SOI-01 Issue 4



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3023-1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrial Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 26/09/2019

Test Details

Test Location: STP72810
Description: Chalk
Material Class: Formation
Layer: 500mm bgl

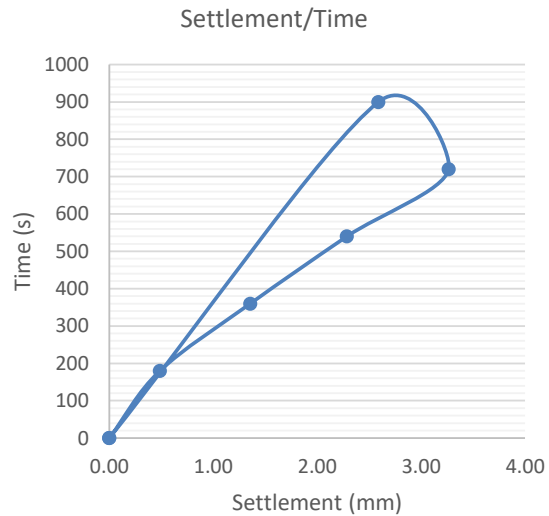
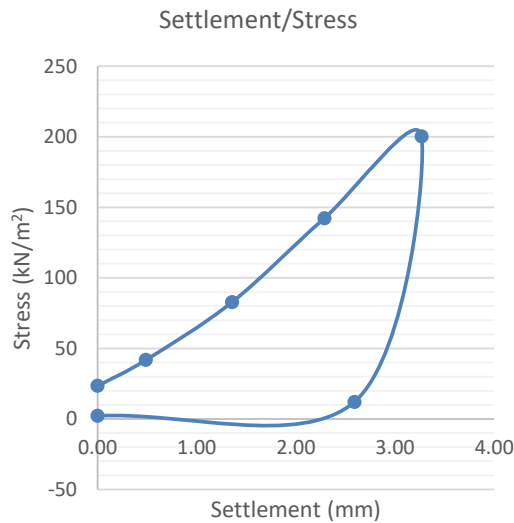
Date of Test: 25/06/2019
Reaction Load: 4 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	23
180	0.49	42
360	1.36	83
540	2.29	142
720	3.27	200
900	2.59	12
0	0.00	2

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	3.27
Equivalent CBR Value (%):	3
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	30

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Kevin Shorthouse
Project Manager

Issued subject to Hixtra Terms and Conditions available at



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3023-2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72810
Description: Chalk
Material Class: Formation
Layer: 750mm bgl

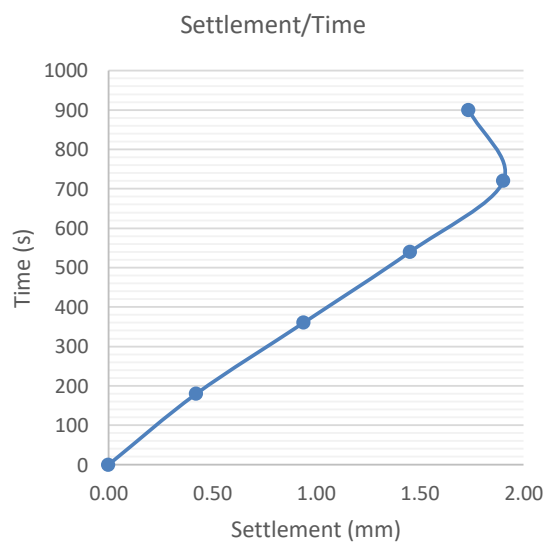
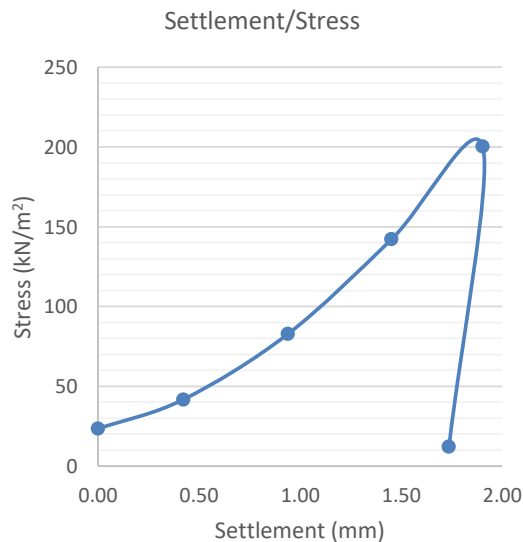
Date of Test: 25/06/2019
Reaction Load: 4 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	23
180	0.42	42
360	0.94	83
540	1.45	142
720	1.90	200
900	1.74	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.90
Equivalent CBR Value (%):	6
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	42

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions





Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3023-3
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72811
Description: Chalk
Material Class: Formation
Layer: 500mm bgl

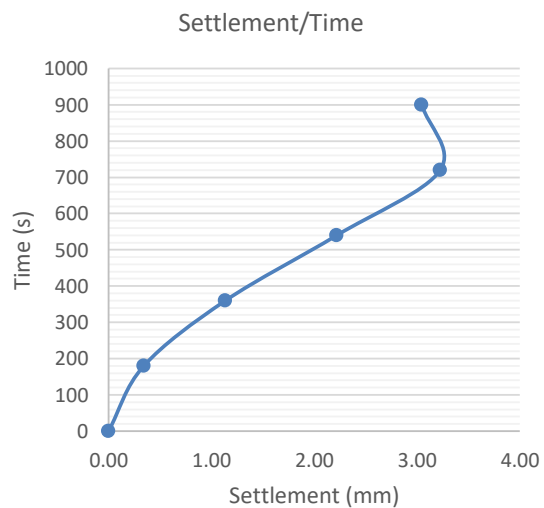
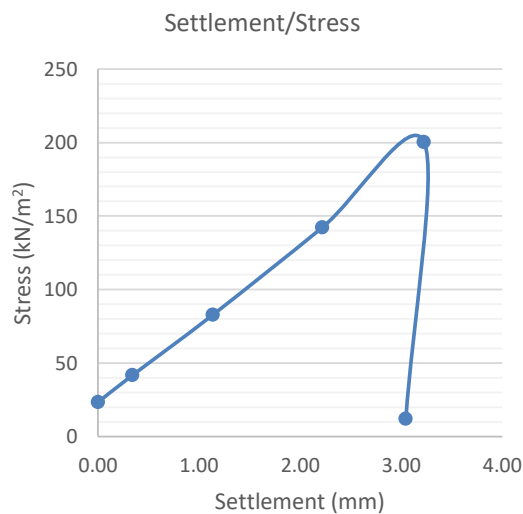
Date of Test: 25/06/2019
Reaction Load: 4 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	23
180	0.34	42
360	1.14	83
540	2.22	142
720	3.23	200
900	3.05	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	3.23
Equivalent CBR Value (%):	4
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	31

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available at [Redacted]
HU-SOI-01 Issue 4



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3023-4
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72811
Description: Chalk
Material Class: Formation
Layer: 750mm bgl

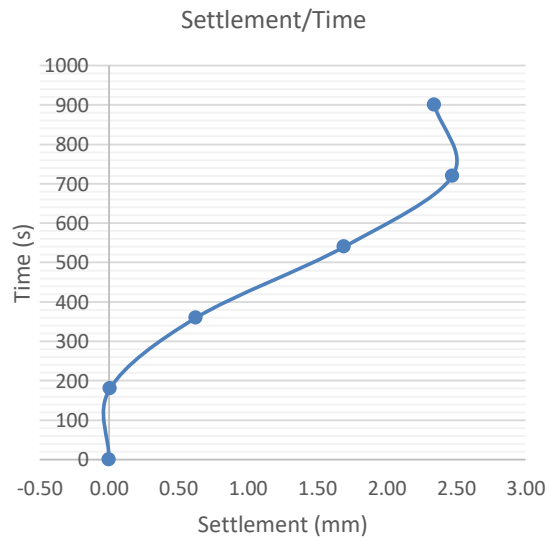
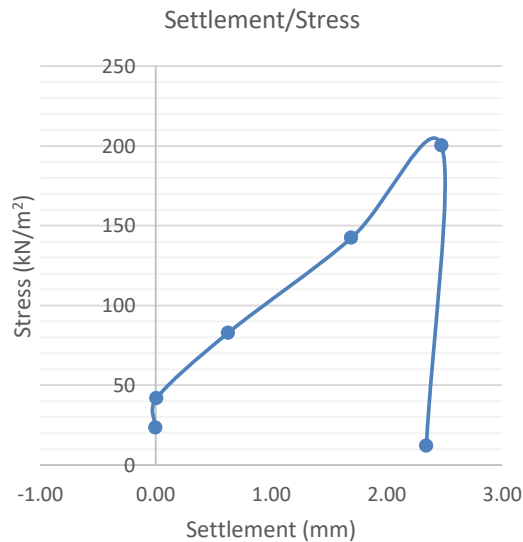
Date of Test: 25/06/2019
Reaction Load: 4 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	23
180	0.01	42
360	0.63	83
540	1.69	142
720	2.47	200
900	2.34	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	2.47
Equivalent CBR Value (%):	6
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	42

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-1
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72901
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

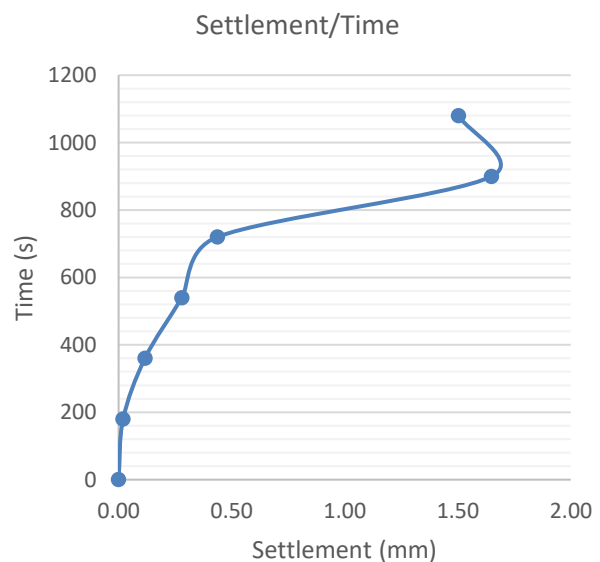
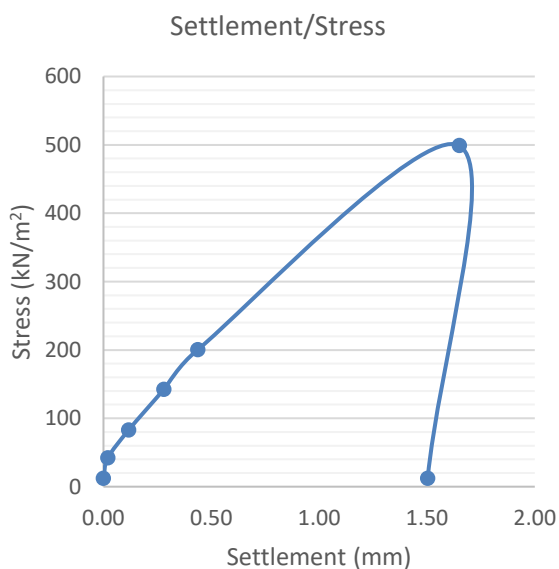
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.02	42
360	0.12	83
540	0.28	142
720	0.44	200
900	1.65	499
1080	1.50	12

Maximum Applied Stress (kN/m ²):	499
Maximum Settlement (mm):	1.65
Equivalent CBR Value (%):	51
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	142

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-2
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72901
Description: Chalk
Material Class: Formation
Layer: -750mm bgl

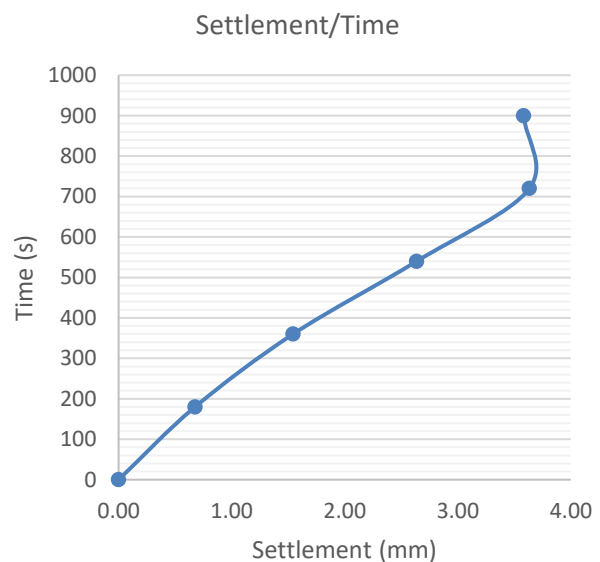
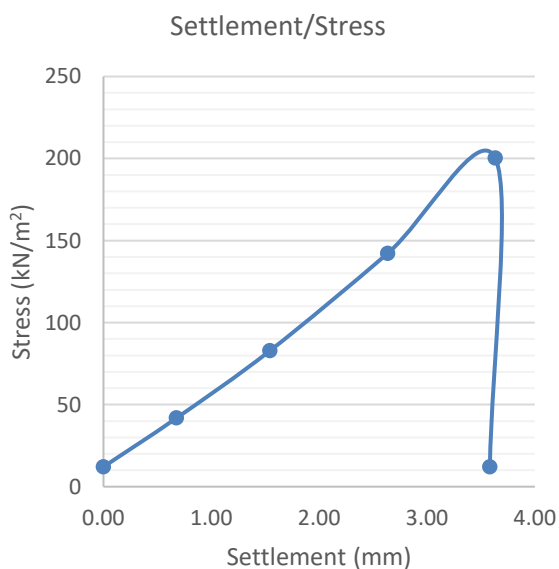
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.68	42
360	1.54	83
540	2.64	142
720	3.63	200
900	3.58	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	3.63
Equivalent CBR Value (%):	2
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	24

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-3
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72902
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

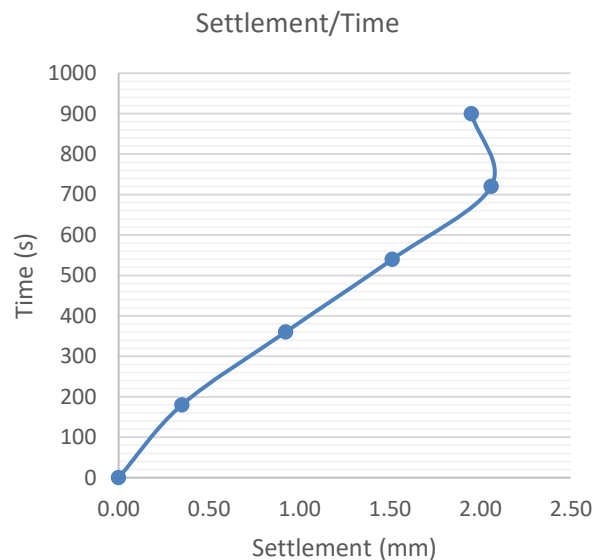
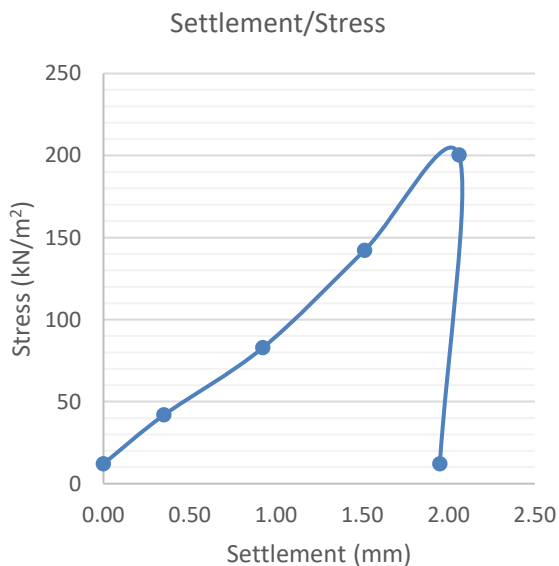
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.35	42
360	0.92	83
540	1.51	142
720	2.06	200
900	1.95	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	2.06
Equivalent CBR Value (%):	6
Modulus of Subgrade Reaction, k_{762} (MN/m ² /m):	41

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

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Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-4
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72902
Description: Chalk
Material Class: Formation
Layer: -800mm bgl

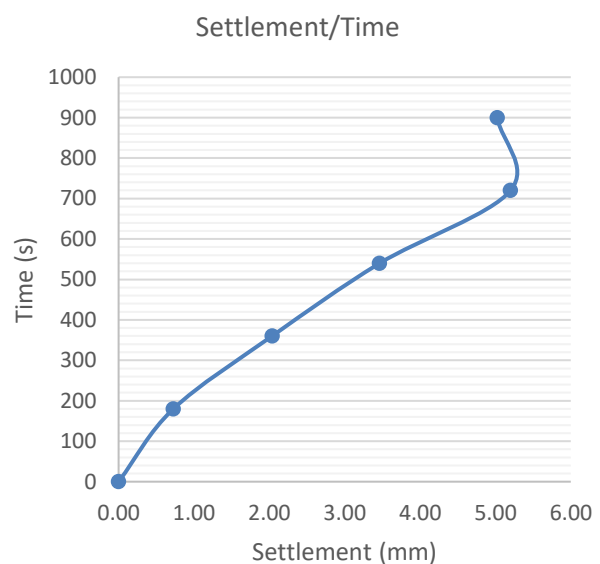
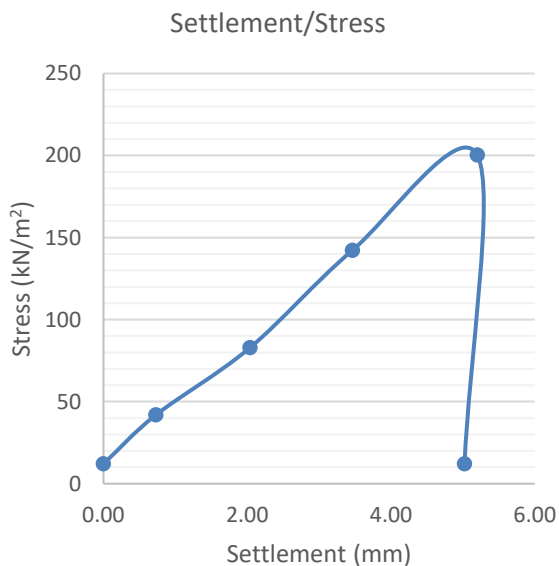
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.73	42
360	2.04	83
540	3.46	142
720	5.20	200
900	5.02	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	5.20
Equivalent CBR Value (%):	2
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	21

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd

Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available



Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-5
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72903
Description: Chalk
Material Class: Formation
Layer: -500mm bgl

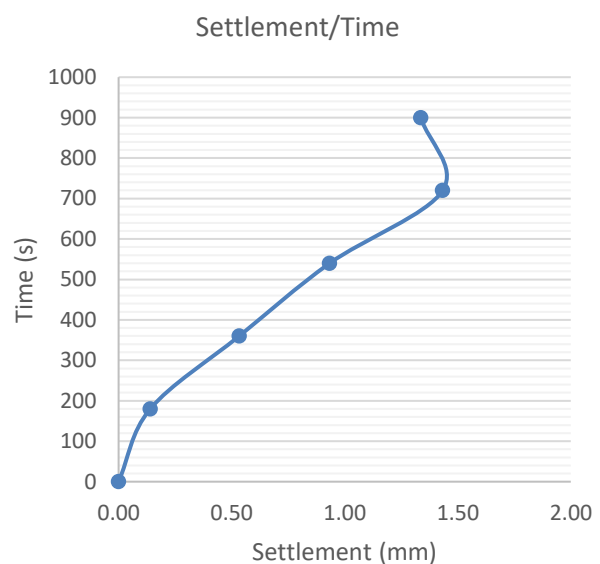
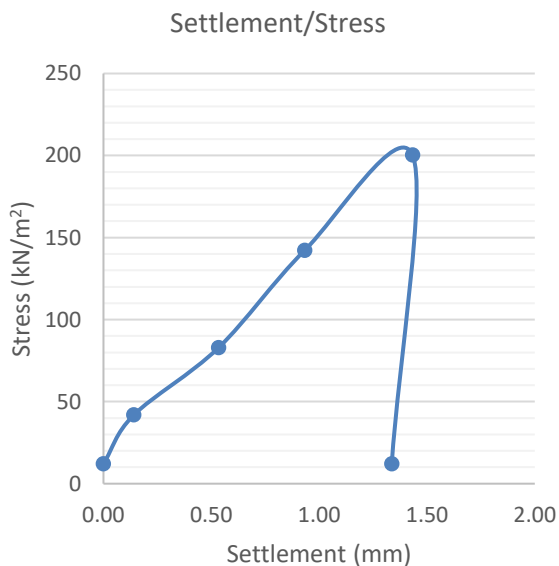
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.14	42
360	0.53	83
540	0.93	142
720	1.43	200
900	1.34	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.43
Equivalent CBR Value (%):	13
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	63

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)



For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available





Certificate for the Determination of the Equivalent CBR Value of Soil by the Incremental Plate Loading Test to BS 1377 Part 9: 1990

Report No: HS3017-6
Client: Geotechnics Ltd
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 29/08/2019

Test Details

Test Location: STP72903
Description: Chalk
Material Class: Formation
Layer: -750mm bgl

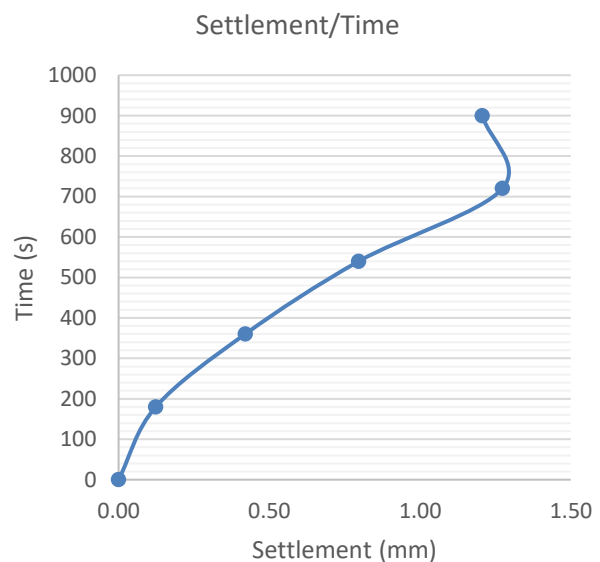
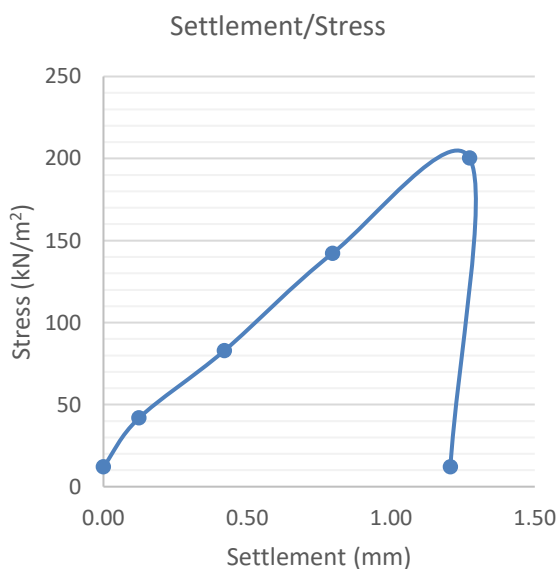
Date of Test: 24/06/2019
Reaction Load: 14 Tonne 360
Weather & Ambient Temp. (°C): Dry
Plate Diameter (mm): 300

Test Results

Time (s)	Settlement (mm)	Plate Stress (kN/m ²)
0	0.00	12
180	0.12	42
360	0.42	83
540	0.80	142
720	1.27	200
900	1.21	12

Maximum Applied Stress (kN/m ²):	200
Maximum Settlement (mm):	1.27
Equivalent CBR Value (%):	15
Modulus of Subgrade Reaction, k ₇₆₂ (MN/m ² /m):	70

Note: Supplemental test method and calculation of Equivalent CBR Value and Modulus of Subgrade Reaction: Interim Advice Note 73/06 (2009) Design Guidance for Road Pavement Foundations (Draft H25)

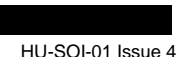


For and on Behalf of Hixtra Ltd



Terho Wilson
Director

Issued subject to Hixtra Terms and Conditions available





Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-1
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72803
 Layer/Depth: 0.5M BGL
 Material Class: Formation

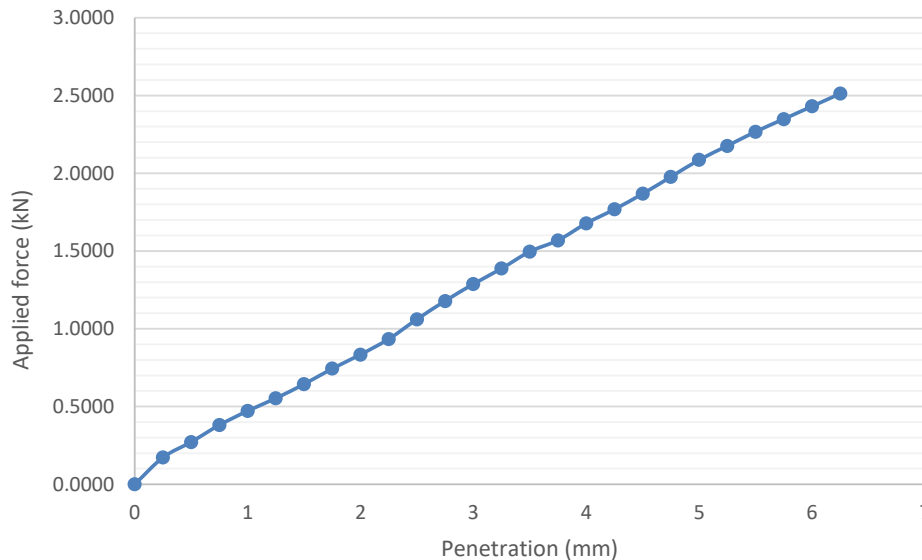
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk and Clay

Test Results

CBR Value (%) :	10
Water Content (%) :	18

Relationship Between Applied Force and Penetration



[Redacted] tra Ltd

Kevin Shorthouse
 Authorised signatory



Issued subject to Hixtra Terms and Conditions available [Redacted]



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-2
Client: Geotechnics
Address: Unit 1 Borders Industrail Park,
River Lane, Saltney,
Chester,
CH4 8RJ
Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72803
Layer/Depth: 0.75M BGL
Material Class: Formation

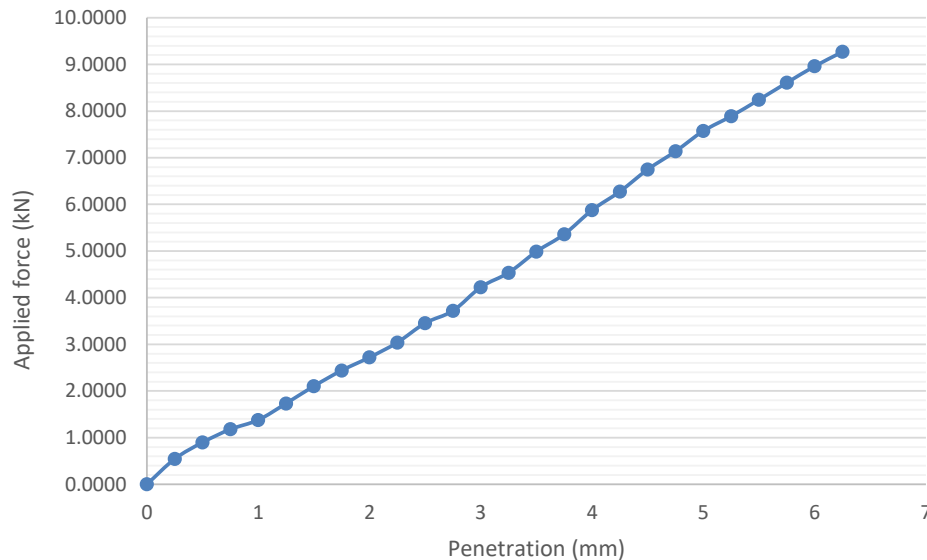
Date of Test: 20/06/2019
Surcharge mass (kg): 9
Equivalent overburden pressure (Kpa): 1.9
Particles >20mm below plunger: N
Water content test method: BS EN ISO 17892-1

Description: Chalk and Clay

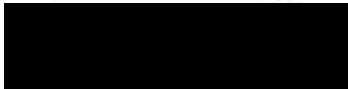
Test Results

CBR Value (%):	38
Water Content (%):	16

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd



Kevin Shorthouse
Authorised signatory



Issued subject to Hixtra Terms and Conditions available at [Redacted]



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-3
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72804
 Layer/Depth: 0.50M BGL
 Material Class: Formation

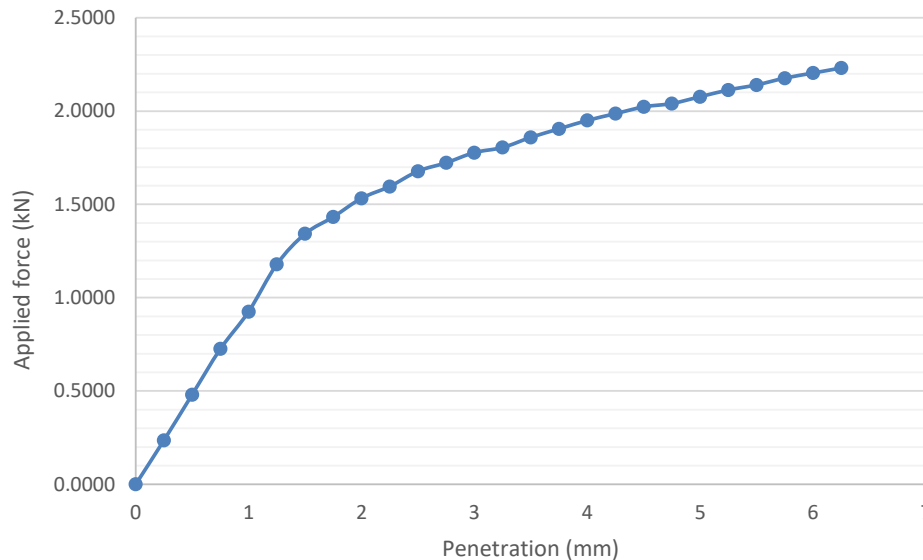
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

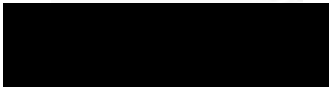
Test Results

CBR Value (%):	13
Water Content (%):	18

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd



Kevin Shorthouse
 Authorised signatory



Issued subject to Hixtra Terms and Conditions available at [Redacted]



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-4
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72804
 Layer/Depth: 0.70M BGL
 Material Class: Formation

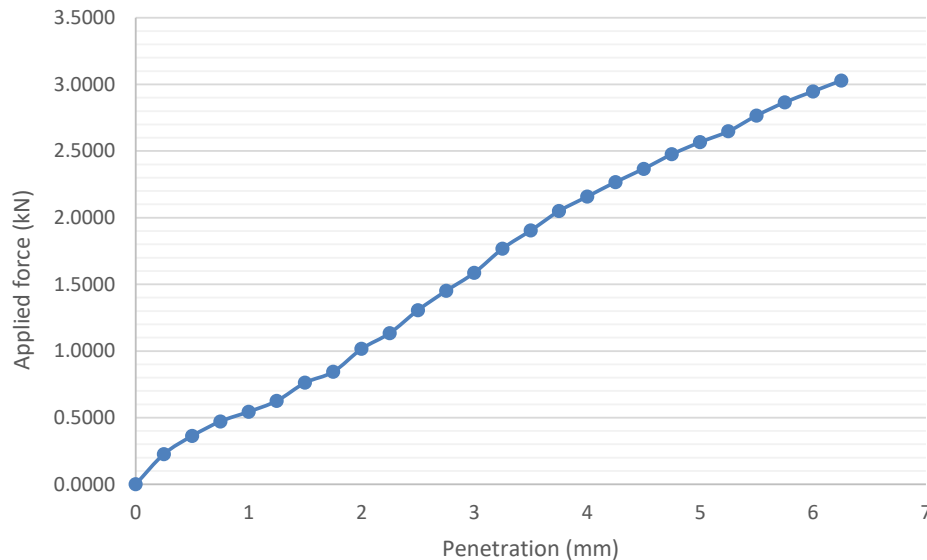
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

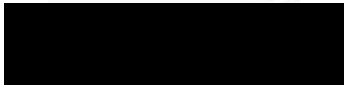
Test Results

CBR Value (%) :	13
Water Content (%) :	18

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd



Kevin Shorthouse
 Authorised signatory



Issued subject to Hixtra Terms and Conditions available at [Redacted]



Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-5
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

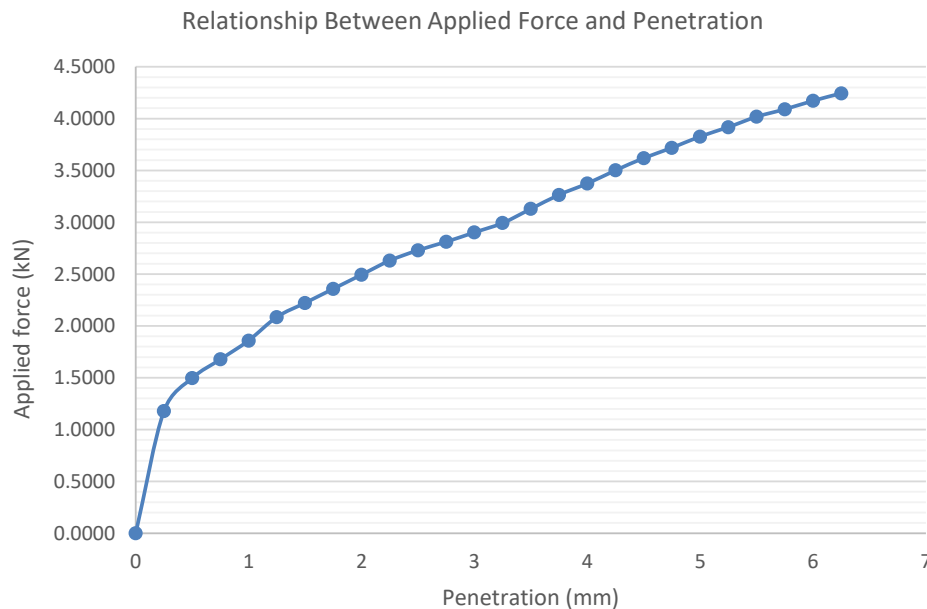
Test Location: STP72805
 Layer/Depth: 0.50M BGL
 Material Class: Formation

Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

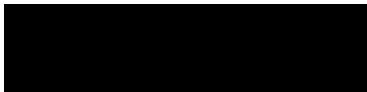
Description: Chalk

Test Results

CBR Value (%):	21
Water Content (%):	26



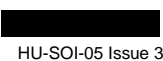
For and on Behalf of Hixtra Ltd



Kevin Shorthouse
 Authorised signatory



Issued subject to Hixtra Terms and Conditions available





Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-6
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72805
 Layer/Depth: 0.70M BGL
 Material Class: Formation

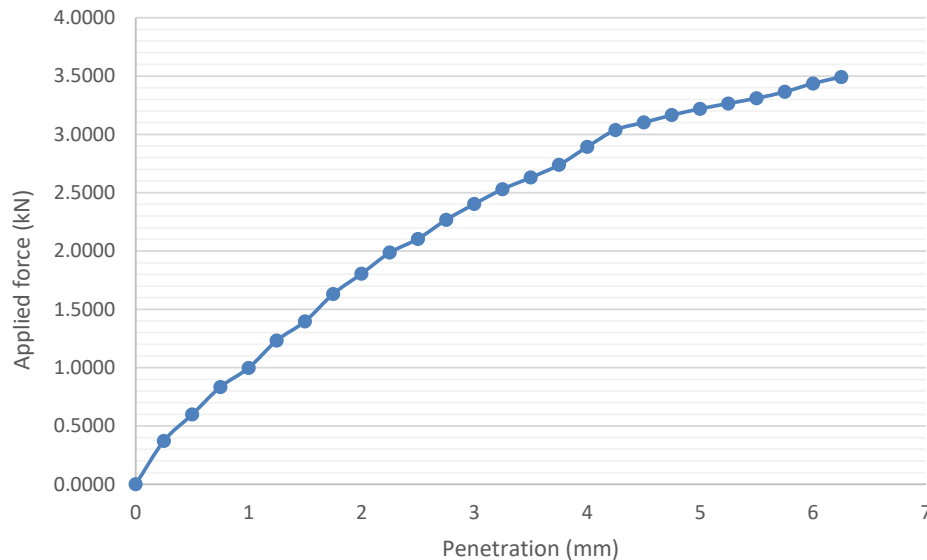
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

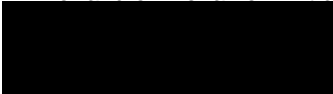
Test Results

CBR Value (%):	16
Water Content (%):	23

Relationship Between Applied Force and Penetration



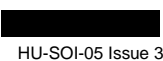
For and on Behalf of Hixtra Ltd



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-7
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72806
 Layer/Depth: 0.50M BGL
 Material Class: Formation

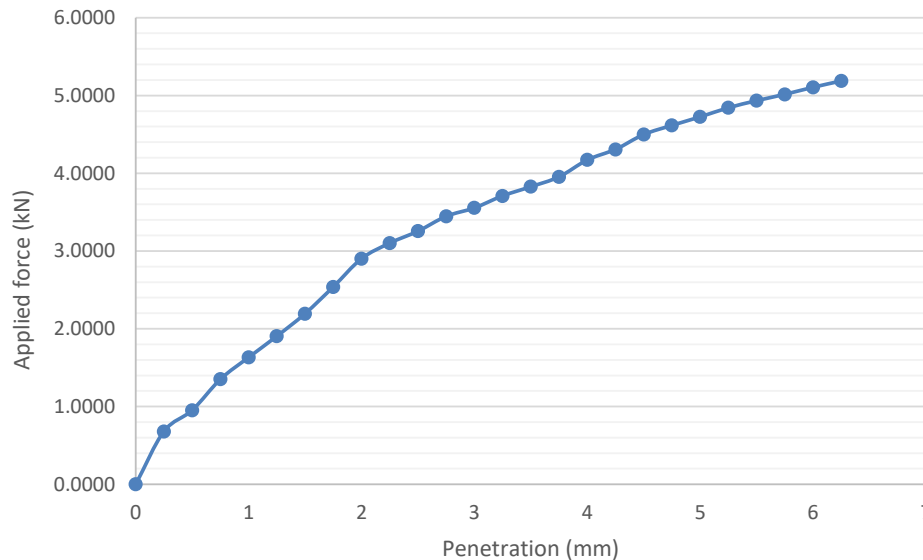
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	25
Water Content (%):	25

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-8
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

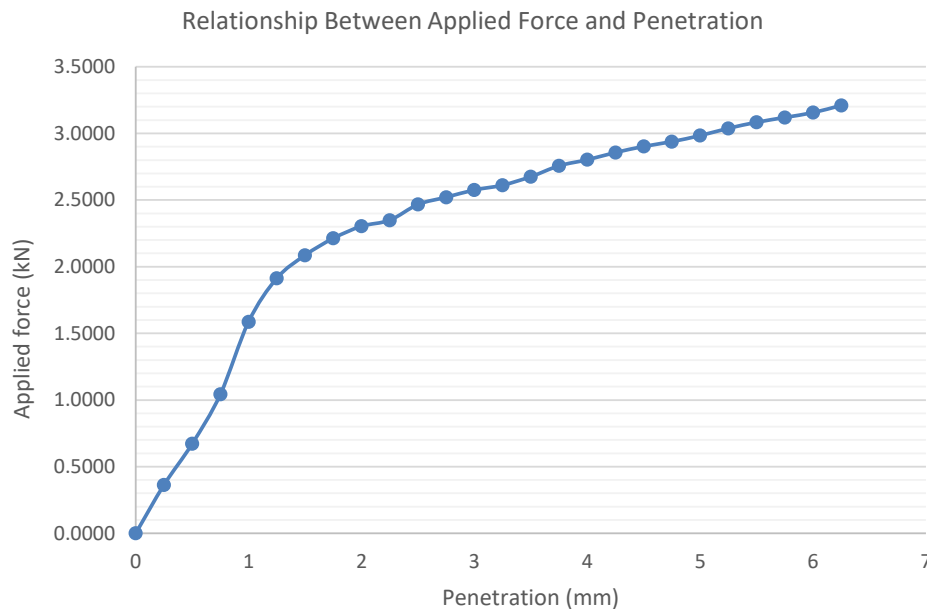
Test Location: STP72806
 Layer/Depth: 0.70M BGL
 Material Class: Formation

Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	19
Water Content (%):	25



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-9
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72807
 Layer/Depth: 0.50M BGL
 Material Class: Formation

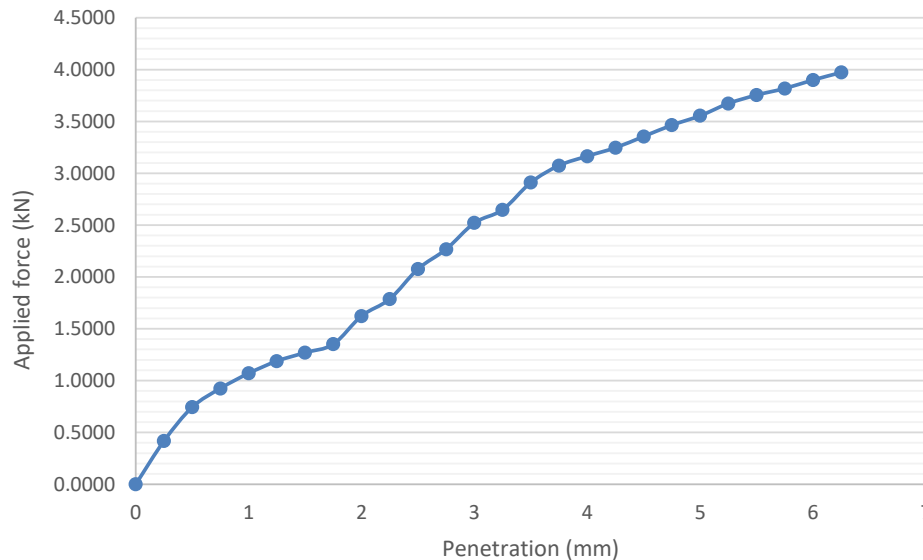
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

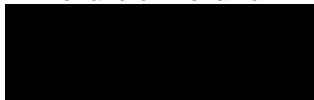
Test Results

CBR Value (%) :	18
Water Content (%) :	23

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd



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 Authorised signatory



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-10
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72807
 Layer/Depth: 0.70M BGL
 Material Class: Formation

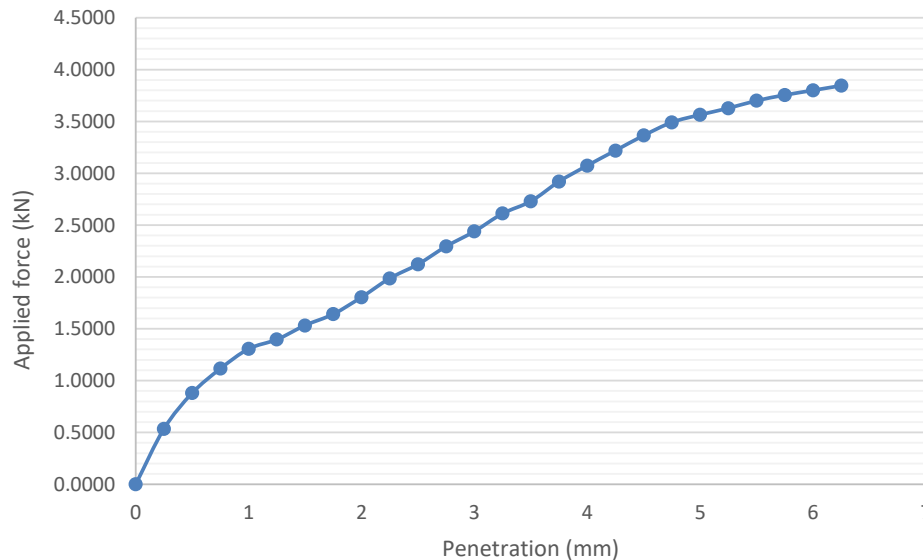
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

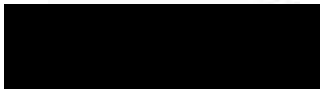
Test Results

CBR Value (%):	18
Water Content (%):	21

Relationship Between Applied Force and Penetration



For and on Behalf of Hixtra Ltd



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-11
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72808
 Layer/Depth: 0.50M BGL
 Material Class: Formation

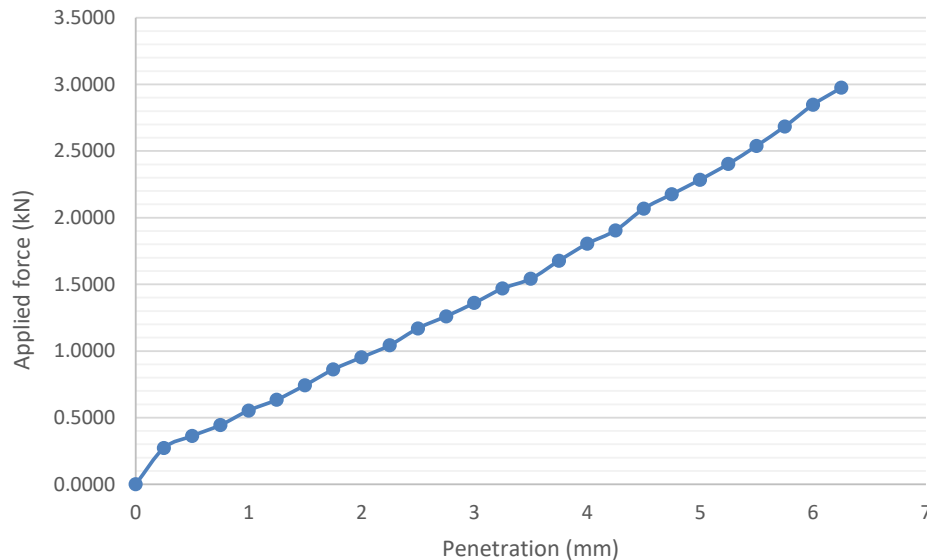
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

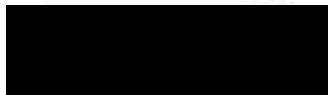
Test Results

CBR Value (%):	11
Water Content (%):	24

Relationship Between Applied Force and Penetration



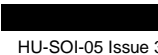
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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-12
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72808
 Layer/Depth: 0.70M BGL
 Material Class: Formation

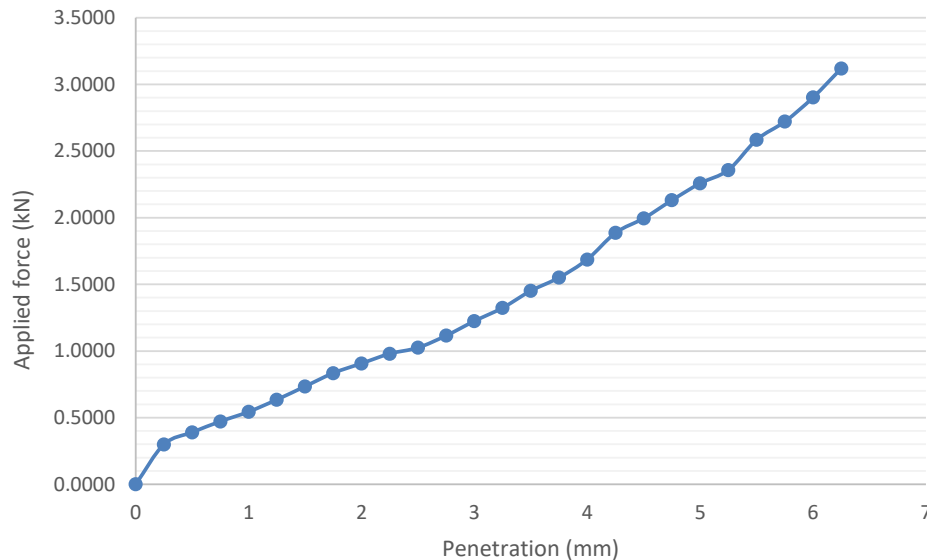
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

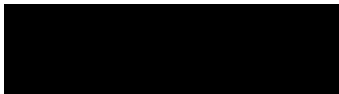
Test Results

CBR Value (%):	11
Water Content (%):	26

Relationship Between Applied Force and Penetration



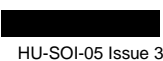
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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-13
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72809
 Layer/Depth: 0.50M BGL
 Material Class: Formation

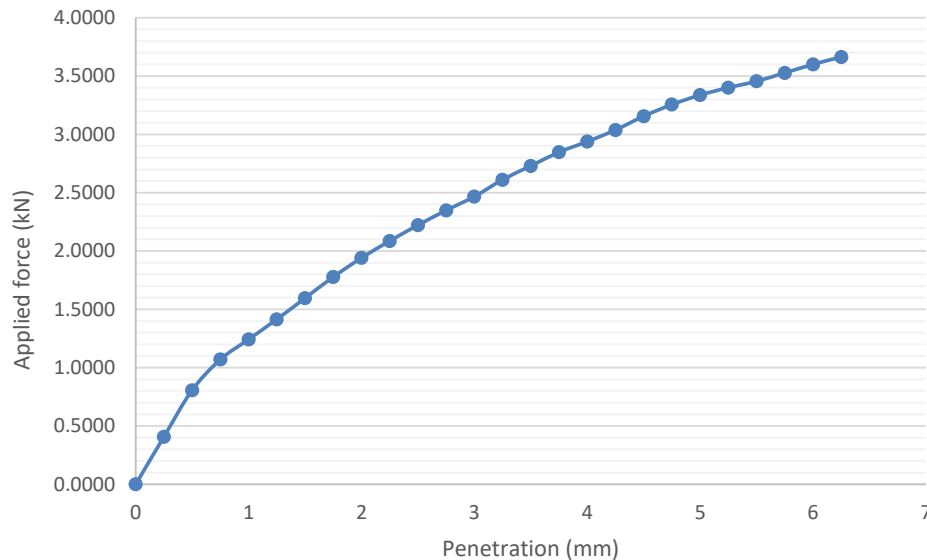
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%) :	17
Water Content (%) :	26

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3007-14
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 21/06/2019

Test Details

Test Location: STP72809
 Layer/Depth: 0.70M BGL
 Material Class: Formation

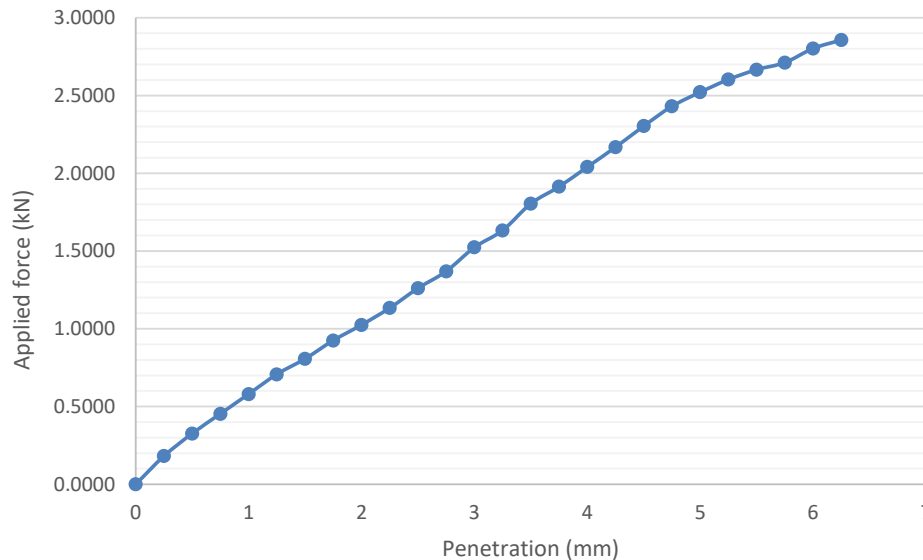
Date of Test: 20/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

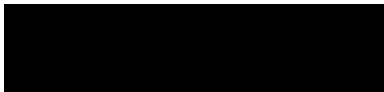
Test Results

CBR Value (%):	13
Water Content (%):	18

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-1
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72901
 Layer/Depth: 0.50M BGL
 Material Class: Formation

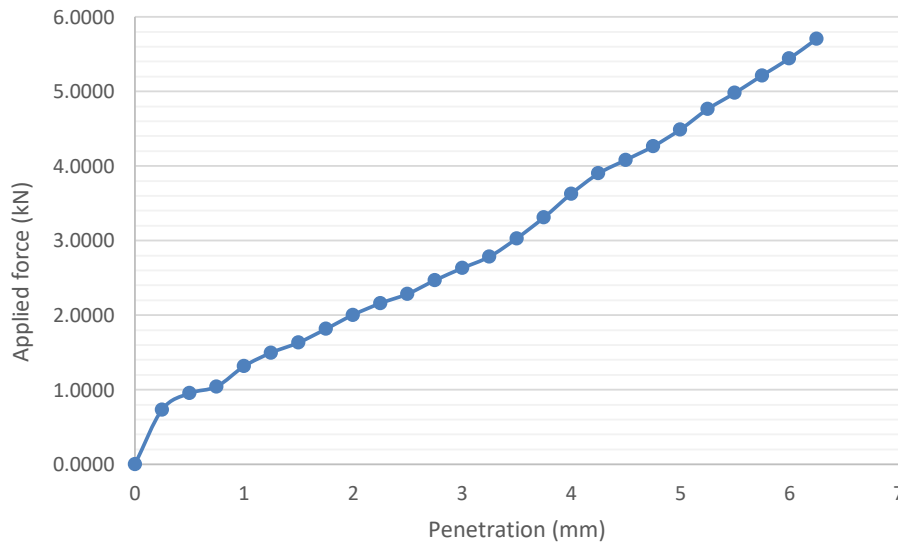
Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	22
Water Content (%):	24

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-2
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72901
 Layer/Depth: 0.70M BGL
 Material Class: Formation

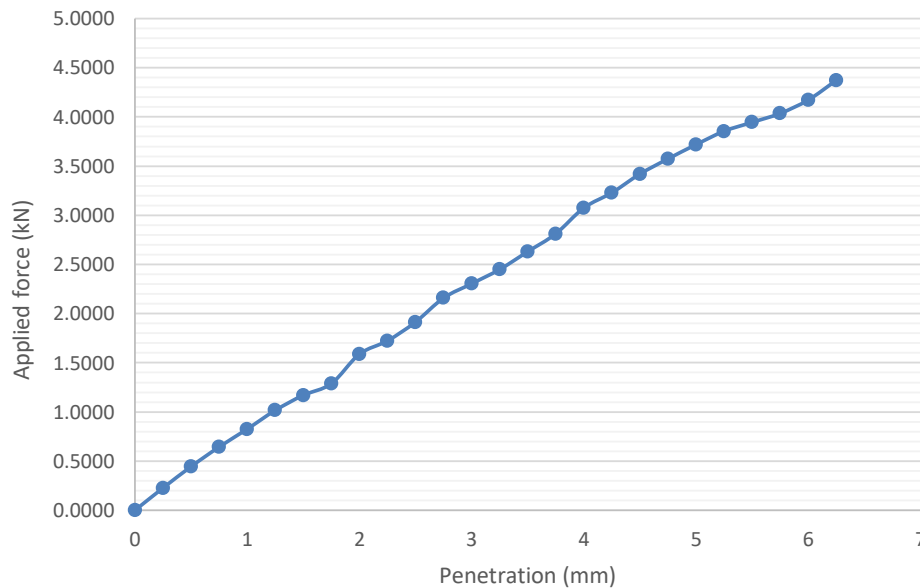
Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

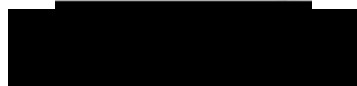
Test Results

CBR Value (%):	19
Water Content (%):	23

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-3

Report Date: 01/07/2019

Client: Geotechnics

Address: Unit 1 Borders Industrial Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ

Site: A303 Stonehenge, SP4 7HW

Test Details

Test Location: STP72902
 Layer/Depth: 0.50M BGL
 Material Class: Formation

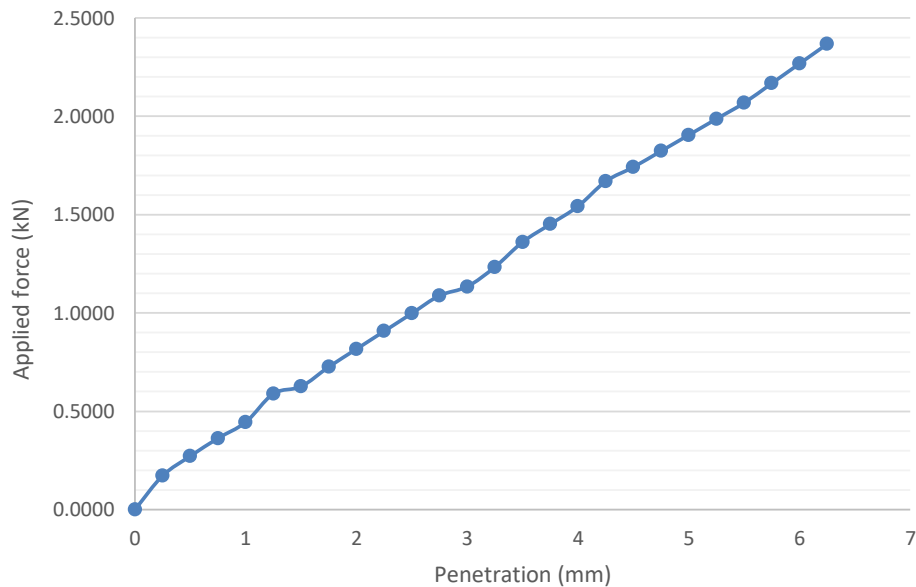
Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	10
Water Content (%):	25

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-4
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72902
 Layer/Depth: 0.70M BGL
 Material Class: Formation

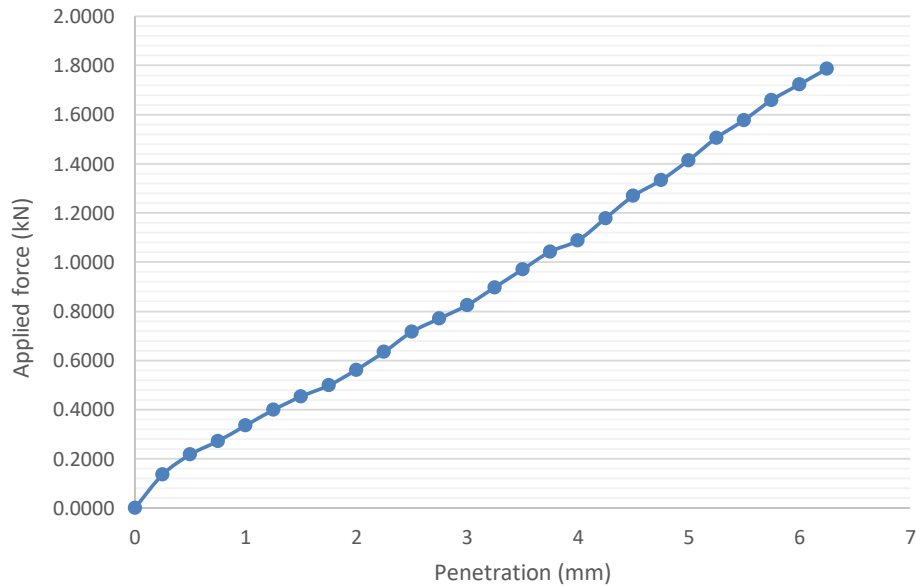
Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

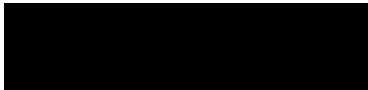
Test Results

CBR Value (%):	7
Water Content (%):	25

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-5
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

Test Location: STP72903
 Layer/Depth: 0.50M BGL
 Material Class: Formation

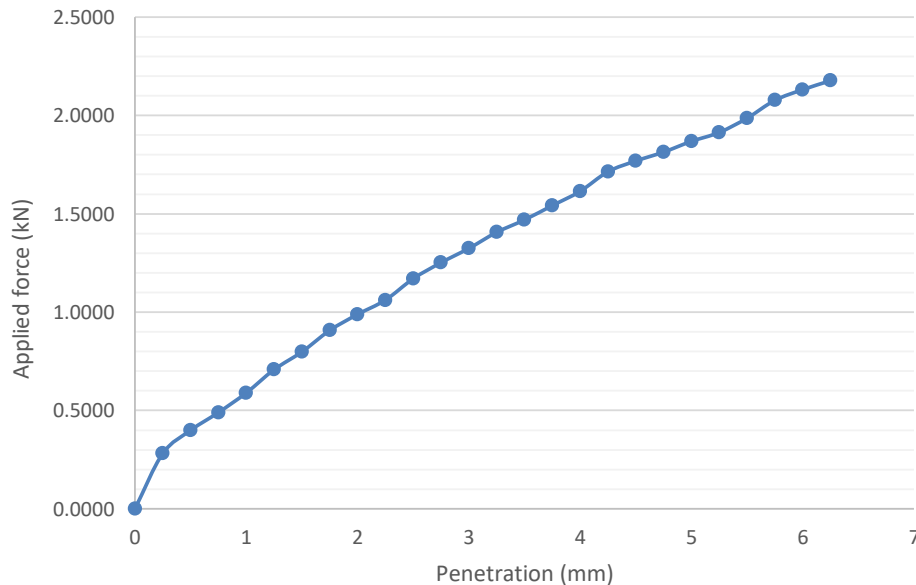
Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	9
Water Content (%):	24

Relationship Between Applied Force and Penetration



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Certificate for the Determination of the In-Situ California Bearing Ratio (CBR) of Soil to BS 1377 Part 9 : 1990 Clause 4.3

Report No: HS3024-6
 Client: Geotechnics
 Address: Unit 1 Borders Industrail Park,
 River Lane, Saltney,
 Chester,
 CH4 8RJ
 Site: A303 Stonehenge, SP4 7HW

Report Date: 01/07/2019

Test Details

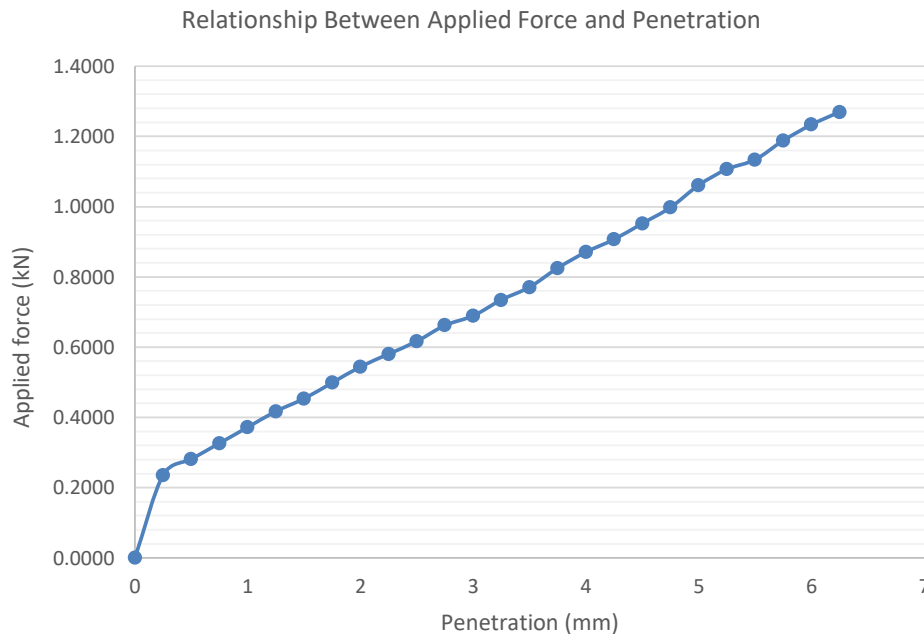
Test Location: STP72903
 Layer/Depth: 0.70M BGL
 Material Class: Formation

Date of Test: 25/06/2019
 Surcharge mass (kg): 9
 Equivalent overburden pressure (Kpa): 1.9
 Particles >20mm below plunger: N
 Water content test method: BS EN ISO 17892-1

Description: Chalk

Test Results

CBR Value (%):	5
Water Content (%):	23



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In Situ Testing - Dynamic Cone Penetration Test

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Location No. STP72801

Client HIGHWAYS ENGLAND

Project No. PC197510

Test No. 1

Coordinates 417561.8 E, 141577.0 N

Ground Level 93.47 m OD

Test Date 12/07/2019

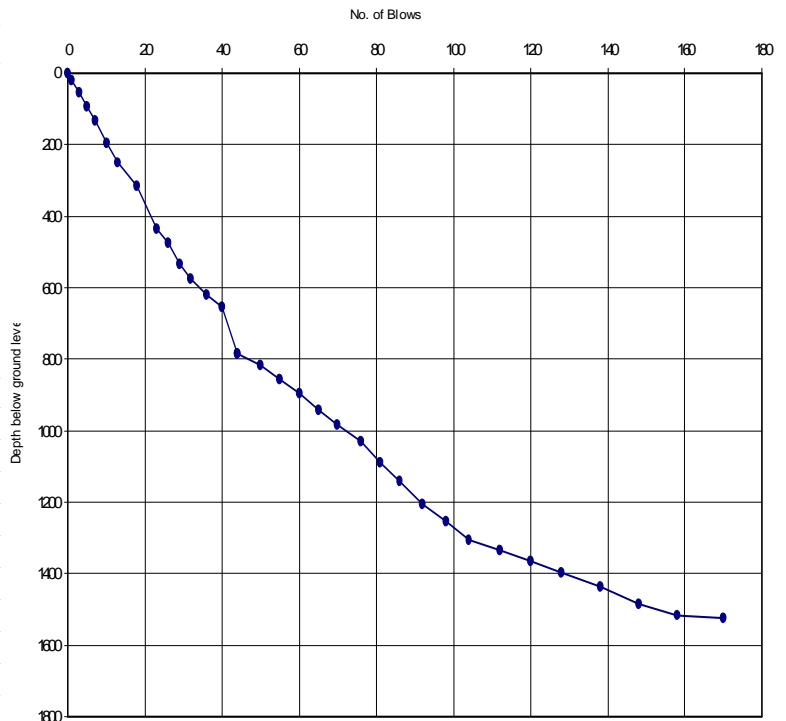
Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
0	0	1	115	0
1	1	1	135	20
2	3	1	170	55
2	5	1	210	95
2	7	1	250	135
3	10	1	310	195
3	13	1	365	250
5	18	1	430	315
5	23	1	550	435
3	26	1	590	475
3	29	1	650	535
3	32	1	690	575
4	36	1	735	620
4	40	1	770	655
4	44	1	900	785
0	44	2	10	785
6	50	2	40	815
5	55	2	80	855
5	60	2	120	895
5	65	2	165	940
5	70	2	208	983

Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
6	76	2	255	1030
5	81	2	315	1090
5	86	2	365	1140
6	92	2	430	1205
6	98	2	480	1255
6	104	2	530	1305
8	112	2	560	1335
8	120	2	590	1365
8	128	2	620	1395
10	138	2	660	1435
10	148	2	710	1485
10	158	2	740	1515
12	170	2	750	1525

Test Started at	0.00	m
Operator	SI	
Checked by	CL	

Rod No.	Zero Reading (mm)
1	115
2	10

Depth bgl (mm)		Blows No.		DCP mm/blow	CBR %
Top	Base	Top	Base		
0	250	0	13	19	13.3
250	315	13	18	13	20.1
315	535	18	29	20	12.7
535	655	29	40	11	24.2
655	785	40	44	33	7.6
785	940	44	65	7	36.5
940	1030	65	76	8	32.7
1030	1205	76	92	11	24.1
1205	1305	92	104	8	32.1
1305	1435	104	138	4	73.2
1435	1515	138	158	4	69.8
1515	1525	158	170	1	366.2



Remarks

CBR estimated using correlation in Highways Agency Interim Advice Note 73/06 Rev 1 (2009).
 Refused at 1.53m

Printed: 04/09/2019

GEOTECHNICS



In Situ Testing - Dynamic Cone Penetration Test

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Location No. STP72802

Client HIGHWAYS ENGLAND

Project No. PC197510

Coordinates 417658.9 E, 141834.2 N

Ground Level 95.56 m OD

Test No. 1

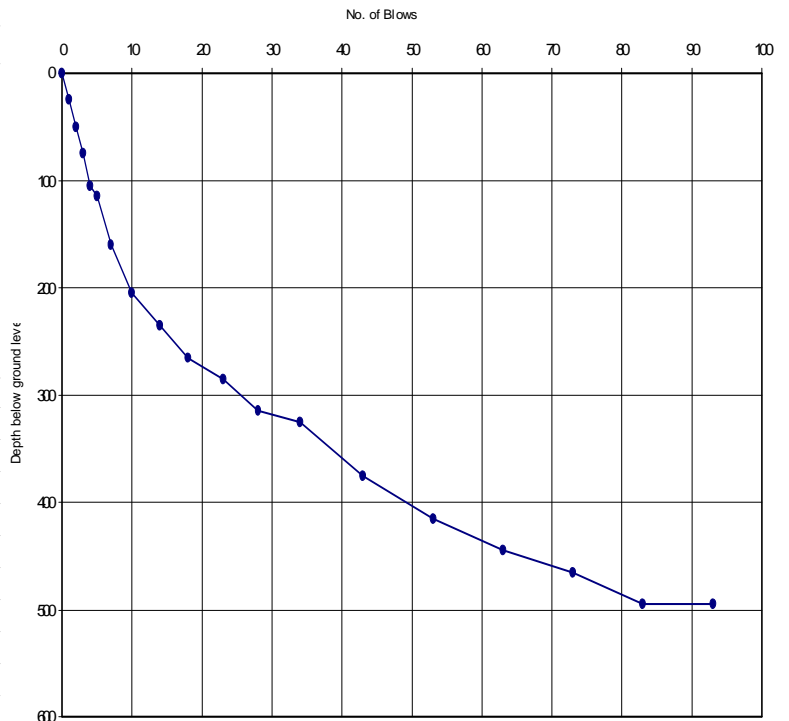
Test Date 12/07/2019

Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
0	0	1	125	0
1	1	1	150	25
1	2	1	175	50
1	3	1	200	75
1	4	1	230	105
1	5	1	240	115
2	7	1	285	160
3	10	1	330	205
4	14	1	360	235
4	18	1	390	265
5	23	1	410	285
5	28	1	440	315
6	34	1	450	325
9	43	1	500	375
10	53	1	540	415
10	63	1	570	445
10	73	1	590	465
10	83	1	620	495
10	93	1	620	495

Test Started at	0.00 m
Operator	SI
Checked by	CL

Rod No.	Zero Reading (mm)
1	125

Depth bgl (mm)		Blows No.		DCP mm/blow	CBR %
Top	Base	Top	Base		
0	25	0	1	25	10.1
25	105	1	4	27	9.4
105	205	4	10	17	15.4
205	265	10	18	8	35.9
265	315	18	28	5	55.1
315	325	28	34	2	176.0
325	415	34	53	5	58.3
415	465	53	73	3	114.7
465	495	73	83	3	94.6
495	495	83	93		



Remarks

CBR estimated using correlation in Highways Agency Interim Advice Note 73/06 Rev 1 (2009).
 Refused at 0.5m

Printed: 04/09/2019

GEOTECHNICS



In Situ Testing - Dynamic Cone Penetration Test

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Location No. STP72810

Client HIGHWAYS ENGLAND

Project No. PC197510

Test No. 1

Coordinates 418566.9 E, 142414.7 N

Ground Level 147.89 m OD

Test Date 12/07/2019

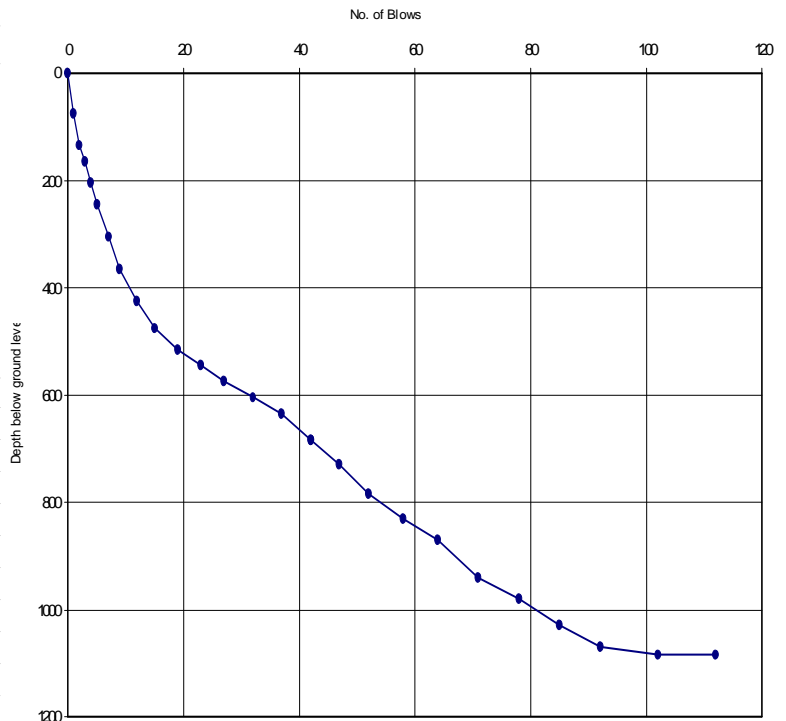
Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
0	0	1	125	0
1	1	1	200	75
1	2	1	260	135
1	3	1	290	165
1	4	1	330	205
1	5	1	370	245
2	7	1	430	305
2	9	1	490	365
3	12	1	550	425
3	15	1	600	475
4	19	1	640	515
4	23	1	670	545
4	27	1	700	575
5	32	1	730	605
5	37	1	760	635
5	42	1	810	685
0	42	2	15	685
5	47	2	60	730
5	52	2	115	785
6	58	2	160	830
6	64	2	200	870

Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
7	71	2	270	940
7	78	2	310	980
7	85	2	360	1030
7	92	2	400	1070
10	102	2	415	1085
10	112	2	415	1085

Test Started at	0.00 m
Operator	SI
Checked by	CL

Rod No.	Zero Reading (mm)
1	125
2	15

Depth bgl (mm)		Blows No.		DCP mm/blow	CBR %
Top	Base	Top	Base		
0	245	0	5	49	4.9
245	425	5	12	26	9.8
425	475	12	15	17	15.4
475	605	15	32	8	35.2
605	635	32	37	6	45.4
635	830	37	58	9	28.6
830	870	58	64	7	40.7
870	980	64	78	8	34.2
980	1070	78	92	6	42.2
1070	1085	92	112	1	409.3



Remarks

CBR estimated using correlation in Highways Agency Interim Advice Note 73/06 Rev 1 (2009).
Refused at 1.09

Printed: 04/09/2019

GEOTECHNICS



In Situ Testing - Dynamic Cone Penetration Test

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Location No. STP72811

Client HIGHWAYS ENGLAND

Project No. PC197510

Coordinates 418582.9 E, 142402.2 N

Ground Level 149.48 m OD

Test No. 1

Test Date 12/07/2019

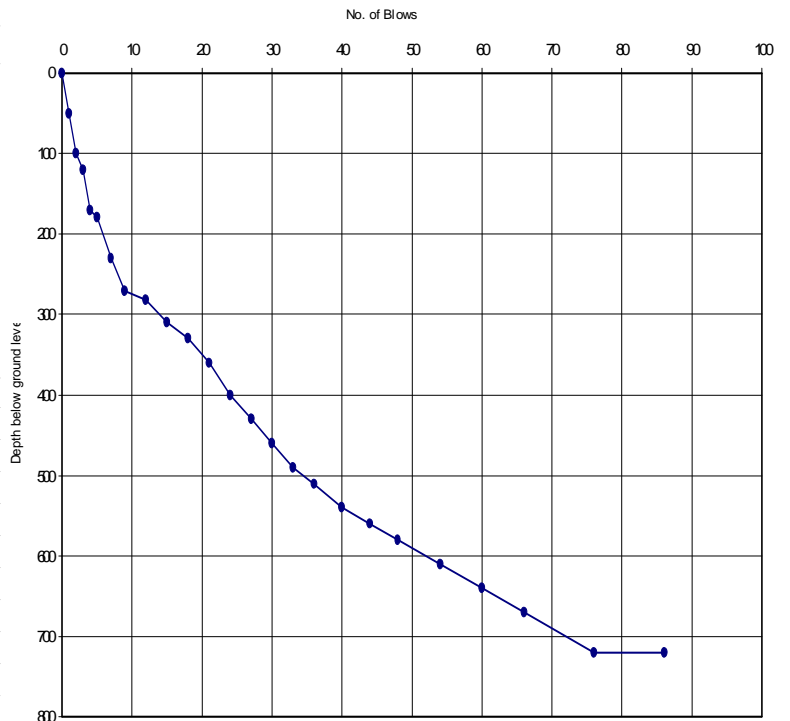
Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
0	0	1	110	0
1	1	1	160	50
1	2	1	210	100
1	3	1	230	120
1	4	1	280	170
1	5	1	290	180
2	7	1	340	230
2	9	1	380	270
3	12	1	392	282
3	15	1	420	310
3	18	1	440	330
3	21	1	470	360
3	24	1	510	400
3	27	1	540	430
3	30	1	570	460
3	33	1	600	490
3	36	1	620	510
4	40	1	650	540
4	44	1	670	560
4	48	1	690	580
6	54	1	720	610

Blows No.	Blows Total	Rod No.	Reading (mm)	Corrected Depth (mm)
6	60	1	750	640
6	66	1	780	670
10	76	1	830	720
10	86	1	830	720

Test Started at	0.00	m
Operator	SI	
Checked by	CL	

Rod No.	Zero Reading (mm)
1	110

Depth bgl (mm)		Blows No.		DCP mm/blow	CBR %
Top	Base	Top	Base		
0	100	0	2	50	4.8
100	120	2	3	20	12.7
120	180	3	5	30	8.3
180	270	5	9	23	11.2
270	282	9	12	4	69.8
282	360	12	21	9	30.8
360	490	21	33	11	24.3
490	560	33	44	6	42.7
560	720	44	76	5	55.1



Remarks

CBR estimated using correlation in Highways Agency Interim Advice Note 73/06 Rev 1 (2009).
Refused at 0.72m

Printed: 04/09/2019

GEOTECHNICS



APPENDIX 9
In Situ Permeability Test Results

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 1 - Test Details

Project	A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI	Borehole	R71901
		Project No	PC197510
		Test No	1
Client	Highways England	Date	24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012

Borehole Details	Test Details
Inclination Vertical Method of Drilling Rotary Coring Co-ordinates (m) E 411276.4 N 141648.2 Ground Level (m OD) 101.37 Depth of Borehole during test 39.60 Diameter of borehole over test section 0.142	<p>Datum (m) = Ground Level</p> <p>Standing Water below GL (m) = 35.40</p> <p>WL</p> <p>Depth to top of Test Section below GL (m) = 36.00</p> <p>Depth to bottom of Test Section below GL (m) = 39.60</p> <p>Upper Packer Length (m) = 0.75</p> <p>Length of Test Section (m) = 3.60</p> <p>Lower Packer Length (m) = Not Used</p>
Test Installation Details Packers Inflation Method Nitrogen <u>Upper Packer</u> Depth to Top (m) 36.00 Elevation of Top (m OD) 65.37 Inflation Pressure (kPa) 600.0 <u>Lower Packer</u> Depth to Top (m) Elevation of Top (m) Inflation Pressure (kPa)	
Flow Measurement Method Flow Meter Units of Measurement l/min	Before 39.60 After 39.60 Initial Pressure in Test Section 1.46 (m of water) Final Pressure in Test Section 1.47 (m of water) Pressure at Top of Borehole Atmospheric Time at start of Test 13:56:00 Duration of Test (min) 3.0 Total Water Consumption (l) 389 Weather during Test Dry and Sunny Test Carried Out By J Rix Checked By
Test Pressure Measurement Method Direct (Diver) Depth to Measuring Device (m) 36.65 Atmospheric Correction to Measuring Device (m of water) 0.00	Description of Test Section Chalk
Pump Used GP 200M General Purpose Pump	

Remarks / Observations during Test

Test aborted due to being unable to reach 1st period pressure of 0.50 Bar

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901

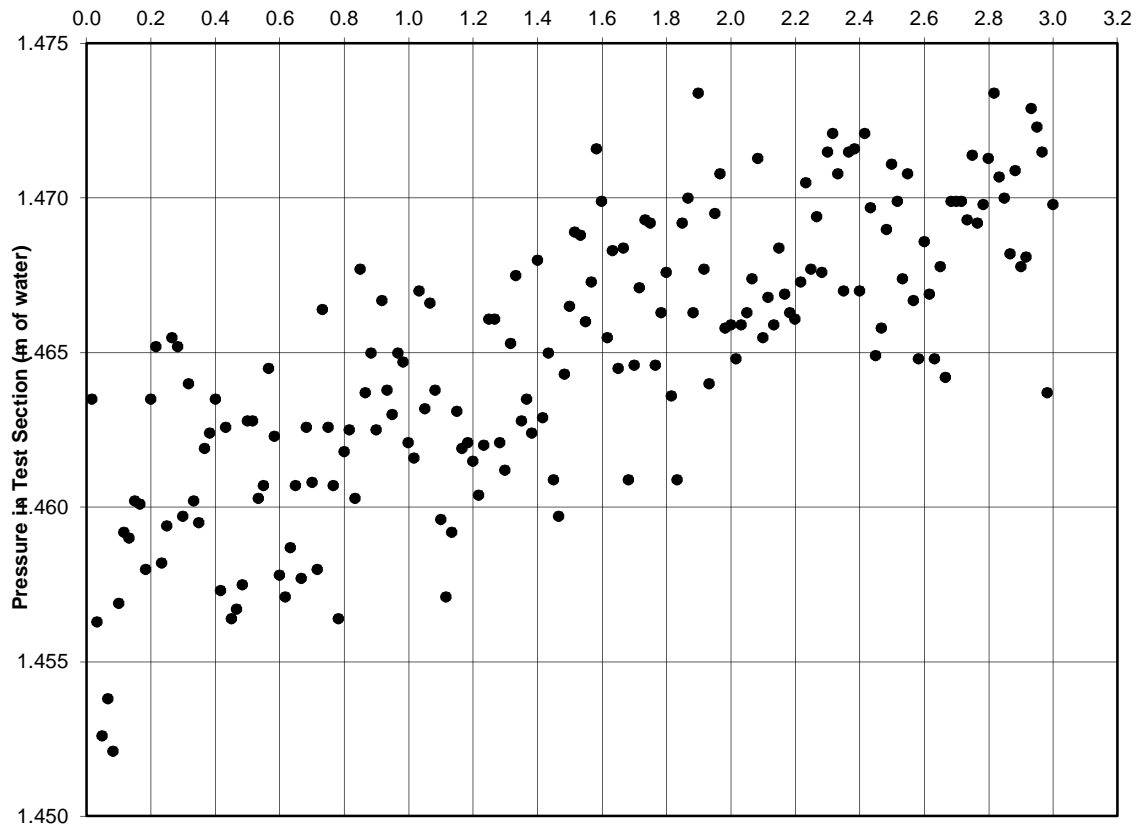
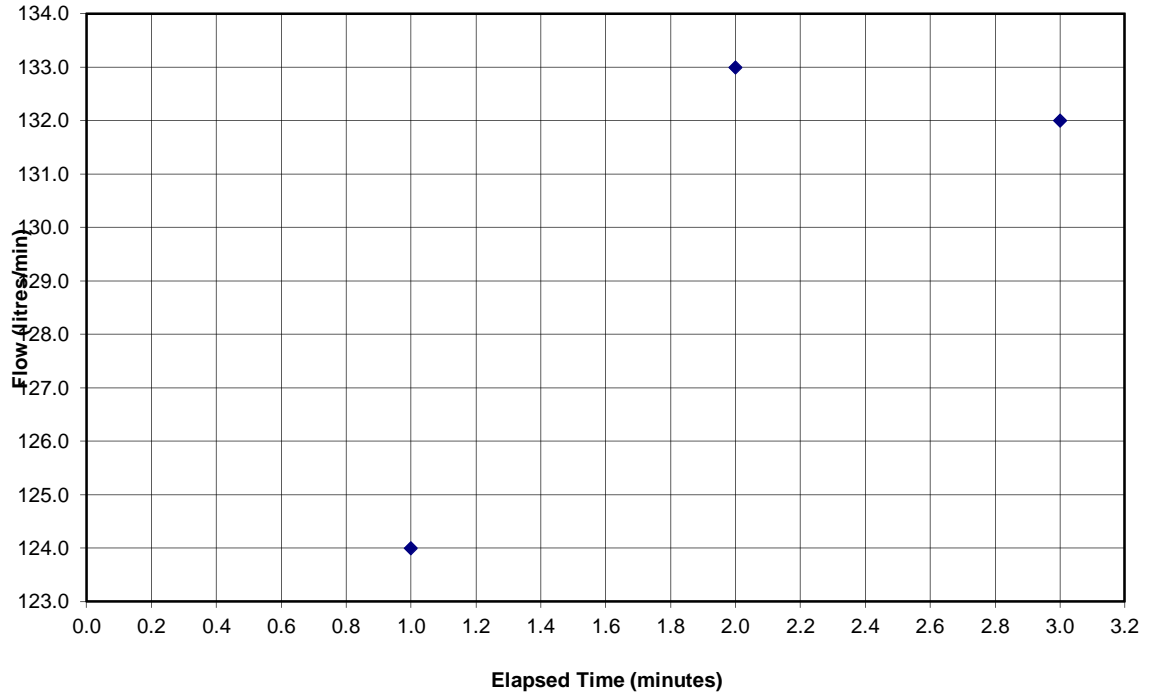
Project No PC197510

Test No 1

Client Highways England

Date 24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012



INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 3 - Test Results

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901

Project No PC197510

Test No 1

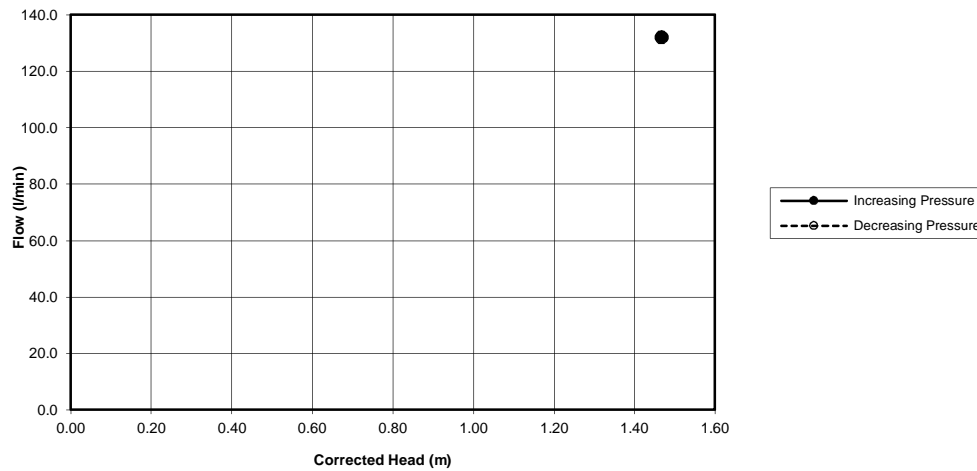
Client Highways England

Date 24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012

Evaluation of Test Results

Pressure Increment	Pressure					Flow			
	Elapsed Time (min)	Duration (min)	Average Head over Increment (m of water)	Atmospheric Pressure Correction (m of water)	Corrected Head (m of water)	Elapsed Time (min)	Duration (min)	Volume Injected (litres)	Average Flow over Increment (l/min)
1	2.0	1.0	1.47	0.00	1.47	2.0	1.0	257.0	132.0
	3.0					389.0			
2									
3									
4									
5									



Pressure Increment	Corrected Head, H (m of water)	Flow, Q (m ³ /s)	Lugeon Value	Permeability, k = $(Q/2\pi LH) \cdot \ln(2L/D)$ (m/s)
1	1.47	0.002	2548.6	2.60E-04
2				
3				
4				
5				

Remarks / Observations during Test

Permeability relationship from BS5930:1999+A2:2010

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet I - Test Details

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901

Project No PC197510

Test No 2

Client Highways England

Date 24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012

Borehole Details	Test Details
Inclination Vertical	<p>Datum (m) = Ground Level</p> <p>Standing Water below GL (m) = 35.40</p> <p>WL</p> <p>Depth to top of Test Section below GL (m) = 36.00</p> <p>Upper Packer Length (m) = 0.75</p> <p>Length of Test Section (m) = 3.60</p> <p>Lower Packer Length (m) = Not Used</p>
Method of Drilling Rotary Coring	
Co-ordinates (m) E 411276.4 N 141648.2	
Ground Level (m OD) 101.37	
Depth of Borehole during test 39.60	
Diameter of borehole over test section 0.142	<p>Before 39.60</p> <p>After 39.60</p>
Test Installation Details	
Packers	
Inflation Method Nitrogen	Initial Pressure in Test Section 1.50 (m of water)
<u>Upper Packer</u>	Final Pressure in Test Section 1.49 (m of water)
Depth to Top (m) 36.00	Pressure at Top of Borehole Atmospheric
Elevation of Top (m OD) 65.37	Time at start of Test 14:03:26
Inflation Pressure (kPa) 600.0	Duration of Test (min) 3.0
<u>Lower Packer</u>	Total Water Consumption (l) 469
Depth to Top (m)	Weather during Test Dry and Sunny
Elevation of Top (m)	Test Carried Out By J Rix
Inflation Pressure (kPa)	Checked By
Flow Measurement	<u>Description of Test Section</u>
Method Flow Meter	Chalk
Units of Measurement l/min	
Test Pressure Measurement	
Method Direct (Diver)	
Depth to Measuring Device (m) 36.65	
Atmospheric Correction to Measuring Device (m of water) 0.00	
Pump Used	
GP 200M General Purpose Pump	

Remarks / Observations during Test

Test aborted due to being unable to reach 1st period pressure of 0.50 Bar

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901

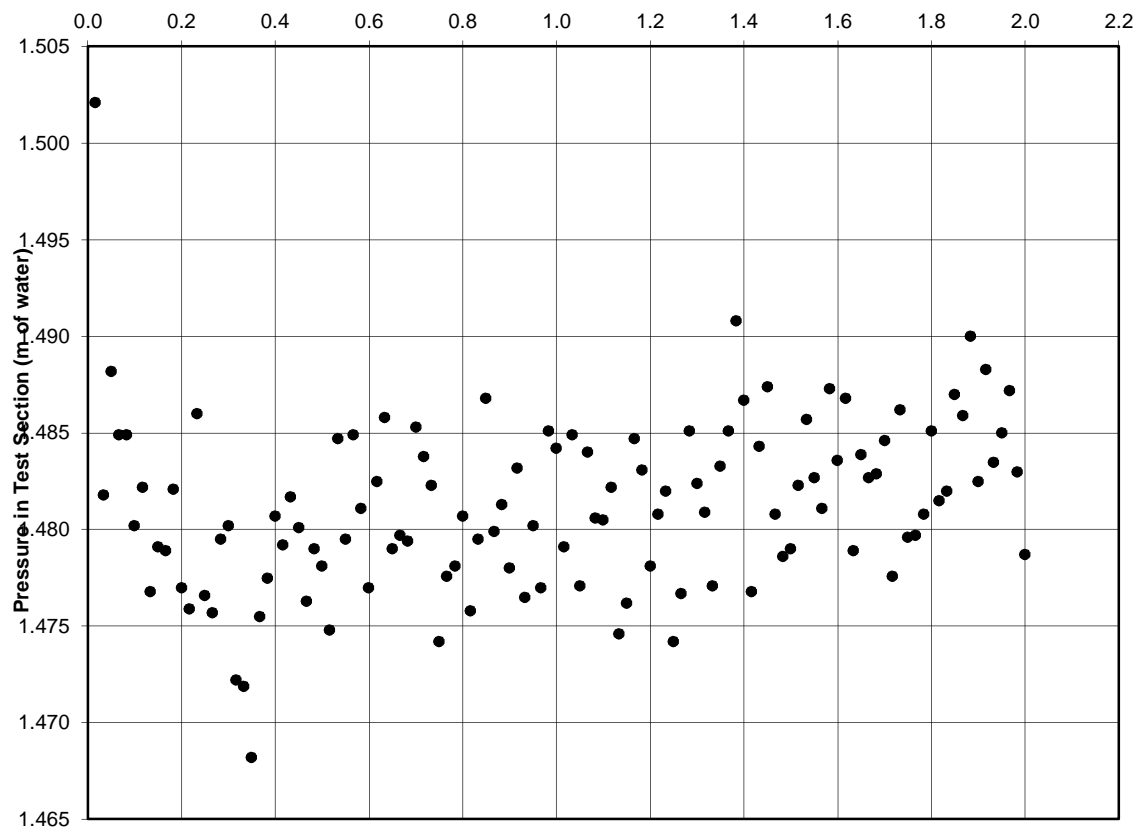
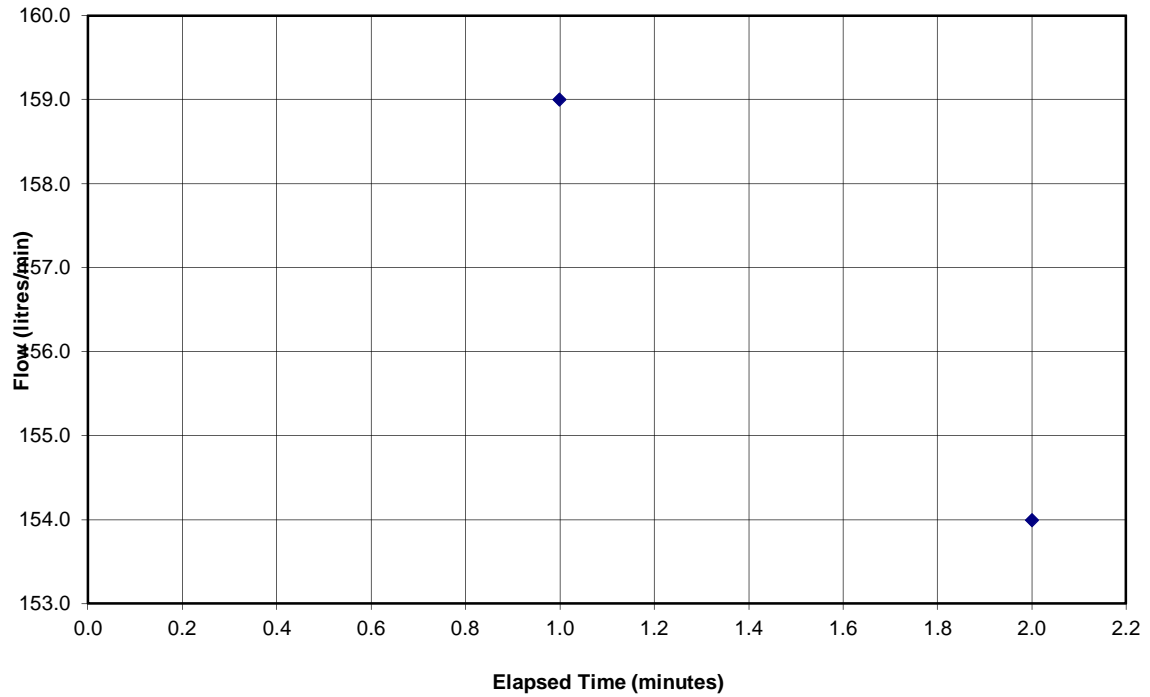
Project No PC197510

Test No 2

Client Highways England

Date 24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012



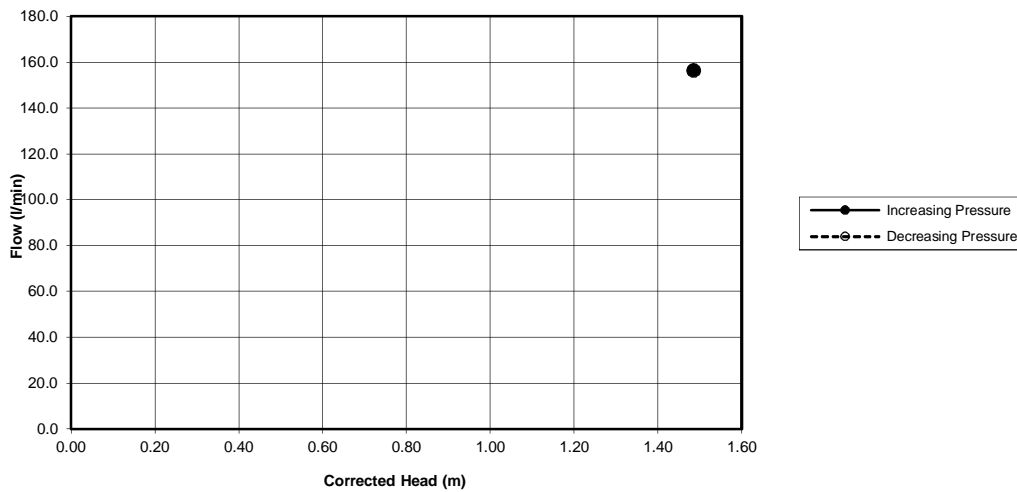
INSITU TESTING - Permeability (Borehole)

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI Borehole R71901
 Project No PCI97510
 Test No 2
 Date 24th June 2019

Client Highways England

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012 Evaluation of Test Results

Pressure Increment	Pressure					Flow			
	Elapsed Time (min)	Duration (min)	Average Head over Increment (m of water)	Atmospheric Pressure Correction (m of water)	Corrected Head (m of water)	Elapsed Time (min)	Duration (min)	Volume Injected (litres)	Average Flow over Increment (l/min)
1	1.0	1.0	1.48	0.00	1.48	1.0	1.0	159.0	156.5
	2.0					154.0			
2									
3									
4									
5									



Pressure Increment	Corrected Head, H (m of water)	Flow, Q (m³/s)	Lugeon Value	Permeability, k = $(Q/2\pi LH) \cdot \ln(2L/D)$ (m/s)
1	1.48	0.003	2989.1	3.05E-04
2				
3				
4				
5				

Remarks / Observations during Test

Permeability relationship from BS5930:1999+A2:2010

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet I - Test Details

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901
Project No PC197510
Test No 3
Date 24th June 2019

Client Highways England

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012

Borehole Details	Test Details	
Inclination Vertical	<p>Datum (m) = Ground Level</p> <p>Standing Water below GL (m) = 35.40</p> <p>WL</p> <p>Depth to top of Test Section below GL (m) = 38.00</p> <p>Upper Packer Length (m) = 0.75</p> <p>Length of Test Section (m) = 1.60</p> <p>Lower Packer Length (m) = Not Used</p>	
Method of Drilling Rotary Coring		
Co-ordinates (m) E 411276.4 N 141648.2		
Ground Level (m OD) 101.37		
Depth of Borehole during test 39.60		
Diameter of borehole over test section 0.142		
Test Installation Details		
Packers		
Inflation Method Nitrogen		
<u>Upper Packer</u>		
Depth to Top (m) 38.00		
Elevation of Top (m OD) 63.37		
Inflation Pressure (kPa) 600.0		
<u>Lower Packer</u>		
Depth to Top (m)		
Elevation of Top (m)		
Inflation Pressure (kPa)		
Flow Measurement		
Method Flow Meter	Initial Pressure in Test Section 3.62 (m of water)	
Units of Measurement l/min	Final Pressure in Test Section 3.64 (m of water)	
Test Pressure Measurement		
Method Direct (Diver)	Pressure at Top of Borehole Atmospheric	
Depth to Measuring Device (m) 38.65	Time at start of Test 15:30:00	
Atmospheric Correction to Measuring Device (m of water) 0.00	Duration of Test (min) 2.6	
Pump Used		
GP 200M General Purpose Pump	Total Water Consumption (l) 416	
Weather during Test Dry and Sunny		
Test Carried Out By J Rix		
Checked By		
<u>Description of Test Section</u>		
Chalk		

Remarks / Observations during Test

Test aborted due to being unable to reach 1st period pressure of 0.50 Bar

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71901

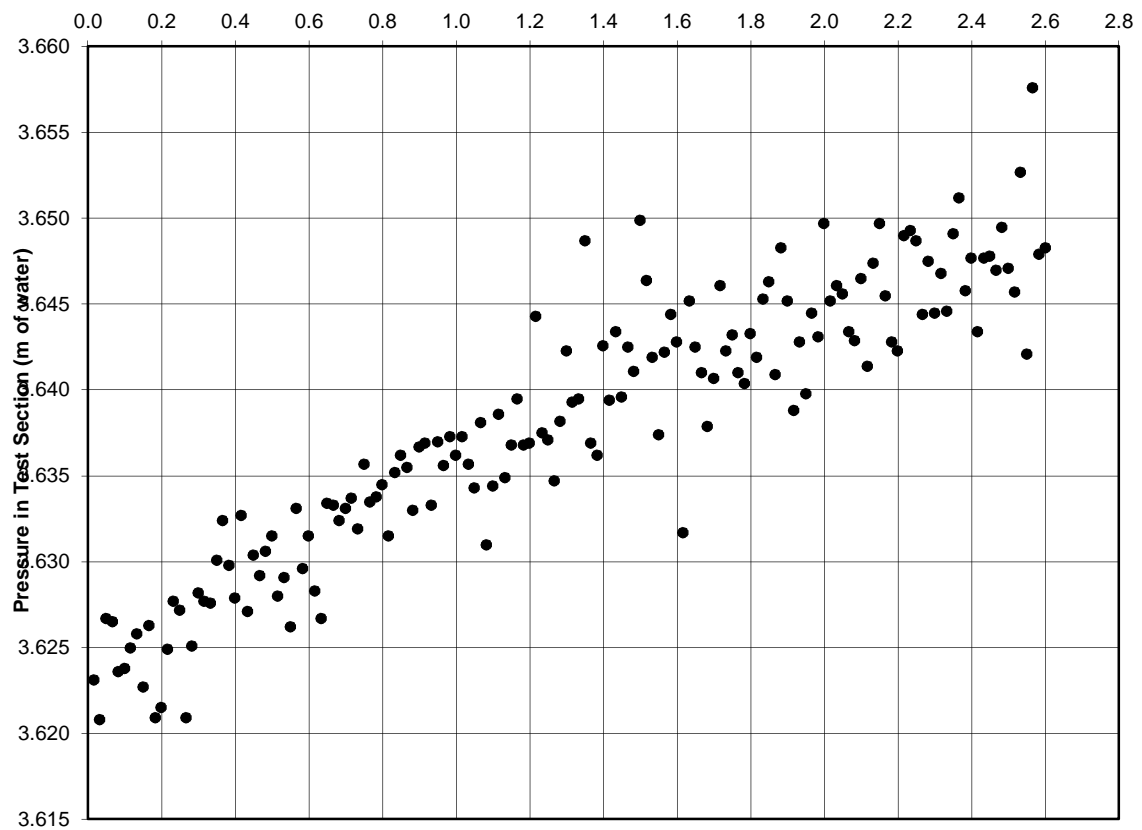
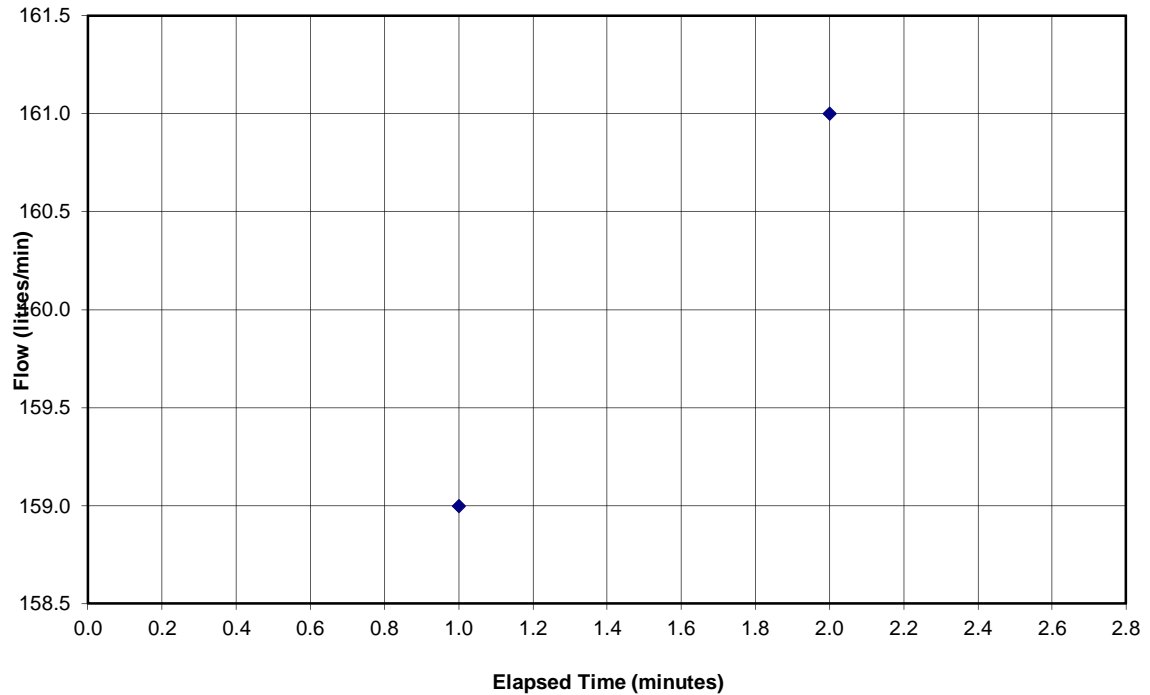
Project No PC197510

Test No 3

Client Highways England

Date 24th June 2019

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012



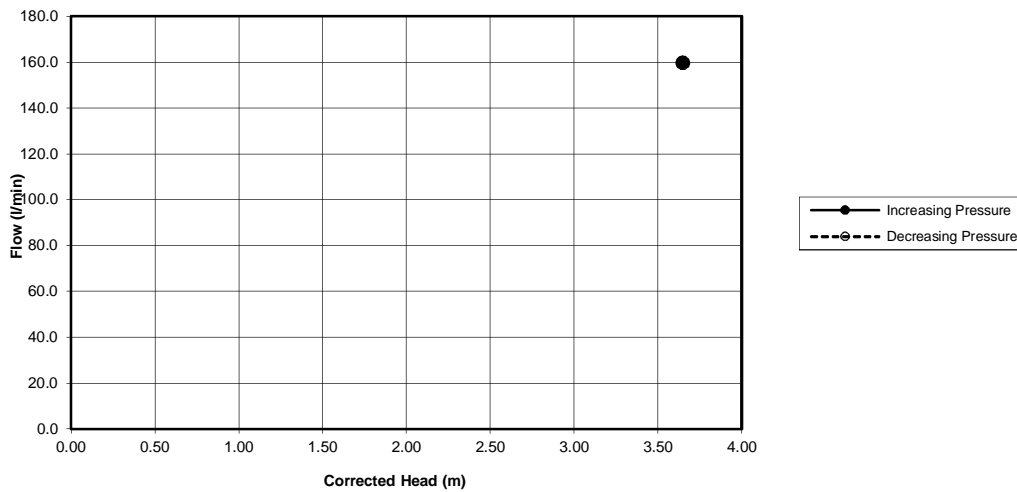
INSITU TESTING - Permeability (Borehole)

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI Borehole R71901
 Project No PCI97510
 Test No 3
 Date 24th June 2019

Client Highways England

Water Pressure Test in a Borehole in accordance with BS EN ISO 22282-3:2012 Evaluation of Test Results

Pressure Increment	Pressure					Flow			
	Elapsed Time (min)	Duration (min)	Average Head over Increment (m of water)	Atmospheric Pressure Correction (m of water)	Corrected Head (m of water)	Elapsed Time (min)	Duration (min)	Volume Injected (litres)	Average Flow over Increment (l/min)
1	1.0	2.0	3.65	0.00	3.65	1.0	2.0	159.0	160.0
	2.0					161.0			
2									
3									
4									
5									



Pressure Increment	Corrected Head, H (m of water)	Flow, Q (m³/s)	Lugeon Value	Permeability, k = $(Q/2\pi LH) \cdot \ln(2L/D)$ (m/s)
1	3.65	0.003	2797.5	2.27E-04
2				
3				
4				
5				

Remarks / Observations during Test

Permeability relationship from BS5930:1999+A2:2010

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Test Results

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71001

Project No PC197510

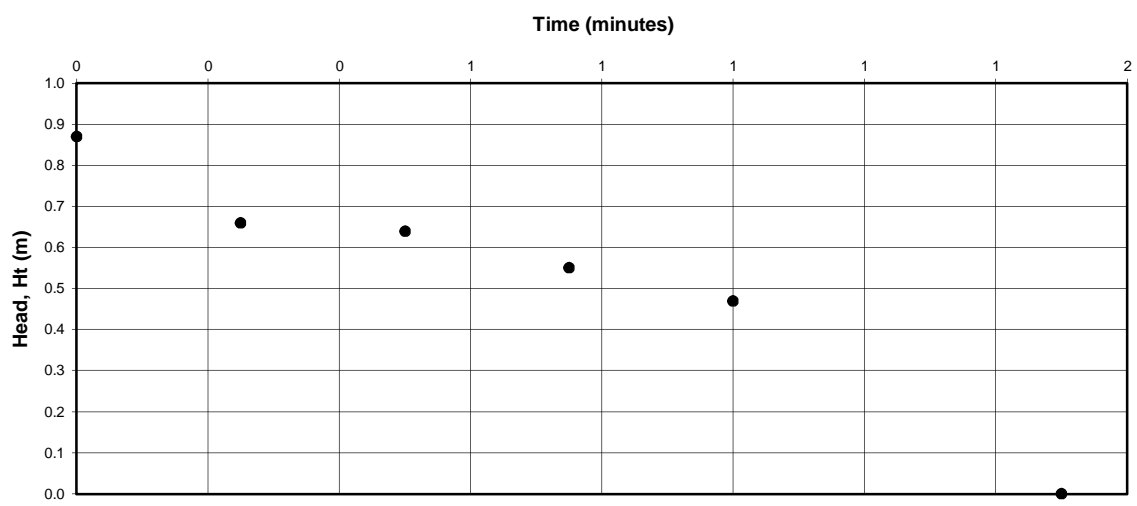
Test No 1

Client AECOM

Date 11th July 2019

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	20.99	20.99	0.87	0.00					
0.3	21.20	21.20	0.66	0.21					
0.5	21.22	21.22	0.64	0.02					
0.8	21.31	21.31	0.55	0.09					
1.0	21.39	21.39	0.47	0.08					
1.5	21.86	21.86	0.00						



Remarks and Additional Information

Depth to standing water measured prior to testing following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 1 - Test Details and Measured Values

Project A303

Borehole R71902
Project No PCI97510

Client AECOM

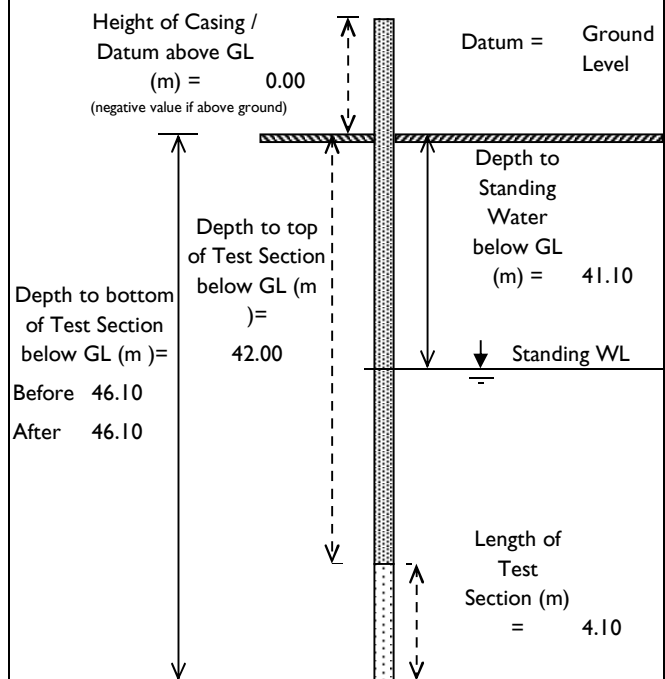
Test No 1
Date 25th June 2019

Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:201

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411422.9 N 141797.2
Level (m OD)	107.87

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Test Measurements			
Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	20.18		
0.3	24.01		
0.5	25.50		
0.8	25.90		
1.0	26.21		
1.5	28.49		
2.0	30.47		
2.5	32.08		
3.0	33.55		
3.5	34.76		
4.0	35.93		
4.5	36.96		
5.0	37.68		
6.0	38.67		
7.0	39.25		
8.0	39.60		
9.0	39.74		
10.0	39.82		
15.0	40.00		
18.0	40.11		



Depth to Standing Water Level below Datum	41.10 m
Depth to Induced Water Level below Datum	20.18 m
Differential head at start of Test (H_o)	20.92 m
Differential Head at end of Test (H_t)	0.99 m
Time Elapsed at end of test (t_t)	18.0 mins

Weather during Test	Warm, overcast
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Project A303

Borehole R71902

Project No PC197510

Client AECOM

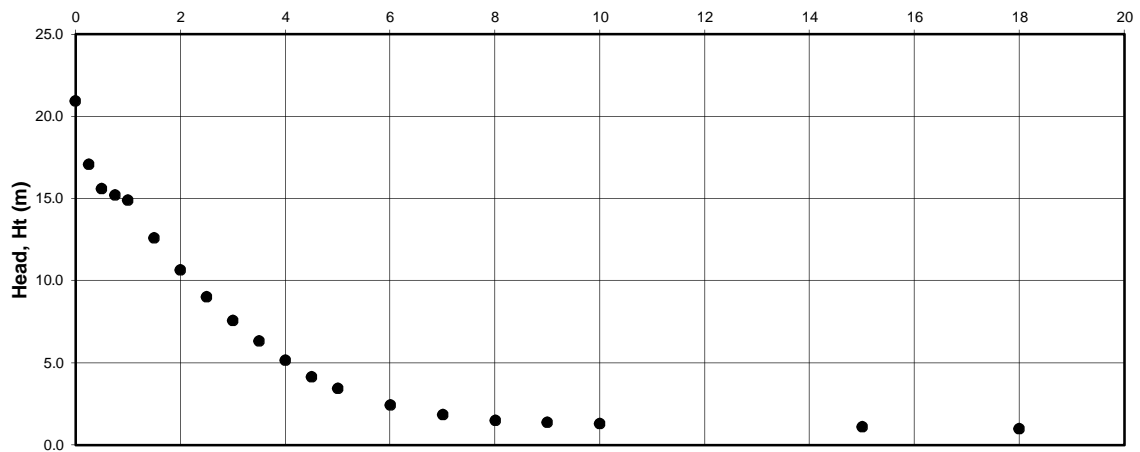
Test No 1

Date 25th June 2019

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	20.18	20.18	20.92	0.00					
0.3	24.01	24.01	17.09	3.83					
0.5	25.50	25.50	15.60	1.49					
0.8	25.90	25.90	15.20	0.40					
1.0	26.21	26.21	14.89	0.31					
1.5	28.49	28.49	12.61	2.28					
2.0	30.47	30.47	10.63	1.98					
2.5	32.08	32.08	9.02	1.61					
3.0	33.55	33.55	7.55	1.47					
3.5	34.76	34.76	6.34	1.21					
4.0	35.93	35.93	5.17	1.17					
4.5	36.96	36.96	4.14	1.03					
5.0	37.68	37.68	3.42	0.72					
6.0	38.67	38.67	2.43	0.99					
7.0	39.25	39.25	1.85	0.58					
8.0	39.60	39.60	1.50	0.35					
9.0	39.74	39.74	1.36	0.14					
10.0	39.82	39.82	1.28	0.08					
15.0	40.00	40.00	1.10	0.18					
18.0	40.11	40.11	0.99	0.11					

Time (minutes)



Remarks and Additional Information

Depth to standing water measured prior to testing following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 1 - Test Details and Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71902

Project No PC197510

Test No 2

Client AECOM

Date 25th June 2019

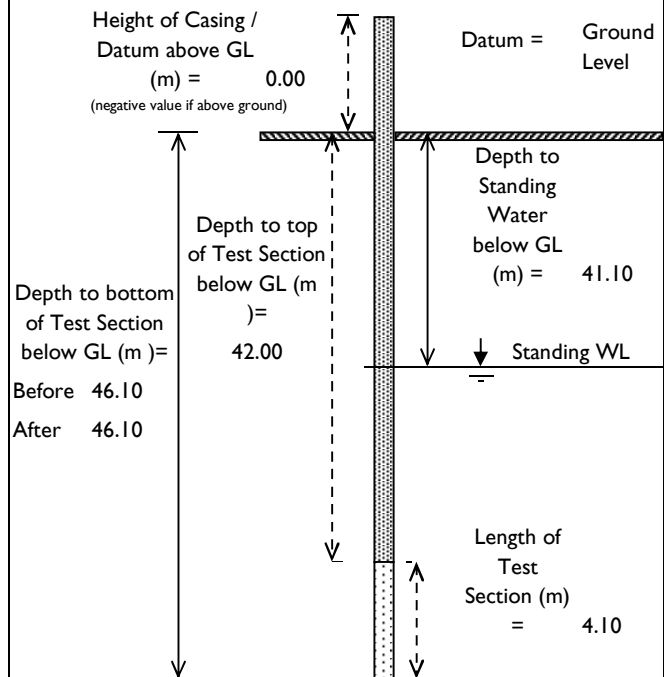
Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:201

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411422.9 N 141797.2
Level (m OD)	107.87

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Test Measurements

Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	6.69		
0.3	15.33		
0.5	23.01		
0.8	24.86		
1.0	25.27		
1.5	26.84		
2.0	29.04		
2.5	31.00		
3.0	32.58		
3.5	34.05		
4.0	35.30		
4.5	36.35		
5.0	37.22		
6.0	38.45		
7.0	39.04		
8.0	39.39		
9.0	39.53		
10.0	39.62		
13.5	39.76		



Depth to Standing Water Level below Datum	41.10 m
Depth to Induced Water Level below Datum	6.69 m
Differential head at start of Test (H_0)	34.41 m
Differential Head at end of Test (H_t)	1.34 m
Time Elapsed at end of test (t_r)	18.0 mins

Weather during Test	Warm, overcast
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71902

Project No PC197510

Test No 2

Date 25th June 2019

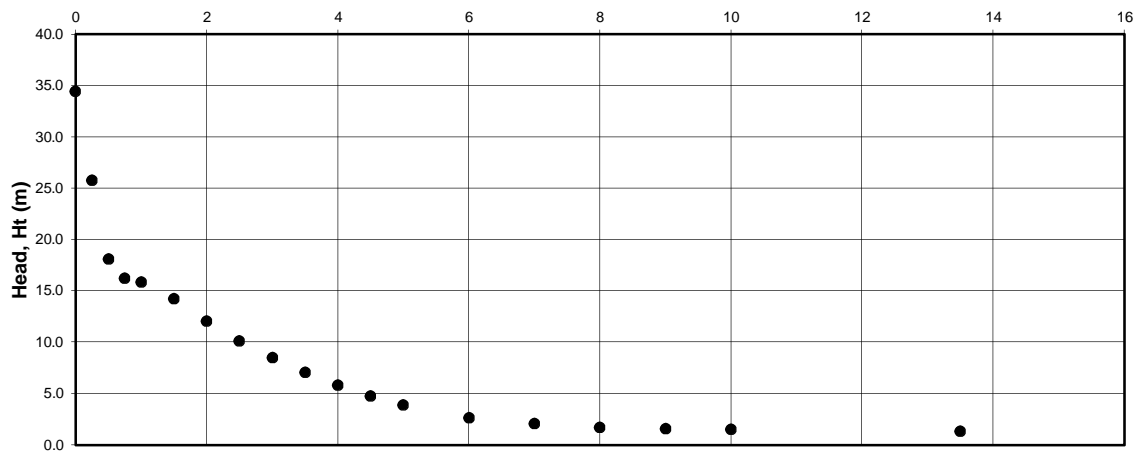
Client AECOM

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	6.69	6.69	34.41	0.00
0.3	15.33	15.33	25.77	8.64
0.5	23.01	23.01	18.09	7.68
0.8	24.86	24.86	16.24	1.85
1.0	25.27	25.27	15.83	0.41
1.5	26.84	26.84	14.26	1.57
2.0	29.04	29.04	12.06	2.20
2.5	31.00	31.00	10.10	1.96
3.0	32.58	32.58	8.52	1.58
3.5	34.05	34.05	7.05	1.47
4.0	35.30	35.30	5.80	1.25
4.5	36.35	36.35	4.75	1.05
5.0	37.22	37.22	3.88	0.87
6.0	38.45	38.45	2.65	1.23
7.0	39.04	39.04	2.06	0.59
8.0	39.39	39.39	1.71	0.35
9.0	39.53	39.53	1.57	0.14
10.0	39.62	39.62	1.48	0.09
13.5	39.76	39.76	1.34	0.14

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)

Time (minutes)



Remarks and Additional Information

Depth to standing water measured prior to undertaking Test 1 following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 1 - Test Details and Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71902

Project No PC197510

Test No 3

Client Highways England

Date 25th June 2019

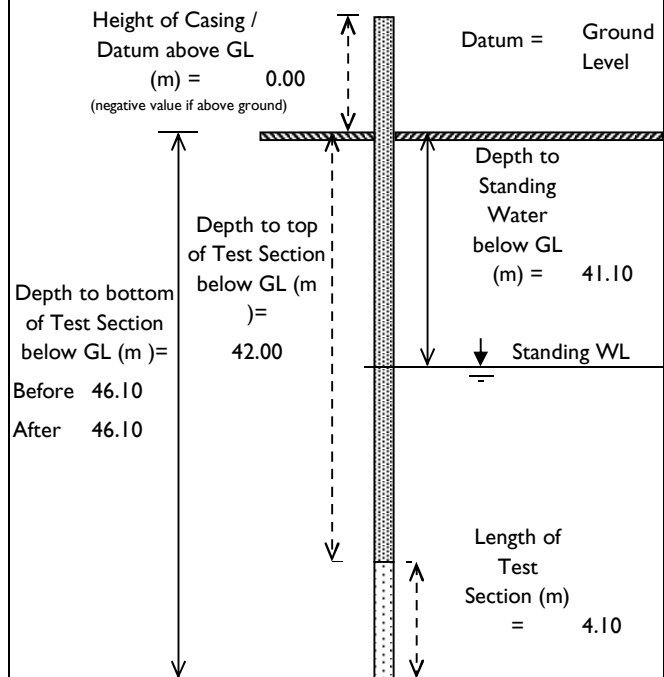
Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:201

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411422.9 N 141797.2
Level (m OD)	107.87

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Test Measurements

Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	19.03		
0.3	20.45		
0.5	21.59		
0.8	22.16		
1.0	22.42		
1.5	22.88		
2.0	25.72		
2.5	26.78		
3.0	28.88		
3.5	30.78		
4.0	32.36		
4.5	33.79		
5.0	35.03		
6.0	36.98		
7.0	38.27		
8.0	38.93		
9.0	39.29		
10.0	39.47		
12.0	39.59		



Depth to Standing Water Level below Datum	41.10 m
Depth to Induced Water Level below Datum	19.03 m
Differential head at start of Test (H_0)	22.07 m
Differential Head at end of Test (H_t)	1.51 m
Time Elapsed at end of test (t_t)	12.0 mins

Weather during Test	Warm, overcast
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Test Results

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71902

Project No PC197510

Test No 3

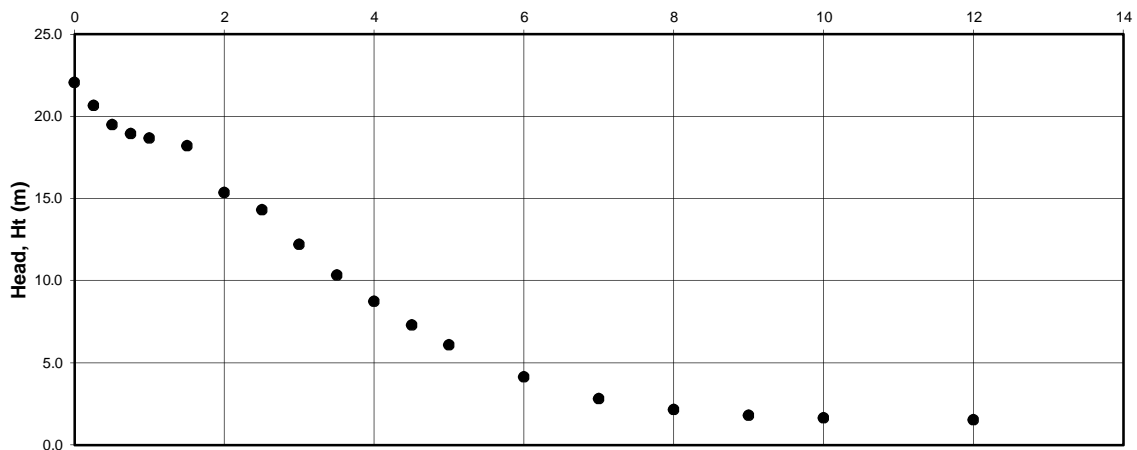
Client Highways England

Date 25th June 2019

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	19.03	19.03	22.07	0.00					
0.3	20.45	20.45	20.65	1.42					
0.5	21.59	21.59	19.51	1.14					
0.8	22.16	22.16	18.94	0.57					
1.0	22.42	22.42	18.68	0.26					
1.5	22.88	22.88	18.22	0.46					
2.0	25.72	25.72	15.38	2.84					
2.5	26.78	26.78	14.32	1.06					
3.0	28.88	28.88	12.22	2.10					
3.5	30.78	30.78	10.32	1.90					
4.0	32.36	32.36	8.74	1.58					
4.5	33.79	33.79	7.31	1.43					
5.0	35.03	35.03	6.07	1.24					
6.0	36.98	36.98	4.12	1.95					
7.0	38.27	38.27	2.83	1.29					
8.0	38.93	38.93	2.17	0.66					
9.0	39.29	39.29	1.81	0.36					
10.0	39.47	39.47	1.63	0.18					
12.0	39.59	39.59	1.51	0.12					

Time (minutes)



Remarks and Additional Information

Depth to standing water measured prior to undertaking Test 1 following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71902

Project No PC197510

Test No 4

Client Highway England

Date 25th June 2019

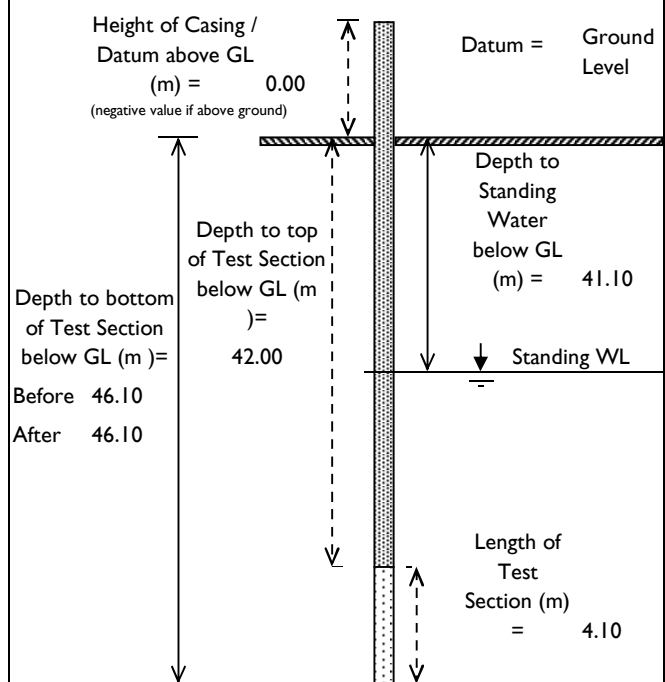
Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:201

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411422.9 N 141797.2
Level (m OD)	107.87

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Test Measurements

Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	3.01		
0.3	10.32		
0.5	19.38		
0.8	23.91		
1.0	24.63		
1.5	25.58		
2.0	27.92		
2.5	29.99		
3.0	31.73		
3.5	33.31		
4.0	34.68		
4.5	35.83		
5.0	36.80		
6.0	37.93		
7.0	38.39		
8.0	38.74		
9.0	38.99		
10.0	39.17		
10.8	39.27		



Depth to Standing Water Level below Datum	41.10 m
Depth to Induced Water Level below Datum	3.01 m
Differential head at start of Test (H_0)	38.09 m
Differential Head at end of Test (H_t)	1.83 m
Time Elapsed at end of test (t_t)	12.0 mins

Weather during Test	Warm, overcast
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

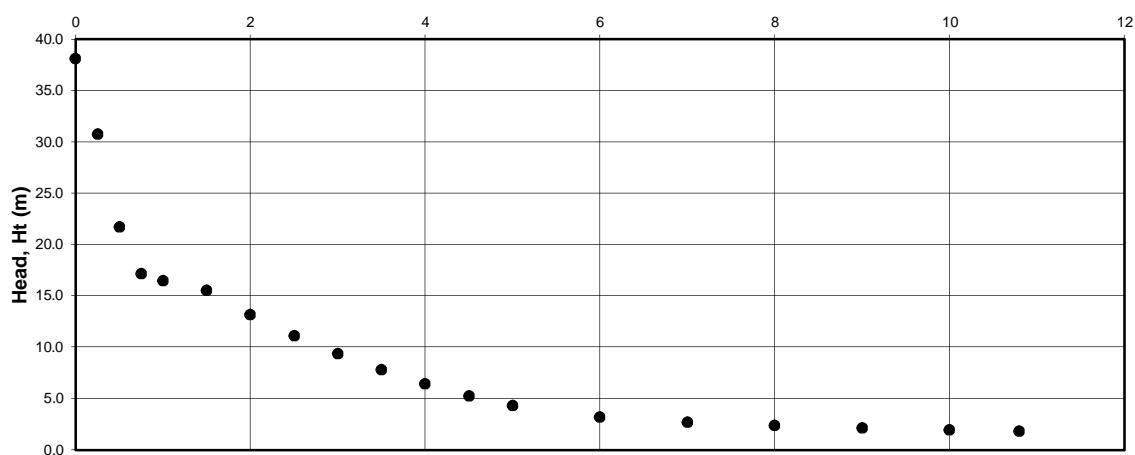
Borehole R71902
Project No PC197510
Test No 4
Date 25th June 2019

Client Highway England

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	3.01	3.01	38.09	0.00					
0.3	10.32	10.32	30.78	7.31					
0.5	19.38	19.38	21.72	9.06					
0.8	23.91	23.91	17.19	4.53					
1.0	24.63	24.63	16.47	0.72					
1.5	25.58	25.58	15.52	0.95					
2.0	27.92	27.92	13.18	2.34					
2.5	29.99	29.99	11.11	2.07					
3.0	31.73	31.73	9.37	1.74					
3.5	33.31	33.31	7.79	1.58					
4.0	34.68	34.68	6.42	1.37					
4.5	35.83	35.83	5.27	1.15					
5.0	36.80	36.80	4.30	0.97					
6.0	37.93	37.93	3.17	1.13					
7.0	38.39	38.39	2.71	0.46					
8.0	38.74	38.74	2.36	0.35					
9.0	38.99	38.99	2.11	0.25					
10.0	39.17	39.17	1.93	0.18					
10.8	39.27	39.27	1.83	0.10					

Time (minutes)



Remarks and Additional Information

Depth to standing water measured prior to undertaking Test 1 following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 1 - Test Details and Measured Values

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71903

Project No PC197510

Test No 1

Client Highways England

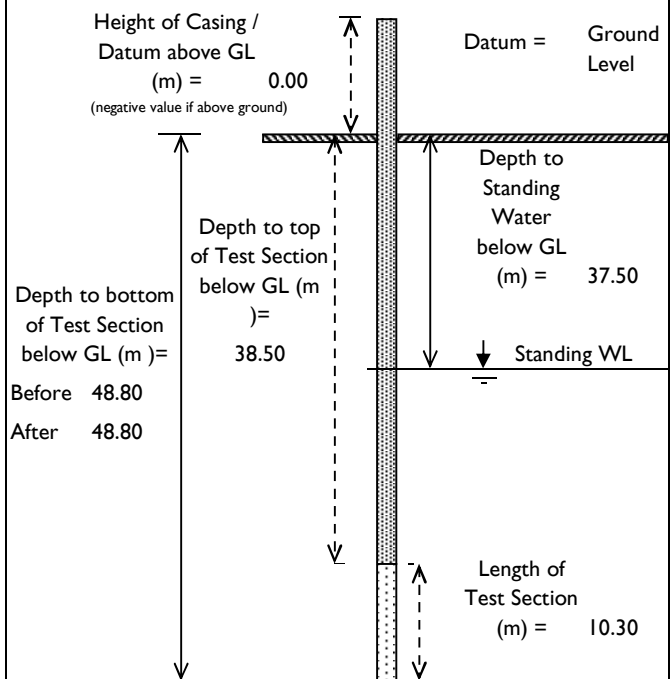
Date 2nd July 2019

Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:2012

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411650.6 N 141725.5
Level (m OD)	105.18

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Test Measurements			
Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	17.89		
0.3	18.28		
0.5	20.03		
0.8	25.72		
1.0	27.29		
1.5	27.70		
2.0	28.56		
2.5	29.38		
3.0	30.10		
3.5	30.70		
4.0	31.33		
4.5	31.88		
5.0	32.35		
6.0	33.29		
7.0	34.03		
8.0	34.65		
9.0	35.12		
10.0	35.50		
12.0	36.06		



Depth to Standing Water Level below Datum	37.50 m
Depth to Induced Water Level below Datum	17.89 m
Differential head at start of Test (H_o)	19.61 m
Differential Head at end of Test (H_f)	4.21 m
Time Elapsed at end of test (t_f)	12.0 mins

Weather during Test	Warm, sunny
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Test Results

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71903

Project No PC197510

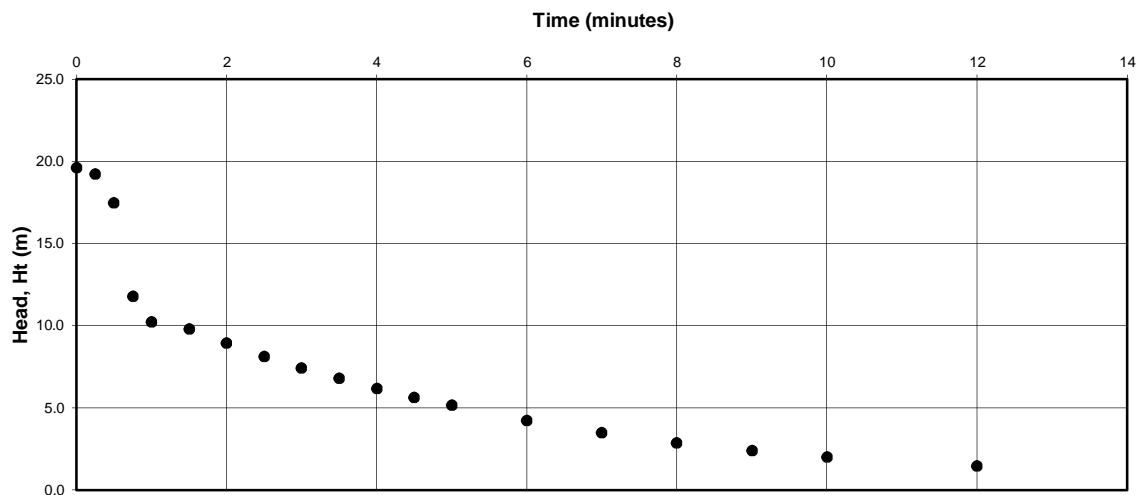
Test No 1

Client Highways England

Date 2nd July 2019

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	17.89	17.89	19.61	0.00					
0.3	18.28	18.28	19.22	0.39					
0.5	20.03	20.03	17.47	1.75					
0.8	25.72	25.72	11.78	5.69					
1.0	27.29	27.29	10.21	1.57					
1.5	27.70	27.70	9.80	0.41					
2.0	28.56	28.56	8.94	0.86					
2.5	29.38	29.38	8.12	0.82					
3.0	30.10	30.10	7.40	0.72					
3.5	30.70	30.70	6.80	0.60					
4.0	31.33	31.33	6.17	0.63					
4.5	31.88	31.88	5.62	0.55					
5.0	32.35	32.35	5.15	0.47					
6.0	33.29	33.29	4.21	0.94					
7.0	34.03	34.03	3.47	0.74					
8.0	34.65	34.65	2.85	0.62					
9.0	35.12	35.12	2.38	0.47					
10.0	35.50	35.50	2.00	0.38					
12.0	36.06	36.06	1.44	0.56					



Remarks and Additional Information

Depth to standing water measured prior to testing following a pause after drilling.

INSITU TESTING - Permeability (Borehole)

Project	A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI	Borehole	R71904
		Project No	PC197510
		Test No	1
Client	Highways England	Date	28th June 2019

Water Permeability Test in a Borehole using Open Systems in accordance with BS EN ISO 22282-2:2012

Borehole Details	
Inclination	Vertical
Method of Drilling	Rotary Coring
Co-ordinates (m)	E 411774.9 N 141875.0
Level (m OD)	106.09

Test Measurements			
Elapsed Time (minutes)	Depth of Water below Ground Level (m)	Elapsed Time (Continued) (minutes)	Depth of Water below Ground Level (continued) (m)
0.0	19.75		
0.3	20.25		
0.5	20.76		
0.8	23.81		
1.0	26.23		
1.5	29.41		
2.0	31.82		
2.5	33.74		
3.0	35.32		
3.5	36.52		
4.0	37.37		
4.5	37.93		
5.0	38.25		
5.3	38.36		

Test Details	
Test Type	Variable Head - Falling
Hydrogeological Conditions	Test Section Saturated
Type of Filter	None
Isolation Device	None
Test Section Dia. (m)	0.14
Measuring Tube Dia. (m)	0.14

Height of Casing / Datum above GL (m) = 0.00 (negative value if above ground)
 Datum = Ground Level
 Depth to top of Test Section below GL (m) = 39.90
 Depth to bottom of Test Section below GL (m) = 50.00
 Before 50.00
 After 50.00
 Depth to Standing Water below GL (m) = 38.90
 Standing WL
 Length of Test Section (m) = 10.10

Depth to Standing Water Level below Datum	38.90 m
Depth to Induced Water Level below Datum	19.75 m
Differential head at start of Test (H_0)	19.15 m
Differential Head at end of Test (H_f)	0.54 m
Time Elapsed at end of test (t_f)	5.3 mins
Weather during Test	Warm, sunny
Test Carried Out By	J Rix
Test Checked By	C Lange
Description of Test Section	Chalk

INSITU TESTING - Permeability (Borehole)

Form INS005 Rev 6
Sheet 2 - Test Results

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A GI

Borehole R71904

Project No PC197510

Test No 1

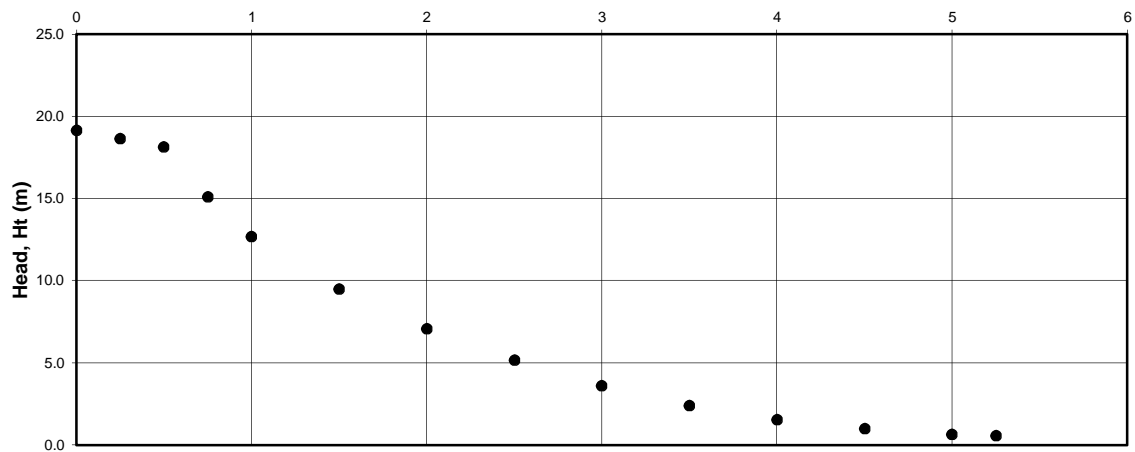
Client Highways England

Date 28th June 2019

Test Results

Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)	Time (mins)	Measured Depth (m)	Relative Depth (m bgl)	Ht (m)	ΔH (m)
0.0	19.75	19.75	19.15	0.00					
0.3	20.25	20.25	18.65	0.50					
0.5	20.76	20.76	18.14	0.51					
0.8	23.81	23.81	15.09	3.05					
1.0	26.23	26.23	12.67	2.42					
1.5	29.41	29.41	9.49	3.18					
2.0	31.82	31.82	7.08	2.41					
2.5	33.74	33.74	5.16	1.92					
3.0	35.32	35.32	3.58	1.58					
3.5	36.52	36.52	2.38	1.20					
4.0	37.37	37.37	1.53	0.85					
4.5	37.93	37.93	0.97	0.56					
5.0	38.25	38.25	0.65	0.32					
5.3	38.36	38.36	0.54	0.11					

Time (minutes)



Remarks and Additional Information

Depth to standing water measured prior to testing following a pause after drilling.

APPENDIX 10

European Geophysical Services Ltd Logs



EUROPEAN GEOPHYSICAL SERVICES LTD

Client: **Geotechnics**

Log Type:

Borehole: **R71901**

Composite Field

Location: **Stonehenge**

Area: **Amesbury**

Grid Ref:

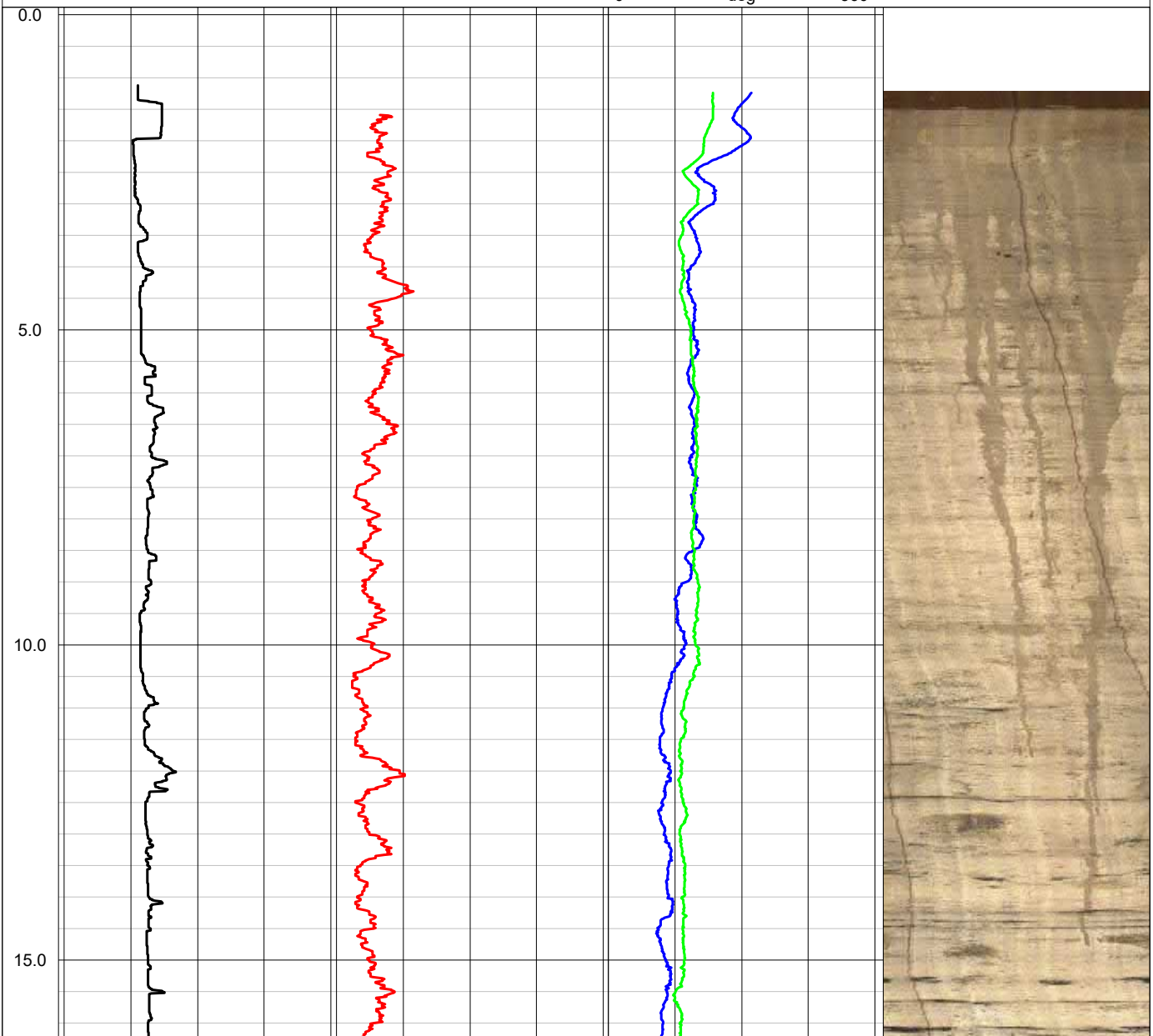
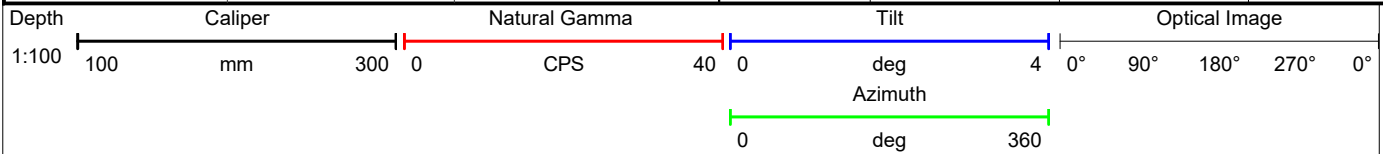
Elevation:

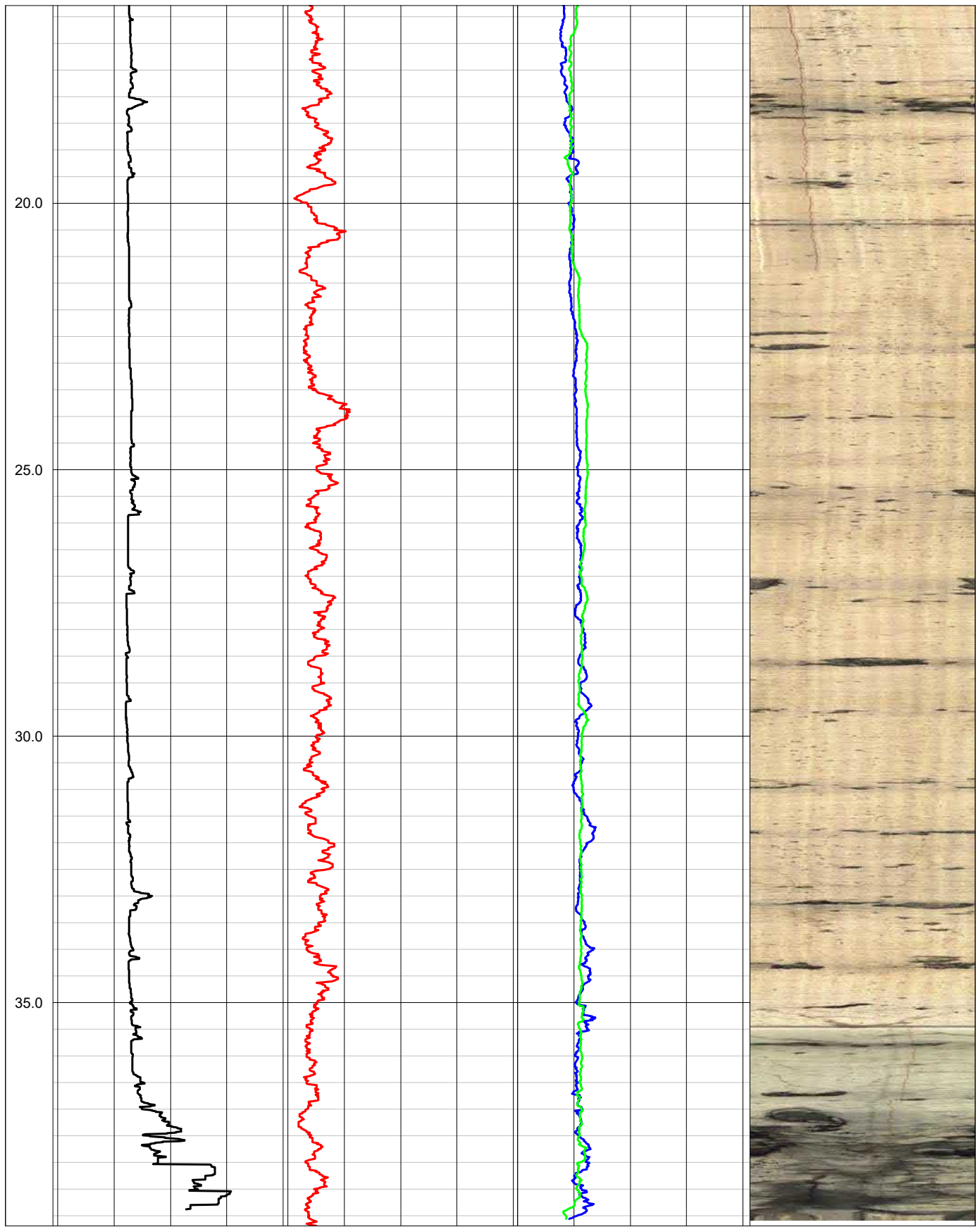
Drilled Depth: (m)	40.0	Date:	27.06.2019
Logged Depth: (m)	39.2	Recorded By:	M. Kynaston
Logging Datum:	Ground Level	Remarks: Insufficient fluid filled interval to run P&S Logger.	
Logged Interval: (m)	1.5 - 39.2		
Fluid Level: (m)	35.5		

BOREHOLE RECORD

CASING RECORD

Bit: (mm)	From: (m)	To: (m)	Type	Size: (mm)	From: (m)	To: (m)
150	1.5	40.0	PVC	150	0.0	1.5







EUROPEAN GEOPHYSICAL SERVICES LTD

Client: **Geotechnics**

Log Type:

Borehole: **R71901**

Image Field

Location: **Stonehenge**

Area: **Amesbury**

Grid Ref:

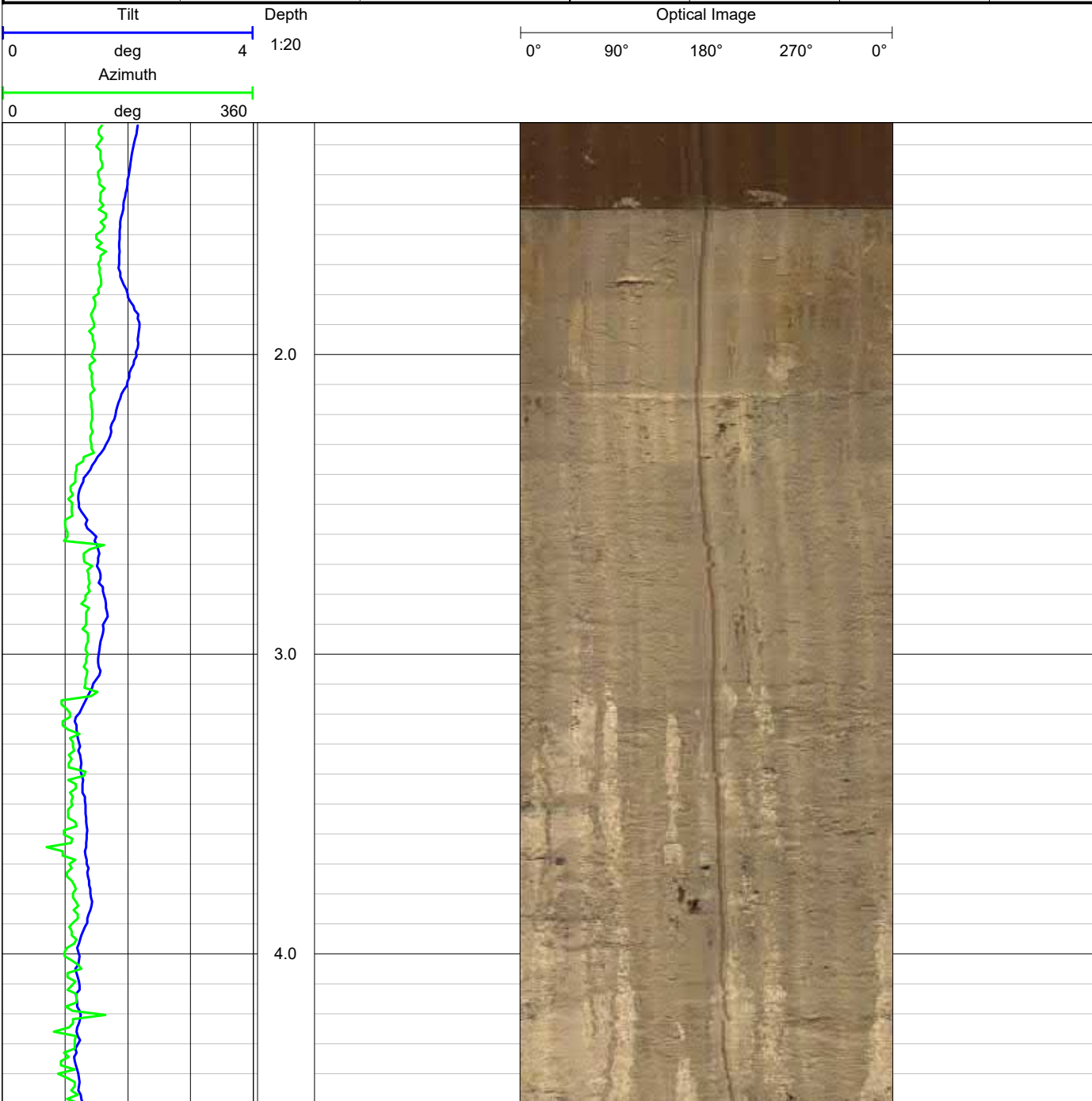
Elevation:

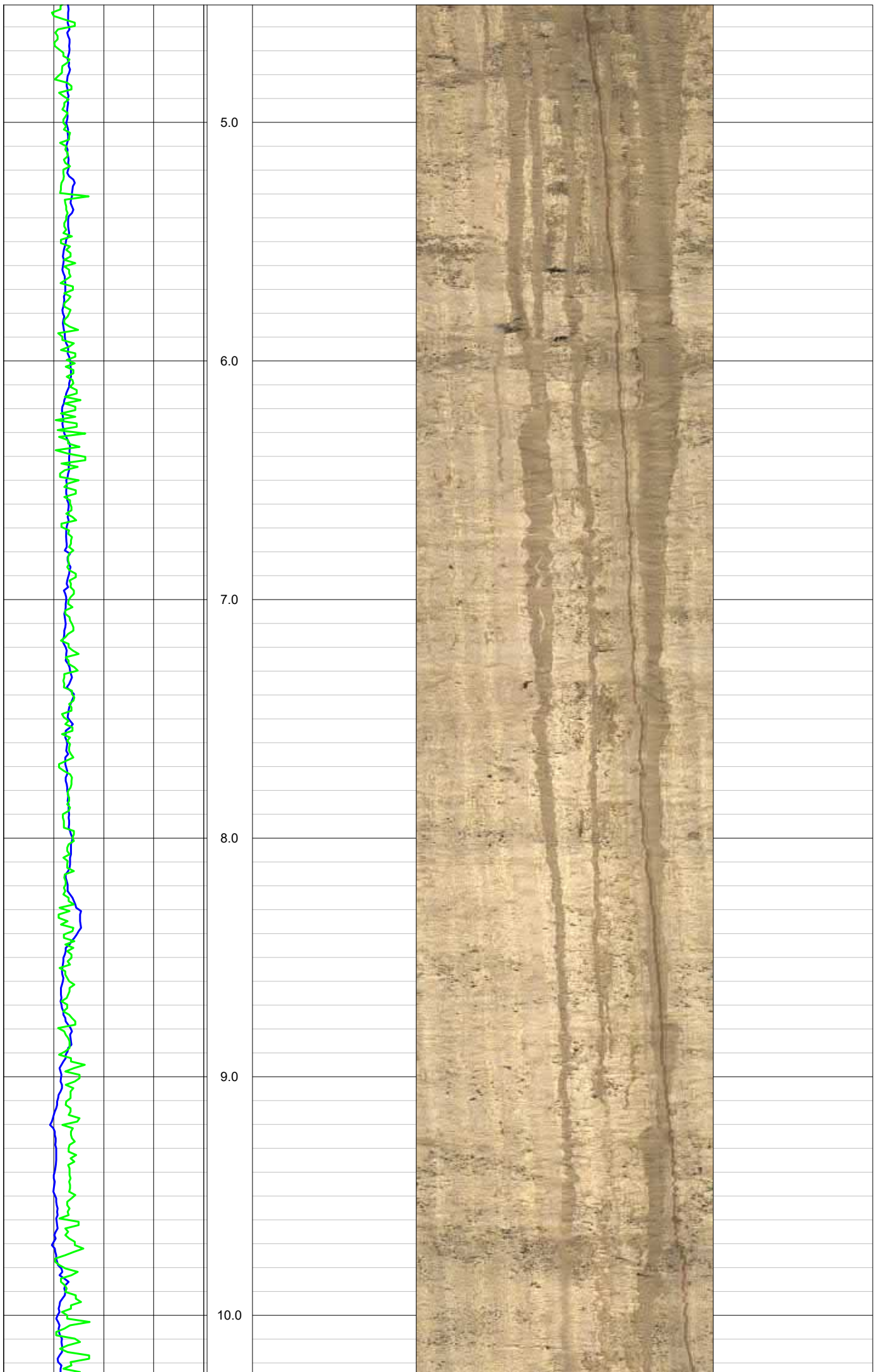
Drilled Depth: (m)	40.0	Date:	27.06.2019
Logged Depth: (m)	39.2	Recorded By:	M. Kynaston
Logging Datum:	Ground Level	Remarks:	
Logged Interval: (m)	1.5 - 39.2		
Fluid Level: (m)	35.5		

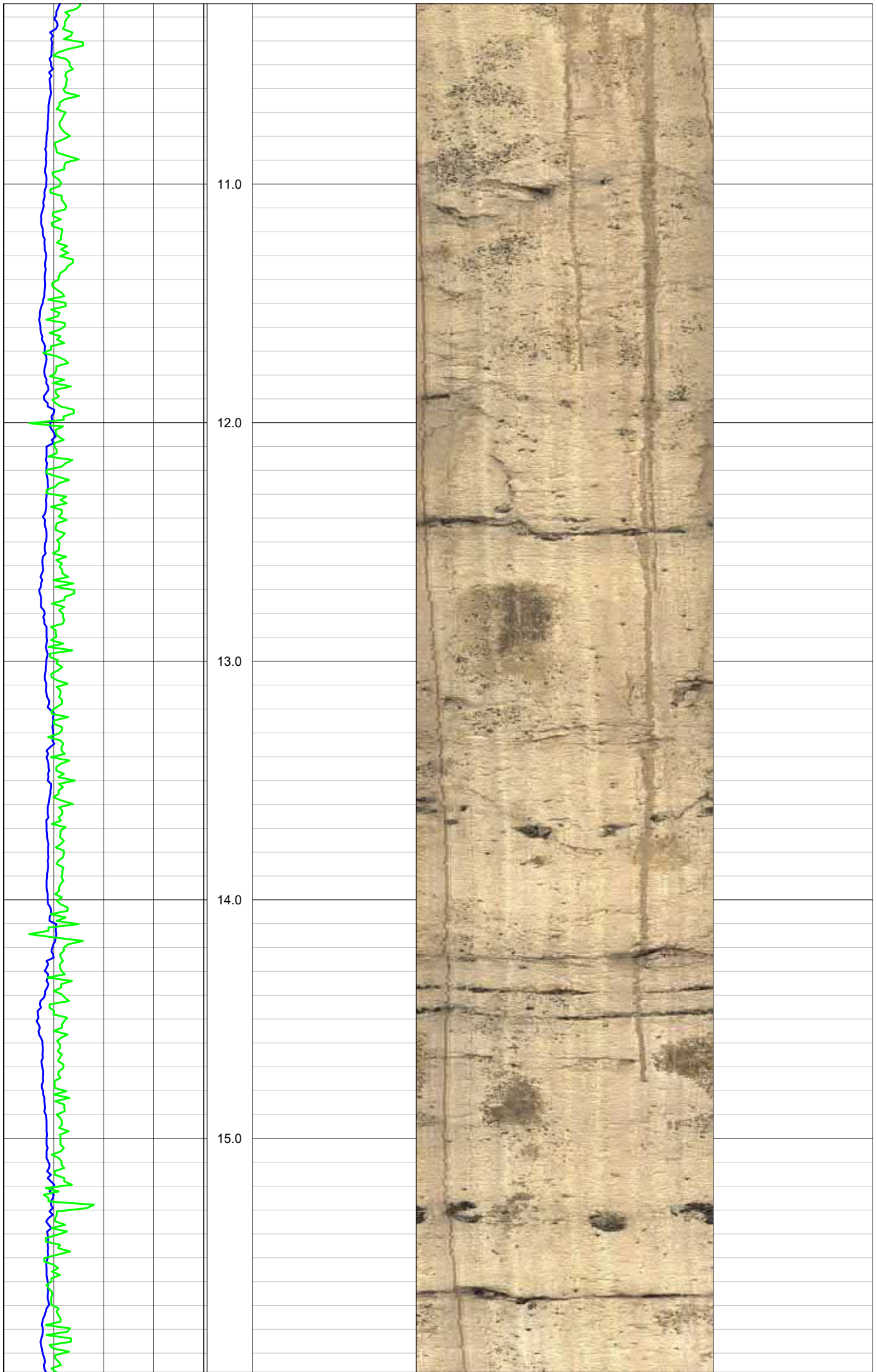
BOREHOLE RECORD

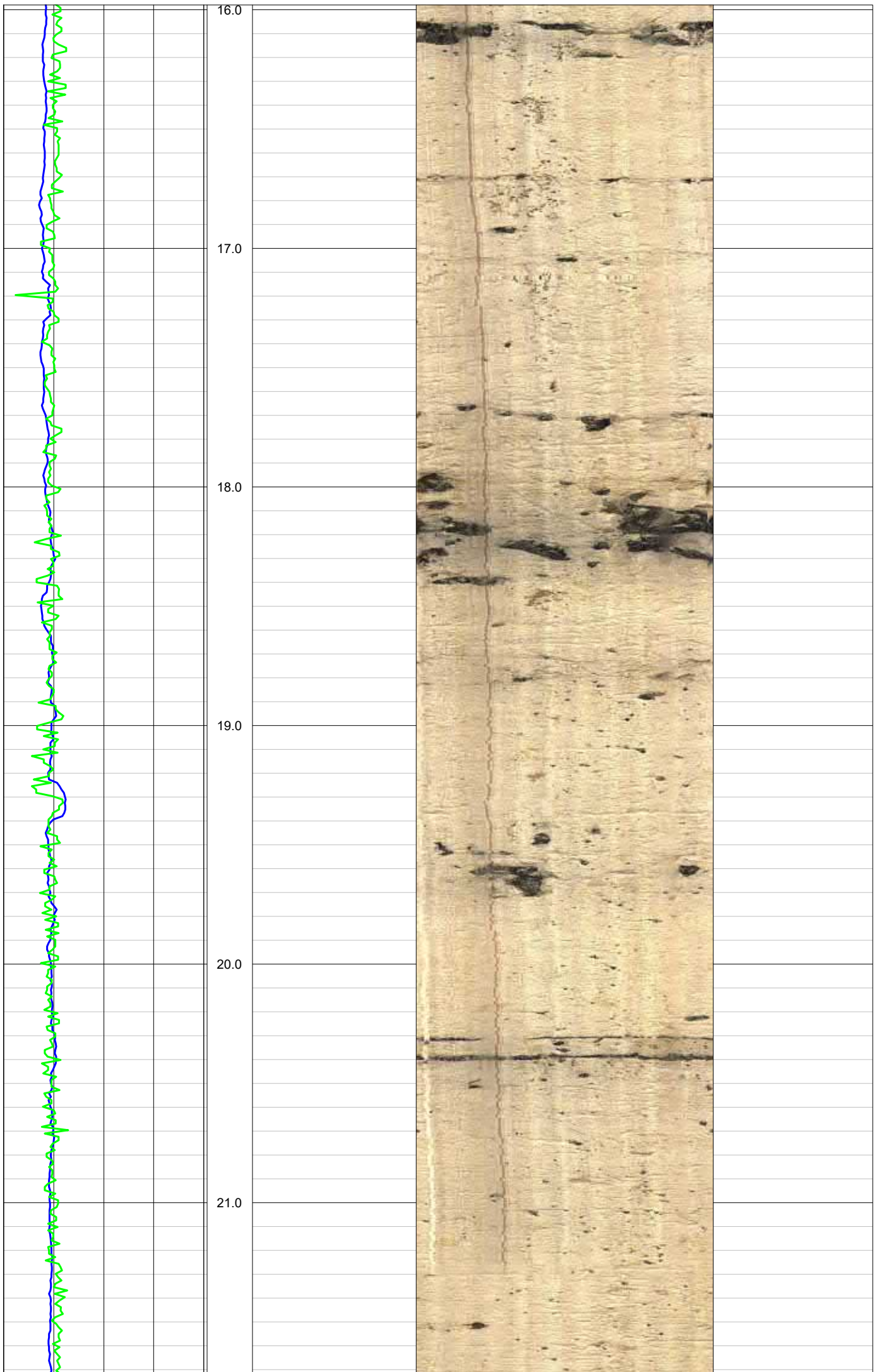
CASING RECORD

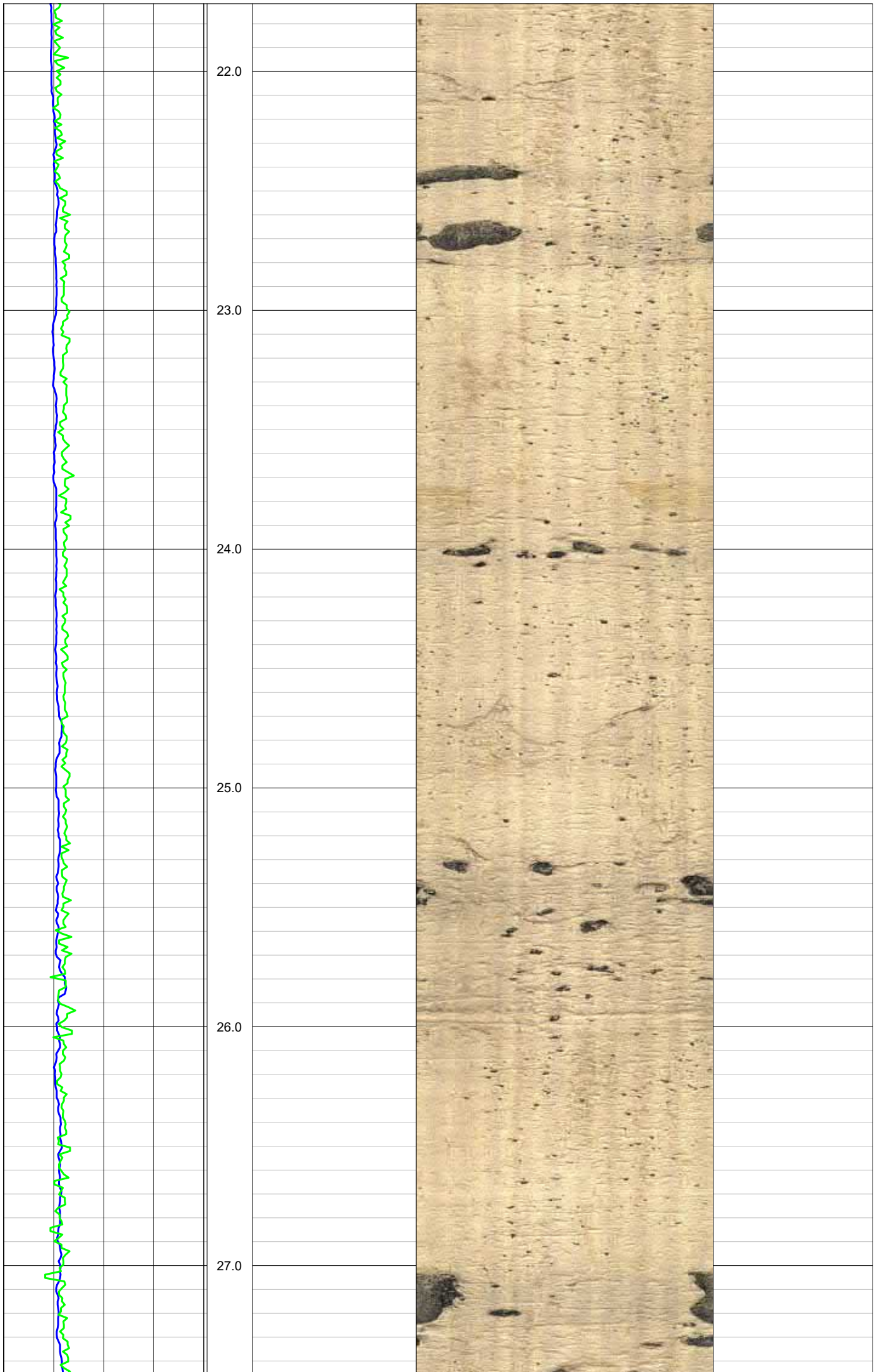
Bit: (mm)	From: (m)	To: (m)	Type	Size: (mm)	From: (m)	To: (m)
150	1.5	40.0	PVC	150	0.0	1.5

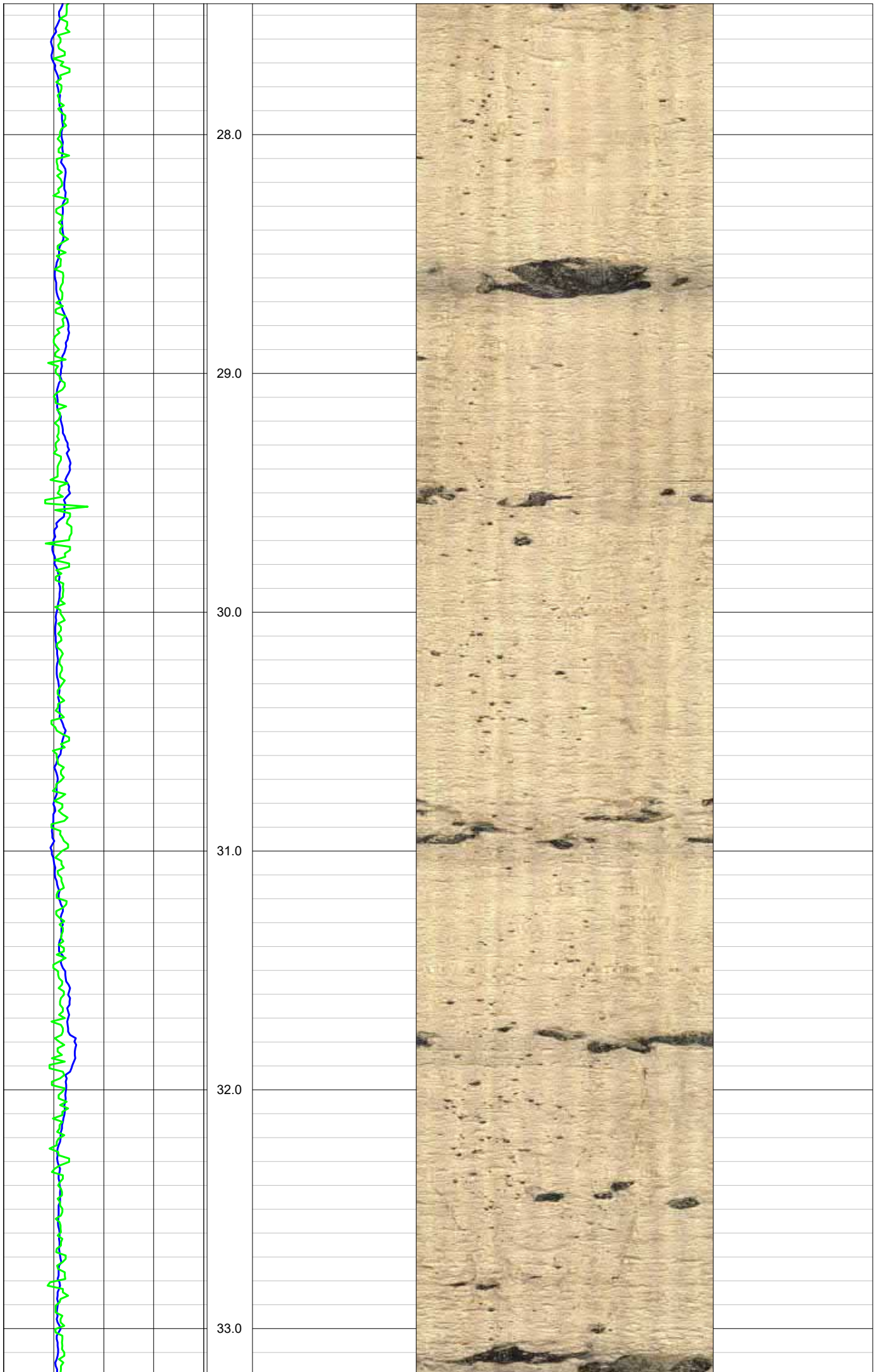


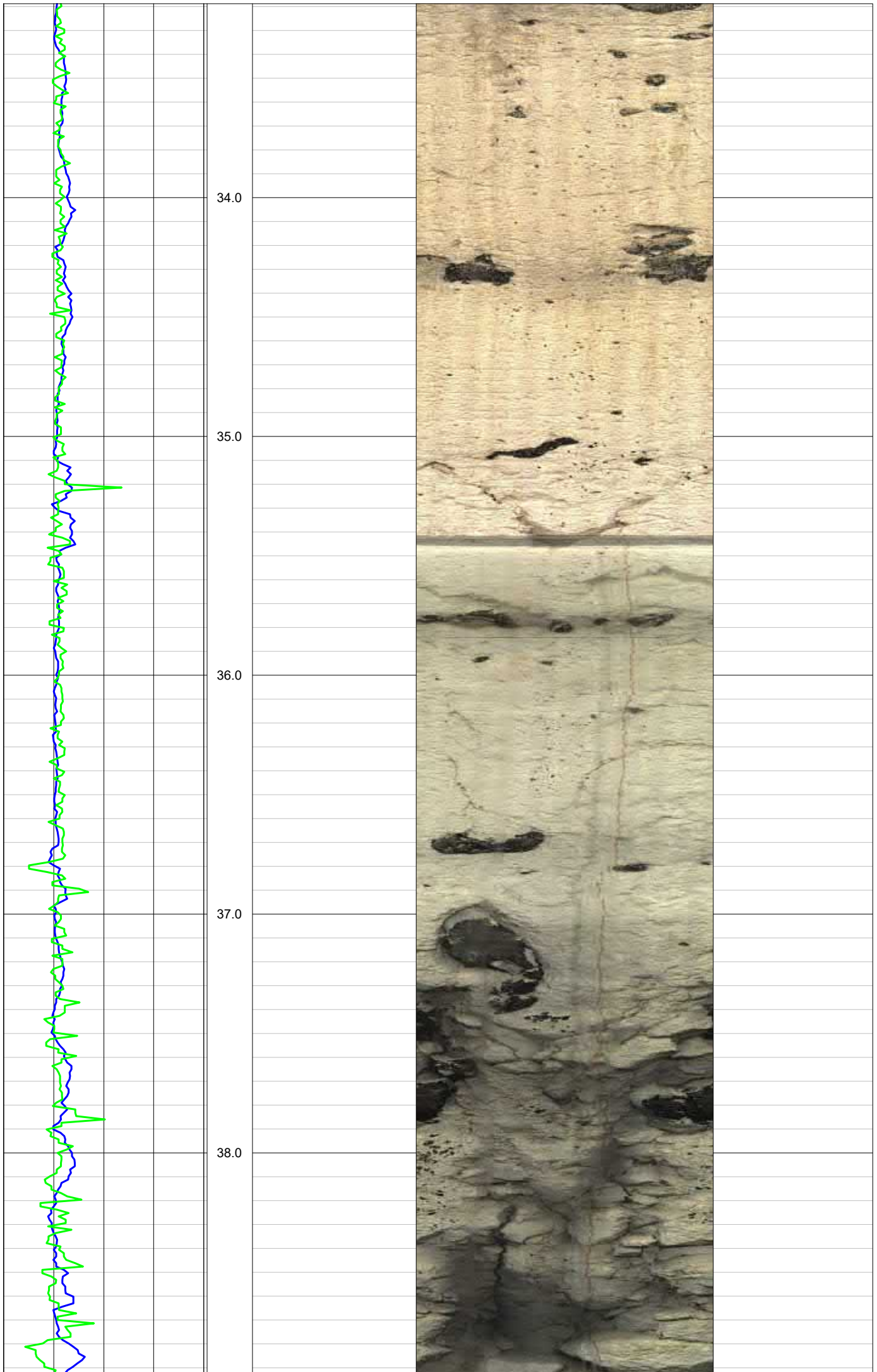












			39.0		
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EUROPEAN GEOPHYSICAL SERVICES LTD

Client: **Geotechnics**

Log Type:

Borehole: **R71903**

Composite Field

Location: **Stonehenge**

Area: **Amesbury**

Grid Ref:

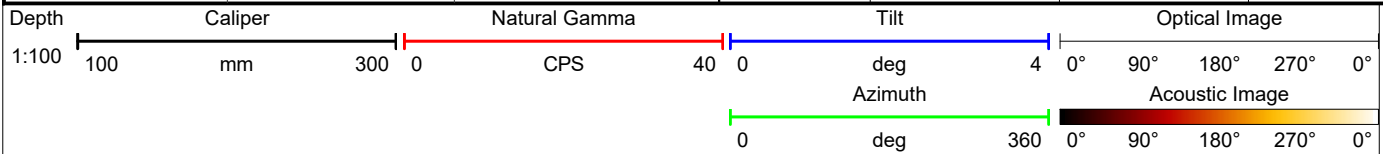
Elevation:

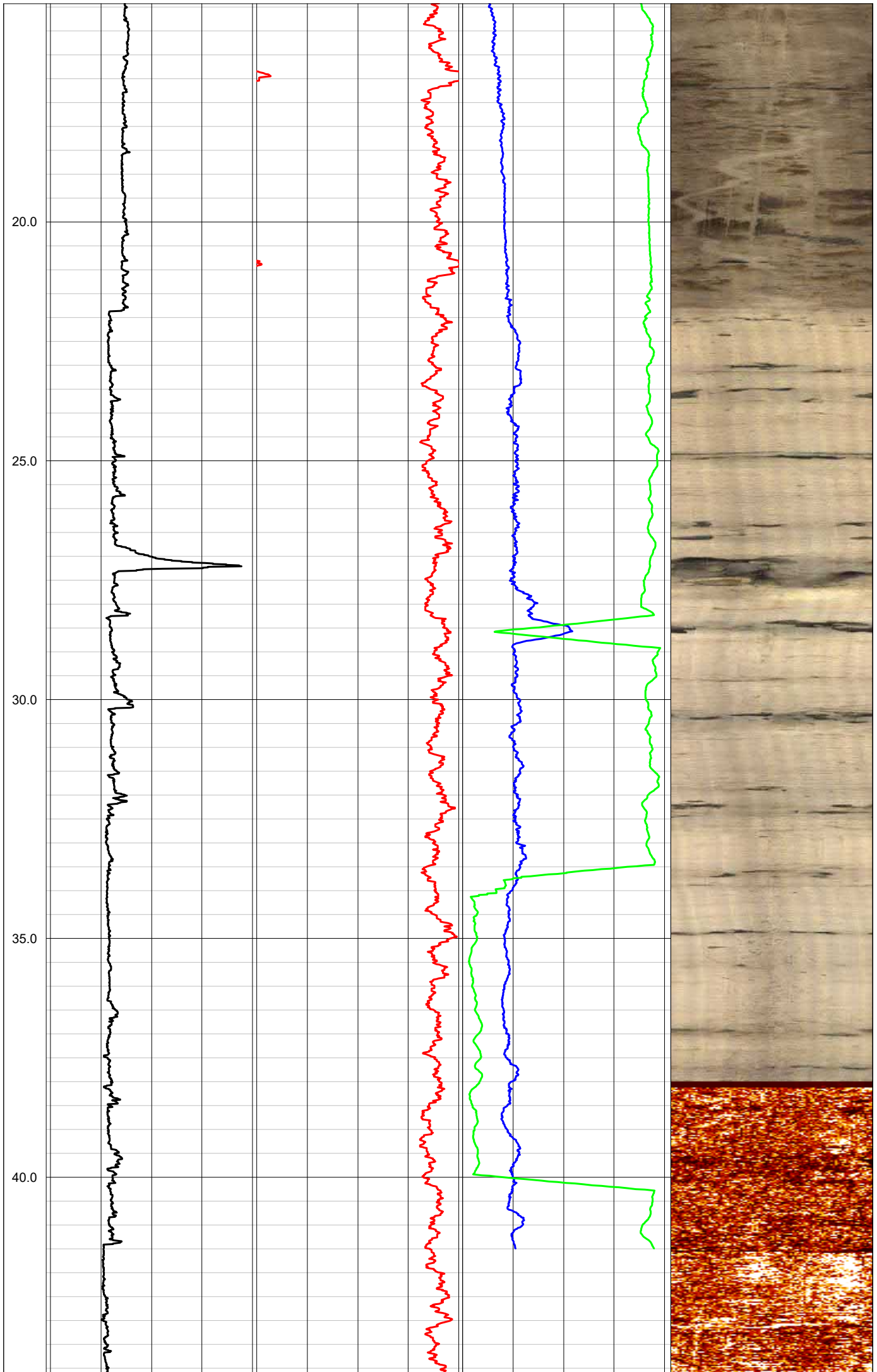
Drilled Depth: (m)	50.0	Date:	12.07.2019
Logged Depth: (m)	47.2	Recorded By:	M. Kynaston
Logging Datum:	Ground Level	Remarks:	
Logged Interval: (m)	0 - 47.2		
Fluid Level: (m)	38.1		

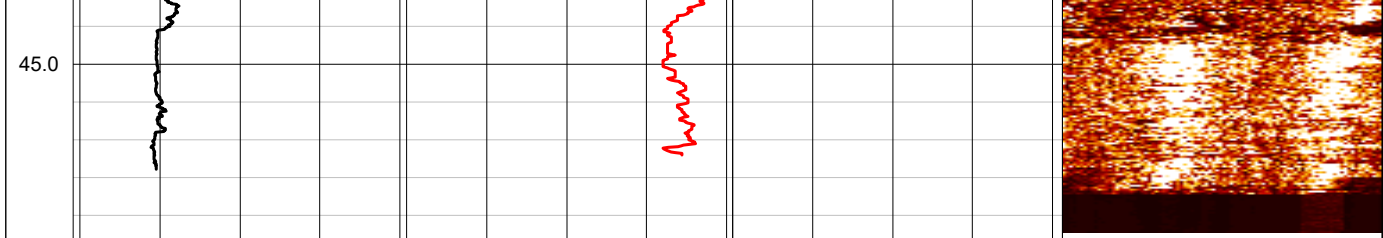
BOREHOLE RECORD

CASING RECORD

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150	1.5	50.0	PVC	150	0.0	1.5









EUROPEAN GEOPHYSICAL SERVICES LTD

Client: **Geotechnics**

Log Type:

Borehole: **R71903**

Image Field

Location: **Stonehenge**

Area: **Amesbury**

Grid Ref:

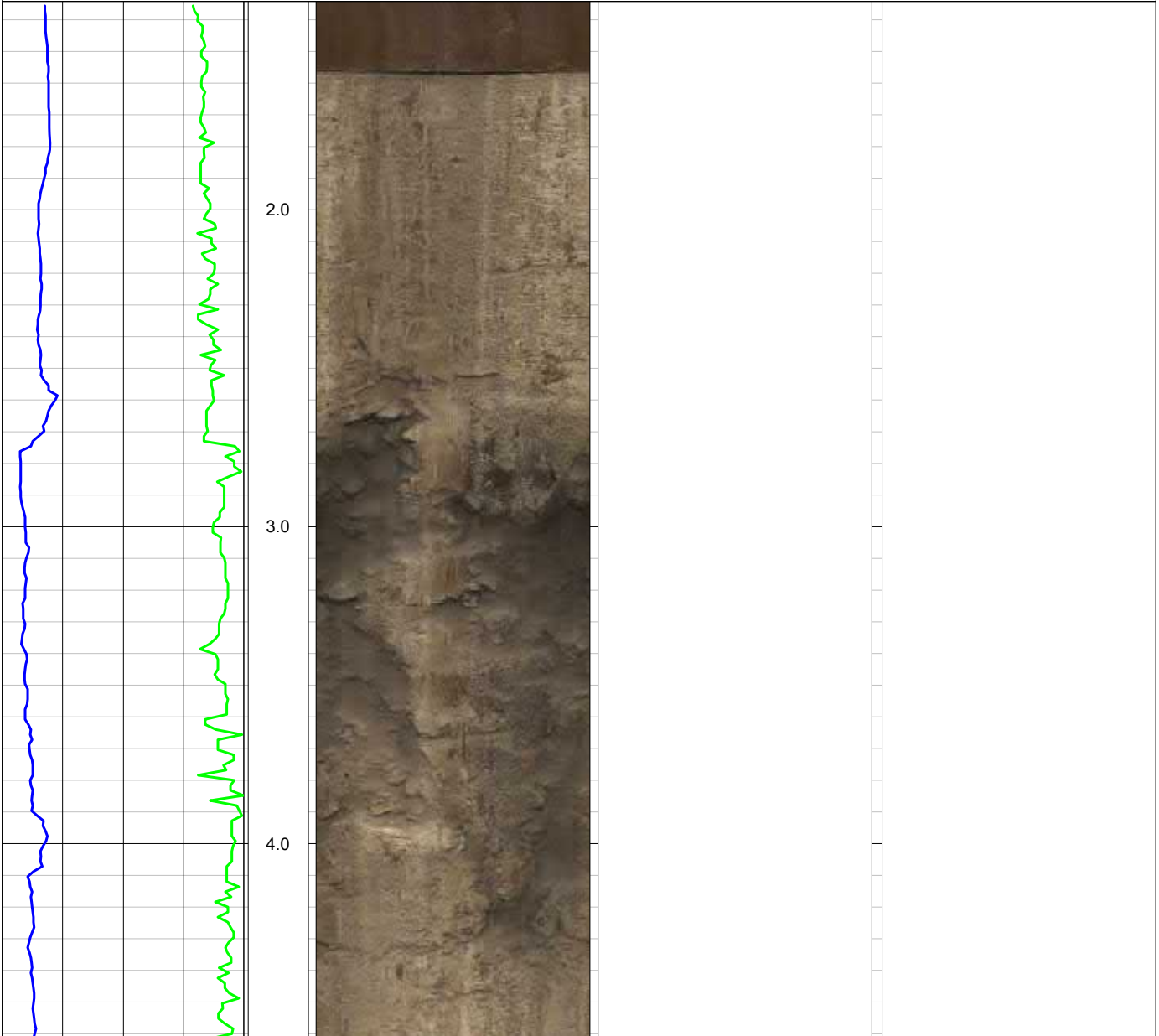
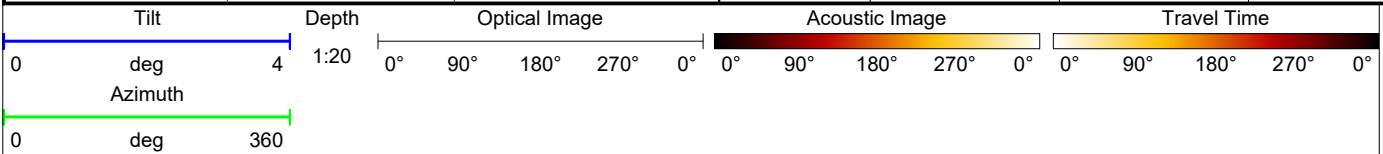
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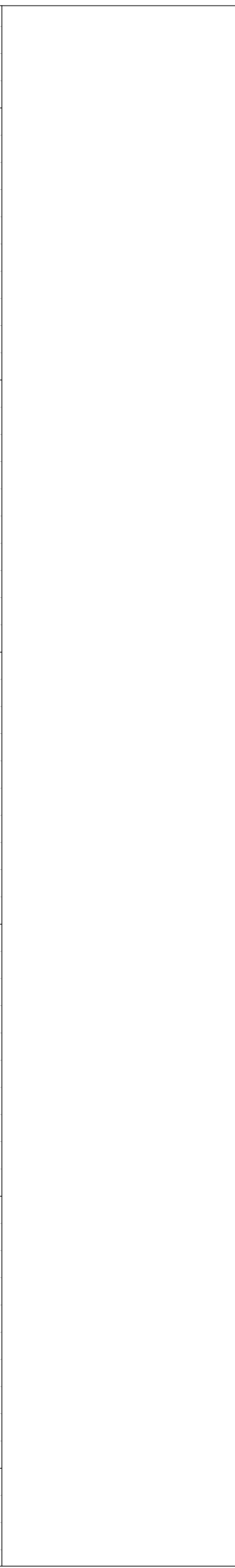
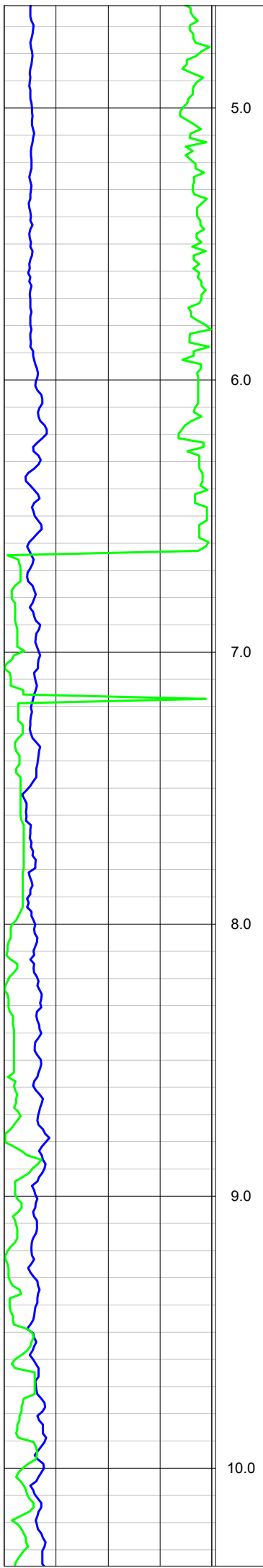
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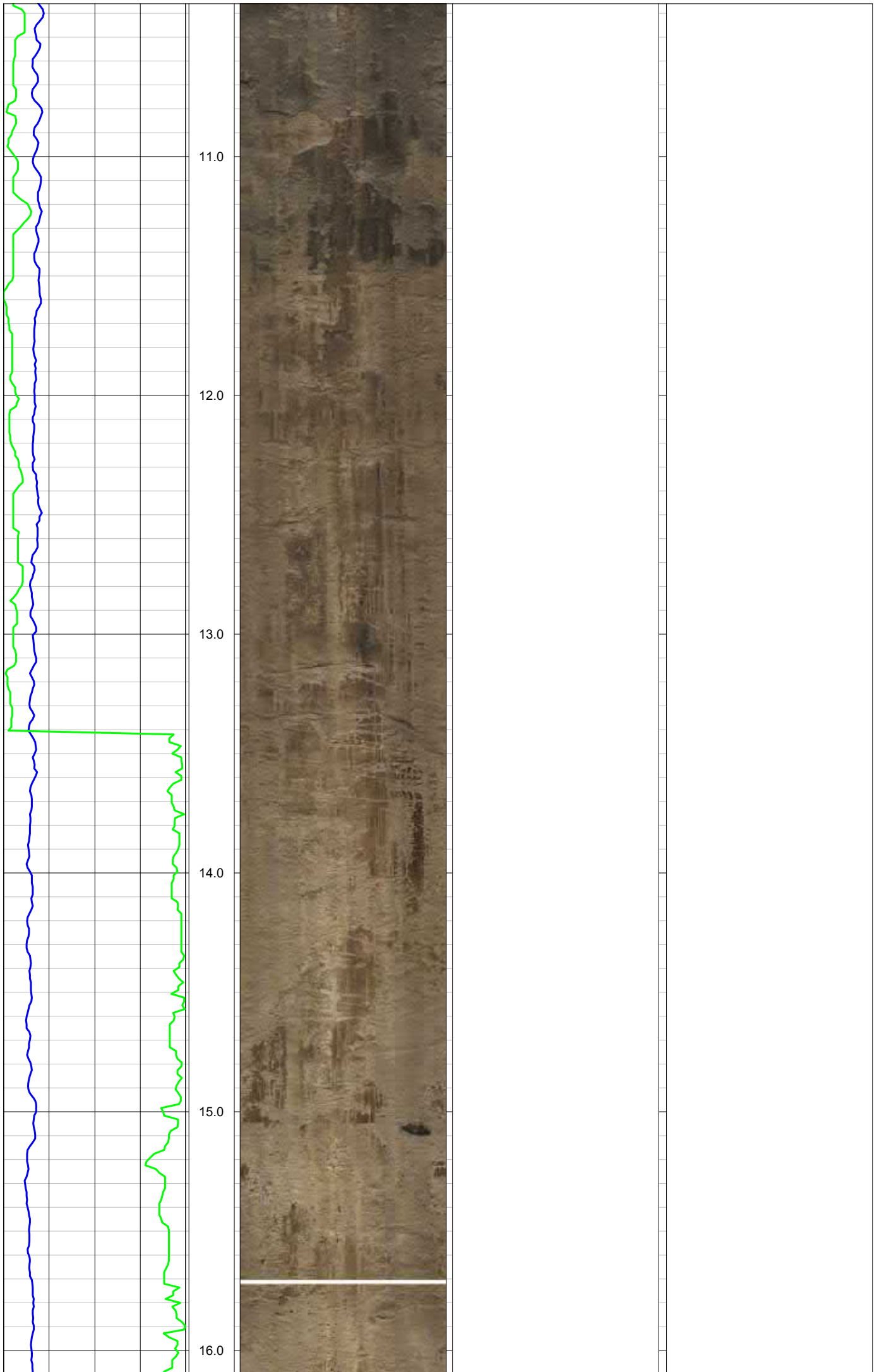
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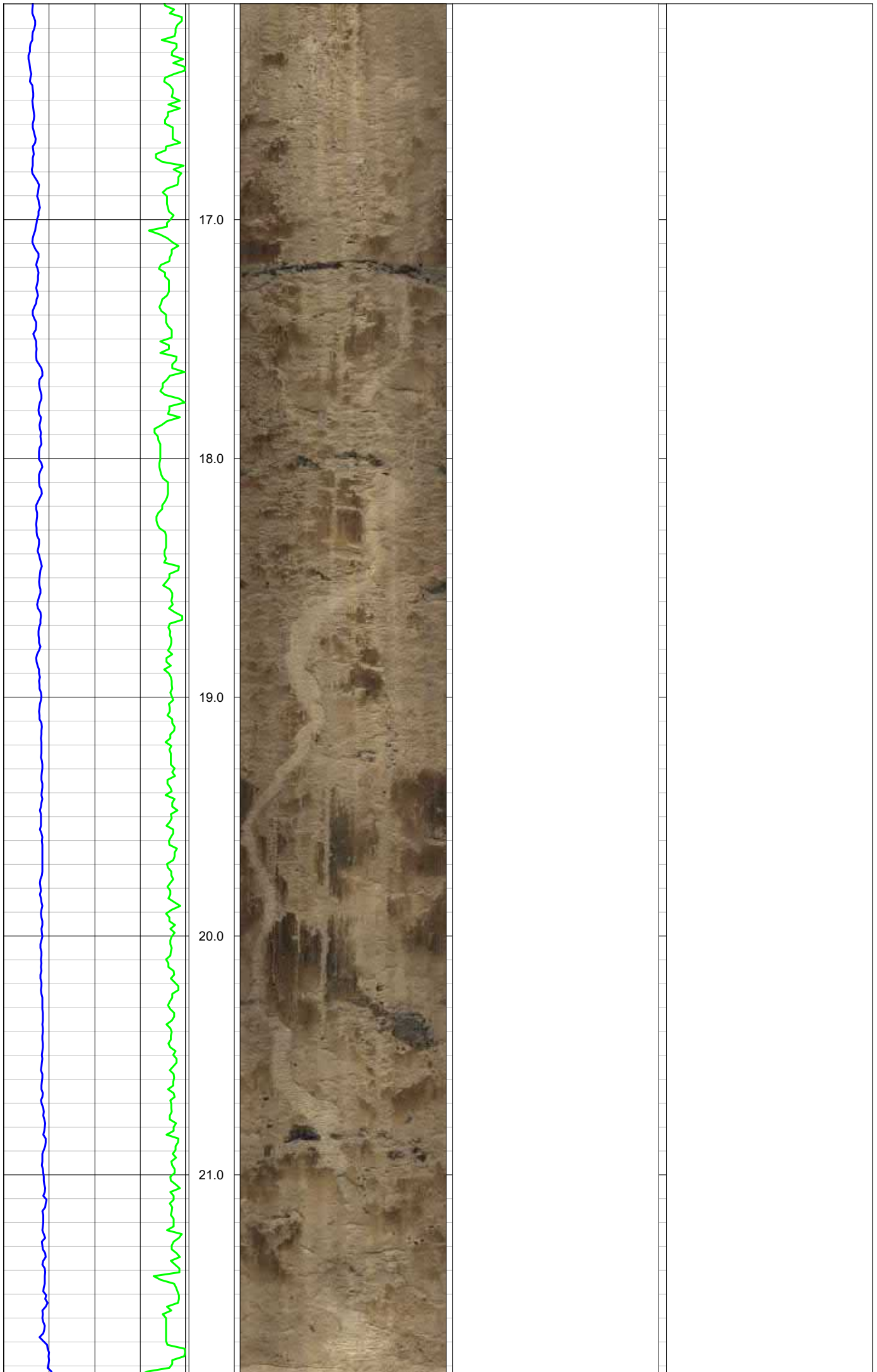
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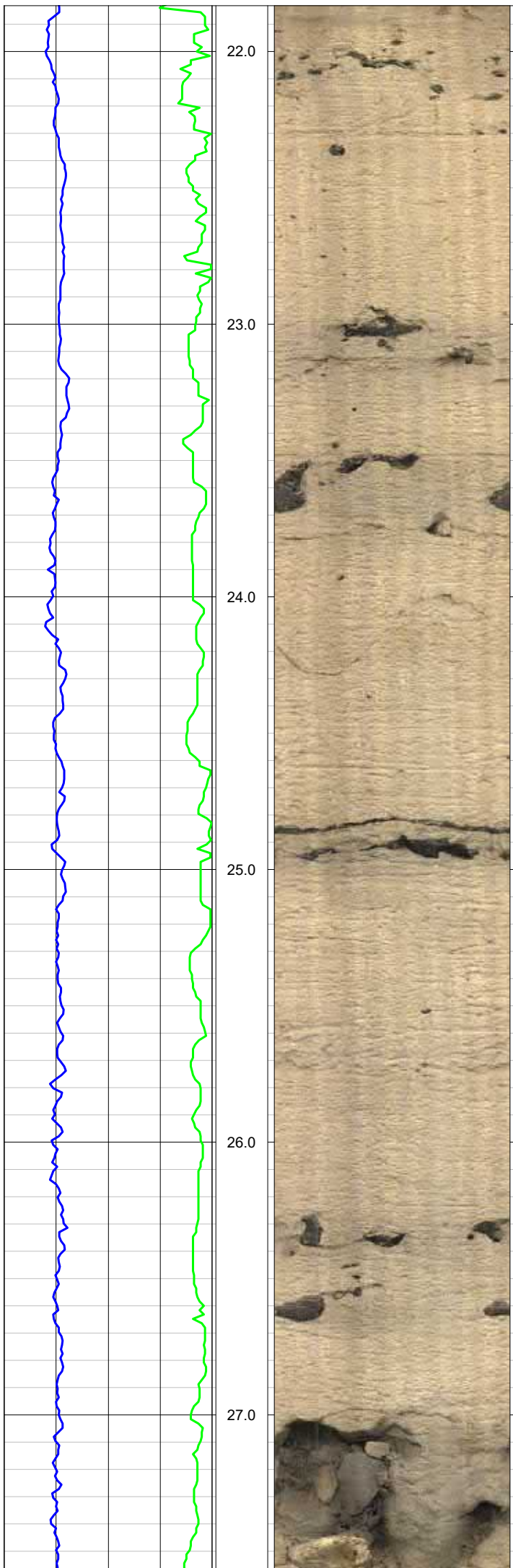
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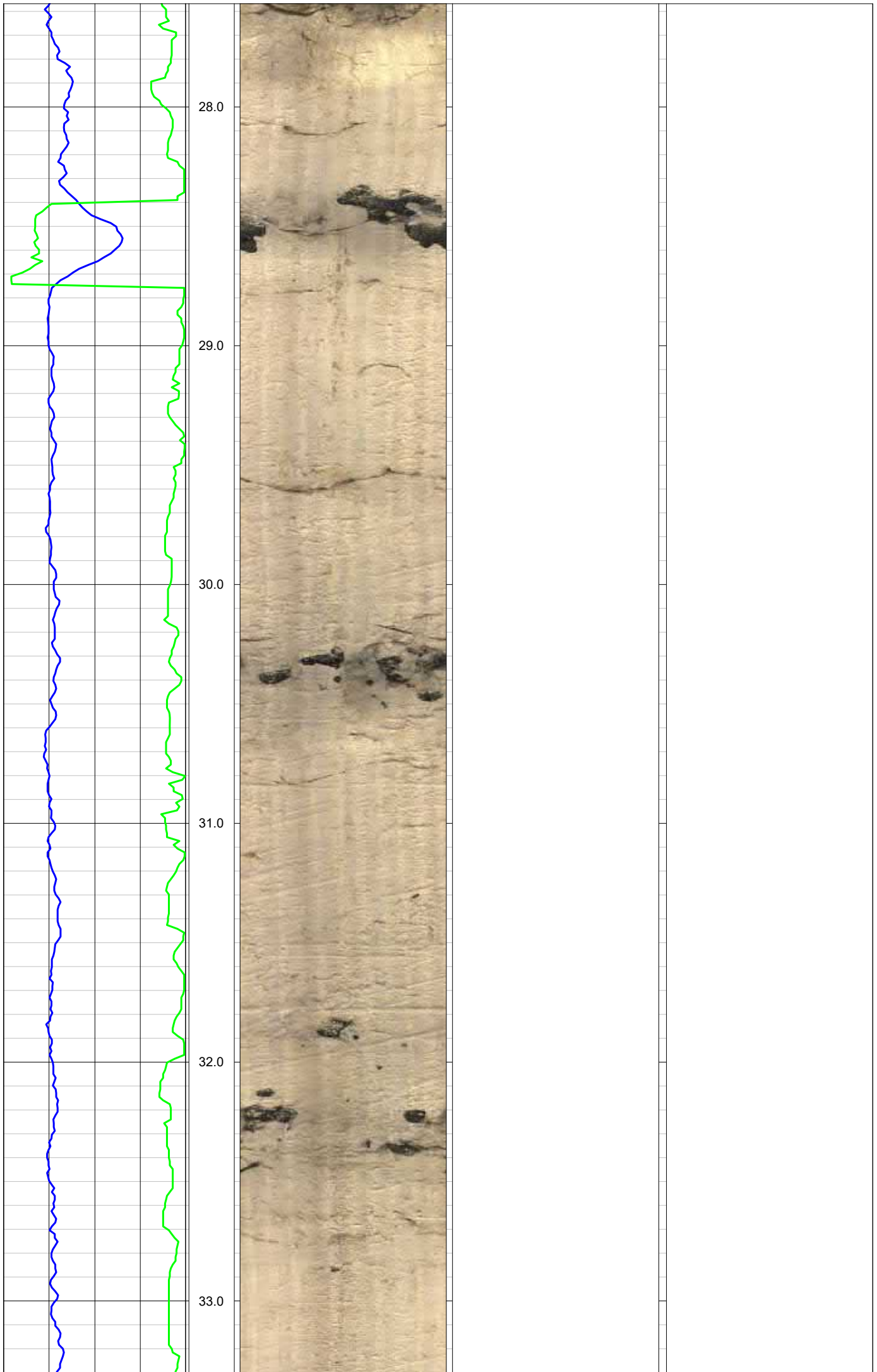


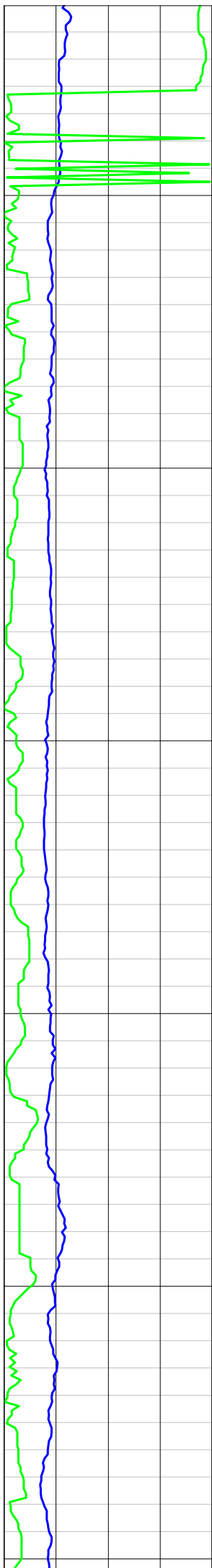












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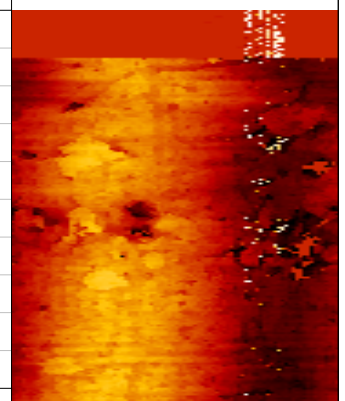
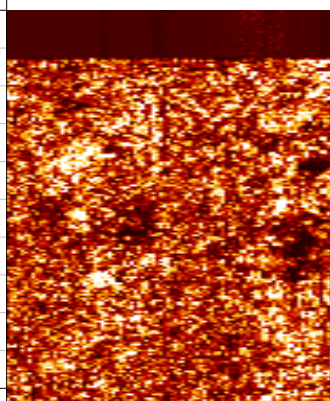
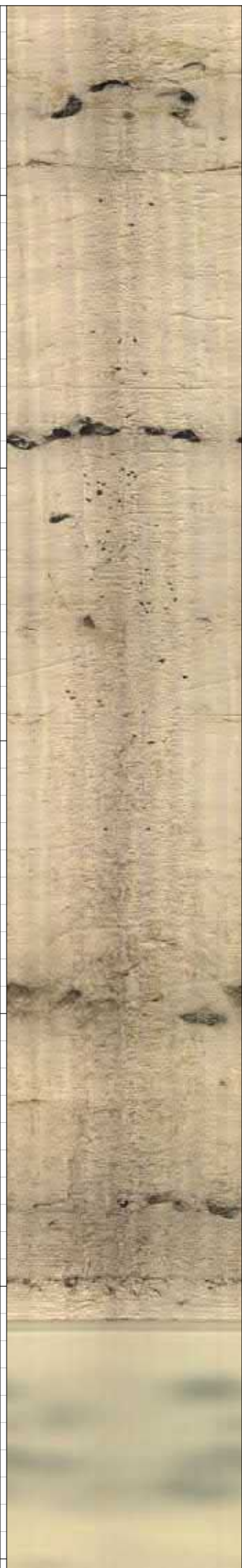
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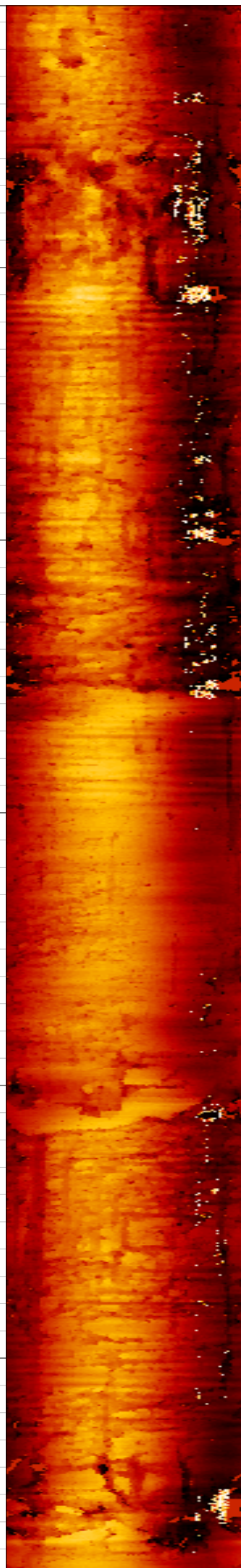
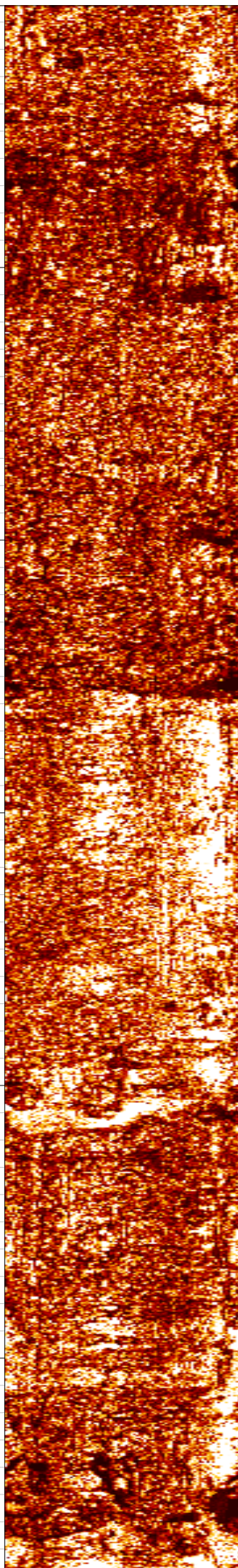
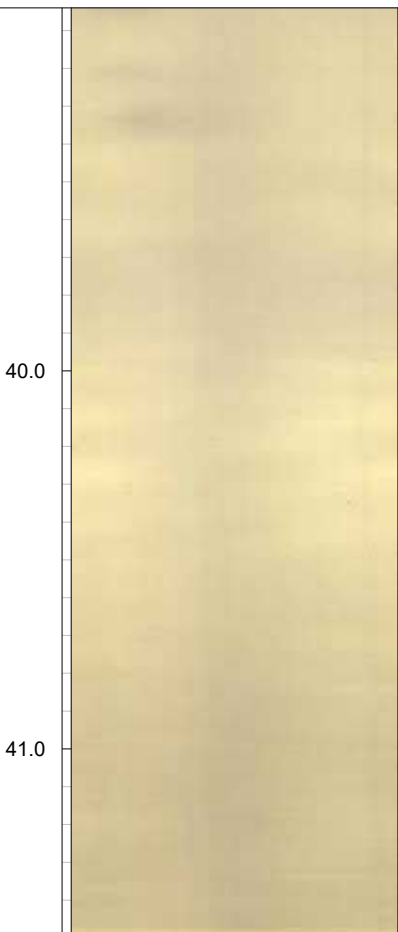
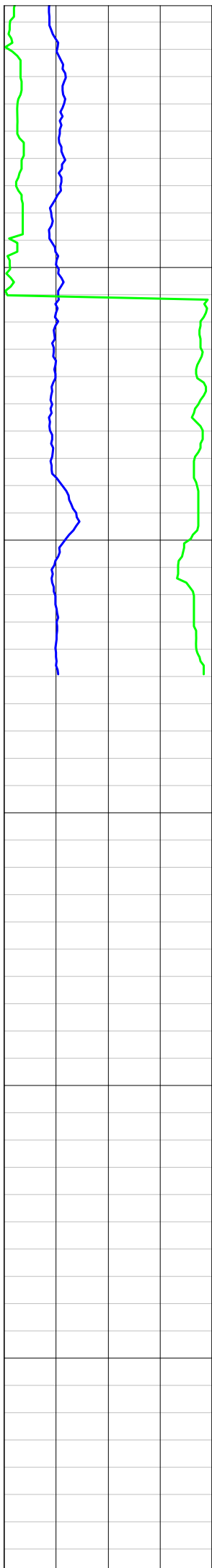
36.0

37.0

38.0

39.0





APPENDIX II

High Pressure Dilatometer Testing Results

PROJECT: A303 Amesbury to Berwick Down

PRESSUREMETER TESTING

FACTUAL REPORT

CLIENT: Geotechnics Ltd

CONTRACT No.: P1190110

Issue	Date	Description	Prepared	Checked	Approved
01	16/08/19	Draft	JH	RC	RC

Date: 16th August 2019
Our Ref: P1190110

Geotechnical Engineering Ltd

The Geotechnical Centre,
203 Torrington Avenue,
Tile Hill, Coventry,
CV4 9AP

Unit 23 Innovation Centre,
Highfield Drive, St Leonards-on-Sea,
East Sussex, TN38 9UH, UK.
Tel: +44 (0)845 862 0558
Fax: +44 (0)845 862 0559
Email: info@insitusi.com
[REDACTED]
Company Reg. No.: 6339499
VAT No.: 922 3561 41

Attention: Steven Chapman

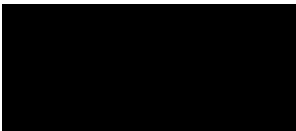
**PRESSUREMETER TESTING AT
A303 Amesbury to Berwick Down**

We have pleasure in providing a digital copy of our report for the above project.

We hope that you are satisfied with the performance of our staff, equipment and reporting on this project. If you should have any queries about any aspect of the works carried out, please do not hesitate to contact us. We look forward to being of service to you in the future.

Yours faithfully,

In Situ Site Investigation Limited



Darren Ward
Director

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1.0 INTRODUCTION

1.1 Site Details

At the request of Geotechnics Ltd, In Situ Site Investigation Limited (In Situ S.I.) carried out pressuremeter testing at the A303 Amesbury to Berwick Down site. The project was required to gather information for proposed improvement works to the existing A303 at Stonehenge.

The pressuremeter testing was carried out in one borehole, completed on site between 13th and 28th June 2019.

This report presents the factual records of the pressuremeter testing, together with an interpretation of the test results to derive material parameters.

Further specific details relating to the ground investigation, i.e. borehole locations and exploratory hole logs, are provided in the Geotechnics Ltd report.

2.0 FIELDWORK

2.1 General

Seven no. pressuremeter tests were attempted in one borehole constructed using a rotary drilling rig operated by Geotechnics Ltd. Two tests (T03 & T05) were unsuccessful, due to the test pocket being oversize. The tests were carried out using a high pressure dilatometer (HPD). The testing was carried out in general accordance with BS EN ISO 22476-5 (2012) and BS 5930 (2015). The test depths were scheduled by the Client. A summary table of the tests is presented below.

Table 2.1. Summary of pressuremeter tests.

Borehole Reference	Test Reference	Date	Test Depth	Probe	Operator	Remarks
R71903	T01	13/06/2019	16.00m	HPD 95	S Pyott	Membrane calibration
	T02	25/06/2019	24.00m	HPD 95	S Pyott	
	T03	26/06/2019	28.00m	HPD 95	S Pyott	Oversize test pocket
	T04	26/06/2019	31.00m	HPD 95	S Pyott	
	T05	27/06/2019	34.70m	HPD 95	S Pyott	Oversize test pocket
	T06	27/06/2019	37.00m	HPD 95	S Pyott	
	T07	28/06/2019	40.00m	HPD 95	S Pyott	

2.2 High Pressure Dilatometer (HPD)

The HPD is a cylindrical 95mm diameter probe which is inserted into a cored 99mm diameter test pocket, drilled using a H-size core barrel. The HPD is therefore termed a pre-bored type instrument. The probe, approximately 1.5m in length, has a central section which is covered by a rubber membrane. Pressure applied to the inside of the instrument, via compressed air, forces the membrane to expand against the test pocket wall. The radial displacement of the inside boundary of the membrane is measured at six points equally distributed around the centre of the expanding section, by free moving arms. This displacement, and the pressure necessary to cause the movement, is continuously monitored by transducers contained within the instrument. The HPD is linked to the ground surface via a combined pressure hose and

electrical power/communication umbilical cable which connects the instrument to the pressure source and readout unit.

Analogue to digital conversion of the displacement and pressure transducers is carried out within the pressuremeter electronics package. The pressuremeter output comprises a multiplexed signal which connects through the pressuremeter interface unit to the USB port of a laptop computer. Software, supplied by PACE Geotechnics Limited, is used to record the data, convert the received signals to engineering units (using the pressure and displacement transducer calibrations) and display these in real time on the laptop computer during testing to allow control of the test by the operator. Plotting these readings of displacement against pressure produces a loading curve for the material being tested. A number of mathematical analyses are applied to translate this loading curve into material strength and stiffness parameters.

The testing on this project was undertaken using a probe manufactured by In Situ S.I and PACE Geotechnics. Details of the instrument are provided below. Corrections measured for membrane stiffness (essentially resistance to inflation in air) were carried out during the testing program.

Table 2.2. HPD instrument details.

Instrument	Diameter (mm)	Pressure Capacity (MPa)	Displacement measurement	Serial No.
HPD-95	95	20	20mm per arm	Probe 02

2.3 HPD Testing Procedure

The boreholes were constructed using a rotary drilling rig by conventional rotary coring at nominal 146mm diameter, using water flush, to approximately 1.5m above the scheduled pressuremeter test depth. A 2 to 3m long section was then drilling using a T6-H size core barrel to provide a test pocket of nominal diameter 99.2mm. The HPD was inserted into the test pocket as soon as practicably possible using 2 $\frac{3}{8}$ API drill rods, lowered in via the drilling rig winch.

The pressuremeter tests were carried out in a stress controlled manner using a manually operated gas control box to pressurise the HPD at an appropriate rate for the ground conditions. During the tests a number of unload-reload loops were performed. Before carrying out the loops a short holding period was maintained to allow reduction of creep on the ground.

The loading was continued until either the strain or pressure capacity of the HPD was approached (typically 60%), or if at lower pressure, expansion around the probe was uneven such that in the opinion of the operator, continuation of the loading would result in risk of damage to the probe via a membrane burst. Upon unloading and deflation of the membrane, the HPD was withdrawn from the test pocket and recovered back to the ground surface.

3.0 TEST INTERPRETATION

3.1 Introduction

The pressure / cavity strain curve has been analysed to determine various parameters as appropriate including:

In situ horizontal stress	σ_{ho}
Initial shear modulus	G_i
Yield	P_f
Unload-reload shear modulus	G_{ur}
Circumferential strain at cavity wall (cavity strain range, %)	ϵ_c
Undrained shear strength	s_u
Limit Pressure	P_L

The analysis methodologies used have followed accepted practice for interpretation of pressuremeter tests (e.g. Clarke, 1996; Mair & Wood, 1987). The nature of the material tested has resulted in some limitations in the appropriateness of these interpretation methods. These are discussed below and should be considered when selecting parameters for design purposes.

3.2 Description of Material Tested

The borehole record has been cross referenced with the individual tests to provide an indication of the geology at each test depth (see section 3.7). The ground conditions encountered in the borehole comprised MADE GROUND to 0.35mbgl, that was underlain by structureless CHALK to 1.00mbgl, followed by predominantly weak, medium density CHALK.

3.3 In Situ Horizontal Stress

The act of drilling into ground relieves the in situ horizontal stress. This is effectively restored as a pressuremeter is pressurised against the surrounding ground, and in affect the cavity pressure (p_o) recorded by the instrument can approximate to the in situ horizontal stress. During initial pressurisation, a linear pressure / displacement curve is anticipated as the pressure is re-instated and then exceeds the in situ horizontal stress. With the HPD instrument, the assessment of in situ horizontal stress is problematic and should be treated

with caution due to the large potential for disturbance during pocket formation and possible relaxation of the ground following drilling of the open test pocket.

Marsland and Randolph (1977) proposed that in the vicinity of in situ horizontal stress, soil behaves elastically and therefore the initial loading curve is linear. This elastic behaviour will cease when the undrained shear strength of the soil in the cavity wall is reached, and hence the loading curve derived from the HPD will then begin to curve away from linearity. The point at which the loading curve becomes non-linear (or the onset of yield, Pf), represents the in situ horizontal stress plus the undrained shear strength at this point:

$$P_f = \sigma_{ho} + s_u.$$

The tests performed at the site were in CHALK rock. However, the analysis method used to determine the undrained shear strength (based on Palmer, 1972) assumes the material is a perfectly elastic / plastic material. This is a reasonable assumption for clay, however for a weak rock, this analysis may not be valid as the material may behave as a brittle material and fail in tension, or in triaxial compression, depending on the strength of the material and the in situ stress conditions.

3.4 Shear Modulus

A pressuremeter test, in an elastic, perfectly plastic material, imparts a pure shear failure, hence it is normal to report shear modulus in preference to an elastic modulus. Shear modulus is determined from the initial loading curve, and from unload reload loops, performed at intervals during the test. The relationship used to determine shear modulus (G) is:

$$G = \frac{1 \cdot dp}{2 d\epsilon_c}$$

The various plots for both initial loading shear modulus (G_i) and the shear modulus derived from unload reload loops (G_{ur}) are presented graphically in the test results.

Note is also made that often some hysteresis is generally evident, and it is possible to determine a secant modulus from the unloading or reloading portion of an unload reload loop. A high degree of consistency is often possible when plotting secant shear modulus results from individual tests. This may be further extended to a series of tests in a geological formation by normalising by undrained shear strength, or in situ stress.

Pressuremeter tests determine shear modulus (G). This can be converted to an undrained elastic modulus (E_u) by use of the following relationship:

$$E_u = 2.G(1 + \nu)$$

Where ν = Poisson's ratio

Individual loops have also been analysed to determine small strain stiffness. This has been achieved by taking a secant modulus from the base of the loop, to the points on the reloading curve. Plotting the cavity strain range against shear modulus, gives an indication of how stiffness varies with strain. A Bolton and Whittle (1999) analysis has also been performed to investigate the non linear elastic / plastic behaviour. Plots of calculated secant modulus values at varying shear strain % are provided within the analysis results. It is noted that any user of this analysis should satisfy themselves that this analysis is appropriate to the material tested.

3.5 Strength

Undrained shear strength has been determined using Gibson and Anderson (1961). This is the generally accepted method for the determination of strength and is based on the assumption of an elastic - perfectly plastic material. The analysis also provides a Limit Pressure (P_L). This is a limiting pressure defined as the pressure at which the change in volume (ΔV) divided by the current volume (V) is equal to one. While this is not achieved in practice, it can be determined by extrapolation. Note is also made that the definition of P_L is different to that associated with a Ménard Limit Pressure, and the two should not be interchanged.

3.6 Summary of Results

A summary of the results is presented in Appendix A, followed by the full graphical analysis.

3.7 Notes on Individual Tests

Borehole – R71903

Test 1 – The first test in this borehole was conducted at 14.00m, in material described as weak, medium to high density, white CHALK. Total core recovery was good at 87%, with 71% solid core recovery.

The test pocket was slightly oversize but even, with arm lift off varying between 5 to 6.5mm. The p_0 is estimated to be at 850kPa, with the following loading section being relatively long and linear. The test was taken to a reasonable pressure of 7308kPa. Material yield is

interpreted to be at 3700kPa. Four unload reload loops were attempted and provide modulus values of between 256 and 1324MPa. Analysis of derived material strength provides differing values of 2850 and 3667kPa.

Test 2 – The second test was conducted in a zone of no recovery at a depth of 24.00m. Material was assumed to be weak, locally very weak, medium density, white CHALK.

The test pocket was oversize and uneven, with the arms lifting off between 2.5 and 13mm. The p_o has been assessed to be at 1550kPa, with the following loading section being long and linear. Material yield is interpreted to be at 5450kPa. The test was taken to a moderate pressure of 6035kPa. Two unload reload loops were carried out providing modulus values of 902 and 1635MPa. Analysis of derived material strength provides variable values of 3900 and 4333kPa.

Test 3 – The third was conducted in a zone of no recovery at a depth of 28.00m. Material was assumed to be weak, locally very weak, medium density, white CHALK.

The test pocket was extremely oversize and the pressuremeter strain arms were unable to contact the wall, so the test was terminated.

Test 4 – The fourth test was conducted in a zone of no recovery at a depth of 31.00m. Material was assumed to be weak, locally very weak, medium density, white CHALK.

The test pocket was slightly oversize but even, with the arms lifting off between 7 and 9.5mm. The p_o has been assessed to be at 2050kPa, with the following loading section being relatively long and linear. Material yield is interpreted to be at 5200kPa. The test was taken to a reasonable pressure of 7222kPa. Three unload reload loops were carried out providing modulus values of between 834 to 2802MPa. Analysis of derived material strength provides similar values of 3150 and 3600kPa.

Test 5 – The fifth test was conducted in a zone of no recovery at 34.70m. Material was assumed to be weak, locally very weak, medium density, white CHALK.

The test pocket was extremely oversize and the pressuremeter strain arms were unable to contact the wall, so the test was terminated.

Test 6 – This sixth test was conducted in a zone of no recovery at 37.00m in material described as weak, locally very weak, medium density, white CHALK.

The test pocket was slightly oversize and uneven with the arms lifting off at between 5.5 and 8mm. Arm 5 displayed greater expansion than other arms, indicating variability within the test pocket. The p_o is estimated to be at 720kPa. The subsequent loading section was relatively long and linear with the material yield point observed to be at 7530kPa. The test was taken to a high pressure of 10042kPa. Four unload reload loops were carried out providing modulus values of between 869 to 1446MPa. Derived material shear strength provides slightly differing values of 6044 and 6810kPa.

Test 7 – The seventh test in this borehole was conducted in a zone of no recovery at 40.00m. Material was assumed to be weak locally very weak, medium density, white CHALK.

The test pocket was slightly oversize but even, with the arms lifting off at between 5 and 7.5mm. The p_o is estimated to be at 2050kPa. The subsequent loading section was relatively long and linear with the material yield point observed to be at 6875kPa. The test was taken to a pressure of 11324kPa. Three unload reload loops were carried out providing modulus values of between 1084 to 1777MPa. Derived material shear strength provides differing values of 4316 and 4825kPa.

4.0 REFERENCES

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APPENDIX A

Test Data Analysis

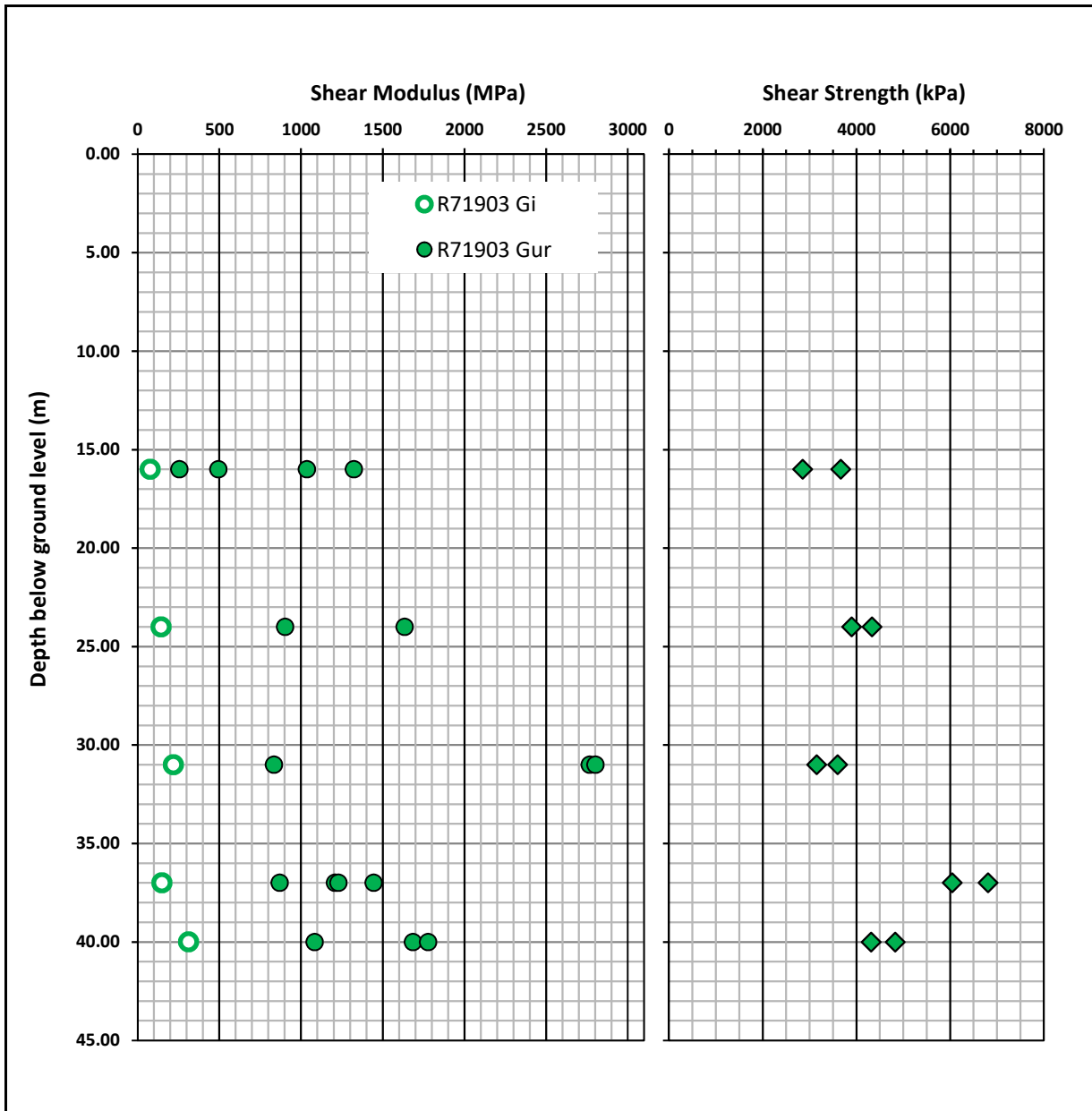
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Pressuremeter Results Summary	R71903
Pressuremeter Shear Modulus Plot & Undrained Shear Strength Plots	Figure 1
Pressuremeter In Situ Horizontal Stress, Yield & Limit Pressure Plots	Figure 2
Pressuremeter Test Analysis	
R71903	T01 – T07

Pressuremeter Results Summary

Test	Depth (m)	Material description from borehole log	p _o (kPa)	Undrained strength			G _i (MPa)	Loop No.	G _{ur} (MPa)	ε _c (%)	Non linear stiffness		Secant shear modulus G (MPa)		
				S _{u (M&R)} (kPa)	S _u (kPa)	P _L (kPa)					α (MPa)	β	Shear strain		
													0.1%	0.01%	0.001%
				R71903											
1	16.00	Weak, medium to high density, white CHALK.	850	2850	3667	15033	77.5	1	256.0	0.013	53.160	0.839	161	233	338
								2	494.2	0.013	148.826	0.868	370	501	679
								3	1036.4	0.007	166.337	0.825	559	836	1252
								4	1323.5	0.043	351.719	0.837	1082	1574	2289
2	24.00	Weak locally very weak, medium density, white CHALK.	1550	3900	4333	21033	144.3	1	901.8	0.015	162.709	0.823	554	834	1256
								2	1634.8	0.016					
3	28.00	(as above)	Oversize test pocket. Test aborted.												
4	31.00	Weak locally very weak, medium density, white CHALK.	2050	3150	3600	20400	220.3	1	834.0	0.015					
								2	2766.2	0.008					
								3	2801.7	0.011					
5	34.70	(as above)	Oversize test pocket. Test aborted.												
6	37.00	Weak locally very weak, medium density, white CHALK.	720	6810	6044	23720	149.7	1	869.2	0.022	49.627	0.691	419	852	1735
								2	1207.7	0.034	71.760	0.674	683	1447	3065
								3	1445.5	0.040	132.246	0.722	902	1710	3244
								4	1229.4	0.050	137.364	0.731	879	1631	3027
7	40.00	Weak locally very weak, medium density, white CHALK.	2050	4825	4316	24442	311.7	1	1083.9	0.031	213.929	0.815	766	1171	1791
								2	1685.0	0.029	161.907	0.733	1024	1895	3505
								3	1777.3	0.028	164.023	0.735	1025	1887	3475

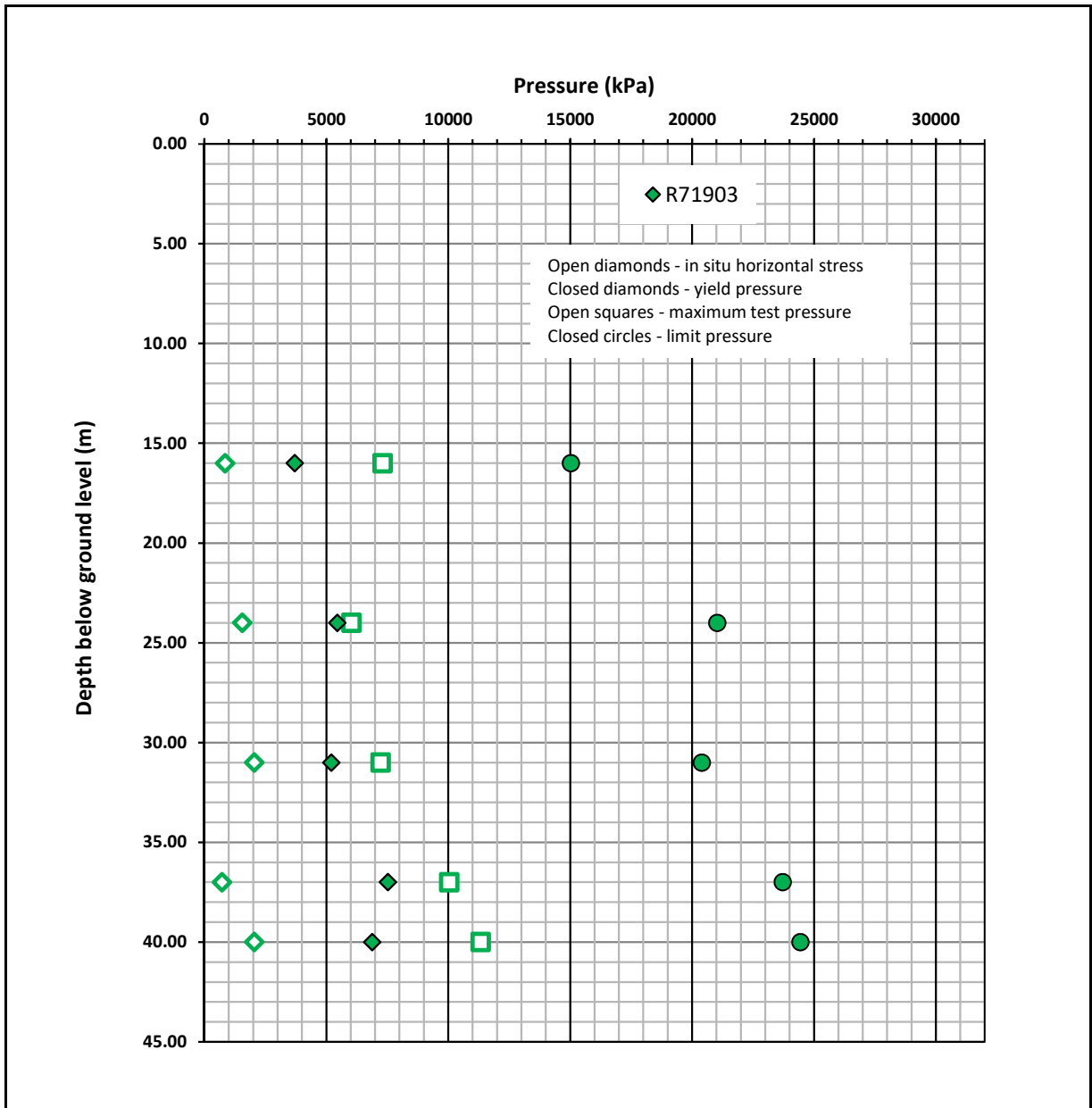
Project No.	P1190110	Project	A303 Amesbury to Berwick Down HPD
Client	Geotechnics	Figure No.	R71903

Pressuremeter Shear Modulus & Undrained Shear Strength Plot



Project	A303 Amesbury to Berwick Down HPD	Figure No.	1
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter In Situ Horizontal Stress, Yield & Limit Pressure Plot

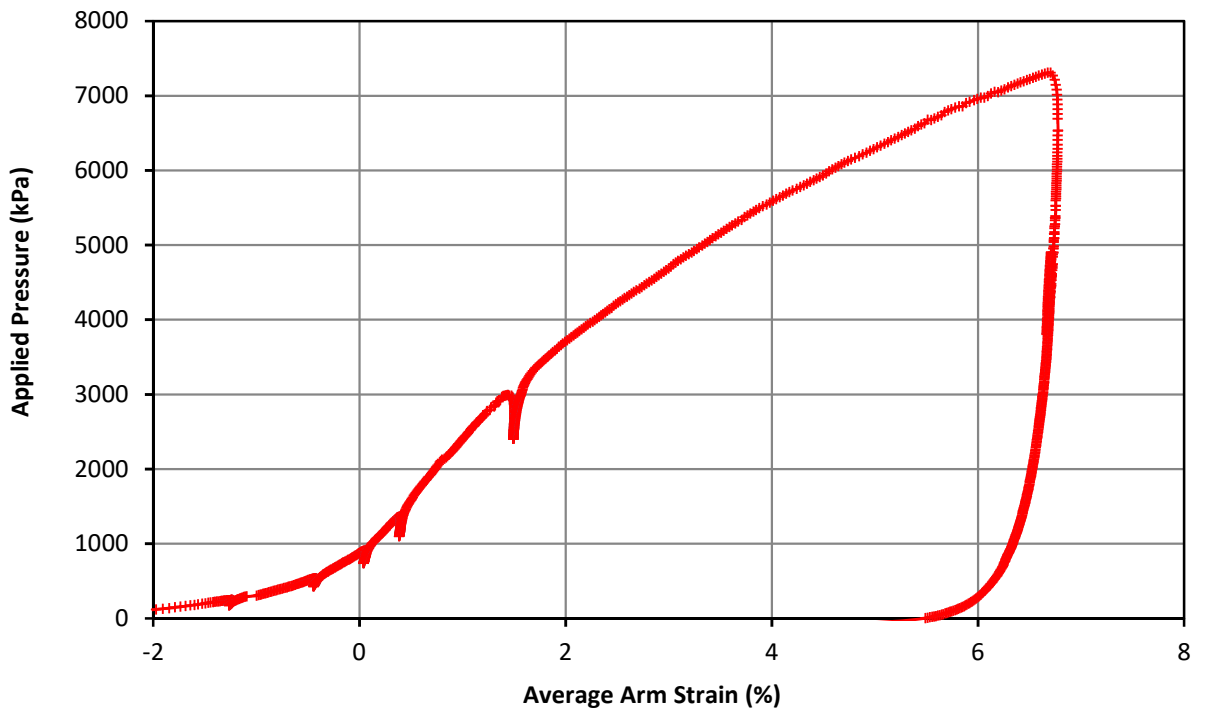
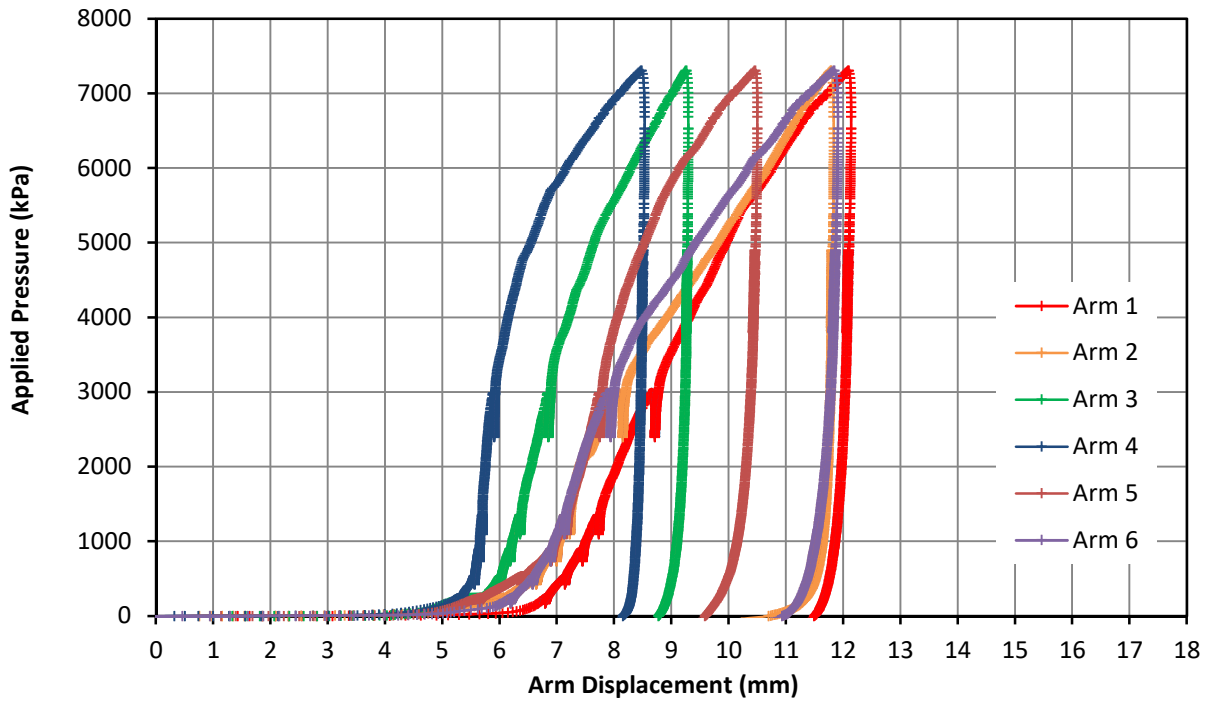


Project	A303 Amesbury to Berwick Down HPD	Figure No.	2
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter Test Overview



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



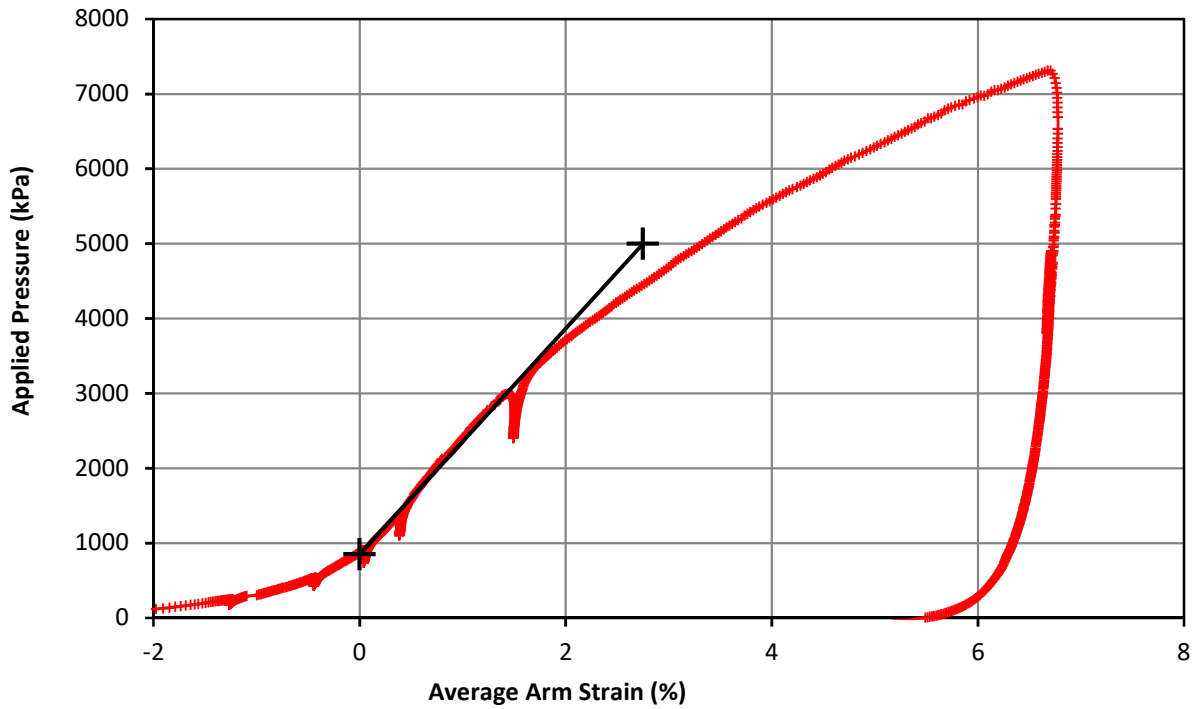
Comments

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 01
Client	Geotechnics		
Project No.	P1190110		

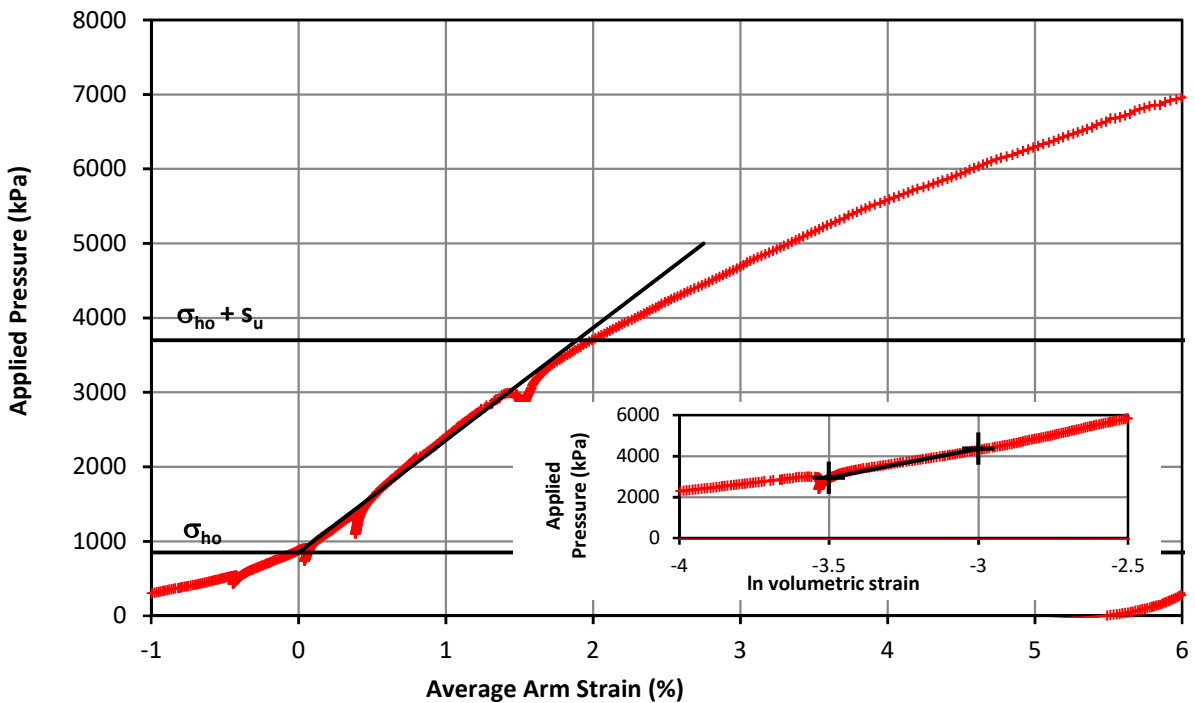
Pressuremeter Test Initial Modulus & In Situ Horizontal Stress



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



Initial Modulus	Shear Modulus	77.5 MPa
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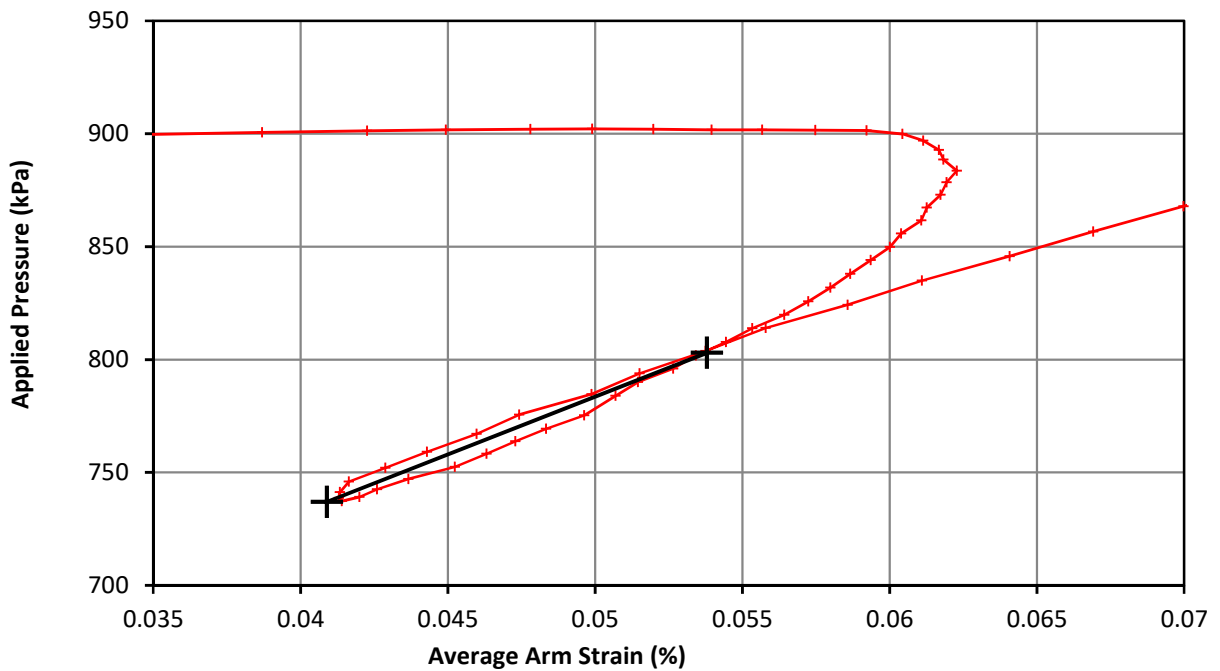
Marsland & Randolph	In situ horizontal stress	850 kPa
	Undrained Strength	2850 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 02
Client	Geotechnics		
Project No.	P1190110		

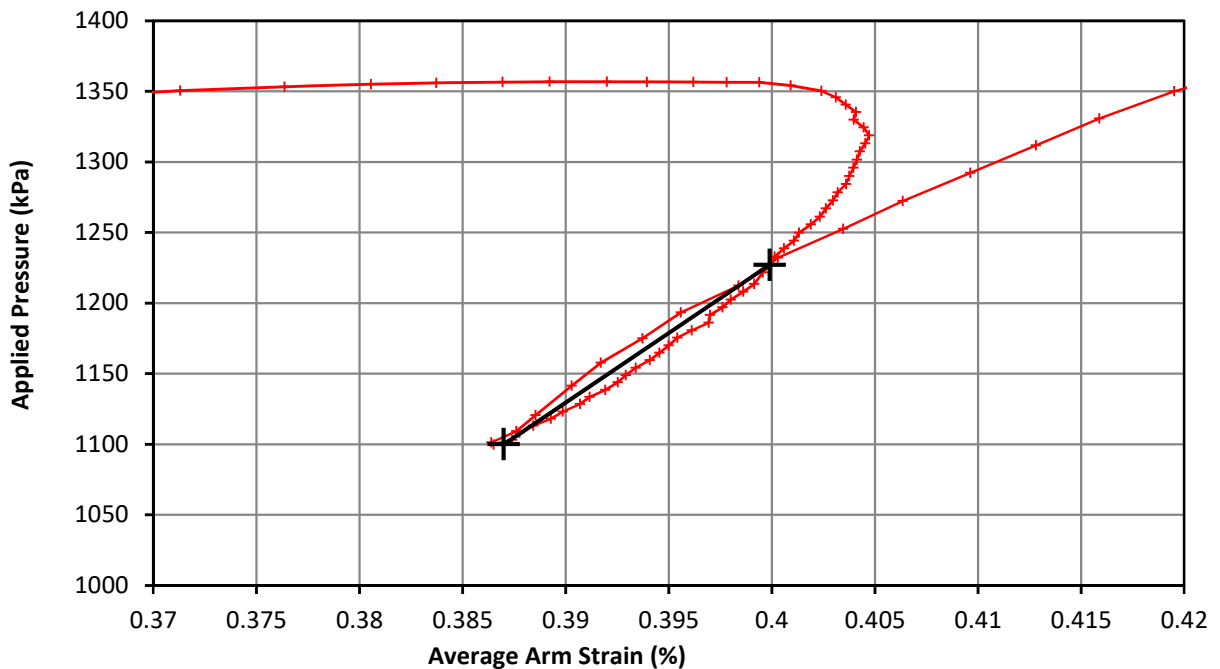
Pressuremeter Test Unload Reload Loop



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



Loop 1	Shear Modulus	256.0 MPa
	Cavity Strain Range	0.013 %



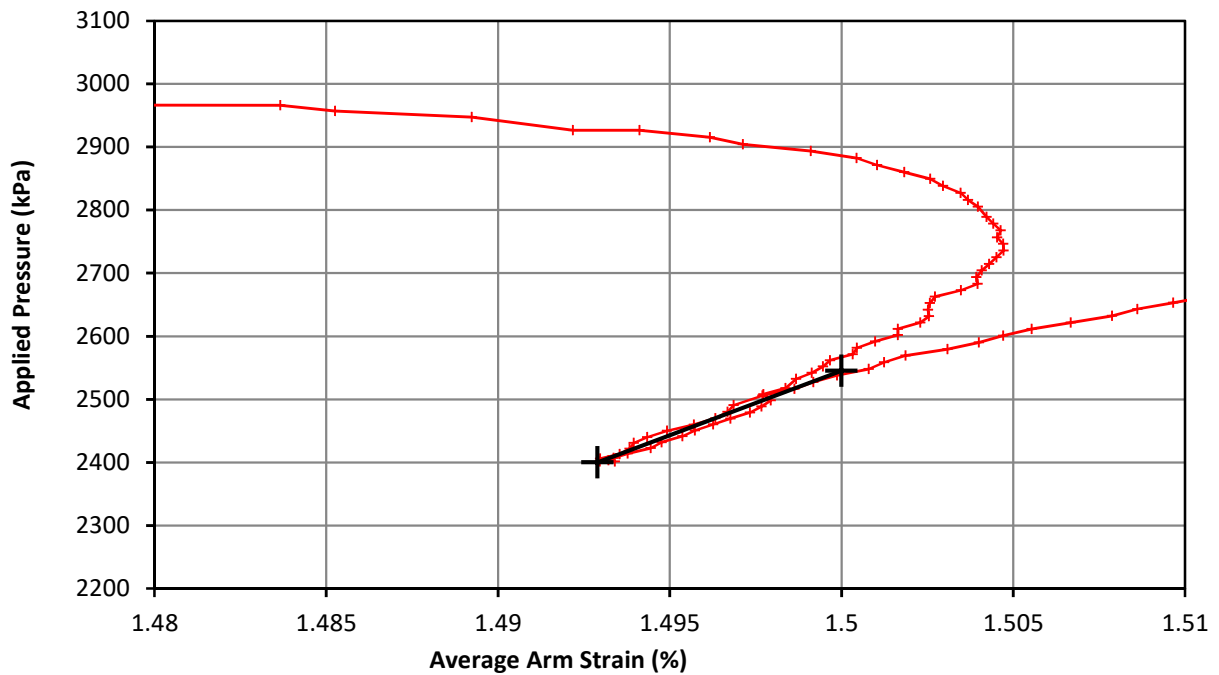
Loop 2	Shear Modulus	494.2 MPa
	Cavity Strain Range	0.013 %

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 03
Client	Geotechnics		
Project No.	P1190110		

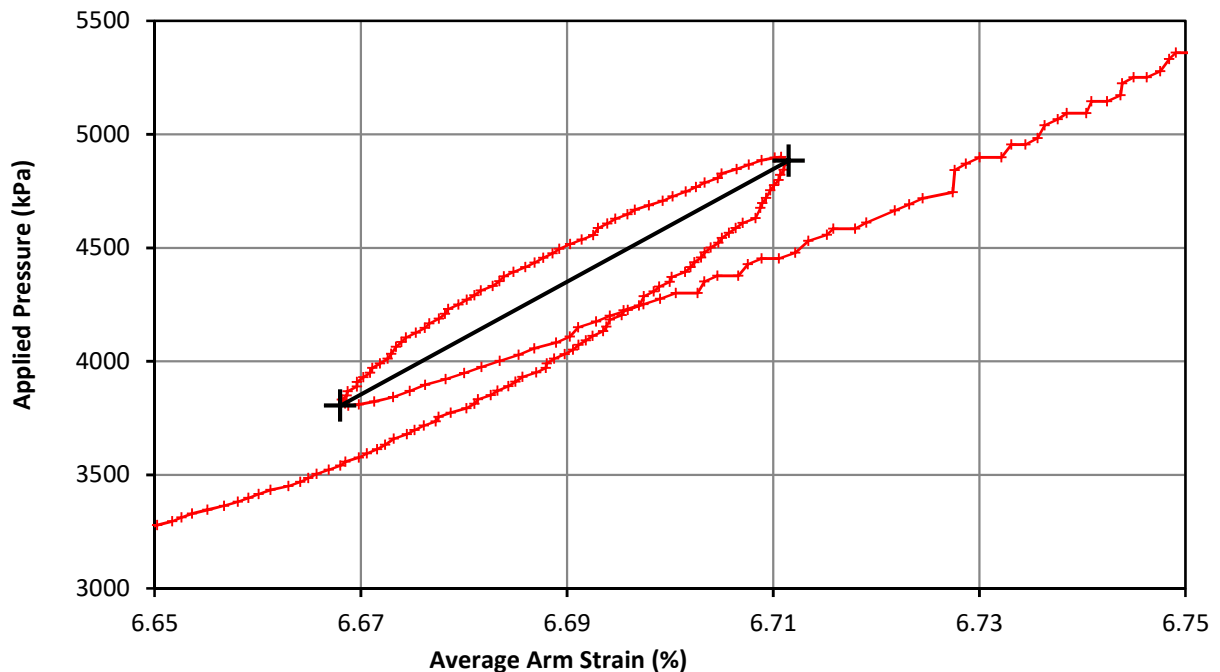
Pressuremeter Test Unload Reload Loop



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



Loop 3	Shear Modulus	1036.4 MPa
	Cavity Strain Range	0.007 %



Loop 4	Shear Modulus	1323.5 MPa
	Cavity Strain Range	0.043 %

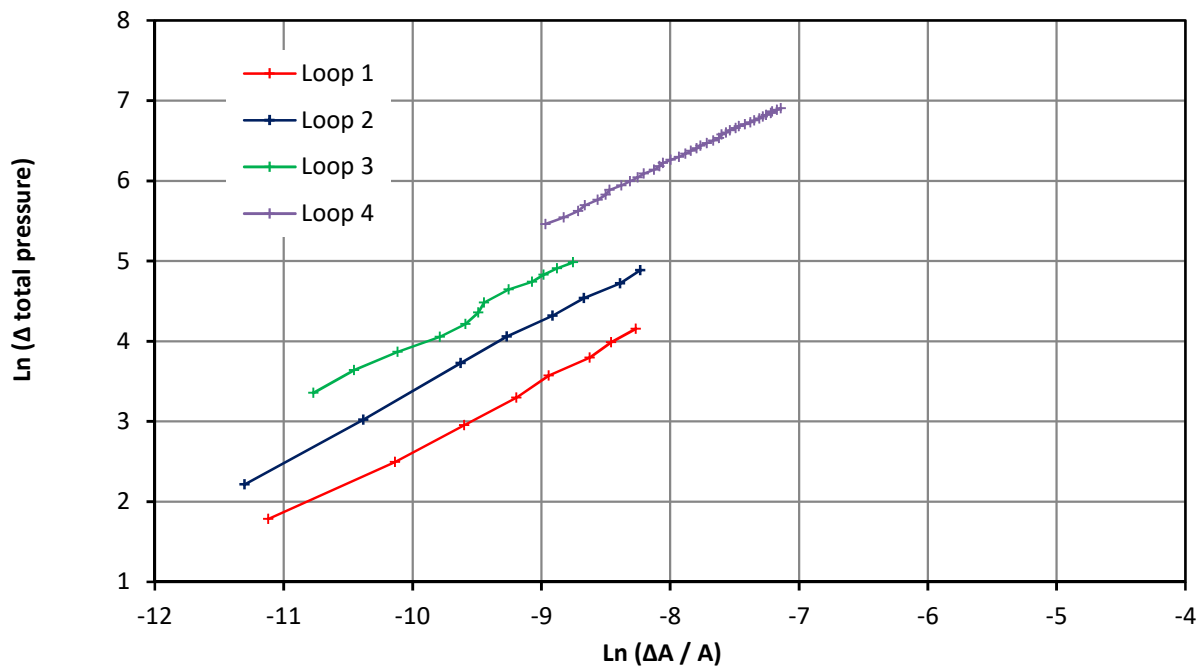
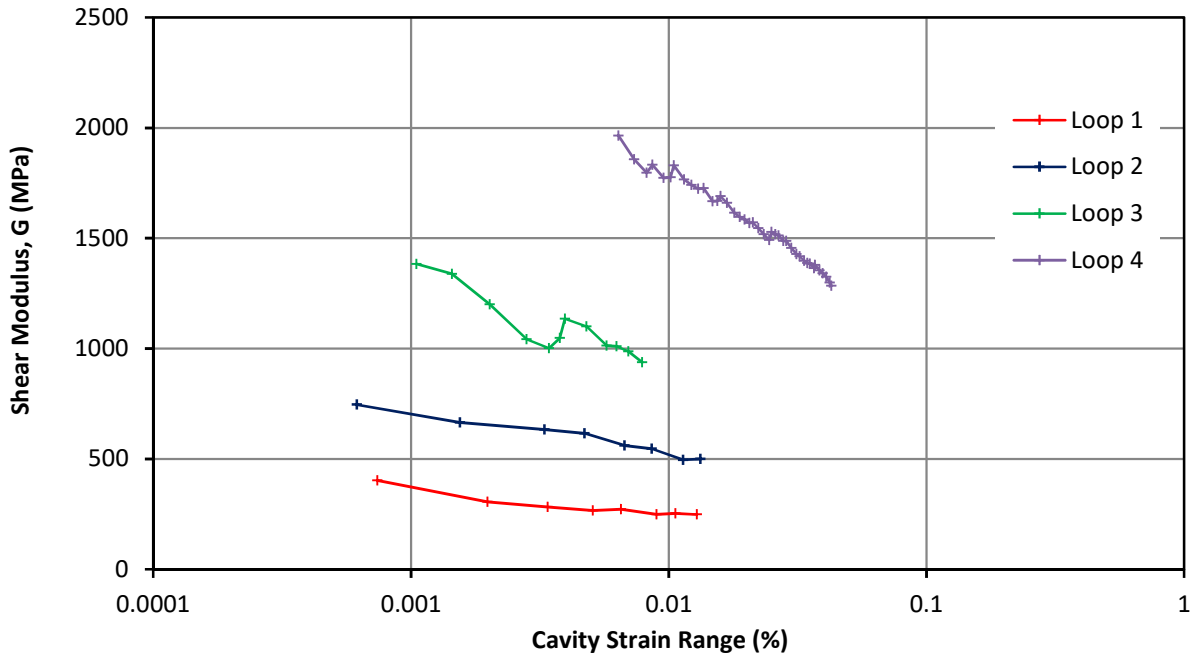
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 04
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter Analysis

Small Strain Stiffness and Bolton and Whittle (1999)



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



Loop 1		Loop 2		Loop 3		Loop 4	
Gradient(β)	Intercept	Gradient(β)	Intercept	Gradient(β)	Intercept	Gradient(β)	Intercept
0.839	63.327 (MPa)	0.868	171.417 (MPa)	0.825	201.706 (MPa)	0.837	420.060 (MPa)

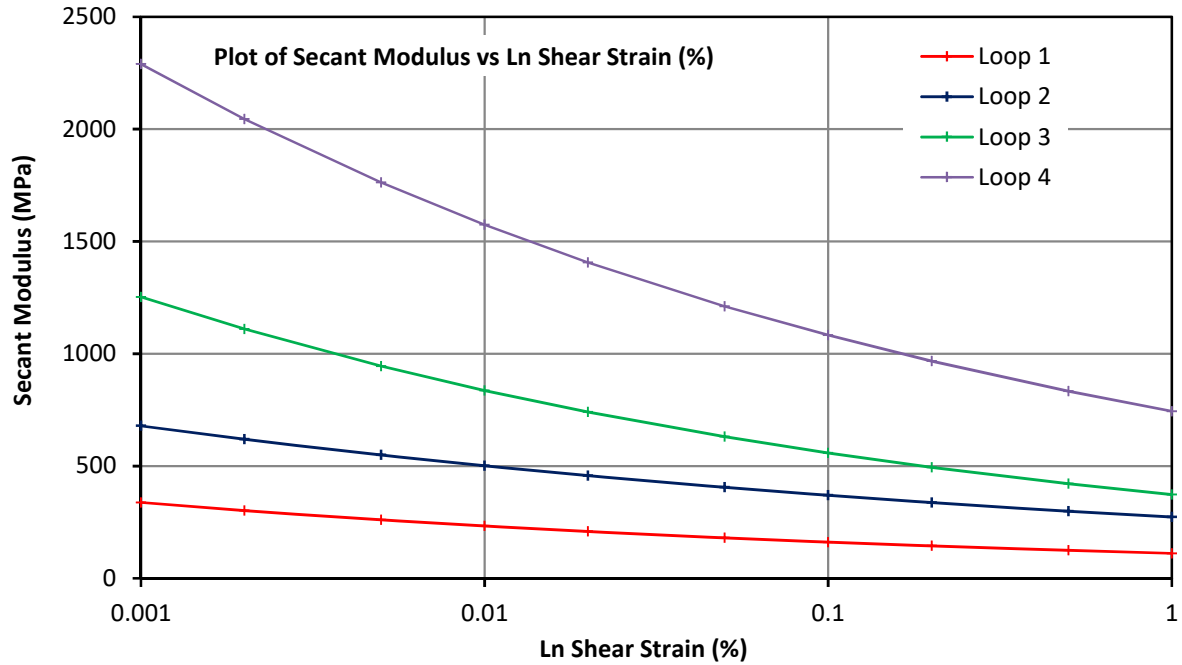
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 05
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter Analysis

Secant Modulus - Shear Strain (%)



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



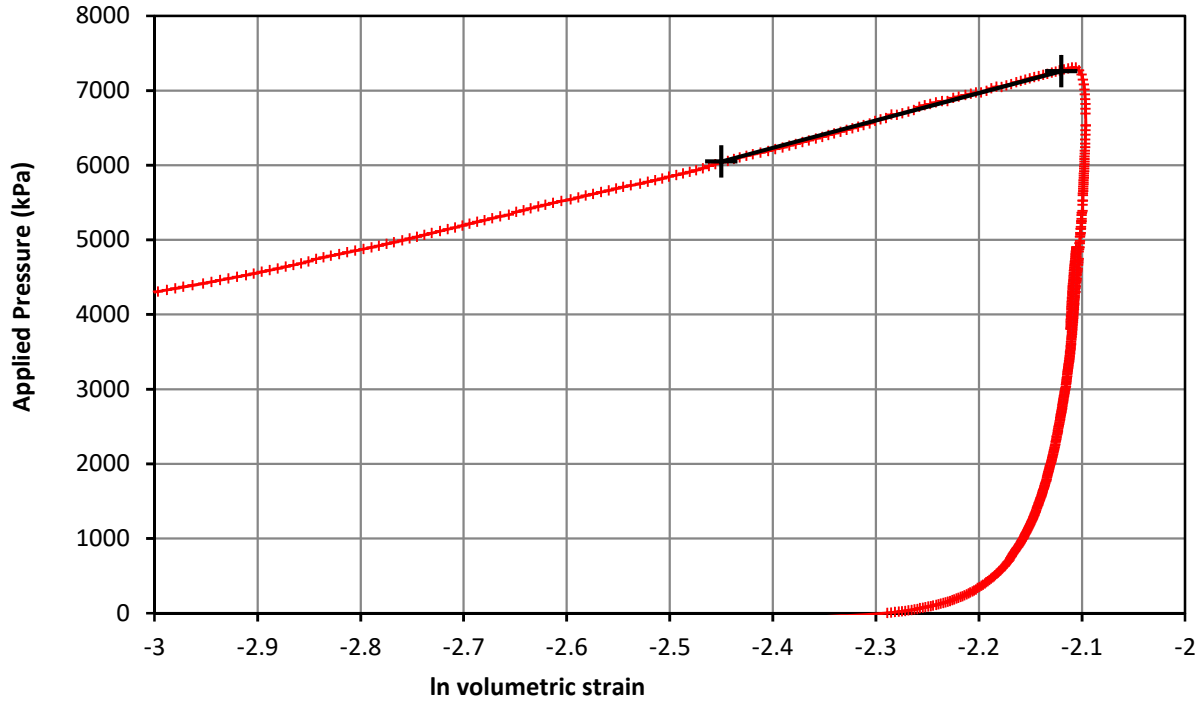
Shear Strain	Loop 1	Loop 2	Loop 3	Loop 4
0.001%	338	679	1252	2289
0.002%	302	619	1109	2045
0.005%	261	549	944	1762
0.010%	233	501	836	1574
0.020%	209	457	741	1406
0.050%	180	405	631	1211
0.100%	161	370	559	1082
0.200%	144	338	495	967
0.500%	124	299	421	833
1.000%	111	273	373	744

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 06
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter Test - Strength



Test Date	13/06/2019	Test No.	1
Borehole	R71903	Test Depth (m)	16.00



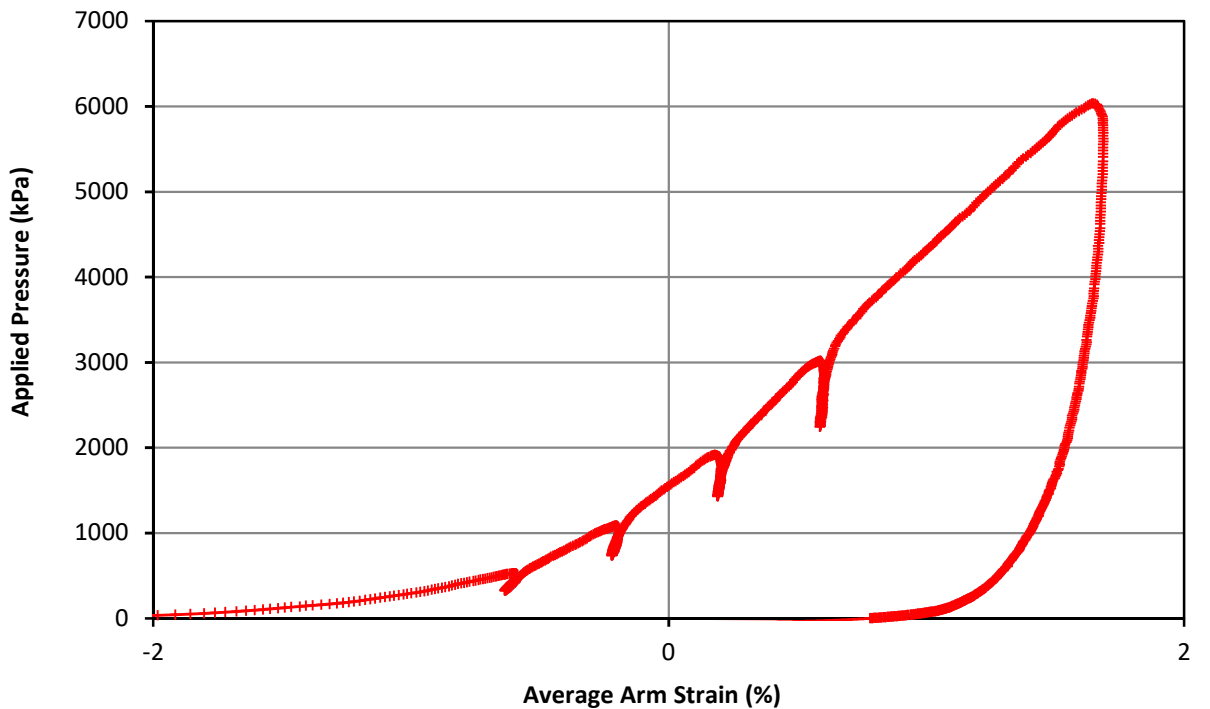
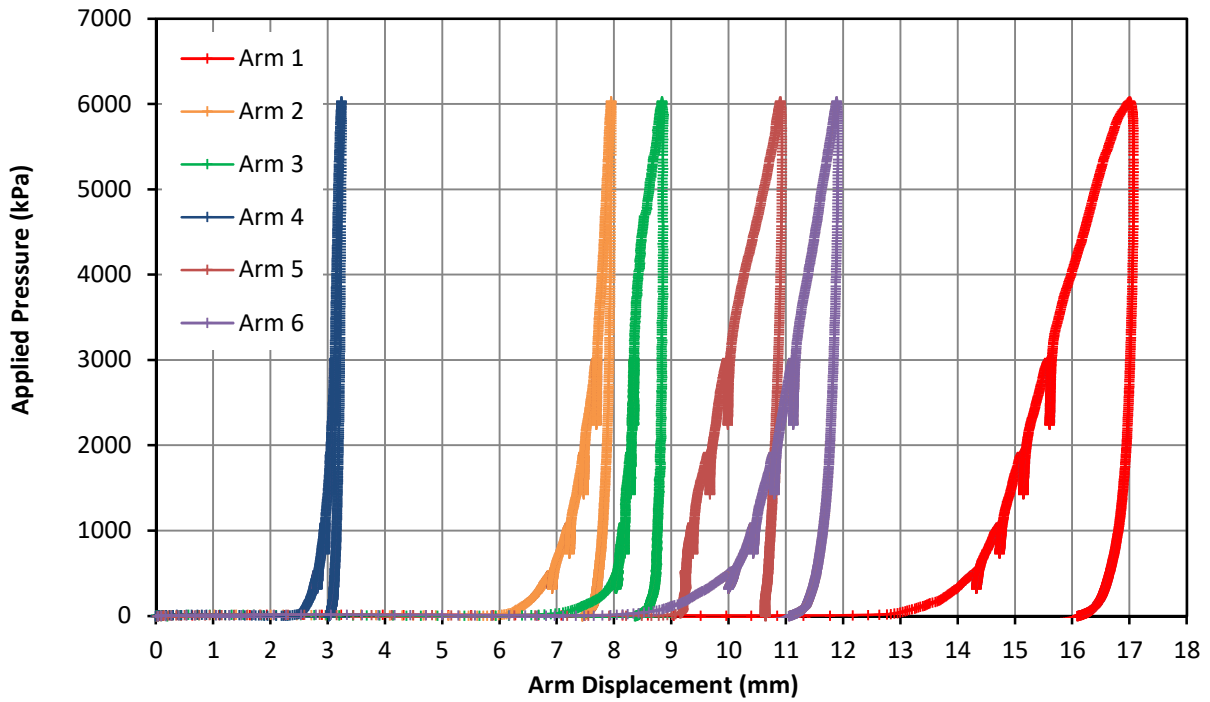
Strength	Undrained Shear	3667 kPa
	Limit Pressure	15033 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T01 - 07
Client	Geotechnics		
Project No.	P1190110		

Pressuremeter Test Overview



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00



Comments

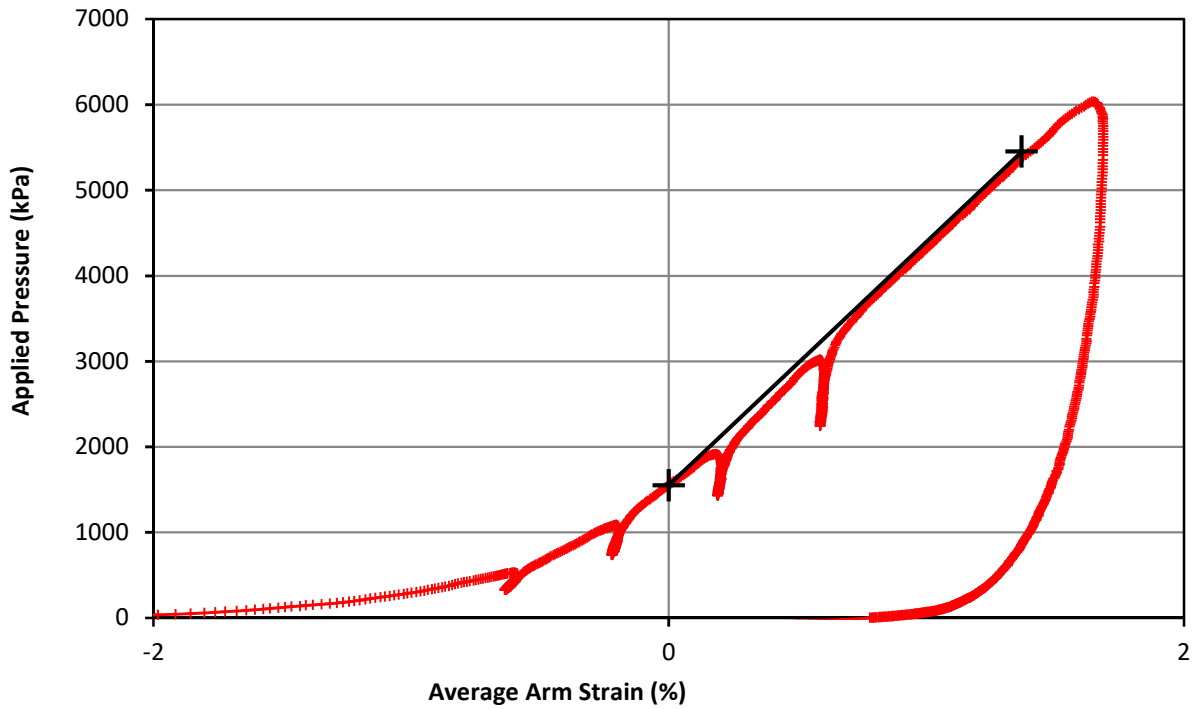
Extremely large test pocket. Test stopped at 6MPa as arm 1 at maximum displacement.

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 01
Client	Geotechnics Ltd		
Project No.	P1190108		

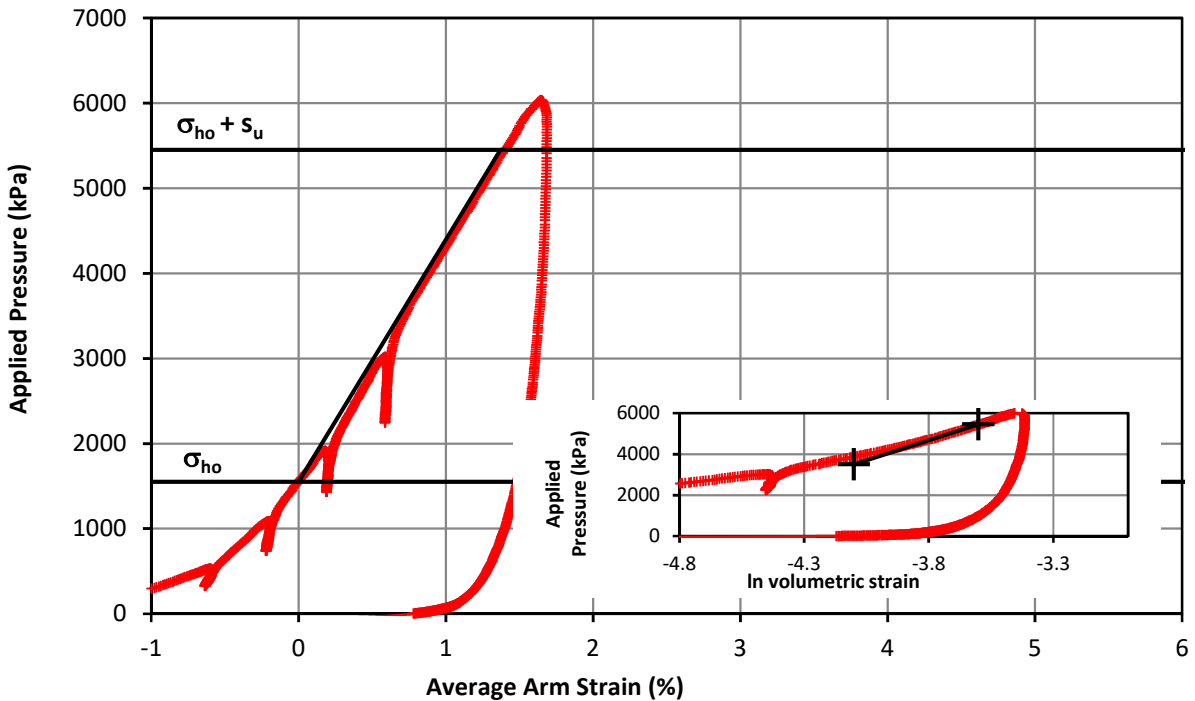
Pressuremeter Test Initial Modulus & In Situ Horizontal Stress



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00



Initial Modulus	Shear Modulus	144.3 MPa
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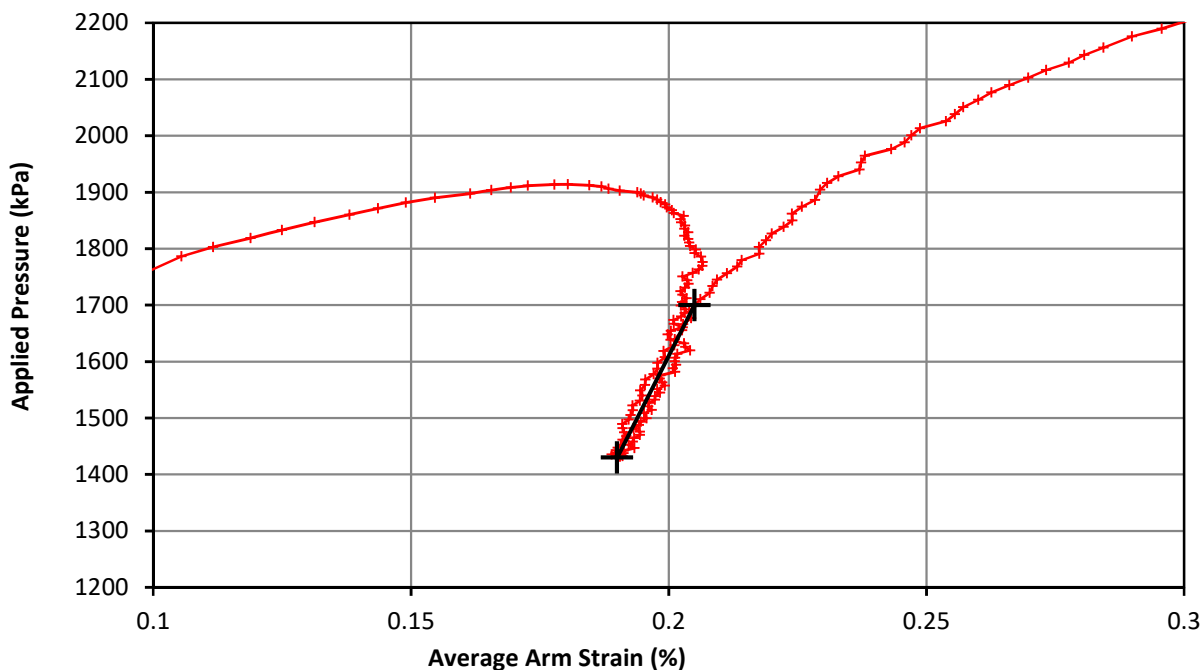
Marsland & Randolph	In situ horizontal stress	1550 kPa
	Undrained Strength	3900 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 02
Client	Geotechnics Ltd		
Project No.	P1190108		

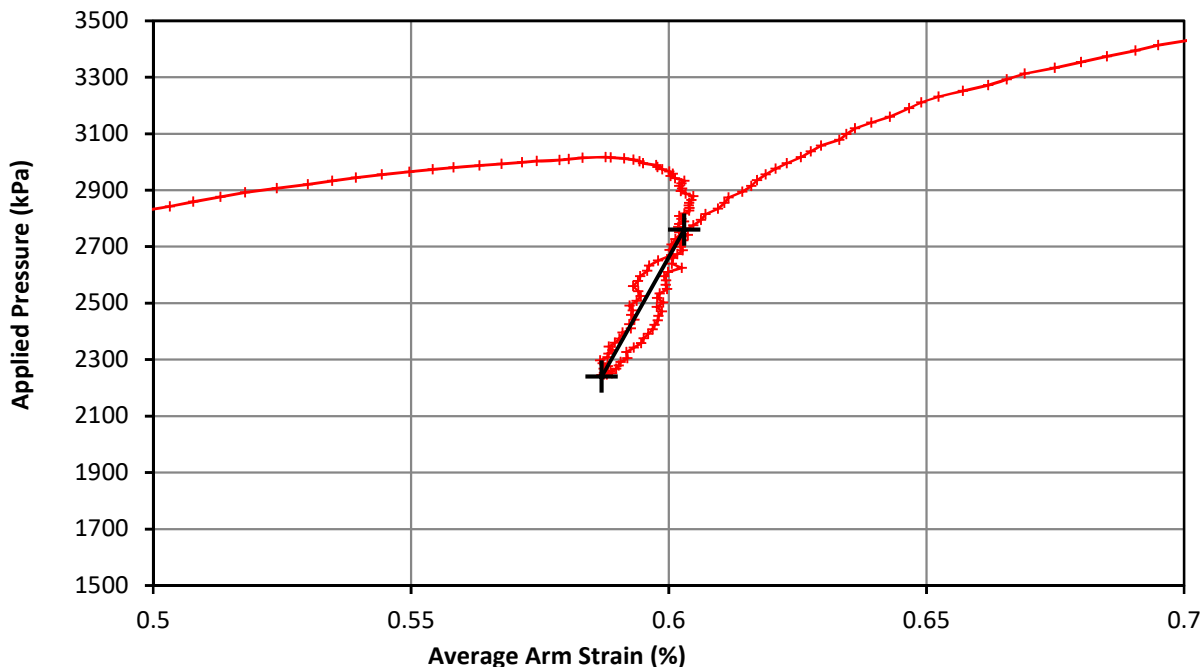
Pressuremeter Test Unload Reload Loop



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00



Loop 1	Shear Modulus	901.8 MPa
	Cavity Strain Range	0.015 %



Loop 2	Shear Modulus	1634.8 MPa
	Cavity Strain Range	0.016 %

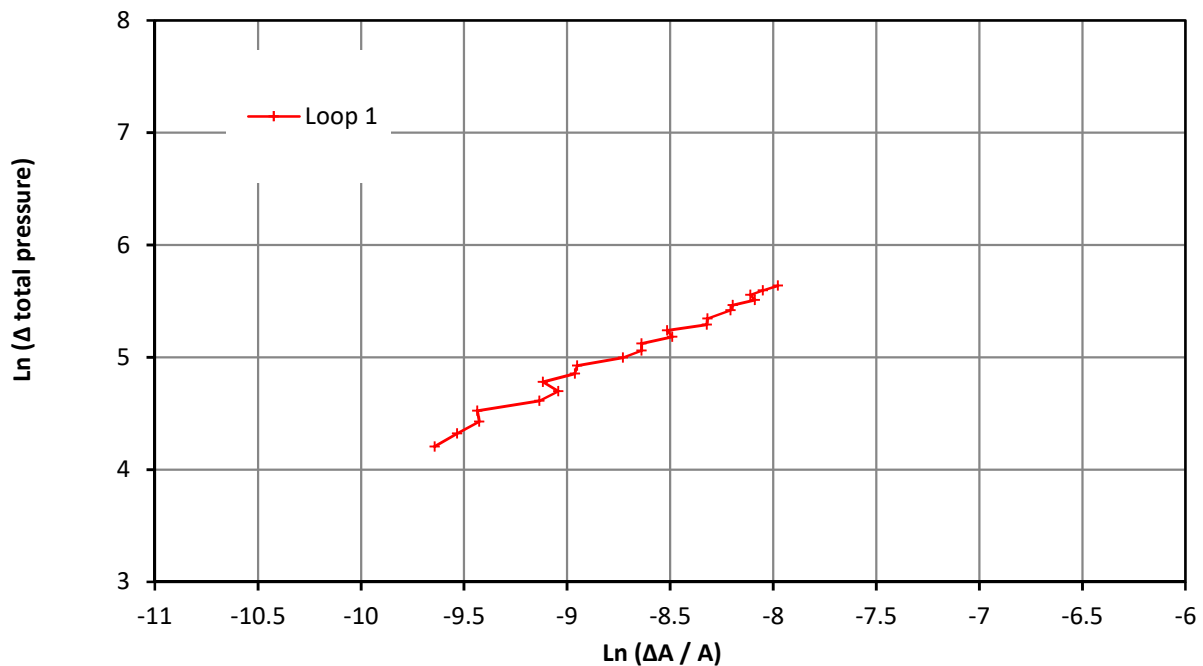
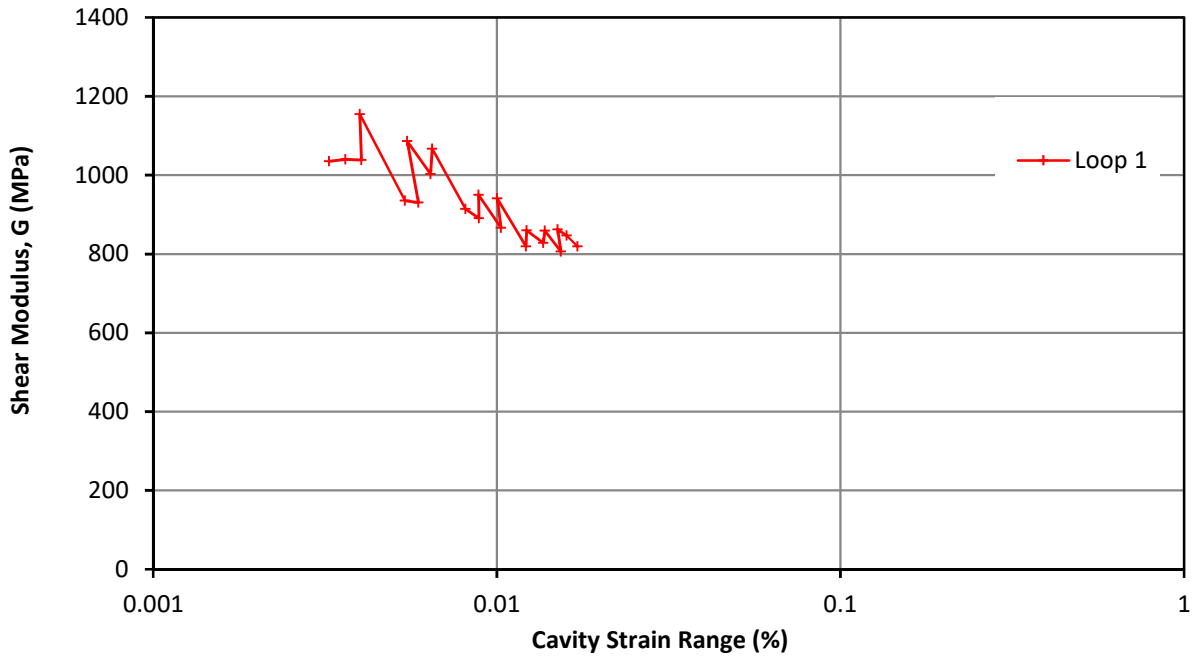
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 03
Client	Geotechnics Ltd		
Project No.	P1190108		

Pressuremeter Analysis

Small Strain Stiffness and Bolton and Whittle (1999)



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00



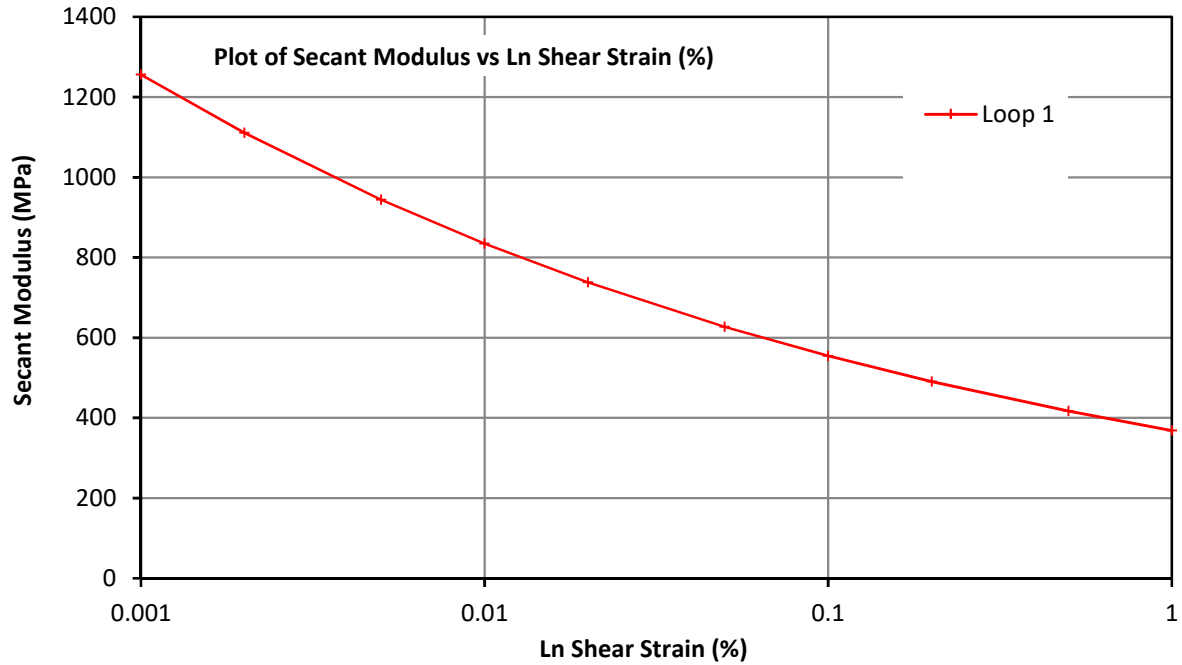
Loop 1	
Gradient(β)	Intercept
0.823	197.820 (MPa)

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 04
Client	Geotechnics Ltd		
Project No.	P1190108		

Pressuremeter Analysis
 Secant Modulus - Shear Strain (%)



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00



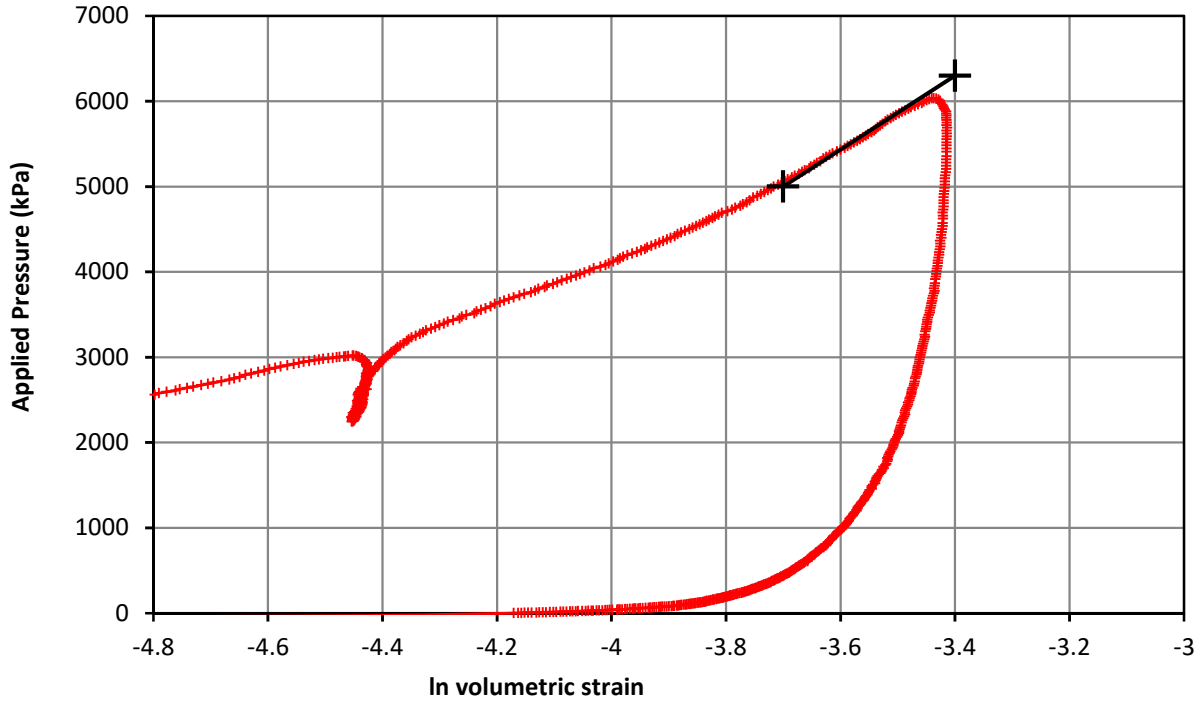
Shear Strain	Loop 1
0.001%	1256
0.002%	1110
0.005%	944
0.010%	834
0.020%	738
0.050%	627
0.100%	554
0.200%	490
0.500%	417
1.000%	368

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 05
Client	Geotechnics Ltd		
Project No.	P1190108		

Pressuremeter Test - Strength



Test Date	25/06/2019	Test No.	2
Borehole	R71903	Test Depth (m)	24.00

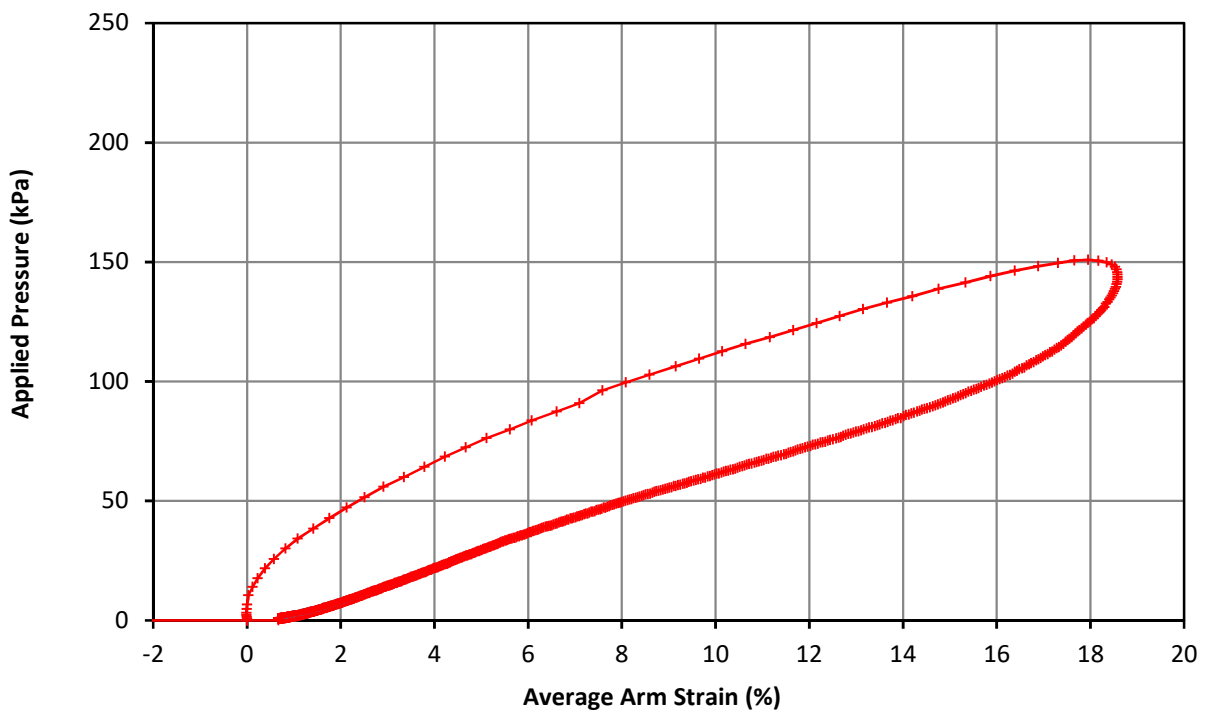
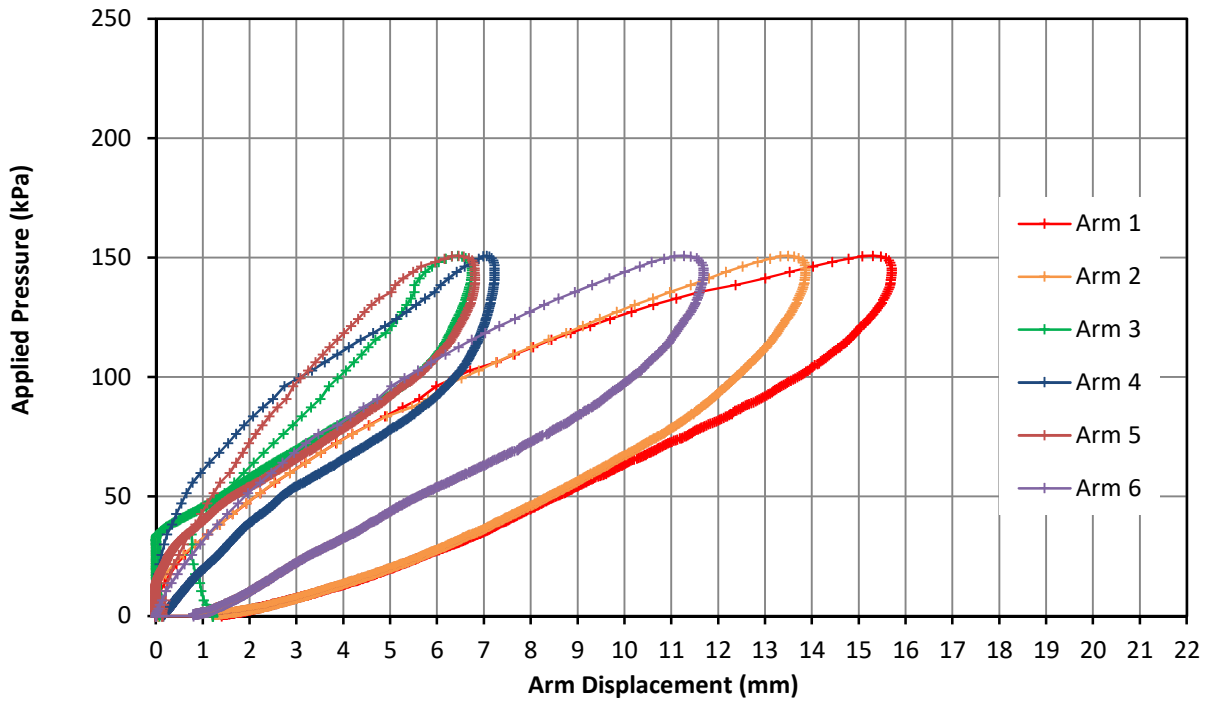


Strength	Undrained Shear	4333 kPa
	Limit Pressure	21033 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T02 - 06
Client	Geotechnics Ltd		
Project No.	P1190108		

Pressuremeter Test Overview

Test Date	26/06/2019	Test No.	3
Borehole	R71903	Test Depth (m)	28.00



Comments

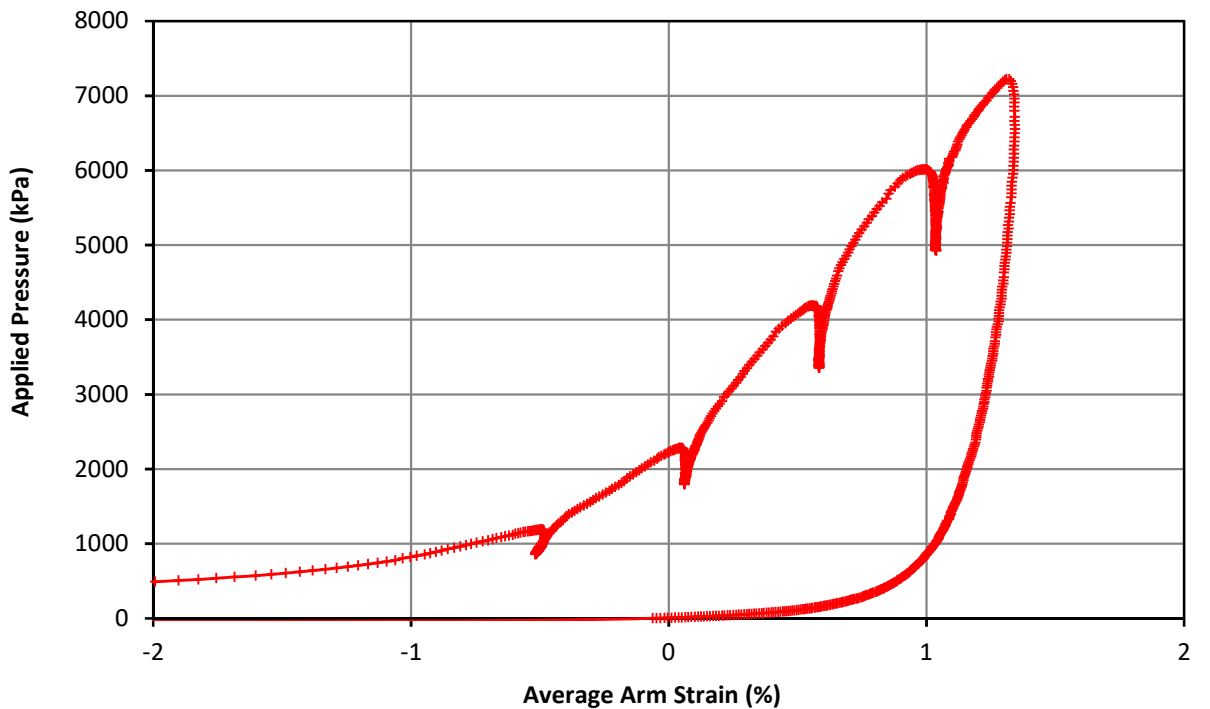
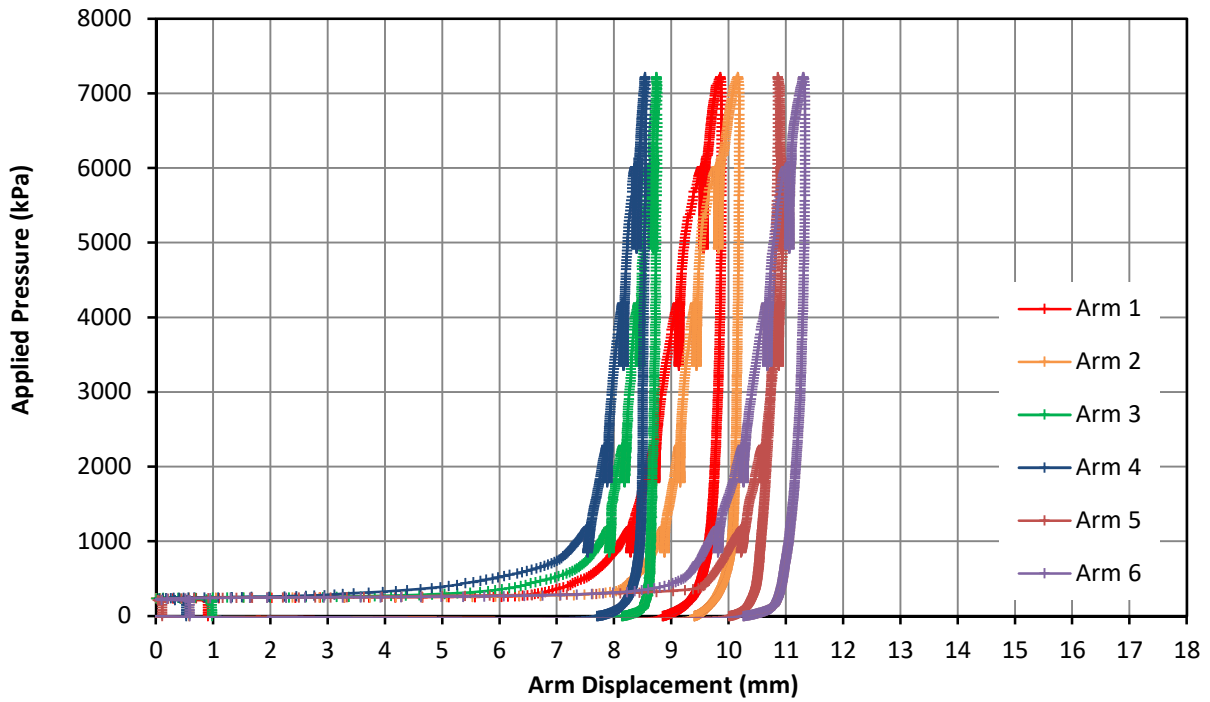
Extremely oversize test pocket. Arms not in contact with pocket wall. Test aborted.

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T03 - 01
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test Overview



Test Date	26/06/2019	Test No.	4
Borehole	R71903	Test Depth (m)	31.00



Comments

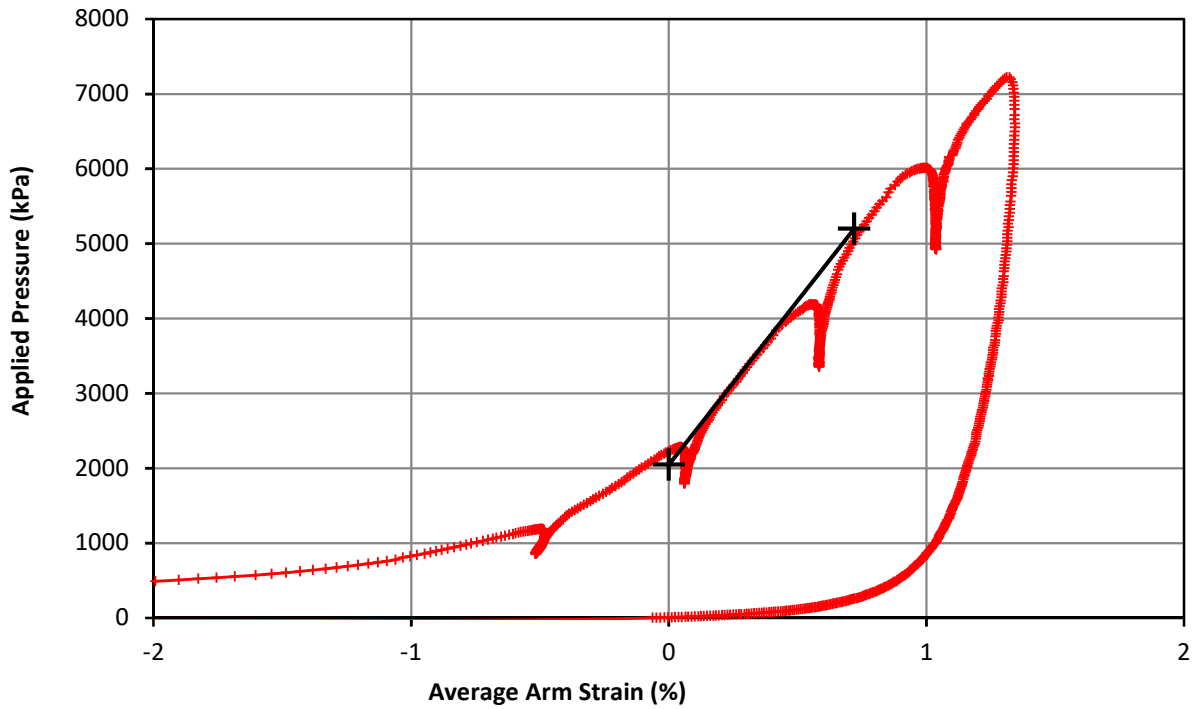
Large test pocket. Difficult to maintain loop definition at low strain levels.

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T04 - 01
Client	Causeway Geotechnical Ltd		
Project No.	P1190110		

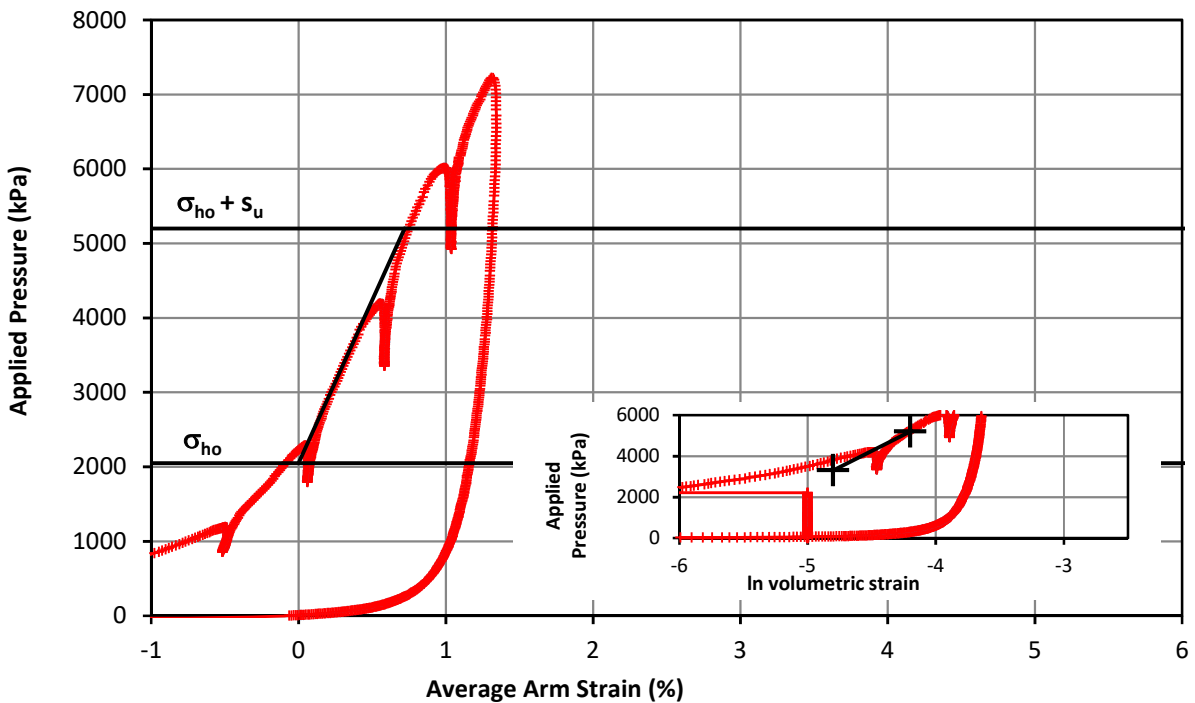
Pressuremeter Test Initial Modulus & In Situ Horizontal Stress



Test Date	26/06/2019	Test No.	4
Borehole	R71903	Test Depth (m)	31.00



Initial Modulus	Shear Modulus	220.3 MPa
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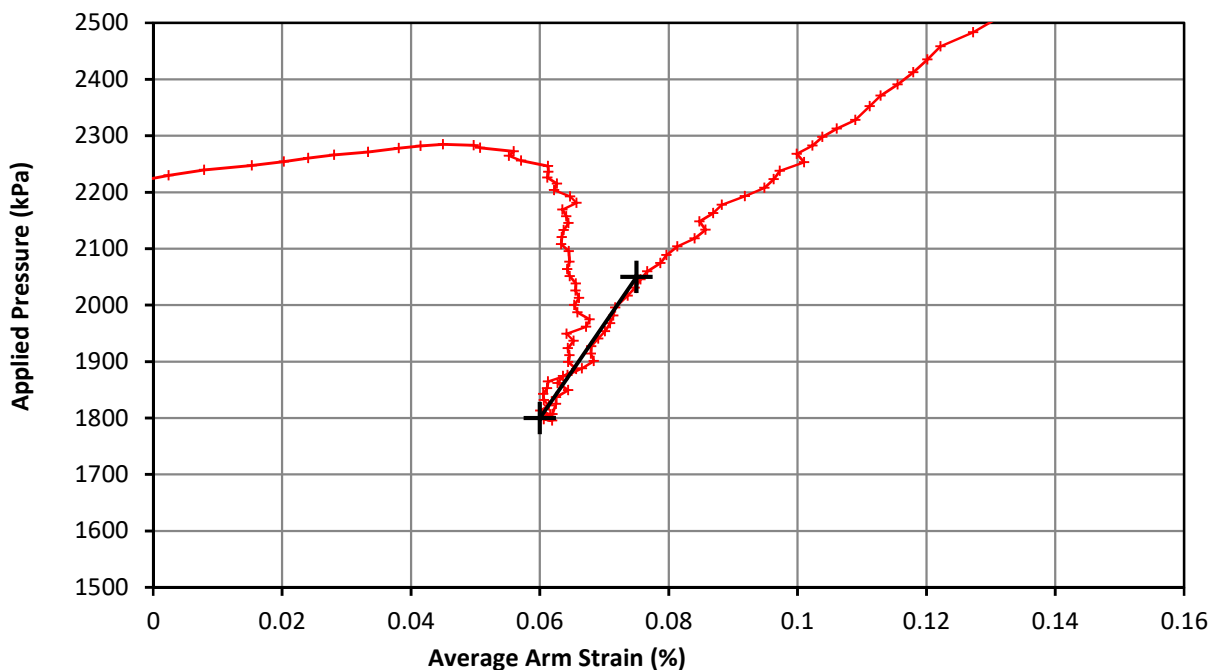
Marsland & Randolph	In situ horizontal stress	2050 kPa
	Undrained Strength	3150 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T04 - 02
Client	Causeway Geotechnical Ltd		
Project No.	P1190110		

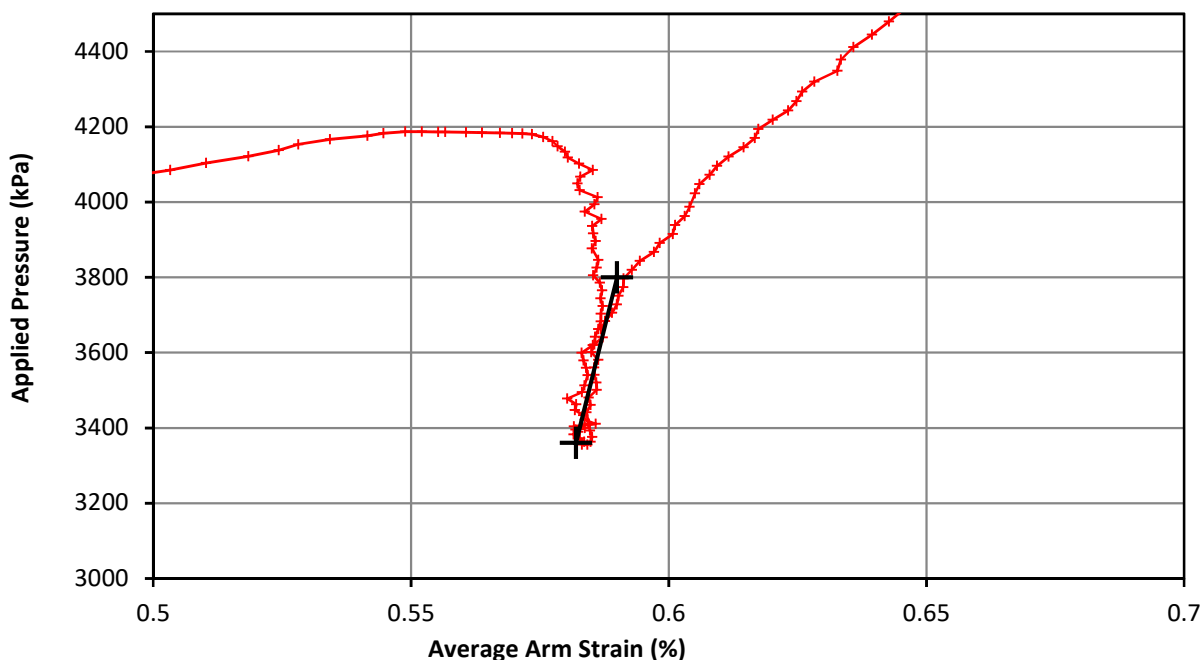
Pressuremeter Test Unload Reload Loop



Test Date	26/06/2019	Test No.	4
Borehole	R71903	Test Depth (m)	31.00



Loop 1	Shear Modulus	834.0 MPa
	Cavity Strain Range	0.015 %



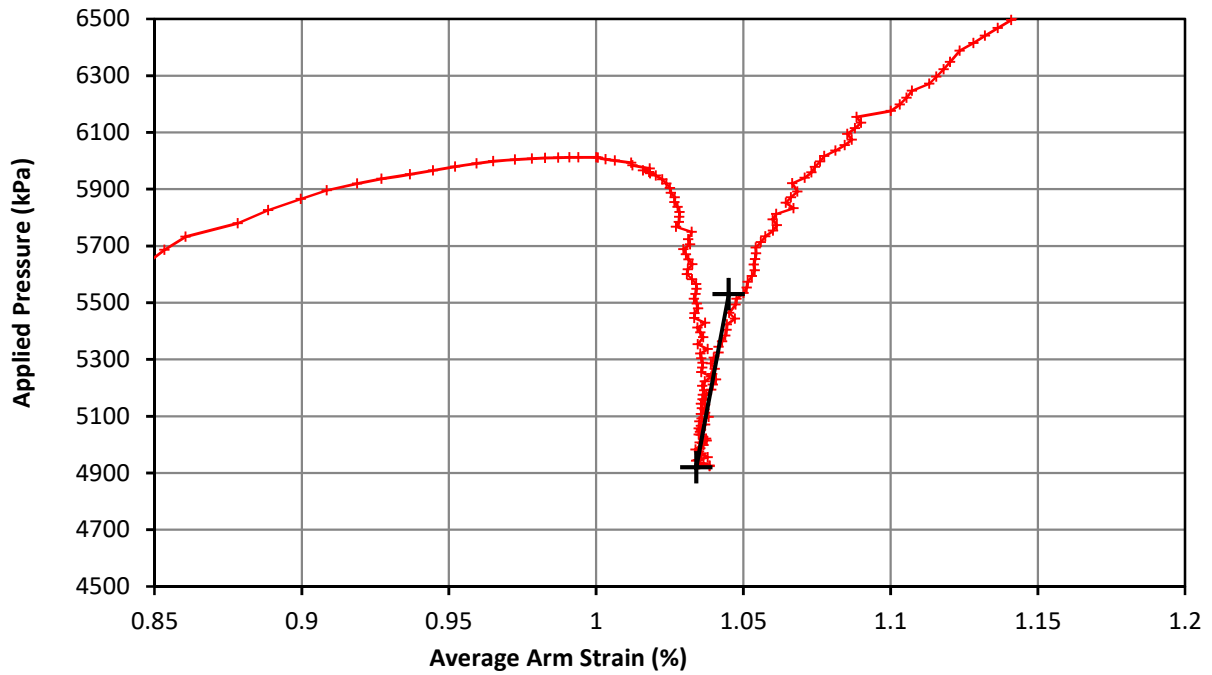
Loop 2	Shear Modulus	2766.2 MPa
	Cavity Strain Range	0.008 %

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T04 - 03
Client	Causeway Geotechnical Ltd		
Project No.	P1190110		

Pressuremeter Test Unload Reload Loop



Test Date	26/06/2019	Test No.	4
Borehole	R71903	Test Depth (m)	31.00



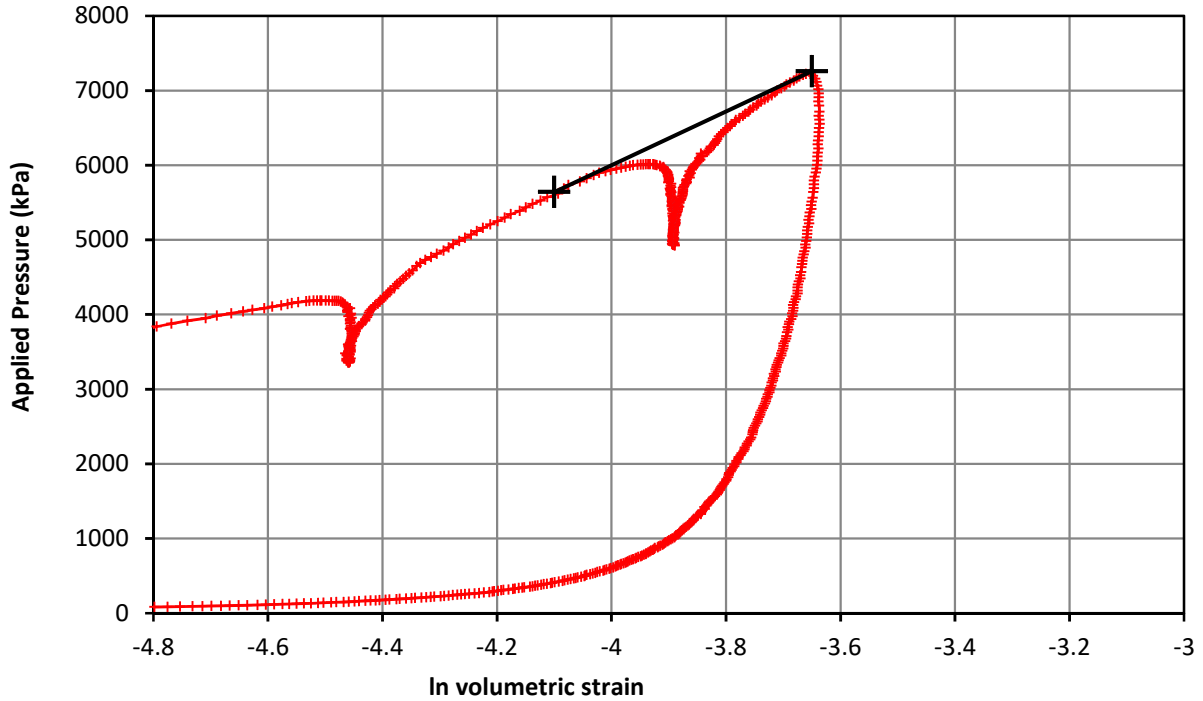
Loop 3	Shear Modulus	2801.7	MPa
	Cavity Strain Range	0.011	%

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T04 - 04
Client	Causeway Geotechnical Ltd		
Project No.	P1190110		

Pressuremeter Test - Strength



Test Date	26/06/2019	Test No.	4
Borehole	R71903	Test Depth (m)	31.00

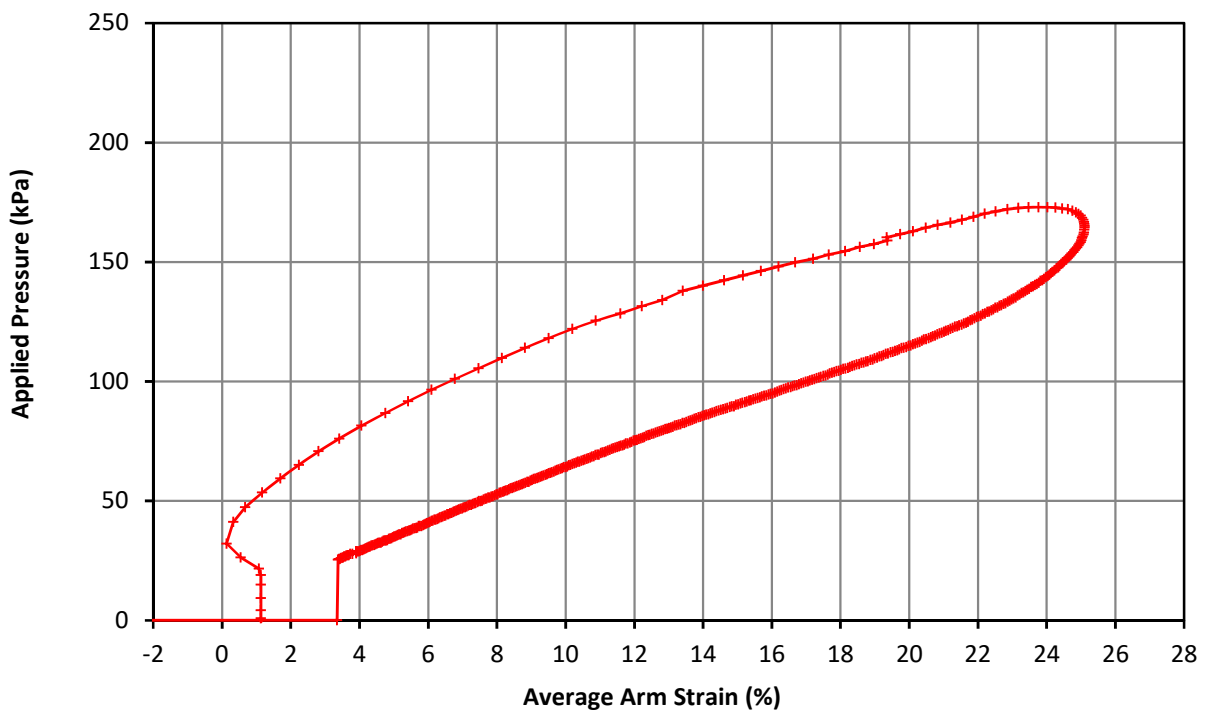
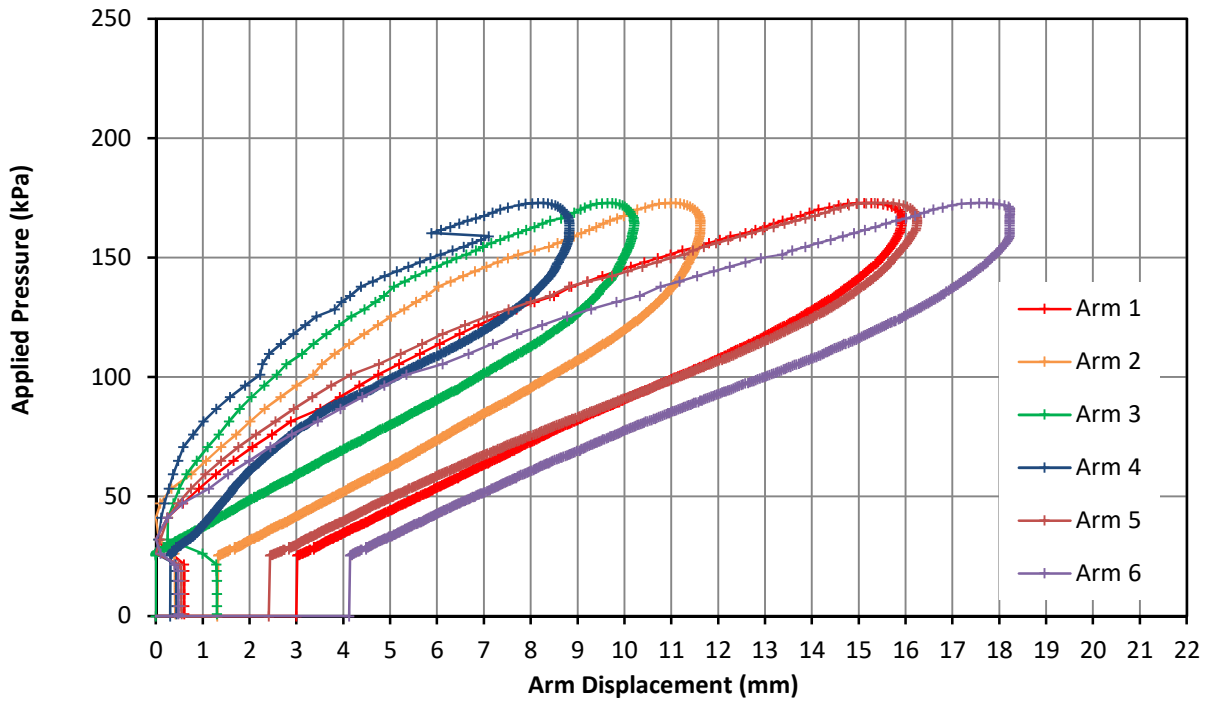


Strength	Undrained Shear	3600 kPa
	Limit Pressure	20400 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T04 - 05
Client	Causeway Geotechnical Ltd		
Project No.	P1190110		

Pressuremeter Test Overview

Test Date	27/06/2019	Test No.	5
Borehole	R71903	Test Depth (m)	34.70



Comments

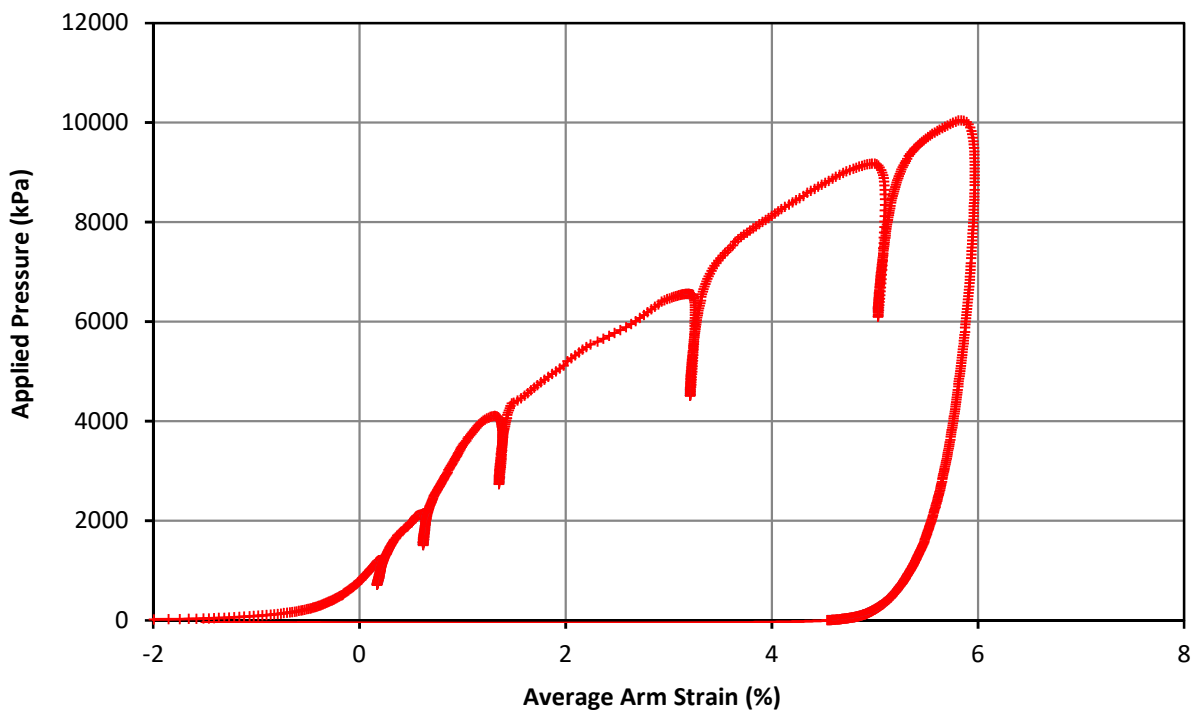
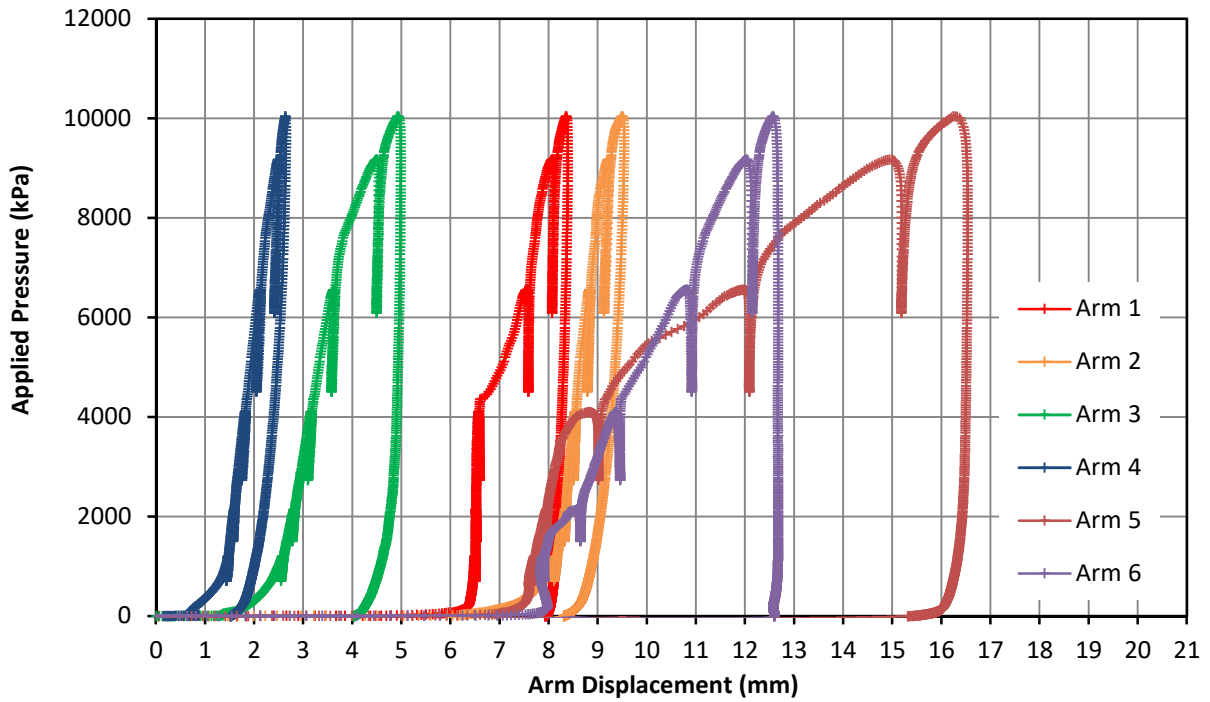
Extremely oversize test pocket. Arms not in contact with pocket wall. Test aborted.

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T05 - 01
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test Overview



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



Comments

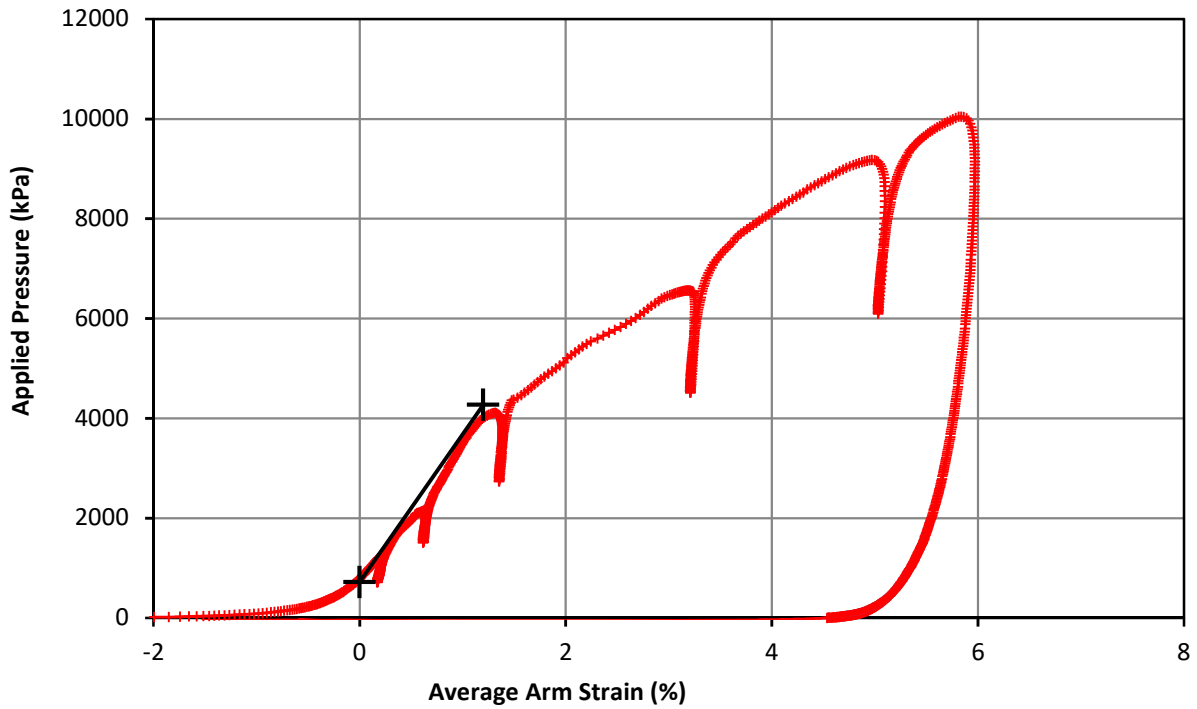
Large uneven test pocket. Sudden yield at 4270kPa around one part of the instrument. Further yield at 7530kPa on arms 3 & 4.

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 01
Client	Geotechnics Ltd		
Project No.	P1190110		

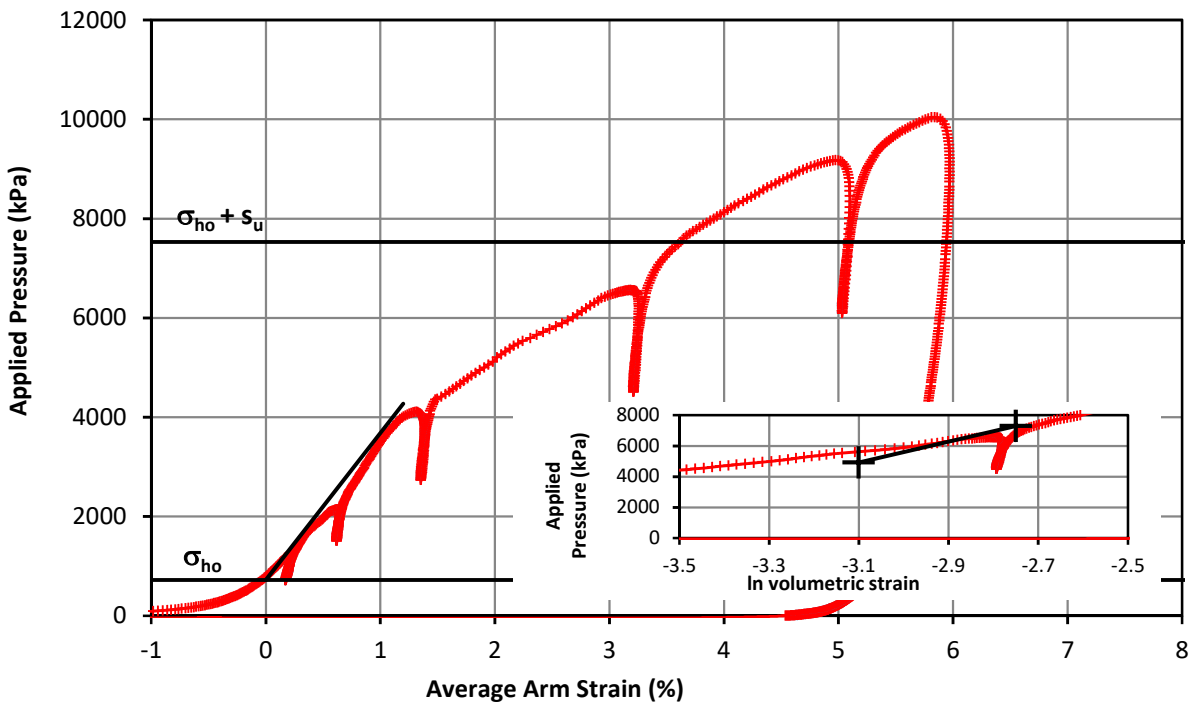
Pressuremeter Test Initial Modulus & In Situ Horizontal Stress



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



Initial Modulus	Shear Modulus	149.7 MPa
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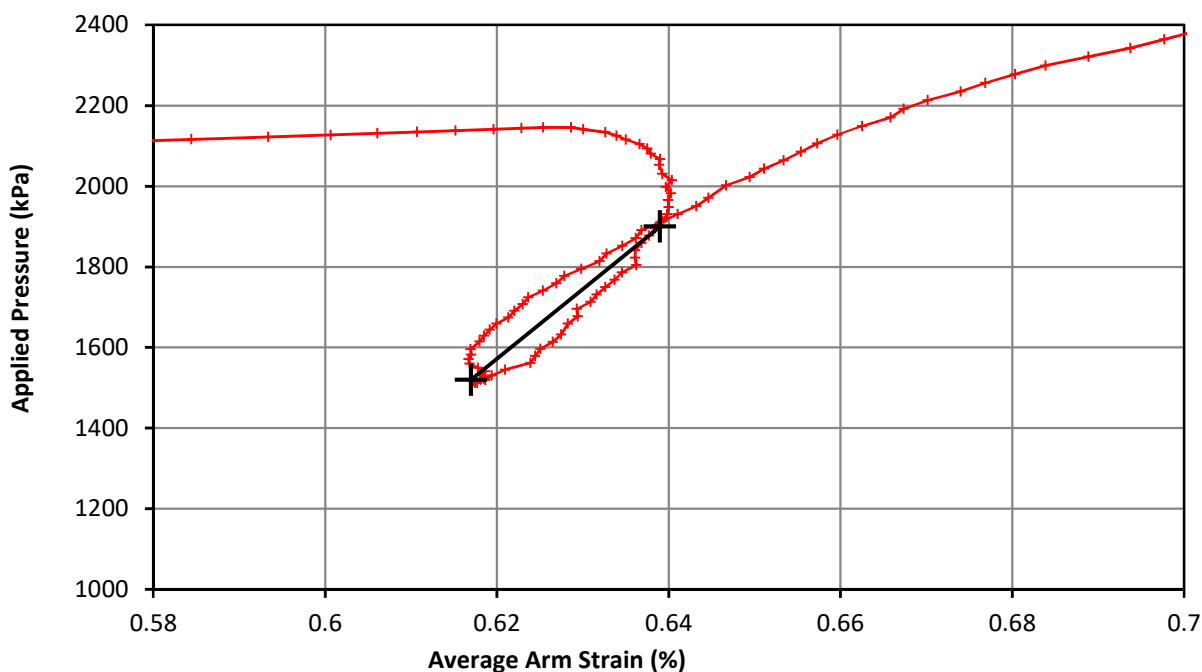
Marsland & Randolph	In situ horizontal stress	720 kPa
	Undrained Strength	6810 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 02
Client	Geotechnics Ltd		
Project No.	P1190110		

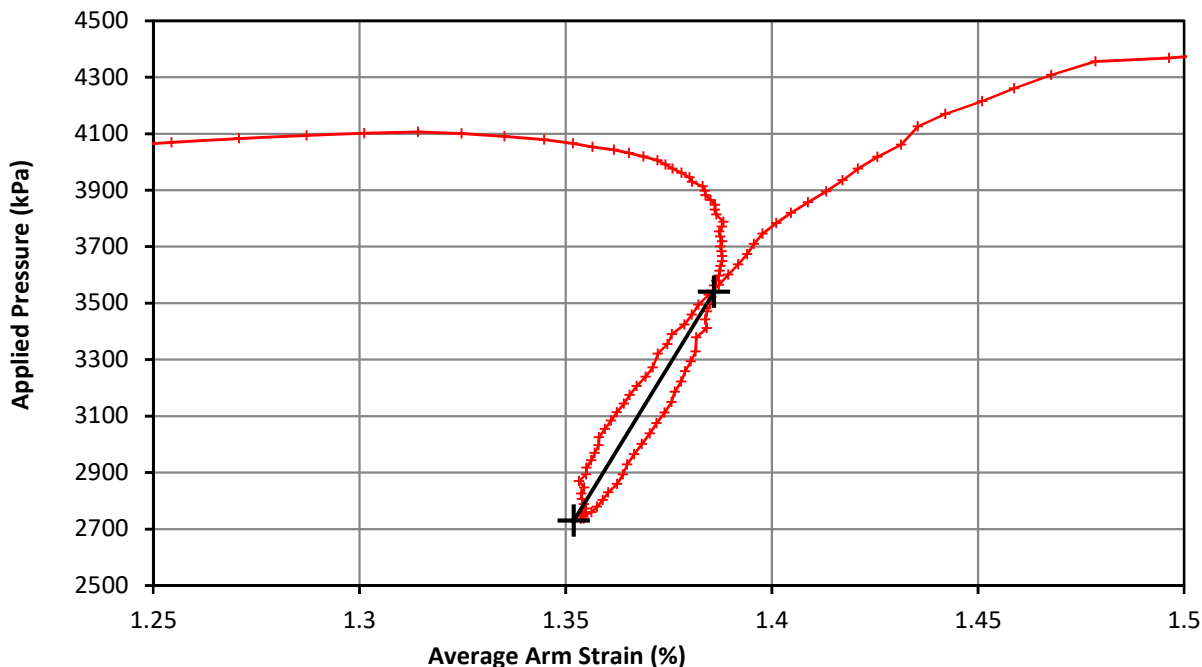
Pressuremeter Test Unload Reload Loop



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



Loop 1	Shear Modulus	869.2 MPa
	Cavity Strain Range	0.022 %



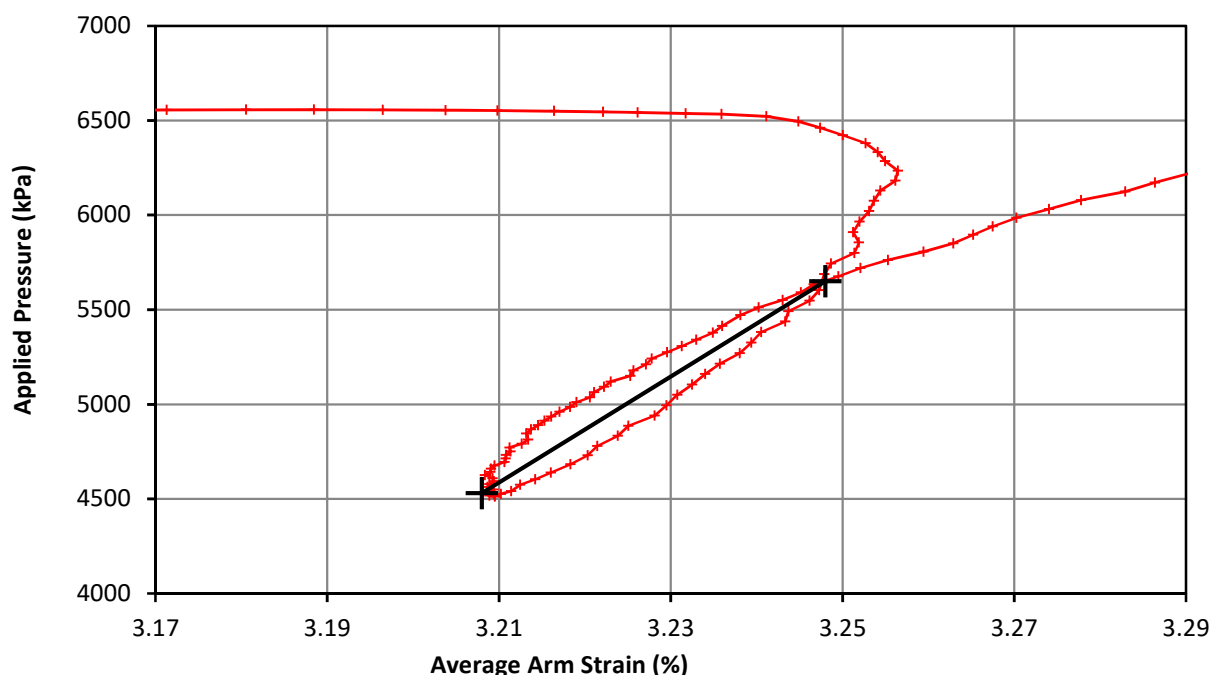
Loop 2	Shear Modulus	1207.7 MPa
	Cavity Strain Range	0.034 %

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 03
Client	Geotechnics Ltd		
Project No.	P1190110		

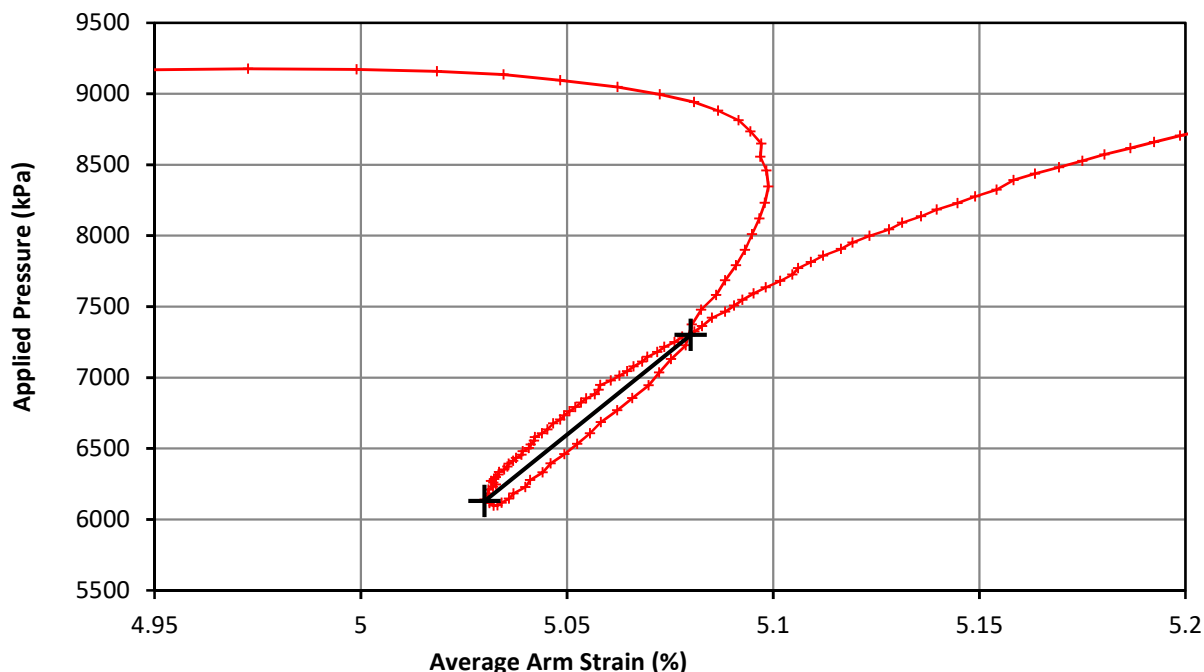
Pressuremeter Test Unload Reload Loop



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



Loop 3	Shear Modulus	1445.5 MPa
	Cavity Strain Range	0.040 %



Loop 4	Shear Modulus	1229.4 MPa
	Cavity Strain Range	0.050 %

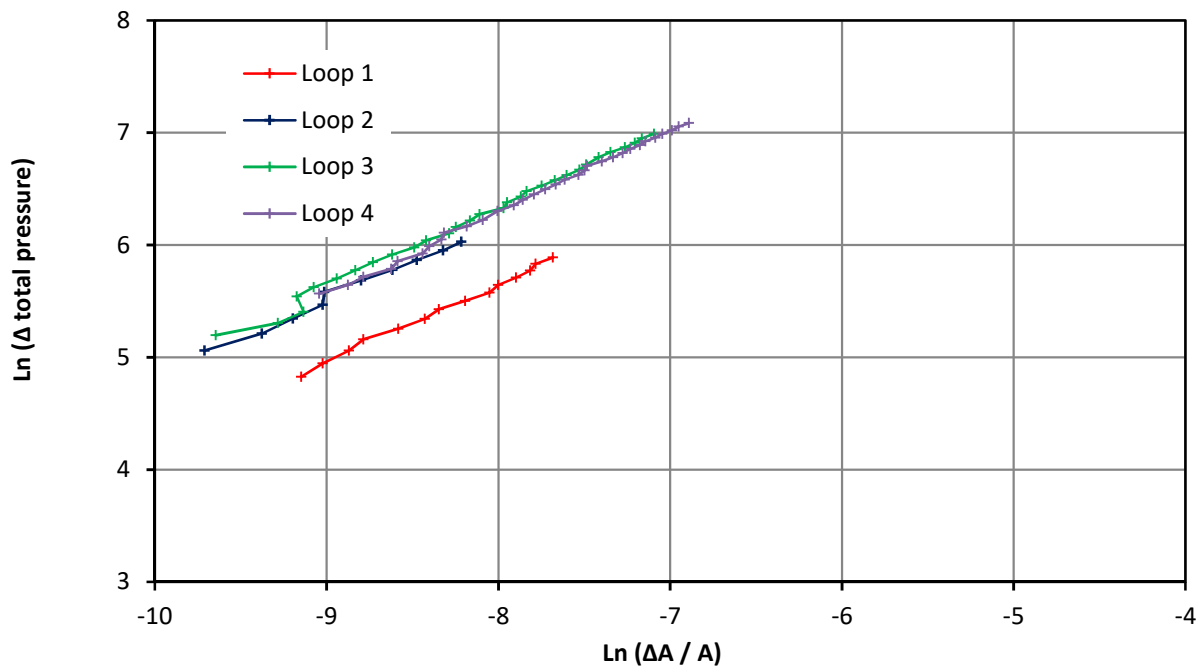
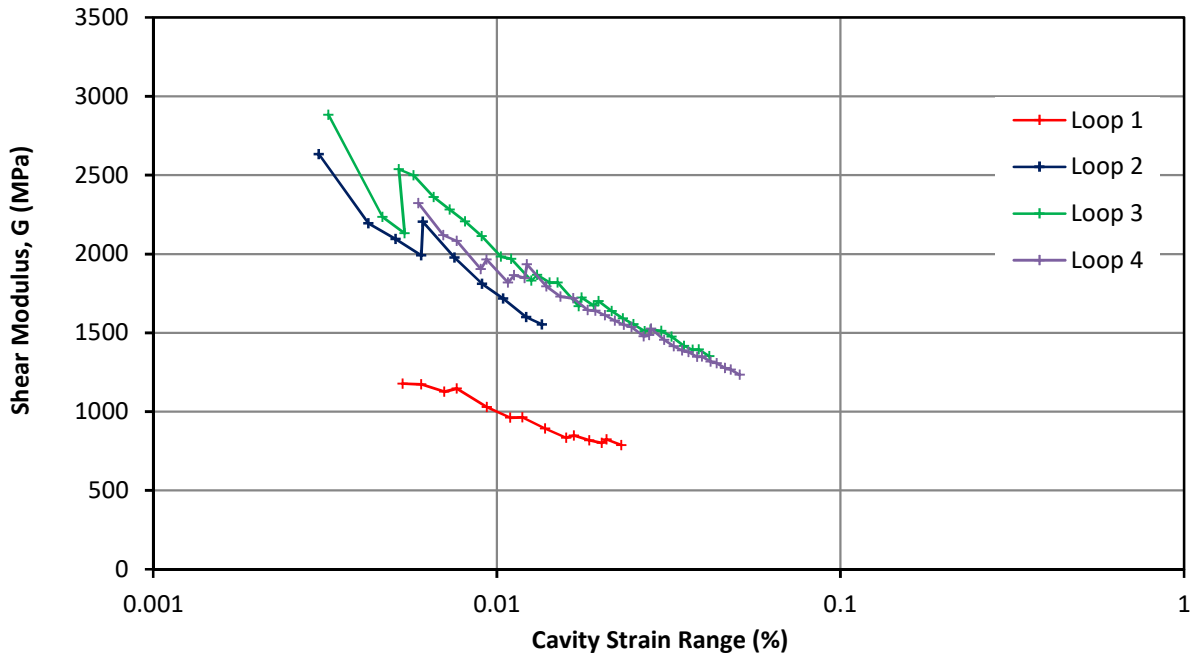
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 04
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Analysis

Small Strain Stiffness and Bolton and Whittle (1999)



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



Loop 1		Loop 2		Loop 3		Loop 4	
Gradient(β)	Intercept	Gradient(β)	Intercept	Gradient(β)	Intercept	Gradient(β)	Intercept
0.691	71.791 (MPa)	0.674	106.487 (MPa)	0.722	183.149 (MPa)	0.731	187.816 (MPa)

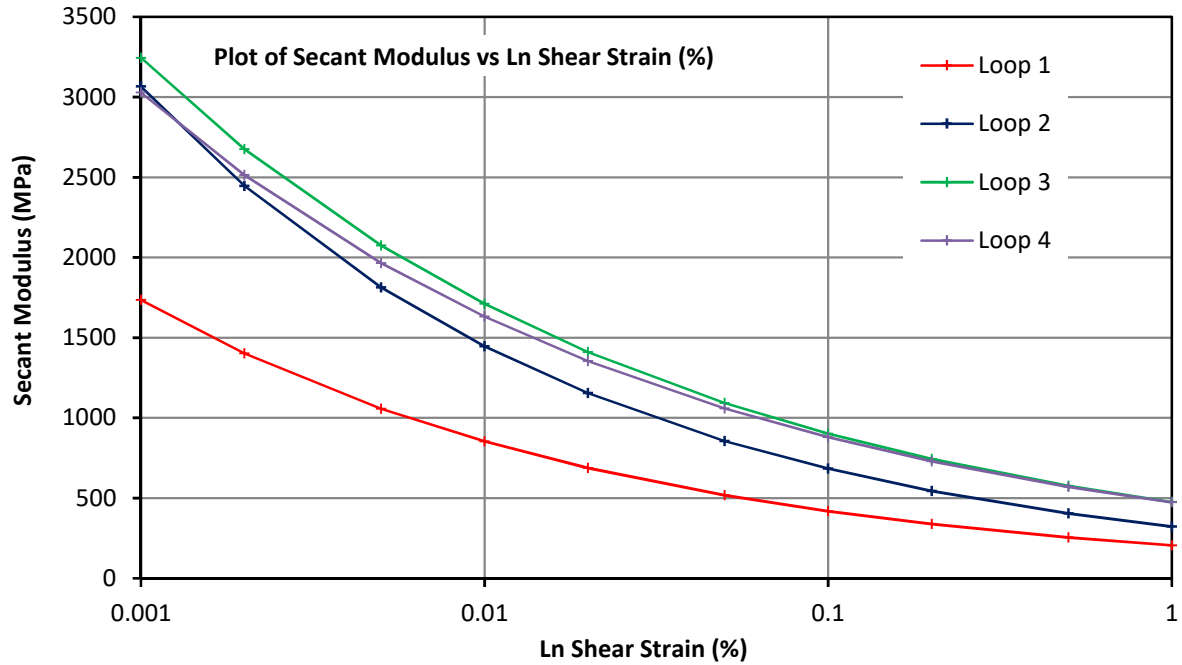
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 05
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Analysis

Secant Modulus - Shear Strain (%)



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



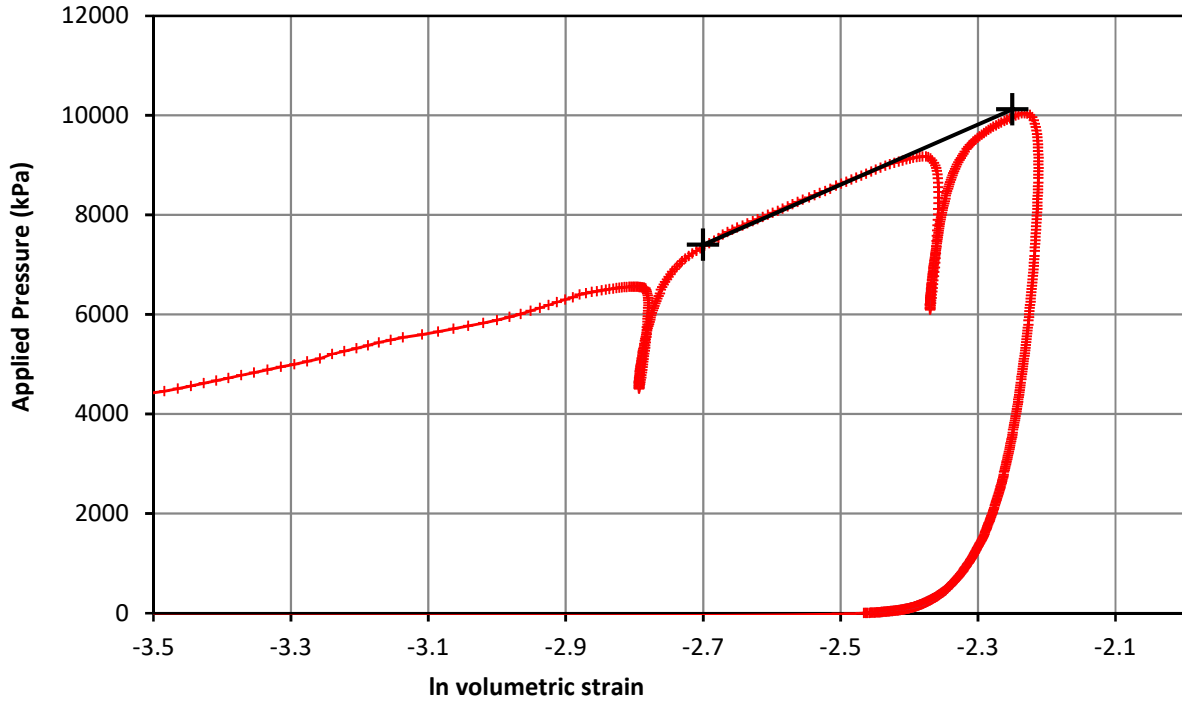
Shear Strain	Loop 1	Loop 2	Loop 3	Loop 4
0.001%	1735	3065	3244	3027
0.002%	1401	2445	2675	2513
0.005%	1056	1813	2074	1964
0.010%	852	1447	1710	1631
0.020%	688	1154	1411	1354
0.050%	519	856	1094	1058
0.100%	419	683	902	879
0.200%	338	545	744	729
0.500%	255	404	577	570
1.000%	206	322	476	473

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 06
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test - Strength



Test Date	27/06/2019	Test No.	6
Borehole	R71903	Test Depth (m)	37.00



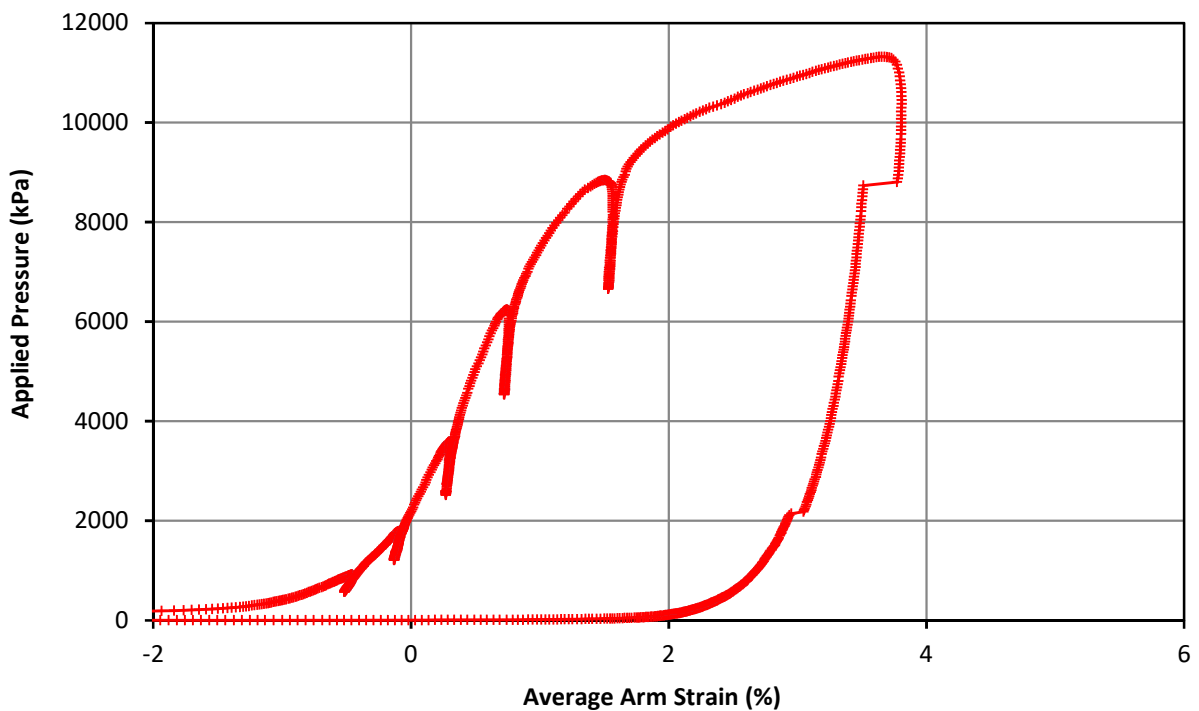
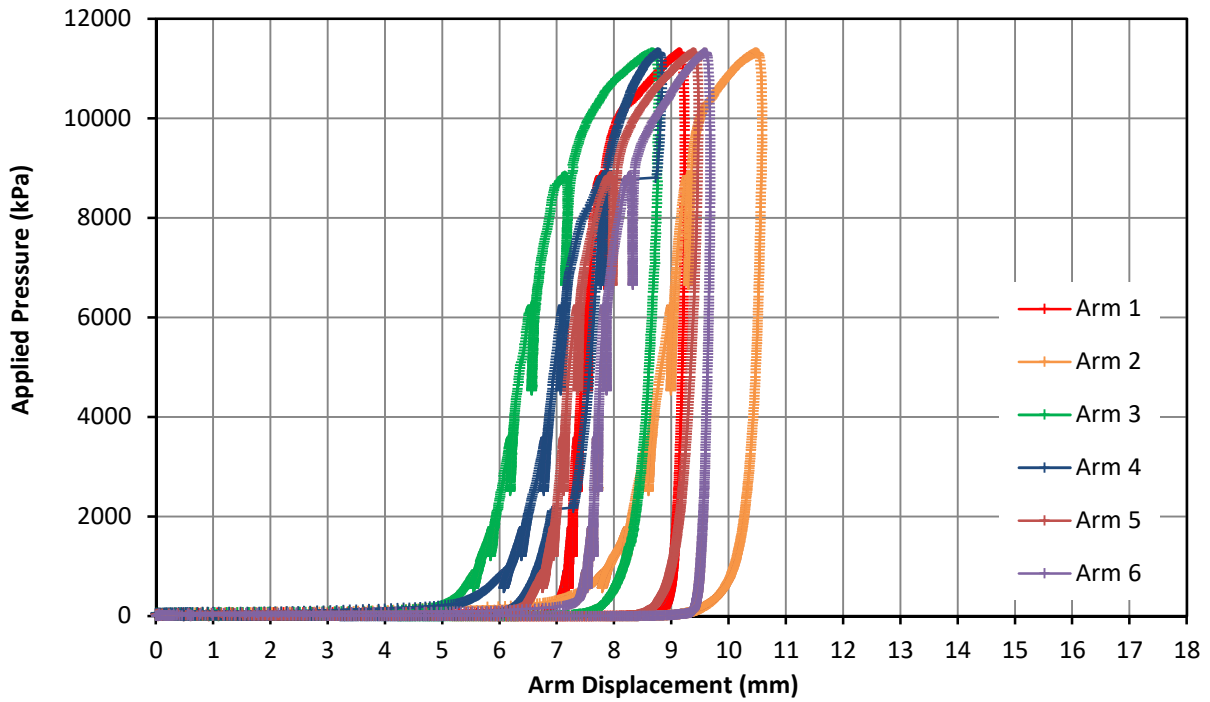
Strength	Undrained Shear	6044 kPa
	Limit Pressure	23720 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T06 - 07
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test Overview



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



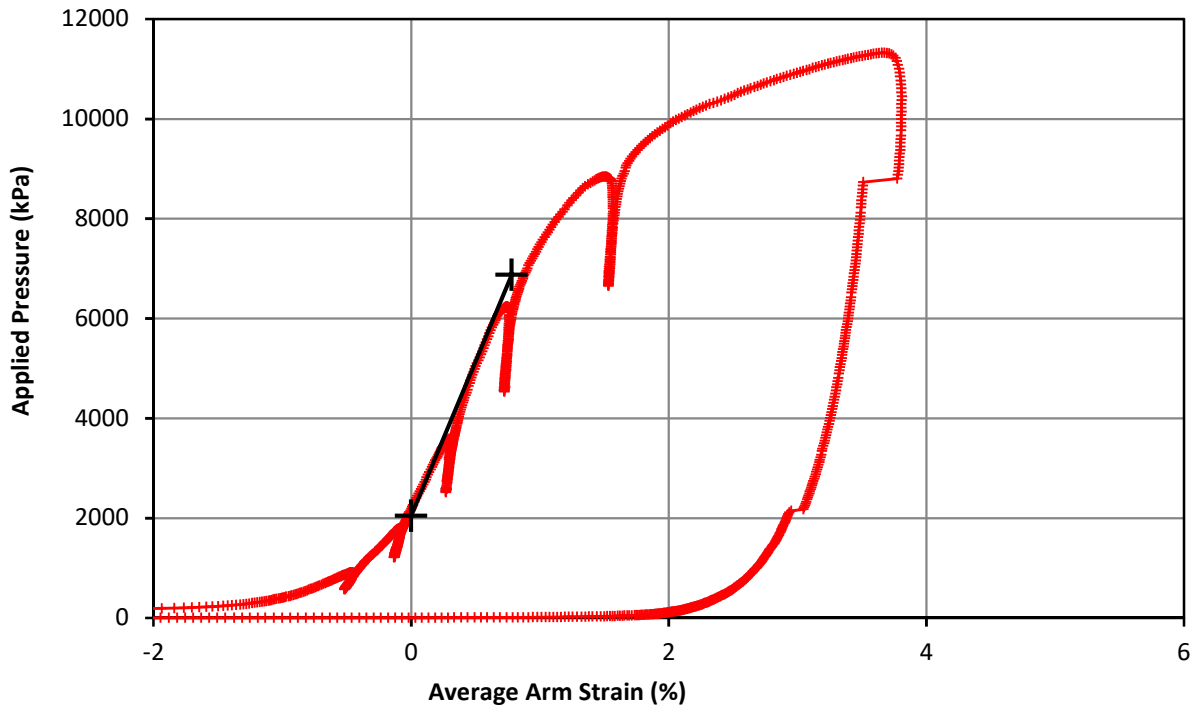
Comments

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 01
Client	Geotechnics Ltd		
Project No.	P1190110		

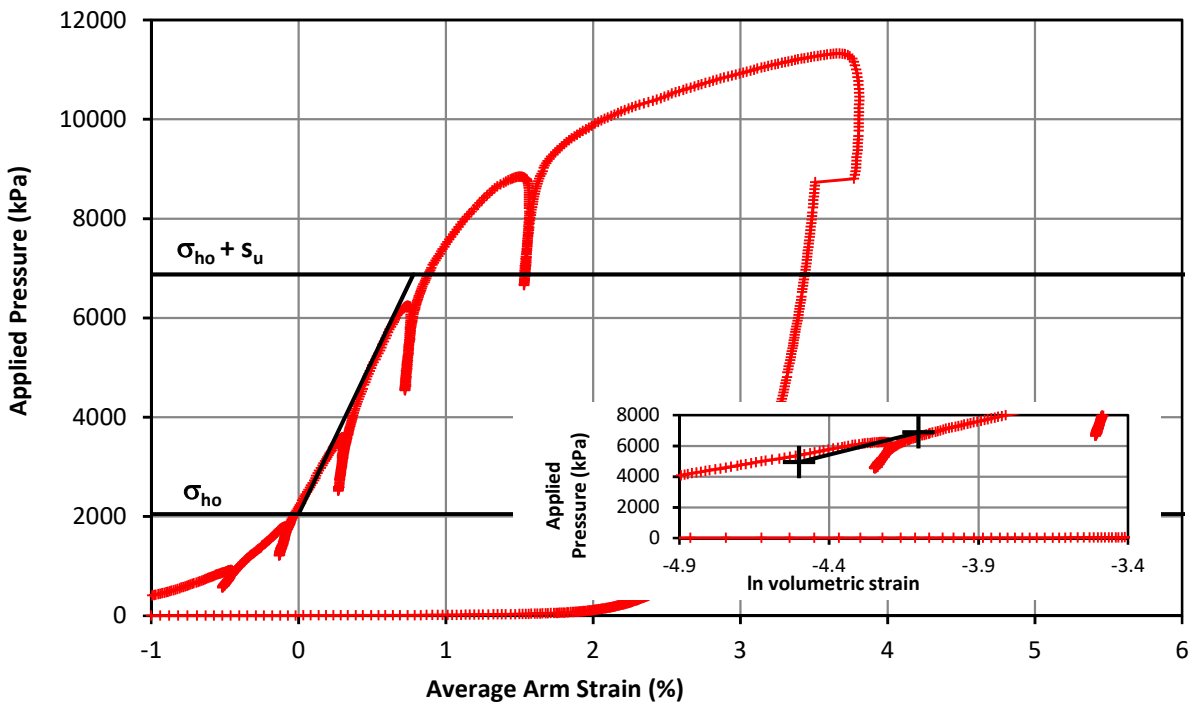
Pressuremeter Test Initial Modulus & In Situ Horizontal Stress



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



Initial Modulus	Shear Modulus	311.7 MPa
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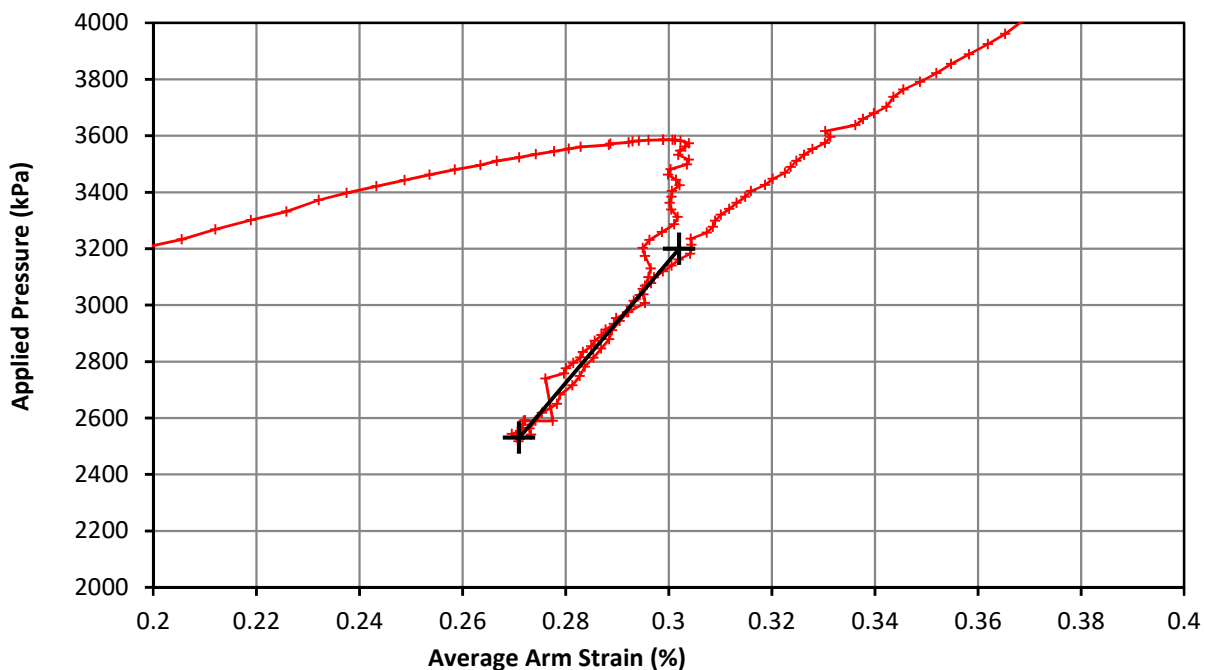
Marsland & Randolph	In situ horizontal stress	2050 kPa
	Undrained Strength	4825 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 02
Client	Geotechnics Ltd		
Project No.	P1190110		

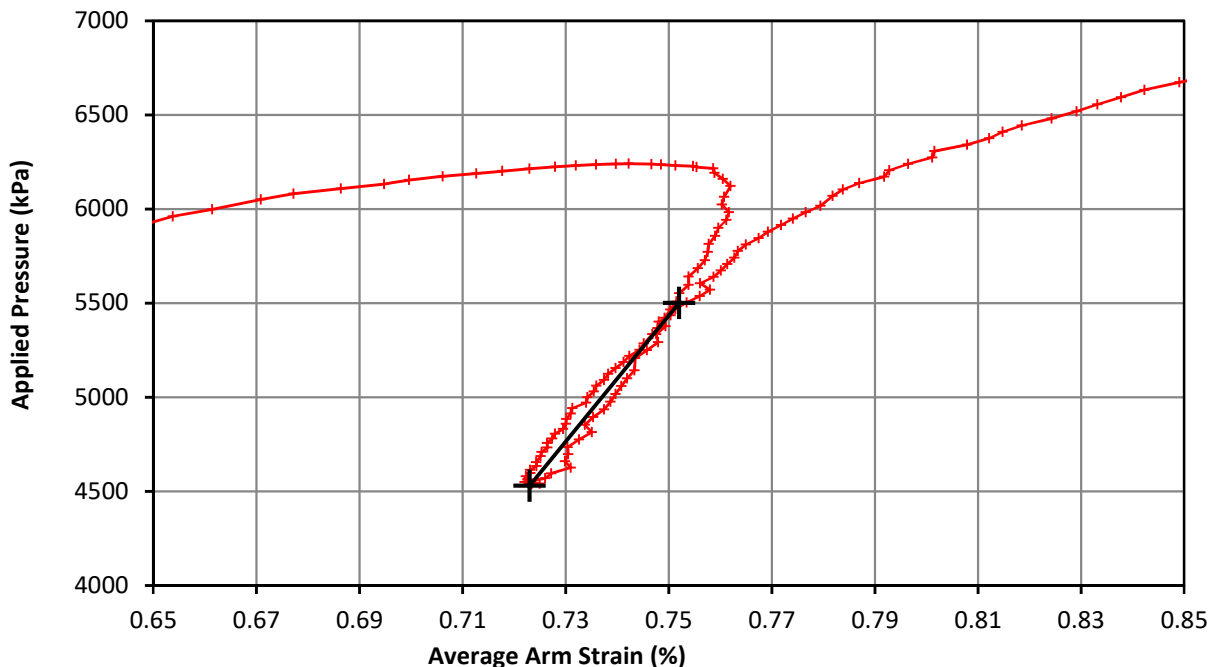
Pressuremeter Test Unload Reload Loop



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



Loop 1	Shear Modulus	1083.9 MPa
	Cavity Strain Range	0.031 %



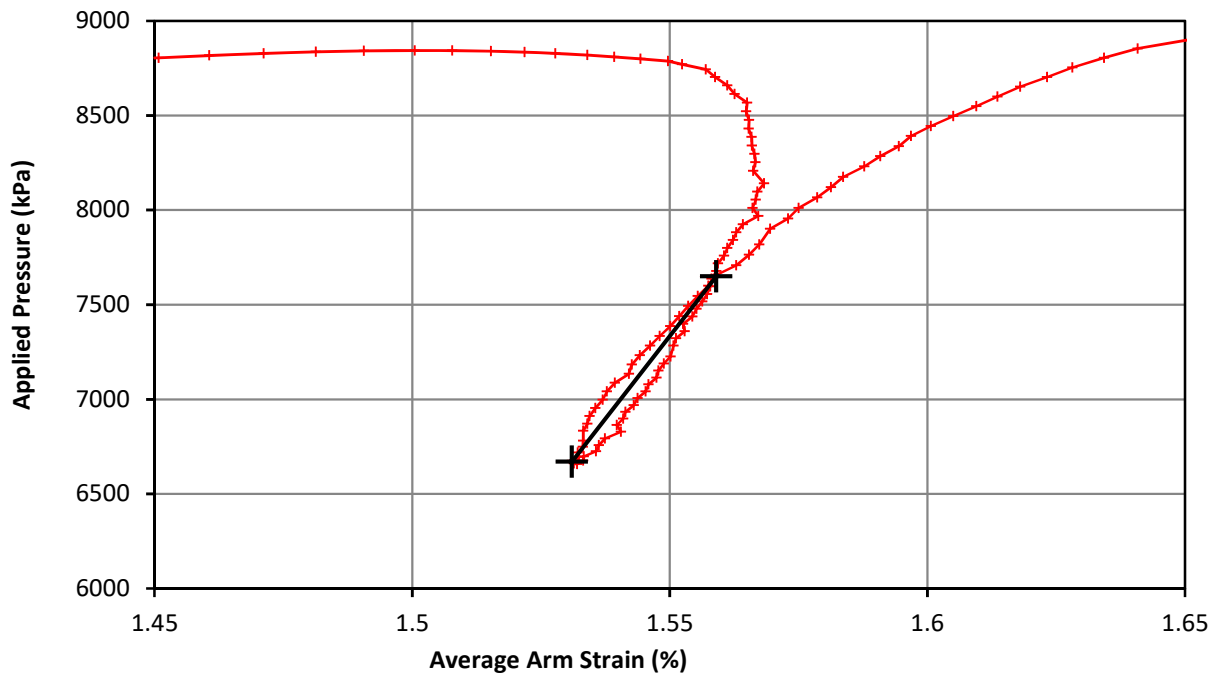
Loop 2	Shear Modulus	1685.0 MPa
	Cavity Strain Range	0.029 %

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 03
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test Unload Reload Loop



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



Loop 3	Shear Modulus	1777.3 MPa
	Cavity Strain Range	0.028 %

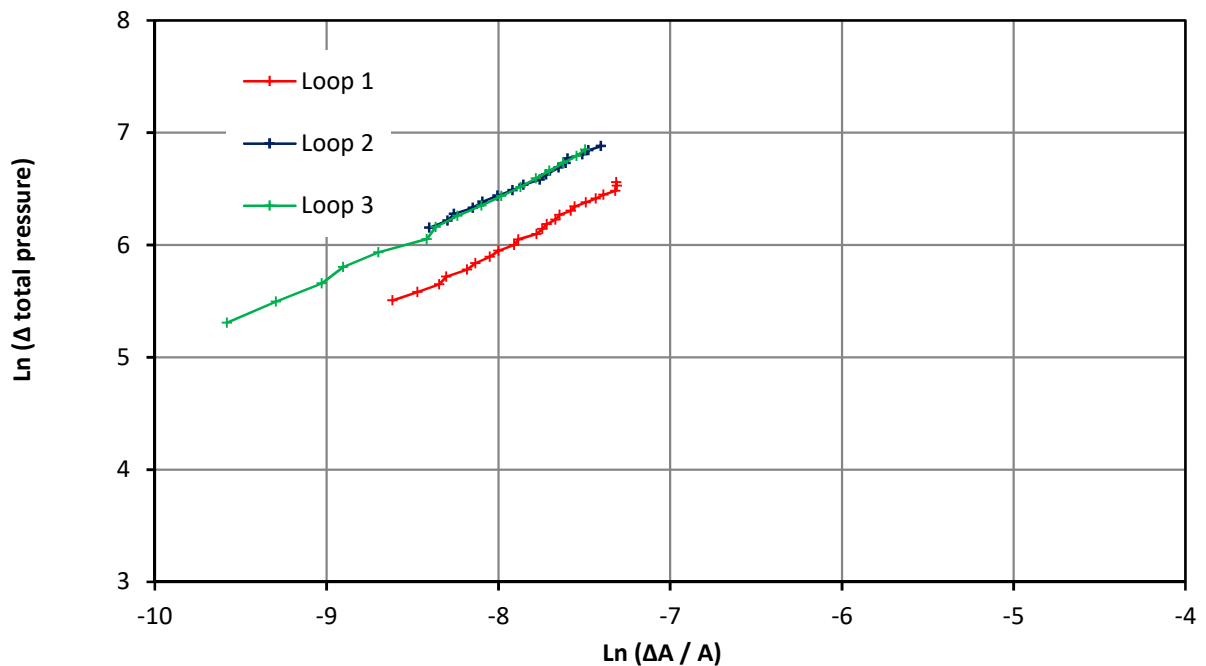
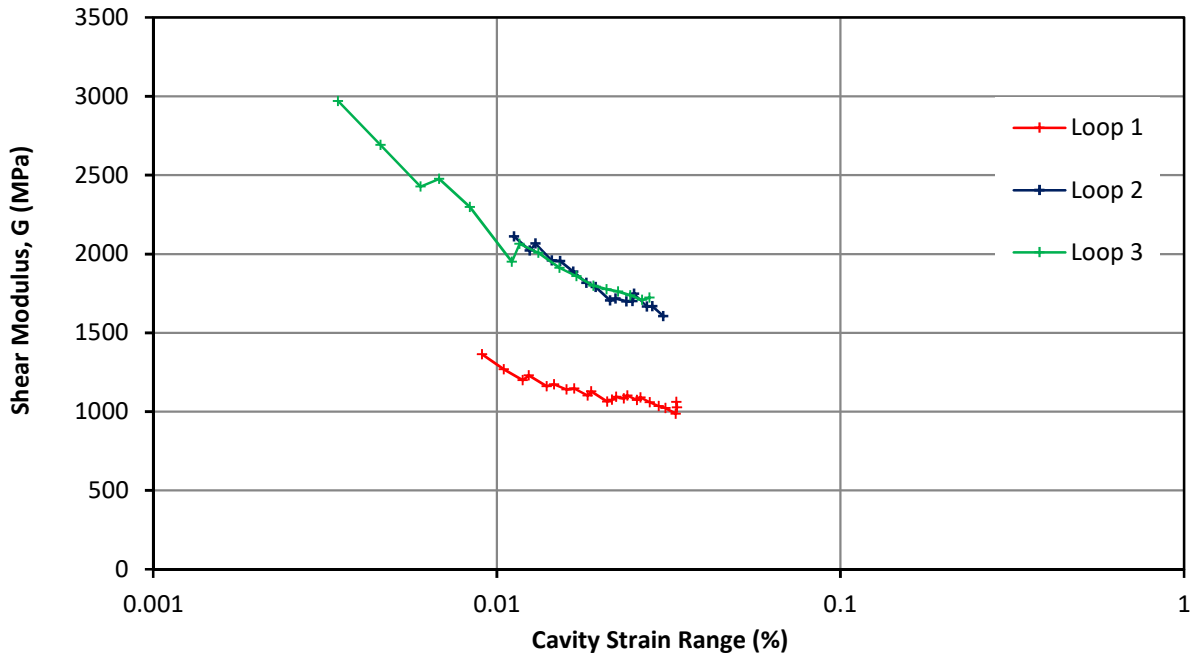
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 04
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Analysis

Small Strain Stiffness and Bolton and Whittle (1999)



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



Loop 1		Loop 2		Loop 3	
Gradient(β)	Intercept	Gradient(β)	Intercept	Gradient(β)	Intercept
0.815	262.355	0.733	220.904	0.735	223.224
	(MPa)		(MPa)		(MPa)

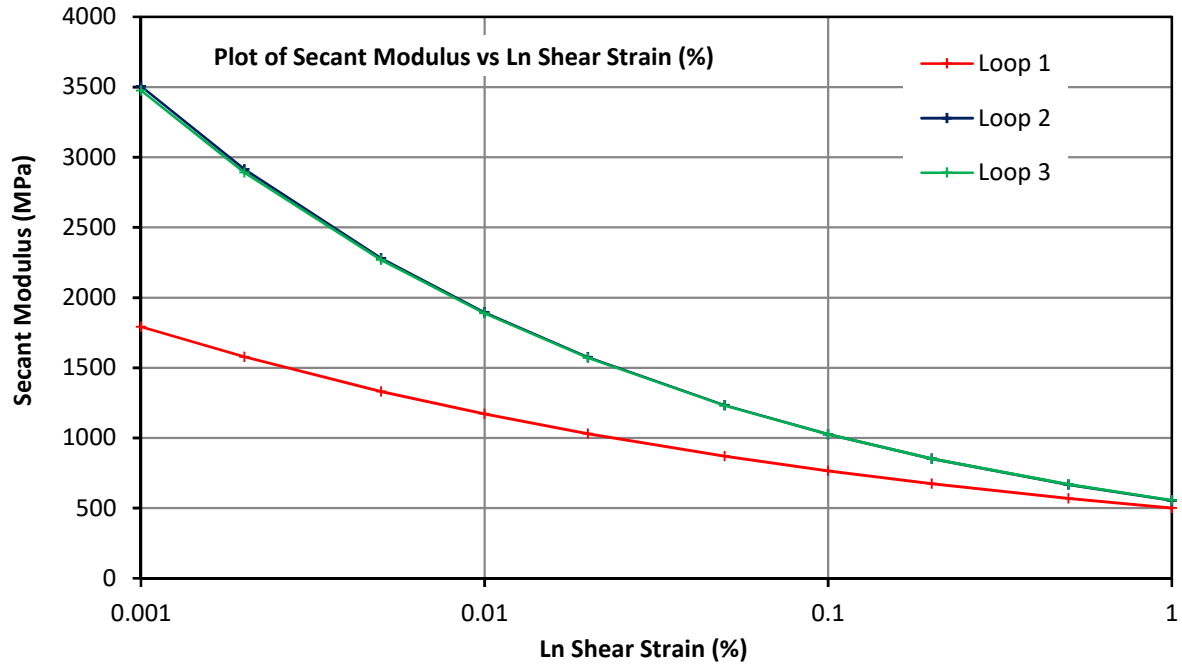
Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 05
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Analysis

Secant Modulus - Shear Strain (%)



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



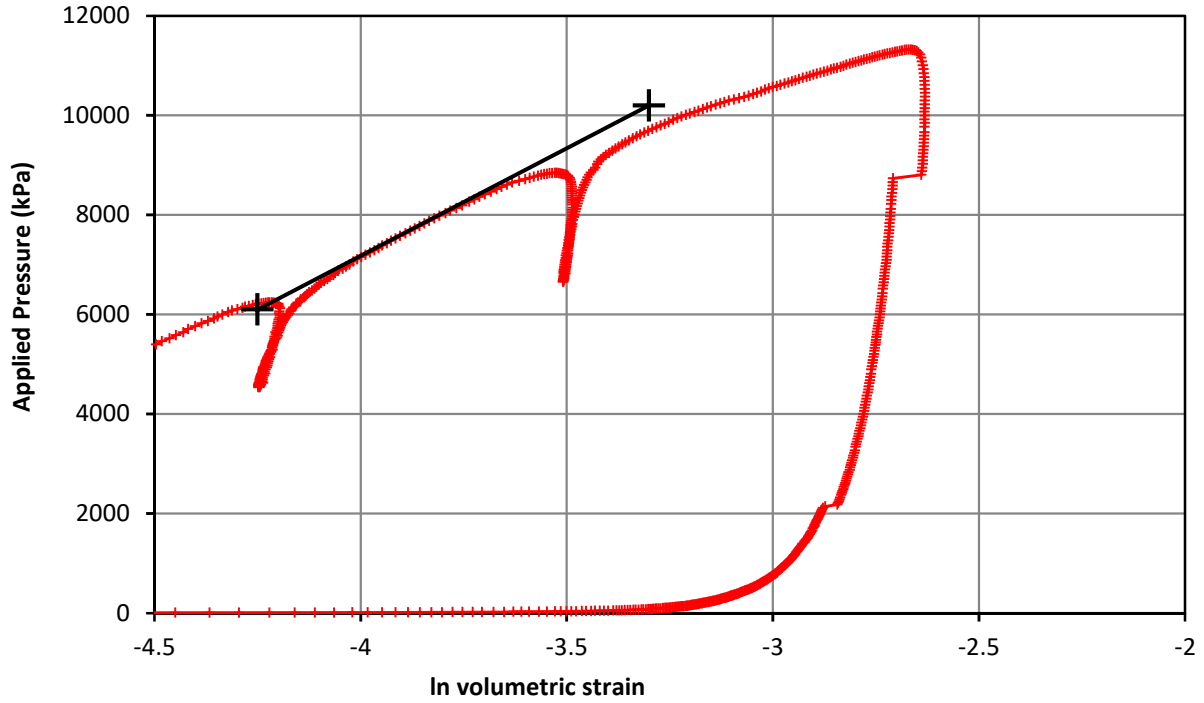
Shear Strain	Loop 1	Loop 2	Loop 3
0.001%	1791	3505	3475
0.002%	1576	2912	2891
0.005%	1331	2280	2268
0.010%	1171	1895	1887
0.020%	1030	1575	1570
0.050%	870	1233	1231
0.100%	766	1024	1025
0.200%	674	851	853
0.500%	569	667	669
1.000%	501	554	556

Project	A303 Amesbury to Berwick Down	Figure No.	R71903 T07 - 06
Client	Geotechnics Ltd		
Project No.	P1190110		

Pressuremeter Test - Strength



Test Date	28/06/2019	Test No.	7
Borehole	R71903	Test Depth (m)	40.00



Strength	Undrained Shear	4316 kPa
	Limit Pressure	24442 kPa

Project	A303 Amesbury to Berwick Down HPD	Figure No.	R71903 T07 - 07
Client	Geotechnics Ltd		
Project No.	P1190110		

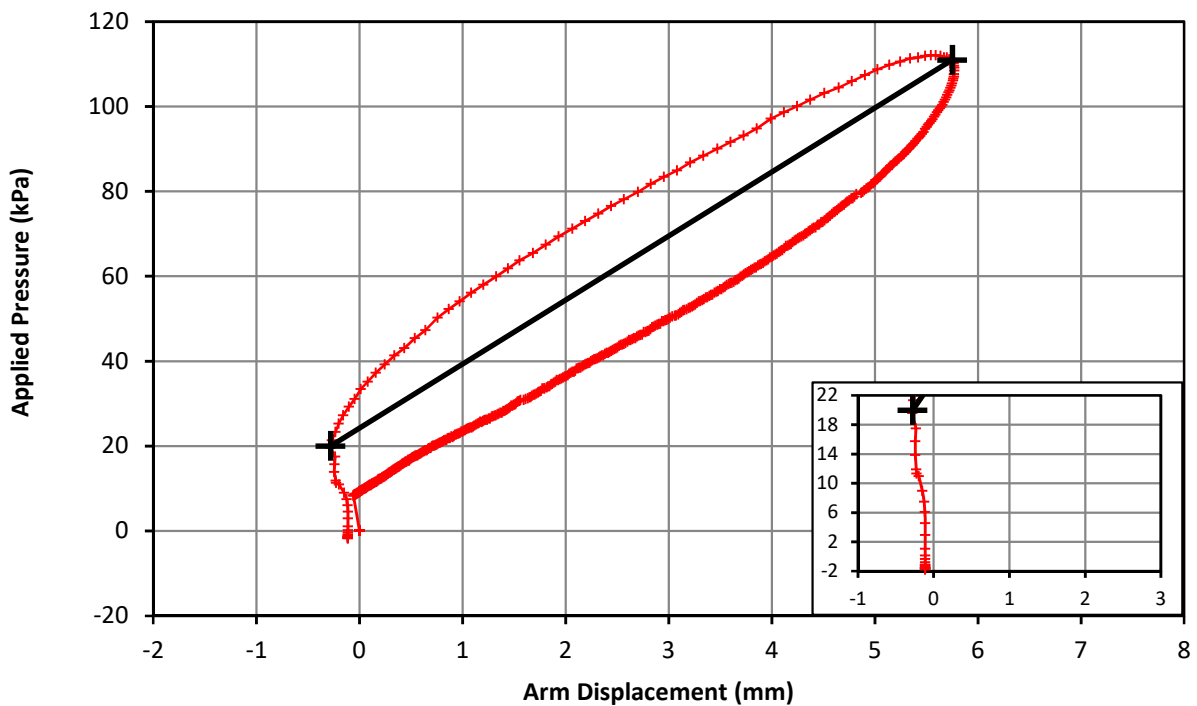
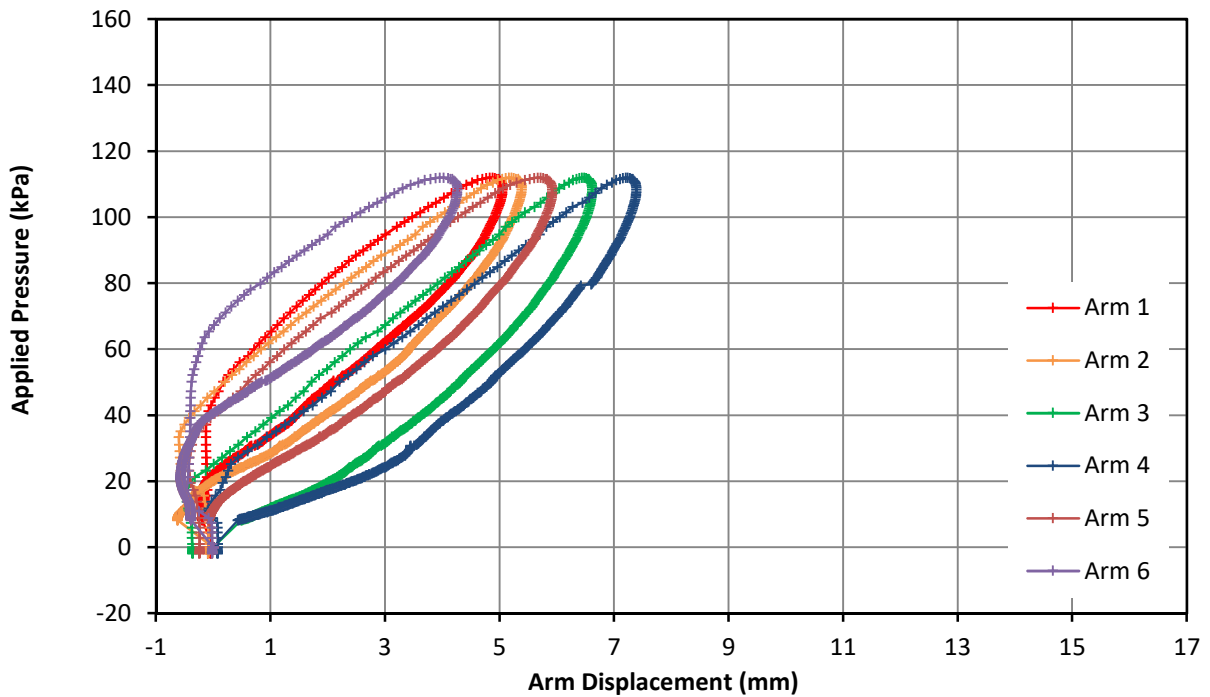
APPENDIX B

Calibrations

Description
HPD02 Calibration Register
HPD Mem Cal 01

Calibration Date 13/06/2019

Borehole Membrane Calibration



Arm Lift Off	20.0 kPa
Slope	15.1 kPa/mm

Project HS2 ALIGN C1 HPD

Client Structural Soils Ltd

Project No. P1190104

Figure No.

HPD Mem Cal 04

APPENDIX 12

Laboratory Test Results - Geotechnical

Classification and Strength

Symbol	C - Clay (0 - containing organic matter) Plasticity	M - Silt L - Low I - Intermediate H - High V - Very High E - Extremely High
I_p	Plasticity Index	
%	% retained on 425 μ m sieve, shown under I_p value	
w_L	Liquid Limit	
w_p	Plastic Limit	
NP	Non-Plastic	
NAT	Sample tested in natural state	
w	Water Content	
ρ_d	Particle Density	
Test	Quick undrained triaxial tests	
	SS	Single stage - 102mm diameter.
	S3	Single stage - set of 3 38mm diameter.
	MS	Multistage - 102mm diameter.
	D	Drained Test
	HV	Hand Vane
	PP	Pocket Penetrometer (kg/cm^2)
	NST	Not suitable for test
γ_b	Bulk Density	
σ_3	Triaxial Cell Pressure	
$\sigma_1 - \sigma_3$	Deviator Stress	
##	Excessive Strain	
c_u	Undrained Cohesion	
c	Cohesion Intercept	
ϕ	Angle of Shearing Resistance	
Linear Shrink	Linear Shrinkage	
Stab add-	Stabiliser which is added	

Consolidation

m_v	Coefficient of Volume Compressibility
c_{v50}	Coefficient of Consolidation - Log t
c_{v90}	Coefficient of Consolidation - \sqrt{t}

Rock

UF	Unacceptable Failure
----	----------------------

Chemical Analysis

Acid Soluble	Total sulphate in specimen, expressed as SO_3 %, value in brackets expressed as SO_4 %
Water Soluble	Soluble sulphate in 2:1 water : soil extract, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l
In Water	Sulphate content of groundwater, expressed as SO_3 g/l, value in brackets expressed as SO_4 g/l
pH	pH value
Organic content	Organic content expressed as a percentage of dry weight
Chloride	Chloride Ion content expressed as a percentage of dry weight

MCV, Compaction, CBR

MCV	Moisture Condition Value at natural water content
MCC	Moisture Condition Calibration
CCV	Chalk Crushing Value

Compaction

Type	2.5 = 2.5 kg Rammer
	4.5 = 4.5 kg Rammer
	V = Vibrating Hammer

γ_b Bulk Density

γ_d Dry Density

CBR California Bearing Ratio

Type	2.5 = Test on Specimen Recompacted using 2.5 kg Rammer
	4.5 = As above but using 4.5 kg Rammer
	V = As above but using Vibrating Hammer
	M = Test on open drive mould specimen cut in field
	S = Soaked Specimen

Top CBR at top of mould

Bottom CBR at bottom of mould

ND None Detected

* In the Sample Description denotes a laboratory only description

Laboratory Test Certificate

Form REP008 Rev 3

Issued To	Geotechnics Ltd The Geotechnical Centre 203 Torrington Avenue Tile Hill Coventry, CV4 9AP	Date of issue	16/09/2019
		Issue No.	2
		Client Ref. No.	-
		Samples / Material Source	
		Samples Recv'd	06/09/2019
Testing Start Date	06/09/2019	Sample State	As received
Testing Complete	16/09/2019	Sampled by	Geotechnics Limited
Comments	Issue 2 supersedes Issue 1 Issue 2 - Additional Testing Rock Moisture Content performed according In-House procedure, not to IRSM accredited Method		
Project No	PC197510		
Project Name	A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)		

Summary of Tests

Standard	Test Description	Test Quantity	UKAS
BS EN ISO 17892-1:2014	Water Content	96	Yes
BS EN ISO 17892-12:2018 Cl. 5.3 & 5.5	Liquid Limit and Plastic Limit	47	Yes
BS 1377-7:1990 Cl. 9	Shear Strength by Quick Undrained Triaxial Test - Multistage	4	Yes
BS 1377-2:1990 Cl. 3.3	Saturation Moisture Content of Chalk	137	Yes
BS 1377-4:1990 Cl. 7.2	California Bearing Ratio (CBR)	7	Yes
BS 1377-4:1990 Cl. 7.3	California Bearing Ratio - Soaking (Soaking CBR)	7	Yes
ISRM Suggested Method (1985)	Point Load Strength of Rock	40	Yes
BS EN ISO 17892-4:2016 Cl. 5.2	Particle Size Distribution by Sieving Method	36	Yes
BS EN ISO 17892-4:2016 Cl. 5.4	Particle Size Distribution by Pipette Method	33	Yes
BS EN ISO 17892-5:2017	Incremental Loading Oedometer	7	Yes

Note: Any descriptions, opinions or interpretations are outside the scope of UKAS accreditation.
The results within this report relate only to the samples tested and received from the client.



Test Results checked and approved for issue.
Signed for and on behalf of Geotechnics Limited



Stephane Schiano (Laboratory Testing Manager)




203 Torrington Avenue, Tile Hill,
Coventry, CV4 9UT

LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification				Strength						
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	C_u kN/m ²	C_{Avg} kN/m ²
CP70201	1.20- 1.65 (1.20)	D	C22493	CHALK.		(14%)	30	NP	20.9						
CP70201	7.00- 7.10 (7.00)	D	C22499	CHALK.		(20%)	30	NP	24.9						
CP70201	11.20- 11.30 (11.20)	D	C22515	CHALK.		(71%)	29	NP	22.3						
CP70202	4.20- 4.65 (4.20)	UT	C22264	CHALK. (See Test Remarks Sheet for further information)					24.4 24.4 24.4	MS	NST	40 80 160	NST		
CP70202	5.90- 6.00 (5.90)	D	C22222	CHALK.		(14%)	31	NP	24.3						
CP70202	6.20- 6.65 (6.45)	UT	C22263	CHALK.					31.1 31.1 31.1	MS	1.97 1.97 1.97	60 120 240	304 407 552	152 203 276	210
CP70202	16.20- 16.65 (16.20)	UT	C22257	CHALK.					21.9 21.9 21.9	MS	2.68 2.68 2.68	160 320 640	371 530 728	185 265 364	271
CP70202	29.00- 29.10 (29.00)	D	C22188	CHALK.		(50%)	27	NP	19.9						
CP70202	35.00- 35.10 (35.00)	D	C22193	CHALK.		(35%)	25	NP	23.4						
CP70901	0.50- 0.60 (0.50)	D	C24093	TOPSOIL: Firm brown slightly sandy gravelly silt.		(72%)	45	NP	6.4						
CP70901	1.30- 1.40 (1.30)	D	C24090	Light brown sandy slightly silty GRAVEL with a low cobble content.					15.2						
CP70901	3.20- 3.65 (3.20)	D	C24084	CHALK.					21.2						
CP70901	4.20- 4.65 (4.45)	UT	C24246	CHALK.					24.4 24.4 24.4	MS	2.12 2.12 2.12	40 80 160	21 37 18	11 18	15
CP70902	2.20- 2.30 (2.20)	D	C23887	Light brown very sandy silty GRAVEL					6.1						

Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]


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LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
CP70902	3.30- 3.40 (3.30)	D	C23889	CHALK.		(41%)	25	NP	18.3						
CP70902	5.20- 5.65 (5.45)	UT	C24247	CHALK.					22.7 22.7 22.7	MS	2.08 2.08 2.08	50 100 200	129 120 128	64 60 64	63
CP71001	1.00- 1.10 (1.00)	D	C23274	CHALK.		(69%)	30	NP	20.6						
CP71002	5.20- 5.65 (5.20)	D	C22928	CHALK.		(9%)	29	NP	25.9						
CP71301	0.80- 0.90 (0.80)	D	C22520	CHALK.		(85%)	31	NP	19.4						
CP71301	11.50- 11.60 (11.50)	D	C22521	CHALK.		(25%)	28	NP	23.2						
CP71301	23.00- 23.10 (23.00)	D	C22429	CHALK.		(25%)	28	NP	29.3						
CP71302	1.10 (1.10)	D	C23052	CHALK.		(66%)	34	NP	23.0						
CP71701	1.20- 1.65 (1.20)	D	C23714	CHALK.					21.6						
CP71702	1.10 (1.10)	D	C23337	CHALK.		(36%)	28	NP	19.7						
CP71702	9.00 (9.00)	D	C23324	CHALK.		(51%)	30	NP	21.4						
R70201	0.20- 0.50 (0.20)	D	C22580	Light brown and white sandy silty GRAVEL.		(57%)	35	NP	23.1						
R70201	1.20- 1.40 (1.20)	C	C22645	CHALK.					29.1						
R70201	8.70- 8.89 (8.70)	C	C22653	CHALK.					25.7						
R70201	16.64- 16.75 (16.64)	C	C22680	CHALK.					22.3						


Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]

LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
R70201	27.36- 27.45 (27.36)	C	C22671	CHALK.					20.1						
R70202	0.50 (0.50)	D	C22184	CHALK.		(55%)	40	NP	25.7						
R70901	1.20 (1.20)	D	C22979	Brown very sandy clayey GRAVEL.					11.4						
R70901	3.40- 3.53 (3.40)	C	C23778	CHALK.					23.0						
R70901	27.03- 27.27 (27.03)	C	C23760	CHALK.					16.8						
R70902	0.50 (0.50)	D	C23739	Brown slightly sandy very silty GRAVEL with a medium cobble content.					4.1						
R70902	22.19- 22.32 (22.19)	C	C23779	CHALK.					5.8						
R70902	35.00- 35.48 (35.00)	C	C24058	CHALK.					12.6						
R70903	0.60 (0.60)	D	C22922	White sandy silty GRAVEL.					11.4						
R70903	30.82- 31.27 (30.82)	C	C24049	CHALK.					12.3						
R71001	0.50 (0.50)	D	C23740	CHALK.		(78%)	35	NP	20.6						
R71001	9.00- 9.17 (9.00)	C	C24054	CHALK.					24.1						
R71001	18.91- 19.06 (18.91)	C	C24050	CHALK.					16.7						
R71002	6.88- 7.00 (6.88)	C	C23253	CHALK.					26.2						
R71002	17.00- 17.50 (17.00)	C	C23798	CHALK.					21.3						
R71301	0.50 (0.50)	D	C22952	CHALK.		(65%)	33	NP	17.8						

Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]


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LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
R71301	13.21- 13.34 (13.21)	C	C23198	CHALK.					27.8						
R71301	20.19- 20.40 (20.19)	C	C23247	CHALK.					21.8						
R71302	0.50 (0.50)	D	C23005	Brown and grey sandy silty GRAVEL.			37	NP	19.2						
R71302	19.31- 19.52 (19.31)	C	C23214	CHALK.					25.6						
R71302	41.42- 41.53 (41.42)	C	C23240	CHALK.					23.6						
R71701	0.50 (0.50)	D	C23307	CHALK.			41	NP	18.7						
R71701	10.47- 10.63 (10.47)	C	C23217	CHALK.					23.8						
R71701	19.51- 19.69 (19.51)	C	C23220	CHALK.					19.3						
R71701	29.83- 30.06 (29.83)	C	C23795	CHALK.					23.9						
R71701	39.78- 40.02 (39.78)	C	C23783	CHALK.					23.5						
STP7280 1	0.30- 1.10 (0.30)	B	C22597	CHALK, recovered as sandy gravelly SILT with a medium cobble content.					24.9						
STP7280 1	0.80 (0.80)	D	C22550	CHALK.			35	NP	23.4						
STP7280 1	1.50 (1.50)	D	C22552	CHALK.			31	NP	27.2						
STP7280 2	0.35- 1.50 (0.35)	B	C22608	CHALK, recovered as slightly sandy slightly gravelly SILT.					22.1						
STP7280 2	1.00 (1.00)	D	C22565	CHALK.			30	NP	20.3						
STP7280 2	1.80 (1.80)	D	C22564	CHALK.			30	NP	21.2						


Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]

LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
STP7280 3	0.50- 0.60 (0.50)	B	C22598	Orangish brown slightly sandy gravelly SILT.					22.8						
STP7280 3	0.50- 0.60 (0.50)	D	C22578	Orangish brown sandy clayey GRAVEL.					22.4						
STP7280 3	1.30 (1.30)	D	C22574	CHALK.		(74%)	30	NP	24.1						
STP7280 4	0.75- 0.85 (0.75)	B	C22638	CHALK, recovered as slightly sandy slightly gravelly SILT.					24.4						
STP7280 4	0.75- 0.85 (0.75)	D	C22548	CHALK.		(26%)	29	NP	25.3						
STP7280 4	2.00 (2.00)	D	C22556	CHALK.		(62%)	31	NP	24.8						
STP7280 5	0.50- 0.60 (0.50)	B	C22595	CHALK, recovered as slightly sandy slightly gravelly SILT.					23.8						
STP7280 5	0.50- 0.60 (0.50)	D	C22561	CHALK.		(17%)	31	NP	24.6						
STP7280 5	0.75- 0.85 (0.75)	D	C22558	CHALK.		(48%)	30	NP	25.7						
STP7280 6	0.50- 0.60 (0.50)	D	C22570	CHALK.		(51%)	33	NP	25.5						
STP7280 6	2.00- 2.40 (2.00)	B	C22603	CHALK, recovered as slightly sandy slightly gravelly SILT.					27.6						
STP7280 6	2.50 (2.50)	D	C22569	CHALK.		(86%)	31	NP	28.2						
STP7280 7	0.50- 0.60 (0.50)	D	C22445	CHALK.		(81%)	32	NP	28.8						
STP7280 7	0.70- 0.80 (0.70)	B	C22629	CHALK, recovered as slightly gravelly SILT.					27.9						
STP7280 7	0.70- 0.80 (0.70)	D	C22448	CHALK.		(74%)	32	NP	25.7						


Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]

LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification					Strength					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
STP7280 8	0.75- 0.85 (0.75)	B	C22615	CHALK, recovered as slightly sandy SILT.					27.8						
STP7280 8	0.75- 0.85 (0.75)	D	C22455	CHALK.		(80%)	32	NP	27.0						
STP7280 9	0.50- 0.60 (0.50)	B	C22631	CHALK, recovered as slightly sandy slightly gravelly SILT.					24.2						
STP7280 9	0.50- 0.60 (0.50)	D	C22452	CHALK.		(56%)	32	NP	20.9						
STP7281 0	0.50- 0.57 (0.50)	B	C23085	Light grey to light brown slightly gravelly very sandy SILT.					20.6						
STP7281 0	0.50- 0.57 (0.50)	D	C23008	Light grey to light brown slightly gravelly very silty SAND.		(25%)	51	NP	19.4						
STP7281 0	1.00 (1.00)	D	C22955	CHALK.		(93%)	35	NP	16.2						
STP7281 1	0.50- 0.60 (0.50)	D	C22957	CHALK.		(71%)	41	NP	25.0						
STP7281 1	0.75- 0.85 (0.75)	B	C23058	CHALK, recovered as cream slightly sandy SILT.					23.1						
STP7281 1	0.75- 0.85 (0.75)	D	C22959	CHALK. (See Test Remarks Sheet for further information)		(95%)	34	NP	22.6						
STP7290 1	0.50- 0.60 (0.50)	B	C23076	CHALK, recovered as cream slightly sandy SILT.					22.6						
STP7290 1	0.50- 0.60 (0.50)	D	C22917	CHALK.		(62%)	34	NP	23.7						
STP7290 1	0.75- 0.85 (0.75)	D	C22915	CHALK.		(95%)	30	NP	26.2						
STP7290 2	0.50- 0.60 (0.50)	D	C22980	CHALK.		(93%)	34	NP	26.0						
STP7290 2	0.80- 0.90 (0.80)	B	C23063	CHALK, recovered as cream slightly sandy SILT.					26.5						


Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]

LABORATORY RESULTS - Classification and Strength

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Classification				Strength						
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Symbol	I_p (>425) %	w_L %	w_p %	w (p_d) %	Test	γ_b (γ_d) ³ Mg/m ³	σ_3 kN/m ²	$\sigma_1 - \sigma_3$ kN/m ²	c_u kN/m ²	c_{Avg} kN/m ²
STP7290 2	0.80- 0.90 (0.80)	D	C22981	CHALK.		(95%)	32	NP	27.9						
STP7290 3	0.55- 0.65 (0.55)	D	C22998	Light brown clayey rubbly CHALK with occasional flint.*		(74%)	32	NP	22.6						
STP7290 3	0.75- 0.85 (0.75)	B	C23074	CHALK, recovered as sandy gravelly SILT.					26.5						
STP7290 3	1.00 (1.00)	D	C22919	CHALK.		(71%)	32	NP	26.6						


Remarks  NST - Not suitable for Test
 For Standards followed see Laboratory Test Certificate
 ^ Rock water content test
 QUT Water Contents: <Failure Zone>, [Initial]

LABORATORY RESULTS - Atterberg Limit

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w _L %	w _p %
						Cone Pene.	Water % (Factor)					
CP70201	1.20- 1.65 (1.20)	D	C22493	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					14%	30	NP
CP70201	7.00- 7.10 (7.00)	D	C22499	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					20%	30	NP
CP70201	11.20- 11.30 (11.20)	D	C22515	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					71%	29	NP
CP70202	5.90- 6.00 (5.90)	D	C22222	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					14%	31	NP
CP70202	29.00- 29.10 (29.00)	D	C22188	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					50%	27	NP
CP70202	35.00- 35.10 (35.00)	D	C22193	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					35%	25	NP
CP70901	0.50- 0.60 (0.50)	D	C24093	TOPSOIL: Firm brown slightly sandy gravelly silt.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					72%	45	NP
CP70902	3.30- 3.40 (3.30)	D	C23889	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					41%	25	NP
CP71001	1.00- 1.10 (1.00)	D	C23274	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					69%	30	NP
CP71002	5.20- 5.65 (5.20)	D	C22928	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					9%	29	NP
CP71301	0.80- 0.90 (0.80)	D	C22520	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					85%	31	NP


Remarks 

LABORATORY RESULTS - Atterberg Limit

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w _L %	w _p %
						Cone Pene.	Water % (Factor)					
CP71301	11.50- 11.60 (11.50)	D	C22521	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					25%	28	NP
CP71301	23.00- 23.10 (23.00)	D	C22429	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					25%	28	NP
CP71302	1.10 (1.10)	D	C23052	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					66%	34	NP
CP71702	1.10 (1.10)	D	C23337	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					36%	28	NP
CP71702	9.00 (9.00)	D	C23324	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					51%	30	NP
R70201	0.20- 0.50 (0.20)	D	C22580	Light brown and white sandy silty GRAVEL.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					57%	35	NP
R70202	0.50 (0.50)	D	C22184	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					55%	40	NP
R71001	0.50 (0.50)	D	C23740	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					78%	35	NP
R71301	0.50 (0.50)	D	C22952	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					65%	33	NP
R71302	0.50 (0.50)	D	C23005	Brown and grey sandy silty GRAVEL.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					62%	37	NP
R71701	0.50 (0.50)	D	C23307	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					80%	41	NP

Remarks 

LABORATORY RESULTS - Atterberg Limit

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w _L %	w _p %
						Cone Pene.	Water % (Factor)					
STP7280 1	0.80 (0.80)	D	C22550	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					82%	35	NP
STP7280 1	1.50 (1.50)	D	C22552	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					74%	31	NP
STP7280 2	1.00 (1.00)	D	C22565	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					92%	30	NP
STP7280 2	1.80 (1.80)	D	C22564	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					90%	30	NP
STP7280 3	1.30 (1.30)	D	C22574	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					74%	30	NP
STP7280 4	0.75- 0.85 (0.75)	D	C22548	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					26%	29	NP
STP7280 4	2.00 (2.00)	D	C22556	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					62%	31	NP
STP7280 5	0.50- 0.60 (0.50)	D	C22561	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					17%	31	NP
STP7280 5	0.75- 0.85 (0.75)	D	C22558	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					48%	30	NP
STP7280 6	0.50- 0.60 (0.50)	D	C22570	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					51%	33	NP
STP7280 6	2.50 (2.50)	D	C22569	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					86%	31	NP

Remarks 

LABORATORY RESULTS - Atterberg Limit

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w _L %	w _p %
						Cone Pene.	Water % (Factor)					
STP7280 7	0.50- 0.60 (0.50)	D	C22445	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					81%	32	NP
STP7280 7	0.70- 0.80 (0.70)	D	C22448	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					74%	32	NP
STP7280 8	0.75- 0.85 (0.75)	D	C22455	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					80%	32	NP
STP7280 9	0.50- 0.60 (0.50)	D	C22452	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					56%	32	NP
STP7281 0	0.50- 0.57 (0.50)	D	C23008	Light grey to light brown slightly gravelly very silty SAND.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					25%	51	NP
STP7281 0	1.00 (1.00)	D	C22955	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					93%	35	NP
STP7281 1	0.50- 0.60 (0.50)	D	C22957	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					71%	41	NP
STP7281 1	0.75- 0.85 (0.75)	D	C22959	CHALK. (See Test Remarks Sheet for further information) Test Remark: 1-point cone	Fall Cone 1pt with increasing water content, cone type: 80g/30, washed over 425um sieve	20.8	32.15 (0.000)			95%	34	NP
STP7290 1	0.50- 0.60 (0.50)	D	C22917	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					62%	34	NP
STP7290 1	0.75- 0.85 (0.75)	D	C22915	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					95%	30	NP
STP7290 2	0.50- 0.60 (0.50)	D	C22980	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					93%	34	NP


Remarks 

LABORATORY RESULTS - Atterberg Limit

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					Results							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Test Type	Point Data		Sym- bol	p %	>425 sieve µm	w _L %	w _p %
						Cone Pene.	Water % (Factor)					
STP7290 2	0.80- 0.90 (0.80)	D	C22981	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					95%	32	NP
STP7290 3	0.55- 0.65 (0.55)	D	C22998	Light brown clayey rubbly CHALK with occasional flint.*	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					74%	32	NP
STP7290 3	1.00 (1.00)	D	C22919	CHALK.	Fall Cone 4pt with increasing water content, cone type: 80g/30, washed over 425um sieve					71%	32	NP


Remarks 

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
CP70901	3.90- 4.00 (3.90- 4.00)	D	C24088	CHALK.	18.0	1.82											
CP70901	4.90- 5.00 (4.90- 5.00)	D	C24087	CHALK.	18.9	1.79											
CP70901	6.90- 7.00 (6.90- 7.00)	D	C24081	CHALK.	14.3	1.95											
CP70901	8.90- 9.00 (8.90- 9.00)	D	C24080	CHALK.	17.8	1.82											
CP70902	5.10- 5.20 (5.10- 5.20)	D	C23883	CHALK.	17.0	1.85											
CP70902	6.90- 7.00 (6.90- 7.00)	D	C23881	CHALK.	16.8	1.86											
CP70902	8.90- 9.00 (8.90- 9.00)	D	C23874	CHALK.	17.1	1.85											
CP70902	9.90- 10.00 (9.90- 10.00)	D	C23877	CHALK.	16.3	1.87											
CP71001	2.80- 2.90 (2.80- 2.90)	D	C23308	CHALK.	26.2	1.58											
CP71001	8.80- 8.90 (8.80- 8.90)	D	C23285	CHALK.	25.7	1.59											
CP71001	12.70- 12.80 (12.70- 12.80)	D	C23289	CHALK.	24.7	1.62											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
CP71001	17.50- 17.60 (17.50- 17.60)	D	C23409	CHALK.	31.2	1.47											
CP71001	22.90- 23.00 (22.90- 23.00)	D	C23273	CHALK.	24.3	1.63											
CP71001	28.00- 28.10 (28.00- 28.10)	D	C23267	CHALK.	24.9	1.62											
CP71002	4.90- 5.00 (4.90- 5.00)	D	C22946	CHALK.	24.5	1.63											
CP71002	11.20- 11.30 (11.20- 11.30)	D	C23299	CHALK.	23.0	1.67											
CP71002	17.20- 17.30 (17.20- 17.30)	D	C23372	CHALK.	22.8	1.67											
CP71002	20.90- 21.00 (20.90- 21.00)	D	C22929	CHALK.	21.6	1.71											
CP71002	26.00- 26.10 (26.00- 26.10)	D	C23373	CHALK.	21.3	1.71											
CP71301	10.50- 10.60 (10.50- 10.60)	D	C22433	CHALK.	26.4	1.58											
CP71302	3.00 (3.00)	D	C23050	CHALK.	25.9	1.59											
CP71302	8.00 (8.00)	D	C22902	CHALK.	24.8	1.62											
CP71302	13.00 (13.00)	D	C22954	CHALK.	25.9	1.59											
CP71302	17.50 (17.50)	D	C22894	CHALK.	29.3	1.51											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³				UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
CP71302	22.00 (22.00)	D	C22886	CHALK.	25.3	1.61										
CP71302	31.00 (31.00)	D	C23036	CHALK.	27.9	1.54										
CP71302	37.25 (37.25)	D	C23029	CHALK.	23.3	1.66										
CP71302	45.00 (45.00)	D	C22904	CHALK.	24.0	1.64										
CP71701	4.80- 4.90 (4.80- 4.90)	D	C23709	CHALK.	26.8	1.57										
CP71701	9.80- 9.90 (9.80- 9.90)	D	C23721	CHALK.	27.8	1.54										
CP71701	15.50- 15.60 (15.50- 15.60)	D	C23680	CHALK.	23.7	1.65										
CP71701	20.00- 20.10 (20.00- 20.10)	D	C23677	CHALK.	24.6	1.62										
CP71701	24.70- 24.80 (24.70- 24.80)	D	C23674	CHALK.	25.3	1.61										
CP71701	30.50- 30.60 (30.50- 30.60)	D	C23667	CHALK.	24.4	1.63										
CP71701	35.20- 35.30 (35.20- 35.30)	D	C23694	CHALK.	26.7	1.57										
CP71701	40.90- 41.00 (40.90- 41.00)	D	C23690	CHALK.	23.2	1.66										
CP71701	45.70- 45.80 (45.70- 45.80)	D	C23730	CHALK.	23.5	1.65										


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
CP71702	5.00 (5.00)	D	C23320	CHALK.	29.4	1.51											
CP71702	10.00 (10.00)	D	C23327	CHALK.	25.3	1.60											
CP71702	16.00 (16.00)	D	C23394	CHALK.	25.1	1.61											
CP71702	20.50 (20.50)	D	C23390	CHALK.	25.5	1.60											
CP71702	24.50 (24.50)	D	C23355	CHALK.	25.4	1.60											
CP71702	29.90- 30.10 (29.90- 30.10)	D	C23386	CHALK.	24.6	1.62											
CP71702	35.30 (35.30)	D	C23384	CHALK.	28.2	1.53											
CP71702	40.20 (40.20)	D	C23294	CHALK.	18.8	1.79											
R70201	1.20- 1.40 (1.20- 1.40)	C	C22645	CHALK.	29.2	1.51											
R70201	6.08- 6.23 (6.08- 6.23)	C	C22652	CHALK.	24.0	1.64											
R70201	8.70- 8.89 (8.70- 8.89)	C	C22653	CHALK.	25.7	1.60											
R70201	13.11- 13.44 (13.11- 13.44)	C	C22679		22.1	1.69											
R70201	16.64- 16.75 (16.64- 16.75)	C	C22680	CHALK.	24.2	1.63											
R70201	19.58- 19.76 (19.58- 19.76)	C	C22681	CHALK.	26.1	1.58											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample									Unconfined Compressive Strength Test							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³				UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R70201	22.48- 22.70 (22.48- 22.70)	C	C22673	CHALK.	22.9	1.67										
R70201	27.36- 27.45 (27.36- 27.45)	C	C22671	CHALK.	20.2	1.75										
R70201	33.56- 33.69 (33.56- 33.69)	C	C22669	CHALK.	27.4	1.55										
R70201	38.07- 38.17 (38.07- 38.17)	C	C22647	CHALK.	18.0	1.82										
R70202	2.39- 2.55 (2.39- 2.55)	C	C22277	CHALK.	26.5	1.57										
R70202	3.43- 3.58 (3.43- 3.58)	C	C22278	CHALK.	25.3	1.60										
R70202	5.85- 6.00 (5.85- 6.00)	C	C22268	CHALK.	23.8	1.64										
R70202	9.55- 9.68 (9.55- 9.68)	C	C22266	CHALK.	25.1	1.61										
R70202	33.00- 33.16 (33.00- 33.16)	C	C22291	CHALK.	20.5	1.74										
R70202	35.22- 35.58 (35.22- 35.58)	C	C22663	CHALK.	22.4	1.68										
R70202	38.30- 38.44 (38.30- 38.44)	C	C22668	CHALK.	21.0	1.72										


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R70202	41.25- 41.67 (41.25- 41.67)	C	C22666	CHALK.	20.8	1.73											
R70901	3.40- 3.53 (3.40- 3.53)	C	C23778	CHALK.	23.1	1.66											
R70901	7.30- 7.40 (7.30- 7.40)	C	C23809	CHALK.	19.4	1.77											
R70901	12.80- 12.95 (12.80- 12.95)	C	C23811	CHALK.	12.7	2.01											
R70901	19.38- 19.52 (19.38- 19.52)	C	C23807	CHALK.	18.8	1.79											
R70901	23.99- 24.07 (23.99- 24.07)	C	C23810	CHALK.	8.0	2.22											
R70901	27.03- 27.27 (27.03- 27.27)	C	C23760	CHALK.	17.5	1.83											
R70901	30.56- 30.75 (30.56- 30.75)	C	C23759	CHALK.	15.2	1.91											
R70901	35.05- 35.22 (35.05- 35.22)	C	C24057	CHALK.	14.8	1.93											
R70901	37.27- 37.42 (37.27- 37.42)	C	C24062	CHALK.	15.0	1.92											
R70902	6.66- 6.76 (6.66- 6.76)	C	C23777	CHALK.	19.9	1.76											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample									Unconfined Compressive Strength Test							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³				UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R70902	16.10- 16.20 (16.10- 16.20)	C	C23769	CHALK.	17.0	1.85										
R70902	22.19- 22.32 (22.19- 22.32)	C	C23779	CHALK.	6.1	2.32										
R70902	28.04- 28.14 (28.04- 28.14)	C	C23761	CHALK.	9.6	2.15										
R70902	32.94- 33.50 (32.94- 33.50)	C	C23766	CHALK.	11.9	2.04										
R70902	35.00- 35.48 (35.00- 35.48)	C	C24058	CHALK.	13.7	1.97										
R70903	3.50- 3.65 (3.50- 3.65)	C	C24069		19.3	1.78										
R70903	6.66- 6.82 (6.66- 6.82)	C	C24066		18.4	1.80										
R70903	16.59- 16.68 (16.59- 16.68)	C	C24064		15.2	1.91										
R70903	21.36- 21.77 (21.36- 21.77)	C	C24067	CHALK.	4.7	2.40										
R70903	27.36- 27.50 (27.36- 27.50)	C	C24056	CHALK.	10.3	2.11										
R70903	30.82- 31.27 (30.82- 31.27)	C	C24049	CHALK.	13.1	2.00										


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample									Unconfined Compressive Strength Test							
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³				UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R70903	36.27- 36.50 (36.27- 36.50)	C	C24044	CHALK.	14.7	1.93										
R70903	39.12- 39.50 (39.12- 39.50)	C	C24046	CHALK.	17.9	1.82										
R71001	2.50- 2.56 (2.50- 2.56)	C	C23768	CHALK.	22.9	1.67										
R71001	12.34- 12.48 (12.34- 12.48)	C	C24053	CHALK.	26.6	1.57										
R71001	18.91- 19.06 (18.91- 19.06)	C	C24050	CHALK.	17.2	1.84										
R71001	27.26- 27.42 (27.26- 27.42)	C	C24040	CHALK.	19.1	1.78										
R71002	0.80- 1.20 (0.80- 1.20)	B	C23176	CHALK.	25.8	1.59										
R71002	1.60- 1.66 (1.60- 1.66)	C	C23298	CHALK.	24.6	1.62										
R71002	6.88- 7.00 (6.88- 7.00)	C	C23253	CHALK.	24.9	1.62										
R71002	12.58- 13.02 (12.58- 13.02)	C	C23797	CHALK.	21.7	1.70										
R71002	17.00- 17.50 (17.00- 17.50)	C	C23798	CHALK.	22.5	1.68										


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth m)	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R71002	23.62- 23.88 (23.62- 23.88)	C	C23799	CHALK.	23.9	1.64											
R71002	27.68- 27.89 (27.68- 27.89)	C	C23776	CHALK.	27.3	1.56											
R71301	3.50- 3.61 (3.50- 3.61)	C	C23191	CHALK.	24.9	1.61											
R71301	9.21- 9.34 (9.21- 9.34)	C	C23194	CHALK.	24.9	1.61											
R71301	13.21- 13.34 (13.21- 13.34)	C	C23198	CHALK.	28.2	1.53											
R71301	16.17- 16.29 (16.17- 16.29)	C	C23193	CHALK.	22.5	1.68											
R71301	20.19- 20.40 (20.19- 20.40)	C	C23247	CHALK.	21.5	1.71											
R71301	25.10- 25.25 (25.10- 25.25)	C	C23244	CHALK.	27.8	1.54											
R71301	29.25- 29.36 (29.25- 29.36)	C	C23250	CHALK.	24.1	1.64											
R71301	37.02- 37.18 (37.02- 37.18)	C	C23246	CHALK.	20.6	1.74											
R71301	44.62- 44.75 (44.62- 44.75)	C	C23804	CHALK.	24.1	1.63											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R71301	47.68- 47.86 (47.68- 47.86)	C	C23794	CHALK.	21.0	1.72											
R71302	1.40- 1.60 (1.40- 1.60)	D	C23297	CHALK.	26.6	1.57											
R71302	11.00- 11.14 (11.00- 11.14)	C	C23210	CHALK.	24.6	1.62											
R71302	16.45- 16.65 (16.45- 16.65)	C	C23228	CHALK.	27.7	1.54											
R71302	20.43- 20.66 (20.43- 20.66)	C	C23209	CHALK.	25.4	1.60											
R71302	25.84- 25.95 (25.84- 25.95)	C	C23232	CHALK.	26.0	1.59											
R71302	29.19- 29.42 (29.19- 29.42)	C	C23239	CHALK.	25.6	1.60											
R71302	33.88- 34.24 (33.88- 34.24)	C	C23233	CHALK.	33.3	1.42											
R71302	40.40- 40.60 (40.40- 40.60)	C	C23226	CHALK.	22.3	1.69											
R71302	46.85- 47.00 (46.85- 47.00)	C	C23255	CHALK.	17.4	1.84											
R71701	0.70- 0.90 (0.70- 0.90)	B	C23172	CHALK.	24.3	1.63											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R71701	2.02- 2.11 (2.02- 2.11)	C	C23224	CHALK.	23.2	1.66											
R71701	6.10- 6.27 (6.10- 6.27)	C	C23219	CHALK.	26.6	1.57											
R71701	10.47- 10.63 (10.47- 10.63)	C	C23217	CHALK.	24.0	1.64											
R71701	19.51- 19.69 (19.51- 19.69)	C	C23220	CHALK.	19.5	1.77											
R71701	29.83- 30.06 (29.83- 30.06)	C	C23795	CHALK.	24.4	1.63											
R71701	39.78- 40.02 (39.78- 40.02)	C	C23783	CHALK.	24.0	1.64											
R71701	44.11- 44.55 (44.11- 44.55)	C	C23790	CHALK.	21.7	1.70											
R71901	3.80- 3.84 (3.80- 3.84)	C	C22284	CHALK.	27.9	1.54											
R71901	32.12- 32.22 (32.12- 32.22)	C	C22657	CHALK.	23.4	1.65											
R71902	7.40- 7.64 (7.40- 7.64)	C	C23130	CHALK.	26.6	1.57											
R71902	10.44- 10.63 (10.44- 10.63)	C	C23101	CHALK.	22.9	1.67											


Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Classification Summary

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample												Unconfined Compressive Strength Test					
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	Sat. w %	γ_d Mg/m ³	CCV	Linear Shrink (>425) %	γ_d Max/ Min Mg/m ³					UCS kPa	w %	γ_b Mg/m ³	γ_d Mg/m ³
R71902	38.40- 38.62 (38.40- 38.62)	C	C23125	CHALK.	26.1	1.58											
R71903	7.30- 7.47 (7.30- 7.47)	C	C22297	CHALK.	23.8	1.64											
R71903	12.60- 12.70 (12.60- 12.70)	C	C22294	CHALK.	25.8	1.59											
R71903	41.77- 42.07 (41.77- 42.07)	C	C23182	CHALK.	24.7	1.62											
R71904	12.00- 12.13 (12.00- 12.13)	C	C23111	CHALK.	22.3	1.68											
R71904	42.20- 42.43 (42.20- 42.43)	C	C23657	CHALK.	25.1	1.61											
STP7281 1	0.50- 0.60 (0.50- 0.60)	B	C23067	CHALK.	29.2	1.51											
STP7290 1	0.50- 0.60 (0.50- 0.60)	B	C23076	CHALK, recovered as cream slightly sandy SILT.	21.5	1.71											
STP7290 3	0.75- 0.85 (0.75- 0.85)	B	C23074	CHALK, recovered as sandy gravelly SILT.	28.6	1.52											

Remarks  NST - Not suitable for Test
For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole CP70202

Sample Depth 4.20-4.65m

Project No: PC197510

Sample Type UT

Sample Ref C22264

Sample Description

The following samples were combined to perform this test:

CHALK.

BS1377 Part 8 1990 : Clause 9.0

	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m ²	Strain %	Corrected Deviator Stress kN/m ²
Sample Condition	Not suitable for tes						
Orientation of sample	Vertical						
Initial Diameter (mm)							
Initial Length (mm)							
Initial Water Content (%)	24.4	24.4	24.4				
Initial Bulk Density (Mg/m ³)							
Initial Dry Density (Mg/m ³)							
Particle Density (Mg/m ³)							
Cell Pressure (kPa)	40	80	160				
'Specimen Height' at start of Shearing Stage (mm)							
Membrane Thickness/Correction (mm/kPa)							
Rate of Strain (%/min)							
Corrected Deviator Stress (kPa)							
Undrained Shear Strength (kPa)							
Strain at Failure (%)							
Failure Zone Water Content (%)							
Water Content (after test) (%)							
Mode of Failure	Intermediate						

Remarks  NST= SAMPLE COLLAPSED UP ON EXTRUSION

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GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole CP70202

Sample Depth 6.20-6.65m

Project No: PC197510

Sample Type UT

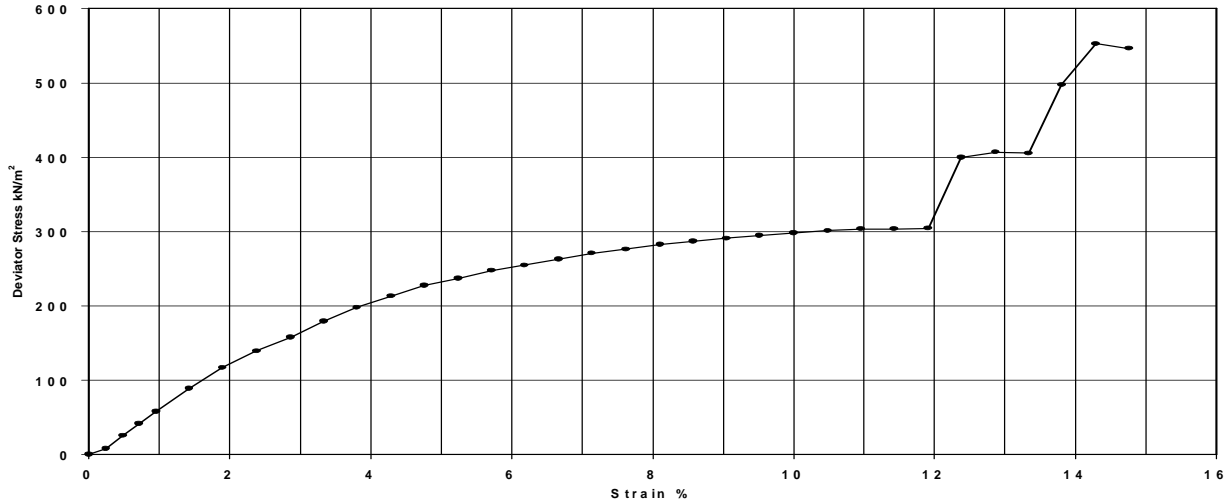
Sample Ref C22263

Sample Description

The following samples were combined to perform this test:

CHALK.

BS1377 Part 8 1990 : Clause 8.0



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m ²	Strain %	Corrected Deviator Stress kN/m ²
Sample Condition	Undisturbed			0.2	7.7	10.0	298.3
Orientation of sample	Vertical			0.5	25.3	10.5	301.1
Initial Diameter (mm)	104.07	104.07	104.07	0.7	42.0	11.0	303.3
Initial Length (mm)	209.98	209.98	209.98	1.0	57.9	11.4	303.6
Initial Water Content (%)	31.1	31.1	31.1	1.4	88.8	11.9	304.1
Initial Bulk Density (Mg/m ³)	1.97	1.97	1.97	1.9	117.3	12.4	399.6
Initial Dry Density (Mg/m ³)	1.50	1.50	1.50	2.4	139.6	12.9	406.7
Particle Density (Mg/m ³)				2.9	157.8	13.3	405.3
Cell Pressure (kPa)	60	120	240	3.3	179.2	13.8	497.7
'Specimen Height' at start of Shearing Stage (mm)				3.8	197.8	14.3	552.4
Membrane Thickness/Correction (mm/kPa)	0.30 / 0.71	0.30 / 0.77	0.30 / 0.88	4.3	212.9	14.8	546.1
Rate of Strain (%/min)	1.95	1.95	1.95	4.8	227.2		
Corrected Deviator Stress (kPa)	304	407	552	5.2	237.2		
Undrained Shear Strength (kPa)	152	203	276	5.7	247.5		
Strain at Failure (%)	11.9	12.9	14.3	6.2	255.0		
Failure Zone Water Content (%)				6.7	262.7		
Water Content (after test) (%)				7.1	271.1		
Mode of Failure	Intermediate	Intermediate	Intermediate	7.6	276.4		
				8.1	282.5		
				8.6	287.0		
				9.0	290.9		
				9.5	294.6		

Remarks

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GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole CP70202

Sample Depth 16.20-16.65m

Project No: PC197510

Sample Type UT

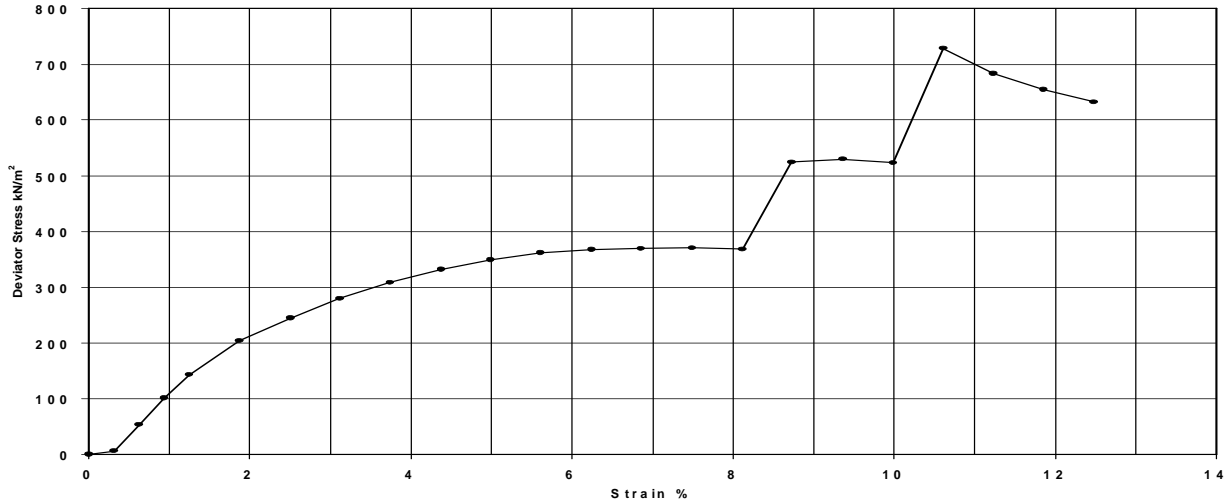
Sample Ref C22257

Sample Description

The following samples were combined to perform this test:

CHALK.

BS1377 Part 8 1990 : Clause 9.0



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m ²	Strain %	Corrected Deviator Stress kN/m ²
Sample Condition	Undisturbed			0.3	6.1		
Orientation of sample	Vertical			0.6	53.7		
Initial Diameter (mm)	102.61	102.61	102.61	0.9	101.1		
Initial Length (mm)	160.29	160.29	160.29	1.2	143.4		
Initial Water Content (%)	21.9	21.9	21.9	1.9	203.6		
Initial Bulk Density (Mg/m ³)	2.68	2.68	2.68	2.5	244.9		
Initial Dry Density (Mg/m ³)	2.20	2.20	2.20	3.1	279.7		
Particle Density (Mg/m ³)				3.7	308.5		
Cell Pressure (kPa)	160	320	640	4.4	331.9		
'Specimen Height' at start of Shearing Stage (mm)				5.0	349.6		
Membrane Thickness/Correction (mm/kPa)	0.30 / 0.50	0.30 / 0.61	0.30 / 0.67	5.6	361.7		
Rate of Strain (%/min)	1.95	1.95	1.95	6.2	367.5		
Corrected Deviator Stress (kPa)	371	530	728	6.9	369.8		
Undrained Shear Strength (kPa)	185	265	364	7.5	370.8		
Strain at Failure (%)	7.5	9.4	10.6	8.1	368.7		
Failure Zone Water Content (%)				8.7	524.8		
Water Content (after test) (%)				9.4	530.0		
Mode of Failure	Intermediate	Intermediate	Intermediate	10.0	523.0		
				10.6	728.3		
				11.2	683.5		
				11.9	654.7		
				12.5	632.1		

Remarks 

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GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70901

Sample Depth: 4.20-4.65m

Project No: PC197510

Sample Type: UT

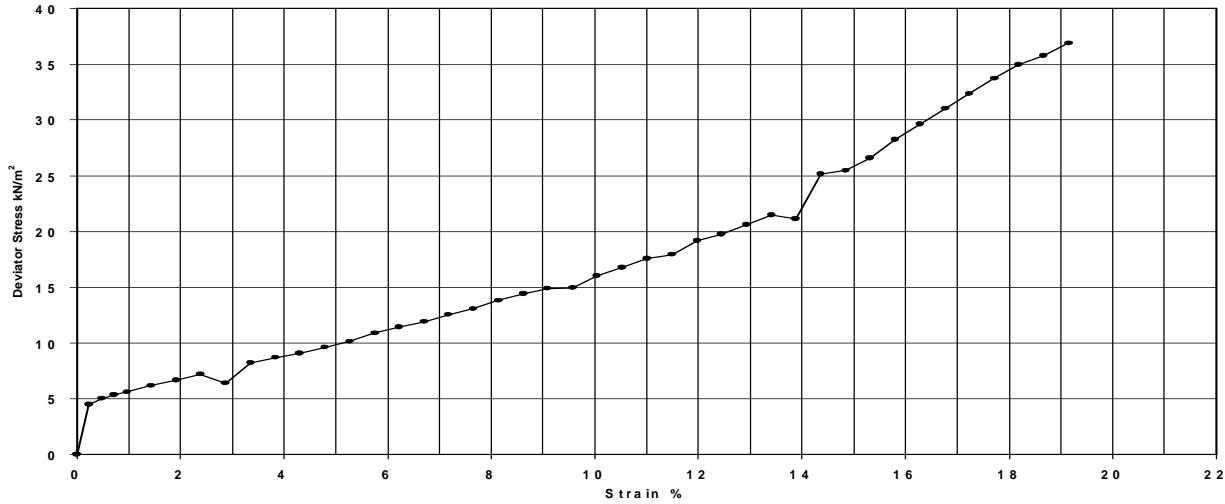
Sample Ref: C24246

Sample Description

The following samples were combined to perform this test:

CHALK.

BS1377 Part 8 1990 : Clause 9.0



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m ²	Strain %	Corrected Deviator Stress kN/m ²
Sample Condition	Undisturbed			0.2	4.5	10.1	16.0
Orientation of sample	Vertical			0.5	5.0	10.5	16.8
Initial Diameter (mm)	104.81	104.81	104.81	0.7	5.4	11.0	17.5
Initial Length (mm)	208.86	208.86	208.86	1.0	5.6	11.5	18.0
Initial Water Content (%)	24.4	24.4	24.4	1.4	6.2	12.0	19.2
Initial Bulk Density (Mg/m ³)	2.12	2.12	2.12	1.9	6.7	12.4	19.7
Initial Dry Density (Mg/m ³)	1.70	1.70	1.70	2.4	7.2	12.9	20.6
Particle Density (Mg/m ³)				2.9	6.4	13.4	21.5
Cell Pressure (kPa)	40	80	160	3.4	8.2	13.9	21.1
'Specimen Height' at start of Shearing Stage (mm)				3.8	8.7	14.4	25.1
Membrane Thickness/Correction (mm/kPa)	0.30 / 0.82	0.30 / 1.03	0.30 /	4.3	9.1	14.8	25.5
Rate of Strain (%/min)	1.95	1.95	1.95	4.8	9.6	15.3	26.6
Corrected Deviator Stress (kPa)	21	37		5.3	10.2	15.8	28.3
Undrained Shear Strength (kPa)	11	18		5.7	10.9	16.3	29.6
Strain at Failure (%)	13.4	19.2		6.2	11.4	16.8	31.0
Failure Zone Water Content (%)				6.7	11.9	17.2	32.4
Water Content (after test) (%)				7.2	12.5	17.7	33.7
Mode of Failure	Intermediate	Intermediate	Intermediate	7.7	13.1	18.2	35.0
				8.1	13.8	18.7	35.8
				8.6	14.4	19.2	36.9
				9.1	14.9		
				9.6	15.0		

Remarks 

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GEOTECHNICS

LABORATORY RESULTS - Unconsolidated Undrained Triaxial Test

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole CP70902

Sample Depth 5.20-5.65m

Project No: PC197510

Sample Type UT

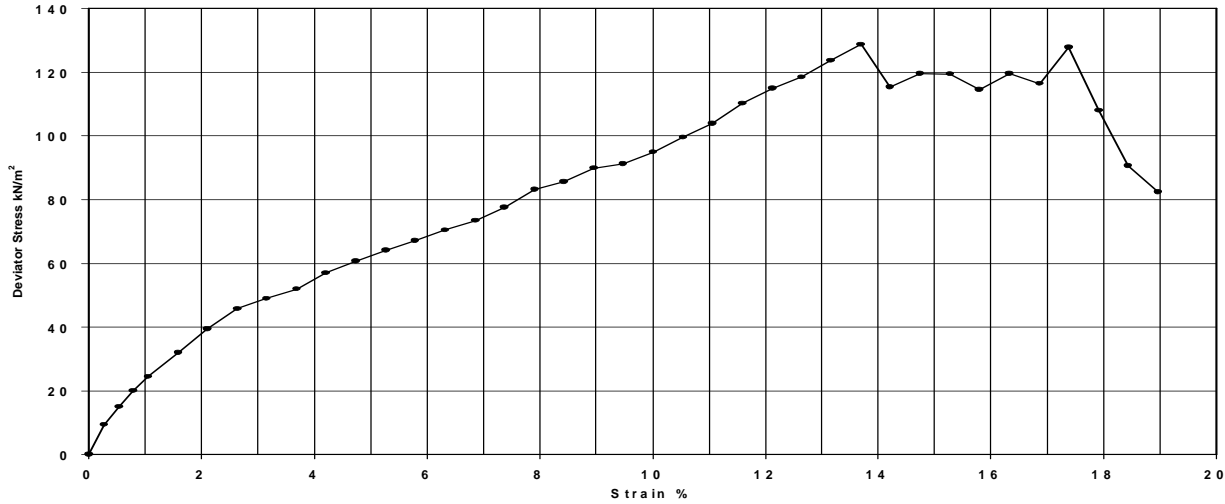
Sample Ref C24247

Sample Description

The following samples were combined to perform this test:

CHALK.

BS1377 Part 8 1990 : Clause 9.0



	Stage 1	Stage 2	Stage 3	Strain %	Corrected Deviator Stress kN/m ²	Strain %	Corrected Deviator Stress kN/m ²
Sample Condition	Undisturbed			0.3	9.3	11.1	103.8
Orientation of sample	Vertical			0.5	14.9	11.6	110.2
Initial Diameter (mm)	104.85	104.85	104.85	0.8	20.0	12.1	115.0
Initial Length (mm)	189.82	189.82	189.82	1.1	24.4	12.6	118.5
Initial Water Content (%)	22.7	22.7	22.7	1.6	32.0	13.2	123.7
Initial Bulk Density (Mg/m ³)	2.08	2.08	2.08	2.1	39.4	13.7	128.8
Initial Dry Density (Mg/m ³)	1.70	1.70	1.70	2.6	45.7	14.2	115.4
Particle Density (Mg/m ³)				3.2	49.0	14.8	119.6
Cell Pressure (kPa)	50	100	200	3.7	52.0	15.3	119.5
'Specimen Height' at start of Shearing Stage (mm)				4.2	56.9	15.8	114.5
Membrane Thickness/Correction (mm/kPa)	0.30 / 0.82	0.30 / 0.92	0.30 / 0.92	4.7	60.8	16.3	119.6
Rate of Strain (%/min)	1.95	1.95	1.95	5.3	64.1	16.9	116.5
Corrected Deviator Stress (kPa)	129	120	128	5.8	67.2	17.4	127.9
Undrained Shear Strength (kPa)	64	60	64	6.3	70.4	17.9	108.1
Strain at Failure (%)	13.7	16.3	17.4	6.8	73.5	18.4	90.6
Failure Zone Water Content (%)				7.4	77.5	19.0	82.5
Water Content (after test) (%)				7.9	83.2		
Mode of Failure	Intermediate	Intermediate	Intermediate	8.4	85.7		
				9.0	90.0		
				9.5	91.1		
				10.0	95.0		
				10.5	99.6		

Remarks 

04/09/2019

GEOTECHNICS

LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70201

Sample Depth: 1.20-1.70m

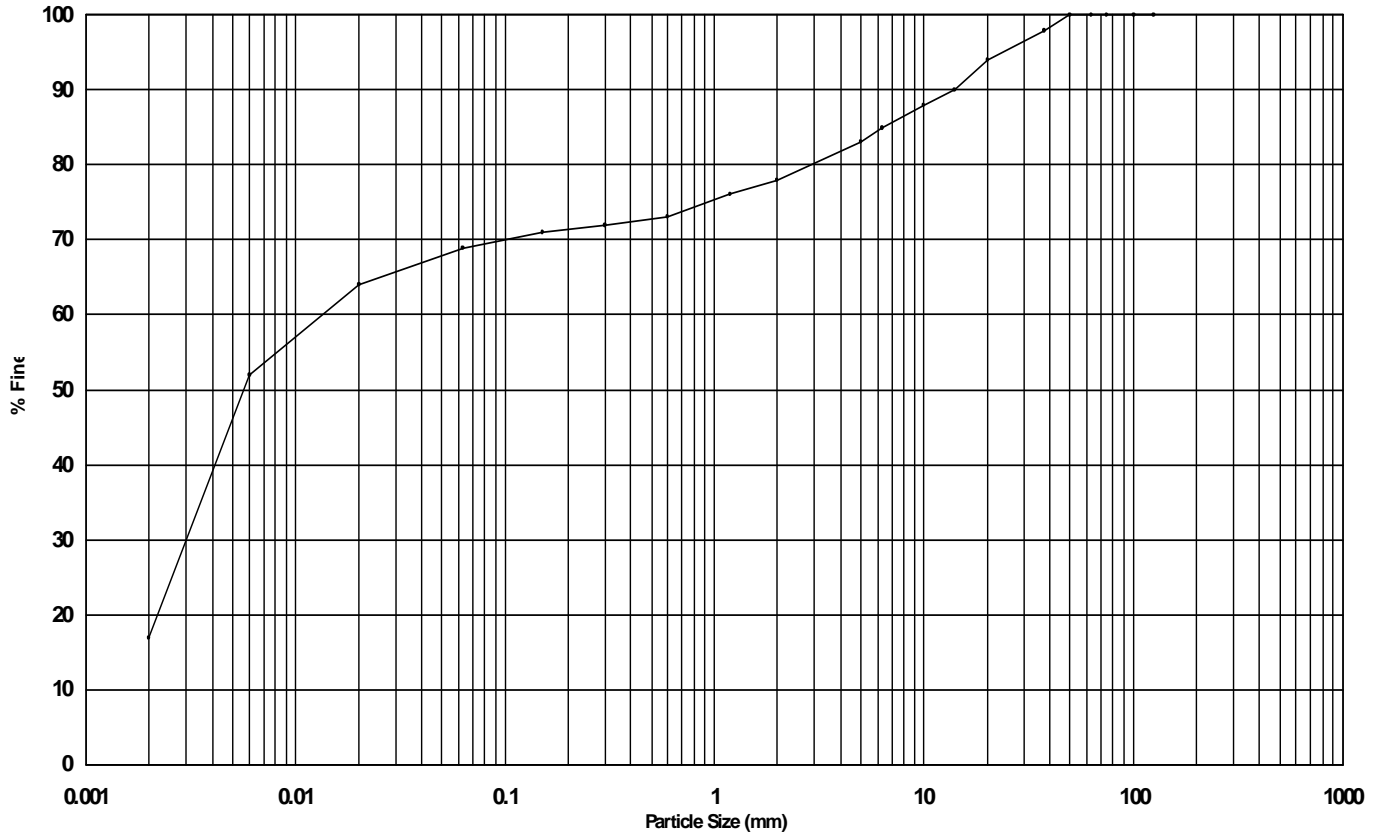
Project No: PC197510

Sample Type: B

Sample Ref: C22596

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	17
SILT	52
SAND	9
GRAVEL	22
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	94
14 mm	90
10 mm	88
6.3 mm	85
5 mm	83
2 mm	78
1.18 mm	76
600 μm	73
300 μm	72
150 μm	71

Size	% Finer
63 μm	69
20 μm	64
6 μm	52
2 μm	17

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	1.64
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70202

Sample Depth: 1.20-1.70m

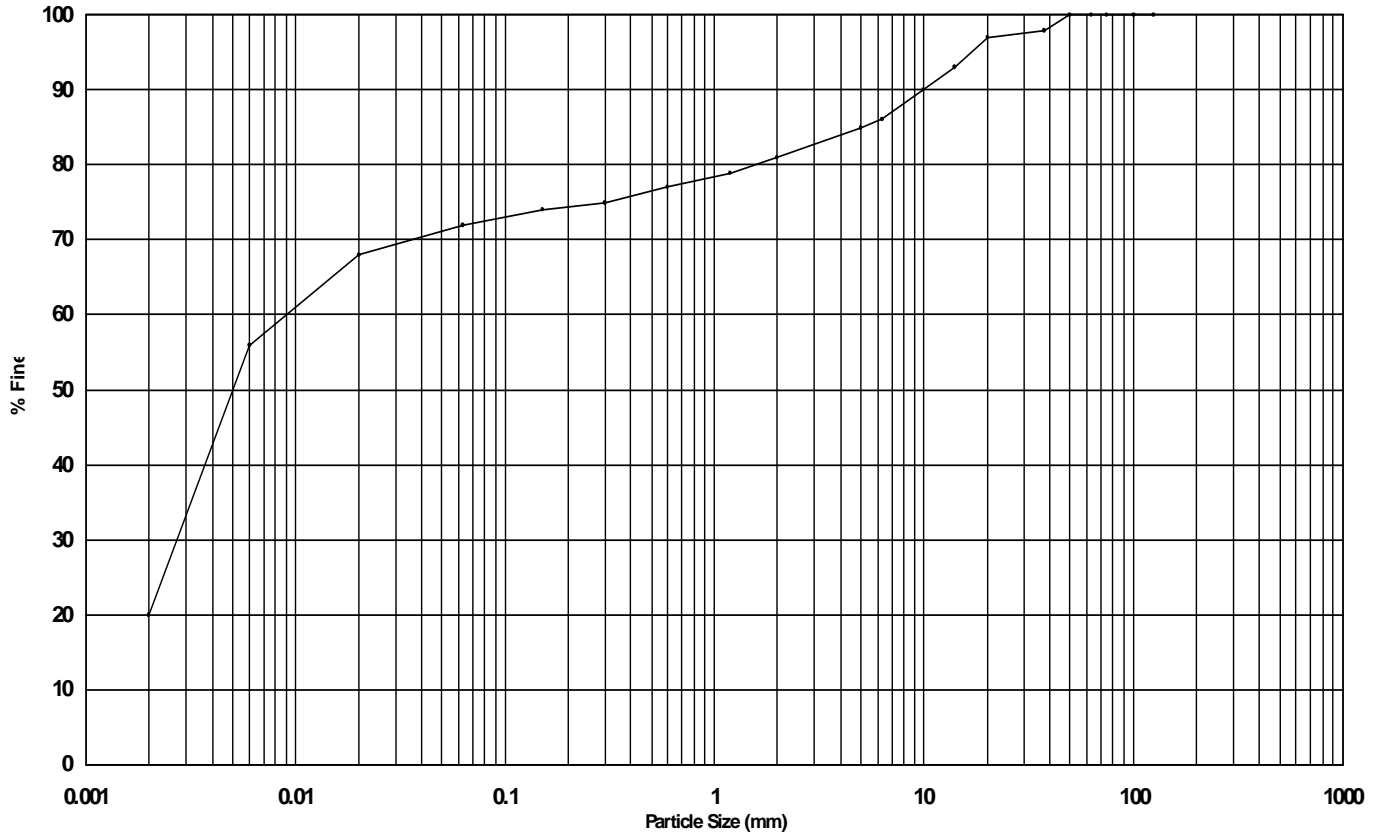
Project No: PC197510

Sample Type: B

Sample Ref: C22254

Sample Description

CHALK, recovered as white slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	20
SILT	52
SAND	9
GRAVEL	19
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	97
14 mm	93
10 mm	90
6.3 mm	86
5 mm	85
2 mm	81
1.18 mm	79
600 μ m	77
300 μ m	75
150 μ m	74

Size	% Finer
63 μ m	72
20 μ m	68
6 μ m	56
2 μ m	20

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.15
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70901

Sample Depth: 1.30-2.30m

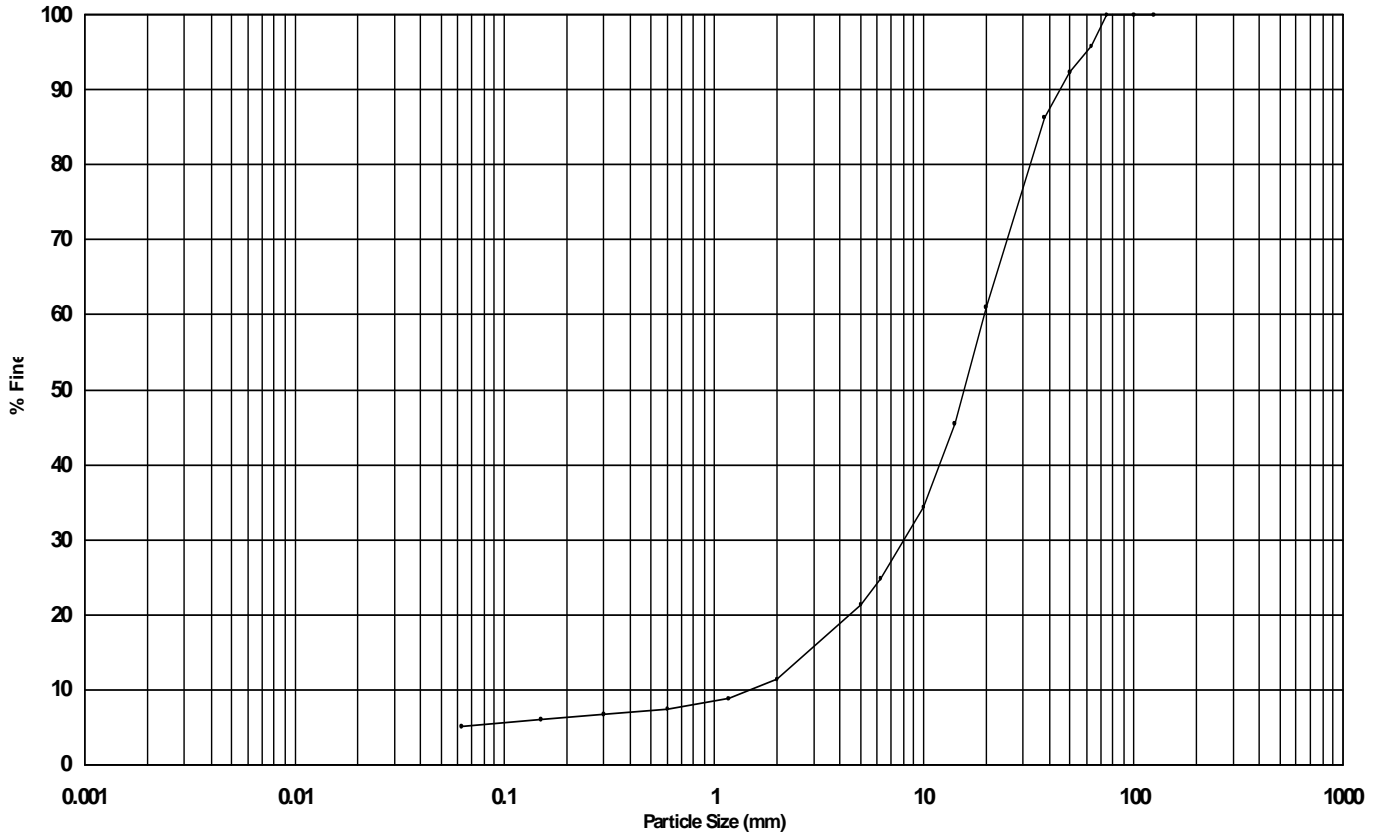
Project No: PC197510

Sample Type: B

Sample Ref: C24241

Sample Description

Light brown sandy silty GRAVEL with a low cobble content.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	5
SAND	6
GRAVEL	85
COBBLES	4
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	96
50 mm	92
37.5 mm	86
20 mm	61
14 mm	45
10 mm	34
6.3 mm	25
5 mm	21
2 mm	11
1.18 mm	9
600 μm	7
300 μm	7
150 μm	6

Size	% Finer
63 μm	5

Uniformity Coefficient	
12.75	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70901

Sample Depth: 3.20-3.70m

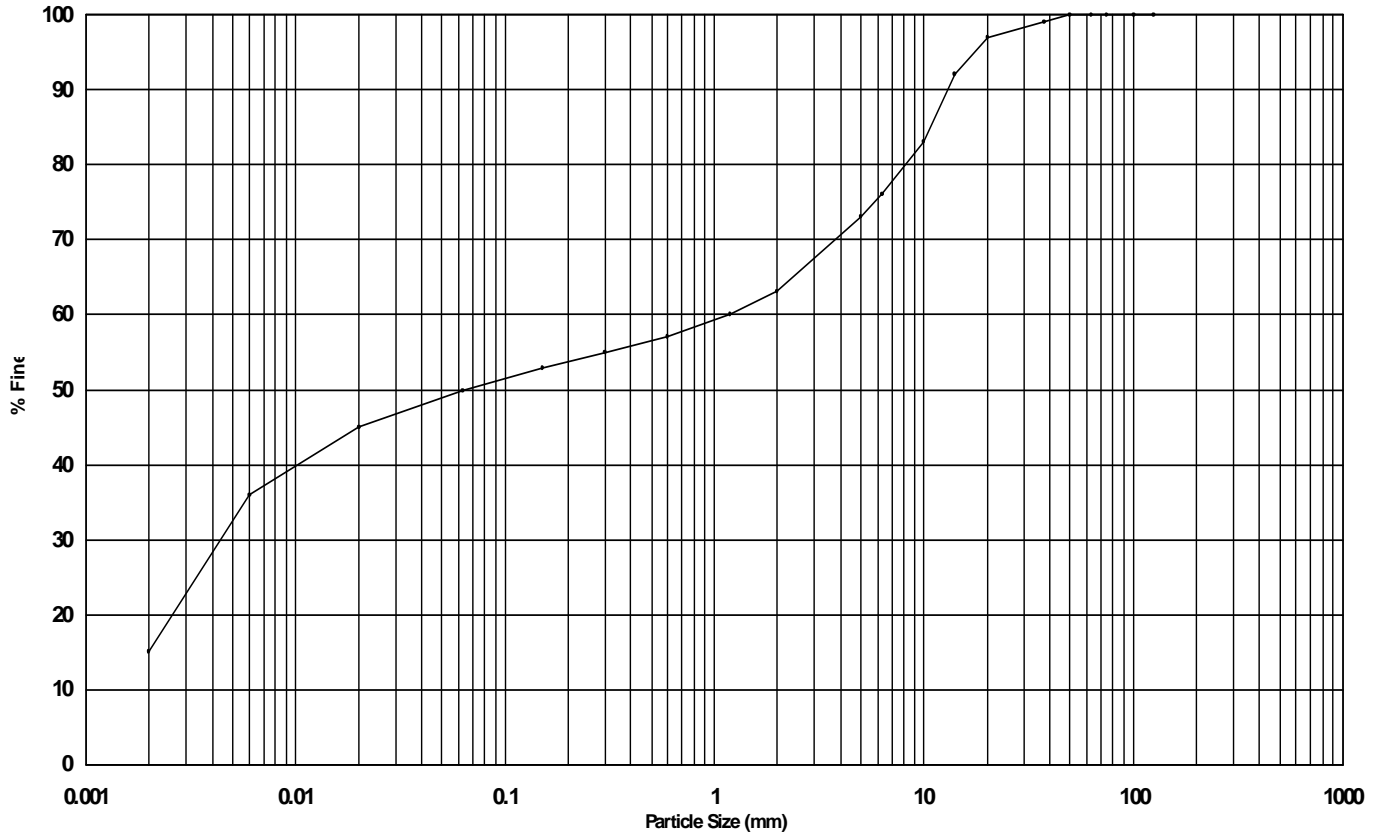
Project No: PC197510

Sample Type: B

Sample Ref: C24242

Sample Description

CHALK, recovered as slightly sandy gravelly SILT..



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	15
SILT	35
SAND	13
GRAVEL	37
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	99
20 mm	97
14 mm	92
10 mm	83
6.3 mm	76
5 mm	73
2 mm	63
1.18 mm	60
600 µ m	57
300 µ m	55
150 µ m	53

Size	% Finer
63 µ m	50
20 µ m	45
6 µ m	36
2 µ m	15

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.24
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP70902

Sample Depth: 2.20-3.20m

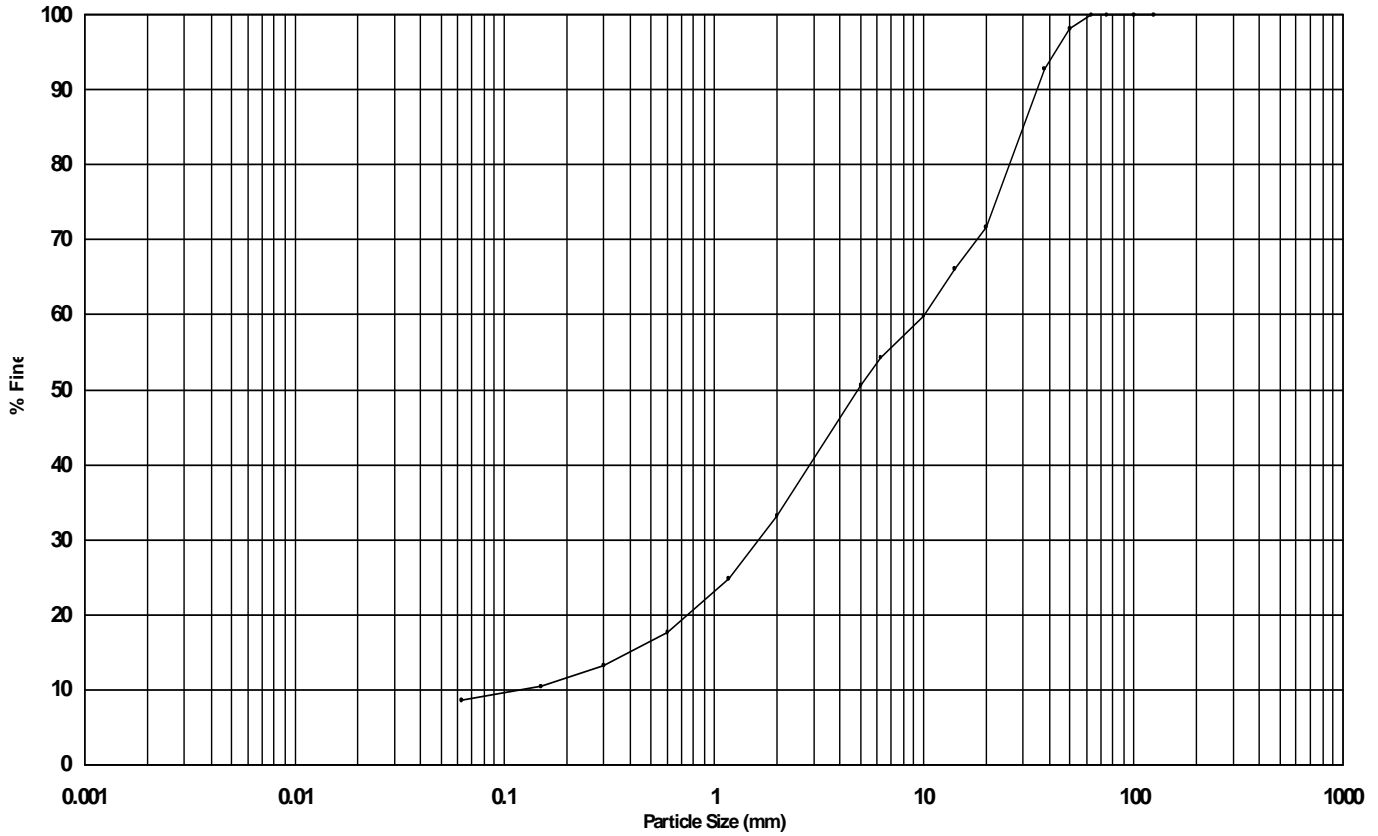
Project No: PC197510

Sample Type: B

Sample Ref: C23892

Sample Description

Light brown very sandy silty GRAVEL



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	8
SAND	25
GRAVEL	67
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	98
37.5 mm	93
20 mm	72
14 mm	66
10 mm	60
6.3 mm	54
5 mm	51
2 mm	33
1.18 mm	25
600 µm	18
300 µm	13
150 µm	10

Size	% Finer
63 µm	8

Uniformity Coefficient	
81.17	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP71301

Sample Depth: 0.80-1.20m

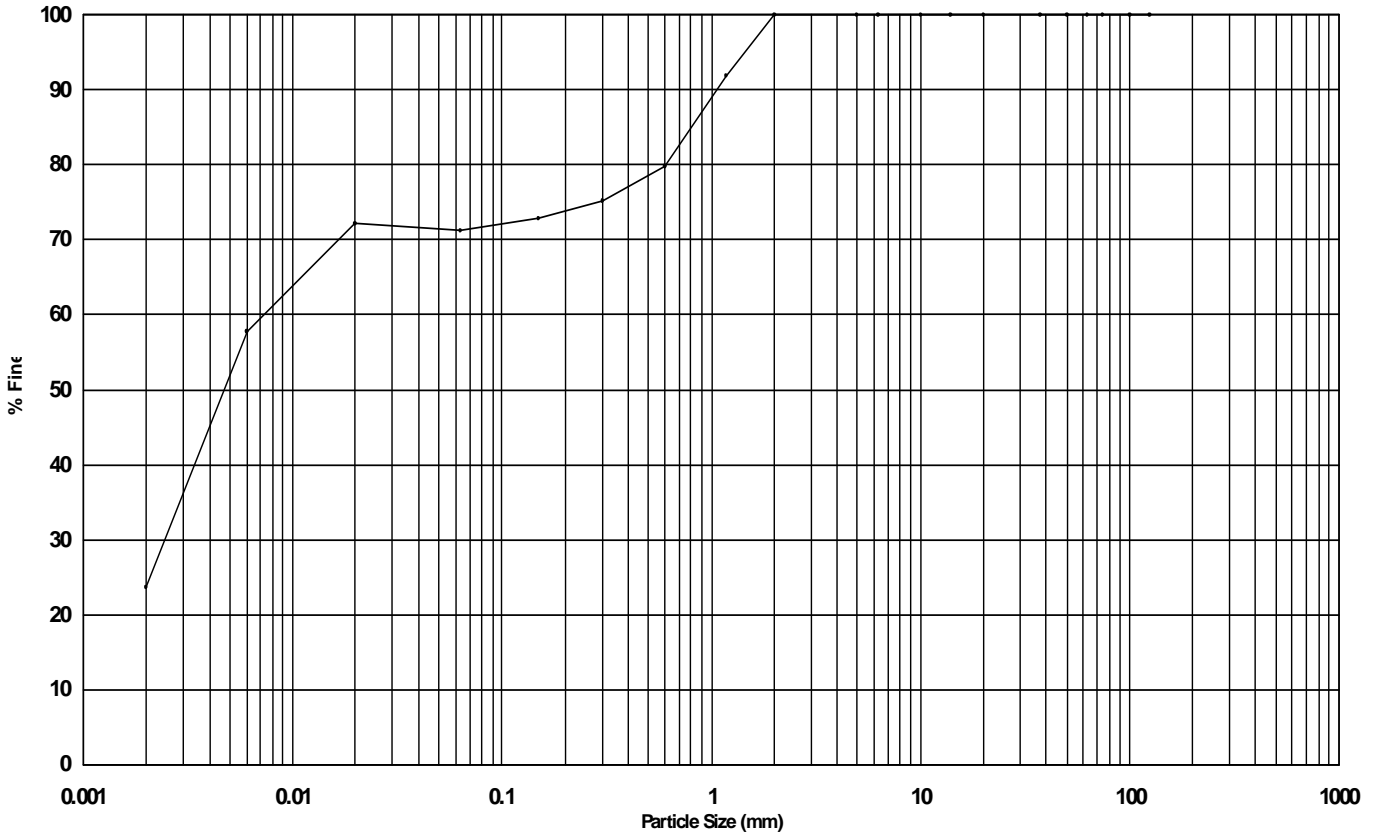
Project No: PC197510

Sample Type: B

Sample Ref: C22586

Sample Description

CHALK, recovered as white slightly gravelly sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	8
SILT	32
SAND	44
GRAVEL	16
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	99
20 mm	84
14 mm	84
10 mm	84
6.3 mm	84
5 mm	84
2 mm	84
1.18 mm	69
600 μm	53
300 μm	46
150 μm	43

Size	% Finer
63 μm	40
20 μm	24
6 μm	19
2 μm	8

Uniformity Coefficient	
334.25	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.19
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP71301

Sample Depth: 23.00-23.50m

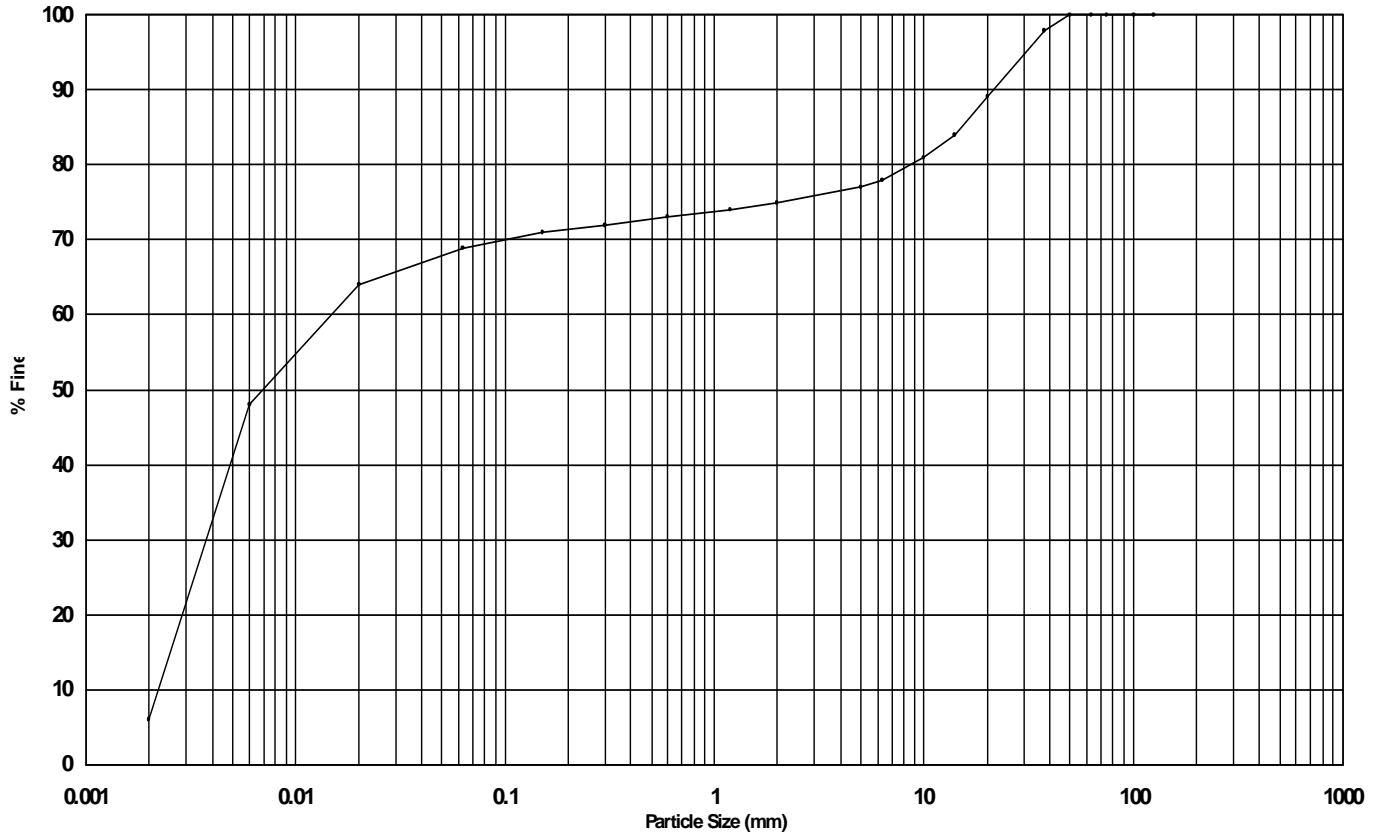
Project No: PC197510

Sample Type: B

Sample Ref: C22614

Sample Description

CHALK, recovered as white slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	63
SAND	6
GRAVEL	25
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	89
14 mm	84
10 mm	81
6.3 mm	78
5 mm	77
2 mm	75
1.18 mm	74
600 μ m	73
300 μ m	72
150 μ m	71

Size	% Finer
63 μ m	69
20 μ m	64
6 μ m	48
2 μ m	6

Uniformity Coefficient	
6.70	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.14
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP71302

Sample Depth: 0.60-1.00m

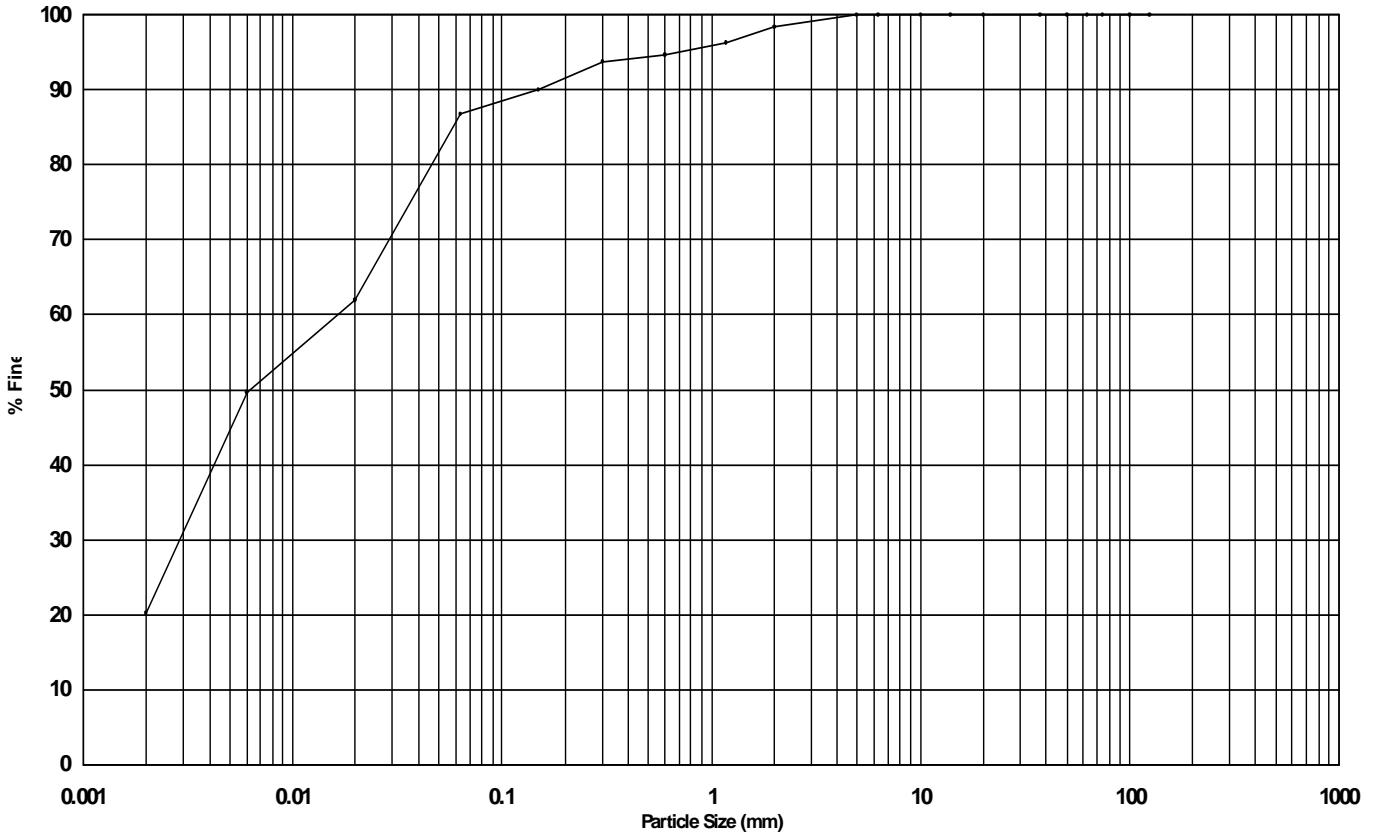
Project No: PC197510

Sample Type: B

Sample Ref: C23059

Sample Description

CHALK, recovered as a cream slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	20
SILT	67
SAND	11
GRAVEL	2
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	98
1.18 mm	96
600 μ m	95
300 μ m	94
150 μ m	90

Size	% Finer
63 μ m	87
20 μ m	62
6 μ m	50
2 μ m	20

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.26
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP71701

Sample Depth: 1.20-1.80m

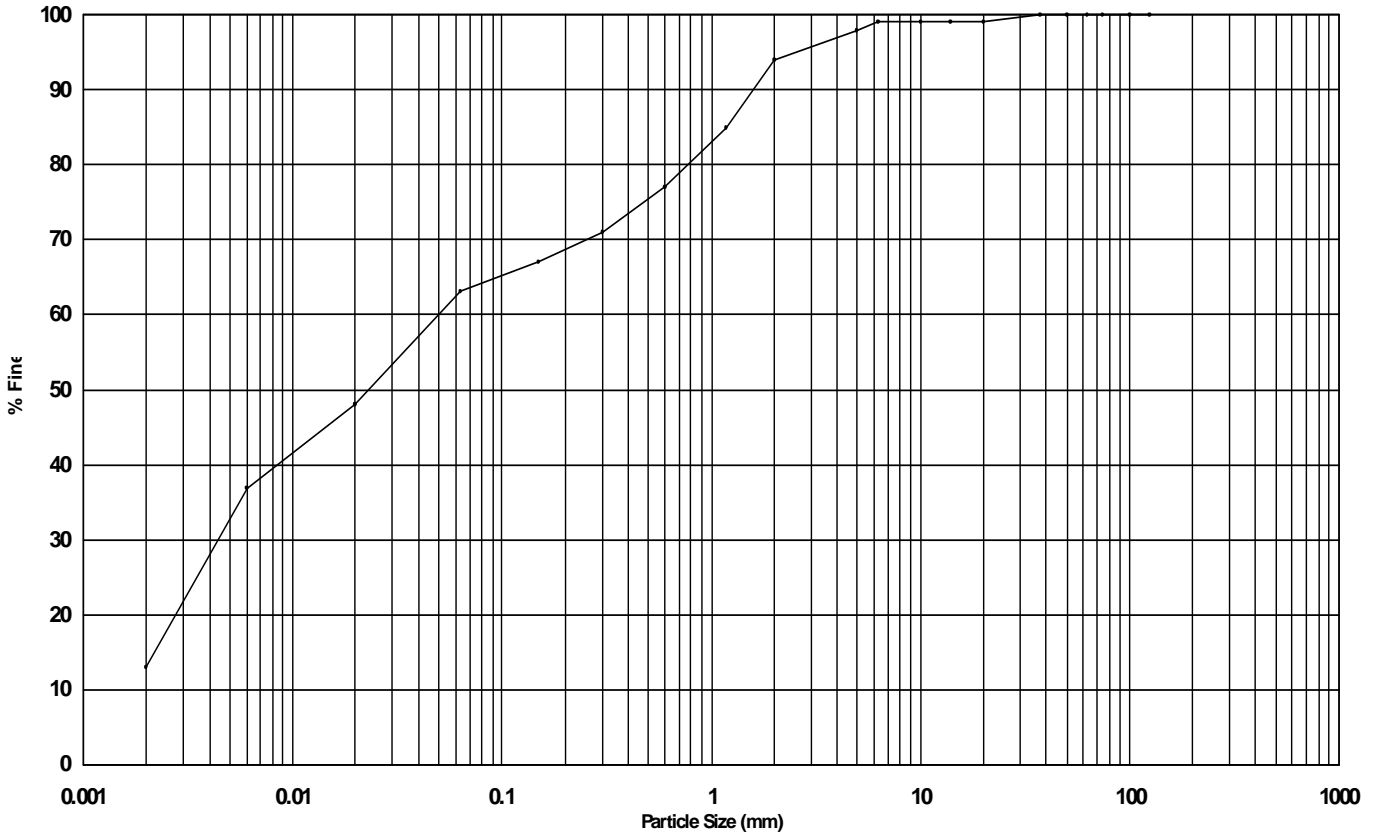
Project No: PC197510

Sample Type: B

Sample Ref: C23746

Sample Description

CHALK, recovered as white slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	13
SILT	50
SAND	31
GRAVEL	6
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	99
14 mm	99
10 mm	99
6.3 mm	99
5 mm	98
2 mm	94
1.18 mm	85
600 μ m	77
300 μ m	71
150 μ m	67

Size	% Finer
63 μ m	63
20 μ m	48
6 μ m	37
2 μ m	13

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	99.72
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: CP71702

Sample Depth: 1.20-1.70m

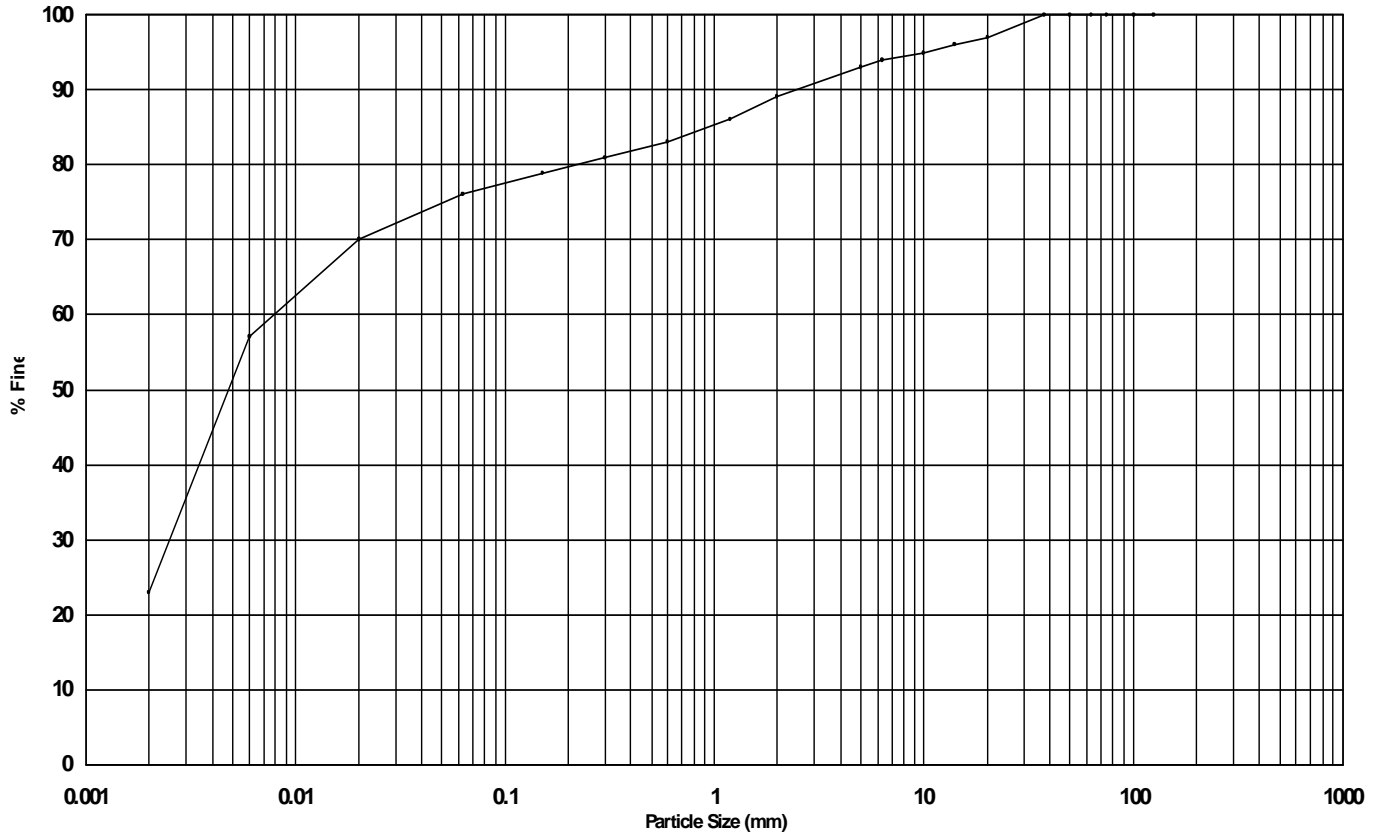
Project No: PC197510

Sample Type: B

Sample Ref: C23178

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	23
SILT	53
SAND	13
GRAVEL	11
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	97
14 mm	96
10 mm	95
6.3 mm	94
5 mm	93
2 mm	89
1.18 mm	86
600 μm	83
300 μm	81
150 μm	79

Size	% Finer
63 μm	76
20 μm	70
6 μm	57
2 μm	23

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: R70901

Sample Depth: 0.90-1.20m

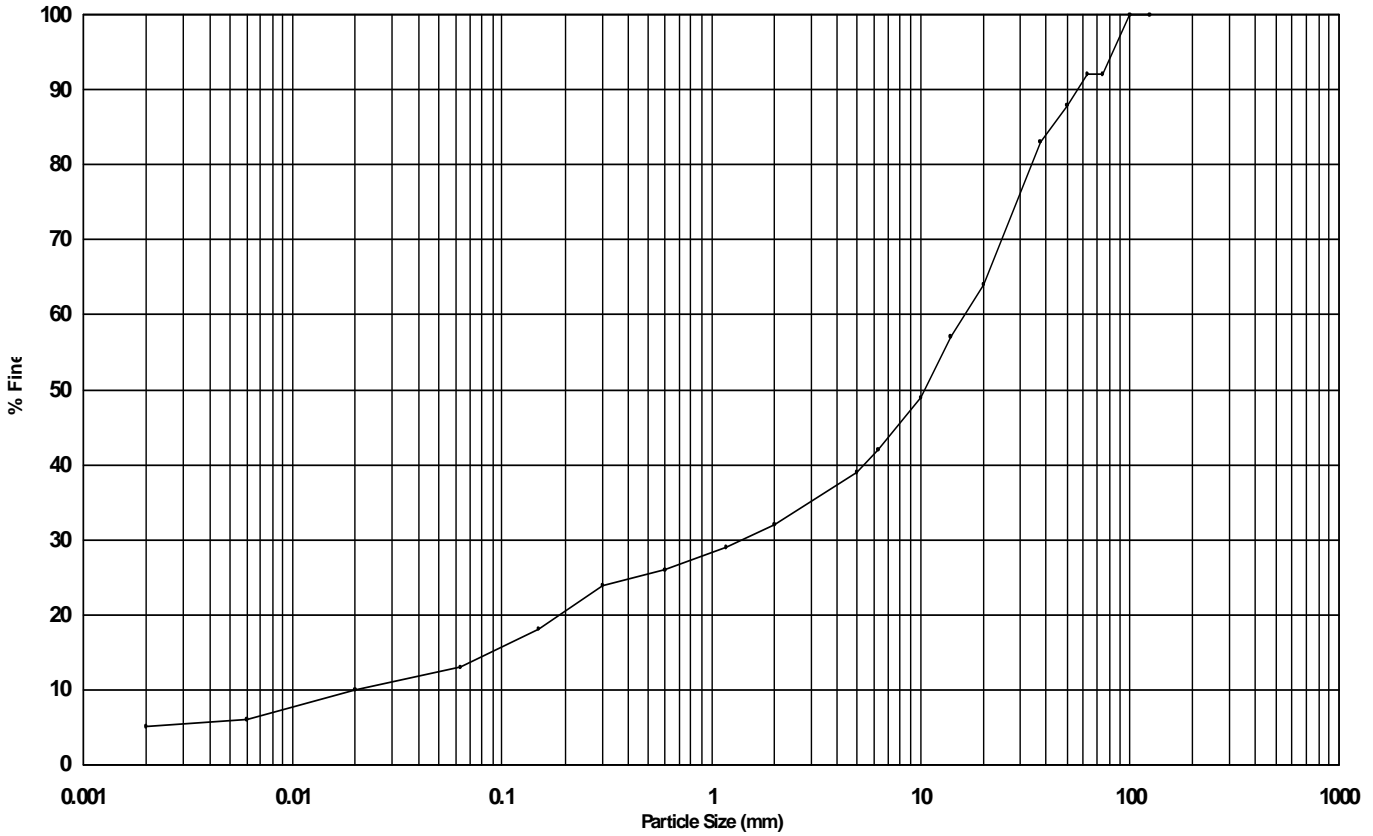
Project No: PC197510

Sample Type: B

Sample Ref: C23751

Sample Description

Brown very sandy clayey GRAVEL with a medium cobble content.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	5
SILT	8
SAND	19
GRAVEL	60
COBBLES	8
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	92
63 mm	92
50 mm	88
37.5 mm	83
20 mm	64
14 mm	57
10 mm	49
6.3 mm	42
5 mm	39
2 mm	32
1.18 mm	29
600 μm	26
300 μm	24
150 μm	18

Size	% Finer
63 μm	13
20 μm	10
6 μm	6
2 μm	5

Uniformity Coefficient	
697.82	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	3.17
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: R70902

Sample Depth: 0.50-1.20m

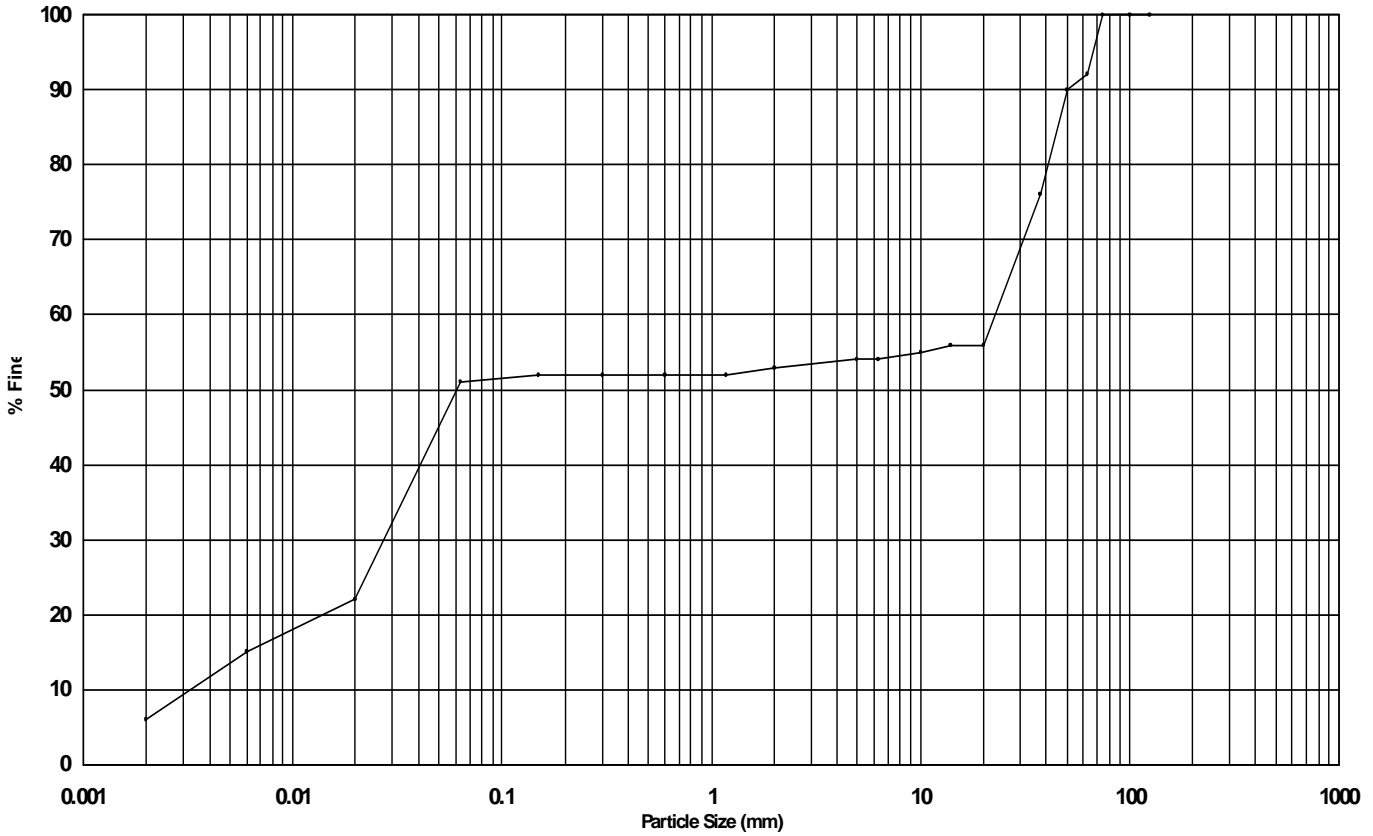
Project No: PC197510

Sample Type: B

Sample Ref: C23754

Sample Description

Brown slightly sandy very silty GRAVEL with a medium cobble content.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	45
SAND	2
GRAVEL	39
COBBLES	8
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	92
50 mm	90
37.5 mm	76
20 mm	56
14 mm	56
10 mm	55
6.3 mm	54
5 mm	54
2 mm	53
1.18 mm	52
600 μ m	52
300 μ m	52
150 μ m	52

Size	% Finer
63 μ m	51
20 μ m	22
6 μ m	15
2 μ m	6

Uniformity Coefficient	
7073.74	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	1.69
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: R70903

Sample Depth: 0.60-0.80m

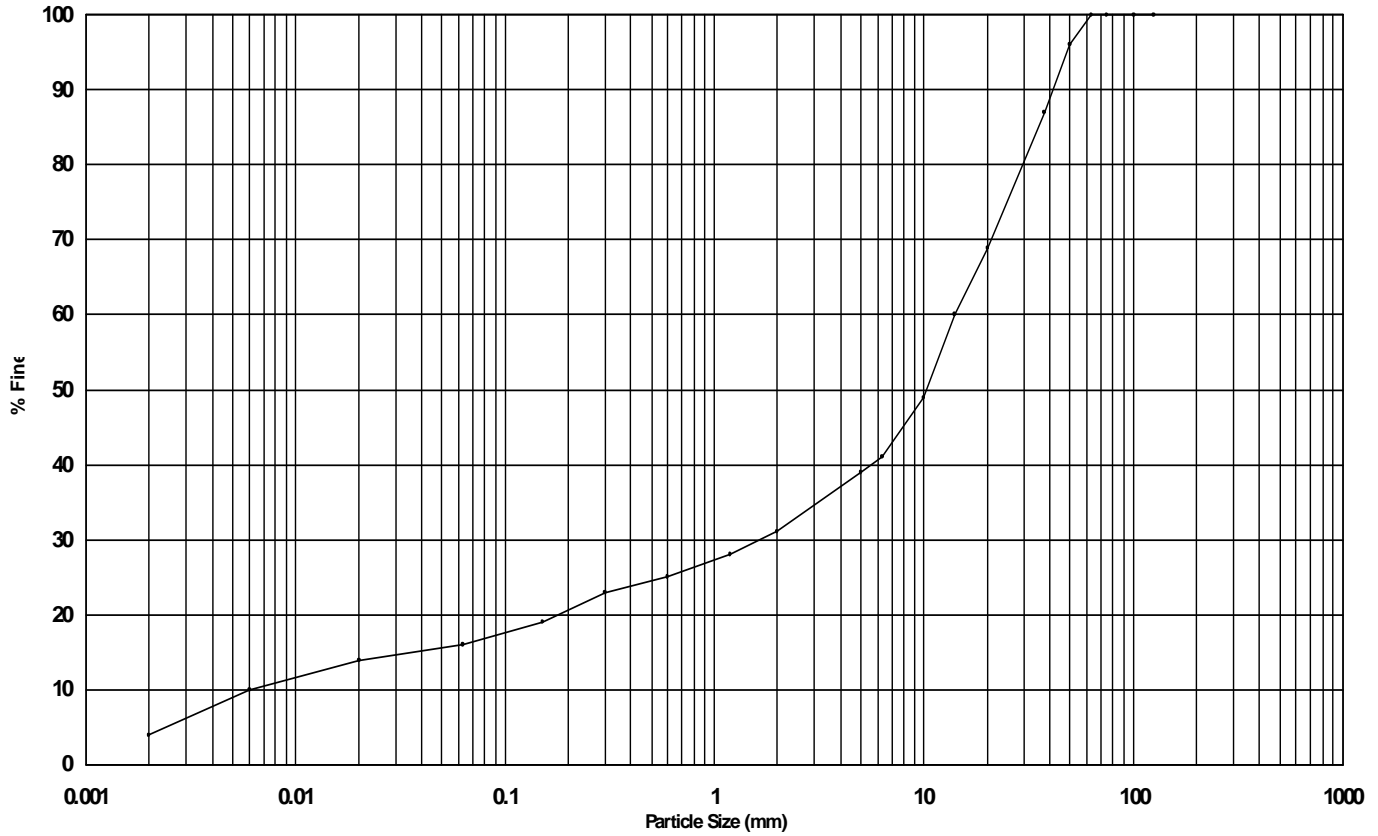
Project No: PC197510

Sample Type: B

Sample Ref: C23091

Sample Description

White sandy silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	4
SILT	12
SAND	15
GRAVEL	69
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	96
37.5 mm	87
20 mm	69
14 mm	60
10 mm	49
6.3 mm	41
5 mm	39
2 mm	31
1.18 mm	28
600 μm	25
300 μm	23
150 μm	19

Size	% Finer
63 μm	16
20 μm	14
6 μm	10
2 μm	4

Uniformity Coefficient	
2188.80	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.56
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: R71301

Sample Depth: 0.40-0.90m

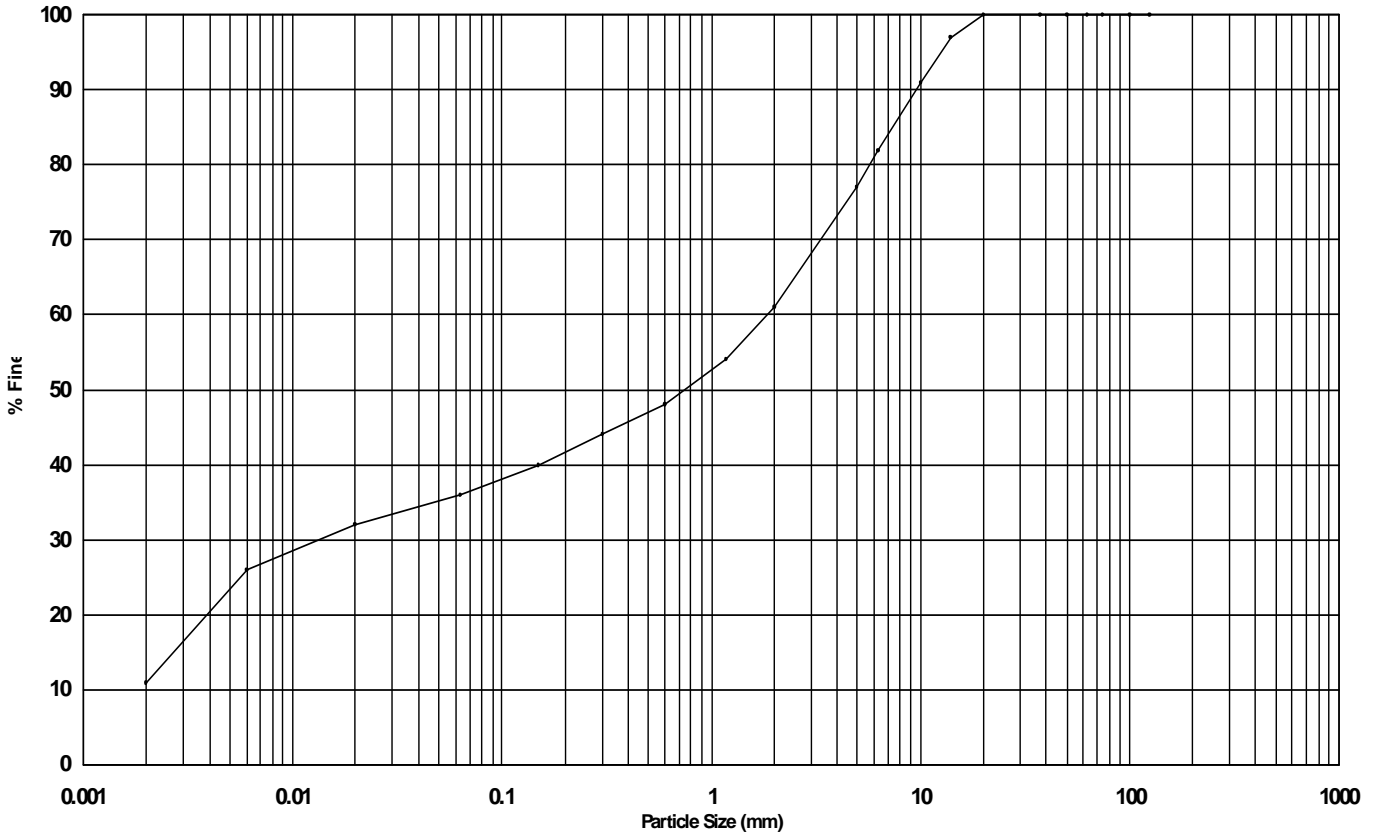
Project No: PC197510

Sample Type: B

Sample Ref: C23062

Sample Description

CHALK, recovered as white very sandy very silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	11
SILT	25
SAND	25
GRAVEL	39
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	97
10 mm	91
6.3 mm	82
5 mm	77
2 mm	61
1.18 mm	54
600 μm	48
300 μm	44
150 μm	40

Size	% Finer
63 μm	36
20 μm	32
6 μm	26
2 μm	11

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.33
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72801

Sample Depth: 0.30-1.10m

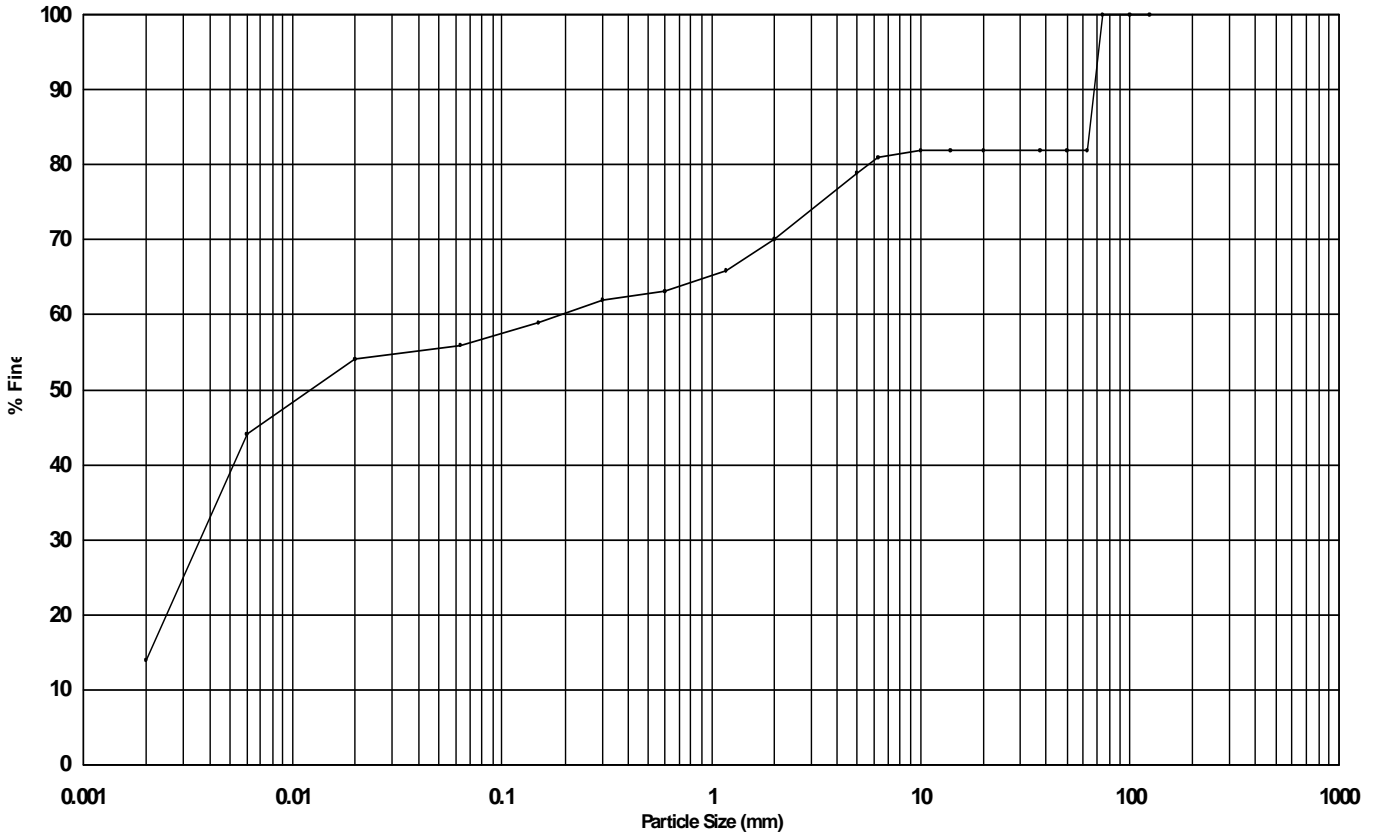
Project No: PC197510

Sample Type: B

Sample Ref: C22597

Sample Description

CHALK, recovered as sandy gravelly SILT with a medium cobble content.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	14
SILT	42
SAND	14
GRAVEL	12
COBBLES	18
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	82
50 mm	82
37.5 mm	82
20 mm	82
14 mm	82
10 mm	82
6.3 mm	81
5 mm	79
2 mm	70
1.18 mm	66
600 µ m	63
300 µ m	62
150 µ m	59

Size	% Finer
63 µ m	56
20 µ m	54
6 µ m	44
2 µ m	14

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72801

Sample Depth: 1.60-2.50m

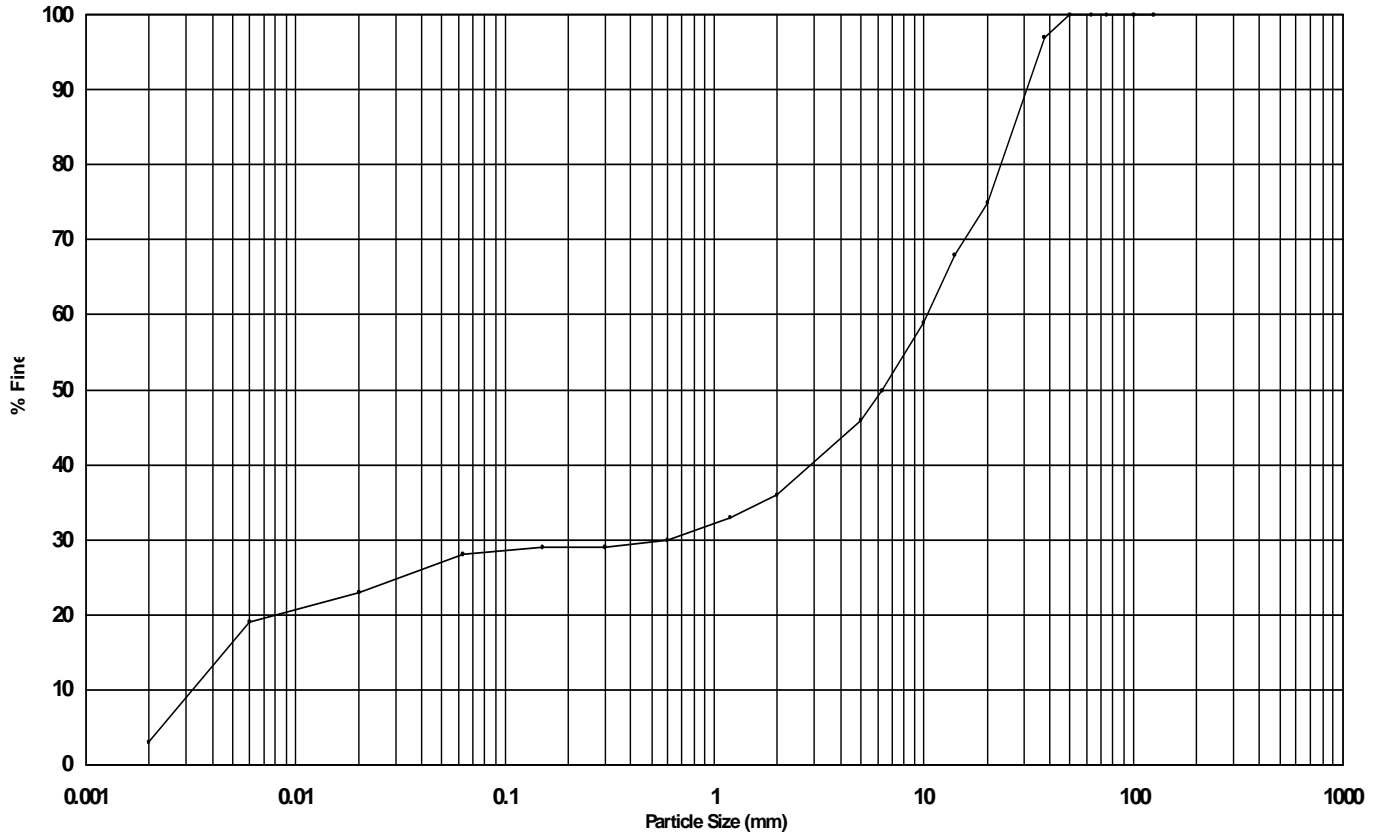
Project No: PC197510

Sample Type: B

Sample Ref: C22600

Sample Description

CHALK, recovered as sandy very silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	3
SILT	25
SAND	8
GRAVEL	64
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	97
20 mm	75
14 mm	68
10 mm	59
6.3 mm	50
5 mm	46
2 mm	36
1.18 mm	33
600 µ m	30
300 µ m	29
150 µ m	29

Size	% Finer
63 µ m	28
20 µ m	23
6 µ m	19
2 µ m	3

Uniformity Coefficient	
3197.67	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.06
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72802

Sample Depth: 0.35-1.50m

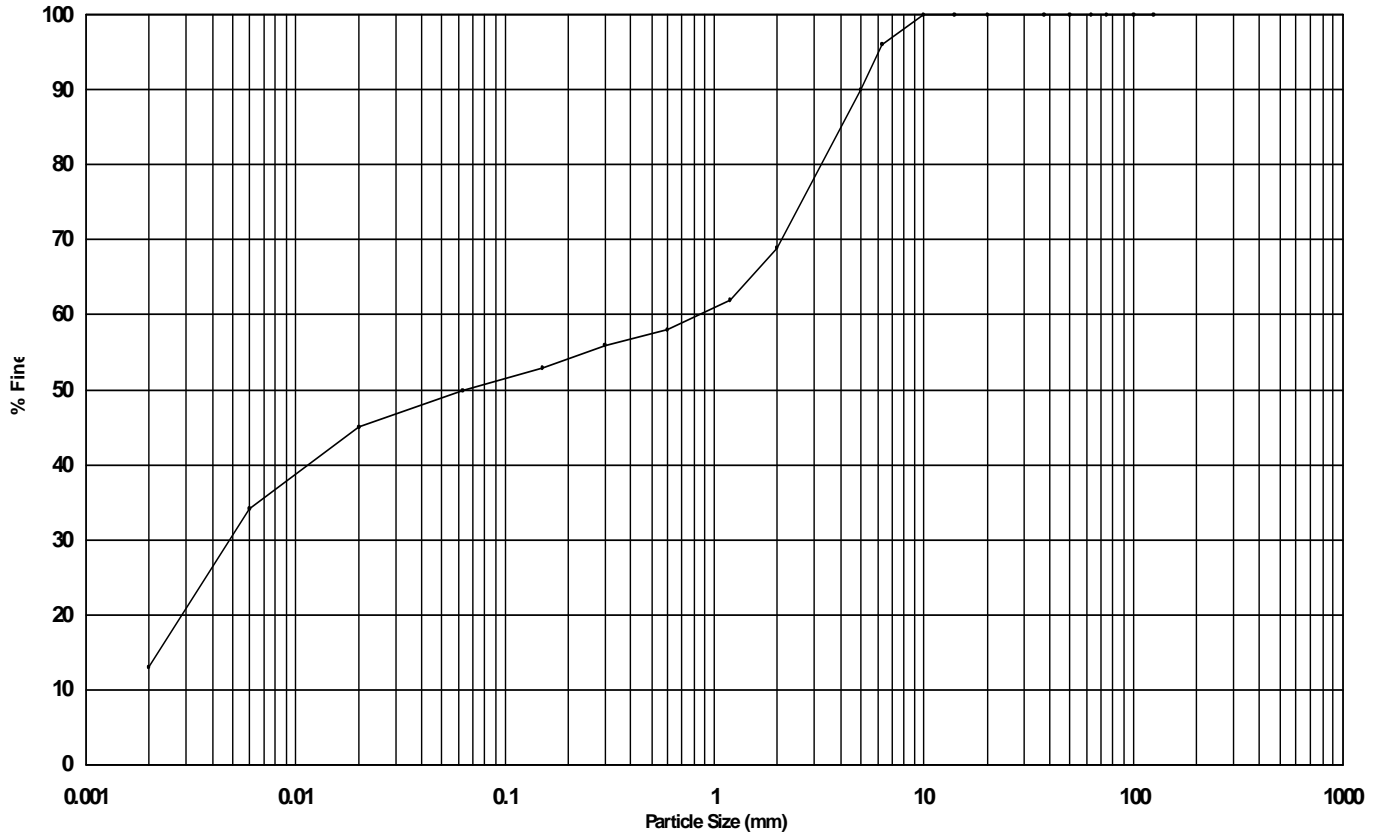
Project No: PC197510

Sample Type: B

Sample Ref: C22608

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	13
SILT	37
SAND	19
GRAVEL	31
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	96
5 mm	90
2 mm	69
1.18 mm	62
600 μm	58
300 μm	56
150 μm	53

Size	% Finer
63 μm	50
20 μm	45
6 μm	34
2 μm	13

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72802

Sample Depth: 2.00-2.50m

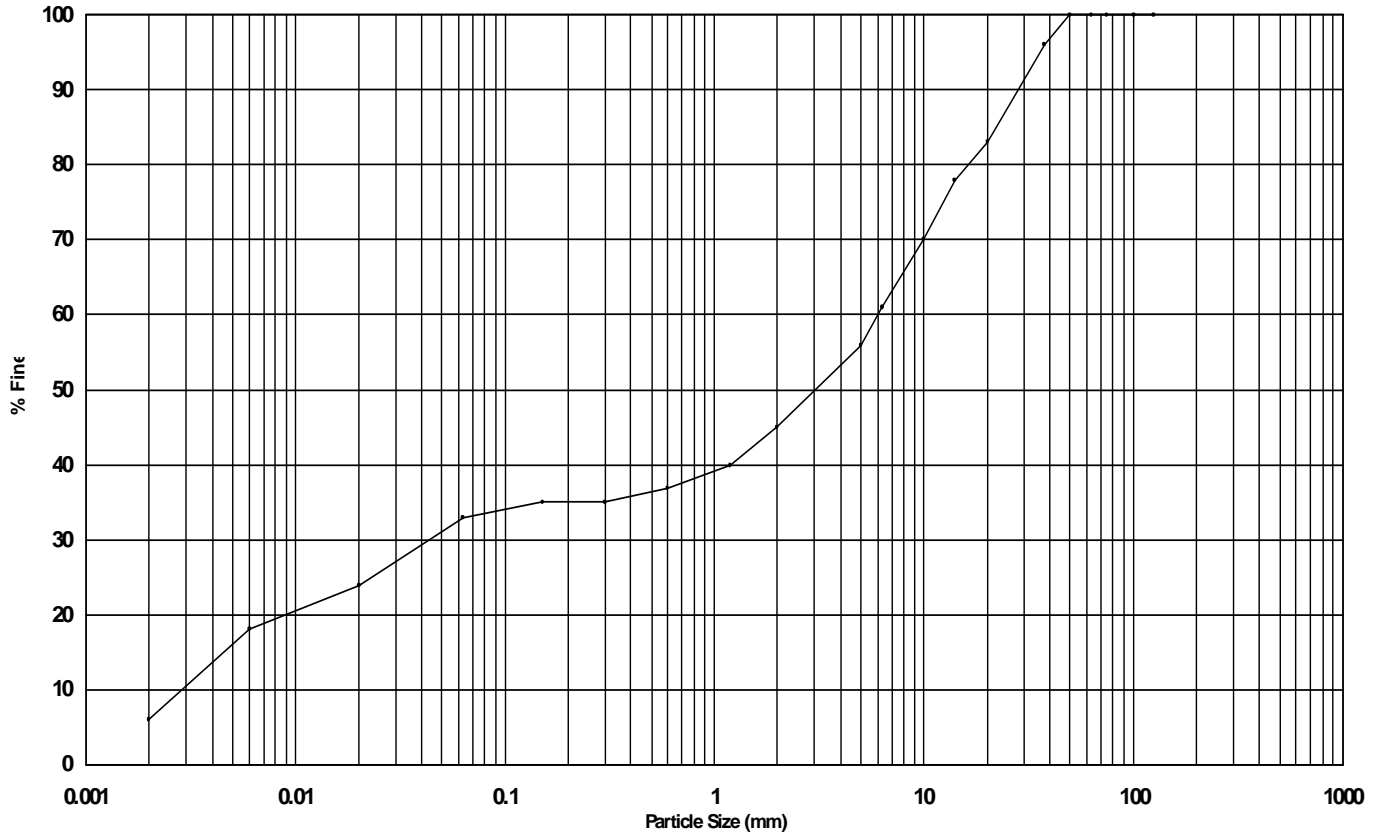
Project No: PC197510

Sample Type: B

Sample Ref: C22609

Sample Description

CHALK, recovered as sandy very silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	27
SAND	12
GRAVEL	55
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	96
20 mm	83
14 mm	78
10 mm	70
6.3 mm	61
5 mm	56
2 mm	45
1.18 mm	40
600 µ m	37
300 µ m	35
150 µ m	35

Size	% Finer
63 µ m	33
20 µ m	24
6 µ m	18
2 µ m	6

Uniformity Coefficient	
2105.15	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72803

Sample Depth: 0.50-0.60m

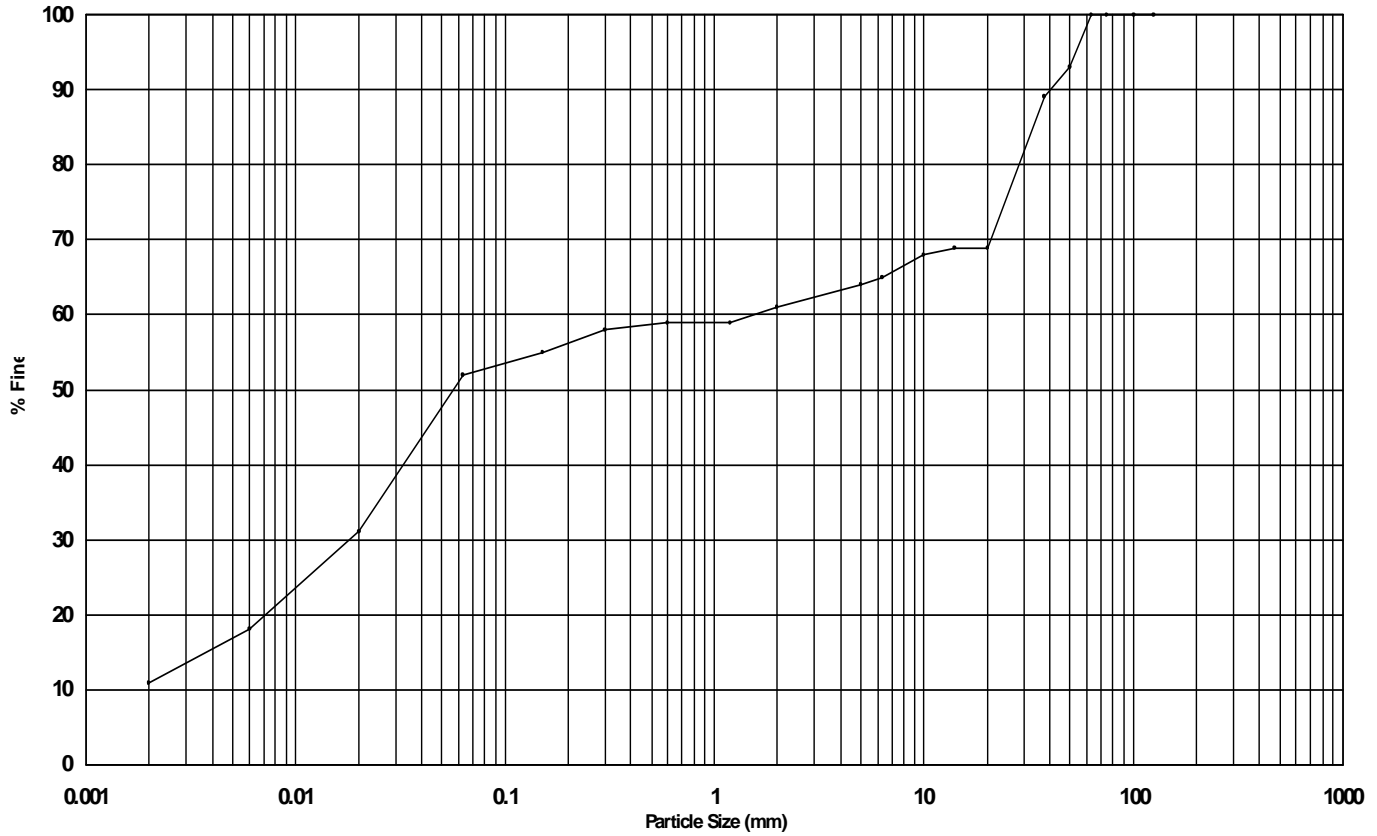
Project No: PC197510

Sample Type: B

Sample Ref: C22598

Sample Description

Orangish brown slightly sandy gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	11
SILT	41
SAND	9
GRAVEL	39
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	93
37.5 mm	89
20 mm	69
14 mm	69
10 mm	68
6.3 mm	65
5 mm	64
2 mm	61
1.18 mm	59
600 μ m	59
300 μ m	58
150 μ m	55

Size	% Finer
63 μ m	52
20 μ m	31
6 μ m	18
2 μ m	11

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	1.48
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72803

Sample Depth: 1.10-1.50m

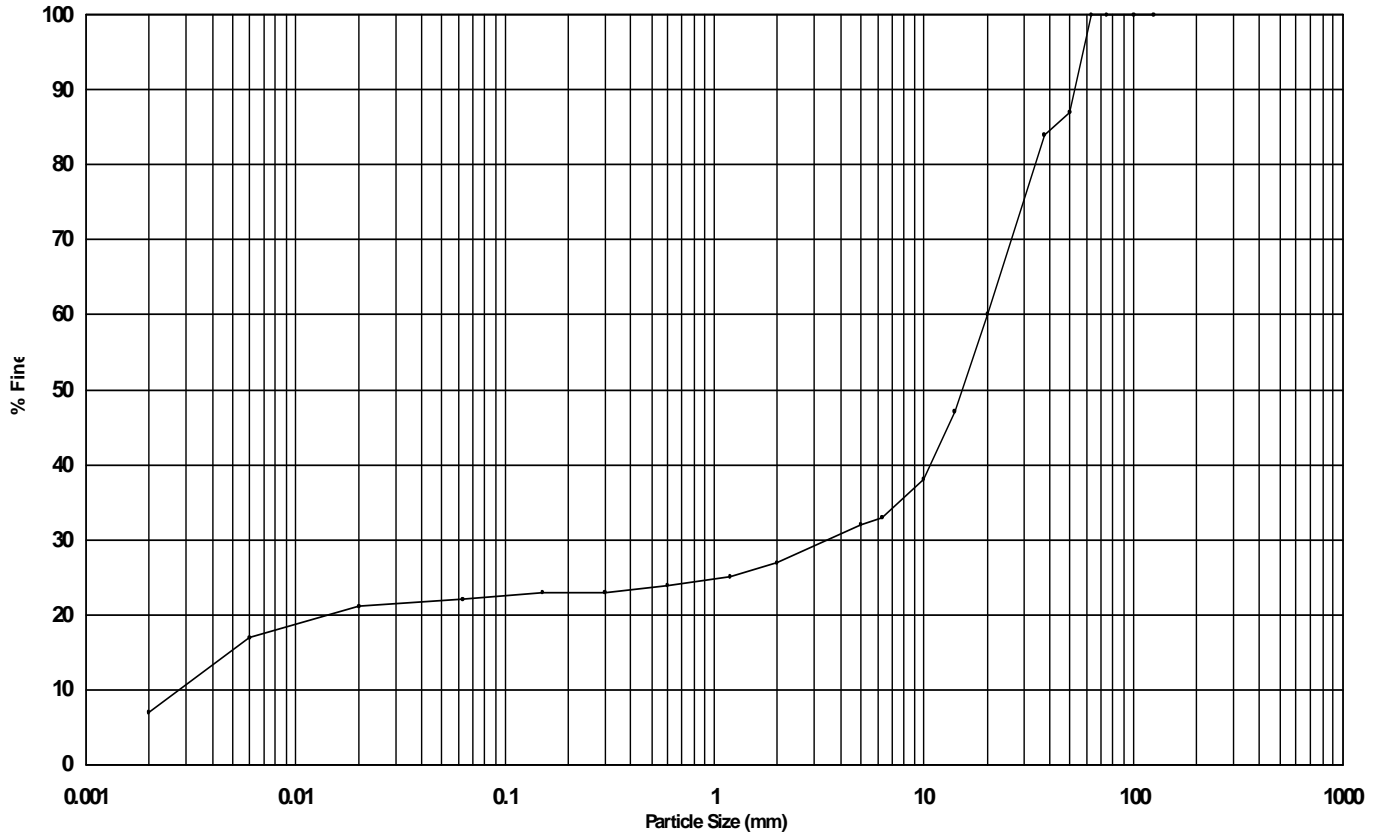
Project No: PC197510

Sample Type: B

Sample Ref: C22599

Sample Description

CHALK, recovered as slightly sandy silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	7
SILT	15
SAND	5
GRAVEL	73
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	87
37.5 mm	84
20 mm	60
14 mm	47
10 mm	38
6.3 mm	33
5 mm	32
2 mm	27
1.18 mm	25
600 μ m	24
300 μ m	23
150 μ m	23

Size	% Finer
63 μ m	22
20 μ m	21
6 μ m	17
2 μ m	7

Uniformity Coefficient	
7127.44	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72804

Sample Depth: 0.00-0.15m

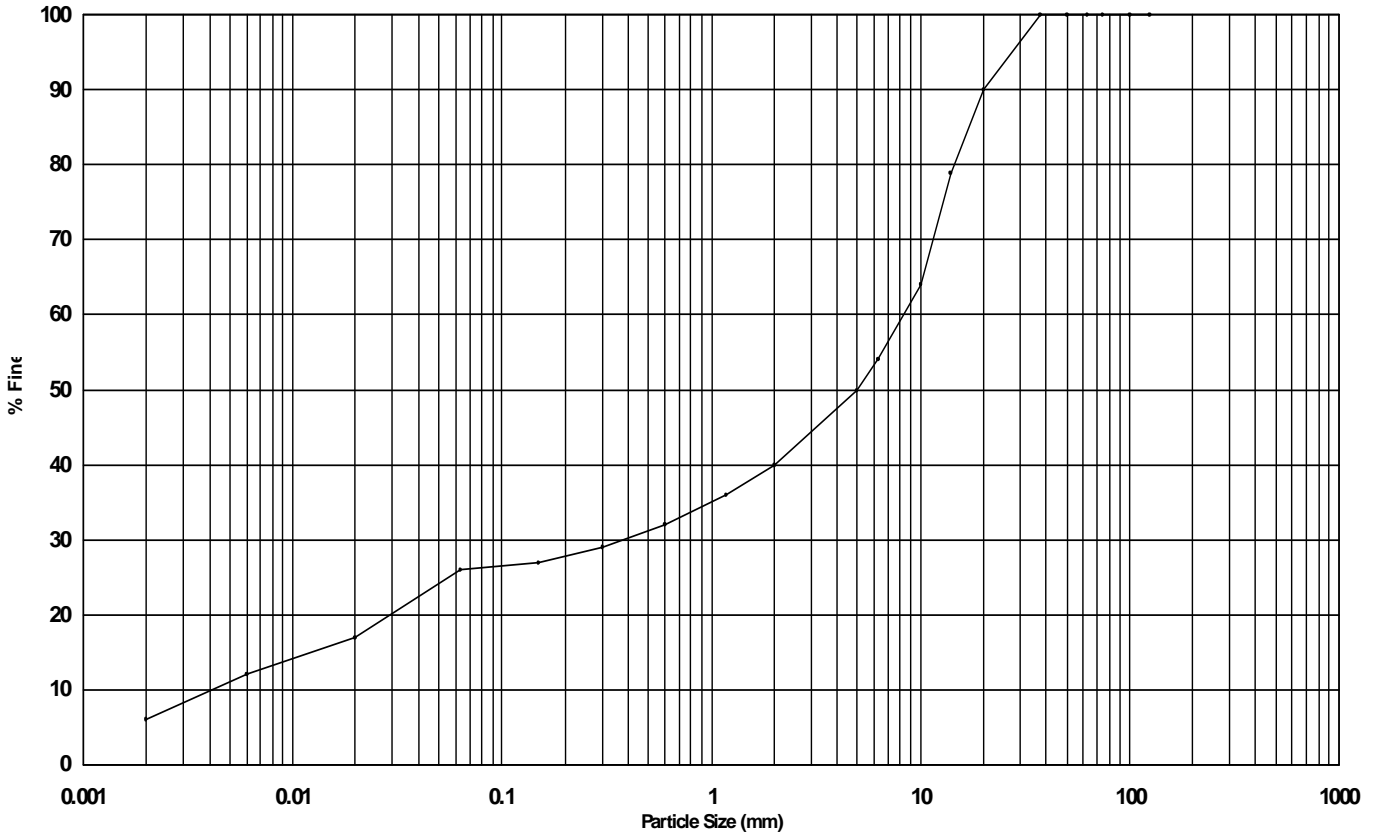
Project No: PC197510

Sample Type: B

Sample Ref: C22592

Sample Description

MADE GROUND: Dark brown sandy very clayey gravel.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	6
SILT	20
SAND	14
GRAVEL	60
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	90
14 mm	79
10 mm	64
6.3 mm	54
5 mm	50
2 mm	40
1.18 mm	36
600 μm	32
300 μm	29
150 μm	27

Size	% Finer
63 μm	26
20 μm	17
6 μm	12
2 μm	6

Uniformity Coefficient	
1914.77	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.94
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72804

Sample Depth: 0.75-0.85m

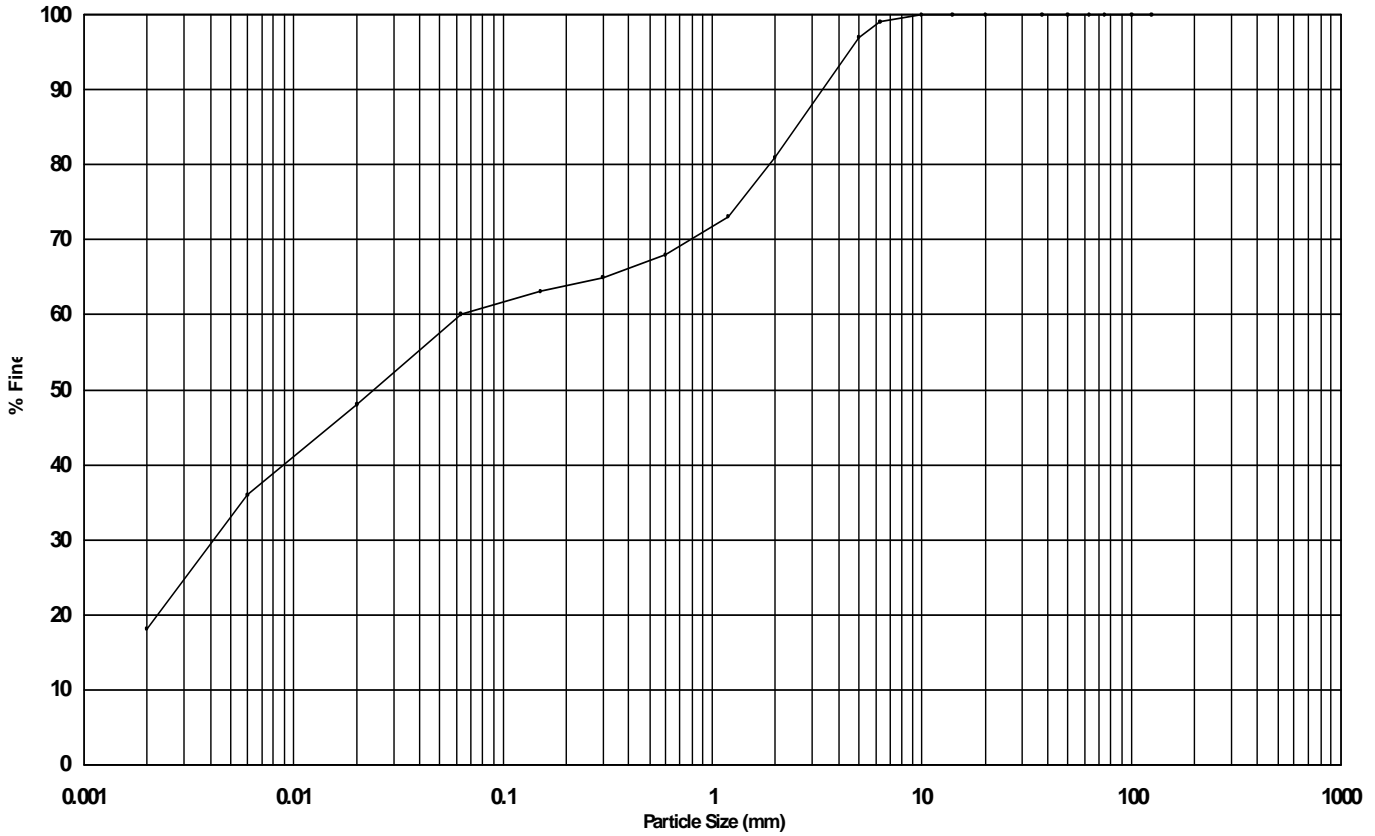
Project No: PC197510

Sample Type: B

Sample Ref: C22638

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	18
SILT	42
SAND	21
GRAVEL	19
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	99
5 mm	97
2 mm	81
1.18 mm	73
600 µ m	68
300 µ m	65
150 µ m	63

Size	% Finer
63 µ m	60
20 µ m	48
6 µ m	36
2 µ m	18

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.22
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72805

Sample Depth: 0.50-0.60m

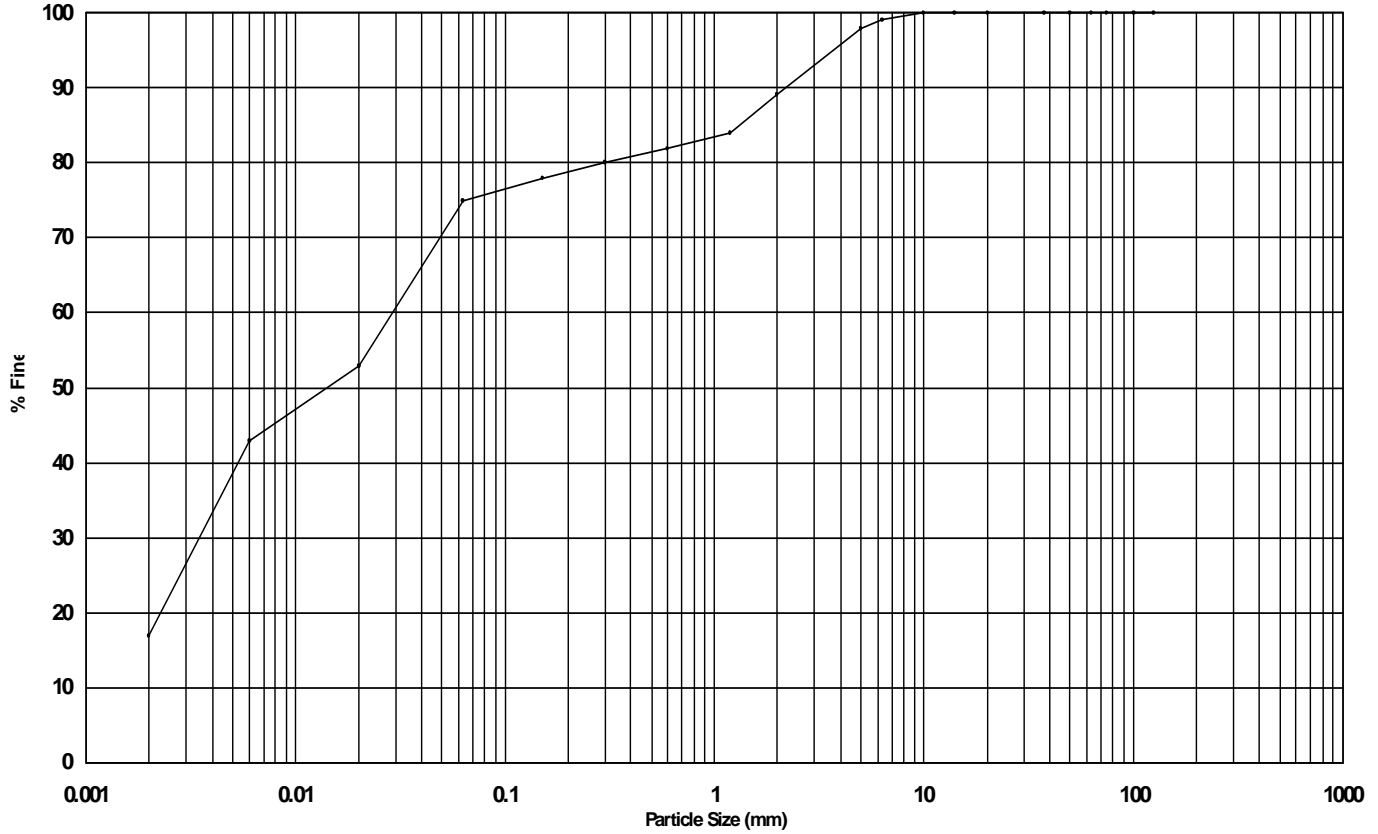
Project No: PC197510

Sample Type: B

Sample Ref: C22595

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	17
SILT	58
SAND	14
GRAVEL	11
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	99
5 mm	98
2 mm	89
1.18 mm	84
600 μm	82
300 μm	80
150 μm	78

Size	% Finer
63 μm	75
20 μm	53
6 μm	43
2 μm	17

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.14
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72805

Sample Depth: 0.75-0.85m

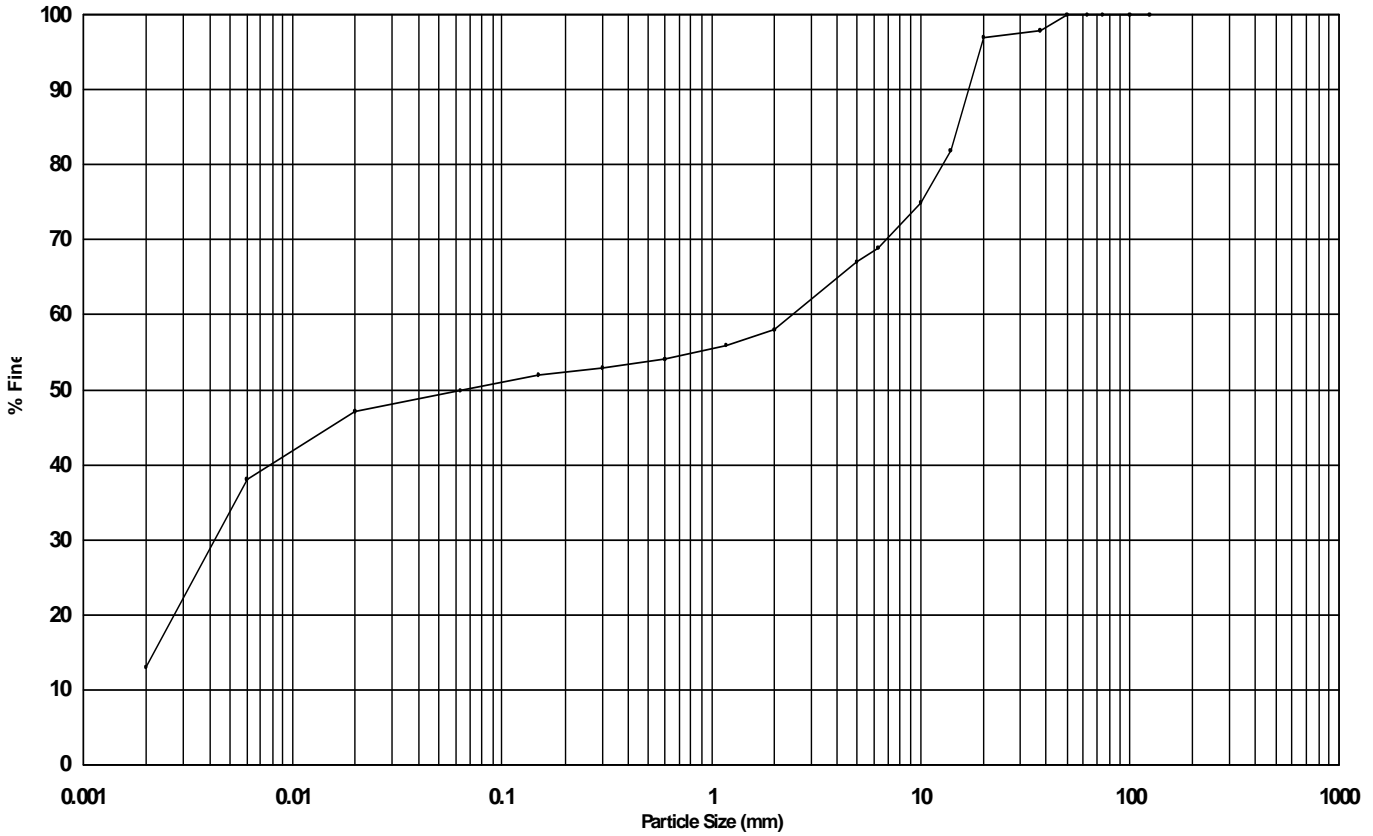
Project No: PC197510

Sample Type: B

Sample Ref: C22583

Sample Description

CHALK, recovered as slightly sandy gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	13
SILT	37
SAND	8
GRAVEL	42
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	97
14 mm	82
10 mm	75
6.3 mm	69
5 mm	67
2 mm	58
1.18 mm	56
600 μm	54
300 μm	53
150 μm	52

Size	% Finer
63 μm	50
20 μm	47
6 μm	38
2 μm	13

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.12
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72806

Sample Depth: 0.50-0.60m

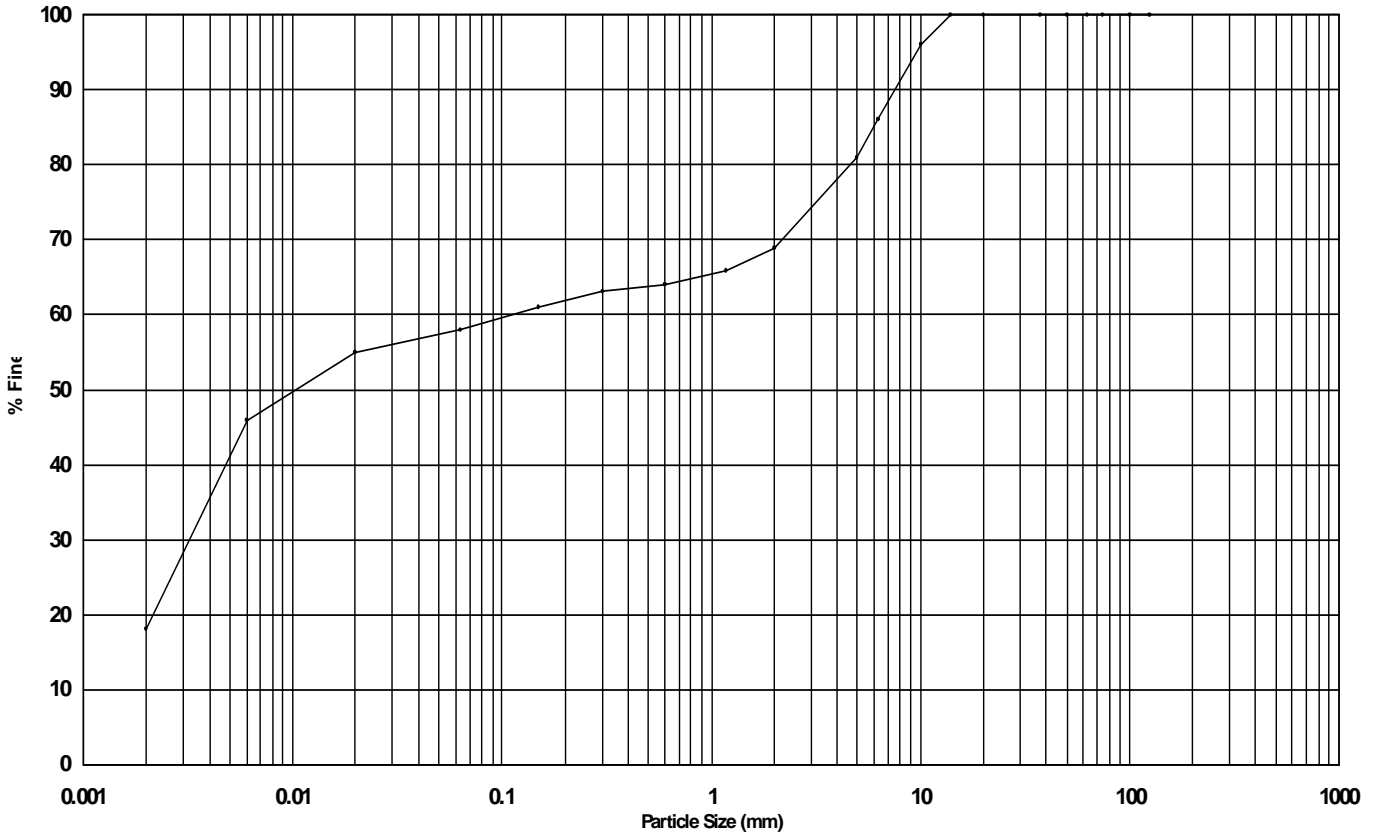
Project No: PC197510

Sample Type: B

Sample Ref: C22584

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	18
SILT	40
SAND	11
GRAVEL	31
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	96
6.3 mm	86
5 mm	81
2 mm	69
1.18 mm	66
600 μm	64
300 μm	63
150 μm	61

Size	% Finer
63 μm	58
20 μm	55
6 μm	46
2 μm	18

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.09
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72806

Sample Depth: 2.00-2.40m

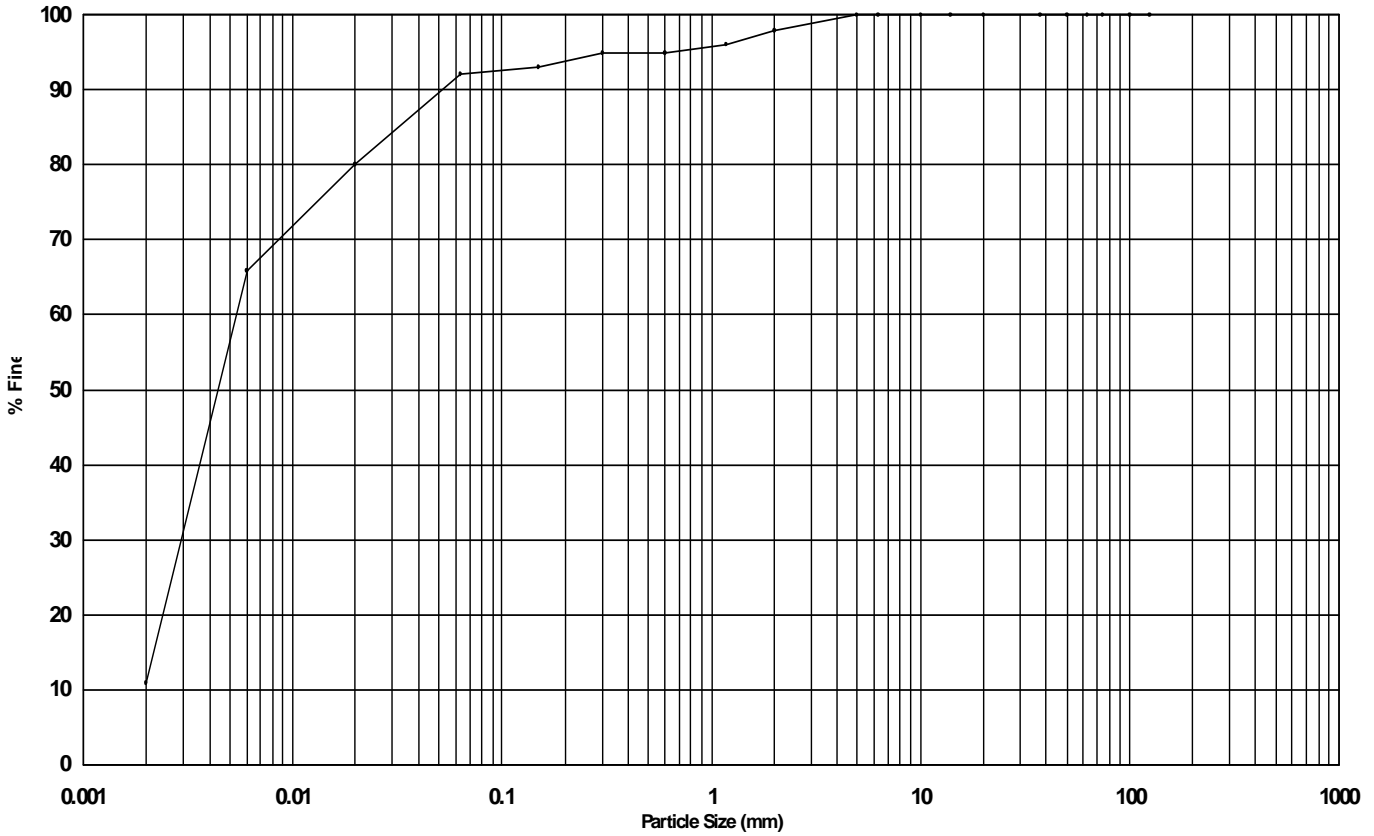
Project No: PC197510

Sample Type: B

Sample Ref: C22603

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	11
SILT	81
SAND	6
GRAVEL	2
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	98
1.18 mm	96
600 μ m	95
300 μ m	95
150 μ m	93

Size	% Finer
63 μ m	92
20 μ m	80
6 μ m	66
2 μ m	11

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.08
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72807

Sample Depth: 0.70-0.80m

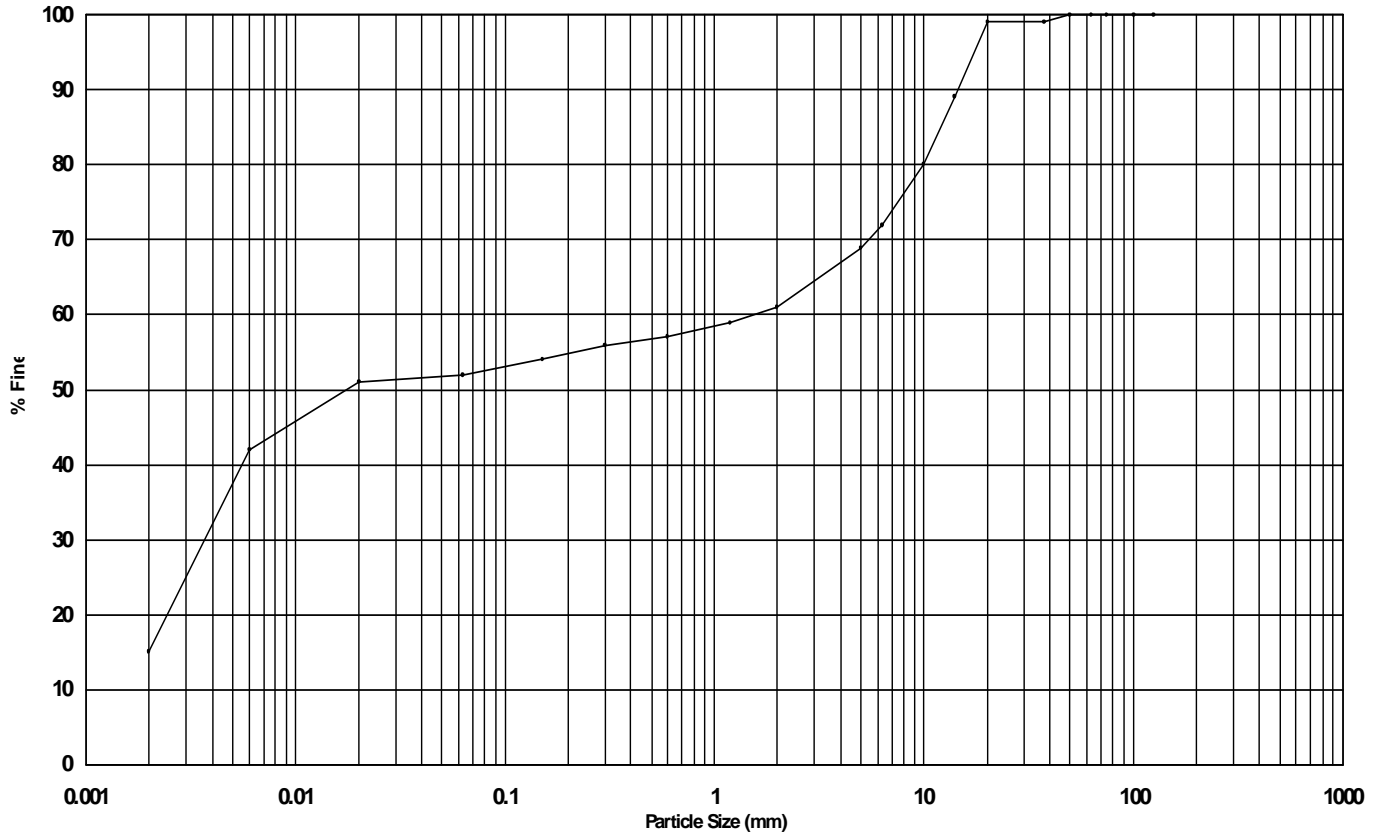
Project No: PC197510

Sample Type: B

Sample Ref: C22629

Sample Description

CHALK, recovered as slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	15
SILT	37
SAND	9
GRAVEL	39
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	99
20 mm	99
14 mm	89
10 mm	80
6.3 mm	72
5 mm	69
2 mm	61
1.18 mm	59
600 μm	57
300 μm	56
150 μm	54

Size	% Finer
63 μm	52
20 μm	51
6 μm	42
2 μm	15

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.11
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72808

Sample Depth: 0.75-0.85m

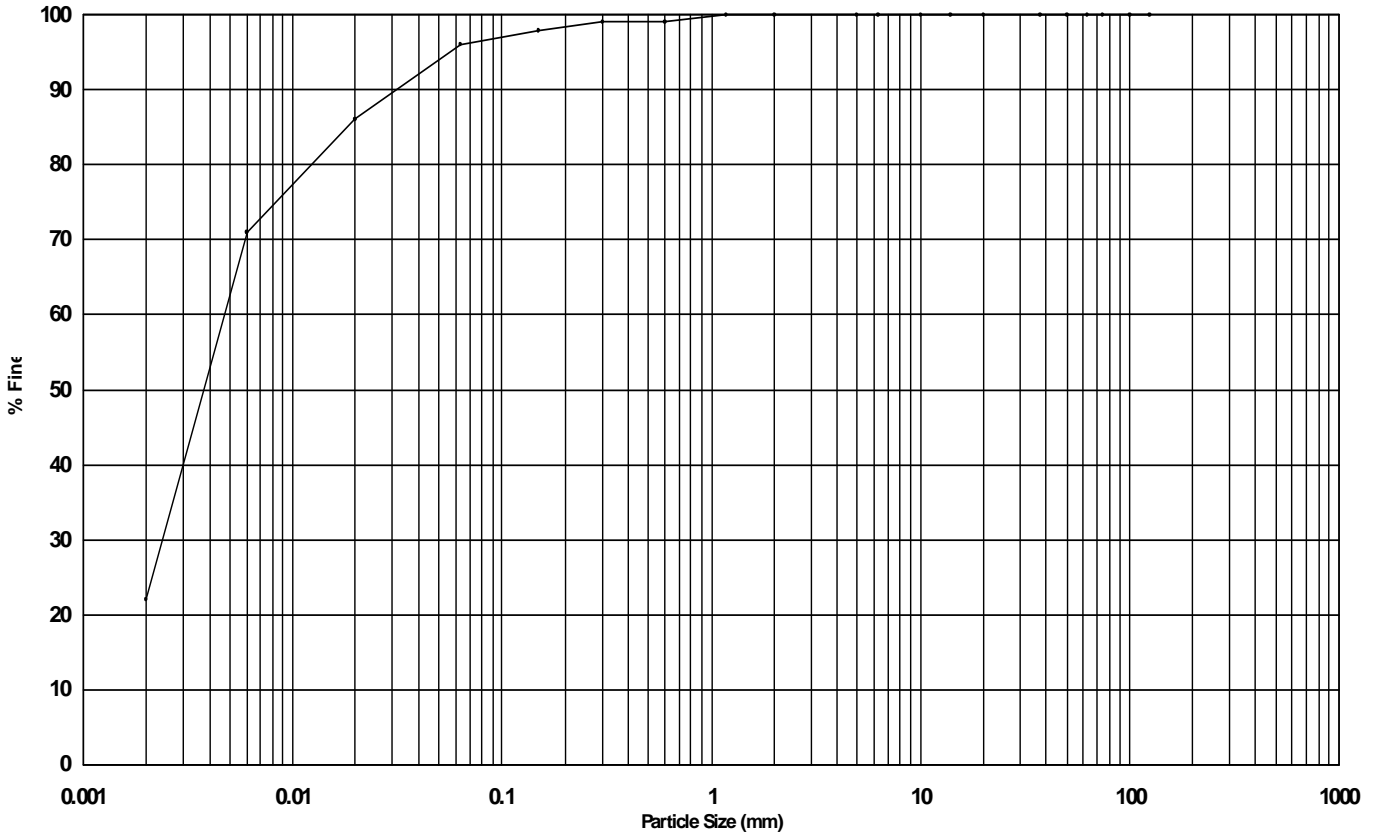
Project No: PC197510

Sample Type: B

Sample Ref: C22615

Sample Description

CHALK, recovered as slightly sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	22
SILT	74
SAND	4
GRAVEL	0
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	100
1.18 mm	100
600 μ m	99
300 μ m	99
150 μ m	98

Size	% Finer
63 μ m	96
20 μ m	86
6 μ m	71
2 μ m	22

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.16
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72809

Sample Depth: 0.50-0.60m

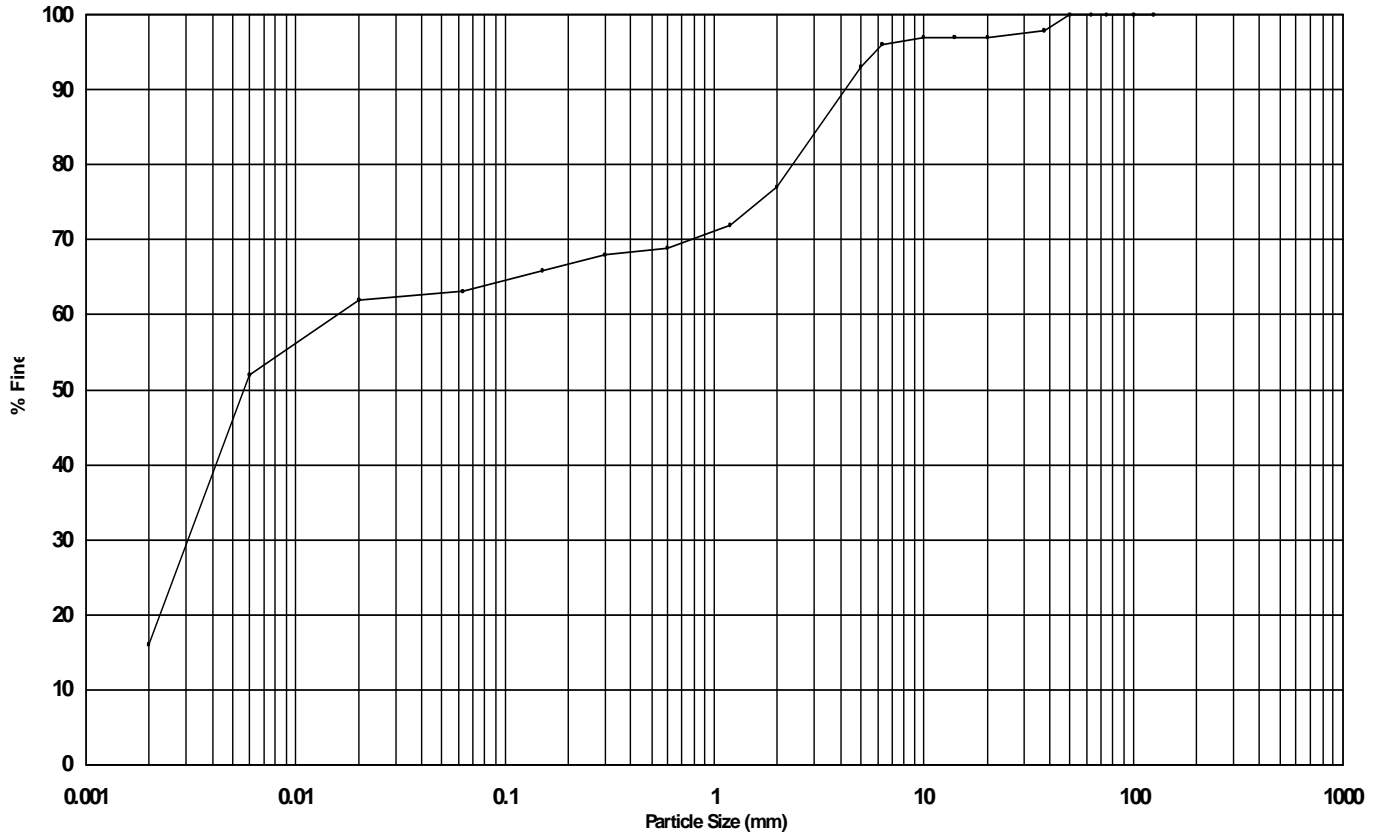
Project No: PC197510

Sample Type: B

Sample Ref: C22631

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	16
SILT	47
SAND	14
GRAVEL	23
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	97
14 mm	97
10 mm	97
6.3 mm	96
5 mm	93
2 mm	77
1.18 mm	72
600 μ m	69
300 μ m	68
150 μ m	66

Size	% Finer
63 μ m	63
20 μ m	62
6 μ m	52
2 μ m	16

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72810

Sample Depth: 0.50-0.57m

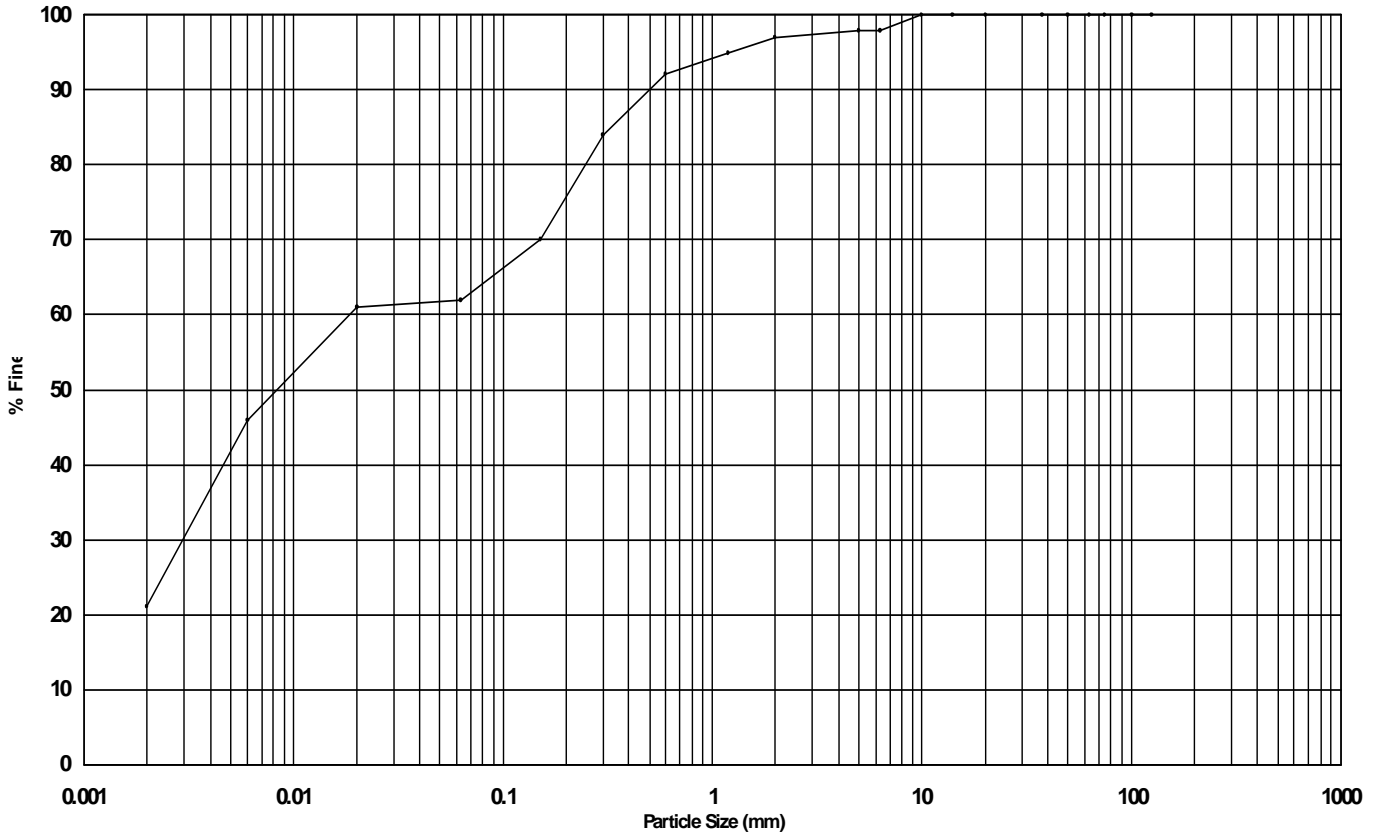
Project No: PC197510

Sample Type: B

Sample Ref: C23085

Sample Description

Light grey to light brown slightly gravelly very sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	21
SILT	41
SAND	35
GRAVEL	3
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	98
5 mm	98
2 mm	97
1.18 mm	95
600 μ m	92
300 μ m	84
150 μ m	70

Size	% Finer
63 μ m	62
20 μ m	61
6 μ m	46
2 μ m	21

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72810

Sample Depth: 0.80-1.20m

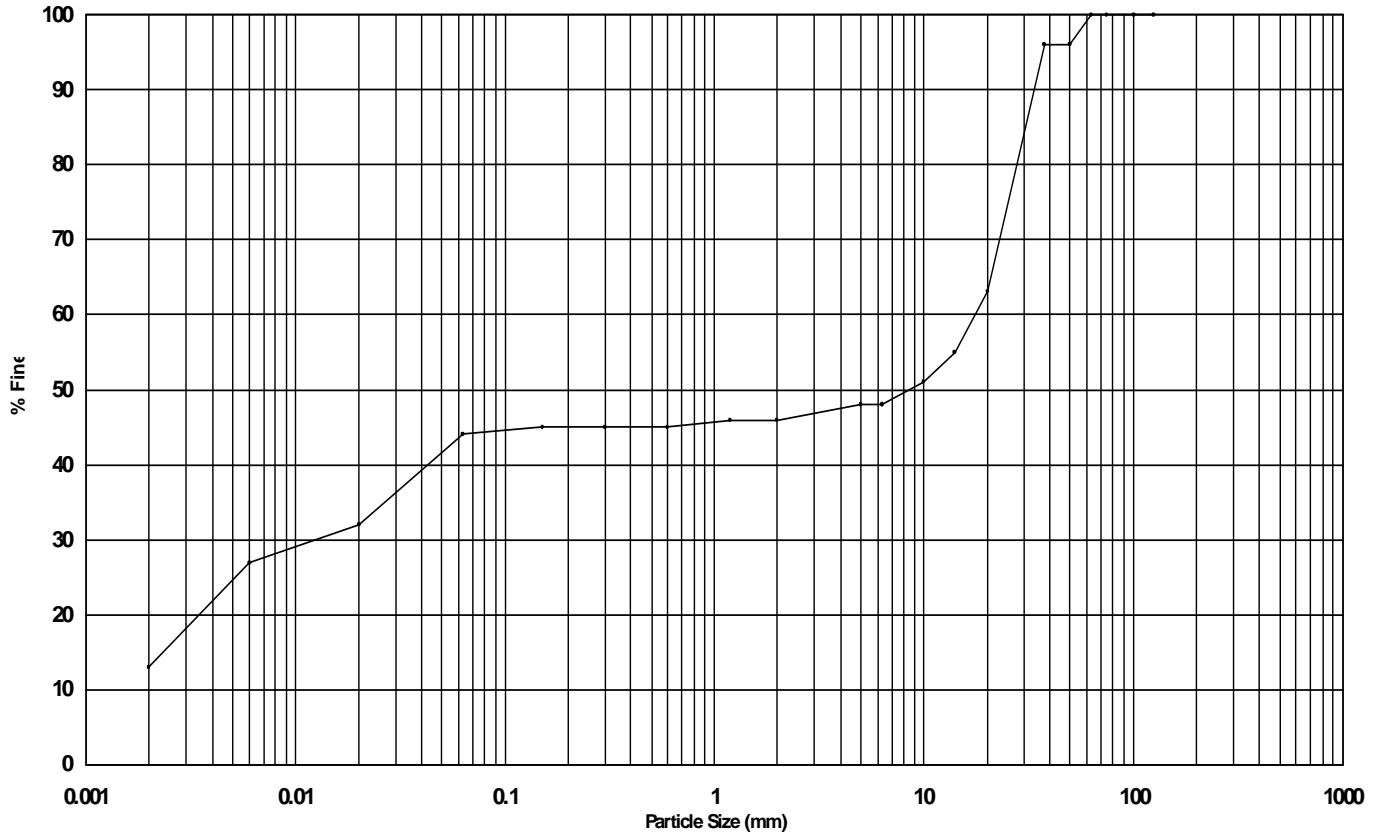
Project No: PC197510

Sample Type: B

Sample Ref: C23064

Sample Description

CHALK, recovered as slightly sandy very silty GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	13
SILT	31
SAND	2
GRAVEL	54
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	96
37.5 mm	96
20 mm	63
14 mm	55
10 mm	51
6.3 mm	48
5 mm	48
2 mm	46
1.18 mm	46
600 µ m	45
300 µ m	45
150 µ m	45

Size	% Finer
63 µ m	44
20 µ m	32
6 µ m	27
2 µ m	13

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72811

Sample Depth: 0.75-0.85m

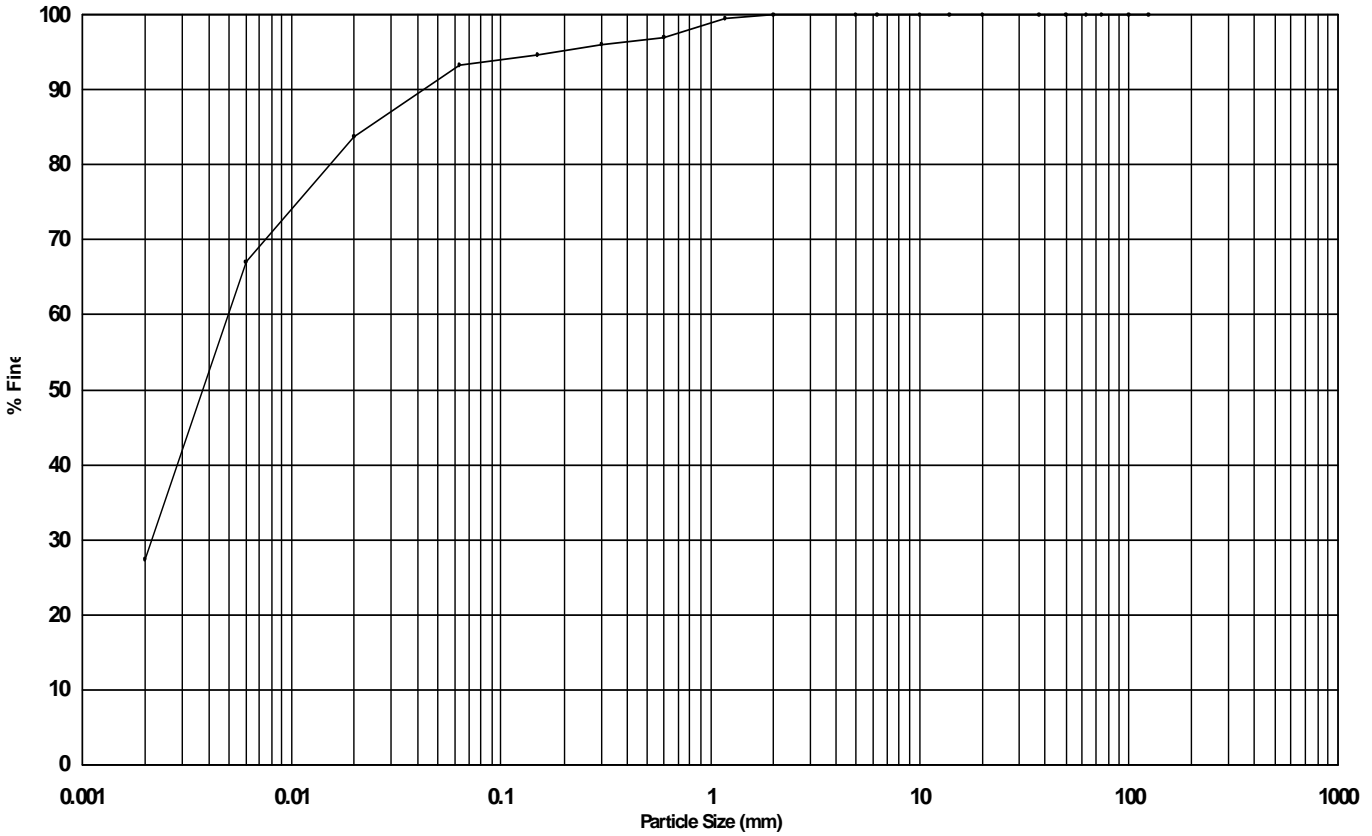
Project No: PC197510

Sample Type: B

Sample Ref: C23058

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	27
SILT	66
SAND	7
GRAVEL	0
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	100
1.18 mm	100
600 μ m	97
300 μ m	96
150 μ m	95

Size	% Finer
63 μ m	93
20 μ m	84
6 μ m	67
2 μ m	27

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.06
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72901

Sample Depth: 0.50-0.60m

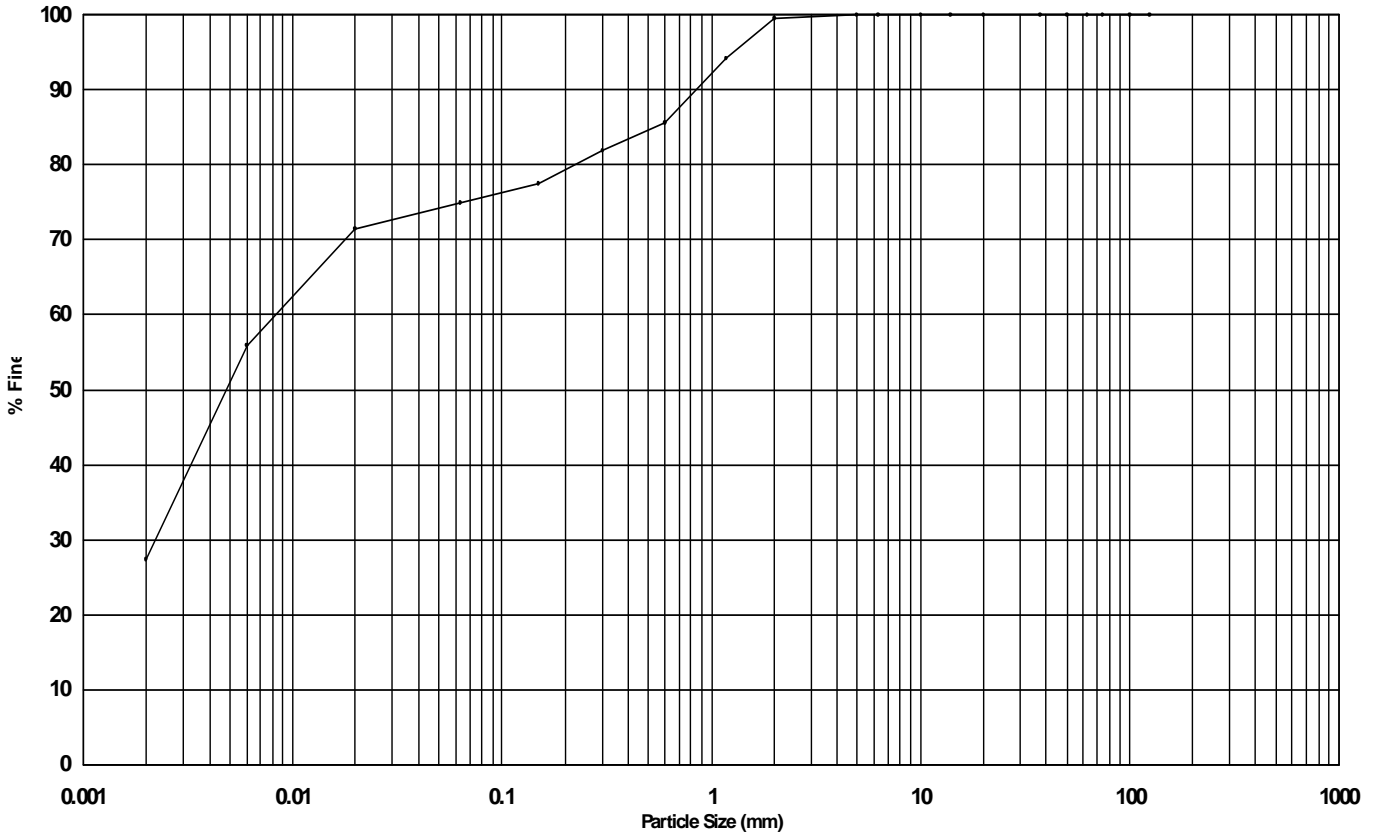
Project No: PC197510

Sample Type: B

Sample Ref: C23076

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	28
SILT	47
SAND	25
GRAVEL	0
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	100
1.18 mm	94
600 μm	86
300 μm	82
150 μm	78

Size	% Finer
63 μm	75
20 μm	74
6 μm	58
2 μm	28

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	4.29
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72901

Sample Depth: 0.75-0.85m

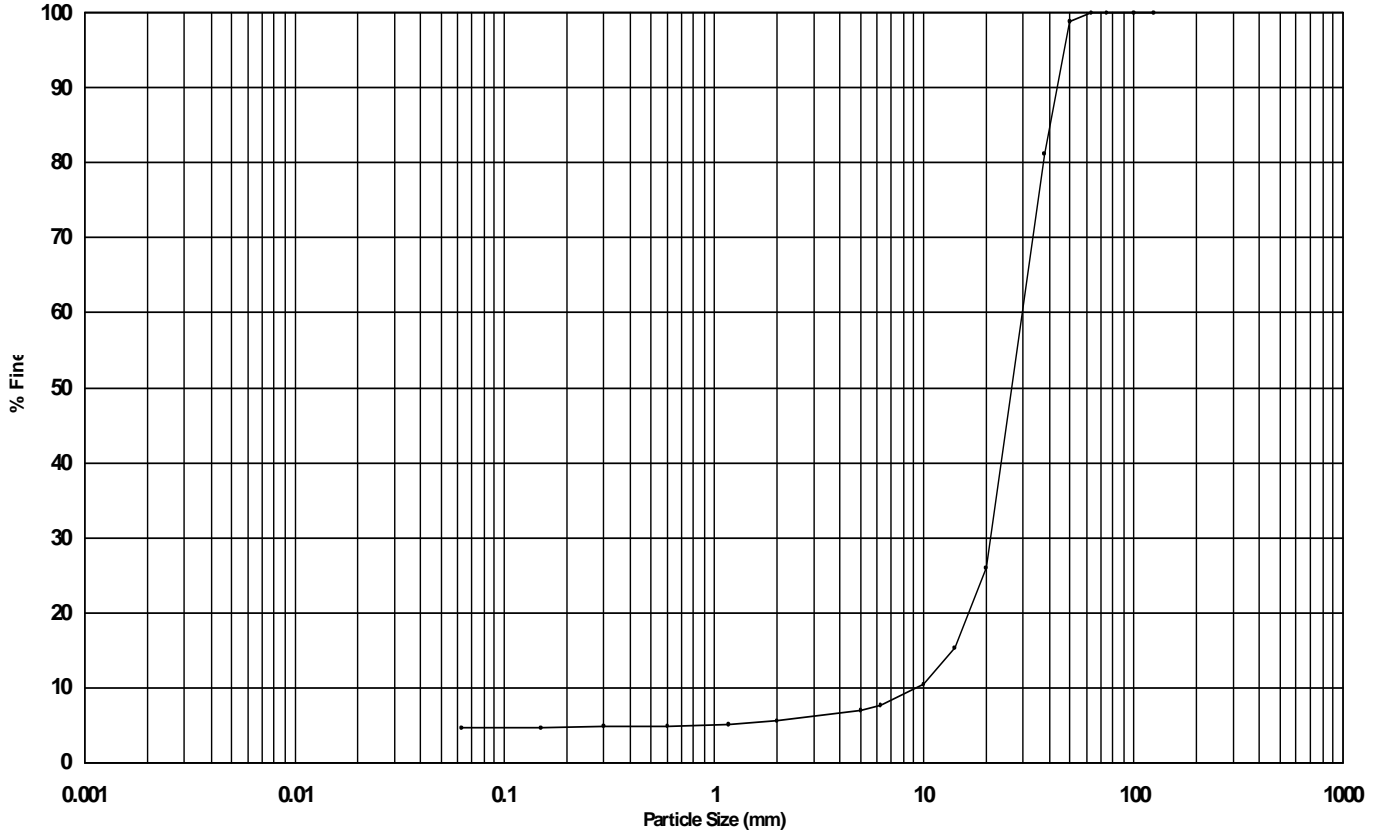
Project No: PC197510

Sample Type: B

Sample Ref: C23080

Sample Description

CHALK, recovered as GRAVEL.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
SILT (including CLAY)	5
SAND	1
GRAVEL	94
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	99
37.5 mm	81
20 mm	26
14 mm	15
10 mm	10
6.3 mm	8
5 mm	7
2 mm	6
1.18 mm	5
600 µ m	5
300 µ m	5
150 µ m	5

Size	% Finer
63 µ m	5

Uniformity Coefficient	
3.19	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	
Pre-treated with	
% loss on Pre-treatment	
Particle Density	

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72902

Sample Depth: 0.80-0.90m

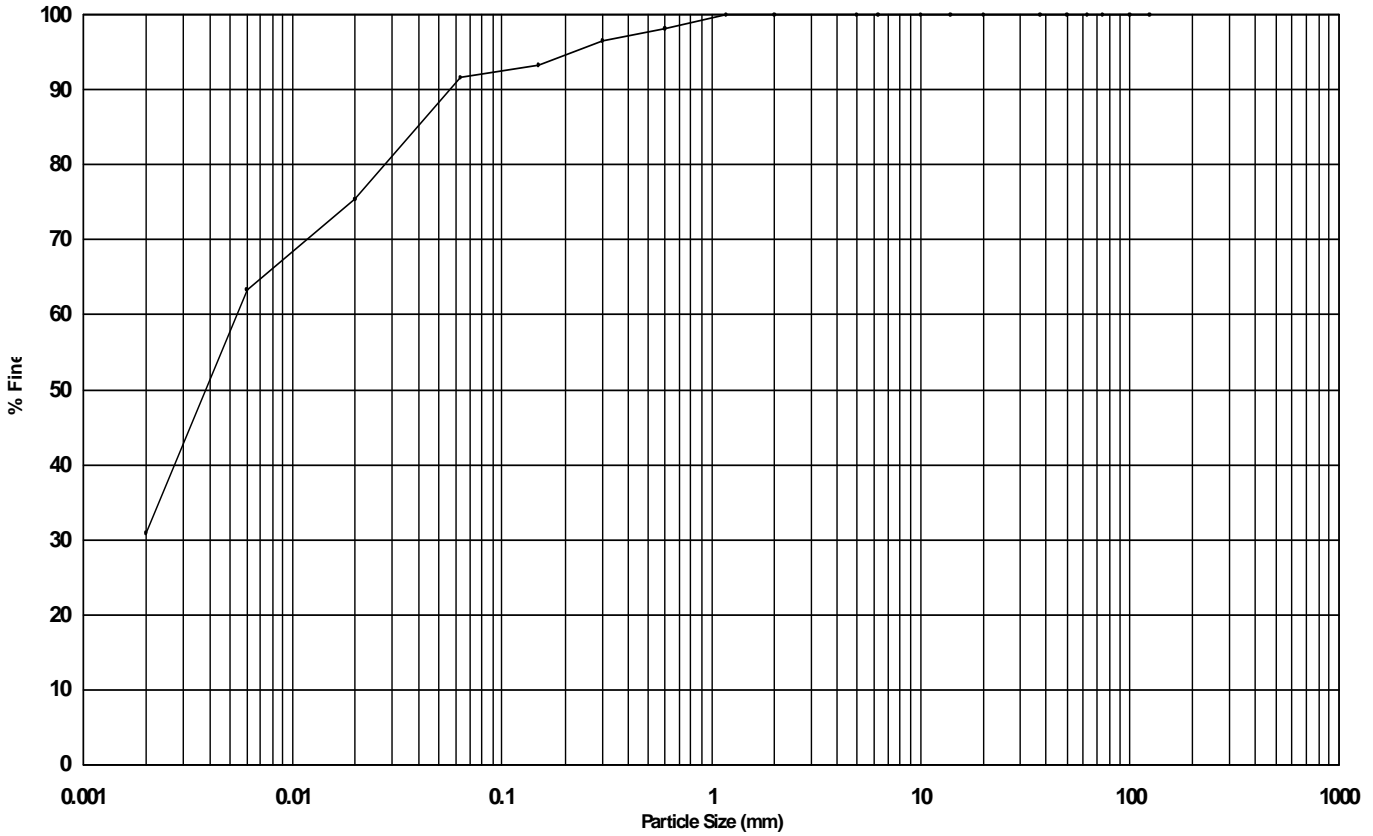
Project No: PC197510

Sample Type: B

Sample Ref: C23063

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	31
SILT	61
SAND	8
GRAVEL	0
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	100
20 mm	100
14 mm	100
10 mm	100
6.3 mm	100
5 mm	100
2 mm	100
1.18 mm	100
600 μ m	98
300 μ m	96
150 μ m	93

Size	% Finer
63 μ m	92
20 μ m	75
6 μ m	63
2 μ m	31

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.09
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

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LABORATORY RESULTS - Particle Size Distribution

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72903

Sample Depth: 0.75-0.85m

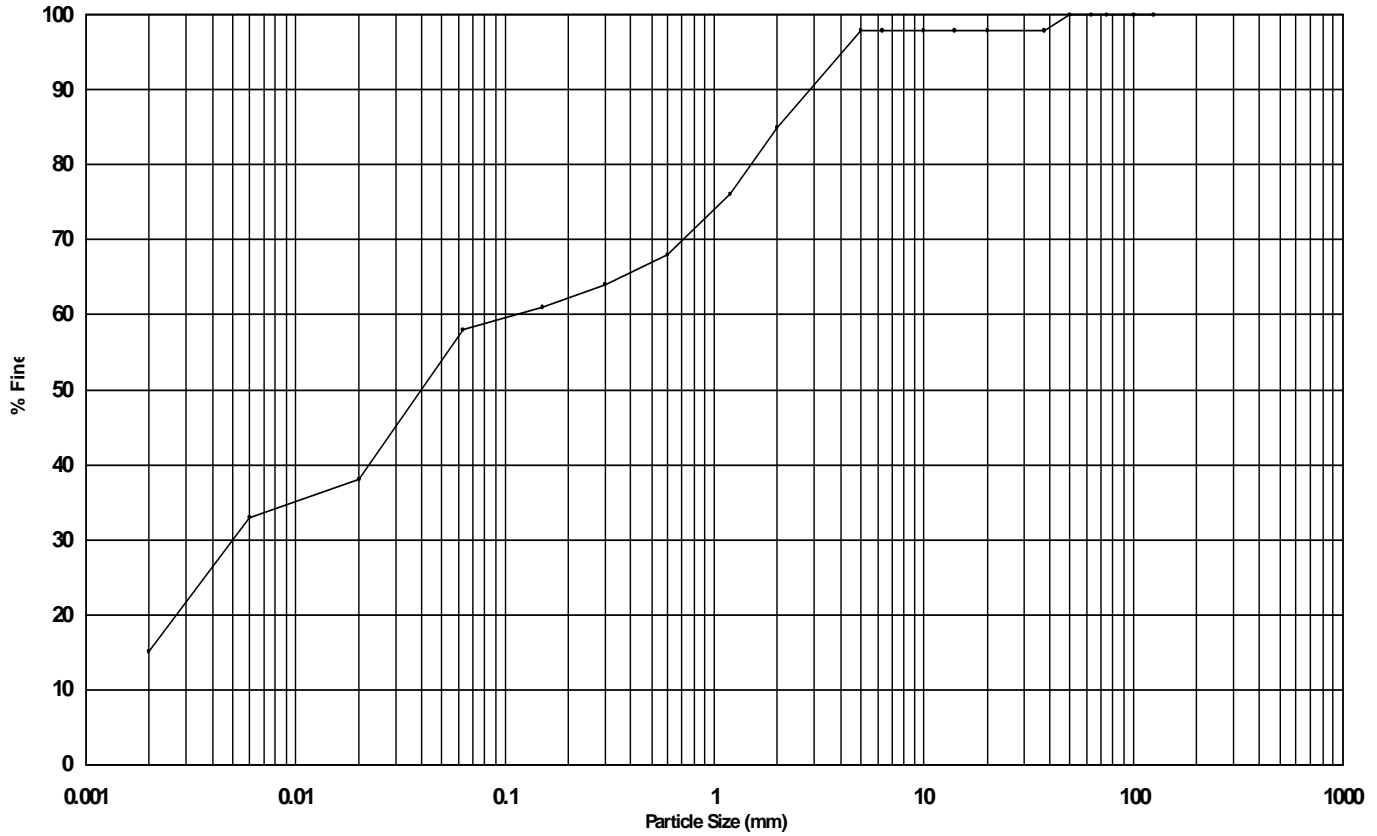
Project No: PC197510

Sample Type: B

Sample Ref: C23074

Sample Description

CHALK, recovered as sandy gravelly SILT.



Classification	CLAY	Fine	Medium	Coarse	Fine	Medium	Coarse	Fine	Medium	Coarse	Cobbles	Boulders
		SILT			SAND			Gravel				

Classification	% of each
CLAY	15
SILT	43
SAND	27
GRAVEL	15
COBBLES	0
BOULDERS	0

Size	% Finer
125 mm	100
100 mm	100
75 mm	100
63 mm	100
50 mm	100
37.5 mm	98
20 mm	98
14 mm	98
10 mm	98
6.3 mm	98
5 mm	98
2 mm	85
1.18 mm	76
600 μm	68
300 μm	64
150 μm	61

Size	% Finer
63 μm	58
20 μm	38
6 μm	33
2 μm	15

Uniformity Coefficient	
Not Available	
Sieving Method	
Wet sieve	
Fine Particle Analysis	
Method	Pipette
Pre-treated with	Hydrogen Peroxide
% loss on Pre-treatment	0.00
Particle Density	2.65 (Assumed)

Remarks: Sieve:-Test performed in accordance with BS EN ISO 17892-4:2016
 Pipette:-Test performed in accordance with BS EN ISO 17892-4:2016

26/09/2019

LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510

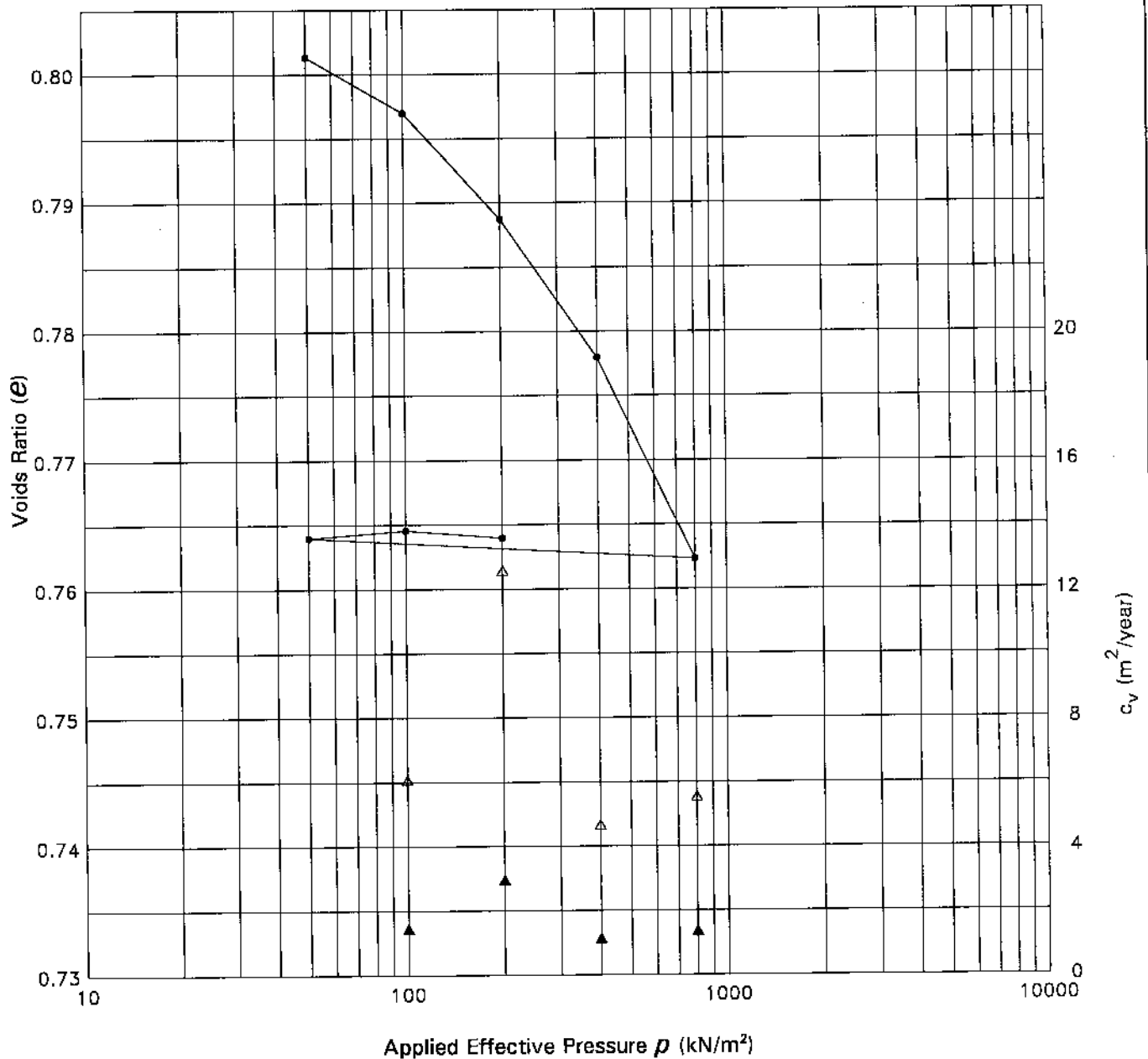
Borehole CP70202

Sample Depth 2.20 - 2.65 m

Sample Type UT

Client

Symbols: Voids Ratio \blacksquare , c_{v50} \blacktriangle , c_{v90} \triangle



Applied Pressure	kN/m ²	0-50	50-100	100-200	200-400	400-800	800-50	50-100	100-200		
m_v	m ² /MN	0.15	0.05	0.05	0.03	0.02	.00	-0.01	.00		
c_{v50} Log Time	m ² /yr	-	1.43	2.96	1.13	1.36	-	-	-		
c_{v90} Root Time	m ² /yr	-	6.07	12.58	4.66	5.54	-	-	-		
Voids Ratio		0.801	0.797	0.789	0.778	0.762	0.764	0.765	0.764		
Description		Specimen Diameter 74.530 mm					Initial Water Content 29.97 %				
C22261 CHALK		Initial Height 18.690 mm					Final Water Content 28.84 %				
		Particle Density 2.65 Assumed					Initial Saturation 97.51 %				
		Initial Voids Ratio 0.815					Initial Bulk Density 1.90 Mg/m ³				
							Initial Dry Density 1.46 Mg/m ³				

Remarks Laboratory temperature 20°C ± 3°C
Specimen cut vertically from base of sample
Test performed in accordance with BS EN ISO 17892-5:2017



LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510

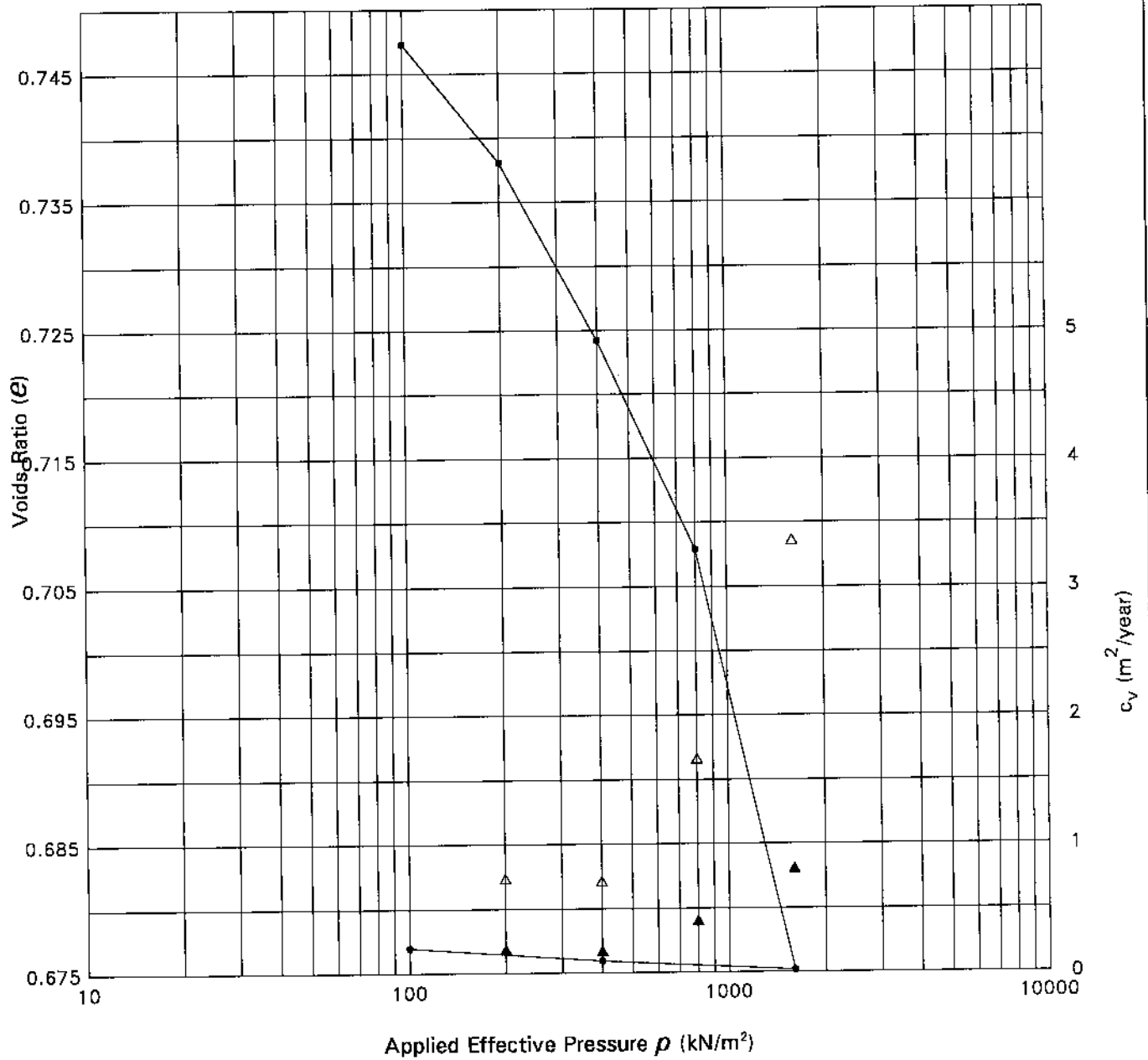
Borehole CP70202

Sample Depth 13.20 - 13.65 m

Sample Type UT

Client

Symbols: Voids Ratio \blacksquare , c_{v50} \blacktriangle , c_{v90} \triangle



Applied Pressure	kN/m ²	0-100	100-200	200-400	400-800	800-1600	1600-400	400-100			
m_v	m ² /MN	0.20	0.05	0.04	0.02	0.02	.00	.00			
c_{v50} Log Time	m ² /yr	-	0.18	0.17	0.40	0.81	-	-			
c_{v90} Root Time	m ² /yr	-	0.74	0.71	1.66	3.36	-	-			
Voids Ratio		0.747	0.738	0.724	0.708	0.675	0.676	0.677			
Description		Specimen Diameter 74.540 mm Initial Height 18.900 mm Particle Density 2.65 Assumed Initial Voids Ratio 0.783					Initial Water Content 29.02 % Final Water Content 26.02 % Initial Saturation 98.26 % Initial Bulk Density 1.92 Mg/m ³ Initial Dry Density 1.49 Mg/m ³				

Remarks Laboratory temperature 20°C ± 3°C
 Specimen cut vertically from base of sample
 Test performed in accordance with BS EN ISO 17892-5:2017



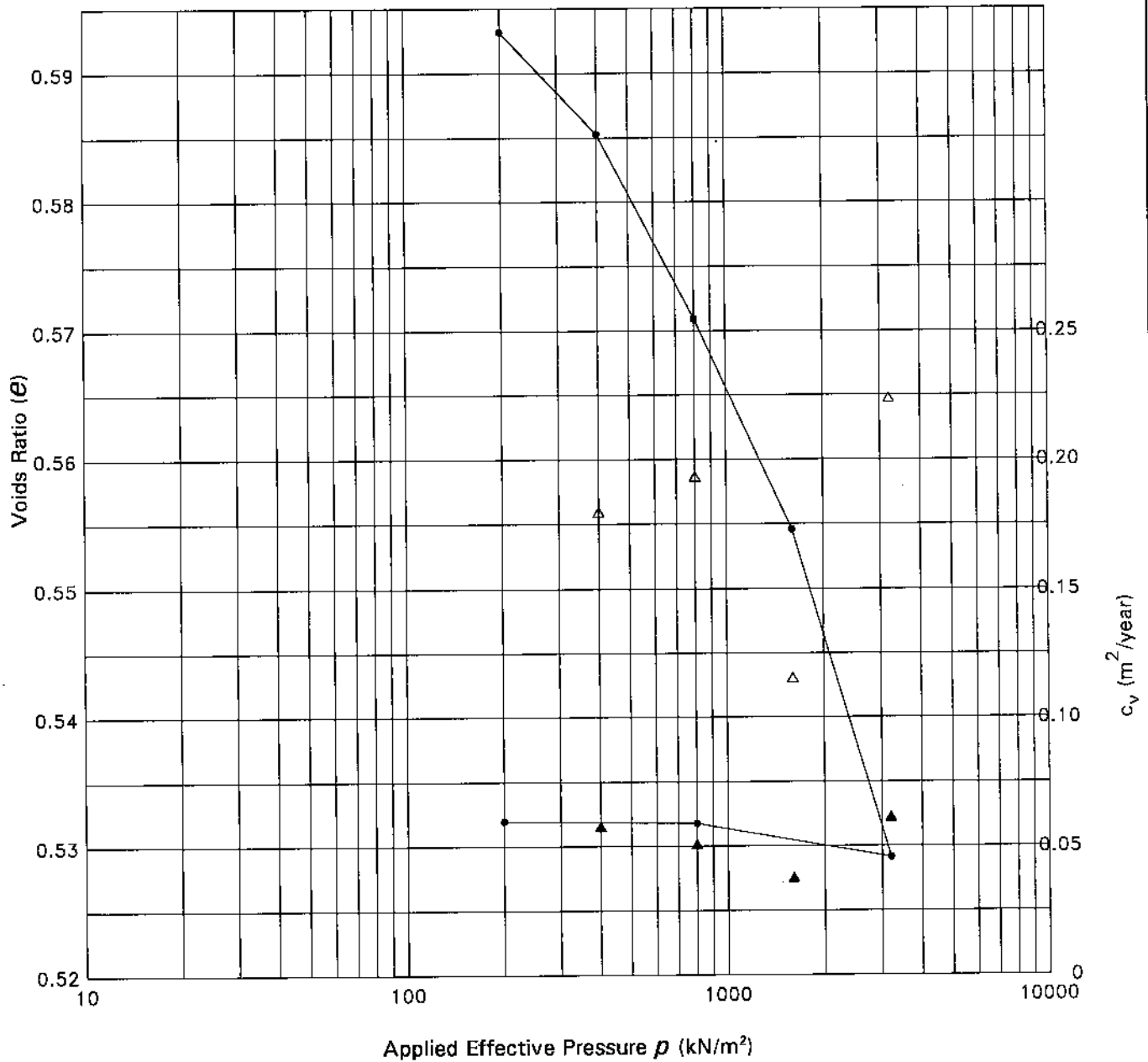
LABORATORY RESULTS - Consolidation e/log p Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510
 Borehole CP70202
 Sample Depth 19.20 - 19.65 m
 Sample Type UT

Client

Symbols: Voids Ratio ●, c_{v50} ▲, c_{v90} △



Applied Pressure	kN/m ²	0-200	200-400	400-800	800-1600	1600-3200	3200-800	800-200			
m_v	m ² /MN	0.19	0.02	0.02	0.01	0.01	.00	.00			
c_{v50} Log Time	m ² /yr	-	0.06	0.05	0.04	0.06	-	-			
c_{v90} Root Time	m ² /yr	-	0.18	0.19	0.12	0.22	-	-			
Voids Ratio		0.593	0.585	0.571	0.555	0.529	0.532	0.532			
Description	C22262 CHALK		Specimen Diameter		75.020	mm	Initial Water Content		25.59	%	
			Initial Height		18.840	mm	Final Water Content		22.05	%	
			Particle Density		2.65 Assumed		Initial Saturation		100	%	
			Initial Voids Ratio		0.658		Initial Bulk Density		2.01	Mg/m ³	
							Initial Dry Density		1.60	Mg/m ³	

Remarks Laboratory temperature 20°C ± 3°C
 Specimen cut vertically from base of sample
 Test performed in accordance with BS EN ISO 17892-5:2017



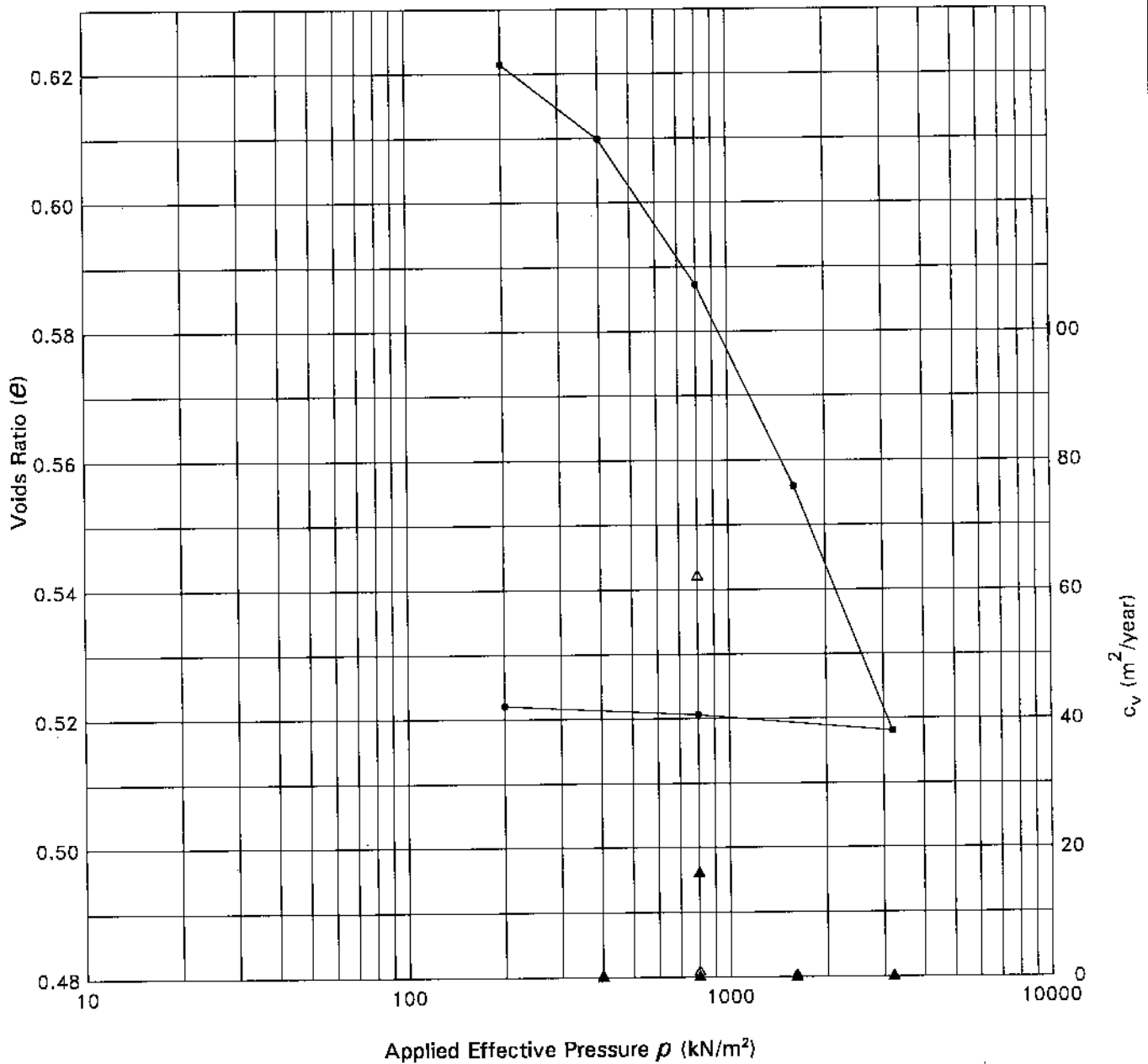
LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510
 Borehole CP70202
 Sample Depth 25.20 - 25.65 m
 Sample Type UT

Client

Symbols: Voids Ratio \bullet , c_{v60} \blacktriangle , c_{v90} \triangle



Applied Pressure	kN/m ²	0-200	200-400	400-800	800-1600	1600-3200	3200-800	800-200			
m_v	m ² /MN	0.23	0.04	0.04	0.02	0.02	.00	.00			
c_{v50} Log Time	m ² /yr	-	0.10	0.23	0.11	0.06	16.20	-			
c_{v90} Root Time	m ² /yr	-	0.37	0.98	0.47	0.26	62.26	-			
Voids Ratio		0.621	0.610	0.587	0.556	0.518	0.521	0.522			
Description	C22265 CHLAK					Specimen Diameter	74.660	mm	Initial Water Content	24.57	%
						Initial Height	18.730	mm	Final Water Content	21.40	%
						Particle Density	2.65 Assumed		Initial Saturation	93.11	%
						Initial Voids Ratio	0.699		Initial Bulk Density	1.94	Mg/m ³
									Initial Dry Density	1.56	Mg/m ³

Remarks Laboratory temperature 20°C ± 3°C
 Specimen cut vertically from base of sample
 Test performed in accordance with BS EN ISO 17892-5:2017



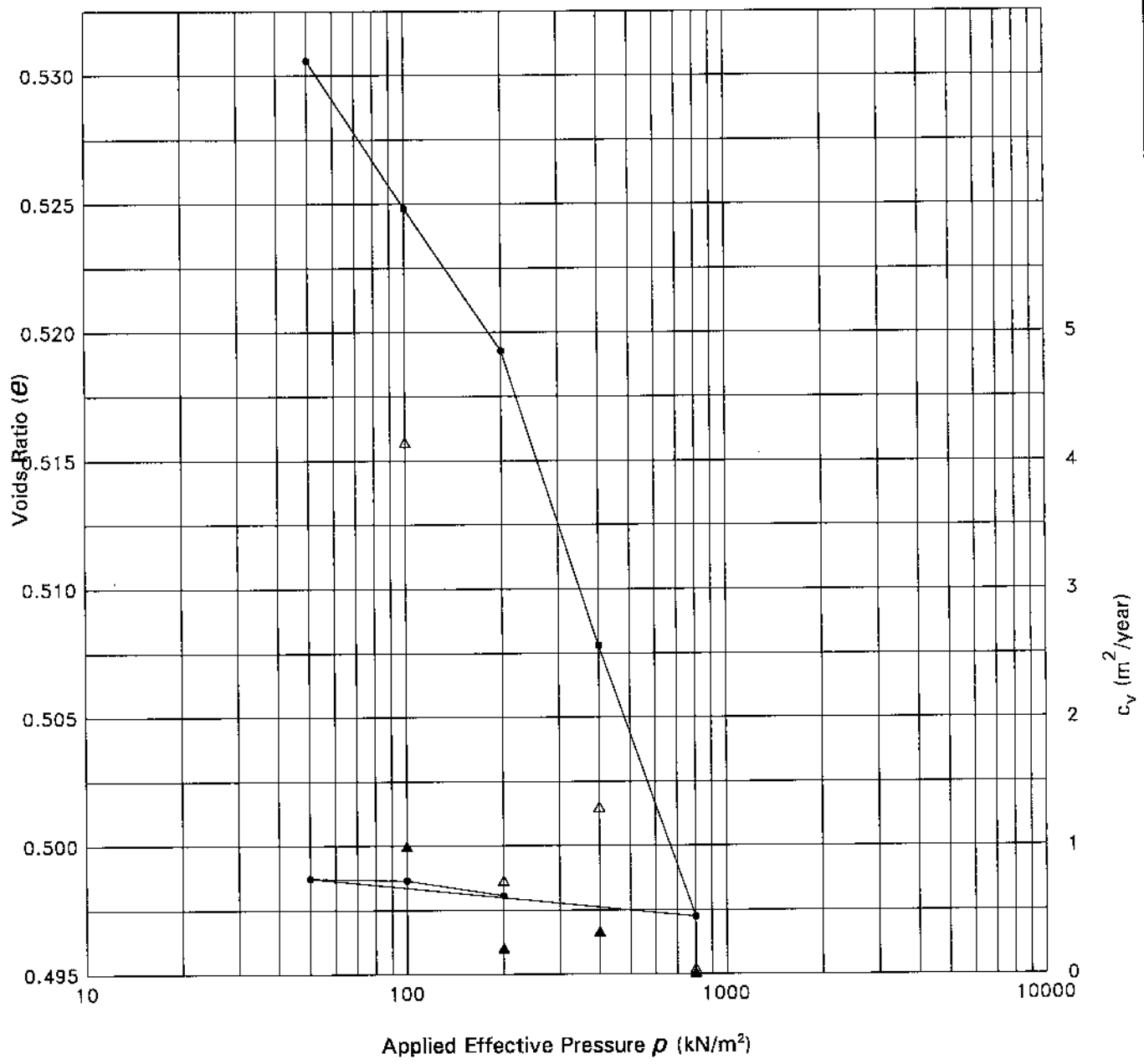
LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510
 Borehole CP70901
 Sample Depth 6.20 - 6.65 m
 Sample Type UT

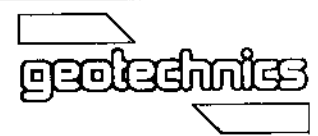
Client

Symbols: Voids Ratio \square , c_{v50} \blacktriangle , c_{v90} \triangle



Applied Pressure kN/m ²	0-50	50-100	100-200	200-400	400-800	800-50	50-100	100-200		
m_v m ² /MN	0.27	0.07	0.04	0.04	0.02	.00	.00	.00		
c_{v50} Log Time m ² /yr	-	0.99	0.20	0.33	0.01	-	-	-		
c_{v90} Root Time m ² /yr	-	4.14	0.73	1.30	0.04	-	-	-		
Voids Ratio	0.531	0.525	0.519	0.508	0.497	0.499	0.499	0.498		
Description C24245 CHALK	Specimen Diameter 74.590 mm Initial Height 18.660 mm Particle Density 2.65 Assumed Initial Voids Ratio 0.551					Initial Water Content 21.98 % Final Water Content 19.84 % Initial Saturation 100 % Initial Bulk Density 2.08 Mg/m ³ Initial Dry Density 1.71 Mg/m ³				

Remarks Laboratory temperature 20°C ± 3°C
 Specimen cut vertically from base of sample
 Test performed in accordance with BS EN ISO 17892-5:2017



LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510

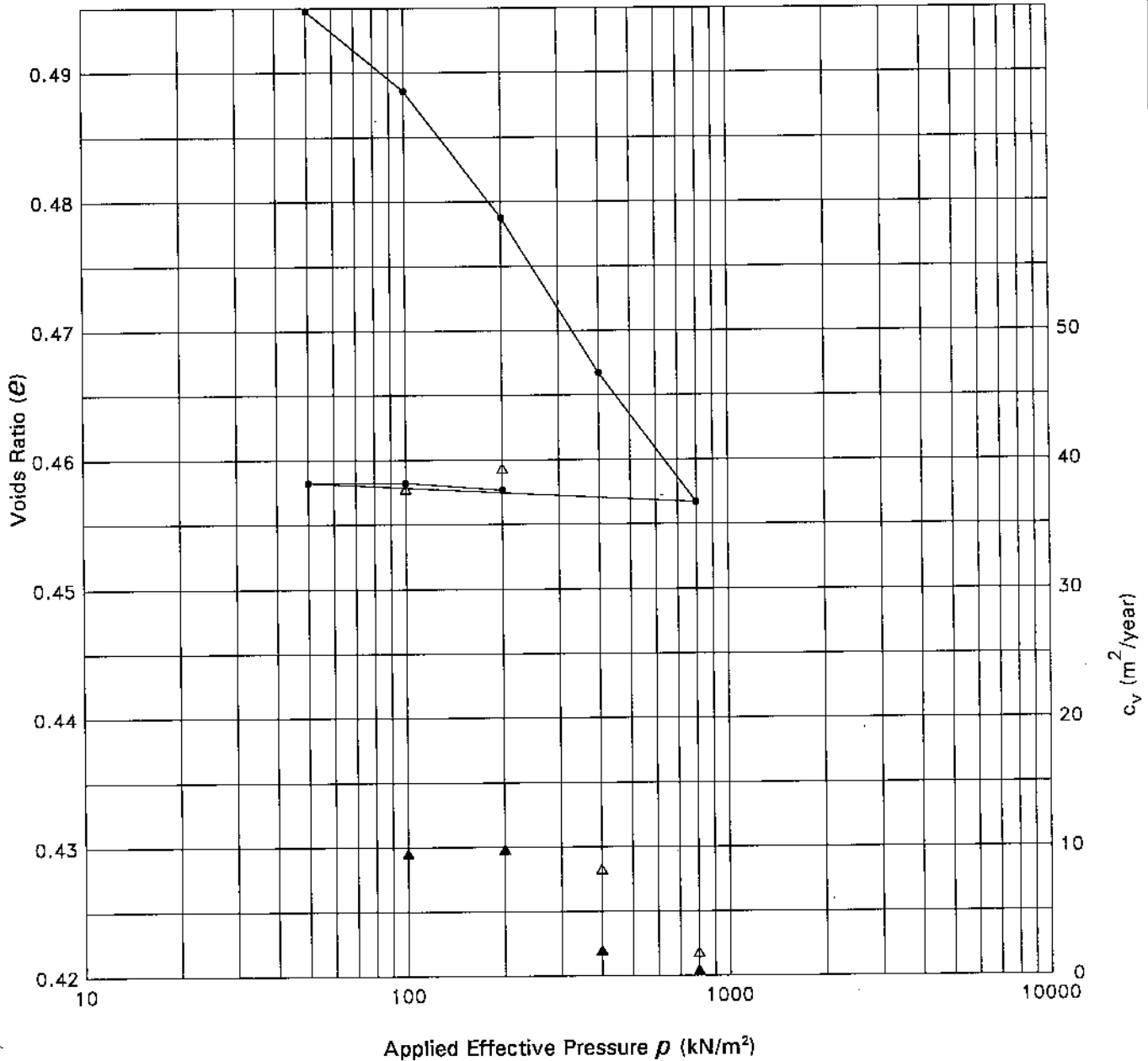
Borehole CP70902

Sample Depth 7.20 - 7.65 m

Sample Type UT

Client

Symbols: Voids Ratio \square , c_{v50} \blacktriangle , c_{v90} \triangle



Applied Pressure	kN/m ²	0-50	50-100	100-200	200-400	400-800	800-50	50-100	100-200		
m_v	m ² /MN	0.37	0.08	0.07	0.04	0.02	.00	.00	.00		
c_{v50} Log Time	m ² /yr	-	9.51	9.83	1.96	0.42	-	-	-		
c_{v90} Root Time	m ² /yr	-	37.75	39.32	8.25	1.78	-	-	-		
Voids Ratio		0.495	0.489	0.479	0.467	0.457	0.458	0.458	0.458		
Description		Specimen Diameter				74.970	mm	Initial Water Content		22.33	%
C24249 CHALK		Initial Height				18.830	mm	Final Water Content		19.63	%
		Particle Density				2.65 Assumed		Initial Saturation		100	%
		Initial Voids Ratio				0.523		Initial Bulk Density		2.13	Mg/m ³
								Initial Dry Density		1.74	Mg/m ³

Remarks Laboratory temperature 20°C ± 3°C
Specimen cut vertically from base of sample
Test performed in accordance with BS EN ISO 17892-5:2017



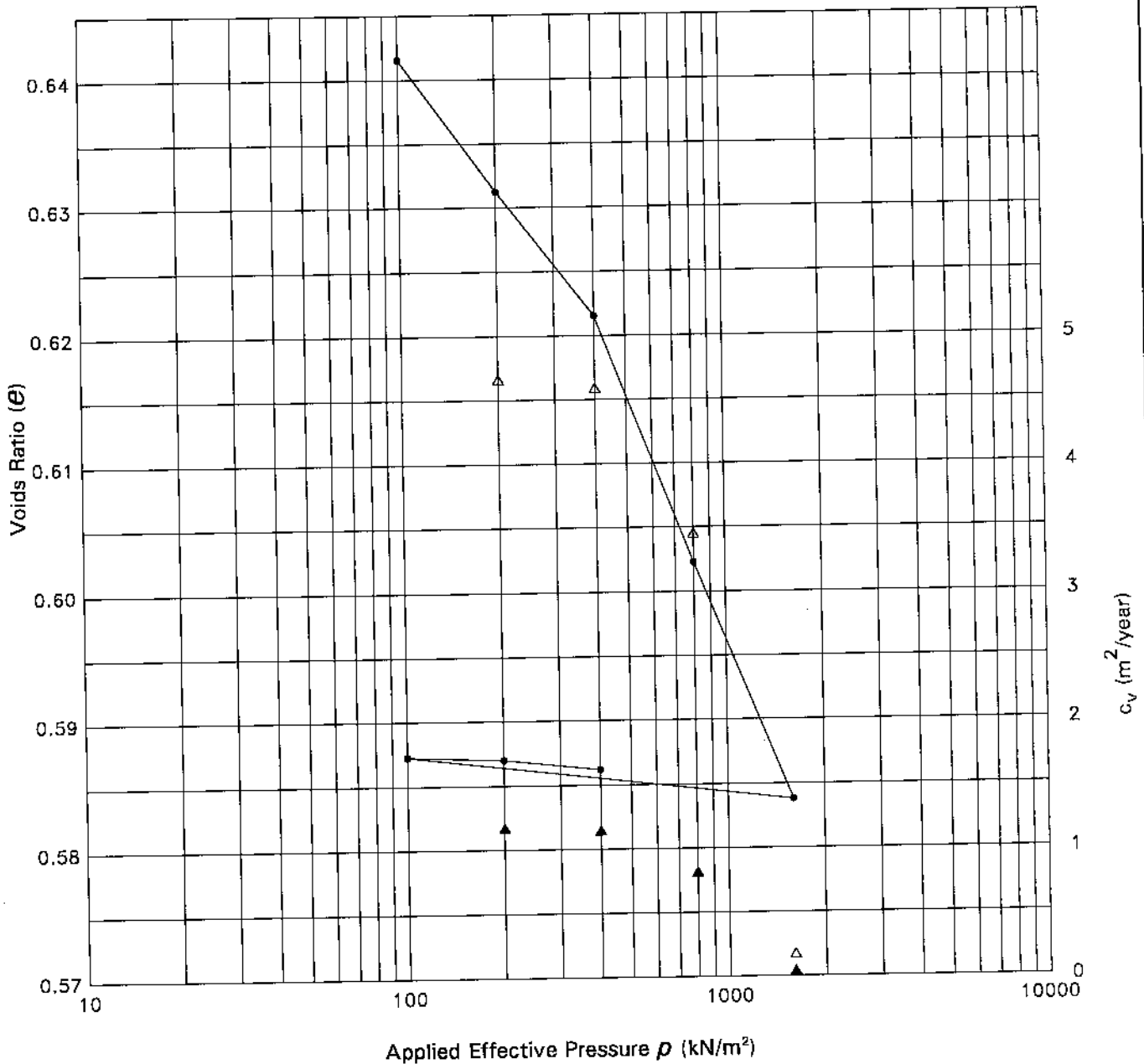
LABORATORY RESULTS - Consolidation $e/\log p$ Plot

Project A303 Amesbury to Berwick Down - Phase 7A GI

Project No PC197510
 Borehole CP70902
 Sample Depth 9.20 - 9.50 m
 Sample Type UT

Client

Symbols: Voids Ratio \bullet , c_{v50} \blacktriangle , c_{v90} \triangle



Applied Pressure kN/m ²	0-100	100-200	200-400	400-800	800-1600	1600-100	100-200	200-400		
m_v m ² /MN	0.23	0.06	0.03	0.03	0.01	.00	.00	.00		
c_{v50} Log Time m ² /yr	-	1.17	1.15	0.82	0.04	-	-	-		
c_{v90} Root Time m ² /yr	-	4.66	4.59	3.45	0.17	-	-	-		
Voids Ratio	0.642	0.631	0.622	0.602	0.584	0.587	0.587	0.586		
Description C24248 CHALK	Specimen Diameter 74.800 mm Initial Height 18.840 mm Particle Density 2.65 Assumed Initial Voids Ratio 0.680				Initial Water Content 26.06 % Final Water Content 23.21 % Initial Saturation 100 % Initial Bulk Density 1.99 Mg/m ³ Initial Dry Density 1.58 Mg/m ³					

Remarks Laboratory temperature 20°C ± 3°C
 Specimen cut vertically from base of sample
 Test performed in accordance with BS EN ISO 17892-5:2017




LABORATORY RESULTS - MCV, Compaction, CBR

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					MCV		Compaction					CBR				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	MCV	w %	Type	w (Opt) %	ρ_d Mg/m ³	γ_b Mg/m ³	γ_d (Max) Mg/m ³	Type	Top		Bottom	
													CBR %	w %	CBR %	w %
STP7280 1	0.30- 1.10 (0.30- 1.10)	B	C22597	CHALK, recovered as sandy gravelly SILT with a medium cobble content.						1.73	1.35	Soak	4.5	29.1	2.8	26.9
STP7280 2	0.35- 1.50 (0.35- 1.50)	B	C22608	CHALK, recovered as slightly sandy slightly gravelly SILT.						1.81	1.49	2.5kg	40	21.1	41	21.2
STP7280 3	0.50- 0.60 (0.50- 0.60)	B	C22598	Orangish brown slightly sandy gravelly SILT.						1.90	1.54	Soak	4.7	25.8	7.1	20.5
STP7280 4	0.75- 0.85 (0.75- 0.85)	B	C22638	CHALK, recovered as slightly sandy slightly gravelly SILT.						1.94	1.57	2.5kg	12	23.7	21	23.8
STP7280 5	0.50- 0.60 (0.50- 0.60)	B	C22595	CHALK, recovered as slightly sandy slightly gravelly SILT.						1.93	1.56	2.5kg	5.2	23.2	6.8	23.2
STP7280 6	2.00- 2.40 (2.00- 2.40)	B	C22603	CHALK, recovered as slightly sandy slightly gravelly SILT.						1.86	1.48	2.5kg	12	27.1	9.7	25.0
STP7280 7	0.70- 0.80 (0.70- 0.80)	B	C22629	CHALK, recovered as slightly gravelly SILT.						1.86	1.49	Soak	12	25.8	15	25.2
STP7280 8	0.75- 0.85 (0.75- 0.85)	B	C22615	CHALK, recovered as slightly sandy SILT.						1.81	1.42	2.5kg	15	25.4	13	29.1
STP7280 9	0.50- 0.60 (0.50- 0.60)	B	C22631	CHALK, recovered as slightly sandy slightly gravelly SILT.						1.90	1.51	Soak	1.3	25.6	1.8	25.0
STP7281 0	0.50- 0.57 (0.50- 0.57)	B	C23085	Light grey to light brown slightly gravelly very sandy SILT.						1.61	1.33	2.5kg	14	20.8	15	21.1
STP7281 1	0.75- 0.85 (0.75- 0.85)	B	C23058	CHALK, recovered as cream slightly sandy SILT.						1.73	1.31	Soak	2.1	30.4	3.1	33.3


Remarks  Particle Density - a=assumed, m=measured
 * = at natural moisture content NST - Not suitable for Test
 # = stabilised, see relevant test plot for details
 For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - MCV, Compaction, CBR

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					MCV		Compaction					CBR				
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description	MCV	w %	Type	w (Opt) %	ρ_d Mg/m ³	γ_b Mg/m ³	γ_d (Max) Mg/m ³	Type	Top		Bottom	
													CBR %	w %	CBR %	w %
STP7290 1	0.50- 0.60 (0.50- 0.60)	B	C23076	CHALK, recovered as cream slightly sandy SILT.						1.87	1.48	Soak	1.6	27.4	5.1	25.4
STP7290 2	0.80- 0.90 (0.80- 0.90)	B	C23063	CHALK, recovered as cream slightly sandy SILT.						1.86	1.48	Soak	12	25.6	15	26.8
STP7290 3	0.75- 0.85 (0.75- 0.85)	B	C23074	CHALK, recovered as sandy gravelly SILT.						1.89	1.50	2.5kg	16	25.2	18	26.2

Remarks  Particle Density - a=assumed, m=measured
 * = at natural moisture content NST - Not suitable for Test
 # = stabilised, see relevant test plot for details
 For Standards followed see Laboratory Test Certificate

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72801

Sample Depth 0.30-1.10m

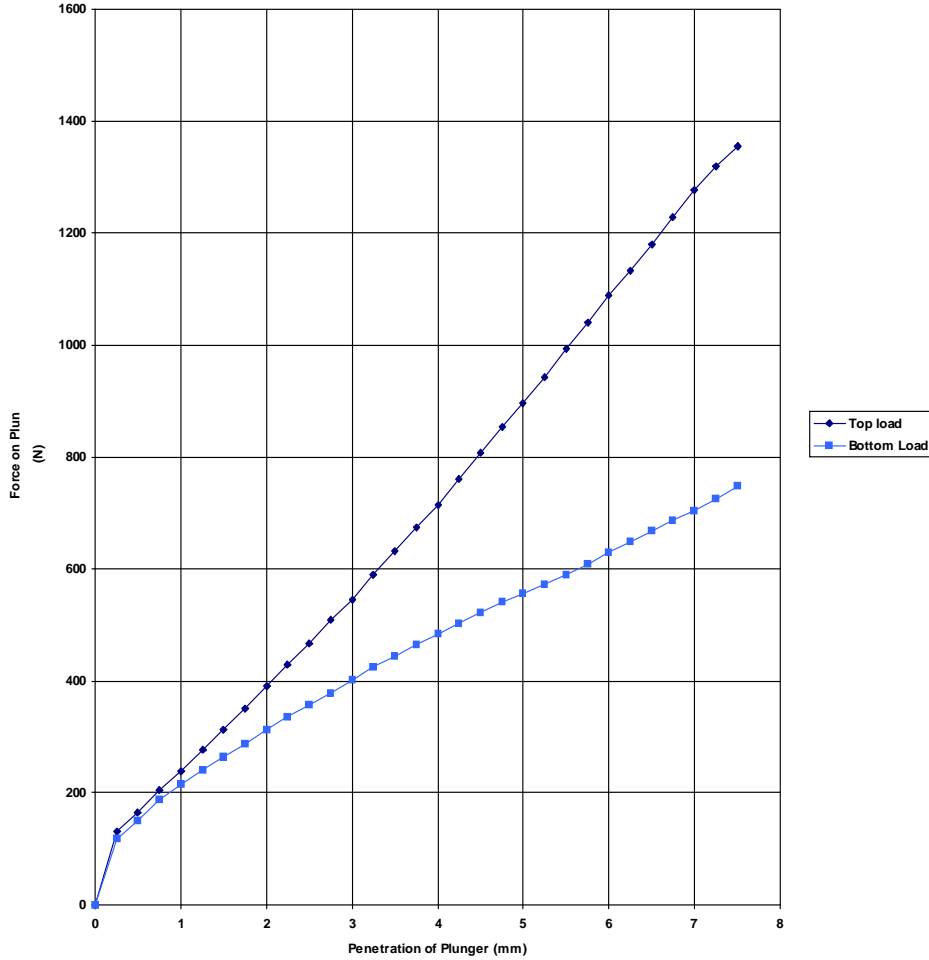
Project No: PC197510

Sample Type B

Sample Ref C22597

Sample Description

CHALK, recovered as sandy gravelly SILT with a medium cobble content.



Penetration	Top (N)	Bottom (N)
0.25mm	131	118
0.50mm	164	151
0.75mm	204	189
1.00mm	239	215
1.25mm	277	241
1.50mm	313	265
1.75mm	350	288
2.00mm	390	312
2.25mm	430	337
2.50mm	468	358
2.75mm	509	379
3.00mm	546	402
3.25mm	589	424
3.50mm	631	444
3.75mm	674	464

Penetration	Top (N)	Bottom (N)
4.00mm	715	483
4.25mm	760	504
4.50mm	808	523
4.75mm	854	541
5.00mm	897	555
5.25mm	943	573
5.50mm	994	589
5.75mm	1040	608
6.00mm	1088	630
6.25mm	1133	648
6.50mm	1180	667
6.75mm	1228	687
7.00mm	1277	704
7.25mm	1318	726
7.50mm	1355	748

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	26.4	%
Bulk Density (Mg/m ³)	1.73	
Dry Density (Mg/m ³)	1.35	
Hand Calculation	No	
CBR	Top	Bottom
Value	4.5	2.8
w%	29.1	26.9

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72802

Sample Depth 0.35-1.50m

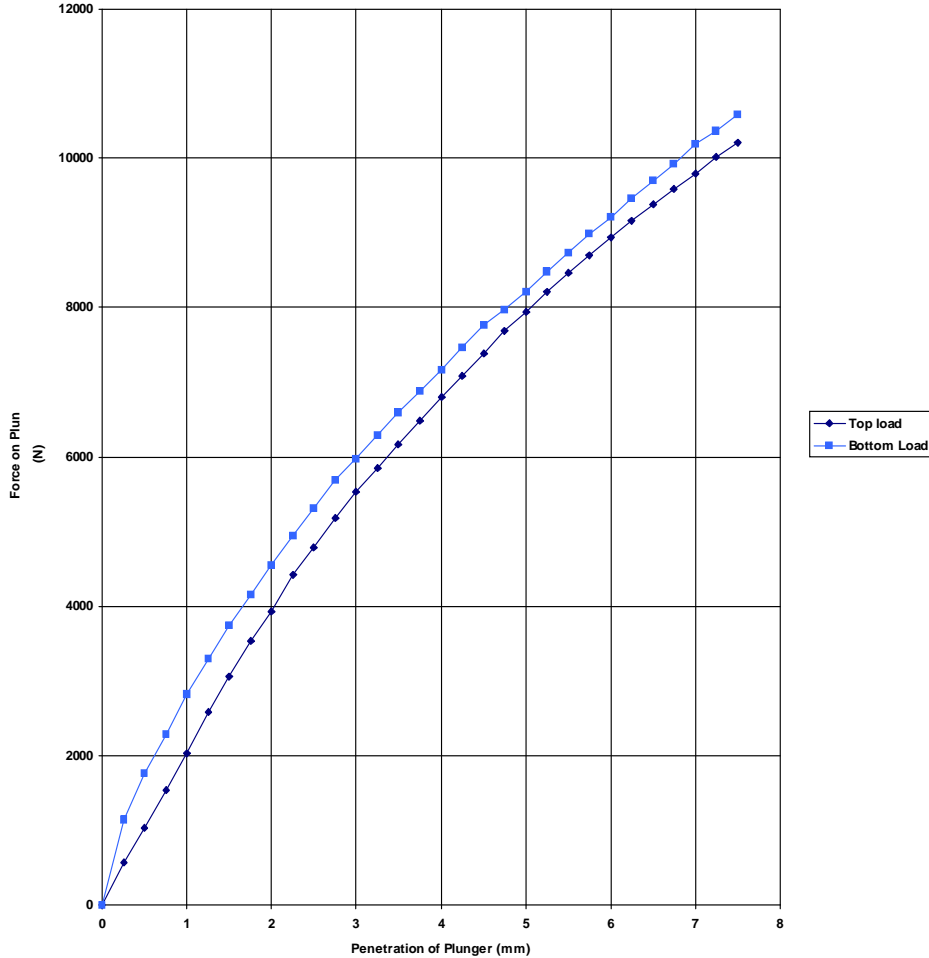
Project No: PC197510

Sample Type B

Sample Ref C22608

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	577	1140
0.50mm	1028	1756
0.75mm	1539	2287
1.00mm	2028	2819
1.25mm	2587	3305
1.50mm	3064	3739
1.75mm	3531	4147
2.00mm	3939	4556
2.25mm	4415	4938
2.50mm	4794	5311
2.75mm	5184	5690
3.00mm	5531	5982
3.25mm	5844	6290
3.50mm	6163	6596
3.75mm	6487	6877

Penetration	Top (N)	Bottom (N)
4.00mm	6796	7161
4.25mm	7093	7470
4.50mm	7391	7760
4.75mm	7687	7980
5.00mm	7943	8205
5.25mm	8206	8480
5.50mm	8466	8733
5.75mm	8701	8987
6.00mm	8935	9212
6.25mm	9170	9462
6.50mm	9388	9700
6.75mm	9588	9929
7.00mm	9804	10187
7.25mm	10017	10370
7.50mm	10202	10591

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	34.7	%
Bulk Density (Mg/m ³)	1.81	
Dry Density (Mg/m ³)	1.49	
Hand Calculation	No	
CBR	Top	Bottom
Value	40	41
w%	21.1	21.2

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72803

Sample Depth 0.50-0.60m

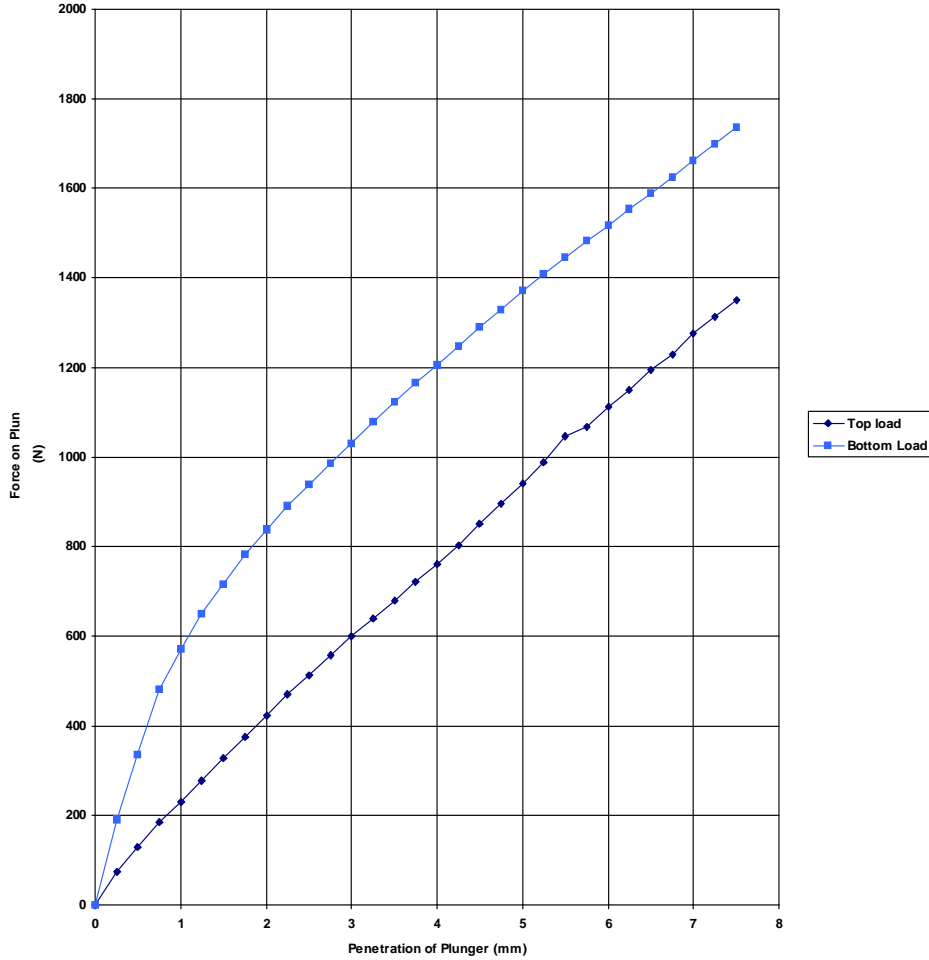
Project No: PC197510

Sample Type B

Sample Ref C22598

Sample Description

Orangish brown slightly sandy gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	73	191
0.50mm	130	336
0.75mm	184	481
1.00mm	229	570
1.25mm	277	650
1.50mm	328	717
1.75mm	376	781
2.00mm	423	837
2.25mm	471	891
2.50mm	513	938
2.75mm	557	985
3.00mm	599	1030
3.25mm	640	1079
3.50mm	678	1122
3.75mm	722	1165

Penetration	Top (N)	Bottom (N)
4.00mm	761	1206
4.25mm	804	1247
4.50mm	851	1289
4.75mm	895	1329
5.00mm	941	1370
5.25mm	987	1409
5.50mm	1047	1444
5.75mm	1068	1481
6.00mm	1112	1517
6.25mm	1150	1554
6.50mm	1194	1589
6.75mm	1229	1625
7.00mm	1275	1662
7.25mm	1314	1700
7.50mm	1350	1737

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	27.9	%
Bulk Density (Mg/m ³)	1.90	
Dry Density (Mg/m ³)	1.54	
Hand Calculation	No	
CBR	Top	Bottom
Value	4.7	7.1
w%	25.8	20.5

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72804

Sample Depth 0.75-0.85m

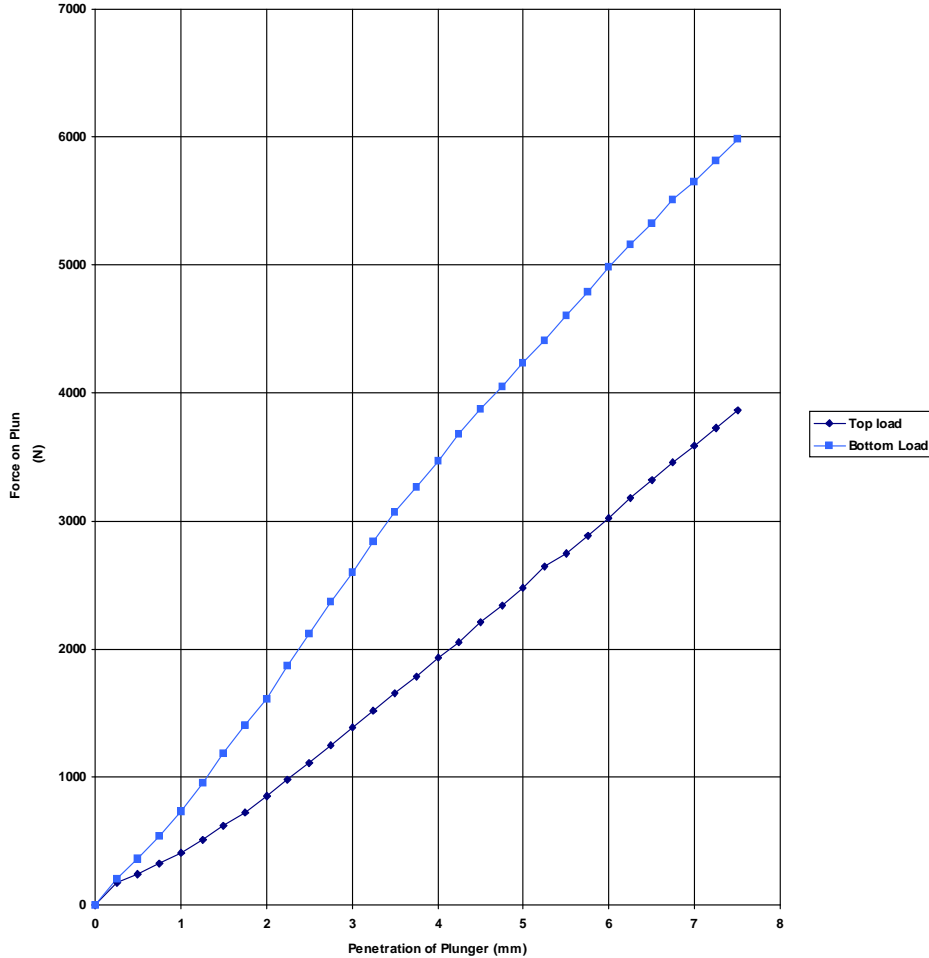
Project No: PC197510

Sample Type B

Sample Ref C22638

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	178	204
0.50mm	241	364
0.75mm	323	532
1.00mm	405	728
1.25mm	508	951
1.50mm	615	1184
1.75mm	721	1407
2.00mm	848	1613
2.25mm	980	1868
2.50mm	1113	2122
2.75mm	1248	2369
3.00mm	1385	2595
3.25mm	1517	2841
3.50mm	1655	3066
3.75mm	1786	3261

Penetration	Top (N)	Bottom (N)
4.00mm	1930	3464
4.25mm	2057	3682
4.50mm	2209	3878
4.75mm	2344	4048
5.00mm	2474	4237
5.25mm	2643	4411
5.50mm	2750	4602
5.75mm	2887	4794
6.00mm	3022	4985
6.25mm	3181	5156
6.50mm	3319	5325
6.75mm	3455	5508
7.00mm	3585	5653
7.25mm	3727	5818
7.50mm	3865	5979

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	28.6	%
Bulk Density (Mg/m ³)	1.94	
Dry Density (Mg/m ³)	1.57	
Hand Calculation	No	
CBR	Top	Bottom
Value	12	21
w%	23.7	23.8

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72805

Sample Depth 0.50-0.60m

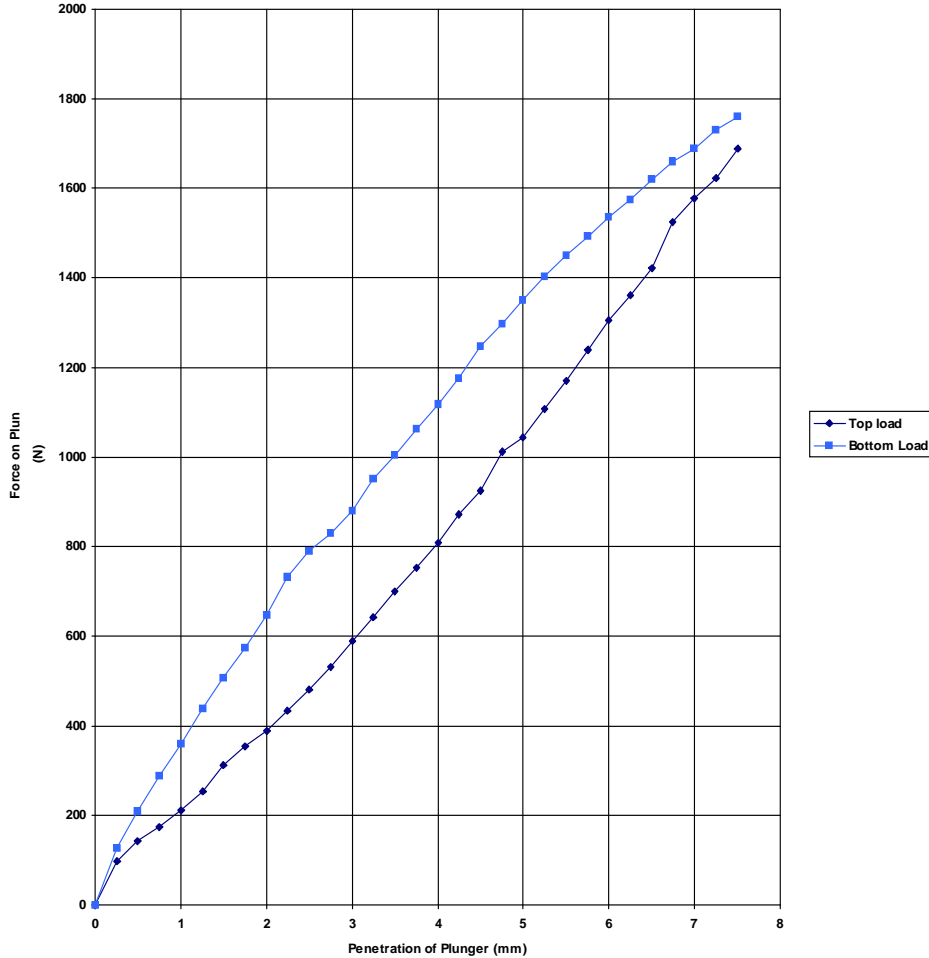
Project No: PC197510

Sample Type B

Sample Ref C22595

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	99	127
0.50mm	142	208
0.75mm	174	287
1.00mm	212	358
1.25mm	253	438
1.50mm	312	507
1.75mm	355	572
2.00mm	388	647
2.25mm	434	731
2.50mm	481	789
2.75mm	531	830
3.00mm	588	879
3.25mm	643	950
3.50mm	699	1004
3.75mm	754	1061

Penetration	Top (N)	Bottom (N)
4.00mm	808	1117
4.25mm	871	1177
4.50mm	926	1246
4.75mm	1012	1298
5.00mm	1043	1350
5.25mm	1106	1402
5.50mm	1171	1450
5.75mm	1238	1493
6.00mm	1305	1536
6.25mm	1360	1575
6.50mm	1421	1620
6.75mm	1525	1658
7.00mm	1578	1688
7.25mm	1623	1730
7.50mm	1687	1760

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	12.0	%
Bulk Density (Mg/m ³)	1.93	
Dry Density (Mg/m ³)	1.56	
Hand Calculation	No	
CBR	Top	Bottom
Value	5.2	6.8
w%	23.2	23.2

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72806

Sample Depth 2.00-2.40m

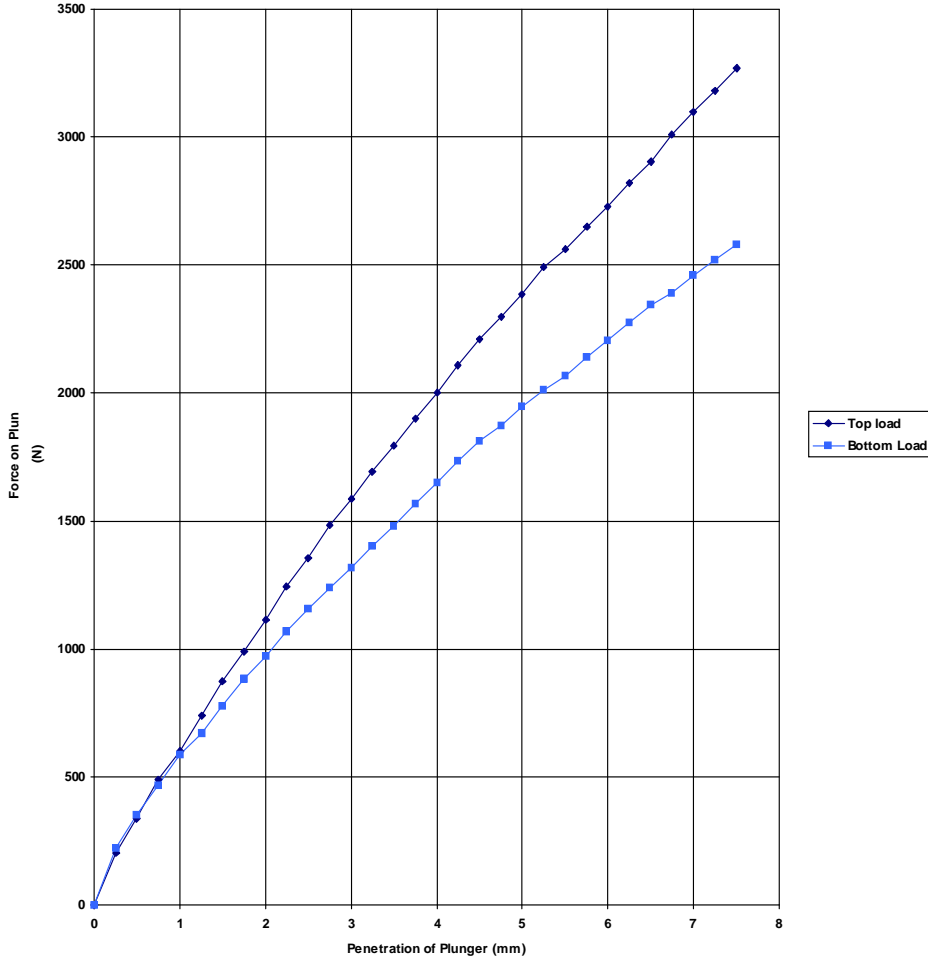
Project No: PC197510

Sample Type B

Sample Ref C22603

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	205	224
0.50mm	339	352
0.75mm	492	467
1.00mm	603	588
1.25mm	741	669
1.50mm	876	778
1.75mm	989	881
2.00mm	1114	969
2.25mm	1245	1069
2.50mm	1353	1155
2.75mm	1486	1238
3.00mm	1587	1318
3.25mm	1694	1399
3.50mm	1794	1480
3.75mm	1900	1566

Penetration	Top (N)	Bottom (N)
4.00mm	2003	1652
4.25mm	2108	1733
4.50mm	2211	1814
4.75mm	2300	1871
5.00mm	2385	1947
5.25mm	2493	2013
5.50mm	2560	2067
5.75mm	2647	2141
6.00mm	2728	2204
6.25mm	2820	2277
6.50mm	2903	2342
6.75mm	3010	2390
7.00mm	3096	2459
7.25mm	3179	2521
7.50mm	3268	2582

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	47.3	%
Bulk Density (Mg/m ³)	1.86	
Dry Density (Mg/m ³)	1.48	
Hand Calculation	No	
CBR	Top	Bottom
Value	12	9.7
w%	27.1	25.0

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72807

Sample Depth 0.70-0.80m

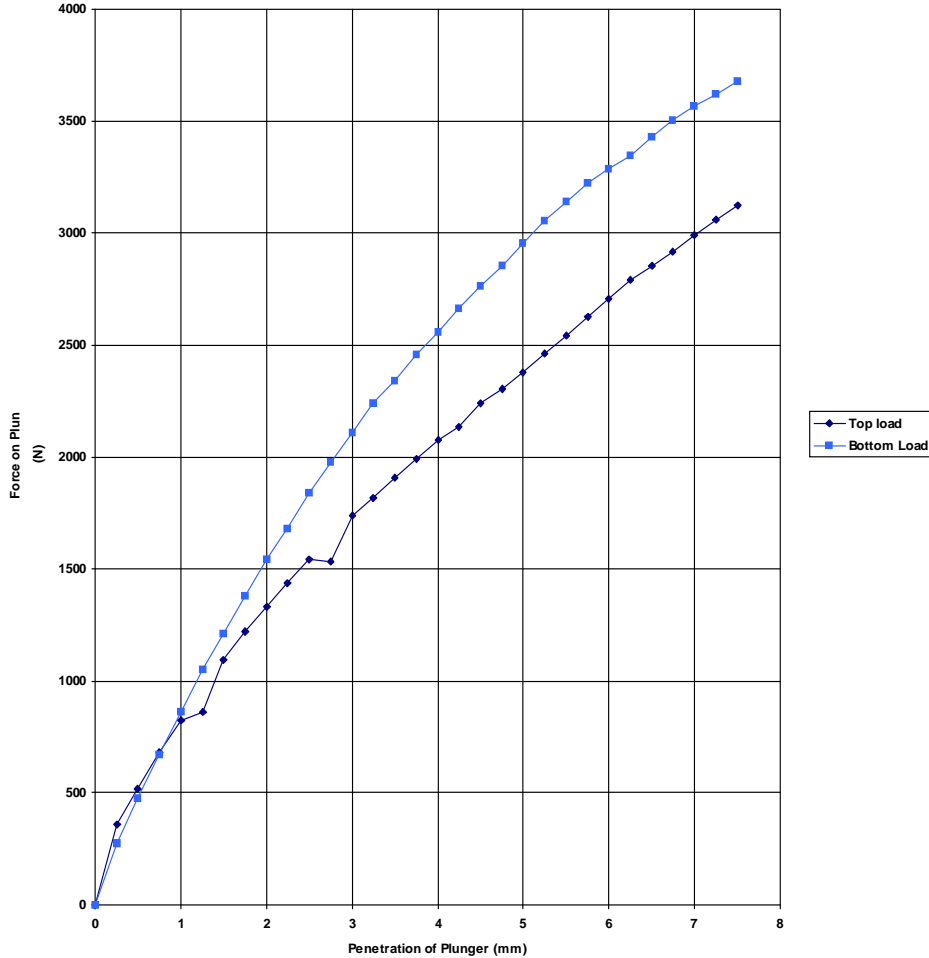
Project No: PC197510

Sample Type B

Sample Ref C22629

Sample Description

CHALK, recovered as slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	358	276
0.50mm	517	474
0.75mm	683	670
1.00mm	822	859
1.25mm	861	1053
1.50mm	1094	1212
1.75mm	1222	1380
2.00mm	1329	1541
2.25mm	1439	1679
2.50mm	1544	1840
2.75mm	1532	1978
3.00mm	1737	2107
3.25mm	1820	2238
3.50mm	1906	2340
3.75mm	1993	2456

Penetration	Top (N)	Bottom (N)
4.00mm	2077	2556
4.25mm	2137	2661
4.50mm	2239	2765
4.75mm	2303	2851
5.00mm	2379	2954
5.25mm	2463	3055
5.50mm	2542	3139
5.75mm	2624	3224
6.00mm	2706	3285
6.25mm	2788	3347
6.50mm	2855	3431
6.75mm	2919	3505
7.00mm	2991	3568
7.25mm	3058	3617
7.50mm	3122	3677

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	29.0	%
Bulk Density (Mg/m ³)	1.86	
Dry Density (Mg/m ³)	1.49	
Hand Calculation	No	
CBR	Top	Bottom
Value	12	15
w%	25.8	25.2

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72808

Sample Depth 0.75-0.85m

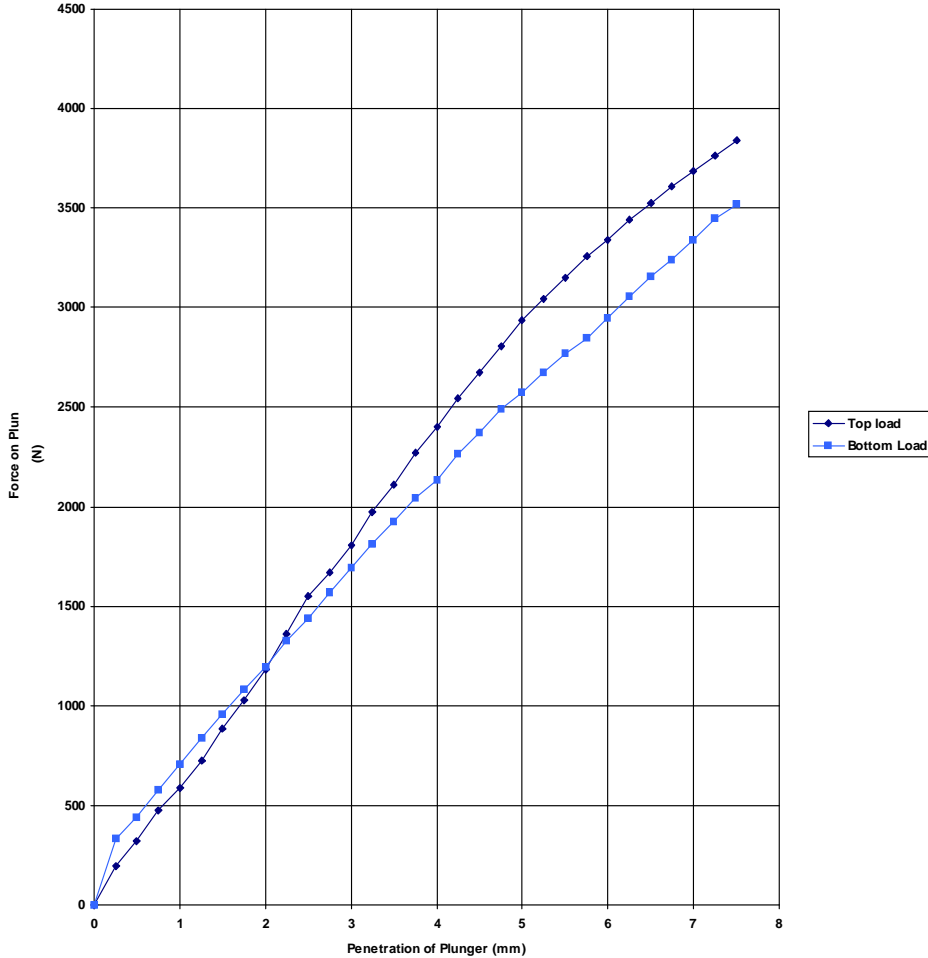
Project No: PC197510

Sample Type B

Sample Ref C22615

Sample Description

CHALK, recovered as slightly sandy SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	197	330
0.50mm	321	440
0.75mm	477	575
1.00mm	587	707
1.25mm	727	840
1.50mm	885	957
1.75mm	1027	1079
2.00mm	1184	1195
2.25mm	1360	1327
2.50mm	1550	1437
2.75mm	1670	1570
3.00mm	1805	1697
3.25mm	1972	1815
3.50mm	2110	1928
3.75mm	2272	2042

Penetration	Top (N)	Bottom (N)
4.00mm	2402	2137
4.25mm	2544	2263
4.50mm	2677	2374
4.75mm	2808	2490
5.00mm	2936	2573
5.25mm	3045	2675
5.50mm	3150	2773
5.75mm	3257	2847
6.00mm	3343	2949
6.25mm	3441	3054
6.50mm	3525	3159
6.75mm	3608	3237
7.00mm	3686	3340
7.25mm	3764	3447
7.50mm	3842	3520

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	27.5	%
Bulk Density (Mg/m ³)	1.81	
Dry Density (Mg/m ³)	1.42	
Hand Calculation	No	
CBR	Top	Bottom
Value	15	13
w%	25.4	29.1

Remarks

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole: STP72809

Project No: PC197510

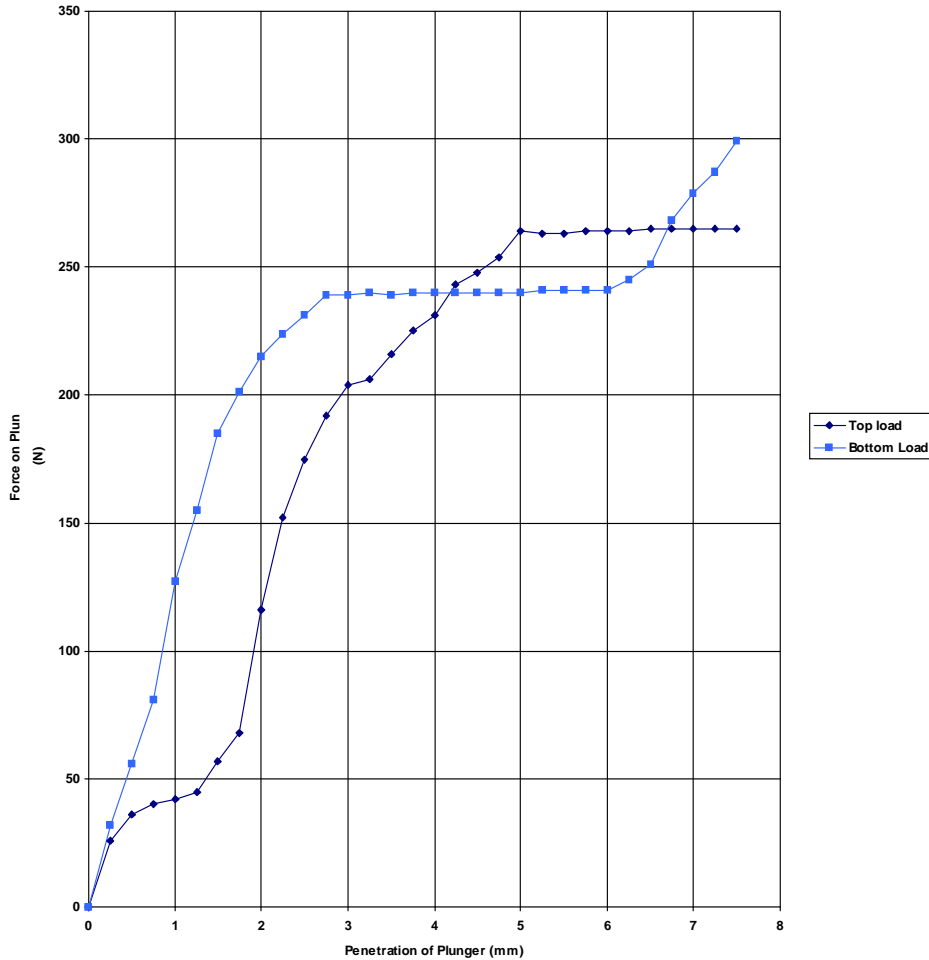
Sample Depth: 0.50-0.60m

Sample Type: B

Sample Ref: C22631

Sample Description

CHALK, recovered as slightly sandy slightly gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	26	32
0.50mm	36	56
0.75mm	40	81
1.00mm	42	127
1.25mm	45	155
1.50mm	57	185
1.75mm	68	201
2.00mm	116	215
2.25mm	152	224
2.50mm	175	231
2.75mm	192	239
3.00mm	204	239
3.25mm	206	240
3.50mm	216	239
3.75mm	225	240

Penetration	Top (N)	Bottom (N)
4.00mm	231	240
4.25mm	243	240
4.50mm	248	240
4.75mm	254	240
5.00mm	264	240
5.25mm	263	241
5.50mm	263	241
5.75mm	264	241
6.00mm	264	241
6.25mm	264	245
6.50mm	265	251
6.75mm	265	268
7.00mm	265	279
7.25mm	265	287
7.50mm	265	299

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	9.6	%
Bulk Density (Mg/m ³)	1.90	
Dry Density (Mg/m ³)	1.51	
Hand Calculation	No	
CBR	Top	Bottom
Value	1.3	1.8
w%	25.6	25.0

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72810

Sample Depth 0.50-0.57m

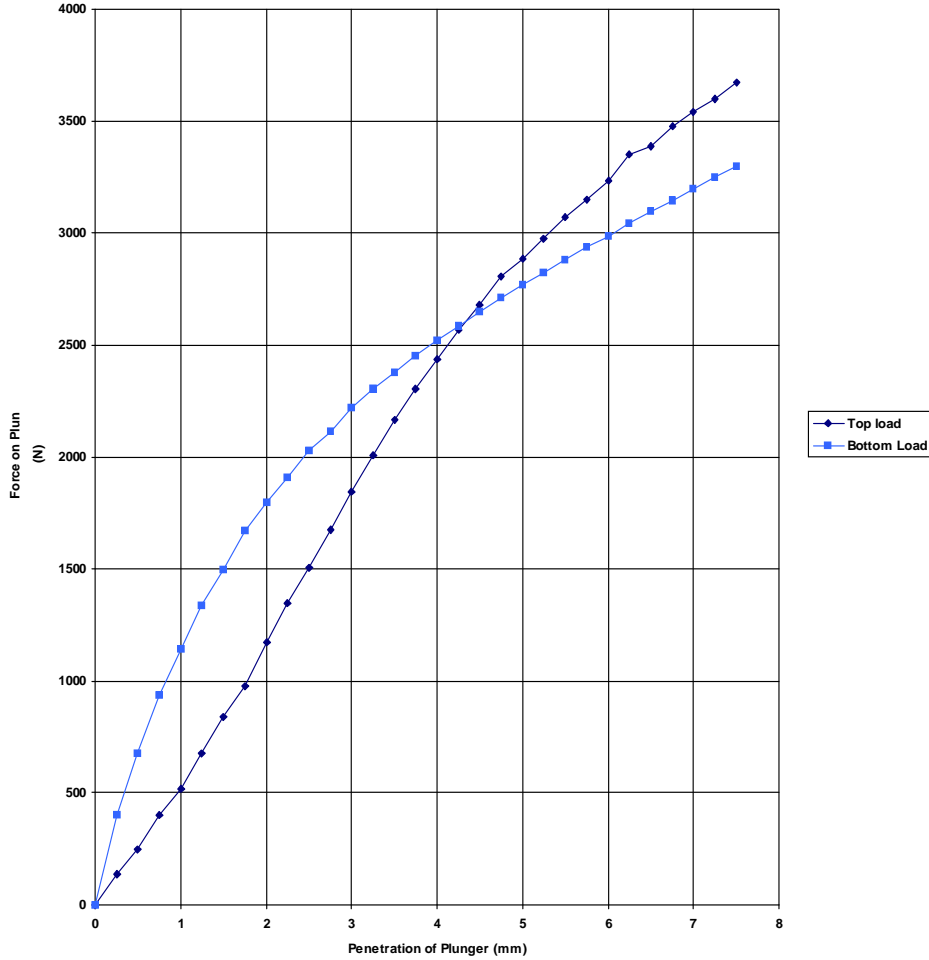
Project No: PC197510

Sample Type B

Sample Ref C23085

Sample Description

Light grey to light brown slightly gravelly very sandy SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	137	403
0.50mm	246	678
0.75mm	403	936
1.00mm	519	1139
1.25mm	674	1336
1.50mm	842	1498
1.75mm	978	1668
2.00mm	1175	1796
2.25mm	1348	1905
2.50mm	1505	2028
2.75mm	1675	2114
3.00mm	1846	2217
3.25mm	2010	2305
3.50mm	2168	2376
3.75mm	2303	2452

Penetration	Top (N)	Bottom (N)
4.00mm	2434	2518
4.25mm	2567	2586
4.50mm	2677	2647
4.75mm	2807	2709
5.00mm	2887	2767
5.25mm	2977	2823
5.50mm	3068	2881
5.75mm	3150	2937
6.00mm	3235	2986
6.25mm	3350	3043
6.50mm	3385	3094
6.75mm	3479	3145
7.00mm	3539	3199
7.25mm	3601	3250
7.50mm	3672	3299

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	6.6	%
Bulk Density (Mg/m ³)	1.61	
Dry Density (Mg/m ³)	1.33	
Hand Calculation	No	
CBR	Top	Bottom
Value	14	15
w%	20.8	21.1

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72811

Sample Depth 0.75-0.85m

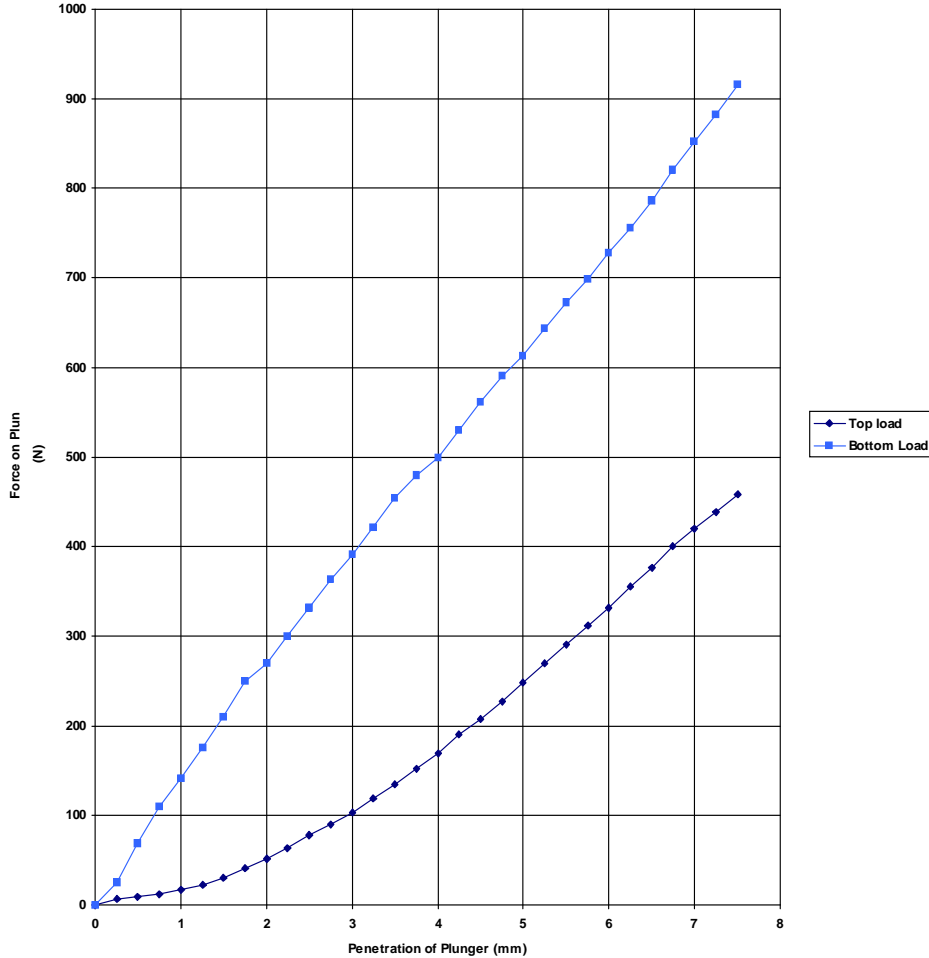
Project No: PC197510

Sample Type B

Sample Ref C23058

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	6	25
0.50mm	9	69
0.75mm	12	110
1.00mm	17	141
1.25mm	23	176
1.50mm	31	210
1.75mm	41	250
2.00mm	51	270
2.25mm	64	300
2.50mm	78	332
2.75mm	90	363
3.00mm	103	391
3.25mm	119	422
3.50mm	135	454
3.75mm	152	479

Penetration	Top (N)	Bottom (N)
4.00mm	169	500
4.25mm	190	530
4.50mm	208	561
4.75mm	227	590
5.00mm	248	613
5.25mm	269	643
5.50mm	290	673
5.75mm	312	699
6.00mm	332	728
6.25mm	355	755
6.50mm	377	786
6.75mm	400	821
7.00mm	420	852
7.25mm	439	883
7.50mm	458	916

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	0.0	%
Bulk Density (Mg/m ³)	1.73	
Dry Density (Mg/m ³)	1.31	
Hand Calculation	Yes	
CBR	Top	Bottom
Value	2.1	3.1
w%	30.4	33.3

Remarks

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72901

Sample Depth 0.50-0.60m

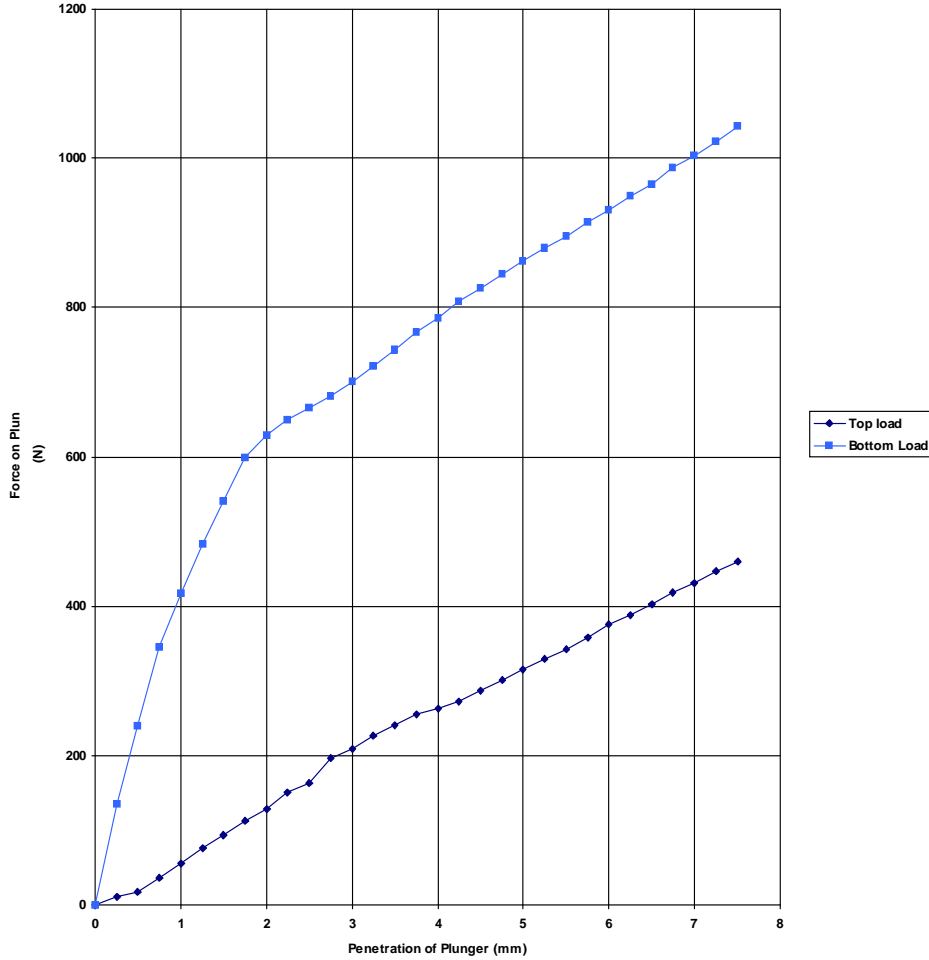
Project No: PC197510

Sample Type B

Sample Ref C23076

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	11	135
0.50mm	18	239
0.75mm	36	346
1.00mm	55	417
1.25mm	76	483
1.50mm	94	540
1.75mm	113	599
2.00mm	128	629
2.25mm	150	650
2.50mm	163	666
2.75mm	197	682
3.00mm	210	700
3.25mm	226	721
3.50mm	241	744
3.75mm	256	768

Penetration	Top (N)	Bottom (N)
4.00mm	263	787
4.25mm	273	808
4.50mm	287	826
4.75mm	301	845
5.00mm	315	862
5.25mm	329	880
5.50mm	343	896
5.75mm	359	914
6.00mm	375	931
6.25mm	388	949
6.50mm	402	966
6.75mm	419	987
7.00mm	431	1003
7.25mm	447	1022
7.50mm	460	1043

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	25.4	%
Bulk Density (Mg/m ³)	1.87	
Dry Density (Mg/m ³)	1.48	
Hand Calculation	No	
CBR	Top	Bottom
Value	1.6	5.1
w%	27.4	25.4

Remarks 

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72902

Sample Depth 0.80-0.90m

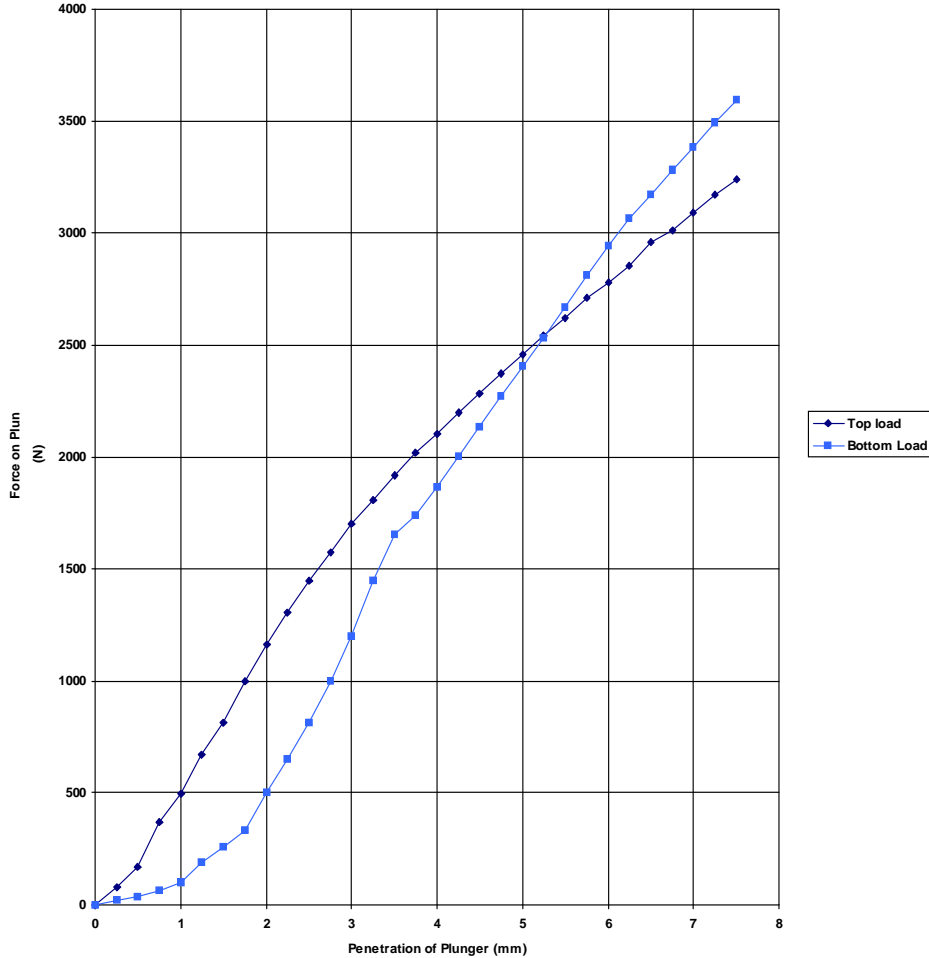
Project No: PC197510

Sample Type B

Sample Ref C23063

Sample Description

CHALK, recovered as cream slightly sandy SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	78	23
0.50mm	171	36
0.75mm	371	63
1.00mm	495	101
1.25mm	671	189
1.50mm	812	260
1.75mm	1000	335
2.00mm	1163	500
2.25mm	1304	652
2.50mm	1446	812
2.75mm	1572	999
3.00mm	1704	1202
3.25mm	1805	1450
3.50mm	1917	1656
3.75mm	2019	1736

Penetration	Top (N)	Bottom (N)
4.00mm	2104	1867
4.25mm	2197	2003
4.50mm	2282	2137
4.75mm	2371	2271
5.00mm	2457	2403
5.25mm	2540	2533
5.50mm	2623	2670
5.75mm	2711	2809
6.00mm	2780	2945
6.25mm	2853	3063
6.50mm	2958	3171
6.75mm	3013	3283
7.00mm	3092	3383
7.25mm	3170	3491
7.50mm	3239	3592

Test Type	2.5kg Soak	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	12.5	%
Bulk Density (Mg/m ³)	1.86	
Dry Density (Mg/m ³)	1.48	
Hand Calculation	Yes	
CBR	Top	Bottom
Value	12	15
w%	25.6	26.8

Remarks

04/09/2019

LABORATORY RESULTS - CBR Force Penetration

Project: A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Hole STP72903

Sample Depth 0.75-0.85m

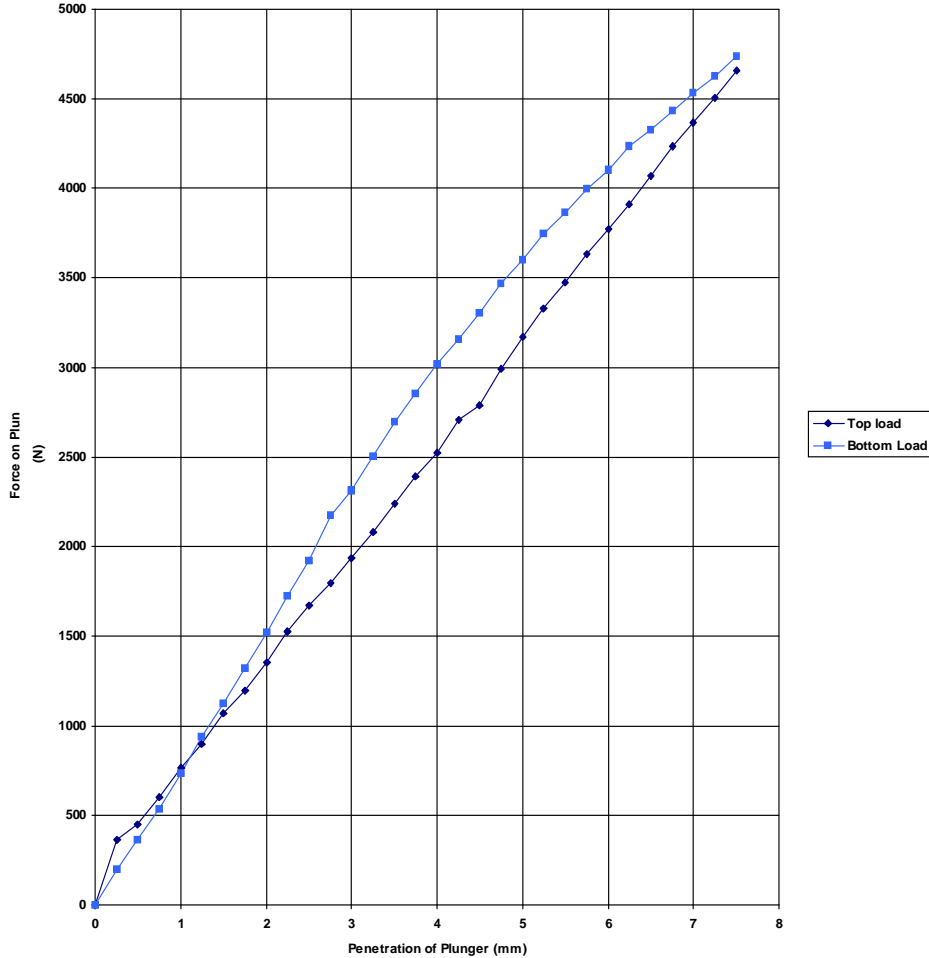
Project No: PC197510

Sample Type B

Sample Ref C23074

Sample Description

CHALK, recovered as sandy gravelly SILT.



Penetration	Top (N)	Bottom (N)
0.25mm	365	195
0.50mm	451	365
0.75mm	600	533
1.00mm	769	731
1.25mm	900	939
1.50mm	1069	1124
1.75mm	1194	1319
2.00mm	1355	1516
2.25mm	1524	1725
2.50mm	1674	1922
2.75mm	1799	2170
3.00mm	1935	2315
3.25mm	2081	2502
3.50mm	2238	2693
3.75mm	2388	2856

Penetration	Top (N)	Bottom (N)
4.00mm	2522	3018
4.25mm	2706	3156
4.50mm	2785	3302
4.75mm	2995	3467
5.00mm	3170	3600
5.25mm	3329	3743
5.50mm	3471	3862
5.75mm	3632	3997
6.00mm	3769	4105
6.25mm	3909	4236
6.50mm	4070	4326
6.75mm	4236	4434
7.00mm	4366	4533
7.25mm	4506	4624
7.50mm	4654	4738

Test Type	2.5kg	
Method	BS1377 Part 4 1990 : Clause 7.0	
Surcharge	13.60	kg
	34.4	%
Bulk Density (Mg/m ³)	1.89	
Dry Density (Mg/m ³)	1.50	
Hand Calculation	No	
CBR	Top	Bottom
Value	16	18
w%	25.2	26.2

Remarks 


04/09/2019

LABORATORY RESULTS - Point Load Strength Determination

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					w %	W mm	D mm	Fail Load kN	Test Type/ Direction	De mm	De ² mm ²	Is MN/m ²	F	Is ₅₀ MN/m ²
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description										
R70201	10.12- 10.21 (10.12- 10.21)	C	C22655	CHALK.	26.0	100	92	0.57	A/PD	108.23	11714	0.049	1.416	0.069
R70201	18.46- 18.77 (18.46- 18.77)	C	C22678	CHALK.	25.4	100 101 101 101	101 101 91 83	1.48 0.86 1.06 0.99	D/PL D/PL A/PD A/PD	101.00 101.00 108.18 103.31	10201 10201 11702 10674	0.145 0.084 0.091 0.093	1.372 1.372 1.415 1.386	0.200 0.115 0.128 0.129
R70201	23.96- 24.10 (23.96- 24.10)	C	C22643	CHALK.	23.5	95 94 94	94 63 50	1.38 1.27 1.16	D/PL A/PD A/PD	94.00 86.83 77.36	8836 7540 5984	0.156 0.168 0.194	1.329 1.282 1.217	0.207 0.216 0.236
R70201	34.55- 34.67 (34.55- 34.67)	C	C22676	CHALK.	23.8	100 98 98	98 79 69	1.43 1.44 1.40	D/PL A/PD A/PD	98.00 99.28 92.79	9604 9857 8610	0.149 0.146 0.162	1.354 1.362 1.321	0.202 0.199 0.214
R70201	35.29- 35.55 (35.29- 35.55)	C	C22646	CHALK.	20.9	100 101 101 101	101 101 70 79	1.96 1.70 1.63 1.78	D/PL D/PL A/PD A/PD	101.00 101.00 94.88 100.79	10201 10201 9002 10159	0.192 0.167 0.181 0.175	1.372 1.372 1.334 1.371	0.264 0.229 0.241 0.240
R70202	4.32- 4.47 (4.32- 4.47)	C	C22276	CHALK.	24.8	140 100	61 73	0.50 0.75	I/R I/R	104.28 96.41	10873 9295	0.046 0.081	1.392 1.344	0.064 0.109
R70202	7.65- 7.80 (7.65- 7.80)	C	C22274	CHALK.	24.2	80 85 80	68 53 52	0.91 0.36 0.64	I/R I/R I/R	83.23 75.74 72.78	6926 5736 5297	0.132 0.063 0.122	1.258 1.206 1.184	0.166 0.076 0.144
R70202	10.60- 10.76 (10.60- 10.76)	C	C22267	CHALK.	26.7	100 100 100	100 71 57	0.97 0.79 0.82	D/PL A/PD A/PD	100.00 95.08 85.19	10000 9040 7257	0.097 0.088 0.112	1.366 1.335 1.271	0.133 0.117 0.143
R70202	17.61- 17.74 (17.61- 17.74)	C	C22272	CHALK.	20.6	100 101 101	101 61 62	1.04 1.33 1.18	D/PL A/PD A/PD	101.00 88.57 89.29	10201 7844 7973	0.102 0.169 0.148	1.372 1.293 1.298	0.140 0.219 0.192
R70202	22.87- 22.97 (22.87- 22.97)	C	C22270	CHALK.	25.4	101 103 103	103 71 57	0.75 1.27 0.89	D/PL A/PD A/PD	103.00 96.49 86.46	10609 9311 7475	0.071 0.136 0.119	1.384 1.344 1.280	0.098 0.183 0.153
R70202	31.23- 31.37 (31.23- 31.37)	C	C22292	CHALK.	22.4	101	64	0.93	A/PD	90.72	8230	0.113	1.308	0.148

Remarks  Test Type D - Diametral, A - Axial, I - Lump or Irregular Test
 Direction PL - parallel to planes of weakness, R - Random or unknown orientation,
 PD - perpendicular to planes of weakness
 Fail Load UF - unacceptable failure
 For Standards followed see Laboratory Test Certificate


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LABORATORY RESULTS - Point Load Strength Determination

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					w %	W mm	D mm	Fail Load kN	Test Type/ Direction	De mm	De ² mm ²	Is MN/m ²	F	Is ₅₀ MN/m ²
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description										
R70901	4.35- 4.48 (4.35- 4.48)	C	C23765	CHALK.	18.9	55	49	0.23	L/R	58.58	3431	0.066	1.074	0.071
R70901	10.60- 10.70 (10.60- 10.70)	C	C23808	CHALK.	18.7	88	84	2.10	A/PD	97.01	9412	0.223	1.348	0.300
R70901	20.95- 21.16 (20.95- 21.16)	C	C23802	CHALK.	17.5	99 98 99	99 63 89	0.80 1.30 1.24	D/PL A/PD A/PD	99.00 88.66 105.92	9801 7861 11219	0.081 0.165 0.110	1.360 1.294 1.402	0.110 0.214 0.155
R70901	26.20- 26.40 (26.20- 26.40)	C	C23806	CHALK.	17.9	99 100 99	97 92 83	1.20 2.23 0.52	D/PL A/PD A/PD	97.00 108.23 102.28	9409 11714 10462	0.128 0.190 0.050	1.347 1.416 1.380	0.172 0.269 0.068
R70902	13.05- 13.17 (13.05- 13.17)	C	C23780	CHALK.	14.5	101 101 101	101 66 59	2.64 2.54 1.68	D/PL A/PD A/PD	101.00 92.13 87.10	10201 8487 7587	0.259 0.299 0.221	1.372 1.317 1.284	0.355 0.394 0.284
R70902	20.25- 20.44 (20.25- 20.44)	C	C23772	CHALK.	16.0	100 101 101	101 97 90	2.52 2.19 1.54	D/PL A/PD A/PD	101.00 111.69 107.58	10201 12474 11574	0.247 0.175 0.133	1.372 1.436 1.412	0.340 0.252 0.187
R70902	23.50- 23.62 (23.50- 23.62)	C	C23773	CHALK.	15.5	101 101 101	101 71 51	0.96 4.16 3.06	D/PL A/PD A/PD	101.00 95.55 80.98	10201 9130 6558	0.094 0.455 0.467	1.372 1.338 1.242	0.129 0.609 0.580
R70902	39.50- 39.98 (39.50- 39.98)	C	C24035	CHALK.	15.3	101 101 101 101	101 101 91 71	2.84 3.43 5.26 3.74	D/PL D/PL A/PD A/PD	101.00 101.00 108.18 95.55	10201 10201 11702 9130	0.278 0.336 0.450 0.409	1.372 1.372 1.415 1.338	0.382 0.461 0.637 0.548
R70903	5.42- 5.56 (5.42- 5.56)	C	C24047		16.6	100	93	5.45	A/PD	108.82	11841	0.461	1.419	0.654
R70903	18.82- 18.94 (18.82- 18.94)	C	C24068		19.2	101	104	2.11	A/PD	115.65	13374	0.158	1.458	0.230
R70903	30.05- 33.50 (30.05- 33.50)	C	C24036	CHALK.	15.7	100 100 100 100	101 101 71 77	4.38 2.42 4.09 3.84	D/PL D/PL A/PD A/PD	101.00 101.00 95.08 99.01	10201 10201 9040 9804	0.430 0.237 0.453 0.392	1.372 1.372 1.335 1.360	0.590 0.325 0.604 0.533

Remarks  Test Type D - Diametral, A - Axial, I - Lump or Irregular Test
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LABORATORY RESULTS - Point Load Strength Determination

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					w %	W mm	D mm	Fail Load kN	Test Type/ Direction	De mm	De ² mm ²	Is MN/m ²	F	Is ₅₀ MN/m ²	
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description											
R70903	37.68- 38.00 (37.68- 38.00)	C	C24048	CHALK.	20.5	100	101	1.03	D/PL	101.00	10201	0.101	1.372	0.138	
								2.27	D/PL	101.00	10201	0.223	1.372	0.305	
								2.99	A/PD	112.27	12605	0.237	1.439	0.341	
								2.53	A/PD	93.73	8785	0.288	1.327	0.382	
R71001	4.60- 4.70 (4.60- 4.70)	C	C23800	CHALK.	21.7	150	84	1.65	L/R	126.66	16043	0.103	1.519	0.156	
R71001	9.00- 9.17 (9.00- 9.17)	C	C24054	CHALK.	24.1	100	99	0.71	D/PL	99.00	9801	0.072	1.360	0.098	
								0.84	L/R	75.57	5710	0.147	1.204	0.177	
R71001	16.00- 16.40 (16.00- 16.40)	C	C24051	CHALK.	20.8	99	99	2.95	D/PL	99.00	9801	0.301	1.360	0.410	
								2.76	D/PL	99.00	9801	0.282	1.360	0.383	
								2.46	A/PD	117.75	13866	0.178	1.470	0.261	
R71001	24.60- 24.81 (24.60- 24.81)	C	C24042	CHALK.	20.7	101	100	1.50	D/PL	100.00	10000	0.150	1.366	0.204	
								1.78	D/PL	100.00	10000	0.178	1.366	0.243	
								1.43	A/PD	111.69	12474	0.115	1.436	0.165	
								2.83	A/PD	94.88	9002	0.314	1.334	0.419	
R71002	4.04- 4.11 (4.04- 4.11)	C	C23188	CHALK.	26.0	101	103	0.73	D/PL	103.00	10609	0.069	1.384	0.096	
								0.76	A/PD	89.44	8000	0.095	1.299	0.123	
								0.65	A/PD	80.16	6426	0.102	1.237	0.126	
R71002	12.58- 13.02 (12.58- 13.02)	C	C23797	CHALK.	23.5	102	102	1.94	D/PL	102.00	10404	0.187	1.378	0.258	
								1.72	A/PD	98.69	9740	0.177	1.358	0.240	
								1.25	A/PD	93.97	8831	0.142	1.328	0.188	
R71002	18.80- 18.94 (18.80- 18.94)	C	C23762	CHALK.	22.4	102	103	1.95	D/PL	103.00	10609	0.184	1.384	0.255	
								1.65	A/PD	103.70	10754	0.154	1.389	0.214	
								1.98	A/PD	101.79	10360	0.191	1.377	0.264	
R71002	23.62- 23.88 (23.62- 23.88)	C	C23799	CHALK.	21.8	102	102	2.09	D/PL	102.00	10404	0.201	1.378	0.277	
								2.34	A/PD	72.35	5234	0.447	1.181	0.527	
								0.77	I/R	107.17	11485	0.067	1.409	0.094	
R71301	7.33- 7.46 (7.33- 7.46)	C	C23189	CHALK.	26.0	102	103	0.96	D/PL	103.00	10609	0.090	1.384	0.125	
								0.87	A/PD	106.82	11410	0.076	1.407	0.107	
								0.41	A/PD	83.37	6951	0.058	1.259	0.074	
R71301	14.00- 14.24 (14.00- 14.24)	C	C23190	CHALK.	25.3	102	102	1.06	D/PL	102.00	10404	0.102	1.378	0.140	
								1.42	A/PD	109.31	11948	0.119	1.422	0.169	
								0.73	A/PD	94.66	8961	0.082	1.333	0.109	

Remarks  Test Type D - Diametral, A - Axial, I - Lump or Irregular Test
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LABORATORY RESULTS - Point Load Strength Determination

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample					w %	W mm	D mm	Fail Load kN	Test Type/ Direction	De mm	De ² mm ²	Is MN/m ²	F	Is ₅₀ MN/m ²
Hole	Depth (Specimen Depth) m	Type	Sample Ref	Description										
R71301	24.02-	C	C23242	CHALK.	23.7	103	103	0.80	D/PL	103.00	10609	0.076	1.384	0.105
	24.26					103	81	1.13	A/PD	103.07	10623	0.106	1.385	0.147
	(24.02- 24.26)					100	58	0.36	A/PD	85.93	7385	0.048	1.276	0.062
R71301	32.40-	C	C23350	CHALK.	21.5	60	53	0.31	I/R	63.63	4049	0.076	1.115	0.085
	32.46					90	67	0.95	I/R	87.62	7678	0.123	1.287	0.159
R71301	45.85- 46.10 (45.85- 46.10)	C	C23792	CHALK.	15.6	103	103	2.24	D/PL	103.00	10609	0.211	1.384	0.293
						103	103	3.19	D/PL	103.00	10609	0.301	1.384	0.417
						103	92	3.26	A/PD	109.84	12065	0.271	1.425	0.386
						103	81	3.12	A/PD	103.07	10623	0.293	1.385	0.406
						103	70	3.48	A/PD	95.81	9180	0.379	1.340	0.508
R71701	10.47- 10.63 (10.47- 10.63)	C	C23217	CHALK.	26.2	100	102	1.06	D/PL	102.00	10404	0.102	1.378	0.140
						102	80	1.21	A/PD	101.93	10390	0.117	1.378	0.161
						102	84	1.46	A/PD	104.45	10909	0.133	1.393	0.186
R71701	19.51- 19.69 (19.51- 19.69)	C	C23220	CHALK.	20.4	101	102	1.98	D/PL	102.00	10404	0.190	1.378	0.262
						102	92	2.25	A/PD	109.31	11948	0.188	1.422	0.267
						102	78	2.42	A/PD	100.65	10130	0.239	1.370	0.328
R71701	29.83- 30.06 (29.83- 30.06)	C	C23795	CHALK.	23.7	100	98	0.27	D/PL	98.00	9604	0.028	1.354	0.038
						100	108	0.14	D/PL	108.00	11664	0.012	1.414	0.017
						100	82	1.78	A/PD	102.18	10441	0.171	1.379	0.235
						100	77	1.22	A/PD	99.01	9804	0.124	1.360	0.169
						98	61	1.25	A/PD	87.24	7611	0.164	1.285	0.210
R71701	39.78- 40.02 (39.78- 40.02)	C	C23783	CHALK.	23.4	102	102	0.92	D/PL	102.00	10404	0.088	1.378	0.122
						102	102	0.98	D/PL	102.00	10404	0.094	1.378	0.130
						102	91	1.57	A/PD	108.71	11818	0.133	1.418	0.189
						102	79	1.91	A/PD	101.29	10260	0.187	1.374	0.256
						102	71	1.62	A/PD	96.03	9221	0.175	1.341	0.235

Remarks  Test Type D - Diametral, A - Axial, I - Lump or Irregular Test
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LABORATORY RESULTS - Test Remarks

Project A303 AMESBURY TO BERWICK DOWN - PHASE 7A(I)

Project No: PC197510

Sample				Laboratory Remark
Hole	Depth (Specimen Depth) m	Type	Sample Ref	
CP70202	4.20- 4.65 (4.20- 4.65)	UT	C22264	Quick Undrained Triaxial Test - NST= SAMPLE COLLAPSED UP ON EXTRUSION
STP7281 1	0.75- 0.85 (0.75- 0.85)	D	C22959	Atterberg Limit Test - 1-point cone

Remarks 



Certificate of Analysis

Certificate Number 19-12071

02-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12071

Client Reference PC197510

Order No OL21817

Contract Title A303 Amesbury To Berwick Down

Description 5 Soil samples.

Date Received 27-Jun-19

Date Started 27-Jun-19

Date Completed 02-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Soil Samples

Our Ref 19-12071

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down

Lab No	1522952	1522953	1522954	1522955	1522956
Sample ID	CP70202	CP70201	CP70201	R70202	SPT72807
Depth	8.90-9.00	4.00-4.10	11.20-11.30	1.20	0.50-0.60
Other ID					
Sample Type	D	D	D	D	B
Sampling Date	n/s	n/s	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Inorganics								
pH	DETSC 2008#			8.9	10.0	9.1	9.2	9.1
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	27	64	14	24	< 10

Information in Support of the Analytical Results

Our Ref 19-12071
 Client Ref PC197510
 Contract A303 Amesbury To Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1522952	CP70202 8.90-9.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1522953	CP70201 4.00-4.10 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1522954	CP70201 11.20-11.30 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1522955	R70202 1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1522956	SPT72807 0.50-0.60 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub
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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



Certificate of Analysis

Certificate Number 19-12749

10-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12749

Client Reference PC197510

Order No AUTH-OL21900

Contract Title A303 Amesbury to Berwick Down

Description 5 Soil samples.

Date Received 05-Jul-19

Date Started 05-Jul-19

Date Completed 10-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Soil Samples

Our Ref 19-12749

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	1527477	1527478	1527479	1527480	1527481
Sample ID	CP71301	STP72810	STP72903	R70201	R70201
Depth	12.20-12.65	0.70-0.80	0.55-0.65	3.20-3.40	13.11-13.44
Other ID					
Sample Type	D	B	D	C	C
Sampling Date	n/s	n/s	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Inorganics								
pH	DETSC 2008#			8.7	8.6	9.1	8.9	9.1
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	16	< 10	12	< 10	< 10

Information in Support of the Analytical Results

Our Ref 19-12749
 Client Ref PC197510
 Contract A303 Amesbury to Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1527477	CP71301 12.20-12.65 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1527478	STP72810 0.70-0.80 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1527479	STP72903 0.55-0.65 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1527480	R70201 3.20-3.40 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1527481	R70201 13.11-13.44 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub
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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



Certificate of Analysis

Certificate Number 19-13128

16-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13128

Client Reference PC197510

Order No OL21959

Contract Title A303 Amesbury To Berwick Down

Description 3 Soil samples.

Date Received 11-Jul-19

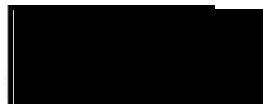
Date Started 11-Jul-19

Date Completed 16-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 19-13128

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down

Lab No	1530054	1530055	1530056
Sample ID	CP71002	CP71302	R71302
Depth	8.20-8.65	19.00	8.90-9.31
Other ID			
Sample Type	D	D	C
Sampling Date	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Inorganics						
pH	DETSC 2008#			8.6	8.5	8.8
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	< 10	11	11

Information in Support of the Analytical Results

Our Ref 19-13128

Client Ref PC197510

Contract A303 Amesbury To Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1530054	CP71002 8.20-8.65 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1530055	CP71302 19.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1530056	R71302 8.90-9.31 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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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



DETS
Certificate of Analysis

Certificate Number 19-13772

23-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13772

Client Reference PC197510

Order No OL22052

Contract Title A303 Amesbury To Berwick Down

Description One Soil sample.

Date Received 19-Jul-19

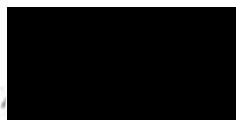
Date Started 19-Jul-19

Date Completed 23-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139



Summary of Chemical Analysis

Soil Samples

Our Ref 19-13772

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down

Lab No	1534332
Sample ID	CP71702
Depth	6.00
Other ID	
Sample Type	SOIL
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units	
Inorganics				
pH	DETSC 2008#		pH	8.9
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	10

Information in Support of the Analytical Results

Our Ref 19-13772

Client Ref PC197510

Contract A303 Amesbury To Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1534332	CP71702 6.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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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



DETS

Certificate of Analysis

Certificate Number 19-14066

26-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-14066

Client Reference PC197510

Order No OL22104

Contract Title A303 Amesbury To Berwick

Description One Soil sample.

Date Received 24-Jul-19

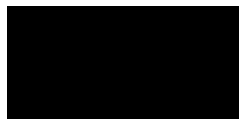
Date Started 24-Jul-19

Date Completed 26-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



2139



Summary of Chemical Analysis

Soil Samples

Our Ref 19-14066
Client Ref PC197510
Contract Title A303 Amesbury To Berwick

Lab No	1536622
Sample ID	CP71701
Depth	7.80-7.90
Other ID	
Sample Type	D
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units	
Inorganics				
pH	DETSC 2008#		pH	10.2
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	91

Information in Support of the Analytical Results

Our Ref 19-14066

Client Ref PC197510

Contract A303 Amesbury To Berwick

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1536622	CP71701 7.80-7.90 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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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



Certificate of Analysis

Certificate Number 19-14132

30-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-14132

Client Reference PC197510

Order No OL22128

Contract Title A303 Amesbury To Berwick

Description 3 Soil samples.

Date Received 25-Jul-19

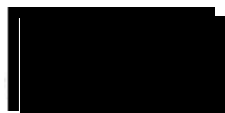
Date Started 25-Jul-19

Date Completed 30-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Soil Samples

Our Ref 19-14132

Client Ref PC197510

Contract Title A303 Amesbury To Berwick

Lab No	1537047	1537048	1537049
Sample ID	R70901	R70903	R71001
Depth	0.80-1.20	23.31-23.50	1.00
Other ID			
Sample Type	B	B	D
Sampling Date	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Inorganics						
pH	DETSC 2008#		pH	8.3	8.7	8.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	< 10	13	13

Information in Support of the Analytical Results

Our Ref 19-14132
 Client Ref PC197510
 Contract A303 Amesbury To Berwick

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1537047	R70901 0.80-1.20 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1537048	R70903 23.31-23.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1537049	R71001 1.00 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub
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Soil Analysis Notes

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 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



Certificate of Analysis

Certificate Number 19-14133

30-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-14133

Client Reference PC197510

Order No OL22127

Contract Title A303 Amesbury To Berwick

Description One Soil sample.

Date Received 25-Jul-19

Date Started 25-Jul-19

Date Completed 30-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Soil Samples

Our Ref 19-14133

Client Ref PC197510

Contract Title A303 Amesbury To Berwick

Lab No	1537050
Sample ID	R71002
Depth	11.33-11.63
Other ID	
Sample Type	SOIL
Sampling Date	n/s
Sampling Time	n/s

Test	Method	LOD	Units
Inorganics			
pH	DETSC 2008#		pH 8.7
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l 23

Information in Support of the Analytical Results

Our Ref 19-14133

Client Ref PC197510

Contract A303 Amesbury To Berwick

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1537050	R71002 11.33-11.63 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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Soil Analysis Notes

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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



Certificate of Analysis

Certificate Number 19-14367

02-Aug-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-14367

Client Reference PC197510

Order No AUTH-OL22167

Contract Title A303 Amesbury to Berwick Down

Description 3 Soil samples.

Date Received 29-Jul-19

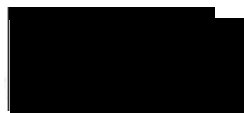
Date Started 29-Jul-19

Date Completed 02-Aug-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 19-14367

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	1538582	1538583	1538584
Sample ID	CP70901	CP70901	CP70902
Depth	0.50-0.70	3.00-3.10	4.20-4.65
Other ID			
Sample Type	B	D	D
Sampling Date	n/s	n/s	n/s
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Inorganics						
Loss on Ignition at 440oC	DETSC 2003#	0.01	%	2.7		
pH	DETSC 2008#		pH		8.4	8.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l		19	< 10
Sulphur as S, Total	DETSC 2320	0.01	%		< 0.01	0.03
Sulphate as SO4, Total	DETSC 2321#	0.01	%		0.05	0.04

Information in Support of the Analytical Results

Our Ref 19-14367

Client Ref PC197510

Contract A303 Amesbury to Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1538582	CP70901 0.50-0.70 SOIL		PT 1L	Sample date not supplied, Loss on Ignition (730 days)	
1538583	CP70901 3.00-3.10 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), Total Sulphur ICP (365 days), Total Sulphate ICP (730 days), Metals ICP Prep (365 days), pH + Conductivity (7 days)	
1538584	CP70902 4.20-4.65 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), Total Sulphur ICP (365 days), Total Sulphate ICP (730 days), Metals ICP Prep (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

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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



Certificate of Analysis

Certificate Number 19-17816

17-Sep-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-17816

Client Reference PC197510

Order No AUTH-OL22737

Contract Title A303 Amesbury to Berwick Down

Description 2 Soil samples.

Date Received 11-Sep-19

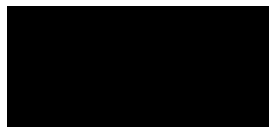
Date Started 11-Sep-19

Date Completed 17-Sep-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Soil Samples

Our Ref 19-17816

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	1561673	1561674
Sample ID	R70902	R70902
Depth	0.50	13.05-13.17
Other ID		
Sample Type	D	D
Sampling Date	n/s	n/s
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Inorganics					
pH	DETSC 2008#		pH	8.1	8.8
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	< 10	10

Information in Support of the Analytical Results

Our Ref 19-17816

Client Ref PC197510

Contract A303 Amesbury to Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1561673	R70902 0.50 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	
1561674	R70902 13.05-13.17 SOIL		PT 1L	Sample date not supplied, Anions 2:1 (365 days), pH + Conductivity (7 days)	

Key: P-Plastic T-Tub

DETS cannot be held responsible for the integrity of samples received whereby the laboratory did not undertake the sampling. In this instance samples received may be deviating. Deviating Sample criteria are based on British and International standards and laboratory trials in conjunction with the UKAS note 'Guidance on Deviating Samples'. All samples received are listed above. However, those samples that have additional comments in relation to hold time, inappropriate containers etc are deviating due to the reasons stated. This means that the analysis is accredited where applicable, but results may be compromised due to sample deviations. If no sampled date (soils) or date+time (waters) has been supplied then samples are deviating. However, if you are able to supply a sampled date (and time for waters) this will prevent samples being reported as deviating where specific hold times are not exceeded and where the container supplied is suitable.

Soil Analysis Notes

Inorganic soil analysis was carried out on a dried sample, crushed to pass a 425µm sieve, in accordance with BS1377.

Organic soil analysis was carried out on an 'as received' sample. Organics results are corrected for moisture and expressed on a dry weight basis.

The Loss on Drying, used to express organics analysis on an air dried basis, is carried out at a temperature of 28°C +/-2°C.

Disposal


From the issue date of this test certificate, samples will be held for the following times prior to disposal :-

Soils - 1 month, Liquids - 2 weeks, Asbestos (test portion) - 6 months

DETERMINATION OF THE WATER CONTENT OF A ROCK SAMPLE

Sample details				Test results		Remarks
Borehole Ref.	Sample Ref.	Depth (m)	Description	Water Content (%)	Oven Temp. (°C)	
R71302		6.60	White CHALK	26.0	105°	

Note: Water Content in a rock sample as received

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 31/07/2019	Project Number: GEO / 29571 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510
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DETERMINATION OF THE WATER CONTENT OF A ROCK SAMPLE

Sample details				Test results		Remarks
Borehole Ref.	Sample Ref.	Depth (m)	Description	Water Content (%)	Oven Temp. (°C)	
R71903		15.13	White CHALK	24.8	105°	

Note: Water Content in a rock sample as received

Checked and Approved by <div style="background-color: black; width: 50px; height: 20px; margin: 5px 0;"></div> C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <p style="text-align: center;">GEO / 29572</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>
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DETERMINATION OF THE WATER CONTENT OF A ROCK SAMPLE

Sample details				Test results		Remarks
Borehole Ref.	Sample Ref.	Depth (m)	Description	Water Content (%)	Oven Temp. (°C)	
R71904		23.10-23.39	White CHALK	23.9	105°	
R71904		26.11	White CHALK	24.8	105°	

Note: Water Content in a rock sample as received



Checked and Approved by <div style="background-color: black; width: 50px; height: 20px; margin: 5px 0;"></div> C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">GEO / 29573</div> Project Name: <div style="text-align: center; font-weight: bold; font-size: 1.1em;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</div>
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DETERMINATION OF THE WATER CONTENT OF A ROCK SAMPLE

Sample details				Test results		Remarks
Borehole Ref.	Sample Ref.	Depth (m)	Description	Water Content (%)	Oven Temp. (°C)	
R71901	C22285	5.40-5.53	White CHALK	24.7	105°	
R71901	C22288	12.60-12.84	White CHALK	20.1	105°	
R71901	C22659	27.18-27.35	White CHALK	23.2	105°	
R71902	C23115	22.15-22.36	White CHALK	22.6	105°	
R71902	C23118	27.90-28.02	White CHALK	23.4	105°	




Note: Water Content in a rock sample as received

Checked and Approved by <div style="background-color: black; width: 50px; height: 15px; margin: 5px 0;"></div> C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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DETERMINATION OF THE WATER CONTENT OF A ROCK SAMPLE

Sample details				Test results		Remarks
Borehole Ref.	Sample Ref.	Depth (m)	Description	Water Content (%)	Oven Temp. (°C)	
R71301	-	38.20-38.47	White CHALK	24.1	105°	

Note: Water Content in a rock sample as received

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number:	GEO / 29660	 
	Project Name:	A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

SATURATION MOISTURE CONTENT OF CHALK

Borehole / Trial Pit	Depth m	Sample Ref	Sample Type	Description	Water Content BS EN ISO 17892-1 : 2014 %	Bulk Density Mg/m ³	Dry Density Mg/m ³	Saturation Moisture Content %	Porosity %
R71901	5.40-5.53	C22285	C	Cream CHALK	27.3	1.96	1.54	28	43
R71901	9.94-10.10	C22287	C	Cream CHALK	22.4	2.06	1.68	22	38
R71901	12.60-12.84	C22288	C	Cream CHALK	20.9	2.08	1.72	21	36
R71901	30.00-30.50	C22662	C	Cream CHALK	24.9	2.01	1.61	25	40
R71902	15.06-15.39	C23122	C	Cream CHALK	28.0	1.97	1.54	28	43
R71902	22.15-22.36	C23115	C	Cream CHALK	24.1	2.02	1.63	24	40
R71902	25.04-25.40	C23103	C	Cream CHALK	27.7	1.97	1.54	28	43
R71902	27.33-27.59	C23104	C	Cream CHALK	26.8	1.97	1.55	27	43
R71902	27.90-28.02	C23118	C	Cream CHALK	23.7	2.01	1.62	25	40
R71902	35.87-36.12	C23123	C	Cream CHALK	26.9	1.97	1.55	27	43
Notes									

Checked and Approved by:

Project Number:

GEO / 29521

Project Name:

**A303 Amesbury to Berwick Down - Phase 7A GI
PC197510****GEOLABS**


31/07/2019

SATURATION MOISTURE CONTENT OF CHALK

Borehole / Trial Pit	Depth m	Sample Ref	Sample Type	Description	Water Content BS EN ISO 17892-1 : 2014 %	Bulk Density Mg/m ³	Dry Density Mg/m ³	Saturation Moisture Content %	Porosity %
R71904	19.60-20.00		C	White CHALK	24.9	2.00	1.60	25	41

Notes

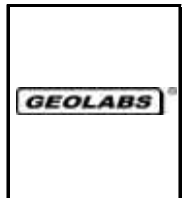
Checked and Approved by:



08/08/2019

Project Number: **GEO / 29573**



Project Name: **A303 Amesbury to Berwick Down - Phase 7A GI PC197510**






SATURATION MOISTURE CONTENT OF CHALK

Borehole / Trial Pit	Depth m	Sample Ref	Sample Type	Description	Water Content BS EN ISO 17892-1 : 2014 %	Bulk Density Mg/m ³	Dry Density Mg/m ³	Saturation Moisture Content %	Porosity %
R71001	29.00-29.49		C	White CHALK	24.4	2.02	1.62	25	40



Notes

Checked and Approved by:  19/08/2019	Project Number: <h3 style="text-align: center;">GEO / 29663</h3> Project Name: <h3 style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</h3>	
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS



Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71302		17.38	White CHALK	25	91.4	1.93	1.54	98.50	208.50	2.1	13.2	1.73		24/07/19	
R71302		42.73	White CHALK	21	94.2	2.04	1.69	95.60	257.30	2.7	31.8	4.43		24/07/19	
R71302		6.60	White CHALK	26	89.3	1.90	1.51	100.50	201.20	2.0	20.8	2.62		24/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.




Checked and Approved by <div style="background-color: black; width: 50px; height: 20px; margin: 5px 0;"></div> C Clergeaud (Snr. Geologist) Date: 31/07/2019	Project Number: <p style="text-align: center;">GEO / 29571</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71903		15.13	White CHALK	24	96.2	1.99	1.60	76.80	214.60	2.8	11.6	2.5		24/07/19	
R71903		35.83	White CHALK	25	99.8	2.02	1.62	72.70	174.60	2.4	12.9	3.11		04/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: GEO / 29572 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71903	Description: White CHALK
Sample Ref.: -	
Depth (m): 15.13	

Diameter	76.80 mm
Height	214.60 mm
Bulk Density	1.99 Mg/m ³
Dry Density	1.60 Mg/m ³
Water Content	24 %
Degree of Saturation: 96.2 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

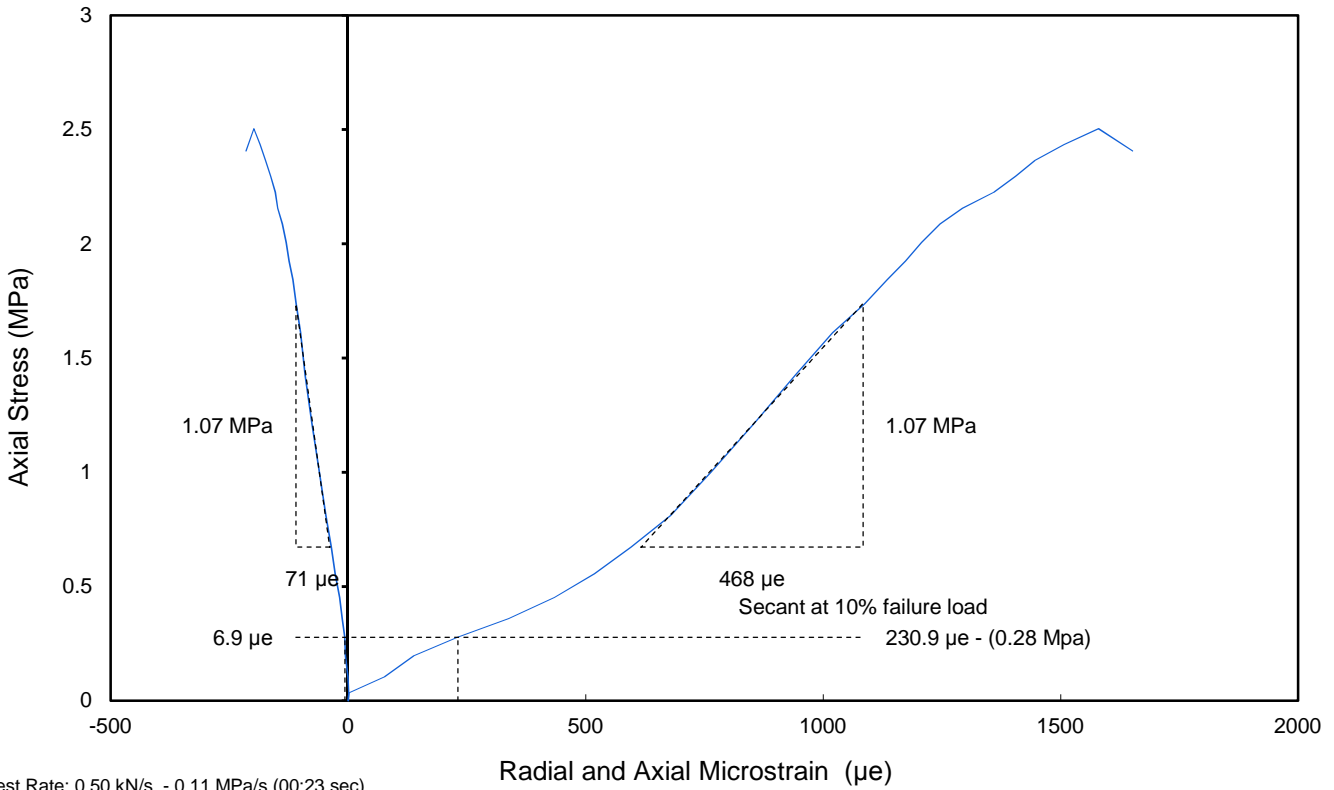
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110°

Sample type **C**

Date tested: 24/07/2019

Test results

Unconfined Compressive Strength	2.5 MPa
Young's Modulus (tangential at 50% failure load)	2.28 GPa
Poisson's Ratio (tangential at 50% failure load)	0.15
Young's Modulus (secant at 10% failure load)	1.2 GPa
Poisson's Ratio (secant at 10% failure load)	0.03



Test Rate: 0.50 kN/s - 0.11 MPa/s (00:23 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: GEO / 29572	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71903	Description: White CHALK
Sample Ref.: -	
Depth (m): 35.83	

Diameter	72.70 mm
Height	174.60 mm
Bulk Density	2.02 Mg/m ³
Dry Density	1.62 Mg/m ³
Water Content	25 %
Degree of Saturation: 99.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

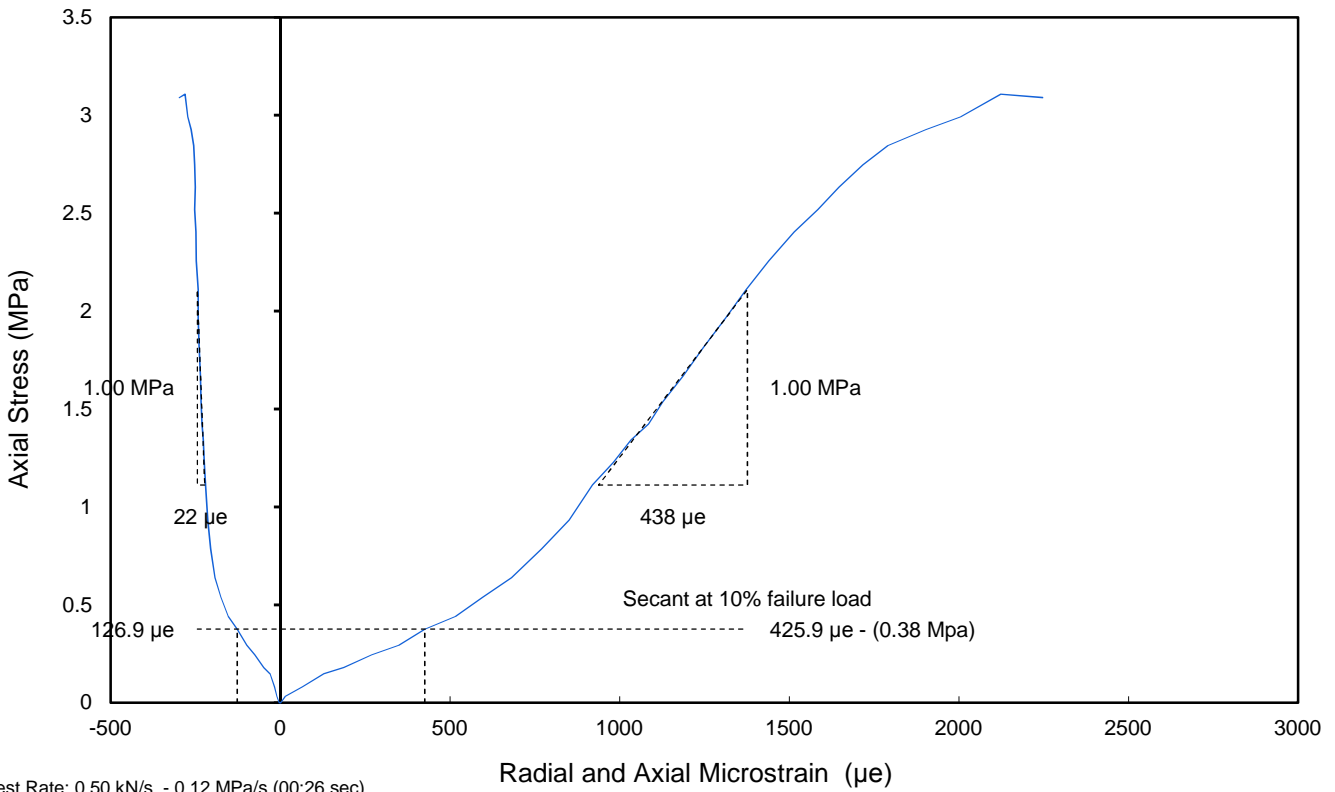
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 80°

Sample type **C**

Date tested: 04/07/2019

Test results





Unconfined Compressive Strength	3.11 MPa
Young's Modulus (tangential at 50% failure load)	2.28 GPa
Poisson's Ratio (tangential at 50% failure load)	0.05
Young's Modulus (secant at 10% failure load)	0.883 GPa
Poisson's Ratio (secant at 10% failure load)	0.30






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: GEO / 29572	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71904		15.50-15.70	White CHALK	25	85.8	1.89	1.51	99.60	200.10	2.0	24.9	3.2		24/07/19	
R71904		19.60-20.00	White CHALK	24	90.6	1.95	1.57	100.60	274.50	2.7	14.9	1.87		24/07/19	
R71904		23.10-23.39	White CHALK	24	97.0	2.00	1.61	99.30	224.50	2.3	4.4	0.568		24/07/19	Failed on weakness plane
R71904		35.98	White CHALK	24	72.2	1.76	1.42	99.50	244.60	2.5	25.8	3.32		31/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <b style="text-align: center;">GEO / 29573 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71904	Description: White CHALK
Sample Ref.: -	
Depth (m): 15.50-15.70	

Diameter	99.60 mm
Height	200.10 mm
Bulk Density	1.89 Mg/m ³
Dry Density	1.51 Mg/m ³
Water Content	25 %
Degree of Saturation: 85.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

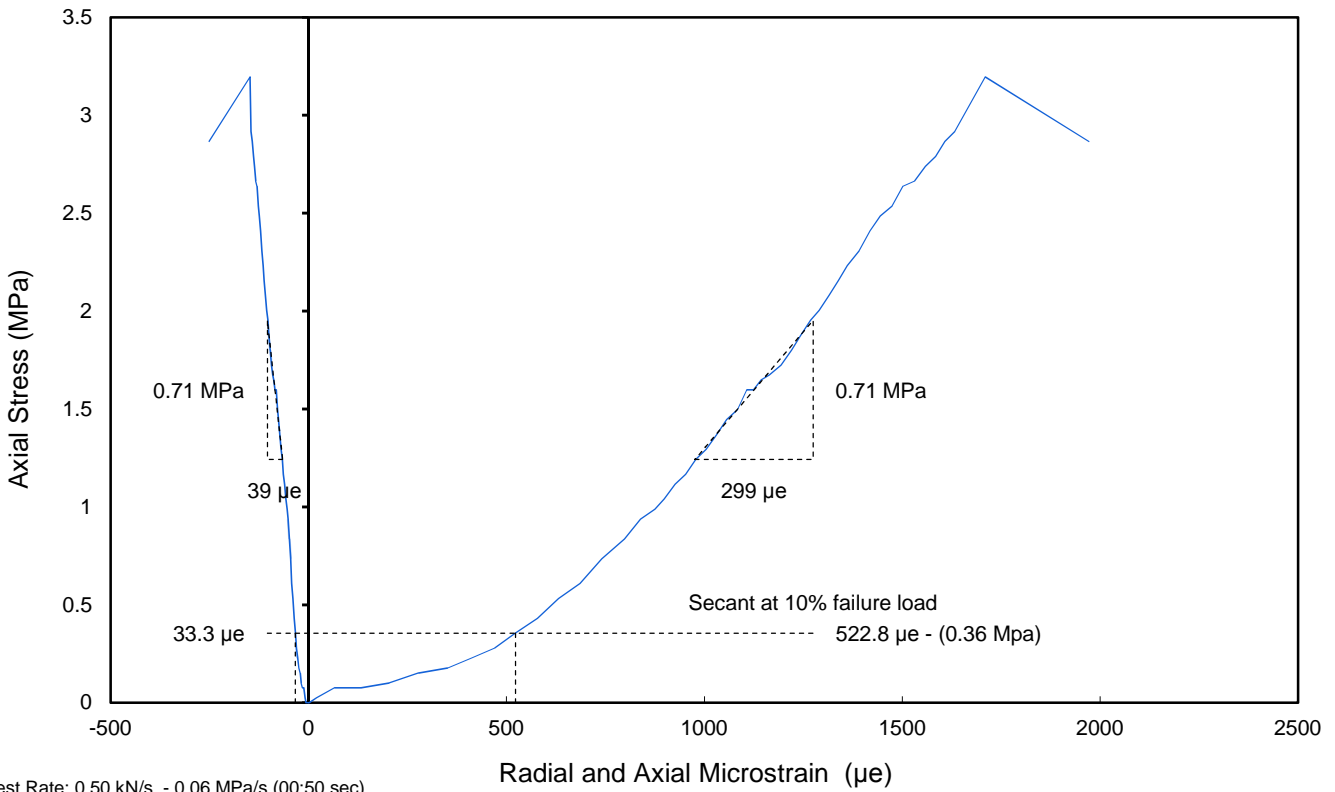
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110°

Sample type **C**

Date tested: 24/07/2019

Test results

Unconfined Compressive Strength	3.2 MPa
Young's Modulus (tangential at 50% failure load)	2.38 GPa
Poisson's Ratio (tangential at 50% failure load)	0.13
Young's Modulus (secant at 10% failure load)	0.679 GPa
Poisson's Ratio (secant at 10% failure load)	0.06



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <p style="text-align: center;">GEO / 29573</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71904	Description: White CHALK
Sample Ref.: -	
Depth (m): 19.60-20.00	

Diameter	100.60 mm
Height	274.50 mm
Bulk Density	1.95 Mg/m ³
Dry Density	1.57 Mg/m ³
Water Content	24 %
Degree of Saturation: 90.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

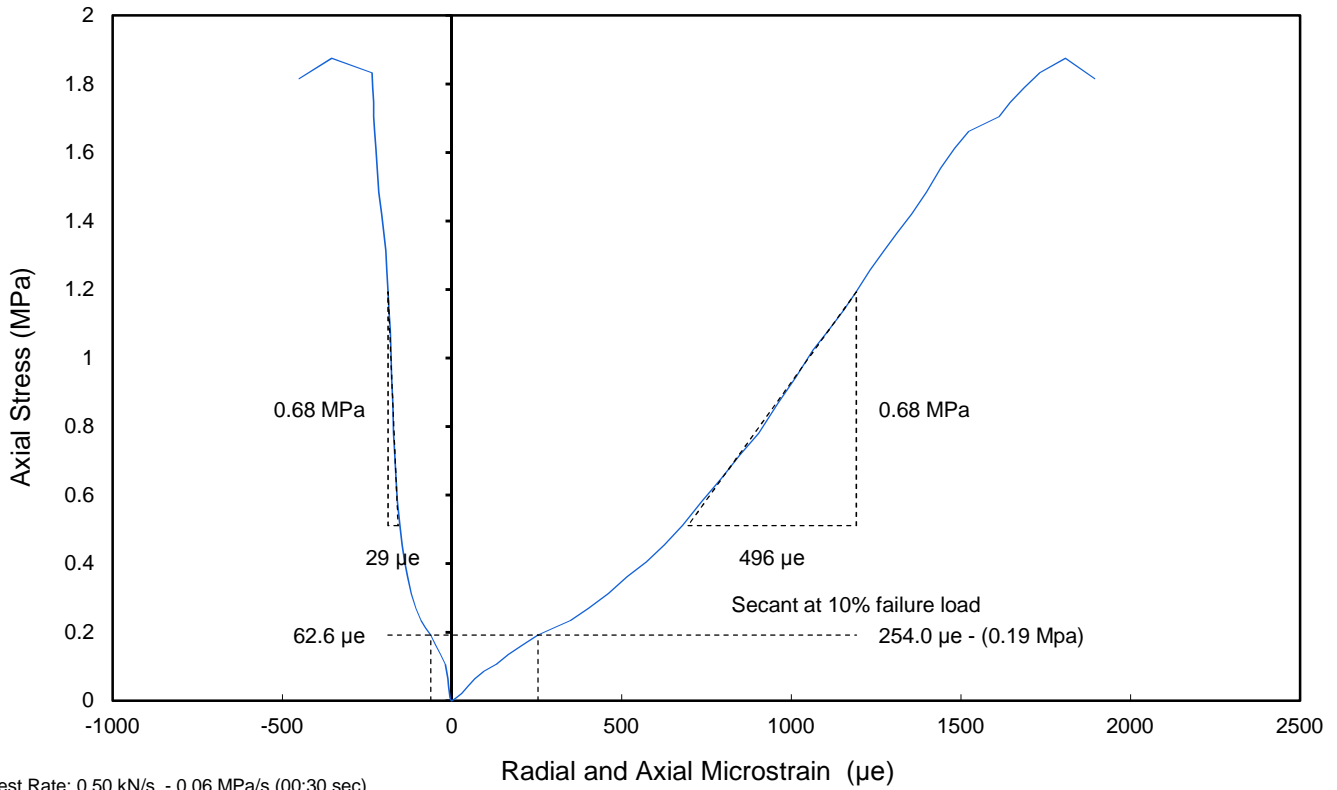
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110°

Sample type **C**

Date tested: 24/07/2019

Test results

Unconfined Compressive Strength	1.87 MPa
Young's Modulus (tangential at 50% failure load)	1.37 GPa
Poisson's Ratio (tangential at 50% failure load)	0.06
Young's Modulus (secant at 10% failure load)	0.755 GPa
Poisson's Ratio (secant at 10% failure load)	0.25



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <p style="text-align: center;">GEO / 29573</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71904	Description: White CHALK
Sample Ref.: -	
Depth (m): 35.98	

Diameter	99.50 mm
Height	244.60 mm
Bulk Density	1.76 Mg/m ³
Dry Density	1.42 Mg/m ³
Water Content	24 %
Degree of Saturation: 72.2 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

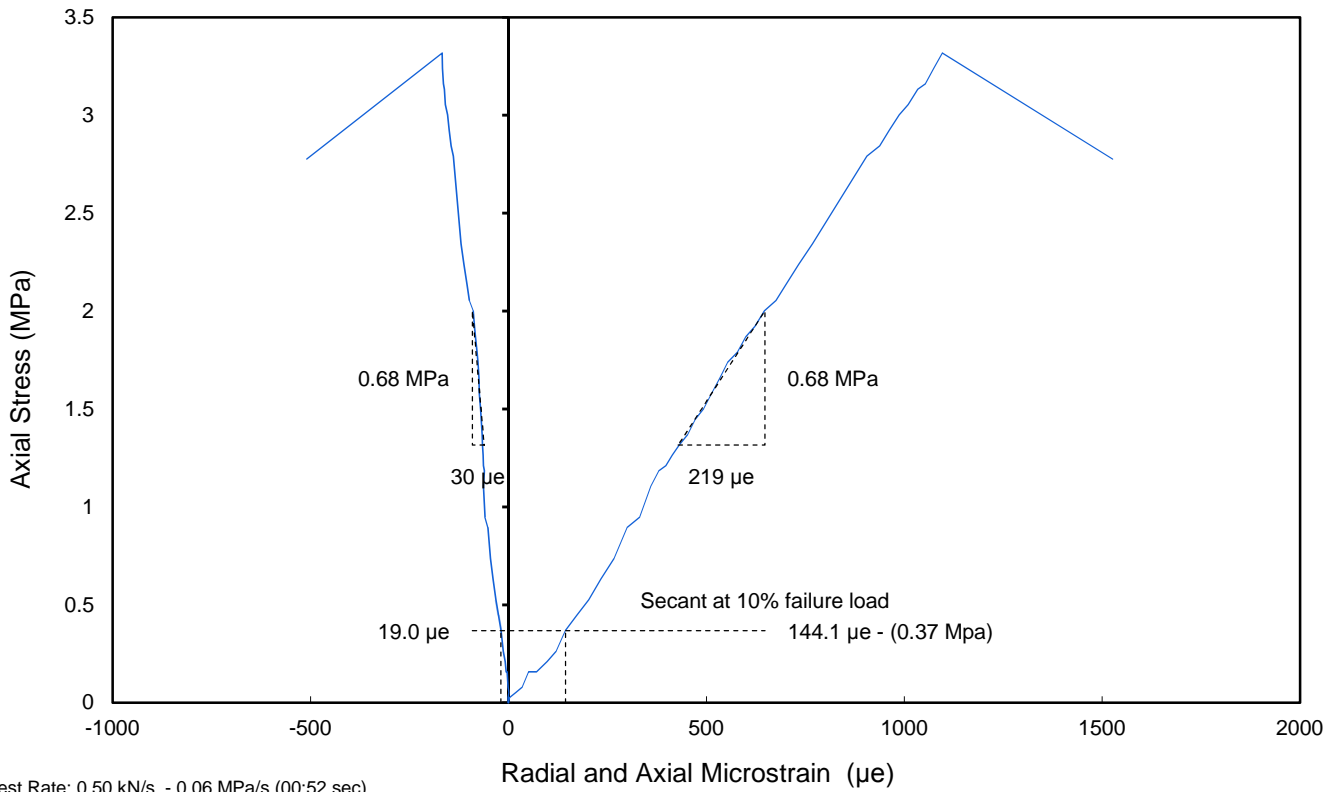
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Sample type **C**

Date tested: 31/07/2019

Test results









Unconfined Compressive Strength	3.32 MPa
Young's Modulus (tangential at 50% failure load)	3.13 GPa
Poisson's Ratio (tangential at 50% failure load)	0.14
Young's Modulus (secant at 10% failure load)	2.56 GPa
Poisson's Ratio (secant at 10% failure load)	0.13






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <p style="text-align: center;">GEO / 29573</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70202	C22282	11.80-12.00	White CHALK	26	100	2.16	1.72	99.80	202.40	2.0	17.8	2.28		02/07/19	Failed on weakness
R70202	C22273	14.45-14.63	White CHALK	26	100	2.09	1.66	91.80	185.60	2.0	7.2	1.09		02/07/19	Failed on weakness
R70202	C22269	16.07-16.30	White CHALK	23	100	2.12	1.72	96.80	193.60	2.0	12.5	1.7		02/07/19	Failed on weakness
R70202	C22279	18.95-19.34	White CHALK	25	98.0	2.00	1.60	97.50	263.40	2.7	29.6	3.96		02/07/19	
R70202	C22271	20.45-20.76	White CHALK	25	96.3	1.98	1.58	94.30	221.60	2.3	13.1	1.88		02/07/19	
R70202	C22283	26.05-26.23	White CHALK	19	95.5	2.10	1.77	99.60	200.40	2.0	17.5	2.25		02/07/19	
R70202	C22280	28.51-28.71	White CHALK	21	100	2.10	1.74	98.60	198.50	2.0	31.9	4.18		02/07/19	
R70202	C22293	30.68-30.98	White CHALK	21	100	2.11	1.75	96.40	240.70	2.5	36.9	5.06		02/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: <b style="text-align: center;">GEO / 29481 Project Name: <b style="text-align: center;">A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

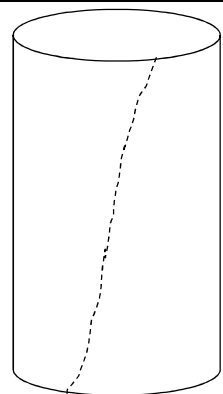
Borehole Ref.: R70202 Sample Ref.: C22282 Depth (m): 11.80-12.00	Description: White CHALK
--	-----------------------------

Diameter	99.80 mm
Height	202.40 mm
Bulk Density	2.16 Mg/m ³
Dry Density	1.72 Mg/m ³
Water Content	26 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

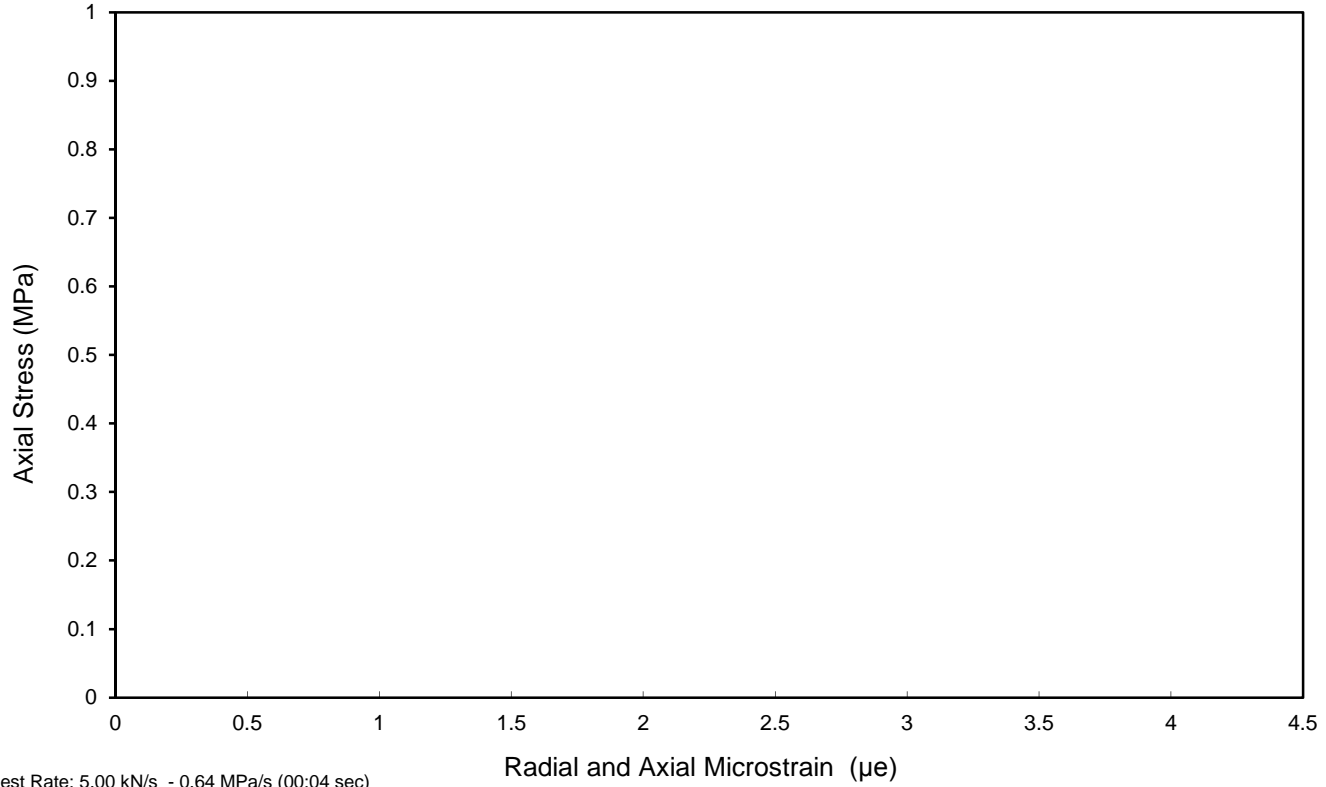
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 02/07/2019

Test results




Unconfined Compressive Strength	2.28 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 5.00 kN/s - 0.64 MPa/s (00:04 sec)

Remarks: Failed on weakness

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

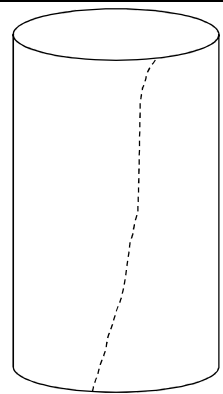
Borehole Ref.: R70202 Sample Ref.: C22273 Depth (m): 14.45-14.63	Description: White CHALK
--	-----------------------------

Diameter	91.80 mm
Height	185.60 mm
Bulk Density	2.09 Mg/m ³
Dry Density	1.66 Mg/m ³
Water Content	26 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

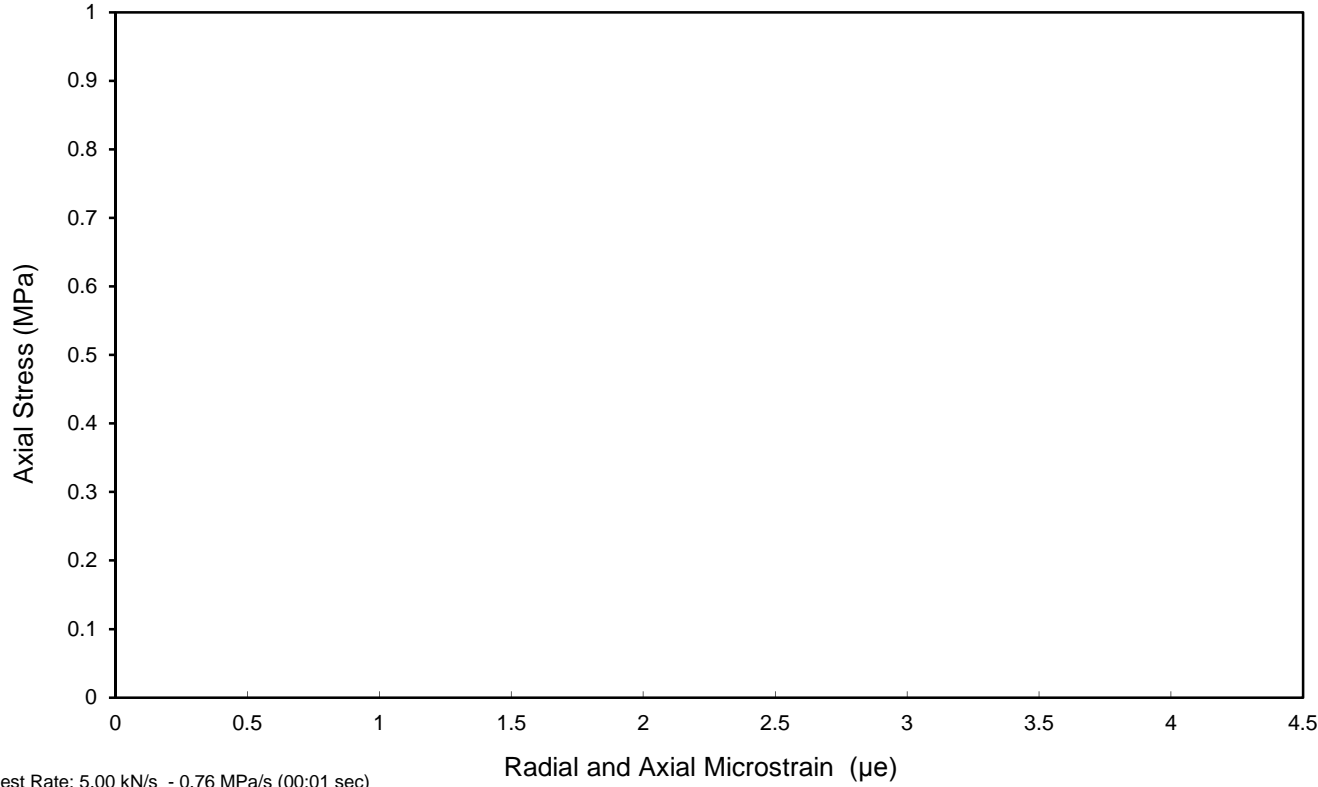
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type	C
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Date tested: 02/07/2019

Test results




Unconfined Compressive Strength	1.09 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 5.00 kN/s - 0.76 MPa/s (00:01 sec)

Remarks: Failed on weakness

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

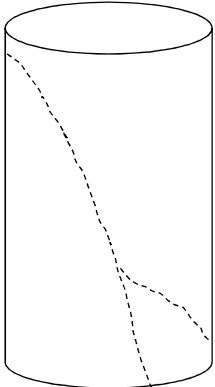
Borehole Ref.: R70202 Sample Ref.: C22269 Depth (m): 16.07-16.30	Description: White CHALK
--	-----------------------------

Diameter	96.80 mm
Height	193.60 mm
Bulk Density	2.12 Mg/m ³
Dry Density	1.72 Mg/m ³
Water Content	23 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

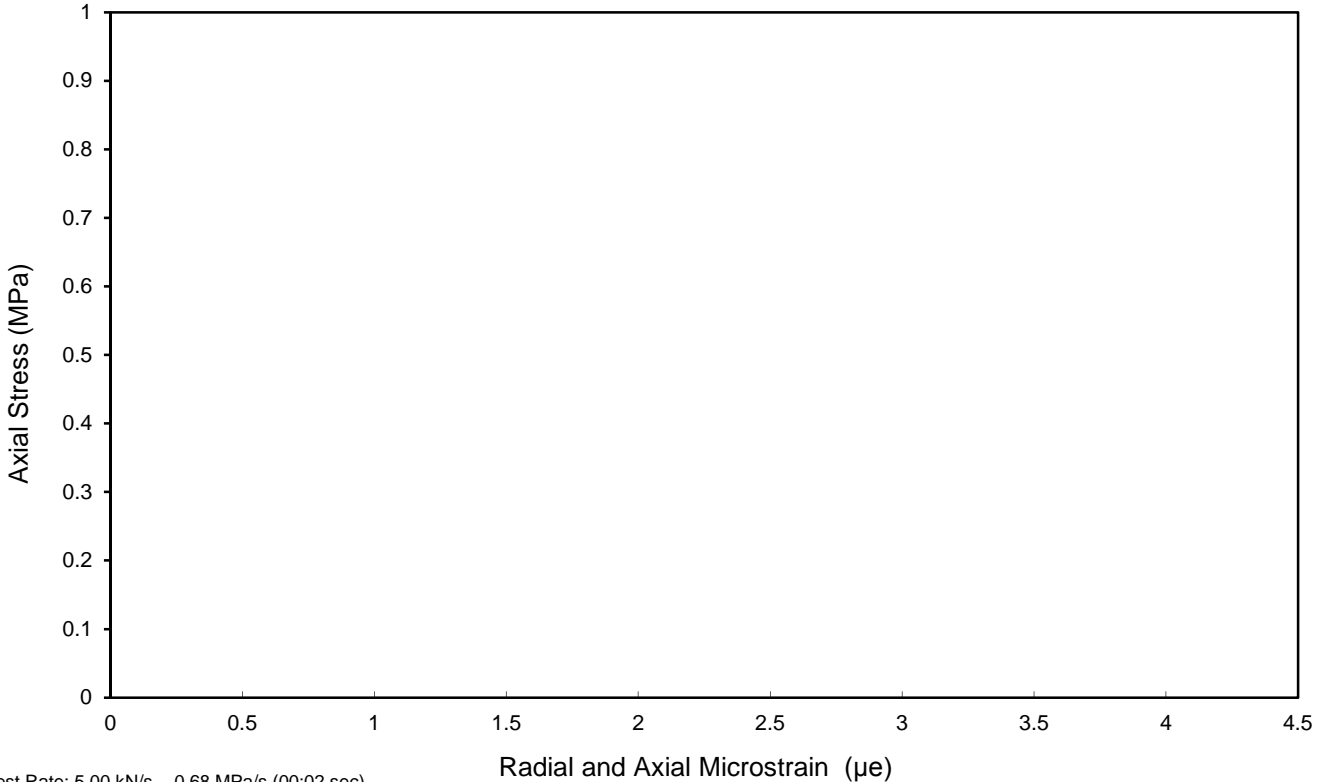
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 65°

Sample type	C
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Date tested: 02/07/2019

Test results



Unconfined Compressive Strength	1.7 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 5.00 kN/s - 0.68 MPa/s (00:02 sec)

Remarks: Failed on weakness

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	
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UNCONFINED COMPRESSIVE STRENGTH

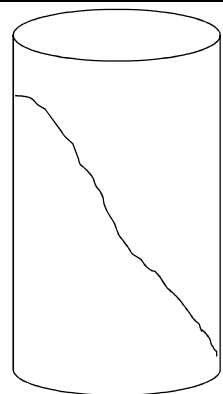
Borehole Ref.: R70202 Sample Ref.: C22279 Depth (m): 18.95-19.34	Description: White CHALK
--	-----------------------------

Diameter	97.50 mm
Height	263.40 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.60 Mg/m ³
Water Content	25 %
Degree of Saturation: 98.0 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

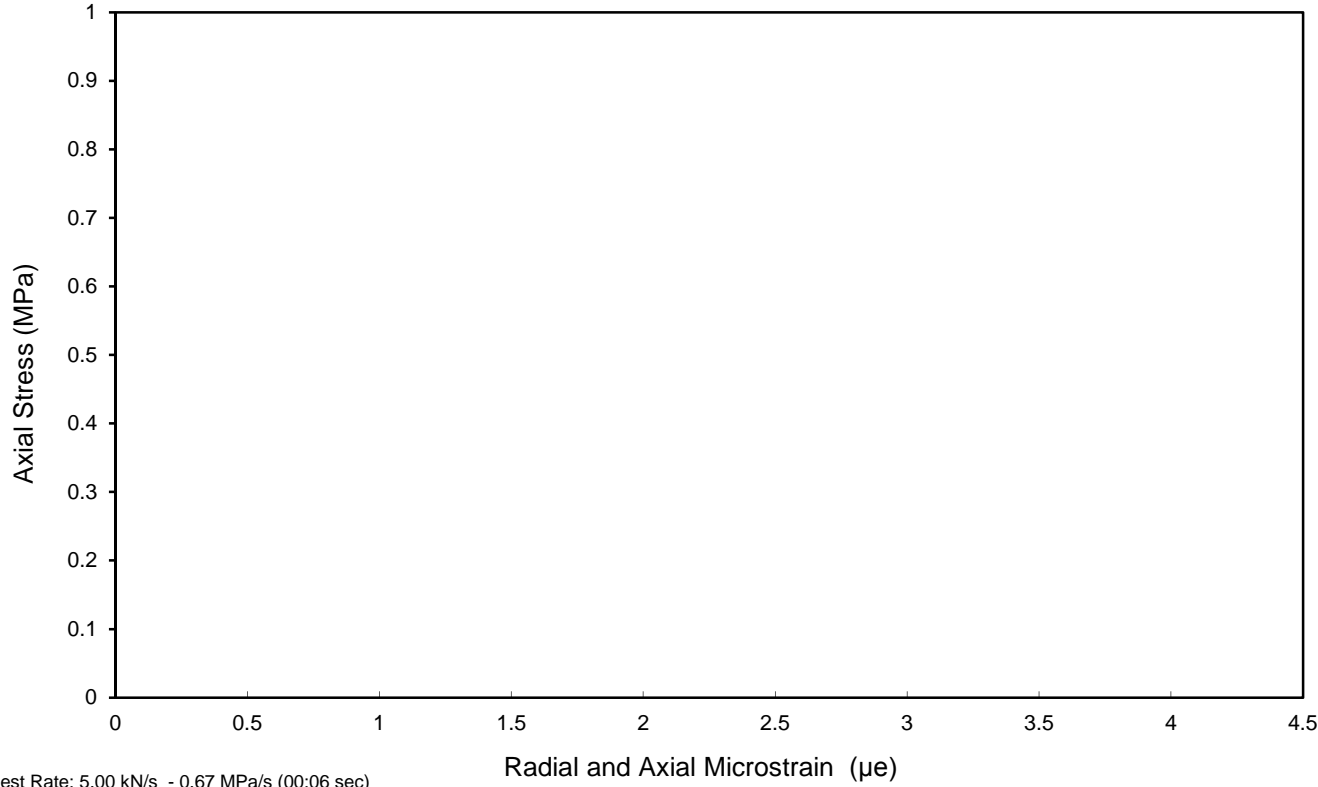
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	C
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Date tested: 02/07/2019

Test results

Unconfined Compressive Strength	3.96 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS

Borehole Ref.: R70202	Description: White CHALK
Sample Ref.: C22271	
Depth (m): 20.45-20.76	

Diameter	94.30 mm
Height	221.60 mm
Bulk Density	1.98 Mg/m ³
Dry Density	1.58 Mg/m ³
Water Content	25 %
Degree of Saturation: 96.3 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

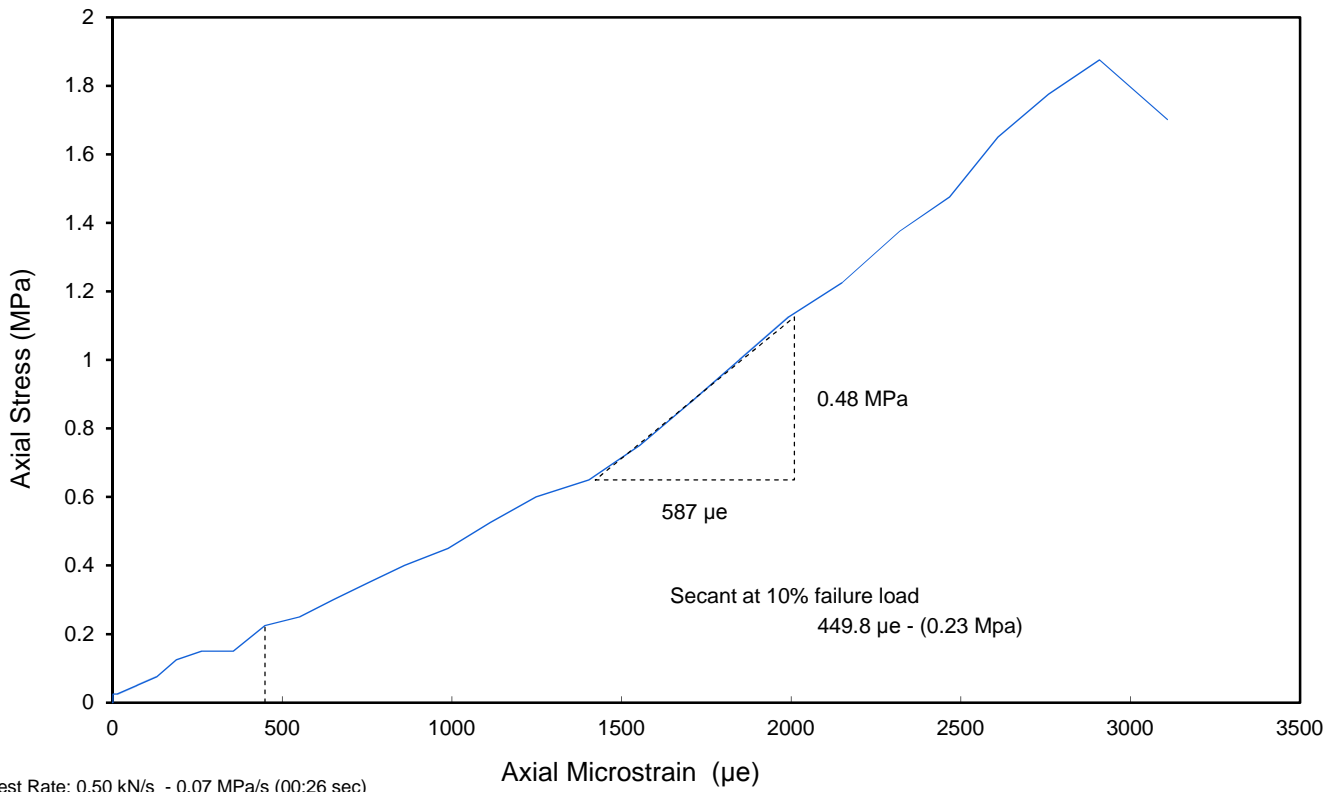
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 110°

Sample type: **C**

Date tested: 02/07/2019

Test results

Unconfined Compressive Strength	1.88 MPa
Young's Modulus (tangential at 50% failure load)	0.809 GPa
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	0.5 GPa
Poisson's Ratio (secant at 10% failure load)	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: <p style="text-align: center;">GEO / 29481</p>	
	Project Name: <p style="text-align: center;">A303 AMESBURY TO BERWICK DOWN PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

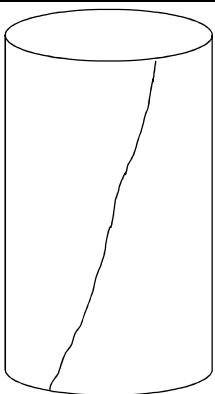
Borehole Ref.: R70202 Sample Ref.: C22283 Depth (m): 26.05-26.23	Description: White CHALK
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Diameter	99.60 mm
Height	200.40 mm
Bulk Density	2.10 Mg/m ³
Dry Density	1.77 Mg/m ³
Water Content	19 %
Degree of Saturation: 95.5 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

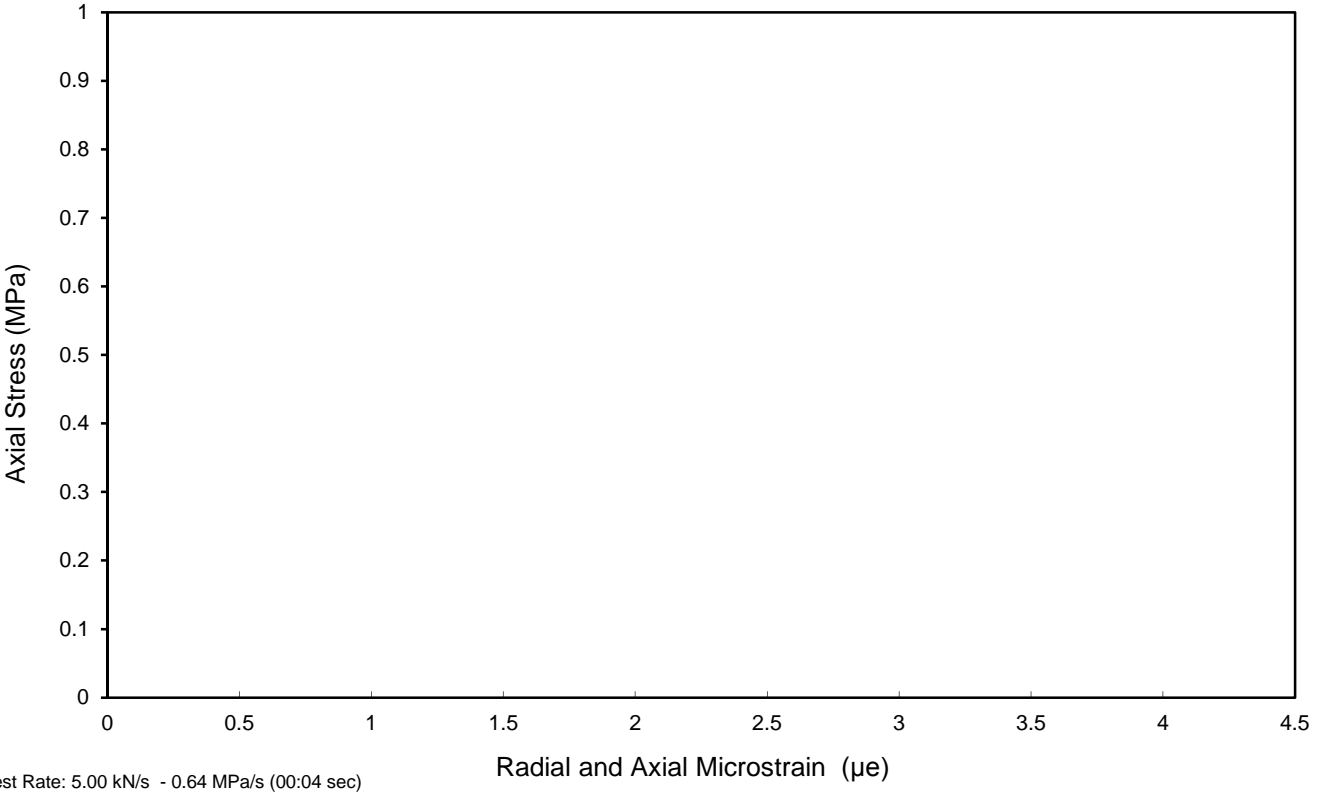
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 02/07/2019

Test results

Unconfined Compressive Strength	2.25 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS

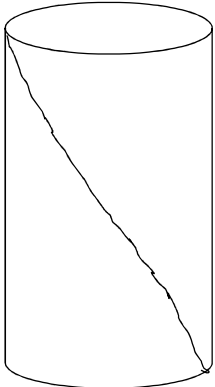
Borehole Ref.: R70202	Description: White CHALK
Sample Ref.: C22280	
Depth (m): 28.51-28.71	

Diameter	98.60 mm
Height	198.50 mm
Bulk Density	2.10 Mg/m ³
Dry Density	1.74 Mg/m ³
Water Content	21 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

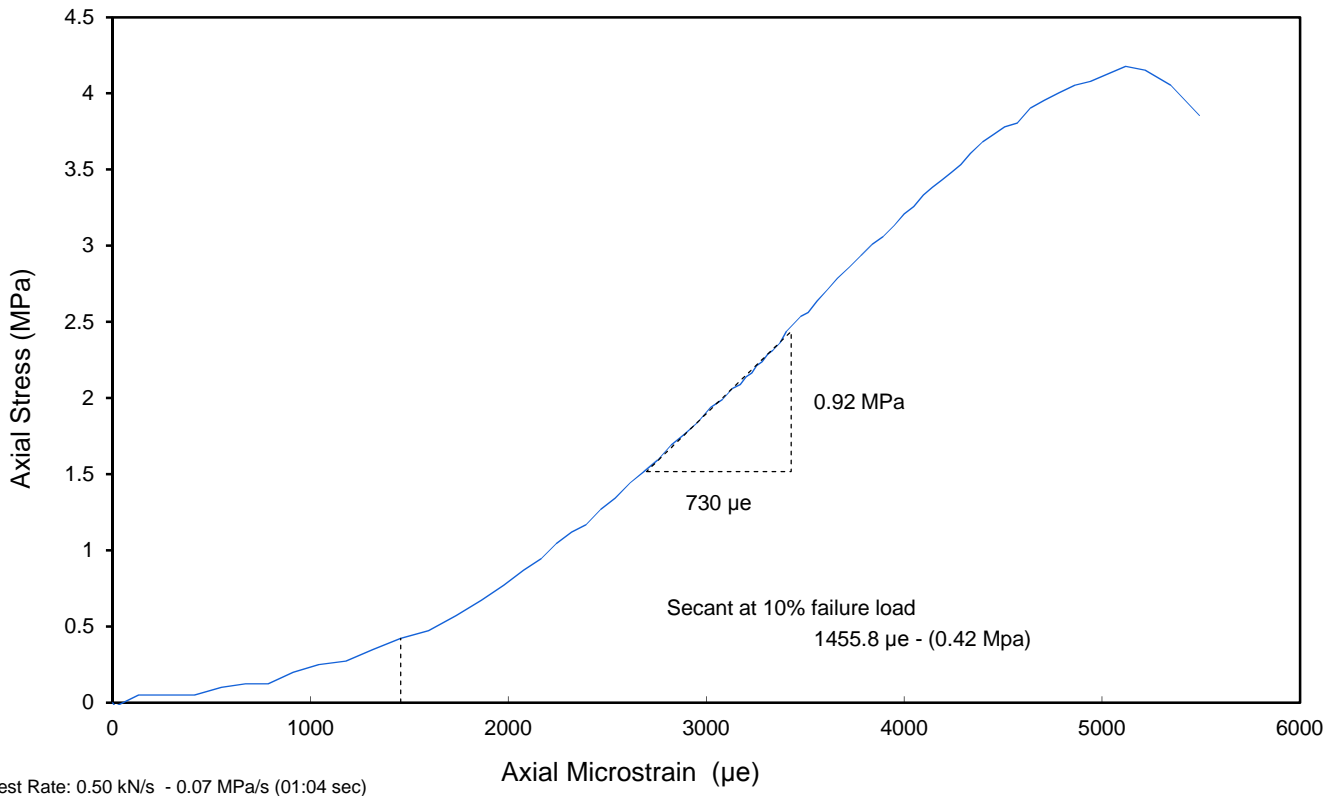
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 65°

Sample type	C
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Date tested: 02/07/2019

Test results

Unconfined Compressive Strength	4.18 MPa
Young's Modulus (tangential at 50% failure load)	1.26 GPa
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	0.29 GPa
Poisson's Ratio (secant at 10% failure load)	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	
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UNCONFINED COMPRESSIVE STRENGTH

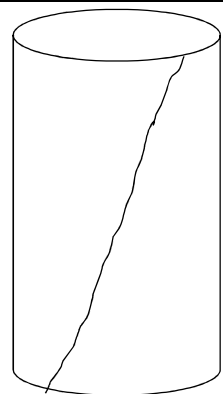
Borehole Ref.: R70202 Sample Ref.: C22293 Depth (m): 30.68-30.98	Description: White CHALK
--	-----------------------------

Diameter	96.40 mm
Height	240.70 mm
Bulk Density	2.11 Mg/m ³
Dry Density	1.75 Mg/m ³
Water Content	21 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

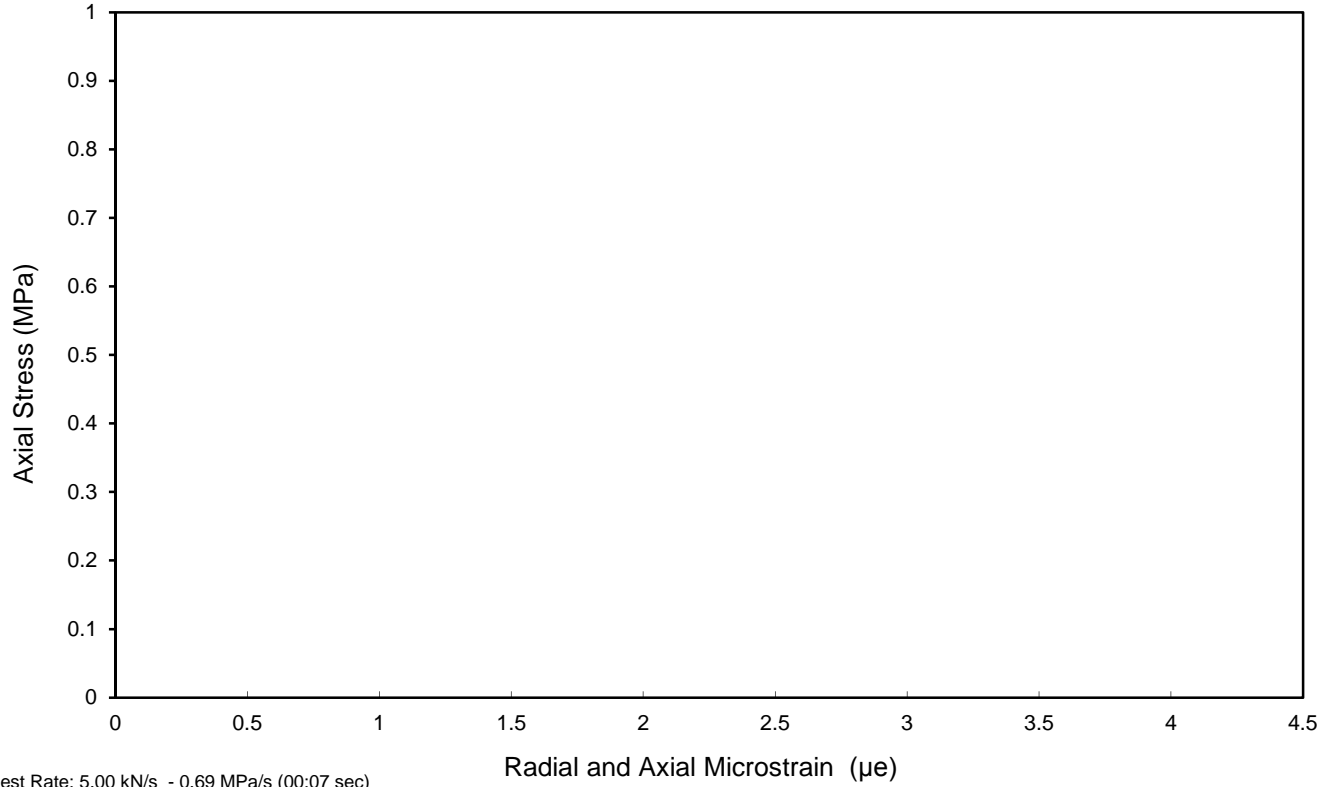
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 02/07/2019

Test results







Unconfined Compressive Strength	5.06 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 03/07/2019	Project Number: GEO / 29481 Project Name: A303 AMESBURY TO BERWICK DOWN PC197510	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70201		4.80-5.08	White CHALK	26	100	2.03	1.62	94.60	214.20	2.3	18.4	2.62		08/07/19	
R70201		12.35-12.60	White CHALK	23	94.9	2.00	1.62	98.60	221.70	2.2	23.9	3.13		08/07/19	
R70201		15.43-15.73	White CHALK	22	95.0	2.03	1.67	98.50	240.70	2.4	18.5	2.43		08/07/19	
R70201		21.21-21.95	White CHALK	27	93.9	1.93	1.52	96.10	216.30	2.3	7.4	1.02		08/07/19	
R70201		28.46-28.73	White CHALK	20	96.4	2.08	1.74	99.20	209.10	2.1	28.8	3.73		08/07/19	
R70201		38.74-38.99	White CHALK	25	100	2.06	1.65	97.60	196.50	2.0	30.9	4.13		08/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: <b style="text-align: center;">GEO / 29520 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 4.80-5.08	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

94.60 mm
214.20 mm
2.03 Mg/m ³
1.62 Mg/m ³
26 %

Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

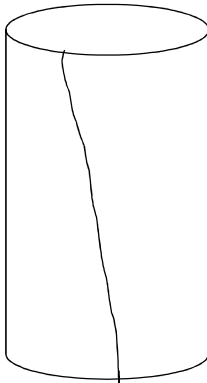
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

2.62 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing






Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 08/07/2019

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 12.35-12.60	Description: White CHALK
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Diameter
Height
Bulk Density
Dry Density
Water Content

98.60 mm
221.70 mm
2.00 Mg/m ³
1.62 Mg/m ³
23 %

Degree of Saturation: 94.9 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

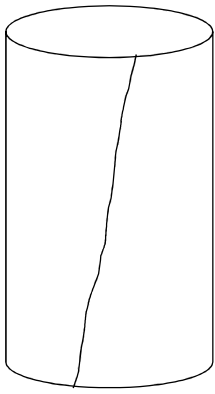
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

3.13 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing






Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 100°

Sample type	C
-------------	----------

Date tested: 08/07/2019

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 15.43-15.73	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

98.50 mm
240.70 mm
2.03 Mg/m ³
1.67 Mg/m ³
22 %

Degree of Saturation: 95.0 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

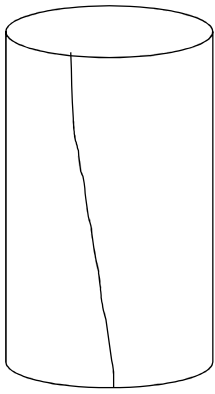
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

2.43 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing






Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 80°

Sample type	C
-------------	----------

Date tested: 08/07/2019

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 21.21-21.95	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

96.10 mm
216.30 mm
1.93 Mg/m ³
1.52 Mg/m ³
27 %

Degree of Saturation: 93.9 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

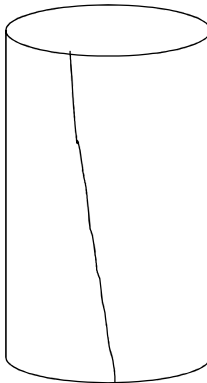
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

1.02 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing






Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 08/07/2019

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by <div style="text-align: center; margin: 5px 0;">  </div> C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 28.46-28.73	Description: White CHALK
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Diameter
Height
Bulk Density
Dry Density
Water Content

99.20 mm
209.10 mm
2.08 Mg/m ³
1.74 Mg/m ³
20 %

Degree of Saturation: 96.4 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

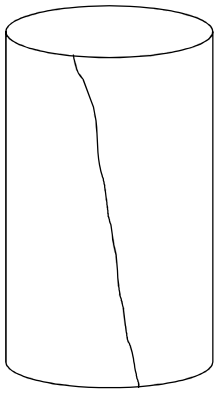
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

3.73 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing





Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 08/07/2019

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by <div style="text-align: center; height: 30px; background-color: black; width: 40px; margin: 0 auto;"></div> C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70201 Sample Ref.: - Depth (m): 38.74-38.99	Description: White CHALK
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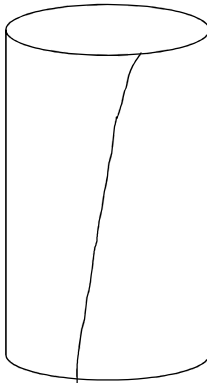
Diameter	97.60 mm
Height	196.50 mm
Bulk Density	2.06 Mg/m ³
Dry Density	1.65 Mg/m ³
Water Content	25 %

Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results




Unconfined Compressive Strength	4.13 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a

LF0879C (1000kN) compression frame used








Failure Sketch		
Mode of failure: Diagonal shearing		
		
Solid lines for material failures. Dashed lines for apparent weakness failure.		
Angle of foliation/Horizontal: n/a Angle of shear plane/Horizontal: 100°		
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 70%; padding: 2px;">Sample type</td> <td style="width: 30%; padding: 2px; text-align: center;">C</td> </tr> </table>	Sample type	C
Sample type	C	

Date tested: 08/07/2019




Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 10/07/2019	Project Number: GEO / 29520 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71901	C22660	23.35-23.71	White CHALK	25	98.1	2.00	1.60	100.40	267.80	2.7	20.2	2.55		11/07/19	
R71901	C22662	30.00-30.50	White CHALK	26	95.4	1.96	1.56	100.70	245.70	2.4	15.4	1.93		11/07/19	
R71902	C23122	15.06-15.39	White CHALK	29	100	1.95	1.51	100.40	223.40	2.2	16.2	2.05		11/07/19	
R71902	C23117	20.40-20.60	White CHALK	25	95.5	1.98	1.58	99.60	201.20	2.0	26.2	3.36		11/07/19	
R71902	C23103	25.04-25.40	White CHALK	28	100	2.00	1.56	98.40	232.60	2.4	15.4	2.03		11/07/19	
R71902	C23104	27.33-27.59	White CHALK	26	95.0	1.95	1.55	100.50	224.70	2.2	25.2	3.18		11/07/19	
R71902	C23123	35.87-36.12	White CHALK	26	98.6	1.99	1.59	98.10	211.50	2.2	17.0	2.25		11/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R71901	Description: White CHALK
Sample Ref.:	C22660	
Depth (m):	23.35-23.71	

Diameter	100.40 mm
Height	267.80 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.60 Mg/m ³
Water Content	25 %
Degree of Saturation: 98.1 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

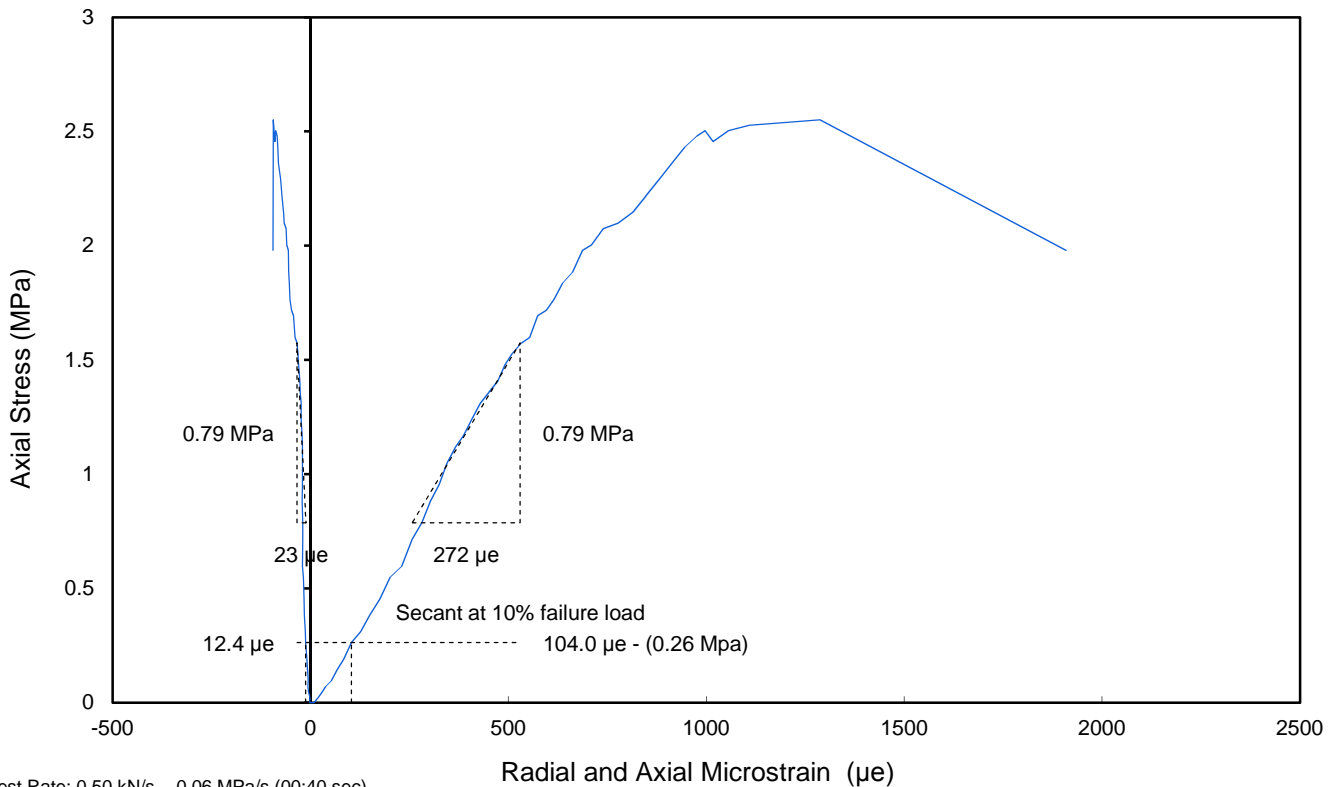
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Sample type: **C**

Date tested: 11/07/2019

Test results

Unconfined Compressive Strength	2.55 MPa
Young's Modulus (tangential at 50% failure load)	2.89 GPa
Poisson's Ratio (tangential at 50% failure load)	0.08
Young's Modulus (secant at 10% failure load)	2.52 GPa
Poisson's Ratio (secant at 10% failure load)	0.12



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71901	Description: White CHALK
Sample Ref.: C22662	
Depth (m): 30.00-30.50	

Diameter	100.70 mm
Height	245.70 mm
Bulk Density	1.96 Mg/m ³
Dry Density	1.56 Mg/m ³
Water Content	26 %
Degree of Saturation: 95.4 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

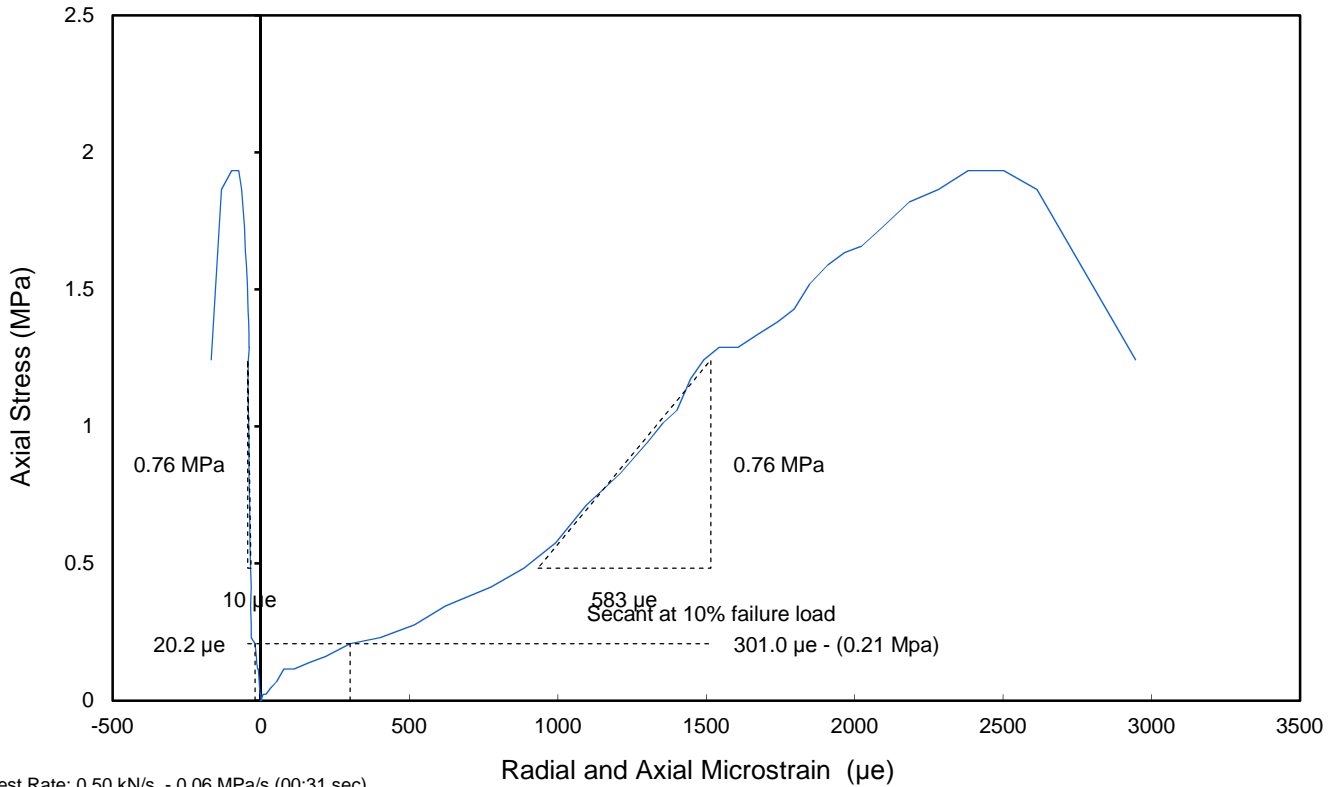
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type **C**

Date tested: 11/07/2019

Test results

Unconfined Compressive Strength	1.93 MPa
Young's Modulus (tangential at 50% failure load)	1.3 GPa
Poisson's Ratio (tangential at 50% failure load)	0.02
Young's Modulus (secant at 10% failure load)	0.688 GPa
Poisson's Ratio (secant at 10% failure load)	0.07



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNCONFINED COMPRESSIVE STRENGTH

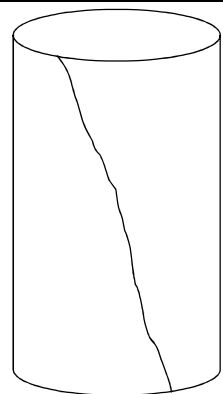
Borehole Ref.: R71902 Sample Ref.: C23122 Depth (m): 15.06-15.39	Description: White CHALK
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Diameter	100.40 mm
Height	223.40 mm
Bulk Density	1.95 Mg/m ³
Dry Density	1.51 Mg/m ³
Water Content	29 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

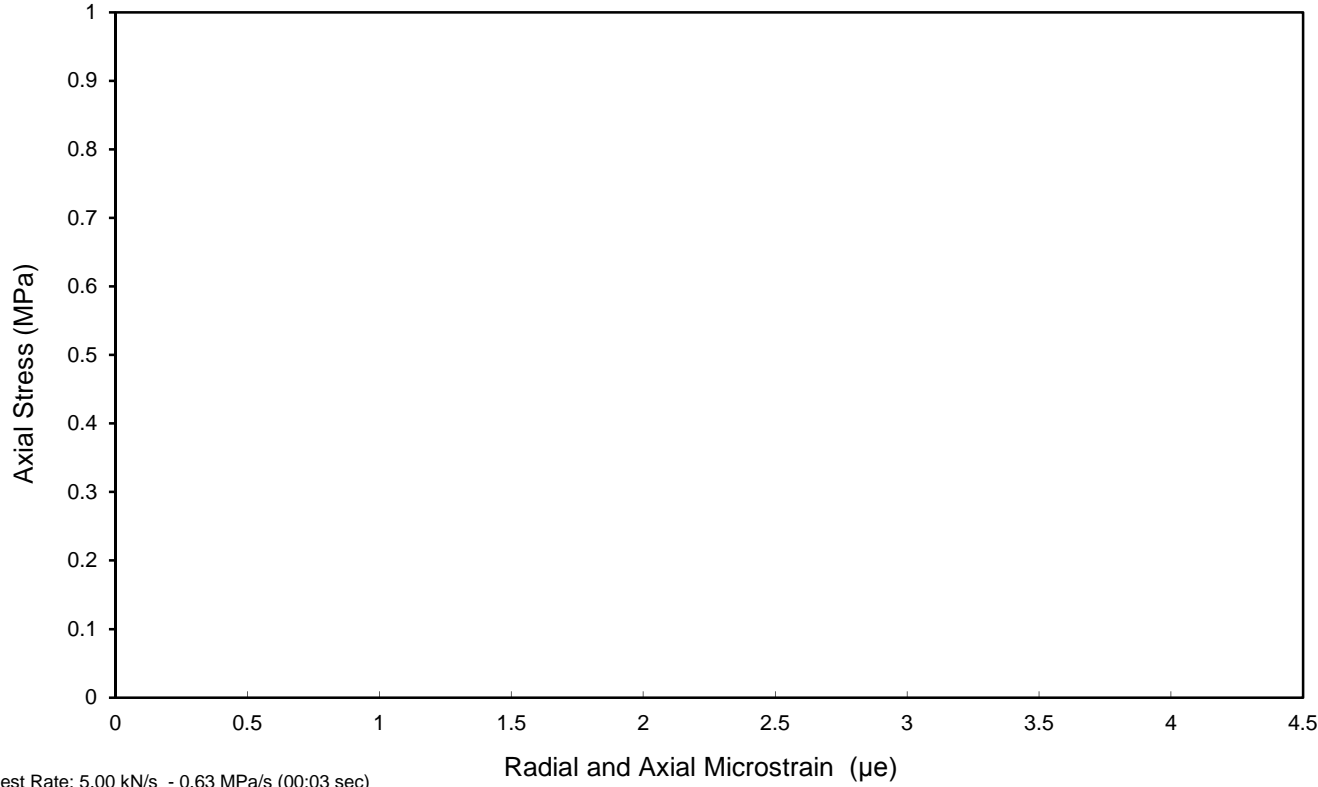
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 11/07/2019

Test results

Unconfined Compressive Strength	2.05 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

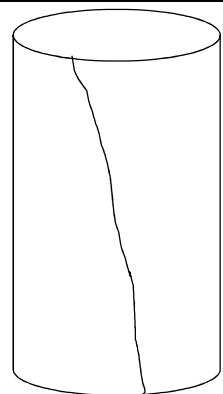
Borehole Ref.: R71902 Sample Ref.: C23117 Depth (m): 20.40-20.60	Description: White CHALK
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Diameter	99.60 mm
Height	201.20 mm
Bulk Density	1.98 Mg/m ³
Dry Density	1.58 Mg/m ³
Water Content	25 %
Degree of Saturation: 95.5 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

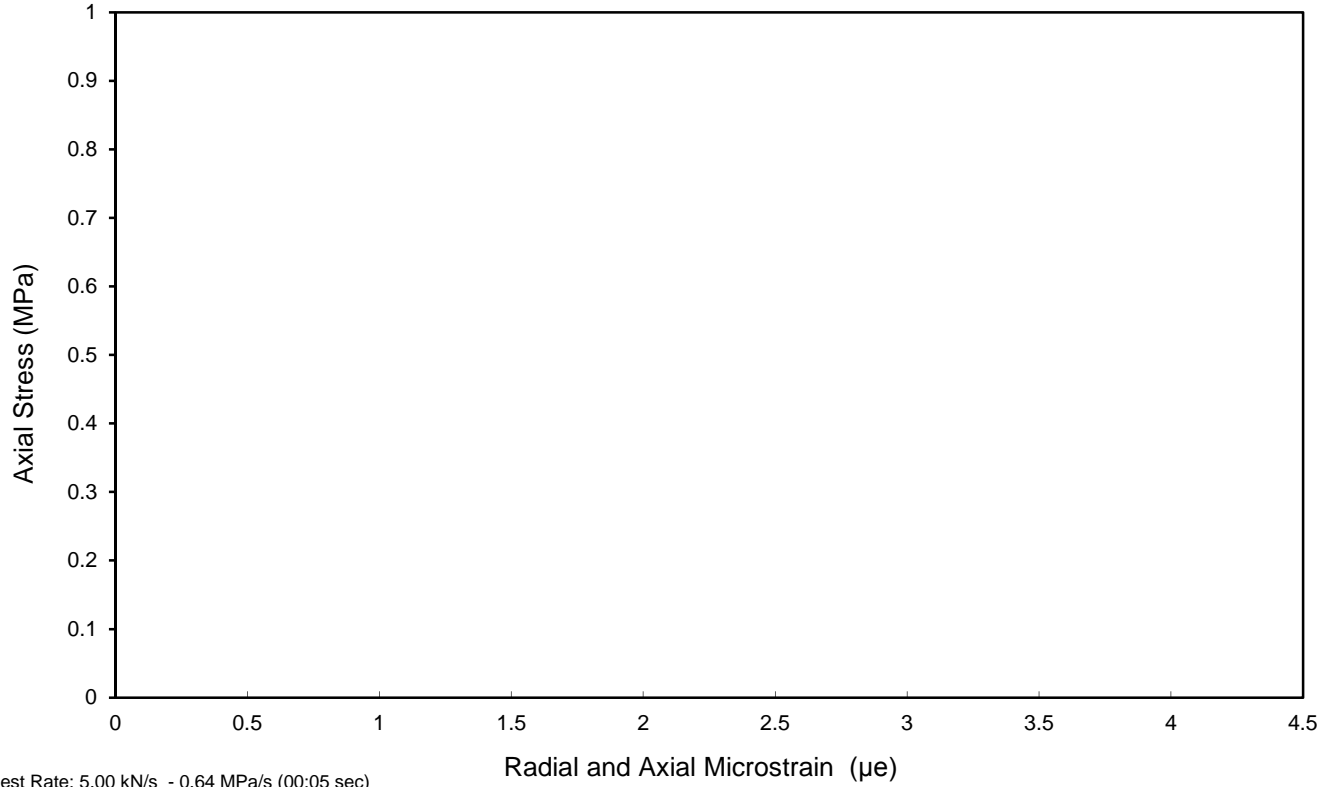
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 11/07/2019




Test results

Unconfined Compressive Strength	3.36 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 5.00 kN/s - 0.64 MPa/s (00:05 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

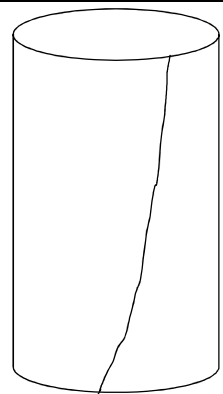
Borehole Ref.: R71902 Sample Ref.: C23103 Depth (m): 25.04-25.40	Description: White CHALK
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Diameter	98.40 mm
Height	232.60 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.56 Mg/m ³
Water Content	28 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

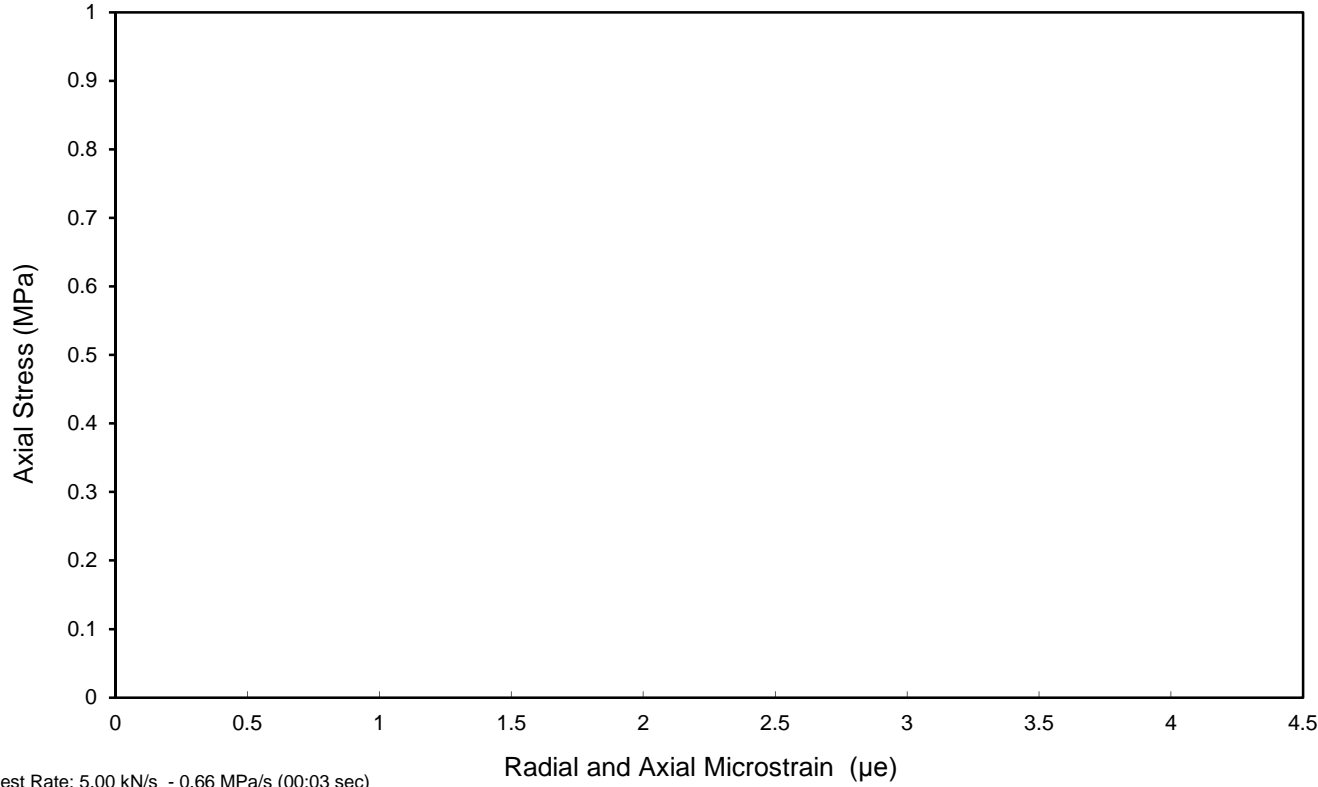
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 11/07/2019




Test results

Unconfined Compressive Strength	2.03 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 5.00 kN/s - 0.66 MPa/s (00:03 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R71902	Description: White CHALK
Sample Ref.:	C23104	
Depth (m):	27.33-27.59	

Diameter	100.50 mm
Height	224.70 mm
Bulk Density	1.95 Mg/m ³
Dry Density	1.55 Mg/m ³
Water Content	26 %
Degree of Saturation: 95.0 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

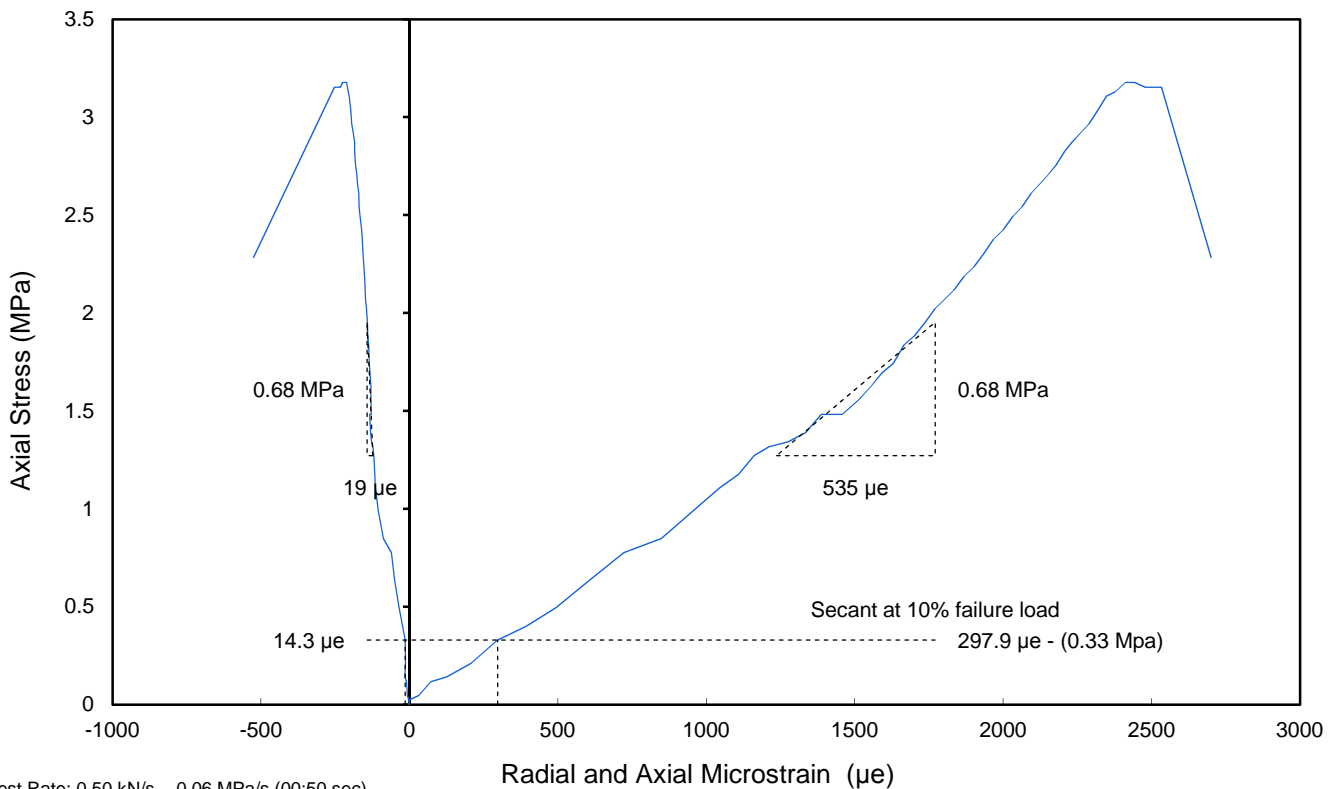
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type **C**

Date tested: 11/07/2019

Test results

Unconfined Compressive Strength	3.18 MPa
Young's Modulus (tangential at 50% failure load)	1.28 GPa
Poisson's Ratio (tangential at 50% failure load)	0.04
Young's Modulus (secant at 10% failure load)	1.11 GPa
Poisson's Ratio (secant at 10% failure load)	0.05



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

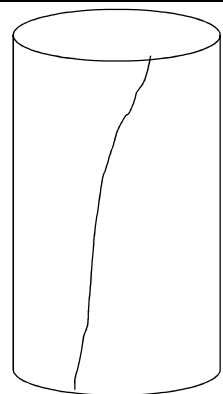
Borehole Ref.: R71902 Sample Ref.: C23123 Depth (m): 35.87-36.12	Description: White CHALK
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Diameter	98.10 mm
Height	211.50 mm
Bulk Density	1.99 Mg/m ³
Dry Density	1.59 Mg/m ³
Water Content	26 %
Degree of Saturation: 98.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

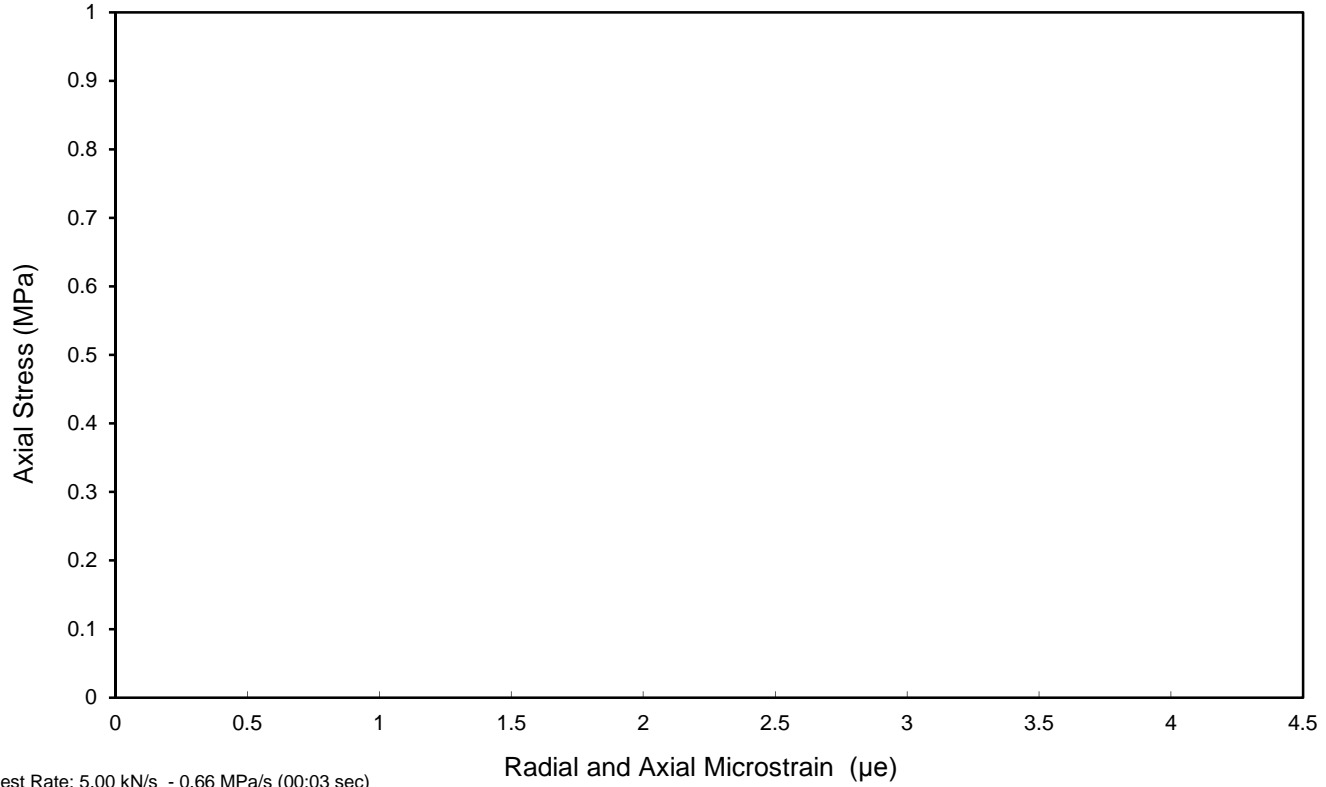
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 120°

Sample type	C
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Date tested: 11/07/2019

Test results

Unconfined Compressive Strength	2.25 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70201		13.11-13.44	White CHALK	23	96.7	2.03	1.65	99.60	200.30	2.0	26.6	3.41		31/07/19	
R70201		16.25-16.50	White CHALK	22	96.8	2.05	1.68	99.60	219.70	2.2	15.7	2.02		31/07/19	Failed on weakness plane
R70201		29.15-29.45	White CHALK	19	81.7	1.97	1.65	99.00	261.40	2.6	23.0	2.99		31/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: <b style="text-align: center;">GEO / 29632 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R70201	Description: White CHALK
Sample Ref.: -	
Depth (m): 13.11-13.44	

Diameter	99.60 mm
Height	200.30 mm
Bulk Density	2.03 Mg/m ³
Dry Density	1.65 Mg/m ³
Water Content	23 %
Degree of Saturation: 96.7 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

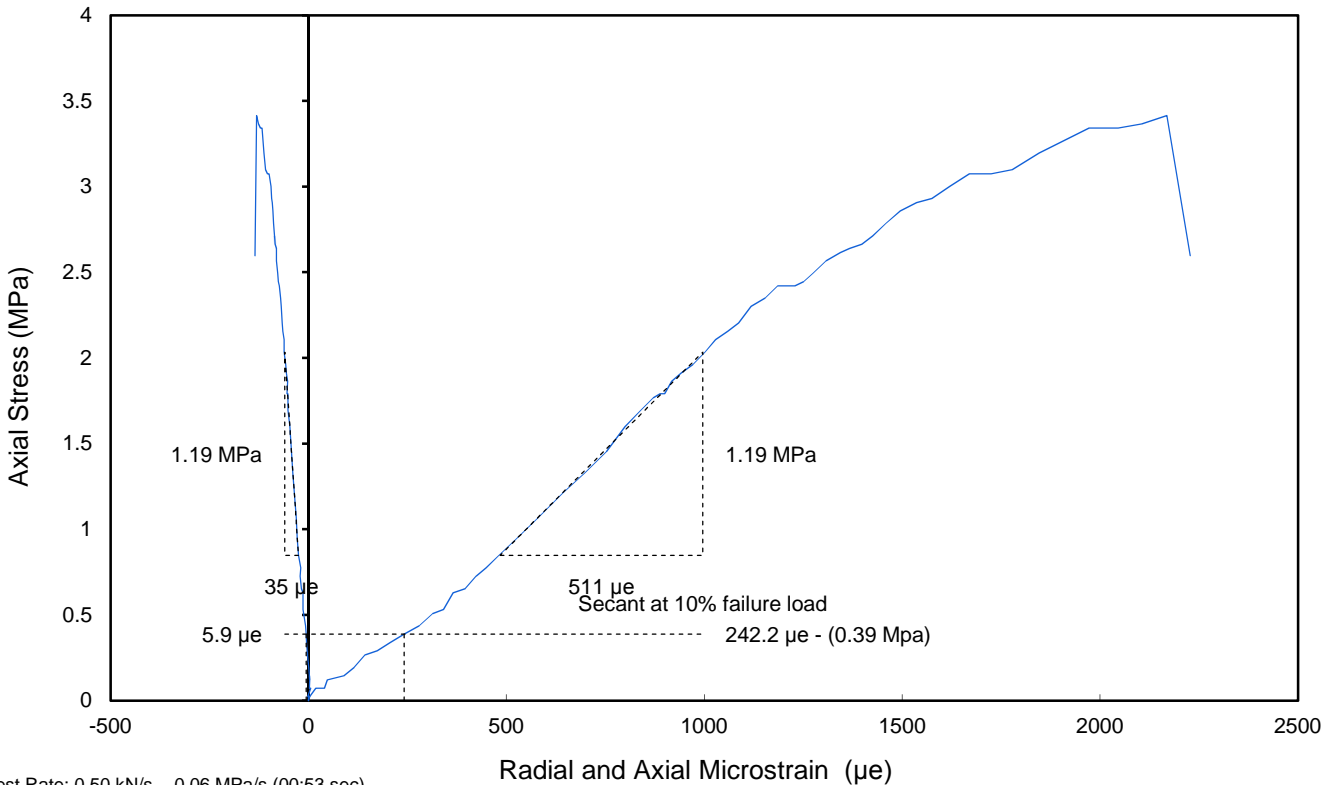
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type **C**

Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	3.41 MPa
Young's Modulus (tangential at 50% failure load)	2.32 GPa
Poisson's Ratio (tangential at 50% failure load)	0.07
Young's Modulus (secant at 10% failure load)	1.6 GPa
Poisson's Ratio (secant at 10% failure load)	0.02



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: <p style="text-align: center;">GEO / 29632</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R70201	Description: White CHALK
Sample Ref.:	-	
Depth (m):	16.25-16.50	

Diameter	99.60 mm
Height	219.70 mm
Bulk Density	2.05 Mg/m ³
Dry Density	1.68 Mg/m ³
Water Content	22 %
Degree of Saturation: 96.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

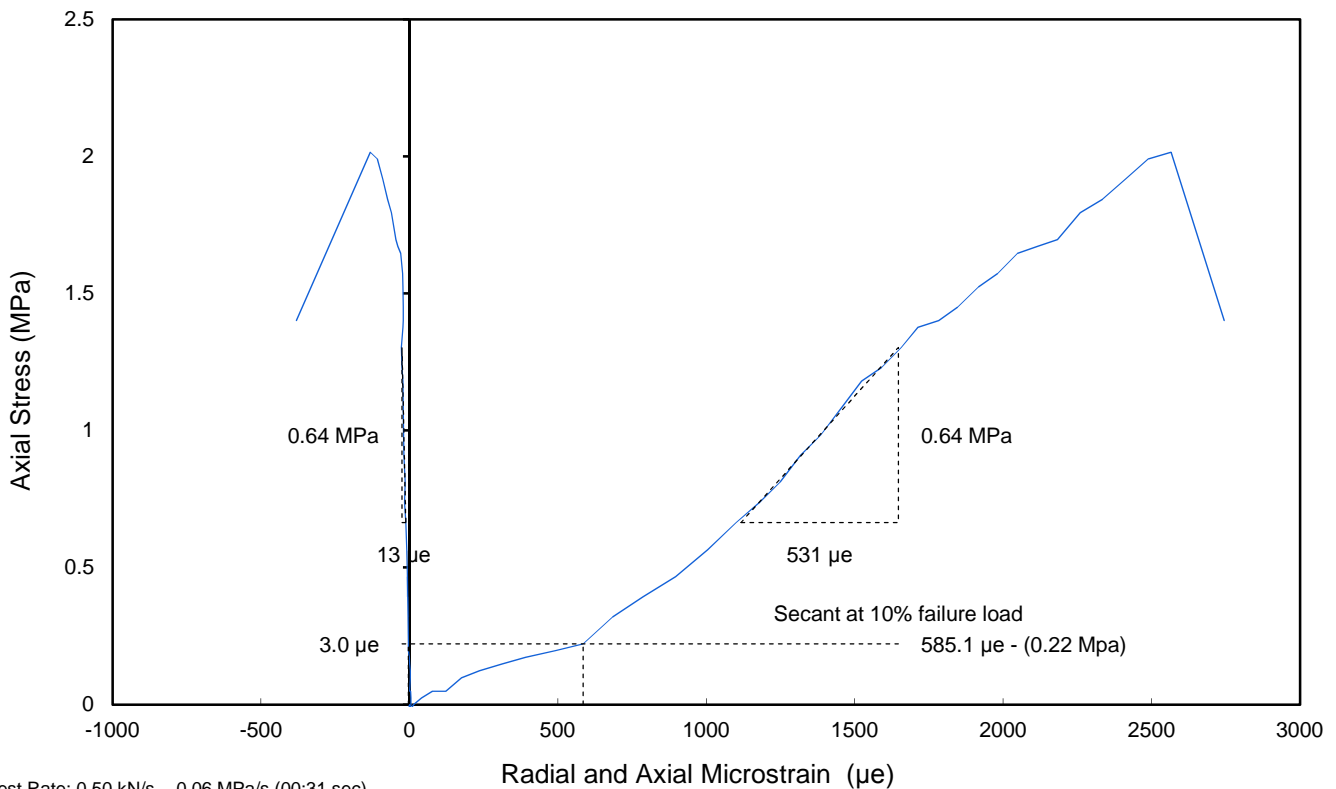
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type: **C**

Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	2.02 MPa
Young's Modulus (tangential at 50% failure load)	1.2 GPa
Poisson's Ratio (tangential at 50% failure load)	0.03
Young's Modulus (secant at 10% failure load)	0.378 GPa
Poisson's Ratio (secant at 10% failure load)	0.01



Remarks: Failed on weakness plane

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29632	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R70201	Description: White CHALK
Sample Ref.:	-	
Depth (m):	29.15-29.45	

Diameter	99.00 mm
Height	261.40 mm
Bulk Density	1.97 Mg/m ³
Dry Density	1.65 Mg/m ³
Water Content	19 %
Degree of Saturation: 81.7 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

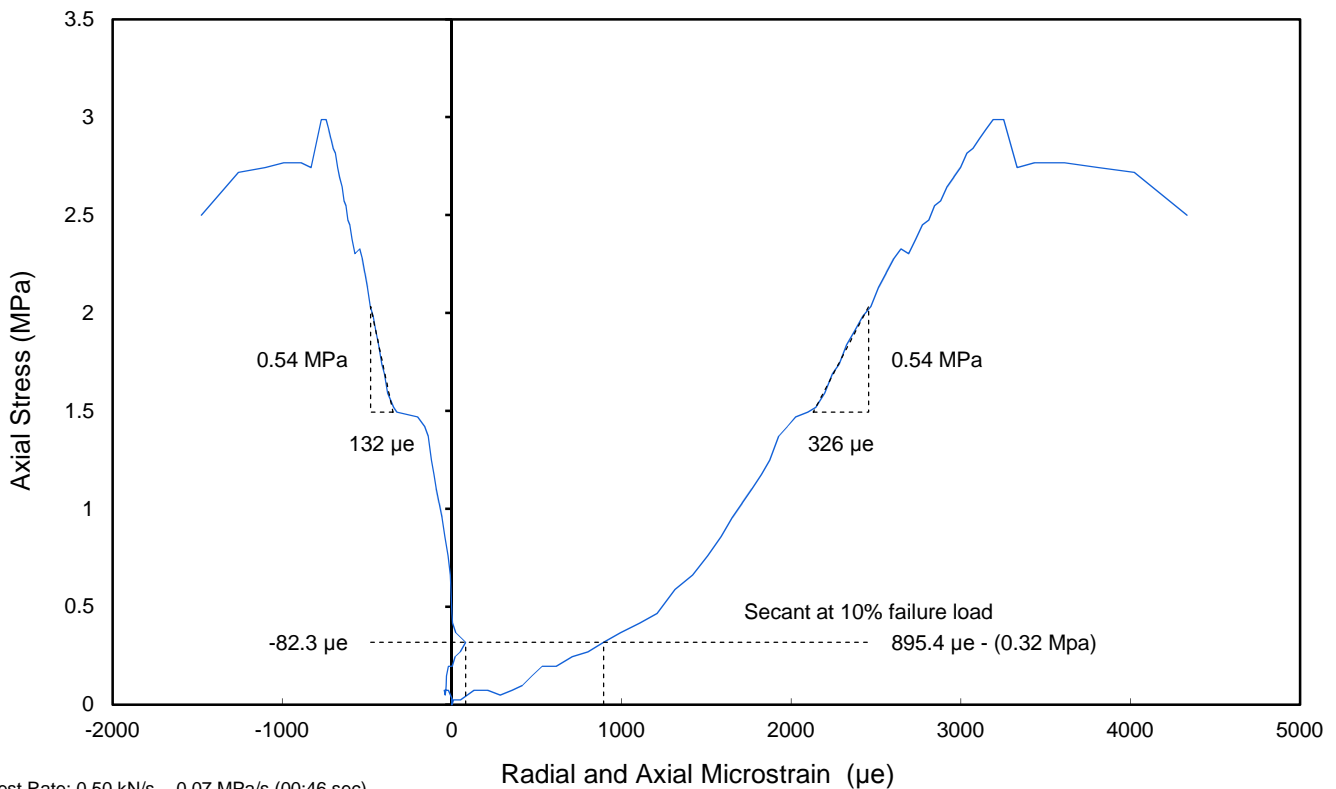
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 115°

Sample type: **C**

Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	2.99 MPa
Young's Modulus (tangential at 59% failure load)	1.65 GPa
Poisson's Ratio (tangential at 59% failure load)	0.40
Young's Modulus (secant at 10% failure load)	0.356 GPa
Poisson's Ratio (secant at 10% failure load)	n/a







Test Rate: 0.50 kN/s - 0.07 MPa/s (00:46 sec)

Remarks: Due to the nature of the sample, the raw data is noisy, probably affected by weakness in the contact area.




Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29632	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71002		8.00-8.89	White CHALK	24	95.1	2.00	1.61	99.70	270.60	2.7	16.0	2.05		31/07/19	
R71002		14.95-15.40	White CHALK	25	98.8	2.00	1.60	100.10	259.80	2.6	30.5	3.88		31/07/19	
R71002		20.95-21.21	White CHALK	21	96.8	2.05	1.69	99.50	202.30	2.0	23.7	3.05		31/07/19	
R71002		26.58-26.78	White CHALK	19	97.3	2.10	1.77	100.50	202.40	2.0	29.3	3.69		31/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: <b style="text-align: center;">GEO / 29633 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

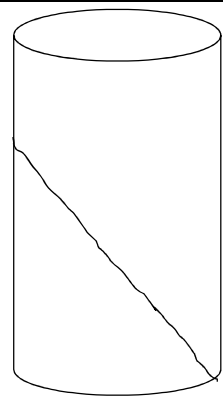
Borehole Ref.: R71002 Sample Ref.: - Depth (m): 8.00-8.89	Description: White CHALK
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Diameter	99.70 mm
Height	270.60 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.61 Mg/m ³
Water Content	24 %
Degree of Saturation: 95.1 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

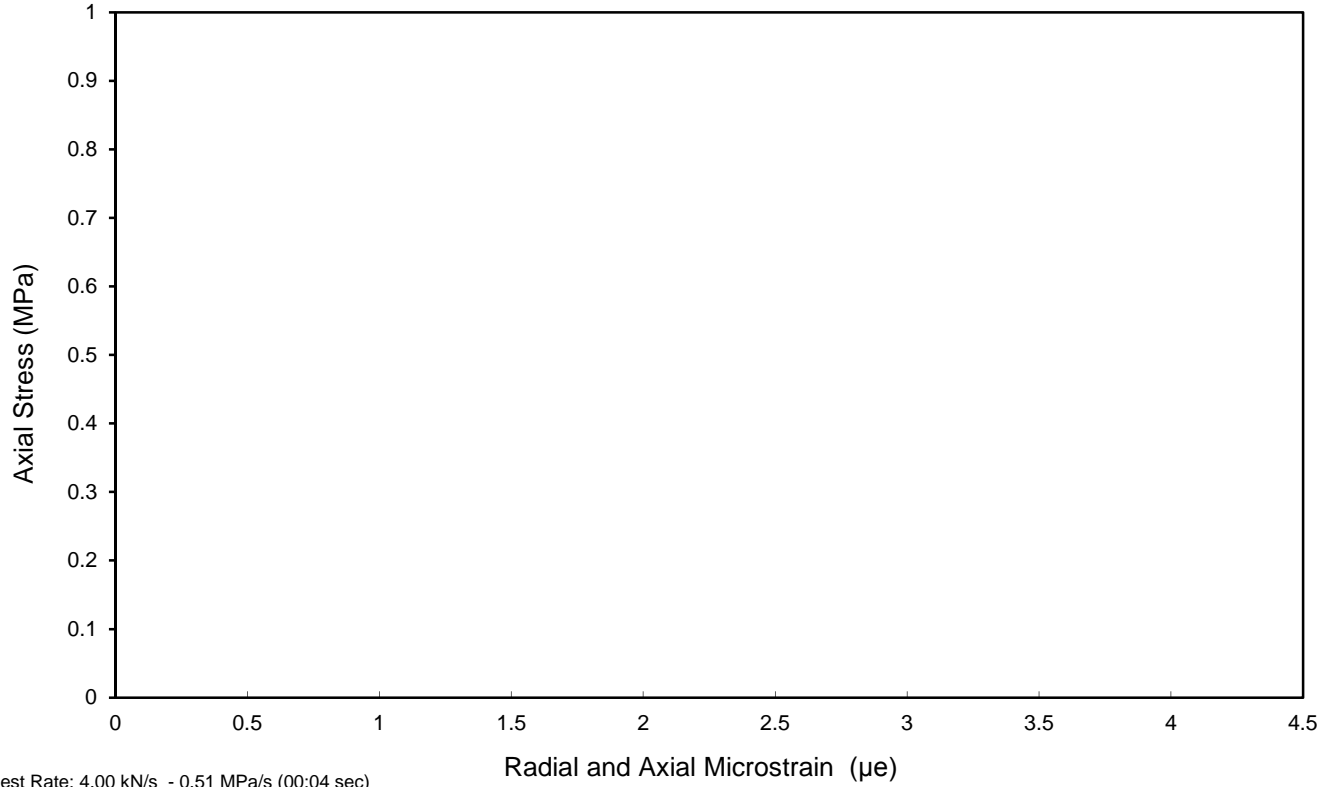
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 60°

Sample type	C
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Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	2.05 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29633 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

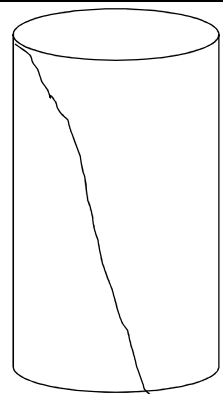
Borehole Ref.: R71002 Sample Ref.: - Depth (m): 14.95-15.40	Description: White CHALK
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Diameter	100.10 mm
Height	259.80 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.60 Mg/m ³
Water Content	25 %
Degree of Saturation: 98.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

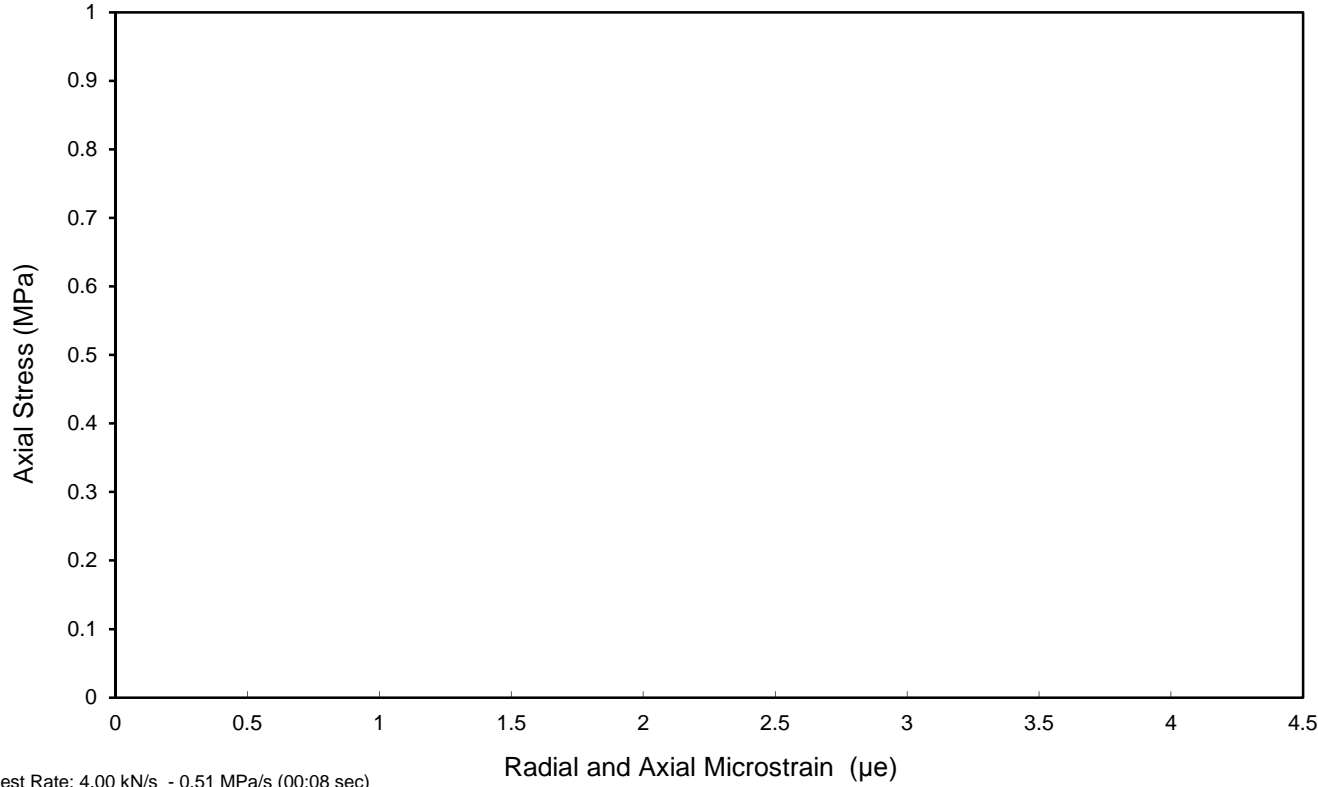
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	C
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Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	3.88 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29633 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71002	Description: White CHALK
Sample Ref.: -	
Depth (m): 20.95-21.21	

Diameter	99.50 mm
Height	202.30 mm
Bulk Density	2.05 Mg/m ³
Dry Density	1.69 Mg/m ³
Water Content	21 %
Degree of Saturation: 96.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

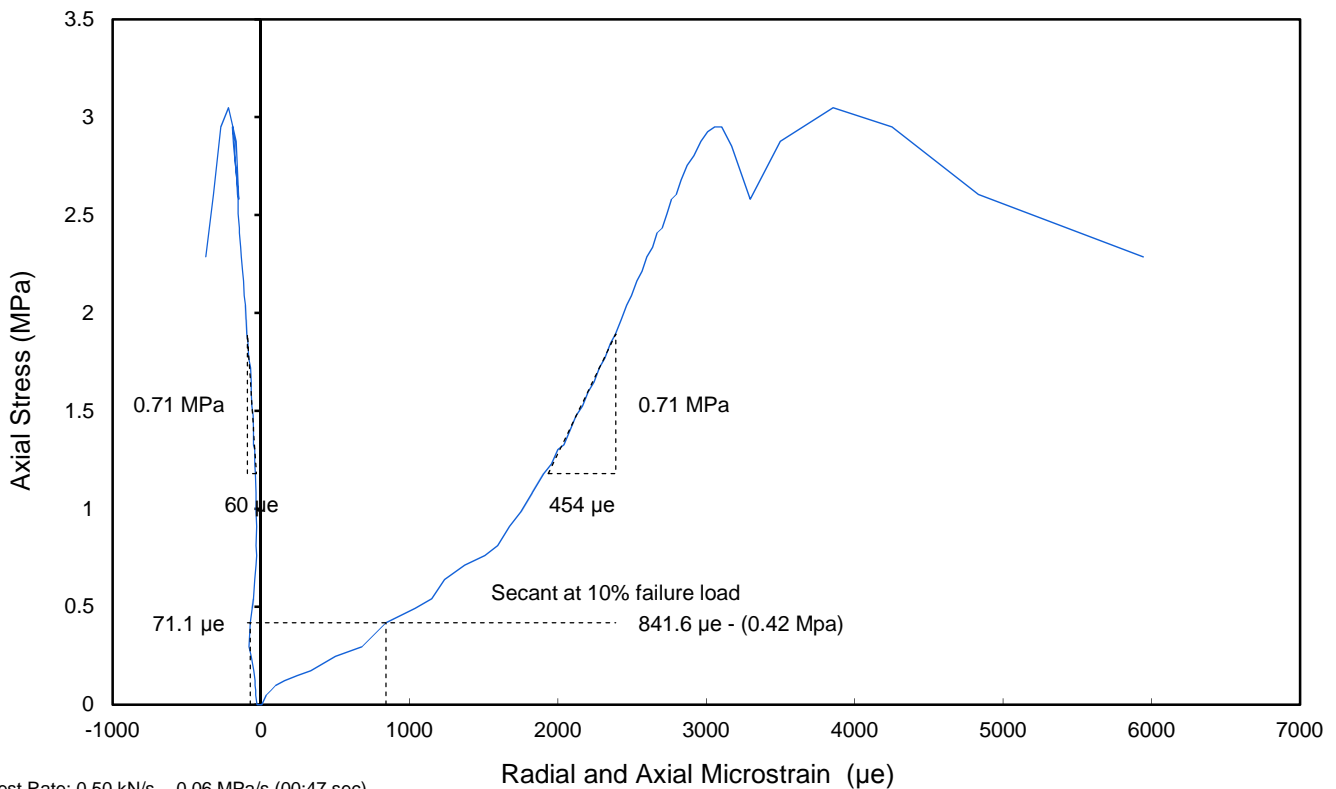
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type **C**

Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	3.05 MPa
Young's Modulus (tangential at 50% failure load)	1.57 GPa
Poisson's Ratio (tangential at 50% failure load)	0.13
Young's Modulus (secant at 10% failure load)	0.497 GPa
Poisson's Ratio (secant at 10% failure load)	0.08



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29633	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

UNCONFINED COMPRESSIVE STRENGTH

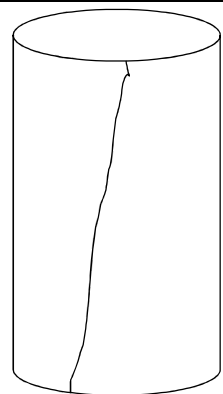
Borehole Ref.: R71002 Sample Ref.: - Depth (m): 26.58-26.78	Description: White CHALK
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Diameter	100.50 mm
Height	202.40 mm
Bulk Density	2.10 Mg/m ³
Dry Density	1.77 Mg/m ³
Water Content	19 %
Degree of Saturation: 97.3 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

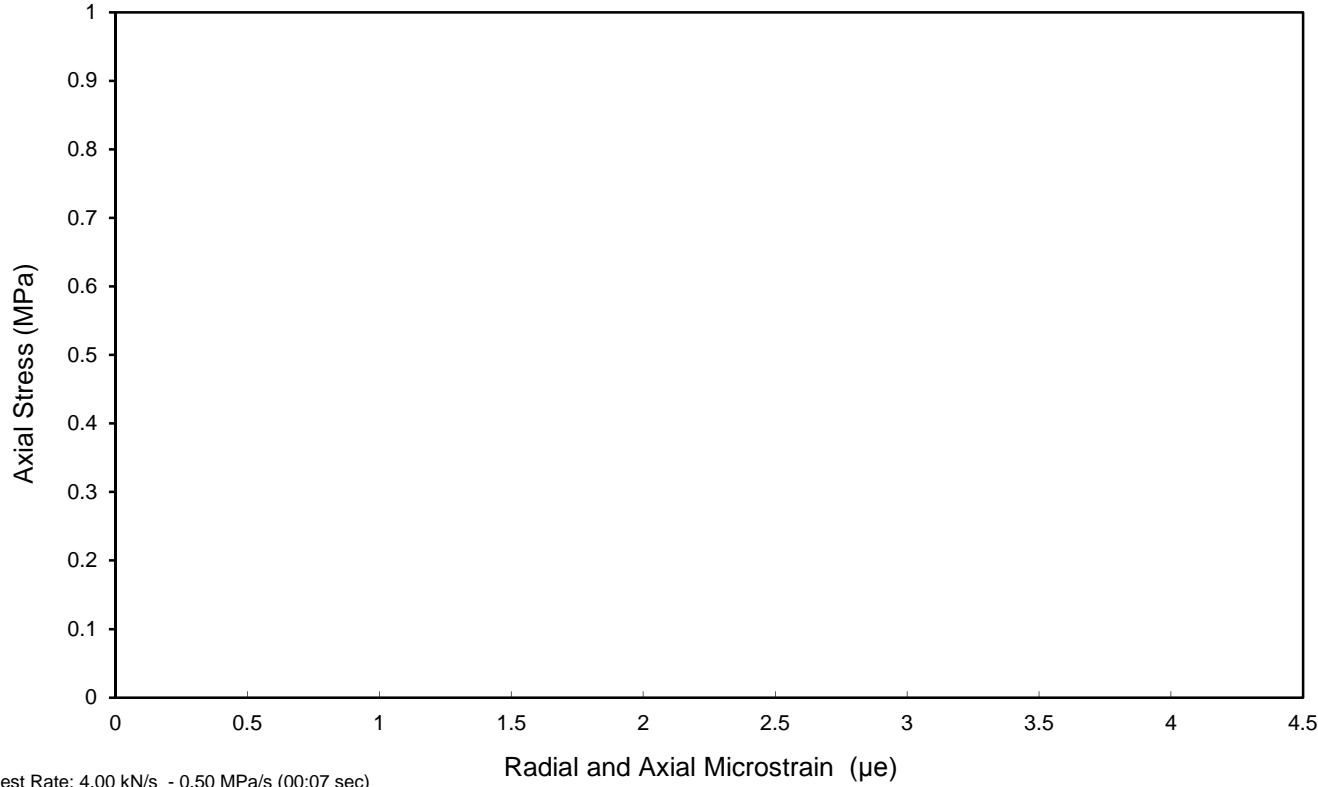
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type	C
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Date tested: 31/07/2019

Test results


Unconfined Compressive Strength	3.69 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29633 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS




Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m ³)	Dry (Mg/m ³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71302		24.54- 24.80	White CHALK	25	84.5	1.87	1.49	101.70	213.60	2.1	9.3	1.14		31/07/19	Failed on weakness plane

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: <b style="text-align: center;">GEO / 29634 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71701		14.26-14.47	White CHALK	24	96.7	2.00	1.61	99.60	201.20	2.0	25.4	3.26		31/07/19	
R71701		24.54-24.91	White CHALK	25	92.7	1.96	1.57	99.70	255.80	2.6	9.6	1.23		31/07/19	Failed on weakness plane
R71701		35.19-35.55	White CHALK	25	96.6	1.98	1.58	100.40	265.60	2.6	37.8	4.77		31/07/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29635 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

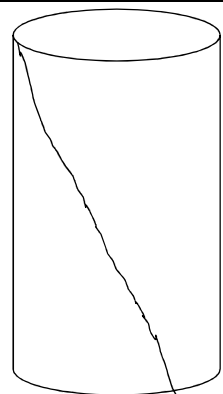
Borehole Ref.: R71701 Sample Ref.: - Depth (m): 14.26-14.47	Description: White CHALK
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Diameter	99.60 mm
Height	201.20 mm
Bulk Density	2.00 Mg/m ³
Dry Density	1.61 Mg/m ³
Water Content	24 %
Degree of Saturation: 96.7 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

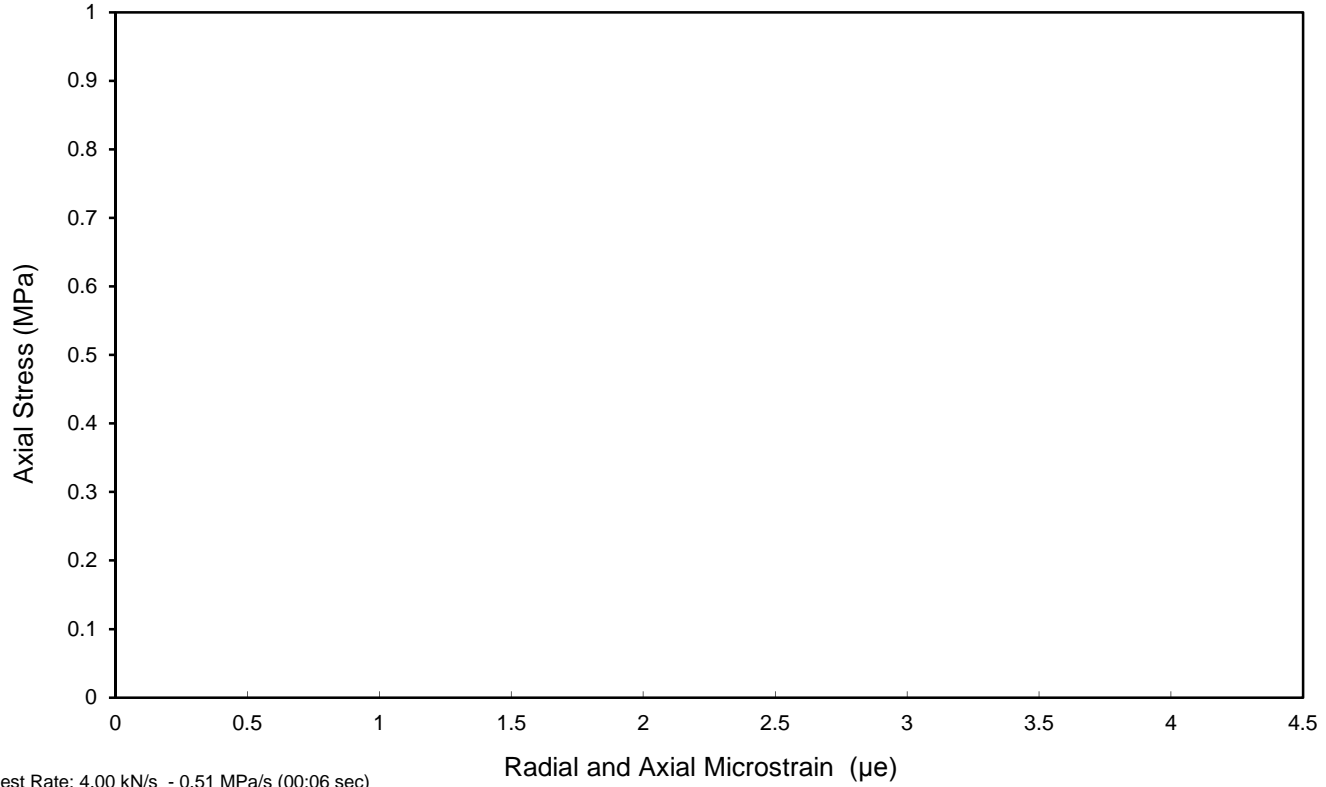
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	C
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Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	3.26 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29635 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.: R71701	Description: White CHALK
Sample Ref.: -	
Depth (m): 24.54-24.91	

Diameter	99.70 mm
Height	255.80 mm
Bulk Density	1.96 Mg/m ³
Dry Density	1.57 Mg/m ³
Water Content	25 %
Degree of Saturation: 92.7 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

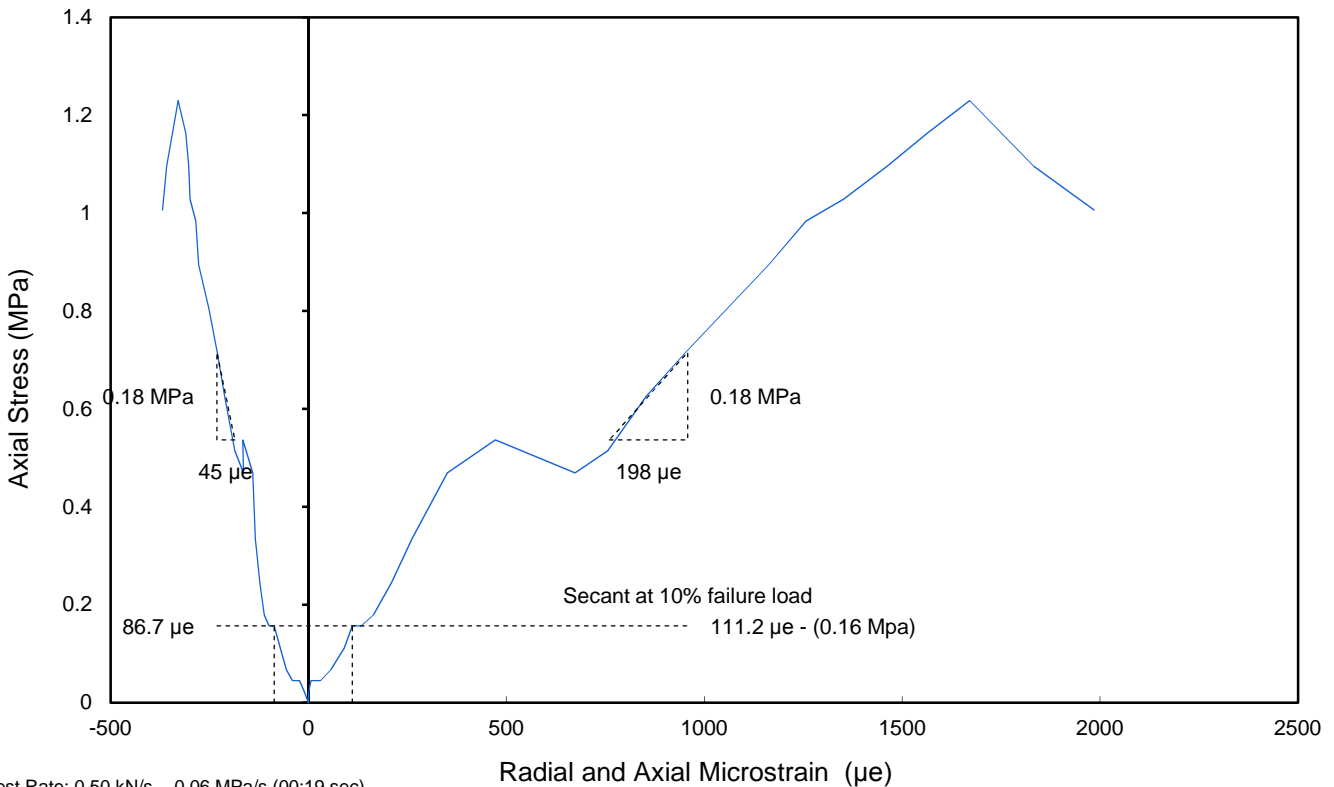
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type **C**

Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	1.23 MPa
Young's Modulus (tangential at 50% failure load)	0.905 GPa
Poisson's Ratio (tangential at 50% failure load)	0.23
Young's Modulus (secant at 10% failure load)	1.41 GPa
Poisson's Ratio (secant at 10% failure load)	0.78



Test Rate: 0.50 kN/s - 0.06 MPa/s (00:19 sec)

Remarks: Failed on weakness plane

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: <p style="text-align: center;">GEO / 29635</p>	
	Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

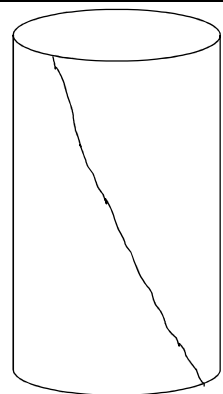
Borehole Ref.: R71701 Sample Ref.: - Depth (m): 35.19-35.55	Description: White CHALK
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Diameter	100.40 mm
Height	265.60 mm
Bulk Density	1.98 Mg/m ³
Dry Density	1.58 Mg/m ³
Water Content	25 %
Degree of Saturation: 96.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

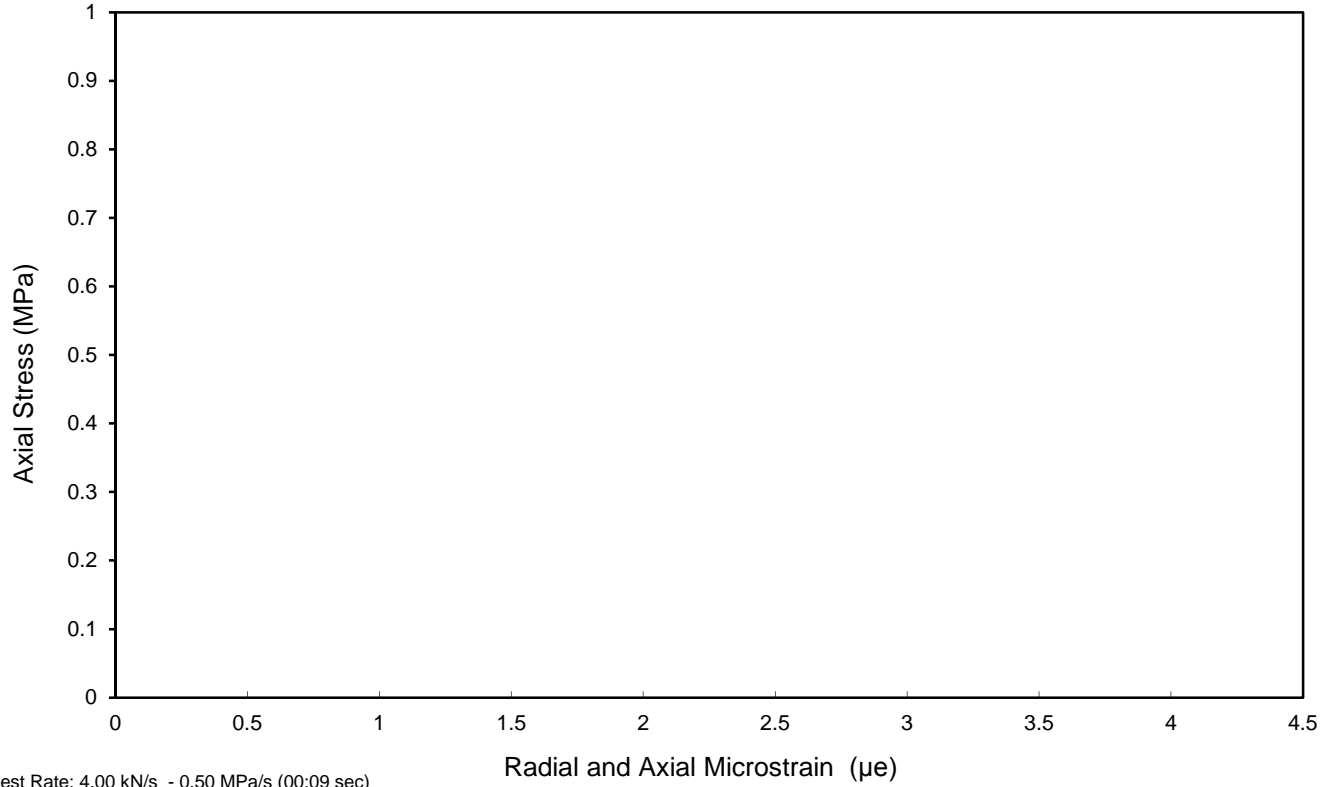
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	C
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Date tested: 31/07/2019

Test results

Unconfined Compressive Strength	4.77 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a






Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 08/08/2019	Project Number: GEO / 29635 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS





Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71301	-	11.41-11.75	White CHALK	27	96.4	1.96	1.54	100.70	258.60	2.6	15.9	2		01/08/19	Failed on weakness plane
R71301	-	22.17-22.40	White CHALK	23	90.7	1.98	1.61	99.60	201.40	2.0	21.6	2.77		01/08/19	
R71301	-	38.20-38.47	White CHALK	24	95.4	1.99	1.60	100.60	216.30	2.2	18.3	2.3		01/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <b style="text-align: center;">GEO / 29660 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70901	-	16.45-16.65	White CHALK	19	95.6	2.10	1.77	99.60	201.40	2.0	37.8	4.85		01/08/19	
R70901	-	28.36-28.58	White CHALK	16	97.9	2.17	1.86	99.70	201.40	2.0	38.5	4.93		01/08/19	
R70901	-	31.46-31.66	White CHALK	16	99.6	2.19	1.88	99.80	201.20	2.0	49.6	6.34		01/08/19	
R70901	-	35.85-36.27	White CHALK	17	93.1	2.12	1.81	99.70	258.70	2.6	46.5	5.96		01/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <b style="text-align: center;">GEO / 29661 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

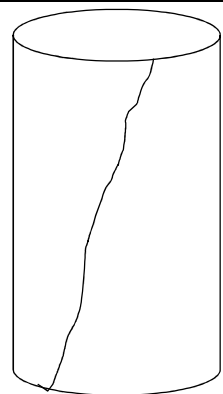
Borehole Ref.: R70901 Sample Ref.: - Depth (m): 16.45-16.65	Description: White CHALK
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Diameter	99.60 mm
Height	201.40 mm
Bulk Density	2.10 Mg/m ³
Dry Density	1.77 Mg/m ³
Water Content	19 %
Degree of Saturation: 95.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

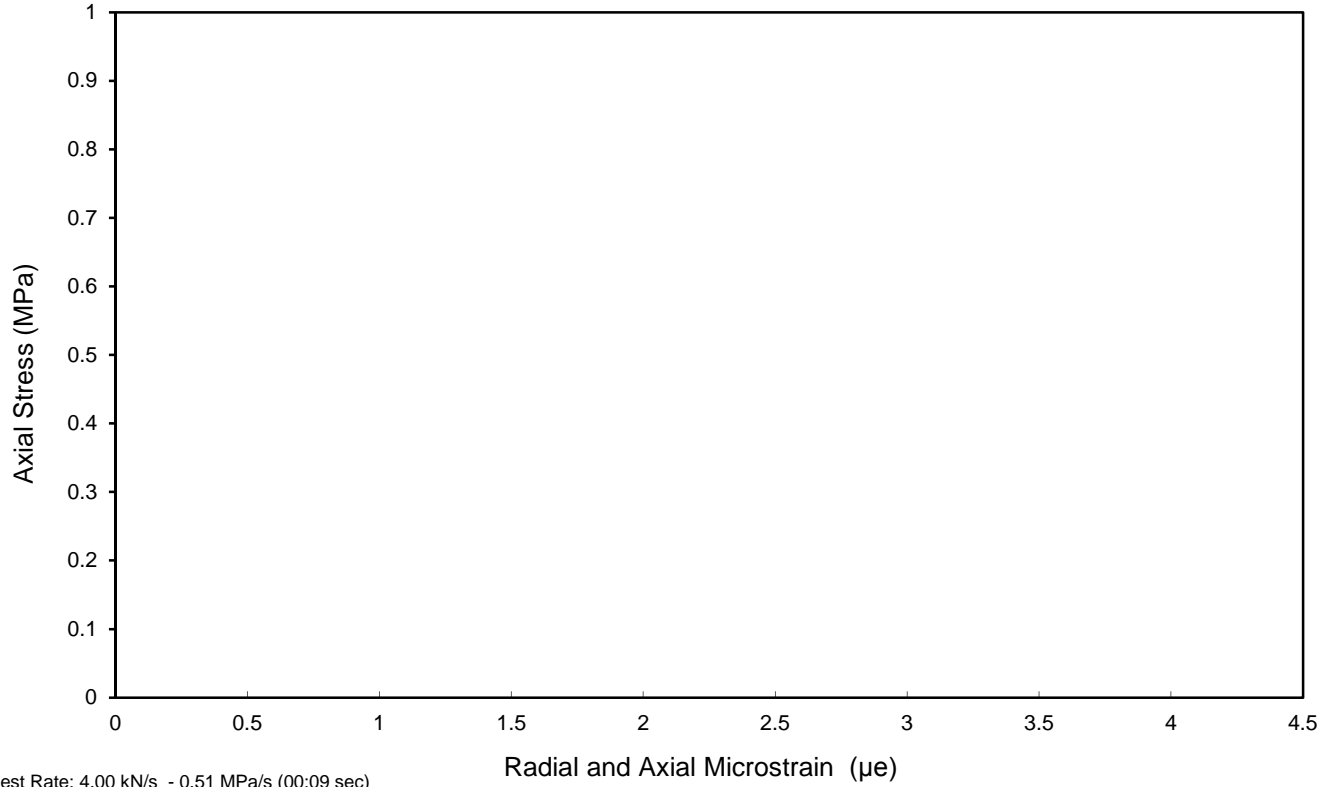
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 01/08/2019

Test results

Unconfined Compressive Strength	4.85 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29661 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R70901	Description: White CHALK
Sample Ref.:	-	
Depth (m):	28.36-28.58	

Diameter	99.70 mm
Height	201.40 mm
Bulk Density	2.17 Mg/m ³
Dry Density	1.86 Mg/m ³
Water Content	16 %
Degree of Saturation: 97.9 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

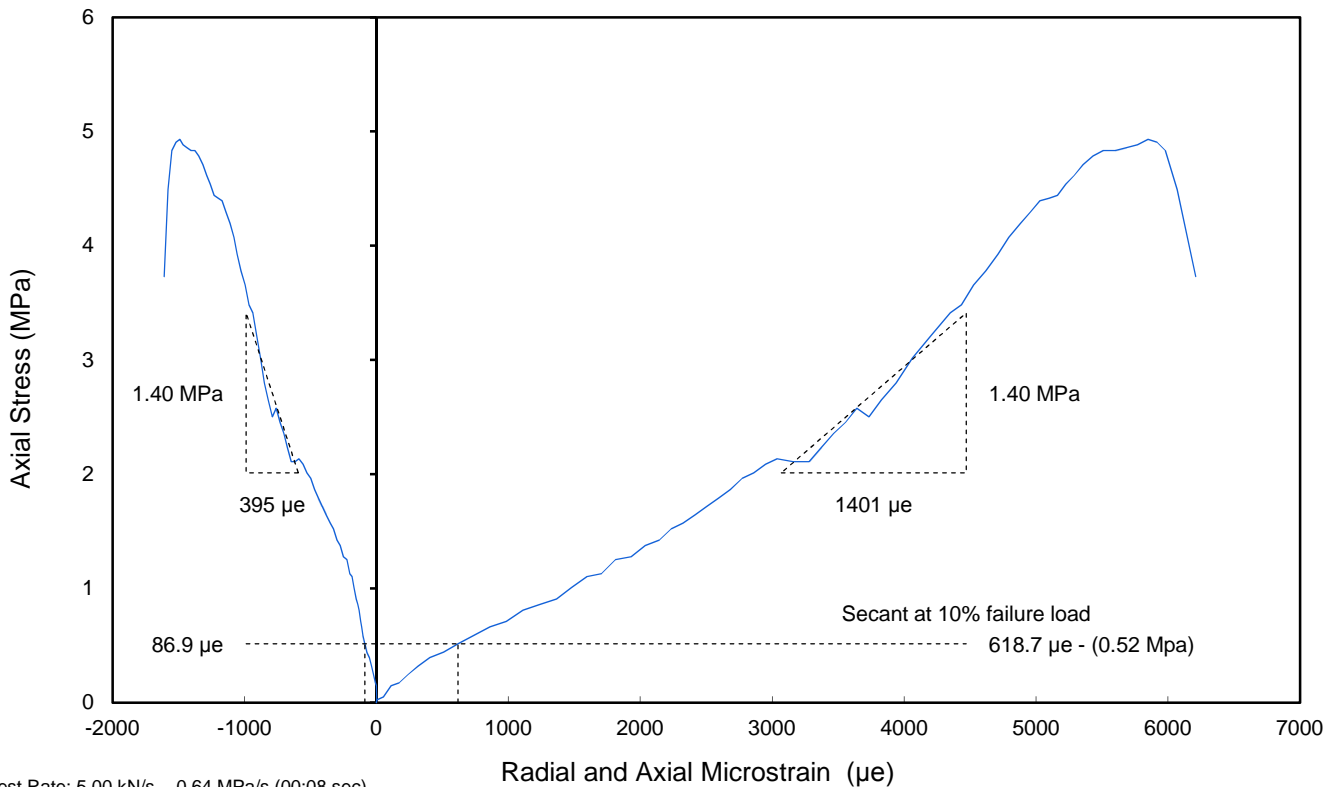
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type: **C**

Date tested: 01/08/2019

Test results

Unconfined Compressive Strength	4.93 MPa
Young's Modulus (tangential at 50% failure load)	0.998 GPa
Poisson's Ratio (tangential at 50% failure load)	0.28
Young's Modulus (secant at 10% failure load)	0.832 GPa
Poisson's Ratio (secant at 10% failure load)	0.14



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <p style="text-align: center;">GEO / 29661</p>	
	Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

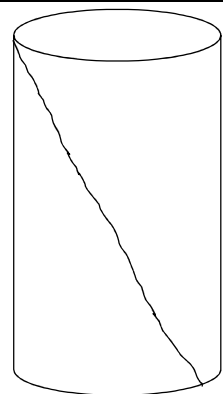
Borehole Ref.: R70901 Sample Ref.: - Depth (m): 31.46-31.66	Description: White CHALK
---	-----------------------------

Diameter	99.80 mm
Height	201.20 mm
Bulk Density	2.19 Mg/m ³
Dry Density	1.88 Mg/m ³
Water Content	16 %
Degree of Saturation: 99.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

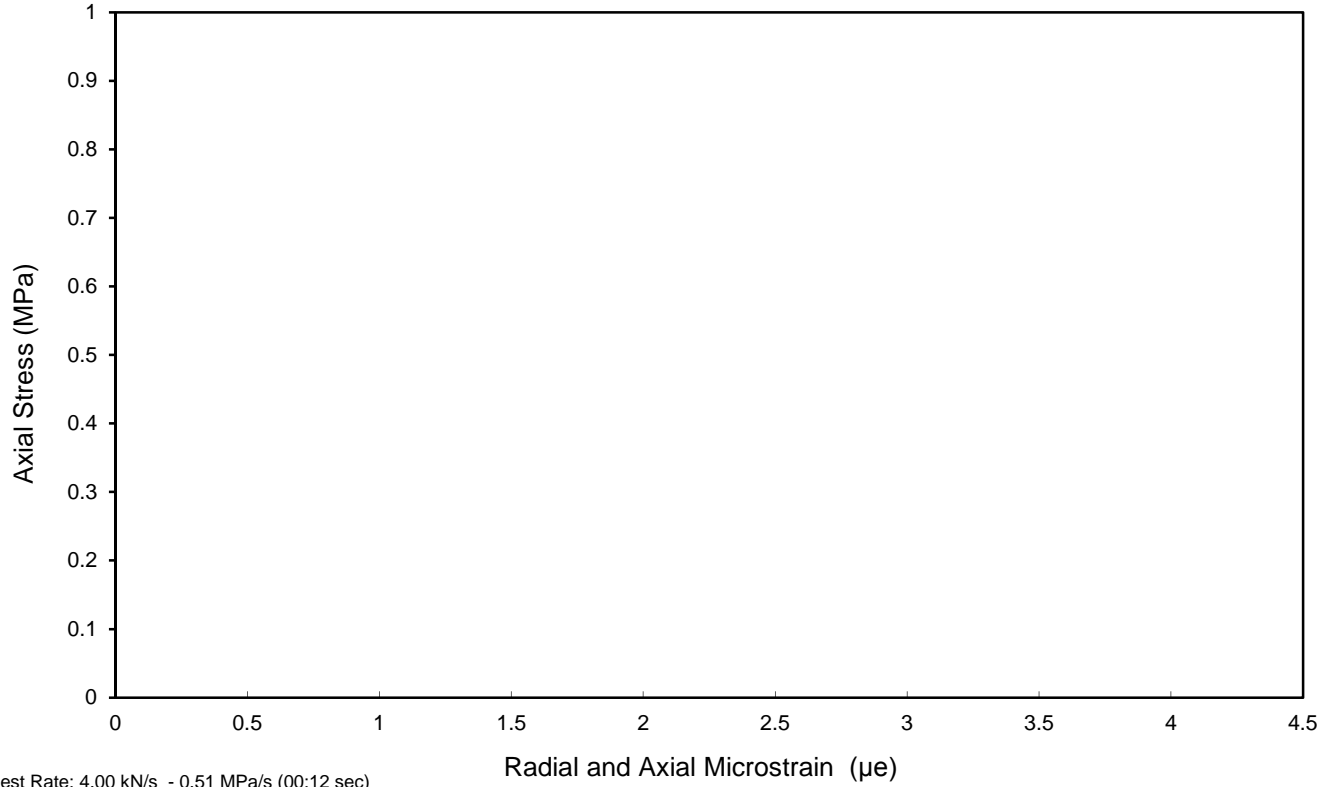
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 60°

Sample type	C
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Date tested: 01/08/2019

Test results

Unconfined Compressive Strength	6.34 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29661 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

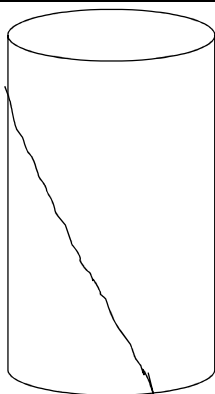
Borehole Ref.: R70901 Sample Ref.: - Depth (m): 35.85-36.27	Description: White CHALK
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Diameter	99.70 mm
Height	258.70 mm
Bulk Density	2.12 Mg/m ³
Dry Density	1.81 Mg/m ³
Water Content	17 %
Degree of Saturation: 93.1 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

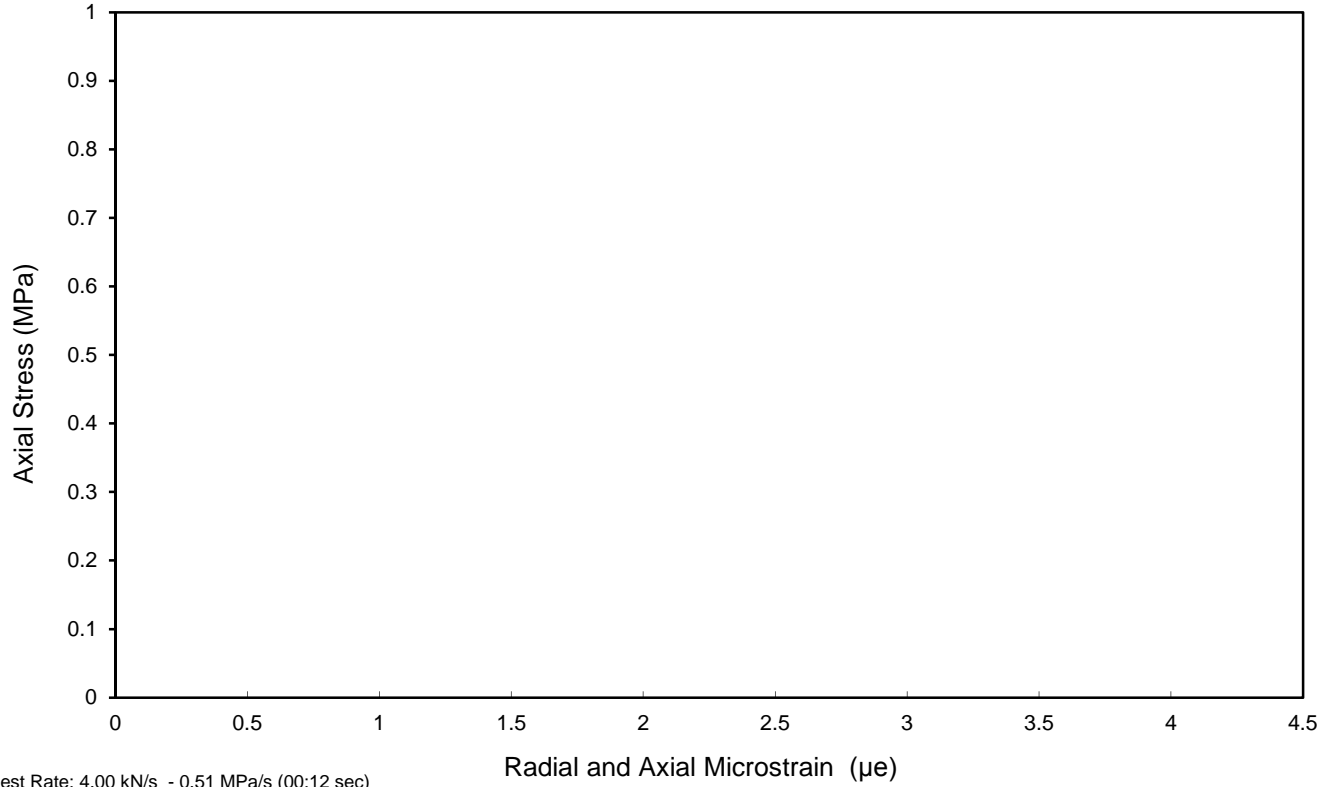
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 70°

Sample type	C
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Date tested: 01/08/2019




Test results

Unconfined Compressive Strength	5.96 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a






Test Rate: 4.00 kN/s - 0.51 MPa/s (00:12 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.


Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29661 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70903	-	8.55-8.97	White CHALK	19	95.4	2.10	1.77	100.70	202.30	2.0	26.7	3.35		01/08/19	
R70903	-	24.98-25.40	White CHALK	7.6	100	2.45	2.27	100.30	261.60	2.6	111.1	14.1		01/08/19	
R70903	-	34.58-34.84	White CHALK	17	87.8	2.08	1.78	99.60	202.30	2.0	36.2	4.65		01/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by

 C Clergeaud (Snr. Geologist)
 Date: 09/08/2019

Project Number:
GEO / 29662

Project Name:
**A303 Amesbury to Berwick Down - Phase 7A GI
 PC197510**



UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R70903	Description: White CHALK
Sample Ref.:	-	
Depth (m):	8.55-8.97	

Diameter	100.70 mm
Height	202.30 mm
Bulk Density	2.10 Mg/m ³
Dry Density	1.77 Mg/m ³
Water Content	19 %
Degree of Saturation: 95.4 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

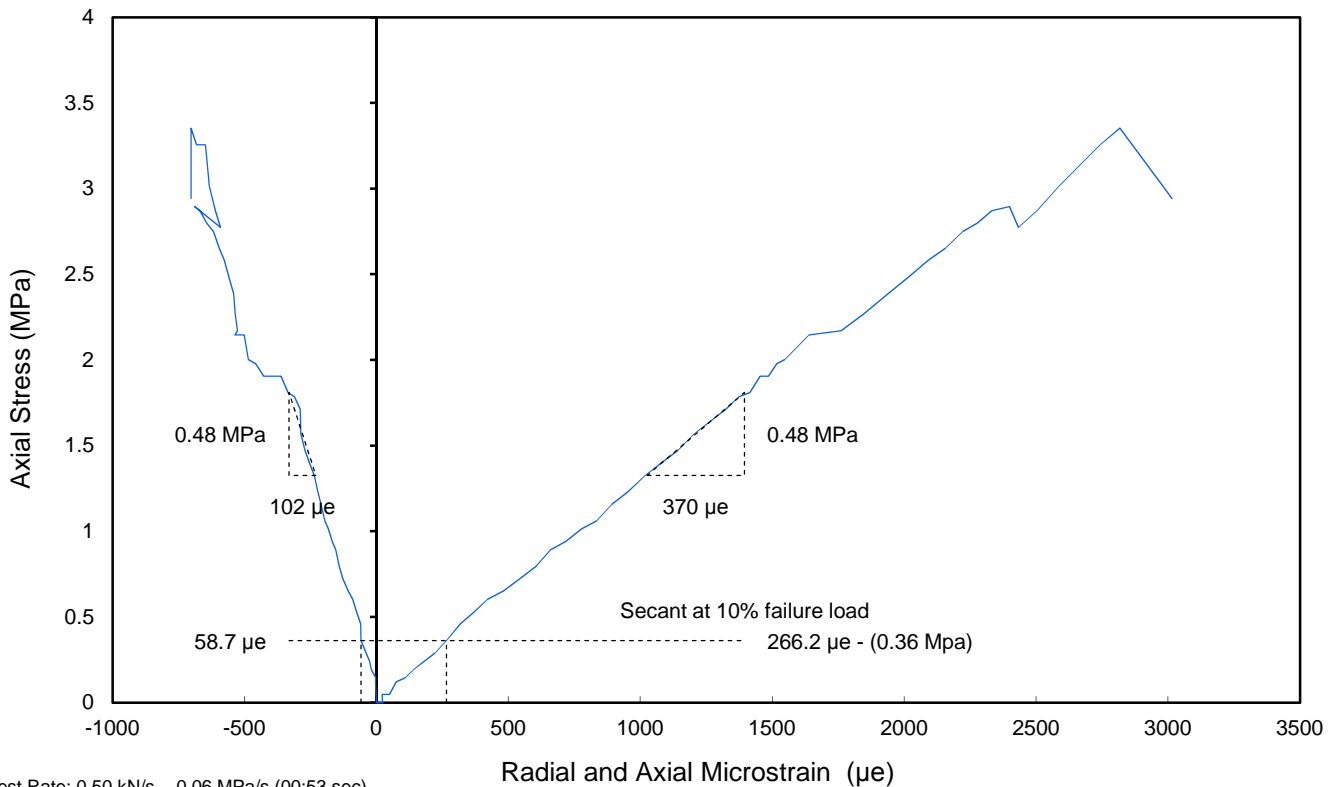
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 75°

Sample type **C**

Date tested: 01/08/2019

Test results

Unconfined Compressive Strength	3.35 MPa
Young's Modulus (tangential at 50% failure load)	1.31 GPa
Poisson's Ratio (tangential at 50% failure load)	0.28
Young's Modulus (secant at 10% failure load)	1.36 GPa
Poisson's Ratio (secant at 10% failure load)	0.22



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <p style="text-align: center;">GEO / 29662</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

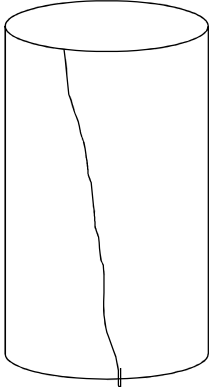
Borehole Ref.: R70903 Sample Ref.: - Depth (m): 24.98-25.40	Description: White CHALK
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Diameter	100.30 mm
Height	261.60 mm
Bulk Density	2.45 Mg/m ³
Dry Density	2.27 Mg/m ³
Water Content	7.6 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

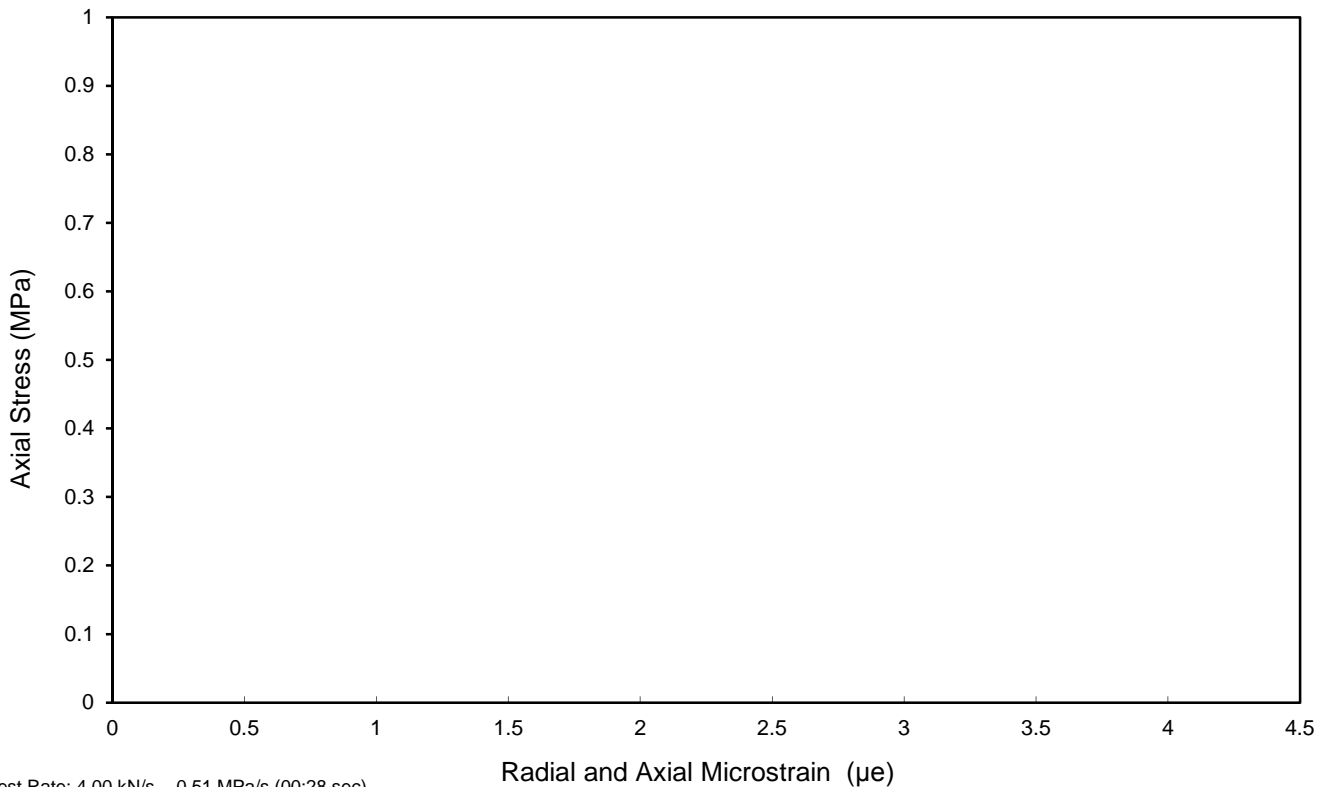
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 01/08/2019




Test results

Unconfined Compressive Strength	14.1 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 4.00 kN/s - 0.51 MPa/s (00:28 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29662 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

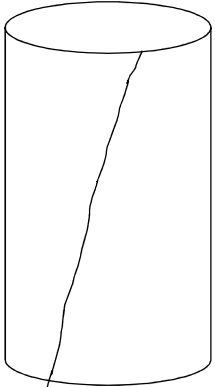
Borehole Ref.: R70903 Sample Ref.: - Depth (m): 34.58-34.84	Description: White CHALK
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Diameter	99.60 mm
Height	202.30 mm
Bulk Density	2.08 Mg/m ³
Dry Density	1.78 Mg/m ³
Water Content	17 %
Degree of Saturation: 87.8 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

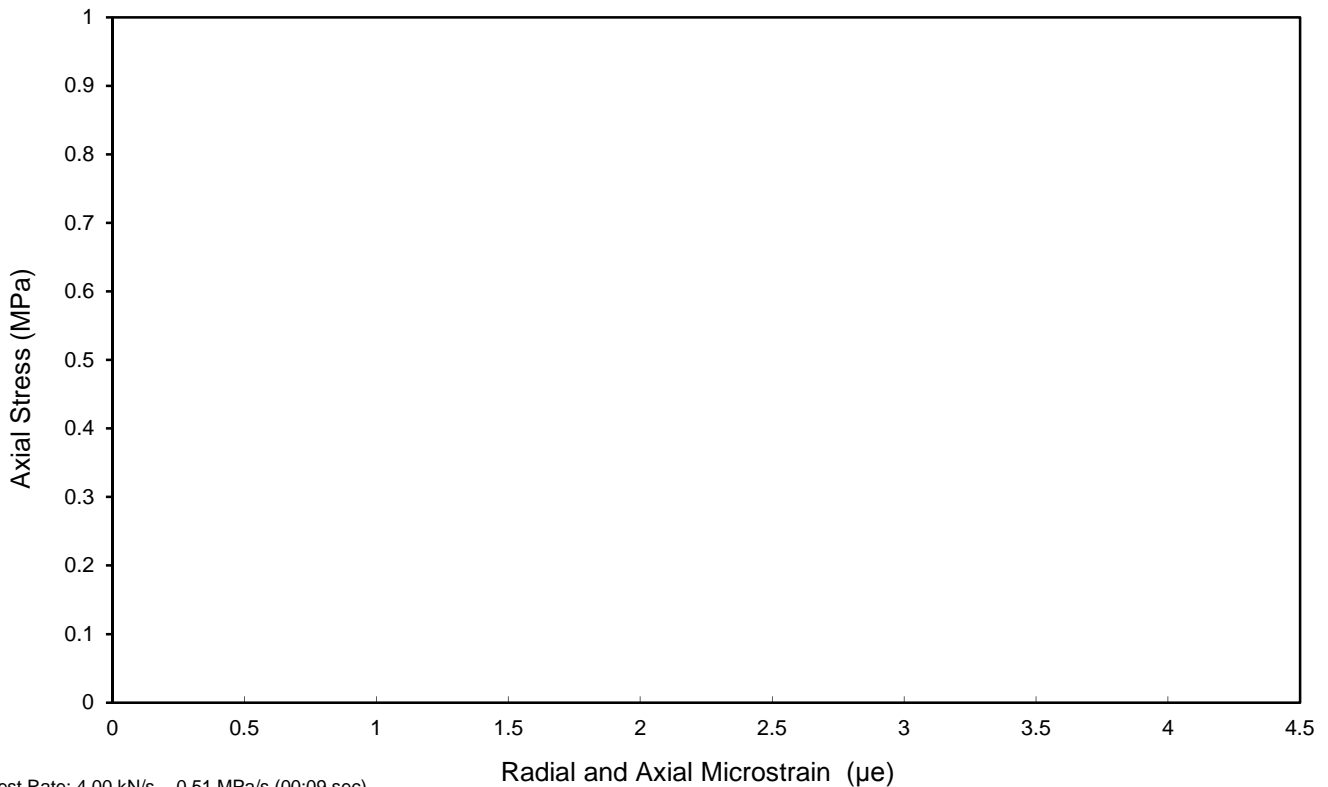
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 105°

Sample type	C
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Date tested: 01/08/2019




Test results

Unconfined Compressive Strength	4.65 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a







Test Rate: 4.00 kN/s - 0.51 MPa/s (00:09 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29662 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71001	-	6.70-6.97	White CHALK	21	93.0	2.03	1.67	101.50	239.70	2.4	20.2	2.5		02/08/19	
R71001	-	13.40-13.82	White CHALK	26	97.0	1.98	1.57	100.50	262.60	2.6	9.8	1.24		02/08/19	
R71001	-	21.63-22.00	White CHALK	20	93.7	2.05	1.71	101.60	266.30	2.6	39.6	4.88		02/08/19	
R71001	-	29.00-29.49	White CHALK	25	100	2.04	1.63	100.40	264.80	2.6	28.3	3.57		02/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29663 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH WITH YOUNG'S MODULUS AND POISSON'S RATIO

Borehole Ref.:	R71001	Description:	White CHALK
Sample Ref.:	-		
Depth (m):	6.70-6.97		

Diameter	101.50 mm
Height	239.70 mm
Bulk Density	2.03 Mg/m ³
Dry Density	1.67 Mg/m ³
Water Content	21 %
Degree of Saturation: 93.0 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch
Mode of failure: Diagonal shearing

Solid lines for material failures.
Dashed lines for apparent weakness failure.

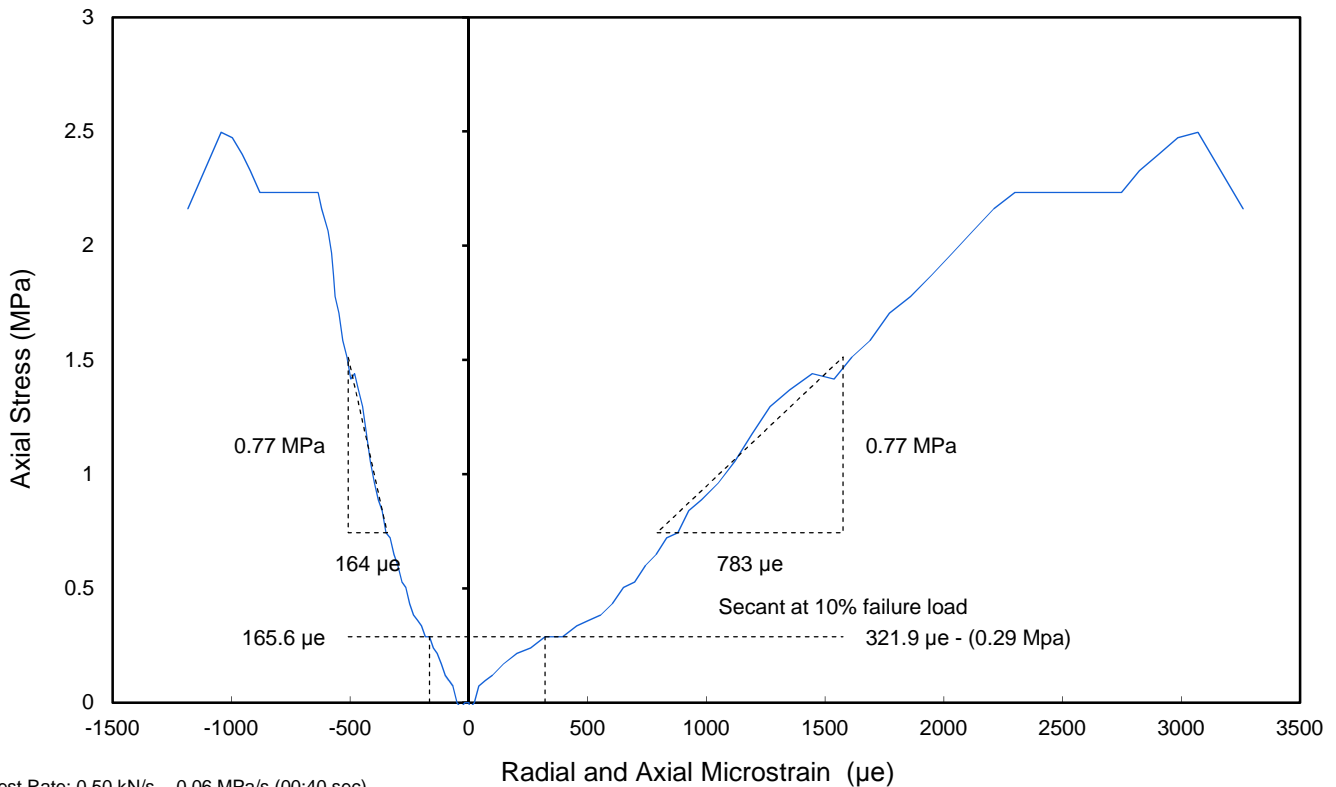
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 100°

Sample type: **C**

Date tested: 02/08/2019

Test results

Unconfined Compressive Strength	2.5 MPa
Young's Modulus (tangential at 50% failure load)	0.982 GPa
Poisson's Ratio (tangential at 50% failure load)	0.21
Young's Modulus (secant at 10% failure load)	0.893 GPa
Poisson's Ratio (secant at 10% failure load)	0.52



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <p style="text-align: center;">GEO / 29663</p>	
	Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	

UNCONFINED COMPRESSIVE STRENGTH

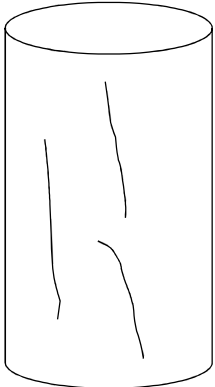
Borehole Ref.: R71001 Sample Ref.: - Depth (m): 13.40-13.82	Description: White CHALK
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Diameter	100.50 mm
Height	262.60 mm
Bulk Density	1.98 Mg/m ³
Dry Density	1.57 Mg/m ³
Water Content	26 %
Degree of Saturation: 97.0 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

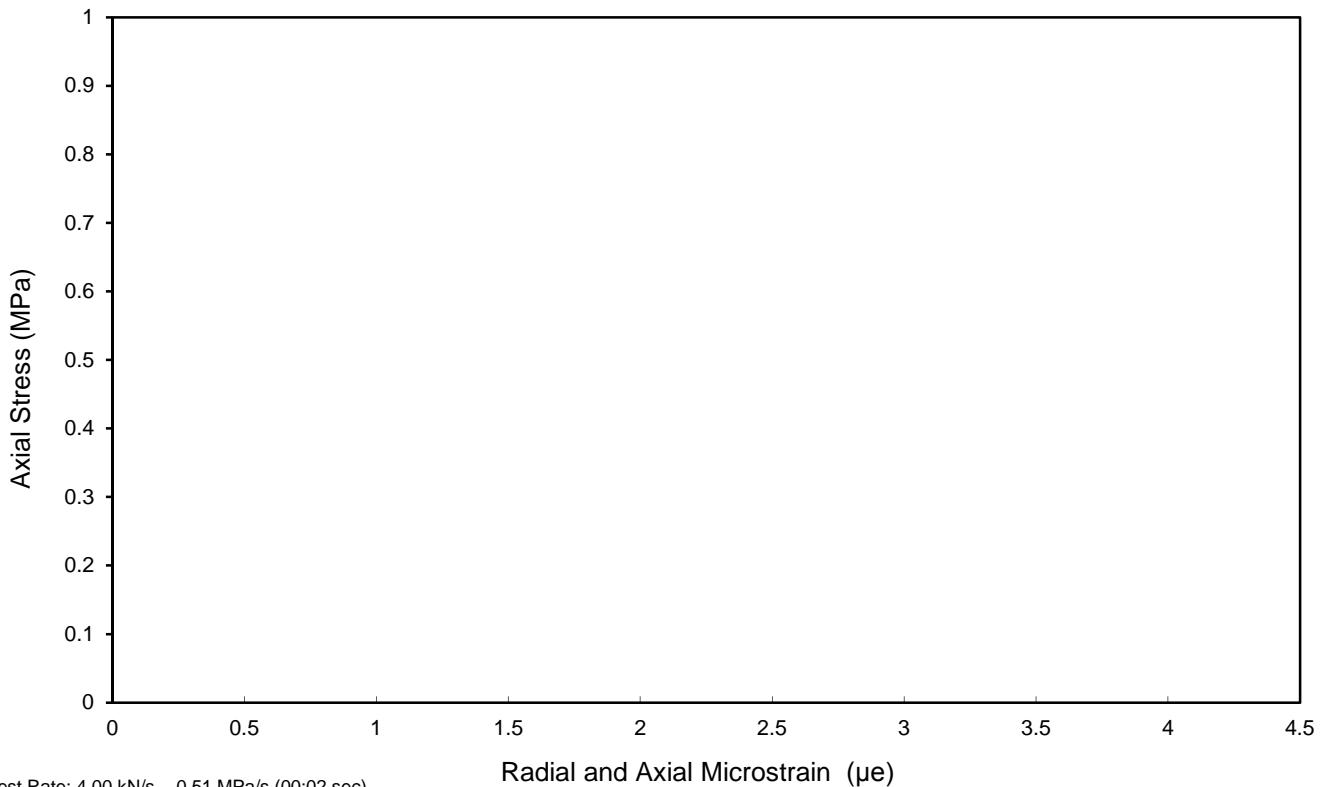
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 85°

Sample type	C
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Date tested: 02/08/2019




Test results

Unconfined Compressive Strength	1.24 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Test Rate: 4.00 kN/s - 0.51 MPa/s (00:02 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29663 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

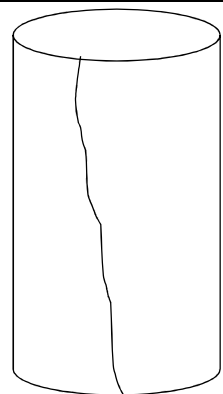
Borehole Ref.: R71001 Sample Ref.: - Depth (m): 21.63-22.00	Description: White CHALK
---	-----------------------------

Diameter	101.60 mm
Height	266.30 mm
Bulk Density	2.05 Mg/m ³
Dry Density	1.71 Mg/m ³
Water Content	20 %
Degree of Saturation: 93.7 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

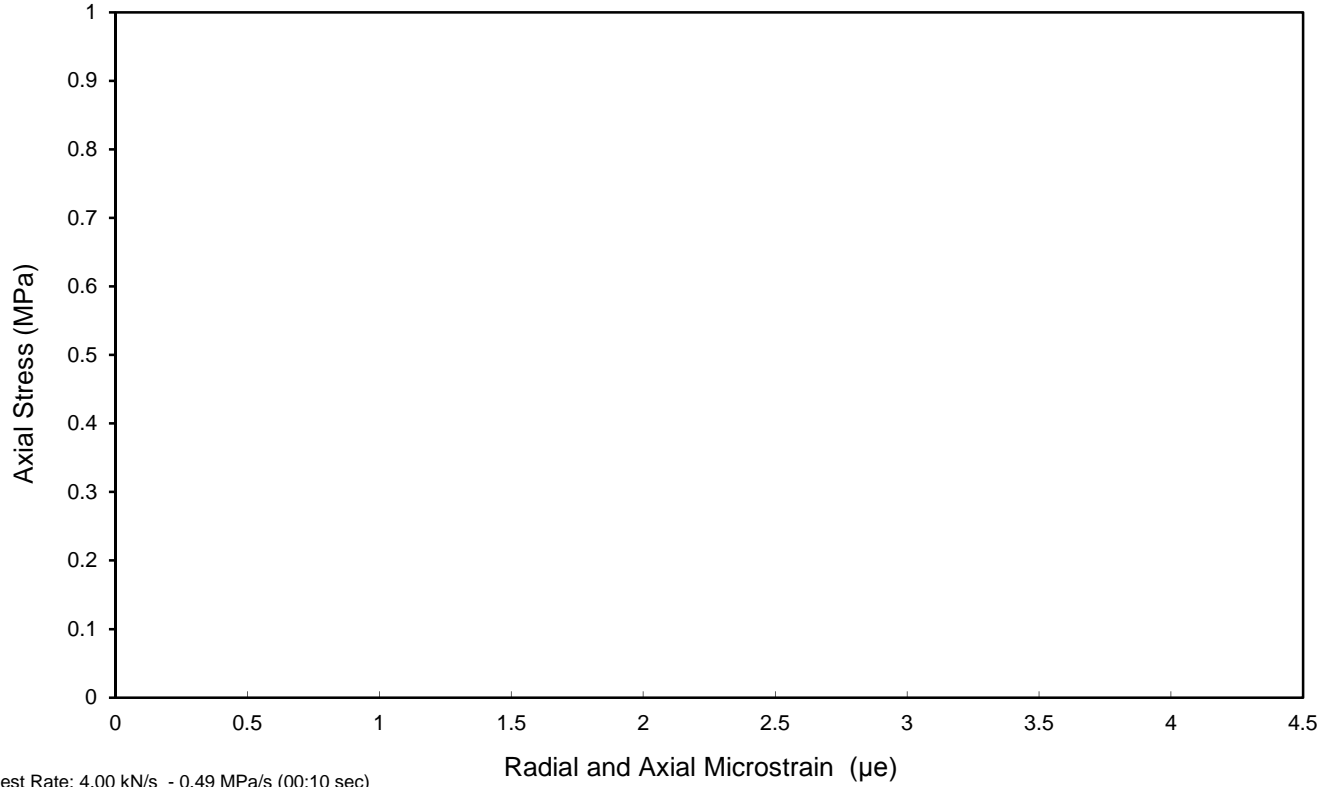
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 85°

Sample type	C
-------------	----------




Date tested: 02/08/2019

Test results

Unconfined Compressive Strength	4.88 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29663 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

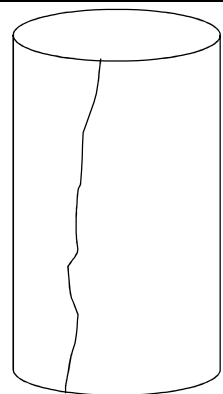
Borehole Ref.: R71001 Sample Ref.: - Depth (m): 29.00-29.49	Description: White CHALK
---	-----------------------------

Diameter	100.40 mm
Height	264.80 mm
Bulk Density	2.04 Mg/m ³
Dry Density	1.63 Mg/m ³
Water Content	25 %
Degree of Saturation: 100 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Axial splitting



Solid lines for material failures.
Dashed lines for apparent weakness failure.

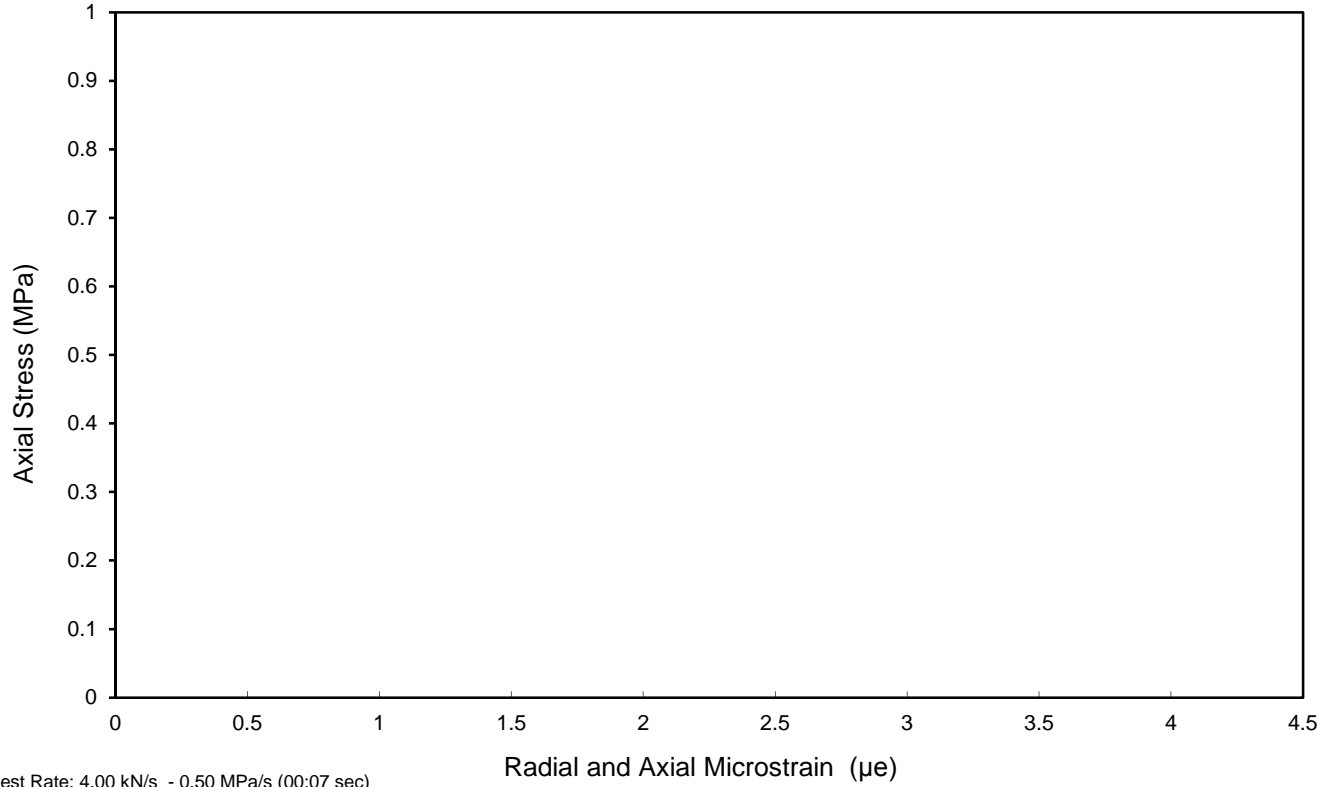
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 95°

Sample type	C
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Date tested: 02/08/2019




Test results

Unconfined Compressive Strength	3.57 MPa
Young's Modulus (tangential at 50% failure load)	n/a
Poisson's Ratio (tangential at 50% failure load)	n/a
Young's Modulus (secant at 10% failure load)	n/a
Poisson's Ratio (secant at 10% failure load)	n/a




Test Rate: 4.00 kN/s - 0.50 MPa/s (00:07 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29663 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71701	-	8.89-9.33	White CHALK	26	97.6	1.98	1.56	99.70	263.70	2.6	29.8	3.82		01/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: <b style="text-align: center;">GEO / 29664 Project Name: <b style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

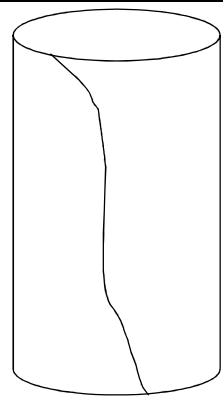
Borehole Ref.: R71701 Sample Ref.: - Depth (m): 8.89-9.33	Description: White CHALK
---	-----------------------------

Diameter	99.70 mm
Height	263.70 mm
Bulk Density	1.98 Mg/m ³
Dry Density	1.56 Mg/m ³
Water Content	26 %
Degree of Saturation: 97.6 % Specific Gravity: 2.7 Mg/m ³ (Assumed)	

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
Dashed lines for apparent weakness failure.

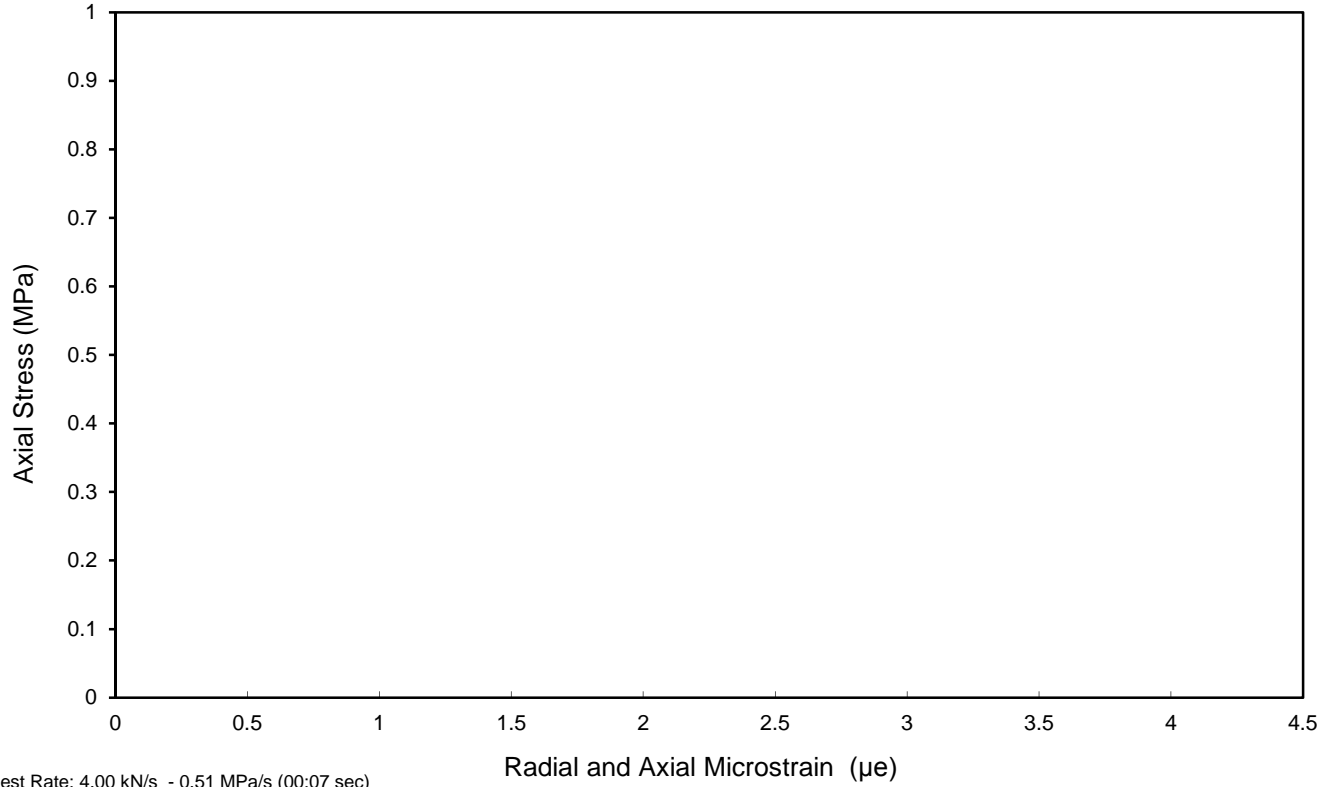
Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 65°

Sample type	C
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Date tested: 01/08/2019




Test results

Unconfined Compressive Strength	3.82 MPa
Young's Modulus <small>(tangential at 50% failure load)</small>	n/a
Poisson's Ratio <small>(tangential at 50% failure load)</small>	n/a
Young's Modulus <small>(secant at 10% failure load)</small>	n/a
Poisson's Ratio <small>(secant at 10% failure load)</small>	n/a




Test Rate: 4.00 kN/s - 0.51 MPa/s (00:07 sec)

Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.




Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 09/08/2019	Project Number: GEO / 29664 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006

UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R70903		21.36-21.77	White CHALK	6.9	89.1	2.39	2.23	101.40	255.80	2.5	65.8	8.15		14/08/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/08/2019	Project Number: GEO / 29698 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R70903 Sample Ref.: - Depth (m): 21.36-21.77	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

101.40 mm
255.80 mm
2.39 Mg/m ³
2.23 Mg/m ³
6.9 %

Degree of Saturation: 89.1 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

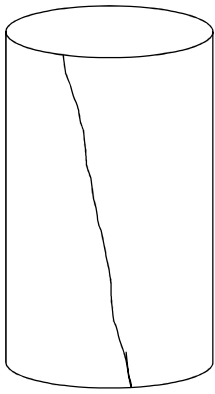
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

8.15 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing





Solid lines for material failures.
Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
Angle of shear plane/Horizontal: 75°

Sample type	C
-------------	----------

Date tested: 14/08/2019



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/08/2019	Project Number: GEO / 29698 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
DETERMINATION OF THE SLAKE-DURABILITY INDEX

Sample details				Water Temp. (°C)	Appearance of fragments after 2 nd cycle	Natural Water Content (%)	1 st Cycle	2 nd Cycle
Borehole Ref.	Sample Ref.	Depth (m)	Description				Slake Durability Index I _{d(1)}	Slake Durability Index I _{d(2)}
R71904		26.11	White CHALK	21 ± 2	Retained: Retained specimen remain virtually unchanged. Passing: White CLAY	25	93.4	88.6



Note: Tap water used as slaking fluid.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: GEO / 29573 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
DETERMINATION OF THE SLAKE-DURABILITY INDEX

Sample details				Water Temp. (°C)	Appearance of fragments after 2 nd cycle	Natural Water Content (%)	1 st Cycle	2 nd Cycle
Borehole Ref.	Sample Ref.	Depth (m)	Description				Slake Durability Index I _{d(1)}	Slake Durability Index I _{d(2)}
R71901	C22288	12.60-12.84	White CHALK	21 ± 2	Retained: Retained specimen remain virtually unchanged. Passing: White CLAY	20	95.9	92.7

Note: Tap water used as slaking fluid.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	
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ISRM Suggested Method
Determination of Shear Strength by Direct Shear on Rock Sample
 (large shearbox apparatus)

Borehole No: R71901 Sample No: C22289 Depth (m): 15.37-15.50	Description: White CHALK. Fresh. Cut shear plane with no infill material. Joint roughness coefficient = 0-2. Debris is silt to medium gravel size.
--	---

Specimen Details				
Type of shear plane	Saw cut			
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.			
Specimen Number	1			
Maximum Length	<i>mm</i>	75.6		
Maximum Width	<i>mm</i>	98.8		
Area	<i>mm²</i>	7147.3		
Shearing Stage				
Normal stress	<i>kPa</i>	300	600	1200
Peak Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Maximum shear stress	<i>kPa</i>	115.8	246.3	448.4
Horizontal displacement at MSS	<i>mm</i>	6.1	14.3	21.4
Residual Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Residual shear stress	<i>kPa</i>	114.5	245.9	447.5
Final cumulative displacement	<i>mm</i>	25.0		
Duration	<i>day(s)</i>	1		
Shear Strength Parameters				
Maximum Condition:				
Apparent Cohesion	<i>kPa</i>	15		
Angle of Shearing Resistance	<i>degrees</i>	20.0		
Residual Condition:				
Apparent Cohesion	<i>kPa</i>	14		
Angle of Shearing Resistance	<i>degrees</i>	20.0		
Notes:				

Checked and Approved by <div style="text-align: center; font-size: 1.5em; font-weight: bold; margin: 5px 0;"><i>SRA</i></div> S R Allen (Senior Tech) Date: 24/07/2019	Project Number: <div style="text-align: center; font-weight: bold; margin: 5px 0;">GEO / 29521</div> Project Name: <div style="text-align: center; font-weight: bold; margin: 5px 0;">A303 Amesbury to Berwick Down - Phase 7A GI</div>	
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Determination of Shear Strength by Direct Shear on Rock Sample

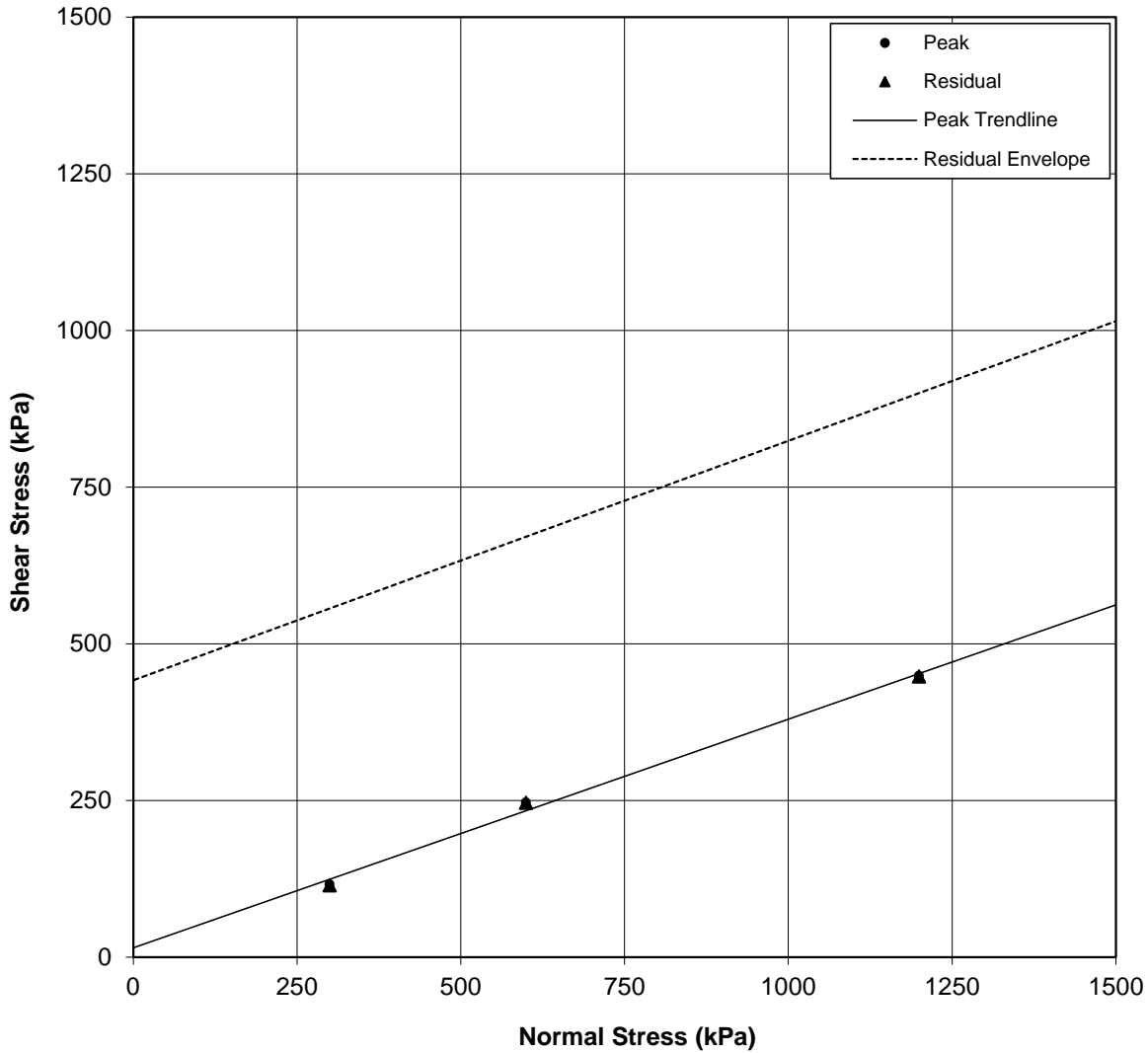
(large shearbox apparatus)

Borehole No: R71901
 Sample No: C22289
 Depth (m): 15.37-15.50

Description:

White CHALK. Fresh. Cut shear plane with no infill material.
 Joint roughness coefficient = 0-2.
 Debris is silt to medium gravel size.

Shear Stress v Normal Stress



Peak: $c' = 15$
 $\phi' = 20^\circ$

Residual: $c'r = 14$
 $\phi' r = 20^\circ$

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S R Allen (Senior Tech)

Date: 24/07/2019

Project Number:

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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



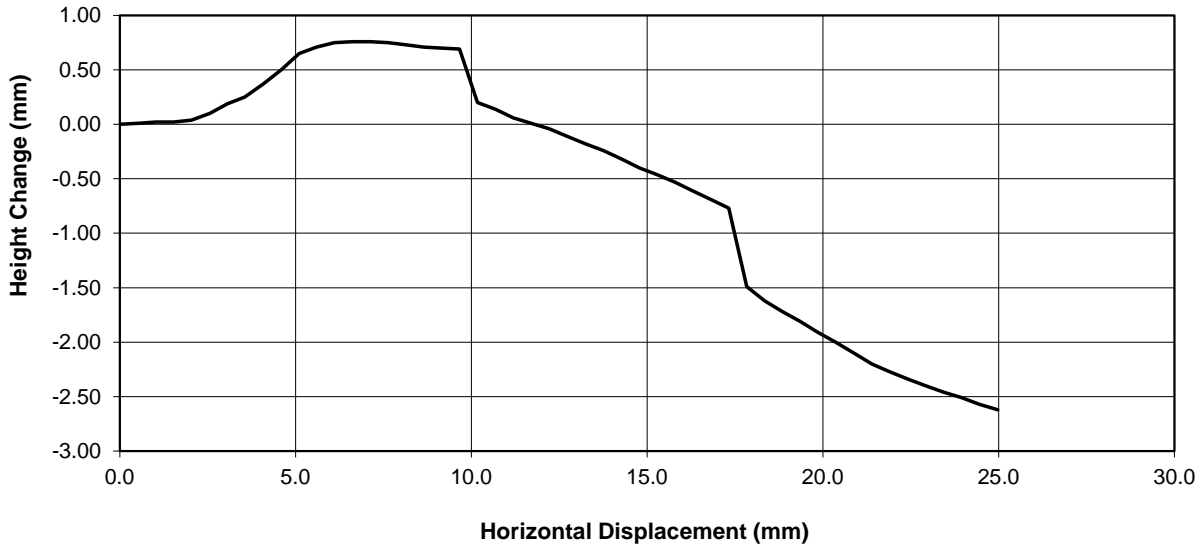
Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

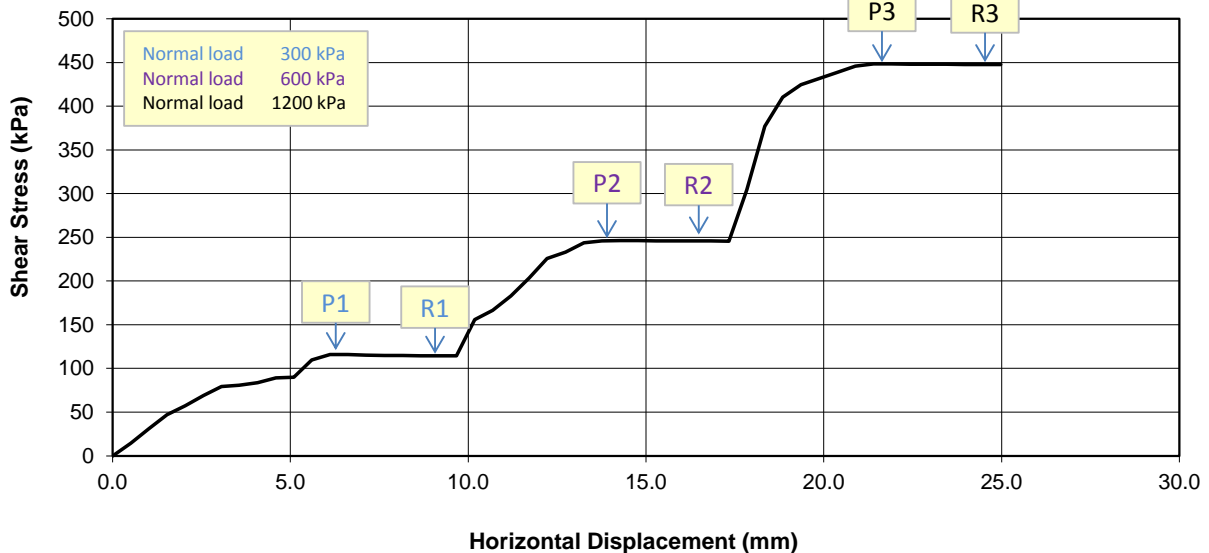
Borehole No: R71901
 Sample No: C22289
 Depth (m): 15.37-15.50

Description:
 White CHALK. Fresh. Cut shear plane with no infill material.
 Joint roughness coefficient = 0-2.
 Debris is silt to medium gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

Borehole No: R71901
 Sample No: C22661
 Depth (m): 21.59-21.72

Description:

White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Specimen Details

Type of shear plane	Intact rock		
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.		
Specimen Number	1		
Maximum Length	mm	100.4	
Maximum Width	mm	99.9	
Area	mm ²	7873.6	

Shearing Stage

Normal stress	kPa	250	500	1000
Peak Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Maximum shear stress	kPa	463.1	547.7	701.9
Horizontal displacement at MSS	mm	6.6	13.2	34.7
Residual Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Residual shear stress	kPa	463.1	483.0	687.0
Final cumulative displacement	mm	41.8		

Duration	day(s)	1
----------	--------	---

Shear Strength Parameters**Maximum Condition:**

Apparent Cohesion	kPa	386
Angle of Shearing Resistance	degrees	17.5

Residual Condition:

Apparent Cohesion	kPa	361
Angle of Shearing Resistance	degrees	17.5

Notes:

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 25/07/2019

Project Number:

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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI**GEOLABS**®

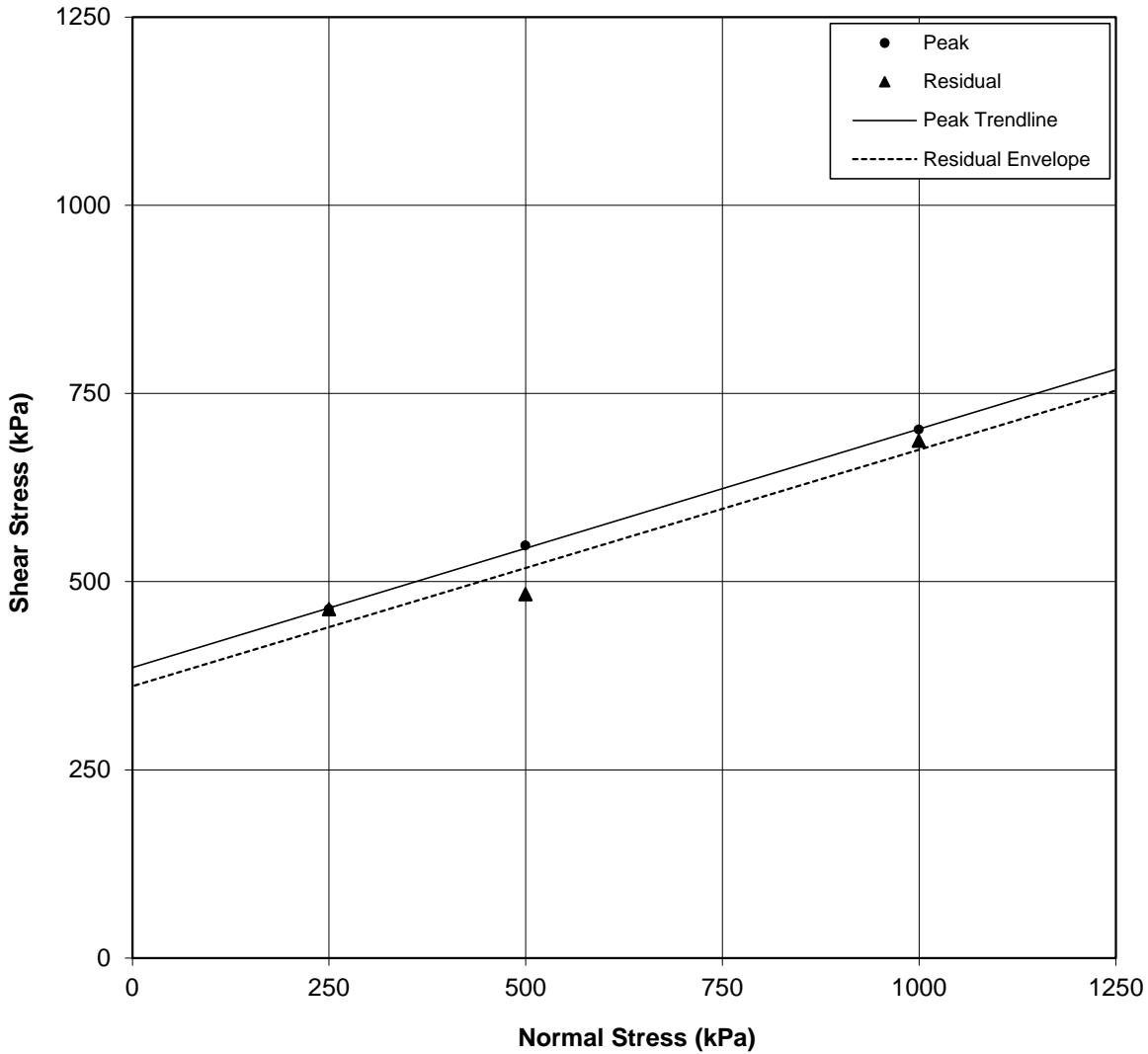
Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

Borehole No: R71901
 Sample No: C22661
 Depth (m): 21.59-21.72

Description:
 White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Shear Stress v Normal Stress



Peak: $c' = 386$ **Residual:** $c'r = 361$
 $\phi' = 17.5^\circ$ $\phi' r = 17.5^\circ$

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S R Allen (Senior Tech)

Date: 25/07/2019

Project Number:

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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



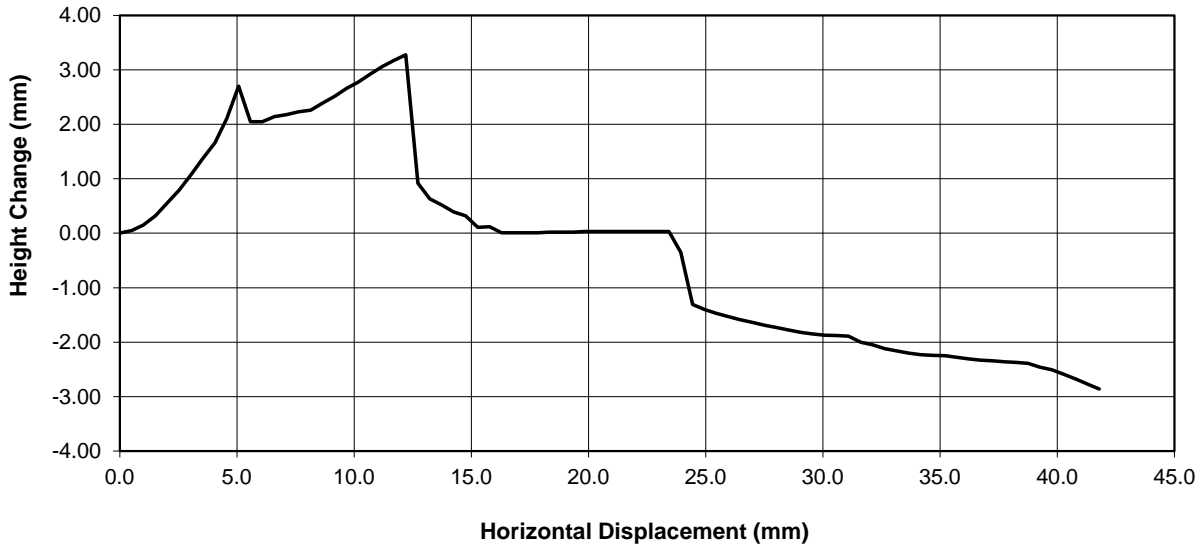
Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

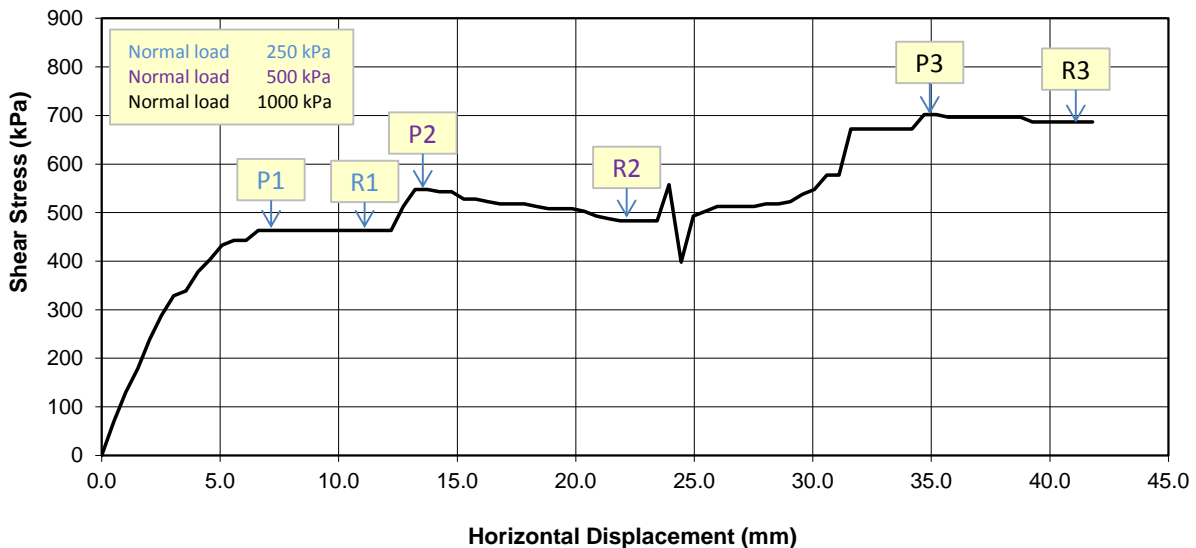
Borehole No: R71901
 Sample No: C22661
 Depth (m): 21.59-21.72

Description:
 White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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Project Name:

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Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

Borehole No: R71902
 Sample No: C23105
 Depth (m): 17.49-17.64

Description:

White CHALK. Fresh. Cut shear plane with no infill material.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Specimen Details

Type of shear plane	Saw cut
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.
Specimen Number	1
Maximum Length	mm 78.5
Maximum Width	mm 99.6
Area	mm ² 7743.9

Shearing Stage

Normal stress	kPa	200	400	800
Peak Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Maximum shear stress	kPa	82.3	168.5	308.9
Horizontal displacement at MSS	mm	3.6	9.7	15.8
Residual Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Residual shear stress	kPa	82.3	168.5	308.1
Final cumulative displacement	mm	19.9		

Duration	day(s)	1
----------	--------	---

Shear Strength Parameters**Maximum Condition:**

Apparent Cohesion	kPa	12
Angle of Shearing Resistance	degrees	20.5

Residual Condition:

Apparent Cohesion	kPa	13
Angle of Shearing Resistance	degrees	20.5

Notes:

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S R Allen (Senior Tech)

Date: 24/07/2019

Project Number:

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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI**GEOLABS**®

Determination of Shear Strength by Direct Shear on Rock Sample

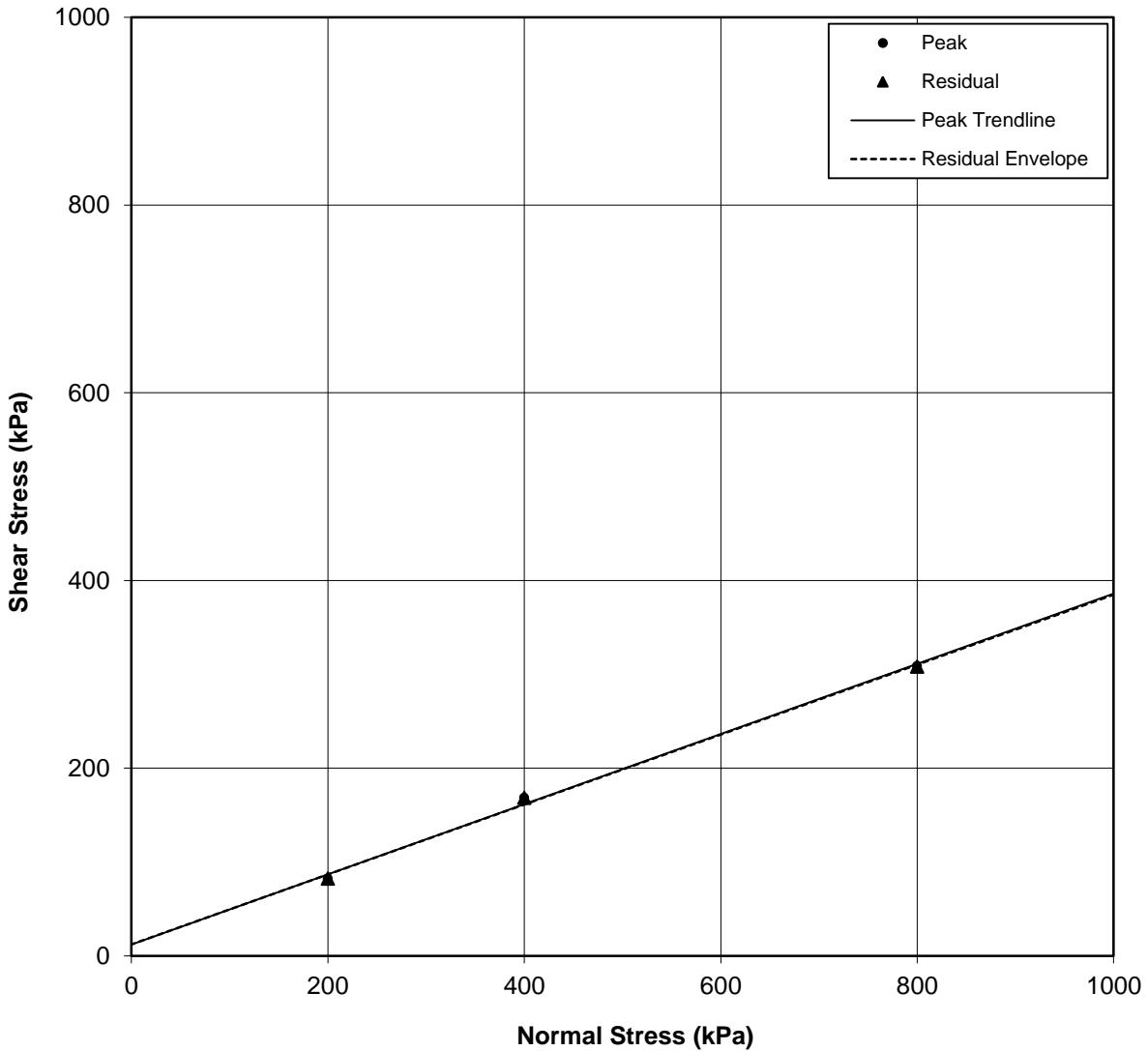
(large shearbox apparatus)

Borehole No: R71902
 Sample No: C23105
 Depth (m): 17.49-17.64

Description:

White CHALK. Fresh. Cut shear plane with no infill material.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Shear Stress v Normal Stress



Peak: $c' = 12$
 $\phi' = 20.5^\circ$

Residual: $c'r = 13$
 $\phi'r = 20.5^\circ$

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Date: 24/07/2019

Project Number:

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Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI

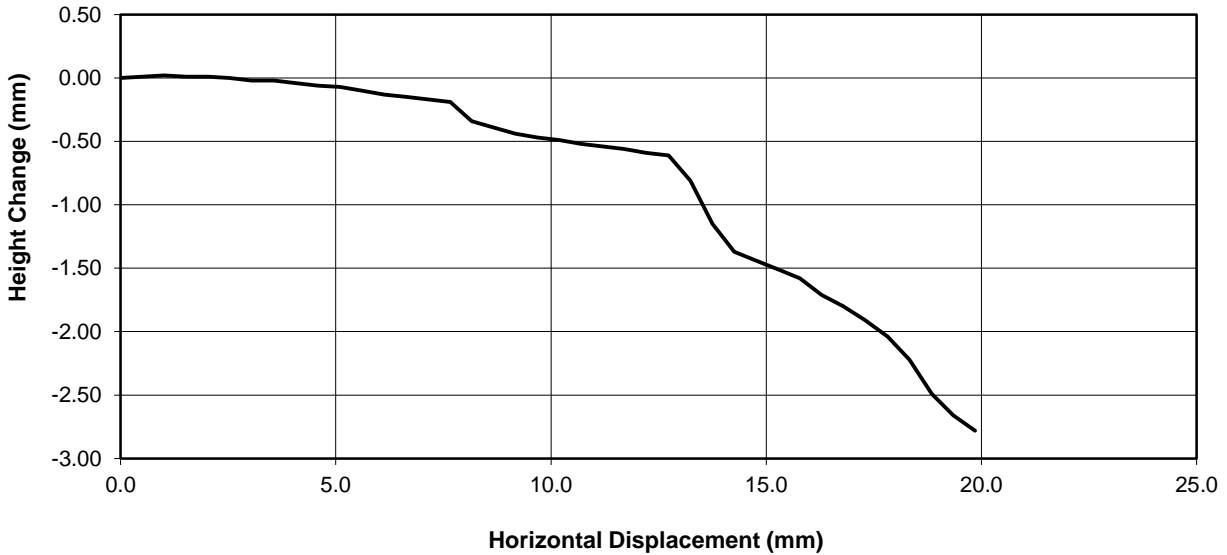


ISRM Suggested Method
Determination of Shear Strength by Direct Shear on Rock Sample
 (large shearbox apparatus)

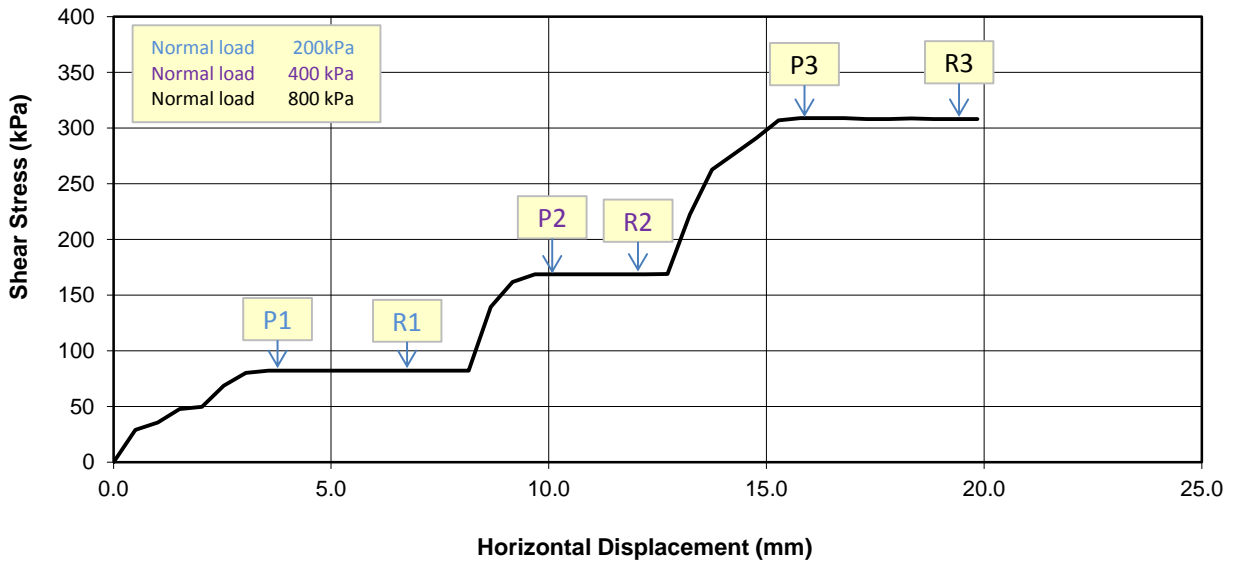
Borehole No: R71902
 Sample No: C23105
 Depth (m): 17.49-17.64

Description:
 White CHALK. Fresh. Cut shear plane with no infill material.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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S R Allen (Senior Tech)

Date: 24/07/2019

Project Number:

GEO / 29521

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

Borehole No: R71902
 Sample No: C23119
 Depth (m): 30.02-30.31

Description:

White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Specimen Details

Type of shear plane	Intact rock		
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.		
Specimen Number	1		
Maximum Length	mm	100.3	
Maximum Width	mm	100.1	
Area	mm ²	7881.4	

Shearing Stage

Normal stress	kPa	300	600	1200
Peak Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Maximum shear stress	kPa	507.4	482.5	631.8
Horizontal displacement at MSS	mm	5.1	10.2	20.4
Residual Conditions:				
Rate of horizontal displacement	mm/min	0.1	0.1	0.1
Residual shear stress	kPa	383.0	442.7	631.8
Final cumulative displacement	mm	23.9		

Duration	day(s)	1
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Shear Strength Parameters**Maximum Condition:**

Apparent Cohesion	kPa	n/a ¹
Angle of Shearing Resistance	degrees	n/a ¹

Residual Condition:

Apparent Cohesion	kPa	288
Angle of Shearing Resistance	degrees	15.5

Notes:

¹ Not possible to establish peak angle of friction from these results.

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 25/07/2019

Project Number:

GEO / 29521

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI**GEOLABS**®

Determination of Shear Strength by Direct Shear on Rock Sample

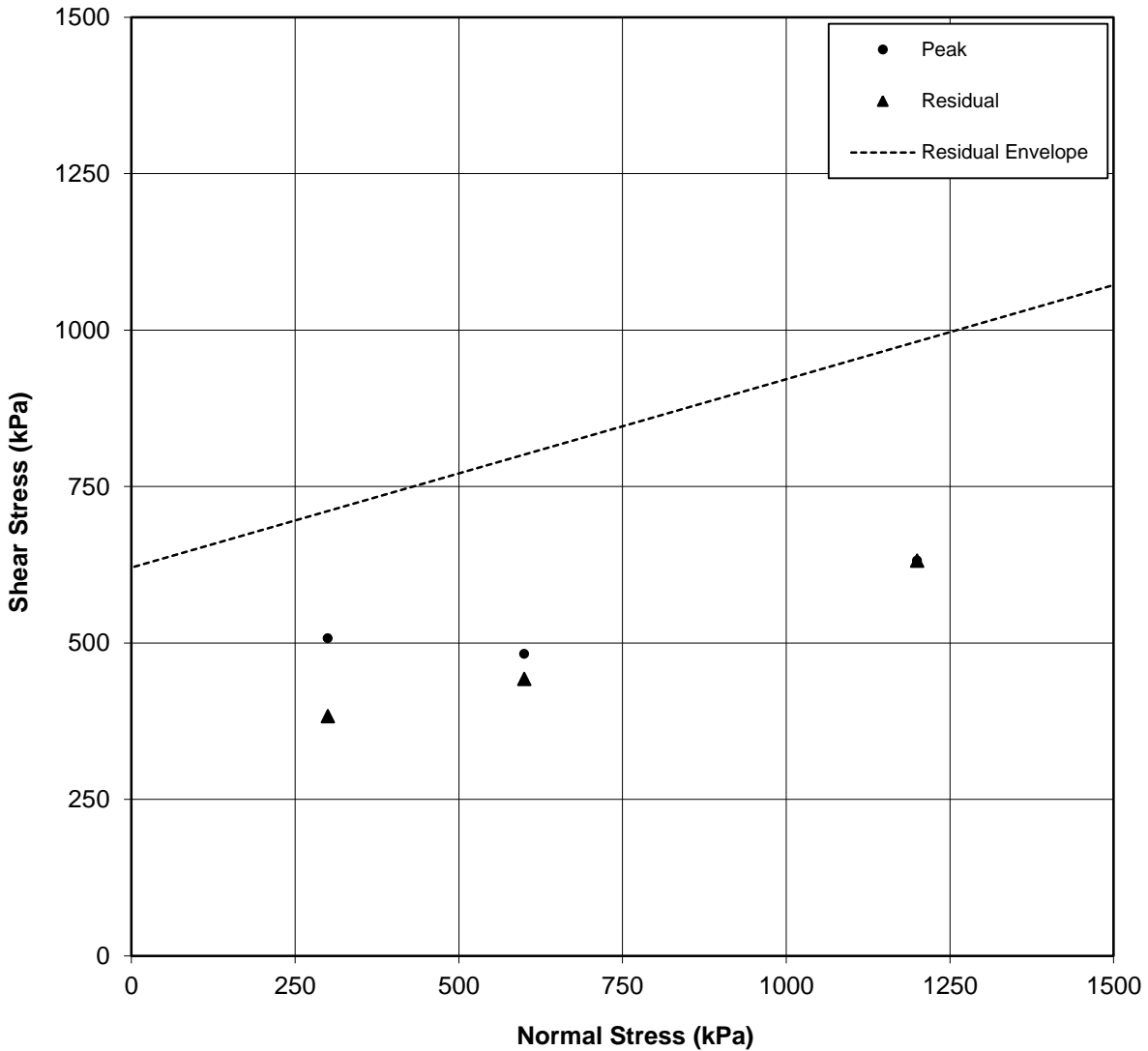
(large shearbox apparatus)

Borehole No: R71902
 Sample No: C23119
 Depth (m): 30.02-30.31

Description:

White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Shear Stress v Normal Stress



Peak: $c' = n/a$
 $\Phi' = n/a$

Residual: $c'r = 288$
 $\Phi'r = 15.5^\circ$

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 25/07/2019

Project Number:

GEO / 29521

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI

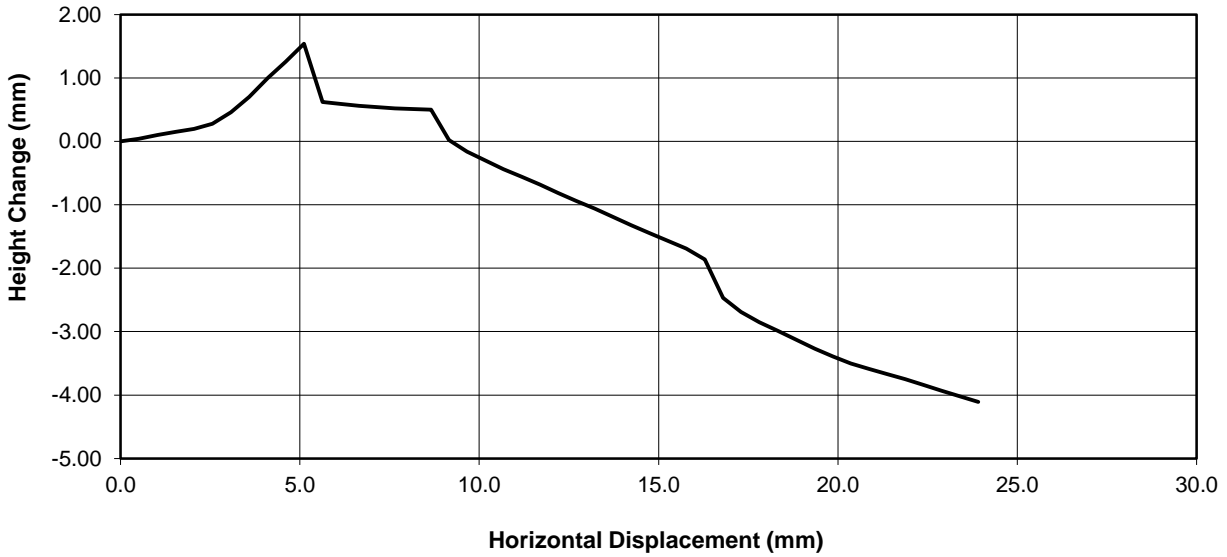


ISRM Suggested Method
Determination of Shear Strength by Direct Shear on Rock Sample
 (large shearbox apparatus)

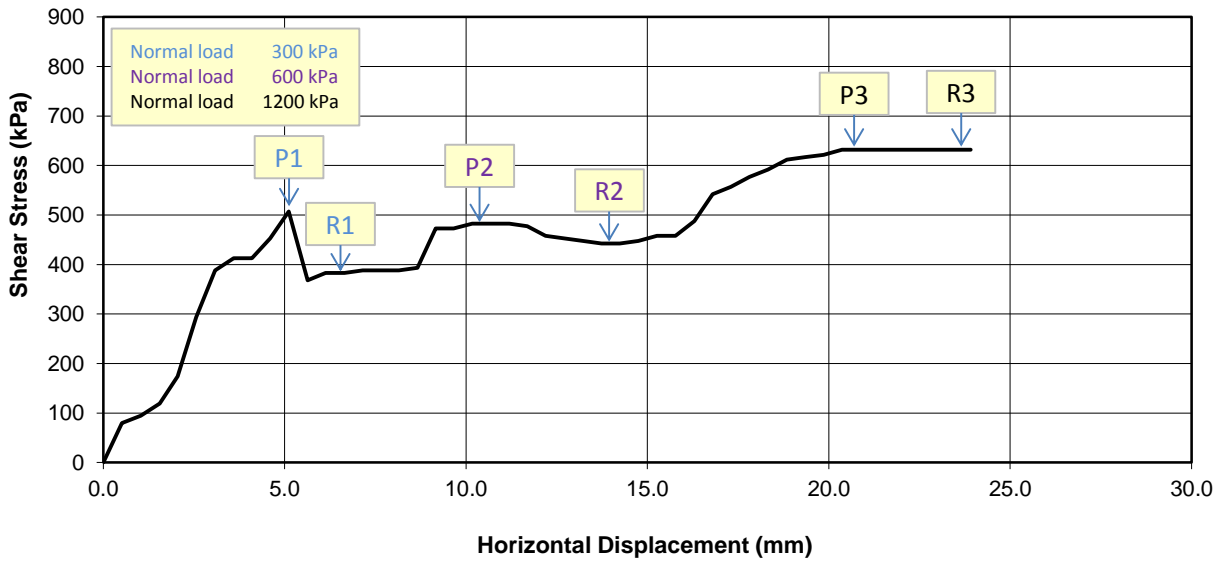
Borehole No: R71902
 Sample No: C23119
 Depth (m): 30.02-30.31

Description:
 White CHALK. Fresh. Intact.
 Joint roughness coefficient = 0-2.
 Debris is silt to coarse gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Checked and Approved by

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S R Allen (Senior Tech)

Date: 25/07/2019

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Project Name:



A303 Amesbury to Berwick Down - Phase 7A GI



ISRM Suggested Method
Determination of Shear Strength by Direct Shear on Rock Sample
 (large shearbox apparatus)

Borehole No: R71903 Sample No: C22684 Depth (m): 19.98	Description: White CHALK. Fresh. Intact rock. Debris is silt to medium gravel size.
--	---

Specimen Details				
Type of shear plane	Intact rock			
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.			
Specimen Number	1			
Maximum Length	<i>mm</i>	101.1		
Maximum Width	<i>mm</i>	99.3		
Area	<i>mm²</i>	7881.4		
Shearing Stage				
Normal stress	<i>kPa</i>	200	400	800
Peak Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Maximum shear stress	<i>kPa</i>	442.7	412.9	527.3
Horizontal displacement at MSS	<i>mm</i>	5.6	9.6	15.2
Residual Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Residual shear stress	<i>kPa</i>	343.2	402.9	527.3
Final cumulative displacement	<i>mm</i>	19.8		
Duration	<i>day(s)</i>	1		
Shear Strength Parameters				
Maximum Condition:				
Apparent Cohesion	<i>kPa</i>	n/a ¹		
Angle of Shearing Resistance	<i>degrees</i>	n/a ¹		
Residual Condition:				
Apparent Cohesion	<i>kPa</i>	281		
Angle of Shearing Resistance	<i>degrees</i>	17.0		
Notes:	<i>¹ Not possible to establish peak angle of friction from these results.</i>			

Checked and Approved by  S R Allen (Senior Tech) Date: 29/07/2019	Project Number: GEO / 29572 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI	
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Determination of Shear Strength by Direct Shear on Rock Sample

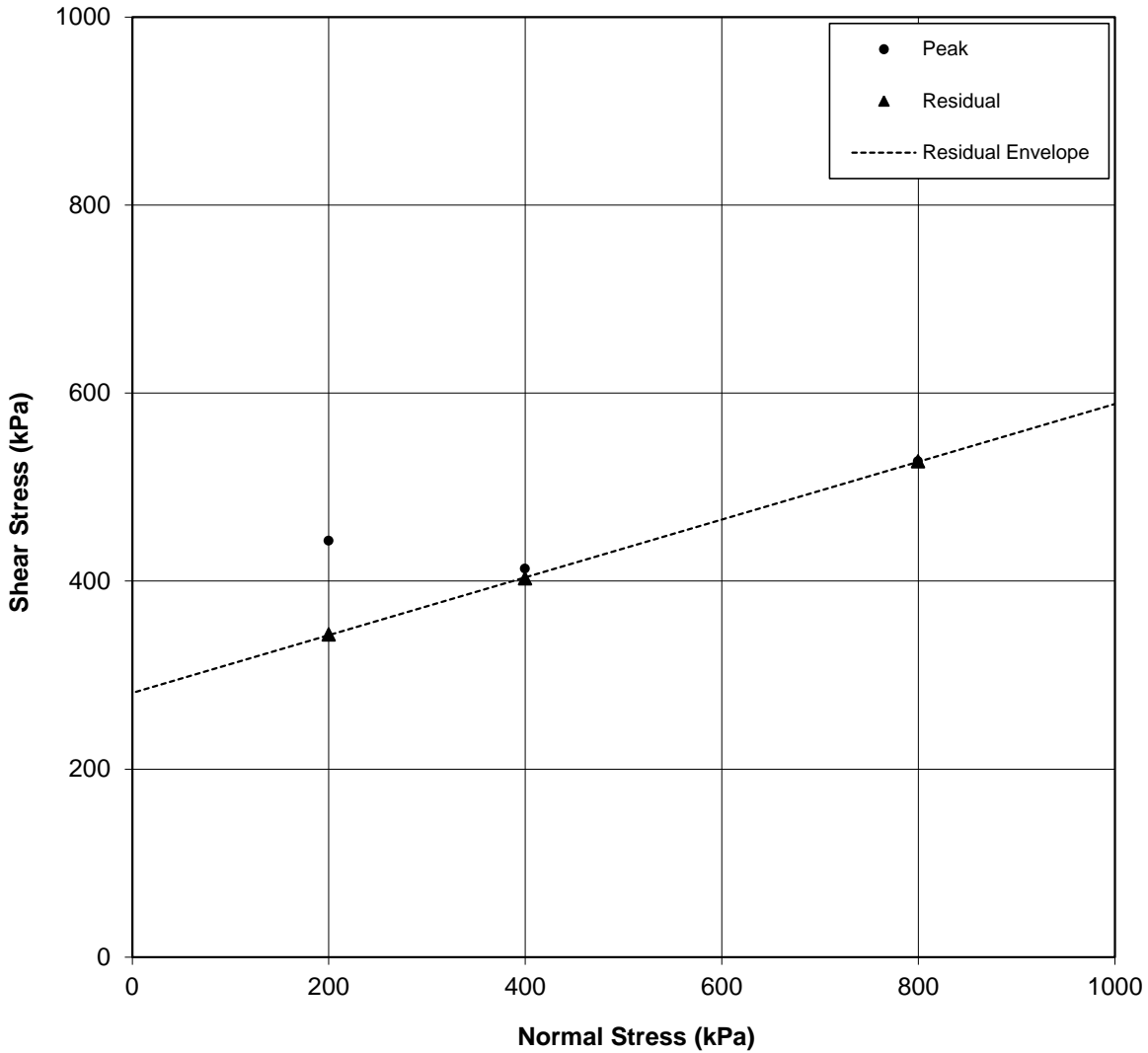
(large shearbox apparatus)

Borehole No: R71903
 Sample No: C22684
 Depth (m): 19.98

Description:

White CHALK. Fresh. Intact rock.
 Debris is silt to medium gravel size.

Shear Stress v Normal Stress



Peak: $c' = n/a$ **Residual:** $c'r = 281$
 $\Phi' = n/a$ $\Phi' r = 17^\circ$

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 29/07/2019

Project Number:

GEO / 29572

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



Determination of Shear Strength by Direct Shear on Rock Sample

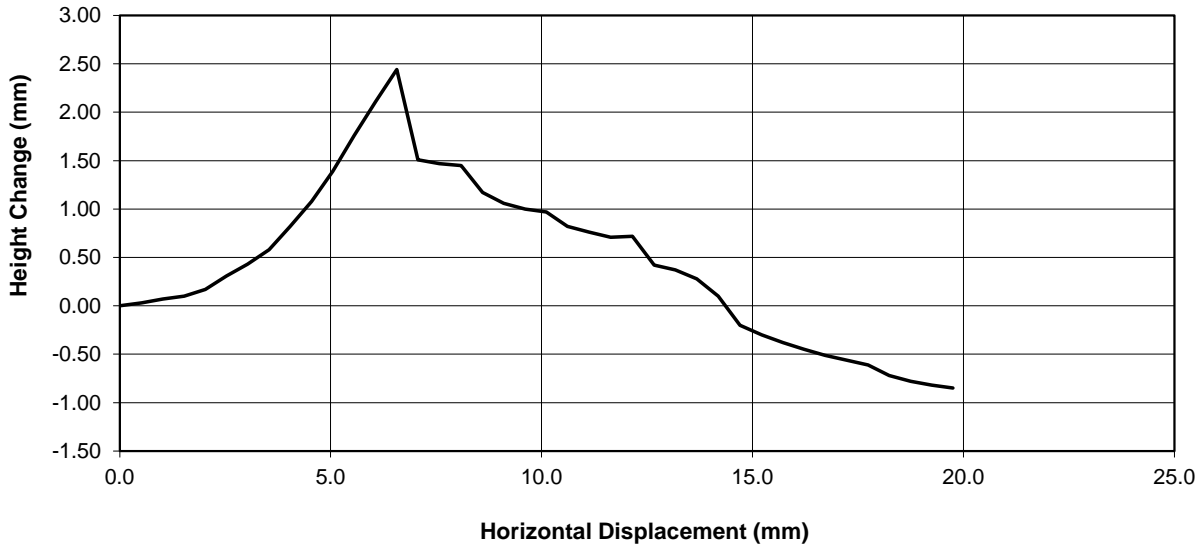
(large shearbox apparatus)

Borehole No: R71903
 Sample No: C22684
 Depth (m): 19.98

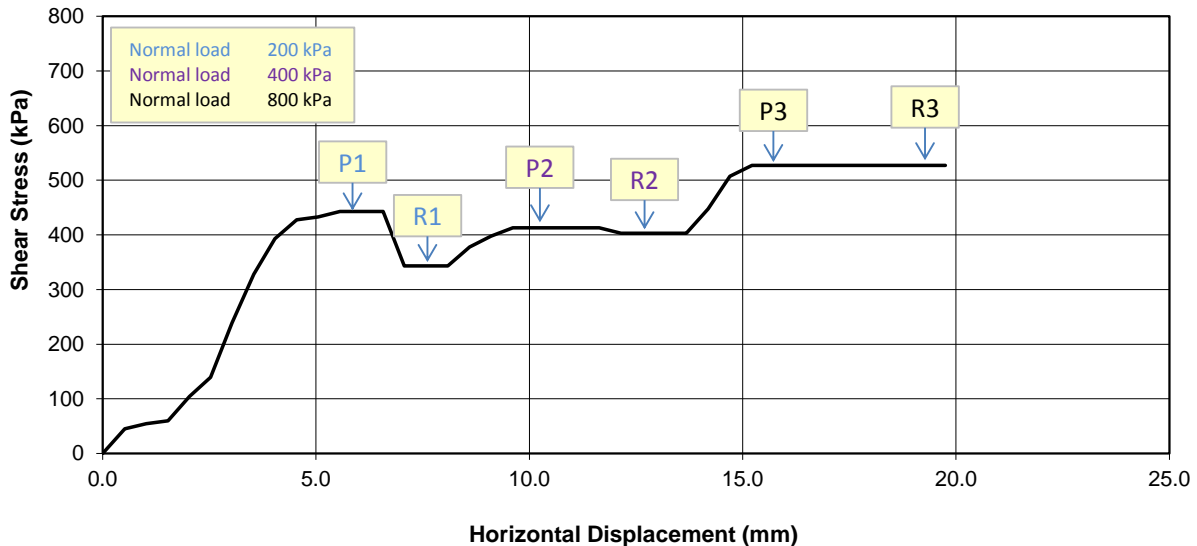
Description:

White CHALK. Fresh. Intact rock.
 Debris is silt to medium gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



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S R Allen (Senior Tech)

Date: 29/07/2019

Project Number:

GEO / 29572

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI



Determination of Shear Strength by Direct Shear on Rock Sample

(large shearbox apparatus)

Borehole No: R71904
 Sample No: 645999
 Depth (m): 33.08

Description:

White CHALK. Fresh. Intact rock.
 Debris is silt to medium gravel size.

Specimen Details

Type of shear plane	Intact rock		
Preparation	Rock core encapsulated in concrete avoiding shear plane then positioned in shearbox with shear plane parallel to interface of top and bottom halves of shearbox.		
Specimen Number	1		
Maximum Length	<i>mm</i>	100.6	
Maximum Width	<i>mm</i>	99.8	
Area	<i>mm²</i>	7882.9	

Shearing Stage

Normal stress	<i>kPa</i>	300	600	1200
Peak Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Maximum shear stress	<i>kPa</i>	457.6	576.9	879.2
Horizontal displacement at MSS	<i>mm</i>	5.1	11.2	22.4
Residual Conditions:				
Rate of horizontal displacement	<i>mm/min</i>	0.1	0.1	0.1
Residual shear stress	<i>kPa</i>	353.1	576.9	785.2
Final cumulative displacement	<i>mm</i>	28.9		

Duration	<i>day(s)</i>	1
----------	---------------	---

Shear Strength Parameters**Maximum Condition:**

Apparent Cohesion	<i>kPa</i>	306
Angle of Shearing Resistance	<i>degrees</i>	25.5

Residual Condition:

Apparent Cohesion	<i>kPa</i>	249
Angle of Shearing Resistance	<i>degrees</i>	25.0

Notes:

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 29/07/2019

Project Number:

GEO / 29573

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI**GEOLABS**®

Determination of Shear Strength by Direct Shear on Rock Sample

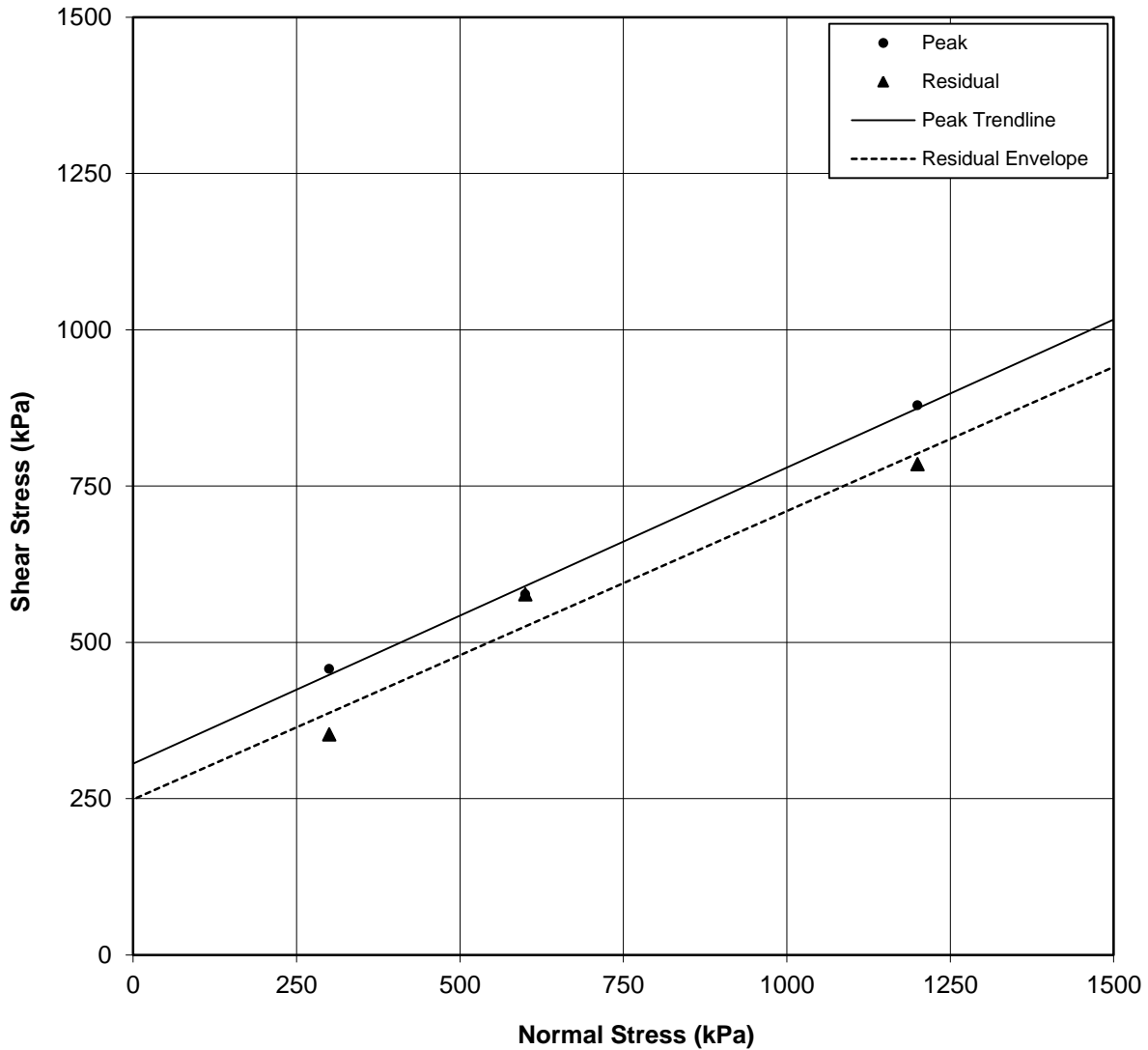
(large shearbox apparatus)

Borehole No: R71904
 Sample No: 645999
 Depth (m): 33.08

Description:

White CHALK. Fresh. Intact rock.
 Debris is silt to medium gravel size.

Shear Stress v Normal Stress



Peak: $c' = 306$
 $\phi' = 25.5^\circ$

Residual: $c'r = 249$
 $\phi'r = 25^\circ$

Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 29/07/2019

Project Number:

GEO / 29573

Project Name:

A303 Amesbury to Berwick Down - Phase 7A GI

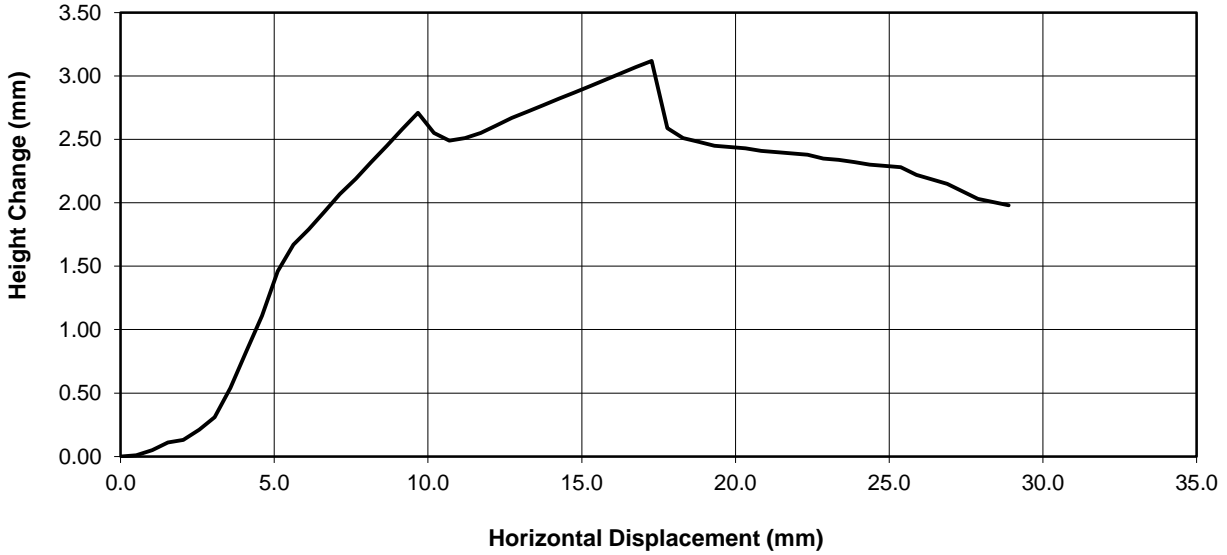


ISRM Suggested Method
Determination of Shear Strength by Direct Shear on Rock Sample
 (large shearbox apparatus)

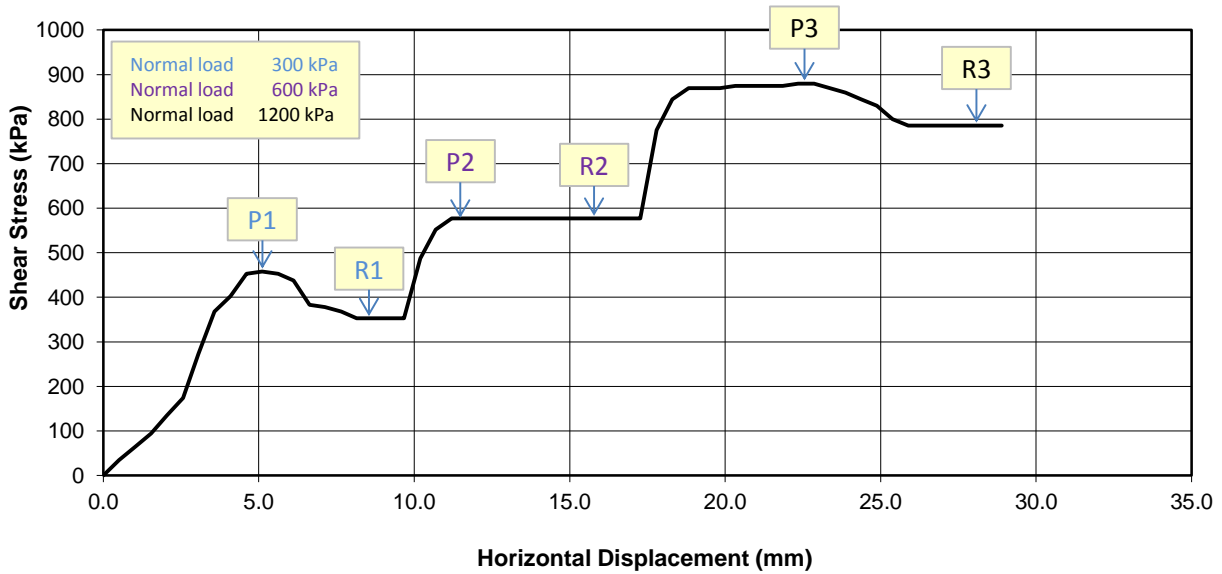
Borehole No: R71904
 Sample No: 645999
 Depth (m): 33.08

Description:
 White CHALK. Fresh. Intact rock.
 Debris is silt to medium gravel size.

Height Change v Horizontal Displacement



Shear Stress v Horizontal Displacement



Checked and Approved by

SRA

S R Allen (Senior Tech)

Date: 29/07/2019

Project Number:

GEO / 29573

Project Name:

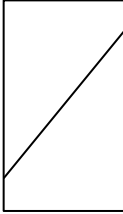
A303 Amesbury to Berwick Down - Phase 7A GI



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: CP70202
Sample No.: C22260
Depth (m): 8.20-8.65

Description:
Firm off-white structureless gravelly CHALK.

SPECIMEN DETAILS			
Depth within original sample	20 mm from top		
Orientation within original sample	Vertical		
TEST DETAILS			
Specimen Type and Preparation	U (Undisturbed)		
Cell Preparation	Checks performed in accordance with Clause 3.5		
Specimen Number	Multistage		
Initial Diameter <i>mm</i>	103.79		
Initial Length <i>mm</i>	199.52		
Initial Water Content <i>%</i>	24.0		
Initial Wet Density <i>Mg/m³</i>	2.06		
Drainage Conditions	One end and radial boundary		
SATURATION STAGE	Method: Clause 5.3		
Final Cell Pressure <i>kPa</i>	380		
Final Pore Pressure <i>kPa</i>	361		
Final Pore Pressure Parameter B	0.95		
Duration <i>day(s)</i>	2		
CONSOLIDATION STAGE	Stage No 1	Stage No 2	Stage No 3
Cell Pressure <i>kPa</i>	380	460	620
Back Pressure <i>kPa</i>	300	300	300
Effective Pressure <i>kPa</i>	80	160	320
Final Pore Pressure <i>kPa</i>	300	301	300
Final Pore Pressure Dissipation <i>%</i>	99	100	100
Duration <i>day(s)</i>	1	1	2
SHEARING STAGE			
Cell Pressure <i>kPa</i>	380	460	620
Rate of Axial Displacement <i>mm/min</i>	0.0013	0.0060	0.0012
Initial Pore Pressure <i>kPa</i>	300	301	300
Initial Effective Stress <i>kPa</i>	80	160	320
CONDITIONS AT FAILURE	<i>criteria</i> Maximum effective principal stress ratio		
Pore Pressure <i>kPa</i>	300	302	401
Minor Effective Principal Stress <i>kPa</i>	80	158	219
Deviator Stress <i>kPa</i>	305	574	899
Major Effective Principal Stress <i>kPa</i>	385	732	1118
Effective Principal Stress Ratio	4.83	4.64	5.10
Pore Pressure Parameter A	0.00	0.00	0.11
Axial Strain <i>%</i>	1.5	1.0	1.0
Membrane & filter correction applied to Deviator Stress <i>kPa</i>	3	2	2
Duration <i>day(s)</i>	3	1	3
Final Water Content <i>%</i>	23.0		
Final Wet Density <i>Mg/m³</i>	2.06		
EFFECTIVE STRESS PARAMETERS			
Cohesion <i>kPa</i>	0		
Angle of Shear Resistance <i>degrees</i>	41.5		
FAILURE SKETCH			

Checked and Approved by



C F Wallace - Technical Manager
24/07/2019

Project Number:

GEO / 29481

Project Name:

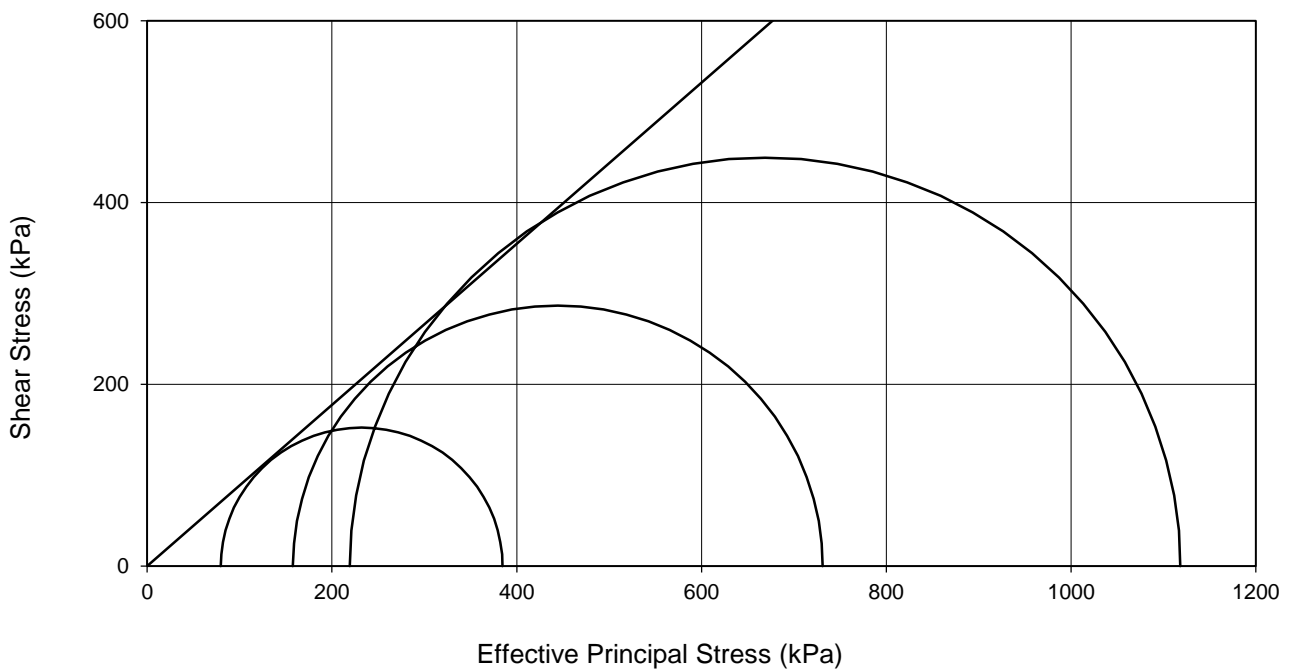
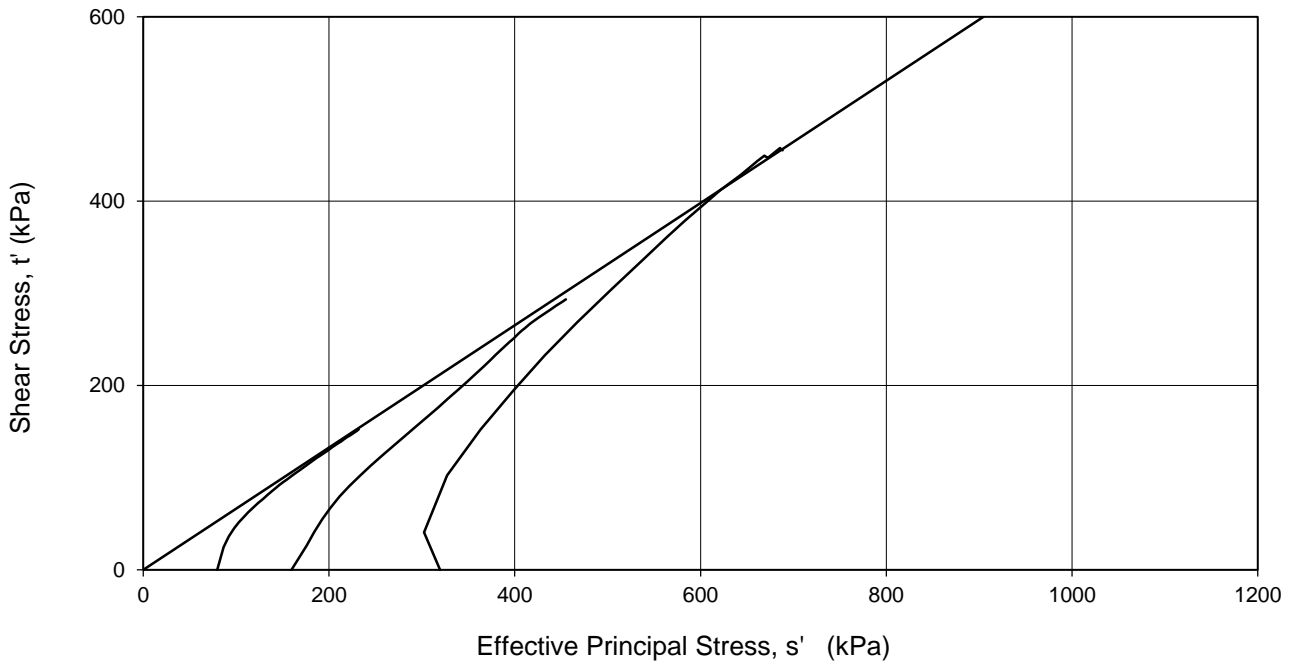
**A303 AMESBURY TO BERWICK DOWN
PC197510**




Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: CP70202
 Sample No.: C22260
 Depth (m): 8.20-8.65

Description:
 Firm off-white structureless gravelly CHALK.



Checked and Approved by



C F Wallace - Technical Manager
 24/07/2019

Project Number:

GEO / 29481

Project Name:

**A303 AMESBURY TO BERWICK DOWN
 PC197510**

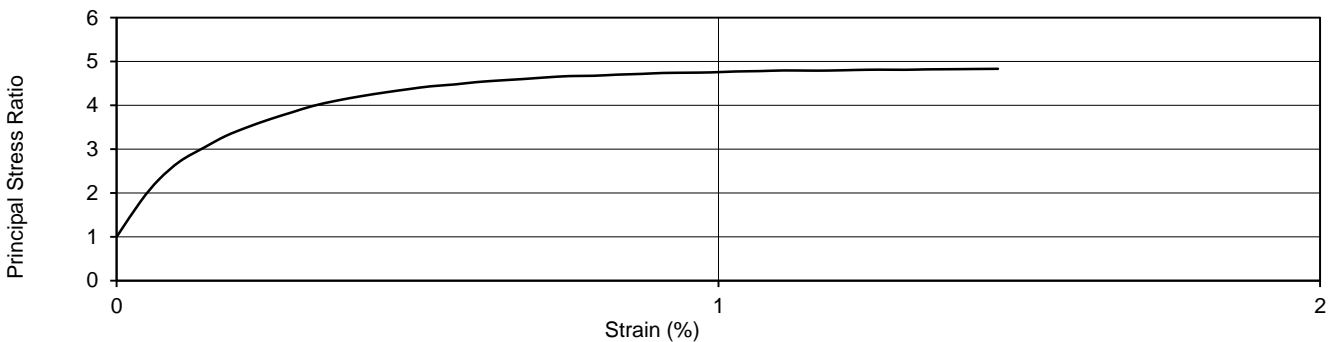
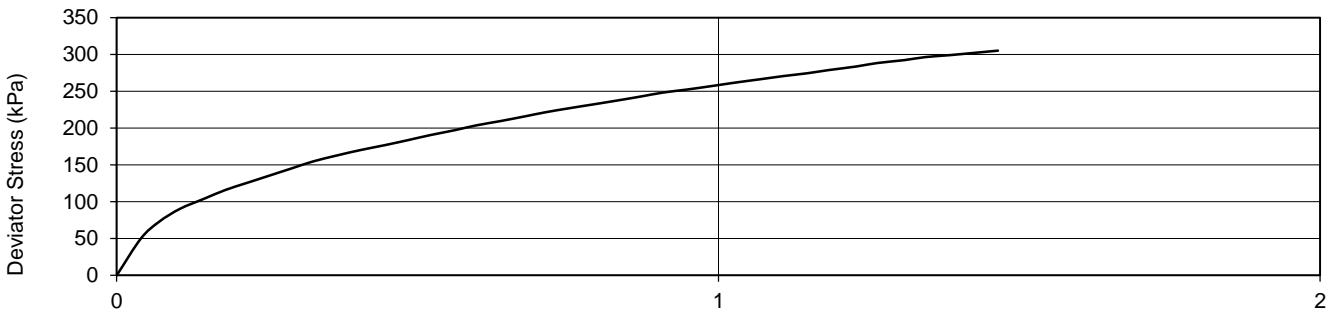
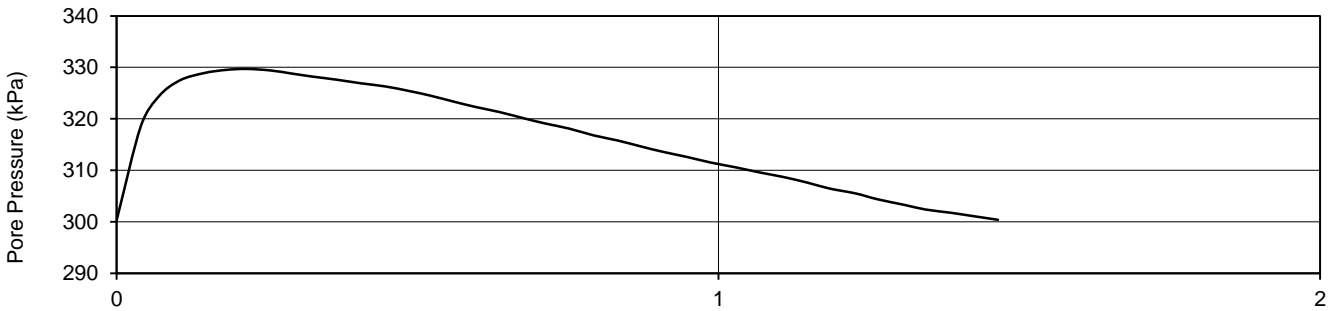
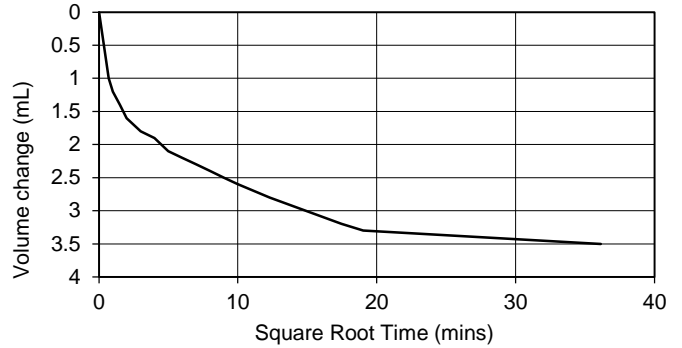
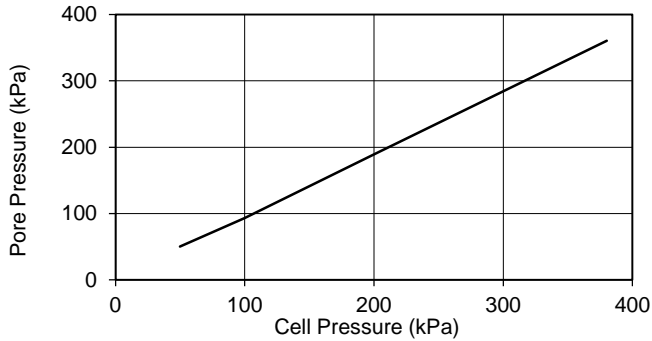
GEOLABS



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: CP70202
 Sample No.: C22260
 Depth (m): 8.20-8.65

Stage No 1



Checked and Approved by

C F Wallace - Technical Manager
24/07/2019

Project Number:

GEO / 29481

Project Name:

**A303 AMESBURY TO BERWICK DOWN
PC197510**

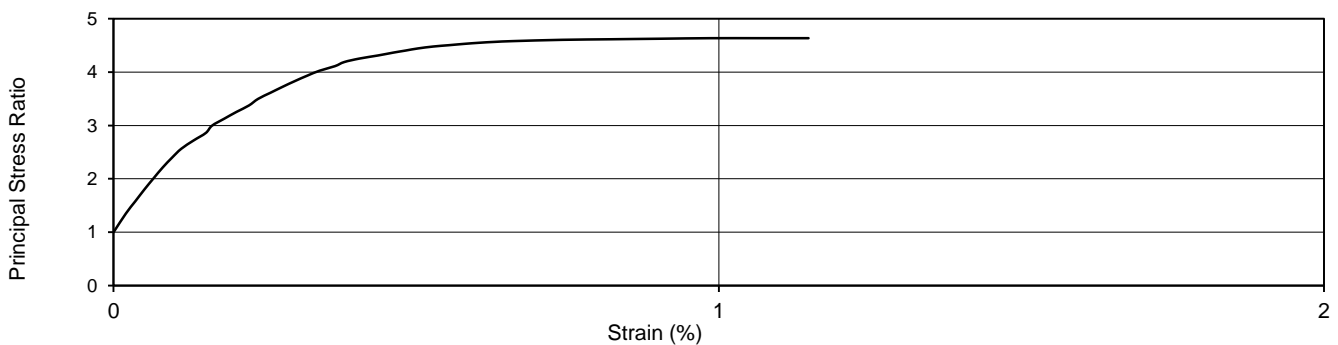
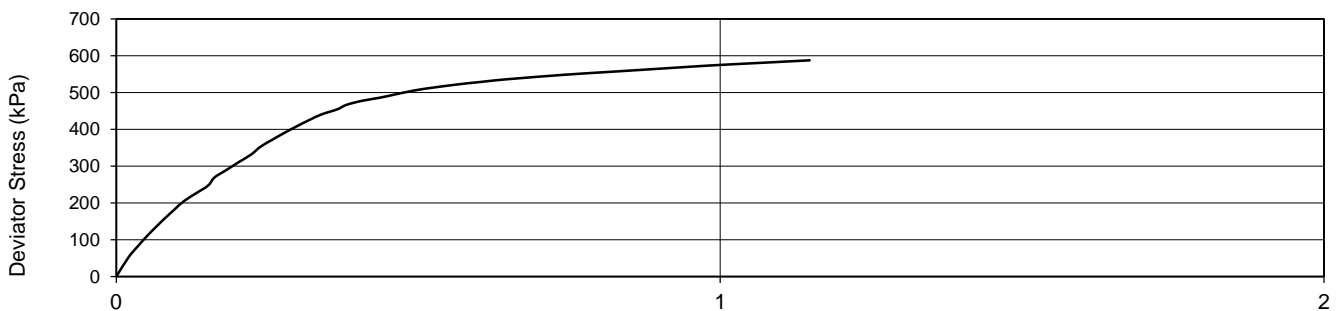
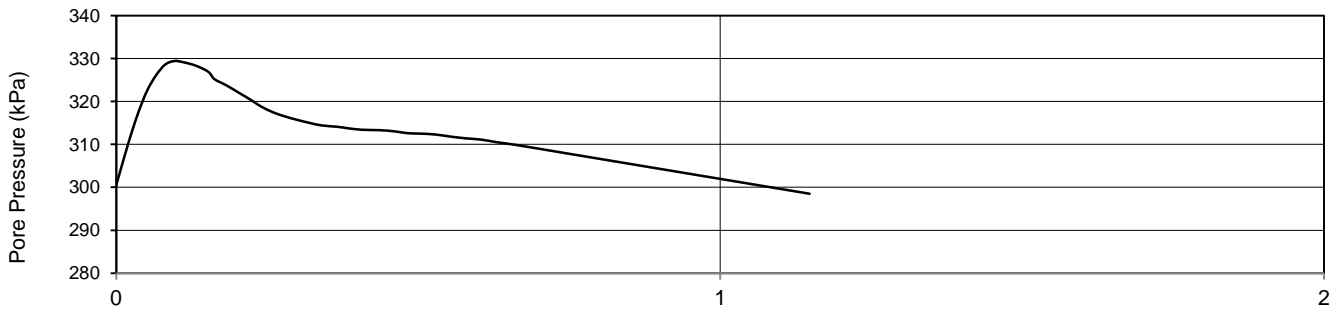
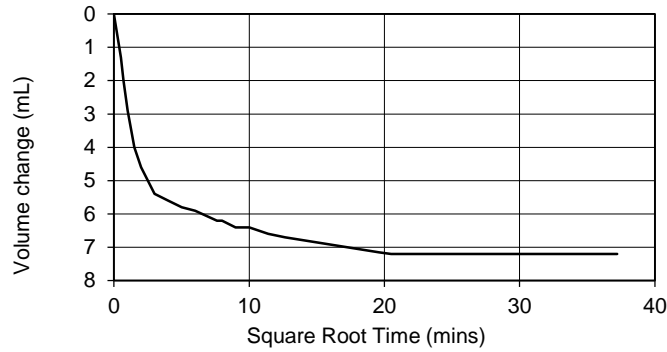
GEOLABS



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: CP70202
 Sample No.: C22260
 Depth (m): 8.20-8.65

Stage No 2



Checked and Approved by



C F Wallace - Technical Manager
24/07/2019

Project Number:

GEO / 29481

Project Name:

**A303 AMESBURY TO BERWICK DOWN
PC197510**

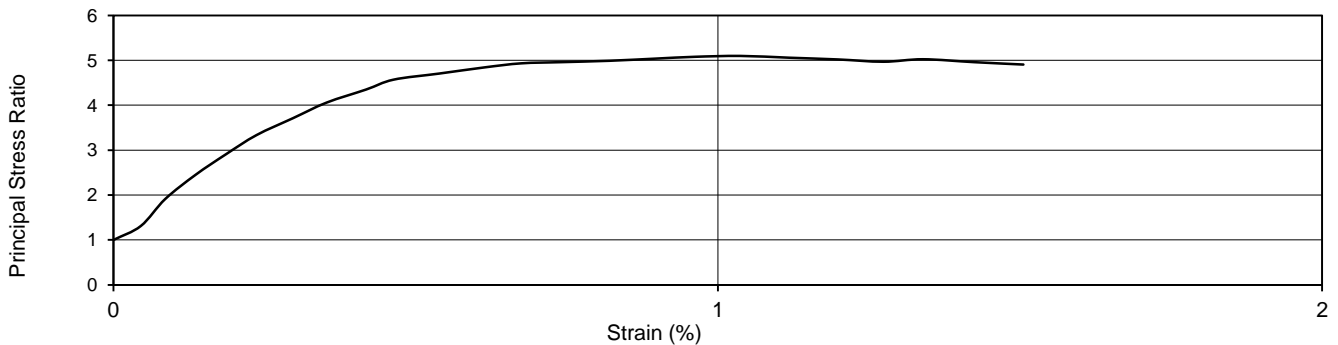
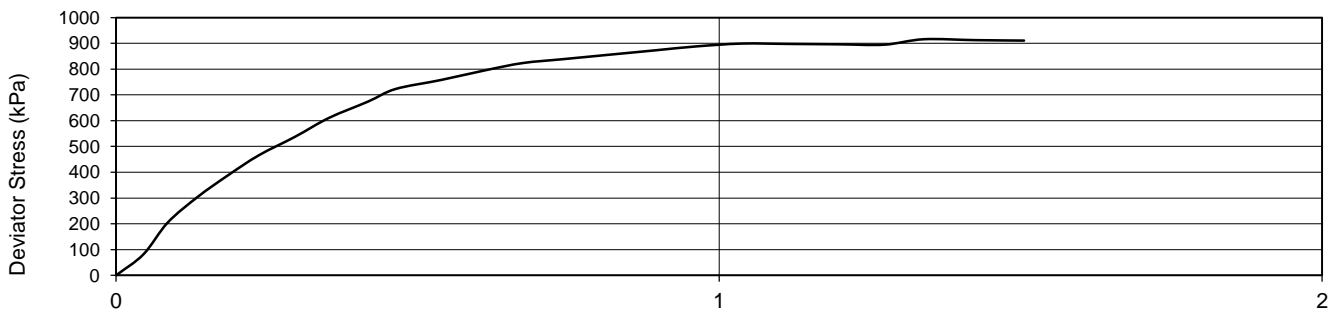
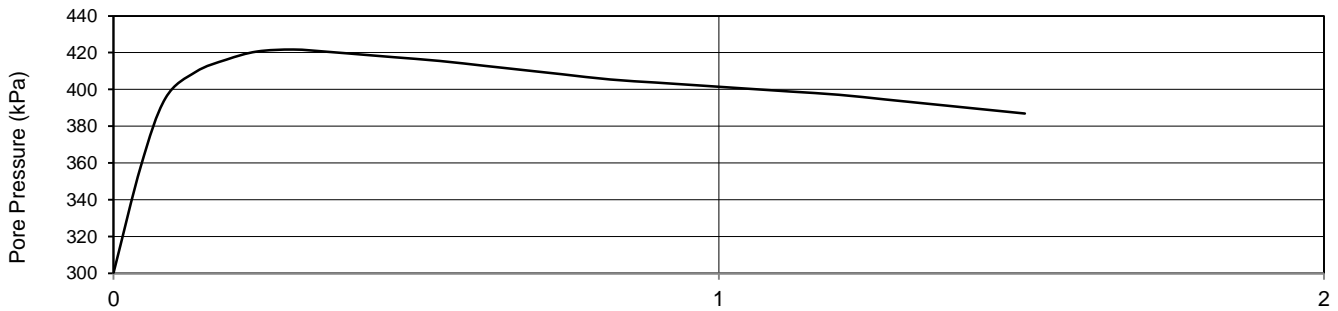
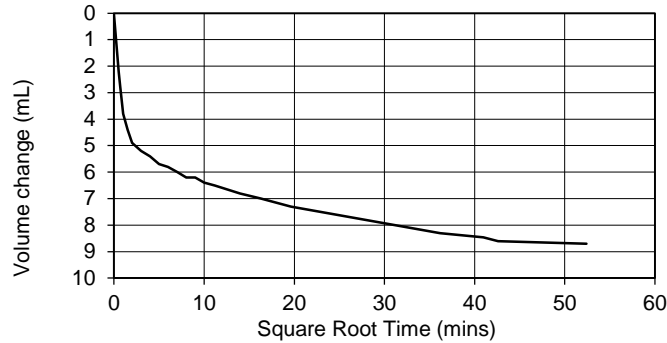
GEOLABS



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: CP70202
 Sample No.: C22260
 Depth (m): 8.20-8.65

Stage No 3



Checked and Approved by

C F Wallace - Technical Manager
24/07/2019

Project Number:

GEO / 29481

Project Name:

**A303 AMESBURY TO BERWICK DOWN
PC197510**



GEOLABS



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: R71902 Sample No.: C23100 Depth (m): 24.68-24.90	Description: Hard off-white intact CHALK.
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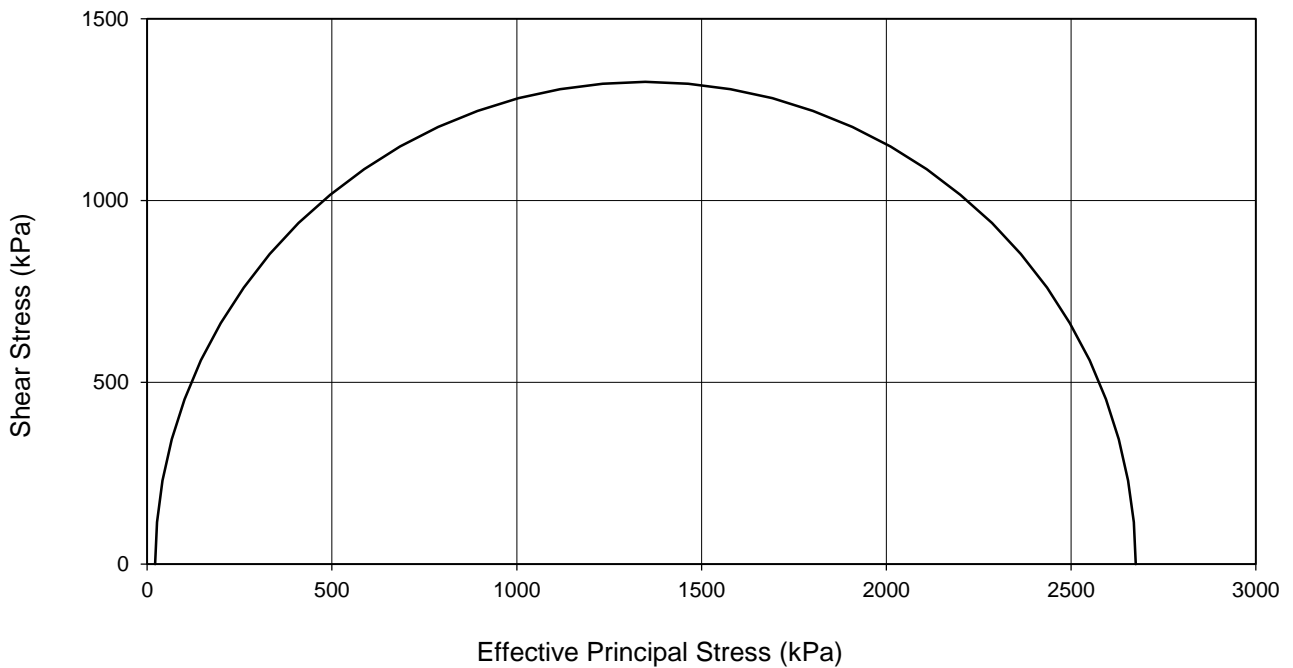
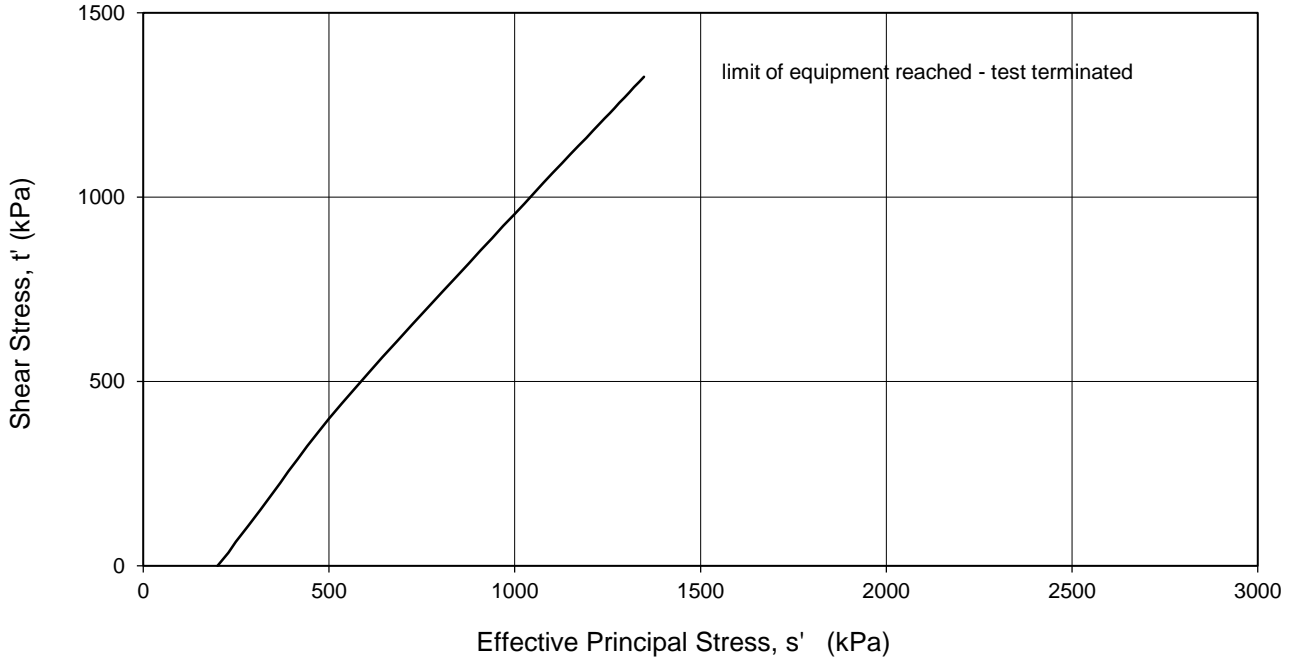
SPECIMEN DETAILS	
Depth within original sample	20 mm from top
Orientation within original sample	Vertical
TEST DETAILS	
Specimen Type and Preparation	C (Undisturbed)
Cell Preparation	Checks performed in accordance with Clause 3.5
Specimen Number	Multistage
Initial Diameter <i>mm</i>	99.02
Initial Length <i>mm</i>	187.80
Initial Water Content %	25.8
Initial Wet Density <i>Mg/m³</i>	1.98
Drainage Conditions	One end and radial boundary
SATURATION STAGE	Method: Clause 5.2
Final Cell Pressure <i>kPa</i>	500
Final Pore Pressure <i>kPa</i>	483
Final Pore Pressure Parameter B	0.99
Duration <i>day(s)</i>	4
CONSOLIDATION STAGE	Stage No 1
Cell Pressure <i>kPa</i>	500
Back Pressure <i>kPa</i>	300
Effective Pressure <i>kPa</i>	200
Final Pore Pressure <i>kPa</i>	300
Final Pore Pressure Dissipation %	100
Duration <i>day(s)</i>	1
SHEARING STAGE	
Cell Pressure <i>kPa</i>	500
Rate of Axial Displacement <i>mm/min</i>	0.0078
Initial Pore Pressure <i>kPa</i>	300
Initial Effective Stress <i>kPa</i>	200
CONDITIONS AT FAILURE	<i>criteria</i> Maximum deviator stress
Pore Pressure <i>kPa</i>	479
Minor Effective Principal Stress <i>kPa</i>	21
Deviator Stress <i>kPa</i>	2654
Major Effective Principal Stress <i>kPa</i>	2675
Effective Principal Stress Ratio	126.17
Pore Pressure Parameter A	0.07
Axial Strain %	2.1
Membrane & filter correction applied to Deviator Stress <i>kPa</i>	4
Duration <i>day(s)</i>	1
Final Water Content %	26.4
Final Wet Density <i>Mg/m³</i>	2.00
EFFECTIVE STRESS PARAMETERS	
Cohesion <i>kPa</i>	Not applicable
Angle of Shear Resistance <i>degrees</i>	Not applicable
FAILURE SKETCH	no failure

Checked and Approved by  C F Wallace - Technical Manager 24/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	
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Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: R71902
 Sample No.: C23100
 Depth (m): 24.68-24.90

Description:
 Hard off-white intact CHALK.



Checked and Approved by

C F Wallace - Technical Manager
 24/07/2019

Project Number:

GEO / 29521

Project Name:

**A303 Amesbury to Berwick Down - Phase 7A GI
 PC197510**

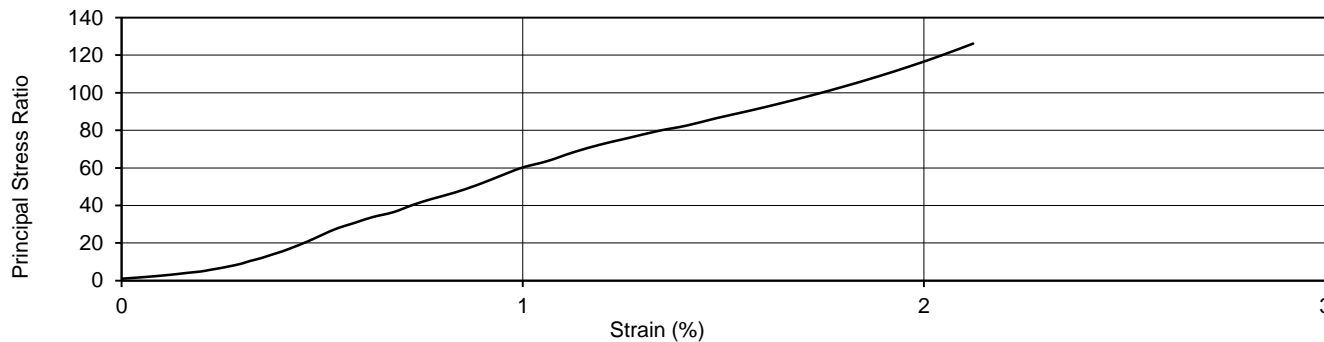
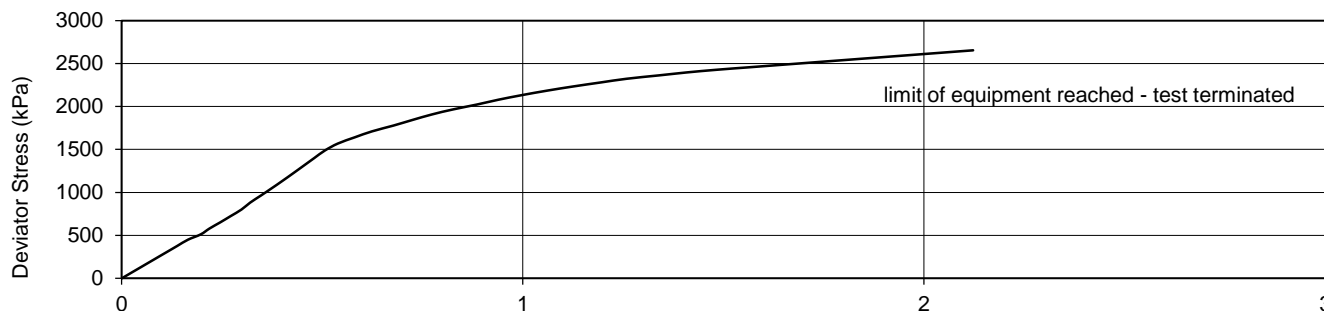
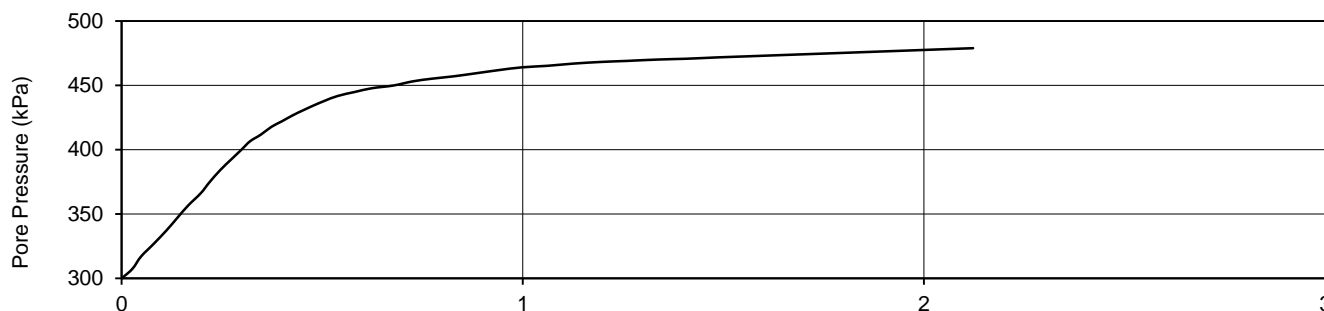
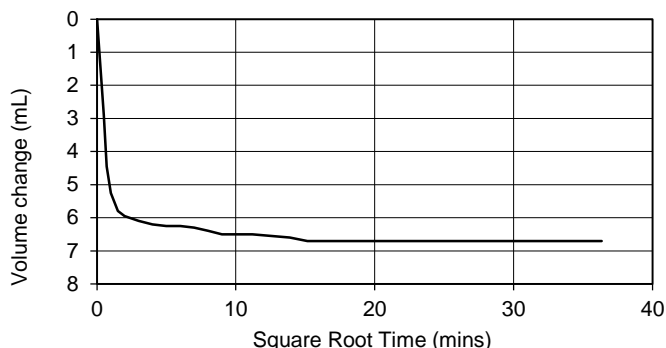
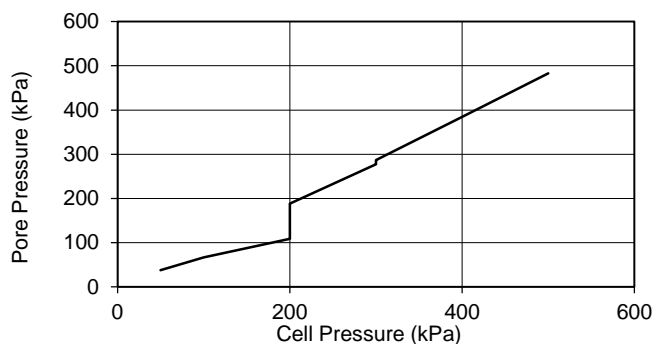
GEOLABS



Consolidated Undrained Multistage Triaxial Compression Test with Measurement of Pore Pressure

Borehole No.: R71902
 Sample No.: C23100
 Depth (m): 24.68-24.90

Stage No 1



Checked and Approved by

C F Wallace - Technical Manager
24/07/2019

Project Number:

GEO / 29521

Project Name:

**A303 Amesbury to Berwick Down - Phase 7A GI
PC197510**


GEOLABS



CERCHAR ABRASIVITY

Sample details				Cerchar Abrasivity								
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Water Content (%)	Surface condition (correction)	Direction of Stylus	As measured readings d (0.01 mm)	Mean pin wear (mm)	Standard Deviation of CAI	CA Index	Abrasivity Classification
R71904		31.15	White CHALK	29/07/19	As received	Rough Sample No correction needed	Normal to weakness	1,3,3,2,1	0.02	0.10	0.20	Extremely Low


Notes: Stylus Rockwell Hardnes and tip shape: 55 ± 1 conical. CERCHAR Apparatus: Type 2 (West). Measurement method: Top view and optical.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <div style="font-size: 1.2em; font-weight: bold;">GEO / 29573</div> Project Name: <div style="font-weight: bold; font-size: 1.1em;">A303 Amesbury to Berwick Down - Phase 7A GI</div> <div style="font-weight: bold; font-size: 1.1em;">PC197510</div>	
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
CERCHAR ABRASIVITY

Sample details				Cerchar Abrasivity								
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Water Content (%)	Surface condition (correction)	Direction of Stylus	As measured readings d (0.01 mm)	Mean pin wear (mm)	Standard Deviation of CAI	CA Index	Abrasivity Classification
R71901	C22287	9.94-10.10	White CHALK	18/07/19	As received	Rough Sample No correction needed	No weakness	1,1,0,2,1	0.01	0.07	0.10	Extremely Low
R71902	C23116	30.96-31.12	White CHALK	10/07/19	As received	Rough Sample No correction needed	No weakness	0,1,1,0,1	0.01	0.05	0.06	Extremely Low




Notes: Stylus Rockwell Hardnes and tip shape: 55 ± 1 conical. CERCHAR Apparatus: Type 2 (West). Measurement method: Top view and optical.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 18/07/2019	Project Number: <div style="font-size: 1.2em; font-weight: bold;">GEO / 29521</div> Project Name: <div style="font-weight: bold; font-size: 1.1em;">A303 Amesbury to Berwick Down - Phase 7A GI</div> <div style="font-weight: bold; font-size: 1.1em;">PC197510</div>	
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

INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Sample details				Indirect Tensile Strength test (LF0879C (1000kN) compression frame used)											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Sample Diameter (mm)	Sample Width (mm)	Degree of Saturation (%)	Water Content (%)	Specific Gravity* (Mg/m ³)	Stress Rate (N/s)	Test Duration (min:sec)	Failure Sketch	Failure Load (kN)	Tensile Strength (MPa)	Remarks
R71903		16.84	White CHALK	24/07/19	75.40	36.40	74.2	21.6	2.70 (a)	200	00:11		2.10	0.487	



* Specific Gravity: (a) assumed or (m) measured/supplied by client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <p style="text-align: center;">GEO / 29572</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Sample details				Indirect Tensile Strength test (LF0879C (1000kN) compression frame used)											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Sample Diameter (mm)	Sample Width (mm)	Degree of Saturation (%)	Water Content (%)	Specific Gravity* (Mg/m ³)	Stress Rate (N/s)	Test Duration (min:sec)	Failure Sketch	Failure Load (kN)	Tensile Strength (MPa)	Remarks
R71904		16.20-16.50	White CHALK	24/07/19	100.50	49.70	87.3	23.1	2.70 (a)	200	00:17		3.40	0.433	
R71904		39.00	White CHALK	30/07/19	99.60	47.10	92.4	24.0	2.70 (a)	200	00:11		2.10	0.285	




* Specific Gravity: (a) assumed or (m) measured/supplied by client.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 06/08/2019	Project Number: <div style="font-size: 1.2em; font-weight: bold;">GEO / 29573</div> Project Name: <div style="font-weight: bold; font-size: 1.1em;">A303 Amesbury to Berwick Down - Phase 7A GI</div> <div style="font-weight: bold; font-size: 1.1em;">PC197510</div>	 
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INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Sample details				Indirect Tensile Strength test (LF0879C (1000kN) compression frame used)											
Borehole Ref.	Sample Ref.	Depth (m)	Description	D. Tested	Sample Diameter (mm)	Sample Width (mm)	Degree of Saturation (%)	Water Content (%)	Specific Gravity* (Mg/m ³)	Stress Rate (N/s)	Test Duration (min:sec)	Failure Sketch	Failure Load (kN)	Tensile Strength (MPa)	Remarks
R71901	C22285	5.40-5.53	White CHALK	11/07/19	100.00	50.80	91.4	25.5	2.70 (a)	200	00:11		2.30	0.288	
R71901	C22286	7.38-7.50	White CHALK	11/07/19	100.60	54.10	101.9	28.7	2.70 (a)	200	00:11		2.10	0.245	
R71901	C22287	9.94-10.10	White CHALK	11/07/19	98.40	52.10	104.7	21.4	2.70 (a)	200	00:11		2.10	0.261	
R71901	C22659	27.18-27.35	White CHALK	11/07/19	100.30	51.30	89.3	24.8	2.70 (a)	200	00:10		2.00	0.247	
R71901	C22662	30.00-30.50	White CHALK	11/07/19	100.40	51.60	112.6	24.8	2.70 (a)	200	00:18		3.60	0.442	
R71902	C23120	12.32-12.42	White CHALK	11/07/19	100.50	51.50	88.1	20.9	2.70 (a)	200	00:11		2.10	0.258	
R71902	C23114	14.03-14.26	White CHALK	11/07/19	97.60	47.50	88.9	25.1	2.70 (a)	200	00:09		1.80	0.247	
R71902	C23102	16.80-17.02	White CHALK	11/07/19	99.60	49.70	89.1	25.3	2.70 (a)	200	00:07		1.30	0.167	
R71902	C23121	33.13-33.30	White CHALK	11/07/19	99.10	50.40	88.3	27.1	2.70 (a)	200	00:10		2.00	0.255	

* Specific Gravity: (a) assumed or (m) measured/supplied by client.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Borehole Ref.:	R71901	Description: White CHALK
Sample Ref.:	C22285	
Depth (m):	5.40-5.53	

Sample Details

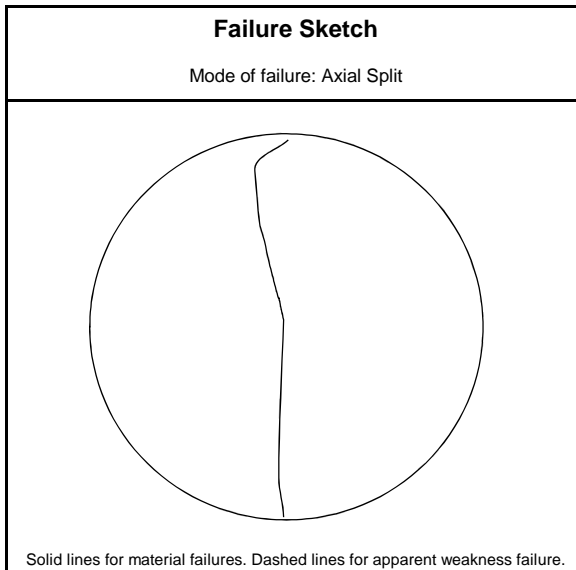
Diameter	100.00 mm
Thickness	50.80 mm
Thickness / Diameter Ratio	0.51
Bulk Density	1.93 Mg/m ³
Dry Density	1.54 Mg/m ³
Water Content	25.5 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	91.4 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:11 min:sec
Angle of loading with respect to anisotropy	90 °

Failure Sketch

Mode of failure: Axial Split



Solid lines for material failures. Dashed lines for apparent weakness failure.
 LF0879C (1000kN) compression frame and steel loading jaws used

Date tested: 11/07/2019

Failure Load

2.30 kN


Tensile Strength

0.288 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by <i>CC</i> C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521	
	Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	

ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

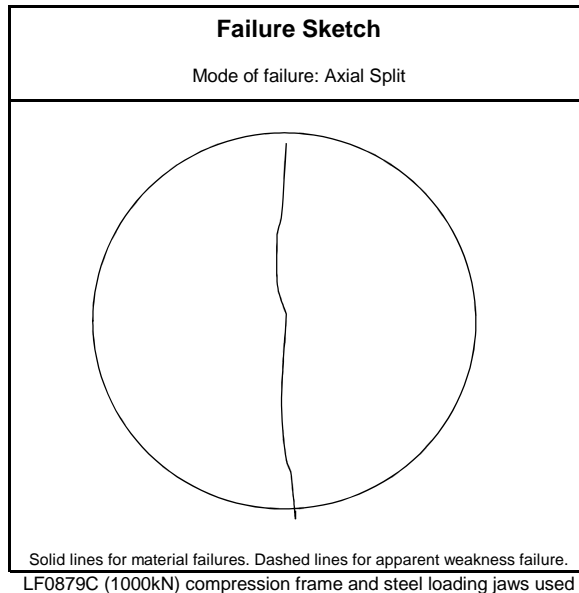
Borehole Ref.:	R71901	Description: White CHALK
Sample Ref.:	C22286	
Depth (m):	7.38-7.50	

Sample Details

Diameter	100.60 mm
Thickness	54.10 mm
Thickness / Diameter Ratio	0.54
Bulk Density	1.97 Mg/m ³
Dry Density	1.53 Mg/m ³
Water Content	28.7 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	101.9 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:11 min:sec
Angle of loading with respect to anisotropy	90 °






Failure Load
2.10 kN

Tensile Strength
0.245 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

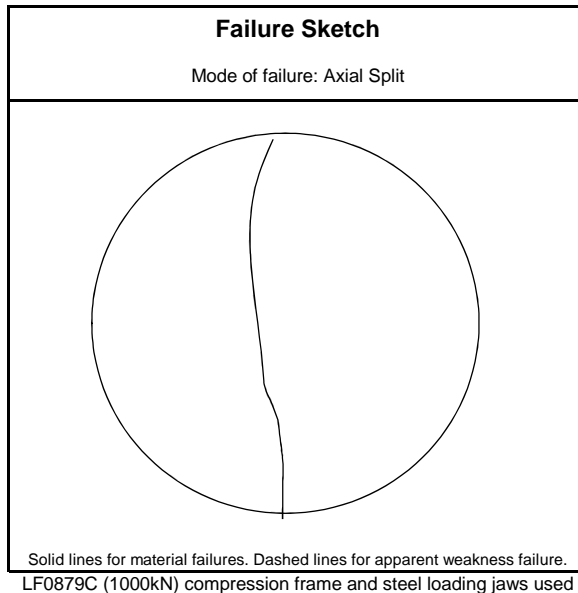
Borehole Ref.: R71901	Description: White CHALK
Sample Ref.: C22287	
Depth (m): 9.94-10.10	

Sample Details

Diameter	98.40 mm
Thickness	52.10 mm
Thickness / Diameter Ratio	0.53
Bulk Density	2.11 Mg/m ³
Dry Density	1.74 Mg/m ³
Water Content	21.4 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	104.7 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:11 min:sec
Angle of loading with respect to anisotropy	90 °



Date tested: 11/07/2019




Failure Load
2.10 kN

Tensile Strength
0.261 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Borehole Ref.: R71901	Description: White CHALK
Sample Ref.: C22659	
Depth (m): 27.18-27.35	

Sample Details

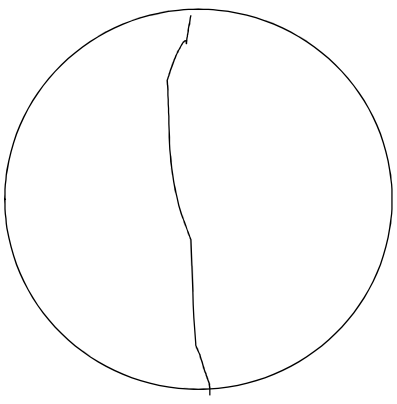
Diameter	100.30 mm
Thickness	51.30 mm
Thickness / Diameter Ratio	0.51
Bulk Density	1.93 Mg/m ³
Dry Density	1.54 Mg/m ³
Water Content	24.8 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	89.3 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:10 min:sec
Angle of loading with respect to anisotropy	90 °

Failure Sketch

Mode of failure: Axial Split



Solid lines for material failures. Dashed lines for apparent weakness failure.

LF0879C (1000kN) compression frame and steel loading jaws used

Date tested: 11/07/2019



Failure Load
2.00 kN

Tensile Strength
0.247 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

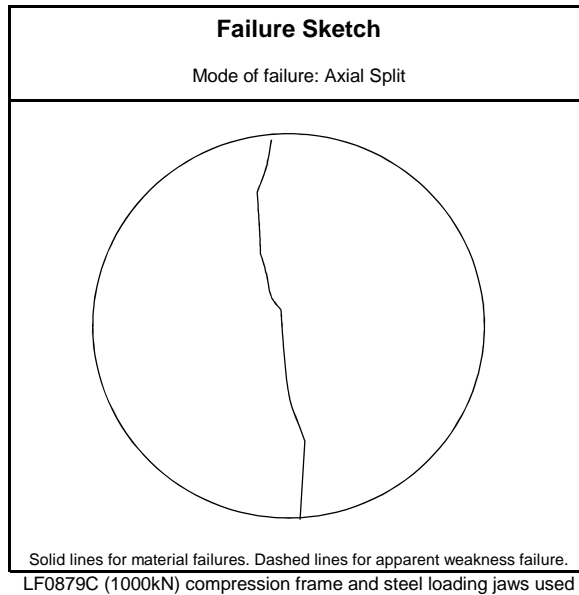
Borehole Ref.:	R71901	Description: White CHALK
Sample Ref.:	C22662	
Depth (m):	30.00-30.50	

Sample Details

Diameter	100.40 mm
Thickness	51.60 mm
Thickness / Diameter Ratio	0.51
Bulk Density	2.11 Mg/m ³
Dry Density	1.69 Mg/m ³
Water Content	24.8 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	112.6 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:18 min:sec
Angle of loading with respect to anisotropy	90 °



Date tested: 11/07/2019



Failure Load
3.60 kN

Tensile Strength
0.442 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

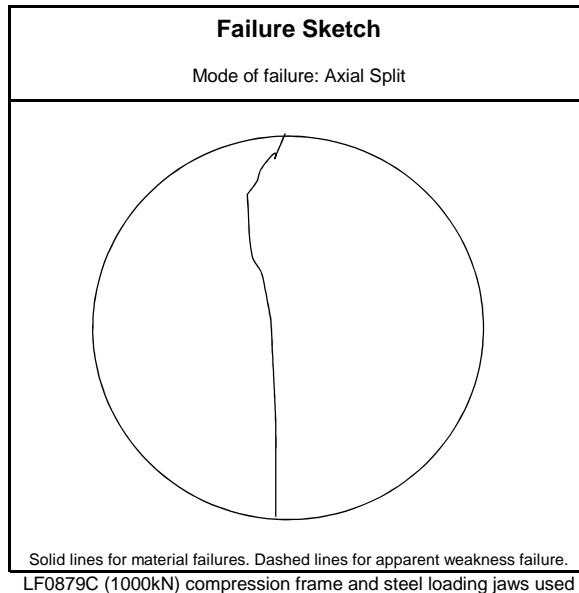
Borehole Ref.:	R71902	Description: White CHALK
Sample Ref.:	C23120	
Depth (m):	12.32-12.42	

Sample Details

Diameter	100.50 mm
Thickness	51.50 mm
Thickness / Diameter Ratio	0.51
Bulk Density	1.99 Mg/m ³
Dry Density	1.65 Mg/m ³
Water Content	20.9 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	88.1 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:11 min:sec
Angle of loading with respect to anisotropy	90 °





Failure Load
2.10 kN

Tensile Strength
0.258 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

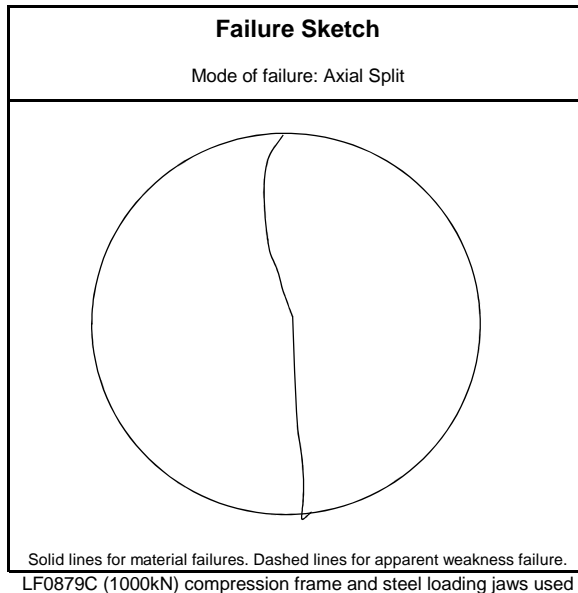
Borehole Ref.: R71902	Description: White CHALK
Sample Ref.: C23114	
Depth (m): 14.03-14.26	

Sample Details

Diameter	97.60 mm
Thickness	47.50 mm
Thickness / Diameter Ratio	0.49
Bulk Density	1.92 Mg/m ³
Dry Density	1.53 Mg/m ³
Water Content	25.1 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	88.9 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:09 min:sec
Angle of loading with respect to anisotropy	90 °





Failure Load
1.80 kN

Tensile Strength
0.247 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

Borehole Ref.: R71902	Description: White CHALK
Sample Ref.: C23102	
Depth (m): 16.80-17.02	

Sample Details

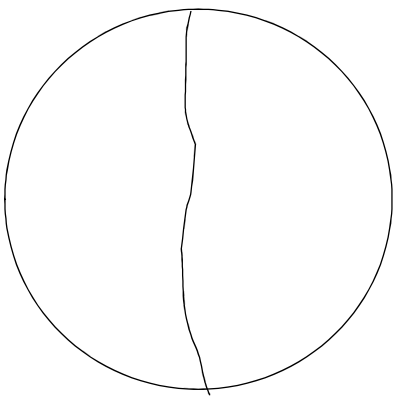
Diameter	99.60 mm
Thickness	49.70 mm
Thickness / Diameter Ratio	0.50
Bulk Density	1.91 Mg/m ³
Dry Density	1.53 Mg/m ³
Water Content	25.3 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	89.1 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:07 min:sec
Angle of loading with respect to anisotropy	90 °

Failure Sketch

Mode of failure: Axial Split



Solid lines for material failures. Dashed lines for apparent weakness failure.
 LF0879C (1000kN) compression frame and steel loading jaws used

Date tested: 11/07/2019




Failure Load
1.30 kN

Tensile Strength
0.167 MPa

Sample type: C

Remarks:

Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: <p style="text-align: center;">GEO / 29521</p> Project Name: <p style="text-align: center;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</p>	 
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ISRM Suggested Methods – Rock Characterization Testing and Monitoring 1974 - 2006
INDIRECT TENSILE STRENGTH BY THE BRAZIL TEST

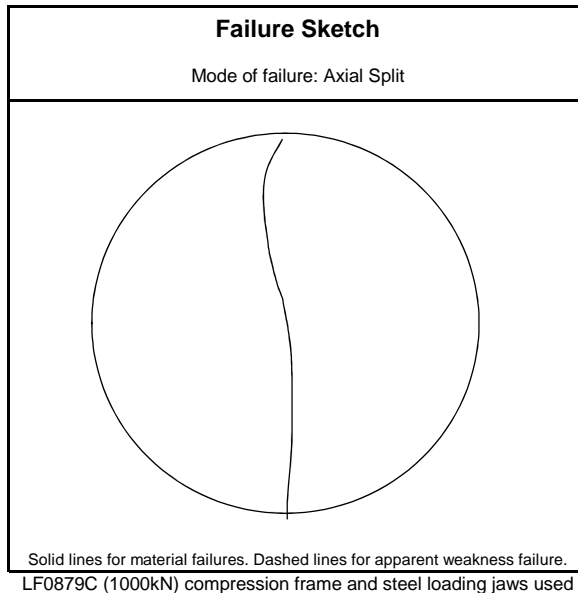
Borehole Ref.: R71902	Description: White CHALK
Sample Ref.: C23121	
Depth (m): 33.13-33.30	

Sample Details

Diameter	99.10 mm
Thickness	50.40 mm
Thickness / Diameter Ratio	0.51
Bulk Density	1.88 Mg/m ³
Dry Density	1.48 Mg/m ³
Water Content	27.1 %
Specific Gravity (Assumed)	2.70 Mg/m ³
Degree of Saturation	88.3 %

Test Results

Stress Rate	0.20 kN/s
Test Duration	00:10 min:sec
Angle of loading with respect to anisotropy	90 °






Failure Load
2.00 kN

Tensile Strength
0.255 MPa


Sample type: C

Remarks:



Note: The dimensional requirements of Flatness (<0.25 mm), Perpendicularity (to within 0.25°) and irregularities across thickness (< 0.025 mm) are not met.

Checked and Approved by  C Clergeaud (Snr. Geologist) Date: 15/07/2019	Project Number: GEO / 29521 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71904		30.17-30.50	White CHALK	26	97.5	1.97	1.56	99.40	265.70	2.7	14.3	1.84		03/09/19	Failed on weakness plane

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">GEO / 29638</div> Project Name: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</div>	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R71904 Sample Ref.: - Depth (m): 30.17-30.50	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

99.40 mm
265.70 mm
1.97 Mg/m ³
1.56 Mg/m ³
26 %

Degree of Saturation: 97.5 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

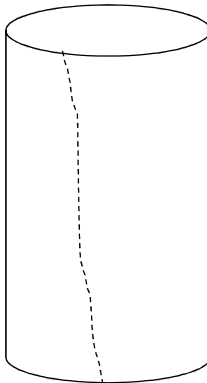
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

1.84 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing



Solid lines for material failures.
 Dashed lines for apparent weakness failure.



Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 80°

Sample type	C
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Date tested: 03/09/2019

Remarks: Failed on weakness plane



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: <div style="font-size: 1.2em; font-weight: bold;">GEO / 29638</div> Project Name: <div style="font-weight: bold;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</div>	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71903		13.32-13.62	White CHALK	23	89.8	1.96	1.60	99.50	274.60	2.8	28.5	3.67		03/09/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">GEO / 29637</div> Project Name: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</div>	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R71903 Sample Ref.: - Depth (m): 13.32-13.62	Description: White CHALK
---	-----------------------------

Diameter
Height
Bulk Density
Dry Density
Water Content

99.50 mm
274.60 mm
1.96 Mg/m ³
1.60 Mg/m ³
23 %

Degree of Saturation: 89.8 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

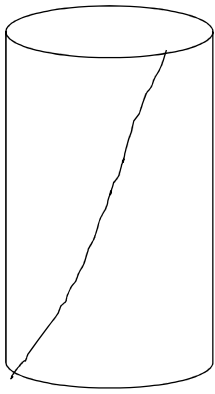
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

3.67 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing





Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 110°


Sample type	C
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Date tested: 03/09/2019



Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: GEO / 29637 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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UNIAXIAL COMPRESSIVE STRENGTH OF ROCK MATERIALS

Sample details				Density				Uniaxial Compression Test (LF0879C (1000kN) compression frame used)							
Borehole Ref.	Sample Ref.	Depth (m)	Description	MC (%)	Degree of Saturation (%)	Bulk (Mg/m³)	Dry (Mg/m³)	Mean after prep.		H/D Ratio	Load at Failure (kN)	UCS (MPa) <small>3 sig. fig.</small>	Failure Sketch	D. Tested	Remarks
								Diameter (mm)	Height (mm)						
R71901	-	18.70-19.02	White CHALK	22	90.0	1.99	1.64	97.40	241.80	2.5	33.3	4.47		03/09/19	

Note: The dimensional requirements of flatness (<0.02 mm), perpendicularity (<0.05 / 50 mm) and straightness (0.3 mm deviation) are not met. Specific Gravity used for Degree of Saturation is assumed unless specified by the client.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">GEO / 29636</div> Project Name: <div style="text-align: center; font-weight: bold; font-size: 1.2em;">A303 Amesbury to Berwick Down - Phase 7A GI PC197510</div>	 
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UNCONFINED COMPRESSIVE STRENGTH

Borehole Ref.: R71901 Sample Ref.: - Depth (m): 18.70-19.02	Description: White CHALK
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Diameter
Height
Bulk Density
Dry Density
Water Content

97.40 mm
241.80 mm
1.99 Mg/m ³
1.64 Mg/m ³
22 %

Degree of Saturation: 90.0 % Specific Gravity: 2.7 Mg/m³ (Assumed)

Test results

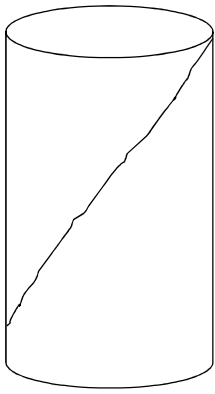
Unconfined Compressive Strength
Young's Modulus (tangential at 50% failure load)
Poisson's Ratio (tangential at 50% failure load)
Young's Modulus (secant at 10% failure load)
Poisson's Ratio (secant at 10% failure load)

4.47 MPa
n/a
n/a
n/a
n/a

LF0879C (1000kN) compression frame used

Failure Sketch

Mode of failure: Diagonal shearing





Solid lines for material failures.
 Dashed lines for apparent weakness failure.

Angle of foliation/Horizontal: n/a
 Angle of shear plane/Horizontal: 120°

Sample type	C
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Date tested: 03/09/2019

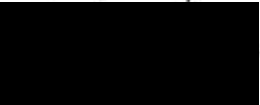
Note: The dimensional requirements of Flatness (<0.02 mm), Perpendicularity (<0.05 / 50 mm) and Straightness (0.3 mm deviation) are not met.

Checked and Approved by <div style="text-align: center; font-size: 2em; font-family: cursive;">CC</div> C Clergeaud (Snr. Geologist) Date: 05/09/2019	Project Number: GEO / 29636 Project Name: A303 Amesbury to Berwick Down - Phase 7A GI PC197510	 
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SUMMARY OF CHEMICAL TESTS ON SOIL

Borehole / Trial Pit	Depth m	Sample Ref	Sample Type	pH Value	Total Acid Soluble Sulphate as SO4 %	Water Soluble Sulphate as SO4 2:1 Water:Soil Extract g/l	Total Sulphur %	Water Soluble Chloride g/l	Water Soluble Nitrate g/l	Magnesium g/l	Organic Content %	Mass Loss on Ignition %	Carbonate Content %
R71902	22.15-22.36	C23115	C	9.1	-	<0.010	-	-	-	-	-	-	-

Tested by Chemtest Ltd : UKAS No 2183

Checked and Approved by:

 31/07/2019

Project Number:
GEO / 29521

Project Name:
**A303 Amesbury to Berwick Down - Phase 7A GI
 PC197510**



APPENDIX 13

Laboratory Test Results - Contamination



Certificate of Analysis

Certificate Number 19-11291

24-Jun-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-11291

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Description 8 Soil samples, 2 Leachate samples.

Date Received 17-Jun-19

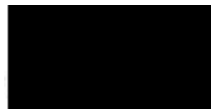
Date Started 17-Jun-19

Date Completed 24-Jun-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Sample ID	Depth	Lab No	Completed	Matrix Description
R71903	0.1	1517469	24/06/2019	Dark brown gravelly, clayey SAND including some rootlets



Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517465	1517466	1517467	1517468	1517469	1517470
Sample ID	R71901	R71901	R71902	R71902	R71903	R71903
Depth	0.10	0.50	0.10	0.50	0.10	0.50
Other ID						
Sample Type	ES	ES	ES	ES	ES	ES
Sampling Date	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Preparation									
Stones >10mm	DETSC 1003*	1	% m/m					32	
Moisture Content	DETSC 1004	0.1	%					12	
Metals									
Antimony	DETSC 2301*	1	mg/kg	1.3	< 1.0	< 1.0	< 1.0	1.4	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	7.2	2.7	4.3	0.7	4.8	1.3
Beryllium	DETSC 2301#	0.2	mg/kg	0.7	< 0.2	0.3	< 0.2	0.4	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.5	< 0.2	0.3	< 0.2	0.7	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.9	0.4	0.7	0.3	0.8	0.5
Chromium III	DETSC 2301*	0.15	mg/kg	22	6.7	9.0	1.6	13	3.9
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	14	3.8	14	2.0	9.9	2.6
Iron	DETSC 2301	25	mg/kg	17000	5500	6600	810	8500	2400
Lead	DETSC 2301#	0.3	mg/kg	23	6.2	34	2.3	220	3.7
Manganese	DETSC 2301#	20	mg/kg	1000	320	580	210	760	310
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	0.5	< 0.4	0.4	< 0.4	< 0.4	< 0.4
Nickel	DETSC 2301#	1	mg/kg	16	6.9	7.3	2.1	10	4.5
Phosphorus	DETSC 2301*	1	mg/kg	1300	970	1600	470	1600	1400
Selenium	DETSC 2301#	0.5	mg/kg	0.9	0.5	0.8	< 0.5	0.9	< 0.5
Zinc	DETSC 2301#	1	mg/kg	66	27	50	16	45	22
Inorganics									
pH	DETSC 2008#			7.8	8.6	8.0	8.8	8.0	8.6
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.3	< 0.1	0.2	< 0.1	0.2	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	0.2	< 0.1	0.1	< 0.1	0.1	< 0.1
Total Organic Carbon	DETSC 2002	0.1	%	0.5	0.5	3.7	0.1	4.5	0.3
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	11	2.1	11	2.5	7.4	2.6
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	59	44	18	< 10	22	14
Petroleum Hydrocarbons									
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5



Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517465	1517466	1517467	1517468	1517469	1517470
Sample ID	R71901	R71901	R71902	R71902	R71903	R71903
Depth	0.10	0.50	0.10	0.50	0.10	0.50
Other ID						
Sample Type	ES	ES	ES	ES	ES	ES
Sampling Date	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAHs									
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.04	< 0.03	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.22	< 0.03	0.59	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	0.12	< 0.03	0.11	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.05	< 0.03	0.59	< 0.03	0.99	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03	0.55	< 0.03	0.92	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.24	< 0.03	0.38	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03	0.37	< 0.03	0.51	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.19	< 0.03	0.23	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.18	< 0.03	0.22	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.30	< 0.03	0.43	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.15	< 0.03	0.19	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03	0.18	< 0.03	0.23	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10	3.1	< 0.10	4.8	< 0.10
Phenols									
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	1.5	0.4	0.9	1.0	0.8	< 0.3
OCPs									
alpha-BHC	DETSC 3441*	0.1	mg/kg	< 0.1					
gamma-BHC (Lindane)	DETSC 3441*	0.1	mg/kg	< 0.1					
beta-BHC	DETSC 3441*	0.1	mg/kg	< 0.1					
delta-BHC	DETSC 3441*	0.1	mg/kg	< 0.1					
Heptachlor	DETSC 3441*	0.1	mg/kg	< 0.1					
Aldrin	DETSC 3441*	0.1	mg/kg	< 0.1					
Heptachlor epoxide	DETSC 3441*	0.1	mg/kg	< 0.1					
gamma-Chlordane	DETSC 3441*	0.1	mg/kg	< 0.1					
Endosulphan I & Alpha-chlorodane	DETSC 3441*	0.1	mg/kg	< 0.1					
4,4-DDE	DETSC 3441*	0.1	mg/kg	< 0.1					
Dieldrin	DETSC 3441*	0.1	mg/kg	< 0.1					
Endrin	DETSC 3441*	0.1	mg/kg	< 0.1					



Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517465	1517466	1517467	1517468	1517469	1517470
Sample ID	R71901	R71901	R71902	R71902	R71903	R71903
Depth	0.10	0.50	0.10	0.50	0.10	0.50
Other ID						
Sample Type	ES	ES	ES	ES	ES	ES
Sampling Date	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19	07/06/19
Sampling Time	n/s	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units						
Endosulphan II & 4,4-DDD	DETSC 3441*	0.1	mg/kg	< 0.1					
Endrin aldehyde	DETSC 3441*	0.1	mg/kg	< 0.1					
4,4-DDT	DETSC 3441*	0.1	mg/kg	< 0.1					
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg	< 0.1					
Methoxychlor	DETSC 3441*	0.1	mg/kg	< 0.1					
Endrin ketone	DETSC 3441*	0.1	mg/kg	< 0.1					
OPPs									
Dichlorvos	DETSC 3443*	0.1	mg/kg	< 0.1					
Mevinphos	DETSC 3443*	0.1	mg/kg	< 0.1					
Demeton-O	DETSC 3443*	0.1	mg/kg	< 0.1					
Ethoprop	DETSC 3443*	0.1	mg/kg	< 0.1					
Naled	DETSC 3443*	0.1	mg/kg	< 0.1					
Phorate	DETSC 3443*	0.1	mg/kg	< 0.1					
Demeton-S	DETSC 3443*	0.1	mg/kg	< 0.1					
Diazinon	DETSC 3443*	0.1	mg/kg	< 0.1					
Disulfoton	DETSC 3443*	0.1	mg/kg	< 0.1					
Methylparathion	DETSC 3443*	0.1	mg/kg	< 0.1					
Ronnel	DETSC 3443*	0.1	mg/kg	< 0.1					
Fenthion	DETSC 3443*	0.1	mg/kg	< 0.1					
Chlopyrifos	DETSC 3443*	0.1	mg/kg	< 0.1					
Trichlorinate	DETSC 3443*	0.1	mg/kg	< 0.1					
Merphos	DETSC 3443*	0.1	mg/kg	< 0.1					
Stirofos	DETSC 3443*	0.1	mg/kg	< 0.1					
Tokuthion	DETSC 3443*	0.1	mg/kg	< 0.1					
Fensulfothion	DETSC 3443*	0.1	mg/kg	< 0.1					
Bolstar	DETSC 3443*	0.1	mg/kg	< 0.1					
Azinphos methyl	DETSC 3443*	0.1	mg/kg	< 0.1					
Coumaphos	DETSC 3443*	0.1	mg/kg	< 0.1					
Triazines									
Atraton	DETSC 3445*	0.1	mg/kg	< 0.1					
Prometon	DETSC 3445*	0.1	mg/kg	< 0.1					
Simazine	DETSC 3445*	0.1	mg/kg	< 0.1					
Atrazine	DETSC 3445*	0.1	mg/kg	< 0.1					
Propazine	DETSC 3445*	0.1	mg/kg	< 0.1					
Terbutylazine	DETSC 3445*	0.1	mg/kg	< 0.1					
Secbumeton	DETSC 3445*	0.1	mg/kg	< 0.1					
Symetryn	DETSC 3445*	0.1	mg/kg	< 0.1					
Ametryn	DETSC 3445*	0.1	mg/kg	< 0.1					
Prometryne	DETSC 3445*	0.1	mg/kg	< 0.1					
Terbutryn	DETSC 3445*	0.1	mg/kg	< 0.1					

Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517471	1517472
Sample ID	R71904	R71904
Depth	0.10	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	07/06/19	07/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
Stones >10mm	DETSC 1003*	1	% m/m		
Moisture Content	DETSC 1004	0.1	%		
Metals					
Antimony	DETSC 2301*	1	mg/kg	< 1.0	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	2.1	8.8
Beryllium	DETSC 2301#	0.2	mg/kg	< 0.2	0.6
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.2	0.5
Cadmium	DETSC 2301#	0.1	mg/kg	0.6	1.1
Chromium III	DETSC 2301*	0.15	mg/kg	5.3	18
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	3.9	20
Iron	DETSC 2301	25	mg/kg	3100	15000
Lead	DETSC 2301#	0.3	mg/kg	85	29
Manganese	DETSC 2301#	20	mg/kg	390	940
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	< 0.4	0.6
Nickel	DETSC 2301#	1	mg/kg	4.8	14
Phosphorus	DETSC 2301*	1	mg/kg	1600	1400
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.5
Zinc	DETSC 2301#	1	mg/kg	32	76
Inorganics					
pH	DETSC 2008#			8.5	8.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	0.1
Total Organic Carbon	DETSC 2002	0.1	%	0.9	1.9
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	1.9	10
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	20	23
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5

Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517471	1517472
Sample ID	R71904	R71904
Depth	0.10	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	07/06/19	07/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.15	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.34	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	0.32	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.13	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	0.21	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.24	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.15	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.09	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	1.8	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3	0.9
OCPs					
alpha-BHC	DETSC 3441*	0.1	mg/kg	< 0.1	
gamma-BHC (Lindane)	DETSC 3441*	0.1	mg/kg	< 0.1	
beta-BHC	DETSC 3441*	0.1	mg/kg	< 0.1	
delta-BHC	DETSC 3441*	0.1	mg/kg	< 0.1	
Heptachlor	DETSC 3441*	0.1	mg/kg	< 0.1	
Aldrin	DETSC 3441*	0.1	mg/kg	< 0.1	
Heptachlor epoxide	DETSC 3441*	0.1	mg/kg	< 0.1	
gamma-Chlordane	DETSC 3441*	0.1	mg/kg	< 0.1	
Endosulphan I & Alpha-chlorodane	DETSC 3441*	0.1	mg/kg	< 0.1	
4,4-DDE	DETSC 3441*	0.1	mg/kg	< 0.1	
Dieldrin	DETSC 3441*	0.1	mg/kg	< 0.1	
Endrin	DETSC 3441*	0.1	mg/kg	< 0.1	

Summary of Chemical Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517471	1517472
Sample ID	R71904	R71904
Depth	0.10	0.50
Other ID		
Sample Type	ES	ES
Sampling Date	07/06/19	07/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Endosulphan II & 4,4-DDD	DETSC 3441*	0.1	mg/kg	< 0.1	
Endrin aldehyde	DETSC 3441*	0.1	mg/kg	< 0.1	
4,4-DDT	DETSC 3441*	0.1	mg/kg	< 0.1	
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg	< 0.1	
Methoxychlor	DETSC 3441*	0.1	mg/kg	< 0.1	
Endrin ketone	DETSC 3441*	0.1	mg/kg	< 0.1	
OPPs					
Dichlorvos	DETSC 3443*	0.1	mg/kg	< 0.1	
Mevinphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Demeton-O	DETSC 3443*	0.1	mg/kg	< 0.1	
Ethoprop	DETSC 3443*	0.1	mg/kg	< 0.1	
Naled	DETSC 3443*	0.1	mg/kg	< 0.1	
Phorate	DETSC 3443*	0.1	mg/kg	< 0.1	
Demeton-S	DETSC 3443*	0.1	mg/kg	< 0.1	
Diazinon	DETSC 3443*	0.1	mg/kg	< 0.1	
Disulfoton	DETSC 3443*	0.1	mg/kg	< 0.1	
Methylparathion	DETSC 3443*	0.1	mg/kg	< 0.1	
Ronnel	DETSC 3443*	0.1	mg/kg	< 0.1	
Fenthion	DETSC 3443*	0.1	mg/kg	< 0.1	
Chlopyrifos	DETSC 3443*	0.1	mg/kg	< 0.1	
Trichlorinate	DETSC 3443*	0.1	mg/kg	< 0.1	
Merphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Stirofos	DETSC 3443*	0.1	mg/kg	< 0.1	
Tokuthion	DETSC 3443*	0.1	mg/kg	< 0.1	
Fensulfothion	DETSC 3443*	0.1	mg/kg	< 0.1	
Bolstar	DETSC 3443*	0.1	mg/kg	< 0.1	
Azinphos methyl	DETSC 3443*	0.1	mg/kg	< 0.1	
Coumaphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Triazines					
Atraton	DETSC 3445*	0.1	mg/kg	< 0.1	
Prometon	DETSC 3445*	0.1	mg/kg	< 0.1	
Simazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Atrazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Propazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Terbutylazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Secbumeton	DETSC 3445*	0.1	mg/kg	< 0.1	
Symetryn	DETSC 3445*	0.1	mg/kg	< 0.1	
Ametryn	DETSC 3445*	0.1	mg/kg	< 0.1	
Prometryne	DETSC 3445*	0.1	mg/kg	< 0.1	
Terbutryn	DETSC 3445*	0.1	mg/kg	< 0.1	

Summary of Chemical Analysis

Soil VOC/SVOC Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517469
Sample ID	R71903
Depth	0.10
Other ID	
Sample Type	ES
Sampling Date	07/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
VOCs				
Vinyl Chloride	DETSC 3431	0.01	mg/kg	< 0.01
1,1 Dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
Trans-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Cis-1,2-dichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
2,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Bromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
Chloroform	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
1,1-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Carbon tetrachloride	DETSC 3431	0.01	mg/kg	< 0.01
Benzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Trichloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromomethane	DETSC 3431	0.01	mg/kg	< 0.01
Bromodichloromethane	DETSC 3431	0.01	mg/kg	< 0.01
cis-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
Toluene	DETSC 3431	0.01	mg/kg	< 0.01
trans-1,3-dichloropropene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,2-trichloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Tetrachloroethylene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
Dibromochloromethane	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromoethane	DETSC 3431	0.01	mg/kg	< 0.01
Chlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,1,1,2-tetrachloroethane	DETSC 3431	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
m+p-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
o-Xylene	DETSC 3431	0.01	mg/kg	< 0.01
Styrene	DETSC 3431*	0.01	mg/kg	< 0.01
Bromoform	DETSC 3431	0.01	mg/kg	< 0.01
Isopropylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
Bromobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichloropropane	DETSC 3431	0.01	mg/kg	< 0.01
n-propylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
2-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3,5-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
4-chlorotoluene	DETSC 3431	0.01	mg/kg	< 0.01
Tert-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trimethylbenzene	DETSC 3431	0.01	mg/kg	< 0.01

Summary of Chemical Analysis Soil VOC/SVOC Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517469
Sample ID	R71903
Depth	0.10
Other ID	
Sample Type	ES
Sampling Date	07/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
sec-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
p-isopropyltoluene	DETSC 3431	0.01	mg/kg	< 0.01
1,3-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,4-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
n-butylbenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
1,2-dibromo-3-chloropropane	DETSC 3431	0.01	mg/kg	< 0.01
1,2,4-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
Hexachlorobutadiene	DETSC 3431	0.01	mg/kg	< 0.01
1,2,3-trichlorobenzene	DETSC 3431	0.01	mg/kg	< 0.01
MTBE	DETSC 3431*	0.01	mg/kg	< 0.01
SVOCs				
Phenol	DETSC 3433	0.1	mg/kg	< 0.1
Aniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
Benzyl Alcohol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis(2-chloroisopropyl)ether	DETSC 3433	0.1	mg/kg	< 0.1
3&4-Methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dimethylphenol	DETSC 3433	0.1	mg/kg	< 0.1
Bis-(dichloroethoxy)methane	DETSC 3433	0.1	mg/kg	< 0.1
2,4-Dichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
1,2,4-Trichlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
4-Chloro-3-methylphenol	DETSC 3433	0.1	mg/kg	< 0.1
2-Methylnaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
Hexachlorocyclopentadiene	DETSC 3433*	0.1	mg/kg	< 0.1
2,4,6-Trichlorophenol	DETSC 3433	0.1	mg/kg	< 0.1
2,4,5-Trichlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
2-Chloronaphthalene	DETSC 3433	0.1	mg/kg	< 0.1
2-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2,4-Dinitrotoluene	DETSC 3433*	0.1	mg/kg	< 0.1
3-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Dibenzofuran	DETSC 3433	0.1	mg/kg	0.2
2,6-Dinitrotoluene	DETSC 3433	0.1	mg/kg	< 0.1
2,3,4,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
4-Chlorophenylphenylether	DETSC 3433*	0.1	mg/kg	< 0.1
4-Nitroaniline	DETSC 3433*	0.1	mg/kg	< 0.1
2-Methyl-4,6-Dinitrophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Diphenylamine	DETSC 3433	0.1	mg/kg	< 0.1
4-Bromophenylphenylether	DETSC 3433	0.1	mg/kg	< 0.1



Summary of Chemical Analysis Soil VOC/SVOC Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517469
Sample ID	R71903
Depth	0.10
Other ID	
Sample Type	ES
Sampling Date	07/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
Hexachlorobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Pentachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Di-n-butylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
Butylbenzylphthalate	DETSC 3433*	0.1	mg/kg	< 0.1
Bis(2-ethylhexyl)phthalate	DETSC 3433	0.1	mg/kg	< 0.1
Di-n-octylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,4-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
Dimethylphthalate	DETSC 3433	0.1	mg/kg	< 0.1
1,3-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
1,2-Dinitrobenzene	DETSC 3433*	0.1	mg/kg	< 0.1
2,3,5,6-Tetrachlorophenol	DETSC 3433*	0.1	mg/kg	< 0.1
Azobenzene	DETSC 3433	0.1	mg/kg	< 0.1
Carbazole	DETSC 3433*	0.1	mg/kg	0.2

Summary of Chemical Analysis

Leachate Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	1517473	1517474
Sample ID	R71902	R71903
Depth	0.10	0.10
Other ID		
Sample Type	ES	ES
Sampling Date	07/06/19	07/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Preparation					
BS EN 12457 2:1 WAC	DETSC 1009*			Y	Y
Metals					
Antimony, Dissolved	DETSC 2306	0.17	ug/l	< 0.17	< 0.17
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.18	< 0.16
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	< 12	13
Cadmium, Dissolved	DETSC 2306	0.03	ug/l	< 0.03	< 0.03
Calcium, Dissolved	DETSC 2306	0.09	mg/l	15	18
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.4	ug/l	2.6	2.1
Iron, Dissolved	DETSC 2306	5.5	ug/l	19	31
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.11	< 0.09
Manganese, Dissolved	DETSC 2306	0.22	ug/l	0.86	1.3
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	< 1.1	< 1.1
Nickel, Dissolved	DETSC 2306	0.5	ug/l	< 0.5	< 0.5
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	34	< 18
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	< 0.25
Zinc, Dissolved	DETSC 2306	1.3	ug/l	< 1.3	1.5
Inorganics					
pH	DETSC 2008			7.8	7.6
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.4	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1
Dissolved Organic Carbon	*	2	mg/l	3.5	3.8
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.15	0.048
Sulphate as SO4	DETSC 2055	0.1	mg/l	1.1	1.6
Phenols					
Phenol - Monohydric	DETSC 2130	100	ug/l	< 100	< 100

Summary of Asbestos Analysis

Soil Samples

Our Ref 19-11291

Client Ref PC197510

Contract Title A303 Amesbury-Berwick Down - Phase 7A GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1517465	R71901 0.10	SOIL	NAD	none	Michael Kay
1517467	R71902 0.10	SOIL	NAD	none	Michael Kay
1517469	R71903 0.10	SOIL	NAD	none	Michael Kay
1517471	R71904 0.10	SOIL	NAD	none	Michael Kay

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 19-11291
 Client Ref PC197510
 Contract A303 Amesbury-Berwick Down - Phase 7A GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1517465	R71901 0.10 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517466	R71901 0.50 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517467	R71902 0.10 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517468	R71902 0.50 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517469	R71903 0.10 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days), VOC (7 days)	
1517470	R71903 0.50 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517471	R71904 0.10 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517472	R71904 0.50 SOIL	07/06/19	GJ 250ml, GJ 60ml, PT 1L	pH + Conductivity (7 days)	
1517473	R71902 0.10 LEACHATE	07/06/19	GJ 250ml, GJ 60ml, PT 1L		
1517474	R71903 0.10 LEACHATE	07/06/19	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar 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

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETSC 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETSC 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETSC 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETSC 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETSC 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETSC 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETSC 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETSC 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETSC 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETSC2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETSC2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETSC2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETSC2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETSC2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETSC2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETSC2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETSC2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETSC2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETSC2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETSC2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETSC 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETSC 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETSC 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETSC 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETSC 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.



Certificate of Analysis

Certificate Number 19-11814

28-Jun-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-11814

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury To Berwick Down - Phase 7A GI

Description 2 Soil samples.

Date Received 24-Jun-19

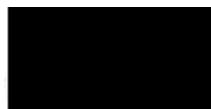
Date Started 24-Jun-19

Date Completed 28-Jun-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 19-11814

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down - Phase 7A GI

Lab No	1521144	1521145
Sample ID	R71301	R71302
Depth	0.10	0.10
Other ID		
Sample Type	ES	ES
Sampling Date	19/06/19	19/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony	DETSC 2301*	1	mg/kg	1.1	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	7.9	8.0
Beryllium	DETSC 2301#	0.2	mg/kg	0.5	0.4
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	0.9	1.1
Cadmium	DETSC 2301#	0.1	mg/kg	0.8	0.8
Chromium III	DETSC 2301*	0.15	mg/kg	18	17
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	13	15
Iron	DETSC 2301	25	mg/kg	16000	14000
Lead	DETSC 2301#	0.3	mg/kg	20	18
Manganese	DETSC 2301#	20	mg/kg	860	780
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	0.5	0.5
Nickel	DETSC 2301#	1	mg/kg	14	13
Phosphorus	DETSC 2301*	1	mg/kg	1400	1400
Selenium	DETSC 2301#	0.5	mg/kg	1.2	0.8
Zinc	DETSC 2301#	1	mg/kg	75	77
Inorganics					
pH	DETSC 2008#			7.9	7.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.1	0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Total Organic Carbon	DETSC 2002	0.1	%	2.3	3.0
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	8.5	11
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	15	21
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 19-11814

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down - Phase 7A GI

Lab No	1521144	1521145
Sample ID	R71301	R71302
Depth	0.10	0.10
Other ID		
Sample Type	ES	ES
Sampling Date	19/06/19	19/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.04	< 0.03
Pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	< 0.10	< 0.10
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	0.5	0.4

Summary of Asbestos Analysis Soil Samples

Our Ref 19-11814

Client Ref PC197510

Contract Title A303 Amesbury To Berwick Down - Phase 7A GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1521144	R71301 0.10	SOIL	NAD	none	Luke Donaghy
1521145	R71302 0.10	SOIL	NAD	none	Luke Donaghy

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 19-11814

Client Ref PC197510

Contract A303 Amesbury To Berwick Down - Phase 7A GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1521144	R71301 0.10 SOIL	19/06/19	GJ 250ml, GJ 60ml x2, PT 1L		
1521145	R71302 0.10 SOIL	19/06/19	GJ 250ml, GJ 60ml x2, PT 1L		

Key: G-Glass P-Plastic J-Jar 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



Certificate of Analysis

Certificate Number 19-12061

03-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12061

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury to Berwick Down

Description 2 Soil samples.

Date Received 27-Jun-19

Date Started 27-Jun-19

Date Completed 03-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 19-12061

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	1522928	1522929
Sample ID	STP72903	STP72902
Depth	0.10	0.30
Other ID		
Sample Type	ES	ES
Sampling Date	24/06/19	24/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony	DETSC 2301*	1	mg/kg	< 1.0	1.1
Arsenic	DETSC 2301#	0.2	mg/kg	6.0	5.5
Beryllium	DETSC 2301#	0.2	mg/kg	0.5	0.5
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.0	0.9
Cadmium	DETSC 2301#	0.1	mg/kg	0.8	0.8
Chromium III	DETSC 2301*	0.15	mg/kg	13	13
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	11	13
Iron	DETSC 2301	25	mg/kg	11000	11000
Lead	DETSC 2301#	0.3	mg/kg	22	25
Manganese	DETSC 2301#	20	mg/kg	770	720
Mercury	DETSC 2325#	0.05	mg/kg	0.06	0.07
Molybdenum	DETSC 2301#	0.4	mg/kg	< 0.4	0.5
Nickel	DETSC 2301#	1	mg/kg	10	10
Phosphorus	DETSC 2301*	1	mg/kg	810	790
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	0.7
Zinc	DETSC 2301#	1	mg/kg	75	74
Inorganics					
pH	DETSC 2008#			8.2	8.1
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Total Organic Carbon	DETSC 2002	0.1	%	3.1	3.0
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.8	5.0
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	24	64
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	4.5	4.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	20	23
Aromatic C5-C35	DETSC 3072*	10	mg/kg	24	28

Summary of Chemical Analysis

Soil Samples

Our Ref 19-12061

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	1522928	1522929
Sample ID	STP72903	STP72902
Depth	0.10	0.30
Other ID		
Sample Type	ES	ES
Sampling Date	24/06/19	24/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	24	28
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	0.05	0.05
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03	0.04
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	0.69	0.80
Anthracene	DETSC 3303	0.03	mg/kg	0.15	0.19
Fluoranthene	DETSC 3303#	0.03	mg/kg	2.6	3.0
Pyrene	DETSC 3303#	0.03	mg/kg	2.5	2.9
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	1.5	1.6
Chrysene	DETSC 3303	0.03	mg/kg	1.4	1.5
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	2.1	2.2
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	1.0	0.96
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	1.5	1.8
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	0.52	0.63
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	0.14	0.15
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	0.74	0.79
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	15	17
Phenols					
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	1.8	1.0



Summary of Asbestos Analysis Soil Samples

Our Ref 19-12061

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1522928	STP72903 0.10	SOIL	NAD	none	Rebecca Burgess

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 19-12061

Client Ref PC197510

Contract A303 Amesbury to Berwick Down

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Hold time exceeded for tests	Inappropriate container for tests
1522928	STP72903 0.10 SOIL	24/06/19	GJ 250ml x2, GJ 60ml, PT 1L x2		
1522929	STP72902 0.30 SOIL	24/06/19	GJ 250ml x2, GJ 60ml, PT 1L x2		

Key: G-Glass P-Plastic J-Jar T-Tub

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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



DETS

Certificate of Analysis

Certificate Number 19-12145

04-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12145

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury to Berwick Down - Phase 7A GI

Description One Soil sample.

Date Received 27-Jun-19

Date Started 27-Jun-19

Date Completed 04-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



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Summary of Chemical Analysis

Soil Samples

Our Ref 19-12145

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down - Phase 7A GI

Lab No	1523332
Sample ID	R70901
Depth	0.20
Other ID	
Sample Type	ES
Sampling Date	24/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony	DETSC 2301*	1	mg/kg	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	8.6
Beryllium	DETSC 2301#	0.2	mg/kg	0.6
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.2
Cadmium	DETSC 2301#	0.1	mg/kg	0.5
Chromium III	DETSC 2301*	0.15	mg/kg	18
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	19
Iron	DETSC 2301	25	mg/kg	18000
Lead	DETSC 2301#	0.3	mg/kg	29
Manganese	DETSC 2301#	20	mg/kg	910
Mercury	DETSC 2325#	0.05	mg/kg	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	< 0.4
Nickel	DETSC 2301#	1	mg/kg	23
Phosphorus	DETSC 2301*	1	mg/kg	1100
Selenium	DETSC 2301#	0.5	mg/kg	2.2
Zinc	DETSC 2301#	1	mg/kg	93
Inorganics				
pH	DETSC 2008#			7.5
Cyanide, Total	DETSC 2130#	0.1	mg/kg	0.2
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1
Total Organic Carbon	DETSC 2002	0.1	%	4.4
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	5.5
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	620
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4

Summary of Chemical Analysis

Soil Samples

Our Ref 19-12145

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down - Phase 7A GI

Lab No	1523332
Sample ID	R70901
Depth	0.20
Other ID	
Sample Type	ES
Sampling Date	24/06/19
Sampling Time	n/s

Test	Method	LOD	Units	
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10
TPH Ali/Aro Total	DETSC 3072*	10	mg/kg	< 10
Benzene	DETSC 3321#	0.01	mg/kg	< 0.01
Ethylbenzene	DETSC 3321#	0.01	mg/kg	< 0.01
Toluene	DETSC 3321#	0.01	mg/kg	< 0.01
Xylene	DETSC 3321#	0.01	mg/kg	< 0.01
MTBE	DETSC 3321	0.01	mg/kg	< 0.01
PAHs				
Naphthalene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthylene	DETSC 3303#	0.03	mg/kg	< 0.03
Acenaphthene	DETSC 3303#	0.03	mg/kg	< 0.03
Fluorene	DETSC 3303	0.03	mg/kg	< 0.03
Phenanthrene	DETSC 3303#	0.03	mg/kg	< 0.03
Anthracene	DETSC 3303	0.03	mg/kg	< 0.03
Fluoranthene	DETSC 3303#	0.03	mg/kg	0.05
Pyrene	DETSC 3303#	0.03	mg/kg	0.05
Benzo(a)anthracene	DETSC 3303#	0.03	mg/kg	0.04
Chrysene	DETSC 3303	0.03	mg/kg	< 0.03
Benzo(b)fluoranthene	DETSC 3303#	0.03	mg/kg	0.04
Benzo(k)fluoranthene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(a)pyrene	DETSC 3303#	0.03	mg/kg	0.04
Indeno(1,2,3-c,d)pyrene	DETSC 3303#	0.03	mg/kg	< 0.03
Dibenzo(a,h)anthracene	DETSC 3303#	0.03	mg/kg	< 0.03
Benzo(g,h,i)perylene	DETSC 3303#	0.03	mg/kg	< 0.03
PAH - USEPA 16, Total	DETSC 3303	0.1	mg/kg	0.23
Phenols				
Phenol - Monohydric	DETSC 2130#	0.3	mg/kg	< 0.3

Summary of Asbestos Analysis

Soil Samples

Our Ref 19-12145

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down - Phase 7A GI

Lab No	Sample ID	Material Type	Result	Comment*	Analyst
1523332	R70901 0.20	SOIL	NAD	none	Rebecca Burgess

Crocidolite = Blue Asbestos, Amosite = Brown Asbestos, Chrysotile = White Asbestos. Anthophyllite, Actinolite and Tremolite are other forms of Asbestos. Samples are analysed by DETSC 1101 using polarised light microscopy in accordance with HSG248 and documented in-house methods. NAD = No Asbestos Detected. Where a sample is NAD, the result is based on analysis of at least 2 sub-samples and should be taken to mean 'no asbestos detected in sample'. Key: * - not included in laboratory scope of accreditation.

Information in Support of the Analytical Results

Our Ref 19-12145

Client Ref PC197510

Contract A303 Amesbury to Berwick Down - Phase 7A GI

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1523332	R70901 0.20 SOIL	24/06/19	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar 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



Certificate of Analysis

Certificate Number 19-12677

10-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12677

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury Berwick Down Phase 7a

Description 2 Soil samples.

Date Received 04-Jul-19

Date Started 04-Jul-19

Date Completed 10-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis

Soil Samples

Our Ref 19-12677

Client Ref PC197510

Contract Title A303 Amesbury Berwick Down Phase 7a

Lab No	1526943	1526944
Sample ID	CP71702	R71301
Depth	0.00-0.30	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	01/07/19	28/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Metals					
Antimony	DETSC 2301*	1	mg/kg	< 1.0	< 1.0
Arsenic	DETSC 2301#	0.2	mg/kg	5.5	0.8
Beryllium	DETSC 2301#	0.2	mg/kg	0.6	< 0.2
Boron, Water Soluble	DETSC 2311#	0.2	mg/kg	1.3	< 0.2
Cadmium	DETSC 2301#	0.1	mg/kg	1.0	0.2
Chromium III	DETSC 2301*	0.15	mg/kg	19	1.2
Chromium, Hexavalent	DETSC 2204*	1	mg/kg	< 1.0	< 1.0
Copper	DETSC 2301#	0.2	mg/kg	16	1.6
Iron	DETSC 2301	25	mg/kg	13000	760
Lead	DETSC 2301#	0.3	mg/kg	18	1.2
Manganese	DETSC 2301#	20	mg/kg	950	150
Mercury	DETSC 2325#	0.05	mg/kg	0.10	< 0.05
Molybdenum	DETSC 2301#	0.4	mg/kg	< 0.4	< 0.4
Nickel	DETSC 2301#	1	mg/kg	13	2.7
Phosphorus	DETSC 2301*	1	mg/kg	1400	350
Selenium	DETSC 2301#	0.5	mg/kg	< 0.5	< 0.5
Zinc	DETSC 2301#	1	mg/kg	70	11
Inorganics					
pH	DETSC 2008#			8.5	8.9
Cyanide, Total	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Cyanide, Free	DETSC 2130#	0.1	mg/kg	< 0.1	< 0.1
Total Organic Carbon	DETSC 2002	0.1	%	4.3	0.1
Ammoniacal Nitrogen as N	DETSC 2119#	0.5	mg/kg	3.3	2.4
Sulphate Aqueous Extract as SO4	DETSC 2076#	10	mg/l	21	29
Petroleum Hydrocarbons					
Aliphatic C5-C6	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C6-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aliphatic C10-C12	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C12-C16	DETSC 3072#	1.2	mg/kg	< 1.2	< 1.2
Aliphatic C16-C21	DETSC 3072#	1.5	mg/kg	< 1.5	< 1.5
Aliphatic C21-C35	DETSC 3072#	3.4	mg/kg	< 3.4	< 3.4
Aliphatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10
Aromatic C5-C7	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C7-C8	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C8-C10	DETSC 3321*	0.01	mg/kg	< 0.01	< 0.01
Aromatic C10-C12	DETSC 3072#	0.9	mg/kg	< 0.9	< 0.9
Aromatic C12-C16	DETSC 3072#	0.5	mg/kg	< 0.5	< 0.5
Aromatic C16-C21	DETSC 3072#	0.6	mg/kg	< 0.6	< 0.6
Aromatic C21-C35	DETSC 3072#	1.4	mg/kg	< 1.4	< 1.4
Aromatic C5-C35	DETSC 3072*	10	mg/kg	< 10	< 10

Summary of Chemical Analysis

Soil Samples

Our Ref 19-12677

Client Ref PC197510

Contract Title A303 Amesbury Berwick Down Phase 7a

Lab No	1526943	1526944
Sample ID	CP71702	R71301
Depth	0.00-0.30	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	01/07/19	28/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
TPH Ali/Aro Total	DETS 3072*	10	mg/kg	< 10	< 10
Benzene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01
Ethylbenzene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01
Toluene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01
Xylene	DETS 3321#	0.01	mg/kg	< 0.01	< 0.01
MTBE	DETS 3321	0.01	mg/kg	< 0.01	< 0.01
PAHs					
Naphthalene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthylene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Acenaphthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Fluorene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03
Phenanthrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Anthracene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03
Fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Pyrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)anthracene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Chrysene	DETS 3303	0.03	mg/kg	< 0.03	< 0.03
Benzo(b)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(k)fluoranthene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(a)pyrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Indeno(1,2,3-c,d)pyrene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Dibenzo(a,h)anthracene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
Benzo(g,h,i)perylene	DETS 3303#	0.03	mg/kg	< 0.03	< 0.03
PAH - USEPA 16, Total	DETS 3303	0.1	mg/kg	< 0.10	< 0.10
Phenols					
Phenol - Monohydric	DETS 2130#	0.3	mg/kg	< 0.3	< 0.3
OCPs					
alpha-BHC	DETS 3441*	0.1	mg/kg	0.2	
gamma-BHC (Lindane)	DETS 3441*	0.1	mg/kg	0.3	
beta-BHC	DETS 3441*	0.1	mg/kg	0.2	
delta-BHC	DETS 3441*	0.1	mg/kg	0.3	
Heptachlor	DETS 3441*	0.1	mg/kg	< 0.1	
Aldrin	DETS 3441*	0.1	mg/kg	< 0.1	
Heptachlor epoxide	DETS 3441*	0.1	mg/kg	< 0.1	
gamma-Chlordane	DETS 3441*	0.1	mg/kg	< 0.1	
Endosulphan I & Alpha-chlorodane	DETS 3441*	0.1	mg/kg	< 0.1	
4,4-DDE	DETS 3441*	0.1	mg/kg	< 0.1	
Dieldrin	DETS 3441*	0.1	mg/kg	< 0.1	
Endrin	DETS 3441*	0.1	mg/kg	< 0.1	
Endosulphan II & 4,4-DDD	DETS 3441*	0.1	mg/kg	< 0.1	
Endrin aldehyde	DETS 3441*	0.1	mg/kg	< 0.1	
4,4-DDT	DETS 3441*	0.1	mg/kg	< 0.1	

Summary of Chemical Analysis Soil Samples

Our Ref 19-12677

Client Ref PC197510

Contract Title A303 Amesbury Berwick Down Phase 7a

Lab No	1526943	1526944
Sample ID	CP71702	R71301
Depth	0.00-0.30	0.50
Other ID		
Sample Type	SOIL	SOIL
Sampling Date	01/07/19	28/06/19
Sampling Time	n/s	n/s

Test	Method	LOD	Units		
Endosulphan sulphate	DETSC 3441*	0.1	mg/kg	< 0.1	
Methoxychlor	DETSC 3441*	0.1	mg/kg	< 0.1	
Endrin ketone	DETSC 3441*	0.1	mg/kg	< 0.1	
OPPs					
Dichlorvos	DETSC 3443*	0.1	mg/kg	0.7	
Mevinphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Demeton-O	DETSC 3443*	0.1	mg/kg	< 0.1	
Ethoprop	DETSC 3443*	0.1	mg/kg	< 0.1	
Naled	DETSC 3443*	0.1	mg/kg	< 0.1	
Phorate	DETSC 3443*	0.1	mg/kg	< 0.1	
Demeton-S	DETSC 3443*	0.1	mg/kg	0.3	
Diazinon	DETSC 3443*	0.1	mg/kg	< 0.1	
Disulfoton	DETSC 3443*	0.1	mg/kg	0.3	
Methylparathion	DETSC 3443*	0.1	mg/kg	< 0.1	
Ronnel	DETSC 3443*	0.1	mg/kg	< 0.1	
Fenthion	DETSC 3443*	0.1	mg/kg	< 0.1	
Chlopyrifos	DETSC 3443*	0.1	mg/kg	< 0.1	
Trichlorinate	DETSC 3443*	0.1	mg/kg	< 0.1	
Merphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Stirofos	DETSC 3443*	0.1	mg/kg	< 0.1	
Tokuthion	DETSC 3443*	0.1	mg/kg	< 0.1	
Fensulfothion	DETSC 3443*	0.1	mg/kg	< 0.1	
Bolstar	DETSC 3443*	0.1	mg/kg	< 0.1	
Azinphos methyl	DETSC 3443*	0.1	mg/kg	0.4	
Coumaphos	DETSC 3443*	0.1	mg/kg	< 0.1	
Triazines					
Atraton	DETSC 3445*	0.1	mg/kg	< 0.1	
Prometon	DETSC 3445*	0.1	mg/kg	< 0.1	
Simazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Atrazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Propazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Terbutylazine	DETSC 3445*	0.1	mg/kg	< 0.1	
Secbumeton	DETSC 3445*	0.1	mg/kg	< 0.1	
Symetryn	DETSC 3445*	0.1	mg/kg	< 0.1	
Ametryn	DETSC 3445*	0.1	mg/kg	< 0.1	
Prometryne	DETSC 3445*	0.1	mg/kg	< 0.1	
Terbutryn	DETSC 3445*	0.1	mg/kg	< 0.1	

Information in Support of the Analytical Results

Our Ref 19-12677

Client Ref PC197510

Contract A303 Amesbury Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1526943	CP71702 0.00-0.30 SOIL	01/07/19	GJ 250ml, GJ 60ml, PT 1L		
1526944	R71301 0.50 SOIL	28/06/19	GJ 250ml, GJ 60ml, PT 1L		

Key: G-Glass P-Plastic J-Jar 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



DETS

Certificate of Analysis

Certificate Number 19-12734

26-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-12734

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury to Berwick Down Phase 7a

Description 5 Water samples.

Date Received 05-Jul-19

Date Started 05-Jul-19

Date Completed 26-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



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Summary of Chemical Analysis

Water Samples

Our Ref 19-12734

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1527410	1527411	1527412	1527413	1528818
Sample ID	R71301	R71901	R71903	R71904	CP71302
Depth	43.40	35.50			43.80
Other ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sampling Date	02/07/19	02/07/19	02/07/19	01/07/19	01/07/19
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Metals								
Antimony, Dissolved	DETSC 2306	0.17	ug/l	0.22	< 0.17	0.23	< 0.17	0.38
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	1.6	1.6	1.7	2.0	2.4
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	23	< 12	16	23	24
Cadmium, Dissolved	DETSC 2306	0.02	ug/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium, Total	DETSC 2306	0.02	ug/l	0.90	0.09	1.46	0.39	11.9
Calcium, Dissolved	DETSC 2306	0.1	mg/l	93	110	92	100	76
Chromium, Dissolved	DETSC 2306	0.25	ug/l	4.1	4.4	0.43	3.4	0.39
Chromium III, Dissolved	DETSC 2306*	1	ug/l	3.8	4.6	< 1.0	3.4	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0	< 7.0	< 7.0	< 7.0	< 7.0
Copper, Dissolved	DETSC 2306	0.3	ug/l	1.1	3.0	1.2	1.2	3.1
Copper, Total	DETSC 2306	0.3	ug/l	2.9	9.1	26	11	99
Iron, Dissolved	DETSC 2306	5.5	ug/l	< 5.5	< 5.5	< 5.5	< 5.5	28
Iron, Total	DETSC 2306	5.5	ug/l	14	700	14000	5400	2300
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.14	< 0.09	< 0.09	< 0.09	0.12
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	1.9	1.2	1.2	3.3	2.3
Manganese, Dissolved	DETSC 2306	0.22	ug/l	39	10	110	50	18
Mercury, Dissolved	DETSC 2306	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	3.2	< 1.1	4.9	< 1.1	17
Nickel, Dissolved	DETSC 2306	0.5	ug/l	16	9.3	12	4.3	4.2
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	63	60	61	84	80
Phosphorus as P, Total	DETSC 2306*	0.01	mg/l	0.09	0.78	5.1	2.3	0.09
Potassium, Dissolved	DETSC 2306	0.08	mg/l	1.1	0.72	0.46	2.6	2.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	< 0.25	0.29	< 0.25	0.33	0.89
Sodium, Dissolved	DETSC 2306	0.07	mg/l	11	10	8.2	16	11
Zinc, Dissolved	DETSC 2306	0.5	ug/l	24	28	16	11	36
Zinc, Total	DETSC 2306	0.5	ug/l	60	28	150	39	1600
Inorganics								
Conductivity	DETSC 2009	1	uS/cm	498	554	498	575	317
pH	DETSC 2008		pH	6.7	7.2	7.4	7.5	7.5
Alkalinity as CaCO3 (Automated)	DETSC 2030	10	mg/l	160	200	160	180	140
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	150	200	170	200	760
Alkalinity, Carbonate as CaCO3	DETSC 2030*	10	mg/l	< 10	< 10	< 10	< 10	< 10
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.4	< 0.1	< 0.1	< 0.1	4.4
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	0.5
Phenol - Monohydric	DETSC 2131	1.5	ug/l	< 1.5	< 1.5	< 1.5	< 1.5	6.3
Dissolved, Oxygen	DETSC 2048*	0.1	mg/l	9.0	9.1	9.4	9.1	8.7
Dissolved Organic Carbon	*	2	mg/l	< 2.0	< 2.0	< 2.0	< 2.0	4.5
Total Dissolved Solids	DETSC 2035	5	mg/l	380	390	360	370	300
Turbidity	DETSC 2037*	1	NTU	23	570	260	560	< 1.0



Summary of Chemical Analysis

Water Samples

Our Ref 19-12734

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1527410	1527411	1527412	1527413	1528818
Sample ID	R71301	R71901	R71903	R71904	CP71302
Depth	43.40	35.50			43.80
Other ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sampling Date	02/07/19	02/07/19	02/07/19	01/07/19	01/07/19
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	1.3	0.19	0.080	0.020	1.4
Chloride	DETSC 2055	0.1	mg/l	27	24	19	27	32
Fluoride	DETSC 2055	0.1	mg/l	< 0.10	< 0.10	< 0.10	< 0.10	0.15
Nitrate as NO3	DETSC 2055	0.1	mg/l	48	38	37	30	26
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10	< 0.10	0.68	< 0.10	8.9
Ortho Phosphate as PO4	DETSC 2205	0.01	mg/l	3.3	< 0.01	< 0.01	< 0.01	< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	23	15	22	34	45
Petroleum Hydrocarbons								
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10	< 10
TPH Ali/Aro Total	DETSC 3072*	10	ug/l	< 10	< 10	< 10	< 10	< 10
Benzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
PAHs								
Naphthalene	DETSC 3304	0.05	ug/l	0.13	< 0.05	< 0.05	< 0.05	9.0
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	0.20
Acenaphthene	DETSC 3304	0.01	ug/l	0.02	0.01	< 0.01	< 0.01	5.0
Fluorene	DETSC 3304	0.01	ug/l	0.04	< 0.01	< 0.01	< 0.01	11
Phenanthrene	DETSC 3304	0.01	ug/l	0.03	< 0.01	< 0.01	< 0.01	7.0
Anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	3.4
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	0.04	< 0.01	0.01	0.96
Pyrene	DETSC 3304	0.01	ug/l	< 0.01	0.03	< 0.01	0.05	0.70
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	0.04
Chrysene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	0.05



Summary of Chemical Analysis

Water Samples

Our Ref 19-12734

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1527410	1527411	1527412	1527413	1528818
Sample ID	R71301	R71901	R71903	R71904	CP71302
Depth	43.40	35.50			43.80
Other ID					
Sample Type	WATER	WATER	WATER	WATER	WATER
Sampling Date	02/07/19	02/07/19	02/07/19	01/07/19	01/07/19
Sampling Time	n/s	n/s	n/s	n/s	n/s

Test	Method	LOD	Units					
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	0.23	< 0.20	< 0.20	< 0.20	37
PCBs								
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
PCB 52	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 101	DETSC 3402	0.3	ug/l	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6	< 0.6	< 0.6	< 0.6	< 0.6
PCB 138	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 153	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 180	DETSC 3402	0.2	ug/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
OPPs								
Dichlorvos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Mevinphos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Demeton-O	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Ethoprop	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Naled	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Phorate	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Demeton-S	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Diazinon	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Disulfoton	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Methylparathion	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Ronnel	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Fenthion	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Chlopyrifos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Trichlorinate	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Merphos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Stirofos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Tokuthion	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Fensulfothion	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Bolstar	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Azinphos methyl	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Coumaphos	DETSC 3434*	1	ug/l	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0
Subcontracted Analysis								
Molybdate Reactive Phosphorus (MRP)	§*	0.03	mg/l	<0.03	<0.03	<0.03	<0.03	<0.03

Information in Support of the Analytical Results

Our Ref 19-12734
 Client Ref PC197510
 Contract A303 Amesbury to Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1527410	R71301 43.40 WATER	02/07/19	GB 1L x2, GV x2, PB 1L	Dissolved Oxygen (2 days), pH/Cond/TDS (1 days), Nitrite as NO2 (2 days)	
1527411	R71901 35.50 WATER	02/07/19	GB 1L x2, GV x2, PB 1L	Dissolved Oxygen (2 days), pH/Cond/TDS (1 days), Nitrite as NO2 (2 days)	
1527412	R71903 WATER	02/07/19	GB 1L x2, GV x2, PB 1L	Dissolved Oxygen (2 days), pH/Cond/TDS (1 days), Nitrite as NO2 (2 days)	
1527413	R71904 WATER	01/07/19	GB 1L x2, GV x2, PB 1L	Dissolved Oxygen (2 days), pH/Cond/TDS (1 days), Nitrite as NO2 (2 days)	
1528818	CP71302 43.80 WATER	01/07/19	GB 1L x2, GV x2, PB 1L	Alkalinity (7 days), Chromium, Hexavalent (4 days), Dissolved Oxygen (2 days), Kone (5 days), pH/Cond/TDS (1 days), Nitrite as NO2 (2 days), OP Pesticides (7 days), PAH MS (4 days), Dissolved s (7 days)	

Key: G-Glass P-Plastic B-Bottle V-Vial

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.

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



DETS
Certificate of Analysis

Certificate Number 19-13307

02-Aug-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13307

Client Reference PC197510

Order No (not supplied)

Contract Title A303 Amesbury to Berwick Down Phase 7a

Description One Water sample.

Date Received 12-Jul-19

Date Started 12-Jul-19

Date Completed 02-Aug-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



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Summary of Chemical Analysis

Water Samples

Our Ref 19-13307

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1531447
Sample ID	R71001
Depth	
Other ID	
Sample Type	WATER
Sampling Date	10/07/19
Sampling Time	n/s

Test	Method	LOD	Units	
Metals				
Antimony, Dissolved	DETSC 2306	0.17	ug/l	0.67
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.55
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	89
Cadmium, Dissolved	DETSC 2306	0.02	ug/l	0.02
Cadmium, Total	DETSC 2306	0.02	ug/l	0.93
Calcium, Dissolved	DETSC 2306	0.1	mg/l	100
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.34
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0
Copper, Dissolved	DETSC 2306	0.3	ug/l	3.2
Copper, Total	DETSC 2306	0.3	ug/l	33
Iron, Dissolved	DETSC 2306	5.5	ug/l	110
Iron, Total	DETSC 2306	5.5	ug/l	2800
Lead, Dissolved	DETSC 2306	0.09	ug/l	0.29
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	3.0
Manganese, Dissolved	DETSC 2306	0.22	ug/l	30
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.07
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	8.4
Nickel, Dissolved	DETSC 2306	0.5	ug/l	6.6
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	40
Phosphorus as P, Total	DETSC 2306*	0.01	mg/l	4.1
Potassium, Dissolved	DETSC 2306	0.08	mg/l	1.1
Selenium, Dissolved	DETSC 2306	0.25	ug/l	3.0
Sodium, Dissolved	DETSC 2306	0.07	mg/l	7.1
Zinc, Dissolved	DETSC 2306	0.5	ug/l	7.6
Zinc, Total	DETSC 2306	0.5	ug/l	78
Inorganics				
Conductivity	DETSC 2009	1	uS/cm	540
pH	DETSC 2008		pH	7.3
Alkalinity as CaCO3 (Automated)	DETSC 2030	10	mg/l	200
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	110
Alkalinity, Carbonate as CaCO3	DETSC 2030*	10	mg/l	70
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	0.6
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	0.2
Phenol - Monohydric	DETSC 2131	1.5	ug/l	6.2
Dissolved, Oxygen	DETSC 2048*	0.1	mg/l	9.0
Dissolved Organic Carbon	*	2	mg/l	< 2.0
Total Dissolved Solids	DETSC 2035	5	mg/l	3600
Turbidity	DETSC 2037*	1	NTU	170

Summary of Chemical Analysis

Water Samples

Our Ref 19-13307

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1531447
Sample ID	R71001
Depth	
Other ID	
Sample Type	WATER
Sampling Date	10/07/19
Sampling Time	n/s

Test	Method	LOD	Units	
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	0.21
Chloride	DETSC 2055	0.1	mg/l	33
Fluoride	DETSC 2055	0.1	mg/l	< 0.10
Nitrate as NO3	DETSC 2055	0.1	mg/l	61
Nitrite as NO2	DETSC 2055	0.1	mg/l	< 0.10
Ortho Phosphate as PO4	DETSC 2205	0.01	mg/l	0.03
Sulphate as SO4	DETSC 2055	0.1	mg/l	19
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10
TPH Ali/Aro Total	DETSC 3072*	10	ug/l	< 10
Benzene	DETSC 3322	1	ug/l	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0
PAHs				
Naphthalene	DETSC 3304	0.05	ug/l	0.16
Acenaphthylene	DETSC 3304	0.01	ug/l	0.05
Acenaphthene	DETSC 3304	0.01	ug/l	0.07
Fluorene	DETSC 3304	0.01	ug/l	0.10
Phenanthrene	DETSC 3304	0.01	ug/l	0.20
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	0.03
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01

Summary of Chemical Analysis

Water Samples

Our Ref 19-13307

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1531447
Sample ID	R71001
Depth	
Other ID	
Sample Type	WATER
Sampling Date	10/07/19
Sampling Time	n/s

Test	Method	LOD	Units	
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	0.63
PCBs				
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3
PCB 52	DETSC 3402	0.2	ug/l	< 0.2
PCB 101	DETSC 3402	0.3	ug/l	< 0.3
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6
PCB 138	DETSC 3402	0.2	ug/l	< 0.2
PCB 153	DETSC 3402	0.2	ug/l	< 0.2
PCB 180	DETSC 3402	0.2	ug/l	< 0.2
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0
OPPs				
Dichlorvos	DETSC 3434*	1	ug/l	< 10.0
Mevinphos	DETSC 3434*	1	ug/l	< 10.0
Demeton-O	DETSC 3434*	1	ug/l	< 10.0
Ethoprop	DETSC 3434*	1	ug/l	< 10.0
Naled	DETSC 3434*	1	ug/l	< 10.0
Phorate	DETSC 3434*	1	ug/l	< 10.0
Demeton-S	DETSC 3434*	1	ug/l	< 10.0
Diazinon	DETSC 3434*	1	ug/l	< 10.0
Disulfoton	DETSC 3434*	1	ug/l	< 10.0
Methylparathion	DETSC 3434*	1	ug/l	< 10.0
Ronnel	DETSC 3434*	1	ug/l	< 10.0
Fenthion	DETSC 3434*	1	ug/l	< 10.0
Chlopyrifos	DETSC 3434*	1	ug/l	< 10.0
Trichlorinate	DETSC 3434*	1	ug/l	< 10.0
Merphos	DETSC 3434*	1	ug/l	< 10.0
Stirofos	DETSC 3434*	1	ug/l	< 10.0
Tokuthion	DETSC 3434*	1	ug/l	< 10.0
Fensulfothion	DETSC 3434*	1	ug/l	< 10.0
Bolstar	DETSC 3434*	1	ug/l	< 10.0
Azinphos methyl	DETSC 3434*	1	ug/l	< 10.0
Coumaphos	DETSC 3434*	1	ug/l	< 10.0
Subcontracted Analysis				
Molybdate Reactive Phosphorus (MRP)	§*	0.03	mg/l	<0.03

Information in Support of the Analytical Results

Our Ref 19-13307

Client Ref PC197510

Contract A303 Amesbury to Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1531447	R71001 WATER	10/07/19	GB 1L x2, GV x2, PB 1L		
<p>Key: G-Glass P-Plastic B-Bottle V-Vial</p> <p>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.</p>					

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



DETS
Certificate of Analysis

Certificate Number 19-13379

02-Aug-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13379

Client Reference PC197510

Order No (not supplied)

Contract Title A303 Amesbury to Berwick Down Phase 7a

Description One Water sample.

Date Received 15-Jul-19

Date Started 15-Jul-19

Date Completed 02-Aug-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



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Summary of Chemical Analysis

Water Samples

Our Ref 19-13379

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1532073
Sample ID	R71002
Depth	24.84
Other ID	
Sample Type	W
Sampling Date	04/07/19
Sampling Time	1600

Test	Method	LOD	Units	
Metals				
Antimony, Dissolved	DETSC 2306	0.17	ug/l	0.30
Arsenic, Dissolved	DETSC 2306	0.16	ug/l	0.16
Beryllium, Dissolved	DETSC 2306*	0.1	ug/l	< 0.1
Boron, Dissolved	DETSC 2306*	12	ug/l	46
Cadmium, Dissolved	DETSC 2306	0.02	ug/l	< 0.02
Cadmium, Total	DETSC 2306	0.02	ug/l	0.10
Calcium, Dissolved	DETSC 2306	0.1	mg/l	88
Chromium, Dissolved	DETSC 2306	0.25	ug/l	0.41
Chromium III, Dissolved	DETSC 2306*	1	ug/l	< 1.0
Chromium, Hexavalent	DETSC 2203	7	ug/l	< 7.0
Copper, Dissolved	DETSC 2306	0.3	ug/l	0.8
Copper, Total	DETSC 2306	0.3	ug/l	2.5
Iron, Dissolved	DETSC 2306	5.5	ug/l	9.1
Iron, Total	DETSC 2306	5.5	ug/l	800
Lead, Dissolved	DETSC 2306	0.09	ug/l	< 0.09
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	2.8
Manganese, Dissolved	DETSC 2306	0.22	ug/l	28
Mercury, Dissolved	DETSC 2306	0.01	ug/l	0.16
Molybdenum, Dissolved	DETSC 2306	1.1	ug/l	1.2
Nickel, Dissolved	DETSC 2306	0.5	ug/l	4.2
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	37
Phosphorus as P, Total	DETSC 2306*	0.01	mg/l	0.30
Potassium, Dissolved	DETSC 2306	0.08	mg/l	1.4
Selenium, Dissolved	DETSC 2306	0.25	ug/l	0.34
Sodium, Dissolved	DETSC 2306	0.07	mg/l	11
Zinc, Dissolved	DETSC 2306	0.5	ug/l	19
Zinc, Total	DETSC 2306	0.5	ug/l	2.3
Inorganics				
Conductivity	DETSC 2009	1	uS/cm	470
pH	DETSC 2008		pH	7.8
Alkalinity as CaCO3 (Automated)	DETSC 2030	10	mg/l	160
Alkalinity, Bicarbonate as CaCO3	DETSC 2030*	10	mg/l	170
Alkalinity, Carbonate as CaCO3	DETSC 2030*	10	mg/l	< 10
Cyanide, Total Low Level	DETSC 2131	0.1	ug/l	< 0.1
Cyanide, Free Low Level	DETSC 2131	0.1	ug/l	< 0.1
Phenol - Monohydric	DETSC 2131	1.5	ug/l	< 1.5
Dissolved, Oxygen	DETSC 2048*	0.1	mg/l	8.7
Dissolved Organic Carbon	*	2	mg/l	< 2.0
Total Dissolved Solids	DETSC 2035	5	mg/l	380
Turbidity	DETSC 2037*	1	NTU	520



Summary of Chemical Analysis

Water Samples

Our Ref 19-13379

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1532073
Sample ID	R71002
Depth	24.84
Other ID	
Sample Type	W
Sampling Date	04/07/19
Sampling Time	1600

Test	Method	LOD	Units	
Ammoniacal Nitrogen as N	DETSC 2207	0.015	mg/l	< 0.015
Chloride	DETSC 2055	0.1	mg/l	21
Fluoride	DETSC 2055	0.1	mg/l	< 0.10
Nitrate as NO3	DETSC 2055	0.1	mg/l	50
Nitrite as NO2	DETSC 2055	0.1	mg/l	0.19
Ortho Phosphate as PO4	DETSC 2205	0.01	mg/l	< 0.01
Sulphate as SO4	DETSC 2055	0.1	mg/l	21
Petroleum Hydrocarbons				
Aliphatic C5-C6	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C6-C8	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aliphatic C10-C12	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C12-C16	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C16-C21	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C21-C35	DETSC 3072*	1	ug/l	< 1.0
Aliphatic C5-C35	DETSC 3072*	10	ug/l	< 10
Aromatic C5-C7	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C7-C8	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C8-C10	DETSC 3322	0.1	ug/l	< 0.1
Aromatic C10-C12	DETSC 3072*	1	ug/l	< 1.0
Aromatic C12-C16	DETSC 3072*	1	ug/l	< 1.0
Aromatic C16-C21	DETSC 3072*	1	ug/l	< 1.0
Aromatic C21-C35	DETSC 3072*	1	ug/l	< 1.0
Aromatic C5-C35	DETSC 3072*	10	ug/l	< 10
TPH Ali/Aro Total	DETSC 3072*	10	ug/l	< 10
Benzene	DETSC 3322	1	ug/l	< 1.0
Toluene	DETSC 3322	1	ug/l	< 1.0
Ethylbenzene	DETSC 3322	1	ug/l	< 1.0
Xylene	DETSC 3322	1	ug/l	< 1.0
PAHs				
Naphthalene	DETSC 3304	0.05	ug/l	< 0.05
Acenaphthylene	DETSC 3304	0.01	ug/l	< 0.01
Acenaphthene	DETSC 3304	0.01	ug/l	< 0.01
Fluorene	DETSC 3304	0.01	ug/l	0.01
Phenanthrene	DETSC 3304	0.01	ug/l	< 0.01
Anthracene	DETSC 3304	0.01	ug/l	< 0.01
Fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Pyrene	DETSC 3304	0.01	ug/l	0.03
Benzo(a)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Chrysene	DETSC 3304	0.01	ug/l	< 0.01



Summary of Chemical Analysis

Water Samples

Our Ref 19-13379

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1532073
Sample ID	R71002
Depth	24.84
Other ID	
Sample Type	W
Sampling Date	04/07/19
Sampling Time	1600

Test	Method	LOD	Units	
Benzo(b)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(k)fluoranthene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(a)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Indeno(1,2,3-c,d)pyrene	DETSC 3304	0.01	ug/l	< 0.01
Dibenzo(a,h)anthracene	DETSC 3304	0.01	ug/l	< 0.01
Benzo(g,h,i)perylene	DETSC 3304	0.01	ug/l	< 0.01
PAH Total	DETSC 3304	0.2	ug/l	< 0.20
PCBs				
PCB 28 + PCB 31	DETSC 3402	0.3	ug/l	< 0.3
PCB 52	DETSC 3402	0.2	ug/l	< 0.2
PCB 101	DETSC 3402	0.3	ug/l	< 0.3
PCB 118 + PCB 123	DETSC 3402	0.6	ug/l	< 0.6
PCB 138	DETSC 3402	0.2	ug/l	< 0.2
PCB 153	DETSC 3402	0.2	ug/l	< 0.2
PCB 180	DETSC 3402	0.2	ug/l	< 0.2
PCB 7 Total	DETSC 3402	1	ug/l	< 1.0
OPPs				
Dichlorvos	DETSC 3434*	1	ug/l	< 10.0
Mevinphos	DETSC 3434*	1	ug/l	< 10.0
Demeton-O	DETSC 3434*	1	ug/l	< 10.0
Ethoprop	DETSC 3434*	1	ug/l	< 10.0
Naled	DETSC 3434*	1	ug/l	< 10.0
Phorate	DETSC 3434*	1	ug/l	< 10.0
Demeton-S	DETSC 3434*	1	ug/l	< 10.0
Diazinon	DETSC 3434*	1	ug/l	< 10.0
Disulfoton	DETSC 3434*	1	ug/l	< 10.0
Methylparathion	DETSC 3434*	1	ug/l	< 10.0
Ronnel	DETSC 3434*	1	ug/l	< 10.0
Fenthion	DETSC 3434*	1	ug/l	< 10.0
Chlopyrifos	DETSC 3434*	1	ug/l	< 10.0
Trichlorinate	DETSC 3434*	1	ug/l	< 10.0
Merphos	DETSC 3434*	1	ug/l	< 10.0
Stirofos	DETSC 3434*	1	ug/l	< 10.0
Tokuthion	DETSC 3434*	1	ug/l	< 10.0
Fensulfothion	DETSC 3434*	1	ug/l	< 10.0
Bolstar	DETSC 3434*	1	ug/l	< 10.0
Azinphos methyl	DETSC 3434*	1	ug/l	< 10.0
Coumaphos	DETSC 3434*	1	ug/l	< 10.0
Subcontracted Analysis				
Molybdate Reactive Phosphorus (MRP)	§*	0.03	mg/l	<0.03

Key: * -not accredited. § -subcontracted.

Information in Support of the Analytical Results

Our Ref 19-13379

Client Ref PC197510

Contract A303 Amesbury to Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1532073	R71002 24.84 WATER	04/07/19	GB 1L x2, GV x2, PB 1L		
<p>Key: G-Glass P-Plastic B-Bottle V-Vial</p> <p>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.</p>					

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



DETS

Certificate of Analysis

Certificate Number 19-13615

30-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13615

Client Reference PC197510

Order No (not supplied)

Contract Title A303 Amesbury Berwick Down Phase 7a

Description 3 Soil samples.

Date Received 17-Jul-19

Date Started 17-Jul-19

Date Completed 30-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager





Summary of Chemical Analysis

Matrix Descriptions

Our Ref 19-13615

Client Ref PC197510

Contract Title A303 Amesbury Berwick Down Phase 7a

Sample ID	Depth	Lab No	Completed	Matrix Description
R71902	0.4	1533324	30/07/2019	Brown light brown slightly gravelly, sandy CLAY including odd rootlets
R71903	0.4	1533325	30/07/2019	Brown gravelly, sandy CLAY including odd rootlets
R71904	0.4	1533326	30/07/2019	Brown gravelly, sandy CLAY including odd rootlets



Summary of Chemical Analysis

Soil Samples

Our Ref 19-13615

Client Ref PC197510

Contract Title A303 Amesbury Berwick Down Phase 7a

Lab No	1533324	1533325	1533326
Sample ID	R71902	R71903	R71904
Depth	0.40	0.40	0.40
Other ID			
Sample Type	ES	ES	ES
Sampling Date	05/07/19	05/07/19	05/07/19
Sampling Time	n/s	n/s	n/s

Test	Method	LOD	Units			
Subcontracted Analysis						
2,4,6-trinitrophenol (picric acid)	\$*	0.1	mg/kg	<0.1	<0.1	<0.1
2,4-dinitrotoluene	\$*	1	mg/kg	< 1.0	< 1.0	< 1.0
2,6-dinitrotoluene	\$*	1	mg/kg	< 1.0	< 1.0	< 1.0
ethylene glycol dinitrate (EGDN)	\$*	0.1	mg/kg	<0.1	<0.1	<0.1
cyclotetramethylenetetranitramine (HMX)	\$*	0.1	mg/kg	< 1.0	< 1.0	< 1.0
hexanitrostilbene (HNS)	\$*	0.5	mg/kg	<0.5	<0.5	<0.5
nitrocellulose (NC)	\$*	5000	mg/kg	<5000	<5000	<5000
nitroglycerine (NG)	\$*	0.1	mg/kg	<0.1	<0.1	<0.1
pentaerythritol tetranitrate (PETN)	\$*	5	mg/kg	<5.0	<5.0	<5.0
picrite	\$*	0.1	mg/kg	<0.10	<0.10	<0.10
cyclo-1,3,5-trimethylene-2,4,6-trinitramine (RDX)	\$*	1	mg/kg	<1.0	<1.0	<1.0
2,4,6-trinitrotoluene (TNT)	\$*	0.5	mg/kg	<0.5	<0.5	<0.5
trinitro-2,4,6-phenylmethylnitramine (tetryl)	\$*	1	kg	<1.0	<1.0	<1.0

Information in Support of the Analytical Results

Our Ref 19-13615

Client Ref PC197510

Contract A303 Amesbury Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Holding time exceeded for tests	Inappropriate container for tests
1533324	R71902 0.40 SOIL	05/07/19	GJ 250ml x2		
1533325	R71903 0.40 SOIL	05/07/19	GJ 250ml x2		
1533326	R71904 0.40 SOIL	05/07/19	GJ 250ml x2		

Key: G-Glass J-Jar

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

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETS 2002	Organic matter	%	0.1	Air Dried	No	Yes	Yes
DETS 2003	Loss on ignition	%	0.01	Air Dried	No	Yes	Yes
DETS 2008	pH	pH Units	1	Air Dried	No	Yes	Yes
DETS 2024	Sulphide	mg/kg	10	Air Dried	No	Yes	Yes
DETS 2076	Sulphate Aqueous Extract as SO4	mg/l	10	Air Dried	No	Yes	Yes
DETS 2084	Total Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2084	Total Organic Carbon	%	0.5	Air Dried	No	Yes	Yes
DETS 2119	Ammoniacal Nitrogen as N	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS 2130	Cyanide free	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Cyanide total	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS 2130	Phenol - Monohydric	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS 2130	Thiocyanate	mg/kg	0.6	Air Dried	No	Yes	Yes
DETS 2321	Total Sulphate as SO4	%	0.01	Air Dried	No	Yes	Yes
DETS 2325	Mercury	mg/kg	0.05	Air Dried	No	Yes	Yes
DETS 3049	Sulphur (free)	mg/kg	0.75	Air Dried	No	Yes	Yes
DETS2123	Boron (water soluble)	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Arsenic	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Barium	mg/kg	1.5	Air Dried	No	Yes	Yes
DETS2301	Beryllium	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Cadmium Available	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cadmium	mg/kg	0.1	Air Dried	No	Yes	Yes
DETS2301	Cobalt	mg/kg	0.7	Air Dried	No	Yes	Yes
DETS2301	Chromium	mg/kg	0.15	Air Dried	No	Yes	Yes
DETS2301	Copper	mg/kg	0.2	Air Dried	No	Yes	Yes
DETS2301	Manganese	mg/kg	20	Air Dried	No	Yes	Yes
DETS2301	Molybdenum	mg/kg	0.4	Air Dried	No	Yes	Yes
DETS2301	Nickel	mg/kg	1	Air Dried	No	Yes	Yes
DETS2301	Lead	mg/kg	0.3	Air Dried	No	Yes	Yes
DETS2301	Selenium	mg/kg	0.5	Air Dried	No	Yes	Yes
DETS2301	Zinc	mg/kg	1	Air Dried	No	Yes	Yes
DETS 3072	Ali/Aro C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	1.2	As Received	No	Yes	Yes
DETS 3072	Aliphatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	1.5	As Received	No	Yes	Yes
DETS 3072	Aliphatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aliphatic C21-C35	mg/kg	3.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	0.9	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C12	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C10-C35	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	0.5	As Received	No	Yes	Yes
DETS 3072	Aromatic C12-C16	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	0.6	As Received	No	Yes	Yes
DETS 3072	Aromatic C16-C21	mg/kg	10	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 3072	Aromatic C21-C35	mg/kg	1.4	As Received	No	Yes	Yes
DETS 062	Benzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Ethylbenzene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Toluene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	m+p Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 062	o Xylene	mg/kg	0.01	As Received	No	Yes	Yes
DETS 3311	C10-C24 Diesel Range Organics (DRO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	C24-C40 Lube Oil Range Organics (LORO)	mg/kg	10	As Received	No	Yes	Yes
DETS 3311	EPH (C10-C40)	mg/kg	10	As Received	No	Yes	Yes

Appendix A - Details of Analysis

Method	Parameter	Units	Limit of Detection	Sample Preparation	Sub-Contracted	UKAS	MCERTS
DETSC 3303	Acenaphthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Acenaphthylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(a)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(b)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(k)fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Benzo(g,h,i)perylene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Dibenzo(a,h)anthracene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Fluoranthene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Indeno(1,2,3-c,d)pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Naphthalene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Phenanthrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3303	Pyrene	mg/kg	0.03	As Received	No	Yes	Yes
DETSC 3401	PCB 28 + PCB 31	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 52	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 101	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 118	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 153	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 138	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB 180	mg/kg	0.01	As Received	No	Yes	Yes
DETSC 3401	PCB Total	mg/kg	0.01	As Received	No	Yes	Yes

Method details are shown only for those determinands listed in Annex A of the MCERTS standard. Anything not included on this list falls outside the scope of MCERTS. No Recovery Factors are used in the determination of results. Results reported assume 100% recovery. Full method statements are available on request.



Certificate of Analysis

Certificate Number 19-13973

30-Jul-19

Client Geotechnics LTD
203 Torrington Avenue
Tile Hill
Coventry
CV4 9AP

Our Reference 19-13973

Client Reference PC197510

Order No OC21689

Contract Title A303 Amesbury to Berwick Down Phase 7a

Description One Leachate sample.

Date Received 23-Jul-19

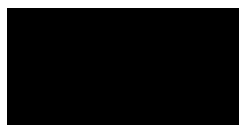
Date Started 23-Jul-19

Date Completed 30-Jul-19

Test Procedures Identified by prefix DETSn (details on request).

Notes Opinions and interpretations are outside the laboratory's scope of ISO 17025 accreditation. This certificate is issued in accordance with the accreditation requirements of the United Kingdom Accreditation Service. The results reported herein relate only to the material supplied to the laboratory. This certificate shall not be reproduced except in full, without the prior written approval of the laboratory.

Approved By



Adam Fenwick
Contracts Manager



Summary of Chemical Analysis Leachate Samples

Our Ref 19-13973

Client Ref PC197510

Contract Title A303 Amesbury to Berwick Down Phase 7a

Lab No	1535907
Sample ID	R71301
Depth	35.50-35.72
Other ID	
Sample Type	C
Sampling Date	01/07/19
Sampling Time	n/s

Test	Method	LOD	Units	
Preparation				
Leachate 2:1 250g Non-WAC	DETSC 1009*			Y
Metals				
Calcium, Dissolved	DETSC 2306	0.09	mg/l	2.2
Magnesium, Dissolved	DETSC 2306	0.02	mg/l	0.39
Phosphorus as P, Dissolved	DETSC 2306	18	ug/l	< 18
Phosphorus as P, Total	DETSC 2306*	18	ug/l	110
Potassium, Dissolved	DETSC 2306	0.08	mg/l	0.20
Sodium, Dissolved	DETSC 2306	0.07	mg/l	1.6
Inorganics				
Alkalinity, Bicarbonate as CaCO ₃	DETSC 2030*	10	mg/l	< 10
Alkalinity, Carbonate as CaCO ₃	DETSC 2030*	10	mg/l	32
Chloride	DETSC 2055	0.1	mg/l	1.5
Ortho Phosphate as PO ₄	DETSC 2205	0.01	mg/l	< 0.01
Sulphate as SO ₄	DETSC 2055	0.1	mg/l	2.6

Information in Support of the Analytical Results

Our Ref 19-13973

Client Ref PC197510

Contract A303 Amesbury to Berwick Down Phase 7a

Containers Received & Deviating Samples

Lab No	Sample ID	Date Sampled	Containers Received	Hold time	Inappropriate
				exceeded for tests	container for tests
1535907	R71301 35.50-35.72 LEACHATE	01/07/19	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.

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

APPENDIX 14

Investigation Techniques and General Notes

INTRODUCTION

The following brief review of Ground Investigation techniques, generally used as part of most Site Investigations in the UK, summarises their methodology, advantages and limitations. Detailed descriptions of the techniques are available and can be provided on request. This review should be read in conjunction with the accompanying General Notes.

TRIAL PITS

The trial pit is amongst the simplest yet most effective means of identifying shallow ground conditions on a site. Its advantages include simplicity, speed, potential accuracy and cost-effectiveness. The trial pit is most commonly formed using a back-acting excavator which can typically determine ground conditions to some 4 metres below ground level. Hand excavation is often used to locate, expose and detail existing foundations, features or services. In general, it is difficult to extend pits significantly below the water table in predominantly granular soils, where flows can cause instability. Unless otherwise stated, the trial pits will not have been provided with temporary side support during their construction. Under such circumstances, entrance into the pit is not permitted and hence observations will have been made from the ground surface and samples taken from the excavator bucket.

Where access for personnel is required to allow close observation of the exposed strata, the taking of samples and the carrying out of in situ tests, the sides of the trial pits (Observation Pits in BS 5930:2015) will be made safe using temporary supports or the sides battered back to a stable angle. Some limited access to such Trial Pits (Observation Pits) at depths less than 1m may be allowed in stable conditions or where the sides are benched or battered back to a safe angle.

Trends in strata type, level and thickness can be determined, shear surfaces identified and the behaviour of plant, excavation sides and excavated materials can be related to the construction process. They are particularly valuable in land slip investigations. Some types of in situ test can be undertaken in such pits and large disturbed or block samples obtained.

CABLE PERCUSSION BORING

The light Cable Percussion technique of soft ground boring, typically at a diameter of 150mm, is a well-established simple and flexible method of boring vertical holes and generally allows data to be obtained in respect of strata conditions other than rock. A tubular cutter (for cohesive soils) or shell with a flap valve (for granular soils) is repeatedly lifted and dropped using a winch and rope operating from an "A" frame. Soil which enters these tools is regularly removed and either sampled for subsequent examination or test, or laid to one side for later removal off site and licensed disposal or, if permitted by the Client, use as backfill. Steel casing will have been used to prevent collapse of the borehole sides where necessary. A degree of disturbance of soil and mixing of layers is inevitable and the presence of very thin layers of different soils within a particular stratum may not be identified. Changes in strata type can only be detected on recognition of a change in soil samples at the surface, after the interface has been passed. For the foregoing reasons, depth measurements should not be considered to be more accurate than 0.10 metre. The technique can determine ground conditions to depths in excess of 30 metres under suitable circumstances and usually causes less surface disturbance than trial pitting.

In cohesive soils cylindrical samples are retrieved by driving or pushing in 100mm nominal diameter tubes. In soft soils, piston sampling or vane testing may be undertaken. In granular soils and often in cohesive materials, in situ Standard Penetration Tests (SPT's) are performed. The SPT records the number of standard blows required to drive a 50mm diameter open or cone ended probe for 300mm after an initial 150mm penetration. A modified method of recording is used in denser strata. Small disturbed samples are obtained throughout.

ROTARY DRILLING

Rotary Drilling to produce cores by rotating an annular diamond-impregnated tube or barrel into the ground is the technique most appropriate to the forming of site investigation boreholes through rock or other hard strata. It has the advantage of being able to be used vertically or at an angle. Core diameters of less than 100mm are most common for site investigation purposes. Core is normally retrieved in plastic lining tubes. A flushing fluid such as air, water or foam is used to cool the bit and carry cuttings to the surface. Depths in excess of 60 metres can be achieved under suitable circumstances using rotary techniques, with minimal surface disturbance.

Examination of cores allows detailed rock description and generally enables angled discontinuity surfaces to be observed. However, vertical holes do not necessarily reveal the presence of vertical or near-vertical fissures or joint discontinuities. The core type and/or techniques used will depend on the ground conditions. Where open hole rotary drilling is employed, descriptions of strata result from examination at the surface of small particles ejected from the borehole in the flushing medium. In consequence, no indication of fissuring, bedding, consistency or degree of weathering can be obtained.

DYNAMIC SAMPLING

This technique involves the driving of an open-ended tube into the ground and retrieval of the soil which enters the tube. It was previously called window or windowless sampling. The term "window sample" arose from the original device which had a "window" or slot cut into the side of the tube through which samples were taken. This was superseded by the use of a thin-walled plastic liner to retrieve the soil sample from within a sampler (windowless sampling) which has a solid wall. Line diameters range from 36 to 86mm. Such samples can be used for qualitative logging, selection of samples for classification and chemical analysis and for obtaining a rudimentary assessment of strength.

Driving devices can be hand-held or machine mounted and the drive tubes are typically in 1m lengths. Depending on the type of rig used, the hole formed can be cased to prevent collapse of the borehole sides. Where the type of rig does not allow the insertion of casing, the success of this technique can be limited when soils and groundwater conditions are such that the sides of the hole collapse on withdrawal of the sampler. Obstructions within the ground, the density of the material or its strength can also limit the depth and rate of penetration of this light-weight investigation technique. Nevertheless, it is a valuable tool where access is constrained such as within buildings or on embankments. Depths of up to 10m can be achieved in suitable circumstances depending on the rig type but depths of 5m to 6m are more common.

EXPLORATORY HOLE RECORDS

The data obtained by these techniques are generally presented on Trial Pit, Borehole, Drillhole or Dynamic Sample Records. The descriptions of strata result from information gathered from a number of sources which may include published geological data, preliminary field observations and descriptions, in situ test results, laboratory test results and specimen descriptions. A key to the symbols and abbreviations used accompanies the records. The descriptions on the exploratory hole records accommodate but may not necessarily be identical to those on any preliminary records or the laboratory summaries.

The records show ground conditions at the exploratory hole locations. The degree to which they can be used to represent conditions between or beyond such holes, however, is a matter for geological interpretation rather than factual reporting and the associated uncertainties must be recognised.

DYNAMIC PROBING

This technique typically measures the number of blows of a standard weight falling over a standard height to advance a cone-ended rod over sequential standard distances (typically 100mm). Some devices measure the penetration of the probe per standard blow. It is essentially a profiling tool and is best used in conjunction with other investigation techniques where site-specific correlation can be used to delineate the distribution of soft or loose soils or the upper horizon of a dense or strong layer such as rock.

Both machine-driven and hand-driven equipment is available, the selection depending upon access restrictions and the depth of penetration required. It is particularly useful where access for larger equipment is not available, disturbance is to be minimised or where there are cost constraints. No samples are recovered and some techniques leave a sacrificial cone head in the ground. As with other lightweight techniques, progress is limited in strong or dense soils. The results are presented both numerically and graphically. Depths of up to 10m are commonly achieved in suitable circumstances.

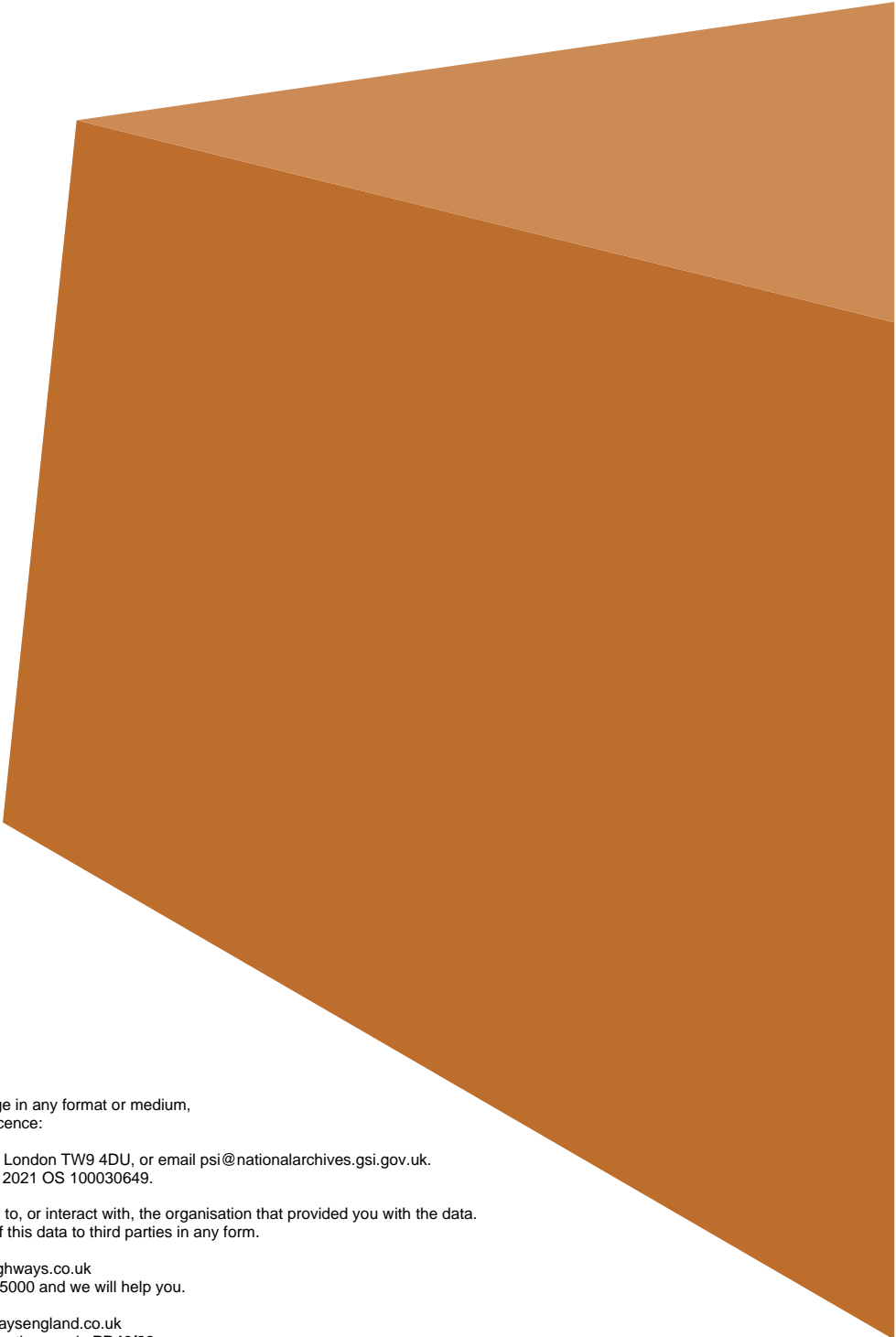
The hand-driven DCP probing device has been calibrated by the Highways Agency to provide a profile of CBR values over a range of depths.

INSTRUMENTATION

The most common form of instrument used in site investigation is either the standpipe or else the standpipe piezometer which can be installed in investigation holes. They are used to facilitate monitoring of groundwater levels and water sampling over a period of time following site work. Normally a standpipe would be formed using rigid plastic tubing which has been perforated or slotted over much of its length whilst a standpipe piezometer would have a filter tip which would be placed at a selected level and the hole sealed above and sometimes below to isolate the zone of interest. Groundwater levels are determined using an electronic "dip meter" to measure the depth to the water surface from ground level. Piezometers can also be used to measure permeability. They are simple and inexpensive instruments for long term monitoring but response times can limit their use in tidal areas and access to the ground surface at each instrument is necessary. Remote reading requires more sophisticated hydraulic, electronic or pneumatic equipment.

Settlement can be monitored using surface or buried target plates whilst lateral movement over a range of depths is monitored using slip indicator or inclinometer equipment.

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13. Whilst the report may express an opinion on possible configurations of strata between or beyond exploratory holes, or on the possible presence of features based on either visual, verbal, written, cartographical, photographic or published evidence, this is for guidance only and no liability can be accepted for its accuracy.
14. The Code of Practice for Ground Investigations – BS 5930:2015 calls for man-made soils to be described as Anthropogenic Ground with soils placed in an un-controlled manner classified as Made Ground and soils placed in a controlled manner as Fill. In view of the difficulty in always accurately determining the origin of man-made soils in exploratory holes, Geotechnics Limited classify such materials as Made Ground. Where soils can be clearly identified as being placed in a controlled manner then further classification of the soils as Fill has been added to the Exploratory Hole Records.
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19. Any bearing capacities for conventional spread foundations which are given in the report and interpreted from the investigation are for bases at a minimum depth of 1m below finished ground level in naturally occurring strata and at broadly similar levels throughout individual structures, unless otherwise stated. Typically they are based on serviceability criteria taking account of an assessment of the shear strength and/or density data obtained by the investigation. The foundations should be designed in accordance with the good practice embodied in BS 8004:2015 - Foundations, supplemented for housing by NHBC Standards. Foundation design is an iterative process and bearing pressures may need adjustment or other measures may need to be taken in the context of final layouts and levels prior to finalisation of proposals.
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